



PennState

UNDERGRADUATE BULLETIN

2024-25

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To view a current list of changes to the 2024-25 Undergraduate Bulletin since that date, please visit the [Changes to the UG Bulletin page](#).

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Black Diaspora Studies, Minor	1185	Integrated Social Sciences, B.S.	1301
Business and the Liberal Arts, Minor	1185	International Politics, B.A.	1304
Chinese Language, Minor	1187	Italian, B.A.	1315
Chinese, B.A.	1188	Italian, B.S.	1319
Classics and Ancient Mediterranean Studies, B.A.	1192	Italian, Minor	1322
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Communication Arts and Sciences, B.A. (Liberal Arts) ...	1200	Japanese, B.A.	1324
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Economics, Minor	1244	Law and Society, B.A.	1363
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English, Minor (Liberal Arts)	1250	Linguistics, B.A.	1368
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French and Francophone Studies, B.S.	1261	Medieval Studies, Minor	1378
French and Francophone Studies, Minor	1267	Middle East Studies, B.A.	1379
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Philosophy, B.S.	1419	Business, B.S. (Abington)	1563
Philosophy, Minor	1422	Chemical Dependency Prevention and Counseling, Certificate	1576
Political Science, B.A. (Liberal Arts)	1423	Computer Science, B.S. (Abington)	1577
Political Science, B.S.	1429	Corporate Communication, B.A. (Abington)	1586
Political Science, Minor	1434	Criminal Justice, B.A. (Abington)	1591
Politics and Public Policy, Minor	1435	Criminal Justice, B.S. (Abington)	1597
Portuguese, Minor	1438	Cybersecurity Analytics and Operations, B.S. (Abington)	1602
Psychology, B.A. (Liberal Arts)	1439	English, B.A. (Abington)	1607
Psychology, B.S. (Liberal Arts)	1445	Finance, B.S. (Abington)	1612
Psychology, Minor	1453	Health Humanities, B.A.	1615
Public Policy and Leadership Across Sectors, Minor	1456	Health Humanities, B.S.	1619
Religious Studies, Minor	1457	History, B.A. (Abington)	1622
Rhetoric, Minor	1458	Information Technology, B.S. (Abington)	1626
Russian, B.A.	1459	Integrative Arts, B.A. (Abington)	1639
Russian, Minor	1463	Integrative Science, B.S. (Abington)	1642
Sexuality and Gender Studies, Minor	1464	Mathematics Applications, Minor	1652
Small Group Conflict and Collaboration, Certificate	1466	Multidisciplinary Studies, A.A. (Abington)	1653
Social Data Analytics, B.S.	1466	Multidisciplinary Studies, B.A. (Abington)	1658
Sociology, B.A.	1471	Project and Supply Chain Management, B.S. (Abington)	1662
Sociology, B.S. (Liberal Arts)	1476	Psychological and Social Sciences, B.A.	1668
Sociology, Minor	1482	Psychological and Social Sciences, B.S.	1671
Spanish, B.A.	1484	Public History, Minor	1675
Spanish, B.S.	1488	Race and Ethnic Studies, B.A.	1676
Spanish, Minor	1495	Recreation, Park, and Tourism Management, B.S. (Abington)	1679
Teaching English to Speakers of Other Languages, Minor	1497	Rehabilitation and Human Services, B.S. (Abington)	1685
Technical Writing, Minor	1499	Penn State Altoona, The Altoona College	1689
Women's Studies, B.A.	1500	Accounting, B.S. (Altoona)	1692
Women's Studies, B.S.	1504	AutoCAD, Certificate	1696
Women's Studies, Minor	1508	Biology, B.S. (Altoona)	1696
World Literature, Minor	1511	Business Administration, A.S. (Altoona)	1710
Nursing	1512	Business, B.S. (Altoona)	1717
Nursing Forensics, Certificate	1514	Communications, B.A. (Altoona)	1728
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Penn State Abington, The Abington College	1529	Criminal Justice, B.S. (Altoona)	1741
Accounting, B.S. (Abington)	1531	Criminal Justice, Minor	1746
American Studies, B.A. (Abington)	1535		
Art, B.A. (Abington)	1539		
Biology, B.S. (Abington)	1543		

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Dance Studies, Minor	1755	Foundations of Organizational Leadership, Certificate ...	1921
Electro-Mechanical Engineering Technology, B.S. (Altoona)	1756	Global Studies, B.A.	1922
Elementary and Kindergarten Education, B.S. (Altoona)	1761	Global Studies, Minor	1926
English, B.A. (Altoona)	1764	Hospitality Management, B.S. (Berks)	1927
Entrepreneurship, Minor	1769	Information Sciences and Technology, A.S. (Berks)	1932
Environmental Studies, B.A.	1770	Information Technology, B.S. (Berks)	1940
Environmental Studies, B.S.	1773	Integrative Science, B.S. (Berks)	1955
Environmental Studies, Minor	1776	Keystone Certificate for Integrative Humanities, Certificate	1963
Global Language and Culture, Minor	1777	Kinesiology, B.S. (Berks)	1968
History, B.A. (Altoona)	1779	Mechanical Engineering, B.S. (Berks)	1975
Human Development and Family Studies, A.S. (Altoona)	1782	Multidisciplinary Studies, A.A. (Berks)	1979
Human Development and Family Studies, B.S. (Altoona)	1786	Occupational Therapy, A.S. (Berks)	1984
Information Systems Auditing, Certificate	1793	Psychology, B.A. (Berks)	1989
Information Systems Security, Certificate	1794	Psychology, B.S. (Berks)	1995
Information Technology, B.S. (Altoona)	1794	Security and Risk Analysis, B.S. (Berks)	2003
Kinesiology, B.S. (Altoona)	1802	Social Justice, Certificate	2008
Mechanical Engineering, B.S. (Altoona)	1810	Spanish for Healthcare, Certificate	2008
Multidisciplinary Studies, A.A. (Altoona)	1814	Writing and Digital Media, B.A.	2009
Multidisciplinary Studies, B.A. (Altoona)	1819	Writing and Digital Media, Minor	2013
Psychology, B.A. (Altoona)	1824	Penn State Erie, The Behrend College	2014
Psychology, B.S. (Altoona)	1830	Accounting, B.S. (Behrend)	2017
Rail Transportation Engineering, B.S.	1837	Accounting, Minor	2021
Science, A.S.	1840	Actuarial Mathematics and Statistics, Certificate	2023
Security and Risk Analysis, B.S. (Altoona)	1842	Advertising, Certificate	2024
Visual Art Studies, B.A.	1847	Applied Economics, Minor	2025
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Penn State Berks, The Berks College	1851	Behavioral Health and Counseling Psychology, Certificate	2027
Accounting, B.S. (Berks)	1853	Biology, B.S. (Behrend)	2028
Biochemistry and Molecular Biology, B.S. (Berks)	1857	Business Economics, B.S.	2042
Biology, B.S. (Berks)	1862	Chemistry, B.S. (Behrend)	2046
Business Administration, A.S. (Berks)	1874	Child Development, Certificate	2055
Business, B.S. (Berks)	1880	Communication Arts and Mass Media, Minor	2056
Communication Arts and Sciences, B.A. (Berks)	1892	Communication, B.A. (Behrend)	2058
Criminal Justice, B.A. (Berks)	1897	Computer Engineering, B.S. (Behrend)	2061
Criminal Justice, B.S. (Berks)	1902	Computer Engineering, Minor (Behrend)	2065
Cybersecurity Analytics and Operations, B.S. (Berks)	1907	Computer Science, B.S. (Behrend)	2066
Electro-Mechanical Engineering Technology, B.S. (Berks)	1913	Computer Science, Minor (Behrend)	2070
		Creative Writing, B.F.A.	2072
		Crime, Law, and Psychology, Minor	2075

Crime, Psychology, and Public Policy, Certificate	2076	Media Production, Minor	2195
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Environmental Science, B.S.	2110	Project and Supply Chain Management, B.S. (Behrend)	2224
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Financial Controllership, Certificate	2121	Psychological Science, Minor	2232
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Financial Risk Management, Certificate	2124	Psychology, B.S. (Behrend)	2237
Functional Data Analytics, B.S.	2125	Public Relations, Certificate	2243
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International Business, B.S.	2158	Biobehavioral Health, B.S. (Capital)	2294
Management Information Systems, B.S. (Behrend)	2162	Biology, B.S. (Capital)	2300
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Marketing, B.S. (Behrend)	2167	Business Administration, Minor	2318
Marketing, Minor	2171	Civil Engineering, B.S. (Capital)	2319
Mathematics, B.S. (Behrend)	2172	Communication Sciences and Disorders, B.S. (Capital) .	2323
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Mechanical Engineering, B.S. (Behrend)	2191	Criminal Justice, A.S. (Capital)	2340

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Cybersecurity Analytics and Operations, B.S. (Capital) ..	2347	Writing, Minor	2525
Electrical Engineering Technology, B.S. (Capital)	2354	Smeal College of Business	2526
Electrical Engineering, B.S. (Capital)	2360	Accounting, B.S. (Business)	2529
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UNDERGRADUATE BULLETIN

This is the official Undergraduate Bulletin of The Pennsylvania State University.

The University Faculty Senate has responsibility for, and authority over, all academic information contained in the Undergraduate Bulletin.

Each step of the educational process, from admission through graduation, requires continual review and approval by University officials. The University, therefore, reserves the right to change the requirements and regulations contained in this Bulletin and to determine whether a student has satisfactorily met its requirements for admission or graduation, and to reject any applicant for any reason the University determines to be material to the applicant's qualifications to pursue higher education.

Archive

This section contains archived editions of the Undergraduate Bulletin. A new edition of the Undergraduate Bulletin is published at the beginning of the summer semester each year. At that time, the Undergraduate Bulletin edition from the previous academic year is archived. You can visit this page to access past editions of the Undergraduate Bulletin.

Which Bulletin Should I Use?

General Education Requirements, University Degree Requirements, and Program Requirements

Beginning summer 2019, the official record of general education requirements, University degree requirements, and program requirements is found in the Bulletin that matches the semester in which you **enrolled at Penn State**.

Prior to summer 2019, the official record of general education requirements and University degree requirements was located in the Bulletin that matches the semester in which you enrolled at Penn State and program requirements were located in the Bulletin for the semester in which you were admitted into the major program.

Past Bulletins

- 2023-24 Undergraduate Bulletin (coming soon)
- 2022-23 Undergraduate Bulletin (<https://bulletins.psu.edu/archive/2022-2023/undergraduate/>)
- 2021-22 Undergraduate Bulletin (<https://bulletins.psu.edu/archive/2021-2022/undergraduate/>)
- 2020-21 Undergraduate Bulletin (<https://bulletins.psu.edu/archive/2020-2021/undergraduate/>)
- 2019-20 Undergraduate Bulletin (<https://bulletins.psu.edu/archive/2019-2020/undergraduate/>)
- 2018-19 Undergraduate Bulletin (<https://bulletins.psu.edu/archive/2018-19/undergraduate/>)
- 2017-18 Undergraduate Bulletin (<https://bulletins.psu.edu/undergraduate/archive/undergraduate-2017-18.pdf>)
- 2016-17 Undergraduate Bulletin (<https://bulletins.psu.edu/undergraduate/archive/undergraduate-2016-17.pdf>)
- 2015-16 Undergraduate Bulletin (<https://bulletins.psu.edu/undergraduate/archive/undergraduate-2015-16.pdf>)
- 2014-15 Undergraduate Bulletin (<https://bulletins.psu.edu/undergraduate/archive/undergraduate-2014-15.pdf>)

- 2013-14 Undergraduate Bulletin (<https://bulletins.psu.edu/undergraduate/archive/undergraduate-2013-14.pdf>)
- 2012-13 Undergraduate Bulletin (<https://bulletins.psu.edu/undergraduate/archive/undergraduate-2012-13.pdf>)
- 2011-12 Undergraduate Bulletin (<https://bulletins.psu.edu/undergraduate/archive/undergraduate-2011-12.pdf>)
- 2010-11 Undergraduate Bulletin (<https://bulletins.psu.edu/undergraduate/archive/undergraduate-2010-11.pdf>)
- 2009-10 Undergraduate Bulletin (<https://bulletins.psu.edu/undergraduate/archive/undergraduate-2009-10.pdf>)
- 2007-08 Undergraduate Bulletin (<https://bulletins.psu.edu/undergraduate/archive/undergraduate-2007-08.pdf>)

Campuses

Penn State has more than twenty campuses across Pennsylvania that serve students and communities as we carry out our mission of teaching, research, and service. Through its network of undergraduate campuses and World Campus, Penn State provides students the opportunity to begin and complete a Penn State degree at one campus, transition to complete a degree at another campus or complete a program completely online—this is the hallmark of Penn State's unique one University concept.

The University Park campus, the administrative and research hub of the University is the largest of Penn State's campuses. Across Pennsylvania, Penn State campuses play a critical role in the land-grant mission of the University, by providing access and opportunity—a commitment that remains at the core of each campus's mission. In addition to providing the first two years of more than 160 Penn State majors, campuses confer nearly 5,000 Penn State degrees annually to students who complete their academic programs at a Penn State campus.

Penn State Campuses Include:

Abington

At Penn State Abington, students experience a vibrant college environment combined with the resources of a world-class research university. Located on 45 wooded acres just 15 miles north of Center City Philadelphia, we offer an affordable, accessible, and high-impact education resulting in the success of a diverse student body.

With more than 3,000 students, Penn State Abington is a residential campus that offers four-year degrees in 23 majors—or the first two years of more than 275 Penn State majors—undergraduate research, the Abington and Schreyer honors programs, study abroad, NCAA Division III athletics, continuing education and graduate programs, and more.

SEE ALL PROGRAMS OFFERED AT THE ABINGTON CAMPUS (https://bulletins.psu.edu/programs/#filter=filter_20&filter_70)

Altoona

Situated in the Allegheny Mountains of Central Pennsylvania, 40 miles from the University Park campus, Penn State Altoona provides the advantages of an intimate college teaching environment with the readily available resources of a major research university. Penn State Altoona enrolls over 2,500 students and offers 21 baccalaureate and 5 associate degree programs. The campus provides students with accessible education, individualized experiences, and lifelong learning skills that position them to forge their own pathways to personal and professional success.

SEE ALL PROGRAMS OFFERED AT THE ALTOONA CAMPUS (https://bulletins.psu.edu/programs/#filter=filter_20&filter_71)

Beaver

Penn State Beaver serves a diverse population of approximately 700 students, a relaxed environment with an array of baccalaureate degrees, on-campus housing, and varsity sports—all just 35 miles northwest of Pittsburgh.

SEE ALL PROGRAMS OFFERED AT THE BEAVER CAMPUS (https://bulletins.psu.edu/programs/#filter=filter_20&filter_72)

Berks

Nestled on 258 beautifully landscaped acres in Berks County and easily accessible from anywhere in eastern Pennsylvania and neighboring states, Penn State Berks is a residential campus that serves a diverse student body. The college offers many opportunities for undergraduate research and hundreds of internships. Students enjoy a rich campus life with Division III athletics, club and intramural sports, and more than 50 clubs and organizations.

SEE ALL PROGRAMS OFFERED AT THE BERKS CAMPUS (https://bulletins.psu.edu/programs/#filter=filter_20&filter_73)

Brandywine

Penn State Brandywine, located near Philadelphia, provides the charm and intimacy of a small campus and the resources of a major research university. The campus offers a broad portfolio of baccalaureate and associate degrees, undergraduate research, internships, global programs, intercollegiate athletics, and a variety of student clubs. Students live in on-campus housing or commute to campus from nearby communities.

SEE ALL PROGRAMS OFFERED AT THE BRANDYWINE CAMPUS (https://bulletins.psu.edu/programs/#filter=filter_20&filter_74)

DuBois

Penn State DuBois is a small, commuter-based campus that offers baccalaureate and associate degrees, cutting-edge technology, faculty expertise, and dedication to excellence. The campus has about 600 students and is located near I-80 in north central Pennsylvania.

SEE ALL PROGRAMS OFFERED AT THE DUBOIS CAMPUS (https://bulletins.psu.edu/programs/#filter=filter_20&filter_75)

Erie

Penn State Erie, The Behrend College, is just minutes away from the heart of Erie, the fourth largest city in Pennsylvania. The 854-acre wooded campus offers a student-centered learning environment and unique educational experience to more than 4,500 undergraduate and graduate students.

SEE ALL PROGRAMS OFFERED AT THE ERIE CAMPUS (https://bulletins.psu.edu/programs/#filter=filter_20&filter_76)

Fayette

Penn State Fayette, The Eberly campus, offers an array of bachelor's and associate degrees to about 700 students. Its beautiful 100-acre campus in Pennsylvania's Laurel Highlands is the former site of an 1800's-era farmstead.

SEE ALL PROGRAMS OFFERED AT THE FAYETTE CAMPUS (https://bulletins.psu.edu/programs/#filter=filter_20&filter_77)

Greater Allegheny

At Penn State Greater Allegheny, about 600 students enjoy the suburban environment and the neighboring city life in Pittsburgh. The campus offers baccalaureate and associate programs, residence halls, a diverse student body, athletics, and more.

SEE ALL PROGRAMS OFFERED AT THE GREATER ALLEGHENY CAMPUS (https://bulletins.psu.edu/programs/#filter=filter_20&filter_78)

Harrisburg

Penn State Harrisburg is an undergraduate college and graduate school of the University. The Harrisburg campus enrolls nearly 5,000 students and offers more than 75 associate, bachelor's, master's, and doctoral degree programs. Penn State Harrisburg is located on a suburban campus in Middletown, Pennsylvania, eight miles east of Harrisburg, Pennsylvania's state capital.

SEE ALL PROGRAMS OFFERED AT THE HARRISBURG CAMPUS (https://bulletins.psu.edu/programs/#filter=filter_20&filter_79)

Hazleton

At Penn State Hazleton, about 800 students enjoy a residential campus located in the heart of the Pocono Mountains in northeastern Pennsylvania. Students have the opportunity to select from baccalaureate and associate degrees, to learn in state-of-the-art classrooms and labs, all the while being centrally located from New York City, Philadelphia, and University Park.

SEE ALL PROGRAMS OFFERED AT THE HAZLETON CAMPUS (https://bulletins.psu.edu/programs/#filter=filter_20&filter_80)

Lehigh Valley

Penn State Lehigh Valley offers world-class education and opportunities both in and out of the classroom to about 900 students on a small campus near Allentown. Students have access to an array of baccalaureate programs and one associate program in the area's thriving athletic and cultural attractions.

SEE ALL PROGRAMS OFFERED AT THE LEHIGH VALLEY CAMPUS (https://bulletins.psu.edu/programs/#filter=filter_20&filter_81)

Mont Alto

Penn State Mont Alto offers a world-class education on an intimate campus that includes an arboretum. The campus enrolls about 950 students, offers baccalaureate and associate programs, offers residence halls, and is located 30 minutes from Gettysburg and 90 minutes from Washington, D.C. and Baltimore, Md.

SEE ALL PROGRAMS OFFERED AT THE MONT ALTO CAMPUS (https://bulletins.psu.edu/programs/#filter=filter_20&filter_82)

New Kensington

Penn State New Kensington offers an array of degrees, undergraduate research, clubs, and athletics to about 650 students who can complete baccalaureate and associate degree programs. The 72-acre wooded campus is located just 17 miles from Pittsburgh.

SEE ALL PROGRAMS OFFERED AT THE NEW KENSINGTON CAMPUS (https://bulletins.psu.edu/programs/#filter=filter_20&filter_83)

Schuylkill

Located in north central Pennsylvania, Penn State Schuylkill is close to cities such as Harrisburg, Philadelphia, and New York. The campus has about 800 students and offers baccalaureate and associate programs a world-class education in a small-town setting.

SEE ALL PROGRAMS OFFERED AT THE SCHUYLKILL CAMPUS (https://bulletins.psu.edu/programs/#filter=filter_20&filter_84)

Scranton

Penn State Scranton provides a welcoming environment to about 1,100 students on its campus in northeastern Pennsylvania. The campus provides many baccalaureate and associate program and strives to provide innovative instruction to help students achieve their potential.

SEE ALL PROGRAMS OFFERED AT THE SCRANTON CAMPUS (https://bulletins.psu.edu/programs/#filter=filter_20&filter_85)

Shenango

Located near the Pennsylvania/Ohio border, Penn State Shenango combines quality academics with the personal attention of a small campus. The campus has about 500 students, delivers baccalaureate and associate programs and is committed to serving the people of northwestern Pennsylvania.

SEE ALL PROGRAMS OFFERED AT THE SHENANGO CAMPUS (https://bulletins.psu.edu/programs/#filter=filter_20&filter_86)

University Park

The largest Penn State campus offers academics, activities, and recreation in the classic college town of State College. University Park is home to a diverse population of over 40,000 undergraduate students. Located in central Pennsylvania, students enjoy passing iconic buildings like Old Main daily, while also taking advantage of amenities in new facilities like the Information Sciences and Technology Building or the Life Sciences Building.

SEE ALL PROGRAMS OFFERED AT THE UNIVERSITY PARK CAMPUS (https://bulletins.psu.edu/programs/#filter=filter_20&filter_87)

Wilkes-Barre

Penn State Wilkes-Barre offers the advantages of an intimate campus atmosphere combined with the resources of a major research university. The campus has about 550 students, offers baccalaureate and associate programs, and is located on a scenic estate in northeastern Pennsylvania.

SEE ALL PROGRAMS OFFERED AT THE WILKES-BARRE CAMPUS (https://bulletins.psu.edu/programs/#filter=filter_20&filter_88)

World Campus

Penn State World Campus is the online campus of Penn State. It enrolls nearly 18,000 students in degree and certificate programs offered by Penn State's academic units and colleges. World Campus offers its students a full array of services, including orientation, academic advising, career counseling resources, technical support, and tutorials.

SEE ALL PROGRAMS OFFERED AT THE WORLD CAMPUS (https://bulletins.psu.edu/programs/#filter=filter_20&filter_89)

York

Penn State York has about 1,100 students and offers baccalaureate and associate programs and a wealth of stimulating intellectual, cultural, and historically-significant learning experiences in a welcoming, state-of-the-art campus environment in southern Pennsylvania.

SEE ALL PROGRAMS OFFERED AT THE YORK CAMPUS (https://bulletins.psu.edu/programs/#filter=filter_20&filter_90)

2+2 Plan

Penn State's campuses throughout Pennsylvania give you the freedom to live and learn in an environment that suits you best.

Some students choose to remain at one campus for all four years, while other students spend their first two years at one campus and transition to another for their remaining two years. To transition between campuses, the only requirement is that you meet the entrance to major requirements for your selected major. The vast majority of our majors can be completed in this fashion. We call it the 2+2 plan and it's the most common path to a Penn State degree-about 60 percent of our students opt for this path in a typical year.

Students choose this path for many reasons; some for the chance to stay close to home, others to save money. Still others are looking for a particular campus environment, perhaps smaller classes, or particular sports. Whatever their reason and wherever their campus, they are excited to embark on their Penn State experience.

MORE INFORMATION ABOUT THE 2+2 PLAN (<https://admissions.psu.edu/pennstate/2plus2plan/>)

Colleges and Enrollment Units

Academic colleges at Penn State grant degrees and are generally organized around their subject matter. All Penn State majors are divided among academic colleges, which are the units from which students receive their degrees. The Division of Undergraduate Studies is the academic home for students exploring multiple academic programs before committing to a course of study.

Browse below to learn more about the University's diverse academic offerings.

- Agricultural Sciences
- Arts and Architecture
- Division of Undergraduate Studies
- Donald P. Bellisario College of Communications
- Earth and Mineral Sciences
- Eberly College of Science
- Education
- Engineering
- Health and Human Development
- Information Sciences and Technology
- Intercollege
- Liberal Arts
- Nursing
- Penn State Abington, The Abington College
- Penn State Altoona, The Altoona College
- Penn State Berks, The Berks College

- Penn State Erie, The Behrend College
- Penn State Harrisburg, The Capital College
- Smeal College of Business
- University College

Special Academic Programs

- Joint Service ROTC
- Schreyer Honors College

Agricultural Sciences

About the College

Richard Roush, Dean, College of Agricultural Sciences

The College of Agricultural Sciences was the first college established at Penn State and awarded the nation's first baccalaureate degrees in agriculture in 1861. The college offers 17 undergraduate majors, 23 minors, three two-year programs and two certificate programs. Students can earn degrees related to animal and plant sciences; ecosystems and the environment; food and fuel; human and veterinary health and medicine; business, government, and nonprofits; teaching and extension; engineering; and more. Over 3,000 undergraduate students across the commonwealth call the college home. 80 percent are from non-agricultural backgrounds. Each year, the college invests \$97 million into research and graduate study and \$2.5 million into student scholarships. Penn State Extension, which fulfills the University's responsibility as Pennsylvania's designated land-grant institution, is administered through the college. Penn State Extension disseminates University expertise and resources to address the social, educational, and physical needs of citizens in each of the state's 67 counties.

MORE INFORMATION ABOUT THE COLLEGE (<https://agsci.psu.edu/about/>)

Mission and Goals

The mission of Penn State's College of Agricultural Sciences is to discover, integrate, translate, and disseminate knowledge to enhance the food and agricultural system, natural resources and environmental stewardship, and economic and social well-being, thereby improving the lives of people in Pennsylvania, the nation, and the world. Our goal is to assert leadership and foster innovation through organizational improvement and change. By strategic investment of resources, we aim to address the changing needs of the Commonwealth.

MORE INFORMATION ABOUT THE MISSION AND GOALS OF THE COLLEGE OF AGRICULTURAL SCIENCES (<https://agsci.psu.edu/about/strategic/>)

Departments and Schools

Department of Agricultural and Biological Engineering

Founded in 1930, the Department of Agricultural and Biological Engineering in Penn State's Colleges of Agricultural Sciences and Engineering, provides high quality engineering education, research, and outreach. Our mission is to advance the engineering sciences, business, and technical management of biological and agricultural systems by promoting scholarship and engaging our students and stakeholders.

MORE INFORMATION ABOUT THE DEPARTMENT OF AGRICULTURAL AND BIOLOGICAL ENGINEERING (<https://abe.psu.edu>)

Department of Agricultural Economics, Sociology, and Education

The scholarship in AESE is related to people, society, and economic systems grounded in theory and methods from the social, behavioral and economic sciences. We develop and employ approaches to discover fundamental and applied principles that advance science and improve the health, prosperity and welfare of people in Pennsylvania and beyond.

MORE INFORMATION ABOUT THE DEPARTMENT OF AGRICULTURAL ECONOMICS, SOCIOLOGY, AND EDUCATION (<https://aese.psu.edu>)

Department of Animal Science

The Department of Dairy and Animal Science originated in 1887, when Henry Armsby became director of the Agricultural Experiment Station. Today the department encompasses all food production animals and companion animals. We offer world-class teaching, research, and extension programs in a variety of key areas in animal agriculture and the food system.

MORE INFORMATION ABOUT THE DEPARTMENT OF ANIMAL SCIENCE (<https://animalscience.psu.edu>)

Department of Ecosystem Science and Management

The Department of Ecosystem Science and Management is Pennsylvania's leader in preparing students for careers in sustainable management of natural resources. We conduct research to create new knowledge about forests, wildlife and fisheries, soils, and watersheds, and disseminate that knowledge through the classroom and extension education programs serving various stakeholders.

MORE INFORMATION ABOUT THE DEPARTMENT OF ECOSYSTEM SCIENCE AND MANAGEMENT (<https://ecosystems.psu.edu>)

Department of Entomology

The diverse members of the Department of Entomology investigate fundamental and applied biological questions from the level of the molecule to population and community. Our mission is to conduct outstanding research on insect science that will improve human health, quality of life, and the sustainability of our food and ecosystems.

MORE INFORMATION ABOUT THE DEPARTMENT OF ENTOMOLOGY (<https://ento.psu.edu>)

Department of Food Science

The Department of Food Science at Penn State is one of the premier food science departments in the country. Our undergraduate food science major offers students hands-on science dealing with real-world applications; small, friendly atmosphere; world-class internship experiences; excellent scholarship opportunities, and near-100% job placement.

MORE INFORMATION ABOUT THE DEPARTMENT OF FOOD SCIENCE (<https://foodscience.psu.edu>)

Department of Plant Pathology and Environmental Microbiology

The Department of Plant Pathology provides students with top-ranked educational and research opportunities in a collegial and friendly atmosphere. A major goal of our department is to support growth of healthy plants in order to beautify our living spaces, sustain our food supply, and maintain an inhabitable ecosystem.

MORE INFORMATION ABOUT THE DEPARTMENT OF PLANT PATHOLOGY AND ENVIRONMENTAL MICROBIOLOGY (<https://plantpath.psu.edu>)

Department of Plant Science

The Department of Plant Sciences encompasses horticulture, agronomy and crops and soils sciences. Our mission is to enhance our understanding and management of agronomic and horticultural crops and managed landscapes that are the foundation for managed ecosystems, food and fiber production, landscapes and environmental quality to enhance human environments.

MORE INFORMATION ABOUT THE DEPARTMENT OF PLANT SCIENCE (<https://plantscience.psu.edu>)

Department of Veterinary and Biomedical Sciences

The Department of Veterinary and Biomedical Sciences at Penn State achieves excellence in research, teaching, and outreach in biomedical sciences and veterinary medicine. Our Department offers three undergraduate degrees at Penn State: Immunology and Infectious Disease, Toxicology, and Veterinary and Biomedical Sciences.

MORE INFORMATION ABOUT THE DEPARTMENT OF VETERINARY AND BIOMEDICAL SCIENCES (<https://vbs.psu.edu>)

Baccalaureate Degrees

- Agribusiness Management, B.S.
- Agricultural and Biorenewable Systems Management, B.S.
- Agricultural and Extension Education, B.S.
- Agricultural Science, B.S.
- Animal Science, B.S.
- Community, Environment, and Development, B.S.
- Environmental Resource Management, B.S.
- Food Science, B.S.
- Forest Ecosystem Management, B.S.
- Immunology and Infectious Disease, B.S.
- Landscape Contracting, B.S.
- Pharmacology and Toxicology, B.S.
- Plant Sciences, B.S.
- Turfgrass Science, B.S.
- Veterinary and Biomedical Sciences, B.S.
- Wildlife and Fisheries Science, B.S.

Associate Degrees

- Forest Technology, A.S.
- Turfgrass Science and Management, A.S.
- Wildlife Technology, A.S.

Minors

- Agribusiness Management, Minor
- Agricultural Systems Management, Minor
- Agronomy, Minor
- Animal Science, Minor
- Arboriculture, Minor
- Entomology, Minor
- Environmental and Renewable Resource Economics, Minor
- Environmental Resource Management, Minor

- Environmental Soil Science, Minor
- Equine Science, Minor
- Food Systems, Minor
- Forest Ecosystems, Minor
- Horticulture, Minor
- International Agriculture, Minor
- Leadership Development, Minor
- Mushroom Science and Technology, Minor
- Off-Road Equipment, Minor
- One Health, Minor
- Plant Pathology, Minor
- Poultry and Avian Science, Minor
- Wildlife and Fisheries Science, Minor

Certificates

- Agricultural Stewardship and Conservation, Certificate
- Community Forestry, Certificate
- Turfgrass Management, Advanced, Certificate
- Turfgrass Management, Basic, Certificate

College Procedures

Change of Campus

All students who begin their studies at one of the Penn State campuses are expected to complete their first two years at that campus. Students may request a temporary or permanent change of campus via LionPATH. More information about the change-of-campus process can be found at our website.

MORE INFORMATION ABOUT CHANGE OF CAMPUS (<https://agsci.psu.edu/students/advising/commonwealth-campus/change-of-campus-policies-and-procedures/>)

Concurrent Majors

A Concurrent Majors Program is one in which students take courses to concurrently meet the requirements of at least two majors, with graduation for all majors in the program occurring during the same semester.

To add a concurrent major in the College of Agricultural Sciences, students must:

1. Initiate the "Add Major" function in LionPATH (Update Academics)
2. Complete both paper forms (the university form and the college form)
3. Once the forms are completed and submitted, the LionPATH approval can take place.

READ SENATE POLICY 60-00: COMPLETING MORE THAN ONE UNDERGRADUATE MAJOR PROGRAM (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/60-00-completing-more-than-one-undergraduate-program/#60-00>)

Academic Warning

A student who fails to earn a 2.00 cumulative grade-point average will be placed on academic warning. A student placed on academic warning will have a hold placed on registration and will be required to meet with an academic adviser in order for this registration hold to be removed. To

remove academic warning, the cumulative grade-point average must be 2.00 or higher.

Students in Academic Warning should work closely with their assigned academic adviser or the College of Agricultural Sciences Advising Center to identify and address issues impacting their academic success.

READ SENATE POLICY 54-20: ACADEMIC WARNING (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-20>)

Academic Suspension

A student in academic warning who fails to maintain a semester grade-point average of 2.00 or higher will be academically suspended. A student who has been academically suspended may not schedule courses at the University for two consecutive semesters. (Note: Summer session is equal to one semester.)

Students who are academically suspended should work closely with their assigned academic adviser or the College of Agricultural Sciences Advising Center to develop a success plan that will be implemented during suspension. At the conclusion of suspension, students must apply for re-enrollment and submit the required materials for college review.

READ SENATE POLICY 54-40: ACADEMIC SUSPENSION (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-40>)

Resources

Career Services and Experiential Learning

Students in the College of Agricultural Sciences are encouraged to seek out opportunities that will enrich their academic experience, outside of the classroom. The College of Agricultural Sciences offers programs and support for career readiness, including internship and job placement, undergraduate research opportunities, and professional growth and development.

MORE INFORMATION ABOUT CAREER SERVICES AND EXPERIENTIAL LEARNING (<https://agsci.psu.edu/students/careers/>)

Study Abroad

Where will your education take you? The college offers an array of international experiences aligned with your interests. Global experience broadens your horizons, giving you a deeper understanding of what you learn, prepares you professionally, and changes how you see the world. Visit our website for courses, programs, funding, and more!

MORE INFORMATION ABOUT STUDY ABROAD (<https://agsci.psu.edu/global/study-abroad/>)

Honors Programs Schreyer Honors College

The Schreyer Honors College, regarded as one of the nation's top programs of its kind, promotes achieving academic excellence with integrity, building a global perspective, and creating opportunities for leadership and civic engagement. Schreyer Scholars, including those admitted after their first or second year of enrollment, are a diverse and motivated group of approximately 2,000 students at University Park and 20 Commonwealth campuses. The College strives to educate students who will have an important and ethical influence in the world, to improve

educational practice, and to continue to be recognized as a leading force in honors education nationwide.

MORE INFORMATION ABOUT THE SCHREYER HONORS COLLEGE (<https://www.shc.psu.edu/>)

Contact

COLLEGE OF AGRICULTURAL SCIENCES
101 Agricultural Administration Bldg.
University Park, PA 16802
814-865-7521
AGAdvising@psu.edu

<https://agsci.psu.edu/>

Agribusiness Management, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park, World Campus

Program Description

Graduates can be found working in the food production, processing, financial services, wholesaling and retailing industries, both in the United States and abroad. A substantial number are employed by agricultural supply firms. Typically, B.S. degree holders begin their careers in sales or as management trainees, and then progress to management as they develop higher levels of expertise and experience. Penn State Agribusiness Management graduates chose careers in many other places. They also are employed in banking and the investment and mutual funds industries, and others have gone to law school, graduate school, or into rural development. The quality and diversity of the program enables Agribusiness majors to undertake a variety of jobs.

This major, which is offered jointly with The Mary Jean and Frank P. Smeal College of Business, includes a core of courses required of all business students. Combining the required specialization area with a minor or electives also allows a student to focus on a particular area of interest. Students complete course work in marketing, management, finance, and accounting at the Penn State Smeal College of Business and then roll up their sleeves and apply those concepts to the multibillion-dollar world food system. This is learning by doing. While focused on agriculture, this degree is an excellent preparation for business of every kind. More specifically they will exit the program with the following skills and attributes:

- **Marketing and Finance:** Students will have the capacity to apply agricultural and business marketing and finance principles to both domestic and international issues.
- **Interactions:** Students will have the capacity to describe key concepts in agricultural and business management, and explain how business management concepts can be applied to manage interactions with other parts of the food system and achieve a competitive advantage in the agricultural business world.
- **Communication:** Students will be able to explain solutions to challenges in agribusiness through both oral and written communication.
- **Teamwork:** Students will be able to work effectively to solve agricultural business problems as individuals and as members of teams.

What is Agribusiness Management?

Agribusiness Management is the branch of business management focusing on food and agriculture. It includes all the people and businesses that are part of value chains for food and agricultural products, and all the public and private institutions that influence the global food system.

You Might Like this Program If...

- You want to learn how to apply business principles to real-world issues, in which you have an opportunity to work closely with faculty and your fellow students
- You are interested in how the global food system works, and how to manage interactions among stakeholders in the food system
- You are a “people person” and you have a passion for food and agriculture
- You want to pursue a career in finance, management, sales/marketing, or commodity trading

University Park

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a 2.00 cumulative grade point average (GPA) for all courses taken at the University.
2. have third or higher semester classification; and
3. have taken MATH 110, or MATH 140, and have obtained a grade of C or higher

World Campus

Direct Admission to the Major

Incoming first-year students who meet the program admission requirements are admitted directly into the major. Admission restrictions may apply for change-of-major and/or change-of-campus students.

For more information about the admission process for this major, please send a request to the college, campus, or program contact (listed in the Contact tab).

Degree Requirements

For the Bachelor of Science degree in Agribusiness Management, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	5-9
Requirements for the Major	81-82

12-15 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GQ courses; 3-6 credits of GS courses; 3 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
AGBM 338	Agribusiness in the Global Economy	3
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
ECON 104	Introductory Macroeconomic Analysis and Policy	3
FIN 301	Corporation Finance	3
MGMT 301	Basic Management Concepts	3
MKTG 301	Principles of Marketing	3
SCM 301	Supply Chain Management	3
<i>Prescribed Courses: Require a grade of C or better</i>		
AGBM 102	Economics of the Food System	3
AGBM 106	Agribusiness Problem Solving	3
AGBM 302	Food Product Marketing	3
AGBM 308W	Strategic Decision Making in Agribusiness	3
AGBM 320	Markets and Prices: Analysis and Forecasting	3
ENGL 202D	Effective Writing: Business Writing	3
Additional Courses		
AGBM 407	Farm Planning and Financial Management	3
or AGBM 408	Financial Decision Making for Agribusiness	
Select one of the following:		3
AGBM 170	Investigating the U.S. Food System: How food moves from field to table	
RSOC 11	Intro Rural Sociology ¹	
SOC 1	Introductory Sociology	
Select one of the following:		3
IST 110	Information, People and Technology	
MIS 204	Introduction to Management Information Systems	
MIS 250	Introduction to Problem Solving with Spreadsheet Analysis and Information Systems Management	
SRA 111	Introduction to Security and Risk Analysis	
Select one of the following:		3-4
BA 243	Social, Legal, and Ethical Environment of Business	
BLAW 243	Legal Environment of Business	
BLAW 341	Business Law I: Introduction to Contracts, Liability Issues, and Intellectual Property	
BA 342	Socially Responsible, Sustainable and Ethical Business Practice	
Select 6 credits of 400-level AGBM courses (excluding, unless approved by the AGBM program, AGBM 495A, AGBM 495B, and AGBM 496.)		6
<i>Additional Courses: Require a grade of C or better</i>		
AGBM 101	Economic Principles of Agribusiness Decision Making ²	3
or ECON 102	Introductory Microeconomic Analysis and Policy	
MATH 110	Techniques of Calculus I	4
or MATH 140	Calculus With Analytic Geometry I	
SCM 200	Introduction to Statistics for Business	4
or STAT 200	Elementary Statistics	
Supporting Courses and Related Areas		
Select 12 credits in a specialty area, in consultation with an adviser (at least 6 of these credits must be at the 300 or 400 level)		12

¹ RSOC 11 required unless SOC 1 was taken before entering the AGBM major.

² AGBM 101 required unless ECON 102 was taken before entering the AGBM major.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Communication:** Students will be able to explain solutions to agribusiness management problems through persuasive oral and written communication.
- **Critical and Integrative Thinking:** Students will be able to think critically and utilize an integrated approach to analyze and solve agribusiness management problems.
- **Data Analysis:** Students will be able to analyze and solve agribusiness management problems using quantitative and qualitative measures.
- **Dealing with Ambiguity:** Students will be able to solve agribusiness management problems involving risk, uncertainty, and ambiguity.
- **Foundational and Functional Knowledge:** Students will be able to apply foundational and functional knowledge to recognize, analyze, and solve agribusiness management problems.
- **Teamwork:** Students will be able to work effectively to solve agribusiness management problems as individuals and as members of teams.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary

academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Jaclyn Gibboney

Academic Adviser
Armsby Building
University Park, PA 16802
814-865-0467
jag545@psu.edu

World Campus

Undergraduate Academic Advising

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University Park, PA 16802
814-863-3283
advising@outreach.psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Agribusiness Management, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
AGBM 170, RSOC 11, or SOC 1 [†]	3 ENGL 15, 30H, or ESL 15 ^{††}	3
MATH 110 or 140 ^{†##}	4 AGBM 106 [*]	3
AGBM 101 or ECON 102 [*]	3 ACCTG 211	4
AGBM 102 [*]	3 General Education Course (Exploration)	3
AGSC 100	1 General Education Course (GN)	3
Integrative Studies Course	3	
	17	16

Second Year

Fall	Credits Spring	Credits
AGBM 338 (IL)	3 AGBM 302 [*]	3
SCM 200 or STAT 200 ^{††}	4 ECON 104 [†]	3
General Education Course (Exploration)	3 General Education Course (GH)	3
Writing/Speaking (GWS)	3 Elective	3

Supporting Course ¹	3 Supporting Course ¹	3
	16	15

Third Year

Fall	Credits Spring	Credits
AGBM 320 [*]	3 AGBM 308W [*]	3
MKTG 301	3 FIN 301	3
IST 110, MIS 204, MIS 250, or SRA 111 (Information Systems)	3 MGMT 301	3
ENGL 202D ^{††}	3 General Education Course (GN- No Interdomain)	3
General Education Course (GA)	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
AGBM 400-level (excluding AGBM 495A, AGBM 495B, AGBM 496)	3 AGBM 400-level (excluding AGBM 495A, AGBM 495B, AGBM 496)	3
Integrative Studies Course	3 AGBM 407 or 408	3
BA 243, BLAW 243, BA 342, or BLAW 341	3-4 General Education Course (GHW)	1.5
SCM 301	3 Supporting Course (300-400 level) ¹	3
Supporting Course (300 - 400 level) ¹	3 Elective	2
General Education Course (GHW)	1.5	
	16.5-17.5	12.5

Total Credits 123-124

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ Select 12 credits in a specialty area, in consultation with an academic adviser (at least 6 of these credits must be at the 300-400 level).

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and

ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- To schedule most courses in the Smeal College of Business, you must be a declared AGBM major. Please see your academic adviser for more information.
- The Business Law Category consists of BLAW 243 or BA 243 or BLAW 341 and BA 342.
- Only 15 credits of General Education requirements may be applied toward major requirements.

Agribusiness Management, B.S. at Altoona Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 110 or 140 ^{‡#†}	4 MGMT 301	3
AGBM 170, RSOC 11, or SOC 1 [†]	3 ENGL 15 ^{‡†}	3
AG 150 (elective)	2 ACCTG 211	4
ECON 102 [*]	3 General Education Course (GN or GA)	3
General Education Course	3 General Education Course (AG 160 recommended)	3
	15	16

Second Year

Fall	Credits Spring	Credits
SCM 200 or STAT 200 (GQ) ^{‡†}	4 ECON 104 (GS) [†]	3
IST 110, MIS 204, MIS 250, or SRA 111 (Information Systems)	3 FIN 301	3
CAS 100 (GWS) ^{‡†}	3 SCM 301	3
MKTG 301	3 AGBM 106 [*]	3
Supporting Course ¹	3 General Education Course (GN, GA, or GH)	3
	16	15

Third Year

Fall	Credits Spring	Credits
AGBM 320 [*]	3 AGBM 302 [*]	3
AGBM 338 (IL)	3 AGBM 308W [*]	3
ENGL 202D (GWS) [‡]	3 General Education Course (GHW)	3
Supporting Course ¹	3 General Education Course (GN, GA, GH)	3
AGBM 102 [*]	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
AGBM 400-level (excluding AGBM 495A, AGBM 495B, AGBM 496)	3 AGBM 400-level (excluding AGBM 495A, AGBM 495B, AGBM 496)	3
General Education Course (GN, GA, GH)	3 AGBM 407 or 408	3
BA 243, 342, BLAW 243, or BLAW 341	3-4 Supporting Course (300-400 level) ¹	3
Supporting Course ¹	3 General Education Course (GN, GA, GH)	3
Elective	3 Elective	1-2
	15-16	13-14

Total Credits 120-122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Select 12 credits in a specialty area, in consultation with an academic adviser (at least 6 of these credits must be at the 400 level).

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- To schedule most courses is the Smeal College of Business, you must be a declared AGBM major. Please see your academic adviser for more information.
- Students should take AGBM 102 and AGBM 106 as early in their academic plan as possible.
- The Business Law Category consists of BLAW 243 or BA 243 or BLAW 341 and BA 342.
- Only 15 credits of General Education requirements may be applied toward major requirements.

Agribusiness Management, B.S. at Commonwealth Campuses (except Altoona)

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 110 or 140 ^{†#}	4 ACCTG 211	4
ENGL 15, 30H, or ESL 15 ^{††}	3 AGBM 101 or ECON 102 [*]	3
First Year Seminar	1-3 CAS 100 ^{††}	3
General Education Course	3 General Education Course (GHW)	1.5
General Education Course (GHW)	1.5 General Education Course	3
12.5-14.5		14.5

Second Year

Fall	Credits Spring	Credits
SCM 200 or STAT 200 ^{††}	4 MGMT 301	3
ECON 104 [†]	3 FIN 301	3
MGMT 301	3 BA 243, BLAW 243, BA 342, or BLAW 341	3-4
Elective	4 General Education Course	3
General Education Course	3 Elective	4
17		16-17

Third Year

Fall	Credits Spring	Credits
AGBM 102 [*]	3 AGBM 302 [*]	3
AGBM 106 [*]	3 AGBM 308W [*]	3
AGBM 170, RSOC 11, or SOC 1 [†]	3 IST 110, MIS 204, MIS 250, or SRA 111 (Information Systems)	3
SCM 301	3 Supporting Course (300-400 level) ¹	3
Supporting Course ¹	3 General Education Course	3
15		15

Fourth Year

Fall	Credits Spring	Credits
AGBM 400-level (excluding AGBM 495A, AGBM 495B, AGBM 496)	3 AGBM 400-level (excluding AGBM 495A, AGBM 495B, AGBM 496)	3
ENGL 202D ^{††}	3 AGBM 407 or 408	3
AGBM 320 [*]	3 Supporting Course ¹	3
AGBM 338 (IL)	3 Supporting Course (300-400 level) ¹	3
General Education Course	3 General Education Course	3
15		15

Total Credits 120-123

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Select 12 credits in a specialty area, in consultation with an academic adviser (at least 6 of these credits must be at the 400 level).

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- To schedule most courses is the Smeal College of Business, you must be a declared AGBM major. Please see your academic adviser for more information.
- The Business Law Category consists of BLAW 243 or BA 243 or BLAW 341 and BA 342.
- Only 15 credits of General Education requirements may be applied toward major requirements.

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Agribusiness Management, B.S. at World Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 110 ^{††}	4 AGBM 106 [*]	3
AGBM 101 or ECON 102 [*]	3 ACCTG 211	4
AGBM 102 [*]	3 ENGL 15 ^{††}	3
AGBM 170, RSOC 11, or SOC 1 [†]	3 Elective	2
	General Education Course	3
	13	15

Second Year

Fall	Credits Spring	Credits
STAT 200 ^{††}	4 ECON 104 [†]	3
CAS 100 ^{††}	3 AGBM 338	3
Specialty Area Course ¹	3 Specialty Area Course ¹	3
Elective	3 Elective	3
General Education Course	3 General Education Course	3
	16	15

Third Year

Fall	Credits Spring	Credits
AGBM 320 [*]	3 AGBM 302 [*]	3
MKTG 301W	3 AGBM 308W [*]	3
IST 110, MIS 204, MIS 250, or SRA 111 (Information Systems)	3 FIN 301	3
BA 243	4 MGMT 301	3
General Education Course	3 General Education Course	3
	16	15

Fourth Year

Fall	Credits Spring	Credits
ENGL 202D ^{††}	3 AGBM 408	3
SCM 301	3 AGBM 400-level (excluding AGBM 495A, AGBM 495B, AGBM 496)	3
AGBM 400-level (excluding AGBM 495A, AGBM 495B, AGBM 496)	3 Specialty Area Course ¹	3
Supporting Course ¹	3 General Education Course	3
General Education Course	3 General Education Course	3
	15	15

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Select 12 credits in a specialty area, in consultation with an academic adviser (at least 6 of these credits must be at the 300-400 level).

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

Agribusiness Management graduates have the skills and knowledge necessary to choose from a variety of fulfilling career paths in applied business management. Your career depends on the experience you make for yourself as a student. Faculty and professional academic advisers in the Agribusiness Management program support and serve students in career development and preparation, including career decision-making; tailoring the Agribusiness Management major to fit career goals; internship and job search strategies; interview preparation; and preparing for employment or graduate school.

Careers

With an Agribusiness Management degree, you can be prepared for a career in applied business management, including finance, management, sales/marketing, and commodity trading. Many graduates choose careers in the food and agricultural industries. Many others are employed outside of food and agriculture, in fields such as banking, investment, human resources, and marketing, while others have gone on to graduate or law school.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE AGRIBUSINESS MANAGEMENT PROGRAM (<https://agsci.psu.edu/academics/undergraduate/majors/agribusiness-management/>)

Opportunities for Graduate Study

A baccalaureate degree in Agribusiness Management can lead to advanced degrees in business, agribusiness, agricultural and applied economics, and agricultural sciences.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDY (<https://agsci.psu.edu/academics/undergraduate/majors/agribusiness-management/>)

Professional Resources

- National Agri-Marketing Association (<https://www.nama.org>)
- International Food and Agribusiness Management Association (<https://www.ifama.org>)
- Agricultural & Applied Economics Association (<https://www.aaea.org>)

Contact

University Park

DEPARTMENT OF AGRICULTURAL ECONOMICS, SOCIOLOGY, AND EDUCATION

Armsby Building

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<https://agsci.psu.edu/academics/undergraduate/majors/agribusiness-management> (<https://agsci.psu.edu/academics/undergraduate/majors/agribusiness-management/>)

World Campus

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-agribusiness-management-bachelor-of-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-agribusiness-management-bachelor-of-science-degree/>)

Agribusiness Management, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Agribusiness Management minor is offered for students who wish to add business and management principles to their undergraduate major.

What is Agribusiness Management?

Agribusiness Management is the branch of business management focusing on food and agriculture. It includes all the people and businesses that are part of value chains for food and agricultural products, and all the public and private institutions that influence the global food system.

You Might Like This Program If...

- You want to learn how to apply business principles to real-world issues while having the opportunity to work closely with faculty and your fellow students.
- You are interested in how the global food system works, and how to manage interactions among stakeholders in the food system.
- You are a “people person” and you have a passion for food and agriculture.
- You want to pursue a career in your major and obtain the business management skills that will allow you to advance in your career.

Program Requirements

Requirement	Credits
Requirements for the Minor	21

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>).

In addition, at least six credits of the minor must be unique from the prescribed courses required by a student’s major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
AGBM 102	Economics of the Food System	3
AGBM 106	Agribusiness Problem Solving	3
AGBM 200	Introduction to Agricultural Business Management	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
AGBM 101	Economic Principles of Agribusiness Decision Making	3
or ECON 102	Introductory Microeconomic Analysis and Policy	
Select Option A or B:		9
A.		
Select one of the following:		
AG 301		
AGBM 302	Food Product Marketing	
AGBM 308W	Strategic Decision Making in Agribusiness	
AGBM 320	Markets and Prices: Analysis and Forecasting	
AGBM 338	Agribusiness in the Global Economy	
Select 6 credits from any 400-level ABGM courses (excluding, unless approved by the AGBM program, AGBM 496)		
B.		
Select 9 credits from any 400-level AGMB courses (excluding, unless approved by the AGBM program, AGBM 496)		

Academic Advising

The objectives of the university’s academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee’s unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Mark A. Gagnon, Ph.D.

Agribusiness Management Program Coordinator; Harbaugh Entrepreneur and Innovation Faculty Scholar; Associate Teaching Professor

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Career Paths

Agribusiness Management minor graduates have the skills and knowledge necessary to add an applied business management component to their chosen career. Faculty and professional academic advisers in the Agribusiness Management program support and serve students in career development and preparation, including career decision-making, tailoring the Agribusiness Management minor to fit career goals, internship and job search strategies, interview preparation, and preparation for employment or graduate school.

Careers

With an Agribusiness Management minor, you can be prepared for a career in your major in which you have the business management skills to advance in your career.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN AGRIBUSINESS MANAGEMENT (<https://agsci.psu.edu/academics/undergraduate/minors/agribusiness-management/>)

Opportunities for Graduate Studies

A minor in Agribusiness Management can lead to advanced degrees in business, agribusiness, agricultural and applied economics, and agricultural sciences.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://agsci.psu.edu/academics/undergraduate/minors/agribusiness-management/>)

Contact

University Park

DEPARTMENT OF AGRICULTURAL ECONOMICS, SOCIOLOGY, AND EDUCATION

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Agricultural and Biorenewable Systems Management, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The Agricultural and Biorenewable Systems Management Major is an applied major that intertwines the study of engineering technology, natural resources, and agriculture with fundamentals of sustainability, business, operations, and management. Administered through the Department of Agricultural and Biological Engineering, the Agricultural and Biorenewable Systems Management (ABSM) program uniquely prepares students to solve 21st century problems and attain careers relating to the emerging circular bioeconomy. Students in this program will secure: (1) knowledge of fundamental and applied sciences related

to resources, processes, and products in ag and biorenewable systems; (2) communication and managerial skills relevant to careers in product development, technology, sales, marketing and management; and (3) the ability to apply systems analysis skills, positioning them for effective problem solving and leadership in the agricultural and bioproducts industries.

Graduates find employment as technical consultants, quality assurance personnel, sustainability specialists, and sales and field representatives, in renewable bioproducts or related agricultural sectors such as: power and machinery systems, forest products, food production, bioprocessing, environmental systems, bioenergy, and co-product development.

Graduates may continue their education in a graduate program with a science, engineering, or business orientation.

What is Agricultural and Biorenewable Systems Management?

The Agricultural and Biorenewable Systems Management major integrates the study of engineering technology, applied sciences, and systems analysis with fundamentals of sustainability, business, operations, and management. Administered through the Department of Agricultural and Biological Engineering, the Agricultural and Biorenewable Systems Management (ABSM) program uniquely prepares students to solve 21st century problems and attain careers relating to the emerging circular bioeconomy.

You Might Like this Program If...

- You want to make a difference in the world by developing more efficient and sustainable technologies and systems.
- You want to engage in testing, development, and improvement of equipment, processes, or green (food and other bio-based) products.
- You want to demonstrate features, advantages, and benefits of new technologies or products and train service personnel.
- You are interested in systems management, business applications, or technical sales, with a focus on biorenewable and agricultural industries.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Agricultural and Biorenewable Systems Management, a minimum of 121 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	106-108

30 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 6 credits of GS courses; 9 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
ABSM 300	Introduction to Agricultural and Biorenewable Products	3
ABSM 350	Introduction to Life Cycle Assessment	3
ABSM 422	Energy Analysis in Agricultural and Biorenewable Systems	3
ABSM 426	Safety and Health in Agriculture and Biorenewable Industries	3
ABSM 428	Electric Power and Instrumentation	3
ABSM 429	Agricultural and Biorenewable Systems Analysis and Management	3
ABSM 430W	Agricultural and Biorenewable Systems Management Capstone 1	1
ABSM 431W	Agricultural and Biorenewable Systems Management Capstone 2	2
ABSM 490	Agricultural and Biorenewable Systems Management Colloquium	1
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
<i>Prescribed Courses: Require a grade of C or better</i>		
ABSM 301	Engineering Principles of Agricultural and Biorenewable Systems	3
ABSM 391	Communication Skills for BE and ABSM Students	2
ABSM 392	Leadership and Ethics for BE and ABSM Students	2
AGBM 106	Agribusiness Problem Solving	3
EDSGN 100	Cornerstone Engineering Design	3
ENGL 15	Rhetoric and Composition	3
Additional Courses		
AGBM 101	Economic Principles of Agribusiness Decision Making	3
or ECON 102	Introductory Microeconomic Analysis and Policy	
BA 303	Marketing	3
or AGBM 302	Food Product Marketing	
BIOL 11 & BIOL 12	Introductory Biology I and Introductory Biology II	4
or BIOL 110	Biology: Basic Concepts and Biodiversity	
EBF 200	Introduction to Energy and Earth Sciences Economics	3
or ECON 104	Introductory Macroeconomic Analysis and Policy	
PHYS 211	General Physics: Mechanics	4
or PHYS 250	Introductory Physics I	
Select one of the following:		3-4

BA 241 & BA 242	Legal Environment of Business and Social and Ethical Environment of Business	
BA 243	Social, Legal, and Ethical Environment of Business	
BLAW 243	Legal Environment of Business	
<i>Additional Courses: Require a grade of C or better</i>		
CAS 100A or CAS 100B	Effective Speech	3
MATH 110 or MATH 140	Techniques of Calculus I Calculus With Analytic Geometry I	4
STAT 200 or STAT 240 or STAT 250	Elementary Statistics Introduction to Biometry Introduction to Biostatistics	3-4
Supporting Courses and Related Areas		
Select 12 credits of ABSM courses from the following:		12
ABSM 310	Power Transmission in Agriculture	
ABSM 320	Combustion Engines for Mobile Equipment	
ABSM 327	Soil and Water Resource Management	
ABSM 402	Foundations of Sustainable Business	
ABSM 411	Bioproducts Science and Technology	
ABSM 417	Processing and Manufacturing Systems for Bioproducts	
ABSM 420	Principles of Off-Road Machines	
ABSM 423	Deterioration and Protection of Bioproducts	
ABSM 424	Precision Agriculture Technology	
ABSM 496	Independent Studies	
Select 18 credits of supporting courses from department list		18

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- Demonstrate knowledge of engineering technologies, sales, marketing, management and safety principles as they pertain to agricultural and biorenewable systems.
- Graduates will be able to analyze and interpret data using relevant software, and demonstrate an ability to draw sound conclusions from data.

- Apply technical methodology and systems analysis skills to identify and solve problems for effective decision making in the operations and management of agricultural and biorenewable resource industries.
- Graduates will be able to communicate, both orally and in writing, business and technical concepts within the context of agricultural and biorenewable industries.
- Graduates will demonstrate knowledge of ethics and social justice issues including issues of race and equity and be able to practice ethical decision making.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Agricultural and Biorenewable Systems Management, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year			
Fall		Credits Spring	Credits
ABSM 100		1 CHEM 111 [†]	1
CHEM 110 [†]		3 ACCTG 211	4
EDSGN 100 [*]		3 ENGL 15 ^{††}	3
MATH 110 or 140 ^{††}		4 PHYS 250 or 211 [†]	4

General Education Course (GHW)	1.5 General Education Course	3
ECON 104 [†]	3 General Education Course (GHW)	1.5
	15.5	16.5

Second Year

Fall	Credits Spring	Credits
AGBM 101 or ECON 102 [†]	3 BLAW 243, BA 243, or BA 241 and BA 242	3
BIOL 110 or 11 and 12 [†]	4 General Education Course	3
CAS 100A or 100B ^{††}	3 General Education Course	3
STAT 200 or 240 ^{††}	3 Additional Specialization	3
General Education Course	3 Additional Specialization	3
	16	15

Third Year

Fall	Credits Spring	Credits
AGBM 106 [*]	3 ABSM 392 ^{††}	2
ABSM 300 [*]	3 BA 303 or AGBM 302	3
ABSM 301 [*]	3 ABSM Selection	3
ABSM 350 [*]	3 ABSM Selection	3
ABSM 391 ^{††}	2 Additional Specialization	3
	ABSM 490	1
	14	15

Fourth Year

Fall	Credits Spring	Credits
ABSM 428	3 ABSM 426	3
ABSM 430W	1 ABSM 431W	2
ABSM 422	3 ABSM Selection	3
ABSM 429	3 Additional Specialization	3
Additional Specialization	3 Additional Specialization	3
ABSM Selection	3	
	16	14

Total Credits 122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Note:

A list of 'selection' courses can be found in the BRS Advising Manual (<https://abe.psu.edu/undergraduate/resources/advising/brs-manual/options/>). Students should consult with an academic adviser to discuss appropriate course selection.

Agricultural and Biorenewable Systems Management, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CHEM 110 [†]	3 CHEM 111 [†]	1
EDSGN 100 [*]	3 ACCTG 211	4
MATH 110 or 140 ^{††}	4 ENGL 15 ^{††}	3
General Education Course (GHW)	1.5 PHYS 250 or 211 [†]	4
ECON 104 [†]	3 General Education Course	3
	General Education Course (GHW)	1.5
	14.5	16.5

Second Year

Fall	Credits Spring	Credits
AGBM 101 or ECON 102 [†]	3 BLAW 243, BA 243, or BA 241 and BA 242	3
BIOL 110 or 11 and 12 [†]	4 Additional Specialization	3
CAS 100A or 100B ^{††}	3 Additional Specialization	3
STAT 200 or 240 ^{††}	3 General Education Course	3
General Education Course	3 General Education Course	3
	16	15

Third Year

Fall	Credits Spring	Credits
AGBM 106 [*]	3 ABSM 392 ^{††}	2
ABSM 300 [*]	3 BA 303 or AGBM 302	3
ABSM 301 [*]	3 ABSM Selection	3
ABSM 350 [*]	3 ABSM Selection	3
ABSM 391 ^{††}	2 Additional Specialization	3
	ABSM 490	1
	14	15

Fourth Year

Fall	Credits Spring	Credits
ABSM 428	3 ABSM 426	3
ABSM 430W	1 ABSM 431W	2
ABSM 422	3 ABSM Selection	3
ABSM 429	3 Additional Specialization	3
ABSM Selection	3 Additional Specialization	3
Additional Specialization	3	
	16	14

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

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Advising Note:

A list of 'selection' courses can be found in the BRS Advising Manual (<https://abe.psu.edu/undergraduate/resources/advising/brs-manual/options/>). Students should consult with an academic adviser to discuss appropriate course selection.

Career Paths

The Agricultural and Biorenewable Systems Management major provides a broad background in applied sciences, engineering technology, systems analysis, and business management that can help you succeed in industry or a graduate degree program. With companies, stakeholders, and consumers invested in sustainable and efficient systems, career opportunities are diverse, and the demand for graduates is strong.

Careers

Graduates find employment as technical consultants, quality assurance personnel, sustainability specialists, equipment evaluators and managers, and sales and field representatives, in renewable bioproducts or related agricultural sectors such as: power and machinery systems, forest products, food production, bioprocessing, environmental systems, bioenergy, and co-product development.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE AGRICULTURAL AND BIORENEWABLE SYSTEMS MANAGEMENT PROGRAM (<https://agsci.psu.edu/academics/undergraduate/majors/biorenewable-systems/>)

Opportunities for Graduate Studies

Graduates may continue their education in a graduate program with a science, engineering, or business orientation. The Department of Agricultural and Biological Engineering at Penn State offers M.S. and Ph.D. degrees in BioRenewable Systems.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDY (<https://abe.psu.edu/graduate/brs/>)

Professional Resources

- American Society of Agricultural and Biological Engineers (<https://www.asabe.org>)

Contact

University Park

DEPARTMENT OF AGRICULTURAL AND BIOLOGICAL ENGINEERING

105 Agricultural Engineering Building

University Park, PA 16802

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<https://abe.psu.edu/>

Agricultural and Extension Education, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

This major helps prepare students for positions in education in agriculture, including schools and colleges, Cooperative Extension, business, trade and professional associations, and government agencies. The Department administers a program approved by the Pennsylvania Department of Education for the preparation of agriculture teachers in public school systems. This includes programs in agricultural production, mechanics, supplies, resources, products, forestry, horticulture, and other agricultural areas.

Students take courses in agricultural and natural resource sciences, leadership and communications, natural science, social science and general education. Students seeking teacher certification schedule professional courses in education and psychology.

What is Agricultural and Extension Education?

School-based Agriculture Education employed through the Three-Circle Model of FFA, supervised agricultural experience and classroom instruction educates nearly 1 million secondary students nationally, teaching future agriculturalists on the topics of food, fiber, and natural resources. AEE graduates are prepared to enter the workforce as middle and high school agricultural educators, with the pedagogical and technical content knowledge to equip students to be college and career ready.

You Might Like this Program If...

- You enjoy working with youth, community stakeholders, and fellow educators
- You desire to be an advocate for the agriculture industry
- You have a passion for equipping students with the problem-solving skills necessary to address grand global challenges
- You want to teach practical and applied STEM concepts in the classroom

Entrance to Major

Pennsylvania Teacher certification regulations require students to have a GPA of 3.0. The Educator Preparation Program at Penn State includes documentation of at least 80 hours of volunteer or paid education work experience with learners of the age group the candidate plans to teach. At least 40 of these age-appropriate 80 hours must be with

learners whose cultural, social, or ethnic backgrounds differ from the candidate's own; completion of an early field experience specified by the certification program; completion of at least 48 semester credit hours, including ENGL 15 or ENGL 30H, 3 credits of literature, and 6 credits of quantification and secure occupational experience in the requested area of certification. (See also: Teacher Education Programs (<https://ed.psu.edu/academics/teacher-testing-certification/>))

Degree Requirements

For students seeking teacher certification, the Bachelor of Science degree in Agricultural and Extension Education, a minimum of 125 credits is required:

Requirement	Credits
General Education	45
Electives	0-1
Requirements for the Major	107-113

28 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GS courses; 9 credits of GN courses; 4 credits of GQ courses; 9 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
AEE 100	Agricultural Education Orientation	3
AEE 311	Developing Youth Leadership through Organization and Program Structure	3
AEE 349	Shop Processes for Agricultural Educators	3
AEE 350	Teaching Methods for Agricultural and Environmental Laboratories	3
AEE 495	Internship	12
AGBM 101	Economic Principles of Agribusiness Decision Making	3
BIOL 110	Biology: Basic Concepts and Biodiversity	4
INTAG 100N	Everyone Eats: Hunger, Food Security & Global Agriculture	3
WFED 413	Vocational Education for Special-Needs Learners	3
WFED 414	Teaching Career and Technical Education Content to Diverse Learners	3
WFED 450	Cultural Diversity in the Workplace	3
<i>Prescribed Courses: Require a grade of C or better</i>		
AEE 295	Observation of Teaching in Agriculture and Environmental Science	3
AEE 313	School-Based Program Planning and Instructional Development	2
AEE 412	Methods of Teaching Agriculture and Environmental Science	4
AEE 413	Program Planning and Instructional Development	3-4
EDPSY 14	Learning and Instruction	3
EDTHP 115	Education in American Society	3

ENGL 202C	Effective Writing: Technical Writing	3
SOILS 101	Introductory Soil Science	3
STAT 200	Elementary Statistics	4

Additional Courses

Select 4 credits of the following: 4

BIOL 220W Biology: Populations and Communities

BIOL 230W Biology: Molecules and Cells

BIOL 240W Biology: Function and Development of Organisms

Additional Courses: Require a grade of C or better

Select 3 credits from the following: 3

CAS 100 Effective Speech

CAS 100A Effective Speech

CAS 100B Effective Speech

Select 3 credits from the following: 3

CHEM 101 Introductory Chemistry

CHEM 110 Chemical Principles I

CHEM 130 Introduction to General, Organic, and Biochemistry

Select 3 credits from the following: 3

ENGL 15 Rhetoric and Composition

ENGL 30H Honors Rhetoric and Composition

ESL 15 ESL Composition for American Academic Communication II

Requirements for the Option

Select an option 23-28

Requirements for the Option**Environmental Science Option (28 Credits)**

Code	Title	Credits
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Prescribed Courses

AGRO 28	Principles of Crop Management	3
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ANSC 201	Animal Science	4
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Supporting Courses and Related Areas

Select 3 credits of W courses offered in the College 3

Select 3 credits in biological, physical ecosystems 3

Select 6 credits in environmental impact management 6

Select 6 credits in environmental learning 6

Select 3 credits in social, political, and legal aspects of environmental science 3

Production Option (23 credits)

Code	Title	Credits
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Supporting Courses and Related Areas

Select 3 credits of W courses offered in the College 3

Select 8 credits in agriculture 8

Select 6 credits in animal science 6

Select 6 credits in plant/soil science 6

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements

of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- Students will be able to analyze the needs of a particular educational situation, formulate a plan for program delivery, critically review and reflect on the program and implement changes.
- Students will be able to engage stakeholders in the development of quality educational programming.
- Students will be able to meet the criteria for teacher certification in Pennsylvania, as measured by the Pennsylvania Department of Education 430 form criteria (planning, instruction, classroom environment, professional development).
- Students will show competence in content knowledge required by the state certification office by successfully passing the Agriculture PRAXIS examination.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Suggested Academic Plan

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Environmental Science Option: Agricultural and Extension Education, B.S. at University Park Campus

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First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or ESL 15 ^{±##}	3 BIOL 220W, 230W, or 240W	4
General Education Course (GQ - MATH 21 recommended) ^{±##}	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C ^{±†}	3
BIOL 110 ^{#†}	4 EDTHP 115 ^{*#}	3
AG 150	2 SOILS 101	3
AEE 100 [#]	3 General Education Course (GHW)	1.5
General Education Course (Literature Selection) [#]	3 General Education Course	3
	18	17.5

Second Year

Fall	Credits Spring	Credits
CHEM 130 [#]	3 ENGL 202C ^{±†}	3
AGRO 28	3 STAT 200 ^{±##}	4
AGBM 101 [†]	3 Environmental Learning Course ¹	3
EDPSY 14 ^{*#}	3 Social, Legal, Political Aspects ¹	3
Environmental Learning Course ¹	3 General Education Course (GHW)	1.5
General Education Course	3	
	18	14.5

Third Year

Fall	Credits Spring	Credits
WFED 413	3 ANSC 201	4
AEE 311	3 INTAG 100N [†]	3
College Writing Across the Curriculum Course ¹	3 WFED 414	3
Environmental Impact Management ¹	3 AEE 295 [*]	1
General Education Course	3 AEE 349	3
General Education Course	3 Environmental Impact Management ¹	3
	18	17

Fourth Year

Fall	Credits Spring	Credits
AEE 412 [*]	4 AEE 313 [*]	2
AEE 413 [*]	3 AEE 495	10
AEE 295 [*]	1	
AEE 350	3	

WFED 450	3	
Biological/Physical Ecosystems Course	3	
	17	12

Total Credits 132

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ See your academic adviser for a supporting course list.

University Requirements and General Education Notes:

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W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- 3.00 GPA required before admission into teacher certification program.
- A literature course is required in order to receive a teaching certification. Please see an academic adviser for a listing of literature courses. This course can be used toward fulfillment of GH requirements.

Production Option: Agricultural and Extension Education, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or ESL 15 ^{‡#†}	3 BIOL 220W, 230W, or 240W	4
General Education Course (GQ - MATH 21 recommended) ^{‡#†}	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C ^{‡†}	3
BIOL 110 ^{#†}	4 EDTHP 115 ^{*#}	3
AEE 100 [#]	3 SOILS 101	3
AG 150	2 General Education Course (GHW)	1.5
General Education Course (Literature Selection) [#]	3 General Education Course	3
	18	17.5

Second Year

Fall	Credits Spring	Credits
CHEM 130 [#]	3 ENGL 202C ^{‡†}	3
AGBM 101 [†]	3 STAT 200 ^{‡#†}	4
EDPSY 14 ^{*#}	3 WFED 414	3
Plant/Soil Science Course ¹	3 General Education Course	3
General Education Course	3	
General Education Course (GHW)	1.5	
	16.5	13

Third Year

Fall	Credits Spring	Credits
WFED 413	3 INTAG 100N [†]	3
AEE 311	3 WFED 450	3
College Writing Across the Curriculum Course ¹	3 AEE 295 [*]	1
Animal Science Course ¹	3 AEE 349	3
Ag Course ¹	3 Animal Science Course ¹	3
Elective	2 Plant/Soil Science Course ¹	3
	17	16

Fourth Year

Fall	Credits Spring	Credits
AEE 412 [*]	4 AEE 313 [*]	2
AEE 413 [*]	3 AEE 495	10
AEE 295 [*]	1	
AEE 350	3	
Ag Course ¹	3	
Ag Course ¹	2	
	16	12

Total Credits 126

- * Course requires a grade of C or better for the major
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- # Course is an Entrance to Major requirement
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Advising Notes:

- 3.00 GPA required before admission into teacher certification program.
- A literature course is required in order to receive a teaching certification. Please see an academic adviser for a listing of literature courses. This course can be used toward fulfillment of GH requirements.

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First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or ESL 15 ^{‡##†}	3 BIOL 220W, 230W, or 240W	4
General Education Course (GQ - MATH 21 recommended) ^{‡##†}	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C ^{‡†}	3
BIOL 110 ^{#†}	4 Environmental Learning Course ¹	3
EDTHP 115 ^{*#}	3 General Education Course (Literature Selection) [#]	3
First Year Seminar	1-3 General Education Course (GHW)	1.5
General Education Course	3	
	17-19	14.5

Second Year

Fall	Credits Spring	Credits
CHEM 130 [#]	3 ENGL 202C ^{‡†}	3
AGBM 101 [†]	3 STAT 200 ^{‡##†}	4
EDPSY 14 ^{*#}	3 SOILS 101	3
Biological, Physical Ecosystems Course ¹	3 General Education Course	3
Social, Policial, Legal Aspects Course ¹	3 General Education Course (GHW)	1.5
General Education Course	3	
	18	14.5

Third Year

Fall	Credits Spring	Credits
WFED 413	3 ANSC 201	4
AEE 311	3 INTAG 100N [†]	3
AGRO 28	3 WFED 414	3
AEE 100 [#]	3 AEE 295 [*]	1
Environmental Impact Management ¹	3 AEE 349	3
College Writing Across the Curriculum Course ¹	3 Environmental Impact Management ¹	3
	18	17

Fourth Year

Fall	Credits Spring	Credits
AEE 412 [*]	4 AEE 313 [*]	2
AEE 413 [*]	3 AEE 495	10
AEE 295 [*]	1	
AEE 350	3	

WFED 450	3	
	14	12

Total Credits 125-127

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Advising Notes:

- 3.00 GPA required before admission into teacher certification program.
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Production Option: Agricultural and Extension Education, B.S. at Commonwealth Campuses

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First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or ESL 15 ^{‡##†}	3 BIOL 220W, 230W, or 240W	4
General Education Course (GQ - MATH 21 recommended) ^{‡##†}	3 CAS 100 ^{‡†}	3
EDTHP 115 ^{*#}	3 EDPSY 14 ^{*#}	3
BIOL 110 ^{#†}	4 Ag Course ¹	3
First Year Seminar	1-3 General Education Course (GHW)	1.5
General Education Course	3	
	17-19	14.5

Second Year

Fall	Credits Spring	Credits
CHEM 130 [#]	3 ENGL 202C ^{‡†}	3
STAT 200 ^{‡##†}	4 SOILS 101	3
AGBM 101 [†]	3 Plant/Soil Science Course ¹	3
General Education Course	3 Animal Science Course ¹	3
General Education Course	3 General Education Course (Literature Selection) [#]	3
General Education Course (GHW)	1.5	
	17.5	15

Third Year

Fall	Credits Spring	Credits
WFED 413	3 INTAG 100N [†]	3
AEE 100 [#]	3 WFED 414	3
AEE 311	3 WFED 450	3
College Writing Across the Curriculum Course ¹	3 AEE 295 [*]	1
Plant/Soil Science Course ¹	3 AEE 349	3
	Ag Course ¹	3
	Animal Science Course ¹	3
	15	19

Fourth Year

Fall	Credits Spring	Credits
AEE 412 [*]	4 AEE 313 [*]	2
AEE 413 [*]	3 AEE 495	10
AEE 295 [*]	1	
AEE 350	3	
Ag Course ¹	3	
	14	12

Total Credits 124-126

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ See your academic adviser for a supporting course list.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- 3.00 GPA required before admission into teacher certification program.
- A literature course is required in order to receive a teaching certification. Please see an academic adviser for a listing of literature courses. This course can be used toward fulfillment of GH requirements.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

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<https://agsci.psu.edu/academics/undergraduate/majors/agricultural-and-extension-education> (<https://agsci.psu.edu/academics/undergraduate/majors/agricultural-and-extension-education/>)

Agricultural Science, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

This major enables students to develop programs of study to serve their individual needs by assembling courses selected from various departments within the College of Agricultural Sciences. The student develops either a broad background in agriculture or a special program of study not currently offered within departments of the college. Students are expected to focus study on one or more disciplines of the agricultural sciences by selecting a minor from the approved list of minors offered by the College of Agricultural Sciences. The student, in consultation with an adviser, is given considerable flexibility for selecting courses to satisfy individual interests and aspirations.

Students can prepare themselves for careers in the following:

- Agricultural and natural resource related sales, and /or public relations
- Food, agricultural and natural resource commodity groups
- Agricultural finance
- Governmental and conservation agencies
- The Cooperative Extension Service
- Land use and appraisal
- International agriculture agencies

What is Agricultural Science?

The Agricultural Science major allows students to explore the many aspects of agriculture and the environment. Students are able to determine their interests in agriculture and take part in shaping their course work to help them gain the knowledge and skills needed to enter the workforce when they graduate.

You Might Like this Program If...

- You would like a major that allows you to tailor your coursework to fit your career goals, blending together many disciplines of the agricultural sciences to give you a wide skill set

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Agricultural Science, a minimum of 123 credits is required:

Requirement	Credits
General Education	45
Electives	6-26
Requirements for the Major	82-90

18-30 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 0-3 credits of GH courses;

0-3 credits of GHW courses; 9 credits of GN courses; 0-6 credits of GS courses; 9 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
AEE 360	Leadership Development for Small Groups	3
AEE 460	Foundations in Leadership Development	3
<i>Prescribed Courses: Require a grade of C or better</i>		
CAS 100	Effective Speech	3
ENGL 15	Rhetoric and Composition	3
Additional Courses		
AEE 311	Developing Youth Leadership through Organization and Program Structure	3
or AEE 465	Leadership Practices: Power, Influences, and Impact	
AEE 330W	Communication in Agricultural and Natural Resource Careers	3
or AEE 440	Communication Methods and Media	
Select 3 credits from the following:		3
CHEM 101	Introductory Chemistry	
CHEM 110	Chemical Principles I	
CHEM 130	Introduction to General, Organic, and Biochemistry	
Select 3-4 credits from the following:		3-4
BIOL 11	Introductory Biology I	
& BIOL 12	and Introductory Biology II	
BIOL 110	Biology: Basic Concepts and Biodiversity	
BISC 3	Environmental Science	
Select 3-4 credits in Crop Management ¹		3-4
Select 3 credits in any HORT except X95, X96		3
Select 3 credits in Agricultural Economics and Rural Sociology ²		3
Select 3 credits in International Agriculture from the following:		3
AEE 400	Global Agriculture Education	
CED 450	International Development, Renewable Resources, and the Environment	
INTAG 100N	Everyone Eats: Hunger, Food Security & Global Agriculture	
Any College of Agricultural Sciences international course		
Select 1-3 credits in Careers in Agriculture from the following:		1-3
AEE 100	Agricultural Education Orientation	
AG 100	Job Placement Skills and Strategies	
AG 113	Exploring Careers in Agriculture	
ANSC 290	Careers in Animal Agriculture	
ERM 151	Careers and Issues in Environmental Resource Management	
Select 3-4 credits in any ANSC except 291, X95, X96		3-4
Select 3 credits in Technology in Agriculture from the following:		3
AGECO 144	Principles and Practices of Organic Agriculture	
AGECO 457	Principles of Integrated Pest Management	

ANSC 207 & ANSC 208	Animal Products Technology and Animal Products Technology Laboratory	
ERM 210	Environmental Factors and Their Effect on Your Food Supply	
FDSC 200	Introductory Food Science	
PLANT 217	Landscape Soil and Water Management	
Select 6 credits in Natural Resources/Ecology from the following:		6
AGECO 122	Atmospheric Environment: Growing in the Wind	
AGECO 201	Introductory Agroecology	
EGEE 101	Energy and the Environment	
FOR 470	Watershed Management	
SOILS 71	Environmental Sustainability	
SOILS 101	Introductory Soil Science	
SOILS 412W	Soil Ecology	
WFS 209N	Wildlife and Fisheries Conservation	
Select 3 credits in Agricultural and Environmental Policy from the following:		3
AG 160	Introduction into Ethics and Issues in Agriculture	
AGECO 134N	Sustainable Agriculture Science and Policy	
CED 201	Introductory Environmental and Resource Economics	
FDSC 105	Food Facts and Fads	

Additional Courses: Require a grade of C or better

ENGL 202C	Effective Writing: Technical Writing	3
or ENGL 202D	Effective Writing: Business Writing	

Supporting Courses and Related Areas

Select 9 credits in Agriculture 9

Supporting Courses and Related Areas Courses: Require a grade of C or better

Select 18-21 credits for College of Agricultural Sciences Minor 18-21

¹ Select any AGECO except X95 and X96, any AGRO except X95, X96, or any ENT except X95, X96.

² Select any AGBM except X95 and X96, any CED except X95, X96, or any RSOC.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- Students enrolled in the Agricultural Science major will be able to analyze a group's leadership and communication dynamics and propose changes that could enhance the group's effectiveness.
- Students enrolled in the Agricultural Science major will be able to describe and analyze leadership behaviors and skills.
- Students enrolled in the Agricultural Science major will be able to identify a problem in a community, evaluate the situation based on leadership theory, and propose a solution to the situation.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Agricultural Science, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or ESL 15 ^{††}	3 General Education Course (GQ) ^{††}	3
General Education Course (GQ) ^{††}	3 CHEM 101, 110, or 130	3

BIOL 110, 11 <i>and</i> 12, or BISC 3	3-4 CAS 100A, 100B, or 100C ^{††}	3
AGSC 100	1 General Education Course (Exploration)	3
Agriculture Course (any College of Agricultural Sciences course)	3 Agriculture Course (any College of Agricultural Sciences course)	3
Integrative Studies Course	3	
16-17		15

Second Year

Fall	Credits Spring	Credits
ANSC 290, AEE 100, ERM 151, AG 100, or SC 101 (Careers in Agriculture)	1-2 AGECO 144, 457, PLANT 217, ENT 457, ERM 210, FDSC 200, or ANSC 207 <i>and</i> ANSC 208 (Technology in Agriculture)	3
Animal Science Course (any ANSC course)	3 SOILS 412W, AGECO 122, EGEE 101, FOR 470, METEO 122, CED 327, SOILS 71, SOILS 101, or WFS 209N (Natural Resources/Ecology)	3
Integrative Studies Course	3 General Education Course (GA)	3
General Education Course (GH)	3 College of Agricultural Sciences Minor Course *	3
AG 160, AGECO 134N, CED 201, FDSC 105, or STS 105 (Ag and Environmental Policy)	3 General Education Course (GS)	3
13-14		15

Third Year

Fall	Credits Spring	Credits
ENGL 202C or 202D ^{††}	3 AEE 400, AGBM 338, CED 420W, CED 450, FOR 418, FOR 488Y, or INTAG 100N (International Agriculture)	3
AEE 311 or 465	3 AEE 360	3
SOILS 412W, AGECO 122, EGEE 101, FOR 470, METEO 122, CED 327, SOILS 71, SOILS 101, or WFS 209N (Natural Resources/Ecology)	3 Horticulture Course (any HORT course)	3
AEE 330W or 440	3 General Education Course (GN)	3
College of Agricultural Sciences Minor Course *	3 Elective	3
15		15

Fourth Year

Fall	Credits Spring	Credits
AEE 460	3 Crop Management Course (any AGECO, AGRO, or ENT course)	3
College of Agricultural Sciences Minor Course *	3 College of Agricultural Sciences Minor Course *	3
College of Agricultural Sciences Minor Course *	3 College of Agricultural Sciences Minor Course *	3

Ag Economics & Rural Sociology Course (any AGBM, CED, or RSOC course)	3 Agriculture Course (any College of Agricultural Sciences course)	3
Elective	4 Elective	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
17.5		16.5

Total Credits 123-125

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- Students must complete a minor in the College of Agricultural Sciences (18-21 credits).
- Work with your academic adviser in the development of your plan as some courses are not taught every semester.

Agricultural Science, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
ENGL 15, 30H, or ESL 15 ^{††}	3	General Education Course (GQ) ^{††}	3
General Education Course (GQ) ^{††}	3	CHEM 101, 110, or 130	3
BIOL 110, 11 and 12, or BISC 3	3	3-4 CAS 100A, 100B, or 100C ^{††}	3
General Education Course	3	General Education Course	3
General Education Course	3	Agriculture Course (any College of Agricultural Sciences course)	3
		15-16	15

Second Year

Fall	Credits	Spring	Credits
SOILS 412W, AGECE 122, EGEE 101, FOR 470, METEO 122, CED 327, SOILS 71, SOILS 101, or WFS 209N (Natural Resources/Ecology)	3	ENGL 202C or 202D ^{††}	3
Agriculture Course (any College of Agricultural Sciences course)	3	SOILS 412W, AGECE 122, EGEE 101, FOR 470, METEO 122, CED 327, SOILS 71, SOILS 101, or WFS 209N (Natural Resources/Ecology)	3
Elective	3	General Education Course	3
General Education Course	3	General Education Course	3
General Education Course	3	Agriculture Course (any College of Agricultural Sciences course)	3
		15	15

Third Year

Fall	Credits	Spring	Credits
AEE 311 or 465	3	AEE 400, AGBM 338, CED 420W, CED 450, FOR 418, FOR 488Y, or INTAG 100N (International Agriculture)	3
AGECE 144, 457, PLANT 217, ENT 457, ERM 210, FDSC 200, or ANSC 207 and ANSC 208 (Technology in Agriculture)	3	AEE 360	3
AEE 330W or 440	3	Horticulture Course (any HORT course)	3
ANSC 290, AEE 100, ERM 151, AG 100, or SC 101 (Careers in Agriculture)	3	Animal Science Course (any ANSC course)	3

College of Agricultural Sciences Minor Course*	3	College of Agricultural Sciences Minor Course*	3
Elective	2		
		15	15

Fourth Year

Fall	Credits	Spring	Credits
AEE 460	3	AG 160, AGECE 134N, CED 201, FDSC 105, or STS 105 (Ag and Environmental Policy)	3
College of Agricultural Sciences Minor Course*	3	Crop Management Course (any AGECE, AGRO, or ENT course)	3
College of Agricultural Sciences Minor Course*	3	College of Agricultural Sciences Minor Course*	3
Elective	3	College of Agricultural Sciences Minor Course*	3
Ag Economics & Rural Sociology Course (any AGBM, CED, or RSOC course)	3	Elective	3
General Education Course (GHW)	1.5	General Education Course (GHW)	1.5
		16.5	16.5

Total Credits 123-124

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Students must complete a minor in the College of Agricultural Sciences (18-21 credits).
- Work with your academic adviser in the development of your plan as some courses are not taught every semester.

Career Paths

Faculty and professional academic advisers in the Agricultural Science program support and serve students in career development and preparation, including career decision-making, tailoring the AG SC

major to fit career goals, internship and job search strategies, interview preparation, and preparing for employment or graduate school.

Careers

Students have the opportunity to explore career opportunities through internships relevant to the Agricultural Science major. These internships often lead to career opportunities with the same companies that provided the internship. Students' career options are very diverse, often based on their selection of which minor to explore in conjunction with their major. Many students enter careers directly related to their minor selection.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE AGRICULTURAL SCIENCE PROGRAM (<https://agsci.psu.edu/academics/undergraduate/majors/agricultural-science/>)

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Agricultural Stewardship and Conservation, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

The Chesapeake Bay Program and other local, state, and federal initiatives to protect surface and groundwater resources have increasingly focused on agricultural best management practices. A significant demand has been created for professionals trained in these best management practices and the ability to plan and implement them in a wide variety of agricultural systems. The goal of the certificate program in Agricultural Stewardship and Conservation is to provide enhanced knowledge for planning, designing, and implementing best management practices on agricultural lands that contribute to soil health while preventing soil erosion, controlling runoff and managing nutrient inputs and outputs, all of which serve to protect ground and surface waters. Local, state and federal policies and regulations pertaining to agricultural stewardship are addressed, as well as certification requirements for agricultural and nutrient management specialists to work in the field of agricultural erosion and sediment control and nutrient management in the Commonwealth of Pennsylvania.

You Might Like This Program If...

- You are interested in monitoring and implementing best management practices.
- You have a passion for conservation and natural resource issues.

The certificate was developed to offer classroom and hands-on learning in the sustainability of agricultural soil and water resources. The Agricultural Stewardship and Conservation certificate may appeal

to a variety of Penn State majors, including Environmental Resource Management, BioRenewable Systems, Animal Science, Agricultural Science, and Plant Sciences, as well as non-degree students.

Program Requirements

To earn an undergraduate certificate in Agricultural Stewardship and Conservation, a minimum of 11 credits is required.

Code	Title	Credits
Required Courses		
ERM 426		1
ERM 495	Internship	1-3
	or ERM 496 Independent Studies	
SOILS 101	Introductory Soil Science	3
SOILS 418	Nutrient Management in Agricultural Systems	3
Select one of the following:		3-4
ASM 327	Soil and Water Resource Management	
BE 307	Principles of Soil and Water Engineering	
SOILS 422	Natural Resources Conservation and Community Sustainability	

Certificate Learning Objectives

- Mastery of calculations to determine soil erosion and water runoff; design of best management practices to control soil erosion and water runoff
- Managing nutrient inputs and outputs on agricultural land to protect surface and groundwaters and comply with environmental regulations
- Provide reports to evaluate, integrate, and explain information from Learning Objectives 1 & 2 in on-farm scenarios

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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<https://agsci.psu.edu/academics/undergraduate/majors/environmental-resource-management> (<https://agsci.psu.edu/academics/undergraduate/majors/environmental-resource-management/>)

Agricultural Systems Management, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Agricultural System Management minor covers the mechanical, natural resource, processing, and electronic technologies applied in agriculture systems. Students who graduate with this minor will have a solid understanding of how physical sciences and biological principles apply to real world problems in food and fiber industries. With industry teams often formed purposefully with many disciplines represented, this background of applied engineering basics and the focus on quantitative analysis has proven helpful to past graduates.

Integration of the applied technologies is addressed using a systems approach in each required course. Technologies addressed by courses in this minor include electric motors, mechanical and hydraulic power transmission systems, mobile equipment functions and operations, sensor and control systems. The minor is targeted to students who will use these technologies or manage others who are responsible for systems utilizing these technologies. Most courses required for the minor are taught by engineering faculty, and nearly every course has a laboratory period.

What is Agricultural Systems Management?

The Agricultural System Management minor covers the mechanical, natural resource, processing, and electronic technologies applied in agricultural systems. Students can gain a solid understanding of how physical sciences and biological principles apply to real-world problems in food and fiber industries. With industry teams often being multidisciplinary, graduates have found the basic applied engineering and quantitative analysis covered in this minor to be helpful. Technologies addressed by courses in this minor include combustion engines, electric motors, mechanical and hydraulic power transmission systems, mobile equipment functions and operations, sensor and control systems, irrigation, and drainage. The minor is targeted to students who will use these technologies or manage others who are responsible for systems utilizing these technologies. Most courses required for the minor are taught by engineering faculty, and nearly every course has a laboratory period.

You Might Like This Program If...

- You are pursuing an engineering or engineering technology major and want to complement it with applications in agriculture, food, and/or the environment.
- You want to take application-focused classes with interactive labs and hands-on learning opportunities.
- You are interested in solving problems related to fundamental societal needs, like food, water, fiber, and renewable energy.
- You are passionate about sustainability and technology.

Entrance to Minor

Admission to the minor requires introductory calculus (MATH 110 or MATH 140) and introductory physics (PHYS 211 or PHYS 250).

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
AGRO 28	Principles of Crop Management	3
ASM 310	Power Transmission in Agriculture	3
ASM 327	Soil and Water Resource Management	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Students must select 6 credits from the following:		6
ASM 424	Precision Agriculture Technology	
BRS 422	Energy Analysis in Agricultural and Biorenewable Systems	
BRS 426	Safety and Health in Agriculture and Biorenewable Industries	
BRS 428	Electric Power and Instrumentation	
BRS 429W	Agricultural and Biorenewable Systems Analysis and Management	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 3 credits in agricultural or environmental sciences in consultation with the minor adviser		3

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged

in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Jude Liu

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Contact

University Park

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Agronomy, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

Agronomy is concerned with the principles and practices of field crop production and the conservation of soils and land resources. Areas of emphasis include crop production and protection, plant breeding, forage management, nutrient management, and soil conservation and fertility. Education in this minor emphasizes the principles of plant and soil management and the basic sciences upon which these principles are grounded. A minor in agronomy can complement several majors, and will enhance career opportunities in farm management and the agricultural industry. Employment possibilities include:

- farm chemical and fertilizer store managers,
- sales representatives,
- field and laboratory technicians,
- crop management consultants,
- extension agents,
- soil and water conservationists, and
- inspectors for various state and federal regulatory agencies.

What is Agronomy?

Agronomy is the science of field crop production and the conservation and management of soil and land resources. The Agronomy minor is designed to provide students with an overview and an in-depth understanding of the principles and practices of agronomy. Students will gain an understanding of plant and soil science as it relates to forage crop production and management, nutrient management and soil

conservation, and fertility. The Agronomy minor complements several majors across the university and will enhance career opportunities in the agricultural industry.

MORE INFORMATION ABOUT AGRONOMY (<https://agsci.psu.edu/academics/undergraduate/minors/agronomy/>)

You Might Like This Program If...

You are interested in plant science, ecology, resource protection, and growing crops for fuel, feed and fiber.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
AGRO 28	Principles of Crop Management	3
SOILS 101	Introductory Soil Science	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 6 credits of the following:		6
AGRO 410W	Physiology of Agricultural Crops	
AGRO 423	Forage Crop Management	
AGRO 425	Field Crop Management	
AGRO 438	Principles of Weed Management	
SOILS 402	Soil Nutrient Behavior and Management	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 5-6 credits in consultation with an adviser		5-6

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Heather Karsten

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Career Paths

The minor will prepare students for careers related to farm management, plant science research, soil and water resource conservation, cooperative extension, crop protection and management, or for positions with regulatory agencies within the agricultural sector.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN AGRONOMY (<https://www.agronomy.org/careers/>)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://plantscience.psu.edu/graduate/>)

Contact

University Park

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101 Tyson Building
University Park, PA 16802
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<https://plantscience.psu.edu/about/contact> (<https://plantscience.psu.edu/about/contact/>)

Animal Science, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

Animal Science is the study and integration of the biology and management of animals, highlighted by the disciplines of nutrition, physiology, reproduction, genetics, and behavior. Animals provide companionship, food, and fiber, and serve as valuable research models. The Animal Science major offers both coursework and hands-on experiences that develop students' ability to work with and care for animals.

The educational experiences included in this major should prepare the student for a wide range of positions in production agriculture business and related industries, and provide preparation for the pursuit of post-baccalaureate studies leading to professional or advanced degrees. The student is expected to develop a comprehensive understanding of the biological and physical sciences underlying the functioning of all types of animals.

What is Animal Science?

Animal Science focuses on the science and business of producing domestic livestock species, including but not limited to beef cattle, dairy cattle, horses, poultry, sheep, swine and companion animals. This discipline applies principles of biological, physical and social sciences to problems associated with production and management of animals.

Animal Science also has a strong focus on food with animal origin including meat, milk and eggs.

Animal Scientists work in efficient production of food animals, processing of high-quality meats and dairy products, use of companion animals for recreation, maintenance of animal health and well-being and many other areas. A growing population with limited land provide complex challenges in the area of Animal Science. This discipline requires highly trained professionals who can identify opportunities and provide innovative solutions.

You Might Like this Program If...

- You want a career working with animals
- You want a hands-on, experiential learning curriculum with exposure to multiple domestic species
- Your interests lie in applied biology
- You are interested in efficiently providing safe, nutritious food to a growing world population
- You like both animals and business
- Your interests are in the practical application of science, business, and animals

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Animal Science, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	0-6
Requirements for the Major	81-84

9-12 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6-9 credits of GN courses; 3 credits of GS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
ANSC 331	Physiology of Animal Reproduction	3
BIOL 110	Biology: Basic Concepts and Biodiversity	4
BMB 211	Elementary Biochemistry	3

Prescribed Courses: Require a grade of C or better

ANSC 100	Introduction to Animal Industries	3
ANSC 201	Animal Science	4
ANSC 207	Animal Products Technology	2
ANSC 208	Animal Products Technology Laboratory	1
ANSC 290	Careers in Animal Agriculture	1
ANSC 300	Anatomy and Physiology of Domestic Animals	3
ANSC 301	Principles of Animal Nutrition	3

Additional Courses

AGBM 101	Economic Principles of Agribusiness Decision Making	3
or ECON 102	Introductory Microeconomic Analysis and Policy	
ANSC 322	Animal Genetics and Selection	3
or BIOL 222	Genetics	
CHEM 101	Introductory Chemistry	2-3
or CHEM 110	Chemical Principles I	
or CHEM 130	Introduction to General, Organic, and Biochemistry	
CHEM 202	Fundamentals of Organic Chemistry I	3
or CHEM 210	Organic Chemistry I	
MICRB 106	Elementary Microbiology	3
or MICRB 201	Introductory Microbiology	
MICRB 107	Elementary Microbiology Laboratory	1-2
or MICRB 202	Introductory Microbiology Laboratory	

Additional Courses: Require a grade of C or better

Select 3-4 credits from the following:		3-4
ANSC 305	Companion Animal Nutrition	
ANSC 306	Swine Production and Management	
ANSC 308	Sheep and Goat Production and Management	
ANSC 309	Beef Cattle Production and Management	
ANSC 310	Dairy Cattle Production and Management	
ANSC 311	Poultry Production and Management	
ANSC 315	Small Animal Health and Disease	
ANSC 324	Value Determination of Meat Animals	
ANSC 327	Horse Production and Management	

Supporting Courses and Related Areas

Select 36 credits (at least 6 credits of Animal Science and 6 credits of "Other Courses") from department lists. 12 credits must be at the 400-level, and a minimum of 3 of these 12 400-level credits must be in ANSC. (Students may apply 6 credits of ROTC.)¹

¹ Certain courses from the department lists may double count as General Education courses; consult with your adviser.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Animal Agriculture Issues:** Actively and effectively discuss complex animal agriculture issues including:
 - The economic, environmental, animal welfare and societal impacts of animal production at both local and global levels.
 - The role of science in informing debates in animal agriculture.
- **Scientific Literature and Resources:** Locate, critically evaluate, and apply information related to animal science from scientific literature and other resources.
- **Communication:** Communicate effectively and professionally with a variety of audiences in both written and oral formats.
- **Comprehensive Knowledge:** Apply comprehensive knowledge from areas in animal science including genetics, reproduction, behavior, nutrition, animal products, husbandry and business/farm management.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Animal Science, B.S. with Industry and General Animal Interest at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 ANSC 100 (GN) ^{*1}	3
AGBM 101 or ECON 102 (GS) [†]	3 BIOL 110 (GN) [†]	4
CHEM 130 (GN) [†]	3 Additional Selection in Consultation with Adviser	3
ANSC 150S (FYS)	2 General Education Course (GQ) [‡]	3-4
General Education Course (GQ) [‡]	3-4 General Education Course (GA)	3
General Education Course (GH)	3	
17-18		16-17

Second Year

Fall	Credits Spring	Credits
ANSC 207 ^{*1}	2 ANSC 201 ^{*1}	4
ANSC 208 ^{*1}	1 BMB 211	3
ANSC 290 ^{*1}	1 CAS 100A (GWS) [‡]	3
CHEM 202	3 General Education Course (Inter-Domain)	3
Additional Selection in Consultation With Adviser	3 General Education Course (GHW)	3
General Education Course (Inter-Domain)	3	
Elective	3	
16		16

Third Year

Fall	Credits Spring	Credits
ANSC 301 ^{*1}	3 ANSC 300 ^{*1}	3
ANSC 322 ¹	3 ANSC 331 ¹	3
MICRB 106 (GN) [†]	3 ENGL 202A, 202B, 202C, or 202D (GWS) ^{‡2}	3
MICRB 107 (GN) [†]	1 ANSC Selection	3
300-Level Production ^{*1}	3-4 General Education Course (GA, GH, GS)	3
ANSC Selection	3	
16-17		15

Fourth Year

Fall	Credits Spring	Credits
ANSC Selection at 400-Level	3 ANSC/Other Selection	3
ANSC/Other Selection	3 ANSC/Other Selection	3
ANSC/Other Selection	3 ANSC/Other Selection	3
ANSC/Other Selection	3 ANSC/Other Selection	3

Other Selection	3 Other Selection	3
	15	15

Total Credits 126-129

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ Course titles are available on the semester schedule of Animal Science courses offered.

² Recommended to complete ENGL 202D.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Animal Science, B.S. with Veterinary Medicine and Research Interest at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [†]	3 ANSC 100 (GN) ^{*2}	3
AGBM 101 or ECON 102 (GS) [†]	3 CHEM 112 (GN) [†]	3
CHEM 108	1 CHEM 113 (GN)	1
CHEM 110 (GN) [†]	3 Additional Selection in Consultation with Adviser	3
CHEM 111 (GN)	1 General Education Course (GQ) ^{†1}	3-4
ANSC 150S (FYS)	2 General Education Course (GA)	3
General Education Course (GQ) ^{†1}	3-4	
16-17		16-17

Second Year

Fall	Credits Spring	Credits
ANSC 207 ^{*2}	2 ANSC 201 ^{*2}	4
ANSC 208 ^{*2}	1 CAS 100A (GWS) [†]	3
ANSC 290 ^{*2}	1 CHEM 202 or 210	3
BIOL 110 (GN) [†]	4 KINES 203	3
Additional Selection in Consultation With Adviser	3 General Education Course (Inter-Domain)	3
General Education Course (Inter-Domain)	3	
General Education Course (GH)	3	
17		16

Third Year

Fall	Credits Spring	Credits
ANSC 301 ^{*2}	3 ANSC 300 ^{*2}	3
ANSC 322 ²	3 ANSC 331 ²	3
BMB 211	3 BIOL 230W or 240W	4
CHEM 203 or 212 <i>and</i> 213	3-5 BMB 212	1
300-Level Production ^{*2}	3-4 NUTR 251 (or other GHW)	3
	General Education Course (GA, GH, GS)	3
15-18		17

Fourth Year

Fall	Credits Spring	Credits
ENGL 202A, 202B, 202C, or 202D (GWS) ^{†3}	3 BMB 221	2
MICRB 201	3 PHYS 251 (GN)	4
MICRB 202	2 ANSC Selection	3
PHYS 250 (GN)	4 400-Level Course Selection	3

ANSC Selection at 400-Level	3 400-Level Course Selection	3
Additional Selection in Consultation with Adviser	3 Additional Selection in Consultation with Adviser	3
18		18

Total Credits 133-138

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ Recommended GQ courses are MATH 110 or MATH 140 and STAT 200 or STAT 250.

² Course titles are available on the semester schedule of Animal Science courses offered.

³ Recommended to complete ENGL 202C.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- Students are responsible for reviewing individual veterinary and graduate program requirements. Common requirements are included in the curriculum and can be found in the Veterinary Interested Student Worksheet.

Animal Science, B.S. with Industry and General Animal Interest at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 ANSC 100 ^{*1}	3
BIOL 110 (GN) [†]	4 CHEM 130 (GN) [†]	3
First-Year Seminar (FYS)	1 AGBM 101 or ECON 102 (GS) [†]	3
General Education Course (GQ) [‡]	3-4 General Education Course (GQ) [‡]	3-4
General Education Course (Inter-Domain, GA, GH, GS)	3 General Education Course (GH)	3
General Education Course (GA)	3	
	17-18	15-16

Second Year

Fall	Credits Spring	Credits
CAS 100A (GWS) [‡]	3 ENGL 202A, 202B, 202C, or 202D (GWS) ^{‡2}	3
CHEM 202	3 MICRB 106 (GN) [†]	3
Other Selection	3 MICRB 107 (GN) [†]	1
Other Selection	3 Other Selection	3
General Education Course (Inter-Domain, GA, GH, GS)	3 General Education Course (Inter-Domain)	3
	General Education Course (GHW)	3
	15	16

Total Credits 63-65

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Course titles are available on the semester schedule of Animal Science courses offered.

² Recommended to complete ENGL 202D.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain)

requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- After receiving an approved change of campus request, a course selection meeting should be scheduled with Madison Heilveil (mxh664@psu.edu), the Animal Science Advising Assistant at University.

Animal Science, B.S. with Veterinary Medicine and Research Interest at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 ANSC 100 ^{*2}	3
CHEM 110 (GN) [†]	3 AGBM 101 or ECON 102 (GS) [†]	3
CHEM 111 (GN)	1 CHEM 112 (GN) [†]	3
First-Year Seminar (FYS)	1 CHEM 113 (GN)	1
General Education Course (GQ) ^{‡1}	3-4 General Education Course (GQ) ^{‡1}	3-4
General Education Course (Inter-Domain, GA, GH, GS)	3 General Education Course (GH)	3
General Education Course (GA)	3	
	17-18	16-17

Second Year

Fall	Credits Spring	Credits
BIOL 110 (GN) [†]	4 BIOL 230W or 240W (GN)	4
CAS 100A (GWS) [‡]	3 ENGL 202A, 202B, 202C, or 202D (GWS) ^{‡3}	3
CHEM 202 or 210	3 NUTR 251 (or other GHW)	3
KINES 203	3 PHYS 250	4
General Education Course (Inter-Domain, GA, GH, GS)	3 General Education Course (Inter-Domain)	3
	16	17

Total Credits 66-68

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Recommended GQ courses are MATH 110 or MATH 140 and STAT 200 or STAT 250.

² Course titles are available on the semester schedule of Animal Science courses offered.

³ Recommended to complete ENGL 202C.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Students are responsible for reviewing individual veterinary and graduate program requirements. Common requirements are included in the curriculum and can be found in the Veterinary Interested Student Worksheet.
- After receiving an approved change of campus request, a course selection meeting should be scheduled with Madison Heilveil (mxh664@psu.edu), the Animal Science Advising Assistant at University.

Career Paths

Science Option graduates enter careers in biomedical or agricultural research, food safety, technical service, vivarium management, and government service. Business/Management Option graduates find careers in allied industry sales (feed, pharmaceuticals, etc.); agricultural finance and credit; industry relations and communications; farm management; animal caretaking at zoos and shelters; and food safety and quality assurance.

Opportunities for Graduate Studies

- Veterinary or other life science professional school
- Graduate studies in multiple fields of biological and life sciences (genetics, nutrition, reproduction, behavior, physiology, and health)
- Graduate studies in production and management of domestic food animal species
- Graduate studies in food product production and safety
- Graduate studies in linked agricultural fields (agricultural business management, agronomy, agricultural education, etc.)

Contact

University Park

DEPARTMENT OF ANIMAL SCIENCE
109 AVBS Building
University Park, PA 16802
814-983-3665
AskDAS@psu.edu

<https://animalscience.psu.edu/>

Animal Science, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Animal Science minor is designed for students who wish to supplement their academic major with studies in animal science. Students are required to complete a minimum of 23 credits, at least 6 of

which must be at the 400 level. A grade of C or better must be obtained in each course in order to complete the minor.

The core of prescribed courses develops a foundation in the various basic disciplines of animal science. Additional courses may be selected by the student to emphasize the production/management of beef cattle, companion animals, dairy cattle, horses, poultry, sheep, or swine or to emphasize genetics, nutrition, or physiology.

What is Animal Science?

The animal science minor allows students from other majors to be trained in the core biological sciences associated with production and management of animals (nutrition and physiology, for example). Upper level courses allow students to focus on specific species and animal science disciplines.

A growing world population in the face of a limited land base creates complex challenges in animal agriculture's relationship with other agricultural disciplines. Pairing an Animal Science minor with another agricultural major allows students to bring interdisciplinary training to the workplace or laboratory bench.

You Might Like This Program If...

- Your career goals include a part-time animal agricultural enterprise.
- You wish to combine your academic major with knowledge of animal biology and management.

Program Requirements

Requirement	Credits
Requirements for the Minor	23-24

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ANSC 201	Animal Science	4
ANSC 290	Careers in Animal Agriculture	1
ANSC 301	Principles of Animal Nutrition	3
CHEM 202	Fundamentals of Organic Chemistry I	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
ANSC 207 & ANSC 208 or ANSC 300	Animal Products Technology and Animal Products Technology Laboratory Anatomy and Physiology of Domestic Animals	3
Select 3-4 credits of the following:		3-4
ANSC 305	Companion Animal Nutrition	
ANSC 306	Swine Production and Management	
ANSC 308	Sheep and Goat Production and Management	
ANSC 309	Beef Cattle Production and Management	
ANSC 310	Dairy Cattle Production and Management	
ANSC 311	Poultry Production and Management	

ANSC 327 Horse Production and Management

CHEM 210 Organic Chemistry I

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 6 credits of 400-level ANSC courses

6

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Robert Mikesell

Minor Coordinator

345 Agricultural Sciences & Industries Building

University Park, PA 16802

814-865-2987

rem9@psu.edu

Career Paths

Employers value students who can integrate several fields of study. An Animal Science Minor can supplement various other majors by providing a solid background in the science and management of animals, and could be useful in landing positions in government service, allied animal industry sales (feed, pharmaceuticals, etc.), agricultural finance and credit, industry relations and communications, farm management, and food safety and quality assurance.

Opportunities for Graduate Studies

Graduate studies have the opportunity to integrate animal science with another subject area. Examples include, but are not limited to, Agronomy, Food Science, and Agricultural Business Management.

Contact

University Park

DEPARTMENT OF ANIMAL SCIENCE

335 Agricultural Sciences & Industries Building

University Park, PA 16802

814-983-3665

AskDAS@psu.edu

<https://animalscience.psu.edu>

Arboriculture, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change

from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Arboriculture minor has been designed to provide students with a comprehensive introduction to the principles and practices of the arboriculture profession. Combined with a major in Horticulture or Forestry, this minor will help prepare students for a career in arboriculture. The courses in the minor include arboriculture, disease and insect control, the planting and maintenance of plants in the landscape, and management of trees in urban environments. HORT 201, and many of the introductory positions available to graduates with an arboriculture minor, require physical strength and conditioning. The profession of arboriculture has many opportunities available in the application of arboricultural practices, sales, consulting, management of companies, and management of urban trees.

What is Arboriculture?

Arboriculture is the practice of cultivating and maintaining ornamental trees and shrubs. The Arboriculture minor is designed to provide students with both an overview and in-depth understanding of the principles and practices of growing and maintaining trees, shrubs, and other perennial woody plants. This minor provides opportunities for students from all colleges to learn more about tree and shrubs and their health and care. The range of courses allows considerable flexibility for students to tailor the minor to their particular needs. The tree care profession has experienced rapid growth over the past decade and many more knowledgeable tree specialists are required to meet many of these needs.

You Might Like This Program If...

You love the outdoors, have a great appreciation of nature, love to challenge yourself, and enjoy working as a team to improve the aesthetics and safety of the interface between people and trees in both urban and rural communities.

MORE INFORMATION ABOUT ARBORICULTURE (<https://agsci.psu.edu/academics/undergraduate/minors/arboriculture/>)

Program Requirements

Requirement	Credits
Requirements for the Minor	26-28

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ENT 313	Introduction to Entomology	2
ENT 314	Management of Insect Pests of Ornamentals	1
FOR 401	Urban Forest Management	3
HORT 201	Applied Arboriculture	2
HORT 301	Principles of Arboriculture	3
HORT 408	Landscape Plant Establishment and Maintenance	4

SOILS 101	Introductory Soil Science	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
BIOL 110	Biology: Basic Concepts and Biodiversity	3-4
or BIOL 127	Introduction to Plant Biology	
FOR 203	Field Dendrology	3
or HORT 137	Ornamental Plant Materials	
PPEM 300	Horticultural Crop Diseases	2-3
or PPEM 318	Diseases of Forest and Shade Trees	

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Tarah Geszvain
Academic Adviser
117 Tyson Building
University Park, PA 16802
814-863-6087
thg110@psu.edu

Career Paths

Some of the more common positions that are available in the tree care industry for trained arborists include grounds person (performs the pruning or removal of trees and shrubs); climbing arborist (undertakes various types of tree pruning such deadwood removal, crown reduction, specific branch weight reduction, and clearance pruning); and plant health care technician (focuses on keeping plants in the urban environment healthy).

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN ARBORICULTURE (<https://treecareindustryassociation.org/education/>)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://plantscience.psu.edu/graduate/>)

Contact

University Park
DEPARTMENT OF PLANT SCIENCE
101 Tyson Building
University Park, PA 16802
814-865-2571
thg110@psu.edu

<https://plantscience.psu.edu/about/contact> (<https://plantscience.psu.edu/about/contact/>)

Community Forestry, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

The population of the United States is projected to grow 48% from 296 million in 2005 to 438 million in 2050. Planning for and managing natural resources closer to people and communities will become more important, not less. Demand for professionals (foresters, landscape architects, landscape contractors, city planners) with training in the best management of community forests will continue to grow. The goal of the 15-credit Community Forestry certificate is to provide advanced knowledge on the planning and management of trees, forests, and other natural resources including their role in community development. Participants will gain an understanding of soils, tree care and maintenance, community forestry management plans, land use planning and regulatory policy, and working in connected human ecological systems.

You Might Like This Program If...

- You are interested in better planning and managing streetscapes, parks, and other public landscapes.
- You are interested in conserving ecosystem processes and providing ecosystem services in built environments.
- You enjoy connecting people with the natural resources that provide for their health, happiness, and quality of life.

Program Requirements

To earn an undergraduate certificate in Community Forestry, a minimum of 15 credits is required.

Code	Title	Credits
Required Courses		
FOR 401	Urban Forest Management	3
HORT 301	Principles of Arboriculture	3
SOILS 101	Introductory Soil Science	3
HORT 408	Landscape Plant Establishment and Maintenance	3-4
or SOILS 404	Urban Soils	
Select one of the following:		3
CAS 404	Conflict Resolution and Negotiation	
CED 327	Environment and Society	
ERM 411	Legal Aspects of Resource Management	
FOR 450W	Human Dimensions of Natural Resources	

Certificate Learning Objectives

- **Community Forest Management Plan:** Students will demonstrate the ability to apply their knowledge in the development of a community forest management plan.
- **Community Forestry Commissions and Ordinances:** Students will demonstrate an understanding of community tree commissions, and street and park tree ordinances.

- **Community Forestry Principles:** Students will demonstrate an understanding of the principles of site analysis, tree selection, and tree planting in the built environment.
- **Community Forestry Standards:** Students will demonstrate an understanding of the recognized standards for tree pruning and maintenance.
- **Principles of Conserving Green Infrastructure:** Students will demonstrate an understanding of the basic principles of land use planning and regulatory policy as tools to conserve green infrastructure and other natural resources.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

William Elmendorf

Ibberson Chair in Urban and Community Forestry
Extension Specialist, Community and Urban Forestry
334 Forest Resources Building
University Park, PA 16802
814-777-0042
wfe1@psu.edu

Career Paths

Students earning the Community Forestry certificate learn a range of skills in arboriculture and community forest management that are highly valued by a wide range of employers. Students with backgrounds in community forestry will find job opportunities in state and federal agencies, municipalities, industry, and nonprofit organizations.

Careers

Forestry, environmental resource management, landscape architecture, plant science, recreation and tourism, wildlife and fisheries science, and other students earning the certificate in Community Forestry are better positioned to find employment with diverse organizations spanning government, industry, and nonprofit sectors. Such organizations may include (but are not limited to): United States Forest Service, United States Environmental Protection Agency, state forestry agencies, university extension, municipal planning and public works departments, landscape architecture firms, landscape contracting firms, commercial arboriculture firms, environmental consulting firms, and environmental non-profits.

Contact

University Park

DEPARTMENT OF ECOSYSTEM SCIENCE AND MANAGEMENT

Undergraduate Programs Office

113 Forest Resources Building

University Park, PA 16802

814-865-4237

<https://ecosystems.psu.edu>

Community, Environment, and Development, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

Community, Environment, and Development is a hands-on, multidisciplinary program that helps students understand and address challenges faced by communities abroad and at home. It focuses on areas like sustainability, community, development, local governance, and more with the goal of balancing environmental stewardship with improved quality of life. The major emphasizes critical thinking, core knowledge, and the skills required for professional success working on such issues. Graduates take leadership roles in a variety of areas, such as corporate social responsibility, environment/sustainability, economic development, government, land use planning, and the non-profit sector. Foundation (Level I) courses introduce students to key concepts in economics and sociology, and how these inform an understanding of community, sustainability and the environment, quality of life, and the economy. Level II courses build on the Foundation courses by using these concepts to take deep looks at issues like climate change, inequality, corporate social responsibility, and land use to assess what's working- and what needs work. Coursework in Methods, Quantification and Communication is also required, including skills and techniques such as Geographical Information Analysis, statistics, applied research methods, and the communication skills for successfully engaging governments, businesses, other organizations, and residents. Finally, students select among four options:

1. Community and Economic Development,
2. Environmental Economics and Policy,
3. International Development,
4. Social and Environmental Responsibility.

To complement this core, students take an additional 12 credits in an area of their interest outside of the CED major to tailor their studies towards their specific education and career goals. Around 40 percent of students completing the program continue on to graduate school or law school, while others choose employment after graduation.

You Might Like this Program If...

- You are passionate about domestic or international development, environmental quality, or sustainability
- You would like a problem-oriented, customizable major that blends together economics, sociology, and other disciplines to give you a wide skillset

- You want small classes where professors know your name, and that emphasize discussion
- You are a "people person" and want a career that betters people's lives
- You want a solid foundation for going to law school or graduate school

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Community, Environment, and Development, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	4-6
Requirements for the Major	90-92

21 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GQ courses, 6 credits of GS courses, 9 credits of GWS.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
CED 252	Anti-Racist Theory and Practice in Community Work	3
CED 275	Community, Environment and Development Professional Seminar	1
CED 404	Community, Environment and Development Research Methods	4
CED 417	Power, Conflict, and Community Decision Making	3
CED 475	CED Integrated Capstone Experience	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
<i>Prescribed Courses: Require a grade of C or better</i>		
CED 152	Community Development Concepts and Practice	3
CED 201	Introductory Environmental and Resource Economics	3
CED 230	Development Issues in the Global Context	3
CED 309	Land Economics and Policy	3
CED 327	Environment and Society	3

STAT 200	Elementary Statistics	4
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Additional Courses

AGBM 101	Economic Principles of Agribusiness Decision Making	3
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or ECON 102 Introductory Microeconomic Analysis and Policy

GEOG 160	Mapping Our Changing World	3
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or GEOG 260 Geographic Information in a Changing World: Introduction to GIScience

RSOC 11	Intro Rural Sociology	3
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or SOC 1 Introductory Sociology

Select one of the following:		3
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PLSC 1 American Politics: Principles, Processes and Powers

PLSC 3 Comparing Politics around the Globe

PLSC 14 International Relations

Additional Courses: Require a grade of C or better

CAS 100	Effective Speech	3
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or CAS 138T Rhetoric and Civic Life II

CMPSC 203	Introduction to Spreadsheets and Databases	3-4
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or AGBM 106 Agribusiness Problem Solving

Select one of the following:		3
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CAS 137H Rhetoric and Civic Life I

ENGL 15 Rhetoric and Composition

ENGL 137H Rhetoric and Civic Life I

Select one of the following:		3
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ENGL 202A Effective Writing: Writing in the Social Sciences

ENGL 202B Effective Writing: Writing in the Humanities

ENGL 202C Effective Writing: Technical Writing

ENGL 202D Effective Writing: Business Writing

Select one of the following:		3-4
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MATH 22 College Algebra With Analytic Geometry and Applications II

MATH 110 Techniques of Calculus I

MATH 140 Calculus With Analytic Geometry I

Requirements for the Option

Select an option		27
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Requirements for the Option**Community and Economic Development Option (27 credits)**

Code	Title	Credits
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Prescribed Courses

AEE 460	Foundations in Leadership Development	3
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CED 409	Land Use Planning and Procedure	3
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CED 430W	Principles of Community Economic Development	3
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ERM 411	Legal Aspects of Resource Management	3
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Additional Courses

Select one of the following:		3
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CED 375 Community, Local Knowledge, and Democracy

CED 400N Exploring Indigenous Ways of Knowing in Great Lakes Region: Lecture

CEDEV 452 Community Structure, Processes and Capacity

Supporting Courses and Related Areas

Select 12 credit in specialization		12
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Environmental Economics and Policy Option (27 credits)

Code	Title	Credits
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Prescribed Courses

CED 429	Natural Resource Economics	3
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CED 431W	Economic Analysis of Environmental and Resource Policies	3
----------	--	---

ECON 302	Intermediate Microeconomic Analysis	3
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ECON 428	Environmental Economics	3
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ERM 411	Legal Aspects of Resource Management	3
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Supporting Courses and Related Areas

Select 12 credits in specialization		12
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International Development Option (27 credits)

Code	Title	Credits
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Prescribed Courses

CED 420W	Gender and International Development	3
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CED 425	International Community and Economic Development	3
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CED 445	International Development Practice	3
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Additional Courses

CED 410	The Global Seminar	3
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or SOC 23 Population and Policy Issues

Select one of the following:		3
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CED 450 International Development, Renewable Resources, and the Environment

ECON 333 International Economics

PLSC 412 International Political Economy

PLSC 440 Globalization and Its Implications

Supporting Courses and Related Areas

Select 12 credit in specialization		12
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Social and Environmental Responsibility Option (27 credits)

Code	Title	Credits
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Prescribed Courses

CED 360	The Corporation and Social Responsibility	3
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CED 440	Labor in the Global Economy	3
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CED 460W	Policy, Politics and Perspectives on Social & Environmental Responsibility	3
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CED 462	Corporate Social and Environmental Performance	3
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Additional Courses

AGBM 308W	Strategic Decision Making in Agribusiness	3
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or AGBM 460 Managing the Food System

Supporting Courses and Related Areas

Select 12 credits in specialization		12
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General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education

Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Critical Thinking Skills and Scholarship:** Read, interpret and critically analyze a broad range of community, environment and development sources.
 - Use a combination of economic and sociological analytical tools to understand and explain complex community, environment, and development issues, including their contested and uncertain nature.
 - Explain community political and power structures, social dynamics, inequity, diverse value systems, ideologies, and cultures.
 - Use basic economic concepts of scarcity, choice, supply, and demand to explain typical community, environment, and development problems.
 - Describe important community, environment, and development policy issues occurring at community, state, national, and international levels.
 - Explain the connections between individuals, households, communities, and regions in a globalizing world, including the centrality of human interdependence and relationships for understanding community, environment, and development issues.
 - Integrate and synthesize these Learning Objectives, recognizing their interdependence and connections.
- **Research Skills:** Think systemically and construct logical arguments in research design and research activities.
 - Identify and describe one's power and privilege in applied research and how these affect research design and process, findings, implications and impacts in the community.
 - Describe the benefit of using research methodologies based upon community perspectives and knowledge, and the implications of these methodologies for selection and use of appropriate research methods.
 - Use basic data collection research skills, including interviews, focus groups, and surveys.
 - Use basic qualitative and quantitative research skills, including coding, descriptive secondary data analysis, and bivariate and multivariate statistical analyses.
 - Use basic mapping analysis skills.
 - Access, download, analyze and interpret common economic and social secondary data.
 - Measure inequality using quantitative and social qualitative measures.
 - Gain experience in designing and conducting community-based participatory research.

- **Team and Community Engagement Skills:** Work effectively as a member of a team.
 - Understand and gain experience with community engagement strategy and process.
 - Explain the politics of engagement, and engagement as politics and power shifting, and its implications for CED-related work.
 - Distinguish between democracy as the everyday politics of civic or public work involving citizens versus partisan party politics.
 - Use methods and techniques for effective community engagement, including involving inclusion/representation of the multiple facets of the community, facilitation, meeting management, SWOT analysis, and brainstorming.
 - Understand allyship and advocacy work and use skills and sensitivity to work effectively with and across varied groups and individuals.
- **Communication & Civic Skills:** Discuss ideas confidently and freely in an academic fashion, both with faculty and with other students.
 - Describe the power of narrative, including how narrative is used to shape perceptions of an issue.
 - Determine appropriate methods to develop strong and inclusive communication with stakeholders, building greater levels of understanding, engagement, and equity.
 - Write clear and coherent research papers and essays, appropriate for the audience.
 - Competently and confidently make oral presentations in diverse professional and applied situations.
 - Develop, practice and hone active listening skills.
 - Understand, gain experience with, and develop capability to use questions to communicate ideas, understand community issues, and individual, group, and community capacity.
- **Equity & Inclusion:** Describe how inequity can hinder the emergence of community and community capacity, the influence that the history of inequity currently has on individuals and community, and how inequality currently manifests itself.
 - Describe how societal outcomes and the choices available to individuals are shaped by human interdependence, politics and public choice, and power.
 - Use normative ethics and social science tools to identify inequalities at the community level, diagnose their nature, and develop inclusive and engaged approaches for overcoming these.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Charlene Paquette

Undergraduate Student Services Coordinator
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University Park, PA 16802
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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Community and Economic Development Option: Community, Environment, and Development, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
AGBM 101 or ECON 102	3 ENGL 15, 30H, or ESL 15 ⁺⁺	3
RSOC 11 or SOC 1	3 MATH 22, 110, or 140 ⁺⁺	3-4
AGSC 100	1 ECON 104 ⁺	3
CED 152 [*]	3 GEOG 160 or 260 ⁺	3
Integrative Studies Course	3 CED 275	1
	General Education Course (GH)	3
	13	16-17

Second Year

Fall	Credits Spring	Credits
CED 309 [*]	3 AGBM 106 or CMPSC 203 ⁺⁺	3-4
CED 230 [*]	3 CED 201 [*]	3
STAT 200	4 CED 252	3
General Education Course (Exploration)	3 CED 404	4
General Education Course (GN)	3 CAS 100A, 100B, or 100C ⁺⁺	3
	16	16-17

Third Year

Fall	Credits Spring	Credits
ENGL 202A, 202B, 202C, or 202D ⁺⁺	3 CED 375, 400N, CEDEV 452, or RSOC 400N	3
ERM 411 or 425	3 Specialty Area Course	3
AEE 460	3 PLSC 1, 3, or 14	3
CED 327 [*]	3 Integrative Studies Course	3
Specialty Area Course	3 General Education Course (GN- No Interdomain)	3

	General Education Course (GHW)	1.5
	15	16.5
Fourth Year		
Fall	Credits Spring	Credits
CED 475	3 CED 430W	3
CED 417	3 CED 409	3
General Education Course (GA)	3 General Education Course (GHW)	1.5
Elective	3 Specialty Area Course	3
Specialty Area Course	3 Elective	2
	15	12.5

Total Credits 120-122

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- Only 21 credits of General Education requirements may be applied toward major requirements.
- Please consult with an academic adviser in the development of your plan as some courses are not taught every semester.
- Students should complete CED 152 as early in their academic plan as possible.

Environmental Economics and Policy Option: Community, Environment, and Development, B.S. at University Park Campus

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First Year

Fall	Credits Spring	Credits
AGBM 101 or ECON 102 [†]	3 ENGL 15, 30H, or ESL 15 ^{††}	3
RSOC 11 or SOC 1	3 MATH 110 or 140 ^{††}	4
AGSC 100	1 ECON 104 [†]	3
CED 152 [*]	3 GEOG 160 or 260 [†]	3
CAS 100A, 100B, or 100C ^{††}	3 CED 275	1
Integrative Studies Course	3 General Education Course (GH)	3
	16	17

Second Year

Fall	Credits Spring	Credits
CED 309 [*]	3 AGBM 106 or CMPSC 203 ^{††}	3-4
CED 230 [*]	3 CED 201 [*]	3
STAT 200	4 CED 252	3
General Education Course (Exploration)	3 CED 404	4
General Education Course (GN)	3 Specialty Area Course	3
	16	16-17

Third Year

Fall	Credits Spring	Credits
CED 417	3 PLSC 1, 3, or 14	3
ECON 302	3 ECON 428	3
CED 327 [*]	3 Specialty Area Course	3
ENGL 202A, 202B, 202C, or 202D ^{††}	3 Integrative Studies Course	3
General Education Course (GA)	3 General Education Course (GN - No Interdomain)	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
CED 475	3 General Education Course (GHW)	3
CED 429	3 Specialty Area Course	3
CED 431W	3 Specialty Area Course	3
ERM 411 or 425	3 Elective	4
	12	13

Total Credits 120-121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

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All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- Only 21-22 credits of General Education requirements may be applied toward major requirements.
- Please consult with an academic adviser in the development of your plan as some courses are not taught every semester.
- Students should complete CED 152 as early in their academic plan as possible.
- MATH 110 or MATH 140 is recommended for the EEP option.

International Development Option: Community, Environment, and Development, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
AGBM 101 or ECON 102	3 ENGL 15, 30H, or ESL 15 ^{††}	3
RSOC 11 or SOC 1	3 MATH 22, 110, or 140 ^{††}	3-4
AGSC 100	1 ECON 104 [†]	3
CED 152 [*]	3 GEOG 160 or 260 [†]	3
CAS 100A, 100B, or 100C ^{††}	3 CED 275	1
Integrative Studies Course	3 General Education Course (GH)	3
	16	16-17

Second Year

Fall	Credits Spring	Credits
CED 309 [*]	3 AGBM 106 or CMPSC 203 ^{††}	3-4
CED 230 [*]	3 CED 201 [*]	3
STAT 200	4 CED 252	3
Specialty Area Course	3 CED 404	4
General Education Course (Exploration)	3 General Education Course (GN)	3
	16	16-17

Third Year

Fall	Credits Spring	Credits
CED 445	3 CED 410 or SOC 23	3
CED 327 [*]	3 PLSC 1, 3, or 14	3
ENGL 202A, 202B, 202C, or 202D ^{††}	3 AFR 440, CED 450, ECON 333, IB 440, PLSC 412, or PLSC 440	3
Specialty Area Course	3 Integrative Studies Course	3
General Education Course (GA)	3 General Education Course (GHW)	1.5
	15	13.5

Fourth Year

Fall	Credits Spring	Credits
CED 475	3 CED 425	3
CED 420W	3 Elective	2
CED 417	3 General Education Course (GHW)	1.5
Specialty Area Course	3 Specialty Area Course	3
General Education Course (GN - No Interdomain)	3 Specialty Area Course	3
	15	12.5

Total Credits 120-122

* Course requires a grade of C or better for the major

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Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

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General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- Only 21 credits of General Education requirements may be applied toward major requirements.
- Please consult with an academic adviser in the development of your plan as some courses are not taught every semester.
- Students should complete CED 152 as early in their academic plan as possible.

Social and Environmental Responsibility Option: Community, Environment, and Development, B.S. at University Park Campus

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First Year

Fall	Credits Spring	Credits
CED 152*	3 ECON 104 [†]	3
RSOC 11 or SOC 1	3 GEOG 160 or 260	3
AGBM 101 or ECON 102 [†]	3 ENGL 15 or 30H ^{††}	3
AGSC 100	1 MATH 22, 110, or 140 ^{††}	3-4
CAS 100A, 100B, or 100C ^{††}	3 CED 275	1
Integrative Studies Course	3	
	16	13-14

Second Year

Fall	Credits Spring	Credits
CED 309*	3 CED 201*	3
CED 230*	3 CED 252	3
General Education Course (Exploration)	3 CED 404	4
STAT 200 ^{††}	4 AGBM 106 or CMPSC 203	3-4
General Education Course (GN)	3 General Education Course (GH)	3
	16	16-17

Third Year

Fall	Credits Spring	Credits
CED 360 (Fall Only)	3 CED 440 (Spring Only)	3
CED 417	3 PLSC 1, 3, or 14	3
CED 327*	3 General Education Course (GN - No Interdomain)	3
Integrative Studies Course	3 Specialization Course	3
ENGL 202A, 202B, 202C, or 202D ^{††}	3 Specialization Course	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
AGBM 308W or 460	3 CED 460W (Spring Only)	3
CED 462 (Fall Only)	3 Specialization Course	3
CED 475 (Senior Capstone)	3 Specialization Course	3
General Education - Health and Wellness (GHW)	1.5 General Education - Health and Wellness (GHW)	1.5
General Education Course (GA)	3 Elective	5
	13.5	15.5

Total Credits 120-122

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Course is an Entrance to Major requirement

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University Requirements and General Education Notes:

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All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- 22-23 credits of General Education requirements may be applied toward major requirements.
- Students should take CED 152 as early in their academic plan as possible.
- Please consult with an academic adviser in the development of your plan as some courses are not taught every semester.

Community and Economic Development Option: Community, Environment, and Development, B.S. at Commonwealth Campuses

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First Year

Fall	Credits Spring	Credits
MATH 22, 110, or 140 ^{††}	3-4 ENGL 15, 30H, or ESL 15 ^{††}	3
AGBM 101 or ECON 102	3 ECON 104 [†]	3
RSOC 11 or SOC 1	3 STAT 200	4
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course (GHW)	1.5
15-16		14.5

Second Year

Fall	Credits Spring	Credits
AGBM 106 or CMPSC 203 ^{††}	3-4 ENGL 202A, 202B, 202C, or 202D ^{††}	3
PLSC 1, 3, or 14	3 GEOG 160 or 260 [†]	3
CAS 100 ^{††}	3 Specialty Area Course	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
15-16		15

Third Year

Fall	Credits Spring	Credits
CED 152 [*]	3 CED 201 [*]	3
CED 230 [*]	3 CED 252	3
ERM 411 or 425	3 CED 275	1
Specialty Area Course	3 CED 327 [*]	3
Elective	3 CED 404	4
	Elective	3
15		17

Fourth Year

Fall	Credits Spring	Credits
AEE 460	3 CED 375, 400N, CEDEV 452, or RSOC 400N	3
CED 309 [*]	3 CED 409	3
CED 417	3 CED 430W	3
CED 475	3 Specialty Area Course	3
Specialty Area Course	3 General Education Course (GHW)	1.5
15		13.5

Total Credits 120-122

* Course requires a grade of C or better for the major

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Course is an Entrance to Major requirement

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University Requirements and General Education Notes:

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Advising Notes:

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Environmental Economics and Policy Option: Community, Environment, and Development, B.S. at Commonwealth Campuses

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First Year

Fall	Credits Spring	Credits
MATH 110 or 140 ^{††}	4 ENGL 15, 30H, or ESL 15 ^{††}	3
AGBM 101 or ECON 102	3 ECON 104 [†]	3
RSOC 11 or SOC 1	3 STAT 200	4
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course (GHW)	1.5
16		14.5

Second Year

Fall	Credits Spring	Credits
AGBM 106 or CMPSC 203 ^{††}	3-4 ENGL 202A, 202B, 202C, or 202D ^{††}	3
PLSC 1, 3, or 14	3 GEOG 160 or 260 [†]	3
CAS 100 ^{††}	3 Specialty Area Course	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
15-16		15

Third Year

Fall	Credits Spring	Credits
CED 152 [*]	3 CED 201 [*]	3
CED 230 [*]	3 CED 252	3
ECON 302	3 CED 275	1
Specialty Area Course	3 CED 309 [*]	3
Specialty Area Course	3 CED 404	4
	Elective	3
15		17

Fourth Year

Fall	Credits Spring	Credits
CED 417	3 CED 327 [*]	3
CED 429	3 CED 329H	3
CED 431W	3 Specialty Area Course	3
ERM 411 or 425	3 Elective	2
CED 475	3 General Education Course (GHW)	1.5
15		12.5

Total Credits 120-121

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Advising Notes:

- Only 21-22 credits of General Education requirements may be applied toward major requirements.
- Please consult with an academic adviser in the development of your plan as some courses are not taught every semester.
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- MATH 110 or MATH 140 is recommended for the EEP option.

International Development Option: Community, Environment, and Development, B.S. at Commonwealth Campuses

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First Year

Fall	Credits Spring	Credits
MATH 22, 110, or 140 ^{††}	3-4 ENGL 15, 30H, or ESL 15 ^{††}	3
AGBM 101 or ECON 102	3 ECON 104 [†]	3
RSOC 11 or SOC 1	3 STAT 200	4
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course (GHW)	1.5
15-16		14.5

Second Year

Fall	Credits Spring	Credits
AGBM 106 or CMPSC 203 ^{††}	3-4 ENGL 202A, 202B, 202C, or 202D ^{††}	3
PLSC 1, 3, or 14	3 GEOG 160 or 260 [†]	3
CAS 100 ^{††}	3 Specialty Area Course	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
15-16		15

Third Year

Fall	Credits Spring	Credits
CED 152 [*]	3 CED 201 [*]	3
CED 230 [*]	3 CED 252	3
CED 309 [*]	3 CED 275	1
Specialty Area Course	3 CED 327 [*]	3
Elective	3 CED 404	4
	General Education Course	3
15		17

Fourth Year

Fall	Credits Spring	Credits
AFR 440, CED 450, ECON 333, IB 440, PLSC 412, or PLSC 440	3 CED 410 or SOC 23	3
CED 417	3 CED 420W	3
CED 445	3 CED 425	3
CED 475	3 Specialty Area Course	3
Specialty Area Course	3 General Education Course (GHW)	1.5
15		13.5

Total Credits 120-122

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First Year

Fall	Credits Spring	Credits
General Education Course (GN, GA, GH)	3 General Education Course - Health and Wellness (GHW)	1.5
RSOC 11 or SOC 1	3 PLSC 1, 3, or 14	3
AGBM 101 or ECON 102 [†]	3 ECON 104 [†]	3
ENGL 15 or 30H ^{††}	3 MATH 22, 110, or 140 ^{††}	3-4
General Education Course	3 General Education Course (GN, GA, GH)	3
	CAS 100 ^{††}	3
	15	16.5-17.5

Second Year

Fall	Credits Spring	Credits
General Education Course - Health and Wellness (GHW)	1.5 ENGL 202A, 202B, 202C, or 202D ^{††}	3
GEOG 160 or 260	3 STAT 200 ^{††}	4
General Education Course (GN, GA, GH)	3 General Education Course (GN, GA, GH)	3
AGBM 106 or CMPSC 203	3-4 Specialization Course	3
General Education Course (GN, GA, GH)	3 General Education Course (GN, GA, GH)	3
	13.5-14.5	16

Third Year

Fall	Credits Spring	Credits
CED 152 [*]	3 CED 201 [*]	3
CED 230 [*]	3 CED 252	3
CED 309 [*]	3 CED 275	1
Specialization Course	3 CED 327 [*]	3
Elective	3 Specialization Course	3
	CED 404	4
	15	17

Fourth Year

Fall	Credits Spring	Credits
CED 360 (Fall Only)	3 CED 460W (Spring Only)	3
AGBM 308W or 460	3 CED 440 (Spring Only)	3
CED 417	3 Specialization Course	3
CED 462 (Fall Only)	3 Elective	3
CED 475 (Senior Capstone)	3	
	15	12

Total Credits 120-122

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Advising Notes:

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- Students should take CED 152 as early in their academic plan as possible.
- Please consult with an academic adviser in the development of your plan as some courses are not taught every semester.

Career Paths

Community, Environment, and Development graduates have the skills and knowledge necessary to choose from a variety of fulfilling career paths in domestic or international development, environment analysis, or sustainability. Your career depends on the experience you make for yourself as a student. Faculty and professional academic advisers in the Community, Environment, and Development program support and serve students in career development and preparation, including career decision-making, tailoring the CED major to fit career goals, internship and job search strategies, interview preparation, and preparing for employment or graduate school.

Careers

With a Community, Environment, and Development degree, you may be prepared for a career working on community-level issues, such as economic and community development, sustainability, the environment and natural resources, and international development. Many graduates choose careers in environment/sustainability, corporate social responsibility, economic development, local government, community-based nonprofits, or local foods.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE COMMUNITY, ENVIRONMENT, AND DEVELOPMENT PROGRAM (<https://agsci.psu.edu/academics/undergraduate/majors/community-environment-and-development/>)

Opportunities for Graduate Studies

About 40 percent of CED graduates go to law school or pursue graduate studies.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://agsci.psu.edu/academics/undergraduate/majors/community-environment-and-development/>)

Contact

University Park

DEPARTMENT OF AGRICULTURAL ECONOMICS, SOCIOLOGY, AND EDUCATION

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<https://agsci.psu.edu/academics/undergraduate/majors/community-environment-and-development> (<https://agsci.psu.edu/academics/undergraduate/majors/community-environment-and-development/>)

Entomology, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

Through the Department of Entomology, the minor in Entomology is primarily designed for (but not restricted to) students in the Agricultural and Biological Science majors seeking additional studies in entomological sciences. Successful completion of this minor area of study will help prepare students for graduate studies in entomology and related fields.

A minor in Entomology requires 18 credits in approved courses in addition to the major requirements of the student's choice. Appropriate course substitutions may be considered with minor adviser approval.

What is Entomology?

Entomology is the scientific study of insects (and terrestrial arthropods such as arachnids, centipedes, millipedes, and springtails) and their relationships to humans and the environment. Entomology contributes to a diverse array of disciplines, including agriculture, biodiversity, ecology, epidemiology, forensic science, genetics, human and veterinary medicine, molecular biology, pollination biology, chemical ecology, parasitology, and toxicology.

You Might Like This Program If...

- You are passionate about biodiversity and fascinated with insects.
- You are interested in human or animal diseases, such as malaria, that are transmitted by insects.
- You are concerned about pollinators and their relationships to ecosystems and food supply.
- You are interested in invasive species and their impact on ecosystems and agriculture.
- You enjoy basic science and/or applied science.
- You want to teach, conduct research, or have a career in agriculture, environmental science, or biology.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>).

In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ENT 496	Independent Studies	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits from the following:		3
ENT 313 & ENT 314	Introduction to Entomology and Management of Insect Pests of Ornamentals	
ENT 313 & ENT 316	Introduction to Entomology and Field Crops Entomology	
ENT 317	Turfgrass Insect Pest Management	
Select 3 credits from the following:		3
AGECO 201	Introductory Agroecology	
ANSC 419W	Applied Animal Welfare	
BIOL 222	Genetics	
BIOL 406	Symbiosis	
BIOL 412	Ecology of Infectious Diseases	
BIOL 417	Invertebrate Zoology	
BIOL 427	Evolution	
BIOL 429	Animal Behavior	
BIOL 446	Physiological Ecology	
BIOL 464	Sociobiology	
HORT 445	Plant Ecology	
PPEM 300	Horticultural Crop Diseases	
PPEM 405	Microbe-Plant Interactions: Plant Disease and Biological Control	
SOILS 412W	Soil Ecology	
WFS 460	Wildlife Behavior	
Select 9 credits from the following:		9
ENT/VBSC 402W	Biology of Animal Parasites	
ENT 410	Insect Structure and Function	
ENT 419W	Pesticide Science	
ENT 424	Sensory Biology of Insects	
ENT 450	Medical Entomology	
ENT/AGECO 457	Principles of Integrated Pest Management	
ENT 484	Insect Behavior	

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

John Tooker

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Career Paths

Careers

Students with a minor in Entomology have been successful in establishing careers in a diverse number of fields, including agriculture, pest management, biology, environmental science, and human and veterinary medicine, and in governmental regulatory and policy positions.

Opportunities for Graduate Studies

Students with entomology minors have gone on to graduate school in entomology, other agricultural sciences, or life and biological sciences to study basic or applied issues. During their undergraduate program at Penn State, students enrolled in the Entomology minor are strongly encouraged to conduct research in the lab of one or more entomology faculty; such experiences will help students determine if they would like to be involved in research for graduate school.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://ento.psu.edu/graduate/>)

Contact

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<https://ento.psu.edu>

Environmental and Renewable Resource Economics, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

This Environmental and Renewable Resource Economics minor introduces students to how fundamental economic principles can be used to explain and seek solutions for problems related to the

degradation of the environment and unsustainable use of natural resources. This program complements majors that provide a natural science-based approach to environmental issues and provides social-science majors interested in the environment with additional tools for the analysis of social decision-making, and policy objectives. A grade of C or better is required for all courses in the minor.

What is Environmental and Renewable Resource Economics?

The Environmental and Renewable Resource Economics minor applies fundamental economic principles to issues related to natural resources and the environment. These include issues associated with the degradation of the environment, climate change, and unsustainable use of natural resources, such as water, land, flora and fauna, and energy sources. Much attention is given to using economic principles to develop and analyze policy alternatives for addressing these issues.

You Might Like This Program If...

- You are passionate about the environment, natural resources, or sustainability.
- You would like to complement your major(s) with problem-oriented economic skills that help you better understand the environment.
- You want a solid foundation for going to graduate school.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CED 201	Introductory Environmental and Resource Economics	3
CED 429	Natural Resource Economics	3
ECON 302	Intermediate Microeconomic Analysis	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 9 credits from the following:		9
CED 329H	Intermediate Environmental & Resource Economics (Honors) or ECON 428 Environmental Economics	
CED 431W	Economic Analysis of Environmental and Resource Policies	
CED 450	International Development, Renewable Resources, and the Environment	
ERM 411	Legal Aspects of Resource Management	
ERM 449	Sustainable Water Management: Economics and Policy	
300- or 400-level internship or independent study (3 credit max)		

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Timothy W. Kelsey, Ph.D.

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<https://agsci.psu.edu/academics/undergraduate/minors/environmental-and-renewable-resource-economics> (<https://agsci.psu.edu/academics/undergraduate/minors/environmental-and-renewable-resource-economics/>)

Environmental Resource Management, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

Environmental Resource Management (ERM) is an interdisciplinary, science-based major designed to prepare students to understand and critically analyze environmental problems ranging from local to global in scale, identify solutions, and communicate ideas related to environmental and natural resource issues. The ERM major also focuses on human interactions with the environment by emphasizing the management of environmental resources. The ERM curriculum begins with foundation course work in the biological, physical and social sciences. Later courses apply these principles to the management and sustainability of the environment, and include environmental problem-solving, ecosystem

management and environmental law. The third tier, offered through three options, affords considerable flexibility and the opportunity to specialize.

The major prepares students for employment in a variety of environmental positions, including environmental consulting, public agencies, and nonprofit organizations. Students are also prepared for graduate school or law school upon graduation. Realizing the wide range of career possibilities requiring diverse types of academic preparation, three options of study are available: the Environmental Science Option, the Soil Science Option and the Water Science Option.

In the Environmental Science Option, students select a minor or choose a group of courses (totaling at least 18 credits) that focus on a particular aspect of the environment. Examples include watersheds and water resources, climate change impacts, geographic information systems, energy and air pollution, sustainability leadership, ecology, environmental engineering, wildlife and fisheries science, and others. Courses and minors from across the University can be selected to develop a student's area of specialization in the Environmental Sciences Option.

In the Soil Science Option, students take courses in soil composition and properties, conservation, nutrient management, soil ecology, GIS and mapping. This option also allows the student to choose courses that support their strengths and interests. The option prepares students for positions with private, public, and non-profit firms that evaluate soils for various uses, delineate wetlands, perform environmental assessments, and identify and remediate contaminated soils.

In the Water Science Option, students take courses in hydrologic measurements, wetland conservation, stream restoration, stream and lake ecology, watershed management, and land use practices to control runoff and erosion. The option also prepares students for positions with private, public, and non-profit firms that evaluate water quality and quantity issues, delineate wetlands, perform environmental and hydrological assessments, and identify and restore degraded aquatic resources.

What is Environmental Resource Management?

Environmental Resource Management is a multidisciplinary undergraduate experience in the environmental sciences and resource management that includes classroom, laboratory, field and experiential learning. ERM deals with natural resources, conservation and land management issues.

You Might Like this Program If...

- You are interested in spending time outdoors in the field gathering data and monitoring environmental conditions
- You have a passion for conservation and natural resource issues
- You are interested in making a difference by solving real world problems

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Environmental Resource Management, a minimum of 121 credits is required:

Requirement	Credits
General Education	45
Electives	0-8
Requirements for the Major	95-108

27-30 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 3-6 credits of GS courses; 9 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
CHEM 112	Chemical Principles II	3
ERM 411	Legal Aspects of Resource Management	3
SOILS 102	Introductory Soil Science Laboratory	1
<i>Prescribed Courses: Require a grade of C or better</i>		
ASM 327	Soil and Water Resource Management	3
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
ENGL 202C	Effective Writing: Technical Writing	3
ERM 151	Careers and Issues in Environmental Resource Management	1
ERM 300	Basic Principles and Calculations in Environmental Analysis	3
SOILS 101	Introductory Soil Science	3
Additional Courses		
AGBM 101	Economic Principles of Agribusiness Decision Making	3
or ECON 102	Introductory Microeconomic Analysis and Policy	
CHEM 202	Fundamentals of Organic Chemistry I	3
or CHEM 210	Organic Chemistry I	
PHYS 211	General Physics: Mechanics	4
or PHYS 250	Introductory Physics I	
<i>Additional Courses: Require a grade of C or better</i>		
CAS 100A	Effective Speech	3
or CAS/ENGL 138T	Rhetoric and Civic Life II	
MATH 110	Techniques of Calculus I	4
or MATH 140	Calculus With Analytic Geometry I	
Select 3 credits from the following:		3

ENGL 15	Rhetoric and Composition	
ENGL 30H	Honors Rhetoric and Composition	
CAS/ENGL 137H	Rhetoric and Civic Life I	
Select 3-4 credits from the following:		3-4
STAT 200	Elementary Statistics	
STAT 240	Introduction to Biometry	
STAT 250	Introduction to Biostatistics	

Requirements for the Option

Select an option 48-60

Requirements for the Option Environmental Science Option (58-60 credits)

Code	Title	Credits
Prescribed Courses		
BIOL 220W	Biology: Populations and Communities	4
CED 201	Introductory Environmental and Resource Economics	3
SOILS 450	Environmental Geographic Information Systems	3
<i>Prescribed Courses: Require a grade of C or better</i>		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
ERM 412	Resource Systems Analysis	3
ERM 413W	Case Studies in Ecosystem Management	3
Additional Courses		
GEOG 160	Mapping Our Changing World	3
or GEOG 260	Geographic Information in a Changing World: Introduction to GIScience	
GEOSC 1	Physical Geology	3
or GEOSC 303	Introduction to Environmental Geology	
Select 6 credits from any 400-level ERM courses		6
<i>Additional Courses: Require a grade of C or better</i>		
MATH 111	Techniques of Calculus II	2-4
or MATH 141	Calculus with Analytic Geometry II	

Supporting Courses and Related Areas

Select 3 credits in ecology		3
Select 18 credits of specialization/minor courses in consultation with adviser		18
Select 3 credits in communications/sustainability/leadership		3

Soil Science Option (48-50 credits)

Code	Title	Credits
Prescribed Courses		
SOILS 403	Soil Morphology Practicum	2
SOILS 412W	Soil Ecology	3
SOILS 450	Environmental Geographic Information Systems	3
<i>Prescribed Courses: Require a grade of C or better</i>		
SOILS 416	Soil Genesis, Classification, and Mapping	4
Additional Courses		
BIOL 110	Biology: Basic Concepts and Biodiversity	3-4
or BIOL 127	Introduction to Plant Biology	
FOR 475	Principles of Forest Soils Management	3
or SOILS 404	Urban Soils	
GEOSC 1	Physical Geology	3
or GEOSC 20	Planet Earth	

Select 3-4 credits from the following: 3-4

AGRO 28	Principles of Crop Management	
BIOL 220W	Biology: Populations and Communities	
FOR 203	Field Dendrology	
HORT 101	Horticultural Science	
TURF 235	The Turfgrass	

Select 3 credits from the following: 3

ERM 440	Chemistry of the Environment: Air, Water, and Soil	
SOILS 402	Soil Nutrient Behavior and Management	
SOILS 420	Remediation of Contaminated Soils	

Select 3 credits from the following: 3

GEOC 452	Hydrogeology	
SOILS 401	Soil Composition and Physical Properties	
SOILS 405	Hydropedology	

Supporting Courses and Related Areas

Select 18 credits of specialization/minor courses in consultation with 18 adviser

Water Science Option (58-60 credits)

Code	Title	Credits
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Prescribed Courses

BIOL 220W	Biology: Populations and Communities	4
CED 201	Introductory Environmental and Resource Economics	3
ERM/ASM 309	Measurement & Monitoring of Hydrologic Systems	3
ERM/WFS 435	Limnology	3
ERM 447	Stream Restoration	3
ERM 450	Wetland Science and Sustainability	3
FOR 470	Watershed Management	3

Prescribed Courses: Require a grade of C or better

BIOL 110	Biology: Basic Concepts and Biodiversity	4
ERM 412	Resource Systems Analysis	3
ERM 413W	Case Studies in Ecosystem Management	3

Additional Courses

GEOG 160	Mapping Our Changing World	3
or GEOG 260	Geographic Information in a Changing World: Introduction to GIScience	

Select 3 credits from the following: 3

GEOC 452	Hydrogeology	
SOILS 401	Soil Composition and Physical Properties	
SOILS 405	Hydropedology	

Select 3 credits from the following: 3

CE 370	Introduction to Environmental Engineering	
ERM 448	Rural Road Ecology and Maintenance	
ERM 449	Sustainable Water Management: Economics and Policy	
FOR 303	Herbaceous Forest Plant Identification and Ecology	
FOR 403	Invasive Forest Plants: Identification, Ecology, and Management	
SOILS 450	Environmental Geographic Information Systems	
WFS 410	General Fishery Science	
WFS 422	Ecology of Fishes	

Additional Courses: Require a grade of C or better

MATH 111 Techniques of Calculus II 2-4

or MATH 141 Calculus with Analytic Geometry II

Supporting Courses and Related Areas

Select 12 credits of specialization/minor courses in consultation with 12 adviser

Select 3 credits in communications/sustainability/leadership 3

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- Students will be able to identify, participate in, analyze, document, and evaluate a community- or university-based engaged scholarship experience.
- Students will be able to design and manipulate environmental data sets, and calculate accurate solutions to solve environmental media (air, water, soil) problems.
- Students will be able to integrate, evaluate, and explain information from case studies related to environmental issues.
- Students will be able to develop and understand spatially- and temporally-oriented data, and its organization, analysis and application to environmental and natural resource sciences.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Environmental Science Option: Environmental Resource Management, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CHEM 110 ^{††}	3 CHEM 112	3
AGBM 101 or ECON 102 [†]	3 ENGL 15, 30H, CAS 137H, or ENGL 137H ^{††}	3
MATH 110 or 140 ^{††}	4 MATH 111 or 141	2-4
ERM 151 [*]	1 BIOL 110 [*]	4
First Year Seminar	1-3 General Education Course	3
General Education Course	3	
	15-17	15-17

Second Year

Fall	Credits Spring	Credits
BIOL 220W	4 STAT 200, 240, or 250 ^{††}	3-4
CHEM 111 ^{††}	1 CHEM 202 or 210	3
SOILS 101 ^{††}	3 PHYS 211 or 250 [†]	4
SOILS 102	1 GEOG 260 or 160 [†]	3
CAS 100A, 138T, or ENGL 138T ^{††}	3 General Education Course (GHW)	1.5
General Education Course	3	
	15	14.5-15.5

Third Year

Fall	Credits Spring	Credits
ERM 411	3 ENGL 202C ^{††}	3
ASM 327 [*]	3 CED 201	3
GEOC 303 or 1	3 ERM 300 [*]	3
Ecology Selection	3 Specialization/Minor Course	3
General Education Course	3 Specialization/Minor Course	3
	General Education Course (GHW)	1.5
	15	16.5

Fourth Year

Fall	Credits Spring	Credits
ERM 412*	3 ERM 413W*	3
SOILS 450	3 400 Level ERM Course	3
400 Level ERM Course	3 Communications/ Sustainability/Leadership Selection	3
Specialization/Minor Course	3 Specialization/Minor Course	3
Specialization/Minor Course	3 Specialization/Minor Course	3
	15	15

Total Credits 121-126

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- Please consult with an academic adviser in the development of your plan as some courses are not taught every semester.
- Students with non-engineering interests (specialization areas like soils, water resources, wildlife, biology, ecology, environmental policy) should take MATH 110, MATH 111, and PHYS 250. For students interested in obtaining the Environmental Engineering minor, MATH 140, MATH 141, and PHYS 211 are required. Most ERM students complete MATH 110, MATH 111, and PHYS 250 and specialize in areas pertaining to natural resource conservation.
- US and IL requirements should be fulfilled by selecting GH and GA courses with the appropriate US/IL designation.
- Please consult with your academic adviser regarding the appropriate selection of Specialization/Minor courses.
- **Communications/Sustainability/Leadership Selection Courses:** AEE 360, AEE 440, CAS 213, CAS 214, CAS 250, CAS 352, CIVCM 211, ERM 499, MGMT 215, SUST 200, ERM 402

- **Ecology Selection Courses:** BIOL 415, BIOL 436, BIOL 444, BIOL 446, BIOL 448, BIOL 450W, BIOL 463, BIOL 482, BIOL 499A, ERM 430, ERM 431, ERM 435, ERM 450, HORT 445, SOILS 412W, WFS 422, WFS 430, WFS 466

Soil Science Option: Environmental Resource Management, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CHEM 110 ^{††}	3 CHEM 112	3
AGBM 101 or ECON 102 [†]	3 ENGL 15, 30H, CAS 137H, or ENGL 137H ^{††}	3
MATH 110 or 140 ^{††}	4 SOILS 101 ^{††}	3
ERM 151 [*]	1 SOILS 102	1
First Year Seminar	1-3 CAS 100A, 138T, or ENGL 138T ^{††}	3
General Education Course	3 General Education Course	3
15-17		16

Second Year

Fall	Credits Spring	Credits
BIOL 110 or 127	3-4 PHYS 211 or 250 [†]	4
CHEM 111 ^{††}	1 GEOSC 20 or 1	3
CHEM 202 or 210	3 STAT 200, 240, or 250 ^{††}	3-4
AGRO 28, HORT 101, TURF 235, BIOL 220W, or FOR 203	3-4 General Education Course	3
General Education Course	3	
13-15		13-14

Third Year

Fall	Credits Spring	Credits
SOILS 412W	3 ENGL 202C ^{††}	3
ERM 411	3 SOILS 402, 420, or ERM 440	3
ASM 327 [*]	3 SOILS 401, 405, or GEOSC 452	3
SOILS 403	2 ERM 300 [*]	3
Specialization/Minor Course	3 Specialization/Minor Course	3
General Education Course (GHW)	1.5	
15.5		15

Fourth Year

Fall	Credits Spring	Credits
SOILS 416 [*]	4 SOILS 404 or FOR 475	3
SOILS 450	3 Specialization/Minor Course	3
Specialization/Minor Course	3 Electives	4-7
Specialization/Minor Course	3 General Education Course	3
Specialization/Minor Course	3 General Education Course (GHW)	1.5
16		14.5-17.5

Total Credits 118-126

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- Please consult with an academic adviser in the development of your plan as some courses are not taught every semester.
- Students with non-engineering interests (specialization areas like soils, water resources, wildlife, biology, ecology, environmental policy) should take MATH 110, MATH 111, and PHYS 250. For students interested in obtaining the Environmental Engineering minor, MATH 140, MATH 141, and PHYS 211 are required. Most ERM students complete MATH 110, MATH 111, and PHYS 250 and specialize in areas pertaining to natural resource conservation.
- US and IL requirements should be fulfilled by selecting GH and GA courses with the appropriate US/IL designation.
- Please consult with your academic adviser regarding the appropriate selection of Specialization/Minor courses.

Water Science Option: Environmental Resource Management, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CHEM 110 ^{**}	3 CHEM 112	3
AGBM 101 or ECON 102 [†]	3 ENGL 15, 30H, CAS 137H, or ENGL 137H ^{††}	3
MATH 110 or 140 ^{††}	4 MATH 111 or 141	2-4
ERM 151 [*]	1 BIOL 110 [*]	4
First Year Seminar	1-3 General Education Course	3
General Education Course	3	
	15-17	15-17

Second Year

Fall	Credits Spring	Credits
BIOL 220W	4 STAT 200, 240, or 250 ^{††}	3-4
CHEM 111 ^{**}	1 PHYS 211 or 250 [†]	4
SOILS 101 ^{**}	3 CHEM 202 or 210	3
SOILS 102	1 GEOG 260 or 160 [†]	3
CAS 100A, 138T, or ENGL 138T ^{††}	3 General Education Course (GHW)	1.5
General Education Course	3	
	15	14.5-15.5

Third Year

Fall	Credits Spring	Credits
ERM/ASM 309	3 ENGL 202C ^{††}	3
ERM 411	3 CED 201	3
ASM 327 [*]	3 ERM 300 [*]	3
Specialization/Minor Course	3 Specialization/Minor Course	3
General Education Course	3 Specialization/Minor Course	3
	General Education Course (GHW)	1.5
	15	16.5

Fourth Year

Fall	Credits Spring	Credits
ERM 450	3 ERM 412 [*]	3
ERM 447	3 ERM 413W [*]	3
GEOC 452, SOILS 405, or SOILS 401	3 FOR 470	3
ERM 435	3 ERM 440, 448, 449, CE 370, FOR 303, FOR 403, SOILS 450, WFS 410, or WFS 422	3
Communications/Sustainability/Leadership Selection	3 Specialization/Minor Course	3
	15	15

Total Credits 121-126

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- Please consult with an academic adviser in the development of your plan as some courses are not taught every semester.
- Students with non-engineering interests (specialization areas like soils, water resources, wildlife, biology, ecology, environmental policy) should take MATH 110, MATH 111, and PHYS 250. For students interested in obtaining the Environmental Engineering minor, MATH 140, MATH 141, and PHYS 211 are required. Most ERM students complete MATH 110, MATH 111, and PHYS 250 and specialize in areas pertaining to natural resource conservation.
- US and IL requirements should be fulfilled by selecting GH and GA courses with the appropriate US/IL designation.
- Please consult with your academic adviser regarding the appropriate selection of Specialization/Minor courses.
- **Communications/Sustainability/Leadership Selection Courses:** AEE 360, AEE 440, CAS 213, CAS 214, CAS 250, CAS 352, CIVCM 211, ERM 499, MGMT 215, SUST 200, ERM 402

Environmental Science Option: Environmental Resource Management, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CHEM 110 ^{**†}	3 CHEM 112	3
CHEM 111 ^{**†}	1 ENGL 15, 30H, CAS 137H, or ENGL 137H ^{††}	3
AGBM 101 or ECON 102 [†]	3 MATH 111 or 141	2-4
MATH 110 or 140 ^{††}	4 CAS 100A, 138T, or ENGL 138T ^{††}	3
First Year Seminar	1-3 General Education Course	3
General Education Course	3	
15-17		14-16

Second Year

Fall	Credits Spring	Credits
BIOL 110 [*]	4 BIOL 220W	4
CHEM 202 or 210	3 PHYS 211 or 250 [†]	4
STAT 200, 240, or 250 ^{††}	3-4 ENGL 202C ^{††}	3
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
14.5-15.5		15.5

Third Year

Fall	Credits Spring	Credits
ERM 151 [*]	1 CED 201	3
SOILS 101 ^{**†}	3 ERM 300 [*]	3
SOILS 102	1 400 Level ERM Course	3
ERM 411	3 Specialization/Minor Course	3
ASM 327 [*]	3 Specialization/Minor Course	3
GEOSC 303 or 1	3	
GEOG 260 or 160 [†]	3	
17		15

Fourth Year

Fall	Credits Spring	Credits
ERM 412 [*]	3 ERM 413W [*]	3
SOILS 450	3 400 Level ERM Course	3
Ecology Selection	3 Communications/ Sustainability/Leadership Selection	3
Specialization/Minor Course	3 Specialization/Minor Course	3
Specialization/Minor Course	3 Specialization/Minor Course	3
15		15

Total Credits 121-126

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Please consult with an academic adviser in the development of your plan as some courses are not taught every semester.
- Students with non-engineering interests (specialization areas like soils, water resources, wildlife, biology, ecology, environmental policy) should take MATH 110, MATH 111, and PHYS 250. For students interested in obtaining the Environmental Engineering minor, MATH 140, MATH 141, and PHYS 211 are required. Most ERM students complete MATH 110, MATH 111, and PHYS 250 and specialize in areas pertaining to natural resource conservation.
- US and IL requirements should be fulfilled by selecting GH and GA courses with the appropriate US/IL designation.
- Please consult with your academic adviser regarding the appropriate selection of Specialization/Minor courses.
- **Communications/Sustainability/Leadership Selection Courses:** AEE 360, AEE 440, CAS 213, CAS 214, CAS 250, CAS 352, CIVCM 211, ERM 499, MGMT 215, SUST 200, ERM 402
- **Ecology Selection Courses:** BIOL 415, BIOL 436, BIOL 444, BIOL 446, BIOL 448, BIOL 450W, BIOL 463, BIOL 482, BIOL 499A, ERM 430, ERM 431, ERM 435, ERM 450, HORT 445, SOILS 412W, WFS 422, WFS 430, WFS 466

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

Soil Science Option: Environmental Resource Management, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CHEM 110 ^{**†}	3 CHEM 112	3
AGBM 101 or ECON 102 [†]	3 ENGL 15, 30H, CAS 137H, or ENGL 137H ^{††}	3
MATH 110 or 140 ^{††}	4 CAS 100A, 138T, or ENGL 138T ^{††}	3
First Year Seminar	1-3 GEOSC 20 or 1	3
General Education Course	3 General Education Course	3
14-16		15

Second Year

Fall	Credits Spring	Credits
BIOL 110 or 127	3-4 PHYS 211 or 250 [†]	4
CHEM 111 ^{**†}	1 ENGL 202C ^{††}	3
CHEM 202 or 210	3 General Education Course	3
STAT 200, 240, or 250 ^{††}	3-4 General Education Course	3
General Education Course	3 General Education Course (GHW)	1.5
General Education Course (GHW)	1.5	
14.5-16.5		14.5

Third Year

Fall	Credits Spring	Credits
SOILS 101 ^{**†}	3 AGRO 28, HORT 101, TURF 235, BIOL 220W, or FOR 203	3-4
SOILS 102	1 SOILS 402, 420, or ERM 440	3
ERM 151 [*]	1 SOILS 401, 405, or GEOSC 452	3
SOILS 412W	3 ERM 300 [*]	3
ERM 411	3 Specialization/Minor Course	3
ASM 327 [*]	3	
SOILS 403	2	
16		15-16

Fourth Year

Fall	Credits Spring	Credits
SOILS 416 [*]	4 SOILS 404 or FOR 475	3
SOILS 450	3 Specialization/Minor Course	6
Specialization/Minor Course	3 Elective	3-7
Specialization/Minor Course	3	
Specialization/Minor Course	3	
16		12-16

Total Credits 117-126

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Please consult with an academic adviser in the development of your plan as some courses are not taught every semester.
- Students with non-engineering interests (specialization areas like soils, water resources, wildlife, biology, ecology, environmental policy) should take MATH 110, MATH 111, and PHYS 250. For students interested in obtaining the Environmental Engineering minor, MATH 140, MATH 141, and PHYS 211 are required. Most ERM students complete MATH 110, MATH 111, and PHYS 250 and specialize in areas pertaining to natural resource conservation.
- US and IL requirements should be fulfilled by selecting GH and GA courses with the appropriate US/IL designation.
- Please consult with your academic adviser regarding the appropriate selection of Specialization/Minor courses.

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Water Science Option: Environmental Resource Management, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CHEM 110 ^{**†}	3 CHEM 112	3
CHEM 111 ^{**†}	1 ENGL 15, 30H, CAS 137H, or ENGL 137H ^{††}	3
AGBM 101 or ECON 102 [†]	3 MATH 111 or 141	2-4
MATH 110 or 140 ^{††}	4 CAS 100A, 138T, or ENGL 138T ^{††}	3
First Year Seminar	1-3 General Education Course	3
General Education Course	3	
15-17		14-16

Second Year

Fall	Credits Spring	Credits
BIOL 110 [*]	4 BIOL 220W	4
CHEM 202 or 210	3 PHYS 211 or 250 [†]	4
STAT 200, 240, or 250 ^{††}	3-4 ENGL 202C ^{††}	3
General Education Course	3 GEOG 260 or 160 [†]	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
14.5-15.5		15.5

Third Year

Fall	Credits Spring	Credits
ERM 151 [*]	1 CED 201	3
ERM/ASM 309	3 General Education Course	3
ERM 411	3 ERM 300 [*]	3
ASM 327 [*]	3 Specialization/Minor Course	3
SOILS 101 ^{**†}	3 Specialization/Minor Course	3
SOILS 102	1	
Specialization/Minor Course	3	
17		15

Fourth Year

Fall	Credits Spring	Credits
ERM 435	3 ERM 412 [*]	3
ERM 450	3 ERM 413W [*]	3
ERM 447	3 FOR 470	3
GEOSC 452, SOILS 405, or SOILS 401	3 ERM 440, 448, 449, CE 370, FOR 303, FOR 403, SOILS 450, WFS 410, or WFS 422	3
Communications/Sustainability/Leadership Selection	3 Specialization/Minor Course	3
15		15

Total Credits 121-126

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Please consult with an academic adviser in the development of your plan as some courses are not taught every semester.
- Students with non-engineering interests (specialization areas like soils, water resources, wildlife, biology, ecology, environmental policy) should take MATH 110, MATH 111, and PHYS 250. For students interested in obtaining the Environmental Engineering minor, MATH 140, MATH 141, and PHYS 211 are required. Most ERM students complete MATH 110, MATH 111, and PHYS 250 and specialize in areas pertaining to natural resource conservation.
- US and IL requirements should be fulfilled by selecting GH and GA courses with the appropriate US/IL designation.
- Please consult with your academic adviser regarding the appropriate selection of Specialization/Minor courses.
- **Communications/Sustainability/Leadership Selection Courses:** AEE 360, AEE 440, CAS 213, CAS 214, CAS 250, CAS 352, CIVCM 211, ERM 499, MGMT 215, SUST 200, ERM 402

Career Paths

Environmental Resource Management graduates find exciting opportunities in government agencies at the local (e.g., municipal and county resource agencies), state (e.g., Pennsylvania Department of Environmental Protection and Department of Conservation and Natural Resources), and federal (e.g., EPA, USDA Natural Resource Conservation Service, U.S. Geological Survey, Army Corps of Engineers, National Park Service) levels. Private-sector jobs include environmental consulting firms responsible for stream restoration, wetland delineation, and environmental assessments, as well as utility and manufacturing companies. Nonprofit organizations, such as watershed associations and conservancies, also offer opportunities.

MORE INFORMATION ABOUT POTENTIAL CAREER PATHS FOR GRADUATES OF THE ENVIRONMENTAL RESOURCE MANAGEMENT PROGRAM (<https://agsci.psu.edu/academics/undergraduate/majors/environmental-resource-management/>)

EXPLORE THE WHAT CAN I DO WITH THIS MAJOR TOOL AT PENN STATE CAREER SERVICES (<https://studentaffairs.psu.edu/career/resources/planning/>)

* Course requires a grade of C or better for the major

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://studentaffairs.psu.edu/career/resources/grad-school/#entrance>)

Professional Resources

- Society of Wetland Scientists Professional Certification Program (<https://www.wetlandcert.org>)
- Certified Professional Soil Scientist (<https://www.soils.org/certifications/become-certified/>)
- Professional Hydrologist (<https://www.aihydrology.org/examinations/membership-categories/>)
- Certified Hazardous Materials Manager (<https://ihmm.org/chmm/>)
- Certified Professional in Erosion & Sediment Control™ (<https://envirocert.org/cpesc/>)
- Agricultural Stewardship and Conservation Certification (p. 46)
- LEED Certification (<https://support.usgbc.org/hc/en-us/>)

Contact

University Park

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<https://agsci.psu.edu/academics/undergraduate/majors/environmental-resource-management> (<https://agsci.psu.edu/academics/undergraduate/majors/environmental-resource-management/>)

Environmental Resource Management, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Environmental Resource Management (ERM) minor is designed to provide science-based non-majors with a cohesive selection of courses related to the sustainable management of environmental resources.

The minor was developed to permit students from other majors to have their environmental interests and training formally documented on their academic records. Because so many of society's activities have an impact on environmental quality, the minor should appeal to students with majors from a wide variety of science-based disciplines.

The ERM minor includes an introduction to calculations and problem-solving skills common to managing environmental resources, and allows students to select a wide variety of other ERM courses that cater to their strengths and interests. Students may also elect to take courses in environmental law, resource allocation and economics, and soil sustainability and management. Individual programs are determined jointly by the student and the ERM Program Coordinator.

What is Environmental Resource Management?

Environmental Resource Management is a multidisciplinary undergraduate experience in the environmental sciences and resource management that includes classroom, laboratory, field and experiential learning. ERM deals with natural resources, conservation and land management issues.

You Might Like This Program If...

- You are interested in spending time outdoors in the field gathering data and monitoring environmental conditions.
- You have a passion for conservation and natural resource issues.
- You are interested in making a difference by solving real-world problems.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 18 credits of the following:		18
ASM 327	Soil and Water Resource Management	
SOILS 101	Introductory Soil Science	
Any ERM course (at least 6 credits must be at the 400-level)		

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Academic Advising Coordinator
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Career Paths

Environmental Resource Management graduates find exciting professional opportunities in government agencies at the local, state, and federal levels; private sector industries; and not-for profit organizations.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN ENVIRONMENTAL RESOURCE MANAGEMENT (<https://agsci.psu.edu/academics/undergraduate/minors/environmental-resource-management/>)

Contact

University Park

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<https://agsci.psu.edu/academics/undergraduate/minors/environmental-resource-management> (<https://agsci.psu.edu/academics/undergraduate/minors/environmental-resource-management/>)

Environmental Soil Science, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Environmental Soil Science minor enables students to acquire scientific and field-related skills in preparation for environmental careers. Students learn to understand and apply soils and land use information in a wide variety of professional settings. The Environmental Soil Science minor will prepare students for jobs as professional soil scientists or for graduate studies in Soil Science and other interdisciplinary environmental sciences.

What is Environmental Soil Science?

Soil is a critical component of terrestrial ecosystems, enabling plant growth and production of food, feed, and fiber for Earth's human population. It also provides critical ecosystem services including water quantity and quality, carbon and nutrient cycling and retention, and habitat. Soil science is the systematic study of soil formation, distribution, and mapping; soil physical, chemical, and biological properties, processes and functions; and soil management, use, and restoration.

You Might Like This Program If...

- You are interested in sustainable production of food, feed, and fiber for Earth's rapidly increasing population.
- You are concerned about degradation of water quality and restoration of aquatic habitats.
- You are interested in restoration of soils that have been degraded by processes such as erosion, desertification, or salinization.
- You are concerned about management and preservation of natural areas and wildlife habitats.

Program Requirements

Requirement	Credits
Requirements for the Minor	18-19

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
SOILS 101	Introductory Soil Science	3
SOILS 102	Introductory Soil Science Laboratory	1
SOILS 403	Soil Morphology Practicum	2
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
In consultation with an Environmental Soil Science adviser, select 12-13 credits from the following (including at least 6 credits at the 400-level):		12-13
SOILS courses		
ASM 327	Soil and Water Resource Management	
CE 335	Engineering Mechanics of Soils	
ERM 433	Transformation of Pollutants in Soils	
ERM 440	Chemistry of the Environment: Air, Water, and Soil	
FOR 475	Principles of Forest Soils Management	
TURF 434	Turfgrass Edaphology	
TURF 435	Turfgrass Nutrition	

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Career Paths

The Environmental Soil Science minor can help prepare students for jobs as professional soil scientists or for graduate studies in soil science and other interdisciplinary environmental sciences.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN ENVIRONMENTAL SOIL SCIENCE (<https://www.soils.org>)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://ecosystems.psu.edu/graduate/soil-science/>)

Contact

University Park

DEPARTMENT OF ECOSYSTEM SCIENCE AND MANAGEMENT
117 Forest Resources Building
University Park, PA 16802
814-865-7521

<https://ecosystems.psu.edu>

Equine Science, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Equine Science minor is designed for students who wish to supplement their academic major with studies in equine science. Students are required to complete a minimum of 22 credits. The core prescribed courses develop a foundation in the basic disciplines of animal science and equine science. Additional courses may be selected by the student to allow further specialization and expertise in exercise physiology and training principles, business/farm management, animal genetics and breeding, nutrition, physiology, and using horses for human therapy. With completion of this minor, students will have a foundation of theoretical and practical knowledge along with skills for adapting to changes in equine industry. Courses in the minor are appropriate for students with and without prior academic or practical experience with horses. The University Horse Farms and the Agricultural Arena are used extensively for supplementing classroom work with hands-on laboratories. Completion of this minor will enhance a student's ability to work directly in horse production and management and allied industries, or continue academic studies in graduate or professional school.

What is Equine Science?

Equine science is a branch of animal science focused on the scientific study of horses and related equids. Areas of study include nutrition, physiology, reproduction, genetics, growth, behavior, and management. The integration of these individual disciplines forms the basis for horse care and management. The business side of equine science includes farm management, marketing, and public relations.

You Might Like This Program If...

- You are passionate about horses.
- You would like to develop a specialization within Animal Science.

- You want to understand why we choose certain management strategies.
- You want to pursue a career related to horses.

Program Requirements

Requirement	Credits
Requirements for the Minor	22

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Some selections may require prerequisites not required by the minor.

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ANSC 107	Introduction to Equine Science and the Equine Industry	3
ANSC 201	Animal Science	4
ANSC 217	Introduction to Horse Judging	2
ANSC 327	Horse Production and Management	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits of the following:		3
ANSC 437	Equine Facilitated Therapy	
ANSC 447	Equine Exercise Physiology	
ANSC 457	Equine Reproduction and Breeding Farm Management	
ANSC 467W	Equine Nutrition and Feeding	
Select 6-7 credits from the following (3 credits must be at the 400-level):		6-7
AGRO 423	Forage Crop Management	
ANSC 117	Equine Marketing	
ANSC 317	Horse Handling and Training	
ANSC 415	Companion Animal Behavior	
ANSC 418	Nutrient Management in Agricultural Systems	
ANSC 419W	Applied Animal Welfare	
ANSC 420	Animal Nutrition and Feed Technology	
ANSC 423	Comparative Physiology of Domestic Animals	
ANSC 427	Milk Secretion	
ANSC 431	Physiology of Animal Reproduction	
ANSC 437	Equine Facilitated Therapy	
ANSC 447	Equine Exercise Physiology	
ANSC 457	Equine Reproduction and Breeding Farm Management	
ANSC 467W	Equine Nutrition and Feeding	
ANSC 477	Riding Instructor Training	
VBSC 403	Principles of Animal Disease Control	

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Ann L. Macrina

Teaching Professor

322 Agricultural Sciences & Industries Building

University Park, PA 16802

814-863-4202

alm106@psu.edu

Career Paths

Penn State students with an Equine Science minor have successfully established careers in a wide array of fields. Their in-depth study in one or more subject areas demonstrates expertise valued by employers. Students are encouraged to participate in internships, externships, work experiences, and departmental research, all of which provide hands-on learning. Many of these opportunities are publicized through the Animal Science Student Services office.

Careers

Career opportunities in equine science are limited only by your imagination. If you think of anything related to a horse or horse management, there's a career related to it. Some examples include veterinarian, research scientist, stable manager, feed industry sales/service, pharmaceutical sales/service, breeding lab manager, ag finance, equipment sales/service, animal caretaker, marketing director, public relations, sales preparation/management, trainer, cooperative extension, and retail sales.

Opportunities for Graduate Studies

Equine Science students who wish to pursue graduate studies can find opportunities at numerous institutions. These include Master's, Ph.D., and D.V.M./V.M.D. programs at land-grant institutions, veterinary schools, and other institutions with equine and animal science areas of study.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://animalscience.psu.edu/graduate/>)

Contact

University Park

DEPARTMENT OF ANIMAL SCIENCE

109 Animal, Veterinary and Biomedical Sciences Building

University Park, PA 16802

814-983-3665

AskDAS@psu.edu

<https://animalscience.psu.edu>

Food Science, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The food science major builds on a strong foundation in the sciences, especially chemistry and biology, and applies that knowledge to solving practical problems in food processing. It is a very hands-on program where students work in labs and small-scale processing facilities to put their learning into practice. Graduates enjoy excellent career prospects in the food industry where they can immediately put their knowledge into action developing, manufacturing and regulating the foods we eat every day.

You Might Like this Program If...

- You are interested in using science to solve practical problems
- You want a major that involves doing as well as thinking
- You're looking for a major with excellent career prospects

MORE INFORMATION ABOUT WHY STUDENTS CHOOSE TO STUDY FOOD SCIENCE (<https://foodscience.psu.edu/undergraduate/resources/why/>)

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Food Science, a minimum of 121 credits is required:

Requirement	Credits
General Education	45
Electives	2
Requirements for the Major	98

24 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 9 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
BMB 211	Elementary Biochemistry	3
BMB 212	Elementary Biochemistry Laboratory	1
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
CHEM 113	Experimental Chemistry II	1
CHEM 202	Fundamentals of Organic Chemistry I	3
FDSC 409	Laboratory in Food Microbiology	2
FDSC 410	Food Chemistry and Analysis (II)	3
FDSC 411	Managing Food Quality	3
FDSC 413	Science and Technology of Plant Foods	3
FDSC 414	Science and Technology of Dairy Foods	3
FDSC 415	Science and Technology of Muscle Foods	3
FDSC 417	Food Laws and Regulations	3
FDSC 450	Food Innovation and Product Design	3
MICRB 201	Introductory Microbiology	3
MICRB 202	Introductory Microbiology Laboratory	2
PHYS 250	Introductory Physics I	4
<i>Prescribed Courses: Require a grade of C or better</i>		
CAS 100	Effective Speech	3
ENGL 15	Rhetoric and Composition	3
FDSC 200	Introductory Food Science	3
FDSC 201	Introductory Food Science Practicum	1
FDSC 400	Food Chemistry and Analysis (I)	3
FDSC 405	Food Engineering Principles	3
FDSC 406W	Physiology of Nutrition	3
FDSC 408	Food Microbiology	3
STAT 250	Introduction to Biostatistics	3
Additional Courses		
FDSC 403 or FDSC 404	Sensory Data Collection & Analysis Sensory Evaluation of Foods	3
<i>Additional Courses: Require a grade of C or better</i>		
ENGL 202C or ENGL 202D	Effective Writing: Technical Writing Effective Writing: Business Writing	3
MATH 110 or MATH 140 or MATH 140B	Techniques of Calculus I Calculus With Analytic Geometry I Calculus and Biology I	4
Supporting Courses and Related Areas		
To reflect the student's career interests, select 12 credits from department list or in consultation with adviser		12

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education

Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- Students will apply the fundamental principles of engineering and unit operations related to preservation, packaging, and cleaning and sanitation in order to manufacture safe and nutritious foods.
- Students will be able to apply the fundamental concepts central to Food Science (e.g. engineering, microbiology, chemistry, etc) with consideration for the legal, economic, and ethical constraints surrounding food production and consumption.
- Students will evaluate how people interact with food with respect to biology, behavior, and culture.
- Students will be able to identify and characterize beneficial, pathogenic, and spoilage microorganisms in foods, and to use their knowledge of microbial growth, injury, and cell death to control the growth of microorganisms in foods and to solve applied food microbiology problems.
- Students will be able to describe the chemical composition of foods, the properties and reactions of food components, and analyze the major and minor components of foods.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Food Science, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year		
Fall	Credits Spring	Credits
BIOL 110 [†]	4 CHEM 112 [†]	3
CHEM 110 [†]	3 CHEM 113 [†]	1
CHEM 111 [†]	1 MATH 140 (GQ) ^{††}	4
ENGL 15 ^{††}	3 Supporting Course ²	3
FDSC 150S (First-Year Seminar)	2 General Education Course ¹	3
General Education Course ¹	3 General Education Course ¹	3
16		17

Second Year		
Fall	Credits Spring	Credits
CHEM 202	3 BMB 211	3
FDSC 200 [*]	3 BMB 212	1
FDSC 201 [*]	1 ENGL 202C or 202D ^{††}	3
MICRB 201	3 PHYS 250	4
MICRB 202	2 STAT 250 (GQ) ^{††}	3
General Education Course ¹	3 General Education Course ¹	3
15		17

Third Year		
Fall	Credits Spring	Credits
FDSC 400 [*]	3 CAS 100A or 100B ^{††}	3
FDSC 408 [*]	3 FDSC 405 [*]	3
FDSC 409	2 FDSC 406W [*]	3
General Education Course ¹	3 FDSC 410	3
General Education Course ¹	3 Supporting Course ²	3
14		15

Fourth Year		
Fall	Credits Spring	Credits
FDSC 404	3 FDSC 414	3
FDSC 411	3 FDSC 415	3
FDSC 413	3 FDSC 417	3
FDSC 450	3 Supporting Course ²	3
Supporting Course ²	3	
15		12

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ (6) credit minimum of GH, GS, and GA General Education courses, and (3) credits minimum for the GHW requirement are needed and may be taken in any sequence.

² Supporting courses can be selected from a wide range of courses which serve to advance your professional development as a food scientist. Please consult with an Academic Adviser before scheduling.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- FDSC 406W, a required course within the Food Science Degree, satisfies the University's Writing Across the Curriculum requirement.
- General Education Foundations (GWS and GQ) – both require a grade of a "C" or better. Typically, the GQ General Education Requirements are met by MATH 140 and STAT 250, which are also required for the major. If these courses are used to meet GQ requirements, then they require a "C" or better.
- General Education Knowledge Domains (GHW, GN, GA, GH, GS, and Integrative Studies). Typically, GN requirements are met by other requirements of the food science major (i.e., BIOL 110, CHEM 110, CHEM 111, CHEM 112, CHEM 113).

Food Science, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110 [†]	4 CHEM 112 [†]	3
CHEM 110 [†]	3 CHEM 113 [†]	1
CHEM 111 [†]	1 MATH 140 (GQ) ^{‡†}	4
ENGL 15 ^{‡†}	3 FDSC 200 [*]	3
First-Year Seminar	2 General Education Course ¹	3
General Education Course ¹	3 General Education Course ¹	3
	16	17

Second Year

Fall	Credits Spring	Credits
CHEM 202	3 BMB 211	3
MICRB 201	3 BMB 212	1
MICRB 202	2 ENGL 202C or 202D ^{‡†}	3
Supporting Course ²	3 PHYS 250	4
General Education Course ¹	3 STAT 250 (GQ) ^{‡†}	3
General Education Course ¹	3 General Education Course ¹	3
	17	17

Third Year

Fall	Credits Spring	Credits
FDSC 201 [*]	1 CAS 100A or 100B ^{‡†}	3
FDSC 400 [*]	3 FDSC 405 [*]	3
FDSC 408 [*]	3 FDSC 406W [*]	3
FDSC 409	2 FDSC 410	3
General Education Course ¹	3 Supporting Course ²	3
	12	15

Fourth Year

Fall	Credits Spring	Credits
FDSC 404	3 FDSC 414	3
FDSC 411	3 FDSC 415	3
FDSC 413	3 FDSC 417	3
FDSC 450	3 Supporting Course ²	3
Supporting Course ²	3	
	15	12

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ (6) credit minimum of GH, GS, and GA General Education courses, and (3) credits minimum for the GHW requirement are needed and may be taken in any sequence.

² Supporting courses can be selected from a wide range of courses which serve to advance your professional development as a food scientist. Please consult with an Academic Adviser before scheduling.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- FDSC 406W, a required course within the Food Science Degree, satisfies the University's Writing Across the Curriculum requirement.
- General Education Foundations (GWS and GQ) – both require a grade of a "C" or better. Typically, the GQ General Education Requirements are met by MATH 140 and STAT 250, which are also required for the major. If these courses are used to meet GQ requirements, then they require a "C" or better.
- General Education Knowledge Domains (GHW, GN, GA, GH, GS, and Integrative Studies). Typically, GN requirements are met by other requirements of the food science major (i.e., BIOL 110, CHEM 110, CHEM 111, CHEM 112, CHEM 113).
- Not all classes listed within the commonwealth plan are available to students. Please consult your assigned Academic Adviser and consider clarifying with University Park's Academic Adviser for approved substitute courses.

Career Paths

Because of the high demand for food scientists in industry, government agencies, and research institutions, many Penn State Food Science graduates have job offers before graduation with excellent starting salaries. Others go on to graduate school in food science with a view to more research-focused careers in academia, government, and industry.

Careers

Most of our graduates go straight into careers in the food industry where they use what they've learned to develop new products, supervise manufacturing operations, and work to ensure food quality and safety. Other graduates work in government agencies to enforce the regulations that keep our food supply safe.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE FOOD SCIENCE PROGRAM (<https://foodscience.psu.edu/undergraduate/resources/careers/>)

Opportunities for Graduate Studies

An M.S. or Ph.D. degree in food science can open doors to careers in research and development in the food industry or academia.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://foodscience.psu.edu/graduate/>)

Professional Resources

- Institute of Food Technologists (<https://www.ift.org/>)

Accreditation

The undergraduate program in Food Science is approved by the Institute of Food Technologists, the professional body of food scientists.

MORE INFORMATION ABOUT THE INSTITUTE OF FOOD TECHNOLOGISTS (<https://www.ift.org/community/students/undergraduate-programs/>)

Contact

University Park

DEPARTMENT OF FOOD SCIENCE
202 Rodney A. Erickson Food Science Building
University Park, PA 16802
814-865-5444
foodsci@psu.edu

<https://foodscience.psu.edu/about/contact> (<https://foodscience.psu.edu/about/contact/>)

Food Systems, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The FDSYS minor will educate and prepare students for existing and emerging food systems careers by designing and delivering an integrative, interdisciplinary Food Systems minor that is learner-centered, experiential and stakeholder-responsive. The minor uses a competency-oriented approach to inform its curriculum, reflective interdisciplinary collaboration, and food systems stakeholder involvement.

Competencies and Guiding Principles of the Food Systems Minor

A comprehensive ecology of knowledge framework emphasizes both what is taught, and how it is taught as mutually supportive components of education. The competencies of the minor are the what: the student learning objectives that graduates of the Food Systems minor are expected to demonstrate proficiency in. The guiding principles of the Food Systems minor are the how: they serve as a roadmap for how the courses and experiences in the minor will support the learning objectives.

Competencies

Students who complete the Food Systems Minor will:

1. Solve complex problems: Analyze, plan, act on and evaluate solutions across multiple domains of the food system, including health, science, economics and business, community, agriculture, the food service industry, and policy.
2. Use evidence from multiple ways of knowing (epistemologies) to analyze, select and assess food systems problems and solutions. Different knowledge include scientific, social, cultural, historical, political, indigenous, and local perspectives.

3. Respect and critically reflect on one's own and others' perspectives and values to understand how these perspectives and values influence food systems decisions.
4. Be civically engaged both locally and globally to enable positive change in food and agricultural systems.

Guiding Principles

1. Experiential learning. Courses and related activities will offer students place-based, learning experiences in food systems beyond the classroom, thereby integrating theoretical and practical knowledge. Activities will include engaged scholarship, internships, service learning, research, and other creative and professional work experiences. For example, the required Supervised Field Engagement Experience will provide opportunity for personalized work on food systems related topics, practice in stakeholder engagement, and network-building for students with potential future employers.
2. Interdisciplinary problems and project-based learning. Problem-based learning, experiential and stakeholder-driven projects, and systems-oriented inquiry have been linked to positive student appraisal of competency development for individual courses (Galt et al. 2013). Courses and related experiences will incorporate pedagogies and curricula that emphasize students' engagement with interdisciplinary food system problem-posing (inquiry) and project-based learning, thereby placing students at the center of their learning.
3. Community partnerships and engagement. Courses and related experiences will advance students' and community partners' knowledge, skills, and dispositions toward forming and maintaining partnerships in service towards food systems security and mutually beneficial community, health, and environmental sustainability goals.
4. Personal transformation through reflection. Courses and related experiences will provide opportunities for students, instructors, and allied partners to reflect (individually and collectively) upon their learning about a wide range of issues associated with environmental sustainability, economic development and community prosperity, justice and well-being with an intention to articulate change in one's own understandings.
5. Collaboration and deliberation. Courses and related experiences will promote among students, instructors and allied partners opportunities to develop knowledge, skills and dispositions inherent to democratic/civic participation.
6. Career stakeholder engagement. Courses and related experiences will engage food systems stakeholders and prospective employers from government, industry and non-profit sectors. By assessing stakeholders' understandings of critical competencies for successful food systems work, Food Systems minor graduates will be better prepared to address current food system challenges and also achieve their personal and professional goals.

Program Requirements

Requirement	Credits
Requirements for the Minor	18-19

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits		
Prescribed Courses			ANSC/FDSC 207	Animal Products Technology
<i>Prescribed Courses: Require a grade of C or better</i>			ANSC/FDSC 208	Animal Products Technology Laboratory
AGBM 170	Investigating the U.S. Food System: How food moves from field to table	3	ENT 222	
FDSYS 490	From Agriculture to Culture: Perspectives on your food from seed to plate	1	ERM 210	Environmental Factors and Their Effect on Your Food Supply
FDSYS 495	Internship	2-3	HORT 101	Horticultural Science
Additional Courses			HORT 431	Small Fruit Culture
<i>Additional Courses: Require a grade of C or better</i>			HORT 432	Deciduous Tree Fruits
Select 3 credits each from two of the three topic areas. At least one selected additional course should be at the 400-level:		6	HORT 433	Vegetable Crops
Topic Area: Agricultural and Environmental Sciences:			INTAG 300	Tropical Agriculture and Food Systems
AGECO 134N	Sustainable Agriculture Science and Policy		PLANT 220	Gardening for Fun and Profit
AGECO/ENT 457	Principles of Integrated Pest Management		PPEM 120	The Fungal Jungle: A Mycological Safari From Truffles to Slime Molds
AGRO 28	Principles of Crop Management		PPEM 225	Mushroom Cultivation
ANSC 100	Introduction to Animal Industries		PPEM 300	Horticultural Crop Diseases
Topic Area: Food, Nutrition and Health:			SOILS 101	Introductory Soil Science
FDSC 200	Introductory Food Science		SOILS 402	Soil Nutrient Behavior and Management
NUTR 100	Nutrition Applications for a Healthy Lifestyle		SOILS 412W	Soil Ecology
NUTR 175			SOILS 422	Natural Resources Conservation and Community Sustainability
NUTR 251	Introductory Principles of Nutrition		Food, Nutrition, and Health:	
HM/FDSYS 407	The Sustainable Fork: Food Systems Decisions for Away-From-Home Eating		BBH 130	Strategies for Addressing the Obesity and Diabetes Epidemics
Topic Area: Human and Social Dimensions:			FDSC/STS 105	Food Facts and Fads
CED/FDSYS 442	Changing Food Systems: Comparative Perspectives		FDSC 200	Introductory Food Science
CI 304N	Food, Farms & Justice: What's Education Got To Do With Them?		FDSC 406W	Physiology of Nutrition
GEOG 3N	Food and the Future Environment		FDSC 460	International Food Production
HIST 111	Introduction to U.S. Food History		HM 304	Institutional Food Service Management
Supporting Courses and Related Areas			HM 329	
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>			HM 330	Food Production and Operations Management
Select 6 credits from approved list in consultation with the minor adviser. At least 3 of the credits must be from the topic area not selected under Additional Courses. The following courses are recommended for meeting the requirements of the minor. Students may substitute courses to meet this requirement in consultation with the minor adviser.		6	HM/FDSYS 407	The Sustainable Fork: Food Systems Decisions for Away-From-Home Eating
Agricultural and Environmental Sciences:			HM 413	New Product Development for Commercial Foodservice
AGECO 134N	Sustainable Agriculture Science and Policy		HM 430	Applied Leadership in Foodservice Operations Management
AGECO 144	Principles and Practices of Organic Agriculture		NUTR 100	Nutrition Applications for a Healthy Lifestyle
AGECO 201	Introductory Agroecology		NUTR 119	Elementary Foods
AGECO/ANSC/SOILS 418	Nutrient Management in Agricultural Systems		NUTR 175Z	Healthy Food for All: Factors that Influence What we Eat in the US
AGECO/ENT 457	Principles of Integrated Pest Management		NUTR 361	Community and Public Health Nutrition
AGRO 28	Principles of Crop Management		NUTR 421	Biocultural Perspectives on Public Health Nutrition
AGRO 423	Forage Crop Management		NUTR 425	Global Nutrition Problems: Health, Science, and Ethics
AGRO 425	Field Crop Management		Human and Social Dimensions:	
ANSC 100	Introduction to Animal Industries		AG/CED 160	Introduction into Ethics and Issues in Agriculture
ANSC 201	Animal Science		AGBM 102	Economics of the Food System
			AGBM 302	Food Product Marketing
			AGBM 460	Managing the Food System
			ANTH 120	First Farmers
			ANTH 140	Anthropology of Alcohol
			ANTH 152	Hunters and Gatherers

ANTH 375Q	Anthropology of Food Honors
CI 304N	Food, Farms & Justice: What's Education Got To Do With Them?
CED 155	Science, Technology and Public Policy
CED/FDSYS 442	Changing Food Systems: Comparative Perspectives
ENGL 179	Exploring the Literature of Food: Current Trends in American Food Writing and Environmentalism
GEOG 3N	Food and the Future Environment
HIST 111	Introduction to U.S. Food History
HIST 451	The Consumer Revolution
HORT 150N	Plants in the Human Context
INTAG 100	
JST/RLST 405	

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Forest Ecosystem Management, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The mission of the B.S. program in Forest Ecosystem Management is to help students develop the knowledge, skills, and professional

ethics for understanding and managing forest ecosystems and living as responsible members of society.

The Forest Ecosystem Management major provides for the education necessary for students to pursue professional careers in one of the following options:

1. Forest Biology
2. Forest Management
3. Community and Urban Forest Management
4. Watershed Management

These options also will prepare students for graduate studies in continuing professional education.

Forest Biology Option

This option provides a strong background in the biological and ecological aspects of contemporary forestry and establishes a sound foundation for professional employment and graduate-level study in forest and environmental sciences.

Forest Management Option

This option provides professional training in the management of forest lands consistent with the needs of ownership objectives. Employment opportunities include forest management positions with public agencies, industry, and private consulting.

Community and Urban Forest Management Option

This option helps prepare students to manage community trees and green spaces. It emphasizes technical expertise, communication abilities, and skills for working with diverse people. Employment opportunities include municipalities, arboricultural companies, utilities, and government agencies.

Watershed Management Option

This option focuses on water resources and the integrated management of natural resources with emphasis on water. Graduates qualify for federal employment as hydrologists and for water-related careers in municipal watershed management, state and local government, and environmental/engineering consulting.

What is Forest Ecosystem Management?

Professional foresters are challenged with the conservation, restoration, and sustainable provision of a wide range of forest ecosystem services, including timber and nontimber forest products, wildlife habitat, biodiversity, clean water, healthy soils, carbon sequestration, recreational opportunities, and the aesthetics of both rural and urban landscapes. Foresters need specialized knowledge to manage for this wide range of ecosystem services. The Forest Ecosystem Management program teaches students to identify, measure, and quantify a variety of forest ecosystem attributes; communicate effectively with diverse groups; analyze and interpret natural resources information in an ecological, economic, and social context; and integrate the relevant ecological, economic, and societal aspects of contemporary problems in natural resources management and use this understanding to develop, support, and implement effective solutions.

You Might Like this Program If...

- You enjoy working outdoors
- You have a concern for natural resources and an appreciation of nature

- You have an analytical mind to manage complex ecological systems and resolve environmental, economic, and social challenges
- You have an aptitude for innovation and strategic thinking

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Forest Ecosystem Management, a minimum of 120 credits is required for the Forest Biology, Forest Management, and Watershed Management options, and a minimum of 123 credits for the Community and Urban Forest Management option:

Requirement	Credits
General Education	45
Electives	2-11
Requirements for the Major	88-100

21-24 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 3-6 credits of GS courses; 0-3 credits of GA courses; 3 credits of GWS courses.

Students should be aware that, in most cases, completion of the Forest Ecosystem Management degree in four years requires enrollment at the University Park Campus beginning the fall semester of the sophomore year.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
FOR 421	Silviculture: Applied Forest Ecology	3
SOILS 101	Introductory Soil Science	3
<i>Prescribed Courses: Require a grade of C or better</i>		
FOR 200	The Profession of Forestry	1
FOR 203	Field Dendrology	3
FOR 255	GPS and GIS Applications for Natural Resources Professionals	3
FOR 266	Forest Resources Measurements	4
FOR 308	Forest Ecology	3
Additional Courses		

Select one of the following: 3

AGBM 101	Economic Principles of Agribusiness Decision Making	
ECON 102	Introductory Microeconomic Analysis and Policy	
ECON 104	Introductory Macroeconomic Analysis and Policy	

Additional Courses: Require a grade of C or better

ENGL 202C	Effective Writing: Technical Writing	3
or ENGL 202D	Effective Writing: Business Writing	

Select one of the following: 3-4

STAT 200	Elementary Statistics	
STAT 240	Introduction to Biometry	
STAT 250	Introduction to Biostatistics	

Requirements for the Option

Select an option 55-66

Requirements for the Option

Forest Biology Option (57-58 credits)

Code	Title	Credits
Prescribed Courses		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
BIOL 220W	Biology: Populations and Communities	4
CHEM 202	Fundamentals of Organic Chemistry I	3
FOR 204	Silvics and Forest Dynamics	2
FOR 409	Tree Physiology	2
FOR 410	Elements of Forest Ecosystem Management	3
FOR 430	Conservation Biology	3
FOR 450W	Human Dimensions of Natural Resources	3
HORT 445	Plant Ecology	3
SOILS 102	Introductory Soil Science Laboratory	1
WFS 209N	Wildlife and Fisheries Conservation	3

Prescribed Courses: Require a grade of C or better

FOR 350	Forest Ecosystem Monitoring and Data Analysis	3
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Additional Courses

Select 4-5 credits from the following: 4-5

ENT 313	Introduction to Entomology	
FOR 403	Invasive Forest Plants: Identification, Ecology, and Management	
PPEM 318	Diseases of Forest and Shade Trees	

Additional Courses: Require a grade of C or better

MATH 110	Techniques of Calculus I	4
or MATH 140	Calculus With Analytic Geometry I	

Supporting Courses and Related Areas

Select 15 credits from department list in consultation with adviser 15

Forest Management Option (57-60 credits)

Code	Title	Credits
Prescribed Courses		
ENT 313	Introduction to Entomology	2
FOR 204	Silvics and Forest Dynamics	2
FOR 440	Forest and Conservation Economics	3
FOR 470	Watershed Management	3
FOR 480	Policy and Administration	3
PPEM 318	Diseases of Forest and Shade Trees	2
WFS 209N	Wildlife and Fisheries Conservation	3

Prescribed Courses: Require a grade of C or better

FOR 320	Wildland Fire Management	2
FOR 350	Forest Ecosystem Monitoring and Data Analysis	3
FOR 455	Remote Sensing and Spatial Data Handling	3
FOR 466W	Forest Management and Planning	3

Additional Courses

BIOL 110	Biology: Basic Concepts and Biodiversity	3-4
or BIOL 127	Introduction to Plant Biology	
FOR 401	Urban Forest Management	3
or FOR 450W	Human Dimensions of Natural Resources	
FOR 410	Elements of Forest Ecosystem Management	3
or FOR/WFS 430	Conservation Biology	

Select one of the following: 3

FOR 409	Tree Physiology	
& SOILS 102	and Introductory Soil Science Laboratory	
ERM 448	Rural Road Ecology and Maintenance	
FOR 439	Timber Sale Administration	
FOR 475	Principles of Forest Soils Management	

Additional Courses: Require a grade of C or better

Select one of the following: 4-6

MATH 22	College Algebra With Analytic Geometry and Applications II	
& MATH 33	and Mathematics for Sustainability	
MATH 22	College Algebra With Analytic Geometry and Applications II	
& MATH 34	and The Mathematics of Money	
MATH 22	College Algebra With Analytic Geometry and Applications II	
& AGBM 106	and Agribusiness Problem Solving	
MATH 110	Techniques of Calculus I	
MATH 140	Calculus With Analytic Geometry I	

Supporting Courses and Related Areas

In consultation with adviser, select 12 credits from department list approved for the option. Six credits must be 300-to 400-level. 12

Community and Urban Forest Management Option (62-66 credits)**Code Title Credits****Prescribed Courses**

ENT 313	Introduction to Entomology	2
ENT 314	Management of Insect Pests of Ornamentals	1
FOR 480	Policy and Administration	3
GEOG 430	Human Use of Environment	3
HORT 138	Ornamental Plant Materials	3
HORT 301	Principles of Arboriculture	3
HORT 408	Landscape Plant Establishment and Maintenance	4
PLANT 217	Landscape Soil and Water Management	3
PPEM 318	Diseases of Forest and Shade Trees	2

Prescribed Courses: Require a grade of C or better

FOR 204	Silvics and Forest Dynamics	2
FOR 401	Urban Forest Management	3
FOR 450W	Human Dimensions of Natural Resources	3

Additional Courses

BIOL 110	Biology: Basic Concepts and Biodiversity	3-4
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or BIOL 127 Introduction to Plant Biology

Select one of the following: 3

ARCH 316	Analysis of Human Settlements: Cities	
LARCH 60	Cultural History of Designed Places	
LARCH 65	Built Environment and Culture: Examining the Modern City	

Select one of the following: 3

RPTM 320	Recreation Resource Planning and Management	
RPTM 325	Principles of Environmental Interpretation	
RPTM 435	Recreation Facilities Planning and Management	
RPTM 470	Recreation and Park Management	

Select one of the following: 3

FOR 455	Remote Sensing and Spatial Data Handling	
GEOG 363	Geographic Information Systems	
SOILS 450	Environmental Geographic Information Systems	

Select one of the following: 3

FOR 409	Tree Physiology	
& SOILS 102	and Introductory Soil Science Laboratory	
ERM 448	Rural Road Ecology and Maintenance	
FOR 439	Timber Sale Administration	
FOR 475	Principles of Forest Soils Management	

Additional Courses: Require a grade of C or better

FOR 495	Forestry Internship	3
or FOR 496	Independent Studies	

Select one of the following: 4-6

MATH 22	College Algebra With Analytic Geometry and Applications II	
& MATH 33	and Mathematics for Sustainability	
MATH 22	College Algebra With Analytic Geometry and Applications II	
& MATH 34	and The Mathematics of Money	
MATH 22	College Algebra With Analytic Geometry and Applications II	
& AGBM 106	and Agribusiness Problem Solving	
MATH 110	Techniques of Calculus I	
MATH 140	Calculus With Analytic Geometry I	

Supporting Courses and Related Areas

Select 8-9 credits from department list In consultation with adviser 8-9

Watershed Management Option (55-59 credits)**Code Title Credits****Prescribed Courses**

FOR 450W	Human Dimensions of Natural Resources	3
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Prescribed Courses: Require a grade of C or better

FOR 470	Watershed Management	3
FOR 471	Watershed Management Laboratory	1

Additional Courses

MATH 111	Techniques of Calculus II	2-4
or MATH 141	Calculus with Analytic Geometry II	

Select one of the following: 3

FOR 409	Tree Physiology	
& SOILS 102	and Introductory Soil Science Laboratory	
ERM 448	Rural Road Ecology and Maintenance	
FOR 439	Timber Sale Administration	

FOR 475	Principles of Forest Soils Management	
<i>Additional Courses: Require a grade of C or better</i>		
MATH 110 or MATH 140	Techniques of Calculus I Calculus With Analytic Geometry I	4
Supporting Courses and Related Areas		
Select 6 credits of GS social sciences from the following:		6
EBF 200	Introduction to Energy and Earth Sciences Economics	
ECON 302	Intermediate Microeconomic Analysis	
EGEE 211		
ENVST 100		
GEOG 20	Human Geography: An Introduction	
GEOG 30N	Environment and Society in a Changing World	
GEOG 160	Mapping Our Changing World	
PLSC 1	American Politics: Principles, Processes and Powers	
PLSC 135		
Select 6 credits of physical sciences from the following:		6
EARTH 100	Environment Earth	
EARTH 103		
EARTH 111		
GEOG 10	Physical Geography: An Introduction	
GEOG 110	Climates of the World	
GEOSC 1	Physical Geology	
GEOSC 10	Geology of the National Parks	
GEOSC 40	The Sea Around Us	
METEO 3	Weather Revealed: Introductory Meteorology	
METEO 122	Atmospheric Environment: Growing in the Wind	
MICRB 106	Elementary Microbiology	
MICRB 201	Introductory Microbiology	
Select 6-8 credits of GN from the following:		6-8
PHYS 1	The Science of Physics	
PHYS 150	Technical Physics I	
PHYS 151	Technical Physics II	
PHYS 211	General Physics: Mechanics	
PHYS 213	General Physics: Fluids and Thermal Physics	
PHYS 250	Introductory Physics I	
PHYS 251	Introductory Physics II	
Select 3 credits in geospatial analysis from the following:		3
FOR 455	Remote Sensing and Spatial Data Handling	
GEOG 362	Remote Sensing and Image Analysis	
GEOG 363	Geographic Information Systems	
GEOG 364	Spatial Analysis	
SOILS 450	Environmental Geographic Information Systems	
Select 6 credits of resources management from the following:		6
ASM 327	Soil and Water Resource Management	
CED 201	Introductory Environmental and Resource Economics	
CED 327	Environment and Society	
CED 429	Natural Resource Economics	
CED 431W	Economic Analysis of Environmental and Resource Policies	

CED 450	International Development, Renewable Resources, and the Environment	
ERM 411	Legal Aspects of Resource Management	
ERM 412	Resource Systems Analysis	
ERM 413W	Case Studies in Ecosystem Management	
FOR 410	Elements of Forest Ecosystem Management	
FOR 440	Forest and Conservation Economics	
GEOG 411W	Forest Geography	
GEOG 430	Human Use of Environment	
GEOG 431	Geography of Water Resources	
SOILS 422	Natural Resources Conservation and Community Sustainability	
Select 9 credits of water sciences (3 credits must be at the 400-level) from the following:		9
ASM 309	Measurement & Monitoring of Hydrologic Systems	
CE 360	Fluid Mechanics	
CE 370	Introduction to Environmental Engineering	
CE 371	Water and Wastewater Treatment	
ENVE 411	Water Supply and Pollution Control	
ENVE 415	Hydrology	
ENVSE 408	Contaminant Hydrology	
ERM 435	Limnology	
ERM 447	Stream Restoration	
ERM 450	Wetland Science and Sustainability	
GEOG 310	Introduction to Global Climatic Systems	
GEOG 311		
GEOG 412W	Climatic Change and Variability	
GEOSC 412	Water Resources Geochemistry	
GEOSC 413W	Techniques in Environmental Geochemistry	
GEOSC 440	Marine Geology	
GEOSC 452	Hydrogeology	
METEO 451	Introduction to Physical Oceanography	
METEO 454	Introduction to Micrometeorology	
SOILS 405	Hydropedology	
WFS 422	Ecology of Fishes	

Select 3 additional credits at the 300-to 400-level from the lists above 3

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or

within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Basic Knowledge of Forest Flora and Fauna:** Demonstrate knowledge of the biology, taxonomy, and ecology of flora and fauna associated with forested ecosystems
 - Identify the common tree species of North America (especially those of the northeastern US) and describe their silvics
 - Identify key understory plants, invasive species, pathogens, non-timber forest products, and fauna and describe their ecological roles in forest ecosystems
- **Forest Data Collection:** Accurately identify, measure and quantify a variety of forest ecosystem attributes
 - Design, execute, analyze and report on a forest inventory to measure both timber and non-timber attributes: Demonstrate proficiency with a specified set of field equipment
 - Design and implement a plan to monitor key ecosystem resources and processes
- **Communication:** Communicate effectively with diverse groups through listening, speaking and writing
 - Communicate clearly through email, letters and other forms of professional correspondence
 - Effectively present complex information in different formats to a variety of audiences: Use geographical information systems (GIS) to create a map showing features such as buffer zones on streams or roads or the layout of a timber sale
 - Conduct a clear dialog with a potential client to determine their needs
 - Use appropriate methods of communicating with diverse groups
 - Apply conflict resolution skills for consensus building, facilitation and negotiation
- **Data Analysis and Critical Thinking:** Apply science-based knowledge to select, obtain, analyze and interpret natural resources information in an ecological, economic and social context
 - Acquire data from primary and secondary sources to describe and analyze ecological, economic and social relationships on both spatial and temporal scales
 - Use a geographical positioning system (GPS) to map features such as a hiking trail
 - Find relevant natural resources information, such as publicly available data sets, research reports, and management plans
 - Critically analyze the evidence on multiple sides of a contemporary natural resources issue
 - Assess the economic, social, and ecological opportunities and constraints of a given land parcel within a relevant spatial and temporal context and recognize appropriate and defensible land management objectives
 - Identify and evaluate the full range –ecological, social, and economic –of impacts of different forest management alternatives
 - Apply economic, financial and business management tools to assess alternative forest management activities
- **Data Synthesis and Critical Thinking:** Recognize, identify, and integrate the relevant ecological, economic, and societal aspects of contemporary problems in natural resources management and

use this understanding to develop, support and implement effective solutions

- Based on an assessment of a property, develop, write and present a management plan, including silvicultural prescriptions, for the property that meet the stated land management objectives and implement the components of the plan
- Describe the role of institutions such as markets, communities, governments, and non-government organizations in the management of natural resources
 - Describe and evaluate how a contemporary natural resources issue has been addressed by society
 - Identify a natural resources problem, evaluate the science and the politics behind the problem, engage the stakeholders involved, and propose a solution to the problem
- **Professionalism and Social Awareness:** Synthesize knowledge, diverse values, and ethics for making, communicating and supporting decisions with confidence, respect, professionalism, and compassion
 - Demonstrate openness, tolerance, and appreciation for alternative points of view
 - Demonstrate awareness of global issues and cultural diversity
 - Be able to present and conduct oneself as a professional

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

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University Park

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Forest Biology Option: Forest Ecosystem Management, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any

time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
First-Year Seminar	1-3 AGBM 101, ECON 102, or ECON 104 [†]	3
BIOL 110 [†]	4 CHEM 110 [†]	3
MATH 110 or 140 ^{††}	4 CHEM 111 [†]	1
ENGL 15 or 30H ^{††}	3 STAT 200, 240, or 250 ^{*††}	3-4
General Education Course ¹	3 CAS 100 ^{††}	3
	WFS 209N	3
	15-17	16-17

Second Year

Fall	Credits Spring	Credits
FOR 200 [*]	1 FOR 204	2
FOR 203 [*]	3 FOR 266 [*]	4
FOR 255 [*]	3 CHEM 202	3
BIOL 220W	4 SOILS 101 [†]	3
General Education Course ¹	3 SOILS 102	1
	General Education Course ¹	3
	14	16

Third Year

Fall	Credits Spring	Credits
FOR 308 [*]	3 ENT 313, FOR 403, or PPEM 318 (need 2)	2-3
ENGL 202C or 202D ^{††}	3 FOR 350 [*]	3
FOR/WFS 430	3 FOR 409	2
Supporting Course Selection from List	3 FOR 410	3
General Education Course ¹	3 Supporting Course Selection from List	3
General Education Course (GHW)	1.5 General Education Course (GHW) ¹	1.5
	16.5	14.5-15.5

Fourth Year

Fall	Credits Spring	Credits
FOR 421	3 ENT 313, FOR 403, or PPEM 318 (need 2)	2-3
HORT 445	3 FOR 450W	3
General Education Course ¹	3 Supporting Course Selection from List	3
Supporting Course Selection from List	3 Supporting Course Selection from List	3
Elective	3 Elective	1-3
	15	12-15

Total Credits 119-126

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Refer to your degree audit to determine which General Education requirements need yet to be fulfilled.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- Students should be aware that, in most cases, completion of the Forest Ecosystem Management (FOREM) degree in eight semesters requires enrollment at Penn State University Park beginning the fall semester of the sophomore year.
- All supporting course selections are listed in the FOREM Handbook, which is available on the department's website (<https://ecosystems.psu.edu>) under Undergraduate > Student Resources > Student Handbooks.
- Many FOR classes are offered only once per year, in the fall or the spring; plan your schedule accordingly.
- FOR 409 is offered only in spring of odd years.
- Courses that are listed as both US or IL and GA, GH, or GS can count for both requirements (i.e., a course listed for both GA and IL will satisfy both Arts and International Cultures).
- Students should monitor their academic progress by checking their degree audits on LionPATH.
- Questions about FOREM academic plans or degree audits should be directed to academic advisers or to FOREM Program Coordinator Ellen Rom, exr2@psu.edu or 814-863-0362.

Forest Biology Option: Forest Ecosystem Management, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
First-Year Seminar	1-3 BIOL 220W	4
BIOL 110 [†]	4 CHEM 110 [†]	3
MATH 110 or 140 ^{††}	4 CHEM 111 [†]	1
ENGL 15 or 30H ^{††}	3 STAT 200, 240, or 250 ^{*††}	3-4
General Education Course ¹	3 CAS 100 ^{††}	3
	15-17	14-15

Second Year

Fall	Credits Spring	Credits
FOR 200 [*]	1 FOR 204	2
FOR 203 [*]	3 FOR 266 [*]	4
FOR 255 [*]	3 CHEM 202	3
SOILS 101 [†]	3 ENGL 202C or 202D ^{††}	3
SOILS 102	1 AGBM 101, ECON 102, or ECON 104 [†]	3
WFS 209N	3 General Education Course ¹	3
	14	18

Third Year

Fall	Credits Spring	Credits
FOR 308 [*]	3 ENT 313, FOR 403, or PPEM 318 (need 2)	2-3
FOR/WFS 430 [*]	3 FOR 350 [*]	3
Supporting Course Selection from List	3 FOR 409	2
General Education Course ¹	3 FOR 410	3
General Education Course ¹	3 Supporting Course Selection from List	3
General Education Course (GHW)	1.5 General Education Course (GHW) ¹	1.5
	16.5	14.5-15.5

Fourth Year

Fall	Credits Spring	Credits
FOR 421	3 ENT 313, FOR 403, or PPEM 318 (need 2)	2-3
HORT 445	3 FOR 450W	3
General Education Course ¹	3 Supporting Course Selection from List	3
Supporting Course Selection from List	3 Supporting Course Selection from List	3
Elective	3 Elective	1-3
	15	12-15

Total Credits 119-126

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Refer to your degree audit to determine which General Education requirements need yet to be fulfilled.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Students should be aware that, in most cases, completion of the Forest Ecosystem Management (FOREM) degree in eight semesters requires enrollment at Penn State University Park beginning the fall semester of the sophomore year.
- All supporting course selections are listed in the FOREM Handbook, which is available on the department's website (<https://ecosystems.psu.edu>) under Undergraduate > Student Resources > Student Handbooks.
- Many FOR classes are offered only once per year, in the fall or the spring; plan your schedule accordingly.
- FOR 409 is offered only in spring of odd years.
- Courses that are listed as both US or IL and GA, GH, or GS can count for both requirements (i.e., a course listed for both GA and IL will satisfy both Arts and International Cultures).
- Students should monitor their academic progress by checking their degree audits on LionPATH.
- Questions about FOREM academic plans or degree audits should be directed to academic advisers or to FOREM Program Coordinator Ellen Rom, exr2@psu.edu or 814-863-0362.

* Course requires a grade of C or better for the major

Forest Management Option: Forest Ecosystem Management, B.S. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
First-Year Seminar	1-3 CHEM 110 [†]	3
MATH 22 and MATH 33, or MATH 22 and MATH 34, or MATH 22 and AGBM 106, or MATH 110, or MATH 140 ^{*††}	4-6 CHEM 111 [†]	1
BIOL 110 or 127 [†]	3-4 CAS 100 ^{††}	3
ENGL 15 or 30H ^{††}	3 AGBM 101, ECON 102, or ECON 104 [†]	3
General Education Course ¹	3 STAT 200, 240, or 250 ^{*††}	3-4
	General Education Course ¹	3
14-19		16-17

Second Year

Fall	Credits Spring	Credits
FOR 200 [*]	1 FOR 204	2
FOR 203 [*]	3 FOR 266 [*]	4
FOR 255 [*]	3 PPEM 318	2
SOILS 101 [†]	3 ENT 313	2
General Education Course ¹	3 ENGL 202C or 202D ^{††}	3
General Education Course (GHW)	1.5 General Education Course ¹	3
14.5		16

Third Year

Fall	Credits Spring	Credits
FOR 308 [*]	3 FOR 320 [*]	2
FOR 440	3 FOR 350 [*]	3
FOR 401 (or Supporting Course) ²	3 WFS 209N	3
General Education Course ¹	3 FOR 450W ²	3
Elective	2 FOR 455 [*]	3
	General Education Course (GHW)	1.5
14		15.5

Fourth Year

Fall	Credits Spring	Credits
ERM 448, FOR 439, or FOR 475 ²	3 FOR 409 & SOILS 102 (or Supporting Course) ²	3
FOR 421	3 FOR 466W [*]	3
FOR/WFS 430 ²	3 FOR 410 ²	3
Supporting Course	3 FOR 470	3

Elective	0-4 FOR 480	3
12-16		15

Total Credits 117-127

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ Refer to your degree audit to determine which General Education requirements need yet to be fulfilled.

² Refer to FOREM FMGT checklist and your degree audit for clarification about how FOR 401, FOR 450W, ERM 448, FOR 439, FOR 475, FOR 409, SOILS 102, FOR 430/WFS 430, FOR 410, and Supporting Courses satisfy degree requirements.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- Students should be aware that, in most cases, completion of the Forest Ecosystem Management (FOREM) degree in eight semesters requires enrollment at Penn State University Park beginning the fall semester of the sophomore year.
- All supporting course selections are listed in the FOREM Handbook, which is available on the department's website (<https://ecosystems.psu.edu>) under Undergraduate > Student Resources > Student Handbooks.
- Refer to both the FOREM FMGT Supporting Course list and the FOREM FMGT checklist in the FOREM Handbook for clarification about how FOR 401, FOR 450W, FOR 475, FOR 409, and SOILS 102 satisfy degree requirements in the FMGT option.
- Many FOR classes are offered only once per year, in the fall or the spring; plan your schedule accordingly.
- FOR 409 is offered only in spring of odd years.
- Courses that are listed as both US or IL and GA, GH, or GS can count for both requirements (i.e., a course listed for both GA and IL will satisfy both Arts and International Cultures).

- Students should monitor their academic progress by checking their degree audits on LionPATH.
- Questions about FOREM academic plans or degree audits should be directed to academic advisers or to FOREM Program Coordinator Ellen Rom, exr2@psu.edu or 814-863-0362.

Community and Urban Forestry Management Option: Forest Ecosystem Management, B.S. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 22 and MATH 33, or MATH 22 and MATH 34, or MATH 22 and AGBM 106, or MATH 110, or MATH 140 ^{††}	4-6 CHEM 110 [†]	3
BIOL 110 or 127 [†]	3-4 CHEM 111 [†]	1
ENGL 15 or 30H ^{††}	3 AGBM 101, ECON 102, or ECON 104 [†]	3
General Education Course ¹	3 CAS 100 ^{††}	3
First-Year Seminar	1-3 STAT 200, 240, or 250 ^{††}	3-4
	General Education Course ¹	3
	14-19	16-17

Second Year

Fall	Credits Spring	Credits
FOR 200 [*]	1 FOR 204 [*]	2
FOR 203 [*]	3 FOR 266 [*]	4
FOR 255 [*]	3 HORT 301	3
SOILS 101 [†]	3 ENT 313	2
LARCH 60, 65, or ARCH 316 [†]	3 ENT 314	1
General Education Course (GHW)	1.5 ENGL 202C or 202D ^{††}	3
	14.5	15

Third Year

Fall	Credits Spring	Credits
FOR 308 [*]	3 PPEM 318	2
HORT 138	3 PLANT 217	3
ERM 448, FOR 439, or FOR 475 (or Supporting Course) ²	3 FOR 409 & SOILS 102 (or Supporting Course) ²	3
RPTM 320, 325, 435, or 470	3 FOR 455, GEOG 363, or SOILS 450	3
Supporting Course	3 General Education Course ¹	3
	Elective	0-5
	15	14-19

Fourth Year

Fall	Credits Spring	Credits
FOR 421	3 GEOG 430	3
FOR 495 or 496 [*]	3 FOR 480	3
FOR 401 [*]	3 HORT 408	4
Supporting Course	3 FOR 450W [*]	3
General Education Course ¹	3 Elective	2

General Education Course (GHW)	1.5
15	16.5

Total Credits 120-131

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ Refer to your degree audit to determine which General Education requirements need yet to be fulfilled.

² Refer to FOREM CURFM checksheet and your degree audit for clarification about how ERM 448, FOR 439, FOR 475, FOR 409, SOILS 102, and Supporting Courses satisfy degree requirements.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- Students should be aware that, in most cases, completion of the Forest Ecosystem Management (FOREM) degree in eight semesters requires enrollment at Penn State University Park beginning the fall semester of the sophomore year.
- All supporting course selections are listed in the FOREM Handbook, which is available on the department's website (<https://ecosystems.psu.edu>) under Undergraduate > Student Resources > Student Handbooks.
- Many FOR classes are offered only once per year, in the fall or the spring; plan your schedule accordingly.
- FOR 409 is offered only in spring of odd years.
- Courses that are listed as both US or IL and GA, GH, or GS can count for both requirements (i.e., a course listed for both GA and IL will satisfy both Arts and International Cultures).
- Students should monitor their academic progress by checking their degree audits on LionPATH.

- Questions about FOREM academic plans or degree audits should be directed to academic advisers or to FOREM Program Coordinator Ellen Rom, exr2@psu.edu or 814-863-0362.

¹ Use this Suggested Academic Plan in consultation with your degree audit. SOILS 102 and Supporting Courses are not C-required.

Watershed Management Option: Forest Ecosystem Management, B.S. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
First-Year Seminar	1-3 CHEM 110 [†]	3
AGBM 101, ECON 102, or ECON 104 [†]	3 CHEM 111 [†]	1
MATH 110 or 140 ^{††}	4 CAS 100 ^{††}	3
ENGL 15 or 30H ^{††}	3 MATH 111 or 141 [†]	2-4
General Education Course ¹	3 STAT 200, 240, or 250 ^{*††}	3-4
	14-16	12-15

Second Year

Fall	Credits Spring	Credits
FOR 200 [*]	1 FOR 266 [*]	4
FOR 203 [*]	3 ENGL 202C or 202D ^{††}	3
FOR 255 [*]	3 PHYS GN Selection from List [†]	3-4
SOILS 101 [†]	3 Social Sciences GS Selection from List [†]	3
General Education Course ¹	3 General Education Course ¹	3
General Education Course (GHW)	1.5	
	14.5	16-17

Third Year

Fall	Credits Spring	Credits
FOR 308 [*]	3 FOR 470 [*]	3
ERM 448, FOR 439, or FOR 475 (or Geospatial Analysis Selection from List) ²	3 FOR 471 [*]	1
PHYS GN Selection from List [†]	3-4 FOR 409 & SOILS 102 (or Geospatial Analysis Selection from List) ^{*2}	3
Resources Management Selection from List	3 Physical Sciences Selection from List	3
Water Sciences Selection from List	3 Social Sciences GS Selection from List	3
	General Education Course (GHW)	1.5
	15-16	14.5

Fourth Year

Fall	Credits Spring	Credits
FOR 421	3 FOR 450W	3
Physical Sciences Selection from List	3 Resources Management Selection from List	3

Water Sciences Selection from List	3 Water Sciences Selection from List	3
General Education Course ¹	3 Three Additional Credits at the 300- or 400-level from Selections Lists	3
Elective	3-5 Elective	3-6
	15-17	15-18

Total Credits 116-128

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Refer to your degree audit to determine which General Education requirements need yet to be fulfilled.

² Refer to FOREM WMGT checklist and your degree audit for clarification about how ERM 448, FOR 439, FOR 475, FOR 409, SOILS 102, and Geospatial Analysis selection satisfy degree requirements.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- Students should be aware that, in most cases, completion of the Forest Ecosystem Management (FOREM) degree in eight semesters requires enrollment at Penn State University Park beginning the fall semester of the sophomore year.
- All supporting course selections are listed in the FOREM Handbook, which is available on the department's website (<https://ecosystems.psu.edu>) under Undergraduate > Student Resources > Student Handbooks.
- Many FOR classes are offered only once per year, in the fall or the spring; plan your schedule accordingly.
- FOR 409 is offered only in spring of odd years.

- Courses that are listed as both US or IL and GA, GH, or GS can count for both requirements (i.e., a course listed for both GA and IL will satisfy both Arts and International Cultures).
- Students should monitor their academic progress by checking their degree audits on LionPATH.
- Questions about FOREM academic plans or degree audits should be directed to academic advisers or to FOREM Program Coordinator Ellen Rom, exr2@psu.edu or 814-863-0362.

Career Paths

Graduates become forest managers responsible for the flora and fauna on publicly owned forests and watersheds, including national and state forests and parks, game lands, and recreation areas. Others work as ecologists studying environmental factors that affect forests, or as consultants surveying timberlands and recommending harvest and reforestation practices. Graduates also work as community foresters managing urban trees and green spaces, consulting foresters assisting private landowners, industrial foresters ensuring a company's need for raw materials, land managers for conservation organizations, and watershed managers responsible for the protection of municipal watersheds. The curriculum also provides a firm base for graduate study.

Careers

Graduates of the Forest Management and Forest Biology options may be employed by public agencies such as the Pennsylvania Bureau of Forestry and the U.S. Forest Service, nonprofit organizations such as The Nature Conservancy, industries such as sawmills and bioenergy facilities, and environmental consulting firms. Graduates of the Community and Urban Forest Management option may be employed by municipalities, arboricultural companies, utilities, and government agencies to manage community trees and green spaces. Graduates of the Watershed Management option may find federal employment as hydrologists or pursue careers in municipal watershed management and in environmental/engineering consulting.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE FOREST ECOSYSTEM MANAGEMENT PROGRAM (<https://ecosystems.psu.edu/undergraduate/resources/alumni-profiles/forest-ecosystem-management/>)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://ecosystems.psu.edu/graduate/forest-resources/>)

Professional Resources

- Society of American Foresters (<https://www.eforester.org>)

Accreditation

Three options of the Forest Ecosystem Management baccalaureate degree program (Community and Urban Forest Management, Forest Biology, and Forest Management) are accredited by the Society of American Foresters. Degrees in forestry have been awarded at Penn State since 1907, and our program was among those first accredited by the Society of American Foresters in 1935.

MORE INFORMATION ABOUT THE SOCIETY OF AMERICAN FORESTERS (<https://www.eforester.org>)

Contact

University Park

DEPARTMENT OF ECOSYSTEM SCIENCE AND MANAGEMENT

Undergraduate Programs Office
113 Forest Resources Building
University Park, PA 16802
814-865-4237

<https://ecosystems.psu.edu>

Forest Ecosystems, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Forest Ecosystems minor introduces students to the functions and values of forested ecosystems. After a prescribed foundation in tree and shrub identification and forest ecology, students may choose from a variety of related subjects including climate change, invasive species, tree physiology, agroforestry, fire ecology, forest soils, forest ecosystem management, forest measurements, community forestry, and global forest conservation.

What are Forest Ecosystems?

Forest ecosystems are central to the health of our planet. They exist on every continent except Antarctica, support essential processes on Earth to make life possible, contribute strongly to the stability of our climate, provide habitat for innumerable plant and animal species, offer recreational and spiritual values for humanity, and supply goods and services that benefit humans. Studying forest ecosystems facilitates your understanding of how forest ecosystems work, how ecological processes affect forest functions, how these functions are linked to the provision of ecosystem goods and services, and how forests—a renewable resource with one of the lowest carbon footprints—can be managed to ensure these functions are sustained.

You Might Like This Program If...

- You are passionate about the health of the planet, its forests, other natural resources, and humanity's future.
- You enjoy nature and want to develop skills to identify trees and shrubs in the field.
- You are curious to know how forests work.
- You are concerned about sustaining forests and the values they provide.

Program Requirements

Requirement	Credits
Requirements for the Minor	18-20

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		

FOR 203	Field Dendrology	3
FOR 308	Forest Ecology	3

Additional Courses

Additional Courses: Require a grade of C or better

Select a minimum of 12 credits of the following FOR courses:¹ 12-14

FOR 200	The Profession of Forestry
FOR 201	Global Change and Ecosystems
FOR 204	Silvics and Forest Dynamics
FOR 255	GPS and GIS Applications for Natural Resources Professionals
FOR 266	Forest Resources Measurements
FOR 303	Herbaceous Forest Plant Identification and Ecology
FOR 320	Wildland Fire Management
FOR 350	Forest Ecosystem Monitoring and Data Analysis
FOR 401	Urban Forest Management
FOR 403	Invasive Forest Plants: Identification, Ecology, and Management
FOR 409	Tree Physiology
FOR 410	Elements of Forest Ecosystem Management
FOR 418	Agroforestry: Science, Design, and Practice
FOR 421	Silviculture: Applied Forest Ecology
FOR/WFS 430	Conservation Biology
FOR 439	Timber Sale Administration
FOR 440	Forest and Conservation Economics
FOR 450W	Human Dimensions of Natural Resources
FOR 455	Remote Sensing and Spatial Data Handling
FOR 466W	Forest Management and Planning
FOR 470	Watershed Management
FOR 471	Watershed Management Laboratory
FOR 475	Principles of Forest Soils Management
FOR 480	Policy and Administration
FOR 488Y	Global Forest Conservation

¹ Six credits must be at the 400 level.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Ellen A. Rom

Coordinator of Undergraduate Programs and Alumni Relations
114 Forest Resources Building
University Park, PA 16802
814-863-0362
exr2@psu.edu

Career Paths

Our department's career development (<https://ecosystems.psu.edu/undergraduate/resources/career-development/>) and employment opportunities (<https://ecosystems.psu.edu/undergraduate/resources/employment/>) websites offer a variety of resources to assist you in exploring professional pursuits related to natural resources and environmental science.

Careers

The Forest Ecosystems minor may complement other academic programs that can help prepare you for a career related to natural resources and environmental sciences. The Forest Ecosystems minor does not qualify you for forester positions.

MORE INFORMATION ABOUT CAREER DEVELOPMENT (<https://ecosystems.psu.edu/undergraduate/resources/career-development/>)

MORE INFORMATION ABOUT EMPLOYMENT OPPORTUNITIES (<https://ecosystems.psu.edu/undergraduate/resources/employment/>)

Opportunities for Graduate Studies

The Forest Ecosystems minor can help prepare students for graduate-level study in forest and environmental sciences.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://ecosystems.psu.edu/graduate/forest-resources/>)

Contact

University Park

DEPARTMENT OF ECOSYSTEM SCIENCE AND MANAGEMENT
117 Forest Resources Building
University Park, PA 16802
814-865-7521

<https://ecosystems.psu.edu>

Forest Technology, A.S.

Begin Campus: Mont Alto

End Campus: Mont Alto

Program Description

The objectives of the major are to train forestry field personnel in the technical aspects of evaluating, managing, and protecting forest resources. Laboratories held in the Michaux State Forest, adjacent to Penn State Mont Alto, stress field applications of classroom theory. Written and oral communication skills are stressed in all courses. Graduates of the program are employed by private businesses including forestry consulting firms, sawmills, and other wood products manufacturers; public agencies including federal, state, and municipal forest resource management and recreation programs; urban tree service companies, pulp and paper manufacturers, surveying firms and

landscaping firms, utility companies, and other businesses requiring personnel skilled in field inventory procedures, analysis, and presentation.

Some graduates transfer their credits to bachelor's degree programs such as forest ecosystem management, wildlife and fisheries science, recreation park and tourism management, biorenewable systems, environmental resource management, plant sciences, biology, and business management.

What is Forest Technology?

Forest Technology involves the study of forestry, the science of forest ecosystems, their function, and their conservation and sustainable management. This includes learning about trees, plants, forests, and the wildlife and people that use them; identifying, measuring and sampling, mapping and using Geographic Information Systems (GIS); learning about wood properties, forest insects, diseases, and the effects of fire; and how to best manage them.

You Might Like this Program If...

- You enjoy being outdoors and want a career working outside
- You have a desire to help the forest environments and the wildlife and people that depend on them
- You want to contribute to the sustainable use and management of natural resources

Entrance to Major

Students must have a minimum 2.0 GPA to change to this Associate degree after admission to the University.

Degree Requirements

For the Associate in Science degree in Forest Technology, a minimum of 64 credits is required:

Requirement	Credits
General Education	21
Requirements for the Major	58

15 of the 21 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GN; 3 credits of GS; 3 credits of GQ; 6 credits of GWS.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
BIOL 127	Introduction to Plant Biology	3
CAS 100	Effective Speech	3
ENGL 15	Rhetoric and Composition	3
FORT 100	Introduction to Forestry	1
FORT 140	Forest Surveying	3
FORT 170	Forest Harvesting and Operations	3
FORT 175	Forest Products Industry Tour	1
FORT 200	Wood Identification and Properties	1

FORT 220	Forest Ecosystem Protection	4
FORT 230	Introduction to Remote Sensing	2
FORT 240	Forest Soils and Hydrology	3
FORT 250	Forest Management Practices	3
GEOG 160	Mapping Our Changing World	3
GEOG 161	Applied Geographic Information Systems	1
MATH 21	College Algebra with Analytic Geometry with Applications I	3

Prescribed Courses: Require a grade of C or better

FORT 105	Forest Measurements	3
FORT 150	Dendrology	3
FORT 110	Forest Inventories	3
FORT 160	Silvicultural Practices	3

Additional Courses

MGMT 100W	Survey of Management	3
	or MGMT 301W Basic Management Concepts	

Select 6 credits of the following: 6

FORT 210	Arboriculture	
FORT 260	GIS for Natural Resources Management	
WILDL 101	Introduction to Wildlife Management	
WILDL 207	Outdoor Recreation	

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all associate degree students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 3 credits
- **Writing and Speaking (GWS):** 3 credits

Knowledge Domains

- **Arts (GA):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Note: Up to six credits of Inter-Domain courses may be used for any Knowledge Domain requirement, but when a course may be used to satisfy more than one requirement, the credits from the course can be counted only once.

Exploration

- **Any General Education course (including GHW and Inter-Domain):** 3 credits

University Degree Requirements

Cultures Requirement

3 credits of United States (US) or International (IL) cultures coursework are required and may satisfy other requirements

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 60 degree credits must be earned for a associates degree. The requirements for some programs may exceed 60 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Forestry Knowledge:** Demonstrate knowledge of forestry science, terms, and concepts.
- **Technical Skills:** Utilize technical skills for measuring and assessing forest and natural resources.
- **Communication:** Develop skills to communicate with forestry professionals, landowners and the general public through oral and written formats.
- **Professionalism:** Develop professionalism and respect for all in a diverse work environment.
- **Leadership:** Demonstrate leadership skills.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Mont Alto

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Forest Technology, A.S. at Mont Alto Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
FORT 100	1 FORT 110*	3
FORT 105*	3 FORT 140	3
FORT 150*	3 FORT 160*	3
GEOG 160 [†]	3 FORT 170	3
GEOG 161	1 FORT 175	1
ENGL 15, 30H, or ESL 15 ^{††}	3 BIOL 127 [†]	3
MATH 21 ^{††}	3 General Educaton Course (GA or GH)	3
	17	19

Second Year

Fall	Credits Spring	Credits
FORT 200	1 FORT 240	3
FORT 210	3 FORT 250	3
FORT 220	4 FORT 260	3
FORT 230	2 WILDL 101	3
MGMT 100W	3 CAS 100A [†]	3
WILDL 207	3	
General Education Course (GA or GH)	3	
	19	15

Total Credits 70

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

The Forest Technology degree prepares you for an outdoor-oriented career with opportunities in public and private forestry and in the green industry, providing tree and plant health care.

VISIT THE SOCIETY OF AMERICAN FORESTERS CAREER CENTER (<https://carecenter.eforester.org>)

VISIT THE INTERNATIONAL SOCIETY OF ARBORICULTURE JOB BANK (<https://www.isa-arbor.com/Careers/Career-Center/>)

Professional Resources

- Society of American Foresters (<https://www.eforester.org>)
- International Society of Arboriculture (<https://www.isa-arbor.com/>)
- Council of Eastern Forest Technician Schools (<https://cefts.org/new/>)

Accreditation

In the United States, programmatic accreditation is a non-governmental, peer-review process that assures the quality of the postsecondary education students receive. Academic programs volunteer to undergo this comprehensive review periodically to determine if certain criteria are being met. Accreditation is not a ranking system. It is simply assurance that a degree program meets quality standards established by the profession. The Society of American Foresters is responsible for the accreditation of postsecondary degree-granting programs in forestry, urban forestry, natural resources and ecosystem management, and forest technology. Many academic programs across the country offer a diversity of options or curriculum choices within a degree program – not all are accredited. The listings on the Society of American Foresters website categorize accredited curricular options within degree programs according to the standard under which they are accredited and candidate curricular options under the standard for which they have candidacy status.

MORE INFORMATION ABOUT ACCREDITATION BY THE SOCIETY OF AMERICAN FORESTERS (https://www.eforester.org/Main/Certification_Education/Accreditation/Main/Accreditation/Accreditation_Home.aspx)

Contact

Mont Alto

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<https://montalto.psu.edu/academics/associate/forest-technology-degree> (<https://montalto.psu.edu/academics/associate/forest-technology-degree/>)

Horticulture, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

What is Horticulture?

Horticulture is the art and science of growing plants. The Horticulture minor is designed to provide students with both an overview and in-depth understanding of the principles and practices of horticulture. This minor provides opportunities for students from all colleges to learn more about the science and art of horticultural plants and their productive uses. The range of courses allows considerable flexibility for students to tailor the minor to their particular needs. The Horticulture minor meets the increasing demand for a horticulture emphasis for related majors and offers a general education for those seeking to use the minor for its avocational appeal.

You Might Like This Program If...

You want working knowledge of how to grow plants and to better understand the beneficial influences plants have on society (such as for food, esthetics, ecological, recreational, etc.). You have an interest in the horticulture field because it differs from botany in that it incorporates both science and aesthetics in the study of plants. It provides the perfect interface for students who wish to understand not only the science of plants but also the art of plant growing.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

The minor in Horticulture consists of a minimum of 18 credits.

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
HORT 101	Horticultural Science	3
HORT 202	Plant Propagation	3
HORT 315	Environmental Effects on Horticultural Crops	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits in systematics of the following:		3
HORT 131	Herbaceous Perennial and Annual Identification	
HORT 137	Ornamental Plant Materials	
HORT 138	Ornamental Plant Materials	
HORT 232	Horticultural Systematics	
Select 6 credits in foundation and production courses of the following:		6
HORT 402W	Plant Nutrition	
HORT 407	Plant Breeding	

HORT 412W	Post-Harvest Physiology
HORT 420	
HORT 431	Small Fruit Culture
HORT 432	Deciduous Tree Fruits
HORT 433	Vegetable Crops
HORT 453	Flower Crop Production and Management
HORT 455	Retail Horticulture Business Management
HORT 459	Plant Tissue Culture and Biotechnology

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Tarrah Geszvain

Academic Adviser

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University Park, PA 16802

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thg110@psu.edu

Career Paths

Career opportunities exist in marketing and sales, plant health and protection, public gardens and arboretums, greenhouse and nursery production and management, cooperative extension, farm management, and with government or non-government agencies.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://plantscience.psu.edu/graduate/>)

Contact

University Park

DEPARTMENT OF PLANT SCIENCE

101 Tyson Building

University Park, PA 16802

814-865-2571

<https://plantscience.psu.edu/about/contact> (<https://plantscience.psu.edu/about/contact/>)

Immunology and Infectious Disease, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

Immunology is the study of how animals and humans protect themselves from pathogens. Understanding basic mechanisms of immunity provides insights into how blood cells develop and how pathogens are recognized and attacked. Furthermore, understanding the concepts behind immunology is necessary for drug and vaccine design. Dysregulation of the processes that regulate immunity can contribute to uncontrolled inflammation, tissue destruction, autoimmunity, immunodeficiencies, leukemia and related cancers. Immunology includes a broad range of disciplines including but not limited to microbiology, virology, animal health, genetics, biochemistry, molecular and cell biology. Students enrolled in the Immunology and Infectious Disease Major will develop and understanding of normal immune responses to bacterial, fungal, and viral agents and appreciate the potential pathological outcomes of these responses. Students will learn about events that shape the immune response; the general biology of pathogens and the mechanisms by which they cause disease. In addition, basic skills in microbiology, molecular biology and biochemistry will be acquired. Students completing a B.S. degree in Immunology and Infectious Disease will be well prepared for veterinary, medical or other professional schools, Ph.D. graduate training in a wide variety of areas including immunology, microbiology, virology, molecular medicine, animal science, molecular biology and biochemistry or highly competitive jobs as research technicians, laboratory assistants or sales representatives with a pharmaceutical company.

What is Immunology and Infectious Disease?

Immunology and Infectious Disease is the study of how the body copes with bacterial, viral, or parasitic infections, cancer, autoimmune disease and other diseases of the immune system. The immune system protects us from infection through is a complex network of cells and tissues designed to fight invading pathogens. Immunology is the study of the response of the immune system to bacterial, viral or parasitic infections.

It is also the study of diseases caused by disorders of the immune system. Autoimmune diseases are diseases that cause your immune system to attack your own body. Immunodeficiency disease is a result of failure of the immune system to function in its normal capacity. Allergy is a result of the immune system responding to substances that are not usually harmful. Immunology also covers the development of the immune system as well as the malignant growth of immune cells, and the epidemiology of infectious disease.

You Might Like this Program If...

- You are interested in studying mechanisms of human disease progression at the molecular, cellular, and whole organism levels, and how these diseases are impacted by components of the immune system
- You are looking for opportunities to perform research in the laboratories of faculty in areas of immune cell development, inflammation, autoimmune disease, cancer biology, and infectious disease

Entrance to Major

In order to be eligible for entrance to the Immunology and Infectious Disease major, a student must have:

1. attained at least a 2.00 cumulative grade point average;
2. completed BIOL 110, BIOL 230W, BIOL 220W or BIOL 240W, CHEM 110, CHEM 111, CHEM 112, CHEM 113, MATH 140, MATH 141;
3. earned a grade of C or better in each of these courses.

Degree Requirements

For the Bachelor of Science degree in Immunology and Infectious Disease, a minimum of 124 credits is required:

Requirement	Credits
General Education	45
Electives	3-5
Requirements for the Major	89-91

15 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
CHEM 210	Organic Chemistry I	3
CHEM 212	Organic Chemistry II	3
CHEM 213	Laboratory in Organic Chemistry	2
PHYS 250	Introductory Physics I	4
PHYS 251	Introductory Physics II	4
VBSC 448W	Current Topics in Immunology	3
<i>Prescribed Courses: Require a grade of C or better</i>		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
BIOL 230W	Biology: Molecules and Cells	4
BMB 401	General Biochemistry	3
BMB 402	General Biochemistry	3
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
CHEM 113	Experimental Chemistry II	1
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
MICRB 201	Introductory Microbiology	3
MICRB 202	Introductory Microbiology Laboratory	2
MICRB 410	Principles of Immunology	3
VBSC 211	The Immune System and Disease	3
Additional Courses		
Select 3-4 credits of the following:		3-4
STAT 200	Elementary Statistics	
STAT 240	Introduction to Biometry	
STAT 250	Introduction to Biostatistics	
<i>Additional Courses: Require a grade of C or better</i>		
BIOL 220W	Biology: Populations and Communities	4

or BIOL 240W	Biology: Function and Development of Organisms	
VBSC 444	Epidemiology of Infectious Diseases	3
or BBH/HPA 440	Principles of Epidemiology	
Select 10-11 credits of the following:		10-11
VBSC 418	Bacterial Pathogenesis	
VBSC/MICRB/ BMB 432	Advanced Immunology: Signaling in the Immune System	
VBSC/MICRB 435	Viral Pathogenesis	
VBSC 445	Molecular Epidemiology of Infectious Diseases	
VBSC 451	Immunotoxicology of Drugs and Chemicals	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 9 credits of 400-level courses from departmental list 9

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3

credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Write Critical Reviews:** Students will be able to read the scientific literature and write critical reviews in the Immunology and Infectious Disease discipline
- **Present Scientific Data:** Students will be able to present and discuss scientific data and analysis in the field of Immunology and Infectious Disease
- **Careers:** Students will be familiar with potential careers in biomedical science and be prepared to apply for jobs or professional schools.
- **Quantitative Skills:** Students will obtain quantitative skills that allow them to analyze experimental data sets.
- **Professional School Acceptance:** Students will be able to obtain the skills critical to successful acceptance in and preparation for professional schools

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of

both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Immunology and Infectious Disease, B.S. at University Park Campus and Altoona Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
VBSC 50 (or First Year Seminar)	3 ENGL 15, 30H, or ESL 15 ^{††}	3
BIOL 110 ^{*#†}	4 BIOL 220W or 240W ^{*#}	4
CHEM 110 ^{*#†}	3 CHEM 112 ^{*#†}	3
CHEM 111 ^{*#†}	1 CHEM 113 ^{*#†}	1
MATH 140 ^{*†##}	4 MATH 141 ^{*†##}	4
General Education Course	3 General Education Course	3
	18	18

Second Year

Fall	Credits Spring	Credits
BIOL 230W ^{*#}	4 VBSC 211 [*]	3
PHYS 250	4 PHYS 251	4
CHEM 210	3 CHEM 212	3
CAS 100, CAS 100A, CAS 100B, or CAS 100C ^{††}	3 CHEM 213	2

General Education Course (GHW)	1.5 MICRB 201*	3
15.5		15
Third Year		
Fall	Credits Spring	Credits
BMB 401*	3 BMB 402*	3
MICRB 410*	3 VBSC 444 or HPA 440*	3
STAT 240, 200, or 250	3-4 ENGL 202C ^{††}	3
MICRB 202*	2 Elective or Supporting Course	3
Supporting Course 400-level*	3 General Education Course	3
	General Education Course (GHW)	1.5
14-15		16.5
Fourth Year		
Fall	Credits Spring	Credits
VBSC 435, 445, or 451*	3 VBSC 418*	2
VBSC 435, 445, or 451*	3 VBSC 432*	3
General Education Course	3 VBSC 448W	3
Supporting Course 400-level*	3 General Education Course	3
Elective or Supporting Course	3 Supporting Course 400-level*	3
15		14

Total Credits 126-127

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Note:

Electives and Supporting Courses – Supporting courses are 400-level courses chosen from a department-approved list or approved by the Program Coordinator. Students must take 9 credits of supporting courses (all of which must have a grade of C or better). Elective credits may be used to earn a minor, usually commencing in the fifth semester. Please consult with your academic adviser for planning.

Immunology and Infectious Disease, B.S. at Commonwealth Campuses (Except Altoona Campus)

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
First Year Seminar	1-3 ENGL 15, 30H, or ESL 15 ^{††}	3
BIOL 110 ^{*#†}	4 BIOL 220W ^{*#}	4
CHEM 110 ^{*#†}	3 CHEM 112 ^{*#†}	3
CHEM 111 ^{*#†}	1 CHEM 113 ^{*#†}	1
MATH 140 ^{*†#†}	4 MATH 141 ^{*†#†}	4
General Education Course	3 General Education Course	3
16-18		18

Second Year

Fall	Credits Spring	Credits
BIOL 230W ^{*#}	4 PHYS 251	4
PHYS 250	4 BIOL 240W ^{*#}	4
CHEM 210	3 CHEM 212	3
CAS 100, CAS 100A, CAS 100B, or CAS 100C ^{††}	3 CHEM 213	2
General Education Course (GHW)	1.5 MICRB 201 [*]	3
	General Education Course	1.5
15.5		17.5

Third Year

Fall	Credits Spring	Credits
BMB 401 [*]	3 BMB 402 [*]	3
MICRB 410 [*]	3 VBSC 444 or HPA 440 [*]	3
STAT 240, 200, or 250	3-4 ENGL 202C ^{††}	3
MICRB 202 [*]	2 General Education Course	3
General Education Course	3 Supporting Course 400-level [*]	3
14-15		15

Fourth Year

Fall	Credits Spring	Credits
VBSC 435, 445, or 451 [*]	3 VBSC 418 [*]	2
VBSC 435, 445, or 451 [*]	3 VBSC 432 [*]	3
General Education Course	3 VBSC 448W	3
Supporting Course 400-level [*]	3 Supporting Course 400-level [*]	3
Elective or Supporting Course	3 General Education Course	3
15		14

Total Credits 125-128

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Note:

Electives and Supporting Courses – Supporting courses are 400-level courses chosen from a department-approved list or approved by the Program Coordinator. Students must take 9 credits of supporting courses (all of which must have a grade of C or better). Elective credits may be used to earn a minor, usually commencing in the fifth semester. Please consult with your academic adviser for planning.

Career Paths

The Immunology and Infectious Disease major provides excellent preparation for a wide variety of careers in industry, government agencies, or academia, or for medical school, veterinary school, or graduate programs in any area of the biomedical sciences. Concern over bioweapons and emerging infectious diseases means high demand for specialists. Our major in Immunology and Infectious Disease is one of only a handful of such programs in the United States. Graduates distinguish themselves with focused courses in immunology and epidemiology while retaining the freedom to choose from a wide variety of courses in biomedicine and biotechnology.

Careers

Thanks to the specialization students can obtain in immunology and epidemiology, there are plentiful employment opportunities for graduates after four years. Some of these opportunities include research positions in biotechnology or pharmaceutical firms, government or international health agencies, and academic research laboratories. Students should recognize, however, that professional advancement in research-oriented careers is less realistic without an advanced degree. Many students choose to get experience for a few years in entry-level positions, and then return to master's and/or doctoral studies.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE IMMUNOLOGY AND INFECTIOUS DISEASE PROGRAM (<https://agsci.psu.edu/academics/undergraduate/majors/immunology-and-infectious-disease/>)

Opportunities for Graduate Studies

The direct relevance of the course work to human health strongly attracts students interested in medicine and related fields. The Immunology and Infectious Disease major provides strong preparation for further studies in medical school, veterinary school, pharmacy school, or school of public health. The program also helps prepare students for graduate

studies in the biomedical sciences. More than half of the students in the Immunology and Infectious Disease major obtain further education in one of these fields.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://agsci.psu.edu/academics/undergraduate/majors/immunology-and-infectious-disease/>)

Contact

University Park

DEPARTMENT OF VETERINARY AND BIOMEDICAL SCIENCES
203 AVBS Building
University Park, PA 16802
814-863-6306
rfp5@psu.edu

<https://vbs.psu.edu/>

International Agriculture, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

This minor is an interdisciplinary program of study designed to enable students to:

1. gain an awareness and appreciation for the interrelationship and interdependency of the nations of the world for their food and fiber systems worldwide;
2. gain awareness of problems in international agriculture and sustainability of alternative solutions;
3. understand global impacts of technology;
4. understand systems of learning across cultures.

What is International Agriculture?

How does climate change affect coffee grown in El Salvador—and migration into the United States? What resources do women farmers have compared to men? How can governmental policies promote all people having food at all times? These are just a few of the questions explored within the field of international agriculture.

Agriculture affects all of us. Every time we eat, go to the grocery store, or even buy clothing, we are participating in complex agricultural systems that are increasingly globally integrated. The interdisciplinary study of international agriculture explores food and fiber production around the world—and the lives of everyone connected to these processes. Utilizing systems thinking we examine the environmental, social, economic, political, and technological challenges and opportunities to promoting food security and sustainable agricultural development around the globe.

You Might Like This Program If...

- You want to examine real world challenges influencing whether people around the world have adequate food to eat.
- You want to explore the interconnected environmental, social, and economic factors which contribute to food and fiber production globally.

- You want to enhance your global and cultural perspectives to apply to careers in business, non-profits, government, and more.
- You want to explore the local implications of agriculture and sustainable development around the globe.

Entrance to Minor

Students may apply for admission to the minor by completing and submitting an application for admission to Office of International Programs, College of Agricultural Sciences, 106 Administration Building, University Park campus. A signature from the student's major program adviser is required.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

This minor requires 18 credits and may be combined with any undergraduate major in the University. Some courses require prerequisites not included in the minor. World language competence is highly recommended.

Students are given the option of participating in a semester study abroad program that would be discussed and approved by the INTAG coordinator and the student's academic adviser. Twelve credits maximum can count toward the minor, and should normally only fulfill elective and internationally-oriented experience credits, and not replace prescribed credits for the minor. The semester study abroad program needs to focus on courses within the food, agriculture or natural resources areas.

Students must have six credits of 400-level course work for the minor.

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
INTAG 100N	Everyone Eats: Hunger, Food Security & Global Agriculture	3
INTAG 490	Senior Seminar in International Agriculture	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select three courses from the first two categories (9 credits) and one internationally-oriented experience from the third category (3 credits)		
<i>Category 1: Social Sciences</i>		
Select up to two courses from this category. 3-6		
AEE 400	Global Agriculture Education	
AGBM 338	Agribusiness in the Global Economy	
ANTH 120	First Farmers	
ANTH 472		
BBH 305	Introduction to Global Health Issues	
BBH 402	African Health & Development	
BBH 407	Global Health Equity	
CED 230	Development Issues in the Global Context	

CED 420	
CED 425	International Community and Economic Development
CED 450	International Development, Renewable Resources, and the Environment
GEOG 3N	Food and the Future Environment
GEOG 30N	Environment and Society in a Changing World
GEOG 123	Geography of Developing World
GEOG 126	Economic Geography
GEOG 220	Perspectives on Human Geography
GEOG 430	Human Use of Environment
GEOG 444	Resource Governance in Africa
NUTR 421	Biocultural Perspectives on Public Health Nutrition
NUTR 425	Global Nutrition Problems: Health, Science, and Ethics
SPAN 105	Elementary Spanish I for Students in the Agricultural Sciences
SPAN 106	Elementary Spanish II for Students in the Agricultural Sciences
WMNST 420	Any university language skill development course
<i>Category 2: Natural Sciences</i>	
Select up to two courses from this category: 3-6	
AFR 105	African Biodiversity and Conservation
AGECO 3	
AGECO 457	Principles of Integrated Pest Management
EARTH 2	The Earth System and Global Change
ENT 202	
ENT 222	
ENT 457	Principles of Integrated Pest Management
ERM 210	Environmental Factors and Their Effect on Your Food Supply
FDSC 105	Food Facts and Fads
FOR 201	Global Change and Ecosystems
FOR 418	Agroforestry: Science, Design, and Practice
FOR 488Y	Global Forest Conservation
GEOG 210	Geographic Perspectives on Environmental Systems Science
INTAG 300	Tropical Agriculture and Food Systems
PPEM 405	Microbe-Plant Interactions: Plant Disease and Biological Control
SOILS 71	Environmental Sustainability
<i>Category 3: International Experience</i>	
Select 3 credits from the following: 3	
AGBM 470A	Comparing Agricultural and Food Systems in the US and France: Lecture
AGBM 470B	Comparing Agricultural and Food Systems in the United States and France: Travel
AGECO 499	Foreign Studies
ANSC 499	Foreign Studies
CED 499	Foreign Studies
ERM 499	Foreign Studies
FDSC 460	International Food Production
FDSC 499	Foreign Studies

HORT 499	Foreign Studies
INTAG 199	Foreign Studies
INTAG 470A	Comparing Agricultural and Food Systems in the US and France: Lecture
INTAG 470B	Comparing Agricultural and Food Systems in the United States and France: Travel
INTAG 499	Foreign Studies
SOILS 499	Foreign Studies
VBSC 499	Foreign Studies

¹ With approval of INTAG minor coordinator.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Noel Habashy

Assistant Teaching Professor
106 Agricultural Administration Building
University Park, PA 16802
814-863-0249
noel@psu.edu

Schedule an advising appointment with Noel Habashy through Starfish (<https://sites.psu.edu/starfishinfo/>).

Career Paths

Graduates of the International Agriculture minor go on to use their global understanding in a wealth of careers such as:

- Non-Governmental Organizations including Cultivating New Frontiers in Agriculture, DAI, and local food banks.
- Government including U.S. Agency for International, U.S. Department of Agriculture's Foreign Agriculture Service, and working for U.S. representatives in congress.
- Private industry including Hershey, Mars, and Corteva.
- Entrepreneurial efforts including an equine business and a community supported agriculture (CSA) farm.
- Academia including research and teaching in nutrition, food security, veterinary medicine, and agricultural education.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN INTERNATIONAL AGRICULTURE (<https://agsci.psu.edu/global/study-abroad/internships/>)

Opportunities for Graduate Studies

Graduates of the International Agriculture minor go on to pursue a wide range of graduate studies. One such program is the International Agriculture and Development (<https://agsci.psu.edu/global/intad/>) dual-degree graduate program at Penn State.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://agsci.psu.edu/global/intad/>)

Contact

University Park

AG SCIENCES GLOBAL
106 Agricultural Administration Building
University Park, PA 16802
814-863-0249
noel@psu.edu

<https://agsci.psu.edu/academics/undergraduate/minors/international-agriculture> (<https://agsci.psu.edu/academics/undergraduate/minors/international-agriculture/>)

Landscape Contracting, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

Landscape contracting involves constructing, establishing, and maintaining landscapes from small residential projects to large commercial and industrial projects, as well as producing plans for small-scale residential and commercial sites. Students develop skills in construction, site design, plant material usage, plant establishment, and landscape maintenance. Students are also educated in areas such as graphics, surveying, soils, turfgrass management, weed and pest management, and in business operations.

Students are encouraged to obtain on-the-job experience in landscape contracting by working with a landscape maintenance or construction firm, or other related business. Credits for this experience are available for those who choose to enroll in an internship.

A wide variety of opportunities exist for landscape contracting graduates. They may be employed by design/build firms, landscape management firms, nurseries, or garden centers. Others may choose to work for municipalities, golf courses, parks, or botanical gardens.

Design/Build Option

This option focuses on the development of skills in the planning and implementation of landscape projects. Employment opportunities exist with landscape contracting companies, irrigation companies, and retail centers.

Management Option

This option provides professional education in the management of landscapes. Employment opportunities include positions with landscape management companies and golf courses.

What is Landscape Contracting?

Landscape contracting is a highly specialized profession that involves the design, construction, and management of outdoor environments. The

industry is dependent upon educated and well-trained individuals who are capable of creating sustainable design solutions that meet or exceed client expectations. Penn State is at the forefront of preparing students to be leaders in this exciting industry.

You Might Like this Program If...

- You are interested in owning your own company or working for small to large landscape firms as a project manager or account manager on residential and commercial projects
- You enjoy learning in both classroom and outdoor settings
- You are interested in a program that offers design studios and computer classrooms with up-to-date software applications for creating 2-D and 3-D landscape plans
- You like to be outside and want to work with your hands

MORE INFORMATION ABOUT WHY STUDENTS CHOOSE TO STUDY LANDSCAPE CONTRACTING (<https://agsci.psu.edu/academics/undergraduate/majors/landscape-contracting/>)

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Landscape Contracting, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	2-16
Requirements for the Major	80-97

21-24 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GWS courses; 3-6 credits of GA courses; 3 credits of GQ courses; 9 credits of GN courses; 3 credits of GS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
CHEM 101	Introductory Chemistry	2-3
ENGL 202D	Effective Writing: Business Writing	3
HORT 410W	Issues in Landscape Contracting	3

LARCH 60	Cultural History of Designed Places	3
PLANT 217	Landscape Soil and Water Management	3
SOILS 101	Introductory Soil Science	3
<i>Prescribed Courses: Require a grade of C or better</i>		
HORT 101	Horticultural Science	3
HORT 120	Computer Applications for Landscape Contracting	2
HORT 131	Herbaceous Perennial and Annual Identification	3
HORT 137	Ornamental Plant Materials	3
HORT 138	Ornamental Plant Materials	3
HORT 408	Landscape Plant Establishment and Maintenance	4
HORT 468	Landscape Estimating and Bidding	2

Additional Courses

BIOL 110	Biology: Basic Concepts and Biodiversity	3-4
or BIOL 127	Introduction to Plant Biology	
MKTG 220	Introduction to Selling Techniques	3
or BA 303	Marketing	
TURF 100	Introduction to Turfgrass Management	3
or TURF 235	The Turfgrass	

Select one of the following: 3

AGBM 101	Economic Principles of Agribusiness Decision Making	
ECON 14	Principles of Economics	
ECON 102	Introductory Microeconomic Analysis and Policy	
ECON 104	Introductory Macroeconomic Analysis and Policy	

Select one of the following: 3

BA 250	Small Business Management	
BA 304	Management and Organization	
HORT 455	Retail Horticulture Business Management	

Select one of the following: 3-4

BA 241	Legal Environment of Business	
& BA 242	and Social and Ethical Environment of Business	
BA 243	Social, Legal, and Ethical Environment of Business	
BLAW 243	Legal Environment of Business	

Select one of the following: 3-5

MATH 26	Plane Trigonometry and Applications of Trigonometry	
MATH 40	Algebra, Trigonometry, and Analytic Geometry	
MATH 41	Trigonometry and Analytic Geometry	
MATH 140	Calculus With Analytic Geometry I	

Select one of the following: 4

SPAN 1	Elementary Spanish I	
SPAN 2	Elementary Spanish II	
SPAN 105	Elementary Spanish I for Students in the Agricultural Sciences	

Requirements for the Option

Select an option 14-26

**Requirements for the Option
Design/Build Option (25-26 credits)**

Code	Title	Credits
ART 20	Introduction to Drawing	3
EDSGN 10		1

Prescribed Courses: Require a grade of C or better

HORT 220	CAD Applications in Landscape Contracting	3
HORT 269	Residential Landscape Planning	3
HORT 368	Landscape Planting Design	4
HORT 464	Landscape Construction I	4
HORT 466	Landscape Construction II	5

Additional Courses

Select 2-3 credits from the following: 2-3

ENT 313	Introduction to Entomology	
ENT 314	Management of Insect Pests of Ornamentals	
HORT 238	Turf and Ornamental Weed Control	
PPEM 300	Horticultural Crop Diseases	
PPEM 318	Diseases of Forest and Shade Trees	

Management Option (14-15 credits)

Code	Title	Credits
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Prescribed Courses

ENT 313	Introduction to Entomology	2
ENT 314	Management of Insect Pests of Ornamentals	1
SOILS 401	Soil Composition and Physical Properties	3

Prescribed Courses: Require a grade of C or better

HORT 238	Turf and Ornamental Weed Control	3
HORT 250	Landscape Contracting Design/Build Principles	3

Additional Courses

PPEM 300	Horticultural Crop Diseases	2-3
or PPEM 318	Diseases of Forest and Shade Trees	

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses**. This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student’s degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Create Site Solutions:** Students will use quantitative, artistic, and environmental knowledge to create workable site solutions. Students will work individually, collaboratively, and cooperatively.
- **Concept Communications:** Students will communicate complex design concepts to clients and industry professionals using 2-D and 3-D computer generated documents.
- **Landscape Management Plans:** Students will develop landscape management plans that reflect their knowledge of plants and their cultural requirements, biology, and the surrounding environment.

- **Business Management Skills:** Students will employ business management skills to analyze landscape project inputs and to develop comprehensive pricing proposals.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Tarah Geszvain
 Academic Adviser
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 University Park, PA 16802
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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Design/Build Option: Landscape Contracting, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year		
Fall	Credits Spring	Credits
HORT 101 ⁺⁺	3 AGBM 101, ECON 14, ECON 102, or ECON 104 [†]	3
ENGL 15, 30H, or ESL 15 ⁺⁺	3 MATH 26 ⁺⁺	3
AG 150	2 LARCH 60 [†]	3
General Education Course	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C ⁺⁺	3
General Education Course	3 General Education Course	3
General Education Course (GQ) ⁺⁺	3	
	17	15

Second Year

Fall	Credits Spring	Credits
BIOL 127 or 110 [†]	3-4 SOILS 101 [†]	3
EDSGN 10	1 ACCTG 211	4
SPAN 1, 2, or 105	4 HORT 220 [*]	3
BA 250	3 ART 20 [†]	3
HORT 137	3 General Education Courses (GHW)	1.5
HORT 120 [*]	2	
16-17		14.5

Third Year

Fall	Credits Spring	Credits
CHEM 101	2-3 HORT 464 [*]	4
HORT 138 [*]	3 HORT 408 [*]	4
HORT 269 [*]	3 PLANT 217	3
TURF 100 or 235	3 ENT 313, 314, HORT 238, PPEM 300, or PPEM 318	2-3
General Education Course (GHW)	1.5 ENGL 202D ^{‡†}	3
12.5-13.5		16-17

Fourth Year

Fall	Credits Spring	Credits
HORT 466 [*]	5 HORT 368 [*]	4
HORT 131 [*]	3 HORT 468 [*]	2
HORT 410W	3 MKTG 220 or 220	3
BLAW 243	3 Elective	3-6
	General Education Course	3
14		15-18

Total Credits 120-126

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will

replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Note:

Please consult with your academic adviser regarding the selection of elective courses.

Management Option: Landscape Contracting, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
HORT 101 ^{*††}	3 AGBM 101, ECON 14, ECON 102, or ECON 104 [†]	3
ENGL 15, 30H, or ESL 15 ^{††}	3 MATH 26 ^{††}	3
AG 150	2 LARCH 60 [†]	3
General Education Course	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C ^{††}	3
General Education Course (GQ) ^{††}	3 General Education Course	3
	14	15

Second Year

Fall	Credits Spring	Credits
BIOL 127 or 110 [†]	3-4 SPAN 1, 2, or 105	4
HORT 137 [*]	3 ENT 313	2
HORT 120	2 ENT 314	1
SOILS 101 [†]	3 BLAW 243	3
BA 250	3 PPEM 318 or 300	2
	MKTG 220 or 220	3
	General Education Course (GHW)	1.5
	14-15	16.5

Third Year

Fall	Credits Spring	Credits
HORT 138 [*]	3 ACCTG 211	4
CHEM 101	2-3 ENGL 202D ^{††}	3
HORT 238 [*]	3 HORT 408 [*]	4
HORT 250 [*]	3 PLANT 217	3
TURF 100 or 235	3 General Education Course (GHW)	1.5
	14-15	15.5

Fourth Year

Fall	Credits Spring	Credits
HORT 131 [*]	3 SOILS 402 or 404	3
HORT 410W	3 HORT 468 [*]	2
General Education Course	3 Elective	3
General Education Course	3 Elective	3
Elective	3 General Education Course	3
	Elective	2-3
	15	16-17

Total Credits 120-123

* Course requires a grade of C or better for the major

† Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Note:

Please consult with your academic adviser regarding the selection of elective courses.

Design/Build Option: Landscape Contracting, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or ESL 15 ^{††}	3 MATH 26 ^{††}	3
AGBM 101, ECON 14, ECON 102, or ECON 102 [†]	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C ^{††}	3
General Education Course	3 ART 20 [†]	3
General Education Course (GHW)	1.5 General Education Course	3
General Education Course (GQ) ^{††}	3 General Education Course	3
First Year Seminar	1-3	
14.5-16.5		15

Second Year

Fall	Credits Spring	Credits
BIOL 127 or 110 [†]	3-4 CHEM 101	2-3
ACCTG 211	4 SPAN 1, 2, or 105	4
BLAW 243	3 ENGL 202D ^{††}	3
General Education Course	3 General Education Courses (GHW)	1.5
Elective	3 Elective	3
16-17		13.5-14.5

Third Year

Fall	Credits Spring	Credits
HORT 137 [*]	3 HORT 464 [*]	4
HORT 269 [*]	3 HORT 408 [*]	4
HORT 101 (Elective) ^{*†}	3 PLANT 217	3
HORT 120 [*]	2 HORT 220 [*]	3
EDSGN 10	1 LARCH 60	3
SOILS 101	3	
ENT 313, 314, HORT 238, PPEM 300, or PPEM 318	2-3	
17-18		17

Fourth Year

Fall	Credits Spring	Credits
HORT 131	3 HORT 368 [*]	4
HORT 138	3 HORT 468 [*]	2
HORT 410W	3 MKTG 220 or 220	3
HORT 466	5 BA 250	3
TURF 100 or 235	3 General Education Course (GHW)	1.5
17		13.5

Total Credits 123.5-128.5

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Note:

Please consult with your academic adviser regarding the selection of elective courses.

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Management Option: Landscape Contracting, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 127 or 110 [†]	3-4 CHEM 101	2-3
ENGL 15, 30H, or ESL 15 ^{††}	3 MATH 26 ^{††}	3
General Education Course (GQ) ^{††}	3 CAS 100 ^{††}	3
General Education Course (GHW)	1.5 General Education Course	3
General Education Course	3 General Education Course	3
First Year Seminar	1-3	
14.5-17.5		14-15

Second Year

Fall	Credits Spring	Credits
AGBM 101, ECON 14, ECON 102, or ECON 104 [†]	3 ENGL 202D ^{††}	3
BLAW 243	3 ACCTG 211	4
SPAN 1, 2, or 105	4 General Education Course	3
General Education Course (GHW)	1.5 General Education Course	3
Elective	3 Elective	3
14.5		16

Third Year

Fall	Credits Spring	Credits
HORT 137 [*]	3 SOILS 402 or 404	3
HORT 120 [*]	2 MKTG 220 or 220	3
HORT 238 [*]	3 HORT 408 [*]	4
HORT 101 ^{*††}	3 PLANT 217	3
HORT 250 [*]	3 LARCH 60 [†]	3
SOILS 101 [†]	3	
17		16

Fourth Year

Fall	Credits Spring	Credits
HORT 138 [*]	3 ENT 313	2
HORT 131 [*]	3 ENT 314	1
HORT 410W	3 HORT 468	2
TURF 100 or 235	3 PPEM 318 or 300	2-3
BA 250	3 Elective	3
	Elective	3
	Elective	2-3
15		15-17

Total Credits 122-128

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Note:

Please consult with your academic adviser regarding the selection of elective courses.

Career Paths

Career opportunities exist with landscape management firms, design/build firms, nurseries, public gardens, park systems, municipalities, golf courses, and garden centers. Graduates may find opportunities in marketing and sales, business management, estimating and bidding, and landscape design and management.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE LANDSCAPE CONTRACTING PROGRAM (<https://agsci.psu.edu/academics/undergraduate/majors/landscape-contracting/>)

Opportunities for Graduate Studies

Students may pursue graduate studies in horticulture, landscape architecture, turfgrass science, ecosystems management, and other related fields.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://plantscience.psu.edu/graduate/>)

Professional Resources

- National Association of Landscape Professionals (<https://www.landscapeprofessionals.org>)
- Association of Professional Landscape Designers (<https://www.apld.org>)

Contact

University Park

DEPARTMENT OF PLANT SCIENCE
101 Tyson Building
University Park, PA 16802
814-865-2571
thg110@psu.edu

<https://plantscience.psu.edu/about/contact> (<https://plantscience.psu.edu/about/contact/>)

Leadership Development, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

This minor is designed for students in any major of the University wanting to supplement their program with studies in leadership development. The minor consists of 18 credits, at least 3 of which are an internship experience. Up to 9 additional credits may be required depending on the student's selection of courses under "Additional Courses". This minor provides students with a fundamental concept of leadership development and expands in three related dimensions.

What is Leadership Development?

The goal of the Leadership Development minor is to expand students' knowledge, skills, and understanding of specific leadership theories, concepts, models, and current leadership issues in applied settings. It is intended for students interested in a cross-disciplinary approach to gathering, interpreting, and applying knowledge about leaders and leadership practices. This minor teaches students the skills necessary to excel as leaders in their professions and help others accomplish their goals.

MORE INFORMATION ABOUT LEADERSHIP DEVELOPMENT (<https://agsci.psu.edu/academics/undergraduate/minors/leadership-development/>)

You Might Like This Program If...

- You want to learn a variety of skills that allow you to lead teams, groups, and organizations.
- You are interested in how effective leadership skills and techniques can advance you and your organization.
- You seek to make change happen in your community and beyond.
- You want to pursue a career in your major and to gain the leadership skills that will allow you to advance in your career.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
AEE 360	Leadership Development for Small Groups	3
AEE 460	Foundations in Leadership Development	3
AEE 495	Internship	3
AEE 465	Leadership Practices: Power, Influences, and Impact	3

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 6 credits in consultation with an adviser from courses on the Department approved list that focus in one of three support areas: leadership styles, ethical and moral dimensions of leadership, or global leadership 6

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Mark Brennan

Professor and UNESCO Chair
204 Ferguson Building
University Park, PA 16802
814-863-0387
mab187@psu.edu

Career Paths

Leadership Development minor students can attain the skills and knowledge necessary to drive change within their organizations, communities, and governments. Faculty and professional academic advisers in the Leadership Development program support and serve students in career decision-making, tailoring the minor to fit students' career goals, internship and job search strategies, interview preparation, and preparing for employment or graduate school. With a Leadership Development minor, you can be prepared for a career in your major and have the leadership skills to advance in your career. A minor in Leadership Development can lead to, and support, advanced degrees in all areas.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN LEADERSHIP DEVELOPMENT (<https://agsci.psu.edu/academics/undergraduate/minors/leadership-development/>)

Contact

University Park

DEPARTMENT OF AGRICULTURAL ECONOMICS, SOCIOLOGY, AND EDUCATION
204 Ferguson Building
University Park, PA 16802
814-863-0387
mab187@psu.edu

<https://agsci.psu.edu/academics/undergraduate/minors/leadership-development> (<https://agsci.psu.edu/academics/undergraduate/minors/leadership-development/>)

Mushroom Science and Technology, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

This interdisciplinary minor is designed to prepare students for a career in the mushroom industry. The minor offers practical work experience at the University's Mushroom Research Center. Students are required to complete a minimum of 22 credits. The core of prescribed courses provides a foundation in the basic fundamentals of mushroom science and technology.

What is Mushroom Science and Technology?

Mushroom science is the interdisciplinary study of cultivated mushrooms covering topics including improving production efficiency, reducing disease impacts as well as studying the use of alternative raw materials.

This research provides alternative disease management strategies for mushroom growers that are constantly facing economic challenges associated with mushroom diseases. The successful use of new substrates provides growers alternatives when raw materials are in short supply or not economical for use in mushroom production. Improving production efficiencies has always been a priority research area for mushroom scientists and any findings that can improve yields, regardless of the magnitude, will benefit farmers.

You Might Like This Program If...

- You are interested in mycology, growing mushrooms.
- You are looking for a career in one of Pennsylvania's leading agricultural industries as the state grows nearly two-thirds of the country's mushrooms.

The industry is constantly searching for college graduates interested in becoming leaders in this dynamic industry.

Program Requirements

Requirement	Credits
Requirements for the Minor	22

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
BIOL 110	Biology: Basic Concepts and Biodiversity	4

PPEM 405	Microbe-Plant Interactions: Plant Disease and Biological Control	3
PPEM 425	Biology of Fungi	4
PPEM 496	Independent Studies	2

Additional Courses

Additional Courses: Require a grade of C or better

Select 9 credits of the following:		9
AGBM 200	Introduction to Agricultural Business Management	
ENT 202		
ENT 313	Introduction to Entomology	
FDSC 408	Food Microbiology	
FDSC 409	Laboratory in Food Microbiology	
MICRB 201	Introductory Microbiology	
MICRB 202	Introductory Microbiology Laboratory	

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

John Pecchia

Assistant Professor of Plant Pathology and Environmental Microbiology
319 Buckhout Lab
University Park, PA 16802
814-865-1008
jap281@psu.edu

Career Paths

Careers

Mushrooms are one of Pennsylvania's leading cash crops. The mushroom industry is seeking college graduates to fill a wide array of both technical and managerial positions. Technical positions cover areas related to daily production, quality control, and food safety systems. This minor will give you a better understanding of mushroom cultivation as well as the current state of production systems throughout the United States. The minor adviser works closely with producers and is contacted by companies looking for employees on a regular basis.

Opportunities for Graduate Studies

Graduate studies in mushroom cultivation are limited; however, Penn State is unique in that it does offer graduate degrees where the student's projects can be based on mushroom cultivation, and where the student has an opportunity to work directly with industry representatives if desired. The mushroom program is housed in the Department of Plant

Pathology and Environmental Microbiology in the College of Agricultural Sciences.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://agsci.psu.edu/academics/undergraduate/minors/mushroom-science-and-technology/>)

Contact

University Park

DEPARTMENT OF PLANT PATHOLOGY AND ENVIRONMENTAL MICROBIOLOGY
319 Buckhout Lab
University Park, PA 16802
814-865-1008
jap281@psu.edu

<https://plantpath.psu.edu/directory/jap281> (<https://plantpath.psu.edu/directory/jap281/>)

Off-Road Equipment, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

This interdisciplinary minor complements several engineering, agricultural, and mining degrees, helping students understand some specific technological aspects of mobile equipment (from lawn tractors to large excavators). The minor would strengthen the program for students with machinery interests by exposing them to several of the technical aspects of off-road equipment such as electronics, power generation, power transmission, traction, ergonomics, and safety.

You Might Like This Program If...

- You are pursuing an engineering or engineering technology major and want to complement it with applications in applied machinery.
- You want to take application-focused classes with interactive labs and hands-on learning opportunities.
- You are interested in solving problems related to machinery.
- You are passionate about technology.

Program Requirements

Requirement	Credits
Requirements for the Minor	18-20

Requirements for the Minor

The minor in Off-Road Equipment requires 18-20 credits from the approved courses. Courses in the minor have prerequisites including calculus, physics, and, depending on the student's major, at least one engineering or engineering technology type course (e.g., BRS 221). These courses should be completed prior to entering the minor.

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ASM 420	Principles of Off-Road Machines	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
ASM 320 or ME 431	Combustion Engines for Mobile Equipment Internal Combustion Engines	3
BE 461 or BRS 426	Design of Fluid Power Systems Safety and Health in Agriculture and Biorenewable Industries	3
Select 3 credits of the following:		3
ASM 310	Power Transmission in Agriculture	
BE 306	Machines for Agricultural and Biological Processing	
ME 360	Mechanical Design	
Select 3-4 credits of the following:		3-4
BE 305	Agricultural Measurements and Control Systems	
BRS 428	Electric Power and Instrumentation	
ME 345	Instrumentation, Measurements, and Statistics	
Select 3-4 credits of the following:		3-4
AGRO 423	Forage Crop Management	
AGRO 425	Field Crop Management	
ASM 424	Precision Agriculture Technology	
HORT 408	Landscape Plant Establishment and Maintenance	
TURF 425	Turfgrass Cultural Systems	

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Contact

University Park

DEPARTMENT OF AGRICULTURAL AND BIOLOGICAL ENGINEERING

105 Agricultural Engineering Building
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<https://abe.psu.edu>

One Health, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The minor in One Health will consist of four core courses (12 credits) and nine credits of supporting courses from a variety of disciplines. This course is open to all SCIENCE MAJORS. Students that are accepted in the minor, will consult with the coordinator such that the minor is completed in time. Substitution of supportive courses will be an option as determined by the coordinator to all the students to complete the minor on time.

What is One Health?

One Health is a multidisciplinary approach integrating human medicine, veterinary medicine, and environmental science to optimize the health of people, animals, plants, and ecosystems. Its holistic methodology recognizes that these three areas of study are intimately intertwined. One Health training allows students to think dynamically and globally about how health is affected, diseases are transmitted, and environment plays a role in disease.

You Might Like this Program If...

- You are dedicated to improving the lives of humans and animals
- You are interested in the interdependencies that shape our health and the environment
- You find passion promoting health on a local, national, or global scale
- You value interdisciplinary thinking in solving the world's big problems

Program Requirements

Requirement	Credits
Requirements for the Minor	21

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Some courses have prerequisites which need to be completed before taking the course.

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
VBSC 340	Introduction to Human and Veterinary Public Health	3

VBSC 444	Epidemiology of Infectious Diseases	3
VBSC 455	One Health	3
VBSC 456	Case Studies in Global One Health	3

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 0-9 credits from the following: 0-9

ANSC 419W	Applied Animal Welfare
BBH 302	Diversity and Health
BMB 464	Molecular Medicine
BMH 490	Bioethics and Medical Humanities Capstone Course
BIOL 415	Ecotoxicology
CED 442	Changing Food Systems: Comparative Perspectives
ENT 450	Medical Entomology
ERM 430	Air Pollution Impacts to Terrestrial Ecosystems
ENVSE 450	Environmental Health and Safety
FDSC 408	Food Microbiology
FOR/WFS 430	Conservation Biology
GEOG 436	Ecology, Economy, and Society
GEOSC 420	Paleobotany
MICRB 412	Medical Microbiology
NUTR 430	
SOC 423	Social Demography

Select 0-3 credits from the following: 0-3

VBSC 403H	Principles of Animal Disease Control
VBSC 402W	Biology of Animal Parasites
VBSC 409	Wildlife Diseases

Select 0-3 credits from the following: 0-3

VBSC 418	Bacterial Pathogenesis
VBSC 435	Viral Pathogenesis

Select 0-3 credits from the following: 0-3

VBSC 430	Principles of Toxicology
VBSC 431	Environmental Toxicology

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Jennifer Koehl, Ph.D., MPS

Veterinary and Biomedical Sciences Undergraduate Program Coordinator,
One Health Minor Coordinator, Assistant Teaching Professor
108E Animal, Veterinary and Biomedical Sciences Building
University Park, PA 16802
jzk335@psu.edu

Careers Paths

The One Health minor offers a new perspective to approach your other fields of study. With this minor, you can build a career that supports the interdependent relationships between humans and animals. You can pursue jobs in fields such as animal science, biology, environmental studies, food science, nursing, nutrition, pandemic prevention and response, public health, toxicology, and veterinary and biomedical sciences.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN ONE HEALTH (<https://agsci.psu.edu/academics/undergraduate/minors/one-health/>)

Opportunities for Graduate Study

The One Health approach is adopted throughout veterinary, human, and environmental graduate curricula. Many graduate opportunities exist: Biomedical and comparative medicine research, veterinary science and medicine, public health, emergency management, public health preparedness, sustainability, and global food security. In addition, Penn State has the One Health Microbiome Center which offers multiple graduate degrees. The Center fosters long-term working relationships while simultaneously providing infrastructure and resources to support transformative, interdisciplinary microbiome scholarship locally, nationally, and worldwide.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://agsci.psu.edu/research/impacts/themes/one-health/>)

Contact

University Park

DEPARTMENT OF VETERINARY AND BIOMEDICAL SCIENCES
Animal, Veterinary and Biomedical Sciences Building
University Park, PA 16802
vetbiomedsci@psu.edu

<https://vbs.psu.edu/about/contact> (<https://vbs.psu.edu/about/contact/>)

Pharmacology and Toxicology, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The fields of pharmacology and toxicology are by nature interdisciplinary biomedical sciences, drawing upon the foundations and approaches of cell biology, systems physiology, biochemistry, molecular biology, and genetics. A primary objective of pharmacology is to investigate fundamental aspects of cellular and molecular regulatory mechanisms for the purpose of understanding how drugs act and in order to develop new drugs for treatment of disease. Toxicology examines how chemical agents produce adverse effects on the organism, and studies mechanisms by which these materials contribute to cancer, neurological diseases, metabolic disorders and many other diseases and conditions. Our program is truly unique. One of the only eight majors in

toxicology and pharmacology in the United States, it is the only one that blends molecular/cellular and environmental studies of toxicology and pharmacology.

What is Pharmacology & Toxicology?

Pharmacology and toxicology study two sides of the same coin namely how do chemicals affect organisms positively (Pharmacology) or negatively (Toxicology). Toxicology as the study of the adverse effects of chemical, physical, or biological agents on people, animals, and the environment. It complements the study of Pharmacology, which examines the beneficial effects of chemical and biological agents. Pharmacologists and Toxicologists are scientists trained to investigate, interpret, and communicate the nature of beneficial as well as hazardous effects of manmade chemicals. These are interdisciplinary sciences, integrating information from biology and virtually all its subspecialties (e.g., genetics, endocrinology and molecular biology) as well as math, physics, and chemistry and its subspecialties (e.g., analytical, organic, and clinical chemistry).

You Might Like this Program If...

- You want to translate detailed knowledge of biology and biochemistry into a form that benefits human and ecological health as well as policy decisions
- You want to study how new drugs are discovered and evaluated for health benefit as well as potential toxic responses
- You appreciate that human-made chemicals released into the environment impact the ecosystem and want to understand how you define and manage safety

Entrance to Major

In order to be eligible for entrance to the Pharmacology and Toxicology major, a student must have:

1. attained at least a 2.00 cumulative grade point average and
2. earned a C grade or better in: BIOL 110, BIOL 230W, CHEM 110, CHEM 111, CHEM 112, CHEM 113, MATH 140, and MATH 141.

Degree Requirements

For the Bachelor of Science degree in Pharmacology and Toxicology, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	0-2
Requirements for the Major	88-91

15 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
BBH/HPA 440	Principles of Epidemiology	3
BIOL 220W	Biology: Populations and Communities	4
BIOL 230W	Biology: Molecules and Cells	4
BMB 211	Elementary Biochemistry	3
BMB 212	Elementary Biochemistry Laboratory	1
BMB 221	Applied Biochemistry	2
CHEM 210	Organic Chemistry I	3
CHEM 212	Organic Chemistry II	3
CHEM 213W	Laboratory in Organic Chemistry - Writing Intensive	2
PHYS 250	Introductory Physics I	4
PHYS 251	Introductory Physics II	4
VBSC 230	The Science of Poisons	3
<i>Prescribed Courses: Require a grade of C or better</i>		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
CHEM 113	Experimental Chemistry II	1
ERM/VBSC 431	Environmental Toxicology	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
VBSC 331	Pharmacology I: Drug Actions and Reactions	3
VBSC 430	Principles of Toxicology	3
VBSC/BMB 433	Molecular and Cellular Toxicology	3
VBSC 438	Introduction to Molecular Pharmacology	3
Additional Courses		
BIOL 141	Introduction to Human Physiology	3-4
or BIOL 240W	Biology: Function and Development of Organisms	
STAT 200	Elementary Statistics	3-4
or STAT 250	Introduction to Biostatistics	
VBSC 395	Internship	2-3
or VBSC 496	Independent Studies	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 9 credits of 400-level courses from department list		9

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or

within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Physical, Biological and Toxicology Competencies:** Students will exhibit specialized competencies in toxicology and pharmacology based upon a solid grounding in the physical and biological sciences.
- **Research Experience:** Students will have access to meaningful research experience and the professional development that accompanies such training including the ability to formulate a research question and design experimental procedures.
- **Collaborative Learning, Critical Thinking and Communication:** Graduates will demonstrate collaborative learning, critical thinking, and research skills, as well as skills to communicate effectively to professional and lay audiences.
- **Career planning and advancement:** Graduates will be prepared to succeed in industry, government, academic research, and in graduate and professional study.
- **Ethics and Toxicology Outreach:** Students will apply ethical principles in conducting scientific research and apply their expertise to a broader health and societal context.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Pharmacology and Toxicology, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year		
Fall	Credits Spring	Credits
VBSC 50	3 ENGL 15, 30H, or ESL 15 ^{††}	3
BIOL 110 ^{*#†}	4 BIOL 230W ^{*#}	4
CHEM 110 ^{*#†}	3 CHEM 112 ^{*#†}	3
CHEM 111 ^{*#†}	1 CHEM 113 ^{*#†}	1
MATH 140 ^{*†#†}	4 MATH 141 ^{*†#†}	4
General Education Course	0-3 General Education Course or VBSC 190	1-3
15-18		16-18
Second Year		
Fall	Credits Spring	Credits
BIOL 220W	4 BIOL 240W or 141	3-4
PHYS 250	4 PHYS 251	4
CHEM 210	3 CHEM 212	3
CAS 100A, 100B, or 100C ^{††}	3 CHEM 213	2
General Education Course (GHW)	1.5 VBSC 230	3
General Education Course	0-3 General Education (GHW)	1.5
15.5-18.5		16.5-17.5
Third Year		
Fall	Credits Spring	Credits
BMB 211	3 BMB 221	2
BMB 212	1 ENGL 202C ^{††}	3
BBH/HPA 440	3 STAT 200 or 250	3-4
VBSC 331 [*]	3 VBSC 496 or 395	0-3
General Education Course	3 General Education Course	3
VBSC 496 or 395	0-3	
13-16		11-15
Fourth Year		
Fall	Credits Spring	Credits
VBSC 430 [*]	3 VBSC/BMB 433 [*]	3
VBSC/ERM 431 [*]	3 VBSC 438 [*]	3
VBSC 395 or 496	0-3 Supporting Course 400 Level or Elective [*]	3-6
Elective or 400-level Supporting Courses [*]	3-6 General Education Course	3
General Education Course	3 VBSC 496 or 395	0-3
12-18		12-18
Total Credits 111-139		

* Course requires a grade of C or better for the major

† Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- Students must complete all of the BIOL 220W, BIOL 230W, and BIOL 240W sequence to fulfill the Writing Across the Curriculum requirement.
- If completing CHEM 212, CHEM 213 must also be completed.
- Work with your academic adviser in the development of your plan as some courses are not taught every semester.
- Electives and Supporting Courses – Supporting courses are 400-level courses chosen from a department-approved list or approved by the Program Coordinator. Students must take 9 credits of supporting courses (6 credits of which must have a grade of C or better). Elective credits may be used to earn a minor, usually commencing in the fifth semester. Please consult with your academic adviser for planning.

Pharmacology and Toxicology, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110 ^{**†}	4 ENGL 15, 30H, or ESL 15 ^{††}	3
CHEM 110 ^{**†}	3 BIOL 230W ^{*#}	4
CHEM 111 ^{**†}	1 CHEM 112 ^{**†}	3
MATH 140 ^{*†#†}	4 CHEM 113 ^{**†}	1
General Education Course	3 MATH 141 ^{*†#†}	4
General Education Course (GHW)	1.5-3 General Education Course	3
16.5-18		18

Second Year

Fall	Credits Spring	Credits
BIOL 220W	4 BIOL 240W or 141	3-4
PHYS 250	4 PHYS 251	4
CHEM 210	3 CHEM 212	3
CAS 100A, 100B, or 100C ^{††}	3 CHEM 213	2
General Education Course (GHW)	1.5-3 General Education Course	3
15.5-17		15-16

Third Year

Fall	Credits Spring	Credits
BMB 211	3 BMB 221	2
BMB 212	1 ENGL 202C ^{††}	3
BBH/HPA 440	3 VBSC 230	3
VBSC 331 [*]	3 STAT 200 or 250	3-4
VBSC 496 or 395	0-3 VBSC 496 or 395	0-3
General Education Course	3	
13-16		11-15

Fourth Year

Fall	Credits Spring	Credits
VBSC 430 [*]	3 VBSC/BMB 433 [*]	3
VBSC/ERM 431 [*]	3 VBSC 438 [*]	3
VBSC 395 or 496	0-3 Supporting Course 400 Level or Elective	3-6
Elective or 400-level Supporting Courses [*]	3-6 General Education Course	3
General Education Course	3 VBSC 496 or 395	0-3
12-18		12-18

Total Credits 113-136

* Course requires a grade of C or better for the major

† Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- Students must complete all of the BIOL 220W, BIOL 230W, and BIOL 240W sequence to fulfill the Writing Across the Curriculum requirement.
- If completing CHEM 212, CHEM 213 must also be completed.
- Work with your academic adviser in the development of your plan as some courses are not taught every semester.
- Electives and Supporting Courses – Supporting courses are 400-level courses chosen from a department-approved list or approved by the Program Coordinator. Students must take 9 credits of supporting courses (6 credits of which must have a grade of C or better). Elective credits may be used to earn a minor, usually commencing in the fifth semester. Please consult with your academic adviser for planning.

Career Paths

Concerns over drug safety, environmental quality, and occupational exposure to chemicals all lead to a high demand for specialists. Our major in Toxicology is one of only a handful of such programs in the United States. Graduates distinguish themselves with focused courses in toxicology and pharmacology while retaining the freedom to choose from a wide variety of courses in biomedicine and biotechnology.

Careers

Thanks to the specialization students can obtain in toxicology and pharmacology, there are plentiful employment opportunities for graduates after four years. Some of these opportunities include research positions in biotechnology or pharmaceutical firms, government or international health and environmental agencies, and academic research laboratories. Career possibilities can be found in the pharmaceutical industry, the biomedical industry, government laboratories, academic research and education, and private research organizations.

Opportunities for Graduate Studies

The Toxicology major can provide excellent preparation for professional and graduate programs. The major helps prepare students for graduate school in all biomedical and life science fields, including toxicology, pharmacology, biochemistry and cancer research. The direct relevance of the course work to human and animal health strongly attracts students interested in medicine and related fields, while the emphasis on biotechnology allows students to continue their education in professional programs including law and business.

Professional Resources

- Society of Toxicology (<https://www.toxicology.org>)
- National Institute of Environmental Health (<https://www.niehs.nih.gov>)
- National Toxicology Program (<https://ntp.niehs.nih.gov>)
- Toxipedia (<https://www.asmalldoseoftoxicology.org/toxipedia/>)

Contact

University Park

DEPARTMENT OF VETERINARY AND BIOMEDICAL SCIENCES
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Plant Pathology, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Plant Pathology minor is designed for students who wish to learn more about the causes and control of plant diseases. These students may pursue careers in commercial crop production, industrial sales, private consulting, extension, or research. Increasing emphasis on biological control, integrated pest management, and sustainable agricultural practices requires knowledge of plant pathogen biology, host-parasite interactions, and environmental parameters influencing disease development. The Plant Pathology Minor focuses on these areas and gives students the background necessary to develop or utilize environmentally sound disease management strategies. This program is designed to supplement majors in any field of the biological sciences and also can be used to prepare students for graduate studies in Plant Pathology.

What is Plant Pathology?

Plant Pathology involves the study of all the biotic and abiotic causes of plant diseases, including pathogen biology and evolution; understanding infection processes, mechanisms of disease, and host resistance; and identifying environmental and nutritional factors influencing plant health. Results of this research are applied to developing management strategies to ensure adequate food and fiber production and to better understand and stabilize natural ecosystems to maintain a healthy and sustainable environment.

You Might Like This Program If...

You are interested in agriculture and international agriculture, food security, growing plants, environmental sustainability, disease management, forestry, environmental microbiology, and beneficial or pathogenic microbes.

Program Requirements

Requirement	Credits
Requirements for the Minor	22

Requirements for the Minor

The minor in Plant Pathology requires 22 credits in approved courses in addition to the major requirements of the student's choice.

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
PPEM 496	Independent Studies ¹	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
PPEM 300	Horticultural Crop Diseases ²	3
or PPEM 405	Microbe-Plant Interactions: Plant Disease and Biological Control	
Select a minimum of 12 credits of the following:		12
AGECO 121	Plant Stress: It's Not Easy Being Green	
AGECO/ENT 457	Principles of Integrated Pest Management	
PPEM 120	The Fungal Jungle: A Mycological Safari From Truffles to Slime Molds	
PPEM 300	Horticultural Crop Diseases	
PPEM 318	Diseases of Forest and Shade Trees	
PPEM 405	Microbe-Plant Interactions: Plant Disease and Biological Control	
PPEM 412	Turfgrass Disease Management	
PPEM 416	Plant Virology: Molecules to Populations	
PPEM 417W	Mechanisms of Bacterial Pathogenesis in Plants	
PPEM 425	Biology of Fungi	
PPEM 430	Air Pollution Impacts to Terrestrial Ecosystems	
PPEM 454	Virus Ecology	
PPEM 496	Independent Studies ¹	
PPEM 497	Special Topics	
Course(s) from the departmental list for the Plant Pathology Minor with the approval of the minor adviser		

¹ Students must select, in consultation with the Plant Pathology Minor adviser, at least 3 credits of PPEM 496 (Independent Study) working with one or more faculty in the department of Plant Pathology and Environmental Microbiology. An additional three Independent Study

credits may be applied to the Minor requirements as Additional Courses.

² Students may select one of these two courses for the second list of Additional Courses, but the same course cannot be counted toward both lists.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Maria del Mar Jimenez-Gasco

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University Park, PA 16802

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Career Paths

Careers

Plant Pathology students may pursue careers in commercial crop production, industry, private consulting, cooperative extension, or research. Increasing emphasis on biological control, integrated pest management, and sustainable agricultural practices requires knowledge of plant pathogen biology, host-parasite interactions, and environmental parameters influencing disease severity. The Plant Pathology minor focuses on these areas and gives students the background necessary to develop or utilize environmentally sound disease control strategies. This program can be designed to supplement majors in any field of the biological sciences and used to prepare students for graduate studies in plant pathology.

Opportunities for Graduate Studies

The Plant Pathology minor provides exceptional training in research. Through independent studies, students in Plant Pathology have the opportunity to work with faculty in the Department of Plant Pathology and Environmental Microbiology in state-of-the-art facilities. Students who pursue the Plant Pathology minor are ready for graduate school in plant pathology, environmental microbiology, and associated disciplines.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://plantpath.psu.edu/>)

Contact

University Park

DEPARTMENT OF PLANT PATHOLOGY AND ENVIRONMENTAL MICROBIOLOGY

210 Buckhout Lab

University Park, PA 16802

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<https://plantpath.psu.edu/directory/mxj22> (<https://plantpath.psu.edu/directory/mxj22/>)

Plant Sciences, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The Plant Sciences Major is an applied biological science program designed for students seeking careers in agronomic and horticultural crop production systems and enterprise management, agroecology, sustainable and organic managed and natural ecosystems, crop protection, applied plant physiology, plant science research, and plant biotechnology. Students will secure:

1. a working knowledge of basic plant biology, soils, pests, and pathogens with emphasis on growth, development, and physiology in an ecological and agricultural context,
2. the scientific, technical, and computational approaches to problem solving in an ecological and agricultural context, individually and in teams,
3. the ability to analyze ethical issues regarding ecosystem sustainability, business practices and plant science, and critically evaluate and respect different viewpoints in making management decisions, and
4. a high level of proficiency in written and oral communication, particularly with regard to critical evaluation of scientific issues.

There are five options in the major, providing flexibility for concentrations in areas including production and management systems related to agronomic and horticultural crops, plant biotechnology and breeding, crop physiology, ecology, agroecology, and other aspects of general plant science. Students can choose from diverse course offerings in designing a program of study suited to their needs and professional goals.

Agroecology Option

This option applies an ecological approach to understanding and managing cropping systems to meet societies' needs while enhancing environmental protection and resource conservation. Students will develop skills to manage agroecosystems for sustainable productivity, profitability and environmental protection by studying plant and soil sciences, ecology, and pest management from a systems perspective. The curriculum prepares students for a wide range of careers in agricultural and ecological fields, sustainable food production, and for graduate studies.

Crop Production Option

This option provides students with practical and field-related skills in Agronomy (field crop production and soil management). Students will focus on techniques and knowledge necessary to efficiently and

economically manage soils, crops and other farm resources with additional emphasis on pest management and commodity marketing. Courses stress the skills and information needed to work with current production technologies such as seed traits, crop protection chemicals, and fertilizers to improve yield and productivity.

Horticulture Option

This option prepares students to enter the horticultural industry by providing a broad background in courses related to production and physiology of horticultural crops. Additional courses in pest management and business are required. Graduates may work as orchard, greenhouse, garden center, nursery or farm managers, with horticultural and landscape service providers, suppliers, and brokers, with cooperative extension and other government and non-governmental agencies and public and private gardens, or continue with graduate studies.

Plant Genetics and Biotechnology Option

This option is a combination of basic science and technology-based classes designed for students who are seeking careers in agricultural sciences, plant breeding, plant molecular genetics and plant biotechnology based industries. It provides students with maximum flexibility in selecting a program of study suited to their needs and to achieve professional goals related to advanced degrees or immediate job placement in the industry. The option provides theoretical and practical skills of plant genetic manipulation relevant to plant biotechnology, plant breeding and genome research.

Plant Science Option

This option emphasizes the application of the biological sciences to problem-solving in agronomic and horticultural ecosystems. Topic areas include plant biology, plant pathology, plant microbiology, plant biotechnology, plant-insect interactions, horticulture, crop science, plant ecology, and bioenergy. Graduates may find employment in industry, government and academic research programs as technicians and research assistants, or pursue graduate degrees.

What is Plant Sciences?

Plant Science is the study of plant growth, development and physiology that focuses on the production, use, improvement, management and protection of plants and plant-based products. Plant Scientists seek ways to improve the yield and quality of agronomic and horticultural crops for food, fiber, fuel and ornamental purposes.

MORE INFORMATION ABOUT PLANT SCIENCES (<https://plantscience.psu.edu>)

You Might Like this Program If...

- You enjoy hands-on learning in labs, greenhouses, and in the field. Our teaching and learning facilities include more than 30,000 square feet of greenhouse space, more than 700 acres of research and teaching farms, a one-acre student farm, and a hydroponics and aquaponics system.
- You have an interest in sustainable and conventional food, fuel, and fiber production systems

MORE INFORMATION ABOUT WHY STUDENTS CHOOSE TO STUDY PLANT SCIENCES (<https://agsci.psu.edu/academics/undergraduate/majors/plant-sciences/>)

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Plant Sciences, a minimum of 120 credits are required:

Requirement	Credits
General Education	45
Electives	0-13
Requirements for the Major	83-102

21-24 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses and 3 credits of GWS courses; plus 3 GH in Crop Production.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
ENT 313	Introduction to Entomology	2
PLANT 200	Introduction to Agricultural Crop Growth, Form, and Function	3

Prescribed Courses: Require a grade of C or better

AGECO 457	Principles of Integrated Pest Management	3
PLANT 461	Emerging Issues in Plant Sciences	3
SOILS 101	Introductory Soil Science	3

Additional Courses

ENT 314 or ENT 316	Management of Insect Pests of Ornamentals Field Crops Entomology	1
Select 3 credits from the following:		3
AGBM 101	Economic Principles of Agribusiness Decision Making	
ECON 14	Principles of Economics	
ECON 102	Introductory Microeconomic Analysis and Policy	
ECON 104	Introductory Macroeconomic Analysis and Policy	
Select 1 credit from the following:		1
AGECO 495	Agroecology Internship	

AGRO 495	Internship	
HORT 495	Internship	
HORT 496	Independent Studies	
<i>Additional Courses: Require a grade of C or better</i>		
ENGL 202C	Effective Writing: Technical Writing	3
or ENGL 202D	Effective Writing: Business Writing	
Select 3-5 credits from the following:		3-5
MATH 22	College Algebra With Analytic Geometry and Applications II	
MATH 26	Plane Trigonometry and Applications of Trigonometry	
MATH 40	Algebra, Trigonometry, and Analytic Geometry	
MATH 41	Trigonometry and Analytic Geometry	
MATH 110	Techniques of Calculus I	
MATH 111	Techniques of Calculus II	
MATH 140	Calculus With Analytic Geometry I	
MATH 141	Calculus with Analytic Geometry II	
MATH 141B	Calculus and Biology II	
Select 3-4 credits from the following:		3-4
STAT 200	Elementary Statistics	
STAT 240	Introduction to Biometry	
STAT 250	Introduction to Biostatistics	
Requirements for the Option		
Select an option		47-63

Requirements for the Option Agroecology Option (57-58 credits)

Code	Title	Credits
Prescribed Courses		
AGECO 295	Agroecology Internship	1
AGECO/AGRO 438	Principles of Weed Management	4
PPEM 405	Microbe-Plant Interactions: Plant Disease and Biological Control	3
SOILS 102	Introductory Soil Science Laboratory	1
SOILS 401	Soil Composition and Physical Properties	3
SOILS 402	Soil Nutrient Behavior and Management	3
<i>Prescribed Courses: Require a grade of C or better</i>		
AGECO 201	Introductory Agroecology	3
Additional Courses		
BIOL 222	Genetics	3
or HORT 407	Plant Breeding	
Select 3 credits from the following:		3
AGECO/ METEO 122	Atmospheric Environment: Growing in the Wind	
AGECO 134		
AGECO 144	Principles and Practices of Organic Agriculture	
AGECO 154	Principles of Agronomic Field Operations	
AGECO 496	Independent Studies	
Select 3 credits from the following:		3
AG 160	Introduction into Ethics and Issues in Agriculture	
GEOG 30N	Environment and Society in a Changing World	
PHIL 13	Nature and Environment	
PHIL 103	Ethics	

PHIL 132/ BIOET 100	Bioethics	
Select 6 credits from the following:		6
AGRO 423	Forage Crop Management	
AGRO 425	Field Crop Management	
HORT 202	Plant Propagation	
HORT 315	Environmental Effects on Horticultural Crops	
HORT 431	Small Fruit Culture	
HORT 432	Deciduous Tree Fruits	
HORT 433	Vegetable Crops	
SOILS 418	Nutrient Management in Agricultural Systems	
Select 3-4 credits from the following:		3-4
AGRO 410W	Physiology of Agricultural Crops	
HORT 412W	Post-Harvest Physiology	
SOILS 412W	Soil Ecology	
<i>Additional Courses: Require a grade of C or better</i>		
AGRO 28	Principles of Crop Management	3
or HORT 101	Horticultural Science	
Supporting Courses and Related Areas		
Select 18 credits of supporting courses in consultation with adviser		18

Crop Production Option (58-60 credits)

Code	Title	Credits
Prescribed Courses		
AGECO 295	Agroecology Internship	1
AGECO 429	Crop Scouting	2
AGECO/AGRO 438	Principles of Weed Management	4
AGRO 423	Forage Crop Management	3
AGRO 425	Field Crop Management	3
HORT 407	Plant Breeding	3
PPEM 405	Microbe-Plant Interactions: Plant Disease and Biological Control	3
SOILS 102	Introductory Soil Science Laboratory	1
SOILS 401	Soil Composition and Physical Properties	3
SOILS 402	Soil Nutrient Behavior and Management	3
<i>Prescribed Courses: Require a grade of C or better</i>		
AGECO 201	Introductory Agroecology	3
Additional Courses		
AGECO 154	Principles of Agronomic Field Operations	2
or SOILS 403	Soil Morphology Practicum	
Select 3 credits from the following:		3
AG 160	Introduction into Ethics and Issues in Agriculture	
PHIL 13	Nature and Environment	
PHIL 103	Ethics	
PHIL 132/ BIOET 100	Bioethics	
Select 3 credits from the following:		3
AGBM 102	Economics of the Food System	
AGBM 106	Agribusiness Problem Solving	
AGBM 200	Introduction to Agricultural Business Management	
AGBM 407	Farm Planning and Financial Management	
Select 3 credits from the following:		3

AEE 201	Interpersonal Skills for Tomorrow's Leaders	
AEE 360	Leadership Development for Small Groups	
AEE 460	Foundations in Leadership Development	
AEE 465	Leadership Practices: Power, Influences, and Impact	

Select 3-4 credits from the following: 3-4

AGECO/ANSC/ SOILS 418	Nutrient Management in Agricultural Systems	
ANSC 201	Animal Science	
GEOG 160	Mapping Our Changing World	
SOILS 450	Environmental Geographic Information Systems	

Select 3-4 credits from the following: 3-4

AGRO 410W	Physiology of Agricultural Crops	
HORT 412W	Post-Harvest Physiology	
SOILS 412W	Soil Ecology	

Additional Courses: Require a grade of C or better

AGRO 28	Principles of Crop Management	3
or HORT 101	Horticultural Science	

Supporting Courses and Related Areas

Select 9 credits of supporting courses in consultation with adviser 9

Horticulture Option (51-54 credits)

Code	Title	Credits
Prescribed Courses		
HORT 232	Horticultural Systematics	3
HORT 402W	Plant Nutrition	3
HORT 407	Plant Breeding	3
HORT 445	Plant Ecology	3
HORT 455	Retail Horticulture Business Management	3

Prescribed Courses: Require a grade of C or better

HORT 101	Horticultural Science	3
HORT 202	Plant Propagation	3
HORT 315	Environmental Effects on Horticultural Crops	3
HORT 412W	Post-Harvest Physiology	3

Additional Courses

AGRO 438	Principles of Weed Management	3-4
or HORT 238	Turf and Ornamental Weed Control	
PPEM 300	Horticultural Crop Diseases	3
or PPEM 405	Microbe-Plant Interactions: Plant Disease and Biological Control	

Select 3 credits from the following: 3

HORT 131	Herbaceous Perennial and Annual Identification	
HORT 137	Ornamental Plant Materials	
HORT 138	Ornamental Plant Materials	
HORT 431	Small Fruit Culture ¹	
HORT 432	Deciduous Tree Fruits ¹	
HORT 433	Vegetable Crops ¹	

Select 6-7 credits from the following: 6-7

HORT 408	Landscape Plant Establishment and Maintenance	
HORT 431	Small Fruit Culture	
HORT 432	Deciduous Tree Fruits	
HORT 433	Vegetable Crops	
HORT 453	Flower Crop Production and Management	

Select 9-10 credits from the following: 9-10

AG 301		
AGBM 200	Introduction to Agricultural Business Management	
AGBM 407	Farm Planning and Financial Management	
BA 301	Finance	
BA 303	Marketing	
BLAW 243	Legal Environment of Business	
SPAN 1	Elementary Spanish I	
SPAN 2	Elementary Spanish II	
SPAN 3	Intermediate Spanish	
SPAN 105	Elementary Spanish I for Students in the Agricultural Sciences	

¹ Students cannot use the same course more than once as an additional course

Plant Genetics and Biotechnology Option (56-63 credits)

Code	Title	Credits
Prescribed Courses		
AGRO 410W	Physiology of Agricultural Crops	4
AGRO/BIOTC 460	Advances and Applications of Plant Biotechnology	3
BIOL 222	Genetics	3
BMB 400	Molecular Biology of the Gene	2-3
CHEM 112	Chemical Principles II	3
CHEM 210	Organic Chemistry I	3
CHEM 212	Organic Chemistry II	3
HORT 407	Plant Breeding	3
HORT/BIOL/ BIOTC 459	Plant Tissue Culture and Biotechnology	3
PHYS 250	Introductory Physics I	4
<i>Prescribed Courses: Require a grade of C or better</i>		
PPEM 405	Microbe-Plant Interactions: Plant Disease and Biological Control	3

Additional Courses

AGRO 28	Principles of Crop Management	3
or HORT 101	Horticultural Science	
CHEM 113	Experimental Chemistry II	1
or CHEM 113B	Experimental Chemistry II-Bioscience	

Select 4-6 credits from the following: 4-6

BIOL 230W	Biology: Molecules and Cells	
BIOL 240W	Biology: Function and Development of Organisms	
BMB 211 & BMB 212	Elementary Biochemistry and Elementary Biochemistry Laboratory	
MICRB 201 & MICRB 202	Introductory Microbiology and Introductory Microbiology Laboratory	
MICRB 251/BMB 251 & MICRB 252/BMB 252		

Select 3-4 credits from the following: 3-4

BIOL 414	Taxonomy of Seed Plants	
BIOL 427	Evolution	
BIOL 428	Population Genetics	
BIOL 436	Population Ecology and Global Climate Change	
BIOL 448	Ecology of Plant Reproduction	
ENT 420	Introduction to Population Dynamics	
HORT 445	Plant Ecology	

PPEM/BIOL 425	Biology of Fungi	
Select 2-3 credits from the following:		2-3
BIOL 439	Practical Bioinformatics	
BIOTC 479	Methods in Biofermentations	
HORT 497	Special Topics	
MCIBS 571	Current Issues in Biotechnology	
MCIBS 593	Molecular Biology Laboratory	
Select 3-4 credits from the following:		3-4
ENT/VBSC 402W	Biology of Animal Parasites	
ENT 410	Insect Structure and Function	
PPEM 416	Plant Virology: Molecules to Populations	
PPEM/BIOL 425	Biology of Fungi	
Select 3-4 credits from the following:		3-4
BIOL 407	Plant Developmental Anatomy	
BIOL 424	Seeds of Change: The Uses of Plants	
BIOL 441	Plant Physiology	
HORT 402W	Plant Nutrition	
HORT 412W	Post-Harvest Physiology	
HORT 420		
MCIBS 591	Ethics, Rigor, Reproducibility and Conduct of Research in the Life Sciences	
PPEM 417W	Mechanisms of Bacterial Pathogenesis in Plants	
PPEM/ERM 430	Air Pollution Impacts to Terrestrial Ecosystems	
Select 3 credits from the following:		3
AGRO 423	Forage Crop Management	
AGRO 425	Field Crop Management	
HORT 202	Plant Propagation	
HORT 315	Environmental Effects on Horticultural Crops	
HORT 431	Small Fruit Culture	
HORT 432	Deciduous Tree Fruits	
HORT 433	Vegetable Crops	
SOILS/ AGECO/ANSC 418	Nutrient Management in Agricultural Systems	

Plant Science Option (47-53 credits)

Code	Title	Credits
Prescribed Courses		
BIOL 222	Genetics	3
CHEM 112	Chemical Principles II	3
CHEM 210	Organic Chemistry I	3
CHEM 212	Organic Chemistry II	3
CHEM 213	Laboratory in Organic Chemistry	2
PHYS 250	Introductory Physics I	4
<i>Prescribed Courses: Require a grade of C or better</i>		
PPEM 405	Microbe-Plant Interactions: Plant Disease and Biological Control	3
Additional Courses		
AGRO 28 or HORT 101	Principles of Crop Management Horticultural Science	3

CHEM 113 or CHEM 113B	Experimental Chemistry II Experimental Chemistry II--Bioscience	1
Select 4-6 credits of the following:		4-6
BMB 211 & BMB 212	Elementary Biochemistry and Elementary Biochemistry Laboratory	
BIOL 230W	Biology: Molecules and Cells	
BIOL 240W	Biology: Function and Development of Organisms	
MICRB 201 & MICRB 202	Introductory Microbiology and Introductory Microbiology Laboratory	
MICRB 251	Molecular and Cell Biology I	
MICRB 252	Molecular and Cell Biology II	
Select 3-4 credits of the following:		3-4
BIOL 439	Practical Bioinformatics ¹	
ENT 402W	Biology of Animal Parasites	
ENT 410	Insect Structure and Function	
PPEM 416	Plant Virology: Molecules to Populations	
PPEM 417W	Mechanisms of Bacterial Pathogenesis in Plants ¹	
PPEM 425	Biology of Fungi ¹	
Select 3-4 credits of the following:		3-4
BIOL 412	Ecology of Infectious Diseases	
BIOL 414	Taxonomy of Seed Plants	
BIOL 427	Evolution	
BIOL 428	Population Genetics	
BIOL 436	Population Ecology and Global Climate Change	
BIOL 448	Ecology of Plant Reproduction	
ENT/VBSC 402W	Biology of Animal Parasites	
ENT 420	Introduction to Population Dynamics	
HORT 445	Plant Ecology	
PPEM 425	Biology of Fungi	
Select 3 credits of the following:		3
AGRO 460	Advances and Applications of Plant Biotechnology	
BIOL 439	Practical Bioinformatics	
HORT 407	Plant Breeding ¹	
HORT 459	Plant Tissue Culture and Biotechnology	
Select 6-7 credits of the following:		6-7
AGRO 410W	Physiology of Agricultural Crops	
AGRO 460	Advances and Applications of Plant Biotechnology	
BIOL 407	Plant Developmental Anatomy	
BIOL 441	Plant Physiology	
BIOL 424	Seeds of Change: The Uses of Plants	
HORT 402W	Plant Nutrition	
HORT 407	Plant Breeding ¹	
HORT 412W	Post-Harvest Physiology	
HORT 420		
PPEM 417W	Mechanisms of Bacterial Pathogenesis in Plants ¹	
PPEM/ERM 430	Air Pollution Impacts to Terrestrial Ecosystems	
Select 3-4 credits of the following:		3-4
AGRO 410W	Physiology of Agricultural Crops	
HORT 412W	Post-Harvest Physiology	
SOILS 412W	Soil Ecology	

¹ Students cannot use the same course more than once as an additional course

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- Students will be able to explain concepts in plant biology, soils, pests, and pathogens with emphasis on growth, development, and physiology.
- Students will be able to choose scientific, technical, and computational approaches and solve problems in an ecological and agricultural context.
- Students will be able to explain and analyze ethical issues in plant science regarding ecosystems, sustainability, and socioeconomic contexts, and evaluate and respect different viewpoints.
- Students will be able to critically evaluate plant science issues through written and oral communication.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Agroecology Option: Plant Sciences, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110 [†]	4 CHEM 110 [†]	3
AG 150	2 CHEM 111 [†]	1
ENGL 15, 30H, or ESL 15 ^{††}	3 AGECO 295	1
MATH 22, 26, 40, 41, 110, or 140 ^{††}	3-5 SOILS 101 ^{**}	3
AGRO 28 or HORT 101 [*]	3 SOILS 102	1
	AGECO 201 [*]	3
	CAS 100, CAS 100A, CAS 100B, or CAS 100C ^{††}	3
	15-17	15

Second Year

Fall	Credits Spring	Credits
PLANT 200	3 ENT 313	2
ENGL 202C or 202D ^{††}	3 ENT 314 or 316	1
AGBM 101, ECON 14, ECON 102, or ECON 104 [†]	3 SOILS 402	3
STAT 200, 240, or 250 ^{††}	3-4 General Education Course	3
AGECO 122, 134, AGECO 144, AGECO 154, or AGECO 496 (Agroecology Selection)	3 AG 160, GEOG 30N, PHIL 13, PHIL 103, or PHIL 132 (Ethics Selection)	3
	General Education Course (GHW)	1.5
	15-16	13.5

Third Year

Fall	Credits Spring	Credits
AGECO 457 [*]	3 SOILS 401	3
PPEM 405	3 AGRO 423, 425, HORT 202, HORT 315, HORT 431, HORT 432, HORT 433, or SOILS 418 (Production Selection)	3
BIOL 222 or HORT 407 (Plant Breeding/Genetics Selection)	3 Supporting Course	3

AGRO 423, 425, HORT 202, HORT 315, HORT 431, HORT 432, HORT 433, or SOILS 418 (Production Selection)	3 Supporting Course	3
Supporting Course	3 General Education Course	3
General Education Course (GHW)	1.5	
	16.5	15
Fourth Year		
Fall	Credits Spring	Credits
AGECO 438	4 PLANT 461 [*]	3
AGECO 495	1 Supporting Course	3
Supporting Course	3 Supporting Course	3
AGRO 410W, HORT 412W, or SOILS 412W (Writing Across the Curriculum)	3-4 General Education Course	3
General Education Course	3 Elective	4
	14-15	16

Total Credits 120-124

* Course requires a grade of C or better for the major
 ‡ Course requires a grade of C or better for General Education
 # Course is an Entrance to Major requirement
 † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Note:

Please consult with your academic adviser regarding the appropriate selection of elective and supporting courses. Supporting courses must be selected from the "Approved List of Additional Courses".

Crop Production Option: Plant Sciences, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110 [†]	4 CHEM 110 [†]	3
AG 150	2 CHEM 111 [†]	1
ENGL 15, 30H, or ESL 15 ^{††}	3 AGECO 295	1
MATH 22, 26, 40, 41, 110, or 140 ^{††}	3-5 SOILS 101 ^{*††}	3
AGRO 28 or HORT 101 [*]	3 SOILS 102	1
	AGECO 201	3
	General Education Course	3
	15-17	15

Second Year

Fall	Credits Spring	Credits
PLANT 200	3 ENT 313	2
ENGL 202C or 202D ^{††}	3 ENT 314 or 316	1
AGBM 101, ECON 14, ECON 102, or ECON 104 [†]	3 STAT 200, 240, or 250 ^{††}	4
AG 160, PHIL 13, PHIL 103, or PHIL 132 (Ethics Selection) [†]	3 AEE 201, 360, 460, or 465 (Leadership Selection)	3
CAS 100, CAS 100A, CAS 100B, or CAS 100C ^{††}	3 AGBM 102, 106, 200, or 407 (Business Selection)	3
AGECO 154 (or Supporting Course)	2 General Education Course	3
	17	16

Third Year

Fall	Credits Spring	Credits
AGRO 423	3 SOILS 401	3
AGECO 429	2 SOILS 402	3
AGECO 438	4 AGRO 425	3
Supporting Course	3 AGRO 410W, HORT 412W, or SOILS 412W (Writing Across the Curriculum)	3-4
General Education Course	3 AGECO 418, ANSC 201, GEOG 160, or SOILS 450 (Special Interest Selection)	3-4
	15	15-17

Fourth Year

Fall	Credits Spring	Credits
AGECO 495 or AGRO 496	1 HORT 407	3
AGECO 457 [*]	3 PLANT 461 [*]	3
PPEM 405	3 General Education Course	3
SOILS 403 (or Supporting Course)	2 General Education Course (GHW)	1.5
Supporting Course	3 Elective	4

Supporting Course	3
General Education Course (GHW)	1.5
	16.5
	14.5

Total Credits 124-128

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Note:

Please consult with your academic adviser regarding the appropriate selection of elective and supporting courses. Supporting courses must be selected from the "Approved List of Additional Courses".

Horticulture Option: Plant Sciences, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110 [†]	4 CHEM 110 [†]	3
AG 150	2 CHEM 111 [†]	1
ENGL 15, 30H, or ESL 15 ^{††}	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C ^{††}	3
MATH 22, 26, 40, 41, 110, or 140 ^{††}	3-5 AGBM 101, ECON 14, ECON 102, or ECON 104 [†]	3
HORT 101 [*]	3 HORT 202 [*]	3
	General Education Course	3
15-17		16

Second Year

Fall	Credits Spring	Credits
ENGL 202C or 202D ^{††}	3 ENT 313	2
SOILS 101 ^{††}	3 ENT 314 or 316	1
STAT 200, 240, or 250 ^{††}	3-4 HORT 232	3
HORT 101, 137, 138, 431, 432, or 433 (HORT Plant Materials Selection)	3 HORT 315 [*]	3
General Education Course	3 AGBM 200, 407, BLAW 243, BA 301, BA 303, SPAN 1, SPAN 2, SPAN 3, or SPAN 105 (Business/Spanish Selection)	3-4
General Education Course (GHW)	1.5 General Education Course	3
16.5-17.5		15-16

Third Year

Fall	Credits Spring	Credits
PLANT 200	3 HORT 412W [*]	3
HORT 455	3 HORT 408, 431, 432, 433, or 453 (HORT Production Selection)	3-4
HORT 238 or AGRO 438	3-4 AGBM 200, 407, BLAW 243, BA 301, BA 303, SPAN 1, SPAN 2, SPAN 3, or SPAN 105 (Business/Spanish Selection)	3-4
HORT 408, 431, 432, 433, or 453 (HORT Production Selection)	3-4 General Education Course	3
Elective	3 General Education Course	3
15-17		15-17

Fourth Year

Fall	Credits Spring	Credits
AGECO 457 [*]	3 HORT 407	3

PPEM 405 or 300	3 PLANT 461 [*]	3
HORT 445	3 HORT 402W	3
AGBM 200, 407, BLAW 243, BA 301, BA 303, SPAN 1, SPAN 2, SPAN 3, or SPAN 105 (Business/Spanish Selection)	3-4 HORT 495 or 496	1
Elective or Supporting Course	3-6 General Education Course (GHW)	1.5
	Elective or Supporting Course	1-6
15-19		12.5-17.5

Total Credits 120-137

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Note:

Please consult with your academic adviser regarding the appropriate selection of elective and supporting courses. Supporting courses must be selected from the "Approved List of Additional Courses".

Plant Genetics and Biotechnology Option: Plant Sciences, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
AG 150	2 CHEM 110 [†]	3
BIOL 110 [†]	4 CHEM 111 [†]	1
ENGL 15, 30H, or ESL 15 ^{††}	3 SOILS 101 ^{*††}	3
MATH 22, 26, 40, 41, 110, or 140 ^{††}	3-5 CAS 100, CAS 100A, CAS 100B, or CAS 100C ^{††}	3
AGRO 28 or HORT 101	3 General Education Course	3
	General Education Course	3
	15-17	16

Second Year

Fall	Credits Spring	Credits
CHEM 112	3 STAT 200, 240, or 250 ^{††}	3-4
CHEM 113	1 CHEM 210	3
PLANT 200	3 BIOL 230W, 240W, BMB 211 <i>and</i> BMB 212, MICRB 201 <i>and</i> MICRB 202, or MICRB 251 <i>and</i> MICRB 252 (Microbiology, Molecular Biology and Biochemistry Selection)	4-5
BIOL 222	3 General Education Course	3
AGBM 101, ECON 14, ECON 102, or ECON 104 [†]	3 General Education Course (GHW)	1.5
PHYS 250	4	
	17	14.5-16.5

Third Year

Fall	Credits Spring	Credits
AGECO 457 [*]	3 AGRO 410W	4
CHEM 212	3 HORT/BIOTC/BIOL 459	3
HORT 407	3 ENT 313	2
AGRO 423, 425, HORT 202, HORT 315, HORT 431, HORT 432, HORT 433, or SOILS 418 (Production Selection)	3 ENT 314 or 316	1
General Education Course	3 ENGL 202C or 202D ^{††}	3
	Elective	3
	15	16

Fourth Year

Fall	Credits Spring	Credits
PPEM 405 [*]	3 AGRO/BIOTC 460	3
BMB 400	2 PLANT 461 [*]	3

AGECO 495, AGRO 495, HORT 495, or HORT 496	1 BIOL 407, 424, 441, HORT 402W, HORT 412W, or 420 (General Plant Science Selection)	3
BIOL 412, 414, 427, 428, 436, 448, ENT 420, HORT 445, or PPEM 425 (Plant Ecology, Evolution and Systematics Selection)	3 ENT 402W, 410, PPEM 416, or PPEM 425 (Plant Microbiology and Entomology Selection)	3-4
BIOL 439, BIOTC 479, or HORT 497 (Plant Genetics and Biotechnology Selection)	2-3 General Education Course (GHW)	1.5
General Education Course	3	
	14-15	13.5-14.5

Total Credits 121-127

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Note:

Please consult with your academic adviser regarding the appropriate selection of elective and supporting courses. Supporting courses must be selected from the "Approved List of Additional Courses".

Plant Science Option: Plant Sciences, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
AG 150	2 CHEM 110 [†]	3
BIOL 110 [†]	4 CHEM 111 [†]	1
ENGL 15, 30H, or ESL 15 ^{††}	3 SOILS 101 ^{*††}	3
MATH 22, 26, 40, 41, 110, or 140 ^{††}	3-5 CAS 100, CAS 100A, CAS 100B, or CAS 100C ^{††}	3
AGRO 28 or HORT 101	3 General Education Course	3
	General Education Course	3
	15-17	16

Second Year

Fall	Credits Spring	Credits
CHEM 112	3 STAT 200, 240, or 250 ^{††}	3-4
CHEM 113	1 CHEM 210	3
PLANT 200	3 ENGL 202C or 202D ^{††}	3
AGBM 101, ECON 14, ECON 102, or ECON 104 [†]	3 BIOL 230W, 230W, BMB 211 and BMB 212, MICRB 201 and MICRB 202, MICRB 251, or MICRB 252 (Microbiology Selection)	4-5
PHYS 250	4 General Education Course	3
General Education Course	3	
	17	16-18

Third Year

Fall	Credits Spring	Credits
AGECO 457 [*]	3 BIOL 222	3
CHEM 212	3 CHEM 213	2
AGRO 410W, 460, BIOL 407, BIOL 441, BIOL 424, HORT 402W, HORT 407, HORT 412W, 420, or PPEM 430 (General Plant Science Selection)	3-4 AGRO 410W, HORT 412W, or SOILS 412W (Writing Across the Curriculum Selection)	3-4
General Education Course	3 General Education Course	3
Elective	3 Elective	3
	15-16	14-15

Fourth Year

Fall	Credits Spring	Credits
PPEM 405 [*]	3 PLANT 461 [*]	3
AGECO 495	1 AGRO 410W, 460, BIOL 407, BIOL 441, BIOL 424, HORT 402W, HORT 407, HORT 412W, 420, or PPEM 430 (General Plant Science Selection)	3-4

ENT 313	2 BIOL 439, ENT 402W, ENT 410, or PPEM 425 (Plant Microbiology and Entomology Selection)	3
ENT 314	1 AGRO 460, BIOL 439, HORT 407, or HORT 459 (Plant Genetics and Biotechnology Selection)	3
BIOL 412, 414, 427, 428, 436, 448, ENT 402W, ENT 420, HORT 445, or PPEM 425 (Plant Ecology, Evolution and Systematics Selection)	3 Elective	2-3
Elective	3	
	13	14-16

Total Credits 120-128

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Note:

Please consult with your academic adviser regarding the appropriate selection of elective and supporting courses. Supporting courses must be selected from the "Approved List of Additional Courses".

Agroecology Option: Plant Sciences, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
First Year Seminar	1-3 CHEM 110 [†]	3
BIOL 110 [†]	4 CHEM 111 [†]	1
ENGL 15, 30H, or ESL 15 ^{††}	3 AG 160, GEOG 30N, PHIL 13, PHIL 103, or PHIL 132 (Ethics Selection)	3
MATH 22, 26, 40, 41, 110, or 140 ^{††}	3-5 Elective	3
General Education Course	3 General Education Course	3
	General Education Course (GHW)	1.5
14-18		14.5

Second Year

Fall	Credits Spring	Credits
AGBM 101, ECON 14, ECON 102, or ECON 104 [†]	3 ENGL 202C or 202D ^{††}	3
CAS 100 ^{††}	3 Supporting Course or Elective	3
STAT 200, 240, or 250 ^{††}	3-4 Supporting Course	4
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course (GHW)	1.5
15-16		14.5

Third Year

Fall	Credits Spring	Credits
SOILS 101 ^{††}	3 ENT 313	2
SOILS 102	1 ENT 316	1
PPEM 405	3 AGECO 201 [*]	3
PLANT 200	3 AGRO 410W, HORT 412W, or SOILS 412W (Writing Across the Curriculum)	3-4
AGRO 28 or HORT 101 [*]	3 AGECO 122, 134, AGECO 144, AGECO 154, or AGECO 496 (Agroecology Selection)	3
AGRO 423, 425, HORT 202, HORT 315, HORT 431, HORT 432, HORT 433, or SOILS 418 (Production Selection)	3 AGRO 423, 425, HORT 202, HORT 315, HORT 431, HORT 432, HORT 433, or SOILS 418 (Production Selection)	3
16		15-16

Fourth Year

Fall	Credits Spring	Credits
AGECO 295	1 PLANT 461 [*]	3
AGECO 457 [*]	3 SOILS 401	3
AGECO 438	4 SOILS 402	3

BIOL 222 or HORT 407 (Plant Breeding/Genetics Selection)	3 AGECO 495 (or Elective)	1
Supporting Course	4 Supporting Course	3
	Supporting Course	3
15		16

Total Credits 120-126

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Note:

Please consult with your academic adviser regarding the appropriate selection of elective and supporting courses. Supporting courses must be selected from the "Approved List of Additional Courses".

Crop Production Option: Plant Sciences, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
First Year Seminar	1-3 CHEM 110 [†]	3
BIOL 110 [†]	4 CHEM 111 ^{††}	1
ENGL 15, 30H, or ESL 15 ^{††}	3 Supporting Course	3-4
MATH 22, 26, 40, 41, 110, or 140 ^{††}	3-5 General Education Course	3
Elective	3 General Education Course (GHW)	3
	14-18	13-14

Second Year

Fall	Credits Spring	Credits
AGBM 101, ECON 14, ECON 102, or ECON 104 [†]	3 ENGL 202C or 202D ^{††}	3
AG 160, PHIL 13, PHIL 103, or PHIL 132 (Ethics Selection) [†]	3 CAS 100 ^{††}	3
General Education Course	3 STAT 200, 240, or 250 ^{††}	3-4
General Education Course	3 AGRO 28 or HORT 101 [*]	3
Elective	4 Supporting Course	3
	16	15-16

Third Year

Fall	Credits Spring	Credits
SOILS 101 ^{††}	3 AGECO 201	3
SOILS 102	1 ENT 313	2
PLANT 200	3 ENT 314 or 316	1
AGECO 438	4 AGRO 410W, SOILS 412W, or HORT 412W (Writing Across the Curriculum)	3-4
AGRO 423	3 AGRO 425	3
AGECO 154 (or Supporting Course)	2 AGECO 418, ANSC 201, GEOG 160, or SOILS 450 (Special Interest Selection)	3
	16	15-16

Fourth Year

Fall	Credits Spring	Credits
AGECO 457 [*]	3 PLANT 461 [*]	3
AEE 201, 360, 460, or 465 (Leadership Selection)	3 SOILS 401	3
AGBM 102, 106, 200, or 407 (Business Selection)	3 SOILS 402	3
AGECO 429	2 AGECO 295 (or Supporting Course)	1-3
AGECO 495 or AGRO 495	1 HORT 407	3

PPEM 405	3 Supporting Course	3
	15	16-18

Total Credits 120-129

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Note:

Please consult with your academic adviser regarding the appropriate selection of elective and supporting courses. Supporting courses must be selected from the "Approved List of Additional Courses".

Horticulture Option: Plant Sciences, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
First Year Seminar	1-3 CHEM 110 [†]	3
BIOL 110 [†]	4 CHEM 111 [†]	1
ENGL 15, 30H, or ESL 15 ^{††}	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C ^{††}	3
MATH 22, 26, 40, 41, 110, or 140 ^{††}	3-5 AGBM 101, ECON 14, ECON 102, or ECON 104 [†]	3
General Education Course (GHW)	1.5 AGBM 200, 407, BLAW 243, BA 301, BA 303, SPAN 1, SPAN 2, SPAN 3, or SPAN 105 (Business/Spanish Selection)	3-4
	General Education Course	3
12.5-16.5		16-17

Second Year

Fall	Credits Spring	Credits
ENGL 202C or 202D ^{††}	3 AGBM 200, 407, BLAW 243, BA 301, BA 303, SPAN 1, SPAN 2, SPAN 3, or SPAN 105 (Business/Spanish Selection)	3-4
STAT 200, 240, or 250 ^{††}	3-4 Elective or Supporting Course	3
AGBM 200, 407, BLAW 243, BA 301, BA 303, SPAN 1, SPAN 2, SPAN 3, or SPAN 105 (Business/Spanish Selection)	4 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course (GHW)	1.5
16-17		13.5-14.5

Third Year

Fall	Credits Spring	Credits
HORT 101 [*]	3 HORT 202 [*]	3
SOILS 101 ^{*††}	3 HORT 232	3
PLANT 200	3 HORT 315 [*]	3
HORT 455	3 ENT 313	2
HORT 238 or AGRO 438	3-4 ENT 314 or 316	1
	HORT 408, 431, 432, 433, or 453 (HORT Production Selection)	3-4
15-16		15-16

Fourth Year

Fall	Credits Spring	Credits
AGECO 457 [*]	3 HORT 407	3
PPEM 405 or 300	3 PLANT 461 [*]	3
HORT 445	3 HORT 402W	3
HORT 408, 431, 432, 433, or 453 (HORT Production Selection)	4 HORT 495 or 496	1
HORT 131, 137, 138, 431, 432, or 433 (HORT Plant Materials Selection)	3 HORT 412W [*]	3
	Elective or Supporting Course	3
16		16

Total Credits 120-129

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Note:

Please consult with your academic adviser regarding the appropriate selection of elective and supporting courses. Supporting courses must be selected from the "Approved List of Additional Courses".

Plant Genetics and Biotechnology Option: Plant Sciences, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
First Year Seminar	1-3 CHEM 110 [†]	3
BIOL 110 [†]	4 CHEM 111 [†]	1
ENGL 15, 30H, or ESL 15 ^{††}	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C ^{††}	3
MATH 22, 26, 40, 41, 110, or 140 ^{††}	3-5 General Education Course	3
General Education Course	3 General Education Course	3
14-18		13

Second Year

Fall	Credits Spring	Credits
CHEM 112	3 ENGL 202C or 202D ^{††}	3
CHEM 113	1 STAT 200, 240, or 250 ^{††}	3-4
AGBM 101, ECON 14, ECON 102, or ECON 104 ^{††}	3 BIOL 230W, 240W, BMB 211 and BMB 212, MICRB 201 and MICRB 202, or MICRB 251 and MICRB 252 (Microbiology, Molecular Biology and Biochemistry Selection)	4-5
PHYS 250	4 General Education Course	3
General Education Course	3 General Education Course (GHW)	1.5
General Education Course (GHW)	1.5	
15.5		14.5-16.5

Third Year

Fall	Credits Spring	Credits
BIOL 222	3 AGRO 410W	4
CHEM 210	3 HORT/BIOTC/BIOL 459	3
AGRO 28 or HORT 101	3 CHEM 212	3
PPEM 405 [*]	3 ENT 313	2
PLANT 200	3 ENT 314 or 316	1
AGRO 423, 425, HORT 202, HORT 315, HORT 431, HORT 432, HORT 433, or SOILS 418 (Production Selection)	3 SOILS 101 ^{*††}	3
18		16

Fourth Year

Fall	Credits Spring	Credits
AGECO 457 [*]	3 AGRO/BIOTC 460	3
BMB 400	2 PLANT 461 [*]	3

HORT 407	3 BIOL 407, 424, 441, HORT 402W, HORT 412W, or 420 (General Plant Science Selection)	3
AGECO 495, AGRO 495, HORT 495, or HORT 496	1 ENT 402W, 410, PPPEM 416, or PPPEM 425 (Plant Microbiology and Entomology Selection)	3
BIOL 412, 414, 427, 428, 436, 448, ENT 420, HORT 445, or PPPEM 425 (Plant Ecology, Evolution and Systematics Selection)	3-4 Elective	3-4
BIOL 439, BIOTC 479, or HORT 497 (Plant Genetics and Biotechnology Option)	2-3	
14-16		15-16

Total Credits 120-129

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

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General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Note:

Please consult with your academic adviser regarding the appropriate selection of elective and supporting courses. Supporting courses must be selected from the "Approved List of Additional Courses".

Plant Science Option: Plant Sciences, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
First Year Seminar	1-3 CHEM 110 [†]	3
BIOL 110 [†]	4 CHEM 111 [†]	1
ENGL 15, 30H, or ESL 15 ^{††}	3 SOILS 101 ^{*††}	3
MATH 22, 26, 40, 41, 110, or 140 ^{††}	3-5 General Education Course	3
General Education Course	3 General Education Course	3
	General Education Course (GHW)	1.5
14-18		14.5

Second Year

Fall	Credits Spring	Credits
CHEM 112	3 STAT 200, 240, or 250 ^{††}	3-4
CHEM 113	1 CHEM 210	3
AGBM 101, ECON 14, ECON 102, or ECON 104 ^{††}	3 ENGL 202C or 202D ^{††}	3
PHYS 250	4 Elective	3
CAS 100 ^{††}	3 General Education Course	3
General Education Course	3 General Education Course (GHW)	1.5
17		16.5-17.5

Third Year

Fall	Credits Spring	Credits
AGECO 457 [*]	3 BIOL 222	3
PPEM 405 [*]	3 CHEM 213	2
CHEM 212	3 AGRO 410W, HORT 412W, or SOILS 412W	3-4
PLANT 200	3 BIOL 230W, 240W, BMB 211 and BMB 212, MICRB 201 and MICRB 202, MICRB 251, or MICRB 252 (Microbiology Selection)	3-4
AGRO 28 or HORT 101	3 Elective	3
15		14-16

Fourth Year

Fall	Credits Spring	Credits
AGECO 495	1 PLANT 461 [*]	3
ENT 313	2 AGRO 410W, 460, BIOL 407, BIOL 441, BIOL 424, HORT 402W, HORT 407, HORT 412W, 420, or PPEM 430 (General Plant Science Selection)	4

ENT 314	1 AGRO 460, BIOL 439, HORT 407, or HORT 459 (Plant Genetics and Biotechnology Selection)	3
BIOL 412, 414, 427, 428, 436, 448, ENT 402W, ENT 420, HORT 445, or PPEM 425 (Plant Ecology, Evolution and Systematics Selection)	3-4 Elective	3
BIOL 439, ENT 402W, ENT 410, PPEM 416, or PPEM 425 (Plant Microbiology and Entomology Selection)	3-4 Elective	3
AGRO 410W, 460, BIOL 407, BIOL 441, BIOL 424, HORT 402W, HORT 407, HORT 412W, 420, or PPEM 430 (General Plant Science Selection)	4	
14-16		16

Total Credits 121-130

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

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W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Note:

Please consult with your academic adviser regarding the appropriate selection of elective and supporting courses. Supporting courses must be selected from the "Approved List of Additional Courses".

Career Paths

Careers opportunities exist in agronomic and horticultural crop production systems, sustainable agriculture and ecosystem science, crop protection, applied plant physiology, plant science research, and plant biotechnology. Students may also pursue graduate studies; however, most students find fulfilling careers upon graduation and do not pursue graduate studies.

Careers

Careers are available in plant science research, marketing and sales, plant health and protection, sustainable agriculture and food systems,

public gardens and arboretums, greenhouse and nursery production and management, cooperative extension, plant biotechnology, resource protection, farm management, and with government or non-government agencies.

Opportunities for Graduate Studies

Students may pursue graduate studies in areas related to ecology, plant pathology, soil science, horticulture, agronomy, international agriculture, and entomology, or in other biological areas.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://plantscience.psu.edu/graduate/>)

Contact

University Park

DEPARTMENT OF PLANT SCIENCE

101 Tyson Building

University Park, PA 16802

814-865-2571

<https://plantscience.psu.edu/about/contact> (<https://plantscience.psu.edu/about/contact/>)

Poultry and Avian Science, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Poultry and Avian Science minor is designed for students who wish to supplement their academic major with studies focused on the biology and management of avian species, with an emphasis on domestic fowl. In recognition of the diverse career opportunities in the modern poultry and game bird industries, the minor is designed to also accommodate students with primary interests in agribusiness management, food science, and wildlife science. Students are required to complete a minimum of 18 credits (9 credits at the 400 level). ANSC 211, ANSC 311, and ANSC 425/VBSC 425 provide a foundation of knowledge pertaining to both avian sciences and the commercial poultry industry, while additional courses selected by the student will allow for further specialization in the foundation animal science disciplines, agribusiness management, food science, and wildlife and fisheries science. In addition, credits from poultry or avian internship experiences and/or independent study projects may also be applied towards meeting the requirements of the minor.

The University's Poultry Education and Research Center is used extensively for supplementing classroom work with hands-on laboratories. The flexibility of the minor permits program planning commensurate with an individual's interests and professional goals, and should enhance the student's ability to compete for related positions in industry, government, or academia (graduate or professional school).

What is Poultry and Avian Science?

Poultry and Avian Science encompasses avian biology, management, and health. Domestic fowl, or poultry, are birds that are kept primarily for meat and eggs. The history of domestication of chickens and ducks dates back thousands of years to the Chinese, Egyptians, Greeks, and Romans, while turkeys served as food for Indians in North America as

early as 1000 A.D. Chicken has become the world's preferred meat, and this has occurred because of tremendous scientific advances in breeding (genetics), physiology, nutrition, and management (husbandry). Besides food, poultry can provide fiber (e.g., down and feathers). Today's modern poultry industry is science-based, technologically advanced, efficient, and environmentally conscious. Animal health and well-being are integral components of overall management strategies. In addition to poultry, opportunities to learn about other avian species through course work and research are possible.

You Might Like This Program If...

- You are passionate about birds and want to learn about avian biology, management, and health.
- You like hands-on experiences in both caring for animals and/or conducting independent research projects.
- You want to undertake industry internships.
- You are interested in intercollegiate poultry judging.
- You seek a career in a dynamic growing industry that feeds the world.
- You want to pursue post-baccalaureate graduate (research) or professional degrees in avian biology or avian medicine.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ANSC 211	Introduction to Avian Biology ¹	3
ANSC 311	Poultry Production and Management ²	3
ANSC/VBSC 425	Principles of Avian Diseases ³	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits of the following:		3
AGBM 302	Food Product Marketing	
AGBM 338	Agribusiness in the Global Economy	
ANSC 207	Animal Products Technology	
ANSC 208	Animal Products Technology Laboratory	
ANSC 300	Anatomy and Physiology of Domestic Animals	
ANSC 301	Principles of Animal Nutrition	
ANSC 322	Animal Genetics and Selection	
ANSC 395	Animal Science Internship ⁴	
WFS 300	The Vertebrates	
WFS 301	Vertebrate Laboratory	
Select 6 credits of the following:		6
AGBM 407	Farm Planning and Financial Management	
AGBM 408	Financial Decision Making for Agribusiness	
AGBM 420	Agribusiness Markets & Prices	
AGBM 460	Managing the Food System	

ANSC 418	Nutrient Management in Agricultural Systems
ANSC 420	Animal Nutrition and Feed Technology
ANSC 421	Poultry Evaluation and Selection
ANSC 423	Comparative Physiology of Domestic Animals
ANSC 496	Independent Studies ⁴
ANSC 499	Foreign Studies
FDSC 408	Food Microbiology
FDSC 409	Laboratory in Food Microbiology
FDSC 411	Managing Food Quality
FDSC 415	Science and Technology of Muscle Foods
VBSC 420	General Animal Pathology
WFS 406	Ornithology Laboratory
WFS 407	Ornithology
WFS 447W	Wildlife Management

¹ BIOL 110 is a prerequisite for ANSC 211.

² ANSC 100 is a prerequisite for ANSC 311.

³ ANSC 211, ANSC 311 and MICRB 106 & MICRB 107 or MICRB 201 & MICRB 202 are prerequisites for ANSC 425/VBSC 425.

⁴ ANSC 395 and ANSC 496 must have a poultry or avian biology emphasis.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Phillip Clauer

Associate Teaching Professor-Poultry Science
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814-863-8960
pjcl19@psu.edu

Career Paths

Careers

Graduates enjoy careers in animal agribusiness management, animal breeding and genetics, animal health/pharmaceuticals/veterinary science, animal nutrition/feed additives, animal well-being (auditor), environmental management, extension education, feed mill operation, food safety/quality control, government (regulatory agencies), hatchery management, live production management of laying hens, broilers,

turkeys, ducks, etc., operations management (poultry processing), research/laboratory management, and sales and marketing.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN POULTRY AND AVIAN SCIENCE (<https://animalscience.psu.edu/undergraduate/resources/careers/>)

Opportunities for Graduate Studies

The graduate program in Animal Science offers research and teaching activities at the University Park Campus. Master of Professional Studies (M.P.S.), Master of Science (M.S.), and Doctor of Philosophy (Ph.D.) degrees are available. Our faculty specialize in management, breeding and genomics, growth and development biology, meat science, nutrition, and nutritional, lactational, and reproductive physiology of a wide variety of animals. Course work and the area of thesis research will be designed to meet the specific interests and needs of the student. Students with a Poultry and Avian Science minor have also pursued degrees in veterinary medicine (D.V.M. or V.M.D.), sometimes concurrently with a Ph.D. program.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://animalscience.psu.edu/graduate/>)

LEARN MORE ABOUT THE ASSOCIATION OF AMERICAN VETERINARY MEDICAL COLLEGES (<https://www.aavmc.org/about-aavmc/>)

Contact

University Park

DEPARTMENT OF ANIMAL SCIENCE
109 Animal, Veterinary and Biomedical Sciences Building
University Park, PA 16802
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AskDAS@psu.edu

<https://animalscience.psu.edu>

Turfgrass Management, Advanced, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

This 30-credit certificate program is a comprehensive course of study that builds upon the basic turfgrass management certificate program. It's ideal for those who already have a bachelor's degree in another field and for those who are working toward a bachelor's degree in turfgrass.

What is Turfgrass Management?

The Turfgrass Management Certificates includes basic and applied plant sciences with a focus on practical turfgrass management. The advanced certificate includes an internship to prepare students for careers as decision makers in golf course, sports field, and landscape construction and management.

You Might Like This Program If...

- You are working in the turfgrass industry and want to improve your technical knowledge of turfgrass.
- You want to advance your career in golf course or sports turf management.

- You want to use your technical expertise to solve problems related to plants and the environment.
- You have a sense of accomplishment seeing your work appreciated by others.

Program Requirements

To earn an undergraduate certificate in Turfgrass Management, Advanced, a minimum of 30 credits is required.

Code	Title	Credits
Prescribed Courses		
TURF 230	Turfgrass Pesticides	1
TURF 235	The Turfgrass	3
TURF 490	Colloquium	1
TURF 495	Internship	1-18
Select 21-22 credits from additional courses:		21-22
ENT 317	Turfgrass Insect Pest Management	
PPEM 412	Turfgrass Disease Management	
SOILS 101	Introductory Soil Science	
TURF 238	Turf and Ornamental Weed Control	
TURF 307	Golf Course Irrigation and Drainage	
TURF 425	Turfgrass Cultural Systems	
TURF 434	Turfgrass Edaphology	
TURF 435	Turfgrass Nutrition	
TURF 436W	Case Studies in Turfgrass Management	

No Prerequisites Required.

Certificate Learning Objectives

- **Business Management:** Students will develop personnel and business management skills required to manage a diverse staff and budgetary limitations.
- **Communication:** Students will enhance their written, oral and interpersonal communication skills needed to become a successful turfgrass manager.
- **Computation:** Accurately comprehend and draw appropriate inferences from numeric data and quantitative models.
- **Pest Management:** Students will learn to identify common turfgrass pests and develop cultural and chemical management plans for each.
- **Plant Science:** Students will understand the fundamentals of plant and soil sciences required to interpret and make scientific decisions related to managing turfgrass under various conditions.
- **Turfgrass:** Students will be able to identify, establish and maintain grasses in various climates.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary

academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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World Campus

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advising@outreach.psu.edu

Career Paths

Graduates manage golf courses and professional stadium playing surfaces. Turfgrass professionals utilize grasses in conservation areas, and suburban and urban landscapes to enhance and beautify the environment. Some alumni pursue careers in agricultural enterprises that support the turfgrass industry.

Contact

University Park

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102 Tyson Building

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-turfgrass-management-advanced-undergraduate-certificate>
(<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-turfgrass-management-advanced-undergraduate-certificate/>)

Turfgrass Management, Basic, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

Students in this program will build the knowledge and skill necessary to assess, treat, and manage turf in any climate or terrain. This program addresses pest management, turfgrass cultural systems, and turfgrass

edaphology and culminates in a series of case studies in turfgrass management.

What is Turfgrass Management?

The Turfgrass Management Certificate includes basic and applied plant sciences with a focus on practical turfgrass management. The advanced certificate includes an internship to prepare students for careers as decision makers in golf course, sports field, and landscape construction and management.

You Might Like This Program If...

- You are working in the turfgrass industry and want to improve your technical knowledge of turfgrass.
- You want to advance your career in golf course or sports turf management.
- You want to use your technical expertise to solve problems related to plants and the environment.
- You have a sense of accomplishment seeing your work appreciated by others.

Program Requirements

To earn an undergraduate certificate in Turfgrass Management, Basic, a minimum of 15 credits is required.

Code	Title	Credits
Prescribed Courses		
TURF 230	Turfgrass Pesticides	1
TURF 235	The Turfgrass	3
Select 11-13 credits from the following courses:		11-13
ENT 317	Turfgrass Insect Pest Management	
PPEM 412	Turfgrass Disease Management	
TURF 238	Turf and Ornamental Weed Control	
TURF 307	Golf Course Irrigation and Drainage	
TURF 425	Turfgrass Cultural Systems	
TURF 434	Turfgrass Edaphology	
TURF 435	Turfgrass Nutrition	
TURF 436W	Case Studies in Turfgrass Management	

No Prerequisites Required.

Certificate Learning Objectives

- **Communication:** Students will enhance their written, oral and interpersonal communication skills needed to become a successful turfgrass manager.
- **Computation:** Accurately comprehend and draw appropriate inferences from numeric data and quantitative models.
- **Pest Management:** Students will learn to identify common turfgrass pests and develop cultural and chemical management plans for each.
- **Plant Science:** Students will understand the fundamentals of plant and soil sciences required to interpret and make scientific decisions related to managing turfgrass under various conditions.
- **Turfgrass:** Students will be able to identify, establish and maintain grasses in various climates.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their

intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

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University Park

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Career Paths

Graduates manage golf courses and professional stadium playing surfaces. Turfgrass professionals utilize grasses in conservation areas, and suburban and urban landscapes to enhance and beautify the environment. Some alumni pursue careers in agricultural enterprises that support the turfgrass industry.

Contact

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-turfgrass-management-basic-undergraduate-certificate> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-turfgrass-management-basic-undergraduate-certificate/>)

Turfgrass Science and Management, A.S.

Begin Campus: World Campus

End Campus: World Campus

Program Description

The Turfgrass Science and Management (2TSM) major prepares graduates for the Bachelor of Science in Turfgrass Science (TURF) program or direct entry into the work place. The primary objective of this major is to train current/future turfgrass facility managers in communicative and mathematical skills, and initiate student mastery of technical aspects unique to management of turfgrass systems.

Graduates of this program are qualified to support golf course, landscape, and athletic field maintenance operations; production of sod commodities; equipment sales and service; and technical research programs. Graduates may also apply their credits to pursue completion of Baccalaureate programs such as Environmental Resource Management, Recreation, Parks, and Tourism Management, and Turfgrass Science (TURF). Students who plan to continue in the TURF degree program should meet with their advisers regarding entrance to major and other requirements.

What is Turfgrass Science and Management?

The Turfgrass Science and Management major provides an integrated program of study that includes basic and applied plant sciences, business management courses, and an internship to prepare students for careers as decision makers in golf course, sports field, and landscape construction and management.

You Might Like this Program If...

- You enjoy working outdoors
- You want to be part of the sports industry
- You want to use your technical expertise to solve problems related to plants and the environment
- You have a sense of accomplishment seeing your work appreciated by others

Entrance to Major

Students must have a minimum 2.0 GPA to change to this Associate degree after admission to the University.

Direct Admission to the Major

Incoming first-year students who meet the program admission requirements are admitted directly into the major. Admission restrictions may apply for change-of-major and/or change-of-campus students.

For more information about the admission process for this major, please send a request to the college, campus, or program contact (listed in the Contact tab).

Degree Requirements

For the Associate in Science degree in Turfgrass Science and Management, a minimum of 61 credits is required:

Requirement	Credits
General Education	21
Electives	3
Requirements for the Major	52

15 of the 21 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GN courses; 3 credits of GQ courses; 3 credits of GWS courses; 3 credits of GH courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
BIOL 11	Introductory Biology I	3
ENGL 15	Rhetoric and Composition	3
MATH 21	College Algebra with Analytic Geometry with Applications I	3
PHIL 103W	Ethics	3
<i>Prescribed Courses: Require a grade of C or better</i>		
CHEM 202	Fundamentals of Organic Chemistry I	3
ENT 317	Turfgrass Insect Pest Management	3
SOILS 101	Introductory Soil Science	3
TURF 230	Turfgrass Pesticides	1
TURF 235	The Turfgrass	3
TURF 238	Turf and Ornamental Weed Control	3
TURF 295	Internship	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
CHEM 101	Introductory Chemistry	3
or CHEM 110	Chemical Principles I	
or CHEM 130	Introduction to General, Organic, and Biochemistry	
Supporting Courses and Related Areas		
Select 9 credits from department professional agriculture list		9
Select 9 credits from department professional management and economics list ¹		9

¹ 3 of the 9 credits must be from bolded sub-list

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all associate degree students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 3 credits
- **Writing and Speaking (GWS):** 3 credits

Knowledge Domains

- **Arts (GA):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Note: Up to six credits of Inter-Domain courses may be used for any Knowledge Domain requirement, but when a course may be used to satisfy more than one requirement, the credits from the course can be counted only once.

Exploration

- **Any General Education course (including GHW and Inter-Domain):** 3 credits

University Degree Requirements

Cultures Requirement

3 credits of United States (US) or International (IL) cultures coursework are required and may satisfy other requirements

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 60 degree credits must be earned for an associates degree. The requirements for some programs may exceed 60 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- Students will be able to identify, establish and maintain grasses. Students will be able to explain proper management practices and cultural operations.
- Students will understand the fundamentals of plant and soil sciences required to interpret and make scientific decisions related to managing turfgrass under various conditions.
- Accurately comprehend and draw appropriate inferences from numeric data and quantitative models.

- Devise methods of inquiry to distinguish cause and effect, and to solve relevant problems in turf grass management.
- Demonstrate proficiency in principles and practices of the primary turf grass cultural practices including mowing, fertilization, and irrigation and the secondary practices including cultivation, pest management, and soil modification
- Students will demonstrate their written, oral, and interpersonal communication skills needed to become a successful turfgrass manager
- Students will develop personnel and business management skills required to manage a diverse staff and budgetary limitations

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Turfgrass Science and Management, A.S. at World Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If**

report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 ^{‡†}	3 CHEM 110 or 101 [*]	3
MATH 21 ^{‡†}	3 SOILS 101 ^{*†}	3
BIOL 11 [†]	3 TURF 230 [*]	1
TURF 235 [*]	3 TURF 307	3
General Education Course	3 Supporting Course (Professional Agriculture)	3
	Supporting Course (Professional Management)	3
	15	16

Second Year

Fall	Credits Spring	Credits
ENT 317 [*]	3 TURF 238 [*]	3
CHEM 202 [*]	3 PHIL 103W [†]	3
TURF 295 [*]	3 Supporting Course (Professional Management)	3
Supporting Course (Professional Agriculture)	3 General Education Course	3
Supporting Course (Professional Management)	3 Elective	3
	15	15

Total Credits 61

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

Graduates manage golf courses and professional stadium playing surfaces. Turfgrass professionals utilize grasses in conservation areas, and suburban and urban landscapes to enhance and beautify the environment. Some alumni pursue careers in agricultural enterprises that support the turfgrass industry.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE TURFGRASS SCIENCE MANAGEMENT PROGRAM (<https://plantscience.psu.edu/research/centers/turf/>)

Contact

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-turfgrass-science-and-management-associate-in-science-degree>
(<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-turfgrass-science-and-management-associate-in-science-degree/>)

Turfgrass Science, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park, World Campus

Program Description

This major provides an integrated program of study that includes basic and applied sciences, business management courses and an internship to prepare students for careers in turfgrass management and related areas. By carefully selecting supporting courses and electives, students can adapt the program to meet a variety of professional interests and educational needs.

Employment opportunities include golf course maintenance, professional lawn care, grounds maintenance, sod production, sales and service, athletic field maintenance, and research technician.

With appropriate selection of science courses, students can prepare for graduate study leading to careers in teaching, research, and extension.

What Is Turfgrass Science?

Turfgrass Science is the study of the grasses, soil, water, plant pests and the environment required for these plants to thrive. This discipline studies how the many turfgrasses around the world can be managed to provide environmentally beneficial, high-quality, safe, playing surfaces for sports, golf courses, residential, and grounds areas.

You Might Like this Program If...

- You enjoy working outdoors
- You want to be part of the sports industry
- You want to use your technical expertise to solve problems related to plants and the environment
- You have a sense of accomplishment seeing your work appreciated by others

Entrance to Major

A student wishing to transfer into the Turfgrass Science program must have completed CHEM 101 or CHEM 130 or CHEM 110 and received a grade of C or better in each course prior to declaring the major.

World Campus

Direct Admission to the Major

Incoming first-year students who meet the program admission requirements are admitted directly into the major. Admission restrictions may apply for change-of-major and/or change-of-campus students.

For more information about the admission process for this major, please send a request to the college, campus, or program contact (listed in the Contact tab).

Degree Requirements

For the Bachelor of Science degree in Turfgrass Science, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	1
Requirements for the Major	92

18 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GWS courses; 6 credits of GQ courses; 9 credits of GN courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
AGBM 106	Agribusiness Problem Solving	3
CHEM 202	Fundamentals of Organic Chemistry I	3
ENT 317	Turfgrass Insect Pest Management	3
MATH 21	College Algebra with Analytic Geometry with Applications I	3
PPEM 412	Turfgrass Disease Management	3
SOILS 101	Introductory Soil Science	3
STAT 200	Elementary Statistics	4
TURF 230	Turfgrass Pesticides	1
TURF 235	The Turfgrass	3
TURF 238	Turf and Ornamental Weed Control	3
TURF 307	Golf Course Irrigation and Drainage	3
TURF 425	Turfgrass Cultural Systems	3
TURF 434	Turfgrass Edaphology	3
TURF 435	Turfgrass Nutrition	4
TURF 436W	Case Studies in Turfgrass Management	3
TURF 490	Colloquium	1
TURF 495	Internship	3

Additional Courses		
BIOL 11 & BIOL 12 or BIOL 110	Introductory Biology I and Introductory Biology II Biology: Basic Concepts and Biodiversity	4
BIOL 127 or HORT 101	Introduction to Plant Biology Horticultural Science	3
ENGL 202C or ENGL 202D	Effective Writing: Technical Writing Effective Writing: Business Writing	3
METEO 3 or METEO 101	Weather Revealed: Introductory Meteorology Understanding Weather Forecasting	3
<i>Additional Courses: Require a grade of C or better</i>		
CHEM 101 or CHEM 110 or CHEM 130	Introductory Chemistry Chemical Principles I Introduction to General, Organic, and Biochemistry	3

Supporting Courses and Related Areas

Select 12 credits from department professional agriculture list	12
Select 15 credits from department professional management and economics list	15

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- Describe the principles and practices of producing, establishing, and managing the primary turf grass species and cultivars. Students will be able to explain and demonstrate turf grass establishment and management, including mowing, fertilization, irrigation, and other cultural operations including pest control.
- Accurately comprehend and draw appropriate inferences from numeric data and quantitative models.
- Devise methods of inquiry to distinguish cause and effect, and to solve relevant problems in turf grass management.
- Demonstrate proficiency in principles and practices of the primary turf grass cultural practices including mowing, fertilization, and irrigation and the secondary practices including cultivation, pest management, and soil modification.

- Students will demonstrate their written, oral, and interpersonal communication skills needed to become a successful turfgrass manager.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Turfgrass Science, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
SOILS 101 ⁺⁺	3 ENGL 15, 30H, or ESL 15 ⁺⁺	3
CHEM 110 or 130 ^{*#}	3 CHEM 202 [*]	3

MATH 21 ^{††}	3 METEO 3 or 101 [†]	3
PLANT 150S	2 Supporting Course (Professional Management and Economics)	3
General Education Course	3 General Education Course	3
14		15

Second Year

Fall	Credits Spring	Credits
BIOL 110	4 TURF 230 [*]	1
TURF 235 [*]	3 ENT 317 [*]	3
STAT 200 ^{††}	4 Supporting Course	3
BIOL 127 or HORT 101 [†]	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
	General Education Course	3
15.5		14.5

Third Year

Fall	Credits Spring	Credits Summer	Credits
TURF 238 [*]	3 TURF 435 [*]	4 TURF 495 [*]	1
TURF 434 [*]	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C ^{††}	3	
TURF 307 [*]	3 TURF 495 [*]	1	
Supporting Course (Professional Agriculture)	3 AGBM 106 [*]	3	
General Education Course	3 Supporting Course (Professional Agriculture)	3	
	Elective	3	
15		17	1

Fourth Year

Fall	Credits Spring	Credits
PPEM 412 [*]	3 TURF 436W [*]	3
TURF 425 [*]	3 TURF 490 [*]	1
ENGL 202C or 202D ^{††}	3 Supporting Course	3
TURF 495 [*]	1 General Education Course	3

Supporting Course (Professional Agriculture)	3 Supporting Course	3
Supporting Course (Professional Management and Economics)	3	
16		13

Total Credits 121

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- AGBM 101 or ECON 102 are recommended as General Education Courses that fulfill the GS requirement.
- Please consult with your academic adviser regarding the appropriate selection of elective and supporting courses. Supporting courses must be selected from an approved list.

Turfgrass Science, B.S. at Berks Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or ESL 15 ^{††}	3 BIOL 110	4
CHEM 110 or 130 ^{*#}	3 SOILS 101 ^{*†}	3
MATH 21 ^{††}	3 METEO 3 or 101 [†]	3
PSU 5	1 Supporting Course (Professional Management and Economics)	3
General Education Course	3 General Education Course	3
	13	16

Second Year

Fall	Credits Spring	Credits
CHEM 202 [*]	3 TURF 230 [*]	1
TURF 235 [*]	3 CAS 100 ^{††}	3
Supporting Course (Professional Agriculture)	3 STAT 200 ^{††}	4
General Education Course	3 Supporting Course (Professional Management and Economics)	3
General Education Course (GHW)	1.5 General Education Course	3
	General Education Course (GHW)	1.5
	13.5	15.5

Third Year

Fall	Credits Spring	Credits Summer	Credits
TURF 238 [*]	3 TURF 435 [*]	4 TURF 495 [*]	1
TURF 434 [*]	3 ENT 317 [*]	3	
BIOL 127 or HORT 101 [†]	3 TURF 495 [*]	1	
AGBM 106 [*]	3 Supporting Course (Professional Agriculture)	3	

General Education Course	3 Supporting Course (Professional Management and Economics)	3
	Elective	3
	15	17

Fourth Year

Fall	Credits Spring	Credits
PPEM 412 [*]	3 TURF 436W [*]	3
TURF 307 [*]	3 TURF 490 [*]	1
TURF 425 [*]	3 Supporting Course (Professional Agriculture)	3
ENGL 202C or 202D ^{††}	3 Supporting Course (Professional Management and Economics)	3
TURF 495 [*]	1 General Education Course	3
Supporting Course (Professional Agriculture)	3 Elective	1
	16	14

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- AGBM 101 or ECON 102 are recommended as General Education Courses that fulfill the GS requirement.
- Please consult with your academic adviser regarding the appropriate selection of elective and supporting courses. Supporting courses must be selected from an approved list.

- Students should schedule BIOL 127 in their first fall semester at University Park.
- Course offerings for SOILS 101, CHEM 202, and CMPSC 203 vary in offering patterns at Commonwealth Campus locations. Work with your academic adviser to develop a plan for incorporating these courses (either at that campus location or at University Park).

Turfgrass Science, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
ENGL 15, 30H, or ESL 15 ^{††}	3	BIOL 110 or 11 and 12	4
CHEM 110 or 130 ^{*#}	3	SOILS 101 ^{*†}	3
MATH 21 ^{††}	3	CHEM 202 [*]	3
First Year Seminar	1-3	METEO 3 or 101 [†]	3
General Education Course	3	General Education Course	3
General Education Course (GHW)	1.5		
14.5-16.5		16	

Second Year

Fall	Credits	Spring	Credits
CHEM 202 [*]	3	TURF 230 [*]	1
CAS 100 ^{††}	3	ENGL 202C or 202D ^{††}	3
Supporting Course (Professional Agriculture)	3	STAT 200 ^{††}	4
Supporting Course (Professional Management and Economics)	3	Supporting Course (Professional Management and Economics)	3
General Education Course	3	General Education Course	3
General Education Course (GHW)	1.5	General Education Course (GHW)	1.5
16.5		15.5	

Third Year

Fall	Credits	Spring	Credits	Summer	Credits
TURF 235 [*]	3	TURF 435 [*]	4	TURF 495 [*]	1
TURF 238 [*]	3	ENT 317 [*]	3		
BIOL 127 or HORT 101 [†]	3	TURF 495 [*]	1		
Supporting Course (Professional Management and Economics)	3	AGBM 106 [*]	3		

General Education Course	3	Supporting Course (Professional Agriculture)	3		
15		14		1	
Fourth Year					
Fall	Credits	Spring	Credits	Credits	
PPEM 412 [*]	3	TURF 436W [*]	3		
TURF 425 [*]	3	TURF 490 [*]	1		
TURF 434 [*]	3	Supporting Course (Professional Agriculture)	3		
TURF 307 [*]	3	Supporting Course (Professional Management and Economics)	3		
TURF 495 [*]	1	Elective	1		
Supporting Course (Professional Agriculture)	3	General Education Course	3		
16		14			
Total Credits 122.5-124.5					

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- AGBM 101 or ECON 102 are recommended as General Education Courses that fulfill the GS requirement.
- Please consult with your academic adviser regarding the appropriate selection of elective and supporting courses. Supporting courses must be selected from an approved list.
- Students should schedule BIOL 127 in their first fall semester at University Park.
- Course offerings for SOILS 101, CHEM 202, and CMPSC 203 vary in offering patterns at Commonwealth Campus locations. Work with

your academic adviser to develop a plan for incorporating these courses (either at that campus location or at University Park).

Turfgrass Science, B.S. at World Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 ^{‡†}	3 BIOL 110	4
CHEM 110 or 130 [*]	3 CHEM 202 [*]	3
MATH 21 ^{‡†}	3 METEO 3 or 101 [†]	3
General Education Course	3 TURF 230 [*]	1
General Education Course	3 General Education Course	3
15		14

Second Year

Fall	Credits Spring	Credits
TURF 235 [*]	3 Supporting Course (Professional Agriculture)	3
SOILS 101 ^{*†}	3 Supporting Course (Professional Management)	3
STAT 200 ^{‡†}	4 General Education Course	3
BIOL 127 or HORT 101 [†]	3 General Education Course	3
General Education Course	3	
16		12

Third Year

Fall	Credits Spring	Credits Summer	Credits
TURF 238 [*]	3 TURF 434 [*]	3 TURF 495 [*]	3
ENT 317 [*]	3 TURF 435 [*]	4	
CAS 100 ^{‡†}	3 TURF 307 [*]	3	
General Education Course	3 AGBM 106 [*]	3	
Supporting Course (Professional Agriculture)	3 Supporting Course (Professional Management)	3	
15		16	3

Fourth Year

Fall	Credits Spring	Credits
PPEM 412 [*]	3 TURF 425 [*]	3
TURF 436W [*]	3 Supporting Course (Professional Agriculture)	3
TURF 490 [*]	1 Supporting Course (Professional Management)	3
ENGL 202C or 202D ^{‡†}	3 Supporting Course (Professional Management)	3
Supporting Course (Professional Agriculture)	3 Elective	3
Elective	3	
16		15

Total Credits 122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- AGBM 101 or ECON 102 are recommended as General Education Courses that fulfill the GS requirement.
- Please consult with your academic adviser regarding the appropriate selection of elective and supporting courses. Supporting courses must be selected from an approved list.

Career Paths

Graduates manage golf courses and professional stadium playing surfaces. Turfgrass professionals utilize grasses in conservation areas, and suburban and urban landscapes to enhance and beautify the environment. Some alumni pursue careers in agricultural enterprises that support the turfgrass industry.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE TURFGRASS SCIENCE PROGRAM (<https://plantscience.psu.edu/research/centers/turf/>)

Contact

University Park

DEPARTMENT OF PLANT SCIENCE
102 Tyson Building
University Park, PA 16802
814-865-2571
dmp6@psu.edu

<https://plantscience.psu.edu/research/centers/turf/> (<https://plantscience.psu.edu/research/centers/turf/>)

World Campus

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116 Ag. Sci. & Ind. Building
University Park, PA 16802
814-863-0139
dmp6@psu.edu

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-turfgrass-science-bachelor-of-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-turfgrass-science-bachelor-of-science-degree/>)

Veterinary and Biomedical Sciences, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

This major provides a strong background in those biological and physical sciences underlying contemporary veterinary science and establishes a sound foundation for graduate-level study in veterinary and related biomedical disciplines. The curriculum provides students with a deep understanding of the foundational sciences while also highlighting the science of animal and human health. Students have the option to focus their area of study through the selection of 400-level supporting courses in a variety of rigorous scientific areas including but not limited to animal health, human and comparative studies, biology, biochemistry, neurobiology, immunology, toxicology, and wildlife science.

The mission of the Veterinary and Biomedical Sciences major is to prepare students for admission to veterinary school and/or entry into graduate programs. The major can also prepare students for post-baccalaureate employment in many science related fields including biomedical research and development. Students may prepare for employment or matriculation into graduate programs in disciplines such as bioinformatics, genomics, genetics, animal nutrition, animal reproduction, microbiology, animal health, human health, physiology, biochemistry, agriculture, pharmaceuticals, biotechnology, and comparative medicine.

What is Veterinary and Biomedical Sciences?

Veterinary and Biomedical Sciences major provides a hands-on, science-heavy preparation for veterinary school and other careers in the research and allied health professions like lab and field research, industry, pharmacovigilance, pharmaceuticals, biomedical development and sales, and beyond. The Penn State Veterinary and Biomedical Sciences major resides in a small, tight-knit community united by a fascination with animal health and well-being. The major has board-certified and clinically experienced veterinarians on faculty who are experienced in various fields of clinical medicine, research, and specialties who guide, instruct, and advise VBSC students. The program also boasts world-class researchers studying topics like cancer, infectious diseases, parasitic diseases, and metabolic diseases.

You Might Like this Program If...

- an aspiring veterinarian, physician, biomedical researcher, or other biomedical professional
- interested in One Health, public health, veterinary public health, or animal health
- passionate about science and animal health
- fascinated with applying scientific principles to real-life situations and case-based study
- focused on issues like emerging infectious diseases, food and agricultural safety and production, and control and prevention of animal diseases

Entrance to Major

In order to be eligible for entrance to the Veterinary and Biomedical Sciences major a student must have:

1. attained a cumulative grade point average of at least a 2.0 and
2. completed BIOL 110, CHEM 110, CHEM 111 and earned a grade of C or better in each of these courses.
3. attained third-semester classification

Degree Requirements

For the Bachelor of Science degree in Veterinary and Biomedical Sciences, a minimum of 123 credits is required:

Requirement	Credits
General Education	45
Electives	6-10
Requirements for the Major	86-90

18 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
CHEM 112	Chemical Principles II	3
CHEM 113	Experimental Chemistry II	1
MICRB 202	Introductory Microbiology Laboratory	2
PHYS 250	Introductory Physics I	4
PHYS 251	Introductory Physics II	4
VBSC 211	The Immune System and Disease	3
VBSC/BIOL 421	Comparative Anatomy of Vertebrates	4
<i>Prescribed Courses: Require a grade of C or better</i>		
ANSC 201	Animal Science	4
ANSC 301	Principles of Animal Nutrition	3
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
Additional Courses		
ANSC 423	Comparative Physiology of Domestic Animals	3
or BIOL 472	Human Physiology	
MICRB 201	Introductory Microbiology	3
or MICRB 201H	Introductory Microbiology	
STAT 200	Elementary Statistics	3-4
or STAT 250	Introduction to Biostatistics	
Select 3 credits from the following:		3
AGBM 101	Economic Principles of Agribusiness Decision Making	
BA 100	Introduction to Business	
ECON 14	Principles of Economics	
ECON 102	Introductory Microeconomic Analysis and Policy	
ECON 104	Introductory Macroeconomic Analysis and Policy	
Select 3-4 credits from the following:		3-4
BIOL 220W	Biology: Populations and Communities	
BIOL 230W	Biology: Molecules and Cells	
BIOL 240W	Biology: Function and Development of Organisms	
BMB 251	Molecular and Cell Biology I	
Select 6-8 credits from the following:		6-8
CHEM 202	Fundamentals of Organic Chemistry I	
& CHEM 203	and Fundamentals of Organic Chemistry II	
CHEM 210	Organic Chemistry I	
& CHEM 212	and Organic Chemistry II	
& CHEM 213	and Laboratory in Organic Chemistry	
Select 6 credits from the following:		6
BMB 211	Elementary Biochemistry	
& BMB 212	and Elementary Biochemistry Laboratory	
& BMB 221	and Applied Biochemistry	
BMB 401	General Biochemistry	
& BMB 402	and General Biochemistry	
<i>Additional Courses: Require a grade of C or better</i>		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
or BIOL 110H	Honors Biology: Basic Concepts and Biodiversity	
BIOL 222	Genetics	3
or BIOL 322	Genetic Analysis	
MATH 140	Calculus With Analytic Geometry I	4
or MATH 140B	Calculus and Biology I	
MATH 141	Calculus with Analytic Geometry II	4

or MATH 141B Calculus and Biology II

VBSC 403	Principles of Animal Disease Control	3
or VBSC 403H	Principles of Animal Disease Control	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 9 credits of 400-level courses from department list 9

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Critical Review of Literature:** Students will be able to search, critically evaluate, and discuss the scientific literature and popular press articles in the field of Veterinary and Biomedical Sciences.
- **Life & Physical Science Competency:** Students will exhibit competency in the physical and life sciences, including anatomy, physiology, chemistry, cell biology, microbiology, and immunology.
- **Application of Data and Knowledge:** Students will be able to apply research data and their knowledge from the physical and life sciences toward the management of health and diseases of animals.
- **Effective Communication:** Students will demonstrate effective oral and written communication to both professional and lay audiences.
- **Career Development:** Students will know career options within the Veterinary and Biomedical Sciences and be prepared to succeed in post-graduate jobs and in professional or graduate schools.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Veterinary and Biomedical Sciences, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
VBSC 50 (or First-Year Seminar)	1-3 ENGL 15 or 30H (GWS)*	3
Economics/Business Selection (GS) ¹	3 General Education selection (GA/GH/Integrated)	3
CHEM 110 (GN) ^{*2}	3 CHEM 112 (GN)	3
CHEM 111 (GN) ^{*2}	1 CHEM 113 (GN)	1
MATH 140 or 140B (GQ)*	4 MATH 141 or 141B (GQ)*	4
General Education selection (GA/GH/GHW/Integrated)	3 General Education selection (GA/GH/GHW/Integrated)	3
	15-17	17

Second Year

Fall	Credits Spring	Credits
BIOL 110 (GN) ^{*2}	4 BIOL 220W, 230W, 240W, or BMB 251 (GN)	3-4
PHYS 250 (GN)	4 PHYS 251 (GN)	4
CHEM 202 or 210	3 CHEM 203 or 212 and 213W	3-5
CAS 100A, 100B, or 100C (GWS)*	3 ANSC 201*	4
General Education selection (GA/GH/GHW/Integrated)	3	
	17	14-17

Third Year

Fall	Credits Spring	Credits
BMB 401 or 211 and 212	3-4 BMB 402 or 221	2-3
ANSC 301*	3 VBSC 211 (GN)	3
STAT 250 or 200 (GQ)	3 MICRB 201	3
BIOL 222 or 322*	3 MICRB 202	2

General Education selection (GA/GH/GHW/Integrated)	3 Elective	3
	General Education selection (GA/GH/GHW/Integrated)	3
15-16		16-17
Fourth Year		
Fall	Credits Spring	Credits
VBSC 421	4 VBSC 403 [*]	3
Supporting Courses (see department list) [*]	6 BIOL 472 or ANSC 423	3
Elective	3 Electives	6
ENGL 202C (GWS) ^{*4}	3 Supporting Courses (see department list) [*]	3
16		15

Total Credits 125-132

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Selected from BA 100, ECON 14, ECON 102, ECON 104, or AGBM 101

² Entrance-to-Major Requirements:

- a cumulative GPA of at least a 2.0
- earn a minimum of 29.1 credits
- completed BIOL 110, CHEM 110, CHEM 111 with a C or better

³ ENGL 202C is strongly recommended. Graduate and professional schools may require technical writing.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- Courses with 497 numbers and 500 level courses MAY be eligible for substitution for the above list. Consult your adviser *and* the program coordinator concerning substitution *prior* to registration in the course.

- BMB selection follows Organic Chemistry selection. Students enrolled in CHEM 202, 203 must select BMB 211/212,/221. Students cannot receive credit for both BMB 211 and BMB 401.
- Students wishing to attend veterinary or graduate school are encouraged to select courses required for matriculation at their future institutions.

Veterinary and Biomedical Sciences, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
AGBM 101, ECON 102, or ECON 104 [†]	3 CHEM 112 [†]	3
CHEM 110 ^{*#†}	3 CHEM 113 [†]	1
CHEM 111 ^{*#†}	1 MATH 141 ^{††}	4
MATH 140 ^{††}	4 ENGL 15, 30H, or ESL 15 ^{††}	3
General Education Course	3 General Education Course	3
First-Year Seminar	1-3 General Education Course	3
	15-17	17

Second Year

Fall	Credits Spring	Credits
BIOL 110 ^{*#†}	4 BIOL 220W, 230W, 240W, or BMB 251	3-4
CHEM 202 or 210	3 CHEM 203 or 212 <i>and</i> 213	3-5
PHYS 250	4 PHYS 251	4
CAS 100A, 100B, or 100C ^{††}	3 General Education Course	3
General Education Course	3	
	17	13-16

Third Year

Fall	Credits Spring	Credits
STAT 250 or 200	3-4 MICRB 201	3
ANSC 201 [*]	4 MICRB 202	2
BMB 401 or 211 <i>and</i> 212	3 BMB 402 or 221	2-3
BIOL 222 [*]	3 VBSC 211	3
Elective	3 ENGL 202C ^{††}	3
	General Education Course	3
	16-17	16-17

Fourth Year

Fall	Credits Spring	Credits
ANSC 301 [*]	3 BIOL 472 or ANSC 423	3
VBSC 421	4 Supporting Course 400 Level [*]	3
VBSC 403 [*]	3 Elective	3
Supporting Course 400 Level [*]	3 Elective	3
Supporting Course 400 Level [*]	3 Elective	3
	16	15

Total Credits 125-132

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Students should consult with an academic adviser regarding selection of CHEM 202 and CHEM 203 versus CHEM 210, CHEM 212, and CHEM 213.
- If completing CHEM 212, CHEM 213 must also be completed.
- The BMB selection should be based on the student's Organic Chemistry selection. In most cases, students enrolled in CHEM 202 and 203 course select BMB 211, BMB 212, and BMB 221.
- Students cannot receive credit for both BMB 211 and BMB 401.
- Students that desire to attend veterinary school or graduate school are strongly encouraged to select additional animal biology courses in their elective selections.
- Students should consult with an academic adviser regarding the appropriate selection of supporting courses. Supporting courses must be selected from an approved list.
- Students should work with an academic adviser in the development of their plan as some courses are not taught every semester.

Career Paths

The major provides a high-science education that opens doors for careers in pharmaceuticals, industry, human health fields, laboratory medicine, and research. Student often develop new interests through exposure to fields they never knew. This broad science curriculum supports career flexibility within the science field!

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE AGRIBUSINESS MANAGEMENT PROGRAM (<https://vbs.psu.edu/graduate/>)

Opportunities for Graduate Study

Grads thrive at top veterinary, medical, and other biomedical programs, and are recruited to work, teach, and conduct biomedical research across numerous STEM and animal health industries. The VBSC department also offers graduate study in various disciplines.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDY (<https://vbs.psu.edu/graduate/>)

Contact

DEPARTMENT OF VETERINARY AND BIOMEDICAL SCIENCES
Animal, Veterinary and Biomedical Sciences Building

University Park, PA 16802
vetbiomedsci@psu.edu

<https://vbs.psu.edu/about/contact> (<https://vbs.psu.edu/about/contact/>)

Wildlife and Fisheries Science, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The purpose of the Wildlife and Fisheries Science major is to develop the knowledge, skills, and professional ethics of undergraduates interested in the conservation and management of fish and wildlife and their environments. The curriculum is designed to provide a broad-based science background that incorporates natural resource management principles that prepare our students for a diverse array of opportunities such as graduate school, natural resource management agencies, consulting firms, non-profits, etc. Students can choose from two options:

1. Wildlife Option
2. Fisheries Option

Each option enables students to gain greater depth of knowledge in one area of the discipline. Coursework required for the Wildlife option meets The Wildlife Society's requirements for professional certification, and coursework required for the Fisheries option meets the American Fisheries Society's requirements for professional certification.

What is Wildlife and Fisheries Science?

Wildlife and Fisheries Science includes study of the conservation, management, ecology, behavior, and identification of wildlife and fish species; the terrestrial and aquatic habitats where they live; and application of that knowledge to conserve and manage biodiversity and ecosystems. The program includes applied outdoor lab experiences that complement course work, and bird, mammal, reptile, and amphibian collections facilitate hands-on learning and species identification.

MORE INFORMATION ABOUT WILDLIFE AND FISHERIES SCIENCE (<https://agsci.psu.edu/academics/undergraduate/majors/wildlife-and-fisheries-science/>)

You Might Like this Program If...

- You are concerned about society's impact on biodiversity and ecosystems.
- You are interested in conservation and management of wildlife and fish species.
- You want a career that combines indoor and outdoor activities with the opportunity to work in settings such as state or federal natural resource agencies, nonprofits, zoos and aquaria, or consulting firms.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science in Wildlife and Fisheries Science, a minimum of 120 credits is required for the Wildlife option and a minimum of 122 credits is required for the Fisheries option:

Requirement	Credits
General Education	45
Electives	3-9
Requirements for the Major	87-95

21 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 3 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
BIOL 240W	Biology: Function and Development of Organisms	4
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
CHEM 202	Fundamentals of Organic Chemistry I	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
ENGL 202C	Effective Writing: Technical Writing	3
PHYS 250	Introductory Physics I	4
SOILS 101	Introductory Soil Science	3
WFS 446	Wildlife and Fisheries Population Dynamics	3
<i>Prescribed Courses: Require a grade of C or better</i>		
BIOL 220W	Biology: Populations and Communities	4
WFS 209N	Wildlife and Fisheries Conservation	3
WFS 300	The Vertebrates	2
WFS 301	Vertebrate Laboratory	2
WFS 310	Wildlife and Fisheries Measurements	3
Additional Courses		
FOR 350	Forest Ecosystem Monitoring and Data Analysis	3
or STAT 460	Intermediate Applied Statistics	
MATH 111	Techniques of Calculus II	2-4
or MATH 141	Calculus with Analytic Geometry II	
STAT 240	Introduction to Biometry	3
or STAT 301		
Select 3-4 credits of the following:		3-4
ANSC 322	Animal Genetics and Selection	
BIOL 133	Genetics and Evolution of the Human Species	
BIOL 222	Genetics	
BIOL 230W	Biology: Molecules and Cells	

Select 3 credits of the following: 3

AEE 440	Communication Methods and Media	
ENGL 416	Science Writing	
ENGL 418	Advanced Technical Writing and Editing	

Additional Courses: Require a grade of C or better

MATH 110	Techniques of Calculus I	4
or MATH 140	Calculus With Analytic Geometry I	

Supporting Courses and Related Areas

Select 6 credits in natural resource economics, policy, planning, law, administration, or human dimensions from departmental list 6

Requirements for the Option

Select an option 18-23

Requirements for the Option Fisheries Option (22-23 credits)

Code	Title	Credits
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Prescribed Courses

WFS 410	General Fishery Science	3
WFS 452	Ichthyology	2
WFS 453	Ichthyology Laboratory	2
WFS 463W	Fishery Management	3

Additional Courses

Select 3-4 credits of the following: 3-4

ANSC 201	Animal Science	
BIOL 141	Introduction to Human Physiology	
& BIOL 142	and Physiology Laboratory	
BIOL 446	Physiological Ecology	

Select 3 credits of the following: 3

WFS 407	Ornithology	
WFS 408	Mammalogy	
WFS 447W	Wildlife Management	

Select 3 credits of the following: 3

ENT 425	Freshwater Entomology	
FOR 470	Watershed Management	
WFS 422	Ecology of Fishes	
WFS/ERM 435	Limnology	

Select 3 credits of the following: 3

GEOG 160	Mapping Our Changing World	
GEOG 363	Geographic Information Systems	
GEOSC 303	Introduction to Environmental Geology	
GEOSC 340	Geomorphology	
GEOSC 412	Water Resources Geochemistry	
GEOSC 440	Marine Geology	
GEOSC 452	Hydrogeology	

Wildlife Option (18-19 credits)

Code	Title	Credits
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Prescribed Courses

FOR 203	Field Dendrology	3
WFS 407	Ornithology	3
WFS 408	Mammalogy	3
WFS 447W	Wildlife Management	3

Additional Courses

WFS 406	Ornithology Laboratory	2
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or WFS 409 Mammalogy Laboratory

Select 2-3 credits of the following: 2-3

WFS 410	General Fishery Science	
WFS 422	Ecology of Fishes	
WFS 452	Ichthyology	
WFS 453	Ichthyology Laboratory	
WFS 463W	Fishery Management	

Select 3 credits of the following: 3

BIOL 414	Taxonomy of Seed Plants	
FOR 308	Forest Ecology	
HORT 101	Horticultural Science	
HORT 138	Ornamental Plant Materials	
HORT 445	Plant Ecology	

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- Students will be able to evaluate the potential population level effect of alternative management actions based on development of appropriate population dynamics models; for example, students might explore the effect of supplementing an endangered species or the effect of different harvest regulations on a game species.
- Students will be able to identify wildlife and fish species and quantify relevant attributes of their life history and critical habitat.
- Students will have the ability to select and use appropriate techniques for a given purpose such as selection of field samples, observation of biota in the field or lab, measurement of habitat attributes, and analysis of data.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The

advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Ellen A. Rom

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University Park, PA 16802
814-863-0362
exr2@psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Fisheries Option: Wildlife and Fisheries Science, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110 [†]	4 CHEM 110 [†]	3
MATH 110 or 140 ^{**††}	4 CHEM 111 [†]	1
ENGL 15, 30H, or ESL 15 ^{††}	3 General Education Course	3
General Education Course	3 General Education Course	3
First-Year Seminar	1-3 MATH 111 or 141	2-4
	WFS 209N [*]	3
	15-17	15-17

Second Year

Fall	Credits Spring	Credits
ANSC 201, BIOL 141 <i>and</i> BIOL 142, or BIOL 446	3-4 PHYS 250	4
BIOL 220W [*]	4 BIOL 240W	4
CHEM 202	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C ^{††}	3
BIOL 133, 222, 230W, or ANSC 322	3-4 SOILS 101 [†]	3
STAT 240 or 301 ^{††}	3 General Education Course	3
	16-18	17

Third Year

Fall	Credits Spring	Credits
WFS 300 [*]	2 FOR 350 or STAT 460	3
WFS 301 [*]	2 ENT 425, FOR 470, WFS 422, or WFS 435	3

WFS 310*	3 Wildlife Selection	3
WFS 452	2 ECON 104 [†]	3
Natural Resource Policy, Planning, Law, Administration (PPLA) and Human Dimensions (HD) Course	3 Natural Resource Policy, Planning, Law, Administration (PPLA) and Human Dimensions (HD) Course	3
Elective	0-4	
12-16		15
Fourth Year		
Fall	Credits Spring	Credits
WFS 410	3 WFS 463W	3
WFS 453	2 WFS 446	3
ENGL 202C ^{‡†}	3 General Education Course	3
AEE 440, ENGL 416, or ENGL 418	3 General Education Course (GHW)	1.5
Physical Science Selection	3 Elective	3
General Education Course (GHW)	1.5	
15.5		13.5

Total Credits 119-129

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- All supporting course selections are listed in the WFS Handbook, which is available on the department's website (<https://ecosystems.psu.edu>) under Undergraduate > Student Resources > Student Handbooks.

- In the WFS program, either STAT 200 or STAT 250 is accepted as a substitute for the "STAT 240 or 301" requirement. It is important to complete STAT before the start of your fifth semester.
- Many WFS classes are offered only once per year, in the fall or the spring; plan your schedule accordingly.
- All WFS students should change their campus location to University Park by the start of their junior year (fifth semester).
- When a required course has both a lecture and practicum portion, such as PHYS 250L and PHYS 250R, students are required to take both portions.
- Courses that are listed as both US or IL and GA, GH, or GS can count for both requirements (i.e., a course listed for both GA and IL will satisfy both Arts and International Cultures).
- Students should monitor their academic progress by checking their degree audits in LionPATH.
- Questions about WFS academic plans or degree audits should be directed to academic advisers or to WFS Program Coordinator Ellen Rom, exr2@psu.edu or 814-863-0362.

Wildlife Option: Wildlife and Fisheries Science, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110 [†]	4 CHEM 110 [†]	3
MATH 110 or 140 ^{**††}	4 CHEM 111 [†]	1
ENGL 15, 30H, or ESL 15 ^{††}	3 MATH 111 or 141	2-4
General Education Course	3 WFS 209N [*]	3
First-Year Seminar	1-3 General Education Course	3
	15-17	12-14

Second Year

Fall	Credits Spring	Credits
BIOL 220W [*]	4 PHYS 250	4
FOR 203	3 BIOL 240W	4
CHEM 202	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C ^{††}	3
BIOL 133, 222, 230W, or ANSC 322	3-4 SOILS 101 [†]	3
STAT 240 or 301 ^{††}	3 General Education Course	3
	16-17	17

Third Year

Fall	Credits Spring	Credits
WFS 300 [*]	2 FOR 350 or STAT 460	3
WFS 301 [*]	2 WFS 407 or 408	3
WFS 310 [*]	3 WFS 406 or 409	2
Natural Resource Policy, Planning, Law, Administration (PPLA) and Human Dimensions (HD) Course	3 ECON 104 [†]	3
Elective	3 Natural Resource Policy, Planning, Law, Administration (PPLA) and Human Dimensions (HD) Course	3
General Education Course	3 General Education Course (GHW)	1.5
	16	15.5

Fourth Year

Fall	Credits Spring	Credits
WFS 447W	3 WFS 446	3
ENGL 202C ^{††}	3 WFS 407 or 408	3
AEE 440, ENGL 416, or ENGL 418	3 General Education Course	3
Fisheries Selection	2-3 General Education Course (GHW)	1.5

Botany Selection	3 Elective	1-5
	14-15	11.5-15.5

Total Credits 117-127

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- All supporting course selections are listed in the WFS Handbook, which is available on the department's website (<https://ecosystems.psu.edu>) under Undergraduate > Student Resources > Student Handbooks.
- In the WFS program, either STAT 200 or STAT 250 is accepted as a substitute for the "STAT 240 or 301" requirement. It is important to complete STAT before the start of your fifth semester.
- Many WFS classes are offered only once per year, in the fall or the spring; plan your schedule accordingly.
- All WFS students should change their campus location to University Park by the start of their junior year (fifth semester).
- When a required course has both a lecture and practicum portion, such as PHYS 250L and PHYS 250R, students are required to take both portions.
- Courses that are listed as both US or IL and GA, GH, or GS can count for both requirements (i.e., a course listed for both GA and IL will satisfy both Arts and International Cultures).
- Students should monitor their academic progress by checking their degree audits in LionPATH.
- Questions about WFS academic plans or degree audits should be directed to academic advisers or to WFS Program Coordinator Ellen Rom, exr2@psu.edu or 814-863-0362.

Fisheries Option: Wildlife and Fisheries Science, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110 [†]	4 CHEM 110 [†]	3
MATH 110 or 140 ^{††}	4 CHEM 111 [†]	1
ENGL 15, 30H, or ESL 15 ^{††}	3 MATH 111 or 141	2-4
General Education Course	3 BIOL 220W [*]	4
First-Year Seminar	1-3 General Education Course	3
	General Education Course (GHW)	1.5
	15-17	14.5-16.5

Second Year

Fall	Credits Spring	Credits
ANSC 201, BIOL 141 <i>and</i> BIOL 142, or BIOL 446	3-4 PHYS 250	4
CHEM 202	3 BIOL 240W	4
BIOL 133, 222, 230W, or ANSC 322	3-4 ENGL 202C ^{††}	3
STAT 240 or 301 ^{††}	3 ECON 104 [†]	3
CAS 100 ^{††}	3 General Education Course	3
	15-17	17

Third Year

Fall	Credits Spring	Credits
WFS 209N [*]	3 FOR 350 or STAT 460	3
WFS 300 [*]	2 ENT 425, FOR 470, WFS 422, or WFS 435	3
WFS 301 [*]	2 SOILS 101 [†]	3
WFS 310 [*]	3 Natural Resource Policy, Planning, Law, Administration (PPLA) and Human Dimensions (HD) Course	3
WFS 452	2 Elective	0-4
General Education Course	3	
	15	12-16

Fourth Year

Fall	Credits Spring	Credits
WFS 410	3 WFS 463W	3
WFS 453	2 WFS 446	3
AEE 440, ENGL 416, or ENGL 418	3 Physical Science Selection	3
Wildlife Selection	3 Natural Resource Policy, Planning, Law, Administration (PPLA) and Human Dimensions (HD) Course	3

General Education Course	3 Elective	3
General Education Course (GHW)	1.5	
	15.5	15

Total Credits 119-129

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- All supporting course selections are listed in the WFS Handbook, which is available on the department's website (<https://ecosystems.psu.edu>) under Undergraduate > Student Resources > Student Handbooks.
- In the WFS program, either STAT 200 or STAT 250 is accepted as a substitute for the "STAT 240 or 301" requirement. It is important to complete STAT before the start of your fifth semester.
- Many WFS classes are offered only once per year, in the fall or the spring; plan your schedule accordingly.
- All WFS students should change their campus location to University Park by the start of their junior year (fifth semester).
- When a required course has both a lecture and practicum portion, such as PHYS 250L and PHYS 250R, students are required to take both portions.
- Courses that are listed as both US or IL and GA, GH, or GS can count for both requirements (i.e., a course listed for both GA and IL will satisfy both Arts and International Cultures).
- Students should monitor their academic progress by checking their degree audits in LionPATH.
- Questions about WFS academic plans or degree audits should be directed to academic advisers or to WFS Program Coordinator Ellen Rom, exr2@psu.edu or 814-863-0362.

Wildlife Option: Wildlife and Fisheries Science, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110 [†]	4 CHEM 110 [†]	3
MATH 110 or 140 ^{††}	4 CHEM 111 [†]	1
ENGL 15, 30H, or ESL 15 ^{††}	3 MATH 111 or 141	2-4
General Education Course	3 BIOL 220W [*]	4
First-Year Seminar	1-3 General Education Course	3
	General Education Course	3
	15-17	16-18

Second Year

Fall	Credits Spring	Credits
CHEM 202	3 PHYS 250	4
BIOL 133, 222, 230W, or ANSC 322	3-4 BIOL 240W	4
STAT 240 or 301 ^{††}	3 ENGL 202C ^{††}	3
CAS 100 ^{††}	3 ECON 104 [†]	3
General Education Courses (GHW)	1.5 General Education Course	3
	13.5-14.5	17

Third Year

Fall	Credits Spring	Credits
WFS 209N [*]	3 FOR 350 or STAT 460	3
FOR 203	3 WFS 407 or 408	3
WFS 300 [*]	2 WFS 406 or 409	2
WFS 301 [*]	2 SOILS 101 [†]	3
WFS 310 [*]	3 Elective	3
Natural Resource Policy, Planning, Law, Administration (PPLA) and Human Dimensions (HD) Course	3	
	16	14

Fourth Year

Fall	Credits Spring	Credits
WFS 447W	3 WFS 446	3
ENGL 202C ^{††}	3 WFS 407 or 408	3
AEE 440, ENGL 416, or ENGL 418	3 Natural Resource Policy, Planning, Law, Administration (PPLA) and Human Dimensions (HD) Course	3
Fisheries Selection	2-3 General Education Course (GHW)	1.5
Botany Selection	3 Elective	1-5

General Education Course	3
	17-18
	11.5-15.5

Total Credits 120-130

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- All supporting course selections are listed in the WFS Handbook, which is available on the department's website (<https://ecosystems.psu.edu>) under Undergraduate > Student Resources > Student Handbooks.
- In the WFS program, either STAT 200 or STAT 250 is accepted as a substitute for the "STAT 240 or 301" requirement. It is important to complete STAT before the start of your fifth semester.
- Many WFS classes are offered only once per year, in the fall or the spring; plan your schedule accordingly.
- All WFS students should change their campus location to University Park by the start of their junior year (fifth semester).
- When a required course has both a lecture and practicum portion, such as PHYS 250L and PHYS 250R, students are required to take both portions.
- Courses that are listed as both US or IL and GA, GH, or GS can count for both requirements (i.e., a course listed for both GA and IL will satisfy both Arts and International Cultures).
- Students should monitor their academic progress by checking their degree audits in LionPATH.
- Questions about WFS academic plans or degree audits should be directed to academic advisers or to WFS Program Coordinator Ellen Rom, exr2@psu.edu or 814-863-0362.

Career Paths

Employment in the wildlife and fisheries professions is highly competitive. Related work experience is often required for post-graduation employment. Students get that experience from summer jobs, internships, or independent study projects. Flexibility in job location and willingness to accept seasonal or part-time work can increase employment prospects. Our curriculum can provide a firm base for graduate study, as well as the opportunity to meet certification standards established by The Wildlife Society and the American Fisheries Society,

and the academic requirements set by the U.S. Office of Personnel Management for federal employment as a wildlife or fisheries biologist.

Careers

Wildlife/fisheries technician or biologist, ecologist, conservation officer, environmental educator, habitat manager, and zookeeper are just some of the opportunities pursued by Wildlife and Fisheries Science graduates. Employers include the U.S. Fish and Wildlife Service, the National Park Service, the USDA Wildlife Service, the Pennsylvania Game Commission, and conservation districts, as well as nongovernmental organizations and private industry.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE WILDLIFE AND FISHERIES SCIENCE PROGRAM (<https://ecosystems.psu.edu/undergraduate/resources/alumni-profiles/wfs/>)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://ecosystems.psu.edu/graduate/wfs/>)

Professional Resources

- American Fisheries Society (<https://fisheries.org>)
- The Wildlife Society (<https://wildlife.org>)

Contact

University Park

DEPARTMENT OF ECOSYSTEM SCIENCE AND MANAGEMENT
Undergraduate Programs Office
113 Forest Resources Building
University Park, PA 16802
814-865-4237

<https://ecosystems.psu.edu>

Wildlife and Fisheries Science, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Wildlife and Fisheries Science minor provides non-majors with an introduction to the principles and practices of wildlife and fisheries conservation, research, and management. Although the minor includes both wildlife and fisheries course offerings, courses may be selected to provide a focus in one area or the other.

What is Wildlife and Fisheries Science?

Wildlife and Fisheries Science includes study of the conservation, management, ecology, behavior, and identification of wildlife and fish species; the terrestrial and aquatic habitats where they live; and application of that knowledge to conserve and manage biodiversity and ecosystems.

MORE INFORMATION ABOUT WILDLIFE AND FISHERIES SCIENCE (<https://agsci.psu.edu/academics/undergraduate/majors/wildlife-and-fisheries-science/>)

You Might Like this Program If...

- You are concerned about society's impact on biodiversity and ecosystems.
- You are interested in conservation and management of wildlife and fish species.

Program Requirements

Requirement	Credits
Requirements for the Minor	22

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
WFS 209N	Wildlife and Fisheries Conservation	3
WFS 430	Conservation Biology	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 12 credits of the following:		12
WFS 300	The Vertebrates	
WFS 407	Ornithology	
WFS 408	Mammalogy	
WFS 410	General Fishery Science	
WFS 422	Ecology of Fishes	
WFS/ERM 435	Limnology	
WFS 447W	Wildlife Management	
WFS 450	Wetland Science and Sustainability	
WFS 452	Ichthyology	
WFS 460	Wildlife Behavior	
WFS 462	Amphibians and Reptiles	
WFS 463W	Fishery Management	

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Ellen A. Rom

Coordinator of Undergraduate Programs and Alumni Relations
114 Forest Resources Building
University Park, PA 16802
814-863-0362
exr2@psu.edu

Career Paths

The Department of Ecosystem Science and Management career development (<https://ecosystems.psu.edu/undergraduate/resources/career-development/>) and employment opportunities (<https://ecosystems.psu.edu/undergraduate/resources/employment/>) websites offer a variety of resources to assist you in exploring professional pursuits related to natural resources and environmental science.

Careers

Employment in the wildlife and fisheries professions is highly competitive. Related work experience is often required for postgraduation employment. Students get that experience from summer jobs, internships, or independent study projects. Flexibility in job location and willingness to accept seasonal or part-time work can increase employment prospects.

LEARN MORE ABOUT THE AMERICAN FISHERIES SOCIETY (<https://fisheries.org>)

LEARN MORE ABOUT THE WILDLIFE SOCIETY (<https://wildlife.org>)

Opportunities for Graduate Studies

The Wildlife and Fisheries Science minor can help prepare students for graduate-level study in wildlife, fisheries, and related disciplines.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://ecosystems.psu.edu/graduate/wfs/>)

Contact

University Park

DEPARTMENT OF ECOSYSTEM SCIENCE AND MANAGEMENT
117 Forest Resources Building
University Park, PA 16802
814-865-7521

<https://ecosystems.psu.edu>

Wildlife Technology, A.S.

Begin Campus: DuBois

End Campus: DuBois

Program Description

The Wildlife Technology major helps prepare students in the techniques of wildlife management. Personnel trained in this field are needed to assist in the applied phases of natural resource management, wildlife biology, range management, and the care, maintenance, and propagation of animals. Graduates should be able to support professionals in wildlife biology, park managers, game refuge managers, and laboratory technicians in research. The Wildlife Technology Program is accredited by the North American Wildlife Technology Association (NAWTA).

What is Wildlife Technology?

Wildlife technology is the art and science of applying laboratory and field techniques to study and manage wildlife populations. It emphasizes practical skills in the areas of wildlife biology and management, biological and ecological science, communication, forest science, quantification, mapping, natural resources inventories, fisheries and wetlands, social science, recreation and safety, and environmental policy.

You Might Like this Program If...

- You are passionate about wildlife, forestry, or the outdoors
- You have a keen interest in natural science, ecosystems, and how wildlife interact
- You are interested in studying and conserving wildlife, their habitats, and our natural resources for future generations
- You want to pursue a career in natural resource management, wildlife biology, environmental education, or outdoor recreation

Entrance to Major

Students must have a minimum 2.0 GPA to change to this Associate degree after admission to the University.

Degree Requirements

For the Associate in Science degree in Wildlife Technology, a minimum of 65.5 credits is required:

Requirement	Credits
General Education	21
Requirements for the Major	53.5

9 of the 21 credits for General Education are included in Requirements for the Major. This includes 9 credits of General Education courses: 3 credits of GN and 6 credits of GWS.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
AG 113	Exploring Careers in Agriculture	1
BIOL 110	Biology: Basic Concepts and Biodiversity	4
CAS 100	Effective Speech	3
ENGL 202C	Effective Writing: Technical Writing	3
FOR 242	Elements of Project Supervision in Forestry	3
FORT 150	Dendrology	3
FORT 160	Silvicultural Practices	3
KINES 13	First Aid & Safety, CPR/AED	1.5
WILDL 106	Wildlife Management Techniques	4
WILDL 207	Outdoor Recreation	3
WILDL 211	GIS and Aerial Photo Interpretation in Wildlife Management	4
WILDL 213	Wetlands and Fisheries Management	4
<i>Prescribed Courses: Require a grade of C or better</i>		
WILDL 101	Introduction to Wildlife Management	3

WILDL 103	Animal Identification	4
WILDL 208W	Terrestrial Wildlife Management	3
Additional Courses		
ENGL 15	Rhetoric and Composition	3
or ENGL 30H	Honors Rhetoric and Composition	
WILDL 204	Wildlife Mensuration	4
or STAT 200	Elementary Statistics	

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all associate degree students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 3 credits
- **Writing and Speaking (GWS):** 3 credits

Knowledge Domains

- **Arts (GA):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Note: Up to six credits of Inter-Domain courses may be used for any Knowledge Domain requirement, but when a course may be used to satisfy more than one requirement, the credits from the course can be counted only once.

Exploration

- **Any General Education course (including GHW and Inter-Domain):** 3 credits

University Degree Requirements

Cultures Requirement

3 credits of United States (US) or International (IL) cultures coursework are required and may satisfy other requirements

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 60 degree credits must be earned for an associate degree. The requirements for some programs may exceed 60 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- Students will be able to identify the flora and fauna of PA and explain their natural histories and their taxonomic relationships
- Students will show proficiency in field skills
- Students will be able to explain the history of and current issues in natural resources and apply that knowledge to real-life scenarios
- Students will be able to use their knowledge to develop and implement management strategies
- Students will be able to find and decipher scientific literature and information and communicate effectively via writing and oral presentations
- Students will be able to use established and emerging technology in natural resources to collect, manage, and explore data

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in- and out-of-class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

DuBois

Emily Thomas

Associate Teaching Professor of Wildlife Technology
1 College Place
48C Smeal Building
DuBois, PA 15801
814-375-4746
eht5002@psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://>)

bulletins.psu.edu/undergraduate/archive/) to view the appropriate Undergraduate Bulletin edition.

Wildlife Technology, A.S. at DuBois Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or ESL 15 ^{††}	3 WILDL 103 [*]	4
BIOL 110 [†]	4 WILDL 106	4
WILDL 101 [*]	3 FORT 160	3
FORT 150	3 General Education Course	3
General Education Course (GQ) ^{††}	3 CAS 100A ^{††}	3
AG 113	1	
	17	17

Second Year

Fall	Credits Spring	Credits
STAT 200 ²	4 FOR 242	3
WILDL 207	3 WILDL 211	4
WILDL 208W [*]	3 ENGL 202C	3
WILDL 213	4 KINES 13	1.5
General Education Course	3 General Education Course	3
	17	14.5

Total Credits 65.5

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ MATH 21 or higher

² WILDL 204 can be substituted for STAT 200 if offered

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- A student's career/graduate school plans should be considered in developing an individual academic plan. Be sure to consult an academic adviser in this department when scheduling courses.

- Recommended to complete a GH course that also satisfies the IL requirement.

Career Paths

Our graduates have employment opportunities across the country to support professionals in natural resource management, forestry, fisheries, zoos and aquaria, wildlife research, environmental education, and parks and recreation management.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE WILDLIFE TECHNOLOGY PROGRAM (<https://dubois.psu.edu/academics/degrees/wildlife/careers/>)

Professional Resources

- The Wildlife Society (TWS) (<https://wildlife.org>)
- North American Wildlife Technology Association (NAWTA)

Accreditation

The Wildlife Technology Program has been awarded full accreditation for meeting all the curriculum standards of NAWTA.

Contact

Dubois

WILDLIFE TECHNOLOGY
1 College Place
48B Smeal Building
DuBois, PA 15801
814-372-3003
kat175@psu.edu

<https://dubois.psu.edu/academics/degrees/wildlife> (<https://dubois.psu.edu/academics/degrees/wildlife/>)

Arts and Architecture

About the College

B. Stephen Carpenter II, Dean, College of Arts and Architecture

Do you want to become an architect? We can help. Considering a career as an art teacher? We've got you covered. Are you interested in graphic design...or acting...or painting? No problem—we offer programs in all those areas, and more, in the College of Arts and Architecture. We are a close-knit community where students experience the best of both worlds—small class sizes, with all the resources of a Big 10 university. Our majors span the performing, visual, and design arts, preparing you for careers where your creativity and curiosity shine through. As a student in the college, you will have additional educational opportunities—master classes, workshops, and more—through our outreach units, the Center for the Performing Arts and the Palmer Museum of Art. The College of Arts and Architecture is a dynamic and vibrant place, propelled by the energy and initiative of students like you.

MORE INFORMATION ABOUT THE COLLEGE (<https://arts.psu.edu/about/>)

Mission and Goals

The College of Arts and Architecture is committed to providing the highest quality training for artists, designers, scholars, teachers, and arts professionals, and to advancing research and creative activity in our disciplines. Our goals are to create transformative experiences for

students; maximize visibility of the arts and design at Penn State; engage communities through research, curricula, and arts presentation; and lead in technology in the arts and design.

MORE INFORMATION ABOUT THE MISSION AND GOALS OF THE COLLEGE OF ARTS AND ARCHITECTURE (<https://arts.psu.edu/about/>)

Accreditation

Our schools and programs are accredited by the top bodies in their fields, including the National Architectural Accrediting Board (NAAB), the National Association of Schools of Art and Design (NASAD), the Landscape Architecture Accreditation Board (LAAB), National Association of Schools of Music (NASM), National Association of Schools of Theatre (NAST), and more.

Departments and Schools

Department of Art History

The Department of Art History offers lecture/discussion courses and seminars on a broad range of topics, from ancient to contemporary art and architecture in Europe, the Americas, Asia, Africa, and Oceania. Courses are also offered in museum studies, historiography, iconology, criticism, connoisseurship, and research methods. The department maintains a close relationship with the Palmer Museum of Art through courses in museum studies, assistantships, and other hands-on experiences for students.

MORE INFORMATION ABOUT THE DEPARTMENT OF ART HISTORY (<https://arts.psu.edu/academics/department-of-art-history/>)

Integrative Arts

The Integrative Arts program is a multidisciplinary, student-designed degree program. Students who major in Integrative Arts focus their programs of study on personal interests in the arts and design, and they have the opportunity to build their course of study both within and across the boundaries of existing majors in the College of Arts and Architecture.

MORE INFORMATION ABOUT THE INTEGRATIVE ARTS PROGRAM (<https://arts.psu.edu/degrees/bachelor-of-arts-in-integrative-arts/>)

School of Music

With approximately 325 students enrolled, the School of Music offers degrees that help develop students as performers, teachers, and scholars. The school hosts more than 400 public events each year, providing students with ample opportunities to perform, from small chamber groups to large ensembles (including the Penn State Marching Blue Band!).

MORE INFORMATION ABOUT THE SCHOOL OF MUSIC (<https://arts.psu.edu/academics/school-of-music/>)

H. Campbell and Eleanor R. Stuckeman School of Architecture and Landscape Architecture

The Stuckeman School is home to the departments of Architecture and Landscape Architecture, and the Graphic Design program.

MORE INFORMATION ABOUT THE H. CAMPBELL AND ELEANOR R. STUCKEMAN SCHOOL OF ARCHITECTURE AND LANDSCAPE ARCHITECTURE (<https://arts.psu.edu/academics/stuckeman-school/>)

Department of Architecture

The architecture department offers focused opportunities for inquiry, research, and study in key areas of culture, space, and society; design computing; material matters; and sustainability.

MORE INFORMATION ABOUT THE DEPARTMENT OF ARCHITECTURE (<https://arts.psu.edu/academics/department-of-architecture/>)

Department of Landscape Architecture

The landscape architecture program is consistently ranked among the best in the country. The department is guided by its bold mission: Great work grounded in commitment to environmental and social good.

MORE INFORMATION ABOUT THE DEPARTMENT OF LANDSCAPE ARCHITECTURE (<https://arts.psu.edu/academics/department-of-landscape-architecture/>)

Graphic Design

The graphic design program offers a close-knit community and individualized through small class sizes. Graduates of the graphic design program hold leadership positions in design studios, advertising agencies, and corporate in-house design offices throughout the United States and abroad.

MORE INFORMATION ABOUT THE GRAPHIC DESIGN PROGRAM (<https://arts.psu.edu/academics/department-of-graphic-design/>)

School of Theatre

The School of Theatre offers undergraduate degrees in acting, musical theatre, dance, design and technology, stage management, and theatre studies, and graduate degrees in acting, design and technology, directing and music directing, and voice pedagogy. Students study, perform, and produce classics, musicals, and new and devised theatre works, while developing skills that will help them sustain full lives and careers in theatre.

MORE INFORMATION ABOUT THE SCHOOL OF THEATRE (<https://arts.psu.edu/academics/school-of-theatre/>)

School of Visual Arts

The School of Visual Arts (SoVA) offers degree programs in three areas of study: studio art, art education, and digital arts and design. SoVA's visual arts and design programs offer students opportunities to respond imaginatively to social and cultural change through exploration, expression, and communication in visual art and design forms.

MORE INFORMATION ABOUT THE SCHOOL OF VISUAL ARTS (<https://arts.psu.edu/academics/school-of-visual-arts/>)

Baccalaureate Degrees

- Acting, B.F.A.
- Architecture, B.Arch.
- Architecture, B.S.
- Art Education, B.S.
- Art History, B.A.
- Art, B.A. (Arts and Architecture)
- Art, B.F.A.
- Digital Arts and Media Design, B.Des.
- Digital Multimedia Design, B.Des.
- Graphic Design, B.Des.

- Integrative Arts, B.A. (Arts and Architecture)
- Landscape Architecture, B.L.A.
- Music Education, B.M.E.
- Music, B.A.
- Music, B.M.
- Musical Arts, B.M.A.
- Musical Theatre, B.F.A.
- Professional Photography, B.Des.
- Theatre, B.A.
- Theatre, B.F.A.

Minors

- Architectural History, Minor
- Architecture Studies, Minor
- Art History, Minor
- Art, Minor
- Graphic Design, Minor
- International Arts, Minor
- Jazz Performance, Minor
- Landscape Architecture, Minor
- Music Performance, Minor
- Music Studies, Minor
- Music Technology, Minor
- Photography, Minor
- Theatre, Minor

Certificates

- Digital Arts, Certificate
- Museum Studies, Certificate

College Procedures

Change of Campus and Change of Major

Students interested in changing their campus or major should review directions on the college's how to apply page, which includes information on portfolio submissions and auditions. If you have questions, contact the Academic Affairs Office (AAUGStudies@psu.edu). Most majors are fall only, direct admit, and require submissions in spring semester.

MORE INFORMATION ABOUT CHANGE OF CAMPUS AND CHANGE OF MAJOR (<https://arts.psu.edu/how-to-apply/>)

Concurrent Majors

A Concurrent Majors Program is one in which students take courses to concurrently meet the requirements of at least two majors, with graduation for all majors in the program occurring during the same semester. Arts and Architecture students considering concurrent majors should contact the college academic adviser at University Park or the advising center at another Penn State campus for specific information.

MORE INFORMATION ABOUT CONCURRENT MAJORS (<https://arts.psu.edu/advising/>)

READ SENATE POLICY 60-00: COMPLETING MORE THAN ONE UNDERGRADUATE MAJOR PROGRAM ([https://senate.psu.edu/policies-](https://senate.psu.edu/policies-and-rules-for-undergraduate-students/60-00-completing-more-than-one-undergraduate-program/#60-00)

[and-rules-for-undergraduate-students/60-00-completing-more-than-one-undergraduate-program/#60-00](https://senate.psu.edu/policies-and-rules-for-undergraduate-students/60-00-completing-more-than-one-undergraduate-program/#60-00))

Academic Warning

A student who fails to earn a 2.00 cumulative grade-point average will be placed on academic warning. A student placed on academic warning will have a hold placed on registration and will be required to meet with a program adviser and the college academic adviser to remove the hold. To remove academic warning, the cumulative grade-point average must be 2.00 or higher. All notifications concerning the hold will be sent to the student's campus email address.

MORE INFORMATION ABOUT ACADEMIC WARNING (<https://arts.psu.edu/students/>)

READ SENATE POLICY 54-20: ACADEMIC WARNING (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-20>)

Academic Suspension

A student in academic warning who fails to maintain a semester grade-point average of 2.00 or higher will be academically suspended. A student who has been academically suspended may not schedule courses at the University for two consecutive semesters. (Note: Summer session is equal to one semester.) Suspended students should contact the college academic adviser upon learning of their status. All notifications concerning the suspension will be sent to the student's campus email address.

MORE INFORMATION ABOUT ACADEMIC SUSPENSION (<https://arts.psu.edu/students/>)

READ SENATE POLICY 54-40: ACADEMIC SUSPENSION (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-40>)

Resources

Advising

All students in the College of Arts and Architecture are assigned an academic adviser. These faculty and professional advisers empower students to make choices that will help them achieve academic, personal, and professional success, while pursuing individual interests, as well.

MORE INFORMATION ABOUT ADVISING (<https://arts.psu.edu/advising/>)

International Programs

International study goes hand in hand with study of the arts and design. The college is committed to providing international education opportunities, and all students are encouraged to study abroad! We work closely with Global Penn State to offer full semester and summer experiences all over the world.

MORE INFORMATION ABOUT INTERNATIONAL PROGRAMS (<https://arts.psu.edu/students/>)

Multicultural Programs

The arts and design fields have always valued diversity and inclusion, and our college is no different. We are committed to developing and maintaining a student body, faculty, and staff that represent our diverse society. Learn more about how we create space where all individuals are valued on our college website.

MORE INFORMATION ABOUT MULTICULTURAL PROGRAMS (<https://arts.psu.edu/students/>)

Student Engagement

In our college, learning doesn't just take place in the classroom or studio. Your experiences outside the typical academic environment are crucial to your success. We are committed to providing learning opportunities that both complement your coursework and help you find personal fulfillment.

MORE INFORMATION ABOUT STUDENT ENGAGEMENT (<https://arts.psu.edu/students/>)

University and College Awards

We want the best possible student candidates from our college to be considered for college and University-level awards. There are a number of awards in research, service, leadership, and performance—a full listing is on our college website. Take a look!

MORE INFORMATION ABOUT UNIVERSITY AND COLLEGE AWARDS (<https://arts.psu.edu/resources/scholarship-opportunities/>)

Honors Programs

Schreyer Honors College

The Schreyer Honors College, regarded as one of the nation's top programs of its kind, promotes achieving academic excellence with integrity, building a global perspective, and creating opportunities for leadership and civic engagement. Schreyer Scholars, including those admitted after their first or second year of enrollment, are a diverse and motivated group of approximately 2,000 students at University Park and 20 Commonwealth campuses. The College strives to educate students who will have an important and ethical influence in the world, to improve educational practice, and to continue to be recognized as a leading force in honors education nationwide.

MORE INFORMATION ABOUT THE SCHREYER HONORS COLLEGE (<https://www.shc.psu.edu>)

Honors in the College of Arts and Architecture

The Schreyer Honors College gives you the opportunity to work closely with faculty to identify interests related to your academic, professional, and personal goals. All majors in the college can be pursued with an honors option. The option culminates with the completion of a thesis, which can be completed in many different formats on topics relevant to design, the performing arts, and the visual arts. Examples? A mixed media exhibition exploring global experiences, a study on the impact of hospital design on wellness, and a short documentary on healthcare reform. First-year students applying to the University as an Arts and Architecture major may apply to the Schreyer Honors College at the same time. The application has a supplemental area where students can submit examples of creative work and accomplishments. Please visit the Schreyer website for more information on eligibility and application procedures.

MORE INFORMATION ABOUT HONORS IN THE COLLEGE OF ARTS AND ARCHITECTURE (<https://www.shc.psu.edu>)

Contact

COLLEGE OF ARTS AND ARCHITECTURE
104 Borland Building
University Park, PA 16802
814-865-9523

AAUGStudies@psu.edu

<https://arts.psu.edu>

Acting, B.F.A.

Begin Campus: University Park

End Campus: University Park

Program Description

The BFA in Acting is an intensive training program for students who intend to pursue a career in acting for stage and film. Admission is determined via an audition and interview process, in addition to admission to the University Park campus. Four years of studio training include one semester in the Theatre Academy of London for advanced training. Performance opportunities are provided for the student, but must be earned through audition. Education in theatre and the general education curriculum provides depth to the actor's intellectual and artistic development. Concurrent majors and minors are allowed only with pre-approval of the program. Like all programs in the School of Theatre, the BFA in Acting is subject to NAST (National Association of Schools of Theatre) accreditation.

What is Acting?

Acting facilitates the highest level of curiosity, performance preparation, and investigation of the craft of acting. The commitment is to all stages of the journey from page to stage. Rehearsal journeys and public performances are full, yielding work that is truthful, nuanced, varied, deeply embodied, and emotionally compelling.

You Might Like this Program If...

- You regularly answer mundane questions in random accents
- Never gave up on make believe as a worthwhile pursuit
- Love words and bringing them to life
- Find yourself comfortable talking to everyone about anything!
- Find memorizing to be easy and fun

Entrance to Major

Admission to the program includes acceptance to the University Park campus, application to the program, an audition, and an interview with primary faculty members. Video taped auditions and video interviews may be arranged.

Entrance Procedures

Students interested in pursuing Acting (B.F.A) should follow the appropriate first year, change of major, or transfer application instructions found under Acting Admission Information at <https://arts.psu.edu/how-to-apply/#specific>.

Retention Requirements

Retention will be determined through the process of scheduled reviews, in concert with verification of sustained academic growth as demonstrated by earning of grades of C or higher within the major. Failure to do so is grounds for an academic warning, with clear written strategies and a time frame for the student to return to good standing. Should the issues not be addressed by the student, the faculty may advise the student into a different program or major.

Degree Requirements

For a Bachelor of Fine Arts degree in Acting, a minimum of 121 credits is required:

Requirement	Credits
General Education	45
Electives	2
Requirements for the Major	83

9 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GHW, 3 credits of GN, 3 credits of GA.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
DANCE 270	Introduction to Bartenieff Fundamentals	3
DANCE 361	Intermediate Modern Dance I	1.5
DANCE 362	Intermediate Modern Dance II	1.5
DANCE 370	Anatomy and Physiology for Performers	3
DANCE 499	Dance Foreign Study	3
MUSIC 113	Music Theatre—Class Voice I ¹	1
MUSIC 114	Music Theatre—Class Voice II ¹	1
THEA 1S	First-Year Seminar: Theatre Production Practices ¹	1
THEA 106	Theatre Foundations ¹	3
THEA 115	B.F.A. Acting Foundations	2
THEA 132	Survey of Theatre Production Practice ¹	3
THEA 201W	Script Analysis	3
THEA 225A	B.F.A. Acting Studio I	2
THEA 225B	B.F.A. Movement Studio I	2
THEA 225C	B.F.A. Voice/Speech Studio I	2
THEA 289	Theatre Production Practicum ¹	2
THEA 322	Voice and Speech I	2
THEA 324	Movement for Actors I	2
THEA 325	Movement for Actors II	2
THEA 420	Scene Study I	3
THEA 421	Advanced Acting: Physical Approaches	3
THEA 422	Advanced Scene Study	3
THEA 425A	B.F.A. Acting Studio II	2
THEA 425C	B.F.A. Voice/Speech Studio II	2
THEA 427A	B.F.A. Acting Studio III	2
THEA 427C	B.F.A. Voice/Speech Studio III	2
THEA 429	Theatre Performance Practicum	2
THEA 437	Artistic Staff for Production	6
THEA 499	Foreign Studies—Theatre Arts	9
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 9 credits from the following:		9

THEA 401	Theatre History I: Ancient to 1700
THEA 402	Theatre History II: From 1700 to Present
THEA 403	20th Century Theatre History
THEA 404	Twenty-first Century Theatre and Drama
THEA 405W	Theatre History: American Theatre
THEA/WMNST 407W	Women and Theatre
THEA 408W	History of American Musical Theatre
THEA/AFAM 412	African American Theatre

¹ A grade of C or better per course is required for teacher certification.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Learning Outcomes

- Become embodied and effective actors with the ability to perform in a range of styles, genres, and mediums
- Increase their understanding and awareness of the multidisciplinary applications of performance within domestic and international contexts
- Practice analogical, abstract, and metaphorical thinking
- Value risk taking and learning from failure
- Develop expressive agility in body and voice
- Construct an authentic point of view that is evident in performance work
- Consistently create specific, interesting, idiosyncratic work
- Practice good global citizenship by being positive contributors to our community

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Steve Snyder

School of Theatre Student Adviser and Course Coordinator
108 Theatre Building
University Park, PA 16802
814-865-0588
sjs69@psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Acting, B.F.A. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 15A, or 30H (GWS) [†]	3 THEA 132 [*]	3
THEA 1S [*]	1 THEA 201W [*]	3
THEA 106 [*]	3 THEA 225A [*]	2
THEA 115 [*]	2 THEA 289 [*]	1
THEA 225B [*]	2 THEA 322 [*]	2
THEA 225C [*]	2 General Education Course (GQ) [‡]	3
THEA 289 [*]	1 General Education Course	3
General Education Course	3	
	17	17

Second Year

Fall	Credits Spring	Credits
DANCE 270 ^{**†}	3 DANCE 361 (GA) ^{**†}	1.5
THEA 425A [*]	2 DANCE 370 ^{**†}	3
THEA 425C [*]	2 MUSIC 114 [*]	1
THEA 324 [*]	2 THEA 427A [*]	2
General Education Course (GQ) [‡]	3 THEA 427C [*]	2
Additional Course for Major (see note 1) ^{*1}	3 Additional Course for Major (see note 1) ^{*1}	3

General Education Course	3
General Education Course	3
15	18.5

Third Year

Fall	Credits Spring	Credits
DANCE 362 (GA) ^{*†}	1.5 Semester Abroad	
ENGL 202A, 202B, 202C, or 202D (GWS) [‡]	3 DANCE 499 [*]	3
MUSIC 113 [*]	1 THEA 499 [*]	3
THEA 420 [*]	3 THEA 499 [*]	3
General Education Course	3 THEA 499 [*]	3
General Education Course	3	
14.5		12

Fourth Year

Fall	Credits Spring	Credits
CAS 100A, 100B, or 100C (GWS) [‡]	3 THEA 422 [*]	3
THEA 325	2 THEA 437 [*]	3
THEA 421 [*]	3 Add Additional Course for Major (see note 1) ^{*1}	3
THEA 429 [*]	2 General Education Course	3
THEA 437 [*]	3	
Elective	2	
15		12

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ **ADDITIONAL COURSES: REQUIRE A GRADE OF C OR BETTER (9 credits)**

Select 9 credits from the following: THEA 401, THEA 402, THEA 403, THEA 404, THEA 405W, THEA 407W/WMNST 407W, THEA 408W, THEA 412/AFAM 412.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education

requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Program Notes:

ENTRANCE REQUIREMENTS: Admission to the program includes acceptance to the University Park campus, application to the program, an audition, and an interview with primary faculty members. Video taped auditions and video interviews may be arranged.

RETENTION REQUIREMENTS: Retention will be determined through the process of scheduled reviews, in concert with verification of sustained academic growth as demonstrated by earning of grades of C or higher within the major. Failure to do so is grounds for an academic warning, with clear written strategies and a time frame for the student to return to good standing. Should the issues not be addressed by the student, the faculty may advise the student into a different program or major.

Career Paths

This degree prepares students for advanced study in acting, movement, playwriting, or directing. Students are ready to enter the profession, prepared on every level to be a successful artist. With the required semester in London, students are prepared to engage at the international level.

Careers

Graduates are prepared for careers in all areas of performance, including stage, TV, film. They also have preparation for jobs in casting, directing, choreography, writing, and teaching.

Opportunities for Graduate Studies

Students are prepared for graduate programs in acting, directing, dramaturgy, playwriting, performance theory, and movement, as well as professional programs in performance.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://arts.psu.edu/degrees/theatre-mfa/>)

Professional Resources

- Actors' Equity Association (AEA) (<https://www.actorsequity.org/>)
- Screen Actors Guild (SAG)/American Federation of Television and Radio Artists (AFTRA) (<https://www.sagaftra.org/home/>)
- Stage Directors and Choreographers Society (SDC) (<https://sdcweb.org/>)

Accreditation

The BFA in Acting is accredited by the National Association of Schools and Theatre.

Founded in 1965, the National Association of Schools of Theatre (NAST) is an organization of schools, conservatories, colleges, and universities with approximately 188 accredited institutional members. It establishes national standards for undergraduate and graduate degrees and other credentials for theatre and theatre-related disciplines, and provides assistance to institutions and individuals engaged in artistic, scholarly, educational, and other theatre-related endeavors.

MORE INFORMATION ABOUT THE NATIONAL ASSOCIATION OF SCHOOLS OF THEATRE (<https://nast.arts-accredit.org/>)

Contact

University Park

SCHOOL OF THEATRE
116 Theatre Building
814-865-7586
theatre@psu.edu

<https://arts.psu.edu/academics/school-of-theatre/>

Architectural History, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

This interdisciplinary minor administered by the Department of Art History is designed for students interested in exploring architectural history from a variety of disciplines.

This minor is open to students in all majors. Majors in Art History, Anthropology, Architecture, Landscape Architecture, Classics and Ancient Mediterranean Studies, and Geography may only double count 6 credits taken in their major field towards this minor.

What is Architectural History?

Architectural history uses methods familiar to art and architectural historians, architects, urban designers, landscape architects and historians, historic preservationists, classicists, archaeologists, anthropologists, historical geographers, and social historians to study and understand architecture.

You Might Like This Program If...

You want to understand architecture from multiple points of view. If you like the idea of an interdisciplinary approach to studying the history of architecture, then architectural history might be a great minor for you!

Program Requirements

Requirement	Credits
Requirements for the Minor	21

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ARTH 201	Ancient to Medieval Architecture	3
ARTH 202N	Renaissance to Modern Architecture	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits from the following:		3
ARCH 100	Architecture and Ideas	

ARCH 210 Ideas Across Time in Architecture and Urbanism

LARCH 60 Cultural History of Designed Places

LARCH 60H

LARCH 65 Built Environment and Culture: Examining the Modern City

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 12 credits from any courses in architectural history, including 12 at least 6 at the 400 level. No more than 9 credits may be taken from any one department. Courses must be approved by Architectural History minor adviser.

Learning Outcomes

The Architectural History minor teaches exceptional visual acuity and analysis. Students will better understand space, design processes, and construction practice within historical periods. The minor also sharpens writing and verbal communication skills, and improves critical thinking.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Craig Zabel

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Career Paths

The architectural history minor is a great fit for students interested in careers that relate to built environments and the history and preservation of them.

Careers

Students who are pursuing careers in architecture, landscape architecture, art history, historic preservation, historic site management, urban planning, interior design, engineering, anthropology, archaeology, classics, American studies, history, and historical geography will all find that the architectural history minor will supplement their major area of study, and open up more possibilities for them when they enter the work force!

Contact

University Park

DEPARTMENT OF ART HISTORY
240 Borland Building
University Park, PA 16802
814-865-6326
exn30@psu.edu

<https://arts.psu.edu/academics/department-of-art-history/>

Architecture Studies, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Architecture Studies Minor will permit students in other majors the opportunity to gain insight into the discipline of Architecture. Students enrolled in the Bachelor of Architecture or Bachelor of Science in Architecture degree programs are not eligible to enter the Minor in Architecture Studies. However, students transferring out of Architecture may opt to receive recognition for their efforts and time spent in the major by completing requirements for the minor. The minor is intended to augment study in allied design majors, but graduates may not pursue licensure to practice Architecture.

What is Architecture?

The study of architecture is a broad endeavor combining the arts and humanities with engineering, science, and technology. It is a global study – from piazzas in Italy to rural contexts to information networks spanning physical and virtual domains. As creative designers, architects reflect the history, philosophy, dreams, habits, and values of a culture through buildings and spaces. Architects create responsible solutions to the needs of clients and the natural circumstances of sites. The profession spans the classical to the cutting-edge, and studying architecture encourages exploration across a range of interests, and provides flexibility to develop academic concentrations or pursue minors. The architecture studio is a laboratory in which design synthesizes history, theory, structural systems, building materials, environmental control systems, visual communications, professional practices, and systems integration.

You Might Like This Program If...

- You're fascinated by the intersection of spaces, cultures, history, and people.
- You think deeply and love to create.
- You're compelled by art, technology, and the environment.
- You like formulas and experimentation.
- You want to impact society.
- You are self-motivated and enjoy the balance of teamwork and working independently.
- You honor tradition while inventing novel practices.
- You welcome responsibility.
- You think and act with precision.

- You take risks.
- You want to explore, discover, and invent.

Program Requirements

Requirement	Credits
Requirements for the Minor	21

Requirements for the Minor

6 credits must be at the 400-level.

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
<i>Architectural History and Theory:</i>		
ARCH 100	Architecture and Ideas	3
or ARCH 210	Ideas Across Time in Architecture and Urbanism	
Select 3 credits of the following:		3
ARCH 316	Analysis of Human Settlements: Cities	
ARTH 201	Ancient to Medieval Architecture	
ARTH 202		
<i>Cultural Perspectives in Architecture:</i>		
Select 3 credits of the following:		3
ARCH 312	Critical Postcolonial and Contemporary Perspectives in South Asian Architecture	
ARCH 316	Analysis of Human Settlements: Cities	
ARCH 317	Theory of Modern Japanese Architecture	
ARCH 499	Foreign Studies	
ARTH 120	Asian Art and Architecture	
ARTH 140	Introduction to the Art and Architecture of the Mayas, Aztecs, and Incas	
ARTH 308N	American Architecture	
ARTH 315		
ARTH 330		
ARTH 401	Greek Art and Architecture	
ARTH 405	Pioneers of Modern Architecture	
ARTH 412	The Gothic Cathedral	
ARTH 413	Architecture of the Medieval Monastery	
ARTH 415	The Skyscraper	
ARTH 420	Russian Architecture	
ARTH 440	Monuments of Asia	
ARTH 456	Renaissance and Baroque Palaces	
ARTH 458	The City 1600-1800	
ARTH 460	Art and Empire: Aztec, Inca and Spanish	
ASIA 315		
ASIA 440		
LARCH 65	Built Environment and Culture: Examining the Modern City	
<i>Architectural Design Applications:</i>		
Select 6 credits of the following:		6

ARCH 121	Visual Communications I ¹
ARCH 122	Visual Communications II ¹
ARCH 130A	Basic Design and Research I (3 credits max) ²
ARCH 131	Basic Design Studio I ¹
ARCH 132	Basic Design Studio II ¹
ARCH 412	Integrative Energy and Environmental Design
ARCH 442	Architectural Design Analysis ²
ARCH 443	Architectural Design Analysis Inspection Trip
ARCH 481	Digital Design Media
ARCH 497	Special Topics
ARCH 499	Foreign Studies

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Architectural Capstone or Supporting Course:

Select 3 credits within ARCH ³ 3

Architectural Supporting Course:

Select 3 credits in ARCH or in specific AE or LARCH courses from an approved department list ³ 3

¹ Courses available to Architecture majors only.

² Courses available to Architectural Engineering majors only.

³ ARCH prefix courses excluding ARCH 130A and ARCH 441

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Christine Gorby

Associate Professor of Architecture
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University Park, PA 16802
814-865-3741
clg15@psu.edu

Career Paths

The Architecture Studies Minor is a stepping stone for those seeking careers in architecture and related fields, or who wish to pursue a professional architecture degree, after which, they can undertake internships and professional state licensing examinations required for registration as architects. The Architecture Studies Minor is a passageway to further one's studies at the graduate level in design-related fields. The diversity and broad inquiry integral to architectural studies form a natural path to advanced studies in architecture,

landscape architecture, computer science, geography, urban studies, system logistics, art history, and more.

Careers

Architecture is a broad, rigorous, and rich course of study that opens doors to careers in nearly limitless fields. Graduates from the Penn State's Department of Architecture have designed digital environments for major motion pictures, created branding and advertising for Fortune 100 companies, started businesses converting recycled materials into high-end lighting products, and designed custom jewelry. Note: Students interested in a degree program that provides a direct path to pursue licensure and professional practice should undertake the B.Arch. professional degree program.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN ARCHITECTURE STUDIES (<https://sites.psu.edu/stuckemancareers/>)

Opportunities for Graduate Studies

Architecture Studies Minor students may opt to pursue graduate programs in specialized topics or focus areas. Students interested in advanced research will be well-positioned to pursue a Master of Science in Architecture (M.S. in Arch) degree. The Penn State M.S. in Arch program is designed to strengthen the intellectual underpinnings of students' undergraduate work through intensive studio investigations, design applications, and rigorous theoretical inquiry. Alternately, students might consider application to Penn State's M.Arch. professional degree in preparation for professional practice and licensure as an architect.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://arts.psu.edu/academics/department-of-architecture/>)

Contact

University Park

DEPARTMENT OF ARCHITECTURE
121 Stuckeman Family Building
University Park, PA 16802
814-865-9535
aaug@psu.edu

<https://arts.psu.edu/degrees/barch-architecture> (<https://arts.psu.edu/degrees/barch-architecture/>)

Architecture, B.Arch.

Begin Campus: University Park

End Campus: University Park

Program Description

The Department of Architecture is a member of the Association of Collegiate Schools of Architecture and the Bachelor of Architecture degree is accredited by the National Architectural Accrediting Board. The major provides for the education of architects at the professional and pre-professional levels.

"In the United States, most state registration boards require a degree from an accredited professional degree program as a prerequisite for licensure. The National Architectural Accrediting Board (NAAB), which is the sole agency authorized to accredit U.S. professional degree programs in architecture, recognizes three types of degrees:

1. the Bachelor of Architecture,
2. the Master of Architecture, and
3. the Doctor of Architecture.

A program may be granted a 8-year, 3-year, or 2-year term of accreditation, depending on the extent of its conformance with established educational standards.

Doctor of Architecture and Master of Architecture degree programs may consist of a pre-professional undergraduate degree and a professional graduate degree that, when earned sequentially, constitute an accredited professional education. However, the pre-professional degree is not, by itself, recognized as an accredited degree."

The Pennsylvania State University, Department of Architecture offers the following NAAB-accredited degree program:

B.Arch. (162 undergraduate credits)

Next accreditation visit for the B.Arch. accredited degree program: 2023 (anticipated)
(Excerpt from NAAB Conditions for Accreditation)

Bachelor of Architecture

The professional program (BARCH) is a five-year curriculum leading to the Bachelor of Architecture degree requiring 162 credits. It prepares those who seek careers as practicing architects. It also provides professional preparation for those who wish to enter related design fields. Graduates of the Bachelor of Architecture program are eligible, after appropriate internship experience, to sit for the Architect Registration Examination. Successful completion of all parts of the Architect Registration Examination is required for registration as an architect. The Bachelor of Architecture curriculum includes coursework in architectural design, history, theory, structural systems, building materials, environmental control systems, visual communications, professional practice, and systems integration. Supporting courses provide students with the flexibility to explore a range of interests, develop concentrations, or pursue minors. An approved semester abroad is also a requirement of the program. All students admitted to the University in the Department of Architecture are enrolled in the five-year professional program leading to the Bachelor of Architecture degree.

Students may elect to leave Penn State after completing the requirements of the four-year (ARCBS) program and receive the Bachelor of Science degree.

What is Architecture?

The study of architecture is a broad endeavor combining the arts and humanities with engineering, science, and technology. It is a global study – from piazzas in Italy to rural contexts to information networks spanning physical and virtual domains. As creative designers, architects reflect the history, philosophy, dreams, habits, and values of a culture through buildings and spaces. Architects create responsible solutions to the needs of clients and the natural circumstances of sites. The profession spans the classical to the cutting-edge, and studying architecture encourages exploration across a range of interests, and provides flexibility to develop academic concentrations or pursue minors. The architecture studio is a laboratory in which design synthesizes history, theory, structural systems, building materials, environmental control systems, visual communications, professional practices, and systems integration.

You Might Like this Program If...

- You're fascinated by the intersection of spaces, cultures, history, and people
- You think deeply and love to create
- You're compelled by art, technology, and the environment
- You like formulas and experimentation
- You want to impact society
- You are self-motivated and enjoy the balance of teamwork and working independently
- You honor tradition while inventing novel practices
- You welcome responsibility
- You think and act with precision
- You take risks
- You want to explore, discover, and invent

Entrance Procedures

Students interested in pursuing Architecture (B.ARCH) should follow the appropriate first year, change of major, or transfer application instructions found under Architecture at <https://arts.psu.edu/how-to-apply/#specific>.

Degree Requirements

For the Bachelor of Architecture degree in Architecture a minimum of 162 credits are required:

Requirement	Credits
General Education	45
Requirements for the Major	123

6 of the 45 credits for General Education are included in the Requirements for the Major. This includes 6 credits of General Education GA courses.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
AE 210	Introduction to Architectural Structural Systems	3
AE 211		3
AE 421	Architectural Structural Systems I	3
AE 422	Architectural Structural Systems II	3
AE 424		3
ARCH 121	Visual Communications I	2
ARCH 122	Visual Communications II	2
ARCH 131	Basic Design Studio I	4
ARCH 132	Basic Design Studio II	4
ARCH 203	Materials and Building Construction I	3
ARCH 204	Materials and Building Construction II	3
ARCH 210	Ideas Across Time in Architecture and Urbanism	3
ARCH 231	Architectural Design I	6
ARCH 232	Architectural Design II	6

ARCH 311W	Architectural and Planning Theories	3
ARCH 331	Architectural Design III	6
ARCH 332	Architectural Design IV	6
ARCH 431		6
ARCH 451	Architectural Professional Practice	3
ARCH 480	Technical Systems Integration	3
ARCH 499A	Rome Study-Architectural Design	6
ARCH 499B	Architectural Analysis	3
ARCH 499C	Urban Studies	3
ARCH 491	Architectural Design Studio (6 per semester, maximum of 12)	6-12
ARTH 201	Ancient to Medieval Architecture	3
ARTH 202		3

Additional Courses

Additional Courses: Require a grade of C or better

Select 6 credits of the following: 6

ARCH 491 Architectural Design Studio (6, maximum 12)

ARCH 492H Architectural Design Studio

ARCH 499F Architectural Design Foreign Study

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 3 credits in non-Western traditions in architecture from approved department list 3

Select 15 credits in consultation with an academic adviser ¹ 15

¹ This category of course work gives students the freedom to explore a range of academic interests, develop concentrations, or pursue minors.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.Arch. In Architecture and M.S. in Architecture

Requirements for the Integrated B.Arch. In Architecture and M.S. in Architecture can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/architecture/#integratedundergradgradprogramstext>).

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Architecture, B.Arch. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
ARCH 121*	2	ARCH 122*	2
ARCH 131*	4	ARCH 132*	4
ARTH 201 (GA;IL) ^{††}	3	ARTH 202 (GA;IL) ^{††}	3
ENGL 15, 15A, or 30H [†]	3	AE 210*	3
General Education Course (GQ - MATH)	3	General Education Course	3
	15	General Education Course	3
			18

Second Year

Fall	Credits	Spring	Credits
ARCH 203*	3	AE 422*	3
ARCH 210*	3	ARCH 204*	3
ARCH 231*	6	ARCH 232*	6
AE 421*	3	General Education Course	3
CAS 100A, 100B, or 100C [‡]	3	General Education Course	3
	18		18

Third Year

Fall	Credits	Spring	Credits
ARCH 311W*	3	ARCH 332*	6
ARCH 380*	3	ARCH 381*	3
ARCH 312 or 317 ^{*2}	3	ARCH 480	3
ARCH 331*	6	General Education Course	3
General Education Course	3	General Education Course (GHW)	1.5
	18		16.5

Fourth Year

Fall	Credits	Spring	Credits
ENGL 202A, 202B, 202C, or 202D [‡]	3	Semester Abroad	
ARCH 491*	6	ARCH 499A*	6
General Education Course	3	ARCH 499B*	3
General Education Course	3	ARCH 499C*	3
General Education Course (GHW)	1.5	Supporting Course for Major (see note) ^{*2}	3
	16.5		15

Fifth Year

Fall	Credits	Spring	Credits
ARCH 451*	3	ARCH 492H ^{*1}	6
ARCH 491 ^{*1}	6	Supporting Course for Major (see note) ^{*2}	3
Supporting Course for Major (see note) ^{*2}	3	Supporting Course for Major (see note) ^{*2}	3
Supporting Course for Major (see note) ^{*2}	3		
	15		12

Total Credits 162

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Additional Courses for Major (6 credits)

Select 6 credits from: ARCH 491 (6, maximum 12), ARCH 492H(6), or ARCH 499F(6) (Sem: 9-10)

² SUPPORTING COURSES AND RELATED AREAS FOR MAJOR (18 credits)

-Select 3 credits in non-Western traditions in architecture from approved department list (Sem: 1-8)

-Select 15 credits in consultation with an academic adviser. This category of course work gives students the freedom to explore a range

of academic interests, develop concentrations, or pursue minors (Sem: 3-10)

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Program Notes:

The Bachelor of Architecture (BARCH) program, which is a direct admission major, is offered only at the University Park campus.

A ten semester sequence of design studio coursework is the central component of the program and it is this sequence which determines the length of time required to complete the program. Because each design studio course is offered only once each year, a minimum of five academic years will be required to complete this sequence.

A portfolio review is required for change of major consideration. Please refer to the Department's Web site for additional information.

Additional Advising Notes:

In order to take A E 210 (Introduction to Architectural Structural Systems), students must be proficient in MATH 22 (College Algebra II and Analytic Geometry) and MATH 26 (Plane Trigonometry). Satisfactory performance on the mathematics proficiency examination or completion of appropriate mathematics coursework will be necessary in order for students to be able to schedule A E 210 in semester 2 of the recommended academic plan.

ARCH 311W may be taken in either semester 5 or semester 6. Because this is a writing-intensive course, the Department cannot accommodate all third-year BARCH students in only one semester. In the opposing semester (5 or 6) students must select 3 credits of non-Western traditions in architecture coursework from ARCH 312 Critical Postcolonial and Contemporary Perspectives in South Asian Architecture (semester 6) or ARCH 317 Theory of Modern Japanese Architecture (semester 5). Other courses meeting the NAAB requirement for global traditions may be approved by petition.

CAS 100 (Effective Speech) is a particularly useful course for BARCH students and may be scheduled earlier than the sophomore year if students are able to do so.

Although the recommended academic plan lists specific semesters for the General Education coursework, in most instances, students have the flexibility to schedule these courses when it is most convenient for them to do so. For example, students who wish to take MATH 140 (Calculus with Analytic Geometry I) and MATH 141 (Calculus with Analytic Geometry II) in order to satisfy the General Education quantification (GQ) requirement may choose to take these courses during the first two semesters of the program.

Students must select 15 credits of supporting courses in consultation with their academic adviser. This category of coursework gives students the freedom to explore a range of interests, develop concentrations, or pursue minors. Students may schedule these courses when it is most appropriate for them to do so. Students may wish to begin taking supporting courses earlier in their academic career in order to pursue a concentration or a minor which involves a sequence of coursework. For example, some students may choose to take Italian language courses prior to the semester they will spend in Rome. For students who do not acquire any background in Italian before going to Rome, an introductory Italian language and culture course is available in Rome.

Career Paths

The B.Arch program prepares those who seek careers as practicing architects. Graduates holding a Bachelor of Architecture first professional degree are eligible, after appropriate internship experience, for admission to professional state licensing examinations, and subsequent registration as architects. The B.Arch program is also a rich passageway to further one's studies at the graduate level in design-related fields. The diversity and broad inquiry integral to architectural studies form a natural path to advanced studies in architecture, landscape architecture, computer science, geography, urban studies, system logistics, art history, and more.

Careers

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE ARCHITECTURE PROGRAM (<https://sites.psu.edu/stuckemancareers/>)

Opportunities for Graduate Studies

While professional practice opportunities are available to Bachelor of Architecture graduates, some B.Arch students may opt to pursue graduate programs in specialized topics or focus areas. Students interested in advanced research will be well-positioned to pursue a Master of Science in Architecture (M.S. in Arch) degree. The Penn State M.S. in Arch program is designed to strengthen the intellectual underpinnings of students' undergraduate work through intensive studio investigations, design applications, and rigorous theoretical inquiry. Alternately, B.Arch students pursue graduate studies in fields spanning sciences, humanities, design, digital technologies, planning, and the arts.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://arts.psu.edu/academics/department-of-architecture/>)

Professional Resources

- American Institute of Architecture Students (AIAS) (<https://www.aias.org/>)
- National Architectural Accrediting Board, Inc. (NAAB) (<https://www.naab.org/>)

Accreditation

In the United States, most registration boards require a degree from an accredited professional degree program as a prerequisite for

licensure. Penn State's Bachelor of Architecture degree is accredited by The National Architectural Accrediting Board (NAAB), which is the sole agency authorized to accredit professional degree programs in architecture offered by institutions with U.S. regional accreditation.

MORE INFORMATION ABOUT ACCREDITATION OF THE ARCHITECTURE PROGRAM (<https://arts.psu.edu/degree-programs/accreditation/accreditation-penn-state-architecture-programs/>)

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

University Park

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University Park, PA 16802
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aaug@psu.edu

<https://arts.psu.edu/academics/department-of-architecture/>

Architecture, B.S.

Begin Campus: University Park

End Campus: University Park

Program Description

The Department of Architecture is a member of the Association of Collegiate Schools of Architecture and the Bachelor of Architecture degree is accredited by the National Architectural Accrediting Board. The major provides for the education of architects at the professional and pre-professional levels.

"In the United States, most state registration boards require a degree from an accredited professional degree program as a prerequisite for licensure. The National Architectural Accrediting Board (NAAB), which is the sole agency authorized to accredit U.S. professional degree programs in architecture, recognizes three types of degrees: the Bachelor of Architecture, the Master of Architecture, and the Doctor of Architecture.

A program may be granted a 6-year, 3-year, or 2-year term of accreditation, depending on the extent of its conformance with established educational standards.

Doctor of Architecture and Master of Architecture degree programs may consist of a pre-professional undergraduate degree and a professional graduate degree that, when earned sequentially, constitute an accredited professional education. However, the pre-professional degree is not, by itself, recognized as an accredited degree."

Students may elect to leave Penn State after completing the requirements of the four-year (ARCBS) program and receive the Bachelor of Science degree.

Bachelor of Science

The pre-professional Bachelor of Science degree program in Architecture (ARCBS) is a four-year curriculum which requires a minimum of 135 credits. The curriculum mirrors the first four years of the professional (BARCH) program. The ARCBS program prepares graduates to pursue careers in fields such as construction, real estate development, public administration, or historic preservation. Students may also continue their education at the graduate level in fields such as architecture, urban planning, or law. Enrollment in the pre-professional (ARCBS) program is limited to those students who transfer from the professional (BARCH) program.

What is Architecture?

The study of architecture is a broad endeavor combining the arts and humanities with engineering, science, and technology. It is a global study – from piazzas in Italy to rural contexts to information networks spanning physical and virtual domains. As creative designers, architects reflect the history, philosophy, dreams, habits, and values of a culture through buildings and spaces. Architects create responsible solutions to the needs of clients and the natural circumstances of sites. The profession spans the classical to the cutting-edge, and studying architecture encourages exploration across a range of interests, and provides flexibility to develop academic concentrations or pursue minors. The architecture studio is a laboratory in which design synthesizes history, theory, structural systems, building materials, environmental control systems, visual communications, professional practices, and systems integration.

You Might Like this Program If...

- You're fascinated by the intersection of spaces, cultures, history, and people
- You think deeply and love to create
- You're compelled by art, technology, and the environment
- You like formulas and experimentation
- You want to impact society
- You are self-motivated and enjoy the balance of teamwork and working independently
- You honor tradition while inventing novel practices
- You welcome responsibility
- You think and act with precision
- You take risks
- You want to explore, discover, and invent

Entrance Procedures

This program is only available to students currently admitted to the Bachelor of Architecture (B.ARCH) program at Penn State. Students studying Architecture who choose not to pursue the five-year professional degree or licensure, can pursue the four-year B.S. degree in Architecture. Students thinking of changing from the B.ARCH to B.S. Architecture degree should speak with their assigned academic adviser to understand career implications.

Degree Requirements

For the Bachelor of Science degree in Architecture a minimum of 135 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	96

6 of the 45 credits for General Education are included in the Requirements for the Major. This includes 6 credits of General Education GA courses.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
AE 210	Introduction to Architectural Structural Systems	3
AE 211		3
AE 421	Architectural Structural Systems I	3
AE 422	Architectural Structural Systems II	3
AE 424		3
ARCH 121	Visual Communications I	2
ARCH 122	Visual Communications II	2
ARCH 131	Basic Design Studio I	4
ARCH 132	Basic Design Studio II	4
ARCH 203	Materials and Building Construction I	3
ARCH 204	Materials and Building Construction II	3
ARCH 210	Ideas Across Time in Architecture and Urbanism	3
ARCH 231	Architectural Design I	6
ARCH 232	Architectural Design II	6
ARCH 311W	Architectural and Planning Theories	3
ARCH 331	Architectural Design III	6
ARCH 332	Architectural Design IV	6
ARCH 431		6
ARCH 499A	Rome Study-Architectural Design	6
ARCH 499B	Architectural Analysis	3
ARCH 499C	Urban Studies	3
ARTH 201	Ancient to Medieval Architecture	3
ARTH 202		3

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 3 credits in non-Western traditions in architecture from approved department list	3
Select 6 credits in consultation with an academic adviser	6

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education

Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- Quantification (GQ): 6 credits
- Writing and Speaking (GWS): 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- Arts (GA): 3 credits
- Health and Wellness (GHW): 3 credits
- Humanities (GH): 3 credits
- Social and Behavioral Sciences (GS): 3 credits
- Natural Sciences (GN): 3 credits

Integrative Studies

- Inter-Domain Courses (Inter-Domain): 6 credits

Exploration

- GN, may be completed with Inter-Domain courses: 3 credits
- GA, GH, GN, GS, Inter-Domain courses. This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Sara Watson

Stuckeman School Undergraduate Academic Adviser
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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Architecture, B.S. at University Park Campus

The pre-professional Bachelor of Science degree program in Architecture (ARCBS) is a four-year curriculum which requires a minimum of 135 credits. The curriculum mirrors the first four years of the professional (BARCH) program. The ARCBS program prepares graduates to pursue careers in fields such as construction, real estate development, public administration, or historic preservation. Students may also continue their education at the graduate level in fields such as architecture, urban planning, or law. Enrollment in the pre-professional (ARCBS) program is limited to those students who transfer from the professional (BARCH) program.

***Please note that the pre-professional program leading to a B.S. degree is a non-accredited degree. In the Commonwealth of Pennsylvania**

only the professional degree (B.Arch--5 years) is recognized for licensure application. Students applying for entry into the Department of Architecture should check with the state of their residence for similar regulations concerning requirements for licensure application.

Career Paths

The Bachelor of Science in Architecture program is a stepping stone for those seeking careers in architecture and related fields. Graduates holding a Bachelor of Science in Architecture can pursue a professional architecture degree, after which, they can undertake internships and professional state licensing examinations required for registration as architects. The B.S. in Arch program is a passageway to further one's studies at the graduate level in design-related fields. The diversity and broad inquiry integral to architectural studies form a natural path to advanced studies in architecture, landscape architecture, computer science, geography, urban studies, system logistics, art history, and more.

Careers

The Bachelor of Science in Architecture – a non-professional degree option – provides a broad, rigorous, and rich course of study that opens doors to careers in nearly limitless fields. Graduates from the Penn State's Department of Architecture have designed digital environments for major motion pictures, created branding and advertising for Fortune 100 companies, started businesses converting recycled materials into high-end lighting products, and designed custom jewelry. Note: if you are interested in a degree program that provides a direct path to pursue licensure and professional practice, you should undertake the B.Arch. professional degree program.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE ARCHITECTURE PROGRAM (<https://sites.psu.edu/stuckemancareers/>)

Opportunities for Graduate Studies

B.S. in Arch students may opt to pursue graduate programs in specialized topics or focus areas. Students interested in advanced research will be well-positioned to pursue a Master of Science in Architecture (M.S. in Arch) degree. The Penn State M.S. in Arch program is designed to strengthen the intellectual underpinnings of students' undergraduate work through intensive studio investigations, design applications, and rigorous theoretical inquiry. Alternately, B.S. in Arch students might pursue Penn State's M.Arch. professional degree in preparation for professional practice and licensure as an architect.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://arts.psu.edu/academics/department-of-architecture/>)

Professional Resources

- American Institute of Architecture Students (AIAS) (<https://www.aias.org/>)
- National Architectural Accrediting Board, Inc. (NAAB) (<https://www.naab.org/>)

Contact

University Park

DEPARTMENT OF ARCHITECTURE
121 Stuckeman Family Building
University Park, PA 16802
814-865-9535
aaug@psu.edu

<https://arts.psu.edu/academics/department-of-architecture/>

Art Education, B.S.

Begin Campus: University Park

End Campus: University Park

Program Description

The purpose of the Art Education program is to prepare knowledgeable, skilled, and caring professional educators to become critical, reflective practitioners, researchers and artists, and agents of change for social justice in diverse contexts of educational practice; generate and disseminate knowledge that leads to new pedagogical understandings on which more effective policies and practices can be grounded; and collaborate across disciplines, professions, and constituencies to promote social change that leads to educational improvement and transformation. An integral part of the program involves a variety of observational and participatory experiences in art learning environments, and an extensive pre-practice internship. Upon completion of the degree, employment prospects and/or acceptance for advanced graduate studies depends upon individual achievement and qualifications. (See also Teacher Education Programs (<https://ed.psu.edu/academics/teacher-testing-certification/>)).

What is Art Education?

Art Education is a practice of exciting others about art, and takes place anytime groups of individuals come together in a learning setting with an art teacher. Hence, as an art teacher, you use your creative capacity for expressing imaginative insights and communicating critical responses about a myriad of social and cultural matters by helping artists of all ages learn through art, and learn about art. Therefore, our mission is to prepare knowledgeable, skilled, and caring professional art educators. Specifically, you are encouraged to fulfill your potential as a creative artist and a reflective practitioner, with the potential to be an agent of social justice that leads to educational improvements. You are introduced to a range of ideas and experiences that build on your individual talent and emerging professional capabilities. To support your professional development, you complete a series of teaching experiences and internships in different art learning settings.

You Might Like this Program If...

You believe that creativity is a primary, renewable human resource that everyone has in abundance, and you feel you have the capacity to make a difference in the learning lives of children and youth. Becoming a visual arts and design teacher means using your creative capabilities to help others explore and discover new ways of seeing and thinking about the changing world in which they live.

Entrance to Major

All candidates seeking entrance to Art Education for Schools option must meet the following entrance to major criteria:

1. Minimum 3.00 cumulative GPA and at least 48 credits completed (at the time of application).
2. Complete 6 credits in Quantification (GQ) with a C or higher
3. Complete ENGL 15 or ENGL 30H with a C or higher
4. Complete 3 credits in literature (GH) (C or higher required)
5. Complete AED 101S, as well as any required early- and middle-level field experience (C or higher required)

6. Complete education foundation courses: EDPSY 14, PSYCH 100 (C or higher required)
7. Complete art studio & art history foundations: ART 110, ART 111, ART 122Y, ARTH 111, ARTH 112 (C or higher required)
8. Complete and document a minimum of 40 hours of paid or volunteer work with age appropriate population (PreK-12). At least 20 of these age-appropriate 40 hours need to be satisfied by working with "under-represented" learners whose cultural, social, or ethnic backgrounds differ from the candidate's own.

Entrance Procedures

Students interested in pursuing Art Education (B.S.) should follow the appropriate change of major or transfer application instructions found under Visual Arts at <https://arts.psu.edu/how-to-apply/#specific>.

Degree Requirements

For the Bachelor of Science degree in Art Education a minimum of 121 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	91

15 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GA courses; 6 credits of GS courses; 3 credits of GH courses.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
AED 101S	Introduction to Art Education	3
AED 211	Interpreting Art Experience: Social-cultural Perspectives	3
AED 225	Diversity, Pedagogy, and Visual Culture	3
AED 322	Visual Culture and Educational Technologies	3
AED 401	Curricula, Pedagogy, and Assessment in Art Education	3
AED 489	Advanced Practicum	3
ART 11	First-Year Seminar- School of Visual Arts	1
ART 110	Ideas as Visual Images	3
ART 111	Ideas as Objects	3
ART 122Y	Commentary on Art	3
ARTH 111	Ancient to Medieval Art	3
ARTH 112	Renaissance to Modern Art	3
EDPSY 14	Learning and Instruction	3
PSYCH 100	Introductory Psychology	3
SPLD 400	Inclusive Special Ed Foundations: Legal, Characteristics, Collaboration, Assessment, and Management	4

SPLD 403B	Evidence-Based Methods for Teaching Secondary Students with Disabilities in Inclusive Settings	3
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Additional Courses

Additional Courses: Require a grade of C or better

Select 12 credits at the beginning level from: 12

ART 211	Introduction to Digital Art and Design Criticism	
ART 220	Figure Drawing	
ART 223	Drawing: Techniques, Materials, and Tools	
ART 230	Beginning Sculpture	
ART 240	Beginning Printmaking	
ART 250	Beginning Oil Painting	
ART 260	Water Media	
ART 280	Beginning Ceramics	
ART 296	Independent Studies	
ART 297	Special Topics	
ART 299	Foreign Study--Art	
DART 202	2D Digital Art & Computer Graphics	
DART 206	Web Design and Visual Web Development	
PHOTO 100	Introduction to Photography	
PHOTO 101	Culture of Photography	
PHOTO 200	Photo Studio I	
PHOTO 201/ ARTH 250	A Chronological Survey of Photography	
PHOTO 202	Fundamentals of Professional Photography	

Select 3 credits of the following: 3

APLNG 200	Introduction to Language, Culture, and Social Interaction	
APLNG 210	Global English	
CI 280	Introduction to Teaching English Language Learners	

Select 15 credits of the following: 15

AED 495A & AED 495B	Art Education Student Teaching Practicum and Art Education Student Teaching Practicum	
AED 495C & AED 495D	Art Education Student Teaching Practicum and Art Education Student Teaching Practicum	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 8 credits in Art at the 300 or 400 level 8

Select 6 credits in Art History at the 300 or 400 level 6

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or

within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Learning Outcomes

- Be prepared as knowledgeable, skilled, and caring professional art educators;
- Generate and disseminate knowledge that leads to new pedagogical understandings, on which more effective policies and practices can be grounded;
- Collaborate across disciplines, professions, and constituencies to promote social change that leads to educational improvements;
- Acquire and apply knowledge of contemporary art and learning theory, and the use of instructional technologies grounded in historical and cultural understandings;
- Possess individual skills and dispositions that distinguish them as well prepared, curious, and responsive educators capable of continuing to pursue study in graduate education.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Art Education, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If**

report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
AED 101S (GA; IL) ^{*#†}	3 AED 211 [*]	3
ART 11 (First Year Seminar) [*]	1 ART 111 ^{*#}	3
ART 110 ^{*#}	3 ARTH 112 (GA) ^{*#†}	3
ARTH 111 ^{*#}	3 PSYCH 100 (GS) ^{*#†}	3
ENGL 15, 15A, or 30H (GWS) ^{†#}	3 General Education Course (GQ) ^{†#}	3
General Education Course (GQ) ^{†#}	3	
	16	15

Second Year

Fall	Credits Spring	Credits
AED 225 (US) [*]	3 APLNG 200, 210, or CI 280 (GH) ^{*†}	3
EDPSY 14 (GS) ^{*#}	3 ART 122Y (W) ^{*#}	3
Additional Course for Major (see list) ^{*1}	3 Additional Course for Major (see list) ^{*1}	3
Additional Course for Major, Literature for General Education (GH) ^{*#†1}	3 General Education Course	3
General Education Course	3 Supporting Course, 300/400-level Art History ^{*2}	3
	15	15

Third Year

Fall	Credits Spring	Credits
AED 322 (Fall Only) [*]	3 AED 401 (Spring Only) [*]	3
ENGL 202A, 202B, 202C, or 202D (GWS) [†]	3 SPLED 400 [*]	4
Additional Course for Major (see list) ^{*1}	3 Additional Course for Major (see list) ^{*1}	3
General Education Course	3 General Education Course	3
Supporting Course, 300/400-level Art History ^{*2}	3 Supporting Course, 300/400-level Art ^{*2}	4
	15	17

Fourth Year

Fall	Credits Spring	Credits
AED 489 (Fall Only) [*]	4 AED 495A or 495C [*]	7
CAS 100A, 100B, or 100C (GWS) [†]	3 AED 495B or 495D [*]	8
SPLED 403B [*]	3	
Supporting Course, 300/400-level Art ^{*2}	4	
	14	15

Total Credits 122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ **ADDITIONAL COURSES** (33 credits)

- Select 12 credits at the beginning level from DART 202(3), DART 206(3), ART 211 US(3), ART 220(3), ART 223(3), ART 230(3), ART 240(3), ART 250(3), ART 260(3), ART 280(3), ART 296(3), ART 297(3), ART 299 IL(3), PHOTO 100 GA(3); PHOTO 101 GA(3); PHOTO 200(3); PHOTO 201/ARTH 250(3) or PHOTO 202(3) (Sem: 3-8)
- Select 3 credits from APLNG 200 GH;IL(3) or APLNG 210 GH;IL(3) or CI 280 GH(3) (Sem: 1-6)
- AED 495A(7) and AED 495B(8); or AED 495C(7) and AED 495D(8) (Sem: 8)

² SUPPORTING COURSES AND RELATED AREAS (14 credits)

- Select 8 credits in Art at the 300 or 400 level (Sem: 3-8)
- Select 6 credits in Art History at the 300 or 400 level (Sem: 3-8)

Entrance to Major

All candidates seeking entrance to Art Education must meet the following entrance to major criteria:

- Minimum 3.00 cumulative GPA and at least 48 credits completed (at the time of application).
- Meet ETS PRAXIS Core Academic Skills for Educators (CORE) Reading Module current qualifying scores.
- Meet ETS PRAXIS Core Academic Skills for Educators (CORE) Writing Module current qualifying scores.
- Meet ETS PRAXIS Core Academic Skills for Educators (CORE) Mathematics Module current qualifying scores.
- Complete 6 credits in Quantification (GQ) with a C or higher
- Complete ENGL 15 or 30 with a C or higher
- Complete 3 credits in literature (GH) (C or higher required)
- Complete AED 101S, as well as any required early- and middle-level field experience (C or higher required)
- Complete education foundation courses: EDPSY 14, PSYCH 100 (C or higher required)
- Complete art studio & art history foundations: ART 110, 111, 122, ARTH 111, 112 (C or higher required)
- Complete and document a minimum of 40 hours of paid or volunteer work with age appropriate population (PreK-12). At least 20 of these age-appropriate 40 hours need to be satisfied by working with "under-represented" learners whose cultural, social, or ethnic backgrounds differ from the candidate's own.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education

requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Career Paths

The Art Education program prepares you to become a knowledgeable, skilled, and caring professional art educator, capable of making a difference in the lives of those you have the privilege to teach. In building on your inherent creative and critical capacities as an artist, you have at your disposal a wealth of skills in working with materials and media, accessing multiple visual languages of communication, and challenging what we know about human potential, all of which contribute to your success as an educational leader. Helping others to learn has forever been a basic human activity, and your future in art teaching is assured.

Careers

Early in your experience in the Art Education program, you become involved in a variety of observational and participatory experiences in different art learning settings that culminates in an extensive pre-practice internship in schools. Therefore, you learn on the job. This establishes a core characteristic of art teaching, which is that art teachers never retire because there is always another way to express and respond to everyday experiences, and it's worth sharing. Many of our strongest majors also complete B.F.A. degrees in studio art. Others complete dual degrees or minors in Special Education or other areas likely to increase their marketability.

Opportunities for Graduate Studies

You are encouraged to extend your academic and professional opportunities while completing your degree. Upon completion, you are prepared for a career as an educator in elementary, middle, and high schools, as well as visual arts educators in museums and community settings. In addition, our students are prepared to enroll in graduate studies to become college and university professors, researchers, and scholars. You are strongly encouraged to join professional networks such as the Pennsylvania Art Education Association (PAEA) and the National Art Education Association (NAEA).

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://arts.psu.edu/degree-programs/graduate-degree-programs/>)

Professional Societies

- College Art Association (<https://www.collegeart.org>)
- National Art Education Association (<https://www.arteducators.org>)
- National Council of Art Administrators (<https://www.ncaaarts.org/>)
- Pennsylvania Art Education Association (<https://sites.google.com/paea.org/paea/home/>)

Accreditation

- National Association of Schools of Art and Design (NASAD)
- National Council for Accreditation of Teacher Education (NCATE)
- Middle States Association (MSCHE)

MORE INFORMATION ABOUT THE SCHOOL OF VISUAL ARTS ACCREDITATIONS (<https://arts.psu.edu/degree-programs/accreditation/>)

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the

Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

University Park

SCHOOL OF VISUAL ARTS
210 Patterson Building
University Park, PA 16802
814-865-0444
AAUG@psu.edu

<https://arts.psu.edu/academics/school-of-visual-arts/>

Art History, B.A.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The art history major is designed to provide students with a dynamic and comprehensive education in the history of art. The histories of diverse forms of visual culture - including painting, sculpture, architecture, design, the graphic arts, and the decorative arts - are examined in relation to their social and cultural contexts. Students who pursue the Bachelor of Arts in art history will acquire a thorough humanistic education that involves writing, speaking, and participating in group discussions, as well as developing a facility in at least one world language. Majors are also encouraged to pursue a study abroad experience.

The major provides students with an excellent liberal arts background and prepares them for a range of career paths as well as for graduate study in art history. With a B.A. in art history, graduates have found employment in museums, galleries, publishing, arts agencies, visual resources, archives/libraries, archaeology, historic preservation, and historic sites. Teaching at the college level or working in a museum (as a curator, educator, director, etc.) typically require graduate degrees.

What is Art History?

Art history is the exploration of art and architecture from pre-historic to contemporary times, in Europe, the Americas, Asia, Africa, and Oceania. It's museum studies, historiography, iconography, art criticism, connoisseurship, and research. It's studying aesthetics, and the context, form, and social significance of art throughout time and place. Art history relates visual images back to questions of religion, politics, society, gender, economics, philosophy, and culture.

You Might Like this Program If...

- Art, architecture, and/or other visual material makes your mind light up with questions such as "Who? Where? When? Why? How?"
- If you are excited by the possibility of making a career out working with significant cultural objects and applying your critical insight.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and

2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Art History, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	18
Bachelor of Arts Degree Requirements	24
Requirements for the Major	36

3 of the 45 credits for General Education are included in the Requirements for the Major. This includes 3 credits of GA courses.

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ARTH 350W	Undergraduate Seminar in the History of Art	3
Additional Courses ¹		
<i>Additional Courses: Require a grade of C or better</i>		
Select 9 credits from the following (These nine credits must include one course in Western art and one course in non-Western art. ARTH 100 and ARTH 107N do not count for either the Western or non-Western requirement):		
ARTH 100	Introduction to Art	
ARTH 105N	Pictures and Power	
ARTH/GEOSC 107N	Rocks, Minerals, and the History of Art	
ARTH 111	Ancient to Medieval Art	
ARTH 111U	Ancient to Medieval Art	
ARTH 111Z		
ARTH 112	Renaissance to Modern Art	
ARTH 112U	Renaissance to Modern Art	
ARTH 120	Asian Art and Architecture	
ARTH 120Z		
ARTH 130	Art of Africa, Oceania, and the Americas	
ARTH 140	Introduction to the Art and Architecture of the Mayas, Aztecs, and Incas	
ARTH 201	Ancient to Medieval Architecture	

ARTH 202N	Renaissance to Modern Architecture	
ARTH 220Z		
Supporting Courses and Related Areas ^{1,2}		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 3 credits in studio art (0-499 level) ³		3
Select 9 credits of ARTH geographical distribution with one course from three of the following four geographic categories: chosen in consultation with the department or faculty adviser. ⁴		9
1) Africa and the Middle East		
ARTH 125	Islamic Architecture and Art	
ARTH 130	Art of Africa, Oceania, and the Americas	
ARTH 301	Egyptian and Mesopotamian Art	
ARTH 335	African Art	
ARTH 442	Late Antique and Early Christian Art	
ARTH/AFR 446	Topics in African Art	
ARTH/AFR 447	Topics in the Art of the African Diaspora	
2) The Americas		
ARTH 130	Art of Africa, Oceania, and the Americas	
ARTH 140	Introduction to the Art and Architecture of the Mayas, Aztecs, and Incas	
ARTH 226	The Comic Book: A History of Sequential Art	
ARTH/AMST 307N	American Art and Society	
ARTH/AMST 308N	American Architecture	
ARTH 326	Art Since 1940	
ARTH 405	Pioneers of Modern Architecture	
ARTH 415	The Skyscraper	
ARTH 416	Studies in American Art	
ARTH 460	Art and Empire: Aztec, Inca and Spanish	
ARTH 462	Studies in Latin American Art	
ARTH 470	Contemporary Art	
3) Asia and the Pacific		
ARTH 120	Asian Art and Architecture	
ARTH 120Z		
ARTH 130	Art of Africa, Oceania, and the Americas	
ARTH/ASIA 215	Architecture and Art of South and Southeast Asia	
ARTH 220	Chinese Art	
ARTH 220Z		
ARTH/ASIA 440	Monuments of Asia	
ARTH 445	Oceanic Art	
ARTH 470	Contemporary Art	
4) Europe and the Mediterranean		
ARTH 111	Ancient to Medieval Art	
ARTH 111U	Ancient to Medieval Art	
ARTH 112	Renaissance to Modern Art	
ARTH 112U	Renaissance to Modern Art	
ARTH 201	Ancient to Medieval Architecture	
ARTH 202N	Renaissance to Modern Architecture	
ARTH 204	The Art of Marvel: Italy and Spain 1600 - 1750	

ARTH/ENGL/WMNST 225N	Sexuality and Modern Visual Culture	
ARTH 226	The Comic Book: A History of Sequential Art	
ARTH 250/PHOTO 201	A Chronological Survey of Photography	
ARTH 301	Egyptian and Mesopotamian Art	
ARTH 302	Pagans and Christians: Encounters in Early Medieval Art	
ARTH 303	Italian Renaissance Art	
ARTH 305	Romanticism and Revolution	
ARTH 311	Greek and Roman Art	
ARTH 312	Romanesque and Gothic Art	
ARTH 313	Northern Renaissance Art	
ARTH 314	Art in the Age of Rembrandt	
ARTH 325	Impressionism to Surrealism	
ARTH 326	Art Since 1940	
ARTH 401	Greek Art and Architecture	
ARTH 402	The Illuminated Manuscript	
ARTH 405	Pioneers of Modern Architecture	
ARTH 410	Taste and Criticism in Art	
ARTH 411	Roman Art	
ARTH 412	The Gothic Cathedral	
ARTH 413	Architecture of the Medieval Monastery	
ARTH 420	Russian Architecture	
ARTH 422	Studies in Medieval Sculpture	
ARTH 423	Studies in Italian Renaissance Art	
ARTH 426	Iconoclasm: Powerful Images and their Destruction	
ARTH 429	Studies in Baroque Art	
ARTH 435	Studies in Modern Art	
ARTH 442	Late Antique and Early Christian Art	
ARTH 450	The History of Photography	
ARTH 456	Renaissance and Baroque Palaces	
ARTH 458	The City 1600-1800	
ARTH 464	French Art and Architecture, 1589	
ARTH 470	Contemporary Art	
ARTH 475	Contemporary Women Artists	
Select 12 credits of electives in ARTH		12

¹ 3 credits of major Additional or Supporting Courses must include Architectural History. Architectural history courses may be taken in satisfaction of any of the Additional, Supporting, or Elective requirements.

² At least 12 credits of Supporting Courses must be taken at the 400 level or higher.

At least 3 credits of Supporting Courses must be in Prehistoric-1600.

³ GA double count. Prerequisites for studio art classes may apply.

⁴ Courses that address multiple geographies may count for any one requirement from the geographic categories.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing

intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Learning Outcomes

Art History teaches deep looking and analysis. It therefore develops the sort of visual literacy essential in today's world. The major also sharpens writing and verbal communication skills, and improves critical thinking.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Mary Sergeant

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Art History, B.A. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ARTH 1S (Art History Support Elective/FYS) * ³	3 Additional Course * ¹	3
Additional Course * ¹	3 Foreign Language	4
ENGL 15, 15A, or 30H [†]	3 General Education Course	3
Foreign Language	4 General Education Course	3
GQ [#]	3 General Education Course	3
	16	16

Second Year

Fall	Credits Spring	Credits
Additional Course * ¹	3 Support Course Geographic Area * ²	3
Studio Art (GA) * ^{†4}	3 Support Course Art History Elective * ³	3
Foreign Language	4 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course	3 CAS 100 [#]	3
	16	15

Third Year

Fall	Credits Spring	Credits
Support Course Geographic Area * ²	3 ARTH 350W * ¹	3
Support Course Art History Elective * ³	3 B.A. Knowledge Domain (US)	3
General Education Course	3 B.A. Knowledge Domain	3
GQ [#]	3 World Cultures	3
B.A. Knowledge Domain (IL)	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
Support Course Art History Elective * ³	3 Support Course Geographic Area * ²	3
ENGL 202 [#]	3 Elective	3
General Education Course	3 Elective	3
Elective	3 Elective	3

Elective	3	
	15	12

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Additional Courses - Select nine credits from the following list; ARTH 100, ARTH 105N, ARTH 107N, ARTH 111, ARTH 111U, ARTH 111H, ARTH 112, ARTH 112U, ARTH 120, ARTH 120Z, ARTH 130, ARTH 140, ARTH 201, ARTH 202N. These nine credits must include one course in Western art and one course in non-Western art. ARTH 100 and ARTH 107N do not count for either the Western or non-Western requirement.

² Supporting Courses - Select 9 credits of ARTH geographical distribution with one course from three of the following four geographic categories: Chose in consultation with the department or faculty adviser: 1) Africa and the Middle East, 2) The Americas, 3) Asia and the Pacific, 4) Europe and the Mediterranean. Courses that address multiple geographies may count for any one requirement from the geographic categories.

³ Supporting Courses – Select 12 credits in Art History Electives

⁴ Select 3 credits in studio art (0-499 level), Prerequisites for studio art classes may apply

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures.

See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Advising Notes:

- 3 credits of major Additional or Supporting Courses must include Architectural History. Architectural history courses may be taken in satisfaction of any of the Additional, Supporting, or Elective requirements.
- At least 12 credits of Supporting Courses must be taken at the 400 level or higher; ARTH 495 may not be used to satisfy this requirement.
- At least 3 credits of Supporting Courses must be in Prehistoric-1600.

Career Paths

Art history provides students with a solid background in the liberal arts, as well as a strong foundation in the history of painting, sculpture, architecture, design, and the graphic arts. It opens the door for numerous careers, and is an excellent first step toward pursuing advanced degrees in art history.

Careers

Graduates of the art history program have found employment in museums, galleries, publishing, arts agencies, visual resources, archives and libraries, archaeology, historic preservation, and historic sites.

Opportunities for Graduate Studies

The two most common careers for art historians are teaching at the college level, or working in a museum as a curator, registrar, or director (among other possibilities). These careers typically require a graduate degree, and the B.A. in art history is the perfect foundation for graduate study in the field.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://arts.psu.edu/degree-programs/graduate-degree-programs/>)

Contact

University Park

DEPARTMENT OF ART HISTORY
210 Patterson Building
University Park, PA 16802
814-865-0444
exn30@psu.edu

<https://arts.psu.edu/academics/department-of-art-history/>

Art History, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Art History minor is designed to provide students with a broad introduction to the history of art that will complement major studies in the arts, humanities, social sciences and sciences. The histories of diverse forms of visual culture—including painting, sculpture, architecture, landscape architecture, design, the graphic arts, and the decorative arts—are introduced in relation to their social and cultural contexts. A minor in Art History is especially relevant for students pursuing art education, history, anthropology, archaeology, classics, English, world

language/literature, cultural studies, international business, and arts administration. Students majoring in Art History cannot take this minor.

What is Art History?

Art history is the exploration of art and architecture from pre-historic to contemporary times, in Europe, the Americas, Asia, Africa, and Oceania. It's museum studies, historiography, iconography, art criticism, connoisseurship, and research. It's studying aesthetics, and the context, form, and social significance of art throughout time and place. Art history relates visual images back to questions of religion, politics, society, gender, economics, philosophy, and culture.

You Might Like This Program If...

- You are fascinated by art, architecture, and visual materials from prehistoric times to the present.
- Visual images make your mind light up with a hundred questions that all relate to "Who? Where? When? How?"

If you can't wait to get to the business of answering these questions, then art history might be the minor for you!

Program Requirements

Requirement	Credits
Requirements for the Minor	21

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 9 credits from the following: ¹		9
ARTH 100	Introduction to Art	
ARTH 105N	Pictures and Power	
ARTH/GEOSC 107N	Rocks, Minerals, and the History of Art	
ARTH 111	Ancient to Medieval Art	
ARTH 111U	Ancient to Medieval Art	
ARTH 111Z		
ARTH 112	Renaissance to Modern Art	
ARTH 112U	Renaissance to Modern Art	
ARTH 120	Asian Art and Architecture	
ARTH 120Z		
ARTH 130	Art of Africa, Oceania, and the Americas	
ARTH 140	Introduction to the Art and Architecture of the Mayas, Aztecs, and Incas	

Supporting Courses and Related Areas

<i>Supporting Courses and Related Areas: Require a grade of C or better</i>	
Select 6 credits of 1 to 400-level ARTH courses, except ARTH 100	6
Select 6 credits of 400-level ARTH courses; ARTH 495 may not be used to satisfy this requirement.	6

Note: Students are encouraged to use these supporting courses to focus their studies in one or two areas of art history and should discuss these course selections with an Art History faculty member.

¹ These 9 credits must include one course in Western art and one course in non-Western art. ARTH 100 and ARTH 107N do not count for either the Western or non-Western requirement.

Learning Outcomes

Art History teaches deep looking and analysis. It therefore develops the sort of visual literacy essential in today's world. The major also sharpens writing and verbal communication skills, and improves critical thinking.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Abington

Yvonne Love

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Career Paths

Art history provides students with a solid background in the liberal arts, as well as a strong foundation in the history of painting, sculpture, architecture, design, and the graphic arts. It opens the door for numerous careers, and is an excellent first step toward pursuing advanced degrees in art history.

Careers

Art history students have found employment in museums, galleries, publishing, arts agencies, visual resources, archives and libraries, archaeology, historic preservation, and historic sites.

Opportunities for Graduate Studies

The two most common careers for art historians are teaching at the college level, or working in a museum as a curator, registrar, or director (among other possibilities). These careers typically require a graduate degree.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://arts.psu.edu/degree-programs/graduate-degree-programs/>)

Contact

University Park

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240 Borland Building
University Park, PA 16802
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<https://arts.psu.edu/academics/department-of-art-history/>

Abington

DIVISION OF ARTS AND HUMANITIES
1600 Woodland Road
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215-881-7867
ymm1@psu.edu

Art, B.A. (Arts and Architecture)

Begin Campus: University Park

End Campus: University Park

Program Description

The B.A. degree in art provides a comprehensive liberal education coupled with professional resident instruction in art. Depending on each student's objectives and course choices, this degree provides preparation for a professional career, a foundation for graduate studies, or a liberal arts education in art. Each student must elect an area of concentration from one of the following: ceramics, drawing and painting, new media, photography, printmaking, or sculpture.

What is Art?

Art is an individual and social practice that makes an impact. When people create or respond to art, they make connections between themselves and the experiences of others. In some cases, art provides a private encounter whereby individual thoughts and feelings are expressed through art, or recognized in the art of someone else. In other cases, art gives form to ideas and issues that concern entire communities. It is because art extends personal and public awareness that it is highly valued as a cultural activity. Those who make art and write about art offer imaginative insights that challenge us to see things differently. By creating artworks yourself, and enhancing your capacity to interpret artworks made by other individuals, communities, and cultures, you contribute to one of the most important purposes of art, which is to celebrate this unique human form of social communication that shapes the way we see ourselves.

You Might Like this Program If...

You are excited and challenged by the diverse and profound impact art and culture can have in the everyday life of individuals and communities.

Art and culture 'workers' take on many creative roles in everyday life and respond imaginatively to the continuous rush of social and cultural change around them by exploring issues, and expressing and communicating ideas using all forms of image, text, and social media.

Entrance Procedures

Incoming First Year Students

Incoming first year students must apply to Penn State. Students who are accepted will be admitted to the School of Visual Arts pre-major (AAART) with the intended major of Art, BA. Students will submit a portfolio for entrance to Art at the end of their second semester. Portfolios are reviewed on a rolling basis and should include 10-12 images of the applicant's work and a statement (500-word max) to describe one of the artworks.

Change of Major

Change of major students must have a cumulative GPA of 2.00 or above to move to AAART pre-major. No portfolio is required. After successfully completing ART 110 and ART 111 and over 29.1 credits, a student can declare ART, BA.

Change of Campus Students

Students interested in pursuing ART (B.A.) should follow the appropriate change of major or transfer application instructions found under Visual Arts at <https://arts.psu.edu/how-to-apply/#specific>.

Transfer Students

Students interested in pursuing ART (B.A.) should follow the appropriate change of major or transfer application instructions found under Visual Arts at <https://arts.psu.edu/how-to-apply/#specific>.

Degree Requirements

For the Bachelor of Arts degree in Art, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	5
Bachelor of Arts Degree Requirements	24
Requirements for the Major	52

6 of the 45 credits for General Education are included in the Requirements for the Major. This includes 6 credits of General Education GA courses.

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ART 11	First-Year Seminar- School of Visual Arts	1
ART 110	Ideas as Visual Images	3
ART 111	Ideas as Objects	3
ART 122Y	Commentary on Art	3
ARTH 111	Ancient to Medieval Art ¹	3
ARTH 112	Renaissance to Modern Art ¹	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 15 credits of the following:		15
ART 211	Introduction to Digital Art and Design Criticism	
ART 220	Figure Drawing	
ART 223	Drawing: Techniques, Materials, and Tools	
ART 230	Beginning Sculpture	
ART 240	Beginning Printmaking	
ART 250	Beginning Oil Painting	
ART 260	Water Media	
ART 280	Beginning Ceramics	
ART 296	Independent Studies (3 credits)	
ART 297	Special Topics (3 credits)	
ART 299	Foreign Study--Art (3 credits)	
DART 202	2D Digital Art & Computer Graphics	
DART 206	Web Design and Visual Web Development	
PHOTO 100	Introduction to Photography	
PHOTO 201	A Chronological Survey of Photography	
Supporting Courses and Related Areas ²		
Select 6 credits in art history		6
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 15 credits from one of the following areas of concentration:		15
ceramics, drawing and painting, new media, photography, printmaking, and sculpture		

¹ These credits may also be counted toward the General Education Arts requirement.

² Include at least 15 credits at the 300 or 400 level.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or

within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Learning Outcomes

- Receive a comprehensive liberal arts education that provides multiple learning options to support individual learning programs;
- Complete a series of resident studio art courses that provide a foundation visual language;
- Select an area of studio concentration that complements personal learning passions and proclivities;
- Develop core art skills, artistic knowledge and material thinking processes able to be applied to learning situations across disciplines.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Art, B.A. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
ART 11 (First Year Seminar)*	1	ART 111*	3
ART 110*	3	ART 122Y (W; US)*	3
ARTH 111 (GA; IL)**†	3	ARTH 112 (GA; IL)**†	3
ENGL 15, 15A, or 30H (GWS)‡	3	Foreign Language	4
General Education Course	3	General Education Course (GQ)‡	3
Foreign Language	4		
	17		16

Second Year

Fall	Credits	Spring	Credits
Additional Course for Major (see list)* ¹	3	Additional Course for Major (see list)* ¹	3
Additional Course for Major (see list)* ¹	3	Additional Course for Major (see list)* ¹	3
Foreign Language	4	General Education Course	3
General Education Course (GQ)‡	3	General Education Course	3
Supporting Course from Art History* ²	3	General Education Course	3
	16		15

Third Year

Fall	Credits	Spring	Credits
CAS 100A, 100B, or 100C (GWS)‡	3	ENGL 202A, 202B, 202C, or 202D (GWS)‡	3
Additional Course for Major (see list)* ¹	3	General Education Course	3
BA Knowledge Domain Course	3	Supporting Course for Concentration* ²	4
General Education Course	3	Supporting Course for Concentration* ²	3

Supporting Course from Art History* ²	3		
	15		13
Fourth Year			
Fall	Credits	Spring	Credits
BA Knowledge Domain	3	Elective Course	2
General Education Course	3	Elective Course	3
General Education Course	3	BA Knowledge Domain Course	3
World Cultures Course	3	Supporting Course for Concentration* ²	4
Supporting Course for Concentration* ²	4		
	16		12

Total Credits 120

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ ADDITIONAL COURSES (15 credits)

Select 15 credits from ART 201(3), ART 203(3), ART 211 US(3), ART 217(3), ART 220(3), ART 223(3), ART 230(3), ART 240(3), ART 250(3), ART 251(3), ART 260(3), ART 280(3), ART 296(3), ART 297(3), ART 299 IL(3), PHOTO 100 GA(3), or PHOTO 201(3) (Sem: 3-8)

² SUPPORTING COURSES AND RELATED AREAS (21 credits)

(Include at least 15 credits at the 300 or 400 level.)

- Select 15 credits from one of the following areas of concentration: ceramics, drawing and painting, new media, photography, printmaking, and sculpture (Sem: 3-8)
- Select 6 credits in art history (Sem: 1-8)

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Career Paths

As a B.A. graduate with a broad interest in the individual and collective power of the arts to enrich human understanding, you have artistic skills and critical sensibilities that can become life-long assets. Just as art can awaken us to new experience, exploring new ways to integrate knowledge from diverse sources helps make these experiences concrete and alerts us to noticing things not otherwise obvious. Broadening learning to embrace studio-based practices of making and critical reflection opens up options for linking personal and professional career interests, and these can have an enduring impact on what and how one learns.

Careers

The B.A. experience collects and collates many different modalities of thinking and knowing, re-positions them around what we know, and helps us see gaps and what we don't know. The B.A. art experience takes these familiar and new understandings and provides an environment for helping you to discover your personal voice in the work you create. Contemporary studio art practice embraces any conceptually appropriate material and method that best articulates your artistic intention. In addition, professional practice opportunities are embedded into the program that can lead to future accomplishments after school.

Opportunities for Graduate Studies

Due to the emphasis put on developing your personal vision and distinctive artistic voice, a B.A. art graduate will have a heightened sense of individual perspective and an understanding of multiple ways of engaging with ideas, and these dispositions become foundational skills in assessing future educational and professional directions.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://arts.psu.edu/degrees/mfa-art/>)

Professional Resources

- College Art Association (<https://www.collegeart.org/>)
- National Art Education Association (<https://www.arteducators.org>)
- National Council of Art Administration (<https://www.ncaarts.org/>)
- Pennsylvania Art Education Association (<https://sites.google.com/paea.org/paea/home/>)

Contact

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<https://www.abington.psu.edu/academics/majors-at-abington/art>
(<https://www.abington.psu.edu/academics/majors-at-abington/art/>)

Art, B.F.A.

Begin Campus: University Park

End Campus: University Park

Program Description

The Bachelor of Fine Arts degree requires thorough preparation and is intended to develop a level of competence that will enable persons who wish to pursue professional careers in art to prepare themselves for specialized graduate studies, specialized professional training, and/or immediate participation in creative work.

Students enrolled in the School of Visual Arts may seek entrance into the B.F.A. program no earlier than the second semester and no later than the fourth semester.

There will be a continuous review of portfolio and performance of students enrolled in the B.F.A. program throughout the entire program. Students who do not meet the standards or who do not want to continue in the B.F.A. program may return to the B.A. program in art or choose another program of study.

What is Art?

Art is an individual and social practice that makes an impact. When people create or respond to art, they make connections between themselves and the experiences of others. In some cases, art provides a private encounter whereby individual thoughts and feelings are expressed through art, or recognized in the art of someone else. In other cases, art gives form to ideas and issues that concern entire communities. It is because art extends personal and public awareness that it is highly valued as a cultural activity. Those who make art and write about art offer imaginative insights that challenge us to see things differently. By creating artworks yourself, and enhancing your capacity to interpret artworks made by other individuals, communities, and cultures, you contribute to one of the most important purposes of art, which is to celebrate this unique human form of social communication that shapes the way we see ourselves.

You Might Like this Program If...

- You believe art may not be able to change the world, but it can change someone who can
- Artists are creative and critical thinkers and makers who shape our awareness about what is possible and, in doing so, change the way we see, experience, and understand things
- If you are a visual thinker who works with your hands, heart, and head, you too can change the world

Entrance Procedures

Incoming First Year Students

Incoming first year students must apply to Penn State. Students who are accepted will be admitted to the School of Visual Arts pre-major (AAART) with the intended major of Art, B.F.A. Students will typically submit a portfolio for entrance to Art (B.F.A.) at the end of their 3rd or 4th semester.

Change of Campus Students

Students interested in pursuing ART (B.F.A.) should follow the appropriate change of major or transfer application instructions found under Visual Arts at <https://arts.psu.edu/how-to-apply/#specific>.

Transfer Students

Students interested in pursuing ART (B.F.A.) should follow the appropriate change of major or transfer application instructions found under Visual Arts at <https://arts.psu.edu/how-to-apply/#specific>.

Degree Requirements

For the Bachelor of Fine Arts degree in Art, a minimum of 123 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	84

6 of the 45 credits for General Education are included in the Requirements for the Major. This includes 6 credits of General Education GA courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ART 11	First-Year Seminar- School of Visual Arts	1
ART 110	Ideas as Visual Images	3
ART 111	Ideas as Objects	3
ART 122Y	Commentary on Art	3
ARTH 111	Ancient to Medieval Art	3
ARTH 112	Renaissance to Modern Art	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 15 credits at the beginning level from the following:		15
ART 201		
ART 203		
ART 211	Introduction to Digital Art and Design Criticism	
ART 220	Figure Drawing	
ART 223	Drawing: Techniques, Materials, and Tools	
ART 230	Beginning Sculpture	
ART 240	Beginning Printmaking	
ART 250	Beginning Oil Painting	

ART 280	Beginning Ceramics	
ART 296	Independent Studies	
ART 297	Special Topics	
ART 299	Foreign Study--Art	
PHOTO 100	Introduction to Photography	
PHOTO 201	A Chronological Survey of Photography	
Supporting Courses and Related Areas		
Select 6 credits in art history		6
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 47 credits in Art at the 300 or 400 level ¹		47

¹ 24 of these 47 credits must be in an area of concentration from the following:

- Ceramics
- Drawing and Painting
- New Media
- Photography
- Printmaking
- Sculpture

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the

requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Learning Outcomes

- Achieve the conceptual and technical knowhow evident in a developed body of work that demonstrates personal commitment, aesthetic intent, and a clear notion of an artistic voice;
- Apply a level of competence in the pursuit of a professional career in art and cultural production;
- Be prepared for specialized graduate studies in visual arts and design;
- Participate in a comprehensive program of discourse of art theory and criticism, direct engagement with contemporary artists, and the ongoing production of exhibitions;
- Demonstrate a capacity to use and apply art skills, artistic knowledge and material thinking processes able to be applied to learning situations across disciplines.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Art, B.F.A. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ART 11 (First Year Seminar)*	1 ART 111*	3
ART 110*	3 ART 122Y (W; US)*	3
ARTH 111 (GA; IL)**†	3 ARTH 112 (GA)**†	3
ENGL 15, 15A, or 30H (GWS)†	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course	3	
	16	15

Second Year

Fall	Credits Spring	Credits
CAS 100A, 100B, or 100C (GWS)†	3 Additional Course, 200-level Studio (see list)* ¹	3
Additional Course, 200-level Studio (see list)* ¹	3 Additional Course, 200-level Studio (see list)* ¹	3

Additional Course, 200-level Studio (see list) ^{*1}	3 General Education Course	3
General Education Course	3 General Education Course	3
Supporting Course from Art History ²	3 Supporting Course from Art History ²	3
15		15

Third Year

Fall	Credits Spring	Credits
Additional Course, 200-level Studio (see list) ^{*1}	3 General Education Course	3
General Education Course	3 General Education Course (GHW)	1.5
General Education Course (GHW)	1.5 Supporting Course for Concentration, 300/400-level Studio ^{*2}	4
Supporting Course for Concentration, 300/400-level Studio ^{*2}	4 Supporting Course for Major, 300/400-level Studio ^{*2}	3
Supporting Course for Major, 300/400-level Studio ^{*2}	4 Supporting Course for Major, 300/400-level Studio ^{*2}	4
15.5		15.5

Fourth Year

Fall	Credits Spring	Credits
ENGL 202A, 202B, 202C, or 202D (GWS) [‡]	3 Supporting Course for Concentration, 300/400-level Studio ^{*2}	4
Supporting Course for Concentration, 300/400-level Studio ^{*2}	4 Supporting Course for Concentration, 300/400-level Studio ^{*2}	4
Supporting Course for Concentration, 300/400-level Studio ^{*2}	4 Supporting Course for Major, 300/400-level Studio ^{*2}	4
Supporting Course for Major, 300/400-level Studio ^{*2}	4 Supporting Course for Major, 300/400-level Studio ^{*2}	4
15		16

Total Credits 123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ ADDITIONAL COURSES (15 credits)

Select 15 credits at the beginning level from ART 201(3), ART 203(3), ART 211 US(3), ART 217(3), ART 220(3), ART 223(3), ART 230(3), ART 240(3), ART 250(3), ART 280(3), ART 296(3), ART 297(3), ART 299(3), PHOTO 100 GA(3), or PHOTO 201(3) (Sem: 3-8)

² SUPPORTING COURSES AND RELATED AREAS (53 credits)

-Select 47 credits in Art at the 300 or 400 level, 24 of which must be in an area of concentration from the following: ceramics, drawing and painting, new media, photography, printmaking, or sculpture (Sem: 3-8)
-Select 6 credits in art history (Sem: 3-8)

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Program notes:

Students enrolled in the School of Visual Arts may seek entrance into the B.F.A. program no earlier than the second semester and no later than the fourth semester.

There will be a continuous review of portfolio and performance of students enrolled in the B.F.A. program throughout the entire program. Students who do not meet the standards or who do not want to continue in the B.F.A. program may return to the B.A. program in art or choose another program of study.

Career Paths

An art major is a life-long learner who is forever curious and captivated by the personal journey of everyday life. As you hone your artistic dispositions with working techniques and practical studio skills you establish your own artistic vision and voice. We help you foster dialogue among peers about the place of art in society and how you participate and contribute to these changing debates. As you deepen your understanding of your own potential as an artist within a challenging and quickly evolving world you become equipped with the means necessary to embark upon a career in the visual arts.

Careers

An art major possesses very distinctive human attributes, which is a creative capacity to readily adapt to change, a resilient ability to make do with limited resources, and an inventive desire to seek alternative solutions in times of challenge. This independence is powered by a sense of intrinsic motivation and confidence that anything is possible. These creative capabilities are applied by artists in extraordinarily diverse professional activities, occupations, and careers. Although there are many BFA graduates who achieve professional success as artists in their area of specialty, most 'creatives' will use their artistic skills in innumerable ways their entire lives.

Opportunities for Graduate Studies

As a BFA graduate you have achieved a level of competence that grounds your creative and critical capabilities, which enables you to pursue a range of professional options in visual arts and related fields. As a creative artist with a distinctive practice and specialized expertise in

art media of your choosing, you are informed and prepared to negotiate the different forms of professional participation in the art world that can be built around artist residencies, sustained studio practice, and gallery work. You will also have a body of work that will ensure you can prepare a competitive portfolio for application to graduate school.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://arts.psu.edu/degrees/mfa-art/>)

Professional Resources

- College Art Association (<https://www.collegeart.org>)
- National Art Education Association (<https://www.arteducators.org>)
- National Council of Art Administrators (<https://www.ncaaarts.org/>)
- Pennsylvania Art Education Association (<https://sites.google.com/paea.org/paea/home/>)

Contact

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210 Patterson Building
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<https://arts.psu.edu/academics/school-of-visual-arts/>

Art, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The B.A. degree in art provides a comprehensive liberal education coupled with professional resident instruction in art. Students electing to take the Art Minor will gain access to skills and knowledge to enable them to understand and integrate a range of art and design methods and content to broader academic interests. Students completing this minor will find a flexible coursework structure that ensures their objectives and artistic interests are met. Depending on each student's objectives and course choices they may choose courses that provide a foundation for a liberal arts education, preparation for a double major, preliminary stages towards a professional career in visual arts and design, or broad grounding for graduate studies. Each student must elect an area of concentration from one or more of the following: ceramics, drawing and painting, new media, photography, printmaking, or sculpture. The Art Minor enables students to advance and integrate visual arts and design knowledge and skills in a range of areas and is especially appropriate for students with substantial interest in art and design, but who intend to pursue careers in other fields.

What is Art?

Art is an individual and social practice that makes an impact. When people create or respond to art, they make connections between themselves and the experiences of others. In some cases, art provides a private encounter whereby individual thoughts and feelings are expressed through art, or recognized in the art of someone else. In other cases, art gives form to ideas and issues that concern entire communities. It is because art extends personal and public awareness that it is highly

valued as a cultural activity. Those who make art and write about art offer imaginative insights that challenge us to see things differently. By creating artworks yourself, and enhancing your capacity to interpret artworks made by other individuals, communities, and cultures, you contribute to one of the most important purposes of art, which is to celebrate this unique human form of social communication that shapes the way we see ourselves.

You Might Like This Program If...

You are intrigued by not only coming to know different things as you learn, but want to increase your creative capabilities to come to know things differently. Creative thinkers from all areas of knowledge and systems of inquiry have the capacity to explore ideas, seek and solve problems, question answers, and probe issues. Making and understanding visual arts and design helps us to experience difference and appreciate diversity.

Entrance Procedures

For specific information on entrance procedures, please visit the website for the College of Arts and Architecture (<https://arts.psu.edu/how-to-apply/>).

Retention Requirements

Students in the Art Minor are expected to maintain acceptable academic growth as demonstrated by earning of grades of C or higher. Failure to do so is grounds for an academic warning, with clear written strategies and a time frame for the student to return to good standing. Should the student not address the issue, he/she may be advised by faculty to consider a different program or minor.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ART 110	Ideas as Visual Images	3
ART 111	Ideas as Objects	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits of the following:		3
ART 201		
ART 203		
ART 211	Introduction to Digital Art and Design Criticism	
ART 220	Figure Drawing	
ART 223	Drawing: Techniques, Materials, and Tools	
ART 230	Beginning Sculpture	
ART 240	Beginning Printmaking	
ART 250	Beginning Oil Painting	

ART 260	Water Media
ART 280	Beginning Ceramics
ART 290	Beginning Photography
ART 296	Independent Studies
ART 297	Special Topics
ART 299	Foreign Study--Art
ARTH 111	Ancient to Medieval Art
ARTH 112	Renaissance to Modern Art
ARTH 120	Asian Art and Architecture
ARTH 130	Art of Africa, Oceania, and the Americas
ARTH 140	Introduction to the Art and Architecture of the Mayas, Aztecs, and Incas

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Students must take 9 credits within one or more of the following areas of concentration: Ceramics, Drawing and Painting, New Media, Sculpture, Printmaking, or Photography. These 9 credits must include 3 credits at the 300-level and 6 credits at the 400-level.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Abington

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Contact

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<https://arts.psu.edu/academics/school-of-visual-arts/>

Abington

DIVISION OF ARTS AND HUMANITIES

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<https://www.abington.psu.edu/person/william-cromar> (<https://www.abington.psu.edu/person/william-cromar/>)

Digital Arts and Media Design, B.Des.

Begin Campus: University Park

End Campus: University Park

Program Description

The Bachelor of Design (B.Des.) in Digital Arts and Media Design (DART) is a multidisciplinary digital arts and design undergraduate degree in the College of Arts and Architecture's School of Visual Arts. Digital Arts and Media Design approaches design through the lens of the visual arts, as a critical, creative, and experimental studio-based practice. The major prepares students to become leaders in digital media fields where their commanding knowledge of emerging technologies allows them to contribute and innovate in creative media design careers.

Students' progress through a series of core courses in which they develop research, design, and computational skills to enhance their capacity for critical thinking. In addition to these core experiences, students hone creative thinking capabilities in a range of studio-based digital art and design courses. In the final year of study, students work rigorously on a senior thesis project based on topics of personal interests and areas of intensive study in the digital arts. A purpose of the thesis is to prepare students to meet the varying challenges they will face as digital art and design professionals.

Students may choose from one of three primary tracks in the program:

1. **Digital Art and Digital Design Emphasis:** In this track students create individualized 2d-3d digital arts and design learning paths that may include UX/UI design (user experience/user interface), visual concept art and design, 3d modeling and digital fabrication, 2d-3d digital imaging and computer graphics, as well as the most recent emerging forms of digital art and design.
2. **Interactive Media Emphasis:** In this track students create individualized learning paths for interactive media design. Students learn computational skills as visual thinkers, designing increasingly complex interactive experiences individually and in teams. Students take courses in game art, game design, physical computing, mobile and web design, virtual worlds, interactive media design, data visualization and cultural analytics.
3. **Time Based Media Emphasis:** In this track students create individualized learning paths for 2d and 3d time based digital arts and media design including motion graphics, animation, computer graphics and pre-visualization as well as video compositing.

What is Digital Arts and Media Design?

Digital Arts and Media Design uses digital arts technologies in studio-lab settings to challenge young artists and designers to expand their ideas as they explore new languages of visual expression and communication. Following familiar studio ways of thinking and making traditionally associated with practices such as mixing pigments in painting, or shaping clay in ceramics, digital artists manipulate computer software through coding to expand the potential for creating new forms of image making. In an electronic environment, the single work of art may be replaced by multiple copies that are cloned and reworked using a range of image-making systems. Digital artworks may be exhibited in a variety of forms, such as digital prints, computer printouts, or other hard copy formats of any scale where each translation offers different interpretations. Digital art may also be encountered through networks, interactive games, simulations, or as immersive environments that require active participation by a viewer.

You Might Like This Program If...

Your curiosity and creativity is stimulated by thinking visually in computer languages and graphic communication, and you are inspired by the thought that a digital device is a flexible and adaptive 'studio' space where you come up with your best ideas. You will plan and apply your creative design skills in a climate of invention and collaboration in interdisciplinary projects that explore changing visual technologies in art and design.

Entrance Procedures

Incoming First Year Students

Incoming first year students must apply to Penn State. Students who are accepted will be admitted to the School of Visual Arts pre-major (AAART) with the intended major of Digital Arts & Media Design (DART). Students will submit a portfolio for entrance to DART (B.DES) major at the end of their 2nd semester.

Change of Major/Change of Campus Students

Students interested in pursuing Digital Arts and Media Design (B.DES) should follow the appropriate change of major, or transfer application instructions found under Visual Arts at <https://arts.psu.edu/how-to-apply/#specific>.

Transfer Students

Students interested in pursuing Digital Arts and Media Design (B.DES) should follow the appropriate change of major or transfer application instructions found under Visual Arts at <https://arts.psu.edu/how-to-apply/#specific>.

Degree Requirements

For the Bachelor of Design degree in Digital Arts and Media Design, a minimum of 121 credits is required:

Requirement	Credits
General Education	45
Electives	0-3
Requirements for the Major	82

0-9 of the 45 credits for General Education are included in the Requirements for the Major. This includes up to 0-6 credits of GA courses and 0-3 credits of GQ courses.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ART 11	First-Year Seminar- School of Visual Arts	1
ART 110	Ideas as Visual Images	3
ART 111	Ideas as Objects	3
ART 211Y	Introduction to Digital Art and Design Criticism	3
ART 476	History and Theory of Digital Art	3
DART 100	Introduction to Digital Art & Media Design	3
DART 200	Creative Research in Digital Arts & Media Design	3
DART 201	Focused Realization Studio	3
DART 202	2D Digital Art & Computer Graphics	3
DART 203	3D Digital Art & Design Fundamentals	3
DART 204	Animation Fundamentals	3
DART 205	Creative Coding: Scripting for Art and Design	3
DART 300	Digital Portfolio Elements	3
DART 301	Creative Collaboration Studio	4
DART 400	Digital Arts & Media Design Capstone I	4
DART 401	Digital Art & Media Design Capstone II	4
DART 495	Internship	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select one of the following emphasis areas:		19-21
<i>Digital Art and Design Emphasis</i>		
ART 220	Figure Drawing	
DART 213	3D Printing for Artists and Designers	
DART 302	Digital Painting Studio	
DART 303	3D Studio	
DART 304	Motion Graphics Studio	
PHOTO 202	Fundamentals of Professional Photography	
<i>Interactive Media Emphasis</i>		
DART 206	Web Design and Visual Web Development	
DART 305	Mobile and Touch Studio	
DART 315	Game Studio	
DART 405	Physical Computing Studio	
DART 406	Advanced Web and Multimedia Publishing Studio	
<i>Time Based Media Emphasis</i>		
DART 302	Digital Painting Studio	
DART 303	3D Studio	
DART 304	Motion Graphics Studio	
DART 314	Video Art and Time-Based Media	
DART 404	Animation Studio	
Select 9-11 credits from the following list of courses in consultation 9-11 with faculty adviser:		
AA 121	Design Thinking and Creativity	
AA 122	Introduction to Graphic Storytelling	

AA 193N	The Craft of Comics
ART 101	Introduction to Web Design
ART 220	Figure Drawing
ART 250	Beginning Oil Painting
ART 260	Water Media
ART 320	Advanced Drawing
ART 343	New Media Printmaking
ART 350	Intermediate Painting
CMPSC 101	Introduction to Programming
CMPSC 102	Introduction to Visual Programming
CMPSC 121	Introduction to Programming Techniques
CMPSC 131	Programming and Computation I: Fundamentals
COMM 242	Basic Video/Filmmaking
DART 206	Web Design and Visual Web Development
DART 213	3D Printing for Artists and Designers
DART 296	Independent Studies
DART 297	Special Topics
DART 302	Digital Painting Studio
DART 303	3D Studio
DART 304	Motion Graphics Studio
DART 305	Mobile and Touch Studio
DART 314	Video Art and Time-Based Media
DART 315	Game Studio
DART 404	Animation Studio
DART 405	Physical Computing Studio
DART 406	Advanced Web and Multimedia Publishing Studio
DART 410	Integrating Media: Convergence in Practice
DART 495	Internship
DART 496	Independent Studies
DART 497	Special Topics
GD 100	Introduction to Graphic Design
GD 200	Graphic Design Studio I
GD 201	Typography
GD 203	Typography 2
INART 258A	Fundamentals of Digital Audio
IST 140	Introduction to Application Development
MUSIC 455	Technology in Music
MUSIC 458	Electronic Music Composition I
PHOTO 100	Introduction to Photography
PHOTO 101	Culture of Photography
PHOTO 202	Fundamentals of Professional Photography
PHOTO 300	Photo Studio II
PHOTO 303	Professional Photography: Studio Technique and Photocomposition
PHOTO 400	Digital Photography in the Studio
PHOTO 402	Photographic Narratives
PHOTO 404	Professional Photography Capstone Seminar: Self-Marketing and Professional Presence
THEA 285	Introduction to Sound Design
THEA 484	Sound Recording Techniques

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Learning Outcomes

- Demonstrate skills in visual thinking, computer programming, and graphic communication fostered in a climate of invention and collaboration by exploring digital media in studies of technology, theory, and culture;
- Apply diverse notions of creativity in the development and application of design practices through testing, prototyping, and applying original ideas to computational projects in a variety of digital media;
- Demonstrate an ability to produce convincing visual design applied to code-based animations, interactive applications and games.
- Participate in class discussions and critiques that demonstrate critical awareness of new media/digital arts discourse and practices;
- Develop the technical capabilities and creative dispositions to successfully pursue career pathways in multimedia digital art and design;
- Participate in a community of discourse using skills in reading, analyzing, and discussing material about new media theory and practice, leading to constructive criticism of projects and presentations of peers.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Digital Arts and Media Design, B.Des. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ART 11 (First Year Seminar)*	1 ART 111*	3
ART 110*	3 DART 203, 204, or 205*	3
DART 100*	3 General Education Course	3
DART 202*	3 General Education Course	3
General Education Course (GQ)#	3 General Education Course	3
ENGL 15, 15A, or 30H (GWS)‡	3	
	16	15

Second Year

Fall	Credits Spring	Credits
DART 200 (Fall Only)*	3 DART 201 (Spring Only)*	3
DART 203, 204, or 205*	3 DART 203, 204, or 205*	3
ART 211Y*	3 Additional Courses* ¹	4
CAS 100 (GWS)‡	3 General Education Course (GQ)‡ ⁺¹	3
General Education Arts (GA/Additional Courses)* ⁺¹	3 General Education Course	3
	15	16

Third Year

Fall	Credits Spring	Credits
DART 300 (Fall Only)*	3 DART 301 (Spring Only)*	4
DART 495*	3 ART/ARTH 476*	3
Additional Courses* ¹	3-4 Additional Courses* ¹	3-4
Additional Courses* ¹	3-4 General Education Course	3
ENGL 202A, 202B, 202C, or 202D (GWS)‡	3 General Education Course	3
	16	16-17

Fourth Year

Fall	Credits Spring	Credits
DART 400 (Fall Only)*	4 DART 401 (Spring Only)*	4

Additional Courses ^{*1}	3-4 Additional Courses ^{*1}	3-4
Additional Courses ^{*1}	3-4 General Education Course	3
General Education Arts (GA) ^{*†1}	3 General Education Course	3
	14	13-14

Total Credits 121-123

- * Course requires a grade of C or better for the major
 ‡ Course requires a grade of C or better for General Education
 # Course is an Entrance to Major requirement
 † Course satisfies General Education and degree requirement

¹ Select one of the following emphasis areas:

- A. **Digital Art and Design Emphasis (21 credits):** ART 220 (3), DART 213 (3), DART 302 (4), DART 303 (4), DART 304 (4), PHOTO 202 (3);
- B. **Interactive Media Emphasis (19 credits):** DART 206 (3), DART 305 (4), DART 315 (4), DART 405 (4), DART 406 (4);
- C. **Time Based Media Emphasis (20 credits):** DART 302 (4), DART 303 (4), DART 304 (4), DART 314 (4), DART 404 (4)

AND

Select 9-11 credits from the following list of courses in consultation with faculty adviser.

(AA 121 GA(3); AA 122 (3); AA 193N GA; GH(3); ART 101 GA(3); ART 220 (3); ART 250 (3); ART 260 (3 max:6); ART 320 (4 max:8); ART 343 (4 max:8); ART 350 (4 max:8); COMM 242 (3); CMPSC 101 GQ(3); CMPSC 102 (3); CMPSC 121 GQ(3), CMPSC 131 (3); DART 206 (3); DART 213 (3); DART 302 (4); DART 303 (4 max:8); DART 304 (4); DART 305 (4); DART 314 (4 max:8); DART 315 (4 max:8); DART 404 (4 max:8); DART 405 (4 max:8); DART 406 (4 max:8); DART 410 (4 max:8); DART 297 (1-9); DART 497 (1-9); DART 495 (1-18); DART 296 (1-18); DART 496 (1-18); GD 100 GA(3); GD 200 (3); GD 201 (3); GD 203 (3); IST 140 (3); INART 258A GA(3); MUSIC 455 (1-3); MUSIC 458 (3); PHOTO 100 GA(3); PHOTO 101 GA(3); PHOTO 202 (3); PHOTO 300 (4); PHOTO 303 (3 max:6); PHOTO 400 (4); PHOTO 402 (4 max:8); PHOTO 404 (4); THEA 285 (3); THEA 484 (3))

Total number of credits in Additional Courses must equal 30, so student must select sufficient courses in consultation with adviser to make up the difference between the credits required for their chosen emphasis area (19-21 credits) and the total of 30.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and

ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Career Paths

The DART program explores and applies digital arts technologies to challenge your curiosity and creativity by expanding how you might think in a digital studio space as you develop new languages of visual expression and communication. Skills in visual thinking, computer programming, graphic communication, and interactive systems are core competencies that have universal application in multiple places of learning, culture, business, entertainment, and industry and are highly prized capabilities. Our goal is to meet your technical, creative, and intellectual needs to ensure you have multiple career options to pursue in creative fields and within the cultural economy.

Careers

In the DART program, we foster a climate of creative intervention, collaboration, and critique, but you provide the motivation. A sequence of 'spine' courses anchors the curriculum around essential learning in integrating digital art processes in 2-D, 3-D, and 4-D art and design. However, these courses are envelopes of processes and practices that are animated by you and the ideas that excite you. DART faculty are professional artists and cultural commentators who work in digital media in varied forms to help mentor and guide you in portfolio and project development, internship options, and how to gain access to collaborative opportunities throughout campus.

Opportunities for Graduate Studies

Creative and critical independence is a hallmark of professional practice and the DART capstone project is modeled as a bridging experience for entry into the profession, or as a sample of self-directed learning encountered in graduate school. Professional opportunities open to you as an DART graduate include all areas of new imaging technologies, such as web-based design and communications, entertainment arts, marketing, 3-D modeling and animation, interface design, video and motion graphics, interactive media, and game development. You too will have the capacity to join the many graduates that are practicing digital artists and designers in multiple fields, or have continued on to advanced degrees.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://arts.psu.edu/degrees/mfa-art/>)

Professional Resources

- College Art Association (<https://www.collegeart.org>)
- National Art Education Association (<https://www.arteducators.org>)
- National Council of Art Administrators (<https://www.ncaarts.org/>)
- Pennsylvania Art Education Association (<https://sites.google.com/paea.org/paea/home/>)
- Association for Computing Machinery (ACM) SIGGRAPH (<https://www.siggraph.org/>)

Contact

University Park

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 210 Patterson Building
 University Park, PA 16802

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AAUG@psu.edu

<https://arts.psu.edu/academics/school-of-visual-arts/>

Digital Arts, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

This 15-credit course will help you master the powerful combination of artistic knowledge and technical skills necessary to create professional, high-quality digital portfolios. You will learn some of the latest production techniques for generating computer-based graphics, digital photography, and media-rich web productions.

What is Digital Arts?

Digital Art is the combination of artistic knowledge and technical skills to create professional, high-quality digital productions that can be applied across industries and professions. Blending art theory with internet-based technologies, digital art synthesizes concepts of multimedia and visual arts and design with production techniques for generating computer-based graphics and media-rich web productions.

You Might Like This Program If...

- You are interested in computer-based graphics, multimedia, art, or media-rich web design.
- You want to strengthen your existing skills to support your professional responsibilities.

Entrance Procedures

For specific information on entrance procedures, please visit the website for the College of Arts and Architecture (<https://www.worldcampus.psu.edu/Undergraduate-Certificate-Application/>).

Program Requirements

To earn an undergraduate certificate in Digital Arts, a minimum of 15 credits is required.

Code	Title	Credits
Prescribed Courses		
ART 10 or ART 20	Introduction to Visual Studies Introduction to Drawing	3
ART 211Y	Introduction to Digital Art and Design Criticism	3
DART 300	Digital Portfolio Elements	3
DART 412	Portfolio Design and Professional Practices	3
Select one of the following:		
DART 202	2D Digital Art & Computer Graphics	3
DART 203	3D Digital Art & Design Fundamentals	3
DART 204	Animation Fundamentals	3
DART 206	Web Design and Visual Web Development	3

No Prerequisites Required.

Certificate Learning Objectives

- Capstone Experience:** Students will produce a final portfolio reflective of personal growth and professional research in the program,

blending theory, practice and purpose, with the latest Internet-based technologies.

- Creative Capabilities:** Students will apply entry-level competencies in enhancing their creative capabilities through problem-solving and visual communication strategies in designing computer graphics and multimedia.
- Critical Thinking:** Students will be able to explore, discuss, develop, and share informed views and perspectives about visual arts and design through critical writing and creative art making.
- Foundation Competencies:** Students will develop foundation competencies in applying conceptual, technical, and historical knowledge and skills in visual arts projects, digital art, web design and art criticism.
- Visual Literacy:** Students will acquire a practical understanding of the conventions, languages, practices, and aesthetics that digital artists and designers use, thus developing personal competencies and capabilities in visual literacy.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

World Campus

Anna Divinsky

Digital Multimedia Design and Digital Arts Certificate Program
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Undergraduate Academic Advising

301 Outreach Building
University Park, PA 16802
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Career Paths

Professional Resources

- College Art Association (<https://www.collegeart.org>)
- National Art Education Association (<https://www.arteducators.org>)
- National Council of Art Administrators (<https://www.ncaaarts.org>)
- Pennsylvania Art Education Association (<https://sites.google.com/paea.org/paea/home/>)

Contact

World Campus

OFFICE OF DIGITAL LEARNING, COLLEGE OF ARTS AND ARCHITECTURE
12 Borland Building
University Park, PA 16802
814-863-5409
axd289@psu.edu

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-digital-arts-undergraduate-certificate> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-digital-arts-undergraduate-certificate/>)

Digital Multimedia Design, B.Des.

Begin Campus: World Campus

End Campus: World Campus

Program Description

The Bachelor of Design (B.Des.) in Digital Multimedia Design (DMD) is an online undergraduate degree delivered in collaboration with the Colleges of Arts & Architecture, Communications, Information Sciences and Technology, and World Campus (WD). The major helps prepare individuals to be leaders in digital media technologies and multimedia industries. This interdisciplinary degree develops students' design thinking through courses in art and design, critical thinking through courses that promote active, critical and ethical use of communications media and technologies, and systems thinking through courses in information technology and human interaction.

The DMD will help individuals build capacities to be creative leaders and change agents who engage with critical issues through interconnected projects in design, technology, and communications across a wide spectrum of industries. This discipline integration creates the conditions for working in the collaborative, adaptive environments that characterize the digital media professions. Combining methods, tools, and approaches from each discipline provides the basis for developing design literacy, visual literacy and digital literacy when responding to problems and issues of local and global importance.

What is Digital Multimedia Design?

Digital Multimedia Design involves learning to design, use, and apply digital platforms, formats, and devices in a range of online interdisciplinary settings. You will develop your digital literacy by coding and creating multiple digital forms using a variety of computer languages; expand your visual literacy in developing multimedia narratives; and enhance your design literacy in exploring ideas in creative problem-solving situations. Digital media generally refers to the storage and transmission of information in increasingly varied multimedia digital formats and devices, and within changing modes of communication. Design is a means by which we respond to change in a purposeful way by focusing on issues, problems, and opportunities and developing plans for taking innovative and tactical actions. Our goal is to prepare you to be a new generation 21st-century learner, and the curriculum embodies its purpose because the entire degree is delivered online through Penn State's World Campus.

You Might Like This Program If...

You are inspired by learning processes that challenge you to explore knowledge beyond given boundaries, build alternative options for bringing different media together, or collaborate with others to find new ways of communicating ideas. When the changing face of digital media and the open-ended nature of digital design are brought together in settings involving information science and technology, communications, and visual arts, the outcome is beyond our imagination.

Entrance to Major

For specific information on entrance procedures, please visit the website for the College of Arts and Architecture (<https://arts.psu.edu/how-to-apply/>).

Direct Admission to the Major

Incoming first-year students who meet the program admission requirements are admitted directly into the major. Admission restrictions may apply for change-of-major and/or change-of-campus students.

For more information about the admission process for this major, please send a request to the college, campus, or program contact (listed in the Contact tab).

Degree Requirements

For the Bachelor of Design in Digital Multimedia Design, a minimum of 120 credits are required:

Requirement	Credits
General Education	45
Requirements for the Major	75

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ART 211Y	Introduction to Digital Art and Design Criticism	3
COMM 215	Basic Photography for Communications	3
COMM 230W	Writing for Media	3
DART 202	2D Digital Art & Computer Graphics	3
DMD 100	Digital Multimedia Design Foundations	3
DMD 300	Digital Multimedia Design Studio	3
DMD 400	Digital Multimedia Design Capstone	3
HCDD 113	Foundations of Human-Centered Design and Development	3
IST 250	Introduction to Web Design and Development	3
Additional Courses		
Select 30 credits from the following:		30
AA 121	Design Thinking and Creativity	
ART 1	Introduction to the Visual Arts	
ART 10	Introduction to Visual Studies	
ART 20	Introduction to Drawing	

ART 30	Introduction to Sculpture
ART 122Y	Commentary on Art
COMM 118	Introduction to Media Effects
COMM 180	Survey of Electronic Media and Telecommunications
COMM 280	Introduction to Telecommunications Technologies
COMM 282	Television Field Production
COMM 296	Independent Studies
COMM/IST 310	Digital Media Metrics
COMM 342W	Idea Development and Media Writing
COMM 346	Writing for the Screen I
COMM 428A	Principles of Strategic Communications
COMM 492	Internet Law and Policy
COMM 493	Entrepreneurship in the Information Age
COMM 495	Internship
COMM 496	Independent Studies
DART 100	Introduction to Digital Art & Media Design
DART 203	3D Digital Art & Design Fundamentals
DART 204	Animation Fundamentals
DART 205	Creative Coding: Scripting for Art and Design
DART 206	Web Design and Visual Web Development
DART 296	Independent Studies
DART 297	Special Topics
DART 300	Digital Portfolio Elements
DART 303	3D Studio
DART 412	Portfolio Design and Professional Practices
DART 495	Internship
DART 496	Independent Studies
DART 497	Special Topics
GD 110	User Experience Design: Concepts and Principles
GD 210	User Interface Design and Prototyping
HCDD 264	Design Practice in Human-Centered Design and Development
IST 140	Introduction to Application Development
IST 240	Introduction to Computer Languages
IST 256	Programming for the Web
IST 261	Application Development Design Studio I
IST 311	Object-Oriented Design and Software Applications
IST 361	Application Development Design Studio II
IST 402	Emerging Issues and Technologies

Supporting Courses

Select 6 credits of "history of art, design, technology and communications" in online coursework from World Campus offerings in consultation with an adviser 6

Select 12 credits of related online coursework from World Campus in consultation with an adviser 12

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense

of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Learning Outcomes

- Apply practical and technological competencies by integrating skills in design thinking, systems thinking, and critical thinking to address problems, implement ideas, produce work, and assess outcomes;
- Develop the capabilities necessary to use digital technologies in multimedia projects through exploration, expression, and communication that engage a multiplicity of ideas, forms, actions, and settings;
- Demonstrate communication skills by creating and presenting ideas, concepts and designs in written, verbal and visual forms;
- Acquire career oriented knowledge and strategic thinking skills that can be applied through project organization and management in a variety of social contexts and professional settings;
- Embody cultural diversity and ethical awareness through experiences that engage and encompass a multiplicity of social situations and complex communities;
- Demonstrate competencies and capabilities to enable the use of skills to create, execute, and evaluate communication strategies in multimedia contexts making them a valuable asset for businesses, corporations, government, and nonprofit organizations.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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World Campus

Penn State World Campus

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Digital Multimedia Design, B.Des. at World Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ART 201*	3 COMM 230W*	3
COMM 215*	3 Additional Course for Major (see list) ^{*1}	3
DMD 100*	3 General Education Course (IL)	3
ENGL 15, 15A, or 30H [†]	3 General Education Course	3
IST 250*	3 General Education Course	3
15		15

Second Year

Fall	Credits Spring	Credits
ART 211 (W; US)*	3 CAS 100A, 100B, or 100C [‡]	3
IST 140*	3 Additional Course for Major (see list) ^{*1}	3
Additional Course for Major (see list) ^{*1}	3 Additional Course for Major (see list) ^{*1}	3
Additional Course for Major (see list) ^{*1}	3 Additional Course for Major (see list) ^{*1}	3
Additional Course for Major (see list) ^{*1}	3 Additional Course for Major (see list) ^{*1}	3
15		15

Third Year

Fall	Credits Spring	Credits
DMD 300*	3 ENGL 202A, 202B, 202C, or 202D [‡]	3
Additional Course for Major (see list) ^{*1}	3 Additional Course for Major (see list) ^{*1}	3
General Education Course	3 General Education Course	3
Supporting Course for Major (see list) ^{*2}	3 Supporting Course for Major (see list) ^{*2}	3

Supporting Course for Major (see list) ^{*2}	3 Supporting Course for Major (see list) ^{*2}	3
15		15

Fourth Year

Fall	Credits Spring	Credits
General Education Course	3 DMD 400 [*]	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
Supporting Course for Major (see list) ^{*2}	3 General Education Course	3
Supporting Course for Major (see list) ^{*2}	3 General Education Course	3
15		15

Total Credits 120

- * Course requires a grade of C or better for the major
 ‡ Course requires a grade of C or better for General Education
 # Course is an Entrance to Major requirement
 † Course satisfies General Education and degree requirement

¹ **ADDITIONAL COURSES** (30 credits)

ART 010 GA(3); ART 020 GA(3); ART 122 US(3); ART 203(3); ART 204(3); ART 302(3); COMM 118 GS(3); COMM 180 GS(3); COMM 280(3); COMM 342(3); COMM 428A(3); COMM 428E(3); COMM 469(3); COMM 481(3); COMM 492(3); COMM 493(3); DART 203(3); DART 412(3); IST 242(3); IST 261(3); IST 311(3); IST 361(3); IST 413(3)

² **SUPPORTING COURSES** (18 credits)

- Select 6 credits of "history of art, design, technology and communications" in online coursework from World Campus offerings in consultation with an adviser.
- Select 12 credits of related online coursework from World Campus in consultation with an adviser.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

The Digital Multimedia Design degree expands your access to a range of learning communities – those typically out of reach for students enrolled in one program within one discipline. You take courses across three colleges—Arts and Architecture, Communications, Information Sciences and Technology – and it happens entirely online. We are preparing a new generation of 21st-century learners and leaders in art and design media, visual communication, and digital literacy. You are introduced to different domains of knowledge from across disciplines and you integrate

these ways of knowing into a personal portfolio of multimedia projects that demonstrate your creative capabilities in multiple digital forms and contexts.

Careers

The fully integrated scope of this program will equip you with skills considered central to many 21st-century jobs, such as creative problem-solving capabilities, capacity to exercise leadership in team building around collaborative projects because of your fluency in digital languages, visual communication, and design proficiency. You will learn to apply contemporary design methods to engage real-world issues in conceptually robust, technically varied, and expressively rich projects. These problem-based and project management skills are invaluable for many new career paths emerging within the creative industries and the creative economy.

Opportunities for Graduate Studies

Due to the multidisciplinary scale of this program, the range of digital visual communication forms, art and design practices, and creative computer applications in media and communications, filmmaking, gaming, and animation that you encounter is extensive. You will have opportunities to pursue broad-based experiences, and to follow specialized pathways of interest. You design your own program pathways around a cluster of digital courses as your skill levels grow and your professional aspirations emerge. The pathways are meant as a starting point for your academic career and will help guide a conversation with a DIGMD program adviser.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://arts.psu.edu/degrees/mfa-art/>)

Professional Resources

- College Art Association (<https://www.collegeart.org>)
- National Art Education Association (<https://www.arteducators.org>)
- National Council of Art Administrators (<https://www.ncaaarts.org>)
- Pennsylvania Art Education Association (<https://sites.google.com/paea.org/paea/home/>)

Accreditation

- National Association of Schools of Art and Design (NASAD)
- National Council for Accreditation of Teacher Education (NCATE)
- Middle States Association (MSCHE)

MORE INFORMATION ABOUT THE SCHOOL OF VISUAL ARTS ACCREDITATIONS (<https://arts.psu.edu/degree-programs/accreditation/>)

Contact

University Park

SCHOOL OF VISUAL ARTS
12 Borland Building
814-867-0450
axd289@psu.edu

<https://arts.psu.edu/academics/school-of-visual-arts/>

World Campus

SCHOOL OF VISUAL ARTS
107 Patterson Building
University Park, PA 16802
814-867-5297

msc227@psu.edu

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-digital-multimedia-design-bachelor-of-design-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-digital-multimedia-design-bachelor-of-design-degree/>)

Graphic Design, B.Des.

Begin Campus: University Park

End Campus: University Park

Program Description

This degree is intended to prepare students for careers in graphic design. The program includes the technical skills and the creative and intellectual capacity essential to the practices of graphic design and is intended to prepare students for employment in design studios, advertising agencies, packaging, publications and corporate design, film and television graphics, and Web and interactive design.

What is Graphic Design?

The Bachelor of Design in Graphic Design program at Penn State, is a four-year professional program accredited by the National Association of Schools of Art and Design (NASAD). Graphic design is a professional field of visual communication, creative thinking, and complex problem-solving. Practitioners connect people with ideas, products, environments, and experiences. Graphic design explores systems, technologies, methods, and strategies for integrating typography, imagery, and form into a visual language that informs, instructs, and persuades. It is an engaging and evolving knowledge for advancing the human experience.

You Might Like This Program If...

- You enjoy learning and playing with new ideas and emerging technologies.
- You are creative, focused, and engaged.
- You love typography and imagery.
- You want to make things that improve the world and our experience of it.

Entrance to Major

Acceptance into the Graphic Design major is determined by a portfolio review by faculty after the completion of GD 1S, GD 100, GD 101, GD 102, and AA 121 or GD 115N with grades of C or better in all of these courses. Typically, this review will take place in the second semester. Applicants who are not accepted into the major may re-apply the following year but must realize that this course of action could delay their graduation by at least one year.

Entrance Procedures

Students interested in pursuing Graphic Design (B.Des) should follow the appropriate first year, change of major, or transfer application instructions found under Graphic Design at <https://arts.psu.edu/how-to-apply/#specific>.

Degree Requirements

For the Bachelor of Design degree in Graphic Design, a minimum of 121 credits is required:

Requirement	Credits
General Education	45
Electives	3-9
Requirements for the Major	73

0-6 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 0-6 credits of GA courses.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
GD 1S	First-Year Seminar in Graphic Design	1
GD 100	Introduction to Graphic Design	3
GD 101	Design Foundation I	3
GD 102	Design Foundation 2	3
GD 200	Graphic Design Studio I	3
GD 201	Typography	3
GD 202W	The History of Graphic Design	3
GD 203	Typography 2	3
GD 300	Design Photography	4
GD 301	Experience Design Process + Methods	4
GD 302	Applied Communication	4
GD 303	Applied Experience Design	4
GD 400	Time and Sequence	4
GD 402	Senior Problems	4
GD 495	Internship	3
IST 250	Introduction to Web Design and Development	3
IST 256	Programming for the Web	3
PHOTO 202	Fundamentals of Professional Photography	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
AA 121	Design Thinking and Creativity	3
or GD 115N	Visualizing Information	
Select 6 credits from History of the Arts coursework, which may be counted toward General Education Arts requirement		6
Select two of the following:		6
GD 297	Special Topics	
GD 304	Practical Communications	
GD 310	Studio Apprenticeship	
GD 397	Special Topics	
GD 401	Package Design	
GD 404		
GD 495	Internship	
GD 497	Special Topics	

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills

necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits.

Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

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READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Graphic Design, B.Des. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If**

report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 15A, or 30H [‡]	3 GD 102 ^{*#}	3
GD 1S ^{*#}	1 Additional Course for Major (see list below) ^{*1}	3
GD 100 ^{*‡#}	3 General Education Course	3
GD 101 ^{*#}	3 General Education Course	3
GD 115N or AA 121 ^{*#}	3 General Education Course	3
General Education Course	3	
	16	15

Second Year

Fall	Credits Spring	Credits
GD 200 [*]	3 GD 202W [*]	3
GD 201 [*]	3 GD 203 [*]	3
IST 250 [*]	3 IST 256 [*]	3
Additional Course for Major (see list below) ^{*1}	3 PHOTO 202 [*]	3
General Education Course	3 General Education Course	3
	15	15

Third Year

Fall	Credits Spring	Credits
CAS 100A, 100B, or 100C [‡]	3 ENGL 202A, 202B, 202C, or 202D [‡]	3
GD 300 [*]	4 GD 302 [*]	4
GD 301 [*]	4 GD 303 [*]	4
General Education Course	3 Additional Course for Major (see list below) ^{*1}	3
	General Education Course	3
	14	17

Fourth Year

Fall	Credits Spring	Credits
GD 400 [*]	4 GD 402 [*]	4
GD 495 [*]	3 Additional Course for Major (see list below) ^{*1}	3
Elective	3 Elective	3
General Education Course	3 Elective	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
	14.5	14.5

Total Credits 121

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ **ADDITIONAL COURSE FOR MAJOR SELECTION** (12 credits)
 -Select 6 credits from History of the Arts coursework, which may be counted toward General Education Arts requirement.
 -Select 6 credits from GD 297(3); GD 304(3); GD 310(3); GD 397(3); GD 401(3); GD 404(3); GD 495(3); GD 497(3) (Sem: 5-8)

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Career Paths

Penn State Graphic Design develops a pathway for placement in the nation's top creative firms and companies. The undergraduate B.Design program prepares students for broad opportunities in today's global marketplace. In addition to providing students with a robust foundation in technical skills, key concepts, methods, and knowledge, the program fosters and prepares students' overall creative and intellectual capacity. This degree prepares students for employment in design studios, advertising agencies, publishing, corporate design, and more – creating motion graphics, data visualization, packaging, print products, websites, apps, user experience design, and interactive media. Students may also choose to undertake specialized graduate studies.

Careers

All graphic design students at Penn State complete at least one summer internship with leading creative agencies worldwide or study abroad. This provides real-world experience and global perspectives to help students build a professional network even before they graduate. Graphic design students enjoy an excellent job placement rate in top agencies and companies. In addition to gaining active faculty and alumni connections nationwide, Penn State graphic design students benefit from an in-house career adviser who can connect them with professional opportunities. Graphic designers are in high demand across industries, and graduates of the Penn State program are active in such diverse fields as branding design, motion design, web design, publishing, and environmental design.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE GRAPHIC DESIGN PROGRAM (<https://sites.psu.edu/stuckemancareers/>)

Opportunities for Graduate Studies

While graduates of Graphic Design programs may opt to pursue Master of Fine Arts (MFA) programs in specialized topics or focus areas, professional practice opportunities are readily available to Bachelor of Design graduates.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://arts.psu.edu/academics/department-of-graphic-design/>)

Professional Resources

- American Institute of Graphic Arts (AIGA) (<https://www.aiga.org>)
- Graphis New Talent Annual (<https://graphis.com>)
- College Art Association (CAA) (<https://www.collegeart.org/>)

Accreditation

The Penn State Graphic Design program is accredited through the National Association of Schools of Art and Design. NASAD is an association of approximately 323 schools of art and design, primarily at the collegiate level, but also including postsecondary non-degree-granting schools for the visual arts disciplines. It is the national accrediting agency for art and design and art and design-related disciplines.

MORE INFORMATION ABOUT ACCREDITATION OF THE GRAPHIC DESIGN PROGRAM (<https://arts.psu.edu/degree-programs/accreditation/>)

Contact

University Park

DEPARTMENT OF GRAPHIC DESIGN
30 Borland Building
University Park, PA 16802
814-865-0345
cml34@psu.edu

<https://arts.psu.edu/academics/department-of-graphic-design/>

Graphic Design, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Graphic Design minor is intended for students interested in augmenting their academic major with the physical, technological, aesthetic, and conceptual skills associated with a design discipline. Courses will include foundational emphasis on visual communications, design methodologies, image making, typography, and the production of work in both physical and digital form. Coursework may also include an introduction to communication theory; contemporary issues in communication, audience, and context; and formal research methodology. Advanced courses in the minor degree will apply the students' design acumen towards practical coursework within the context of their declared major. A Minor Capstone Studio will situate students within an appropriately rigorous environment for the application of design methods.

What is Graphic Design?

Graphic design is a professional field of visual communication, creative thinking, and complex problem-solving. Practitioners connect people with ideas, products, environments, and experiences. Graphic design explores systems, technologies, methods, and strategies for integrating typography, imagery, and form into a visual language that informs, instructs, and persuades. It is an engaging and evolving knowledge for advancing the human experience.

You Might Like This Program If...

- Bad typography on billboards and passing trucks drives you nuts.
- You love words and images and colors.
- You are engaged and creative, digital and analog.
- You like art, advertising, psychology, and entrepreneurship.
- You defy classification and don't like being stuck in ruts.

Designers are agile thinkers and creators who blend concepts and craft, art and ideas. If you're interested in everything and love challenges, graphic design could be your 'thing.'

Entrance to Minor

Entrance into the graphic design minor is based on a portfolio review. The portfolio will consist of examples of visual work, an original poster design, and a statement of intent.

Entrance Procedures

Additional information on entrance procedures, please visit the website for the College of Arts and Architecture (<https://arts.psu.edu/how-to-apply/#specific>).

Program Requirements

Requirement	Credits
Requirements for the Minor	21

Requirements for the Minor

For a minor in Graphic Design a minimum of 21 credits is required.

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
GD 100	Introduction to Graphic Design	3
GD 101	Design Foundation I	3
GD 102	Design Foundation 2	3
GD 200	Graphic Design Studio I	3
GD 201	Typography	3
GD 405	Minor Advanced Studio	3
GD 406	Minor Capstone Studio	3

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary

academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Kyrie Harding

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Contact

University Park

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<https://arts.psu.edu/academics/department-of-graphic-design/>

Integrative Arts, B.A. (Arts and Architecture)

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

Integrative Arts is an interdisciplinary major available to students who desire a curriculum that crosses over traditional single discipline lines. The Integrative Arts student initially establishes an academic plan with the assistance of an approved adviser. The plan must contain a core component of 42 credits and an elective component of 15 credits. The two components combined must clearly illustrate that the plan has clarity, purpose, and cohesion. All Integrative Arts students must complete 6 credits of history of the arts. These credits may be counted as a part of the major or, if outside the major, may be counted under General Education and/or Bachelor of Arts degree requirements. Consult with adviser for course selection.

What is Integrative Arts?

The Integrative Arts major provides opportunities for students to unite their creative and vocational interests in the arts and design with other areas such as science, technology, business, and more. It's a hands-on, self-directed approach to creative and career development. Creative interests and professional aspirations come together to explore unique and unexpected creative, intellectual, and professional pathways. Combine painting and sculpture with biology; merge a passion for illustration with writing children's literature; enhance digital media with UX design—the possibilities are endless!

You Might Like This Program If...

You're passionate about the arts and design, but can't find a degree program that addresses all of your interests. Or, you want a unique program that lets you cross disciplinary boundaries. Perhaps you want to merge your creative practice with study outside of the arts and design.

If so, Integrative Arts might be the place for you. Successful Integrative Arts students are highly motivated individuals who are excited by opportunities for self-directed research. If this sounds like you, then this might be the program for you!

Entrance Procedures

Incoming First Year Students

Incoming first year students must apply to the College of Arts and Architecture at Penn State. Students who are accepted to the College of Arts and Architecture will start in a pre-major (AA_PMAJ) status. Students will prepare a proposal for entry to INART, typically before the end of their second year. The first step in the Integrative Arts application process is to contact the Integrative Arts Office to arrange a time to meet with the Program Coordinator to discuss the Integrative Arts major and your specific goals in the arts and design. Written proposals must be submitted by November 15th in the fall semester, or by March 30th in the spring semester.

Change of Major/Change of Campus Students

Change of major/Change of Campus students must have a cumulative GPA of 2.00 to be eligible for entry to the INART major. Students will prepare a proposal for entry to INART. The first step in the Integrative Arts application process is to contact the Integrative Arts Office to arrange a time to meet with the Program Coordinator to discuss the Integrative Arts major and your specific goals in the arts and design. Written proposals must be submitted by November 15th in the fall semester, or by March 30th in the spring semester.

Transfer Students

Transfer students must apply to Penn State. Students who are pursuing INART through the undergraduate admissions application will be admitted to the College of Arts and Architecture pre-major (AA_PMAJ). Transfer students will prepare a proposal for entry to INART. The first step in the Integrative Arts application process is to contact the Integrative Arts Office to arrange a time to meet with the Program Coordinator to discuss the Integrative Arts major and your specific goals in the arts and design. Written proposals must be submitted by November 15th in the fall semester, or by March 30th in the spring semester.

Degree Requirements

For the Bachelor of Arts degree in Integrative Arts, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	15-24
Bachelor of Arts Degree Requirements	24
Requirements for the Major	42

6-15 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 0-3 credits of GHW, 6 credits of GA, and 0-6 credits of GN.

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Requirements for the Major

Must include at least 15 credits at the 400 or equivalent level.

Must include 6 credits in History of the Arts.

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
	Select 24 credits from an arts area	24
	Select 12 credits from other arts areas	12
	Select 6 credits of GA	6

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3

credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- **Content Knowledge:** Have learned the theoretical knowledge and practical skills necessary for entering careers that blend multiple forms of art, performance, or design

- **Creating & Reasoning:** Have developed the skills and knowledge needed to create, assess, and evaluate complex interdisciplinary artistic and design products for regional, national, and international audiences and markets.
- **Cultural & Ethical Competence:** Be prepared to recognize, understand, and assess the social and cultural implications of their work so that they can work ethically and responsibly as members of regional, national, and international communities.
- **Experiential Knowledge:** Have acquired hands-on, experiential knowledge for creating, performing, designing, and innovating in a multidisciplinary world.
- **Professional Options:** Have acquired in-depth understandings of the market, challenges, and opportunities for a career in the arts.

Learning Outcomes

The Educational Objectives of the Integrative Arts program identify what Integrative Arts students are expected to know and be able to do by the time of graduation. Graduates of the Integrative Arts program will be able to:

1. Understand, apply, and analyze art historical and aesthetic concepts related to the creation and design of creative works that combine multiple forms of art, design, or performance.
2. Identify and assess philosophies and theories relevant to careers that require knowledge and understanding of multiple forms of arts and design.
3. Demonstrate mastery of tools and practices used in the creation of art, design, and performance works in contexts related to the student’s particular area of concentration.
4. Create original, compelling works of art, design, or performance in contexts related to the student’s particular area of concentration and that reflect the integration of multiple forms of art, performance, or design.
5. Synthesize and evaluate creative output, contribute to critical discourse, and learn how to incorporate feedback and critique as part of the creative process.
6. Demonstrate the ability to create complex works of art, design, or performance that combine multiple art forms in a manner relevant to individual experiences and that convey a personal visual vocabulary.
7. Demonstrate the ability to plan and implement exhibitions or presentations of creative work from conceptualization through promotion, preparation, and physical installation and performance and to present that work to diverse audiences.

Academic Advising

The objectives of the university’s academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee’s unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years’ suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Integrative Arts, B.A. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 15A, or 30H [‡]	3 Art Area I course (see comment) ^{*1}	3
Art Area I course (see comment) ^{*1}	3 Art Area II course (see comment) ^{*1}	3
First Year Seminar [*]	1 General Education Course	3
Foreign Language [*]	4 General Education Course	3
General Education Course	3 Foreign Language [*]	4
General Education Course	3	
	17	16

Second Year

Fall	Credits Spring	Credits
Art Area I course (see comment) ^{*1}	3 CAS 100A, 100B, or 100C [‡]	3
Art Area II course (see comment) ^{*1}	3 Art Area I course (see comment) ^{*1}	3
Foreign Language [*]	4 Art Area II course (see comment) ^{*1}	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
	16	15

Third Year

Fall	Credits Spring	Credits
ENGL 202B [‡]	3 Art Area I course (see comment) ^{*1}	3
Art Area I course (see comment) ^{*1}	3 B.A. Knowledge Domain	3
Art Area II course (see comment) ^{*1}	3 Elective	3
B.A. Knowledge Domain	3 World Cultures Course	3
General Education Course	3 Writing Across the Curriculum Course	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
Art Area I course (see comment) ^{*1}	3 Art Area I course (see comment) ^{*1}	3
Art Area II course (see comment) ^{*1}	3 Art Area II course (see comment) ^{*1}	3
B.A. Knowledge Domain	3 General Education Course (GHW)	1.5
Elective	3 Elective	5
General Education Course (GHW)	1.5	
	13.5	12.5

Total Credits 120

- * Course requires a grade of C or better for the major
 ‡ Course requires a grade of C or better for General Education
 # Course is an Entrance to Major requirement
 † Course satisfies General Education and degree requirement

¹ Integrative Arts majors complete major course work in two areas. These areas are defined in the academic plan submitted to the Department of Integrative Arts before admission to the program. The academic plan must have 15 credits at the 400-level in the requirements for the major.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will

replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Program Notes**Change of Major Requirements/How to Apply:**

Students must submit a proposal to the Integrative Arts Program Office. See https://artsandarchitecture.psu.edu/howtoapply/integrative_arts. A minimum grade point average of 2.0 and approved proposal are required.

Career Paths

The Integrative Arts program is unique in the way students can tailor their educational experience to prepare them for multiple career paths and opportunities for graduate study.

Careers

Graduates in Integrative Arts follow diverse career and post-graduate paths, including completion of graduate studies, finding employment in arts and design-related industries, or becoming independent entrepreneurs in the arts and design fields. The Integrative Arts program also encourages students to engage in career-related internships and self-directed research projects, as well as independent study courses, in order to enhance their creative portfolios and to develop meaningful contacts in the professional world.

Opportunities for Graduate Studies

The individualized nature of the Integrative Arts degree allows students interested in pursuing graduate study to prepare for many different kinds of graduate programs. Recent graduates have entered programs in fields as diverse as design for sustainability, visual arts therapies, theatrical screenwriting, and information technology.

Contact**University Park**

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 104 Borland Building
 University Park, PA 16802
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<https://www.abington.psu.edu/academics/majors-at-abington/integrative-arts> (<https://www.abington.psu.edu/academics/majors-at-abington/integrative-arts/>)

International Arts, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

This interdisciplinary minor is designed for students in any major of the University who wish to supplement their knowledge of the arts of a country or countries other than the United States.

Students enrolled in the minor shall begin by taking the International Arts course and complete the minor with a project pertaining to topics studied for the minor.

Credits applied toward the minor shall represent at least two disciplines and should consist of a coherent selection of courses relating to a geographic, chronological, or thematic concentration.

What is International Arts?

Butoh dance theatre in Japan. The music of Brazilian Carnival. Persian calligraphy. Music, visual art, dance, theatre, design, and built environments that reflect the cross-cultural nature of art. International arts takes students away from the familiar and exposes them to other cultures through study of the arts.

You Might Like This Program If...

- You are looking for a study-abroad experience that fuels your passion for the arts.
- You are proficient in a world language and you want to take your understanding of a culture beyond linguistics.
- You want to expand your world view with a deeper appreciation for the visual, performance, design, and literary arts in cultures outside of the United States.

Entrance to Minor

Students interested in declaring the International Arts Minor should meet with the coordinator of the minor to plan a coherent course of study.

Entrance Procedures

For more information on entrance procedures, please visit the website for the International Arts Minor (<https://arts.psu.edu/degrees/international-arts-minor/>).

Program Requirements

Requirement	Credits
Requirements for the Minor	19-33

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>).

In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
AA 100	Introduction to International Arts	3
AA 401	International Arts Minor Final Project	1-3
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
12th-credit-level proficiency in one world language demonstrated by course work or examination		0-12
Select 15 credits of international arts courses ¹		15

¹ Only 9 credits in a single discipline may apply toward the minor. A minimum of 9 credits must be taken in the College of Arts and Architecture. At least 6 credits must be at the 400 level. At least 3 of these 15 credits must be in a study abroad experience of at least 4 weeks in duration approved by the person in charge of the minor; any arts courses taken while abroad may count toward the minor.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Career Paths

International arts minors build a strong foundation in knowledge of how arts and culture play out on the global stage. By supplementing their major area of study with a global understanding of the arts, students open up possibilities for careers that capitalize on this knowledge, and even create opportunities to further investigate through graduate study.

Careers

A minor in international arts provides a deeper understanding of how art and design permeate cultures around the world, and expands the perspective of any student who pursues it. As a well-traveled "citizen of

the world," any student who completes this minor will have an advantage in a competitive job market.

Opportunities for Graduate Studies

The global experiences fostered through an international arts minor may lay the groundwork for more specialized study in an arts discipline at the graduate level. Your undergraduate experiences abroad have the potential to inspire a graduate thesis topic, or they might help you establish a network of resources for research.

Contact

University Park

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kyrie@psu.edu

<https://arts.psu.edu/degrees/international-arts-minor/>

Jazz Performance, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

Administered by faculty from the College of Arts and Architecture's School of Music, the minor in Jazz Performance is designed to give Music majors and non-Music majors experience in the performance, theory, and history of jazz music.

Students will perform in a variety of the jazz ensembles offered by the School of Music, take private instruction in jazz improvisation with a designated jazz instructor on the School of Music faculty, and take courses in jazz history, improvisation and pedagogy. For Music majors, the Jazz Performance minor will provide: 1) a course of study in jazz at a higher level and with more detailed instruction as a supplement to their studies in classical and traditional music; 2) training in a very important and prevalent musical genre for careers in performance or teaching; and, 3) for those students who may already participate significantly in the jazz offerings, an official recognition on the student record of detailed study in jazz that will provide credentials when seeking employment.

For non-Music majors, the Jazz Performance minor will provide: 1) an opportunity to continue formalized study in an area in which they have been highly active before college, such as music lessons, ensembles, and choirs 2) an opportunity to build music into their lives as a stimulating and balancing influence; and, 3) for those students who may already participate significantly in the jazz offerings, an official recognition on the student record of study in jazz that will indicate versatility and artistic activity when seeking employment in another field.

For both Music majors and non-Music majors, the Jazz Performance minor will provide a deeper musical experience in and greater awareness of a musical art form that derives from African-American culture.

You Might Like This Program If...

You are interested in performing, recording, composing, creating and arranging within various jazz and contemporary music genres, this minor

might be for you. Instruction in the history, theory and the musical skills needed to improvise and create is delivered in this 18 credit minor. This minor provides an opportunity for non-majors who were active in their high school music programs to continue and deepen their experience in the JCM genres. Activities such as: jazz big band, small combos, jazz vocal ensemble, recording projects and various performances, on and off campus, are a part of the experience. Music majors do not have to audition for this minor, but must declare it as well as fulfill the required coursework. Non-majors must audition for the minor with an aptitude level approximately equivalent to that which is required to participate in the school of music JCM ensembles.

Entrance to Minor

Non-Music majors must audition for acceptance into the Jazz Performance minor. Music majors are not required to audition for the Jazz Performance minor.

For non-Music majors, an audition is required for admission to the Jazz Performance minor. Because all tracks of the Music major require an audition for admission, current Music majors will not need to audition for the Jazz Performance minor. Music majors may complete their Jazz Performance minor along with their Music major with careful selection of ensembles, electives, and additional courses.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
MUSIC 84	Jazz Ensemble ¹	2
MUSIC 181	Jazz Improvisation I	2
MUSIC 182	Jazz Improvisation II	2
MUSIC 421	Jazz Combo Class ¹	2
MUSIC 422	Jazz Harmony and Arranging	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
AFAM 207N or MUSIC 7	Jazz and the African American Experience Evolution of Jazz	3
JAZZ 100 or JAZZ 110	Jazz Performance Studies ¹ Jazz Performance Studies	2
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Take 2 additional credits in the jazz or commercial music area in consultation with jazz faculty and adviser		2

¹ MUSIC 84 and MUSIC 421 are to be taking twice to earn 2 credits for each course

² Students will repeat JAZZ 100, a 1-credit course, for a total of 2 credits

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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<https://arts.psu.edu/music/ensembles/>

Landscape Architecture, B.L.A.

Begin Campus: University Park

End Campus: University Park

Program Description

Landscape architecture is the art of design, planning, or management of the land and of the natural and built elements upon it. As an academic discipline, it embodies creative, cultural, philosophical, and scientific knowledge bases. As a professional discipline, the practice of landscape architecture includes site design, urban design, master planning, community planning, regional planning, resource conservation, and stewardship.

The program currently is a nine-semester curriculum leading to a professionally accredited Bachelor of Landscape Architecture degree. One semester of the curriculum is spent in a required semester abroad. The program prepares graduates for entry into professional offices or pursuit of advanced study in related disciplines. The curriculum develops both the creative insight and the technical skills essential to practice and

fulfills the education requirement needed in all states to be eligible to take the professional licensing examination.

What is Landscape Architecture?

Landscape architecture is an important change agent design profession for the 21st century addressing both social and environmental challenges of our times. Landscape architects are licensed professionals who design places that have beneficial impacts on the health and resilience of our ecosystems, our communities, and ourselves—places of delight, of wonder, of comfort, and of respite that include parks, plazas, campuses, gardens, memorials, green roofs, interactive installations, commercial centers, transportation corridors, waterfront developments, and so much more. In their work, landscape architects are guided by commitment to social, environmental, and economic benefit. All of this makes landscape architecture "the most exciting 21st century design profession that you've probably never heard of."

You Might Like This Program If...

- You are creative, active, involved.
- You want to be an agent of change and solve problems.
- You are passionate about sustainability.
- You are fascinated by people and cultures; inspired by history and traveling.
- You like technology and hands-on work.
- You enjoy working with a team and you want to design for the 'big' issues.
- You want to engage with art, nature, and design to unlock powerful solutions for the complex issues of today and tomorrow.

Entrance Procedures

Students interested in pursuing Landscape Architecture (B.L.A) should follow the appropriate first year, change of major, or transfer application instructions found under Landscape Architecture at <https://arts.psu.edu/how-to-apply/#specific>.

Degree Requirements

For the Bachelor of Landscape Architecture degree in Landscape Architecture, a minimum of 139 credits is required:

Requirement	Credits
General Education	45
Electives	6
Requirements for the Major	109

21 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GA courses; 3 credits of GH courses; 3 credits of GS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
SOILS 101	Introductory Soil Science	3

Prescribed Courses: Require a grade of C or better

LARCH 60	Cultural History of Designed Places	3
LARCH 115	Design I: Intro Spatial Composition	3
LARCH 116	Design II: Spatial Design	3
LARCH 125	Landscape Architecture Orientation Seminar	1
LARCH 145	Ecology and Plants I	3
LARCH 155	Skills Lab I: Hand & Digital Graphics	2
LARCH 156	Skills Lab II: Hand & Digital Graphics	2
LARCH 215	Design III: Site Design	4
LARCH 216	Design IV: Expanded Use, Scale, and Context	4
LARCH 235	Design Implementation I: Grading	3
LARCH 236	Design Implementation II: Materials	3
LARCH 245	Ecology & Plants II	3
LARCH 246	Ridge & Valley in the Field	1
LARCH 255	Skills Lab III: Digital Graphics	2
LARCH 256	Skills Lab IV: GIS	2
LARCH 276	Human Dimensions of Design: History & Theory	3
LARCH 315	Design V: Expanded Use, Scale, and Context	4
LARCH 335	Design Implementation III: Planting Methods	3
LARCH 336	Design Implementation IV: Stormwater	3
LARCH 365W	Contemporary Trends in Landscape Architecture	3
LARCH 375	Human Dimensions of Design - Applied	3
LARCH 386	Professional Practice	3
LARCH 414	Design and Theory V: Advanced Landscape Architectural Design (5 per semester, maximum of 15)	15
LARCH 424	Design Theory Seminar	3
LARCH 499A	Design Theory Seminar	1
LARCH 499B	Design and Theory VI: Contemporary/International Landscape Architectural Design Issues	5
LARCH 499D	Contemporary/International Special Topics	3

Additional Courses

Select 6 credits of the following: 6

AGECO 121	Plant Stress: It's Not Easy Being Green
BIOL 127	Introduction to Plant Biology
BISC 1	Structure and Function of Organisms
BISC 2	Genetics, Ecology, and Evolution
EGEE 102	Energy Conservation for Environmental Protection
FOR 201	Global Change and Ecosystems
GEOG 115	Landforms of the World
GEOSC 303	Introduction to Environmental Geology
HORT 150N	Plants in the Human Context
METEO 122	Atmospheric Environment: Growing in the Wind
SOILS 71	Environmental Sustainability

Select 6 credits of the following: 6

AA 121	Design Thinking and Creativity
ARCH 100	Architecture and Ideas
ARCH 210	Ideas Across Time in Architecture and Urbanism
ART 20	Introduction to Drawing
ART 30	Introduction to Sculpture
ARTH 120	Asian Art and Architecture
ARTH 140	Introduction to the Art and Architecture of the Mayas, Aztecs, and Incas

ARTH 201	Ancient to Medieval Architecture
ARTH 202	
ARTH 308N	American Architecture
ARTH 315	
ARTH 320	
ARTH 330	
ARTH 335	African Art
GD 100	Introduction to Graphic Design
Select 3 credits of the following:	3
AFR 191	Early African History
AFR 192	Modern African History
ASIA 100	What is Asia?
FR 137	Paris: Anatomy of a Global City
GEOG 122	
GER 100	German Culture and Civilization
GER 200N	Contemporary German Culture
HIST 109	Introduction to U.S. Environmental History
PHIL 13	Nature and Environment
PHIL 118	Environmental Philosophy
Select 3 credits of the following:	3
AFR 110N	Introduction to Contemporary Africa
ANTH 120	First Farmers
CAS 222N	Foundations: Civic and Community Engagement
CED 155	Science, Technology and Public Policy
GEOG 320	Urban Geography: A Global Perspective
PLSC 22	
RPTM 120	Leisure and Human Behavior
RSOC 11	Intro Rural Sociology
SOC 119N	Race, Ethnicity and Culture

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits

- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.L.A. in Landscape Architecture and M.S. in Landscape Architecture

Requirements for the Integrated B.L.A. in Landscape Architecture and M.S. in Landscape Architecture can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/landscape-architecture/#integratedundergradgradprogramstext>).

Academic Advising

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READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Landscape Architecture, B.L.A. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H ^{*†}	3 LARCH 116 [*]	3
LARCH 60 (GA;US;IL) ^{*†}	3 LARCH 156 [*]	2
LARCH 115 [*]	3 SOILS 101 ^{*‡}	3
LARCH 125 [*]	1 Additional Course for Major (see list) ^{*1}	3
LARCH 145 [*]	3 Additional Course for Major (see list) ^{*1}	3
LARCH 155 [*]	2 Additional Course for Major (see list) ^{*1}	3
	15	17

Second Year

Fall	Credits Spring	Credits
LARCH 215 [*]	4 LARCH 216 [*]	4
LARCH 235 [*]	3 Additional Course for Major (see list) ^{*1}	3
LARCH 245 [*]	3 LARCH 246 [*]	1
LARCH 255 [*]	2 LARCH 256 [*]	2
Additional Course for Major (see list) ^{*1}	3 LARCH 276 [*]	3
	LARCH 336 [*]	3
	15	16

Third Year

Fall	Credits Spring	Credits
CAS 100A, 100B, or 100C [‡]	3 ENGL 202A, 202B, 202C, or 202D [‡]	3
LARCH 315 [*]	4 LARCH 414 [*]	5
LARCH 335 [*]	3 LARCH 236 [*]	3
LARCH 365W [*]	3 LARCH 375 [*]	3
Additional Course for Major (see list) ^{*1}	3 LARCH 386 [*]	3
	16	17

Fourth Year

Fall	Credits Spring	Credits
LARCH 499A [*]	1 LARCH 414 [*]	5
LARCH 499B [*]	5 LARCH 424 [*]	3
LARCH 499D [*]	3 Additional Course for Major (see list) ^{*1}	3
Foreign Language (Recommended) or Elective [*]	3 Additional Course for Major (see list) ^{*1}	3
	Additional Course for Major (see list) ^{*1}	3
	12	17

Fifth Year

Fall	Credits
LARCH 414 [*]	5
Additional Course for Major (see list) ^{*1}	3
Additional Course for Major (see list) ^{*1}	3

Elective	3
	14

Total Credits 139

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ **Additional Course for Major Selection (18 credits)****GA: 6 Credits Required**

Select 6 credits from: AA 121 GA(3); ARCH 100 GA(3); ARCH 210 GA(3); ART 20 GA(3); ART 30 GA(3); ARTH 120 GA;IL(3); ARTH 140 GA;IL(3); ARTH 201 GA;IL(3); ARTH 202 GA;US;IL(3); ARTH 308N GA;US(3); ARTH 315 GA;IL(3); ARTH 320 GA;IL(3); ARTH 330 GA;IL(3); ARTH 335 GA;IL(3); GD 100 GA(3) (Sem: 1-2)

GH: 6 Credits Required

Select 3 credits from: AFR 191 GH;IL(3); AFR 192 GH;IL(3); ASIA 100 GH;IL(3); FR 137 GH;IL(3); GEOG 122 GH;US(3); GER 100 GH;IL(3); GER 200N GH;IL(3); HIST 109 GH;US(3); PHIL 13 GH(3); PHIL 118 GH(3) (Sem: 6-9)

GN: 9 Credits Required

Select: SOILS 101 GN (3) (Sem: 2)

Select 6 credits from: AGECO 121 GN(3); BIOL 127 GN(3); BISC 1 GN(3); BISC 2 GN(3); EGEE 102 GN(3); FOR 201 GN(3); GEOG 115 GN(3); GEOSC 303(3); HORT 150 GN(3); METEO 122 GN(3); SOILS 71 GN;IL(3); (Sem: 1-2)

GQ: 6 Credits Required**GS: 6 Credits Required**

Select 3 credits from: AFR 110N GS;IL(3); ANTH 120 GS;IL(3); CAS 222 GS;US;IL(3); CED 155 GS(3); GEOG 130 GS(3); GEOG 320 GS;US;IL(3); PLSC 22 GS;IL(3); RPTM 120 GS;US;IL(3); RSOC 11 GS;US(3); SOC 119N GS;US(4) (Sem: 6-9)

GHW: 3 Credits Required**University Requirements and General Education Notes:**

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Career Paths

Penn State Landscape Architecture graduates are well-prepared to join our distinguished professional alumni network with a clear path to licensure and making an immediate impact on the world. The Bachelor of Landscape Architecture (B.L.A.) program is designed to prepare graduates for either advanced study or professional careers. A B.L.A. degree provides students with a background in creativity, technical skills, and ethical considerations necessary for professional practice. Careers or graduate study can lead to a diverse array of focus areas, including sustainability, urban planning, research, social or environmental justice, design, ecology, social health and well-being, technology, construction, or community outreach.

Careers

The world is constantly changing, and landscape architects are skilled designers poised to shape, drive, and responsibly steward these changes. Penn State landscape architects are artists, ecologists, engineers, scientists, sociologists, conservationists, and often, leaders. The profession enables you to connect with your passion. Engage with art, nature, and design. Build spaces, places, and experiences. Collaborate. Solve problems. Design a better future. A B.L.A. will prepare you with leading-edge technical design principles and a deep foundation in technologies and design-thinking methods so that you can immediately enter professional practice with a wide range of opportunities.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE LANDSCAPE ARCHITECTURE PROGRAM (<https://sites.psu.edu/stuckemancareers/>)

Opportunities for Graduate Studies

While the accredited B.L.A. prepares students for professional practice, graduates may opt to pursue advanced degrees to gain specialized expertise. Penn State's M.S. in LA is a research-focused degree in which students hone expertise in a targeted area of the profession. M.S. in LA applicants should hold an accredited professional degree in landscape architecture. Penn State also offers an online graduate certificate and a Master in Professional Studies degree program in Geodesign, an exciting, new, design and planning strategy that harnesses big data to ensure wise decisions grounded in the triple bottom line of sustainability: environmental, social, and economic good.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://arts.psu.edu/academics/department-of-landscape-architecture/>)

Professional Resources

- The American Society of Landscape Architects (ASLA) (<https://www.asla.org>)

Accreditation

The BLA undergraduate curriculum is accredited by the Landscape Architectural Accreditation Board (LAAB). The mission of LAAB is to evaluate, advocate for, and advance the quality of education in landscape architectural programs. LAAB establishes standards that ensure that current and future practitioners understand, obtain and maintain the knowledge, skills and abilities required to practice landscape architecture in the future.

MORE INFORMATION ABOUT ACCREDITATION OF THE LANDSCAPE ARCHITECTURE PROGRAM (<https://arts.psu.edu/degree-programs/>)

[accr-cred/](https://arts.psu.edu/degree-programs/landscape-architecture/accr-cred/)

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

University Park

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<https://arts.psu.edu/academics/department-of-landscape-architecture/>

Landscape Architecture, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

Landscape architecture is the art of design, planning, or management of the land and of the natural and built elements upon it. As an academic discipline, it embodies creative, cultural, philosophical, and scientific knowledge bases. As a professional discipline, the practice of landscape architecture includes site design, urban design, master planning, community planning, regional planning, resource conservation, and stewardship.

The Minor in Landscape Architecture allows greater accessibility to the knowledge domains within the professional accredited Landscape Architecture major. The minor, as a non-professional opportunity, provides students with a broad understanding of the history, practice, and theories of how landscape architecture shapes the world, as well as the opportunity for more specialized study in selected topics.

The minor is flexible so that students can tailor their course choices to accommodate individual interests. Students should seek the advice of the minor adviser for course selection.

This minor is appropriate for students wishing to gain a greater understanding of the landscape architecture discipline as it complements many other professions dealing with natural systems management, site and urban design, master planning (community and regional), graphic information systems, resource conservation and stewardship, and landscape history/preservation.

What is Landscape Architecture?

Landscape architecture is an important "change agent" design profession for the 21st century addressing both social and environmental challenges of our times. Landscape architects are licensed professionals who design places that have beneficial impacts on the health and resilience of our ecosystems, our communities, and ourselves—places of delight, of wonder, of comfort, and of respite that include parks, plazas, arboreta,

campuses, gardens, memorials, green roofs, interactive installations, commercial centers, transportation corridors, waterfront developments, and so much more. In all of their efforts, Landscape architects are guided by commitment to social, environmental, and economic benefit. All of this makes landscape architecture "the most exciting 21st century design profession that you've probably never heard of."

You Might Like This Program If...

- You are creative, active, involved.
- You want to be an agent of change and solve problems.
- You are passionate about sustainability.
- You are fascinated by people and cultures; inspired by history and traveling.
- You like technology and hands-on work.
- You enjoy working with a team and you want to design for the 'big' issues.
- You want to engage with art, nature, and design to unlock powerful solutions for the complex issues of today and tomorrow.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
AA 121	Design Thinking and Creativity	3
LARCH 60	Cultural History of Designed Places	3
LARCH 125	Landscape Architecture Orientation Seminar	1
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 11 credits of the following: ¹		11
ARCH 497	Special Topics	
LARCH 65	Built Environment and Culture: Examining the Modern City	
LARCH 115	Design I: Intro Spatial Composition	
LARCH 116	Design II: Spatial Design	
LARCH 145	Ecology and Plants I	
LARCH 155	Skills Lab I: Hand & Digital Graphics	
LARCH 156	Skills Lab II: Hand & Digital Graphics	
LARCH 235	Design Implementation I: Grading	
LARCH 245	Ecology & Plants II	
LARCH 246	Ridge & Valley in the Field	
LARCH 256	Skills Lab IV: GIS	
LARCH 276	Human Dimensions of Design: History & Theory	
LARCH 365W	Contemporary Trends in Landscape Architecture	
LARCH 375	Human Dimensions of Design - Applied	
LARCH 424	Design Theory Seminar	

LARCH 450	Geodesign: Geospatial Technology for Design
LARCH 495	Internship
LARCH 496	Independent Studies
LARCH 497	Special Topics
LARCH 499	

¹ 6 credits must be at the 400 level

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Career Paths

Penn State Landscape Architecture graduates are well-prepared to join our distinguished professional alumni network and make an immediate impact on the world. The Landscape Architecture minor is designed to provides students with a robust background in creativity, technical skills, and ethical considerations. Careers or graduate study can lead to a diverse array of focus areas, including sustainability, urban planning, research, social or environmental justice, design, ecology, social health and well-being, technology, construction, or community outreach.

Careers

The world is constantly changing, and landscape architects are skilled designers poised to shape, drive, and responsibly steward these changes. Penn State landscape architects are artists, ecologists, engineers, scientists, sociologists, conservationists, and often, leaders. The profession enables you to connect with your passion. Engage with art, nature, and design. Build spaces, places, and experiences. Collaborate. Solve problems. Design a better future. Landscape Architecture studies will prepare you with leading-edge technical design principles and a foundation in technologies and design-thinking methods so that you can pursue a wide range of opportunities.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN LANDSCAPE ARCHITECTURE (<https://sites.psu.edu/stuckemancareers/>)

Opportunities for Graduate Studies

Landscape Architecture Minor students may opt to pursue advanced degrees to gain specialized expertise or to undertake professional licensure. Penn State's M.S. in LA is a research-focused degree in which students hone expertise in a targeted area of the profession. The M.L.A. professional program prepares students for professional practice. Penn State also offers an online graduate certificate and a Master in Professional Studies degree program in Geodesign, an exciting, new, design and planning strategy that harnesses big data to ensure wise decisions grounded in the triple bottom line of sustainability: environmental, social, and economic good.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://arts.psu.edu/academics/department-of-landscape-architecture/>)

Contact

University Park

DEPARTMENT OF LANDSCAPE ARCHITECTURE
121 Stuckeman Family Building
University Park, PA 16802
814-865-9511
larch@psu.edu

<https://arts.psu.edu/academics/department-of-landscape-architecture/>

Museum Studies, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

The Museum Studies Certificate program is designed to be an interdisciplinary introduction to theory and practice of museums, historic sites and other public collections. It is open to undergraduate students in any major and prepares them for higher-level pre-professional study in the field.

What is Museum Studies

The museum studies certificate offers you the opportunity to learn about museums, from their history to how they work. Museum studies encompasses all types of museums, and you can tailor your classes to focus on such places as art museums, history museums, house museums, science and technology museums, fashion and product museums, or sports museums. The certificate uses courses and internship experience to give you both theoretical and hands-on knowledge of museums.

You Might Like This Program If...

You enjoy going to museums, are curious about how they work, and are interested in museum careers.

Program Requirements

To earn an undergraduate certificate in Museum Studies, a minimum of 12 credits is required.

Code	Title	Credits
Required Courses		
ARTH 495	Internship	3
Select one of the following:		3

AMST 480	Museum Studies	
ANTH 380	Anthropology Museum Studies	
ARTH 409	Museum Studies	
Select 6 credits from the following:		6
AED 101S	Introduction to Art Education	
AED 201W	History and Philosophy of Art Education in Schools and Cultural Institutions	
AED 211	Interpreting Art Experience: Social-cultural Perspectives	
AED 212	Interpreting Art Experience: Educational Implications	
AED 488		
AMST 480	Museum Studies	
AMST 482	Public Heritage Practices	
ANTH 220	Anthropology and Artifacts	
ANTH 380	Anthropology Museum Studies	
ANTH 433	Archaeological Ethics and Law	
ART 409	Museum Studies	
ART 411	Seminar in Contemporary Art	
ART 477	Curator's Workshop	
ARTH 100	Introduction to Art	
ARTH 409	Museum Studies	
ARTH 410	Taste and Criticism in Art	
ARTH 495	Internship	
ARTSA 301	Introduction to Arts Administration	
ARTSA 402W	Strategic Management and Planning for the Arts	
ARTSA 403	Fundraising and Grant Writing	
HIST 112	Introduction to Public History	
HIST 404	Advanced Public History	
HIST 490	Archival Management	
RPTM 300Y	Tourism and Leisure Behavior	
RPTM 334	Non-profit Recreation Agency Operations	
Up to 6 credits of Internship by permission of department		

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Elizabeth Mansfield
Head of the Department of Art History
240 Borland Building

University Park, PA
814-865-4886
ecm289@psu.edu

Career Paths

Museums of art, technology, sports and history exist in every major city in the world. Small towns and rural areas are also home to countless museums, of all sorts. Museums are important sites of cultural preservation and economic growth. Careers and graduate study in museums take many forms, from legal, business, and administrative aspects to educational and curatorial paths. Some careers in museum administration do not require graduate degrees while others typically do.

Careers

- Museum Director
- Museum Registrar
- Museum Educator
- Museum Curator
- Exhibition Coordinator
- Communications Director

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A CERTIFICATE IN MUSEUM STUDIES (<https://www.aam-us.org/>)

Opportunities for Graduate Studies

- Art History
- Arts Administration
- Art Education
- Law
- Business

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<http://ww2.aam-us.org/resources/careers/museum-studies-programs/>)

Contact

University Park

DEPARTMENT OF ART HISTORY
240 Borland Building
University Park, PA 16802
814-865-6326
exn30@psu.edu

<https://arts.psu.edu/academics/department-of-art-history/>

Music Education, B.M.E.

Begin Campus: University Park

End Campus: University Park

Program Description

The Bachelor of Music Education (B.M.E.) degree is a professional program that helps prepare students for teaching in elementary and secondary schools. Students are expected to meet all requirements for Entrance to Teacher Certification Program in Music, must pass the piano proficiency, complete all music courses, SPLED 400 and SPLED 403A or SPLED 403B, prior to student teaching. Graduates of this program

are prepared to receive the Pennsylvania Instructional I certificate for teaching music K-12. (See also Teacher Education Programs.)

The goal of the Penn State Music Teacher Education Program is to prepare exemplary music teachers for K-12 music programs. Such individuals can provide outstanding personal and musical models for children and youth and have a firm foundation in pedagogy on which to build music teaching skills. Penn State B.M.E. graduates exhibit excellence in music teaching as personal and musical models as well as emerging pedagogues.

What is Music Education?

It's sharing both your knowledge of music and your passion for it with others. Music education fosters the continuation of the art of music through the development of new musicians and new audiences. Music educators share their musical skills with widely diverse populations. Teaching early childhood music classes, elementary school music, middle and high school band, orchestra and choir, and adult community ensembles are just some of the ways music educators ply their trade.

You Might Like This Program If...

- You have a good level of musical skill and are passionate about sharing your musical knowledge with others, particularly in a school environment.
- You possess an outgoing personality, good social skills, and leadership qualities that will inspire students to achieve success.

Entrance to Major

All candidates seeking entrance to the Bachelor of Music Education (B.M.E.) must meet the following entrance to major criteria:

1. Minimum 3.00 cumulative GPA by the end of the semester prior to ETM semester and at least 48 credits completed by the end of the semester prior to ETM semester.
2. Complete 6 credits in quantification (GQ) (Require a grade of C or better).
3. Complete 3 credits in literature (GH) (Require a grade of C or better). See: <https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/undergraduate/advising-certification/certification-process> (<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/undergraduate/advising-certification/certification-process/>).
4. Complete ENGL 15 or ENGL 30H (Require a grade of C or better).
5. Complete early field experience (Require a grade of C or better).
 - a. Course List: MUSIC 295A.
6. Complete EDPSY 10 and 3 additional credits of the education core (Require a grade of C or better).
 - a. Course List: EDPSY 10, PSYCH 100, HDFS 229, HDFS 239.
7. Complete 15 credits of required courses in teaching area (Require a grade of C or better).
 - a. Course List: MUSIC 112, MUSIC 151, MUSIC 153, MUSIC 154, MUSIC 162, MUSIC 216, MUSIC 222, MUSIC 261, MUSIC 262, MUSIC 331.
8. Complete primary level IV on applied instrument (Require a grade of C or better).
9. Complete and document a minimum of 80 hours of paid or volunteer work with age-appropriate population. At least 40 hours of these age-appropriate 80 hours would be satisfied by working with "under-represented learners."

10. Complete additional requirements: Voice Requirement (MUSIC 116 or VOICE 270), Piano Requirement (MUSIC 270 or KEYBD 270), and Percussion Requirement (MUSIC 152 or PERCN 270) (Require a grade of C or better).
11. Approval from the professional education adviser or the head of the pertinent certification program.

Entrance Procedures

Students interested in pursuing Music Education (B.M.E.) should follow the appropriate first year, change of major, or transfer application instructions found under Music Admission Information at <https://arts.psu.edu/how-to-apply/#specific>.

Degree Requirements

For the Bachelor of Music Education degree, a minimum of 139 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	104-106

10-12 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GS, 1-3 credits of GA, and 3 credits of GH.

18 of the 45 credits for General Education are required for Entrance to Teacher Certification.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CI 280	Introduction to Teaching English Language Learners	3
EDPSY 10	Individual Differences and Education	3
MUSIC 40	First-Year Seminar in Music	1
MUSIC 101	Music Common Hour	1
MUSIC 112	Guitar Techniques I	0.5
MUSIC 121	Basic Musicianship I	1
MUSIC 122	Basic Musicianship II	1
MUSIC 131	Music Theory I	2
MUSIC 132	Music Theory II	2
MUSIC 151	Brass Techniques I	1
MUSIC 153	String Techniques I	1
MUSIC 154	Woodwind Techniques I	1
MUSIC 162	Introduction to Music History	2
MUSIC 216	Care and Nurture of Young Singing Voices	0.5
MUSIC 221	Basic Musicianship III	1
MUSIC 222	Basic Musicianship IV	1
MUSIC 231	Music Theory III	2
MUSIC 261	Survey of Music History I	3

MUSIC 262	Survey of Music History II	3
MUSIC 266	Basic Conducting	1
MUSIC 295A	Early Field Experience in Music Education	1
MUSIC 331	Tonal Analysis	2
MUSIC 332	Analysis of Twentieth Century Music	2
MUSIC 340		2
MUSIC 341	Instructional Materials in Music	2
MUSIC 345	Instructional Practices in Music	2
MUSIC 366	Intermediate Conducting	1
MUSIC 395A	Cohort Practicum I	1
MUSIC 395B	Cohort Practicum II	1
SPLED 400	Inclusive Special Ed Foundations: Legal, Characteristics, Collaboration, Assessment, and Management	4

Additional Courses

<i>Additional Courses: Require a grade of C or better</i>		
INART 258A	Fundamentals of Digital Audio	1-3
	or INART 258B Fundamentals of Digital Audio	
MUSIC 181	Jazz Improvisation I	2
	or MUSIC 267 Techniques of Composition	
SPLED 403A	Evidence-Based Instruction for Elementary Students with Disabilities in Reading, Math, and Writing	3
	or SPLED 403B Evidence-Based Methods for Teaching Secondary Students with Disabilities in Inclusive Settings	
Select 7 credits of ensembles of the following:		7
MUSIC 76	Chamber Orchestra	
MUSIC 77	Philharmonic Orchestra	
MUSIC 78	Symphonic Wind Ensemble	
MUSIC 80	Symphonic Band	
MUSIC 81	Marching Blue Band	
MUSIC 82	Concert Band	
MUSIC 84	Jazz Ensemble	
MUSIC 86	Percussion Ensemble	
MUSIC 87	Mallet Ensemble	
MUSIC 89	University Choir	
MUSIC 90	Glee Club	
MUSIC 91	Oriana Singers	
MUSIC 92	Chamber Music for Voices	
MUSIC 93	Essence of Joy	
MUSIC 94	Women's Chorale	
MUSIC 103	Concert Choir	
MUSIC 104	Chamber Singers	
MUSIC 190	Chamber Music for Strings	
MUSIC 191	Chamber Music for Woodwinds	
MUSIC 192	Chamber Music for Brass	
MUSIC 193	Sonata Duos	
MUSIC 194	Studio and Recital Accompanying	
Select 14 credits in applied music through Primary Level VII		14
Select 3 credits of the following:		3
HDFS 229	Infant and Child Development	
HDFS 239	Adolescent Development	
PSYCH 100	Introductory Psychology	

Select 3 credits of the following: 3

MUSIC 441W Emphasis in Elementary General Music

MUSIC 444W Emphasis in Elementary and Intermediate Band

MUSIC 445W Emphasis in High School Band

MUSIC 446W Emphasis in Strings and Orchestra

Select 12 credits from MUSIC 495A, MUSIC 495B, MUSIC 495C, as follows: 12

5 or 7 credits of MUSIC 495A

5 or 7 credits of MUSIC 495B or MUSIC 495C

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 10 credits for the Individualized Emphasis, an individualized cluster of courses approved in advance by the Music Education Faculty, from an approved department list 10

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3

credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Learning Outcomes

- Competence as a conductor with the ability to create accurate and musically expressive performances with various types of performing groups and in general classroom.
- Ability to arrange and adapt music from a variety of sources to meet the needs and ability levels of individuals, school performing groups, and in classroom situations.
- Functional performance abilities in keyboard and the voice.
- Ability to apply analytical and historical knowledge to curriculum development, lesson planning, and daily classroom and performance activities.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged

in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Margaret Higgins

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University Park, PA 16802
814-865-9523
mah68@psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Music Education, B.M.E. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MUSIC 121 [*]	1 ENGL 15, 15A, or 30H ^{‡#}	3
MUSIC 131 [*]	2 EDPSY 10 (GS) ^{*#†}	3
MUSIC 40 [*]	1 MUSIC 116 or VOICE 270 ^{*#3}	1
INART 258B or 258A (GA) ^{*#†1}	1-3 MUSIC 122 [*]	1
General Education, Literature Course (GH; US) ^{*#†}	3 MUSIC 132 [*]	2
General Education Course (GQ) ^{‡#†}	3 MUSIC 162 (IL) ^{*#}	2
Additional Course for Major, Applied Music (see note) ^{*1}	2 General Education Course	3
Additional Course for Major, Ensemble (see note) ^{*1}	1 Additional Course for Major, Applied Music (see note) ^{*1}	2
Supporting Course for Major (see note) ^{*2}	2 Additional Course for Major, Ensemble (see note) ^{*1}	1
	Supporting Course for Major (see note) ^{*2}	1
16-18		19

Second Year

Fall	Credits Spring	Credits
MUSIC 151 or 152 ^{*#}	1 MUSIC 151 or 152 ^{*#}	1
MUSIC 153 or 154 ^{*#}	1 MUSIC 153 or 154 ^{*#}	1

MUSIC 221 [*]	1 MUSIC 222 ^{*#}	1
MUSIC 231 [*]	2 MUSIC 261 ^{*#}	3
MUSIC 262 ^{*#}	3 MUSIC 270 ^{*#3}	1
MUSIC 340 [*]	2 MUSIC 295A ^{*#}	1
Additional Course for Major, Applied Music (see note) ^{*1}	2 MUSIC 331 ^{*#}	2
Additional Course for Major, Ensemble (see note) ^{*1}	1 PSYCH 100, HDFS 229, or HDFS 239 (GS) ^{*#†1}	3
General Education Course	3 Additional Course for Major, Applied Music (see note) ^{*1}	2
General Education Course (GQ) ^{‡#†}	3 Additional Course for Major, Ensemble (see note) ^{*1}	1
	Supporting Course for Major (see note) ^{*2}	1
19		17

Third Year

Fall	Credits Spring	Credits
CI 280 (GH) ^{*†}	3 CAS 100A, 100B, or 100C [‡]	3
ENGL 202A, 202B, 202C, or 202D [‡]	3 MUSIC 345 [*]	2
MUSIC 266 [*]	1 MUSIC 366 [*]	1
MUSIC 332 [*]	2 MUSIC 395B [*]	1
MUSIC 341 [*]	2 SPLED 400 [*]	4
MUSIC 395A [*]	1 Additional Course for Major, Applied Music (see note) ^{*1}	2
MUSIC 112 ^{*#}	0.5 Additional Course for Major, Ensemble (see note) ^{*1}	1
MUSIC 216 ^{*#}	0.5 General Education Course	3
Additional Course for Major, Applied Music (see note) ^{*1}	2 Supporting Course for Major (see note) ^{*2}	2
Additional Course for Major, Ensemble (see note) ^{*1}	1	
Supporting Course for Major (see note) ^{*2}	3	
19		19

Fourth Year

Fall	Credits Spring	Credits
MUSIC 101 [*]	1 MUSIC 495 (see note on 495A, B, and C) ^{*1}	12
SPLED 403A or 403B ^{*1}	3	
MUSIC 441W, 444W, 445W, or 446W (W) ^{*1}	3	
Additional Course for Major, Applied Music (see note) ^{*1}	2	
Additional Course for Major, Ensemble (see note) ^{*1}	1	
General Education Course	3	
General Education Course (GHW)	3	
Supporting Course for Major (see note) ^{*2}	2	
18		12

Total Credits 139-141

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ **ADDITIONAL COURSES** (45-47 credits)

-Select 1-3 credits from INART 258A GA(3) or INART 258B GA(1) (Sem: 1-2)

-Select 7 credits of ensembles as follows: MUSIC 76(1), MUSIC 77 GA(1), MUSIC 78 GA(1), MUSIC 80 GA(1), MUSIC 81 GA(1), MUSIC 82 GA(1), MUSIC 84 GA(1), MUSIC 86 GA(1), MUSIC 87 GA(1), MUSIC 89 GA(1), MUSIC 90 GA(1), MUSIC 91 GA(1), MUSIC 92 GA(1), MUSIC 93 GA;US;IL(1), MUSIC 94 GA(1), MUSIC 103 GA(1), MUSIC 104 GA(1), MUSIC 190 GA(1), MUSIC 191 GA (1), MUSIC 192 GA(1), MUSIC 193(1), MUSIC 194(1) (Sem: 1-7)

-Select 14 credits in applied music through Primary Level VII (Sem: 1-7)

-Select 3 credits from HDFS 229 GS(3), HDFS 239 GS(3) or PSYCH 100 GS(3) (Sem: 1-4)

-Select 3 credits from SPLED 403A(3) or SPLED 403B(3) (Sem: 6-7)

-Select 2 credits from MUSIC 181(2), MUSIC 267(2) (Sem: 5-6)

-Select 3 credits from MUSIC 441W(3), MUSIC 444W(3), MUSIC 445W(3), MUSIC 446W(3) (Sem: 7)

-Select 12 credits from MUSIC 495A, MUSIC 495B, MUSIC 495C, as follows:

— 5 or 7 credits of MUSIC 495A (Sem: 8)

— 5 or 7 credits of MUSIC 495B or MUSIC 495C (Sem: 8)

² **SUPPORTING COURSES AND RELATED AREAS** (10 credits)

Select 10 credits for the Individualized Emphasis, an individualized cluster of courses approved in advance by the Music Education Faculty, from an approved department list.

³ **Entrance to Major Requirements**

All candidates seeking entrance to the Bachelor of Music Education (B.M.E.) must meet the following entrance to major criteria:

-Minimum 3.00 cumulative GPA by the end of the semester prior to ETM semester and at least 48 credits completed by the end of the semester prior to ETM semester.

-Either qualifying scores from the PECT PAPA for Reading, Writing and Mathematics; qualifying Scholastic Achievement Test scores for the combined and individual Critical Reading, Writing, and Mathematics sections; or qualifying American College Test Plus Writing composite and individual English/Writing score and Math score as specified by the Pennsylvania Department of Education.

-Complete 6 credits in quantification (GQ) ("C" or higher required).

-Complete 3 credits in literature (GH) ("C" or higher required).

-Complete ENGL 15 or ENGL 30H ("C" or higher required).

-Complete early field experience ("C" or higher required).

Course List: MUSIC 295A

-Complete EDPSY 10 and 3 additional credits of the education core ("C" or higher required).

Course List: EDPSY 10, PSYCH 100, HDFS 229, HDFS 239

-Complete 15 credits of required courses in teaching area ("C" or higher required).

Course List: MUSIC 112, 151, 153, 154, 162, 216, 222, 261, 262, 331.

-Complete primary level IV on applied instrument ("C" or higher required)

-Complete and document a minimum of 80 hours of paid or volunteer work with age-appropriate population. At least 40 hours of these age-appropriate 80 hours would be satisfied by working with "under-represented learners."

-Complete additional requirements: Voice Requirement (MUSIC 116 or VOICE 270), Piano Requirement (MUSIC 270 or KEYBD 270), and

Percussion Requirement (MUSIC 152 or PERCN 270) ("C" or higher required).

Approval from the professional education adviser or the head of the pertinent certification program.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Career Paths

A degree in music education prepares students to teach music in a variety of school settings to children in grades K-12. A degree in music education may serve as the basis for graduate study not only in music education, but also in performance, composition, conducting, music theory, music history and others.

Careers

Graduates of the B.M.E. program receive Pennsylvania certification to teach K-12 instrumental, vocal and general music. Additionally, the degree includes an "individualized emphasis" based on the student's strengths and interests. B.M.E. graduates are prepared to enter the classroom and have successful careers as an elementary, middle, or high school music teachers.

Opportunities for Graduate Studies

Because the music education degree program develops a complete, well-rounded musician, graduates are prepared to pursue graduate study in not only music education, but all other areas of music as well. Graduate study in performance, conducting, theory and composition, musicology, and more are all possible with a B.M.E. degree.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://arts.psu.edu/academics/school-of-music/>)

Accreditation

The Pennsylvania State University is accredited through the National Association of Schools of Music. NASM is an organization of schools, conservatories, colleges, and universities with approximately 650 accredited institutional members. It establishes national standards for undergraduate and graduate degrees and other credentials for music and music-related disciplines, and provides assistance to institutions and

individuals engaged in artistic, scholarly, educational, and other music-related endeavors.

MORE INFORMATION ABOUT THE NATIONAL ASSOCIATION OF SCHOOLS OF MUSIC (<https://nasm.arts-accredit.org>)

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

University Park

SCHOOL OF MUSIC
233 Music Building I
University Park, PA 16802
814-865-0431
music-ug-adm@psu.edu

<https://arts.psu.edu/academics/school-of-music/>

Music Performance, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The minor in music performance serves a wide variety of needs among the students who elect it. Those who have studied voice or an instrument through their high school years may pursue that study at a more advanced level. Participants in bands, orchestras, and choirs want to continue that activity at a higher level. Some find the minor an important adjunct to other studies such as speech pathology and audiology, speech communication, or broadcasting. This minor provides students in very demanding majors to build music performance into their lives as a balancing influence.

What is Music?

Italian composer Ferruccio Busoni said "music is sonorous air." A more scientific definition might be "sounds organized in time." With a history that likely pre-dates language, music is an integral part of all societies for expression, communication and the fostering of community. In the words of philosopher Friedrich Nietzsche, "without music, life would be a mistake."

You Might Like This Program If...

- You studied music and performed in ensembles before college and want to continue study of your instrument/voice and performing.
- You will be pursuing a non-music degree, but can see that music will be a life-long passion.

Entrance to Minor

Admission to the minor depends upon a successful performance audition.

Additional Information

For more specific information on entrance procedures, please visit the website for the College of Arts and Architecture (<https://arts.psu.edu/how-to-apply/>).

Program Requirements

Requirement	Credits
Requirements for the Minor	21

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
	Select 8 credits in applied music through Level IV: Primary	8
	Select 4 credits in ensembles	4
	Select 3 credits of electives in MUSIC	3
	Select 6 credits at the 400 level in MUSIC	6

Learning Outcomes

Performing skills on chosen instrument/voice to present accurate and artistic performances.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Career Paths

A minor in music performance lays the foundation for graduates to integrate their love and knowledge of music into any career path.

Careers

When paired with the student's primary area of study, this minor develops a unique skill set for every individual that may be applied in almost any career field.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://arts.psu.edu/academics/school-of-music/>)

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Music Studies, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The minor in music studies provides students the opportunity to conduct a focused study on music theory, history, and literature. The minor may also serve as an important adjunct to other studies such as speech pathology and audiology, speech communication, or broadcasting. Some students choose to add the music studies minor as a balancing influence to coursework in their majors; others relate music studies directly to their major.

What is Music?

Italian composer Ferruccio Busoni said "music is sonorous air." A more scientific definition might be "sounds organized in time." With a history that likely pre-dates language, music is an integral part of all societies for expression, communication and the fostering of community. In the words of philosopher Friedrich Nietzsche, "without music, life would be a mistake."

You Might Like This Program If...

You have skills and an interest in music theory and music history and would like to continue playing or singing in ensembles while pursuing a degree outside music.

Entrance to Minor

Admission to the minor depends upon the ability to read musical notation, which is assessed by a music theory assessment test offered during the annual audition days for students at University Park or by contacting the music program director at the various commonwealth campuses to schedule an assessment.

Additional Information

For more specific information on entrance procedures, please visit the website for the College of Arts and Architecture (<https://arts.psu.edu/how-to-apply/>).

Program Requirements

Requirement	Credits
Requirements for the Minor	21

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
MUSIC 131	Music Theory I	2
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 9 credits from one of the following sequences:		9
<i>Sequence 1</i>		
MUSIC 132	Music Theory II	
MUSIC 231	Music Theory III	
MUSIC 332	Analysis of Twentieth Century Music	
MUSIC 261	Survey of Music History I	
	or MUSIC 262 Survey of Music History II	
<i>Sequence 2</i>		
MUSIC 4	Film Music	
MUSIC 162	Introduction to Music History	
AFAM/INART/ AMST 226N	Critical Approaches to Hip-Hop	
MUSIC/AFAM 207N	Jazz and the African American Experience	
MUSIC 209N/ ENGL 208N	The Music of the Beatles and American Popular Culture	
MUSIC 261	Survey of Music History I	
MUSIC 262	Survey of Music History II	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 6 credits at the 400-level in MUSIC		6
Select 4 credits in ensembles		4

Learning Outcomes

- To hear, identify, and work conceptually with the elements of music such as rhythm, melody, harmony, structure, timbre, texture.
- Have an understanding of and the ability to read and realize musical notation.
- Have an understanding of compositional processes, aesthetic properties of style, and the ways these shape and are shaped by artistic and cultural forces.
- Have an acquaintance with a wide selection of musical literature, the principal eras, genres, and cultural sources.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of

both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

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Harrisburg

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Career Paths

A minor in music studies lays the foundation for graduates to integrate their love and knowledge of music into any career path.

Careers

When paired with the student's primary area of study, this minor develops a skill set that can be applied in almost any career field.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://arts.psu.edu/academics/school-of-music/>)

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Harrisburg

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Music Technology, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

Administered by faculty from the College of Arts & Architecture's School of Music, School of Theatre, and Department of Integrative Arts, the minor in Music Technology is appropriate for undergraduate students seeking to apply domains of knowledge from their majors or General Education programs to issues of audio production and digital technology in music.

The program consists of prescribed foundation courses in musical acoustics, digital audio, sound design and audio recording. Supporting course work allows students to focus in advanced topics such as music software programming, multi-media, or entertainment systems.

The Music Technology Minor Committee is authorized to award a minor to any undergraduate who, in addition to satisfying the degree requirements of his or her baccalaureate major, satisfies the requirements for the Music Technology minor. The completion of the minor is reflected by a formal notation in the student's official record at the time of graduation.

What is Music Technology?

Music Technology is the study of musical acoustics, digital audio, sound design, and audio recording. It is the use of devices, machines, or tools used to create, record, store, edit, and reproduce music.

You Might Like This Program If...

You have interests in recording, sound production, and acoustics and have a background in music and computer software. While open to students pursuing any major, the music technology minor combines well with majors in music, theatre sound design, integrative arts, film production, information science and technology, and computer science.

Entrance to Minor

Those interested in the music technology minor are encouraged to begin taking applicable courses as early as possible. Students must apply to the minor no later than the beginning of their 6th semester. Students who have earned at least a grade of C in INART 50 and INART 258A may apply for admission to the program by submitting an application including a course proposal.

Additional Information

For more specific information on entrance procedures, please visit the website for the College of Arts and Architecture (<https://arts.psu.edu/degrees/music-technology-minor/#apply>).

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>).

In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
INART 50	The Science of Music	3
INART 258A	Fundamentals of Digital Audio	3
THEA 285	Introduction to Sound Design	3
THEA 484	Sound Recording Techniques	3
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 6 credits in consultation with the minor adviser with at least 3 credits at the 400 level		6

Learning Outcomes

- Ability to integrate and synthesize basic musical and technological knowledge and skills in the conceptualization of music technology projects.
- Ability to produce work in at least one area of music technology.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

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Career Paths

Students who pursue a minor in music technology develop skills in applying technology to music production and performance. These skills may provide opportunities in varied career options and graduate study opportunities

Careers

Students who complete the music technology minor will have skills that can be developed for use in many areas of music production. Acoustic consultant, audio and sound engineer, recording engineer and mixer,

music editor and sound designer are just some of the jobs that use music technology.

Opportunities for Graduate Studies

A minor in music technology may open up opportunities for further study at the graduate level.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://arts.psu.edu/academics/school-of-music/>)

Contact

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<https://arts.psu.edu/academics/school-of-music/>

Music, B.A.

Begin Campus: University Park

End Campus: University Park

Program Description

The Bachelor of Arts degree in Music combines a broad liberal education with a selection of courses in Music. The degree is designed to develop basic musicianship, the ability to perform, and a set of principles that leads to a fuller intellectual grasp of the art.

The B.A. in Music degree program includes a General Music Studies Option and an additional option in Music Technology.

Students are required to pass a piano proficiency examination, enroll in a core ensemble for two semesters, and satisfactorily complete a senior project.

What is Music?

Italian composer Ferruccio Busoni said "music is sonorous air." A more scientific definition might be "sounds organized in time." With a history that likely pre-dates language, music is an integral part of all societies for expression, communication and the fostering of community. In the words of philosopher Friedrich Nietzsche, "without music, life would be a mistake."

You Might Like This Program If...

You're looking for an educational experience that develops your musicianship, scholarship, and performance skills through broad-based study in all areas of music. For those students interested in music technology, an option in the B.A. provides a focus in this area. If you are looking to earn two degrees, the B.A. combines well with a degree outside of music.

Entrance to Major

Application for admittance into the program requires completion of a two-year core of music and General Education courses.

Entrance Procedures

Students interested in pursuing Music (B.A.) should follow the appropriate first year, change of major, or transfer application instructions found under Music Admission Information at <https://arts.psu.edu/how-to-apply/#specific>.

Degree Requirements

For the Bachelor of Arts degree in Music, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	0-3
Bachelor of Arts Degree Requirements	24
Requirements for the Major	49-76

1-12 of the 45 credits for General Education are included in the Requirements for the Major. For the General Music Studies Option, this includes: 1-3 credits of GA courses. For the Music Technology Option, this includes 3 credits of GA courses, 9 credits of GN courses.

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if foreign language proficiency is demonstrated by examination.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
MUSIC 101	Music Common Hour	1
MUSIC 121	Basic Musicianship I	1
MUSIC 122	Basic Musicianship II	1
MUSIC 131	Music Theory I	2
MUSIC 132	Music Theory II	2
MUSIC 162	Introduction to Music History	2
MUSIC 221	Basic Musicianship III	1
MUSIC 222	Basic Musicianship IV	1
MUSIC 231	Music Theory III	2
MUSIC 261	Survey of Music History I	3
MUSIC 262	Survey of Music History II	3
MUSIC 332	Analysis of Twentieth Century Music	2
MUSIC 476W	B.A. Senior Project	3
Supporting Courses and Related Areas		
Select 6 credits in applied music through Level IV of Primary		6
Select 4 credits of ensembles (see School of Music Handbook for list of ensembles)		4

Requirements for the Option

Select an option	15-42
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Requirements for the Option

General Music Studies Option (15-17 credits)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
MUSIC 119	First-Year Music Seminar	2
Additional Courses		
INART 258A	Fundamentals of Digital Audio	1-3
	or INART 258B Fundamentals of Digital Audio	
Supporting Courses and Related Areas		
Select 12 credits of 400-level music courses (see School of Music Handbook for specific requirements)		12

Music Technology Option (39-42 credits)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
COMM 100N/ AMST 106N	The Mass Media and Society	3
HIST 128N	Cultural Perspectives on Mathematics	3
INART 50Z		3
INART 258A	Fundamentals of Digital Audio	3
MATH 38	Elementary Linear Algebra	3
MATH 41	Trigonometry and Analytic Geometry	3-4
MATSE 81	Materials in Today's World	3
MUSIC 127	Introduction to Music Technology	1
MUSIC 177	ROARS lab	1-3
MUSIC 437	Music Information Retrieval and Computer-Assisted Music	3
MUSIC 451	Computer Programming for Musicians	3
MUSIC 452	Computer Music Synthesis	3
MUSIC 453	Recording Studio Training	1
MUSIC 458	Electronic Music Composition I	3
THEA 484	Sound Recording Techniques	3

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or

within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Integrated B.A. in Music and M.A. in Music

Requirements for the Integrated B.A. in Music and M.A. in Music can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/music/#integratedundergradgradprogramstext>).

Learning Outcomes

General Studies

- To hear, identify, and work conceptually with the elements of music such as rhythm, melody, harmony, structure, timbre, texture.
- Have an understanding of and the ability to read and realize musical notation.
- Have an understanding of compositional processes, aesthetic properties of style, and the ways these shape and are shaped by artistic and cultural forces.
- Have an acquaintance with a wide selection of musical literature, the principal eras, genres, and cultural sources.
- Performing skills on chosen instrument/voice to present accurate and artistic performances.

Music Technology

The above learning outcomes plus:

- Understanding of music technology as an integrated field.
- Understanding of fundamental science, engineering, and math content underlying acoustics and electronic technologies employed in music technology.
- Ability to integrate and synthesize basic musical and technological knowledge and skills in the conceptualization of music technology projects.
- Ability to produce work in at least one area of integrative music technology, or to produce undergraduate-level research or scholarly work in integrative music technology.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

General Music Option: Music, B.A. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MUSIC 119*	2 ENGL 15, 15A, or 30H [†]	3
MUSIC 121*	1 MUSIC 122*	1
MUSIC 131*	2 MUSIC 132*	2
World Language	4 MUSIC 162*	2
General Education Course	3 World Language	4
General Education Course	3 Supporting Course for Major, Applied Music (see note) ^{*1}	2
15		14

Second Year

Fall	Credits Spring	Credits
MUSIC 221*	1 ENGL 202A, 202B, 202C, or 202D [‡]	3
MUSIC 231*	2 MUSIC 222*	1

MUSIC 262*	3 MUSIC 261*	3
Additional Course for Option ^{*2}	1-3 MUSIC 331*	2
World Language	4 General Education Course	3
General Education Course	3 Supporting Course for Major, Applied Music (see note) ^{*1}	2
Supporting Course for Major, Applied Music (see note) ^{*1}	2 Supporting Course for Major, Ensemble (see note) ^{*1}	1
Supporting Course for Major, Ensemble (see note) ^{*1}	1	
17-19		15

Third Year

Fall	Credits Spring	Credits
MUSIC 332	2 CAS 100A, 100B, or 100C [‡]	3
General Education Course (US)	3 BA Knowledge Domain Course	3
General Education Course	3 General Education Course	3
General Education Course	3 Supporting Course for Major, Ensemble (see note) ^{*1}	1
Supporting Course for Major, Ensemble (see note) ^{*1}	1 Supporting Course for Option, 400-level (see note) ^{*3}	3
Supporting Course for Option, 400-level (see note) ^{*3}	3	
15		13

Fourth Year

Fall	Credits Spring	Credits
BA Knowledge Domain Course	3 MUSIC 101	1
BA Knowledge Domain Course	3 MUSIC 476W*	3
General Education Course	3 Elective	6
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
World Cultures Course	3 Supporting Course for Option, 400-level (see note) ^{*3}	3
Supporting Course for Option, 400-level (see note) ^{*3}	3	
16.5		14.5

Total Credits 120-122

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

- 1 **SUPPORTING COURSES AND RELATED AREAS** (10 credits)
 - Select 6 credits in applied music through Level IV of Primary (Sem: 1-8)
 - Select 4 credits of ensembles (see School of Music Handbook for list of ensembles) (Sem: 1-8)
- 2 **ADDITIONAL COURSES, GENERAL MUSIC STUDIES OPTION**(1-3 credits)
 - INART 258A GA(3) or INART 258B GA(1) (Sem: 3-4)
- 3 **SUPPORTING COURSES AND RELATED AREAS, GENERAL MUSIC STUDIES OPTION** (12 credits)

Select 12 credits of 400-level music courses (see School of Music Handbook for specific requirements) (Sem: 5-8)

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Music Technology Option: Music, B.A. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 (GQ) ^{**†}	4 ENGL 15, 15A, or 30H [‡]	3
MUSIC 119 [*]	2 MUSIC 122 [*]	1
MUSIC 121 [*]	1 MUSIC 132 [*]	2
MUSIC 131 [*]	2 MUSIC 162 ^{**†}	2
PHYS 211 or 250 (GN) ^{**2}	4 PHYS 212 or 251 (GN) ^{**2}	4
Supporting Course for Major, Ensemble (see note) ^{*1}	1 Supporting Course for Major, Applied Music (see note) ^{*1}	2
	Supporting Course for Major, Ensemble (see note) ^{*1}	1
	14	15

Second Year

Fall	Credits Spring	Credits
INART 50 (GN) ^{**†}	3 INART 258A (GA) ^{**†}	3
MUSIC 221	1 MUSIC 222 [*]	1
MUSIC 231 [*]	2 MUSIC 261 (IL) ^{**†}	3
MUSIC 262 (GA; IL) ^{**†}	3 MUSIC 331 [*]	2
World Language	4 World Language	4
Supporting Course for Major, Applied Music (see note) ^{*1}	2 Supporting Course for Major, Applied Music (see note) ^{*1}	2
Supporting Course for Major, Ensemble (see note) ^{*1}	1 Supporting Course for Major, Ensemble (see note) ^{*1}	1
	16	16

Third Year

Fall	Credits Spring	Credits
ENGL 202A, 202B, 202C, or 202D [‡]	3 CAS 100A, 100B, or 100C [‡]	3
MATH 220 ^{**†}	2 INART 55 [*]	3
MUSIC 332 [*]	2 MUSIC 452 [*]	3
THEA 484 [*]	3 MUSIC 458 [*]	3
BA Knowledge Domain Course	3 BA Knowledge Domain Course	3
World Language	4	
	17	15

Fourth Year

Fall	Credits Spring	Credits
MUSIC 453 [*]	1 MUSIC 101 [*]	1
BA Knowledge Domain Course	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course (GHW)	1.5
General Education Course (GHW)	1.5 MUSIC 451 [*]	3

World Cultures Course	3 MUSIC 476W [*]	3
	14.5	14.5

Total Credits 122

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ SUPPORTING COURSES AND RELATED AREAS (10 credits)

- Select 6 credits in applied music through Level IV of Primary (Sem: 1-8)
- Select 4 credits of ensembles (see School of Music Handbook for list of ensembles) (Sem: 1-8)

² ADDITIONAL COURSES, MUSIC TECHNOLOGY OPTION (6-8 credits)

- PHYS 250 GN(4) or PHYS 211 GN(3), PHYS 251 GN(4) or PHYS 212 GN(3) (Sem: 1-2)

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Career Paths

The Bachelor of Arts in Music program provides students with a strong foundation in all areas of music. Students on the general music studies track may pursue a wide range of potential careers, as well as graduate study in more specialized areas of music. Students on the music

technology track develop a range of knowledge and skills that prepare graduates for numerous career options and graduate study opportunities.

Careers

A wide range of careers is possible for graduates of the B.A. in music program's general studies option. From performance to arts management to entrepreneurial pursuits, the possibilities are extensive. Graduates of the music technology option have the skills and knowledge to pursue careers in many areas of the field. Producers, acoustic consultants, sound technicians, audio and sound engineers, recording engineers and mixers, music editors, sound designers, and audio developers are just some of the careers that use music technology.

Opportunities for Graduate Studies

Graduates of the B.A. in music program are prepared to pursue graduate study in a more specialized area of music, including performance, theory and composition, conducting, technology, musicology, and more!

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://arts.psu.edu/academics/school-of-music/>)

Accreditation

The Pennsylvania State University is accredited through the National Association of Schools of Music. NASM is an organization of schools, conservatories, colleges, and universities with approximately 650 accredited institutional members. It establishes national standards for undergraduate and graduate degrees and other credentials for music and music-related disciplines, and provides assistance to institutions and individuals engaged in artistic, scholarly, educational, and other music-related endeavors.

MORE INFORMATION ABOUT THE NATIONAL ASSOCIATION OF SCHOOLS OF MUSIC (<https://nasm.arts-accredit.org>)

Contact

University Park

SCHOOL OF MUSIC
233 Music Building I
University Park, PA 16802
814-865-0431
music-ug-adm@psu.edu

<https://arts.psu.edu/academics/school-of-music/>

Music, B.M.

Begin Campus: University Park

End Campus: University Park

Program Description

The Bachelor of Music degree program is intended to prepare students for careers in composition or performance. Completion of this program requires that the student achieve a high level of competence in order to begin professional work or pursue further studies at the graduate level.

What is Music?

Italian composer Ferruccio Busoni said "music is sonorous air." A more scientific definition might be "sounds organized in time." With a history that likely pre-dates language, music is an integral part of all societies

for expression, communication and the fostering of community. In the words of philosopher Friedrich Nietzsche, "without music, life would be a mistake."

You Might Like This Program If...

- You have achieved a high level of musical accomplishment from years of study, practice, and ensemble participation and want to pursue a career in performance or composition
- Music is the driving force in your life and you are captivated by all things musical

Entrance to Major

Entrance into this program will be determined by departmental evaluation.

Entrance Procedures

Students interested in pursuing Music (B.M.) should follow the appropriate first year, change of major, or transfer application instructions found under Music Admission Information at <https://arts.psu.edu/how-to-apply/#specific>.

Degree Requirements

For the Bachelor of Music degree in Music with an option in Composition, a minimum of 133 credits is required; with an option in Keyboard Instruments, a minimum of 126 credits is required; with an option in Strings, Winds, Brass and Percussion Instruments, a minimum of 125 credits is required; and with an option in Voice, a minimum of 131 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	80-90

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
MUSIC 40	First-Year Seminar in Music	1
MUSIC 101	Music Common Hour	1
MUSIC 121	Basic Musicianship I	1
MUSIC 122	Basic Musicianship II	1
MUSIC 131	Music Theory I	2
MUSIC 132	Music Theory II	2
MUSIC 162	Introduction to Music History	2
MUSIC 221	Basic Musicianship III	1
MUSIC 222	Basic Musicianship IV	1
MUSIC 231	Music Theory III	2
MUSIC 261	Survey of Music History I	3
MUSIC 262	Survey of Music History II	3
MUSIC 266	Basic Conducting	1

MUSIC 270	Keyboard Skills IV: Music Major	1
MUSIC 332	Analysis of Twentieth Century Music	2

Additional Courses

Additional Courses: Require a grade of C or better

Select 3 credits from the following: 3

MUSIC 461W Studies in Music History: Antiquity to 1600

MUSIC 462W Studies in Music History: 1550-1750

MUSIC 463W Studies in Music History: 1700-1900

MUSIC 464W Studies in Music History: 1850-Present

Select an additional 3 credits from the following: 3

MUSIC 422 Jazz Harmony and Arranging

MUSIC 431 Advanced Tonal Analysis

MUSIC 433 Advanced Analysis of Twentieth-Century Music

MUSIC 461W Studies in Music History: Antiquity to 1600

MUSIC 462W Studies in Music History: 1550-1750

MUSIC 463W Studies in Music History: 1700-1900

MUSIC 472 Eighteenth-Century Counterpoint

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 4 credits of approved ensembles (see School of Music Handbook for list of ensembles) 4

Requirements for the Option

Requirements for the Option: Require a grade of C or better

Select an option 46-56

**Requirements for the Option
Composition Option (54-56 credits)**

Code	Title	Credits
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Prescribed Courses

Prescribed Courses: Require a grade of C or better

MUSIC 173	First-Year Composition Seminar	2
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MUSIC 174	Composition II	2
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MUSIC 255	Intermediate Theory I	3
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MUSIC 273	Composition III	2
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MUSIC 274	Composition IV	2
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MUSIC 373	Composition V	3
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MUSIC 374	Composition VI	3
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MUSIC 431	Advanced Tonal Analysis	2-3
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MUSIC 433	Advanced Analysis of Twentieth-Century Music	2-3
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MUSIC 451	Computer Programming for Musicians	3
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MUSIC 452	Computer Music Synthesis	3
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MUSIC 458	Electronic Music Composition I	3
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MUSIC 459	Electronic Music Composition II	3
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MUSIC 472	Eighteenth-Century Counterpoint	2
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MUSIC 473	Composition VII	3
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MUSIC 474	Composition VIII	3
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Additional Courses

Additional Courses: Require a grade of C or better

Select 11 credits of Applied MUSIC courses 11

Select 2 credits of approved ensembles (see School of Music Handbook for list of ensembles) 2

Keyboard Instruments Option (47-50 credits)

Code	Title	Credits
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Prescribed Courses

Prescribed Courses: Require a grade of C or better

MUSIC 481	Keyboard Literature	3
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Additional Courses

Additional Courses: Require a grade of C or better

Select 2-3 credits from the following: 2-3

MUSIC 181	Jazz Improvisation I
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MUSIC 182	Jazz Improvisation II
-----------	-----------------------

MUSIC 267	Techniques of Composition
-----------	---------------------------

MUSIC 336	Orchestration
-----------	---------------

MUSIC 422	Jazz Harmony and Arranging
-----------	----------------------------

MUSIC 431	Advanced Tonal Analysis
-----------	-------------------------

MUSIC 432	Graduate Review of Twentieth-Century Analysis
-----------	---

MUSIC 433	Advanced Analysis of Twentieth-Century Music
-----------	--

MUSIC 438	The Business of Music
-----------	-----------------------

MUSIC 471	Structural and Sixteenth-Century Counterpoint
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MUSIC 472	Eighteenth-Century Counterpoint
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Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

MUSIC 419	Piano Pedagogy I	2
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or MUSIC 424 Piano Pedagogy II

Select 4 credits in a secondary instrument 4

Select 4 credits in music in consultation with adviser ¹ 4

Select 4-6 credits in consultation with adviser ² 4-6

Select 24 credits in applied music through Level VIII of performance 24

Select 4 credits of approved ensembles (see School of Music Handbook for list of ensembles) 4

¹ Students may apply 2 credits of ROTC.

² Students may apply 4 credits of ROTC.

Strings, Winds, Brass and Percussion Instruments Option (46-49 credits)

Code	Title	Credits
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Additional Courses

Additional Courses: Require a grade of C or better

MUSIC 485	Chamber Music Literature	3
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or MUSIC 487 Orchestral Literature

Select 2 credits from the following: 2

MUSIC 86	Percussion Ensemble
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MUSIC 87	Mallet Ensemble
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MUSIC 181	Jazz Improvisation I
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MUSIC 190	Chamber Music for Strings
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MUSIC 191	Chamber Music for Woodwinds
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MUSIC 192	Chamber Music for Brass
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MUSIC 336	Orchestration ¹
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MUSIC 366	Intermediate Conducting
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MUSIC 421	Jazz Combo Class
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MUSIC 422	Jazz Harmony and Arranging ¹
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MUSIC 466	Advanced Conducting II
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MUSIC 485	Chamber Music Literature
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MUSIC 487	Orchestral Literature
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Select 2-3 credits from the following: 2-3

MUSIC 181	Jazz Improvisation I	
MUSIC 182	Jazz Improvisation II	
MUSIC 267	Techniques of Composition	
MUSIC 336	Orchestration ¹	
MUSIC 422	Jazz Harmony and Arranging ¹	
MUSIC 431	Advanced Tonal Analysis	
MUSIC 432	Graduate Review of Twentieth-Century Analysis	
MUSIC 433	Advanced Analysis of Twentieth-Century Music	
MUSIC 438	The Business of Music	
MUSIC 472	Eighteenth-Century Counterpoint	

Select 1 credit from the following: 1

MUSIC 414	String Pedagogy	
MUSIC 415	Woodwind Pedagogy	
MUSIC 416	Brass Pedagogy	
MUSIC 417	Percussion Pedagogy	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 4 credits in a secondary instrument	4
Select 4 credits in music in consultation with adviser ²	4
Select 2-4 credits in consultation with adviser ³	2-4
Select 24 credits in applied music through Level VIII of performance	24
Select 4 credits of approved ensembles (see School of Music Handbook for list of ensembles)	4

¹ MUSIC 336 and MUSIC 422 may fulfill the requirement of Additional Courses or Supporting Courses and Related Areas in the option, but not both.

² Students may apply 4 credits of ROTC.

³ Students may apply 2 credits of ROTC.

Voice Option (52-53 credits)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
MUSIC 387	Language Diction for Singers: Italian and English	1
MUSIC 388	Language Diction for Singers: French	1
MUSIC 389	Language Diction for Singers: German	1
MUSIC 418	Voice Pedagogy	2

Additional Courses

Additional Courses: Require a grade of C or better

Select 2-3 credits from the following: 2-3

MUSIC 181	Jazz Improvisation I	
MUSIC 182	Jazz Improvisation II	
MUSIC 267	Techniques of Composition	
MUSIC 336	Orchestration	
MUSIC 422	Jazz Harmony and Arranging	
MUSIC 431	Advanced Tonal Analysis	
MUSIC 432	Graduate Review of Twentieth-Century Analysis	
MUSIC 433	Advanced Analysis of Twentieth-Century Music	
MUSIC 438	The Business of Music	
MUSIC 472	Eighteenth-Century Counterpoint	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

MUSIC 478	Vocal Literature	3
	or MUSIC 480 Opera Literature	

Select 2 credits in consultation with adviser 2

Select 8 credits in one world language: French, German or Italian 8

Select 4 credits in a secondary instrument 4

Select 24 credits in applied music through Level VIII of performance 24

Select 4 credits of approved ensembles (see School of Music Handbook for list of ensembles) 4

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.M. in Performance and M.A. in Music

Requirements for the Integrated B.M. in Performance and M.A. in Music can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/music/#integratedundergradprogramtext>).

Learning Outcomes

Performance

- Comprehensive capabilities in the major performing medium including the ability to work independently to prepare performances at the highest possible level; knowledge of applicable solo and ensemble literature; and orientation to and experience with the fundamentals of pedagogy. For majors in Early Music, Historical Performance, or the equivalent, the ability to apply aural, improvisational, and language skills, knowledge of styles and performance practices, and general historical and cultural knowledge as required by the focus of the major is essential.
- An overview understanding of the repertory in their major performance area and the ability to perform from a cross-section of that repertory.
- The ability to read at sight with fluency, demonstrating both general musicianship and, in the major performance area, a level of skill relevant to professional standards appropriate for the particular music concentration.
- Knowledge and skills sufficient to work as a leader and in collaboration on matters of musical interpretation. Rehearsal and

conducting skills are required as appropriate to the particular music concentration.

- Keyboard competency.
- Growth in artistry, technical skills, collaborative competence, and knowledge of repertory through regular ensemble experiences. Ensembles should be varied both in size and nature.

Composition

- Achievement of the highest possible level of skill in the use of basic concepts, tools, techniques, and procedures to develop a composition from concept to finished product. This involves the competency to work with both electronic and acoustic media; work with a variety of forms, styles, and notations; and apply principles of scoring appropriate to particular compositions.
- Fluency in the use of tools needed by composers. This includes keyboard skills, spoken and written language, conducting and rehearsal skills, analytical techniques, and applicable technologies.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Margaret Higgins

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Composition Option: Music, B.M. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MUSIC 120	1 ENGL 15, 15A, or 30H [†]	3
MUSIC 121*	1 MUSIC 122*	1
MUSIC 131*	2 MUSIC 132*	2
MUSIC 173*	2 MUSIC 162*	2
Additional Course for Option, Applied Music, Primary (see note) ^{*3}	1 MUSIC 174*	2
Supporting Course for Major, Ensemble (see note) ^{*2}	1 Additional Course for Option, Applied Music, Primary (see note) ^{*3}	1
General Education Course [‡]	3 Supporting Course for Major, Ensemble (see note) ^{*2}	1
General Education Course	3 General Education Course	3
	General Education Course	3
	14	18

Second Year

Fall	Credits Spring	Credits
MUSIC 221*	1 MUSIC 222*	1
MUSIC 231*	2 MUSIC 261*	3
MUSIC 255	3 MUSIC 274*	2
MUSIC 262*	3 MUSIC 331*	2
MUSIC 273*	2 MUSIC 458*	3
Additional Course for Option, Applied Music, Primary (see note) ^{*3}	1 Additional Course for Option, Applied Music, Primary (see note) ^{*3}	1
Supporting Course for Major, Ensemble (see note) ^{*2}	1 Additional Course for Option, Applied Music, Secondary (see note) ^{*3}	1
General Education Course [‡]	3 Supporting Course for Major, Ensemble (see note) ^{*2}	1
	General Education Course	3
	16	17

Third Year

Fall	Credits Spring	Credits
CAS 100A, 100B, or 100C [‡]	3 ENGL 202A, 202B, 202C, or 202D [‡]	3
MUSIC 266	1 MUSIC 374*	3
MUSIC 332*	2 MUSIC 451 or 452	3
MUSIC 373*	3 Additional Course for Option, Applied Music, Primary (see note) ^{*3}	1
MUSIC 459	3 Additional Course for Option, Applied Music, Secondary (see note) ^{*3}	1
MUSIC 472*	2 Additional Course for Option, Ensemble (see note) ^{*3}	1
Additional Course for Option, Applied Music, Primary (see note) ^{*3}	1 General Education Course	3
Additional Course for Option, Applied Music, Secondary (see note) ^{*3}	1 General Education Course	3

Additional Course for Option, Ensemble (see note) ^{*3}	1	
	17	18

Fourth Year

Fall	Credits Spring	Credits
MUSIC 431*	2 MUSIC 101*	1
MUSIC 473*	3 MUSIC 433*	3
Additional Course for Major (see list) ^{*1}	3 MUSIC 451 or 452	3
Additional Course for Option, Applied Music, Primary (see note) ^{*3}	1 MUSIC 474*	3
General Education Course	3 400 Level Music Course (see note) ^{*4}	3
General Education Course	3 Additional Course for Option, Applied Music, Primary (see note) ^{*3}	1
General Education Course (GHW)	3 General Education Course (US)	3
	18	17

Total Credits 135

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

1 ADDITIONAL COURSES FOR MAJOR (3 credits)

Select 3 credits from MUSIC 461W(3), MUSIC 462W(3), MUSIC 463W(3), MUSIC 464W(3) (Sem: 5-8)

2 SUPPORTING COURSES AND RELATED AREAS FOR MAJOR (4 credits)

Select 4 credits of approved ensembles (see School of Music Handbook for list of ensembles) (Sem: 1-8)

3 ADDITIONAL COURSES, COMPOSITION OPTION (13 credits)

Select 11 credits of Applied MUSIC courses (Sem: 1-7)

Select 2 credits of approved ensembles (see School of Music Handbook for list of ensembles) (Sem: 1-8)

4 400 LEVEL MUSIC (3 credits)

Select 3 credits from MUSIC 422(3), MUSIC 431(2-3), MUSIC 433(2-3), MUSIC 461W(3), MUSIC 462W(3), MUSIC 463W(3), MUSIC 472(3)

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and

ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Program Notes:

Entrance into this program will be determined by departmental evaluation.

Keyboard Instruments Option: Music, B.M. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
MUSIC 121*	1	ENGL 15, 15A, or 30H [‡]	3
MUSIC 129S*	3	KEYBD 180* ⁴	3
MUSIC 131*	2	MUSIC 122*	1
General Education Course [‡]	3	MUSIC 132*	2
General Education Course	3	MUSIC 162*	2
Supporting Course for Major, Ensemble (see note) ^{*2}	1	General Education Course	3
Supporting Course for Option, Applied Music (see note) ^{*4}	1	Supporting Course for Major, Ensemble (see note) ^{*2}	1
		Supporting Course for Option, Applied, Secondary (see note) ^{*4}	1
	14		16

Second Year

Fall	Credits	Spring	Credits
INART 258B or 258A (GA) ^{*†3}	1-3	KEYBD 280* ⁴	3
KEYBD 230* ⁴	3	MUSIC 222*	1
MUSIC 221*	1	MUSIC 261 (IL)*	3
MUSIC 231*	2	MUSIC 331*	2
MUSIC 262*	3	General Education Course	3
Supporting Course for Major, Ensemble (see note) ^{*2}	1	General Education Course	3
Supporting Course for Option, Applied, Secondary (see note) ^{*4}	1	Supporting Course for Major, Ensemble (see note) ^{*2}	1
General Education Course [‡]	3	Supporting Course for Option, Applied, Secondary (see note) ^{*4}	1
	15-17		17

Third Year

Fall	Credits	Spring	Credits
CAS 100A, 100B, or 100C	3	ENGL 202A, 202B, 202C, or 202D [‡]	3
KEYBD 330* ⁴	3	KEYBD 380* ⁴	3
MUSIC 266*	1	General Education Course (GHW)	3
MUSIC 332*	2	Supporting Course for Option, Ensemble (see note) ^{*4}	1
MUSIC 419 or 424* ⁴	2	Supporting Course for Option, MUSIC Elective (see note) ^{*4}	4
MUSIC 481*	3		

Supporting Course for Option, Ensemble (see note) ^{*4}	1		
	15		14
Fourth Year			
Fall	Credits	Spring	Credits
KEYBD 430* ⁴	3	KEYBD 480* ⁴	3
Additional Course for Major (see list) ^{*1}	3	MUSIC 101*	1
Additional Course for Option (see list) ^{*3}	2	General Education Course	3
General Education Course (US)	3	General Education Course	3
General Education Course	3	General Education Course	3
Supporting Course for Option, Ensemble (see note) ^{*4}	1	400 Level Music Course (see note) ^{*4}	3
		Supporting Course for Option, Ensemble (see note) ^{*4}	1
	15		17

Total Credits 123-125

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

1 ADDITIONAL COURSES FOR MAJOR (6 credits)

Select 6 credits from MUSIC 461W(3), MUSIC 462W(3), MUSIC 463W(3), MUSIC 464W(3) (Sem: 5-8)

2 SUPPORTING COURSES AND RELATED AREAS FOR MAJOR (4 credits)

Select 4 credits of approved ensembles (see School of Music Handbook for list of ensembles) (Sem: 1-8)

3 ADDITIONAL COURSES, KEYBOARD INSTRUMENTS OPTION (3-6 credits)

INART 258A GA(3) or 258B GA(1) (Sem: 3-6)

Select 2-3 credits from MUSIC 181(2), MUSIC 182(2), MUSIC 267(2), MUSIC 336(2), MUSIC 422(3), MUSIC 431(2-3), MUSIC 432(2-3), MUSIC 433(2-3), MUSIC 438(2), MUSIC 471(2), MUSIC 472(2) (Sem: 5-8)

4 SUPPORTING COURSES AND RELATED AREAS, KEYBOARD INSTRUMENTS OPTION (39-41 credits)

-Select 4 credits in a secondary instrument (Sem: 1-8)

-Select 4 credits in music in consultation with adviser (Students may apply 2 credits of ROTC.) (Sem: 1-8)

-Select 4-6 credits in consultation with adviser (Students may apply 4 credits of ROTC.) (Sem: 1-8)

-Select 21 credits in applied music through Level VIII of performance (Sem: 2-8)

-Select 4 credits of approved ensembles (see School of Music Handbook for list of ensembles) (Sem: 5-8)

-Select 2 credits from MUSIC 419(2) or MUSIC 424(2) (Sem: 5-8)

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Program Notes:

Entrance into this program will be determined by departmental evaluation.

Strings, Winds, Brass and Percussion Instruments Option: Music, B.M. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
MUSIC 121*	1	ENGL 15, 15A, or 30H [‡]	3
MUSIC 129S*	3	MUSIC 122*	1
MUSIC 131*	2	MUSIC 132*	2
General Education Course [‡]	3	MUSIC 162 (IL)*	2
General Education Course	3	General Education Course	3
Supporting Course for Major, Ensemble (see note) ^{*2}	1	Supporting Course for Option, Applied, Secondary (see note) ^{*4}	1
Supporting Course for Option, Applied, Secondary (see note) ^{*4}	1	Supporting Course for Option, Applied, Performance (see note) ^{*4}	3
		Supporting Course for Major, Ensemble (see note) ^{*2}	1
	14		16

Second Year

Fall	Credits	Spring	Credits
INART 258B or 258A (GA) ^{*†3}	1-3	MUSIC 222*	1
MUSIC 221*	1	MUSIC 331*	2
MUSIC 231*	2	MUSIC 261*	3
MUSIC 262*	3	General Education Course	3
Supporting Course for Major, Ensemble (see note) ^{*2}	1	General Education Course	3
Supporting Course for Option, Applied, Performance (see note) ^{*4}	3	Supporting Course for Major, Ensemble (see note) ^{*2}	1
Supporting Course for Option, Applied, Secondary (see note) ^{*4}	1	Supporting Course for Option, Applied, Performance (see note) ^{*4}	3
General Education Course [‡]	3	Supporting Course for Option, Applied, Secondary (see note) ^{*4}	1
	15-17		17

Third Year

Fall	Credits	Spring	Credits
MUSIC 266*	1	ENGL 202A, 202B, 202C, or 202D [‡]	3
CAS 100A, 100B, or 100C	3	Additional Course for Major (see list) ^{*1}	3
MUSIC 332*	2	General Education Course (GHW)	3
Additional Course for Major (see list) ^{*1}	3	Supporting Course for Option, Applied, Performance (see note) ^{*4}	3

Additional Course for Option (see list) ^{*3}	1-2	Supporting Course for Option, Ensemble (see note) ^{*4}	1
Supporting Course for Option, Applied, Performance (see note) ^{*4}	3	Supporting Course for Option, MUSIC Elective (see note) ^{*4}	4
Supporting Course for Option, Ensemble (see note) ^{*4}	1		

14-15

17

Fourth Year

Fall	Credits	Spring	Credits
Additional Course for Option, Theory (see note) ^{*3}	2	MUSIC 101*	1
General Education Course (US)	3	General Education Course (US)	3
General Education Course	3	General Education Course	3
General Education Course	3	General Education Course	3
Supporting Course for Option, Applied, Performance (see note) ^{*4}	3	400 Level Music Course (see note) ^{*4}	3
Supporting Course for Option (see note) ^{*4}	2	Supporting Course for Option, Applied, Performance (see note) ^{*4}	3
Supporting Course for Option, Ensemble (see note) ^{*4}	1	Supporting Course for Option, Ensemble (see note) ^{*4}	1

17

17

Total Credits 127-130

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

1 ADDITIONAL COURSES FOR MAJOR (6 credits)

Select 6 credits from MUSIC 461W(3), MUSIC 462W(3), MUSIC 463W(3), MUSIC 464W(3) (Sem: 5-8)

2 SUPPORTING COURSES AND RELATED AREAS FOR MAJOR (4 credits)

Select 4 credits of approved ensembles (see School of Music Handbook for list of ensembles) (Sem: 1-8)

3 ADDITIONAL COURSES FOR S/W/B/P/I OPTION (9-12 credits)

(MUSIC 336 and MUSIC 422 may fulfill the requirement of Additional Courses or Supporting Courses and Related Areas in the option, but not both.)

-Select 2 credits from MUSIC 86(1), MUSIC 87(1), MUSIC 181(2), MUSIC 190(1), MUSIC 191(1), MUSIC 192(1), MUSIC 336(2), MUSIC 366(2), MUSIC 421(1), MUSIC 422(3), MUSIC 466(2), MUSIC 485(3), MUSIC 487(3) (Sem: 1-8)

INART 258A GA(3) or INART 258B GA(1) (Sem: 1-8)

-Select 2-3 credits from MUSIC 181(2), MUSIC 182(2), MUSIC 267(2), MUSIC 336(2), MUSIC 422(3), MUSIC 431(2-3), MUSIC 432(2-3), MUSIC 433(2-3), MUSIC 438(2), MUSIC 472(2) (Sem: 5-8)

-Select 1 credit from MUSIC 414(1-2), MUSIC 415(1-2), MUSIC 416(1-2), or MUSIC 417(1-2) (Sem: 5-8)

-Select 3 credits from MUSIC 485(3) or MUSIC 487(3) (Sem: 7-8)

4 SUPPORTING COURSES AND RELATED AREAS FOR S/W/B/P/I OPTION (35-37 credits)

- Select 4 credits in a secondary instrument (Sem: 1-8)
- Select 4 credits in music in consultation with adviser (Students may apply 4 credits of ROTC.) (Sem: 1-8)
- Select 2-4 credits in consultation with adviser (Students may apply 2 credits of ROTC.) (Sem: 1-8)
- Select 21 credits in applied music through Level VIII of performance (Sem: 2-8)
- Select 4 credits of approved ensembles (see School of Music Handbook for list of ensembles) (Sem: 5-8)

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Program Notes:

Entrance into this program will be determined by departmental evaluation.

Voice Option: Music, B.M. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
MUSIC 121*	1	ENGL 15, 15A, or 30H [‡]	3
MUSIC 129S*	3	MUSIC 122*	1
MUSIC 131*	2	MUSIC 132*	2
MUSIC 387*	1	MUSIC 162*	2
World Language	4	MUSIC 389*	1
General Education Course [‡]	3	VOICE 180* ⁴	3
Supporting Course for Major, Ensemble (see note) ^{*2}	1	World Language	4
Supporting Course for Option, Applied, Secondary (see note) ^{*4}	1	Supporting Course for Major, Ensemble (see note) ^{*2}	1
		Supporting Course for Option, Applied, Secondary (see note) ^{*4}	1
		MUSIC 388*	1
	16		19

Second Year

Fall	Credits	Spring	Credits
MUSIC 221*	1	MUSIC 222*	1
MUSIC 231*	2	MUSIC 261 (GA; IL) ^{*†}	3
MUSIC 262 (GA) ^{*†}	3	MUSIC 331*	2
VOICE 230* ⁴	3	VOICE 280* ⁴	3
General Education Course [‡]	3	General Education Course	3
General Education Course	3	General Education Course	3
Supporting Course for Major, Ensemble (see note) ^{*2}	1	Supporting Course for Major, Ensemble (see note) ^{*2}	1
Supporting Course for Option, Applied, Secondary (see note) ^{*4}	1	Supporting Course for Option, Applied, Secondary (see note) ^{*4}	1
	17		17

Third Year

Fall	Credits	Spring	Credits
MUSIC 266*	1	ENGL 202A, 202B, 202C, or 202D [‡]	3
MUSIC 332*	2	VOICE 380* ⁴	3
MUSIC 418*	2	MUSIC 478 or 480	3
VOICE 330* ⁴	3	INART 258B or 258A* ³	1-3
General Education Course	3	Additional Course for Option* ³	2
Additional Course for Major (see list) ^{*1}	3	General Education Course	3

Supporting Course for Option, Ensemble (see note) ^{*4}	1	Supporting Course for Option, Ensemble (see note) ^{*4}	1
	15		16-18
Fourth Year			
Fall	Credits	Spring	Credits
CAS 100A, 100B, or 100C [‡]	3	MUSIC 101*	1
VOICE 430* ⁴	3	VOICE 480* ⁴	3
General Education Course	3	General Education Course (US)	3
General Education Course (GHW)	3	General Education Course	3
Supporting Course for Option, Ensemble (see note) ^{*4}	1	General Education Course	3
Supporting Course for Option, MUSIC Elective (see note) ^{*4}	2	Supporting Course for Option, Ensemble (see note) ^{*4}	1
		400 Level Music course (see note) ^{*4}	3
	15		17

Total Credits 132-134

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ ADDITIONAL COURSES FOR MAJOR (6 credits)

Select 6 credits from MUSIC 461W(3), MUSIC 462W(3), MUSIC 463W(3), MUSIC 464W(3) (Sem: 5-8)

² SUPPORTING COURSES AND RELATED AREAS FOR MAJOR (4 credits)

Select 4 credits of approved ensembles (see School of Music Handbook for list of ensembles) (Sem: 1-8)

³ ADDITIONAL COURSES, VOICE OPTION (3-6 credits)

INART 258A GA(3) or 258B GA(1) (Sem: 3-6)

Select 2-3 credits from MUSIC 181(2), MUSIC 182(2), MUSIC 267(2), MUSIC 336(2), MUSIC 422(3), MUSIC 431(2-3), MUSIC 432(2-3), MUSIC 433(2-3), MUSIC 438(2), or MUSIC 472(2) (Sem: 5-8)

⁴ SUPPORTING COURSES AND RELATED AREAS, VOICE OPTION (40-42 credits)

-Select 3-5 credits in consultation with adviser (Students may apply 2 credits of ROTC.) (Sem: 1-8)

-Select 8 credits in one world language: French, German or Italian (Sem: 1-8)

-Select 4 credits in a secondary instrument (Sem: 1-8)

-Select 21 credits in applied music through Level VIII of performance (Sem: 2-8)

-Select 4 credits of approved ensembles (see School of Music Handbook for list of ensembles) (Sem: 5-8)

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Program Notes:

Entrance into this program will be determined by departmental evaluation.

Career Paths

B.M. graduates are prepared to embark on careers in performance or composition or to pursue graduate studies in music.

Careers

The B.M. in music degree prepares students for careers in the professional music world. For those students who pursue the performance option, careers include performing in orchestras, chamber music, a range of commercial music work, and university and private teaching. Students in the composition option may pursue careers as composers, arrangers, and university teachers.

Opportunities for Graduate Studies

The B.M. in music degree provides a comprehensive education in performance or composition. Graduates are well prepared to pursue advanced or terminal degrees in many areas of music. Performance, conducting, theory, musicology, and composition are some of the areas where graduates can excel if they pursue graduate studies.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://arts.psu.edu/academics/school-of-music/>)

Accreditation

The Pennsylvania State University is accredited through the National Association of Schools of Music. NASM is an organization of schools, conservatories, colleges, and universities with approximately 650 accredited institutional members. It establishes national standards for undergraduate and graduate degrees and other credentials for music and music-related disciplines, and provides assistance to institutions and individuals engaged in artistic, scholarly, educational, and other music-related endeavors.

MORE INFORMATION ABOUT THE NATIONAL ASSOCIATION OF SCHOOLS OF MUSIC (<https://nasm.arts-accredit.org>)

Contact

University Park
SCHOOL OF MUSIC

233 Music Building I
University Park, PA 16802
814-865-0431
music-ug-adm@psu.edu

<https://arts.psu.edu/academics/school-of-music/>

Musical Arts, B.M.A.

Begin Campus: University Park

End Campus: University Park

Program Description

The Bachelor of Musical Arts degree is a multidisciplinary or interdisciplinary program that is intended to prepare students for careers in performance, while developing a secondary area of emphasis outside of music, as determined for each student on the basis of an advising process. Completion of this program requires that the student achieve a high level of competence in order to begin professional work or pursue further studies at the graduate level.

What is Music?

Italian composer Ferruccio Busoni said "music is sonorous air." A more scientific definition might be "sounds organized in time." With a history that likely pre-dates language, music is an integral part of all societies for expression, communication, and the fostering of community. In the words of philosopher Friedrich Nietzsche, "without music, life would be a mistake."

You Might Like This Program If...

- You have achieved a high level of musical accomplishment from years of study, practice, and ensemble participation.
- Music is a driving force in your life but you also want to pursue a minor or a second degree outside of music.

Entrance to Major

Entrance into this program will be determined by departmental evaluation.

Entrance Procedures

Students interested in pursuing Music (B.M.A.) should follow the appropriate first year, change of major, or transfer application instructions found under Music Admission Information at <https://arts.psu.edu/how-to-apply/#specific>.

Degree Requirements

For the Bachelor of Musical Arts degree, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	87

0-12 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 0-12 credits in the area of Supporting Courses and Related Areas.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
MUSIC 40	First-Year Seminar in Music	1
MUSIC 101	Music Common Hour	1
MUSIC 121	Basic Musicianship I	1
MUSIC 122	Basic Musicianship II	1
MUSIC 131	Music Theory I	2
MUSIC 132	Music Theory II	2
MUSIC 162	Introduction to Music History	2
MUSIC 221	Basic Musicianship III	1
MUSIC 222	Basic Musicianship IV	1
MUSIC 231	Music Theory III	2
MUSIC 261	Survey of Music History I	3
MUSIC 262	Survey of Music History II	3
MUSIC 266	Basic Conducting	1
MUSIC 270	Keyboard Skills IV: Music Major	1
MUSIC 332	Analysis of Twentieth Century Music	2
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits from the following:		3
MUSIC 461W	Studies in Music History: Antiquity to 1600	
MUSIC 462W	Studies in Music History: 1550-1750	
MUSIC 463W	Studies in Music History: 1700-1900	
MUSIC 464W	Studies in Music History: 1850-Present	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 24 credits in applied music through Level VIII of performance		24
Select 8 credits of approved ensembles (see School of Music Handbook for list of ensembles)		8
Select 4 credits in music in consultation with an adviser		4
Select 24 credits (at least 12 at the 400 level) in consultation with adviser in an area of study other than music ¹		24

¹ This list of courses must be approved by the College of Arts and Architecture's Dean of Undergraduate Studies. 0-12 of these 24 credits may be included in General Education.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education

Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- Quantification (GQ): 6 credits
- Writing and Speaking (GWS): 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- Arts (GA): 3 credits
- Health and Wellness (GHW): 3 credits
- Humanities (GH): 3 credits
- Social and Behavioral Sciences (GS): 3 credits
- Natural Sciences (GN): 3 credits

Integrative Studies

- Inter-Domain Courses (Inter-Domain): 6 credits

Exploration

- GN, may be completed with Inter-Domain courses: 3 credits
- GA, GH, GN, GS, Inter-Domain courses. This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Learning Outcomes

- Comprehensive capabilities in the major performing medium including the ability to work independently to prepare performances at the highest possible level; knowledge of applicable solo and ensemble literature; and orientation to and experience with the fundamentals of pedagogy. For majors in Early Music, Historical Performance, or the equivalent, the ability to apply aural, improvisational, and language skills, knowledge of styles and performance practices, and general historical and cultural knowledge as required by the focus of the major is essential.
- An overview understanding of the repertory in their major performance area and the ability to perform from a cross-section of that repertory.
- The ability to read at sight with fluency, demonstrating both general musicianship and, in the major performance area, a level of skill relevant to professional standards appropriate for the particular music concentration.
- Knowledge and skills sufficient to work as a leader and in collaboration on matters of musical interpretation. Rehearsal and conducting skills are required as appropriate to the particular music concentration.
- Keyboard competency.
- Growth in artistry, technical skills, collaborative competence, and knowledge of repertory through regular ensemble experiences. Ensembles should be varied both in size and nature.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park
Margaret Higgins

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Musical Arts, B.M.A. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year		
Fall	Credits Spring	Credits
MUSIC 121*	1 ENGL 15, 15A, or 30H [†]	3
MUSIC 129S*	3 MUSIC 122*	1
MUSIC 131*	2 MUSIC 132*	2
General Education Course	3 MUSIC 162 (IL)*	2
General Education Course	3 General Education Course	3
Supporting Course for Major (see note) ^{*3}	1 Supporting Course for Major, Applied Music (see note) ^{*2}	3
Supporting Course for Major, Ensemble (see note) ^{*2}	1 Supporting Course for Major, Ensemble (see note) ^{*2}	1
14		15

Second Year		
Fall	Credits Spring	Credits
INART 258B or 258A* ¹	1-3 MUSIC 222*	1
MUSIC 221*	1 MUSIC 261 (GA)*	3
MUSIC 231*	2 MUSIC 331*	2
MUSIC 262*	3 General Education Course	3
General Education Course (GHW)	1.5 Supporting Course for Major (see note) ^{*3}	1
Supporting Course for Major (see note) ^{*3}	1 Supporting Course for Major, Applied Music (see note) ^{*2}	3
Supporting Course for Major, Applied Music (see note) ^{*2}	3 Supporting Course for Major, Ensemble (see note) ^{*2}	1
Supporting Course for Major, Ensemble (see note) ^{*2}	1 Supporting Course for Major, Secondary & General Education (see note) ^{*+2}	3
Supporting Course for Major, Secondary & General Education (see note) ^{*+2}	3	
16.5-18.5		17

Third Year		
Fall	Credits Spring	Credits
CAS 100A, 100B, or 100C [†]	3 ENGL 202A, 202B, 202C, or 202D [†]	3

MUSIC 332*	2 MUSIC 266	1
Supporting Course for Major, Applied Music (see note) ^{*2}	3 Supporting Course for Major, Applied Music (see note) ^{*2}	3
Supporting Course for Major, Ensemble (see note) ^{*2}	1 Supporting Course for Major, Ensemble (see note) ^{*2}	1
Supporting Course for Major, Secondary & General Education (see note) ^{*†2}	3 Supporting Course for Major, 400-level (see note) ^{*2}	3
Supporting Course for Major, Secondary & General Education (see note) ^{*†2}	3 Supporting Course for Major, 400-level (see note) ^{*2}	3

15

14

Fourth Year

Fall	Credits Spring	Credits
Additional Course for Major (see list) ¹	3 MUSIC 101*	1
General Education Course	3 General Education Course	3
Supporting Course for Major, Applied Music (see note) ^{*2}	3 General Education Course	3
Supporting Course for Major, Ensemble (see note) ^{*2}	1 General Education Course (GHW)	1.5
Supporting Course for Major, 400-level (see note) ^{*2}	3 Supporting Course for Major, Applied Music (see note) ^{*2}	3
	Supporting Course for Major, Ensemble (see note) ^{*2}	1
	Supporting Course for Major, 400-level (see note) ^{*2}	3

13

15.5

Total Credits 120-122

- * Course requires a grade of C or better for the major
 ‡ Course requires a grade of C or better for General Education
 # Course is an Entrance to Major requirement
 † Course satisfies General Education and degree requirement

¹ **ADDITIONAL COURSES** (4-6 credits)

INART 258A GA(3) or INART 258B GA(1) (Sem: 3-6)
 Select 3 credits from MUSIC 461W(3), MUSIC 462W(3), MUSIC 463W(3), or MUSIC 464W(3) (Sem: 5-6)

² **SUPPORTING COURSES AND RELATED AREAS** (57 credits)

- Select 21 credits in applied music through Level VIII of performance (Sem: 1-8)
- Select 8 credits of approved ensembles (see School of Music Handbook for list of ensembles) (Sem: 1-8)
- Select 4 credits in music in consultation with an adviser (Sem: 1-8)
- Select 24 credits in consultation with adviser in an area of study other than music, at least 12 credits must be at the 400 level.

This list of courses must be approved by the College of Arts and Architecture's Dean of Undergraduate Studies.
(0-12 of these 24 credits may be included in GENERAL EDUCATION) (Sem: 1-8)

- ³ **Voice emphasis students** must enroll for three credits of diction, preferably in this order: Music 387 (Semester I), Music 389 (Semester III), and Music 388 (Semester IV). Other students consult with adviser for course selection.

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Program Notes:

Entrance into this program will be determined by departmental evaluation. All students are required to pass a piano proficiency examination.

Career Paths

B.M.A. graduates are prepared to embark on careers in performance or to pursue graduate studies in music. If a degree outside of music was also earned, graduate study or a career in the non-music area is also possible

Careers

Graduates of the B.M.A. in music program enter the workforce with a unique skill set that reflects their accomplishment as a performer as well as knowledge in another field. Graduates may pursue careers that pair their musical knowledge with a secondary area. The possibilities are as extensive as the graduate's imagination.

Opportunities for Graduate Studies

The B.M.A. in music degree provides a comprehensive education in performance. Graduates are well prepared to pursue advanced or terminal degrees in many areas of music. Performance, conducting, theory, musicology, and composition are some of the areas where graduates can excel if they pursue graduate studies.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://arts.psu.edu/academics/school-of-music/>)

Accreditation

The Pennsylvania State University is accredited through the National Association of Schools of Music. NASM is an organization of schools, conservatories, colleges, and universities with approximately 650 accredited institutional members. It establishes national standards for undergraduate and graduate degrees and other credentials for music and music-related disciplines, and provides assistance to institutions and individuals engaged in artistic, scholarly, educational, and other music-related endeavors.

University Requirements and General Education Notes:

MORE INFORMATION ABOUT THE NATIONAL ASSOCIATION OF SCHOOLS OF MUSIC (<https://nasm.arts-accredit.org>)

Contact

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SCHOOL OF MUSIC
233 Music Building I
University Park, PA 16802
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music-ug-adm@psu.edu

<https://arts.psu.edu/academics/school-of-music/>

Musical Theatre, B.F.A.

Begin Campus: University Park

End Campus: University Park

Program Description

The major is intended to provide students with specialized training leading to a high level of competence in musical theatre. Graduates should be able to begin professional work or pursue further training at the graduate level. This major is intended for those students who wish to pursue a career as a musical theatre professional.

What is Musical Theatre?

The study of the human condition and how to authentically inhabit a dramatic circumstance. It is highly skilled, highly motivated, and curious students. It is an experienced and dedicated faculty focused on training individual artists and humans. It is an alumni base working successfully on Broadway and around the world. It is a high level of commitment. It is new musicals inspired by and written for our students. It is a production season that has many diverse opportunities to showcase and inhabit the classroom work students are doing. It is master classes with Broadway professionals and frequent trips to New York City to connect to the industry. It is an exhilarating degree program for those who seek careers in the professional musical theatre. It is artist training for the 21st century.

You Might Like This Program If...

- You are serious about a difficult and challenging career to go along with your passion for the musical theatre.
- You ask “which way to my authentic self” in addition to “which way to the stage.”
- You are ready for more work, more classes, more rigorous training, and more artistic fulfillment than you ever thought possible.

Entrance to Major

Acceptance into the major is based on an evaluative audition.

Entrance Procedures

Students interested in pursuing Musical Theatre (B.F.A) should follow the appropriate first year, change of major, or transfer application instructions found under Musical Theatre Admission Information at <https://arts.psu.edu/how-to-apply/#specific>.

Degree Requirements

For the Bachelor of Fine Arts degree in Musical Theatre, a minimum of 125 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	86

6 of the 45 credits for General Education are included in the Requirements for the Major. This includes 6 credits of General Education GA courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
Theatre Courses:		
THEA 1S	First-Year Seminar: Theatre Production Practices	1
THEA 100	The Art of the Theatre	3
THEA 115	B.F.A. Acting Foundations	2
THEA 132	Survey of Theatre Production Practice	3
THEA 150	Fundamentals of Design for the Theatre	3
THEA 225A	B.F.A. Acting Studio I	2
THEA 225B	B.F.A. Movement Studio I	2
THEA 225C	B.F.A. Voice/Speech Studio I	2
THEA 289	Theatre Production Practicum	1
THEA 401	Theatre History I: Ancient to 1700	3
THEA 425A	B.F.A. Acting Studio II	2
THEA 425C	B.F.A. Voice/Speech Studio II	2
THEA 427A	B.F.A. Acting Studio III	2
THEA 427C	B.F.A. Voice/Speech Studio III	2
Music Courses:		
THEA 113	Musical Theatre Theory I	3
THEA 116	Musical Theatre Theory II	2
THEA 212	Musical Theatre Theory III	3
THEA 214	Musical Theatre Theory IV	3
VOICE 110	Voice: Secondary	8
VOICE 412	Musical Theatre Voice V	2
VOICE 462	Musical Theatre Voice VI	2
Dance Courses:		
DANCE 231	Beginning Ballet I	1.5
DANCE 232	Beginning Ballet II	1.5
DANCE 241	Beginning Jazz I	1.5
DANCE 242	Jazz Dance II	1.5
DANCE 251	Beginning Tap I	1.5
DANCE 252	Beginning Tap II	1.5
DANCE 382	Music Theatre Dance–Style I	1.5
DANCE 384	Music Theatre Dance–Style II	1.5
Musical Theatre Courses:		

MUSIC 113	Music Theatre—Class Voice I	1
MUSIC 114	Music Theatre—Class Voice II	1
THEA 114	Music Theatre: Form and Analysis	3
THEA 223	Musical Theatre Performance I	2
THEA 224	Musical Theatre Performance II	2
THEA 408W	History of American Musical Theatre	3
THEA 423	Musical Theatre Performance III	2
THEA 424	Musical Theatre Performance IV	2
Additional Courses ¹		
Select 2 credits of the following:		2
MUSIC 89	University Choir	
MUSIC 90	Glee Club	
MUSIC 91	Oriana Singers	
MUSIC 92	Chamber Music for Voices	
MUSIC 93	Essence of Joy	
MUSIC 94	Women's Chorale	
MUSIC 103	Concert Choir	
MUSIC 104	Chamber Singers	
MUSIC 467	Opera Workshop	
THEA 326	Music Theatre Performance Workshop (1 per semester, maximum of 3)	
THEA 428	Musical Theatre Performance Studio V	
Select one of the following:		1.5
DANCE 431	Advanced Ballet I	
DANCE 441	Jazz Dance III	
DANCE 451	Advanced Tap I	
Select one of the following:		1.5
DANCE 432	Advanced Ballet II	
DANCE 442	Advanced Jazz II	
DANCE 452	Advanced Tap II	

¹ Students may apply 6 credits of ROTC.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Learning Outcomes

- Train students in singing/ dancing/ acting by working through a set curriculum in each component area – and an integrated set of studio courses.
- Use casting and performance success to augment classroom training in order to better prepare students in the application of their skills.
- Promote a “total human” way of approaching musical theatre work through academic activities that encourage creative and diverse thinking.

Academic Advising

The objectives of the university’s academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

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University Park

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Suggested Academic Plan

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The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year		
Fall	Credits Spring	Credits
DANCE 231*	1.5 DANCE 232*	1.5
ENGL 15, 15A, or 30H [‡]	3 MUSIC 114*	1
MUSIC 113*	1 THEA 114*	3
THEA 1S*	1 THEA 116*	2
THEA 100 (GA, US;IL) ^{*†}	3 THEA 150*	3

THEA 113*	3 THEA 225A*	2
THEA 115*	2 THEA 225B*	2
	THEA 225C*	2
14.5		16.5

Second Year		
Fall	Credits Spring	Credits
CAS 100A, 100B, or 100C [‡]	3 DANCE 242*	1.5
DANCE 241*	1.5 THEA 132*	3
THEA 212*	3 THEA 214*	3
THEA 223*	2 THEA 224*	2
THEA 425A*	2 THEA 427A*	2
THEA 425C*	2 THEA 427C*	2
THEA 289*	1 VOICE 110*	2
VOICE 110 (GA) ^{*†}	2 General Education Course	3
16.5		18.5

Third Year		
Fall	Credits Spring	Credits
DANCE 251*	1.5 DANCE 252*	1.5
DANCE 382*	1.5 DANCE 384*	1.5
THEA 401*	3 ENGL 202A, 202B, 202C, or 202D [‡]	3
VOICE 110 (GA) ^{*†}	2 THEA 408W*	3
Additional Course for Major - Advanced Dance (see list) ¹	1.5 VOICE 110*	2
Additional Course for Major - Chorale Ensemble (see list) ¹	2 Additional Course for Major - Advanced Dance (see list) ¹	1.5
General Education Course	3 General Education Course	3
General Education Course	3	
17.5		15.5

Fourth Year		
Fall	Credits Spring	Credits
THEA 423*	2 THEA 424*	2
VOICE 412*	2 VOICE 462*	2
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
13		13

Total Credits 125

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ ADDITIONAL COURSES (5 credits)

- Select 2 credits from MUSIC 085 GA(1), MUSIC 089 GA(1), MUSIC 090 GA(1), MUSIC 091 GA(1), MUSIC 092 GA(1), MUSIC 093 GA;US;IL(1), MUSIC 094 GA(1), MUSIC 103 GA(1), MUSIC 104 GA(1), MUSIC 467(1), THEA 326(1 per semester, maximum of 3), THEA 428(2) (Sem: 3-6)
- Select 3 credits, one from each of the following groups:
 - a. DANCE 431(1.5), DANCE 441(1.5), DANCE 451(1.5) (Sem: 7-8)
 - b. DANCE 432(1.5), DANCE 442(1.5), DANCE 452(1.5) (Sem: 7-8)
 (Students may apply 6 credits of ROTC)

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Career Paths

This degree prepares you for a performance career in the professional musical theatre. Many of our students go on to perform on Broadway, tours, and on cruise ships. Recent alums are performing nationally and internationally in critically acclaimed shows. The program culminates in a showcase in New York City attended by agents, professionals, and program alums.

Careers

Graduates of the B.F.A. in musical theatre program are prepared for careers in all aspects of performance including stage, television, and film. The degree also prepares graduates for jobs in casting, directing, choreography, music direction, and teaching.

Opportunities for Graduate Studies

Due to the well-rounded education students receive in the B.F.A. in musical theatre program, graduates leave with a foundation needed to pursue graduate study in theatre, in specialized areas such as acting, directing, and choreography for musical theatre.

Professional Resources

- Actors Equity Association (AEA) (<https://www.actorsequity.org/>)
- Screen Actors Guild (SAG)/American Federation of Television and Radio Artists (AFTRA) (<https://www.sagaftra.org/home/>)
- Stage Directors and Choreographers Society (SDC) (<https://sdweb.org/>)

Accreditation

The Bachelor of Fine Arts in Musical Theatre is accredited by the National Association of Schools of Theatre (NAST).

Founded in 1965, the National Association of Schools of Theatre (NAST) is an organization of schools, conservatories, colleges, and universities with approximately 188 accredited institutional members. It establishes national standards for undergraduate and graduate degrees and other credentials for theatre and theatre-related disciplines, and provides

assistance to institutions and individuals engaged in artistic, scholarly, educational, and other theatre-related endeavors.

MORE INFORMATION ABOUT THE NATIONAL ASSOCIATION OF SCHOOLS OF THEATRE (<https://nast.arts-accredit.org/>)

Contact

University Park

SCHOOL OF THEATRE
116 Theatre Building
University Park, PA 16802
814-865-7586
theatre@psu.edu

<https://arts.psu.edu/academics/school-of-theatre/>

Photography, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

Students in the Photography Minor will gain access to skills and knowledge necessary to identify and create professional quality photographic images. The learning outcomes include technical and intellectual proficiency, creative skills and capabilities, commercially oriented skills and knowledge, collaborative and visual communication skills and experiences, cultural awareness and ethical understanding regarding the use of images and life-long learning skills. It will raise students' overall level of proficiency and enhance their life-long learning skills in image making. Professional photographic skills are readily adaptable for use in a wide variety of majors and careers that rely on or benefit from the use of photography. The minor strengthens existing majors where making or using professional quality photographic imagery would be an advantage.

The minor is intended for students in any major who have a need or desire to acquire professional photographic skills and knowledge. The minor includes two prescribed classes, PHOTO 303 and PHOTO 404. These two courses focus students on client-based commercially oriented photographic skills and knowledge. Students are then free to choose the remaining 12 credits of additional PHOTO courses with the intent that with these courses they will tailor their curriculum to suit their specific need or interest. Students in the Photography Minor will thus benefit from access to the professionally oriented PHOTO courses developed for the Professional Photography (B.Des) major.

What is Photography?

Photography is a means of making images of the world in which we live, and creating interpretations that cause us to think about what we see, and to question what we know. Learning about photography, and how to take and make photographs, is like acquiring another language that increases your ability to communicate in a visual way. You acquire a range of technical and conceptual capabilities for documenting, expressing, and sharing information, ideas, views, and cultural perspectives, among many other intentions. Studying photography increases your practical and professional proficiencies as you create bodies of art and design work in a self-directed and independent manner that can be adapted to broad fields of inquiry. In this

way, your photographic skills allow you to respond to content and subject matter with a personal perspective that expands how you acquire and integrate knowledge in critical and creative ways.

You Might Like This Program If...

You want to acquire the photographic skills and knowledge to strengthen your ability to create and adapt professional quality photographic images in your studies. Responding to the growing reliance on images and image making means applying technical, creative, and intellectual competencies and capabilities in a broad range of disciplines and a wide variety of careers. This minor will enhance your ability to communicate visually and acquire life-long learning skills.

Entrance Procedures

For more specific information on entrance procedures, please visit the website for the College of Arts and Architecture (<https://arts.psu.edu/how-to-apply/>).

Retention Requirements

Retention will be determined through verification of sustained academic growth as demonstrated by earning of grades of C or higher within the Photography minor. Failure to do so is grounds for an academic warning, with clear written strategies and a time frame for the student to return to good standing. Should the student not address the issue, the faculty may advise the student into a different program or minor.

Program Requirements

Requirement	Credits
Requirements for the Minor	19

Requirements for the Minor

Some courses may require prerequisites.

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
PHOTO 303	Professional Photography: Studio Technique and Photocomposition	3
PHOTO 404	Professional Photography Capstone Seminar: Self-Marketing and Professional Presence	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 9 credits of PHOTO courses		9
Select 3 credits of 400-level PHOTO courses		3

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Contact

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<https://arts.psu.edu/academics/school-of-visual-arts/>

Professional Photography, B.Des.

Begin Campus: University Park

End Campus: University Park

Program Description

The major in Professional Photography is a professional undergraduate degree in photography designed to provide in-depth, formal education that will prepare students for careers in client-based professional photography or related fields. Students enrolled in the program will acquire practical skills and learn creative techniques relevant to professional photographic image making. The degree program focuses on building and synthesizing career oriented competencies essential to photographers' professional, intellectual, and cultural lives.

The learning objectives and essential competencies of the Professional Photography major align with NASAD standards for undergraduate professional degrees. NASAD is the professional agency responsible for accrediting Penn State's art and design programs within the College of Arts and Architecture. This B. Des. in Professional Photography also addresses student career success and economic development.

What is Photography?

Photography involves using image making technologies to take visual samples of the world around us to create responses, representations, and interpretations that cause us to think about what we see, and to question what we know. This creative and critical practice emerges from innumerable motivations that arise from a deep-felt desire for personal expression, or a belief that visual arts and design can influence how we encounter and understand everyday life. Whether exploring and applying photography as a means of responding to personal ideas

and issues, or using image making to meet a client's expectations, the discipline requires a range of specialized knowledge and skills in the use of tools, techniques, technologies, and processes to enable working from a concept to finished photographic forms. Hence, developing your individual visual language as a photographer involves mastery of materials, equipment, and processes, and developing a vision of aesthetic forms, functions, and content relationships.

You Might Like this Program If...

Your personal interests and professional aspirations are inspired by the power of photography to reach into our lives to capture the diversity, complexity, and humanity. Virtually all visual information we encounter online and in print media relies on photography to communicate content in visually stimulating and aesthetically pleasing ways. Although photographic images are found in many disciplines, the art of photography remains firmly embedded within the imagination of seeing.

MORE INFORMATION ABOUT PROFESSIONAL PHOTOGRAPHY (<https://arts.psu.edu/degrees/bachelor-of-design-in-professional-photography/>)

Entrance to Major

Admission to the major in Professional Photography is determined by a portfolio review by faculty after the completion of: PHOTO 200 or PHOTO 202 and PHOTO 201.

Entrance Procedures

Students interested in pursuing Professional Photography (B.DES) should follow the appropriate first year, change of major, or transfer application instructions found under Visual Arts at <https://arts.psu.edu/how-to-apply/#specific>.

Retention Requirements

Retention will be determined through verification of sustained academic growth as demonstrated by earning of grades of C or higher within the major. Failure to do so is grounds for an academic warning, with clear written strategies and a time frame for the student to return to good standing.

Degree Requirements

For the Bachelor of Design degree in Professional Photography a minimum of 120 credits are required:

Requirement	Credits
General Education	45
Electives	15
Requirements for the Major	60

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		

PHOTO 201/ ARTH 250	A Chronological Survey of Photography	3
PHOTO 202	Fundamentals of Professional Photography	3
PHOTO 301	Beyond Photoshop: Techniques in Digital Photographic Imaging	3
PHOTO 303	Professional Photography: Studio Technique and Photocomposition	3
PHOTO 401	Fashion Photography	3
PHOTO 404	Professional Photography Capstone Seminar: Self-Marketing and Professional Presence	4
PHOTO 406	Product Photography	2
PHOTO 407	Portrait Photography	2
PHOTO 495	Internship	1

Additional Courses

Additional Courses: Require a grade of C or better

Select 21 credits from the following:		21
AA 322	Arts Marketing	
AA 324	Arts Entrepreneurship and the Law	
AA 325		
AA 424	Arts Entrepreneurship Capstone Research Project	
ART 122Y	Commentary on Art	
ART 211Y	Introduction to Digital Art and Design Criticism	
ART 411	Seminar in Contemporary Art	
COMM 269	Photojournalism	
COMM 469	Photography for the Mass Media	
GD 100	Introduction to Graphic Design	
GD 200	Graphic Design Studio I	
GD 201	Typography	
GD 300	Design Photography	
PHOTO 99	Foreign Studies-Photo	
PHOTO 100	Introduction to Photography	
PHOTO 101	Culture of Photography	
PHOTO 199	Foreign Studies-Photo	
PHOTO 200	Photo Studio I	
PHOTO 210	Introduction to Architectural Photography	
PHOTO 295	Internship	
PHOTO 296	Independent Studies	
PHOTO 297	Special Topics	
PHOTO 299	Foreign Studies-Photo	
PHOTO 300	Photo Studio II	
PHOTO 303	Professional Photography: Studio Technique and Photocomposition	
PHOTO 397	Special Topics	
PHOTO 399	Foreign Studies-Photo	
PHOTO 400	Digital Photography in the Studio	
PHOTO 402	Photographic Narratives	
PHOTO 405	Creative Projects in Photography	
PHOTO 410	Photographing Motion and Athletic Events	
PHOTO 495	Internship	
PHOTO 496	Independent Studies	
PHOTO 497	Special Topics	
PHOTO 499	Foreign Studies-Photo	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 15 credits from any of the following areas in consultation with an adviser (Must include 6 credits from history of the arts):

- a. Architecture (ARCH)
- b. Art (ART)
- c. Art Education (AED)
- d. Art History (ARTH)
- e. Arts and Architecture (A&A)
- f. Communications (COMM)
- g. Communications Arts and Sciences (CAS)
- h. Graphic Design (GD)
- i. Integrative Arts (INART)
- j. Landscape Architecture (LARCH)
- k. Theatre (THEA)

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3

credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Professional Photography, B.Des. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
PHOTO 202 ^{#*}	3	PHOTO 201 ^{*#}	3
ENGL 15, 15A, or 30H (GWS) [‡]	3	Supporting Course ^{*2}	3
ART 11 (or First-Year Seminar)	1	General Education Course	3
General Education Course	3	General Education Course (US/IL)	3
General Education Course (GQ) [‡]	3	General Education Course (GQ) [‡]	3
General Education Course	3		
	16		15

Second Year

Fall	Credits	Spring	Credits
General Education Course	3	ART 122Y or 211Y [*]	3
General Education Course	3	CAS 100 (GWS) [‡]	3
Supporting Course ^{*2}	3	PHOTO 303 [*]	3
Supporting Course ^{*2}	3	General Education Course	3
Supporting Course ^{*2}	3	Supporting Course ^{*2}	3
	15		15

Third Year

Fall	Credits	Spring	Credits
PHOTO 301 [*]	3	PHOTO 401 [*]	3
Additional Course for Major (see list) ^{*1}	3	PHOTO 495 [*]	1
General Education Course (US/IL)	3	ENGL 202A, 202B, 202C, or 202D (GWS) [‡]	3
General Education Course	3	Additional Course for Major (see list) ^{*1}	3
Additional Course for Major (see list) ^{*1}	3	Supporting Course ^{*2}	3
		Elective	2
	15		15

Fourth Year

Fall	Credits	Spring	Credits
PHOTO 406 [*]	2	PHOTO 404	4
PHOTO 407 [*]	2	Additional Course for Major (see list) ^{*1}	3
Additional Course for Major (see list) ^{*1}	3	General Education Course (GHW)	1.5
General Education Course (GHW)	1.5	Elective	3
Elective	3	Elective	3
Elective	3		
	14.5		14.5

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Additional Courses: Select 21 credits from the following list (AA 322, AA 324, AA 325, AA 424, ART 122Y, ART 211Y, ART 411, COMM 269, COMM 469, GD 100, GD 200, GD 201, GD 300, PHOTO 99, PHOTO 100, PHOTO 101, PHOTO 199, PHOTO 200, PHOTO 210, PHOTO 295, PHOTO 296, PHOTO 297, PHOTO 299, PHOTO 300, PHOTO 397, PHOTO 399, PHOTO 400, PHOTO 402, PHOTO 405, PHOTO 410, PHOTO 495, PHOTO 496, PHOTO 497, & PHOTO 499)

² Supporting Courses and Related Areas (15 credits): Select 15 credits from any of the following areas in consultation with an adviser (must include 6 credits from history of the arts):

- Architecture
- Art
- Art Education
- Art History
- Arts and Architecture
- Communications
- Communication Arts and Sciences
- Graphic Design
- Integrative Arts
- Landscape Architecture
- Theatre

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Career Paths

The B. Des. degree in Professional Photography will give you a comprehensive orientation to the diverse field of photography by strengthening your technical, creative, and intellectual competencies and capabilities. Your experience in this program will ensure you are well prepared to identify and create professional quality images for photographic applications in a wide variety of disciplines and careers. This professionally directed degree is consistent with the university's imperative of improving your career success, opportunities for professional development, and the impact you can make to the cultural economy.

Careers

The creation and use of photographic images has increased exponentially since the development of digital photography in the mid 1990s and you will encounter the use of photographic images across all disciplines and in many professional careers. Advanced camera and software technology has made taking and editing photographs substantially easier and the quality achieved among practitioners has dramatically increased. Our goal is to help you achieve a balanced approach in acquiring the necessary skills and knowledge to develop your confidence and attitude in being able to pursue your professional interest in photography.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE PROFESSIONAL PHOTOGRAPHY PROGRAM (<https://arts.psu.edu/academics/school-of-visual-arts/>)

Opportunities for Graduate Studies

A capstone photography project serves as both a culminating experience and a creative and critical assessment that will help you identify the distinctive look of your portfolio. Through peer review, and input from faculty who are all exhibiting photographic artists, you will receive mentoring about career options and further educational opportunities, such as applying for graduate school.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://arts.psu.edu/degrees/mfa-art/>)

Professional Resources

- College Art Association (<https://www.collegeart.org>)
- National Art Education Association (<https://www.arteducators.org>)
- National Council of Art Administrators (<https://www.ncaaarts.org>)
- Pennsylvania Art Education Association (<https://sites.google.com/paea.org/paea/home/>)

Accreditation

- National Association of Schools of Art and Design.

MORE INFORMATION ABOUT THE SCHOOL OF VISUAL ARTS ACCREDITATIONS (<https://arts.psu.edu/degree-programs/accreditation/>)

Contact

University Park

SCHOOL OF VISUAL ARTS
210 Patterson Building
814-865-0444
AAUG@psu.edu

<https://arts.psu.edu/academics/school-of-visual-arts/>

Theatre, B.A.

Begin Campus: University Park

End Campus: University Park

Program Description

The BA in Theatre asks students to consider the theatrical past, to reflect on their reasons for doing theatre now, and to imagine what theatre can be in the future. Students take a broad range of courses in theatre theory and practice. They gain experience as dramaturgs and assistant directors for the School of Theatre Penn State Centre Stage. Many direct, design, and perform in B.A. projects and productions, and through Penn State's many student theatre and dance groups. We are particularly interested in drawing students to our program who are curious about theatre itself, and who wish to explore it through devising their own performances, writing plays, and directing and producing their own shows. The B.A. is also Penn State's home for dance studies, offering technique classes as well as a range of dance history and theory courses.

Students who pursue the B.A. in Theatre learn to research, analyze and synthesize information. Majors develop strong oral and written skills and many go on to postgraduate study not only in theatre but also in areas such as law, business and education.

What is Theatre?

Theatre is a collaborative art form; an art form where different disciplines converge to create a sensorial experience much greater than the sum of its parts. Theatre is history, culture, entertainment and social responsibility. Theatre engages and transforms. Theatre is storytelling, told with equal parts artistry, skill, and technology. A theatre artist is a resourceful problem solver, effective communicator, and a great collaborator. These life skills empower theatre professionals to pursue their individual paths and rise up to their potential, well beyond the theatre walls and into their everyday life.

You Might Like This Program If...

- You are a playwright, director, or dramaturg—or want to learn more about these practices.
- You enjoy devising, seeing, and writing about performance.
- You want to practice your theatre studies crafts in a department with a pre-professional season of plays and musicals.
- You plan to pursue an MFA in Dramaturgy or a PhD in Theatre or Performance Studies after graduation.
- You are transferring from another Commonwealth campus, and you would like to deepen your study of theatre.

Entrance to Major

Applicants wishing to be directly admitted into Penn State as a Theatre Studies major can apply through the College of Arts & Architecture

admissions website, which details the admissions process. Continuing students, including those wishing to add the major, can apply by contacting the academic adviser for the School of Theatre to arrange for an informational interview. If the major seems feasible to the student, the adviser will refer them to the program director, who might request additional application materials (a play script, video, and/or an interview) to determine whether the student will thrive in the program.

The B.A. in Theatre degree program includes a Theatre Studies Option and three additional options, Theatre Performance, Dance Performance and Multicultural Performance. Entrance criteria to this major will include an interview with members of the Theatre faculty. Entrance to the three performance options will also include an audition or portfolio review.

Entrance Procedures

Students interested in pursuing Theatre (B.A.) should follow the appropriate first year, change of major, or transfer application instructions found under Theatre (BA, BFA, MFA) Admission Information at <https://arts.psu.edu/how-to-apply/#specific>.

Degree Requirements

For the Bachelor of Arts degree in Theatre, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	16-17.5
Bachelor of Arts Degree Requirements	24
Requirements for the Major	36.5-38

3 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 3 credits GHW courses.

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
DANCE 270	Introduction to Bartenieff Fundamentals	3
THEA 1S	First-Year Seminar: Theatre Production Practices	1
THEA 132	Survey of Theatre Production Practice	3
THEA 201W	Script Analysis	3
THEA 289	Theatre Production Practicum	1
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits of Acting from the following:		3
THEA 102	Fundamentals of Acting	
THEA 120	Acting I	

Select 3 credits of Theatre Foundations from the following: 3

DANCE 100	Dance Appreciation
THEA 100	The Art of the Theatre
THEA 101N	Performance and Society
THEA 105	Introduction to Theatre
THEA 106	Theatre Foundations

Select 6 credits of Theatre and Performance Praxis from the following: 6

THEA 211	Dramaturgy
THEA 220	Acting II
THEA 434	Introduction to Directing
THEA 440	Principles of Playwriting

Select 9 credits of Theatre and Dance History from the following: 9

DANCE 410	Dance History
DANCE 411	
THEA 401	Theatre History I: Ancient to 1700
THEA 402	Theatre History II: From 1700 to Present
THEA 405W	Theatre History: American Theatre
THEA/WMNST 407W	Women and Theatre
THEA/AFAM 412	African American Theatre

Select 3 credits of Literature and Theory from the following: 3

AFAM/ENGL 235	From Folk Shouts and Songs to Hip Hop Poetry
CMLIT 12	Introduction to World Drama and Performance
CMLIT 112N	Introduction to Global Drama, Theatre, and Performance
CMLIT/ENGL 189	
CMLIT 422	African Drama
CMLIT 486	Tragedy
CMLIT 487	Comedy
CMLIT/ENGL 488	
ENGL 129	Shakespeare
ENGL 129H	Shakespeare
ENGL 438	American Drama
THEA 206	Critical Theory for Performance
THEA 499	Foreign Studies--Theatre Arts

Select 1.5-3 credits of Dance Theory and Technique from the following: 1.5-3

DANCE 170	Dance Conditioning
DANCE 221	Introduction to West African Dance and Culture
DANCE 225	Introduction to Hip Hop
DANCE 230	Ballet
DANCE 240	Jazz Dance I
DANCE 250	Tap Dance
DANCE 260	Introduction to Modern Dance
DANCE 370	Anatomy and Physiology for Performers
DANCE 370H	Anatomy for Performers
DANCE 370Z	

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Learning Outcomes

- Understand theatre as a cultural art form in relationship to society, politics, pop culture, and other art forms.
- Comprehend and analyze the historical context of theatre, drama, and performance, including plays, major figures, costumes, scenic innovations, and theoretical approaches, and how these relate to contemporary society and culture.
- Demonstrate an ability to compare and contrast different cultures, points of view, and social systems through the analysis of historical and contemporary approaches to theatre and performance.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary

academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Theatre Studies Option: Theatre, B.A. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [‡]	3 DANCE 170 (GHW)*	1.5
THEA 1S	1 THEA 289*	1
THEA 100 or 105*	3 THEA 150*	3
THEA 102 or 120*	3 THEA 200 or 107*	2-3
Foreign Language or Elective	4 Foreign Language or Elective	4
General Education Course (GHW)	1.5 General Education Course	3
	15.5	14.5-15.5

Second Year

Fall	Credits Spring	Credits
THEA 401*	3 THEA 130 or 131*	3
BA Knowledge Domain Course	3 BA Knowledge Domain Course	3
Foreign Language or Elective	4 General Education Course	3
General Education Course	3 General Education Course	3

General Education Course	3 General Education Course	3
	16	15

Third Year

Fall	Credits Spring	Credits
CAS 100, CAS 100A, CAS 100B, or CAS 100C*	3 Semester Abroad	
Additional Course for Option (see list) ^{*1}	3 THEA 499 or DANCE 499*	3
BA Knowledge Domain Course	3 THEA 499 or DANCE 499*	3
General Education Course	3 THEA 499 or DANCE 499*	3
General Education Course	3 THEA 499 or DANCE 499*	3
	Elective	2
	15	14

Fourth Year

Fall	Credits Spring	Credits
ENGL 202A, 202B, 202C, or 202D [‡]	3 THEA 402*	3
Additional Course for Option (see list) ^{*1}	3 THEA 434*	3
General Education Course	3 General Education Course	3
General Education Course	3 Elective	3
World Cultures Course	3 Elective	3
	15	15

Total Credits 120-121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ ADDITIONAL COURSES (6 credits)

Select 6 credits from THEA 405Y US(3), THEA 407 US(3), THEA 408 US(3), THEA 412 US;IL(3), or THEA 464(3) (Sem: 5-8)

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will

replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C.
Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Multicultural Performance Option: Theatre, B.A. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 15A, or 30H [†]	3 CMLIT 10, 12, or 101 (GH) ^{† 1}	3
THEA 1S*	1 DANCE 170*	1.5
THEA 100 or 105*	3 THEA 289*	1
THEA 102 or 120*	3 Foreign Language or Elective	4
Foreign Language or Elective	4 General Education Course	3
General Education Course (GHW)	1.5 General Education Course	3
15.5		15.5

Second Year

Fall	Credits Spring	Credits
THEA 200 or 107*	2-3 THEA 130 or 131*	3
THEA 401*	3 THEA 412 or AFAM 412*	3
Foreign Language or Elective	4 Additional Course for Option (see list) ¹	3
General Education Course	3 BA Knowledge Domain Course	3
General Education Course	3 General Education Course	3
15-16		15

Third Year

Fall	Credits Spring	Credits
CAS 100A, 100B, or 100C*	3 Semester Abroad	
BA Knowledge Domain Course	3 THEA 499 or DANCE 499*	3
General Education Course	3 THEA 499 or DANCE 499*	3
General Education Course	3 THEA 499 or DANCE 499*	3
Supporting Course for Option ²	3 THEA 499 or DANCE 499*	3
	Elective	2
15		14

Fourth Year

Fall	Credits Spring	Credits
ENGL 202A, 202B, 202C, or 202D [†]	3 DANCE 411*	3
Additional Course for Option (see list) ¹	3 THEA 495*	3
BA Knowledge Domain Course	3 General Education Course	3
General Education Course	3 General Education Course	3

World Cultures Course	3 General Education Course	3
15		15

Total Credits 120-121

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ ADDITIONAL COURSES (9 credits)

-Select 3 credits from CMLIT 10 GH;IL(3), CMLIT 12 GH;IL(3), CMLIT 101 GH;US;IL(3) (Sem: 3-6)

-Select 6 credits from CAS 271 US;IL(3), CMLIT 13 GH;IL(3) CMLIT 140 GH;IL(3), CMLIT 189 GH;IL(3), CMLIT 422 IL(3), CMLIT 435 IL(3), CMLIT 438 IL(3), CMLIT 453 IL(3), CMLIT 455 IL(3), CMLIT 486 IL(3), CMLIT 487 IL(3), CMLIT 488 IL(3), CMLIT 491 IL(3), DANCE 221(1.5), DANCE 320(1.5), ENGL 135 GH;US(3), ENGL 226 GH;US;IL(3), ENGL 235 US(3), ENGL 245 GH;US(3), ENGL 426 US(3), ENGL 431 US(3), INART 5 GA(3), INART 62 GA;US;IL(3), MUSIC 7 GA;US(3), MUSIC 9(3) (Sem: 5-8)

² SUPPORTING COURSES AND RELATED AREAS (3 credits)

Select 3 credits in consultation with adviser (Sem 5-8)

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Career Paths

Penn State's Theatre Studies major develops a foundation that serves as a strong base for careers ranging from educator to scholar to entrepreneur. With our required semester in London, you are prepared to be a global player in your chosen area of focus. The program provides a broad base that gives you the opportunity to bring together multiple interests. This degree prepares you with integral skills such as creative and theoretical thinking, collaboration, and synthesizing new information quickly.

Careers

In many ways theatre is the ultimate liberal arts major – and can help to prepare you for almost any career from medicine to law to writing for television. Additionally, many students choose to continue their education by pursuing a master of fine arts (M.F.A.) or doctorate (Ph.D.) in theatre.

Opportunities for Graduate Studies

Graduates with a Theatre Studies degree may opt to pursue a variety of postbaccalaureate or graduate studies programs in specialized topics or focus areas, such as dramaturgy, history, literature and criticism, and performance and cultural studies.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://arts.psu.edu/degrees/theatre-mfa/>)

Accreditation

The Bachelor of Arts in Theatre is accredited by the National Association of Schools of Theatre (NAST).

Founded in 1965, the National Association of Schools of Theatre (NAST) is an organization of schools, conservatories, colleges, and universities with approximately 188 accredited institutional members. It establishes national standards for undergraduate and graduate degrees and other credentials for theatre and theatre-related disciplines, and provides assistance to institutions and individuals engaged in artistic, scholarly, educational, and other theatre-related endeavors.

MORE INFORMATION ABOUT THE NATIONAL ASSOCIATION OF SCHOOLS OF THEATRE (<https://nast.arts-accredit.org/>)

Contact

University Park

SCHOOL OF THEATRE
116 Theatre Building
University Park, PA 16802
814-865-7586
theatre@psu.edu

<https://arts.psu.edu/academics/school-of-theatre/>

Theatre, B.F.A.

Begin Campus: University Park

End Campus: University Park

Program Description

The Bachelor of Fine Arts in Theatre offers two options: Design and Technology, and Stage Management.

Design and Technology Option

The B.F.A. degree in Theatre with the Design and Technology option is intended to develop a level of competence that will enable students who wish to pursue professional careers in theatre design, theatre technology and related entertainment fields to prepare themselves for specialized graduate studies, specialized professional training and/or immediate participation in creative work. The prescribed core curriculum introduces students to each of the theatre design areas and provides them with a basic skill level in technology. The curriculum also features acting, directing, script analysis, theatre history and criticism.

Stage Management Option

For the B.F.A. degree in Theatre with the Stage Management option is intended to provide students with specialized training leading to a high level of competence in the stage management field. Graduates should be able to begin professional work or pursue further training at the graduate level. The Stage Management option is intended to educate students for a career in stage management for theatre.

What is Theatre?

Theatre is a collaborative art form; an art form where different disciplines converge to create a sensorial experience much greater than the sum of its parts. Theatre is history, culture, entertainment and social responsibility. Theatre engages and transforms. Theatre is storytelling, told with equal parts artistry, skill, and technology. A theatre artist is a resourceful problem solver, effective communicator, and a great collaborator. These life skills empower theatre professionals to pursue their individual paths and rise up to their potential, well beyond the theatre walls and into their everyday life.

You Might Like This Program If...

- You are inspired by theatre and story telling.
- You thrive in teamwork and collaboration.
- You are at your best in collaborative environment.
- You are a creative problem solver and you love the combination of artistry and technology.
- You are dynamic and detail oriented.
- You are awestruck by the way all the design and theatrical elements come together.
- You love theatre but not as a performer.

Entrance to Major

Acceptance into the Design and Technology option is based on a faculty interview and portfolio review. Acceptance into the Stage Management option is based on a faculty interview and production book review.

Entrance Procedures

Students interested in pursuing Theatre (B.F.A.) should follow the appropriate first year, change of major, or transfer application instructions found under Theatre (BA, BFA, MFA) Admission Information at <https://arts.psu.edu/how-to-apply/#specific>.

Degree Requirements

For the Bachelor of Fine Arts degree in Theatre, both Design and Technology and Stage Management options require a minimum of 120 credits:

Requirement	Credits
General Education	45
Electives	0-6
Requirements for the Major	70-78

0-6 of the 45 credits for General Education are included in the Requirements for the Major. This includes: Sound Design emphasis--3 credits of GN courses and 3 credits of GA courses. Scene Design emphasis--3 credits of GA courses.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
THEA 1S	First-Year Seminar: Theatre Production Practices	1
THEA 100	The Art of the Theatre	3
THEA 120	Acting I	3
THEA 130	Introduction to Theatre Scenic and Costume Technology	3
THEA 131	Introduction to Theatre Sound and Lighting Technology	3
THEA 150	Fundamentals of Design for the Theatre	3
THEA 200	Script Analysis	2
THEA 250	Introduction to Scene Design	3
THEA 251	Theatre Drafting Techniques	2
THEA 260	Introduction to Costume Design	3
THEA 270	Introduction to Lighting Design	3
THEA 280	Introduction to Technical Direction for the Theatre	3
THEA 285	Introduction to Sound Design	3
THEA 289	Theatre Production Practicum	1
THEA 401	Theatre History I: Ancient to 1700	3
THEA 481	Stage and Production Management	3

Requirements for the Option

Requirements for the Option: Require a grade of C or better

Select an option 28-36

Requirements for the Option

Design and Technology Option (33-36 credits)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
THEA 252	Design Presentation Techniques	1
THEA 434	Introduction to Directing	3
THEA 454	Period Research for the Theatre	3
THEA 459	Theatre Portfolio & Business Practices II	2

Additional Courses

Additional Courses: Require a grade of C or better

THEA 464	History of Fashion	3
or THEA 465	History of Fashion II	

Select 6 credits of the following: 6

THEA 456	
THEA 457	
THEA 466	
THEA 467	
THEA 477	Lighting Design for Production
THEA 487	
THEA 489	Theatre Production Practicum

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 15-18 credits from one of the following emphases a, b, c, d, or 15-18 e:

a. Costume Design/Technology

THEA 146	Basic Theatrical Makeup
THEA 253	Scene Painting
THEA 261	Introduction to Costume Construction Techniques
THEA 460	Advanced Topics in Costume Design
THEA 461	Advanced Topics in Costume Construction and Technology
THEA 464	History of Fashion
or THEA 465	History of Fashion II

b. Scene Design

THEA 253	Scene Painting
THEA 450	Advanced Topics in Scene Design
THEA 453	Advanced Scene Painting

Select 3 credits of the following:

THEA 460	Advanced Topics in Costume Design
THEA 470	Advanced Topics in Lighting Design
THEA 480	Advanced Topics in Technical Direction for the Theatre

Select 3 credits of the following:

ARTH 111	Ancient to Medieval Art
ARTH 112	Renaissance to Modern Art
THEA 451	Drafting, Drawing, and Painting for the Theatre
THEA 458	
THEA 460	Advanced Topics in Costume Design
THEA 470	Advanced Topics in Lighting Design
THEA 480	Advanced Topics in Technical Direction for the Theatre
THEA 485	Sound for Theatre Production

c. Lighting Design

THEA 253	Scene Painting
THEA 470	Advanced Topics in Lighting Design
THEA 482	Technical Production - Rigging
THEA 485	Sound for Theatre Production
THEA 472	Lighting Technology

d. Sound Design

INART 50	The Science of Music
INART 258A	Fundamentals of Digital Audio
THEA 482	Technical Production - Rigging
THEA 484	Sound Recording Techniques
THEA 485	Sound for Theatre Production

e. Scenic Technology

THEA 253	Scene Painting
THEA 482	Technical Production - Rigging
THEA 470	Advanced Topics in Lighting Design
THEA 480	Advanced Topics in Technical Direction for the Theatre
THEA 485	Sound for Theatre Production

Stage Management Option (28 credits)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
THEA 146	Basic Theatrical Makeup	2
THEA 220	Acting II	3
THEA 289	Theatre Production Practicum	1
THEA 322	Voice and Speech I	2
THEA 324	Movement for Actors I	2
THEA 486	Stage Management for Production	9
THEA 496	Independent Studies	6
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits of the following:		3
THEA 405Y		
THEA 407W	Women and Theatre	
THEA 408W	History of American Musical Theatre	
THEA 412	African American Theatre	
THEA 464	History of Fashion	
THEA 465	History of Fashion II	

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Learning Outcomes**B.F.A. Design and Technology**

- Prepare students for the next phase of their career, either as working professionals or graduate students.
- Provide a well-rounded experience and emphasize the value of every area in Design and Technical Theatre.

- Forge a collegial atmosphere that lends itself to effective collaboration and communication throughout the School of Theatre.
- Inspire an interest in other areas of the arts and humanities, and promote a lifelong passion for learning.
- Facilitate the acquisition of life skills, in addition to technical knowledge.

Expected Learning Outcomes for Stage Management

- Learn professional standards of reading a play for production, preparing for rehearsals as well as technical rehearsals.
- Demonstrate skills for managing and maintaining performances and performance levels.
- Create an environment for the collaboration of artists, developing teams, and building team dynamics.
- Learn the fundamentals of management and financial for performance and events.
- Gain an understanding of organizational structure as well as the union structure of the entertainment industry.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

First Year Advising

Mary Sargeant

Academic Adviser
116 Theatre Building
University Park, PA 16802
814-865-7586
mym7@psu.edu

Theatre Design and Technology Option

Milagros Ponce de León

Head, B.F.A. Design and Technology, Associate Professor of Scenic Design
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University Park, PA 16802
814-863-1455
mxp62@psu.edu
<https://arts.psu.edu/faculty/milagros-ponce-de-leon/>

Stage Management Option

Ronda Craig

Instructor in Charge - Stage Management
116 Theatre Building
University Park, PA 16802

rlc26@psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Design and Technology Option, Emphasis in Costume Design: Theatre, B.F.A. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
THEA 1S*	1 THEA 120*	3
THEA 100*	3 THEA 200*	2
THEA 130*	3 THEA 251*	2
THEA 131*	3 THEA 252*	1
THEA 150*	3 GQ [†]	3
THEA 289*	1 General Education Course	3
ENGL 15, 15A, or 30H [†]	3	
	17	14

Second Year

Fall	Credits Spring	Credits
THEA 260*	3 THEA 146*	2
THEA 253*	1 THEA 250*	3
THEA 489*	1 THEA 261*	3
GQ [†]	3 THEA 460*	3
General Education Course	3 THEA 489*	1
General Education Course	3 CAS 100 [†]	3
	14	15

Third Year

Fall	Credits Spring	Credits
THEA 270*	3 THEA 454*	3
THEA 401*	3 THEA 465*	3
THEA 464*	3 THEA 461*	3
THEA 489*	1 THEA 489*	1
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
	16	16

Fourth Year

Fall	Credits Spring	Credits
THEA 280*	3 THEA 481*	3
THEA 459*	2 THEA 285*	3
THEA 434*	3 THEA 489*	1
THEA 489*	1 General Education Course	3
ENGL 202 [†]	3 General Education Course	3

General Education Course	3	
	15	13

Total Credits 120

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Design and Technology Option, Emphasis in Lighting Design: Theatre, B.F.A. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
THEA 1S*	1	THEA 120*	3
THEA 100*	3	THEA 200*	2
THEA 130*	3	THEA 251*	2
THEA 131*	3	THEA 252*	1
THEA 150*	3	THEA 472*	3
THEA 289*	1	GQ [‡]	3
ENGL 15, 15A, or 30H [‡]	3		
	17		14

Second Year

Fall	Credits	Spring	Credits
THEA 253*	1	THEA 250*	3
THEA 270*	3	THEA 285*	3
THEA 280*	3	THEA 470 ^{*2}	3
THEA 482*	3	THEA 476*	1
THEA 476*	1	General Education	3
THEA 451 ¹	(1)	GQ [‡]	3
General Education Course	3		
	14		16

Third Year

Fall	Credits	Spring	Credits
THEA 401*	3	THEA 434*	3
THEA 485*	3	THEA 470 ^{*2}	3
THEA 477 or 489	1	THEA 481*	3
General Education Course	3	THEA 477*	1
General Education Course	3	General Education Course	3
CAS 100 [‡]	3	ENGL 202 [‡]	3
	16		16

Fourth Year

Fall	Credits	Spring	Credits
THEA 260*	3	THEA 470 ^{*2}	(3)
THEA 459*	2	THEA 454*	3
THEA 464*	3	THEA 477*	1
THEA 477*	1	General Education Course	3
General Education Course	3	General Education Course	3
General Education Course	3	General Education Course	3
	15		13

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ THEA 451 is optional but suggested in the Fall of the second year

² THEA 470 Advanced Topics in Lighting Design needs to be taken twice to satisfy the degree requirements, but maybe taken a 3rd time is desired. This is a rotating topic course.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

AE 461 Architectural Illumination Systems & Design may be taken in the Fall of the Third or Fourth year and can count as 3 credits of Gen Ed Science (GN).

Design and Technology Option, Emphasis in Scene Design: Theatre, B.F.A. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
THEA 1S*	1	THEA 120*	3
THEA 100*	3	THEA 200*	2
THEA 130*	3	THEA 251*	2
THEA 131*	3	THEA 252*	1
THEA 150*	3	GQ‡	3
THEA 289*	1	General Education Course	3
ENGL 15, 15A, or 30H‡	3		
	17		14

Second Year

Fall	Credits	Spring	Credits
THEA 253*	1	THEA 250*	3
THEA 280*	3	THEA 401	3
THEA 260*	3	THEA 489*	1
THEA 489*	1	General Education Course	3
THEA 451 ¹	(1)	General Education Course	3
GQ‡	3	General Education Course	3
General Education Course	3		
	14		16

Third Year

Fall	Credits	Spring	Credits
THEA 450*	3	THEA 285*	3
THEA 453*	2	THEA 454*	3
ARTH 111, THEA 485, 458, or THEA 451*	3	ARTH 112, THEA 460, THEA 470, or THEA 480*	3
THEA 489*	1	THEA 489*	1
CAS 100‡	3	General Education Course	3
General Education Course	3	General Education Course	3
	15		16

Fourth Year

Fall	Credits	Spring	Credits
THEA 270*	3	THEA 464 or 465*	3
THEA 434*	3	THEA 481*	3
THEA 450*	3	THEA 489*	1
THEA 459*	2	General Education Course	3
THEA 489*	1	General Education Course	3
ENGL 202‡	3		
	15		13

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ THEA 451 is optional but suggested in the Fall of the second year

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Design and Technology Option, Emphasis in Scenic Technology: Theatre, B.F.A. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
THEA 1S*	1	THEA 120*	3
THEA 100*	3	THEA 200*	2
THEA 130*	3	THEA 251*	2
THEA 131*	3	THEA 252*	1
THEA 150*	3	GQ‡	3
THEA 289*	1	General Education Course	3
ENGL 15, 15A, or 30H‡	3		
	17		14

Second Year

Fall	Credits	Spring	Credits
THEA 270*	3	THEA 285*	3
THEA 280*	3	THEA 451* ¹	(0)
THEA 482*	3	THEA 480*	3
THEA 489*	1	THEA 489*	1
THEA 253*	1	General Education Course	3
GQ‡	3	General Education Course	3
General Education Course	3		
	17		13

Third Year

Fall	Credits	Spring	Credits
THEA 401*	3	THEA 470*	3
THEA 485*	3	THEA 454*	3
THEA 464*	3	THEA 250*	3
THEA 489*	1	THEA 489*	1
General Education Course*	3	General Education Course	3
CAS 100‡	3	General Education Course	3
	16		16

Fourth Year

Fall	Credits	Spring	Credits
THEA 434*	3	THEA 480*	3
THEA 459*	2	THEA 481*	3
THEA 489*	1	THEA 489*	1
ENGL 202‡	3	General Education Course	3
General Education Course	3	General Education Course	3
THEA 260*	3		
	15		13

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ THEA 451 is optional but suggested in the Fall of the second year

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Design and Technology Option, Emphasis in Sound Design: Theatre, B.F.A. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
THEA 1S*	1	THEA 120*	3
THEA 100*	3	THEA 200*	2
THEA 130*	3	THEA 251*	2
THEA 131*	3	THEA 252*	1
THEA 150*	3	THEA 285*	3
THEA 289*	1	ENGL 15, 15A, or 30H [‡]	3
INART 258A (GA) ^{**}	3		
	17		14

Second Year

Fall	Credits	Spring	Credits
THEA 280*	3	THEA 250	3
THEA 482*	3	THEA 484*	3
THEA 485*	3	THEA 489*	1
THEA 489*	1	MUSIC 11Z (Linked with INART 50Z)	3
GQ [‡]	3	GQ [‡]	3
INART 50Z (GN) ^{**}	3	General Education Course	3
	16		16

Third Year

Fall	Credits	Spring	Credits
THEA 270	3	THEA 434	3
THEA 464	3	THEA 401	3
THEA 485	3	THEA 489	1
THEA 489	1	General Education Course (GA)	3
CAS 100 [‡]	3	General Education Course (GN)	3
General Education Course (GHW)	3	General Education Course (GN)	3
	16		16

Fourth Year

Fall	Credits	Spring	Credits
THEA 459	2	THEA 481*	3
THEA 489	1	THEA 454	3
THEA 260	3	THEA 489	1
ENGL 202 [‡]	3	General Education Course (GH)	3
General Education Course (GS)	3	General Education Course (GH)	3
	12		13

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Stage Management Option: Theatre, B.F.A. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 15A, or 30H [‡]	3 THEA 120*	3
THEA 100*	3 THEA 130 or 131*	3
THEA 1S*	1 THEA 150*	3
THEA 130 or 131*	3 THEA 200*	2
THEA 146*	2 General Education Course	3
General Education Course	3	
	15	14

Second Year

Fall	Credits Spring	Credits
CAS 100A, 100B, or 100C [‡]	3 THEA 250*	3
THEA 220*	3 THEA 251*	2
THEA 322*	2 THEA 289*	1
THEA 324*	2 General Education Course	3
General Education	3 General Education Course	3
General Education	3 General Education Course	3
	16	15

Third Year

Fall	Credits Spring	Credits
ENGL 202A, 202B, 202C, or 202D [‡]	3 THEA 280*	3
THEA 260*	3 THEA 401*	3
THEA 270*	3 THEA 486*	3
THEA 285*	3 General Education Course	3
THEA 289*	1 General Education Course	3
General Education Course	3	
	16	15

Fourth Year

Fall	Credits Spring	Credits
THEA 486*	3 THEA 481*	3
THEA 496*	3 THEA 486*	3
Additional Course for Option (see list) ^{*1}	3 THEA 496*	3
Elective	3 General Education Course (GHW)	1.5
General Education Course	3 Elective	2
General Education Course (GHW)	1.5	
	16.5	12.5

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ ADDITIONAL COURSES (3 credits)

Select 3 credits from: THEA 405Y(3), THEA 406(3), THEA 407 US(3), THEA 408(3), THEA 412 US(3), THEA 455(3), THEA 464(3), THEA 465(3) (Sem: 4-8)

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Career Paths

Careers

The **Theatre Design & Technology option** prepares students to pursue successful careers in the live entertainment industry including theatre design and technology, film and television, corporate design, and other related fields such as exhibit design, multimedia and projection design, concerts, national and international tours and production companies.

The **Stage Management option** prepares students to pursue professional careers in the live entertainment industry including theatre, film and television; and succeed as arts managers, tour and arena managers, casting directors, and event and production managers.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE THEATRE DESIGN & TECHNOLOGY OPTION (<https://arts.psu.edu/degrees/bachelor-of-fine-arts-in-theatre/>)

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE STAGE MANAGEMENT OPTION (<https://arts.psu.edu/degrees/bachelor-of-fine-arts-in-theatre/>)

Opportunities for Graduate Studies

While Penn State graduates in Design and Technology or State Management may opt to pursue advance graduate studies, such as Master of Fine Arts (M.F.A.) degree; professional opportunities are readily available to recent B.F.A. graduates. Furthermore, upon graduation our students join a prestigious alumni network of theatre and live entertainment professionals working in every area of design, production, and management across the country.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://arts.psu.edu/degrees/theatre-mfa/>)

Professional Resources

- United States Institute for Theatre Technology (USITT) (<https://www.usitt.org>)
- University Resident Theatre Association (URTA) (<https://urta.com>)

Accreditation

The Bachelor of Fine Arts in Theatre is accredited by the National Association of Schools of Theatre (NAST).

Founded in 1965, the National Association of Schools of Theatre (NAST) is an organization of schools, conservatories, colleges, and universities with approximately 188 accredited institutional members. It establishes national standards for undergraduate and graduate degrees and other credentials for theatre and theatre-related disciplines and provides assistance to institutions and individuals engaged in artistic, scholarly, educational, and other theatre-related endeavors.

MORE INFORMATION ABOUT THE NATIONAL ASSOCIATION OF SCHOOLS OF THEATRE (<https://nast.arts-accredit.org/>)

Contact

University Park

SCHOOL OF THEATRE
116 Theatre Building
University Park, PA 16802
814-865-7586
theatre@psu.edu

<https://arts.psu.edu/academics/school-of-theatre/>

Theatre, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Theatre minor is designed to be an enhancement to a major area of study and/or personal enrichment. The minor should be particularly attractive to students in the humanities (English), communication (Film, Journalism), and the arts (Music, Architecture). The minor may also be attractive to students who need to demonstrate a wide range of interests.

The Theatre minor requirements total 18 credits. 3 credits of either THEA 100, THEA 105 or THEA 101N, from the core requirement for the minor. These courses give students the option of studying introduction to the art of theatre through either performance focused approach, a general art form overview, or through a social science lens. Students then choose 9 additional credits from any THEA or DANCE course for which they meet the prerequisites. These courses can range from exploration of theatre history, literature and dramaturgy, to entry level courses in various aspects of theatre practice. A list of additional courses taught by units outside of the School of Theatre will be maintained by the registrar to provide further options. Students then select 6 credits of supporting THEA or DANCE courses that must be at the 400 level.

What is Theatre?

Theatre is a collaborative art form; an art form where different disciplines converge to create a sensorial experience much greater than the sum of its parts. Theatre is history, culture, entertainment and social responsibility. Theatre engages and transforms. Theatre is storytelling, told with equal parts artistry, skill, and technology. A theatre artist is a resourceful problem solver, effective communicator, and a great collaborator. These life skills empower theatre professionals to pursue their individual paths and rise up to their potential, well beyond the theatre walls and into their everyday life.

You Might Like This Program If...

- You want theatre to be part of your college experience.
- Can't wait to watch the Golden Globes, Tony Awards, or Academy Awards.
- Sing "Hamilton" on every road trip.
- Believe the arts and culture are essential to a strong society.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits from the following:		3
THEA 100	The Art of the Theatre	
THEA 101N	Performance and Society	
THEA 105	Introduction to Theatre	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better
Select 15 credits of THEA, DANCE, or courses from the approved list. 15
A minimum of 6 credits from the 15 must be at the 400 level.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Mary Sergeant

Academic Adviser
116 Theatre Building
University Park, PA 16802
814-865-7586
mym7@psu.edu

Berks

James N. Brown

Program Coordinator, Instructor
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Harrisburg

Maria S. Enriquez

Assistant Teaching Professor of Theater
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717-948-6331
mse19@psu.edu

Contact

University Park

SCHOOL OF THEATRE
116 Theatre Building
University Park, PA 16802
814-865-7586
theatre@psu.edu

<https://arts.psu.edu/academics/school-of-theatre/>

Berks

DIVISION OF HUMANITIES, ARTS AND SOCIAL SCIENCES
Franco Building
Reading, PA 19610
610-396-6419
BKTheater@psu.edu

Harrisburg

SCHOOL OF HUMANITIES
Olmsted Building, W356
Middletown, PA 17057
717-948-6331
mse19@psu.edu

<https://harrisburg.psu.edu/humanities/theatre-minor> (<https://harrisburg.psu.edu/humanities/theatre-minor/>)

Division of Undergraduate Studies

About DUS

David R. Smith, Associate Dean for Advising and Executive Director, DUS

As the academic home for students exploring multiple academic programs, the Division of Undergraduate Studies (DUS) enrolls nearly

one-quarter of all new incoming first-year students across Penn State. Working with primarily first- and second-year students as they decide on a major and college to enter, DUS provides robust academic advising aimed at helping students to make informed decisions to shape meaningful educational opportunities that enable their success while at Penn State. DUS provides a supportive and welcoming environment for students as they begin their studies with the University as well as for advanced students who need to make transitions prior to graduation. DUS prides itself on providing exemplary academic advising for students with interests across all of Penn State's varied academic programs. Our advisers work carefully with students, making sure that their questions are answered and also posing thoughtful inquiries to students to help them through challenging academic decisions and planning. Through intentional conversation, academic advisers in DUS provide students with the context to understand the following:

- the purpose and value of various degree requirements
- the need to make thoughtful and well-informed decisions regarding their education
- the connections between personal interests, life goals, and academic opportunities
- the need to think critically and question common assumptions about majors and careers
- the policies and processes that shape and inform educational decisions
- the steps needed to find meaningful educational opportunities such as study abroad programs, research assistantships, leadership activities, and internships
- the foundation for articulating the value of higher education, regardless of major

MORE INFORMATION ABOUT THE DIVISION OF UNDERGRADUATE STUDIES (<https://dus.psu.edu/>)

Mission and Goals

The Division of Undergraduate Studies facilitates student exploration, engagement, and academic success by delivering exemplary academic advising, guiding institutional policy and procedure, and promoting the scholarship of advising.

MORE INFORMATION ABOUT THE MISSION AND GOALS OF THE DIVISION OF UNDERGRADUATE STUDIES (<https://dus.psu.edu/vision-and-mission-statements/>)

Exploration

Exploration is a key part of the values of DUS. By encouraging our students to make intentional decisions and evaluations, DUS promotes the independence of our students as they decide what is best to study. Questions related to higher education, strengths and influences, information gathering and engaged scholarship will all be asked by the adviser in critical conversations with the students. The goal of DUS is to help students who are uncertain about what they want to study to take time and use all of the resources available to make important decisions about their educational future.

MORE INFORMATION ABOUT THE EXPLORATORY PROCESS (<https://dus.psu.edu/exploratory-process/>)

Unit Procedures

Academic Warning

A student who fails to earn a 2.00 cumulative grade-point average will be placed on academic warning. A student placed on academic warning will have a hold placed on registration and will be required to meet with an academic adviser in order for this registration hold to be removed. To remove academic warning, the cumulative grade-point average must be 2.00 or higher.

Students in Academic Warning should complete and submit the Academic Reflection Activity (<https://dus.psu.edu/academic-reflection-activities/>) which will be sent to your DUS adviser. When you meet with your adviser, you will review your self-reflection and set academic goals for your future success. Email your adviser or call the DUS Advising Center at your campus location to schedule an appointment.

MORE INFORMATION ABOUT ACADEMIC WARNING (<https://dus.psu.edu/academic-warning-and-suspension/>)

READ SENATE POLICY 54-20: ACADEMIC WARNING (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-20>)

Academic Suspension

A student in academic warning who fails to maintain a semester grade-point average of 2.00 or higher will be academically suspended. A student who has been academically suspended may not schedule courses at the University for two consecutive semesters. (Note: Summer session is equal to one semester.)

The first step to return to Penn State after suspension is to contact your DUS adviser and let them know you plan to return. Your adviser will help you develop an action plan to accomplish while you are on suspension. If you don't know who your DUS adviser is, call the DUS Advising Center at your campus location.

MORE INFORMATION ABOUT ACADEMIC SUSPENSION (<https://dus.psu.edu/academic-warning-and-suspension/>)

READ SENATE POLICY 54-40: ACADEMIC SUSPENSION (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-40>)

Change of Major into DUS

There are three student populations for which a change of major into DUS is appropriate:

1. students who are enrolled in a major/college in which they no longer have interest and are unsure of their new academic goal.
2. students who want to change out of their current major/college and have decided on a new major/college but do not yet meet entrance requirements.
3. Students who have changed their academic goal to a Smeal College of Business major and can feasibly meet the entrance to major requirements within the required credit window.

No student may be approved for a change of major into DUS without an advising interview in which Penn State curricular goals and University status are discussed.

MORE INFORMATION ABOUT CHANGE OF MAJOR INTO DUS (<https://dus.psu.edu/change-major-dus/>)

Change of Campus for DUS Students

Undergraduate degree-seeking students admitted to the University as a first-year student may begin at one of twenty Penn State campuses.

Changes to University Park

- DUS approval for Change of Campus to University Park prior to completing four semesters at another location is typically granted when required courses for the student's intended major are not available at the current campus. Students cannot be denied because of their grade-point average.
- Early change- of- campus to University Park for non-academic (i.e., health, personal) reasons will be considered when the DUS Programs Coordinator at the campus (or other appropriate personnel who have direct knowledge of the personal circumstance) provides support for the change- of- campus. These exceptions will be examined on a case-by-case basis. Approval will be determined by the documentation and/or verification of the extenuating circumstances, as well as verification of a realistic academic goal.
- If the student qualifies for entrance to the desired college at University Park, the student should request a change of major via Update Academics first and then submit the change-of-campus request through Update Campus, both in LionPATH.

Changes to Locations Other Than University Park

- A request to change to DUS at any campus other than University Park must be discussed with a DUS adviser at the receiving campus, as well as with a DUS adviser at the student's current location to determine the appropriateness of the request.
- A Student can make an official change-of-campus request through Update Campus in LionPATH.

Max Time

Students enrolled in the Division of Undergraduate Studies (DUS) are permitted to be enrolled for a maximum of one year after they complete their first year at the university (Senate Policy 39-50 (<http://senate.psu.edu/policies-and-rules-for-undergraduate-students/39-00-division-of-undergraduate-studies/#39-50>)). Accordingly, for students who start enrollment at Penn State in DUS, they are allowed to be enrolled in DUS for the first two academic years before declaring a major at the university. There are certain special populations of students who are permitted to be enrolled in DUS for longer than two years. It is also permissible to request an extension to maximum time of enrollment following discussion with a DUS adviser to make sure that it is an appropriate request. However, that request must be approved by the executive director of DUS for a student to remain longer than allowed. It is critical that students be in discussion with their advisers regarding how long they may remain in DUS. If a student extends past their maximum time of enrollment in DUS without extension, a registration hold will be placed on a student's record.

Contact

DIVISION OF UNDERGRADUATE STUDIES
Grange Building
University Park, PA 16802
814-865-7576
dus@psu.edu

<https://dus.psu.edu/>

Donald P. Bellisario College of Communications

About the College

Marie Hardin, Dean, Donald P. Bellisario College of Communications

The Donald P. Bellisario College of Communications provides the opportunities and resources of a large university with the personalized feel and support of a small school. As the largest accredited program of its kind in the nation, students can find numerous opportunities to fit in and succeed. The Bellisario College uses a proven approach to help students prepare for success. An emphasis on the combination of classroom instruction, campus media opportunities and career preparation represents the core of our educational philosophy. Faculty members blend strong academic and professional backgrounds and possess a commitment to excellence in teaching. In skills classes and internships, students use state-of-the-art technology to gain hands-on experience on their way to becoming the next generation of great digital storytellers.

MORE INFORMATION ABOUT THE COLLEGE (<https://www.bellisario.psu.edu/about/>)

Mission and Goals

The mission of the Donald P. Bellisario College of Communications is to prepare students to take their place in an information-rich society and in the professions as active, critical and ethical participants. We promote effective, responsible use of communications media and technologies by individuals, organizations, industries and government.

MORE INFORMATION ABOUT THE MISSION AND GOALS OF THE DONALD P. BELLISARIO COLLEGE OF COMMUNICATIONS (<https://www.bellisario.psu.edu/about/plans-reports/>)

Accreditation

The Donald P. Bellisario College of Communications is evaluated regularly by the Accrediting Council on Education in Journalism and Mass Communications and has consistently met the high standards of the Council. For undergraduate students, accreditation most practically means that most upper-level professional classes are small, the College uses the latest in technology, and provides outstanding student service.

MORE INFORMATION ABOUT THE ACCREDITING COUNCIL ON EDUCATION IN JOURNALISM AND MASS COMMUNICATIONS (<https://www.aejmc.org>)

Departments and Schools

Department of Advertising/Public Relations

Students who major in advertising/public relations prepare for careers in business, communications or mass media-related fields. Students learn the art of persuasive storytelling and work with clients as they build campaigns and combine classroom instruction with hands-on opportunities.

MORE INFORMATION ABOUT THE DEPARTMENT OF ADVERTISING/PUBLIC RELATIONS (<https://www.bellisario.psu.edu/departments/advertising-public-relations/>)

Department of Film Production and Media Studies

With two distinct majors offered in the department, students may choose to focus on film-video, with creative and production-related career paths, or media studies, with more research-based opportunities. Classes are small allowing students who choose either major to thrive as part of a collaborative community on campus.

MORE INFORMATION ABOUT THE DEPARTMENT OF FILM PRODUCTION AND MEDIA STUDIES (<https://www.bellisario.psu.edu/departments/film-production-media-studies/>)

Department of Journalism

Journalism is a vital skill set in a rapidly changing communications environment. With an emphasis on digital and multimedia storytelling, and by using cutting-edge technology such as immersive realities, the department prepares students for important careers in communications and media fields.

MORE INFORMATION ABOUT THE DEPARTMENT OF JOURNALISM (<https://www.bellisario.psu.edu/departments/journalism/>)

Department of Telecommunications

Telecommunications impacts everyone every day. It encompasses a variety of electronic media, including radio and TV, cable and satellite, the internet, and wired and mobile technologies. The department prepares students for careers in media management or production and is an internationally recognized center for research on telecommunications issues.

MORE INFORMATION ABOUT THE DEPARTMENT OF TELECOMMUNICATIONS (<https://www.bellisario.psu.edu/departments/telecommunications/>)

Baccalaureate Degrees

- Advertising/Public Relations, B.A.
- Digital Journalism and Media, B.A.
- Film Production, B.A.
- Journalism, B.A.
- Media Studies, B.A.
- Strategic Communications, B.A.
- Telecommunications and Media Industries, B.A.

Minors

- Communication and Social Justice, Minor
- Digital Media Trends and Analytics, Minor
- Film Studies, Minor
- Information Sciences and Technology for Telecommunications, Minor
- Journalism, Minor
- Media Studies, Minor

Certificates

- Sports Journalism, Certificate

College Procedures

Administrative Enrollment Control

Just one of the Bellisario College's undergraduate majors is under an administrative enrollment control. Students intending to study

advertising/public relations must maintain a minimum grade-point average to be accepted into the major.

MORE INFORMATION ABOUT THE ADMINISTRATIVE ENROLLMENT CONTROL OF THE ADVERTISING/PUBLIC RELATIONS PROGRAM (<https://www.bellisario.psu.edu/departments/advertising-public-relations/>)

Concurrent Majors

A Concurrent Majors Program is one in which students take courses to concurrently meet the requirements of at least two majors, with graduation for all majors in the program occurring during the same semester.

Concurrent majors are encouraged, allowing students to explore areas of interest and complement their communications degrees. Students may not complete concurrent majors with two majors in the Bellisario College, though, and some other controlled majors from across the University are not eligible either.

MORE INFORMATION ABOUT CONCURRENT MAJORS (<https://www.bellisario.psu.edu/current/advising/>)

READ SENATE POLICY 60-00: COMPLETING MORE THAN ONE UNDERGRADUATE MAJOR PROGRAM (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/60-00-completing-more-than-one-undergraduate-program/#60-00>)

Academic Warning

A student who fails to earn a 2.00 cumulative grade-point average will be placed on academic warning. A student placed on academic warning will have a hold placed on registration and will be required to meet with an academic adviser in order for this registration hold to be removed. To remove academic warning, the cumulative grade-point average must be 2.00 or higher.

MORE INFORMATION ABOUT ACADEMIC WARNING (<https://www.bellisario.psu.edu/current/advising/academic-warning-and-academic-suspension/>)

READ SENATE POLICY 54-20: ACADEMIC WARNING (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-20>)

Academic Suspension

A student in academic warning who fails to maintain a semester grade-point average of 2.00 or higher will be academically suspended. A student who has been academically suspended may not schedule courses at the University for two consecutive semesters. (Note: Summer session is equal to one semester.)

MORE INFORMATION ABOUT ACADEMIC SUSPENSION (<https://www.bellisario.psu.edu/current/advising/academic-warning-and-academic-suspension/>)

READ SENATE POLICY 54-40: ACADEMIC SUSPENSION (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-40>)

Resources

Office of Academic Services

A dedicated, nine-person staff supports students through scheduled appointments, drop-in hours and a variety of support services.

MORE INFORMATION ABOUT THE OFFICE OF ACADEMIC SERVICES (<https://www.bellisario.psu.edu/current/advising/>)

Office of Internships and Career Services

The Bellisario College encourages undergraduate students to complete internships, multiple internships if possible, to help prepare them for communications-related careers. The office conducts two job fairs and offers additional support through resume workshops, mock interviews and “career conversations” with alumni who return to campus.

MORE INFORMATION ABOUT THE OFFICE OF INTERNSHIPS AND CAREER SERVICES (<https://www.bellisario.psu.edu/career-services-and-internships/>)

Office of Diversity and Inclusion

The Office of Diversity and Inclusion strives to make the Bellisario College a comfortable, welcoming home for all students, staff and faculty. It specifically supports undergraduate students with on-campus events, guest lectures and career-development programs.

MORE INFORMATION ABOUT THE OFFICE OF DIVERSITY AND INCLUSION (<https://www.bellisario.psu.edu/current/diversity/>)

Office of Alumni Relations

With regular on-campus mentoring programs pairing undergraduates and alumni, as well as additional special events, the Office of Alumni Relations strives to put undergraduate students in a position to succeed by connecting those students with alumni as part of the office’s overall mission.

MORE INFORMATION ABOUT THE OFFICE OF ALUMNI RELATIONS (<https://www.bellisario.psu.edu/alumni/>)

Honors Programs

Schreyer Honors College

The Schreyer Honors College, regarded as one of the nation’s top programs of its kind, promotes achieving academic excellence with integrity, building a global perspective, and creating opportunities for leadership and civic engagement. Schreyer Scholars, including those admitted after their first or second year of enrollment, are a diverse and motivated group of approximately 2,000 students at University Park and 20 Commonwealth campuses. The College strives to educate students who will have an important and ethical influence in the world, to improve educational practice, and to continue to be recognized as a leading force in honors education nationwide.

MORE INFORMATION ABOUT THE SCHREYER HONORS COLLEGE (<https://www.shc.psu.edu>)

Honors in the Donald P. Bellisario College of Communications

Communications students seeking an honors option may be accepted as freshmen or again later during a “junior gateway” opportunity.

MORE INFORMATION ABOUT HONORS IN THE DONALD P. BELLISARIO COLLEGE OF COMMUNICATIONS (<https://www.bellisario.psu.edu/current/advising/>)

Contact

DONALD P. BELLISARIO COLLEGE OF COMMUNICATIONS
201 Carnegie Building
University Park, PA 16802
814-863-1484
bellisarioinfo@psu.edu

<https://www.bellisario.psu.edu>

Advertising/Public Relations, B.A.

Begin Campus: Any Penn State Campus

End Campus: University Park, World Campus

Program Description

This major is designed to provide a balance of theory, research, and practice. The course sequence provides professional skills courses in conjunction with applied theory and critical evaluative courses. Students develop an understanding of the role and effect of advertising and public relations within the business, social, and political arenas. Students develop abilities and skills that prepare them for a wide range of professional opportunities that include: media planning and relations, research, and client services. Analytical abilities are equally stressed throughout the curriculum. Critical thinking skills, creative problem-solving, and the need to justify decisions are developed. Theory and practice from a wide range of disciplines including business, behavioral sciences, and applied statistics are used to equip the students to make informed decisions in a dynamic environment.

An important aspect of the program is the examination of the ethical implications of strategic communication practices used in the marketing, advertising and public relations arena. Students will develop a framework that will help them to understand and evaluate supporters and critics of strategic communications practices.

Advertising Option

Available at the following campuses: University Park

All courses in the advertising option emphasize the critical importance of integrated communication. The objective of the curriculum is to prepare students for entry-level opportunities in the advertising profession and to prepare for eventual managerial roles where an understanding of integrated communication concepts is essential.

The program reflects an integrated marketing communications approach to the design implementation and evaluation of advertising messages. In addition to mastering the core professional courses, students are expected to have an understanding of the convergence of mass communication theory and practice and are encouraged to select from courses in communication theory, communication law, mass media history, ethics, and the impact of advertising and public relations on society.

Public Relations Option

Available at the following campuses: University Park

The public relations curriculum prepares students for the challenges of public relations practice in a highly competitive, technological, multicultural, and global environment. In their course of study, students study the role and function of public relations in building cooperative mutually beneficial relations between organizations and their constituent publics through understanding, credibility, and trust.

Students complete a core set of courses that includes news writing, introduction to public relations, public relations methods, mass communication research, and public relations problems (campaigns).

Because of the critical importance of journalistic writing skills and an understanding of news media ethics, public relations majors are encouraged to take additional journalism courses to fulfill their communication electives.

Advertising and public relations students are encouraged to choose a minor from outside the Bellisario College of Communications. The majority of majors select minors in business, English, sociology, psychology, political science, information systems and statistical analysis, world language, and speech communication.

What is Advertising and Public Relations?

In general, advertising and public relations are similar because the goal is sharing a message with an audience. At its simplest, advertising typically relies on paid messages to sell a product and public relations typically uses unpaid channels to sell an idea. Students who major in advertising/public relations at Penn State have a wealth of opportunities thanks to a degree that allows them to build on many of the same core skills before focusing on the advertising or public relations track. In each area, students can combine classroom instruction with hands-on work through partnerships or real-life client projects. Advertising students learn the art of persuasive storytelling via multiple mediums and how advertising affects mass media and how consumers are influenced by ads. Public relations students gain an understanding of brand building, research, and strategic planning to position a message to make an impact through various channels.

You Might Like This Program If...

- You're creative, curious and like sharing ideas and information with others.
- You like to write and talk, or if you're comfortable with social media, advertising/public relations will play to your strengths.

Design, digital storytelling, and video skills are also valuable in the field as professionals regularly utilize a variety of tools to do their jobs. In addition, the field thrives on collaboration but also allows room for self-directed workers to succeed.

MORE INFORMATION ABOUT ADVERTISING/PUBLIC RELATIONS (<https://www.bellisario.psu.edu/departments/advertising-public-relations/>)

Entrance to Major

This program currently has administrative enrollment controls. Administrative Enrollment Controls are initiated when limitations of space, faculty, or other resources in a major prevent accommodating all students who request them. Students must follow the administrative enrollment controls that are in effect for the semester that they enter the university.

First-Year Students Entering Summer 2024, Fall 2024, Spring 2025

In order to be eligible for entrance to this major, students must satisfy the following requirements:

- be enrolled in the Donald P. Bellisario College of Communications or the Division of Undergraduate Studies
- 40-68 graded Penn State credits (excludes transfer and AP credits)
- completed with a grade of C or better: ENGL 15 (or a University equivalent), ECON 102
- earned a minimum cumulative grade-point average (GPA) of 3.20

Students Who Entered Prior to Summer 2024

Students who entered the University from Summer 2018 through Spring 2024 should view the administrative enrollment controls in the appropriate Undergraduate Bulletin archive (<https://bulletins.psu.edu/undergraduate/archive/>). Students who entered the University prior to the summer 2018 semester should consult with their academic adviser about the administrative enrollment controls in effect for the semester they entered the university.

Degree Requirements

For the Bachelor of Arts degree in Advertising/Public Relations, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	23-26
Bachelor of Arts Degree Requirements	24
Requirements for the Major	35-38

10 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GS courses; 4 credits of GQ courses.

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
COMM 160	Basic News Writing Skills	1
ECON 102	Introductory Microeconomic Analysis and Policy	3
PSYCH 100	Introductory Psychology	3
STAT 200	Elementary Statistics	4
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 3 credits of COMM courses		3

Requirements for the Option

Requirements for the Option: Require a grade of C or better

Select an option 21-24

Requirements for the Option

Advertising Option (21 credits)

Available at the following campuses: University Park

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
COMM 320	Introduction to Advertising	3
COMM 420	Research Methods in Advertising and Public Relations	3
COMM 421W	Advertising Creative Strategies	3
COMM 422	Advertising Media Planning	3
COMM 424	Advertising Campaigns	3

Additional Courses

Additional Courses: Require a grade of C or better

Select 6 credits from the following:		6
COMM 370	Public Relations	
COMM 373	Crisis Communications in Public Relations	
COMM 410	International Mass Communications	
COMM 417	Ethics and Regulation in Advertising and Public Relations	
COMM 418	Media Effects: Theory and Research	
COMM 425	Advanced Advertising Campaigns	
COMM 426	International and Intercultural Strategic Communication	
COMM 427	Client/Agency Relations	
COMM 468	Graphic Applications in Print Communications	
COMM 494	Research Project Courses	
COMM 495	Internship (1-3 credits)	
COMM 496	Independent Studies	
COMM 499	Foreign Study—Mass Communications	

Public Relations Option (24 credits)

Available at the following campuses: University Park

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
COMM 260W	News Writing and Reporting	3
COMM 370	Public Relations	3
COMM 372	Digital Public Relations	3
COMM 420	Research Methods in Advertising and Public Relations	3
COMM 471	Public Relations Media and Methods	3
COMM 473	Public Relations Campaigns	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 6 credits from the following:		6
COMM 305	Introduction to Critical Studies of Media	
COMM 320	Introduction to Advertising	
COMM 373	Crisis Communications in Public Relations	

COMM 410	International Mass Communications
COMM 417	Ethics and Regulation in Advertising and Public Relations
COMM 418	Media Effects: Theory and Research
COMM 425	Advanced Advertising Campaigns
COMM 426	International and Intercultural Strategic Communication
COMM 427	Client/Agency Relations
COMM 468	Graphic Applications in Print Communications
COMM 495	Internship (1-3 credits)
COMM 496	Independent Studies
COMM 499	Foreign Study--Mass Communications

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Learning Outcomes

Professional Values and Competencies

Individual professions in journalism and mass communication may require certain specialized values and competencies. Irrespective of their particular specialization, all graduates should be aware of certain core values and competencies and be able to:

1. understand and apply the principles and laws of freedom of speech and press for the country in which the institution that invites ACEJMC is located, as well as receive instruction in and understand the range of systems of freedom of expression around the world, including the right to dissent, to monitor and criticize power, and assemble and to petition for redress of grievances;
2. demonstrate an understanding of the history and role of professionals and institutions in shaping communications;
3. demonstrate an understanding of gender, race ethnicity, sexual orientation and, as appropriate, other forms of diversity in domestic society in relation to mass communications;
4. demonstrate an understanding of the diversity of peoples and cultures and of the significance and impact of mass communications in a global society;
5. understand concepts and apply theories in the use and presentation of images and information;
6. demonstrate an understanding of professional ethical principles and work ethically in pursuit of truth, accuracy, fairness and diversity;
7. think critically, creatively and independently;
8. conduct research and evaluate information by methods appropriate to the communications professions in which they work;
9. write correctly and clearly in forms and styles appropriate for the communications professions, audiences and purposes they serve;
10. critically evaluate their own work and that of others for accuracy and fairness, clarity, appropriate style and grammatical correctness;
11. apply basic numerical and statistical concepts;
12. apply basic tools and technologies appropriate for the communications professions in which they work.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Bellisario College Academic Advising

204 Carnegie Building
University Park, PA 16802
814-865-1503
commadvisor@psu.edu

<https://www.bellisario.psu.edu/current/advising> (<https://www.bellisario.psu.edu/current/advising/>)

Suggested Academic Plan

The Advertising and Public Relations options of the Advertising/Public Relations major is under administrative enrollment control. Please review entrance to major requirements found at <https://bulletins.psu.edu/undergraduate/colleges/bellisario-communications/advertising-public-relations-ba/#howtogetintext> (p. 301).

Advertising Option: Advertising/Public Relations, B.A. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
COMM 160*	1 ECON 102 (GS)**†	3
ENGL 15**††	3 General Education Course (GN)	3
PSYCH 100 (GS)**†	3 Any COMM Course*	3
General Education Course (GN)	3 General Education Course (Inter-Domain)	3
World Language Level 1	4 World Language Level 2	4
PSU 9	1	
	15	16

Second Year

Fall	Credits Spring	Credits
COMM 320* ¹	3 STAT 200**††	4
General Education Course (Inter-Domain)	3 COMM 305, 320, 373, 410, 411, 417, 418, 425, 426, 427, 468, 494, 495, 496, or 499*	3
General Education Course (GH)	3 General Education Course (Exploration)	3
BA World Cultures	3 IL Cultures	3
World Language Level 3	4 BA Knowledge Domain	3
	16	16

Third Year

Fall	Credits Spring	Credits
COMM 420*	3 COMM 421W*	3
CAS 100A, 100B, or 100C (GWS)†	3 COMM 305, 320, 373, 410, 411, 417, 418, 425, 426, 427, 468, 494, 495, 496, or 499*	3
General Education Course (GA)	3 General Education Course (GQ)†	3
US Cultures	3 BA Knowledge Domain	3
BA Knowledge Domain	3 BA Knowledge Domain	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
COMM 422*	3 COMM 424*	3
ENGL 202A, 202B, 202C, or 202D (GWS)†	3 General Education Course (GHW)	1.5

General Education Course (GHW)	1.5 Elective	3
Elective	3 Elective	3
Elective	3 Elective	3
	13.5	13.5

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Students studying at any of the commonwealth campuses that do not offer COMM 320 will take that course 5th semester upon arrival to University Park. In place of COMM 320, students should take STAT 200 in their 4th semester. COMM 421W will then be taken 6th semester and an additional COMM will be taken 5th semester.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Public Relations Option: Advertising/Public Relations, B.A. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
COMM 160*	1 ECON 102 (GS) ^{*#†}	3
ENGL 15 ^{*#††}	3 Any COMM Course*	3
PSYCH 100 (GS) ^{††}	3 General Education Course (GN)	3
General Education Course (GN)	3 General Education Course (Inter-Domain)	3
World Language Level 1	4 World Language Level 2	4
PSU 9	1	
	15	16

Second Year

Fall	Credits Spring	Credits
COMM 260W ^{*1}	3 COMM 372*	3
COMM 370 ^{*2}	3 STAT 200 ^{*††}	4
General Education Course (Inter-Domain)	3 IL Cultures	3
BA World Cultures	3 General Education Course (GH)	3
World Language Level 3	4 General Education Course (Exploration)	3
	16	16

Third Year

Fall	Credits Spring	Credits
COMM 420*	3 COMM 305, 320, 373, 410, 411, 417, 418, 425, 426, 427, 468, 494, 495, 496, or 499*	3
COMM 305, 320, 373, 410, 411, 417, 418, 425, 426, 427, 468, 494, 495, 496, or 499*	3 General Education Course (GA)	3
CAS 100A, 100B, or 100C (GWS) [‡]	3 General Education Course (GQ) [‡]	3
US Cultures	3 BA Knowledge Domain	3
BA Knowledge Domain	3 BA Knowledge Domain	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
COMM 471*	3 COMM 473*	3
ENGL 202A, 202B, 202C, or 202D (GWS) [‡]	3 General Education Course (GHW)	1.5
General Education Course (GHW)	1.5 Elective	3
Elective	3 Elective	3

Elective	3 Elective	3
	13.5	13.5

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Students studying at any of the commonwealth campuses that do not offer COMM 260W will take that course 5th semester upon arrival to University Park. In place of COMM 260W students should take CAS 100A, CAS 100B, or CAS 100C in their 3th semester.

² Students studying at any of the commonwealth campuses that do not offer COMM 370, will take that course 5th semester upon arrival to University Park. In place of COMM 370, students should take a GQ in their 3rd semester.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Career Paths

An advertising/public relations degree prepares students to enter careers in business, communications, mass media and other fields that value effective communicators and storytellers. Graduates can find opportunities from coast to coast and with companies or organizations of nearly any size and industry. The advertising/public relations degree's

versatility prepares students to have an immediate impact in helping a brand, company or organization tell its story.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF ADVERTISING/PUBLIC RELATIONS (<https://www.bellisario.psu.edu/departments/advertising-public-relations/>)

Opportunities for Graduate Studies

Most undergraduates initially enter the professional world, but the multifaceted skill set associated with an advertising/public relations degree provides a foundation for success in graduate school. Undergraduates leave well-versed in the research necessary to carry out campaigns and the importance of analytics in measuring success.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.bellisario.psu.edu/graduate/>)

Accreditation

The Donald P. Bellisario College of Communications is evaluated regularly by the Accrediting Council on Education in Journalism and Mass Communications, consistently meeting the high standards of the organization dedicated to excellence in professional education in journalism and mass communications. For undergraduate students, accreditation most practically means that upper-level professional classes in each major will be conducted in rooms with 20 or fewer students.

MORE INFORMATION ABOUT THE ACCREDITING COUNCIL ON EDUCATION IN JOURNALISM AND MASS COMMUNICATIONS (<https://www.aejmc.org>)

Contact

University Park

DEPARTMENT OF ADVERTISING/PUBLIC RELATIONS
22 Carnegie Building
University Park, PA 16802
814-865-1371
fus1@psu.edu

<https://www.bellisario.psu.edu/departments/advertising-public-relations>
(<https://www.bellisario.psu.edu/departments/advertising-public-relations/>)

Communication and Social Justice, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The idea of a more just society is a shared value and goal across the university. The Communication and Social Justice minor is designed to bring students from different disciplines who share that commitment together and provide them with the communication skills they need to achieve a more just social world. There are two parts of a curriculum that students must take to achieve the minor. They will take 3 courses (9 credits) on social justice subject matter drawn from a transdisciplinary list, one of which must be a 400-level course. Then, they will take

three communications skills courses (9 credits) that will help them communicate that subject matter more effectively. The first, a basic production course on how to shoot, record, edit or launch multimedia content (either COMM 270, COMM 283 or LA 235N). The second, a course on digital communication strategies, and finally a capstone course that will apply the skills from the first two courses and supervise students in the creation and launch of a digital communications campaign that will further the causes they are passionate about. Completion of the minor will help further an ongoing conversation about the importance of a just society and prepare students to be effective multimedia communicators.

What is Communication and Social Justice?

The Communication and Social Justice minor is for students who would like to learn to communicate their commitment and passion for social justice to the general public to help further causes that they care about. Students will draw from their knowledge base in their home majors and learn to create media assets and multi-media campaigns designed to persuade. Completion of the minor will prepare students to create and utilize media campaigns, skills which translate well into any chosen field today.

You Might Like This Program If...

You care about helping to foster a more just society and want to learn to communicate in today's media system. In a world dominated by media, knowing how to create and utilize different forms of media will serve any student well in their chosen field.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
COMM 232	Communication Strategies for Social Justice	3
COMM 432	Social Justice Media Project	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select three courses from the following list of department approved courses. One course must be at the 400 level.		
AAS 100N/ AMST 160N	Introduction to Asian American Studies	
AED 225	Diversity, Pedagogy, and Visual Culture	
AFAM 100N	Black Freedom Struggles	
AFAM/SOC/ WMNST 103	Racism and Sexism	
AFAM 105N	Afro-Latin America: Race and Revolution	
AFAM/HIST 431	Black Liberation and American Foreign Policy	

AFAM/CI/ EDTHP 492	Identities, Power and Perceptual Pedagogies in Teaching and Learning
AFR/WMNST 202N	Women, Gender, and Feminisms in Africa
AFR/SOC 209	Poverty in Africa
AFR 440	Globalization and Its Implications
AMST 150	America in the 1960s: An Introduction
ART/WMNST 207N	LGBTQ+ Identity, Culture and The Arts
BBH 446	Human Sexuality as a Health Concern
CED 375	Community, Local Knowledge, and Democracy
CED 440	Labor in the Global Economy
CMLIT 455	Ethics, Justice, and Rights in World Literature
COMM 110	Media and Democracy
COMM/ WMNST 205	Gender, Diversity and the Media
COMM 411	Cultural Aspects of the Mass Media
CRIM 451	Race, Crime, and Justice
CRIMJ 230	Corrections in America
CRIMJ/CRIM/ WMNST 453	Women and the Criminal Justice System
EDTHP 200	Educational Reform and Public Policy
EDTHP 420	Education and Public Policy
ENGL 228	Introduction to Disability Studies in the Humanities
ENGL 236N	Inequality: Economics, Philosophy, Literature
ENGL/WMNST 245	Introduction to LGBTQ Studies
ENGL 404	Mapping Identity, Difference, and Place
ENGL/LTNST 426	Chicana and Chicano Cultural Production: Literature, Film, Music
ENT 202N	Insect Connections: Insects, Globalization and Sustainability
ENVST 100N	Visions of Nature
GEOG 425	Geography of Race, Class, and Poverty in America
GEOG 433	Geographies of Justice
GLIS 101N	Globalization
HDFS 345	CONTEMPORARY URBAN ISSUES AND SOCIAL JUSTICE FRAMEWORKS
HDFS 410	Communities and Families
HIST/JST 140	The History of the Israel-Palestine Conflict (1917-Present)
HIST 154	History of Welfare and Poverty in the United States
HIST/AFAM 465	The Post-World War II Civil Rights Movement
HIST/WMNST 466	Lesbian and Gay History
LTNST 100	Introduction to Latina/o Studies
LTNST/AMST/ HIST 127	Introduction to U.S. Latina/o History
LTNST/ WMNST 300	Latinx Gender and Sexuality Studies
LTNST/SPAN 470	Youth Cultures in Latin(a/o) America
PHIL/WMNST 8	Gender Matters

PHIL 9	Race, Racism, and Diversity
PHIL/STS 432	Medical and Health Care Ethics
PLSC 114Z	Winning Political Support Through Persuasion
PLSC 210N	Rights in America
PLSC/WMNST 428	Gender and Politics
PLSC 451	The Politics of Human Rights
PLSC 477	Sex, Race, & Justice: The U.S. Supreme Court and Equality
RLST/METEO/ PHIL 133N	Ethics of Climate Change
SOC 5	Social Problems
SOC 119N	Race, Ethnicity and Culture
SOC/CRIMJ/ EDUC 205N	Critical Race Theory in the Humanities and Social Sciences
SOC 419	Race and Public Policy
SOC 422	World Population Diversity
SOC 424	Social Change
SOC/WMNST 477	Sociology of Sexuality
WMNST/ AFAM/LHR 136Y	Race, Gender, and Employment

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 3 credits from the following:

3

COMM 270	Introduction to Multimedia Production
COMM 282	Television Field Production
LA 235N	Media, Social Justice, and the Public Humanities

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Bellisario College Academic Advising

204 Carnegie Building
University Park, PA 16802
814-865-1503
commadvisor@psu.edu

<https://www.bellisario.psu.edu/current/advising> (<https://www.bellisario.psu.edu/current/advising/>)

Contact

University Park

DEPARTMENT OF FILM PRODUCTION AND MEDIA STUDIES
103 Carnegie Building
University Park, PA 16802
814-863-1243
mfj3@psu.edu

Digital Journalism and Media, B.A.

Begin Campus: World Campus

End Campus: World Campus

Program Description

The Digital Journalism and Media degree, to be offered via the World Campus, will prepare students for the fast-changing field of digital journalism and other web-based communications careers, including multimedia storytelling, digital production and digital media management. This new major, as structured, requires courses on writing, law, ethics and multimedia skills in its core. There are three suggested pathways of courses which can allow students to develop expertise in certain subject areas within mass communications: Digital Journalism, Visual Media and Media Management. They will understand the industries that operate in today's societies and be prepared for jobs as writers, content producers, leaders and policy makers.

The program will be accredited by the Accrediting Council on Education in Journalism and Mass Communications.

What is Digital Journalism and Media?

The field of journalism has been radically transformed by the onset of new opportunities to engage an audience using technology. The bachelor's degree in digital journalism and media can prepare you for the fast-changing field of digital journalism and other web-based communication careers, including multimedia storytelling, digital production, and digital content management. While offering a cutting-edge education in digital media, this program also focuses on writing, editing, and journalistic ethics. Students may focus on one of several areas as they prepare to be leaders in digital media. Those areas include digital journalism, visual media, media management or an individualized program created from the program's courses to suit the student's career aspirations.

You Might Like This Program If...

- You're curious, inquisitive, observant and organized.
- You have an interest in telling stories, no matter the medium, and trying technologies that engage an audience.
- You have an ability to meet deadlines and work under pressure.
- You have excellent verbal and written communications skills.

MORE INFORMATION ABOUT DIGITAL JOURNALISM AND MEDIA
(<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-digital-journalism-and-media-bachelor-of-arts-degree/>)

Direct Admission to the Major

Incoming first-year students who meet the program admission requirements are admitted directly into the major. Admission restrictions may apply for change-of-major and/or change-of-campus students.

For more information about the admission process for this major, please send a request to the college, campus, or program contact (listed in the Contact tab).

Degree Requirements

For the Bachelor of Arts degree in Digital Journalism and Media, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	11
Bachelor of Arts Degree Requirements	24
Requirements for the Major	40

13-24 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
COMM 160	Basic News Writing Skills	1
COMM 180	Survey of Electronic Media and Telecommunications	3
COMM 260W	News Writing and Reporting	3
COMM 269	Photojournalism	3
COMM 271	Principles of Journalism	3
COMM 280	Introduction to Telecommunications Technologies	3
COMM 409	News Media Ethics	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
COMM/IST 310	Digital Media Metrics	3
or COMM 364	Data Visualization for Journalists	
COMM 403	Law of Mass Communications	3
or COMM 492	Internet Law and Policy	
Select 3 credits from the following:		3
COMM 282	Television Field Production	
COMM 460W	Reporting Methods	
COMM 467	News Editing and Evaluation	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 12 credits from the following:		12
COMM 228	Introduction to Science Writing and Communication	
COMM 380	Telecommunications Management	
COMM 461	Magazine Writing	

COMM 469	Photography for the Mass Media
COMM 481	Advanced Multimedia Production

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Learning Outcomes

Professional Values and Competencies

Individual professions in journalism and mass communication may require certain specialized values and competencies. Irrespective of their particular specialization, all graduates should be aware of certain core values and competencies and be able to:

1. understand and apply the principles and laws of freedom of speech and press for the country in which the institution that invites ACEJMC is located, as well as receive instruction in and understand the range of systems of freedom of expression around the world, including the right to dissent, to monitor and criticize power, and assemble and to petition for redress of grievances;
2. demonstrate an understanding of the history and role of professionals and institutions in shaping communications;
3. demonstrate an understanding of gender, race ethnicity, sexual orientation and, as appropriate, other forms of diversity in domestic society in relation to mass communications;

4. demonstrate an understanding of the diversity of peoples and cultures and of the significance and impact of mass communications in a global society;
5. understand concepts and apply theories in the use and presentation of images and information;
6. demonstrate an understanding of professional ethical principles and work ethically in pursuit of truth, accuracy, fairness and diversity;
7. think critically, creatively and independently;
8. conduct research and evaluate information by methods appropriate to the communications professions in which they work;
9. write correctly and clearly in forms and styles appropriate for the communications professions, audiences and purposes they serve;
10. critically evaluate their own work and that of others for accuracy and fairness, clarity, appropriate style and grammatical correctness;
11. apply basic numerical and statistical concepts;
12. apply basic tools and technologies appropriate for the communications professions in which they work.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

World Campus

Undergraduate Academic Advising

301 Outreach Building
University Park, PA 16802
814-863-3283
advising@outreach.psu.edu

Career Paths

Skills earned by pursuing the major provide students with the ability to create, execute, and evaluate communication strategies – making them a valuable asset for businesses, corporations, government, news outlets, and nonprofit organizations. Because students should be able to write and produce content for digital journalism organizations, to apply multimedia skills to develop, create, research and assess pieces appropriate to specific mediums and audiences, and to understand ethics and laws regarding freedom of the press and speech, they are especially valuable to any number of organizations who value those skills.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE DIGITAL JOURNALISM AND MEDIA PROGRAM (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-digital-journalism-and-media-bachelor-of-arts-degree/>)

Accreditation

The Donald P. Bellisario College of Communications is evaluated regularly by the Accrediting Council on Education in Journalism and Mass Communications, and the Bellisario College has consistently met the high standards of the organization that is dedicated to excellence in professional education in journalism and mass communications. For undergraduate students, accreditation most practically means that upper-level professional classes in each major will be conducted in rooms with 20 or fewer students.

MORE INFORMATION ABOUT THE ACCREDITING COUNCIL ON EDUCATION IN JOURNALISM AND MASS COMMUNICATIONS (<https://www.aejmc.org>)

Contact

World Campus

DEPARTMENT OF JOURNALISM
304B James Building
University Park, PA 16802
814-863-2682
Michelle.Baker@psu.edu

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-digital-journalism-and-media-bachelor-of-arts-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-digital-journalism-and-media-bachelor-of-arts-degree/>)

Digital Media Trends and Analytics, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The DMTA minor will provide students with contextualized understanding of practices and trends in digital media, advertising, marketing and public relations. The minor is needed to provide a viable academic option for students who want to specialize in this fast-growing sector of the communications industry. In addition, completion of the minor will prepare students to pass a number of leading industry certification tests related to analytics, SEM, social media and digital media sales and marketing. The course sequence will begin with required basic courses in both IST (IST 110) and COMM (COMM 320 or COMM 370) to ensure students have the foundational information for the material that follows, and the ability to relate practices and trends in digital media to the larger communication and information technology landscapes. Students will then explore more focused courses in digital media, advertising, marketing and public relations. These areas reflect the major areas of digital communications activity. The digital media analytics course (3 credits) will lay groundwork in audience traffic measurement as well as detail the specifics of digital media system types and technologies. The search engine marketing class (3 credits) provides in-depth experience with the largest online advertising platform—Google Adwords. This course also makes connections to media analytics (also a central part of the Google marketer platform) and social media (also part of the Google Online Marketing Challenge). The digital public relations class (3 credits) will focus on non-paid digital activities, most importantly social media applications such as Twitter, Facebook, Instagram and Google+, and how

these activities can be successfully integrated into a communications campaign. The digital advertising class (3 credits) will review new trends in the buying and selling of advertising outside of search engine marketing. Of specific interest are new developments in content marketing, programmatic buying and hybrid real-time-bidding programs that bring together content providers and advertisers in an increasingly automated marketplace. This course sequence is designed to easily accommodate new and related digital courses and to complement existing courses in advertising/public relations, telecommunications, information technology, marketing and media.

What is Digital Media Trends and Analytics?

The minor in Digital Media Trends and Analytics will prepare students with the skills and understanding necessary to specialize in one of the communications industry's fastest-growing sectors. From the largest online advertising platform (Google Adwords) to media analytics and social media applications, the minor addresses how those tools can be successfully integrated and utilized in communications campaigns. In addition, completion of the minor will prepare students to pass a number of leading industry certification tests related to analytics, digital media sales and marketing, search engine marketing, and social media.

You Might Like This Program If...

You want to be fully prepared for the fast-changing landscape in fields such as advertising/public relations, digital media, marketing and related fields. As communications professionals seek to connect advertisers and consumers in an increasingly automated marketplace, the minor will prepare those who complete it with a valuable skillset to contribute in that environment.

This minor is open to students in all majors.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
COMM 372	Digital Public Relations	3
COMM/IST 450A	Search Engine Marketing	3
COMM/IST 450	Digital Advertising	3
IST 110	Information, People and Technology	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
COMM/IST 310	Digital Media Metrics	3
or COMM 422	Advertising Media Planning	
COMM 320	Introduction to Advertising	3
or COMM 370	Public Relations	

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Bellisario College Academic Advising
204 Carnegie Building
University Park, PA 16802
814-865-1503
commadvisor@psu.edu

<https://www.bellisario.psu.edu/current/advising> (<https://www.bellisario.psu.edu/current/advising/>)

Contact

University Park

BELLISARIO COLLEGE OF COMMUNICATIONS
23 Carnegie Building
University Park, PA 16802
814-865-8314
laa182@psu.edu

Film Production, B.A.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The Film Production major is designed to serve students whose primary interest is the art of creative storytelling through film and video production. It offers an integrated curriculum in which historical, critical, and theoretical studies parallel the teaching of production and aesthetics. The major includes a broad liberal arts background with introductory courses in the areas of film history, theory, and practice. The course sequence provides students with a foundation in production techniques and professional practice for narrative, documentary and alternative production. Students then have the flexibility to pursue an area of emphasis at the advanced level. The major prepares students for careers in film, television, and media-related industries or to pursue a graduate degree in a specific area of film and television production.

What is Film Production?

Film production helps students develop an understanding of all aspects of the film and video production process while exploring narrative, documentary and alternative forms. Utilizing state-of-the-art equipment,

students gain hands-on experience as writers, producers, directors, cinematographers and editors. The program emphasizes personal expression and collaboration along with the technical and creative skills needed to succeed in a career in media production. Faculty members in the film-production major are working professionals who emphasize critical thinking and the development of ideas while offering students in-depth study of writing and production. Students graduate with a skill set that prepares them for a dynamic work environment in a highly competitive industry.

You Might Like This Program If...

- You're creative, curious, inquisitive and enjoy telling stories.
- You're able to visualize a story and interpret it using technology.
- You're an active learner who likes to apply knowledge in a practical setting.
- You're able to work in a team environment, no matter what your role is.
- You have an appreciation and understanding of popular culture and want to contribute to its evolution.

MORE INFORMATION ABOUT FILM PRODUCTION (<https://www.bellisario.psu.edu/departments/film-production-media-studies/>)

Entrance to Major

1. Minimum Cumulative GPA: 3.00
2. Minimum third semester classification
3. Courses required with a grade of B or better: COMM 150N, COMM 242

Additional Criteria

A candidate who does not meet the minimum GPA or grade requirements may submit a portfolio during finals week of Spring semester as outlined at: <https://www.bellisario.psu.edu/departments/film-production-media-studies/film-video-entrance-to-major-requirements> (<https://www.bellisario.psu.edu/departments/film-production-media-studies/film-video-entrance-to-major-requirements/>). Successful portfolio students will be admitted to the major for the following Fall provided the candidate satisfies the minimum academic requirement of at least a C (2.00) cumulative average for all courses taken at the University subject to the conditions of Section 51-50. Applicants who are not accepted into the major may re-apply the following year but must realize that this course of action could delay their graduation by at least one year.

Degree Requirements

For the Bachelor of Arts degree in Film Production, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	18
Bachelor of Arts Degree Requirements	24
Requirements for the Major	33

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of B or better</i>		
COMM 150N	The Art of the Cinema	3
COMM 242	Basic Video/Filmmaking	3
<i>Prescribed Courses: Require a grade of C or better</i>		
COMM 333	Film History for Filmmakers I: The Development of the Cinema to 1960	3
COMM 340	Intermediate Cinematography and Editing Techniques	3
COMM 342W	Idea Development and Media Writing	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 6 credits of the following:		6
COMM 337	Intermediate Documentary Production	
COMM 338	Intermediate Narrative Production	
COMM 339	Intermediate Alternative Production	
Select 3 credits of the following:		3
COMM 437	Advanced Documentary Production ¹	
COMM 437A	Advanced Documentary Production Abroad ¹	
COMM 438	Advanced Narrative Production ¹	
COMM 439	Advanced Alternative Production ¹	
COMM 448	Advanced Group Production I ²	
Select 9 credits of the following:		9
COMM 346	Writing for the Screen I	
COMM 437	Advanced Documentary Production ¹	
COMM 437A	Advanced Documentary Production Abroad ¹	
COMM 438	Advanced Narrative Production ¹	
COMM 439	Advanced Alternative Production ¹	
COMM 440	Advanced Cinematography and Lighting Techniques	
COMM 443	Producing Workshop	
COMM 444	Advanced Post-Production Techniques	
COMM 445	Directing Workshop	
COMM 446	Writing for the Screen II	
COMM 449	Advanced Group Production II	

¹ Neither COMM 437, COMM 437A, COMM 438, nor COMM 439 may be taken concurrently.

² Admittance to COMM 448 is by permission of instructor.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate

students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Learning Outcomes

Professional Values and Competencies

Individual professions in journalism and mass communication may require certain specialized values and competencies. Irrespective of their particular specialization, all graduates should be aware of certain core values and competencies and be able to:

1. understand and apply the principles and laws of freedom of speech and press for the country in which the institution that invites ACEJMC is located, as well as receive instruction in and understand the range of systems of freedom of expression around the world, including the right to dissent, to monitor and criticize power, and assemble and to petition for redress of grievances;
2. demonstrate an understanding of the history and role of professionals and institutions in shaping communications;
3. demonstrate an understanding of gender, race ethnicity, sexual orientation and, as appropriate, other forms of diversity in domestic society in relation to mass communications;
4. demonstrate an understanding of the diversity of peoples and cultures and of the significance and impact of mass communications in a global society;
5. understand concepts and apply theories in the use and presentation of images and information;
6. demonstrate an understanding of professional ethical principles and work ethically in pursuit of truth, accuracy, fairness and diversity;
7. think critically, creatively and independently;

8. conduct research and evaluate information by methods appropriate to the communications professions in which they work;
9. write correctly and clearly in forms and styles appropriate for the communications professions, audiences and purposes they serve;
10. critically evaluate their own work and that of others for accuracy and fairness, clarity, appropriate style and grammatical correctness;
11. apply basic numerical and statistical concepts;
12. apply basic tools and technologies appropriate for the communications professions in which they work.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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204 Carnegie Building
University Park, PA 16802
814-865-1503
commadvisor@psu.edu

<https://www.bellisario.psu.edu/current/advising> (<https://www.bellisario.psu.edu/current/advising/>)

Suggested Academic Plan

Admission to the film production major is selective and based on a formally-structured review process. Students can enter the major through one of two processes. Please review entrance to major requirements found at: <https://www.bellisario.psu.edu/departments/film-production-media-studies/film-video-entrance-to-major-requirements> (<https://www.bellisario.psu.edu/departments/film-production-media-studies/film-video-entrance-to-major-requirements/>).

Film Production, B.A. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year		
Fall	Credits Spring	Credits
COMM 150N ^{*#1}	3 General Education Course (Exploration)	3
COMM 160	1 General Education Course (GN)	3
ENGL 15 (GWS) [‡]	3 General Education Course (Inter-Domain)	3
General Education Course (GN)	3 General Education Course (GS)	3
World Language Level 1	4 World Language Level 2	4
PSU 9	1	
	15	16

Second Year		
Fall	Credits Spring	Credits
COMM 242 ^{*#1,2}	3 COMM 333 ^{*3}	3
General Education Course (GH)	3 General Education Course (Inter-Domain)	3
General Education Course (GQ) [‡]	3 IL Cultures	3
BA World Cultures	3 General Education Course (GQ) [‡]	3
World Language Level 3	4 General Education Course (Exploration)	3
	16	15

Third Year		
Fall	Credits Spring	Credits
COMM 337, 338, or 339 (COMM 300-Level Production) [*]	3 COMM 337, 338, or 339 (COMM 300-Level Production) [*]	3
COMM 340 or 342W [*]	3 COMM 340 or 342W [*]	3
CAS 100A, 100B, or 100C (GWS) [‡]	3 BA Knowledge Domain	3
General Education Course (GA)	3 BA Knowledge Domain	3
US Cultures	3 Elective	3
	15	15

Fourth Year		
Fall	Credits Spring	Credits
COMM 438, 439, or 448 (COMM 400-Level Production) ^{*4}	3 COMM 346, 437, 437A, 438, 440, 444, 445, 446, or 449 (COMM 400-Level Additional) ^{*4}	3
COMM 346, 440, 443, 444, or 445 (COMM 400-Level Additional) [*]	3 COMM 346, 437, 437A, 438, 440, 444, 445, or 446 (COMM 400-Level Additional) [*]	3
ENGL 202A, 202B, 202C, or 202D (GWS) [‡]	3 Elective	3
Elective	3 Elective	1
BA Knowledge Domain	3 General Education Course (GHW)	3
	15	13

Total Credits 120

* Course requires a grade of C or better for the major

- ‡ Course requires a grade of C or better for General Education
 # Course is an Entrance to Major requirement
 † Course satisfies General Education and degree requirement

- ¹ Course requires a grade of B or better for entrance to major. Grades below a B will require a portfolio submission for entrance to major.
² Students studying at any of the commonwealth campuses that do not offer COMM 242 will need to change their campus early to University Park for their 4th semester to fulfill this requirement. In its place, students at a commonwealth campus can take a General Education (GN) course in the third semester.
³ Students can take COMM 333 and COMM 242 concurrently during the 4th semester to stay on sequence for FILM/Video requirements.
⁴ Students who take COMM 448 (Advanced Group Production) in their seventh semester, as part of a year-long production sequence, will take COMM 449 in their eighth semester.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Career Paths

A film production degree prepares students to enter careers in entertainment, business, communications, mass media or any number of related fields that value strong, talented communicators and visual storytellers. Students with a film-production degree have many options to put their skills to work. Those include: cable and television networks, independent production companies, motion picture companies and those

that support the industry such as talent agencies, equipment houses and post-production facilities. Other options include advertising agencies, corporate communications, foundations, education and professional sports industries.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE FILM PRODUCTION PROGRAM (<https://www.bellisario.psu.edu/departments/film-production-media-studies/>)

Opportunities for Graduate Studies

Most undergraduates initially enter the professional world, but the digital storytelling skillset associated with a film-production degree provides a basis for success for those interested in graduate studies.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.bellisario.psu.edu/graduate/>)

Accreditation

The Donald P. Bellisario College of Communications is evaluated regularly by the Accrediting Council on Education in Journalism and Mass Communications, and the Bellisario College has consistently met the high standards of the organization that is dedicated to excellence in professional education in journalism and mass communications. For undergraduate students, accreditation most practically means that upper-level professional classes in each major will be conducted in rooms with 20 or fewer students.

MORE INFORMATION ABOUT THE ACCREDITING COUNCIL ON EDUCATION IN JOURNALISM AND MASS COMMUNICATIONS (<https://www.aejmc.org>)

Contact

University Park

DEPARTMENT OF FILM PRODUCTION AND MEDIA STUDIES
 310 Willard Building (Bellisario Media Center)
 University Park, PA 16802
 814-865-1679
mes19@psu.edu

<https://www.bellisario.psu.edu/departments/film-production-media-studies> (<https://www.bellisario.psu.edu/departments/film-production-media-studies/>)

Film Studies, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The joint minor in Film Studies sponsored by the Donald P. Bellisario College of Communications and the College of the Liberal Arts offers students in a variety of disciplines an opportunity to learn more about a visual medium that relates in many ways to other fields such as theatre, literature, history, and art. The focus of this minor is on critical, aesthetic, and historical studies of film, not on the art of filmmaking. The minor enables students to see how the medium influences—and is influenced by—disciplines outside their specialization. Courses listed for the minor give students a deeper appreciation of the historical development of film

during the 20th century. Offerings on cinema from a variety of countries allow students to frame the medium in a global context.

The minor is housed in and administered by the Bellisario College of Communications but is jointly managed by the Film-Video and Media Studies Department and the French Department. The heads of these units or their designated representatives will chair on a rotating basis the Interdepartmental Film Studies Committee that will make decisions concerning requirements for the minor, including prescribed and supporting courses.

Students will choose an adviser from a list of committee members drawn from all participating areas—French, English, German, Italian, Comparative Literature, and Film/Video and Media Studies. In addition to two basic required courses (6 credits), students enrolled in the minor will take an additional 12 credits from a list approved by the Interdepartmental Film Studies Committee. Six of those credits must be at the 400 level. All required and most supporting courses are taught in English. Courses taught in a world language are indicated with a footnote.

What is Film Studies?

The minor is designed to give students a deeper appreciation of the historical development of film during the 20th century. Intended for non-communications majors, it offers students the opportunity to learn more about a visual medium that relates in many ways to other fields such as art, history, literature and theatre. The focus of this minor is on aesthetics, critical, and historical studies of film – not on the art of filmmaking. The minor enables students to see how the medium influences, and is influenced by, disciplines outside their specialization.

You Might Like This Program If...

You like the kind and quality of conversations you have when talking to people about the movies you've seen. No matter your major, if thinking about what movies are trying to say about the world is something that you want to continue to do as a life-long learner, then the film studies minor is right for you.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
COMM 150N	The Art of the Cinema	3
COMM 250	Film History and Theory	3
Supporting Courses		
<i>Supporting Courses: Require a grade of C or better</i>		
Select 12 credits from an approved department list in consultation with an adviser (6 credits must be at the 400 level) ¹		12

¹ The list of department-approved supporting courses can be found at: <https://www.bellisario.psu.edu/departments/film-production-media-studies/film-studies-minor-supporting-courses/>.

<https://www.bellisario.psu.edu/departments/film-production-media-studies/film-studies-minor-supporting-courses/>.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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commadvisor@psu.edu

<https://www.bellisario.psu.edu/current/advising> (<https://www.bellisario.psu.edu/current/advising/>)

Contact

University Park

DEPARTMENT OF FILM PRODUCTION AND MEDIA STUDIES
18 Carnegie Building
University Park, PA 16802
814-865-3071
kxh24@psu.edu

Information Sciences and Technology for Telecommunications, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

This minor offers students an opportunity to examine the opportunities and challenges presented by convergence of telecommunications and information processing. Internet-mediated services have the potential of fundamentally changing how we communicate and engage in commerce. This convergence offers faster, better, cheaper, smarter, and more convenient services, but also raises a variety of legal, regulatory, political, social, economic, and technology management issues. The IST/Telecommunications minor offers students enrolled in majors outside the College of Information Sciences and Technology an opportunity to examine how telecommunications and information processing

technologies and services will impact society as well as their individual circumstances.

What is Information Sciences and Technology for Telecommunications?

The IST for Telecommunications program explores the convergence of electronic media and information technology. Students are introduced to the basic technical aspects of digital communication networks and the internet and learn how those technologies are being used by media and communications firms to develop and deliver new products and services. Broadband access to the internet and the convergence of information processing and telecommunications has changed the delivery of information and entertainment and led to new forms of radio, television, e-commerce, and social media.

You Might Like This Program If...

- You have a strong interest in computer technology and the media and entertainment fields.
- You are analytical and good at problem-solving.
- You are imaginative and curious.
- You can't decide if you want to choose a technical career or a business career.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

The Telecommunications requirements of this minor constitute three courses (nine credit hours). Students can fulfill this requirement by completing COMM 180 offered by the Telecommunications Department in the Bellisario College of Communications and by completing two additional courses from the following list:

Code	Title	Credits
COMM 479	Telecommunication Economics	3
COMM 484	Emerging Telecommunications Technologies	3
COMM 490		3
COMM 491		3
COMM 492	Internet Law and Policy	3

Three IST courses (nine credit hours) constitute the other part of this minor.

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
COMM 180	Survey of Electronic Media and Telecommunications	3
IST 110	Information, People and Technology	3
IST 210	Organization of Data	3
IST 220	Networking and Telecommunications	3

Additional Courses

<i>Additional Courses: Require a grade of C or better</i>	
Select 6 credits of the following: 6	
COMM 479	Telecommunication Economics
COMM 484	Emerging Telecommunications Technologies
COMM 490	
COMM 491	
COMM 492	Internet Law and Policy

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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<https://www.bellisario.psu.edu/current/advising> (<https://www.bellisario.psu.edu/current/advising/>)

Contact

University Park

DEPARTMENT OF TELECOMMUNICATIONS AND MEDIA INDUSTRIES
11 Carnegie Building
University Park, PA 16802
814-863-6416
kpj1@psu.edu

Journalism, B.A.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The goal of the major is to provide students with the critical thinking, ethical, legal and professional skills that will enable them to enter positions in all areas of journalism.

The following three options are offered:

Broadcast Journalism Option

This option is designed for students interested in radio, television, and/or multimedia journalism as a reporter, editor, or producer. Students are trained in the techniques of audio/video and online reporting and editing. They take two required courses that provide instruction in the basic skills of reporting and editing and choose two other courses that provide advanced instruction in these areas.

Digital and Print Journalism Option

This option is designed for students interested in newspaper, magazine and/or multimedia journalism as a reporter, editor, or producer. Students are trained in the techniques of print and online reporting and editing. They take two required courses that provide instruction in the basic skills of reporting and editing and choose two other courses that provide advanced instruction in these areas.

Photojournalism Option

This option is designed for students interested in photo and/or multimedia journalism as a photographer, editor or producer. Students are trained in the techniques of still/video photography and editing. They take two required courses that provide instruction in the basic skills of photography and editing and choose two other courses that provide advanced instruction in these areas.

What is Journalism?

The core skill set of journalism is gathering information and organizing it to tell a story in a compelling fashion. While consumption and delivery methods change almost daily for information, journalism exists in more forms than ever before: broadcast, digital, online, multimedia, print, and more. Faculty emphasize a fact-based approach to information that serves the public interest. In the department, professionally focused classes and hands-on opportunities prepare students for an ever-changing and important industry that marries a tradition of history-as-it-happens with cutting-edge technology and information delivery.

You Might Like This Program If...

- You're curious, inquisitive, observant and organized.
- You have an ability to meet deadlines and work under pressure.
- You have an appreciation and understanding of popular culture.
- You have excellent verbal and written communications skills.
- You have an interest in telling stories, no matter the medium, and trying technologies that engage an audience.

MORE INFORMATION ABOUT JOURNALISM (<https://www.bellisario.psu.edu/departments/journalism/>)

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Journalism, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	2
Bachelor of Arts Degree Requirements	24
Requirements for the Major	49

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
COMM 160	Basic News Writing Skills	1
COMM 260W	News Writing and Reporting	3
COMM 271	Principles of Journalism	3
COMM 403	Law of Mass Communications	3
COMM 409	News Media Ethics	3
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 18 credits for completion of a University-approved minor ¹		18
Requirements for the Option		
<i>Requirements for the Option: Require a grade of C or better</i>		
Select an option		18

¹ Students majoring in journalism must take a University-approved minor outside the Bellisario College of Communications. The minimum requirement for a minor is 18 credits. By careful planning, a student may use General Education and Bachelor of Arts courses to help fulfill this requirement. In lieu of a minor, students may take a concurrent major or concurrent degree, as long as it is outside the College of Communications. Students should consult with their adviser as soon as possible about this requirement.

Requirements for the Option

Options can be combined but only with the consent of a student's adviser.

Broadcast Journalism Option (18 credits)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
COMM 360	Radio Reporting	3

COMM 465 Television Reporting 3

Additional Courses

Additional Courses: Require a grade of C or better

Select 6 credits from the following: 6

COMM 362	Podcasting
COMM 364	Data Visualization for Journalists
COMM 400	In the Game: TV Sports Magazine
COMM 402	International Reporting
COMM 466	Public Affairs Broadcasting
COMM 480	Television News
COMM 481	Advanced Multimedia Production
COMM 495	Internship (3 credits) ¹

Select 6 credits from the following: 6

COMM 180	Survey of Electronic Media and Telecommunications
COMM 205	Gender, Diversity and the Media
COMM 381	Telecommunications Regulation
COMM 401	Mass Media in History
COMM 405	Political Economy of Communications
COMM 407A	Media and Government
COMM 407B	Perspectives on American Journalism
COMM 410	International Mass Communications
COMM 411	Cultural Aspects of the Mass Media
COMM 412	Sports, Media and Society
COMM 419	World Media Systems
COMM 494H	Research Project Courses
COMM 496	Independent Studies
COMM 499	Foreign Study--Mass Communications

¹ Internship in news with newspaper, radio, or TV. See the director of the internship program for specifics.

Digital and Print Journalism Option (18 credits)

Code	Title	Credits
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Prescribed Courses

Prescribed Courses: Require a grade of C or better

COMM 460W	Reporting Methods	3
COMM 467	News Editing and Evaluation	3

Additional Courses

Additional Courses: Require a grade of C or better

Select 6 credits from the following: 6

COMM 269	Photojournalism
COMM 362	Podcasting
COMM 364	Data Visualization for Journalists
COMM 402	International Reporting
COMM 461	Magazine Writing
COMM 462	Feature Writing
COMM 463	Newspaper Design
COMM 464W	Editorial, Opinion and Commentary Writing
COMM 474	Depth Reporting
COMM 481	Advanced Multimedia Production
COMM 495	Internship (3 credits) ¹

Select 6 credits from the following: 6

COMM 180	Survey of Electronic Media and Telecommunications
COMM 205	Gender, Diversity and the Media
COMM 381	Telecommunications Regulation
COMM 401	Mass Media in History
COMM 405	Political Economy of Communications
COMM 407A	Media and Government
COMM 407B	Perspectives on American Journalism
COMM 410	International Mass Communications
COMM 411	Cultural Aspects of the Mass Media
COMM 412	Sports, Media and Society
COMM 419	World Media Systems
COMM 494H	Research Project Courses
COMM 496	Independent Studies
COMM 499	Foreign Study--Mass Communications

¹ Internship in news with newspaper, radio, or TV. See the director of the internship program for specifics.

Photojournalism Option (18 credits)

Code	Title	Credits
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Prescribed Courses

Prescribed Courses: Require a grade of C or better

COMM 269	Photojournalism	3
COMM 469	Photography for the Mass Media	3

Additional Courses

Additional Courses: Require a grade of C or better

Select 6 credits from the following: 6

COMM 362	Podcasting
COMM 364	Data Visualization for Journalists
COMM 402	International Reporting
COMM 463	Newspaper Design
COMM 467	News Editing and Evaluation
COMM 468	Graphic Applications in Print Communications
COMM 481	Advanced Multimedia Production
COMM 495	Internship (3 credits) ¹

Select 6 credits from the following: 6

COMM 180	Survey of Electronic Media and Telecommunications
COMM 205	Gender, Diversity and the Media
COMM 381	Telecommunications Regulation
COMM 401	Mass Media in History
COMM 405	Political Economy of Communications
COMM 407A	Media and Government
COMM 407B	Perspectives on American Journalism
COMM 410	International Mass Communications
COMM 411	Cultural Aspects of the Mass Media
COMM 412	Sports, Media and Society
COMM 419	World Media Systems
COMM 494H	Research Project Courses

COMM 496 Independent Studies

COMM 499 Foreign Study--Mass Communications

¹ Internship in news with newspaper, radio, or TV. See the director of the internship program for specifics.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Learning Outcomes

Professional Values and Competencies

Individual professions in journalism and mass communication may require certain specialized values and competencies. Irrespective of their particular specialization, all graduates should be aware of certain core values and competencies and be able to:

1. understand and apply the principles and laws of freedom of speech and press for the country in which the institution that invites ACEJMC is located, as well as receive instruction in and understand the range of systems of freedom of expression around the world, including the right to dissent, to monitor and criticize power, and assemble and to petition for redress of grievances;

2. demonstrate an understanding of the history and role of professionals and institutions in shaping communications;
3. demonstrate an understanding of gender, race ethnicity, sexual orientation and, as appropriate, other forms of diversity in domestic society in relation to mass communications;
4. demonstrate an understanding of the diversity of peoples and cultures and of the significance and impact of mass communications in a global society;
5. understand concepts and apply theories in the use and presentation of images and information;
6. demonstrate an understanding of professional ethical principles and work ethically in pursuit of truth, accuracy, fairness and diversity;
7. think critically, creatively and independently;
8. conduct research and evaluate information by methods appropriate to the communications professions in which they work;
9. write correctly and clearly in forms and styles appropriate for the communications professions, audiences and purposes they serve;
10. critically evaluate their own work and that of others for accuracy and fairness, clarity, appropriate style and grammatical correctness;
11. apply basic numerical and statistical concepts;
12. apply basic tools and technologies appropriate for the communications professions in which they work.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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204 Carnegie Building
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<https://www.bellisario.psu.edu/current/advising> (<https://www.bellisario.psu.edu/current/advising/>)

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Broadcast Option: Journalism, B.A. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
COMM 160*	1 General Education Course (GN)	3
COMM 271*	3 General Education Course (GH)	3
ENGL 15 or 30H [†]	3 General Education Course (GS)	3
General Education Course (GN)	3 General Education Course (Inter-Domain)	3
World Language	4 World Language	4
PSU 9	1	
	15	16

Second Year

Fall	Credits Spring	Credits
COMM 260W* ¹	3 COMM 360* ²	3
General Education Course (Inter-Domain)	3 Minor Course*	3
General Education Course (Exploration)	3 General Education Course (GQ) [†]	3
World Cultures	3 General Education Course (GA)	3
World Language	4 BA Knowledge Domain (US Cultures)	3
	16	15

Third Year

Fall	Credits Spring	Credits
COMM 465*	3 COMM 180, 205, 401, 405, 410, 411, 412, 419, 496, or 499*	3
COMM 403 or 409*	3 Minor Course*	3
Minor Course*	3 CAS 100A, 100B, or 100C [‡]	3
General Education Course (GQ) [†]	3 General Education Course (Exploration)	3
BA Knowledge Domain (IL Cultures)	3 BA Knowledge Domain	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
COMM 403 or 409*	3 COMM 362, 364, 400, 402, 466, 480, 481, or 495*	3
COMM 362, 364, 400, 402, 466, 480, 481, or 495*	3 COMM 180, 205, 401, 405, 410, 411, 412, 419, 496, or 499*	3
Minor Course*	3 Minor Course*	3

ENGL 202A, 202B, 202C, or 202D [‡]	3 Minor Course [*]	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
Elective	1	
	14.5	13.5

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Students studying at any of the commonwealth campuses that do not offer COMM 260W will take the course upon arrival to University Park fifth semester. CAS 100A, CAS 100B, or CAS 100C should be taken third semester in place of COMM 260W.

² Students studying at any of the commonwealth campuses will take COMM 360 at University Park in the sixth semester. ENGL 202A/ENGL 202B/ENGL 202C/ENGL 202D should be taken fourth semester in place of COMM 360. COMM 465 can move to seventh semester.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Digital and Print Option: Journalism, B.A. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
COMM 160*	1 General Education Course (GN)	3
COMM 271*	3 General Education Course (GH)	3
ENGL 15 or 30H [‡]	3 General Education Course (GS)	3
General Education Course (GN)	3 General Education Course (Inter-Domain)	3
World Language	4 World Language	4
PSU 9	1	
	15	16

Second Year

Fall	Credits Spring	Credits
COMM 260W* ¹	3 Minor Course*	3
General Education Course (Inter-Domain)	3 General Education Course (GQ) [‡]	3
General Education Course (Exploration)	3 General Education Course (GA)	3
World Cultures*	3 BA Knowledge Domain (US Cultures)	3
World Language	4 BA Knowledge Domain	3
	16	15

Third Year

Fall	Credits Spring	Credits
COMM 460W*	3 COMM 467*	3
COMM 403 or 409*	3 COMM 180, 205, 401, 405, 410, 411, 412, 419, 496, or 499*	3
Minor Course*	3 Minor Course*	3
General Education Course (GQ) [‡]	3 CAS 100A, 100B, or 100C [‡]	3
BA Knowledge Domain (IL Cultures)	3 General Education Course (Exploration)	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
COMM 403 or 409*	3 COMM 269, 362, 364, 402, 461, 462, 463, 464W, 474, 481, or 495*	3
COMM 269, 362, 364, 402, 461, 462, 463, 464W, 474, 481, or 495*	3 COMM 180, 205, 401, 405, 410, 411, 412, 419, 496, or 499*	3
Minor Course*	3 Minor Course*	3

ENGL 202A, 202B, 202C, or 202D [‡]	3 Minor Course*	3
General Education (GHW)	1.5 General Education (GHW)	1.5
Elective	1	
	14.5	13.5

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Students studying at any of the commonwealth campuses that do not offer COMM 260W will take the course upon arrival to University Park fifth semester. CAS 100A, CAS 100B, or CAS 100C should be taken third semester in place of COMM 260W. COMM 460W will move to sixth semester.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Photojournalism Option: Journalism, B.A. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
COMM 160*	1 General Education Course (GN)	3
COMM 271*	3 General Education Course (GH)	3
ENGL 15 or 30H [‡]	3 General Education Course (GS)	3
General Education Course (GN)	3 General Education Course (Inter-Domain)	3
World Language	4 World Language	4
PSU 9	1	
	15	16

Second Year

Fall	Credits Spring	Credits
COMM 260W* ¹	3 COMM 269* ²	3
General Education Course (Inter-Domain)	3 Minor Course*	3
General Education Course (Exploration)	3 General Education Course (GQ) [‡]	3
World Cultures	3 General Education Course (GA)	3
World Language	4 BA Knowledge Domain (US Cultures)	3
	16	15

Third Year

Fall	Credits Spring	Credits
COMM 180, 205, 401, 405, 410, 411, 412, 419, 496, or 499*	3 COMM 469*	3
COMM 403 or 409*	3 Minor Course*	3
Minor Course*	3 CAS 100A, 100B, or 100C [‡]	3
General Education Course (GQ) [‡]	3 General Education Course (Exploration)	3
BA Knowledge Domain (IL Cultures)	3 BA Knowledge Domain	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
COMM 403 or 409*	3 COMM 362, 364, 402, 463, 467, 468, 481, or 495*	3
COMM 362, 364, 402, 463, 467, 468, 481, or 495*	3 COMM 180, 205, 401, 405, 410, 411, 412, 419, 496, or 499*	3
Minor Course*	3 Minor Course*	3

ENGL 202A, 202B, 202C, or 202D [‡]	3 Minor Course*	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
Elective	1	
	14.5	13.5

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Students studying at any of the commonwealth campuses that do not offer COMM 260W will take the course upon arrival to University Park fifth semester. CAS 100A, CAS 100B, or CAS 100C should be taken third semester in place of COMM 260W.

² Students studying at any of the commonwealth campuses that do not offer will take COMM 269 at University Park in the sixth semester. ENGL 202A/ENGL 202B/ENGL 202C/ENGL 202D should be taken fourth semester in place of COMM 269. COMM TXX can move to sixth semester.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Career Paths

A journalism degree prepares students to enter careers in mass media, business, communications, or any number of related fields that value strong, talented communicators and storytellers. No matter the medium or the task, someone with a journalism degree adds a skill set that makes the organization stronger. Simply put, journalism matters. That might mean career paths that include community-based journalism or positions with national news organizations. It also means careers in emerging and traditional fields. Plus, the valuable skill set transfers to other fields and enables those with journalism degrees to find success in a variety of endeavors.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE JOURNALISM PROGRAM (<https://www.bellisario.psu.edu/departments/journalism/>)

Opportunities for Graduate Studies

Most undergraduates initially enter the professional world, but the journalism skill set – a mix of practical information gathering, organization and, ultimately, storytelling – is valuable in any endeavor. For those interested in graduate studies, a journalism degree provides a strong basis to continue their education.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.bellisario.psu.edu/graduate/>)

Accreditation

The Donald P. Bellisario College of Communications is evaluated regularly by the Accrediting Council on Education in Journalism and Mass Communications, and the Bellisario College has consistently met the high standards of the organization that is dedicated to excellence in professional education in journalism and mass communications. For undergraduate students, accreditation most practically means that upper-level professional classes in each major will be conducted in rooms with 20 or fewer students.

MORE INFORMATION ABOUT THE ACCREDITING COUNCIL ON EDUCATION IN JOURNALISM AND MASS COMMUNICATIONS (<https://www.aejmc.org>)

Contact

University Park

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308 Willard Building (Bellisario Media Center)
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814-865-0929
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<https://www.bellisario.psu.edu/departments/journalism> (<https://www.bellisario.psu.edu/departments/journalism/>)

Journalism, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Journalism minor will offer students the skills required to practice journalism, including researching, writing, interviewing, and using equipment and technology necessary to tell non-fiction stories. Students will also learn journalism theory - the reason journalism and the First Amendment are critical to a functioning democracy as well as the ethics that shape news media decision-making. Courses on the "skills" side of the minor will include COMM 160 and COMM 260W, the foundational journalistic reporting and writing courses that can be followed by upper-division courses in print/digital and broadcast. In addition, students will be able to pursue visual story-telling via photojournalism and multimedia/video courses. At the same time, theory courses such as COMM 271 will introduce students to the history of journalism in this country and show how the news media has reacted to changes in the industry.

What is Journalism?

The core skill set of journalism is gathering information and organizing it to tell a story in a compelling fashion. While consumption and delivery methods change almost daily for information, journalism exists in more forms than ever before: broadcast, digital, online, multimedia, print, and more. Faculty emphasize a fact-based approach to information that serves the public interest. In the department, professionally focused classes and hands-on opportunities prepare students for an ever-changing and important industry that marries a tradition of history-as-it-happens with cutting-edge technology and information delivery.

You Might Like This Program If...

- You have an appreciation and understanding of popular culture.
- You have excellent verbal and written communications skills.
- You have an interest in telling stories, no matter the medium, and trying technologies that engage an audience.

Program Requirements

Requirement	Credits
Requirements for the Minor	19

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Some prerequisites may be required to meet the requirements for this minor.

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
COMM 160	Basic News Writing Skills	1
COMM 260W	News Writing and Reporting	3
COMM 271	Principles of Journalism	3
COMM 403	Law of Mass Communications	3
COMM 409	News Media Ethics	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 6 credits from the following:		6

COMM 261	The Literature of Journalism
COMM 269	Photojournalism
COMM 360	Radio Reporting
COMM 362	Podcasting
COMM 364	Data Visualization for Journalists
COMM 460W	Reporting Methods
COMM 461	Magazine Writing
COMM 462	Feature Writing
COMM 463	Newspaper Design
COMM 464W	Editorial, Opinion and Commentary Writing
COMM 465	Television Reporting

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Contact

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jra14@psu.edu

<https://www.bellisario.psu.edu/departments/journalism> (<https://www.bellisario.psu.edu/departments/journalism/>)

Media Studies, B.A.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

This major is designed for students who wish to possess the analytic and critical skills needed to succeed in a professional world increasingly dominated by media. Students are exposed first to a breadth of approaches to understanding different forms of media (e.g. aesthetic, cultural, humanistic, psychological, economic, social, political) and then select specific areas of concentration to prepare them for different fields of research or professions involving media. All areas of concentration help students hone their analytic skills.

The following four options are offered:

Film and Television Studies Option

This option is designed for students interested in studying the art, history, and criticism of film and television. Electives offer students the opportunity to pursue a related field, such as art, art history, creative writing, speech communication, or theatre arts. This option merges aesthetics and social sciences and is appropriate for those seeking a more theoretical/critical approach to the study of film and video.

International Communications Option

This option is designed for students who want to study the mass media systems of the world and their role in international affairs. The option offers students an opportunity to enhance their occupational opportunities in international business, organizations, or government and to be better prepared to participate in the world community. Students must select either a University-approved minor in a foreign language, area studies, or international studies; a University-approved education abroad program; or other international-related courses or programs with prior departmental approval.

Media Effects Option

This option focuses on the social and psychological effects of media messages and technologies. Students progress through a general introduction to problems and issues, such as the effects of televised sex and violence, to courses that emphasize more theoretical approaches and advanced applications. A minor in a complementary area of study, such as Psychology or Sociology, is encouraged.

Society and Culture Option

In this option, a student and faculty adviser work together to tailor a program of courses to meet the student's individual interest in a coherent theme in media studies. These courses are usually selected in tandem with a minor or other supporting cluster of non-major courses in the area of specialization. Examples of themes include, but are not limited to, communication and the environment, communication and health campaigns, sports and the media, minorities and the media, and gender and the media. A minor in an area of specialization is encouraged.

What is Media Studies?

Students study the role and impact of the media on society in this theory-based, research-driven major. Students explore the relationships between media and the public, analyze media messages and technologies, and examine their effects on individuals and cultures. Course work covers a wide range of topics, including message analysis, media psychology, public opinion, global media, film studies, game studies and human-computer communication. Students can customize their studies by specializing in film and television studies, media effects, international communications, or society and culture.

You Might Like This Program If...

You have an ability to think critically and logically, along with an attention to detail and an interest in research. Strong observational skills are important, as are high level of curiosity and an inquisitive nature. Excellent verbal and written communications skills are important. In addition, an appreciation and understanding of popular culture combine to help students interested in the major bring valuable perspectives to their studies.

MORE INFORMATION ABOUT MEDIA STUDIES (<https://www.bellisario.psu.edu/departments/film-production-media-studies/>)

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Media Studies, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	0-12
Bachelor of Arts Degree Requirements	24
Requirements for the Major	42-51

0-3 of the 45 credits for General Education are included in the Requirements for the Major. This includes: Film Option - 0-3 credits of GH courses or 0-3 credits of GA courses; Media Effects Option - 3 credits of GS courses.

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if foreign language proficiency is demonstrated by examination.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
COMM 100N	The Mass Media and Society	3
COMM 205	Gender, Diversity and the Media	3
COMM 270	Introduction to Multimedia Production	3
COMM 304	Mass Communication Research	3

COMM 305	Introduction to Critical Studies of Media	3
COMM 405	Political Economy of Communications	3
COMM 413W	The Mass Media and the Public	3

Requirements for the Option

Requirements for the Option: Require a grade of C or better

Select an option	21-30
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Requirements for the Option

Film and Television Studies Option (21 credits)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
COMM 150N	The Art of the Cinema	3
COMM 242	Basic Video/Filmmaking	3
COMM 250	Film History and Theory	3

Additional Courses

Additional Courses: Require a grade of C or better

Select 9 credits from the following:	9	
COMM 451	Topics in American Film	
COMM 452	Topics in International Cinema	
COMM 453	Narrative Theory: Film and Literature	
COMM 454	Documentary in Film and Television	
COMM 455	Advanced Film Theory and Criticism	
COMM 495	Internship	
COMM 496	Independent Studies	
Select 3 credits from the following:	3	
CAS 415	Rhetoric of Film and Television	
CHNS 121N	Chinese Film and New Media	
CMLIT 153	International Cultures: Film and Literature	
ENGL 403	Literature and Culture	
FR 138N	French Culture Through Film	
FR 487	Topics in French Film History and Theory I: 1895-1945	
FR 488	Topics in French Film History and Theory II: 1945-2002	
IT 475	Modern Italian Literature and Cinema	
JAPNS 453	Japanese Film	
MUSIC 4	Film Music	
PHIL 5	Film and Philosophy	

International Communications Option (21-30 credits)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
COMM 110	Media and Democracy	3
COMM 410	International Mass Communications	3
COMM 419	World Media Systems	3

Additional Courses

Additional Courses: Require a grade of C or better

Select 3 credits from the following:	3	
COMM 118	Introduction to Media Effects	
COMM 150N	The Art of the Cinema	
COMM 320	Introduction to Advertising	
COMM 381	Telecommunications Regulation	

COMM 452 Topics in International Cinema

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select at least one of the following for a minimum of 9 credits and a maximum of 18 credits (no more than 9 credits in COMM) ¹

University approved minor in foreign language, area studies or international studies

University approved education abroad program

Other international related courses or programs with prior departmental approval

¹ More than one is strongly recommended.

Media Effects Option (21 credits)

A minor in a complementary area of study is encouraged (e.g. Psychology or Sociology).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
COMM 118	Introduction to Media Effects	3
COMM 418	Media Effects: Theory and Research	3
PSYCH 100	Introductory Psychology	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits from the following:		3
COMM 110	Media and Democracy	
COMM 150N	The Art of the Cinema	
COMM 180	Survey of Electronic Media and Telecommunications	
COMM 320	Introduction to Advertising	
COMM 403	Law of Mass Communications	
COMM 412	Sports, Media and Society	
Select 3 credits from the following:		3
COMM 325	Effects of digital games	
COMM 326	Effects of social media	
COMM 327	Effects of entertainment media	
COMM 328	Effects of Science, Environmental and Health Media	
Select 3 credits from the following:		3
PSYCH 221	Introduction to Social Psychology	
PSYCH 256	Introduction to Cognitive Psychology	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 3 credits in research methods from an approved department list ¹		3

¹ The approved department list can be found on the Donald P. Bellisario College of Communications website (<https://www.bellisario.psu.edu/departments/film-production-media-studies/media-studies-major-media-effects-option-supporting-courses/>).

Society and Culture Option (21 credits)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
COMM 411	Cultural Aspects of the Mass Media	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 6 credits from the following:		6
COMM 110	Media and Democracy	
COMM 118	Introduction to Media Effects	
COMM 150N	The Art of the Cinema	
Select 12 credits (a least 9 credits at the 400 level) in communication theory from the following:		12
COMM 110	Media and Democracy	
COMM 118	Introduction to Media Effects	
COMM 150N	The Art of the Cinema	
COMM 170	Introduction to the Sports Industry	
COMM 180	Survey of Electronic Media and Telecommunications	
COMM 408	Cultural Foundations of Communications	
COMM 409	News Media Ethics	
COMM 410	International Mass Communications	
COMM 412	Sports, Media and Society	
COMM 417	Ethics and Regulation in Advertising and Public Relations	
COMM 418	Media Effects: Theory and Research	
COMM 419	World Media Systems	
COMM 451	Topics in American Film	
COMM 452	Topics in International Cinema	
COMM 453	Narrative Theory: Film and Literature	
COMM 454	Documentary in Film and Television	
COMM 455	Advanced Film Theory and Criticism	

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Integrated B.A./M.A. in Media Studies

Requirements for the Integrated B.A./M.A. in Media Studies can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/media-studies/#integratedundergradgradprogramstext>).

Learning Outcomes

Professional Values and Competencies

Individual professions in journalism and mass communication may require certain specialized values and competencies. Irrespective of their particular specialization, all graduates should be aware of certain core values and competencies and be able to:

1. understand and apply the principles and laws of freedom of speech and press for the country in which the institution that invites ACEJMC is located, as well as receive instruction in and understand the range of systems of freedom of expression around the world, including the right to dissent, to monitor and criticize power, and assemble and to petition for redress of grievances;
2. demonstrate an understanding of the history and role of professionals and institutions in shaping communications;
3. demonstrate an understanding of gender, race ethnicity, sexual orientation and, as appropriate, other forms of diversity in domestic society in relation to mass communications;
4. demonstrate an understanding of the diversity of peoples and cultures and of the significance and impact of mass communications in a global society;
5. understand concepts and apply theories in the use and presentation of images and information;
6. demonstrate an understanding of professional ethical principles and work ethically in pursuit of truth, accuracy, fairness and diversity;
7. think critically, creatively and independently;
8. conduct research and evaluate information by methods appropriate to the communications professions in which they work;
9. write correctly and clearly in forms and styles appropriate for the communications professions, audiences and purposes they serve;
10. critically evaluate their own work and that of others for accuracy and fairness, clarity, appropriate style and grammatical correctness;
11. apply basic numerical and statistical concepts;
12. apply basic tools and technologies appropriate for the communications professions in which they work.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Bellisario College Academic Advising

204 Carnegie Building
University Park, PA 16802
814-865-1503
commadvisor@psu.edu

<https://www.bellisario.psu.edu/current/advising> (<https://www.bellisario.psu.edu/current/advising/>)

Suggested Academic Plan

Media Effects Option: Media Studies, B.A. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
COMM 100N (US Cultures)*	3 COMM 118*	3
COMM 160	1 IL Cultures	3
ENGL 15 (GWS)†	3 World Language Level 2	4
PSU 9	1 General Education Course (GQ)†	3
PSYCH 100 (GS)†	3 General Education Course (Inter-Domain)	3
World Language Level 1	4	
	15	16

Second Year

Fall	Credits Spring	Credits
COMM 205*	3 COMM 305*	3
COMM 270*	3 BA World Cultures	3
World Language Level 3	4 General Education Course (GA)	3
General Education Course (GQ)†	3 General Education Course (Inter-Domain)	3

General Education Course (GN)	3 General Education Course (Exploration)	3
	16	15

Third Year

Fall	Credits Spring	Credits
CAS 100A, 100B, or 100C (GWS)†	3 COMM 325, 326, 327, or 328*	3
COMM 304*	3 COMM 405*	3
COMM 325, 326, 327, or 328*	3 General Education Course (GH)	3
BA Fields	3 General Education Course (Exploration)	3
General Education Course (GN)	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
COMM 413W*	3 COMM 418*	3
ENGL 202A, 202B, 202C, or 202D (GWS)†	3 BA Fields	3
Cinema or Media Course* ¹	3 General Education Course (GHW)	3
BA Fields	3 Elective	3
Elective	3 Elective	1
	15	13

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Cinema or Media Courses: COMM 110, COMM 150N, COMM 180, COMM 205, COMM 320, COMM 403, or COMM 412.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will

replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C.
Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Film and Television Studies Option: Media Studies, B.A. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
COMM 150N*	3	COMM 100N (US Cultures)*	3
COMM 160	1	IL Cultures	3
ENGL 15 (GWS)‡	3	World Language Level 2	4
PSU 9	1	General Education Course (GQ)†	3
World Language Level 1	4	General Education Course (Inter-Domain)	3
General Education Course (GS)	3		
	15		16

Second Year

Fall	Credits	Spring	Credits
COMM 205*	3	COMM 250*	3
COMM 270*	3	BA World Cultures	3
General Education Course (GQ)‡	3	General Education Course (GA)	3
General Education Course (GN)	3	General Education Course (Inter-Domain)	3
World Language Level 3	4	General Education Course (Exploration)	3
	16		15

Third Year

Fall	Credits	Spring	Credits
CAS 100A, 100B, or 100C (GWS)‡	3	COMM 405*	3
COMM 304*	3	COMM 400-level Film or TV* ¹	3
COMM 400-level Film or TV* ¹	3	General Education Course (GH)	3
BA Fields	3	General Education Course (Exploration)	3
General Education Course (GN)	3	Elective	3
	15		15

Fourth Year

Fall	Credits	Spring	Credits
COMM 242*	3	COMM 413W*	3
COMM 305*	3	COMM 400-level Film or TV* ¹	3
ENGL 202A, 202B, 202C, or 202D (GWS)‡	3	BA Fields	3
BA Fields	3	General Education Course (GHW)	3

Elective	3 Elective	1
	15	13

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ COMM 400-level Film or TV: COMM 451, COMM 452, COMM 453, COMM 454, COMM 455, COMM 495, or COMM 496.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

International Communications Option (No Study Abroad): Media Studies, B.A. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
World Language Level 1 ENGL 15 or 30H (GWS) [‡]	4 World Language Level 2 COMM 100N ^{*1}	4 3
ECON 102 (GS)	3 General Education Course (GS) (Inter-Domain)	3
General Education Course (GH) (Inter-Domain)	3 General Education Course (GH)	3
COMM 160	1 General Education Course (GN)	3
PSU 9	1	
	15	16

Second Year

Fall	Credits Spring	Credits
World Language Level 3 COMM 110 ^{*1}	4 STAT 200 (GQ) [‡] 3 COMM 118, 150N, 205, 320, or 452 ^{*1}	4 3
COMM 270 [*]	3 General Education Course (GN)	3
General Education Course (GQ) [‡]	3 BA World Cultures	3
Bachelor of Arts Knowledge Domain	3 Bachelor of Arts Knowledge Domain/Minor	3
	16	16

Third Year

Fall	Credits Spring	Credits
COMM 304 [*]	3 COMM 410 (International Cultures, IL) [*]	3
COMM 405 [*]	3 Bachelor of Arts Knowledge Domain/Minor	3
CAS 100A, 100B, or 100C (GWS) [‡]	3 Supporting Courses and Related Areas	3
General Education Course (GN)	3 Non-COMM Elective	3
Supporting Courses and Related Areas	3 Elective/Minor	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
COMM 305 [*]	3 COMM 413W [*]	3
COMM 419 (US Cultures, US) [*]	3 Supporting Courses and Related Areas	3
ENGL 202A, 202B, 202C, or 202D (GWS) [‡]	3 Elective/Minor	3

Non-COMM Elective	3 Elective/Minor	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
	13.5	13.5

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Students studying at any of the commonwealth campuses that do not offer COMM 100N, COMM 110 and 3 credits of COMM 118, COMM 150N, COMM 205, COMM 320 or COMM 452 will take these courses at University Park. COMM 100N will be taken 5th semester in place of the B.A. Knowledge domain which will be taken 2nd semester at the commonwealth campus. 3 Credits of COMM 118, COMM 150N, COMM 205, COMM 320 or COMM 452 will be taken 5th semester in place of ENGL 202A/ENGL 202B/ENGL 202C/ENGL 202D which will be taken 4th semester at the commonwealth campus. COMM 110 will be taken 6th semester in place of the B.A. Knowledge Domain which will be taken 3rd semester at the commonwealth campus.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

International Communications Option (Semester Abroad): Media Studies, B.A. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
World Language Level 1	4	World Language Level 2	4
ENGL 15 or 30H (GWS) [‡]	3	COMM 100N ^{*1}	3
ECON 102 (GS)	3	General Education Course (GS) (Inter-Domain)	3
General Education Course (GH) (Inter-Domain)	3	General Education Course (GH)	3
COMM 160	1	General Education Course (GN)	3
PSU 9	1		
	15		16

Second Year

Fall	Credits	Spring	Credits
World Language Level 3	4	STAT 200 (GQ) [‡]	4
COMM 110 ^{*1}	3	COMM 118, 150N, 205, 320, 381, or 452 ^{*1}	3
COMM 270 [*]	3	General Education Course (GN)	3
General Education Course (GQ) [‡]	3	BA World Cultures	3
Bachelor of Arts Knowledge Domain	3	Bachelor of Arts Knowledge Domain	3
	16		16

Third Year

Fall	Credits	Spring	Credits
COMM 304 [*]	3	Semester Abroad (No COMM Courses, All Electives) [*]	15
COMM 405 [*]	3		
CAS 100A, 100B, or 100C (GWS) [‡]	3		
General Education Course (GA)	3		
General Education Course (GN)	3		
	15		15

Fourth Year

Fall	Credits	Spring	Credits
COMM 410 (International Cultures, IL) [*]	3	COMM 419 (US Cultures, US) [*]	3
COMM 305 [*]	3	COMM 413W [*]	3
ENGL 202A, 202B, 202C, or 202D (GWS) [‡]	3	Bachelor of Arts Knowledge Domain	3

General Education Course (GA)	3 Elective	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
	13.5	13.5

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Students studying at any of the commonwealth campuses that do not offer COMM 100N, COMM 110 and 3 credits of COMM 118, COMM 150N, COMM 205, COMM 320 or COMM 452 will take these courses at University Park. COMM 100N will be taken 5th semester in place of the B.A. Knowledge domain which will be taken 2nd semester at the commonwealth campus. 3 Credits of COMM 118, COMM 150N, COMM 205, COMM 320 or COMM 452 will be taken 5th semester in place of ENGL 202A/ENGL 202B/ENGL 202C/ENGL 202D which will be taken 4th semester at the commonwealth campus. COMM 110 will be taken 5th semester in place of the B.A. Knowledge Domain which will be taken 3rd semester at the commonwealth campus.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Society and Culture Option: Media Studies, B.A. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
COMM 100N (US Cultures)*	3 Cinema or Media Course* ¹	3
COMM 160	1 IL Cultures	3
ENGL 15 (GWS) [‡]	3 World Language Level 2	4
PSU 9	1 General Education Course (GQ) [‡]	3
World Language Level 1	4 General Education Course (Inter-Domain)	3
General Education Course (GS)	3	
	15	16

Second Year

Fall	Credits Spring	Credits
COMM 205*	3 COMM 305*	3
COMM 270*	3 BA World Cultures	3
World Language Level 3	4 General Education Course (GA)	3
General Education Course (GN)	3 General Education Course (Inter-Domain)	3
General Education Course (GQ) [‡]	3 General Education Course (Exploration)	3
	16	15

Third Year

Fall	Credits Spring	Credits
CAS 100A, 100B, or 100C (GWS) [‡]	3 COMM 405*	3
COMM 304*	3 COMM 400-level Communication Theory*	3
COMM 400-level Communication Theory*	3 General Education Course (GH)	3
BA Fields	3 General Education Course (Exploration)	3
General Education Course (GN)	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
COMM 413W*	3 COMM 411*	3
ENGL 202A, 202B, 202C, or 202D (GWS) [‡]	3 BA Fields	3
COMM 400-level Communication Theory*	3 General Education Course (GHW)	3
BA Fields	3 Elective	3

Elective	3 Elective	1
	15	13

Total Credits 120

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ Cinema or Media Courses: COMM 110, COMM 150N, COMM 180, COMM 205, COMM 320, COMM 403, or COMM 412.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Career Paths

The major provides a broad education in mediated communications. Graduates often go on to work in the media industry, with government, non-governmental or international agencies, or continue their education in graduate or law schools. In addition, because students can customize their studies by specializing in specific areas, they obtain experience or skills that are valuable in a variety of communications-related positions.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE MEDIA STUDIES PROGRAM (<https://www.bellisario.psu.edu/departments/film-production-media-studies/>)

Opportunities for Graduate Studies

The media studies major provides an easy transition and logical progression into graduate studies for many students. Students who complete the major may move into a variety of areas of graduate study, including graduate-level degrees that lead to careers in higher education, research-driven careers or law school, among others.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.bellisario.psu.edu/graduate/>)

Accreditation

The Donald P. Bellisario College of Communications is evaluated regularly by the Accrediting Council on Education in Journalism and Mass Communications (ACEJMC). The Bellisario College has consistently met the high standards of the Accrediting Council that is dedicated to excellence in professional education in journalism and mass communications. For undergraduate students, accreditation most practically means that upper-level professional classes in each major are conducted in rooms with 20 or fewer students.

MORE INFORMATION ABOUT THE ACCREDITING COUNCIL ON EDUCATION IN JOURNALISM AND MASS COMMUNICATIONS (<https://www.cejmc.org>)

Contact

University Park

DEPARTMENT OF FILM PRODUCTION AND MEDIA STUDIES
103 Carnegie Building
University Park, PA 16802
814-863-1243
mfj3@psu.edu

<https://www.bellisario.psu.edu/departments/film-production-media-studies> (<https://www.bellisario.psu.edu/departments/film-production-media-studies/>)

Media Studies, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Media Studies minor is designed for students who want to develop their knowledge of the mass media from a variety of approaches, including aesthetic, humanistic, social-behavioral, and legal-policy. This minor is a theory-based rather than a professional program. In fact, students in the minor may not take professional skills communications courses as part of this program. The minor consists of 18 credits, at least 6 of which must be at the 400 level.

You Might Like This Program If...

You are a major in another discipline that can be complemented by increased knowledge about the mass media or have curiosities about the role of the mass media in an increasingly connected and/or mediated society. The media studies minor – depending on the set of classes that you enroll in – will provide you with foundational, conceptual and

theoretical exposure vital to your understanding of the pivotal roles that the mass media play in the U.S. and elsewhere in the world.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
COMM 100N	The Mass Media and Society	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits of the following:		3
COMM 110	Media and Democracy	
COMM 118	Introduction to Media Effects	
COMM 150N	The Art of the Cinema	
COMM 180	Survey of Electronic Media and Telecommunications	
Select 12 credits of the following:		12
COMM 205	Gender, Diversity and the Media	
COMM 250	Film History and Theory	
COMM 261	The Literature of Journalism	
COMM 304	Mass Communication Research	
COMM 404	Telecommunications Law	
COMM 401	Mass Media in History	
COMM 403	Law of Mass Communications	
COMM 405	Political Economy of Communications	
COMM 408	Cultural Foundations of Communications	
COMM 409	News Media Ethics	
COMM 410	International Mass Communications	
COMM 411	Cultural Aspects of the Mass Media	
COMM 413W	The Mass Media and the Public	
COMM 418	Media Effects: Theory and Research	
COMM 419	World Media Systems	
COMM 451	Topics in American Film	
COMM 452	Topics in International Cinema	
COMM 453	Narrative Theory: Film and Literature	
COMM 454	Documentary in Film and Television	
COMM 455	Advanced Film Theory and Criticism	
COMM 484	Emerging Telecommunications Technologies	
COMM 496	Independent Studies	
COMM 499	Foreign Study--Mass Communications	

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their

intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Bellisario College Academic Advising

204 Carnegie Building
University Park, PA 16802
814-865-1503
commadvisor@psu.edu

<https://www.bellisario.psu.edu/current/advising> (<https://www.bellisario.psu.edu/current/advising/>)

World Campus

Undergraduate Academic Advising

301 Outreach Building
University Park, PA 16802
814-863-3283
advising@outreach.psu.edu

Contact

University Park

DEPARTMENT OF FILM PRODUCTION AND MEDIA STUDIES
103 Carnegie Building
University Park, PA 16802
814-863-1243
mfj3@psu.edu

World Campus

DEPARTMENT OF FILM PRODUCTION AND MEDIA STUDIES
103 Carnegie Building
University Park, PA 16802
814-863-1243
mfj3@psu.edu

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-media-studies-minor> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-media-studies-minor/>)

Sports Journalism, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

The program explores issues and trends through instruction, programming and research. The curriculum covers sports writing, sports broadcasting, sports information, sports ethics, sports media and society, sports industry, and sports and public policy. The Center ([\[comm.psu.edu/about/centers/john-curley-center-for-sports-journalism/\]\(http://comm.psu.edu/about/centers/john-curley-center-for-sports-journalism/\)\) emphasizes media-related internships. Students are encouraged to complete co-curricular work at the student-run newspaper, the campus radio and TV stations, and the Athletic Department. Students must earn a minimum of six credits from COMM 476, COMM 477 and/or COMM 478 and complete an on-campus sports media activity and/or internship.](http://</p>
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What is Sports Journalism?

Thirty-one varsity teams. The chance to cover them in any format: multimedia, photo, text and video. Penn State students interested sports communications and sports journalism careers are in the perfect spot to hone their skills. A combination of classroom instruction and co-curricular activities provide unrivaled opportunities to gain hands-on experience using the same hardware as professionals across the country, and often working side by side at major events with those professionals. Completing the certificate helps prepare students for opportunities with league, sport and team publicity and sports information operations, as well as members of the sports media in its varied formats.

MORE INFORMATION ABOUT SPORTS JOURNALISM (<https://www.bellisario.psu.edu/research/centers/john-curley-center-for-sports-journalism/>)

Program Requirements

To earn an undergraduate certificate in Sports Journalism, John Curley Center, Bellisario College of Communications, a minimum of 6 credits is required.

Code	Title	Credits
Prescribed Courses		
Select 6 credits of the following:		6
COMM 476	Sports Writing	
COMM 477	Sports Broadcasting	
COMM 478	Sports Information	

To complete the program, students must earn a minimum of six credits from COMM 476, COMM 477 and/or COMM 478 and complete an on-campus sports media activity (Daily Collegian, CommRadio, WKPS-FM "The Lion," Intercollegiate Athletics, etc.) and/or on- or off-campus internships in sports media.

Prerequisites Required.

Certificate Learning Objectives

- **Ethics:** Students will demonstrate a grounding in journalism ethics, particularly as it pertains to sports.
- **Journalism Skills:** Students will be able to demonstrate competency in Associated Press style and basic grammar.
- **Multiplatform:** Students will be able to demonstrate storytelling skills on multiple platforms.
- **Reporting:** Students will be able to report and create content on the stories that make up the core of sports writing: game stories; previews and follows; features; various kinds of enterprise.
- **Sports Issues:** Students will demonstrate an understanding of the economic and societal issues facing the sports industry today.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their

intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Bellisario College Academic Advising

204 Carnegie Building
University Park, PA 16802
814-865-1503
commadvisor@psu.edu

<https://www.bellisario.psu.edu/current/advising> (<https://www.bellisario.psu.edu/current/advising/>)

Contact

University Park

JOHN CURLEY CENTER FOR SPORTS JOURNALISM
308 Willard Building (Bellisario Media Center)
University Park, PA 16802
814-865-0929
jra14@psu.edu

<https://www.bellisario.psu.edu/research/centers/john-curley-center-for-sports-journalism/>

Strategic Communications, B.A.

Begin Campus: World Campus

End Campus: World Campus

Program Description

The Strategic Communications online degree, to be offered via the World Campus, explores the theories, methods, and tools used to structure persuasive messages. The major includes an overview of strategic communications principles and concepts that sets the stage for more advanced studies. Students learn about research and analytic techniques used to design and implement effective communication campaigns that are delivered via traditional and new media options. The use of digital technology and social media is emphasized. The program examines the dynamics of the political, legal, social, and cultural environments that interact to define a communication task or problem. Students also learn techniques to benchmark and evaluate the effectiveness of strategic communications programs and understand how they apply to internal and external constituencies. Students studying strategic communications will refine their critical thinking skills and explore the nature and source of the information message content, medium of delivery, and evaluation of the impact of the message on targeted groups. This program will be accredited by the Accrediting Council on Education in Journalism and Mass Communication.

What is Strategic Communications?

The bachelor's degree in strategic communications explores a number of disciplines needed for developing and delivering effective content. These include generating an impactful, relatable message, selecting the best communication channels for proper message distribution, and evaluating communication efforts against established goals and benchmarks. Students have the opportunity to study psychology, statistics, law, research, and other disciplines that can be used to build a strong foundation for effective communication for any company or organization.

You Might Like This Program If...

- You're a professional who wants to advance your career in strategic communications.
- You are looking to change to a communication-related career.

Strategic Communications offers an ideal course of study if you want to work in a dynamic environment, gathering and analyzing information to create targeted, comprehensive communication strategies to advance your organization's objectives.

MORE INFORMATION ABOUT STRATEGIC COMMUNICATIONS (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-strategic-communications-bachelor-of-arts-degree/>)

Direct Admission to the Major

Incoming first-year students who meet the program admission requirements are admitted directly into the major. Admission restrictions may apply for change-of-major and/or change-of-campus students.

For more information about the admission process for this major, please send a request to the college, campus, or program contact (listed in the Contact tab).

Degree Requirements

For the Bachelor of Arts degree in Strategic Communications, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	29
Bachelor of Arts Degree Requirements	24
Requirements for the Major	35

10 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GS courses; 4 credits of GQ courses.

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
COMM 160	Basic News Writing Skills	1
COMM 230W	Writing for Media	3
COMM 428A	Principles of Strategic Communications	3
COMM 428B	Strategic Communications Law	3
COMM 428C	Strategic Communications in a Global Environment	3
COMM 428D	Research & Analytics	3
COMM 428E	Social Media Strategies	3
ECON 102	Introductory Microeconomic Analysis and Policy	3
PSYCH 100	Introductory Psychology	3
STAT 200	Elementary Statistics	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits from the following:		3
CC 401	Internal Communication	
CC 402	External Communication	
CC 490W	Seminar in Corporate Communication	
COMM 403	Law of Mass Communications	
COMM 405	Political Economy of Communications	
COMM 409	News Media Ethics	
COMM 412	Sports, Media and Society	
COMM 419	World Media Systems	
COMM 495	Internship	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 3 credits of COMM courses (other than COMM 100 or COMM 120)		3

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits

- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Learning Outcomes

Professional Values and Competencies

Individual professions in journalism and mass communication may require certain specialized values and competencies. Irrespective of their particular specialization, all graduates should be aware of certain core values and competencies and be able to:

1. understand and apply the principles and laws of freedom of speech and press for the country in which the institution that invites ACEJMC is located, as well as receive instruction in and understand the range of systems of freedom of expression around the world, including the right to dissent, to monitor and criticize power, and assemble and to petition for redress of grievances;
2. demonstrate an understanding of the history and role of professionals and institutions in shaping communications;
3. demonstrate an understanding of gender, race ethnicity, sexual orientation and, as appropriate, other forms of diversity in domestic society in relation to mass communications;
4. demonstrate an understanding of the diversity of peoples and cultures and of the significance and impact of mass communications in a global society;
5. understand concepts and apply theories in the use and presentation of images and information;
6. demonstrate an understanding of professional ethical principles and work ethically in pursuit of truth, accuracy, fairness and diversity;
7. think critically, creatively and independently;
8. conduct research and evaluate information by methods appropriate to the communications professions in which they work;
9. write correctly and clearly in forms and styles appropriate for the communications professions, audiences and purposes they serve;
10. critically evaluate their own work and that of others for accuracy and fairness, clarity, appropriate style and grammatical correctness;
11. apply basic numerical and statistical concepts;
12. apply basic tools and technologies appropriate for the communications professions in which they work.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The

advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

World Campus

Undergraduate Academic Advising

301 Outreach Building
University Park, PA 16802
814-863-3283
advising@outreach.psu.edu

Career Paths

Successful graduates can expand their career opportunities in a variety of fields involving communications, and may have the opportunity to: analyze and manage advertising, public relations, and integrated marketing communications; develop and maintain relationships and communication with an organization's stakeholders; cultivate an organization's image and reputation; set goals and plan projects to help an audience retain a message; and conduct organized communications campaigns to influence the public image of a person or an organization, or to promote a product or initiative with maximum efficiency. Those skills can make graduates a valuable asset for businesses, corporations, government, and nonprofit organizations.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE STRATEGIC COMMUNICATIONS PROGRAM (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-strategic-communications-bachelor-of-arts-degree/>)

Accreditation

The Donald P. Bellisario College of Communications is evaluated regularly by the Accrediting Council on Education in Journalism and Mass Communications, and the Bellisario College has consistently met the high standards of the organization that is dedicated to excellence in professional education in journalism and mass communications. For undergraduate students, accreditation most practically means that upper-level professional classes in each major will be conducted in rooms with 20 or fewer students.

MORE INFORMATION ABOUT THE ACCREDITING COUNCIL ON EDUCATION IN JOURNALISM AND MASS COMMUNICATIONS (<https://www.aejmc.org>)

Contact

World Campus

DEPARTMENT OF ADVERTISING/PUBLIC RELATIONS
304B James Building
University Park, PA 16802
814-863-2682
Michelle.Baker@psu.edu

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-strategic-communications-bachelor-of-arts-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-strategic-communications-bachelor-of-arts-degree/>)

Telecommunications and Media Industries, B.A.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The Telecommunications and Media Industries program seeks to prepare informed, responsible professionals for leadership roles in the telecommunications and media industries. The program stresses the production and distribution of content and services in the digital communication, entertainment and information industries, such as radio, television, broadband, video games, social media, mobile telecommunications and the Internet, as well as the social, cultural and economic impact of these industries.

After acquiring a strong foundation in telecommunications technologies, management and societal impacts, students choose an emphasis in programming and production; management and entrepreneurship; or law and policy.

Graduates go on to careers at local radio and television stations; broadcast, cable and satellite networks; social media; Internet content and service providers; wired and wireless telephone companies; and other related media and entertainment industries. The major emphasizes the business and legal parameters of telecommunications, making it an excellent preparation for law school or graduate school and careers in government policy and the entertainment field.

What is Telecommunications and Media Industries?

Telecommunications and Media Industries is the array of electronic media industries that make up the global communications ecosystem. This comprises radio, television, telephones and the internet. Telecommunications includes traditional broadcast, cable, satellite and telephone companies, such as radio and TV stations and networks and music and film companies, as well as internet businesses involved in audio and video production, video games, social media, the Internet of Things, and more. This includes internet service providers, cloud computing, mobile telephones, and more. Students learn current industry practices and essential technological, economic, and legal concepts to develop the skills necessary to become successful leaders in all forms of electronic media and related industries throughout the world.

You Might Like This Program If...

- You are creative and like to produce audio or video content.
- You're entrepreneurial and imaginative and want to develop new products.
- You're analytical and imaginative and want to discover new insights into how people use media technologies.
- You're outgoing and like to travel and want to help businesses grow.
- You like sports or entertainment, or have strong technical or policy interests and are interested in shaping the future of the Internet.

MORE INFORMATION ABOUT TELECOMMUNICATIONS AND MEDIA INDUSTRIES (<https://www.bellisario.psu.edu/departments/telecommunications/>)

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Telecommunications and Media Industries, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	20
Bachelor of Arts Degree Requirements	24
Requirements for the Major	34-35

3-4 of the 45 credits for General Education are included in the Requirements for the Major. This includes 0-3 credits of GS courses or 0-4 credits of GQ courses.

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
COMM 160	Basic News Writing Skills	1
COMM 180	Survey of Electronic Media and Telecommunications	3
COMM 280	Introduction to Telecommunications Technologies	3
COMM 380	Telecommunications Management	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3-4 credits from the following:		3-4
ECON 102	Introductory Microeconomic Analysis and Policy	
ECON 14	Principles of Economics	
SCM 200	Introduction to Statistics for Business	
STAT 200	Elementary Statistics	
Select 3 credits of capstone from the following:		3
COMM 486W	Telecommunications Ethics	
COMM 487W	Advanced Telecommunications Management and Leadership	

COMM 489W	Advanced Telecommunications Topics	
Select 3 credits in law courses from the following: ¹		3
COMM 403	Law of Mass Communications	
COMM 403H	Law of Mass Communications	
COMM 404	Telecommunications Law	
COMM 492	Internet Law and Policy	
Select 12 credits from the following: ¹		12
COMM 170	Introduction to the Sports Industry	
COMM 190/ GAME 140	Gaming and Interactive Media	
COMM 282	Television Field Production	
COMM 283	Television Studio Production	
COMM/IST 310	Digital Media Metrics	
COMM 374	Audio Production	
COMM 383	Advanced Video Production	
COMM 384	Telecommunications Promotion and Sales	
COMM 385	Media Programming Strategies	
COMM 386	Telecommunications History	
COMM 388	Production Management	
COMM 479	Telecommunication Economics	
COMM 482	Brand Storytelling	
COMM 483	Wireless Communications Industry	
COMM 484	Emerging Telecommunications Technologies	
COMM 484A	Wireless Devices and Global Markets	
COMM 491		
COMM 491A	International Telecommunications - Travel	
COMM 493	Entrepreneurship in the Information Age	
COMM 495	Internship (3 credits)	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 3 credits in social aspects of communication from the following:		3
COMM 110	Media and Democracy	
COMM 118	Introduction to Media Effects	
COMM/ WMNST 205	Gender, Diversity and the Media	
COMM 304	Mass Communication Research	
COMM 305	Introduction to Critical Studies of Media	
COMM 405	Political Economy of Communications	
COMM 409	News Media Ethics	
COMM 410	International Mass Communications	
COMM 412	Sports, Media and Society	
COMM 413W	The Mass Media and the Public	
COMM 417	Ethics and Regulation in Advertising and Public Relations	
COMM 418	Media Effects: Theory and Research	
COMM 419	World Media Systems	
COMM 419H	World Media Systems	
COMM 496	Independent Studies (1-3 credits)	

¹ Law courses beyond the required 3 credits can count against the 12 credits of additional courses.

Students must take at least 9 credits of 400-level courses from the additional or supporting course lists.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Learning Outcomes

Professional Values and Competencies

Individual professions in journalism and mass communication may require certain specialized values and competencies. Irrespective of their particular specialization, all graduates should be aware of certain core values and competencies and be able to:

1. understand and apply the principles and laws of freedom of speech and press for the country in which the institution that invites ACEJMC is located, as well as receive instruction in and understand the range of systems of freedom of expression around the world, including the right to dissent, to monitor and criticize power, and assemble and to petition for redress of grievances;
2. demonstrate an understanding of the history and role of professionals and institutions in shaping communications;

3. demonstrate an understanding of gender, race ethnicity, sexual orientation and, as appropriate, other forms of diversity in domestic society in relation to mass communications;
4. demonstrate an understanding of the diversity of peoples and cultures and of the significance and impact of mass communications in a global society;
5. understand concepts and apply theories in the use and presentation of images and information;
6. demonstrate an understanding of professional ethical principles and work ethically in pursuit of truth, accuracy, fairness and diversity;
7. think critically, creatively and independently;
8. conduct research and evaluate information by methods appropriate to the communications professions in which they work;
9. write correctly and clearly in forms and styles appropriate for the communications professions, audiences and purposes they serve;
10. critically evaluate their own work and that of others for accuracy and fairness, clarity, appropriate style and grammatical correctness;
11. apply basic numerical and statistical concepts;
12. apply basic tools and technologies appropriate for the communications professions in which they work.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Bellisario College Academic Advising

204 Carnegie Building
University Park, PA 16802
814-865-1503
commadvisor@psu.edu

<https://www.bellisario.psu.edu/current/advising> (<https://www.bellisario.psu.edu/current/advising/>)

Suggested Academic Plan

Telecommunications and Media Industries, B.A. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
COMM 160*	1 Social Aspects of Communication Course* ²	3
COMM 180* ¹	3 General Education Course (GN)	3
ENGL 15 (GWS) [‡]	3 General Education Course (GQ) [‡]	3
General Education Course (GN)	3 General Education Course (GH)	3
World Language Level 1	4 World Language Level 2	4
PSU 9	1	
	15	16

Second Year

Fall	Credits Spring	Credits
ECON 102 or STAT 200**	3-4 COMM 280* ³	3
General Education Course (Exploration)	3 General Education Course (Exploration)	3
General Education Course (Inter-Domain)	3 General Education Course (Inter-Domain)	3
BA World Cultures	3 BA Knowledge Domain	3
World Language Level 3	4 BA Knowledge Domain	3
	16-17	15

Third Year

Fall	Credits Spring	Credits
COMM 380*	3 COMM 403, 404, or 492 (Law Course)*	3
Professional Course*	3 CAS 100A, 100B, or 100C (GWS) [‡]	3
General Education Course (GQ) [‡] if ECON 102 is taken 3rd semester, OR General Education Course (GS) if STAT 200 is taken 3rd semester.	3 Professional Course*	3
BA Knowledge Domain	3 US Cultures	3
IL Cultures	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
COMM 486W, 487W, or 489W (Capstone Course)*	3 Professional Course*	3
ENGL 202A, 202B, 202C, or 202D (GWS) [‡]	3 General Education Course (GHW)	3
Professional Course*	3 Elective	3
General Education Course (GA)	3 Elective	3
Elective	3 Elective (if ECON 102 taken instead of STAT 200)	1
	15	13

Total Credits 120-121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Students studying at any of the commonwealth campuses that do not offer COMM 180 will take that course in the fifth semester at University Park.² Students studying at any of the commonwealth campuses that do not offer any social aspects courses will take that course in the seventh or eighth semester at University Park.³ Students studying at any of the commonwealth campuses that do not offer COMM 280 will take that course in the fifth or sixth semester at University Park.**University Requirements and General Education Notes:**

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Career Paths

A Telecommunications and Media Industries degree prepares students for career success with a valuable mix of hands-on technical experience and leadership development skills. Students can pursue careers in television, radio and other forms of content production, audience research and programming, marketing and sales, product and app development, or legal and policy issues. Graduates go on to work at major television networks, production companies, sports leagues, social media companies, internet and telephone companies, industry associations, government agencies and public advocacy groups both in the United States and in many other countries around the world.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE TELECOMMUNICATIONS AND MEDIA INDUSTRIES PROGRAM (<https://www.bellisario.psu.edu/departments/telecommunications/>)

Opportunities for Graduate Studies

The telecommunications and media industries program is excellent preparation for law school or graduate school. The curriculum includes a heavy emphasis on legal and policy issues including free speech, privacy, intellectual property, technology law and entertainment law, providing a solid foundation for law school. The program also covers important economic and business concepts related to the media and technology industries, including issues related to diversity, ethics and globalization. This provides a solid grounding in research and analysis for graduate school.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.bellisario.psu.edu/graduate/>)

Accreditation

All majors in the Bellisario College of Communications are accredited by the Accrediting Council on Education in Journalism and Mass Communications.

The Donald P. Bellisario College of Communications is evaluated regularly by the Accrediting Council on Education in Journalism and Mass Communications, and the Bellisario College has consistently met the high standards of the organization that is dedicated to excellence in professional education in journalism and mass communications. For undergraduate students, accreditation most practically means that upper-level professional classes in each major will be conducted in rooms with 20 or fewer students.

MORE INFORMATION ABOUT THE ACCREDITING COUNCIL ON EDUCATION IN JOURNALISM AND MASS COMMUNICATIONS (<https://www.aejmc.org>)

Contact

University Park

DEPARTMENT OF TELECOMMUNICATIONS AND MEDIA INDUSTRIES
11 Carnegie Building
University Park, PA 16802
814-863-6416
kpj1@psu.edu

<https://www.bellisario.psu.edu/departments/telecommunications>
(<https://www.bellisario.psu.edu/departments/telecommunications/>)

Earth and Mineral Sciences

About the College

Lee Kump, John Leone Dean in the College of Earth and Mineral Sciences, College of Earth and Mineral Sciences

The College of Earth and Mineral Sciences has a rich history dating back more than 125 years, from the original focus on mining engineering, to today's interdisciplinary focus on earth, energy, materials science, and engineering. With our top-ranked programs, five academic departments, and more than 40 undergraduate majors, minors, and certificates, we provide a comprehensive, high-quality education. We are a close-knit community where students experience the best of both worlds — small

class sizes and all the resources of a top research university. Our college is creating tomorrow's leaders and plays an important role in preparing a diverse and talented workforce, as well as providing new knowledge that will drive the economic vitality of the state, the nation, and beyond. Students from around the globe come here to be part of the discoveries that will help shape our planet's future. Together, we are creating a sustainable and inclusive future for society.

MORE INFORMATION ABOUT THE COLLEGE (<https://www.ems.psu.edu/>)

Mission and Goals

The mission of the college is to advance knowledge, talent and leadership to elucidate Earth processes and history, harness and sustain natural resources and materials, and develop novel solutions to major challenges in energy, environment and wellbeing. We continue a strong tradition of building deep disciplinary expertise along with interdisciplinary teams, focusing on the interfaces of the natural science, social science, and engineering disciplines, where answers to the most pressing problems facing society await discovery.

MORE INFORMATION ABOUT THE MISSION AND GOALS OF THE COLLEGE OF EARTH AND MINERAL SCIENCES (<https://www.ems.psu.edu/about/who-we-are/mission-vision-values-and-strategic-plan/>)

Accreditation

All five of the college's engineering baccalaureate degree programs (Energy Engineering, Environmental Systems Engineering, Materials Science and Engineering, Mining Engineering, and Petroleum and Natural Gas Engineering) are accredited by the Engineering Accreditation Commission of ABET, <https://abet.org> (<https://abet.org/>).

Departments and Schools

John and Willie Leone Family Department of Energy and Mineral Engineering

The John and Willie Leone Family Department of Energy and Mineral Engineering offers programs addressing topics such as the effective production, conversion, use, and management of energy. Instruction in theory, applications, and project design is augmented by hands-on training, problem-based learning, and interactive classes with individual attention.

MORE INFORMATION ABOUT THE JOHN AND WILLIE LEONE FAMILY DEPARTMENT OF ENERGY AND MINERAL ENGINEERING (<https://www.eme.psu.edu>)

Department of Geography

The Department of Geography offers a comprehensive academic program that includes bachelor's degrees, minors, and certificates. Programs are designed to educate and inspire students to become critical and committed citizens who contribute to solutions for our planet.

MORE INFORMATION ABOUT THE DEPARTMENT OF GEOGRAPHY (<https://www.geog.psu.edu>)

Department of Geosciences

The Department of Geosciences offers an academic program that include bachelor's degrees, minors, and certificates designed to provide students with an integrated, interdisciplinary study of the whole Earth, afford them with the skills and knowledge needed to solve real-world problems, and prepare them for careers at the forefront of geosciences.

MORE INFORMATION ABOUT THE DEPARTMENT OF GEOSCIENCES
(<https://www.geosc.psu.edu>)

Department of Materials Science and Engineering

The Department of Materials Science and Engineering offers an academic program that provides students with a broad understanding of materials as well as the fundamental techniques of science and engineering used in the discipline, and a flexible curriculum that allows students to tailor their degree to their particular interests.

MORE INFORMATION ABOUT THE DEPARTMENT OF MATERIALS SCIENCE AND ENGINEERING (<https://www.matse.psu.edu>)

Department of Meteorology and Atmospheric Science

The Department of Meteorology and Atmospheric Science offers a rigorous program devoted to a comprehensive understanding of the atmosphere, weather, and climate, and the methods for applying that specialized knowledge to practical problems. Students study topics ranging from severe weather and numerical weather prediction to climate change and weather risk.

MORE INFORMATION ABOUT THE DEPARTMENT OF METEOROLOGY AND ATMOSPHERIC SCIENCE (<http://www.met.psu.edu>)

Baccalaureate Degrees

- Earth Science and Policy, B.S.
- Earth Sciences, B.S.
- Energy and Sustainability Policy, B.A.
- Energy and Sustainability Policy, B.S.
- Energy Business and Finance, B.S.
- Energy Engineering, B.S.
- Environmental Systems Engineering, B.S.
- Geobiology, B.S.
- Geography, B.A.
- Geography, B.S.
- Geosciences, B.A.
- Geosciences, B.S.
- Materials Science and Engineering, B.S.
- Meteorology and Atmospheric Science, B.S.
- Mining Engineering, B.S.
- Petroleum and Natural Gas Engineering, B.S.

Minors

- Climatology, Minor
- Earth and Sustainability, Minor
- Earth Systems, Minor
- Electrochemical Engineering, Minor
- Energy Business and Finance, Minor
- Energy Engineering, Minor
- Environmental Systems Engineering, Minor
- Geographic Information Science, Minor
- Geography, Minor
- Geophysics, Minor
- Geosciences, Minor
- Information Sciences and Technology for Earth and Mineral Sciences, Minor

- Meteorology, Minor
- Mining Engineering, Minor
- Petroleum and Natural Gas Engineering, Minor
- Polymer Science, Minor
- Watersheds and Water Resources, Minor

Certificates

- Climate and Environmental Change, Certificate
- Earth Sustainability, Certificate
- Environment and Society Geography, Certificate
- Geographic Information Science, Certificate
- Geospatial Big Data Analytics, Certificate
- Global Environmental Systems, Certificate
- Justice, Ethics, Diversity in Space, Certificate
- Landscape Ecology, Certificate
- Landscapes: Societies, Cultures, and Political Economies, Certificate
- Weather Forecasting, Certificate

College Procedures

Administrative Enrollment Controls

Some majors in the College of Earth and Mineral Sciences are administratively enrollment controlled due to limited space, faculty, and other resources. Students should work closely with an academic adviser to ensure they are meeting all entrance to major requirements.

MORE INFORMATION ABOUT ADMINISTRATIVE ENROLLMENT CONTROLS FOR PROGRAMS IN THE COLLEGE OF EARTH AND MINERAL SCIENCES (p. 3153)

Change of Campus

Most programs in the College of Earth and Mineral Sciences are completed at the University Park campus; however, students can begin their Penn State courses at any Penn State campus and transition to University Park. To plan for your change of campus, please work closely with your academic adviser.

MORE INFORMATION ABOUT CHANGE OF CAMPUS (<https://www.ems.psu.edu/undergraduate/academic-advising/academic-planning-progress-and-requirements/change-campus/>)

Concurrent Majors

A Concurrent Majors Program is one in which students take courses to concurrently meet the requirements of at least two majors, with graduation for all majors in the program occurring during the same semester. This requires careful planning; students must meet with the faculty adviser in charge of their program for approval.

READ SENATE POLICY 60-00: COMPLETING MORE THAN ONE UNDERGRADUATE MAJOR PROGRAM (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/60-00-completing-more-than-one-undergraduate-program/#60-00>)

Academic Warning

A student who fails to earn a 2.00 cumulative grade-point average will be placed on academic warning. A student placed on academic warning will have a hold placed on registration and will be required to meet with an academic adviser in order for this registration hold to be removed. To

remove academic warning, the cumulative grade-point average must be 2.00 or higher.

MORE INFORMATION ABOUT ACADEMIC WARNING (<https://www.ems.psu.edu/undergraduate/academic-advising/policies-procedures-and-forms/academic-progress/>)

READ SENATE POLICY 54-20: ACADEMIC WARNING (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-20>)

Academic Suspension

A student in academic warning who fails to maintain a semester grade-point average of 2.00 or higher will be academically suspended. A student who has been academically suspended may not schedule courses at the University for two consecutive semesters. (Note: Summer session is equal to one semester.)

A student seeking to return to the College of Earth and Mineral Sciences after suspension must have an advising appointment with an adviser in the Ryan Family Student Center prior to the deadline posted on the college website (<https://www.ems.psu.edu/undergraduate/academic-advising/policies-procedures-and-forms/academic-progress/>).

MORE INFORMATION ABOUT ACADEMIC SUSPENSION (<https://www.ems.psu.edu/undergraduate/academic-advising/policies-procedures-and-forms/academic-progress/>)

READ SENATE POLICY 54-40: ACADEMIC SUSPENSION (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-40>)

Resources

Ryan Family Student Center

The Ryan Family Student Center integrates tutoring, advising, student engagement, student work space, and areas for casual interaction into a one-stop shop for student success. The vibrant and engaging academic atmosphere fosters a warm, welcoming, and small-college feel amid the rich activities taking place on the University Park campus.

MORE INFORMATION ABOUT THE RYAN FAMILY STUDENT CENTER (<https://www.ems.psu.edu/undergraduate/ryan-family-student-center/>)

Office of Educational Equity

Diversity among students and faculty is a top priority for the College of Earth and Mineral Sciences and the Office of Educational Equity takes an active role in promoting respect and embracing diversity and inclusion in the college.

MORE INFORMATION ABOUT THE OFFICE OF EDUCATIONAL EQUITY (<https://www.ems.psu.edu/diversity/>)

Beyond the Classroom

All students in the College of Earth and Mineral Sciences are encouraged to participate in out-of-class experiences such as undergraduate research, study abroad, and internships. Opportunities exist within the college, across the University, and beyond.

MORE INFORMATION ABOUT OPPORTUNITIES BEYOND THE CLASSROOM (<https://www.ems.psu.edu/undergraduate/beyond-classroom/>)

Honors Programs

Schreyer Honors College

The Schreyer Honors College, regarded as one of the nation's top programs of its kind, promotes achieving academic excellence with integrity, building a global perspective, and creating opportunities for leadership and civic engagement. Schreyer Scholars, including those admitted after their first or second year of enrollment, are a diverse and motivated group of approximately 2,000 students at University Park and 20 Commonwealth campuses. The College strives to educate students who will have an important and ethical influence in the world, to improve educational practice, and to continue to be recognized as a leading force in honors education nationwide.

MORE INFORMATION ABOUT THE SCHREYER HONORS COLLEGE (<https://www.shc.psu.edu>)

Contact

COLLEGE OF EARTH AND MINERAL SCIENCES
14 Deike Building
University Park, PA 16802
814-865-7482
AssocDeanUED@ems.psu.edu

<https://www.ems.psu.edu>

Climate and Environmental Change, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

The Climate and Environmental Change Certificate is intended for students seeking to understand the spatial patterns and physical processes of climate change and variability, and to hone their skills of environmental data collection, analysis, and interpretation. Upon completing this certificate, students will be able to explain the environmental processes and patterns associated with climate change; identify and distinguish between natural climate variations and observed processes of climate change; utilize data from field experiments, satellite and aerial imagery, observation archives, and computer modeling to analyze climate change patterns across space.

Program Requirements

Code	Title	Credits
Required Courses		
<i>Required Courses: Require a grade of C or better</i>		
GEOG 310	Introduction to Global Climatic Systems	3
	or GEOG 310W Introduction to Global Climatic Systems	
Select 9-10 credits from the following (may not choose more than 1 course from GEOG 362, GEOSC 482, or METEO 477)		
EARTH 402	Modeling the Earth System	
GEOG 362	Remote Sensing and Image Analysis	
GEOG 410		
GEOG 412W	Climatic Change and Variability	
GEOG 417	Satellite Climatology	
GEOG 438W	Human Dimensions of Global Warming	

GEOSC 320	Geology of Climate Change
GEOSC 450	Risk Analysis in the Earth Sciences
GEOSC 482	Satellite Remote-Sensing For Earth Observation
METEO 436	Radiation and Climate
METEO 469	From Meteorology to Mitigation: Understanding Global Warming
METEO 470	Climate Dynamics
METEO 477	Fundamentals of Remote Sensing Systems

Non-Course Requirements

Prerequisites not included in certificate:

- EARTH 402 Prerequisites: (EARTH 2 or EARTH 103) and (CHEM 110) and (MATH 83 or MATH 110 or MATH 140)
- GEOG 310/GEOG 310W Prerequisite: GEOG 10 or GEOG 210 or METEO 3 or METEO 101 or METEO 201
- GEOG 362 Prerequisite: GEOG 160 or GEOG 260
- GEOSC 450 Prerequisites: introductory Earth Science or Geosciences course and introductory statistics course and (MATH 110 or MATH 140)
- METEO 436 Prerequisite: METEO 300, concurrent: METEO 431
- METEO 469 Prerequisite: STAT 200 or MATH 110 or MATH 140
- METEO 470 Prerequisites: METEO 300, METEO 421, METEO 431
- METEO 477 Prerequisite: METEO 436 or EE 330

Per University policy, all credit courses for a certificate require a grade of 'C' or higher, and at least two-thirds (2/3) of the credits used to complete a certificate must be earned at Penn State. If student is completing multiple certificates in Geography (including Global & Environmental Change), no more than one (1) course may double-count for each.

Certificate Learning Objectives

- **Climate Change Patterns & Processes:** Students will understand the environmental processes and patterns associated with climate change.
- **Analyze Natural & Human-Induced Climate Change:** Students will identify and distinguish between natural climate variations and observed processes of climate change.
- **Data Analysis and Modeling:** Students will utilize data from field experiments, satellite and aerial imagery, observation archives, and computer modeling to analyze climate change patterns across space.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Climatology, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

Climatology is a central component of the physical environment, playing an important role in a wide range of human activities. The ability to force changes in the global climate system may be one of the more significant ways in which human society will impact Earth's physical environment in the near future. The Climatology minor in the College of Earth and Mineral Sciences is an interdisciplinary program drawing from the fields of meteorology, geography, and geosciences. The minor provides an overview of the physical processes that control present-day climate. It also provides an introduction to the history of climate change through geologic time, and presents some of the causes and consequences of potential future climate change and variability.

What is Climatology?

Climatology is an integrative science focusing on interactions between energy and mass flows among the atmosphere, hydrosphere, lithosphere, biosphere, and cryosphere and on the increasing impact of human activities—both inadvertent and intentional—on climate from local through regional to global scales. Drawing from meteorology and atmospheric sciences, geography, and geosciences, climatologists investigate the physical and chemical feedbacks involved in climate stability, the relationships between spatial and temporal scales in climate, and the physical processes associated with inter-annual climate variations. Climatologists use field experiments, remote sensing data, online observation archives, GIS analysis, and computer modeling to understand the physical processes and spatial and temporal patterns of climate systems, climate variability and change, and climate impacts.

You Might Like This Program If...

- You want to understand what is special about the physical climate processes happening in a given location.

- You are interested in how the climate processes of a place relate to those of others in the region.
- You want to learn how energy and mass flow into and out of a region.
- You want to find out if biophysical processes change with spatial scales.
- You want to study how people influence climate processes and vice versa.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 18 credits of the following:		18
EARTH 103N	Earth in the Future: Predicting Climate Change and Its Impacts Over the Next Century	
GEOG 310	Introduction to Global Climatic Systems	
GEOG 412		
GEOG 417	Satellite Climatology	
GEOG 438W	Human Dimensions of Global Warming	
GEOSC 320	Geology of Climate Change	
METEO 300	Fundamentals of Atmospheric Science	

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

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Career Paths

Students enrolled in the Climatology minor learn a wide range of research and analytical skills that are highly valued by employers. Students trained in climatology find jobs in all levels of government, nonprofit organizations, and in industry.

Careers

Students graduating with the Climatology minor are well positioned to find employment with diverse organizations spanning business, government, and nonprofit sectors. Such organizations may include (but are not limited to): AccuWeather; Federal Emergency Management Agency; NASA; National Center for Atmospheric Research; National Oceanic and Atmospheric Administration; Resources for the Future; SAIC; U.S. Army Corps of Engineers; U.S. Environmental Protection Agency; U.S. Geological Survey; local, regional, and state agencies; environmental and engineering consulting firms; policy research institutes; and private corporations.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN CLIMATOLOGY (<https://www.geog.psu.edu>)

Opportunities for Graduate Studies

The Climatology minor is useful for students who are interested in pursuing graduate degrees in the environmental, atmospheric, and social sciences. Alumni enter graduate and professional studies in a variety of programs, including (but not limited to) geography, environmental sciences, atmospheric sciences, public policy, emergency management, and law. They sometimes begin graduate or professional programs directly after finishing undergraduate studies, but often get several years' work experience before returning to school, either full or part-time.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.geog.psu.edu>)

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Earth and Sustainability, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

By the time current undergraduates send their children to college, Earth's population will have increased to more than eight billion people. One or more metropolitan areas in our increasingly crowded world will have experienced a devastating earthquake or volcanic eruption, sea level rise will be inundating low-lying coastal cities such as Jakarta along with whole island nations, energy resources will be less available and more

expensive, and our climate will be warmer and characterized by more frequent extreme weather events.

How we choose to plan for and attempt to mitigate these "grand challenges" will have consequences for individuals, nations, and our global socioeconomic and political systems.

Personal and collective actions are needed to ensure the sustainable use of our natural resources and environmental systems—land, air, and water—in an ethical and responsible manner. The United States needs to build robust educational pathways for its citizenry to develop the global perspective, cultural sensitivity, economic wisdom, and scientific acumen to inform their actions and address these grand challenges. The geosciences (marine, Earth, and atmospheric sciences) that explain the workings of the Earth system provide critical insight into all of these challenges and, consequently, must be firmly integrated into those educational pathways. These programs seek to promote that integration through engaging the geoscience community and their colleagues in allied disciplines in the development of high-quality educational materials, and mechanisms by which these materials can be effectively brought to large numbers of students.

The goal of this minor is to dramatically increase geoscience literacy of undergraduate students, including the large majority that do not major in the geosciences, and especially adult learners through the online program, such that they are better positioned to make sustainable decisions in their lives and as part of the broader society.

What is Earth and Sustainability?

The Earth and Sustainability minor program is designed to provide students with the knowledge needed to make well-informed, environmentally sustainable decisions. It increases geoscience literacy and addresses key sustainability issues, such as the impact of climate change on Earth and its inhabitants, access to clean drinking water, sustainable energy, and the hazards posed by our overpopulated coastal regions.

You Might Like This Program If...

- You are passionate about sustainability and the environment.
- You want a better understanding of the science behind and potential effects of climate change.
- You want to know more about the complexities, challenges, and opportunities involved in planning for the Earth's future.
- You would like to explore both the scientific and the social aspects of big problems like population growth, resource management, and climate change.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		

EARTH 103N	Earth in the Future: Predicting Climate Change and Its Impacts Over the Next Century	3
EARTH 402	Modeling the Earth System	3

Additional Courses

Additional Courses: Require a grade of C or better

Select three of the following: 9

EARTH 104N	Climate, Energy and Our Future	
EARTH 111		
EARTH 107N	Coastal Processes, Hazards and Society	
GEOG 3N	Food and the Future Environment	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 3 credits from the approved list of EMS courses. Approved courses are: 3

EGEE 401	Energy in a Changing World	
EME 444	Global Energy Enterprise	
EME 460	Geo-resource Evaluation and Investment Analysis	
GEOG 412		
GEOG 430	Human Use of Environment	
GEOG 431	Geography of Water Resources	
GEOG 432	Energy Policy	
GEOG 438W	Human Dimensions of Global Warming	
GEOG 469	Energy Industry Applications of GIS	
GEOG 402Y	Natural Disasters	
GEOG 451	Natural Resources: Origins, Economics and Environmental Impact	
GEOG 452	Hydrogeology	
METEO 469	From Meteorology to Mitigation: Understanding Global Warming	

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

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Earth Science and Policy, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

Global climate change and environmental change on a more local scale present major challenges for our future. The solution to these problems requires people with a solid scientific understanding of natural earth/environmental systems, and also an understanding of the social, economic, and political dimensions of these problems. This major is intended to bridge the gap between the physical, natural sciences (the Earth sciences) and the social sciences, with the understanding that intelligent, effective solutions to environmental problems will require people who grasp the scientific and social dimensions of environmental problems. This major is intended to produce graduates who not only grasp these problems, but who can also apply a wide array of quantitative tools and fundamental principles to generate practical solutions.

Students develop a sense of community through a set of common upper level courses and they gain practical experience through a mandatory internship course. A variety of options are offered to enable greater depth of study in aspects of science and policy related to water and land use, climate change, and energy; a general option is also available.

This major will provide an excellent preparation for careers in environmental law, environmental consulting, and nonprofit organizations engaged in the science and policy of environmental issues. This major will also serve as a strong basis for postgraduate studies in environmental science and policy.

Water and Land Use Option

This option is intended to develop a focus on the role of water and land in environmental issues, encompassing scientific, economic, and policy dimensions of groundwater and surface water resources and of land use. The Water and Land Use option is appropriate both for students who intend to pursue postgraduate degrees and for students who want to enter the workforce.

Climate Change Option

This option is intended for students who want to focus on the science and policy related to climate change, including the scientific basis for identifying, understanding, and potentially mitigating climate change. The option also develops a basis for understanding the economic costs and risks related to climate change, as well as the political dimensions. This option is appropriate both for students who intend to pursue postgraduate degrees and for students who want to enter the work force.

Energy Option

This option is designed to provide a focus on aspects of Earth science and policy related to energy, including the origins of energy and mineral resources, the future of these resources, and the alternatives for meeting future needs. This option also provides a focus on the economics of energy systems and the political dimensions of the challenges related to our energy future. The Energy option is appropriate both for students who intend to pursue postgraduate degrees and for students who want to enter the work force.

General Option

This option is intended for students who desire a broad sampling of Earth science as it relates to policy or those who desire to design their own focus within Earth science in consultation with an academic adviser. The General option is appropriate both for students who intend to pursue postgraduate degrees and for students who want to enter the work force.

What is Earth Science and Policy?

The Earth Science and Policy program is designed to help train students to address big picture questions like how to prepare for climate change and how to solve issues affecting communities, such as maintaining sources of clean water and reliable energy. The program is designed to help students develop a more detailed understanding of how scientists from a range of Earth science disciplines—including meteorology, geosciences, and geography—collaborate with government and industry representatives on legislation that can have an impact on local communities, the nation, and the world. The program is ideal for students who want to apply their knowledge of the sciences to help create solutions for pressing problems facing society.

You Might Like This Program If...

- You like to work as part of a team to create solutions.
- You want to address important Earth science-related challenges such as climate change, clean energy, and water resources.
- You are interested in how humans interact with the natural world.
- You like to study about the Earth and its physical and chemical processes.
- You would like to build a solid scientific background to engage in informed discussions about some of the world's most pressing concerns.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Earth Science and Policy, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	0-2
Requirements for the Major	106-108

33 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 9 credits of GWS courses; 3 credits of GH courses; 6 credits of GS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
CHEM 113	Experimental Chemistry II	1
EARTH 400	Earth Sciences Seminar	3
EARTH 495	Internship	3
ECON 102	Introductory Microeconomic Analysis and Policy	3
EMSC 100S	Earth and Mineral Sciences First-Year Seminar ¹	3
GEOG 126	Economic Geography	3
GEOG 364	Spatial Analysis	3
PHIL 118	Environmental Philosophy	3
PLSC 1	American Politics: Principles, Processes and Powers	3
STAT 200	Elementary Statistics	4
<i>Prescribed Courses: Require a grade of C or better</i>		
EARTH 402	Modeling the Earth System	3
EBF 472	Quantitative Analysis in Earth Sciences	3
GEOSC 450	Risk Analysis in the Earth Sciences	3
Additional Courses		
CAS 100	Effective Speech	3
or ENGL 202C	Effective Writing: Technical Writing	
CED 201	Introductory Environmental and Resource Economics	3
or EBF 200	Introduction to Energy and Earth Sciences Economics	
ENGL 15	Rhetoric and Composition	3
or ENGL 30H	Honors Rhetoric and Composition	
GEOSC 1	Physical Geology	3
or GEOSC 20	Planet Earth	
MATH 111	Techniques of Calculus II	2-4
or MATH 141	Calculus with Analytic Geometry II	
PHYS 211	General Physics: Mechanics	4
or PHYS 250	Introductory Physics I	
<i>Additional Courses: Require a grade of C or better</i>		
Select one of the following:		4

MATH 83	Technical Calculus	
MATH 110	Techniques of Calculus I	
MATH 140	Calculus With Analytic Geometry I	
Select 8 credits of the following:		8
GEOSC 201	Earth Materials	
GEOSC 202	Chemical Processes in Geology	
GEOSC 203	Physical Processes in Geology	
Requirements for the Option		
Select an option		27

¹ The following substitutions are allowed for students attending campuses where the indicated course is not offered: CAS 100 or ENGL 202C can be substituted for EMSC 100S.

Requirements for the Option

All options must include one W course.

Water and Land Use Option (27 credits)

Code	Title	Credits
Additional Courses		
Select 3 credits of the following:		3
EARTH 111N	Water: Science and Society	
GEOG 160	Mapping Our Changing World	
SOILS 101	Introductory Soil Science	
Select 12 credits of the following:		12
ERM 300	Basic Principles and Calculations in Environmental Analysis	
FOR 455	Remote Sensing and Spatial Data Handling	
FOR 470	Watershed Management	
GEOG 363	Geographic Information Systems	
GEOSC 340	Geomorphology	
GEOSC 402Y	Natural Disasters	
GEOSC 409W	Geomicrobiology	
GEOSC 413W	Techniques in Environmental Geochemistry	
GEOSC 452	Hydrogeology	
GEOSC 483	Environmental Geophysics	
SOILS 422	Natural Resources Conservation and Community Sustainability	
SOILS 450	Environmental Geographic Information Systems	
Select a total of 12 credits of the following:		12
Select 3-6 credits of the following:		
CED 429	Natural Resource Economics	
CED 431		
ECON 302	Intermediate Microeconomic Analysis	
Select 6-9 credits of the following:		
CED 309	Land Economics and Policy	
CED 409	Land Use Planning and Procedure	
CED 410	The Global Seminar	
GEOG 430	Human Use of Environment	
GEOG 431	Geography of Water Resources	
GEOG 434	Politics of the Environment	
GEOG 439	Property and the Global Environment	

PLSC/STS 460	Science, Technology, and Public Policy
PUBPL 481	Seminar in Environmental Policy

Climate Change Option (27 credits)

Code	Title	Credits
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Additional Courses

Select 3 credits of the following: 3

EARTH 2	The Earth System and Global Change
GEOG 110	Climates of the World
METEO 3	Weather Revealed: Introductory Meteorology
METEO 4	Weather and Risk

Select 12 credits of the following: 12

GEOG 310	Introduction to Global Climatic Systems
GEOG 412	
GEOSC 320	Geology of Climate Change
METEO 201	Introduction to Weather Analysis
METEO 466	Planetary Atmospheres

Select a total of 12 credits of the following: 12

Select 3-6 credits of the following:

CED 429	Natural Resource Economics
CED 431	
ECON 302	Intermediate Microeconomic Analysis

Select 6-9 credits of the following:

CED 230	Development Issues in the Global Context
CED 410	The Global Seminar
EMSC/STS/ SOC 420	Energy and Modern Society
GEOG 430	Human Use of Environment
GEOG 434	Politics of the Environment
GEOG 438W	Human Dimensions of Global Warming
PLSC/STS 460	Science, Technology, and Public Policy
STS 201	Climate Change, Energy, and Biodiversity

Energy Option (27 credits)

Code	Title	Credits
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Additional Courses

EBF 484	Energy Economics	3
or GEOG 424	Geography of the Global Economy	

Select 3 credits of the following: 3

EARTH 100	Environment Earth
EGEE 101	Energy and the Environment
EGEE 102	Energy Conservation for Environmental Protection

Select 9 credits of the following: 9

EGEE 302	Principles of Energy Engineering
EGEE 401	Energy in a Changing World
EGEE 412	Green Engineering & Environmental Compliance
GEOSC 451	Natural Resources: Origins, Economics and Environmental Impact
GEOSC 454	Geology of Oil and Gas
GEOSC 483	Environmental Geophysics

Select 12 credits of the following: 12

CED 230	Development Issues in the Global Context
CED 410	The Global Seminar

EMSC/STS/ SOC 420	Energy and Modern Society
GEOG 430	Human Use of Environment
GEOG 434	Politics of the Environment
GEOG 439	Property and the Global Environment
GEOG 438W	Human Dimensions of Global Warming
PLSC/STS 460	Science, Technology, and Public Policy
STS 201	Climate Change, Energy, and Biodiversity

General Option (27 credits)

Code	Title	Credits
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Additional Courses

Select 3 credits of the following: 3

EARTH 2	The Earth System and Global Change
EARTH 100	Environment Earth
EARTH 111N	Water: Science and Society
EGEE 101	Energy and the Environment
GEOG 10	Physical Geography: An Introduction
GEOG 30N	Environment and Society in a Changing World
GEOG 160	Mapping Our Changing World
METEO 3	Weather Revealed: Introductory Meteorology
METEO 4	Weather and Risk
SOILS 101	Introductory Soil Science

Select 12 credits of the following: 12

EGEE 302	Principles of Energy Engineering
EGEE 412	Green Engineering & Environmental Compliance
ERM 300	Basic Principles and Calculations in Environmental Analysis
FOR 455	Remote Sensing and Spatial Data Handling
FOR 470	Watershed Management
GEOG 310	Introduction to Global Climatic Systems
GEOG 363	Geographic Information Systems
GEOG 412	
GEOSC 320	Geology of Climate Change
GEOSC 340	Geomorphology
GEOSC 402Y	Natural Disasters
GEOSC 409W	Geomicrobiology
GEOSC 413W	Techniques in Environmental Geochemistry
GEOSC 451	Natural Resources: Origins, Economics and Environmental Impact
GEOSC 452	Hydrogeology
GEOSC 454	Geology of Oil and Gas
GEOSC 483	Environmental Geophysics
METEO 466	Planetary Atmospheres
SOILS 422	Natural Resources Conservation and Community Sustainability
SOILS 450	Environmental Geographic Information Systems

Select a total of 12 credits of the following: 12

Select 3-6 credits of the following:	
CED 429	Natural Resource Economics
CED 431	
EBF 484	Energy Economics
ECON 302	Intermediate Microeconomic Analysis

GEOG 424	Geography of the Global Economy
Select 6-9 credits of the following:	
CED 230	Development Issues in the Global Context
CED 309	Land Economics and Policy
CED 409	Land Use Planning and Procedure
CED 410	The Global Seminar
EMSC/STS/ SOC 420	Energy and Modern Society
ERM 411	Legal Aspects of Resource Management
GEOG 430	Human Use of Environment
GEOG 431	Geography of Water Resources
GEOG 434	Politics of the Environment
GEOG 438W	Human Dimensions of Global Warming
GEOG 439	Property and the Global Environment
PLSC 403	The Legislative Process
PLSC 412	International Political Economy
PLSC 426	Political Parties and Interest Groups
PLSC/STS 460	Science, Technology, and Public Policy
PLSC 471	American Constitutional Law
PLSC 490	Policy Making and Evaluation
STS 201	Climate Change, Energy, and Biodiversity

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the

requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- To produce graduates who can analyze, understand, and utilize data and model results relevant to the Earth and environmental sciences.
- To produce graduates who can make decisions regarding environmental problems based on fundamental knowledge of the mathematics, science, geography, economics, and political science.
- To produce graduates who possess a broad understanding of the impact of Earth system processes and resources on humans and the impact of human activities on Earth systems.
- To produce graduates who can communicate the results of scientific inquiry through writing and speaking to an audience with diverse backgrounds and perspectives.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

General Option: Earth Science and Policy, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
GEOSC 1 or 20	3 MATH 111, 141, or 141G	4
CHEM 110 (GN) [†]	3 Elective (2 cr needed if schedule MATH 111)	0
MATH 83, 110, 140, or 140G (GQ) ^{*‡}	4 CHEM 112	3
CHEM 111 (GN) [†]	1 CHEM 113	1
EMSC 100S (GWS) ^{††1}	3 PLSC 1 (GS) [†]	3
	ENGL 15, 30H, or ESL 15 (GWS) [‡]	3
	14	14

Second Year

Fall	Credits Spring	Credits
PHYS 211 or 250 (GN) [†]	4 STAT 200 (GQ) ^{††}	4

ECON 102 (GS) [†]	3 GEOSC 201, 202, 203, or 204 [*]	4
BIOL 110 (GN) [†]	4 PHIL 118, 133N, or METEO 133N (GH) [†]	3
GEOG 126 or 326 (GS) [†]	3 CED 201 or EBF 200	3
General Education- Health and Wellness (GHW)	1.5 General Education- Health and Wellness (GHW)	1.5
	15.5	15.5

Third Year

Fall	Credits Spring	Credits
GEOSC 201, 202, 203, or 204 [*]	4 EARTH 400	3
GEOG 364	3 Option elective	3
Option elective	3 Option elective	3
CAS 100 or ENGL 202C ^{††}	3 Option elective	3
EARTH 402 [*]	3 General education- Knowledge domain	3
	16	15

Fourth Year

Fall	Credits Spring	Credits
EARTH 495	3 Option elective	3
EBF 472, STAT 401, or GEOSC 210 [*]	3 Option elective	3
GEOSC 450 [*]	3 Option elective	3
Option elective	3 Option elective	3
General education- Knowledge domain	3 General Education- Knowledge domain	3
	15	15

Total Credits 120

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will

replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C.
Each course is 3 credits.

¹ Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100 (GWS), CAS 100A (GWS), CAS 100B (GWS), CAS 100C (GWS) or ENGL 202C (GWS) for EMSC 100S (GWS). EMSC 100S Earth and Mineral Sciences First year Seminar (3) is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.

Advising notes:

General Option electives (27 credits): Must include one writing across the curriculum course

Select 3 credits from: EARTH 2 GN(3), EARTH 100 GN(3), EARTH 111 GN;US(3), EGEE 101 GN(3), GEOG 10 GN (3), GEOG 30N GN/GS(3), GEOG 160 GS(3), METEO 3 GN(3), METEO 4 GN(3), SOILS 101 GN(3)

Select 12 credits from: ERM 300(3), EGEE 302(3), EGEE 412(3), FOR 455(3), FOR 470(3), GEOG 310(3), GEOG 363(3), GEOG 412(3), GEOSC 320(3), GEOSC 340(3), GEOSC 402Y IL(3), GEOSC 409W(3), GEOSC 413W(3), GEOSC 451(3), GEOSC 452(3), GEOSC 454(3), GEOSC 483(3), METEO 466(3), SOILS 415(3), SOILS 422(3), SOILS 450(3)

Select a total of 12 credits from the following:

3 to 6 credits from: CED 429(3), CED 431(3), EBF 484(3), ECON 302 GS(3), GEOG 424 US;IL(3)

6 to 9 credits from: CED 230(3), CED 309(3), CED 409(3), CED 410(3), ERM 411(3), GEOG 430(3), GEOG 431(3), GEOG 434(3), GEOG 438W(3), GEOG 439(3), EMSC/STS/SOC 420(3), PLSC 403(3), PLSC 412(3), PLSC 426(3), PLSC/STS 460(3), PLSC 471(3), PLSC 490(3), STS 201(3).

Water and Land Use Option: Earth Science and Policy, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
GEOSC 1 or 20	3 MATH 111, 141, or 141G	4
CHEM 110 (GN) [†]	3 Elective (2 cr needed if schedule MATH 111)	0
MATH 83, 110, 140, or 140G (GQ) ^{*†}	4 CHEM 112	3
CHEM 111 (GN) [†]	1 CHEM 113	1
EMSC 100S (GWS) ^{††1}	3 PLSC 1 (GS) [†]	3
	ENGL 15, 30H, or ESL 15 (GWS) [†]	3
	14	14

Second Year

Fall	Credits Spring	Credits
PHYS 211 or 250 (GN) [†]	4 STAT 200 (GQ) ^{††}	4
ECON 102 (GS) [†]	3 GEOSC 201, 202, 203, or 204 [*]	4
BIOL 110 (GN) [†]	4 PHIL 118, 133N, or METEO 133N (GH) [†]	3
GEOG 126 or 326 (GS) [†]	3 CED 201 or EBF 200	3
General Education- Health and Wellness (GHW)	1.5 General Education- Health and Wellness (GHW)	1.5
	15.5	15.5

Third Year

Fall	Credits Spring	Credits
GEOSC 201, 202, 203, or 204 [*]	4 EARTH 400	3
GEOG 364	3 Option elective	3
Option elective	3 Option elective	3
CAS 100 or ENGL 202C ^{††}	3 Option elective	3
EARTH 402 [*]	3 General education- Knowledge domain	3
	16	15

Fourth Year

Fall	Credits Spring	Credits
EARTH 495	3 Option elective	3
EBF 472, STAT 401, or GEOSC 210 [*]	3 Option elective	3
GEOSC 450 [*]	3 Option elective	3
Option elective	3 Option elective	3
General education- Knowledge domain	3 General Education- Knowledge domain	3
	15	15

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

¹ Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100 (GWS), CAS 100A (GWS), CAS 100B (GWS), CAS 100C (GWS) or ENGL 202C (GWS) for EMSC 100S (GWS). EMSC 100S Earth and Mineral Sciences First year Seminar (3) is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.

Advising notes:

Water and Land Use Option electives (27 credits): Must include one writing across the curriculum course

Select 3 credits from: EARTH 111 GN;US(3), GEOG 160 GS(3), SOILS 101 GN(3)

Select 12 credits from: ERM 300(3), FOR 455(3), FOR 470(3), GEOG 363(3), GEOSC 340(3), GEOSC 402Y IL(3), GEOSC 409W(3), GEOSC 413W(3), GEOSC 452(3), GEOSC 483(3), SOILS 415(3), SOILS 422(3), SOILS 450(3)

Select a total of 12 credits from the following:

3 to 6 credits from: CED 429(3), CED 431(3), ECON 302 GS(3)

6 to 9 credits from: CED 309(3), CED 409(3), CED 410(3), GEOG 430(3), GEOG 431(3), GEOG 434(3), GEOG 439(3), PLSC/STS 460(3), PUBPL 481(3)

Climate Change Option: Earth Science and Policy, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
GEOSC 1 or 20	3	MATH 111, 141, or 141G	4
CHEM 110 (GN) [†]	3	Elective (2 cr needed if schedule MATH 111)	0
MATH 83, 110, 140, or 140G (GQ) ^{*†}	4	CHEM 112	3
CHEM 111 (GN) [†]	1	CHEM 113	1
EMSC 100S (GWS) ^{††1}	3	PLSC 1 (GS) [†]	3
		ENGL 15, 30H, or ESL 15 (GWS) [†]	3
	14		14

Second Year

Fall	Credits	Spring	Credits
PHYS 211 or 250 (GN) [†]	4	STAT 200 (GQ) ^{††}	4
ECON 102 (GS) [†]	3	GEOSC 201, 202, 203, or 204 [*]	4
BIOL 110 (GN) [†]	4	PHIL 118, 133N, or METEO 133N (GH) [†]	3
GEOG 126 or 326 (GS) [†]	3	CED 201 or EBF 200	3
General Education- Health and Wellness (GHW)	1.5	General Education- Health and Wellness (GHW)	1.5
	15.5		15.5

Third Year

Fall	Credits	Spring	Credits
GEOSC 201, 202, 203, or 204 [*]	4	EARTH 400	3
GEOG 364	3	Option elective	3
Option elective	3	Option elective	3
CAS 100 or ENGL 202C ^{††}	3	Option elective	3
EARTH 402 [*]	3	General education- Knowledge domain	3
	16		15

Fourth Year

Fall	Credits	Spring	Credits
EARTH 495	3	Option elective	3
EBF 472, STAT 401, or GEOSC 210 [*]	3	Option elective	3
GEOSC 450 [*]	3	Option elective	3
Option elective	3	Option elective	3
General education- Knowledge domain	3	General Education- Knowledge domain	3
	15		15

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

¹ Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100 (GWS), CAS 100A (GWS), CAS 100B (GWS), CAS 100C (GWS) or ENGL 202C (GWS) for EMSC 100S (GWS). EMSC 100S Earth and Mineral Sciences First year Seminar (3) is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.

Advising notes:

Climate Change Option electives (27 credits): Must include one writing across the curriculum course

Select 3 credits from: EARTH 2 GN(3), GEOG 110 GN(3), METEO 3 GN(3), METEO 4 GN(3)

Select 12 credits from: GEOG 310(3), GEOG 412(3), GEOSC 320(3), GEOSC/METEO 475(3), METEO 201(3), METEO 466(3)

Select a total of 12 credits from the following:

3 to 6 credits from: CED 429(3), CED 431(3), ECON 302(3)

6 to 9 credits from: CED 230(3), CED 410(3), EMSC/STS/SOC 420(3), GEOG 430(3), GEOG 434(3), GEOG 438W(3), PLSC/STS 460(3), STS 201(3)

Energy Option: Earth Science and Policy, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
GEOSC 1 or 20	3	MATH 111, 141, or 141G	4
CHEM 110 (GN) [†]	3	Elective (2 cr needed if schedule MATH 111)	0
MATH 83, 110, 140, or 140G (GQ) ^{*†}	4	CHEM 112	3
CHEM 111 (GN) [†]	1	CHEM 113	1
EMSC 100S (GWS) ^{††1}	3	PLSC 1 (GS) [†]	3
		ENGL 15, 30H, or ESL 15 (GWS) [†]	3
	14		14

Second Year

Fall	Credits	Spring	Credits
PHYS 211 or 250 (GN) [†]	4	STAT 200 (GQ) ^{††}	4
ECON 102 (GS) [†]	3	GEOSC 201, 202, 203, or 204 [*]	4
BIOL 110 (GN) [†]	4	PHIL 118, 133N, or METEO 133N (GH) [†]	3
GEOG 126 or 326 (GS) [†]	3	CED 201 or EBF 200	3
General Education- Health and Wellness (GHW)	1.5	General Education- Health and Wellness (GHW)	1.5
	15.5		15.5

Third Year

Fall	Credits	Spring	Credits
GEOSC 201, 202, 203, or 204 [*]	4	EARTH 400	3
GEOG 364	3	Option elective	3
Option elective	3	Option elective	3
CAS 100 or ENGL 202C ^{††}	3	Option elective	3
EARTH 402 [*]	3	General education- Knowledge domain	3
	16		15

Fourth Year

Fall	Credits	Spring	Credits
EARTH 495	3	Option elective	3
EBF 472, STAT 401, or GEOSC 210 [*]	3	Option elective	3
GEOSC 450 [*]	3	Option elective	3
Option elective	3	Option elective	3
General education- Knowledge domain	3	General Education- Knowledge domain	3
	15		15

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

¹ Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100 (GWS), CAS 100A (GWS), CAS 100B (GWS), CAS 100C (GWS) or ENGL 202C (GWS) for EMSC 100S (GWS). EMSC 100S Earth and Mineral Sciences First year Seminar (3) is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.

Advising notes:

Energy Option electives (27 credits): Must include one writing across the curriculum course

Select 3 credits from: EARTH 100 GN(3), EGEE 101 GN(3), EGEE 102 GN(3)

Select 9 credits from: EGEE 302(3), EGEE 401(3), EGEE 412(3), GEOSC 451(3), GEOSC 454(3), GEOSC 483(3)

Select 3 credits from: EBF 484(3), GEOG 424 US;IL(3)

Select 12 credits from: CED 230(3), CED 410(3), EMSC/STS/SOC 420(3), GEOG 430(3), GEOG 434(3), GEOG 438W(3), GEOG 439(3), PLSC/ STS 460(3), STS 201 GN(3)

General Option: Earth Science and Policy, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or ESL 15 (GWS) [‡]	3 MATH 111 or 141	4
ECON 102 [†]	3 Elective (2 cr needed if schedule MATH 111)	0
MATH 110, 83, or 140 (GQ) ^{*††}	4 CHEM 112	3
CHEM 110 (GN) [†]	3 CHEM 113	1
CHEM 111 [†]	1 PLSC 1 (GS) [†]	3
	General Education- Knowledge Domain	3
	14	14

Second Year

Fall	Credits Spring	Credits
PHYS 211 or 250 (GN) [†]	4 GEOSC 1 or 20	3
BIOL 110 (GN) [†]	4 STAT 200 (GQ) ^{††}	4
GEOG 126 (GS) [†]	3 PHIL 118, 133N, or METEO 133N (GH) [†]	3
CAS 100, CAS 100A, CAS 100B, or CAS 100C ^{†1}	3 ENGL 202C ^{†1}	3
General Education- Health and Wellness (GHW)	1.5 General Education- Health and Wellness (GHW)	1.5
	15.5	14.5

Third Year

Fall	Credits Spring	Credits
EARTH 402 [*]	3 EARTH 400	3
GEOSC 201, 202, 203, or 204 [*]	4 GEOSC 201, 202, 203, or 204 [*]	4
GEOG 364	3 Option elective	3
Option elective	3 Option elective	3
CED 201 or EBF 200	3 Option elective	3
	16	16

Fourth Year

Fall	Credits Spring	Credits
EARTH 495	3 Option elective	3
EBF 472, STAT 401, or GEOSC 210 [*]	3 Option elective	3
GEOSC 450 [*]	3 Option elective	3
Option elective	3 Option elective	3
General education- Knowledge domain	3 General Education- Knowledge domain	3
	15	15

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100 (GWS), CAS 100A (GWS), CAS 100B (GWS), or CAS 100C (GWS) or ENGL 202C (GWS) for EMSC 100S (GWS). EMSC 100S Earth and Mineral Sciences First year Seminar (3) is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.

Advising notes:

General Option electives (27 credits): Must include one writing across the curriculum course

Select 3 credits from: EARTH 2 GN(3), EARTH 100 GN(3), EARTH 111 GN;US(3), EGEE 101 GN(3), GEOG 10 GN (3), GEOG 30N GN/GS(3), GEOG 160 GS(3), METEO 3 GN(3), METEO 4 GN(3), SOILS 101 GN(3)

Select 12 credits from: ERM 300(3), EGEE 302(3), EGEE 412(3), FOR 455(3), FOR 470(3), GEOG 310(3), GEOG 363(3), GEOG 412(3), GEOSC 320(3), GEOSC 340(3), GEOSC 402Y IL(3), GEOSC 409W(3), GEOSC 413W(3), GEOSC 451(3), GEOSC 452(3), GEOSC 454(3), GEOSC 483(3), METEO 466(3), SOILS 415(3), SOILS 422(3), SOILS 450(3)

Select a total of 12 credits from the following:

3 to 6 credits from: CED 429(3), CED 431(3), EBF 484(3), ECON 302 GS(3), GEOG 424 US;IL(3)

6 to 9 credits from: CED 230(3), CED 309(3), CED 409(3), CED 410(3), ERM 411(3), GEOG 430(3), GEOG 431(3), GEOG 434(3), GEOG 438(3), GEOG 439(3), EMSC/STS/SOC 420(3), PLSC 403(3), PLSC 412(3), PLSC 426(3), PLSC/STS 460(3), PLSC 471(3), PLSC 490(3), STS 201(3)

Water and Land Use Option: Earth Science and Policy, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or ESL 15 (GWS) [‡]	3 MATH 111 or 141	4
ECON 102 [†]	3 Elective (2 cr needed if schedule MATH 111)	0
MATH 110, 83, or 140 (GQ) ^{*††}	4 CHEM 112	3
CHEM 110 (GN) [†]	3 CHEM 113	1
CHEM 111 [†]	1 PLSC 1 (GS) [†]	3
	General Education- Knowledge Domain	3
	14	14

Second Year

Fall	Credits Spring	Credits
PHYS 211 or 250 (GN) [†]	4 GEOSC 1 or 20	3
BIOL 110 (GN) [†]	4 STAT 200 (GQ) ^{††}	4
GEOG 126 (GS) [†]	3 PHIL 118, 133N, or METEO 133N (GH) [†]	3
CAS 100, CAS 100A, CAS 100B, or CAS 100C ^{†1}	3 ENGL 202C ^{††1}	3
General Education- Health and Wellness (GHW)	1.5 General Education- Health and Wellness (GHW)	1.5
	15.5	14.5

Third Year

Fall	Credits Spring	Credits
EARTH 402 [*]	3 EARTH 400	3
GEOSC 201, 202, 203, or 204 [*]	4 GEOSC 201, 202, 203, or 204 [*]	4
GEOG 364	3 Option elective	3
Option elective	3 Option elective	3
CED 201 or EBF 200	3 Option elective	3
	16	16

Fourth Year

Fall	Credits Spring	Credits
EARTH 495	3 Option elective	3
EBF 472, STAT 401, or GEOSC 210 [*]	3 Option elective	3
GEOSC 450 [*]	3 Option elective	3
Option elective	3 Option elective	3
General education- Knowledge domain	3 General Education- Knowledge domain	3
	15	15

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100 (GWS), CAS 100A (GWS), CAS 100B (GWS), or CAS 100C (GWS) or ENGL 202C (GWS) for EMSC 100S (GWS). EMSC 100S Earth and Mineral Sciences First year Seminar (3) is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.

Advising notes:

Water and Land Use Option electives (27 credits): Must include one writing across the curriculum course

Select 3 credits from: EARTH 111 GN;US(3), GEOG 160 GS(3), SOILS 101 GN(3)

Select 12 credits from: ERM 300(3), FOR 455(3), FOR 470(3), GEOG 363(3), GEOSC 340(3), GEOSC 402Y IL(3), GEOSC 409W(3), GEOSC 413W(3), GEOSC 452(3), GEOSC 483(3), SOILS 415(3), SOILS 422(3), SOILS 450(3)

Select a total of 12 credits from the following:

3 to 6 credits from: CED 429(3), CED 431(3), ECON 302 GS(3)

6 to 9 credits from: CED 309(3), CED 409(3), CED 410(3), GEOG 430(3), GEOG 431(3), GEOG 434(3), GEOG 439(3), PLSC/STS 460(3), PUBPL 481(3)

Climate Change Option: Earth Science and Policy, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or ESL 15 (GWS) [‡]	3 MATH 111 or 141	4
ECON 102 [†]	3 Elective (2 cr needed if schedule MATH 111)	0
MATH 110, 83, or 140 (GQ) ^{*††}	4 CHEM 112	3
CHEM 110 (GN) [†]	3 CHEM 113	1
CHEM 111 [†]	1 PLSC 1 (GS) [†]	3
	General Education- Knowledge Domain	3
	14	14

Second Year

Fall	Credits Spring	Credits
PHYS 211 or 250 (GN) [†]	4 GEOSC 1 or 20	3
BIOL 110 (GN) [†]	4 STAT 200 (GQ) ^{††}	4
GEOG 126 (GS) [†]	3 PHIL 118, 133N, or METEO 133N (GH) [†]	3
CAS 100, CAS 100A, CAS 100B, or CAS 100C ^{†1}	3 ENGL 202C ^{††1}	3
General Education- Health and Wellness (GHW)	1.5 General Education- Health and Wellness (GHW)	1.5
	15.5	14.5

Third Year

Fall	Credits Spring	Credits
EARTH 402 [*]	3 EARTH 400	3
GEOSC 201, 202, 203, or 204 [*]	4 GEOSC 201, 202, 203, or 204 [*]	4
GEOG 364	3 Option elective [*]	3
Option elective	3 Option elective	3
CED 201 or EBF 200	3 Option elective	3
	16	16

Fourth Year

Fall	Credits Spring	Credits
EARTH 495	3 Option elective	3
EBF 472, STAT 401, or GEOSC 210 [*]	3 Option elective	3
GEOSC 450 [*]	3 Option elective	3
Option elective	3 Option elective	3
General education- Knowledge domain	3 General Education- Knowledge domain	3
	15	15

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100 (GWS), CAS 100A (GWS), CAS 100B (GWS), CAS 100C (GWS) or ENGL 202C (GWS) for EMSC 100S (GWS). EMSC 100S Earth and Mineral Sciences First year Seminar (3) is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.

Advising notes:

Climate Change Option electives (27 credits): Must include one writing across the curriculum course

Select 3 credits from: EARTH 2 GN(3), GEOG 110 GN(3), METEO 3 GN(3), METEO 4 GN(3)

Select 12 credits from: GEOG 310(3), GEOG 412(3), GEOSC 320(3), GEOSC/METEO 475(3), METEO 201(3), METEO 466(3)

Select a total of 12 credits from the following:

3 to 6 credits from: CED 429(3), CED 431(3), ECON 302(3)

6 to 9 credits from: CED 230(3), CED 410(3), EMSC/STS/SOC 420(3), GEOG 430(3), GEOG 434(3), GEOG 438W(3), PLSC/STS 460(3), STS 201(3)

Energy Option: Earth Science and Policy, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or ESL 15 (GWS) [‡]	3 MATH 111 or 141	4
ECON 102 [†]	3 Elective (2 cr needed if schedule MATH 111)	0
MATH 110, 83, or 140 (GQ) ^{*††}	4 CHEM 112	3
CHEM 110 (GN) [†]	3 CHEM 113	1
CHEM 111 [†]	1 PLSC 1 (GS) [†]	3
	General Education- Knowledge Domain	3
	14	14

Second Year

Fall	Credits Spring	Credits
PHYS 211 or 250 (GN) [†]	4 GEOSC 1 or 20	3
BIOL 110 (GN) [†]	4 STAT 200 (GQ) ^{††}	4
GEOG 126 (GS) [†]	3 PHIL 118, 133N, or METEO 133N (GH) [†]	3
CAS 100, CAS 100A, CAS 100B, or CAS 100C ^{†1}	3 ENGL 202C ^{†1}	3
General Education- Health and Wellness (GHW)	1.5 General Education- Health and Wellness (GHW)	1.5
	15.5	14.5

Third Year

Fall	Credits Spring	Credits
EARTH 402 [*]	3 EARTH 400	3
GEOSC 201, 202, 203, or 204 [*]	4 GEOSC 201, 202, 203, or 204 [*]	4
GEOG 364	3 Option elective	3
Option elective	3 Option elective	3
CED 201 or EBF 200	3 Option elective	3
	16	16

Fourth Year

Fall	Credits Spring	Credits
EARTH 495	3 Option elective	3
EBF 472, STAT 401, or GEOSC 210 [*]	3 Option elective	3
GEOSC 450 [*]	3 Option elective	3
Option elective	3 Option elective	3
Option elective	3 General Education- Knowledge domain	3

General education- Knowledge domain	3	
	18	15

Total Credits 123

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100 (GWS), CAS 100A (GWS), CAS 100B (GWS), CAS 100C (GWS) or ENGL 202C (GWS) for EMSC 100S (GWS). EMSC 100S Earth and Mineral Sciences First year Seminar (3) is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.

Advising notes:

Energy Option electives (27 credits): Must include one writing across the curriculum course

Select 3 credits from: EARTH 100 GN(3), EGEE 101 GN(3), EGEE 102 GN(3)

Select 9 credits from: EGEE 302(3), EGEE 401(3), EGEE 412(3), GEOSC 451(3), GEOSC 454(3), GEOSC 483(3)

Select 3 credits from: EBF 484(3), GEOG 424 US;IL(3)

Select 12 credits from: CED 230(3), CED 410(3), EMSC/STS/SOC 420(3), GEOG 430(3), GEOG 434(3), GEOG 438W(3), GEOG 439(3), PLSC/ STS 460(3), STS 201 GN(3)

Career Paths

An Earth Science and Policy degree can prepare you to work within a diverse set of industries or for further graduate study in many Earth science or policy-related fields.

Careers

Earth Science and Policy graduates may find careers in local, state, or federal government; investigating the impact of new scientific findings on industry practices; conducting science advocacy for a variety of institutions; consulting on land and water use policies; investigating the application of environmental law; or educating the public on the science behind issues involving the Earth, the environment, and sustainability.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE EARTH SCIENCE AND POLICY PROGRAM (<https://www.geosc.psu.edu/undergraduate/why-geosciences/career-outlook/>)

Opportunities for Graduate Studies

The Earth Science and Policy program can prepare graduates for many fields of graduate school, such as environmental science, the Earth sciences, or policy. Some may be inclined to pursue Master of Business Administration, Master of Education, or Environmental Law degrees.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.geosc.psu.edu/graduate/>)

Professional Resources

- Geosciences Club (<https://www.facebook.com/groups/46384419817/>)
- Association for Women Geoscientists (<https://sites.psu.edu/awgpennstate/>)

Contact

University Park

DEPARTMENT OF GEOSCIENCES

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Earth Sciences, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

This major provides a comprehensive program in environmental sciences based on a strong emphasis in Earth sciences. It is especially directed toward study of the problems that arise from the complex interaction of humanity's technological and social activities with the natural environment. Graduates are in demand for positions in government, industry, and consulting. Professional activities include gathering and evaluating data on environments; management and coordination of specialized programs in environmental control and modification; and industrial and government planning. Suitable choices of courses may qualify students for graduate work in several fields.

What is Earth Sciences?

Earth sciences is the study of interactions between the lithosphere (solid Earth), hydrosphere (oceans and other bodies of water), atmosphere, and biosphere (humans and other animals). It involves a mixture of geosciences, geography, meteorology, and other natural sciences. Earth scientists seek to use a comprehensive understanding of the Earth and environmental processes to solve big picture problems in the world and answer outstanding questions about the universe. The flexible curriculum includes your choice of an interdisciplinary minor, which might include Climatology; Earth Systems; Earth and Sustainability; Energy Business and Finance; Marine Science; Planetary Science and Astronomy; or Watersheds and Water Resources. If you want to personalize your own curriculum, the Earth Sciences major may be right for you.

You Might Like This Program If...

- You like learning about human interactions with the Earth.
- You enjoy collaborating with people who have different perspectives and backgrounds.
- You have a broad interest in geosciences, meteorology, and/or geography, and would like to explore all of these disciplines and learn where they intersect and overlap.
- You seek to personalize an interdisciplinary curriculum that combines Earth science with other natural sciences such as planetary science or marine science.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Earth Sciences, a minimum of 123 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	99-101

21 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 6 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
CHEM 113	Experimental Chemistry II	1
EMSC 100S	Earth and Mineral Sciences First-Year Seminar ¹	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
PHYS 211	General Physics: Mechanics	4
PHYS 212	General Physics: Electricity and Magnetism	4
Additional Courses		
ENGL 15	Rhetoric and Composition	3
or ENGL 30H	Honors Rhetoric and Composition	

Select 15 credits of introductory earth science of the following:² 15

EARTH 2	The Earth System and Global Change
EARTH 101	Natural Disasters: Hollywood vs. Reality
EARTH 103N	Earth in the Future: Predicting Climate Change and Its Impacts Over the Next Century
EARTH 105N	Environments of Africa: Geology and Climate Change
GEOG 30N	Environment and Society in a Changing World
GEOG 110	Climates of the World
GEOG 111	
GEOG 115	Landforms of the World
GEOG 160	Mapping Our Changing World
GEOSC 1	Physical Geology
GEOSC 21	Earth and Life: Origin and Evolution
METEO 3	Weather Revealed: Introductory Meteorology
SOILS 101	Introductory Soil Science

Select 3 credits of writing-intensive courses from within Earth and Mineral Sciences to include, but not limited to the following: 3

GEOG 310	Introduction to Global Climatic Systems
GEOG 412	
GEOSC 402Y	Natural Disasters
GEOSC 470W	Introduction to Field Geology
METEO 471	

Additional Courses: Require a grade of C or better

Select 15 credits of advanced earth science of the following:² 15

GEOG 412	
GEOG 430	Human Use of Environment
GEOG 438W	Human Dimensions of Global Warming
GEOSC 204	Geobiology
GEOSC 320	Geology of Climate Change
GEOSC 340	Geomorphology
GEOSC 402Y	Natural Disasters
GEOSC 416	Stable and Radioactive Isotopes in Geosciences: Introduction
METEO 300	Fundamentals of Atmospheric Science
METEO 431	Atmospheric Thermodynamics

Supporting Courses and Related Areas

Select 3-4 credits of advanced math, statistics, computer science in consultation with an adviser 3-4

Select 3 credits of field, laboratory experience in consultation with an adviser 3

Select 8-9 credits in other approved courses (students may apply 6 credits of ROTC) 8-9

Supporting Courses and Related Areas: Require a grade of C or better

Select 18 credits, in consultation from an adviser, from one of the following Earth and Mineral Sciences interdisciplinary minors: 18

Climatology
Marine Science
Watersheds & Water Resources
Earth Systems
Global Business Strategies for Earth and Environmental Industries

¹ The following substitutions are allowed for students attending campuses where the indicated course is not offered: CAS 100 or ENGL 202C can be substituted for EMSC 100S.

² Courses may not double count with minor requirements.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- To produce graduates who can collect, analyze, understand, and use data and model results relevant to the Earth and environmental sciences.
- To produce graduates who possess an interdisciplinary understanding of Earth processes and resources through application of principles of meteorology, geography, and geosciences.
- To produce graduates who can communicate the results of scientific inquiry through writing and speaking to an audience with diverse backgrounds and perspectives.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Earth Sciences, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 or 140G ^{††}	4 MATH 141 or 141G ^{††}	4
CHEM 110 (GN) [†]	3 CHEM 112	3
CHEM 111 (GN) [†]	1 CHEM 113	1
EMSC 100S (GWS) ^{††1}	3 ENGL 15, 30H, or ESL 15 (GWS) ^{††}	3
Intro GEOSC/EARTH elective ²	3 Intro GEOSC/EARTH elective ²	3
	14	14

Second Year

Fall	Credits Spring	Credits
PHYS 211 (GN) [†]	4 PHYS 212	4
BIOL 110 (GN) [†]	4 Intro GEOSC/EARTH elective ²	3
General Education knowledge domain	3 General Education knowledge domain	3
General Education knowledge domain	3 Minor course ^{*5}	3
Supporting Course ³	3 Advanced EARTH elective ^{*4}	3
	17	16

Third Year

Fall	Credits Spring	Credits
Advanced EARTH elective ^{*4}	3 Advanced GEOSC/EARTH elective ^{*4}	3
Intro GEOSC/EARTH elective ²	3 Intro GEOSC/EARTH elective ²	3
Supporting Course ³	2 Minor Course ^{*5}	3
Minor course ^{*5}	3 General Education knowledge domain	3
General Education knowledge domain	3 Supporting Course ³	3
	General Education Health and Wellness (GHW)	1.5
	14	16.5

Fourth Year

Fall	Credits Spring	Credits
Advanced EARTH elective ^{*4}	3 Advanced EARTH elective ^{*4}	3
General Education	3 EARTH Field/lab experience	3
Foundation selection (GWS) [‡]		
Minor Course ^{*5}	3 Writing across the curriculum course in EMS	3
General Education knowledge domain	3 Minor Course ^{*5}	3
General Education Health and Wellness (GHW)	1.5 Minor Course ^{*5}	3
Advanced Math/Stat/ CMPSC/GEOSC 210	3-4	
	16.5-17.5	15

Total Credits 123-124

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

¹ Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100 (GWS), CAS 100A, CAS 100B, or CAS 100C; or ENGL 202C (GWS) for EM SC 100S (GWS). EM SC 100S Earth and Mineral Sciences First year Seminar (3) is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.

² Select 15 credits of introductory earth science from the following list (courses may not double count with minor requirements): EARTH 2 GN(3), EARTH 101 GN(3), EARTH 103N GN(3), EARTH 105 GN(3), METEO 3 GN(3), GEOG 30N GN/GS/US/IL(3), GEOG 110 GN(3), GEOG 115 GN(3), GEOG 160 GS(3), GEOSC 1(3), GEOSC 21 GN(3), SOILS 101 GN(3).

³ Supporting Course: Select 8-9 credits in other approved courses (Students may apply 6 credits of ROTC).

⁴ Advanced EARTH elective: Select 15 credits of advanced earth science from the following list (courses may not double count with minor requirements): GEOG 430(3), GEOG 438W(3), GEOG 412(3), GEOSC 204(4), GEOSC 320(3), GEOSC 340(3), GEOSC 402Y(3), GEOSC 416(3), METEO 300(4), METEO 431(3), METEO 475(3).

⁵ Complete one of the following interdisciplinary minors, in consultation from an adviser:

CLIMATOLOGY
MARINE SCIENCE
WATERSHEDS & WATER RESOURCES
EARTH SYSTEMS
ENERGY BUSINESS & FINANCE

Earth Sciences, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
MATH 140 ^{††}	4	MATH 141 ^{††}	4
CHEM 110 (GN) [†]	3	CHEM 112	3
CHEM 111 (GN) [†]	1	CHEM 113	1
Intro GEOSC/EARTH elective ²	3	Intro GEOSC/EARTH elective ²	3
ENGL 15, 30H, or ESL 15 (GWS) ^{††}	3	General Education Foundation selection (GWS) ^{††}	3
	14		14

Second Year

Fall	Credits	Spring	Credits
PHYS 211 (GN) [†]	4	PHYS 212	4
BIOL 110 (GN) [†]	4	Intro GEOSC/EARTH elective ²	3
General Education knowledge domain	3	General Education knowledge domain	3
General Education knowledge domain	3	Advanced Math/Stat/CMPSC/GEOSC 210	3-4
Supporting Course ³	3	General Education knowledge domain	3
	17		16-17

Third Year

Fall	Credits	Spring	Credits
Advanced EARTH elective ^{*4}	3	Advanced GEOSC/EARTH elective ^{*4}	3
Intro GEOSC/EARTH elective ²	3	Intro GEOSC/EARTH elective ²	3
Supporting Course ³	2	Minor Course ^{*5}	3
Minor course ^{*5}	3	Supporting Course ³	3
General Education knowledge domain	3	Minor Course ^{*5}	3
		General Education Health and Wellness (GHW)	1.5
	14		16.5

Fourth Year

Fall	Credits	Spring	Credits
Advanced EARTH elective ^{*4}	3	Advanced EARTH elective ^{*4}	3
General Education Foundation selection (GWS) [†]	3	EARTH Field/lab experience	3
Minor Course ^{*5}	3	Writing across the curriculum course in EMS	3
General Education knowledge domain	3	Minor Course ^{*5}	3

General Education Health and Wellness (GHW)	1.5	Minor Course ^{*5}	3
Advanced EARTH elective ^{*4}	3		
	16.5		15

Total Credits 123-124

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100 (GWS), CAS 100A, CAS 100B, or CAS 100C; or ENGL 202C (GWS) for EM SC 100S (GWS). EM SC 100S Earth and Mineral Sciences First year Seminar (3) is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.

² Select 15 credits of introductory earth science from the following list (courses may not double count with minor requirements): EARTH 2 GN(3), EARTH 101 GN(3), EARTH 103N GN(3), EARTH 105 GN(3), METEO 3 GN(3), GEOG 30N GN/GS/US/IL(3), GEOG 110 GN(3), GEOG 115 GN(3), GEOG 160 GS(3), GEOSC 1(3), GEOSC 21 GN(3), SOILS 101 GN(3).

³ Supporting Course: Select 8-9 credits in other approved courses (Students may apply 6 credits of ROTC).

⁴ Advanced EARTH elective: Select 15 credits of advanced earth science from the following list (courses may not double count with minor requirements): GEOG 430(3), GEOG 438W(3), GEOG 412(3), GEOSC 204(4), GEOSC 320(3), GEOSC 340(3), GEOSC 402Y(3), GEOSC 416(3), METEO 300(4), METEO 431(3), METEO 475(3).

⁵ Complete one of the following interdisciplinary minors, in consultation from an adviser:

CLIMATOLOGY
MARINE SCIENCE
WATERSHEDS & WATER RESOURCES
EARTH SYSTEMS
ENERGY BUSINESS & FINANCE

Career Paths

The interdisciplinary nature of Earth sciences makes it a suitable degree for a variety of Earth- and environment-related industries, as well as for postgraduate studies in a variety of environmental sciences fields. It is also excellent preparation for a career in science education.

Careers

Graduates are in demand for positions dealing with environmental science, teaching, or environmental law or policy within government, industry, and consulting. These roles focus on gathering and evaluating data on environments, managing and coordinating specialized programs in environmental control and modification, and industrial and government planning.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE EARTH SCIENCES PROGRAM (<https://www.geosc.psu.edu/undergraduate/why-geosciences/career-outlook/>)

Opportunities for Graduate Studies

Graduates of the program may continue on to graduate-level studies in the geosciences, environmental science, meteorology, oceanography, planetary science, or other Earth sciences, as well as environmental law and related programs.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.geosc.psu.edu/graduate/>)

Professional Resources

- Geosciences Club (<https://www.facebook.com/groups/46384419817/>)
- Association for Women Geoscientists (<https://sites.psu.edu/awgpennstate/>)
- American Water Resources Association Penn State Student Chapter (<https://agsci.psu.edu/students/clubs/list/other/>)

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Earth Sustainability, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

By the time current undergraduates send their children to college, Earth's population will have increased to more than eight billion people. Our climate will be warmer and characterized by more frequent extreme weather events including droughts. One or more major metropolitan areas in our increasingly crowded world will have experienced a devastating hurricane or typhoon, sea level rise will be inundating low-lying coastal cities along with whole island nations, energy resources will be less available and more expensive, clean drinking water will be more scarce, and it will be increasingly difficult to feed the global population. How we choose to plan for and attempt to mitigate these "grand challenges" will have consequences for individuals, nations, and our global socioeconomic and political systems.

The goal of the 12-credit Certificate Program in Earth Sustainability is to dramatically increase geoscience literacy of all undergraduate students, including the large majority that do not major on the geosciences, future

K-12 teachers, and also those who are historically underrepresented in the geosciences, such that they are better positioned to make sustainable decisions in their lives and as part of the broader society.

What is Earth Sustainability?

The Earth Sustainability certificate program is designed to provide students with the knowledge needed to make well-informed, environmentally sustainable decisions. It increases geoscience literacy and addresses key sustainability issues, such as the impact of climate change on Earth and its inhabitants, access to clean drinking water, sustainable energy, and the hazards posed by our overpopulated coastal regions.

You Might Like This Program If...

- You are passionate about sustainability and the environment.
- You want a better understanding of the science behind and potential effects of climate change.
- You want to know more about the complexities, challenges, and opportunities involved in planning for the Earth's future.
- You would like to explore both the scientific and the social aspects of big problems like population growth, resource management, and climate change.

Program Requirements

To earn an undergraduate certificate in Earth Sustainability, a minimum of 12 credits is required.

Code	Title	Credits
Required Courses		
EARTH 103		3
Select 9 credits from the following:		
EARTH 104N	Climate, Energy and Our Future	
EARTH 107N	Coastal Processes, Hazards and Society	
EARTH 109	The Fundamentals of Shale Energy Development	
EARTH 111		
GEOG 3N	Food and the Future Environment	

Certificate Learning Objectives

- **Communicate with policy makers and fellow citizens:** Communicate the major sustainability issues facing the Earth and their solutions to stakeholders including policy makers and fellow citizens
- **Connection with human activities:** Assess the connection between human activities and changing climate and environment
- **Elements of sustainability and their relationships:** Interpret the relationships between the key elements of sustainability including energy, water and food supply
- **Manipulate and interpret data:** Manipulate and interpret data related to the Earth's climate and resources and their future
- **Project impact of climate change:** Project using a variety of tools how the climate, energy use, water, coastal hazards and food supply will change in the future

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of

both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-earth-sustainability-undergraduate-certificate> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-earth-sustainability-undergraduate-certificate/>)

Earth Systems, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The recognition that environmental problems are global in extent, and impact many different components of the Earth system simultaneously,

requires that we adopt a large-scale and interdisciplinary approach to questions of global change and the interactions of the physical and human environments. The Earth Systems minor follows such an approach and offers undergraduates the opportunity to study the Earth as an integrated system. The Earth Systems minor is a science minor offered through the College of Earth and Mineral Sciences. It provides a wider interdisciplinary perspective for majors in the traditional Earth science disciplines (geography, geoscience, and meteorology), and provides an introduction to Earth sciences and a broad exposure to Earth systems/environmental studies for other science and engineering majors. Students may apply up to 6 credits from courses in the major department to satisfy the minor requirements.

What is Earth Systems?

Pursuing a minor in Earth Systems can help you build a better understanding of the complexly interwoven relationships within natural systems. Through this interdisciplinary minor, you will develop a comprehensive view of how Earth's systems—the processes driving atmospheric, oceanic, and land changes—interact with one another and how humans both affect and are affected by those processes. This minor would provide a useful complement to any student interested in environmental sciences, policy, or engineering.

You Might Like This Program If...

- You want to understand the big picture of how change happens to the Earth.
- You are interested in the environment.
- You like to contemplate the complexity of natural systems.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
EARTH 2	The Earth System and Global Change	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 6 credits of the following:		6
EARTH 103N	Earth in the Future: Predicting Climate Change and Its Impacts Over the Next Century	
EMSC 470W	Undergraduate Collaborative Research in Earth and Materials Sciences	
GEOG 430	Human Use of Environment	
GEOSC 310	Earth History	
METEO 300	Fundamentals of Atmospheric Science	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 9 credits from the Earth Systems Committee's approved list of courses

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

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Electrochemical Engineering, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Electrochemical Engineering minor is designed to equip students with the knowledge necessary to achieve the following educational objectives: become valuable contributors in addressing society's clean energy needs and demands especially in the electrochemical power generation sector; and become educators, practicing engineers, and national leaders in electrochemical energy conversion and storage. The minor integrates skill sets in fundamentals of electrochemistry (e.g., chemistry, physics, mathematics, thermodynamics, and chemical kinetics) and electrochemical engineering applications (batteries, solar, flow and fuel cells, electrochemical synthesis, and corrosion) to ensure successful career opportunities and growth within electrochemical power generation industries, government agencies, and academia. The curriculum should allow students in energy related programs such as chemical, civil, electrical, environmental, mechanical, and materials

science and engineering to readily take advantage of the minor and be better prepared for careers in clean power generation and future green technologies.

What is Electrochemical Engineering?

Electrochemistry is the science that focuses on the process of transforming chemical energy into electrical energy. Electrochemical engineers investigate electrochemical energy conversion and storage to create sustainable and alternative energy. They research electrochemistry for applications such as energy storage, power generation, and green energy. Electrochemical engineers seek to improve energy technology within industries, government agencies, and academia.

You Might Like This Program If...

- You are interested in energy-related programs such as chemical, civil, electrical, environmental, mechanical, and materials science and engineering.
- You are interested in pursuing a career in clean power generation and future green technologies.

Program Requirements

Requirement	Credits
Requirements for the Minor	35

Requirements for the Minor

For the minor in Electrochemical Engineering, a minimum of 35 credits is required.

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CHEM 112	Chemical Principles II	3
EGEE 441	Electrochemical Engineering Fundamentals	3
ESC 455	Electrochemical Methods Engineering and Corrosion Science	3
MATH 251	Ordinary and Partial Differential Equations	4
MATSE 421	Corrosion Engineering	3
PHYS 212	General Physics: Electricity and Magnetism	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 6 credits of the following:		6
CHE 330 or ME 300	Process Fluid Mechanics Engineering Thermodynamics I	
EME 301	Thermodynamics in Energy and Mineral Engineering	
EME 303 or CHE 220	Fluid Mechanics in Energy and Mineral Engineering Introduction to Chemical Engineering Thermodynamics	
MATSE 402	Materials Process Kinetics	
ME 320	Fluid Flow	

or MATSE 4C Thermodynamics of Materials

Select 9 credits of the following:

9

EGEE 420	Hydrogen and Fuel Cells
EGEE 436	Modern Thermodynamics for Energy Systems
EGEE 437	Design of Solar Energy Conversion Systems
EME 407	Electrochemical Energy Storage
ME 403	Polymer Electrolyte Fuel Cell Engines

Student Outcomes

The integration of knowledge and skills acquired through the inquiry-based teaching methods should enable students of the program to achieve the following student educational outcomes:

- solve problems relating to the production, storage, distribution and utilization of electrochemical energy and the associated environmental issues
- design and conduct experiments, acquire data, define, analyze, and interpret data, and solve practical, complex problems on a variety of electrochemical technologies such as batteries, solar cells, flow and fuel cells, electrolyzers, and supercapacitors
- integrate professional, ethical, social and environmental factors in electrochemical engineering design and problem solving and understand the impact of these factors on global energy issues
- develop the ability to communicate effectively in writing and orally and build teamwork
- acquire the desire for lifelong learning to maintain technical competence and keep abreast of new developments in the field.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

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Energy and Sustainability Policy, B.A.

Begin Campus: World Campus

End Campus: World Campus

Program Description

The Bachelor of Arts degree in Energy and Sustainability Policy (ESP) is an interdisciplinary program, preparing students for careers in the evolving policy sector of the energy and sustainability fields. ESP will help students achieve five broad educational objectives:

1. energy industry knowledge
2. a sustainability ethic
3. analytical skills
4. communication skills
5. global perspective

Graduates will be prepared to act as agents for stakeholders, facilitating communication, design, and planning between the executive wing and operations wing of organizations, including commercial firms, NGOs, and governmental bodies. The online program serves a national market of adult learners who need to participate part-time and at a distance.

What is Energy and Sustainability Policy?

Modern society is faced with the challenge—and opportunity—of balancing global energy demand with availability. Accomplishing that goal while staying within the planet's ecological boundaries is a critical task. In the global shift toward renewable energies, Energy and Sustainability Policy experts are leading that charge. Graduates work in all areas of the energy sector, including government, NGOs, and private firms. Our global economy relies heavily on an abundant and consistent supply of energy and these experts will see that transition through, relying on their ability to research, analyze, and communicate diverse information about emerging global trends in energy policy, technologies, and economics.

You Might Like This Program If...

- You are interested in the energy industry, sustainability, and public policy, with a global perspective.
- You are looking for an online program to advance an existing career or begin a new one.
- You are passionate about energy and the environment and want to be a part of the path toward a sustainable future.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Energy and Sustainability Policy, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	8
Bachelor of Arts Requirements	24
Requirements for the Major	68

25 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GN courses, 9 credits of GWS courses, 4 credits of GQ courses, and 6 credits of GS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
CAS 100	Effective Speech	3
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
EGEE 120	Oil: International Evolution	3
EGEE 401	Energy in a Changing World	3
EMSC 240N	Energy and Sustainability in Contemporary Culture	3
ENGL 15	Rhetoric and Composition	3
ENGL 202D	Effective Writing: Business Writing	3
PLSC 1	American Politics: Principles, Processes and Powers	3

Prescribed Courses: Require a grade of C or better

EBF 200	Introduction to Energy and Earth Sciences Economics	3
EGEE 102	Energy Conservation for Environmental Protection	3
EME/GEOG 432	Energy Policy	3
EME 444	Global Energy Enterprise	3
EME 466	Energy and Sustainability in Society	3
EMSC 302	Orientation to Energy and Sustainability Policy	1
GEOG 30N	Environment and Society in a Changing World	3
GEOG 438W	Human Dimensions of Global Warming	3
GEOG 469	Energy Industry Applications of GIS	3
METEO 469	From Meteorology to Mitigation: Understanding Global Warming	3
PLSC 490	Policy Making and Evaluation	3
STAT 200	Elementary Statistics	4

Additional Courses

EGEE 299	Foreign Studies	3
or EGEE 495	Internship	

METEO 3	Weather Revealed: Introductory Meteorology	3
or METEO 101	Understanding Weather Forecasting	

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- **Business and Technical Knowledge:** Graduates will have broad and accurate business and technical knowledge of all major sectors of the energy industry, including conventional, alternative/renewable, and emerging technologies.
- **Communicating Science and Policy:** Graduates will be able to effectively explain to diverse audiences—orally, in writing, and through maps and other information graphics—the intended and unintended consequences of energy policy and regulation.
- **Global Systems - Energy, Society, and Environment:** Graduates will be able to describe how global systems of energy production, distribution and consumption are linked with social and environmental systems.
- **Legislative Processes and Actors:** Graduates will understand the legislative processes within state, federal and international governments, including the roles of regulators, non-governmental organizations and other advocacy groups.

- **Policy and Regulations:** Graduates will be able to find, read, understand, interpret and synthesize evolving energy policy and regulations.
- **Translating Theory into Practice:** Graduates will be able to bridge the gap between theory and practice, by applying the knowledge acquired through formal learning to real-world settings.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

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READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park and World Campus

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Energy and Sustainability Policy, B.A. at World Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year	Credits
EMSC 302 (orientation experience course)*	1
ENGL 15 (GWS) ^{††}	3
CAS 100 (GWS) ^{††}	3
World Language level 1	4
Natural Sciences (GN) - elective	3
Arts (GA) -- recommended LARCH 65 (GA, US/IL)	3
Arts (GA) or Humanities (GH) -- recommended PHIL 103 (GH)	3
Humanities (GH) -- recommended RLST 1	3
General Education Health and Wellness (GHW) -- elective	3

Quantification (GQ) -- elective [†]	2
BA Fields course ¹	3
BA Fields course ¹	3
	34
Second Year	Credits
Electives	5
STAT 200 (GQ) ^{*††}	4
World Language level 2	4
World Language level 3	4
ENGL 202D (GWS) ^{††}	3
ECON 102 (GS) [†]	3
ECON 104 (GS) [†]	3
World Cultures course	3
BA Fields course ¹	3
Electives	5
	37
Third Year	Credits
EBF 200 (GS) ^{*†}	3
EGEE 102 (GN) ^{*†}	3
METEO 3 or 101 (GN) [†]	3
METEO 469 [*]	3
GEOG 30N (GN & GS; IL) ^{*†}	3
EGEE 120 (GS, US/IL) [†]	3
PLSC 1 (GS) [†]	3
Electives	6
	27
Fourth Year	Credits
EME 444 [*]	3
GEOG 469 [*]	3
EGEE 401	3
PLSC 490 [*]	3
EGEE 299 or 495	3
GEOG 438W (Writing across the curriculum) [*]	3
GEOG 432 [*]	3
EMSC 240N (GH & GN) [†]	3
EME 466 (capstone experience course) [*]	3
	27
Total Credits	125

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

¹ BA Fields courses are additional GQ, GN, GA, GH, GS or world language courses beyond the program requirements.

Advising Notes:

Students should work closely with their academic adviser in planning course sequencing in the ESPBA major. While the Bulletin only permits the listing of courses as "years" (ex: first-year, second-year, etc.), ESP prefers to discuss the courses in this way: Orientation Experience (EMSC 302, 1 credit, listed in the First-Year); Stage 1 – Build Foundations (the remaining courses listed in First-Year); Stage 2 – Formulate Understanding (courses listed in Second-Year); Stage 3 – Generate Expertise (courses listed in Third-Year); Stage 4 – Culminate Experience (the courses listed in Fourth-Year); and Capstone Experience (EME 466, 3 credits, the last course listed in Fourth-Year).

Career Paths

Students in the Bachelor of Science in Energy and Sustainability Policy degree program can acquire knowledge of renewable and conventional energy use, and its environmental implications, while gaining valuable analytical and communication skills. Topics include energy supply, demand, and environmental impact; sustainability management; and foreign and domestic energy and sustainability policy. Graduates can be prepared for careers in the rapidly evolving energy and sustainability policy sector, especially where strong science, business, and analytical skills are required.

Careers

As a graduate of the program you may work with a variety of organizations, advocacy groups, commercial firms, or regulatory bodies in a range of staff, management and leaderships positions related to energy project development; energy policy planning, analysis, and implementation; energy efficiency and waste reduction initiatives; environmental assessments; regulatory compliance; stakeholder communications and more.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE ENERGY AND SUSTAINABILITY POLICY PROGRAM (<https://esp.e-education.psu.edu/jobplanning/>)

Opportunities for Graduate Studies

The Bachelor of Science in Energy and Sustainability Policy degree program is an interdisciplinary program designed to examine crucial issues facing our twenty-first century society, including climate change, economic stability and energy resource security. Graduates may pursue advanced degrees leading to careers in education, law, business administration, and many other related areas, including technical fields.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-renewable-energy-and-sustainability-systems-masters-degree/#request-information>)

Contact

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-energy-and-sustainability-policy-bachelor-of-arts-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-energy-and-sustainability-policy-bachelor-of-arts-degree/>)

Energy and Sustainability Policy, B.S.

Begin Campus: World Campus

End Campus: World Campus

Program Description

The Bachelor of Science degree in Energy and Sustainability Policy (ESP) is an interdisciplinary program, preparing students for careers in the evolving policy sector of the energy and sustainability fields, especially where strong science, business, and analytical skills are required. The B.S. program prescribes coursework in areas including energy sources, uses, and technologies; sustainability principles and practices; climate change; and, policy development and analysis. Students select additional courses in energy and science; analysis and technology; business and management; and, ethics, leadership and communications. ESP B.S. educational objectives emphasize five areas of student competency:

1. energy industry knowledge
2. a sustainability ethic
3. analytical skills
4. communication skills
5. global perspective

The ESP B.S. program prepares students with knowledge and skills valued by many types of organizations, including commercial firms, government agencies, public utilities, regulatory bodies, nonprofit and advocacy groups, and energy and trade organizations.

What is Energy and Sustainability Policy?

Modern society is faced with the challenge—and opportunity—of balancing global energy demand with availability. Accomplishing that goal while staying within the planet's ecological boundaries is a critical task. In the global shift toward renewable energies, Energy and Sustainability Policy experts are leading that charge. Graduates work in all areas of the energy sector, including government, NGOs, and private firms. Our global economy relies heavily on an abundant and consistent supply of energy and these experts will see that transition through, relying on their ability to research, analyze, and communicate diverse information about emerging global trends in energy policy, technologies, and economics.

You Might Like This Program If...

- You are interested in the energy industry, sustainability, and public policy, with a global perspective.
- You are looking for an online program to advance an existing career or begin a new one.
- You are passionate about energy and the environment and want to be a part of the path toward a sustainable future.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Energy and Sustainability Policy, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	11
Requirements for the Major	89

25 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GN courses, 9 credits of GWS courses, 4 credits of GQ courses, and 6 credits of GS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
CAS 100	Effective Speech	3
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
EGEE 120	Oil: International Evolution	3
EGEE 401	Energy in a Changing World	3
EMSC 240N	Energy and Sustainability in Contemporary Culture	3
ENGL 15	Rhetoric and Composition	3
ENGL 202D	Effective Writing: Business Writing	3
PLSC 1	American Politics: Principles, Processes and Powers	3
<i>Prescribed Courses: Require a grade of C or better</i>		
EBF 200	Introduction to Energy and Earth Sciences Economics	3
EGEE 102	Energy Conservation for Environmental Protection	3
EME/GEOG 432	Energy Policy	3
EME 444	Global Energy Enterprise	3
EME 466	Energy and Sustainability in Society	3
EMSC 302	Orientation to Energy and Sustainability Policy	1
GEOG 30N	Environment and Society in a Changing World	3
GEOG 438W	Human Dimensions of Global Warming	3
GEOG 469	Energy Industry Applications of GIS	3
METEO 469	From Meteorology to Mitigation: Understanding Global Warming	3
PLSC 490	Policy Making and Evaluation	3
STAT 200	Elementary Statistics	4
Additional Courses		
EGEE 299	Foreign Studies	3
or EGEE 495	Internship	
METEO 3	Weather Revealed: Introductory Meteorology	3
or METEO 101	Understanding Weather Forecasting	
Supporting Courses and Related Areas		
Select 6 credits in ENERGY AND SCIENCE from an approved list or in consultation with adviser		6
Select 6 credits in ANALYSIS AND TECHNOLOGY from an approved list or in consultation with adviser		6
Select 6 credits in BUSINESS AND MANAGEMENT from an approved list or in consultation with adviser		6
Select 3 credits in ETHICS, LEADERSHIP AND COMMUNICATION from an approved list or in consultation with adviser		3

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Business and Technical Knowledge:** Graduates will have broad and accurate business and technical knowledge of all major sectors of the energy industry, including conventional, alternative/renewable, and emerging technologies.
- **Communicating Science and Policy:** Graduates will be able to effectively explain to diverse audiences—orally, in writing, and through maps and other information graphics—the intended and unintended consequences of energy policy and regulation.
- **Global Systems - Energy, Society, and Environment:** Graduates will be able to describe how global systems of energy production, distribution and consumption are linked with social and environmental systems.
- **Legislative Processes and Actors:** Graduates will understand the legislative processes within state, federal and international governments, including the roles of regulators, non-governmental organizations and other advocacy groups.
- **Policy and Regulations:** Graduates will be able to find, read, understand, interpret and synthesize evolving energy policy and regulations.
- **Translating Theory into Practice:** Graduates will be able to bridge the gap between theory and practice, by applying the knowledge acquired through formal learning to real-world settings.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park and World Campus

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Energy and Sustainability Policy, B.S. at World Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year	Credits
Supporting Course - Analysis & Technology	3
EMSC 302*	1
PLSC 1 ⁺¹	3
GEOG 30N ⁺¹	3
General Education Course (GA)	3
EGEE 120 ⁺¹	3
Elective (EARTH 10 recommended)	1
EGEE 102 ^{+†}	3
METEO 3 [†]	3
ENGL 15 ^{+††}	3
General Education Course (GQ)	3
	29
Second Year	Credits
PLSC 490*	3
EBF 200 ^{+†1}	3
GEOG 469*	3
General Education Course (GH)	3
EMSC 240N	3
ECON 102 ⁺¹	3
ENGL 202D ^{+††}	3
GEOG 432*	3
Supporting Course - Energy & Science	3
CAS 100 ^{+††}	3
ECON 104 ⁺¹	3
	33
Third Year	Credits
EME 444*	3
Supporting Course - Business & Management	3
EGEE 401	3
STAT 200 ^{+††}	4
General Education Course (GA or GH)	3
ECON 104	3
General Education Course (GN)	3
EGEE 299 or 495	3
GEOG 438W*	3
Supporting Course - Business & Management	3

Fourth Year	Credits
METEO 469*	3
EME 466*	3
General Education Course (GHW)	3
Supporting Course - Ethics, Leadership, & Communications	3
Supporting Course - Energy & Science	3
Elective	3
Elective	3
Elective	3
Supporting Course - Analysis & Technology	3
	27

Total Credits 120

- * Course requires a grade of C or better for the major
 ‡ Course requires a grade of C or better for General Education
 # Course is an Entrance to Major requirement
 † Course satisfies General Education and degree requirement

¹ Only two courses from this list can satisfy General Education and degree requirements: EBF 200, ECON 102, ECON 104, EGEE 120, GEOG 30N, PLSC 1.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

Students should work closely with their academic adviser in planning course sequencing in the ESPBS major. While the Bulletin only permits the listing of courses as "years" (ex: first-year, second-year, etc.), ESP prefers to discuss the courses in this way: Orientation Experience (EMSC 302, 1 credit, listed in the First-Year); Stage 1 -- Build Foundations (the remaining courses listed in First-Year); Stage 2 -- Formulate Understanding (courses listed in Second-Year); Stage 3 -- Generate Expertise (courses listed in Third-Year); Stage 4 -- Culminate Experience (the courses listed in Fourth-Year); and Capstone Experience (EME 466, 3 credits, the last course listed in Fourth-Year).

Career Paths

Students in the Bachelor of Science in Energy and Sustainability Policy degree program can acquire knowledge of renewable and conventional energy use, and its environmental implications, while gaining valuable analytical and communication skills. Topics include energy supply, demand, and environmental impact; sustainability management; and foreign and domestic energy and sustainability policy. Graduates can

be prepared for careers in the rapidly evolving energy and sustainability policy sector, especially where strong science, business, and analytical skills are required.

Careers

As a graduate of the program you may work with a variety of organizations, advocacy groups, commercial firms, or regulatory bodies in a range of staff, management and leadership positions related to energy project development; energy policy planning, analysis, and implementation; energy efficiency and waste reduction initiatives; environmental assessments; regulatory compliance; stakeholder communications and more.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE ENERGY AND SUSTAINABILITY POLICY PROGRAM (<https://esp.e-education.psu.edu/jobplanning/>)

Opportunities for Graduate Studies

The Bachelor of Science in Energy and Sustainability Policy degree program is an interdisciplinary program designed to examine crucial issues facing our twenty-first century society, including climate change, economic stability and energy resource security. Graduates may pursue advanced degrees leading to careers in education, law, business administration, and many other related areas, including technical fields.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-renewable-energy-and-sustainability-systems-masters-degree/#request-information>)

Contact**University Park**

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-energy-and-sustainability-policy-bachelor-of-science-degree>
 (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-energy-and-sustainability-policy-bachelor-of-science-degree/>)

Energy Business and Finance, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The major in Energy Business and Finance, offered jointly by the College of Earth and Mineral Sciences and the Smeal College of Business, combines training in business, economics, finance, and the physical sciences with a core of courses focusing on energy and related industries. The major helps students prepare for careers in the energy industry, as well as financial institutions, nonprofit groups, and international organizations dealing with energy issues. The curriculum also provides a strong base for further study in business, economics, law, and social sciences.

General Option

The General option of the Energy Business and Finance major is appropriate for students who want a broad understanding of the earth and environmental sciences in preparation for careers in industry, commerce, and government.

Energy Land Management Option

The Energy Land Management Option in the major of Energy Business and Finance focuses on issues in the acquisition of sub-surface exploration rights. Thus, it is designed to prepare students for a career as a land professional in an energy exploration company. The curriculum, designed in consultation with the American Association of Professional Landmen, requires courses in real estate fundamentals, energy law, geographic information sciences, petroleum engineering, and petroleum geology.

What is Energy Business and Finance?

The solutions to society's existing and emerging energy challenges require interdisciplinary approaches integrating economics and business with the technical knowledge of energy systems and implications for our environment. That's where Energy Business and Finance experts come in. Our graduates use their knowledge of energy commodity markets, statistics and risk analysis, and project finance related to energy systems and environmental issues to shape the future of energy production. The major was designed to help students build critical analytical skills in preparation for careers with energy companies, public agencies, and the financial institutions that are investing globally in emerging energy technologies.

You Might Like This Program If...

- You want to work in the energy sector.
- You enjoy analytical thinking and complex problem solving.
- You are passionate about paving the way for a sustainable energy future.

Entrance to Major

To be eligible for entrance into the Energy Business and Finance major, a degree candidate must satisfy requirements for entrance to major. Specific entrance requirements include:

1. The degree candidate must have completed more than 29.1 credits of course work.
2. The degree candidate must have a cumulative grade point average of at least 2.0.
3. Complete the following entrance to major requirements with a grade of C or better: ECON 102, MATH 140.

Degree Requirements

For the Bachelor of Science degree in Energy Business and Finance, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	0-12
Requirements for the Major	90-102

25-27 of the 45 credits of General Education are included in the Requirements for the Major. This includes: 4-6 credits of GN courses, 9 credits of GWS courses, 6 credits of GQ courses, and 6 credits of GS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
EBF 473	Risk Management in Energy Industries	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
IB 303	International Business Operations	3
<i>Prescribed Courses: Require a grade of C or better</i>		
EBF 200	Introduction to Energy and Earth Sciences Economics	3
EBF 301	Global Finance for the Earth, Energy, and Materials Industries	3
EBF 304W	Management for the Energy and Resource Industries	3
EBF 401	Strategic Corporate Finance for the Earth, Energy, and Materials Industries	3
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 302	Intermediate Microeconomic Analysis	3
EME 460	Geo-resource Evaluation and Investment Analysis	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
RM 302	Risk and Insurance	3
Additional Courses		
CAS 100	Effective Speech	3
or EMSC 100S	Earth and Mineral Sciences First-Year Seminar	
ENGL 15	Rhetoric and Composition	3
or ENGL 30H	Honors Rhetoric and Composition	
ENGL 202C	Effective Writing: Technical Writing	3
or ENGL 202D	Effective Writing: Business Writing	
Select 3 credits of the following:		3
CMPSC 101	Introduction to Programming	
CMPSC 200	Programming for Engineers with MATLAB	
CMPSC 201	Programming for Engineers with C++	
CMPSC 202		

Select 3 credits of the following:	3
BA 243 Social, Legal, and Ethical Environment of Business	
BLAW 243 Legal Environment of Business	
ERM 411 Legal Aspects of Resource Management	

Additional Courses: Require a grade of C or better

EBF 483 Introduction to Electricity Markets	3
or EBF 484 Energy Economics	

Select 3 credits of the following:	3
EBF 472 Quantitative Analysis in Earth Sciences	
STAT 301	
STAT 401 Experimental Methods	

Requirements for the Option

Select an option 24-36

Requirements for the Option Energy Land Management Option (25 credits)

Code	Title	Credits
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Prescribed Courses

EBF 402 Energy Law and Contracts	3
GEOG 363 Geographic Information Systems	3

Prescribed Courses: Require a grade of C or better

GEOG 160 Mapping Our Changing World	3
GEOSC 1 Physical Geology	3

Additional Courses

EBF 410 Petroleum and Natural Gas Operations	3
or PNG 405 Rock and Fluid Properties	

EBF 411 Petroleum and Natural Gas Geology for Land Professionals	3
--	---

or GEOSC 454 Geology of Oil and Gas

Additional Courses: Require a grade of C or better

PHYS 211 General Physics: Mechanics	4
or PHYS 250 Introductory Physics I	

Select 3 credits of the following:	3
GEOG 361 Cartography—Maps and Map Construction	
GEOG 362 Remote Sensing and Image Analysis	
GEOG 364 Spatial Analysis	
GEOG 463 Geospatial Information Management	

General Option (24-36 credits)

Code	Title	Credits
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Additional Courses

Select 6-7 credits of the following: 6-7

CHEM 110 Chemical Principles I	
EARTH 100 Environment Earth	
EARTH 101 Natural Disasters: Hollywood vs. Reality	
EARTH 103N Earth in the Future: Predicting Climate Change and Its Impacts Over the Next Century	
EARTH 111N Water: Science and Society	
EARTH 150 Dinosaur Extinctions and Other Controversies	
EGEE 101 Energy and the Environment	
EGEE 102 Energy Conservation for Environmental Protection	
EGEE 120 Oil: International Evolution	
GEOG 110 Climates of the World	
GEOG 115 Landforms of the World	

GEOSC 2 Historical Geology	
GEOSC 10 Geology of the National Parks	
GEOSC 20 Planet Earth	
GEOSC 21 Earth and Life: Origin and Evolution	
GEOSC 40 The Sea Around Us	
MATSE 81 Materials in Today's World	
METEO 3 Weather Revealed: Introductory Meteorology	
METEO 101 Understanding Weather Forecasting	
PHYS 211 General Physics: Mechanics	
or PHYS 250 Introductory Physics I	

Select 3 credits of the following: 3

CED 404 Community, Environment and Development Research Methods	
CED 429 Natural Resource Economics	
CED 431	
EBF 411 Petroleum and Natural Gas Geology for Land Professionals	
EBF 483 Introduction to Electricity Markets (if not selected for requirement for the major)	
ECON 490	
EME 301 Thermodynamics in Energy and Mineral Engineering	
GEOG 424 Geography of the Global Economy	
GEOG 430 Human Use of Environment	
GEOG 431 Geography of Water Resources	
GEOG 444 Resource Governance in Africa	
GEOG 493 Service Learning	
GEOSC 402Y Natural Disasters	
GEOSC 454 Geology of Oil and Gas	
METEO 473 Application of Computers to Meteorology	
PLSC 490 Policy Making and Evaluation	

Supporting Courses and Related Areas

Select one of the following: 15-26

Select from one of the following minors: Arabic, Chinese, Civic and Community Engagement, Earth Systems, Energy Engineering, Entrepreneurship and Innovation, Environmental Resource Management, Environmental Systems Engineering, Geographic Information Science, Geosciences, Mathematics, Meteorology, Mining Engineering, Petroleum and Natural Gas Engineering, Russian, Spanish, Statistics, Watersheds and Water Resources or a relevant minor selected in consultation with an adviser

A concurrent major in any subject

A 15 credit semester-long education abroad program approved by the professor in charge of the EBF major

A minor in Asian Studies together with an approved EBF summer term abroad experience

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education

Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Energy Business and Finance and M.S. in Energy and Mineral Engineering

Requirements for the Integrated B.S. in Energy Business and Finance and M.S. in Energy and Mineral Engineering can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/energy-mineral-engineering/#integratedundergradgradprogramstext>).

Program Learning Objectives

- Demonstrate knowledge of how markets for energy operate.
 - Articulate the factors that drive the supply of energy.
 - Articulate the factors that drive the demand for energy.
 - Explain how markets and government policies may fail.
- Demonstrate knowledge of the process of price formation in markets for energy commodities, specifically:
 - Crude Oil
 - Natural Gas
 - Electric Energy
- Demonstrate knowledge financial skills for the energy industries.
 - Demonstrate a basic understanding of accounting and business law.
 - Calculate the profitability of investment projects.
 - Describe how capital is raised for energy companies.
 - Describe how commodity markets operate, and how they hedge risk.
 - Demonstrate strategies to hedge risk in financial and insurance markets.
- Acquire problem solving ability.
 - Solve numerical problems common in energy commodity trading or analysis.
 - Create investment plans for energy projects.
 - Create strategies for business decisions in the face of market or regulatory uncertainty.
- Acquire the ability to communicate effectively with diverse groups through listening, speaking, and writing.
 - Communicate clearly through problem solving exercises.
 - Present solutions to business problems.
 - Speak with potential employers.
 - Use software programs to make presentations to potential employers.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

General Option With Minor: Energy Business and Finance, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 or 140G (GQ) ^{*†‡†}	4 MATH 141 or 141G (GQ) ^{*†‡†}	4
ECON 102 (GS) ^{*††}	3 ENGL 15, 30H, or ESL 15 (GWS) ^{††}	3
EMSC 100S, CAS 100A, CAS 100B, or CAS 100C (GWS) ^{††}	3 EBF 200 [*]	3
General Education Knowledge Domain	3 Introductory Level Elective ²	3-4

Introductory Level Elective ²	3 Minor/Concurrent Major Course ³	3
16		16-17

Second Year

Fall	Credits Spring	Credits
ECON 104 (GS) [†]	3 ACCTG 211	4
ECON 302 [*]	3 EME 210 or STAT 401 [*]	3
EBF 301 [*]	3 General Education Knowledge Domain	3
CMPSC 101, 200, or 201	3 General Education Knowledge Domain	3
Minor/Concurrent Major Course ³	3 Minor/Concurrent Major Course ³	3
15		16

Third Year

Fall	Credits Spring	Credits
RM 302 [*]	3 EME 460 [*]	3
IB 303 (IL)	3 Minor/Concurrent Major Course ³	3
BLAW 243, ERM 411, or BA 243	3-4 Minor/Concurrent Major Course ³	3
General Education Health and Wellness (GHW)	1.5 Advanced Level Elective ⁴	3
General Education Knowledge Domain	3 General Education Knowledge Domain	3
13.5-14.5		15

Fourth Year

Fall	Credits Spring	Credits
EBF 473	3 EBF 304W (Writing Across the Curriculum) [*]	3
EBF 484 or 483 [*]	3 EBF 401 [*]	3
ENGL 202C or 202D (GWS) ^{††}	3 Elective/Minor/Concurrent Major Course ³	3
Minor/Concurrent Major Course ³	3 Elective/Minor/Concurrent Major Course ³	3
Elective/Minor/Concurrent Major Course ³	3 General Education Health and Wellness (GHW)	1.5
15		13.5

Total Credits 120-122

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain)

requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

¹ Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100, CAS 100A, CAS 100B, or CAS 100C (GWS) for EMSC 100S (GWS). EMSC 100S Earth and Mineral Sciences First year Seminar (3) is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.

² Select 6-7 credits from: CHEM 110 GN(3), EARTH 100 GN(3), EARTH 101 GN;US(3), EARTH 103N GN(3), EARTH 111 GN;US(3), EARTH 150 GN(3), EGEE 101 GN(3), EGEE 102 GN(3), EGEE 120 GS;US;IL(3), GEOG 110 GN(3), GEOG 115 GN(3), GEOSC 2 GN(3), GEOSC 10 GN(3), GEOSC 20 GN(3), GEOSC 21 GN(3), GEOSC 40 GN(3), MATSE 81 GN;IL(3), METEO 3 GN(3), METEO 101 GN(3), PHYS 211 GN(4) or PHYS 250 GN(4). Most courses can also count toward the General Education Knowledge Domain Natural Science (GN) requirement. If a GN course is not selected for this requirement, students will need to add a GN to their plan. Some selections may have additional prerequisites.

³ Some minors require beginning coursework in a student's first year; other minors require coursework to begin later. Please check prerequisites for minor courses. Please work closely with your adviser to select and plan for a minor, see list of approved minors in the advising notes section.

⁴ Select 3 credits from: CED 404(3), CED 429(3), CED 431(3), EBF 411(3), EBF 483(3)[if not selected for requirement above], ECON 490(3), EME 301(3), GEOG 424 US;IL(3), GEOG 430(3), GEOG 431(3), GEOG 444(3), GEOG 493(3), GEOSC 402Y IL(3), GEOSC 454(3), METEO 473(3), PL SC 490(3)

Advising Notes:

Entrance to Major requirements: To enter EBF, students must have a cumulative GPA of 2.8 or higher, complete the entrance to major courses (MATH 140, MATH 141, ECON 102) with a C or better, and apply to the major within 40-70 cumulative credits. Only students who are enrolled in EMSC or DUS are eligible to apply to EBF.

Students must complete an approved minor, a concurrent major in any subject, a 15-credit semester-long education abroad program approved by the professor in charge of EBF, or a minor in Asian Studies with an approved summer education abroad experience. Approved minors include Arabic, Chinese, Civic and Community Engagement, Earth Systems, Energy Engineering, Entrepreneurship and Innovation, Environmental Resource Management, Environmental Systems Engineering, Geographic Information Science, Geosciences, Mathematics, Meteorology, Mining Engineering, Petroleum and Natural Gas Engineering, Russian, Spanish, Statistics, Watersheds and Water Resources, or a relevant minor selected in consultation with the professor in charge of EBF.

Courses required for the major may be offered fall semester only, spring semester only, or both fall and spring semesters. Consult with your

adviser and department to discuss your academic progress and course sequencing.

General Option with Semester Study Abroad: Energy Business and Finance, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
MATH 140 or 140G (GQ) ^{*†#†}	4	MATH 141 or 141G (GQ) ^{*†#†}	4
ECON 102 (GS) ^{*#†}	3	ENGL 15, 30H, or ESL 15 (GWS) ^{††}	3
EMSC 100S, CAS 100A, CAS 100B, or CAS 100C (GWS) ^{††1}	3	EBF 200 [*]	3
General Education Knowledge Domain	3	Introductory Level Elective ²	3-4
Introductory Level Elective ²	3	General Education Knowledge Domain	3
	16		16-17

Second Year

Fall	Credits	Spring	Credits
ECON 104 (GS) [†]	3	ACCTG 211	4
ECON 302 [*]	3	EME 210 or STAT 401 [*]	3
EBF 301 [*]	3	General Education Knowledge Domain	3
CMPSC 101, 200, 201, or 202	3	Elective	3
General Education Knowledge Domain	3	Elective	3
	15		16

Third Year

Fall	Credits	Spring	Credits
RM 302 [*]	3	Approved Study Abroad Program ⁴	15
IB 303 (IL)	3		
EME 460 [*]	3		
BLAW 243, ERM 411, or BA 243	3-4		
ENGL 202C or 202D (GWS) ^{††}	3		
	15-16		15

Fourth Year

Fall	Credits	Spring	Credits
EBF 473	3	EBF 304W (Writing Across the Curriculum) [*]	3
EBF 483 or 484 [*]	3	EBF 401 [*]	3
Elective	3	Advanced Level Elective ³	3
Elective	3	General Education Knowledge Domain	3
General Education Health and Wellness (GHW)	1.5	General Education Health and Wellness (GHW)	1.5
	13.5		13.5

Total Credits 120-122

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

¹ Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100, CAS 100A, CAS 100B, or CAS 100C (GWS) for EMSC 100S (GWS). EMSC 100S Earth and Mineral Sciences First year Seminar (3) is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.

² Select 6-7 credits from: CHEM 110 GN(3), EARTH 100 GN(3), EARTH 101 GN;US(3), EARTH 103N GN(3), EARTH 111 GN;US(3), EARTH 150 GN(3), EGEE 101 GN(3), EGEE 102 GN(3), EGEE 120 GS;US;IL(3), GEOG 110 GN(3), GEOG 115 GN(3), GEOSC 2 GN(3), GEOSC 10 GN(3), GEOSC 20 GN(3), GEOSC 21 GN(3), GEOSC 40 GN(3), MATSE 81 GN;IL(3), METEO 3 GN(3), METEO 101 GN(3), PHYS 211 GN(4) or PHYS 250 GN(4). Most courses can also count toward the General Education Knowledge Domain Natural Science (GN) requirement. If a GN course is not selected for this requirement, students will need to add a GN to their plan. Some selections may have additional prerequisites.

³ Select 3 credits from: CED 404(3), CED 429(3), CED 431(3), EBF 411(3), EBF 483(3)[if not selected for requirement above], ECON 490(3), EME 301(3), GEOG 424 US;IL(3), GEOG 430(3), GEOG 431(3), GEOG 444(3), GEOG 493(3), GEOSC 402Y IL(3), GEOSC 454(3), METEO 473(3), PL SC 490(3)

⁴ Students can study abroad in any semester. For a study abroad to be approved for EBF, students need to follow the course plan in the EBF Study Abroad Guide (<https://www.eme.psu.edu/undergraduate/academics/undergraduate-programs/energy-business-and-finance/>) and get pre-approval for their study abroad course selections from the EBF program chair.

Advising Notes:

Entrance to Major requirements: To enter EBF, students must have a cumulative GPA of 2.8 or higher, complete the entrance to major courses

(MATH 140, MATH 141, ECON 102) with a C or better, and apply to the major within 40-70 cumulative credits. Only students who are enrolled in EMSC or DUS are eligible to apply to EBF.

Students must complete an approved minor, a concurrent major in any subject, a 15-credit semester-long education abroad program approved by the professor in charge of EBF, or a minor in Asian Studies with an approved summer education abroad experience.

Courses required for the major may be offered fall semester only, spring semester only, or both fall and spring semesters. Consult with your adviser and department to discuss your academic progress and course sequencing.

General Option with Minor: Energy Business and Finance, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 (GQ) ^{*†##}	4 MATH 141 (GQ) ^{*†##}	4
ECON 102 (GS) ^{*##†}	3 CAS 100A, 100B, or 100C (GWS) ^{††1}	3
ENGL 15, 30H, or ESL 15 (GWS) ^{††}	3 Introductory Level Elective ²	3-4
General Education Knowledge Domain	3 Minor/Concurrent Major Course ³	3
Introductory Level Elective ²	3 Elective/Minor/Concurrent Major Course ³	3
	16	16-17

Second Year

Fall	Credits Spring	Credits
ECON 104 (GS) [†]	3 ACCTG 211	4
ECON 302 [*]	3 ENGL 202C or 202D (GWS) ^{††}	3
CMPSC 101, 200, or 201	3 BLAW 243, ERM 411, or BA 243	3-4
Minor/Concurrent Major Course ³	3 General Education Knowledge Domain	3
General Education Knowledge Domain	3 Minor/Concurrent Major Course ³	3
	15	16-17

Third Year

Fall	Credits Spring	Credits
EBF 200 [*]	3 Minor/Concurrent Major Course ³	3
EBF 301 [*]	3 Minor/Concurrent Major Course ³	3
RM 302 [*]	3 Advanced Level Elective ⁴	3
EME 210 or STAT 401 [*]	3 General Education Knowledge Domain	3
EME 460 [*]	3 General Education Health and Wellness (GHW)	1.5
	15	13.5

Fourth Year

Fall	Credits Spring	Credits
EBF 473	3 EBF 304W (Writing Across the Curriculum) [*]	3
EBF 484 or 483 [*]	3 EBF 401 [*]	3
IB 303 (IL)	3 Elective/Minor/Concurrent Major Course ³	3
Minor/Concurrent Major Course ³	3 Elective/Minor/Concurrent Major Course ³	3

General Education Knowledge Domain	3 General Education Health and Wellness (GHW)	1.5
	15	13.5

Total Credits 120-122

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100, CAS 100A, CAS 100B, or CAS 100C (GWS) for EMSC 100S (GWS). EMSC 100S Earth and Mineral Sciences First year Seminar (3) is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.

² Select 6-7 credits from: CHEM 110 GN(3), EARTH 100 GN(3), EARTH 101 GN;US(3), EARTH 103N GN(3), EARTH 111 GN;US(3), EARTH 150 GN(3), EGEE 101 GN(3), EGEE 102 GN(3), EGEE 120 GS;US;IL(3), GEOG 110 GN(3), GEOG 115 GN(3), GEOSC 2 GN(3), GEOSC 10 GN(3), GEOSC 20 GN(3), GEOSC 21 GN(3), GEOSC 40 GN(3), MATSE 81 GN;IL(3), METEO 3 GN(3), METEO 101 GN(3), PHYS 211 GN(4) or PHYS 250 GN(4). Most courses can also count toward the General Education Knowledge Domain Natural Science (GN) requirement. If a GN course is not selected for this requirement, students will need to add a GN to their plan. Some selections may have additional prerequisites.

³ Some minors require beginning coursework in a student's first year; other minors require coursework to begin later. Please check prerequisites for minor courses. Please work closely with your adviser to select and plan for a minor, see list of approved minors in the advising notes section.

⁴ Select 3 credits from: CED 404(3), CED 429(3), CED 431(3), EBF 411(3), EBF 483(3)[if not selected for requirement above], ECON 490(3), EME 301(3), GEOG 424 US;IL(3), GEOG 430(3), GEOG 431(3), GEOG 444(3), GEOG 493(3), GEOSC 402Y IL(3), GEOSC 454(3), METEO 473(3), PL SC 490(3)

Advising Notes:

Entrance to Major requirements: To enter EBF, students must have a cumulative GPA of 2.8 or higher, complete the entrance to major courses (MATH 140, MATH 141, ECON 102) with a C or better, and apply to the major within 40-70 cumulative credits. Only students who are enrolled in EMSC or DUS are eligible to apply to EBF.

Students must complete an approved minor, a concurrent major in any subject, a 15-credit semester-long education abroad program approved by the professor in charge of EBF, or a minor in Asian Studies with an approved summer education abroad experience. Approved minors include Arabic, Chinese, Civic and Community Engagement, Earth Systems, Energy Engineering, Entrepreneurship and Innovation, Environmental Resource Management, Environmental Systems Engineering, Geographic Information Science, Geosciences, Mathematics, Meteorology, Mining Engineering, Petroleum and Natural Gas Engineering, Russian, Spanish, Statistics, Watersheds and Water Resources, or a relevant minor selected in consultation with the professor in charge of EBF.

Courses required for the major may be offered fall semester only, spring semester only, or both fall and spring semesters. Consult with your adviser and department to discuss your academic progress and course sequencing.

General Option with Semester Study Abroad: Energy Business and Finance, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 (GQ) ^{*†#†}	4 MATH 141 (GQ) ^{*†#†}	4
ECON 102 (GS) ^{*#†}	3 CAS 100A, 100B, or 100C (GWS) ^{††1}	3
ENGL 15, 30H, or ESL 15 (GWS) ^{††}	3 Introductory Level Elective ²	3-4
General Education Knowledge Domain	3 General Education Knowledge Domain	3
Introductory Level Elective ²	3 General Education Knowledge Domain	3
16		16-17

Second Year

Fall	Credits Spring	Credits
ECON 104 (GS) [†]	3 ACCTG 211	4
ECON 302 [*]	3 ENGL 202C or 202D (GWS) ^{††}	3
CMPSC 101, 200, or 201	3 BLAW 243, ERM 411, or BA 243	3-4
General Education Knowledge Domain	3 Elective	3
Elective	3 Elective	3
15		16-17

Third Year

Fall	Credits Spring	Credits
EBF 200 [*]	3 Approved Study Abroad ⁴	15
EBF 301 [*]	3	
RM 302 [*]	3	
EME 210 or STAT 401 [*]	3	
EME 460 [*]	3	
15		15

Fourth Year

Fall	Credits Spring	Credits
EBF 473	3 EBF 304W (Writing Across the Curriculum) [*]	3
EBF 483 or 484 [*]	3 EBF 401 [*]	3
IB 303 (IL)	3 Advanced Level Elective ³	3
General Education Health and Wellness (GHW)	1.5 Elective	3
General Education Knowledge Domain	3 General Education Health and Wellness (GHW)	1.5
13.5		13.5

Total Credits 120-122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100, CAS 100A, CAS 100B, or CAS 100C (GWS) for EMSC 100S (GWS). EMSC 100S Earth and Mineral Sciences First year Seminar (3) is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.

² Select 6-7 credits from: CHEM 110 GN(3), EARTH 100 GN(3), EARTH 101 GN;US(3), EARTH 103N GN(3), EARTH 111 GN;US(3), EARTH 150 GN(3), EGEE 101 GN(3), EGEE 102 GN(3), EGEE 120 GS;US;IL(3), GEOG 110 GN(3), GEOG 115 GN(3), GEOSC 2 GN(3), GEOSC 10 GN(3), GEOSC 20 GN(3), GEOSC 021 GN(3), GEOSC 40 GN(3), MATSE 81 GN;IL(3), METEO 03 GN(3), METEO 101 GN(3), PHYS 211 GN(4) or PHYS 250 GN(4). Most courses can also count toward the General Education Knowledge Domain Natural Science (GN) requirement. If a GN course is not selected for this requirement, students will need to add a GN to their plan. Some selections may have additional prerequisites.

³ Select 3 credits from: CED 404(3), CED 429(3), CED 431(3), EBF 411(3), EBF 483(3)[if not selected for requirement above], ECON 490(3), EME 301(3), GEOG 424 US;IL(3), GEOG 430(3), GEOG 431(3), GEOG 444(3), GEOG 493(3), GEOSC 402Y IL(3), GEOSC 454(3), METEO 473(3), PL SC 490(3)

⁴ Students can study abroad in any semester. For a study abroad to be approved for EBF, students need to follow the course plan in the EBF Study Abroad Guide (<https://bulletins.psu.edu/undergraduate/colleges/earth-mineral-sciences/energy-business-finance-bs/>) and get pre-approval for their study abroad course selections from the EBF program chair.

Advising Notes:

Entrance to Major requirements: To enter EBF, students must have a cumulative GPA of 2.8 or higher, complete the entrance to major courses (MATH 140, MATH 141, ECON 102) with a C or better, and apply to the major within 40-70 cumulative credits. Only students who are enrolled in EMSC or DUS are eligible to apply to EBF.

Students must complete an approved minor, a concurrent major in any subject, a 15-credit semester-long education abroad program approved by the professor in charge of EBF, or a minor in Asian Studies with an approved summer education abroad experience. Approved minors include Arabic, Chinese, Civic and Community Engagement, Earth Systems, Energy Engineering, Entrepreneurship and Innovation, Environmental

Resource Management, Environmental Systems Engineering, Geographic Information Science, Geosciences, Mathematics, Meteorology, Mining Engineering, Petroleum and Natural Gas Engineering, Russian, Spanish, Statistics, Watersheds and Water Resources, or a relevant minor selected in consultation with the professor in charge of EBF.

Courses required for the major may be offered fall semester only, spring semester only, or both fall and spring semesters. Consult with your adviser and department to discuss your academic progress and course sequencing.

Career Paths

Energy Business and Finance provides equally good preparation for a career or for further graduate study. EBF graduates pursue a wide variety of career options, most of which are in the energy or environmental sector. Many also pursue graduate study, especially when the EBF major is paired with a quantitative minor or concurrent major at Penn State.

Careers

There are hundreds of EBF alumni now working for oil and gas firms; electric utilities or power generation companies; consulting firms, banks, and insurance companies; or in the public and nonprofit sector. Common career roles for Energy Business and Finance majors include analyst positions, commodities trading and marketing, energy delivery scheduling, and project finance analysts. Energy Business and Finance students are also competitive for rotational programs with major energy firms.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE ENERGY BUSINESS AND FINANCE PROGRAM (<https://www.eme.psu.edu/undergraduate/academics/undergraduate-programs/energy-business-and-finance/career-options-ebf/>)

Opportunities for Graduate Studies

Graduates from the Energy Business and Finance program are well positioned for professional graduate study in economics, business, finance, and law. Students with strong research interests should consider the M.S. or Ph.D. programs in Energy and Mineral Engineering or Energy, Environmental and Food Economics.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.eme.psu.edu/graduate/>)

Professional Resources

- Society for Energy Business and Finance (<https://www.eme.psu.edu/undergraduate/undergraduate-resources/student-organizations/>)
- Penn State Energy Marketing Association (<https://orgcentral.psu.edu/organization/energy-marketing-association/>)
- Positive Energy (<https://sites.psu.edu/spepennstate/positive-energy/>)

Contact

University Park

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<https://www.eme.psu.edu>

Energy Business and Finance, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The minor in Energy, Business and Finance is an offering of the College of Earth and Mineral Sciences. The minor introduces students to financial, investment, and management concepts applied to private sector organizations whose operation emphasizes the Earth and its environment, the energy and mineral industries, or the development of new and enhanced materials. The minor focuses on the leadership and information strategies characteristic of enterprises that are succeeding in a rapidly integrating global economy.

The minor provides science and engineering students an introduction to basic entrepreneurial and business concepts to help prepare them for success in a changing professional environment. It also provides other Penn State students an opportunity to focus on business strategies in the Earth resources, environmental, and materials industries. A minimum of 27 credits is required for the minor. A student enrolled in this minor must receive a grade C or better in all courses in the minor. Advising is available through the EMS Student Center (14 Deike Building) or the professor in charge.

What is Energy Business and Finance?

The solutions to society's existing and emerging energy challenges require interdisciplinary approaches integrating economics and business with the technical knowledge of energy systems and implications for our environment. That's where energy business and finance experts come in. The minor in Energy Business and Finance provides an introduction to the major energy commodity markets, basic energy sciences and the tools for analyzing business decisions that companies in the energy sector make. It is designed to complement technical training for students interested in working in energy-related fields or for students who just want to learn more about global energy markets.

You Might Like This Program If...

- You want to work in the energy sector.
- You enjoy analytical thinking and complex problem solving.
- You are majoring in a STEM field with an eye on the energy sector, and want to broaden your education to include the study of economics, business and energy markets.

Program Requirements

Requirement	Credits
Requirements for the Minor	27-29

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
EBF 200	Introduction to Energy and Earth Sciences Economics	3
EBF 301	Global Finance for the Earth, Energy, and Materials Industries	3
ECON 102	Introductory Microeconomic Analysis and Policy	3
EME 460	Geo-resource Evaluation and Investment Analysis	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3-4 credits from:		3-4
MATH 22	College Algebra With Analytic Geometry and Applications II	
MATH 110	Techniques of Calculus I	
MATH 140	Calculus With Analytic Geometry I	
Select 3-4 credits from:		3-4
EBF 472	Quantitative Analysis in Earth Sciences	
STAT 200	Elementary Statistics	
STAT 401	Experimental Methods	
Select 3 credits of the following:		3
EGEE 101	Energy and the Environment	
EGEE 102	Energy Conservation for Environmental Protection	
EGEE 120	Oil: International Evolution	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 6 credits from the approved list of EMS courses. Approved courses are:		6
EBF 401	Strategic Corporate Finance for the Earth, Energy, and Materials Industries	
EBF 402	Energy Law and Contracts	
EBF 473	Risk Management in Energy Industries	
EBF 483	Introduction to Electricity Markets	
EBF 484	Energy Economics	
EGEE 401	Energy in a Changing World	
EME 444	Global Energy Enterprise	
GEOG 424	Geography of the Global Economy	
GEOG 430	Human Use of Environment	
GEOG 431	Geography of Water Resources	
GEOG 432	Energy Policy	
GEOG 444	Resource Governance in Africa	
GEOG 469	Energy Industry Applications of GIS	
GEOSC 402Y	Natural Disasters	
GEOSC 454	Geology of Oil and Gas	
METEO 473	Application of Computers to Meteorology	

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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World Campus

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-energy-business-and-finance-minor> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-energy-business-and-finance-minor/>)

Energy Engineering, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The undergraduate program in energy engineering is designed to reflect the growing impact and demand for energy in society and to equip students with the knowledge necessary to achieve the following career and professional goals: become valuable contributors in addressing society's energy needs and demands; successful leaders in advancing the technology and management of energy; innovators and entrepreneurs in the energy sector; and educators, practicing engineers, and national leaders on energy and associated environmental, health and safety, and policy and economics issues. The program integrates skill sets in the physical sciences (chemistry, engineering, mathematics, and physics) and social sciences (economics, policy, and management) to ensure successful career opportunities and growth within energy-related industries, government agencies, and academia.

The courses are structured to enable students to understand engineering fundamentals and apply the knowledge to solve problems in the production, processing, storage, distribution, and utilization of energy using multiple techniques as synthesis, analysis, design and case studies. Inquiry-based teaching methods and lab experiences are emphasized. The faculty research and scholarly activities are integrated into the curriculum. The program is designed to train students to be lifelong learners, problem solvers, and energy industry leaders. The educational opportunities are sufficiently flexible, broad, and diverse to enable students to tailor their educational experience to particular interests, background, and expected role in society. Flexibility in the curriculum allows other students in energy related programs such as agricultural and biological, chemical, civil, electrical, environmental, mechanical, mining, nuclear, and petroleum engineering, materials science and engineering, industrial health and safety, and energy business and finance to have dual or concurrent degrees, minors, or options (e.g., energy and fuels engineering option in chemical engineering).

What is Energy Engineering?

Energy engineers are equipped with required engineering knowledge and skills needed to solve problems in the production, processing, storage, distribution, and utilization of energy. Energy processes include natural resources, such as the extraction of oil and gas, as well as from renewable or sustainable sources of energy, including biofuels, hydro, wind, and solar power.

You Might Like This Program If...

- You aspire to be a lifelong learner, problem-solver, and leader in the energy industry.
- You excel at math, science, and engineering and seek a broad overview of energy fields.
- You're interested in a well-rounded education on all facets of the energy market, including renewable energy.

Entrance to Major

In addition to the minimum grade point average (GPA) requirements described in the University Policies, the Energy Engineering entrance-to-major requirement must also be completed with a minimum grade of C in: CHEM 110, MATH 140, MATH 141, and PHYS 211.

Degree Requirements

For the Bachelor of Science degree in Energy Engineering, a minimum of 131 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	116

30 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GH courses; 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 9 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
EE 211	Electrical Circuits and Power Distribution	3
MATH 251	Ordinary and Partial Differential Equations	4
PHIL 103	Ethics	3
<i>Prescribed Courses: Require a grade of C or better</i>		
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
EGEE 302	Principles of Energy Engineering	3
EGEE 304	Heat and Mass Transfer	3
EGEE 411W	Energy Science and Engineering Lab	3
EGEE 430	Introduction to Combustion	3
EGEE 437	Design of Solar Energy Conversion Systems	3
EGEE 441	Electrochemical Engineering Fundamentals	3
EGEE 451	Energy Conversion Processes	3
EGEE 464W	Energy Design Project	3
EME 301	Thermodynamics in Energy and Mineral Engineering	3
EME 303	Fluid Mechanics in Energy and Mineral Engineering	3
EMSC 100S	Earth and Mineral Sciences First-Year Seminar ¹	3
ENGL 202C	Effective Writing: Technical Writing	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
MATH 231	Calculus of Several Variables	2
PHYS 211	General Physics: Mechanics	4
PHYS 212	General Physics: Electricity and Magnetism	4
Additional Courses		
CHEM 202	Fundamentals of Organic Chemistry I	3
or CHEM 210	Organic Chemistry I	
EME 460	Geo-resource Evaluation and Investment Analysis	3
or IE 302	Engineering Economy	
Select 3 credits from the following:		3

EBF 200	Introduction to Energy and Earth Sciences Economics	
ECON 14	Principles of Economics	
ECON 102	Introductory Microeconomic Analysis and Policy	
<i>Additional Courses: Require a grade of C or better</i>		
CMPSC 200	Programming for Engineers with MATLAB	3
or CMPSC 201	Programming for Engineers with C++	
Select 3 credits from the following:		3
ENGL 15	Rhetoric and Composition	
ENGL 30H	Honors Rhetoric and Composition	
ESL 15	ESL Composition for American Academic Communication II	
ENGL 137H	Rhetoric and Civic Life I	

Supporting Courses and Related Areas

Select 3 credits of Material Science electives from an approved list in consultation with an adviser.	3
Select 6 credits of professional courses from an approved list in consultation with an adviser. Other substitutions outside the approved list must be approved by petition.	6
Select 9 credits of technical electives from a broad list of energy related courses across colleges at Penn State. A list of suggested courses from energy-related departments at Penn State is provided. (Students may apply 6 credits of ROTC to some of the elective choices.)	9
Select 6 credits of Energy Systems electives from an approved list in consultation with an adviser.	6
Select 6 credits of Fuel Science electives from an approved list in consultation with an adviser.	6

¹ The following substitutions are allowed for students attending campuses where the indicated course is not offered: CAS 100 can be substituted for EMSC 100S.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits

- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Energy Engineering and M.S. in Energy and Mineral Engineering

Requirements for the Integrated B.S. in Energy Engineering and M.S. in Energy and Mineral Engineering can be found in the Graduate Bulletin

(<https://bulletins.psu.edu/graduate/programs/majors/energy-mineral-engineering/#integratedundergradgradprogramstext>).

Program Educational Objectives

Our graduates will be:

1. Employed in the public or private sectors in the areas of energy science, energy engineering or energy business management, or pursuing an advanced degree.
2. Contributing to development of solutions to society's current energy needs by integrating key science and engineering principles while being adaptable to changing organizational and societal needs;
3. Engaged in individual projects and multidisciplinary teams designing, evaluating, and recommending methods and strategies for the efficient production, processing and utilization of renewable or non-renewable energy and addressing the associated environmental challenges;
4. Effectively communicating with management, coworkers, customers, clients and others in diverse environments;
5. Engaged in lifelong learning process to maintain professional competency through training, participation in professional activities and leadership.

Student Outcomes

Student outcomes describe what students are expected to know and be able to do by the time of graduation. The Energy Engineering program is designed to enable students to:

1. Identify, formulate, and solve complex engineering problems by applying principles of engineering science, and mathematics
2. Apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. Communicate effectively with a range of audiences
4. Recognize ethical and professional responsibilities in engineering situations and make informed judgements, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. Acquire and apply new knowledge as needed, using appropriate learning strategies

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary

academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Energy Engineering, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 or 140G (GQ) ^{*†#†}	4 MATH 141 (GQ) ^{*†#†}	4
CHEM 110 (GN) ^{*#†}	3 ENGL 15, 30H, or ESL 15 (GWS) ^{††}	3
CHEM 111 (GN) ^{*†}	1 CHEM 112 (GN) ^{*†}	3
EMSC 100S (or CAS 100 by substitution) (GWS) ^{††1}	3 PHYS 211 (GN) ^{*#†}	4
ECON 102, EBF 200, or ECON 14 (GS) [†]	3 General Education Knowledge Domain	3
	14	17

Second Year

Fall	Credits Spring	Credits
PHYS 212 (GN) [*]	4 EE 211	3
CHEM 202 or 210	3 MATH 231 [*]	2
MATH 251	4 CMPSC 200 or 201	3
General Education Knowledge Domain	3 General Education Knowledge Domain	3
General Education Knowledge Domain	3 PHIL 103 (GH) [†]	3
	General Education Health and Wellness (GHW)	1.5
	17	15.5

Third Year

Fall	Credits Spring	Credits
EME 301*	3 EGEE 304*	3
EME 303*	3 EGEE 437*	3
EGEE 302*	3 EGEE 430*	3
ENGL 202C (GWS) ^{††}	3 EGEE 451 or ENVSE 470*	3
Material Science Elective from Approved Department List ²	3 Fuel Science Elective from Approved Department List ²	3
	General Education Health and Wellness (GHW)	1.5
	15	16.5

Fourth Year

Fall	Credits Spring	Credits
Professional Elective from Approved Department List ²	3 EGEE 464W*	3
Fuel Science Elective from Approved Department List ²	3 Energy Systems Elective from Approved Department List ²	3
EGEE 441*	3 Technical Elective from Approved Department List ²	3
EME 460 or IE 302	3 Technical Elective from Approved Department List ^{2,3}	3
EGEE 411W*	3 Professional Elective from Approved Department List ²	3
Technical Elective from Approved Department List ^{2,3}	3 Energy Systems Elective from Approved Department List ²	3
	18	18

Total Credits 131

- * Course requires a grade of C or better for the major
 ‡ Course requires a grade of C or better for General Education
 # Course is an Entrance to Major requirement
 † Course satisfies General Education and degree requirement

¹ Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100A, CAS 100B, or CAS 100C (GWS) for EMSC 100S (GWS). EMSC 100S Earth and Mineral Sciences First year Seminar (3) is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.

² Course lists for Energy Engineering can be found at the department website: <https://www.eme.psu.edu/undergraduate/academics/undergraduate-programs/energy-engineering-major> (<https://www.eme.psu.edu/undergraduate/academics/undergraduate-programs/energy-engineering-major/>).

³ Students may apply 6 credits of ROTC to some of the elective choices.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

To enter the major, students need a minimum 2.00 grade point average, third semester standing, and a C or better grade in CHEM 110 GN (3), CHEM 111 GN (1), CHEM 112 GN (3), MATH 140 GQ (4), MATH 141 GQ (4), MATH 231 (2), PHYS 211 GN (4), and PHYS 212 GN (4).

Courses required for the major may be offered fall semester only, spring semester only, or both fall and spring semesters. Consult with your adviser and department to discuss your academic progress and course sequencing.

Energy Engineering, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
MATH 140 (GQ) ^{*†#†}	4	MATH 141 (GQ) ^{*†#†}	4
CHEM 110 (GN) ^{*#†}	3	ECON 102, EBF 200, or ECON 14 (GS) [†]	3
CHEM 111 (GN) ^{*†}	1	CHEM 112 (GN) ^{*†}	3
ENGL 15, 30H, or ESL 15 (GWS) ^{††}	3	PHYS 211 (GN) ^{*#†}	4
General Education Knowledge Domain	3	General Education Knowledge Domain	3
	14		17

Second Year

Fall	Credits	Spring	Credits
PHYS 212 (GN) [*]	4	ENGL 202C (GWS) ^{††}	3
CHEM 202 or 210	3	MATH 231 [*]	2
MATH 251	4	CMPSC 200 or 201	3
CAS 100A, 100B, or 100C (GWS) ^{††1}	3	General Education Knowledge Domain	3
General Education Knowledge Domain	3	PHIL 103 (GH) [†]	3
		General Education Health and Wellness (GHW)	1.5
	17		15.5

Third Year

Fall	Credits	Spring	Credits
Material Science Elective from Approved Department List ²	3	EGEE 304 [*]	3
EME 301 [*]	3	EGEE 437 [*]	3
EME 303 [*]	3	EGEE 430 [*]	3
EGEE 302 [*]	3	EGEE 451 or ENVSE 470 [*]	3
EE 211	3	Fuel Science Elective from Approved Department List	3
		General Education Health and Wellness (GHW)	1.5
	15		16.5

Fourth Year

Fall	Credits	Spring	Credits
Professional Elective from Approved Department List ²	3	EGEE 464W [*]	3
Fuel Science Elective from Approved Department List ²	3	Energy Systems Elective from Approved Department List ²	3
EGEE 441 [*]	3	Energy Systems Elective from Approved Department List ²	3

EME 460 or IE 302	3	Technical Elective from Approved Department List ²	3
EGEE 411W [*]	3	Technical Elective from Approved Department List ^{2,3}	3
Technical Elective from Approved Department List ^{2,3}	3	Professional Elective from Approved Department List ²	3
	18		18

Total Credits 131

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100A, CAS 100B, or CAS 100C (GWS) for EMSC 100S (GWS). EMSC 100S Earth and Mineral Sciences First year Seminar (3) is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.

² Course lists for Energy Engineering can be found at the department website: <https://www.eme.psu.edu/undergraduate/academics/undergraduate-programs/energy-engineering-major> (<https://www.eme.psu.edu/undergraduate/academics/undergraduate-programs/energy-engineering-major/>).

³ Students may apply 6 credits of ROTC to some of the elective choices.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

To enter the major, students need a minimum 2.00 grade point average, third semester standing, and a C or better grade in CHEM 110 GN (3), CHEM 111 GN (1), CHEM 112 GN (3), MATH 140 GQ (4), MATH 141 GQ (4), MATH 231 (2), PHYS 211 GN (4), and PHYS 212 GN (4).

Courses required for the major may be offered fall semester only, spring semester only, or both fall and spring semesters. Consult with your adviser and department to discuss your academic progress and course sequencing.

Commonwealth Campus students are strongly advised to successfully complete their CHEM, MATH, PHYS, and GWS requirements before transitioning to University Park.

Career Paths

Careers

Our graduates are prepared to become valuable contributors in addressing society's energy needs and demands.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE ENERGY ENGINEERING PROGRAM (<https://www.eme.psu.edu/undergraduate/academics/undergraduate-programs/energy-engineering-major/>)

Opportunities for Graduate Studies

Graduates may be well suited to pursue graduate-level studies. Further study toward an M.S. or Ph.D. can lead to research, university, or management positions.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.eme.psu.edu/graduate/>)

Professional Resources

- Society of Energy Engineers Penn State Student Chapter (<https://www.eme.psu.edu/undergraduate/undergraduate-resources/student-organizations/>)
- National Electrical Contractors Association Penn State Student Chapter (<https://neca-pdj.org/penn-state-student-chapter/>)
- Engineers Without Borders (<https://sites.psu.edu/psuewb/>)

Accreditation

The Bachelor of Science in Energy Engineering at University Park is accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria with no applicable program criteria.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

University Park

JOHN AND WILLIE LEONE FAMILY DEPARTMENT OF ENERGY AND MINERAL ENGINEERING
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<https://www.eme.psu.edu>

Energy Engineering, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The minor in Energy Engineering is designed to provide students in engineering, science, and energy business and finance (EBF) with additional courses, exposure, and experiences to the principles and applications of energy engineering. Courses available to students include thermal sciences; petroleum and natural gas processing; renewable/sustainable energy; chemistry of fuels; electrochemical, chemical, and nuclear energy conversion processes; physical processes in energy engineering; air pollution; and green engineering and environmental compliance. As a result, the selection of this minor can provide additional career options for students in a wide range of offerings at Penn State.

What is Energy Engineering?

Energy engineers are equipped with required engineering knowledge and skills needed to solve problems in the production, processing, storage, distribution, and utilization of energy. Energy processes include natural resources, such as the extraction of oil and gas, as well as from renewable or sustainable sources of energy, including biofuels, hydro, wind, and solar power.

You Might Like This Program If...

- You aspire to be a lifelong learner, problem solver, and leader in the energy industry.
- You excel at math, science, and engineering and seek a broad overview of energy fields.
- You are interested in a well-rounded education in all facets of the energy market, including renewable energy.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 9 credits of the following:		9
EGEE 302	Principles of Energy Engineering	
EGEE 304	Heat and Mass Transfer	
EGEE 411W	Energy Science and Engineering Lab	
EGEE 420	Hydrogen and Fuel Cells	
EGEE 430	Introduction to Combustion	
EME 301	Thermodynamics in Energy and Mineral Engineering	
Select 9 credits of the following:		9
EGEE 433		
EGEE 437	Design of Solar Energy Conversion Systems	
EGEE 438	Wind and Hydropower Energy Conversion	
EGEE 441	Electrochemical Engineering Fundamentals	
EGEE 451	Energy Conversion Processes	

EGEE 464W	Energy Design Project
EGEE 470	Air Pollutants from Combustion Sources
FSC 431	The Chemistry of Fuels
FSC 432	Petroleum Processing

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Environment and Society Geography, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

The 12-credit Certificate in Environment and Society Geography will engage students with issues, knowledge, and diverse forms of learning, analysis, and exposition related to the interactions of human societies and environments. This certificate is based on the twin foundations of this sub-field of geography, namely human-environment interactions

and nature-society relations. Its purpose is to train students to use frameworks such as political ecology and environmental geography to provide the tools and concepts of change and sustainability necessary to analyze human-environment systems, environmental problems, and remediation across local-to-global scales, and the political economy of resource use and management.

Learning objectives: Identify, describe, and analyze human-environment systems and processes across the globe; recognize how humans depend on, alter, and manage their environment in various places; and think critically about addressing complex human-environment challenges.

What is Environment and Society Geography?

Environment and society geography examines how human society and the natural world are interconnected. This certificate specifically addresses how geographers approach questions concerning human-environment relations, environmental processes, and environmental justice. Students who enroll in this certificate program will engage frameworks such as political ecology, environmental geography, sustainability, and globalization. Courses that contribute to this certificate cover topics such as conservation, agriculture, food, water, energy, climate change and health, as well as the complex ways these elements interact. Upon completing the certificate, students will be able to analyze human-environment systems, the political economy of resource use and management, environmental problems, and remediation across local-to-global scales. Focus areas include: conservation and protected areas; development; environmental health and inequality; urban-rural dynamics; food-energy-water nexus; and environment-society interactions involving agriculture, nutrition, and well-being.

You Might Like This Program If...

- You are interested in the complex interactions between environments and society.
- You want to obtain the tools needed to address both the social and natural dimensions of environmental issues associated with health, sustainability, food scarcity, climate change, energy alternatives, water resources and urban and industrial growth.

Program Requirements

To earn an undergraduate certificate in Environment and Society Geography, a minimum of 12 credits is required.

Code	Title	Credits
Required Courses		
GEOG 230	Geographic Perspectives on Environment, Society and Sustainability	3
Select 9 credits from the following:		9
GEOG 330N	Political Ecology	
GEOG 333	Human Dimensions of Natural Hazards	
GEOG 430	Human Use of Environment	
GEOG 431	Geography of Water Resources	
GEOG 432	Energy Policy	
GEOG 433	Geographies of Justice	
GEOG 434	Politics of the Environment	
GEOG 436	Ecology, Economy, and Society	
GEOG 438W	Human Dimensions of Global Warming	
GEOG 439	Property and the Global Environment	

Non-Course Requirements

Per University policy, all credit courses for a certificate require a grade of 'C' or higher, and at least two-thirds (2/3) of the credits used to complete a certificate must be earned at Penn State. If student is completing multiple certificates in Geography, no more than one (1) course may double-count for each.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Career Paths

Students earning the Environment and Society Geography certificate learn a wide range of research and analytical skills that are highly valued by employers. Students who are trained at the intersection of the environment and society find jobs in all levels of government, nonprofit organizations, and in industry. This is one of several geography-related certificates that students can use to tailor their educational experience in preparation for the job market. In addition to Environment and Society Geography, the Department of Geography offers certificates in Geospatial Big Data Analytics; Geographic Information Systems; Human Geography; Landscape Ecology; Justice, Ethics, Diversity in Space; and Physical Geography.

Careers

Students earning the certificate in Environment and Society Geography are well positioned to find employment with diverse organizations spanning business, government, and nonprofit sectors. Such organizations may include (but are not limited to): American Red Cross, Amnesty International, Federal Emergency Management Agency, Heifer International, National Park Service, U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Forest Service, U.S. State Department, local, regional, and state planning agencies, environmental and engineering consulting firms, policy research institutes, private corporations, and humanitarian organizations.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A CERTIFICATE IN ENVIRONMENT AND SOCIETY GEOGRAPHY (<https://www.geog.psu.edu>)

Opportunities for Graduate Studies

A certificate in the dynamic intersections of the environment with society is useful for students who are interested in pursuing graduate degrees in the environmental and social sciences. Alumni enter graduate and professional studies in a variety of programs, including (but not limited to) geography, planning, international development, urban studies, sustainability, environmental sciences, ecology, public policy, emergency management, and law. They sometimes begin graduate or professional programs directly after finishing undergraduate studies, but often get several years' work experience before returning to school, either full or part-time.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.geog.psu.edu>)

Professional Resources

- American Association of Geographers (AAG) (<https://www.aag.org>)
- Cultural and Political Ecology Specialty Group of the Association of American Geographers (<https://capeaag.wordpress.com>)
- American Geographic Society (AGS) (<https://americangeo.org>)
- National Geographic Society (NGS) (<https://www.nationalgeographic.com>)
- International Geographic Union (IGU) (<http://iswg.org/>)

Contact

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Environmental Systems Engineering, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

It is an interdisciplinary program with two options. One option is Environmental Systems Engineering and it is concerned with the impact of industrial activities on the environment and the choice of cost-effective remediation strategies. The other option is Environmental Health and Safety Engineering and it is concerned with safe and healthful design of industrial systems such that workers are protected from potentially high-risk exposures associated with today's industries. The program is unique as it is designed to address critical environmental, safety and health problems of the basic industries such as those involved in the extraction, conversion, and utilization of energy and mineral resources. The courses are sequenced so that students acquire an appropriate blend of theory, applications, and design and are equipped with the fundamentals necessary to maintain lifelong professional growth. Graduates are prepared to enter both the private and public sectors as

environmental systems engineers or health and safety engineers or to pursue further education at the graduate level.

During the first two years, the program shares many common features with other more traditional engineering disciplines. Students then take a series of special courses that introduce engineering concepts in the extractive and process industries. Process engineering and a variety of solid-solid, solid-fluid, and fluid-fluid separations play a major and often dominant role in the prevention and/or remediation of environmental damage or the prevention of health and safety hazards resulting from industrial activity. Students then specialize in the particular problems associated with air, land, or water; environmental health and safety engineering; or select a hybrid program. Specialization is accomplished through a combination of additional designated courses and selection from an extensive list of relevant elective courses. The curriculum is structured so as to integrate design concepts into the various subject areas covered in the program.

The human, societal, economic, ethical, and regulatory aspects of the industrial impact on the environment and on the workers themselves are addressed through a combination of specific courses and components of other more general courses. This aspect of the program is designed to provide students with a deeper understanding, both of the impact of environmental degradation on society and of the effects on industrial activity of society's demands for protection of workers and the environment. The program culminates with the capstone design course, which is an integrated, problem-based, multi-faceted project in which students, working in a team setting, utilize fundamental concepts to design an environmental remediation system or an environmental health and safety protection system (or incorporate these design requirements into other associated designs).

What is Environmental Systems Engineering?

Protecting the health of workers and the environment, often during challenging projects, is the job of an environmental systems engineer. They understand, demonstrate, and apply systems engineering principles to environmental issues related to industrial activities and to the extraction of energy and mineral resources. These engineers work closely with project leaders, utilizing process systems engineering and environmental systems approaches, to evaluate and address the environmental impact of projects. Often these engineers work in the government sector and offer expertise in big-picture projects facing cities, regions, nations, and the globe.

You Might Like This Program If...

- You want to minimize the environmental impact of industrial activities and protect the health of workers.
- You have strong math, science, and engineering skills and want to apply that to improving worker and environmental safety.

Entrance to Major

In addition to the minimum grade point average (GPA) requirements described in the University Policies, the Environmental Systems Engineering entrance-to-major requirement must also be completed with a minimum grade of C: MATH 140, MATH 141, MATH 251, PHYS 211, PHYS 212, CHEM 110.

Degree Requirements

For the Bachelor of Science degree in Environmental Systems Engineering, a minimum of 131 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	113-114

27 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GWS courses; 6 credits of GQ courses; 9 credits of GN courses; 3 credits of GS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
CHEM 202	Fundamentals of Organic Chemistry I	3
EMSC 100S	Earth and Mineral Sciences First-Year Seminar ¹	3
EMCH 211	Statics	3
EMCH 212	Dynamics	3
EME 460	Geo-resource Evaluation and Investment Analysis	3
ENVSE 404W	Surface and Interfacial Phenomena in Environmental Systems	3
ENVSE 406	Sampling and Monitoring of the Geo-Environment	3
ENVSE 450	Environmental Health and Safety	3
ENVSE 470	Engineering Risk Analysis	3
ENVSE 480	Environmental Systems Engineering Process Design	3
GEOSC 452	Hydrogeology	3
MATH 251	Ordinary and Partial Differential Equations	4
MNG 401	Introduction to Mining Operations	1
PHYS 212	General Physics: Electricity and Magnetism	4
PNG 411	Introduction to Petroleum and Natural Gas Extraction	1
<i>Prescribed Courses: Require a grade of C or better</i>		
CE 370	Introduction to Environmental Engineering	3
CHEM 110	Chemical Principles I	3
EME 301	Thermodynamics in Energy and Mineral Engineering	3
EME 303	Fluid Mechanics in Energy and Mineral Engineering	3
ENGL 202C	Effective Writing: Technical Writing	3
ENVSE 427	Pollution Control in the Process Industries	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
MNPR 301	Elements of Mineral Processing	3
PHYS 211	General Physics: Mechanics	4

Additional Courses

ENGL 15	Rhetoric and Composition	3
or ENGL 30H	Honors Rhetoric and Composition	
MATH 220	Matrices	2
or MATH 231	Calculus of Several Variables	
Select 3-4 credits of the following:		3-4
CMPSC 201	Programming for Engineers with C++	
CMPSC 203	Introduction to Spreadsheets and Databases	
<i>Additional Courses: Require a grade of C or better</i>		
GEOSC 1	Physical Geology	3
or GEOSC 71		

Supporting Courses and Related Areas

Select 6 credits in consultation with adviser. Students who complete Basic ROTC may substitute 6 credits of ROTC for 3 credits of GHW courses and 3 credits of Supporting Courses and Related Areas. 6

Requirements for the Option

Select an option 16

¹ The following substitutions are allowed for students attending campuses where the indicated course is not offered: CAS 100 can be substituted for EMSC 100S.

Requirements for the Option**Environmental Systems Engineering Option (16 credits)**

Code	Title	Credits
Prescribed Courses		
EGEE 470	Air Pollutants from Combustion Sources	3
ENVSE 412	Environmental Systems Engineering Laboratory	1
GEOG 30N	Environment and Society in a Changing World	3
MICRB 106	Elementary Microbiology	3
Additional Courses		
Select one of the following:		3
ENVSE 408	Contaminant Hydrology	
METEO 455	Atmospheric Dispersion	
SOILS 401	Soil Composition and Physical Properties	
Select one of the following:		3
METEO 454	Introduction to Micrometeorology	
MNPR 401	Mineral Process Engineering	
MNPR 426	Aqueous Processing	

Environmental Health and Safety Engineering Option (16 credits)

Code	Title	Credits
Prescribed Courses		
BIOL 141	Introduction to Human Physiology	3
ENVSE 400	Safety Engineering	3
ENVSE 440	Industrial Ventilation for Contaminant Control	3
ENVSE 457	Industrial Hygiene Measurements	3
ENVSE 458	Industrial Hygiene Measurements Laboratory	1
PSYCH 100	Introductory Psychology	3

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing

intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- Quantification (GQ): 6 credits
- Writing and Speaking (GWS): 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- Arts (GA): 3 credits
- Health and Wellness (GHW): 3 credits
- Humanities (GH): 3 credits
- Social and Behavioral Sciences (GS): 3 credits
- Natural Sciences (GN): 3 credits

Integrative Studies

- Inter-Domain Courses (Inter-Domain): 6 credits

Exploration

- GN, may be completed with Inter-Domain courses: 3 credits
- GA, GH, GN, GS, Inter-Domain courses. This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Environmental Systems Engineering and M.S. in Energy and Mineral Engineering

Requirements for the Integrated B.S. in Environmental Systems Engineering and M.S. in Energy and Mineral Engineering can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/energy-mineral-engineering/#integratedundergradprogramtext>).

Program Educational Objectives

Our graduates will attain one or more of the following:

- Careers as practicing environmental systems engineers engaged in the identification and mitigation of a broad range of environmental, health, and safety risks associated with the resource recovery, process, and general industries, through the effective design and implementation of economic engineering systems.
- Advancement to management and leadership positions devoted to addressing critical environmental-related challenges of the basic industries, especially those involved with the extraction, recovery, conversion, and utilization of energy and mineral resources.
- Advanced degrees, training, and professional licensure or certification in environmental systems engineering or related technical disciplines

Student Outcomes

Student outcomes describe what students are expected to know and be able to do by the time of graduation. The Environmental Systems Engineering program is designed to enable students to:

1. Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. Apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. Communicate effectively with a range of audiences
4. Recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions

7. Acquire and apply new knowledge as needed, using appropriate learning strategies.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Environmental Systems Engineering Option: Environmental Systems Engineering, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 or 140G (GQ) ^{*†#†}	4 MATH 141 or 141G (GQ) ^{*†#†}	4
CHEM 110 (GN) ^{*#†}	3 CHEM 112 (GN)	3
CHEM 111 [†]	1 PHYS 211 (GN) ^{*#†}	4
EMSC 100S (or CAS 100 by substitution) (GWS) ^{††1}	3 ENGL 15, 30H, or ESL 15 (GWS) ^{††}	3

GEOG 30N (GN/GS, US/IL) [†]	3	
	14	14
Second Year		
Fall	Credits Spring	Credits
PHYS 212 (GN) ^{*†#}	4 CHEM 202	3
EMCH 211	3 MATH 220 or 231	2
MATH 251 ^{*#}	4 EME 210, CMPSC 201, or CMPSC 203	3-4
GEOC 1 [*]	3 EMCH 212	3
General Education Knowledge Domain	3 MICRB 106	3
	General Education Knowledge Domain	3
	17	17-18
Third Year		
Fall	Credits Spring	Credits
EME 301 [*]	3 MNPR 301 [*]	3
EME 303 [*]	3 ENGL 202C (GWS) ^{*††}	3
GEOC 452	3 EGEE 470	3
CE 370 [*]	3 ENVSE 406	3
PNG 411	1 EME 460	3
MNG 401	1 ENVSE 412	1
General Education Knowledge Domain	3 General Education Health and Wellness (GHW) ²	1.5
	17	17.5
Fourth Year		
Fall	Credits Spring	Credits
ENVSE 404W (Writing across the curriculum)	3 ENVSE 480	3
ENVSE 427 [*]	3 ENVSE 470	3
ENVSE 450	3 Supporting course from approved department list ^{2,3}	3
Supporting Course from approved department list ^{2,3}	3 Additional course from approved list for option ³	3
Additional course from approved list for option ³	3 General Education Knowledge Domain	3
General Education Knowledge Domain	3 General Education Health and Wellness (GHW)	1.5
	18	16.5

Total Credits 131-132

- * Course requires a grade of C or better for the major
 ‡ Course requires a grade of C or better for General Education
 # Course is an Entrance to Major requirement
 † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

- ¹ Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100A, CAS 100B, or CAS 100C (GWS) for EMSC 100S (GWS). EMSC 100S Earth and Mineral Sciences First year Seminar (3) is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.
- ² Students who complete Basic ROTC may substitute 6 credits of ROTC for 3 credits of GHW courses and 3 credits of Supporting Courses and Related Areas.
- ³ At least 2 courses (total of 6 credits minimum) of a student's selections for additional courses and supporting courses must be engineering topics courses. These courses should be selected in consultation with an ENVSE faculty adviser. Possible additional courses for the option include: ENVSE 408, SOILS 401, METEO 455, METEO 454, MN PR 401, MN PR 426

Advising Notes:

To enter the major, students need a minimum 2.00 grade point average, third semester standing, and a C or better grade in MATH 140, MATH 141, MATH 251, CHEM 110, PHYS 211, and PHYS 212.

Courses required for the major may be offered fall semester only, spring semester only, or both fall and spring semesters. Consult with your adviser and department to discuss your academic progress and course sequencing.

Approved Electives for "Related Areas": <https://www.eme.psu.edu/undergraduate/academics/undergraduate-programs/envse> (<https://www.eme.psu.edu/undergraduate/academics/undergraduate-programs/envse/>).

Environmental Systems Engineering Option: Environmental Systems Engineering, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 (GQ) ^{*†#†}	4 MATH 141 (GQ) ^{*†#†}	4
CHEM 110 (GN) ^{*#†}	3 CHEM 112 (GN)	3
CHEM 111 [†]	1 PHYS 211 (GN) ^{*#†}	4
ENGL 15, 30H, or ESL 15 (GWS) ^{††}	3 General Education Knowledge Domain	3
General Education Knowledge Domain	3 General Education Health and Wellness (GHW)	1.5
	14	15.5

Second Year

Fall	Credits Spring	Credits
PHYS 212 (GN) ^{*†#}	4 CHEM 202	3
EMCH 211	3 MATH 220 or 231	2
MATH 251 ^{*#}	4 EME 210, CMPSC 201, or CMPSC 203	3-4
CAS 100A, 100B, or 100C (GWS) ^{††1}	3 EMCH 212	3
General Education Knowledge Domain	3 ENGL 202C (GWS) ^{††}	3
	General Education Knowledge Domain	3
	17	17-18

Third Year

Fall	Credits Spring	Credits
EME 301 [*]	3 MNPR 301 [*]	3
EME 303 [*]	3 CE 370 [*]	3
MICRB 106	3 EGEE 470	3
GEOG 30N (GN/GS, US/IL) [†]	3 ENVSE 406	3
PNG 411	1 EME 460	3
GEOSC 1 [*]	3 ENVSE 412	1
MNG 401	1	
	17	16

Fourth Year

Fall	Credits Spring	Credits
ENVSE 404W (Writing across the curriculum)	3 ENVSE 480	3
ENVSE 427 [*]	3 ENVSE 470	3
ENVSE 450	3 Supporting course from approved department list ^{2,3}	3
GEOSC 452	3 Additional course from approved list for option ³	3
Supporting Course from approved department list ^{2,3}	3 General Education Knowledge Domain	3

Additional course from approved list for option ³	3 General Education Health and Wellness (GHW)	1.5
	18	16.5

Total Credits 131-132

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

- ¹ Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100A, CAS 100B, or CAS 100C (GWS) for EMSC 100S (GWS). EMSC 100S Earth and Mineral Sciences First year Seminar (3) is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.
- ² Students who complete Basic ROTC may substitute 6 credits of ROTC for 3 credits of GHW courses and 3 credits of Supporting Courses and Related Areas.
- ³ At least 2 courses (total of 6 credits minimum) of a student's selections for additional courses and supporting courses must be engineering topics courses. These courses should be selected in consultation with an ENVSE faculty adviser. Possible additional courses for the option include: ENVSE 408, SOILS 401, METEO 455, METEO 454, MN PR 401, MN PR 426

Advising Notes:

To enter the major, students need a minimum 2.00 grade point average, third semester standing, and a C or better grade in MATH 140, MATH 141, MATH 251, CHEM 110, PHYS 211, and PHYS 212.

Courses required for the major may be offered fall semester only, spring semester only, or both fall and spring semesters. Consult with your adviser and department to discuss your academic progress and course sequencing.

Approved Electives for "Related Areas": <https://www.eme.psu.edu/undergraduate/academics/undergraduate-programs/envse> (<https://www.eme.psu.edu/undergraduate/academics/undergraduate-programs/envse/>).

Commonwealth Campus students are strongly advised to successfully complete their CHEM, EMCH, MATH, PHYS, and GWS requirements before transitioning to University Park.

Environmental Health and Safety Option: Environmental Systems Engineering, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
MATH 140 or 140G (GQ) ^{*†#†}	4	MATH 141 or 141G (GQ) ^{*†#†}	4
CHEM 110 (GN) ^{*#†}	3	CHEM 112 (GN)	3
CHEM 111 [†]	1	PHYS 211 (GN) ^{*#†}	4
EMSC 100S (or CAS 100 by substitution) (GWS) ^{††1}	3	ENGL 15, 30H, or ESL 15 (GWS) ^{††}	3
PSYCH 100 (GS) [†]	3		
	14		14

Second Year

Fall	Credits	Spring	Credits
PHYS 212 (GN) ^{*#}	4	CHEM 202	3
EMCH 211	3	MATH 220 or 231	2
MATH 251 ^{*#}	4	EME 210, CMPSC 201, or CMPSC 203	3-4
GEOC 1 [*]	3	EMCH 212	3
General Education Knowledge Domain	3	BIOL 141	3
		General Education Knowledge Domain	3
	17		17-18

Third Year

Fall	Credits	Spring	Credits
EME 301 [*]	3	MNPR 301 [*]	3
EME 303 [*]	3	ENGL 202C (GWS) ^{*††}	3
GEOC 452	3	EME 460	3
CE 370 [*]	3	ENVSE 406	3
ENVSE 400	3	ENVSE 440	3
General Education Knowledge Domain	3	General Education Health and Wellness (GHW) ²	1.5
	18		16.5

Fourth Year

Fall	Credits	Spring	Credits
ENVSE 404W (Writing across the curriculum)	3	ENVSE 457	3
ENVSE 427 [*]	3	ENVSE 458	1
ENVSE 450	3	ENVSE 470	3
PNG 411	1	ENVSE 480	3
MNG 401	1	Supporting course from approved department list ²	3
Supporting course from approved department list ²	3	General Education Knowledge Domain	3

General Education Knowledge Domain	3 General Education Health and Wellness (GHW) ²	1.5
	17	17.5

Total Credits 131-132

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

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General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100A, CAS 100B, or CAS 100C (GWS) for EMSC 100S (GWS). EMSC 100S Earth and Mineral Sciences First year Seminar (3) is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.

² Students who complete Basic ROTC may substitute 6 credits of ROTC for 3 credits of GHW courses and 3 credits of Supporting Courses and Related Areas.

Advising Notes:

To enter the major, students need a minimum 2.00 grade point average, third semester standing, and a C or better grade in MATH 140, MATH 141, MATH 251, CHEM 110, PHYS 211, and PHYS 212.

Courses required for the major may be offered fall semester only, spring semester only, or both fall and spring semesters. Consult with your adviser and department to discuss your academic progress and course sequencing.

Approved Electives for "Related Areas": <https://www.eme.psu.edu/undergraduate/academics/undergraduate-programs/envse> (<https://www.eme.psu.edu/undergraduate/academics/undergraduate-programs/envse/>).

Environmental Health and Safety Option: Environmental Systems Engineering, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 (GQ) ^{*†##}	4 MATH 141 (GQ) ^{*†##}	4
CHEM 110 (GN) ^{*##†}	3 CHEM 112 (GN)	3
CHEM 111 [†]	1 PHYS 211 (GN) ^{*##†}	4
ENGL 15 (GWS) ^{††}	3 General Education Knowledge Domain	3
PSYCH 100 (GS) [†]	3 General Education Health and Wellness (GHW) ²	1.5
	14	15.5

Second Year

Fall	Credits Spring	Credits
PHYS 212 (GN) ^{*##}	4 CHEM 202	3
EMCH 211	3 MATH 220 or 231	2
MATH 251 ^{*#}	4 EMCH 212	3
CAS 100A, 100B, or 100C (GWS) ^{††1}	3 EME 210, CMPSC 201, or CMPSC 203	3-4
General Education Knowledge Domain	3 ENGL 202C (GWS) ^{††}	3
	BIOL 141	3
	17	17-18

Third Year

Fall	Credits Spring	Credits
EME 301 [*]	3 MNPR 301 [*]	3
EME 303 [*]	3 GEOSC 452	3
CE 370 [*]	3 ENVSE 406	3
ENVSE 400	3 ENVSE 440	3
GEOSC 1 [*]	3 EME 460	3
General Education Knowledge Domain	3 General Education Knowledge Domain	3
	18	18

Fourth Year

Fall	Credits Spring	Credits
ENVSE 404W (Writing across the curriculum)	3 ENVSE 457	3
ENVSE 427 [*]	3 ENVSE 458	1
ENVSE 450	3 ENVSE 470	3
PNG 411	1 ENVSE 480	3
MNG 401	1 Supporting course from approved department list ²	3
General Education Health and Wellness (GHW) ²	1.5 General Education Knowledge Domain	3

Supporting course from approved department list² 3

15.5

16

Total Credits 131-132

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
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University Requirements and General Education Notes:

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¹ Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100A, CAS 100B, or CAS 100C (GWS) for EMSC 100S (GWS). EMSC 100S Earth and Mineral Sciences First year Seminar (3) is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.

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Advising Notes:

To enter the major, students need a minimum 2.00 grade point average, third semester standing, and a C or better grade in MATH 140, MATH 141, MATH 251, CHEM 110, PHYS 211, and PHYS 212.

Courses required for the major may be offered fall semester only, spring semester only, or both fall and spring semesters. Consult with your adviser and department to discuss your academic progress and course sequencing.

Approved Electives for "Related Areas": <https://www.eme.psu.edu/undergraduate/academics/undergraduate-programs/envse> (<https://www.eme.psu.edu/undergraduate/academics/undergraduate-programs/envse/>).

Commonwealth Campus students are strongly advised to successfully complete their CHEM, EMCH, MATH, PHYS, and GWS requirements before transitioning to University Park.

Career Paths

Graduates are prepared to enter both the private and public sector as environmental systems engineers, or health and safety engineers or to pursue further education at the graduate level.

Careers

Our graduates may be candidates for careers in a wide range of industries in both the private and public sector. They may be employed to address the environmental or health and safety problems related to extraction, conversion, and utilization of energy and mineral resources while being stewards of the environment.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE ENVIRONMENTAL SYSTEMS ENGINEERING PROGRAM (<https://www.eme.psu.edu/recruiting-careers/>)

Opportunities for Graduate Studies

Graduates may be well suited to pursue graduate-level studies. Further study toward an M.S. or Ph.D. can lead to research, university, or management positions.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.eme.psu.edu/graduate/>)

Professional Resources

- Society of Environmental Systems Engineers (SESE) (<https://orgcentral.psu.edu/organization/society-of-environmental-systems-engineers/>)
- Engineers Without Borders (<https://sites.psu.edu/psuewb/>)

Accreditation

The Bachelor of Science in Environmental Systems Engineering at University Park is accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Environmental Engineering and Similarly Named Engineering Programs.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

University Park

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Environmental Systems Engineering, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The minor in Environmental Systems Engineering is for students interested in environmental issues associated with the extraction, processing, and utilization of mineral and energy resources and their solutions. It provides an opportunity for students to understand and appreciate the interrelationship between energy and the environment, be exposed to the basic courses in environmental systems engineering, and to appreciate and evaluate the impact of environmental pollution control on viability of the profitability and feasibility of operations associated with the safe extraction, processing, and utilization of mineral and energy resources. A minimum of 18 credits is required for the minor. A student enrolled in this minor must receive a grade C or better in all courses in the minor. Advising is available through the professor in charge.

What is Environmental Systems Engineering?

Protecting the health of workers and the environment, often during challenging projects, is the job of an environmental systems engineer. They understand, demonstrate, and apply systems engineering principles to environmental issues related to industrial activities and to the extraction of energy and mineral resources. These engineers work closely with project leaders, utilizing process systems engineering and environmental systems approaches, to evaluate and address the environmental impact of projects. Often these engineers work in the government sector and offer expertise in big-picture projects facing cities, regions, nations, and the globe.

You Might Like This Program If...

- You want to minimize the environmental impact of industrial activities and protect the health of workers.
- You have strong math, science, and engineering skills and want to apply them to improving worker and environmental safety.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
EME 460	Geo-resource Evaluation and Investment Analysis	3
ENVSE 406	Sampling and Monitoring of the Geo-Environment	3
ENVSE 427	Pollution Control in the Process Industries	3
ENVSE 450	Environmental Health and Safety	3
MNPR 301	Elements of Mineral Processing	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select one of the following:		3
EGEE 470	Air Pollutants from Combustion Sources	

ENVSE 400	Safety Engineering
MNPR 426	Aqueous Processing

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Geobiology, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

Geobiology is the interdisciplinary study of the Earth and its biosphere. It embraces the history of life and its interactions with the Earth over geologic time; it also includes study of interactions between living organisms and physical and chemical processes in the modern environment on Earth, and possibly elsewhere in the universe. Thus, geobiology encompasses the fields of paleobiology and paleontology, biogeochemistry, geomicrobiology, and astrobiology. The degree program provides students with a strong background in general science and

especially in geosciences and biology, with core selections from both disciplines. Students gain practical field experience in the study of the physical environment and ecological properties. The senior thesis provides students with hands-on research experience, as well as an emphasis on data synthesis and the written expression of scientific observations and ideas. Students will be well prepared for advanced studies in this emerging discipline, and for careers in the environmental sciences. Geobiology is critical to the study of environmental quality, global change, and environmental-human health interactions, all of which have profound importance in legal, economic, and policy arenas.

What is Geobiology?

Geobiology is the study of the interactions that occur between the biosphere (living organisms and their products) and the geosphere (solid part of the Earth). Geobiologists apply the principles and tools of biology to study the Earth and construct a picture of life through time. Geobiologists search for clues of how changes to the Earth in the past, such as periods of increased carbon dioxide or decreased temperature, have affected life on Earth and vice versa. By studying key aspects of the environment, geobiologists seek an understanding of how stressors affect entire populations, evolution, and extinctions. The study can involve field work such as collecting fossils or organic matter, or it can involve laboratory work using cutting-edge analytical instrumentation. By building a more detailed picture of how environmental changes affect life, geobiologists can help understand how predicted future environmental changes might impact life on Earth.

You Might Like This Program If...

- You want to understand the complexity of environmental factors that led to the origin and evolution of life on Earth and contributed to past mass extinctions.
- You like to do field work outdoors, such as searching for fossils.
- You are analytical and like to piece together clues to paint a picture of past life.
- You like thinking about the big picture of evolution within Earth's geologic constraints.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Geobiology, a minimum of 121 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	97

21 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses, 6 credits of GQ courses, 6 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
CHEM 113	Experimental Chemistry II	1
EMSC 100S	Earth and Mineral Sciences First-Year Seminar ¹	3
GEOSC 1	Physical Geology ²	3
GEOSC 201	Earth Materials	4
GEOSC 494W	Senior Thesis	3
GEOSC 496	Independent Studies	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
PHYS 211	General Physics: Mechanics	4
PHYS 213	General Physics: Fluids and Thermal Physics	2

Prescribed Courses: Require a grade of C or better

BIOL 110	Biology: Basic Concepts and Biodiversity	4
BIOL 220W	Biology: Populations and Communities	4
GEOSC 204	Geobiology	4
GEOSC 310	Earth History	4

Additional Courses

BIOL 444	Field Ecology	3
or GEOSC 472A Field Geology I (Introduction to Field Methods)		
ENGL 15	Rhetoric and Composition	3
or ENGL 30H Honors Rhetoric and Composition		
GEOSC 202	Chemical Processes in Geology	4
or GEOSC 203 Physical Processes in Geology		
Select 3-4 credits of the following:		3-4
BIOL 230W	Biology: Molecules and Cells	
BIOL 240W	Biology: Function and Development of Organisms	
MICRB 201	Introductory Microbiology	

Supporting Courses and Related Areas

Select 17-18 credits, in consultation with adviser, supportive of the student's interest ³

Select 12 credits, at least 3 credits from each category, from the approved list of evolution, paleobiology and geology courses and biogeochemistry courses

¹ The following substitutions are allowed for students attending campuses where the indicated course is not offered: CAS 100 or ENGL 202C can be substituted for EMSC 100S.

² If GEOSC 1 is not available, GEOSC 20 may be substituted.

³ Students may apply 6 credits of ROTC.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Core Science Application:** To produce graduates who can apply knowledge of the mathematics, physics, chemistry, and biology of Earth processes to the solution of geologic problems.
- **Earth Systems Thinking:** To produce graduates who can integrate multiple aspects of the origin, evolution, and future of the Earth, including the geosphere, hydrosphere, biosphere, and atmosphere.
- **Observation & Measurement:** To produce graduates who can interpret Earth's history and dynamics by observing and measuring minerals, rocks, fluids, fossils, landforms, and structures.
- **Scientific Inquiry & Communication:** To produce graduates who possess the ability to pose questions, collect and interpret data, and solve geologic problems, communicating the results of this scientific inquiry through writing and speaking.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Geobiology, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 or 140G (GQ) ^{††}	4 MATH 141 or 141G (GQ) ^{††}	4
CHEM 110 (GN) [†]	3 CHEM 112	3
CHEM 111 (GN) [†]	1 CHEM 113	1
GEOSC 1 or 20	3 ENGL 15, 30H, or ESL 15 (GWS) [‡]	3
EMSC 100S (GWS) ^{†††}	3 GEOSC 201	4
	14	15

Second Year

Fall	Credits Spring	Credits
PHYS 211 (GN) [†]	4 PHYS 213	2
BIOL 110 (GN) ^{††}	4 GEOSC 310 [*]	4
Supporting Course	3 BIOL 220W [*]	4
General Education Knowledge Domain	3 General Education Knowledge Domain	3
General Education Knowledge Domain	3 General Education Health and Wellness (GHW)	3
	17	16

Third Year

Fall	Credits Spring	Credits Summer	Credits
GEOSC 202 or 203	4 GEOSC 204 [*]	4 GEOSC 472A or BIOL 444	3
BIOL 230W, MICRB 201, or BIOL 240W	3-4 Advanced GEOBI Elective ²	3	
Advanced GEOBI Elective ²	3 Supporting Course ³	3	

General Education Knowledge Domain	3 General Education Knowledge Domain	3	
	Supporting Course ³	3	
13-14		16	3
Fourth Year			
Fall	Credits	Spring	Credits
Advanced GEOBI Elective ²	3	GEOSC 494W	3
GEOSC 496	3	Advanced GEOBI Elective ²	3
General Education Foundation selection (GWS) [‡]	3	Supporting Course ³	3
General Education Knowledge Domain	3	Supporting Course ³	3
Supporting Course ³	3		
15		12	

Total Credits 121-122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

¹ Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100 (GWS), CAS 100A, CAS 100B, or CAS 100C; or ENGL 202C (GWS) for EM

SC 100S (GWS). EM SC 100S Earth and Mineral Sciences First year Seminar (3) is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.

² Advanced GEOBI elective: Select 12 credits, at least 3 credits from each category, from the approved list of evolution, paleobiology and geology courses and biogeochemistry courses. Supporting Courses should be selected in consultation with an adviser.

³ Supporting course: Select 17-18 credits, in consultation with an adviser, supportive of the student's interest. Students may apply 6 credits of ROTC.

Geobiology, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 (GQ) [‡]	4 MATH 141 (GQ) [‡]	4
CHEM 110 (GN) [†]	3 CHEM 112	3
CHEM 111 (GN) [†]	1 CHEM 113	1
ENGL 15, 30H, or ESL 15 (GWS) ^{††}	3 General Education Foundation selection (GWS) ^{††}	3
General Education knowledge domain	3 General Education knowledge domain	3
14		14

Second Year

Fall	Credits Spring	Credits
PHYS 211 (GN) [†]	4 PHYS 213	2
BIOL 110 (GN) ^{*†}	4 BIOL 220W [*]	4
General Education Knowledge Domain	3 General Education Foundation selection (GWS) ^{††}	3
General Education Health and Wellness (GHW)	1.5 General Education Knowledge Domain	3
General Education Knowledge Domain	3 General Education Health and Wellness (GHW)	1.5
	General Education Knowledge domain	3
15.5		16.5

Third Year

Fall	Credits Spring	Credits Summer	Credits
BIOL 230W, MICRB 201, or BIOL 240W	3-4 GEOSC 204 [*]	4 GEOSC 472A or BIOL 444	3
GEOSC 1 or 20	3 GEOSC 310 [*]	4	
GEOSC 201	4 Advanced GEOBI Elective ²	3	

Advanced GEOBI Elective ²	3 Supporting Course ³	3
	Supporting Course ³	3
13-14		17
Fourth Year		
Fall	Credits Spring	Credits
GEOSC 202 or 203	4 GEOSC 494W	3
Supporting Course ³	3 Advanced GEOBI Elective ²	3
GEOSC 496	3 Supporting Course ³	3
Advanced GEOBI Elective ²	3 Supporting Course ³	3
Supporting Course ³	3	
16		12

Total Credits 121-122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100 (GWS), CAS 100A, CAS 100B, or CAS 100C; or ENGL 202C (GWS) for EM SC 100S (GWS). EM SC 100S Earth and Mineral Sciences First year Seminar (3) is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.

² Advanced GEOBI elective: Select 12 credits, at least 3 credits from each category, from the approved list of evolution, paleobiology and geology courses and biogeochemistry courses. Supporting Courses should be selected in consultation with an adviser.

³ Supporting course: Select 17-18 credits, in consultation with an adviser, supportive of the student's interest. Students may apply 6 credits of ROTC.

Career Paths

Because geobiology is an interdisciplinary field, it can help students prepare for a range of collaborative careers or opportunities for graduate studies.

Careers

This degree is ideal for students who wish to pursue careers in environmental geology, geochemistry, environmental microbiology, museum paleontology, and even medicine.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE GEOBIOLOGY PROGRAM (<https://www.geosc.psu.edu/undergraduate/why-geosciences/career-outlook/>)

Opportunities for Graduate Studies

Students obtaining a bachelor's degree in geobiology are prepared for graduate degrees in environmental sciences, including geosciences, environmental sciences, or the biological sciences. Some students continue to medical school.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.geosc.psu.edu/graduate/>)

Professional Resources

- Geosciences Club (<https://www.facebook.com/groups/46384419817/>)
- Association for Women Geoscientists (<https://sites.psu.edu/awgpennstate/>)

Contact

University Park

DEPARTMENT OF GEOSCIENCES
503 Deike Building
University Park, PA 16802
814-865-6711
contact@geosc.psu.edu

<https://www.geosc.psu.edu>

Geographic Information Science, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

The 12-credit Geographic Information Science (GIS) certificate is aimed at students who wish to be current in geographical representation and geospatial analysis. Through courses for the GIS certificate, students will understand and know how to apply various GIS and geospatial analysis tools to represent, analyze, and advise on the geospatial dimensions of natural and social phenomena. Students will gain firsthand experience using the most up-to-date tools and techniques available in the field of GIS today. Areas of study include cartography, remote sensing, and geographic information systems.

Learning objectives: Describe the conceptual foundations on which geographic information science and systems are based, use geospatial tools to perform spatial analysis and mapping tasks, and create solutions

to geographic problems using geographic information science and technology.

What is Geographic Information Science?

Geographic Information Science (GIScience) is one of four key subdisciplines within Geography (along with human geography, physical geography, and environment-society geography). Its primary areas of study include cartography, geographic information systems, remote sensing, and spatial statistics. Students who study GIScience learn how to use the latest tools and techniques to visually represent and analyze spatial data in order to understand and address real-world environmental and social problems. Applications of geographic information science range from emergency response to natural resource management to social policy analysis to location intelligence for business.

You Might Like This Program If...

- You like technology and maps, and want to acquire skills using a spatial perspective to differentiate yourself in the workforce after graduation.
- You would like to apply spatial science and technology to solve social, environmental, and industrial problems. You want to apply the geographic perspective through science and technology to enhance the knowledge, skills, and abilities developed in your major program of study.

Program Requirements

To earn an undergraduate certificate in Geographic Information Science, a minimum of 12 credits is required.

Code	Title	Credits
Required Courses		
GEOG 260	Geographic Information in a Changing World: Introduction to GIScience	3
Select 9 credits from:		9
GEOG 361	Cartography--Maps and Map Construction	
GEOG 362	Remote Sensing and Image Analysis	
GEOG 363	Geographic Information Systems	
GEOG 365	Introduction to GIS Programming	

Non-Course Requirements

Per University policy, all credit courses for a certificate require a grade of 'C' or higher, and at least two-thirds (2/3) of the credits used to complete a certificate must be earned at Penn State. If student is completing multiple certificates in Geography, no more than one (1) course may double-count for each.

Certificate Learning Objectives

- Majors in Geography will demonstrate knowledge of fundamental geographic skills and concepts and apply them to complex spatial relationships (interactions, patterns, processes) within the human socio-cultural and natural environments at global, regional, and local scales.
- Majors in Geography will engage in spatial and environmental critical thinking by analyzing, discussing and synthesizing geographical information that may include professional/technical documents, primary data, maps, graphics, and/or archival data.
- Majors in Geography will communicate geographic information utilizing oral, written, and visual formats to effectively process and integrate facts, ideas, and research results.

- Majors in Geography will develop research skills by locating, understanding, and explaining geographic challenges and opportunities related to human socio-cultural and/or environmental phenomena at global, regional, and local scales.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Jodi Vender

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University Park, PA 16802
814-863-5730
advising@geog.psu.edu

Career Paths

There are many potential careers for graduates with GIScience backgrounds. Students earning the Geographic Information Science certificate learn a wide-range of technological, research, and analytical skills that are highly valued by employers. GIS geography undergraduates find jobs in all levels of government, nonprofit organizations, and in industry. This is one of several geography-related certificates that students can use to tailor their educational experience in preparation for the job market. In addition to Geographic Information Science, the Department of Geography offers certificates in Environment and Society Geography, Geospatial Big Data Analytics, Human Geography; Justice, Ethics and Diversity in Space; Landscape Ecology; and Physical Geography.

Careers

Students earning the certificate in Geographic Information Science are well-positioned to find employment with diverse organizations spanning business, government, and nonprofit sectors. Such organizations may include (but are not limited to): American Red Cross, Amnesty International, BAE Systems, Boeing, Esri, Federal Emergency Management Agency, NASA, National Geographic, National Park Service, United Nations, U.S. Army Corps of Engineers, U.S. Census Bureau, U.S. Environmental Protection Agency, local, regional, and state planning agencies, environmental and engineering consulting firms, State Department and humanitarian organizations.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A CERTIFICATE IN GEOGRAPHIC INFORMATION SCIENCE (<https://www.geog.psu.edu>)

Opportunities for Graduate Studies

A certificate in Geographic Information Science is useful for students who are interested in pursuing graduate degrees in the computational, environmental, and social sciences. Alumni enter graduate and professional studies in a variety of programs, including (but not limited to) geography, planning, urban studies, environmental sciences, ecology, geographic information sciences, information technology, environmental informatics, geodesign, business administration, supply chain management, emergency management, and law. They sometimes begin graduate or professional programs directly after finishing undergraduate studies, but often get several years' work experience before returning to school, either full or part-time.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.geog.psu.edu>)

Professional Resources

- American Association of Geographers (AAG) (<https://www.aag.org>)
- North American Cartographic Information Society (NACIS) (<https://nacis.org>)
- ASPRS: The Imaging & Geospatial Information Society (<https://www.asprs.org>)
- Urban and Regional Information Systems Association (URISA) (<https://urisa.org>)
- International Cartographic Association (ICA) (<https://icaci.org/>)

Contact

University Park

DEPARTMENT OF GEOGRAPHY
302 Walker Building
University Park, PA 16802
814-865-3433
geography@psu.edu

<https://www.geog.psu.edu>

Geographic Information Science, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

What is Geographic Information Science?

Geographic Information Science (GIScience) is one of four key sub-disciplines within Geography (along with human geography, physical geography, and environment-society geography). Its primary areas of study include cartography, geographic information systems, remote sensing, and spatial statistics. Students who study GIScience learn how to use the latest tools and techniques to visually represent and analyze spatial data in order to understand and address real-world environmental and social problems. Applications of geographic information science range from emergency response to natural resource management to social policy analysis to location intelligence for business.

You Might Like This Program If...

- You like computers and maps, and want to acquire skills to differentiate yourself in the workforce after graduation.

- You would like to obtain a well-balanced portfolio of skills for geospatial problem solving.
- You would like to gain competence in geospatial techniques that enhance the knowledge, skills, and abilities developed through your major program of study.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
GEOG 160	Mapping Our Changing World	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 6 credits of the following:		6
GEOG 361	Cartography–Maps and Map Construction	
GEOG 362	Remote Sensing and Image Analysis	
GEOG 363	Geographic Information Systems	
Select 9 credits (at least 6 credits at the 400-level) of the following:		9
GEOG 323		
GEOG 417	Satellite Climatology	
GEOG 461W	Dynamic Cartographic Representation	
GEOG 463	Geospatial Information Management	
GEOG 467	Applied Cartographic Design	
GEOG 468	Geographic Information Systems Design and Evaluation	
GEOG 485	GIS Programming and Software Development	

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Jodi Vender

Undergraduate Advising Coordinator

305 Walker Building
University Park, PA 16802
814-863-5730
advising@geog.psu.edu

Career Paths

There are many potential careers for graduates with GIScience backgrounds. Students earning the Geographic Information Science minor learn a wide range of technological, research, and analytical skills that are highly valued by employers. Competence in GIS, mapping, remote sensing, spatial analysis, and geovisualization techniques gives graduates geospatial skills that can help solve real-world problems in fields ranging from business to environmental services to emergency preparedness to policy analysis.

Careers

Students earning the minor in Geographic Information Science are well positioned to find employment with diverse organizations spanning business, government, and nonprofit sectors. Such organizations may include (but are not limited to): American Red Cross; Amnesty International; BAE Systems; Boeing; Esri; Federal Emergency Management Agency; NASA; National Geographic; National Park Service; United Nations; U.S. Army Corps of Engineers; U.S. Census Bureau; U.S. Environmental Protection Agency; local, regional, and state planning agencies; environmental and engineering consulting firms; State Department; and humanitarian organizations.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN GEOGRAPHIC INFORMATION SCIENCE (<https://www.geog.psu.edu>)

Opportunities for Graduate Studies

A minor in Geographic Information Science is useful for students who are interested in pursuing graduate degrees in the computational, environmental, and social sciences. Alumni enter graduate and professional studies in a variety of programs, including (but not limited to) geography, planning, urban studies, environmental sciences, ecology, geographic information sciences, information technology, environmental informatics, geodesign, business administration, supply chain management, emergency management, and law. They sometimes begin graduate or professional programs directly after finishing undergraduate studies, but often get several years' work experience before returning to school, either full or part-time.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.geog.psu.edu>)

Contact

University Park

DEPARTMENT OF GEOGRAPHY
302 Walker Building
University Park, PA 16802
814-865-3433
geography@psu.edu

<https://www.geog.psu.edu>

Geography, B.A.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The Department of Geography in Penn State's College of Earth and Mineral Sciences offers a strong mix of human, physical, and methodological components that comprise the core of the Geography major. Combining geography with other areas of study allows students to choose from a broad range of topics in order to suit their individual interests. Undergraduate degrees in geography are offered in the Bachelor of Science (BS) and in the Bachelor of Arts (BA). Both programs offer an integrated course of study in which students learn fundamental concepts in physical and human geography while developing methodological proficiency in qualitative analysis, spatial analysis, and/or geospatial technologies.

The Bachelor of Arts (BA) major is a broader liberal-arts based program that incorporates world language study and courses outside the major in combination with core and elective geography courses. The BA Geography major is especially appropriate for students seeking a deeper understanding of the human experience and human-environment interactions, planning to combine their degree with concurrent majors and minors, or intending to pursue postgraduate work in geography or related disciplines.

In both the B.A. and B.S., students can customize and specialize their programs through the completion of undergraduate certificates. The Geography major can provide preparation for a career in business, industry, or government. Geographers with bachelor's degrees are currently being placed in federal, state, and local administrative and planning agencies and in private firms that specialize in planning and development or in environmental, socioeconomic, or location analysis.

What is Geography?

What do Amnesty International, Boeing, National Geographic, and Esri have in common? Penn State geographers are there, hard at work every day. Our students and alumni are behind the maps you use daily, as well as the policies that shape our cities, and the analysis that sustains our environment. Geographers help shape the future design of cities and infrastructure. Geographers assess impacts of rising sea levels, melting glaciers, and tropical storms, as well as study impacts of wild fires or manage wetlands. Geographers analyze new markets and locations for businesses. Geographers use cutting-edge satellite data to defend human rights by detecting large-scale abuses. Geographers also work directly with local people on social justice issues such as health and migration. If you want to change the world, there is no better discipline for people who thrive on complex challenges and want to make a real impact on lives and our environment.

You Might Like This Program If...

- You want to understand and influence the economic, political, and environmental forces that shape our world.
- You want to make maps using cutting-edge technology to understand people and environments to make a difference in our world.
- You want to work at the intersection of science, technology, and policy in information technology, business, nonprofits, local, state, or federal governments, or education.
- You are passionate about issues of human and environmental justice.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Geography, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	8-20
Bachelor of Arts Degree Requirements	24
Requirements for the Major	46

3 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GWS courses.

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
EMSC 100S	Earth and Mineral Sciences First-Year Seminar ¹	3
GEOG 210	Geographic Perspectives on Environmental Systems Science	3
GEOG 220	Perspectives on Human Geography	3
GEOG 230	Geographic Perspectives on Environment, Society and Sustainability	3
GEOG 260	Geographic Information in a Changing World: Introduction to GIScience	3
GEOG 301	Thinking Geographically	3
GEOG 390	Professional Development Seminar in Geography	1
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Engaged Scholarship:		
Select 3 credits from the following:		3
GEOG 493	Service Learning (1-3 credits)	
GEOG 494	Research Project in Geography (1-3 credits)	
GEOG 494H	Research Project in Geography (1-3 credits)	

GEOG 495B	Geography Teaching Internship (1-3 credits)	
GEOG 495G	Giscience Internship (1-3 credits)	
GEOG 499	Foreign Studies (1-3 credits)	
Qualitative or quantitative methods in geography:		
Select 3 credits from the following:		3
GEOG 308	Research and Qualitative Inquiry in Geography	
GEOG 364	Spatial Analysis ²	
300-level geography:		
Select 9 credits, not including courses taken above:		9
GEOG 308	Research and Qualitative Inquiry in Geography	
GEOG 310	Introduction to Global Climatic Systems	
GEOG 314	Biogeography and Global Ecology	
GEOG 315	Landforms and Geomorphic Systems in the Anthropocene	
GEOG 320	Urban Geography: A Global Perspective	
GEOG 324	Place, Space and Culture	
GEOG 326	Geographic Perspectives on Economic Systems	
GEOG 328	War, Peace, and Diplomacy: Understanding Contemporary Geopolitics	
GEOG 330N	Political Ecology	
GEOG 333	Human Dimensions of Natural Hazards	
GEOG 361	Cartography—Maps and Map Construction	
GEOG 362	Remote Sensing and Image Analysis	
GEOG 363	Geographic Information Systems	
GEOG 364	Spatial Analysis	
GEOG 365	Introduction to GIS Programming	
400-level geography:		
Select 12 credits, not including courses taken above:		12
GEOG 410		
GEOG 411	Forest Geography	
GEOG 411W	Forest Geography	
GEOG 412		
GEOG 414	Principles and Applications in Landscape Ecology	
GEOG 420Y	Comparative Urbanism	
GEOG 421	Population Geography	
GEOG 422W	Globalization, Migration, and Displacement	
GEOG 424	Geography of the Global Economy	
GEOG 424W	Geography of the Global Economy	
GEOG 425	Geography of Race, Class, and Poverty in America	
GEOG 426W	Gendered Worlds	
GEOG 428W	Political Geography	
GEOG 430	Human Use of Environment	
GEOG 431	Geography of Water Resources	
GEOG 432	Energy Policy	
GEOG 433	Geographies of Justice	
GEOG 434	Politics of the Environment	
GEOG 436	Ecology, Economy, and Society	
GEOG 438W	Human Dimensions of Global Warming	
GEOG 439	Property and the Global Environment	
GEOG 444	Resource Governance in Africa	
GEOG 461W	Dynamic Cartographic Representation	
GEOG 462	Advanced Observation of Earth and Its Environment	

GEOG 463	Geospatial Information Management	
GEOG 464	Advanced Spatial Analysis	
GEOG 465	Advanced Geographic Information Systems Modeling	
GEOG 467	Applied Cartographic Design	
GEOG 481	Topographic Mapping with Lidar	
GEOG 485	GIS Programming and Software Development	
GEOG 493	Service Learning (1-3 credits)	
GEOG 494	Research Project in Geography (1-3 credits)	
GEOG 495	Internship (1-3 credits)	
GEOG 495B	Geography Teaching Internship (1-3 credits)	
GEOG 495G	Giscience Internship (1-3 credits)	
GEOG 496	Independent Studies (1-3 credits)	
GEOG 497	Special Topics	
GEOG 498	Special Topics	
GEOG 499	Foreign Studies (1-6 credits)	

¹ The following substitutions are allowed for students attending campuses where the indicated course is not offered: CAS 100 or ENGL 202C can be substituted for EMSC 100S.

² Note: GEOG 364 has a prerequisite of STAT 200.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the

requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor,

elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- Majors in Geography will demonstrate knowledge of fundamental geographic skills and concepts and apply them to complex spatial relationships (interactions, patterns, processes) within the human socio-cultural and natural environments at global, regional, and local scales.
- Majors in Geography will engage in spatial and environmental critical thinking by analyzing, discussing and synthesizing geographical information that may include professional/technical documents, primary data, maps, graphics, and/or archival data.
- Majors in Geography will communicate geographic information utilizing oral, written, and visual formats to effectively process and integrate facts, ideas, and research results.
- Majors in Geography will develop research skills by locating, understanding, and explaining geographic challenges and opportunities related to human socio-cultural and/or environmental phenomena at global, regional, and local scales.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Jodi Vender

Undergraduate Advising Coordinator
305 Walker Building
University Park, PA 16802
814-863-5730
advising@geog.psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Geography, B.A. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If**

report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
EMSC 100S (GWS) ^{††1}	3 General Education Foundation selection (GWS) (ENGL 15, 30, or ESL 15) [‡]	3
General Education Foundation selection (GQ) [‡]	3 General Education Foundation selection (GQ) (STAT 200 preferred) [‡]	4
World Language level 1	4 World Language Level 2	4
General Education Knowledge Domain selection	3 General Education Knowledge Domain selection	3
GEOG 210, 220, 230, or 260 [*]	3 GEOG 220, 210, 230, or 260 [*]	3
	16	17

Second Year

Fall	Credits Spring	Credits
World Language Level 3	4 General Education Foundation selection (GWS) (ENGL 202A, ENGL 202B, ENGL 202C, ENGL 202D, CAS 100A, CAS 100B, or CAS 100C) [‡]	3
General Education Health and Wellness (GHW)	1.5 General Education Knowledge Domain selection	3
GEOG 230, 210, 220, or 260 [*]	3 General Education Knowledge Domain selection	3
GEOG 260, 210, 220, or 230 [*]	3 GEOG 301 [*]	3
GEOG 364 or 308 [*]	3 300-level GEOG selection [*]	3
GEOG 390 [*]	1	
	15.5	15

Third Year

Fall	Credits Spring	Credits
General Education Knowledge Domain selection	3 General Education Knowledge Domain selection	3
General Education Knowledge Domain selection	3 General Education Knowledge Domain selection	3
General Education Knowledge Domain selection	3 BA Fields selection	3
300-level GEOG selection [*]	3 400-level GEOG selection [*]	3
300-level GEOG selection [*]	3 400-level GEOG selection [*]	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
BA Fields selection	3 General Education Health and Wellness (GHW)	1.5
BA Fields selection	3 BA World Cultures selection	3

400-level GEOG selection [*]	3 400-level GEOG engaged scholarship selection (GEOG 493, 494, 494H, 495, 495B, 495G, or 499) [*]	3
400-level GEOG selection [*]	3 Elective	3
	Elective	4
	12	14.5

Total Credits 120

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

¹ Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100 (GWS) or ENGL 202A (GWS) or ENGL 202B (GWS) or ENGL 202C (GWS) or ENGL 202D (GWS) for EMSC 100S (GWS). EMSC 100S Earth and Mineral Sciences First year Seminar (3) is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.

Advising Notes:

Students who place out of world language courses will have additional electives. For example, a student who has had 4 years of high school French and begins world language study at Penn State in Intermediate French (FR 3) will have 8 additional elective credits.

STAT 200 is a prerequisite for GEOG 364 and therefore only required for GEOBA students if the student elects to take GEOG 364 rather than GEOG 308. However, the Geography Department recommends that all students have a foundation in statistics.

To enter the major, students need a minimum 2.00 grade point average and third semester standing.

Courses required for the major may be offered fall semester only, spring semester only, or both fall and spring semesters. Consult with your adviser and department to discuss your academic progress and course sequencing.

Geography course notes:

- Students who have taken GEOG 10, GEOG 20, GEOG 30N/Geographic Perspectives on Sustainability and Human-Environment Systems (GEOG 30), GEOG 115, Urban Geography (GEOG 120), GEOG 124, GEOG 126, GEOG 128, or GEOG 160 should NOT take GEOG 210, GEOG 220, GEOG 230, GEOG 315, GEOG 320, GEOG 324, GEOG 326, GEOG 328, or GEOG 260 as the latter courses are functionally equivalent to the former and substitutions will be made as needed.
- The following courses are typically offered in **Fall semesters only** at UP: GEOG 210, GEOG 220, GEOG 310, GEOG 324, GEOG 328, GEOG 361, GEOG 362, GEOG 364, GEOG 365, GEOG 461W
- The following courses are typically offered in **Spring semesters only** at UP: GEOG 301, GEOG 314, GEOG 315, GEOG 363, GEOG 464, GEOG 467
- Some courses may alternate between Fall and Spring offerings depending on teaching resources, and some 400-level courses may be offered only once every other year. Consult with geography undergraduate adviser (advising@geog.psu.edu) for current offering schedule.
- Geography majors must select at least one writing-intensive course (WAC) in their 300/400-level courses. Some courses alternate between writing-intensive and non-writing-intensive offerings (e.g., GEOG 310/GEOG 310W; GEOG 411/GEOG 411W; GEOG 410/GEOG 412WAC, whose number will be changed to GEOG 410W). Other courses are offered only as writing-intensive, even if the suffix W/Y does not appear (e.g. GEOG 461W).

Geography majors are encouraged to complete at least one 12-credit undergraduate certificate in geography as part of their degree program. With careful planning, there is room in the curriculum to complete 2 certificates. Certificate topics include Human Geography; Physical Geography; Environment & Society Geography; Geographic Information Science; Geospatial Big Data Analytics; Justice, Ethics, Diversity in Space; and Landscape Ecology. Certificate courses double-count with major requirements, but students completing more than one certificate may only double-count a single course for each.

Geography, B.A. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
General Education Foundation selection (GWS) (ENGL 15, 30, or ESL 15) [‡]	3	General Education Foundation selection (GWS) (CAS 100, 100A, 100B, or 100C) ^{‡†1}	3
General Education Foundation selection (GQ) [‡]	3	General Education Foundation selection (GQ) (STAT 200 preferred) [‡]	4
World Language level 1	4	World Language Level 2	4
General Education Knowledge Domain selection	3	General Education Knowledge Domain selection	3
General Education Knowledge Domain selection	3	General Education Health and Wellness (GHW)	1.5
	16		15.5

Second Year

Fall	Credits	Spring	Credits
General Education Foundation selection (GWS) (ENGL 202A, ENGL 202B, ENGL 202C, ENGL 202D) [‡]	3	General Education Knowledge Domain selection	3
World Language Level 3	4	General Education Knowledge Domain selection	3
General Education Knowledge Domain selection	3	General Education Knowledge Domain selection	3
General Education Knowledge Domain selection	3	BA Fields selection	3
General Education Knowledge Domain selection	3	General Education Health and Wellness (GHW)	1.5
	16		13.5

Third Year

Fall	Credits	Spring	Credits
GEOG 210 [*]	3	GEOG 301 [*]	3
GEOG 220 [*]	3	300-level GEOG selection [*]	3
GEOG 230 [*]	3	300-level GEOG selection [*]	3
GEOG 260 [*]	3	BA Fields selection	3
GEOG 364 or 308	3	BA World Cultures selection	3
GEOG 390 [*]	1		
	16		15

Fourth Year

Fall	Credits	Spring	Credits
300-level GEOG selection [*]	3	400-level GEOG selection [*]	3
400-level GEOG selection [*]	3	400-level GEOG selection [*]	3
400-level GEOG selection [*]	3	400-level GEOG engaged scholarship selection (GEOG 493, 494, 494H, 495, 495B, 495G, or 499) [*]	3
BA Fields selection	3	Elective	4
Elective	3		
	15		13

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

¹ Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100 (GWS) or ENGL 202A (GWS) or ENGL 202B (GWS) or ENGL 202C (GWS) or ENGL 202D (GWS) for EMSC 100S (GWS). EMSC 100S Earth and Mineral Sciences First-Year Seminar is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.

Advising Notes:

Commonwealth campus students are **strongly** advised to complete all GWS, GQ, and GHW credits before transitioning to UP, as these courses may be challenging to schedule at UP.

Students who place out of world language courses will have additional electives. For example, a student who has had 4 years of high school French and begins world language study at Penn State in Intermediate French (FR 3) will have 8 additional elective credits.

STAT 200 is a prerequisite for GEOG 364 and therefore only required for GEOBA students if the student elects to take GEOG 364 rather than GEOG 308. However, the Geography Department recommends that all students have a foundation in statistics.

To enter the major, students need a minimum 2.00 grade point average and third semester standing.

Courses required for the major may be offered fall semester only, spring semester only, or both fall and spring semesters. Consult with your adviser and department to discuss your academic progress and course sequencing.

Geography course notes:

- Students who have taken GEOG 10, GEOG 20, GEOG 30N/Geographic Perspectives on Sustainability and Human-Environment Systems (GEOG 30), GEOG 115, Urban Geography (GEOG 120), GEOG 124, GEOG 126, GEOG 128, or GEOG 160 should NOT take GEOG 210, GEOG 220, GEOG 230, GEOG 315, GEOG 320, GEOG 324, GEOG 326, GEOG 328, or GEOG 260 as the latter courses are functionally equivalent to the former and substitutions will be made as needed.
- The following courses are typically offered in **Fall semesters only** at UP: GEOG 210, GEOG 220, GEOG 310, GEOG 324, GEOG 328, GEOG 361, GEOG 362, GEOG 364, GEOG 365, GEOG 461W
- The following courses are typically offered in **Spring semesters only** at UP: GEOG 301, GEOG 314, GEOG 315, GEOG 363, GEOG 464, GEOG 467
- Some courses may alternate between Fall and Spring offerings depending on teaching resources, and some 400-level courses may be offered only once every other year. Consult with geography undergraduate adviser (advising@geog.psu.edu) for current offering schedule.
- Geography majors must select at least one writing-intensive course (WAC) in their 300/400-level courses. Some courses alternate between writing-intensive and non-writing-intensive offerings (e.g., GEOG 310/GEOG 310W; GEOG 411/GEOG 411W; GEOG 410/GEOG 412WAC, whose number will be changed to GEOG 410W). Other courses are offered only as writing-intensive, even if the suffix W/Y does not appear (e.g. GEOG 461W).

Geography majors are encouraged to complete at least one 12-credit undergraduate certificate in geography as part of their degree program. With careful planning, there is room in the curriculum to complete 2 certificates. Certificate topics include Human Geography; Physical Geography; Environment & Society Geography; Geographic Information Science; Geospatial Big Data Analytics; Justice, Ethics, Diversity in Space; and Landscape Ecology. Certificate courses double-count with major requirements, but students completing more than one certificate may only double-count a single course for each.

Career Paths

There are many potential careers for Geography majors. The Geography major teaches students a variety of useful skills for the marketplace. Employers value the wide-ranging computer, research, and analytical skills that geography students bring to work as employees. Geography undergraduates find jobs in all levels of government, nonprofit

organizations, and industry. In preparation for the job market both majors and non-majors can enhance their educational experience by enrolling in one or more of our certificate programs. The geography department offers certificates in Environment and Society, Geographic Information Systems, Geospatial Big Data Analytics, Human Geography, Landscape Ecology, and Physical Geography.

Careers

Very few geography-related jobs have the title of "geographer," but students with geography degrees find employment with diverse organizations including (but not limited to): Amnesty International; BAE Systems; Boeing; Esri; Federal Emergency Management Agency; Heifer International; NASA; National Geographic; National Park Service; Teach for America; United Nations; U.S. Army Corps of Engineers; U.S. Census Bureau; U.S. Environmental Protection Agency; U.S. Forest Service; U.S. State Department; local, regional, and state planning agencies; environmental and engineering consulting firms; policy research institutes; private corporations; and humanitarian organizations.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE GEOGRAPHY PROGRAM (<https://www.geog.psu.edu>)

Opportunities for Graduate Studies

A Geography undergraduate degree is ideal for students who are interested in pursuing graduate degrees in the computational, environmental, and social sciences. Alumni can enter graduate and professional studies in a variety of programs, including (but not limited to) geography, planning, international development, urban studies, sustainability, environmental sciences, ecology, geographic information sciences, information technology, environmental informatics, geodesign, business administration, supply chain management, emergency management, law, and education. They sometimes begin graduate or professional programs directly after finishing undergraduate studies, but often get several years' work experience before returning to school, either full or part-time.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.geog.psu.edu>)

Professional Resources

- American Association of Geographers (AAG) (<https://www.aag.org>)
- American Geographic Society (AGS) (<https://americangeo.org>)
- National Geographic Society (NGS) (<https://www.nationalgeographic.com>)
- International Geographic Union (IGU) (<https://igu-online.org>)
- Society of Woman Geographers (SWG) (<http://iswg.org>)
- North American Cartographic Information Society (NACIS) (<https://nacis.org>)
- ASPRS: The Imaging & Geospatial Information Society (<https://www.asprs.org>)
- National Council for Geographic Education (<https://ncge.org/>)

Contact

University Park

DEPARTMENT OF GEOGRAPHY
302 Walker Building
University Park, PA 16802
814-865-3433

geography@psu.edu

<https://www.geog.psu.edu>

Geography, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The Department of Geography in Penn State's College of Earth and Mineral Sciences offers a strong mix of human, physical, and methodological components that comprise the core of the geography major. Combining geography with other areas of study allows students to choose from a broad range of topics in order to suit their individual interests. Undergraduate degrees in geography are offered in the Bachelor of Science (BS) and in the Bachelor of Arts (BA). Both programs offer an integrated course of study in which students learn fundamental concepts in physical and human geography while developing methodological proficiency in qualitative analysis, spatial analysis, and/or geospatial technologies.

In contrast to the broader liberal arts-oriented B.A., the Bachelor of Science (B.S.) major is a more disciplinary-focused program, emphasizing technical skills and preparation across the human/physical spectrum of geography. It includes rigorous training in the use of geographic tools and technologies as well as core and advanced courses on the ways people use environmental resources and how they arrange themselves and their economic, social, and political activities on the Earth's surface.

In both the B.S. and B.A., students can customize and specialize their programs through the completion of undergraduate certificates. The Geography major can provide preparation for a career in business, industry, or government. Geographers with bachelor's degrees are currently being placed in federal, state, and local administrative and planning agencies and in private firms that specialize in planning and development or in environmental, socioeconomic, or location analysis.

What is Geography?

The Department of Geography in Penn State's College of Earth and Mineral Sciences offers a strong mix of human, physical, and methodological components that comprise the core of the geography major. Combining geography with other areas of study allows students to choose from a broad range of topics in order to suit their individual interests. Undergraduate degrees in geography are offered in the Bachelor of Science (BS) and in the Bachelor of Arts (BA). Both programs offer an integrated course of study in which students learn fundamental concepts in physical and human geography while developing methodological proficiency in qualitative analysis, spatial analysis, and/or geospatial technologies. This degree is associated with CIP code 30.4401 Geography and Environmental Studies and qualifies as a STEM field.

You Might Like This Program If...

- You want to understand and influence the economic, political, and environmental forces that shape our world.
- You want to make maps using cutting-edge technology to understand people and environments to make a difference in our world.

- You want to work at the intersection of science, technology, and policy in information technology; business; nonprofits; local, state, or federal governments; or education.
- You are passionate about issues of human and environmental justice.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Geography, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	9
Requirements for the Major	75

9 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GQ courses; 3 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
EMSC 100S	Earth and Mineral Sciences First-Year Seminar	3
GEOG 210	Geographic Perspectives on Environmental Systems Science	3
GEOG 220	Perspectives on Human Geography	3
GEOG 230	Geographic Perspectives on Environment, Society and Sustainability	3
GEOG 260	Geographic Information in a Changing World: Introduction to GIScience	3
GEOG 301	Thinking Geographically	3
GEOG 364	Spatial Analysis	3
GEOG 390	Professional Development Seminar in Geography	1
GEOG 464	Advanced Spatial Analysis	3
STAT 200	Elementary Statistics	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Calculus:		
Select one of the following:		4
MATH 83	Technical Calculus	

MATH 110	Techniques of Calculus I	
MATH 140	Calculus With Analytic Geometry I	
Engaged Scholarship:		
Select 3 credits from the following:		3
GEOG 493	Service Learning (1-3 credits)	
GEOG 494	Research Project in Geography (1-3 credits)	
GEOG 494H	Research Project in Geography (1-3 credits)	
GEOG 495	Internship (1-3 credits)	
GEOG 495B	Geography Teaching Internship (1-3 credits)	
GEOG 495G	Giscience Internship (1-3 credits)	
GEOG 499	Foreign Studies (1-3 credits)	
Geographic Information Science Skills:		
Select 6 credits from the following:		6
GEOG 361	Cartography—Maps and Map Construction	
GEOG 362	Remote Sensing and Image Analysis	
GEOG 363	Geographic Information Systems	
GEOG 365	Introduction to GIS Programming	
300-level geography:		
Select 9 credits, not including courses taken above:		9
GEOG 308	Research and Qualitative Inquiry in Geography	
GEOG 310	Introduction to Global Climatic Systems	
GEOG 310W	Introduction to Global Climatic Systems	
GEOG 314	Biogeography and Global Ecology	
GEOG 315	Landforms and Geomorphic Systems in the Anthropocene	
GEOG 320	Urban Geography: A Global Perspective	
GEOG 324	Place, Space and Culture	
GEOG 326	Geographic Perspectives on Economic Systems	
GEOG 328	War, Peace, and Diplomacy: Understanding Contemporary Geopolitics	
GEOG 330N	Political Ecology	
GEOG 333	Human Dimensions of Natural Hazards	
400-level geography:		
Select 12 credits, not including courses taken above:		12
GEOG 410		
GEOG 411	Forest Geography	
GEOG 411W	Forest Geography	
GEOG 412W	Climatic Change and Variability	
GEOG 414	Principles and Applications in Landscape Ecology	
GEOG 420Y	Comparative Urbanism	
GEOG 421	Population Geography	
GEOG 422W	Globalization, Migration, and Displacement	
GEOG 424	Geography of the Global Economy	
GEOG 424W	Geography of the Global Economy	
GEOG 425	Geography of Race, Class, and Poverty in America	
GEOG 426W	Gendered Worlds	
GEOG 428W	Political Geography	
GEOG 430	Human Use of Environment	
GEOG 431	Geography of Water Resources	
GEOG 432	Energy Policy	
GEOG 433	Geographies of Justice	
GEOG 434	Politics of the Environment	

GEOG 436	Ecology, Economy, and Society	
GEOG 438W	Human Dimensions of Global Warming	
GEOG 439	Property and the Global Environment	
GEOG 444	Resource Governance in Africa	
GEOG 461W	Dynamic Cartographic Representation	
GEOG 462	Advanced Observation of Earth and Its Environment	
GEOG 463	Geospatial Information Management	
GEOG 465	Advanced Geographic Information Systems Modeling	
GEOG 467	Applied Cartographic Design	
GEOG 481	Topographic Mapping with Lidar	
GEOG 485	GIS Programming and Software Development	
GEOG 493	Service Learning (1-3 credits)	
GEOG 494	Research Project in Geography (1-3 credits)	
GEOG 494H	Research Project in Geography (1-3 credits)	
GEOG 495	Internship (1-3 credits)	
GEOG 495B	Geography Teaching Internship (1-3 credits)	
GEOG 495G	Giscience Internship (1-3 credits)	
GEOG 496	Independent Studies (1-3 credits)	
GEOG 497	Special Topics	
GEOG 498	Special Topics	
GEOG 499	Foreign Studies (1-6 credits)	

Supporting Courses and Related Areas

Select 12 credits in geography or related areas (not used above) in consultation with adviser. 12

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- Majors in Geography will demonstrate knowledge of fundamental geographic skills and concepts and apply them to complex spatial relationships (interactions, patterns, processes) within the human socio-cultural and natural environments at global, regional, and local scales.
- Majors in Geography will engage in spatial and environmental critical thinking by analyzing, discussing and synthesizing geographical

information that may include professional/technical documents, primary data, maps, graphics, and/or archival data.

- Majors in Geography will communicate geographic information utilizing oral, written, and visual formats to effectively process and integrate facts, ideas, and research results.
- Majors in Geography will develop research skills by locating, understanding, and explaining geographic challenges and opportunities related to human socio-cultural and/or environmental phenomena at global, regional, and local scales.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Geography, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
EMSC 100S (GWS) ^{††1}	3 General Education Foundation selection (GWS) (ENGL 15, 30, or ESL 15) [†]	3
MATH 110, 140, 140G, or 83 ^{††}	4 STAT 200 ^{††}	4

General Education Knowledge Domain selection	3 General Education Knowledge Domain selection	3
General Education Knowledge Domain selection	3 General Education Knowledge Domain selection	3
GEOG 210, 220, 230, or 260*	3 GEOG 220, 210, 230, or 260*	3

16 **16**

Second Year

Fall	Credits Spring	Credits
General Education Knowledge Domain selection	3 General Education Foundation selection (GWS) (ENGL 202A, ENGL 202B, ENGL 202C, ENGL 202D, CAS 100A, CAS 100B, or CAS 100C) [†]	3
General Education Knowledge Domain selection	3 General Education Knowledge Domain selection	3
GEOG 230, 210, 220, or 260*	3 GEOG 301*	3
GEOG 260, 210, 220, or 230*	3 300-level GEOG selection*	3
GEOG 364*	3 300-level GEOG selection*	3
GEOG 390*	1	

16 **15**

Third Year

Fall	Credits Spring	Credits
General Education Knowledge Domain selection	3 General Education Knowledge Domain selection	3
GEOG 361, 362, 363, or 365*	3 GEOG 361, 362, 363, or 365*	3
300-level GEOG selection*	3 GEOG 464*	3
Supporting Course selection	3 400-level GEOG selection*	3
Supporting Course selection	3 400-level GEOG selection*	3

15 **15**

Fourth Year

Fall	Credits Spring	Credits
General Education Health and Wellness (GHW)	1.5 General Education Health and Wellness (GHW)	1.5
400-level GEOG selection*	3 400-level GEOG engaged scholarship selection (GEOG 493, 494, 494H, 495, 495B, 495G, or 499)*	3
400-level GEOG selection*	3 Elective	3
Supporting Course selection	3 Elective	3
Supporting Course selection	3 Elective	3

13.5 **13.5**

Total Credits 120

- * Course requires a grade of C or better for the major
 ‡ Course requires a grade of C or better for General Education
 # Course is an Entrance to Major requirement
 † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

¹ Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100 (GWS) or ENGL 202A (GWS) or ENGL 202B (GWS) or ENGL 202C (GWS) or ENGL 202D (GWS) for EMSC 100S (GWS). EMSC 100S Earth and Mineral Sciences First year Seminar (3) is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.

Advising Notes:

To enter the major, students need a minimum 2.00 grade point average and third semester standing.

Courses required for the major may be offered fall semester only, spring semester only, or both fall and spring semesters. Consult with your adviser and department to discuss your academic progress and course sequencing.

For 300-level selections, students should choose one course each from physical geography (GEOG 31x), human geography (GEOG 32x) and environment-society geography (GEOG 33x). Additional 300-level courses (any topic) may be selected for "Supporting Courses" and "Electives" to complete undergraduate certificate requirements.

Geography majors are encouraged to complete at least one 12-credit undergraduate certificate in geography as part of their degree program. With careful planning, there is room in the curriculum to complete 2 certificates. Certificate topics include Human Geography; Physical Geography; Environment & Society Geography; Geographic Information Science; Geospatial Big Data Analytics; Justice, Ethics, Diversity in Space; and Landscape Ecology. Certificate courses double-count with major requirements, but students completing more than one certificate may only double-count a single course for each.

Geography course notes:

- Students who have taken GEOG 10, GEOG 20, GEOG 30N/Geographic Perspectives on Sustainability and Human-Environment Systems (GEOG 30), GEOG 115, Urban Geography (GEOG 120), GEOG 124, GEOG 126, GEOG 128, or GEOG 160 should NOT take GEOG 210, GEOG 220, GEOG 230, GEOG 315, GEOG 320, GEOG 324, GEOG 326,

GEOG 328, or GEOG 260 as the latter courses are functionally equivalent to the former and substitutions will be made as needed.

- The following courses are typically offered in **Fall semesters only** at UP: GEOG 210, GEOG 220, GEOG 310, GEOG 324, GEOG 328, GEOG 361, GEOG 362, GEOG 364, GEOG 365, GEOG 461W
- The following courses are typically offered in **Spring semesters only** at UP: GEOG 301, GEOG 314, GEOG 315, GEOG 363, GEOG 464, GEOG 467
- Some courses may alternate between Fall and Spring offerings depending on teaching resources, and some 400-level courses may be offered only once every other year. Consult with geography undergraduate adviser (advising@geog.psu.edu) for current offering schedule.
- Geography majors must select at least one writing-intensive course (WAC) in their 300/400-level courses. Some courses alternate between writing-intensive and non-writing-intensive offerings (e.g., GEOG 310/GEOG 310W; GEOG 411/GEOG 411W; GEOG 410/GEOG 412W, whose number will be changed to GEOG 410W). Other courses are offered only as writing-intensive, even if the suffix W/Y does not appear (e.g. GEOG 461W).

Geography, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
General Education Foundation selection (GWS) (ENGL 15, 30, or ESL 15) [‡]	3 General Education Foundation selection (GWS) (CAS 100, 100A, 100B, or 100C) ^{††1}	3
MATH 110, 140, or 83 ^{††}	4 STAT 200 ^{††}	4
General Education Knowledge Domain selection	3 General Education Health and Wellness (GHW)	1.5
General Education Knowledge Domain selection	3 General Education Knowledge Domain selection	3
General Education Knowledge Domain selection	3 General Education Knowledge Domain selection	3
	16	14.5

Second Year

Fall	Credits Spring	Credits
General Education Foundation selection (GWS) (ENGL 202A, ENGL 202B, ENGL 202C, ENGL 202D) [‡]	3 General Education Health and Wellness (GHW)	1.5
General Education Knowledge Domain selection	3 Elective	3
General Education Knowledge Domain selection	3 Elective	3
General Education Knowledge Domain selection	3 Elective	3
General Education Knowledge Domain selection	3 Supporting course	3
	15	13.5

Third Year

Fall	Credits Spring	Credits
GEOG 210 [*]	3 GEOG 301 [*]	3
GEOG 220 [*]	3 300-level GEOG selection [*]	3
GEOG 230 [*]	3 300-level GEOG selection [*]	3
GEOG 260 [*]	3 GEOG 464 [*]	3
GEOG 364 [*]	3 Supporting Course	3
GEOG 390 [*]	1	
	16	15

Fourth Year

Fall	Credits Spring	Credits
GEOG 361, 362, 363, or 365 [*]	3 400-level GEOG selection [*]	3
GEOG 362, 361, 363, or 365 [*]	3 400-level GEOG selection [*]	3
300-level GEOG selection [*]	3 400-level GEOG engaged scholarship selection (GEOG 493, 494, 494H, 495, 495B, 495G, or 499) [*]	3
400-level GEOG selection [*]	3 Supporting Course	3
400-level GEOG selection [*]	3 Supporting Course	3
	15	15

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100 (GWS) or ENGL 202A (GWS) or ENGL 202B (GWS) or ENGL 202C (GWS) or ENGL 202D (GWS) for EMSC 100S (GWS). EMSC 100S Earth and Mineral Sciences First-Year Seminar is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.

Advising Notes:

Commonwealth campus students are **strongly** advised to complete all GWS, GQ, and GHW credits before transitioning to UP, as these courses may be challenging to schedule at UP. STAT 200 is a prerequisite for GEOG 364, which is only offered at UP in fall semesters.

To enter the major, students need a minimum 2.00 grade point average and third semester standing.

Courses required for the major may be offered fall semester only, spring semester only, or both fall and spring semesters. Consult with your adviser and department to discuss your academic progress and course sequencing.

For 300-level selections, students should choose one course each from physical geography (GEOG 31x), human geography (GEOG 32x) and environment-society geography (GEOG 33x). Additional 300-level courses

(any topic) may be selected for "Supporting Courses" and "Electives" to complete undergraduate certificate requirements.

Geography majors are encouraged to complete at least one 12-credit undergraduate certificate in geography as part of their degree program. With careful planning, there is room in the curriculum to complete 2 certificates. Certificate topics include Human Geography; Physical Geography; Environment & Society Geography; Geographic Information Science; Geospatial Big Data Analytics; Justice, Ethics, Diversity in Space; and Landscape Ecology. Certificate courses double-count with major requirements, but students completing more than one certificate may only double-count a single course for each.

Geography course notes:

- Some courses may be available online to students at Commonwealth Campuses via the Digital Learning Cooperative. Interested students should consult with their academic adviser and campus registrar regarding availability, and with the geography department undergraduate adviser (advising@geog.psu.edu) regarding how such courses may fit into the academic plan.
- Students who have taken GEOG 10, GEOG 20, GEOG 30N/Geographic Perspectives on Sustainability and Human-Environment Systems (GEOG 30), GEOG 115, Urban Geography (GEOG 120), GEOG 124, GEOG 126, GEOG 128, or GEOG 160 should NOT take GEOG 210, GEOG 220, GEOG 230, GEOG 315, GEOG 320, GEOG 324, GEOG 326, GEOG 328, or GEOG 260 as the latter courses are functionally equivalent to the former and substitutions will be made as needed.
- The following courses are typically offered in **Fall semesters only** at UP: GEOG 210, GEOG 220, GEOG 310, GEOG 324, GEOG 328, GEOG 361, GEOG 362, GEOG 364, GEOG 365, GEOG 461W
- The following courses are typically offered in **Spring semesters only** at UP: GEOG 301, GEOG 314, GEOG 315, GEOG 363, GEOG 464, GEOG 467
- Some courses may alternate between Fall and Spring offerings depending on teaching resources, and some 400-level courses may be offered only once every other year. Consult with geography undergraduate adviser (advising@geog.psu.edu) for current offering schedule.
- Geography majors must select at least one writing-intensive course (WAC) in their 300/400-level courses. Some courses alternate between writing-intensive and non-writing-intensive offerings (e.g., GEOG 310/GEOG 310W; GEOG 411/GEOG 411W; GEOG 410/GEOG 412W, whose number will be changed to GEOG 410W). Other courses are offered only as writing-intensive, even if the suffix W/Y does not appear (e.g. GEOG 461W).

Career Paths

There are many potential careers for Geography majors. The Geography major teaches students a variety of useful skills for the marketplace. Employers value the wide-ranging computer, research, and analytical skills that geography students bring to work as employees. Geography undergraduates find jobs in all levels of government, nonprofit organizations, and industry. In preparation for the job market both majors and non-majors can enhance their educational experience by enrolling in one or more of our certificate programs. The geography department offers certificates in Environment and Society, Geographic Information Systems, Geospatial Big Data Analytics, Human Geography, Landscape Ecology, and Physical Geography.

Careers

Very few geography-related jobs have the title of "geographer," but students with geography degrees find employment with diverse organizations including (but not limited to): Amnesty International, BAE Systems, Boeing, Esri, Federal Emergency Management Agency, Heifer International, NASA, National Geographic, National Park Service, Teach for America, United Nations, U.S. Army Corps of Engineers, U.S. Census Bureau, U.S. Environmental Protection Agency, U.S. Forest Service, U.S. State Department, local, regional, and state planning agencies, environmental and engineering consulting firms, policy research institutes, private corporations, and humanitarian organizations.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE GEOGRAPHY PROGRAM (<https://www.geog.psu.edu>)

Opportunities for Graduate Studies

A Geography undergraduate degree is ideal for students who are interested in pursuing graduate degrees in the computational, environmental, and social sciences. Alumni enter graduate and professional studies in a variety of programs, including (but not limited to) geography, planning, international development, urban studies, sustainability, environmental sciences, ecology, geographic information sciences, information technology, environmental informatics, geodesign, business administration, supply chain management, emergency management, law, and education. They sometimes begin graduate or professional programs directly after finishing undergraduate studies, but often get several years' work experience before returning to school, either full-or part-time.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.geog.psu.edu>)

Professional Resources

- American Association of Geographers (AAG) (<https://www.aag.org>)
- American Geographic Society (AGS) (<https://americangeo.org>)
- National Geographic Society (NGS) (<https://www.nationalgeographic.com>)
- International Geographic Union (IGU) (<https://igu-online.org>)
- Society of Woman Geographers (SWG) (<http://iswg.org>)
- North American Cartographic Information Society (NACIS) (<https://nacis.org>)
- ASPRS: The Imaging & Geospatial Information Society (<https://www.asprs.org>)
- National Council for Geographic Education (<https://ncge.org/>)

Contact

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Geography, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change

from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Geography minor can complement most majors in the social sciences, physical sciences, biological sciences, and technical disciplines. The Geography minor is flexible so that students can tailor their course choices to accommodate individual interests. A broadly based approach to selecting minor courses can be appropriate for students whose majors are highly specialized or narrowly focused. Alternatively, students may choose to fulfill Geography minor requirements with a particular content emphasis, such as an interest in environmental issues or urban and regional planning. Looking through course choices and talking with geography staff can make earning the Geography minor an important enhancement to one's academic program.

What is Geography?

What do Amnesty International, Boeing, National Geographic, and Esri have in common? Penn State geographers are there, hard at work every day. Our students and alumni are behind the maps you use daily, as well as the policies that shape our cities, and the analysis that sustains our environment. Geographers help shape the future design of cities and infrastructure. Geographers assess impacts of rising sea levels, melting glaciers, and tropical storms, as well as study impacts of wildfires or manage wetlands. Geographers analyze new markets and locations for businesses. Geographers use cutting-edge satellite data to defend human rights by detecting large-scale abuses. Geographers also work directly with local people on social justice issues such as health and migration. If you want to change the world, there is no better discipline for people who thrive on complex challenges and want to make a real impact on lives and our environment.

You Might Like This Program If...

- You want to understand and influence the economic, political, and environmental forces that shape our world.
- You want to make maps using cutting-edge technology to understand people and environments to make a difference in our world.
- You want to work at the intersection of science, technology, and policy in information technology; business; nonprofits; local, state, or federal governments; or education.
- You are passionate about issues of human and environmental justice.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
In consultation with a geography adviser.		
	Select 3 credits in physical geography	3

Select 3 credits in human geography	3
Select 6 credits of additional geography courses	6
Select 6 credits of 400-level geography courses	6

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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World Campus

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Career Paths

There are many potential careers for students with a background in geography. The Geography minor teaches students a variety of useful skills for the marketplace. Employers value the wide-ranging computer, research, and analytical skills that geography students bring to work as employees. Geography undergraduates find jobs in all levels of government, nonprofit organizations, and in industry.

Careers

Very few geography-related jobs have the title of "geographer," but students with geography backgrounds find employment with diverse organizations including (but not limited to): Amnesty International; BAE Systems; Boeing; Esri; Federal Emergency Management Agency; Heifer International; NASA; National Geographic; National Park Service; Teach for America; United Nations; U.S. Army Corps of Engineers; U.S. Census Bureau; U.S. Environmental Protection Agency; U.S. Forest Service; U.S. State Department; local, regional, and state planning agencies; environmental and engineering consulting firms; policy research institutes; private corporations; and humanitarian organizations.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN GEOGRAPHY (<https://www.geog.psu.edu>)

Opportunities for Graduate Studies

A Geography minor is useful for students who are interested in pursuing graduate degrees in the environmental, and social sciences. Alumni enter graduate and professional studies in a variety of programs, including (but not limited to) geography, planning, international development, urban studies, sustainability, environmental sciences, ecology, geographic information sciences, business administration, supply chain management, emergency management, law, and education. They sometimes begin graduate or professional programs directly after finishing undergraduate studies, but often get several years' work experience before returning to school, either full or part-time.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.geog.psu.edu>)

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World Campus

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-geography-minor> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-geography-minor/>)

Geophysics, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Geophysics minor provides the opportunity for students from outside the geosciences to apply the physics, quantitative, and technical skills they are developing in their major program to the geophysical aspects of Earth science, including seismology, volcanology, natural hazards, environmental geophysics, and petroleum and mineral exploration. For students majoring in Geosciences, the completion of the minor will strengthen their physics/quantitative background and develop links between theory and application for these technical and quantitative skills. The minor will prepare students for graduate programs in geophysics and/or employment opportunities in the environmental and exploration industries.

What is Geophysics?

Geophysics is the application of physics to study of Earth (and other planetary bodies). The field is broadly focused on combining physics, mathematics, computation, and geology to investigate Earth's interior

and dynamics, to understand and help mitigate natural hazards, and to explore for natural resources such as water, oil, gas, and minerals.

You Might Like This Program If...

- You are curious about the mechanics of earthquakes, volcanism, and other natural hazards.
- You are interested in the physical processes that drive plate tectonics.
- You want to learn more about how geophysics is used to study the inaccessible parts of Earth (and other planets).
- You would like to apply your physics, math, and computer skills to investigate natural hazards and/or to develop a broad understanding of how the Earth works.

Program Requirements

Requirement	Credits
Requirements for the Minor	29-32

Requirements for the Minor

The minor consists of 18-20 credits satisfying the requirements below.

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
GEOSC 1	Physical Geology	3
MATH 140	Calculus With Analytic Geometry I	4
PHYS 212	General Physics: Electricity and Magnetism	4
Additional Courses		18-21
<i>Additional Courses: Require a grade of C or better</i>		
<i>Non-Geoscience Majors</i>		
GEOSC 203	Physical Processes in Geology	
Select 3 credits from the following:		
EARTH 2	The Earth System and Global Change	
EARTH 101	Natural Disasters: Hollywood vs. Reality	
EARTH 105N	Environments of Africa: Geology and Climate Change	
EARTH 106		
GEOSC 1	Physical Geology	
GEOSC 10	Geology of the National Parks	
GEOSC 40	The Sea Around Us	
GEOSC 109H	Earthquakes and Society	
Select 11-13 credits of the following:		
GEOSC 402Y	Natural Disasters	
GEOSC 434	Volcanology	
GEOSC 452	Hydrogeology	
GEOSC 483	Environmental Geophysics	
GEOSC 487	Analysis of Time Series	
GEOSC 488	An Introduction to Seismology	
GEOSC 489	Dynamics of the Earth	

Geoscience Majors ¹

PHYS 212 General Physics: Electricity and Magnetism

Select 3-4 credits of the following:

MATH 220 Matrices

MATH 230 Calculus and Vector Analysis

MATH 231 Calculus of Several Variables

MATH 232 Integral Vector Calculus

MATH 250 Ordinary Differential Equations

MATH 251 Ordinary and Partial Differential Equations

Select 11-13 credits of the following:

GEOSC 402Y Natural Disasters

GEOSC 434 Volcanology

GEOSC 452 Hydrogeology

GEOSC 483 Environmental Geophysics

GEOSC 487 Analysis of Time Series

GEOSC 488 An Introduction to Seismology

GEOSC 489 Dynamics of the Earth

¹ Geoscience majors may not double count these courses in their major.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Geosciences, B.A.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The geosciences are concerned with understanding Earth processes and the evolutionary history of the Earth. Geoscientists work to discover and develop natural resources such as groundwater, metals, and energy sources; to solve technology-generated environmental problems such as acid mine drainage and waste disposal; to predict geological events, such as the occurrence of earthquakes and volcanism; and to solve fundamental questions concerning the origin and evolution of Earth and life. The Bachelor of Arts degree program stresses data collection; investigation, analysis, and synthesis of information related to complex natural problems; rigor of thought; and clarity of oral and written expression. The B.A. provides a basic education in geosciences, and is designed for students who wish to prepare themselves for careers that interface among science, social science, and business. Examples of these careers include environmental law; national and international planning or resource management; and K-12 teaching.

What is Geosciences?

Geoscientists want to know more about the big picture of Earth and why it exists the way it does today. They investigate natural disasters such as earthquakes and volcanoes, they explore life in extreme environments such as hydrothermal vents or in far-removed caves, and they examine processes such as water treatment and carbon cycling. This work involves understanding how geology, chemistry, physics, and biology intersect, both today and throughout the Earth's history. Geoscientists piece together a picture of both Earth's past environments and life throughout time. This can involve field work, laboratory work, or a combination. Ultimately, geoscientists seek to understand how our Earth developed into the way it is today, which can help us understand what we can expect in the Earth's future.

You Might Like This Program If...

- You are fascinated by volcanoes, earthquakes, rocks, glaciers, climate change, fossils, tectonic plates, or the evolution of life.
- You like big picture thinking and want to explore the Earth's developmental processes.
- You enjoy understanding how organisms and species existed in past ecosystems.
- You are analytical and like to piece together clues to paint a picture of past life.
- You love physical science but struggle with calculus/physics.
- You would like to pursue a second B.A.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Geosciences, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Bachelor of Arts Degree Requirements	24
Requirements for the Major	72

21 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 6 credits of GWS courses.

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
EMSC 100S	Earth and Mineral Sciences First-Year Seminar ¹	3
<i>Prescribed Courses: Require a grade of C or better</i>		
GEOSC 1	Physical Geology ²	3
GEOSC 201	Earth Materials	4
Additional Courses		
ENGL 15	Rhetoric and Composition	3
or ENGL 30H	Honors Rhetoric and Composition	
MATH 140	Calculus With Analytic Geometry I	4
or MATH 110	Techniques of Calculus I	
Select one of the following:		4
GEOSC 202	Chemical Processes in Geology	
GEOSC 203	Physical Processes in Geology	
GEOSC 204	Geobiology	
Select 2 of the following 3 sequences for 8 credits each and a third sequence for 4 credits:		20
BIOL 110 & BIOL 220W	Biology: Basic Concepts and Biodiversity and Biology: Populations and Communities	
CHEM 110 & CHEM 111 & CHEM 112 & CHEM 113	Chemical Principles I and Experimental Chemistry I and Chemical Principles II and Experimental Chemistry II	
PHYS 250 & PHYS 251	Introductory Physics I and Introductory Physics II ³	
Select 2-4 credits of advanced mathematics in consultation with an adviser ⁴		2-4
Select 6 credits from 300- and 400-level GEOSC courses		6

Select 3 credits of appropriate field/laboratory experience in consultation with adviser 3

Select 3 credits of writing-intensive courses from within Earth and Mineral Sciences to include, but not limited to the following: 3

GEOG 310 Introduction to Global Climatic Systems

GEOG 412

GEOSC 402Y Natural Disasters

GEOSC 470W Introduction to Field Geology

METEO 471

Additional Courses: Require a grade of C or better

GEOSC 310 Earth History 3-4
or GEOSC 320 Geology of Climate Change

Supporting Courses and Related Areas

Select 11-14 credits in consultation with adviser (students may apply 1-4 6 credits of ROTC)

¹ The following substitutions are allowed for students attending campuses where the indicated course is not offered: CAS 100 or ENGL 202C can be substituted for EMSC 100S.

² If GEOSC 1 is not available, GEOSC 20 may be substituted.

³ PHYS 211, PHYS 212, PHYS 213, PHYS 214 may substitute for up to 8 credits in Physics for students with MATH 140, MATH 141.

⁴ List includes:

- MATH 111

- MATH 141

- STAT 200

- STAT 250

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits

- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits

- **Health and Wellness (GHW):** 3 credits

- **Humanities (GH):** 3 credits

- **Social and Behavioral Sciences (GS):** 3 credits

- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this

category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- **Core Science Application:** To produce graduates who can apply knowledge of the mathematics, physics, chemistry, and biology of Earth processes to the solution of geologic problems.
- **Earth Systems Thinking:** To produce graduates who can integrate multiple aspects of the origin, evolution, and future of the Earth, including the geosphere, hydrosphere, biosphere, and atmosphere.
- **Observation & Measurement:** To produce graduates who can interpret Earth's history and dynamics by observing and measuring minerals, rocks, fluids, fossils, landforms, and structures.
- **Scientific Inquiry & Communication:** To produce graduates who possess the ability to pose questions, collect and interpret data, and solve geologic problems, communicating the results of this scientific inquiry through writing and speaking.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Geosciences, B.A. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes

in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 110, 140, or 140G (GQ) ^{††}	4 ENGL 15, 30H, or ESL 15 (GWS) ^{††}	3
CHEM 110 (GN) [†]	3 PHYS 250 (GN) [†]	4
CHEM 111 (GN) [†]	1 General Education Knowledge Domain	3
GEOSC 1 [*]	3 MATH 141, 141G, 111, STAT 200, or STAT 250 (GQ) ^{††}	4
EMSC 100S ^{††1}	3	
	14	14

Second Year

Fall	Credits Spring	Credits
GEOSC 201 [*]	4 GEOSC 310 or 320 [*]	3-4
BIOL 110 (GN) [†]	4 BIOL 220W, PHYS 251, or CHEM 112 <i>and</i> CHEM 113	4
World Language level 1	4 General Education Knowledge Domain	3
General Education Knowledge Domain	3 World Language level 2	4
	General Education Health and Wellness (GHW)	1.5
	15	15.5-16.5

Third Year

Fall	Credits Spring	Credits
GEOSC 202, 203, or 204	4 General Education Foundation selection (GWS) [†]	3
World Language level 3	4 Supporting Course	3
BIOL 220W, PHYS 251, or CHEM 112 <i>and</i> CHEM 113	4 Bachelor of Arts Course	3
General Education Knowledge Domain	3 Bachelor of Arts Course	3
	General Education Knowledge Domain	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
Supporting Course	3 Advanced 300/400 level GEOSC course	3
Supporting Course	3 Field/lab experience	3
Advanced 300/400 level GEOSC course	3 Writing intensive course from within Earth and Mineral Sciences	3
General Education Knowledge Domain	3 World Cultures course	3
Bachelor of Arts Course	3 Supporting Course	3

General Education Health and Wellness (GHW)	1.5
	16.5
	15

Total Credits 120-121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

¹ Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100 (GWS), CAS 100A, CAS 100B, or CAS 100C; or ENGL 202C (GWS) or EM SC 100S (GWS). EM SC 100S Earth and Mineral Sciences First year Seminar (3) is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.

Advising Notes:

Supporting Courses should be selected in consultation with an adviser. Students may use up to 6 credits of ROTC.

Geosciences, B.A. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 110 or 140 (GQ) ^{††}	4 PHYS 250 (GN) [†]	4
CHEM 110 (GN) [†]	3 MATH 141, 111, STAT 200, or STAT 250 (GQ) ^{††}	4
CHEM 111 (GN) [†]	1 World Language Level 2	4
World Language Level 1	4 General Education Knowledge Domain	3
ENGL 15, 30H, or ESL 15 (GWS) [‡]	3	
	15	15

Second Year

Fall	Credits Spring	Credits
BIOL 110 (GN) [†]	4 BIOL 220W, PHYS 251, or CHEM 112 <i>and</i> CHEM 113	4
CAS 100, CAS 100A, CAS 100B, or CAS 100C (GWS) ^{‡1}	3 ENGL 202C (GWS) ^{‡1}	3
World Language level 3	4 General Education Knowledge Domain	3
General Education Knowledge Domain	3 Bachelor of Arts Course	3
General Education Health and Wellness (GHW)	1.5 General Education Health and Wellness (GHW)	1.5
	15.5	14.5

Third Year

Fall	Credits Spring	Credits
GEOSC 1 or 20 [*]	3 GEOSC 201 [*]	4
BIOL 220W, PHYS 251, or CHEM 112 <i>and</i> CHEM 113	4 Supporting Course	3
General Education Knowledge Domain	3 Bachelor of Arts Course	3
World Cultures course	3 Bachelor of Arts Course	3
	General Education Knowledge Domain	3
	13	16

Fourth Year

Fall	Credits Spring	Credits
GEOSC 202, 203, or 204	4 GEOSC 310 or 320 [*]	3-4
Advanced 300/400 level GEOSC course	3 Advanced 300/400 level GEOSC course	3
Supporting Course	3 Field/lab experience	3
Supporting Course	3 Writing intensive course from within Earth and Mineral Sciences	3

General Education Knowledge Domain	3 Supporting Course	3
	16	15-16

Total Credits 120-121

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

¹ Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100 (GWS), CAS 100A, CAS 100B, or CAS 100C; or ENGL 202C (GWS) or EM SC 100S (GWS). EM SC 100S Earth and Mineral Sciences First year Seminar (3) is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.

Advising Notes:

Supporting Courses should be selected in consultation with an adviser. Students may use up to 6 credits of ROTC.

Career Paths

The versatile Geosciences degree provides a broad knowledge base that can be applied to careers in many industries, as well as further graduate study in many Earth science-related disciplines.

Careers

Our degree offers a comprehensive background in traditional geology and is suitable for students who wish to work in the environmental or oil

and gas industries, in hydrogeology or geotechnical fields, or continue to graduate school.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE GEOSCIENCES PROGRAM (<https://www.geosc.psu.edu/undergraduate/why-geosciences/career-outlook/>)

Opportunities for Graduate Studies

Graduates may be well suited to pursue graduate-level degrees in geosciences or other Earth science-related disciplines. Some may be inclined to pursue master of business administration, master of education, or environmental law degrees.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.geosc.psu.edu/graduate/>)

Professional Resources

- Geosciences Club (<https://www.facebook.com/groups/46384419817/>)
- Association for Women Geoscientists (<https://sites.psu.edu/awgpennstate/>)
- American Water Resources Association (<https://agsci.psu.edu/students/clubs/list/other/>)
- EcoAction (<https://sites.psu.edu/ecoaction/>)

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Geosciences, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The geosciences are concerned with understanding Earth processes and the evolutionary history of the Earth. Geoscientists work to discover and develop natural resources such as groundwater, metals, and energy sources; to solve technology-generated environmental problems such as acid mine drainage and waste disposal; to predict geological events, such as the occurrence of earthquakes and volcanism; and to solve fundamental questions concerning the origin and evolution of Earth and life. Our degree programs stress data collection; investigation, analysis, and synthesis of information related to complex natural problems; and rigor of thought and clarity of oral and written expression. The B.S. provides a broad foundation in the physical and natural sciences for students who seek immediate employment or post-graduate education in several areas of the geosciences. Examples of careers include the petroleum and mining industries; local or federal resource management; water resources, treatment and management; energy and environmental industries; and academia. A senior thesis involving independent research is required of all students.

General Option

This option is designed to provide sufficient flexibility so that the student has the opportunity to prepare for graduate school by focusing on specialized areas in the geosciences. The option's flexibility also permits students to develop a broad background in the geosciences in preparation for postgraduate majors that require breadth, such as environmental law.

Hydrogeology Option

This option helps prepare the student for entry-level positions in environmental agencies and firms where a specialized knowledge of groundwater and related areas is required. The option is also appropriate for students wishing to pursue an advanced degree in the area of hydrogeology.

What is Geosciences?

Geoscientists want to know more about the big picture of Earth and why it exists the way it does today. They investigate natural disasters such as earthquakes and volcanoes, they explore life in extreme environments such as hydrothermal vents or in far-removed caves, and they examine processes such as water treatment and carbon cycling. This work involves understanding how geology, chemistry, physics, and biology intersect, both today and throughout the Earth's history. Geoscientists piece together a picture of both Earth's past environments and life throughout time. This work can involve field work, laboratory work, or a combination. Ultimately, geoscientists seek to understand how our Earth developed into the way it is today, which can help us understand what we can expect in the Earth's future.

You Might Like This Program If...

- You are fascinated by volcanoes, earthquakes, rocks, glaciers, climate change, fossils, tectonic plates, or the evolution of life.
- You like big picture thinking and want to explore Earth's developmental processes.
- You like applying basic science skills to explore the natural world.
- You enjoy working in nature or a laboratory (not all geosciences is outdoors!).
- You are analytical and like to piece together clues to paint a picture of the planet's past.

Entrance to Major

In addition to the minimum grade point average (GPA) requirements described in the University Policies, the Geosciences entrance-to-major requirement must also be completed with a minimum grade of C: MATH 140.

Degree Requirements

For the Bachelor of Science degree in Geosciences, a minimum of 121 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	97

21 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses, 6 credits of GQ courses, 6 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
CHEM 113	Experimental Chemistry II	1
EMSC 100S	Earth and Mineral Sciences First-Year Seminar ¹	3
GEOSC 1	Physical Geology ²	3
GEOSC 204	Geobiology	4
GEOSC 472A	Field Geology I (Introduction to Field Methods)	3
GEOSC 472B	Field Geology II (Advanced Field Methods)	3
GEOSC 494W	Senior Thesis	3
GEOSC 496	Independent Studies	1
MATH 141	Calculus with Analytic Geometry II	4
PHYS 211	General Physics: Mechanics	4
PHYS 213	General Physics: Fluids and Thermal Physics	2

Prescribed Courses: Require a grade of C or better

GEOSC 201	Earth Materials	4
GEOSC 202	Chemical Processes in Geology	4
GEOSC 203	Physical Processes in Geology	4
GEOSC 310	Earth History	4
GEOSC 465	Structural Geology	4
MATH 140	Calculus With Analytic Geometry I	4

Additional Courses

ENGL 15	Rhetoric and Composition	3
or ENGL 30H	Honors Rhetoric and Composition	

Requirements for the Option

Select an option 28

¹ The following substitutions are allowed for students attending campuses where the indicated course is not offered: CAS 100 or ENGL 202C can be substituted for EMSC 100S.

² If GEOSC 1 is not available, GEOSC 20 may be substituted

Requirements for the Option

General Option (28 credits)

Code	Title	Credits
Additional Courses		
Select 14 credits of the following 300- and 400-level GEOSC courses: 14		
GEOSC 303	Introduction to Environmental Geology	
GEOSC 340	Geomorphology	
GEOSC 402Y	Natural Disasters	
GEOSC 416	Stable and Radioactive Isotopes in Geosciences: Introduction	
GEOSC 422	Vertebrate Paleontology	
GEOSC 424	Paleontology and Fossils	

GEOSC 434	Volcanology	
GEOSC 439	Principles of Stratigraphy	
GEOSC 440	Marine Geology	
GEOSC 451	Natural Resources: Origins, Economics and Environmental Impact	
GEOSC 452	Hydrogeology	
GEOSC 454	Geology of Oil and Gas	
GEOSC 470W	Introduction to Field Geology	
GEOSC 489	Dynamics of the Earth	

Supporting Courses and Related Areas

Select at least 2 credits in physics from approved departmental list	2
Select 3 credits of computer science, mathematics ¹ , or statistics	3
Select 9 credits, in consultation with adviser, supportive of the student's interest (students may apply 6 credits of ROTC)	9

¹ Above the level of MATH 141

Hydrogeology Option (28 credits)

Code	Title	Credits
Prescribed Courses		
GEOSC 452	Hydrogeology	3

Additional Courses

Select one of the following: 3

CMPSC 201	Programming for Engineers with C++	
CMPSC 202		
CMPSC 203	Introduction to Spreadsheets and Databases	
STAT 250	Introduction to Biostatistics ¹	

Select one of the following: 3

ASM 327	Soil and Water Resource Management	
ERM 450	Wetland Science and Sustainability	
SOILS 101	Introductory Soil Science	

Select 9 credits from options A and B, with at least 3 credits from A and 3 credits from B: 9

<i>Option A</i>		
CHEM 202	Fundamentals of Organic Chemistry I	
CHEM 450	Physical Chemistry - Thermodynamics	
ERM 433	Transformation of Pollutants in Soils	
GEOSC 413W	Techniques in Environmental Geochemistry	
GEOSC 419	The Organic Geochemistry of Natural Waters and Sediments	

<i>Option B</i>		
ENVSE 408	Contaminant Hydrology	
GEOG 362	Remote Sensing and Image Analysis	
GEOSC 340	Geomorphology	
GEOSC 439	Principles of Stratigraphy	
GEOSC 454	Geology of Oil and Gas	
GEOSC 483	Environmental Geophysics	

Supporting Courses and Related Areas

Select at least 2 credits in Physics from approved departmental list	2
Select 8 credits, in consultation with advisor, supportive of the student's interest (students may apply 6 credits of ROTC)	8

¹ If STAT 250 is not available, STAT 200 may be substituted.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S in Geosciences and M.S. in Geosciences

Requirements for the Integrated B.S in Geosciences and M.S. in Geosciences can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/geosciences/#integratedundergradgradprogramstext>).

Program Learning Objectives

- **Core Science Application:** To produce graduates who can apply knowledge of the mathematics, physics, chemistry, and biology of Earth processes to the solution of geologic problems.
- **Earth Systems Thinking:** To produce graduates who can integrate multiple aspects of the origin, evolution, and future of the Earth, including the geosphere, hydrosphere, biosphere, and atmosphere.
- **Observation & Measurement:** To produce graduates who can interpret Earth's history and dynamics by observing and measuring minerals, rocks, fluids, fossils, landforms, and structures.
- **Scientific Inquiry & Communication:** To produce graduates who possess the ability to pose questions, collect and interpret data, and solve geologic problems, communicating the results of this scientific inquiry through writing and speaking.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

General Option: Geosciences, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 or 140G (GQ) ^{†‡#}	4 MATH 141 or 141G (GQ) ^{††}	4
CHEM 110 (GN) [†]	3 CHEM 112	3
CHEM 111 (GN) [†]	1 CHEM 113	1
GEOSC 1	3 GEOSC 201 [*]	4
EMSC 100S (GWS) ^{††1}	3 ENGL 15, 30H, or ESL 15 (GWS) ^{††}	3
	14	15

Second Year

Fall	Credits Spring	Credits
PHYS 211 (GN) [†]	4 PHYS 212	4
GEOSC 202 [*]	4 General Education knowledge domain	3
BIOL 110 (GN) [†]	4 Advanced GEOSC Elective ³	3
General Education knowledge domain	3 General Education Health and Wellness (GHW)	1.5
General Education Health and Wellness (GHW)	1.5 Advanced MATH/STAT/ CMPSC/GEOSC 210 ²	3
	16.5	14.5

Third Year

Fall	Credits Spring	Credits Summer	Credits
GEOSC 203 [*]	4 GEOSC 465 [*]	4 GEOSC 472A	3
GEOSC 310 [*]	4 GEOSC 204	4 GEOSC 472B	3
Supporting Course ⁴	3 Advanced GEOSC elective ³	3	
General Education knowledge domain	3 General Education knowledge domain ³	3	
	14	14	6

Fourth Year

Fall	Credits Spring	Credits
GEOSC 496	1 GEOSC 494W	3
Advanced GEOSC elective ³	3 Advanced GEOSC elective ³	2
Advanced GEOSC elective ³	3 Supporting Course ⁴	3
Supporting Course ⁴	3 General Education knowledge domain	3
General Education Foundation selection (GWS) [†]	3 General Education knowledge domain	3
	13	14

Total Credits 121

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

- ¹ Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100 (GWS), CAS 100A, CAS 100B, or CAS 100C; or ENGL 202C (GWS) for EMSC 100S (GWS). EMSC 100S Earth and Mineral Sciences First year Seminar (3) is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.
- ² Select 3 credits in Math (beyond the MATH 141 level), CMPSC, or STAT.
- ³ Select 14 credits from 300- and 400-level GEOSC courses from GEOSC 303(3), GEOSC 340(3), GEOSC 402Y(3), GEOSC 416(3), GEOSC 421(3), GEOSC 422(3), GEOSC 423(4), GEOSC 424(3), GEOSC 426(3), GEOSC 434(3), GEOSC 439(3), GEOSC 440(3), GEOSC 451(3), GEOSC 452(3), GEOSC 454(3), GEOSC 461(3), GEOSC 470W(3), GEOSC 471(3), GEOSC 489(4).
- ⁴ Select 9 credits supportive of student's interest, in consultation with an adviser (students may apply 6 credits of ROTC).

General Option: Geosciences, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 (GQ) ^{*‡#†}	4 MATH 141 (GQ) ^{†‡}	4
CHEM 110 (GN) [†]	3 CHEM 112	3
CHEM 111 (GN) [†]	1 CHEM 113	1
ENGL 15, 30H, or ESL 15 (GWS) ^{†‡1}	3 General Education Foundation selection (GWS) ^{†1}	3
General Education knowledge domain	3 General Education knowledge domain	3
14		14

Second Year

Fall	Credits Spring	Credits
PHYS 211 (GN) [†]	4 PHYS 212	4
BIOL 110 (GN) [†]	4 GEOSC 1 or 20	3
General Education knowledge domain	3 General Education Foundation selection (GWS) ^{†1}	3
General Education knowledge domain	3 General Education knowledge domain	3
General Education Health and Wellness (GHW)	1.5 General Education Health and Wellness (GHW)	1.5
15.5		14.5

Third Year

Fall	Credits Spring	Credits Summer	Credits
GEOSC 201 [*]	4 GEOSC 203 [*]	4 GEOSC 472A	3
Supporting Course ⁴	3 GEOSC 204	4 GEOSC 472B	3
Advanced MATH/STAT/ CMPSC/GEOSC 210 ²	3 GEOSC 465 [*]	4	

General Education knowledge domain	3 Advanced GEOSC Elective ³	3	
13		15	6
Fourth Year			
Fall	Credits Spring	Credits	
GEOSC 202 [*]	4 GEOSC 494W	3	
GEOSC 310 [*]	4 Advanced GEOSC elective ³	2	
GEOSC 496	1 Advanced GEOSC elective ³	3	
Advanced GEOSC elective ³	3 Advanced GEOSC elective ³	3	
Supporting Course ⁴	3 Supporting Course ⁴	3	
15		14	

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100 (GWS), CAS 100A, CAS 100B, or CAS 100C; or ENGL 202C (GWS) for EMSC 100S (GWS). EMSC 100S Earth and Mineral Sciences First year Seminar (3) is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.

² Select 3 credits in Math (beyond the MATH 141 level), CMPSC, or STAT.

³ Select 14 credits from 300- and 400-level GEOSC courses from GEOSC 303(3), GEOSC 340(3), GEOSC 402Y(3), GEOSC 416(3), GEOSC 421(3), GEOSC 422(3), GEOSC 423(4), GEOSC 424(3), GEOSC 426(3), GEOSC 434(3), GEOSC 439(3), GEOSC 440(3), GEOSC 451(3), GEOSC 452(3), GEOSC 454(3), GEOSC 461(3), GEOSC 470W(3), GEOSC 471(3), GEOSC 489(4).

⁴ Select 9 credits supportive of student's interest, in consultation with an adviser (students may apply 6 credits of ROTC).

Hydrogeology Option: Geosciences, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
MATH 140 or 140G (GQ) ^{*‡#†}	4	MATH 141 or 141G (GQ) ^{††}	4
CHEM 110 (GN) [†]	3	CHEM 112	3
CHEM 111 (GN) [†]	1	CHEM 113	1
GEO SC 1	3	GEO SC 201 [*]	4
EMSC 100S (GWS) ^{††1}	3	ENGL 15, 30H, or ESL 15 (GWS) ^{††}	3
	14		15

Second Year

Fall	Credits	Spring	Credits
PHYS 211 (GN) [†]	4	PHYS 212	4
BIOL 110 (GN) [†]	4	GEO SC 202 [*]	4
General Education knowledge domain	3	General Education knowledge domain	3
General Education Health and Wellness (GHW)	1.5	General Education Health and Wellness (GHW)	1.5
General Education knowledge domain	3	HYDRO Option Elective ²	3
	15.5		15.5

Third Year

Fall	Credits	Spring	Credits	Summer	Credits
GEO SC 203 [*]	4	GEO SC 465 [*]	4	GEO SC 472A	3
GEO SC 310 [*]	4	HYDRO Option elective ²	3	GEO SC 472B	3
GEO SC 452	3	CMPSC 201, 202, CMPSC 203, STAT 250, or STAT 200	3-4		
Supporting Course ⁴	3	General Education knowledge domain ³	3		
	14		13-14		6

Fourth Year

Fall	Credits	Spring	Credits
GEO SC 496	1	GEO SC 494W	3

SOILS 101, 327, or ERM 450	3	GEO SC 204	4
HYDRO Option elective ²	3	Supporting Course ³	2
Supporting Course ³	3	General Education knowledge domain	3
General Education Foundation selection (GWS) [†]	3	General Education knowledge domain	3
	13		15

Total Credits 121-122

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

- ¹ Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100 (GWS), CAS 100A, CAS 100B, or CAS 100C; or ENGL 202C (GWS) for EMSC 100S (GWS). EMSC 100S Earth and Mineral Sciences First year Seminar (3) is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.
- ² Select 9 credits from A and B. Students must select at least 3 credits from A and 3 credits from B.
 - A. CHEM 202(3), CHEM 450(3), ERM 433(3), GEO SC 413W(3), GEO SC 419(3) (Sem: 3-8)
 - B. ENVSE 408(3), GEOG 362(3), GEO SC 340(3), GEO SC 439(3), GEO SC 454(3), GEO SC 483(3)
- ³ Select 8 credits supportive of student's interest, in consultation with an adviser (students may apply 6 credits of ROTC).

Hydrogeology Option: Geosciences, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 (GQ) ^{*‡#†}	4 MATH 141 (GQ) ^{††}	4
CHEM 110 (GN) [†]	3 CHEM 112	3
CHEM 111 (GN) [†]	1 CHEM 113	1
ENGL 15, 30H, or ESL 15 (GWS) ^{††1}	3 General Education knowledge domain	3
General Education knowledge domain	3 General Education Foundation selection (GWS) ^{†1}	3
14		14

Second Year

Fall	Credits Spring	Credits
PHYS 211 (GN) [†]	4 PHYS 212	4
BIOL 110 (GN) [†]	4 General Education Foundation selection (GWS) ^{†1}	3
General Education knowledge domain	3 General Education knowledge domain	3
General Education knowledge domain	3 GEOSC 1 or 20	3
General Education Health and Wellness (GHW)	1.5 General Education Health and Wellness (GHW)	1.5
15.5		14.5

Third Year

Fall	Credits Spring	Credits Summer	Credits
GEOSC 201 [*]	4 GEOSC 465 [*]	4 GEOSC 472A	3
CMPSC 201, 201, 202, CMPSC 203, STAT 250, or STAT 200	3-4 GEOSC 203 [*]	4 GEOSC 472B	3

Supporting Course ³	3 HYDRO Option elective ²	3
General Education knowledge domain	3 HYDRO Option elective ²	3
13-14		14
15		15

Fourth Year

Fall	Credits Spring	Credits
GEOSC 452	3 GEOSC 494W	3
GEOSC 496	1 GEOSC 204	4
GEOSC 202 [*]	4 Supporting Course ³	2
GEOSC 310 [*]	4 Supporting Course ³	3
SOILS 101, 327, or ERM 450	3 HYDRO Option elective ²	3
15		15

Total Credits 121-122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

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General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100 (GWS), CAS 100A, CAS 100B, or CAS 100C; or ENGL 202C (GWS) for EMSC 100S (GWS). EMSC 100S Earth and Mineral Sciences First year Seminar (3) is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.

² Select 9 credits from A and B. Students must select at least 3 credits from A and 3 credits from B.

A. CHEM 202(3), CHEM 450(3), ERM 433(3), GEOSC 413W(3), GEOSC 419(3) (Sem: 3-8)

B. ENVSE 408(3), GEOG 362(3), GEOSC 340(3), GEOSC 439(3), GEOSC 454(3), GEOSC 483(3)

³ Select 8 credits supportive of student's interest, in consultation with an adviser (students may apply 6 credits of ROTC).

Career Paths

The versatile Geosciences degree provides a broad knowledge base that can be applied to professional careers in many industries, as well as graduate study in many Earth science-related disciplines.

Careers

Our degree offers a comprehensive background in traditional geology and is suitable for students who wish to work in the environmental or oil and gas industries, natural resource exploration, geothermal energy development, hydrogeology or geotechnical fields, or continue to graduate school. In the public sector, this degree is good preparation for future work in the National Park Service, the United States Geological Survey, the National Oceanographic and Atmospheric Administration, the Environmental Protection Agency, and various state and local regulatory agencies.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE GEOSCIENCES PROGRAM (<https://www.geosc.psu.edu/undergraduate/why-geosciences/career-outlook/>)

Opportunities for Graduate Studies

Graduates may be well suited to pursue graduate-level degrees in geophysics, geochemistry, mineralogy, paleontology, climate change modeling, oceanography, volcanology, environmental science, or other Earth science-related disciplines.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.geosc.psu.edu/graduate/>)

Professional Resources

- Geosciences Club (<https://www.facebook.com/groups/46384419817/>)
- Association for Women Geoscientists (<https://sites.psu.edu/awgpennstate/>)
- American Water Resources Association (<https://agsci.psu.edu/students/clubs/list/other/>)

Contact

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Geosciences, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Geosciences minor provides a foundation in the physical and material aspects of the solid Earth, as well as an introduction to field techniques and technical writing. Advanced course work should reflect

the students' individual interests. Areas of focus include, but are not limited to:

- Earth materials
- Evolution of the Earth and life
- Hydrogeology
- Environmental geology
- Natural hazards
- Plate tectonics
- Geophysics
- Climate change

What is Geosciences?

Geoscientists want to know more about the big picture of Earth and why it exists the way it does today. They investigate natural disasters such as earthquakes and volcanoes, they explore life in extreme environments such as hydrothermal vents or in far-removed caves, and they examine processes such as water treatment and carbon cycling. This work involves understanding how geology, chemistry, physics, and biology intersect, both today and throughout the Earth's history. Geoscientists piece together a picture of both Earth's past environments and life throughout time. This work can involve field work, laboratory work, or a combination. Ultimately, geoscientists seek to understand how our Earth developed into the way it is today, which can help us understand what we can expect in the Earth's future.

You Might Like This Program If...

- You are fascinated by volcanoes, earthquakes, rocks, glaciers, climate change, fossils, tectonic plates, or the evolution of life.
- You like big-picture thinking and want to explore Earth's developmental processes.
- You enjoy working in nature or in a laboratory (not all geosciences is outdoors!).
- You enjoy understanding how organisms and species existed in past ecosystems.
- You are analytical and like to piece together clues to paint a picture of past life.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

The minor consists of 18 credits of course work, some of which are filled through specific courses as indicated below.

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
GEOSC 21	Earth and Life: Origin and Evolution	3
GEOSC 201	Earth Materials	4
Additional Courses		

Additional Courses: Require a grade of C or better

GEOSC 1	Physical Geology	3
or GEOSC 20	Planet Earth	
or GEOSC 71		
GEOSC 470W	Introduction to Field Geology	3
or EMSC 470W	Undergraduate Collaborative Research in Earth and Materials Sciences	

Supporting Courses and Related Areas**Supporting Courses and Related Areas: Require a grade of C or better**

Select 5 credits from a number of courses covering a variety of disciplines and fields of interest ¹ 5

¹ Consult with your adviser. At least 3 credits in this category must be taken at the 400 level; the remaining 2 credits may be at the 200 level or above.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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<https://www.geosc.psu.edu>

Geospatial Big Data Analytics, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

Geospatial data are central to the challenges and opportunities for science and society that big data provide. Geospatial data derive from a rapidly expanding array of sources that include sensors (from satellites, to cameras and other sensing devices carried by UAVs, to distributed sensors monitoring energy consumption, pollution, traffic, and more with smart cities), GPS enabled devices (in vehicles, smart phones, cameras, human wearable devices, and even ones small enough to mount on migrating songbirds), citizen science efforts producing volunteered geospatial data, address-linked public health and many other records, retail transactions, and location-linked social media posts. As geospatial data become more ubiquitous, big digital geospatial data has become an essential part of geographic analysis. The 12-credit Geospatial Big Data Analytics certificate is aimed at students who are seeking advanced data collection, processing, analysis, and communication knowledge and skills related to leveraging the growing array of geographically linked big data. Courses for this certificate have prerequisites that are not included in requirements for the certificate; such prerequisites may be completed through the undergraduate Geographic Information Science certificate.

Learning objectives: demonstrate an understanding of the breadth of methods and techniques available for handling large volumes of heterogeneous, rapidly-changing data; use multiple methods and techniques to conduct spatial analyses of big data and apply resulting analyses to problems within the student's own discipline.

What is Geospatial Big Data Analytics?

No matter how sophisticated information technology gets, there is nothing that can replicate the combination of two unique pieces of data: time and place. Geospatial data come from a variety of sources, including sensors, GPS-enabled devices, volunteered geospatial data, and location-linked records and social media posts. Geographic information scientists and other geographers collect and use big data to analyze social and natural phenomena about our world. As geospatial data become more ubiquitous, big digital geospatial data has become an essential part of geographic analysis. Students enrolled in this certificate can learn how to collect, process, analyze, and communicate a wide range of geospatial big data.

You Might Like This Program If...

- You are interested in the use of big data to analyze spatial, social, and natural phenomena about our world.
- You want to learn how spatial big data models aid in understanding logistics, finance, shipping, advertising, entertainment, and journalism.
- You are curious about how big data can deliver much-needed context to decision making in many areas.
- You want to know where and when people and things exist in the real world.

Program Requirements

To earn an undergraduate certificate in Geospatial Big Data Analytics, a minimum of 12 credits is required.

Code	Title	Credits
Required Courses		
GEOSC 365	Introduction to GIS Programming	3
Select 9 additional credits, including at least 3 credits in Analytics and 3 credits in Big Data.		9

Analytics:

GEOG 461W	Dynamic Cartographic Representation
GEOG 464	Advanced Spatial Analysis
GEOG 465	Advanced Geographic Information Systems Modeling
GEOG 485	GIS Programming and Software Development

Big Data:

GEOG 462	Advanced Observation of Earth and Its Environment
GEOG 463	Geospatial Information Management
GEOG 481	Topographic Mapping with Lidar

Non-Course Requirements

Per University policy, all credit courses for a certificate require a grade of 'C' or higher, and at least two-thirds (2/3) of the credits used to complete a certificate must be earned at Penn State. If student is completing multiple certificates in Geography, no more than one (1) course may double-count for each.

Prerequisites not included in Geospatial Big Data Certificate:

GEOG 260: prerequisite for GEOG 361, GEOG 362, GEOG 363, GEOG 365
 GEOG 361: prerequisite for GEOG 461W
 GEOG 362: prerequisite for GEOG 462, GEOG 481
 GEOG 363: prerequisite for GEOG 463, GEOG 465
 GEOG 364 or 300/400 level statistics course: prerequisite for GEOG 464

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Career Paths

There are many potential careers for big data geospatial scientists. Students earning the Geospatial Big Data Analytics certificate learn a wide range of technological, research, and analytical skills that are highly valued by employers. Big data geography undergraduates find jobs in all levels of government, nonprofit organizations, and industry. This is one of several geography-related certificates that students can use to

tailor their educational experience in preparation for the job market. The Department of Geography also offers certificates in Environment and Society Geography; Geographic Information Science; Human Geography; Justice, Ethics and Diversity in Space; Landscape Ecology and Physical Geography.

Careers

Students earning the certificate in Geospatial Big Data Analytics are well positioned to find employment with diverse organizations spanning business, government, and nonprofit sectors. Such organizations may include (but are not limited to): American Red Cross; Amnesty International; BAE Systems; Boeing; Esri; Federal Emergency Management Agency; NASA; National Geographic; National Park Service; United Nations; U.S. Army Corps of Engineers; U.S. Census Bureau; U.S. Environmental Protection Agency; local, regional, and state planning agencies; environmental and engineering consulting firms; State Department; and humanitarian organizations.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A CERTIFICATE IN GEOSPATIAL BIG DATA ANALYTICS (<https://www.geog.psu.edu>)

Opportunities for Graduate Studies

A certificate in Geospatial Big Data Analytics is useful for students who are interested in pursuing graduate degrees in the computational, environmental, and social sciences. Alumni enter graduate and professional studies in a variety of programs, including (but not limited to) geography, planning, international development, urban studies, sustainability, environmental sciences, ecology, geographic information sciences, information technology, environmental informatics, geodesign, business administration, supply chain management, emergency management, law, and education. They sometimes begin graduate or professional programs directly after finishing undergraduate studies, but often get several years' work experience before returning to school, either full or part-time.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.geog.psu.edu>)

Professional Resources

- American Association of Geographers (AAG) (<https://www.aag.org>)
- North American Cartographic Information Society (NACIS) (<https://nacis.org>)
- ASPRS: The Imaging & Geospatial Information Society (<https://www.asprs.org>)
- Urban and Regional Information Systems Association (URISA) (<https://urisa.org>)
- International Cartographic Association (ICA) (<https://icaci.org/>)

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Global Environmental Systems, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

Global environmental systems students characterize and analyze Earth's physical environment across time and space through the study of physical geography. This 12-credit certificate helps to prepare students for a variety of careers in resource management, ecological restoration, and climate change mitigation where an understanding of geographic patterns and physical processes associated with water, landforms, soils, vegetation, and climate are critical for the survival of life on planet Earth. Learning Objectives: Identify, describe, and analyze the processes that lead to spatial variation on Earth's surface, and the current and historical, physical and biotic processes that shape specific landscapes.

What is Global Environmental Systems?

Physical geographers seek to understand Earth's environmental systems and processes and their interactions with human activities across spatial and temporal scales. Geographers in this concentration conduct field and laboratory work and use geospatial technologies to explore and model environmental phenomena such as vegetation and wildlife, wetlands ecology and management, landscape dynamics, climate systems, and global environmental change. Some topics of study include the burning of fossil fuels and emissions of greenhouse gasses and particulates into the atmosphere, natural gas fracking and earthquakes, river diversion and dam construction, groundwater withdrawal and land subsidence, urbanization and the "heat island" effect, land clearance and deforestation, irrigated agriculture, wildland fire, the introduction of invasive species, and coastal overdevelopment.

You Might Like This Program If...

- You are interested in the integrated ways in which Earth's near-surface atmosphere, hydrosphere, lithosphere, and biosphere interact.
- You would like to address real-world issues of how human activities impact and are impacted by the physical landscape at many scales, from local to international.

Program Requirements

To earn an undergraduate certificate in Global Environmental Systems, a minimum of 12 credits is required.

Code	Title	Credits
Required Courses		
GEOG 210	Geographic Perspectives on Environmental Systems Science	3
Select 9 credits from:		9
GEOG 310	Introduction to Global Climatic Systems	
GEOG 310W	Introduction to Global Climatic Systems	
GEOG 314	Biogeography and Global Ecology	
GEOG 315	Landforms and Geomorphic Systems in the Anthropocene	
GEOG 410		
GEOG 411	Forest Geography	
GEOG 411W	Forest Geography	

GEOG 412W	Climatic Change and Variability
GEOG 414	Principles and Applications in Landscape Ecology
GEOG 417	Satellite Climatology
GEOG 431	Geography of Water Resources
GEOG 438W	Human Dimensions of Global Warming

Non-Course Requirements

Per University policy, all credit courses for a certificate require a grade of 'C' or higher, and at least two-thirds (2/3) of the credits used to complete a certificate must be earned at Penn State. If student is completing multiple certificates in Geography, no more than one (1) course may double-count for each.

Certificate Learning Objectives

- Physical Geography Patterns & Processes:** Students will identify and describe the processes that lead to spatial variation on Earth's surface and the current and historical, physical and biotic processes that shape specific landscapes.
- Physical Geography Analysis & Problem-Solving:** Students will analyze the processes that lead to spatial variation on Earth's surface and the current and historical, physical and biotic processes that shape specific landscapes.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

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Career Paths

Students earning the Global Environmental Systems certificate learn a wide range of research and analytical skills that are highly valued by employers. Students trained in physical geography find jobs in all levels of government, nonprofit organizations, and in industry. This is one of several geography-related certificates that students can use to tailor their educational experience in preparation for the job market. In addition to Global Environmental Systems, the Department of Geography offers certificates in Environment and Society Geography; Geospatial Big Data Analytics; Geographic Information Systems; Human Geography; Justice, Ethics and Diversity in Space; and Landscape Ecology.

Careers

Students earning the certificate in Global Environmental Systems are well-positioned to find employment with diverse organizations spanning business, government, and nonprofit sectors. Such organizations may include (but are not limited to): Conservation International; Federal Emergency Management Agency; NASA; National Oceanic and Atmospheric Administration; National Park Service; Natural Resources Defense Council; Resources for the Future; U.S. Army Corps of Engineers; U.S. Environmental Protection Agency; U.S. Forest Service; U.S. Geological Survey; local, regional, and state planning agencies, environmental and engineering consulting firms; policy research institutes; private corporations; and humanitarian organizations.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A CERTIFICATE IN PHYSICAL GEOGRAPHY (<https://www.geog.psu.edu>)

Opportunities for Graduate Studies

A certificate in Global Environmental Systems is useful for students who are interested in pursuing graduate degrees in the environmental and social sciences. Alumni enter graduate and professional studies in a variety of programs, including (but not limited to) geography, environmental sciences, ecology, sustainability, public policy, emergency management, planning, and law. They sometimes begin graduate or professional programs directly after finishing undergraduate studies, but often get several years' work experience before returning to school, either full or part-time.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.geog.psu.edu>)

Professional Resources

- American Association of Geographers (AAG) (<https://www.aag.org>)
- American Geophysical Union (AGU) (<https://www.agu.org/>)
- Ecological Society of America (ESA) (<https://www.esa.org>)
- American Geosciences Institute (AGI) (<https://www.americangeosciences.org>)

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Information Sciences and Technology for Earth and Mineral Sciences, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

Information systems are a core component of any research, educational, or industrial enterprise in the Earth and materials sciences. In addition,

the science and engineering disciplines represented in the college have a particular focus on numerical modeling and simulation systems, and on the analysis and management of very large data sets. The EMS - IST minor provides students a basic introduction to information sciences and information technology through courses in the core curriculum of the College of Information Sciences and Technology. Students then select from a group of interdisciplinary EMS courses that focus on the particular interests of the college.

What is Information Sciences and Technology for Earth and Mineral Sciences?

The information age has transformed every aspect of our economy and society, creating the need for professionals that have the skills to apply information science to an ever-changing technological environment on both local and global scales. The Information Sciences and Technology for Earth and Mineral Sciences (EMS) minor, open only to EMS students, allows you to better understand information systems—which are a core component of any research, educational, or industrial enterprise in the Earth and mineral sciences—as they apply to EMS disciplines. Students take three introductory Information Sciences and Technology (IST) courses complemented by three computing-intensive courses from EMS departments. Prerequisites for the EMS courses are not included in the 18 credits required for the minor.

You Might Like This Program If...

You wish to understand the cognitive, social, institutional, and global environments of information sciences and technology and apply that knowledge to computational and technological processes in your EMS major.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
GEOG 463	Geospatial Information Management	3
IST 110	Information, People and Technology	3
IST 210	Organization of Data	3
IST 220	Networking and Telecommunications	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 6 credits of the following:		6
GEOG 461W	Dynamic Cartographic Representation	
GEOG 464	Advanced Spatial Analysis	
GEOG 485	GIS Programming and Software Development	
MATSE 419	Computational Materials Science and Engineering	
METEO 473	Application of Computers to Meteorology	

METEO 474	Computer Methods of Meteorological Analysis and Forecasting
PNG 430	Reservoir Modeling

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

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Career Paths

Students earning the Information Sciences and Technology for Earth and Mineral Sciences minor learn a wide range of computational, research, and analytical skills that are highly valued by employers. Students earning this minor are very competitive for jobs in all levels of government, nonprofit organizations, and industry.

Careers

Students earning the Information Sciences and Technology for Earth and Mineral Sciences minor are well positioned to find employment with diverse organizations spanning business, government, and nonprofit sectors. Such organizations may include (but are not limited to): AccuWeather; BAE Systems; Boeing; Chevron; Esri; Federal Emergency Management Agency; Hess; NASA; National Center for Atmospheric Research; National Oceanic and Atmospheric Administration; SAIC; U.S. Army Corps of Engineers; U.S. Census Bureau; U.S. Environmental Protection Agency; local, regional, and state agencies; environmental and engineering consulting firms; energy companies; and humanitarian organizations.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN INFORMATION SCIENCES AND TECHNOLOGY FOR EARTH AND MINERAL SCIENCES (<https://www.geog.psu.edu>)

Opportunities for Graduate Studies

A minor in Information Sciences and Technology for Earth and Mineral Sciences is useful for students who are interested in pursuing graduate degrees in the computational, environmental, and social sciences. Alumni enter graduate and professional studies in a variety of programs, including (but not limited to) atmospheric sciences, geosciences,

engineering, geography, environmental sciences, geographic information sciences, information technology, environmental informatics, business administration, and supply chain management. They sometimes begin graduate or professional programs directly after finishing undergraduate studies, but often get several years' work experience before returning to school, either full or part-time.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.geog.psu.edu>)

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Justice, Ethics, Diversity in Space, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

The 12-credit Justice, Ethics, Diversity in Space (JEDIS) certificate helps students to cultivate a diverse set of theoretical and methodological skills that geographers use to engage in a diverse and changing planet. Increasingly as students enter the workforce they will be challenged to not only interact with diverse populations, but will also have to understand the way diverse populations are impacted by a range of economic, political, and environmental challenges. They will also need to be exposed to ethical frameworks that can be productively leveraged within non-academic environments. Students who undertake a JEDIS certificate will take courses across the broad spectrum of human geography and will cultivate the intellectual capacity to address issues of inequality and diversity from an ethically informed perspective.

Learning objectives: recognize and respect diverse experiences and perspectives; apply ethical frameworks to challenging economic, political, and environmental challenges; and think critically about the multiple implications of human choices and practices.

What is Justice, Ethics, Diversity in Space?

The discipline of geography draws from a range of perspectives including traditions in the natural and social sciences as well as humanities. Questions of justice, (in)equality, and diversity across space are core to what human and environment-society geographers study. The Justice, Ethics and Diversity In Space certificate specifically addresses how geographers approach questions concerning uneven power relations, inequalities, justice, social responsibility, and ethics across space and in place; it is more focused than the complementary Human Geography and Environment-Society Geography certificates. Students will learn about different ethical frameworks that can be productively leveraged in the workplace. As a result, students will be prepared to manage and work in diverse settings and to think critically about their position in society.

You Might Like This Program If...

- You care about issues of diversity, ethics, and social justice and wish to understand how geographers explore these challenges in local to global contexts.
- You want to learn about diverse cultures, environmental racism, immigration, and assimilation experiences of marginalized groups.
- You would like to become knowledgeable of people's biases based on race, ethnicity, culture, religion, age, sex, sexual orientation, social and economic status, political ideology, and disability, and how these contribute to discrimination and oppression.

Program Requirements

To earn an undergraduate certificate in Justice, Ethics, Diversity in Space, a minimum of 12 credits is required.

Code	Title	Credits
Required Courses		
Select 3 credits from:		3
GEOG 220	Perspectives on Human Geography	
GEOG 230	Geographic Perspectives on Environment, Society and Sustainability	
Select 9 credits from:		9
GEOG 324	Place, Space and Culture	
GEOG 328	War, Peace, and Diplomacy: Understanding Contemporary Geopolitics	
GEOG 425	Geography of Race, Class, and Poverty in America	
GEOG 426Y		
GEOG 428W	Political Geography	
GEOG 433	Geographies of Justice	

Non-Course Requirements

Per University policy, all credit courses for a certificate require a grade of 'C' or higher, and at least two-thirds (2/3) of the credits used to complete a certificate must be earned at Penn State. If student is completing multiple certificates in Geography, no more than one (1) course may double-count for each.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

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Career Paths

Students graduating with the Justice, Ethics and Diversity in Space certificate will thrive in organizations that interact with diverse populations influenced by a range of economic, political, and environmental challenges. This is one of several geography-related certificates that can help students prepare for the job market. In addition to Justice, Ethics and Diversity in Space, the geography department offers certificates in Environment and Society Geography, Geospatial Big Data Analytics, Geographic Information Systems, Human Geography, Landscape Ecology, and Physical Geography.

Careers

Successful performance in today's workforce requires sensitivity to human differences and the ability to relate to people from different cultural backgrounds. Students with justice, ethics, and diversity training learn critical thinking, research, and analytical skills that are highly valued by employers. They are well positioned to find employment with organizations spanning business, government, and nonprofit sectors. Such organizations may include (but are not limited to): American Red Cross; Amnesty International; Heifer International; United Nations; U.S. Census Bureau; U.S. Environmental Protection Agency; local, regional, and state planning agencies; environmental and engineering consulting firms; State Department; and humanitarian organizations.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A CERTIFICATE IN JUSTICE, ETHICS, DIVERSITY IN SPACE (<https://www.geog.psu.edu>)

Opportunities for Graduate Studies

A certificate in Justice, Ethics and Diversity in Space is useful for students who are interested in pursuing graduate degrees in the social sciences, humanities, and environmental sciences. Alumni enter graduate and professional studies in a variety of programs, including (but not limited to) geography, planning, international development, urban studies, sustainability, public policy, emergency management, education, and law. They sometimes begin graduate or professional programs directly after finishing undergraduate studies, but often get several years' work experience before returning to school, either full or part-time.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.geog.psu.edu>)

Professional Resources

- American Association of Geographers (AAG) (<https://www.aag.org>)
- American Geographic Society (AGS) (<https://americangeo.org>)
- National Geographic Society (NGS) (<https://www.nationalgeographic.com>)
- International Geographic Union (IGU) (<https://igu-online.org>)
- Society of Woman Geographers (SWG) (<http://iswg.org>)

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Landscape Ecology, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

Landscape ecologists are in increasing demand in the areas of conservation management, urban planning, and Earth system science. Landscape-level management also increasingly depends on an understanding of coupled natural-human systems, and landscape ecologists need to be trained to understand interdisciplinary linkages between social and ecological sciences, which is a strength in geographic thought. This 12-credit certificate provides training necessary to make inferences about ecological dynamics at landscape scales through training in spatial analysis, environmental modeling, and geographically relevant ecosystem processes. Learning objectives: apply techniques of spatial analysis and environmental modeling to complex socio-ecological landscape systems, draw from social and ecological sciences to address challenges in coupled natural-human systems, and apply these tools for landscape-level management of human-environment processes.

What is Landscape Ecology?

Landscape ecology is a key focus within the physical and environment-society subdisciplines of geography. Geographers focusing on landscape ecology use field studies, models, and laboratory activities to measure, quantify, and forecast how ecosystems change across space and time. They work at scales ranging from microbial to sub-continental. Through such geographic analyses, landscape ecologists seek to understand how natural and human disturbances (such as fire or suburban development) influence landscape sustainability, and they make recommendations for managing the landscape. Landscape-level management increasingly depends on an understanding of coupled natural-human systems, and landscape ecologists need to be trained to understand interdisciplinary linkages between social and ecological sciences. The certificate in Landscape Ecology is more focused than the complementary Physical Geography and Environment-Society certificates, and it incorporates training in geospatial technologies.

You Might Like This Program If...

- You are curious about how demand for more commodities and services from global ecosystems has led to an ecological crisis.
- You want to study how climate change affects spatial distribution of plant species or the frequency of wildfires.
- You want to learn about the role of people on landscape patterns and processes ranging from wilderness to cities.
- You want to apply techniques of spatial analysis and environmental modeling to address challenges in complex human-natural systems.

Program Requirements

To earn an undergraduate certificate in Landscape Ecology, a minimum of 12 credits is required.

Code	Title	Credits
Required Courses		
GEOG 210	Geographic Perspectives on Environmental Systems Science	3

GEOG 314	Biogeography and Global Ecology	3
GEOG 414	Principles and Applications in Landscape Ecology	3
Select 3 credits from:		3
GEOG 362	Remote Sensing and Image Analysis	
GEOG 365	Introduction to GIS Programming	
GEOG 430	Human Use of Environment	
GEOG 431	Geography of Water Resources	
GEOG 465	Advanced Geographic Information Systems Modeling	

Some "additional" course selections have prerequisites not included in the certificate: GEOG 160 or 260 is prerequisite for GEOG 362 and 365; GEOG 363 is prerequisite for GEOG 465.

Non-Course Requirements

Per University policy, all credit courses for a certificate require a grade of 'C' or higher, and at least two-thirds (2/3) of the credits used to complete a certificate must be earned at Penn State. If student is completing multiple certificates in Geography, no more than one (1) course may double-count for each.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

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Career Paths

Students earning the Landscape Ecology certificate learn a wide range of research and analytical skills that are highly valued by employers. Students trained in landscape ecology find jobs in all levels of government, non-profit organizations, and in industry. This is one of several geography-related certificates that students can use to tailor their educational experience in preparation for the job market. In addition to Landscape Ecology, the Department of Geography offers certificates in Environment and Society Geography, Geospatial Big Data Analytics, Geographic Information Systems, Human Geography, and Physical Geography.

Careers

Students earning the certificate in Landscape Ecology are well positioned to find employment across the business, government, and nonprofit sectors. Landscape ecologists are in increasing demand in the areas of conservation management, urban planning, and Earth system science. Employers may include (but are not limited to): Conservation International; Federal Emergency Management Agency; NASA, National Oceanic and Atmospheric Administration; National Park Service; Natural Resources Defense Council; Resources for the Future; U.S. Army Corps of Engineers; U.S. Environmental Protection Agency; U.S. Forest Service; U.S. Geological Survey; local, regional, and state planning agencies; environmental and engineering consulting firms; policy research institutes; and private corporations.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A CERTIFICATE IN LANDSCAPE ECOLOGY (<https://www.geog.psu.edu>)

Opportunities for Graduate Studies

A certificate in Landscape Ecology is useful for students who are interested in pursuing graduate degrees in the environmental and social sciences. Alumni enter graduate and professional studies in a variety of programs, including (but not limited to) geography, environmental sciences, ecology, sustainability, public policy, emergency management, planning, and law. They sometimes begin graduate or professional programs directly after finishing undergraduate studies, but often get several years' work experience before returning to school, either full-or part-time.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.geog.psu.edu>)

Professional Resources

- American Association of Geographers (AAG) (<https://www.aag.org/>)
- American Geophysical Union (AGU) (<https://www.agu.org/>)
- Ecological Society of America (ESA) (<https://www.esa.org/>)
- International Association for Landscape Ecology - North American Regional Chapter (<https://www.ialena.org>)

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University Park, PA 16802
814-865-3433
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<https://www.geog.psu.edu>

Landscapes: Societies, Cultures, and Political Economies, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

In a rapidly changing world, an understanding of how human landscapes function globally and locally is highly marketable. This 12-credit certificate prepares students to read future socio-economic trends,

which will be of interest to many employers. This certificate prepares students for careers in community and economic development, urban design, politics, and travel and tourism through the study of human geography. Global understandings of population growth and international migration; the consequences of economic development; and the impacts of technological innovation are some of the topics covered in the courses that comprise this certificate. Additionally, students gain proficiency in identifying how political power and control of culture can impact human rights, and race and gender equality. Learning Objectives: Describe, analyze, and locate human relations and movements across and through space and place; recognize and discuss the geographical dimensions of varying social, cultural, political, historical, and economic conditions; and identify and analyze human use and/or human change of their environments locally, regionally and globally.

What is Landscapes: Societies, Cultures, and Political Economies?

Human geographers examine human societies and how their cultures, economies and politics develop within the context of their environment. A geographic lens allows human geographers to critically examine the intersections of these social processes and how they shape the lived and built environment. Human geographers examine topics like how race shapes the way we interact in public spaces, how gender conditions where and how people find jobs, what the links are between global finance and community activism, how immigration is shaped by family connections, and why gerrymandering political districts can change the way we think about our neighbors. Human geographers look at how these social processes construct the contexts we live in and how these contexts vary in our increasingly globalized world.

You Might Like This Program If...

- You want to understand why location matters to people everywhere, every day.
- You are interested in agricultural land use, industrial development, and urban design.
- You are curious about the reasons for population growth and international migration.
- You want to learn about the costs of economic development.
- You are interested in how struggles over political power and control of territory deepen inequalities between peoples and places.

Program Requirements

To earn an undergraduate certificate in Human Geography, a minimum of 12 credits is required.

Code	Title	Credits
Required Courses		
GEOG 220	Perspectives on Human Geography	3
Elective Courses (Choose 9 credits from the following): 9		
GEOG 2N	Apocalyptic Geographies: How can we prevent the end of the world?	
GEOG 320	Urban Geography: A Global Perspective	
GEOG 324	Place, Space and Culture	
GEOG 326	Geographic Perspectives on Economic Systems	
GEOG 328	War, Peace, and Diplomacy: Understanding Contemporary Geopolitics	
GEOG 421	Population Geography	
GEOG 423Y		

GEOG 424	Geography of the Global Economy
GEOG 424W	Geography of the Global Economy
GEOG 425	Geography of Race, Class, and Poverty in America
GEOG 426Y	
GEOG 427	Urban Historical Geography
GEOG 428W	Political Geography
GEOG 429	Geographic Perspectives on Global Urbanization

Non-Course Requirements

Per University policy, all credit courses for a certificate require a grade of 'C' or higher, and at least two-thirds (2/3) of the credits used to complete a certificate must be earned at Penn State. If student is completing multiple certificates in Geography, no more than one (1) course may double-count for each.

Certificate Learning Objectives:

- Students will describe and locate human relations and movements across and through space and place
- Students will recognize and discuss the geographical dimensions of varying social, cultural, political, historical, and economic conditions
- Students will analyze human relations and movements across and through space and place
- Students will identify and analyze human use and/or human change of their environments locally, regionally and globally

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Jodi Vender

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Career Paths

Students earning the Human Geography certificate learn a wide range of critical thinking, research, and analytical skills that are highly valued by employers. Students with backgrounds in human geography find jobs in all levels of government, nonprofit organizations, and in industry. This is one of several geography-related certificates that students can use to tailor their educational experience in preparation for the job market. In addition to Human Geography, the geography department offers certificates in Environment and Society Geography; Geospatial Big Data

Analytics; Geographic Information Systems; Justice, Ethics and Diversity in Space; Landscape Ecology; and Physical Geography.

Careers

Students earning the certificate in Human Geography are well positioned to find employment with diverse organizations spanning business, government, and nonprofit sectors. Such organizations may include (but are not limited to): American Red Cross; Amnesty International; U.S. Census Bureau; Heifer International; National Geographic Society; National Park Service; Teach for America; U.S. Environmental Protection Agency; U.S. State Department; World Bank; local, regional, and state planning agencies; environmental and engineering consulting firms; policy research institutes; private corporations; and humanitarian organizations.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A CERTIFICATE IN HUMAN GEOGRAPHY (<https://www.geog.psu.edu>)

Opportunities for Graduate Studies

A certificate in Human Geography is useful for students who are interested in pursuing graduate degrees in the social sciences and humanities. Alumni enter graduate and professional studies in a variety of programs, including (but not limited to) geography, planning, international development, urban studies, sustainability, public policy, emergency management, education, and law. They sometimes begin graduate or professional programs directly after finishing undergraduate studies, but often get several years' work experience before returning to school, either full or part-time.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.geog.psu.edu>)

Professional Resources

- American Association of Geographers (AAG) (<https://www.aag.org>)
- American Geographic Society (AGS) (<https://americangeo.org>)
- National Geographic Society (NGS) (<https://www.nationalgeographic.com>)
- International Geographic Union (IGU) (<https://igu-online.org>)
- Society of Woman Geographers (SWG) (<http://iswg.org>)
- National Council for Geographic Education (<https://ncge.org/>)
- American Planning Association (<https://www.planning.org/>)

Contact

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Materials Science and Engineering, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

Materials, like ceramics, metals, polymers, and composites, are critical to the growth and success of many industries and key to most engineering disciplines. Graduates of Materials Science and Engineering are employed, or proceed to graduate studies, in many fields such as energy, medicine, sustainability, electronics, communications, transportation, aerospace, defense, and infrastructure industries.

The mission of the department is to provide students with a well-rounded engineering education, with specific emphasis on materials science and engineering in order to meet the needs of industry, academia, and government; to conduct research at the frontiers of the field; and to provide an integrating and leadership role to the broad multidisciplinary materials community.

What is Materials Science and Engineering?

Materials are ubiquitous. Materials play a role in every industry and facet of life. Materials science and engineering is an interdisciplinary study of the properties of matter and the exploration for new and creative uses of ceramics, metals, polymers, and composites. Materials scientists and engineers study the entire life cycle of materials (production, synthesis and processing, manufacturing, use, recycling, and reclamation) by employing science to solve engineering problems. This engineering discipline is unique in that our studies begin with understanding materials at the atomic scale, allowing for prediction and measurement of material properties, and creation of materials by design. What do you want to do with your career? Make alternative energy more economical? Improve human health, cure cancer? Provide clean drinking water to the world? Make transportation more efficient and environmentally friendly? Make everyday materials more sustainable? All these outcomes and more are possible by studying materials.

You Might Like This Program If...

- You like some combination of chemistry, physics, and math and want to be an engineer.
- You would like to understand why a material is chosen for a specific use or why materials behave the way they do.
- You like problem solving by utilizing existing materials in new creative ways or creating new materials to solve unique engineering challenges.
- You want an engineering degree that can take you to any industry, anywhere in the world.

Entrance to Major

In order to be eligible for entrance to the Materials Science and Engineering major, a student must have:

1. Attained at least a 2.00 cumulative grade-point average.
2. Completed CHEM 110, CHEM 111, (CHEM 112 or MATSE 112), CHEM 113, MATH 140, MATH 141, MATH 220 and PHYS 211; earned a grade of C or better in each of these courses.

Degree Requirements

For the Bachelor of Science degree in Materials Science and Engineering, a minimum of 131 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	110

24 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 9 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
CHEM 202	Fundamentals of Organic Chemistry I	3
IE 424	Process Quality Engineering	3
MATH 231	Calculus of Several Variables	2
MATH 251	Ordinary and Partial Differential Equations	4
MATSE 413	Solid-State Materials	3
MATSE 419	Computational Materials Science and Engineering	3
MATSE 436	Mechanical Properties of Materials	3
MATSE 460	Introductory Laboratory in Materials	1
MATSE 462	General Properties Laboratory in Materials	1
PHYS 212	General Physics: Electricity and Magnetism	4
<i>Prescribed Courses: Require a grade of C or better</i>		
CMPSC 200	Programming for Engineers with MATLAB	3
EMSC 100S	Earth and Mineral Sciences First-Year Seminar ¹	3
ENGL 202C	Effective Writing: Technical Writing	3
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
CHEM 113	Experimental Chemistry II	1
MATH 140G	Calculus with Earth and Mineral Sciences Applications I	4
MATH 141G	Calculus with Earth and Mineral Sciences Applications II	4
MATH 220	Matrices	2
MATSE 201	Introduction to Materials Science	3
MATSE 202	Introduction to Polymer Materials	3
MATSE 400	Crystal Chemistry	3
MATSE 401	Thermodynamics of Materials	3
MATSE 402	Materials Process Kinetics	3
MATSE 430	Materials Characterization	3
MATSE 492W	Materials Engineering Methodology and Design	3
PHYS 211	General Physics: Mechanics	4
Additional Courses		
<i>Synthesis and Processing</i>		
Select 3-6 credits from the following:		3-6
MATSE 411	Processing of Ceramics	
MATSE 422	Thermochemical Processing	
MATSE 425	Processing of Metals	
MATSE 441	Polymeric Materials I	

MATSE 450	Synthesis and Processing of Electronic and Photonic Materials	
<i>Structure and Characterization</i>		
Select 3-6 credits from the following:		3-6
MATSE 410	Phase Relations in Materials Systems	
MATSE 415	Introduction to Glass Science	
MATSE 421	Corrosion Engineering	
MATSE 445	Thermodynamics, Microstructure, and Characterization of Polymers	
MATSE 455	Properties and Characterization of Electronic and Photonic Materials	
<i>Properties</i>		
Select 3-6 credits from the following:		3-6
MATSE 412	Thermal Properties of Materials	
MATSE 417	Electrical and Magnetic Properties	
MATSE 435	Optical Properties of Materials	
MATSE 446	Mechanical and Electrical Properties of Polymers and Composites	
MATSE 447	Rheology and Processing of Polymers	
<i>Processing Laboratory</i>		
Select one of the following:		1
MATSE 463	Characterization and Processing of Electronic and Photonic Materials Laboratory	
MATSE 468	Ceramics Laboratory III	
MATSE 471	Metallurgy Laboratory I	
MATSE 473	Polymeric Materials Laboratory--Synthesis	
<i>Senior Capstone Experience</i>		
MATSE 493W	Materials Science and Engineering Multidisciplinary Capstone Design Project	3
	or MATSE 494W Research and Design Senior Project	
<i>Additional Courses: Require a grade of C or better</i>		
ENGL 15	Rhetoric and Composition	3
	or ENGL 30H Honors Rhetoric and Composition	
MATSE 112	Applied Materials Chemistry for Engineers	3
	or CHEM 112 Chemical Principles II	
Supporting Courses and Related Areas		
Select 12 credits of approved Science or Engineering Elective courses in consultation with adviser		12

¹ The following substitutions are allowed for students attending campuses where the indicated course is not offered: CAS 100 can be substituted for EMSC 100S.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Educational Objectives

The educational objectives of the undergraduate program are embedded into our mission statement. We will provide and maintain a curriculum that will prepare our recent graduates to accomplish the following Program Educational Objectives:

1. Our graduates provide science and engineering leadership in international industrial, governmental, and academic settings, while serving both their profession and the public.
2. Our graduates are innovators in a wide variety of technical fields including, but not limited to, materials, energy, electronics, medicine communications, transportation, and recreation.
3. Our graduates excel in careers relating to the entire life cycle of materials, from synthesis and processing, through design and development, to manufacturing, performance, reclamation, and recycling.
4. Our graduates engage in lifelong learning activities which enhance their careers and provide flexibility to respond to changing professional and societal needs.

We achieve these objectives by providing a rigorous but flexible curriculum that allows the student to design their degree in materials science and engineering to achieve their specific academic and professional career interests.

In addition to the cutting edge curriculum, we provide many opportunities to strengthen the student's undergraduate studies through research experiences. For example, over 60% of the undergraduates are members of a research group and participate in the extensive materials research programs at Penn State. Further, we provide opportunities for International Internships in Materials, where our students go abroad to perform research at one of the many internationally recognized partner universities in Europe and Asia.

Student Outcomes

Student outcomes describe what students are expected to know and be able to do by the time of graduation. The Materials Science and Engineering program is designed to enable students to:

1. Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. Apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. Communicate effectively with a range of audiences
4. Recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts

5. Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. Acquire and apply new knowledge as needed, using appropriate learning strategies.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

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READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Materials Science and Engineering, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year	Credits Spring	Credits
Fall MATH 140 or 140G (GQ) ^{*†#†2}	4 MATH 141 or 141G (GQ) ^{*†#†2}	4
CHEM 110 (GN) ^{*#†2}	3 MATSE 112 or CHEM 112 (GN) ^{*#2}	3
CHEM 111 (GN) ^{*#†2}	1 CHEM 113 ^{*#2}	1
EMSC 100S (or CAS 100 by substitution) (GWS) ^{††1}	3 PHYS 211 (GN) ^{*#†2}	4

General Education Knowledge Domain (IL)	3 ENGL 15, 30H, or ESL 15 (GWS) ^{††}	3
General Education Knowledge Domain (Integrative)	3	
	17	15

Second Year

Fall	Credits Spring	Credits
PHYS 212 (GN) [†]	4 MATH 251	4
CHEM 202	3 IE 424 or STAT 401 ³	3
MATH 220 ^{*#2}	3 MATSE 202 [*]	3
MATH 231	2 MATSE 203 or ENGL 202C (GWS) ^{††}	3
MATSE 201 [*]	3 MATSE 413	3
MATSE 219 or CMPSC 200	3	
	18	16

Third Year

Fall	Credits Spring	Credits
MATSE 400 [*]	3 MATSE 402 [*]	3
MATSE 401 [*]	3 MATSE 419	3
MATSE 430 [*]	3 MATSE 492W (Writing Across the Curriculum) [*]	3
MATSE 436	3 MATSE 462	1
MATSE 460	1 MATSE Specialization Course 1 from Department List	3
General Education Knowledge Domain (US)	3 General Education Knowledge Domain (Integrative)	3
	General Education Health and Wellness (GHW)	1.5
	16	17.5

Fourth Year

Fall	Credits Spring	Credits
MATSE 493W or 494W ⁴	3-0 or MATSE 493W or 494W ⁴	0-3 or 2
MATSE Specialization Course 2 from Department List	3 MATSE Specialization Course 3 from Department List	3
Technical Elective 1	3 MATSE Specialization Course 4 from Department List	3
Technical Elective 2	3 Technical Elective 3	3
MATSE Senior Processing Laboratory (can be taken fall or spring)	0-1 Technical Elective 4	3
General Education Knowledge Domain	3 MATSE Senior Processing Laboratory (can be taken fall or spring)	1-0
General Education Health and Wellness (GHW)	1.5 General Education Knowledge Domain	3
	13.5-17.5	16-18

Total Credits 129-135

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100A, CAS 100B, or CAS 100C for EMSC 100S. EMSC 100S (Earth and Mineral Sciences First year Seminar) is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.

² In order to be eligible for entrance to the Materials Science and Engineering major, a student must have: 1) Attained at least a 2.00 cumulative grade-point average. 2) Completed CHEM 110, CHEM 111, CHEM 112 or MATSE 112, CHEM 113, MATH 140, MATH 141, MATH 220 and PHYS 211; earned a grade of C or better in each of these courses.

³ It is recommended to take STAT 401 only if the student has prior experience with statistics. Otherwise, students should take IE 424.

⁴ Students are required to choose either MATSE 493W (3) or MATSE 494W (3) as their capstone requirement. MATSE 493W involves a group project and all 3 credits are taken in a single semester in the final year of study. MATSE 494W, the individual research thesis, is typically split between fall and spring semesters.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- Courses required for the major may be offered fall semester only, spring semester only, or both fall and spring semesters. Consult with your adviser and department to discuss your academic progress and course sequencing.
- Approved common course substitutions available at <https://www.matse.psu.edu/undergraduate/undergraduate-degree-programs/bachelor-science-bs> (<https://www.matse.psu.edu/undergraduate/undergraduate-degree-programs/bachelor-science-bs/>).

* Course requires a grade of C or better for the major

Materials Science and Engineering, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
MATH 140 (GQ) ^{‡#†2}	4	MATH 141 (GQ) ^{‡#†2}	4
CHEM 110 (GN) ^{*#†2}	3	MATSE 112 or CHEM 112 (GN) ^{*#†2}	3
CHEM 111 (GN) ^{*#†2}	1	CHEM 113 ^{*#2}	1
CAS 100A, 100B, or 100C (GWS) ^{††1}	3	PHYS 211 (GN) ^{*#†2}	4
General Education Knowledge Domain	3	ENGL 15, 30H, or ESL 15 (GWS) ^{††}	3
General Education Knowledge Domain	3	General Education Health and Wellness (GHW)	1.5
	17		16.5

Second Year

Fall	Credits	Spring	Credits
PHYS 212 (GN) [†]	4	ENGL 202C (GWS) ^{††}	3
CHEM 202	3	MATH 251	4
MATH 220 ^{*#2}	3	MATSE 202 (online) [*]	3
MATH 231	2	General Education Knowledge Domain	3
MATSE 201 (online) [*]	3	General Education Knowledge Domain	3
General Education Knowledge Domain	3	General Education Health and Wellness (GHW)	1.5
	18		17.5

Third Year

Fall	Credits	Spring	Credits
MATSE 400 [*]	3	MATSE 402 [*]	3
MATSE 401 [*]	3	MATSE 419	3
MATSE 430 [*]	3	MATSE 492W (Writing across the curriculum) [*]	3
MATSE 460	1	MATSE 462	1
MATSE 436	3	MATSE 413	3
CMPSC 200 or MATSE 219	3	MATSE Specialization Course 1 from Department List	3
	16		16

Fourth Year

Fall	Credits	Spring	Credits
MATSE 494W or 493W (Writing across the curriculum, can be taken fall or spring of fourth year)	0-3	MATSE 494W or 493W (Writing across the curriculum, can be taken fall or spring of fourth year)	3-0
MATSE Specialization Course 2 from Department List	3	MATSE Specialization Course 3 from Department List	3

Technical Elective 1	3	MATSE Specialization Course 4 from Department List	3
Technical Elective 2	3	Technical Elective 3	3
Materials Senior Processing Laboratory (can be taken fall or spring)	1	Technical Elective 4	3
IE 424	3	General Education Knowledge Domain	3
	13-16		18-15

Total Credits 132

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100A, CAS 100B, or CAS 100C for EMSC 100S. EMSC 100S (Earth and Mineral Sciences First year Seminar) is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.

² In order to be eligible for entrance to the Materials Science and Engineering major, a student must have: 1) Attained at least a 2.00 cumulative grade-point average. 2) Completed CHEM 110, CHEM 111, CHEM 112 or MATSE 112, CHEM 113, MATH 140, MATH 141, MATH 220 and PHYS 211; earned a grade of C or better in each of these courses.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Courses required for the major may be offered fall semester only, spring semester only, or both fall and spring semesters. Consult with your adviser and department to discuss your academic progress and course sequencing.
- Approved common course substitutions available at <https://www.matse.psu.edu/undergraduate/undergraduate-degree-programs/bachelor-science-bs> (<https://www.matse.psu.edu/undergraduate/undergraduate-degree-programs/bachelor-science-bs/>).

Career Paths

Because all industries rely on materials, materials science and engineering graduates find employment in numerous fields, both within traditional engineering domains and in arenas outside of those traditional engineering disciplines.

Careers

Graduates may find work in industries such as manufacturing, materials production, transportation, consulting, energy, environmental solutions, medical, and more. Careers within these industries encompass such areas as research and development, product design and production, quality control, and sales.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE MATERIALS SCIENCE AND ENGINEERING PROGRAM (<https://www.matse.psu.edu/undergraduate/internships-career-resources/>)

Opportunities for Graduate Studies

Graduates seeking higher-level degrees typically stay in materials science and engineering. However, many students have gone to pursue graduate degrees in many different engineering and basic science areas, as well as medicine and law. On average, 50 percent of our graduates will go on to graduate studies.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.matse.psu.edu/graduate/>)

Professional Resources

- Material Advantage Penn State Chapter (<https://sites.psu.edu/materialadvantage/>)
- Keramos National Professional Ceramic Engineering Fraternity (<https://ceramics.org/members/member-communities/classes/keramos/>)

Accreditation

The Bachelor of Science in Materials Science and Engineering at University Park is accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Materials, Metallurgical, Ceramics, and Similarly Named Engineering Programs.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

University Park

OFFICE OF UNDERGRADUATE STUDIES
DEPARTMENT OF MATERIALS SCIENCE AND ENGINEERING
225 Steidle Building
University Park, PA 16801
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<https://www.matse.psu.edu/>

Meteorology and Atmospheric Science, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

Meteorology and atmospheric science is a rigorous scientific discipline devoted to the attainment of an increased understanding of the atmosphere and the development of methods for applying that knowledge to practical problems. Although this field is usually associated with weather prediction, it also has significance in environmental, energy, agricultural, oceanic, and hydrological sciences. For students wishing to pursue many of these areas, the department offers several options within the major.

The major requires a solid foundation in mathematics and the physical sciences, and it provides a comprehensive survey of the fundamentals of atmospheric science. It has sufficient flexibility to permit intensive advanced study in such related areas as mathematics, Earth sciences, or engineering. The department has particular strengths in weather analysis and prediction, including forecast uncertainty and severe weather; physical meteorology, including radar meteorology, instrumentation and atmospheric measurements; and applied areas, including atmospheric diffusion, air pollution chemistry, dynamic meteorology, tropical meteorology, climate, weather risk, and remote sensing.

Graduating meteorologists are prepared for professional employment with industry, private consulting firms, government, and the armed forces or for further study toward graduate degrees normally required for research, university, or management positions.

The first and second years are largely devoted to preparatory work in science, mathematics, and the liberal arts. The junior and senior years involve a core of basic courses in applied and theoretical topics and a choice of courses offering specialized training. The courses unique to each option are normally taken in the junior and senior years.

Atmospheric Science Option

This option challenges students to strengthen and broaden their understanding of the physics and chemistry of both the atmosphere and oceans. It helps prepare them for employment in the diverse field of the atmospheric sciences and for graduate study in the atmospheric or related disciplines. Students are encouraged to participate in undergraduate research projects under the supervision of atmospheric and oceanic scientists in the department college.

Environmental Meteorology Option

Environmental Meteorology prepares the student for understanding the impact of the weather and climate on the environment, which is to say the impacts of air and water on natural and human-altered ecosystems. In order to do this, the option establishes links between atmospheric physics and a variety of environmental disciplines pertaining to land, water, soils, and plants. Depending on his/her interests, the student will select courses in Air Quality and Dispersion, Ecology, Environmental Chemistry, Geographic Information Systems, or Hydrology.

General Option

This option has sufficient flexibility to serve the needs of students who wish to pursue topics chosen broadly from subdisciplines of meteorology

or from related areas in consultation with the academic adviser. The General option is appropriate both for students who intend to pursue postgraduate degrees and for students who want to emphasize a topic for which no option exists.

Weather Forecasting and Communications Option

This option prepares students for careers in which their skills as weather forecasters are effectively used in a variety of ways, from science reporting and television broadcasting to web design and computer-based weather graphics production, and developing innovative applications of weather and climate data to industry.

Weather Risk Management Option

The option combines study of meteorology and atmospheric sciences with training in risk, finance, and quantitative decision-making. Weather affects a wide range of industries, including energy, agriculture, insurance, construction, retail, and transport, among others. Weather and climate variation play central roles in the availability of water resources, the spread of disease, and an array of other processes vital for human welfare. There are, consequently, many organizations that confront risks related to weather, and that have a demand for experts who can help them manage these risks. The option in Weather Risk Management is designed for students who wish to work professionally at this intersection of meteorology and risk management.

What is Meteorology and Atmospheric Science?

Meteorology is one of the oldest of modern sciences. The word itself was coined by Aristotle more than 2,000 years ago for the first book on the science of “things lifted up.” Meteorology and atmospheric science is an interdisciplinary field that uses scientific principles to explain, understand, observe, and forecast the behavior of the Earth’s atmosphere. Meteorologists and atmospheric scientists explore the significance of weather and climate as it relates to the environmental, energy, agricultural, oceanic, and hydrological sciences. From severe weather, numerical weather prediction, and climate change to weather risk and air pollution—there’s no shortage of practical applications in meteorology and atmospheric science.

You Might Like This Program If...

- You are interested in applying mathematics, physics, and computer programming to real-world problems.
- You are fascinated with weather, climate, or the environment.
- You are a self-described “weather geek.”
- You would like to be a “weather communicator” such as a television meteorologist or science writer.
- You want to study global warming and the Earth’s changing climate.
- You would like to work with data from satellites, radar, and other environmental sensors.

Entrance to Major

In addition to the minimum grade point average (GPA) requirements described in the University Policies, the Meteorology entrance-to-major requirement must also be completed with a minimum grade of C: MATH 140.

Degree Requirements

For the Bachelor of Science degree in Meteorology, a minimum of 121 credits is required:

Requirement	Credits
General Education	45
Electives	4-9
Requirements for the Major	93-95

23-26 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 8 credits of GN courses; 6 credits of GQ courses; 0-3 credits of GS courses; 9 credits of GWS courses.

Requirements for the Major

For a Meteorology course to serve as a prerequisite for any subsequent prescribed or supporting Meteorology course in the major, a grade of C or better must be earned in the prerequisite course.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
CHEM 110	Chemical Principles I	3
EMSC 100S	Earth and Mineral Sciences First-Year Seminar ¹	3
MATH 251	Ordinary and Partial Differential Equations	4
PHYS 211	General Physics: Mechanics	4
PHYS 212	General Physics: Electricity and Magnetism	4
<i>Prescribed Courses: Require a grade of C or better</i>		
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
METEO 300	Fundamentals of Atmospheric Science	4
METEO 411	Synoptic Meteorology Laboratory	4
METEO 421	Atmospheric Dynamics	4
METEO 431	Atmospheric Thermodynamics	3
METEO 440W	Principles of Atmospheric Measurements	3
METEO 470	Climate Dynamics	3
Additional Courses		
CAS 100	Effective Speech	3
	or ENGL 202C Effective Writing: Technical Writing	
ENGL 15	Rhetoric and Composition	3
	or ENGL 30H Honors Rhetoric and Composition	
Select one of the following:		3
CMPSC 101	Introduction to Programming	
CMPSC 200	Programming for Engineers with MATLAB	
CMPSC 201	Programming for Engineers with C++	
CMPSC 202		
METEO 273	Introduction to Programming Techniques for Meteorology	
Select one of the following:		3
EBF 472	Quantitative Analysis in Earth Sciences	

STAT 301		
STAT 401	Experimental Methods	
<i>Additional Courses: Require a grade of C or better</i>		
Select one of the following:		3
METEO 101	Understanding Weather Forecasting	
METEO 200A		
or METEO 200		
METEO 201	Introduction to Weather Analysis	
Select one of the following:		4
MATH 230	Calculus and Vector Analysis	
MATH 231	Calculus of Several Variables	
& MATH 232	and Integral Vector Calculus	
Requirements for the Option		
Select an option		27-29

¹ The following substitutions are allowed for students attending campuses where the indicated courses is not offered: CAS 100 or ENGL 202C can be substituted for EMSC 100S.

Requirements for the Option Atmospheric Science Option (27-28 credits)

Code	Title	Credits
Prescribed Courses		
METEO 422	Advanced Atmospheric Dynamics	3
Additional Courses		
Select 6-13 credits of the following: ¹		6-13
METEO 414	Mesoscale Meteorology	
METEO 434	Radar Meteorology	
METEO 451	Introduction to Physical Oceanography	
METEO 452	Tropical Meteorology	
METEO 455	Atmospheric Dispersion	
METEO 465	Middle Atmosphere Meteorology	
METEO 466	Planetary Atmospheres	
METEO 471		
METEO 477	Fundamentals of Remote Sensing Systems	
METEO 480W	Undergraduate Research	
<i>Additional Courses: Require a grade of C or better</i>		
Select 3-6 credits of the following:		3-6
METEO 473	Application of Computers to Meteorology	
METEO 474	Computer Methods of Meteorological Analysis and Forecasting	
Select 6-9 credits of the following:		6-9
METEO 436	Radiation and Climate	
METEO 437	Atmospheric Chemistry and Cloud Physics	
METEO 454	Introduction to Micrometeorology	

Supporting Courses and Related Areas

Select 3 credits of W courses or their equivalent in addition to the following:		3
METEO 440W	Principles of Atmospheric Measurements	

¹ Up to 9 of these credits in relevant courses in Acoustics, Chemistry, Engineering, Mathematics, and Physics may be substituted with the approval of the student's adviser.

Environmental Meteorology Option (27-29 credits)

Code	Title	Credits
Prescribed Courses		
CE 370	Introduction to Environmental Engineering	3
METEO 455	Atmospheric Dispersion	3
<i>Prescribed Courses: Require a grade of C or better</i>		
METEO 454	Introduction to Micrometeorology	3
Additional Courses ¹		
Select 15-17 credits of the following:		15-17
BIOL 110	Biology: Basic Concepts and Biodiversity	
CE 360	Fluid Mechanics	
CE 461	Water-resource Engineering	
CE 475	Water Quality Chemistry	
CE 479	Environmental Microbiology for Engineers	
CHEM 112	Chemical Principles II	
CHEM 113	Experimental Chemistry II	
CHEM 450	Physical Chemistry - Thermodynamics	
CHEM 457	Experimental Physical Chemistry	
CHEM 464	Chemical Kinetics and Dynamics	
ERM 430	Air Pollution Impacts to Terrestrial Ecosystems	
ERM 435	Limnology	
ERM 447	Stream Restoration	
ERM 450	Wetland Science and Sustainability	
GEOG 311		
GEOG 313	Introduction to Field Geography	
GEOG 314	Biogeography and Global Ecology	
GEOG 361	Cartography—Maps and Map Construction	
GEOG 362	Remote Sensing and Image Analysis	
GEOG 363	Geographic Information Systems	
GEOG 417	Satellite Climatology	
GEOG 463	Geospatial Information Management	
ME 405	Indoor Air Quality Engineering	
ME 433	Fundamentals of Air Pollution	
METEO 419	Air Quality Forecasting	
METEO 437	Atmospheric Chemistry and Cloud Physics	
<i>Additional Courses: Require a grade of C or better</i>		
METEO 473	Application of Computers to Meteorology	3
or METEO 474	Computer Methods of Meteorological Analysis and Forecasting	

¹ May apply to General Education

General Option (27 credits)

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
METEO 473	Application of Computers to Meteorology	3
or METEO 474	Computer Methods of Meteorological Analysis and Forecasting	
Select one of the following:		3
METEO 436	Radiation and Climate	
METEO 437	Atmospheric Chemistry and Cloud Physics	
METEO 454	Introduction to Micrometeorology	

Supporting Courses and Related Areas

Select 21 credits in consultation with adviser from 400-level METEO 21 courses and/or 300-, or 400-level courses from the Colleges of Agricultural Sciences, Earth and Mineral Sciences, Engineering, and/or Science¹

¹ With the approval of a meteorology adviser, some 200-level courses from those Colleges may also be used.

Weather Forecasting and Communications Option (28 credits)

Code	Title	Credits
Prescribed Courses		
METEO 414	Mesoscale Meteorology	4
METEO 415	Forecasting Practicum	3
METEO 481	Weather Communications I	3
METEO 482	Weather Communications II	3
Additional Courses		
Select 6-9 credits of the following:		6-9
EE/METEO 477	Fundamentals of Remote Sensing Systems	
ENGL 416	Science Writing	
GEOG 333	Human Dimensions of Natural Hazards	
GEOG 361	Cartography—Maps and Map Construction	
GEOG 362	Remote Sensing and Image Analysis	
GEOG 363	Geographic Information Systems	
GEOG 417	Satellite Climatology	
GEOG 467	Applied Cartographic Design	
GEOSC 402Y	Natural Disasters	
METEO 413	Map Analysis	
METEO 416	Advanced Forecasting	
METEO 418		
METEO 419	Air Quality Forecasting	
METEO 422	Advanced Atmospheric Dynamics	
METEO 434	Radar Meteorology	
METEO 451	Introduction to Physical Oceanography	
METEO 452	Tropical Meteorology	
METEO 454	Introduction to Micrometeorology	
METEO 471		
METEO 483	Weather Communications III	
METEO 486	Pennsylvania Climate Studies (1-2, max 3)	
Any two from:		
METEO 495A	Meteorology Communications Internship	
METEO 495B	Meteorology Private Sector Internship	
METEO 495C	Meteorological Operations Internship	
METEO 495D	Meteorological International Internship	
METEO 495E	Meteorological Off-Campus Research Internship	
<i>Additional Courses: Require a grade of C or better</i>		
METEO 436	Radiation and Climate	3
or METEO 437	Atmospheric Chemistry and Cloud Physics	
Select 3-6 credits of the following:		3-6
METEO 473	Application of Computers to Meteorology	
METEO 474	Computer Methods of Meteorological Analysis and Forecasting	

Weather Risk Management Option (27 credits)

Code	Title	Credits
Prescribed Courses		
EBF 473	Risk Management in Energy Industries	3
ECON 102	Introductory Microeconomic Analysis and Policy	3
METEO 460	Weather Risk and Financial Markets	3
Additional Courses		
Select 6 credits of the following:		6
EBF 301	Global Finance for the Earth, Energy, and Materials Industries	
EBF 483	Introduction to Electricity Markets	
EBF 484	Energy Economics	
EGEE 437	Design of Solar Energy Conversion Systems	
EGEE 438	Wind and Hydropower Energy Conversion	
EME 460	Geo-resource Evaluation and Investment Analysis	
Select one of the following:		3
ECON 490		
STAT 318	Elementary Probability	
STAT 319	Elementary Mathematical Statistics	
STAT 414	Introduction to Probability Theory	
STAT 415	Introduction to Mathematical Statistics	
STAT 460	Intermediate Applied Statistics	
STAT 462	Applied Regression Analysis	
<i>Additional Courses: Require a grade of C or better</i>		
Select 6 credits of the following:		6
METEO 415	Forecasting Practicum (does not require a grade of C or better)	
METEO 473	Application of Computers to Meteorology	
METEO 474	Computer Methods of Meteorological Analysis and Forecasting	
Select one of the following:		3
METEO 436	Radiation and Climate	
METEO 437	Atmospheric Chemistry and Cloud Physics	
METEO 454	Introduction to Micrometeorology (preferred choice)	

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- Arts (GA): 3 credits
- Health and Wellness (GHW): 3 credits
- Humanities (GH): 3 credits
- Social and Behavioral Sciences (GS): 3 credits
- Natural Sciences (GN): 3 credits

Integrative Studies

- Inter-Domain Courses (Inter-Domain): 6 credits

Exploration

- GN, may be completed with Inter-Domain courses: 3 credits
- GA, GH, GN, GS, Inter-Domain courses. This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Meteorology and Atmospheric Science and M.S. in Meteorology and Atmospheric Science

Requirements for the Integrated B.S. in Meteorology and Atmospheric Science and M.S. in Meteorology and Atmospheric Science can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/meteorology-atmospheric-science/#integratedundergradgradprogramstext>).

Program Learning Objectives

- Graduates can demonstrate skills for interpreting and applying atmospheric observations.
- Graduates can demonstrate knowledge of the atmosphere and its evolution.
- Graduates can demonstrate knowledge of the role of water in the atmosphere.
- Graduates can demonstrate facility with computer applications to atmospheric problems.
- Graduates can demonstrate skills for communicating their technical knowledge.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

General Option: Meteorology and Atmospheric Science, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes

in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 or 140G (GQ) ^{**#†}	4 MATH 141 or 141G (GQ) ^{**†}	4
CHEM 110 (GN) [†]	3 ENGL 15, 30H, or ESL 15 (GWS) ^{††}	3
EMSC 100S (GWS) ^{††1}	3 PHYS 211 (GN) [†]	4
METEО 201 [*]	3 METEO 273, CMPSC 101, CMPSC 200, CMPSC 201, or 202	3
General Education Knowledge Domain	3	
	16	14

Second Year

Fall	Credits Spring	Credits
PHYS 212 (GN) [†]	4 METEO 431 [*]	3
METEО 300 [*]	4 MATH 251	4
MATH 230 ^{*2}	4 STAT 301 or STAT 401	3
General Education Knowledge Domain	3 General Education Knowledge Domain	3
	General Education Health and Wellness (GHW)	3
	15	16

Third Year

Fall	Credits Spring	Credits
METEО 421 [*]	4 METEO 470 [*]	3
METEО 436, 437, or 454 [*]	3 METEO 440W [*]	3
METEО 411 [*]	4 General Education Foundation Selection (GWS) ^{††1}	3
METEО 473 or 474 [*]	3 General Education Knowledge Domain	3
	Professional Elective ³	3
	14	15

Fourth Year

Fall	Credits Spring	Credits
General Education Knowledge Domain	3 Professional Elective ³	3
General Education Knowledge Domain	3 Professional Elective ³	3
Professional Elective ³	3 Professional Elective ³	3
Professional Elective ³	3 Elective	3
Professional Elective ³	3 Elective	4
	15	16

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100 (GWS), CAS 100A, CAS 100B, or CAS 100C; or ENGL 202C (GWS) for EMSC 100S (GWS). EMSC 100S Earth and Mineral Sciences First year Seminar (3) is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.

² Students may also complete this requirement by taking MATH 231 and MATH 232. MATH 231 is a prerequisite for MATH 232, so students should plan to take MATH 231 before MATH 232. Students taking MATH 231 and 232 should work with their adviser on other appropriate schedule adjustments.

³ Professional elective: Select 21 credits, in consultation with adviser, from 400-level METEO courses and/or 300-, or 400-level courses from the Colleges of Agricultural Sciences, Earth and Mineral Sciences, Engineering, and/or Science. With the approval of a meteorology adviser, some 200-level courses from those Colleges may also be used.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

General Option: Meteorology and Atmospheric Science, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 ^{†#†}	4 MATH 141 ^{††}	4
CHEM 110 (GN) [†]	3 PHYS 211 (GN) [†]	4
ENGL 15, 30H, or ESL 15 ^{††1}	3 METEO 101 (online) [*]	3
General Education Knowledge Domain	3 METEO 273, CMPSC 101, CMPSC 200, CMPSC 201, or 202	3
General Education Health and Wellness (GHW)	1.5	
	14.5	14

Second Year

Fall	Credits Spring	Credits
PHYS 212 (GN) [†]	4 MATH 251	4
MATH 230 ^{*2}	4 METEO 300 ^{*3}	4
General Education Foundation Selection (GWS) ^{††1}	3 General Education Foundation Selection (GWS) ^{††1}	3
General Education Knowledge Domain	3 General Education Knowledge Domain	3
General Education Health and Wellness (GHW)	1.5 General Education Knowledge Domain	3
	15.5	17

Third Year

Fall	Credits Spring	Credits
METEO 431 [*]	3 METEO 440W [*]	3
STAT 301 or STAT 401	3 METEO 411 [*]	4
Elective	3 METEO 421 [*]	4
General Education Knowledge Domain	3 Professional Elective ⁴	3
General Education Knowledge Domain	3	
	15	14

Fourth Year

Fall	Credits Spring	Credits
METEO 470 [*]	3 Professional Elective ⁴	3
METEO 473 or 474 [*]	3 Professional Elective ⁴	3
METEO 436, 437, or 454 [*]	3 Professional Elective ⁴	3
Professional Elective ⁴	3 Professional Elective ⁴	3
Professional Elective ⁴	3 Elective	4
	15	16

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100 (GWS), CAS 100A, CAS 100B, or CAS 100C; or ENGL 202C (GWS) for EMSC 100S (GWS). EMSC 100S Earth and Mineral Sciences First year Seminar (3) is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.

² Students may also complete this requirement by taking MATH 231 and MATH 232. MATH 231 is a prerequisite for MATH 232, so students should plan to take MATH 231 before MATH 232. Students taking MATH 231 and 232 should work with their adviser on other appropriate schedule adjustments.

³ METEO 300 can be taken 2nd year spring, if offered online.

⁴ Professional elective: Select 21 credits, in consultation with adviser, from 400-level METEO courses and/or 300-, or 400-level courses from the Colleges of Agricultural Sciences, Earth and Mineral Sciences, Engineering, and/or Science. With the approval of a meteorology adviser, some 200-level courses from those Colleges may also be used.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Atmospheric Sciences Option: Meteorology and Atmospheric Science, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
MATH 140 or 140G (GQ) ^{†‡##}	4	MATH 141 or 141G (GQ) ^{†‡}	4
CHEM 110 (GN) [†]	3	ENGL 15, 30H, or ESL 15 (GWS) ^{††}	3
EMSC 100S (GWS) ^{††1}	3	PHYS 211 (GN) [†]	4
METEO 201 [*]	3	METEO 273, CMPSC 101, CMPSC 200, CMPSC 201, or 202	3
General Education knowledge domain	3		
	16		14

Second Year

Fall	Credits	Spring	Credits
PHYS 212 (GN) [†]	4	METEO 431 [*]	3
METEO 300 [*]	4	MATH 251	4
MATH 230 ^{*2}	4	STAT 301 or STAT 401	3
General Education Knowledge Domain	3	General Education Knowledge Domain	3
		General Education Health and Wellness (GHW)	3
	15		16

Third Year

Fall	Credits	Spring	Credits
METEO 421 [*]	4	METEO 470 [*]	3
METEO 436, 437, or 454 ^{*3}	3	METEO 440W [*]	3
METEO 411 [*]	4	General Education Foundation Selection (GWS) ^{††1}	3
METEO 473 or 474 ^{*3}	3	General Education Knowledge Domain	3
		Professional Elective ³	3
	14		15

Fourth Year

Fall	Credits	Spring	Credits
METEO 422	3	Professional Elective ³	3
METEO 436, 437, or 454 ^{*3}	3	Professional Elective ³	3
General Education Knowledge Domain	3	Professional Elective ³	3
General Education Knowledge Domain	3	Elective	3
Professional Elective ³	3	Elective	4
	15		16

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100 (GWS), CAS 100A, CAS 100B, or CAS 100C; or ENGL 202C (GWS) for EMSC 100S (GWS). EMSC 100S Earth and Mineral Sciences First year Seminar (3) is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.

² Students may also complete this requirement by taking MATH 231 and MATH 232. MATH 231 is a prerequisite for MATH 232, so students should plan to take MATH 231 before MATH 232. Students taking MATH 231 and 232 should work with their adviser on other appropriate schedule adjustments.

³ Students should select 3-6 credits from METEO 473(3) and METEO 474(3); 6-9 credits from METEO 436(3), METEO 437(3), and METEO 454(3); and 6-13 credits from METEO 414(4), METEO 434(3), METEO 451(3), METEO 452(3), METEO 455(3), METEO 465(3), METEO 466(3), METEO 471(3), METEO 477(3), METEO 480W(3). Up to 9 of these credits in relevant courses in Acoustics, Chemistry, Engineering, Mathematics, and Physics may be substituted with the approval of the student's faculty adviser. Students must also select 3 credits of Writing across the curriculum courses, or their equivalent, in addition to METEO 440W.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Atmospheric Sciences Option: Meteorology and Atmospheric Science, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 ^{*†#†}	4 MATH 141 ^{*††}	4
CHEM 110 (GN) [†]	3 PHYS 211 (GN) [†]	4
ENGL 15, 30H, or ESL 15 ^{††1}	3 METEO 101 (online) [*]	3
General Education Knowledge Domain	3 METEO 273, CMPSC 101, CMPSC 200, CMPSC 201, or 202	3
General Education Health and Wellness (GHW)	1.5	
	14.5	14

Second Year

Fall	Credits Spring	Credits
PHYS 212 (GN) [†]	4 MATH 251	4
MATH 230 ^{*2}	4 METEO 300 ^{*3}	4
General Education Foundation Selection (GWS) ^{††1}	3 General Education Foundation Selection (GWS) ^{††1}	3
General Education Knowledge Domain	3 General Education Knowledge Domain	3
General Education Health and Wellness (GHW)	1.5 General Education Knowledge Domain	3
	15.5	17

Third Year

Fall	Credits Spring	Credits
METEO 431 [*]	3 METEO 440W [*]	3
STAT 301 or STAT 401	3 METEO 411 [*]	4
Elective	3 METEO 421 [*]	4
General Education Knowledge Domain	3 Professional Elective ⁴	3
General Education Knowledge Domain	3	
	15	14

Fourth Year

Fall	Credits Spring	Credits
METEO 470 [*]	3 METEO 436, 437, or 454 [*]	3
METEO 473 or 474 [*]	3 Professional Elective ⁴	3
METEO 436, 437, or 454 [*]	3 Professional Elective ⁴	3
METEO 422	3 Professional Elective ⁴	3
Professional Elective ⁴	3 Elective	4
	15	16

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100 (GWS), CAS 100A, CAS 100B, or CAS 100C; or ENGL 202C (GWS) for EMSC 100S (GWS). EMSC 100S Earth and Mineral Sciences First year Seminar (3) is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.

² Students may also complete this requirement by taking MATH 231 and MATH 232. MATH 231 is a prerequisite for MATH 232, so students should plan to take MATH 231 before MATH 232. Students taking MATH 231 and 232 should work with their adviser on other appropriate schedule adjustments.

³ METEO 300 can be taken 2nd year spring, if offered online.

⁴ Students should select 3-6 credits from METEO 473(3) and METEO 474(3); 6-9 credits from METEO 436(3), METEO 437(3), and METEO 454(3); and 6-13 credits from METEO 414(4), METEO 434(3), METEO 451(3), METEO 452(3), METEO 455(3), METEO 465(3), METEO 466(3), METEO 471(3), METEO 477(3), METEO 480W(3). Up to 9 of these credits in relevant courses in Acoustics, Chemistry, Engineering, Mathematics, and Physics may be substituted with the approval of the student's faculty adviser. Students must also select 3 credits of Writing across the curriculum courses, or their equivalent, in addition to METEO 440W.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Environmental Meteorology Option: Meteorology and Atmospheric Science, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 or 140G (GQ) ^{†‡#†}	4 MATH 141 or 141G (GQ) ^{††}	4
CHEM 110 (GN) [†]	3 ENGL 15, 30H, or ESL 15 (GWS) ^{††}	3
EMSC 100S (GWS) ^{††1}	3 PHYS 211 (GN) [†]	4
METEO 201 [*]	3 METEO 273, CMPSC 101, CMPSC 200, CMPSC 201, or 202	3
General Education Knowledge Domain	3	
	16	14

Second Year

Fall	Credits Spring	Credits
PHYS 212 (GN) [†]	4 METEO 431 [*]	3
METEO 300 [*]	4 MATH 251	4
MATH 230 ^{*2}	4 STAT 301 or STAT 401	3
General Education Knowledge Domain	3 General Education Knowledge Domain	3
	General Education Health and Wellness (GHW)	3
	15	16

Third Year

Fall	Credits Spring	Credits
METEO 421 [*]	4 METEO 470 [*]	3
METEO 411 [*]	4 METEO 440W [*]	3
METEO 473 or 474 [*]	3 General Education Foundation Selection (GWS) ^{††1}	3
CE 370	3 General Education Knowledge Domain	3
	Professional Elective ³	3
	14	15

Fourth Year

Fall	Credits Spring	Credits
METEO 454 [*]	3 METEO 455	3
General Education Knowledge Domain	3 Professional Elective ³	3
General Education Knowledge Domain	3 Professional Elective ³	3
Professional Elective ³	3 Elective	3
Professional Elective ³	3 Elective	4
	15	16

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100 (GWS), CAS 100A, CAS 100B, or CAS 100C; or ENGL 202C (GWS) for EMSC 100S (GWS). EMSC 100S Earth and Mineral Sciences First year Seminar (3) is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.

² Students may also complete this requirement by taking MATH 231 and MATH 232. MATH 231 is a prerequisite for MATH 232, so students should plan to take MATH 231 before MATH 232. Students taking MATH 231 and 232 should work with their adviser on other appropriate schedule adjustments.

³ Professional elective: Select 15-17 credits from BIOL 110 GN(4), CE 360(3), CE 461(3), CE 475(4), CE 479(3), CHEM 112 GN(3), CHEM 113 GN(1), CHEM 450(3), CHEM 457(2), CHEM 464(3), ERM 430(3), ERM 435(3), ERM 447(3), ERM 450(3), GEOG 313(3), GEOG 314 GN(3), GEOG 361(3), GEOG 362(3), GEOG 363(3), GEOG 414(3), GEOG 417(3), GEOG 463(3), ME 405(3), ME 433(3), METEO 419(3), METEO 437(3).

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Environmental Meteorology Option: Meteorology and Atmospheric Science, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
MATH 140 ^{†#†}	4	MATH 141 ^{††}	4
CHEM 110 (GN) [†]	3	PHYS 211 (GN) [†]	4
ENGL 15, 30H, or ESL 15 ^{†††}	3	METEО 101 (online) [*]	3
General Education Knowledge Domain	3	METEО 273, CMPSC 101, CMPSC 200, CMPSC 201, or 202	3
General Education Health and Wellness (GHW)	1.5		
	14.5		14

Second Year

Fall	Credits	Spring	Credits
PHYS 212 (GN) [†]	4	MATH 251	4
MATH 230 ^{*2}	4	METEО 300 ^{*3}	4
General Education Foundation Selection (GWS) ^{†††}	3	General Education Foundation Selection (GWS) ^{†††}	3
General Education Knowledge Domain	3	General Education Knowledge Domain	3
General Education Health and Wellness (GHW)	1.5	General Education Knowledge Domain	3
	15.5		17

Third Year

Fall	Credits	Spring	Credits
METEО 431 [*]	3	METEО 440W [*]	3
STAT 301 or STAT 401	3	METEО 411 [*]	4
CE 370	3	METEО 421 [*]	4
General Education Knowledge Domain	3	Professional Elective ⁴	3
Elective	3		
	15		14

Fourth Year

Fall	Credits	Spring	Credits
METEО 470 [*]	3	METEО 455	3
METEО 473 or 474 [*]	3	Professional Elective ⁴	3
METEО 454 [*]	3	Professional Elective ⁴	3
General Education Knowledge Domain	3	Professional Elective ⁴	3
Professional Elective ⁴	3	Elective	4
	15		16

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100 (GWS), CAS 100A, CAS 100B, or CAS 100C; or ENGL 202C (GWS) for EMSC 100S (GWS). EMSC 100S Earth and Mineral Sciences First year Seminar (3) is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.

² Students may also complete this requirement by taking MATH 231 and MATH 232. MATH 231 is a prerequisite for MATH 232, so students should plan to take MATH 231 before MATH 232. Students taking MATH 231 and 232 should work with their adviser on other appropriate schedule adjustments.

³ METEO 300 can be taken 2nd year spring, if offered online.

⁴ Professional elective: Select 15-17 credits from BIOL 110 GN(4), CE 360(3), CE 461(3), CE 475(4), CE 479(3), CHEM 112 GN(3), CHEM 113 GN(1), CHEM 450(3), CHEM 457(2), CHEM 464(3), ERM 430(3), ERM 435(3), ERM 447(3), ERM 450(3), GEOG 313(3), GEOG 314 GN(3), GEOG 361(3), GEOG 362(3), GEOG 363(3), GEOG 414(3), GEOG 417(3), GEOG 463(3), ME 405(3), ME 433(3), METEO 419(3), METEO 437(3).

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Weather Risk Management Option: Meteorology and Atmospheric Science, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
MATH 140 or 140G (GQ) ^{†‡#†}	4	MATH 141 or 141G (GQ) ^{††}	4
CHEM 110 (GN) [†]	3	ENGL 15, 30H, or ESL 15 (GWS) ^{††}	3
EMSC 100S (GWS) ^{††1}	3	PHYS 211 (GN) [†]	4
METEO 201 [*]	3	METEO 273, CMPSC 101, CMPSC 200, CMPSC 201, or 202	3
ECON 102 [†]	3		
	16		14

Second Year

Fall	Credits	Spring	Credits
PHYS 212 (GN) [†]	4	METEO 431 [*]	3
METEO 300 [*]	4	MATH 251	4
MATH 230 ^{*2}	4	STAT 301 or STAT 401	3
General Education Knowledge Domain	3	General Education Knowledge Domain	3
		General Education Health and Wellness (GHW)	3
	15		16

Third Year

Fall	Credits	Spring	Credits
METEO 421 [*]	4	METEO 470 [*]	3
METEO 436, 437, or 454 [*]	3	METEO 440W [*]	3
METEO 411 [*]	4	METEO 415, 473, or 474 ^{*3}	3
General Education Knowledge Domain	3	EBF/EGEE Selection ⁴	3
		General Education Foundation Selection (GWS) ^{††1}	3
	14		15

Fourth Year

Fall	Credits	Spring	Credits
METEO 415, 473, or 474 [*]	3	METEO 460	3
EBF 473	3	EBF/EGEE Selection ⁴	3
General Education Knowledge Domain	3	STAT Selection ⁵	3
General Education Knowledge Domain	3	Elective	3
Elective	3	Elective	4
	15		16

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100 (GWS), CAS 100A, CAS 100B, or CAS 100C; or ENGL 202C (GWS) for EMSC 100S (GWS). EMSC 100S Earth and Mineral Sciences First year Seminar (3) is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.

² Students may also complete this requirement by taking MATH 231 and MATH 232. MATH 231 is a prerequisite for MATH 232, so students should plan to take MATH 231 before MATH 232. Students taking MATH 231 and 232 should work with their adviser on other appropriate schedule adjustments.

³ Select 6 credits from METEO 415(3), METEO 473(3) or METEO 474(3).

⁴ Select 6 credits from EBF 301(3); EBF 483(3), EBF 484(3); EGEE 437(3); EGEE 438(3); or EME 460(3).

⁵ Select 3 credits from ECON 490(3), STAT 318(3), STAT 319(3), STAT 414(3), STAT 415(3), STAT 460(3) or STAT 462(3).

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Weather Risk Management Option: Meteorology and Atmospheric Science, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
MATH 140 ^{†#†}	4	MATH 141 ^{††}	4
CHEM 110 (GN) [†]	3	PHYS 211 (GN) [†]	4
ENGL 15, 30H, or ESL 15 ^{†††}	3	METE0 101 (online) [*]	3
ECON 102 [†]	3	METE0 273, CMPSC 101, CMPSC 200, CMPSC 201, or 202	3
General Education Health and Wellness (GHW)	1.5		
	14.5		14

Second Year

Fall	Credits	Spring	Credits
PHYS 212 (GN) [†]	4	MATH 251	4
MATH 230 ^{*2}	4	METE0 300 ^{*3}	4
General Education Foundation selection (GWS) ^{†††}	3	General Education Foundation Selection (GWS) ^{†††}	3
General Education Knowledge Domain	3	General Education Knowledge Domain	3
General Education Health and Wellness (GHW)	1.5	General Education Knowledge Domain	3
	15.5		17

Third Year

Fall	Credits	Spring	Credits
METE0 431 [*]	3	METE0 440W [*]	3
STAT 301 or STAT 401	3	METE0 411 [*]	4
Elective	3	METE0 421 [*]	4
General Education Knowledge Domain	3	EBF/EGEE Selection ⁴	3
General Education Knowledge Domain	3		
	15		14

Fourth Year

Fall	Credits	Spring	Credits
METE0 470 [*]	3	METE0 460	3
METE0 436, 437, or 454 [*]	3	METE0 415, 473, or 474 ^{*5}	3
METE0 415, 473, or 474 ^{*5}	3	EBF/EGEE Selection ⁴	3
EBF 473	3	STAT Selection ⁶	3
Elective	3	Elective	4
	15		16

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100 (GWS), CAS 100A, CAS 100B, or CAS 100C; or ENGL 202C (GWS) for EMSC 100S (GWS). EMSC 100S Earth and Mineral Sciences First year Seminar (3) is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.

² Students may also complete this requirement by taking MATH 231 and MATH 232. MATH 231 is a prerequisite for MATH 232, so students should plan to take MATH 231 before MATH 232. Students taking MATH 231 and 232 should work with their adviser on other appropriate schedule adjustments.

³ METEO 300 can be taken 2nd year spring, if offered online.

⁴ Select 6 credits from EBF 301(3); EBF 483(3), EBF 484(3); EGEE 437(3); EGEE 438(3); or EME 460(3).

⁵ Select 6 credits from METEO 415(3), METEO 473(3) or METEO 474(3).

⁶ Select 3 credits from ECON 490(3), STAT 318(3), STAT 319(3), STAT 414(3), STAT 415(3), STAT 460(3) or STAT 462(3).

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Weather Forecasting and Communications Option: Meteorology and Atmospheric Science, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 or 140G (GQ) ^{**#†}	4 MATH 141 or 141G (GQ) ^{**†}	4
CHEM 110 (GN) [†]	3 ENGL 15, 30H, or ESL 15 (GWS) ^{††}	3
EMSC 100S (GWS) ^{††1}	3 PHYS 211 (GN) [†]	4
METEO 201 [*]	3 METEO 273, CMPSC 101, CMPSC 200, CMPSC 201, or 202	3
General Education Knowledge Domain	3	
	16	14

Second Year

Fall	Credits Spring	Credits
PHYS 212 (GN) [†]	4 METEO 431 [*]	3
METEO 300 [*]	4 MATH 251	4
MATH 230 ^{*2}	4 STAT 301 or STAT 401	3
General Education Knowledge Domain	3 General Education Knowledge Domain	3
	General Education Health and Wellness (GHW)	3
	15	16

Third Year

Fall	Credits Spring	Credits
METEO 421 [*]	4 METEO 470 [*]	3
METEO 411 [*]	4 METEO 440W [*]	3
METEO 481	3 METEO 482	3
METEO 473 or 474 ^{*3}	3 General Education Foundation Selection (GWS) ^{††1}	3
	General Education Knowledge Domain	3
	14	15

Fourth Year

Fall	Credits Spring	Credits
METEO 436 or 437 [*]	3 METEO 414	4
METEO 415	3 Professional Elective ⁴	3
General Education Knowledge Domain	3 Professional Elective ⁴	3
General Education Knowledge Domain	3 Elective	3

Professional Elective ⁴	3 Elective	3
	15	16

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100 (GWS), CAS 100A, CAS 100B, or CAS 100C; or ENGL 202C (GWS) for EMSC 100S (GWS). EMSC 100S Earth and Mineral Sciences First year Seminar (3) is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.

² Students may also complete this requirement by taking MATH 231 and MATH 232. MATH 231 is a prerequisite for MATH 232, so students should plan to take MATH 231 before MATH 232. Students taking MATH 231 and 232 should work with their adviser on other appropriate schedule adjustments.

³ Select 3-6 credits from METEO 473(3) and METEO 474(3).

⁴ Professional elective: Select 6-9 credits from CAS 211(3), EE 477(3) or METEO 477(3); ENGL 416(3), GEOG 333(3), GEOG 361(3), GEOG 362(3), GEOG 363(3), GEOG 417(3), GEOG 467(3), GEOSC 402 IL(3), METEO 413(3), METEO 416(3), METEO 418(3), METEO 419(3), METEO 422(3), METEO 434(3), METEO 451(3), METEO 452(3), METEO 454(3), METEO 471(3), METEO 483(3), METEO 486(1-2, max 3), any two from METEO 495A(3), METEO 495B(3), METEO 495C(3), METEO 495D(3) or METEO 495E(3).

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Weather Forecasting and Communications Option: Meteorology and Atmospheric Science, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 ^{†##†}	4 MATH 141 ^{††}	4
CHEM 110 (GN) [†]	3 PHYS 211 (GN) [†]	4
ENGL 15, 30H, or ESL 15 ^{††1}	3 METEO 101 (online) [*]	3
General Education Knowledge Domain	3 METEO 273, CMPSC 101, CMPSC 200, CMPSC 201, or 202	3
General Education Health and Wellness (GHW)	1.5	
	14.5	14

Second Year

Fall	Credits Spring	Credits
PHYS 212 (GN) [†]	4 MATH 251	4
MATH 230 ^{*2}	4 METEO 300 ^{*3}	4
General Education Foundation Selection (GWS) ^{††1}	3 General Education Foundation Selection (GWS) ^{††1}	3
General Education Knowledge Domain	3 General Education Knowledge Domain	3
General Education Health and Wellness (GHW)	1.5 General Education Knowledge Domain	3
	15.5	17

Third Year

Fall	Credits Spring	Credits
METEO 431 [*]	3 METEO 440W [*]	3
METEO 481	3 METEO 411 [*]	4
STAT 301 or STAT 401	3 METEO 421 [*]	4
General Education Knowledge Domain	3 METEO 482	3
General Education Knowledge Domain	3	
	15	14

Fourth Year

Fall	Credits Spring	Credits
METEO 470 [*]	3 METEO 414	4
METEO 473 or 474 [*]	3 Professional Elective ⁵	3
METEO 436 or 437 ^{*4}	3 Professional Elective ⁵	3
METEO 415	3 Professional Elective ⁵	3
Elective	3 Elective	3
	15	16

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100 (GWS), CAS 100A, CAS 100B, or CAS 100C; or ENGL 202C (GWS) for EMSC 100S (GWS). EMSC 100S Earth and Mineral Sciences First year Seminar (3) is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.

² Students may also complete this requirement by taking MATH 231 and MATH 232. MATH 231 is a prerequisite for MATH 232, so students should plan to take MATH 231 before MATH 232. Students taking MATH 231 and 232 should work with their adviser on other appropriate schedule adjustments.

⁴ Select 3-6 credits from METEO 473(3) and METEO 474(3).

⁵ Professional elective: Select 6-9 credits from CAS 211(3), EE 477(3) or METEO 477(3); ENGL 416(3), GEOG 333(3), GEOG 361(3), GEOG 362(3), GEOG 363(3), GEOG 417(3), GEOG 467(3), GEOSC 402 IL(3), METEO 413(3), METEO 416(3), METEO 418(3), METEO 419(3), METEO 422(3), METEO 434(3), METEO 451(3), METEO 452(3), METEO 454(3), METEO 471(3), METEO 483(3), METEO 486(1-2, max 3), any two from METEO 495A(3), METEO 495B(3), METEO 495C(3), METEO 495D(3) or METEO 495E(3).

³ METEO 300 can be taken 2nd year spring, if offered online.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

Graduating meteorologists and atmospheric scientists are prepared for professional employment with industry, private consulting firms, government, and the armed forces. Students who graduate with a B.S. in Meteorology and Atmospheric Science from Penn State and who have some research or internship experience are positioned well for graduate study. Typically, about one-third of our B.S. graduates pursue an M.S. or Ph.D.

Careers

According to the Occupational Outlook Handbook, employment of atmospheric scientists, including meteorologists, is projected to grow 4 percent from 2021 to 2031, faster than the average for all occupations. The best job prospects for atmospheric scientists will be in private industry as businesses demand specialized weather forecasts and weather information.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE METEOROLOGY AND ATMOSPHERIC SCIENCE PROGRAM (<http://www.met.psu.edu/prospective-students/undergraduate-students-bs-degree/who-employs-our-b.s.-graduates/>)

Opportunities for Graduate Studies

Further study toward an M.S. or Ph.D. can lead to research, university, or management positions.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<http://www.met.psu.edu/prospective-students/graduate-students-ms-and-phd-degrees/>)

Professional Resources

- Campus Weather Service (<https://campusweatherservice.com/>)
- Weather Outreach and Education (<https://sites.psu.edu/weatheroe/>)
- Penn State Branch of the American Meteorological Society and National Weather Association (PSUBAMS) (<https://sites.psu.edu/psubams/>)

Contact

University Park

DEPARTMENT OF METEOROLOGY AND ATMOSPHERIC SCIENCE
503 Walker Building
University Park, PA 16802
814-865-0478
meteoundergrad@meteo.psu.edu

<http://www.met.psu.edu>

Meteorology, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

Students pursuing the 39-credit Meteorology minor seek to broaden their education by specializing in an applied science. As for Meteorology majors, students minoring in Meteorology and Atmospheric Science must have a strong background in mathematics and physics. Eleven of the 20 Meteorology credits come from the three required courses of METEO 300, METEO 421, and METEO 431. The remaining 9 credits come from 100-, 200-, 300-, or 400-level METEO courses, at least one of which must be at the 400 level. Completion of the three required courses ensures that students will have the foundational atmospheric science material that they need to register for the remaining 9 Meteorology credits. In consultation with a Meteorology adviser, students may choose these elective courses from a variety of subspecialties:

- Air quality studies
- Atmospheric dynamics
- Atmospheric physics
- Climatology
- Computer applications
- Weather analysis and forecasting

What Is Meteorology?

Meteorology is the study of weather, climate, and the characteristics, structures, and processes of the atmosphere. Broaden your education by seeking a minor in the applied science of meteorology and atmospheric science. The minor often complements majors in physics, chemistry, mathematics, and other fields.

You Might Like This Program If...

- You are fascinated with weather, climate, or the environment.
- You are a self-described "weather geek."
- You enjoy applying mathematics and physics to problems in the atmosphere and oceans.
- You are interested in learning more about meteorology to augment another science or engineering major or career.

Program Requirements

Requirement	Credits
Requirements for the Minor	39

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CHEM 110	Chemical Principles I	3
MATH 231	Calculus of Several Variables	2
MATH 232	Integral Vector Calculus	2
MATH 251	Ordinary and Partial Differential Equations	4
METEO 300	Fundamentals of Atmospheric Science	4
METEO 421	Atmospheric Dynamics	4
METEO 431	Atmospheric Thermodynamics	3
PHYS 211	General Physics: Mechanics	4
PHYS 212	General Physics: Electricity and Magnetism	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 9 credits (at least 3 credits at the 400 level) of 100-, 200-, 300-, or 400-level Meteorology		9

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary

academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Jon M. Nese

Associate Head for Undergraduate Programs

518 Walker Building

University Park, PA 16802

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Career Paths

This minor can help you learn about meteorology or prepare you for future study or work.

Careers

The minor provides students with meteorological knowledge for careers in industry, private consulting firms, government, or the armed forces. This minor may benefit students planning careers in environmental consulting, public policy, economic planning, or risk management. Students who wish to be employed full-time as a meteorologist should major in Meteorology and Atmospheric Science rather than seek a minor.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN METEOROLOGY (<http://www.met.psu.edu/careers/>)

Opportunities for Graduate Studies

A minor in Meteorology, in conjunction with a B.S. in a science or engineering field, may position a student to apply for graduate school in some scientific disciplines, including atmospheric science.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<http://www.met.psu.edu/prospective-students/graduate-students-ms-and-phd-degrees/>)

Contact

University Park

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814-865-0478

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<http://www.met.psu.edu>

Mining Engineering, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

Mining contributes to nearly 15 percent of the U.S. and 25 percent of the global economy. Mined products are significant and critical inputs to food production, manufacturing, construction, and electricity supply, and each year every person in the U.S. requires an average of 38,500 pounds of new minerals to equip and power their day-to-day activities. Over 14,000

mines distributed throughout the U.S. supply the majority of these mined products.

The Penn State Mining Engineering program prepares students for a career in the industrial minerals, metals, and energy industries that sustain the domestic and global economies. Importantly, the program provides an emphasis on sustainable mining through integration of environmental health and safety, and societal responsibility principles in the design and operation of mineral enterprises.

Graduates of the program will be prepared to work domestically or internationally to develop and operate mines; or to work in supporting activities including engineering consulting, banking, equipment development and supply, regulatory enforcement, and research. This is accomplished primarily through the curriculum, but is enhanced by an internship program, which allows qualified students to obtain practical experience through structured employment opportunities in the private and public sectors.

The curriculum is built on the foundation of mathematics, science, and general education common to engineering majors at Penn State. The courses specific to this major are designed and sequenced to provide an appropriate blend of theory, application, and design. The required courses help to provide the enabling skills for graduates to work in any facet of the vast minerals industry, and technical electives allow for in-depth study of more specialized topics. The general education opportunities are sufficiently broad and diverse in nature and scope to enable the student to tailor the educational experience to particular interests, backgrounds, and expected roles in society.

Student-Trainee Program

An internship program and a five-year work-study plan are available to incoming students in Mining Engineering. Numerous mining and manufacturing companies, as well as government agencies, cooperate with the University to offer structured employment opportunities during the student's academic career. In addition to earning significant funds to help finance their education, these opportunities provide valuable practical and professional experience prior to graduation. The internships normally take place in the summer, and the B.S. degree can be earned in four years. The work-study plan consists of alternating six-month periods of employment and schooling, and requires five years to earn the B.S. degree. Additional information can be obtained from the department.

What is Mining Engineering?

Mining today means computer design and automation, surveying and monitoring with drones, developing and refining our resources for critical metals and fuels, improving health and safety, and promoting sustainability principles. The supply chain for transportation, manufacturing, agriculture, healthcare, energy, and defense relies on mining. Mining engineers touch all aspects of resource recovery from mine planning through production through refining to final reclamation of mined lands. They are found in mines, processing plants, engineering consulting companies, and corporate board rooms. Their job may see them in the field one day and engrossed in plans and designs in an office the next. They put all their engineering skills to use.

You Might Like This Program If...

- You want to join a high-tech industry that provides metals, fuels and materials for every industry.
- You want to face new opportunities and challenges every day.
- You want to be a problem solver.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Mining Engineering, a minimum of 131 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	113

27 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 6 credits of GWS courses; 3 credits of GH courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
ECON 102	Introductory Microeconomic Analysis and Policy	3
EDSGN 100	Cornerstone Engineering Design	3
EE 211	Electrical Circuits and Power Distribution	3
EMCH 210	Statics and Strength of Materials	5
EME 460	Geo-resource Evaluation and Investment Analysis	3
EMSC 100S	Earth and Mineral Sciences First-Year Seminar ¹	3
GEOSC 201	Earth Materials	4
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
MATH 250	Ordinary Differential Equations	3
MNG 223	Mineral Land and Mine Surveying	2
MNG 331	Rock Mechanics	3
MNG 404	Mine Materials Handling Systems	2
MNG 410	Underground Mining	3
MNG 411	Mine Systems Engineering	2
MNG 422	Mine Ventilation and Air Conditioning	3
PHYS 211	General Physics: Mechanics	4
PHYS 212	General Physics: Electricity and Magnetism	4
PHYS 213	General Physics: Fluids and Thermal Physics	2
STAT 301		3

Prescribed Courses: Require a grade of C or better

GEOSC 1	Physical Geology	3
MNG 230	Introduction to Mining Engineering	3
MNG 441	Surface Mining Systems and Design	3
MNG 451W	Mining Engineering Project	4
MNPR 301	Elements of Mineral Processing	3
MNPR 413	Mineral Processing Laboratory	1

Additional Courses

Select 23 credits, one course from each category: 23

A.

ENGL 15	Rhetoric and Composition
ENGL 30H	Honors Rhetoric and Composition

B.

PHIL 103	Ethics
PHIL 106	Business Ethics
PHIL 107	Philosophy of Technology
PHIL/STS 233	Ethics and the Design of Technology

C.

CMPS 201	Programming for Engineers with C++
CMPS 202	

D.

MATH 220	Matrices
MATH 231	Calculus of Several Variables

E.

EMCH 212	Dynamics
EMCH 212H	Dynamics

F.

EME 301	Thermodynamics in Energy and Mineral Engineering
ME 300	Engineering Thermodynamics I

G.

CE 360	Fluid Mechanics
EME 303	Fluid Mechanics in Energy and Mineral Engineering

H.

GEOSC 470W	Introduction to Field Geology
MNG 470	

Supporting Courses and Related Areas

Select 6 credits in consultation with adviser (students may apply 6 credits of ROTC) 6

¹ The following substitutions are allowed for students attending campuses where the indicated course is not offered: CAS 100 can be substituted for EMSC 100S.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education

Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Mining Engineering and M.S. in Energy and Mineral Engineering

Requirements for the Integrated B.S. in Mining Engineering and M.S. in Energy and Mineral Engineering can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/energy-mineral-engineering/#integratedundergradgradprogramstext>).

Program Educational Objectives

1. Within three to five years, graduates are expected to be advancing in their career in the minerals industry and adapting to new situations and emerging problems, through the application of general engineering-science skills and the core technical problem-solving and design practices of the mining engineering profession, with an understanding of the need for lifelong learning.
2. Graduates should utilize and continue to develop skills in communication, technical writing, leadership, and working effectively in teams.
3. Graduates are expected to demonstrate an understanding of the importance of mining to society, realizing that, in contemporary society, attention to safety and health, responsibility to the environment, and ethical behavior are required without exception.
4. Students are prepared to attain licensure as a Professional Engineer or to pursue other advanced degrees.

Student Outcomes

Student outcomes describe what students are expected to know and be able to do by the time of graduation. The Mining Engineering program is designed to enable students to:

1. Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. Apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. Communicate effectively with a range of audiences
4. Recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions

7. Acquire and apply new knowledge as needed, using appropriate learning strategies.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Mining Engineering, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 or 140G (GQ) ^{††}	4 MATH 141 or 141G (GQ) ^{††}	4
CHEM 110 (GN) [†]	3 CMPSC 200, 201, or 203	3
CHEM 111 (GN) [†]	1 ENGL 15, 30H, or ESL 15 (GWS) ^{††}	3
EMSC 100S (or CAS 100 by substitution) (GWS) ^{††1}	3 PHYS 211 (GN) [†]	4

EDSGN 100	3 PHIL 103, 106, 107, or 233 (GH) [†]	3
ECON 102 (GS) [†]	3	3
		17

Second Year

Fall	Credits Spring	Credits
PHYS 212 (GN) [†]	4 PHYS 213	2
EMCH 210	5 EMCH 212	3
MNG 223 or CE 209	2 EME 301 or ME 201	3
MATH 250	3 MATH 220 or 231	2
GEOSC 1 [*]	3 EME 210 or STAT 401	3
		MNG 230 [*]
		3
		17

Third Year

Fall	Credits Spring	Credits
EE 211	3 MNPR 301 [*]	3
GEOSC 201	4 MNG 422	3
EME 460 or MNG 412	3 MNG 331	3
EME 303	3 MNG 441 [*]	3
ENGL 202C (GWS) ^{††}	3 General Education Knowledge Domain	3
General Education Health and Wellness (GHW)	1.5 MNG 404	2
		17.5

Fourth Year

Fall	Credits Spring	Credits
MNG 411	2 MNG 451W (Part 2) (Writing across the curriculum) [*]	2
MNG 410	3 General Education Knowledge Domain	3
MNG 451W (Part 1) (Writing across the curriculum) [*]	2 General Education Knowledge Domain	3
GEOSC 470W	3 MNG Technical Elective from Approved Department List ²	3
MNPR 413 [*]	1 General Education Health and Wellness (GHW)	1.5
MNG Technical Elective from Approved Department List ²	3	
General Education Knowledge Domain	3	
		17

Total Credits 131

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100A, CAS 100B, or CAS 100C (GWS) for EMSC 100S (GWS). EMSC 100S Earth and Mineral Sciences First year Seminar (3) is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.

² Approved Technical Electives for the MNGE major can be found at the department website (<https://www.eme.psu.edu/undergraduate/academics/undergraduate-programs/mining-engineering-major/approved-tech-electives/>). Mining technical electives may be substitute with up to 6 credits ROTC.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

To enter the major, students need a minimum 2.00 grade point average and third semester standing.

Courses required for the major may be offered fall semester only, spring semester only, or both fall and spring semesters. Consult with your adviser and department to discuss your academic progress and course sequencing.

Mining Engineering, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 (GQ) ^{††}	4 MATH 141 (GQ) ^{††}	4
CHEM 110 (GN) [†]	3 ECON 102 (GS) [†]	3
CHEM 111 (GN) [†]	1 CMPSC 200, 201, or 203	3
ENGL 15, 30H, or ESL 15 (GWS) ^{††}	3 PHYS 211 (GN) [†]	4
EDSGN 100	3 PHIL 103, 106, 107, or 233 (GH) [†]	3
General Education Knowledge Domain	3	
	17	17

Second Year

Fall	Credits Spring	Credits
PHYS 212 (GN) [†]	4 EMCH 212	3
EMCH 211 (Take EMCH 211 and EMCH 213 in place of EMCH 210)	3 EMCH 213 (Take EMCH 211 and EMCH 213 in place of EMCH 210)	3
MATH 220 or 231	2 PHYS 213	2
CAS 100A, 100B, or 100C (GWS) ^{††1}	3 ENGL 202C (GWS) ^{††}	3
General Education Knowledge Domain	3 MATH 250	3
General Education Health and Wellness (GHW)	1.5 MNG 230 (take through DLC) [*]	3
	16.5	17

Third Year

Fall	Credits Spring	Credits
GEOC 1 [*]	3 MNPR 301 [*]	3
EME 303	3 MNG 422	3
MNG 223 or CE 209	2 MNG 331	3
EME 301	3 MNG 441 [*]	3
EME 460 or MNG 412	3 MNG 404	2
GEOC 201	4	
	18	14

Fourth Year

Fall	Credits Spring	Credits
MNG 411	2 MNG 451W (Part 2) (Writing across the curriculum) [*]	2
MNG 410	3 General Education Knowledge Domain	3
MNG 451W (Part 1) (Writing across the curriculum) [*]	2 General Education Knowledge Domain	3
MNG Technical Elective from Approved Department List ²	3 MNG Technical Elective from Approved Department List ²	3
GEOC 470W	3 EE 211	3

MNPR 413 [*]	1 General Education Health and Wellness (GHW)	1.5
EME 210 or STAT 401	3	
	17	15.5

Total Credits 132

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100A, CAS 100B, or CAS 100C (GWS) for EMSC 100S (GWS). EMSC 100S Earth and Mineral Sciences First year Seminar (3) is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.

² Approved Technical Electives for the MNGE major can be found at the department website (<https://www.eme.psu.edu/undergraduate/academics/undergraduate-programs/mining-engineering-major/approved-tech-electives/>). Mining technical electives may be substitute with up to 6 credits ROTC.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

To enter the major, students need a minimum 2.00 grade point average and third semester standing.

Courses required for the major may be offered fall semester only, spring semester only, or both fall and spring semesters. Consult with your adviser and department to discuss your academic progress and course sequencing.

Commonwealth Campus students are strongly advised to successfully complete their EMCH, MATH, PHYS, and GWS requirements before transitioning to University Park.

Career Paths

Graduates will be prepared to work domestically or internationally to develop or operate mines or to work in supporting activities like engineering consulting, equipment development and supply, banking, regulatory enforcement, or research.

Careers

Companies that actively mine are the largest employer, and seek graduates for production, engineering, and management-trainee positions. Manufacturers of mining equipment employ design and application engineers from our program, as do consulting engineering firms. Government agencies focused on safety, the environment, and research employ many mining engineers. Some are employed in rather unexpected places including banks that finance mining projects and the military. Internships are an important part of the undergraduate program experience, and many of our students complete two or three summer internships with mining companies.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE MINING ENGINEERING PROGRAM (<https://www.eme.psu.edu/recruiting-careers/>)

Opportunities for Graduate Studies

A relatively small number of mining engineering graduates pursue graduate education; but doing so adds additional career opportunities at government and private research labs, and in academia. Often underappreciated, however, is that broadening and deepening the level of technical skills is valuable in the engineering and production career paths in addition to the obvious value for a career in research. In this regard, developing specialties in a particular facet of mining engineering or expanding into interdisciplinary areas can be particularly rewarding. Some mining engineering graduates pursue graduate degrees in law or business administration.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.eme.psu.edu/graduate/>)

Professional Resources

- Mining Society Student Chapter (<https://www.eme.psu.edu/undergraduate/undergraduate-resources/student-organizations/>)
- International Society of Explosives Engineers Student Chapter (<https://www.eme.psu.edu/undergraduate/undergraduate-resources/student-organizations/>)
- The Society for Mining, Metallurgy & Exploration (<https://www.smenet.org/>)
- National Mining Association (<https://nma.org/>)
- The American Institute of Mining, Metallurgical and Petroleum Engineers (<https://aimemhq.org/>)
- International Society of Explosives Engineers (<https://isee.org/>)
- The National Stone, Sand and Gravel Association (<https://www.nssga.org/>)

Accreditation

The Bachelor of Science in Mining Engineering at University Park is accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Mining and Similarly Named Engineering Programs.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

University Park

JOHN AND WILLIE LEONE FAMILY DEPARTMENT OF ENERGY AND MINERAL ENGINEERING
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Mining Engineering, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The minor in Mining Engineering offers a specialized program for students in many other broad-based, technical majors, such as those in engineering or science. The demand for professionals with the training and skills for a career in the minerals- and energy-recovery profession far exceeds the supply. Mineral exploration and evaluation, mine development, marketing, health and safety, environmental protection, and mine management are all areas of industry employment. It is recommended that students wishing to pursue this minor come from an engineering or science major. As a result, the selection of this minor can provide additional career options for students in a wide range of offerings at Penn State.

What is Mining Engineering?

Mining today means computer design and automation, surveying and monitoring with drones, developing and refining our resources for critical metals and fuels, improving health and safety, and promoting sustainability principles. The supply chain for transportation, manufacturing, agriculture, healthcare, energy, and defense relies on mining. Mining engineers touch all aspects of resource recovery from mine planning through production through refining to final reclamation of mined lands. They are found in mines, processing plants, engineering consulting companies, and corporate board rooms. Their job may see them in the field one day and engrossed in plans and designs in an office the next. They put all their engineering skills to use.

You Might Like This Program If...

- You want to join a high-tech industry that provides metals, fuels and materials for every industry.
- You want to face new opportunities and challenges every day.
- You want to be a problem solver.

Program Requirements

Requirement	Credits
Requirements for the Minor	20

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>).

In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
MNG 230	Introduction to Mining Engineering	3
MNG 331	Rock Mechanics	3
MNG 404	Mine Materials Handling Systems	2
MNG 410	Underground Mining	3
MNG 412	Mineral Property Evaluation	3
MNG 422	Mine Ventilation and Air Conditioning	3
MNG 441	Surface Mining Systems and Design	3

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Career Paths

Graduates will be prepared to work domestically or internationally to develop or operate mines or to work in supporting activities like engineering consulting, equipment development and supply, banking, regulatory enforcement, or research.

Careers

Companies that actively mine are the largest employer, and seek graduates for production, engineering, and management-trainee positions. Manufacturers of mining equipment employ design and application engineers from our program, as do consulting engineering firms. Government agencies focused on safety, the environment, and research employ many mining engineers. Some are employed in rather unexpected places including banks that finance mining projects and the

military. Internships are an important part of the undergraduate program experience, and many of our students complete two or three summer internships with mining companies.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE MINING ENGINEERING PROGRAM (<https://www.eme.psu.edu/recruiting-careers/>)

Opportunities for Graduate Studies

A relatively small number of mining engineering graduates pursue graduate education; but doing so adds additional career opportunities at government and private research labs, and in academia. Often underappreciated, however, is that broadening and deepening the level of technical skills is valuable in the engineering and production career paths in addition to the obvious value for a career in research. In this regard, developing specialties in a particular facet of mining engineering or expanding into interdisciplinary areas can be particularly rewarding. Some mining engineering graduates pursue graduate degrees in law or business administration.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.eme.psu.edu/graduate/>)

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- The Society for Mining, Metallurgy & Exploration (<https://www.smenet.org/>)
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Contact

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<https://www.eme.psu.edu>

Petroleum and Natural Gas Engineering, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The undergraduate curriculum in Petroleum and Natural Gas Engineering has been designed to equip the student with the fundamentals necessary to achieve lifelong professional growth. Graduates are prepared to

enter both the private and public sectors as petroleum and natural gas engineers or to pursue further education at the graduate level.

The courses are structured to serve as a melting pot for theory, application to case studies, and engineering project design. This enables the student to appreciate and understand that a successful engineering design project requires a sound theoretical foundation, experimentation and engineering judgment. The thrust of the program structure emphasizes the fundamentals of mathematics and earth and engineering sciences and integrates them in application to traditional petroleum and natural gas engineering topics. Design projects are required throughout the curriculum. Execution of these projects requires an amalgamation of problem formulation strategies, testing of alternative design methodologies, feasibility studies, and economic and environmental considerations. Graduates of the program are expected to perform in various facets of the petroleum industry including drilling, production, evaluation, transportation, and storage. The petroleum and natural gas engineering faculty and staff are committed to an interactive teaching and learning environment to ensure that the student is an active participant in the learning process. General education opportunities are sufficiently broad and diverse in scope to enable the student to tailor the educational experience to particular interests, background, and expected role in society.

What is Petroleum and Natural Gas Engineering?

Petroleum and Natural Gas Engineering is a field related to extracting hydrocarbon resources from subsurface reservoirs. This engineering discipline is about designing, implementing, and managing solutions for subsurface energy production and storage. Petroleum and natural gas engineers solve crucial problems related to one of the most important resources for society today: energy. They predominantly work in the upstream sector of the oil and energy industries, which comprises exploration, field development, well drilling, production and injection well optimization. Once oil and gas are discovered, petroleum engineers determine optimum drilling and completion methods, monitor and manage production operations, and design reservoir development strategies. They are responsible for providing engineering solutions with global economic, environmental, geopolitical, and societal impacts. They are well-suited to solve complex problems in geothermal energy, geological carbon sequestration, hydrogen and energy storage, wastewater disposal, and environmental remediation of soil, groundwater, and other geologic media.

You Might Like This Program If...

- You enjoy combining disciplines such as geology, chemistry, physics, and mathematics to solve complex problems of importance to society.
- You want to use science and engineering principles to tackle the challenges of global energy demands.
- You seek a profession that offers domestic and international networking opportunities.
- You enjoy working in the field, performing sophisticated computer simulations, or interpreting geologic and production data.

Entrance to Major

In addition to the minimum grade point average (GPA) requirements described in the University Policies, the Petroleum and Natural Gas

Engineering entrance to major requirement must also be completed with a minimum grade of C: CHEM 110, MATH 140, MATH 141, and PHYS 211.

Degree Requirements

For the Bachelor of Science degree in Petroleum and Natural Gas Engineering, a minimum of 129 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	114

30 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GH courses; 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 9 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
CHEM 111	Experimental Chemistry I	1
CMPSC 201	Programming for Engineers with C++	3
ECON 102	Introductory Microeconomic Analysis and Policy	3
EMCH 210	Statics and Strength of Materials ¹	5
EMCH 212	Dynamics	3
EME 460	Geo-resource Evaluation and Investment Analysis	3
GEOSC 1	Physical Geology	3
GEOSC 454	Geology of Oil and Gas	3
MATH 220	Matrices	2
MATH 231	Calculus of Several Variables	2
MATH 251	Ordinary and Partial Differential Equations	4
PNG 301	Introduction to Petroleum and Natural Gas Engineering	3
PNG 420	Applied Reservoir Analysis and Secondary Recovery	3
PNG 425	Principles of Well Testing and Evaluation	3
PNG 430	Reservoir Modeling	3
PNG 440W	Formation Evaluation	3
PNG 480	Surface Production Engineering	3
PNG 482	Production Engineering Laboratory	1
PNG 490	Petroleum and Natural Gas Engineering Capstone Design	3
<i>Prescribed Courses: Require a grade of C or better</i>		
CHEM 110	Chemical Principles I	3
CHEM 112	Chemical Principles II	3
EME 301	Thermodynamics in Energy and Mineral Engineering	3
EME 303	Fluid Mechanics in Energy and Mineral Engineering	3
EMSC 100S	Earth and Mineral Sciences First-Year Seminar ²	3
ENGL 202C	Effective Writing: Technical Writing	3

MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
PHYS 211	General Physics: Mechanics	4
PHYS 212	General Physics: Electricity and Magnetism	4
PNG 405	Rock and Fluid Properties	3
PNG 406	Rock and Fluid Laboratory	1
PNG 410	Applied Reservoir Engineering	3
PNG 450	Drilling Engineering	3
PNG 451	Drilling Laboratory	1
PNG 475	Production and Completions Engineering	3

Additional Courses

Select 3 credits from the following: 3

PHIL 103	Ethics
PHIL 106	Business Ethics
PHIL 107	Philosophy of Technology
PHIL 233	Ethics and the Design of Technology

Additional Courses: Require a grade of C or better

Select 3 credits from the following: 3

ESL 15	ESL Composition for American Academic Communication II
ENGL 15	Rhetoric and Composition
ENGL 30H	Honors Rhetoric and Composition

Supporting Courses and Related Areas

Select 6 credits in consultation with adviser (students may apply 6 credits of ROTC) 6

¹ Students at commonwealth campuses and/or transfer students can substitute the combination of EMCH 211 and EMCH 213.

² The following substitutions are allowed for students attending campuses where the indicated course is not offered: CAS 100 can be substituted for EMSC 100S.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits

- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Petroleum and Natural Gas Engineering and M.S. in Energy and Mineral Engineering

Requirements for the Integrated B.S. in Petroleum and Natural Gas Engineering and M.S. in Energy and Mineral Engineering can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/energy-mineral-engineering/#integratedundergradgradprogramstext>).

Program Educational Objectives

1. Our graduates will integrate key science and engineering principles to address the technological challenges of the petroleum and natural gas industry.
2. Our graduates will practice in a broad range of petroleum engineering fields working on teams that create innovative solutions to the most pressing problems of the petroleum and natural gas industry by implementing the ideals of ethical behavior, professionalism, and environmental sensitivity and social awareness.
3. Our graduates will be recognized as critical and independent thinkers and will assume positions of leadership in defining the social, intellectual, business and technical dimensions of the professional organizations they belong to.
4. Our graduates will continue their lifelong learning process and participate in graduate education to remain as effective professionals in the workplace of the future.

Student Outcomes

Student outcomes describe what students are expected to know and be able to do by the time of graduation. The Petroleum and Natural Gas Engineering program is designed to enable students to:

1. Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. Apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. Communicate effectively with a range of audiences
4. Recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. Acquire and apply new knowledge as needed, using appropriate learning strategies.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Petroleum and Natural Gas Engineering, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 or 140G (GQ) ^{*†#†}	4 MATH 141 or 141G (GQ) ^{*†#†}	4
CHEM 110 (GN) ^{*#†}	3 ENGL 15, 30H, or ESL 15 (GWS) ^{††}	3
CHEM 111 (GN) [†]	1 CHEM 112 [*]	3
EMSC 100S (or CAS 100 by substitution) (GWS) ^{††1}	3 PHYS 211 (GN) ^{*#†}	4
ECON 102 (GS) [†]	3 General Education Knowledge Domain	3
General Education Knowledge Domain	3	
	17	17

Second Year

Fall	Credits Spring	Credits
PHYS 212 (GN) ^{*†}	4 PNG 301	3

EMCH 210	5 MATH 220	2
MATH 251	4 MATH 231	2
EME 210 or CMPSC 201	3 EMCH 212	3
	GEOSC 1	3
	PHIL 103, 106, 107, or 233 (GH) [†]	3
	16	16

Third Year

Fall	Credits Spring	Credits
PNG 405 [*]	3 PNG 450 [*]	3
PNG 406 [*]	1 PNG 451 [*]	1
EME 301 [*]	3 PNG 475 [*]	3
EME 303 [*]	3 GEOSC 454	3
PNG 440W (Writing across the curriculum)	3 PNG 410 [*]	3
ENGL 202C (GWS) ^{††}	3 Technical Elective from approved department list ²	3
	16	16

Fourth Year

Fall	Credits Spring	Credits
PNG 420	3 PNG 425	3
PNG 430	3 PNG 490	3
EME 460	3 Technical Elective from approved department list ²	3
PNG 480	3 General Education Knowledge Domain	3
PNG 482	1 General Education Health and Wellness (GHW)	1.5
General Education Health and Wellness (GHW)	1.5 General Education Knowledge Domain	3
	14.5	16.5

Total Credits 129

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry

the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

¹ Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100A, CAS 100B, or CAS 100C (GWS) for EMSC 100S (GWS). EMSC 100S Earth and Mineral Sciences First year Seminar (3) is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.

² Approved Technical Electives for the PNGE major can be found at the department web site: <http://www.eme.psu.edu/pnge/techelectives> Students may use up to 6 credits of ROTC as technical electives.

Advising Notes:

Only students who are enrolled in EMSC or DUS are eligible to apply to PNGE.

Courses required for the major may be offered fall semester only, spring semester only, or both fall and spring semesters. Consult with your adviser and department to discuss your academic progress and course sequencing.

The PNGE program strongly recommends that students have summer internships, as many companies will only consider hiring PNGE graduates who have had at least one internship.

College and Department Notes: Pursuant to Senate Policy 83-80.5, the Petroleum and Natural Gas Engineering program at Penn State requires that at least 24 credits of course work within the department sponsoring the major be completed in residence at University Park under the instruction of College of Earth and Mineral Sciences faculty. External transfer credit requests should follow the Transfer Credit procedure at Penn State Admissions, which may involve evaluation of the external course by faculty for approval.

Petroleum and Natural Gas Engineering, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits	Credits
MATH 140 (GQ) ^{*†##}	4	MATH 141 (GQ) ^{*†##}	4	4
CHEM 110 (GN) ^{*##†}	3	CHEM 112 [*]	3	3
CHEM 111 (GN) [†]	1	PHYS 211 (GN) ^{*##†}	4	4
ENGL 15, 30H, or ESL 15 (GWS) ^{††}	3	ECON 102 (GS) [†]	3	3
General Education Knowledge Domain	3	General Education Health and Wellness (GHW)	1.5	1.5
General Education Health and Wellness (GHW)	1.5			
	15.5		15.5	15.5

Second Year

Fall	Credits	Spring	Credits	Credits
PHYS 212 (GN) ^{*†}	4	PNG 301 (take through DLC)	3	3
EMCH 211	3	EMCH 212	3	3
MATH 251	4	EMCH 213	3	3
CAS 100A, 100B, or 100C (GWS) ^{††1}	3	MATH 220	2	2
EME 210 or CMPSC 201 (If CMPSC 201 is not available at your campus, take CMPSC 121 instead)	3	MATH 231	2	2
		GEOSC 1	3	3
	17		16	16

Third Year

Fall	Credits	Spring	Credits	Credits
PNG 405 [*]	3	PNG 450 [*]	3	3
PNG 406 [*]	1	PNG 451 [*]	1	1
PNG 440W (Writing across the curriculum)	3	PNG 475 [*]	3	3
EME 301 [*]	3	GEOSC 454	3	3
EME 303 [*]	3	PNG 410 [*]	3	3
ENGL 202C (GWS) ^{††}	3	Technical Elective from approved department list ²	3	3
General Education Knowledge Domain	3			
	19		16	16

Fourth Year

Fall	Credits	Spring	Credits	Credits
PNG 420	3	PNG 425	3	3
PNG 430	3	PNG 490	3	3
EME 460	3	PHIL 103, 106, 107, or 233 (GH) [†]	3	3

PNG 480	3 Technical Elective from approved department list ²	3
PNG 482	1 General Education Knowledge Domain	3
	General Education Knowledge Domain	3
	13	18

Total Credits 130

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100A, CAS 100B, or CAS 100C (GWS) for EMSC 100S (GWS). EMSC 100S Earth and Mineral Sciences First year Seminar (3) is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.

² Approved Technical Electives for the PNGE major can be found at the department web site: <http://www.eme.psu.edu/pnge/techelectives>. Students may use up to 6 credits of ROTC as technical electives.

Advising Notes:

Only students who are enrolled in EMSC or DUS are eligible to apply to PNGE.

Courses required for the major may be offered fall semester only, spring semester only, or both fall and spring semesters. Consult with your adviser and department to discuss your academic progress and course sequencing.

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College and Department Notes: Pursuant to Senate Policy 83-80.5, the Petroleum and Natural Gas Engineering program at Penn State requires that at least 24 credits of course work within the department sponsoring the major be completed in residence at University Park under the instruction of College of Earth and Mineral Sciences faculty. External transfer credit requests should follow the Transfer Credit procedure at

Penn State Admissions, which may involve evaluation of the external course by faculty for approval.

Career Paths

Graduates of this program find rewarding careers across the globe as engineers for governmental and regulatory bodies, oil and gas producing companies, and other independent and service companies in the energy sector.

Careers

Our graduates may be candidates for careers in a wide range of industries in both the private and public sector including major oil and gas production companies, large and small independents and service companies and government agencies. The oil and gas industry is a global industry, and both U.S. domestic and international careers are commonly pursued by PNGE graduates.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE PETROLEUM AND NATURAL GAS ENGINEERING PROGRAM (<https://www.eme.psu.edu/recruiting-careers/>)

Opportunities for Graduate Studies

Graduates may be well suited to pursue graduate-level studies. Further study toward an M.S. or Ph.D. can lead to research, university, or management positions.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.eme.psu.edu/graduate/>)

Professional Resources

- Society of Petroleum Engineers Penn State Student Chapter (<https://sites.psu.edu/spepennstate/positive-energy/>)
- American Association of Drilling Engineers Penn State Student Chapter (<https://orgcentral.psu.edu/organization/aade/>)
- Positive Energy (<https://sites.psu.edu/spepennstate/positive-energy/>)
- International Society of Explosives Engineers Penn State Student Chapter (<https://www.eme.psu.edu/undergraduate/undergraduate-resources/student-organizations/>)

Accreditation

The Bachelor of Science in Petroleum and Natural Gas Engineering at University Park is accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Petroleum and Similarly Named Engineering Programs.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

University Park

JOHN AND WILLIE LEONE FAMILY DEPARTMENT OF ENERGY AND MINERAL ENGINEERING
113 Hosler Building

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<https://www.eme.psu.edu>

Petroleum and Natural Gas Engineering, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The minor in Petroleum and Natural Gas Engineering is for students interested in the drilling and production of oil and gas. It provides an opportunity for students to understand and appreciate the relationship between petroleum and natural gas demand, production, and their environmental impact. Students are exposed to the basic courses in petroleum and natural gas extraction, particularly as they relate to drilling, production, and characterization. Advising is available through the professor in charge.

What is Petroleum and Natural Gas Engineering?

Petroleum and Natural Gas Engineering is a field related to extracting hydrocarbon resources from subsurface reservoirs. This engineering discipline is about designing, implementing, and managing solutions for subsurface energy production and storage. Petroleum and natural gas engineers solve crucial problems related to one of the most important resources for society today: energy. They predominantly work in the upstream sector of the oil and energy industries, which comprises exploration, field development, well drilling, production and injection well optimization. Once oil and gas are discovered, petroleum engineers determine optimum drilling and completion methods, monitor and manage production operations, and design reservoir development strategies. They are responsible for providing engineering solutions with global economic, environmental, geopolitical, and societal impacts. They are well-suited to solve complex problems in geothermal energy, geological carbon sequestration, hydrogen and energy storage, wastewater disposal, and environmental remediation of soil, groundwater, and other geologic media.

You Might Like This Program If...

- You enjoy combining disciplines such as geology, chemistry, physics, and mathematics to solve complex problems of importance to society.
- You want to use science and engineering principles to tackle the challenges of global energy demands.
- You seek a profession that offers domestic and international networking opportunities.
- You enjoy working in the field, performing sophisticated computer simulations, or interpreting geologic and production data.

Program Requirements

Requirement	Credits
Requirements for the Minor	23

Requirements for the Minor

A minimum of 23 credits is required for the minor.

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
PHYS 211	General Physics: Mechanics	4
PNG 405	Rock and Fluid Properties	3
PNG 406	Rock and Fluid Laboratory	1
PNG 410	Applied Reservoir Engineering	3
PNG 440W	Formation Evaluation	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 9 credits of the following:		9
PNG 411	Introduction to Petroleum and Natural Gas Extraction	
PNG 420	Applied Reservoir Analysis and Secondary Recovery	
PNG 425	Principles of Well Testing and Evaluation	
PNG 430	Reservoir Modeling	
PNG 450	Drilling Engineering	
PNG 451	Drilling Laboratory	
PNG 475	Production and Completions Engineering	
PNG 480	Surface Production Engineering	
PNG 482	Production Engineering Laboratory	
PNG 496	Independent Studies	

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Polymer Science, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The goal of the Polymer Science minor is to produce graduates who have a first-hand knowledge of the relationships between the synthesis, structure, properties, and processing of polymer materials. Students are required to take MATSE 443, MATSE 441; MATSE 445; MATSE 446; MATSE 447 which provide a broad overview of the subject, then select 3 credits chosen from a suite of courses that deal with polymer synthesis, microstructure and morphology, properties, and processing.

What is Polymer Science?

Polymer scientists investigate long-chain molecules, which include plastics, cellulose (found in trees and paper), DNA, and more. Polymers have unique chemical and physical properties; understanding these properties involves aspects of organic chemistry, physical chemistry, analytical chemistry, contemporary physics, chemical engineering, mechanical engineering, and electrical engineering.

You Might Like This Program If...

- You like investigating polymer materials at the micrometer and nanometer scales.
- You enjoy combining a variety of physical and biological sciences to understand how organic molecules behave.
- You are interested in pursuing a career in polymer materials design, or the process of designing polymer materials for specific applications.

Program Requirements

Requirement	Credits
Requirements for the Minor	23

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules->

for-undergraduate-students/59-00-minors-and-certificates/#59-10). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CHEM 210	Organic Chemistry I	3
MATH 231	Calculus of Several Variables	2
MATSE 443		3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits of the following:		3
BMB 474	Analytical Biochemistry	
EMCH 446	Mechanics of Viscoelastic Materials	
MATSE 447	Rheology and Processing of Polymers	
MATSE 473	Polymeric Materials Laboratory--Synthesis	
MATSE 474		
MATSE 494W	Research and Design Senior Project	
MATSE 496	Independent Studies	
Select 12 credits of the following:		12
MATSE 441	Polymeric Materials I	
MATSE 442		
MATSE 444		
MATSE 445	Thermodynamics, Microstructure, and Characterization of Polymers	
MATSE 446	Mechanical and Electrical Properties of Polymers and Composites	

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Contact

University Park

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<https://www.matse.psu.edu/>

Watersheds and Water Resources, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

Watersheds are important landscape features that control the biogeochemistry of natural waters. This interdisciplinary minor enables students to learn the fundamental processes governing the transport and chemical evolution of surface and subsurface waters. It provides a complement to elective and required coursework in Earth sciences, resource management, wastewater treatment, and/or environmental planning. Students in this program will learn to apply fundamental concepts of chemistry, biology, geoscience, and landscape evolution to processes operating at the watershed scale. Learning objectives for the minor include excellence in written and oral expression, the ability to collect and interpret data from dynamic natural systems, and rigor in scientific thought.

What is Watersheds and Water Resources?

Population growth, land-use changes, and global environmental change are among the factors that will place further demands on an already stressed global fresh water supply. The Watersheds and Water Resources minor brings together courses from the colleges of Agricultural Sciences, Earth and Mineral Sciences, Engineering, and Science to provide interdisciplinary perspectives on water resources to help address local and global water challenges.

You Might Like This Program If...

You want to improve the quality of life for people locally, nationally, or worldwide by providing adequate sources of fresh water for human needs, while being sensitive to the needs of other plant and animal species and maintaining healthy ecosystems.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>).

In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 18 credits (at least 6 credits at the 400 level) from the WWR committee's approved list of courses, which includes but is not limited to the following:		18
ASM 327	Soil and Water Resource Management	
BE 307	Principles of Soil and Water Engineering	
BE 467	Design of Stormwater and Erosion Control Facilities	
CE 370	Introduction to Environmental Engineering	
CE 371	Water and Wastewater Treatment	
CE 461	Water-resource Engineering	
CE 475	Water Quality Chemistry	
CHEM 202	Fundamentals of Organic Chemistry I	
CHEM 402	Environment Chemistry: Atmosphere	
ENVE 411	Water Supply and Pollution Control	
ENVE 415	Hydrology	
ENVSE 408	Contaminant Hydrology	
ERM 411	Legal Aspects of Resource Management	
ERM 435	Limnology	
ERM 450	Wetland Science and Sustainability	
FOR 470	Watershed Management	
FOR 471	Watershed Management Laboratory	
GEOG 431	Geography of Water Resources	
GEOSC 201	Earth Materials	
GEOSC 340	Geomorphology	
GEOSC 412	Water Resources Geochemistry	
GEOSC 413W	Techniques in Environmental Geochemistry	
GEOSC 419	The Organic Geochemistry of Natural Waters and Sediments	
GEOSC 452	Hydrogeology	
PLANT 217	Landscape Soil and Water Management	
SOILS 405	Hydropedology	
SOILS 418	Nutrient Management in Agricultural Systems	
WFS 410	General Fishery Science	
WFS 422	Ecology of Fishes	

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University Park

Jodi Vender

Undergraduate Advising Coordinator
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814-863-5730
advising@geog.psu.edu

Career Paths

Students earning the Watersheds and Water Resources minor learn a wide range of research and analytical skills that are highly valued by employers. Students with expertise in watersheds and water resources find jobs in all levels of government, nonprofit organizations, and in industry.

Careers

Students earning the Watersheds and Water Resources minor are well positioned to find employment with diverse organizations spanning business, government, and nonprofit sectors. Such organizations may include (but are not limited to): AECOM; CH2M; Dewberry; Dow Chemical; Gannett Fleming; National Oceanic and Atmospheric Administration; Tetra Tech; U.S. Army Corps of Engineers; U.S. Bureau of Reclamation; U.S. Environmental Protection Agency; U.S. Fish and Wildlife Service; U.S. Geological Survey; local, regional, and state agencies; environmental and engineering consulting firms; policy research institutes; private corporations; conservation associations; and humanitarian organizations.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN WATERSHEDS AND WATER RESOURCES (<https://www.geog.psu.edu>)

Opportunities for Graduate Studies

The Watersheds and Water Resources minor is useful for students who are interested in pursuing graduate degrees in the environmental and social sciences and engineering. Alumni enter graduate and professional studies in a variety of programs, including (but not limited to) geosciences, geography, environmental sciences, ecology, sustainability, public policy, emergency management, planning, business, engineering, and law. They sometimes begin graduate or professional programs directly after finishing undergraduate studies, but often get several years' work experience before returning to school, either full or part-time.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.geog.psu.edu>)

Contact

University Park

DEPARTMENT OF GEOGRAPHY
302 Walker Building
University Park, PA 16802
814-865-3433
geography@psu.edu

<https://www.geog.psu.edu>

Weather Forecasting, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

Students in this program will have an opportunity to become a better-informed, critical consumer of weather-related news. Students will also have a chance to use powerful, web-based forecasting tools. There are no formal calculus or physics requirements for entrance to the program.

What is Weather Forecasting?

Weather forecasting uses science (understanding of atmospheric processes) and data (such as temperature, humidity, precipitation, and wind) to predict future weather conditions. Use the program's innovative forecasting techniques and conceptual approaches to learn about meteorology, enrich your hobby, supplement your professional career, or build a preparatory foundation for future study or work. As a student in this program, you will have the opportunity to become a better-informed, critical consumer of weather-related news. Whether you are an amateur weather enthusiast or a weather-related industry professional, enrolling in this 12-credit certificate program can help you refine your skills to predict the weather more effectively.

You Might Like This Program If...

- You are a weather enthusiast seeking a preparatory foundation in order to pursue an undergraduate degree in meteorology.
- You are a communications major looking for a stepping stone into the broadcasting profession.
- You are a secondary school teacher who aspires to enhance your understanding of meteorology.
- You are a sailing enthusiast or pilot who relies on meteorological data to chart courses or plan flights.
- You are in a business that is affected by weather and want a deeper understanding of meteorology.

Program Requirements

To earn an undergraduate certificate in Weather Forecasting, a minimum of 12 credits is required.

Code	Title	Credits
Prescribed Courses		
METEO 101	Understanding Weather Forecasting	3
METEO 241	Fundamentals of Tropical Forecasting	3
METEO 361	Fundamentals of Mesoscale Weather Forecasting	3
METEO 410	Advanced Topics in Weather Forecasting	3

No Prerequisites Required.

Certificate Learning Objectives

- **Forecaster:** Student will be able to produce value-added (an improvement on guidance) point forecast including high/low temperature, wind speed, and precipitation.
- **Global Awareness:** Student will demonstrate awareness of significant global weather events and seasonal climate features.
- **WX Analyst:** Student will be able to analyze synoptic and mesoscale weather events of varying complexity by referencing proper terminology and processes.

- **WX Communicator:** Student will be able to demonstrate knowledge of current weather either generally or at a specific location via verbal or written communication.
- **WX Consumer:** Student will improve their skill at using and interpreting publicly available weather data.

Academic Advising

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Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Steven Seman

Director of Online Programs
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sas405@psu.edu

World Campus

Undergraduate Academic Advising

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University Park, PA 16802
814-863-3283
advising@outreach.psu.edu

Career Paths

Learning innovative forecasting techniques in this online certificate program can help you learn about meteorology, enrich your hobby, supplement your professional career, or build a preparatory foundation for future study or work.

Careers

Whether you are an amateur weather enthusiast or a weather-related industry professional, enrolling in this online certificate program is a perfect way to enhance your career or degree. Through the online meteorology courses that compose this 12-credit certificate program of study, you can build a foundational understanding of contemporary forecasting techniques.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A CERTIFICATE IN WEATHER FORECASTING (<http://www.met.psu.edu/careers/>)

Opportunities for Graduate Studies

A certificate in Weather Forecasting may provide the necessary background that leads you to pursue a degree in meteorology or another science-related field. If you obtain a B.S. in a science or engineering field,

this may position you to apply for graduate school in some scientific disciplines, including atmospheric science.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<http://www.met.psu.edu/prospective-students/graduate-students-ms-and-phd-degrees/>)

Professional Resources

- Campus Weather Service (<http://campusweatherservice.com>)
- Weather Risk Management Club (<https://www.wxriskclub.org>)
- Penn State Branch of the American Meteorological Society and National Weather Association (PSUBAMS) (<https://sites.psu.edu/psubams/>)

Contact

University Park

DEPARTMENT OF METEOROLOGY AND ATMOSPHERIC SCIENCE
503 Walker Building
University Park, PA 16802
814-865-0478
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<http://www.met.psu.edu>

World Campus

DEPARTMENT OF METEOROLOGY AND ATMOSPHERIC SCIENCE
2217 Earth and Engineering Sciences
University Park, PA 16802
814-863-7205
sas405@psu.edu

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-weather-forecasting-undergraduate-certificate> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-weather-forecasting-undergraduate-certificate/>)

Eberly College of Science

About the College

Mary Beth Williams, Acting Dean, Eberly College of Science

The Eberly College of Science provides instruction and research opportunities in the biological, mathematical, physical and interdisciplinary sciences. The college offers undergraduates sixteen majors that lead to the B.S. degree, with several options, and Mathematics can lead to either the B.S. or B.A. degree. Fourteen minors for undergraduates that can broaden their learning are also offered. The college strives to provide students with the knowledge and experiences that will enable them to be scientifically-trained leaders and innovators who advance the frontiers of science and make a difference in the world. Our faculty, staff, and students work together to learn, create, and apply knowledge in the basic sciences. Graduates of our programs use their strong foundation and critical thinking skills in a wide range of careers. Many graduates continue their education in graduate or professional schools, while others choose from a variety of careers in industry, government, or education.

MORE INFORMATION ABOUT THE COLLEGE (<https://science.psu.edu>)

Mission and Goals

The mission of the college is to improve society and address global challenges through excellence in science education and research. We train tomorrow's scientific leaders and innovators, and provide rich science education for all Penn State students. We enhance public understanding of science by sharing our knowledge and discoveries with the people of the Commonwealth, nation, and world. We make discoveries that expand fundamental knowledge in science, and are applied to solve real-world challenges.

MORE INFORMATION ABOUT THE MISSION AND GOALS OF THE EBERLY COLLEGE OF SCIENCE (<https://science.psu.edu/about/leadership/vision/>)

Departments and Schools

Department of Astronomy and Astrophysics

The Department of Astronomy & Astrophysics seeks to expand our knowledge of the universe through undergraduate and graduate education, research, and public outreach. Students are active and vital participants in the research programs conducted in the department; with its depth and breadth in research opportunities, the department offers pathways to careers in research and teaching in astronomy and related fields. The Department is involved in a wide variety of observational, experimental, and theoretical projects that cover most active areas of astrophysical research. The Department has an extensive program of public outreach that promotes science including public lectures, workshops, planetarium shows, and public open houses.

MORE INFORMATION ABOUT THE DEPARTMENT OF ASTRONOMY AND ASTROPHYSICS (<https://science.psu.edu/astro/>)

Department of Biochemistry and Molecular Biology

The Biochemistry and Molecular Biology department is enthusiastically engaged not only in basic research to probe fundamental principles of the behaviors of molecules and cells as well as the organization of biological systems, but also in promising applied research, identifying scientific solutions to pressing problems in areas such as medicine, energy production, environmental concerns and agriculture. BMB is dedicated to educating the next generation of scientists, and is the departmental home to students from four majors: Biochemistry and Molecular Biology, Microbiology, Biotechnology and Forensic Science, in addition to training Ph.D. students in the Biochemistry, Microbiology and Molecular Biology Program, and Master's degree programs in Biotechnology and Forensic Science.

MORE INFORMATION ABOUT THE DEPARTMENT OF BIOCHEMISTRY AND MOLECULAR BIOLOGY (<https://science.psu.edu/bmb/>)

Department of Biology

The Department of Biology is internationally recognized in teaching and research in the biological sciences. The research and instructional mission of the department spans ecology to molecular biology, and represents the most diverse program in the biological and life sciences at Penn State. Over the past 35 years more than 6,000 students have earned bachelors degrees in Biology from Penn State, and over 400 graduate students have earned advanced degrees with Biology faculty members. Departmental students, faculty, and alumni contribute to the welfare of our society through their activities including education, public health and services, business, and basic and applied research.

MORE INFORMATION ABOUT THE DEPARTMENT OF BIOLOGY (<https://science.psu.edu/bio/>)

Department of Chemistry

The Department of Chemistry is a leader in many significant areas of chemistry research and discovery, including materials chemistry, life sciences and nanoscience. The department has nationally acclaimed strengths in faculty research, graduate and undergraduate education. With a dedicated staff and state-of-the-art research support facilities, Penn State Chemistry is an excellent place to work, study or pursue your love of research. The department is dedicated to a core set of values: excellence in teaching and research, respect for all members of the Department and University, diversity in our students, faculty and staff, and service to the citizens of the world.

MORE INFORMATION ABOUT THE DEPARTMENT OF CHEMISTRY (<https://science.psu.edu/chem/>)

Department of Mathematics

The Mathematics Department is a thriving research and teaching community of faculty, undergraduate and graduate students, and postdoctoral researchers. The department is committed to excellence in mathematics instruction for all Penn State undergraduates, and houses the Mathematics bachelors, masters, and doctoral degrees. The Department is housed in the newly renovated McAllister Building on the University Park Campus, and it is one of the few in the nation with a physical laboratory where research and educational laboratory experiments are conducted.

MORE INFORMATION ABOUT THE DEPARTMENT OF MATHEMATICS (<https://science.psu.edu/math/>)

Department of Physics

The Department of Physics is home to innovative scientists, inspiring teachers, creative students, and accomplished alumni making exciting discoveries at the frontiers of knowledge. According to a multi-year study released by the National Research Council (NRC) in 2010, the Department of Physics is in the top echelon of physics departments in the United States. Developments in science and technology move very fast, the undergraduate and graduate degrees in Physics provide the fundamental tools with which to attack the scientific and technological problems of the next millennium.

MORE INFORMATION ABOUT THE DEPARTMENT OF PHYSICS (<https://science.psu.edu/physics/undergraduate/>)

Department of Statistics

The Department of Statistics is committed to teaching the theory and practice of statistics to undergraduate and graduate students and to conducting original research. Our world-renowned faculty are members of international collaborations making significant discoveries that will make life better throughout the world. Penn State Statistics has recently been ranked among the best programs in the nation according to the National Research Council.

MORE INFORMATION ABOUT THE DEPARTMENT OF STATISTICS (<https://science.psu.edu/stat/>)

Premedical Professions Programs

The Premedical Professions Programs are the academic home for undergraduate students interested in pursuing professional careers in medicine and related health professions. The programs include the

undergraduate major Premedicine and the accelerated Premedicine-Medicine program. In addition, the program's advisers provide academic and career counseling for all students, regardless of their major, who wish to apply to medical schools and professional health programs.

PreMedical Medical Program

MORE INFORMATION ABOUT THE PREMEDICAL MEDICAL PROGRAM (<https://science.psu.edu/interdisciplinary-programs/premed-med-bsmd/>)

Premedical Program

MORE INFORMATION ABOUT THE PREMEDICAL PROGRAM (<https://science.psu.edu/interdisciplinary-programs/premedicine/>)

Science B.S. Programs

The Science B.S. Programs are the academic home for undergraduate students interested in pursuing broad, integrative studies in science. The program includes the general science major (Science B.S.) as well as the accelerated Science/MBA program for students interested in leadership positions in science and technology industries.

Science B.S. Program

MORE INFORMATION ABOUT THE SCIENCE B.S. PROGRAM (<https://science.psu.edu/interdisciplinary-programs/science-major/>)

Science B.S./M.B.A. Program

MORE INFORMATION ABOUT THE SCIENCE B.S./M.B.A. PROGRAM (<https://science.psu.edu/interdisciplinary-programs/bsmba/>)

Baccalaureate Degrees

- Astronomy and Astrophysics, B.S.
- Biochemistry and Molecular Biology, B.S. (Science)
- Biology, B.S. (Science)
- Biotechnology, B.S.
- Chemistry, B.S. (Science)
- Data Sciences, B.S. (Science)
- Forensic Science, B.S.
- Integrative Science, B.S. (Science)
- Mathematics, B.A.
- Mathematics, B.S. (Science)
- Microbiology, B.S.
- Physics, B.S. (Science)
- Planetary Science and Astronomy, B.S.
- Premedical-Medical, B.S.
- Premedicine, B.S.
- Science, B.S./Business Administration, M.B.A.
- Statistics, B.S.

Minors

- Astronomy and Astrophysics, Minor
- Biochemistry and Molecular Biology, Minor
- Biology, Minor
- Chemistry, Minor
- Information Sciences and Technology for Mathematics, Minor
- Marine Sciences, Minor
- Mathematics, Minor (Science)

- Microbiology, Minor
- Natural Science, Minor
- Physics, Minor
- Planetary Science and Astronomy, Minor
- Statistics, Minor (Science)

Certificates

- International Science, Certificate
- Science Research Distinction, Certificate

College Procedures

Entering the College as a Current Student in Pre-Major Status

In order to be eligible for entrance to the Eberly College of Science in pre-major status, a current student must have:

1. attained at least a 2.00 cumulative grade-point average; and
2. completed MATH 140 with a grade of C or better

Change of Campus

All students whose entrance-to-major requirements are in progress during the spring semester of the second year and who request a change of assignment to University Park will be conditionally approved. These students' academic records will be re-reviewed when the spring semester grades are available, and at that time any student who does not meet the entrance to major requirements will revert to SCIEN pre-major status at University Park.

MORE INFORMATION ABOUT CHANGE OF CAMPUS (<https://science.psu.edu/current-students/transfer-and-change-of-campus-students/change-of-campus-guidelines/>)

Early Change of Campus

Early change of campus from another Penn State campus to University Park is one that would take place before the entrance-to-major requirements are met and/or before at least three semesters of course work are completed. These requests will not be approved by the Eberly College of Science, except in the circumstance that progress cannot be made toward the degree at that campus location. The originating campus must first approve of the change of location request.

Concurrent Majors

A Concurrent Majors Program is one in which students take courses to concurrently meet the requirements of at least two majors, with graduation for all majors in the program occurring during the same semester.

Eberly College of Science students seeking to obtain concurrent majors request approval to do so by the departments and the dean of the college. Eberly College of Science students may not concurrently enroll in a general science major (either Science BS or Premedicine) and another Eberly College of Science major degree program.

MORE INFORMATION ABOUT CONCURRENT MAJORS (<https://science.psu.edu/current-students/student-services/academics-and-advising/policies/>)

READ SENATE POLICY 60-00: COMPLETING MORE THAN ONE UNDERGRADUATE MAJOR PROGRAM ([https://senate.psu.edu/policies-](https://senate.psu.edu/policies-and-rules-for-undergraduate-students/60-00-completing-more-than-one-undergraduate-program/#60-00)

[and-rules-for-undergraduate-students/60-00-completing-more-than-one-undergraduate-program/#60-00](https://senate.psu.edu/policies-and-rules-for-undergraduate-students/60-00-completing-more-than-one-undergraduate-program/#60-00))

Academic Warning

A student who fails to earn a 2.00 cumulative grade-point average will be placed on academic warning. A student placed on academic warning will have a hold placed on registration and will be required to meet with an academic adviser in order for this registration hold to be removed. To remove academic warning, the cumulative grade-point average must be 2.00 or higher.

MORE INFORMATION ABOUT ACADEMIC WARNING (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-20>)

READ SENATE POLICY 54-20: ACADEMIC WARNING (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-20>)

Academic Suspension

A student in academic warning who fails to maintain a semester grade-point average of 2.00 or higher will be academically suspended. A student who has been academically suspended may not schedule courses at the University for two consecutive semesters. (Note: Summer session is equal to one semester.) Students applying to re-enroll at the University following Academic Suspension are required to first meet with an academic adviser in the college.

MORE INFORMATION ABOUT ACADEMIC SUSPENSION (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-40>)

READ SENATE POLICY 54-40: ACADEMIC SUSPENSION (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-40>)

Resources

Academic Advising

The goal of academic advising in the college is to assist with students' transition to college, and provide guidance that will lead to being a successful science student. We provide assistance with policies and procedures, courses, academic programs, and requirements related to our majors and career goals.

MORE INFORMATION ABOUT ACADEMIC ADVISING (<https://science.psu.edu/current-students/student-services/academics-and-advising/>)

Health Professions Advising

This office provides health professions advising to any Penn State student, enrolled in any college, who is interested in medicine and allied health professions, including podiatry, dentistry, optometry, pharmacy, physician assistant, and others.

MORE INFORMATION ABOUT HEALTH PROFESSIONS ADVISING (<https://science.psu.edu/interdisciplinary-programs/premedicine/prehealth-advising/>)

Center for Excellence in Science Education

The Center for Excellence in Science Education (CESE) in the Eberly College of Science provides faculty and students with a collaborative educational network that promotes excellence in science teaching and

learning. CESE offers a variety of instructional development activities for faculty and students interested in science teaching.

MORE INFORMATION ABOUT THE CENTER FOR EXCELLENCE IN SCIENCE EDUCATION (<https://science.psu.edu/offices-and-centers/cese/>)

Office of Science Engagement

The Office of Science Engagement connects students with opportunities to enhance and extend their learning in co-curricular experiences such as research and educational abroad. We also offer career counseling and development for students, emphasize academic and professional growth, and offer a range of resources to support students' success.

MORE INFORMATION ABOUT THE OFFICE OF SCIENCE ENGAGEMENT (<https://science.psu.edu/science-engagement/>)

Honors Programs

Schreyer Honors College

The Schreyer Honors College, regarded as one of the nation's top programs of its kind, promotes achieving academic excellence with integrity, building a global perspective, and creating opportunities for leadership and civic engagement. Schreyer Scholars, including those admitted after their first or second year of enrollment, are a diverse and motivated group of approximately 2,000 students at University Park and 20 Commonwealth campuses. The College strives to educate students who will have an important and ethical influence in the world, to improve educational practice, and to continue to be recognized as a leading force in honors education nationwide.

MORE INFORMATION ABOUT THE SCHREYER HONORS COLLEGE (<https://www.shc.psu.edu>)

Contact

EBERLY COLLEGE OF SCIENCE
517 Thomas Building
University Park, PA 16802
814-865-9591
sciencedean@psu.edu

<https://science.psu.edu>

Astronomy and Astrophysics, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

Astronomy involves the study of the properties, physical nature and origins of the planets, stars, galaxies and universe as a whole. It involves development of instrumentation, observations of celestial objects with ground- and space-based telescopes, and interpretation of findings using the mathematical laws of physics such as gravity, electromagnetism and quantum mechanics. The undergraduate major provides a strong and broad foundation in mathematics, physical science and computation as well as a detailed understanding of modern astronomy. Many research opportunities are available to complement the formal classwork. Graduates proceed to advanced degrees in astronomy and other sciences, and into a wide variety of technical professions.

What is Astronomy and Astrophysics?

Astronomy and Astrophysics is the study of the fundamental problems of the nature and evolution of our Universe. Astronomy and Astrophysics includes topics ranging from the most distant and powerful objects in the universe, quasars and gamma ray bursts, to the origins of chemical elements in stars, to planets, both in our solar system and in orbit around other stars.

You Might Like This Program If...

- You enjoy applying the ideas of physics to the study of complex systems and phenomena found beyond the Earth.
- You want to study the answers to big questions relating to astronomy, such as 'how was the universe created?' and 'how likely is it that life exists outside the Earth?'
- You enjoy writing computer software to solve problems.
- You have an interest in computer image processing and analysis.

Entrance to Major

In order to be eligible for entrance to the Astronomy and Astrophysics major, a student must have:

1. Attained at least a 2.00 cumulative grade-point average.
2. Completed and earned a grade of C or better in each of the following courses: ASTRO 291, CHEM 110, MATH 140, MATH 141, PHYS 211, and PHYS 212.

Degree Requirements

For the Bachelor of Science degree in Astronomy and Astrophysics, a minimum of 125 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	98

18 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
ASTRO 320	Observational Astronomy Laboratory	3
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
ENGL 202C	Effective Writing: Technical Writing	3
MATH 230	Calculus and Vector Analysis	4
MATH 251	Ordinary and Partial Differential Equations	4
PHYS 237	Introduction to Modern Physics	3
<i>Prescribed Courses: Require a grade of C or better</i>		
ASTRO 291	Astronomical Methods and the Solar System	3

ASTRO 292	Astronomy of the Distant Universe	3
CHEM 110	Chemical Principles I	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
PHYS 211	General Physics: Mechanics	4
PHYS 212	General Physics: Electricity and Magnetism	4
PHYS 213	General Physics: Fluids and Thermal Physics	2
PHYS 214	General Physics: Wave Motion and Quantum Physics	2

Additional Courses

Select one of the following: 3

CMPSC 121 Introduction to Programming Techniques

CMPSC 201 Programming for Engineers with C++

CMPSC 202

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 12 credits from 400-level ASTRO courses ¹ 12

Requirements for the Option

Select an option 34

¹ Except ASTRO 401, ASTRO 402W, ASTRO 494H, and ASTRO 496.

**Requirements for the Option
Graduate Study Option (33 credits)**

Code	Title	Credits
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Prescribed Courses

PHYS 400	Intermediate Electricity and Magnetism	3
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PHYS 410	Introduction to Quantum Mechanics I	3-4
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PHYS 419	Theoretical Mechanics	3
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Additional Courses

Select one of the following: 3

MATH 405 Advanced Calculus for Engineers and Scientists I

MATH 411 Ordinary Differential Equations

MATH 417 Qualitative Theory of Differential Equations

Select 6-7 credits of the following: 6-7

EE 471/ Introduction to Plasmas

AERSP 490/
NUCE 490

PHYS 402 Electronics for Scientists

PHYS 406 Subatomic Physics

PHYS 411 Introduction to Quantum Mechanics II

PHYS 420 Thermal Physics

PHYS 457

PHYS 457W Experimental Physics

PHYS 458 Intermediate Optics

PHYS 479 Special and General Relativity

Supporting Courses and Related Areas

Select 3 additional credits from advanced courses in computer science and engineering, mathematics, or statistics 3

Select 10-11 credits in consultation with adviser from department list 10-11

Computer Science Option (33 credits)

Code	Title	Credits
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Prescribed Courses

CMPSC 122	Intermediate Programming	3
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CMPSC 221	Object Oriented Programming with Web-Based Applications	3
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CMPSC 451	Numerical Computations	3
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Additional Courses

Select one of the following: 3

STAT 318 Elementary Probability

STAT 319 Elementary Mathematical Statistics

STAT 401 Experimental Methods

STAT 414 Introduction to Probability Theory

Select two of the following: 6

CMPEN 271 Introduction to Digital Systems

CMPEN 331 Computer Organization And Design

CMPSC 360 Discrete Mathematics for Computer Science

CMPSC 465 Data Structures and Algorithms

Supporting Courses and Related Areas

Select 3 additional credits from advanced courses in computer science and engineering, mathematics, or statistics 3

Select 12 credits in consultation with adviser from department list 12

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the

requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- Accurately apply mathematical tools to real physical problems.
- Use sophisticated and varying techniques in problem solving.
- Explain the physical meaning of mathematical expressions and operations used in quantitative problem solving.
- Clearly communicate both technical and descriptive content while following the conventions of scientific writing.
- Distinguish between scientific theories and other kinds of (non scientific) explanations.
- collect and analyze real astronomical data.
- Give clear oral presentations of technical material.

- Write original computer code to accomplish a computational task, such as analyzing data, displaying astronomical images, or performing calculations.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Computer Science Option: Astronomy and Astrophysics, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year			
Fall		Credits Spring	Credits
ASTRO 20		2 ENGL 15, 30H, or ESL 15 [†]	3
MATH 140 ^{*†##†}		4 MATH 141 ^{*†##†}	4
CHEM 110 ^{*#†}		3 CHEM 111 [†]	1
PHYS 211 ^{*#†}		4 CHEM 112	3
General Education Course		3 PHYS 212 ^{*#†}	4
		General Education Course (GHW)	1.5

Second Year

Fall	Credits Spring	Credits
ASTRO 291 ^{*#}	3 ASTRO 292 [*]	3
MATH 230	4 MATH 251	4
PHYS 213 [*]	2 PHYS 237	3
PHYS 214 [*]	2 CMPSC 121, 201, or 202 [†]	3
CAS 100, CAS 100A, CAS 100B, or CAS 100C [‡]	3 General Education Course	3
	14	16

Third Year

Fall	Credits Spring	Credits
ASTRO 320	3 ASTRO 400 level selection (consult with an academic adviser for options) [*]	3
ASTRO 400 level selection (consult with an academic adviser for options) [*]	3 CMPSC 221	3
CMPSC 122	3 CMPSC 360 or CMPEN 271	3
STAT 300 or 400 level selection (consult with an academic adviser for options)	3 ENGL 202C ^{††}	3
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5	
	16.5	15

Fourth Year

Fall	Credits Spring	Credits
ASTRO 400 level selection (consult with an academic adviser for options) [*]	3 ASTRO 400 level selection (consult with an academic adviser for options) [*]	3
CMPSC 451 or MATH 451	3 CMPSC/CMPEN 400 Level selection (consult with an academic adviser for options)	3
CMPSC 465 or CMPEN 331	3 Supporting Course (consult with an academic adviser for options)	3
Supporting Course (consult with an academic adviser for options)	1 Supporting Course (consult with an academic adviser for options)	3
General Education Course	3 Supporting Course (consult with an academic adviser for options)	3
General Education Course	3	
	16	15

Total Credits 125

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

University Requirements and General Education Notes:

Graduate Studies Option: Astronomy and Astrophysics, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ASTRO 20	2 ENGL 15, 30H, or ESL 15 [‡]	3
MATH 140 ^{*†#†}	4 MATH 141 ^{*†#†}	4
CHEM 110 ^{*†#†}	3 CHEM 111 [†]	1
PHYS 211 ^{*†#†}	4 CHEM 112 [†]	3
General Education Course	3 PHYS 212 ^{*†#†}	4
	General Education Course (GHW)	1.5
	16	16.5

Second Year

Fall	Credits Spring	Credits
ASTRO 291 ^{*#}	3 ASTRO 292 [*]	3
MATH 230	4 MATH 251	4
PHYS 213 [*]	2 PHYS 237	3
PHYS 214 [*]	2 CMPSC 121, 201, or 202	3
CAS 100, CAS 100A, CAS 100B, or CAS 100C [‡]	3 General Education Course	3
	14	16

Third Year

Fall	Credits Spring	Credits
ASTRO 320	3 ASTRO 400 level selection (consult with an academic adviser for options) [*]	3
ASTRO 400 level selection (consult with an academic adviser for options) [*]	3 PHYS 400	4
MATH 405, 411, or 417	3 CMPSC/MATH/STAT selection (consult with an academic adviser for options)	3
PHYS 419 or MATH 419	3 ENGL 202C ^{††}	3
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5	
	16.5	16

Fourth Year

Fall	Credits Spring	Credits
ASTRO 400 level selection (consult with an academic adviser for options) [*]	3 ASTRO 400 level selection (consult with an academic adviser for options) [*]	3
PHYS 410	4 PHYS 400 level selection (consult with an academic adviser for options) [*]	3

PHYS 400 level selection (consult with an academic adviser for options) [*]	3 Supporting Course (consult with an academic adviser for options)	3
General Education Course	3 Supporting Course (consult with an academic adviser for options)	3
General Education Course	3 Supporting Course (consult with an academic adviser for options)	2
	16	14

Total Credits 125

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

Careers

Penn State students with a B.S. in Astronomy & Astrophysics have been successful in establishing careers in a wide variety of technical fields. Students should be aware that a degree in astronomy is less well known by employers than degrees in computer science or physics. We encourage majors intending to end their education with a B.S. to obtain a minor or double major in one of these two allied fields. Students interested in job placement after a B.S. degree are strongly encouraged to participate in departmental research or the Eberly College of Science internship program during their time at Penn State.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE ASTRONOMY AND ASTROPHYSICS PROGRAM (<https://science.psu.edu/astro/undergrad/career-opportunities/>)

Opportunities for Graduate Studies

Many of our alumni pursue graduate education in astrophysics after completing our undergraduate degree. Students apply to enter PhD programs in astrophysics in the fall of their senior year. Some students choose to do graduate work in related fields such as physics, geoscience / planetary science, ecology, or engineering. Other students have successfully pursued master's degrees in education in order to earn teaching certification to teach physics or Earth and space science.

Professional Resources

- American Astronomical Society (<https://www.aas.org>)
- Astronomical Society of the Pacific (<https://astrosociety.org>)

Contact

University Park

DEPARTMENT OF ASTRONOMY AND ASTROPHYSICS
525 Davey Lab
University Park, PA 16802
814-865-0418
rcm242@psu.edu

<https://science.psu.edu/astro> (<https://science.psu.edu/astro/>)

Astronomy and Astrophysics, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The minor in Astronomy and Astrophysics, available at the University Park campus, provides educational options to students with interest in astronomy but with principal commitments to an allied field. It is designed principally for majors in Aerospace Engineering, Electrical Engineering, Engineering Sciences, Geosciences, Meteorology, and Physics. The educational objectives are to provide students with a profound understanding of the large-scale properties and processes in our Universe including planets and solar systems, our Sun and other stars, our Galaxy and other galaxies; and cosmology. Students in the minor survey the field in the 200-level sequence and then select from a choice of advanced astronomy and allied courses. Minors will be encouraged to take advantage of the many undergraduate research opportunities in the department, often using space-based observatories.

What is Astronomy and Astrophysics?

Astronomy and Astrophysics is the study of the fundamental problems of the nature and evolution of our Universe. Astronomy and Astrophysics includes topics ranging from the most distant and powerful objects in the universe, quasars and gamma ray bursts, to the origins of chemical elements in stars, to planets, both in our solar system and in orbit around other stars.

You Might Like This Program If...

- You enjoy applying the ideas of physics to the study of complex systems and phenomena found beyond the Earth.
- You want to study the answers to big questions relating to astronomy, such as 'how was the universe created?' and 'how likely is it that life exists outside the Earth?'
- You enjoy writing computer software to solve problems.
- You are interested in a minor astronomy and astrophysics to complement your major.

Program Requirements

Requirement	Credits
Requirements for the Minor	22-23

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>).

In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ASTRO 291	Astronomical Methods and the Solar System	3
ASTRO 292	Astronomy of the Distant Universe	3
PHYS 211	General Physics: Mechanics	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 6-7 credits of the following:		6-7
Additional ASTRO 400-level courses		
AERSP 308	Mechanics of Fluids	
AERSP 312	Aerodynamics II	
EE 472	Space Astronomy and Introduction to Space Science	
GEOSC 474	Astrobiology	
METEO 466	Planetary Atmospheres	
PHYS 458	Intermediate Optics	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 6 credits from 400-level ASTRO courses (except ASTRO 496)		6

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Contact

University Park

DEPARTMENT OF ASTRONOMY AND ASTROPHYSICS

525 Davey Lab

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<https://science.psu.edu/astro> (<https://science.psu.edu/astro/>)

Biochemistry and Molecular Biology, B.S. (Science)

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

Students in this major apply basic principles of chemistry and physics to the study of living cells and their components to explain biology at molecular, genetic, and cellular levels. Students will develop a strong foundation in quantitative and analytical biological sciences, including molecular biology, biochemistry, enzymology, metabolism, cell biology, and molecular genetics.

Biochemistry Option

Available at the following campuses: Berks, University Park

The Biochemistry Option is offered for students who have interests in the structures, properties and functions of macromolecules, and in the quantitative and analytical techniques used to characterize these macromolecules.

Molecular and Cell Biology Option

Available at the following campuses: Berks, University Park

The Molecular and Cell Biology Option is available to students whose interests relate to the growth, reproduction and differentiation of cells and to signaling processes that occur in multicellular systems that activate and modulate these processes. The curriculum is designed to prepare students for advanced study leading to careers in research, medicine, and education, or to secure employment in biotechnology and health-related industries, including government, academic, and private laboratories.

What is Biochemistry and Molecular Biology?

Biochemistry and Molecular Biology is the study of the molecular basis of life. Biochemistry uses the principles of chemistry and physics to understand biological molecules, structures, and reactions. Molecular biology focuses on how biological molecules interact to form cells, organisms, and behaviors.

You Might Like This Program If...

- You like learning by doing experiments.
- You want to know how life works at the most fundamental level.
- You are interested in understanding the molecular basis of health, disease, and behavior.

- You want to learn how molecules can be manipulated to address global challenges such as disease, famine, and energy needs.

Entrance to Major

In order to be eligible for entrance to the Biochemistry and Molecular Biology major, a student must have:

1. attained at least a 2.00 cumulative grade-point average, and
2. completed CHEM 110, CHEM 111, CHEM 112, and MATH 140; and
3. earned a grade of C or better in each of these courses.

Degree Requirements

For the Bachelor of Science degree in Biochemistry and Molecular Biology, a minimum of 125 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	95

15 of the 45 credits for General Education are included in the Requirements for the Major. This: 9 credits of GN courses; 6 credits of GQ courses.

Requirements for the Major

To graduate, a grade of C or better is required in 9 credits of any BMB or MICRB 400-level course except: BMB 408, BMB 442, BMB 443W, BMB 445W, BMB 448, BMB 488, BMB 496 MICRB 408, MICRB 421W, MICRB 422, MICRB 447.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
BIOL 322	Genetic Analysis	3
BMB 251	Molecular and Cell Biology I ¹	3
BMB 252	Molecular and Cell Biology II ¹	3
BMB 400	Molecular Biology of the Gene	2
BMB 401	General Biochemistry	3
BMB 402	General Biochemistry	3
BMB 442	Laboratory in Proteins, Nucleic Acids, and Molecular Cloning	3
BMB 443W	Laboratory in Protein Purification and Enzymology	3
CHEM 113	Experimental Chemistry II	1
CHEM 210	Organic Chemistry I	3
CHEM 212	Organic Chemistry II	3
CHEM 213	Laboratory in Organic Chemistry	2
MATH 141	Calculus with Analytic Geometry II	4
MICRB 201	Introductory Microbiology ¹	3
MICRB 202	Introductory Microbiology Laboratory	2
PSU 16	First-Year Seminar Science	1
<i>Prescribed Courses: Require a grade of C or better</i>		
CHEM 110	Chemical Principles I	3

CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
MATH 140	Calculus With Analytic Geometry I	4

Additional Courses

BMB 445W	Laboratory in Molecular Genetics	2
or BMB 448	Model Systems and Approaches in Cell Biology Inquiry	

Requirements for the Option

Select an option		40
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¹ To graduate, a grade of C or better is required in two of the following courses: MICRB 201, BMB 251/MICRB 251, and/or BMB 252/MICRB 252.

Requirements for the Option Biochemistry Option (40 credits)

Available at the following campuses: Berks, University Park

Code	Title	Credits
Prescribed Courses		
BMB 474	Analytical Biochemistry	3
CHEM 450	Physical Chemistry - Thermodynamics	3
CHEM 452	Physical Chemistry - Quantum Chemistry	3
PHYS 211	General Physics: Mechanics	4
PHYS 212	General Physics: Electricity and Magnetism	4
PHYS 213	General Physics: Fluids and Thermal Physics	2
PHYS 214	General Physics: Wave Motion and Quantum Physics	2

Supporting Courses and Related Areas

Select 7-9 credits from any 400-level BMB/CHEM/MICRB course or from department list D (additional 400-level courses) ¹ 7-9

Select 2-3 credits in the mathematical sciences from department list B 2-3

Select 7-10 credits from department list C 7-10

¹ With a maximum of 3 credits in BMB 408 and/or MICRB 408 and a maximum of 4 credits in BMB 488 and/or BMB 496.

Molecular and Cell Biology Option (40 credits)

Available at the following campuses: Berks, University Park

Code	Title	Credits
Prescribed Courses		
BMB 430	Developmental Biology	3
BMB 460	Cell Growth and Differentiation	3
MICRB 410	Principles of Immunology	3

Additional Courses

Select 8 credits of the following: 8

PHYS 211 General Physics: Mechanics
& PHYS 212 and General Physics: Electricity and Magnetism

PHYS 250 Introductory Physics I
& PHYS 251 and Introductory Physics II

Select 3-6 credits of the following: 3-6

BMB 428 Physical Chemistry with Biological Applications
CHEM 450 Physical Chemistry - Thermodynamics
& CHEM 452 and Physical Chemistry - Quantum Chemistry

Supporting Courses and Related Areas

Select 5-6 credits from any 400-level BMB/MICRB course or from department list D (additional 400-level courses) ¹ 5-6

Select 2-3 credits in the mathematical sciences from department list B 2-3

Select 8-13 credits from department list C 8-13

¹ With a total maximum of 3 credits in BMB 408 and/or MICRB 408 and a maximum of 4 credits in BMB 488 and/or BMB 496.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Biochemistry Option: Biochemistry and Molecular Biology, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSU 16	1 MICRB 201 ¹	3
CHEM 110 ^{*#†}	3 MICRB 202 or 203 (consult with an academic adviser for options)	2
CHEM 111 ^{*#†}	1 CHEM 112 ^{*#†}	3
MATH 140 or 140B ^{*†#†}	4 CHEM 113 [†]	1
ENGL 15, 30H, or ESL 15 [†]	3 MATH 141 or 141B ^{††}	4
General Education Course	3 CAS 100A, 100B, or 100C [‡]	3
	15	16

Second Year

Fall	Credits Spring	Credits
BMB 251 ¹	3 BMB 252 ¹	3
CHEM 210	3 CHEM 212	3
PHYS 211 [†]	4 CHEM 213	2
Department List C (consult with an academic adviser for options)	3 PHYS 212 [†]	4
General Education Course	3 BIOL 322	3
	16	15

Third Year

Fall	Credits Spring	Credits
BMB 400 ²	2 BMB 402 ²	3
BMB 401 ²	3 BMB 445W or 443W ³	2
BMB 442	3 BMB, CHEM, or MICRB 400-Level Selections (consult with an academic adviser for options) ²	3
MATH 231 (consult with an academic adviser for options)	2 General Education Course	6
PHYS 213 [†]	2 General Education Course (GHW)	1.5
PHYS 214 [†]	2	

Department List C (consult with an academic adviser for options)	1	
	15	15.5

the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Fourth Year

Fall	Credits Spring	Credits
BMB 443W, 445W, or 448 ³	3 BMB 474 ²	3
BMB, CHEM, or MICRB 400-Level Selections (consult with an academic adviser for options) ²	3 BMB, CHEM, or MICRB 400-Level Selections (consult with an academic adviser for options) ²	3
CHEM 450	3 CHEM 452	3
Department List C Selection (consult with an academic adviser for options)	3 ENGL 202C, 202A, 202B, or 202D [†]	3
General Education Course	3 Department List C (consult with an academic adviser for options)	1
General Education Course (GHW)	1.5 General Education Course	3
	16.5	16

Total Credits 125

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ To graduate, a grade of C or better is required in two of the following courses: Introductory Microbiology (MICRB 201), Molecular and Cell Biology I (BMB 251)/Molecular and Cell Biology I (MICRB 251), and/or Molecular and Cell Biology II (BMB 252)/Molecular and Cell Biology II (MICRB 252).

² To graduate, a grade of C or better is required in 9 credits of any BMB or MICRB 400-level course except those listed in the requirements for the major (consult with an academic adviser for clarification).

³ In order to complete degree requirements students may choose to take BMB 448 or BMB 445W. In addition, students must also take BMB 443W.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry

Biochemistry Option (MATH 22 Start): Biochemistry and Molecular Biology, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits Summer	Credits
PSU 16	1 CHEM 110 ^{*#†}	3 CHEM 112 ^{*#†}	3
MATH 22 ¹	3 CHEM 111 ^{*#†}	1 CHEM 113 (if available) [†]	1
MATH 26 ¹	3 MATH 140 or 140B ^{*#†1}	4	
ENGL 15, ESL 15, or ENGL 30H [‡]	3 CAS 100A, 100B, or 100C [‡]	3	
General Education Course	6 General Education Course	3	
	16	14	4

Second Year

Fall	Credits Spring	Credits Summer	Credits
MICRB 201 ²	3 BMB 251 ²	3 BMB 401 ³	3
MICRB 202	2 CHEM 212	3	
CHEM 210	3 CHEM 213W	2	
MATH 141 or 141B ^{†1}	4 PHYS 211 [†]	4	
General Education Course	3 BIOL 322	3	
	15	15	3

Third Year

Fall	Credits Spring	Credits
BMB 252 ²	3 BMB 402 ³	3
BMB 400 ³	2 BMB, CHEM, or MICRB 400-Level Selections (Consult with an academic adviser for options) ³	3
BMB 442 ³	3 PHYS 213 [†]	2
MATH 231 (Consult with an academic adviser for options)	2 PHYS 214 [†]	2
PHYS 212 [†]	4 General Education Course	3

General Education Course (GHW)	1.5 Department List C (Consult with an academic adviser for options)	1
	15.5	14

Fourth Year

Fall	Credits Spring	Credits
BMB 448, 445W, or 443W ⁴	3 BMB 443W or 445W ⁴	2
BMB, CHEM, or MICRB 400-Level Selections (Consult with an academic adviser for options) ³	3 BMB 474 ³	3
CHEM 450	3 CHEM 452	3
ENGL 202C, 202A, 202B, or 202D [‡]	3 BMB, CHEM, or MICRB 400-Level Selections (Consult with an academic adviser for options) ³	3
General Education Course (GHW)	1.5 General Education Course	3
Department List C (Consult with an academic adviser for options)	1	
	14.5	14

Total Credits 125

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

- ¹ 6 credits of MATH 22, MATH 26, MATH 140, or MATH 141 require a grade of C or better for General Education.
- ² To graduate, a grade of C or better is required in two of the following courses: Introductory Microbiology (MICRB 201), Molecular and Cell Biology I (BMB 251)/Molecular and Cell Biology I (MICRB 251), and/or Molecular and Cell Biology II (BMB 252)/Molecular and Cell Biology II (MICRB 252).
- ³ To graduate, a grade of C or better is required in 9 credits of any BMB or MICRB 400-level course except those listed in the requirements for the major (consult with an academic adviser for clarification).
- ⁴ In order to complete degree requirements students may choose to take BMB 448 or BMB 445W. In addition, students must also take BMB 443W.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Molecular and Cell Biology Option: Biochemistry and Molecular Biology, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSU 16	1 MICRB 201 ¹	3
CHEM 110 ^{**†}	3 MICRB 202 or 203 (Consult with an academic adviser for options)	2
CHEM 111 ^{**†}	1 CHEM 112 ^{**†}	3
MATH 140 or 140B ^{*†##}	4 CHEM 113 [†]	1
ENGL 15, ESL 15, or ENGL 30H [†]	3 MATH 141 or 141B ^{††}	4
General Education Course	3 CAS 100A, 100B, or 100C [†]	3
	15	16

Second Year

Fall	Credits Spring	Credits
BMB 251 ¹	3 BMB 252 ¹	3
CHEM 210	3 CHEM 212	3
PHYS 250 (Consult with and academic adviser for alternative options) [†]	4 CHEM 213	2
Department List B MATH Selection (consult with an academic adviser for options)	3 PHYS 251 (Consult with an academic adviser for alternative options) [†]	4
General Education Course	3 BIOL 322	3
	16	15

Third Year

Fall	Credits Spring	Credits
BMB 400 ²	2 BMB 402 ²	3
BMB 401 ²	3 BMB 460 ²	3
BMB 442	3 BMB 443W or 445W ³	3
MICRB 410 ²	3 General Education Course	6
Department List C (consult with an academic adviser for options)	2 General Education Course (GHW)	1.5
General Education Course (GHW)	1.5	
	14.5	16.5

Fourth Year

Fall	Credits Spring	Credits
BMB 428 ²	3 BMB or MICRB 400-Level Selection (Consult with an academic adviser for options) ²	3
BMB 430 ²	3 ENGL 202C, 202A, 202B, or 202D [†]	3

BMB or MICRB 400-Level Selections (Consult with an academic adviser for options) ²	2 Department List C (consult with an academic adviser for options)	7
BMB 448, 445W, or 443W ³	2 General Education Course	3
General Education Course	3	
Department List C (consult with an academic adviser for options)	3	
	16	16

Total Credits 125

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ To graduate, a grade of C or better is required in two of the following courses: Introductory Microbiology (MICRB 201), Molecular and Cell Biology I (BMB 251)/Molecular and Cell Biology I (MICRB 251), and/or Molecular and Cell Biology II (BMB 252)/Molecular and Cell Biology II (MICRB 252).

² To graduate, a grade of C or better is required in 9 credits of any BMB or MICRB 400-level course except those listed in the requirements for the major (consult with an academic adviser for clarification).

³ In order to complete degree requirements students may choose to take BMB 448 or BMB 445W. In addition, students must also take BMB 443W.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Molecular and Cell Biology Option (MATH 22 Start): Biochemistry and Molecular Biology, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits Summer	Credits
PSU 16	1 CHEM 110 ^{*#†}	3 CHEM 112 ^{*#†}	3
MATH 22 ¹	3 CHEM 111 ^{*#†}	1 CHEM 113 (if available) [†]	1
MATH 26 ¹	3 MATH 140 or 140B ^{*#†1}	4	
ENGL 15, ESL 15, or ENGL 30H [‡]	3 CAS 100A, 100B, or 100C [‡]	3	
General Education Course	6 General Education Course	3	
	16	14	4

Second Year

Fall	Credits Spring	Credits Summer	Credits
MICRB 201 ²	3 BMB 251 ²	3 BMB 401 ³	3
MICRB 202	2 CHEM 212	3	
CHEM 210	3 CHEM 213W	2	
MATH 141 or 141B ⁺¹	4 PHYS 250 (Consult with and academic adviser for alternative options) [†]	4	
General Education Course	3 BIOL 322	3	
	15	15	3

Third Year

Fall	Credits Spring	Credits
BMB 252 ²	3 BMB 402 ³	3
BMB 400 ³	2 BMB 460 ³	3
BMB 442 ³	3 BMB or MICRB 400-Level Selections (Consult with an academic adviser for options) ³	3
PHYS 251 (Consult with an academic adviser for alternative options) [†]	4 General Education Course	3

General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
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General Education Course	3	
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16.5

13.5

Fourth Year

Fall	Credits Spring	Credits
BMB 428 ³	3 BMB 443W or 445W ⁴	3
BMB 430 ³	3 MICRB 410 ³	3
BMB 448, 445W, or 443W ⁴	2 ENGL 202C, 202A, 202B, or 202D [‡]	3
BMB or MICRB 400-Level Selections (Consult with an academic adviser for options) ³	3 Department List C (Consult with an academic adviser for options)	2
Department List C (Consult with an academic adviser for options)	3 Department List B MATH Selection (Consult with an academic adviser for options) ¹	3
	14	14

Total Credits 125

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ 6 credits of MATH 22, MATH 26, MATH 140, MATH 141, or List B Mathematics Selection require a grade of C or better for General Education.

² To graduate, a grade of C or better is required in two of the following courses: Introductory Microbiology (MICRB 201), Molecular and Cell Biology I (BMB 251)/Molecular and Cell Biology I (MICRB 251), and/or Molecular and Cell Biology II (BMB 252)/Molecular and Cell Biology II (MICRB 252).

³ To graduate, a grade of C or better is required in 9 credits of any BMB or MICRB 400-level course except those listed in the requirements for the major (consult with an academic adviser for clarification).

⁴ In order to complete degree requirements students may choose to take BMB 448 or BMB 445W. In addition, students must also take BMB 443W.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Biochemistry Option: Biochemistry and Molecular Biology, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CHEM 110 ^{*#†}	3 CHEM 112 ^{*#†}	3
CHEM 111 ^{*#†}	1 CHEM 113 [†]	1
MATH 140 ^{*#††}	4 MATH 141 ^{††}	4
BIOL 110 [†]	4 PHYS 211 [†]	4
ENGL 15, ESL 15, or ENGL 30H [†]	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
	16.5	16.5

Second Year

Fall	Credits Spring	Credits
BIOL 230W ^{†1}	4 CHEM 212	3
CHEM 210	3 CHEM 213	2
PHYS 212 [†]	4 PHYS 213 [†]	2
General Education Course	3 PHYS 214 [†]	2
CAS 100A, 100B, or 100C [‡]	3 ENGL 202C, 202A, 202B, or 202D [‡]	3
	General Education Course	3
	17	15

Third Year

Fall	Credits Spring	Credits
BMB 252 ¹	3 BMB 400 ²	2
MICRB 201 ¹	3 BMB 401 ²	3
MICRB 202	2 BMB 442 ²	3
BIOL 222 ⁴	3 BMB, CHEM, or MICRB 400-Level Selections (Consult with an academic adviser for options) ²	3
MATH 231 (Consult with an academic adviser for options)	2 General Education Course	3
General Education Course	3 Department List C (Consult with an academic adviser for options)	1
	16	15

Fourth Year

Fall	Credits Spring	Credits
BMB 443W, 445W, or 448 ³	3 BMB 402	3
BMB, CHEM, or MICRB 400-Level Selections (Consult with an academic adviser for options) ²	4 BMB 443W or 445W ³	2
CHEM 450	3 BMB 474 ²	3

Department List C (Consult with an academic adviser for options)	5 CHEM 452	3
	General Education Course	3
	15	14

Total Credits 125

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ To graduate, a grade of C or better is required in two of the following courses: Introductory Microbiology (MICRB 201), Molecular and Cell Biology I (BMB 251)/Molecular and Cell Biology I (MICRB 251) or Biology: Molecules and Cells (BIOL 230W), and/or Molecular and Cell Biology II (BMB 252)/Molecular and Cell Biology II (MICRB 252).

² To graduate, a grade of C or better is required in 9 credits of any BMB or MICRB 400-level course except those listed in the requirements for the major (consult with an academic adviser for clarification).

³ In order to complete degree requirements students may choose to take BMB 448 or BMB 445W. In addition, students must also take BMB 443W.

⁴ BIOL 222 is an approved substitute for BIOL 322.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Molecular and Cell Biology Option: Biochemistry and Molecular Biology, B.S. at Commonwealth Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CHEM 110 ^{*#†}	3 CHEM 112 ^{*#†}	3
CHEM 111 ^{*#†}	1 CHEM 113 [†]	1
MATH 140 ^{*†#†}	4 MATH 141 ^{††}	4
BIOL 110 [†]	4 Department List C (Consult with an academic adviser for options)	4
ENGL 15, ESL 15, or ENGL 30H [†]	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
	16.5	16.5

Second Year

Fall	Credits Spring	Credits
BIOL 230W ^{†1}	4 CHEM 212	3
CHEM 210	3 CHEM 213	2
PHYS 250 (Consult with an academic adviser for alternative options) [†]	4 PHYS 251 (Consult with an academic adviser for alternative options) [†]	4
General Education Course	3 STAT 200 [†]	4
CAS 100A, 100B, or 100C [†]	3 General Education Course	3
	17	16

Third Year

Fall	Credits Spring	Credits
BMB 252 ¹	3 BMB 400 ²	2
MICRB 201 ¹	3 BMB 401 ²	3
MICRB 202	2 BMB 442	3
BIOL 222 ⁴	3 BMB 460 ²	3
General Education Course	3 General Education Course	3
Department List C (Consult with an academic adviser for options)	1 Department List C (Consult with an academic adviser for options)	1
	15	15

Fourth Year

Fall	Credits Spring	Credits
BMB 428 ²	3 BMB 443W or 445W ³	2
BMB 430 ²	3 BMB 402 ²	3
BMB 448 or 443W ³	3 MICRB 410 ²	3
BMB or MICRB 400-Level Selection (Consult with an academic adviser for options) ²	3 BMB or MICRB 400-Level Selections (Consult with an academic adviser for options) ²	3

General Education Course	3 ENGL 202C, 202A, 202B, or 202D [†]	3
	15	14

Total Credits 125

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

- ¹ To graduate, a grade of C or better is required in two of the following courses: Introductory Microbiology (MICRB 201), Molecular and Cell Biology I (BMB 251)/Molecular and Cell Biology I (MICRB 251) or Biology: Molecules and Cells (BIOL 230W), and/or Molecular and Cell Biology II (BMB 252)/Molecular and Cell Biology II (MICRB 252).
- ² To graduate, a grade of C or better is required in 9 credits of any BMB or MICRB 400-level course except those listed in the requirements for the major (consult with an academic adviser for clarification).
- ³ In order to complete degree requirements students may choose to take BMB 448 or BMB 445W. In addition, students must also take BMB 443W.
- ⁴ BIOL 222 is an approved substitute for BIOL 322.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

Penn State students with a B.S. in Biochemistry & Molecular Biology are prepared for jobs in industry as well as government, medical, and university research laboratories. Many students also decide to continue their studies by attending graduate programs or professional schools including medical, dental, business, and law school.

Careers

A B.S. in Biochemistry and Molecular Biology prepares students for a wide variety of careers, including health related professions, professions in academia, government, and industry. Examples of biochemistry related careers are:

- Agricultural Scientist
- Biological / Media Illustrator
- Biomedical Researcher
- Drug Development
- Genetic Counselor
- Genetic Engineer

- Health Professions – e.g. Dentist, Optometrist, Pharmacist, Physician, Physician Assistant
- Industry Scientist
- Pharmaceutical Sales
- Pharmaceutical Sciences
- Professor
- Science Policy Expert
- Optometrist
- Science Writer / Editor
- Patent Attorney
- Research Technician

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE BIOCHEMISTRY AND MOLECULAR BIOLOGY PROGRAM (<https://www.asbmb.org/career-resources/>)

Opportunities for Graduate Study

Many Penn State students with a BS in Biochemistry and Molecular Biology will pursue graduate education in biochemistry or other related disciplines (biology, bioinformatics, chemistry, genomics, immunology, neurobiology, toxicology, pharmacology, and others). A B.S. in Biochemistry and Molecular Biology also prepares students to pursue higher degrees in the health professions. Opportunities for graduate studies include, but are not limited to, the following:

- Graduate Studies (M.S. or Ph.D.)
- Dental School Medical School (MD or DO)
- Optometry School, Pharmacy School
- Physical Therapy School
- Veterinary School.

In addition, graduates with a BMB degree may decide to pursue further education in law or business.

Professional Resources

- American Society for Biochemistry and Molecular Biology (<https://www.asbmb.org/>)

Accreditation

The B.S. in Biochemistry and Molecular Biology is accredited by the American Society for Biochemistry and Molecular Biology (ASBMB).

MORE INFORMATION ABOUT ACCREDITATION BY THE AMERICAN SOCIETY OF BIOCHEMISTRY AND MOLECULAR BIOLOGY (<https://www.asbmb.org/education/accreditation/>)

Contact

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Biochemistry and Molecular Biology, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Biochemistry and Molecular Biology minor provides a foundation in traditional biochemistry and an exploration of the current understanding of molecular biology. The fields of biochemistry and molecular biology are extensively interconnected and are taught in the context of the biology of the cell. Stated another way, the B M B minor is a substantial treatment of life processes at the molecular and cellular levels. The minor requires coursework in general biochemistry, cell biology, and molecular biology. A required laboratory course exposes students to the basic techniques and instrumentation used in modern biochemistry and molecular biology laboratories. Students considering this minor should be comfortable with the study of chemistry.

What is Biochemistry and Molecular Biology?

Biochemistry and Molecular Biology is the study of the molecular basis of life. Biochemistry uses the principles of chemistry and physics to understand biological molecules, structures, and reactions. Molecular biology focuses on how biological molecules interact to form cells, organisms, and behaviors.

You Might Like This Program If...

You are interested in increasing your knowledge in biochemistry and molecular biology, but do not want to complete a BMB major.

Program Requirements

Requirement	Credits
Requirements for the Minor	33-35

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
BMB 251	Molecular and Cell Biology I	3
BMB 252	Molecular and Cell Biology II	3
BMB 400	Molecular Biology of the Gene	2-3

BMB 401	General Biochemistry	3
BMB 402	General Biochemistry	3
BMB 442	Laboratory in Proteins, Nucleic Acids, and Molecular Cloning	3
CHEM 110	Chemical Principles I	3
CHEM 112	Chemical Principles II	3
CHEM 210	Organic Chemistry I	3
CHEM 212	Organic Chemistry II	3

Additional Courses

Additional Courses: Require a grade of C or better

BIOL 222	Genetics	3
or BIOL 322	Genetic Analysis	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 0-3 credits of B M B courses at the 400-level 0-3

Note: BMB 408 and BMB 496 may not be used to fulfill requirements for the minor.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Biology, B.S. (Science)

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

Biology is the scientific study of life: the diversity and organization of organisms, from single-celled bacteria to multi-cellular plants and animals, including humans. These different levels of biological organization range from the molecules and cells that compose an organism, to the interacting organisms that make up an ecosystem. Hands-on experiences, from designing and conducting lab experiments to making field observations, using many different procedures and instruments, play an important role in gaining biological knowledge. Basic research in biology provides many benefits. Faculty in the Department of Biology at Penn State are exploring ways to cure neurological diseases, to conserve coral populations in tropical oceans, to discover more efficient ways to use plants for food and bioenergy, to develop vaccines for infectious diseases, and investigating many other facets of biology, all with the goal of positively impacting humans and the environment.

You Might Like This Program If...

- You are interested in learning about aspects of the biology of organisms that live on Earth.
- You enjoy a dynamic field of study, with new discoveries being made every day.
- You are interested in hands-on experiences, including courses with integrated laboratories and conducting research with faculty.
- You plan to pursue a career in biology research, education or outreach, or attend professional school in areas including medicine and dentistry.

Entrance To Major

In order to be eligible for entrance to the Biology major, a student must have:

1. attained at least a 2.00 cumulative grade point average;
2. completed BIOL 110, CHEM 110, MATH 140, and earned a grade of C or better in each of these courses; and
3. completed at least one of the following courses with a grade of C or better: BIOL 220W, BIOL 230W, or BIOL 240W.

Degree Requirements

For the Bachelor of Science degree in Biology, a minimum of 124 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	94

15 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and->

rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
CHEM 111	Experimental Chemistry I	1
CHEM 113	Experimental Chemistry II	1
MATH 141	Calculus with Analytic Geometry II	4
<i>Prescribed Courses: Require a grade of C or better</i>		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
BIOL 220W	Biology: Populations and Communities	4
BIOL 230W	Biology: Molecules and Cells	4
BIOL 240W	Biology: Function and Development of Organisms	4
CHEM 110	Chemical Principles I	3
CHEM 112	Chemical Principles II	3
MATH 140	Calculus With Analytic Geometry I	4
Additional Courses		
Select one of the following:		8-12
PHYS 211 & PHYS 212 & PHYS 213 & PHYS 214	General Physics: Mechanics and General Physics: Electricity and Magnetism and General Physics: Fluids and Thermal Physics and General Physics: Wave Motion and Quantum Physics	
PHYS 250 & PHYS 251	Introductory Physics I and Introductory Physics II	
Select one of the following:		3-4
STAT 200	Elementary Statistics	
STAT 240	Introduction to Biometry	
STAT 250	Introduction to Biostatistics	
Requirements for the Option		
Select an option		46-51

Requirements for the Option Ecology Option (46-51 credits)

Available at the following campuses: Altoona, Schuylkill, University Park

Code	Title	Credits
Prescribed Courses		
BIOL 463	General Ecology	3
Additional Courses		
STAT 462 or STAT 464	Applied Regression Analysis Applied Nonparametric Statistics	3
Select one of the following:		6-8
CHEM 202 & CHEM 203	Fundamentals of Organic Chemistry I and Fundamentals of Organic Chemistry II	
CHEM 210 & CHEM 212 & CHEM 213	Organic Chemistry I and Organic Chemistry II and Laboratory in Organic Chemistry	

Groups

Select a minimum of 15 credits of 400-level biology courses, with at least 6 credits from the Ecology group, 3 credits from the Evolution group, and 3 credits from the Practicum group. A maximum of 3 credits of BIOL 400, 494, 495, 496, and SC 295, 395, 495 may be used to fulfill 15 credits minimum in the 400-level biology course requirements.

Ecology Group:	
BIOL 406	Symbiosis
BIOL 412	Ecology of Infectious Diseases
BIOL 415	Ecotoxicology
BIOL 417	Invertebrate Zoology
BIOL 419	Ecological and Environmental Problem Solving
BIOL/PPEM 425	Biology of Fungi
BIOL 429	Animal Behavior
BIOL 435	Ecology of Lakes and Streams
BIOL 436	Population Ecology and Global Climate Change
BIOL 438	Theoretical Population Ecology
BIOL 444	Field Ecology
BIOL 446	Physiological Ecology
BIOL 450W	Experimental Field Biology
BIOL 464	Sociobiology
BIOL 474	Astrobiology
BIOL 482	Coastal Biology
BIOL 499A	Tropical Field Ecology
Evolution Group:	
BIOL 405	Molecular Evolution
BIOL 406	Symbiosis
BIOL 411	Medical Embryology
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 420	Paleobotany
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 427	Evolution
BIOL 428	Population Genetics
BIOL 429	Animal Behavior
BIOL 432	Developmental Genetics
BIOL 433	Evolution of Vertebrates
BIOL 434	Pathobiology of Emerging Infectious Disease
BIOL 436	Population Ecology and Global Climate Change
BIOL 438	Theoretical Population Ecology
BIOL 439	Practical Bioinformatics
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 446	Physiological Ecology
BIOL 451	Biology of RNA
BIOL 460	Human Genetics
BIOL 463	General Ecology
BIOL 464	Sociobiology
BIOL 474	Astrobiology
BIOL 478	COMPARATIVE NEUROANATOMY
Practicum Group:	
BIOL 400	Teaching in Biology
BIOL 402W	Biological Experimental Design
BIOL 407	Plant Developmental Anatomy
BIOL 414	Taxonomy of Seed Plants

BIOL 417	Invertebrate Zoology
BIOL 419	Ecological and Environmental Problem Solving
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 433	Evolution of Vertebrates
BIOL 437	Histology
BIOL 439	Practical Bioinformatics
BIOL 444	Field Ecology
BIOL 450W	Experimental Field Biology
BIOL 461	Contemporary Issues in Science and Medicine
BIOL 473	Laboratory in Mammalian Physiology
BIOL 475N	
BIOL 478	COMPARATIVE NEUROANATOMY
BIOL 482	Coastal Biology
BIOL 494	Research Project
BIOL 495	Internship in Biology
BIOL 496	Independent Studies
BIOL 499A	Tropical Field Ecology
BIOTC 459	Plant Tissue Culture and Biotechnology
SC 295	Science Co-op Work Experience I
SC 395	Science Co-op Work Experience II
SC 495	Science Co-op Work Experience III

Supporting Courses and Related Areas

Select 17-24 credits from department list 17-24

General Biology Option (46-51 credits)

Available at the following campuses: Abington, Altoona, Beaver, Berks, Brandywine, Harrisburg, Lehigh Valley, Schuylkill, Scranton, University Park, York

Code	Title	Credits
Additional Courses		
Select one of the following:		6-8
CHEM 202 & CHEM 203	Fundamentals of Organic Chemistry I and Fundamentals of Organic Chemistry II	
CHEM 210 & CHEM 212 & CHEM 213	Organic Chemistry I and Organic Chemistry II and Laboratory in Organic Chemistry	

Groups

Select a minimum of 18 credits of 400-level biology courses, with at least 3 credits from each of the following groups (each course may be used to satisfy a requirement in only one group). Moreover, a maximum of 3 credits of BIOL 400, 494, 495, 496 and SC 295, 395, 495 may be used to fulfill the 18 credit minimum in the 400-level biology course requirements. 18

Plant and Fungi Group:

BIOL 406	Symbiosis
BIOL 407	Plant Developmental Anatomy
BIOL 414	Taxonomy of Seed Plants
BIOL 420	Paleobotany
BIOL 424	Seeds of Change: The Uses of Plants
BIOL/PPEM 425	Biology of Fungi

BIOL 431	Reproductive Biology
BIOL 441	Plant Physiology
BIOL 444	Field Ecology
BIOL 446	Physiological Ecology
BIOL 448	Ecology of Plant Reproduction
BIOL 451	Biology of RNA
BIOL 482	Coastal Biology
BIOL 499A	Tropical Field Ecology
PPEM 427	Mycotoxins: Effects of Fungal Toxins on Human and Animal Health

Evolution Group:

BIOL 405	Molecular Evolution
BIOL 406	Symbiosis
BIOL 411	Medical Embryology
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 420	Paleobotany
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 427	Evolution
BIOL 428	Population Genetics
BIOL 429	Animal Behavior
BIOL 432	Developmental Genetics
BIOL 433	Evolution of Vertebrates
BIOL 434	Pathobiology of Emerging Infectious Disease
BIOL 436	Population Ecology and Global Climate Change
BIOL 438	Theoretical Population Ecology
BIOL 439	Practical Bioinformatics
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 446	Physiological Ecology
BIOL 451	Biology of RNA
BIOL 460	Human Genetics
BIOL 463	General Ecology
BIOL 464	Sociobiology
BIOL 474	Astrobiology
BIOL 478	COMPARATIVE NEUROANATOMY

Genetics and Developmental Biology Group:

BIOL 404	Cellular Mechanisms in Vertebrate Physiology
BIOL 405	Molecular Evolution
BIOL 407	Plant Developmental Anatomy
BIOL 411	Medical Embryology
BIOL 413	Cell Signaling and Regulation
BIOL 416	Biology of Cancer
BIOL 422	Advanced Genetics
BIOL 426	Developmental Neurobiology
BIOL 428	Population Genetics
BIOL 430	Developmental Biology
BIOL 431	Reproductive Biology
BIOL 432	Developmental Genetics
BIOL 439	Practical Bioinformatics

BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 448	Ecology of Plant Reproduction
BIOL 451	Biology of RNA
BIOL 460	Human Genetics
BIOL 467	Molecular Basis of Neurological Diseases
BIOL 469	Neurobiology
MICRB 410	Principles of Immunology
Ecology Group:	
BIOL 406	Symbiosis
BIOL 412	Ecology of Infectious Diseases
BIOL 415	Ecotoxicology
BIOL 417	Invertebrate Zoology
BIOL 419	Ecological and Environmental Problem Solving
BIOL/PPEM 425	Biology of Fungi
BIOL 429	Animal Behavior
BIOL 435	Ecology of Lakes and Streams
BIOL 436	Population Ecology and Global Climate Change
BIOL 438	Theoretical Population Ecology
BIOL 444	Field Ecology
BIOL 446	Physiological Ecology
BIOL 450W	Experimental Field Biology
BIOL 463	General Ecology
BIOL 464	Sociobiology
BIOL 474	Astrobiology
BIOL 482	Coastal Biology
BIOL 499A	Tropical Field Ecology
Physiology Group:	
BIOL 404	Cellular Mechanisms in Vertebrate Physiology
BIOL 406	Symbiosis
BIOL 409	Biology of Aging
BIOL 411	Medical Embryology
BIOL 412	Ecology of Infectious Diseases
BIOL 413	Cell Signaling and Regulation
BIOL 415	Ecotoxicology
BIOL 416	Biology of Cancer
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 424	Seeds of Change: The Uses of Plants
BIOL 426	Developmental Neurobiology
BIOL 430	Developmental Biology
BIOL 431	Reproductive Biology
BIOL 432	Developmental Genetics
BIOL 437	Histology
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 446	Physiological Ecology
BIOL 460	Human Genetics
BIOL 469	Neurobiology
BIOL 470	Functional and Integrative Neuroscience
BIOL 472	Human Physiology
BIOL 478	COMPARATIVE NEUROANATOMY
BIOL 479	General Endocrinology
BIOL 482	Coastal Biology

Practicum Group:

BIOL 400	Teaching in Biology
BIOL 402W	Biological Experimental Design
BIOL 407	Plant Developmental Anatomy
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 419	Ecological and Environmental Problem Solving
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 433	Evolution of Vertebrates
BIOL 437	Histology
BIOL 439	Practical Bioinformatics
BIOL 444	Field Ecology
BIOL 450W	Experimental Field Biology
BIOL 461	Contemporary Issues in Science and Medicine
BIOL 473	Laboratory in Mammalian Physiology
BIOL 475N	
BIOL 476	Advanced Human Anatomy - cadaver based
BIOL 478	COMPARATIVE NEUROANATOMY
BIOL 482	Coastal Biology
BIOL 494	Research Project
BIOL 495	Internship in Biology
BIOL 496	Independent Studies
BIOL 499A	Tropical Field Ecology
BIOTC 459	Plant Tissue Culture and Biotechnology
SC 295	Science Co-op Work Experience I
SC 395	Science Co-op Work Experience II
SC 495	Science Co-op Work Experience III

Supporting Courses and Related Areas

Select 20-27 credits from department list 20-27

Genetics and Developmental Biology Option (46-51 credits)

Available at the following campuses: Abington, Berks, Harrisburg, Schuylkill, University Park, York

Code	Title	Credits
Prescribed Courses		
BIOL 322	Genetic Analysis	3
BIOL 430	Developmental Biology	3
BMB 401	General Biochemistry	3
BMB 402	General Biochemistry	3
CHEM 210	Organic Chemistry I	3
CHEM 212	Organic Chemistry II	3
CHEM 213	Laboratory in Organic Chemistry	2
Additional Courses		
Select 2-5 credits from the following:		2-5
MATH 220	Matrices	
MATH 231	Calculus of Several Variables	
MICRB 201	Introductory Microbiology	
MICRB 202	Introductory Microbiology Laboratory	

Groups

Select a minimum of 12 credits of 400-level courses, with at least 6 credits from the Genetics and Developmental Biology group, 3 credits from Evolution, and 3 credits from the Practicum group. A maximum of 3 credits of BIOL 400, 494, 495, 496 and SC 295, 395, 495 may be used to fulfill the 12 credit minimum in the 400-level biology course requirements.

Genetics and Developmental Biology Group:

BIOL 404	Cellular Mechanisms in Vertebrate Physiology
BIOL 405	Molecular Evolution
BIOL 407	Plant Developmental Anatomy
BIOL 411	Medical Embryology
BIOL 413	Cell Signaling and Regulation
BIOL 416	Biology of Cancer
BIOL 422	Advanced Genetics
BIOL 426	Developmental Neurobiology
BIOL 428	Population Genetics
BIOL 431	Reproductive Biology
BIOL 432	Developmental Genetics
BIOL 439	Practical Bioinformatics
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 448	Ecology of Plant Reproduction
BIOL 451	Biology of RNA
BIOL 460	Human Genetics
BIOL 467	Molecular Basis of Neurological Diseases
BIOL 469	Neurobiology
BMB 400	Molecular Biology of the Gene
or BMB 450	Microbial/Molecular Genetics
or BMB 464	Molecular Medicine
or BMB 484	Functional Genomics
or HORT 407	Plant Breeding
or MICRB 41	Principles of Immunology

Evolution Group:

BIOL 405	Molecular Evolution
BIOL 406	Symbiosis
BIOL 411	Medical Embryology
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 420	Paleobotany
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 427	Evolution
BIOL 428	Population Genetics
BIOL 429	Animal Behavior
BIOL 432	Developmental Genetics
BIOL 433	Evolution of Vertebrates
BIOL 434	Pathobiology of Emerging Infectious Disease
BIOL 436	Population Ecology and Global Climate Change
BIOL 438	Theoretical Population Ecology
BIOL 439	Practical Bioinformatics
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 446	Physiological Ecology

BIOL 451	Biology of RNA
BIOL 460	Human Genetics
BIOL 463	General Ecology
BIOL 464	Sociobiology
BIOL 474	Astrobiology
BIOL 478	COMPARATIVE NEUROANATOMY
Practicum Group:	
BIOL 400	Teaching in Biology
BIOL 402W	Biological Experimental Design
BIOL 407	Plant Developmental Anatomy
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 419	Ecological and Environmental Problem Solving
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 433	Evolution of Vertebrates
BIOL 437	Histology
BIOL 439	Practical Bioinformatics
BIOL 444	Field Ecology
BIOL 450W	Experimental Field Biology
BIOL 461	Contemporary Issues in Science and Medicine
BIOL 473	Laboratory in Mammalian Physiology
BIOL 475N	
BIOL 478	COMPARATIVE NEUROANATOMY
BIOL 482	Coastal Biology
BIOL 494	Research Project
BIOL 495	Internship in Biology
BIOL 496	Independent Studies
BIOL 499A	Tropical Field Ecology
SC 295	Science Co-op Work Experience I
SC 395	Science Co-op Work Experience II
SC 495	Science Co-op Work Experience III

Supporting Courses and Related Areas

Select 9-17 credits from department list 9-17

Neuroscience Option (46-51 credits)

Available at the following campuses: University Park

Code	Title	Credits
Prescribed Courses		
BIOL 469	Neurobiology	3
BMB 401	General Biochemistry	3
BMB 402	General Biochemistry	3
CHEM 210	Organic Chemistry I	3
CHEM 212	Organic Chemistry II	3
CHEM 213	Laboratory in Organic Chemistry	2
Additional Courses		
Select 3 credits from the following:		3
BIOL 426	Developmental Neurobiology	
BIOL 470	Functional and Integrative Neuroscience	
BIOL 478	COMPARATIVE NEUROANATOMY	

Groups

Select a minimum of 12 credits of 400-level biology courses, with at least 6 credits from the Neuroscience group, 3 credits from the Evolution group, and 3 credits from the Practicum Group. A maximum of 3 credits of BIOL 400, 494, 495, 496 and SC 295, 395, 495 may be used to fulfill the 12 credit minimum in the 400-level biology course requirements.

Neuroscience Group:

BIOL 404	Cellular Mechanisms in Vertebrate Physiology
BIOL 413	Cell Signaling and Regulation
BIOL 424	Seeds of Change: The Uses of Plants
BIOL 426	Developmental Neurobiology
BIOL 430	Developmental Biology
BIOL 437	Histology
BIOL 467	Molecular Basis of Neurological Diseases
BIOL 470	Functional and Integrative Neuroscience
BIOL 472	Human Physiology
BIOL 473	Laboratory in Mammalian Physiology
BIOL 478	COMPARATIVE NEUROANATOMY
BIOL 479	General Endocrinology
BBH 432	Biobehavioral Aspects of Stress
or BBH 451	Pharmacological Influences on Health
or BBH 468	Neuroanatomical Bases for Disorders of Behavior and Health
or HDFS 468	
or NUTR 445	Energy and Macronutrient Metabolism
or PSYCH 45	Learning and Memory
or PSYCH 46	Physiological Psychology
or PSYCH 47	Clinical Neuropsychology

Evolution Group:

BIOL 405	Molecular Evolution
BIOL 406	Symbiosis
BIOL 411	Medical Embryology
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 420	Paleobotany
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 427	Evolution
BIOL 428	Population Genetics
BIOL 429	Animal Behavior
BIOL 432	Developmental Genetics
BIOL 433	Evolution of Vertebrates
BIOL 434	Pathobiology of Emerging Infectious Disease
BIOL 436	Population Ecology and Global Climate Change
BIOL 438	Theoretical Population Ecology
BIOL 439	Practical Bioinformatics
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 446	Physiological Ecology
BIOL 451	Biology of RNA
BIOL 460	Human Genetics

BIOL 463	General Ecology
BIOL 464	Sociobiology
BIOL 474	Astrobiology
BIOL 478	COMPARATIVE NEUROANATOMY
Practicum Group:	
BIOL 400	Teaching in Biology
BIOL 402W	Biological Experimental Design
BIOL 407	Plant Developmental Anatomy
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 419	Ecological and Environmental Problem Solving
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 433	Evolution of Vertebrates
BIOL 437	Histology
BIOL 439	Practical Bioinformatics
BIOL 444	Field Ecology
BIOL 450W	Experimental Field Biology
BIOL 461	Contemporary Issues in Science and Medicine
BIOL 473	Laboratory in Mammalian Physiology
BIOL 475N	
BIOL 478	COMPARATIVE NEUROANATOMY
BIOL 482	Coastal Biology
BIOL 494	Research Project
BIOL 495	Internship in Biology
BIOL 496	Independent Studies
BIOL 499A	Tropical Field Ecology
BIOTC 459	Plant Tissue Culture and Biotechnology
SC 295	Science Co-op Work Experience I
SC 395	Science Co-op Work Experience II
SC 495	Science Co-op Work Experience III

Supporting Courses and Related Areas

Select 14-19 credits from department list 14-19

Plant Biology Option (46-51 credits)

Available at the following campuses: University Park

Code	Title	Credits
Prescribed Courses		
BIOL 407	Plant Developmental Anatomy	3
BIOL 441	Plant Physiology	3
BMB 401	General Biochemistry	3
BMB 402	General Biochemistry	3
CHEM 210	Organic Chemistry I	3
CHEM 212	Organic Chemistry II	3
CHEM 213	Laboratory in Organic Chemistry	2

Additional Courses

Groups

Select a minimum of 12 credits of 400-level biology courses, with at least 6 credits from the Plant and Fungi group, 3 credits from the Evolution group, and 3 credits from the Practicum group. A maximum of 3 credits of BIOL 400, 494, 495, 496 and SC 295, 395, 495 may be used to fulfill the 12 credit minimum in the 400-level biology course requirements.

Plant and Fungi Group:

BIOL 406	Symbiosis
BIOL 414	Taxonomy of Seed Plants
BIOL 420	Paleobotany
BIOL 424	Seeds of Change: The Uses of Plants
BIOL/PPEM 425	Biology of Fungi
BIOL 431	Reproductive Biology
BIOL 444	Field Ecology
BIOL 446	Physiological Ecology
BIOL 448	Ecology of Plant Reproduction
BIOL 451	Biology of RNA
BIOL 482	Coastal Biology
BIOL 499A	Tropical Field Ecology
Evolution Group:	
BIOL 405	Molecular Evolution
BIOL 406	Symbiosis
BIOL 411	Medical Embryology
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 420	Paleobotany
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 427	Evolution
BIOL 428	Population Genetics
BIOL 429	Animal Behavior
BIOL 432	Developmental Genetics
BIOL 433	Evolution of Vertebrates
BIOL 434	Pathobiology of Emerging Infectious Disease
BIOL 436	Population Ecology and Global Climate Change
BIOL 438	Theoretical Population Ecology
BIOL 439	Practical Bioinformatics
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 446	Physiological Ecology
BIOL 451	Biology of RNA
BIOL 460	Human Genetics
BIOL 463	General Ecology
BIOL 464	Sociobiology
BIOL 474	Astrobiology
BIOL 478	COMPARATIVE NEUROANATOMY
Practicum Group:	
BIOL 400	Teaching in Biology
BIOL 402W	Biological Experimental Design
BIOL 407	Plant Developmental Anatomy
BIOL 414	Taxonomy of Seed Plants

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BIOL 417	Invertebrate Zoology
BIOL 419	Ecological and Environmental Problem Solving
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 433	Evolution of Vertebrates
BIOL 437	Histology
BIOL 439	Practical Bioinformatics
BIOL 444	Field Ecology
BIOL 450W	Experimental Field Biology
BIOL 461	Contemporary Issues in Science and Medicine
BIOL 473	Laboratory in Mammalian Physiology
BIOL 475N	
BIOL 478	COMPARATIVE NEUROANATOMY
BIOL 482	Coastal Biology
BIOL 494	Research Project
BIOL 495	Internship in Biology
BIOL 496	Independent Studies
BIOL 499A	Tropical Field Ecology
BIOTC 459	Plant Tissue Culture and Biotechnology
SC 295	Science Co-op Work Experience I
SC 395	Science Co-op Work Experience II
SC 495	Science Co-op Work Experience III

Supporting Courses and Related Areas

Select 14-19 credits from department list 14-19

Vertebrate Physiology Option (46-51 credits)

Available at the following campuses: *Abington, Altoona, Brandywine, Schuylkill, University Park*

Code	Title	Credits
Prescribed Courses		
BIOL 472	Human Physiology	3
BIOL 473	Laboratory in Mammalian Physiology	2
BMB 401	General Biochemistry	3
BMB 402	General Biochemistry	3
CHEM 210	Organic Chemistry I	3
CHEM 212	Organic Chemistry II	3
CHEM 213	Laboratory in Organic Chemistry	2
Additional Courses		
<i>Groups</i>		
Select a minimum of 12 credits of 400-level courses, with at least 6 credits from the Physiology group, 3 credits from the Evolution group, and 3 credits from the Practicum group. A maximum of 3 credits of BIOL 400, 494, 495, 496 and SC 295, 395, 495 may be used to fulfill the 12 credit minimum in the 400-level biology course requirements.		
Physiology Group:		
BIOL 404	Cellular Mechanisms in Vertebrate Physiology	
BIOL 406	Symbiosis	
BIOL 409	Biology of Aging	
BIOL 411	Medical Embryology	
BIOL 412	Ecology of Infectious Diseases	
BIOL 413	Cell Signaling and Regulation	

BIOL 415	Ecotoxicology
BIOL 416	Biology of Cancer
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 424	Seeds of Change: The Uses of Plants
BIOL 426	Developmental Neurobiology
BIOL 430	Developmental Biology
BIOL 431	Reproductive Biology
BIOL 432	Developmental Genetics
BIOL 437	Histology
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 446	Physiological Ecology
BIOL 460	Human Genetics
BIOL 469	Neurobiology
BIOL 470	Functional and Integrative Neuroscience
BIOL 478	COMPARATIVE NEUROANATOMY
BIOL 479	General Endocrinology
BIOL 482	Coastal Biology
ANSC 431	Physiology of Animal Reproduction or ANTH 466 The Skull or BMB 484 Functional Genomics or ENT 402W Biology of Animal Parasites or MICRB 40 Microbial Physiology and Structure or MICRB 41 Principles of Immunology or MICRB 41 Medical Microbiology or MICRB 43 Viral Pathogenesis or PSYCH 46 Physiological Psychology
Evolution Group:	
BIOL 405	Molecular Evolution
BIOL 406	Symbiosis
BIOL 411	Medical Embryology
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 420	Paleobotany
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 427	Evolution
BIOL 428	Population Genetics
BIOL 429	Animal Behavior
BIOL 432	Developmental Genetics
BIOL 433	Evolution of Vertebrates
BIOL 434	Pathobiology of Emerging Infectious Disease
BIOL 436	Population Ecology and Global Climate Change
BIOL 438	Theoretical Population Ecology
BIOL 439	Practical Bioinformatics
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 446	Physiological Ecology
BIOL 451	Biology of RNA
BIOL 460	Human Genetics
BIOL 463	General Ecology
BIOL 464	Sociobiology

BIOL 474	Astrobiology
BIOL 478	COMPARATIVE NEUROANATOMY
Practicum Group:	
BIOL 400	Teaching in Biology
BIOL 402W	Biological Experimental Design
BIOL 407	Plant Developmental Anatomy
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 419	Ecological and Environmental Problem Solving
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 433	Evolution of Vertebrates
BIOL 437	Histology
BIOL 439	Practical Bioinformatics
BIOL 444	Field Ecology
BIOL 448	Ecology of Plant Reproduction
BIOL 450W	Experimental Field Biology
BIOL 461	Contemporary Issues in Science and Medicine
BIOL 473	Laboratory in Mammalian Physiology
BIOL 475N	
BIOL 476	Advanced Human Anatomy - cadaver based
BIOL 478	COMPARATIVE NEUROANATOMY
BIOL 482	Coastal Biology
BIOL 494	Research Project
BIOL 495	Internship in Biology
BIOL 496	Independent Studies
BIOL 499A	Tropical Field Ecology
BIOTC 459	Plant Tissue Culture and Biotechnology
SC 295	Science Co-op Work Experience I
SC 395	Science Co-op Work Experience II
SC 495	Science Co-op Work Experience III

Supporting Courses and Related Areas

Select 15-20 credits from department list

15-20

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or

within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Biology and M.Ed. in Curriculum and Instruction

Available at the following campuses: University Park

Requirements for the Integrated B.S. in Biology and M.Ed. in Curriculum and Instruction can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/curriculum-instruction/#integratedundergradgradprogramstext>).

Program Learning Outcomes

1. Students will be able to describe how heritable changes can lead to differences in populations over time that might result in speciation; trace energy/matter transformation, storage, and mobilization; explain how information is exchanged and stored; recognize how changes in biological structures can have varying effects on function; and/or describe the interactions and interconnections among systems across biological scales and over evolutionary time scales.
2. Students will be able to apply the elements of the process of science such as posing questions, generating novel hypotheses based on the scientific literature; developing appropriate technical skills for research; designing/conducting experiments to test hypotheses in laboratory and/or field settings; summarizing/interpreting data; integrating/evaluating findings in the broader scientific field to construct new knowledge; and/or participating in the peer review/revision process.
3. Students will be able to discriminate among scientific claims presented in a variety of sources based on the strength of evidence; find appropriate published scientific literature; and/or analyze and critically evaluate data/conclusions from the scientific peer-reviewed literature.
4. Students will be able to apply basic quantitative competencies such as algebra, probability, statistics, unit conversions, and fundamental biological equations; organize, summarize, and interpret quantitative data; use modeling/simulation to approach problems from across various scales; and/or find and analyze large databases using statistical methods and/or other approaches.
5. Students will be able to integrate knowledge among biological subfields and between biology and other disciplines.
6. Students will be able to engage with diverse communities and leverage the skills in the community to pose and solve biological questions; demonstrate the ability to work in teams to solve biological problems; and/or communicate in a variety of formal and informal ways in the discussion of biological research.
7. Students will explore the impacts of scientific research on society and the environment and how society influences/relies on research to inform decision-making; evaluate the ethical implications of biological research; recognize ethical issues in a variety of settings; and/or describe how different perspectives and the resulting alternative approaches might be evaluated using ethical principles to identify a solution to an issue.
8. Students will be able to communicate in a professional manner and learn/use professional behaviors in all aspects of college and career building activities, including participation in opportunities such as

research, internships, cooperative education, teaching and tutoring, study abroad, and/or volunteer work.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

General Biology Option: Biology, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any

time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110 ^{*#}	4 BIOL 230W ^{*#}	4
CHEM 110 ^{*#†}	3 CHEM 112 ^{*†}	3
CHEM 111 [†]	1 CHEM 113 [†]	1
ENGL 15, 30H, or ESL 15 [†]	3 MATH 141B or 141 ^{††}	4
MATH 140B or 140 ^{*†#†}	4 General Education Course	3
PSU 16	1	
	16	15

Second Year

Fall	Credits Spring	Credits
BIOL 220W ^{*#}	4 BIOL 240W ^{*#}	4
CHEM 210 or 202	3 CHEM 212 or 203	3
STAT 200, 240, or 250	3-4 CHEM 213W (consult with an academic adviser for alternative options)	2
General Education Course	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C [‡]	3
Supporting course (consult with an academic adviser for options)	3 Supporting course (consult with an academic advisor for options)	3
	16-17	15

Third Year

Fall	Credits Spring	Credits
BIOL 400 Level Selection (consult with an academic adviser for options)	3 BIOL 400 Level Selection (consult with an academic adviser for options)	3
Supporting course (consult with an academic adviser for options)	3 Supporting course (consult with an academic adviser for options)	3
PHYS 250 (consult with an academic adviser for alternative options) [†]	4 PHYS 251 (consult with an academic adviser for alternative options)	4
General Education Course	3 General Education Course	3
Supporting course (consult with an academic adviser for options)	3 Supporting course (consult with an academic adviser for options)	3
	16	16

Fourth Year

Fall	Credits Spring	Credits
BIOL 400 Level Selection (consult with an academic adviser for options)	3 BIOL 400 Level Selection (consult with an academic adviser for options)	3
BIOL 400 Level Selection (consult with an academic adviser for options)	3 BIOL 400 Level Selection (consult with an academic adviser for options)	3
General Education Course	3 General Education Course	3
ENGL 202C, 202A, 202B, or 202D	3 General Education Course	3

Supporting course (consult with an academic adviser for options)	3 Supporting course (consult with an academic adviser for options)	3
	15	15

Total Credits 124-125

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Genetics and Development Option: Biology, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110 ^{*#}	4 BIOL 230W ^{*#}	4
CHEM 110 ^{*#†}	3 CHEM 112 ^{*†}	3
CHEM 111 [†]	1 CHEM 113 [†]	1
ENGL 15, 30H, or ESL 15 [‡]	3 MATH 141B or 141 ^{††}	4
MATH 140B or 140 ^{*†††}	4 General Education Course	3
PSU 16	1	
	16	15

Second Year

Fall	Credits Spring	Credits
BIOL 220W ^{*#}	4 BIOL 240W ^{*#}	4
CHEM 210	3 CHEM 212	3
MICRB 201 (consult with an academic adviser for alternative options)	3 CHEM 213W	2
General Education Course	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C [‡]	3
Supporting course (consult with an academic adviser for options)	3 BIOL 322	3
	16	15

Third Year

Fall	Credits Spring	Credits
BIOL 430	3 STAT 200, 240, or 250	3-4
BMB 401	3 BMB 402	3
PHYS 250 (consult with and academic adviser for alternative options) [†]	4 PHYS 251 (consult with an academic adviser for alternative options)	4
General Education Course	3 General Education Course	3
General Education Course	3 Supporting course (consult with an academic adviser for options)	3
	16	16-17

Fourth Year

Fall	Credits Spring	Credits
BIOL 400 Level Selection (consult with an academic adviser for options)	3 BIOL 400 Level Selection (consult with an academic adviser for options)	3
BIOL 400 Level Selection (consult with an academic adviser for options)	3 BIOL 400 Level Selection (consult with an academic adviser for options)	3
ENGL 202A, 202B, or 202C	3 General Education Course	3
General Education Course	3 General Education Course	3

Supporting course (consult with an academic adviser for options)	3 Supporting course (consult with an academic adviser for options)	3
	15	15

Total Credits 124-125

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Neuroscience Option: Biology, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110 ^{*#}	4 BIOL 230W ^{*#}	4
CHEM 110 ^{*#†}	3 CHEM 112 ^{*†}	3
CHEM 111 [†]	1 CHEM 113 [†]	1
ENGL 15, 30H, or ESL 15 [‡]	3 MATH 141B or 141 ^{‡†}	4
MATH 140B or 140 ^{*#†}	4 General Education Course	3
PSU 16	1	
	16	15

Second Year

Fall	Credits Spring	Credits
BIOL 220W ^{*#}	4 BIOL 240W [*]	4
CHEM 210	3 CHEM 212	3
STAT 200, 240, or 250	3-4 CHEM 213W	2
General Education Course	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C [‡]	3
Supporting course (consult with an academic adviser for options)	3 Supporting course (consult with an academic adviser for options)	3
	16-17	15

Third Year

Fall	Credits Spring	Credits
BIOL 469 or BBH 469	3 BIOL 470 or BBH 470	3
BMB 401	3 BMB 402	3
PHYS 250 (consult with an academic adviser for alternative options) [†]	4 PHYS 251 (consult with adviser)	4
General Education Course	3 General Education Course	3
Supporting course (consult with an academic adviser for options)	3 Supporting course (consult with an academic adviser for options)	3
	16	16

Fourth Year

Fall	Credits Spring	Credits
BIOL 400 Level Selection (consult with an academic adviser for options)	3 BIOL 400 Level Selection (consult with an academic adviser for options)	3
BIOL 400 Level Selection (consult with an academic adviser for options)	3 BIOL 400 Level Selection (consult with an academic adviser for options)	3
General Education Course	3 General Education Course	3
ENGL 202C, 202A, 202B, or 202D [‡]	3 General Education Course	3

Supporting course (consult with an academic adviser for options)	3 Supporting course (consult with an academic adviser for options)	3
	15	15

Total Credits 124-125

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Plant Biology Option: Biology, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110 ^{*#}	4 BIOL 230W ^{*#}	4
CHEM 110 ^{*#†}	3 CHEM 112 ^{*†}	3
CHEM 111 [†]	1 CHEM 113 [†]	1
ENGL 15, 30H, or ESL 15	3 MATH 141B or 141 ^{††}	4
MATH 140B or 140 ^{*†#†}	4 General Education Course	3
PSU 16	1	
	16	15

Second Year

Fall	Credits Spring	Credits
BIOL 220W ^{*#}	4 BIOL 240W ^{*#}	4
CHEM 210	3 CHEM 212	3
STAT 200, 240, or 250	3-4 CHEM 213W	2
Supporting course (consult with an academic adviser for options)	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C [‡]	3
General Education Course	3 Supporting course (consult with an academic adviser for options)	3
	16-17	15

Third Year

Fall	Credits Spring	Credits Summer	Credits
BIOL 441	3 BIOL 407	3 BIOL 414	3
BMB 401	3 BMB 402	3	
PHYS 250 (consult with an academic adviser for alternative options) [†]	4 PHYS 251 (consult with an academic adviser for alternative options)	4	
General Education Course	3 General Education Course	3	

Supporting course (consult with an academic adviser for options)	3 Supporting course (consult with an academic adviser for options)	3
	16	16
		3
Fourth Year		
Fall	Credits Spring	Credits
BIOL 400 Level Selection (consult with an academic adviser for options)	3 BIOL 400 Level Selection (consult with an academic adviser for options)	3
BIOL 400 Level Selection (consult with an academic adviser for options)	3 General Education Course	3
General Education Course	3 General Education Course	3
ENGL 202C, 202A, 202B, or 202D	3 Supporting course (consult with an academic adviser for options)	3
Supporting course (consult with an academic adviser for options)	3	
	15	12
Total Credits 124-125		

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain

attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Vertebrate Physiology Option: Biology, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110 ^{*#}	4 BIOL 230W ^{*#}	4
CHEM 110 ^{*#†}	3 CHEM 112 ^{*†}	3
CHEM 111 [†]	1 CHEM 113 [†]	1
ENGL 15, 30H, or ESL 15	3 MATH 141B or 141 ^{††}	4
MATH 140B or 140 ^{*††}	4 General Education Course	3
PSU 16	1	
	16	15

Second Year

Fall	Credits Spring	Credits
BIOL 220W ^{*#}	4 BIOL 240W [#]	4
CHEM 210	3 CHEM 212	3
STAT 200, 240, or 250	3-4 CHEM 213W	2
General Education Course	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C [‡]	3
Supporting course (consult with an academic adviser for options)	3 Supporting course (consult with an academic adviser for options)	3
	16-17	15

Third Year

Fall	Credits Spring	Credits
BIOL 472	3 BIOL 473	2
BMB 401	3 BMB 402	3
PHYS 250 (consult with an academic adviser for alternative options) [†]	4 PHYS 251 (consult with an academic adviser for alternative options)	4
General Education Course	3 General Education Course	3
Supporting course (consult with an academic adviser for options)	3 Supporting course (consult with an academic adviser for options)	3
	16	15

Fourth Year

Fall	Credits Spring	Credits
BIOL 400 Level Selection (consult with an academic adviser for options)	3 BIOL 400 Level Selection (consult with an academic adviser for options)	3
BIOL 400 Level Selection (consult with an academic adviser for options)	3 BIOL 400 Level Selection (consult with an academic adviser for options)	3
General Education Course	3 General Education Course	3
ENGL 202C, 202A, 202B, or 202D	3 General Education Course	3

Supporting course (consult with an academic adviser for options)	3 Supporting course (consult with an academic adviser for options)	3
	Elective Course	1
	15	16

Total Credits 124-125

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

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W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Ecology Option: Biology, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110 ^{*#}	4 BIOL 230W ^{*#}	4
CHEM 110 ^{*#†}	3 CHEM 112 ^{*†}	3
CHEM 111 [†]	1 CHEM 113 [†]	1
ENGL 15, 30H, or ESL 15 [‡]	3 MATH 141B or 141 ^{‡†}	4
MATH 140B or 140 ^{*†#†}	4 General Education Course	3
PSU 16	1	
	16	15

Second Year

Fall	Credits Spring	Credits
BIOL 220W ^{*#}	4 BIOL 240W ^{*#}	4
CHEM 202 (or Chem 210)	3 CHEM 203 (or Chem 212 and Chem 213)	3
STAT 200, 240, or 250	3-4 CAS 100, CAS 100A, CAS 100B, or CAS 100C [‡]	3
General Education Course	3 Supporting course (consult with an academic adviser for options)	2
Supporting course (consult with an academic adviser for options)	3 Supporting course (consult with an academic adviser for options)	3
	16-17	15

Third Year

Fall	Credits Spring	Credits
BIOL 400 Level Selection (consult with an academic adviser for options)	3 BIOL 400 Level Selection (consult with an academic adviser for options)	3
STAT 462 (see adviser for alternatives)	3 Elective Course	3
PHYS 250 (consult with an academic adviser for alternative options) [†]	4 PHYS 251 (consult with an academic adviser for alternative options)	4
General Education Course	3 General Education Course	3
Supporting course (consult with an academic adviser for options)	3 Supporting course (consult with an academic adviser for options)	3
	16	16

Fourth Year

Fall	Credits Spring	Credits
BIOL 400 Level Selection (consult with an academic adviser for options)	3 BIOL 400 Level Selection (consult with an academic adviser for options)	3
BIOL 400 Level Selection (consult with an academic adviser for options)	3 BIOL 400 Level Selection (consult with an academic adviser for options)	3
General Education Course	3 General Education Course	3

ENGL 202C, 202A, 202B, or 202D [‡]	3 General Education Course	3
Supporting course (consult with an academic adviser for options)	3 Supporting course (consult with an academic adviser for options)	3
	15	15

Total Credits 124-125

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Biology, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110 ^{*#}	4 BIOL 230W ^{*#}	4
CHEM 110 ^{*#†}	3 CHEM 112 ^{*†}	3
CHEM 111 [†]	1 CHEM 113 [†]	1
ENGL 15, 30H, or ESL 15	3 MATH 141B or 141 ^{††}	4
MATH 140B or 140 ^{*†#†}	4 General Education Course	3
	15	15

Second Year

Fall	Credits Spring	Credits
BIOL 220W ^{*#}	4 BIOL 240W ^{*#}	4
CHEM 210 (consult with an academic adviser for alternative options)	3 CHEM 212 (consult with an academic adviser for alternative options)	3
STAT 200, 240, or 250	3-4 CHEM 213W (consult with an academic adviser for alternative options)	2
General Education Course	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C [†]	3
Supporting course (consult with an academic adviser for options)	3 Supporting course (consult with an academic adviser for options)	3
	16-17	15

Third Year

Fall	Credits Spring	Credits
BIOL 400 Level Selection (consult with an academic adviser for options)	3 BIOL 400 Level Selection (consult with an academic adviser for options)	3
PHYS 250 (consult with an academic adviser for alternative options) [†]	4 PHYS 251 (consult with adviser for alternative)	4
Supporting course (consult with an academic adviser for options)	3 Supporting course (consult with an academic adviser for options)	3
General Education Course	3 General Education Course	3
Supporting course (consult with an academic adviser for options)	3 Supporting course (consult with an academic adviser for options)	3
	16	16

Fourth Year

Fall	Credits Spring	Credits
BIOL 400 Level Selection (consult with an academic adviser for options)	3 BIOL 400 Level Selection (consult with an academic adviser for options)	3
BIOL 400 Level Selection (consult with an academic adviser for options)	3 BIOL 400 Level Selection (consult with an academic adviser for options)	3

General Education Course	3 General Education Course	3
ENGL 202C, 202A, 202B, or 202D	3 General Education Course	3
Supporting course (consult with an academic adviser for options)	3 Supporting course (consult with an academic adviser for options)	3
Supporting course (consult with an academic adviser for options)	1	
	16	15

Total Credits 124-125

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

A Biology BS degree provides an excellent foundation and the skills required for a wide range of technical careers. While many majors use a Biology degree to prepare for entrance into health professional schools, others follow career paths in research, education, and business. Students also pursue graduate study at universities both across the U.S. and internationally.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE BIOLOGY PROGRAM (<https://science.psu.edu/bio/undergrad/after-graduation/>)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://science.psu.edu/bio/grad/>)

Contact

University Park

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228 Ritenour Building
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814-865-2329
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Abington

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1600 Woodland Road
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<https://www.abington.psu.edu/academics/majors-at-abington/biology>
(<https://www.abington.psu.edu/academics/majors-at-abington/biology/>)

Altoona

DIVISION OF MATHEMATICS AND NATURAL SCIENCES
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<https://altoona.psu.edu/academics/bachelors-degrees/biology> (<https://altoona.psu.edu/academics/bachelors-degrees/biology/>)

Beaver

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smc1088@psu.edu

<https://beaver.psu.edu/academics/majors/biology> (<https://beaver.psu.edu/academics/majors/biology/>)

Berks

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610-396-6328
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Brandywine

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<https://www.brandywine.psu.edu/academics/bachelors-degrees/biology>
(<https://www.brandywine.psu.edu/academics/bachelors-degrees/biology/>)

Harrisburg

SCHOOL OF SCIENCE, ENGINEERING, AND TECHNOLOGY
Science & Tech Building, TL 177
Middletown, PA 17057
717-948-4387
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<https://harrisburg.psu.edu/science-engineering-technology/biology-bs>
(<https://harrisburg.psu.edu/science-engineering-technology/biology-bs/>)

Lehigh Valley

ACADEMIC AFFAIRS
2809 Saucon Valley Road

Center Valley, PA 18034
610-285-5000
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<https://lehighvalley.psu.edu/biology-bs> (<https://lehighvalley.psu.edu/biology-bs/>)

Schuylkill

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200 University Drive
Schuylkill Haven, PA 17972
ljs43@psu.edu

<https://schuylkill.psu.edu/academics/bacc-degrees/biology> (<https://schuylkill.psu.edu/academics/bacc-degrees/biology/>)

Scranton

Dawson Building 212A
Dunmore, PA 18512
570-963-2528
mlv18@psu.edu (axk55@psu.edu)

<https://scranton.psu.edu/academics/degrees/bachelors/biology-degree>
(<https://scranton.psu.edu/academics/degrees/bachelors/biology-degree/>)

York

1 Elias Science Building
York, PA 17403
717-718-6705
amv12@psu.edu

<https://www.york.psu.edu/academics/baccalaureate/biology> (<https://www.york.psu.edu/academics/baccalaureate/biology/>)

Biology, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

This minor is designed for students in non-Life Science majors, who desire to obtain an in-depth and well-rounded knowledge of Biology – the science of life and living organisms. This minor is not intended for "Life Science" oriented majors, including Biological Anthropology, Premedicine, and Science, Life Science option. After taking an introductory survey course which exposes students to the basics of Biology, including the chemistry of life, cell structure, genetics, mechanisms of evolution and evolutionary history of biological diversity, plant and animal form and function, and ecology, students select additional courses based on their biological emphasis to account for a total of 18-20 credits. In conjunction with the student's major, the minor prepares students for entry to graduate school or professional school programs, as well as for technical or research careers with governmental agencies or industry. Majors complemented by this minor would include but not be limited to other life and physical sciences, engineering, and business.

What is Biology?

Biology is the scientific study of life: the diversity and organization of organisms, from single-celled bacteria to multi-cellular plants

and animals, including humans. These different levels of biological organization range from the molecules and cells that compose an organism, to the interacting organisms that make up an ecosystem.

You Might Like this Program If...

- You want to complement your major by acquiring additional knowledge and skills in biology.
- You have an interest in learning more about biology, but do not have enough time to complete the major.

Program Requirements

Requirement	Credits
Requirements for the Minor	18-20

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 7-8 credits of the following:		7-8
BIOL 129	Mammalian Anatomy	
BIOL 141	Introduction to Human Physiology	
BIOL 142	Physiology Laboratory	
BIOL 161	Human Anatomy and Physiology I - Lecture	
BIOL 162	Human Anatomy and Physiology I - Laboratory	
BIOL 163	Human Anatomy and Physiology II - Lecture	
BIOL 164	Human Anatomy and Physiology II - Laboratory	
BIOL 220W	Biology: Populations and Communities	
BIOL 222	Genetics	
BIOL 230W	Biology: Molecules and Cells	
BIOL 240W	Biology: Function and Development of Organisms	
BIOL 322	Genetic Analysis	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 6-9 credits from 400-level Biology courses ¹		6-9

¹ BIOL 400, BIOL 496, and SC 495 credits may not be used to fulfill this requirement.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged

in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Biotechnology, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

Biotechnology may be broadly defined as the application of principles of molecular and cell science in the production of biologically important or industrially useful products. Therefore, students in the Biotechnology major will

1. acquire a strong foundation in the life and chemical sciences,
2. learn how fundamental science is applied to problems through biotechnology,
3. develop basic laboratory skills, perform standard techniques, work with state-of-the-art instrumentation, describe and evaluate analytical methodology used in biotechnology, and
4. become familiar with societal concerns and governmental regulations regarding the biotechnology industry.

One very important strength of this major is the extensive laboratory experience each student receives. In the General option, students are very strongly encouraged to consider Cooperative Education with industry as an integral part of their curriculum. In addition to the General option in Biotechnology, the major also offers the Clinical Laboratory Science option.

What is Biotechnology?

Biotechnology is broadly defined as the application of principles of molecular and cell science to the production of biologically important or industrially useful products. Topics in biotechnology include genetic engineering, pharmaceutical development, and bio-manufacturing.

You Might Like This Program If...

- You like learning by doing experiments.
- You enjoy complex problem solving, teamwork, and collaboration with specialists from different fields (e.g. sciences and engineering).
- You desire to understand how to apply scientific concepts to the development of new products and technologies for human benefit or to benefit human surroundings.
- You are interested in medicine but don't want to work directly with patients (Clinical Lab Science Option).

Entrance to Major

In order to be eligible for entrance to the Biotechnology major, a student must have:

1. attained at least a 2.00 cumulative grade-point average, and
2. completed CHEM 110, CHEM 111, CHEM 112, and MATH 140 and earned a grade of C or better in each of these courses.

Degree Requirements

For the Bachelor of Science degree in Biotechnology, a minimum of 125 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	95

15 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses.

Requirements for the Major

To graduate with a B.S. degree in Biotechnology, a grade of C or better is required in 9 credits of any BIOTC, B M B, or MICRB 400-level course except BMB 442, BMB 443W, BMB 445W, BMB 448, BMB 488, BMB 496, MICRB 421W, MICRB 422, MICRB 447.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
BMB 211	Elementary Biochemistry	3
BMB 221	Applied Biochemistry	2
BMB 251	Molecular and Cell Biology I ¹	3
BMB 252	Molecular and Cell Biology II ¹	3
CHEM 113	Experimental Chemistry II	1
MATH 141	Calculus with Analytic Geometry II	4
MICRB 201	Introductory Microbiology ¹	3
MICRB 202	Introductory Microbiology Laboratory	2
MICRB 410	Principles of Immunology	3
MICRB 421W	Laboratory of General and Applied Microbiology	3
PHYS 250	Introductory Physics I	4
PHYS 251	Introductory Physics II	4
PSU 16	First-Year Seminar Science	1

Prescribed Courses: Require a grade of C or better

CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
MATH 140	Calculus With Analytic Geometry I	4

Requirements for the Option

Select an option	48
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¹ To graduate with a B.S. degree in Biotechnology, a grade of C or better is required in two of the following courses:

- MICRB 201
- BMB 251/MICRB 251
- BMB 252/MICRB 252

Requirements for the Option General Biotechnology Option (48 credits)

Code	Title	Credits
Prescribed Courses		
BIOL 322	Genetic Analysis	3
BIOTC 416	Microbial Biotechnology	2
BIOTC 459	Plant Tissue Culture and Biotechnology	3
BIOTC 479	Methods in Biofermentations	3
BIOTC 489	Animal Cell Culture Methods	3
BMB 442	Laboratory in Proteins, Nucleic Acids, and Molecular Cloning	3
STAT 250	Introduction to Biostatistics	3

Additional Courses

Select one of the following sequences: 6-8

CHEM 202 Fundamentals of Organic Chemistry I
& CHEM 203 and Fundamentals of Organic Chemistry II

CHEM 210 Organic Chemistry I
& CHEM 212 and Organic Chemistry II
& CHEM 213 and Laboratory in Organic Chemistry

Supporting Courses and Related Areas

Select 14-16 credits from department list C 14-16

Select 6 credits of the following: 6

Any 400-level BMB/BIOTC/MICRB lecture course

FDSC 408 Food Microbiology

Additional courses from department list D

Clinical Laboratory Science Option (48 credits)

This option provides both the academic and clinical preparation for students interested in a career as a clinical laboratory scientist. Positions are found in hospital, physician-office, reference, industrial, and research laboratories. To complete baccalaureate degree requirements, students enter a ten-month clinical practicum (MICRB 405A, MICRB 405B, MICRB 405C, MICRB 405D, MICRB 405E, MICRB 405F) at an affiliate hospital for the senior year. (Current affiliations are with Mount Nittany Medical Center, State College and Pennsylvania Hospital, Philadelphia.) Students are recommended for a fixed number of hospital positions on a competitive basis. Cumulative grade-point average and hospital school admission requirements serve as criteria for recommendation. The B.S. degree is awarded at the first commencement following completion of the clinical practicum.

Code	Title	Credits
Prescribed Courses		
BMB 212	Elementary Biochemistry Laboratory	1
MICRB 405A	Seminar and Practicum in Medical Technology	8
MICRB 405B	Seminar and Practicum in Medical Technology	1
MICRB 405C	Seminar and Practicum in Medical Technology	6
MICRB 405D	Seminar and Practicum in Medical Technology	5
MICRB 405E	Seminar and Practicum in Medical Technology	7
MICRB 405F	Seminar and Practicum in Medical Technology	3
MICRB 412	Medical Microbiology	3
MICRB 422	Medical Microbiology Laboratory	2

Additional Courses

BIOL 322 Genetic Analysis 3
or BIOL 222 Genetics

Select one of the following sequences: 6-8

CHEM 202 & CHEM 203	Fundamentals of Organic Chemistry I and Fundamentals of Organic Chemistry II
CHEM 210 & CHEM 212 & CHEM 213	Organic Chemistry I and Organic Chemistry II and Laboratory in Organic Chemistry

Supporting Courses and Related Areas

Select 1-3 credits from department list 1-3

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Biotechnology and M.BIOT. in Biotechnology

Requirements for the Integrated B.S. in Biotechnology and M.BIOT. in Biotechnology can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/biotechnology/#integratedundergradgradprogramstext>).

Program Learning Objectives

- Demonstrate knowledge of major biotechnological concepts, theories, and empirical findings.
- Demonstrate the ability to apply biotechnological concepts and theories to research and real life situations.
- Differentiate among different techniques used in biotechnology and apply them in designing an experiment.
- Demonstrate the ability to analyze and interpret quantitative biotechnological data using statistics, graphs, and data tables.
- Use critical and creative thinking, skeptical inquiry, and the scientific approach to solve problems related to current issues in biotechnology.
- Demonstrate critical thinking in the analysis and evaluation of information to distinguish scientific from nonscientific claims related to biotechnology and demonstrate critical thinking in the analysis, evaluation, and interpretation of information in the scientific literature to distinguish the scientific literature from other sources.
- Communicate effectively (in writing and/or orally) the results of a project or internship.
- Demonstrate the ability to effectively create solutions to current issues in biotechnology and present these to peers.

- Demonstrate efficiency to extract central points and summarize biotechnological research literature and to write in the format of biotechnological research.
- Demonstrate knowledge, and the application of, basic principles of scientific and professional ethics.
- Demonstrate knowledge of professional options and required training for careers in the major subfields of biotechnology.
- Demonstrate the ability to identify personally-relevant career options to implement their biotechnological knowledge, skills, and values in occupational pursuits in a variety of settings.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

General Biotechnology Option: Biotechnology, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSU 16	1 MICRB 201 ¹	3
CHEM 110 ^{*#†}	3 MICRB 202 or 203 (Consult with an academic adviser for options)	2

CHEM 111 ^{*#†}	1 CHEM 112 ^{*#†}	3
MATH 140 or 140B ^{*†#†}	4 CHEM 113 [†]	1
ENGL 15 or 30H [†]	3 MATH 141 or 141B ^{††}	4
General Education Course	3 CAS 100A, 100B, or 100C [‡]	3
	15	16

Second Year

Fall	Credits Spring	Credits
BMB 251 ¹	3 BMB 252 ¹	3
CHEM 202 or 210	3 CHEM 203 or 212 <i>and</i> 213	3
PHYS 250 [†]	4 PHYS 251 [†]	4
Department List C (Consult with an academic adviser for options)	3 General Education Course	3
General Education Course	3 General Education Course	3
	16	16

Third Year

Fall	Credits Spring	Credits
BIOTC 489 ²	3 BIOTC 459 ²	3
BMB 211	3 BMB 221	2
MICRB 421W	3 BMB 442	3
Department List C (Consult with an academic adviser for options)	3 BIOL 322	3
General Education Course	3 ENGL 202C, 202A, 202B, or 202C [‡]	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
	16.5	15.5

Fourth Year

Fall	Credits Spring	Credits
BIOTC 416 ²	2 MICRB 410 ²	3
BIOTC 479 ²	3 BIOTC 400-Level Lecture Selections (Consult with an academic adviser for options) ²	3
BIOTC 400 Level Lecture Selections (Consult with an academic adviser for options) ²	3 STAT 250	3
Department list C Free (Consult with an academic adviser for options)	4 Department List C (Consult with an academic adviser for options)	3
General Education Course	3 Department List C (Consult with an academic adviser for options)	3
	15	15

Total Credits 125

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ To graduate, a grade of C or better is required in two of the following courses: Introductory Microbiology (MICRB 201), Molecular and Cell

Biology I (BMB 251)/Molecular and Cell Biology I (MICRB 251), and/or Molecular and Cell Biology II (BMB 252)/Molecular and Cell Biology II (MICRB 252).

² To graduate, a grade of C or better is required in 9 credits of any BIOTC, BMB or MICRB 400-level course except those listed in the requirements for the major (consult with an academic adviser for clarification)

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

General Biotechnology Option (math 22 sTART): Biotechnology, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits Summer	Credits
PSU 16	1 CHEM 110 ^{*#†}	3 CHEM 112 ^{*#†}	3
MATH 22 ¹	3 CHEM 111 ^{*#†}	1 CHEM 113 [†]	1
MATH 26 ¹	3 MATH 140 or 140B ^{*#†1}	4	
ENGL 15, ESL 15, or ENGL 30H [†]	3 CAS 100A, 100B, or 100C [‡]	3	
General Education Course	6 General Education Course	3	
	16	14	4

Second Year

Fall	Credits Spring	Credits Summer	Credits
MICRB 201 ²	3 BMB 251 ²	3 PHYS 251 (Consult with an academic adviser for alternative options) [†]	4
MICRB 202	2 CHEM 203	3	
CHEM 202	3 PHYS 250 (Consult with an academic adviser for alternative options) [†]	4	
MATH 141 or 141B ^{†1}	4 General Education Course	3	
General Education Course	3		
	15	13	4

Third Year

Fall	Credits Spring	Credits
BMB 252 ²	3 BIOTC 459 ³	3
BMB 211	3 BMB 221	2
MICRB 421W	3 BMB 442	3
Department List C (Consult with an academic adviser for options)	2 BIOL 322	3

General Education Course	3 ENGL 202C, 202A, 202B, or 202D [†]	3
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General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
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15.5

15.5

Fourth Year

Fall	Credits Spring	Credits
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BIOTC 416 ³	3 BIOTC 479 ³	3
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BIOTC 489 ³	3 BIOTC 400-Level Lecture Selections (Consult with an academic adviser for options) ³	3
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BIOTC 400	3 MICRB 410 ³	3
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Level Lecture Selections (Consult with an academic adviser for options) ³		
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Department List C (Consult with an academic adviser for options)	5 STAT 250 ¹	3
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Department List C (Consult with an academic adviser for options)		3
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14

15

Total Credits 126

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ 6 credits of MATH 22, MATH 26, MATH 140, MATH 141, or STAT 250 require a grade of C or better for General Education.

² To graduate, a grade of C or better is required in two of the following courses: Introductory Microbiology (MICRB 201), Molecular and Cell Biology I (BMB 251)/Molecular and Cell Biology I (MICRB 251), and/or Molecular and Cell Biology II (BMB 252)/Molecular and Cell Biology II (MICRB 252).

³ To graduate, a grade of C or better is required in 9 credits of any BIOTC, BMB or MICRB 400-level course except those listed in the requirements for the major (consult with an academic adviser for clarification).

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Clinical Laboratory Science Option: Biotechnology, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSU 16	1 MICRB 201 ¹	3
CHEM 110 ^{**†}	3 MICRB 202 or 203 (Consult with an academic adviser for options)	2
CHEM 111 ^{**†}	1 CHEM 112 ^{**†}	3
MATH 140 or 140B ^{*†##}	4 CHEM 113 [†]	1
ENGL 15, 30H, or ESL 15 [†]	3 MATH 141 or 141B ^{††}	4
General Education Course	3 CAS 100A, 100B, or 100C [‡]	3
	15	16

Second Year

Fall	Credits Spring	Credits
MICRB 251 ¹	3 MICRB 252 ¹	3
CHEM 202 or 210	3 BMB 211	3
PHYS 250 [†]	4 CHEM 203 or 212 <i>and</i> 213	3
General Education Course	3 PHYS 251 [†]	4
General Education Course	3 General Educaiton Course	3
	16	16

Third Year

Fall	Credits Spring	Credits
BMB 212	1 BMB 221	2
BIOL 222 or MICRB 410 ²	3 BIOL 322 or MICRB 410 ²	3
MICRB 421W	3 MICRB 412 ²	3
Department List C (Consult with an academic adviser for options)	1.5 MICRB 422	2
General Education Course	3 Department List C (Consult with an academic adviser for options)	1.5
General Education Course	3 ENGL 202C, 202A, 202B, or 202D [‡]	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
	16	16

Fourth Year

Fall	Credits Spring	Credits
MICRB 405A ²	8 MICRB 405D ²	5
MICRB 405B ²	1 MICRB 405E ²	7
MICRB 405C ²	6 MICRB 405F ²	3
	15	15

Total Credits 125

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ To graduate, a grade of C or better is required in two of the following courses: Introductory Microbiology (MICRB 201), Molecular and Cell Biology I (BMB 251)/Molecular and Cell Biology I (MICRB 251), and/or Molecular and Cell Biology II (BMB 252)/Molecular and Cell Biology II (MICRB 252).

² To graduate, a grade of C or better is required in 9 credits of any BIOTC, BMB or MICRB 400-level course except those listed in the requirements for the major (consult with an academic adviser for clarification)

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Clinical Laboratory Science Option (MATH 22 Start): Biotechnology, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits Summer	Credits
PSU 16	1 CHEM 110 ^{*#†}	3 CHEM 112 ^{*#†}	3
MATH 22 ¹	3 CHEM 111 ^{*#†}	1 CHEM 113 [†]	1
MATH 26 ¹	3 MATH 140 or 140B ^{*#†1}	4	
ENGL 15, ESL 15, or ENGL 30H [†]	3 CAS 100A, 100B, or 100C [†]	3	
General Education Course	6 General Education Course	3	
16		14	4

Second Year

Fall	Credits Spring	Credits Summer	Credits
MICRB 201 ²	3 BMB 251 ²	3 PHYS 251 (Consult with an academic adviser for alternative options) [†]	4
MICRB 202	2 BMB 211	3	
CHEM 202	3 CHEM 203	3	
MATH 141 or 141B ^{†1}	4 PHYS 250 (Consult with an academic adviser for alternative options) [†]	4	
General Education Course	3 General Education Course	3	
15		16	4

Third Year

Fall	Credits Spring	Credits
BMB 252 ²	3 BMB 221	2
BMB 212	1 BIOL 322 or MICRB 410 (Consult with an academic adviser for alternative options) ³	3
BIOL 222 or MICRB 410 (Consult with an academic adviser for alternative options) ³	3 MICRB 412 ³	3

MICRB 421W	3 MICRB 422	2
General Education Course	3 ENGL 202C, 202A, 202B, or 202D [†]	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
14.5		14.5

Fourth Year

Fall	Credits Spring	Credits
MICRB 405A ³	8 MICRB 405D ³	5
MICRB 405B ³	1 MICRB 405E ³	7
MICRB 405C ³	6 MICRB 405F ³	3
15		15

Total Credits 128

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

- ¹ 6 credits of MATH 22, MATH 26, MATH 140, or MATH 141 require a grade of C or better for General Education.
- ² To graduate, a grade of C or better is required in two of the following courses: Introductory Microbiology (MICRB 201), Molecular and Cell Biology I (BMB 251)/Molecular and Cell Biology I (MICRB 251), and/or Molecular and Cell Biology II (BMB 252)/Molecular and Cell Biology II (MICRB 252).
- ³ To graduate, a grade of C or better is required in 9 credits of any BIOTC, BMB or MICRB 400-level course except those listed in the requirements for the major (consult with an academic adviser for clarification).

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

General Biotechnology Option: Biotechnology, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits	Credits
CHEM 110 ^{*#†}	3	CHEM 112 ^{*#†}	3	3
CHEM 111 ^{*#†}	1	CHEM 113 [†]	1	1
MATH 140 ^{*†#†}	4	MATH 141 ^{††}	4	4
BIOL 110 [†]	4	Department List C (Consult with an academic adviser for options)	4	4
ENGL 15, ESL 15, or ENGL 30H [†]	3	General Education Course	3	3
General Education Course (GHW)	1.5	General Education Course (GHW)	1.5	1.5
	16.5		16.5	

Second Year

Fall	Credits	Spring	Credits	Credits
BIOL 230W ^{†1}	4	CHEM 212	3	3
CHEM 210	3	CHEM 213	2	2
PHYS 250 (Consult with an academic adviser for alternative options) [†]	4	PHYS 251 (Consult with an academic adviser for alternative options) [†]	4	4
General Education Course	3	STAT 200 [†]	4	4
CAS 100A, 100B, or 100C [†]	3	General Education Course	3	3
	17		16	

Third Year

Fall	Credits	Spring	Credits	Credits
BMB 211	3	BIOTC 459 ²	3	3
BMB 252 ¹	3	BMB 221	2	2
MICRB 201 ¹	3	BMB 442	3	3
MICRB 202	2	BIOL 322	3	3
General Education Course	3	ENGL 202C, 202A, 202B, or 202D [†]	3	3
Department List C (Consult with an academic adviser for options)	2			
	16		14	

Fourth Year

Fall	Credits	Spring	Credits	Credits
BIOTC 416 ²	3	BIOTC 479 ²	3	3
BIOTC 489 ²	3	MICRB 410 ²	3	3
MICRB 421W	3	BIOTC 400 Level Lecture Selections (Consult with an academic adviser for options) ²	3	3

BIOTC 400 Level Lecture Selections (Consult with an academic adviser for options) ²	3	General Education Course	3	3
General Education Course	3	Department List C (Consult with an academic adviser for options)	2	2
	15		14	

Total Credits 125

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ To graduate, a grade of C or better is required in two of the following courses: Introductory Microbiology (MICRB 201), Molecular and Cell Biology I (BMB 251)/Molecular and Cell Biology I (MICRB 251) or Biology: Molecules and Cells (BIOL 230W), and/or Molecular and Cell Biology II (BMB 252)/Molecular and Cell Biology II (MICRB 252).

² To graduate, a grade of C or better is required in 9 credits of any BIOTC, BMB or MICRB 400-level course except those listed in the requirements for the major (consult with an academic adviser for clarification).

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

General Biotechnology Option (math 22 sTART): Biotechnology, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits Summer	Credits
BIOL 110 [†]	4 CHEM 110 ^{*#†}	3 CHEM 112 ^{*#†}	3
MATH 22 ¹	3 CHEM 111 ^{*#†}	1 CHEM 113 [†]	1
MATH 26 ¹	3 MATH 140 ^{*#†1}	4	
ENGL 15, ESL 15, or ENGL 30H [‡]	3 CAS 100A, 100B, or 100C [‡]	3	
General Education Course	3 General Education Course	3	
	16	14	4

Second Year

Fall	Credits Spring	Credits Summer	Credits
BIOL 230W ^{†2}	4 CHEM 212	3 PHYS 251 (Consult with an academic adviser for alternative options) [†]	4
CHEM 210	3 CHEM 213	2	
MATH 141 ^{†1}	4 PHYS 250 (Consult with and academic adviser for alternative options) [†]	4	
General Education Course	3 STAT 200 ¹	4	
General Education Course (GHW)	1.5 General Education Course	3	
	15.5	16	4

Third Year

Fall	Credits Spring	Credits
BMB 211	3 BIOTC 459 ³	3
BMB 252 ²	3 BMB 221	2
MICRB 201 ²	3 BMB 442	3
MICRB 202	2 BIOL 322	3
General Education Course	3 ENGL 202C, 202A, 202B, or 202D [†]	3
	14	14

Fourth Year

Fall	Credits Spring	Credits
BIOTC 416 ³	3 BIOTC 479 ³	3
BIOTC 489 ³	3 MICRB 410 ³	3
MICRB 421W	3 BIOTC 400 Level Lecture Selections (Consult with an academic adviser for options) ³	3
BIOTC 400 Level Lecture Selections (Consult with an academic adviser for options) ³	3 General Education Course	3
General Education Course (GHW)	1.5 Department List C (Consult with an academic adviser for options)	2
	13.5	14

Total Credits 125

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ 6 credits of MATH 22, MATH 26, MATH 140, MATH 141, or STAT 200 require a grade of C or better for General Education.

² To graduate, a grade of C or better is required in two of the following courses: Introductory Microbiology (MICRB 201), Molecular and Cell Biology I (BMB 251)/Molecular and Cell Biology I (MICRB 251) or Biology: Molecules and Cells (BIOL 230W), and/or Molecular and Cell Biology II (BMB 252)/Molecular and Cell Biology II (MICRB 252).

³ To graduate, a grade of C or better is required in 9 credits of any BIOTC, BMB or MICRB 400-level course except those listed in the requirements for the major (consult with an academic adviser for clarification).

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Clinical Laboratory Science Option: Biotechnology, B.S. at Commonwealth Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits Summer	Credits
CHEM 110 ^{**†}	3 BIOL 230W ^{††}	4 General Education Course	3
CHEM 111 ^{**†}	1 CHEM 112 ^{**†}	3	
MATH 140 ^{*†††}	4 CHEM 113 [†]	1	
BIOL 110 [†]	4 MATH 141 ^{††}	4	
ENGL 15, 30H, or ESL 15 [†]	3 CAS 100A, 100B, or 100C [†]	3	
	General Education Course (GHW)	1.5	
	15	16.5	3

Second Year

Fall	Credits Spring	Credits Summer	Credits
MICRB 201 ¹	3 BIOL 322 or 222 ²	3 BMB 211	3
MICRB 202	2 CHEM 212	3	
CHEM 210	3 CHEM 213	2	
PHYS 250 (Consult with an academic adviser for alternative options) [†]	4 PHYS 251 (Consult with an academic adviser for alternative options) [†]	4	
General Education Course	3 General Education Course	3	
	15	15	3

Third Year

Fall	Credits Spring	Credits
BMB 212	1 BMB 221	2
BMB 252 ¹	3 MICRB 410 ³	3
MICRB 421W	3 MICRB 412 ³	3
General Education Course (GHW)	1.5 MICRB 422	2
General Education Course	6 ENGL 202C, 202A, 202B, or 202D [†]	3
	General Education Course	3
	14.5	16

Fourth Year

Fall	Credits Spring	Credits
MICRB 405A ³	8 MICRB 405D ³	5
MICRB 405B ³	1 MICRB 405E ³	7
MICRB 405C ³	6 MICRB 405F ³	3
	15	15

Total Credits 128

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ To graduate, a grade of C or better is required in two of the following courses: Introductory Microbiology (MICRB 201), Molecular and Cell Biology I (BMB 251)/Molecular and Cell Biology I (MICRB 251) or Biology: Molecules and Cells (BIOL 230W), and/or Molecular and Cell Biology II (BMB 252)/Molecular and Cell Biology II (MICRB 252).

² BIOL 222 is an approved substitute for BIOL 322.

³ To graduate, a grade of C or better is required in 9 credits of any BMB or MICRB 400-level course except those listed in the requirements for the major (consult with an academic adviser for clarification).

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Clinical Laboratory Science Option (MATH 22 Start): Biotechnology, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits Summer	Credits
BIOL 110 [†]	4 CHEM 110 ^{*#†}	3 CHEM 112 ^{*#†}	3
MATH 22 ¹	3 CHEM 111 ^{*#†}	1 CHEM 113 [†]	1
MATH 26 ¹	3 MATH 140 ^{*#†1}	4	
ENGL 15, ESL 15, or ENGL 30H [†]	3 CAS 100A, 100B, or 100C [‡]	3	
General Education Course	3 General Education Course	3	
	General Education Course (GHW)	1.5	
	16	15.5	4

Second Year

Fall	Credits Spring	Credits Summer	Credits
MICRB 201 ²	3 BIOL 230W ²	4 PHYS 251 (Consult with an academic adviser for alternative options) [†]	4
MICRB 202	2 CHEM 212	3 BMB 211	3
CHEM 210	3 CHEM 213	2	
MATH 141 ^{†1}	4 PHYS 250 (Consult with an academic adviser for alternative options) [†]	4	
General Education Course	3 General Education Course	3	
	15	16	7

Third Year

Fall	Credits Spring	Credits
BIOL 222 or MICRB 410 (Consult with an academic adviser for options) ³	3 BIOL 322 or MICRB 410 (Consult with an academic adviser for options) ³	3
BMB 212	1 BMB 221	2
BMB 252 ²	3 MICRB 412 ³	3
MICRB 421W	3 MICRB 422	2

General Education Course	3 ENGL 202C, 202A, 202B, or 202D [†]	3
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General Education Course (GHW)	1.5 General Education Course	3
	14.5	16

Fourth Year

Fall	Credits Spring	Credits
MICRB 405A ³	8 MICRB 405D ³	5
MICRB 405B ³	1 MICRB 405E ³	7
MICRB 405C ³	6 MICRB 405F ³	3
	15	15

Total Credits 134

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ 6 credits of MATH 22, MATH 26, MATH 140, or MATH 141 require a grade of C or better for General Education.

² To graduate, a grade of C or better is required in two of the following courses: Introductory Microbiology (MICRB 201), Molecular and Cell Biology I (BMB 251)/Molecular and Cell Biology I (MICRB 251) or Biology: Molecules and Cells (BIOL 230W), and/or Molecular and Cell Biology II (BMB 252)/Molecular and Cell Biology II (MICRB 252).

³ To graduate, a grade of C or better is required in 9 credits of any BIOTC, BMB or MICRB 400-level course except those listed in the requirements for the major (consult with an academic adviser for clarification).

University Requirements and General Education Notes:

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General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

This major has two options: Clinical Laboratory Option or General Option. Graduates from the General option frequently accept positions in the bio-pharmaceutical industry or with newly-emerging biotechnology companies bringing new products to market. Graduates from the Clinical Lab Science Option are prepared to complete the certification exam necessary to work as a Medical Laboratory Scientist in a hospital or other medical laboratory.

Careers

A BS in Biotechnology prepares students for a wide variety of careers, including industry, health related professions, and careers in academic or government labs. Examples of biotechnology related careers are:

- Biomedical or Clinical Research Health Professions – e.g. Dentist, Optometrist, Pharmacist, Physician, Physician Assistant
- Manufacturing Associate
- Medical Lab Scientist (CLS option)
- Pharmaceutical Sales
- Pharmaceutical Sciences
- Quality Control and Assurance
- Research and Development
- Science Policy Expert
- Science Writer
- Patent Attorney
- Professor

Opportunities for Graduate Studies

Many students with a BS in Biotechnology will pursue graduate education in biotechnology, management, policy or other related disciplines. Penn State students interested in pursuing a MS in Biotechnology can enroll in the integrated undergraduate graduate (IUG) program. IUG students complete a BS and MS with 5 years of coursework, which includes a nine-month internship in industry, government or academia. A BS in Biotechnology also prepares students to pursue higher degrees in the health professions. Opportunities for graduate studies include, but are not limited to, the following:

- Graduate Studies (MS or PhD)
- Dental School Medical School (MD or DO)
- Optometry School
- Pharmacy School
- Veterinary School

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://science.psu.edu/bmb/undergraduate/degree-programs/BIOTC-IUG/>)

Accreditation

All affiliated programs that provide the fourth-year clinical experience for the Biotechnology major, CLS option students are accredited by the National Accreditation Agency for Clinical Laboratory Science.

MORE INFORMATION ABOUT THE NATIONAL ACCREDITATION AGENCY FOR CLINICAL LABORATORY SCIENCE (<https://www.naacls.org/about.aspx>)

Contact

University Park

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<https://science.psu.edu/bmb> (<https://science.psu.edu/bmb/>)

Chemistry, B.S. (Science)

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

This major provides a strong foundation in the theory and practice of chemistry. Mathematics and physics are emphasized, since these subjects are essential to the understanding of chemistry. Courses in English and electives ensure study in non-technical subjects which broaden the student's general education and enables students to relate the major to other fields of knowledge.

What is Chemistry?

Chemistry is the study of matter and its transformations. Chemists seek a molecular-level understanding of the ways in which atoms combine to form molecules and bulk materials, how molecular structure and interactions lead to macroscopic material properties, and how chemical transformations can be used to create useful materials and store energy. Research in chemistry intersects a variety of other fields including biology, physics, environmental science, geology, material science, medicine, and more. Faculty in the Department of Chemistry at Penn State are engaged in cutting-edge projects aimed at probing outstanding questions in biology, creating new materials for medicine or energy storage, using computational methods model and simulate a variety of processes, and more.

MORE INFORMATION ABOUT FACULTY RESEARCH PROJECTS (<https://science.psu.edu/chem/research/>)

You Might Like This Program If...

- You are curious about why the materials you encounter in daily life have certain properties and interact in myriad ways.
- You want to use advanced instrumentation to measure the composition, behaviors, and properties of molecules, atoms, and materials.
- You want to help create new and better chemicals for personal care, medicine, construction, agriculture, or energy storage.
- You plan to pursue a career in chemistry research, education or outreach, or attend professional school in areas including medicine and dentistry.

Entrance to Major

In order to be eligible for entrance to the Chemistry major, a student must have:

1. Attained at least a 2.00 cumulative grade-point average
2. Completed and earned both a grade of C or better and a combined grade point average of at least 2.50 in each of the following courses: CHEM 110, CHEM 111, CHEM 112, CHEM 113, CHEM 210, MATH 140, and MATH 141. Note: If courses are repeated, only the higher grade will be used in this calculation.

Degree Requirements

For the Bachelor of Science degree in Chemistry, a minimum of 125 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	94

15 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses.

Requirements for the Major

A cumulative grade point average of at least a 2.00 is required in these courses. A grade of C or better is required in all courses within the major field.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
MATH 231	Calculus of Several Variables	2
PHYS 211	General Physics: Mechanics	4
PHYS 212	General Physics: Electricity and Magnetism	4
PHYS 213	General Physics: Fluids and Thermal Physics	2
PHYS 214	General Physics: Wave Motion and Quantum Physics	2
<i>Prescribed Courses: Require a grade of C or better</i>		
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
CHEM 113	Experimental Chemistry II	1
CHEM 210	Organic Chemistry I	3
CHEM 212	Organic Chemistry II	3
CHEM 213	Laboratory in Organic Chemistry	2
CHEM 227	Analytical Chemistry	4
CHEM 310	Introductory Inorganic Chemistry	3
CHEM 316	The Professional Chemist	1
CHEM 450	Physical Chemistry - Thermodynamics	3
CHEM 452	Physical Chemistry - Quantum Chemistry	3
CHEM 457	Experimental Physical Chemistry	2
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4

Additional Courses

MATH 250	Ordinary Differential Equations	3
or STAT 401	Experimental Methods	

Additional Courses: Require a grade of C or better

Select one of the following advanced laboratory courses:		4
CHEM 423W	Chemical Spectroscopy	
CHEM 425W	Chromatography and Electrochemistry	
CHEM 431W	Advanced Synthetic Methodologies	
CHEM 459W	Advanced Experimental Physical Chemistry	

Select 16 credits of chemistry at the 400 level ¹ 16

Supporting Courses and Related Areas

Select 17 credits of any courses not on the Chemistry Department list 17 of excluded courses ²

¹ Up to 6 co-op credits (2 each of SC 295, SC 395, SC 495) may be used in this category. CHEM 494 may be used, but the total of CHEM 494 credits plus co-op credits may not exceed 8.

² CHEM 494 may not be used, and only one credit of each SC 295, SC 395, and SC 495 is allowed in this category.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Chemistry and M.Ed. in Curriculum and Instruction

Requirements for the Integrated B.S. in Chemistry and M.Ed. in Curriculum and Instruction can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/curriculum-instruction/#integratedundergradprogramstext>).

Program Learning Objectives

1. Students will acquire a foundation in chemistry of sufficient breadth and depth to integrate and apply knowledge across chemical subdisciplines.
2. Students will develop analytical reasoning and problem solving skills required for the pursuit of scientific research.
3. Students will retrieve, read, and incorporate information from the chemical literature in various media forms.
4. Students will demonstrate the necessary laboratory skills to design and safely conduct experiments and to accurately document and interpret experimental data.
5. Students will develop the ability to communicate scientific information in written and oral form using an appropriate scientific style.
6. Students will conduct themselves in a professional, ethical, and productive manner when working independently or in a team setting.
7. Students will recognize the interdisciplinary nature of chemistry and its impact on society and the environment.
8. Students will explore traditional and nontraditional career paths in chemistry and related fields.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Analytical Concentration Option: Chemistry, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSU 16	1 CHEM 112H or 112 ^{**}	3
CHEM 110H or 110 ^{**}	3 CHEM 113 ^{**}	1
CHEM 111 ^{**}	1 MATH 141B or 141 ^{**††}	4
MATH 140B or 140 ^{**††}	4 General Education Course	3
ENGL 15, 30H, or ESL 15 [†]	3 PHYS 211 [†]	4
General Education Course	3	
	15	15

Second Year

Fall	Credits Spring	Credits
CHEM 210H or 210 ^{**}	3-4 CHEM 212H or 212 [*]	3
CHEM 227 [*]	4 CHEM 213W or 213M [*]	2
MATH 231	2 CHEM 310 [*]	3

PHYS 212 [†]	4 PHYS 213 & PHYS 214 [†]	4
General Education Course	3 CHEM 400	1
	CHEM 430	3
16-17		16

Third Year

Fall	Credits Spring	Credits
CHEM 316	1 CHEM 452 [*]	3
CHEM 450 [*]	3 CHEM 457 [*]	2
CHEM 400 Level Selection (consult with and academic adviser for options)	3 General Elective Course	3
ENGL 202C, 202A, 202B, or 202D [‡]	3 CAS 100A, 100B, or 100C	3
General Education Course	3 STAT 401 or MATH 250	3
Supporting course (consult with an academic adviser for options)	3 General Education Course (GHW)	1.5
General Education Course (GHW)	1.5	
17.5		15.5

Fourth Year

Fall	Credits Spring	Credits
CHEM 425W (or CHEM 400 level selection - consult with an academic adviser for options)	4 CHEM 423W [*]	4
CHEM 400 Level Elective Selection (consult with an academic adviser for options)	4 CHEM 400 Level Elective (consult with an academic adviser for options)	3
General Education Course	3 General Education Course	3
Supporting course (consult with an academic adviser for options)	3 Supporting course (consult with an academic adviser for options)	3
Supporting course (consult with an academic adviser for options)	3 Supporting course (consult with an academic adviser for options)	3
17		16

Total Credits 128-129

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain)

requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Physical Concentration Option: Chemistry, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSU 16	1 CHEM 112H or 112 ^{**}	3
CHEM 110H or 110	3 CHEM 113 ^{**}	1
CHEM 111 ^{**}	1 MATH 141B or 141 ^{*†#†}	4
MATH 140B or 140 ^{*†#†}	4 General Education Course	3
ENGL 15, 30H, or ESL 15 [†]	3 PHYS 211 [†]	4
General Education Course	3	
	15	15

Second Year

Fall	Credits Spring	Credits
CHEM 210H or 210 ^{**}	3 CHEM 212H [*]	3
CHEM 227 [*]	4 CHEM 213 [*]	2
MATH 231	2 CHEM 310 [*]	3
PHYS 212 [†]	4 PHYS 213 [†]	2
General Education Course (GHW)	1.5 PHYS 214 [†]	2
CHEM 400	1 General Education Course	3
	15.5	15

Third Year

Fall	Credits Spring	Credits
CHEM 316	1 CHEM 457 [*]	2
CHEM 450 [*]	3 CHEM 464	3
CHEM 452	3 MATH 405	3
MATH 251	4 ENGL 202C, 202A, 202B, or 202D [†]	3
CAS 100A, 100B, or 100C	3 General Education Course	3
General Education Course	3 General Education Course (GHW)	1.5
	17	15.5

Fourth Year

Fall	Credits Spring	Credits
CHEM 400 Level Elective Selection (consult with an academic adviser for options)	3 CHEM 459W [*]	4
CHEM 400 Level Elective Selection (consult with an academic adviser for options)	3 CHEM 400 Level Elective Selection (consult with an academic adviser for options)	3
CHEM 400 Level Elective Selection (consult with an academic adviser for options)	3 Supporting course (consult with an academic adviser for options)	3

General Education Course	3 Supporting course (consult with an academic adviser for options)	3
Supporting course (consult with an academic adviser for options)	3 Supporting course (consult with an academic adviser for options)	3
General Education Course (GHW)	1.5	
	16.5	16

Total Credits 125.5

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Synthetic/Biological Concentration Option: Chemistry, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSU 16	1 CHEM 112H or 112 ^{*#}	3
CHEM 110H or 110 ^{*#}	3 CHEM 113 ^{*#}	1
CHEM 111 ^{*#}	1 MATH 141B or 141 ^{*†#†}	4
MATH 140B or 140 ^{*†#†}	4 General Education Course	3
ENGL 15, 30H, or ESL 15 [†]	3 PHYS 211 [†]	4
General Education Course	3	
	15	15

Second Year

Fall	Credits Spring	Credits
CHEM 210H or 210 ^{*#}	3-4 CHEM 212H or 212 [*]	3
CHEM 227 [*]	4 CHEM 213W or 213M [*]	2
MATH 231	2 CHEM 310 [*]	3
PHYS 212 [†]	4 CHEM 400	1
General Education Course	3 CHEM 430	3
	General Education Course	3
	16-17	15

Third Year

Fall	Credits Spring	Credits
CHEM 316	1 CHEM 452 [*]	3
CHEM 431W [*]	4 CHEM 457 [*]	2
CHEM 450 [*]	3 PHYS 213 [†]	2
ENGL 202C, 202A, 202B, or 202D [†]	3 PHYS 214 [†]	2
Supporting course (consult with an academic adviser for options)	3 CAS 100A, 100B, or 100C [‡]	3
General Education Course (GHW)	1.5 General Education Course	3
	15.5	15

Fourth Year

Fall	Credits Spring	Credits
CHEM 425W [*]	4 CHEM 400 Level Elective Selection (consult with an academic adviser for options)	3
CHEM 432	3 CHEM 400 Level Elective Selection (consult with an academic adviser for options)	3
CHEM 476	3 General Education Course	4
STAT 401	3 Supporting course (consult with an academic adviser for options)	3

General Education Course	3 Supporting course (consult with an academic adviser for options)	3
General Education Course (GHW)	1.5	
	17.5	16

Total Credits 125-126

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Chemistry, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSU 16	1 CHEM 112H or 112 ^{**}	3
CHEM 110H or 110 ^{**}	3 CHEM 113 ^{**}	1
CHEM 111 ^{**}	1 MATH 141 ^{*†#†}	4
MATH 140 ^{*†#†}	4 General Education Course	3
ENGL 15, 30H, or ESL 15 [†]	3 PHYS 211 [†]	4
General Education Course	3 General Education Course (GHW)	1.5
	15	16.5

Second Year

Fall	Credits Spring	Credits
CHEM 210H or 210 ^{**}	3 CHEM 212H or 212 [*]	3
MATH 231	2 CHEM 213W or 213M [*]	2
PHYS 212 [†]	4 ENGL 202C, 202A, 202B, or 202D	3
CAS 100A, 100B, or 100C	3 PHYS 213 [†]	2
General Education Course	3 PHYS 214 [†]	2
Supporting course (consult with an academic adviser for options)	3 General Education Course	3
	18	15

Third Year

Fall	Credits Spring	Credits
CHEM 227 [*]	4 CHEM 310 [*]	3
CHEM 316	1 CHEM 400	1
CHEM 450	3 CHEM 430	3
MATH 250	3 CHEM 452 [*]	3
General Education Course	3 CHEM 457 [*]	2
General Education Course (GHW)	1.5 General Education Course	3
	Supporting course (consult with an academic adviser for options)	3
	15.5	18

Fourth Year

Fall	Credits Spring	Credits
CHEM 431W or 425W [*]	4 CHEM 423W or 459W [*]	4
CHEM 459W [*]	4 CHEM 400 Level Selection (consult with and academic adviser for options)	3
CHEM 400 Level Elective Selection (consult with an academic adviser for options)	3 CHEM 400 Level Selection (consult with and academic adviser for options)	3

Supporting course (consult with an academic adviser for options)	3 Supporting course (consult with an academic adviser for options)	3
Supporting course (consult with an academic adviser for options)	3 Supporting course (consult with an academic adviser for options)	3
	17	16

Total Credits 131

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

The technical background and hands-on experiences in the chemistry major provides students with a wide variety of post-graduate career and educational options. A BS in Chemistry prepares students for jobs in industry, government, and research and discovery laboratories. Many graduates with the BS in chemistry go on to pursue advanced degrees in chemistry and related disciplines, or to professional schools including medical, dental, law, and business.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE CHEMISTRY PROGRAM (<https://www.acs.org/careers/exploring-career-options.html>)

Opportunities for Graduate Studies

Penn State students with a BS in Chemistry often choose to pursue graduate education in chemistry, focusing on one or more of the sub-disciplines of analytical, biological, inorganic, organic, or physical chemistry, or graduate programs in related disciplines such as materials science, forensics, toxicology, and others.

Professional Resources

- American Chemical Society (<https://www.acs.org>)

Accreditation

The Penn State Chemistry Department is approved by the American Chemical Society to confer ACS-certified degrees to chemistry majors who meet certain requirements beyond those required by the major. Courses in biological chemistry and chemical literature must be included

among a student's 400-level chemistry electives, and two additional credits of laboratory work, typically chemical research, are required.

MORE INFORMATION ABOUT ACCREDITATION BY THE AMERICAN CHEMICAL SOCIETY (<https://science.psu.edu/chem/undergrad/academic-planning-advising/>)

Contact

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<https://science.psu.edu/chem> (<https://science.psu.edu/chem/>)

Chemistry, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Chemistry minor specifies a series of courses that together provide a broad introduction to the main thrusts of modern chemistry; general, organic, and physical. The Chemistry minor includes substantial laboratory work including general chemistry and either organic or physical chemistry. In addition, several advanced courses chosen by the student from a list of options are required.

What is Chemistry?

Chemistry is the study of matter and its transformations. Chemists seek a molecular-level understanding of the ways in which atoms combine to form molecules and bulk materials, how molecular structure and interactions lead to macroscopic material properties, and how chemical transformations can be used to create useful materials and store energy.

Research in chemistry intersects a variety of other fields including biology, physics, environmental science, geology, material science, medicine, and more. Faculty in the Department of Chemistry at Penn State are engaged in cutting-edge projects aimed at probing outstanding questions in biology, creating new materials for medicine or energy storage, using computational methods model and simulate a variety of processes, and more.

You Might Like This Program If...

- You are curious about why the materials you encounter in daily life have certain properties and interact in myriad ways.
- You want to use advanced instrumentation to measure the composition, behaviors, and properties of molecules, atoms, and materials.
- You want to help create new and better chemicals for personal care, medicine, construction, agriculture, or energy storage.

Program Requirements

Requirement	Credits
Requirements for the Minor	26-28

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
CHEM 113	Experimental Chemistry II	1
CHEM 210	Organic Chemistry I	3
CHEM 212	Organic Chemistry II	3
CHEM 213	Laboratory in Organic Chemistry	2
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select one of the following:		4-6
CHEM 227	Analytical Chemistry	
CHEM 450 & CHEM 452	Physical Chemistry - Thermodynamics and Physical Chemistry - Quantum Chemistry	
CHEM 466 & CHEM 452	Molecular Thermodynamics and Physical Chemistry - Quantum Chemistry	
Select 6 credits from 400-level CHEM not used above (excluding CHEM 494, CHEM 494H, CHEM 495, and CHEM 496)		6

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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<https://behrend.psu.edu/school-of-science> (<https://behrend.psu.edu/school-of-science/>)

Data Sciences, B.S. (Science)

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

Data Sciences is a field of study concerned with developing, applying, and validating methods, processes, systems, and tools for drawing useful knowledge, justifiable conclusions, and actionable insights from large, complex and diverse data through exploration, prediction, and inference. Data Sciences integrate aspects of Computer Science, Informatics, and Statistics to yield powerful data science methods, systems, tools, and best practices that find applications across a broad range of application domains. The curriculum for the major is designed to equip students with the knowledge and the skills needed to elicit, formulate, and solve data sciences problems using modern data science methods, tools, and best practices for data management, data exploration, data integration, predictive modeling (using machine learning), and effectively communicate their findings to, and collaborate with a broad range of stakeholders. The students will gain the critical analytical skills needed to assess the feasibility, benefits, effectiveness, limitations, risks, and ethical implications of applying data sciences methods in different settings. Experiences such as the capstone project prepare students to function effectively as members of interdisciplinary data science teams to harness the potential of data to enable discovery, optimize products and processes, and inform decisions. As distinct from majors that focus primarily on developing data science knowledge and skills to support inquiry in other domains, the primary focus of the Data Sciences major is on the development, evaluation, application, and validation of the data science tools themselves. All students in the major receive in-depth training in data sciences through a set of core courses. Additionally, data sciences students specialize in one of the following options: applied, computational, or statistical modeling data sciences, as described below.

Applied Data Sciences (DATSC_BS)

Only available through the College of Information Sciences and Technology

The students in the Applied DS option will receive exposure to an application domain so they are equipped to formulate and solve data science problems drawn from the chosen domain, e.g., life and health sciences, business, behavioral and cognitive sciences, physical sciences, agricultural sciences, among others.

Computational Data Sciences (DTSCE_BS)

Only available through the College of Engineering

The students in the Computational DS option will receive additional training in Computer Science to be able to design, analyze, implement, and deploy advanced algorithms, hardware and software architectures, and systems for data management and analyses.

Statistical Modeling Data Sciences (DTSCS_BS)

Only available through the Eberly College of Science

The students in the Statistical modeling DS option will receive additional training in Statistics to be able to formulate, develop, and apply the proper statistical models and methods for data analyses, e.g., experiment design, sampling, hypotheses testing, and limiting false discovery.

What is Data Sciences?

Data Sciences is a field that explores the methods, systems, and processes used to extract knowledge from data and turn these insights into discoveries, decisions, and actions. The emergence of massive amounts of data – also known as “big data” – found in our world through healthcare records, human sensors, digital media, and a number of other sources has increased the need for individuals who can obtain useful knowledge from big data and apply it to address major societal challenges across a variety of fields. Students pursuing this degree will develop the knowledge and skills needed to manage and analyze large-scale, unstructured data to address an expanding range of problems in industry, government, and academia.

MORE INFORMATION ABOUT DATA SCIENCES (<https://ist.psu.edu/prospective/undergraduate/academics/data-sciences/>)

You Might Like This Program If...

- You are curious about analyzing information to discover new insights.
- You want to apply data analytics to make strategic decisions.
- You want to understand how data can be used to visualize phenomena using AI and data science techniques.
- You are interested in statistics, mathematics, and the social sciences, and want to combine these disciplines to understand what data is really telling us.

MORE INFORMATION ABOUT WHY STUDENTS CHOOSE TO STUDY DATA SCIENCES (<https://ist.psu.edu/prospective/undergraduate/academics/data-sciences/>)

Entrance to Major

To be eligible for entrance into the Data Sciences major, a degree candidate must satisfy requirements for entrance to the major.

Specific entrance requirements include:

1. The degree candidate must be taking, or have taken, a program appropriate for entry to the major as shown in the bulletin.
2. The degree candidate must complete the following entrance-to-major requirements: CMPSC 121* or CMPSC 131*, CMPSC 122* or CMPSC 132*, MATH 140*, MATH 141*, STAT 200* or DS 200*. These courses must be completed by the end of the semester during which the entrance to major process is carried out.

* Course requires a grade of C or better.

Degree Requirements

For the Bachelor of Science degree in Data Sciences, a minimum of 123 credits is required:

Requirement	Credits
General Education	45
Electives	3-12
Requirements for the Major	72-81

6 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GQ courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
DS 220	Data Management for Data Sciences	3
DS 340W	Applied Data Sciences	3
DS 435	Ethical Issues in Data Science Practice	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
MATH 220	Matrices	2
STAT 184	Introduction to R	2
STAT 380	Data Science Through Statistical Reasoning and Computation	3

Additional Courses

<i>Additional Courses: Require a grade of C or better</i>		
1 credit of First-Year Seminar		1
CMPSC 121	Introduction to Programming Techniques	3
or CMPSC 131	Programming and Computation I: Fundamentals	
CMPSC 122	Intermediate Programming	3
or CMPSC 132	Programming and Computation II: Data Structures	
DS 440	Data Sciences Capstone Course	3
or DS 440W	Data Science Capstone	

Requirements for the Option

Select an option		38-47
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Requirements for the Option

Applied Data Sciences (DATSC_BS): 47 credits

Only Available through the College of Information Sciences and Technology

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
DS 200	Introduction to Data Sciences	4
DS 300	Privacy and Security for Data Sciences	3
DS 305	Algorithmic Methods and Tools	3
DS 310	Machine Learning for Data Analytics	3
DS 320	Data Integration	3
DS 330	Visual Analytics for Data Sciences	3
DS/CMPSC 410	Programming Models for Big Data	3
IST 495	Internship	1

Additional Courses

Select 6 credits from any combination:		
DS 402	Emerging Trends in the Data Sciences	
DS 420	Network Analytics	
DS/CMPSC 442	Artificial Intelligence	
DS 494	Research Project	
IST 441	Information Retrieval and Organization	
IST 442	Information Technology in an International Context	

SODA 308	Research Design for Social Data Analytics	
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits from the following:		3
CMPSC 360	Discrete Mathematics for Computer Science	
IST 230	Language, Logic, and Discrete Mathematics	
MATH 311W	Concepts of Discrete Mathematics	
Select 3 credits from the following:		3
STAT/MATH 318	Elementary Probability	
STAT/MATH 414	Introduction to Probability Theory	
STAT/MATH 418	Introduction to Probability and Stochastic Processes for Engineering	
Supporting Courses and Related Areas ¹		
Select 12 credits from the lists of Application Focus courses; 6 credits must at the 300- or 400-levels.		12

¹ Students may apply up to 3 credits of ROTC as option Application Focus list credits and 3 credits of ROTC as GHW credits.

LIST OF APPLIED DATA SCIENCES COURSES (p. 1052)

Computational Data Sciences (DTSCE_BS): 47 credits Only Available through the College of Engineering

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CMPSC 221	Object Oriented Programming with Web-Based Applications	3
CMPSC 360	Discrete Mathematics for Computer Science	3
CMPSC 442	Artificial Intelligence	3
CMPSC 448	Machine Learning and Algorithmic AI	3
CMPSC 461	Programming Language Concepts	3
CMPSC 465	Data Structures and Algorithms	3
DS/CMPSC 410	Programming Models for Big Data	3
MATH 230	Calculus and Vector Analysis	4
STAT/MATH 414	Introduction to Probability Theory	3
STAT/MATH 415	Introduction to Mathematical Statistics	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
DS 200	Introduction to Data Sciences	4
or STAT 200	Elementary Statistics	
Supporting Courses and Related Areas ¹		
Select 6 credits from Computational Option List A in Appendix C		6
Select 6 credits from Computational Option List B in Appendix C		6

¹ Students may apply up to 3 credits of ROTC as option list credits and 3 credits of ROTC as GHW credits.

LIST OF COMPUTATIONAL DATA SCIENCES COURSES (<http://www.eecs.psu.edu/students/undergraduate/Data-Sciences.aspx>)

Statistical Modeling Data Sciences (DTSCS_BS): 38 credits Only Available through the Eberly College of Science

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
MATH 230	Calculus and Vector Analysis	4
STAT/MATH 414	Introduction to Probability Theory	3
STAT/MATH 415	Introduction to Mathematical Statistics	3
STAT 440	Computational Statistics	3
STAT 462	Applied Regression Analysis	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
DS 200	Introduction to Data Sciences	4
or STAT 200	Elementary Statistics	
DS 310	Machine Learning for Data Analytics	3
or CMPSC 448	Machine Learning and Algorithmic AI	
MATH 311W	Concepts of Discrete Mathematics	3
or CMPSC 360	Discrete Mathematics for Computer Science	
Supporting Courses and Related Areas ¹		
Select 6 credits from Statistical Modeling Option List A courses, see Appendix D		6
Select 6 credits from Statistical Modeling Option List B courses, see Appendix D		6

¹ Students may apply up to 3 credits of ROTC as option list credits and 3 credits of ROTC as GHW credits.

LIST OF STATISTICAL MODELING DATA SCIENCES COURSES (p. 563)

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- Quantification (GQ): 6 credits
- Writing and Speaking (GWS): 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- Arts (GA): 3 credits
- Health and Wellness (GHW): 3 credits
- Humanities (GH): 3 credits
- Social and Behavioral Sciences (GS): 3 credits
- Natural Sciences (GN): 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Data Sciences and M.A.S. in Applied Statistics

Requirements for the Integrated B.S. in Data Sciences and M.A.S. in Applied Statistics can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/statistics/#integratedundergradgradprogramstext>).

Program Learning Objectives

1. **Knowledge:** Understand the technical fundamentals of data sciences with a focus on developing the knowledge and skills needed to manage and analyze data to solve problems in our world.
 - a. Integrate statistical concepts/methods and computational/machine learning methods to discover the structure of data and build predictive models.
 - b. Apply the principles of data management to organize and use different types of data, both structured and unstructured.
2. **Problem-Solving and Evaluation:** Identify, formulate and solve data science problems that arise in various applications.
 - a. Identify and incorporate relevant abstraction and domain knowledge to formulate data science problems in different application contexts.
 - b. Design or adapt appropriate statistical, machine learning, and other data science methods for solving specific problems.
 - c. Compare, contrast, and evaluate competing data science methods appropriate to the context of the problem.
 - d. Employ modern computing infrastructure to scale up data science methods for massive and complex data.
 - e. Integrate data from multiple sources while considering the best practices, challenges, and pitfalls of using heterogeneous data to solve problems.
3. **Communication:** Articulate the benefits, risks, formulation, solution, and results of data science projects to diverse stakeholders, including fellow data scientists, collaborators with subject matter expertise, and the general public, using written, verbal, and visual forms.
4. **Teamwork:** Participate effectively on teams in order to accomplish the goals of a project containing data science components.
5. **Data Ethics:** Critically evaluate and conscientiously respond to the ethical and societal implications of data science practice.
 - a. Analyze the potential human impacts of data-driven technologies, especially for marginalized communities.
 - b. Develop strategies to solve data science problems that reflect shared social and ethical values, such as privacy, security, fairness, and accountability.
 - c. Interpret and apply the ethical responsibilities of computing professionals.
 - d. Ensure reproducibility of data science analyses.
6. **Lifelong Learning:** Recognize the importance of continued learning beyond graduation.
 - a. Demonstrate readiness to join an evolving professional community by participating in professional development, such as reading trade journals and engaging with appropriate professional organizations.
 - b. Demonstrate readiness for independent learning by performing literature reviews and staying abreast of current trends within the field of data science.
7. **Option Objectives:**
 - a. Applied Data Sciences Option: Gain in-depth knowledge in a chosen application focus area and demonstrate skills to formulate and solve data science problems in the context of applications in that area.
 - b. Computational Data Sciences Option: Design, development, and analysis of software (computational solutions) for data science problems.
 - c. Statistical Modeling Data Sciences Option: Demonstrate facility with common regression-based inferential modeling techniques

including analysis of variance, generalized linear models, multiple regression, and logistic regression, as well as proficiency in basic statistical optimization and simulation techniques.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Undergraduate Statistics Office

Academic Advising

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CSE Advising

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College of Information Sciences and Technology

Undergraduate Academic Advising Center

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Statistical Modeling Data Sciences: Data Sciences, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140*	4 MATH 141*	4
PSU 16	1 MATH 220*	3
CMPSC 131*	3 CMPSC 132*	3
DS 200*	4 ENGL 15 (GWS)†	3
STAT 184*	3 General Education Course (Inter-Domain)	3
	15	16

Second Year

Fall	Credits Spring	Credits
MATH 230*	4 STAT 462*	3
CAS 100 (GWS)‡	3 STAT 414*	3
DS 220*	3 DS 435*	3
STAT 380*	3 IL Cultures	3
General Education Course (GS)	3 General Education Course (Inter-Domain)	3
	16	15

Third Year

Fall	Credits Spring	Credits
STAT/MATH 415*	3 DS 310 or CMPSC 448*	3
MATH 311W or CMPSC 360*	3 STAT 440*	3
List B Selection*	3 CMPSC 465* ¹	3
US Cultures	3 List A Selection*	3
General Education Course (Exploration)	3 General Education Course (GN)	3
	General Education Course (GHW)	1.5
	15	16.5

Fourth Year

Fall	Credits Spring	Credits
DS 340W*	3 DS 440*	3
ENGL 202C (GWS)‡	3 General Education Course (GH)	3
List A Selection*	3 General Education Course (GHW)	1.5
General Education Course (GA)	3 General Education Course (Exploration)	3
General Education Course (GN)	3 Elective	3
	15	13.5

Total Credits 122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ C or better required and required as a prerequisite for DS 440. For those who enter the major before changes, we will take it as a List B class.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- Classes that listed under US and IL must be unique so that total credits adds up to what's needed. That is, if these classes are in either GN, GA, GS, GH, GHW or Exploration, you will need more credits to meet the total.
- Depending on your year of entrance, total credits required may be different. Please consult an adviser to make sure you are satisfying the degree requirement and total credits adds up to the required amount.
- List A Courses (6 credits required from this list):
 - MATH 435
 - MATH 436 or MATH 441
 - MATH 451 or MATH 455
 - MATH 484
 - MATH 416/STAT 416
 - STAT 461
 - STAT 463
 - STAT 466
 - STAT 483
- List B Courses (6 credits required from this list):
 - DS 320
 - DS 330
 - DS 410
 - DS 402
 - IST 461
 - CMPSC 442
 - CMPSC 465

Statistical Modeling Data Sciences: Data Sciences, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 ^{*†#†}	4 MATH 141 ^{*†#†}	4
STAT 200 or DS 200 ^{*†}	4 STAT 184 (DLC section) [*]	3
PSU 16	1 CMPSC 122 or 132 ^{*†}	3
CMPSC 121 or 131 ^{*†}	3 General Education Course (Inter-Domain)	3
ENGL 15 (or General Education Course) [†]	3 General Education Course (GS)	3
	15	16

Second Year

Fall	Credits Spring	Credits
MATH 220 ^{*†}	3 STAT 414 [*]	3
MATH 230 [*]	4 ENGL 202C (GWS) [†]	3
CAS 100A (GWS) [†]	3 IL Cultures	3
General Education Course (GH)	3 General Education Course (Inter-Domain)	3
General Education Course (GN)	3 General Education Course (GN)	3
	General Education Course (GHW)	1.5
	16	16.5

Third Year

Fall	Credits Spring	Credits
DS 220 [*]	3 DS 310 or CMPSC 448 [*]	3
STAT 380 [*]	3 CMPSC 465 ^{*1}	3
STAT 415 [*]	3 DS 435 [*]	3
STAT 462 [*]	3 List A Selection	3
MATH 311W or CMPSC 360 [*]	3 General Education Course (Exploration)	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
DS 340W [*]	3 DS 440 [*]	3
STAT 440 [*]	3 List B Selection	3
List A Selection [*]	3 General Education Course (GHW)	1.5
US Cultures	3 General Education Course (Exploration)	3
General Education Course (GA)	3 Elective	3
	15	13.5

Total Credits 122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ C or better required and required as a prerequisite for DS 440. For those who enter the major before changes, we will take it as a List B class.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Classes that listed under US and IL must be unique so that total credits adds up to what's needed. That is, if these classes are in either GN, GA, GS, GH, GHW or Exploration, you will need more credits to meet the total.
- Depending on your year of entrance, total credits required may be different. Please consult an adviser to make sure you are satisfying the degree requirement and total credits adds up to the required amount.
- List A Courses (6 credits required from this list):
 - MATH 435
 - MATH 436 or MATH 441
 - MATH 451 or MATH 455
 - MATH 484
 - MATH 416/STAT 416
 - STAT 461
 - STAT 463
 - STAT 466
 - STAT 483
- List B Courses (6 credits required from this list):
 - DS 320
 - DS 330
 - DS 410
 - DS 402
 - IST 461
 - CMPSC 442
 - CMPSC 465

Career Paths

Data Sciences blends the technical expertise needed to analyze, interpret, and manage big data with the interpersonal skills needed to communicate insights to a variety of audiences. The program prepares students to meet the growing need for professionals who have the analytical and problem-solving skills to address a wide range of societal

and technical challenges. Many companies participate in career fairs in Engineering, IST and Science with an express interest in hiring data science interns or graduates. A growing number of M.S. and Ph.D. programs await those who wish to pursue more advanced studies.

Careers

Because our courses blend technical knowledge with skills in communication and business, a Data Sciences degree allows students to compete for leading-edge analytics positions across many different industry sectors. Possible careers include: Data Science and AI Engineers, Data Scientist, Data Analyst, Data Specialist, Data Visualization Specialist, IT Analyst, Machine Learning Engineer, Data Engineer, Business Systems Analyst/Consultant.

MORE INFORMATION FOR THE APPLIED DATA SCIENCES OPTION (<https://www.ist.psu.edu/current/careers/development/process/path/>)

MORE INFORMATION FOR THE COMPUTATIONAL DATA SCIENCES OPTION (<https://www.eecs.psu.edu/students/undergraduate/Data-Sciences.aspx>)

MORE INFORMATION FOR THE STATISTICAL MODELING DATA SCIENCES OPTION (<https://science.psu.edu/stat/undergraduate-programs/>)

Professional Resources

- Association for Computing Machinery (<https://acm.psu.edu>)
- Association for Information Science and Technology (<https://www.asist.org>)

Contact

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College of Information Sciences and Technology

COLLEGE OF INFORMATION SCIENCES AND TECHNOLOGY

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Forensic Science, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

Forensic Science is the application of scientific principles and methods to assist criminal and civil investigations and litigation. This major is an inter-college collaboration among academic units and provides students with a strong foundation in the biological, physical, and mathematical sciences. It introduces them to relevant topics in criminalistics, forensic chemistry, forensic biology, crime scene investigation, and appropriate social sciences. Students are educated on the role of forensic scientists in the criminal justice system, the collection and analysis of scientific evidence, and the manner in which evidence is presented in court. Graduates of this major could pursue employment as a scientist in a federal, state, or private forensic laboratory or with insurance companies, homeland security agencies, or the judicial community. Graduates could also choose to pursue advanced degrees, for example, in forensic science, medicine, psychology, anthropology, pathology, odontology, entomology, toxicology, law, or in the general sciences.

What is Forensic Science?

Forensic Science is the application of science to matters of the law. A forensic scientist may develop a deep understanding of and hands-on lab experience in serology, biochemistry, and forensic molecular biology, with particular emphasis on forensic DNA analysis. A forensic scientist might also use analytical, physical, and inorganic chemistry for the forensic analysis of controlled substances, trace evidence, fire debris, ignitable liquids, and firearms and gunshot residue. In the United States, there are over 4,000 crime laboratories administered by federal, state, and local governments or private industry. Our Forensic Science program provides a strong scientific foundation and general criminalistics education that allows room for all students to individualize their educational experience towards specific degree and career goals.

You Might Like This Program If...

- You are interested in utilizing your scientific knowledge to help solve complex problems concerning civil, criminal, and homeland security issues.
- You like and want to further study several science disciplines.
- You want to understand how evidence is collected at the crime scene, analyzed in the laboratory, and presented in courts of law.
- You want to utilize state-of-the-art instrumentation to analyze materials as part of laboratory exercises.
- You want to pursue a career in forensic science casework, research, or education.

Entrance to Major

In order to be eligible for entrance to the Forensic Science major, a student must have:

1. attained at least a 2.00 cumulative grade point average
2. attained at least a 2.50 aggregate grade point average in the eight (8) entrance-to-major courses
3. completed and earned a grade of C or better in each of the following courses: CHEM 110, CHEM 111, CHEM 112, CHEM 210, FRNSC 210, MATH 140, MATH 141, and PHYS 211 or PHYS 250.

Degree Requirements

For the Bachelor of Science degree in Forensic Science with an option in Forensic Molecular Biology, a minimum of 122 credits is required; with an option in Forensic Chemistry, a minimum of 123 credits is required:

Requirement	Credits
General Education	45
Electives	5-10
Requirements for the Major	88-91

18-21 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GH courses; 0-3 credits of GS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
BIOL 230W	Biology: Molecules and Cells	4
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
CHEM 113	Experimental Chemistry II	1
CHEM 210	Organic Chemistry I	3
CHEM 212	Organic Chemistry II	3
CHEM 213	Laboratory in Organic Chemistry	2
FRNSC 100	Introduction to Forensic Science	3
FRNSC 210	Essential Practices of Forensic Science	3
FRNSC 400	Courtroom Proceedings and Testimony	1
FRNSC 410	A Scientific Approach to Crime Scene Investigation	2
FRNSC 411	Criminalistics: Trace and Impression Evidence	3
FRNSC 413	Criminalistics: Biology	3
FRNSC 415W	Laboratory in Crime Scene Investigation	2
FRNSC 475	Forensic Science Seminar	1
FRNSC 485	The Profession of Forensic Science	2
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
PHIL 132	Bioethics	3
STAT 250	Introduction to Biostatistics	3

Additional Courses

<i>Additional Courses: Require a grade of C or better</i>		
CRIM 100	Introduction to Criminal Justice	3
or CRIM 113	Introduction to Law	
Select one of the following sequences:		8
PHYS 211 & PHYS 212	General Physics: Mechanics and General Physics: Electricity and Magnetism	

PHYS 250 & PHYS 251	Introductory Physics I and Introductory Physics II
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Requirements for the Option

Select an option	19-22
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Requirements for the Option Forensic Molecular Biology Option (19 credits)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
BMB 401	General Biochemistry	3
BMB 442	Laboratory in Proteins, Nucleic Acids, and Molecular Cloning	3
FRNSC 420	Advanced Molecular Biology for Forensic Scientists	3
FRNSC 421W	Forensic Molecular Biology	4

Additional Courses

<i>Additional Courses: Require a grade of C or better</i>		
BIOL 222	Genetics	3
or BIOL 322	Genetic Analysis	
Select one of the following:		3
BIOL 405	Molecular Evolution	
BIOL 422	Advanced Genetics	
BIOL 460	Human Genetics	
BMB 402	General Biochemistry	
BMB 428	Physical Chemistry with Biological Applications	
BMB 433	Molecular and Cellular Toxicology	

Forensic Chemistry Option (20-22 credits)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CHEM 227	Analytical Chemistry	4
FRNSC 425	Chromatography and Spectroscopy in Forensic Science	3
FRNSC 427W	Forensic Chemistry	4

Additional Courses

<i>Additional Courses: Require a grade of C or better</i>		
Select three of the following:		9-11
BMB 428	Physical Chemistry with Biological Applications	
CHEM 410	Inorganic Chemistry	
CHEM 412	Transition Metal Chemistry	
CHEM 423W	Chemical Spectroscopy	
CHEM 430	Structural Analysis of Organic Compounds	
CHEM 431W	Advanced Synthetic Methodologies	
CHEM 450	Physical Chemistry - Thermodynamics	
CHEM 452	Physical Chemistry - Quantum Chemistry	

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate

students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Noelle Waggett, M.Ed.

Academic Adviser
235 Ritenour Building
University Park, PA 16802
814-863-9572
nrw107@psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Forensic Molecular Biology Option: Forensic Science, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CHEM 110 ^{*#†}	3 CHEM 112 ^{*#†}	3
CHEM 111 ^{*#}	1 CHEM 113 [*]	1
MATH 140 ^{*†#†}	4 MATH 141 ^{*††}	4
PSU 16	1 FRNSC 100 [*]	3
CRIM 100 or 113 ^{*†}	3 General Education Course	3
ENGL 15, 30H, or ESL 15 [‡]	3	
	15	14

Second Year

Fall	Credits Spring	Credits
BIOL 110 [*]	4 BIOL 230W [*]	4
CHEM 210 [*]	3 CHEM 212 [*]	3
FRNSC 210 ^{*#}	3 CHEM 213 [*]	2
PHYS 211 or 250 [*]	4 PHYS 212 or 251 [*]	4
General Education Course	3 STAT 250 [*]	3
	17	16

Third Year

Fall	Credits Spring	Credits
BMB 401 [*]	3 BIOL 222 or 322 [*]	3
FRNSC 410 [*]	2 ENGL 202C, 202A, 202B, or 202D [‡]	3
FRNSC 413 [*]	3 FRNSC 411 [*]	3
CAS 100A, 100B, or 100C [‡]	3 PHIL 132 ^{*†}	3
General Education Course	3 General Education Course	3
	14	15

Fourth Year

Fall	Credits Spring	Credits
BMB 442 [*]	3 FRNSC 421W [*]	4
FRNSC 400 [*]	1 FRNSC 475 [*]	1
FRNSC 415W [*]	2 FRNSC 485 [*]	2
FRNSC 420 [*]	3 Supporting Course (consult with an academic adviser for options) [*]	3
General Education Course	3 General Education Course	3
General Elective Course	3 General Elective Course	3
	15	16

Total Credits 122

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain)

requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Forensic Molecular Biology Option: Forensic Science, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CHEM 110 ^{*#†}	3 CHEM 112 ^{*#†}	3
CHEM 111 ^{*#}	1 CHEM 113 [*]	1
MATH 140 ^{*†#†}	4 MATH 141 ^{*††}	4
PSU 16	1 FRNSC 100 [*]	3
CRIM 100 or 113 ^{*†}	3 General Education Course	3
ENGL 15, 30H, or ESL 15 [‡]	3	
	15	14

Second Year

Fall	Credits Spring	Credits
BIOL 110 [*]	4 BIOL 230W [*]	4
CHEM 210 [*]	3 CHEM 212 [*]	3
FRNSC 210 ^{*#}	3 CHEM 213 [*]	2
PHYS 211 or 250 [*]	4 PHYS 212 or 251 [*]	4
General Education Course	3 STAT 250 [*]	3
	17	16

Third Year

Fall	Credits Spring	Credits
BMB 401 [*]	3 BIOL 222 or 322 [*]	3
FRNSC 410 [*]	2 ENGL 202C, 202A, 202B, or 202D [‡]	3
FRNSC 413 [*]	3 FRNSC 411 [*]	3
CAS 100A, 100B, or 100C [‡]	3 PHIL 132 ^{*†}	3
General Education Course	3 General Education Course	3
	14	15

Fourth Year

Fall	Credits Spring	Credits
BMB 442 [*]	3 FRNSC 421W [*]	4
FRNSC 400 [*]	1 FRNSC 475 [*]	1
FRNSC 415W [*]	2 FRNSC 485 [*]	2
FRNSC 420 [*]	3 Supporting Course (consult with an academic adviser for options) [*]	3
General Education Course	3 General Education Course	3
General Elective Course	3 General Elective Course	3
	15	16

Total Credits 122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

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All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Forensic Molecular Biology Option (MATH 22): Forensic Science, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits Summer	Credits
MATH 22*†#†	3 CHEM 110*#†	3 CHEM 112*#†	3
MATH 26	3 CHEM 111*#	1 CHEM 113*	1
PSU 16	1 MATH 140*†#†	4 MATH 141*††	4
CRIM 100 or 113*†	3 FRNSC 100*††	3	
ENGL 15, 30H, or ESL 15†	3 General Education Course	3	
	13	14	8

Second Year

Fall	Credits Spring	Credits
BIOL 110*	4 BIOL 230W*	4
CHEM 210*	3 CHEM 212*	3
FRNSC 210*#	3 CHEM 213*	2
PHYS 211 or 250*	4 PHYS 212 or 251*	4
General Education Course	3 STAT 250*	3
	17	16

Third Year

Fall	Credits Spring	Credits
BMB 401*	3 BIOL 222 or 322*	3
FRNSC 410*	2 ENGL 202C, 202A, 202B, or 202D†	3
FRNSC 413*	3 FRNSC 411*	3
CAS 100A, 100B, or 100C†	3 PHIL 132*†	3
General Education Course	3 General Education Course	3
	14	15

Fourth Year

Fall	Credits Spring	Credits
BMB 442*	3 FRNSC 421W*	4
FRNSC 400*	1 FRNSC 475*	1
FRNSC 415W*	2 FRNSC 485*	2

FRNSC 420*	3 Supporting Course (consult with an academic adviser for options)*	3
General Education Course	3 General Education Course	3
General Elective Course	3 General Elective Course	3
	15	16

Total Credits 128

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

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All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Forensic Chemistry Option: Forensic Science, B.S. at University Park Campus

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First Year

Fall	Credits Spring	Credits
CHEM 110 ^{*#†}	3 CHEM 112 ^{*#†}	3
CHEM 111 ^{*#}	1 CHEM 113 [*]	1
MATH 140 ^{*†#†}	4 MATH 141 ^{*††}	4
PSU 16	1 FRNSC 100 [*]	3
CRIM 100 or 113 ^{*†}	3 General Education Course	3
ENGL 15, 30H, or ESL 15 [‡]	3	
	15	14

Second Year

Fall	Credits Spring	Credits
BIOL 110 ^{*†}	4 BIOL 230W [*]	4
CHEM 210 [*]	3 CHEM 212 [*]	3
FRNSC 210 ^{*#}	3 CHEM 213 [*]	2
PHYS 211 or 250 [*]	4 PHYS 212 or 251 [*]	4
General Education Course	3 STAT 250 [*]	3
	17	16

Third Year

Fall	Credits Spring	Credits
CAS 100A, 100B, or 100C [‡]	3 ENGL 202C, 202A, 202B, or 202D [‡]	3
CHEM 227 [*]	4 FRNSC 413 [*]	3
FRNSC 410 [*]	2 FRNSC 415W [*]	2
FRNSC 411 [*]	3 PHIL 132 ^{*†}	3
General Elective Course [*]	3 Supporting course (consult with an academic adviser for options) [*]	3
	General Education Course	3
	15	17

Fourth Year

Fall	Credits Spring	Credits
FRNSC 400 [*]	1 FRNSC 427W [*]	4
FRNSC 425 [*]	3 FRNSC 485 [*]	2
FRNSC 475 [*]	1 Supporting course (consult with an academic adviser for options) [*]	3
Supporting course (consult with an academic adviser for options) [*]	3 General Education Course	3
General Education Course	3 General Elective Course	3
General Elective Course	3	
	14	15

Total Credits 123

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

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* Course requires a grade of C or better for the major

Forensic Chemistry Option: Forensic Science, B.S. at Commonwealth Campuses

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First Year

Fall	Credits Spring	Credits
CHEM 110 ^{*#†}	3 CHEM 112 ^{*#†}	3
CHEM 111 ^{*#}	1 CHEM 113 [*]	1
MATH 140 ^{*†#†}	4 MATH 141 ^{*††}	4
PSU 16	1 FRNSC 100 ^{*†}	3
CRIM 100 or 113 ^{*†}	3 General Education Course	3
ENGL 15, 30H, or ESL 15 [‡]	3	
	15	14

Second Year

Fall	Credits Spring	Credits
BIOL 110 [*]	4 BIOL 230W [*]	4
CHEM 210 [*]	3 CHEM 212 [*]	3
FRNSC 210 ^{*#}	3 CHEM 213 [*]	2
PHYS 211 or 250 [*]	4 PHYS 212 or 251 [*]	4
General Education Course	3 STAT 250 [*]	3
	17	16

Third Year

Fall	Credits Spring	Credits
CAS 100A, 100B, or 100C [‡]	3 ENGL 202C, 202A, 202B, or 202D [‡]	3
CHEM 227 [*]	4 FRNSC 413 [*]	3
FRNSC 411 [*]	3 FRNSC 415W [*]	2
FRNSC 410 [*]	2 Supporting Course (consult with an academic adviser for options) [*]	3
General Elective Course	3 General Education Course	3
	PHIL 132 (consult with an academic adviser for alternative options) ^{*†}	3
	15	17

Fourth Year

Fall	Credits Spring	Credits
FRNSC 400 [*]	1 FRNSC 427W [*]	4
FRNSC 425 [*]	3 FRNSC 485 [*]	2
FRNSC 475 [*]	1 Supporting Course (consult with an academic adviser for options) [*]	3
Supporting Course (consult with an academic adviser for options) [*]	3 General Education Course	3
General Education Course	3 General Elective Course	3

General Elective Course	3	
	14	15

Total Credits 123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

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Forensic Chemistry Option (MATH 22): Forensic Science, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits Summer	Credits
MATH 22 ^{*†‡}	3 CHEM 110 ^{*#†}	3 CHEM 112 ^{*#†}	3
MATH 26	3 CHEM 111 ^{*#}	1 CHEM 113 [*]	1
PSU 16	1 MATH 140 ^{*†‡†}	4 MATH 141 ^{*††}	4
CRIM 100 or 113 ^{*†}	3 FRNSC 100 ^{*†}	3	
ENGL 15, 30H, or ESL 15 [†]	3 General Education Course	3	
	13	14	8

Second Year

Fall	Credits Spring	Credits
BIOL 110 [*]	4 BIOL 230W [*]	4
CHEM 210 [*]	3 CHEM 212 [*]	3
FRNSC 210 ^{*#}	3 CHEM 213 [*]	2
PHYS 211 or 250 [*]	4 PHYS 212 or 251 [*]	4
General Education Course	3 STAT 250 [*]	3
	17	16

Third Year

Fall	Credits Spring	Credits
CAS 100A, 100B, or 100C [†]	3 ENGL 202C, 202A, 202B, or 202D [†]	3
CHEM 227 [*]	4 FRNSC 413 [*]	3
FRNSC 410 [*]	2 FRNSC 415W [*]	2
FRNSC 411 [*]	3 PHIL 132 (consult with an academic adviser for alternative options) ^{*†}	3
General Education Course	3 Supporting Course (consult with an academic adviser for options) [*]	3
	General Education Course	3
	15	17

Fourth Year

Fall	Credits Spring	Credits
FRNSC 400 [*]	1 FRNSC 427W [*]	4
FRNSC 425 [*]	3 FRNSC 485 [*]	2
FRNSC 475 [*]	1 Supporting Course (consult with an academic adviser for options) [*]	3
Supporting Course (consult with an academic adviser for options) [*]	3 General Education Course	3
General Education Course	3 General Elective Course	3
General Elective Course	3	
	14	15

Total Credits 129

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

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All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Career Paths

The Forensic Science program provides students with a strong foundation in the natural sciences. In addition, students will be introduced to the criminalistics philosophy through intensive scientific

and laboratory problem-solving skills that are necessary for their success in forensic laboratory careers or graduate-level academic settings.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE FORENSIC SCIENCE PROGRAM (<https://www.aafs.org/careers-forensic-science/>)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://science.psu.edu/bmb/forensics/careers/>)

Professional Resources

- Northeastern Association of Forensic Scientists (<https://www.neafs.org>)
- National Institute of Standards and Technology (NIST) (<https://www.nist.gov/organization-scientific-area-committees-forensic-science/>)
- Organization of Scientific Area Committees (<https://www.nist.gov/organization-scientific-area-committees-forensic-science/>)
- American Academy of Forensic Sciences (<https://www.aafs.org>)
- American Board of Criminalists (<https://www.criminalistics.com>)
- International Association for Identification (<https://www.theiai.org>)
- California Association of Criminalists (<https://www.cacnews.org>)
- American Society of Trace Evidence Examiners (<https://www.asteetrace.org>)
- New Jersey Association of Forensic Scientists (<https://www.njafs.org>)
- Mid-Atlantic Association of Forensic Scientists (<https://www.maafs.org>)

Accreditation

Our degree programs in Forensic Science are accredited by the Forensic Science Education Programs Accreditation Commission (FEPAC). FEPAC promotes academic quality through formal accreditation of forensic science programs. Meeting FEPAC guidelines assures the public that our programs are of the highest quality.

MORE INFORMATION ABOUT ACCREDITATION BY THE FORENSIC SCIENCE EDUCATION PROGRAMS ACCREDITATION COMMISSION (<https://www.aafs.org/FEPAC/>)

Contact

University Park

DEPARTMENT OF BIOCHEMISTRY AND MOLECULAR BIOLOGY FORENSIC SCIENCE PROGRAM

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Information Sciences and Technology for Mathematics, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change

from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The interaction between Information Sciences and Mathematics will continue developing in remarkable new directions. Mathematical scientists enormously benefit from information technology in the performance of research, in communicating and disseminating scientific information and results, as well as in career environments involving data analysis and management. Mathematicians also contribute to making inroads toward the development of new information technologies. Information sciences and technology are already playing a very important role in mathematical education, at all levels, and will experience an overwhelming increase in the near future. Giving undergraduate mathematics students the opportunity to minor in IST will not only enrich their educational achievements but it will also help them succeed in the employment searches.

What is Information Sciences Technology and Mathematics?

Mathematical scientists utilize and benefit from information technology while conducting research, communicating and disseminating scientific information and results, as well as in career environments involving data analysis and management. Mathematicians also contribute to development of new information technologies. This minor in IST provides undergraduate mathematics students the opportunity to broaden their knowledge of information science technology and its use and intersection with mathematics.

You Might Like This Program If...

- You like mathematics and want to learn more about information science and technology.
- You want to develop strong problem-solving skills, comprehension of abstract concepts, and creative thinking ability.
- You want mathematics and information science and technology to complement your study of other subjects.

Entrance to Minor

Students must apply for entrance to the minor no later than the beginning of their senior year.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
IST 110	Information, People and Technology	3
IST 210	Organization of Data	3
IST 220	Networking and Telecommunications	3

Additional Courses

Additional Courses: Require a grade of C or better

Select three of the following 400-level mathematics courses:

9

MATH 451	Numerical Computations
MATH 457	Introduction to Mathematical Logic
MATH 465	Number Theory
MATH 467	Factorization and Primality Testing
MATH 468	Mathematical Coding Theory

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Undergraduate Mathematics Office**Academic Advising**

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Integrative Science, B.S. (Science)

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The Integrative Science major is an interdisciplinary degree that aims to provide a broad, general education in science. The Bachelor of Science (B.S.) curriculum is designed specifically for students who have education goals relating to scientific theory and practice across disciplinary areas, and who seek a high degree of flexibility to obtain their educational objectives. After completing foundation courses in biology, calculus, chemistry, physics, and statistics, students select additional science courses from designated areas to customize the curriculum to

their own interests. A large number of supporting credits enable students to incorporate significant breadth or specialization into their academic training, such as through courses in business, computer and information science, health science, social science, and other fields.

This major helps prepare students for careers in many different job sectors including agriculture, biotechnology, chemistry, education, government, industry, medicine, pharmaceutical, research & development, sustainability, and more. Graduates of this major pursue diverse career paths and hold a variety of roles such as research scientist, data analyst, technician, program coordinator, project manager, consultant, and laboratory associate. The degree can also be tailored to meet specific requirements of professional programs such as medical, dental, physician assistant, pharmacy, or law school, as well as graduate school.

General Science Option

Available at the following campuses: *Abington, Berks, Harrisburg, Scranton, University Park, York*

The General Science option of the B.S. Integrative Science degree allows for the most flexibility.

Achievement in a more specialized set of goals can be met by selecting one of the other B.S. options offered:

Biological Sciences and Health Professions Option

Available at the following campuses: *University Park*

Legal Studies, Government Service, Public Policy Option

Available at the following campuses: *University Park*

Life Sciences Option

Available at the following campuses: *Abington, Berks, Harrisburg, Scranton, York*

Mathematical Sciences Option

Available at the following campuses: *Abington*

Secondary Education Option

Available at the following campuses: *Harrisburg*

Not all of these options are available at all locations. See the Science program director at your College for details regarding program curriculum at your location.

What is Integrative Science?

The Integrative Science major provides a broad and interdisciplinary foundation in the natural sciences. The Integrative Science BS program uses the principles of chemistry, physics, and life sciences to understand how these integrate over general areas including biological sciences and health professions, public policy, and science research and development.

You Might Like This Program If...

- You like learning by doing hands-on experiments.
- You are curious about the natural world and how science disciplines come together to explore and understand it.
- You are intrigued by science and desire a career in current and emerging interdisciplinary science disciplines, health professions, or melding science with law, policy or business.

Entrance to Major

In order to be eligible for entrance to the Integrative Science major, a student at any location must have:

1. attained at least a 2.00 cumulative grade-point average;
2. completed MATH 140 with a grade of C or better;
3. completed at least two of the following courses, BIOL 110; CHEM 110; PHYS 211 or PHYS 250, with a grade of C or better.

Entrance to the Integrative Science Secondary Education option requires the following additional requirements:

1. completed at least one of the following courses, BIOL 220W or BIOL 230W or BIOL 240W; PHYS 250, with a grade of C or better;
2. attained at least a 3.00 cumulative grade-point average;
3. completed ENGL 15 or ENGL 30H;
4. completed 3 credits of literature from a department-approved list with a grade of C or better;
5. completed 6 credits of college-level mathematics (GQ MATH or STAT prefixes) with a grade of C or better;
6. satisfy any entrance testing requirements set out by the Pennsylvania Department of Education in effect at the time of application for the major;
7. submission to the Teacher Education Office of current and clear background checks as required by the Pennsylvania Department of Education;
8. submission of documentation of 20 pre-major fieldwork hours.

Degree Requirements

For the Bachelor of Science degree in Integrative Science with an option in General Science; Biological Sciences and Health Professions; Legal Studies, Government Service, Public Policy; Life Science; and Mathematical Science, a minimum of 120 credits is required, with at least 15 credits at the 400 level. For the Bachelor of Science degree in Integrative Science with an option in Secondary Education, a minimum of 125 credits is required, with at least 15 credits at the 400 level.

Requirement	Credits
General Education	45
Requirements for the Major	90-110

13-30 of the 45 credits for General Education are included in the Requirements for the Major. For the General Science Option; Biological Sciences and Health Professions Option; Legal Studies, Government Service, Public Policy Option; Life Science Option this includes: 9 credits of GN courses and 4-6 credits of GQ courses. For the Mathematical Science Option this includes: 9 credits of GN courses and 6 credits of GQ courses. For the Secondary Education Option this includes: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GWS courses (ENGL 202C); 3 credits of GH courses (literature department list); 6 credits of GS courses (EDPSY 14 and HDFS 239); 3 credits of Integrative Studies courses (EDUC 466N).

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
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Prescribed Courses

CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
CHEM 113	Experimental Chemistry II	1

Prescribed Courses: Require a grade of C or better

BIOL 110	Biology: Basic Concepts and Biodiversity	4
CHEM 110	Chemical Principles I	3
MATH 140	Calculus With Analytic Geometry I	4

Requirements for the Option

Select an option		74-94
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Requirements for the Option

General Science Option (74 credits)

Available at the following campuses: Abington, Berks, Harrisburg, Scranton, University Park, York

Code	Title	Credits
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Additional Courses

STAT 200	Elementary Statistics	3-4
or STAT 250	Introduction to Biostatistics	

Select 4 credits from the following: 4

BIOL 161 & BIOL 162	Human Anatomy and Physiology I - Lecture and Human Anatomy and Physiology I - Laboratory	
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BIOL 220W	Biology: Populations and Communities	
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BIOL 230W	Biology: Molecules and Cells	
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BIOL 240W	Biology: Function and Development of Organisms	
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Select 8-12 credits from the following: 8-12

PHYS 211 & PHYS 212 & PHYS 213 & PHYS 214	General Physics: Mechanics and General Physics: Electricity and Magnetism and General Physics: Fluids and Thermal Physics and General Physics: Wave Motion and Quantum Physics ¹	
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PHYS 250 & PHYS 251	Introductory Physics I and Introductory Physics II ¹	
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Supporting Courses and Related Areas

Select 3 credits in Global, Social, and Personal Awareness from department approved course list in consultation with adviser 3

Select 3 credits in Teamwork and Interpersonal Communication from department approved course list in consultation with adviser 3

Select 3 credits in Integrative and Applied Sciences from department approved course list in consultation with adviser 3

Select 6 credits of 400-level courses 6

Select 21-26 credits from program list ^{2,3} 21-26

Supporting Courses and Related Areas: Require a grade of C or better

Select 18 credits in life, mathematical, or physical sciences, with at least 9 credits at the 400 level ^{4,5} 18

¹ PHYS 211 and PHYS 250 require a grade of C or better.

² A maximum of 12 credits of Independent Study (296, 496) may be applied toward credits for graduation.

³ Students may apply ROTC credits toward the Program List.

⁴ Only the 9 credits at the 400 level require a grade of C or better.

⁵ Life sciences include BIOL, BIOTC, BMB, FRNSC, MICRB. Mathematical sciences include CMPSC, DS, MATH, STAT. Physical sciences include ASTRO, CHEM, PHYS.

Biological Sciences and Health Professions Option (74 credits)

Available at the following campuses: University Park

Code	Title	Credits
Prescribed Courses		
HPA 101	Introduction to Health Services Organization	3
Additional Courses		
STAT 200 or STAT 250	Elementary Statistics Introduction to Biostatistics	3-4
Select 4 credits from the following:		4
BIOL 161 & BIOL 162	Human Anatomy and Physiology I - Lecture and Human Anatomy and Physiology I - Laboratory	
BIOL 220W	Biology: Populations and Communities	
BIOL 230W	Biology: Molecules and Cells	
BIOL 240W	Biology: Function and Development of Organisms	
Select 3-4 credits from the following:		3-4
BIOL 222	Genetics	
BIOL 230W	Biology: Molecules and Cells	
BIOL 322	Genetic Analysis	
BMB 211	Elementary Biochemistry	
BMB/MICRB 251	Molecular and Cell Biology I	
MICRB 201	Introductory Microbiology	
Select 6-8 credits from the following:		6-8
CHEM 202 & CHEM 203	Fundamentals of Organic Chemistry I and Fundamentals of Organic Chemistry II	
CHEM 210 & CHEM 212 & CHEM 213W	Organic Chemistry I and Organic Chemistry II and Laboratory in Organic Chemistry - Writing Intensive	
Select 8-12 credits from the following:		8-12
PHYS 211 & PHYS 212 & PHYS 213 & PHYS 214	General Physics: Mechanics and General Physics: Electricity and Magnetism and General Physics: Fluids and Thermal Physics and General Physics: Wave Motion and Quantum Physics ¹	
PHYS 250 & PHYS 251	Introductory Physics I and Introductory Physics II ¹	

Supporting Courses and Related Areas

Select 3 credits in Global, Social, and Personal Awareness from department approved course list in consultation with adviser	3
Select 3 credits in Teamwork and Interpersonal Communication from department approved course list in consultation with adviser	3
Select 15 credits in Healthcare/Medicine/Ethical Competencies from department approved course list in consultation with adviser ²	15
Select 9-17 credits from program list ^{3,4}	9-17
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>	
Select 9 credits of 400-level BMB, BIOL, BIOTC, or MICRB courses	9

¹ PHYS 211 and PHYS 250 require a grade of C or better.

² 6 credits must be at the 400-level.

³ A maximum of 12 credits of Independent Studies (296, 496) may be applied toward credits for graduation.

⁴ Students may apply ROTC credits toward the Program List.

Legal Studies, Government Service, Public Policy Option (74 credits)

Available at the following campuses: University Park

Code	Title	Credits
Additional Courses		
STAT 200 or STAT 250	Elementary Statistics Introduction to Biostatistics	3-4
Select 4 credits from the following:		4
BIOL 161 & BIOL 162	Human Anatomy and Physiology I - Lecture and Human Anatomy and Physiology I - Laboratory	
BIOL 220W	Biology: Populations and Communities	
BIOL 230W	Biology: Molecules and Cells	
BIOL 240W	Biology: Function and Development of Organisms	
Select 8-12 credits from the following:		8-12
PHYS 211 & PHYS 212 & PHYS 213 & PHYS 214	General Physics: Mechanics and General Physics: Electricity and Magnetism and General Physics: Fluids and Thermal Physics and General Physics: Wave Motion and Quantum Physics ¹	
PHYS 250 & PHYS 251	Introductory Physics I and Introductory Physics II ¹	

Supporting Courses and Related Areas

Select 3 credits in Global, Social, and Personal Awareness from department approved course list in consultation with adviser	3
Select 3 credits in Teamwork and Interpersonal Communication from department approved course list in consultation with adviser	3
Select 18 credits in Legal Studies, Government Service, Public Policy from department approved course list in consultation with adviser ²	18
Select 12-17 credits from program list ^{3,4}	12-17
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>	
Select 18 credits in life, mathematical, or physical sciences, with at least 9 credits at the 400 level ^{5,6}	18

¹ PHYS 211 and PHYS 250 require a grade of C or better.

² 6 credits must be at the 400-level.

³ A maximum of 12 credits of Independent Study (296, 496) may be applied toward credits for graduation.

⁴ Students may apply ROTC credits toward the Program List.

⁵ Only the 9 credits at the 400 level require a grade of C or better.

⁶ Life sciences include BIOL, BIOTC, BMB, FRNSC, MICRB. Mathematical sciences include CMPSC, DS, MATH, STAT. Physical sciences include ASTRO, CHEM, PHYS.

Life Science Option (74 credits)

Available at the following campuses: Abington, Berks, Harrisburg, Scranton, York

Code	Title	Credits
Additional Courses		
STAT 200 or STAT 250	Elementary Statistics Introduction to Biostatistics	3-4
Select 4 credits from the following:		4

BIOL 220W	Biology: Populations and Communities	
BIOL 230W	Biology: Molecules and Cells	
BIOL 240W	Biology: Function and Development of Organisms	

Select 3-4 credits from the following: 3-4

BIOL 222	Genetics	
BIOL 230W	Biology: Molecules and Cells	
BIOL 322	Genetic Analysis	
BMB 211	Elementary Biochemistry	
BMB/MICRB 251	Molecular and Cell Biology I	
MICRB 201	Introductory Microbiology	

Select 6-8 credits from the following: 6-8

CHEM 202 & CHEM 203	Fundamentals of Organic Chemistry I and Fundamentals of Organic Chemistry II	
CHEM 210 & CHEM 212 & CHEM 213	Organic Chemistry I and Organic Chemistry II and Laboratory in Organic Chemistry	

Select 8-12 credits from the following: 8-12

PHYS 211 & PHYS 212 & PHYS 213 & PHYS 214	General Physics: Mechanics and General Physics: Electricity and Magnetism and General Physics: Fluids and Thermal Physics and General Physics: Wave Motion and Quantum Physics ¹	
PHYS 250 & PHYS 251	Introductory Physics I and Introductory Physics II ¹	

Supporting Courses and Related Areas

Select 3 credits in Global, Social, and Personal Awareness from department approved course list in consultation with adviser 3

Select 3 credits in Teamwork and Interpersonal Communication from department approved course list in consultation with adviser 3

Select 6 credits of 400-level courses 6

Select 21-29 credits from program list ^{2,3} 21-29

Supporting Courses and Related Areas: Require a grade of C or better

Select 9 credits of 400-level BMB, BIOL, BIOTC, or MICRB courses 9

¹ PHYS 211 and PHYS 250 require a grade of C or better.

² A maximum of 12 credits of Independent Study (296, 496) may be applied toward credits for graduation.

³ Students may apply ROTC credits toward the Program List.

Mathematical Science Option (74 credits)

Available at the following campuses: Abington

Code	Title	Credits
Prescribed Courses		
MATH 220	Matrices	2-3
<i>Prescribed Courses: Require a grade of C or better</i>		
MATH 141	Calculus with Analytic Geometry II	4
Additional Courses		
CMPSC 122 or CMPSC 132	Intermediate Programming Programming and Computation II: Data Structures	3
CMPSC 360 or MATH 311W	Discrete Mathematics for Computer Science Concepts of Discrete Mathematics	3-4
MATH 230 or MATH 251	Calculus and Vector Analysis Ordinary and Partial Differential Equations	4

Select 3 credits from the following: 3

CMPSC 121	Introduction to Programming Techniques	
CMPSC 131	Programming and Computation I: Fundamentals	
CMPSC 201	Programming for Engineers with C++	

Select 3-4 credits from the following: 3-4

STAT 200	Elementary Statistics	
STAT 250	Introduction to Biostatistics	
STAT 318	Elementary Probability	

Select 3-4 credits from the following: 3-4

BIOL 222	Genetics	
BIOL 230W	Biology: Molecules and Cells	
BIOL 322	Genetic Analysis	
BMB 211	Elementary Biochemistry	
BMB/MICRB 251	Molecular and Cell Biology I	
MICRB 201	Introductory Microbiology	

Select 8-12 credits from the following: 8-12

PHYS 211 & PHYS 212 & PHYS 213 & PHYS 214	General Physics: Mechanics and General Physics: Electricity and Magnetism and General Physics: Fluids and Thermal Physics and General Physics: Wave Motion and Quantum Physics ¹	
PHYS 250 & PHYS 251	Introductory Physics I and Introductory Physics II ¹	

Supporting Courses and Related Areas

Select 3 credits in Global, Social, and Personal Awareness from department approved course list in consultation with adviser 3

Select 3 credits in Teamwork and Interpersonal Communication from department approved course list in consultation with adviser 3

Select 6 credits of 400-level courses 6

Select 13-20 credits from program list ^{2,3} 13-20

Supporting Courses and Related Areas: Require a grade of C or better

Select 9 credits of 400-level CMPSC, MATH, or STAT courses 9

¹ PHYS 211 and PHYS 250 require a grade of C or better.

² A maximum of 12 credits of Independent Study (296, 496) may be applied toward credits for graduation.

³ Students may apply ROTC credits toward the Program List.

SECONDARY EDUCATION OPTION (94 credits)

Available at the following campuses: Harrisburg

Code	Title	Credits
Prescribed Courses		
STAT 200	Elementary Statistics	4
<i>Prescribed Courses: Require a grade of C or better for teacher certification</i>		
EDUC 313	Secondary Education Field Experience	2
EDUC 314	Learning Theory and Instructional Procedures	3
EDUC 315Y	Social and Cultural Factors in Education	3
EDUC 385	Professional Development in Teaching	3
EDUC 400	Diversity and Cultural Awareness Practices in the K-12 Classroom	3
EDUC 414	Teaching Secondary Science	3

EDUC 458	Behavior Management Strategies for Inclusive Classrooms	3
EDUC 459	Strategies for Effective Teaching in Inclusive Classrooms	3
EDUC 490	Student Teaching	9
<i>Prescribed Courses: Require a Grade of C or Better</i>		
EDPSY 14	Learning and Instruction	3
EDUC 466N	Foundations of Teaching English as a Second Language	3
ENGL 202C	Effective Writing: Technical Writing	3
HDFS 239	Adolescent Development	3
MATH 141	Calculus with Analytic Geometry II	4
PHYS 250	Introductory Physics I	4
PHYS 251	Introductory Physics II	4

Additional Courses*Additional Courses: Require a grade of C or better*

Select 4 credits from the following:	4
BIOL 220W	Biology: Populations and Communities
BIOL 230W	Biology: Molecules and Cells
BIOL 240W	Biology: Function and Development of Organisms

Supporting Courses and Related Areas*Supporting Courses and Related Areas: Require a Grade of C or Better*

Select 3 credits of GH literature from department list	3
Select a 3 credit EARTH course	3
Select a 3 credit ASTRO course	3
Select 9 credits of 400-level earth or physical science courses	9
Select 12 credits of science or education elective courses	12

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Knowledge Application:** Graduates will be able to apply scientific concepts across disciplines.
- **Scientific Process:** Graduates will be able to perform the process of science.
- **Quantitative Reasoning:** Graduates will be able to interpret scientific data using quantitative reasoning skills.

- **Communication:** Graduates will be able to explain scientific concepts through written and verbal communication.
- **Ethical Reasoning:** Graduates will be able to apply ethical reasoning to scientific problems.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

General Option: Integrative Science, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110 (GN) ^{*#†}	4 CAS 100A, 100B, or 100C (GWS) [‡]	3
CHEM 110 (GN) ^{*#†}	3 CHEM 111 (GN)	1
ENGL 15, 30H, or ESL 15 (GWS) [‡]	3 CHEM 112	3
MATH 140 or 140B (GQ) ^{*†#†}	4 Global, Social, and Personal Awareness Course (from Department List)	3
PSU 16 (FYS)	1 Supporting Course (Consult with academic adviser for options)	3
	Supporting Course (Consult with academic adviser for options)	3
	15	16

Second Year

Fall	Credits Spring	Credits
CHEM 113	1 BIOL 220W, 230W, 240W, or 161 and 162	4
Life, Mathematical, or Physical Science Course	3 Life, Mathematical, or Physical Science Course	3
Teamwork and Interpersonal Communication Course (from Department List)	3 Integrative and Applied Science Course (from Department List)	3
Supporting Course (Consult with academic adviser for options)	3 General Education Course (GA)	3

Supporting Course (Consult with academic adviser for options)	3	
General Education Course (GS)	3	
	16	13

Third Year

Fall	Credits Spring	Credits
PHYS 250 or 211 (GN) ^{*#}	4 PHYS 251 or 212	4
STAT 250 or 200 (GQ) [‡]	3-4 400-Level Life, Mathematical, or Physical Science Course [*]	3
Life, Mathematical, or Physical Science Course	3 ENGL 202C, 202A, 202B, or 202D (GWS) [‡]	3
General Education Course (Integrative Studies)	3 General Education Course (GH)	3
Supporting Course (Consult with academic adviser for options)	3 Supporting Course (Consult with academic adviser for options)	3
	16-17	16

Fourth Year

Fall	Credits Spring	Credits
PHYS 213 (or Supporting Course)	2 400-Level Life, Mathematical, or Physical Science Course [*]	3
PHYS 214 (or Supporting Course)	2 400-Level Supporting Course	3
400-Level Life, Mathematical, or Physical Science Course [*]	3 General Education Course (GHW)	3
400-Level Supporting Course	3 General Education Course (Exploration)	3
General Education Course (Integrative Studies)	3 Supporting Course (Consult with academic adviser for options)	3
	13	15

Total Credits 120-121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain

attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

General Option (ALEKS Placement in MATH 22): Integrative Science, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
BIOL 110 (GN) ^{*##†}	4	CAS 100A, 100B, or 100C (GWS) [‡]	3
MATH 22	3	CHEM 110 (GN) ^{*##†}	3
ENGL 15, 30H, or ESL 15 (GWS) [‡]	3	MATH 26	3
General Education Course (GS)	3	Global, Social, and Personal Awareness Course (from Department List)	3
PSU 16 (FYS)	1	Supporting Course (Consult with academic adviser for options)	3
	14		15

Second Year

Fall	Credits	Spring	Credits
CHEM 111 (GN)	1	BIOL 220W, 230W, 240W, or 161 and 162	4
CHEM 112	3	CHEM 113	1
MATH 140 or 140B (GQ) ^{*†##†}	4	Life, Mathematical, or Physical Science Course	3
Teamwork and Interpersonal Communication Course (from Department List)	3	Integrative and Applied Science Course (from Department List)	3
Supporting Course (Consult with academic adviser for options)	3	General Education Course (GA)	3
	14		14

Third Year

Fall	Credits	Spring	Credits
PHYS 250 or 211 (GN) ^{*#}	4	ENGL 202C, 202A, 202B, or 202D (GWS) [‡]	3
STAT 250 or 200 (GQ) [‡]	3-4	PHYS 251 or 212	4
Life, Mathematical, or Physical Science Course	3	400-Level Life, Mathematical, or Physical Science Course [*]	3
General Education Course (Integrative Studies)	3	Life, Mathematical, or Physical Science Course	3
Supporting Course (Consult with academic adviser for options)	3	General Education Course (GH)	3
	16-17		16

Fourth Year

Fall	Credits	Spring	Credits
PHYS 213 (or Supporting Course)	2	400-Level Life, Mathematical, or Physical Science Course [*]	3
PHYS 214 (or Supporting Course)	2	400-Level Supporting Course	3
400-Level Life, Mathematical, or Physical Science Course [*]	3	General Education Course (GHW)	3
400-Level Supporting Course	3	General Education Course (Exploration)	3
General Education Course (Integrative Studies)	3	Supporting Course (Consult with academic adviser for options)	3
Supporting Course (Consult with academic adviser for options)	3		
	16		15

Total Credits 120-121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

General Option: Integrative Science, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110 (GN) ^{**†}	4 CAS 100A, 100B, or 100C (GWS) [‡]	3
CHEM 110 (GN) ^{**†}	3 CHEM 111 (GN)	1
MATH 140 or 140B (GQ) ^{†##}	4 CHEM 112	3
ENGL 15, 30H, or ESL 15 (GWS) [‡]	3 Global, Social, and Personal Awareness Course (from Department List)	3
First- Year Seminar	1 Supporting Course (Consult with academic adviser for options)	3
	Supporting Course (Consult with academic adviser for options)	3
	15	16

Second Year

Fall	Credits Spring	Credits
CHEM 113	1 BIOL 220W, 230W, 240W, or 161 and 162	4
Life, Mathematical, or Physical Science Course	3 Life, Mathematical, or Physical Science Course	3
Teamwork and Interpersonal Communication Course (from Department List)	3 Integrative and Applied Science Course (from Department List)	3
General Education Course (GS)	3 General Education Course (GA)	3
Supporting Course (Consult with academic adviser for options)	3	
Supporting Course (Consult with academic adviser for options)	3	
	16	13

Third Year

Fall	Credits Spring	Credits
PHYS 250 or 211 (GN) ^{**#}	4 ENGL 202C, 202A, 202B, or 202D (GWS) [‡]	3
STAT 250 or 200 (GQ) [‡]	3-4 PHYS 251 or 212	4
Life, Mathematical, or Physical Science Course	3 400-Level Life, Mathematical, or Physical Science Course [*]	3
General Education Course (Integrative Studies)	3 General Education Course (GH)	3

Supporting Course (Consult with academic adviser for options)	3 Supporting Course (Consult with academic adviser for options)	3
	16-17	16
Fourth Year		
Fall	Credits Spring	Credits
PHYS 213 (or Supporting Course)	2 400-Level Life, Mathematical, or Physical Science course [*]	3
PHYS 214 (or Supporting Course)	2 400-Level Supporting Course	3
400-Level Life, Mathematical, or Physical Science Course [*]	3 General Education Course (GHW)	3
400-Level Supporting Course	3 General Education Course (Exploration)	3
General Education Course (Integrative Studies)	3 Supporting course (Consult with academic adviser for options)	3
	13	15

Total Credits 120-121

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Legal Studies, Government Service, Public Policy Option: Integrative Science, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
BIOL 110 (GN) ^{**†}	4	CAS 100A, 100B, or 100C (GWS) [‡]	3
CHEM 110 (GN) ^{**†}	3	CHEM 111 (GN)	1
MATH 140 or 140B (GQ) ^{‡#†}	4	CHEM 112	3
ENGL 15, 30H, or ESL 15 (GWS) [‡]	3	Global, Social, and Personal Awareness Course (from Department List)	3
PSU 16 (FYS)	1	Supporting Course (Consult with academic adviser for options)	3
		Supporting Course (Consult with academic adviser for options)	3
	15		16

Second Year

Fall	Credits	Spring	Credits
CHEM 113	1	BIOL 220W, 230W, 240W, or 161 and 162	4
Life, Mathematical, or Physical Science Course	3	Life, Mathematical, or Physical Science Course	3
Teamwork and Interpersonal Communication Course (from Department List)	3	Legal Studies, Government Service, Public Policy Course (from Department List)	3
Legal Studies, Government Service, Public Policy Course (from Department List)	3	General Education Course (GA)	3
General Education Course (GS)	3		
Supporting Course (Consult with academic adviser for options)	3		
	16		13

Third Year

Fall	Credits	Spring	Credits
PHYS 250 or 211 (GN) ^{**#}	4	PHYS 251 or 212	4
STAT 250 or 200 (GQ) [‡]	3-4	ENGL 202C, 202A, 202B, or 202D (GWS) [‡]	3
Life, Mathematical, or Physical Science Course	3	400-Level Life, Mathematical, or Physical Science Course [*]	3
Legal Studies, Government Service, Public Policy Course (from Department List)	3	Legal Studies, Government Service, Public Policy Course (from Department List)	3

General Education Course (Integrative Studies)	3	General Education Course (GH)	3
	16-17		16
Fourth Year			
Fall	Credits	Spring	Credits
PHYS 213 (or Supporting Course)	2	400-Level Life, Mathematical, or Physical Science Course [*]	3
PHYS 214 (or Supporting Course)	2	400-Level Legal Studies, Government Service, Public Policy Course (from Department List)	3
400-Level Life, Mathematical, or Physical Science Course [*]	3	General Education Course (GHW)	3
400-Level Legal Studies, Government Service, Public Policy Course (from Department List)	3	General Education Course (Exploration)	3
General Education Course (Integrative Studies)	3	Supporting Course (Consult with an academic adviser for options)	3
	13		15

Total Credits 120-121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Legal Studies, Government Service, Public Policy Option (ALEKS Placement in MATH 22): Integrative Science, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110 (GN) ^{**†}	4 CAS 100A, 100B, or 100C (GWS) [‡]	3
MATH 22	3 CHEM 110 (GN) ^{**†}	3
ENGL 15, 30H, or ESL 15 (GWS) [‡]	3 MATH 26	3
General Education Course (GS)	3 Global, Social, and Personal Awareness Course (from Department List)	3
PSU 16 (FYS)	1 Supporting Course (Consult with academic adviser for options)	3
	14	15

Second Year

Fall	Credits Spring	Credits
CHEM 111 (GN)	1 BIOL 220W, 230W, 240W, or 161 <i>and</i> 162	4
CHEM 112	3 CHEM 113	1
MATH 140 or 140B (GQ) ^{**††}	4 Life, Mathematical, or Physical Science Course	3
Teamwork and Interpersonal Communication Course (from Department List)	3 Legal Studies, Government Service, Public Policy Course (from Department List)	3
Legal Studies, Government Service, Public Policy Course (from Department List)	3 General Education Course (GA)	3
	14	14

Third Year

Fall	Credits Spring	Credits
PHYS 250 or 211 (GN) ^{**#}	4 PHYS 251 or 212	4
STAT 250 or 200 (GQ) [‡]	3-4 ENGL 202C, 202A, 202B, or 202D (GWS) [‡]	3
Life, Mathematical, or Physical Science Course	3 400-Level Life, Mathematical, or Physical Science Course [*]	3
Legal Studies, Government Service, Public Policy Course (from Department List)	3 Life, Mathematical, or Physical Science Course	3
General Education Course (Integrative Studies)	3 General Education Course (GH)	3
	16-17	16

Fourth Year

Fall	Credits Spring	Credits
PHYS 213 (or Supporting Course)	2 400-Level Life, Mathematical, or Physical Science Course [*]	3
PHYS 214 (or Supporting Course)	2 400-Level Legal Studies, Government Service, Public Policy Course (from Department List)	3
400-Level Life, Mathematical, or Physical Science Course [*]	3 Legal Studies, Government Service, Public Policy Course (from Department List)	3
400-Level Legal Studies, Government Service, Public Policy Course (from Department List)	3 General Education Course (GHW)	3
General Education Course (Integrative Studies)	3 General Education Course (Exploration)	3
Supporting Course (Consult with academic adviser for options)	3	
	16	15

Total Credits 120-121

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

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General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Legal Studies, Government Service, Public Policy Option: Integrative Science, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110 (GN) ^{*#†}	4 CAS 100A, 100B, or 100C (GWS) [‡]	3
CHEM 110 (GN) ^{*#†}	3 CHEM 111 (GN)	1
MATH 140 or 140B (GQ) ^{†##†}	4 CHEM 112	3
ENGL 15, 30H, or ESL 15 (GWS) [‡]	3 Global, Social, and Personal Awareness Course (from Department List)	3
First-Year Seminar	1 Supporting Course (Consult with academic adviser for options)	3
	Supporting Course (Consult with academic adviser for options)	3
	15	16

Second Year

Fall	Credits Spring	Credits
CHEM 113	1 BIOL 220W, 230W, 240W, or 161 <i>and</i> 162	4
Life, Mathematical, or Physical Science Course	3 Life, Mathematical, or Physical Science Course	3
Teamwork and Interpersonal Communication Course (from Department List)	3 Legal Studies, Government Service, Public Policy Course (from Department List)	3
Legal Studies, Government Service, Public Policy Course (from Department List)	3 General Education Course (GA)	3
General Education Course (GS)	3	
Supporting Course (Consult with academic adviser for options)	3	
	16	13

Third Year

Fall	Credits Spring	Credits
PHYS 250 or 211 (GN) ^{*#}	4 PHYS 251 or 212	4
STAT 250 or 200 (GQ) [‡]	3-4 ENGL 202C, 202A, 202B, or 202D (GWS) [‡]	3
Life, Mathematical, or Physical Science Course	3 400-Level Life, Mathematical, or Physical Science Course [*]	3
Legal Studies, Government Service, Public Policy Course (from Department List)	3 Legal Studies, Government Service, Public Policy Course (from Department List)	3

General Education Course (Integrative Studies)	3 General Education Course (GH)	3
	16-17	16
Fourth Year		
Fall	Credits Spring	Credits
PHYS 213 (or Supporting Course)	2 400-Level Life, Mathematical, or Physical Science Course [*]	3
PHYS 214 (or Supporting Course)	2 400-Level Legal Studies, Government Service, Public Policy Course (from Department List)	3
400-Level Life, Mathematical, or Physical Science Course [*]	3 General Education Course (GHW)	3
400-Level Legal Studies, Government Service, Public Policy Course (from Department List)	3 General Education Course (Exploration)	3
General Education Course (Integrative Studies)	3 Supporting Course (Consult with academic adviser for options)	3
	13	15

Total Credits 120-121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Biological Sciences and Health Professions Option: Integrative Science, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
BIOL 110 (GN) ^{*#†}	4	BIOL 220W, 230W, 240W, or 161 and 162	4
CHEM 110 (GN) ^{*#†}	3	CHEM 111 (GN)	1
MATH 140 or 140B (GQ) ^{†#†}	4	CHEM 112	3
ENGL 15, 30H, or ESL 15 (GWS) [†]	3	Global, Social, and Personal Awareness Course (from Department List)	3
PSU 16 (FYS)	1	Supporting Course (Consult with academic adviser for options)	3
		Supporting Course (Consult with academic adviser for options)	1
	15		15

Second Year

Fall	Credits	Spring	Credits
CHEM 113	1	BIOL 222, 230W, 322, BMB 211, BMB 251, MICRB 251, or MICRB 201	3-4
CHEM 210 or 202	3	CHEM 212 or 203	3
HPA 101	3	STAT 250 or 200 (GQ) [†]	3-4
Teamwork and Interpersonal Communication Course (from Department List)	3	Healthcare/Medicine/Ethics Course (from Department List)	3
General Education Course (GS)	3	General Education Course (GA)	3
Supporting Course (Consult with academic adviser for options)	3		
	16		15-17

Third Year

Fall	Credits	Spring	Credits
CHEM 213W (or Supporting Course)	2	CAS 100A, 100B, or 100C (GWS) [†]	3
PHYS 250 or 211 (GN) ^{*#}	4	PHYS 251 or 212	4
ENGL 202C, 202A, 202B, or 202D (GWS) [†]	3	400-Level BIOL, BIOTC, BMB, or MICRB Course [*]	3
400-Level BIOL, BIOTC, BMB, or MICRB Course [*]	3	Healthcare/Medicine/Ethics Course (from Department List)	3
General Education Course (Integrative Studies)	3		
	15		13

Fourth Year

Fall	Credits	Spring	Credits
PHYS 213 (or Supporting Course)	2	Healthcare/Medicine/Ethics Course (from Department List)	3
PHYS 214 (or Supporting Course)	2	400-Level Healthcare/Medicine/Ethics Course	3
400-Level BIOL, BIOTC, BMB, or MICRB Course [*]	3	General Education Course (GHW)	3
400-Level Healthcare/Medicine/Ethics Course	3	General Education Course (Exploration)	3
General Education Course (GH)	3	Supporting Course (Consult with academic adviser for options)	3
General Education Course (Integrative Studies)	3		
	16		15

Total Credits 120-122

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

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W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Biological Sciences and Health Professions Option (ALEKS Placement in MATH 22): Integrative Science, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110 (GN) ^{**†}	4 CAS 100A, 100B, or 100C (GWS) [‡]	3
MATH 22	3 CHEM 110 (GN) ^{**†}	3
ENGL 15, 30H, or ESL 15 (GWS) [‡]	3 MATH 26	3
General Education Course (GS)	3 Global, Social, and Personal Awareness Course (from Department List)	3
PSU 16 (FYS)	1 Supporting Course (Consult with academic adviser for options)	3
	14	15

Second Year

Fall	Credits Spring	Credits
CHEM 111 (GN)	1 BIOL 220W, 230W, 240W, or 161 <i>and</i> 162	4
CHEM 112	3 CHEM 113	1
MATH 140 or 140B (GQ) ^{**††}	4 CHEM 210 or 202	3
HPA 101	3 STAT 250 or 200 (GQ) [‡]	3-4
Teamwork and Interpersonal Communication Course (from Department List)	3 Healthcare/Medicine/Ethics Course (from Department List)	3
General Education Course (GA)	3	
	17	14-15

Third Year

Fall	Credits Spring	Credits
CHEM 212 or 203	3 BIOL 222, 230W, 322, BMB 211, BMB 251, MICRB 251, or MICRB 201	3-4
PHYS 250 or 211 (GN) ^{**#}	4 CHEM 213W (or Supporting Course)	2
ENGL 202C, 202A, 202B, or 202D (GWS) [‡]	3 PHYS 251 or 212	4
400-Level BIOL, BIOTC, BMB, or MICRB Course [*]	3 400-Level BIOL, BIOTC, BMB, or MICRB Course [*]	3
General Education Course (Integrative Studies)	3 Supporting Course (Consult with academic adviser for options)	1
	16	13-14

Fourth Year

Fall	Credits Spring	Credits
PHYS 213 (or Supporting Course)	2 Healthcare/Medicine/Ethics Course (from Department List)	3
PHYS 214 (or Supporting Course)	2 Healthcare/Medicine/Ethics Course (from Department List)	3
400-Level BIOL, BIOTC, BMB, or MICRB Course [*]	3 400-Level Healthcare/Medicine/Ethics Course	3
400-Level Healthcare/Medicine/Ethics Course	3 General Education Course (GHW)	3
General Education Course (GH)	3 General Education Course (Exploration)	3
General Education Course (Integrative Studies)	3	
	16	15

Total Credits 120-122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Biological Sciences and Health Professions Option: Integrative Science, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
BIOL 110 (GN) ^{*##†}	4	CAS 100A, 100B, or 100C (GWS) [‡]	3
CHEM 110 (GN) ^{*##†}	3	CHEM 111 (GN)	1
MATH 140 or 140B (GQ) ^{†##†}	4	CHEM 112	3
ENGL 15, 30H, or ESL 15 (GWS) [‡]	3	Global, Social, and Personal Awareness Course (from Department List)	3
First-Year Seminar	1	Supporting Course (Consult with academic adviser for options)	3
		Supporting Course (Consult with academic adviser for options)	3
	15		16

Second Year

Fall	Credits	Spring	Credits
CHEM 113	1	BIOL 220W, 230W, 240W, or 161 and 162	4
CHEM 210 or 202	3	CHEM 212 or 203	3
HPA 101	3	STAT 250 or 200 (GQ) [‡]	3-4
Teamwork and Interpersonal Communication Course (from Department List)	3	Healthcare/Medicine/Ethics Course (from Department List)	3
General Education Course (GS)	3	General Education Course (GA)	3
Supporting Course (Consult with academic adviser for options)	1		
	14		16-17

Third Year

Fall	Credits	Spring	Credits
CHEM 213W (or Supporting Course)	2	BIOL 222, 230W, 322, BMB 211, BMB 251, MICRB 251, or MICRB 201	3-4
PHYS 250 or 211 (GN) ^{*##}	4	PHYS 251 or 212	4
ENGL 202C, 202A, 202B, or 202D (GWS) [‡]	3	400-Level BIOL, BIOTC, BMB, or MICRB Course [*]	3
400-Level BIOL, BIOTC, BMB, or MICRB Course [*]	3	Healthcare/Medicine/Ethics Course (from Department List)	3
General Education Course (Integrative Studies)	3		
	15		13-14

Fourth Year

Fall	Credits	Spring	Credits
PHYS 213 (or Supporting Course)	2	Healthcare/Medicine/Ethics Course (from Department List)	3
PHYS 214 (or Supporting Course)	2	400-Level Healthcare/Medicine/Ethics Course	3
400-Level BIOL, BIOTC, BMB, or MICRB Course [*]	3	General Education Course (GHW)	3
400-Level Healthcare/Medicine/Ethics Course	3	General Education Course (Exploration)	3
General Education Course (GH)	3	Supporting Course (Consult with academic adviser for options)	3
General Education Course (Integrative Studies)	3		
	16		15

Total Credits 120-122

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

Penn State students with a BS in Integrative Science are prepared for a broad range of careers and graduate programs. The solid foundation of science and math prepares students to think critically and scientifically in a range of industries and professions.

Careers

This program often leads to careers in all healthcare professions, including physicians and physician assistants, dentists, optometrists, and podiatrists; laboratory research associates; scientific product representatives and science-based consulting.

Opportunities for Graduate Studies

Many graduates of the Integrative Science B.S. program choose to pursue graduate studies (MS and PhD) in the natural sciences. Most often, students gravitate to medically-related fields and life science sub-disciplines for focused graduate training. Students in the legal studies

and public policy options may choose law school or master's in public policy programs.

Professional Resources

- Association of American Medical Colleges (<https://www.aamc.org>)
- American Association of Colleges of Osteopathic Medicine (<https://www.aacom.org>)
- American Dental Education Association (<https://www.adea.org>)
- Association of Schools and Colleges of Optometry (<https://optometriceducation.org>)
- American Association of Colleges of Podiatric Medicine (<https://aacpm.org>)
- American Academy of Physician Assistants (AAPA) (<https://www.aapa.org>) Physician Assistant Education Association (<https://paeonline.org>)

Contact

University Park

SCIENCE MAJOR PROGRAM OFFICE
225B Ritenour Building
University Park, PA 16802
814-863-3889
bai107@psu.edu

<https://science.psu.edu/interdisciplinary-programs/science-major>
(<https://science.psu.edu/interdisciplinary-programs/science-major/>)

Berks

DIVISION OF SCIENCE
Luerssen Science Building
Reading, PA 19610
610-396-6185
BKScience@psu.edu

<https://berks.psu.edu/academics/bs-science> (<https://berks.psu.edu/academics/bs-science/>)

Abington

DIVISION OF SCIENCE AND ENGINEERING
1600 Woodland Road
Abington, PA 19001
ldm12@psu.edu

<https://www.abington.psu.edu/academics/majors-at-abington/science>
(<https://www.abington.psu.edu/academics/majors-at-abington/science/>)

Harrisburg

SCHOOL OF SCIENCE, ENGINEERING, AND TECHNOLOGY
Science & Tech Building, TL 177
Middletown, PA 17057
717-948-4387
mrr53@psu.edu

<https://harrisburg.psu.edu/science-engineering-technology/science-bs>
(<https://harrisburg.psu.edu/science-engineering-technology/science-bs/>)

Scranton

Dawson Building 212A
Dunmore, PA 18512
570-963-2528

mlv18@psu.edu (axk55@psu.edu)

<https://scranton.psu.edu/academics/degrees/bachelors/science>
(<https://scranton.psu.edu/academics/degrees/bachelors/science/>)

York

1 Elias Science Building
York, PA 17403
717-718-6705
amv12@psu.edu

<https://www.york.psu.edu/academics/baccalaureate/science> (<https://www.york.psu.edu/academics/baccalaureate/science/>)

International Science, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

This certificate is intended to recognize students who spend significant time abroad during their undergraduate careers and who complete courses that allow them to acquire a more global perspective on the study of science. The certificate is intended to provide recognition for students who have developed a familiarity with science outside of the United States and who have experience with the regional cultural context of the host nation(s). Consultation with an academic adviser prior to studying abroad is strongly recommended to ensure course choices fulfill the requirements of the certificate.

Students who have completed the program requirements must submit an application to have the certificate added to their transcript here: <http://science.psu.edu/cie/education-abroad/international-science-certificate>. (<http://science.psu.edu/cie/education-abroad/international-science-certificate/>)

What is International Science?

Science students interested in learning more about science in other cultures, how science is done in countries outside the US, or how science is applied to problems around the world, can participate in this program combining coursework on campus with experiences abroad.

You Might Like This Program If...

- You are passionate about learning about other cultures.
- You want to learn more about the global science community.
- You plan to study abroad while at Penn State.
- You are interested in exploring, learning, and discovering science in multiple cultural contexts.

Program Requirements

To earn an undergraduate certificate in International Science, a minimum of 12 credits is required.

Students must earn a C or higher for all 12 credits.

Code	Title	Credits
Requirements		

Requirements: Require a grade of C or better

A total of at least 6 weeks abroad on one or more Penn State-approved courses/programs

6 credits (typically two courses) abroad that are either Penn State Science courses taught abroad or courses that are granted equivalency in the College of Science at Penn State

6

6 credits (typically two courses) that directly relate to the host regions' cultures, histories, or languages. These supporting courses can be taken while abroad or in residence on a Penn State campus

6

Certificate Learning Objectives

- **Education abroad:** Experience and study within an international culture
- **International competency:** Demonstrate knowledge of other nations' cultural values, traditions, beliefs, and customs
- **International science:** Demonstrate an understanding of a scientific field outside of the United States

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Joel Waters

Coordinator of Education Abroad & International Programs
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Contact

University Park

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<https://science.psu.edu/science-engagement> (<https://science.psu.edu/science-engagement/>)

Marine Sciences, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

This program provides an excellent opportunity for undergraduates to pursue their interests in the study of the oceans and make more informed decisions about future graduate studies in marine sciences. Although Penn State does not award degrees in this field, a number of faculty pursue research interests in the marine sciences, and a varied selection of undergraduate courses in the marine sciences is available. The student can either complete the requirements for the minor at University Park (UP) or participate in an intensive semester-long oceanography experience at the Southampton, UK, Oceanography Centre (SOC) through education abroad:

The latter option may be of particular interest to students from non-UP locations. SOC has designed a program for PSU students that provides abundant opportunity to participate in shipboard oceanographic research, including a week of day-cruises in the spring and a 2-week series of cruises in June. Students who elect to pursue that minor at UP have the opportunity to receive training as scientific scuba divers through Penn State's Science Diving Program and participate in a number of other field experiences in the marine sciences.

MARINE SCIENCES MINOR: The Marine Sciences Committee is authorized to award a minor certificate to any undergraduate student regularly enrolled in a degree program at the University who, in addition to satisfying the degree requirements of his or her baccalaureate major, satisfies the requirements for the Marine Sciences minor. The completion of the minor is reflected by a formal notation on the student's official record at the time of graduation.

What is Marine Sciences?

Undergraduate students in the marine science minor pursue their interests in the study of the oceans across a broad range of disciplines including marine biology/ecology, chemical oceanography/marine chemistry, marine geosciences, and meteorology. Marine Scientists often work at the interface of these disciplines to study the physical, chemical and biological processes that govern oceans and marine life from the scale of entire ocean basins to the fate of microscopic particles. Applications of this research range from food and energy security to defense. Penn State has a group of world-class faculty pursuing research interests from the coastal zones to the deep sea and from the tropics to the polar regions. An important goal of Penn State marine scientists is to study the impacts of global change and ocean exploration on marine ecosystems.

You Might Like This Program If...

- You have an interest in the oceans and marine life and are considering a career in marine science.
- You enjoy laboratory and field-work and/or science diving.
- You are interested in studying abroad.

Entrance to Minor

To enter the program, a student must have attained at least fourth-semester standing, completed CHEM 112, MATH 111 or MATH 141, and BIOL 110 or their equivalents, and have earned a cumulative grade-point average of at least 2.50. To ensure adequate advising and record keeping, the student must apply for the minor in the Marine Sciences program office and must then complete the requirements shown on the program requirements tab.

In addition to the entrance requirements shown above, there are prerequisite credits required for courses listed under Supporting Courses and Related Areas.

Program Requirements

Requirement	Credits
Requirements for the Minor	19

Courses offered by other institutions may be substituted for any of the required courses listed below, if accepted for transfer by the student's major department and approved by the Marine Sciences Committee. This includes up to 16 transfer credits from SOC. Upon completion of the requirements and no later than the tenth week of the semester in which the student is to graduate, he or she must verify in the Marine Sciences program office that the requirements have been met.

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
GEOSC 40	The Sea Around Us	3
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select at least 6 credits of field studies of the following: ¹		6
BIOL 450W	Experimental Field Biology	
BIOL 483	Coastal Biology Travel Experience	
BIOL 499A	Tropical Field Ecology	
EARTH 240	Coral Reef Systems	
EMSC 440	Science Diving	
EMSC 441	Advanced Science Diving	
ERM 496	Independent Studies	
GEOSC 410	Marine Biogeochemistry	
or BIOL 496	Independent Studies	
GEOSC 496	Independent Studies	
METEO 496	Independent Studies ²	
Select 10 credits from the following list:		10
BIOL 406	Symbiosis	
BIOL 417	Invertebrate Zoology	
BIOL 482	Coastal Biology	
GEOSC 419	The Organic Geochemistry of Natural Waters and Sediments	
GEOSC 440	Marine Geology	
METEO 451	Introduction to Physical Oceanography	
WFS/ERM 435	Limnology	
WFS/ERM 436	Limnological Methods	
WFS/ERM 450	Wetland Science and Sustainability	
WFS 452	Ichthyology	
WFS 453	Ichthyology Laboratory	

¹ Students may also wish to transfer 6 credits of field-oriented course work from another institution with prior approval of the chair of the Marine Sciences minor.

² Students may select METEO 496 with consent of instructor and Marine Sciences minor.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Barbara DeHart

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Career Paths

Marine Scientists work for universities, governments, non-profits and private industry in a range of functions. For example, they develop tools and methods to manage ocean resources such as fisheries, protect shorelines from erosion, and guide ocean exploration for minerals and oil. There are also a wide range of opportunities for graduate studies in the marine sciences, which include master's and Ph.D. degrees.

Contact

University Park

DEPARTMENT OF BIOLOGY
327 Mueller Laboratory
University Park, PA 16802
814-836-2038
tcl3@psu.edu

<https://science.psu.edu/bio/contact-us> (<https://science.psu.edu/bio/contact-us/>)

Mathematics, B.A.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

Two degrees are offered in mathematics: the Bachelor of Arts and the Bachelor of Science. Both programs have a common core of mathematics courses; both programs prepare students for graduate work in mathematics. In addition, the Bachelor of Arts degree is oriented toward applications of mathematics in the arts and the humanities. The Bachelor of Science degree has a number of options. These options are oriented toward actuarial science, applied and industrial mathematics, computational mathematics, graduate study and systems analysis.

Many of the options are designed for students who want to use mathematics in industry, commerce, or government. In short, the degree requirements have the flexibility to fit many individual interests. The student, with the assistance of a faculty adviser, should select an option by the end of the sophomore year.

What is Mathematics?

The study of mathematics emphasizes careful problem analysis, precision of thought and expression, and the development of mathematical skills needed for work in many other areas. Theoretical mathematicians increase basic knowledge in "pure" fields like abstract algebra, analysis, or topology. Applied mathematicians use tools growing out of calculus, analysis, computing, statistics, and operations research to solve problems in science, industry, government, and other areas.

You Might Like This Program If...

- You want to take a broad liberal arts program with a strong mathematical foundation.
- You want mathematics to complement your study of other subjects.
- You like mathematics, like to think, like a challenge, and like to know why things are true.
- You want to develop strong problem-solving skills, comprehension of abstract concepts, and creative thinking ability.

Entrance to Major

In order to be eligible for entrance to the Mathematics major, a student must have:

1. attained at least a 2.00 cumulative grade-point average; and
2. completed MATH 140 and MATH 141 and earned a grade of C or better in each of these courses.

Degree Requirements

For the Bachelor of Arts degree in Mathematics, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	0-4
Bachelor of Arts Degree Requirements	24
Requirements for the Major	53-59

6 of the 45 credits for General Education are included in the Requirements for the Major. This includes 6 credits of GQ courses.

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and

0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
MATH 220	Matrices	2-3
MATH 230	Calculus and Vector Analysis	4
MATH 311W	Concepts of Discrete Mathematics	3-4
MATH 312	Concepts of Real Analysis	3
MATH 403	Classical Analysis I	3
STAT 200	Elementary Statistics	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
MATH 250	Ordinary Differential Equations	3-4
or MATH 251	Ordinary and Partial Differential Equations	
MATH 435	Basic Abstract Algebra	3
or MATH 436	Linear Algebra	
Select 3 credits from the following:		3
CMPS 101	Introduction to Programming	
CMPS 121	Introduction to Programming Techniques	
CMPS 131	Programming and Computation I: Fundamentals	
CMPS 201	Programming for Engineers with C++	
Select 3 credits from the following:		3
MATH 411	Ordinary Differential Equations	
MATH 412	Fourier Series and Partial Differential Equations	
MATH 417	Qualitative Theory of Differential Equations	
MATH 419	Theoretical Mechanics	
MATH 421	Complex Analysis	
Select 6 credits of 400-level MATH courses except MATH 401, MATH 405, MATH 406, MATH 418, MATH 441, MATH 470, MATH 471		6
Supporting Courses and Related Areas		
Select 8-11 credits from department list		8-11

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Integrated B.A. or B.S. in Mathematics and M.A.S. in Applied Statistics

Available at the following campuses: University Park

Requirements for the Integrated B.A. or B.S. in Mathematics and M.A.S. in Applied Statistics can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/statistics/#integratedundergradgradprogramstext>).

Program Learning Objectives

- Students will demonstrate technical expertise within major areas of mathematics, recognizing connections between different branches of mathematics, and understanding and appreciating the relationship of mathematics to other disciplines and fields.
- Students will demonstrate a breadth and depth of knowledge within mathematics, linking applications and theory, applying mathematics in a wide variety of settings, and demonstrating the ability to use mathematics as a tool to solve problems in disciplinary and interdisciplinary settings.
- Students will demonstrate an understanding and appreciation for the integration of technology in mathematical settings to explore mathematical problems and interpret the results.
- Students will demonstrate an ability to communicate mathematics effectively, presenting full and cogent solutions that include appropriate justification for their reasoning, describing mathematical ideas from multiple perspectives, and writing/presenting explanations clearly and precisely to an audience of peers and faculty.
- Students will demonstrate an ability for assessing and interpreting complex situations, choosing among several potentially appropriate mathematical methods of solution, understanding the differences

between proofs and other less formal arguments, and making vague ideas precise by formulating them in mathematical language.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Undergraduate Mathematics Office

Academic Advising

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814-865-7528
undergrad@math.psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Mathematics, B.A. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
MATH 140 ^{*†‡†}	4	MATH 141 ^{*†‡†}	4
STAT 200 [*]	4	MATH 220 [*]	3
ENGL 15, 30H, or ESL 15 [‡]	3	World Language Level 2	4
World Language Level 1	4	General Education Course	3
PSU 16	1	General Education Course	3
	16		17

Second Year

Fall	Credits	Spring	Credits
MATH 230 [*]	4	MATH 250 or 251 [*]	3-4
MATH 311W [*]	3	MATH 312 [*]	3
World Language Level 3	4	CMPSC 101, 121, 131, 200, or 201 [*]	3

General Education Course	3	General Education Course	3
		Supporting Course (Chosen in consultation with an academic adviser)	3
	14		15-16

Third Year

Fall	Credits	Spring	Credits
MATH 411, 412, 417, 419, or 421 ^{*1}	3	MATH 435 or 436 [*]	3
CAS 100A, 100B, or 100C [‡]	3	ENGL 202C, 202A, 202B, or 202D [‡]	3
BA World Cultures	3	Supporting Course (Chosen in consultation with an academic adviser)	3-4
General Education Course	3	BA Fields	3
General Education Course	3	General Education Course (GHW)	1.5
General Education Course (GHW)	1.5		
	16.5		13.5-14.5

Fourth Year

Fall	Credits	Spring	Credits
MATH 403 [*]	3	MATH 400-Level ^{*2}	3
MATH 400-Level ^{*2}	3	BA Fields	3
BA Fields	3	General Education Course	3
Supporting Course (Chosen in consultation with an academic adviser)	3	General Education Course	3
General Education Course	3		
	15		12

Total Credits 119-121

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ To take MATH 412 or MATH 417 in a Spring semester, swap it with MATH 435 or MATH 436 in Third Year Spring or with a MATH 400-level in Fourth Year Spring. To take MATH 421, swap it with MATH 403 in Fourth Year Fall.

² Excluding MATH 401, MATH 405, MATH 406, MATH 441, MATH 470, MATH 471. At most 2 credits of MATH 400 or MATH 497 Learning Assistant Experience may be used.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Career Paths

Students with an undergraduate degree in mathematics pursue graduate study or careers in business and industry.

Careers

Students with an undergraduate degree in mathematics pursue careers in the fields of science and technology, business and consulting, research and industry, and teaching.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE MATHEMATICS PROGRAM (<https://science.psu.edu/math/undergraduate/advising/careers/>)

Opportunities for Graduate Studies

Students with an undergraduate degree in mathematics pursue graduate study in a variety of different fields such as mathematics, statistics, economics, finance, computer science, or operations research.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://science.psu.edu/math/undergraduate/advising/careers/>)

Professional Resources

- Mathematical Association of America (<https://www.maa.org>)
- American Mathematical Society (<https://www.ams.org/home/page/>)
- Society of Industrial and Applied Mathematics (<https://www.siam.org>)

Contact

University Park

DEPARTMENT OF MATHEMATICS
104 McAllister Building
University Park, PA 16802
814-865-7528
undergrad@math.psu.edu

<https://science.psu.edu/math> (<https://science.psu.edu/math/>)

Mathematics, B.S. (Science)

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

Two degrees are offered in mathematics: the Bachelor of Arts and the Bachelor of Science. Both programs have a common core of mathematics courses; both programs prepare students for graduate work in mathematics. In addition, the Bachelor of Arts degree is oriented toward applications of mathematics in the arts and the humanities. The Bachelor of Science degree has a number of options. These options are oriented toward actuarial science, applied and industrial, computational mathematics, graduate study and systems analysis.

Many of the options are designed for students who want to use mathematics in industry, commerce, or government. In short, the degree requirements have the flexibility to fit many individual interests. The student, with the assistance of a faculty adviser, should select an option by the end of the sophomore year.

What is Mathematics?

The study of mathematics emphasizes careful problem analysis, precision of thought and expression, and the development of mathematical skills needed for work in many other areas. Theoretical mathematicians increase basic knowledge in "pure" fields like abstract algebra, analysis, or topology. Applied mathematicians use tools growing out of calculus, analysis, computing, statistics, and operations research to solve problems in science, industry, government, and other areas.

You Might Like This Program If...

- You like mathematics, like to think, like a challenge, and like to know why things are true.
- You want to develop strong problem-solving skills, comprehension of abstract concepts, and creative thinking ability.
- You want to have access to a wide variety of careers in the fields of science and technology, finance and risk analysis, research and industry, and teaching.

Entrance to Major

In order to be eligible for entrance to the Mathematics major, a student must have:

1. attained at least a 2.00 cumulative grade point average; and
2. completed MATH 140 and MATH 141 and earned a grade of C or better in each of these courses.

Degree Requirements

For the Bachelor of Science degree in Mathematics, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	0-1
Requirements for the Major	80-84

6 of the 45 credits for General Education are included in the Requirements for the Major. This includes 6 credits of GQ courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
MATH 220	Matrices	2-3
MATH 230	Calculus and Vector Analysis	4
MATH 311W	Concepts of Discrete Mathematics	3-4
MATH 312	Concepts of Real Analysis	3
STAT 200	Elementary Statistics	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
MATH 250	Ordinary Differential Equations	3-4
or MATH 251	Ordinary and Partial Differential Equations	
Select 3 credits from the following:		3
CMPSC 101	Introduction to Programming	
CMPSC 121	Introduction to Programming Techniques	
CMPSC 131	Programming and Computation I: Fundamentals	
CMPSC 200	Programming for Engineers with MATLAB	
CMPSC 201	Programming for Engineers with C++	

Requirements for the Option

Select an option 50-51

Requirements for the Option

Actuarial Mathematics Option (50-51 credits)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
MATH 414	Introduction to Probability Theory	3
MATH 415	Introduction to Mathematical Statistics	3
MATH 416	Stochastic Modeling	3
MATH 484	Linear Programs and Related Problems	3
RM 302	Risk and Insurance	3
RM 410	Financial Mathematics for Actuaries	3
RM 411	Long Term Actuarial Mathematics - Fundamentals	3
RM 421	Short Term Actuarial Mathematics - Fundamentals	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
MATH 451	Numerical Computations	3
or MATH 486	Mathematical Theory of Games	
Select 9 credits from the following:		9
IE 425	Stochastic Models in Operations Research	
or IE 468	Optimization Modeling and Methods	
RM 412	Long Term Actuarial Mathematics - Advanced Topics	

RM 422	Short Term Actuarial Mathematics - Advanced Topics
STAT 380	Data Science Through Statistical Reasoning and Computation
STAT 462	Applied Regression Analysis
STAT 463	Applied Time Series Analysis

Supporting Courses and Related Areas

Select 14-15 credits from department list 14-15

Applied and Industrial Mathematics Option (50-51 credits)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
MATH 403	Classical Analysis I	3
MATH 412	Fourier Series and Partial Differential Equations	3
MATH 414	Introduction to Probability Theory	3
MATH 415	Introduction to Mathematical Statistics	3
MATH 436	Linear Algebra	3
MATH 450	Mathematical Modeling	3
MATH 455	Introduction to Numerical Analysis I	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 12 credits from the following:		12
MATH 411	Ordinary Differential Equations	
MATH 416	Stochastic Modeling	
MATH 417	Qualitative Theory of Differential Equations	
MATH 419	Theoretical Mechanics	
MATH 421	Complex Analysis	
MATH 456	Introduction to Numerical Analysis II	
MATH 467	Factorization and Primality Testing	
MATH 468	Mathematical Coding Theory	
MATH 479	Special and General Relativity	
MATH 484	Linear Programs and Related Problems	
MATH 485	Graph Theory	
MATH 486	Mathematical Theory of Games	

Supporting Courses and Related Areas

Select 17-18 credits from department list 17-18

Computational Mathematics Option (50-51 credits)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CMPSC 465	Data Structures and Algorithms	3
MATH 414	Introduction to Probability Theory	3
MATH 415	Introduction to Mathematical Statistics	3
MATH 455	Introduction to Numerical Analysis I	3
MATH 456	Introduction to Numerical Analysis II	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
CMPSC 122	Intermediate Programming	3
or CMPSC 132	Programming and Computation II: Data Structures	
MATH 467	Factorization and Primality Testing	3
or MATH 465	Number Theory	
Select 3 credits from the following:		3

MATH 411	Ordinary Differential Equations	
MATH 412	Fourier Series and Partial Differential Equations	
MATH 417	Qualitative Theory of Differential Equations	
Select 9 credits from the following:		9
CMPSC 442	Artificial Intelligence	
MATH 310	Elementary Combinatorics	
MATH 452	Deep Learning Algorithms and Analysis	
MATH 457	Introduction to Mathematical Logic	
MATH 468	Mathematical Coding Theory	
MATH 484	Linear Programs and Related Problems	
MATH 485	Graph Theory	

Supporting Courses and Related Areas

Select 17-18 credits from department list 17-18

General Mathematics Option (50-51 credits)

Code	Title	Credits
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Prescribed Courses*Prescribed Courses: Require a grade of C or better*

MATH 403	Classical Analysis I	3
MATH 414	Introduction to Probability Theory	3
MATH 415	Introduction to Mathematical Statistics	3

Additional Courses*Additional Courses: Require a grade of C or better*

MATH 435	Basic Abstract Algebra	3
or MATH 436	Linear Algebra	

Select 3 credits from the following: 3

MATH 411	Ordinary Differential Equations	
MATH 412	Fourier Series and Partial Differential Equations	
MATH 417	Qualitative Theory of Differential Equations	
MATH 419	Theoretical Mechanics	
MATH 421	Complex Analysis	

Select 6 credits of 400-level MATH courses except MATH 401, MATH 405, MATH 406, MATH 418, MATH 441, MATH 470, MATH 471 6

Select an approved sequence of 12 credits in MATH or a related area or an area of application 12

Supporting Courses and Related Areas

Select 17-18 credits from department list 17-18

Graduate Study Option (50-51 credits)

Code	Title	Credits
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Prescribed Courses*Prescribed Courses: Require a grade of C or better*

MATH 403	Classical Analysis I	3
MATH 404	Classical Analysis II	3
MATH 414	Introduction to Probability Theory	3
MATH 415	Introduction to Mathematical Statistics	3
MATH 421	Complex Analysis	3
MATH 429	Introduction to Topology	3
MATH 435	Basic Abstract Algebra	3
MATH 436	Linear Algebra	3

Additional Courses*Additional Courses: Require a grade of C or better*

Select 9 credits of 400-level MATH courses except MATH 401, MATH 405, MATH 406, MATH 418, MATH 441, MATH 470, MATH 471 9

Supporting Courses and Related Areas

Select 17-18 credits from department list 17-18

Systems Analysis Option (50-51 credits)

Code	Title	Credits
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Prescribed Courses*Prescribed Courses: Require a grade of C or better*

MATH 414	Introduction to Probability Theory	3
MATH 415	Introduction to Mathematical Statistics	3
MATH 436	Linear Algebra	3
MATH 484	Linear Programs and Related Problems	3

Additional Courses*Additional Courses: Require a grade of C or better*

Select 9 credits from the following: 9

MATH 310	Elementary Combinatorics	
MATH 412	Fourier Series and Partial Differential Equations	
MATH 448	Mathematics of Finance	
MATH 451	Numerical Computations	
or MATH 455	Introduction to Numerical Analysis I	
MATH 485	Graph Theory	
MATH 486	Mathematical Theory of Games	

Select an approved sequence of 12 credits in an area of application; 12 possible areas include business, economics, industrial engineering, social sciences

Supporting Courses and Related Areas

Select 17-18 credits from department list 17-18

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.A. or B.S. in Mathematics and M.A.S. in Applied Statistics

Available at the following campuses: University Park

Requirements for the Integrated B.A. or B.S. in Mathematics and M.A.S. in Applied Statistics can be found in the Graduate Bulletin

(<https://bulletins.psu.edu/graduate/programs/majors/statistics/#integratedundergradgradprogramstext>).

Integrated B.S. in Mathematics and M.Ed. in Curriculum and Instruction

Available at the following campuses: University Park

Requirements for the Integrated B.S. in Mathematics and M.Ed. in Curriculum and Instruction can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/curriculum-instruction/#integratedundergradgradprogramstext>).

Program Learning Objectives

- Students will demonstrate technical expertise within major areas of mathematics, recognizing connections between different branches of mathematics, and understanding and appreciating the relationship of mathematics to other disciplines and fields.
- Students will demonstrate a breadth and depth of knowledge within mathematics, linking applications and theory, applying mathematics in a wide variety of settings, and demonstrating the ability to use mathematics as a tool to solve problems in disciplinary and interdisciplinary settings.
- Students will demonstrate an understanding and appreciation for the integration of technology in mathematical settings to explore mathematical problems and interpret the results.
- Students will demonstrate an ability to communicate mathematics effectively, presenting full and cogent solutions that include appropriate justification for their reasoning, describing mathematical ideas from multiple perspectives, and writing/presenting explanations clearly and precisely to an audience of peers and faculty.
- Students will demonstrate an ability for assessing and interpreting complex situations, choosing among several potentially appropriate mathematical methods of solution, understanding the differences between proofs and other less formal arguments, and making vague ideas precise by formulating them in mathematical language.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

**Undergraduate Mathematics Office
Academic Advising**

104 McAllister Building
University Park, PA 16802
814-865-7528

undergrad@math.psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Actuarial Mathematics Option: Mathematics, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 ^{**#†}	4 MATH 141 ^{**#†}	4
STAT 200 [*]	4 MATH 220 [*]	3
ENGL 15, 30H, or ESL 15 [‡]	3 General Education Course	3
ECON 102 (or General Education Course)	3 ECON 104 (or General Education Course)	3
PSU 16	1 Supporting Course (ACCTG 211 is recommended)	4
	15	17

Second Year

Fall	Credits Spring	Credits
MATH 230 [*]	4 MATH/STAT 414 [*]	3
MATH 311W [*]	3 MATH 312 [*]	3
CMPSC 101, 121, 131, 200, or 201 [*]	3 General Education Course	3
General Education Course	3 Supporting Course (FIN 301 is recommended)	3
General Education Course	3 Supporting Course (RM 214 is recommended)	1.5-3
	16	13.5-15

Third Year

Fall	Credits Spring	Credits
MATH 250 or 251 [*]	3-4 MATH 484 [*]	3
MATH/STAT 415 [*]	3 MATH 451 or 486 [*]	3
RM 410 [*]	3 RM 421 [*]	3
RM 302 [*]	3 ENGL 202C, 202A, 202B, or 202D [‡]	3
CAS 100A, 100B, or 100C [‡]	3 Supporting Course (Chosen in consultation with an academic adviser)	3
	General Education Course (GHW)	1.5
	15-16	16.5

Fourth Year

Fall	Credits Spring	Credits
RM 411 [*]	3 MATH/STAT 416 [*]	3

STAT, RM, or IE ^{*1}	3 STAT, RM, or IE ^{*1}	3
STAT, RM, or IE ^{*1}	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5 Supporting Course (Chosen in consultation with an academic adviser)	0-1.5
	13.5	12-13.5

Total Credits 118.5-122.5

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ Select from STAT 380, STAT 462, STAT 463, RM 412, RM 422, IE 425 or IE 468. Students should not take both IE 425 and IE 468. To enroll in IE 425, use the Request Prerequisite Override feature in LionPATH and indicate that you took MATH 414/STAT 414 in place of the IE 322 prerequisite. To enroll in IE 468, use the Request Prerequisite Override feature in LionPATH and indicate that you took MATH 484 in place of the IE 405 prerequisite.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Actuarial Mathematics Option (ALEKS Placement in MATH 21): Mathematics, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits Summer	Credits
MATH 21	3 MATH 41	4 MATH 140 ^{*†#†}	4
STAT 200 [*]	4 General Education Course	3	
ENGL 15, 30H, or ESL 15 [‡]	3 General Education Course	3	
ECON 102 (or General Education Course)	3 ECON 104 (or General Education Course)	3	
PSU 16	1 Supporting Course (ACCTG 211 is recommended)	4	
	14	17	4

Second Year

Fall	Credits Spring	Credits Summer	Credits
MATH 141 ^{*†#†}	4 MATH 230 [*]	4 MATH/STAT 414 [*]	3
MATH 220 [*]	2 MATH 311W [*]	3	
General Education Course	3 CMPSC 101, 121, 131, 200, or 201 [*]	3	
General Education Course	3 General Education Course	3	
General Education Course	3 General Education Course	3	
	15	16	3

Third Year

Fall	Credits Spring	Credits
MATH 250 or 251 [*]	3-4 MATH 312 [*]	3
MATH 484 [*]	3 MATH/STAT 415 [*]	3
RM 410 [*]	3 RM 411 [*]	3
RM 302 [*]	3 FIN 301	3
CAS 100A, 100B, or 100C [‡]	3	
	15-16	12

Fourth Year

Fall	Credits Spring	Credits
RM 421 [*]	3 MATH/STAT 416 [*]	3
STAT, RM, or IE ^{*1}	3 MATH 451 or 486 [*]	3
STAT, RM, or IE ^{*1}	3 STAT, RM, or IE ^{*1}	3
ENGL 202C, 202A, 202B, or 202D [‡]	3 Supporting Course (Chosen in consultation with an academic adviser)	3
General Education Course (GHW)	1.5 Supporting Course (Chosen in consultation with an academic adviser)	3-4
	General Education Course (GHW)	1.5
	13.5	16.5-17.5

Total Credits 126-128

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Select from STAT 380, STAT 462, STAT 463, RM 412, RM 422, IE 425 or IE 468. Students should not take both IE 425 and IE 468.

To enroll in IE 425, use the Request Prerequisite Override feature in LionPATH and indicate that you took MATH 414/STAT 414 in place of the IE 322 prerequisite.

To enroll in IE 468, use the Request Prerequisite Override feature in LionPATH and indicate that you took MATH 484 in place of the IE 405 prerequisite.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry

the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Actuarial Mathematics Option: Mathematics, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 ^{*†##}	4 MATH 141 ^{*†##}	4
STAT 200 [*]	4 MATH 220 (or General Education Course) ^{*1}	3
ENGL 15 [‡]	3 General Education Course	3
ECON 102 (or General Education Course)	3 ECON 104 (or General Education Course)	3
PSU 16	1 ACCTG 211	4
	15	17

Second Year

Fall	Credits Spring	Credits
MATH 230 [*]	4 MATH 414 [*]	3
MATH 220, 250, or 251 ^{*1}	3-4 MATH 311W [*]	3
General Education Course	3 CMPSC 101, 121, 131, 200, or 201 [*]	3
General Education Course	3 General Education Course	3
CAS 100A, 100B, or 100C [‡]	3 FIN 301	3
	RM 214	1.5
	16-17	16.5

Third Year

Fall	Credits Spring	Credits
MATH 312 [*]	3 MATH 415 [*]	3
MATH 250 or 251 (or General Education Course) ^{*1}	3 MATH 451 or 486 [*]	3
RM 410 [*]	3 RM 411 [*]	3
RM 302 [*]	3 ENGL 202C, 202A, 202B, or 202D [‡]	3
MATH 484 [*]	3 Supporting Course (Chosen in consultation with an academic adviser)	3
	General Education Course (GHW)	1.5
	15	16.5

Fourth Year

Fall	Credits Spring	Credits
RM 421 [*]	3 MATH 416 [*]	3
STAT, RM, or IE ^{*2}	3 STAT, RM, or IE ^{*2}	3
STAT, RM, or IE ^{*2}	3 General Education Course	3
General Education Course	3 Supporting Course (Chosen in consultation with an academic adviser)	3

General Education Course (GHW)	1.5	
	13.5	12

Total Credits 121.5-122.5

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ Semester will vary based on campus MATH 220 and MATH 250/MATH 251 offerings.

² Select from STAT 380, STAT 462, STAT 463, RM 412, RM 422, IE 425 or IE 468. Students should not take both IE 425 and IE 468.

To enroll in IE 425, use the Request Prerequisite Override feature in LionPATH and indicate that you took MATH 414/STAT 414 in place of the IE 322 prerequisite.

To enroll in IE 468, use the Request Prerequisite Override feature in LionPATH and indicate that you took MATH 484 in place of the IE 405 prerequisite.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Applied and Industrial Option: Mathematics, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
MATH 140 ^{*†#†}	4	MATH 141 ^{*†#†}	4
STAT 200 [*]	4	MATH 220 [*]	3
ENGL 15, 30H, or ESL 15 [†]	3	General Education Course	3
General Education Course	3	General Education Course	3
PSU 16	1	General Education Course	3
	15		16

Second Year

Fall	Credits	Spring	Credits
MATH 230 [*]	4	MATH 250 or 251 [*]	3-4
MATH 311W [*]	3	MATH 312 [*]	3
CMPSC 121, 131, or 201 ^{*1}	3	MATH/STAT 414 [*]	3
General Education Course	3	General Education Course	3
		General Education Course	3
	13		15-16

Third Year

Fall	Credits	Spring	Credits
MATH/STAT 415 [*]	3	MATH 412 [*]	3
MATH 436 [*]	3	MATH 403 [*]	3
CAS 100A, 100B, or 100C [†]	3	MATH 400-Level ^{*2}	3
General Education Course	3	ENGL 202C, 202A, 202B, or 202D [†]	3
Supporting Course (Chosen in consultation with an academic adviser)	3	Supporting Course (Chosen in consultation with an academic adviser)	3
General Education Course (GHW)	1.5	General Education Course (GHW)	1.5
	16.5		16.5

Fourth Year

Fall	Credits	Spring	Credits
MATH/CMPSC 455 [*]	3	MATH 450 [*]	3
MATH 400-Level ^{*2}	3	MATH 400-Level ^{*2}	3
MATH 400-Level ^{*2}	3	Supporting Course (Chosen in consultation with an academic adviser)	3
General Education Course	3	Supporting Course (Chosen in consultation with an academic adviser)	3-4
Supporting Course (Chosen in consultation with an academic adviser)	3		
	15		12-13

Total Credits 119-121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Applied & Industrial option students should not take CMPSC 101 or CMPSC 200 since MATH 455/CMPSC 455 requires CMPSC 121, CMPSC 131 or CMPSC 201.

² Select from MATH 411, MATH 416, MATH 417, MATH 419, MATH 421, MATH 456, MATH 467, MATH 468, MATH 479, MATH 484, MATH 485, MATH 486.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Applied and Industrial Option (ALEKS Placement in MATH 21): Mathematics, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits Summer	Credits
MATH 21	3 MATH 41	4 MATH 140 ^{*†#†}	4
STAT 200 [*]	4 General Education Course	3	
ENGL 15, 30H, or ESL 15 [‡]	3 General Education Course	3	
General Education Course	3 General Education Course	3	
PSU 16	1 General Education Course	3	
	14	16	4

Second Year

Fall	Credits Spring	Credits
MATH 141 ^{*†#†}	4 MATH 250 or 251 [*]	3-4
MATH 220 [*]	3 MATH 311W [*]	3
CMPS 121, 131, or 201 ^{*1}	3 MATH 230 [*]	4
General Education Course	3 General Education Course	3
	General Education Course	3
	13	16-17

Third Year

Fall	Credits Spring	Credits
MATH/STAT 414 [*]	3 MATH 412 [*]	3
MATH 436 [*]	3 MATH/STAT 415 [*]	3
MATH 312 [*]	3 MATH 403 [*]	3
CAS 100A, 100B, or 100C [‡]	3 ENGL 202C, 202A, 202B, or 202D [†]	3
General Education Course (GHW)	1.5 Supporting Course (Chosen in consultation with an academic adviser)	3-4
	13.5	15-16

Fourth Year

Fall	Credits Spring	Credits
MATH/CMPS 455 [*]	3 MATH 450	3
MATH 400-Level ^{*2}	3 MATH 400-Level ^{*2}	3
MATH 400-Level ^{*2}	3 MATH 400-Level ^{*2}	3
General Education Course (GHW)	1.5 General Education Course	3
Supporting Course (Chosen in consultation with an academic adviser)	3 Supporting Course (Chosen in consultation with an academic adviser)	3
	13.5	15

Total Credits 120-122

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ Applied & Industrial option students should not take CMPS 101 or CMPS 200 since MATH 455/CMPS 455 requires CMPS 121, CMPS 131 or CMPS 201.

² Select from MATH 411, MATH 416, MATH 417, MATH 419, MATH 421, MATH 456, MATH 467, MATH 468, MATH 479, MATH 484, MATH 485, MATH 486.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Applied and Industrial Option: Mathematics, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 ^{*†#†}	4 MATH 141 ^{*†#†}	4
STAT 200 [*]	4 MATH 220 (or General Education Course) ^{*1}	3
ENGL 15 [‡]	3 General Education Course	3
General Education Course	3 General Education Course	3
PSU 16	1 General Education Course	3
15		16

Second Year

Fall	Credits Spring	Credits
MATH 230 [*]	4 MATH 250 or 251 [*]	3-4
MATH 220 (or General Education Course) ^{*1}	3 CMPSC 121, 131, or 201 ^{*2}	3
General Education Course	3 General Education Course	3
CAS 100A, 100B, or 100C [‡]	3 General Education Course	3
	Supporting Course (Chosen in consultation with an academic adviser)	3
13		15-16

Third Year

Fall	Credits Spring	Credits Summer	Credits
MATH 311W [*]	3 MATH 312 [*]	3 MATH 400-Level ^{*3}	3
MATH 414 [*]	3 MATH 412 [*]	3	
MATH 455 [*]	3 MATH 415 [*]	3	
General Education Course	3 ENGL 202C, 202A, 202B, or 202D [‡]	3	

Supporting Course (Chosen in consultation with an academic adviser)	3 Supporting Course (Chosen in consultation with an academic adviser)	3
15		15
3		
Fourth Year		
Fall	Credits Spring	Credits
MATH 403 [*]	3 MATH 450 [*]	3
MATH 436 [*]	3 MATH 400-Level ^{*3}	3
MATH 400-Level ^{*3}	3 MATH 400-Level ^{*3}	3
General Education Course	3 General Education Course	3
Supporting Course (Chosen in consultation with an academic adviser)	3 Supporting Course (Chosen in consultation with an academic adviser)	1-2
15		13-14
Total Credits 120-122		

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Semester will vary based on campus MATH 220 offerings.

² Applied & Industrial option students should not take CMPSC 101 or CMPSC 200 since MATH 455/CMPSC 455 requires CMPSC 121, CMPSC 131 or CMPSC 201.

³ Select from MATH 411, MATH 416, MATH 417, MATH 419, MATH 421, MATH 456, MATH 467, MATH 468, MATH 479, MATH 484, MATH 485, MATH 486.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education

requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Computational Mathematics Option: Mathematics, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 ^{*†#†}	4 MATH 141 ^{*†#†}	4
STAT 200 [*]	4 MATH 220 [*]	3
ENGL 15, 30H, or ESL 15 [†]	3 General Education Course	3
General Education Course	3 General Education Course	3
PSU 16	1 General Education Course	3
	15	16

Second Year

Fall	Credits Spring	Credits
MATH 230 [*]	4 MATH 250 or 251 [*]	3-4
MATH 311W [*]	3 MATH 312 [*]	3
CMPSC 121 or 131 ^{*1}	3 CMPSC 122 or 132 ^{*1}	3
General Education Course	3 Supporting Course (Chosen in consultation with an academic adviser)	3
	General Education Course	3
	13	15-16

Third Year

Fall	Credits Spring	Credits
MATH/STAT 414 [*]	3 MATH/STAT 415 [*]	3
MATH/CMPSC 467 [*]	3 Computational Course ^{*2}	3
CAS 100A, 100B, or 100C [†]	3 Computational Course ^{*2}	3
General Education Course	3 ENGL 202C, 202A, 202B, or 202D [†]	3
Supporting Course (CMPSC 221 is recommended)	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
	16.5	16.5

Fourth Year

Fall	Credits Spring	Credits
MATH/CMPSC 455 [*]	3 MATH/CMPSC 456 [*]	3
Computational Course ^{*2}	3 CMPSC 465 [*]	3
MATH 411, 412, or 417 ^{*3}	3 Supporting Course (Chosen in consultation with an academic adviser)	3
General Education Course	3 Supporting Course (Chosen in consultation with an academic adviser)	3-4

Supporting Course (Chosen in consultation with an academic adviser) 3

15

12-13

Total Credits 119-121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Computational option students should not take CMPSC 101, CMPSC 200 or CMPSC 201 since CMPSC 122 and CMPSC 132 require CMPSC 121 or CMPSC 131.

² Select from MATH 310, MATH 452, MATH 457, MATH 468, MATH 484, MATH 485, CMPSC 442.

³ MATH 411 is offered during the Fall and Summer and MATH 412 and MATH 417 are both only offered during the Spring semesters. In order to take MATH 412 or MATH 417 in the Spring semester, swap it with a Computational Course in Third Year Spring or with CMPSC 465 in Fourth Year Spring.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Computational Mathematics Option (ALEKS Placement in MATH 21): Mathematics, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits Summer	Credits
MATH 21	3 MATH 41	4 MATH 140 ^{*†‡††}	4
STAT 200 [*]	4 General Education Course	3	
ENGL 15, 30H, or ESL 15 [‡]	3 General Education Course	3	
General Education Course	3 General Education Course	3	
PSU 16	1 General Education Course	3	
	14	16	4

Second Year

Fall	Credits Spring	Credits
MATH 141 ^{*†‡††}	4 MATH 230 [*]	4
MATH 220 [*]	2 MATH 311W [*]	3
General Education Course	3 CMPSC 122 or 132 ^{*1}	3
CMPSC 121 or 131 ^{*1}	3 General Education Course	3
Supporting Course (Chosen in consultation with an academic adviser)	3	
	15	13

Third Year

Fall	Credits Spring	Credits
MATH 250 or 251 [*]	3-4 MATH/STAT 414 [*]	3
MATH 467 [*]	3 Computational Course ^{*2}	3
MATH 312 [*]	3 MATH 411, 412, or 417 [*]	3
CAS 100A, 100B, or 100C [‡]	3 ENGL 202C, 202A, 202B, or 202D [‡]	3

Supporting Course (Chosen in consultation with an academic adviser)	3 Supporting Course (Chosen in consultation with an academic adviser)	2-3
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General Education Course (GHW)	1.5
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15-16

15.5-16.5

Fourth Year

Fall	Credits Spring	Credits
MATH/CMPSC 455 [*]	3 MATH/CMPSC 456 [*]	3
MATH/STAT 415 [*]	3 CMPSC 465 [*]	3
Computational Course ^{*2}	3 Computational Course ^{*2}	3
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5 Supporting Course (Chosen in consultation with an academic adviser)	3
	13.5	15

Total Credits 121-123

* Course requires a grade of C or better for the major
 ‡ Course requires a grade of C or better for General Education
 # Course is an Entrance to Major requirement
 † Course satisfies General Education and degree requirement

¹ Computational option students should not take CMPSC 101, CMPSC 200 or CMPSC 201 since CMPSC 122 and CMPSC 132 require CMPSC 121 or CMPSC 131.

² Select from MATH 310, MATH 452, MATH 457, MATH 468, MATH 484, MATH 485, CMPSC 442.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and

ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Computational Mathematics Option: Mathematics, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 ^{*†##}	4 MATH 141 ^{*†##}	4
STAT 200 [*]	4 MATH 220 (or General Education Course) ^{*1}	3
ENGL 15 [‡]	3 General Education Course	3
General Education Course	3 General Education Course	3
PSU 16	1 General Education Course	3
	15	16

Second Year

Fall	Credits Spring	Credits
MATH 230 [*]	4 MATH 250 or 251 [*]	3-4
MATH 220 (or General Education Course) ^{*1}	2-3 CMPSC 122 or 132 ^{*2}	3
CMPSC 121 or 131 ^{*2}	3 Supporting Course (Chosen in consultation with an academic adviser)	3
Supporting Course (Chosen in consultation with an academic adviser)	3 General Education Course	3
General Education Course	3 General Education Course	3
	15-16	15-16

Third Year

Fall	Credits Spring	Credits
MATH 311W [*]	3 MATH 312 [*]	3
MATH 414 [*]	3 MATH 415 [*]	3
Computational Course ^{*3}	3 Computational Course ^{*3}	3
CAS 100A, 100B, or 100C [‡]	3 ENGL 202C, 202A, 202B, or 202D [‡]	3
General Education Course	3 Supporting Course (Chosen in consultation with an academic adviser)	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
MATH 455 [*]	3 MATH 456 [*]	3
Computational Course ^{*3}	3 MATH 411, 412, or 417 [*]	3
MATH 467 [*]	3 CMPSC 465 [*]	3
Supporting Course (Chosen in consultation with an academic adviser)	3 General Education Course (GHW)	1.5
General Education Course (GHW)	1.5 Supporting Course (Chosen in consultation with an academic adviser)	3

Supporting Course (Chosen in consultation with an academic adviser)	1-2
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13.5

14.5-15.5

Total Credits 119-122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Semester will vary based on campus MATH 220 offerings.

² Computational option students should not take CMPSC 101, CMPSC 200 or CMPSC 201 since CMPSC 122 and CMPSC 132 require CMPSC 121 or CMPSC 131.

³ Select from MATH 310, MATH 452, MATH 457, MATH 468, MATH 484, MATH 485, CMPSC 442.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

General Mathematics Option: Mathematics, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
MATH 140 ^{*†##}	4	MATH 141 ^{*†##}	4
STAT 200 [*]	4	MATH 220 [*]	3
ENGL 15, 30H, or ESL 15 [†]	3	General Education Course	3
General Education Course	3	General Education Course	3
PSU 16	1	General Education Course	3
	15		16

Second Year

Fall	Credits	Spring	Credits
MATH 230 [*]	4	MATH 250 or 251 [*]	3-4
MATH 311W [*]	3	MATH 312 [*]	3
General Education Course	3	CMPSC 101, 121, 131, 200, or 201 [*]	3
General Education Course	3	Supporting Course (Chosen in consultation with an academic adviser)	3
		Supporting Course (consult with an academic adviser for options)	3
	13		15-16

Third Year

Fall	Credits	Spring	Credits
MATH/STAT 414 [*]	3	MATH/STAT 415 [*]	3
MATH 411, 412, 417, 419, or 421 ^{*1}	3	MATH 435 or 436 [*]	3
CAS 100A, 100B, or 100C [†]	3	Application Area Course [*]	3
Application Area Course [*]	3	ENGL 202C, 202A, 202B, or 202D [†]	3
Supporting Course (Chosen in consultation with an academic adviser)	3	General Education Course	3
General Education Course (GHW)	1.5	General Education Course (GHW)	1.5
	16.5		16.5

Fourth Year

Fall	Credits	Spring	Credits
MATH 403 [*]	3	MATH 400-Level ^{*2}	3
MATH 400-Level ^{*2}	3	Application Area Course [*]	3
Application Area Course [*]	3	Supporting Course (Chosen in consultation with an academic adviser)	3-4
Supporting course (Chosen in consultation with an academic adviser)	3	General Education Course	3

General Education Course	3	
	15	12-13

Total Credits 119-121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ To take MATH 412 or MATH 417 in a Spring semester, swap it with MATH 435 or MATH 436 in Third Year Spring or with a MATH 400-level in Fourth Year Spring. To take MATH 421, swap it with MATH 403 in Fourth Year Fall.

² Excluding MATH 401, MATH 405, MATH 406, MATH 418, MATH 441, MATH 470, MATH 471. At most 2 credits of MATH 400 or MATH 497 Learning Assistant Experience may be used.

University Requirements and General Education Notes:

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General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

General Mathematics Option (ALEKS Placement in MATH 21): Mathematics, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits Summer	Credits
MATH 21	3 MATH 41	4 MATH 140 ^{*†#†}	4
ENGL 15, 30H, or ESL 15 [‡]	3 General Education Course	3	
STAT 200 [*]	4 General Education Course	3	
General Education Course	3 General Education Course	3	
PSU 16	1 General Education Course	3	
	14	16	4

Second Year

Fall	Credits Spring	Credits
MATH 141 ^{*†#†}	4 MATH 230 [*]	4
MATH 220 [*]	3 MATH 311W [*]	3
General Education Course	3 CMPSC 101, 121, 131, 200, or 201 [*]	3
General Education Course	3 Supporting Course (Chosen in consultation with an academic adviser)	3
Supporting Course (Chosen in consultation with an academic adviser)	3 General Education Course	3
	16	16

Third Year

Fall	Credits Spring	Credits
MATH 250 or 251 [*]	3-4 MATH 312 [*]	3
MATH/STAT 414 [*]	3 MATH/STAT 415 [*]	3
CAS 100A, 100B, or 100C [‡]	3 MATH 435 or 436 [*]	3
Application Area Course [*]	3 ENGL 202C, 202A, 202B, or 202D [‡]	3

Application Area Course^{*} 3

12-13 **15**

Fourth Year

Fall	Credits Spring	Credits
MATH 403 [*]	3 MATH Elective	3
MATH Elective	3 MATH 411, 412, 417, 419, or 421 [*]	3
Application Area Course [*]	3 Application Area Course [*]	3
General Education Course	3 Supporting Course (Chosen in consultation with an academic adviser)	3-4
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
	13.5	13.5-14.5

Total Credits 120-122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

General Mathematics Option: Mathematics, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 ^{*†##}	4 MATH 141 ^{*†##}	4
ENGL 15 [‡]	3 MATH 220 (or General Education Course) ^{*1}	3
STAT 200 [*]	4 General Education Course	3
General Education Course	3 General Education Course	3
PSU 16	1 General Education Course	3
	15	16

Second Year

Fall	Credits Spring	Credits
MATH 230 [*]	4 MATH 250 or 251 [*]	3-4
MATH 220 (or General Education Course) ^{*1}	3 CMPSC 101, 121, 131, 200, or 201 [*]	3
General Education Course	3 General Education Course	3
CAS 100A, 100B, or 100C [‡]	3 General Education Course	3
Supporting Course (Chosen in consultation with an academic adviser)	3 Supporting Course (consult with an academic adviser for options)	3
	16	15-16

Third Year

Fall	Credits Spring	Credits
MATH 311W [*]	3 MATH 312 [*]	3
MATH 414 [*]	3 MATH 415 [*]	3
Application Area Course [*]	3 MATH 435 or 436 [*]	3
General Education Course	3 Application Area Course [*]	3
Supporting Course (Chosen in consultation with an academic adviser)	3 ENGL 202C, 202A, 202B, or 202D [‡]	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
MATH 403 [*]	3 MATH 400-Level ^{*2}	3
MATH 400-Level ^{*2}	3 MATH 411, 412, 417, 419, or 421	3
Application Area Course [*]	3 Application Area Course [*]	3
Supporting Course (Chosen in consultation with an academic adviser)	3 Supporting Course (Chosen in consultation with an academic adviser)	3
General Education Course (GHW)	1.5 Supporting Course (Chosen in consultation with an academic adviser)	1-2

General Education Course (GHW)	1.5
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13.5	14.5-15.5
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Total Credits 120-122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Semester will vary based on campus MATH 220 offerings.

² Excluding MATH 401, MATH 405, MATH 406, MATH 418, MATH 441, MATH 470, MATH 471. At most 2 credits of MATH 400 or MATH 497 Learning Assistant Experience may be used.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Graduate Study Option: Mathematics, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 ^{*†#†}	4 MATH 141 ^{*†#†}	4
STAT 200 [*]	4 MATH 220 [*]	3
ENGL 15, 30H, or ESL 15 [†]	3 General Education Course	3
General Education Course	3 General Education Course	3
PSU 16	1 General Education Course	3
	15	16

Second Year

Fall	Credits Spring	Credits
MATH 230 [*]	4 MATH 250 or 251 [*]	3-4
MATH 311W [*]	3 MATH 312 [*]	3
General Education Course	3 CMPSC 101, 121, 131, 200, or 201 [*]	3
General Education Course	3 Supporting Course (Chosen in consultation with an academic adviser)	3
	Supporting Course (Chosen in consultation with an academic adviser)	3
	13	15-16

Third Year

Fall	Credits Spring	Credits
MATH 403 [*]	3 MATH 404 [*]	3
MATH/STAT 414 [*]	3 MATH/STAT 415 [*]	3
MATH 400-Level ^{*1}	3 MATH 436 [*]	3
CAS 100A, 100B, or 100C [†]	3 ENGL 202C, 202A, 202B, or 202D [†]	3
General Education Course	3 Supporting Course (Chosen in consultation with an academic adviser)	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
	16.5	16.5

Fourth Year

Fall	Credits Spring	Credits
MATH 435 [*]	3 MATH 429 [*]	3
MATH 421 [*]	3 MATH 400-Level ^{*1}	3
MATH 400-Level ^{*1}	3 General Education Course	3
General Education Course	3 Supporting Course (Chosen in consultation with an academic adviser)	3-4

Supporting Course (Chosen in consultation with an academic adviser) 3

15

12-13

Total Credits 119-121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Excluding MATH 401, MATH 405, MATH 406, MATH 418, MATH 441, MATH 470, MATH 471. At most 2 credits of MATH 400 or MATH 497 Learning Assistant Experience may be used.

University Requirements and General Education Notes:

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General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Graduate Study Option (ALEKS Placement in MATH 21): Mathematics, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year			
Fall	Credits Spring	Credits Summer	Credits
MATH 21	3 MATH 41	4 MATH 140 ^{*†#†}	4
STAT 200 [*]	4 General Education Course	3	
ENGL 15, 30H, or ESL 15 [‡]	3 General Education Course	3	
General Education Course	3 General Education Course	3	
PSU 16	1 General Education Course	3	
	14	16	4

Second Year			
Fall	Credits Spring	Credits	
MATH 141 ^{*†#†}	4 MATH 230 [*]	4	
MATH 220 [*]	3 MATH 250 or 251 [*]	3-4	
General Education Course	3 MATH 311W [*]	3	
General Education Course	3 CMPSC 101, 121, 131, 200, or 201 [*]	3	
Supporting Course (Chosen in consultation with an academic adviser)	3 General Education Course	3	
	16	16-17	

Third Year			
Fall	Credits Spring	Credits	
MATH 400-Level ^{*1}	3 MATH 415 or STAT 415 [*]	3	
MATH/STAT 414 [*]	3 MATH 436 [*]	3	
MATH 312 [*]	3 ENGL 202C, 202A, 202B, or 202D [‡]	3	
CAS 100A, 100B, or 100C [‡]	3 MATH 400-Level ^{*1}	3	

Supporting Course (Chosen in consultation with an academic adviser)

Fourth Year		
Fall	Credits Spring	Credits
MATH 403 [*]	3 MATH 404 [*]	3
MATH 421 [*]	3 MATH 429 [*]	3
MATH 435 [*]	3 MATH 400-Level ^{*1}	3
General Education Course	3 Supporting Course (Chosen in consultation with an academic adviser)	3-4
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
	13.5	13.5-14.5

Total Credits 120-122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Excluding MATH 401, MATH 405, MATH 406, MATH 418, MATH 441, MATH 470, MATH 471. At most 2 credits of MATH 400 or MATH 497 Learning Assistant Experience may be used.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Graduate Study Option: Mathematics, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 ^{*†#†}	4 MATH 141 ^{*†#†}	4
STAT 200 [*]	4 MATH 220 (or General Education Course) ^{*1}	3
ENGL 15 [‡]	3 General Education Course	3
General Education Course	3 General Education Course	3
PSU 16	1 General Education Course	3
	15	16

Second Year

Fall	Credits Spring	Credits
MATH 230 [*]	4 MATH 250 or 251 [*]	3-4
MATH 220 (or General Education Course) ^{*1}	3 CMPSC 101, 121, 131, 200, or 201 [*]	3
General Education Course	3 MATH 311W [*]	3
CAS 100A, 100B, or 100C [‡]	3 General Education Course	3
Supporting Course (Chosen in consultation with an academic adviser)	3 Supporting Course (Chosen in consultation with an academic adviser)	3
	16	15-16

Third Year

Fall	Credits Spring	Credits
MATH 312 [*]	3 MATH 403 [*]	3
MATH 414 [*]	3 MATH 415 [*]	3
MATH 400-Level ^{*2}	3 MATH 400-Level ^{*2}	3
General Education Course	3 ENGL 202C, 202A, 202B, or 202D [‡]	3
Supporting Course (Chosen in consultation with an academic adviser)	3 General Education Course	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
MATH 421 [*]	3 MATH 404 [*]	3
MATH 435 [*]	3 MATH 429 [*]	3
MATH 436 [*]	3 MATH 400-Level ^{*2}	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
Supporting Course (Chosen in consultation with an academic adviser)	3 Supporting Course (Chosen in consultation with an academic adviser)	3

Supporting Course (Chosen in consultation with an academic adviser) 1-2

13.5

14.5-15.5

Total Credits 120-122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Semester will vary based on campus MATH 220 offerings.

² Excluding MATH 401, MATH 405, MATH 406, MATH 418, MATH 441, MATH 470, MATH 471. At most 2 credits of MATH 400 or MATH 497 Learning Assistant Experience may be used.

University Requirements and General Education Notes:

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All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Systems Analysis Option: Mathematics, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 ^{*†#†}	4 MATH 141 ^{*†#†}	4
STAT 200 [*]	4 MATH 220 [*]	3
ENGL 15, 30H, or ESL 15 [†]	3 General Education Course	3
General Education Course	3 General Education Course	3
PSU 16	1 General Education Course	3
	15	16

Second Year

Fall	Credits Spring	Credits
MATH 230 [*]	4 MATH 250 or 251 [*]	3-4
MATH 311W [*]	3 MATH 312 [*]	3
General Education Course	3 CMPSC 101, 121, 131, 200, or 201 [*]	3
General Education Course	3 Supporting Course (Chosen in consultation with an academic adviser)	3
	Supporting Course (Chosen in consultation with an academic adviser)	3
	13	15-16

Third Year

Fall	Credits Spring	Credits
MATH/STAT 414 [*]	3 MATH/STAT 415 [*]	3
MATH 484 [*]	3 Advanced Mathematics Course ^{*1}	3
CAS 100A, 100B, or 100C [†]	3 Application Area Course [*]	3
Application Area Course [*]	3 ENGL 202C, 202A, 202B, or 202D [†]	3
Supporting Course (Chosen in consultation with an academic adviser)	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
	16.5	16.5

Fourth Year

Fall	Credits Spring	Credits
MATH 436 [*]	3 Advanced Mathematics Course ^{*1}	3
Advanced Mathematics Course ^{*1}	3 Application Area Course [*]	3
Application Area Course [*]	3 General Education Course	3
General Education Course	3 Supporting Course (Chosen in consultation with an academic adviser)	3-4

Supporting Course (Chosen in consultation with an academic adviser) 3

15

12-13

Total Credits 119-121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Select from MATH 310, MATH 412, MATH 448, (MATH 451 or MATH 455), MATH 485, MATH 486.

University Requirements and General Education Notes:

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General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Systems Analysis Option (ALEKS Placement in MATH 21): Mathematics, B.S. at University Park Campus

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First Year

Fall	Credits Spring	Credits Summer	Credits
MATH 21	3 MATH 41	4 MATH 140 ^{*†‡}	4
STAT 200 [*]	4 General Education Course	3	
ENGL 15, 30H, or ESL 15 [‡]	3 General Education Course	3	
General Education Course	3 General Education Course	3	
PSU 16	1 General Education Course	3	
	14	16	4

Second Year

Fall	Credits Spring	Credits
MATH 141 ^{*†‡}	4 MATH 230 [*]	4
MATH 220 [*]	3 MATH 311W [*]	3
General Education Course	3 CMPSC 101, 121, 131, 200, or 201 [*]	3
General Education Course	3 General Education Course	3
Supporting Course (Chosen in consultation with an academic adviser)	3 Supporting Course (Chosen in consultation with an academic adviser)	3
	16	16

Third Year

Fall	Credits Spring	Credits
MATH 250 or 251 [*]	3-4 MATH 312 [*]	3
MATH/STAT 414 [*]	3 MATH/STAT 415 [*]	3
CAS 100A, 100B, or 100C [‡]	3 MATH 484 [*]	3
Application Area Course [*]	3 ENGL 202C, 202A, 202B, or 202D [‡]	3
	Application Area Course [*]	3
	12-13	15

Fourth Year

Fall	Credits Spring	Credits
MATH 436 [*]	3 Advanced Mathematics Course ^{*1}	3
Advanced Mathematics Course [*]	3 Advanced Mathematics Course ^{*1}	3
Application Area Course	3 Application Area Course [*]	3
General Education Course	3 Supporting Course (Chosen in consultation with an academic adviser)	3-4
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
	13.5	13.5-14.5

Total Credits 120-122

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ Select from MATH 310, MATH 412, MATH 448, (MATH 451 or MATH 455), MATH 485, MATH 486.

University Requirements and General Education Notes:

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General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Systems Analysis Option: Mathematics, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
MATH 140 ^{*†#†}	4	MATH 141 ^{*†#†}	4
STAT 200 [*]	4	MATH 220 (or General Education Course) ^{*1}	3
ENGL 15 [‡]	3	General Education Course	3
General Education Course	3	General Education Course	3
PSU 16	1	General Education Course	3
	15		16

Second Year

Fall	Credits	Spring	Credits
MATH 230 [*]	4	MATH 250 or 251 [*]	3-4
MATH 220 (or General Education Course) ^{*1}	3	CMPSC 101, 121, 131, 200, or 201 [*]	3
CAS 100A, 100B, or 100C [‡]	3	Supporting Course (Chosen in consultation with an academic adviser)	3
Supporting Course (Chosen in consultation with an academic adviser)	3	General Education Course	3
General Education Course	3	General Education Course	3
	16		15-16

Third Year

Fall	Credits	Spring	Credits
MATH 311W [*]	3	MATH 312 [*]	3
MATH 414 [*]	3	MATH 415 [*]	3
Application Area Course [*]	3	MATH 484 [*]	3
Supporting Course (Chosen in consultation with an academic adviser)	3	ENGL 202C, 202A, 202B, or 202D [‡]	3
General Education Course	3	Application Area Course [*]	3
	15		15

Fourth Year

Fall	Credits	Spring	Credits
MATH 436 [*]	3	Advanced Mathematics Course ^{*2}	3
Advanced Mathematics Course ^{*2}	3	Advanced Mathematics Course ^{*2}	3
Application Area Course [*]	3	Application Area Course [*]	3
Supporting Course (Chosen in consultation with an academic adviser)	3	Supporting Course (Chosen in consultation with an academic adviser)	3
General Education Course (GHW)	1.5	Supporting Course (Chosen in consultation with an academic adviser)	1-2

General Education Course (GHW)	1.5
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13.5

14.5-15.5

Total Credits 120-122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Semester will vary based on campus MATH 220 offerings.

² Select from MATH 310, MATH 412, MATH 448, (MATH 451 or MATH 455), MATH 485, MATH 486.

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Career Paths

Students with an undergraduate degree in mathematics pursue graduate study or careers in business and industry. Mathematicians may work in insurance (as actuaries), economics (as analysts), computer programming, science and engineering, the medical and legal fields, education, and other fields which require sophisticated analytical skills.

Careers

Students with an undergraduate degree in Mathematics pursue careers in the fields of science and technology, business and consulting, research and industry, and teaching.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE MATHEMATICS PROGRAM (<https://science.psu.edu/math/undergraduate/advising/careers/>)

Opportunities for Graduate Studies

Graduates of the undergraduate degree program in Mathematics often choose to continue their studies in graduate programs (MS or PhD) in mathematics or related fields, such as statistics, economics, finance, computer science, or operations research.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES
(<https://science.psu.edu/math/undergraduate/advising/careers/>)

Professional Resources

- Mathematical Association of America (<https://www.maa.org>)
- American Mathematical Society (<https://www.ams.org/home/page/>)
- Society of Industrial and Applied Mathematics (<https://www.siam.org>)

Contact

University Park

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<https://science.psu.edu/math> (<https://science.psu.edu/math/>)

Mathematics, Minor (Science)

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The minor is designed to provide students with an interest in mathematics an opportunity to study a broad range of mathematical topics. The requirements allow students a great deal of flexibility in choosing courses of interest.

What is Mathematics?

The study of mathematics emphasizes careful problem analysis, precision of thought and expression, and the development of mathematical skills needed for work in many other areas. Theoretical mathematicians increase basic knowledge in "pure" fields like abstract algebra, analysis, or topology. Applied mathematicians use tools growing out of calculus, analysis, computing, statistics, and operations research to solve problems in science, industry, government, and other areas.

You Might Like This Program If...

- You like mathematics, like to think, like a challenge, and like to know why things are true.
- You want to develop strong problem-solving skills, comprehension of abstract concepts, and creative thinking ability.

Program Requirements

Requirement	Credits
Requirements for the Minor	26-28

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 6-8 credits of the following:		6-8
MATH 220	Matrices	
MATH 230	Calculus and Vector Analysis	
MATH 231	Calculus of Several Variables	
MATH 232	Integral Vector Calculus	
MATH 250	Ordinary Differential Equations	
MATH 251	Ordinary and Partial Differential Equations	
MATH 310	Elementary Combinatorics	
MATH 311W	Concepts of Discrete Mathematics	
MATH 312	Concepts of Real Analysis	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 12 credits of 400-level MATH courses		12

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Academic Advising**
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Altoona

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Harrisburg

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Contact

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Harrisburg

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<https://harrisburg.psu.edu/science-engineering-technology/mathematics-minor> (<https://harrisburg.psu.edu/science-engineering-technology/mathematics-minor/>)

Microbiology, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

Microbiology is the science of single cell forms of life and of the response of more complex life forms to their presence and activities. Students in the Microbiology major will complete a comprehensive study of life processes at the molecular and cellular level, with particular emphasis on prokaryotes (bacteria), and use basic and advanced techniques in laboratory methodology.

Through advanced course study, the many subdisciplines of microbiology such as molecular genetics, immunology, and virology may be explored more fully. Ample opportunities exist for participation in faculty-initiated research projects. Extensive laboratory experience is a particular strength of the major. Courses in such applied areas as industrial, medical, and food microbiology help prepare students for careers in the pharmaceutical, biotechnical, and agricultural industries.

General Microbiology Option

The General Microbiology Option allows students to tailor their major toward specific areas of expertise, such as environmental microbiology, microbial pathology of plants, microbiomes, etc. This is achieved through the flexibility of an expanded list of electives that includes courses dealing with various aspects of microbiology.

Medical Microbiology Option

The Medical Microbiology Option is useful for students who desire careers in the human health sector. This option includes courses such as Viral Pathogenesis, Medical Microbiology and Immunology.

What is Microbiology?

Microbiology is the study of microscopic organisms and how they interact with other organisms and the environment. Topics in microbiology include how microbes benefit and harm human health, the role of microbes in the environment, and how microbes can be used in medicine, agriculture, and engineering.

You Might Like This Program If...

- You like learning by doing experiments.
- You are fascinated by the diversity and interconnectedness of life.
- You are interested in learning about the interplay between infectious disease and the immune response.
- You want to pursue a career in genetic engineering, medicine, public health, or environmental studies.

Entrance to Major

In order to be eligible for entrance to the Microbiology major, a student must have:

1. attained at least a 2.00 cumulative grade-point average and
2. completed and earned a grade of C or better in each of the following courses: CHEM 110, CHEM 111, CHEM 112, MATH 140.

Degree Requirements

For the Bachelor of Science degree in Microbiology, a minimum of 121 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	94-98

15-18 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; and 0-3 credits of GWS courses (3 credits if BMB 491 or BIOL 403 is taken as an elective).

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses ¹		
BMB 400	Molecular Biology of the Gene	2

BMB 401	General Biochemistry	3
BMB 402	General Biochemistry	3
BMB 442	Laboratory in Proteins, Nucleic Acids, and Molecular Cloning	3
CHEM 113	Experimental Chemistry II	1
CHEM 210	Organic Chemistry I	3
CHEM 212	Organic Chemistry II	3
CHEM 213	Laboratory in Organic Chemistry	2
MICRB 201	Introductory Microbiology ²	3
MICRB 401	Microbial Physiology and Structure	3
MICRB 421W	Laboratory of General and Applied Microbiology	3
MICRB 450	Microbial/Molecular Genetics	3
PPEM 456	Applied Microbial Ecology	3

Prescribed Courses: Require a grade of C or better

CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
MATH 140	Calculus With Analytic Geometry I	4

Additional Courses

MICRB 202	Introductory Microbiology Laboratory	2
or MICRB 203	Inquiry-based Microbiology Laboratory	
PHYS 250	Introductory Physics I	4
or PHYS 211	General Physics: Mechanics	
PHYS 251	Introductory Physics II	4
or PHYS 212	General Physics: Electricity and Magnetism	

Additional Courses: Require a grade of C or better

Select 3-4 credits from the following:		3-4
MATH 141	Calculus with Analytic Geometry II	
STAT 200	Elementary Statistics	
STAT 240	Introduction to Biometry	
STAT 250	Introduction to Biostatistics	

Supporting Courses and Related Areas

Select 3 credits from MICRB Elective List A (Applied) ³		3
Select 3 credits from MICRB Elective List B ³		3
Select 11 credits from MICRB Elective List C (free electives)		11

Requirements for the Option

Select an option		18-21
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¹ To graduate, a grade of C or better is required in 9 credits of prescribed 400-level courses, excluding BMB 442 and MICRB 421W.

² To graduate, a grade of C or better is required in two of the following courses:

- MICRB 201
- BMB 251/MICRB 251 or BIOL 230W
- BMB 252/MICRB 252 or BIOL 220W

³ In Elective List A (Applied) and Elective List B, students can apply a total maximum of 3 credits in BMB 408 and/or MICRB 408 and a maximum of 4 credits in BMB 488 and/or BMB 496

Requirements for the Option

General Microbiology Option (18-21 Credits)

Code	Title	Credits
Prescribed Courses		
MICRB 415	General Virology: Bacterial and Animal Viruses	3
Additional Courses		
Select one of the following Sequences:		9-12
<i>Sequence 1</i>		
BIOL 222	Genetics	
or BIOL 322	Genetic Analysis	
BMB 251	Molecular and Cell Biology I ¹	
or BIOL 230W	Biology: Molecules and Cells	
BMB 252	Molecular and Cell Biology II ¹	
<i>Sequence 2</i>		
BIOL 110	Biology: Basic Concepts and Biodiversity	
BIOL 220W	Biology: Populations and Communities ¹	
BIOL 230W	Biology: Molecules and Cells ¹	
Supporting Courses and Related Areas		
Select 6 credits from MICRB Elective List B		6

¹ To graduate, a grade of C or better is required in two of the following courses:

- MICRB 201
- BMB 251/MICRB 251 or BIOL 230W
- BMB 252/MICRB 252 or BIOL 220W

Medical Microbiology Option (18-19 Credits)

Code	Title	Credits
Prescribed Courses		
BMB 252	Molecular and Cell Biology II	3
MICRB 410	Principles of Immunology	3
MICRB 412	Medical Microbiology	3
Additional Courses		
BIOL 322	Genetic Analysis	3
or BIOL 222	Genetics	
BMB 251	Molecular and Cell Biology I ¹	3-4
or BIOL 230W	Biology: Molecules and Cells	
MICRB 435	Viral Pathogenesis	3
or MICRB 415	General Virology: Bacterial and Animal Viruses	

¹ To graduate, a grade of C or better is required in two of the following courses:

- MICRB 201
- BMB 251/MICRB 251 or BIOL 230W
- BMB 252/MICRB 252

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements

of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Jennifer Keefer

Academic Adviser

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University Park (UP)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

General Microbiology Option, Emphasis in Cell Biology and Genetics: Microbiology, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
First-Year Seminar	1 MICRB 201 ^{*1}	3
CHEM 110 (GN) ^{*#†}	3 MICRB 202 or 203	2
CHEM 111 (GN) ^{*#†}	1 CHEM 112 (GN) ^{*#†}	3
MATH 140 (GQ) ^{*†#†}	4 CHEM 113 (GN) [†]	1
ENGL 15 or 30H (GWS) [‡]	3 MATH 141, STAT 200, STAT 240, or STAT 250 (GQ) ^{††8}	3-4
General Education Course	3 CAS 100A, 100B, or 100C (GWS) [‡]	3
	15	15-16

Second Year

Fall	Credits Spring	Credits
BMB/MICRB 251 ^{*1,3,4}	3 BMB/MICRB 252 ^{*1,3}	3
CHEM 210	3 CHEM 212	3
PHYS 211 or 250 (GN) [†]	4 CHEM 213W	2
Department List C ⁹	3 PHYS 212 or 251 (GN)	4
General Education Course	3 BIOL 322 ^{3,4}	3
	16	15

Third Year

Fall	Credits Spring	Credits
BMB 400 ^{*2}	2 BMB 402 ^{*2}	3
BMB 401 ^{*2}	3 BMB 442	3
MICRB 401 ^{*2}	3 MICRB 415 ^{*2,4}	3
MICRB 421W	3 MICRB Elective (List A) ^{4,5,9}	3
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
	15.5	16.5

Fourth Year

Fall	Credits Spring	Credits
MICRB 450 ^{*2}	3 MICRB Elective (List B) ^{5,6,7,9}	0-3
PPEM 456 ^{*2}	3 Department List C ⁹	2
MICRB Elective (List B) ^{5,9}	3 Department List C ⁹	3
MICRB Elective (List B) ^{5,9}	3 General Education Course (GWS) ^{††4,6}	3
Department List C ⁹	3 General Education Course	3
	General Education Course	3
	15	14-17

Total Credits 122-126

- * Course requires a grade of C or better for the major
 ‡ Course requires a grade of C or better for General Education
 # Course is an Entrance to Major requirement
 † Course satisfies General Education and degree requirement

¹ All three courses are required for the major, but a grade of C or better is required in two of the following: MICRB 201, BMB 251/MICRB 251 or BIOL 230W, BMB 252/MICRB 252 (Cell Biology and Genetics Emphasis) or BIOL 220W (Ecology Emphasis)

² To graduate, a grade of C or better is required in 9 credits of prescribed 400-level courses, excluding BMB 442 and MICRB 421W.

³ Two series of courses can be taken – Cell Biology and Genetics Emphasis: BMB 251 (or BIOL 230W), BMB 252 and BIOL 322 (or BIOL 222); Cell Biology and Ecology Emphasis: BIOL 110, BIOL 230W

and BIOL 220W. Students must complete either three-course series in full. No mixing courses between series.

⁴ There may be an alternative option offered in a different semester. See adviser for more information.

⁵ 12-credit microbiology-based elective requirement from List A (Applied) and List B (Lecture) electives, with a minimum of 3 credits taken from List A. Although, if a student wants more lab experience, more courses can be taken from List A to fulfill the requirement. A maximum of 3 credits of BMB 408/MICRB 408 and a maximum of 4 credits of BMB 488 and/or BMB 496 can be used to fulfill this requirement but will not count toward the 3-cr. minimum of List A category requirement.

⁶ BIOL 403 or BMB 491 can double count for GWS credit and List B elective. If student does not take BIOL 403 or BMB 491, ENGL 202C/ENGL 202A/ENGL 202B/ENGL 202D can be taken instead.

⁷ If students takes a List B elective that also satisfies GWS, then do not need additional List B credits here.

⁸ If a student takes the course with the higher amount of credits, the extra credit can apply towards the List C elective category.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

General Microbiology Option, Emphasis in Cell Biology and Ecology: Microbiology, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
First-Year Seminar	1 MICRB 201 ^{*1}	3
BIOL 110	4 MICRB 202 or 203	2
CHEM 110 (GN) ^{**†}	3 CHEM 112 (GN) ^{**†}	3
CHEM 111 (GN) ^{**†}	1 CHEM 113 (GN) [†]	1
MATH 140 (GQ) ^{**††}	4 MATH 141, STAT 200, STAT 240, or STAT 250 (GQ) ^{††8}	3-4
ENGL 15 or 30H (GWS) [‡]	3 CAS 100A, 100B, or 100C (GWS) [‡]	3
	16	15-16

Second Year

Fall	Credits Spring	Credits
BIOL 220W ^{*1,3,4}	4 BIOL 230W ^{*1,3}	4
CHEM 210	3 CHEM 212	3
PHYS 211 or 250 (GN) [†]	4 CHEM 213W	2
Department List C ⁹	3 PHYS 212 or 251 (GN)	4
General Education Course	3 General Education Course	3
	17	16

Third Year

Fall	Credits Spring	Credits
BMB 400 ^{*2}	2 BMB 402 ^{*2}	3
BMB 401 ^{*2}	3 BMB 442	3
MICRB 401 ^{*2}	3 MICRB 415 ^{*2,4}	3
MICRB 421W	3 MICRB Elective (List A) ^{4,5,9}	3
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
	15.5	16.5

Fourth Year

Fall	Credits Spring	Credits
MICRB 450 ^{*2}	3 MICRB Elective (List B) ^{5,9}	3
PPEM 456 ^{*2}	3 MICRB Elective (List B) ^{5,9}	3
MICRB Elective (List B) ^{5,6,7,9}	0-3 Department List C ⁹	2
Department List C ⁹	3 Department List C ⁹	3
General Education Course (GWS) ^{††4,6}	3 General Education Course	3
General Education Course	3	
	15-18	14

Total Credits 125-129

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ All three courses are required for the major, but a grade of C or better is required in two of the following: MICRB 201, BMB 251/MICRB 251 or BIOL 230W, BMB 252/MICRB 252 (Cell Biology and Genetics Emphasis) or BIOL 220W (Ecology Emphasis)

² To graduate, a grade of C or better is required in 9 credits of prescribed 400-level courses, excluding BMB 442 and MICRB 421W.

³ Two series of courses can be taken – Cell Biology and Genetics Emphasis: BMB 251 (or BIOL 230W), BMB 252 and BIOL 322 (or BIOL 222); Cell Biology and Ecology Emphasis: BIOL 110, BIOL 230W and BIOL 220W. Students must complete either three-course series in full. No mixing courses between series.

⁴ There may be an alternative option offered in a different semester. See adviser for more information.

⁵ 12-credit microbiology-based elective requirement from List A (Applied) and List B (Lecture) electives, with a minimum of 3 credits taken from List A. Although, if a student wants more lab experience, more courses can be taken from List A to fulfill the requirement. A maximum of 3 credits of BMB 408/MICRB 408 and a maximum of 4 credits of BMB 488 and/or BMB 496 can be used to fulfill this requirement but will not count toward the 3-cr. minimum of List A category requirement.

⁶ BIOL 403 or BMB 491 can double count for GWS credit and List B elective. If student does not take BIOL 403 or BMB 491, ENGL 202C/ENGL 202A/ENGL 202B/ENGL 202D can be taken instead.

⁷ If students takes a List B elective that also satisfies GWS, then do not need additional List B credits here.

⁸ If a student takes the course with the higher amount of credits, the extra credit can apply towards the List C elective category.

⁹ Consult with an academic adviser for options.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Medical Microbiology Option: Microbiology, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
First-Year Seminar	1 MICRB 201 ^{*1}	3
CHEM 110 (GN) ^{**†}	3 MICRB 202 or 203	2
CHEM 111 (GN) ^{**†}	1 CHEM 112 (GN) ^{**†}	3
MATH 140 (GQ) ^{*†#†}	4 CHEM 113 (GN) [†]	1
ENGL 15 or 30H (GWS) [‡]	3 MATH 141, STAT 200, STAT 240, or STAT 250 (GQ) ^{††8}	3-4
General Education Course	3 CAS 100A, 100B, or 100C (GWS) [‡]	3
	15	15-16

Second Year

Fall	Credits Spring	Credits
BMB/MICRB 251 ^{*1,3}	3 BMB/MICRB 252 ^{*1}	3
CHEM 210	3 CHEM 212	3
PHYS 211 or 250 (GN) [†]	4 CHEM 213W	2
Department List C ⁹	3 PHYS 212 or 251 (GN)	4
General Education Course	3 BIOL 322 ³	3
	16	15

Third Year

Fall	Credits Spring	Credits
BMB 401 ^{*2}	3 BMB 400 ^{*2}	2
MICRB 410 ^{*2,3}	3 BMB 402 ^{*2}	3
MICRB 421W	3 BMB 442	3
MICRB 450 ^{*2}	3 Department List C ⁹	3
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
	16.5	15.5

Fourth Year

Fall	Credits Spring	Credits
MICRB 401 ^{*2}	3 MICRB 412 ^{*2}	3
PPEM 456 ^{*2}	3 MICRB 415 ^{*2,3}	3
MICRB Elective (List B) ^{4,7}	0-3 MICRB Elective (List A) ^{3,4}	3
Department List C ⁹	2 Department List C ⁹	3
General Education Course (GWS) ^{††,5}	3 General Education Course	3
General Education Course	3	
	14-17	15

Total Credits 122-126

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ All three courses are required for the major, but a grade of C or better is required in two of the following: MICRB 201, BMB 251/MICRB 251 or BIOL 230W, BMB 252/MICRB 252.

² To graduate, a grade of C or better is required in 9 credits of prescribed 400-level courses, excluding BMB 442 and MICRB 421W.

⁴ There may be an alternative option offered in a different semester. See adviser for more information.

⁵ 6-credit microbiology-based elective requirement (List B electives). A maximum of 3 credits of BMB/MICRB, BMB 488 and/or BMB 496 can be used to fulfill this requirement.

⁶ BIOL 403 or BMB 491 can double count for GWS credit and List B elective. If student does not take BIOL 403 or BMB 491, ENGL 202C/ENGL 202A/ENGL 202B/ENGL 202D can be taken instead.

⁷ If students takes a List B elective that also satisfies GWS, then do not need additional List B credits here.

⁸ When a range of credits is listed for the GQ courses, if a student takes a course with the higher amount of credits, the extra credit can apply towards the List C elective category.

⁹ Consult with an academic adviser for options.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Career Paths

Penn State students with a BS in Microbiology are prepared for jobs in industry as well as government, medical and university research laboratories. Many students also decide to continue their studies by attending graduate programs or professional schools including medical, dental, business and law school.

Careers

A BS in Microbiology prepares students for a wide variety of careers, including health related professions, professions in academia, government, and industry. Examples of microbiology related careers are:

- Agricultural or Environmental Scientist
- Biological / Media Illustrator

- Biomedical Researcher
- Biosecurity and Biodefense
- Brewery Scientist
- Clinical Microbiology Lab Director
- Drug Development
- Food Safety Expert
- Genetic Engineer
- Health Professions – e.g. Dentist, Optometrist, Pharmacist, Physician, Physician Assistant
- Industrial Microbiologist
- Patent Attorney
- Pharmaceutical Sales
- Pharmaceutical Sciences
- Professor
- Public Health Scientist
- Research Technician
- Science Policy Expert
- Science Writer / Editor

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE MICROBIOLOGY PROGRAM (<https://asm.org/careers/>)

Opportunities for Graduate Studies

Many Penn State students with a BS in Microbiology will pursue graduate education (MS or PhD) in microbiology or other related disciplines (biochemistry, biology, bioinformatics, cell biology, chemistry, genomics, geo-microbiology, immunology, neurobiology, toxicology, pharmacology, plant pathology, and others). A BS in microbiology will also prepare students to pursue higher degrees in the health professions. Opportunities for graduate studies include, but are not limited to, the following:

- Graduate Studies (MS or PhD)
- Dental School Medical School (MD or DO)
- Optometry School
- Pharmacy School
- Physical Therapy School
- Public Health (MPH)
- Veterinary School

In addition, graduates with a Microbiology degree may decide to pursue further education in law or business.

Professional Resources

- American Society for Microbiology (<https://asm.org>)

Contact

University Park

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Microbiology, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The minor in Microbiology is a collection of required and elective courses that:

1. provides a limited but sound foundation in the discipline,
2. requires students to develop reasonable expertise in handling and characterizing microorganisms, and
3. permits students to emphasize some subdiscipline of microbiology in which they may have a particular interest.

The minor specifies the introductory lecture and laboratory courses in microbiology and one course each in immunology and cell biology. A minimum of two laboratory courses exposes students to basic and experimental/applied techniques. Sufficient room exists within the minor for selection of two or three elective courses at the advanced level that may emphasize a specialty area of the discipline such as virology or microbial genetics. Students who complete the minor have a sufficient background to pursue positions in industry that require an appreciable expertise in microbiology.

What is Microbiology?

Microbiology is the study of microscopic organisms and how they interact with other organisms and the environment. Topics in microbiology include how microbes benefit and harm human health, the role of microbes in the environment, and how microbes can be used in medicine, agriculture, and engineering.

You Might Like This Program If...

You don't have time for a Microbiology degree but are interested in increasing your knowledge of the subject.

Program Requirements

Requirement	Credits
Requirements for the Minor	24

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CHEM 110	Chemical Principles I	3
CHEM 112	Chemical Principles II	3
MICRB 201	Introductory Microbiology	3
MICRB 202	Introductory Microbiology Laboratory	2
MICRB 251	Molecular and Cell Biology I	3
MICRB 410	Principles of Immunology	3

Additional Courses*Additional Courses: Require a grade of C or better*MICRB 421W Laboratory of General and Applied Microbiology 2-3
or MICRB 422 Medical Microbiology Laboratory**Supporting Courses and Related Areas***Supporting Courses and Related Areas: Require a grade of C or better*Select 4-5 credits of 400-level MICRB courses ¹ 4-5¹ BMB 442, MICRB 408, MICRB 496 and MICRB 497 may not be used to fulfill the requirements for the minor.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Natural Science, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

This interdepartmental minor in Natural Science is designed for nonscience students who wish to gain a better appreciation for science and the scientific method. The courses required in the minor include

3 to 4 credits of general education science designed for nonscience students, 3 to 4 credits of mathematical science, 8 to 9 credits of life or physical science, including some laboratory work, and 6 credits of 400-level science courses. Certain combinations of courses are disallowed (as listed in the curriculum description), and higher-level courses are generally accepted as substitutes for lower-level courses if both are offered by the same department. Any substitutes for laboratory courses must also be laboratory courses. Advising for students in this minor will be available through the Eberly College of Science Academic Advising Center and approval of curriculum exceptions will be through the faculty committee and professor in charge of the program.

What is Natural Science?

Science is a way of knowing. The Natural Science minor is designed for students in non-science majors to explore their curiosity and passion about the natural world. From introductory level to upper division immersion, you can delve into science topics and the scientific method. Students in majors of the Eberly College of Science are ineligible for this broad, interdepartmental minor.

You Might Like This Program If...

You are inherently curious about the natural sciences, mathematics and/or statistics and their applications in everyday life.

Program Requirements

Requirement	Credits
Requirements for the Minor	20-23

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
SC 400	Consequences of Science	1
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3-4 credits of the following:		3-4
ASTRO 1	Astronomical Universe	
ASTRO 10 & ASTRO 11	Elementary Astronomy and Elementary Astronomy Laboratory	
BISC 1	Structure and Function of Organisms ¹	
BISC 2	Genetics, Ecology, and Evolution ¹	
BISC 3	Environmental Science	
BISC 4	Human Body: Form and Function	
BMB 1	The Science of Sickness	
CHEM 1	Molecular Science ²	
CHEM 3	Molecular Science With Laboratory ²	
MICRB 106 & MICRB 107	Elementary Microbiology and Elementary Microbiology Laboratory ⁴	
PHYS 1	The Science of Physics ³	
Select 3-4 credits of the following:		3-4
CMPSC 101	Introduction to Programming	

CMPSC 121	Introduction to Programming Techniques	
CMPSC 201 or CMPSC 202	Programming for Engineers with C++	
CMPSC 203	Introduction to Spreadsheets and Databases	
MATH 110	Techniques of Calculus I	
MATH 140	Calculus With Analytic Geometry I	
STAT 200	Elementary Statistics	
STAT 250	Introduction to Biostatistics	
Select 8-9 credits of the following:		8-9
BIOL 11 & BIOL 12	Introductory Biology I and Introductory Biology II ¹	
BIOL 110	Biology: Basic Concepts and Biodiversity ¹	
CHEM 110 & CHEM 111	Chemical Principles I and Experimental Chemistry I ²	
CHEM 112 & CHEM 113	Chemical Principles II and Experimental Chemistry II ²	
MICRB 201 & MICRB 202	Introductory Microbiology and Introductory Microbiology Laboratory ⁴	
PHYS 250	Introductory Physics I ³	
PHYS 251	Introductory Physics II ³	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 0-2 credits of 496 (independent studies) courses from the Eberly College of Science course offerings 0-2

Select 3-5 credits of 400-level courses (other than independent studies) from the Eberly College of Science course offerings 3-5

¹ A student may not use credit for BISC 1 or BISC 2 along with credit for BIOL 11 and BIOL 12, or BIOL 110.

² A student may not use credit for CHEM 1 or CHEM 3 along with credit for CHEM 110 and CHEM 111 or CHEM 112 and CHEM 113.

³ A student may not use credit for PHYS 1 along with credit for PHYS 250 or PHYS 251.

⁴ A student may not use credit for MICRB 106 and MICRB 107 along with credit for MICRB 201 and MICRB 202.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Physics, B.S. (Science)

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

This major provides a sound program of technical and general education for students planning a career in physics and related fields.

- The General option provides broad coverage with the most physics and mathematics course requirements and is useful for students intending to pursue graduate study in Physics or similar disciplines.
- The Medical and Electronics options incorporate coursework in support of the application of physics and mathematics in various life-science or engineering related fields.
- A Computation option provides background in the application of physical principles and mathematical methods in the solution of scientific problems, simulations, or visualizations using computer and numerical techniques.
- The Nanotechnology/Material Science option provides students with background in the understanding of condensed matter physics at either the nano- or micro/macro- levels.

What is Physics?

Physicists study natural phenomena in the universe, from the smallest length scales to the largest in the cosmos, to discover the basic principles or laws which govern the physical world. Knowledge of physics is crucial to truly understanding the world around us, the world inside us, and the world beyond us. This degree will provide students with the fundamental conceptual, mathematical, computational, and experimental

tools that are needed to attack the scientific and technological problems of today and in the future.

You Might Like This Program If...

- You are curious about how things work.
- You are fascinated by how the natural world is organized, how mathematics describes so much of it, how experiments can probe that understanding, and how one can predict new physical phenomena.
- You want to explore these connections via hands-on work in labs, mathematical reasoning and calculations, or using computers and programming.
- You want to solve sophisticated problems beyond standard pencil-and-paper examples using advanced mathematical and experimental technique or computational methods.

Entrance to Major

In order to be eligible for entrance to the Physics major, a student must have:

1. attained at least a 2.00 cumulative grade-point average;
2. completed and earned a grade of C or better in each of the following courses: CHEM 110, MATH 140, MATH 141, PHYS 211, and PHYS 212.

Degree Requirements

For the Bachelor of Science degree in Physics, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	90-97
Electives	0-3

16-18 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 7-9 credits of GN courses (9 credits only for Medical Physics Option); 6 credits of GQ courses; 3 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
MATH 220	Matrices	2-3
<i>Prescribed Courses: Require a grade of C or better</i>		
CHEM 110	Chemical Principles I	3
ENGL 202C	Effective Writing: Technical Writing	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
PHYS 211	General Physics: Mechanics	4

PHYS 212	General Physics: Electricity and Magnetism	4
PHYS 213	General Physics: Fluids and Thermal Physics	2
PHYS 214	General Physics: Wave Motion and Quantum Physics	2
PHYS 237	Introduction to Modern Physics	3-4
PHYS 400	Intermediate Electricity and Magnetism	3-4
PHYS 410	Introduction to Quantum Mechanics I	3-4
PHYS 419	Theoretical Mechanics	3
PHYS 420	Thermal Physics	3
PHYS 444	Topics in Contemporary Physics	2
PHYS 457W	Experimental Physics	3

Additional Courses

Select 3 credits from the following:		3
CMPSC 101	Introduction to Programming	
CMPSC 121	Introduction to Programming Techniques	
CMPSC 131	Programming and Computation I: Fundamentals	
CMPSC 200	Programming for Engineers with MATLAB	
CMPSC 201	Programming for Engineers with C++	
CMPSC 204	Introduction to Computational Sciences Programming	

Additional Courses: Require a grade of C or better

MATH 230	Calculus and Vector Analysis	4
or MATH 231 & MATH 232	Calculus of Several Variables and Integral Vector Calculus	
MATH 251	Ordinary and Partial Differential Equations	4
or MATH 250 & MATH 252	Ordinary Differential Equations and Partial Differential Equations	

Supporting Courses and Related Areas

Select 3 credits of 400-level MATH from departmental list	3
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Requirements for the Option

Select an option	24-27
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Requirements for the Option Computation Option (24 credits)

Code	Title	Credits
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Prescribed Courses

MATH 455	Introduction to Numerical Analysis I	3
MATH 456	Introduction to Numerical Analysis II	3

Additional Courses

CMPSC 122	Intermediate Programming ¹	3
or CMPSC 132	Programming and Computation II: Data Structures	

Supporting Courses and Related Areas

Select 9 credits from department list	9
Select 6 credits from the following:	6

AERSP 424	Advanced Computer Programming	
PHYS 430	Introduction to Computational Physics	
300-400-level CMPSC		
400-level MATH from departmental list		
400-level STAT		

¹ CMPSC 122 has CMPSC 121 as a prerequisite and CMPSC 132 has CMPSC 131 as a prerequisite so care should be taken when choosing

the 'programming requirement' under the Common Requirements for the Major.

Electronics Option (27 credits)

Code	Title	Credits
Prescribed Courses		
EE 210	Circuits and Devices	4
Additional Courses		
Select 8 credits from the following:		8
CMPEN 270	Digital Design: Theory and Practice	
EE 310	Electronic Circuit Design I	
EE 350	Continuous-Time Linear Systems	
Supporting Courses and Related Areas		
Select 9 credits from department list, a maximum of 6 credits may be from the following:		9
PHYS 496	Independent Studies	
SC 295	Science Co-op Work Experience I	
SC 395	Science Co-op Work Experience II	
SC 495	Science Co-op Work Experience III	
Select 6 credits of EE 300- or 400-level courses		6

Prescribed Courses

Additional Courses

Supporting Courses and Related Areas

General Physics Option (25-26 credits)

Code	Title	Credits
Additional Courses		
PHYS 402	Electronics for Scientists	4
or PHYS 458	Intermediate Optics	
Select 6-7 credits from items A, B, and/or C: ¹		6-7
A		
PHYS 337	Introduction to Quantum Information Science and Engineering	
PHYS 406	Subatomic Physics	
PHYS 411	Introduction to Quantum Mechanics II	
PHYS 412	Solid State Physics I	
PHYS 414	Solid State Physics	
PHYS 430	Introduction to Computational Physics	
PHYS 437	Physical implementation of qubits	
PHYS 465	Network analysis of biological systems	
PHYS 472	Elements of Nuclear Physics and its Applications to Medical Imaging and Treatments	
PHYS 479	Special and General Relativity	
PHYS 496	Independent Studies	
PHYS 497	Special Topics	
B		
PHYS 402	Electronics for Scientists ²	
or PHYS 458	Intermediate Optics	
C		
ASTRO 410	Computational Astrophysics	
ASTRO 440	Introduction to Astrophysics	
ASTRO 485	Introduction to High-Energy Astronomy	
Supporting Courses and Related Areas		
Select 12 credits from department list, with a maximum of 6 credits of the following:		12
PHYS 496	Independent Studies	
SC 295	Science Co-op Work Experience I	

Additional Courses

Supporting Courses and Related Areas

SC 395	Science Co-op Work Experience II	
SC 495	Science Co-op Work Experience III	
Select 3 credits of 400-level MATH from department list		3

¹ Only 3 credits of ASTRO courses may be used.

² The course not selected above may be used.

Medical Physics Option (24-26 credits)

This option prepares students for graduate study in medical physics, medical school, or bioengineering.

Code	Title	Credits
Additional Courses		
Select course set A or B:		15-17
Set A		
BIOL 110	Biology: Basic Concepts and Biodiversity	
BIOL 230W	Biology: Molecules and Cells	
or BIOL 240W	Biology: Function and Development of Organisms	
CHEM 113	Experimental Chemistry II	
CHEM 210	Organic Chemistry I	
CHEM 212	Organic Chemistry II	
CHEM 213	Laboratory in Organic Chemistry	
Set B		
BIOL 141	Introduction to Human Physiology	
or BIOL 472	Human Physiology	
9 credits of PHYS 472 or BME at the 300- or 400-level		
Select one of the following:		
BIOL 230W	Biology: Molecules and Cells	
BMB 251	Molecular and Cell Biology I	
BME 201	Fundamentals of Cells and Molecules	
Supporting Courses and Related Options		
Select 9 credits from department list, a maximum of 6 credits may be from the following:		9
PHYS 496	Independent Studies	
SC 295	Science Co-op Work Experience I	
SC 395	Science Co-op Work Experience II	
SC 495	Science Co-op Work Experience III	

Additional Courses

Supporting Courses and Related Options

Nanotechnology/Material Science Option (24-25 credits)

Code	Title	Credits
Prescribed Courses		
PHYS 412	Solid State Physics I	3
Additional Courses		
Select course set A or B: ¹		12-13
Set A		
ESC 312	Engineering Applications of Wave, Particle, and Ensemble Concepts	
ESC 313	Introduction to Principles, Fabrication Methods, and Applications of Nanotechnology	
6 credits from ESC 400-level courses		
Set B		
MATSE 201	Introduction to Materials Science	
MATSE 402	Materials Process Kinetics	
or MATSE 430	Mechanical Properties of Materials	
MATSE 430	Materials Characterization	

MATSE 460 Introductory Laboratory in Materials

3 credits from 400-level MATSE courses

Supporting Courses and Related Areas

Select 9 credits from department list, with a maximum of 6 credits from the following: 9

PHYS 496 Independent Studies

SC 295 Science Co-op Work Experience I

SC 395 Science Co-op Work Experience II

SC 495 Science Co-op Work Experience III

¹ The courses in Set A help satisfy the requirements for the Nanotechnology minor.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- Physics majors will be informed of and take advantage of opportunities to engage in 'hands-on' out-of-class experiential learning, related to their choice of specialty in their chosen major/option.
- Physics majors will be knowledgeable about job search skills, graduate and/or professional programs, employment in industrial, lab positions, teaching careers, and other career paths.
- Physics majors will demonstrate both written and oral scientific communication skills.
- Physics majors will demonstrate mastery of commonly agreed on knowledge base expected of all Physics professionals in four basic core areas and demonstrate problem solving ability in each of these areas, across all options. Students will show mastery in each area by being able to define and explain principles, recognize their application in physical phenomena, and to choose and apply appropriate principles and mathematical tools to set up and solve physics problems.
 - (a) mechanics,
 - (b) electricity and magnetism,
 - (c) thermodynamics and statistical mechanics,
 - (d) quantum mechanics
- Physics majors will be knowledgeable about ethical issues, and demonstrate practice of professional ethics as they relate to their

undergraduate experience including in the classroom and lab, the responsible conduct of research, the presentation of scientific results, and in their future profession.

- Physics majors will demonstrate mastery of advanced problem-solving ability, including high-level mathematical methods, estimations, and the ability to write computer code to accomplish a computational task.
- Physics majors will show competency in a variety of experimental techniques, lab safety, experimental measurement, data analysis, and results interpretation relevant to the discipline.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

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University Park

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

General Option: Physics, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
PHYS 211 ^{*#}	4	PHYS 212 ^{*#}	4
MATH 140 ^{*†#†}	4	MATH 141 ^{*†#†}	4
CHEM 110 ^{*†#†}	3	CHEM 112 [†]	3

CHEM 111 [†]	1	ENGL 15, 30H, or ESL 15 [‡]	3
PSU 16	1		
General Education Course	3		
	16		14

Second Year

Fall	Credits	Spring	Credits
PHYS 213 & PHYS 214 [*]	4	PHYS 237 [*]	3
MATH 230 [*]	4	MATH 251 [*]	4
MATH 220	2	General Education Course	3
General Education Course	3	CMPSC 101, 121, 131, 200, 201, or 204	3
General Education Course (GHW)	1.5	CAS 100A, 100B, or 100C [‡]	3
	14.5		16

Third Year

Fall	Credits	Spring	Credits
PHYS 400 [*]	4	PHYS 410 [*]	4
PHYS 419 or 402 [*]	3-4	PHYS 419 or 458 [*]	3-4
MATH 400 level selection (consult with an academic adviser for options) ¹	3	MATH 400 level selection (consult with an academic adviser for options) ¹	3
General Education Course	3	General Education Course	3
PHYS 444 [*]	2	General Education Course	3
	15-16		16-17

Fourth Year

Fall	Credits	Spring	Credits
PHYS 400 level selection (consult with an academic adviser for options)	3	PHYS 400 level selection (consult with an academic adviser for options)	3
PHYS 420 or 457W ²	3-4	PHYS 420 or 457W ²	3-4
General Education Course	3	Supporting Course (consult with an academic adviser for options)	3
ENGL 202C [‡]	3	Supporting Course (consult with an academic adviser for options)	3
Elective ²	3	General Education Course (GHW)	1.5
	15-16		13.5-14.5

Total Credits 120-124

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain

attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

¹ MATH 4xx can be taken from the following list: E SC 404 OR E SC 406 OR any Math 4XX course except PHYS/MATH 419 and PHYS/MATH 479.

² PHYS 457W requires a grade of C or better.

Medical Option: Physics, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PHYS 211 ^{*#}	4 PHYS 212 ^{*#}	4
MATH 140 ^{*†#†}	4 MATH 141 ^{*†#†}	4
CHEM 110 ^{*†#†}	3 CHEM 112 [†]	3
CHEM 111 [†]	1 CHEM 113 [†]	1
PSU 16	1 ENGL 15, 30H, or ESL 15 [†]	3
General Education Course	3	
	16	15

Second Year

Fall	Credits Spring	Credits
PHYS 213 & PHYS 214 [*]	4 PHYS 237 [*]	3
MATH 230 [*]	4 MATH 251 [*]	4
BIOL 110 or 141 [†]	3-4 BIOL 240W or BME 201 [†]	3-4
General Education Course	3 General Education Course	3
	CAS 100A, 100B, or 100C [‡]	3
	14-15	16-17

Third Year

Fall	Credits Spring	Credits
PHYS 400 [*]	4 PHYS 419 [*]	3
MATH 400 level selection (consult with an academic adviser for options) ¹	3 CMPSC 101, 121, 131, 200, 201, or 204	3
MATH 220	2 CHEM 212 (or BME Elective)	3
CHEM 210 (or BME Elective)	3 General Education Requirement	3
PHYS 444	2 General Education Course	3
	14	15

Fourth Year

Fall	Credits Spring	Credits
PHYS 410 [*]	4 PHYS 420 [*]	3
CHEM 213 (or BME Elective)	2 PHYS 457W [*]	3
ENGL 202C [‡]	3 Supporting Course (consult with an academic adviser for options)	3
General Education Course	3 Supporting Course (consult with an academic adviser for options)	3
General Education Course (GHW)	1.5 Supporting Course (consult with an academic adviser for options)	3

General Education Course (GHW)	1.5
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13.5	16.5
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Total Credits 120-122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

¹ MATH 4xx can be taken from the following list: E SC 404 OR E SC 406 OR any Math 4XX course except PHYS/MATH 419 and PHYS/MATH 479.

Electronics Option: Physics, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
PHYS 211 ^{*#}	4	PHYS 212 ^{*#}	4
MATH 140 ^{*†#†}	4	MATH 141 ^{*†#†}	4
CHEM 110 ^{*†#†}	3	CHEM 112 [†]	3
CHEM 111 [†]	1	ENGL 15, 30H, or ESL 15 [†]	3
PSU 16	1		
General Education Course	3		
	16		14

Second Year

Fall	Credits	Spring	Credits
PHYS 213 & PHYS 214 [*]	4	PHYS 237 [*]	3
MATH 230 [*]	4	MATH 251 [*]	4
MATH 220	2	CMPEN 270 (or Electrical Engineering 300 level selection)	4
EE 210	4	CMPSC 101, 121, 131, 200, 201, or 204	3
		General Education Course	3
	14		17

Third Year

Fall	Credits	Spring	Credits
PHYS 400 [*]	4	PHYS 419 [*]	3
CMPEN 270 (or Electrical Engineering 300 level selection)	4	Electrical Engineering 300 or 400 level selection (consult with an academic adviser for options)	3
MATH 400 level selection (consult with an academic adviser for options) ¹	3	General Education Course	3
CAS 100A, 100B, or 100C [‡]	3	General Education Course	3
PHYS 444 [*]	2	General Education Course	3
	16		15

Fourth Year

Fall	Credits	Spring	Credits
PHYS 410 [*]	4	PHYS 420 [*]	3
Electrical Engineering 300 or 400 level selection (consult with an academic adviser for options)	3	PHYS 457W [*]	3
ENGL 202C [‡]	3	General Education Course	3
General Education Course	3	Supporting Course (consult with an academic adviser for options)	3

General Education Selection (GHW)	1.5	Supporting Course (consult with an academic adviser for options)	3
		GHA Elective	1.5
	14.5		16.5

Total Credits 123

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

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W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

¹ MATH 4xx can be taken from the following list: E SC 404 OR E SC 406 OR any Math 4XX course except PHYS/MATH 419 and PHYS/MATH 479.

Computational Option: Physics, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
PHYS 211 ^{*#}	4	PHYS 212 ^{*#}	4
MATH 140 ^{*†#†}	4	MATH 141 ^{*†#†}	4
CHEM 110 ^{*†#†}	3	CHEM 112 [†]	3
CHEM 111 [†]	1	ENGL 15, 30H, or ESL 15 [†]	3
PSU 16	1		
General Education Course	3		
	16		14

Second Year

Fall	Credits	Spring	Credits
PHYS 213 & PHYS 214 [*]	4	PHYS 237 [*]	3
MATH 230 [*]	4	MATH 251 [*]	4
CMPSC 131	3	CMPSC 132	3
General Education Course	3	MATH 220	2
General Education Course (GHW)	1.5	General Education Course	3
	15.5		15

Third Year

Fall	Credits	Spring	Credits
PHYS 400 [*]	4	PHYS 410 [*]	4
PHYS 419 (or MATH 4xx) ^{*1}	3	PHYS 419 (or MATH 400 level selection) ^{*1}	3
MATH 455	3	MATH 456	3
CAS 100A, 100B, or 100C [‡]	3	General Education Course (GHW)	1.5
PHYS 444 [*]	2	General Education Course	3
		Supporting Course (consult with an academic adviser for options)	3
	15		17.5

Fourth Year

Fall	Credits	Spring	Credits
PHYS 420 [*]	3	PHYS 457W	3
MATH 400 level or STAT 400 level or CMPSC 300/400 level selection (consult with an academic adviser for options)	3	MATH 400 level or STAT 400 level or CMPSC 300/400 level selection (consult with an academic adviser for options)	3
General Education Course	3	General Education Course	3
General Education Course	3	Supporting Course (consult with an academic adviser for options)	3

ENGL 202C [‡]	3	Supporting Course (consult with an academic adviser for options)	3
	15		15

Total Credits 123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

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W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

¹ MATH 4xx can be taken from the following list: E SC 404 OR E SC 406 OR any Math 4XX course except PHYS/MATH 419 and PHYS/MATH 479.

Materials-Nanotechnology Option - Nanotechnology Track: Physics, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
PHYS 211 ^{*#}	4	PHYS 212 ^{*#}	4
MATH 140 ^{*†#†}	4	MATH 141 ^{*†#†}	4
CHEM 110 ^{*†#†}	3	CHEM 112 [†]	3
CHEM 111 [†]	1	ENGL 15, 30H, or ESL 15 [†]	3
PSU 16	1		
General Education Course	3		
	16		14

Second Year

Fall	Credits	Spring	Credits
PHYS 213 & PHYS 214 [*]	4	PHYS 237 [*]	3
MATH 230 [*]	4	MATH 251 [*]	4
MATH 220	2	CAS 100A, 100B, or 100C [‡]	3
General Education Course	3	CMPSC 101, 121, 131, 200, 201, or 204	3
General Education Course (GHW)	1.5	General Education Course	3
	14.5		16

Third Year

Fall	Credits	Spring	Credits
PHYS 400 [*]	4	PHYS 410 [*]	4
PHYS 419 (or MATH 400 level selection (consult with an academic adviser for options)) ^{*1}	3	PHYS 419 (or MATH 400 level selection (consult with an academic adviser for options)) [*]	3
PHYS 444 [*]	2	ESC 313	3
ESC 312	3	General Education Course	3
General Education Course	3	General Education Course	3
	15		16

Fourth Year

Fall	Credits	Spring	Credits
PHYS 420	3	PHYS 457W [*]	3
PHYS 412	3	ESC 400 level selection (consult with an academic adviser for options)	3
ESC 400 Level Selection (consult with an academic adviser for options)	3	Supporting Course (consult with an academic adviser for options)	3
ENGL 202C [‡]	3	Supporting Course (consult with an academic adviser for options)	3

General Education Course	3	General Education Course (GHW)	1.5
	15		13.5

Total Credits 120

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

¹ MATH 4xx can be taken from the following list: E SC 404 OR E SC 406 OR any Math 4XX course except PHYS/MATH 419 and PHYS/MATH 479.

Materials-Nanotechnology Option - Materials Track: Physics, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
PHYS 211 ^{*#}	4	PHYS 212 ^{*#}	4
MATH 140 ^{*†#†}	4	MATH 141 ^{*†#†}	4
CHEM 110 ^{*†#†}	3	CHEM 112 [†]	3
CHEM 111 [†]	1	ENGL 15, 30H, or ESL 15 [†]	3
PSU 16	1		
General Education Course	3		
	16		14

Second Year

Fall	Credits	Spring	Credits
PHYS 213 & PHYS 214 [*]	4	PHYS 237 [*]	3
MATH 230 [*]	4	MATH 251 [*]	4
MATH 220	2	CAS 100A, 100B, or 100C [‡]	3
MATSE 201	3	CMPSC 101, 121, 131, 200, 201, or 204	3
General Education (GHW)	1.5	General Education Course	3
	14.5		16

Third Year

Fall	Credits	Spring	Credits
PHYS 400 [*]	4	PHYS 410 [*]	4
PHYS 419 (or MATH 400 level selection (consult with an academic adviser for options)) ^{*1}	3	PHYS 419 (or MATH 400 level selection (consult with an academic adviser for options)) ^{*1}	3
PHYS 444 [*]	2	MATSE 436 or 402	3
MATSE 430	3	General Education Course	3
MATSE 460	1	General Education Course	3
General Education Course (GHW)	1.5		
	14.5		16

Fourth Year

Fall	Credits	Spring	Credits
PHYS 412 [*]	3	PHYS 457W [*]	3
PHYS 420 (or MATSE 400 level selection (consult with an academic adviser for options)) [*]	3	PHYS 420 (or MATSE 400 level selection (consult with an academic adviser for options)) [*]	3
ENGL 202C [‡]	3	General Education Course	3
General Education Course	3	Supporting Course (consult with an academic adviser for options)	3

General Education Course	3	Supporting Course (consult with an academic adviser for options)	3
	15		15

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

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All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

¹ MATH 4xx can be taken from the following list: E SC 404 OR E SC 406 OR any Math 4XX course except PHYS/MATH 419 and PHYS/MATH 479.

Career Paths

It's often said that physicists are first and foremost problem solvers. With strong analytical skills in multiple areas, physicists are versatile and adaptable, and find career flexibility in many fields. A BS in Physics provides strong training for direct employment in a wide variety of careers or for further training at the graduate level in many STEM fields. Examples include jobs in private industries, national labs, and small companies involving basic or applied research, engineering applications, data analysis, or modeling, programming, and simulations.

Careers

Physics majors use their analytic and problem-solving skills in a wide variety of 'real world' jobs in both the public and private sector, from national laboratories, the aerospace industry, and advanced technology and communications industries to patent law.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE PHYSICS PROGRAM (<https://www.aps.org/careers/>)

Opportunities for Graduate Studies

About half of all Physics B.S. students pursue additional graduate education at some point. Many students proceed directly to a Physics Ph.D. program and the vast majority of students who are accepted into such programs receive both a stipend and have full tuition paid for by the institution. Some students find that their employers subsidize additional education in a technical field useful to the company. Physics majors have successfully pursued graduate degrees in all engineering fields, mathematics, statistics, and data science, law school and medical school, and other life science related areas, such as medical physics and neuroscience.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://gradschoolshopper.com/browse/>)

Professional Resources

- The American Physical Society (<https://www.aps.org/>)
- The American Institute of Physics (<https://www.aip.org/>)
- The National Society of Physics Students (SPS) (<https://www.spsnational.org/>)
- The National Sigma Pi Sigma ($\Sigma\Pi\Sigma$) Physics honor society (<https://www.sigmapisigma.org/sigmapisigma/>)
- The National Society of Black Physicists (NSBP) (<https://nsbp.org>)
- The National Society of Hispanic Physicists (NSHP) (<https://hispanicphysicists.org/>)
- American Association of Physicists in Medicine (AAPM) (<https://www.aapm.org/>)

Contact

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<https://science.psu.edu/physics/undergraduate> (<https://science.psu.edu/physics/undergraduate/>)

Physics, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Department of Physics offers a minor for students who wish to expand upon their study in this fundamental discipline, beyond the introductory courses (PHYS 211, PHYS 212, PHYS 213, PHYS 214). In addition to an additional course in modern physics (PHYS 237, which includes introductions to relativity and quantum theory, as well as applications), students take two 400-level PHYS courses for a total of 6-8 credits. The Physics minor is useful for students in many STEM disciplines who wish to extend their studies in this fundamental field, as a background for graduate study or work in a variety of technical fields.

What is Physics?

Physicists study natural phenomena in the universe, from the smallest length scales to the largest in the cosmos, to discover the basic principles or laws which govern the physical world. Knowledge of physics is crucial to truly understanding the world around us, the world inside us, and the world beyond us. The Physics minor will extend your studies at the fundamental level, as a background for graduate study or for future work in a variety of technical fields.

You Might Like This Program If...

You are interested in supplementing your education with a strong foundation in the physical principles behind applications.

Program Requirements

Requirement	Credits
Requirements for the Minor	29-31

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>).

In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
PHYS 211	General Physics: Mechanics	4
PHYS 212	General Physics: Electricity and Magnetism	4
PHYS 213	General Physics: Fluids and Thermal Physics	2
PHYS 214	General Physics: Wave Motion and Quantum Physics	2
PHYS 237	Introduction to Modern Physics	3
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select two 400-level PHYS courses ¹		6-8

¹ Select two 400-level PHYS courses, except:

- PHYS 444
- PHYS 446
- PHYS 457
- PHYS 457W
- PHYS 494
- PHYS 494H
- PHYS 495
- PHYS 496
- PHYS 496H
- PHYS 499

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their

intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Career Paths

INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN PHYSICS (<https://www.aps.org/careers/>)

INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://gradschoolshopper.com/browse/>)

Contact

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BKPhysics@psu.edu

Erie

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Erie, PA 16563
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<https://behrend.psu.edu/school-of-science> (<https://behrend.psu.edu/school-of-science/>)

Planetary Science and Astronomy, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

Planetary Science and Astronomy majors will study the Earth system in the context of the Solar System and the universe as a whole. Students will apply methods and knowledge from mathematics, geosciences, chemistry, biology, astronomy and physics, and through laboratory experiences and coursework they will both learn to explore the Earth and to use telescopes to obtain astronomical data. They will study planetary systems around other stars and explore the possibility of their harboring life. Communication of these topics, both oral and written, to the public and to their peers will be emphasized, as will logic and general problem-solving skills. Upon graduation students will be prepared to enter a graduate program in education to obtain teaching certification, to work in an informal science venue or planetarium, or to enter a variety of industry, environmental, or defense professions.

What is Planetary Science and Astronomy?

Planetary Science and Astronomy is the study of the Earth system in the context of the Solar System and the universe as a whole. Students will apply methods and knowledge from mathematics, geosciences, chemistry, biology, astronomy and physics, and through laboratory experiences and coursework they will learn to both explore the Earth and to use telescopes to obtain astronomical data. Students interested in science education will likely seek a graduate program that will provide a teaching certificate.

You Might Like This Program If...

- Your interest in science combines Earth systems science and studying the Universe beyond the Earth.
- You want to go deeper into questions about black holes, life in the Universe, and the origin of the Universe.
- You have an interest in science communication or science education.

Entrance to Major

In order to be eligible for entrance to the Planetary Science and Astronomy major, a student must have:

1. Attained at least a 2.00 cumulative grade-point average;
2. Completed MATH 140 with a grade of C or better;
3. Completed at least four of the following courses with a grade of C or better: ASTRO 120, ASTRO 130, ASTRO 140, BIOL 110, CHEM 110, EARTH 2, GEOSC 1, GEOSC 20, or STAT 200.

Degree Requirements

For the Bachelor of Science degree in Planetary Science and Astronomy, a minimum of 122 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	95-99

18 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
CHEM 111	Experimental Chemistry I	1
CHEM 113	Experimental Chemistry II	1
ENGL 202C	Effective Writing: Technical Writing	3
MATH 141	Calculus with Analytic Geometry II	4
<i>Prescribed Courses: Require a grade of C or better</i>		
ASTRO 401	Fundamentals of Planetary Science and Astronomy	4
ASTRO 402W	Astronomical Telescopes, Techniques, and Data Analysis	3
BIOL 110	Biology: Basic Concepts and Biodiversity	4
BIOL/GEOSC 474	Astrobiology	3
CHEM 110	Chemical Principles I	3
CHEM 112	Chemical Principles II	3
MATH 140	Calculus With Analytic Geometry I	4
STAT 200	Elementary Statistics	4
Additional Courses		
PHYS 211 or PHYS 250	General Physics: Mechanics Introductory Physics I	4
PHYS 212 or PHYS 251	General Physics: Electricity and Magnetism Introductory Physics II	4
Select one of the following:		3
ASTRO 1	Astronomical Universe	
ASTRO 5	The Sky and Planets	
ASTRO 6	Stars, Galaxies, and the Universe	
ASTRO 291	Astronomical Methods and the Solar System	

Select one of the following: 3-4

CMPSC 101	Introduction to Programming	
CMPSC 121	Introduction to Programming Techniques	
CMPSC 201	Programming for Engineers with C++	
CMPSC 202		
CMPSC 203	Introduction to Spreadsheets and Databases	

Select three of the following: 9

ASTRO 120	The Big Bang Universe	
ASTRO 130	Black Holes in the Universe	
ASTRO 140	Life in the Universe	
ASTRO 292	Astronomy of the Distant Universe	

Select one of the following: 3

EARTH 2	The Earth System and Global Change	
GEOSC 1	Physical Geology	
GEOSC 20	Planet Earth	

Select 12 credits of the following: 12

EARTH 100	Environment Earth	
EARTH 103N	Earth in the Future: Predicting Climate Change and Its Impacts Over the Next Century	
EARTH 106		
EARTH 150	Dinosaur Extinctions and Other Controversies	
EARTH 402	Modeling the Earth System	
GEOG 160	Mapping Our Changing World	
GEOSC 201	Earth Materials	
GEOSC 202	Chemical Processes in Geology	
GEOSC 203	Physical Processes in Geology	
GEOSC 204	Geobiology	
METEO 101	Understanding Weather Forecasting	
METEO 201	Introduction to Weather Analysis	

Supporting Courses and Related Areas ¹

Select 11 credits in consultation with adviser from department list 11

Select 9-12 credits from program list of advanced electives 9-12

¹ At least 6 credits from the below categories must be at the 400 level.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

Accurately apply mathematical tools to real physical problems.

Describe how the techniques and principles from biology, chemistry, physics, geoscience, and meteorology are used to study planets and planetary systems.

Explain the physical meaning of mathematical expressions and operations used in quantitative problem solving.

Clearly communicate both technical and descriptive content while following the conventions of scientific writing.

Distinguish between scientific theories and other kinds of (non-scientific) explanations.

Collect and analyze real astronomical data.

Give clear oral presentations of technical material.

Set up and use a small telescope for night sky observing in an education or outreach setting with non-experts.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Planetary Science and Astronomy, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ASTRO 20	2 CHEM 110 ^{*†#†}	3
MATH 140 ^{*†#†}	4 CHEM 111 [†]	1
ASTRO 1, 5, or 6	3 MATH 141 ^{††}	4
GEOSC 1 ^{*†#†}	3 ASTRO 120 or 130 ^{*†#†}	3
General Education Course	3 ENGL 15, 30H, or ESL 15 [‡]	3
	15	14

Second Year

Fall	Credits Spring	Credits
BIOL 110 ^{*†#†}	4 CAS 100, CAS 100A, CAS 100B, or CAS 100C [‡]	3
CHEM 112 ^{*†}	3 CMPSC 201	3
CHEM 113 [†]	1 EARTH 103N (consult with an academic adviser for alternative options)	3
PHYS 211 or 250	4 General Education Course	3
ASTRO 140 ^{*†#†}	3 STAT 200 [#]	4
	15	16

Third Year

Fall	Credits Spring	Credits
ASTRO 401 [*]	4 ASTRO 402W [*]	3
ENGL 202C ^{††}	3 PHYS 212 or 251	4
EARTH 402 (consult with an academic adviser for alternative options)	3 Supporting Course (consult with an academic adviser for options)	3
GEOG 160 (consult with an academic adviser for alternative options)	3 Advanced Elective (consult with an academic adviser for options)	3
Supporting Course (consult with an academic adviser for options)	3 General Education Course (GHW)	1.5
	16	14.5

Fourth Year

Fall	Credits Spring	Credits
ASTRO 120 or 130 ^{*††}	3 METEO 101 (consult with an academic adviser for alternative options) [†]	3
GEOSC/BIOL 474 [*]	3 Advanced Elective (consult with an academic adviser for options)	3
Advanced Elective	3 Supporting Course (consult with an academic adviser for options)	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5	
	16.5	15

Total Credits 122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Career Paths

Careers

Students in the Planetary Science & Astronomy major have flexibility in this program to customize the coursework to their anticipated career path. Many students choose careers in astronomy education or science communication, which may include work in the planetarium field or as K-12 classroom teachers. The coursework in the major also allows for students to prepare for careers at observatories or as data analysts for major astronomy projects. Students wishing to pursue careers in a technical industry are encouraged to complete a minor that will enhance the preparation in the major.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE PLANETARY SCIENCE AND ASTRONOMY PROGRAM (<https://science.psu.edu/astro/undergrad/planetary-science-and-astronomy-major/>)

Opportunities for Graduate Studies

Students interested in formal or informal education often seek a Master's program that will provide them teaching certification or coursework specific to the museum / science center / planetarium field. While there are specific PhD programs in planetary science, students with this interest are encouraged to carefully plan their undergraduate coursework with an adviser so they are prepared to apply for these programs. The related Astronomy & Astrophysics (ASTRO) major may be a better option for students wishing to go into a Ph.D. program in Planetary Science.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://science.psu.edu/astro/undergrad/planetary-science-and-astronomy-major/>)

Professional Resources

- American Astronomical Society (<https://www.aas.org>)
- Astronomical Society of the Pacific (<https://astro.society.org>)

Contact

University Park

DEPARTMENT OF ASTRONOMY AND ASTROPHYSICS

525 Davey Lab

University Park, PA 16802

814-865-0418

rcm242@psu.edu

<https://science.psu.edu/astro> (<https://science.psu.edu/astro/>)

Planetary Science and Astronomy, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

Planetary Science and Astronomy minors will study the Solar System, stars, galaxies and the universe as a whole. Students will survey a wide variety of topics in astronomy and will learn to solve problems to see how this general knowledge has been obtained. Students will use telescopes to obtain astronomical data, and will learn to analyze these data to constrain astronomical theories. Communication of these topics, both oral and written, to the public and to their peers will be emphasized, as will logic and general problem-solving skills. It will serve students who want to acquire a significant knowledge of the universe as they pursue majors in unrelated fields of study. For example, this minor will serve students who are seeking careers in science education at the 6-12 level, in elementary education, in science journalism, and in geoscience.

What is Planetary Science and Astronomy?

Planetary Science and Astronomy is the study of the Earth system in the context of the Solar System and the universe as a whole. The Planetary Science and Astronomy minor provides an introduction to the fundamentals of this field of study. It focuses on astronomy of objects and phenomena in the Solar System, Milky Way Galaxy, and in the Universe. The focus is on conceptual study, and includes some quantitative astrophysics and in quantitative analysis of astronomical data.

You Might Like This Program If...

- You want to go deeper into questions about black holes, life in the Universe, and the origin of the Universe.
- You want to learn how to use small telescopes and to conduct astronomical observations.
- You have an interest in science communication or science education.
- You are interested in planetary science and want to complement your major.

Program Requirements

Requirement	Credits
Requirements for the Minor	19

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>).

In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ASTRO 401	Fundamentals of Planetary Science and Astronomy	4
ASTRO 402W	Astronomical Telescopes, Techniques, and Data Analysis	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select one of the following:		3
ASTRO 1	Astronomical Universe	
ASTRO 5	The Sky and Planets	
ASTRO 6	Stars, Galaxies, and the Universe	
ASTRO 10	Elementary Astronomy	
ASTRO 11	Elementary Astronomy Laboratory	
ASTRO 291	Astronomical Methods and the Solar System	
Select three of the following:		9
ASTRO 120	The Big Bang Universe	
ASTRO 130	Black Holes in the Universe	
ASTRO 140	Life in the Universe	
ASTRO 292	Astronomy of the Distant Universe	

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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<https://science.psu.edu/astro> (<https://science.psu.edu/astro/>)

Premedical-Medical, B.S.

Begin Campus: University Park

End Campus: University Park

Program Description

This is a special accelerated program in cooperation with the Sydney Kimmel Medical College (SKMC) at Thomas Jefferson University in Philadelphia whereby exceptional students have the opportunity to earn both the B.S. and M.D. degrees in seven years. Students are selected for this program while they are seniors in high school and must begin their undergraduate studies the fall immediately following their graduation. The first three years of the program are completed at University Park and the next four at SKMC Jefferson. The Penn State B.S. degree in Premedical-Medical is awarded after completion of 96 Penn State credits and successful completion of the first year of the standard curriculum at SKMC Jefferson Medical College.

What is Premedical-Medical?

This is a cooperative accelerated medical program, which allows students to earn both their B.S. and M.D. degrees in seven years. Students must apply to this program as high school seniors.

The 7 year curriculum of the Premedical-Medical program includes a strong undergraduate science foundation of chemistry, biochemistry, physics, biology, and post-graduate medical school coursework.

You Might Like This Program If...

- You are focused on a future career as a physician.
- You have had meaningful exposure(s) in healthcare settings that lead you to consider becoming a physician by way of a shortened, provisionally assured admission program.
- You like and want to further study science in all of the core disciplines.

MORE INFORMATION ABOUT PREMEDICAL-MEDICAL (<https://science.psu.edu/interdisciplinary-programs/premed-med-bsmd/>)

Direct Admission to the Major

Incoming first-year students who meet the program admission requirements are admitted directly into the major. Admission restrictions may apply for change-of-major and/or change-of-campus students.

For more information about the admission process for this major, please send a request to the college, campus, or program contact (listed in the Contact tab).

Degree Requirements

Requirement	Credits
General Education	45
Requirements for the Major	66

15 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
BMB 401	General Biochemistry	3
BMB 402	General Biochemistry	3
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
CHEM 113	Experimental Chemistry II	1
CHEM 210	Organic Chemistry I	3
CHEM 212	Organic Chemistry II	3
CHEM 213	Laboratory in Organic Chemistry	2
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
PHYS 211	General Physics: Mechanics	4
PHYS 212	General Physics: Electricity and Magnetism	4
PHYS 213	General Physics: Fluids and Thermal Physics	2
PHYS 214	General Physics: Wave Motion and Quantum Physics	2
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
SC 294	Research Project Courses	1
or SC 494	Research Project Courses	
STAT 200	Elementary Statistics	3-4
or STAT 250	Introduction to Biostatistics	
Select 4-5 credits of life science with lab:		4-5
BIOL 230W	Biology: Molecules and Cells	
BIOL/VBSC 421	Comparative Anatomy of Vertebrates	
or BIOL 437	Histology	
or BIOL 440	Evolution of Infectious Diseases	
BIOL 472 & BIOL 473	Human Physiology and Laboratory in Mammalian Physiology	
MICRB 201 & MICRB 202	Introductory Microbiology and Introductory Microbiology Laboratory	
Select one of the following:		3
PHIL/BIOET 432	Medical and Health Care Ethics	

or CAS 453 Health Communication Theory and Research
or NURS 464 Dying and Death

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 3-4 credits of life science ¹	3-4
Select 3-6 credits from program list ¹	3-6

¹ Coursework must be approved by Director of Premedical-Medical (PMM) Program.

Note: Depending on advanced placement credit and schedule load, it might also be necessary to enroll during one of the other summer sessions before entering SKMC Jefferson Medical College at semester seven.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Science Competency:** Graduates will be able to apply scientific concepts from the natural and social sciences most relevant to medicine: biology, chemistry, physics, biochemistry, psychology, and sociology.
- **Scientific Inquiry:** Graduates will be able to perform the process of science.
- **Critical Thinking & Quantitative Reasoning:** Graduates will be able to use quantitative reasoning skills to analyze and interpret scientific data.
- **Communication:** Graduates will be able to effectively convey information through oral and written communication.
- **Ethical Responsibility:** Graduates will be able to apply ethical reasoning to problems that present within medical and bio-technological scenarios and have facility with key ethical frameworks utilized in healthcare and public health.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in- and out-of-class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

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University Park

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Premedical-Medical, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110 (GN) ^{**†}	4 BIOL 230W (Consult with adviser for alternative options) [*]	4
CHEM 110 (GN) ^{**†}	3 CHEM 112 (GN) ^{**†}	3
CHEM 111 (GN) ^{**†}	1 CHEM 113 (GN) ^{**†}	1
ENGL 15, 30H, or ESL 15 (GWS) ^{**†}	3 MATH 141B or 141 (GQ) ^{**††}	4
MATH 140B or 140 (GQ) ^{**††}	4 General Education Course ^{**†}	3
PSU 16 [*]	1 General Education Course (GHW) [*]	1.5
	16	16.5

Second Year

Fall	Credits Spring	Credits
CHEM 210 [*]	3 CAS 100A, 100B, or 100C (GWS) ^{**†}	3
BIOL 472 (Consult with an adviser for alternative options) [*]	3 CHEM 212 [*]	3
PHYS 211 [*]	4 PHYS 212 [*]	4
STAT 250 (Consult with an adviser for alternative options) [*]	3 Supporting Course	3

General Education Course ^{**†}	3 General Education Course [*]	3
	Healthcare Internship [*]	1
	16	17

Third Year

Fall	Credits Spring	Credits
BMB 401 [*]	3 BMB 402 [*]	3
CHEM 213W [*]	2 ENGL 202C, 202A, 202B, or 202D (GWS) ^{**†}	3
PHIL/BIOET 432 (Consult with an adviser for alternative options) [*]	3 Supporting Course	2
PHYS 213 [*]	2 General Education Course [*]	3
PHYS 214 [*]	2 General Education Course [*]	3
General Education Course [*]	3 General Education Course (GHW) [*]	1.5
	15	15.5

Total Credits 96

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Program Notes:

- This is a direct-entry major. There are no entrance to major requirements.
- Semester 7 and 8 are completed at Sidney Kimmel Medical College at Thomas Jefferson University.

Career Paths

This accelerated program integrates undergraduate and medical school studies; students completing the program earn both a BS and an M.D., leading to professional careers as physicians.

Professional Resources

- Sidney Kimmel Medical College at Thomas Jefferson University (<https://www.jefferson.edu/academics/colleges-schools-institutes/skmc.html>)
- Association of American Medical Colleges (<https://www.aamc.org/>)

Contact

University Park

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<https://science.psu.edu/interdisciplinary-programs/premed-med-bsmd>
(<https://science.psu.edu/interdisciplinary-programs/premed-med-bsmd/>)

Premedicine, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

This major provides a broad foundation necessary to the understanding of the basic subjects of modern medical studies. The curriculum, which offers a good balance between science and non-science courses, constitutes an excellent preparation for admission to medical school. It also gives students the freedom to tailor the program to meet their individual needs by permitting a generous number of supporting courses. Specific admission requirements or recommendations of a particular medical school, not already in the required courses of the major, may be included among the supporting courses. Many students also use their supporting courses to pursue a minor.

What is Premedicine?

The Premedicine major is designed to enable students to gain a strong science foundation in chemistry, biochemistry, physics, biology, as well as breadth in ethics and social science, that is necessary for advanced study in the field of medicine. The Premedicine major has a life science focus but integrates knowledge and practices across multiple disciplines to prepare students to think deeply and critically.

You Might Like This Program If...

- You like and are interested in studying several areas of science.
- You want to gain in-depth knowledge in core science disciplines.
- You want to use your science expertise to work and make a difference with people.
- You aspire to a clinical career in medicine.

Entrance to Major

In order to be eligible for entrance to the Premedicine major, a student must have:

1. attained at least a 3.20 cumulative grade-point average; and
2. completed BIOL 110¹, BIOL 230W¹, CHEM 110¹, CHEM 111¹, CHEM 112¹, CHEM 113¹, CHEM 210¹, MATH 140¹, MATH 141¹ and earned a grade of C or better in each of these courses.

Three-Year Alternative

A student may also become eligible for the Bachelor of Science degree in this major upon satisfactory completion of:

1. A total of 96 credits, including General Education credits in Writing/ Speaking, Health and Wellness, Arts, Humanities, and Social and Behavioral Sciences; credits in Ethics, Statistics, and healthcare internship; BIOL 110¹, BIOL 230W¹, BMB 401¹, BMB 402¹, CHEM 110¹, CHEM 111¹, CHEM 112¹, CHEM 113¹, CHEM 210¹, CHEM 212¹, CHEM 213¹, MATH 140¹, MATH 141¹, PHYS 211¹, PHYS 212¹, PHYS 213¹, and PHYS 214¹.
2. The first year of an accredited medical or dental postgraduate program.

¹ A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Degree Requirements

For the Bachelor of Science degree in Premedicine, a minimum of 120 credits is required, with at least 18 credits at the 400 level:

Requirement	Credits
General Education	45
Requirements for the Major	99

24 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GHW courses; 9 credits of GN courses; 6 credits of GQ courses; 6 credits of GS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
HPA 101	Introduction to Health Services Organization	3
PSYCH 100	Introductory Psychology	3
SOC 1	Introductory Sociology	3
<i>Prescribed Courses: Require a grade of C or better</i>		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
BIOL 230W	Biology: Molecules and Cells	4
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
CHEM 113	Experimental Chemistry II	1
CHEM 210	Organic Chemistry I	3
CHEM 212	Organic Chemistry II	3
CHEM 213	Laboratory in Organic Chemistry	2
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
NUTR 251	Introductory Principles of Nutrition	3
Additional Courses		
STAT 200	Elementary Statistics	3-4
or STAT 250	Introduction to Biostatistics	

Select one of the following options for your healthcare internship: ¹ 1

- SC 294 Research Project Courses
- or SC 494 Research Project Courses

Select one of the following: 3

- CAS 453 Health Communication Theory and Research
- NURS 464 Dying and Death
- PHIL/BIOET 432 Medical and Health Care Ethics

Select one of the following: 4-5

- BIOL 220W Biology: Populations and Communities
- BIOL 240W Biology: Function and Development of Organisms
- MICRB 201 Introductory Microbiology
- & MICRB 202 and Introductory Microbiology Laboratory

Additional Courses: Require a grade of C or better

Select 8-12 credits from the following: 8-12

- PHYS 211 General Physics: Mechanics
- & PHYS 212 and General Physics: Electricity and Magnetism
- & PHYS 213 and General Physics: Fluids and Thermal Physics
- & PHYS 214 and General Physics: Wave Motion and Quantum Physics

- PHYS 250 Introductory Physics I
- & PHYS 251 and Introductory Physics II

Select 4-5 credits from the following: 4-5

- BIOL 421 Comparative Anatomy of Vertebrates
- BIOL 437 Histology
- BIOL 472 Human Physiology
- & BIOL 473 and Laboratory in Mammalian Physiology
- MICRB 412 Medical Microbiology
- & MICRB 422 and Medical Microbiology Laboratory

Select 5-6 credits from the following: 5-6

- BMB 400 Molecular Biology of the Gene
- BMB 401 General Biochemistry
- BMB 402 General Biochemistry
- CHEM 450 Physical Chemistry - Thermodynamics
- & CHEM 452 and Physical Chemistry - Quantum Chemistry

Supporting Courses and Related Areas

Select 12 credits toward Area of Concentration ² 12

Select 7-15 credits from program list ³ 7-15

¹ Healthcare internship must be approved by Director of Science Premedicine Majors.

² Coursework to be selected in consultation with Premedicine Major Adviser. Can be counted toward minor.

³ A maximum of 12 credits of Independent Study [296, 496] may be applied toward credits for graduation. Students may apply 6 credits of ROTC.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education

Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- Quantification (GQ): 6 credits
- Writing and Speaking (GWS): 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- Arts (GA): 3 credits
- Health and Wellness (GHW): 3 credits
- Humanities (GH): 3 credits
- Social and Behavioral Sciences (GS): 3 credits
- Natural Sciences (GN): 3 credits

Integrative Studies

- Inter-Domain Courses (Inter-Domain): 6 credits

Exploration

- GN, may be completed with Inter-Domain courses: 3 credits
- GA, GH, GN, GS, Inter-Domain courses. This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Science Competency:** Graduates will be able to apply scientific concepts from the natural and social sciences most relevant to medicine: biology, chemistry, physics, biochemistry, psychology, and sociology.
- **Scientific Inquiry:** Graduates will be able to perform the process of science.
- **Critical Thinking & Quantitative Reasoning:** Graduates will be able to use quantitative reasoning skills to analyze and interpret scientific data.
- **Communication:** Graduates will be able to effectively convey information through oral and written communication.
- **Ethical Responsibility:** Graduates will be able to apply ethical reasoning to problems that present within medical and biotechnological scenarios and have facility with key ethical frameworks utilized in healthcare and public health.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Premedicine, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110 (GN) ^{**†}	4 BIOL 230W ^{*#}	4
CHEM 110 (GN) ^{**†}	3 CHEM 112 (GN) ^{**†}	3
CHEM 111 (GN) ^{**†}	1 CHEM 113 (GN) ^{**†}	1
ENGL 15, 30H, or ESL 15 (GWS) [‡]	3 MATH 141B or 141 (GQ) ^{*†#†}	4
MATH 140B or 140 (GQ) ^{*†#†}	4 PSYCH 100 (GS) [†]	3
PSU 16	1	
	16	15

Second Year

Fall	Credits Spring	Credits
CHEM 210 ^{*#}	3 BIOL 240W	4
HPA 101	3 CHEM 212 [*]	3
PHYS 211 or 250 [*]	4 PHYS 212 or 251 [*]	4
SOC 1 (GS) [†]	3 General Education Course	3
STAT 250 (Consult with an adviser for alternative options)	3 Healthcare Internship	1
	16	15

Third Year

Fall	Credits Spring	Credits
BMB 401 [*]	3 BIOL 472 (Consult with an adviser for alternative options) [*]	3
CHEM 213W [*]	2 BIOL 473 (Consult with an adviser for alternative options) [*]	2
PHIL/BIOET 432 (Consult with an adviser for alternative options)	3 BMB 402 (Consult with an adviser for alternative options) [*]	3
PHYS 213 (or Supporting Course) [*]	2 NUTR 251 (GHW) ^{*†}	3
PHYS 214 (or Supporting Course) [*]	2 ENGL 202C, 202A, 202B, or 202D (GWS) [‡]	3
General Education Course	3	
	15	14

Fourth Year

Fall	Credits Spring	Credits
CAS 100A, 100B, or 100C (GWS) [‡]	3 400-Level Supporting Course (Area of Concentration)	3
400-Level Supporting Course (Area of Concentration)	3 Supporting Course (Area of Concentration)	3
Supporting Course (Area of Concentration)	3 Supporting Course (Consult with adviser for options)	3
Supporting Course (Consult with adviser for options)	3 Supporting Course (Consult with adviser for options)	2
General Education Course	3 General Education Course	3
	15	14

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Premedicine, B.S. for 2+2 students starting at a Commonwealth Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110 (GN) ^{**†}	4 CHEM 112 (GN) ^{**†}	3
CHEM 110 (GN) ^{**†}	3 CHEM 113 (GN) ^{**†}	1
CHEM 111 (GN) ^{**†}	1 MATH 141B or 141 (GQ) ^{†#†}	4
ENGL 15, 30H, or ESL 15 (GWS) [‡]	3 PSYCH 100 (GS) [†]	3
MATH 140B or 140 (GQ) ^{†#†}	4 PHYS 211 or 250 [*]	4
PSU 16	1	
	16	15

Second Year

Fall	Credits Spring	Credits
BIOL 230W ^{*#}	4 BIOL 240W	4
CHEM 210 ^{*#}	3 CHEM 212 [*]	3
PHYS 212 or 251 [*]	4 CHEM 213W [*]	2
SOC 1 (GS) [†]	3 PHYS 213 (or Supporting Course) [*]	2
	PHYS 214 (or Supporting Course) [*]	2
	General Education Course	3
	14	16

Third Year

Fall	Credits Spring	Credits
BMB 401 [*]	3 BIOL 472 (Consult with an adviser for alternative options) [*]	3
PHIL/BIOET 432 (Consult with an adviser for alternative options)	3 BIOL 473 (Consult with an adviser for alternative options) [*]	2
STAT 250 (Consult with an adviser for alternative options)	3 BMB 402 (Consult with an adviser for alternative options) [*]	3
Supporting Course (Area of Concentration)	3 NUTR 251 (GHW) ^{*†}	3
Supporting Course (Consult with an adviser for options)	3 ENGL 202C, 202A, 202B, or 202D (GWS) [‡]	3
	Healthcare Internship	1
	15	15

Fourth Year

Fall	Credits Spring	Credits
CAS 100A, 100B, or 100C (GWS) [‡]	3 400-Level Supporting Course (Area of Concentration)	3
HPA 101	3 Supporting Course (Area of Concentration)	3

400-Level Supporting Course (Area of Concentration)	3 Supporting Course (Consult with an adviser for options)	3
General Education Course	3 Supporting Course (Consult with an adviser for options)	2
General Education Course	3 General Education Course	3
	15	14

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

ALEKS Placement into MATH 22: Premedicine, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110 (GN) ^{**†}	4 BIOL 230W ^{*#}	4
SOC 1 (GS) [†]	3 STAT 200 (Consult with an adviser for alternative options)	4
ENGL 15, 30H, or ESL 15 (GWS) [‡]	3 MATH 26	3
MATH 22 [*]	3 PSYCH 100 (GS) [†]	3
PSU 16	1 Healthcare Internship	1
	14	15

Second Year

Fall	Credits Spring	Credits
CHEM 110 (GN) ^{**†}	3 BIOL 240W	4
CHEM 111 (GN) ^{**†}	1 CHEM 112 (GN) ^{**†}	3
HPA 101	3 CHEM 113 (GN) ^{**†}	1
MATH 140B or 140 (GQ) ^{*†#†}	4 MATH 141B or 141 (GQ) ^{*†#†}	4
Supporting Course (Area of Concentration)	3 General Education Course	3
General Education Course	3	
	17	15

Third Year

Fall	Credits Spring	Credits
CHEM 210 ^{*#}	3 BIOL 472 (Consult with an adviser for alternative options) [*]	3
PHYS 211 or 250 [*]	4 BIOL 473 (Consult with an adviser for alternative options) [*]	2
PHIL/BIOET 432 (Consult with an adviser for alternative options)	3 CHEM 212 [*]	3
NUTR 251 (GHW) ^{**†}	3 PHYS 212 or 251 [*]	4
ENGL 202C, 202A, 202B, or 202D (GWS) [‡]	3 General Education Course	3
	16	15

Fourth Year

Fall	Credits Spring	Credits
CAS 100A, 100B, or 100C (GWS) [‡]	3 BMB 402 (Consult with an adviser for alternative options) [*]	3
BMB 401 (Consult with an adviser for alternative options) [*]	3 CHEM 213W [*]	2
PHYS 213 (or Supporting Course) [*]	2 General Education Course	3

PHYS 214 (or Supporting Course) [*]	2 Supporting Course (Area of Concentration)	3
400-Level Supporting Course (Area of Concentration)	3 400-Level Supporting Course (Area of Concentration)	3
Healthcare Internship	1	
	14	14

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Career Paths

Penn State students who complete the BS in Premedicine become physicians, medical research scientists, or enter related medical professions including dentistry, optometry, or podiatry.

Careers

Graduates of the Premedicine major typically either move directly into a post-graduate healthcare school – medicine (MD or DO) is most common - or take a gap period to broaden and enrich their relevant non-academic experiences.

Opportunities for Graduate Studies

Sometimes students in the Premedicine major desire a meaningful post-graduate research experience before entering a professional curriculum. The balanced science components in this major prepare students well for graduate studies in medically-related fields of research.

Professional Resources

- Association of American Medical Colleges (<https://www.aamc.org/>)
- American Association of Colleges of Osteopathic Medicine (<https://www.aacom.org/>)
- American Dental Education Association (<https://www.adea.org>)

- Association of Schools and Colleges of Optometry (<https://optometriceducation.org>)
- American Association of Colleges of Podiatric Medicine (<https://aacpm.org>)

Contact

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<https://science.psu.edu/interdisciplinary-programs/premedicine> (<https://science.psu.edu/interdisciplinary-programs/premedicine/>)

Science Research Distinction, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

The certificate will provide an incentive for students to write a thesis based on an independent research project. Students may be entered into the certificate program upon identification of a research mentor. Members of the graduate faculty are eligible to be mentors. Emeritus faculty or non-tenure track faculty members may serve as mentors, subject to approval by the Associate Dean for Undergraduate Education. Students must engage in research activities over the course of at least 3 semesters or 2 semesters and a summer. Theses must be approved by the research mentor, a reader who is a faculty member eligible to serve as a research mentor, and the Department Head or Director of Undergraduate Studies of a unit within ECoS unless the department has a specific alternative policy in place for thesis approval. The schedule for submission of theses will be the same as Schreyer Honors Theses. Honors students cannot use a single thesis to earn both the distinction of honors and a Research Distinction Certificate but may earn both distinctions by production of independent theses.

What is Science Research Distinction?

The Science Research Distinction program is available to students who are interested in working on an independent research project under the supervision of a faculty mentor, and documenting the results of their work in a research thesis.

You Might Like This Program If...

- You are passionate about research in your field of study.
- You want to design your own research project with the help of a faculty mentor.
- You plan to go to graduate school.
- Your career path requires you to develop strong lab/field skills.
- You want to write a thesis as a summary of your research accomplishments.

Program Requirements

To earn an undergraduate certificate in Science Research Distinction, a minimum of 7 credits is required.

Code	Title	Credits
Prescribed Courses		
SC 494	Research Project Courses (section 002 in semester that thesis is approved)	1
Select 6 credits in independent research in Eberly College of Science from the following:		6
ASTRO 296	Independent Studies	
ASTRO 496	Independent Studies	
BIOL 296	Independent Studies	
BIOL 496	Independent Studies	
BMB 488	Communities of Practice in Biochemistry and Molecular Biology	
BMB 496	Independent Studies	
CHEM 294	Special Problems and Research	
CHEM 494	Chemical Research	
FRNSC 496	Independent Studies	
MATH 296	Independent Studies	
MATH 496	Independent Studies	
PHYS 296	Independent Studies	
PHYS 496	Independent Studies	
STAT 496	Independent Studies	

Certificate Learning Objectives

- Graduates will be able to communicate their research methods, analysis, and conclusions in written format.
- Graduates will be able to identify and interrupt concepts related to their thesis research from the primary scientific literature.
- Graduates will be able explain in written format how their research fits into the context of their field.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Tomalei Vess

Director, Office of Science Engagement
111 Ritenour Building
University Park, PA 16802

814-865-5000
tjv4@psu.edu

Career Paths

Completion of this program enhances career and graduate school opportunities for students in all disciplines. Students will be able to build a strong resume, and be better prepared for graduate school.

Contact

University Park

OFFICE OF SCIENCE ENGAGEMENT
124 Ritenour Building
University Park, PA 16802
814-865-5000
tjv4@psu.edu

<https://science.psu.edu/current-students/undergraduate-research/scires-certificate-program> (<https://science.psu.edu/current-students/undergraduate-research/scires-certificate-program/>)

Science, B.S./Business Administration, M.B.A.

Begin Campus: University Park

End Campus: University Park

Program Description

Students admitted to this special cooperative program between the Eberly College of Science and The Smeal College of Business will be able to combine a Bachelor of Science degree in the Science major, with a Master of Business Administration degree. Highly motivated students, who enter the University with a sufficient number and proper distribution of AP credits, will have the opportunity to complete the requirements for both programs within five years.

What is the Accelerated B.S. in Science and M.B.A. in Business Administration Program?

The Accelerated B.S. in Science and M.B.A. in Business Administration Program is designed to educate the leaders in scientific industry, by providing students with a rigorous science background and undergraduate degree along with a graduate degree in business administration.

You Might Like This Program If...

- You love studying science, but don't necessarily want a career in a laboratory.
- You enjoy coursework in multiple science disciplines and in business.
- You aspire to leadership roles.
- You enjoy working with others on a daily basis.
- You want the opportunity to move into a leadership role early in your career.

Direct Admission to the Major

Incoming first-year students who meet the program admission requirements are admitted directly into the major. Admission restrictions may apply for change-of-major and/or change-of-campus students.

For more information about the admission process for this major, please send a request to the college, campus, or program contact (listed in the Contact tab).

Degree Requirements

For the Accelerated Science, B.S./Business Administration, M.B.A. degree, a minimum of 124 credits is required, with at least 15 credits at the 400 level:

Requirement	Credits
General Education	45
Requirements for the Major	88
First Semester of Course Work in Business Administration, M.B.A.	12

21 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 6 credits of GS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
CHEM 113	Experimental Chemistry II	1
CMPSC 203	Introduction to Spreadsheets and Databases	4
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
MATH 141	Calculus with Analytic Geometry II	4
<i>Prescribed Courses: Require a grade of C or better</i>		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
CHEM 110	Chemical Principles I	3
MATH 140	Calculus With Analytic Geometry I	4
Additional Courses		
Select 3 credits from the following:		3
BMB 211	Elementary Biochemistry	
BMB 251	Molecular and Cell Biology I	
MICRB 201	Introductory Microbiology	
Select 3-4 credits from the following:		3-4
STAT 200	Elementary Statistics	
STAT 250	Introduction to Biostatistics	
STAT 401	Experimental Methods	
Select 8-12 credits from the following:		8-12

PHYS 211 & PHYS 212 & PHYS 213 & PHYS 214	General Physics: Mechanics and General Physics: Electricity and Magnetism and General Physics: Fluids and Thermal Physics and General Physics: Wave Motion and Quantum Physics ¹	
PHYS 250 & PHYS 251	Introductory Physics I and Introductory Physics II ¹	
SC 295: Variable Units		1-3
SC 295	Science Co-op Work Experience I ²	
SC 395: Variable Units		1-3
SC 395	Science Co-op Work Experience II ²	
SC 495: Variable Units		1-3
SC 495	Science Co-op Work Experience III ²	
Select 14 credits in life, mathematical, or physical sciences, with at least 9 credits at the 400 level ^{3,4}		14
Select 0-8 credits in a world language ⁵		0-8
Supporting Courses and Related Areas		
Select 4-23 credits from program list ⁶		4-23
Business Administration, M.B.A. Requirements		
Complete the first semester of course work in the Smeal College of Business M.B.A. program (i.e., a minimum of 12 graduate credits).		12

¹ PHYS 211 and PHYS 250 require a grade of C or better.

² Students must complete three Eberly College of Science Cooperative Education experiences, including at least one experience which is a full semester in length.

³ Only the 9 credits at the 400 level require a grade of C or better.

⁴ Physical sciences include ASTRO, CHEM, PHYS; mathematical sciences include CMPSC, MATH, STAT; life sciences include BIOL, BIOTC, BMB, MICRB.

⁵ Proficiency demonstrated by examination or coursework to the level of the second semester; if fewer than 8 credits are needed to reach the required proficiency, students choose selections from program list to total 8 credits.

⁶ A maximum of 12 credits of Independent Study (296, 496) may be applied toward credits for graduation. Students may apply 6 credits of ROTC.

Requirements for the first semester of course work in the Business Administration, M.B.A. can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/business-administration-smeal/#integratedundergradgradprogramstext>).

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or

within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

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University Park

Beth Johnson

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Accelerated Science, B.S./Business Administration, M.B.A. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110	4 CHEM 112	3
CHEM 110	3 CHEM 111	1
MATH 140	4 MATH 141	4
ENGL 15	3 Life Science Option/Writing Across the Curriculum	3
PSU 16	1 ECON 102	3

General Education Course (GHW)	1.5	
15	15.5	

Second Year

Fall	Credits Spring	Credits Summer	Credits
PHYS 250	4 PHYS 251	4 SC 295	2
Other Science	3 STAT 250	3	
ECON 104	3 Other Science	3	
CMPSC 203	4 ACCTG 211	4	
CHEM 113	1		
General Education Course (GHW)	1.5		
16.5	14	2	

Third Year

Fall	Credits Spring	Credits Summer	Credits
World Language Level 1	4 SC 395	3 SC 495	2
400 Science	3 ENGL 202A	3	
General Education Course	3		
400 Science	3		
13	6	2	

Fourth Year

Fall	Credits Spring	Credits
General Education Course	3 General Education Course	3
General Education Course	3 Supporting Course	3
World Language Level 2	4 CAS 100	3
400 Science	3 Supporting Course	3
Supporting Course	3	
16	12	

Fifth Year

Fall	Credits
BA 533	2
BA 511	2
BA 515	2
BA 531	2
BA 501	2
BA 512	2
12	

Total Credits 124

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Career Paths

Graduates with a B.S. in Science and a Master's degree in Business Administration have successfully established careers in the science and business industries. Graduates of this unique integrated undergraduate-graduate program (IUG) are equipped to step into leadership roles instead of the more common entry-level positions of their peers. This accelerates the careers of our graduates, which leads to greater impact and higher earning potential over a lifetime.

Careers

Graduates of the B.S./M.B.A. program have pursued careers in a number of industries including, but not limited to the following:

- Consulting
- Finance
- Healthcare
- Manufacturing
- Marketing
- Medical Devices
- Pharmaceuticals
- Technology

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE ACCELERATED SCIENCE B.S./M.B.A. PROGRAM (<https://science.psu.edu/interdisciplinary-programs/bsmba/>)

Opportunities for Graduate Studies

For more information on the M.B.A curriculum, please visit the Smeal College of Business website (<https://oneyearmba.smeal.psu.edu>).

Contact

University Park

SCIENCE MAJOR PROGRAM OFFICE

225B Ritenour Building
University Park, PA 16802
814-863-3889
bai107@psu.edu

<https://science.psu.edu/interdisciplinary-programs/science-major>
(<https://science.psu.edu/interdisciplinary-programs/science-major/>)

Statistics, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

This major helps prepare students with interests in mathematics, computation, and the quantitative aspects of science for careers in industry and government as statistical analysts, or for further graduate training in statistics. The major includes five options:

1. An Actuarial Statistics Option for students interested in working as actuaries in the insurance or business fields;
2. An Applied Statistics Option for students interested in a cross-disciplinary program, such as econometrics, or psychometrics;
3. A Biostatistics Option for students interested in pursuing careers with pharmaceutical companies, research hospitals or other fields in which biological data is analyzed;
4. A Graduate Study Option for students planning to go to graduate school in a statistics-related field; and
5. A Statistics and Computing Option for students wishing to combine statistical expertise with programming skills.

What is Statistics?

Statistics is the field of study of that uses mathematics, computing, and analysis, to organize and understand data. Statisticians use critical and abstract thinking through the application of mathematical principles to statistical problems, and combine modeling with computational skills to analyze data.

You Might Like This Program If...

- You enjoy problem solving and creative thinking.
- You have a passion for turning information into decisions, discoveries, and insight.
- You want to develop a skillset in high demand across a variety of fields in science, technology, finance, risk analysis, manufacturing, research, and industry.

Entrance to Major

In order to be eligible for entrance into the Statistics major, a student must have:

1. Attained at least a 2.00 cumulative grade point average.
2. Completed MATH 140 and MATH 141; and earned a grade of C or better in each of these courses.

Degree Requirements

For the Bachelor of Science degree in Statistics, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	0-1
Requirements for the Major	81-94

6-15 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 0-9 credits of GN courses; 6 credits of GQ courses, 0-6 credits of GS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
MATH 220	Matrices	2-3
MATH 230	Calculus and Vector Analysis	4
STAT 184	Introduction to R	2
STAT 200	Elementary Statistics	4
STAT 300	Statistical Modeling I	3
STAT 380	Data Science Through Statistical Reasoning and Computation	3
STAT 400	Statistical Modeling II	3
STAT/MATH 414	Introduction to Probability Theory	3
STAT/MATH 415	Introduction to Mathematical Statistics	3
STAT 470W	Capstone for Statistics Major—Problem Solving and Communication in Applied Statistics	3

Additional Courses

Additional Courses: Require a grade of C or better

Select 1-3 credits from:		1-3
STAT 480	Introduction to SAS	
STAT 481	Intermediate SAS for Data Management	
STAT 482	Advanced Topics in SAS	
STAT 483	Statistical Programming in SAS	

Requirements for the Option

Select an option 42-52

Requirements for the Option

Actuarial Statistics Option (48 credits)

Students who major in statistics with the actuarial statistics option and who wish to complete a concurrent major in mathematics may not choose the actuarial mathematics option in mathematics. Any other option in mathematics is acceptable.

Code	Title	Credits
Prescribed Courses		
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
<i>Prescribed Courses: Require a grade of C or better</i>		

ACCTG 211	Financial and Managerial Accounting for Decision Making	4
FIN 301	Corporation Finance	3
RM 302	Risk and Insurance	3
RM 410	Financial Mathematics for Actuaries	3
RM 411	Long Term Actuarial Mathematics - Fundamentals	3
RM 412	Long Term Actuarial Mathematics - Advanced Topics	3
STAT 463	Applied Time Series Analysis	3

Additional Courses

Additional Courses: Require a grade of C or better

Select 3 credits from the following:		3
CMPSC 101	Introduction to Programming	
CMPSC 102	Introduction to Visual Programming	
CMPSC 121	Introduction to Programming Techniques	
CMPSC 131	Programming and Computation I: Fundamentals	
CMPSC 200	Programming for Engineers with MATLAB	
CMPSC 201	Programming for Engineers with C++	

Select 9 credits from the following: 9

BBH/HPA 440	Principles of Epidemiology	
CMPSC 448	Machine Learning and Algorithmic AI	
IE 434	Statistical Quality Control	
IE 436	Six Sigma Methodology	
MATH 436	Linear Algebra	
	or MATH 441 Matrix Algebra	
MATH/CMPSC 451	Numerical Computations	
	or MATH/	
	Introduction to Numerical Analysis I	
CMPSC 455		
RM 415	Modeling for Actuarial Science	
RM 420	Property, Casualty, and Health Insurance	
STAT/MATH 416	Stochastic Modeling	
STAT 440	Computational Statistics	
STAT 464	Applied Nonparametric Statistics	
STAT 466	Survey Sampling	

Supporting Courses and Related Areas

Select 8 credits from department list 8

Applied Statistics Option (42 credits)

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits from the following:		3
CMPSC 101	Introduction to Programming	
CMPSC 121	Introduction to Programming Techniques	
CMPSC 131	Programming and Computation I: Fundamentals	
CMPSC 201	Programming for Engineers with C++	
Select 12 credits from the following:		12
BBH/HPA 440	Principles of Epidemiology	
CMPSC 448	Machine Learning and Algorithmic AI	
IE 434	Statistical Quality Control	
IE 436	Six Sigma Methodology	
MATH 436	Linear Algebra	

or MATH 441Matrix Algebra

MATH/CMPSC Numerical Computations 451	
or MATH/ CMPSC 455	Introduction to Numerical Analysis I
RM 415	Modeling for Actuarial Science
RM 420	Property, Casualty, and Health Insurance
STAT/MATH 416	Stochastic Modeling
STAT 440	Computational Statistics
STAT 463	Applied Time Series Analysis
STAT 464	Applied Nonparametric Statistics
STAT 466	Survey Sampling

Supporting Courses and Related Areas

Select 27 credits from department list, including a minor in a supporting field other than Mathematics ¹ 27

¹ Neither the mathematics major nor the six sigma minor, nor the risk management major with the actuarial science option may be used to satisfy the minor/concurrent major requirement. If a student wants to work in a supporting field that does not have a minor, he or she can propose a list of six appropriate courses and petition the Statistics Department for approval. It is the student's responsibility to justify the appropriateness of the proposed list. Students must receive a grade of C or better in each of these six courses.

Biostatistics Option (50-52 credits)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits from the following:		3
CMPSC 101	Introduction to Programming	
CMPSC 121	Introduction to Programming Techniques	
CMPSC 131	Programming and Computation I: Fundamentals	
CMPSC 201	Programming for Engineers with C++	
Select 7-8 credits from the following:		7-8
BIOL 220W	Biology: Populations and Communities	
BIOL 222	Genetics	
BIOL 230W	Biology: Molecules and Cells	
BIOL 240W	Biology: Function and Development of Organisms	
Select 6 credits from 400-level BIOL courses		6
Select 12 credits from the following:		12
BBH/HPA 440	Principles of Epidemiology	
CMPSC 448	Machine Learning and Algorithmic AI	
IE 434	Statistical Quality Control	
IE 436	Six Sigma Methodology	
MATH 436	Linear Algebra	
or MATH 441Matrix Algebra		

MATH/CMPSC Numerical Computations 451	
or MATH/ CMPSC 455	Introduction to Numerical Analysis I
RM 415	Modeling for Actuarial Science
RM 420	Property, Casualty, and Health Insurance
STAT/MATH 416	Stochastic Modeling
STAT 440	Computational Statistics
STAT 463	Applied Time Series Analysis
STAT 464	Applied Nonparametric Statistics
STAT 466	Survey Sampling

Supporting Courses and Related Areas

Select 14-15 credits from department list 14-15

Graduate Study Option (42 credits)

A student completing the Graduate Study option will have earned a minor in mathematics in addition to a B.S. in Statistics. However, a student must fill out and submit the appropriate paperwork to the Mathematics Department in order for this minor to be officially recognized.

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
MATH 312	Concepts of Real Analysis	3
MATH 403	Classical Analysis I	3
MATH 404	Classical Analysis II	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits from the following:		3
CMPSC 101	Introduction to Programming	
CMPSC 121	Introduction to Programming Techniques	
CMPSC 131	Programming and Computation I: Fundamentals	
CMPSC 201	Programming for Engineers with C++	
Select 9 credits from the following:		9
MATH 310	Elementary Combinatorics	
MATH 311W	Concepts of Discrete Mathematics	
MATH 421	Complex Analysis (does not require a grade of C or better)	
MATH 422	Wavelets and Fourier Analysis: Theory and Applications	
MATH 426	Introduction to Modern Geometry ¹	
MATH 429	Introduction to Topology ¹	
MATH/CMPSC 456	Introduction to Numerical Analysis II	
MATH 468	Mathematical Coding Theory	
Select 12 credits from the following:		12
BBH/HPA 440	Principles of Epidemiology	
CMPSC 448	Machine Learning and Algorithmic AI	
IE 434	Statistical Quality Control	
IE 436	Six Sigma Methodology	
MATH 436	Linear Algebra	
or MATH 441Matrix Algebra		
MATH/CMPSC Numerical Computations 451		

or MATH/ CMPSC 455	Introduction to Numerical Analysis I
RM 415	Modeling for Actuarial Science
RM 420	Property, Casualty, and Health Insurance
STAT/MATH 416	Stochastic Modeling
STAT 440	Computational Statistics
STAT 463	Applied Time Series Analysis
STAT 464	Applied Nonparametric Statistics
STAT 466	Survey Sampling

Supporting Courses and Related Areas

Select 9 credits from department list 9

¹ Course does not require a grade of C or better

Statistics and Computing Option (42 credits)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CMPSC 131	Programming and Computation I: Fundamentals	3
CMPSC 132	Programming and Computation II: Data Structures	3
CMPSC 465	Data Structures and Algorithms	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
CMPSC 360	Discrete Mathematics for Computer Science	3
	or MATH 311W Concepts of Discrete Mathematics	
Select 9 credits of the following:		9
CMPSC 221	Object Oriented Programming with Web-Based Applications	
400-level CMPSC (other than CMPSC 451/MATH 451 or CMPSC 455/MATH 455)		
Select 12 credits from the following:		12
BBH/HPA 440	Principles of Epidemiology	
CMPSC 448	Machine Learning and Algorithmic AI	
IE 434	Statistical Quality Control	
IE 436	Six Sigma Methodology	
MATH 436	Linear Algebra	
	or MATH 441 Matrix Algebra	
MATH/CMPSC 451	Numerical Computations	
	or MATH/ CMPSC 455	
RM 415	Modeling for Actuarial Science	
RM 420	Property, Casualty, and Health Insurance	
STAT/MATH 416	Stochastic Modeling	
STAT 440	Computational Statistics	
STAT 463	Applied Time Series Analysis	
STAT 464	Applied Nonparametric Statistics	
STAT 466	Survey Sampling	
Supporting Courses and Related Areas		
Select 9 credits from department list		9

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Statistics and M.A.S. in Applied Statistics

Requirements for the Integrated B.S. in Statistics and M.A.S. in Applied Statistics can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/statistics/#integratedundergradgradprogramstext>).

Program Learning Objectives

- **Statistical methods and theory:** Graduates will be prepared to design studies, use graphical and other means to explore data, build and assess statistical models, employ a variety of formal inference procedures (including resampling methods), and draw appropriate scope of conclusions from the analysis. They will have knowledge and experience applying a variety of statistical methods, assessing their appropriateness, and communicating results. They will have a foundation in theoretical statistics principles for sound analyses.
- **Data management and computation / data science:** Graduates will be facile with professional statistical software and other appropriate tools for data exploration, cleaning, validation, analysis, and communication. They will be able to program in a higher-level language, to think algorithmically, to use simulation-based statistical techniques, and to undertake simulation studies. Graduates will be prepared to manage and marshal data, including joining data from different sources and formats and restructuring data into a form suitable for analysis. Graduates will be prepared to undertake analyses in a well-documented and reproducible way.
- **Mathematical foundations:** Graduates will be prepared to apply mathematical ideas from linear algebra and calculus to statistics, and to set up and apply probability models.
- **Statistical practice:** Graduates will be prepared to write clearly, speak fluently, and construct effective visual displays and compelling written summaries. Graduates will be prepared collaborate in teams and to organize and manage projects. They will be prepared to communicate complex statistical methods in basic terms to managers and other audiences and visualize results in an accessible manner.
- **Discipline-specific knowledge for application domain:** Graduates will be prepared to apply statistical reasoning to domain-specific questions. This capacity includes translating research questions

into statistical questions and communicating results appropriate to different disciplinary audiences.

Source: American Statistical Association Undergraduate Guidelines Workgroup (2014). 2014 curriculum guidelines for undergraduate programs in statistical science. Alexandria, VA: American Statistical Association.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Actuarial Option: Statistics, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 (GQ) ^{*†##†}	4 MATH 141 (GQ) ^{*†##†}	4
STAT 200 (GQ) ^{*†}	4 MATH 220 ^{*†}	3
STAT 184 [*]	3 ECON 104 (GS) [†]	3
PSU 16	1 ACCTG 211 [*]	4
ECON 102 (GS) [†]	3 General Education Course (GN)	3

	General Education Course (GHW)	1.5	
	15		18.5
Second Year			
Fall	Credits	Spring	Credits
MATH 230*	4	STAT 414*	3
STAT 300*	3	STAT 400*	3
STAT 380*	3	General Education Course (Inter-Domain)	3
CMPSC 131**	3	FIN 301*	3
ENGL 15 (GWS)‡	3	RM 302*	3
	16		15
Third Year			
Fall	Credits	Spring	Credits
STAT 415*	3	RM 421	3
RM 410*	3	STAT 463*	3
CAS 100 (GWS)‡	3	400-level Advanced Stat	3
US Cultures	3	IL Cultures	3
General Education Course (Exploration)	3	General Education Course (GA)	3
	15		15
Fourth Year			
Fall	Credits	Spring	Credits
ENGL 202C (GWS)‡	3	RM 412 or 422* ¹	3
RM 411*	3	STAT 470W*	3
RM 422 or 412* ¹	3	STAT 480	1
400-level Advanced Stat	3	400-level Advanced Stat	3
General Education Course (GN)	3	General Education Course (GH)	3
General Education Course (GHW)	1.5	General Education Course (Inter-Domain)	3
	16.5		16

Total Credits 127

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Only required to take one of the courses from RM 412 or RM 422.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain

attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- Classes that listed under US and IL must be unique so that total credits adds up to what's needed. That is, if these classes are in either GN, GA, GS, GH, GHW or Exploration, you will need more credits to meet the total.
- Depending on your year of entrance, total credits required may be different. Please consult an adviser to make sure you are satisfying the degree requirement and total credits adds up to the required amount.

Applied Option: Statistics, B.S. at University Park Campus

Note: a supporting program is required for this program (e.g., minor or concurrent major); consultation with an academic adviser is recommended.

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 (GQ) ^{*†‡†}	4 MATH 141 (GQ) ^{*†‡†}	4
STAT 200 (GQ) ^{*†}	4 MATH 220 ^{*†}	3
STAT 184 [*]	3 CMPSC 131 ^{*†}	3
ENGL 15 (GWS) [‡]	3 STAT 300	3
PSU 16	1 General Education Course (GN)	3
	15	16

Second Year

Fall	Credits Spring	Credits
MATH 230 [*]	4 STAT 414 [*]	3
STAT 380 [*]	3 CAS 100 (GWS) [‡]	3
STAT 480 [*]	1 Supporting Course	3
400-level Advanced Stat	3 Supporting Course	3
General Education Course (GS)	3 General Education Course (Inter-Domain)	3
General Education Course (GHW)	3	
	17	15

Third Year

Fall	Credits Spring	Credits
STAT 415 [*]	3 STAT 400 [*]	3
400-level Advanced Stat	3 ENGL 202C (GWS) [‡]	3
Supporting Course	3 400-level Advanced Stat	3
US Cultures	3 IL Cultures	3
General Education Course (Exploration)	3 General Education Course (GA)	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
400-level Advanced Stat	3 STAT 470W [*]	3
Supporting Course	3 Supporting Course	3
Supporting Course	3 General Education Course (Inter-Domain)	3
Supporting Course	3 General Education Course (Exploration)	3

General Education Course (GN)	3 General Education Course (GH)	3
	15	15

Total Credits 123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- A supporting program is required for this program (e.g., minor or concurrent major). Please consult an academic adviser.
- Classes that listed under US and IL must be unique so that total credits adds up to what's needed. That is, if these classes are in either GN, GA, GS, GH, GHW or Exploration, you will need more credits to meet the total.
- Depending on your year of entrance, total credits required may be different. Please consult an adviser to make sure you are satisfying the degree requirement and total credits adds up to the required amount.

Applied Option (MATH 26): Statistics, B.S. at University Park Campus

Note: a supporting program is required for this program (e.g., minor or concurrent major); consultation with an academic adviser is recommended.

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 26, 40, or 41 (GQ)	3 MATH 140 (GQ) ^{*†‡}	4
STAT 200 (GQ) ^{*†}	4 STAT 300 [*]	3
STAT 184 [*]	3 US Cultures	3
ENGL 15 (GWS) [†]	3 General Education Course (GS)	3
PSU 16	1 General Education Course (GN)	3
General Education Course (GHW)	1.5	
	15.5	16

Second Year

Fall	Credits Spring	Credits
MATH 141 ^{*†‡}	4 MATH 230 [*]	4
MATH 220 ^{*†}	3 CAS 100 (GWS) [†]	3
CMPSC 131 ^{*†}	3 Supporting Course	3
STAT 380 [*]	3 Supporting Course	3
400-level Advanced Stat	3 General Education Course (Inter-Domain)	3
General Education Course (GHW)	1.5	
	17.5	16

Third Year

Fall	Credits Spring	Credits
STAT 414 [*]	3 STAT 400 [*]	3
ENGL 202C (GWS) [†]	3 STAT 415 [*]	3
400-level Advanced Stat	3 400-level Advanced Stat	3
Supporting Course	3 IL Cultures	3
General Education Course (Exploration)	3 General Education Course (GA)	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
STAT 480 [*]	1 STAT 470W [*]	3
400-level Advanced Stat	3 Supporting Course	3
Supporting Course	3 General Education Course (Inter-Domain)	3
Supporting Course	3 General Education Course (Exploration)	3
Supporting Course	3 General Education Course (GH)	3

General Education Course (GN)	3	
	16	15

Total Credits 126

- * Course requires a grade of C or better for the major
- † Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- ‡ Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- A supporting program is required for this program (e.g., minor or concurrent major). Please consult an academic adviser.
- Classes that listed under US and IL must be unique so that total credits adds up to what's needed. That is, if these classes are in either GN, GA, GS, GH, GHW or Exploration, you will need more credits to meet the total.
- Depending on your year of entrance, total credits required may be different. Please consult an adviser to make sure you are satisfying the degree requirement and total credits adds up to the required amount.

Biostatistics Option: Statistics, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 (GQ) ^{*†##}	4 MATH 141 (GQ) ^{*†##}	4
STAT 200 (GQ) ^{**†}	4 STAT 300 [*]	3
STAT 184 [*]	2 ENGL 15 or ESL 15 (GWS) [‡]	3
PSU 16	1 CHEM 110 (GN) ^{**†}	3
BIOL 110 (GN) ^{**†}	4 CHEM 111 (GN) ^{**†}	1
	General Education Course (GHW)	1.5
	15	15.5

Second Year

Fall	Credits Spring	Credits
MATH 220 ^{**†}	3 STAT 414 [*]	3
MATH 230 [*]	4 BBH/HPA 440 [*]	3
BIOL 220W (GN) ^{**†}	4 CAS 100 (GWS) [‡]	3
STAT 380 [*]	3 CMPSC 131 ^{**†}	3
General Education Course (GA)	3 General Education Course (GH)	3
	17	15

Third Year

Fall	Credits Spring	Credits
STAT 415 [*]	3 STAT 463 [*]	3
STAT 400 [*]	3 STAT 416 [*]	3
ENGL 202C (GWS) [‡]	3 400-level BIOL [*]	3
BIOL 222, 230W, or 240W	3 General Education Course (IL)	3
General Education Course (GS)	3 General Education Course (IL)	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
STAT 440 [*]	3 STAT 470W [*]	3
STAT 466 [*]	3 STAT 464 [*]	3
400-level BIOL [*]	3 STAT 480 [*]	1
Supporting Course	3 Supporting Course	3
General Education Course (GN)	3 General Education Course (US)	3
	General Education Course (GHW)	1.5
	15	14.5

Total Credits 122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Graduate Studies Option: Statistics, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 (GQ) ^{*†##}	4 MATH 141 (GQ) ^{*†##}	4
STAT 200 (GQ) ^{**†}	4 STAT 300 [*]	3
STAT 184 [*]	2 ENGL 15 or ESL 15 (GWS) [‡]	3
PSU 16	1 General Education Course (GH)	3
General Education Course (GA)	3 General Education Course (GN)	3
General Education Course (GHW)	1.5	
	15.5	16

Second Year

Fall	Credits Spring	Credits
MATH 220 ^{*†}	3 STAT 414 [*]	3
MATH 230 [*]	4 MATH 312 [*]	3
CMPSC 131 ^{*†}	3 CAS 100 (GWS) [‡]	3
STAT 380 [*]	3 MATH 310 [*]	3
General Education Course (GS)	3 General Education Course (GA)	3
	16	15

Third Year

Fall	Credits Spring	Credits
STAT 415 [*]	3 STAT 440 [*]	3
STAT 400 [*]	3 STAT 416 [*]	3
ENGL 202C [‡]	3 MATH 404 [*]	3
MATH 403 [*]	3 MATH 311W [*]	3
General Education Course (GH)	3 General Education Course (GS)	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
STAT 463 [*]	3 STAT 470W [*]	3
MATH 429 [*]	3 STAT 480 [*]	1
MATH 436 [*]	3 MATH 451 [*]	3
General Education Course (IL)	3 General Education Course (GN)	3
General Education Course (GN)	3 General Education Course (US)	3
	General Education Course (GHW)	1.5
	15	14.5

Total Credits 122

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

* Course requires a grade of C or better for the major

Statistics and Computing Option: Statistics, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 (GQ) ^{*†##}	4 MATH 141 (GQ) ^{*†##}	4
STAT 200 (GQ) ^{**†}	4 STAT 300 [*]	3
STAT 184 [*]	2 ENGL 15 or ESL 15 (GWS) [‡]	3
PSU 16	1 General Education Course (GH)	3
General Education Course (GA)	3 General Education Course (GN)	3
General Education Course (GHW)	1.5	
	15.5	16

Second Year

Fall	Credits Spring	Credits
MATH 220 ^{*†}	3 STAT 414 [*]	3
MATH 230 [*]	4 STAT 463 [*]	3
CMPSC 131 ^{*†}	3 CAS 100 (GWS) [‡]	3
STAT 380 [*]	3 CMPSC 132 ^{*†}	3
General Education Course (GS)	3 General Education Course (GA)	3
	16	15

Third Year

Fall	Credits Spring	Credits
STAT 415 [*]	3 STAT 440 [*]	3
STAT 400 [*]	3 CMPSC 465 [*]	3
ENGL 202C (GWS) [‡]	3 CMPSC 360 [*]	3
CMPSC 221 [*]	3 General Education Course (IL)	3
General Education Course (GH)	3 General Education Course (GS)	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
CMPSC 448 [*]	3 STAT 470W [*]	3
STAT 466 [*]	3 STAT 480 [*]	1
CMPSC 442 [*]	3 CMPSC 455 [*]	3
Supporting Course	3 Supporting Course	3
General Education Course (GN)	3 General Education Course (US)	3
	General Education Course (GHW)	1.5
	15	14.5

Total Credits 122

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

* Course requires a grade of C or better for the major

Actuarial Option: Statistics, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 (GQ) ^{*‡#†}	4 MATH 141 (GQ) ^{*‡#†}	4
STAT 200 (GQ) ^{**†}	4 STAT 184 (DLC section) [*]	3
ENGL 15 (GWS) [‡]	3 ECON 104 (GS) [†]	3
ECON 102 (GS) [†]	3 ACCTG 211 [*]	4
PSU 16	1 General Education Course (GN)	3
	15	17

Second Year

Fall	Credits Spring	Credits
MATH 220 ^{**†}	3 STAT 414 (take it over the summer if not taken in 4th semester) [*]	3
MATH 230 [*]	4 FIN 301 [*]	3
CAS 100A (GWS) [‡]	3 IL Cultures	3
CMPSC 131 or 121 ^{**†}	3 General Education Course (Inter-Domain)	3
General Education Course (GN)	3 General Education Course (GA)	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
	17.5	16.5

Third Year

Fall	Credits Spring	Credits
STAT 415 [*]	3 STAT 400 [*]	3
RM 410 [*]	3 STAT 463 [*]	3
STAT 184 [*]	2 RM 421 [*]	3
STAT 300 [*]	3 ENGL 202C (GWS) [‡]	3
General Education Course (GA)	3 400-level Advanced Stat	3
	14	15

Fourth Year

Fall	Credits Spring	Credits
RM 411 [*]	3 RM 412 or 422 ^{*1}	3
RM 422 or 412 ^{*1}	3 STAT 470W [*]	3
400-level Advanced Stat	3 STAT 480 [*]	1
US Cultures	3 400-level Advanced Stat	3
General Education Course (Exploration)	3 General Education Course (Inter-Domain)	3
	General Education Course (GH)	3
	15	16

Total Credits 126

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ Only required to take one of the courses from RM 412 or RM 422

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Classes that listed under US and IL must be unique so that total credits adds up to what's needed. That is, if these classes are in either GN, GA, GS, GH, GHW or Exploration, you will need more credits to meet the total.
- Depending on your year of entrance, total credits required may be different. Please consult an adviser to make sure you are satisfying the degree requirement and total credits adds up to the required amount.

Applied Option: Statistics, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 ^{*†#†}	4 MATH 141 ^{*†#†}	4
STAT 200 ^{*†}	4 MATH 220 ^{*†}	3
PSU 16	1 CMPSC 131 or 121 ^{*†}	3
ENGL 15 (GWS) [‡]	3 STAT 184 (DLC section) [*]	3
General Education Course (GS)	3 General Education Course (Inter-Domain)	3
	15	16

Second Year

Fall	Credits Spring	Credits
MATH 230 [*]	4 STAT 414 [*]	3
CAS 100A (GWS) [‡]	3 ENGL 202C [‡]	3
Supporting Course	3 Supporting Course	3
General Education Course (GH)	3 Supporting Course	3
General Education Course (GN)	3 General Education Course (GA)	3
General Education Course (GHW)	1.5	
	17.5	15

Third Year

Fall	Credits Spring	Credits
STAT 300 [*]	3 STAT 400 [*]	3
STAT 380 [*]	3 STAT 480 [*]	1
STAT 415 [*]	3 400-level Advanced Stat	3
400-level Advanced Stat	3 Supporting Course	3
US Cultures	3 IL Cultures [*]	3
	General Education Course (GHW)	1.5
	15	14.5

Fourth Year

Fall	Credits Spring	Credits
400-level Advanced Stat	3 STAT 470W [*]	3
Supporting Course	3 400-level Advanced Stat	3
Supporting Course	3 Supporting Course	3
General Education Course (GN)	3 General Education Course (Inter-Domain)	3
General Education Course (Exploration)	3 General Education Course (Exploration)	3
	15	15

Total Credits 123

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- A supporting program is required for this program (e.g., minor or concurrent major). Please consult an academic adviser.
- Classes that listed under US and IL must be unique so that total credits adds up to what's needed. That is, if these classes are in either GN, GA, GS, GH, GHW or Exploration, you will need more credits to meet the total.
- Depending on your year of entrance, total credits required may be different. Please consult an adviser to make sure you are satisfying the degree requirement and total credits adds up to the required amount.

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Biostatistics Option: Statistics, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 ^{*†##}	4 MATH 141 ^{*†##}	4
STAT 200 ^{**†}	4 CHEM 110 ^{**†}	3
PSU 16	1 CHEM 111 ^{**†}	1
BIOL 110 ^{**†}	4 ENGL 15 (or General Education Course) [†]	3
ENGL 15 (or General Education Course) [†]	3 General Education Course	3
	16	14

Second Year

Fall	Credits Spring	Credits
MATH 220 ^{**†}	2 STAT 414 (or Supporting Course) [*]	3
MATH 230 [*]	4 ENGL 202C [‡]	3
CAS 100A [‡]	3 CMPSC 121 or 131 ^{**†}	3
BIOL 220W, 222, 230W, or 240W ^{**†}	3-4 BIOL 220W, 222, 230W, or 240W ^{**†}	3-4
General Education Course	3 General Education Course	3
	15	16

Third Year

Fall	Credits Spring	Credits
STAT 184 [*]	2 STAT 380 [*]	3
STAT 414 (or Supporting Course (if not taken in 4th semester)) [*]	3 STAT 415 [*]	3
STAT 461 [*]	3 STAT 462 [*]	3
BIOL 400-Level Selection [*]	3 STAT 480 [*]	1
Supporting Course	3 Supporting Course	3
General Education Course	3 General Education Course	3
	17	16

Fourth Year

Fall	Credits Spring	Credits
STAT 416 [*]	3 STAT 470W [*]	3
STAT 466 [*]	3 MATH 451 [*]	3
BIOL 400-Level Selection [*]	3 STAT 416 [*]	3
Supporting Course	3 Supporting Course	3
Supporting Course	3 Supporting Course	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
	16.5	16.5

Total Credits 127

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Graduate Studies Option: Statistics, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 ^{*†#}	4 MATH 141 ^{*†#}	4
STAT 200 ^{**†}	4 ENGL 15 [‡]	3
PSU 16	1 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
	15	16

Second Year

Fall	Credits Spring	Credits
MATH 220 ^{**†}	2 STAT 414 (or Supporting Course) [*]	3
MATH 230 [*]	4 ENGL 202C [‡]	3
CAS 100A [‡]	3 CMPSC 121 or 131 ^{**†}	3
MATH 311W [*]	3 MATH 312 [*]	3
General Education Course	3 General Education Course	3
	15	15

Third Year

Fall	Credits Spring	Credits
STAT 184 [*]	2 STAT 380 [*]	3
STAT 414 (or Supporting Course (if not taken in 4th semester)) [*]	3 STAT 415 [*]	3
STAT 461 [*]	3 STAT 462 [*]	3
MATH 403 [*]	3 MATH 404 [*]	3
General Education Course	3 Supporting Course	3
General Education Course	3 General Education Course	3
	17	18

Fourth Year

Fall	Credits Spring	Credits
STAT 416 [*]	3 STAT 470W [*]	3
STAT 466 [*]	3 MATH 400-Level Selection [*]	3
MATH 436 [*]	3 MATH 310 [*]	3
STAT 480 [*]	1 MATH 451 [*]	3
General Education Course	3 Supporting Course	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
	14.5	16.5

Total Credits 127

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Statistics and Computing Option: Statistics, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 ^{*†#†}	4 MATH 141 ^{*†#†}	4
STAT 200 ^{**†}	4 CMPSC 122 or 132 ^{**†}	3
PSU 16	1 General Education Course	3
CMPSC 121 or 131 ^{**†}	3 ENGL 15 (or General Education Course) [†]	3
ENGL 15 (or General Education Course) [†]	3 General Education Course	3
	15	16

Second Year

Fall	Credits Spring	Credits
MATH 220 ^{**†}	2 STAT 414 (or Supporting Course) [*]	3
MATH 230 [*]	4 ENGL 202C [‡]	3
CAS 100A [‡]	3 CMPSC 221 [*]	3
General Education Course	3 Supporting Course	3
General Education Course	3 General Education Course	3
	15	15

Third Year

Fall	Credits Spring	Credits
STAT 184 [*]	2 STAT 380 [*]	3
STAT 414 (or Supporting Course (if not taken in 4th semester)) [*]	3 STAT 415 [*]	3
STAT 461 [*]	3 STAT 462 [*]	3
MATH 311W or CMPSC 360 [*]	3 STAT 480 [*]	1
Supporting Course	3 Supporting Course	3
General Education Course	3 General Education Course	3
	17	16

Fourth Year

Fall	Credits Spring	Credits
STAT 416 [*]	3 STAT 470W [*]	3
STAT 466 [*]	3 MATH 451 [*]	3
CMPSC 465 [*]	3 STAT 416 [*]	3
CMPSC 400-Level Selection [*]	3 CMPSC 400-Level Selection [*]	3
General Education Course (GHW)	1.5 Supporting Course	3
General Education Course	3 General Education Course (GHW)	1.5
	16.5	16.5

Total Credits 127

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

Statistics can be applied in a broad range of fields, including business, agriculture, finance, public policy, and many more. As data in all forms become more easily stored and accessed, so does the demand and opportunity for statisticians to help others discern what can (or cannot) be learned from the information available. In fact, statisticians are also frequently sought after for their disciplined approach to problem solving and critical thinking, even when no formal data analysis is needed.

Careers

Statisticians in the pharmaceutical industry work with doctors and research scientists to design and execute experiments and clinical trials. - Statisticians at technology and manufacturing companies work to advance product development from ensuring reliability and quality of hardware components to software development. - Statisticians collaborate with epidemiologists and public health agencies like the NIH and CDC to study infectious disease dynamics among threatened populations. - Statisticians at government agencies like the U.S. Department of Education, Census Bureau, and Department of Labor help inform public policy and assess impact of legislative changes. - And much more...

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE STATISTICS PROGRAM (<https://thisisstatistics.org/jobs-in-statistics/>)

Professional Resources

- The American Statistical Association (<https://www.amstat.org/>)

Contact

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DEPARTMENT OF STATISTICS
323 Thomas Building
University Park, PA 16802
814-863-0355
stat-advising@psu.edu

<https://science.psu.edu/stat> (<https://science.psu.edu/stat/>)

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Statistics, Minor (Science)

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Statistics minor introduces students to the quantitative aspects of research. Understanding statistics is useful for research in many areas including agriculture, business, education, social science and sciences as well as many jobs in industry and government.

What is Statistics?

Statistics is the field study of that uses mathematics, computing, and analysis, to organize and understand data. Statisticians use critical and abstract thinking through the application of mathematical principles to statistical problems, and combine modeling with computational skills to analyze data.

You Might Like This Program If...

- You enjoy working with numbers and data.
- You are interested in statistics, but do not want to take the full major.
- You want to complement the skills in your major.

Program Requirements

Requirement	Credits
Requirements for the Minor	24-26

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select two of the following:		6
STAT 301		
STAT 318	Elementary Probability	
STAT 319	Elementary Mathematical Statistics	
STAT 401	Experimental Methods	
STAT 414	Introduction to Probability Theory	
STAT 415	Introduction to Mathematical Statistics	
Select 10-12 credits from 400-level STAT courses ¹		10-12

¹ Not including:

- STAT 401
- STAT 414

- STAT 415
- STAT 418

Some course may require other coursework as some courses have prerequisites.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Education

About the College

Kimberly A. Lawless, Dean, College of Education

The Penn State College of Education offers you unique experiences that can be found only here. As a student, you get a solid foundation from your courses. But that's not all. You are surrounded by a support system of faculty members, advisers, and more who will help you succeed. You can be involved in multiple educational experiences on and off campus, from across the street to across the globe. You'll discover new cultures and innovative ideas while at Penn State. Soon enough, those new ideas will be coming from you. It is going to be an invaluable chapter in a your life.

MORE INFORMATION ABOUT THE COLLEGE (<https://ed.psu.edu/>)

Mission and Goals

The mission of the College of Education at Penn State is to deepen and extend knowledge about the formation and utilization of human capabilities. This broad and exciting mission permits us to focus on teaching and learning in many different content areas and with learners of many different ages, ranging from early childhood to adults. Our interest in the utilization of human capabilities connects us with many fields such as rehabilitation and human services and workforce education and development.

MORE INFORMATION ABOUT THE MISSION AND GOALS OF THE COLLEGE OF EDUCATION (<https://ed.psu.edu/about/vision-and-mission/>)

Accreditation

The College of Education educator preparation programs are fully accredited at the Initial and Advanced levels by the Council for the Accreditation of Educator Preparation (CAEP). The next CAEP program review will be Fall 2026. CAEP advances excellence in educator preparation through evidence-based accreditation that assures quality and supports continuous improvement to strengthen P-12 student learning.

MORE INFORMATION ABOUT ACCREDITATION AND PROGRAM REVIEW IN THE COLLEGE OF EDUCATION (<https://ed.psu.edu/about/accreditations/>)

Departments and Schools

Department of Curriculum and Instruction

The Department of Curriculum and Instruction (C I) at Penn State offers undergraduate and graduate degrees and many options for teacher certification. There is a growing demand for graduates of teacher education programs. This department offers professional programs leading to certification in early childhood (PK-4), middle-level education (grades 4-8), and in a variety of discipline areas leading to certification at the secondary-school level.

MORE INFORMATION ABOUT THE DEPARTMENT OF CURRICULUM AND INSTRUCTION (<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/>)

Department of Education Policy Studies

The Education and Public Policy program gives undergraduates a comprehensive understanding of the challenges and opportunities in education today. A robust community of students have access to online programs wherever they happen to reside, guided by the same faculty and the same curriculum as in-person students find at University Park.

MORE INFORMATION ABOUT THE DEPARTMENT OF EDUCATION POLICY STUDIES (<https://ed.psu.edu/academics/departments/department-education-policy-studies/>)

Department of Education Psychology, Counseling, and Special Education

The EPCSE programs aim to help you prepare to work as school counselors, clinical mental health counselors, school psychologists, and special education educators as well as faculty in higher education institutions.

MORE INFORMATION ABOUT THE DEPARTMENT OF EDUCATION PSYCHOLOGY, COUNSELING, AND SPECIAL EDUCATION (<https://ed.psu.edu/academics/departments/department-educational-psychology-counseling-and-special-education/>)

ed.psu.edu/academics/departments/department-educational-psychology-counseling-and-special-education/)

Department of Learning and Performance Systems

MORE INFORMATION ABOUT THE DEPARTMENT OF LEARNING AND PERFORMANCE SYSTEMS (<https://ed.psu.edu/academics/departments/department-learning-and-performance-systems/>)

Baccalaureate Degrees

- Education and Public Policy, B.S.
- Elementary and Early Childhood Education, B.S.
- Elementary and Kindergarten Education, B.S. (Education)
- Middle Level Education, B.S.
- Rehabilitation and Human Services, B.S. (Education)
- Secondary Education, B.S. (Education)
- Special Education, B.S.
- Workforce Education and Development, B.S.
- World Languages (K-12) Education, B.S.

Associate Degrees

- Workforce Education and Development, A.S.

Minors

- Addictions and Recovery, Minor
- Early Development and Education, Minor
- Education and Public Policy, Minor
- Rehabilitation and Human Services, Minor
- Social Justice in Education, Minor
- Special Education, Minor

Certificates

- Advanced Instructor Development for Professionals, Certificate
- Instructor Development for Professionals, Certificate
- Operational Excellence for Professionals, Certificate
- Supervisory Leadership for Professionals, Certificate
- Worklink Strategies and Employability, Certificate

College Procedures

Change of Campus

Requests to change campuses are submitted in LionPATH. The College of Education will consider change of campus requests for students who: have successfully completed two years at another commonwealth campus; are seeking a temporary change of campus, or are unable to make sufficient academic progress in their intended program/plan of study at their current campus. Additional information can be obtained by speaking with an academic adviser in the Advising and Certification Center, 228 Chambers.

Concurrent Majors

A Concurrent Majors Program is one in which students take courses to concurrently meet the requirements of at least two majors, with graduation for all majors in the program occurring during the same semester.

Adding an additional academic plan is requested via the 'Update Academics' function in LionPATH. The College of Education will review these requests to ensure that students have all necessary requirements met to enter the concurrent program in which they intend to enroll. Additional information can be obtained by speaking with an academic adviser in the Advising and Certification Center, 228 Chambers Building.

READ SENATE POLICY 60-00: COMPLETING MORE THAN ONE UNDERGRADUATE MAJOR PROGRAM (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/60-00-completing-more-than-one-undergraduate-program/#60-00>)

Academic Warning

A student who fails to earn a 2.00 cumulative grade-point average will be placed on academic warning. A student placed on academic warning will have a hold placed on registration. College of Education students who move into Academic Warning will be required to meet with an academic adviser to determine an educational plan that will help them understand their academic responsibilities and path moving forward. To remove academic warning, the cumulative grade-point average must be 2.00 or higher.

READ SENATE POLICY 54-20: ACADEMIC WARNING (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-20>)

Academic Suspension

A student in academic warning who fails to maintain a semester grade-point average of 2.00 or higher will be academically suspended. A student who has been academically suspended may not schedule courses at the University for two consecutive semesters. (Note: Summer session is equal to one semester.)

College of Education students who are suspended will receive a notification from the College, informing them of their eligibility to re-enroll after two semesters absence from Penn State. Suspended students who wish to re-enroll in our College are required to meet with an academic adviser before re-enrollment's approved.

READ SENATE POLICY 54-40: ACADEMIC SUSPENSION (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-40>)

Honors Programs

Schreyer Honors College

The Schreyer Honors College, regarded as one of the nation's top programs of its kind, promotes achieving academic excellence with integrity, building a global perspective, and creating opportunities for leadership and civic engagement. Schreyer Scholars, including those admitted after their first or second year of enrollment, are a diverse and motivated group of approximately 2,000 students at University Park and 20 Commonwealth campuses. The College strives to educate students who will have an important and ethical influence in the world, to improve educational practice, and to continue to be recognized as a leading force in honors education nationwide.

MORE INFORMATION ABOUT THE SCHREYER HONORS COLLEGE (<https://www.shc.psu.edu>)

Contact

COLLEGE OF EDUCATION
274 Chambers Building

University Park, PA 16802
814-865-2526
edrelations@psu.edu

<https://ed.psu.edu/>

Addictions and Recovery, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The multi-disciplinary minor in Addictions and Recovery supplements the educational needs of students across disciplines who wish to gain advanced knowledge and skills to support people struggling with a substance use disorder in all stages of the recovery process. The rise in the number of individuals struggling with addiction and recovery, the increased potency and administration of some drugs, and the specific needs of certain sub-groups within the addictions population are contributing to the complex landscape of addictions and recovery. Upon completion of the minor, students will have the knowledge and skills to support development and administration of programs designed to improve outcomes for those struggling with addictions and recovery.

Students completing the minor will be able to take courses across multiple disciplines as a way to view this phenomenon from various perspectives. The courses that comprise the minor are organized into recommended tracks that will permit students to select combinations of courses that will best compliment their major studies and prepare them for future professional goals. One track provides a pathway to certification as a drug and alcohol counselor for those who successfully complete their bachelor's degree in a behavioral science major in addition to the minor coursework. Students pursuing this career path are encouraged to select courses that support the learning domains for the Certified Alcohol and Drug Counseling (CADC) certification in the state of Pennsylvania. The minor also provides opportunities for students to seek out research and applied experiences which can enhance their preparation for graduate work or working with people in applied settings.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

Some courses may require prerequisites.

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
BBH 143	Drugs, Behavior, and Health	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		

Select 15 credits from the following:		15
BBH 301W	Values and Ethics in Biobehavioral Health Research and Practice	
BBH 451	Pharmacological Influences on Health	
CI 333	Education and the Student in Recovery	
CNED 422	Foundations of Addictions Counseling	
CRIM 424	Drugs, Crime, and Society	
CRIM 451	Race, Crime, and Justice	
CRIMJ 415	Drug Control Policy in Comparative Perspective	
CRIMJ 469	Drugs and Drug Policy in the United States	
EDTHP 420	Education and Public Policy	
HDFS 301	Values and Ethics in Health and Human Development Professions	
HDFS 311	Human Development and Family Studies Interventions	
HDFS 411	The Helping Relationship	
HIED 302	The Role of the Resident Assistant: Theory and Practice	
HLHED 443	Alcohol and Drug Education	
HM 208	Social, Cultural, and Health Influences of Alcohol	
HPA 301W	Health Services Policy Issues	
KINES 445	Alcohol and Drug Education	
NURS 407	Drugs of Abuse and Mental Health Issues	
RHS 300	Introduction to Rehabilitation and Human Services	
RHS 301	Introduction to Counseling as a Profession	
RHS 302	Client Assessment in Rehabilitation and Human Services	
RHS 303	Group Work in Rehabilitation Practice and Human Services	
RHS 400W	Case Management and Communication Skills	
RHS 401	Community Mental Health Practice and Services	
RHS 402	Children and Families in Rehabilitation Settings and Human Services	
RHS 403	Medical Aspects of Disability	
RHS 428	Rehabilitation in the Justice System	
RHS 433	Trauma-informed care for school & human service professionals	
SOC 468	Mood-Altering Substances in Society	

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Melisa Littleton
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Career Paths

Students wishing to pursue careers in direct service and who want to be eligible to work as a Certified Alcohol and Drug Counselor (CADC) in the state of PA are advised to take the courses that align with the Pennsylvania Certification Board's CADC learning domains (see below), which prepare students for the International Certification and Reciprocity Consortium (IC&RC) Examination, and entry level work in direct service positions.

- **Domain 1: Screening, Assessment, and Engagement**
 - RHS 302, HDFS 311, HDFS 411, CNED 422
- **Domain 2: Treatment Planning, Collaboration, and Referral**
 - RHS 400W, HDFS 311, RHS 401, RHS 433, RHS 428, CNED 422
- **Domain 3: Counseling**
 - RHS 301, RHS 303, RHS 401, RHS 402, RHS 433, CNED 422
- **Domain 4: Professional and Ethical Responsibilities**
 - BBH 301W, HDFS 301, RHS 300, RHS 301, RHS 302, CNED 422

Students wishing to pursue this path are encouraged to carefully review the criteria for certification eligibility at the following website: <https://www.pacertboard.org/certifications> (<https://www.pacertboard.org/certifications/>).

Students wishing to pursue careers focused on health prevention and research are encouraged to select from among the following as they relate to their academic and career goals: BBH 301W, BBH 451, NURS 407, NURS 462, RHS 433, SOC 468, and/or a research-based independent study approved by the minor coordinator.

Students wishing to pursue careers or graduate study related to drug policy and/or criminology are encouraged to select courses among the following: CRIMJ 469, CRIM 424, CRIM 415, CRIM 451, RHS 428, SOC 468, HPA 301, EDTHP 420, and/or an independent study with a suitable faculty advisor as approved by the coordinator.

Students wishing to pursue a career in drug and health education in schools or public health offices, or graduate study in related fields, are encouraged to select among the following: CI 333, CI 409, EDTHP 420, HIED 302, HLHED 443, KINES 445; RHS 433, RHS 402, or an independent study with a suitable faculty advisor as approved by coordinator.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN ADDICTIONS AND RECOVERY (<https://www.pacertboard.org/certifications/>)

Contact

University Park

DEPARTMENT OF EDUCATIONAL PSYCHOLOGY, COUNSELING, AND SPECIAL EDUCATION
125G CEDAR Building
University Park, PA 16802
814-865-7454
mmm7153@psu.edu

<https://ed.psu.edu/academics/departments/department-educational-psychology-counseling-and-special-education/rehabilitation-and-human-services/rehabilitation-and-human-services-minor/> (<https://ed.psu.edu/academics/departments/department-educational-psychology-counseling-and-special-education/rehabilitation-and-human-services/rehabilitation-and-human-services-minor/>)

DuBois

1 College Place
DuBois, PA 15801
814-375-4833
jlb580@psu.edu

<https://dubois.psu.edu/academics/degrees/hdfs/minoraddictions/> (<https://dubois.psu.edu/academics/degrees/hdfs/minoraddictions/>)

Schuylkill

ACADEMIC AFFAIRS
200 University Drive
Schuylkill Haven, PA 17972
570-385-6295
jfs6485@psu.edu

<https://schuylkill.psu.edu/academics/bacc-degrees/psychology/> (<https://schuylkill.psu.edu/academics/bacc-degrees/psychology/>)

Wilkes-Barre

44 University Drive
Dallas, PA 18612
570-675-9213
man20@psu.edu

<https://wilkesbarre.psu.edu/academics/rhs/> (<https://wilkesbarre.psu.edu/academics/rhs/>)

Advanced Instructor Development for Professionals, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

Advanced Instructor Development for Professionals This certificate is designed for the adult learner who would like to gain knowledge of essential advanced instructor development concepts. These adult learners may already possess a degree in an occupational discipline, but need to augment their knowledge and resumes to advance their careers with their current employer or transition into a new job. Adult learners taking this certificate may also be taking post-secondary credit courses for the first time.

Entrance to Certificate

Admissions criteria for the certificate program follow standard University procedures for adult students.

Program Requirements

To earn an undergraduate certificate in Advanced Instructor Development for Professionals, a minimum of 9 credits is required.

Code	Title	Credits
Required Courses		
WFED 270	Introduction to Industrial Training	3
WFED 413	Vocational Education for Special-Needs Learners	3
WFED 471	Training in Industry and Business	3

Certificate Learning Objectives

- **Communicate:** Students will be able to effectively communicate instructional content or findings in formal presentations and in written works.
- **Demonstrate Competence:** Students will demonstrate competence through documentation of tasks performed and reflection on specialized accomplishments.
- **Develop Professional Competencies:** Students will develop professional competencies to work with others in related fields or disciplines.
- **Relate Common Situations:** Students will be able to relate common situations experienced by professionals and how they were or should be handled.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary

academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Mark Threeton

Associate Professor of Education, Workforce Education and Development
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Contact

University Park

DEPARTMENT OF LEARNING AND PERFORMANCE SYSTEMS
411 E Keller Building
University Park, PA 16802
mdt177@psu.edu

Early Development and Education, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Intercollege Minor in Early Development and Education builds upon existing courses across the university and especially ones found in the College of Education and the College of Health and Human Development. The minor affords the opportunity for students to study practices and policies informed by research and theory covering the period in human development from prenatal to three years. The minor prepares graduates majoring in a variety of fields such as education, human development and family studies, psychology, speech communication, nutrition, and others to have a deeper understanding of this period of the life cycle with an emphasis on the translation of this knowledge to applied settings.

Program Requirements

Requirement	Credits
Requirements for the Minor	20-21

Requirements for the Minor

Some courses may require prerequisites.

For a Minor in Early Development and Education, a minimum of 20 credits is required.

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ECE 451	Instruction in Early Childhood Education Derived from Development Theories	3
ECE 453	Parent Involvement in Home, Center, and Classroom Instruction	2-3
ECE 479	The Young Child's Play as Educative Processes	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
CI 295	Introductory Field Experience for Teacher Preparation	3
or HDFS 330	Observation or Experience with Children, Youth, and Families	
Select 3 credits of the following:		3
EDPSY 10	Individual Differences and Education	
EDPSY 11	Educational Implications of Individual Differences in Childhood	
HDFS 229	Infant and Child Development	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 3 credits of the following:		3
CI 495	Internship	
CSD 146	Introduction to Communication Sciences and Disorders	
CSD 300	Developmental Considerations in the Assessment and Treatment of Language Disorders	
ECE 453	Parent Involvement in Home, Center, and Classroom Instruction	
ECE/HDFS 454		
HDFS 428	Infant Development	
HDFS 430	Experience in Preschool Groups	
Select 3 credits from Treatment of Language Disorders:		3
PSYCH 410	Child Development	
PSYCH 474	Psychological Intervention in Childhood	
SPLD 415	Early Special Education	

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

College of Education

Advising and Certification Center

228 Chambers Building
University Park, PA 16802
814-865-0488
ed@admissions.psu.edu

Contact**University Park**

COLLEGE OF EDUCATION
228 Chambers Building
University Park, PA 16802
814-865-0488
ed@admissions.psu.edu

Education and Public Policy, B.S.

Begin Campus: Altoona, Erie, Berks, Beaver, Harrisburg, Brandywine, DuBois, Hazleton, Mont Alto, Greater Allegheny, New Kensington, Schuylkill, Shenango, University Park, Wilkes-Barre, Scranton, York, Lehigh Valley, Fayette, Abington

End Campus: University Park

Program Description

The Education and Public Policy major (EPP) offers an interdisciplinary program for students who want to make a difference in society by building democratic participation and improving civic capacity in and through educational institutions and communities. Students interested in politics and government, social reform and organizing, higher education, educational technology, museums and other non-traditional learning spaces, and equity can find meaningful pathways in EPP.

The EPP major prepares students to work in political and economic global systems for the betterment of a diverse and democratic society. EPP students become discerning research consumers and policy analysts working toward socially just reforms in the education space and beyond. The EPP major blends core courses in educational policy with courses in sociology, political science, economics, business, race and class, and research methods. Elective courses within the major include policy problems, public systems, leadership, ethics, diversity, equality, and equity. In addition to academic studies, the EPP major includes a semester field experience culminating in a real-world, meaningful research project. Opportunities for internships include organizations in State College, Harrisburg, Philadelphia, and Washington, D.C. Graduates of the EPP program will enter professional careers in educational organizations, government, community development, think tanks, educational technology and start-ups, business, law, public service, non-profits, consulting, and teaching.

What is Education and Public Policy?

Education and Public Policy is a multidisciplinary program that critically evaluates how society fosters equity and excellence through education. Courses explore the deep cultural meanings of concepts such as democracy and citizenship, and our faculty encourage active problem-solving skills by using real world examples of government-initiated policies and programs. Through readings, case studies and conversations with your peers, you will uncover the practical effects that policies have on students, teachers, school leaders, families, and the community as a whole. You will also have the opportunity to identify education policies and practices that matter to you and consider various strategies that

could be effective in solving emerging problems. An 18 credit EPS minor (p. 687) is also available.

You Might Like This Program If...

- You are interested in education and want to make a difference in the world.
- You want to study the big questions related to education and society, such as "how can we improve schools?" "what causes inequality?" and "how do policies impact students and teachers?"
- You want the benefits of a small program situated within a large university.
- You want to pursue a career with policy-related non-profits in public service, government, law, or research.

Entrance to Major

Baccalaureate degree candidates must have a minimum 2.0 GPA by the end of their fourth semester to be admitted to the Education and Public Policy (EPP) major; thereafter, students must earn a C or better in all prescribed and required courses necessary for the major.

Degree Requirements

For the Bachelor of Science degree in Education and Public Policy, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	87-88

12-13 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GS courses; 3-4 credits of GQ courses; 3 credits of GH courses.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CAS 222N/ CIVCM 211N	Foundations: Civic and Community Engagement	3
ECON 102	Introductory Microeconomic Analysis and Policy	3
EDTHP 115	Education in American Society	3
EDTHP 200	Educational Reform and Public Policy	3
EDTHP 394	Professional Development in Education and Public Policy	3
EDTHP 395		3
EDTHP 420	Education and Public Policy	3
HIST 21	American Civilization Since 1877	3
PLSC 1	American Politics: Principles, Processes and Powers	3
SOC 5	Social Problems	3

Additional Courses

Additional Courses: Require a grade of C or better

PLSC 2		3
or PLSC 10	Scientific Study of Politics	
SOC 1	Introductory Sociology	3
or RSOC 11	Intro Rural Sociology	
SOC 23	Population and Policy Issues	3
or SOC 207	Research Methods in Sociology	
Select 3-4 credits of the following:		3-4
EDPSY 101	Analysis and Interpretation of Statistical Data in Education	
STAT 100	Statistical Concepts and Reasoning	
STAT 200	Elementary Statistics	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 12 credits of EDTHP 400-level courses	12
Select 6 credits of Major-related courses in consultation with EDTHP adviser.	6
Select 15 credits of Policy Problems and Public Systems from approved department list	15
Select 6 credits of Leadership and Citizenship from approved department list	6
Select 6 credits of Diversity and Equity from approved department list	6

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the

requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Education and Public Policy and M.A. in Educational Theory and Policy

Requirements for the Integrated B.S. in Education and Public Policy and M.A. in Educational Theory and Policy can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/educational-theory-policy/#integratedundergradgradprogramstext>).

Program Learning Objectives

- **Analysis of Evidence:** Students will evaluate evidence to guide ethical policymaking.

- **Communicating Policy Briefs:** Students will write high-quality policy briefs and present high-quality oral policy briefings that summarize policy issues.
- **Critical Thinking:** Students will identify, interpret and critique research related to educational reform and social justice.
- **Developing professional skills and experience:** Students will gain professional skills, including networking, resume building, and professional conduct, through EDTHP 394 and 395. Students will synthesize what they've learned and apply that knowledge to careers in educational organizations, government, community development, public service, non-profits, consulting, philanthropy, and interest groups for the betterment of a diverse and democratic society.
- **Exploring the policy world:** Students will become well-versed in a concentration area of their choosing.
- **Knowledge Acquisition:** Students will demonstrate a working knowledge of core concepts in the policy-making process and in policy analysis, using issues in American education as the focal point.
- **Knowledge Application:** Students will arrange recent reforms and reform movements into the proper social, cultural, political, economic, and historical context.
- **Knowledge Outreach:** Students will demonstrate a working knowledge of the range of organizations dedicated to the enhancement of, and research about, American public schools.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Maryellen Schaub

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Education and Public Policy, B.S. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
EDPSY 101, STAT 100, or STAT 200 (or GQ Selection) ^{*†}	3-4 Arts Selection	3
ENGL 15 or 30H ^{*†}	3 ECON 102 ^{*†}	3
Natural Science Selection ¹	3 HIST 21 ^{*†}	3
PLSC 1 ^{*†}	3 Natural Science Selection ¹	3
EDUC 100	1 SOC 1 or RSOC 11 ^{*†}	3
13-14		15

Second Year

Fall	Credits Spring	Credits
GQ Selection ^{*†}	3-4 EDTHP 200 ^{*†}	3
CAS 222N ^{*†}	3 Natural Science Selection ¹	3
EDTHP 115 ^{*†}	3 Humanities Selection	3
SOC 5 ^{*†}	3 CAS 100	
Arts Selection	3 PLSC 2 or PLSC 10 ^{*†}	3
Health and Physical Activity	1.5 Health and Physical Activity	1.5
16.5-17.5		13.5

Third Year

Fall	Credits Spring	Credits Summer	Credits
EDTHP 420 [*]	3 SOC 23 or 207 [*]	3 EDTHP 395 [*]	3
Leadership, Decision Making and Ethics Selection ^{*2}	3 EDTHP 394 [*]	3	
EDTHP 400 Level Selection	3 Policy Problems and Public Systems Selection ^{*2}	3	
Major Related Course Selection [*]	3 EDTHP 400 Level Selection [*]	3	

Policy Problems and Public Systems Selection ^{*2}	3 Major Related Course Selection [*]	3	
	15	15	3
Fourth Year			
Fall	Credits Spring	Credits	
EDTHP 400 Level Selection [*]	3 Policy Problems and Public Systems Selection ^{*2}	3	
Policy Problems and Public Systems Selection ^{*2}	3 EDTHP 400 Level Selection [*]	3	
Policy Problems and Public Systems Selection ^{*2}	3 Diversity and Equity Selection ^{*2}	3	
Diversity and Equity Selection ^{*2}	3 Leadership, Decision Making and Ethics Selection ^{*2}	3	
ENGL 202A or 202B	3 Elective	3	
	15	15	

Total Credits 121-123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

¹ Natural Science Selection list of acceptable courses available here (<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/undergraduate-teacher-education-pk-12/elementary-early-childhood-education-bs-pk-4/suggested-courses/>).

² Supporting Courses and Related Areas Selections list of acceptable courses available here (<https://ed.psu.edu/academics/departments/department-education-policy-studies/educational-theory-and-policy-program/education-and-public-policy/education-and-public-policy-path-through-major/>).

Additional Notes

- GWS, GHW, GQ, GN, GA, GH, and GS are codes used to identify General Education requirements.
- Must complete at least 3 cr. of United States (US) and 3 cr. of International Cultures (IL).
- Summer study could reduce some of the credit loads above.
- Effective Fall 2012, all incoming Schreyer Honors College freshmen at University Park will take ENGL/CAS 137H in the fall semester and ENGL/CAS 138T in the spring semester. These courses carry GWS designation and replace both ENGL 030 and CAS 100. Each course is 3 credits. At the discretion of the college, ENGL/CAS 138T satisfies the first-year seminar requirement.
- Academic Advising Notes: **The course series listed above is only one of many possible ways to move through this curriculum. Please be sure to also use the curriculum checksheets and degree audits, as well as consult with an adviser about appropriate scheduling sequences, clearances for field experiences and Testing requirements. Advisers also can assist students in identifying coursework offered at Penn State in the SUMMER.**

Career Paths

Penn State students with a B.S. in Education and Public Policy have been successful in establishing careers in a wide variety of fields. We encourage majors to develop a concentration in another field to match your career goals. Students have pursued EPP concentrations in museum studies, women's and gender studies, sports education, music and art education, sustainability, and human development and family studies. We welcome new areas of concentration and will help you tailor the program to match your career goals.

Careers

The Education and Public Policy degree prepares students to enter careers in educational organizations, government, public service, non-profits, philanthropy, advocacy, and research. Graduates have worked both domestically and internationally and pursued education- and policy-related paths. Alternative careers include educational journalism and educational entrepreneurship.

Opportunities for Graduate Studies

Many EPP students have gone on to pursue graduate degrees in Law, as well as Education Policy, Educational Leadership, Student Affairs, and Higher Education administration. All of these can be pursued at Penn State with the same faculty you have been taking classes with as an undergraduate. Other related fields include economics, political science, sociology, and social work. The Education and Public Policy program also offers an Integrated Undergraduate-Graduate Program in Education and Public Policy (B.S.) and Educational Theory and Policy (M.A.) through the Schreyer Honors College.

Accreditation

The College of Education educator preparation programs are fully accredited at the Initial and Advanced levels by the Council for the Accreditation of Educator Preparation (CAEP). The next CAEP program review will be Fall 2026. CAEP advances excellence in educator preparation through evidence-based accreditation that assures quality and supports continuous improvement to strengthen P-12 student learning.

MORE INFORMATION ABOUT ACCREDITATION OF THE EDUCATION AND PUBLIC POLICY PROGRAM (<https://ed.psu.edu/about/accreditations/>)

Contact

University Park

DEPARTMENT OF EDUCATION POLICY STUDIES

300 Rackley Building

University Park, PA 16802

814-863-0619

edpublicpolicy@psu.edu

<https://ed.psu.edu/academics/departments/department-education-policy-studies> (<https://ed.psu.edu/academics/departments/department-education-policy-studies/>)

Education and Public Policy, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

This minor is designed to introduce students to the fundamental tenets of education policy development and analysis in both the U.S. and other countries. Students pursuing the minor may choose from courses on educational policy in the areas of higher education, educational administration, educational theory and policy, and comparative/international education. The minor consists of a multidisciplinary program of study in areas of education related to numerous policy issues including social sciences, history, management sciences, and/or humanities. It is anticipated that students completing the minor will find these studies can enrich any major degree program and potentially provide opportunities for employment and/or graduate studies in state departments of education, ministries of education, federal and international education agencies, academic institutions, and various professional associations.

This 18-credit minor may be combined with any undergraduate major at Penn State.

What is Education and Public Policy?

"Education Policy Studies" is a phrase that refers to a broad range of academic interests and explorations into systems of schooling. The minor is most closely related to our major in Education and Public Policy (B.S. (p. 683)), a multidisciplinary program that critically evaluates how society fosters equity and excellence through education. Courses explore the deep cultural meanings of concepts such as democracy and citizenship, and our faculty encourage active problem-solving skills by using real world examples of government-initiated policies and programs. Through readings, case studies and conversations with your peers, you

will uncover the practical effects that policies have on students, teachers, school leaders, families, and the community as a whole. You will also have the opportunity to identify education policies and practices that matter to you and consider various strategies that could be effective in solving emerging problems.

You Might Like This Program If...

- You want to supplement your major field with specialized knowledge about the US education system.
- You want to learn more about the challenges and successes of education reform in the US.
- You want to pursue a career with policy-related non-profits in public service, government, law, or research.
- You are interested in education and want to make a difference in the world.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
EDTHP 115	Education in American Society	3
EDTHP 200	Educational Reform and Public Policy	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 12 credits from the following:		12
Any 400-level CIED course		
Any 400-level EDLDR course		
Any 200-400 level EDTHP course		
Any 400-level HIED course		

No prerequisites are required for the minor.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

College of Education

Advising and Certification Center

228 Chambers Building
University Park, PA 16802
814-865-0488
ed@admissions.psu.edu

Career Paths

Penn State students with a minor in Education and Public Policy have successfully established careers in a wide variety of fields, especially when combined with a major that matches career goals. EPS minors often have concentrations in museum studies, women's and gender studies, sports education, music and art education, sustainability, and human development and family studies. We welcome all majors and will help you find a combination of courses that match your career goals.

Careers

The Education and Public Policy minor helps prepare students to enter careers in educational organizations, government, public service, non-profits, philanthropy, advocacy, and research. Graduates have worked both domestically and internationally and pursued education- and policy-related paths.

Opportunities for Graduate Studies

EPS students have gone on to pursue graduate degrees in Law, as well as Education Policy, Educational Leadership, Student Affairs, and Higher Education administration. Other related fields include economics, political science, sociology, and social work.

Contact

University Park

DEPARTMENT OF EDUCATION POLICY STUDIES
300 Rackley Building
University Park, PA 16802
814-863-0619
edpublicpolicy@psu.edu

<https://ed.psu.edu/academics/departments/department-education-policy-studies> (<https://ed.psu.edu/academics/departments/department-education-policy-studies/>)

Elementary and Early Childhood Education, B.S.

Begin Campus: Abington, Altoona, Berks, Beaver, Brandywine, DuBois, Erie, Fayette, Greater Allegheny, Harrisburg, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Shenango, Schuylkill, University Park, Wilkes-Barre, Scranton, York

End Campus: Abington, Altoona, Berks, Erie, University Park

Program Description

The Elementary and Early Childhood Education major prepares candidates to teach all content areas in Pre-Kindergarten through grade 4 (PK-4). Requirements for successful completion of the major include coursework specific to elementary and early childhood learning

environments, child development, and field experiences in grades PK-4 classrooms, as well as content and teaching methods courses specific to teaching language and literacy, mathematics, science, and social studies. Students who successfully complete this major will have met all coursework and field experience requirements for the PK-4 Instructional I Certificate issued by the Pennsylvania Department of Education (PDE). In addition, they will have been prepared for the appropriate certification exams, which are the standardized assessment required by PDE for this certification.

What is Elementary and Early Childhood Education?

The Elementary and Early Childhood Education (EECE) major prepares teachers of children from birth through fourth grade. Students in this program explore progressive theories of teaching and learning; learn how to be professional educators in diverse school settings; and develop skills in educational leadership, inclusive education, and professional inquiry. Our program is distinct in the opportunities it offers to work in exceptional schools and other educative settings.

You Might Like This Program If...

You want to do the critically important work of teaching young children, and you recognize that being an educator is a learned profession that is both demanding and rewarding.

MORE INFORMATION ABOUT ELEMENTARY AND EARLY CHILDHOOD EDUCATION (<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/undergraduate-studies-ci/elementary-early-childhood-education-bs-pk-4/>)

Entrance to Major

Baccalaureate degree candidates must meet the following requirements to participate in the Entrance-to-Major process.

1. A minimum cumulative grade point average of 3.00.
2. All testing requirements for entrance to major as mandated by PA Dept. of Education.
3. A grade of "C" or better in all specified courses.
4. Completion of an early field experience specified by the certification program.
5. Completion of courses specified by the certification program.
6. Completion of at least 48 semester credit hours, including ENGL 15 or ENGL 30H, six credits of quantification, and three credits of natural science and three credits of literature.

Degree Requirements

For the Bachelor of Science degree in Elementary & Early Childhood Education, a minimum of 124 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	103-104

24-25 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GH courses, 9 credits of GN courses, 3-4 credits of GQ courses, 6 credits of GS courses. Six of these 27 credits may also satisfy the Integrative Studies requirement.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CI 295A	Introductory Field Experience for Teacher Preparation	3
CI 405	Reimagining Classroom Management	3
CI 460	The Creative Child	3
CI 495A	Clinical Application of Instruction - PK-4	3
CI 495D	Practicum in Student Teaching—Childhood and Early Adolescent Education	12
CI 495F	Professional Development Practicum	3
ECE 451	Instruction in Early Childhood Education Derived from Development Theories	3
ECE 453	Parent Involvement in Home, Center, and Classroom Instruction	3
EDPSY 14	Learning and Instruction	3
EDTHP 115	Education in American Society	3
LLED 400	Teaching Literacy in Early Childhood	3
LLED 401	Teaching Literacy in Elementary School	3
LLED 402	Teaching Children's Literature	3
MTHED 420	Teaching Mathematics In The Elementary Schools	3
SCIED 458	Teaching Science in the Elementary School	3
SPLIED 400	Inclusive Special Ed Foundations: Legal, Characteristics, Collaboration, Assessment, and Management	4
SPLIED 403A	Evidence-Based Instruction for Elementary Students with Disabilities in Reading, Math, and Writing	3
SSED 430W	Teaching Social Studies in the Elementary Grades	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
EDPSY 11	Educational Implications of Individual Differences in Childhood	3
or HDFS 229	Infant and Child Development	
MTHED 240	Mathematics in Elementary School	3
or MATH 200	Problem Solving in Mathematics	
Select 3 credits from the following:		3
CI 280	Introduction to Teaching English Language Learners	
EDUC 466N	Foundations of Teaching English as a Second Language	
WLED 400	Foundations of Language in Second Language Teaching	
Select 3-4 credits from the following:		3-4
EDPSY 101	Analysis and Interpretation of Statistical Data in Education	
STAT 100	Statistical Concepts and Reasoning	
STAT 200	Elementary Statistics	

Supporting Courses and Related Areas

<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 3 credits of Social Studies selection:		3
ANTH 45N	Cultural Diversity: A Global Perspective	
ECON 14	Principles of Economics	
ECON 102	Introductory Microeconomic Analysis and Policy	
ECON 104	Introductory Macroeconomic Analysis and Policy	
GEOG 1N	Global Parks and Sustainability	
GEOG 2N	Apocalyptic Geographies: How can we prevent the end of the world?	
GEOG 3N	Food and the Future Environment	
GEOG 6N	Maps and the Geospatial Revolution	
GEOG 20	Human Geography: An Introduction	
GEOG 30N	Environment and Society in a Changing World	
GEOG 40	World Regional Geography	
GEOG 126	Economic Geography	
LDT 100	World Technologies and Learning	
PLSC 1	American Politics: Principles, Processes and Powers	
SSED 100N	Foundations of History and Social Studies Concepts for K-8 Teachers	
Select 3 credits in Literature:		3
AFAM 147	The Life and Thought of Malcolm X	
CAMS 1	Greek and Roman Literature	
CAMS 45	Classical Mythology	
CMLIT 1	Introduction to Western Literatures Through the Renaissance	
CMLIT 3	Introduction to African Literatures	
CMLIT 4	Introduction to Asian Literatures	
CMLIT 5	Introduction to Literatures of the Americas	
CMLIT 6	Literature and Philosophy	
CMLIT 7	Introduction to Middle Eastern Literatures	
CMLIT 10	World Literatures	
CMLIT 100	Reading Across Cultures	
CMLIT 101	Race, Gender, and Identity in World Literature	
CMLIT 105	The Development of Literary Humor	
CMLIT 106	The Arthurian Legend	
CMLIT 107	Exploration, Travel, Migration, and Exile	
CMLIT 108	Myths and Mythologies	
CMLIT 109	Native American Myths, Legends, and Literatures	
CMLIT 110	Jewish Literature: An International Perspective	
CMLIT 111	Introduction to Literatures of India	
CMLIT 112N	Introduction to Global Drama, Theatre, and Performance	
CMLIT 120	Literature of the Occult	
CMLIT 122	Global Science Fictions	
CMLIT 130	Banned Books: International and Comparative Perspectives	
CMLIT 131	Crime and Detection in World Literature	
CMLIT 132	Nobel Prize Literature	
CMLIT 143	Human Rights and World Literature	
CMLIT 153	International Cultures: Film and Literature	
CMLIT 184	The Short Story	

ENGL 2	The Great Traditions in English Literature	AFAM 100N	Black Freedom Struggles
ENGL 101	Introduction to Literature	AFAM 101N	African American Women
ENGL 103	The Great Traditions in American Literature	AFAM 103	Racism and Sexism
ENGL 104	The Bible as Literature	AFAM 141N	African American Read-In Engaged Learning Experience
ENGL 129	Shakespeare	AFAM 146	The Life and Thought of Martin Luther King, Jr.
ENGL 130	Reading Popular Texts	AFAM 152	African American History
ENGL 132	Jewish American Literature	AFAM 210	Freedom's First Generation: African American Life and Work, from the Civil War to World War II
ENGL 133	Modern American Literature to World War II	AFAM 212	African Americans in the New Jim Crow Era, 1968-present
ENGL 134	American Comedy	AFAM 213Y	African American Women's History
ENGL 135	Alternative Voices in American Literature	AMST 100	Introduction to American Studies
ENGL 136	The Graphic Novel	AMST 104	Women and the American Experience
ENGL 139	African American Literature	ANTH 146	Indigenous North America
ENGL 140	Contemporary Literature	GER 157N	The Amish
ENGL 141N	African American Read-In Engaged Learning Experience	HIST 3	The American Nation: Historical Perspectives
ENGL 142N	Science in Literature	HIST 12	History of Pennsylvania
ENGL 145	Modern Irish Literature	HIST 20	American Civilization to 1877
ENGL 170N	Introduction to American Folklore	HIST 21	American Civilization Since 1877
ENGL 180	Literature and the Natural World	HIST 109	Introduction to U.S. Environmental History
ENGL 181A	Adventure Literature: Exploring the Chesapeake Bay	HIST 111	Introduction to U.S. Food History
ENGL 181B	Adventure Literature: Exploring Cape Cod	HIST 115	The American Jewish Experience
ENGL 181C	The Beach: Exploring the Literature of the Atlantic Shore	HIST 116N	Family and Gender Roles in Modern History
ENGL 181D	Adventure Literature: Exploring the Literature of American Wilderness	HIST 117	Women in United States History
ENGL 182	Literature and Empire	HIST 127	Introduction to U.S. Latina/o History
ENGL 184	The Short Story	HIST 130	Introduction to the Civil War Era, 1848 through 1877
ENGL 191	Science Fiction	HIST 131N	Slavery, the Civil War, and Cinema
ENGL 192	The Literature of Fantasy	HIST 144	The World at War: 1939-1945
ENGL 194	Women Writers	HIST 150	America in the 1960s: An Introduction
ENGL 200	Introduction to Critical Reading	HIST 151N	Technology and Society in American History
ENGL 201	What is Literature	HIST 152	African American History
ENGL 205	Children's Literature	HIST 153	Native American History
ENGL 221	British Literature to 1798	HIST 153Y	The Indian in North America
ENGL 222	British Literature from 1798	HIST 154	History of Welfare and Poverty in the United States
ENGL 224N	Authors and Artists	HIST 155	American Business History
ENGL 226	Latina and Latino Border Theories	HIST 156	History of the American Worker
ENGL 231	American Literature to 1865	HIST 157	Railroads and American Society
ENGL 232	American Literature from 1865	HIST 158	History of American Immigration
ENGL 233N	Chemistry and Literature	HIST 160	American Naval History
ENGL 234	Sports, Ethics, and Literature	HIST 161	The Battle of Gettysburg in American Historical Memory
ENGL 240	Exploring Literary Traditions	HIST 173	Vietnam in War and Peace
ENGL 262	Reading Fiction	HIST 210	Freedom's First Generation: African American Life and Work, from the Civil War to World War II
ENGL 263	Reading Poetry	HIST 211	Slavery and Freedom in the Black Atlantic
ENGL 265	Reading Nonfiction	HIST 213Y	African American Women's History
ENGL 268	Reading Drama	HIST 444	The United States in Civil War and Reconstruction--1850-1877
LLED 215N	Children's Picture Books as Multimodal Texts	HIST 445	The Emergence of Modern America
LLED 235	Chinese Culture in Child Lit	HIST 446	America Between the Wars
WMNST 106N	Representing Women and Gender in Literature, Art and Popular Cultures	HIST 447	Recent American History
WMNST 194	Women Writers		

HIST 448	America in the 1960s
HIST 449	Constitutional History of the United States to 1877
HIST 450	Constitutional History of the United States since 1877
HIST 451	The Consumer Revolution
HIST 452	History of U.S. Foreign Relations
HIST 453	American Environmental History
HIST 454	American Military History
HIST 458Y	History of Work in America
HIST 459Y	Social and Cultural History of the United States Since 1783
HIST 465	The Post-World War II Civil Rights Movement
HIST 477	American Military History to 1900
HIST 478	American Military History Since 1900
KINES 441	History of Sport in American Society
PLSC 1	American Politics: Principles, Processes and Powers
PLSC 125	Pennsylvania Government and Politics
RLST 140Y	Religion in American Life and Thought
RLST 145	African Diaspora Religions and Spiritualities
RLST 147	The Life and Thought of Malcolm X
SOC 119N	Race, Ethnicity and Culture
SSED 100N	Foundations of History and Social Studies Concepts for K-8 Teachers
WMNST 1	Introduction to Women's Studies
WMNST 100	Introduction to Women's and Gender Studies
WMNST 101N	African American Women
WMNST 103	Racism and Sexism
WMNST 104	Women and the American Experience
WMNST 117	Women in United States History
WMNST 213Y	African American Women's History

Select 9 credits: 3 credits each (including one course with a lab) from 9
biological science, earth science, and physical science:

Biological Science:	
AGECO 121	Plant Stress: It's Not Easy Being Green
ANSC 300	Anatomy and Physiology of Domestic Animals
ANTH 21	Introductory Biological Anthropology
ANTH 22	Humans as Primates
BIOL 11	Introductory Biology I
BIOL 12	Introductory Biology II
BIOL 110	Biology: Basic Concepts and Biodiversity
BIOL 127	Introduction to Plant Biology
BIOL 129	Mammalian Anatomy
BIOL 133	Genetics and Evolution of the Human Species
BIOL 155	Introduction to the Biology of Aging
BIOL 161	Human Anatomy and Physiology I - Lecture
BIOL 162	Human Anatomy and Physiology I - Laboratory
BIOL 177	Biology of Sex
BIOL 220W	Biology: Populations and Communities
BIOL 222	Genetics
BIOL 230W	Biology: Molecules and Cells
BIOL 240W	Biology: Function and Development of Organisms
BISC 1	Structure and Function of Organisms

BISC 2	Genetics, Ecology, and Evolution
BISC 3	Environmental Science
BISC 4	Human Body: Form and Function
BMB 1	The Science of Sickness
ENGR 110	Introduction to Engineering for Educators
ENT 202N	Insect Connections: Insects, Globalization and Sustainability
ENVST 100N	Visions of Nature
FRNSC 100	Introduction to Forensic Science
HORT 101	Horticultural Science
HORT 150N	Plants in the Human Context
MICRB 106	Elementary Microbiology
MICRB 107	Elementary Microbiology Laboratory
SC 120N	Plants, Places, and People
SCIED 110	Introduction to Engineering for Educators
SCIED 112	Climate Science for Educators
SCIED 114	Sound and Light for Educators
SCIED 116	Introduction to Astronomy for Educators
SCIED 118	Field Natural History for Teachers
SCIED 140	Outdoor School Field Experience
WFS 209N	Wildlife and Fisheries Conservation
Earth Sciences:	
AGECO 122	Atmospheric Environment: Growing in the Wind
ASTRO 1	Astronomical Universe
ASTRO 5	The Sky and Planets
ASTRO 6	Stars, Galaxies, and the Universe
ASTRO 7N	The Artistic Universe
ASTRO 10	Elementary Astronomy
ASTRO 11	Elementary Astronomy Laboratory
ASTRO 116	Introduction to Astronomy for Educators
ASTRO 120	The Big Bang Universe
ASTRO 130	Black Holes in the Universe
ASTRO 140	Life in the Universe
ASTRO 291	Astronomical Methods and the Solar System
ASTRO 292	Astronomy of the Distant Universe
BISC 3	Environmental Science
EARTH 2	The Earth System and Global Change
EARTH 100	Environment Earth
EARTH 101	Natural Disasters: Hollywood vs. Reality
EARTH 103N	Earth in the Future: Predicting Climate Change and Its Impacts Over the Next Century
EARTH 104N	Climate, Energy and Our Future
EARTH 107N	Coastal Processes, Hazards and Society
EARTH 111N	Water: Science and Society
EARTH 112	Climate Science for Educators
EARTH 150	Dinosaur Extinctions and Other Controversies
EARTH 155N	Scientific Controversies and Public Debate
EARTH 240	Coral Reef Systems
EMSC 121	Minerals and Modern Society
ENVST 100N	Visions of Nature
GEOG 1N	Global Parks and Sustainability
GEOG 3N	Food and the Future Environment

GEOG 4	Earth and Environmental Systems Geography	PHYS 150	Technical Physics I
GEOG 10	Physical Geography: An Introduction	PHYS 151	Technical Physics II
GEOG 110	Climates of the World	PHYS 250	Introductory Physics I
GEOG 115	Landforms of the World	PHYS 251	Introductory Physics II
GEOG 210	Geographic Perspectives on Environmental Systems Science	SCIED 110	Introduction to Engineering for Educators
GEOSC 1	Physical Geology	SCIED 114	Sound and Light for Educators
GEOSC 2	Historical Geology	SCIED 118	Field Natural History for Teachers
GEOSC 10	Geology of the National Parks	STS 55	Space Science and Technology
GEOSC 20	Planet Earth	Select 9 credits of educational selections from the following:	9
GEOSC 21	Earth and Life: Origin and Evolution	APLNG 493	Teaching English as a Second Language
GEOSC 40	The Sea Around Us	CI 185	Principles of Social Justice in Education
GEOSC 109H	Earthquakes and Society	CI 285	Active Engagement for Social Justice in Education
GEOSC 110H	The Science of Gemstones	CI 385	DC Social Justice in Education: Empowering Communities through Transformative Teaching
GEOSC 201	Earth Materials	CMAS 258N	Introduction to Child Maltreatment and Advocacy Studies
GEOSC 202	Chemical Processes in Geology	CMAS 465	Child Maltreatment: Prevention and Treatment
GEOSC 203	Physical Processes in Geology	ECE 479	The Young Child's Play as Educative Processes
GEOSC 212N	Earthquakes and Human History	EDLDR 476	The Teacher and the Law
MATSE 101	Energy and the Environment	EDLDR 480	Introduction to Educational Leadership
METEO 3	Weather Revealed: Introductory Meteorology	EDTHP 200	Educational Reform and Public Policy
METEO 5	Severe and Unusual Weather	EDTHP 220	Children, Parents and Schools
METEO 101	Understanding Weather Forecasting	EDTHP 394	Professional Development in Education and Public Policy
METEO 133N	Ethics of Climate Change	EDTHP 401	Introduction to Comparative Education
SCIED 112	Climate Science for Educators	EDTHP 412	Education and the Status of Women
SCIED 118	Field Natural History for Teachers	EDTHP 416	Sociology of Education
SOILS 101	Introductory Soil Science	EDTHP 420	Education and Public Policy
STS 55	Space Science and Technology	EDTHP 426	Economic Foundations of Education Policy
Physical Sciences:		EDTHP 427	Intelligence and Educational Policy
ASTRO 1	Astronomical Universe	EDTHP 430	History of Education in the United States
ASTRO 5	The Sky and Planets	EDTHP 433	Education and Civil Rights
ASTRO 6	Stars, Galaxies, and the Universe	EDTHP 435	Child Labor and Education in the Global Economy
ASTRO 7N	The Artistic Universe	EDTHP 440	Introduction to Philosophy of Education
ASTRO 10	Elementary Astronomy	EDTHP 441	Education, Schooling, and Values
ASTRO 11	Elementary Astronomy Laboratory	EDTHP 447	Ethnic Minorities and Schools in the United States
ASTRO 116	Introduction to Astronomy for Educators	EDTHP 492	Identities, Power and Perceptual Pedagogies in Teaching and Learning
ASTRO 120	The Big Bang Universe	EDUC 400	Diversity and Cultural Awareness Practices in the K-12 Classroom
ASTRO 130	Black Holes in the Universe	EDUC 466N	Foundations of Teaching English as a Second Language
ASTRO 140	Life in the Universe	EDUC 467	English Language Structure for English as a Second Language Teachers
CHEM 1	Molecular Science	EDUC 468	Language Acquisition for English as a Second Language Teachers
CHEM 3	Molecular Science With Laboratory	EDUC 469	Teaching Methods and Assessment of English as a Second Language
CHEM 101	Introductory Chemistry	EDUC 475	ESL Leadership, Research and Advocacy
CHEM 110	Chemical Principles I	HDFS 250	Sexual Identity over the Life Span
CHEM 111	Experimental Chemistry I	HDFS 315	Family Development
CHEM 130	Introduction to General, Organic, and Biochemistry	HDFS 315Y	Family Development
EGEE 101	Energy and the Environment	HDFS 330	Observation or Experience with Children, Youth, and Families
ENGR 110	Introduction to Engineering for Educators		
FRNSC 100	Introduction to Forensic Science		
INART 50	The Science of Music		
MATSE 81	Materials in Today's World		
MATSE 101	Energy and the Environment		
PHYS 1	The Science of Physics		
PHYS 114	Sound and Light for Educators		

HDFS 345	CONTEMPORARY URBAN ISSUES AND SOCIAL JUSTICE FRAMEWORKS
HDFS 405	Gender and Social Development
HDFS 410	Communities and Families
HDFS 411	The Helping Relationship
HDFS 412	Adult-Child Relationships
HDFS 415	Program Development in Family Relationships
HDFS 416	Racial and Ethnic Diversity and the American Family
HDFS 418	Family Relationships
HDFS 424	Family Development in an Economic Context
HDFS/KINES 427	Developmental Sport & Exercise Psychology
HDFS 428	Infant Development
HDFS 429	Advanced Child Development
HDFS 430	Experience in Preschool Groups
HDFS 431	Family Disorganization: Stress Points in the Contemporary Family
HDFS 432	Developmental Problems in Childhood and Adolescence
HDFS 440	Family Policy
HDFS 452	Child Maltreatment Prevention, Intervention, and Legal Issues
HDFS 453	Family Participation and Involvement in Child Services
HDFS 465	Child Maltreatment: Prevention and Treatment
HDFS 467	Autism: Providing Professional Support for Individuals and Families
LLED 450	Content Area Reading
LLED 462	The Art of the Picturebook
LLED 465	Fantasy Literature for Children
LLED 467	Children's Literature in the Classroom
MUSIC 241	Music for Classroom Teachers
PSYCH 410	Child Development
PSYCH 443	Treatment and Education in Developmental Disabilities
PSYCH 474	Psychological Intervention in Childhood
PSYCH 476	Child Psychopathology
RHS 300	Introduction to Rehabilitation and Human Services
RHS 401	Community Mental Health Practice and Services
RHS 402	Children and Families in Rehabilitation Settings and Human Services
RHS 403	Medical Aspects of Disability
RHS 404	Rehabilitation Services for Transition Age Youth with Disabilities: Theory and Practice
RHS 433	Trauma-informed care for school & human service professionals
SPLED 419	Assistive Technology for General Education Teachers
SPLED 461	Introduction to Autism Spectrum Disorders: Issues and Concerns
SPLED 525	Teaching Learners with Disabilities in Inclusive Settings
WLED 400	Foundations of Language in Second Language Teaching

WLED 483 Evaluating Schools Performances and Programs with English Language Learners (ELLs)

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Elementary and Early Childhood Education, B.S. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
EDTHP 115 ^{*#}	3 EDPSY 14 ^{*#}	3
EDUC 100 [*]	1 Earth Science Selection ^{*†}	3
ENGL 15 or 30H ^{**}	3 Literature Selection ^{#†}	3
MTHED 240 or MATH 200 ^{**†}	3 Math Selection [†]	3
Biological Science Selection ^{**†}	3 U.S. History Selection ^{*†}	3
	13	15

Second Year

Fall	Credits Spring	Credits
EDPSY 11 or HDFS 229 ^{*#†}	3 CAS 100A ^{*#}	3
CI 280 ^{*†}	3 CI 295A ^{*#}	3
STAT 100, 200, or EDPSY 101 ^{**†}	3-4 ECE 353 [*]	3
Arts Selection	3 Education Selection [*]	3
Physical Science Selection ^{*†}	3 GHW Selection	1.5
Social Studies Selection ^{*†}	3 Elective	2
	18-19	15.5

Third Year

Fall	Credits Spring	Credits
CI 405*	3 CI 495A*	3
CI 460*	3 LLED 401*	3
LLED 400*	3 MTHED 420*	3
ECE 451*	3 SCIED 458*	3
SSED 430W*	3 SPLED 400*	4
	15	16

Fourth Year

Fall	Credits Spring	Credits
CI 495D*	12 ENGL 202A or 202B*	3
CI 495F*	3 LLED 302*	3
	SPLED 403A*	3
	Education Selection*	3
	Education Selection*	3
	GHW Selection	1.5
	15	16.5

Total Credits 124-125

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Additional Notes:

- Must complete at least 3 cr. of United States (US) and 3 cr. of International Cultures (IL).
- ETM notes a course is required for entrance to major/certification program.
- All students must complete one lab course as indicated on the Natural Sciences (GN) Course Selection List.
- Summer study could reduce some of the credit loads above.

- Effective Fall 2012, all incoming Schreyer Honors College freshmen at University Park will take ENGL/CAS 137H in the fall semester and ENGL/CAS 138T in the spring semester. These courses carry GWS designation and replace both ENGL 030 and CAS 100. Each course is 3 credits. At the discretion of the college, ENGL/CAS 138T satisfies the first-year seminar requirement.
- Academic Advising Notes: **The course series listed above is only one of many possible ways to move through this curriculum. Please be sure to also use the curriculum checksheets and degree audits, as well as consult with an adviser about appropriate scheduling sequences, clearances for field experiences and Testing requirements. Advisers also can assist students in identifying coursework offered at Penn State in the SUMMER.**

Elementary and Early Childhood Education, B.S. at Abington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
ENGL 15 or 30H (GWS) ^{*†#}	3	Literature Selection (GH) ^{*#†}	3
GQ Selection (GQ) ^{*#}	3	Statistics (GQ) - STAT 100 recommended ^{*#†}	3
Biological Science Selection (GN) ^{*#†1}	3	EDTHP 115 (Spring Only) ^{*#}	3
EDPSY 14 (Fall Only) ^{*#}	3	U.S. History Selection (GH) ^{*†}	3
Non-Inter-Domain Health and Wellness (GHW)	3	CAS 100A ^{*†}	3
PSU 1	1	The Praxis Core tests have been waived by Act 55 for all students entering the major by July 8, 2025.	
	16		15

Second Year

Fall	Credits	Spring	Credits
CI 295A (Fall Only) ^{*#2}	3	Earth Selection (GN) (GEOG 210 Spring Only) ^{*†1}	3
HDFS 229 or EDPSY 11 (GS) ^{*#†}	3	Education Selection [*]	3
Social Studies Selection (GS) - GEOG 30N or ANTH 45N recommended ^{*†3}	3	Education Selection [*]	3
Physical Science Selection (GN) ^{*†}	3	CI 280 or EDUC 466N (Language Teaching) ^{*3}	3
MATH 200 or MTHED 240 ^{*#†}	3	ENGL 202A (GWS) ^{*†}	3
Arts Selection (GA)	3		
	18		15

Third Year

Fall	Credits	Spring	Credits
ECE 353 (Fall Only) [*]	3	LLED 400 (Spring Only) [*]	3
ECE 451 (Fall Only) [*]	3	CI 460 (Spring Only) [*]	3
LLED 302 (Fall Only) [*]	3	CI 405 (Spring Only) ^{*2}	3
SPLLED 400 (Fall Only) [*]	4	SSED 430W (Spring Only) [*]	3
Education Selection [*]	3	SPLLED 403A (Spring Only) [*]	3
Enter the major before the end of this semester by Updating Academics in LionPATH.		Take PECT exams (not required for graduation but required for certification). https://www.pa.nesinc.com/TestView.aspx?f=HTML_FRAG/PA006_TestPage.html	
	16		15

Fourth Year

Fall	Credits	Spring	Credits
CI 495A (with Seminar (Fall Only)) ^{*2}	3	CI 495D (Student Teaching (Spring Only)) ^{*2}	12
MTHED 420 (Fall Only) [*]	3	CI 495F (Seminar (Spring Only)) [*]	3
SCI ED 458 (Fall Only) [*]	3	Additional coursework is not recommended in this semester and can only be scheduled with the approval of the Field Experience Coordinator and Program Chair.	
LLED 401 (Fall Only) [*]	3	Student Teaching Sequence is not optional.	
Elective/Additional Gen Ed (if needed to reach 124 credits)	3	Complete intent to graduate in Jan.	
	15		15

Total Credits 125

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

- ¹ At least one science course must have a lab component. One must be completed for ETM and all 3 are prerequisites for SCI ED 458. Currently, the only lab selections offered at Abington are ANTH 21 (Biological), BISC 3 (Biological or Earth), and GEOG 210 (Earth).
- ² Students will need clearances because the course includes required fieldwork.
- ³ All students need 6 credits of Integrative Studies/Inter-Domain. This requirement can be fulfilled with either GEOG 30N or ANTH 45N for the Social Studies Selection and EDUC 466N for the Language Teaching Selection.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Elementary and Early Childhood Education, B.S. at Altoona Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
ENGL 15 or 30H ^{*#}	3	MTHED 200 or MATH 200 ^{**†}	3
EDTHP 115 ^{*#}	3	Earth Science Selection ^{**2}	3
EDUC 100	1	U.S. History Selection ^{**3}	3
Art Selection [*]	3	EDPSY 14 ^{*#}	3
Biological Science Selection ^{**†2}	3	Literature Selection ^{**†4}	3
Math GQ Selection ^{**†}	3		
	16		15

Second Year

Fall	Credits	Spring	Credits
Physical Science Selection ^{**2}	3	CI 295A ^{*#}	3
EDPSY 11 or HDFS 229 ^{**†}	3	CAS 100A [*]	3
Social Studies Selection ^{**†}	3	Elective	3
Arts Selection	3	Education Selection [*]	3
EDPSY 101, STAT 100, or STAT 200 ^{**†}	3	ECE 451 [*]	3
CI 280 ^{**†}	3	General Education Course (GHW)	1.5
	18		16.5

Third Year

Fall	Credits	Spring	Credits
ENGL 202A or 202B [*]	3	CI 405 [*]	3
SPLD 400 [*]	4	CI 460 [*]	3
Educational Selection ^{*5}	3	LLED 400 [*]	3
Educational Selection ^{*5}	3	LLED 402 [*]	3
ECE 453 [*]	3	SPLD 403A [*]	3
General Education Course (GHW)	1.5		
	17.5		15

Fourth Year

Fall	Credits	Spring	Credits
MTHED 420 [*]	3	CI 495D ^{*1}	12
SCIED 458 [*]	3	CI 495F ^{*1}	3
SSED 430W [*]	3		
CI 495A [*]	3		
LLED 402 [*]	3		
	15		15

Total Credits 128

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

¹ No additional coursework permitted during Student Teaching. Student Teaching may be completed fall or spring semester.

² Biological Science, Earth Science and Physical Science Selections lists of acceptable courses available here (<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/undergraduate-teacher-education-pk-12/elementary-early-childhood-education-bs-pk-4/suggested-courses/>).

³ U.S. History Selection list of acceptable courses available here (<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/undergraduate-teacher-education-pk-12/elementary-early-childhood-education-bs-pk-4/suggested-courses/>).

⁴ Literature Selection list of acceptable courses available here (<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/undergraduate-teacher-education-pk-12/elementary-early-childhood-education-bs-pk-4/suggested-courses/>).

⁵ Educational Selection list of acceptable courses available here (<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/undergraduate-teacher-education-pk-12/elementary-early-childhood-education-bs-pk-4/suggested-courses/>).

Additional Notes:

- Must complete at least 3 cr. of United States (US) and 3 cr. of International Cultures (IL).
- ETM notes a course is required for entrance to major/certification program.
- All students must complete one lab course as indicated on the Natural Sciences (GN) Course Selection List.
- Summer study could reduce some of the credit loads above.
- Effective Fall 2012, all incoming Schreyer Honors College freshmen at University Park will take ENGL/CAS 137H in the fall semester and ENGL/CAS 138T in the spring semester. These courses carry GWS designation and replace both ENGL 030 and CAS 100. Each course is 3 credits. At the discretion of the college, ENGL/CAS 138T satisfies the first-year seminar requirement.

- Academic Advising Notes: **The course series listed above is only one of many possible ways to move through this curriculum. Please be sure to also use the curriculum checksheets and degree audits, as well as consult with an adviser about appropriate scheduling sequences, clearances for field experiences and Testing requirements. Advisers also can assist students in identifying coursework offered at Penn State in the SUMMER.**

**MTHED 200 and any 6 credits of GQ are required for ETM or MATH 200 and any 3 credits of GQ are required for ETM.*

Elementary and Early Childhood Education, B.S. at Berks Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) ^{*†#}	3 CAS 100A (GWS) [‡]	3
MATH 200 (GQ) ^{*†#}	3 MATH 201 (or General Education Course (GQ))	3
EDTHP 115A ^{*#}	3 HDFS 229 (GS) ^{*#†}	3
General Education Course (GN) ^{*#}	3 EDPSY 14 ^{*#}	3
General Education Course (GA)	3 Literature Selection ^{*#†}	3
First-Year Seminar	1	
	16	15

Second Year

Fall	Credits Spring	Credits
CI 295A ^{*#}	3 ENGL 202A or 202B (GWS) [‡]	3
STAT 100 (GQ) ^{*†#}	3 SOC 30 [*]	3
GEOG 30N (GS) ^{*†}	3 General Education Course (GN)	3
SOC 205N [*]	3 General Education Course (GN)	3
U.S. History Selection [*]	3 General Education Course (GA)	3
	General Education Course (GHW) ^{*†}	1.5
	15	16.5

Third Year

Fall	Credits Spring	Credits
CI 280 (GH) ^{*†}	3 AED 303 [*]	3
ECE 451 [*]	3 LLED 400 [*]	3
ECE 479 [*]	3 LLED 401 [*]	3
LLED 497 [*]	3 LLED 402 [*]	3
SPLED 400 [*]	4 MUSIC 241 [*]	3
General Education Course (GHW) ^{*†}	1.5 SPLED 403A [*]	3
	17.5	18

Fourth Year

Fall	Credits Spring	Credits
CI 495A [*]	3 CI 495D [*]	12
CI 405 [*]	3 CI 495F [*]	3
MTHED 420 [*]	3	
SSED 430W (Course fulfills the Writing Across The Curriculum Requirement.)	3	

SCI ED 458 [*]	3
	15
	15

Total Credits 128

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ The following courses are offered Fall Semester only: CI 280, 405, 495A, ECE 451, 479, KINES 126, LLED 497, MTHED 420, SPLED 400, SSED 430, SCI ED 458.

² The following courses are offered Spring Semester only: AED 303, CI 495D, 495F, ENGL 202B, LLED 400, 401, 402, MATH 201, MUSIC 241, KINES 127, SPLED 403A.

³ For General Education Course (GN), students must complete one (1) to satisfy Entrance-to-Major requirements. Additionally, students must choose one (1) from each of the following areas: Biological, Earth, and Physical. One (1) of these courses must include a lab. Consult the following list: <https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/undergraduate-teacher-education-pk-12/elementary-early-childhood-education-bs-pk-4/suggested-courses> (<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/undergraduate-teacher-education-pk-12/elementary-early-childhood-education-bs-pk-4/suggested-courses/>)

⁴ For Literature Selection, consult the following list: <https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/undergraduate-teacher-education-pk-12/elementary-early-childhood-education-bs-pk-4/suggested-courses> (<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/undergraduate-teacher-education-pk-12/elementary-early-childhood-education-bs-pk-4/suggested-courses/>)

⁵ For United States History Selection, consult the following list: <https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/undergraduate-teacher-education-pk-12/elementary-early-childhood-education-bs-pk-4/suggested-courses> (<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/undergraduate-teacher-education-pk-12/elementary-early-childhood-education-bs-pk-4/suggested-courses/>)

⁶ Students who want to enter this teacher certification program must earn a minimum cumulative GPA of a 3.00 by the end of the third (3rd) semester and pass three (3) PECT-PAPA exams in Reading, Writing, and Mathematics by the end of the third (3rd) semester in addition to the Entrance-to-Major requirements listed above. Consult adviser for details.

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⁷ Courses listed in Semester 6, Semester 7, and Semester 8 must be taken together during the same semester. Consult adviser for details.

Elementary and Early Childhood Education, B.S. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year		
Fall	Credits Spring	Credits
EDUC 100	1 CI 280 ^{**†}	3
EDTHP 115A (or spring) ^{**†}	3 MATH 201 (or MATH) [*]	3
U.S. History Selection (AMST 100) [*]	3 Literature Selection (LLED 215N) ^{**†}	3
HDFS 229 ^{**†}	3 Natural Science (Physical) ^{**†}	3
MATH 200 or MTHED 240 ^{**†}	3 CAS 100A ^{**†}	3
ENGL 15 ^{**†}	3	
	16	15
Second Year		
Fall	Credits Spring	Credits
Social Studies Selection (GEOG 30N) [*]	3 CI 295A ^{**#}	3
EDPSY 14 ^{**#}	3 EDPSY 101 or STAT 200 ^{**†}	3-4
Education Selection [*]	3 Arts Selection	3
Natural Science with Lab (Earth) ^{**†}	3 ECE 451 [*]	3
CSD 146 (minor)	0-3 Natural Science (Biological) ^{**†}	3
ECE 353 [*]	3	
	15-18	15-16
Third Year		
Fall	Credits Spring	Credits
LLED 400 [*]	3 SPLED 403A [*]	3
SPLED 400 [*]	4 LLED 401 [*]	3
GHW (Health and Wellness)	3 ENGL 202A or 202B ^{**†}	3
SPLED 419 (minor) or Education Selection [*]	3 CI 405 [*]	3
LLED 302 [*]	3 SPLED 461 (minor) or Education Selection [*]	3
RHS 100 (minor)	0-3	
	16-19	15
Fourth Year		
Fall	Credits Spring	Credits
CI 495A [*]	3 CI 495D [*]	3
MTHED 420 [*]	3 CI 495F [*]	12
SSED 430W [*]	3	
CI 460 [*]	3	
SCIED 458 [*]	3	
	15	15
Total Credits 122-129		

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Additional Notes:

- All students are required to take three Education Selections; these may be as a minor or can be their selection.

Career Paths

Education is a profession and all teachers are expected to continue studying and developing new skills throughout their careers. In most U.S. states, teacher certification is a multi-stage process, with graduate study beyond a bachelor's degree expected early in a teacher's career. Graduates of this program who work in public schools usually go on to earn a master's degree, and often use those studies to earn additional credentials in areas like counseling, reading, teaching English learners, or special education. Graduates who work in early childhood education or nonformal settings also have the option of earning advanced degrees, and, as with public school teachers, have access to continuing education (CE) through school intermediate units, museums, and other nonprofits, and web-mediated CE systems. Alumni who wish to continue their studies at the graduate level through Penn State can do so at University Park and through the University's World Campus.

Careers

In addition to resources such as the College's Advising and Certification Center and Penn State Career Services, the University hosts large education career fairs in both the fall and spring semesters, which bring recruiters to campus from throughout Pennsylvania and the United States.

MORE INFORMATION ABOUT POTENTIAL CAREERS OPTIONS FOR GRADUATES OF THE ELEMENTARY AND EARLY CHILDHOOD EDUCATION PROGRAM (<https://studentaffairs.psu.edu/career/>)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/graduate-studies-program-curriculum-and-instruction/>)

Professional Resources

- Pennsylvania State Education Association (<https://www.psea.org/resources-by-profession/student-psea/>)
- Penn State-State College Professional Development School (PDS) (<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/professional-development-school/>)
- National Association for the Education of Young Children (<https://www.naeyc.org>)

Accreditation

The College of Education educator preparation programs are fully accredited at the Initial and Advanced levels by the Council for the Accreditation of Educator Preparation (CAEP). The next CAEP program review will be Fall 2026. CAEP advances excellence in educator preparation through evidence-based accreditation that assures quality and supports continuous improvement to strengthen P-12 student learning.

MORE INFORMATION ABOUT ACCREDITATION OF THE ELEMENTARY AND EARLY CHILDHOOD EDUCATION PROGRAM (<https://ed.psu.edu/about/accreditations/>)

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

University Park

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228 Chambers Building
University Park, PA 16802
814-865-0488
ara10@psu.edu

Abington

DIVISION OF SOCIAL SCIENCES
1600 Woodland Road
Abington, PA 19001
215-881-7802
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<https://www.abington.psu.edu/academics/majors-at-abington/early-education> (<https://www.abington.psu.edu/academics/majors-at-abington/early-education/>)

Altoona

DIVISION OF EDUCATION, HUMAN DEVELOPMENT, AND SOCIAL SCIENCES
Hawthorn Building 225
3000 Ivyside Park
Altoona, PA 16601
814-949-5594

kae116@psu.edu

<https://altoona.psu.edu/academics/bachelors-degrees/elementary-early-childhood-education> (<https://altoona.psu.edu/academics/bachelors-degrees/elementary-early-childhood-education/>)

Berks

HUMANITIES, ARTS AND SOCIAL SCIENCES
Gaige Building
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<https://berks.psu.edu/academics/bs-elementary-and-early-childhood-education> (<https://berks.psu.edu/academics/bs-elementary-and-early-childhood-education/>)

Erie

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<https://behrend.psu.edu/school-of-humanities-social-sciences> (<https://behrend.psu.edu/school-of-humanities-social-sciences/>)

Elementary and Kindergarten Education, B.S. (Education)

Begin Campus: Any Penn State Campus

End Campus: University Park

PROGRAM CURRENTLY ON HOLD; NOT ACCEPTING NEW STUDENTS
Begin Date of Enrollment Hold: September 10, 2010

Individuals interested in earning Pennsylvania teaching credentials for grades PK-4 should refer to the **Elementary and Early Childhood Education, B.S. program (p. 688)**. Individuals interested in earning Pennsylvania teaching credentials for grades 5-8 should refer to the **Middle Level Education, B.S. program (p. 706)**.

Program Description

****Please Note:** Individuals interested in earning Pennsylvania teaching credentials for grades PK-8 should refer to the **Childhood and Early Adolescent Education** major.

This major offers teaching options in Early Childhood Education and in Elementary Education. Students successfully completing this major will have met all of the requirements for the N-3 or K-6 College Instructional I certificate issued by the Pennsylvania Department of Education. Students must indicate their choice of teaching option at the time they make application for admission to a teacher education major. Students who are undecided at this time about which teaching option to select should contact their adviser and enroll in a field experience featuring participation in the classroom.

Early Childhood Teaching Option

Available at the following campuses: University Park

Students successfully completing this option will have met all of the requirements for the N-3 Instructional I certificate issued by the Pennsylvania Department of Education. Special courses in both human development and education are used to integrate understanding of preschool programs with relevant theories of child development.

Elementary Education Teaching Option

Available at the following campuses: Altoona, Berks, University Park

Students successfully completing this option will have met all of the requirements for the K-6 Instructional I certificate issued by the Pennsylvania Department of Education.

Degree Requirements

For the Bachelor of Science degree in Elementary and Kindergarten Education, a minimum of 129.5 credits is required for the Early Childhood Teaching Option and a minimum of 122 credits is required for the Elementary Education Teaching Option:

Requirement	Credits
General Education	45
Electives	0-3
Requirements for the Major	101-117

27-30 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GS, 6 credits of GQ, 6 credits of GH, and 9 credits of GN courses for both options. The Early Childhood Teaching option permits 3 credits of GHW.

See also Teacher Education Programs (<https://ed.psu.edu/academics/teacher-testing-certification/>).

Requirements for the Major

A grade of C or better per course is required for teacher certification.

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better for teacher certification</i>		
AED 303	The Visual Arts in the Elementary School	3
CI 295	Introductory Field Experience for Teacher Preparation	2
CI 495B	Clinical Application of Instruction - Middle Level Education	3
CI 495D	Practicum in Student Teaching--Childhood and Early Adolescent Education	12
CI 495F	Professional Development Practicum	3
EDPSY 14	Learning and Instruction	3
ENGL 100	English Language Analysis	3
KINES 126	The Health Program for the Elementary School Child	1.5
LLED 400	Teaching Literacy in Early Childhood	3
LLED 401	Teaching Literacy in Elementary School	3
LLED 402	Teaching Children's Literature	3
MATH 200	Problem Solving in Mathematics	3
MTHED 420	Teaching Mathematics In The Elementary Schools	3
MUSIC 241	Music for Classroom Teachers	3

SCIED 458	Teaching Science in the Elementary School	3
SPLED 400	Inclusive Special Ed Foundations: Legal, Characteristics, Collaboration, Assessment, and Management	3
SSED 430W	Teaching Social Studies in the Elementary Grades	3

Additional Courses

Additional Courses: Require a grade of C or better for teacher certification

EDTHP 115	Education in American Society	3
	or EDTHP 115A Competing Rights: Issues in American Education	
HIST 20	American Civilization to 1877	3
	or HIST 21 American Civilization Since 1877	

Select one of the following: 3-4

EDPSY 101	Analysis and Interpretation of Statistical Data in Education	
STAT 100	Statistical Concepts and Reasoning	
STAT 200	Elementary Statistics	

Select one of the following: 3

ECON 14	Principles of Economics	
ECON 102	Introductory Microeconomic Analysis and Policy	
ECON 104	Introductory Macroeconomic Analysis and Policy	

Select one of the following: 3

GEOG 20	Human Geography: An Introduction	
GEOG 30N	Environment and Society in a Changing World	
GEOG 122		
GEOG 123	Geography of Developing World	
GEOG 124	Elements of Cultural Geography	
GEOG 126	Economic Geography	
GEOG 128	Geography of International Affairs	
GEOG 320	Urban Geography: A Global Perspective	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better for teacher certification

Select 3 credits in literature GH	3
Select 9 credits: 3 credits each (including one course with a lab) from the following GN biological science, earth science, and physical science	9

Requirements for the Option

Requirements for the Option: Require a grade of C or better for teacher certification

Select an option 16.5-30

Requirements for the Option

Early Childhood Teaching Option (27-30 credits)

Available at the following campuses: University Park

Code	Title	Credits
Prescribed Courses		
CI 495A	Clinical Application of Instruction - PK-4	1
ECE 451	Instruction in Early Childhood Education Derived from Development Theories	3
ECE 452		3
ECE 453	Parent Involvement in Home, Center, and Classroom Instruction	2
ECE 454		3

ECE 479	The Young Child's Play as Educative Processes	3
Additional Courses		
HDFS 315 or SOC 30	Family Development Sociology of the Family	3
HDFS 428 or HDFS 429	Infant Development Advanced Child Development	3
HPA 101 or NUTR 251	Introduction to Health Services Organization Introductory Principles of Nutrition	3
PSYCH 100 & PSYCH 212 or HDFS 229	Introductory Psychology and Introduction to Developmental Psychology Infant and Child Development	3-6

Elementary Education Teaching Option (16.5-19.5 credits)*Available at the following campuses: Altoona, Berks, University Park*

Code	Title	Credits
Prescribed Courses		
KINES 127	The Physical Education Program for the Elementary School Child	1.5
Additional Courses		
Select one of the following:		3-6
EDPSY 10	Individual Differences and Education	
HDFS 229	Infant and Child Development	
PSYCH 100 & PSYCH 212	Introductory Psychology and Introduction to Developmental Psychology	
Supporting Courses and Related Areas		
Select 3 credits in MATH or MTHED		3
Select 6 credits of the following:		6
EDTHP at the 400 level		
ECE at the 400 level		
SPLED at the 400 level		
EDLDR 405	Reimagining Classroom Management	
EDLDR 497	Special Topics	
LLED 497	Special Topics	
Select 3 credits in U.S. History		3

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction> (<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/>)

Altoona

DIVISION OF EDUCATION, HUMAN DEVELOPMENT, AND SOCIAL SCIENCES
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Altoona, PA 16601
814-949-5638

lab194@psu.edu

<https://altoona.psu.edu/academics/bachelors-degrees/elementary-early-childhood-education> (<https://altoona.psu.edu/academics/bachelors-degrees/elementary-early-childhood-education/>)

Berks

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Instructor Development for Professionals, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

Instructor Development for Professionals This certificate is designed for the adult learner who would like to gain knowledge of essential instructor development concepts. These adult learners may already possess a degree in an occupational discipline, but need to augment their knowledge and resumes to advance their careers with their current employer or transition into a new job. Adult learners taking this certificate may also be taking post-secondary credit courses for the first time.

Entrance to Certificate

Admissions criteria for the certificate program follow standard University procedures for adult students.

Program Requirements

To earn an undergraduate certificate in Instructor Development for Professionals, a minimum of 9 credits is required.

Code	Title	Credits
Required Courses		
WFED 105	Integrated Curriculum Implementation	3
WFED 106	Program and Facilities Management	3
WFED 207W	Assessment Techniques	3

Certificate Learning Objectives

- **Communicate:** Students will be able to effectively communicate instructional content or findings in formal presentations and in written works.
- **Demonstrate Competence:** Students will demonstrate competence through documentation of tasks performed and reflection on specialized accomplishments.
- **Develop Professional Competencies:** Students will develop professional competencies to work with others in related fields or disciplines.
- **Relate Common Situations:** Students will be able to relate common situations experienced by professionals and how they were or should be handled.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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University Park

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Middle Level Education, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The Middle Level Education major prepares graduates to teach all subjects in grades 4-6 and English, Mathematics, or Social Studies in grades 7-8. The Middle Level Education major supports candidates' understanding of subject-specific content as well as methods of teaching appropriate for early adolescents in grades 4-8. Upon graduation, students will have met all coursework and field experience requirements for the Pennsylvania Department of Education (PDE) 4-8 English, 4-8 Mathematics, or 4-8 Social Studies Instructional I Certificate. In addition, they will have been prepared for the appropriate teacher certification exams as required by PDE for initial certification.

This program undergoes accreditation by the Council for Accreditation of Educator Preparation (CAEP) with a Specialized Professional Association (SPA) review conducted by the American Middle Level Association (AMLE).

What is Middle Level Education?

The Middle Level Education major is a Teacher Education program for all subjects in Grades 4-6 and English, Mathematics, or Social Studies in Grades 7-8. Our program is committed to responsive teaching that

is challenging, empowering, equitable, and engaging, and designed especially for the promise and possibilities of young adolescent learners.

Students complete three field experiences in middle grades classrooms.

First, they join a classroom once a week for a semester as part of entering the major. Later, they have a semester-long field experience for part of each week, alongside their university courses. The major culminates in a full-time, semester-long student teaching experience. This major supports candidates' understanding of subject-specific content as well as methods of teaching appropriate for inclusive settings in grades 4-8. Upon graduation, teacher candidates will have met all coursework and field experience requirements for the Pennsylvania Department of Education Instructional I Certificate (All subjects 4-6) and Mathematics 7-8, Social Studies 7-8, or English Language Arts & Reading 7-8). In addition, the Praxis assessment is required for certification.

You Might Like This Program If...

You recognize and value the unique and tremendous opportunities for learner growth in the middle grades (4-8). Maybe you loved your experience in the middle grades—or maybe you despised it—and you want to bring your energy and experience to facilitating major, life-altering growth. If you share in or want to learn about middle level educators' commitments to collaboration, integration, democracy, and inclusivity, in meaningful academic learning environments, join us!

MORE INFORMATION ABOUT MIDDLE LEVEL EDUCATION (<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/undergraduate-studies-ci/middle-level-education-4-8/>)

Entrance to Major

Baccalaureate degree candidates must meet the following requirements before Entrance to Major:

1. Completion of at least 48 semester credit hours, including ENGL 15 or ENGL 30H, six credits of quantification, and three credits of natural science, as well as three credits of literature for Mathematics Education 4-8 Option, three credits of literature for Social Studies 4-8 Option, or six credits of literature for English Education 4-8 Option.
2. A minimum cumulative grade point average of 3.00.
3. A grade of "C" or better in all specified courses.
4. Completion of CI 295B.
5. Completion of a core of Education courses specified by the certificate program.
6. Completion of additional credits as specified by the certification program.
7. Approval from the professional education adviser or the head of the pertinent certification program.

Retention Requirements

Candidates must maintain a minimum cumulative grade point average of 3.00. If a student's cumulative GPA drops below 3.00, a warning letter will be sent to the student, their adviser and the program head. Generally, a student is given one semester to achieve a cumulative GPA of 3.00 or higher or they will not be permitted to continue in a Teacher (Educator) Preparation Program.

Degree Requirements

For the Bachelor of Science in Middle Level Education a minimum of 125 credits is required for the English 4-8 and Mathematics 4-8 Options and 130 credits is required for the Social Studies 4-8 Option:

Requirement	Credits
General Education	45
Electives	0-6
Requirements for the Major	107-113

27 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GH courses; 9 credits of GN courses; 6 credits of GQ courses; 6 credits of GS courses. Six of these 27 credits may also satisfy the Integrative Studies requirement.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CI 280	Introduction to Teaching English Language Learners	3
CI 295B	Introductory Field Experience in Middle Level Education	3
CI 405	Reimagining Classroom Management	3
CI 495B	Clinical Application of Instruction - Middle Level Education	3
CI 495D	Practicum in Student Teaching--Childhood and Early Adolescent Education	12
CI 495F	Professional Development Practicum	3
EDPSY 14	Learning and Instruction	3
EDTHP 115	Education in American Society	3
HDFS 239	Adolescent Development	3
LLED 400	Teaching Literacy in Early Childhood	3
LLED 401	Teaching Literacy in Elementary School	3
LLED 402	Teaching Children's Literature	3
MATH 200	Problem Solving in Mathematics	3
MTHED 420	Teaching Mathematics In The Elementary Schools	3
SCIED 458	Teaching Science in the Elementary School	3
SPLD 400	Inclusive Special Ed Foundations: Legal, Characteristics, Collaboration, Assessment, and Management	4
SPLD 403A	Evidence-Based Instruction for Elementary Students with Disabilities in Reading, Math, and Writing	3
SSED 430W	Teaching Social Studies in the Elementary Grades	3
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 3 credits in literature of the following:		3

CMLIT 101	Race, Gender, and Identity in World Literature
CMLIT 109	Native American Myths, Legends, and Literatures
CMLIT 110	Jewish Literature: An International Perspective
CMLIT 111	Introduction to Literatures of India
ENGL 135	Alternative Voices in American Literature
ENGL 139	African American Literature
ENGL 194	Women Writers
ENGL 221	British Literature to 1798
ENGL 222	British Literature from 1798
ENGL 226	Latina and Latino Border Theories
ENGL 231	American Literature to 1865
ENGL 232	American Literature from 1865
ENGL 245	Introduction to LGBTQ Studies

Select 9 credits: 3 credits each (including one course with a lab) from biological science, earth science, and physical science (GN courses)

Requirements for the Option ¹

Requirements for the Option: Require a grade of C or better

Select an option	30-37
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Requirements for the Option English 4-8 Option (31-32 credits)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
LLED 450	Content Area Reading	3
SOC 119N	Race, Ethnicity and Culture	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3-4 credits of the following:		3-4
EDPSY 101	Analysis and Interpretation of Statistical Data in Education	
STAT 100	Statistical Concepts and Reasoning	
STAT 200	Elementary Statistics	
Select any MATH GQ course		3
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
<i>British Literature</i>		
Select one of the following:		3
ENGL 221	British Literature to 1798	
ENGL 222	British Literature from 1798	
ENGL 440	Studies in Shakespeare	
ENGL 441	Chaucer	
ENGL 442	Medieval English Literature	
ENGL 443	The English Renaissance	
ENGL 444	Shakespeare	
ENGL 445		
ENGL 446	Milton	
ENGL 447	The Restoration and the Eighteenth Century	
ENGL 448	The English Novel to Jane Austen	
ENGL 450	The Romantics	
ENGL 451		
ENGL 452	The Victorians	
ENGL 453	Victorian Novel	

ENGL 454	Modern British and Irish Drama
ENGL 455	Topics in British Literature
ENGL 456	British Fiction, 1900-1945
ENGL 457	British Fiction Since 1945
ENGL 458	Twentieth-Century Poetry

American Literature

Select one of the following: 3

ENGL 231	American Literature to 1865
ENGL 232	American Literature from 1865
ENGL 432	The American Novel to 1900
ENGL 433	The American Novel: 1900-1945
ENGL 434	Topics in American Literature
ENGL 435	The American Short Story
ENGL 436	American Fiction Since 1945
ENGL 437	The Poet in America
ENGL 438	American Drama
ENGL 439	American Nonfiction Prose

Comparative Literature

Select one of the following: 3

CMLIT 101	Race, Gender, and Identity in World Literature
CMLIT 109	Native American Myths, Legends, and Literatures
CMLIT 110	Jewish Literature: An International Perspective
CMLIT 111	Introduction to Literatures of India
CMLIT 404Y	Topics in Asian Literature
CMLIT 422	African Drama
CMLIT 423	African Novel
ENGL 135	Alternative Voices in American Literature
ENGL 139	African American Literature
ENGL 194	Women Writers
ENGL 226	Latina and Latino Border Theories
ENGL 235	From Folk Shouts and Songs to Hip Hop Poetry
ENGL 245	Introduction to LGBTQ Studies
ENGL 431	Black American Writers
ENGL 461	
ENGL 462	Reading Black, Reading Feminist
ENGL 463	African American Autobiography
ENGL 466	African American Novel I
ENGL 467	African American Novel II
ENGL 468	African American Poetry
ENGL 469	Slavery and the Literary Imagination

Writing

Select one of the following: 3

ENGL 212	Introduction to Fiction Writing
ENGL 213	Introduction to Poetry Writing
ENGL 215	Introduction to General Nonfiction Writing
ENGL 281	Television Script Writing
ENGL 412	Advanced Fiction Writing
ENGL 413	Advanced Poetry Writing
ENGL 414	Biographical Writing
ENGL 415	Advanced Nonfiction Writing

Media Literacy

Select two of the following: 6

CAS 213	Persuasive Speaking
CAS 215	Argumentation
CAS 250	Small Group Communication
CAS 271N	Intercultural Communication
CAS 280W	Storytelling and Speaking
CAS 375	Rhetoric and Public Controversy
CAS 422	Contemporary African American Communication
COMM 100	
COMM 120	
COMM 150N	The Art of the Cinema
COMM 180	Survey of Electronic Media and Telecommunications
COMM 205	Gender, Diversity and the Media
COMM 250	Film History and Theory
COMM 453	Narrative Theory: Film and Literature
COMM 454	Documentary in Film and Television

Mathematics 4-8 Option (31 credits)

Code	Title	Credits
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Prescribed Courses

<i>Prescribed Courses: Require a grade of C or better</i>		
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
MATH 201	Problem Solving in Mathematics II	3
MATH 220	Matrices	2
MTHED 428	Fundamentals of Middle Grades Mathematics 1	3
MTHED 429	Fundamentals of Middle Grades Mathematics 2	3
MTHED 431	Data Analysis in Secondary School Mathematics	3
MTHED 433	Function Concept in Secondary School Mathematics	3

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better
Humanities (GH)

Select one of the following: 3

AFAM/ WMNST 101		
AFAM/RLST 145	African Diaspora Religions and Spiritualities	
AFAM/RLST 146	The Life and Thought of Martin Luther King, Jr.	
AFAM/HIST 210	Freedom's First Generation: African American Life and Work, from the Civil War to World War II	
GEOG 122		
HIST 10	World History to 1500	
HIST 11	World History since 1500	
HIST 12	History of Pennsylvania	
HIST 21	American Civilization Since 1877	
HIST 100	Ancient Greece	
HIST 101	The Roman Republic and Empire	
HIST 104	Ancient Egypt	
HIST 107	Medieval Europe	
HIST 115	The American Jewish Experience	
HIST 121	History of the Holocaust 1933-1945	

HIST 130	Introduction to the Civil War Era, 1848 through 1877	
HIST 144	The World at War: 1939-1945	
HIST 152	African American History	
HIST 153	Native American History	
HIST 155	American Business History	
HIST 156	History of the American Worker	
HIST 158	History of American Immigration	
HIST 174	East Asia to 1800	
HIST 175	East Asia since 1800	
HIST 176	Survey of Indian History	
HIST 179	Latin-American History Since 1820	
HIST 180	Ancient Warfare	
HIST 181	Introduction to the Middle East	
HIST 191	Early African History	
STS/HIST 123		
WMNST/ AFAM 102	Women of the African Diaspora	
WMNST/ AMST 104	Women and the American Experience	
WMNST/HIST 117	Women in United States History	
Social and Behavioral Sciences (GS)		
Select one of the following:		3
AFAM 100		
ECON 14	Principles of Economics	
ECON 102	Introductory Microeconomic Analysis and Policy	
ECON 104	Introductory Macroeconomic Analysis and Policy	
EDTHP 200	Educational Reform and Public Policy	
EDTHP 420	Education and Public Policy	
GEOG 30N	Environment and Society in a Changing World	
GEOG 40	World Regional Geography	
GEOG 123	Geography of Developing World	
GEOG 126	Economic Geography	
GEOG 130		
GEOG 160	Mapping Our Changing World	
HIST 120		
PLSC 3	Comparing Politics around the Globe	
PLSC 7N	Contemporary Political Ideologies	
PLSC 14	International Relations	
PLSC 17N	Introduction to Political Theory	
PLSC 110		
PLSC 123		
PLSC 130		
PLSC 135		
SOC 119N	Race, Ethnicity and Culture	
STS/PLSC 135		

Social Studies 4-8 Option (36-37 credits)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
GEOG 10	Physical Geography: An Introduction	3

GEOG 20	Human Geography: An Introduction	3
HIST 20	American Civilization to 1877	3
PLSC 1	American Politics: Principles, Processes and Powers	3
SSED 412W	Teaching Secondary Social Studies II	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3-4 credits of the following:		3-4
EDPSY 101	Analysis and Interpretation of Statistical Data in Education	
STAT 100	Statistical Concepts and Reasoning	
STAT 200	Elementary Statistics	
Select any MATH GQ course		3
Supporting Courses and Related Areas ¹		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Economics Policy		
Select one of the following:		3
ECON 14	Principles of Economics	
ECON 102	Introductory Microeconomic Analysis and Policy	
ECON 104	Introductory Macroeconomic Analysis and Policy	
GEOG 124	Elements of Cultural Geography	
GEOG 126	Economic Geography	
HIST 155	American Business History	
HIST 156	History of the American Worker	
PLSC 135		
WMNST 456	Gender, Occupations, and Professions	
Civics and Society		
Select at least 6 credits of the following:		6
AFAM/RLST 145	African Diaspora Religions and Spiritualities	
AFAM/ENGL 235	From Folk Shouts and Songs to Hip Hop Poetry	
AFAM/SOC 409	Racial and Ethnic Inequality in America	
EDTHP 200	Educational Reform and Public Policy	
EDTHP 297	Special Topics	
EDTHP/CIED 401	Introduction to Comparative Education	
EDTHP 447	Ethnic Minorities and Schools in the United States	
EDTHP/ WMNST 412	Education and the Status of Women	
EDTHP 420	Education and Public Policy	
EDTHP 427	Intelligence and Educational Policy	
GEOG 320	Urban Geography: A Global Perspective	
HIST 158	History of American Immigration	
PLSC 2		
PLSC 3	Comparing Politics around the Globe	
PLSC 7N	Contemporary Political Ideologies	
PLSC 14	International Relations	
PLSC 17N	Introduction to Political Theory	
PLSC 110		
PLSC 123		
PLSC 125	Pennsylvania Government and Politics	

PLSC 130	
SOC 119N	Race, Ethnicity and Culture
STS/PLSC 135	
WMNST/ AMST 104	Women and the American Experience
WMNST/ AMST 430	Women in American Society
WMNST 466	Lesbian and Gay History
<i>Historical and Geographical Perspectives</i>	
Select at least 6 credits of the following: 6	
AFAM 100	
AFAM/ WMNST 101	
AFAM/RLST 146	The Life and Thought of Martin Luther King, Jr.
AFAM/HIST 210	Freedom's First Generation: African American Life and Work, from the Civil War to World War II
EDTHP 430	History of Education in the United States
EDTHP 435	Child Labor and Education in the Global Economy
GEOG 30N	Environment and Society in a Changing World
GEOG 40	World Regional Geography
GEOG 110	Climates of the World
GEOG 115	Landforms of the World
GEOG 122	
GEOG 160	Mapping Our Changing World
HIST 10	World History to 1500
HIST 11	World History since 1500
HIST 12	History of Pennsylvania
HIST 21	American Civilization Since 1877
HIST 100	Ancient Greece
HIST 101	The Roman Republic and Empire
HIST 104	Ancient Egypt
HIST 107	Medieval Europe
HIST 115	The American Jewish Experience
HIST 121	History of the Holocaust 1933-1945
HIST 130	Introduction to the Civil War Era, 1848 through 1877
HIST 144	The World at War: 1939-1945
HIST 152	African American History
HIST 153	Native American History
HIST 174	East Asia to 1800
HIST 175	East Asia since 1800
HIST 176	Survey of Indian History
HIST 179	Latin-American History Since 1820
HIST 180	Ancient Warfare
HIST 181	Introduction to the Middle East
HIST 191	Early African History
STS 123	
WMNST/ AFAM 102	Women of the African Diaspora
WMNST/HIST 117	Women in United States History

WMNST/GEOG
426Y

¹ At least 6 credits must be taken at the 100-level or above.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Kasey Packer, M.Ed.

Academic Adviser

College of Education Advising and Certification Center

228 Chambers Building

University Park, PA 16802

kjp5188@psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

English Option: Middle Level Education, B.S. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H ^{**}	3 CAS 100A ^{**†}	3
MATH 200 ^{**†}	3 Earth Science Selection ^{**5}	3
Biological Science Selection ^{**5}	3 Literature Selection ^{**7}	3
EDTHP 115 ^{**†}	3 EDPSY 14 ^{**†}	3
EDUC 100 [*]	1 Media Selection ^{**6}	3
Arts Selection ^{**†}	3	
	16	15

Second Year

Fall	Credits Spring	Credits
Physical Science Selection ^{**5}	3 CI 280 ^{**†}	3
Writing Selection ^{**6}	3 STAT 100, 200, or EDPSY 101 ^{**†}	3-4
SOC 119N ^{**†}	4 CI 295B ^{**†}	3
American Literature Selection ^{**6}	3 HDFS 239 ^{**†}	3
Comparative Literature Selection ^{**6}	3 Health and Physical Activity [†]	1.5
	Art Selection ^{**†}	3
	16	16.5-17.5

Third Year

Fall	Credits Spring	Credits
LLED 400 ^{**†}	3 ENGL 202A or 202B ^{**†}	3
LLED 401 ^{**†}	3 LLED 450 ^{**†2 4}	3
LLED 402 ^{**†}	3 SPLED 403A ^{**†}	3
SPLED 400 ^{**†}	4 Mathematics Selection ^{**†}	3
Media Selection ^{**6}	3 British Literature Selection ^{**†}	3
	6	
Health and Physical Activity [†]	1.5	
	17.5	15

Fourth Year

Fall	Credits Spring	Credits
MTHED 420 ^{**†1}	3 CI 495D ^{**†3}	12
SCI ED 458 ^{**†1}	3 CI 495F ^{**†3}	3
SSED 430W	3	
CI 495B ^{**†}	3	
CI 405 ^{**†1}	3	
	15	15

Total Credits 126-127

* Course requires a grade of C or better for the major

- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

¹ 4-8 only offered in the fall

² Only offered in the spring

³ No additional coursework permitted during Student Teaching. Student teaching may be completed fall or spring semester.

⁴ Must be 6 semester standing

⁵ Selection list of acceptable courses for Biological, Earth, and Physical Sciences here (<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/undergraduate-teacher-education-pk-12/elementary-early-childhood-education-bs-pk-4/suggested-courses/>).

⁶ Selection list of acceptable courses for British Literature, American Literature, Comparative Literature, Writing, and Media Literacy here (<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/undergraduate-teacher-education-pk-12/elementary-early-childhood-education-bs-pk-4/suggested-courses/>).

⁷ Literature Selection list of acceptable courses available here (<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/undergraduate-teacher-education-pk-12/elementary-early-childhood-education-bs-pk-4/suggested-courses/>).

Additional Notes:

- Must complete at least 3 cr. of United States (US) and 3 cr. of International Cultures (IL).
- ETM notes a course is required for entrance to major/certification program.
- All students must complete one lab course as indicated on the Natural Sciences (GN) Course Selection List.
- Summer study could reduce some of the credit loads above.
- Effective Fall 2012, all incoming Schreyer Honors College freshmen at University Park will take ENGL/CAS 137H in the fall semester and ENGL/CAS 138T in the spring semester. These courses carry GWS designation and replace both ENGL 030 and CAS 100. Each course is

3 credits. At the discretion of the college, ENGL/CAS 138T satisfies the first-year seminar requirement.

- Academic Advising Notes: **The course series listed above is only one of many possible ways to move through this curriculum. Please be sure to also use the curriculum checksheets and degree audits, as well as consult with an adviser about appropriate scheduling sequences, clearances for field experiences and Testing requirements. Advisers also can assist students in identifying coursework offered at Penn State in the SUMMER.**

Math Option: Middle Level Education, B.S. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H ^{*#†}	3 MATH 141 ^{*#†}	4
MATH 140 ^{*#†}	4 EDPSY 14 ^{*#†}	3
EDTHP 115 ^{*#†}	3 Literature Selection ^{*#†7}	3
EDUC 100 ^{*†}	1 Earth Science Selection ^{*†6}	3
Social Studies Selection ^{*†1}	3 Art Selection ^{*†}	
Biological Science Selection ^{*#†6}	3	
	17	13

Second Year

Fall	Credits Spring	Credits
HDFS 239 ^{*#†}	3 MATH 201 ^{*#†}	3
MATH 200 ^{*#†}	3 CAS 100A ^{*†}	3
MATH 220 ^{*†}	2-3 Art Selection [†]	3
CI 280 ^{*†}	3 Social Studies Selection ^{*†2}	3
Physical Science Selection ^{*†6}	3 CI 295B ^{*#†3}	1-3
	14-15	13-15

Third Year

Fall	Credits Spring	Credits
LLED 400 ^{*†4}	3 MTHED 429 ^{*†}	3
LLED 401 ^{*†4}	3 ENGL 202A or 202B ^{*†}	3
LLED 402 ^{*†4}	3 SPLED 403A ^{*†}	3
MTHED 428 ^{*†}	3 MTHED 431 ^{*†}	3
SPLED 400 ^{*†}	4 Health and Physical Activity ^{*†}	3
	16	15

Fourth Year

Fall	Credits Spring	Credits
MTHED 420 ^{*†4}	3 CI 495D ^{*†5}	12
SCI 458 ^{*†4}	3 CI 495F ^{*†5}	3
SSED 430W	3	
CI 495B ^{*†}	3	
MTHED 433 ^{*†}	3	
CI 405 ^{*†}	3	
	18	15

Total Credits 121-124

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

- ¹ AF AM/WMNST 101 GH;US(3), AF AM/RL ST 145 GH;US;IL(3), AF AM/RL ST 146 GH;US(3), AF AM/HIST 210 GH;US(3), GEOG 122 GH;US(3), HIST 010 GH;IL(3), HIST 011 GH;IL(3), HIST 012 GH;US(3), HIST 021 GH;US(3), HIST 100 GH;IL(3), HIST 101 GH;IL(3), HIST 104 GH(3), HIST 107 GH;IL(3), HIST 115 GH;US(3), HIST 121 GH;IL(3), HIST 130 GH;US(3), HIST 144 GH;US;IL(3), HIST 152 GH;US;IL(3), HIST 153 GH;US(3), HIST 155 GH;US(3), HIST 156 US(3), HIST 158 US;IL(3), HIST 174 GH;IL(3), HIST 175 GH;IL(3), HIST 176 GH;IL(3), HIST 179 GH;IL(3), HIST 180 GH;IL(3), HIST 181 GH;IL(3), HIST 191 GH;IL(3), S T S/HIST 123 GH(3), WMNST/AF AM 102 GH;IL(3), WMNST/AM ST 104 GH;US(3), WMNST/HIST 117 GH;US;IL(3) (Sem: 1-4)
- ² AF AM 100 GS;US(3), ECON 014 GS(3), ECON 102 GS(3), ECON 104 GS(3), EDTHP 200 GS(3), EDTHP 420(3), GEOG 030 GS;IL(3), GEOG 040 GS;IL(3), GEOG 123 GS;IL(3), GEOG 126 GS;US;IL(3), GEOG 130 GS(3), GEOG 160 GS(3), HIST 120 GS;IL(3), PL SC 003 GS;IL(3), PL SC 007 GS(3), PL SC 014 GS;IL(3), PL SC 017 GS(3), PL SC 110 GS;US(3), PL SC 123 GS;US;IL(3), PL SC 130 GS;US(3), PL SC 135 GS(3), S T S/PL SC 135 GS(3), SOC 119N GS;US(4) (Sem: 1-4)
- ³ Only offered in spring
- ⁴ Only offered in fall
- ⁵ No additional coursework permitted during Student Teaching. Student teaching may be completed fall or spring semester.
- ⁶ Selection list of acceptable courses for Biological, Earth, and Physical Sciences here (<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/undergraduate-teacher-education-pk-12/elementary-early-childhood-education-bs-pk-4/suggested-courses/>).
- ⁷ Literature Selection list of acceptable courses available here. (<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/undergraduate-teacher-education-pk-12/elementary-early-childhood-education-bs-pk-4/suggested-courses/>)

Additional Notes:

- Must complete at least 3 cr. of United States (US) and 3 cr. of International Cultures (IL).

- ETM notes a course is required for entrance to major/certification program.
- All students must complete one lab course as indicated on the Natural Sciences (GN) Course Selection List.
- Summer study could reduce some of the credit loads above.
- Effective Fall 2012, all incoming Schreyer Honors College freshmen at University Park will take ENGL/CAS 137H in the fall semester and ENGL/CAS 138T in the spring semester. These courses carry GWS designation and replace both ENGL 030 and CAS 100. Each course is 3 credits. At the discretion of the college, ENGL/CAS 138T satisfies the first-year seminar requirement.
- Academic Advising Notes: **The course series listed above is only one of many possible ways to move through this curriculum. Please be sure to also use the curriculum checksheets and degree audits, as well as consult with an adviser about appropriate scheduling sequences, clearances for field experiences and Testing requirements. Advisers also can assist students in identifying coursework offered at Penn State in the SUMMER.**

Social Studies Option: Middle Level Education, B.S. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H ^{**†}	3 GEOG 20 ^{*†}	3
MATH 200 ^{**†}	3 STAT 100, 200, or EDPSY 101 ^{**†}	3-4
EDPSY 14 ^{**†}	3 HIST 20 ^{**†}	3
EDTHP 115 ^{**†}	3 Literature Selection ^{**†2}	3
EDUC 100 ^{*†}	1 Physical Science Selection ^{**†1}	3
Biological Science Selection ^{**†1}	3	
	16	15-16

Second Year

Fall	Credits Spring	Credits
GEOG 10 ^{**†}	3 CI 280 ^{*†}	3
Math Selection ^{*†}	3 HDFS 239 ^{**†}	3
Civics and Society Selection ^{*†3}	3 CI 295B ^{**†4}	3
Art Selection [†]	3 PLSC 1 ^{**†}	3
History and Geographical Perspective Selection ^{*†}	3 Economics Policy Selection ^{**†3}	3
	Health and Physical Activity [†]	1.5
	15	16.5

Third Year

Fall	Credits Spring	Credits
LLED 400 ^{*†5}	3 ENGL 202A or 202B ^{*†}	3
LLED 401 ^{*†5}	3 CAS 100A ^{*†}	3
LLED 402 ^{*†5}	3 SSED 412W ^{*†}	3
SPLED 400 ^{*†}	4 SPLED 403A ^{*†}	3
History and Geographical Perspective Selection ^{*†3}	3 Civics and Society Selection ^{**†3}	3
	Health and Physical Activity ^{*†}	1.5
	16	16.5

Fourth Year

Fall	Credits Spring	Credits
MTHED 420 ^{*†5}	3 CI 495D ^{**†6}	12
SCIED 458 ^{*†5}	3 CI 495F ^{**†6}	3
SSED 430W	3	
CI 495B ^{*†}	3	
CI 405 ^{*†5}	3	
	15	15

Total Credits 125-126

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

¹ Selection list of acceptable courses for Biological, Earth, and Physical Sciences here. (<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/undergraduate-teacher-education-pk-12/elementary-early-childhood-education-bs-pk-4/suggested-courses/>)

² Literature Selection list of acceptable courses available here. (<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/undergraduate-teacher-education-pk-12/elementary-early-childhood-education-bs-pk-4/suggested-courses/>)

³ Selection list of acceptable courses for Economics Policy, Civics and Society, and History and Geographical Perspective here (<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/undergraduate-teacher-education-pk-12/elementary-early-childhood-education-bs-pk-4/suggested-courses/>).

⁴ Only offered in the spring.

⁵ 4-8 only offered in the fall.

⁶ No additional coursework permitted during Student Teaching. Student teaching may be completed fall or spring semester.

Additional Notes:

- Must complete at least 3 cr. of United States (US) and 3 cr. of International Cultures (IL).
- ETM notes a course is required for entrance to major/certification program.
- All students must complete one lab course as indicated on the Natural Sciences (GN) Course Selection List.
- Summer study could reduce some of the credit loads above.
- Effective Fall 2012, all incoming Schreyer Honors College freshmen at University Park will take ENGL/CAS 137H in the fall semester and ENGL/CAS 138T in the spring semester. These courses carry GWS

designation and replace both ENGL 030 and CAS 100. Each course is 3 credits. At the discretion of the college, ENGL/CAS 138T satisfies the first-year seminar requirement.

- Academic Advising Notes: **The course series listed above is only one of many possible ways to move through this curriculum. Please be sure to also use the curriculum checksheets and degree audits, as well as consult with an adviser about appropriate scheduling sequences, clearances for field experiences and Testing requirements. Advisers also can assist students in identifying coursework offered at Penn State in the SUMMER.**

*MATH 200 and any 3 credits of GQ are accepted for ETM.

Career Paths

Most graduates of our program go on to teach in grades 4-8, either in elementary school or middle school settings. Depending upon their school or district, they may be generalists or teach in their area of specialization: mathematics, social studies, or English.

Careers

In addition to resources like the College's Advising and Certification Center and Penn State Career Services, the University hosts large education career fairs in both the fall and spring semesters, which bring recruiters to campus from throughout Pennsylvania and the United States.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE MIDDLE LEVEL EDUCATION PROGRAM (<https://studentaffairs.psu.edu/career/>)

Opportunities for Graduate Studies

Many graduates of our program pursue an M.Ed. in Curriculum & Instruction or in Special Education. Some graduates of our program pursue post-baccalaureate graduate studies while working as full-time educators.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/graduate-studies-program-curriculum-and-instruction/>)

Professional Resources

- Association for Middle Level Education (AMLE) (<https://www.amle.org>)
- Pennsylvania Association for Middle Level Education (PAMLE) (<https://www.pamle.org>)

Accreditation

This program is accredited by the Council for Accreditation of Educator Preparation (CAEP) with a Specialized Professional Association (SPA) review conducted by the American Middle Level Association (AMLE).

MORE INFORMATION ABOUT ACCREDITATION OF THE MIDDLE LEVEL EDUCATION PROGRAM (<https://caepnet.org>)

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

This program is a path to a Pennsylvania Middle Grades Teaching Certificate in all subjects for grades 4-6 and for Mathematics (grades 7-8), Social Studies (grades 7-8) or English Language Arts and Reading (grades 7-8). Certification testing via the Praxis assessment is required. Teacher candidates typically complete these assessments in their final academic year before graduation.

Contact

University Park

DEPARTMENT OF CURRICULUM AND INSTRUCTION
273B Chambers Building
University Park, PA 16802
814-865-1500
amy@psu.edu

<https://ed.psu.edu/directory/dr-amy-voss-farris> (<https://ed.psu.edu/directory/dr-amy-voss-farris/>)

Operational Excellence for Professionals, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

Operational Excellence for Professionals This certificate is designed for the adult learner who would like to gain knowledge of essential supervisory leadership concepts. These adult learners may already possess a degree in an occupational discipline, but need to augment their knowledge and resumes to advance their careers with their current employer or transition into a new job. Adult learners taking this certificate may also be taking post-secondary credit courses for the first time.

Entrance to Certificate

Admissions criteria for the certificate program follow standard University procedures for adult students.

Program Requirements

To earn an undergraduate certificate in Operational Excellence for Professionals, a minimum of 9 credits is required.

Code	Title	Credits
Required Courses		
WFED 405	Project Management for Professionals	3
WFED 410	Leadership Competencies for Professionals	3
WFED 451	Lean-Sigma for Professionals	3

Certificate Learning Objectives

- **Communicate:** Students will be able to effectively communicate instructional content or findings in formal presentations and in written works.
- **Demonstrate Competence:** Students will demonstrate competence through documentation of tasks performed and reflection on specialized accomplishments.
- **Develop Professional Competencies:** Students will develop professional competencies to work with others in related fields or disciplines.

- **Relate Common Situations:** Students will be able to relate common situations experienced by professionals and how they were or should be handled.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Mark Threeton

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Contact

University Park

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411E Keller Building
University Park, PA 16802
mdt177@psu.edu

Rehabilitation and Human Services, B.S. (Education)

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

This RHS major helps prepare students for entry-level positions in a variety of human service settings, particularly settings that provide services to persons with physical, emotional, and/or mental disabilities. Graduates pursue employment in a variety of settings including rehabilitation hospitals, drug and alcohol programs, geriatric service centers, community mental health programs, programs for people with intellectual disabilities, justice system, and schools. Increasing opportunities are available in private for-profit insurance programs for the industrially injured, and in employee assistance programs within business and industry. Well-planned use of electives and internships allows for specialization. The internship is provided under the supervision of professionals in human service agencies. These intensive "hands-on" experiences are frequently avenues for employment since the internship is completed during the senior year. Students may not go on internship until they have successfully completed all other course work.

Students are encouraged to participate in volunteer experiences that provide opportunities to work with people with disabilities. Students are encouraged to declare a minor in a related area and should be discussed with the student's adviser. The major also helps prepare students for graduate study in many human service professional disciplines such as rehabilitation counseling, school counseling, occupational therapy, physical therapy, and social work.

You Might Like This Program If...

You enjoy learning about human development, diversity, health and disability, treatment interventions, advocating and working directly with people, and solving individual problems using applied interpersonal skills.

Entrance to Major

Baccalaureate degree candidates must have a minimum 2.0 GPA to be admitted to the Rehabilitation and Human Services (RHS) major; thereafter, students must earn a C or better in all RHS required courses.

Degree Requirements

For the Bachelor of Science degree in Rehabilitation and Human Services, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	17
Requirements for the Major	70-72

12-14 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GS courses; 3-4 credits of GQ courses; 3-4 credits of GN courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
PSYCH 100	Introductory Psychology	3
PSYCH 270	Introduction to Abnormal Psychology	3
SOC 119N	Race, Ethnicity and Culture	4
<i>Prescribed Courses: Require a grade of C or better</i>		
RHS 100	Introduction to Disability Culture	3
RHS 300	Introduction to Rehabilitation and Human Services	3
RHS 301	Introduction to Counseling as a Profession	3
RHS 302	Client Assessment in Rehabilitation and Human Services	3
RHS 303	Group Work in Rehabilitation Practice and Human Services	3
RHS 400W	Case Management and Communication Skills	3
RHS 401	Community Mental Health Practice and Services	3
RHS 402	Children and Families in Rehabilitation Settings and Human Services	3
RHS 403	Medical Aspects of Disability	3

RHS 493	Professional Development and Internship Preparation in RHS	3
RHS 495A	Rehabilitation and Human Services Internship	12
Additional Courses		
CI 185 or SOC 1	Principles of Social Justice in Education Introductory Sociology	3
Select one of the following:		3
EDPSY 10	Individual Differences and Education	
HDFS 239	Adolescent Development	
PSYCH 212	Introduction to Developmental Psychology	
Select 3-4 credits from the following:		3-4
ANTH 21	Introductory Biological Anthropology	
BIOL 110	Biology: Basic Concepts and Biodiversity	
BIOL 133	Genetics and Evolution of the Human Species	
BIOL 141	Introduction to Human Physiology	
BISC 1	Structure and Function of Organisms	
BISC 2	Genetics, Ecology, and Evolution	
BISC 3	Environmental Science	
BISC 4	Human Body: Form and Function	
<i>Additional Courses: Require a grade of C or better</i>		
Select one of the following:		3-4
EDPSY 101	Analysis and Interpretation of Statistical Data in Education	
STAT 100	Statistical Concepts and Reasoning	
STAT 200	Elementary Statistics	
Supporting Courses and Related Areas		
Select 6 credits from the approved courses in this list:		6
CNED 401	Foundations of Chemical Dependency Counseling	
CNED 416	Interpersonal Relationships and Alcohol and Other Drugs (AOD) Dependency	
CNED 421	Counseling Strategies for Preventing Chemical Dependency	
CNED 422	Foundations of Addictions Counseling	
RHS 226	College Student Mental Health and Wellness	
RHS 410	Employment Strategies for People with Disabilities	
RHS 428	Rehabilitation in the Justice System	
RHS 433	Trauma-informed care for school & human service professionals	
SPLED 400	Inclusive Special Ed Foundations: Legal, Characteristics, Collaboration, Assessment, and Management	
SPLED 461	Introduction to Autism Spectrum Disorders: Issues and Concerns	

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- Students will demonstrate how to advocate for clients and their family members using an anti-oppression, anti-racism lens with an emphasis on inclusion and appreciation for diversity. Students will understand how systemic racism and other forms of systemic oppression impact some people more than others, so that more targeted advocacy will result.
- Students will demonstrate how to assess client needs.
- Students will demonstrate how to develop treatment plans.
- Students will demonstrate how to identify and use community resources.
- Students will demonstrate how to develop treatment plans.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Rehabilitation and Human Services, B.S. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H*	3 PSYCH 100**†	3
CI 185 or SOC 1†	3 Arts or Humanities	3
Quantification*	3 Natural Science	3
Arts or Humanities	3 Elective/Minor	3
Elective	3 Elective/Minor	3
EDUC 100	1 Health and Physical Activity	1.5
	16	16.5

Second Year

Fall	Credits Spring	Credits
CAS 100A	3 RHS 300* ¹	3
SOC 119N [†]	4 RHS 301* ¹	3
ANTH 21, BIOL 133, BIOL 110, BIOL 141, BISC 1, BISC 2, BISC 3, or BISC 4 [†]	3-4 Natural Science	3
PSYCH 212, HDFS 239, or EDPSY 10 [†]	3 Elective/Minor	3
RHS 100 ^{†1}	3 Arts or Humanities	3

Health and Physical Activity		1.5
16-17		16.5
Third Year		
Fall	Credits Spring	Credits
ENGL 202A or 202B	3 RHS 303*	3
EDPSY 101, STAT 100, or STAT 200†	3-4 RHS 400W*	3
RHS 302*	3 RHS 401*	3
Arts or Humanities	3 Elective/Minor	3
PSYCH 270	3 Supporting Course*	3
15-16		15
Fourth Year		
Fall	Credits Spring	Credits
RHS 402*	3 RHS 495A* ²	6-12
RHS 403*	3	
Elective/Minor	3	
Supporting Course	3	
12		6-12

Total Credits 113-121

- * Course requires a grade of C or better for the major
 ‡ Course requires a grade of C or better for General Education
 # Course is an Entrance to Major requirement
 † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

- ¹ Students at campuses other than UP should schedule General Education or elective courses in place of RHS 100, 300 & 301, which may be scheduled with the other RHS courses at UP.
² No Additional coursework permitted during Internship.

Additional Notes:

- GWS, GHW, GQ, GN, GA, GH, and GS are codes used to identify General Education requirements.

- Must complete at least 3 cr. of United States (US) and 3 cr. of International Cultures (IL).
- Summer study could reduce some of the credit loads above.
- Effective Fall 2012, all incoming Schreyer Honors College freshmen at University Park will take ENGL/CAS 137H in the fall semester and ENGL/CAS 138T in the spring semester. These courses carry GWS designation and replace both ENGL 30H and CAS 100. Each course is 3 credits. At the discretion of the college, ENGL/CAS 138T satisfies the first-year seminar requirement.
- Academic Advising Notes: **The course series listed above is only one of many possible ways to move through this curriculum. Please be sure to also use the curriculum checksheets and degree audits, as well as consult with an adviser about appropriate scheduling sequences, clearances for field experiences and Testing requirements. Advisers also can assist students in identifying coursework offered at Penn State in the SUMMER.**

Career Paths

The RHS major provides excellent preparation specifically for graduate programs leading to professions such as occupational therapy, counseling, social work, and physical therapy. Advising of courses outside the major for electives are provided in order to enhance competitiveness of graduate school applications.

MORE INFORMATION ABOUT RHS SPECIAL INTEREST AREAS (<https://ed.psu.edu/rehabilitation-human-services-bs/>)

Careers

RHS allows students to pursue a variety of employment options as case workers and direct service providers in alcohol and other drug treatment centers, correctional facilities, mental health agencies, private non-profit rehabilitation centers, private-for-profit rehabilitation agencies, human resources, programs for children and youth, programs for older adults, public welfare agencies, rehabilitation hospitals, schools, social service agencies, and vocational rehabilitation programs.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE REHABILITATION AND HUMAN SERVICES PROGRAM (<https://ed.psu.edu/rehabilitation-human-services-bs/>)

Opportunities for Graduate Studies

To prepare students for graduate studies, students can work with faculty on independent studies and can petition to take graduate courses within the department. For qualified students, we also offer the Schreyer Honors Program (<https://www.shc.psu.edu/>).

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://ed.psu.edu/rehabilitation-human-services-bs/>)

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Rehabilitation and Human Services, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The minor in Rehabilitation and Human Services supplements the educational needs of students across disciplines who wish to gain advanced knowledge and skills related to health, disability, and interpersonal interactions. In today's society, due to medical advances and an aging population, more people are living longer with chronic illnesses and disabilities and many jobs require advanced interpersonal skills and knowledge of health, disability, and human service skills. The minor in RHS is responding to this growing need by providing students with specific applied knowledge about living and working with a disability or chronic illness, as well as adjusting to a variety of social needs and

problems, such as poverty, addiction, family violence, and homelessness. The minor is appropriate for any student interested in learning how to effectively work with people, particularly as they adapt and adjust to life with a disability. The minor enhances the education of students majoring in social and behavioral sciences, as well as business majors who work in settings that hire and maintain work environments for persons with chronic illnesses and disabilities. The minor will also enhance graduate study preparation for many students interested in working with people in applied settings. For the minor in Rehabilitation and Humans Services, a minimum of 18 credits is required, 12 in RHS, including 6 of which must be at the 400 level.

You Might Like This Program If...

- You enjoy working closely with people.
- You are interested in health, disability, and wellness.
- You are interested in facilitating life goals, such as employment, health, and relationships for people with disabilities.
- You are interested in enhancing daily living for people with a range of disabilities.
- You appreciate diverse human conditions and respect all lives.
- You enjoy advocating for people with disabilities in a range of settings, including employment and community settings.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

12 credits in Rehabilitation and Human Services, including 6 which must be at the 400 level.

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
RHS 100	Introduction to Disability Culture	3
RHS 301	Introduction to Counseling as a Profession	3
RHS 403	Medical Aspects of Disability	3
RHS 410	Employment Strategies for People with Disabilities	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 6 credits of the following:		6
Biobehavioral Health (BBH)		
Communication Sciences and Disorders (CSD)		
Criminal Justice (CRIMJ)		
Disability Studies (DBLTY)		
Education Theory and Policy (EDTHP)		
Global and International Studies (GLIS)		
Health Policy and Administration (HPA)		
Human Development and Family Studies (HDFS)		
Kinesiology (KINES)		

Labor and Employment Relations (LER)

Nursing (NURS)

Psychology (PSYCH)

Sociology (SOC)

Special Education (SPLED)

Workforce Education and Development (WFED)

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Career Paths

The minor in RHS enhances the education of students majoring in social and behavioral sciences, as well as business majors who work in settings that hire and maintain work environments for persons with chronic illnesses and disabilities. We also welcome students who wish to design assistive technology for people living with disabilities. The minor will enhance graduate study preparation for many students interested in working with people in applied settings.

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Secondary Education, B.S. (Education)

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The following teaching options are available for majors in Secondary Education: Biological Science, Chemistry, Earth and Space Science, English, Environmental Education, General Science, Mathematics, Physics, and Social Studies/Citizenship Education.

The Secondary Education major helps prepare students for middle school and/or high school teaching positions and for other employment in fields related to their content specialties.

Biological Science Teaching Option

Available at the following campuses: University Park

This option enables the graduate to meet all of the academic requirements for the Instructional I certificate for teaching at the secondary-school level, which is issued by the Pennsylvania Department of Education.

Chemistry Teaching Option

Available at the following campuses: University Park

This option enables the graduate to meet all of the academic requirements for the Instructional I certificate for teaching at the secondary-school level, which is issued by the Pennsylvania Department of Education.

Earth and Space Science Teaching Option

Available at the following campuses: University Park

This option enables the graduate to meet all of the academic requirements for the Instructional I certificate for teaching at the secondary-school level, which is issued by the Pennsylvania Department of Education.

English Teaching Option

Available at the following campuses: University Park

This option enables the graduate to meet all of the academic requirements for the Instructional I certificate for teaching at the secondary-school level, which is issued by the Pennsylvania Department of Education. A comparable program is also open to student outside the College of Education who desire certification.

Environmental Education Teaching Option

Available at the following campuses: University Park

This option enables the graduate to meet all of the academic requirements for a Pennsylvania teacher certification in Environmental Education when completed in conjunction with another secondary education teaching option (i.e., Biological Science Teaching option). The total number of credits required will depend primarily on that other option.

General Science Teaching Option

Available at the following campuses: University Park

This option enables the graduate to meet all of the academic requirements for the Instructional I certificate for teaching General Science at the secondary-school level, which is issued by the Pennsylvania Department of Education. This option may only be completed in conjunction with another secondary education option (e.g., Biology); the total number of credits required will depend primarily on that other option.

Mathematics Teaching Option

Available at the following campuses: Erie, University Park

This option enables the graduate to meet all of the academic requirements for the Instructional I certificate for teaching at the secondary-school level, which is issued by the Pennsylvania Department of Education.

Physics Teaching Option

Available at the following campuses: University Park

This option enables the graduate to meet all of the academic requirements for the Instructional I certificate for teaching at the secondary-school level, which is issued by the Pennsylvania Department of Education.

Social Studies Teaching Option

Available at the following campuses: University Park

This option enables the graduate to meet all of the academic requirements for the Instructional I certificate for teaching social studies at the secondary-school level, which is issued by the Pennsylvania Department of Education.

What is Secondary Education?

The Secondary Education (SECED) major prepares graduates to teach at the middle school or high school level (grades 7-12) in English, Mathematics, Social Studies (which includes history, geography, government, and the social sciences), or a science subject (Biology, Chemistry, Earth & Space Science, or Physics). The program combines on-campus course work with clinical experiences in schools; graduates are eligible to apply for teacher licensure through the Pennsylvania Department of Education.

You Might Like This Program If...

- You are committed to public service and working with young people, and you appreciate that effective teaching demands both mastery of subject matter knowledge and understanding learners and communities.
- In your subject-matter studies, you tend to find yourself asking: How do we know that? Is there a better way to describe it? What are we overlooking? How could I help others understand this too?

MORE INFORMATION ABOUT SECONDARY EDUCATION (<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/undergraduate-teacher-education-pk-12/secondary-education-7-12/>)

Entrance to Major

Baccalaureate degree candidates must meet the following requirements 1-3 by the end of their third semester:

1. A minimum cumulative grade point average of 3.00
2. Documentation of at least 80 hours of volunteer or paid education work experience with learners of the age group the candidate plans to teach. Candidates for Secondary Education must document 40 of these hours with learners who come from backgrounds that are different from the candidate's.

Requirements 4-9 must be met by the end of the fourth semester when students typically participate in the Entrance-to-Major process.

4. A grade of "C" or better in all specified courses.
5. Completion of an early field experience specified by the certification program.
6. Completion of a core of Education courses specified by the certification program.
7. Completion of additional credits as specified by the certification program.
8. Completion of at least 48 semester credit hours, including ENGL 15 or ENGL 30H, three credits of literature, and six credits of quantification
9. Approval from the professional education adviser or the head of the pertinent certification program.

Degree Requirements

For the B.S. degree in Secondary Education with an option in Biological Science Teaching, a minimum of 126 credits is required; with an option in Chemistry Teaching, a minimum of 126 credits is required; with an option in Earth and Space Science Teaching, a minimum of 123 credits is required; with an option in English Teaching, a minimum of 126 credits is required; with an option in Environmental Education Teaching and a cohort option, a minimum of 123 credits is required; with an option in General Science Teaching and a cohort option, a minimum of 121 credits is required; with an option in Mathematics Teaching, a minimum of 132 credits is required; with an option in Physics Teaching, a minimum of 121 credits is required; with an option in Social Studies Teaching, a minimum of 129-132 credits is required. (See also Teacher Education Programs (<https://ed.psu.edu/academics/teacher-testing-certification/>)):

Requirement	Credits
General Education	45
Electives	0-20
Requirements for the Major	83-111

12-27 of the 45 credits for General Education are included in the Requirements for the Major. This includes: Biological Science Teaching option, Chemistry Teaching option, Earth and Space Science Teaching option, Environmental Education Teaching option, General Science Teaching option, and Physics Teaching option--6 credits of GH courses; 9 credits of GN courses, 6 credits of GS courses; 6 credits of GQ courses. English Teaching option--0-6 credits of GA courses; 6 credits of GH courses; 6 credits of GS courses, 0-3 credits of GWS. Mathematics Teaching option--6 credits of GH courses; 6 credits of GS courses; 6 credits of GQ courses. Social Studies Teaching option--6 credits of GH courses; 3 credits of GN courses; 6 credits of GS courses. Six of these credits for any option may also satisfy the Integrative Studies requirement.

Requirements for the Major

A grade of C or better per course is required for teacher certification.

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better for teacher certification</i>		
CI 280	Introduction to Teaching English Language Learners	3
CI 295	Introductory Field Experience for Teacher Preparation	2
CI 495C	Clinical Application of Instruction – Secondary Education	3
CI 495E	Practicum in Student Teaching–Secondary Education	15
EDPSY 14	Learning and Instruction	3
PSYCH 100	Introductory Psychology	3
SPLD 400	Inclusive Special Ed Foundations: Legal, Characteristics, Collaboration, Assessment, and Management	4
SPLD 403B	Evidence-Based Methods for Teaching Secondary Students with Disabilities in Inclusive Settings	3

Additional Courses

Additional Courses: Require a grade of C or better for teacher certification

PSYCH 412	Adolescence	3
or HDFS 239	Adolescent Development	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better for teacher certification

Select 3 credits of GH courses from Literature Selection	3
Select 3 credits of the following:	3
EDTHP 115	Education in American Society
EDTHP 115A	Competing Rights: Issues in American Education
3 credits at the 400 level of any EDTHP course	

Requirements for the Option

Requirements for the Option: Require a grade of C or better for teacher certification

Select an option	38-66
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Requirements for the Option

Biological Science Teaching Option (63-66 credits)

Available at the following campuses: University Park

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better for teacher certification</i>		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
BIOL 220W	Biology: Populations and Communities	4
BIOL 240W	Biology: Function and Development of Organisms	4
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
CHEM 113	Experimental Chemistry II	1
MATH 140	Calculus With Analytic Geometry I	4
SCIED 411W	Teaching Secondary Science I	3
SCIED 412	Teaching Secondary Science II	3

Additional Courses

Additional Courses: Require a grade of C or better for teacher certification

BMB 251 & BMB 252	Molecular and Cell Biology I and Molecular and Cell Biology II	4-6
or BIOL 230W	Biology: Molecules and Cells	
MATH 141	or 4 credits of 200-level STAT GQ courses	4
Select one of the following:	3-4	
ANTH 21	Introductory Biological Anthropology	
ANTH 460	Human Genetics	
BIOL 427	Evolution	
GEOSC 204	Geobiology	
GEOSC 424	Paleontology and Fossils	
Select one of the following:	8	
PHYS 211 & PHYS 212	General Physics: Mechanics and General Physics: Electricity and Magnetism	
PHYS 250 & PHYS 251	Introductory Physics I and Introductory Physics II	
Select 6 credits of the following:	6	
BMB 211	Elementary Biochemistry	

BMB 212	Elementary Biochemistry Laboratory
BMB 401	General Biochemistry
BMB 402	General Biochemistry
CHEM 202	Fundamentals of Organic Chemistry I
CHEM 203	Fundamentals of Organic Chemistry II
CHEM 210	Organic Chemistry I
CHEM 212	Organic Chemistry II
CHEM 213	Laboratory in Organic Chemistry

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better for teacher certification

Select 8 credits of 300-level or 400-level BIOL or biological fields 8

Note 1: Students may complete multiple science teaching options concurrently by completing all of each option's requirements. The six science teaching options are: Biology, Chemistry, Earth and Space Science, Environmental Education, General Science, and Physics.

Note 2: Red Cross certification in First Aid and CPR (or their equivalent) must be earned for science certification.

Chemistry Teaching Option (55-60 credits)

Available at the following campuses: University Park

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better for teacher certification</i>		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
CHEM 113	Experimental Chemistry II	1
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
PHYS 211	General Physics: Mechanics	4
PHYS 212	General Physics: Electricity and Magnetism	4
SCIED 411W	Teaching Secondary Science I	3
SCIED 412	Teaching Secondary Science II	3

Additional Courses

Additional Courses: Require a grade of C or better for teacher certification

Select one of the following: 6-8

CHEM 202 & CHEM 203	Fundamentals of Organic Chemistry I and Fundamentals of Organic Chemistry II	
CHEM 210 & CHEM 212 & CHEM 213	Organic Chemistry I and Organic Chemistry II and Laboratory in Organic Chemistry	

Select 9 credits from 400 level CHEM or related field 9

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better for teacher certification

Select 6-9 credits in CHEM or chemistry-related fields at the 200 level or higher (e.g., BMB 211 and BMB 212, BMB 251, BMB 252, MICRB 251, FDSC 400, ANSC 301, NUTR 251, CHEM, CHE) 6-9

Note 1: Students may complete multiple science teaching options concurrently by completing all of each option's requirements. The six science teaching options are: Biology, Chemistry, Earth and Space Science, Environmental Education, General Science, and Physics.

Note 2: Red Cross certification in First Aid and CPR (or their equivalent) must be earned for science certification.

Earth and Space Science Teaching Option (60-63 credits)

Available at the following campuses: University Park

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better for teacher certification</i>		
ASTRO 10	Elementary Astronomy	2
ASTRO 11	Elementary Astronomy Laboratory	1
BIOL 110	Biology: Basic Concepts and Biodiversity	4
BIOL 220W	Biology: Populations and Communities	4
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
EARTH 100	Environment Earth	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
SCIED 411W	Teaching Secondary Science I	3
SCIED 412	Teaching Secondary Science II	3

Additional Courses

Additional Courses: Require a grade of C or better for teacher certification

GEOSC 1	Physical Geology	3
or GEOSC 20	Planet Earth	
GEOSC 21	Earth and Life: Origin and Evolution	3-4
or GEOSC 204	Geobiology	

Select one of the following: 8

PHYS 211 & PHYS 212	General Physics: Mechanics and General Physics: Electricity and Magnetism	
PHYS 250 & PHYS 251	Introductory Physics I and Introductory Physics II	

Select 3-4 credits from the following: 3-4

METEO 3	Weather Revealed: Introductory Meteorology	
METEO 201	Introduction to Weather Analysis	
METEO 300	Fundamentals of Atmospheric Science	

Select 3-4 credits from the following: 3-4

BIOL 435	Ecology of Lakes and Streams	
BIOL 482	Coastal Biology	
GEOSC 40	The Sea Around Us	
GEOSC 440	Marine Geology	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better for teacher certification

Select 8 credits of 200-400 level from EARTH, GEOSC, METEO, ASTRO, other earth science field, or BIOL 427 8

Note 1: Students may complete multiple science teaching options concurrently by completing all of each option's requirements. The six

science teaching options are: Biology, Chemistry, Earth and Space Science, Environmental Education, General Science, and Physics.

Note 2: Red Cross certification in First Aid and CPR (or their equivalent) must be earned for science certification.

English Teaching Option (40-42 credits)

Available at the following campuses: University Park

Note: Must complete at least 3 credits of IL and 3 credits of US Cultures selections.

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better for teacher certification</i>		
CI 492	Identities, Power and Perceptual Pedagogies in Teaching and Learning	3
LLED 411	Teaching Language Arts In Secondary Schools I	3
LLED 412W	Teaching Language Arts in Secondary Schools II	3
LLED 420	Teaching Adolescent Literature and Literacy	3
LLED 421	Teaching Writing in Secondary Schools	3
LLED 422	Teaching the Young Adult Literature Workshop	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better for teacher certification</i>		
Select 1-3 credits of Grammar from the following:		1-3
APLNG 484	Discourse-Functional Grammar	
COMM 160	Basic News Writing Skills	
Select 3 credits of Speech and Oral Performance from the following:		3
CAS 100	Effective Speech	
CAS 280W	Storytelling and Speaking	
THEA 102	Fundamentals of Acting	
Select 3 credits of Shakespeare from the following:		3
ENGL 129	Shakespeare	
ENGL 405	Taking Shakespeare From Page to Stage	
ENGL 440	Studies in Shakespeare	
ENGL 444	Shakespeare	
Select 6 credits of British and American Literature from the following:		6
ENGL 221	British Literature to 1798	
ENGL 222	British Literature from 1798	
ENGL 231	American Literature to 1865	
ENGL 232	American Literature from 1865	
Select 3 credits of Multicultural Literature in English from the following:		3
CMLIT/LTNST 403	Latina/o Literature and Culture	
ENGL/AMST 135	Alternative Voices in American Literature	
ENGL/AFAM 139	African American Literature	
ENGL/WMNST 194	Women Writers	
ENGL/AAS 428	Asian American Literatures	
ENGL 431/AMST 475	Black American Writers	

ENGL/WMNST 462	Reading Black, Reading Feminist	
ENGL/AFAM 466	African American Novel I	
ENGL/AFAM 467	African American Novel II	
ENGL/AFAM 468	African American Poetry	
ENGL/WMNST 490	Women Writers and Their Worlds	
ENGL 492/AMST 476/WMNST 491	American Women Writers	
Select 3 credits of Nonprint Literature from the following:		3
AFAM/ENGL 235	From Folk Shouts and Songs to Hip Hop Poetry	
CMLIT 415	World Graphic Novels	
COMM 150N	The Art of the Cinema	
COMM 250	Film History and Theory	
COMM 411	Cultural Aspects of the Mass Media	
ENGL 136	The Graphic Novel	
THEA 100	The Art of the Theatre	
THEA 105	Introduction to Theatre	
Select 3 credits of Writing from the following:		3
ENGL 50	Introduction to Creative Writing	
ENGL 212	Introduction to Fiction Writing	
ENGL 213	Introduction to Poetry Writing	
ENGL 214	Introduction to Creative Nonfiction Writing	
ENGL 215	Introduction to General Nonfiction Writing	

Environmental Education Teaching Option (55-58 credits)

Available at the following campuses: University Park

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better for teacher certification</i>		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
BIOL 220W	Biology: Populations and Communities	4
CHEM 101	Introductory Chemistry	3
MATH 140	Calculus With Analytic Geometry I	4
SCIED 411W	Teaching Secondary Science I	3
SCIED 412	Teaching Secondary Science II	3
SCIED 457		3
Additional Courses		
<i>Additional Courses: Require a grade of C or better for teacher certification</i>		
Select one of the following:		4
CHEM 20 & CHEM 21	Environmental Chemistry and Environmental Chemistry Laboratory	
CHEM 110 & CHEM 111	Chemical Principles I and Experimental Chemistry I	
Select one of the following:		3-4
BIOL 240W	Biology: Function and Development of Organisms	
WFS 407	Ornithology	

WFS 408 Mammalogy

Supporting Courses and Related Areas*Supporting Courses and Related Areas: Require a grade of C or better for teacher certification*

Select two courses (6-8 credits) in environmental law, economics, management and policy (e.g., ECON 428, ERM 411, ERM 412, ERM 413W, WFS 410, WFS 447W, WFS 463W) 6-8

Select 4 credits of an environmentally related course in Science Technology and Society (e.g., STS 100, STS 460) 4

Select at least 14 credits from the cohort Teaching option ¹ 14¹ This option may only be completed in conjunction with another secondary teaching option, such as the Biological Science Teaching option.*Note 1:* Students may complete multiple science teaching options concurrently by completing all of each option's requirements. The six science teaching options are: Biology, Chemistry, Earth and Space Science, Environmental Education, General Science, and Physics.*Note 2:* Red Cross certification in First Aid and CPR (or their equivalent) must be earned for science certification.**General Science Teaching Option (38 credits)***Available at the following campuses: University Park*

Code	Title	Credits
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Prescribed Courses*Prescribed Courses: Require a grade of C or better for teacher certification*

BIOL 110	Biology: Basic Concepts and Biodiversity	4
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
CHEM 113	Experimental Chemistry II	1
MATH 140	Calculus With Analytic Geometry I	4
SCIED 411W	Teaching Secondary Science I	3
SCIED 412	Teaching Secondary Science II	3

Additional Courses*Additional Courses: Require a grade of C or better for teacher certification*

MATH 141 or 4 credits of 200-level STAT GQ courses 4

Select one of the following: 4

BIOL 220W Biology: Populations and Communities

BIOL 230W Biology: Molecules and Cells

BIOL 240W Biology: Function and Development of Organisms

Select one of the following: 8

PHYS 211 & PHYS 212 General Physics: Mechanics and General Physics: Electricity and Magnetism

PHYS 250 & PHYS 251 Introductory Physics I and Introductory Physics II

Note 1: This option may only be completed in conjunction with another secondary teaching option, such as Biology.*Note 2:* Students may complete multiple science teaching options concurrently by completing all of each option's requirements. The six science teaching options are: Biology, Chemistry, Earth and Space

Science, Environmental Education, General Science, and Physics. options are: Biology, Chemistry, Earth and Space Science, Environmental Education, General Science, and Physics.

Note 3: Red Cross certification in First Aid and CPR (or their equivalent) must be earned for science certification.**Mathematics Teaching Option (57-59 credits)***Available at the following campuses: Erie, University Park*

Code	Title	Credits
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Prescribed Courses*Prescribed Courses: Require a grade of C or better for teacher certification*

MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
MATH 220	Matrices	2-3
MATH 310	Elementary Combinatorics	3
MATH 311W	Concepts of Discrete Mathematics	3-4
MATH 312	Concepts of Real Analysis	3
MATH 414	Introduction to Probability Theory	3
MATH 471	Geometry for Teachers	4
MTHED 411	Teaching Secondary Mathematics I	3
MTHED 412W	Teaching Secondary Mathematics II	3
MTHED 427	Teaching Mathematics in Technology-Intensive Environments	3

Additional Courses*Additional Courses: Require a grade of C or better for teacher certification*CMPSC 101 Introduction to Programming 3
or CMPSC 121 Introduction to Programming TechniquesMATH 231 Calculus of Several Variables and Integral Vector Calculus 4
& MATH 232
or MATH 230 Calculus and Vector AnalysisMATH 435 Basic Abstract Algebra 3
or MATH 470 Algebra for TeachersMATH 436 Linear Algebra 3
or MATH 441 Matrix Algebra

Select one of the following: 3

MATH 415 Introduction to Mathematical Statistics

STAT 401 Experimental Methods

3 credits of MTHED from program list

Supporting Courses and Related Areas*Supporting Courses and Related Areas: Require a grade of C or better*

Select 6 credits from 400-level MATH or MTHED courses 6

Physics Teaching Option (55-62 credits)*Available at the following campuses: University Park*

Code	Title	Credits
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Prescribed Courses*Prescribed Courses: Require a grade of C or better for teacher certification*

BIOL 110	Biology: Basic Concepts and Biodiversity	4
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1

CHEM 112	Chemical Principles II	3
CHEM 113	Experimental Chemistry II	1
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
MATH 220	Matrices	2-3
PHYS 211	General Physics: Mechanics	4
PHYS 212	General Physics: Electricity and Magnetism	4
PHYS 213	General Physics: Fluids and Thermal Physics	2
PHYS 214	General Physics: Wave Motion and Quantum Physics	2
PHYS 237	Introduction to Modern Physics	3
PHYS 400	Intermediate Electricity and Magnetism	3
PHYS 419	Theoretical Mechanics	3
SCIED 411W	Teaching Secondary Science I	3
SCIED 412	Teaching Secondary Science II	3

Additional Courses

Additional Courses: Require a grade of C or better for teacher certification

MATH 230	Calculus and Vector Analysis	2-4
or MATH 231	Calculus of Several Variables	
MATH 250	Ordinary Differential Equations	3-4
or MATH 251	Ordinary and Partial Differential Equations	
Select one of the following:		1-4
PHYS 402	Electronics for Scientists	
PHYS 457		
PHYS 458	Intermediate Optics	

Note 1: Students may complete multiple science teaching options concurrently by completing all of each option's requirements. The six science teaching options are: Biology, Chemistry, Earth and Space Science, Environmental Education, General Science, and Physics.

Note 2: Red Cross certification in First Aid and CPR (or their equivalent) must be earned for science certification.

Social Studies Teaching Option (57 credits)

Available at the following campuses: University Park

A grade of C or better per course is required for teacher certification.

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better for teacher certification</i>		
ECON 104	Introductory Macroeconomic Analysis and Policy	3
GEOG 30N	Environment and Society in a Changing World	3
HIST 20	American Civilization to 1877	3
HIST 21	American Civilization Since 1877	3
PLSC 1	American Politics: Principles, Processes and Powers	3
SSED 411	Teaching Secondary Social Studies I	3
SSED 412W	Teaching Secondary Social Studies II	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better for teacher certification</i>		
HIST 1	Western Civilization I	3

or HIST 10	World History to 1500	
HIST 2	Western Civilization II	3
or HIST 11	World History since 1500	

Select 9 credits of the following: 9

ANTH 45N	Cultural Diversity: A Global Perspective	
ECON 102	Introductory Microeconomic Analysis and Policy	
GEOG 6N	Maps and the Geospatial Revolution	
PLSC 3	Comparing Politics around the Globe	
PLSC 14	International Relations	
SOC 1	Introductory Sociology	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better for teacher certification

Select 6 credits of 400-level History 6

Select one concentration: 15

Citizenship Education

Select 6 credits of History at the 100-level or above

Select 3 credits of the following:

ANTH 45N	Cultural Diversity: A Global Perspective	
SOC 1	Introductory Sociology	

Select 3 credits of the following:

ECON 102	Introductory Microeconomic Analysis and Policy	
PLSC 3	Comparing Politics around the Globe	
PLSC 14	International Relations	

Select 3 credits of the following:

GEOG 6N	Maps and the Geospatial Revolution	
GEOG 10	Physical Geography: An Introduction	
GEOG 20	Human Geography: An Introduction	

Civics and Government

PLSC 3 Comparing Politics around the Globe

PLSC 14 International Relations

Select 3 credits of the following:

PLSC 7N	Contemporary Political Ideologies	
PLSC 10	Scientific Study of Politics	
PLSC 17N	Introduction to Political Theory	

Select 6 credits of 400-level Political Science

Classics and Ancient Studies

Select 3 credits from the following:

CAMS 1	Greek and Roman Literature	
CAMS 4	Jewish and Christian Foundations	
CAMS 5	Ancient Mediterranean Civilizations	

Select 3 credits of 100-level Classics and Ancient Mediterranean Studies

Select 3 credits of Classics and Ancient Mediterranean Studies below the 400 level

Select 6 credits of 400-level Classics and Ancient Mediterranean Studies

Economics

ECON 102	Introductory Microeconomic Analysis and Policy	
ECON 302	Intermediate Microeconomic Analysis	
ECON 304	Intermediate Macroeconomic Analysis	

Select 6 credits of 400-level Economics

Geography

Select 9 credits of Geography below the 400 level

Select 6 credits of 400-level Geography

Holocaust and Genocide Studies

HIST/JST 121 History of the Holocaust 1933-1945

Select 6 credits from the following:

CMLIT/ENGL/ The Holocaust in Film and Literature

JST 128N

HIST/JST History of Fascism and Nazism

143N

HIST/JST 195 Genocide in Global perspectives: Twentieth Century and beyond

Select 6 credits from the following:

HIST/JST 426 Holocaust

HIST/JST/ Women and the Holocaust

WMNST 439

JST/PLSC Genocide and Tyranny

450H

ASIA/HIST Hiroshima & the Holocaust in History and Memory

457/JST 474

JST/PHIL/ Ethics After the Holocaust

RLST 478

Social Sciences

Select 9 credits of Anthropology, Psychology, and/or Sociology below the 400 level

Select 6 credits of 400-level Anthropology, Psychology, and/or Sociology

Note 1: Courses taken to meet Additional Courses and other Supporting Courses and Related Areas requirements cannot also be applied to the concentration. Different courses need to be selected for the concentration and Additional Courses and other Supporting Courses and Related Areas requirements.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits

- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of

both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

College of Education

Advising and Certification Center

228 Chambers Building
University Park, PA 16802
814-865-0488
ed@admissions.psu.edu

Erie

Pat Kelly

Lecturer in Math Education
16 Prischak
Erie, PA 16563
814-898-6308
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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Biology Teaching Option: Secondary Education, B.S. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 ^{*†#}	3 CHEM 110 ^{*##†}	3
MATH 140 or 140B ^{*†#}	4 CHEM 111 ^{*##†}	1
BIOL 110 ^{*##†}	4 MATH 141, 141B, or STAT 200 ^{*†}	4
PSYCH 100 ^{*##†}	3 EDPSY 14 ^{*#}	3
EDUC 100	1 Health and Wellness [*]	1.5
EDTHP 115 (or 400-level EDTHP) [*]	3 BIOL 220W ^{*#}	4
	18	16.5

Second Year

Fall	Credits Spring	Credits
BIOL 230W or BMB 251 <i>and</i> BMB 252 [*]	4 CI 280 ^{*†}	3
CAS 100A [‡]	3 HDFS 239 or PSYCH 412 ^{*†}	3
CHEM 112 ^{*##†}	3 BIOL 240W [*]	4
CHEM 113 ^{*#}	1 PHYS 250 or 211 ^{*#}	4
Literature Selection ^{*##†1}	3 Health and Wellness [*]	1.5
CI 295 ^{*#}	2	
	16	15.5

Third Year

Fall	Credits Spring	Credits
SPLD 400 [*]	4 SCIED 411W [*]	3
PHYS 251 or 212 [*]	4 BIOL 300-400 Level Selection [*]	3
ENGL 202A or 202B [*]	3 SPLD 403B [*]	3
BIOL 427, ANTH 21, ANTH 460, GEOSC 204, or GEOSC 424 [*]	3-4 BMB 211/212, 401, 402, CHEM 202, CHEM 203, CHEM 210, CHEM 212, or CHEM 213 ^{*2}	3
BMB 211/212, 401, 402, CHEM 202, CHEM 203, CHEM 210, CHEM 212, or CHEM 213 ^{*2}	3	
	17-18	12

Fourth Year

Fall	Credits Spring	Credits
SCIED 412 [*]	3 CI 495E ^{*3}	15
CI 495C [*]	3	
Arts Selection	3	
GH, GA, GS, GHW, or Interdomain [*]	3	
BIOL 300-400 Level Selection [*]	3	
	15	15

Total Credits 125-126

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ Literature Selection list of acceptable courses available here (<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/undergraduate-teacher-education-pk-12/elementary-early-childhood-education-bs-pk-4/suggested-courses/>).

² BMB 211 is related to and a prerequisite for the companion laboratory course BMB 212 (1 credit).

³ No Additional coursework permitted during Student Teaching.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Additional Notes:

- Must complete at least 3 cr. of United States (US) and 3 cr. of International Cultures (IL).
- W is the code used to designate courses that satisfy University Writing Across the Curriculum requirement.
- First Aid and CPR certification required. (on-line courses not acceptable)
- Summer study could reduce some of the credit loads above.
- Effective Fall 2012, all incoming Schreyer Honors College freshmen at University Park will take ENGL/CAS 137H in the fall semester and ENGL/CAS 138T in the spring semester. These courses carry GWS designation and replace both ENGL 030 and CAS 100. Each course is 3 credits. At the discretion of the college, ENGL/CAS 138T satisfies the first-year seminar requirement.
- Academic Advising Notes: The course series listed above is only one of many possible ways to move through this curriculum. Please be sure to also use the curriculum checksheets and degree audits, as well as consult with an adviser about appropriate scheduling sequences, clearances for field experiences and testing requirements. *Advisers also can assist students in identifying coursework offered at Penn State in the SUMMER.*

Chemistry Teaching Option: Secondary Education, B.S. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 ^{‡#}	3 CHEM 112 ^{*#†}	3
MATH 140 ^{*#†}	4 CHEM 113 ^{*#†}	1
CHEM 110 & CHEM 111 ^{*#†}	4 MATH 141 ^{*#†}	4
EDUC 100	1 EDPSY 14 ^{*#}	3
EDTHP 115 (or 400-level EDTHP)	3 Literature Selection ^{*#††}	3
	15	14

Second Year

Fall	Credits Spring	Credits
BIOL 110 ^{*#†}	4 CI 280 [*]	3
PHYS 211 ^{*#†}	4 PHYS 212 ^{*#†}	4
CI 295 ^{*#}	2 CHEM 212 and CHEM 213 or or CHEM 202 and CHEM 203 ^{*#}	5
CHEM 210 ^{*#}	3 Related 200 Level Selection [*]	3
PSYCH 100 ^{*#†}	3 Art Selection [*]	3
	16	18

Third Year

Fall	Credits Spring	Credits
SPLLED 400 [*]	4 SCIED 411W [*]	3
ENGL 202A or 202B	3 HDFS 239 or PSYCH 412 ^{*†}	3
Related 200-level Selection [*]	3 CHEM 400 Level Selection ^{*2}	3
Related 200-level Selection [*]	3 SPLLED 403B [*]	3
CAS 100A [‡]	3	
	16	12

Fourth Year

Fall	Credits Spring	Credits
SCIED 412 [*]	3 CI 495E ^{*3}	15
CI 495C [*]	3	
CHEM 400 Level Selection ^{*2}	3	
GA, GH, GS, or GHW Interdomain [*]	3	
Health and Wellness (GHW) [*]	1.5	
	13.5	15

Total Credits 119.5

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

- ¹ Literature Selection list of acceptable courses available here (<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/undergraduate-teacher-education-pk-12/elementary-early-childhood-education-bs-pk-4/suggested-courses/>).
- ² CHEM 402, CHEM 406, CHEM 408, CHEM 410, CHEM 412, CHEM 423W, CHEM 425W, or CHE 301 or CHE 435.
- ³ No Additional coursework permitted during Student Teaching.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Additional Notes:

- Must complete at least 3 cr. of United States (US) and 3 cr. of International Cultures (IL).
- W is the code used to designate courses that satisfy University Writing Across the Curriculum requirement.
- First Aid and CPR certification required. (on-line courses not acceptable)
- Summer study could reduce some of the credit loads above.
- Effective Fall 2012, all incoming Schreyer Honors College freshmen at University Park will take ENGL/CAS 137H in the fall semester and ENGL/CAS 138T in the spring semester. These courses carry GWS designation and replace both ENGL 030 and CAS 100. Each course is 3 credits. At the discretion of the college, ENGL/CAS 138T satisfies the first-year seminar requirement.
- Academic Advising Notes: The course series listed above is only one of many possible ways to move through this curriculum. Please be sure to also use the curriculum checksheets and degree audits, as well as consult with an adviser about appropriate scheduling sequences, clearances for field experiences and testing requirements. *Advisers also can assist students in identifying coursework offered at Penn State in the SUMMER.* earth and space teaching option at University Park Campus and commonwealth campuses.

Earth and Space Teaching Option: Secondary Education, B.S. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 ^{‡#}	3 BIOL 220W ^{*#}	4
MATH 140 or 140B ^{‡##†}	4 CHEM 111 ^{*#†}	1
BIOL 110 ^{*#†}	4 MATH 141, 141B, or STAT 200 [*]	4
PSYCH 100 ^{*#†}	3 EDPSY 14 ^{*#}	3
EDUC 100	1 Health and Wellness	1.5
EDTHP 115 (or 400-level EDTHP) [*]	3 EARTH 100 [*]	3
	18	16.5

Second Year

Fall	Credits Spring	Credits
GEOSC 1 or 20 [*]	3 CI 280 [*]	3
CAS 100A [‡]	3 PHYS 250 or 211 ^{*#†}	4
CI 295 ^{*#}	2 Interdomain General Education [*]	3
CHEM 110 ^{*#†}	3 Health and Wellness [*]	1.5
Literature Selection ^{*#†1}	3 METEO 3, 201, or 300 ^{*†}	3-4
	14	14.5-15.5

Third Year

Fall	Credits Spring	Credits
PHYS 251 or 212 [*]	4 SCIED 411W [*]	3
ENGL 202A or 202B [*]	3 SPLED 403B [*]	3
GEOSC 40, 440, BIOL 435, or BIOL 482 ^{*†}	3-4 GEOSC 21 or 204 ^{*†}	3-4
ASTRO 10 or 11 [*]	1-2 HDFS 239 or PSYCH 412 [*]	3
SPLED 400 [*]	4 BIOL 427 (or 200 -400 Level Selection (EARTH, GEOSC, METEO, ASTRO, PHYS, ANTH)) [*]	3
	15-17	15-16

Fourth Year

Fall	Credits Spring	Credits
SCIED 412 [*]	4 CI 495E ^{*2}	15
CI 495C [*]	3	
Arts Selection	3	
BIOL 427 (or 200 -400 Level Selection (EARTH, GEOSC, METEO, ASTRO, PHYS, ANTH)) [*]	3	

BIOL 427 (or 200 -400 Level Selection (EARTH, GEOSC, METEO, ASTRO, PHYS, ANTH))^{*†}

16

15

Total Credits 124-128

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Literature Selection list of acceptable courses available here (<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/undergraduate-teacher-education-pk-12/elementary-early-childhood-education-bs-pk-4/suggested-courses/>).

² No Additional coursework permitted during Student Teaching.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Additional Notes:

- Must complete at least 3 cr. of United States (US) and 3 cr. of International Cultures (IL).
- First Aid and CPR certification required. (on-line courses not acceptable)
- Summer study could reduce some of the credit loads above.
- Academic Advising Notes: The course series listed above is only one of many possible ways to move through this curriculum. Please be sure to also use the curriculum checksheets and degree audits, as well as consult with an adviser about appropriate scheduling sequences, clearances for field experiences and testing requirements. *Advisers also can assist students in identifying coursework offered at Penn State in the SUMMER.* English and communication teaching option at university park and commonwealth campuses

English Teaching Option: Secondary Education, B.S. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
ENGL 15 or 30H ^{*#†}	3	PSYCH 100 ^{*#†}	3
Literature Selection ^{*†1}	3	Non-Print Selection ^{*3}	3
EDPSY 14 ^{*#}	3	Science Selection ^{†2}	3
EDUC 100	1	Mathematics Selection ^{*#†}	3
Mathematics Selection ^{*#†}	3	American or British Literature Selection ^{*4}	3
Science Selection (GN)/ Interdomain ^{†2}	3		
	16		15

Second Year

Fall	Credits	Spring	Credits
CI 295 ^{*#}	2	CAS 100A (Speech and Oral Performance Selection) ^{*#}	3
Art Selection (GA) ^{*5}	3	PSYCH 412 or HDFS 239 [*]	3
Science Selection (GN) ^{†2}	3	Interdomain General Education (GA, GH, GS, GHW)	3
CI 280 ^{*†}	3	Grammar Selection ^{*7}	1-3
American or British Literature Selection ^{*4}	3	EDTHP 115 (or 400-level EDTHP) [*]	3
Writing Selection ^{*6}	3	Health and Wellness (GHW)	1.5
	17		14.5-16.5

Third Year

Fall	Credits	Spring	Credits
LLED 411 [*]	3	LLED 421 [*]	3
CI 492 [*]	3	LLED 422 [*]	3
ENGL 202A or 202B ^{*†}	3	Multicultural Literature Selection ^{*9}	3
Shakespeare Selection ^{*8}	3	SPLLED 400 [*]	4
Elective	3	Elective	3
Health and Physical Activity [†]	1.5		
	16.5		16

Fourth Year

Fall	Credits	Spring	Credits
LLED 420 [*]	3	CI 495E ^{*10}	15
LLED 412W [*]	3		
CI 495C [*]	3		
SPLLED 403B [*]	3		
Elective	3		
	15		15

Total Credits 125-127

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Literature Selection list of acceptable courses available here (<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/undergraduate-teacher-education-pk-12/elementary-early-childhood-education-bs-pk-4/suggested-courses/>).

² Science Selection list of acceptable courses available here (<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/undergraduate-teacher-education-pk-12/elementary-early-childhood-education-bs-pk-4/suggested-courses/>).

³ AFAM 235/ENGL 235, CMLIT 415, COMM 150N, COMM 250, COMM 411, ENGL 136, THEA 100, THEA 105.

⁴ ENGL 221, ENGL 222, ENGL 231, ENGL 232.

⁵ ENGL 100, ENGL 407, ENGL 417; LING 100.

⁶ ENGL 50, ENGL 212, ENGL 213, ENGL 214, ENGL 215.

⁷ APLNG 484 or COMM 160.

⁸ ENGL 129, ENGL 405, ENGL 440, ENGL 444.

⁹ CMLIT 403/LTNST 403, ENGL 135/AMST 135, ENGL 139/AFAM 139, ENGL 194/WMNST 194, ENGL 428/AAS 428, ENGL 431/AMST 475, ENGL 462/WMNST 462, ENGL 466/AFAM 466,

ENGL 467/AFAM 467, ENGL 468/AFAM 468, ENGL 490/AFAM 490, ENGL 492/AMST 476/WMNST 491.

¹⁰ No Additional coursework permitted during Student Teaching.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Mathematics Teaching Option - Fall Semester Student Teaching: Secondary Education, B.S. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H ^{*#}	3 MATH 141 ^{**†}	4
EDUC 100	1 MATH 220 ^{**†}	3
MATH 140 ^{*#†}	4 Literature Selection ^{*#†1}	3
CMPSC 101 or 121 ^{*#†}	3 Science Selection	3
PSYCH 100 ^{*#†}	3 CAS 100A [*]	3
Arts Selection	3 Health and Physical Activity	1.5
	17	17.5

Second Year

Fall	Credits Spring	Credits
MATH 230 or 231 ^{*#}	4 HDFS 239 or PSYCH 412 ^{**†}	3
MATH 311W [*]	3 MATH 310 [*]	3
Science Selection	3 MATH 312 [*]	3
EDPSY 14 ^{*#}	3 Science Selection	3
CI 280 ^{**†}	3 CI 295 ^{*#}	2
Health and Physical Activity	1.5 EDTHP 115 (or EDTHP 400 Level Selection) [*]	3
	17.5	17

Third Year

Fall	Credits Spring	Credits
MTHED 411 [*]	3 MTHED 412W [*]	3
MTHED 427 [*]	3 CI 495C [*]	3
SPLD 400 [*]	4 SPLD 403B [*]	3
MATH 435 or 470 [*]	3 MATH 471 [*]	4
MATH 414 [*]	3 MATH 436 [*]	3
	16	16

Fourth Year

Fall	Credits Spring	Credits
CI 495E ^{*2}	15 MATH 400 Level Selection or MTHED 400 Level Selection [*]	3
	MATH 400 Level Selection or MTHED 400 Level Selection [*]	3
	ENGL 202A or 202B [*]	3
	Arts Selection	3
	STAT 401 or MATH 415 [*]	3
	15	15

Total Credits 131

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Literature Selection list of acceptable courses available here (<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/undergraduate-teacher-education-pk-12/elementary-early-childhood-education-bs-pk-4/suggested-courses/>).

² No Additional coursework permitted during Student Teaching.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Mathematics Teaching Option - Spring Semester Student Teaching: Secondary Education, B.S. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H ^{*#}	3 MATH 141 ^{**†}	4
EDUC 100	1 MATH 220 ^{**†}	3
MATH 140 ^{*#†}	4 Literature Selection ^{*#†1}	3
CMPSC 101 or 121 ^{*#†}	3 Science Selection	3
PSYCH 100 ^{*#†}	3 CAS 100A [*]	3
Arts Selection	3 Health and Physical Activity	1.5
	17	17.5

Second Year

Fall	Credits Spring	Credits
MATH 230 or 231 ^{*#}	4 HDFS 239 or PSYCH 412 [*]	3
MATH 311W [*]	3 MATH 310 [*]	3
Science Selection	3 MATH 312 [*]	3
EDPSY 14 ^{*#}	3 Science Selection	3
CI 280 ^{*†}	3 CI 295 ^{*#}	2
Health and Physical Activity	1.5 EDTHP 115 (or EDTHP 400 Level Selection) [*]	3
	17.5	17

Third Year

Fall	Credits Spring	Credits
Arts Selection	3 SPLED 400 [*]	4
ENGL 202A or 202B [*]	3 MTHED 411 [*]	3
MATH 414 [*]	3 MTHED 427 [*]	3
MATH 435 or 470 [*]	3 MATH 471 [*]	4
MATH 436 or 441 [*]	3 MATH 400 Level Selection or MTHED 400 Level Selection [*]	3
	15	17

Fourth Year

Fall	Credits Spring	Credits
MTHED 412W [*]	3 CI 495E ^{*2}	15
CI 495C [*]	3	
SPLED 403B [*]	3	
STAT 401 or MATH 415 (or MTHED List) [*]	3	
MATH 400 Level Selection or MTHED 400 Level Selection [*]	3	
	15	15

Total Credits 131

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Literature Selection list of acceptable courses available here (<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/undergraduate-teacher-education-pk-12/elementary-early-childhood-education-bs-pk-4/suggested-courses/>).

² No Additional coursework permitted during Student Teaching.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Physics Teaching Option: Secondary Education, B.S. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 ^{*#}	3 CHEM 110 ^{*#†}	3
MATH 140 ^{*#†}	4 CHEM 111 ^{*#†}	1
PHYS 211 ^{*#†}	4 MATH 141 ^{*#†}	4
PSYCH 100 ^{*#†}	3 PHYS 212 ^{*†}	4
EDUC 100	1 EDPSY 14 ^{*#}	3
EDTHP 115 (or 400-level EDTHP)	3	
	18	15

Second Year

Fall	Credits Spring	Credits
MATH 220 ^{*†}	2-3 Health and Wellness [*]	1.5
BIOL 110 ^{*#†}	4 CI 295 ^{*#}	2
Literature Selection ^{*#†1}	3 MATH 250 or 251 [*]	3-4
CI 280 ^{*†}	3 PHYS 237 [*]	3-4
PHYS 213 or 214 ^{*†}	2 CHEM 112 ^{*#†}	3
	CHEM 113 ^{*#†}	1
	14-15	13.5-15.5

Third Year

Fall	Credits Spring	Credits
SPLD 400 [*]	4 CAS 100A ^{*†}	3
ENGL 202A or 202B ^{*†}	3 SCIED 411W [*]	3
MATH 230 or 231 [*]	3-4 Arts Selection	3
PHYS 400 [*]	3 SPLD 403B [*]	3
HDFS 239 or PSYCH 412 ^{*†}	3 PHYS 419 [*]	3
	16-17	15

Fourth Year

Fall	Credits Spring	Credits
SCIED 412 [*]	3 CI 495E ^{*2}	15
CI 495C [*]	3	
PHYS 402, 457, or PHYS 458 [*]	2-4	
Health and Wellness [*]	1.5	
GS, GH, GA, GHW, or Interdomain [*]	3	
	12.5-14.5	15

Total Credits 119-125

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Literature Selection list of acceptable courses available here (<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/undergraduate-teacher-education-pk-12/elementary-early-childhood-education-bs-pk-4/suggested-courses/>).

² No Additional coursework permitted during Student Teaching.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Social Studies Option - Fall Semester Student Teaching: Secondary Education, B.S. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H ^{*#}	3 GEOG 30N ^{*#}	3
EDUC 100	1 EDTHP 115 (or 400-level EDTHP) [*]	3
HIST 20 ^{*#†}	3 HIST 21 ^{*#†}	3
PSYCH 100 ^{*#†}	3 PLSC 1 ^{*#}	3
Mathematics Selection ^{*#†}	3 Mathematics Selection ^{*#†}	3
Science Selection ^{*†}	3 Additional Course Selection ^{*1}	3
	16	18

Second Year

Fall	Credits Spring	Credits
EDPSY 14 ^{*#}	3 HDF5 239 or PSYCH 412 [*]	3
ECON 104 ^{*#†}	3 CI 280 ^{*†}	3
HIST 1 or 10 ^{*†}	3 HIST 2 or 11 ^{*†}	3
CI 295 ^{*#}	2 Additional Course Selection ^{*1}	3
Literature Selection ^{*#†2}	3 Concentration Selection ^{*3}	3
Additional Course Selection ^{*1}	3 Concentration Selection ^{*3}	3
	17	18

Third Year

Fall	Credits Spring	Credits
SSED 411 [*]	3 SSED 412W [*]	3
SPLD 400 [*]	4 CI 495C [*]	3
HIST 400-level Selection [*]	3 SPLD 403B [*]	3
Concentration Selection ^{*3}	3 HIST 400-level Selection [*]	3
Concentration Selection ^{*3}	3 Concentration Selection ^{*3}	3
	16	15

Fourth Year

Fall	Credits Spring	Credits
CI 495E ^{*4}	15 CAS 100A [*]	3
	ENGL 202A or 202B [*]	3
	Health and Wellness Selection	3
	Science Selection	3
	Art Selection	3
	15	15

Total Credits 130

* Course requires a grade of C or better for the major

† Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Choose ANTH 45N or GEOG 6N and ECON 102, PLSC 3, PLSC 14 or SOC 1

² Literature Selection list of acceptable courses available here (<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/undergraduate-teacher-education-pk-12/elementary-early-childhood-education-bs-pk-4/suggested-courses/>).

³ Civics & Government (PLSC), Classics & Ancient Studies (CAMS), Economics (ECON), Geography (GEOG), Holocaust & Genocide Studies (JST, HIST) or Social Sciences (ANTH, PSYCH, SOC)

⁴ No additional coursework permitted during student teaching.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Social Studies Option - Spring Student Teaching: Secondary Education, B.S. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
GEOG 30N ^{*#}	3 ENGL 15 or 30H ^{*#}	3
EDUC 100	1 HIST 20 ^{*#†}	3
PLSC 1 ^{*#}	3 PSYCH 100 ^{*#†}	3
Arts Selection	3 Science Selection [†]	3
Mathematics Selection ^{*#†}	3 Mathematics Selection ^{*#†}	3
Science Selection ^{*†}	3 Health and Physical Activity	1.5
	16	16.5

Second Year

Fall	Credits Spring	Credits
CI 280 ^{*†}	3 CI 295 ^{*#}	2
EDTHP 115 (or 400-level EDTHP) ^{*†}	3 EDPSY 14 ^{*#}	3
HIST 21 ^{*#†}	3 ECON 104 ^{*#†}	3
Additional Course Selection ^{*1}	3 HIST 1 or 10 ^{*†}	3
Additional Course Selection ^{*1}	3 Additional Course Selection ^{*1}	3
Health and Physical Activity	1.5 Literature Selection ^{*#†2}	
	16.5	14

Third Year

Fall	Credits Spring	Credits
CAS 100A [*]	3 SSED 411 [*]	3
ENGL 202A or 202B [*]	3 SPLED 400 [*]	4
HDFS 239 or PSYCH 412 ^{*†}	3 HIST 400-level Selection [*]	3
HIST 2 or 11 ^{*†}	3 Concentration Selection ^{*3}	3
Concentration Selection [*]	3 Concentration Selection ^{*3}	3
Concentration Selection [*]	3	
	18	16

Fourth Year

Fall	Credits Spring	Credits
SSED 412W [*]	3 CI 495E ^{*4}	15
CI 495C [*]	3	
SPLED 403B [*]	3	
Concentration Selection ^{*3}	3	
HIST 400-level selection ^{*3}	3	
	15	15

Total Credits 127

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Choose ANTH 45N or GEOG 6N and ECON 102, PLSC 3, PLSC 14 or SOC 1.

² Literature Selection list of acceptable courses available here (<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/undergraduate-teacher-education-pk-12/elementary-early-childhood-education-bs-pk-4/suggested-courses/>).

³ Civics & Government (PL SC), Classics & Ancient Studies (CAMS), Economics (ECON), Geography (GEOG), Holocaust & Genocide Studies (JST, HIST) or Social Sciences (ANTH, PSYCH, SOC).

⁴ No additional coursework permitted during student teaching.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Career Paths

Our graduates teach in public and private schools in Pennsylvania, elsewhere in the U.S., and around the world. Education is a profession, and all teachers are expected to continue studying and developing new skills throughout their careers. In most U.S. states, teacher certification is a multi-stage process, with graduate study beyond a bachelor's degree expected early in a teacher's career. Graduates of this program who work in public schools usually go on to earn a master's degree. Alumni who wish to continue educational studies at the graduate level through Penn State can do so at University Park and through the University's World Campus.

Careers

In addition to resources like the College's Advising and Certification Center and Penn State Career Services, the University hosts large education career fairs in both the fall and spring semesters, which bring recruiters to campus from throughout Pennsylvania and the United States.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE SECONDARY EDUCATION PROGRAM (<https://studentaffairs.psu.edu/career/>)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/graduate-studies-program-curriculum-and-instruction/>)

Professional Resources

- Pennsylvania State Education Association (<https://www.psea.org/resources-by-profession/student-psea/>)
- Occupational Outlook for High School Teachers (Bureau of Labor Statistics) (<https://www.bls.gov/ooh/education-training-and-library/high-school-teachers.htm>)
- National Council of Teachers of English (NCTE) (<https://ncte.org/>)
- National Council of Teachers of Mathematics (NCTM) (<https://www.nctm.org/>)
- National Council for the Social Studies (NCSS) (<https://www.socialstudies.org>)
- National Science Teachers Association (NSTA) (<https://www.nsta.org/>)

Accreditation

The College of Education educator preparation programs are fully accredited at the Initial and Advanced levels by the Council for the Accreditation of Educator Preparation (CAEP). The next CAEP program review will be Fall 2026. CAEP advances excellence in educator preparation through evidence-based accreditation that assures quality and supports continuous improvement to strengthen P-12 student learning.

MORE INFORMATION ABOUT ACCREDITATION OF THE SECONDARY EDUCATION PROGRAM (<https://ed.psu.edu/about/accreditations/>)

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

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<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction> (<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/>)

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Social Justice in Education, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Social Justice in Education minor cultivates awareness, engagement, and reflection of critical pedagogies, values, and ethics in relation to educational diversity (in its many forms), equity, and social justice in traditional and non-traditional educational settings. The minor will employ interdisciplinary, experiential, and community-based coursework to examine principles of social justice in education and create a space for students from across the University to engage in out-of-class academic experiences that construct critical and thoughtful understanding of injustice. The minor provides a transformative educational experience that allows students to demonstrate commitment to educational and social equity through leadership and action.

The minor includes three phases: foundational coursework, community/field/experiential-based courses, and a capstone project. Students who complete the minor will develop the knowledge, skills, and dispositions to promote educational equity through sustained intellectual and practical engagement with evidence-based instructional practices that encourage socially just outcomes. Students will develop the capacity to transform visions into action and to support innovative community-centered solutions to complex social issues. Students will learn to design and implement curriculum centered on issues of social justice in schools, community-based educational programs, and other non-traditional educational settings. Additionally, students will bridge theory and practice through educational experiences that engage students in scholarship, critical service-learning, field experiences, and a culminating capstone project. Students will engage in inquiry that connects experiential learning, interactions in the field and conceptual understanding through guided reflective practices.

What is Social Justice in Education?

The Social Justice in Education Minor is an opportunity for interested students from across the University to develop critical engagement skills through social justice work. The minor facilitates the expansion of equity-orientated understandings of both traditional and non-traditional educational settings. Education is considered beyond the classroom to include policy and community-based sectors of education as well. As a part of this minor, you will learn skills to help interrogate societal inequities and to strategize and implement action-based solutions to these problems as well.

You Might Like This Program If...

You'd like to build a foundation of equity into the vision you have for your future career. By helping you to develop a deepened understanding of the various injustices that organize society's current inequitable structures through study and experience, this minor is an opportunity to develop your own unique social justice lens for viewing the world and your contributions to it.

Program Requirements

Requirement	Credits
Requirements for the Minor	18-21

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CI 185	Principles of Social Justice in Education	3
CI 285	Active Engagement for Social Justice in Education	3
CI 485	Social Justice in Education Capstone Course	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits from the following:		3
AEE 100	Agricultural Education Orientation	
AFAM 103	Racism and Sexism	
AFAM 431	Black Liberation and American Foreign Policy	
AFAM 492	Identities, Power and Perceptual Pedagogies in Teaching and Learning	
BBH 446	Human Sexuality as a Health Concern	
CED 375	Community, Local Knowledge, and Democracy	
CED 440	Labor in the Global Economy	
CMLIT 100	Reading Across Cultures	
CRIMJ 230	Corrections in America	
CRIM 453	Women and the Criminal Justice System	
EDTHP 200	Educational Reform and Public Policy	
EDTHP 420	Education and Public Policy	
EDTHP 430	History of Education in the United States	
EDTHP 440	Introduction to Philosophy of Education	
ENGL 245	Introduction to LGBTQ Studies	
GLIS 101N	Globalization	
GLIS 102N	Global Pathways	
HDFS 410	Communities and Families	
PHIL 437	World Philosophies	
PLSC 210N	Rights in America	
PLSC 428	Gender and Politics	
PLSC 451	The Politics of Human Rights	
RHS 428	Rehabilitation in the Justice System	
SOC 103	Racism and Sexism	
SOC 422	World Population Diversity	
SOC 424	Social Change	
SOC 447	Ethnic Minorities and Schools in the United States	
WMNST 103	Racism and Sexism	
WMNST 205	Gender, Diversity and the Media	
WMNST 453	Women and the Criminal Justice System	
Select 6-9 credits from the following:		6-9
CI 280	Introduction to Teaching English Language Learners ¹	
CI 295	Introductory Field Experience for Teacher Preparation	
CI 385	DC Social Justice in Education: Empowering Communities through Transformative Teaching	

CI 395	Internship
CIVCM 211N	Foundations: Civic and Community Engagement
EDTHP 395	
HDFS 301	Values and Ethics in Health and Human Development Professions
LHR 475H	Labor in the Global Economy
RHS 420	Culture & Disability: Study Abroad in Ireland
SCIED 140	Outdoor School Field Experience
SOC 5	Social Problems
WFED 413	Vocational Education for Special-Needs Learners
WLED 444	Language, Culture and the Classroom: Issues for Practitioners

¹ For CI 280, only sections with a virtual tutoring component will be eligible.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Efrain Marimon

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Career Paths

- Education Field: Teacher, Counselor, Administration, Policy;
- Non-profit Education-Adjacent Organizations;
- Education Non-Profit Organizations;
- School District Offices of Curriculum Development;
- State and Federal Agencies connected to Education, Health, and Justice.

Contact

University Park

DEPARTMENT OF CURRICULUM AND INSTRUCTION

123 Chambers Building
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Special Education, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The emphasis throughout the Special Education program is upon a broad clinical teaching model. Course work and practicum experiences focus upon the identification and management of a wide range and degree of educational and behavioral problems of students with disabilities between the ages of 3 and 21. A core of Special Education courses aimed at general skill development in the areas of diagnosis, identification, development of materials and teaching strategies, implementation, and evaluation is required of all students.

This major focuses on teaching principles and methodologies, classroom and behavioral management, and the development of teaching materials for children and youths with mild, moderate, and severe disabilities. This program helps prepare special education teachers to meet the needs of students enrolled in early intervention, elementary and secondary public school special education programs.

What is Special Education?

Our goal is an educational system in which teachers, families, and communities share responsibility and commitment for preparing students to live independent, productive, and personally satisfying lives to the fullest extent possible. This goal includes: Having a positive influence on the inclusion of persons who are culturally, physically or intellectually diverse; Providing national leadership in the development of new knowledge in special education; Preparing teachers to use effective practices in special education. Teachers will be eligible to earn PA Teaching Certification in Pre-K through age 21 upon completion of the program.

You Might Like This Program If...

- You want to make a difference in the lives of children, families, adolescents, and adults.
- You like working with individuals with disabilities in the home, schools, or community.
- You like a challenge.
- You want to teach, to be an agent of change, and to be an advocate.
- You seek out solutions.
- You want to know more!

MORE INFORMATION ABOUT SPECIAL EDUCATION (<https://ed.psu.edu/special-education-bachelor-science/>)

Entrance to Major

Eligibility for entry to the Special Education program is based on the following set criteria:

1. Cumulative grade-point average of 3.00 is required (all PA teacher preparation programs require a 3.0 at entry and exit of program)

2. Applicants must complete a number of prerequisite courses and other requirements. The following courses must be passed with a grade of "C" or better: CI 280, EDPSY 10 or EDPSY 11, EDPSY 14, EDPSY 101, EDTHP 115, MATH 200, PSYCH 100, PSYCH 212.
3. Documentation of at least 80 hours of volunteer or paid education work experience with learners of the age group the candidate plans to teach. Candidates for Special Education must document two separate 40-hour experiences in two different settings, with learners who have special needs. One experience should include learners with a different level of severity or functioning (e.g., mild/severe, young/adult) from those learners in the other experience. One experience should also include learners with cultural, social, or ethnic backgrounds different from the candidate's own.
4. Completion of at least 48 semester credit hours, including ENGL 15 or ENGL 30H.
5. Approval from the professional education adviser or the head of the pertinent certification program.

Students may be admitted to the program by declaring Special Education as a major, transferring from a previously declared major, or transferring from another institution of higher education.

Students cannot be formally admitted to Special Education before their fifth semester.

Students are assigned to one selection pool. For example, Freshmen admitted in the summer or fall of 2014 are automatically assigned to the spring 2016 selection pool. Students who wish to transfer into Special Education from another major or university will be assigned to a selection pool based on the total number of credits they have earned and their completion of College of Education prerequisite courses.

Degree Requirements

For the Bachelor of Science degree in Special Education, a minimum of 122 credits is required (See also Teacher Education Programs (<https://ed.psu.edu/academics/teacher-testing-certification/>)):

Requirement	Credits
General Education	45
Electives	6
Requirements for the Major	89

18 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GQ courses; 6 credits of GS courses; 6 credits of GH courses.

Requirements for the Major

A grade of C or better per course is required for all Special Education prerequisites and teacher certification.

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better for all Special Education prerequisites and teacher certification</i>		
CI 280	Introduction to Teaching English Language Learners	3
EDPSY 14	Learning and Instruction	3
EDPSY 101	Analysis and Interpretation of Statistical Data in Education	3
EDTHP 115	Education in American Society	3

MATH 200	Problem Solving in Mathematics	3
PSYCH 100	Introductory Psychology	3
PSYCH 212	Introduction to Developmental Psychology	3
SPLED 395W	Observing Special Education Settings Spanning Across School Transitions	3
SPLED 401	Motivating Exceptional Learners	4
SPLED 404	Working with Families and Professionals in Special Education	3
SPLED 409A	Fundamental Literacy Skills for Students with Special Needs	3
SPLED 409B	Writing and Content Literacy for Students with Special Needs	3
SPLED 409C	Mathematics Instruction for Students with Special Needs	3
SPLED 410	Culturally Responsive Pedagogy in Special Education	3
SPLED 411	Intervention for Students with Severe Disabilities	3
SPLED 412	Instruction for Students with Mild Disabilities	3
SPLED 415	Early Special Education	3
SPLED 418	Technologies for Persons with Disabilities	3
SPLED 425	Foundations of Special Education, Etiologies, Law, and Implications for Practice	3
SPLED 454	Assessment for Instruction	3
SPLED 495D	Professional Development for Special Education Teacher Candidates	3
SPLED 495E	Experience with Exceptional Children	3
SPLED 495F	Practicum in Special Education	12
SPLED 495G	Experience with an Integrated Inclusion Classroom	4

Additional Courses

Additional Courses: Require a grade of C or better for all Special Education prerequisites and teacher certification

EDPSY 10	Individual Differences and Education	3
or EDPSY 11	Educational Implications of Individual Differences in Childhood	

Select 3 credits from the following: 3

CSD 218	American Sign Language I	
RHS 402	Children and Families in Rehabilitation Settings and Human Services	
RHS 403	Medical Aspects of Disability	
RHS 404	Rehabilitation Services for Transition Age Youth with Disabilities: Theory and Practice	
RHS/LHR 410	Employment Strategies for People with Disabilities	
RHS 433	Trauma-informed care for school & human service professionals	
SPLED 461	Introduction to Autism Spectrum Disorders: Issues and Concerns	
SPLED 462	Autism and Applied Behavior Analysis	

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements

of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Special Education and M.Ed. in Curriculum and Instruction

Requirements for the Integrated B.S. in Special Education and M.Ed. in Curriculum and Instruction can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/curriculum-instruction/#integratedundergradgradprogramstext>).

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Special Education, B.S. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any

time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
EDTHP 115 ^{*#†}	3 EDPSY 10 or 11 ^{*#†}	3
EDUC 100	1 EDPSY 101 ^{*#†}	3
ENGL 15 or 30H ^{*#}	3 PSYCH 212 ^{*#†}	3
MATH 200 ^{*#†}	3 Literature Selection ^{*#†1}	3
PSYCH 100 ^{*#†}	3 General Education Course (Inter-Domain)	3
General Education Course (GN)	3	
	16	15

Second Year

Fall	Credits Spring	Credits
CI 280 (GH)	3 CAS 100A ^{*†}	3
EDPSY 14 ^{*#}	3 General Education Course (Inter-Domain)	3
General Education Course (GN) [†]	3 General Education Course (GA)	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
Minor/Elective	3 Minor/Elective	3
	13.5	13.5

Third Year

Fall	Credits Spring	Credits
SPLD 395W [*]	3 SPLD 404 [*]	3
SPLD 401 [*]	4 SPLD 411 [*]	3
SPLD 410 [*]	3 SPLD 412 [*]	3
SPLD 415 [*]	3 SPLD 454 [*]	3
SPLD 418 [*]	3 SPLD 495E [*]	3
SPLD 425 [*]	3	
	19	15

Fourth Year

Fall	Credits Spring	Credits
ENGL 202A or 202B [†]	3 SPLD 495D	3
SPLD 409A [*]	3 SPLD 495F ^{*2}	12
SPLD 409B [*]	3	
SPLD 409C [*]	3	
SPLD 495G [*]	4	
	16	15

Total Credits 123

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

¹ Literature Selection list of acceptable courses available here (<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/undergraduate-teacher-education-pk-12/elementary-early-childhood-education-bs-pk-4/suggested-courses/>).

² No additional coursework permitted during student teaching.

Career Paths

Career opportunities for graduates with teaching certification include:

- An M.Ed. graduate degree (<https://ed.psu.edu/special-education-master-education/>) and eligibility for PA certification in special education.
- Special Education Supervisory program for PDE certification
- Focused program for working with all learners with Autism (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-educating-individuals-with-autism-postbaccalaureate-certificate/>)
- Professionals may also be interested in the focus the Applied Behavior Analysis (ABA) program certificate (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-applied-behavior-analysis-graduate-certificate/>) to prepare BCBA's and behavior therapists
- Online programs for teachers to support all learners in Academic and Behavioral Supports program (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-special-education-masters-degree/>)

Professional Resources

- Council for Exceptional Children (<https://exceptionalchildren.org>)

Accreditation

The College of Education educator preparation programs are fully accredited at the Initial and Advanced levels by the Council for the Accreditation of Educator Preparation (CAEP). The next CAEP program review will be Fall 2026. CAEP advances excellence in educator preparation through evidence-based accreditation that assures quality

and supports continuous improvement to strengthen P-12 student learning.

MORE INFORMATION ABOUT ACCREDITATION OF THE SPECIAL EDUCATION PROGRAM (<https://ed.psu.edu/about/accreditations/>)

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

University Park

DEPARTMENT OF EDUCATIONAL PSYCHOLOGY, COUNSELING, AND SPECIAL EDUCATION
125 CEDAR Building
University Park, PA 16802
814-863-1699
lizdavis@psu.edu

<https://ed.psu.edu/academics/departments/department-educational-psychology-counseling-and-special-education/special-education>
(<https://ed.psu.edu/academics/departments/department-educational-psychology-counseling-and-special-education/special-education/>)

Special Education, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

This minor provides undergraduate students with the opportunity for concentrated work in instructional practices to support the achievement of students with special education needs in general education classrooms. Students will learn strategies for creating a positive classroom environment that will promote student growth and achievement, effective instructional practices for students with special education needs, and techniques for assessing the academic progress of students. The targeted instructional practices have been demonstrated to be effective both with students with and those without special education needs.

The minor in Special Education responds to the growing need to provide appropriate instructional services to students with special education needs in general education classrooms.

What is Special Education?

Our goal is an educational system in which teachers, families, and communities share responsibility and commitment for preparing students to live independent, productive, and personally satisfying lives to the fullest extent possible. This goal includes: Having a positive influence on the inclusion of persons who are culturally, physically or intellectually diverse; Providing national leadership in the development of new knowledge in special education; Preparing teachers to use effective practices in special education. Teachers will be eligible to earn PA

Teaching Certification in Pre-K through age 21 upon completion of the program.

You Might Like This Program If...

- You are interested in learning instructional strategies and techniques to improve educational, vocational, and societal outcomes for people with disabilities.
- You enjoy designing educational programs that address the interests and aspirations of persons with a wide range of abilities and experiences.
- You appreciate that we are most effective as teachers when we create educational experiences that incorporate student interests and address outcomes valued by the learner.

Program Requirements

Requirement	Credits
Requirements for the Minor	24

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
EDPSY 14	Learning and Instruction	3
SPLIED 400	Inclusive Special Ed Foundations: Legal, Characteristics, Collaboration, Assessment, and Management	4
SPLIED 419	Assistive Technology for General Education Teachers	2
SPLIED 461	Introduction to Autism Spectrum Disorders: Issues and Concerns	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
SPLIED 403A	Evidence-Based Instruction for Elementary Students with Disabilities in Reading, Math, and Writing	3
	or SPLIED 403B Evidence-Based Methods for Teaching Secondary Students with Disabilities in Inclusive Settings	
Select one of the following:		3
EDPSY 10	Individual Differences and Education	
HDFS 229	Infant and Child Development	
HDFS 239	Adolescent Development	
Select 6 credits of the following:		6
CSD 146	Introduction to Communication Sciences and Disorders	
CSD 218	American Sign Language I	
CSD 269	Deaf Culture	
CSD 300	Developmental Considerations in the Assessment and Treatment of Language Disorders	
RHS 100	Introduction to Disability Culture	

RHS 402	Children and Families in Rehabilitation Settings and Human Services
RPTM 277	Inclusive Leisure Services

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

David McNaughton
Professor
125 CEDAR Building
University Park, PA 16802
814-863-4452
dbm2@psu.edu

Berks

Jayne Leh
Associate Professor of Special Education
Gaige, 237
Reading, PA 19610
610-396-6413
BKSpecEduc@psu.edu

Career Paths

The minor in Special Education enhances the education of students who anticipate working with people with disabilities as educators, speech language pathologists, and/or therapists. The minor will enhance graduate study preparation for many students interested in working with people in applied settings, as well as persons who wish to pursue certification as a special education teacher.

Careers

Education, speech language pathology, occupational therapy.

Opportunities for Graduate Studies

Students who complete the Special Education minor will complete coursework that will prepare them for graduate study in special education.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://sites.psu.edu/spldatpsu/41-m-ed/>)

Contact

University Park

DEPARTMENT OF EDUCATIONAL PSYCHOLOGY, COUNSELING, AND SPECIAL EDUCATION
125 CEDAR Building
University Park, PA 16802
814-863-4452
jlf5261@psu.edu (jlf261@psu.edu)

<https://ed.psu.edu/academics/departments/department-educational-psychology-counseling-and-special-education/special-education>
(<https://ed.psu.edu/academics/departments/department-educational-psychology-counseling-and-special-education/special-education/>)

Berks

DIVISION OF HUMANITIES, ARTS AND SOCIAL SCIENCES
Gaige Building
Reading, PA 19610
610-396-6143
BKSpecEduc@psu.edu

Supervisory Leadership for Professionals, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

Supervisory Leadership for Professionals This certificate is designed for the adult learner who would like to gain knowledge of essential supervisory leadership concepts. These adult learners may already possess a degree in an occupational discipline, but need to augment their knowledge and resumes to advance their careers with their current employer or transition into a new job. Adult learners taking this certificate may also be taking post-secondary credit courses for the first time.

Entrance to Certificate

Admissions criteria for the certificate program follow standard University procedures for adult students.

Program Requirements

To earn an undergraduate certificate in Supervisory Leadership for Professionals, a minimum of 9 credits is required.

Code	Title	Credits
Required Courses		
WFED 310	Leadership Competencies for Supervisors	3
WFED 411	Occupational Safety and Health for Workforce Education and Development Professionals	3
WFED 450	Cultural Diversity in the Workplace	3

Certificate Learning Objectives

- **Communicate:** Students will be able to effectively communicate instructional content or findings in formal presentations and in written works.

- **Demonstrate Competence:** Students will demonstrate competence through documentation of tasks performed and reflection on specialized accomplishments.
- **Develop Professional Competencies:** Students will develop professional competencies to work with others in related fields or disciplines.
- **Relate Common Situations:** Students will be able to relate common situations experienced by professionals and how they were or should be handled.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Mark Threeton

Associate Professor of Education, Workforce Education and Development
411 E Keller Building
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mdt177@psu.edu

Contact

University Park

DEPARTMENT OF LEARNING AND PERFORMANCE SYSTEMS
411 E Keller Building
University Park, PA 16802
mdt177@psu.edu

Workforce Education and Development, A.S.

Begin Campus: University Park

End Campus: University Park

Program Description

This is a 60 credit program, with many of the courses offered in multiple delivery formats to address the needs of the adult learner, such as a blend of face-to-face and online, delivery via video conference technologies such as Polycom or Adobe Connect, or totally online. It will provide a solid foundation of curriculum pertinent to gaining knowledge and skills required for success in the field of workforce education and development. It will allow the participant to develop the skills and competencies essential to analyzing community and/or organizational needs, recommend and deliver effective education and training programs

for process and employee improvement, supervise and lead others, and manage workforce development projects and initiatives. It will also provide the opportunity to network with individuals who share many of the same interests and will enhance the participant's ability to address community and organization needs.

What is Workforce Education and Development?

Workforce Education and Development (WFED) at Penn State is a unique college program, which provides you with a foundation required for success in the field of workforce education and development. There are two areas of emphasis within the Associate Degree Program including: Career and Technical Education (CTE) and Workplace Learning and Performance. The mission of Penn State's Workforce Education and Development Program is to promote excellence, opportunity, and leadership among current and future professionals in the field of workforce education and development, including professionals employed in secondary and postsecondary education institutions, social services, employee organizations, and private sector businesses. The program will allow you to develop the skills and abilities essential to: analyze community and organizational challenges; prescribe and deliver effective education and training programs; and manage workforce development projects and initiatives.

You Might Like This Program If...

- You want to learn about training in business, industry and educational settings.
- You want to study education and how to manage workforce development projects and processes.
- You want to learn how to provide improvement strategies for communities and organizations.
- You want to pursue a career in Training and Development or Career and Technical Education (CTE).

Entrance to Major

Students must have a minimum 2.0 GPA to change to this Associate degree after admission to the University.

Degree Requirements

For an Associate in Science degree in Workforce Education and Development, a minimum of 60 credits is required:

Requirement	Credits
General Education	21
Electives	16
Requirements for the Major	23

Requirements for the Major

Optional requirements for the major: Of the 16 credits of electives, up to 12 credits of occupational experience can be earned.

Code	Title	Credits
Prescribed Courses		
WFED 105	Integrated Curriculum Implementation	3
WFED 106	Program and Facilities Management	3
WFED 207W	Assessment Techniques	3
WFED 310	Leadership Competencies for Supervisors	3

WFED 411	Occupational Safety and Health for Workforce Education and Development Professionals	3
WFED 450	Cultural Diversity in the Workplace	3
WFED 495D	Instructional Internship in Industrial Training	5

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all associate degree students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 3 credits
- **Writing and Speaking (GWS):** 3 credits

Knowledge Domains

- **Arts (GA):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Note: Up to six credits of Inter-Domain courses may be used for any Knowledge Domain requirement, but when a course may be used to satisfy more than one requirement, the credits from the course can be counted only once.

Exploration

- **Any General Education course (including GHW and Inter-Domain):** 3 credits

University Degree Requirements

Cultures Requirement

3 credits of United States (US) or International (IL) cultures coursework are required and may satisfy other requirements

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 60 degree credits must be earned for an associates degree. The requirements for some programs may exceed 60 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

College of Education

Advising and Certification Center

228 Chambers Building
University Park, PA 16802
814-865-0488
ed@admissions.psu.edu

Career Paths

Workforce Education and Development (WFED) graduates pursue career opportunities as teachers, trainers and leaders in career-oriented education programs and professional organizations. In business and industry, WFED graduates keep organizations and employees up-to-date with rapid advancements in technology, equipment, and work-related processes. The program is structured to provide you with enhanced learning and skill building opportunities essential to: analyze community and organizational challenges; prescribe and deliver effective education and training programs; manage workforce development projects and initiatives; and provide interventions within communities and organizations to promote the advancement of business, industry and education.

Opportunities for Graduate Studies

Penn State's Workforce Education and Development program offers certificate programs as well as graduate degree programs leading to master's of education (M.Ed.) and master's of science (M.S.) degrees. Students interested in these programs leading to the master's degree in Workforce Education and Development should be employed, or wish to be employed, as faculty members, trainers, administrators, or researchers in settings emphasizing education for work in private sector firms, schools, occupational home economics, cooperative education, youth apprenticeship, or employment and training.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://ed.psu.edu/academics/departments/department-learning-and-performance-systems/workforce-education-and-development/>)

Accreditation

The College of Education educator preparation programs are fully accredited at the Initial and Advanced levels by the Council for the Accreditation of Educator Preparation (CAEP). The next CAEP program review will be Fall 2026. CAEP advances excellence in educator preparation through evidence-based accreditation that assures quality and supports continuous improvement to strengthen P-12 student learning.

MORE INFORMATION ABOUT ACCREDITATION OF THE WORKFORCE EDUCATION AND DEVELOPMENT PROGRAM (<https://ed.psu.edu/about/accreditations/>)

Contact

University Park

DEPARTMENT OF LEARNING AND PERFORMANCE SYSTEMS
301 Keller Building
University Park, PA 16802
814-863-9768
caf17@psu.edu

<https://ed.psu.edu/academics/departments/department-learning-and-performance-systems> (<https://ed.psu.edu/academics/departments/department-learning-and-performance-systems/>)

Workforce Education and Development, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

This major leads to the B.S. degree and may also lead to certification as a career and technical education teacher, and/or a coordinator of cooperative education, provided other requirements of the Pennsylvania Department of Education are met. The Industrial Training option does not lead to teacher certification.

To be certified by the Pennsylvania Department of Education as a career and technical education teacher, a person must have sufficient employment experience beyond the learning period to establish competency in the occupation to be taught. Further interpretation of this requirement may be secured by contacting the Department of Learning and Performance Systems. (See also Teacher Education Programs (<https://ed.psu.edu/academics/teacher-testing-certification/>)).

What is Workforce Education and Development?

Workforce Education and Development (WFED) at Penn State is a nationally and internationally recognized program for people interested in teaching within career and technical education or professional training programs. Our program prepares individuals to teach in public and private secondary and postsecondary educational institutions or training programs in business, industry and manufacturing.

The Industrial Education option is for people wanting to pursue a Pennsylvania Department of Education Certification and a B.S. degree to teach career and technical education.

The Occupational Home Economics option is for people wanting to pursue a B.S. degree to teach family and consumer sciences.

The Health Occupations option is for people wanting to pursue Pennsylvania Department of Education Certification and a B.S. degree to teach in healthcare professions.

The Industrial Training option is for people wanting to pursue a B.S. degree to teach or provide professional training within business, industry or manufacturing.

You Might Like This Program If...

You participated in career and technical education courses or programs in the past. If you have an interest in technology, technical applications and teaching, this program may be a good fit for you. A Workforce Education and Development degree is for people who have an interest in teaching in technical programs including, but not limited to: automotive technology, carpentry, computer programming, culinary arts, electronics technology, graphic arts, healthcare professions and HVAC.

Entrance to Major

Baccalaureate degree candidates must meet the following requirements by the end of their fourth semester to be admitted to the Workforce Education (WFED) major:

1. Complete the following courses: ECON 102 or ECON 104, EDPSY 14, EDTHP 115, ENGL 15 or ENGL 30H, and WFED 101
2. Complete 3 credits in literature (GH)
3. Complete 6 credits in Quantification (GQ)
4. Minimum 3.00 cumulative GPA
5. Complete and document a minimum of 80 hours of experience

Direct Admission to the Major

Incoming first-year students who meet the program admission requirements are admitted directly into the major. Admission restrictions may apply for change-of-major and/or change-of-campus students.

For more information about the admission process for this major, please send a request to the college, campus, or program contact (listed in the Contact tab).

Degree Requirements

For the Bachelor of Science degree in Workforce Education and Development, a minimum of 124 credits is required:

Requirement	Credits
General Education	45
Electives	0-1
Requirements for the Major	81-82

3 of the 45 credits for General Education are included in the Requirements for the Major. This includes 3 credits of General Education GS courses.

Requirements for the Major

Common Requirements for the Major (All Options)

A grade of C or better per course is required for teacher certification.

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better for teacher certification</i>		
ECON 102 or ECON 104	Introductory Microeconomic Analysis and Policy Introductory Macroeconomic Analysis and Policy	3
EDPSY 14	Learning and Instruction	3
EDTHP 115	Education in American Society	3
WFED 1	Education for Work: Trends and Issues	3
WFED 101	Early Field Experience in Teaching Vocational Industrial Education/Health Occupations Education Sub	1
WFED 105	Integrated Curriculum Implementation	3
WFED 323	Vocational Student Organizations	3
WFED 445	Vocational Guidance	3
WFED 106	Program and Facilities Management	3
WFED 207W	Assessment Techniques	3
WFED 413	Vocational Education for Special-Needs Learners	3
WFED 441	Conceptual and Legal Bases for Cooperative Vocational Education	2
WFED 442	Operating Cooperative Vocational Education Programs	2

Additional Courses

Additional Courses: Require a grade of C or better for teacher certification

Select one of the following:	3
LDT 100	World Technologies and Learning
STS 245Z	Globalization, Technology, and Ethics
WFED 450	Cultural Diversity in the Workplace

Requirements for the Option

Requirements for the Option: Require a grade of C or better for teacher certification

Select an option	43-44
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Requirements for the Option

Health Occupations Education Option (43 credits)

A grade of C or better per course is required for teacher certification.

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better for teacher certification</i>		
WFED 395C	Occupational and Professional Competence	24
WFED 495C	Student Teaching	10

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better for teacher certification

Select 9 credits in course work related to the student's field of study (students may apply 6 credits of ROTC)	9
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Industrial Education Option (43 credits)

A grade of C or better per course is required for teacher certification.

Code	Title	Credits
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Prescribed Courses

Prescribed Courses: Require a grade of C or better for teacher certification

WFED 395A	Trade and Industrial Occupational Experience	24
WFED 495C	Student Teaching	10

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better for teacher certification

Select 9 credits of course work related to the student's field of study (students may apply 6 credits of ROTC) 9

Industrial Training Option (44 credits)

A grade of C or better per course is required for teacher certification.

Code	Title	Credits
------	-------	---------

Prescribed Courses

Prescribed Courses: Require a grade of C or better for teacher certification

WFED 270	Introduction to Industrial Training	3
WFED 395D	Occupational Work Experience	24
WFED 471	Training in Industry and Business	3
WFED 495D	Instructional Internship in Industrial Training	5

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better for teacher certification

Select 9 credits in course work related to the student's field of study (students may apply 6 credits of ROTC) 9

Occupational Home Economics Education Option (43 credits)

A grade of C or better per course is required for teacher certification.

Code	Title	Credits
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Prescribed Courses

Prescribed Courses: Require a grade of C or better for teacher certification

WFED 395B	Occupational Resources Competence	24
WFED 495C	Student Teaching	10

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better for teacher certification

Select 9 credits in course work related to the student's field of study 9

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or

within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

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READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

College of Education

Advising and Certification Center

228 Chambers Building

University Park, PA 16802

814-865-0488

ed@admissions.psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Workforce Education and Development, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
EDUC 100	1	WFED 101 ^{*#†}	1
ENGL 15 ^{*#†}	3	CAS 100A [*]	3
Science Selection	3	EDTHP 115 ^{*#†}	3
Humanities Selection	3	WFED 395A, 395B, or 395C [*]	3
Mathematics Selection ^{*#†}	3	Literature Selection ^{*#†}	3
Health and Physical Activity	1.5	Mathematics Selection ^{*#†}	3
	14.5		16

Second Year

Fall	Credits	Spring	Credits
WFED 1	3	WFED 207W [*]	3
WFED 105 [*]	3	WFED 442 [*]	2
WFED 395A, 395B, or 395C [*]	3	WFED 395A, 395B, or 395C [*]	3
WFED 441 [*]	2	ECON 102 or 104 ^{*#†}	3
EDPSY 14 ^{*#†}	3	Social and Behavioral Science Selection	3
Science Selection [†]	3	Elective	3
	17		17

Third Year

Fall	Credits	Spring	Credits
WFED 106 [*]	3	WFED 413 [*]	3
WFED 323 [*]	3	WFED 445 [*]	3
WFED 395A, 395B, or 395C [*]	3	WFED 395A, 395B, or 395C [*]	3
ENGL 202A or 202B ^{*#†}	3	Science Selection	3
Art Selection	3	Elective	3
	15		15

Fourth Year

Fall	Credits	Spring	Credits
WFED 395A, 395B, or 395C [*]	3	WFED 495C [*]	10
STS 245Z or WFED 450 [*]	3	WFED 395A, 395B, or 395C [*]	3
Art Selection	3		
Elective	3		
Health and Physical Activity	1.5		
	13.5		13

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

¹ Literature Selection list of acceptable courses available here (<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/undergraduate-teacher-education-pk-12/elementary-early-childhood-education-bs-pk-4/suggested-courses/>).

Career Paths

WFED graduates are teachers and administrators in career-oriented educational programs, including CTE courses, Apprenticeships, Cooperative Education, Tech-Prep, High Schools That Work, and technical postsecondary colleges. In industry, WFED graduates keep employees up-to-date with rapid changes in technology, equipment, and work processes.

Careers

Our graduates have careers as teachers, trainers, safety administrators, and managers. And You Can Too!

Opportunities for Graduate Studies

Penn State's Workforce Education and Development program offers certificate programs as well as graduate degree programs leading to master's of education (M.Ed.) and master's of science (M.S.) degrees. Students interested in these programs leading to the master's degree in Workforce Education and Development should be employed, or wish to be employed, as faculty members, trainers, administrators, or researchers in settings emphasizing education for work in private sector firms, schools, occupational home economics, cooperative education, youth apprenticeship, or employment and training. The Pennsylvania State University Workforce Education and Development program offers a graduate degree program leading to degree of Doctor of Philosophy (Ph.D.). Students interested in this program should be employed in or aspire to be employed as faculty, trainers, administrators, or researchers in education-for-work settings such as business, industry, health fields, and occupational home economics.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://ed.psu.edu/academics/departments/department-learning-and-performance-systems/workforce-education-and-development/>)

Professional Resources

- Association for Career and Technical Education (ACTE) (<https://www.acteonline.org/>)
- Association for Career and Technical Education Research (<https://www.acteronline.org/>)

Accreditation

The College of Education educator preparation programs are fully accredited at the Initial and Advanced levels by the Council for the Accreditation of Educator Preparation (CAEP). The next CAEP program review will be Fall 2026. CAEP advances excellence in educator preparation through evidence-based accreditation that assures quality and supports continuous improvement to strengthen P-12 student learning.

MORE INFORMATION ABOUT ACCREDITATION OF THE WORKFORCE EDUCATION AND DEVELOPMENT PROGRAM (<https://ed.psu.edu/about/accreditations/>)

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

University Park

DEPARTMENT OF LEARNING AND PERFORMANCE SYSTEMS
411 Keller Building
University Park, PA 16802
814-863-5361
mdt177@psu.edu

<https://ed.psu.edu/academics/departments/department-learning-and-performance-systems> (<https://ed.psu.edu/academics/departments/department-learning-and-performance-systems/>)

Worklink Strategies and Employability, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

The WorkLink program is a fully integrated, 2-year certificate program, in WorkLink Strategies and Employability, at Penn State University (University Park). The WorkLink program provides the opportunity for individuals with Intellectual Disabilities (ID) to participate in postsecondary experiences and education alongside their peers. WorkLink program objectives are to support students with ID in developing work and independent living skills.

Program Requirements

To earn an undergraduate certificate in Worklink Strategies and Employability, a minimum of 42 credits is required.

Code	Title	Credits
Required Courses		
RHS 93	WorkLink Seminar I	1-12
RHS 193	WorkLink Seminar II	1-12
RHS 295A	WorkLink Internship	1-12

Non-Course Requirements:

- All Worklink students must take 3-6 general education credits through auditing courses at Penn State each semester (must audit 1-2 classes each semester).

World Languages (K-12) Education, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

PROGRAM CURRENTLY ON HOLD; NOT ACCEPTING NEW STUDENTS

Begin Date of Enrollment Hold: April 25, 2024

Program Description

The World Languages Education major helps prepare students for kindergarten through high school teaching positions and for other employment in fields related to their content language areas.

The following teaching options are available for majors in World Languages Education:

- Bilingual Education
- English as a Second Language
- French
- German
- Latin
- Russian
- Spanish

Pennsylvania does not issue a teacher certificate in Bilingual Education; many other states do. Completers of the English as a Second Language (ESL) option may qualify for the Pennsylvania Program Specialist: ESL credential if they hold a Pennsylvania teacher certificate.

Bilingual Education Teaching Option

Although Pennsylvania does not issue a teacher certificate in Bilingual Education, other states do. Thus, completion of this option as well as any tests or requirements stipulated by the pertinent state department of education (other than Pennsylvania) should lead to a teacher certificate in Bilingual Education. In addition to the Common Requirements of the World Languages Education major, candidates select one of the language emphases, i.e., French, German, Latin, Russian, or Spanish, complete the courses associated with that emphasis and also the Common Requirements for all Emphases. Consequently, candidates also become eligible for teacher certification in the language selected as their language emphasis. Further, completers of this B.S. degree and option may also become eligible for the English as a Second Language (ESL) credential by completing six additional credits, i.e., APLNG 410 or APLNG 484, and APLNG 493.

Candidates are expected to have taken their choice of language coursework beyond the intermediate level to be eligible for enrollment in FR 201, or GER 201, or LATIN 400, or RUS 204, or SPAN 200. In general, students are encouraged to take at least one course in the chosen language each semester without interruption. Participation in an approved Education Abroad Study Program is required, typically during semester six.

English as a Second Language (ESL) Teaching Option

This option will lead to a baccalaureate degree only in conjunction with one of the other companion World Language Education Teaching options.

The ESL Teaching option is a joint offering of the Department of Curriculum and Instruction in the College of Education and the Department of Linguistics and Applied Language Studies in the College of the Liberal Arts. Dr. Youb Kim, Assistant Professor of Education and Applied Linguistics, and Joan Kelly Hall, Professor of Linguistics and Applied Linguistics, are co-directors of the program.

This option prepares candidates for advanced work in ESL and for the Pennsylvania teacher credential Program Specialist: English as a Second Language (ESL). However, the Pennsylvania Department of Education only issues the Program Specialist: ESL credential to holders

of Pennsylvania Instructional I or II certificates. Thus, completers of another World Languages Education Teaching option may first seek the Pennsylvania Instructional certificate in that language and may then add the Program Specialist: ESL credential, subsequently.

French Teaching Option

Completion of this option and pertinent tests required by the Pennsylvania Department of Education lead to the Pennsylvania Instructional I teacher certificate in French. Candidates are expected to have taken French coursework beyond the intermediate level to be eligible for enrollment in FR 201. In general, students are encouraged to take at least one course in French each semester without interruption. Participation in an approved Education Abroad Study Program is required, typically during semester six.

German Teaching Option

Completion of this option and pertinent tests required by the Pennsylvania Department of Education lead to the Pennsylvania Instructional I teacher certificate in German. Candidates are expected to have taken German coursework beyond the intermediate level to be eligible for enrollment in GER 201. In general, students are encouraged to take at least one course in German each semester without interruption. Participation in an approved Education Abroad Study Program is required, typically during semester six.

Latin Teaching Option

Completion of this option and pertinent tests required by the Pennsylvania Department of Education lead to the Pennsylvania Instructional I teacher certificate in Latin. Candidates are expected to have taken Latin coursework beyond the intermediate level to be eligible for enrollment in LATIN 400. In general, students are encouraged to take at least one course in Latin each semester without interruption. Participation in an approved Education Abroad Study Program is highly recommended, typically during semester six.

Russian Teaching Option

Completion of this option and pertinent tests required by the Pennsylvania Department of Education lead to the Pennsylvania Instructional I teacher certificate in Russian. Candidates are expected to have taken Russian coursework beyond the intermediate level to be eligible for enrollment in RUS 204. In general, students are encouraged to take at least one course in Russian each semester without interruption. Participation in an approved Education Abroad Study Program is required, typically during semester six.

Spanish Teaching Option

Completion of this option and pertinent tests required by the Pennsylvania Department of Education lead to the Pennsylvania Instructional I teacher certificate in Spanish. Candidates are expected to have taken Spanish coursework beyond the intermediate level to be eligible for enrollment in SPAN 110. In general, students are encouraged to take at least one course in Spanish each semester without interruption. Participation in an approved Education Abroad Study Program is required, typically during semester six.

What is World Languages Education?

The World Languages Education (WLED) major prepares graduates to teach in all grades from Pre-K through 12. Candidates choose from among the following language specializations: French, German, Latin, Russian, and Spanish. Along with studies on campus and in local

schools, students in this major typically complete a semester abroad experience to promote proficiency in the language they will teach.

You Might Like This Program If...

You aspire to teach another language, and to help open children's eyes about languages in diverse cultural contexts.

MORE INFORMATION ABOUT WORLD LANGUAGES (K-12) EDUCATION (<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/undergraduate-studies-ci/world-languages-education-bs-k-12/>)

Entrance to Major

Baccalaureate degree candidates must meet the following requirements 1-3 by the end of their third semester. Requirements 4-9 must be met by the end of the fourth semester when students typically participate in the Entrance-to-Major process.

1. A minimum cumulative grade point average of 3.00
2. Documentation of at least 80 hours of volunteer or paid education work experience with learners of the age group the candidate plans to teach. Candidates for World Languages Education must document 40 of these hours with learners who come from backgrounds that are different from the candidate's.
3. A grade of "C" or better in all specified courses.
4. Completion of an early field experience specified by the certification program.
5. Completion of a core of Education courses specified by the certification program.
6. Completion of additional credits as specified by the certification program.
7. Completion of at least 48 semester credit hours, including ENGL 15 or ENGL 30H, three credits of literature, and six credits of quantification
8. Language proficiency as described below.
9. Approval from the professional education adviser or the head of the pertinent certification program.

French Option

Proficiency equivalent through FR 3

Literature selection options in language: FR 351 or FR 352
FR 201 and FR 202

Spanish Option

Proficiency equivalent through SPAN 3

Literature selection options in language: SPAN 210, SPAN 220, or SPAN 253W
SPAN 215

German Option

Proficiency equivalent through GER 3

Literature selection options in language: GER 310
GER 201

Russian Option

Proficiency equivalent through: RUS 3

Literature selection options in language: RUS 304
RUS 204

Latin Option

Proficiency equivalent through: LATIN 3

Literature selection options in language: CAMS 45, LATIN 404

Degree Requirements

For the Bachelor of Science degree in World Languages Education with a dual certification option in Bilingual Education Teaching, a minimum of 140 credits is required; with an option in English as a Second Language (ESL) Teaching, a minimum of 136 credits is required, i.e., a minimum of 123 credits for the companion World Languages Education Teaching option selected, plus 12 credits to meet eligibility for the Program Specialist: ESL credential; with an option in French Teaching, a minimum of 128 credits is required; with an option in German Teaching, a minimum of 126 credits is required; with an option in Latin Teaching, a minimum of 125 credits is required; with an option in Russian Teaching, a minimum of 124 credits is required; with an option in Spanish Teaching, a minimum of 128 credits is required (See also Teacher Education Programs (<https://ed.psu.edu/academics/teacher-testing-certification/>)):

Requirement	Credits
General Education	45
Electives	1
Requirements for the Major	88-106

9-12 of the 45 credits for General Education are included in the Requirements for the Major. This includes 9-12 credits of General Education GS and GH courses.

Requirements for the Major

Common Requirements for the Major (All Options)

A grade of C or better per course is required for teacher certification.

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better for teacher certification</i>		
CI 280	Introduction to Teaching English Language Learners	3
CI 295	Introductory Field Experience for Teacher Preparation	3
CI 495E	Practicum in Student Teaching--Secondary Education	15
EDPSY 14	Learning and Instruction	3
EDTHP 115	Education in American Society	3
HDFS 229	Infant and Child Development	3
SPLED 400	Inclusive Special Ed Foundations: Legal, Characteristics, Collaboration, Assessment, and Management	4
SPLED 403B	Evidence-Based Methods for Teaching Secondary Students with Disabilities in Inclusive Settings	3
WLED 300	Foundations of Second Language Teaching	3
WLED 411	Methods of Teaching World Languages in Grades 1-5	3
WLED 412W	Methods of Teaching World Languages in Grades 6-12	3
WLED 495B	Field Experience for World Languages Teacher Preparation in Grades 1-5	3
WLED 495C	Field Experience for World Languages Teacher Preparation in Grades 6-12	3
Additional Courses		

Additional Courses: Require a grade of C or better for teacher certification

PSYCH 412	Adolescence	3
or HDFS 239	Adolescent Development	

Requirements for the Option

Select an option	33-51
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Requirements for the Option

Bilingual Education Teaching Option (48-51 credits)

Code	Title	Credits
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Prescribed Courses

WLED 414		3
WLED 422		3
WLED 444	Language, Culture and the Classroom: Issues for Practitioners	3

Additional Courses

Select 6 credits of 300- or 400-level option-related courses, with departmental recommendation	6
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Select an emphasis	33-36
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French Emphasis

Code	Title	Credits
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Prescribed Courses

FR 201	Oral Communication and Reading Comprehension ¹	3
FR 202	Grammar and Composition	3
FR 316	French Linguistics	3
FR 331	French and Francophone Culture I	3
FR 332	French and Francophone Culture II	3
FR 401	Advanced Oral Communication	3
FR 402Y	Advanced Grammar and Writing	3
FR 440	Teaching of Romance Languages	3

Additional Courses

FR 417	French Phonology	3
or FR 418	French Syntax	

Select one of the following:	3
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FR 137	Paris: Anatomy of a Global City	
FR 138N	French Culture Through Film	
FR 139	France and the French-speaking World	

Select one of the following:	3
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FR 351	French and Francophone Literature I	
FR 352	French and Francophone Literature II	
FR 460	Contemporary French Literature	

Select one of the following:	3
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FR 430	Contemporary France	
FR 458	African Literature of French Expression	
FR 470	Race and Gender Issues in Literatures in French	

¹ Proficiency in the language of choice must be demonstrated by either examination or coursework equivalent to the completion of 12 credits in order to enroll in FR 201.

German Emphasis

Code	Title	Credits
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Prescribed Courses

GER 201	Conversation and Composition ¹	4
GER 301	Intermediate Speaking and Listening	3
GER 310	Introduction to the Study of German Literature	3
GER 344	Intermediate German Culture	3
GER 401Y	Advanced Composition	3
GER 411	The Teaching of German	3

Additional Courses

GER 412	Contrastive Analysis of Modern German and English	3
or GER 430	History of the German Language	
GER 431	History of German Literature and Culture I	3
or GER 432	History of German Literature and Culture II	

Select 3 credits of the following:	3
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GER 157N	The Amish	
GER 200N	Contemporary German Culture	

Select 3 credits of the following:	3
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GER 480		
GER 481		
GER 482		

Select 3 credits of the following:	3
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GER 399	Foreign Study--German	
GER 440	Seminar in German Culture	
GER 482		
GER 497	Special Topics	
GER 499	Foreign Study--German	

¹ Proficiency in the language of choice must be demonstrated by either examination or coursework equivalent to the completion of 12 credits in order to enroll GER 201.

Latin Emphasis

Code	Title	Credits
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Prescribed Courses

CAMS 5	Ancient Mediterranean Civilizations	3
CAMS 50	Words: Classical Sources of English Vocabulary	3
CAMS 400W	Comparative Study of the Ancient Mediterranean World	3
LATIN 402	Republican Literature	3
LATIN 404	Silver Age Literature	3
LATIN 403	Augustan Age Literature	3
LATIN 450W	History of Latin	3
LING 102		3

Additional Courses

CAMS 101	The Roman Republic and Empire	3
or CAMS 150	Classical Archaeology--Ancient Rome	

Select 3 credits of the following:	3
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ANTH 45N	Cultural Diversity: A Global Perspective	
CAMS 33	Roman Civilization	
CAMS 45	Classical Mythology	

Select 3 credits of the following:	3
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CAMS 440W	Studies in Classical and Ancient Mediterranean Archaeology
CAMS 497	Special Topics
LATIN 497	Special Topics

Russian Emphasis

Code	Title	Credits
Prescribed Courses		
RUS 204	¹	4
RUS 214	Intermediate Russian III	4
RUS 304	Readings in Russian III	3
RUS 305	Advanced Russian Conversation	3
RUS 400		3
RUS 412	Russian Translation	3
RUS 450		3
Additional Courses		
RUS 450		3
or RUS 497	Special Topics	
Select 3 credits of the following:		3
RUS 100	Russian Culture and Civilization	
RUS 110	Russian Folklore	
Select 3 credits of the following:		3
RUS 141Y	Russian Literature in English Translation: 1800-1870	
RUS 142Y	Russian Literature in English Translation: 1870 to Present	
RUS 143	The Culture of Stalinism and Nazism	
Select 3 credits of the following:		3
RUS 494	Research Project	
RUS 497	Special Topics	
RUS 499	Foreign Studies	

¹ Proficiency in the language of choice must be demonstrated by either examination or coursework equivalent to the completion of 12 credits in order to enroll in RUS 204.

Spanish Emphasis

Code	Title	Credits
Prescribed Courses		
SPAN 110	Intermediate Conversation ¹	3
SPAN 215	The Science of Spanish: A Beginner's Guide to Hispanic Linguistics	3
SPAN 253W	Introduction to Literary & Cultural Studies en Español	3
SPAN 314	Spanish Sounds	3
SPAN 410	Advanced Oral Expression and Communication	3
SPAN 412	Translation	3
SPAN 440		3
Additional Courses		
SPAN 210	Readings in Iberian Civilization	3
or SPAN 220	Readings in Ibero-American Civilization	
SPAN 316	Building Words and Sentences in Spanish	3
Select 3 credits of the following:		3
SPAN 305	Spanish for Social Services	

SPAN 353	Topics in the Cultures of Spain	
SPAN 354	Topics in Cultural Contact and Exchange	
SPAN 355	Topics in the Cultures of Latin America	
SPAN 356	Topics in the Cultures of the Americas	
SPAN 399	Foreign Study--Spanish	
Select 3 credits of the following:		3
SPAN 399	Foreign Study--Spanish	
SPAN 472	The Contemporary Spanish American Novel	
SPAN 476	Masterpieces of Spanish American Literature	
SPAN 490	Masterpieces of Spanish Prose	
SPAN 491	Masterpieces of Spanish Drama and Poetry	
SPAN 497	Special Topics	

¹ Proficiency in the language of choice must be demonstrated by either examination or coursework equivalent to the completion of 12 credits in order to enroll in SPAN 110.

English as a Second Language (ESL) Teaching Option (45-49 credits)

Select 33-37 credits: This option must be taken in conjunction with one of the other World Languages Education Teaching Options.

Code	Title	Credits
Prescribed Courses		
APLNG 493	Teaching English as a Second Language	3
WLED 444	Language, Culture and the Classroom: Issues for Practitioners	3
WLED 483	Evaluating Schools Performances and Programs with English Language Learners (ELLs)	3
Additional Courses		
APLNG 410	Teaching American English Pronunciation	3
or APLNG 484	Discourse-Functional Grammar	

Holders of a baccalaureate degree and a valid Pennsylvania Instructional certificate, who seek only the Program Specialist: English as a Second Language credential, must complete the following 15 credits of Prescribed and Additional Courses. Typically, they do so in connection with other post-baccalaureate studies.

Code	Title	Credits
Prescribed Courses		
APLNG 493	Teaching English as a Second Language	3
WLED 300	Foundations of Second Language Teaching	3
WLED 444	Language, Culture and the Classroom: Issues for Practitioners	3
WLED 483	Evaluating Schools Performances and Programs with English Language Learners (ELLs)	3
Additional Courses		
APLNG 410	Teaching American English Pronunciation	3
or APLNG 484	Discourse-Functional Grammar	

French Teaching Option (36 credits)

Code	Title	Credits
Prescribed Courses		
FR 201	Oral Communication and Reading Comprehension ¹	3
FR 202	Grammar and Composition	3
FR 316	French Linguistics	3

FR 331	French and Francophone Culture I	3
FR 332	French and Francophone Culture II	3
FR 401	Advanced Oral Communication	3
FR 402Y	Advanced Grammar and Writing	3
FR 440	Teaching of Romance Languages	3

Additional Courses

FR 417	French Phonology	3
or FR 418	French Syntax	

Select one of the following: 3

FR 137	Paris: Anatomy of a Global City	
FR 138N	French Culture Through Film	
FR 139	France and the French-speaking World	

Select 3 credits of the following: 3

FR 351	French and Francophone Literature I	
FR 352	French and Francophone Literature II	
FR 460	Contemporary French Literature	

Select one of the following: 3

FR 430	Contemporary France	
FR 458	African Literature of French Expression	
FR 470	Race and Gender Issues in Literatures in French	

¹ Proficiency in French must be demonstrated by either examination or coursework equivalent to the completion of 12 credits in order to enroll in FR 201.

German Teaching Option (34 credits)

Code	Title	Credits
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Prescribed Courses

GER 201	Conversation and Composition ¹	4
GER 301	Intermediate Speaking and Listening	3
GER 310	Introduction to the Study of German Literature	3
GER 344	Intermediate German Culture	3
GER 401Y	Advanced Composition	3
GER 411	The Teaching of German	3

Additional Courses

GER 157N	The Amish	3
or GER 200N	Contemporary German Culture	
GER 412	Contrastive Analysis of Modern German and English	3
or GER 430	History of the German Language	
GER 431	History of German Literature and Culture I	3
or GER 432	History of German Literature and Culture II	

Select one of the following: 3

GER 480		
GER 481		
GER 482		

Select one of the following: 3

GER 399	Foreign Study–German	
GER 440	Seminar in German Culture	
GER 482		
GER 497	Special Topics	
GER 499	Foreign Study–German	

¹ Proficiency in German must be demonstrated by either examination or coursework equivalent to the completion of 12 credits in order to enroll in GER 201.

Latin Teaching Option (33 credits)

Code	Title	Credits
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Prescribed Courses

CAMS 5	Ancient Mediterranean Civilizations	3
CAMS 50	Words: Classical Sources of English Vocabulary	3
CAMS 400W	Comparative Study of the Ancient Mediterranean World	3
LATIN 402	Republican Literature	3
LATIN 403	Augustan Age Literature	3
LATIN 404	Silver Age Literature	3
LATIN 450W	History of Latin	3
LING 102		3

Additional Courses

CAMS 33	Roman Civilization	3
or CAMS 45	Classical Mythology	
CAMS 101	The Roman Republic and Empire	3
or CAMS 150	Classical Archaeology–Ancient Rome	

Select one of the following: 3

CAMS 440W	Studies in Classical and Ancient Mediterranean Archaeology	
CAMS 497	Special Topics	
LATIN 497	Special Topics	

¹ Proficiency in Latin must be demonstrated by either examination or coursework equivalent to the completion of 12 credits in order to enroll in 400-level Latin courses.

Russian Teaching Option (35 credits)

Code	Title	Credits
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Prescribed Courses

RUS 204	¹	4
RUS 214	Intermediate Russian III	4
RUS 304	Readings in Russian III	3
RUS 305	Advanced Russian Conversation	3
RUS 400		3
RUS 412	Russian Translation	3
RUS 450		3

Additional Courses

RUS 450		3
or RUS 497	Special Topics	

Select one of the following: 3

RUS 100	Russian Culture and Civilization	
RUS 110	Russian Folklore	

Select one of the following: 3

RUS 141Y	Russian Literature in English Translation: 1800-1870	
RUS 142Y	Russian Literature in English Translation: 1870 to Present	
RUS 143	The Culture of Stalinism and Nazism	

Select one of the following:	3
RUS 494 Research Project	
RUS 497 Special Topics	
RUS 499 Foreign Studies	

¹ Proficiency in Russian must be demonstrated by either examination or coursework equivalent to the completion of 12 credits in order to enroll in RUS 204.

Spanish Teaching Option (33 credits)

Code	Title	Credits
Prescribed Courses		
SPAN 110	Intermediate Conversation ¹	3
SPAN 215	The Science of Spanish: A Beginner's Guide to Hispanic Linguistics	3
SPAN 253W	Introduction to Literary & Cultural Studies en Español	3
SPAN 314	Spanish Sounds	3
SPAN 410	Advanced Oral Expression and Communication	3
SPAN 412	Translation	3
SPAN 440		3
Additional Courses		
SPAN 210	Readings in Iberian Civilization	3
or SPAN 220	Readings in Ibero-American Civilization	
SPAN 316	Building Words and Sentences in Spanish	3
Select one of the following:		3
SPAN 305	Spanish for Social Services	
SPAN 353	Topics in the Cultures of Spain	
SPAN 354	Topics in Cultural Contact and Exchange	
SPAN 355	Topics in the Cultures of Latin America	
SPAN 356	Topics in the Cultures of the Americas	
SPAN 399	Foreign Study--Spanish	
Select one of the following:		3
SPAN 399	Foreign Study--Spanish	
SPAN 472	The Contemporary Spanish American Novel	
SPAN 476	Masterpieces of Spanish American Literature	
SPAN 490	Masterpieces of Spanish Prose	
SPAN 491	Masterpieces of Spanish Drama and Poetry	
SPAN 497	Special Topics	

¹ Proficiency in Spanish must be demonstrated by either examination or coursework equivalent to enroll in SPAN 110.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Advising and Certification Center

228 Chambers Building
University Park, PA 16802
814-865-0488
ed@admissions.psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

French Option: World Languages (K-12) Education, B.S. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
EDUC 100	1 FR 202 ^{*#}	3
ENGL 15 ^{*#†}	3 HDFS 229 ^{*#†}	3
FR 201 ^{*#}	3 EDTHP 115 ^{*#}	3
EDPSY 14 ^{*#}	3 Science Selection [†]	3
Science Selection [†]	3 Art Selection [†]	3

Mathematics Selection ^{*#†}	3	
	16	15

Second Year

Fall	Credits Spring	Credits
HDFS 239 or PSYCH 412 ^{*†}	3 WLED 300 ^{*#}	3
FR 331 ^{*†}	3 CI 280 ^{*†}	3
FR 316 ^{*†}	3 FR 332 [*]	3
CI 295 ^{*#}	2 FR 351 or 352 ^{*#†}	3
Mathematics Selection ^{*#}	3 Science Selection [†]	3
Health and Physical Activity [†]	1.5	
	15.5	15

Third Year

Fall	Credits Spring	Credits
WLED 411 [*]	3 Art Selection	3
WLED 495B [*]	3 FR 402Y [*]	3
SPLED 400 [*]	4 FR 440 or WLED 399A [*]	3
CAS 100A [†]	3 FR 401 [*]	3
FR 417 or 418 [*]	3 FR 137, 138N, or 139 [*]	3
	FR 430, 458, or 470 [*]	3
	16	18

Fourth Year

Fall	Credits Spring	Credits
WLED 412W [*]	3 CI 495E ^{*1}	15
ENGL 202A or 202B [†]	3	
SPLED 403B [*]	3	
WLED 495C [*]	3	
Health and Physical Activity [†]	1.5	
Elective	3	
	16.5	15

Total Credits 127

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and

ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

¹ No additional coursework permitted during student teaching.

German Option: World Languages (K-12) Education, B.S. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
EDUC 100	1 HDFS 229 ^{*#†}	3
GER 201 ^{*#}	4 GER 301 [*]	3
ENGL 15 ^{*#†}	3 EDTHP 115 ^{*#}	3
EDPSY 14 ^{*#}	3 Science Selection	3
Mathematics Selection ^{*#†}	3 Art Selection [†]	3
Science Selection [†]	3	
	17	15

Second Year

Fall	Credits Spring	Credits
GER 310 ^{*#†}	3 WLED 300 ^{*#}	3
HDFS 239 or PSYCH 412 ^{**†}	3 CI 280 ^{**†}	3
CI 295 ^{*#}	2 GER 344 [*]	3
GER 157N or 200N [*]	3 Science Selection [†]	3
Mathematics Selection ^{*#†}	3 Art Selection [†]	3
Health and Physical Activity [†]	1.5	
	15.5	15

Third Year

Fall	Credits Spring	Credits
WLED 411 [*]	3 GER 399, 440, or 497 [*]	3
WLED 495B [*]	3 GER 431 or 432 [*]	3
GER 401Y [*]	3 GER 412 or 430 [*]	3
SPLD 400 [*]	4 GER 411 or WLED 399A [*]	3
CAS 100A [†]	3 400-Level German Literature [*]	3
	Elective	3
	16	18

Fourth Year

Fall	Credits Spring	Credits
WLED 412W [*]	3 CI 495E ^{*1}	15
WLED 495C [*]	3	
ENGL 202A or 202B [†]	3	
SPLD 403B [*]	3	
Health and Physical Activity	1.5	
	13.5	15

Total Credits 125

* Course requires a grade of C or better for the major

† Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

¹ No additional coursework permitted during student teaching.

Latin Option: World Languages (K-12) Education, B.S. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
EDUC 100	1 EDPSY 14 ^{*#}	3
ENGL 15 ^{*#†}	3 HDFS 229 ^{*#†}	3
CAMS 50 ^{*†}	3 LING 102 [*]	3
CAMS 5 [*]	3 CAMS 45 or 33 ^{*#†}	3
Science Selection [†]	3 Mathematics Selection ^{*#†}	3
Art Selection [†]	3	
	16	15

Second Year

Fall	Credits Spring	Credits
EDTHP 115 ^{*#}	3 CAS 100A [†]	3
LATIN 404 ^{*#}	3 CI 295 ^{*#}	3
HDFS 239 or PSYCH 412 ^{*†}	3 WLED 300 ^{*#}	3
Mathematics Selection ^{*#†}	3 CI 280 [*]	3
Science Selection [†]	3 CAMS 101 or 150 [*]	3
	15	15

Third Year

Fall	Credits Spring	Credits
WLED 411 [*]	3 CAMS 410 [*]	3
WLED 495B [*]	3 CAMS 440W, 497, LATIN 404, or LATIN 497 [*]	3
LATIN 402 [*]	3 CAMS 400W [*]	3
SPLLED 400 [*]	4 ENGL 202A or 202B [†]	3
Science Selection [†]	3 Art Selection [†]	3
Health and Physical Activity [†]	1.5 Health and Physical Activity [†]	1.5
	17.5	16.5

Fourth Year

Fall	Credits Spring	Credits
SPLLED 403B [*]	3 CI 495E ^{*1}	15
WLED 412W [*]	3	
WLED 495C [*]	3	
LATIN 403 [*]	3	
LATIN 450W [*]	3	
	15	15

Total Credits 125

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

¹ No other coursework permitted during student teaching.

Russian Option: World Languages (K-12) Education, B.S. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
EDUC 100	1 EDPSY 14 ^{*#}	3
ENGL 15 ^{*#†}	3 HDFS 229 ^{*#†}	3
RUS 204 ^{*#}	4 RUS 214 [*]	4
Science Selection [†]	3 RUS 100 or 110 [*]	3
Art Selection ^{*†}	3 Mathematics Selection ^{*#†}	3
Health and Physical Activity [†]	1.5	
	15.5	16

Second Year

Fall	Credits Spring	Credits
EDTHP 115 ^{*#}	3 CAS 100A [†]	3
HDFS 239 or PSYCH 412 ^{*†}	3 CI 295 ^{*#}	3
RUS 304 ^{*#†}	3 WLED 300 ^{*#}	3
Science Selection [†]	3 CI 280 ^{*†}	3
Mathematics Selection ^{*#†}	3 RUS 305 [*]	3
	Health and Physical Activity [†]	1.5
	15	16.5

Third Year

Fall	Credits Spring	Credits
WLED 411 [*]	3 RUS 412 [*]	3
WLED 495B [*]	3 RUS 494, 497, or 499 [*]	3
RUS 143 [*]	3 RUS 497	3
SPLD 400 [*]	4 Art Selection [†]	3
Science Selection [†]	3	
	16	12

Fourth Year

Fall	Credits Spring	Credits
SPLD 403B [*]	3 CI 495E ^{*1}	15
WLED 412W [*]	3	
WLED 495C [*]	3	
ENGL 202A or 202B [†]	3	
RUS 400 [*]	3	
	15	15

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

¹ No additional coursework is permitted during student teaching.

Spanish Option: World Languages (K-12) Education, B.S. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
EDUC 100	1 HDFS 229 ^{*#†}	3
SPAN 100 [*]	3 SPAN 110 or 200 ^{*#}	3
ENGL 15 ^{*#†}	3 SPAN 215 [*]	3
EDPSY 14 ^{*#}	3 EDTHP 115 ^{*#}	3
Science Selection [†]	3 Art Selection [†]	3
Mathematics Selection ^{*#†}	3	
	16	15

Second Year

Fall	Credits Spring	Credits
HDFS 239 or PSYCH 412 ^{*†}	3 WLED 300 ^{*#}	3
SPAN 253W ^{*#†}	3 CI 280 ^{*†}	3
CI 295 ^{*#}	3 Spanish Phonology ^{*1}	3
Science Selection [†]	3 Art Selection [†]	3
Mathematics Selection ^{*#†}	3 Science Selection [†]	3
Health and Physical Activity [†]	1.5	
	16.5	15

Third Year

Fall	Credits Spring	Credits
WLED 411 [*]	3 SPAN 472, 476, 490, or 497 [*]	3
WLED 495B [*]	3 SPAN 305, 353, 354, 355, or 356 [*]	3
CAS 100A [†]	3 SPAN 410 [*]	3
SPLD 400 [*]	4 SPAN 412 [*]	3
SPAN 418 [*]	3 SPAN 210 or 220 [*]	3
	SPAN 440 [*]	3
	16	18

Fourth Year

Fall	Credits Spring	Credits
WLED 412W [*]	3 CI 495E ^{*2}	15
WLED 495C [*]	3	
ENGL 202A or 202B [†]	3	
SPLD 403B [*]	3	
Health and Physical Activity [†]	1.5	
Elective	3	
	16.5	15

Total Credits 128

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

¹ SPAN 414 is no longer offered; students are encouraged to take SPAN 314 to satisfy requirement.

² No additional coursework permitted during student teaching.

Career Paths

Our graduates teach in public and private schools in Pennsylvania, elsewhere in the U.S., and overseas. Education is a profession, and all teachers are expected to continue studying and developing new skills throughout their careers. In most U.S. states, teacher certification is a multi-stage process, with graduate study beyond a bachelor's degree expected early in a teacher's career. Graduates of this program who work in public schools usually go on to earn a master's degree. Alumni who wish to continue educational studies at the graduate level through Penn State can do so at University Park and through the University's World Campus.

Careers

In addition to resources like the College's Advising and Certification Center and Penn State Career Services, the University hosts large education career fairs in both the fall and spring semesters, which bring recruiters to campus from throughout Pennsylvania and the United States.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE WORLD LANGUAGES (K-12) EDUCATION PROGRAM (<https://studentaffairs.psu.edu/career/>)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/graduate-studies-program-curriculum-and-instruction/>)

Professional Resources

- Pennsylvania State Education Association (for students) (<https://www.psea.org/resources-by-profession/student-psea/>)

- American Council on the Teaching of Foreign Languages (ACTFL) (<https://www.actfl.org>)
- Language Teaching Professional Organizations (<http://languageconsortium.org/professional-organizations/>)

Accreditation

The College of Education educator preparation programs are fully accredited at the Initial and Advanced levels by the Council for the Accreditation of Educator Preparation (CAEP). The next CAEP program review will be Fall 2026. CAEP advances excellence in educator preparation through evidence-based accreditation that assures quality and supports continuous improvement to strengthen P-12 student learning.

MORE INFORMATION ABOUT ACCREDITATION OF THE WORLD LANGUAGES (K-12) EDUCATION PROGRAM (<https://ed.psu.edu/about/accreditations/>)

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

University Park

DEPARTMENT OF CURRICULUM AND INSTRUCTION
141 Chambers Building
University Park, PA 16802
814-865-1500
rmz101@psu.edu

<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/undergraduate-studies-ci/world-languages-education-bs-k-12> (<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/undergraduate-studies-ci/world-languages-education-bs-k-12/>)

Engineering

About the College

Tonya Peeples, Interim Dean of Engineering

For more than a century, our college has been a leader in engineering education and research, preparing young people to become leaders within their professions and communities. Our faculty and students produce game-changing research that advances our society and solves global problems, creating jobs that grow our economy, and informing policy to shape our world. Today we look forward, seeing endless possibilities ahead, especially as we prioritize the pursuit of equity across our community of students, faculty, and staff. We are driven to build an inclusive and diverse community where everyone thrives. We are driven to perform research that impacts the lives of people around the world. We are committed to impacting society and embracing the challenges ahead with a passion for a bright future for humankind. We invite you to join us and be part of this exciting future.

MORE INFORMATION ABOUT THE COLLEGE (<https://www.engr.psu.edu/>)

Mission and Goals

To nurture and train world-class socially aware, globally connected, diverse engineers, educators, and researchers with rigorous core knowledge and problem-solving skills, who understand complex, interacting engineering and societal systems. To develop innovative solutions to the world's most pressing challenges through transformational interdisciplinary research.

MORE INFORMATION ABOUT THE MISSION AND GOALS OF THE COLLEGE OF ENGINEERING (<https://www.engr.psu.edu/strategic-plan-and-initiatives/>)

Accreditation

All the engineering baccalaureate programs in the College of Engineering are accredited by the Engineering Accreditation Commission of ABET, <https://abet.org> (<https://www.abet.org>).

The Computer Science program in the College of Engineering is accredited by the Computing Accreditation Commission of ABET, <https://abet.org> (<https://www.abet.org>).

Departments and Schools

Department of Aerospace Engineering

Aerospace engineering is the primary field of engineering concerned with the design, development, testing, and production of aircraft, spacecraft, and related systems and equipment. The field has traditionally focused on problems related to atmospheric and space flight, with two major and overlapping branches: aeronautical engineering and astronautical engineering.

MORE INFORMATION ABOUT THE DEPARTMENT OF AEROSPACE ENGINEERING (<https://www.aero.psu.edu/>)

Department of Agricultural and Biological Engineering

Department of Agricultural and Biological Engineering is the integration of engineering fundamentals with biological, agricultural, and environmental sciences. Students take a holistic approach to study agricultural production, processing of food and other bio-based materials, and natural resource protection. They apply this understanding to engineering challenges, such as providing safe food and clean water.

MORE INFORMATION ABOUT THE DEPARTMENT OF AGRICULTURAL AND BIOLOGICAL ENGINEERING (<https://abe.psu.edu/>)

Department of Architectural Engineering

Architectural Engineering focuses on the scientific and engineering aspects of planning, designing, analyzing, constructing, and operating buildings, supporting the mission of the occupants and owner. Coursework focuses on integrated building solutions related to the structural system; heating, ventilating, and air conditioning systems; acoustics; lighting and electrical systems, and construction management.

MORE INFORMATION ABOUT THE DEPARTMENT OF ARCHITECTURAL ENGINEERING (<https://www.ae.psu.edu/>)

Department of Biomedical Engineering

The Department of Biomedical Engineering is built upon the apex of engineering, medicine, healthcare policy and biological discovery. Biomedical Engineering prepares students to become future leaders in

the areas of medical device design, instrumentation, medical imaging, healthcare management, biomedical research and academia.

MORE INFORMATION ABOUT THE DEPARTMENT OF BIOMEDICAL ENGINEERING (<https://www.bme.psu.edu/>)

Department of Chemical Engineering

Chemical Engineering combines the principles of chemistry, biology, mathematics and physics to solve some of today's most pressing societal issues in human health, environmental sustainability, and energy.

MORE INFORMATION ABOUT THE DEPARTMENT OF CHEMICAL ENGINEERING (<https://www.che.psu.edu/>)

Department of Civil and Environmental Engineering

Civil Engineering educates future engineers through solid science and engineering principles by identifying engineering challenges, creating pioneering solutions, and leading the industry with research discoveries and design innovations. We tackle some of the major problems facing society today in order to advance the fields of civil and environmental engineering.

MORE INFORMATION ABOUT THE DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING (<https://www.cee.psu.edu/>)

School of Electrical Engineering and Computer Science

The majors in the School of Electrical Engineering and Computer Science (EECS) provide engineering education in fields that are at the forefront of 21st century technology: computation, cyber security, communications, materials, machine learning, power/energy systems, and information processing.

MORE INFORMATION ABOUT THE SCHOOL OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCE (<https://www.eecs.psu.edu/>)

Department of Engineering Science and Mechanics

Engineering science is a broad discipline that encompasses the many different scientific principles and associated mathematics that underlie engineering. It integrates engineering, biological, chemical, mathematical, and physical sciences with the arts, humanities, social sciences, and the professions to tackle the most demanding challenges and advance the well-being of global society. Engineering scientists research, develop, and design new materials, devices, sensors, and processes for a diverse range of applications.

MORE INFORMATION ABOUT THE DEPARTMENT OF ENGINEERING SCIENCE AND MECHANICS (<https://www.esm.psu.edu/>)

Department of Industrial and Manufacturing Engineering

Industrial Engineers (IEs) design systems and processes to eliminate wastefulness and improve efficiencies. IEs are trained to be problem solvers that have an eye toward innovation and sustainability. They work in a variety of fields to develop solutions for challenges in management, manufacturing, logistics, health systems, retail, service, and ergonomics.

MORE INFORMATION ABOUT THE DEPARTMENT OF INDUSTRIAL AND MANUFACTURING ENGINEERING (<https://www.ime.psu.edu/>)

Department of Mechanical Engineering

Mechanical engineering uses a combination of physics, chemistry, mathematics, and materials science to study mechanical, fluid, and thermal systems. Mechanical engineers create things that help improve

the health, happiness and safety of our everyday lives such as biomedical devices, aircraft propulsion, and ways to store renewable energies.

MORE INFORMATION ABOUT THE DEPARTMENT OF MECHANICAL ENGINEERING (<https://www.me.psu.edu/>)

Department of Nuclear Engineering

Nuclear engineering is a multidisciplinary field that includes providing nuclear power for electrical production, and includes understanding and improving nuclear science, nuclear safety, and nuclear security. Graduates may apply their skills to treat diseases, operate nuclear energy systems, develop regulations to ensure safety, or facilitate space exploration.

MORE INFORMATION ABOUT THE DEPARTMENT OF NUCLEAR ENGINEERING (<https://www.nuce.psu.edu/>)

School of Engineering Design and Innovation

The School of Engineering Design and Innovation (SEDI) delivers effective engineering education through active, collaborative, project-based, and professionally oriented classroom experiences. SEDI offers a variety of programs that partner faculty, students, and industry in the study of real-life engineering problems and solve them with innovative, humanitarian solutions.

MORE INFORMATION ABOUT THE SCHOOL OF ENGINEERING DESIGN AND INNOVATION (<https://www.sedi.psu.edu/>)

Baccalaureate Degrees

- Aerospace Engineering, B.S.
- Architectural Engineering, B.A.E.
- Biological Engineering, B.S.
- Biomedical Engineering, B.S.
- Chemical Engineering, B.S.
- Civil Engineering, B.S. (Engineering)
- Computer Engineering, B.S. (Engineering)
- Computer Science, B.S. (Engineering)
- Data Sciences, B.S. (Engineering)
- Electrical Engineering Technology, B.S. (Engineering)
- Electrical Engineering, B.S. (Engineering)
- Electro-Mechanical Engineering Technology, B.S. (Engineering)
- Engineering Science, B.S.
- Engineering, B.S.
- Industrial Engineering, B.S. (Engineering)
- Mechanical Engineering, B.S. (Engineering)
- Nuclear Engineering, B.S.
- Surveying Engineering, B.S.

Associate Degrees

- Biomedical Engineering Technology, A.ENG.T.
- Electrical Engineering Technology, A.ENG.T. (Engineering)
- Mechanical Engineering Technology, A.ENG.T. (Engineering)
- Surveying Engineering Technology, A.ENG.T.

Minors

- Biological Engineering, Minor
- Biomedical Engineering, Minor

- Computational Sciences, Minor
- Computer Engineering, Minor (Engineering)
- Cybersecurity Computational Foundations, Minor
- Engineering Design, Minor
- Engineering Leadership Development, Minor
- Engineering Mechanics, Minor
- Environmental Engineering, Minor
- Information Sciences and Technology for Aerospace Engineering, Minor
- Information Sciences and Technology for Industrial Engineering, Minor
- International Engineering, Minor
- Nanotechnology, Minor
- Residential Construction, Minor
- Service Enterprise Engineering, Minor
- Six Sigma, Minor

Certificates

- Engineering and Community Engagement, Certificate
- Engineering Design with Digital Tools, Certificate
- Engineering Design, Certificate
- Housing, Certificate
- International Engineering, Certificate
- Nanotechnology, Certificate
- Product Innovation Entrepreneurship, Certificate
- Space Systems Engineering, Certificate

College Procedures

Administrative Enrollment Controls

Students should work with an appropriate academic adviser to determine their Entrance to Major (ETM) requirements for their intended College of Engineering major.

MORE INFORMATION ABOUT ADMINISTRATIVE ENROLLMENT CONTROLS FOR PROGRAMS IN THE COLLEGE OF ENGINEERING (<https://advising.engr.psu.edu/advising/entrance-to-major/>)

Change of Campus

Students generally declare their academic major at the end of their second year of enrollment during the entrance to major process. If the student applies for a major that is not offered at the student's current location, the student will be required to select an approved location during the entrance to major process.

MORE INFORMATION ABOUT CHANGE OF CAMPUS (<https://advising.engr.psu.edu/student-resources/change-of-campus.aspx>)

Concurrent Major

A Concurrent Majors Program is one in which students take courses to concurrently meet the requirements of at least two majors, with graduation for all majors in the program occurring during the same semester.

MORE INFORMATION ABOUT CONCURRENT MAJORS (<https://advising.engr.psu.edu/student-resources/multiple-majors.aspx>)

READ SENATE POLICY 60-00: COMPLETING MORE THAN ONE UNDERGRADUATE MAJOR PROGRAM (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/60-00-completing-more-than-one-undergraduate-program/#60-00>)

Academic Warning

A student who fails to earn a 2.00 cumulative grade-point average will be placed on academic warning. A student placed on academic warning will have a hold placed on registration and will be required to meet with an academic adviser in order for this registration hold to be removed. To remove academic warning, the cumulative grade-point average must be 2.00 or higher.

Students on academic warning should work closely with their assigned academic adviser or the College of Engineering Advising Center to identify and address issues impacting their academic success.

MORE INFORMATION ABOUT ACADEMIC WARNING (<https://advising.engr.psu.edu/academic-support/policies-and-procedures.aspx>)

READ SENATE POLICY 54-20: ACADEMIC WARNING (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-20>)

Academic Suspension

A student in academic warning who fails to maintain a semester grade-point average of 2.00 or higher will be academically suspended. A student who has been academically suspended may not schedule courses at the University for two consecutive semesters. (Note: Summer session is equal to one semester.)

A student seeking to return to the College of Engineering after academic suspension is required to meet with an academic adviser and follow the procedures outlined by the Engineering Advising Center (<https://advising.engr.psu.edu/assets/docs/return-from-suspension-fa21.pdf>).

MORE INFORMATION ABOUT ACADEMIC SUSPENSION (<https://advising.engr.psu.edu/student-resources/returning-to-the-university.aspx>)

READ SENATE POLICY 54-40: ACADEMIC SUSPENSION (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-40>)

Resources

Engineering Advising Center

The Engineering Advising Center is the source for information about undergraduate engineering major options, scheduling, degree requirements, entrance-to-major, and more. With a team of dedicated academic advisers, students are provided resources and support as they explore choices regarding their academic interests and co-curricular opportunities.

MORE INFORMATION ABOUT THE ENGINEERING ADVISING CENTER (<https://advising.engr.psu.edu/>)

Center for Engineering Outreach and Inclusion

The Center for Engineering Outreach and Inclusion (CEOI) assists all students in the pursuit of their undergraduate and graduate degrees. Founded to serve students from groups underrepresented in engineering, the center has grown to assist all students, faculty, and staff in the

College with their engagement in equity and inclusion through evidence-based best practices and programs.

MORE INFORMATION ABOUT THE CENTER FOR ENGINEERING OUTREACH AND INCLUSION (<https://inclusion.engr.psu.edu/>)

Career Resources & Employer Relations

Career Resources & Employer Relations (CR&ER) provides career advising and resources to all engineering students and alumni from all Penn State campuses. CR&ER staff review résumés and cover letters, provide guidance about the job search process, encourage student engagement with Engineering Career Envoys for peer mentorship, and help students find internship, co-op, and entry-level full-time jobs through Nittany Lion Careers and other online platforms. We also connect students with employers across a range of industries at a wide variety of career events each academic year, including information sessions, career fairs, and seminars.

MORE INFORMATION ABOUT THE CAREER RESOURCES & EMPLOYER RELATIONS (<https://career.engr.psu.edu/>)

Global Engineering Engagement

Engineering students can choose from a variety of study abroad programs spanning six continents, from short-term or semester-long programs to global experiences embedded in the curriculum. Global Engineering Fellows are engineering students who can offer peer-to-peer information, advice, and insight on study abroad.

MORE INFORMATION ABOUT GLOBAL ENGINEERING ENGAGEMENT (<https://global.engr.psu.edu/>)

Honors Programs

Schreyer Honors College

The Schreyer Honors College, regarded as one of the nation's top programs of its kind, promotes achieving academic excellence with integrity, building a global perspective, and creating opportunities for leadership and civic engagement. Schreyer Scholars, including those admitted after their first or second year of enrollment, are a diverse and motivated group of approximately 2,000 students at University Park and 20 Commonwealth campuses. The College strives to educate students who will have an important and ethical influence in the world, to improve educational practice, and to continue to be recognized as a leading force in honors education nationwide.

MORE INFORMATION ABOUT THE SCHREYER HONORS COLLEGE (<https://www.shc.psu.edu>)

Honors in the College of Engineering

The Engineering Science major - also the College of Engineering's honors program - is a multidisciplinary honors program for engineering students who demonstrate superior academic potential or achievement. Students obtain depth of knowledge through technical electives and a capstone research and design project (senior honors thesis).

MORE INFORMATION ABOUT HONORS IN THE COLLEGE OF ENGINEERING (<https://www.esm.psu.edu/academics/undergraduate/engineering-science-major.aspx>)

Contact

COLLEGE OF ENGINEERING
208 Hammond Building

University Park, PA 16802
814-863-1033
adviser@engr.psu.edu

<https://advising.engr.psu.edu>

Aerospace Engineering, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

This major emphasizes the analysis, design, and operation of aircraft and spacecraft. Students learn the theories and practices in the fundamental subjects of aeronautics, astronautics, aerodynamics and fluid dynamics, aerospace materials and structures, dynamics and automatic control, aircraft stability and control and/or orbital and attitude dynamics and control, air-breathing and rocket propulsion, aircraft systems design and /or spacecraft systems design. All of these place significant weight on the development and use of teamwork and communications skills for effective problem-solving. Graduates in aerospace engineering find employment in the customary settings such as government laboratories, large and small aerospace firms, and in nontraditional positions that also require the use of systems-engineering approaches to problem-solving; they can also pursue graduate study in aerospace engineering and related fields.

What is Aerospace Engineering?

Aerospace engineering is the primary field of engineering concerned with the design, development, testing, and production of aircraft, spacecraft, and related systems and equipment. The field has traditionally focused on problems related to atmospheric and space flight, with two major and overlapping branches: aeronautical engineering and astronautical engineering. Aerospace engineers develop leading-edge technologies and integrate them into aerospace vehicle systems used for transportation, communications, exploration, and defense applications. This involves the design and manufacturing of aircraft, spacecraft, propulsion systems, satellites, and missiles, as well as the design and testing of aircraft and aerospace products, components, and subassemblies. Successful aerospace engineers possess in-depth skills in, and an understanding of, aerodynamics, materials and structures, propulsion, vehicle dynamics and control, and software.

You Might Like This Program If...

- You are interested in developing leading-edge technologies and integrating them into aerospace vehicle systems used for transportation, communications, exploration, and defense applications.
- You want to obtain a solid understanding of the foundations of aerospace systems: aerodynamics, structures, propulsion, dynamics and controls, and software, as well as unmanned air vehicles (UAVs), nano-materials, autonomous systems, and wind energy.
- You want to develop professional excellence, engineering thinking, and gain deep technical knowledge in the core disciplines and integrative systems of aerospace engineering through an innovative curriculum and world-class instruction.
- You want to make a significant global impact.

Entrance to Major

This program currently has administrative enrollment controls. Administrative Enrollment Controls are initiated when limitations of space, faculty, or other resources in a major prevent accommodating all students who request them. Students must follow the administrative enrollment controls that are in effect for the semester that they enter the university.

First-Year Students Entering Summer 2024, Fall 2024, Spring 2025

In order to be eligible for entrance to this major, students must satisfy the following requirements:

- be enrolled in the College of Engineering or the Division of Undergraduate Studies
- 29-55 graded Penn State credits (excludes transfer and AP credits)
- completed with a grade of C or better: CHEM 110, EDSGN 100, MATH 140, MATH 141, PHYS 211
- earned a minimum cumulative grade-point average (GPA) of 2.90

Students Who Entered Prior to Summer 2024

Students who entered the University from Summer 2018 through Spring 2024 should view the administrative enrollment controls in the appropriate Undergraduate Bulletin archive (<https://bulletins.psu.edu/undergraduate/archive/>). Students who entered the University prior to the summer 2018 semester should consult with their academic adviser about the administrative enrollment controls in effect for the semester they entered the university.

Degree Requirements

For the Bachelor of Science degree in Aerospace Engineering, a minimum of 131 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	113-117

27 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 9 credits of GWS courses.

The first two years of study are similar to those in other engineering majors and provide students with a basic education for the engineering profession. Students need to complete EMCH 212, CMPSC 121 or CMPSC 131 or CMPSC 200 or CMPSC 201, MATH 220, MATH 230, and MATH 250 or MATH 251 prior to the start of the junior year in order to meet graduation requirements in the following two years. Six of the nine technical-elective credits taken in the senior year must be aerospace engineering courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
AERSP 304	Dynamics and Control of Aerospace Systems	3

AERSP 305W	Aerospace Technology Laboratory	3
AERSP 312	Aerodynamics II	3
AERSP 410	Aerospace Propulsion	3
EMCH 315	Mechanical Response of Engineering Materials	2
EMCH 316	Experimental Determination of Mechanical Response of Materials	1
MATH 220	Matrices	2-3
MATH 230	Calculus and Vector Analysis	4
ME 201	Introduction to Thermal Science	3
PHYS 214	General Physics: Wave Motion and Quantum Physics	2

Prescribed Courses: Require a grade of C or better

AERSP 301	Aerospace Structures	3
AERSP 306	Aeronautics	3
AERSP 309	Astronautics	3
AERSP 311	Aerodynamics I	3
AERSP 313	Aerospace Analysis	3
CHEM 110	Chemical Principles I	3
EDSGN 100	Cornerstone Engineering Design	3
EMCH 212	Dynamics	3
ENGL 202C	Effective Writing: Technical Writing	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
PHYS 211	General Physics: Mechanics	4
PHYS 212	General Physics: Electricity and Magnetism	4

Additional Courses

Select 1 credit of First-Year Seminar		1
AERSP 413	Stability and Control of Aircraft	3
or AERSP 450	Orbit and Attitude Control of Spacecraft	
Select 3 credits from the following:		3
CMPSC 121	Introduction to Programming Techniques	
CMPSC 131	Programming and Computation I: Fundamentals	
CMPSC 200	Programming for Engineers with MATLAB	
CMPSC 201	Programming for Engineers with C++	
Select 3 credits from the following:		3
ECON 102	Introductory Microeconomic Analysis and Policy	
ECON 104	Introductory Macroeconomic Analysis and Policy	
ECON 14	Principles of Economics	
Select 5-6 credits of the following:		5-6
EMCH 210	Statics and Strength of Materials	
EMCH 211	Statics	
& EMCH 213	and Strength of Materials	
Select one of the following sequences:		5
AERSP 401A	Spacecraft Design—Preliminary	
& AERSP 401B	and Spacecraft Design—Detailed	
AERSP 402A	Aircraft Design—Preliminary	
& AERSP 402B	and Aircraft Design—Detailed	
Select 3-4 credits from the following:		3-4
AERSP 424	Advanced Computer Programming	
EE 210	Circuits and Devices	
EE 212	Introduction to Electronic Measuring Systems	
<i>Additional Courses: Require a grade of C or better</i>		
CAS 100A	Effective Speech	3

or CAS 100B	Effective Speech	
ENGL 15	Rhetoric and Composition	3
or ENGL 30H	Honors Rhetoric and Composition	
MATH 250	Ordinary Differential Equations	3-4
or MATH 251	Ordinary and Partial Differential Equations	

Supporting Courses and Related Areas

Select 6 credits of Aerospace Technical Elective (ATE) courses from department list	6
Select 3 credits of General Technical Elective (GTE) courses from department list	3
Select 3 credits of Limited Elective (LE) courses from department list ¹	3

¹ Students who complete Basic ROTC may substitute 6 of the ROTC credits for 3 credits of LE and 3 credits of GHW.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3

credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Aerospace Engineering and M.I.A. in International Affairs

Requirements for the Integrated B.S. in Aerospace Engineering and M.I.A. in International Affairs can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/international-affairs/#integratedundergradgradprogramstext>).

Program Educational Objectives

Within a few years after graduation, we expect graduates of our program will be:

- Engaged in careers in the discipline of aerospace engineering, and in related disciplines where aerospace engineering knowledge and skills are beneficial, that applies the knowledge and skills for precise engineering analysis and open-ended problem solving and design.
- Pursuing continued professional development through multiple pathways including graduate programs in aerospace engineering, and in related disciplines where aerospace engineering knowledge and skills bring a useful perspective, with the skills needed for engineering research and more advanced studies.

- Acting as professionals representing aerospace engineering concerns with effective communication and teamwork skills, awareness of current issues, and ethical decision making.

Student Outcomes

Student outcomes describe what students are expected to know and be able to do by the time of graduation. The Aerospace Engineering program is designed to enable students to:

1. Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. Apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. Communicate effectively with a range of audiences
4. Recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. Acquire and apply new knowledge as needed, using appropriate learning strategies.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Aerospace Engineering, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

If you are starting at a campus other than the one this plan is ending at, please refer to: <http://advising.engr.psu.edu/degree-requirements/academic-plans-by-major.aspx>

First Year

Fall	Credits	Spring	Credits
CHEM 110 (GN) ^{*#†}	3	EDSGN 100 ^{*#}	3
ECON 102 or 104 (GS) [†]	3	ENGL 15, 30H, or ESL 15 (GWS) ^{††}	3
MATH 140 or 140E (GQ) ^{*†#†}	4	MATH 141 or 141E (GQ) ^{*†#†}	4
PHYS 211 (GN, PHYSICS 211L & PHYSICS 211R) ^{*#†}	4	PHYS 212 (GN, PHYSICS 212L & PHYSICS 212R) ^{*†}	4
AERSP 1 or 97 (or First Year Seminar) [†]	1	General Education Course [†]	3
	15		17

Second Year

Fall	Credits	Spring	Credits
CMPSC 201	3	CAS 100A or 100B (GWS) ^{††}	3
EMCH 210	5	EMCH 212 [*]	3
MATH 220	2	EMCH 315	2
MATH 250 [*]	3	EMCH 316	1
General Education Course [†]	3	MATH 230	4
		ME 201	3
	16		16

Third Year

Fall	Credits	Spring	Credits
AERSP 301 [*]	3	AERSP 304	3
AERSP 309 [*]	3	AERSP 305W [†]	3
AERSP 311 [*]	3	AERSP 306 [*]	3
AERSP 313 [*]	3	AERSP 312	3
ENGL 202C (GWS) ^{††}	3	PHYS 214 (GN)	2
General Education Course (GHW) [†]	1.5	General Education Course [†]	3
	16.5		17

Fourth Year

Fall	Credits	Spring	Credits
AERSP 401A or 402A	3	AERSP 401B or 402B	2
AERSP 410	3	AERSP 424, EE 210, or EE 212	3
AERSP 413 or 450	3	AERSP Technical Elective	3
AERSP Technical Elective	3	Limited Elective	3
General Technical Elective	3	General Education Course [†]	3

General Education Course (GHW) [†]	1.5 General Education Course [†]	3
16.5		17

Total Credits 131

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

College Notes:

- **AERSP 401A/AERSP 401B and AERSP 402A/AERSP 402B:** Students may schedule either the spacecraft design sequence (AERSP 401A and AERSP 401B) or the aircraft design sequence (AERSP 402A and AERSP 402B). The appropriate control course (AERSP 413 or AERSP 450) should be scheduled accordingly.
- **AERSP Technical Elective:** Select from department list. Students who complete the Cooperative Education Program may substitute 3 co-op credits for a Technical Elective and 3 co-op credits for a Limited Elective.
- **Health and Physical Activity Elective (GHW):** Students who complete the ROTC Program may substitute 3 ROTC credits for the GHW requirement and 3 ROTC credits for a Limited Elective.
- **Limited Elective:** Select from department list. Students who complete the ROTC Program may substitute 3 ROTC credits for the GHW requirement and 3 ROTC credits for a Limited Elective. Students who complete the Cooperative Education Program may substitute 3 co-op credits for a Technical Elective and 3 co-op credits for a Limited Elective.
- **These courses offered at University Park in fall semester only:**
 - AERSP 301
 - AERSP 309
 - AERSP 311
 - AERSP 313
 - AERSP 401A

- AERSP 402A
- AERSP 410
- AERSP 413
- AERSP 450

• **These courses offered at University Park in spring semester only:**

- AERSP 304
- AERSP 306
- AERSP 312
- AERSP 401B
- AERSP 402B

• **These courses offered at University Park in fall and spring semesters:**

- AERSP 305W
- AERSP 424

Career Paths

Aerospace engineers work primarily in the aerospace industry, at systems and software suppliers, corporate labs, government labs, and universities. Their skill set is extremely broad and multidisciplinary, and the experience of aerospace engineers as systems architects and engineers allows them to make contributions in many diverse sectors. Our graduate programs provide outstanding research opportunities across a broad spectrum of topics, and encompass both computational and experimental research approaches. Students may embrace traditional fields like aerodynamics, propulsion, flight science, vehicle dynamics, aeroacoustics, and rotorcraft engineering, as well as leading-edge research areas such as UAVs, commercial space, nanomanufacturing, and wind energy.

Careers

The industries that employed the most aerospace engineers are:

- Aerospace product and parts manufacturing.
- Engineering services.
- Federal government, excluding postal service.
- Research and development in the physical, engineering, and life sciences.
- Navigational, measuring, electromedical, and control instruments manufacturing.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE AEROSPACE ENGINEERING PROGRAM (<http://career.engr.psu.edu/>)

Opportunities for Graduate Studies

The aerospace engineering department offers the following graduate degree options: " Master of Engineering (M.Eng.) " Master of Science (M.S.) " Doctor of Philosophy (Ph.D.) Students may also earn a graduate minor in computational science and/or a graduate certificate in wind energy.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<http://www.aero.psu.edu/academics/graduate/prospective-students.aspx>)

Professional Resources

- AHS International (<https://vtol.org/>)
- American Institute of Aeronautics and Astronautics (<https://www.aiaa.org/>)
- American Astronautical Society (<http://astronautical.org/>)

Accreditation

The Bachelor of Science in Aerospace Engineering at University Park is accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Aerospace and Similarly Named Engineering Programs.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

University Park

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Architectural Engineering, B.A.E.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

This major emphasizes the application of scientific and engineering principles to the planning, design, and construction of buildings and building systems. The goal of the program is to provide engineering graduates with the best education available for careers in the building professions. Graduates will have the ability to practice as registered professional engineers in a variety of areas, both public and private, related to the planning, design, construction, and operation of buildings and to assume a place of leadership in society.

Four options are available in the ten-semester major:

1. the Construction option, which emphasizes building construction engineering and construction management;
2. the Lighting/Electrical option, which emphasizes the design of lighting and electrical systems for buildings;
3. the Mechanical option, which emphasizes the design of heating, ventilating and air-conditioning systems in buildings; and
4. the Structural option, which emphasizes the analysis and design of building structural systems.

Courses in architectural design are included in all options to give the engineering student an understanding of architectural design and its relation to engineering. Courses in engineering design are provided throughout the program. The design experience is culminated in a year-long capstone design course.

The professional degree, Bachelor of Architectural Engineering, is granted upon the satisfactory completion of the five-year program.

What is Architectural Engineering?

Architectural Engineering is an interdisciplinary field focused on creating integrated building solutions, both in outcome and design process, to produce optimally engineered building systems. This is achieved through close coordination between several primary focus areas, including Structural, Mechanical, Lighting, Electrical, Acoustical, and Construction. The interdisciplinary approach of Architectural Engineering seeks to reduce the carbon footprint of buildings while improving the health, comfort, and productivity of building occupants. This interdisciplinary approach is necessary to respond to the most urgent societal and environmental challenges emerging from urbanization across the globe.

You Might Like This Program If...

- You have aptitude in math and science.
- You appreciate the artistic and emotive aspects of architecture.
- You are passionate about human-centric design, indoor environmental quality, sustainability, energy conservation, or net-zero and high-performance buildings.
- You like to organize parts of a system or process, a handy skill in the planning, coordinating, budgeting, design, construction, and operation of building projects.
- You seek a team-oriented work environment with excellent prospects for advancement into project management and corporate leadership.

Entrance to Major

In order to be eligible for entrance to this major, students must satisfy the following requirements by the end of the semester during which the admission to major process is carried out:

- 29-55 cumulative credits (excludes transfer and AP credits)
- completed with a grade of C or better: EDSGN 100 or EDSGN 130, CHEM 110, MATH 140, MATH 141, PHYS 211
- earned a minimum cumulative grade-point average (GPA) of 2.60

* In the event that the major is under enrollment control, a higher minimum cumulative grade-point average is likely to be needed and students must be enrolled in the College of Engineering or Division of Undergraduate Studies at the time of confirming their major choice.

Transfer Students

Under the new Entrance to Major (ETM) parameters, transfer students requesting admission to the College of Engineering at University Park will be evaluated in the following way:

Transfer Admission into College of Engineering Pre-Major Status

Applicants who have attempted or completed 18 or more credits but no more than 2 full-time academic semesters at another college or university after high school graduation may apply for transfer admission to pre-major status in the College of Engineering (ENGR_PMAJ). A minimum cumulative grade point average (GPA) of 3.00 and at least 4 credits of college calculus, completed with a C or better, are required for consideration.

After Penn State admission, to be eligible for entrance into a College of Engineering major, transfer students (TRN admit status) must meet all the ETM course and GPA requirements and have completed at least 12 credits earned at Penn State but not more than 25 credits.

Transfer Admission Directly into a College of Engineering Major Majors Not Under Administrative Enrollment Controls

Applicants who have more than one year (2 full-time academic semesters) of attempted college coursework post-high school may only apply for admission directly into a College of Engineering major that does not have administrative enrollment controls. These students are not eligible to enter College of Engineering pre-major status (ENGR_PMAJ). A minimum cumulative grade point average (GPA) of 3.00 and the following coursework completed with a C or better are required for consideration:

- 8 credits of college calculus
- 3 credits of college chemistry
- 4 credits of college physics - mechanics

The individual department will make the final admission determination, considering possible alternatives for Penn State specific ETM course requirements (such as EDSGN 100).

Majors under Administrative Enrollment Controls

Applicants who have more than one year (2 full-time academic semesters) of attempted college coursework post-high school may not apply for admission to any College of Engineering major under administrative enrollment controls.

Degree Requirements

For the Bachelor of Architectural Engineering degree in Architectural Engineering, a minimum of 160 credits is required:

Requirement	Credits
General Education	45
Electives	3
Requirements for the Major	145-149

33 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GA courses; 6 credits of GQ courses; 3 credits of GS courses; 9 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
AE 202	Introduction to Architectural Engineering Concepts	3
AE 221	Architectural Building Materials	3
AE 222	Building Materials, Methods and Modeling II	3
AE 240	Programming and Data Science for Architectural Engineering	3
AE 309	Fundamentals of Architectural Acoustics	3
AE 441	Engineering Lifecycle Economic Analysis for Buildings	1
AE 481W	Comprehensive Architectural Engineering Senior Project I	4
AE 482	Comprehensive Architectural Engineering Senior Project II	4

ARCH 130A	Basic Design and Research I	3
ARCH 441	Architectural Design Analysis	3
ARTH 202N	Renaissance to Modern Architecture	3
CHEM 111	Experimental Chemistry I	1
EMCH 211	Statics	3
EMCH 212	Dynamics	3
EMCH 213	Strength of Materials	3
MATH 220	Matrices	2-3
PHYS 212	General Physics: Electricity and Magnetism	4
PHYS 213	General Physics: Fluids and Thermal Physics	2
<i>Prescribed Courses: Require a grade of C or better</i>		
AE 308	Introduction to Structural Analysis	4
AE 310	Fundamentals of Heating, Ventilating, and Air Conditioning	3
AE 311	Fundamentals of Electrical and Illumination Systems for Building	3
AE 372	Introduction to the Building Construction Industry	3
CHEM 110	Chemical Principles I	3
EDSGN 100	Cornerstone Engineering Design	3
ENGL 202C	Effective Writing: Technical Writing	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
PHYS 211	General Physics: Mechanics	4

Additional Courses

ARCH 100	Architecture and Ideas	3
or LARCH 60	Cultural History of Designed Places	
MATH 231	Calculus of Several Variables	2-4
or MATH 230	Calculus and Vector Analysis	
MATH 250	Ordinary Differential Equations	3-4
or MATH 251	Ordinary and Partial Differential Equations	
ME 201	Introduction to Thermal Science	3
or ME 300	Engineering Thermodynamics I	
STAT 401	Experimental Methods	3
or IE 424	Process Quality Engineering	
Select one of the following:		1
AE 124	Architectural Engineering Orientation	
1 credit of another First-Year Seminar		
Select one of the following:		3
ECON 14	Principles of Economics	
ECON 102	Introductory Microeconomic Analysis and Policy	
ECON 104	Introductory Macroeconomic Analysis and Policy	
<i>Additional Courses: Require a grade of C or better</i>		
Select one of the following:		3
CAS 100A	Effective Speech	
CAS 100B	Effective Speech	
CAS/ENGL 138T	Rhetoric and Civic Life II	
Select one of the following:		3
ENGL 15	Rhetoric and Composition	
ENGL 30H	Honors Rhetoric and Composition	
ENGL/CAS 137H	Rhetoric and Civic Life I	

Requirements for the Option

Select an option	36
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**Requirements for the Option
Construction Option (36 credits)**

Code	Title	Credits
Prescribed Courses		
AE 404	Building Structural Systems in Steel and Concrete	3
AE 405	Geotechnical Engineering	4
AE 472	Building Construction Planning and Management	3
AE 473	Building Construction Management and Control	3
AE 475	Building Construction Engineering I	3
AE 476	Building Construction Engineering II	3
CE 209	Fundamentals of Surveying	2
CE 336	Materials Science for Civil Engineers	3
CE 337	Civil Engineering Materials Laboratory	1
MGMT 326	Organizational Behavior and Design ¹	3

Supporting Courses and Related Areas

Select 8 credits from technical courses on department list ¹	8
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¹ Students having successfully completed ROTC upon graduation, may apply 3 credits of ROTC to these courses. Additionally, 3 credits of ROTC may be applied to GHW.

Lighting/Electrical Option (36 credits)

Code	Title	Credits
Prescribed Courses		
AE 404	Building Structural Systems in Steel and Concrete	3
AE 461	Architectural Illumination Systems & Design	3
AE 464	Advanced Architectural Illumination Systems & Design	3
AE 466	Computer Aided Lighting Design	3
AE 467	Advanced Building Electrical System Design	3
AE 468	Advanced Building Electrical and Communication Systems	3

Additional Courses

AE 453	Load and Energy Use Simulations for Buildings	3
or AE 454	Advanced Heating, Ventilating, and Air Conditioning	

Supporting Courses and Related Areas

Select 15 credits from technical courses on department option list ¹	15
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¹ Students having successfully completed ROTC upon graduation, may apply 3 credits of ROTC to these courses. Additionally, 3 credits of ROTC may be applied to GHW.

Mechanical Option (36 credits)

Code	Title	Credits
Prescribed Courses		
AE 404	Building Structural Systems in Steel and Concrete	3
AE 453	Load and Energy Use Simulations for Buildings	3
AE 454	Advanced Heating, Ventilating, and Air Conditioning	3
AE 455	Advanced Heating, Ventilating, and Air Conditioning System Design	3
AE 457	HVAC Control Systems	3

AE 458	Advanced Architectural Acoustics and Noise Control	3
AE 467	Advanced Building Electrical System Design	3
ME 320	Fluid Flow	3
ME 410	Heat Transfer	3

Supporting Courses and Related Areas

Select 9 credits from technical courses on department option list ¹	9
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¹ Students having successfully completed ROTC upon graduation, may apply 3 credits of ROTC to these courses. Additionally, 3 credits of ROTC may be applied to GHW.

Structural Option (36 credits)

Code	Title	Credits
Prescribed Courses		
AE 401	Design of Steel and Wood Structures for Buildings	3
AE 402	Design of Concrete Structures for Buildings	3
AE 403	Advanced Steel Design for Buildings	3
AE 405	Geotechnical Engineering	4
AE 430	Indeterminate Structures	3
AE 431	Advanced Concrete Design for Buildings	3
CE 209	Fundamentals of Surveying	2
EMCH 315	Mechanical Response of Engineering Materials	2
EMCH 316	Experimental Determination of Mechanical Response of Materials	1

Supporting Courses and Related Areas

Select 12 credits from technical courses on department list ¹	12
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¹ Students having successfully completed ROTC upon graduation, may apply 3 credits of ROTC to these courses. Additionally, 3 credits of ROTC may be applied to GHW.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits

- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.A.E. in Architectural Engineering and M.A.E. or M.S. in Architectural Engineering

Available at the following campuses: University Park

Requirements for the Integrated B.A.E. in Architectural Engineering and Master of Architectural Engineering (M.A.E.) or Master of Science (M.S.) in Architectural Engineering can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/architectural-engineering/#integratedundergradgradprogramstext>).

Program Educational Objectives

The undergraduate program in Architectural Engineering is designed to produce graduates who, within a few years of graduation, are expected to be:

- Progressing in their professional careers in the building industry or other related fields by applying expertise in one or more areas related to the integrated planning, design, construction, operation and maintenance of buildings and infrastructure: including, but not limited to, building construction engineering and management; lighting systems; electrical systems; heating, ventilating and air-conditioning systems; structural systems;
- Demonstrating strong leadership, communication, collaborative, and interdisciplinary skills and a commitment to a sustainable built environment;
- Advancing the building industry and engaged in lifelong learning through activities, such as graduate level study, professional development, mentoring, involvement in professional organizations and service roles;
- Attaining credentials appropriate for their career path, such as professional licenses, registrations or certifications.

Student Outcomes

Student outcomes describe what students are expected to know and be able to do by the time of graduation. The Architectural Engineering program is designed to enable students to:

1. Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. Apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. Communicate effectively with a range of audiences
4. Recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. Acquire and apply new knowledge as needed, using appropriate learning strategies.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Undergraduate Program Officer

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Construction Option (2nd Year ETM): Architectural Engineering, B.A.E. at University Park Campus

Standard Path: Direct Entry from ENGAE to AE

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

If you are starting at a campus other than the one this plan is ending at, please refer to: <http://advising.engr.psu.edu/degree-requirements/academic-plans-by-major.aspx>

First Year

Fall	Credits Spring	Credits
AE 124 (or First Year Seminar) [†]	1 ARTH 202N (GA) (US/IL) [†]	3
ECON 102 or 104 (GS) [†]	3 EDGSN 100 [#]	3
CHEM 110 (GN) ^{*#†}	3 MATH 141 or 141E (GQ) ^{*#††}	4
CHEM 111	1 PHYS 211 (PHYS 211L and 211R) (GN) ^{*#†}	4
ENGL 15, 30H, or ESL 15 (GWS) ^{††}	3 CAS 100A or 100B (GWS) ^{††}	3
MATH 140 or 140E (GQ) ^{*#††}	4	
	15	17

Second Year

Fall	Credits Spring	Credits
AE 202	3 AE 222	3
AE 221	3 AE 240	3
ARCH 130A	3 ARCH 130B	3
EMCH 211	3 EMCH 213	3
MATH 250	3 PHYS 212 (PHYS 212L and 212R) (GN)	4
PHYS 213	2	
	17	16

Third Year

Fall	Credits Spring	Credits
AE 308 [*]	4 AE 311 [*]	3
AE 309	3 AE 372 [*]	3
AE 310 [*]	3 ARCH 100 or LARCH 60 (GA) [†]	3
MATH 220	2 EMCH 212	3
MATH 231	2 General Education Course (GHW)	3
ME 201	3	
	17	15

Fourth Year

Fall	Credits Spring	Credits
AE 404	3 AE 405	4
AE 441	1 AE 472	3
AE 475	3 AE 476	3
ARCH 441	3 CE 336	3
MGMT 326	3 CE 337	1
General Education Course	3 STAT 401 or IE 424	3
	16	17

Fifth Year

Fall	Credits Spring	Credits
AE 473	3 AE 482	4
AE 481W	4 General Education Course	3
CE 209	2 General Education Course	3
ENGL 202C (GWS) ^{††}	3 Department Elective	3
Department Elective	3 Department Elective	2
	15	15

Total Credits 160

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

College Notes:

- Some AE courses are offered every semester. To accommodate class size limitations, specific courses have been paired to permit students to interchange the semesters in which they enroll in these courses. These pairings are as follows: AE 240 and ME 201; AE 308 and AE 372; AE 310 and AE 311; ARCH 441 and (STAT 401 or IE 424).
- Fourth and Fifth-year AE courses are once a year in the semester shown in the above academic plan.
- Department Electives: Any 400-level or 500-level A E course is acceptable, except AE 401, AE 402, AE 404, AE 421, AE 422, and AE 424. For recommended AE and other approved courses for each option, go to www.ae.psu.edu/academics/undergraduate/electives.aspx (<https://www.ae.psu.edu/academics/undergraduate/electives.aspx>) and click on "Department Elective Worksheet."
- Students who complete the ROTC Program may substitute 3 ROTC credits for the GHW requirement and 3 ROTC credits for a Department Elective.
- (ARCH 100 or LARCH 60) and ARTH 202N are required GA courses. Substitution by an advanced course is possible. See an adviser.
- ME 300 may be substituted for ME 201.

Construction Option (3rd Year ETM): Architectural Engineering, B.A.E. at University Park Campus

Alternative Path: Direct Entry from ENGR to AE

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

If you are starting at a campus other than the one this plan is ending at, please refer to: <http://advising.engr.psu.edu/degree-requirements/academic-plans-by-major.aspx>

First Year

Fall	Credits Spring	Credits
CHEM 110 (GN) ^{*#†}	3 ARTH 202N (GA) (US/IL) [†]	3
AE 124 (or other First Year Seminar) [†]	1 EDSGN 100 [#]	3
MATH 140 or 140E (GQ) ^{*† #†}	4 MATH 141 or 141E (GQ) ^{*† #†}	4
CHEM 111	1 PHYS 211 (PHYS 211L and 211R) (GN) ^{*#†}	4
ECON 102 or 104 (GS) [†]	3 CAS 100A or 100B ^{††}	3
ENGL 15, 30H, or ESL 15 (GWS) ^{††}	3	
	15	17

Second Year

Fall	Credits Spring	Credits
ARCH 100 or LARCH 60 (GA) [†]	3 EMCH 212	3
EMCH 211	3 EMCH 213	3
ME 201	3 MATH 220	2
MATH 250 (GQ)	3 MATH 231	2
PHYS 212 (PHYS 212L and 212R) (GN) [†]	4 PHYS 213	2
	General Education Course (GHW)	1.5
	General Education Course (GHW)	1.5
	16	15

Third Year

Fall	Credits Spring	Credits
AE 202	3 AE 222	3
AE 221	3 AE 240	3
AE 308 [*]	4 AE 310 [*]	3
AE 309	3 AE 311 [*]	3
ARCH 130A	3 AE 372 [*]	3
	ARCH 130B	3
	16	18

Fourth Year

Fall	Credits Spring	Credits
AE 404	3 AE 405	4
AE 441	1 AE 472	3
AE 475	3 AE 476	3

ARCH 441	3 CE 336	3
MGMT 326	3 CE 337	1
General Education Course	3 STAT 401 or IE 424	3
	16	17

Fifth Year

Fall	Credits Spring	Credits
AE 473	3 AE 482	4
AE 481W	4 Department Elective	3
CE 209	2 Department Elective	2
Department Elective	3 General Education Course	3
ENGL 202C (GWS) ^{††}	3 General Education Course	3
	15	15

Total Credits 160

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

College Notes:

- Some AE courses are offered every semester. To accommodate class size limitations, specific courses have been paired to permit students to interchange the semesters in which they enroll in these courses. These pairings are as follows: AE 240 and ME 201; AE 308 and AE 372; AE 310 and AE 311; ARCH 441 and (STAT 401 or IE 424).
- Fourth and Fifth-year AE courses are once a year in the semester shown in the above academic plan.
- Department Electives: Any 400-level or 500-level A E course is acceptable, except AE 401, AE 402, AE 404, AE 421, AE 422, and AE 424. For recommended AE and other approved courses for each option, go to www.ae.psu.edu/academics/undergraduate/electives.aspx (<https://www.ae.psu.edu/academics/undergraduate/electives.aspx>) and click on "Department Elective Worksheet."

- Students who complete the ROTC Program may substitute 3 ROTC credits for the GHW requirement and 3 ROTC credits for a Department Elective.
- (ARCH 100 or LARCH 60) and ARTH 202N are required GA courses. Substitution by an advanced course is possible. See an adviser.
- ME 300 may be substituted for ME 201.

Lighting/Electrical Option (2nd Year ETM): Architectural Engineering, B.A.E. at University Park Campus

Standard Path: Direct Entry from ENGAE to AE

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

If you are starting at a campus other than the one this plan is ending at, please refer to: <http://advising.engr.psu.edu/degree-requirements/academic-plans-by-major.aspx>

First Year

Fall	Credits	Spring	Credits
AE 124 (or other First Year Seminar course) [†]	1	ARTH 202N (GA) (US/IL) [†]	3
ECON 102 or 104 (GS) [†]	3	EDSGN 100 [#]	3
CHEM 110 (GN) ^{*#†}	3	MATH 141 or 141E (GQ) ^{*†##}	4
CHEM 111	1	PHYS 211 (PHYS 211L and 211R) (GN) ^{*#†}	4
ENGL 15, 30H, or ESL 15 (GWS) ^{††}	3	CAS 100A or 100B ^{††}	3
MATH 140 or 140E (GQ) ^{*†##}	4		
	15		17

Second Year

Fall	Credits	Spring	Credits
AE 202	3	AE 222	3
AE 221	3	AE 240	3
ARCH 130A	3	ARCH 130B	3
EMCH 211	3	EMCH 213	3
PHYS 213	2	PHYS 212 (PHYS 212L and 212R) (GN) [*]	4
MATH 250	3		
	17		16

Third Year

Fall	Credits	Spring	Credits
AE 308 [*]	4	AE 311 [*]	3
AE 309	3	AE 372 [*]	3
AE 310	3	ARCH 100 or LARCH 60 (GA)	3
MATH 220	2	EMCH 212	3
MATH 231	2	General Education Course (GHW) [†]	3
ME 201	3		
	17		15

Fourth Year

Fall	Credits	Spring	Credits
AE 404	3	AE 441	1
AE 461	3	AE 466	3
AE 464	3	AE 468	3
AE 467	3	STAT 401 or IE 424	3
ARCH 441	3	General Education Course (GH)	3

Department Elective		3	
	15	16	
Fifth Year			
Fall	Credits	Spring	Credits
AE 453 or 454	3	AE 482	4
AE 481W	4	Department Elective	3
ENGL 202C (GWS) ^{††}	3	Department Elective	3
Department Elective	3	General Education Course [†]	3
Department Elective	3	General Education Course [†]	3
	16		16

Total Credits 160

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

College Notes:

- Some AE courses are offered every semester. To accommodate class size limitations, specific courses have been paired to permit students to interchange the semesters in which they enroll in these courses. These pairings are as follows: AE 240 and ME 201; AE 308 and AE 372; AE 310 and AE 311; ARCH 441 and (STAT 401 or IE 424).
- Fourth and Fifth-year AE courses are once a year in the semester shown in the above academic plan.
- Department Electives: Any 400-level or 500-level A E course is acceptable, except AE 401, AE 402, AE 404, AE 421, AE 422, and AE 424. For recommended AE and other approved courses for each option, go to www.ae.psu.edu/academics/undergraduate/electives.aspx (<https://www.ae.psu.edu/academics/undergraduate/electives.aspx>) and click on "Department Elective Worksheet."
- Students who complete the ROTC Program may substitute 3 ROTC credits for the GHW requirement and 3 ROTC credits for a Department Elective.

- (ARCH 100 or LARCH 60) and ARTH 202N are required GA courses. Substitution by an advanced course is possible. See an adviser.
- ME 300 may be substituted for ME 201.

Lighting/Electrical Option (3rd Year ETM): Architectural Engineering, B.A.E. at University Park Campus

Alternative Path: Direct Entry from ENGR to AE

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

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First Year

Fall	Credits Spring	Credits
AE 124 (or other First Year Seminar) [†]	1 ARTH 202N (GA) (US/IL) [†]	3
CHEM 110 ^{*#†}	3 EDSE 100 [#]	3
CHEM 111	1 MATH 141 or 141E (GQ) ^{*†##}	4
ECON 102 or 104 (GS) [†]	3 PHYS 211 (PHYS 211L and 211R) (GN) ^{*#†}	4
ENGL 15, 30H, or ESL 15 (GWS) ^{††}	3 CAS 100A or 100B ^{††}	3
MATH 140 or 140E (GQ) ^{*†##}	4	
	15	17

Second Year

Fall	Credits Spring	Credits
ARCH 100 or LARCH 60 (GA) [†]	3 EMCH 212	3
EMCH 211	3 EMCH 213	3
ME 201	3 MATH 220	2
MATH 250	3 MATH 231	2
PHYS 212 (PHYS 212L and 212R) (GN) [†]	4 PHYS 213	2
	General Education Course (GHW)	1.5
	General Education Course (GHW)	1.5
	16	15

Third Year

Fall	Credits Spring	Credits
AE 202	3 AE 222	3
AE 221	3 AE 240	3
AE 308 [*]	4 AE 310 [*]	3
AE 309	3 AE 311 [*]	3
ARCH 130A	3 AE 372 [*]	3
	ARCH 130B	3
	16	18

Fourth Year

Fall	Credits Spring	Credits
AE 404	3 AE 441	1
AE 461	3 AE 466	3
AE 464	3 AE 468	3

AE 467	3 STAT 401 or IE 424	3
ARCH 441	3 General Education Course	3
	Department Elective	3
	15	16

Fifth Year

Fall	Credits Spring	Credits
AE 453 or 454	3 AE 482	4
AE 481W	4 Department Elective	3
ENGL 202C (GWS) ^{††}	3 Department Elective	3
Department Elective	3 General Education Course	3
Department Elective	3 General Education Course	3
	16	16

Total Credits 160

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

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College Notes:

- Some AE courses are offered every semester. To accommodate class size limitations, specific courses have been paired to permit students to interchange the semesters in which they enroll in these courses. These pairings are as follows: AE 240 and ME 201; AE 308 and AE 372; AE 310 and AE 311; ARCH 441 and (STAT 401 or IE 424).
- Fourth and Fifth-year AE courses are once a year in the semester shown in the above academic plan.
- Department Electives: Any 400-level or 500-level A E course is acceptable, except AE 401, AE 402, AE 404, AE 421, AE 422, and AE 424. For recommended AE and other approved courses for each option, go to www.ae.psu.edu/academics/undergraduate/electives.aspx (<https://www.ae.psu.edu/academics/undergraduate/electives.aspx>) and click on "Department Elective Worksheet."

- Students who complete the ROTC Program may substitute 3 ROTC credits for the GHW requirement and 3 ROTC credits for a Department Elective.
- (ARCH 100 or LARCH 60) and ARTH 202N are required GA courses. Substitution by an advanced course is possible. See an adviser.
- ME 300 may be substituted for ME 201.

Mechanical Option (2nd Year ETM): Architectural Engineering, B.A.E. at University Park Campus

Standard Path: Direct Entry from ENGAE to AE

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

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First Year

Fall	Credits	Spring	Credits
AE 124 (or other First Year Seminar) [†]	1	ARTH 202N (GA) (US/IL) [†]	3
CHEM 110 ^{*#†}	3	EDSGN 100 [#]	3
CHEM 111	1	MATH 141 or 141E (GQ) ^{*†#†}	4
ECON 102 or 104 (GS) [†]	3	PHYS 211 (PHYS 211L and 211R) (GN) ^{*#†}	4
ENGL 15, 30H, or ESL 15 (GWS) ^{††}	3	CAS 100A or 100B ^{††}	3
MATH 140 or 140E (GQ) ^{*†#†}	4		
	15		17

Second Year

Fall	Credits	Spring	Credits
AE 202	3	AE 240	3
AE 221	3	AE 222	3
ARCH 130A	3	ARCH 130B	3
EMCH 211	3	EMCH 213	3
MATH 250	3	PHYS 212 (PHYS 212L and 212R) (GN) [†]	4
PHYS 213	2		
	17		16

Third Year

Fall	Credits	Spring	Credits
AE 308 [*]	4	AE 311 [*]	3
AE 309	3	AE 372 [*]	3
AE 310 [*]	3	ARCH 100 or LARCH 60 (GA) [†]	3
MATH 220	2	EMCH 212	3
MATH 231	2	General Education Course (GHW)	3
ME 201	3		
	17		15

Fourth Year

Fall	Credits	Spring	Credits
AE 404	3	AE 455	3
AE 441	1	AE 457	3
AE 454	3	AE 458	3
AE 453	3	ME 410	3
ARCH 441	3	STAT 401 or IE 424	3

ME 320	3	
	16	15

Fifth Year

Fall	Credits	Spring	Credits
AE 467	3	AE 482	4
AE 481W	4	General Education Course	3
ENGL 202C (GWS) ^{††}	3	General Education Course	3
Department Elective	3	General Education Course	3
Department Elective	3	Department Elective	3
	16		16

Total Credits 160

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

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All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

College Notes:

- Some AE courses are offered every semester. To accommodate class size limitations, specific courses have been paired to permit students to interchange the semesters in which they enroll in these courses. These pairings are as follows: AE 240 and ME 201; AE 308 and AE 372; AE 310 and AE 311; ARCH 441 and (STAT 401 or IE 424).
- Fourth and Fifth-year AE courses are once a year in the semester shown in the above academic plan.
- Department Electives: Any 400-level or 500-level A E course is acceptable, except AE 401, AE 402, AE 404, AE 421, AE 422, and AE 424. For recommended AE and other approved courses for each option, go to www.ae.psu.edu/academics/undergraduate/electives.aspx (<https://www.ae.psu.edu/academics/undergraduate/electives.aspx>) and click on "Department Elective Worksheet."
- Students who complete the ROTC Program may substitute 3 ROTC credits for the GHW requirement and 3 ROTC credits for a Department Elective.

- (ARCH 100 or LARCH 60) and ARTH 202N are required GA courses. Substitution by an advanced course is possible. See an adviser.
- ME 300 may be substituted for ME 201.

Mechanical Option (3rd Year ETM): Architectural Engineering, B.A.E. at University Park Campus

Alternative Path: Direct Entry from ENGR to AE

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

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First Year

Fall	Credits Spring	Credits
AE 124 (or other First Year Seminar) [†]	1 ARTH 202N (GA) (US/IL) [†]	3
CHEM 110 ^{*#†}	3 EDSGN 100 [#]	3
CHEM 111	1 MATH 141 or 141E (GQ) ^{*†##}	4
ECON 102 or 104 (GS) [†]	3 PHYS 211 (PHYS 211L and 211R) (GN) ^{*##†}	4
ENGL 15, 30H, or ESL 15 (GWS) ^{††}	3 CAS 100A or 100B ^{††}	3
MATH 140 or 140E (GQ) ^{*†##†}	4	
	15	17

Second Year

Fall	Credits Spring	Credits
ARCH 100 or LARCH 60 (GA) [†]	3 EMCH 212	3
MATH 250	3 EMCH 213	3
PHYS 212 (PHYS 212L and PHYS 212R) (GN) [†]	4 MATH 220	2
ME 201	3 PHYS 213	2
EMCH 211	3 MATH 231	2
	General Education Course (GHW)	1.5
	General Education Course (GHW)	1.5
	16	15

Third Year

Fall	Credits Spring	Credits
AE 202	3 AE 222	3
AE 221	3 AE 240	3
AE 308 [*]	4 AE 310 [*]	3
AE 309	3 AE 311 [*]	3
ARCH 130A	3 AE 372	3
	ARCH 130B	3
	16	18

Fourth Year

Fall	Credits Spring	Credits
AE 404	3 AE 455	3
AE 441	1 AE 457	3
AE 454	3 AE 458	3

AE 453	3 ME 410	3
ARCH 441	3 STAT 401 or IE 424	3
ME 320	3	
	16	15

Fifth Year

Fall	Credits Spring	Credits
AE 467	3 AE 482	4
AE 481W	4 General Education Course	3
ENGL 202C (GWS) ^{††}	3 General Education Course	3
General Education Course	3 Department Elective	3
Department Elective	3 Department Elective	3
	16	16

Total Credits 160

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

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College Notes:

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- Students who complete the ROTC Program may substitute 3 ROTC credits for the GHW requirement and 3 ROTC credits for a Department Elective.
- (ARCH 100 or LARCH 60) and ARTH 202N are required GA courses. Substitution by an advanced course is possible. See an adviser.
- ME 300 may be substituted for ME 201.

Structural Option (2nd Year ETM): Architectural Engineering, B.A.E. at University Park Campus

Standard Path: Direct Entry from ENGAE to AE

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

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First Year

Fall	Credits Spring	Credits
AE 124 (or First Year Seminar) [†]	1 ARTH 202N (GA) (US/IL) [†]	3
CHEM 110 ^{*#†}	3 EDSGN 100 [#]	3
CHEM 111	1 MATH 141 or 141E (GQ) ^{*†##}	4
ECON 102 or 104 (GS) [†]	3 PHYS 211 (PHYS 211L and 211R) (GN) ^{*#†}	4
ENGL 15, 30H, or ESL 15 (GWS) ^{††}	3 CAS 100A or 100B ^{††}	3
MATH 140 or 140E (GQ) ^{*†##}	4	
	15	17

Second Year

Fall	Credits Spring	Credits
AE 202	3 AE 222 [*]	3
AE 221	3 AE 240	3
ARCH 130A	3 ARCH 130B	3
EMCH 211	3 EMCH 213	3
MATH 250	3 PHYS 212 (PHYS 212L and 212R) (GN) [†]	4
PHYS 213	2	
	17	16

Third Year

Fall	Credits Spring	Credits
AE 308 [*]	4 AE 311 [*]	3
AE 309	3 AE 372 [*]	3
AE 310 [*]	3 ARCH 100 or LARCH 60 (GA) [†]	3
MATH 220	2 EMCH 212	3
MATH 231	2 General Education Course	3
ME 201	3	
	17	15

Fourth Year

Fall	Credits Spring	Credits
AE 401	3 AE 403	3
AE 402	3 AE 405	4
AE 430	3 AE 431	3
ARCH 441	3 AE 441	1
General Education Course	3 STAT 401 or IE 424	3

Department Elective		3
	15	17
Fifth Year		
Fall	Credits Spring	Credits
AE 481W	4 AE 482	4
CE 209	2 General Education Course	3
EMCH 315	2 General Education Course	3
EMCH 316	1 Department Elective	3
ENGL 202C (GWS) ^{††}	3 Department Elective	3
Department Elective	3	
	15	16

Total Credits 160

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

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College Notes:

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- Students who complete the ROTC Program may substitute 3 ROTC credits for the GHW requirement and 3 ROTC credits for a Department Elective.
- (ARCH 100 or LARCH 60) and ARTH 202N are required GA courses. Substitution by an advanced course is possible. See an adviser.
- ME 300 may be substituted for ME 201.

Structural Option (3rd Year ETM): Architectural Engineering, B.A.E. at University Park Campus

Alternative Path: Direct Entry from ENGR to AE

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

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First Year

Fall	Credits Spring	Credits
AE 124 (or other First Year Seminar) [†]	1 ARTH 202N (GA) (US/IL) [†]	3
CHEM 110 ^{*#†}	3 EDSGN 100 [#]	3
CHEM 111	1 MATH 141 or 141E (GQ) ^{*†##}	4
ECON 102 or 104 (GS) [†]	3 PHYS 211 (PHYS 211L and 211R) (GN) ^{*#†}	4
ENGL 15, 30H, or ESL 15 (GWS) ^{††}	3 CAS 100A or 100B ^{††}	3
MATH 140 or 140E (GQ) ^{*†##}	4	
	15	17

Second Year

Fall	Credits Spring	Credits
ARCH 100 or LARCH 60 (GA) [†]	3 EMCH 212	3
MATH 250	3 EMCH 213	3
ME 201	3 MATH 220	2
EMCH 211	3 MATH 231	2
PHYS 212 (PHYS 212L and 212R) (GN) [†]	4 PHYS 213	2
	General Education Course (GHW)	1.5
	General Education Course (GHW)	1.5
	16	15

Third Year

Fall	Credits Spring	Credits
AE 202	3 AE 222	3
AE 221	3 AE 240	3
AE 308 [*]	4 AE 310 [*]	3
AE 309	3 AE 311 [*]	3
ARCH 130A	3 AE 372 [*]	3
	ARCH 130B	3
	16	18

Fourth Year

Fall	Credits Spring	Credits
AE 401	3 AE 403	3
AE 402	3 AE 405	4
AE 430	3 AE 431	3

ARCH 441	3 AE 441	1
General Education Course	3 STAT 401 or IE 424	3
	Department Elective	3
	15	17

Fifth Year

Fall	Credits Spring	Credits
AE 481W	4 AE 482	4
CE 209	2 General Education Course	3
EMCH 315	2 General Education Course	3
EMCH 316	1 Department Elective	3
ENGL 202C (GWS) ^{††}	3 Department Elective	3
Department Elective	3	
	15	16

Total Credits 160

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- (ARCH 100 or LARCH 60) and ARTH 202N are required GA courses. Substitution by an advanced course is possible. See an adviser.
- ME 300 may be substituted for ME 201.

Career Paths

The Penn State Architectural Engineering program focuses on developing next-generation leaders with in-depth expertise in their technical discipline, overall breadth of the building industry, and passion about integrated design. Graduates of this program serve in a variety of roles in conceptualizing, designing, constructing, and managing built environments for both the public and private sectors. They accept job offers from companies such as: architectural engineering firms, consulting engineering companies, contractors, specialty contractors, forensic engineering consultants, building technology consultants, real estate developers, building equipment designers and manufacturers, building materials and products designers and producers, facilities engineering and management groups, and building owners.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE ARCHITECTURAL ENGINEERING PROGRAM (<http://www.ae.psu.edu/industry/career-fair/>)

Opportunities for Graduate Studies

Students with a bachelor's degree and/or master's degree in Architectural Engineering are well prepared for graduate studies to further develop their depth of knowledge in traditional architectural engineering disciplines, such as structural, mechanical, construction, lighting, acoustical and electrical engineering. Alternatively, students may wish to broaden their expertise by pursuing graduate education in facility engineering, architecture, real estate and development, management, or law.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<http://www.ae.psu.edu/academics/graduate/>)

Professional Resources

- Acoustical Society of America (ASA) (<https://acousticalsociety.org>)
- American Concrete Institute (ACI) (<https://www.concrete.org/>)
- American Institute of Steel Construction (AISC) (<https://www.aisc.org/>)
- American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) (<http://ashrae.org/>)
- Architectural Engineering Institute (AEI) (<http://www.asce.org/>)
- Earthquake Engineering Research Institute (EERI) (<https://www.eeri.org/>)
- Illuminating Engineering Society (IES) (<https://www.ies.org/>)
- Institute of Noise Control Engineers (INCE) (<https://www.inceusa.org/>)
- International Association of Lighting Designers (IALD) (<https://www.iald.org/>)
- International Commission on Illumination (CIE) (<http://www.cie.co.at/>)
- International District Energy Association (IDEA) (<https://www.districtenergy.org/home/>)
- International WELL Building Institute (WELL) (<https://www.wellcertified.com/>)
- Mechanical Contractors Association of America (MCAA)

- National Association of Home Builders (NAHB) (<https://www.nahb.org/>)
- National Electrical Contractors Association (NECA) (<https://www.necanet.org/>)
- National Institute of Building Sciences (NIBS) (<https://www.nibs.org/>)
- National Society of Professional Engineers (NSPE) (<https://www.nspe.org/>)
- Portland Cement Association (PCA) (<https://www.cement.org/>)
- Precast Concrete Institute (PCI) (<https://www.pci.org/>)
- Society of Experimental Mechanics (SEM) (<https://sem.org/>)
- Structural Engineers Association of Pennsylvania (SEAoP) (<http://www.seaopa.org/>)
- The Association for Decentralized Energy (ADE) (<https://www.theade.co.uk/>)
- The Masonry Society (TMS) and the Masonry Society Joint Committee (MSJC) (<https://masonrysociety.org/>)
- United States Green Building Council (USGBC) (<https://new.usgbc.org/>)
- Whole Building Design Guide (WBDG) (<http://www.wbdg.org/>)

Accreditation

The B.A.E. in Architectural Engineering at University Park is accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Architectural and Similarly Named Engineering Programs.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

University Park

DEPARTMENT OF ARCHITECTURAL ENGINEERING
104 Engineering Unit A
University Park, PA 16802
814-865-6394
upoarc@enr.psu.edu

<http://www.ae.psu.edu>

Biological Engineering, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

This major helps prepare students for careers involving the application of engineering principles to agricultural and biological production systems, processing systems, and conservation of land and water resources. Education in mathematics, physics, and engineering sciences common to all engineering disciplines is provided along with specialized training in biological and agricultural sciences. The curriculum covers all areas of biological engineering, including development of machines for biological processing and agriculture, postharvest handling and processing,

natural resource management and utilization, biological processes, food engineering, and structures and their environmental modifications. A student must select the Agricultural Engineering option, Food and Biological Processing Engineering option, or the Natural Resources Engineering option.

Principles of engineering design experiences are integrated throughout the third-year curriculum by having students solve problems typical of those encountered in the agricultural and biological engineering profession. A year-long major design experience in the fourth year emphasizes that biological engineers must learn not only how to develop engineering solutions to unique, practical problems using the newest technology, but also to assess and integrate the social and ethical implications of their solutions.

Careers for graduates include design, development, and research engineering positions involving biological processes, machinery development, natural resources management, materials handling, biological product development, and structural systems for animals, plants, and crop storage. Biological engineers are employed in industry, consulting firms, and governmental agencies in the United States and abroad. Graduates deal with the various engineering aspects associated with production and processing of food, fiber, and other biological materials, within the constraints of environmental protection and natural resource conservation.

What is Biological Engineering?

Biological Engineering involves the study of engineering fundamentals, very similar to traditional engineering disciplines like chemical, civil, or mechanical engineering. What makes Biological Engineering unique is the integration of these engineering fundamentals with biological, agricultural, and environmental sciences and the holistic approach taken to studying agricultural production, processing of food and other bio-based materials, and natural resource protection. Problem-solving skills are developed and then applied to grand engineering challenges such as sustainably providing safe food and clean water.

You Might Like This Program If...

- You enjoy quantitative problem solving and working with your hands and/or working outdoors.
- You are interested in a career where you address challenges related to fundamental societal needs, like food, water, fiber, and renewable energy.
- You are passionate about sustainability.
- You want to take application-focused classes with interactive labs and hands-on learning opportunities.

Entrance to Major

In order to be eligible for entrance to this major, students must satisfy the following requirements:

- 29-55 cumulative credits (excludes transfer and AP credits)
- completed with a grade of C or better: EDSGN 100, CHEM 110, MATH 140, MATH 141, PHYS 211
- earned a minimum cumulative grade-point average (GPA) of 2.60

* In the event that the major is under enrollment control, a higher minimum cumulative grade-point average is likely to be needed and

students must be enrolled in the College of Engineering or Division of Undergraduate Studies at the time of confirming their major choice.

Degree Requirements

For the Bachelor of Science degree in Biological Engineering, a minimum of 128 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	107-108

24 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 9 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
BE 404	Engineering Properties of Food and Biological Materials	3
BE 460W	Biological Engineering Design I	2
BE 466W	Biological Engineering Design II	2
CHEM 111	Experimental Chemistry I	1
MATH 231	Calculus of Several Variables	2
PHYS 212	General Physics: Electricity and Magnetism	4
<i>Prescribed Courses: Require a grade of C or better</i>		
BE 301	Mathematical Modeling of Biological and Physical Systems	3
BE 302	Heat and Mass Transfer in Biological Systems	4
BE 305	Agricultural Measurements and Control Systems	3
BE 308	Engineering Elements of Biochemistry and Microbiology	3
BE 391	Communication Skills for BE and ABSM Students	2
BE 392	Leadership and Ethics for BE and ABSM Students	2
CHEM 110	Chemical Principles I	3
EDSGN 100	Cornerstone Engineering Design	3
EMCH 211	Statics	3
EMCH 212	Dynamics	3
EMCH 213	Strength of Materials	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
ME 300	Engineering Thermodynamics I	3
PHYS 211	General Physics: Mechanics	4
Additional Courses		
Select one of the following:		3
IE 424	Process Quality Engineering	
STAT 240	Introduction to Biometry	
STAT 250	Introduction to Biostatistics	

STAT/MATH 318	Elementary Probability	
STAT 401	Experimental Methods	
STAT/MATH 418	Introduction to Probability and Stochastic Processes for Engineering	
<i>Additional Courses: Require a grade of C or better</i>		
Select one of the following:		3
CAS 100A	Effective Speech	
CAS 100B	Effective Speech	
CAS 100C	Effective Speech	
CAS/ENGL 138T	Rhetoric and Civic Life II	
Select one of the following:		3
ENGL 15	Rhetoric and Composition	
ENGL 30H	Honors Rhetoric and Composition	
ENGL/CAS 137H	Rhetoric and Civic Life I	
Select one of the following:		4
MATH 251	Ordinary and Partial Differential Equations	
MATH 250 & MATH 252	Ordinary Differential Equations and Partial Differential Equations	
Requirements for the Option		
Select an option		33-34

Requirements for the Option Agricultural Engineering Option (33 credits)

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
CE 360 or ME 320	Fluid Mechanics Fluid Flow	3
Supporting Courses and Related Areas		
Select 3 credits in math/basic science ¹		3
Select 6 credits in engineering science/design ¹		6
Select 3 credits in agricultural/biological science ¹		3
Select 6 credits in biological engineering ¹		6
Select 6 credits in technical elective ^{1,2}		6
<i>Supporting Courses and Related Area: Require a grade of C or better</i>		
Select 6 credits from the following:		6
BE 303	Structural Systems in Agriculture	
BE 306	Machines for Agricultural and Biological Processing	
BE 307	Principles of Soil and Water Engineering	

¹ Courses to be selected from a list approved by the Agricultural and Biological Engineering faculty. These courses must be chosen so that the engineering design and engineering science requirements for the major are met.

² Students may apply 3 credits of ROTC to the technical selection category and 3 credits to the GHW category upon completion of the ROTC program.

Food and Biological Processing Engineering Option (33-34 credits)

Code	Title	Credits
Prescribed Courses		
BE 465	Food and Biological Process Engineering	3
BE 468	Microbiological Engineering	3
Additional Courses		
CHEM 202 or CHEM 210	Fundamentals of Organic Chemistry I Organic Chemistry I	3
Select one of the following:		3-4
BIOL 230W	Biology: Molecules and Cells	
BMB 211	Elementary Biochemistry	
BMB/MICRB 251	Molecular and Cell Biology I	
BME 201	Fundamentals of Cells and Molecules	
<i>Additional Courses: Require a grade of C or better</i>		
CE 360 or ME 320	Fluid Mechanics Fluid Flow	3
Supporting Courses and Related Areas		
Select 6 credits in biological/food science ¹		6
Select 6 credits in engineering science/design ¹		6
Select 6 credits in technical elective ^{1,2}		6

¹ Courses to be selected from a list approved by the Agricultural and Biological Engineering faculty. These courses must be chosen so that the engineering design and engineering science requirements for the major are met.

² Students may apply 3 credits of ROTC to the technical selection category and 3 credits to the GHW category upon completion of the ROTC program.

Natural Resources Engineering Option (33 credits)

Code	Title	Credits
Prescribed Courses		
BE 467	Design of Stormwater and Erosion Control Facilities	3
BE 477	Land-Based Waste Disposal	3
BE 487	Simulation Modeling for Water Resources Management	3
SOILS 101	Introductory Soil Science	3
<i>Prescribed Courses: Require a grade of C or better</i>		
ABSM 309	Measurement & Monitoring of Hydrologic Systems	3
BE 307	Principles of Soil and Water Engineering	3
CE 360	Fluid Mechanics	3
Supporting Courses and Related Areas		
Select 6 credits in engineering science/design ¹		6
Select 3 credits in biological/environmental science ¹		3
Select 3 credits in technical elective ^{1,2}		3

¹ Courses to be selected from a list approved by the Agricultural and Biological Engineering faculty. These courses must be chosen so that the engineering design and engineering science requirements for the major are met.

² Students may apply 3 credits of ROTC to the technical selection category and 3 credits to the GHW category upon completion of the ROTC program.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Educational Objectives

Early career Biological Engineering graduates will be expected to:

1. Demonstrate proficiency in basic and engineering sciences related to biological processing, natural resource, and agricultural engineering fields;
2. Effectively identify, analyze and design sustainable solutions to address issues and opportunities throughout the world;
3. Work in teams and effectively communicate within and outside the profession;
4. Demonstrate strong leadership skills, ethical integrity, and professional engagement

Student Outcomes

Student outcomes describe what students are expected to know and be able to do by the time of graduation. The Biological Engineering program is designed to enable students to:

1. Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. Apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. Communicate effectively with a range of audiences
4. Recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions

7. Acquire and apply new knowledge as needed, using appropriate learning strategies.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Agricultural Engineering Option: Biological Engineering, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

If you are starting at a campus other than the one this plan is ending at, please refer to: <http://advising.engr.psu.edu/degree-requirements/academic-plans-by-major.aspx>

First Year		
Fall	Credits Spring	Credits
BE 1 (or First year Seminar) [†]	1 CHEM 111 (GN)	1
CHEM 110 (GN) ^{*#†}	3 ENGL 15, 30H, or ESL 15 (GWS) ^{*††}	3
EDSGN 100 ^{*#}	3 MATH 141 or 141E (GQ) ^{†#†}	4
MATH 140 or 140E (GQ) ^{*†#†}	4 PHYS 211 (GN) ^{*#†}	4
General Education Course [†]	3 General Education Course [†]	3
General Education Course [†]	3	3
	17	15

Second Year

Fall	Credits Spring	Credits
CAS 100A, 100B, or 100C (GWS) ^{*††}	3 EMCH 212 [*]	3
EMCH 211 [*]	3 EMCH 213 [*]	3
MATH 251 ^{*1}	4 MATH 231	2
PHYS 212 (GN) [†]	4 ME 300 [*]	3
General Education Course [†]	3 Math/Basic Science Selection	3
	General Education Course [†]	3
	17	17

Third Year

Fall	Credits Spring	Credits
BE 301 [*]	3 BE 302 [*]	4
BE 308 [*]	3 BE 305 [*]	3
BE 391 (GWS) ^{††}	2 BE 392 (GWS) ^{††}	2
CE 360 or ME 320 [*]	3 BE 303, 306, or 307 [*]	3
STAT 240, 250, 318, 401, 418, or IE 424	3 BE 303, 306, or 307 [*]	3
General Education Course [†]	3	3
	17	15

Fourth Year

Fall	Credits Spring	Credits
BE 404	3 BE 466W	2
BE 460W	2 BE 4XX-Biological Engineering Selection	3
BE 4XX-Biological Engineering Selection	3 Engineering Science/Design Selection	3
BIO/AG Selection	3 Technical Selection	3
Engineering Science/Design Selection	3 Technical Selection	3
General Education Course (GHW) [†]	1.5 General Education Course (GHW) [†]	1.5
	15.5	15.5

Total Credits 129

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ MATH 250 followed by MATH 252 is an alternate option in place of MATH 251

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number

used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

College Notes:

- Students who complete the ROTC Program may substitute 3 ROTC credits for the GHW requirement and 3 ROTC credits for a Technical Selection.
- BE 391 & BE 392 fulfill General Writing and Speaking requirements (taken instead of ENGL 202C).
- **See selection lists in BE Advising Manual at <https://abe.psu.edu/files/be-advising-manual.pdf> for the following:**
 - BE 4XX - Biological Engineering Selection
 - BIO/AG Selection
 - Engineering Science/Design Selection
 - Math/Basic Science Selection
 - Technical Selection
- **These courses offered at University Park in fall semester only:**
 - BE 301
 - BE 308
 - BE 391
 - BE 404
 - BE 460W
- **These courses offered at University Park in spring semester only:**
 - BE 302
 - BE 303
 - BE 305
 - BE 306
 - BE 307
 - BE 392
 - BE 466W

Food & Biological Process Engineering Option: Biological Engineering, B.S. Ending at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

If you are starting at a campus other than the one this plan is ending at, please refer to: <http://advising.engr.psu.edu/degree-requirements/academic-plans-by-major.aspx>

First Year

Fall	Credits Spring	Credits
BE 1 (or First Year Seminar) [†]	1 CHEM 111 (GN)	1
CHEM 110 (GN) ^{*#†}	3 ENGL 15, 30H, or ESL 15 (GWS) ^{*††}	3
EDSGN 100 ^{*#}	3 MATH 141 or 141E (GQ) ^{*†#†}	4
MATH 140 or 140E (GQ) ^{*†#†}	4 PHYS 211 (GN) ^{*#†}	4
General Education Course [†]	3 General Education Course [†]	3
General Education Course [†]	3	3
	17	15

Second Year

Fall	Credits Spring	Credits
CAS 100A, 100B, or 100C (GWS) ^{*††}	3 CHEM 202 or 210	3
EMCH 211 [*]	3 EMCH 212 [*]	3
MATH 251 ^{*1}	4 EMCH 213 [*]	3
PHYS 212 (GN) [†]	4 MATH 231	2
General Education Course [†]	3 ME 300 [*]	3
	General Education Course [†]	3
	17	17

Third Year

Fall	Credits Spring	Credits
BE 301 [*]	3 BE 302 [*]	4
BE 308 [*]	3 BE 305 [*]	3
BE 391 (GWS) ^{††}	2 BE 392 (GWS) ^{††}	2
CE 360 or ME 320 [*]	3 BMB 211, 251, BIOL 230W, or BME 201	3-4
STAT 240, 250, 318, 401, 418, or IE 424	3 Engineering Science/Design Selection	3
General Education Course [†]	3	3
	17	15-16

Fourth Year

Fall	Credits Spring	Credits
BE 404	3 BE 466W	2
BE 460W	2 BE 468	3
BE 465	3 Engineering Science/Design Selection	3
Technical Selection	3 Technical Selection	3
Technical Selection	3 Technical Selection	3

General Education Course (GHW)	1.5 General Education Course (GHW) [†]	1.5
		15.5

Total Credits 129-130

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ MATH 250 followed by MATH 252 is an alternate option in place of MATH 251

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

College Notes:

- CHEM 210, BMB 251, BIOL 230W, and BME 201 require additional prerequisites that are not prescribed by major but might be used as selections.
- Students who complete the ROTC Program may substitute 3 ROTC credits for the GHW requirement and 3 ROTC credits for a Technical Selection.
- BE 391 & BE 392 will satisfy General Education Writing and Speaking requirements (taken instead of ENGL 202C).
- **See selection lists in BE Advising Manual at <https://abe.psu.edu/files/be-advising-manual.pdf> for the following:**
 - Emphasis Technical Selection
 - Engineering Science/Design Selection
 - Technical Selection
- **These courses offered at University Park in fall semester only:**
 - BE 301
 - BE 308
 - BE 391
 - BE 404
 - BE 460W
 - BE 465

• *These courses offered at University Park in spring semester only:*

- BE 302
- BE 305
- BE 392
- BE 466W
- BE 468

Natural Resource Engineering Option: Biological Engineering, B.S. Ending at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

If you are starting at a campus other than the one this plan is ending at, please refer to: <http://advising.engr.psu.edu/degree-requirements/academic-plans-by-major.aspx>

First Year

Fall	Credits Spring	Credits
BE 1 (or First Year Seminar) [†]	1 CHEM 111 (GN)	1
CHEM 110 (GN) ^{*#†}	3 ENGL 15, 30H, or ESL 15 (GWS) ^{*††}	3
EDSGN 100 ^{*#}	3 MATH 141 or 141E (GQ) ^{*†#†}	4
MATH 140 or 140E (GQ) ^{*†#†}	4 PHYS 211 (GN) ^{*#†}	4
General Education Course [†]	3 General Education Course [†]	3
General Education Course [†]	3	
	17	15

Second Year

Fall	Credits Spring	Credits
CAS 100A, 100B, or 100C (GWS) ^{*††}	3 EMCH 212 [*]	3
EMCH 211 [*]	3 EMCH 213 [*]	3
MATH 251 ^{*1}	4 MATH 231	2
PHYS 212 (GN) [†]	4 ME 300 [*]	3
General Education Course [†]	3 SOILS 101	3
	General Education Course [†]	3
	17	17

Third Year

Fall	Credits Spring	Credits
ABSM 309 [*]	3 BE 302 [*]	4
BE 301 [*]	3 BE 305 [*]	3
BE 308 [*]	3 BE 307 [*]	3
BE 391 (GWS) ^{††}	2 BE 392 (GWS) ^{††}	2
CE 360 [*]	3 Engineering Science/Design Selection	3
STAT 240, 250, 318, 401, 418, or IE 424	3	
	17	15

Fourth Year

Fall	Credits Spring	Credits
BE 404	3 BE 466W	2
BE 460W	2 BE 487	3
BE 467	3 Engineering Science/Design Selection	3
BE 477	3 Technical Selection	3
BIO/ENV Selection	3 General Education Course [†]	3

General Education Course (GHW) [†]	1.5 General Education Course (GHW) [†]	1.5
	15.5	15.5

Total Credits 129

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ MATH 250 followed by MATH 252 is an alternate option in place of MATH 251

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

College Notes:

- Students who complete the ROTC Program may substitute 3 ROTC credits for the GHW requirement and 3 ROTC credits for a technical selection.
- BE 391 & BE 392 will satisfy General Education Writing and Speaking requirements (instead of taking ENGL 202C).
- **See selection lists in BE Advising Manual at <https://abe.psu.edu/files/be-advising-manual.pdf> for the following:**
 - BIO/ENV Selection
 - Engineering Science/Design Selection
 - Technical Selection
- **These courses offered at University Park in fall semester only:**
 - ABSM 309
 - BE 301
 - BE 308
 - BE 391
 - BE 404
 - BE 460W
 - BE 467
 - BE 477
- **These courses offered at University Park in spring semester only:**

- BE 302
- BE 305
- BE 307
- BE 392
- BE 466W
- BE 487

Career Paths

With a bachelor of science in Biological Engineering, you can gain a broad background in engineering fundamentals and specialized training needed to succeed in industry, government, or graduate education. Specific career paths vary by option within the Biological Engineering major: Agricultural Engineering, Food and Biological Processing Engineering, and Natural Resources Engineering.

Careers

Agricultural Engineering

You can learn power and machinery systems and structural analysis, with a focus on the design of off-road equipment for agricultural production, construction, and food processing. You might work as a design or test engineer for agricultural or construction equipment companies.

Food and Biological Processing Engineering

You can learn to design microbiological systems for production of pharmaceuticals, renewable fuels, and vitamins and to engineer processing systems for production of safe, high-quality food. You might work as a process engineer or project manager for food, pharmaceutical, commodity, or consumer goods companies.

Natural Resources Engineering

You can learn to apply best management practices to minimize non-point source pollution, such as sediment loss or nutrient runoff, and to apply low-impact development strategies for stormwater management. You might work as a design engineer in a government agency or an engineering consulting/design firm.

Opportunities for Graduate Studies

As a Biological Engineering graduate, you may pursue an advanced degree in agricultural and biological engineering or related science and engineering disciplines, such as biomedical engineering, civil and environmental engineering, or food science. You may also pursue licensure as a professional engineer by passing the appropriate examinations and gaining practical engineering experience.

Professional Resources

- American Society of Agricultural and Biological Engineers (<http://www.asabe.org>)

Accreditation

The Bachelor of Science in Biological Engineering at University Park is accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Biological and Similarly Named Engineering Programs.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the

Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

University Park

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Biological Engineering, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

This minor provides students with an opportunity to apply engineering principles to agricultural and biological production and processing systems and to the management of our natural resources. Courses may be selected by students to gain a better understanding of power and machinery, microbiological engineering, soil conservation and water quality, food process engineering, or structures and their environments.

The minor is particularly suitable for students pursuing an undergraduate degree in a different engineering major. Additional prerequisites for courses in the minor may be required including calculus through differential equations, engineering mechanics, fluid dynamics, or thermodynamics. Students interested in pursuing this minor should follow up with the contact provided under Academic Advising to discuss how the minor might integrate with their major and any other questions.

What is Biological Engineering?

Biological Engineering involves the study of engineering fundamentals, very similar to traditional engineering disciplines like chemical, civil, or mechanical engineering. What makes Biological Engineering unique is the integration of these engineering fundamentals with biological, agricultural, and environmental sciences and the holistic approach taken to studying agricultural production, processing of food and other bio-based materials, and natural resource protection. Problem-solving skills are developed and then applied to grand engineering challenges such as sustainably providing safe food and clean water.

You Might Like This Program If...

- You are pursuing an engineering major and want to complement it with an engineering minor that offers a different perspective on the connections between agriculture, food, and environment.
- You want to take application-focused classes with interactive labs and hands-on learning opportunities.
- You are interested in solving problems related to fundamental societal needs, like food, water, fiber, and renewable energy.
- You are passionate about sustainability.

Program Requirements

Requirement	Credits
Requirements for the Minor	18-20

Requirements for the Minor

The minor requires a minimum of 18 credits, at least 6 of which must be at the 400 level.

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>).

In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3-4 credits from the following related science electives:		3-4
AGRO 28	Principles of Crop Management	
ANSC 201	Animal Science	
ASM/ERM 309	Measurement & Monitoring of Hydrologic Systems	
BIOL 110	Biology: Basic Concepts and Biodiversity	
BIOL 127	Introduction to Plant Biology	
BMB 211	Elementary Biochemistry	
BMB/MICRB 251	Molecular and Cell Biology I	
CHEM 202	Fundamentals of Organic Chemistry I	
CHEM 210	Organic Chemistry I	
FDSC 200	Introductory Food Science	
HORT 101	Horticultural Science	
MICRB 201	Introductory Microbiology	
SOILS 101	Introductory Soil Science	
Select 6-7 credits from the following 300-level BE courses:		6-7
BE 301	Mathematical Modeling of Biological and Physical Systems	
BE 302	Heat and Mass Transfer in Biological Systems	
BE 303	Structural Systems in Agriculture	
BE 304		
BE 305	Agricultural Measurements and Control Systems	
BE 306	Machines for Agricultural and Biological Processing	
BE 307	Principles of Soil and Water Engineering	
BE 308	Engineering Elements of Biochemistry and Microbiology	
Select 6 credits from the following 400-level BE courses:		6
BE 461	Design of Fluid Power Systems	
BE 462	Design of Wood Structures	
BE 464	Bioenergy Systems Engineering	
BE 465	Food and Biological Process Engineering	
BE 467	Design of Stormwater and Erosion Control Facilities	
BE 468	Microbiological Engineering	
BE 477	Land-Based Waste Disposal	
BE 487	Simulation Modeling for Water Resources Management	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 3 credits of 400-level coursework or independent study in a related science or engineering field in consultation with the minor adviser 3

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Megan Marshall

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Contact

University Park

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<https://abe.psu.edu>

Biomedical Engineering Technology, A.ENG.T.

Begin Campus: Wilkes-Barre, Altoona, Berks, DuBois, Erie, Fayette, New Kensington, York

End Campus: New Kensington

Program Description

The medical community has grown to depend on medical devices and systems to diagnose, treat and monitor patients in health care. These medical devices have become very complex systems, as they are becoming microprocessor controlled, PC based, and networked to share information. Biomedical Equipment Technicians (BETs) are specialized individuals who are educated and trained on the methods of: physiological measurement; equipment application and operation; safety, performance and preventive maintenance testing; calibration; problem solving; and troubleshooting. In addition, BETs may be involved

in equipment and technology management programs, selection and installation of medical equipment, manufacturer and FDA recalls of medical devices, quality improvement programs, and training programs for hospital personnel in the safe and proper use of medical equipment. The classroom and laboratory portions of this major focus on electronically and PC based medical devices for patient monitoring and life-support equipment. The student is exposed to a much broader spectrum of medical equipment through a 400-hour (ten-week) practical internship in an approved health care facility.

Students completing the 2BET degree need only complete several additional courses to obtain the Associate in Engineering Technology degree in Electrical Engineering Technology. Graduates of the program may qualify for admission to the baccalaureate degree major in Electrical Engineering Technology offered at Penn State Harrisburg, Electrical and Computer Engineering Technology offered at Penn State Erie, and Electro-Mechanical Engineering Technology offered at Penn State Altoona, Berks, New Kensington and York.

What is Biomedical Engineering Technology?

Technicians in the biomedical engineering technology field are highly skilled, trained professionals who are responsible for functional and safety inspections, preventive maintenance, calibration, troubleshooting, equipment repair, and the training of hospital personnel in the safe and proper use of medical equipment.

You Might Like This Program If...

- You are interested in the healthcare industry.
- You are passionate about technology and electronics.
- You enjoy working both in a team and individually.
- You know you want to work in a setting in which you operate, install, test, maintain and inspect mechanical and electronic equipment.

Entrance to Major

Students must have a minimum 2.0 GPA to change to this Associate degree after admission to the University.

Degree Requirements

For the Associate in Engineering Technology degree in Biomedical Engineering Technology, a minimum of 71 credits is required:

Requirement	Credits
General Education	21
Requirements for the Major	62-65

12 of the 21 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GN courses; 3 credits of GQ courses; 6 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
BE_T 101	Introduction to Medical Equipment Maintenance	1
CMPET 117	Digital Electronics	3
CMPET 120	Digital Electronics Laboratory	1
EET 105	Electrical Systems	3
IST 220	Networking and Telecommunications	3
PHYS 150	Technical Physics I	3
RADSC 230	Radiographic Physics	3
SRA 111	Introduction to Security and Risk Analysis	3
<i>Prescribed Courses: Require a grade of C or better</i>		
BE_T 201	Medical Equipment & Systems I	5
BE_T 203	Biomedical Equipment Laboratory (Internship) (must be the last course taken for the degree) ¹	4
BE_T 204W	Medical Equipment and Systems II	5
BE_T 205	Medical Electronics	4
BE_T 206	Medical Computers and Networks	4
CAS 100	Effective Speech	3
ENGL 15	Rhetoric and Composition	3
Additional Courses		
CHEM 110	Chemical Principles I	3
or CHEM 130	Introduction to General, Organic, and Biochemistry	
Select Sequence A or Sequence B:		6-8
<i>Sequence A:</i>		
BIOL 161	Human Anatomy and Physiology I - Lecture	
BIOL 162	Human Anatomy and Physiology I - Laboratory	
BIOL 162	Human Anatomy and Physiology I - Laboratory	
BIOL 163	Human Anatomy and Physiology II - Lecture	
BIOL 164	Human Anatomy and Physiology II - Laboratory	
<i>Sequence B:</i>		
BISC 4	Human Body: Form and Function	
Select 3 credits of technical list:		
BE_T 210	Troubleshooting Medical Equipment	
BE_T 296	Independent Studies	
BE_T 297	Special Topics	
BIOL 129	Mammalian Anatomy	
CMPET 211	Embedded Processors and DSP	
CMPSC 101	Introduction to Programming	
EDSGN 100	Cornerstone Engineering Design	
EET 213W	Fundamentals of Electrical Machines Using Writing Skills	
EET 297	Special Topics	
EGT 201	Advanced Computer Aided Drafting	
MET 111	Mechanics for Technology: Statics	
<i>Additional Courses: Require a grade of C or better</i>		
MATH 22 & MATH 26	College Algebra With Analytic Geometry and Applications II and Plane Trigonometry and Applications of Trigonometry ²	5-6
or MATH 40	Algebra, Trigonometry, and Analytic Geometry	

¹ BE_T 203 must be the last course taken for the degree.

² A grade of C or better is required for either MATH 22 or MATH 26.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all associate degree students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 3 credits
- **Writing and Speaking (GWS):** 3 credits

Knowledge Domains

- **Arts (GA):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Note: Up to six credits of Inter-Domain courses may be used for any Knowledge Domain requirement, but when a course may be used to satisfy more than one requirement, the credits from the course can be counted only once.

Exploration

- **Any General Education course (including GHW and Inter-Domain):** 3 credits

University Degree Requirements

Cultures Requirement

3 credits of United States (US) or International (IL) cultures coursework are required and may satisfy other requirements

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 60 degree credits must be earned for an associate's degree. The requirements for some programs may exceed 60 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more

information, check the Suggested Academic Plan for your intended program.

Program Educational Objectives

The Biomedical Engineering Technology program is designed to provide a curriculum that prepares students to pursue a career in the evolving healthcare technology management (HTM) field and to develop in their profession. Due to their experience in our program, within few years of graduation, our graduates will have:

1. Demonstrated proficiency in installing, performing acceptance testing and preventive maintenance (PMs) inspections, troubleshooting, repairing, and performing network integration on a wide variety of medical devices using standards, regulations, and quality improvement plans.
2. Shown the ability to adapt to evolving technologies and effectively apply engineering technology knowledge and tools in the healthcare technology management (HTM) field.
3. Engaged in continuous learning through CBET (Certified Biomedical Equipment Technician) certification and/or other professional training programs and independent study.
4. Worked both independently and collaboratively in multi-disciplinary teams, communicating effectively with clinical staff, related healthcare professionals, and administrative staff.

Student Outcomes

Student outcomes describe what students are expected to know and be able to do by the time of graduation. The Biomedical Engineering Technology program is designed to enable students to:

1. Apply knowledge, techniques, skills, and modern tools of mathematics, science, engineering and technology to solve well-defined engineering problems appropriate to the discipline.
2. Design solutions for well-defined technical problems and assist with engineering design of systems, components, or processes appropriate to the discipline.
3. Apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature.
4. Conduct standard tests, measurements, and experiments and to analyze and interpret the results.
5. Function effectively as member of technical team.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in- and out-of-class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

New Kensington

Joie Marhefka

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Biomedical Engineering Technology, A.ENG.T. at New Kensington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BE_T 101	1 CMPET 117	3
EET 105	3 CMPET 120	1
SRA 111	3 IST 220	3
MATH 26 (GQ)*	3 MATH 22 (GQ)*	3
ENGL 15*	3 CHEM 110 or 130 (GN)	3
General Education Course	3 General Education Course	3
	16	16

Second Year

Fall	Credits Spring	Credits Summer	Credits
BE_T 201*	5 BE_T 206*	4 BE_T 203*	4
BE_T 205*	4 BE_T 204W*	5	
BISC 4 (GN) [†]	3 Technical Elective (See Adviser for list)	3	
PHYS 150 (GN)	3 CAS 100A, 100B, or 100C*	3	
RADSC 230	3 General Education Course	3	
	18	18	4

Total Credits 72

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

Students with a degree in biomedical engineering technology are well positioned for careers at hospitals, clinics, medical practice offices, surgical centers, nursing homes, and rehabilitation centers.

Penn State students with an A.S. in Biomedical Engineering Technology have been successful in pursuing various careers within the Healthcare Technology Management field.

Careers

- Biomedical Engineering Technician/Clinical Engineer in a Hospital
- Field Service Technician
- Repair Technician for a Medical Device Company

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE BIOMEDICAL ENGINEERING TECHNOLOGY PROGRAM (<http://career.engr.psu.edu/>)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<http://www.engr.psu.edu/students/grad-prospective/default.aspx>)

Accreditation

The A.S. in Biomedical Engineering Technology at Penn State New Kensington is accredited by the Engineering Technology Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Healthcare Engineering Technology and Similarly Named Programs.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

The BET program fully prepares students for employment as a biomedical engineering technician as well as for CBET certification. A PE license is not required for employment.

Contact

University Park

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New Kensington

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<http://newkensington.psu.edu/2-year-biomedical-engineering-technology>
(<http://newkensington.psu.edu/2-year-biomedical-engineering-technology/>)

Biomedical Engineering, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The Biomedical Engineering curriculum emphasizes the continuous integration of classical and modern engineering principles with the life sciences and health care. Biomedical Engineers apply these skills to innovation in the health care industry, basic biological sciences, and the underpinning of medical practice.

Consistent with the mission of Penn State University and the College of Engineering, the Penn State Bachelor of Science program in Biomedical Engineering aims to create world-class engineers who will, after graduation, contribute to social and economic development through the application of engineering to the solution of problems in medicine and biology.

What is Biomedical Engineering?

Biomedical engineering is the application of the life sciences, mathematics, and engineering principals to define and solve problems in biology, medicine, healthcare, and other related fields. Biomedical engineers work to design, create, and improve medical devices such as prosthetics, artificial organs and medical imaging devices. They also develop instrumentation, medical information systems, and health management and care delivery systems to improve health care organizations. Many graduates of the biomedical engineering Bachelor of Science program also go on to pursue advanced degrees in medicine, engineering and related fields such as biostatistics, public health, and health administration.

You Might Like This Program If...

- You like applying traditional engineering skills and analysis to understand biological systems.
- You want to emphasize the integration of classical and modern engineering principles with the life sciences and healthcare.
- You are passionate about bridging the gap between medical professionals and the engineering community.

Entrance to Major

In order to be eligible for entrance to this major, students must satisfy the following requirements by the end of the semester during which the admission to major process is carried out.

- Completed 29-55 cumulative credits (credits completed at Penn State for which a quality letter grade was earned)
- Completed with a C or better the following courses: EDSGN 100, CHEM 110, MATH 140, MATH 141, and PHYS 211
- Attained at least a 2.6 cumulative grade point average

* In the event that the major is under enrollment control, a higher minimum cumulative grade-point average is likely to be needed and students must be enrolled in the College of Engineering or Division of Undergraduate Studies at the time of confirming their major choice.

Degree Requirements

For the Bachelor of Science degree in Biomedical Engineering, a minimum of 130-131 credits are required:

Requirement	Credits
General Education	45
Requirements for the Major	111-113

27 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 9 credits of GWS courses.

Students in residence at the Commonwealth campuses may satisfy the course requirements for semesters 1-3. They should then transfer to University Park to begin studies in their major beginning with semester 4.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
BME 303	Bio-continuum Mechanics	3
BME 403	Biomedical Instrumentation Laboratory	1
BME 429	Biomedical Mechanics and Techniques Laboratory	2
BME 440	Biomedical Engineering Professional Seminar	1
BME 450W	Biomedical Senior Design	3
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
CHEM 113	Experimental Chemistry II	1
EMCH 210	Statics and Strength of Materials	5
MATH 230	Calculus and Vector Analysis	4
<i>Prescribed Courses: Require a grade of C or better</i>		
BME 201	Fundamentals of Cells and Molecules	3
BME 301	Analysis of Physiological Systems	4
BME 313	Thermodynamics for Biomedical Engineering	3
BME 401	Numerical Simulations in Biomedical Engineering	3
BME 402	Biomedical Instrumentation and Measurements	3
CHEM 110	Chemical Principles I	3
CMPSC 200	Programming for Engineers with MATLAB	3
EDSGN 100	Cornerstone Engineering Design	3
ENGL 202C	Effective Writing: Technical Writing	3

MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
MATH 251	Ordinary and Partial Differential Equations	4
PHYS 211	General Physics: Mechanics	4
PHYS 212	General Physics: Electricity and Magnetism	4

Additional Courses

Select 1 credit of First-Year Seminar		1
ECON 102	Introductory Microeconomic Analysis and Policy	3
or ECON 104	Introductory Macroeconomic Analysis and Policy	

Additional Courses: Require a grade of C or better

CAS 100A	Effective Speech	3
or CAS 100B	Effective Speech	
ENGL 15	Rhetoric and Composition	3
or ENGL 30H	Honors Rhetoric and Composition	

Select one of the following: 4

BIOL 141 & BIOL 142	Introduction to Human Physiology and Physiology Laboratory	
BIOL 141 & BIOL 162	Introduction to Human Physiology and Human Anatomy and Physiology I - Laboratory	
BIOL 141 & BIOL 164	Introduction to Human Physiology and Human Anatomy and Physiology II - Laboratory	
BIOL 240W	Biology: Function and Development of Organisms	

Supporting Courses and Related Areas

Select 3 credits of Science or Engineering Elective courses from departmental list 3

Requirements for the Option

Select an option 23-24

Requirements for the Option**Biochemical Option (24 credits)**

Code	Title	Credits
Prescribed Courses		
BME 409	Biofluid Mechanics	3
BME 413	Mass Transport in Biological Systems	3
BME 423	Reaction Kinetics of Biological Systems	3

Additional Courses

CHEM 202	Fundamentals of Organic Chemistry I	3
or CHEM 210	Organic Chemistry I	

Supporting Courses and Related Areas

Select 9 credits from Biochemical Option department list 9
Select 3 credits from Related Electives department list 3

Medical Imaging and Devices Option (23 credits)

Code	Title	Credits
Prescribed Courses		
BME 406	Medical Imaging	3
EE 210	Circuits and Devices	4

Additional Courses

Select 4 credits from the following:		4
CMPEN 270	Digital Design: Theory and Practice	
CMPEN 271 & CMPEN 275	Introduction to Digital Systems and Digital Design Laboratory	
EE 310	Electronic Circuit Design I	

EE 330	Engineering Electromagnetics	
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Supporting Courses and Related Areas

Select 6 credits from the Related Electives department list 6
Select 6 credits from Medical Imaging and Device Option department list 6

Biomaterials Option (24 credits)

Code	Title	Credits
Prescribed Courses		
BME 443	Biomedical Materials	3
BME 446	Polymers in Biomedical Engineering	3
MATSE 201	Introduction to Materials Science	3

Additional Courses

BME 408	Solid Mechanics of Biological Materials	3
or BME 409	Biofluid Mechanics	
or BME 413	Mass Transport in Biological Systems	
CHEM 202	Fundamentals of Organic Chemistry I	3
or CHEM 210	Organic Chemistry I	

Supporting Courses and Related Areas

Select 3 credits from Related Electives department list 3
Select 6 credits from Biomaterials Option department list 6

Biomechanics Option (24 credits)

Code	Title	Credits
Prescribed Courses		
BME 408	Solid Mechanics of Biological Materials	3
BME 409	Biofluid Mechanics	3
EMCH 212	Dynamics	3
EMCH 315	Mechanical Response of Engineering Materials	2
EMCH 316	Experimental Determination of Mechanical Response of Materials	1

Supporting Courses and Related Areas

Select 9 credits from Biomechanics Option department list 9
Select 3 credits from Related Electives department list 3

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Educational Objectives

Three to five years after graduation, we expect our graduates to be:

- employed in industry and government positions which include, but are not limited to, research and development, regulation, manufacturing, quality assurance and sales and marketing, or,
- enrolled in graduate school, continuing education, or other professional development programs related to biomedical sciences and engineering, or,
- enrolled in medical school, dental school, or other health-related professional training programs.

Student Outcomes

Student outcomes describe what students are expected to know and be able to do by the time of graduation. The Biomedical Engineering program is designed to enable students to:

1. Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. Apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. Communicate effectively with a range of audiences
4. Recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. Acquire and apply new knowledge as needed, using appropriate learning strategies.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Ariel Christine

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814-863-6614

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Biochemical Option: Biomedical Engineering, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

If you are starting at a campus other than the one this plan is ending at, please refer to: <http://advising.engr.psu.edu/degree-requirements/academic-plans-by-major.aspx>

First Year

Fall	Credits Spring	Credits
CHEM 110 (GN) ^{**#}	3 CHEM 112 (GN)	3
CHEM 111 (GN)	1 CHEM 113 (GN)	1
EDSGN 100 ^{*#}	3 MATH 141 or 141E (GQ) ^{*†#†}	4
MATH 140 or 140E (GQ) ^{*†#†}	4 PHYS 211 (GN, PHYSICS 211L & PHYSICS 211R) ^{*#†}	4
BME 100 (or First Year Seminar) [†]	1 ENGL 15, 30H, or ESL 15 (GWS) ^{††}	3
ECON 102 or 104 (GS) [†]	3 General Education Course [†]	3
	15	18

Second Year

Fall	Credits Spring	Credits
BIOL 141 [*]	3 BME 201 [*]	3
BIOL 142, 162, or 164 [*]	1 CHEM 202 or 210	3
EMCH 210	5 CMPSC 200	3
MATH 251 [*]	4 MATH 230	4
PHYS 212 (PHYSICS 212L & PHYSICS 212R) [*]	4 General Education Course [†]	3
	17	16

Third Year

Fall	Credits Spring	Credits
BME 301 [*]	4 BME 401 [*]	3
BME 303	3 BME 402 [*]	3
BME 313 [*]	3 BME 403	1
Related Technical Elective	3 BME 409	3
General Education Course [†]	3 BME 413	3
	ENGL 202C (GWS) ^{††}	3
	16	16

Fourth Year

Fall	Credits Spring	Credits
BME 429	2 BME 423	3
BME 440	1 BME 450W	3

Biochemical Elective	3 Biochemical Elective	3
Science or Engineering Elective	3 Biochemical Elective	3
CAS 100A or 100B (GWS) ^{††}	3 General Education Course [†]	3
General Education Course [†]	3 General Education Course (GHW) [†]	1.5
General Education Course (GHW) [†]	1.5	
	16.5	16.5

Total Credits 131

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

College Notes:

- Students who are interested in medical school should substitute BIOL 240W (4) for BIOL 141 (3) & BIOL 142 (1).
- CHEM 210 is required for students who are interested in medical school or who plan to take advanced organic chemistry.
- CMPSC 200 is required because 300- and 400-level BME courses use MATLAB programming.
- The department website lists courses acceptable as Biochemical Electives, Medical Imaging and Device Electives, Biomaterials Electives, Biomechanics Electives, Related Electives, and Science or Engineering Electives.
- Students who complete the ROTC Program may substitute 3 ROTC credits for the GHW requirement and 3 ROTC credits for a Science or Engineering Elective.
- **These courses offered at University Park in Fall semester ONLY:**
 - BME 301
 - BME 303

- BME 313
- BME 440
- ***These courses offered at University Park in Spring semester ONLY:***
 - BME 201
 - BME 401
 - BME 402
 - BME 403
 - BME 409
 - BME 413
 - BME 423

Biomaterials Option: Biomedical Engineering, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

If you are starting at a campus other than the one this plan is ending at, please refer to: <http://advising.engr.psu.edu/degree-requirements/academic-plans-by-major.aspx>

First Year

Fall	Credits	Spring	Credits
CHEM 110 (GN) ^{*#†}	3	CHEM 112 (GN)	3
CHEM 111 (GN)	1	CHEM 113 (GN)	1
EDSGN 100 ^{*#}	3	MATH 141 or 141E (GQ) ^{*†#†}	4
MATH 140 or 140E (GQ) ^{*†#†}	4	PHYS 211 (GN, PHYSICS 211L & PHYSICS 211R) ^{*#†}	4
BME 100 (or First Year Seminar) [†]	1	ENGL 15, 30H, or ESL 15 (GWS) ^{††}	3
ECON 102 or 104 (GS) [†]	3	General Education Course [†]	3
	15		18

Second Year

Fall	Credits	Spring	Credits
BIOL 141 [*]	3	BME 201 [*]	3
BIOL 142, 162, or 164 [*]	1	CHEM 202 or 210	3
EMCH 210	5	CMPSC 200	3
MATH 251 [*]	4	MATH 230	4
PHYS 212 (PHYSICS 212L & PHYSICS 212R) [*]	4	General Education Course [†]	3
	17		16

Third Year

Fall	Credits	Spring	Credits
BME 301 [*]	4	BME 401 [*]	3
BME 303	3	BME 402 [*]	3
BME 313 [*]	3	BME 403	1
BME 443	3	BME 409 or 413 (or Biomaterials Elective)	3
MATSE 201	3	ENGL 202C (GWS) ^{††}	3
		General Education Course [†]	3
	16		16

Fourth Year

Fall	Credits	Spring	Credits
BME 429	2	BME 450W	3
BME 440	1	Biomaterials Elective	3
BME 446	3	Related Technical Elective	3
CAS 100A or 100B (GWS) ^{††}	3	Science or Engineering Elective	3
BME 408 (or Biomaterials Elective)	3	General Education Course [†]	3
General Education Course [†]	3	General Education Course (GHW) [†]	1.5

General Education Course (GHW) [†]	1.5	
	16.5	16.5

Total Credits 131

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

College Notes:

- Students who are interested in medical school should substitute BIOL 240 (4) for BIOL 141 (3) & BIOL 142 (1).
- CHEM 210 is required for students who are interested in medical school or who plan to take advanced organic chemistry.
- CMPSC 200 is required because 300- and 400-level BME courses use MATLAB programming.
- The department website lists courses acceptable as Biochemical Electives, Medical Imaging and Device Electives, Biomaterials Electives, Biomechanics Electives, Related Electives, and Science or Engineering Electives.
- Students who complete the ROTC Program may substitute 3 ROTC credits for the GHW requirement and 3 ROTC credits for a Science or Engineering Elective.
- **These courses offered at University Park in fall semester only:**
 - BME 301
 - BME 303
 - BME 313
 - BME 429
 - BME 440
 - BME 443
 - BME 446
- **These courses offered at University Park in spring semester only:**

- BME 201
- BME 401
- BME 402
- BME 403
- BME 409
- BME 450W

Biomechanics Option: Biomedical Engineering, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

If you are starting at a campus other than the one this plan is ending at, please refer to: <http://advising.engr.psu.edu/degree-requirements/academic-plans-by-major.aspx>

First Year

Fall	Credits Spring	Credits
BME 100 (or First Year Seminar) [†]	1 CHEM 112 (GN)	3
CHEM 110 (GN) ^{*#†}	3 CHEM 113 (GN)	1
CHEM 111 (GN)	1 ENGL 15, 30H, or ESL 15 ^{††}	3
ECON 102 or 104 (GS) [†]	3 MATH 141 or 141E (GQ) ^{*#††}	4
EDSGN 100 ^{*#}	3 PHYS 211 (GN, PHYS 211L & PHYS 211R) ^{*#†}	4
MATH 140 or 140E (GQ) ^{*#††}	4 General Education Course [†]	3
	15	18

Second Year

Fall	Credits Spring	Credits
BIOL 141 [*]	3 BME 201 [*]	3
BIOL 142, 162, or 164 [*]	1 CMPSC 200	3
EMCH 210	5 EMCH 212	3
MATH 251 [*]	4 MATH 230	4
PHYS 212 (PHYS 212L & PHYS 212R) [*]	4 General Education Course [†]	3
	17	16

Third Year

Fall	Credits Spring	Credits
BME 301 [*]	4 BME 401 [*]	3
BME 303	3 BME 402 [*]	3
BME 313 [*]	3 BME 403	1
EMCH 315	2 BME 409	3
EMCH 316	1 ENGL 202C (GWS) ^{††}	3
General Education Course [†]	3 Biomechanics Elective	3
	16	16

Fourth Year

Fall	Credits Spring	Credits
BME 408	3 BME 450W	3
BME 429	2 Biomechanics Elective	3
BME 440	1 Related Technical Elective	3
CAS 100A or 100B (GWS) ^{††}	3 Science or Engineering Elective	3
Related Technical Elective	3 General Education Course [†]	3
General Education Course [†]	3 General Education Course (GHW) [†]	1.5

General Education Course (GHW) [†]	1.5	
	16.5	16.5

Total Credits 131

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

College Notes

- Students who are interested in medical school should substitute BIOL 240W (4) for BIOL 141 (3) & BIOL 142 (1).
- CHEM 210 is required for students who are interested in medical school or who plan to take advanced organic chemistry.
- CMPSC 200 is required because 300- and 400-level BME courses use MATLAB programming.
- The department website lists courses acceptable as Biochemical Electives, Medical Imaging and Device Electives, Biomaterials Electives, Biomechanics Electives, Related Electives, and Science or Engineering Electives.
- Students who complete the ROTC Program may substitute 3 ROTC credits for the GHW requirement and 3 ROTC credits for a Science or Engineering Elective.
- **These courses offered at University Park in fall semester only:**
 - BME 301
 - BME 303
 - BME 313
 - BME 440
- **These courses offered at University Park in spring semester only:**
 - BME 201
 - BME 401
 - BME 402

- BME 403
- BME 409

Medical Imaging & Devices Option: Biomedical Engineering, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

If you are starting at a campus other than the one this plan is ending at, please refer to: <http://advising.engr.psu.edu/degree-requirements/academic-plans-by-major.aspx>

First Year

Fall	Credits Spring	Credits
BME 100 (or First Year Seminar) [†]	1 CHEM 112 (GN)	3
CHEM 110 (GN) ^{*#†}	3 CHEM 113 (GN)	1
CHEM 111 (GN)	1 ENGL 15, 30H, or ESL 15 ^{††}	3
ECON 102 or 104 (GS) [†]	3 MATH 141 or 141E (GQ) ^{*†#†}	4
EDSGN 100 ^{*#}	3 PHYS 211 (GN, PHYS 211L and PHYS 211R) ^{*#†}	4
MATH 140 or 140E (GQ) ^{*†#†}	4	
	15	15

Second Year

Fall	Credits Spring	Credits
BIOL 141 [*]	3 BME 201 [*]	3
BIOL 142, 162, or 164 [*]	1 CMPSC 200	3
EMCH 210	5 EE 210	4
MATH 251 [*]	4 MATH 230	4
PHYS 212 (PHYS 212L and PHYS 212R) [*]	4 General Education Course [†]	3
	17	17

Third Year

Fall	Credits Spring	Credits
BME 301 [*]	4 BME 401 [*]	3
BME 303	3 BME 402 [*]	3
BME 313 [*]	3 BME 403	1
BME 406	3 ENGL 202C (GWS) ^{††}	3
EE 310, 330, or CMPEN 270	4 Medical Imaging and Devices Elective	3
	Related Technical Elective	3
	17	16

Fourth Year

Fall	Credits Spring	Credits
BME 429	2 BME 450W	3
BME 440	1 Medical Imaging and Devices Elective	3
CAS 100A or 100B (GWS) ^{††}	3 Related Technical Elective	3
Science or Engineering Elective	3 General Education Course [†]	3
General Education Course [†]	3 General Education Course [†]	3
General Education Course [†]	3 General Education Course (GHW) [†]	1.5

General Education Course (GHW)[†] 1.5

16.5

16.5

Total Credits 130

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

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General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

College Notes:

- Students who are interested in medical school should substitute BIOL 240W (4) for BIOL 141 (3) & BIOL 142 (1).
- CHEM 210 is required for students who are interested in medical school or who plan to take advanced organic chemistry.
- CMPSC 200 is required because 300- and 400-level BME courses use MATLAB programming.
- The department website lists courses acceptable as Biochemical Electives, Medical Imaging and Device Electives, Biomaterials Electives, Biomechanics Electives, Related Electives, and Science or Engineering Electives.
- Students who complete the ROTC Program may substitute 3 ROTC credits for the GHW requirement and 3 ROTC credits for a Science or Engineering Elective.
- **These courses offered at University Park in Fall semester ONLY:**
 - BME 301
 - BME 303
 - BME 313
 - BME 406
 - BME 440
- **These courses offered at University Park in Spring semester ONLY:**
 - BME 201
 - BME 401

- BME 402
- BME 403

Career Paths

Careers

Medical device development; diagnostic and therapeutic tool design; physiological system modeling for the healthcare and pharmaceutical industries; medical school.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE BIOMEDICAL ENGINEERING PROGRAM (<https://career.engr.psu.edu/>)

Opportunities for Graduate Studies

The biomedical engineering graduate program is a part of the Penn State Intercollege Graduate Degree Program in Bioengineering. The highly flexible, mentored curriculum includes fundamental coursework in bioengineering and a number of ancillary areas including physics, chemistry, biology, materials research, esthesiology, orthopedics and rehabilitation, and more. Our students enjoy state-of-the-art research facilities and an exclusive partnership with the Penn State Hershey Medical Center. The unique landscape of the bioengineering graduate program fosters learning and collaboration among students, engineers, clinicians, and professionals in the biomedical industry.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.bme.psu.edu/students/graduate/>)

Professional Resources

- Biomedical Engineering Society (<http://www.bme.psu.edu/students/resources/student-groups.aspx>)
- Biomedical Sciences Club

Accreditation

The Bachelor of Science in Biomedical Engineering at University Park is accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Bioengineering and Biomedical and Similarly Named Engineering Programs.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

University Park

DEPARTMENT OF BIOMEDICAL ENGINEERING
122H Chemical and Biomedical Engineering Building
University Park, PA 16802
814-863-6614
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<https://www.bme.psu.edu/index.aspx> (<https://www.bme.psu.edu/>)

Biomedical Engineering, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

This interdisciplinary minor is designed for students interested in the application of engineering principles to medical and biological problems. The minor is particularly suitable for students pursuing an undergraduate degree in a different engineering major, physics, or other applied science who are seeking careers in health-related professions. Students interested in pursuing this minor should contact the Department of Biomedical Engineering with any questions or for more information.

What is Biomedical Engineering?

Biomedical engineering is the application of the life sciences, mathematics, and engineering principals to define and solve problems in biology, medicine, healthcare, and other related fields. Biomedical engineers work to design, create, and improve medical devices such as prosthetics, artificial organs and medical imaging devices. They also develop instrumentation, medical information systems, and health management and care delivery systems to improve health care organizations. Many graduates of the biomedical engineering Bachelor of Science program also go on to pursue advanced degrees in medicine, engineering and related fields such as biostatistics, public health, and health administration.

You Might Like This Program If...

- You like applying traditional engineering skills and analysis to understand biological systems.
- You want to emphasize the integration of classical and modern engineering principles with the life sciences and healthcare.
- You are passionate about bridging the gap between medical professionals and the engineering community.
- You're interested in medical research, teaching, industrial and government healthcare and medical practice.

Entrance to Minor

PHYS 211, PHYS 212, and calculus through differential equations (MATH 250 or MATH 251) are required for entrance to the minor. Additional prerequisites for prescribed and supporting courses may be required and should be researched prior to applying for the minor (e.g. CHEM 112 and CMPSC 200).

Program Requirements

Requirement	Credits
Requirements for the Minor	18-20

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
<i>Physiology</i>		
Select 3-4 credits of the following:		3-4
BIOL 141	Introduction to Human Physiology	
BIOL 240W	Biology: Function and Development of Organisms	
BIOL 472	Human Physiology	
<i>Molecular/Cell Biology</i>		
Select 3-4 credits of the following:		3-4
BIOL 230W	Biology: Molecules and Cells	
BMB 251	Molecular and Cell Biology I	
BME 201	Fundamentals of Cells and Molecules	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 9-12 credits of Biomedical Engineering (BME) coursework from 3-credit courses at the 400, or 500 level ¹		9-12
Select 0-3 credits of electives from Biomedical Engineering-related courses (department list)		0-3

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Ariel Christine

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Erie

Elisa Wu, Ph.D.

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Career Paths

Careers

Medical device development; diagnostic and therapeutic tool design; physiological system modeling for the healthcare and pharmaceutical industries; medical school.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN BIOMEDICAL ENGINEERING (<https://career.engr.psu.edu/>)

Opportunities for Graduate Studies

The biomedical engineering graduate program is a part of the Penn State Intercollege Graduate Degree Program in Bioengineering. The highly flexible, mentored curriculum includes fundamental coursework in bioengineering and a number of ancillary areas including physics, chemistry, biology, materials research, esthesiology, orthopedics and rehabilitation, and more. Our students enjoy state-of-the-art research facilities and an exclusive partnership with the Penn State Hershey Medical Center. The unique landscape of the bioengineering graduate program fosters learning and collaboration among students, engineers, clinicians, and professionals in the biomedical industry.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.bme.psu.edu/students/graduate/>)

Contact

University Park

DEPARTMENT OF BIOMEDICAL ENGINEERING
122 Chemical and Biomedical Engineering Building
University Park, PA 16802
814-863-6614
bmeminor@engr.psu.edu

<https://www.bme.psu.edu/index.aspx> (<https://www.bme.psu.edu/>)

Erie

SCHOOL OF ENGINEERING
242 Jack Burke Research and Economic Development Center
5101 Jordan Road
Erie, PA 16563
814-898-6153
engineering@psu.edu

<https://behrend.psu.edu/school-of-engineering> (<https://behrend.psu.edu/school-of-engineering/>)

Chemical Engineering, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

Chemical Engineering is one of the most versatile professions—you'll find Chemical Engineers employed in a broad array of industries ranging from pharmaceutical and biotechnical companies to semiconductor manufacturing to start-up companies converting the latest laboratory discoveries to large-scale commercial production. Chemical Engineers work with catalysts to develop new ways to manufacture medicines and plastics; they develop control systems that enable the safe production of products from semiconductors to household soap; they design chemical

and petroleum plants; they research the effects of artificial organs on blood flow; and they develop the equipment and processes necessary for advances in biotechnology. While chemistry emphasizes the facts and principles of science, chemical engineering emphasizes its practical application for the development of new products and processes.

The undergraduate program in Chemical Engineering provides students with fundamental skills in problem solving, analysis, and design, along with hands-on experience in practical applications. The curriculum builds upon the traditional foundation in the chemical and energy-related industries and introduces new material in the life sciences, polymers, and environmental fields.

What is Chemical Engineering?

Chemical engineers draw extensively on a strong foundation in the chemical, physical, and biological sciences. They focus on the processes involved in making new products or treating the environment, such as pharmaceuticals, plastics, alternative fuels, therapeutic proteins, and artificial organs. Chemical engineering is a broad discipline that encompasses many different scientific principles in engineering and technology. Chemical engineers apply the principles of chemistry, biology, and physics to solve problems involving the production of chemicals, fuel, drugs, food and energy solutions.

You Might Like This Program If...

- You like to problem solve using chemistry and mathematics in critical global challenges in a variety of areas including pharmaceuticals, food, energy, environmental sustainability, medicine, law, and finance.
- You like to work with others to design processes and equipment to create chemical products safely and economically.

Entrance to Major

In order to be eligible for entrance to this major, students must satisfy the following requirements by the end of the semester during which the admission to major process is carried out.

- Completed 29-55 cumulative credits (credits completed at Penn State for which a quality letter grade was earned)
- Completed with a C or better the following courses: EDSGN 100, CHEM 110, MATH 140, MATH 141, and PHYS 211
- Attained at least a 2.6 cumulative grade point average

* In the event that the major is under enrollment control, a higher minimum cumulative grade-point average is likely to be needed and students must be enrolled in the College of Engineering or Division of Undergraduate Studies at the time of confirming their major choice.

Degree Requirements

For the Bachelor of Science degree in Chemical Engineering, a minimum of 133 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	115

27 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 9 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
BMB 251	Molecular and Cell Biology I	3
CHE 230	Computational Tools for Chemical Engineering	1
CHE 300	Professional Development Seminar	1
CHE 340	Introduction to Biomolecular Engineering	3
CHE 452	Chemical Process Safety	3
CHE 470	Design of Chemical Plants	3
CHE 480W	Chemical Engineering Laboratory	3
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
CHEM 113	Experimental Chemistry II	1
CHEM 210	Organic Chemistry I	3
CHEM 212	Organic Chemistry II	3
CHEM 213	Laboratory in Organic Chemistry	2
CHEM 457	Experimental Physical Chemistry	2
MATH 231	Calculus of Several Variables	2
MATH 251	Ordinary and Partial Differential Equations	4
PHYS 212	General Physics: Electricity and Magnetism	4

Prescribed Courses: Require a grade of C or better

CHE 210	Introduction to Material Balances	3
CHE 220	Introduction to Chemical Engineering Thermodynamics	3
CHE 320	Phase and Chemical Equilibria	3
CHE 330	Process Fluid Mechanics	3
CHE 350	Process Heat Transfer	3
CHE 410	Mass Transfer Operations	3
CHE 430	Chemical Reaction Engineering	3
CHEM 110	Chemical Principles I	3
EDSGN 100	Cornerstone Engineering Design	3
ENGL 202C	Effective Writing: Technical Writing	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
PHYS 211	General Physics: Mechanics	4

Additional Courses

Select 1 credit of First-Year Seminar	1
Select one of the following:	3
ECON 14	Principles of Economics
ECON 102	Introductory Microeconomic Analysis and Policy
ECON 104	Introductory Macroeconomic Analysis and Policy

Additional Courses: Require a grade of C or better

CAS 100A	Effective Speech	3
or CAS 100B	Effective Speech	
ENGL 15	Rhetoric and Composition	3
or ENGL 30H	Honors Rhetoric and Composition	

Supporting Courses and Related Areas

Select 3 credits of physical chemistry from departmental list	3
Select 3 credits of materials elective from departmental list	3
Select 6 credits in 400-level chemical engineering electives from departmental list	6
Select 3 credits of approved engineering electives from departmental list	3
Select 6 credits of professional electives from department list ¹	6

¹ Students may substitute 6 credits of ROTC for part of this requirement in consultation with department.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits ¹

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Educational Objectives

The undergraduate program in chemical engineering at Penn State has been designed so that students can identify and pursue their personal and professional goals while obtaining a strong foundation in the principles and practice of chemical engineering. The program aims to produce graduates who will attain one or more of the following:

- Careers as practicing chemical engineers in traditional chemical and energy-related industries as well as in expanding areas of materials, environmental, pharmaceutical, and biotechnology industries.
- Advanced degrees in chemical engineering (or a related technical discipline), medicine, law, or business.
- Positions that provide the technical, educational, business, and / or political leadership needed in today's rapidly changing, increasingly technological, global society.

Student Outcomes

Student outcomes describe what students are expected to know and be able to do by the time of graduation. The Chemical Engineering program is designed to enable students to:

1. Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. Apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. Communicate effectively with a range of audiences

- Recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
- Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
- Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
- Acquire and apply new knowledge as needed, using appropriate learning strategies.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Chemical Engineering, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

If you are starting at a campus other than the one this plan is ending at, please refer to: <http://advising.engr.psu.edu/degree-requirements/academic-plans-by-major.aspx>

First Year

Fall	Credits Spring	Credits
CHE 100 (or First Year Seminar) [†]	1 CHEM 112 (GN)	3
CHEM 110 (GN) ^{*#†}	3 CHEM 113 (GN)	1
CHEM 111 (GN)	1 ENGL 15, 30H, or ESL 15 (GWS)	3
ECON 102 or 104 (GS) [†]	3 MATH 141 or 141E (GQ) ^{†#†}	4
EDSGN 100 ^{*#}	3 PHYS 211 (PHYS 211L and PHYS 211R (GN)) ^{*#†}	4
MATH 140 or 140E (GQ) ^{*†#†}	4 General Education Course [†]	3
	15	18

Second Year

Fall	Credits Spring	Credits
CHE 210 [*]	3 CHE 220 [*]	3
CHEM 210	3 CHE 230	1
MATH 251	4 CHEM 212	3
PHYS 212 (PHYS 212L & PHYS 212R (GN)) [†]	4 CHEM 213	2
General Education Course [†]	3 MATH 231	2
	General Education Course [†]	3
	General Education Course (GHW) [†]	1.5
	17	15.5

Third Year

Fall	Credits Spring	Credits
BMB 251 or MICRB 251	3 CAS 100A or 100B (GWS) ^{††}	3
CHE 320 [*]	3 CHE 300	1
CHE 330 [*]	3 CHE 340	3
Professional Elective	3 CHE 350 [*]	3
General Education Course [†]	3 CHEM 457	2
General Education Course [†]	3 Physical Chemistry Elective	3
	General Education Course (GHW) [†]	1.5
	18	16.5

Fourth Year

Fall	Credits Spring	Credits
CHE 410	3 CHE 470	3
CHE 430	3 CHE 480W	3
CHE 452	3 Chemical Engineering Elective	3
ENGL 202C (GWS) ^{††}	3 Engineering Elective	3
Chemical Engineering Elective	3 Professional Elective	3
Materials Elective	3	
	18	15

Total Credits 133

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

College Notes:

- Please see the Chemical Engineering Advising Handbook (<https://www.che.psu.edu/academics/undergraduate/handbook.aspx>) for lists of courses for the CHE Elective, Engineering Elective, Professional Elective, Physical Chemistry Elective, and Materials Elective.
- Health and Physical Activity Elective: Students who complete the ROTC Program may substitute 3 ROTC credits for the GHW requirement and 3 ROTC credits for a professional elective.
- This course offered at University Park in spring semester only. CHE 300.

Career Paths

Our chemical engineering graduates work in various industries such as pharmaceuticals, food, cosmetics, specialty chemicals, and oil and gas. They also serve as consultants for various engineering applications including challenges in the environment. Chemical Engineers can go to graduate school to obtain a Ph.D. Some chemical engineers also chose to go to medical school or law school.

Careers

A chemical engineer might work on a team to improve a process for making a pharmaceutical drug to increase the supply and decrease the cost.

A chemical engineer might design a new material that will make our clothing more comfortable and functional.

A chemical engineer might develop a solution to pressing environmental problems like an oil spill or global climate change.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE CHEMICAL ENGINEERING PROGRAM (<https://www.che.psu.edu/academics/undergraduate/what-is-chemical-engineering.aspx>)

Opportunities for Graduate Studies

Our students go on to graduate school and conduct research in topics including materials, energy, water treatment, biotechnology, and catalysis. Application of this research include: energy production and storage, large scale production of pharmaceuticals and vaccines, treatment of water and air, large scale production of affordable consumer products, and reduction of CO₂.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.che.psu.edu/academics/graduate/phd.aspx>)

Professional Resources

- American Institute of Chemical Engineering (<https://www.aiche.org>)

Accreditation

The Bachelor of Science in Chemical Engineering at University Park is accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Chemical, Biochemical, Biomolecular, and Similarly Named Engineering Programs.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact**University Park**

DEPARTMENT OF CHEMICAL ENGINEERING
121 Chemical & Biomedical Engineering Building
University Park, PA 16802
814-865-2574
cheundergrad@psu.edu

<https://www.che.psu.edu>

Civil Engineering, B.S. (Engineering)

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The program in Civil and Environmental Engineering is designed to provide the basic undergraduate education required for private practice and public service in civil engineering and/or continue formal education. Emphasis is placed on the fundamentals of civil engineering principles and design techniques. Students utilize basic engineering science concepts in several of the different specialty areas (e.g., construction/management, environmental, materials/pavement design/geotechnical, structures, transportation, and water resources). Finally the students are able to choose an area of specialization for professional practice or graduate studies.

The program is broadened by courses in communication, arts, humanities, social and behavioral sciences, as well as other engineering disciplines. Students gain experience in working as members of a team and using interdisciplinary approaches to solve problems. These

experiences, as well as those related to engineering principles and design, are provided through exercises in the classroom, laboratory, and field. The program culmination is a capstone design course wherein the students' knowledge and skills are applied to actual engineering problems.

What is Civil Engineering?

Civil engineering is one of the oldest and most socially-relevant engineering disciplines. Grounded in mathematics and science, civil engineers make a lasting impact as they plan, design, construct, operate, and maintain the everyday, yet critical, infrastructure systems needed in our daily lives. In this challenging and diverse field, civil engineers also find solutions for critical environmental issues, including slowing the progress and mitigating the effects of climate change, eliminating the causes and treating the effects of environmental pollutants, and providing access to clean water. In recent years, the rapid application of new technologies has fostered the development of autonomous vehicles, 3D printing, smart structures, advanced materials, and new forms of renewable energy.

You Might Like This Program If...

- You want to design and build large-scale projects that last a long time.
- You care about the quality of the water that comes out of the faucet.
- You are interested in the operations and safety of future transportation systems.
- You try to find sustainable solutions for every challenge, big or small.
- You would like to use your technical skills in an exciting, people-serving profession.

Entrance to Major

In order to be eligible for entrance to this major, students must satisfy the following requirements by the end of the semester during which the admission to major process is carried out.

- Completed 29-55 cumulative credits (credits completed at Penn State for which a quality letter grade was earned)
- Completed with a C or better the following courses: EDSGN 100, CHEM 110, MATH 140, MATH 141, and PHYS 211
- Attained at least a 2.6 cumulative grade point average

* In the event that the major is under enrollment control, a higher minimum cumulative grade-point average is likely to be needed and students must be enrolled in the College of Engineering or Division of Undergraduate Studies at the time of confirming their major choice.

Degree Requirements

For the Bachelor of Science degree in Civil Engineering, a minimum of 127 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	109

27 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 9 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
CHEM 111	Experimental Chemistry I	1
GEOSC 1	Physical Geology	3
MATH 220	Matrices	2
STAT 401	Experimental Methods	3
<i>Prescribed Courses: Require a grade of C or better</i>		
CE 310	Surveying	3
CE 321	Highway Engineering	3
CE 332	Professionalism, Economics & Construction Project Delivery	3
CE 335	Engineering Mechanics of Soils	3
CE 336	Materials Science for Civil Engineers	3
CE 340	Structural Analysis	3
CE 360	Fluid Mechanics	3
CE 370	Introduction to Environmental Engineering	3
CHEM 110	Chemical Principles I	3
EDSGN 100	Cornerstone Engineering Design	3
EMCH 211	Statics	3
EMCH 212	Dynamics	3
EMCH 213	Strength of Materials	3
ENGL 202C	Effective Writing: Technical Writing	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
MATH 251	Ordinary and Partial Differential Equations	4
PHYS 211	General Physics: Mechanics	4
PHYS 212	General Physics: Electricity and Magnetism	4
Additional Courses		
CE 337 or CE 475	Civil Engineering Materials Laboratory ¹ Water Quality Chemistry	1
CHE 220 or ME 201	Introduction to Chemical Engineering Thermodynamics ² Introduction to Thermal Science	3
CMPSC 200 or CMPSC 201	Programming for Engineers with MATLAB Programming for Engineers with C++	3
Select one of the following:		1
CE 100S	Topics and Contemporary Issues in Civil and Environmental Engineering: First-Year Seminar	
1 credit of First-Year Seminar or Elective		
Select one of the following:		3
ECON 14	Principles of Economics	
ECON 102	Introductory Microeconomic Analysis and Policy	
ECON 104	Introductory Macroeconomic Analysis and Policy	
Select 6 credits of the following: ³		6
CE 341	Design of Concrete Structures	
CE 342	Design of Steel Structures	
CE 371	Water and Wastewater Treatment	

CE 441	Structural Design of Foundations	
CE 447	Structural Analysis by Matrix Methods	
CE 461	Water-resource Engineering	
CE 462	Open Channel Hydraulics	
CE 475	Water Quality Chemistry	
CE 476	Solid and Hazardous Wastes	
CE 479	Environmental Microbiology for Engineers	

Select 3 credits of CE 400 level "W" courses 3

Additional Courses: Require a grade of C or better

CAS 100A	Effective Speech	3
or CAS 100B	Effective Speech	

ENGL 15	Rhetoric and Composition	3
or ENGL 30H	Honors Rhetoric and Composition	

Supporting Courses and Related Areas

Select 12 credits of technical elective from CE 300-level courses, CE 400-level courses, or department list 12

¹ If CE 475 is taken, one credit goes toward lab requirement and remaining three go towards CE or general technical electives.

² Students may substitute 6 credits of ROTC for 3 credits of GHW courses and 3 credits of ME.

³ Two of those courses must be selected from at least 2 of the 3 remaining technical areas in the Civil Engineering program-- structures (x40), hydrosystems (x60), and environmental (x70).

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Educational Objectives

The educational objectives of our undergraduate program will prepare our graduates to:

- begin and sustain a career in consulting, industry, or state and federal government agencies, such as the departments of transportation and departments of environmental protection;
- lead and work in interdisciplinary teams needed to design sustainable and resilient infrastructure through knowledge and application of environmental, geotechnical, materials, structural, transportation, and water resources engineering;

- engage in life-long learning opportunities, including graduate school; and
- obtain and maintain professional licensure

Student Outcomes

Student outcomes describe what students are expected to know and be able to do by the time of graduation. The Civil Engineering program is designed to enable students to:

1. Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. Apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. Communicate effectively with a range of audiences
4. Recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. Acquire and apply new knowledge as needed, using appropriate learning strategies.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

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READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Civil Engineering, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

If you are starting at a campus other than the one this plan is ending at, please refer to: <http://advising.engr.psu.edu/degree-requirements/academic-plans-by-major.aspx>

First Year		
Fall	Credits Spring	Credits
CE 100S (or other First Year Seminar) [†]	1 CHEM 111	1
CHEM 110 (GN) ^{*#†}	3 ECON 102 or 104 (GS) [†]	3
ENGL 15, 30H, or ESL 15 (GWS) ^{††}	3 MATH 141 or 141E (GQ) ^{*†##}	4
EDSGN 100 ^{*#}	3 PHYS 211 (PHYS 211L and PHYS 211R (GN)) ^{*#†}	4
MATH 140 or 140E (GQ) ^{*†##}	4 General Education Course [†]	3
General Education Course [†]	3 General Education Course (GHW) [†]	1.5
	17	16.5

Second Year		
Fall	Credits Spring	Credits
CAS 100A or 100B (GWS) ^{††}	3 CMPSC 200 or 201	3
EMCH 211 [*]	3 EMCH 212 [*]	3
GEOSC 1	3 EMCH 213 or 213D [*]	3
MATH 251 [*]	4 IE 424 or STAT 401	3
PHYS 212 (PHYS 212L and PHYS 212R (GN)) ^{*†}	4 MATH 220	2
	General Education Course [†]	3
	17	17

Third Year		
Fall	Credits Spring	Credits
CE 310 [*]	3 CE 321 [*]	3
CE 332 [*]	3 CE 335 [*]	3
CE 336 [*]	3 CE 337	1
CE 340 [*]	3 CE 370 [*]	3

CE 360*	3	ME 201	3
General Education Course (GHW) [†]	1.5		
	16.5		13
Fourth Year			
Fall	Credits	Spring	Credits
ENGL 202C (GWS) ^{††}		3 Civil Engineering Capstone Design	3
Civil Engineering Elective	3	Civil Engineering Elective	3
Civil Engineering Elective	3	Technical Elective	3
Technical Elective	3	Technical Elective	3
General Education Course [†]	3	General Education Course [†]	3
	15		15
Total Credits 127			

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

College Notes:

- **CE Elective:** CE Electives must be selected from two of these specific technical areas in the program: Structures (X40); Water Resources Engineering (X60); Environmental Engineering (X70).
- **Health and Physical Activity Elective:** Students who complete the ROTC Program may substitute 3 ROTC credits for the GHW requirement and 3 ROTC credits for M E 201.
- **Technical Elective:** Select from department list. Students who complete the Cooperative Education Program may substitute the 3-credit sequence of ENGR 295, ENGR 395, and ENGR 495 for a Technical Elective.

- ** If a student is pursuing the Structural sub-discipline in Civil Engineering, if CE 340 is not taken in the 5th semester it may delay graduation.

Career Paths

Civil engineers are responsible for designing, building, and maintaining the critical systems that support society and protect the environment. Graduates of the civil engineering program are prepared to be innovative leaders in a diverse range of industries. Students are routinely recruited for positions in the public sector with government agencies or in the private sector at consulting firms or construction companies. Students may also choose to continue their formal education by pursuing advanced degrees, and many remain in academia upon graduation.

Careers

Our graduates work in a variety of fields to develop solutions for challenges in design, construction, research, and education. Civil engineering graduates work in the public sector for government agencies or in the private sector at consulting or construction firms. Some civil engineers hold supervisory or administrative positions, while others pursue careers in design, construction, or education.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE CIVIL ENGINEERING PROGRAM (<https://www.asce.org/career-growth/>)

CAREER RESOURCES FOR CIVIL ENGINEERING STUDENTS (<https://www.cee.psu.edu/academics/resources/career-resources.aspx>)

Opportunities for Graduate Studies

In our graduate programs, students learn in the classroom and the laboratory, finding a broad network of mentors and collaborators. After graduation, many career options await.

- The one-year Master of Engineering (M.Eng.) (<https://www.cee.psu.edu/academics/graduate/degrees-and-requirements.aspx#MEng>) program gives you a strong foundation and leads to advanced professional practice.
- The Master of Science (M.S.) (<https://www.cee.psu.edu/academics/graduate/degrees-and-requirements.aspx#MS>) program blends advanced coursework and research, producing highly sought-after graduates.
- The Doctor of Philosophy (Ph.D.) (<https://www.cee.psu.edu/academics/graduate/degrees-and-requirements.aspx#PhD>) program provides a comprehensive educational and research opportunity, challenging students to be leaders of their fields.

What could you achieve with an advanced degree from the Department of Civil and Environmental Engineering at Penn State?

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.cee.psu.edu/academics/graduate/>)
GRADUATE DEGREES AND REQUIREMENTS (<https://www.cee.psu.edu/academics/graduate/degrees-and-requirements.aspx>)

Professional Resources

- American Concrete Institute (<https://www.concrete.org/>)
- American Society of Civil Engineers (<https://www.asce.org>)
- PSU Civil and Environmental Engineering Professional Organization Student Chapter List (<https://www.cee.psu.edu/academics/resources/student-organizations.aspx>)

Accreditation

The Bachelor of Science in Civil Engineering at University Park is accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Civil and Similarly Named Engineering Programs.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

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<https://harrisburg.psu.edu/science-engineering-technology/civil-engineering-bs> (<https://harrisburg.psu.edu/science-engineering-technology/civil-engineering-bs/>)

Computational Sciences, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Computational Sciences minor provides the necessary skills to use computers to study and solve scientific, engineering and data-centric problems across a wide range of disciplines. The minor complements the areas of theory and experimentation found in traditional scientific and engineering studies through the use of computational modeling, algorithm design, and event-driven programming. Students will customize the minor by selecting two advanced courses in their discipline or related areas that build upon the computational foundations provided in prescribed courses. The minor will prepare students with the skills necessary to apply computational methods in a variety of scientific and engineering disciplines.

What is Computational Sciences?

Computational Sciences is the study and application of computational methods to understand, analyze and solve complex problems. It includes the design, development and evaluation of models and simulations of

natural systems and complements traditional methods of theory and laboratory experiments. It seeks to provide a deeper understanding of scientific and engineering problems through the mathematical modeling of complex systems. A core topic is the design, implementation and evaluation of algorithms, both numerical and non-numerical, that address problems across a broad range of science and engineering disciplines.

You Might Like This Program If...

- You like to analyze and solve complex problems.
- You excel in mathematics.
- You want to apply computational methods to your discipline.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CMPSC 204	Introduction to Computational Sciences Programming	3
CMPSC 205	Intermediate Computational Sciences Programming	3
CMPSC 301	Event Driven Programming for Computational Sciences	3
CMPSC 348	Data Science and Machine Learning for Computational Sciences	3

Supporting Courses and Related Areas

<i>Supporting Courses and Related Areas: Require a grade of C or better</i>	
Select 6 credits of 400-level courses from the approved list of supporting courses	6

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

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University Park

CSE Advising

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cseadvising@engr.psu.edu

Career Paths

The Computational Sciences minor prepares graduates with the skills to use computational methods to simulate and model natural systems and processes. These skills allow the graduates to enhance their understanding of complex problems.

Careers

Careers in a broad range of sciences, engineering and business increasingly rely on understanding and applying computational tools. Graduates with a minor in Computational Sciences can pursue careers within their discipline that allow them to apply the latest computational tools used to analyze, understand and solve complex problems.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN COMPUTATIONAL SCIENCES (<https://career.engr.psu.edu/>)

Opportunities for Graduate Studies

Graduates of this minor can pursue graduate studies in fields that require the design and development of models and simulations of complex problems.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.eecs.psu.edu/students/graduate/EECS-Graduate-Prospective.aspx>)

Contact

University Park

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814-865-9505
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<https://www.eecs.psu.edu>

Computer Engineering, B.S. (Engineering)

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The mission of the faculty of the undergraduate computer engineering program at Penn State is to provide students with the knowledge and experience needed to pursue a productive lifelong career in industry or to engage in further study at the graduate level. Students participate in a balanced program of instruction covering the basic principles of the design and application of computer systems. The program includes coverage in breadth and depth of basic science, engineering, and abstract concepts of information handling. Students specialize in and are prepared for careers in the design, analysis and use of hardware, software and systems. The program is structured to ensure that graduates have a clear understanding of the design and the applications of computers, as

well as the ability to apply this knowledge throughout their professional careers.

What is Computer Engineering?

Computer engineering is the study of the design, analysis, and implementation of computer systems including processors, memory, embedded devices, and data communication systems for a wide range of application domains. It includes the study of digital systems, computer architecture, and computer networks. It encompasses many design activities spanning from designing individual logic components to designing complete computer systems composed of hardware, software, and hardware-software co-design. Computer engineering drives the development of new computing systems that enable the latest technologies impacting our everyday lives.

You Might Like This Program If...

- You excel in math and physics and have an interest in designing and constructing computer hardware
- You want to build and analyze physical computing devices that go beyond traditional computers
- You want to understand how current computer hardware and software work and how to design the next generation hardware and its supporting software
- You want to design computing systems that impact and improve everyday lives

Entrance to Major

This program currently has administrative enrollment controls. Administrative Enrollment Controls are initiated when limitations of space, faculty, or other resources in a major prevent accommodating all students who request them. Students must follow the administrative enrollment controls that are in effect for the semester that they enter the university.

First-Year Students Entering Summer 2024, Fall 2024, Spring 2025

In order to be eligible for entrance to this major, students must satisfy the following requirements:

- be enrolled in the College of Engineering or the Division of Undergraduate Studies
- 29-55 graded Penn State credits (excludes transfer and AP credits)
- completed with a grade of C or better: CMPSC 121 or CMPSC 131, CHEM 110, MATH 140, MATH 141, PHYS 211
- earned a minimum cumulative grade-point average (GPA) of 3.20

Students Who Entered Prior to Summer 2024

Students who entered the University from Summer 2018 through Spring 2024 should view the administrative enrollment controls in the appropriate Undergraduate Bulletin archive (<https://bulletins.psu.edu/undergraduate/archive/>). Students who entered the University prior to the summer 2018 semester should consult with their academic adviser about the administrative enrollment controls in effect for the semester they entered the university.

Degree Requirements

For the Bachelor of Science degree in Computer Engineering, a minimum of 128 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	110

27 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 9 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
CMPEN 362	Communication Networks	3
CMPEN 482W	Computer Engineering Project Design	3
CMPSC 473	Operating Systems Design & Construction	3
MATH 220	Matrices	2-3
MATH 231	Calculus of Several Variables	2
PHYS 214	General Physics: Wave Motion and Quantum Physics	2
STAT/MATH 418	Introduction to Probability and Stochastic Processes for Engineering	3
<i>Prescribed Courses: Require a grade of C or better</i>		
CHEM 110	Chemical Principles I	3
CMPEN 331	Computer Organization And Design	3
CMPEN 431	Introduction to Computer Architecture	3
CMPSC 221	Object Oriented Programming with Web-Based Applications	3
CMPSC 311	Introduction to Systems Programming	3
CMPSC 360	Discrete Mathematics for Computer Science	3
CMPSC 465	Data Structures and Algorithms	3
EE 210	Circuits and Devices	4
EE 310	Electronic Circuit Design I	4
EE 353	Signals and Systems: Continuous and Discrete-Time	3
ENGL 202C	Effective Writing: Technical Writing	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
MATH 250	Ordinary Differential Equations	3
PHYS 211	General Physics: Mechanics	4
PHYS 212	General Physics: Electricity and Magnetism	4
Additional Courses		
Select 1 credit of First-Year Seminar		1
Select 3 credits of the following:		3
ECON 14	Principles of Economics	
ECON 102	Introductory Microeconomic Analysis and Policy	
ECON 104	Introductory Macroeconomic Analysis and Policy	
Select 6 credits from the following:		6
CMPEN 411	VLSI Digital Circuits	
CMPEN 416	Digital Integrated Circuits	
CMPEN 417	Digital Design Using Field Programmable Devices	

CMPEN 454	Fundamentals of Computer Vision	
CMPEN 455	An Introduction to Digital Image Processing	
CMPEN 471		
CMPEN 472	Microprocessors and Embedded Systems	
CMPEN 473	Microcomputer Laboratory	
CMPEN 475	Functional Verification	
EE 453	Fundamentals of Digital Signal Processing	
EE 456	Introduction to Neural Networks	
Select 6 credits from any 400-level CMPEN or CMPSC course		6
<i>Additional Courses: Require a grade of C or better</i>		
CAS 100A	Effective Speech	3
or CAS 100B	Effective Speech	
CMPSC 121	Introduction to Programming Techniques	3
or CMPSC 131	Programming and Computation I: Fundamentals	
CMPSC 122	Intermediate Programming ¹	3
or CMPSC 132	Programming and Computation II: Data Structures	
ENGL 15	Rhetoric and Composition	3
or ENGL 30H	Honors Rhetoric and Composition	
Select 4 credits from the following:		4
CMPEN 270	Digital Design: Theory and Practice	
CMPEN 271	Introduction to Digital Systems & CMPEN 275 and Digital Design Laboratory ²	
Supporting Courses and Related Areas		
Select 6 credits from department list ³		6

¹ CMPSC 122 does not require a grade of C or better.

² CMPEN 275 does not require a grade of C or better.

³ Students may apply up to 3 credits of Co-op. Students who complete ROTC may apply up to 3 credits of ROTC as department list credits and 3 credits of ROTC as GHW credits.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits

- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Computer Engineering and M.I.A. in International Affairs

Requirements for the Integrated B.S. in Computer Engineering and M.I.A. in International Affairs can be found in the Graduate Bulletin (<https://>

bulletins.psu.edu/graduate/programs/majors/international-affairs/#integratedundergradgradprogramstext).

Program Educational Objectives

In particular, within a few years after graduation, graduates in computer engineering should be able to:

1. Work in industry or government producing or evaluating components of computer hardware and/or software systems.
2. Work in teams to design, implement, and/or maintain components of computer hardware and/or software systems.
3. Stay current through professional conferences, certificate programs, post-baccalaureate degree programs, or other professional educational activities.

Student Outcomes

Student outcomes describe what students are expected to know and be able to do by the time of graduation. The Computer Engineering program is designed to enable students to:

1. Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. Apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. Communicate effectively with a range of audiences
4. Recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. Acquire and apply new knowledge as needed, using appropriate learning strategies.

Academic Advising

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Suggested Academic Plan

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Computer Engineering, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

If you are starting at a campus other than the one this plan is ending at, please refer to: <http://advising.engr.psu.edu/degree-requirements/academic-plans-by-major.aspx>

First Year

Fall	Credits Spring	Credits
MATH 140 (GQ) ^{*†#†}	4 CMPSC 121 or 131 (GQ) ^{*#}	3
PHYS 211 (GN, PHYSICS 211L & PHYSICS 211R) ^{*†#†}	4 MATH 141 (GQ) ^{*†#†}	4
CHEM 110 (GN) ^{*#†}	3 PHYS 212 (GN, PHYSICS 212L & PHYSICS 212R) ^{*†}	4
General Education Course	3 ENGL 15 (GWS) ^{*†}	3
First Year Seminar	1 General Education Course	3
	15	17

Second Year

Fall	Credits Spring	Credits
CMPEN 270 ^{*1}	4 CMPEN 331 [*]	3
CMPSC 122 or 132 [*]	3 CMPSC 221 [*]	3
MATH 250 [*]	3 EE 210 [*]	4
MATH 220	2-3 MATH 231	2
PHYS 214	2 ECON 102 or 104 (GS) [†]	3
General Education Course	3	
	17-18	15

Third Year

Fall	Credits Spring	Credits
CMPEN 431 [*]	3 CMPEN 362	3
CMPSC 311 [*]	3 CMPSC 465 [*]	3
EE 310 [*]	4 CMPSC 473	3
STAT 418	3 EE 353 ^{*2}	3
CMPSC 360 [*]	3 ENGL 202C (GWS) ^{*††}	3
	16	15

Fourth Year

Fall	Credits Spring	Credits
CMPEN 482W (Capstone Design)	3 CMPEN Elective ⁴	3
CMPEN Elective ⁴	3 CMPSC/CMPEN Elective ³	3
CAS 100A or 100B ^{*††}	3 CMPSC/CMPEN Elective ³	3

Department List (General Elective)	3 Department List (General Elective)	3
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
	16.5	16.5

Total Credits 128-129

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ This course is the equivalent of the combination of CMPEN 271 and CMPEN 275.

² EE 353 is only offered in the spring semester.

³ Select from any 400-489 CMPSC or CMPEN course that does not duplicate material already taken or required. No CMPSC/CMPEN 494H or CMPSC/CMPEN 496 may be substituted. CMPSC/CMPEN 497 must be petitioned prior to taking the course.

⁴ Select from department list. Restrictions may apply. Computer Engineering Electives are NOT offered every semester or even every year. Contact the department for information on which classes are scheduled to be offered during a given semester.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Career Paths

Computer engineering graduates understand all aspects of computing hardware, are well-studied in the use of modern tools used to design and analyze hardware, are able to think at multiple levels of abstraction when working with system-level design, and have a solid foundation in software development. This background prepares graduates for a wide range of exciting careers in the technology industry and almost all other industry sectors as computer/hardware/embedded system designers. It also prepares them for pursuing academic careers. Computer engineers apply their skills and knowledge to solve challenging problems related to computer hardware. They work collaboratively in teams to design and

build complex systems with many integrated parts. They research, study, and develop the new technologies that drive the advances in computing that impact our everyday lives.

Careers

Computer engineering graduates typically find positions as computer/hardware/embedded system designers in major technology companies like IBM, Intel, Cisco, and Qualcomm. Graduates are also highly recruited by major companies in areas such as aerospace, communication, transportation, and defense. Most graduates will find themselves a part of a team of engineers and after a few years possibly leading a design team. With the rapid changes and advances in the field of computing, graduates must continually keep up with the latest technology as their careers adapt and evolve to meet the new opportunities and challenges of computing.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE COMPUTER ENGINEERING PROGRAM (<https://career.engr.psu.edu>)

Opportunities for Graduate Studies

Graduates of this program can pursue graduate studies in computer engineering, computer science, and related disciplines, concentrating in specialized areas such as multicore architectures, low-power architectures, application-specific hardware architectures, and computer networking. A master's degree allows one to specialize beyond the broad foundations offered by a bachelor's degree. A doctoral degree prepares one for a career in research and academia.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.eecs.psu.edu/students/graduate/EECS-Graduate-Prospective.aspx>)

Professional Resources

- ACM (<https://acm.psu.edu>)
- Association of Women in Computing (<https://awc.cse.psu.edu>)
- IEEE (<https://sites.psu.edu/psuieee/>)

Accreditation

The Bachelor of Science in Computer Engineering at University Park is accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Electrical, Computer, Communications, Telecommunication(s), and Similarly Named Engineering Programs the Computer Engineering Program Criteria.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

University Park

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
W209 Westgate Building
University Park, PA 16802
814-865-9505
trk149@psu.edu

bam136@psu.edu

<https://www.eecs.psu.edu>

Computer Engineering, Minor (Engineering)

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Computer Engineering Minor provides students with the fundamental topics of computer hardware design, including digital logic design, computer organization, computer communication networks and computer architecture. Complimenting these core topics are elective courses in areas including embedded systems, digital integrated circuits, field programmable devices, and functional verification. This minor complements disciplines related to computing and that make use of specialized computing hardware. Students in majors related to computer engineering will already have the mathematics and physics background to pursue this major without taking additional foundational courses.

What is Computer Engineering?

Computer engineering is the study of the design, analysis, and implementation of computer systems including processors, memory, embedded devices, and data communication systems for a wide range of application domains. It includes the study of digital systems, computer architecture, and computer networks. It encompasses many design activities spanning from designing individual logic components to designing complete computer systems composed of hardware, software, and hardware-software co-design. Computer engineering drives the development of new computing systems that enable the latest technologies impacting our everyday lives.

You Might Like This Program If...

- You excel in math and physics and have an interest in working with computer hardware.
- You want to understand how current computer hardware and software work together.
- You want to work with computing systems that impact and improve everyday lives.

Program Requirements

Requirement	Credits
Requirements for the Minor	19

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CMPEN 331	Computer Organization And Design	3

CMPEN 431	Introduction to Computer Architecture	3
CMPEN/EE 362	Communication Networks	3

Additional Courses

Additional Courses: Require a grade of C or better

CMPEN 270	Digital Design: Theory and Practice	4
or CMPEN 271	Introduction to Digital Systems and Digital Design Laboratory	
& CMPEN 275		

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 6 credits of additional 400-level CMPEN courses, excluding independent studies and honors thesis credits. 6

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

CSE Advising

W209 Westgate Building
University Park, PA 16802
cseadvising@enr.psu.edu

Career Paths

The Computer Engineering minor provides graduates with the foundations of computer hardware design, including topics such as FPGA, embedded systems, digital integrated circuits, computer vision systems, which complements their studies, whether in software, electronics, or another discipline. This minor prepares them for a wide range of opportunities in which computers and related hardware systems play an important role.

Careers

Graduates with a minor in computer engineering can find positions where they will apply their knowledge of hardware systems and skills with technology companies and with companies in a broader range of fields such as aerospace, communication, entertainment, finance, healthcare, transportation, and defense. Most graduates will find themselves a part of a team to design and build complex systems with many integrated parts. With the rapid changes and advances in the field of computing, graduates must continually keep up with the latest technology as their careers adapt and evolve to meet the new opportunities and challenges of computing.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN COMPUTER ENGINEERING (<https://career.engr.psu.edu/>)

Opportunities for Graduate Studies

Graduates of this minor can pursue graduate studies in computer engineering, and related disciplines, concentrating in specialized areas such as multicore architectures, low-power architectures, application-specific hardware architectures, and computer networking. They research, study, and develop the new technologies that apply the advances in computing to impact our everyday lives. A master's degree allows one to specialize beyond the broad foundations offered an undergraduate degree. A doctoral degree prepares one for a career in research and academia.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.eecs.psu.edu/students/graduate/EECS-Graduate-Prospective.aspx>)

Contact

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
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trk149@psu.edu, bam136@psu.edu

<https://www.eecs.psu.edu>

Computer Science, B.S. (Engineering)

Begin Campus: Any Penn State Campus

End Campus: Beaver, Brandywine, Hazleton, University Park

Program Description

Computer Science is the study of computation, including its principles and foundations, its efficient implementation, its analysis, and its practical use in a wide range of different application areas. Computer Science is far more than just programming and no other science or engineering discipline has had a greater impact in such diverse areas as commerce, communication, entertainment, finance, medicine, the social sciences, the physical sciences and the life sciences. Computer Science impacts our daily lives in a multitude of ways and computer scientists are instrumental in driving these changes. Computer Science transforms the way we look at and live in our world.

The mission of our undergraduate program is to prepare our students for a wide range of careers as computer scientists, software engineers, software developers, and related positions in the field of computing. Our curriculum covers fundamental programming techniques and skills, broad knowledge of computer hardware, operating systems, programming languages, the mathematical foundations of computing, and advanced topics in software design and application development. Recurrent themes in the program include security, algorithmic complexity, cooperating systems, performance evaluation, and software correctness. This curriculum provides students with the skills needed to design, develop, evaluate, and analyze software solutions to a wide spectrum of computational problems and prepares them to be leaders in the rapidly changing field of computing throughout their careers.

What is Computer Science?

Computer science is the study of computational methods, including their principles and foundations, their efficient implementation, their analyses, and their practical application in wide-ranging areas. It includes the foundations of software development, computational problem solving, the principles of system software, and the fundamental principles and limits of computing. It is much more than just programming. It includes the mathematical foundations that support analyzing, evaluating, and proving the correctness of computational solutions. It includes specializations such as artificial intelligence, machine learning, cybersecurity, data mining, high-performance computing, computer networks, computer graphics, computer vision, quantum computing, and others. It is continually evolving with the development of new and faster forms of computation and with the identification of new problems that require computational solutions.

You Might Like This Program If...

- You are interested in creating solutions to challenging problems involving computers
- You want to understand how to build and analyze complex software solutions
- You want to understand how computer hardware and software work and how to make them better
- You want to design software that impacts and improves people's everyday lives

Entrance to Major University Park (CMPSC_BS)

This program currently has administrative enrollment controls. Administrative Enrollment Controls are initiated when limitations of space, faculty, or other resources in a major prevent accommodating all students who request them. Students must follow the administrative enrollment controls that are in effect for the semester that they enter the university.

First-Year Students Entering Summer 2024, Fall 2024, Spring 2025

In order to be eligible for entrance to this major, students must satisfy the following requirements:

- be enrolled in the College of Engineering or the Division of Undergraduate Studies
- 29-55 graded Penn State credits (excludes transfer and AP credits)
- completed with a grade of C or better: CMPSC 121 or CMPSC 131, CMPSC 122 or CMPSC 132, MATH 140, MATH 141, PHYS 211
- earned a minimum cumulative grade-point average (GPA) of 3.20

Students Who Entered Prior to Summer 2024

Students who entered the University from Summer 2018 through Spring 2024 should view the administrative enrollment controls in the appropriate Undergraduate Bulletin archive (<https://bulletins.psu.edu/undergraduate/archive/>). Students who entered the University prior to the summer 2018 semester should consult with their academic adviser about the administrative enrollment controls in effect for the semester they entered the university.

Beaver, Brandywine, Hazleton (CSENG_BS)

In order to be eligible for entrance to this major, students must satisfy the following requirements by the end of the semester during which the admission to major process is carried out:

- 29-55 cumulative credits (excludes transfer and AP credits)
- completed with a grade of C or better: CMPSC 121 or CMPSC 131, CMPSC 122 or CMPSC 132, MATH 140, MATH 141, and PHYS 211
- earned a minimum cumulative grade-point average (GPA) of 2.60

* In the event that the major is under enrollment control, a higher minimum cumulative grade-point average is likely to be needed and students must be enrolled in the College of Engineering or Division of Undergraduate Studies at the time of confirming their major choice.

Degree Requirements

For the Bachelor of Science degree in Computer Science, a minimum of 127 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	106-108

24 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 9 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
CMPSC 464	Introduction to the Theory of Computation	3
MATH 220	Matrices	2-3
MATH 230	Calculus and Vector Analysis	4
<i>Prescribed Courses: Require a grade of C or better</i>		
CMPEN 331	Computer Organization And Design	3
CMPSC 221	Object Oriented Programming with Web-Based Applications	3
CMPSC 311	Introduction to Systems Programming	3
CMPSC 360	Discrete Mathematics for Computer Science	3
CMPSC 461	Programming Language Concepts	3
CMPSC 465	Data Structures and Algorithms	3
CMPSC 473	Operating Systems Design & Construction	3
ENGL 202C	Effective Writing: Technical Writing	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
PHYS 211	General Physics: Mechanics	4
PHYS 212	General Physics: Electricity and Magnetism	4
Additional Courses		
Select 1 credit of First-Year Seminar		1
Select one of the following:		3
STAT/MATH 318	Elementary Probability	
STAT/MATH 414	Introduction to Probability Theory	

STAT/MATH 418	Introduction to Probability and Stochastic Processes for Engineering	
Select 6 credits from the following:		6
CMPEN 362	Communication Networks	
CMPEN 431	Introduction to Computer Architecture	
CMPEN 454	Fundamentals of Computer Vision	
CMPSC 442	Artificial Intelligence	
CMPSC 443	Introduction to Computer and Network Security	
CMPSC 444	Secure Programming	
CMPSC 450	Concurrent Scientific Programming	
CMPSC 451	Numerical Computations	
CMPSC 455	Introduction to Numerical Analysis I	
CMPSC 456	Introduction to Numerical Analysis II	
CMPSC 458	Fundamentals of Computer Graphics	
CMPSC 467	Factorization and Primality Testing	
CMPSC 471	Introduction to Compiler Construction	
CMPSC 475	Applications Programming	
EE 456	Introduction to Neural Networks	
Select 3 credits from any CMPEN or CMPSC course numbered 400-489		3
CMPSC 431W	Database Management Systems	3
	or CMPSC 483W Software Design Methods	
STAT/MATH 319	Elementary Mathematical Statistics	3
	or STAT/ MATH 415	
<i>Additional Courses: Require a grade of C or better:</i>		
CMPSC 121	Introduction to Programming Techniques	3
	or CMPSC 131 Programming and Computation I: Fundamentals	
CMPSC 122	Intermediate Programming	3
	or CMPSC 132 Programming and Computation II: Data Structures	
CMPEN 270	Digital Design: Theory and Practice	4
	or CMPEN 271 Introduction to Digital Systems and Digital Design Laboratory	
	& CMPEN 275	
ENGL 15	Rhetoric and Composition	3
	or ENGL 137H Rhetoric and Civic Life I	
ENGL 138T	Rhetoric and Civic Life II	3
	or CAS 100A Effective Speech	
	or CAS 100B Effective Speech	
Supporting Courses and Related Areas		
Select 2-3 credits from the following:		2-3
PHYS 213	General Physics: Fluids and Thermal Physics	
PHYS 214	General Physics: Wave Motion and Quantum Physics	
3 credits from the approved list of natural sciences courses		
Select 0-4 credits in a foreign language (second-semester proficiency)		0-4
Select 10-14 credits from department list. Students may apply up to 10-14 3 credits of ROTC as department list credits and 3 credits of ROTC as GHW credits.		
Select 6 credits in non-CMPEN or CMPSC courses numbered 400-489 in consultation with adviser		6

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Computer Science and M.I.A. in International Affairs

Requirements for the Integrated B.S. in Computer Science and M.I.A. in International Affairs can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/international-affairs/#integratedundergradgradprogramstext>).

Program Educational Objectives

Graduates of our Computer Science degree will be prepared with technical knowledge and professional skills for the practice and future development in their profession along different career paths. We expect them to engage in continuous learning activities, to continue to communicate effectively and work collaboratively with internal and external stakeholders in multidisciplinary and multicultural work environments, and to maintain a strong commitment to ethical practices in their profession. Due to their experience in our program, within few years of their graduation we expect our graduates to have the following career and professional accomplishments:

1. Those employed in industry and focused on technical accomplishments will demonstrate professional advancement by their promotion or other recognition of their technical skills.
2. Those who pursue additional formal education related to their technical skills, either directly or soon after graduation, will have completed or be near completion of a graduate degree or other technical certification.
3. Those who pursue career paths or formal education unrelated or tangential to their degree program will have applied their broad educational skills, including analytical problem solving, communication and independent learning, towards a new discipline.
4. Those employed by government or industry and focused on leadership will demonstrate professional advancement through expanded leadership responsibility based on their acquired technical knowledge and experience.
5. Those employed by government or industry and focused on management will demonstrate professional advancement through expanded management responsibilities based on their acquired management training and experience.

Student Outcomes

Student outcomes describe what students are expected to know and be able to do by the time of graduation. The Computer Science program is designed to enable students to:

1. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
2. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
3. Communicate effectively in a variety of professional contexts.
4. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
5. Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
6. Apply computer science theory and software development fundamentals to produce computing-based solutions.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Computer Science, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

If you are starting at a campus other than the one this plan is ending at, please refer to: <https://advising.engr.psu.edu/degree-requirements/academic-plans-by-major.aspx>

First Year

Fall	Credits	Spring	Credits
CMPSC 121 or 131 ^{*†#}	3	CMPSC 122 or 132 ^{*#}	3
MATH 140 (GQ) ^{*†#†}	4	MATH 141 (GQ) ^{*†#†}	4
ENGL 15 (GWS) [†]	3	PHYS 211 (GN, PHYSICS 211L & PHYSICS 211R) ^{*#†}	4
General Education Course	3	General Education Course	3
General Education Course	3	First Year Seminar	1
	16		15

Second Year

Fall	Credits	Spring	Credits
CMPSC 221 [*]	3	CMPSC 360 [*]	3
MATH 230	4	CMPEN 270 [*]	4
MATH 220	2-3	CMPSC 311 [*]	3
PHYS 212 (GN, PHYSICS 212L & PHYSICS 212R) ^{*†}	4	Natural Science Elective (GN, See College Note below for options that DO NOT count)	2-3
CAS 100A or 100B (GWS) ^{††}	3	General Education Course	3
	16-17		15-16

Third Year

Fall	Credits	Spring	Credits
CMPSC 465 [*]	3	CMPSC 464	3
CMPEN 331 [*]	3	CMPSC 473 [*]	3
STAT 318	3	STAT 319	3
CMPSC 461 [*]	3	ENGL 202C (GWS) ^{††}	3
World Language	4	General Education Course	3
	16		15

Fourth Year

Fall	Credits	Spring	Credits
CMPSC 483W or 431W	3	CMPSC/CMPEN 400-level ²	3
CMPSC Elective ¹	3	CMPSC Elective ¹	3
Supporting Course	3	Supporting Course	3
Department List (General Elective)	3	General Education Course	3
Department List (General Elective)	4	Department List (General Elective)	3
General Education Course (GHW)	1.5	General Education Course (GHW)	1.5
	17.5		16.5

Total Credits 127-129

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Select from department list. Restrictions may apply. Computer Science Electives are NOT offered every semester or even every year. Contact the department for information on which classes are scheduled to be offered during a given semester.

² Select 3 credits from any 400-489 CMPSC or CMPEN course that does not duplicate material already taken or required. No CMPSC/CMPEN 494H or CMPSC/CMPEN 496 may be substituted. CMPSC/CMPEN 497 must be petitioned prior to taking the course.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

College Notes:

- NATURAL SCIENCES ELECTIVE:** Choose any GN-designated course EXCEPT the following: ASTRO 1, 7N, 10, 11, 120, or 140; all below CHEM 110 (except 3 credits of CHEM 106); all below PHYS 211; PHYS 250 or 251; all BI SC; and GEOSC 20.

- **CMPSC/CMPEN 4XX:** Select any 400-489 CMPSC or CMPEN course offered at University Park.
- **Computer Science Elective:** Select from department list. Restrictions may apply. Computer Science Electives are NOT offered every semester or even every year. Contact the department for information on which classes are scheduled to be offered during a given semester.
- **Department List Elective:** Select from department list. Restrictions may apply. Students who complete the ROTC Program may substitute 3 ROTC credits for a Department List Elective. Students who complete the Cooperative Education Program may substitute 3 co-op credits for a Department List Elective.
- **Health and Wellness:** Students who complete the ROTC Program may substitute 3 ROTC credits for the GHW requirement and 3 ROTC credits for a Department List Elective.
- **Supporting Course:** Select from department list. Restrictions may apply.

Computer Science, B.S. at Beaver Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
CMPSC 121 or 131 ^{*†#}	3	CMPSC 122 or 132 ^{*#}	3
MATH 140 ^{*†#†}	4	MATH 141 ^{*†#†}	4
ENGL 15 (GWS) ^{††}	3	PHYS 211 (GN, PHYSICS 211L & PHYSICS 211R) ^{*#†}	4
General Education Course	3	General Education Course	3
First-Year Seminar	1	General Education Course	3
	14		17

Second Year

Fall	Credits	Spring	Credits
CMPSC 221 [*]	3	CMPSC 360 [*]	3
MATH 230	4	CMPEN 270 [*]	4
MATH 220	3	CMPSC 311 [*]	3
PHYS 212 (GN, PHYSICS 212L & PHYSICS 212R) ^{††}	4	Natural Science Elective (GN, See College Note below for options that DO NOT count)	3
CAS 100A (GWS) ^{††}	3	General Education Course	3
	17		16

Third Year

Fall	Credits	Spring	Credits
CMPSC 465 [*]	3	CMPSC 464	3
CMPEN 331 [*]	3	CMPSC 473 [*]	3
STAT 318	3	STAT 319	3
CMPSC 461 [*]	3	ENGL 202C (GWS) ^{††}	3
World Language	4	General Education Course	3
	16		15

Fourth Year

Fall	Credits	Spring	Credits
CMPSC 483W or 431W	3	CMPSC Elective ²	3
CMPSC Elective ¹	3	CMPSC Elective ¹	3
Supporting Course	3	Supporting Course	3
Department List (General Elective)	3	Department List (General Elective)	3
Department List (General Elective)	4	General Education Course (GHW)	1.5
General Education Course (GHW)	1.5	General Education Course	3
	17.5		16.5

Total Credits 129

* Course requires a grade of C or better for the major

† Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Select from department list. Restrictions may apply. Computer Science Electives are NOT offered every semester or even every year. Contact the department for information on which classes are scheduled to be offered during a given semester.

² Select 3 credits from any 400-489 CMPSC or CMPEN course that does not duplicate material already taken or required. No CMPSC/CMPEN 494H or CMPSC/CMPEN 496 may be substituted. CMPSC/CMPEN 497 must be petitioned prior to taking the course.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Program Notes:

- **NATURAL SCIENCES ELECTIVE:** Choose any GN-designated course EXCEPT the following: ASTRO 1, 7N, 10, 11, 120, or 140; all below CHEM 110 (except 3 credits of CHEM 106); all below PHYS 211; PHYS 250 or 251; all BI SC; and GEOSC 20.
- **CMPSC/CMPEN 4XX:** Select any 400-489 CMPSC or CMPEN course offered at University Park.
- **Computer Science Elective:** Select from department list. Restrictions may apply. Computer Science Electives are NOT offered every semester or even every year. Contact the department for information on which classes are scheduled to be offered during a given semester.
- **Department List Elective:** Select from department list. Restrictions may apply. Students who complete the ROTC Program may substitute 3 ROTC credits for a Department List Elective. Students who complete the Cooperative Education Program may substitute 3 co-op credits for a Department List Elective.
- **Health and Wellness:** Students who complete the ROTC Program may substitute 3 ROTC credits for the GHW requirement and 3 ROTC credits for a Department List Elective.
- **Supporting Course:** Select from department list. Restrictions may apply.

Computer Science, B.S. at Brandywine Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 ^{*#†}	4 MATH 141 ^{*#†}	4
CMPSC 131 ^{*#}	3 CMPSC 132 ^{*#}	3
ENGL 15 or 30H ^{††}	3 PHYS 211 ^{*#†}	4
PSU 12 [†]	1 CAS 100 ^{††}	3
General Education Course (suggested IST 110 or SRA 111) [†]	3 General Education Course [†]	3
General Education Course [†]	3	
	17	17

Second Year

Fall	Credits Spring	Credits
CMPSC 221 [*]	3 CMPSC 360 ^{*2}	3
MATH 230 ¹	4 CMPSC 311 ^{*2}	3
PHYS 212 ^{*†}	4 MATH 220 ²	3
CMPEN 271 ^{*1} & CMPEN 275 ^{*1} or CMPEN 270 [*]	4 ENGL 202C ^{††}	3
General Education Course (GHW) [†]	1.5 Natural Science Elective (GN, See College Note below for options that DO NOT count) [†]	3
General Education Course (GHW) [†]	1.5	
	18	15

Third Year

Fall	Credits Spring	Credits
CMPSC 465 ^{*1}	3 CMPSC 464 ²	3
CMPEN 331 ^{*1}	3 CMPSC 473 ^{*2}	3
STAT 318 ¹	3 STAT 319 ²	3
CMPSC 461 ^{*1}	3 General Education Course [†]	3
World Language	4 General Education Course [†]	3
	16	15

Fourth Year

Fall	Credits Spring	Credits
CMPSC 431W ¹ or CMPSC 483W ²	3 CMPSC/CMPEN 400-level	3
CMPSC Elective	3 CMPSC Elective	3
Supporting Course	3 Supporting Course	3
Department List (General Elective)	3 General Education Course [†]	3
Department List (General Elective)	4 Department List (General Elective)	3
	16	15

Total Credits 129

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Course is Fall only

² Course is Spring only

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

College Notes:

- **NATURAL SCIENCES ELECTIVE:** Choose any GN-designated course EXCEPT the following: ASTRO 1, 7N, 10, 11, 120, or 140; all below CHEM 110 (except 3 credits of CHEM 106); all below PHYS 211; PHYS 250 or 251; all BI SC; and GEOSC 20.
- **CMPSC/CMPEN 4XX:** Select any 400-489 CMPSC or CMPEN course offered at University Park.
- **Computer Science Elective:** Select from department list. Restrictions may apply. Computer Science Electives are NOT offered every semester or even every year. Contact the department for information on which classes are scheduled to be offered during a given semester.
- **Department List Elective:** Select from department list. Restrictions may apply. Students who complete the ROTC Program may substitute 3 ROTC credits for a Department List Elective. Students who complete the Cooperative Education Program may substitute 3 co-op credits for a Department List Elective.
- **Health and Wellness:** Students who complete the ROTC Program may substitute 3 ROTC credits for the GHW requirement and 3 ROTC credits for a Department List Elective.
- **Supporting Course:** Select from department list. Restrictions may apply.

Computer Science, B.S. at Hazleton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H ^{††}	3 CAS 100A ^{††}	3
CMPSC 131 ^{*#}	3 MATH 141 ^{*#†}	4
MATH 140 ^{*#†}	4 PHYS 211 ^{*#†}	4
PSU 8 [†]	1 CMPSC 132 ^{*#}	3
General Education Course [†]	3 General Education Course [†]	3
General Education Course (GN) [†]	3	
	17	17

Second Year

Fall	Credits Spring	Credits
CMPEN 271 ^{*1} and CMPEN 275 ^{*1} or CMPEN 270 [*]	4 CMPSC 311 ^{*2}	3
CMPSC 221 [*]	3 CMPSC 360 [*]	3
MATH 220	3 MATH 230	4
PHYS 212 ^{*†}	4 ENGL 202C ^{††}	3
General Education GHW [†]	1.5 Natural Science Elective (GN, See College Note below for options that DO NOT count) [†]	3
General Education GHW [†]	1.5	
	17	16

Third Year

Fall	Credits Spring	Credits
CMPEN 331 [*]	3 CMPSC 473 [*]	3
CMPSC 465 [*]	3 CMPSC 464 ²	3
STAT 318 ¹	3 STAT 319 ²	3
CMPSC 461 ^{*1}	3 General Education Course [†]	3
World Language	4 General Education Course [†]	3
	16	15

Fourth Year

Fall	Credits Spring	Credits
CMPSC 431W ¹ or CMPSC 483W ²	3 CMPEN/CMPSC 4XX	3
CMPSC Elective	3 CMPSC Elective	3
Supporting Course	3 Supporting Course	3
Department List (General Elective)	4 Department List (General Elective)	3
Department List (General Elective)	3 General Education Course [†]	3
	16	15

Total Credits 129

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Course is Fall only

² Course is Spring Only

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Program Notes:

- **NATURAL SCIENCES ELECTIVE:** Choose any GN-designated course EXCEPT the following- ASTRO 1, 7N, 10, 11, 120, or 140; all below CHEM 110 (except 3 credits of CHEM 106); all below PHYS 211; PHYS 250 or 251; all BI SC; and GEOSC 20.
- **CMPSC/CMPEN 400-Level:** Select any 400-489 CMPSC or CMPEN course.
- **Computer Science Elective:** Select from department list. Restrictions may apply. Computer Science Electives are NOT offered every semester or even every year. Contact the department for information on which classes are scheduled to be offered during a given semester.
- **Department List Elective:** Select from department list. Restrictions may apply. Students who complete the ROTC Program may substitute 3 ROTC credits for a Department List Elective. Students who complete the Cooperative Education Program may substitute 3 co-op credits for a Department List Elective.
- **Health and Wellness:** Students who complete the ROTC Program may substitute 3 ROTC credits for the GHW requirement and 3 ROTC credits for a Department List Elective.
- **Supporting Course:** Select from department list. Restrictions may apply.

Career Paths

Computer science has had major impacts in such diverse areas as commerce, communication, engineering, entertainment, finance, health sciences, social sciences, physical sciences, and life sciences. Computer scientists do far more than just construct software. They apply their skills and knowledge to solve challenging problems using sound computational

methods. They work collaboratively in teams to build complex systems with many integrated parts. They research, study, and develop new technologies, new applications of computing, and new ways to compute.

Careers

Computer science graduates typically find positions as software engineers and software developers in major companies like Google, Apple, Microsoft, IBM, Facebook, and Intel. Graduates are also highly recruited by major companies in the areas of finance, health care, aerospace, and defense. Most graduates will find themselves a part of a team of software developers and after a few years possibly leading a software team. With the rapid changes and advances in the field of computing, graduates must continually keep up with the latest technology as their careers adapt and evolve to meet the new opportunities and challenges of computing.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE COMPUTER SCIENCE PROGRAM (<https://career.engr.psu.edu>)

Opportunities for Graduate Studies

Graduates of this program can pursue graduate studies in computer science and related disciplines, concentrating in specialized areas such as computer security, artificial intelligence, machine learning, data sciences, computer networks, computer vision, bioinformatics, and high-performance computing. A master's degree allows one to specialize beyond the broad foundations offered by a bachelor's degree. A doctoral degree prepares one for a career in research and academia.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.eecs.psu.edu/students/graduate/EECS-Graduate-Prospective.aspx>)

Professional Resources

- ACM (<https://acm.psu.edu>)
- Association of Women in Computing (<https://awc.cse.psu.edu/>)
- IEEE (<https://sites.psu.edu/psuieee/>)

Accreditation

The Bachelor of Science in Computer Science at University Park, Penn State Beaver, Penn State Brandywine, and Penn State Hazleton is accredited by the Computing Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Computer Science and Similarly Named Computing Programs.

Contact

University Park

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
W209 Westgate Building
University Park, PA 16802
814-865-9505
trk149@psu.edu
bam136@psu.edu

<https://www.eecs.psu.edu>

Beaver

100 University Dr.
Monaca, PA 15061
724-773-3814

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<https://beaver.psu.edu/academics/majors/compsci> (<https://beaver.psu.edu/academics/majors/compsci/>)

Brandywine

25 Yearsley Mill Road
Media, PA 19063
610-892-1200
ras322@psu.edu

<https://www.brandywine.psu.edu/academics/bachelors-degrees/computer-science> (<https://www.brandywine.psu.edu/academics/bachelors-degrees/computer-science/>)

Hazleton

Kostos Building, 103
76 University Drive
Hazleton, PA 18202
570-450-3081
bpb5682@psu.edu

<https://hazleton.psu.edu/computer-science> (<https://hazleton.psu.edu/computer-science/>)

Cybersecurity Computational Foundations, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Cybersecurity Minor offered by the Department of Computer Science and Engineering is designed for students in computational majors who wish to acquire the technical depth to design and construct secure cyber systems. Building upon a core computer science foundation the minor includes courses in computer security, mobile and wireless security, software security and networking. Additional courses in the minor provide areas of application such as operating systems, database systems, and computer architecture, in which issues of security arise. The minor prepares students for careers as technical professionals working with secure cyber systems and for graduate study in computer, network and systems security.

Entrance to Minor

Any student wishing entrance to the minor should have successfully completed all the prerequisite courses: CMPSC 121 or CMPSC 131, CMPSC 122 or CMPSC 132, CMPSC 221, CMPSC 311, CMPSC 360, CMPEN 270/CMPEN 271, CMPEN 331, and STAT 318 or STAT 414 or STAT 418.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules->

for-undergraduate-students/59-00-minors-and-certificates/#59-10). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CMPEN/EE 362	Communication Networks	3
CMPSC 443	Introduction to Computer and Network Security	3
CMPSC 473	Operating Systems Design & Construction	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3-6 credits from the following:		3-6
CMPEN 462	Wireless Communications Systems and Security	
CMPSC 447	Software Security	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 3-6 credits from the following:		3-6
CMPEN 431	Introduction to Computer Architecture	
CMPSC 431W	Database Management Systems	
CMPSC 461	Programming Language Concepts	
CMPSC 464	Introduction to the Theory of Computation	
CMPSC 475	Applications Programming	

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

CSE Advising

W209 Westgate Building
University Park, PA 16802
cseadvising@engr.psu.edu

Contact

University Park

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
W209 Westgate Building
University Park, PA 16802
814-865-9505
arc88@psu.edu

<https://www.eecs.psu.edu>

Data Sciences, B.S. (Engineering)

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

Data Sciences is a field of study concerned with developing, applying, and validating methods, processes, systems, and tools for drawing useful knowledge, justifiable conclusions, and actionable insights from large, complex and diverse data through exploration, prediction, and inference. Data Sciences integrate aspects of Computer Science, Informatics, and Statistics to yield powerful data science methods, systems, tools, and best practices that find applications across a broad range of application domains. The curriculum for the major is designed to equip students with the knowledge and the skills needed to elicit, formulate, and solve data sciences problems using modern data science methods, tools, and best practices for data management, data exploration, data integration, predictive modeling (using machine learning), and effectively communicate their findings to, and collaborate with a broad range of stakeholders. The students will gain the critical analytical skills needed to assess the feasibility, benefits, effectiveness, limitations, risks, and ethical implications of applying data sciences methods in different settings. Experiences such as the capstone project prepare students to function effectively as members of interdisciplinary data science teams to harness the potential of data to enable discovery, optimize products and processes, and inform decisions. As distinct from majors that focus primarily on developing data science knowledge and skills to support inquiry in other domains, the primary focus of the Data Sciences major is on the development, evaluation, application, and validation of the data science tools themselves. All students in the major receive in-depth training in data sciences through a set of core courses. Additionally, data sciences students specialize in one of the following options: applied, computational, or statistical modeling data sciences, as described below.

Applied Data Sciences (DATSC_BS)

Only available through the College of Information Sciences and Technology

The students in the Applied DS option will receive exposure to an application domain so they are equipped to formulate and solve data science problems drawn from the chosen domain, e.g., life and health sciences, business, behavioral and cognitive sciences, physical sciences, agricultural sciences, among others.

Computational Data Sciences (DTSCE_BS)

Only available through the College of Engineering

The students in the Computational DS option will receive additional training in Computer Science to be able to design, analyze, implement, and deploy advanced algorithms, hardware and software architectures, and systems for data management and analyses.

Statistical Modeling Data Sciences (DTSCS_BS)

Only available through the Eberly College of Science

The students in the Statistical modeling DS option will receive additional training in Statistics to be able to formulate, develop, and apply the proper statistical models and methods for data analyses, e.g., experiment design, sampling, hypotheses testing, and limiting false discovery.

What is Data Sciences?

Data Sciences is a field that explores the methods, systems, and processes used to extract knowledge from data and turn these insights into discoveries, decisions, and actions. The emergence of massive amounts of data – also known as “big data” – found in our world through healthcare records, human sensors, digital media, and a number of other sources has increased the need for individuals who can obtain useful knowledge from big data and apply it to address major societal challenges across a variety of fields. Students pursuing this degree will develop the knowledge and skills needed to manage and analyze large-scale, unstructured data to address an expanding range of problems in industry, government, and academia.

MORE INFORMATION ABOUT DATA SCIENCES (<https://ist.psu.edu/prospective/undergraduate/academics/data-sciences/>)

You Might Like This Program If...

- You are curious about analyzing information to discover new insights.
- You want to apply data analytics to make strategic decisions.
- You want to understand how data can be used to visualize phenomena using AI and data science techniques.
- You are interested in statistics, mathematics, and the social sciences, and want to combine these disciplines to understand what data is really telling us.

MORE INFORMATION ABOUT WHY STUDENTS CHOOSE TO STUDY DATA SCIENCES (<https://ist.psu.edu/prospective/undergraduate/academics/data-sciences/>)

Entrance to Major

To be eligible for entrance into the Data Sciences major, a degree candidate must satisfy requirements for entrance to the major.

Specific entrance requirements include:

1. The degree candidate must be taking, or have taken, a program appropriate for entry to the major as shown in the bulletin.
2. The degree candidate must complete the following entrance-to-major requirements: CMPSC 121* or CMPSC 131*, CMPSC 122* or CMPSC 132*, MATH 140*, MATH 141*, STAT 200* or DS 200*. These courses must be completed by the end of the semester during which the entrance to major process is carried out.

* Course requires a grade of C or better.

Degree Requirements

For the Bachelor of Science degree in Data Sciences, a minimum of 123 credits is required:

Requirement	Credits
General Education	45
Electives	3-12
Requirements for the Major	72-81

6 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GQ courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
DS 220	Data Management for Data Sciences	3
DS 340W	Applied Data Sciences	3
DS 435	Ethical Issues in Data Science Practice	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
MATH 220	Matrices	2
STAT 184	Introduction to R	2
STAT 380	Data Science Through Statistical Reasoning and Computation	3

Additional Courses

<i>Additional Courses: Require a grade of C or better</i>		
1 credit of First-Year Seminar		1
CMPSC 121	Introduction to Programming Techniques	3
or CMPSC 131	Programming and Computation I: Fundamentals	
CMPSC 122	Intermediate Programming	3
or CMPSC 132	Programming and Computation II: Data Structures	
DS 440	Data Sciences Capstone Course	3
or DS 440W	Data Science Capstone	

Requirements for the Option

Select an option	38-47
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Requirements for the Option

Applied Data Sciences (DATSC_BS): 47 credits

Only Available through the College of Information Sciences and Technology

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
DS 200	Introduction to Data Sciences	4
DS 300	Privacy and Security for Data Sciences	3
DS 305	Algorithmic Methods and Tools	3
DS 310	Machine Learning for Data Analytics	3
DS 320	Data Integration	3
DS 330	Visual Analytics for Data Sciences	3
DS/CMPSC 410	Programming Models for Big Data	3
IST 495	Internship	1

Additional Courses

Select 6 credits from any combination:	6	
DS 402	Emerging Trends in the Data Sciences	
DS 420	Network Analytics	
DS/CMPSC 442	Artificial Intelligence	
DS 494	Research Project	
IST 441	Information Retrieval and Organization	
IST 442	Information Technology in an International Context	

SODA 308	Research Design for Social Data Analytics	
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits from the following:		3
CMPSC 360	Discrete Mathematics for Computer Science	
IST 230	Language, Logic, and Discrete Mathematics	
MATH 311W	Concepts of Discrete Mathematics	
Select 3 credits from the following:		3
STAT/MATH 318	Elementary Probability	
STAT/MATH 414	Introduction to Probability Theory	
STAT/MATH 418	Introduction to Probability and Stochastic Processes for Engineering	
Supporting Courses and Related Areas ¹		
Select 12 credits from the lists of Application Focus courses; 6 credits must at the 300- or 400-levels.		12

¹ Students may apply up to 3 credits of ROTC as option Application Focus list credits and 3 credits of ROTC as GHW credits.

LIST OF APPLIED DATA SCIENCES COURSES (p. 1052)

Computational Data Sciences (DTSCE_BS): 47 credits Only Available through the College of Engineering

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CMPSC 221	Object Oriented Programming with Web-Based Applications	3
CMPSC 360	Discrete Mathematics for Computer Science	3
CMPSC 442	Artificial Intelligence	3
CMPSC 448	Machine Learning and Algorithmic AI	3
CMPSC 461	Programming Language Concepts	3
CMPSC 465	Data Structures and Algorithms	3
DS/CMPSC 410	Programming Models for Big Data	3
MATH 230	Calculus and Vector Analysis	4
STAT/MATH 414	Introduction to Probability Theory	3
STAT/MATH 415	Introduction to Mathematical Statistics	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
DS 200	Introduction to Data Sciences	4
or STAT 200	Elementary Statistics	
Supporting Courses and Related Areas ¹		
Select 6 credits from Computational Option List A in Appendix C		6
Select 6 credits from Computational Option List B in Appendix C		6

¹ Students may apply up to 3 credits of ROTC as option list credits and 3 credits of ROTC as GHW credits.

LIST OF COMPUTATIONAL DATA SCIENCES COURSES (<http://www.eecs.psu.edu/students/undergraduate/Data-Sciences.aspx>)

Statistical Modeling Data Sciences (DTSCS_BS): 38 credits Only Available through the Eberly College of Science

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
MATH 230	Calculus and Vector Analysis	4
STAT/MATH 414	Introduction to Probability Theory	3
STAT/MATH 415	Introduction to Mathematical Statistics	3
STAT 440	Computational Statistics	3
STAT 462	Applied Regression Analysis	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
DS 200	Introduction to Data Sciences	4
or STAT 200	Elementary Statistics	
DS 310	Machine Learning for Data Analytics	3
or CMPSC 448	Machine Learning and Algorithmic AI	
MATH 311W	Concepts of Discrete Mathematics	3
or CMPSC 360	Discrete Mathematics for Computer Science	
Supporting Courses and Related Areas ¹		
Select 6 credits from Statistical Modeling Option List A courses, see Appendix D		6
Select 6 credits from Statistical Modeling Option List B courses, see Appendix D		6

¹ Students may apply up to 3 credits of ROTC as option list credits and 3 credits of ROTC as GHW credits.

LIST OF STATISTICAL MODELING DATA SCIENCES COURSES (p. 563)

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- Quantification (GQ): 6 credits
- Writing and Speaking (GWS): 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- Arts (GA): 3 credits
- Health and Wellness (GHW): 3 credits
- Humanities (GH): 3 credits
- Social and Behavioral Sciences (GS): 3 credits
- Natural Sciences (GN): 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

1. **Knowledge:** Understand the technical fundamentals of data sciences with a focus on developing the knowledge and skills needed to manage and analyze data to solve problems in our world.
 - a. Integrate statistical concepts/methods and computational/machine learning methods to discover the structure of data and build predictive models.

- b. Apply the principles of data management to organize and use different types of data, both structured and unstructured.
2. **Problem-Solving and Evaluation:** Identify, formulate and solve data science problems that arise in various applications.
 - a. Identify and incorporate relevant abstraction and domain knowledge to formulate data science problems in different application contexts.
 - b. Design or adapt appropriate statistical, machine learning, and other data science methods for solving specific problems.
 - c. Compare, contrast, and evaluate competing data science methods appropriate to the context of the problem.
 - d. Employ modern computing infrastructure to scale up data science methods for massive and complex data.
 - e. Integrate data from multiple sources while considering the best practices, challenges, and pitfalls of using heterogeneous data to solve problems.
 3. **Communication:** Articulate the benefits, risks, formulation, solution, and results of data science projects to diverse stakeholders, including fellow data scientists, collaborators with subject matter expertise, and the general public, using written, verbal, and visual forms.
 4. **Teamwork:** Participate effectively on teams in order to accomplish the goals of a project containing data science components.
 5. **Data Ethics:** Critically evaluate and conscientiously respond to the ethical and societal implications of data science practice.
 - a. Analyze the potential human impacts of data-driven technologies, especially for marginalized communities.
 - b. Develop strategies to solve data science problems that reflect shared social and ethical values, such as privacy, security, fairness, and accountability.
 - c. Interpret and apply the ethical responsibilities of computing professionals.
 - d. Ensure reproducibility of data science analyses.
 6. **Lifelong Learning:** Recognize the importance of continued learning beyond graduation.
 - a. Demonstrate readiness to join an evolving professional community by participating in professional development, such as reading trade journals and engaging with appropriate professional organizations.
 - b. Demonstrate readiness for independent learning by performing literature reviews and staying abreast of current trends within the field of data science.
 7. **Option Objectives:**
 - a. **Applied Data Sciences Option:** Gain in-depth knowledge in a chosen application focus area and demonstrate skills to formulate and solve data science problems in the context of applications in that area.
 - b. **Computational Data Sciences Option:** Design, development, and analysis of software (computational solutions) for data science problems.
 - c. **Statistical Modeling Data Sciences Option:** Demonstrate facility with common regression-based inferential modeling techniques including analysis of variance, generalized linear models, multiple regression, and logistic regression, as well as proficiency in basic statistical optimization and simulation techniques.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their

intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park College of Engineering

CSE Advising

W209 Westgate Building
University Park, PA 16802
cseadvising@enr.psu.edu

College of Information Sciences and Technology

Undergraduate Academic Advising Center

E103 Westgate Building
University Park, PA 16802
814-865-8947
advising@ist.psu.edu

Eberly College of Science

Undergraduate Statistics Office

Academic Advising
323 Thomas Building
University Park, PA 16802
814-865-1348
stat-advising@psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Computational Data Sciences Option: Data Sciences, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

If you are starting at a campus other than the one this plan is ending at, please refer to: <http://advising.engr.psu.edu/degree-requirements/academic-plans-by-major.aspx>

First Year		
Fall	Credits Spring	Credits
CMPSC 121 or 131 (GQ) ^{*#†}	3 CMPSC 122 or 132 ^{*#}	3
MATH 140 (GQ) ^{*†#†}	4 MATH 141 (GQ) ^{*†#}	4
DS 200 or STAT 200 ^{*#}	4 DS 220 [*]	3
General Education Course	3 ENGL 15 (GWS) [‡]	3
First-Year Seminar	1 General Education Course	3
	15	16

Second Year		
Fall	Credits Spring	Credits
CMPSC 221 [*]	3 CMPSC 360 [*]	3
STAT 184 [*]	2 STAT 380 [*]	3
MATH 230 [*]	4 STAT 414 [*]	3
MATH 220 [*]	2 General Education Course	3
CAS 100A or 100B (GWS) ^{††}	3 General Education Course	3
General Education Course	3	
	17	15

Third Year		
Fall	Credits Spring	Credits
CMPSC 442 or DS 442 [*]	3 CMPSC 410 or DS 410 [*]	3
CMPSC 465 [*]	3 CMPSC 448	3
DS 435 [*]	3 CMPSC 461 [*]	3
STAT 415 [*]	3 General Education Course	3
General Education Course	3 General Education Course	3
	15	15

Fourth Year		
Fall	Credits Spring	Credits
DS 340W [*]	3 DS 440W [*]	3
List A Course	3 List A Course	3
List B Course	3 List B Course	3
ENGL 202C (GWS) ^{††}	3 General Education Course	3
Department List (General Elective)	3 General Education Course (GHW)	1.5
General Education Course (GHW)	1.5	
	16.5	13.5

Total Credits 123

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number

used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

College Notes:

- **Health and Wellness Elective:** Students who complete the ROTC program may substitute 3 ROTC credits for the GHW requirement.
- **Natural Sciences Elective:** Nine credits of Natural Science (GN) are required. Any GN courses except the following may be used: ASTRO 1, 7N, 10, 11, 120, 140; all BI SC courses; All courses below CHEM 110 (except 3 credits of CHEM 106 may be used); PHYS 250, 251, and any course below PHYS 211; GEOSC 20
- **OPTION A:** CMPEN 454, CMPSC 450, CMPSC 455, CMPSC 456, MATH 484, or MATH 452
- **OPTION B:** CMPSC 431W, EE 456, IST 441, MATH 486, MATH 448, STAT 416, STAT 440, STAT 460, STAT 461, or STAT 462
- **Department List Course (General Elective):** See handbook at [eecs.psu.edu](https://www.eecs.psu.edu) (<https://www.eecs.psu.edu>)

Career Paths

Data Sciences blends the technical expertise needed to analyze, interpret, and manage big data with the interpersonal skills needed to communicate insights to a variety of audiences. The program prepares students to meet the growing need for professionals who have the analytical and problem-solving skills to address a wide range of societal and technical challenges. Many companies participate in career fairs in Engineering, IST and Science with an express interest in hiring data science interns or graduates. A growing number of M.S. and Ph.D. programs await those who wish to pursue more advanced studies.

Careers

Because our courses blend technical knowledge with skills in communication and business, a Data Sciences degree allows students to compete for leading-edge analytics positions across many different industry sectors. Possible careers include: Data Science and AI Engineers, Data Scientist, Data Analyst, Data Specialist, Data Visualization Specialist, IT Analyst, Machine Learning Engineer, Data Engineer, Business Systems Analyst/Consultant.

MORE INFORMATION FOR THE APPLIED DATA SCIENCES OPTION (<https://www.ist.psu.edu/current/careers/development/process/path/>)

MORE INFORMATION FOR THE COMPUTATIONAL DATA SCIENCES OPTION (<https://www.eecs.psu.edu/students/undergraduate/Data-Sciences.aspx>)

MORE INFORMATION FOR THE STATISTICAL MODELING DATA SCIENCES OPTION (<https://science.psu.edu/stat/undergraduate-programs/>)

Professional Resources

- Association for Computing Machinery (<https://acm.psu.edu>)
- Association for Information Science and Technology (<https://www.asist.org>)

Contact

University Park

College of Engineering

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

W209 Westgate Building

University Park, PA 16802

814-865-9505

trk149@psu.edu

bam136@psu.edu

<https://www.eecs.psu.edu>

College of Information Sciences and Technology

COLLEGE OF INFORMATION SCIENCES AND TECHNOLOGY

411 Eric J. Barron Innovation Hub Building

State College, PA 16801

814-865-3528

Eberly College of Science

DEPARTMENT OF STATISTICS

326 Thomas Building

University Park, PA 16802

814-865-1348

stat-advising@psu.edu

<https://science.psu.edu/stat/contact-us> (<https://science.psu.edu/stat/contact-us/>)

Electrical Engineering Technology, A.ENG.T. (Engineering)

Begin Campus: Fayette, York

End Campus: Fayette, York

Program Description

The Electrical Engineering Technology (2EET) major helps prepare graduates for technical positions in the expanding fields of electronics, computers and microprocessors, instrumentation, and electrical equipment. The primary objective is to provide a broad foundation of theoretical and practical knowledge in the areas of electrical and electronic circuits, digital circuits, computers, electrical machinery, and programmable logic controls.

Graduates of the Electrical Engineering Technology major may qualify for admission to the baccalaureate degree majors in Electrical Engineering Technology offered at Penn State Harrisburg, Capital College; the baccalaureate degree major in Electrical and Computer Engineering Technology at Penn State Erie, The Behrend College; or the baccalaureate degree major in Electro-Mechanical Engineering Technology offered at Penn State Altoona, Penn State Berks, Penn State New Kensington or Penn State York. Two baccalaureate tracks are available to streamline the transition to these degree programs. Students interested in pursuing the baccalaureate degree major of Electrical Engineering Technology at Penn State Harrisburg should follow track c. A general track is also provided

for students who decide not to continue their engineering technology education at the baccalaureate level.

What is Electrical Engineering Technology?

Electrical engineering technology focuses on the planning, designing, installing, operating, and maintaining electrical power systems and electronic devices. Electrical engineering technicians assist engineers with the manufacture, installation, operation, design, and repair of a wide range of electronic products.

You Might Like This Program If...

You are interested in science and technology but prefer spending time applying your skills in a laboratory or field setting as opposed to studying the theory behind these subjects in a classroom setting. If you like to know how things that are controlled by electronics work, from computers to robotics, this may be for you. While theory is covered in this major, there is a greater emphasis on the application of theory with much of what you learn in the classroom being built as lab experiments.

Entrance to Major

Students must have a minimum 2.0 GPA to change to this Associate degree after admission to the University.

Degree Requirements

For the Associate in Engineering Technology degree in Electrical Engineering Technology, a minimum of 65 credits is required:

Requirement	Credits
General Education	21
Requirements for the Major	56-62

12-15 of the 21 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GN courses; 3 credits of GQ courses; 6 credits of GWS courses, 0-3 credits of GH or GS.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
CAS 100	Effective Speech	3
COMPET 211	Embedded Processors and DSP	3
EET 212W	Op Amp and Integrated Circuit Electronics	4
EET 214	Electric Machines and Energy Conversion	3
EET 215	Electric Machines and Energy Conversion Laboratory	1
<i>Prescribed Courses: Require a grade of C or better</i>		
COMPET 117	Digital Electronics	3
COMPET 120	Digital Electronics Laboratory	1
EET 114	Electrical Circuits II	4
EET 118	Electrical Circuits Laboratory	1
Additional Courses		

ENGL 15	Rhetoric and Composition	3
or ENGL 30H	Honors Rhetoric and Composition	
PHYS 150	Technical Physics I	3-4
or PHYS 211	General Physics: Mechanics	
or PHYS 250	Introductory Physics I	

Select 5-6 credits of the following: 5-6

MATH 22 & MATH 26	College Algebra With Analytic Geometry and Applications II and Plane Trigonometry and Applications of Trigonometry ¹	
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MATH 40	Algebra, Trigonometry, and Analytic Geometry ¹	
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MATH 81 & MATH 82	Technical Mathematics I and Technical Mathematics II ¹	
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Select at least 22-26 credits from one of the following three tracks: 22-26

A. General Track ²

EDSGN 100	Cornerstone Engineering Design	
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EET 105	Electrical Systems	
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EET 275	Introduction to Programmable Logic Controls or EMET 230 Computerized I/O Systems	
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IET 101	Manufacturing Materials, Processes, and Laboratory	
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MET 111	Mechanics for Technology: Statics	
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PHYS 151	Technical Physics II	
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or PHYS 212 General Physics: Electricity and Magnetism

or PHYS 251 Introductory Physics II

or CHEM 111 (Chemical Principles I and Experimental Chemistry I

& CHEM 111

STS 200	Critical Issues in Science, Technology, and Society	
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or STS/ Ethics and the Design of Technology

PHIL 233

or STS 245

Select 3-4 credits in consultation with your adviser from the approved program list

B. Baccalaureate Electrical and Computer Engineering Technology (ECET) Track:

CHEM 110	Chemical Principles I	
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CHEM 111	Experimental Chemistry I	
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COMPET 5	Engineering Methods in Engineering Technology	
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EET 2	Introduction to Engineering Technology	
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EET 101	Electrical Circuits I	
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EET 109	Electrical Circuits Laboratory I	
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EET 275	Introduction to Programmable Logic Controls	
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EGT 119	Introduction to CAD for Electrical and Computer Engineering	
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MATH 83	Technical Calculus	
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or MATH 14 (Calculus With Analytic Geometry I

MATH 210 Calculus with Engineering Technology Applications (or 3 credits of General Education natural science GN)

C. Baccalaureate Electro-Mechanical Engineering Technology (EMET) Track ^{2,3}

EDSGN 100	Cornerstone Engineering Design	
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EET 105	Electrical Systems	
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EET 275	Introduction to Programmable Logic Controls or EMET 230 Computerized I/O Systems
IET 101	Manufacturing Materials, Processes, and Laboratory
MET 111	Mechanics for Technology: Statics
MATH 83	Technical Calculus or MATH 14 (Calculus With Analytic Geometry I)
PHYS 151	Technical Physics II or PHYS 212 General Physics: Electricity and Magnetism or PHYS 251 Introductory Physics II or CHEM 110 Chemical Principles I and Experimental Chemistry I & CHEM 111
STS 200	Critical Issues in Science, Technology, and Society or STS/ PHIL 233 or STS 245

¹ A student planning to re-enroll into the baccalaureate degree major of Electro-Mechanical Engineering Technology (EMET), after graduation from the 2 EET program, must receive a grade of C or better in order to meet requirements of the EMET degree.

² This includes 3 credits of General Education courses: 3 credits of GH or GS.

³ A student planning to re-enroll into the baccalaureate degree major of Electrical Engineering Technology at Penn State Harrisburg, after graduation from the 2EET program, should follow Track C. They should select MATH 140 instead of MATH 83.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all associate degree students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 3 credits
- **Writing and Speaking (GWS):** 3 credits

Knowledge Domains

- **Arts (GA):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Note: Up to six credits of Inter-Domain courses may be used for any Knowledge Domain requirement, but when a course may be used to

satisfy more than one requirement, the credits from the course can be counted only once.

Exploration

- **Any General Education course (including GHW and Inter-Domain):** 3 credits

University Degree Requirements

Cultures Requirement

3 credits of United States (US) or International (IL) cultures coursework are required and may satisfy other requirements

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 60 degree credits must be earned for an associates degree. The requirements for some programs may exceed 60 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Educational Objectives

The Associate Electrical Engineering Technology program is designed to provide a curriculum that prepares students to pursue a career in the industry and to develop in their profession. Due to their experience in the Associate Electrical Engineering Technology program, within few years of graduation, we expect our graduates to have the ability to:

1. Apply analytical and empirical skills in the operation, testing, or maintenance of electrical systems.
2. Collaborate effectively in project team activities through recognizing the global, societal, and ethical contexts of their work.
3. Communicate effectively through preparation and delivery of technical and non-technical documentation and communications.

Student Outcomes

Student outcomes describe what students are expected to know and be able to do by the time of graduation. The Associate Electrical Engineering Technology program is designed to enable students to:

1. Apply knowledge, techniques, skills, and modern tools of mathematics, science, engineering, and technology to solve well-defined engineering problems appropriate to the discipline.
2. Design solutions for well-defined technical problems and assist with engineering design of systems, components, or processes appropriate to the discipline.

3. Apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature.
4. Conduct standard tests, measurements, and experiments and to analyze and interpret the results.
5. Function effectively as a member of a technical team.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Electrical Engineering Technology, A.ENG.T. - General Track at Fayette Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes

in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 26 (GQ) ^{††}	3 EET 114*	4
ENGL 15 (GWS) ^{††}	3 EET 118*	1
EET 105	3 CMPET 117*	3
IET 101	3 CMPET 120	1
EDSGN 100	3 MET 111	3
PSU 8	1 MATH 22 (GQ) ^{††}	3
	CAS 100 (GWS) ^{††}	3
	16	18

Second Year

Fall	Credits Spring	Credits
EET 214	3 EET 212W	4
EET 215	1 EET 275	3
CMPET 211	3 PHYS 251	4
PHYS 250 [†]	4 General Education Course (GS or GA)	3
STS 233	3 General Education (GS or GA) or Technical Elective	3-4
General Education (GS or GA) or Technical Elective	3-4	
	17-18	17-18

Total Credits 68-70

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Technical Elective choose from: MATH 140 (<https://bulletins.psu.edu/search/?P=MATH%20140>), BISC 3 (<https://bulletins.psu.edu/search/?P=BISC%203>), CHEM 110 (<https://bulletins.psu.edu/search/?P=CHEM%20110>).
- Students need one of each: GA, GH, GS, Technical Elective. Students also need either an IL-designated or US-designated course.
- STS 233 will satisfy the GH requirement and is not a US/IL. Therefore, either the GA or GS course must also be designated US or IL.

- Suggested Technical Electives: MATH 140 (<https://bulletins.psu.edu/search/?P=MATH%20140>) (typically offered spring and fall), BISC 3 (<https://bulletins.psu.edu/search/?P=BISC%203>) (typically offered spring and fall), CHEM 110 (<https://bulletins.psu.edu/search/?P=CHEM%20110>) (spring and fall).
- Students should consult their adviser for other possible technical electives.

Electrical Engineering Technology, A.ENG.T. at York Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
EDSGN 100	3 CMPET 117*	3
IET 101	3 CMPET 120*	1
EET 105	3 MET 111	3
MATH 26 (GQ) ^{†‡}	3 PHYS 150 or 250 (GN)	3-4
ENGL 15, 30H, or ESL 15 (GWS) ^{†‡}	3 MATH 22 ^{†‡}	3
	CAS 100A, 100B, or 100C (GWS) [†]	3
	15	16-17

Second Year

Fall	Credits Spring	Credits
EET 114*	4 CMPET 211	3
EET 118*	1 EET 214	3
EET 212W*	4 EET 215	1
EET 275 or EMET 230	3 Technical Elective	3
PHYS 151 or 251 (or CHEM 110 and CHEM 111 (GN))	3-4 Social and Behavioral Sciences (GS)	3
Arts (GA)	3 STS 233Z (GH)	3
	18-19	16

Total Credits 65-67

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

College Notes:

- **Scheduling patterns for courses not taught each semester** : Some major/option courses are offered only Fall or Spring semester, as listed on guide.

- The courses in this major are sequential. If taken out of sequence, scheduling conflicts may arise.

Program Notes:

- Track Selections - see audit.

Academic Advising Notes

- Academic planning guides should always be used in conjunction with a degree audit and consultation with an adviser.

US, IL, and US;IL are codes used to designate courses that satisfy University United States/International Cultures requirements. All students are required to take one IL or one US course before graduation. A course designated as US;IL may be used as a US or an IL, not both.

Career Paths

For students that do not continue on for a Bachelor of Engineering Technology Degree, there are various opportunities in the field for Electrical Engineering Technology. In many industrial settings, an Engineer works on the design of an electronic device, such as an electronic sensor, or system, such as a robotic arm, and the technician helps to build and test it. The technician might also be responsible for building test equipment to test the device or system once it is manufactured. In addition, the Electronic Technician might also be involved in servicing equipment in the field or be involved in sales.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE ELECTRICAL ENGINEERING TECHNOLOGY PROGRAM (<https://career.engr.psu.edu/>)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.engr.psu.edu/graduate-programs/>)

Accreditation

The A.ENG.T. in Electrical Engineering Technology at Penn State Fayette and Penn State York is Accredited by the Engineering Technology Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Electrical/Electronic(s) Engineering Technology and Similarly Named Programs.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

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SCHOOL OF ENGINEERING DESIGN AND INNOVATION
213 Hammond Building
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Lemont Furnace, PA 15456
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<https://fayette.psu.edu/academics/associate/electrical-engineering-technology> (<https://fayette.psu.edu/academics/associate/electrical-engineering-technology/>)

York

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York, PA 17403
717-718-6787
pdh7@psu.edu

<https://www.york.psu.edu/academics/associate/electrical-engineering-technology> (<https://www.york.psu.edu/academics/associate/electrical-engineering-technology/>)

Erie

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242 Jack Burke Research and Economic Development Center
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814-898-6125
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<https://behrend.psu.edu/school-of-engineering> (<https://behrend.psu.edu/school-of-engineering/>)

Electrical Engineering Technology, B.S. (Engineering)

Begin Campus: Any Penn State Campus

End Campus: Wilkes-Barre

Program Description

The Bachelor of Science graduate with a major in Electrical Engineering Technology (EET) is an engineering technologist who can bridge the gap between scientific advancement and practical electrical devices and systems. Research in all fields of electrical engineering has produced an abundance of new knowledge in recent years. Many of these advanced scientific achievements have been unused due to the shortage of engineering technologists specifically educated to convert scientific information into practical devices and systems.

The EET major helps equip students with the various skills necessary to adapt new scientific knowledge to new products. Technical selections are offered in the senior year to provide some degree of specialization, but all graduates receive a well-rounded basic education in electrical and electronic design principles. The strengths of the program include: an applied hands-on program; extensive laboratory experience; promising job placement; and accreditation by the Engineering Technology Accreditation Commission of the Accreditation Board for Engineering and Technology, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, telephone 410-347-7700, Web at <https://www.abet.org>.

EET graduates who wish to continue their professional development can take the Fundamentals of Engineering examination in Pennsylvania, a prerequisite for taking the Professional Engineering examination.

What is Electrical Engineering Technology?

Electrical engineering technology (EET) is an engineering technology field that implements and applies the principles of electrical engineering. Like electrical engineering, EET deals with the design, application, installation, manufacturing, operation or maintenance of electrical/electronic systems. However, EET is a specialized discipline that has more focus on application, theory, and applied design, and implementation, while electrical engineering may have more of a generalized emphasis on theory and conceptual design.

You Might Like This Program If...

- You enjoy problem-solving and math.
- You prefer practical rather than theoretical solutions, and application and implementation over conceptual modeling.
- You enjoy working on multidisciplinary teams on complex problems.
- You want to acquire knowledge to get a good job in industry.
- You want to pursue a career as a technologist in sectors such as manufacturing, product design, testing, or technical services and sales.

Direct Admission to the Major

Incoming first-year students who meet the program admission requirements are admitted directly into the major. Admission restrictions may apply for change-of-major and/or change-of-campus students.

For more information about the admission process for this major, please send a request to the college, campus, or program contact (listed in the Contact tab).

Degree Requirements

For the Bachelor of Science degree in Electrical Engineering Technology, a minimum of 128 credits is required:

Requirement	Credits
General Education	45
Electives	5-18
Requirements for the Major	86-96

18-21 of the 45 credits for General Education are included in the Requirements for the Major. For the General Electrical Engineering Technology Option, this includes: 3 credits of GWS courses; 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS. For the Power and Automation Option, this includes: 3 credits of GWS courses; 9 credits of GN courses; 6 credits of GQ courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1

EET 419	Capstone Proposal Preparation	1
<i>Prescribed Courses: Require a grade of C or better</i>		
EET 312	Electric Transients	4
EET 331	Electronic Design	4
EET 420W	Electrical Engineering Technology Capstone Design	3
ENGL 202C	Effective Writing: Technical Writing	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
Additional Courses		
CMPEH 472	Microprocessors	3-4
or CMPET 211	Embedded Processors and DSP	
EE 310	Electronic Circuit Design I	4
or EET 212W	Op Amp and Integrated Circuit Electronics	
Select 2-3 credits from the following:		2-3
EDSGN 100	Cornerstone Engineering Design	
EDSGN 100S	Introduction to Engineering Design	
EGT 119	Introduction to CAD for Electrical and Computer Engineering	
Select 3 credits from the following:		3
CMPSC 101	Introduction to Programming	
CMPSC 121	Introduction to Programming Techniques	
CMPSC 131	Programming and Computation I: Fundamentals	
CMPSC 201	Programming for Engineers with C++	
Select 3-4 credits from the following:		3-4
PHYS 150	Technical Physics I	
PHYS 211	General Physics: Mechanics	
PHYS 250	Introductory Physics I	
Select 3-4 credits from the following:		3-4
PHYS 151	Technical Physics II	
PHYS 212	General Physics: Electricity and Magnetism	
PHYS 251	Introductory Physics II	
Select 3-4 credits from the following:		3-4
IE 424	Process Quality Engineering	
MATH 220	Matrices	
MATH 230	Calculus and Vector Analysis	
MATH 250	Ordinary Differential Equations	
MATH/STAT 414	Introduction to Probability Theory	
MATH/STAT 418	Introduction to Probability and Stochastic Processes for Engineering	
STAT 200	Elementary Statistics	
STAT 401	Experimental Methods	
Select 4 credits from the following:		4
CMPEN 270	Digital Design: Theory and Practice	
CMPEN 271	Introduction to Digital Systems	
& CMPEN 275	and Digital Design Laboratory	
CMPET 117	Digital Electronics	
& CMPET 120	and Digital Electronics Laboratory	
Select 3-5 credits from the following:		3-5
EE 485	Energy Systems and Conversion	
EET 213W	Fundamentals of Electrical Machines Using Writing Skills	

EET 214	Electric Machines and Energy Conversion	
& EET 215	and Electric Machines and Energy Conversion Laboratory	
<i>Additional Courses: Require a grade of C or better</i>		
Select 5-8 credits from the following:		5-8
EE 210	Circuits and Devices	
& EE 317	and Circuits II and Data Acquisition	
EET 310	Direct and Alternating Current Circuits	
EET 311	Alternating Current Circuits	
& EET 114	and Electrical Circuits II ¹	
Requirements for the Option		
Select an option		26

¹ EET 114 does not require a grade of C or better.

Requirements for the Option
General Electrical Engineering Technology Option (26 credits)
Available at the following campuses: Harrisburg, Wilkes-Barre

Code	Title	Credits
Prescribed Courses		
ENGR 320Y	Design for Global Society	3
Additional Courses		
<i>System Elective</i>		
Select 8 credits of technical electives from the following:		8
EET 408	Communication System Design	
EET 409	Power System Analysis I	
EET 433	Control System Analysis and Design	
<i>Electronics Elective</i>		
Select 4 credits from the following:		4
EE 413	Power Electronics	
EET 402	High-Frequency Circuit Design	
EET 431	Advanced Electronic Design	
EET 461	Power Electronics	
EET 496	Independent Studies	
<i>GEET Technical Electives</i>		
Select 8 credits of GEET technical electives from the following:		8
CMPEN 431	Introduction to Computer Architecture	
CMPET 401	Data Communication and Networking	
CMPET 402	Data Communication and Networking Laboratory	
CMPET 403	Switching Circuit Design	
CMPET 412	Microcomputers	
EE 413	Power Electronics	
EE 442	Solid State Devices	
EE 453	Fundamentals of Digital Signal Processing	
EE/EGEE/ESC 456	Introduction to Neural Networks	
EE 458	Digital Image Processing and Computer Vision	
EET 402	High-Frequency Circuit Design	
EET 408	Communication System Design	
EET 409	Power System Analysis I	
EET 410	Power System Analysis II	
EET 413	Optoelectronics	
EET 414	Biomedical Instrumentation	

EET 431	Advanced Electronic Design
EET 433	Control System Analysis and Design
EET 456	Automation and Robotics
EET 461	Power Electronics
EET 478	Digital Communication Systems
EET 496	Independent Studies
<i>Science, Engineering, and Technology (SET Electives)</i>	
Select 3 credits from the following: 3	
BIOL 141	Introduction to Human Physiology
CHEM 112	Chemical Principles II
CHEM 113	Experimental Chemistry II
CMPS 122	Intermediate Programming
CMPS 132	Programming and Computation II: Data Structures
CMPS 200	Programming for Engineers with MATLAB
CMPS 201	Programming for Engineers with C++
CMPS 312	Computer Organization and Architecture
EE 330	Engineering Electromagnetics
EE 341	Semiconductor Device Principles
EMCH 211	Statics
EMCH 212	Dynamics
EMCH 213	Strength of Materials
MATH 220	Matrices
MATH 230	Calculus and Vector Analysis
MATH 231	Calculus of Several Variables
MATH 232	Integral Vector Calculus
MATH 250	Ordinary Differential Equations
MATH 251	Ordinary and Partial Differential Equations
MATH 252	Partial Differential Equations
MATH 430	Linear Algebra and Discrete Models I
ME 201	Introduction to Thermal Science
ME 300	Engineering Thermodynamics I
PHYS 213	General Physics: Fluids and Thermal Physics
PHYS 214	General Physics: Wave Motion and Quantum Physics
PHYS 237	Introduction to Modern Physics
PHYS 462	Applications of Physics in Medicine
SSET 495	Internship
STAT 200	Elementary Statistics

Power and Automation Option (26 credits)*Available at the following campuses: Harrisburg, Wilkes-Barre*

Code	Title	Credits
Additional Courses		
<i>System Electives</i>		
Select 12 credits from the following:		12
EET 409	Power System Analysis I	
EET 410	Power System Analysis II	
EET 433	Control System Analysis and Design	
EET 461	Power Electronics	
EET 475	Intermediate Programmable Logic Controllers	
<i>Additional Electives</i>		
Select 14 credits from the following:		14

CMPET 401	Data Communication and Networking
CMPET 402	Data Communication and Networking Laboratory
CMPET 403	Switching Circuit Design
EET 341	Measurements and Instrumentation
EET 402	High-Frequency Circuit Design
EET 408	Communication System Design
EET 409	Power System Analysis I
EET 410	Power System Analysis II
EET 413	Optoelectronics
EET 414	Biomedical Instrumentation
EET 431	Advanced Electronic Design
EET 433	Control System Analysis and Design
EET 456	Automation and Robotics
EET 461	Power Electronics
EET 475	Intermediate Programmable Logic Controllers
EET 478	Digital Communication Systems
EET 495	Internship
EET 496	Independent Studies
EET 497	Special Topics
EMCH 211	Statics
EMCH 212	Dynamics
ME 201	Introduction to Thermal Science

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- Quantification (GQ): 6 credits
- Writing and Speaking (GWS): 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- Arts (GA): 3 credits
- Health and Wellness (GHW): 3 credits
- Humanities (GH): 3 credits
- Social and Behavioral Sciences (GS): 3 credits
- Natural Sciences (GN): 3 credits

Integrative Studies

- Inter-Domain Courses (Inter-Domain): 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses**. This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Educational Objectives

The BS EET program educational objectives are to produce graduates who, during the first few years of professional practice, will be able to perform the following functions or activities at a level appropriate to their baccalaureate degree:

1. Accomplish mastery in electronics, electrical circuit analysis, electrical machines, and microcontrollers. Accomplish mastery in the design and implementation of at least two of these systems: control systems; communication systems; power systems.

2. Apply creativity using project-based work to design systems of processes for broadly defined and complex engineering problems.
3. Produce lucid documents, deliver effective oral presentations with professional quality graphics. Communicate effectively in a professional manner. Include the use of appropriate technical literature.
4. Design and conduct open-ended experiments for broadly defined and complex engineering problems. Analyze and interpret their results. This includes the use of appropriate instruments and simulation tools and the development of appropriate software code.
5. Effectively work in technical groups including functioning as their leader.

Student Outcomes

Graduates of the Electrical Engineering Technology program should demonstrate:

1. An ability to apply knowledge, techniques, skills, and modern tools of mathematics, science, engineering, and technology to solve broadly-defined engineering problems appropriate to the discipline.
2. An ability to design systems, components, or processes meeting specified needs for broadly-defined engineering problems appropriate to the discipline.
3. An ability to apply written, oral, and graphical communication in broadly-defined technical and non-technical environments; and an ability to identify and use appropriate technical literature.
4. An ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results to improve processes.
5. An ability to function effectively as a member as well as a leader on technical teams.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Wilkes-Barre

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Harrisburg

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 Middletown, PA 17057
 717-948-6349
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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

General Option: Electrical Engineering Technology, B.S. at Wilkes-Barre Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
CMPSC 101	3	CMPET 117	3
EDSGN 100	1	CMPET 120	1
EET 105	4	EET 114	4
ENGL 15 [‡]	1	EET 118	1
MATH 22 or higher placement on ALEKS	4	MATH 140 [†]	4
MATH 26 or higher placement on ALEKS	3-4	PHYS 150, 250, or 211 [†]	3-4
PSU 8	1		
	19		16-17

Second Year

Fall	Credits	Spring	Credits
MATH 141 [‡]	3	CHEM 110 [†]	3
PHYS 151, 251, or 212 [†]	1	CHEM 111 [†]	1
CMPET 211 (odd years)	4	EET 311 [*]	4
EET 212W (odd years)	3	ENGL 202C [‡]	3
EET 213W (even years)	3	General Education Course (GH)	3
General Education Course (GA)	3	General Education Course (Inter-Domain)	3
	15-18		17

Third Year

Fall	Credits	Spring	Credits
CAS 100A [‡]	4	EET 331 [*]	4
EET 312 [*]	0-3	GEET Technical Elective CMPET 401 (odd years) ³	0-3
CMPET 211 (odd years)	0-1	GEET Technical Elective CMPET 402 (odd years) ³	0-1
EET 212W (odd years)	0-4	System Elective EET 433 (odd years) ¹	0-4
EET 213W (even years)	0-4	Electronics Elective EET 413 (even years) ²	0-4

ENGR 320Y (even years) [†]	0-3 GEET Technical Elective EET 409 (even years) ³	0-4
SET Elective ⁴	3 General Education Course (GHW)	3

17-18

15

Fourth Year

Fall	Credits	Spring	Credits
EET 419	3	EET 420W [†]	3
ENGR 320Y (even years) [†]	0-3	GEET Technical Elective CMPET 401 (odd years) ³	0-3
EET 400-Level Elective	0-1	GEET Technical Elective CMPET 402 (odd years) ³	0-1
System Elective ¹	0-4	System Elective EET 433 (odd years) ¹	0-4
MATH Requirement ⁵	0-4	Electronics Elective EET 413 (even years) ²	0-4
General Education Course (Inter-Domain)	0-4	GEET Technical Elective EET 409 (even years) ³	0-4
		General Education Course (Exploration/IL/US)	3

15-19

14

Total Credits 128-137

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ System Elective Course List (8 credits required): EET 408, EET 409, EET 433

² Electronics Elective Course List (4 credits required): EE 413, EET 402, EET 431, EET 461, EET 496

³ GEET Elective Course List (8 credits required): CMPEN 431, CMPET 401, CMPET 402, CMPET 403, CMPET 412, EE 413, EE 442, EE 453, EE 456, EE 458, EET 402, EET 408, EET 409, EET 410, EET 413, EET 414, EET 431, EET 433, EET 456, EET 461, EET 478, EET 496, EGEE 456, ESC 456

⁴ SET Elective Course List (3 credits required): BIOL 141, CHEM 112, CHEM 113, CMPSC 122, CMPSC 132, CMPSC 200, CMPSC 201, CMPSC 312, EE 330, EE 341, EMCH 211, EMCH 212, EMCH 213, MATH 220, MATH 230, MATH 231, MATH 232, MATH 250, MATH 251, MATH 252, MATH 430, ME 201, ME 300, PHYS 213, PHYS 214, PHYS 237, PHYS 462, SSET 495, STAT 200

⁵ MATH Requirement Course List (3 credits required): IE 424, MATH 230, MATH 250, MATH 414, MATH 418, STAT 200, STAT 401, STAT 414, STAT 418, MATH 220

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain)

requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

According to the U.S. Bureau of Labor Statistics, electrical engineering technologists work closely with electrical and electronics engineers and computer hardware engineers in the computer systems design services industry. Opportunities can be found in a variety of firms engaged in electronic manufacturing, industrial control, applications engineering, and in power utilities. EET graduates are encouraged to continue their professional development by taking the Fundamentals of Engineering Examination at the end of their senior year; the FE exam is a prerequisite for taking the Professional Engineering Examination.

Careers

- Design, maintain, troubleshoot electronic circuits and systems. These range from power electronics, fiber optics, control systems, networking technologies, electronic systems, etc.
- Strong focus on power generation and distribution.
- Strong introduction to embedded systems.
- Automation of facilities: From distribution centers to manufacturing plants.
- Experience in the use of hardware used in instrumentation laboratories.
- This program trains students in the same software as currently used by industry.

Opportunities for Graduate Studies

Graduates of the EET program are eligible to pursue graduate studies in a variety of programs such as Electrical Engineering, Systems Engineering, Engineering Management, etc. In some cases prior to being accepted to these programs, graduates of the EET program may be required to take additional math courses.

Accreditation

The Bachelor of Science in Electrical Engineering Technology at Penn State Wilkes-Barre is accredited by the Engineering Technology Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Electrical/Electronic(s) Engineering Technology and Similarly Named Programs.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

Wilkes-Barre

ENGINEERING TECHNOLOGY AND COMMONWEALTH ENGINEERING
44 University Drive
Dallas, PA 18612
570-675-9135
tjs37@psu.edu

<https://wilkesbarre.psu.edu/academics/eet> (<https://wilkesbarre.psu.edu/academics/eet/>)

Harrisburg

SCHOOL OF SCIENCE, ENGINEERING, AND TECHNOLOGY
Olmsted Building W256
Middletown, PA 17057
717-948-4349
klb68@psu.edu

<https://harrisburg.psu.edu/science-engineering-technology/electrical-engineering-technology-bs> (<https://harrisburg.psu.edu/science-engineering-technology/electrical-engineering-technology-bs/>)

Electrical Engineering, B.S. (Engineering)

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

Electrical Engineering (EE) is one of the broadest of all engineering majors and is much more than just building electrical circuits. Electrical engineering is the application of electronics, electrical science and technology, and computer systems to the needs of society. An electrical engineer is responsible for designing and integrating electronic/electrical systems in diverse industries such as defense, communications, transportation, manufacturing, health care, construction, and entertainment.

The mission of our undergraduate program is to provide a high-quality education in electrical engineering for our students and to instill in them the attitudes, values, and vision that will prepare them for lifetimes of success, continued learning, and leadership in their chosen careers. A combination of required and elective courses ensures that students acquire a broad knowledge base in electrical circuits, digital systems, electronic devices, electromagnetics, and linear systems, as well as expertise in one or more areas of specialization. Additional problem-solving skills and practical experience are developed through design projects and laboratory assignments, which also provide opportunities for developing team-building and technical communication skills.

What is Electrical Engineering?

Electrical engineering is a broad discipline of study that includes circuit design, analog and digital electronics, electromagnetics, electro-optics, control systems, power systems, communications, and signal/image processing. Electrical engineers study and apply physics and mathematics to design electrical and electronic systems and their components for a wide range of applications such as mobile phones, wireless communications, consumer electronics, computers, computer networks, power generation, machine learning, robotics, nanoelectronics, nanophotonics, bioelectronics, autonomous transportation, wearable electronics, and metamaterials.

You Might Like This Program If...

- You are good in math, physics and computer programming and want to use technical skills in these areas to solve real-world problems.
- You are intrigued by the many applications of electronics and electrical systems in our world.

- You want a degree that is very broad and can be applied to a wide range of career opportunities.

Entrance to Major

In order to be eligible for entrance to this major, students must satisfy the following requirements:

- 29-55 cumulative credits (excludes transfer and AP credits)
- completed with a grade of C or better: CMPSC 121 or CMPSC 131 or EDSGN 100; CHEM 110, MATH 140, MATH 141, PHYS 211
- earned a minimum cumulative grade-point average (GPA) of 2.60

* In the event that the major is under enrollment control, a higher minimum cumulative grade-point average is likely to be needed and students must be enrolled in the College of Engineering or Division of Undergraduate Studies at the time of confirming their major choice.

Degree Requirements

For the Bachelor of Science degree in Electrical Engineering, a minimum of 127 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	109-111

27 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 9 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
EE 200	Design Tools	3
EE 300W	Design Process	3
EE 403W	Capstone Design	3
MATH 220	Matrices	2-3
PHYS 214	General Physics: Wave Motion and Quantum Physics	2

Prescribed Courses: Require a grade of C or better

CHEM 110	Chemical Principles I	3
EDSGN 100	Cornerstone Engineering Design	3
EE 210	Circuits and Devices	4
EE 310	Electronic Circuit Design I	4
EE 330	Engineering Electromagnetics	4
EE 340	Introduction to Nanoelectronics	4
EE 350	Continuous-Time Linear Systems	4
ENGL 202C	Effective Writing: Technical Writing	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
PHYS 211	General Physics: Mechanics	4

PHYS 212	General Physics: Electricity and Magnetism	4
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Additional Courses

Select 1 credit of First-Year Seminar		1
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CMPSC 122	Intermediate Programming	3
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or CMPSC 132	Programming and Computation II: Data Structures	3
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ECON 102	Introductory Microeconomic Analysis and Policy	3
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or ECON 104	Introductory Macroeconomic Analysis and Policy	3
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MATH 231	Calculus of Several Variables	4
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& MATH 232	and Integral Vector Calculus	4
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or MATH 230	Calculus and Vector Analysis	4
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Select 3 credits of the following:		3
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IE 424	Process Quality Engineering	3
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STAT 401	Experimental Methods	3
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STAT/MATH 414	Introduction to Probability Theory	3
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STAT/MATH 418	Introduction to Probability and Stochastic Processes for Engineering	3
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STAT/MATH 418	Introduction to Probability and Stochastic Processes for Engineering	3
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STAT/MATH 418	Introduction to Probability and Stochastic Processes for Engineering	3
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Additional Courses: Require a grade of C or better

CAS 100A	Effective Speech	3
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or CAS 100B	Effective Speech	3
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or ENGL 138T	Rhetoric and Civic Life II	3
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CMPEN 271	Introduction to Digital Systems	4
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& CMPEN 275	and Digital Design Laboratory ¹	4
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or CMPEN 270	Digital Design: Theory and Practice	4
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CMPSC 121	Introduction to Programming Techniques	3
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or CMPSC 131	Programming and Computation I: Fundamentals	3
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ENGL 15	Rhetoric and Composition	3
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or ENGL 30H	Honors Rhetoric and Composition	3
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or ENGL 137H	Rhetoric and Civic Life I	3
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MATH 250	Ordinary Differential Equations	3-4
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or MATH 251	Ordinary and Partial Differential Equations	3-4
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Supporting Courses and Related Areas

Select 6 credits from program-approved list of 300-level courses		6
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Select 3 credits from program-approved lists of 300-level or 400-level courses		3
--	--	---

Select 6 credits from program-approved list of 400-level courses		6
--	--	---

Select 6 additional credits, which may include up to 6 credits of ROTC, up to 6 co-op credits, and others from a program-approved list		6
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¹ CMPEN 275 does not require a grade of C or better.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Electrical Engineering and M.I.A. in International Affairs

Requirements for the Integrated B.S. in Electrical Engineering and M.I.A. in International Affairs can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/international-affairs/#integratedundergradgradprogramstext>).

Program Educational Objectives

The BSEE Program provides undergraduates with a broad technical education important for employment in the private or public sector, and it teaches them the fundamentals, current issues, and creative problem solving skills essential for future years of learning. At three to five years after graduation, we foresee our graduates able to accomplish the following:

1. Electrical engineering practice in technical assignments such as design, product development, research, manufacturing, consulting, testing, sales, and management;
2. Participation and leadership on teams comprised of individuals with diverse professional and cultural backgrounds;
3. Continued learning and professional development through such activities as graduate school, distance education, professional training, and membership in professional societies.

Student Outcomes

Student outcomes describe what students are expected to know and be able to do by the time of graduation. The Electrical Engineering program is designed to enable students to:

1. Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. Apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. Communicate effectively with a range of audiences
4. Recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. Acquire and apply new knowledge as needed, using appropriate learning strategies.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Director of Academic Affairs

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University Park, PA 16802

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Electrical Engineering, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

If you are starting at a campus other than the one this plan is ending at, please refer to: <http://advising.engr.psu.edu/degree-requirements/academic-plans-by-major.aspx>

First Year

Fall	Credits	Spring	Credits
CHEM 110 (GN) ^{**†}	3	CMPSC 121 or 131 ¹	3
EE 8 or 9 (or First Year Seminar) [†]	1	ECON 102 or 104 (GS) [†]	3
ENGL 15, 30H, or ESL 15 (GWS) ^{††}	3	EDSGN 100 ^{*1}	3
MATH 140 or 140E (GQ) ^{*†#†}	4	MATH 141 or 141E (GQ) ^{*†#†}	4
PHYS 211 (PHYS 211L and PHYS 211R (GN)) ^{**†}	4	PHYS 212 (PHYS 212L and PHYS 212R (GN)) ^{*†}	4
	15		17

Second Year

Fall	Credits	Spring	Credits
CMPEN 270 or 271 and 275 [*]	4	CAS 100A or 100B (GWS) ^{††}	3
CMPSC 122 or 132	3	EE 200	3
EE 210 [*]	4	EE 310 [*]	4
MATH 220	2-3	MATH 230	4
MATH 250 [*]	3	PHYS 214	2
	16-17		16

Third Year

Fall	Credits	Spring	Credits
EE 330 [*]	4	EE 300W (Writing Intensive) [†]	3
EE 340 [*]	4	ENGL 202C (GWS) ^{††}	3
EE 350 [*]	4	EE/CMPEN 300-Level Elective	3
General Education Course [†]	3	EE/CMPEN 300-Level Elective	3
General Education Course (GHW) [†]	1.5	General Education Course [†]	3
	16.5		15

Fourth Year

Fall	Credits	Spring	Credits
EE 403W	3	EE/CMPEN 400-Level Elective	3
EE/CMPEN 300/400-Level Elective	3	EE/CMPEN 400-Level Elective	3
Related Elective	3	Related Elective	3
Statistics Elective	3	General Education Course [†]	3
General Education Course [†]	3	General Education Course [†]	3
		General Education Course (GHW) [†]	1.5
	15		16.5

Total Credits 127-128

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Completing one of EDSGN 100 or CMPSC 121 or CMPSC 131 is required for Entrance to Major.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain

attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

College Notes:

- **EE/CMPEN 300-Level Elective:** Select from department list.
- **EE/CMPEN 300/400-Level Elective:** Select from department list.
- **EE/CMPEN 400-Level Elective:** Select from department list.
- **Health and Physical Activity Elective:** Students who complete the ROTC Program may substitute 3 ROTC credits for the GHW requirement and 3 ROTC credits for a Related Elective.
- **Related Elective:** Students who complete the ROTC Program may substitute 3 ROTC credits for the GHW requirement and 3 ROTC credits for a Related Elective. Students who complete the Cooperative Education Program may substitute up to 6 co-op credits for the Related Electives.
- **Statistics Elective:** Select from department list.

Career Paths

CAREERS

An electrical engineer is responsible for designing and integrating electronic/electrical systems in diverse industries such as defense, communications, transportation, manufacturing, healthcare, construction, power/energy, and entertainment. Some graduates work as design engineers in research labs where they help design state-of-the-art electronic circuits, devices, and systems. Others work in a manufacturing environment where they help improve the manufacturing of existing products. Still others may work in post-production jobs where they deal with technical sales, field testing, or trouble shooting. Some graduates even serve as consultants who are hired by companies to help solve their technical problems.

Some examples of career opportunities include: circuit design for consumer electronics; design of power systems and industrial automation for manufacturing; design of communications systems; signal processing software and hardware development for audio and video applications; image processing and computer vision for medical imaging; software design and algorithm development for artificial intelligence, cyber security, and other big data analytics.

The average entry-level salary for electrical engineers is \$73,000.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE ELECTRICAL ENGINEERING PROGRAM (<http://www.eecs.psu.edu/students/undergraduate/EECS-Students-Undergrad-EE-Specialization.aspx>)

Opportunities for Graduate Studies

A graduate degree can broaden your educational credentials and improve your marketability in the global workplace. Students who graduate with a Bachelor of Science Degree in Electrical Engineering are well-prepared to continue their technical education with a Master's or PhD degree in electrical engineering or related fields such as physics or computer

science and engineering. These technical graduate degrees prepare students for employment in research labs or higher education.

Penn State offers M.S. and Ph.D. degrees in Electrical Engineering and in Computer Science and Engineering. All of these graduate programs are highly recognized for producing graduates with strong academic credentials who can perform both theoretical and experimental research.

In addition to traditional technical degrees, some of our graduates opt to get professional degrees in medicine, law or business administration so that they can pursue careers in fields such as medical imaging, patent law, and engineering management.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<http://www.eecs.psu.edu/students/graduate/EECS-How-to-apply-EE.aspx>)

Professional Resources

- Penn State IEEE (<http://sites.psu.edu/psuieee/>)
- Eta Kappa Nu (<http://sites.psu.edu/hkneecs/>)
- Association of Women in Computing (<http://awc.cse.psu.edu/>)
- Penn State SPIE/OSA (<http://spie.ee.psu.edu/about.html>)
- Association for Computing Machinery (<https://acm.psu.edu/>)

Accreditation

The Bachelor of Science in Electrical Engineering at University Park is accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Electrical, Computer, Communications, Telecommunication(s), and Similarly Named Engineering Programs.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

University Park

SCHOOL OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCE
121 Electrical Engineering East
814-865-7667
gbr6@psu.edu

<http://eecs.psu.edu>

Electro-Mechanical Engineering Technology, B.S. (Engineering)

Begin Campus: Any Penn State Campus

End Campus: Fayette, New Kensington, York

Program Description

The Electro-Mechanical Engineering Technology (B.S. EMET) degree program provides the basic undergraduate education required for a career as an electro-mechanical engineer. The program emphasizes a breadth of knowledge in all fields of engineering technology related to

typical, highly-automated manufacturing, production, or assembly plant processes. Basic coverage is provided in all major areas to technology involved in the operation and control of manufacturing and production processes, including instrumentation and monitoring methods, principles of machine design, automated control techniques, thermal and fluid sciences, computerized manufacturing systems, principles of electrical and electronic circuit operation, computer-aided drafting and design, economics of production, and statistical analysis and quality control.

The primary aim of the EMET program is to provide graduates with the knowledge and skills necessary to apply current methods and technology to the development, design, operation, and management of electro-mechanical systems, particularly in those industries where automated systems are prevalent.

The major is organized as a four-year baccalaureate program with the corresponding Penn State admission requirements. Graduates of an associate degree in either electrical or mechanical engineering technology from Penn State may re-enroll in the EMET program. The College of Engineering ENGR students may enroll through "Change of Major" procedures. Students from an engineering technology program at another institution or community college accredited by TAC of ABET may transfer into the program with advanced standing.

What is Electro-Mechanical Engineering?

The Bachelor of Science degree in Electro-Mechanical Engineering Technology responds to a growing demand for engineers with a broad range of technical skills. The program emphasizes knowledge in the field of technology related to the design, maintenance, and operation of electromechanical systems, essentially automation and robotics. These systems incorporate electronic, mechanical, instrumentation and control elements. The program provides students with hands-on experience with these elements, technical knowledge, and the soft skills needed to be successful in the field of engineering. In this curriculum, students receive early exposure to technology by scheduling technical courses in the major. A laboratory component that promotes the understanding of the subject matter through the experiential application of theory accompanies most technical courses. This program culminates with a senior capstone project in which students work together in a team to design and implement an engineering project from initial proposal through product demonstration.

You Might Like This Program If...

You are interested in math and science but prefer spending time applying your skills in a laboratory or field setting as opposed to studying the theory behind these subjects in a classroom setting. If you like to take things apart, to see how they work, this may be for you. There is a greater emphasis on engineering applications while building an understanding of scientific theory.

Direct Admission to the Major

Incoming first-year students who meet the program admission requirements are admitted directly into the major. Admission restrictions may apply for change-of-major and/or change-of-campus students.

For more information about the admission process for this major, please send a request to the college, campus, or program contact (listed in the Contact tab).

Degree Requirements

For the Bachelor of Science degree in Electro-Mechanical Engineering Technology, a minimum of 130 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	109-116

24 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GH courses; 9 credits of GN courses; 6 credits of GQ courses; 6 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
CMPET 211	Embedded Processors and DSP	3
EDSGN 100	Cornerstone Engineering Design	3
EET 105	Electrical Systems	3
EET 275	Introduction to Programmable Logic Controls	3
EGT 114	Spatial Analysis and Computer-Aided Drafting	2
EMET 100	Computation Tools for Engineering Synthesis	1
EMET 215	Manufacturing Engineering	3
EMET 225	Applied Dynamics	2
EMET 325	Electric Drives	3
EMET 326	Mechanical Drives	3
EMET 405	Introduction to Thermal Science Systems	3
EMET 410	Automated Control Systems	4
IET 101	Manufacturing Materials, Processes, and Laboratory	3
IET 333	Engineering Economics for Technologists	2
STS/PHIL 233	Ethics and the Design of Technology	3
<i>Prescribed Courses: Require a grade of C or better</i>		
CMPET 117	Digital Electronics	3
CMPET 120	Digital Electronics Laboratory	1
EET 114	Electrical Circuits II	4
EET 118	Electrical Circuits Laboratory	1
EET 212W	Op Amp and Integrated Circuit Electronics	4
EMET 222	Applied Mechanics	3
EMET 230	Computerized I/O Systems	3
EMET 330	Measurement Theory and Instrumentation	3
ENGL 202C	Effective Writing: Technical Writing	3
MET 111	Mechanics for Technology: Statics	3
Additional Courses		
EMET 350 or EMET 351	Quality Control, Inspection, and Design	2-3
EMET 403 & EMET 440 or EMET 441 & EMET 442	Electromechanical Design Project Preparation and Electro-Mechanical Project Design Mechatronics Project Design and Mechatronics Project Implementation	4

Select 3 credits from the following: 3

CMPSC 121	Introduction to Programming Techniques	
CMPSC 131	Programming and Computation I: Fundamentals	
CMPSC 200	Programming for Engineers with MATLAB	
CMPSC 201	Programming for Engineers with C++	

Select 6-8 credits of GN courses from two of the following groups: 6-8

Group 1

CHEM 110 & CHEM 111	Chemical Principles I and Experimental Chemistry I	
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Group 2

PHYS 150	Technical Physics I	
PHYS 211	General Physics: Mechanics	
PHYS 250	Introductory Physics I	

Group 3

PHYS 151	Technical Physics II	
PHYS 212	General Physics: Electricity and Magnetism	
PHYS 251	Introductory Physics II	

Additional Courses: Require a grade of C or better

MATH 83	Technical Calculus ¹	4
or MATH 140	Calculus With Analytic Geometry I	

MATH 210	Calculus with Engineering Technology Applications	3-4
or MATH 141	Calculus with Analytic Geometry II	

MATH 250	Ordinary Differential Equations ²	3
or MATH 211	Intermediate Calculus and Differential Equations with Applications	

Select 3 credits from the following: 3

CAS 100	Effective Speech	
CAS 100A	Effective Speech	
CAS 100B	Effective Speech	

Select 3-5 credits from the following: 3-5

MATH 26	Plane Trigonometry and Applications of Trigonometry	
MATH 40	Algebra, Trigonometry, and Analytic Geometry	
MATH 82	Technical Mathematics II ³	

Supporting Courses and Related Areas

Select 3-4 credits of science courses, in consultation with an adviser, 3-4 from the approved department list

Select 6 credits of General Technical Elective courses, in consultation with an adviser, from the approved department list 6

¹ Students taking MATH 83 must take MATH 210 and MATH 211.

² Note that MATH 250 does not carry a C-requirement.

³ Students taking MATH 81 and MATH 82 must take MATH 83.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education

Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- Quantification (GQ): 6 credits
- Writing and Speaking (GWS): 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- Arts (GA): 3 credits
- Health and Wellness (GHW): 3 credits
- Humanities (GH): 3 credits
- Social and Behavioral Sciences (GS): 3 credits
- Natural Sciences (GN): 3 credits

Integrative Studies

- Inter-Domain Courses (Inter-Domain): 6 credits

Exploration

- GN, may be completed with Inter-Domain courses: 3 credits
- GA, GH, GN, GS, Inter-Domain courses. This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Educational Objectives

The educational objectives of the Electro-Mechanical Engineering Technology program are designed to prepare graduates who, within a few years after graduation, will:

1. Continue to develop and synthesize analytical skills in the specification, procurement, or integration of electromechanical systems.
2. Apply empirical skills in the safe operation, testing, or maintenance of electromechanical systems.
3. Collaborate effectively acting with the highest standards of professional integrity in project team activities through recognizing the global, societal, economical, and ethical contexts of their work.
4. Communicate persuasively ensuring a focus on technical excellence through the preparation and delivery of technical and non-technical documentation and communications.

Student Outcomes

Graduates of the Electro-Mechanical Engineering Technology program should demonstrate:

1. An ability to apply knowledge, techniques, skills, and modern tools of mathematics, science, engineering, and technology to solve broadly-defined engineering problems appropriate to the discipline.
2. An ability to design systems, components, or processes meeting specified needs for broadly-defined engineering problems appropriate to the discipline.
3. An ability to apply written, oral, and graphical communication in broadly-defined technical and non-technical environments; and an ability to identify and use appropriate technical literature.
4. An ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results to improve processes.
5. An ability to function effectively as a member as well as a leader on technical teams.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the

habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Electro-Mechanical Engineering Technology, B.S. at Fayette Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
EET 105	3 CMPET 117*	3
IET 101	3 CMPET 120*	1
EDSGN 100	3 MET 111*	3
EMET 100	1 EET 114*	4
MATH 26 ^{††}	3 EET 118*	1
ENGL 15 [†]	3 EGT 114	2
PSU 8	1 MATH 140*	4
	17	18

Second Year

Fall	Credits Spring	Credits
EMET 222*	3 CMPSC 121	3
CMPET 211	3 EET 275	3
CAS 100A or 100B ^{††}	3 EET 212W*	4
MATH 210*	3 MATH 211*	3
General Education Course (GN)	3-4 General Education Course (GN)	3-4
General Education Course (GHW)	1.5 General Education (GHW)	1.5
	16.5-17.5	17.5-18.5

Third Year

Fall	Credits Spring	Credits
EMET 215	3 EMET 230*	3
EMET 225	2 EMET 326	3
EMET 325	3 ENGL 202C ^{††}	3
EET 215 or IET 333	1-2 EMET 351 (or General Education Course)	2
General Education Course (GN)	3-4 Technical Elective	3-4
General Education Course	3 General Education Course	3
	15-17	17-18

Fourth Year

Fall	Credits Spring	Credits
EMET 330*	3 EMET 405	3
EMET 403	1 EMET 440	3
EMET 410	4 Technical Elective	3
STS 233 [†]	3 General Education Course	3
General Education Course	3 EMET 351 (or General Education Course)	2
	14	14

Total Credits 129-134

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- Approved Supporting Science courses (3-4 credits required): BIOL 110, CHEM 110 & 111, CHEM 112 & 113, EGEE 101, EGEE 102, GEOG 30N, PHYS 150, PHYS 151, PHYS 211, PHYS 212, PHYS 250, PHYS 251.
- Approved General Technical Elective courses (6 credits required): EGT 201, EMET 394, EMET 401, EMET 402, EMET 430, EMET 432, EMET 495, EMET 496, EMET 497, ENGR 310, ENTR 300, ENTR 320, IST 402, IST 431, IST 432, MATH 220, MATH 230, MATH 231, ME 300, ENGR 408, ENGR 405, ENGR 425, MGMT 301, MKTG 301, STAT 200. Additional courses may be petitioned in consultation with an adviser.
- Students who begin the math sequence beyond MATH 26 are required to replace the missing credits with General Technical Elective Courses.

Campus Advising Notes:

- Students can substitute Math 141 and Math 250 for Math 210 and Math 211.
- Approved Supporting Science course offered at Fayette include: CHEM 110 & 111, CHEM 112 & 113, EGEE 101, PHYS 211, PHYS 212, PHYS 250, PHYS 251.
- Approved General Technical Elective courses offered at Fayette include: EMET 495, EMET 497, MATH 220, MATH 230, MATH 231, STAT 200, ME 300, MGMT 301, and MKTG 301.

Electro-Mechanical Engineering Technology, B.S. at New Kensington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
EDSGN 100	3 CMPET 117*	3
EET 105	3 CMPET 120*	1
MATH 26*	3 MET 111*	3
EMET 100	1 MATH 140*	4
ENGL 15 (GWS)*†	3 CAS 100A or 100B (GWS)*††	3
PSU 8	1 General Education Course	3
	14	17

Second Year

Fall	Credits Spring	Credits
EMET 222*	3 CMPSC 121	3
EGT 114	2 EET 114*	4
EET 275	3 EET 118*	1
IET 101	3 EMET 225	2
MATH 141*	4 ENGL 202C (GWS)*†	3
General Education Course (GN)	3 MATH 250	3
	18	16

Third Year

Fall	Credits Spring	Credits
EET 212W*	4 EMET 215	3
EMET 230*	3 EMET 325	3
EMET 326	3 EMET 330*	3
CMPET 211	3 EMET 350	3
General Health and Wellness (GHW)	1.5 STS 233	3
General Education Course	3 General Education Course	3
	17.5	18

Fourth Year

Fall	Credits Spring	Credits
EMET 405	3 EMET 440	3
EMET 410	4 IET 333	2
EMET 403	1 EMET Technical Elective	3
General Education Course	3 EMET Technical Elective	3
General Education Course (GN)	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course (GN)	3
	15.5	17

Total Credits 133

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- Approved Supporting Science courses (3-4 credits required): BIOL 11 & 12, BIOL 110, BIOL 141, CHEM 110 & 111, CHEM 112 & 113, EGEE 101, EGEE 102, GEOG 30N, PHYS 150, PYHS 151, PHYS 211, PHYS 212, PHYS 250, PHYS 251.
- Approved General Technical Elective courses (6 credits required): EGT 201, EMET 394, EMET 401, EMET 402, EMET 430, EMET 432, EMET 495, EMET 496, EMET 497, ENGR 310, ENTR 300, ENTR 320, IST 402, IST 431, IST 432, MATH 220, MATH 230, MATH 231, ME 300, ENGR 408, ENGR 405, ENGR 425, MGMT 301, MKTG 301, STAT 200. Additional courses may be petitioned in consultation with an adviser.
- Students who begin the math sequence beyond MATH 26 are required to replace the missing credits with General Technical Elective Courses.

Campus Advising Notes:

- The required math courses offered at New Kensington include: Math 26, Math 140, Math 141, and Math 250.
- Approved Supporting Science course offered at New Kensington include: BIOL 141, CHEM 110 & 111, CHEM 112 & 113, EGEE 101, GEOG 30N, PHYS 150, PHYS 151, PHYS 211, PHYS 212, PHYS 250, PHYS 251.
- Approved General Technical Elective courses offered at New Kensington include: EMET 430, EMET 495, EMET 497, MATH 220, MATH 230, MATH 231, STAT 200, ME 300, MGMT 301, MKTG 301, and IST 402.

Electro-Mechanical Engineering Technology, B.S. at York Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
EDSGN 100	3 CMPET 117*	3
IET 101	3 CMPET 120*	1
EET 105	3 MET 111*	3
MATH 26*	3 General Education Course	3
ENGL 15 or 30H	3 CAS 100A, 100B, or 100C (GWS)†	3
EMET 100	1 PHYS 150 (GN)	3
	16	16

Second Year

Fall	Credits Spring	Credits
EMET 222*	3 CMPET 211	3
EMET 225*	2 CMPSC 121, 131, or 201	3
EET 114*	4 EMET 215*	3
EET 118*	1 MATH 141*	4
EGT 114	2 ENGL 202C	3
MATH 140*	4 General Education Course (GHW)	1.5
	16	17.5

Third Year

Fall	Credits Spring	Credits
EET 212W*	4 EMET 325	3
EMET 230*	3 EMET 326	3
EET 275	3 EMET 330*	3
MATH 250	3 EMET 350	3
PHYS 151 (GN)	3 STS 233 (GH)†	3
	General Education Course	3
	16	18

Fourth Year

Fall	Credits Spring	Credits
EMET 403	1 EMET 405	3
CHEM 110 (GN)	3 EMET 440	3
CHEM 111 (GN)	1 Technical Elective	3
EMET 410	4 General Education Course	6
IET 333	2 General Education Course (GHW)	1.5
Technical Elective	3	
General Education Course	3	
	17	16.5

Total Credits 133

* Course requires a grade of C or better for the major

† Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- Approved Supporting Science courses (3-4 credits required): BIOL 11 & 12, BIOL 110, BIOL 141, CHEM 110 & 111, CHEM 112 & 113, EGEE 101, EGEE 102, GEOG 30N, PHYS 150, PHYS 151, PHYS 211, PHYS 212, PHYS 250, PHYS 251.
- Approved General Technical Elective courses (6 credits required): EGT 201, EMET 394, EMET 401, EMET 402, EMET 430, EMET 432, EMET 495, EMET 496, EMET 497, ENGR 310, ENTR 300, ENTR 320, IST 402, IST 431, IST 432, MATH 220, MATH 230, MATH 231, ME 300, ENGR 408, ENGR 405, ENGR 425, MGMT 301, MKTG 301, STAT 200. Additional courses may be petitioned in consultation with an adviser.
- Students who begin the math sequence beyond MATH 26 are required to replace the missing credits with General Technical Elective Courses.

Campus Advising Notes:

- The required math courses offered at York include: Math 26, Math 140, Math 141, and Math 250.
- Approved Supporting Science course offered at York include: BIOL 141, CHEM 110 & 111, CHEM 112 & 113, PHYS 150, PHYS 151, PHYS 211, PHYS 212, PHYS 250, PHYS 251.
- Approved Supporting Science course offered the Web include: EGEE 101, GEOG 30N
- Approved General Technical Elective courses offered at York include: EMET 430, EMET 495, EMET 497, MATH 220, MATH 230, MATH 231, STAT 200, ME 300, MGMT 301, MKTG 301, IST 402 and IST 432.

Career Paths

The inclusion of both electrical and mechanical coursework in the EMET program makes our students highly marketable to employers.

EMET graduates may pursue engineering work that entails design, prototyping, testing, operation, or maintenance of equipment. Others may work in the areas of research and development, quality control, inspection of procedures and processes, manufacturing, or sales and service. These careers could be in a variety of industries including aerospace, agriculture, automotive, communications, computers, construction, energy, pharmaceuticals, plastics, or robotics to name a few.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE ELECTRO-MECHANICAL ENGINEERING PROGRAM (<https://career.engr.psu.edu/>)

Opportunities for Graduate Studies

Students may choose to further their engineering education through graduate school. EMET graduates are prepared to continue their education into technical or professional Master's Degree programs. Graduate program admissions requirements vary by program and institution. Students intending to pursue this academic path are encouraged to investigate intended programs of interest early in their studies to tailor their course choices during their undergraduate studies.

Since the EMET program is ABET ETAC-accredited, EMET graduates are candidates to sit for the Fundamental of Engineering (FE) Exam, the first step in the engineering licensure process. Acceptable accreditation standards vary from state to state for professional licensure, so students must verify their state's requirements.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.engr.psu.edu/graduate-programs/>)

Accreditation

The Bachelor of Science in Electro-Mechanical Engineering Technology at Penn New Kensington, Penn State York, and Penn State Fayette is accredited by the Engineering Technology Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Electromechanical Engineering Technology and Similarly Named Programs.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

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<https://fayette.psu.edu/academics/baccalaureate/electro-mechanical-engineering-technology> (<https://fayette.psu.edu/academics/baccalaureate/electro-mechanical-engineering-technology/>)

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<https://newkensington.psu.edu/academics/4-year-electro-mechanical-engineering-technology> (<https://newkensington.psu.edu/academics/4-year-electro-mechanical-engineering-technology/>)

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<https://www.york.psu.edu/academics/baccalaureate/electro-mechanical-engineering-technology> (<https://www.york.psu.edu/academics/baccalaureate/electro-mechanical-engineering-technology/>)

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Engineering and Community Engagement, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

A certificate in Engineering and Community Engagement is proposed for students in the College of Engineering. This certificate is intended to acknowledge students who have gained proficiency in design, research and application of appropriate technologies for use in serving communities in the U.S. and abroad while stressing an awareness of the cultural context of such engineering activities. Collaborations with communities are strongly encouraged along with emphasis on the importance of ethical considerations in collaborating/working in community settings. All students in good academic standing are eligible for admission to the program.

What is Engineering and Community Engagement?

Engineering and Community Engagement focuses on combining design, research, and engineering principles to address needs of communities in the U.S. and abroad, all while stressing cultural awareness, sustainability, innovation, and teamwork.

You Might Like This Program If...

- You would like to partner with communities to make a difference.
- You would like to explore and implement solutions to real problems.
- You would like to lead design and build teams.
- You would like to broaden your perspectives by collaborating with community stakeholders.
- You would like to develop professional skills.

Program Requirements

To earn an undergraduate certificate in Engineering and Community Engagement, a minimum of 12 credits is required.

Code	Title	Credits
Prescribed Courses		
EDSGN 352		
EDSGN 452	Projects in Humanitarian Engineering	2
ENGR 496	Independent Studies	1-18
YFE 211		3
Select one of the following:		1-18
EDSGN 395	Internship	
ENGR 408	Leadership Principles	
ENGR 411	Entrepreneurship Business Basics	
ENGR 425	New Venture Creation	
ENGR 493	Individual Leadership Experience	

Core requirements for the certificate program include courses in both:

1. Community Engagement, and
2. U.S. and International Cultures.

These courses may be scheduled to satisfy general education requirements (GS/GH/US/IL) depending on the courses selected. Beyond that, students have various course options available to them to complete the 12-credit requirement for the certificate including project-based courses in:

1. design,
2. entrepreneurship, and
3. leadership.

Students will be strongly encouraged to meet with the program director to discuss and formulate their program of study in the certificate program.

Prerequisites Required.

Certificate Learning Objectives

- **Appropriate Technologies:** Students will identify, understand and employ appropriate technologies commonly of use in marginalized communities when designing solutions.

- **Engineering Cultures:** Students will identify and utilize a variety of stakeholders and resources to provide pertinent cultural, political, economic and historical perspectives on community-based engineering design projects.
- **Engineering Design:** Students will demonstrate competency in use of the design process to provide technical solution(s) to problem(s) experienced by marginalized communities.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

John Gershenson

Director of Humanitarian Engineering and Social Entrepreneurship and Teaching Professor
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Career Paths

Careers

Penn State students with a Certificate in Engineering and Community Engagement have been successful in establishing careers in a wide variety of engineering, research, and education fields.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A CERTIFICATE IN ENGINEERING AND COMMUNITY ENGAGEMENT (<http://career.engr.psu.edu/>)

Opportunities for Graduate Studies

Students interested in advancing their Engineering and Community Engagement knowledge may be interested in the School of Engineering Design and Innovation's graduate offerings in Engineering Design or Engineering Leadership and Innovation Management or numerous other advanced engineering studies offered by the College of Engineering.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.sedi.psu.edu/academics/graduate/>)

Contact

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Engineering Design with Digital Tools, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

The Engineering Design with Digital Tools (EDDiT) certificate is a 13-credit certificate that enables students to specialize in digital design tools. This provides students with the opportunity to more fully develop their CAD and design skills, which are highly sought after by industry. Students are required to take at least one section of Engineering Design and Analysis with CAD (EDSGN 468), with each course section offering a different software package, such as SolidWorks, AutoCAD, or Catia. The certificate culminates in the preparation of a portfolio, through which students document and display their design work in a professional manner. Students must earn a C grade or better in each prescribed and additional course or independent study or pursue a replacement option.

What is Engineering Design?

Engineering Design is based on the concept of integrating ideas, disciplines, people, and resources within engineering and beyond that are necessary to achieve optimal design solutions for products, systems, processes, and services.

You Might Like This Program If...

- You are interested in learning about new design methods.
- You would like to learn more about interdisciplinary applications of design such as sustainability, innovative design, design for human variability, global design, and affective design.
- You are interested in interdisciplinary integrated design involving two or more distinct fields of knowledge.
- You would like to develop a portfolio of your design projects.

Program Requirements

To earn an undergraduate certificate in Engineering Design with Digital Tools, a minimum of 13 credits is required.

Code	Title	Credits
Required Courses		
EDSGN 100	Cornerstone Engineering Design	3
EDSGN 468	Engineering Design and Analysis with CAD	3
EDSGN 485	Engineering Design Portfolio	1
Select 6 credits from the following or from an approved list maintained by the program:		6
EDSGN 110	Spatial Analysis in Engineering Design	
EDSGN 210	Tolerancing and Spatial Models	
EDSGN 462	Introduction to Design for Additive Manufacturing	
EDSGN 468	Engineering Design and Analysis with CAD	
EMCH 461	Finite Elements in Engineering	

Non-Course Requirements:

- Students must take one but no more than two courses designated EDSGN 468. If taking two courses designated EDSGN 468, each must cover a different software package.
- No fewer than 7 credits must be completed at the 400-level or above. A list of approved courses will be maintained by the certificate director.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Engineering Design, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

The certificate provides an opportunity to pursue a specialization in engineering design; offering an incentive to take more courses in design and participate in more design projects, thereby improving employment prospects. Students must earn a C grade or better in each prescribed or additional course or independent study or pursue a replacement option. A minimum of 7 credits of required courses and an additional 6 credits of supporting courses minimum (at 400-level or above) are needed for completion of the certificate.

What is Engineering Design?

Engineering Design is based on the concept of integrating ideas, disciplines, people, and resources within engineering and beyond that are necessary to achieve optimal design solutions for products, systems, processes, and services.

You Might Like This Program If...

- You are interested in learning about new design methods.
- You would like to learn more about interdisciplinary applications of design such as sustainability, innovative design, design for human variability, global design, and affective design.
- You are interested in interdisciplinary integrated design involving two or more distinct fields of knowledge.
- You would like to develop a portfolio of your design projects.

Program Requirements

To earn an undergraduate certificate in Engineering Design, a minimum of 13 credits is required.

Code	Title	Credits
Prescribed Courses		
EDSGN 100	Cornerstone Engineering Design	3
EDSGN 367	Design Thinking and Making	3
EDSGN 485	Engineering Design Portfolio	1
Supporting Courses		
In addition to the required courses, students must take a minimum of 6 credits of supporting courses, such as EDSGN 4XX or other 400-level courses with approval from the Certificate Director. ¹		6

¹ With approval from the Certificate Director, any course of 3 credits or more at the 400-level or above that can be shown to have a majority of content devoted to engineering design projects, and that has been completed with a semester grade of at least C, can be counted towards the certificate's 6 credits of supporting courses.

Non-Course Requirements

No fewer than 6 credits of supporting courses must be completed at the 400-level or above. Up to 3 of these credits may be obtained through pre-approved co-op (400-level) experiences that are primarily design work. Other examples of courses that would satisfy the certificate (in addition to the prescribed courses) include any of the EDSGN 400 level courses offered by the School of Engineering Design and Innovation. In addition, the Director of the Certificate will maintain a list of courses that have been approved previously for the certificate.

Certificate Learning Objectives

- Students will demonstrate an application of an iterative design process to conceptualize and prototype an innovative solution to an engineering problem.
- Students will critically define a problem and evaluate appropriateness of proposed solutions, considering users of an intended design and other stakeholders affected by a designed intervention.
- Students will document the progressive stages of their work, not only within various single projects, but also indicating increased sophistication and responsibility in their roles from one project to the next, in a portfolio suitable for presentation to a professional engineering practice as evidence of experience and competencies.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in- and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Elizabeth Starkey

Assistant Teaching Professor of Engineering Design
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Career Paths

Careers

Penn State students with a Certificate in Engineering Design have been successful in establishing careers in a wide variety of engineering, research, and education fields.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A CERTIFICATE IN ENGINEERING DESIGN (<https://career.engr.psu.edu/>)

Opportunities for Graduate Studies

Students interested in advancing their Engineering Design knowledge may be interested in the School of Engineering Design and Innovation's graduate offerings in Engineering Design or Engineering Leadership and Innovation Management or numerous other advanced engineering studies offered by the College of Engineering.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.sedi.psu.edu/academics/graduate/>)

Contact

University Park

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307 Engineering Design and Innovation Building
University Park, PA 16802
814-863-2587
sedicourses@psu.edu

<https://www.sedi.psu.edu>

Engineering Design, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change

from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

To address design responsibilities necessary for engineering graduates, the engineering design minor develops design skills in students through a series of core project-based design courses supplemented by general electives in their discipline or related field. Through team-based projects, students apply engineering design processes to address design opportunities, from exploration of the problem space through exploration of the solution space. By focusing on different elements of a design process (e.g., defining and exploring the problem vs. identifying, prototyping, and evaluating design solutions), but covering in totality, the minor's courses complement each other and provide students with a deeper understanding of engineering design. Specific areas of emphasis in this minor include problem framing, stakeholder engagement, human-centered design, rapid prototyping, prototyping to validate assumptions, systems-level design and professional communication. The tools and techniques developed in this minor should be broadly applicable to various engineering disciplines.

What is Engineering Design?

Engineering Design is based on the concept of integrating ideas, disciplines, people, and resources within engineering and beyond that are necessary to achieve optimal design solutions for products, systems, processes, and services.

You Might Like This Program If...

- You are interested in learning about new design methods.
- You would like to learn more about interdisciplinary applications of design such as sustainability, innovative design, design for human variability, global design, and affective design.
- You are interested in interdisciplinary integrated design involving two or more distinct fields of knowledge.
- You would like to develop a portfolio of your design projects.

Entrance to Minor

For admission into the minor, students must have completed EDSGN 100 and EDSGN 367.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A minimum of 18 credits is required for completion of the minor with no fewer than 9 credits at the 400-level or above.

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
EDSGN 100	Cornerstone Engineering Design	3

EDSGN 367	Design Thinking and Making	3
EDSGN 467	Prototyping to Launch	3
EDSGN 485	Engineering Design Portfolio	1

Additional Courses

Additional Courses: Require a grade of C or better

Select 6-8 credits from the following courses: 6-8

EDSGN 270	Summers by Design: An International Engineering Design Experience
EDSGN 452	Projects in Humanitarian Engineering
EDSGN 453	Design for Developing Communities
EDSGN 462	Introduction to Design for Additive Manufacturing
EDSGN 468	Engineering Design and Analysis with CAD
EDSGN 494	Research Project
EDSGN 496	Independent Studies
ENGR/WFED 405	Project Management for Professionals
ENGR 310	Entrepreneurial Leadership
ENGR 407	Technology-Based Entrepreneurship
ENGR 408	Leadership Principles
ENGR 409	Leadership in Organizations
ENGR 422	Leadership of International Virtual Engineering Teams

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

None specified. In consultation with the minor director, students may 0-2 receive up to 2 course credits for an approved course in support of their engineering design minor.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

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University Park

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Career Paths

Careers

Penn State students with a Minor in Engineering Design have been successful in establishing careers in a wide variety of engineering, research, and education fields.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN ENGINEERING DESIGN (<https://career.engr.psu.edu/>)

Opportunities for Graduate Studies

Students interested in advancing their Engineering Design knowledge may be interested in the School of Engineering Design and Innovation's graduate offerings in Engineering Design or Engineering Leadership and Innovation Management or numerous other advanced engineering studies offered by the College of Engineering.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.sedi.psu.edu/academics/graduate/>)

Contact

University Park

SCHOOL OF ENGINEERING DESIGN AND INNOVATION
307 Engineering Design and Innovation Building
University Park, PA 16802
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sedicourses@psu.edu

<https://www.sedi.psu.edu>

Engineering Leadership Development, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

This interdisciplinary minor is designed to provide engineering students with critical principles and skills. Engineering graduates must demonstrate the ability to assume leadership roles in a competitive technologically complex global society. There are increasing demands for engineers to be able to deal effectively with other people, including the ability to work in teams and to interact with customers and other organizations on both national and international levels. Students will employ engineering case studies in active and collaborative classroom settings to develop these skills. The minor consists of 18 semester hours. Students in all engineering majors are eligible.

What is Engineering Leadership Development?

The Engineering Leadership Development (ELD) program focuses on providing a challenging, relevant, and dynamic world-class program that further engages students in their education while preparing them for leadership roles in a technical work environment. Courses in engineering leadership provide you with the understanding of individual, team, and organizational leadership; business acumen, global competencies and

multicultural awareness; and innovation and management. Skill sets of effective leaders are practiced in local and virtual international teams aimed at designing and building practical solutions.

You Might Like This Program If...

- You are interested in developing your leadership potential and business acumen.
- You would like to increase your multicultural awareness and global competencies.
- You would like to enhance your innovation and management skills.

Entrance to Minor

For admission to the minor, students must have completed ENGR 408. Students should apply during their sophomore year.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ENGR 407	Technology-Based Entrepreneurship	3
ENGR 408	Leadership Principles	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select two courses from this group:		6
ENGR 405	Project Management for Professionals	
ENGR 409	Leadership in Organizations	
ENGR 422	Leadership of International Virtual Engineering Teams	
ENGR 496	Independent Studies	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 6 credits in consultation with the coordinator of the Engineering Leadership Development Minor		6

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary

academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

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University Park

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Wilkes-Barre

Salvatore Marsico
Associate Professor
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sam4@psu.edu

Career Paths

Careers

Penn State students with a minor in Engineering Leadership Development have been successful in establishing careers as team leaders, managers, and entrepreneurs, in a wide variety of engineering, research, and education fields.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN ENGINEERING LEADERSHIP DEVELOPMENT (<https://career.engr.psu.edu/>)

Opportunities for Graduate Studies

Students with a minor in Engineering Leadership Development may be interested in the School of Engineering, Technology, and Professional Programs' Master of Engineering in Engineering Leadership and Innovation Management, graduate certificate in Engineering Leadership in Innovation Management, or graduate minor in Engineering Leadership in Innovation Management or numerous other advanced engineering studies offered by the College of Engineering.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.sedi.psu.edu/academics/graduate/>)

Contact

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<https://wilkesbarre.psu.edu/academics/minors/engineering-leadership/>
(<https://wilkesbarre.psu.edu/academics/minors/engineering-leadership/>)

Engineering Mechanics, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Engineering Mechanics minor helps students prepare to analyze and/or design simple structures that are efficient and safe under foreseen loading conditions.

Contemporary engineering design of mechanical components requires precise information and modern analysis techniques to determine material response to anticipated loading. Designers must have the analytical and experimental tools to accurately define deformation under load to characterize dynamic response and to prevent mechanical failure. In the event of failure the cause(s) must be ascertained to prevent future failure through redesign and/or material substitution. Thus, industry has a real need for those with a sound foundation in Engineering Mechanics, the engineering science that deals with the effects of forces and torques on rigid and deformable bodies. Engineering Mechanics consists of Statics (bodies in equilibrium), Dynamics (bodies in unsteady motion such as vibration, moving on curvilinear paths) and the Mechanics of Deformable Media. The latter topic covers the change in dimensions of bodies of various shapes under the influence of forces, torques, temperature, and dynamic motion. Further failure criteria under such loadings are introduced and utilized in examples of engineering design. Some twenty undergraduate courses covering the above topics are available at two levels, i.e. sophomore introductory and senior (400) courses.

What is Engineering Mechanics?

Engineering mechanics is the engineering science that deals with the effects of forces and torques on particles, rigid bodies, or deformable media. Mechanics is typically subdivided into statics, dynamics, and mechanics of deformable bodies. The Engineering Mechanics minor is for undergraduates who wish to supplement their engineering backgrounds with extensive study in mechanics. The high-tech industry has a significant need for individuals with a sound background in engineering mechanics. Industries such as aerospace, automotive, power, structures, and appliance regularly hire graduates who are competent in engineering mechanics.

You Might Like This Program If...

- You wish to wish to supplement your engineering background with extensive study in mechanics.
- You enjoyed your introductory courses in Statics, Dynamics, and Mechanics of Materials and would like to learn more.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules->

for-undergraduate-students/59-00-minors-and-certificates/#59-10). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 12 credits of EMCH courses, which may include the following:		12
EMCH 211	Statics	
EMCH 212	Dynamics	
EMCH 213	Strength of Materials	
EMCH 315	Mechanical Response of Engineering Materials	
EMCH 316	Experimental Determination of Mechanical Response of Materials	
Select 6 credits from 400-level EMCH courses		6

Academic Advising

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University Park

Mark Horn

Professor

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University Park, PA

814-865-0332

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Career Paths

The high-tech industry has a significant need for individuals with a sound background in engineering mechanics. Industries such as aerospace, automotive, power, structures, and appliance regularly hire graduates who are competent in engineering mechanics. Graduate students in engineering science and mechanics conduct innovative research with a diverse, award-winning faculty on interdisciplinary programs that address society's grand challenges.

Careers

Penn State engineering science and mechanics alumni are successful entrepreneurs, business executives, captains of industry, leaders in national laboratories, startup founders, physicians, professors, and academic officials. Starting salaries for engineering science graduates in past years have been among the highest for all graduates in the College of Engineering.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN ENGINEERING MECHANICS (<http://www.esm.psu.edu/academics/resources/career-resources.aspx>)

Opportunities for Graduate Studies

The ESM department offers the following graduate degree options:

- Master of Engineering (M.Eng.) in Engineering Mechanics
- Master of Engineering (M.Eng.) in Additive Manufacturing
- Master of Science (M.S.) in Engineering at the Nano-scale
- Master of Science (M.S.) in Engineering Science and Mechanics
- Master of Science (M.S.) in Additive Manufacturing
- Doctor of Philosophy (Ph.D.) in Engineering Science and Mechanics
- Doctor of Medicine and Doctor of Philosophy in Engineering Science and Mechanics (M.D./Ph.D.)
- Graduate Certificate in Laser-Materials Processing and Laser-Based Manufacturing

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<http://www.esm.psu.edu/academics/graduate/prospective-students.aspx>)

Contact

University Park

DEPARTMENT OF ENGINEERING SCIENCE AND MECHANICS

212 Earth and Engineering Sciences Building

University Park, PA 16802

814-865-4523

mwh4@psu.edu

<http://www.esm.psu.edu/>

Engineering Science, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

Engineering Science is a multidisciplinary honors program that emphasizes enhanced understanding and integrated application of engineering, scientific, and mathematical principles. The program is unique because it provides a broad foundation in the sciences and associated mathematics that underlie engineering and provides students the opportunity to obtain a depth of knowledge in an area of their choosing through technical electives and a research and design honors thesis. The curriculum is designed for students who seek to link the engineering disciplines with science. In addition to taking core courses in mathematics, physics and chemistry - (and biology for students in premedicine), students study thermodynamics, heat transfer, electromagnetics, solid and fluid mechanics, electrical devices, materials science, and topics selected as foundational and technical electives. During the junior year, students investigate a variety of research fields and identify a topic for their honor thesis research and design project. During the senior year, all students complete a capstone project on their chosen topic by writing a thesis that applies the scientific principles of research, design and analysis to engineering. Focus areas of study include, but are not limited to: electrical, mechanical, civil, biomedical, and materials engineering and are expected to be interdisciplinary. Hence, Engineering Science students achieve both depth and breadth

in engineering and science, are able to function across disciplines, and graduate well prepared for advanced studies as well as professional employment.

The specific program objectives are tied to the mission of the program as described above. They target the major outcomes expected of Engineering Science students and are flexible and readily adaptable to meet changing constituent needs.

Enrollment is limited to students who have demonstrated that they can benefit from the advanced courses of the curriculum; therefore a minimum grade-point average of 3.0 is required. Qualified students can participate in the integrated undergraduate graduate (IUG) program to streamline the process of earning B.S. and M.S. degrees. Interested students should contact their academic adviser.

What is Engineering Science?

Engineering science is a broad discipline that encompasses many different scientific principles and associated mathematics that underlie engineering. It integrates engineering, biological, chemical, mathematical, and physical sciences with the arts, humanities, social sciences, and the professions to tackle the most demanding challenges and advance the well-being of global society. The unique knowledge and interdisciplinary skill set of engineering scientists allows them to merge multidisciplinary resources to propose and develop innovative, enduring solutions and transform the latest scientific discoveries into enabling new technologies. Engineering scientists research, develop, and design new materials, devices, sensors, and processes for a diverse range of applications.

You Might Like This Program If...

- You are interested in, and excel at, science and math, and want to use your skills in these areas to research, develop, and design new products and processes in a wide variety of fields.
- You are interested in merging multidisciplinary resources to propose and develop innovative, enduring solutions and transforming the latest scientific discoveries into enabling new technologies.
- You're seeking to link science with the engineering disciplines such as electrical, mechanical, chemical, civil, and biomedical.
- You want an engineering curriculum and degree that you can tailor to your interests including research at the undergraduate level.
- You are in the Schreyer Honors College and want a curriculum that will automatically satisfy all requirements of the Honors College.

Entrance to Major

In order to be eligible for entrance to this major, students must satisfy the following requirements:

- 29-55 cumulative credits (excludes transfer and AP credits)
 - completed with a grade of C or better: EDSGN 100, CHEM 110, MATH 140, MATH 141, PHYS 211
 - earned a minimum cumulative grade-point average (GPA) of 3.00
- * In the event that the major is under enrollment control, a higher minimum cumulative grade-point average is likely to be needed and students must be enrolled in the College of Engineering or Division of Undergraduate Studies at the time of confirming their major choice.
- * Since Engineering Science is an honors program, admission is limited to students who attain a cumulative GPA of at least 3.0 by the end of the entrance to major semester. In the event that the major is under

enrollment control, a higher minimum cumulative grade-point average is likely to be needed and students must be enrolled in the College of Engineering or Division of Undergraduate Studies at the time of confirming their major choice.

Degree Requirements

For the Bachelor of Science degree in Engineering Science, a minimum of 131 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	113

27 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 9 credits of GWS courses.

For the non-Honors B.S. degree in Engineering Science, 131 credits and a 2.50 grade-point average are required. The Honors degree requires the same number of total credits but a minimum of 16 honors Jr./Sr. year credits and a higher grade-point average as determined by the faculty.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
CHEM 111	Experimental Chemistry I	1
EE 210	Circuits and Devices	4
EMCH 302H	Thermodynamics, Heat Conduction, and Principles of Modeling, Honors	4
ESC 312	Engineering Applications of Wave, Particle, and Ensemble Concepts	3
ESC 409	Senior Research and Design Project Preparation, Honors	1
ESC 410		3
ESC 411	Senior Research and Design Project II, Honors	2
ESC 433	Engineering Science Research Laboratory Experience	1
MATH 220	Matrices	2
MATH 230	Calculus and Vector Analysis	4
PHYS 214	General Physics: Wave Motion and Quantum Physics	2
<i>Prescribed Courses: Require a grade of C or better</i>		
CHEM 110	Chemical Principles I	3
EDSGN 100	Cornerstone Engineering Design	3
ENGL 202C	Effective Writing: Technical Writing	3
ESC 404	Analysis in Engineering Science	3
ESC 407	Computer Methods in Engineering Science, Honors	3
ESC 414M	Elements of Material Engineering	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
MATH 251	Ordinary and Partial Differential Equations	4

PHYS 211	General Physics: Mechanics	4
PHYS 212	General Physics: Electricity and Magnetism	4
Additional Courses		
Select 1 credit of First-Year Seminar		1
CMPSC 201	Programming for Engineers with C++	3
or ESC 261M	Computational Methods in Engineering	
Select one of the following:		3
ECON 14	Principles of Economics	
ECON 102	Introductory Microeconomic Analysis and Policy	
ECON 104	Introductory Macroeconomic Analysis and Policy	
<i>Additional Courses: Require a grade of C or better</i>		
CAS 100A	Effective Speech	3
or CAS 100B	Effective Speech	
EMCH 210H	Statics and Strength of Materials, Honors	5
or EMCH 210	Statics and Strength of Materials	
EMCH 212H	Dynamics	3
or EMCH 212	Dynamics	
ENGL 15	Rhetoric and Composition	3
or ENGL 30H	Honors Rhetoric and Composition	
Supporting Courses and Related Areas		
Select 15 credits from the department Foundational Elective List		15
Select 12 credits from the department Technical Elective List ¹		12

¹ Students may apply 3 credits of ROTC or 3 credits of co-op experience.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Engineering Science and M.S. in Engineering Science and Mechanics

Requirements for the Integrated B.S. in Engineering Science and M.S. in Engineering Science and Mechanics can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/engineering-science-mechanics/#integratedundergradgradprogramstext>).

Program Educational Objectives

The expected accomplishments of Engineering Science graduates in the first several years following graduation are:

1. acquire and apply new knowledge through lifelong learning activities including, but not limited to, masters, doctorate, medical, and law degrees, continuing education, leadership development, management training, innovation/entrepreneurship, and global involvement/awareness;
2. engage in practice in a wide variety of fields including, but not limited to, electrical systems, electronics, mechanical systems, materials development, forensics, biomaterials, medicine, law, and business in industry, academia and government;
3. research, develop, design and/or utilize new products, processes, materials, devices, systems, and/or tools;
4. communicate findings and best practices, at conferences and meetings, and to the general public through presentations, technical publications (journals, reports, memoranda), patents, and other media;
5. apply ethically and professionally the principles and latest tools of engineering, science, and mathematics for the benefit of society;
6. participate in and promote the values of diversity and sustainability in society; and
7. encourage and foster future generations of engineers through mentoring, service, and outreach.

Student Outcomes

Student outcomes describe what students are expected to know and be able to do by the time of graduation. The Engineering Science program is designed to enable students to:

1. Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. Apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. Communicate effectively with a range of audiences
4. Recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. Acquire and apply new knowledge as needed, using appropriate learning strategies.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the

habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Engineering Science, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

If you are starting at a campus other than the one this plan is ending at, please refer to: <http://advising.engr.psu.edu/degree-requirements/academic-plans-by-major.aspx>

First Year

Fall	Credits Spring	Credits
CHEM 110 (GN) ^{**†}	3 CHEM 111	1
ECON 102 or 104 (GS) [†]	3 ENGL 15, 30H, or ESL 15 (GWS) ^{††}	3
EDSGN 100 ^{*#}	3 ESC 261M or CMPSC 201	3
MATH 140 or 140E (GQ) ^{*†#†}	4 MATH 141 or 141E (GQ) ^{*†#†}	4
General Education Course [†]	3 PHYS 211 (PHYS 211L & PHYS 211R (GN)) ^{**†}	4
	First Year Seminar [†]	1
	16	16

Second Year

Fall	Credits Spring	Credits
EMCH 210H [*]	5 CAS 100A or 100B (GWS) ^{††}	3
MATH 220	2-3 EMCH 212H [*]	3
MATH 251 [*]	4 ME 302	4
PHYS 212 (PHYS 212L & PHYS 212R (GN)) ^{**†}	4 MATH 230	4
General Education Course [†]	3 PHYS 214	2
	18-19	16

Third Year

Fall	Credits Spring	Credits
EE 210	4 ESC 409	1
ESC 312	3 Foundational Elective	3
ESC 407*	3 Foundational Elective	3
ESC 414M*	3 Foundational Elective	3
ESC 433	1 Foundational Elective	3
General Education Course [†]	3 Foundational Elective	3
	17	16

Fourth Year

Fall	Credits Spring	Credits
ENGL 202C (GWS) ^{††}	3 ESC 411	2
ESC 404*	3 Technical Elective	3
ESC 410	3 Technical Elective	3
Technical Elective	3 General Education Course [†]	3
Technical Elective	3 General Education Course [†]	3
General Education Course (GHW) [†]	1.5 General Education Course (GHW) [†]	1.5
	16.5	15.5

Total Credits 131-132

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

College Notes:

- **CMPSC 201:** Students are expected to complete the version of CMPSC that is required for their intended major. The requirement varies across College of Engineering majors. Students should plan the CMPSC course requirement carefully with the assistance of an academic adviser.
- **Foundational Elective:** Select from department list.

- **Health and Physical Activity:** Students who complete the ROTC Program may substitute 3 ROTC credits for the GHW requirement.
- **Technical Elective:** Select from department list. A student may use **only one** of the following as a substitute for a Technical Elective: 3 co-op credits, provided the student completes three Cooperative Education Program rotations; 3 ROTC credits, provided the student completes the ROTC Program; or one 3-credit course required for a minor but not otherwise included in degree requirements, provided the student completes all the requirements of the minor.
- **These courses offered at University Park in fall semester only:**
 - EE 210
 - EMCH 210H
 - ESC 312
 - ESC 404
 - ESC 407
 - ESC 414M
 - ESC 433
- **These courses offered at University Park in spring semester only:**
 - EMCH 212H
 - ESC 261M
 - ME 302

Career Paths

Career opportunities for engineering science graduates are limited only by their imagination. Because of the breadth of their training, engineering scientists are well prepared to lead national and international interdisciplinary teams in a diverse array of science and engineering endeavors, in addition to careers in law, medicine, business, politics, and government service. Engineering science graduates are extremely well prepared for graduate study in most engineering disciplines, including mechanical, electrical, aerospace, industrial, and materials, as well as graduate study in physics and mathematics.

Careers

Penn State engineering science and mechanics alumni are successful entrepreneurs, business executives, captains of industry, leaders in national laboratories, startup founders, physicians, professors, and academic officials. Starting salaries for engineering science graduates in past years have been among the highest for all graduates in the College of Engineering.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE ENGINEERING SCIENCE PROGRAM (<http://www.esm.psu.edu/academics/resources/career-resources.aspx>)

Opportunities for Graduate Studies

The ESM department offers the following graduate degree options:

- Master of Engineering (M.Eng.) in Engineering Mechanics
- Master of Engineering (M.Eng.) in Additive Manufacturing
- Master of Science (M.S.) in Engineering at the Nano-scale
- Master of Science (M.S.) in Engineering Science and Mechanics
- Master of Science (M.S.) in Additive Manufacturing
- Doctor of Philosophy (Ph.D.) in Engineering Science and Mechanics
- Doctor of Medicine and Doctor of Philosophy in Engineering Science and Mechanics (M.D./Ph.D.)
- Graduate Certificate in Laser-Materials Processing and Laser-Based Manufacturing

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<http://www.esm.psu.edu/academics/graduate/prospective-students.aspx>)

Accreditation

The Bachelor of Science in Engineering Science at University Park is Accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Engineering, General Engineering, Engineering Physics, Engineering Science, and Similarly Named Engineering Programs.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

University Park

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<https://www.esm.psu.edu/>

Engineering, B.S.

Begin Campus: Abington, Brandywine, DuBois, Hazleton

End Campus: Abington, Brandywine, DuBois, Hazleton

Program Description

The Engineering program provides students with a broad foundation in engineering with specialization in a technically and professionally relevant topic. Students must choose the Multidisciplinary Engineering Design option at Abington, Brandywine and Great Valley campuses, Applied Materials option at the DuBois campus or the Alternative Energy and Power Generation option at the Hazleton campus. From this degree program, students will acquire the ability to work as members of a team toward successful attainment of a common goal, thus preparing them to work in for-profit or nonprofit organizations, or to further their studies in graduate school. Typical employment for General Engineering graduates includes positions such as engineer, product engineer, process engineer, manufacturing engineer, development engineer, and materials engineer. With employment opportunities such as these and others, graduates of the Engineering program can attain professional and economically sustaining employment in their desired regional area. This degree program develops written and oral communication skills, culminating in a two-semester senior design course sequence consisting of a project based largely on student interest and faculty input.

You Might Like This Program If...

- You have an interest in various different engineering disciplines and would like to diversify your skill set as much as possible.

- You want to concentrate your studies on product, process, and manufacturing engineering.
- You are passionate about the design and development of products.
- You have an interest in alternative and renewable energy and power generation.

Entrance to Major

In order to be eligible for entrance to this major, students must satisfy the following requirements by the end of the semester during which the admission to major process is carried out.

- Completed 29-55 cumulative credits (credits completed at Penn State for which a quality letter grade was earned)
- Completed with a C or better the following courses: EDSGN 100, CHEM 110, MATH 140, MATH 141, and PHYS 211
- Attained at least a 2.6 cumulative grade point average

* In the event that the major is under enrollment control, a higher minimum cumulative grade-point average is likely to be needed and students must be enrolled in the College of Engineering or Division of Undergraduate Studies at the time of confirming their major choice.

Degree Requirements

For the Bachelor of Science degree in General Engineering, a minimum of 127 credits are required:

Requirement	Credits
General Education	45
Requirements for the Major	109

27 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 9 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
CHEM 111	Experimental Chemistry I	1
EMCH 213	Strength of Materials	3
ENGR 490W	Senior Design I	1
ENGR 491W	Senior Design II	3
MATH 231	Calculus of Several Variables	2
PHYS 214	General Physics: Wave Motion and Quantum Physics	2
<i>Prescribed Courses: Require a grade of C or better</i>		
CHEM 110	Chemical Principles I	3
EDSGN 100	Cornerstone Engineering Design	3
EMCH 211	Statics	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4

MATH 251	Ordinary and Partial Differential Equations	4
PHYS 211	General Physics: Mechanics	4
PHYS 212	General Physics: Electricity and Magnetism	4

Additional Courses

Select 1 credit of First-Year Seminar		1
ECON 102	Introductory Microeconomic Analysis and Policy	3
or ECON 104	Introductory Macroeconomic Analysis and Policy	
Select one of the following:		3
CMPSC 121	Introduction to Programming Techniques	
CMPSC 200	Programming for Engineers with MATLAB	
CMPSC 201	Programming for Engineers with C++	

Additional Courses: Require a grade of C or better

CAS 100A	Effective Speech	3
or CAS 100B	Effective Speech	
ENGL 15	Rhetoric and Composition	3
or ENGL 30H	Honors Rhetoric and Composition	
ENGL 202C	Effective Writing: Technical Writing	3
or ENGL 202D	Effective Writing: Business Writing	
Select one of the following:		3
EMCH 407	Computer Methods in Engineering Design	
EMCH 461	Finite Elements in Engineering	
ENGR 350	Computational Modeling Methods	

Supporting Courses and Related Areas

Select 4 credits in General Technical Electives, in consultation with an adviser, from the program approved list. 4

Requirements for the Option

Select an option 45

Requirements for the Option**Applied Materials Option (45 credits)***Available at the following campuses: DuBois*

Code	Title	Credits
Prescribed Courses		
CHEM 112	Chemical Principles II	3
CHEM 202	Fundamentals of Organic Chemistry I	3
ENGR 320	Materials Properties Measurement I	3
ENGR 421	Materials Properties Measurements II	4
ENGR 450	Materials Design and Applications	3
MATSE 202	Introduction to Polymer Materials	3
MATSE 400	Crystal Chemistry	3
MATSE 402	Materials Process Kinetics	3
MATSE 411	Processing of Ceramics	3
MATSE 413	Solid-State Materials	3
MATSE 417	Electrical and Magnetic Properties	3
MATSE 430	Materials Characterization	3
<i>Prescribed Courses: Require a grade of C or better</i>		
MATH 220	Matrices	2
MATSE 201	Introduction to Materials Science	3

Additional Courses*Additional Courses: Require a grade of C or better*

ME 300	Engineering Thermodynamics I	3
or EME 301	Thermodynamics in Energy and Mineral Engineering	

Alternative Energy and Power Generation Option (45 credits)*Available at the following campuses: Hazleton*

Code	Title	Credits
Prescribed Courses		
CHEM 112	Chemical Principles II	3
CHEM 113	Experimental Chemistry II	1
EE 314	Signals and Circuits II	3
EE 485	Energy Systems and Conversion	3
EGEE 302	Principles of Energy Engineering	3
EGEE 420	Hydrogen and Fuel Cells	3
EME 303	Fluid Mechanics in Energy and Mineral Engineering	3
ME 345	Instrumentation, Measurements, and Statistics	4

Prescribed Courses: Require a grade of C or better

EE 210	Circuits and Devices	4
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Additional Courses

Select 9 credits from the following:		9
EE 488	Power Systems Analysis I	
EGEE 437	Design of Solar Energy Conversion Systems	
EGEE 438	Wind and Hydropower Energy Conversion	
EGEE 441	Electrochemical Engineering Fundamentals	
NUCE 401	Introduction to Nuclear Engineering	

Additional Courses: Require a grade of C or better

ME 300	Engineering Thermodynamics I	3
or EME 301	Thermodynamics in Energy and Mineral Engineering	

Supporting Courses and Related Areas

Select 6 credits in Engineering Technical Elective courses, any 400-level courses in the College of Engineering or any 400-level courses with the Energy and Geoenvironmental Engineering (EGEE) abbreviation. Other substitutions outside the approved list must be approved by petition. 6

Multidisciplinary Engineering Design Option (45 credits)*Available at the following campuses: Abington, Brandywine*

Code	Title	Credits
Prescribed Courses		
CMPEN 271	Introduction to Digital Systems	3
EDSGN 401	Engineering Systems Design	3
EDSGN 402	Materials and Manufacturing	4
EDSGN 403	Product Realization	3
EDSGN 495	Internship	1
EE 316	Introduction to Embedded Microcontrollers	3
ENGR 407	Technology-Based Entrepreneurship	3
<i>Prescribed Courses: Require a grade of C or better</i>		
EDSGN 410	Robotics Design and Applications	4
EE 210	Circuits and Devices	4
EE 310	Electronic Circuit Design I	4
EMCH 212	Dynamics	3

Additional Courses

CHEM 112	Chemical Principles II (or any GN)	3
CHEM 113	Experimental Chemistry II (or any GN)	1

Additional Courses: Require a grade of C or better

Select one of the following: 3

EME 301	Thermodynamics in Energy and Mineral Engineering
ME 201	Introduction to Thermal Science
ME 300	Engineering Thermodynamics I

Supporting Courses and Related Areas

Select 3 credits in Engineering Technical Elective courses, in consultation with an adviser, from department list. 3

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Educational Objectives

The Engineering program offers a broad and cross-disciplinary curriculum that prepares students in a variety of technical areas and professional skills for the practice and future development in their profession. Due to their experience in our program, within few years of graduation, we expect our graduates to have the ability to:

1. Practice engineering in their chosen area in the private industry or the government.
2. Assume an increasing level of responsibility and leadership within their respective organizations.
3. Communicate effectively and work collaboratively with internal and external stakeholders in multidisciplinary, advanced technological and multicultural work environments.
4. Maintain a strong commitment to ethical practice with sensitivity for environmental, societal, and economic contexts at local and global levels.
5. Engage in continuous learning through graduate school, professional training programs, and independent study.

Student Outcomes

Student outcomes describe what students are expected to know and be able to do by the time of graduation. The B.S. Engineering program is designed to enable students to:

1. Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. Apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors

- Communicate effectively with a range of audiences
- Recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
- Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
- Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
- Acquire and apply new knowledge as needed, using appropriate learning strategies.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Multi-Disciplinary Engineering Design Option: Engineering, B.S. at Abington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

If you are starting at a campus other than the one this plan is ending at, please refer to: <http://advising.engr.psu.edu/degree-requirements/academic-plans-by-major.aspx>

First Year

Fall	Credits Spring	Credits
CHEM 110 (GN)*#	3 CAS 100A or 100B (GWS) ^{††}	3
CHEM 111	1 CHEM 112 (or any GN)	3
EDSGN 100*#	3 CHEM 113 (or any GN)	1
ENGL 15, 30H, or ESL 15 (GWS) ^{††}	3 General Education Course (GHW)	1.5
First Year Seminar	1 MATH 141 (GQ) ^{*#†}	4
MATH 140 (GQ) ^{*#†}	4 PHYS 211*#	4
	15	16.5

Second Year

Fall	Credits Spring	Credits
CMPEN 271	3 EMCH 212*	3
CMPSC 121, 201, or 200	3 EMCH 213	3
EMCH 211*	3 MATH 251*	4
MATH 231	2 PHYS 214	2

PHYS 212*	4 General Education Course	3	
15		15	
Third Year			
Fall	Credits Spring	Credits Summer	Credits
EE 210*	4 EE 316	3 EDSGN 495	1
ECON 102 or 104†	3 EE 310*	4	
EDSGN 401	3 ENGL 202C (GWS)‡	3	
ME 201, 300, or EME 301*	3 EDSGN 402	4	
General Education Course	3 General Education Course	3	
16		17	
Fourth Year			
Fall	Credits Spring	Credits	
EDSGN 410*	4 Engr. Tech. Elective (ETE) EDSGN 420 or ME 480	3	
ENGR 350*	3 ENGR 407	3	
ENGR 490W	1 ENGR 491W	3	
EDSGN 403	3 General Education Course	3	
General Education Course (GHW)	1.5 General Education Course	3	
General Technical Elective(s) (GTE)	4		
16.5		15	

Total Credits 127

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain

attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

College Notes:

- General Technical Electives (GTE) are four credits of engineering, science or mathematics at a similar or higher level required for the major. Choose at least four credits from the program approved list of courses: BIOL 141 (3), BIOL 142 (1), CHEM 202 (3), CHEM 210 (3), CMPEN 270 (4), CMPEN 275 (1), EDSGN 110 (2), EDSGN 210 (2), EMCH 315 (2), EMCH 316 (1), MATH 220 GQ (2-3), MATH 232 (2) and PHYS 213 (2). Other GTE credits will be considered through the petition process.
- Upper division engineering courses will be offered in combination at both Penn State Abington and Penn State Great Valley
- EDSGN 495 (1) requires 300 hours of work and may be scheduled during the summer semester after the second or third year

Course Lists:

General Technical Electives (GTE) are 4 credits of engineering, science, or mathematics at a similar or higher level required for the major. Choose from:

- BIOL 141 Introduction to Human Physiology (3 cr.)
- BIOL 142 Physiology Laboratory (1 cr.)
- CHEM 202 Fundamentals of Organic Chemistry I (3 cr.) or CHEM 210 Organic Chemistry I (3 cr.)
- CMPEN 270 Digital Design: Theory and Practice (4 cr.)
- CMPEN 275 Digital Design Laboratory (1 cr.)
- EDSGN 110 Spatial Analysis in Engineering Design (2 cr.)
- EDSGN 210 Tolerancing and Spatial Models (2 cr.)
- EMCH 212 Dynamics (3 cr.) (Alternative Energy and Power Distribution Option only)
- EMCH 315 Mechanical Response of Engineering Materials (2 cr.)
- EMCH 316 Experimental Determination of Mechanical Response of Materials (1 cr.)
- MATH 220 Matrices (2-3 cr.)
- MATH 232 Integral Vector Calculus (2 cr.)
- MATH 310 Elementary Combinatorics (3 cr.)
- PHYS 213 General Physics: Fluids and Thermal Physics (2 cr.)

Other GTE credits will be considered through the petition process.

Engineering Technical Electives are 3 credits of engineering courses at the 300 or 400 level. Choose from:

- EDSGN 420 Advanced Robotics Design and Applications (3 cr.)
- ME 380 Machine Dynamics (3 cr.)
- ME 345 Instrumentation, Measurements, and Statistics (4 cr.)
- ME 357 System Dynamics (3 cr.)
- ME 480 Mechanism Design and Analysis (3 cr.)

Students are expected to complete the version of CMPSC that is required for their intended major. The requirement varies across College of Engineering majors. Students should plan the CMPSC course requirement carefully with the assistance of an academic adviser.

These courses offered at Abington in fall semester only:

- CMPEN 271 Introduction to Digital Systems (3 cr.)
- EMCH 211 Statics (3 cr.)

These courses offered at Abington in spring semester only:

- CHEM 112 Chemical Principles II (3 cr.)
- CHEM 113 Experimental Chemistry II (1 cr.)
- EE 210 Circuits and Devices (4 cr.)
- EMCH 212 Dynamics (3 cr.)
- EMCH 213 Strength of Materials (3 cr.)
- MATH 251 Ordinary and Partial Differential Equations (4 cr.)
- PHYS 214 General Physics: Wave Motion and Quantum Physics (2 cr.)

Multi-Disciplinary Engineering Design Option: Engineering, B.S. at Brandywine Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

If you are starting at a campus other than the one this plan is ending at, please refer to: <http://advising.engr.psu.edu/degree-requirements/academic-plans-by-major.aspx>

First Year

Fall	Credits Spring	Credits
CHEM 110 (GN) ^{*#}	3 CAS 100A or 100B (GWS) [‡]	3
CHEM 111	1 CHEM 112 (or any GN)	3
EDSGN 100 ^{*#}	3 CHEM 113 (or any GN)	1
ENGL 15, 30H, or ESL 15 (GWS) ^{‡†}	3 General Education Course (GHW)	1.5
First Year Seminar	1 MATH 141 (GQ) ^{*‡#}	4
MATH 140 (GQ) ^{*‡#}	4 PHYS 211 (GN) ^{*#}	4
	15	16.5

Second Year

Fall	Credits Spring	Credits
CMPEN 271	3 EMCH 212 [*]	3
CMPSC 121, 200, or 201	3 EMCH 213	3
EMCH 211 [*]	3 MATH 251 [*]	4
MATH 231	2 PHYS 214	2
PHYS 212 [*]	4 General Education Course	3
	15	15

Third Year

Fall	Credits Spring	Credits Summer	Credits
EE 210 [*]	4 EE 316	3 EDSGN 495	1
ECON 102 or 104 [†]	3 EE 310 [*]	4	
EDSGN 401	3 ENGL 202C [‡]	3	
ME 201, 300, or EME 301 [*]	3 EDSGN 402	4	
General Education Course	3 General Education Course	3	
	16	17	1

Fourth Year

Fall	Credits Spring	Credits
EDSGN 410 [*]	4 Engr. Tech. Elective (ETE) EDSGN 420 or ME 480	3
ENGR 350 [*]	3 ENGR 407	3
ENGR 490W	1 ENGR 491W	3
EDSGN 403	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course	3
General Technical Elective(s) (GTE)	4	
	16.5	15

Total Credits 127

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

College Notes:

- General Technical Electives (GTE) are four credits of engineering, science or mathematics at a similar or higher level required for the major. Choose at least four credits from the program approved list of courses: BIOL 141 (3), BIOL 142 (1), CHEM 202 (3), CHEM 210 (3), CMPEN 270 (4), CMPEN 275 (1), EDSGN 110 (2), EDSGN 210 (2), EMCH 315 (2), EMCH 316 (1), MATH 220 GQ (2-3), MATH 232 (2) and PHYS 213 (2). Other GTE credits will be considered through the petition process.
- Upper division engineering courses will be offered at Penn State Great Valley.
- **EDSGN 495 (1) requires 300 hours of work and may be scheduled during the summer semester after the second or third year.**

Applied Materials Option: Engineering, B.S. at DuBois Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

If you are starting at a campus other than the one this plan is ending at, please refer to: <http://advising.engr.psu.edu/degree-requirements/academic-plans-by-major.aspx>

First Year		
Fall	Credits Spring	Credits
CHEM 110 (GN) ^{*#}	3 CAS 100 (GWS) ^{††}	3
CHEM 111	1 CHEM 112 (GN)	3
EDSGN 100 ^{*#}	3 CHEM 202	3
ENGL 15, 30H, or ESL 15 (GWS) ^{††}	3 MATH 141 (GQ) ^{**†}	4
First Year Seminar	1 PHYS 211 (GN) ^{*#}	4
MATH 140 (GQ) ^{*†#}	4	
	15	17
Second Year		
Fall	Credits Spring	Credits
ECON 102 or 104 [†]	3 CMPSC 121, 200, or 201	3
EMCH 211 [*]	3 EMCH 213	3
General Education Course	3 MATH 251 ^{*†}	4
General Education Course (GHW)	1.5 ME 300 or EME 301 [*]	3
MATH 231	2 PHYS 214 [*]	2
PHYS 212 [*]	4 General Education Course (GHW)	1.5
	16.5	16.5
Third Year		
Fall	Credits Spring	Credits
General Education Course	3 ENGR 320	3
General Technical Elective	4 ENGR 350 [*]	3
MATH 220	2 MATSE 400	3
MATSE 201 [*]	3 MATSE 413	3
MATSE 202	3 ENGL 202C ^{††}	3
	15	15
Fourth Year		
Fall	Credits Spring	Credits
ENGR 421 [*]	4 ENGR 450	3
ENGR 490W	1 ENGR 491W	3
General Education Course	3 General Education Course	3
General Education Course	3 MATSE 411	3
MATSE 402	3 MATSE 417 or ESC 417	3
MATSE 430	3	
	17	15
Total Credits 127		

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

College Notes:

- General Technical Electives are 4 credits of engineering, science or mathematics at a similar or higher level required for the major.
- **Choose from:** BIOL 141 GN (3), BIOL 142 (1), CHEM 113 (1), CMPEN 270 (4), CMPEN 271 (3), CMPEN 275 (1), EDSGN 110 (2), EDSGN 210 (2), EMCH 212 (3) (Applied Materials and Alternative Energy & Power Generation Options only), EMCH 315 (2), EMCH 316 (1), MATH 232 (2), MATH 310 (3), and PHYS 213 GN (2).
- Other GTE credits will be considered through the petition process.

Alternative Energy and Power Generation Option: Engineering, B.S. at Hazleton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

If you are starting at a campus other than the one this plan is ending at, please refer to: <http://advising.engr.psu.edu/degree-requirements/academic-plans-by-major.aspx>

First Year

Fall	Credits Spring	Credits
MATH 140 ^{*†#}	4 MATH 141 ^{*†#}	4
CHEM 110 ^{*#†}	3 PHYS 211 ^{*#†}	4
CHEM 111 [†]	1 CHEM 112 [†]	3
ENGL 15 or 30H ^{††}	3 CHEM 113 [†]	1
EDSGN 100 ^{*#}	3 ECON 102 or 104 [†]	3
PSU 8	1 CAS 100A or 100B ^{††}	3
	15	18

Second Year

Fall	Credits Spring	Credits
MATH 251 [*]	4 MATH 231	2
PHYS 212 ^{*†}	4 EE 210 [*]	4
EMCH 211 [*]	3 EMCH 213	3
CMPSC 200 ²	3 ME 300 [*]	3
GTE - General Tech Elective ¹	3 General Education Course	3
	17	15

Third Year

Fall	Credits Spring	Credits
EE 314	3 ENGR 350 [*]	3
EME 303	3 PHYS 214 [†]	2
ME 345	4 ENGL 202C or 202D ^{††}	3
General Education Course	3 General Education Course (GHW)	1.5
GTE - General Tech Elective ¹	1 EGEE 302	3
General Education Course (GHW)	1.5 NUCE 401 (Engrg. Tech. Elective) ³	3
	15.5	15.5

Fourth Year

Fall	Credits Spring	Credits
EE 485	3 EE 488 (Engrg. Tech. Elective) ³	3
EGEE 437 (Engrg. Tech. Elective) ³	3 EGEE 420	3
EGEE 438 (Engrg. Tech. Elective) ³	3 ENGR 491W	3
EGEE 441 (Engrg. Tech. Elective) ³	3 General Education Course	3
ENGR 490W	1 General Education Course	3

General Education Course	3
	16
	15

Total Credits 127

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

- ¹ General Technical Electives (GTE) are 4 credits of engineering, science, or mathematics at a similar or higher level required for the major. Consultation with adviser is recommended to select the proper course.
- ² Students can take CMPSC 200, CMPSC 201 or CMPSC 121. Consultation with adviser is recommended to select the proper course.
- ³ Select 9 credits from NUCE 401, EE 488, EGEE 437, EGEE 438, EGEE 441 and 6 Engineering Technical Elective credits from any 400 level Engineering or EMS course. See adviser for details.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

Graduates from the engineering program have built successful careers in a variety of fields including systems engineering, design, process engineering, product development, manufacturing, materials, and energy and power.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE ENGINEERING PROGRAM (<http://career.engr.psu.edu/>)

Opportunities for Graduate Studies

Graduates from the engineering program may advance their education with a graduate degree in a multitude of science, engineering, and technology fields.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<http://www.engr.psu.edu/students/grad-prospective/default.aspx>)

Accreditation

The Bachelor of Science in Engineering at Penn State Abington, Penn State Brandywine, Penn State DuBois, and Penn State Great Valley is accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Engineering, General Engineering, Engineering Physics, Engineering Science, and Similarly Named Engineering Programs.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

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213 Hammond Building
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814-865-2952

<https://www.sedi.psu.edu/>

Abington

DIVISION OF SCIENCE AND ENGINEERING
1600 Woodland Road
Abington, PA 19001
215-881-7358
rla5@psu.edu

<http://abington.psu.edu/engineering> (<http://abington.psu.edu/engineering/>)

Brandywine

25 Yearsley Mill Road
Media, PA 19063
610-892-1444
nmz5171@psu.edu

<http://brandywine.psu.edu/general-engineering> (<http://brandywine.psu.edu/general-engineering/>)

DuBois

1 College Place
DuBois, PA 15801
814-375-4835
drw29@psu.edu

<http://dubois.psu.edu/bs-engineering-applied-materials-option> (<http://dubois.psu.edu/bs-engineering-applied-materials-option/>)

Hazleton

Kostos 113
76 University Drive
Hazleton, PA 18202
570-450-3084
wxy40@psu.edu

<http://hazleton.psu.edu/bachelor-science-general-engineering> (<http://hazleton.psu.edu/bachelor-science-general-engineering/>)

Environmental Engineering, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

This minor is designed to provide students in engineering, science, and other majors with a comprehensive study of environmental issues and the skills necessary to solve problems associated with environmental pollution.

What is Environmental Engineering?

The challenges in our modern society are complex and multi-faceted, demanding solutions across a wide range of disciplines. Environmental engineers have long recognized the need for convergence across disciplines to find sustainable solutions to water and climate issues that have broad societal importance. Penn State's Environmental Engineering Minor is an interdisciplinary program administered by the Department of Civil and Environmental Engineering. This minor is designed to provide students in engineering, science, and other majors with a comprehensive study of environmental issues and the skills necessary to solve problems associated with environmental pollution and climate change. A certificate is awarded to students who complete the requirements of the minor.

You Might Like This Program If...

Environmental engineers use principles from engineering, chemistry, biology, and geology to solve environmental problems. Relevant issues include water treatment and remediation, waste disposal, air pollution, and energy production. Students enrolled in the minor may select from a suite of classes that develop the fundamental skills needed to address these problems. Multiple courses not listed in the requirements section can be approved to count towards the minor through the course substitution request system.

Entrance to Minor

For entrance into the minor, students must be at least fifth-semester standing and have completed:

Code	Title	Credits
CHEM 110	Chemical Principles I	3
MATH 141	Calculus with Analytic Geometry II	4
PHYS 211	General Physics: Mechanics	4

Program Requirements

Requirement	Credits
Requirements for the Minor	18

The minor consists of 18 credits, at least 6 of which must be at the 400 level.

Requirements for the Minor

2 credits of engineering design are included.

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CE 370	Introduction to Environmental Engineering	3

Additional Courses

Additional Courses: Require a grade of C or better

Chemistry and Biological Sciences

Select one of the following: 3

BE 308 Engineering Elements of Biochemistry and Microbiology

CE 479 Environmental Microbiology for Engineers

CHEM 202 Fundamentals of Organic Chemistry I

CHEM 210 Organic Chemistry I

Process Engineering

Select 0-3 credits of the following: 0-3

BE 302 Heat and Mass Transfer in Biological Systems

CHE 210 Introduction to Material Balances

EGEE 302 Principles of Energy Engineering

MNPR 301 Elements of Mineral Processing

NUCE 430 Design Principles of Reactor Systems

Applied Fluid Mechanics

Select one of the following: 3

AERSP 308 Mechanics of Fluids

BE 467 Design of Stormwater and Erosion Control Facilities

CE 371 Water and Wastewater Treatment

CE 462 Open Channel Hydraulics

CHE 330 Process Fluid Mechanics

EME 303 Fluid Mechanics in Energy and Mineral Engineering

ME 320 Fluid Flow

METEO 454 Introduction to Micrometeorology

NUCE 431W Nuclear Reactor Core Design Synthesis

Environmental Sciences and Design

Select 6-9 credits of the following: 6-9

BE 468 Microbiological Engineering

BE 477 Land-Based Waste Disposal

CE 472W Environmental Engineering Capstone Design

CE 475 Water Quality Chemistry

CE 476 Solid and Hazardous Wastes

CHEM 402 Environment Chemistry: Atmosphere

EGEE/ME 430 Introduction to Combustion

EGEE 470 Air Pollutants from Combustion Sources

ENVSE 408 Contaminant Hydrology

ENVSE 427 Pollution Control in the Process Industries

ERM 411 Legal Aspects of Resource Management

ERM 412 Resource Systems Analysis

ERM 413W Case Studies in Ecosystem Management

ERM 447 Stream Restoration

ERM 450 Wetland Science and Sustainability

FSC 431 The Chemistry of Fuels

GEOSC 452 Hydrogeology

ME 405 Indoor Air Quality Engineering

ME 433 Fundamentals of Air Pollution

NUCE 405 Nuclear and Radiochemistry

NUCE 420 Radiological Safety

NUCE 428 Radioactive Waste Control

SOILS 420 Remediation of Contaminated Soils

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park**Nathaniel Warner**

Associate Professor

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Career Paths

If your goals are to enter industry or academia students who complete a minor can apply for a wide range of graduate school programs and jobs focused on engineering and sustainability to solve the world's problems. Environmental engineers often work in interdisciplinary collaborative groups with other fields such as chemists, biologists or geoscientists-increasing the importance of course work preparation.

Careers

Environmental engineers help create sustainable solutions to problems faced in society. Examples include the renovation of the current aging and energy-intensive water infrastructure as well as solutions and adaption to changes in climate. Careers can include environmental consulting, sustainability officers, water resource and air quality engineers, and environmental compliance officers.

Opportunities for Graduate Studies

Students will take courses from multiple disciplines to provide the adequate depth and breadth so that they can pursue graduate studies. Here at Penn State we offer multiple advanced degrees, including a MEng (no thesis, typically 1 to 1.5 years to complete), MS (~ 2 years to complete), and PhD (~ 5 years to complete) in Environmental Engineering.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.cee.psu.edu/academics/graduate/>)

Contact**University Park**

DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING

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Housing, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

This certificate program is designed to prepare students for a career in the housing industry. Students are required to take a set of complementary courses in the technology of housing, the development process, and the design and the delivery processes for housing. The minimum number of credits required is 12, with no less than six credits at the 400-level.

What is Housing?

This program is designed to provide undergraduate students with a means of developing some basic knowledge of housing and preparing for a career in the housing industry. Housing, from low-rise detached houses to multi-unit, multi-story apartment buildings, from motels to high-rise hotels, from student residences to rural housing, is a major and vital component of the built environment. New single-family housing represents at least 4% of the GDP, and housing and its consequences account for about 12% of the GDP. With a national housing stock in excess of 110,000,000 units, the maintenance, operation, repair - and especially the upgrading, retrofit and remodeling of the existing stock - are a very important component of the national economy. Engineers have many important roles to play in the housing business, especially with the developmental, economic and technical aspects of housing.

You Might Like This Program If...

You are passionate about housing and pursuing a career in the housing industry. Students are typically involved with the National Association of Home Builders (NAHB) Student Chapter at Penn State and/or student competition teams like the NAHB Student Competition and U.S. Department of Energy Race to Zero competition. This certificate will also help you to increase your competitiveness for employment in the residential construction industry.

Entrance to Certificate

For entrance into the certificate program, students must be at least 5th semester. The cumulative GPA considered for admission will be consistent with, or equivalent to, the GPA minimum of 2.00 for maintaining good academic standing. Students must earn a C grade or better in each of the four courses to continue with the certificate.

Program Requirements

To earn an undergraduate certificate in Housing, a minimum of 12 credits is required.

Code	Title	Credits
Prescribed Courses		
AE 470	Residential Building Design and Construction	3
Additional Courses		
Students must complete an application and choose an additional three courses of the following: ¹		9
AE 432	Design of Masonry Structures	

AE/CE 542	Building Enclosure Science and Design
BE 462	Design of Wood Structures
CE 410W	
RM 303	Real Estate Fundamentals

¹ With the approval of the Hankin Chair, one housing-related course of at least 3 credits not included in the list of recommended additional courses (e.g., demographics, urban geography, social housing, etc.) can be substituted for one of the three additional courses.

Student must be at least fifth semester standing. The cumulative GPA considered for admission will be consistent with, or equivalent to, the GPA minimum of 2.0 for maintaining good academic standing. Students must earn a C grade or better in each of the four courses to continue with the certificate.

Prerequisites Required.

Certificate Learning Objectives

- **Building Design:** Students will be able to demonstrate knowledge of design methods for several different systems within residential buildings for safety, comfort, energy efficiency, and affordability, among other criteria.
- **Building Science and Moisture Management:** Students will be able to demonstrate a basic understanding of building science that will help them in developing more sustainable, durable, and energy efficient homes. In particular, understanding the moisture related problems helps students to better address the stated learning objective.
- **Residential Construction Industry and Management:** Students will be able to demonstrate basic knowledge of housing construction industry and its role in local and national economy as well as some residential construction management.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Career Paths

The Pennsylvania Housing Research Center (PHRC) hosts an annual career fair for the residential construction industry. This event offers opportunities for full-time employment and summer internships.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A CERTIFICATE IN HOUSING (<http://phrc.psu.edu/Student-Education/Career-Fair/2017-Career-Fair.aspx>)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<http://www.cee.psu.edu/academics/graduate/>)

Contact

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Industrial Engineering, B.S. (Engineering)

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The undergraduate program in industrial engineering, being the first established in the world, has a long tradition of providing a strong, technical, hands-on education in design, control, and operation of manufacturing processes and systems. The curriculum provides a broad-based education in manufacturing, operations research and ergonomics through a base of mathematics, physical and engineering sciences, and laboratory and industrial experiences. It builds a strong foundation for the development of a professionally competent and versatile industrial engineer, able to function in a traditional manufacturing environment as well as in a much broader economy, including careers in financial services, communication, information technology, transportation, health care, consulting, or academia.

After completing courses required for the core and fundamental competencies in the major, students can choose two IE technical elective courses from a department list. In addition, students must also complete the three-credit capstone design course.

What is Industrial Engineering?

Industrial Engineering is rooted in the sciences of engineering, the study of systems, and the management of people. Industrial engineers are big-picture problem solvers who optimize complex engineering systems and processes. They bring together people, machinery, materials, information, energy, and financial resources to improve efficiency, performance, quality, and safety while reducing cost and waste. According to the Institute of Industrial & Systems Engineers, Industrial Engineers "work to eliminate waste of time, money, materials, energy, and other commodities." Because it is a broad and versatile discipline, study of

industrial engineering prepares you for careers in every sector of the economy.

You Might Like This Program If...

Largely based in math and science, while incorporating business and psychology, the industrial engineering program is designed to prepare students to become leaders in engineering. We provide students with a comprehensive education in human factors/ergonomics; manufacturing; operations research; and supply chain/service engineering through coursework and hands-on experience. Our students become innovators who discover new solutions that address evolving challenges in a wide variety of sectors including academia, banking, communications, consulting, healthcare, information technology, transportation, etc.

Entrance to Major

In order to be eligible for entrance to this major, students must satisfy the following requirements by the end of the semester during which the admission to major process is carried out.

- Completed 29-55 cumulative credits (credits completed at Penn State for which a quality letter grade was earned)
- Completed with a C or better the following courses: EDSGN 100, CHEM 110, MATH 140, MATH 141, and PHYS 211
- Attained at least a 2.6 cumulative grade point average

* In the event that the major is under enrollment control, a higher minimum cumulative grade-point average is likely to be needed and students must be enrolled in the College of Engineering or Division of Undergraduate Studies at the time of confirming their major choice.

Degree Requirements

For the Bachelor of Science degree in Industrial Engineering, a minimum of 129 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	111

27 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 9 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
CHEM 111	Experimental Chemistry I	1
IE 425	Stochastic Models in Operations Research	3
IE 453	Simulation Modeling for Decision Support	3
IE 460	Service Systems Engineering	3
IE 470	Manufacturing System Design and Analysis	3
IE 480W	Capstone Design Project	3
MATH 220	Matrices	2

MATH 231	Calculus of Several Variables	2
MATH 250	Ordinary Differential Equations	3
MATSE 259	Properties and Processing of Engineering Materials	3
PHYS 212	General Physics: Electricity and Magnetism	4
<i>Prescribed Courses: Require a grade of C or better</i>		
CHEM 110	Chemical Principles I	3
EDSGN 100	Cornerstone Engineering Design	3
EMCH 210	Statics and Strength of Materials	5
ENGL 202C	Effective Writing: Technical Writing	3
IE 302	Engineering Economy	3
IE 305	Product Design, Specification and Measurement	3
IE 322	Probabilistic Models in Industrial Engineering	3
IE 323	Statistical Methods in Industrial Engineering	3
IE 327	Introduction to Work Design	3
IE 330	Engineering Analytics	3
IE 405	Deterministic Models in Operations Research	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
PHYS 211	General Physics: Mechanics	4

Additional Courses

Select 1 credit of First-Year Seminar		1
CMPSC 200	Programming for Engineers with MATLAB	3
or CMPSC 201	Programming for Engineers with C++	
ECON 102	Introductory Microeconomic Analysis and Policy	3
or ECON 104	Introductory Macroeconomic Analysis and Policy	
Select one of the following: ¹		3
IE 408	Cognitive Work Design	
IE 418	Human/Computer Interface Design	
IE 419	Work Design - Productivity and Safety	

Additional Courses: Require a grade of C or better

CAS 100A	Effective Speech	3
or CAS 100B	Effective Speech	
ENGL 15	Rhetoric and Composition	3
or ENGL 30H	Honors Rhetoric and Composition	

Supporting Courses and Related Areas

Select 3 credits as a science selection from department list		3
Select 6 credits as non-major electives from department list ²		6
Select 3 credits in manufacturing processes from department list ¹		3
Select 6 credits of technical electives from the department list; all 6 credits must be IE credits		6

¹ The course not taken to satisfy this requirement can be taken as a technical elective. Please see the department list.

² Please see the department list.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements

of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- Quantification (GQ): 6 credits
- Writing and Speaking (GWS): 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- Arts (GA): 3 credits
- Health and Wellness (GHW): 3 credits
- Humanities (GH): 3 credits
- Social and Behavioral Sciences (GS): 3 credits
- Natural Sciences (GN): 3 credits

Integrative Studies

- Inter-Domain Courses (Inter-Domain): 6 credits

Exploration

- GN, may be completed with Inter-Domain courses: 3 credits
- GA, GH, GN, GS, Inter-Domain courses. This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Educational Objectives

Within three to five years after graduation, we anticipate graduates will:

1. Participate in and lead cross-functionally defined project teams, designing, implementing and improving processes, products and systems in the manufacturing, service or government sectors.
2. Work effectively in managerial and leadership positions, to establish and execute engineering and business strategies.
3. Work and communicate effectively with internal and external stakeholders in the global environment, while satisfying engineering, business and financial goals, and the end customers.
4. Embrace the importance of continuous learning through varied work assignments, graduate school, professional training programs and independent study, for the purpose of ongoing professional development.
5. Demonstrate proficiency in data analysis using state-of-the art tools, to assist with decision-making.

Student Outcomes

Student outcomes describe what students are expected to know and be able to do by the time of graduation. The Industrial Engineering program is designed to enable students to:

1. Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. Apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. Communicate effectively with a range of audiences
4. Recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. Acquire and apply new knowledge as needed, using appropriate learning strategies.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their

intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Industrial Engineering, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

If you are starting at a campus other than the one this plan is ending at, please refer to: <http://advising.engr.psu.edu/degree-requirements/academic-plans-by-major.aspx>

First Year	Fall	Credits Spring	Credits
	CHEM 110 (GN) ^{*#†}	3 CHEM 111	1
	ECON 102 or 104 (GS) [†]	3 ENGL 15, 30H, or ESL 15 (GWS) ^{††}	3
	EDSGN 100 ^{*#}	3 IE 100 (or First Year Seminar) [†]	1
	MATH 140 or 140E (GQ) ^{*†#†}	4 MATH 141 or 141E (GQ) ^{*†#†}	4
	General Education Course [†]	3 PHYS 211 (PHYS 211L and PHYS 211R (GN)) ^{*#†}	4

General Education Course [†]		3
16		16
Second Year		
Fall	Credits Spring	Credits
EMCH 210 [*]	5 CAS 100A or 100B (GWS) ^{††}	3
MATH 231	2 CMPSC 200 or 201	3
MATH 250	3 MATH 220	2-3
PHYS 212 (PHYS 212L and PHYS 212R (GN)) [†]	4 Engineering Elective	3
General Education Course [†]	3 Engineering Elective	3
	Science Elective	3
17		17-18
Third Year		
Fall	Credits Spring	Credits
IE 302 [*]	3 ENGL 202C (GWS) ^{††}	3
IE 305 [*]	3 IE 323 [*]	3
IE 322 [*]	3 IE 330 [*]	3
IE 327 [*]	3 IE 405 [*]	3
MATSE 259	3 Manufacturing Process Elective	3
General Education Course (GHW) [†]	1.5 General Education Course (GHW) [†]	1.5
16.5		16.5
Fourth Year		
Fall	Credits Spring	Credits
IE 408, 418, or 419	3 IE 453	3
IE 425	3 IE 480W (Writing Intensive) [†]	3
IE 460	3 IE-Technical Elective	3
IE 470	3 General Education Course [†]	3
IE-Technical Elective	3 General Education Course [†]	3
15		15

Total Credits 129-130

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and

ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

College Notes:

- **Engineering Elective Notes:** Select from department list: <http://www.ime.psu.edu/students/undergraduate/electives.aspx>
- **Health and Physical Activity Elective:** Students who complete the ROTC Program may substitute 3 ROTC credits for the GHW requirement.
- **Manufacturing Processing Course:** Select from department list: <http://www.ime.psu.edu/students/undergraduate/electives.aspx>
- **Science Elective:** Select from department list: <http://www.ime.psu.edu/students/undergraduate/electives.aspx>
- **Technical Elective:** Select from department list: <http://www.ime.psu.edu/students/undergraduate/electives.aspx>

Career Paths

An undergraduate degree in industrial engineering from Penn State is beneficial in a number of sectors, from finance and banking to manufacturing and material handling to ergonomics and workplace safety to a wide variety of industries within the service world (including theme parks, call centers, hospitals, etc.). Industrial engineers also have an attractive background to a number of graduate degrees that would compliment their skills including engineering design, operations research, mechanical engineering, supply chain management, business management, and more.

Careers

- **Human Factors/Ergonomics:** Business intelligence team leader, cognitive engineer, ergonomics assessment specialist, ergonomics expert, design engineer, systems engineer, usability expert, user experience engineer.
- **Manufacturing:** Manufacturing operations manager, production engineer, process control analyst, quality engineering manager, lean Six Sigma manager, product design/specification specialist, cost analysis manager, supply chain manager.
- **Operations Research:** Operations research engineer, applied research manager, performance engineer, process improvement engineer, global business intelligence and analytics director, operations engineer, statistician.
- **Production, Supply Chain, and Service:** Enterprise Engineering Analytics manager, global statistics manager, quality assurance director, strategic sourcing manager, operations engineer, new product engineer, process engineer, e-commerce manager, material scientists, service business development manager, Six Sigma analyst.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE INDUSTRIAL ENGINEERING PROGRAM (<https://career.engr.psu.edu>)

Opportunities for Graduate Studies

Opportunities for students with an undergraduate degree in industrial engineering are vast. The following disciplines would highly value an education in industrial engineering in graduate studies: engineering science and mechanics, business management, supply chain management, mechanical engineering, statistics, computer systems,

engineering design, operations research, systems engineering, engineering management, economics and more.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.ime.psu.edu/students/graduate/>)

Professional Resources

- Institute of Industrial and Systems Engineers (<https://www.iise.org/Home/>)
- Institute for Operations Research and the Management Sciences (<https://www.informs.org>)
- Human Factors and Ergonomics Society (<https://www.hfes.org>)
- Society of Manufacturing Engineers (SME) (<https://www.sme.org>)

Accreditation

The Bachelor of Science in Industrial Engineering at University Park is accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Industrial and Similarly Named Engineering Programs.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

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Information Sciences and Technology for Aerospace Engineering, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The role of Information Sciences and Technology in the practice of Aerospace Engineering is very important. Aerospace systems rely heavily on computers, software, and digital information; for control, sensors, and other onboard systems. The Boeing 777 has more than 1000 processors and roughly 20 million lines of software onboard, and F-16 and F-117As cannot fly without their onboard computers. In addition, many future aerospace vehicles will be unmanned, and the software challenges will be even greater. The onboard memory has also increased exponentially, the F-106 had 20 KBytes of memory and the new Joint Strike Fighter might have 2 GBytes of memory. The hardware and software must be carefully designed and thoroughly tested, since most aerospace systems are mission- or safety-critical systems. Computers and software are heavily used in the design, development, and manufacturing of aerospace systems. Large supercomputers are often used in the design process. The IST minor will enrich their educational achievements and increase their chances in obtaining employment or entering graduate school. The NSF and the DOD are encouraging universities to enhance their educational programs so that we have well-qualified engineers for future systems, and our IPAC members have stressed the importance of IT for our students.

What is Information Sciences and Technology for Aerospace Engineering?

The role of software in the practice of aerospace engineering is critical and continues to grow rapidly. The effective design, development, and manufacturing of aerospace systems rely heavily on computers, software, and digital information. Some aircraft cannot fly without their onboard computers, and many future aerospace vehicles will be unmanned, resulting in even greater software challenges. Providing undergraduate aerospace engineering students the opportunity to learn more about information sciences and technology by earning a minor in Information Sciences and Technology will not only enrich their educational achievements, but it will also make them more valuable to potential employers, and help them succeed in professional employment or graduate school. They will better appreciate the entire aerospace system better, and will be better equipped to work side-by-side with experts in the computing and software fields.

You Might Like This Program If...

- You are interested in learning more about the role of software in the practice of aerospace engineering.
- You want to better appreciate the entire aerospace system, and be better equipped to work side-by-side with experts in the computing and software fields.

Entrance to Minor

Student must apply for entrance to the minor no later than their 7th semester.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>).

In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CMPSC 201	Programming for Engineers with C++	3
IST 110	Information, People and Technology	3
IST 210	Organization of Data	3
IST 220	Networking and Telecommunications	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 6 credits of the following:		6
AERSP 423	Introduction to Numerical Methods in Fluid Dynamics	
AERSP 424	Advanced Computer Programming	
AERSP 440	Introduction to Software Engineering for Aerospace Engineers	
AERSP 460	Aerospace Control Systems	

Academic Advising

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Information Sciences and Technology for Industrial Engineering, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

Collection and processing of information have increased in all sectors for solving engineering problems, including manufacturing and service related problems. Efficient and timely analysis of data is critical for the survival of companies. There is a need for industrial engineers with a strong background in information technology and systems. The minor in Information Sciences and Technology for Industrial Engineering will augment the skills of students in the Department of Industrial and Manufacturing Engineering in the information systems area. All students pursuing a baccalaureate degree in Industrial Engineering are eligible for this minor.

What is Information Sciences and Technology for Industrial Engineering?

Collection and processing of information have increased in all sectors for solving engineering problems, including manufacturing and service related problems. Efficient and timely analysis of data is critical for the survival of companies. There is a need for industrial engineers with a strong background in information technology and systems.

You Might Like This Program If...

The minor in Information Sciences and Technology for Industrial Engineering augments the skills of students in the Department of Industrial and Manufacturing Engineering in the information systems area. All students pursuing a baccalaureate degree in Industrial Engineering are eligible for this minor.

Program Requirements

Requirement	Credits
Requirements for the Minor	21

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
IE 330	Engineering Analytics	3
IST 110	Information, People and Technology	3
IST 210	Organization of Data	3
IST 220	Networking and Telecommunications	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 6 credits from the following:		6
IE 408	Cognitive Work Design	

IE 418	Human/Computer Interface Design	
IE 433	Regression Analysis and Design of Experiments	
Select 3 credits from the following:		3
IST 402	Emerging Issues and Technologies	
IST 431	The Information Environment	
IST 442	Information Technology in an International Context	
IST 454	Computer and Cyber Forensics	
MATH 451	Numerical Computations	
MATH 455	Introduction to Numerical Analysis I	

Academic Advising

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Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

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International Engineering, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

This certificate program is designed to provide recognition for students who have gained a proficiency in the skills needed by engineers in a global economy. The requirements of the certificate fall into three categories:

1. knowledge of global engineering and its professional and societal context,
2. knowledge of language and culture, and
3. participation in international experiences.

All engineering students in good academic standing are eligible for admission to the program.

You Might Like This Program If...

- You want to bring a truly global perspective to your engineering education.

Program Requirements

To earn an undergraduate certificate in International Engineering, a minimum of 10 credits is required.

Students must complete an application and successfully complete:

Code	Title	Credits
Prescribed Courses		
3 credits of study in a second language, while a PSU student, at the 3 (third-semester) level or higher		3
6 credits (typically two courses) of study in courses approved to meet the International Cultures requirement (IL) of General Education		6
1-3 credits and/or at least six weeks of approved study or workabroad, consisting of course work, internship, research, etc.		1-3

Prerequisites Required.

Certificate Learning Objectives

- Demonstrate knowledge of other nations' cultural values, traditions, beliefs, and customs;
- Identify the similarities and differences among international cultures;
- Apply linguistic tools and cultural knowledge to interact with speakers of the foreign language in a variety of contexts;
- Identify and address interpersonal communication and interaction issues of individuals from different international cultures.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

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International Engineering, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The International Engineering Minor is paired with any engineering baccalaureate major at any campus in order to provide students with an opportunity to learn about, and understand their profession in a global context. It is designed to provide students with knowledge, language skills, and experiences to help prepare them for a professional career that is likely to include collaborations with professionals from various parts of the world. The minor will help students understand the cross-cultural communications challenges and the global arena in which their profession is practiced. Students completing this minor will gain a competitive advantage because they will be able to demonstrate a broader understanding of the role of their profession and will have demonstrated their ability to communicate across cultural lines.

You Might Like This Program If...

You want to bring a truly global perspective to your engineering education.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ECON 333	International Economics	3
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Demonstrate language skills in a currently spoken world language other than English ¹		6

Select 3 credits of Engineering/computer science courses with significant international content from a program list or as approved by the director of the program 3

Select 6 credits of 400-level engineering or computer science courses, in consultation with departmental undergraduate coordinator² 6

¹ Students must take a minimum of 6 credits in the same language, at a level determined by the Language Placement Policy, and achieve a minimum of 12th-credit proficiency in that language. Transfer credits for language courses taken prior to enrollment at Penn State may not be used.

² To be taken abroad at an international institution and taught by faculty at that institution.

Academic Advising

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Mechanical Engineering Technology, A.ENG.T. (Engineering)

Begin Campus: DuBois, York

End Campus: DuBois, York

Program Description

This major helps graduates prepare for technical positions in manufacturing, machine and tool design, computer drafting and design, computer integrated manufacturing, materials selection and processes, technical sales, and other related industries in mechanical applications.

The primary objective of the program is to provide a broad foundation in mechanical systems and applications; computer systems in drafting (CAD), manufacturing (CAM), and automation and robotics (CIM); production and product design; mechanics, dynamics, and strength of materials.

Graduates of this major may qualify for admission to the baccalaureate degree majors in Mechanical Engineering Technology and Structural Design and Construction Engineering Technology programs at Penn State Harrisburg; the Mechanical Engineering Technology and the Plastics Engineering Technology programs at Penn State Erie, The Behrend College; or the baccalaureate degree major in Electro-Mechanical Engineering Technology offered at Penn State Altoona, Penn State Berks, Penn State New Kensington, or Penn State York. Two tracks are available to streamline the transition to these baccalaureate degree programs. A general track is provided for students who do not plan to continue their engineering technology education at the baccalaureate level.

What is Mechanical Engineering Technology?

Mechanical engineering technology is the understanding of how products and machinery work and how they are designed, made, and used.

You Might Like This Program If...

- You are interested in computer-aided drafting (CAD) and computer-aided manufacturing.
- You enjoy physics, math and statistics.
- You have a passion for robotics and automation.
- You have an interest in programming and data acquisition.

Entrance to Major

Students must have a minimum 2.0 GPA to change to this Associate degree after admission to the University.

Degree Requirements

For the Associate in Engineering Technology degree in Mechanical Engineering Technology, a minimum of 65 credits is required:

Requirement	Credits
General Education	21
Requirements for the Major	54-64

12-15 of the 21 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GN courses; 3 credits of GQ courses; 6 credits of GWS courses, 0-3 credits of GH or GS.

Requirements for the Major

A First-Year Seminar is required for students at Penn State Erie, The Behrend College.

Code	Title	Credits
Prescribed Courses		
CAS 100	Effective Speech	3

IET 215	Production Design	2
IET 216	Production Design Laboratory	2
MET 213	Strength and Properties of Materials	3
MET 214	Strength and Properties of Materials Laboratory ¹	1
MET 210W	Machine Design	3
<i>Prescribed Courses: Require a grade of C or better</i>		
IET 101	Manufacturing Materials, Processes, and Laboratory	3
MET 111	Mechanics for Technology: Statics	3
MET 206	Dynamics	3
Additional Courses		
ENGL 15	Rhetoric and Composition	3
or ENGL 30H	Honors Rhetoric and Composition	
Select 5-6 credits of the following:		5-6
MATH 22	College Algebra With Analytic Geometry and Applications II	
& MATH 26	and Plane Trigonometry and Applications of Trigonometry	
MATH 40	Algebra, Trigonometry, and Analytic Geometry ^{1,2}	
MATH 81	Technical Mathematics I	
& MATH 82	and Technical Mathematics II ^{1,2}	
MATH 82	Technical Mathematics II ^{1,2}	
Select 3-4 credits of the following:		3-4
PHYS 150	Technical Physics I	
PHYS 211	General Physics: Mechanics	
PHYS 250	Introductory Physics I	
Select 3-4 credits of the following:		3-4
PHYS 151	Technical Physics II	
PHYS 212	General Physics: Electricity and Magnetism	
PHYS 251	Introductory Physics II	
Select at least 19-24 credits from one of the following three tracks: 19-24		
<i>General Track</i>		
EDSGN 100	Cornerstone Engineering Design	
EDSGN 110	Spatial Analysis in Engineering Design	
or EGT 114	Spatial Analysis and Computer-Aided Drafting	
EET 105	Electrical Systems	
MET 107	Computer Applications for Technologists	
STS 200	Critical Issues in Science, Technology, and Society	
or STS 233	Ethics and the Design of Technology	
or STS 245		
Select at least 6 credits from the approved supporting course list for this track		
<i>Baccalaureate Electro-Mechanical Engineering Technology (EMET) Track</i>		
CMPET 117	Digital Electronics ¹	
CMPET 120	Digital Electronics Laboratory ¹	
EDSGN 100	Cornerstone Engineering Design	
EDSGN 110	Spatial Analysis in Engineering Design	
or EGT 114	Spatial Analysis and Computer-Aided Drafting	
EET 105	Electrical Systems	
EET 114	Electrical Circuits II ¹	
EET 118	Electrical Circuits Laboratory ¹	
MATH 83	Technical Calculus ^{1,2}	
or MATH 140	Calculus With Analytic Geometry I	

STS 200	Critical Issues in Science, Technology, and Society
or STS/ PHIL 233	Ethics and the Design of Technology
or STS 245	

Baccalaureate Mechanical Engineering Technology (METBC or MET) Track

EET 100	Electric Circuits, Power, and Electronics
EGT 120	Introduction to Graphics and Solid Modeling
EGT 121	Applied Solid Modeling
MET 107	Computer Applications for Technologists
Select 1 credit of First-Year Seminar	

Select 6 credits from the approved supporting course list for this track

- ¹ Students pursuing the baccalaureate track must take MATH 22 and MATH 26.
- ² Students who choose to take MATH 81 and MATH 82 must select MATH 83. Students who choose to take MATH 22 and MATH 26 must select MATH 140.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all associate degree students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 3 credits
- **Writing and Speaking (GWS):** 3 credits

Knowledge Domains

- **Arts (GA):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Note: Up to six credits of Inter-Domain courses may be used for any Knowledge Domain requirement, but when a course may be used to satisfy more than one requirement, the credits from the course can be counted only once.

Exploration

- **Any General Education course (including GHW and Inter-Domain):** 3 credits

University Degree Requirements

Cultures Requirement

3 credits of United States (US) or International (IL) cultures coursework are required and may satisfy other requirements

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 60 degree credits must be earned for an associate degree. The requirements for some programs may exceed 60 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Educational Objectives

The Associate Mechanical Engineering Technology program prepares students with technical and professional skills for the professional practice. Due to their experience in our program, within few years of graduation, we expect our graduates to have the ability to:

1. Safely practice in the areas of applied design, manufacturing, testing, evaluation, technical sales, or 2D and 3D modeling.
2. Collaborate effectively in project team activities through recognizing the global, societal, and ethical contexts of their work.
3. Work collaboratively in multi-disciplinary teams and assume an increasing level of responsibility and leadership within their organizations.
4. Demonstrate troubleshooting skills by following protocols and using technical literature.

Student Outcomes

Student outcomes describe what students are expected to know and be able to do by the time of graduation. The Associate Mechanical Engineering Technology program is designed to enable students to:

1. Apply knowledge, techniques, skills, and modern tools of mathematics, science, engineering, and technology to solve well-defined engineering problems appropriate to the discipline.
2. Design solutions for well-defined technical problems and assist with the engineering design of systems, components, or processes appropriate to the discipline.
3. Apply written, oral, and graphical communication in well-defined technical and non-technical environments; and an ability to identify and use appropriate technical literature.

4. Conduct standard tests, measurements, and experiments and to analyze and interpret the results.
5. Function effectively as a member or leader on a technical team.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Mechanical Engineering Technology, A.ENG.T. Ending at DuBois Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit

(accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
EDSGN 100	3 MET 111 ^{*2}	3
IET 101 [*]	3 General Education Course	3
MET 107	3 EET 105	3
MATH 26 ¹	3 EDSGN 110 or EGT 114	2
ENGL 15, 30H, or ESL 15 (GWS) ^{††}	3 MATH 22 (GQ) ^{*†1}	3
	CAS 100 (GWS) ^{††}	3
	15	17

Second Year

Fall	Credits Spring	Credits
MET 213 ²	3 MET 210W	3
MET 214	1 PHYS 151 or 251 (GN) ^{†2}	3-4
MET 206 ^{*2}	3 STS 200	3
IET 216	2 General Education Course	3
IET 215	2 Technical Electives ³	3-4
PHYS 150 or 250 (GN) ²	3-4 Technical Electives ³	2-3
Technical Electives ³	2-3	
	16-18	17-20

Total Credits 65-70

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ MATH 26 and MATH 22 may be taken concurrently

² Students successfully completing MATH 140 and subsequently MATH 141 may choose to take the EMCH 211, EMCH 212 and EMCH 213 sequence of courses for Statics (MET 111), Dynamics (MET 206), and Strengths/Properties of Materials (MET 213); and similarly, PHYS 211 and PHYS 212 in place of (PHYS 150/PHYS 250) and (PHYS 151/PHYS 251), respectively.

³ A minimum of 6 credits of approved Technical Elective Credits are required in order to reach the minimum major graduation requirement of 65 credits.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes

Approved Technical Elective Courses include the following courses:

COURSE LIST: AET 296, 297; ACCTG 211; BA 241, 242, 243; CHEM 101, 110, 111, 112; CMPET 117, 120; CMPSC 101, 121, 122, 200, 201; EDSGN 210, 296, 297; EET 100, 114, 118, 275; EGT 201; EMET 100, 350, 430; IET 105, 109, 296, 297, 333; IST 110, 210, 220, 250, 402; MATH 083, 140, 141, 210; ME 300; MET 281, 296, 297, 306, 320, 330, 341; MGMT 301; MIS 204; PLET 205; SCM 200; STAT 200; STS 233; SUR 111.

Additional courses may be acceptable via academic petition, must discuss with your academic adviser and/or program coordinator.

Academic Advising Notes

A student's career/graduate school plans should be considered in developing an individual academic plan. Be sure to consult an adviser in this department when scheduling courses.

Mechanical Engineering Technology, A.ENG.T. Ending at York Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
EDSGN 100	3 MET 111 [*]	3
IET 101 [*]	3 General Education Course	3
EET 105	3 MET 107	3
MATH 26	3 PHYS 150 or 250 (GN)	3-4
ENGL 15, 30H, or ESL 15 (GWS) ^{††}	3 MATH 22 (GQ) ^{††}	3
15		15-16

Second Year

Fall	Credits Spring	Credits
MET 213	3 MET 210W	3
MET 214	1 IET 215	2
MET 206 [*]	3 IET 216	2
EDSGN 110 or EGT 114	2 CAS 100A, 100B, or 100C (GWS) [†]	3
PHYS 151 or 251 (GN) [†]	3-4 STS 233	3
Technical Electives ¹	3 Technical Electives ¹	3-4
	General Education Course	3
15-16		19-20

Total Credits 64-67

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ 6 credits of Technical Electives are required if student enrolled in either PHYS 250 or PHYS 251, otherwise 7 credits of Technical Electives are required to reach the minimum major requirement of 65 credits.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes

Technical electives include the following courses:

COURSE LIST: CHEM 101, 110, 111; CMPET 117, 120; CMPSC 101, 121, 201; EET 114, 275; EGT 201; EMET 326, 350, 430; IET 333; IST 402; MATH 140; MGMT 301, MKTG 301, STAT 200

Career Paths

Graduates from the mechanical engineering technology program work in a variety of industries such as automotive, aeronautical, petroleum, defense, medical, power generation, transportation, and materials.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE MECHANICAL ENGINEERING TECHNOLOGY PROGRAM (<https://career.engr.psu.edu/>)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.engr.psu.edu/graduate-programs/>)

Accreditation

The A.ENG.T. in Mechanical Engineering Technology at Penn State DuBois and Penn State York is accredited by the Engineering Technology Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Mechanical Engineering Technology and Similarly Named Programs.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

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Mechanical Engineering, B.S. (Engineering)

Begin Campus: Any Penn State Campus

End Campus: Scranton, University Park

Program Description

Mechanical Engineering is one of the broadest engineering disciplines and is central in many new technological developments. Mechanical engineers create things that help improve the health, happiness and safety of our everyday lives such as biomedical devices, aircraft and cars, and ways to store renewable energies. Mechanical engineering is divided into two broad areas: mechanical systems and thermal systems. Mechanical systems include the design of mechanisms and the analysis of the strength and wear of materials. Thermal systems include methods of energy conversions, heat transfer and fluid flow.

What is Mechanical Engineering?

Mechanical engineering is the largest and broadest engineering discipline. It uses a combination of physics, chemistry, mathematics, and materials science to study mechanical, fluid, and thermal systems. Mechanical engineers are problem solvers: They use their foundational knowledge to apply scientific and engineering methods to the design, construction, and testing of products and components to ensure that they are safe, reliable, and cost effective. Mechanical engineering differs from mechanical engineering technology in that it emphasizes the math and science behind the theoretical development of engineering analysis and design process principles rather than the application of these principles. Mechanical engineers design everything from athletic equipment, medical devices, theme park rides, and personal computers to engines and power plants.

You Might Like This Program If...

You think outside the box to develop solutions to everyday problems. Mechanical engineers contribute to our health, happiness and safety, and often change the way we think about the world.

Entrance to Major University Park (ME_BS)

This program currently has administrative enrollment controls. Administrative Enrollment Controls are initiated when limitations of space, faculty, or other resources in a major prevent accommodating all students who request them. Students must follow the administrative enrollment controls that are in effect for the semester that they enter the university.

First-Year Students Entering Summer 2024, Fall 2024, Spring 2025

In order to be eligible for entrance to this major, students must satisfy the following requirements:

- be enrolled in the College of Engineering or the Division of Undergraduate Studies
- 29-55 graded Penn State credits (excludes transfer and AP credits)
- completed with a grade of C or better: CHEM 110, EDSGN 100, MATH 140, MATH 141, PHYS 211
- earned a minimum cumulative grade-point average (GPA) of 3.00

Students Who Entered Prior to Summer 2024

Students who entered the University from Summer 2018 through Spring 2024 should view the administrative enrollment controls in the appropriate Undergraduate Bulletin archive (<https://bulletins.psu.edu/undergraduate/archive/>). Students who entered the University prior to the summer 2018 semester should consult with their academic adviser about the administrative enrollment controls in effect for the semester they entered the university.

Scranton (MEENG_BS)

In order to be eligible for entrance to this major, students must satisfy the following requirements by the end of the semester during which the admission to major process is carried out:

- 29-55 cumulative credits (excludes transfer and AP credits)
- completed with a grade of C or better: CHEM 110, EDSGN 100, MATH 140, MATH 141, and PHYS 211
- earned a minimum cumulative grade-point average (GPA) of 2.60

* In the event that the major is under enrollment control, a higher minimum cumulative grade-point average is likely to be needed and students must be enrolled in the College of Engineering or Division of Undergraduate Studies at the time of confirming their major choice.

Degree Requirements

For the Bachelor of Science degree in Mechanical Engineering, a minimum of 131 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	113-114

27 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 9 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
IE 312	Product Design and Manufacturing Processes	3
MATH 231	Calculus of Several Variables	2
MATSE 259	Properties and Processing of Engineering Materials	3

ME 390	Academic and Career Development for Mechanical Engineers	0.5
ME 490	Professional Development for Mechanical Engineers	0.5
<i>Prescribed Courses: Require a grade of C or better</i>		
CHEM 110	Chemical Principles I	3
EDSGN 100	Cornerstone Engineering Design	3
EMCH 211	Statics	3
EMCH 212	Dynamics	3
EMCH 213	Strength of Materials	3
ENGL 202C	Effective Writing: Technical Writing	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
MATH 220	Matrices	2-3
MATH 251	Ordinary and Partial Differential Equations	4
ME 300	Engineering Thermodynamics I	3
ME 320	Fluid Flow	3
ME 330	Computational Tools	3
ME 340	Mechanical Engineering Design Methodology	3
ME 348	Circuit Analysis, Instrumentation, and Statistics	3
ME 360	Mechanical Design	3
ME 370	Vibration of Mechanical Systems	3
ME 410	Heat Transfer	3
ME 435	Mechanical Engineering Systems Lab	3
ME 450	Modeling of Dynamic Systems	3
ME 454	Mechatronics	3
PHYS 211	General Physics: Mechanics	4
PHYS 212	General Physics: Electricity and Magnetism	4

Additional Courses

Select 1 credit of First-Year Seminar		1
CMPSC 200	Programming for Engineers with MATLAB	3
or CMPSC 201 Programming for Engineers with C++		
ME 440W	Mechanical Systems Design Project	3
or ME 441W Thermal Systems Design Project		
Select 3 credits from the following:		3
BIOL 141	Introduction to Human Physiology	
BIOL 161	Human Anatomy and Physiology I - Lecture	
CHEM 111 & PHYS 214	Experimental Chemistry I and General Physics: Wave Motion and Quantum Physics	
CHEM 112	Chemical Principles II	
Select 3 credits from the following:		3
ECON 14	Principles of Economics	
ECON 102	Introductory Microeconomic Analysis and Policy	
ECON 104	Introductory Macroeconomic Analysis and Policy	

Additional Courses: Require a grade of C or better

CAS 100A	Effective Speech	3
or CAS 100B Effective Speech		
ENGL 15	Rhetoric and Composition	3
or ENGL 30H Honors Rhetoric and Composition		

Supporting Courses and Related Areas

Select 3 credits in a 400-level ME Technical Elective course from department list excluding ME 410, ME 435, ME 440W, ME 441W, ME 442W, ME 443W, ME 450, ME 454, ME 490, ME 494, and ME 496	3
Select 6 credits in Engineering Technical Elective courses from department list	6
Select 3 credits in General Technical Elective courses from department list ^{1,2}	3

¹ Three rotations of Engr Co-op (ENGR 295, ENGR 395, and ENGR 495) can be used as 3 credits of GTE.

² Students who complete Basic ROTC may substitute 6 ROTC credits for 3 credits of GTE and 3 credits of GHW.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Educational Objectives

The overall educational objective of the Mechanical Engineering program is to help prepare our graduates to succeed and provide leadership in a range of career paths within their first five years. To that end we endeavor to maintain and continuously improve a curriculum that prepares our graduates to:

1. Apply foundational knowledge, critical thinking, problem-solving, and creativity in engineering practice or in other fields.
2. Grow as leaders while maintaining the highest societal responsibility and ethical standards in the global workplace.
3. Develop thoughtful solutions through effective communication, collaboration, inclusivity, and teamwork.
4. Seek advancement in their knowledge and careers through continuing technical and/or professional studies.

Program Outcomes (Student Outcomes)

The program must have documented student outcomes that support the program educational objectives. Attainment of these outcomes prepares graduates to enter the professional practice of engineering. Student outcomes are outcomes (1) through (7), plus any additional outcomes that may be articulated by the program.

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. an ability to communicate effectively with a range of audiences
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Mechanical Engineering, B.S. at University Park Campus (Last Names Starting with A-K)

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

If you are starting at a campus other than the one this plan is ending at, please refer to: <https://advising.engr.psu.edu/degree-requirements/academic-plans-by-major.aspx>

First Year

Fall	Credits	Spring	Credits
First-Year Seminar ¹	1	Science Elective ²	3
ENGL 15 ^{††}	3	ECON 102 or 104 (GS)	3
EDSGN 100 ^{*#}	3	MATH 141 ^{*†††}	4
General Education Course [†]	3	General Education Course [†]	3
MATH 140 ^{*†††}	4	PHYS 211 ^{*††}	4
CHEM 110 ^{*#†}	3		
	17		17

Second Year

Fall	Credits	Spring	Credits
CMPSC 200	3	EMCH 212 [*]	3
CAS 100A or 100B ^{††}	3	EMCH 213 [*]	3
EMCH 211 [*]	3	ME 300 [*]	3
MATH 251 [*]	4	MATH 231	2
PHYS 212 ^{*†}	4	MATH 220 [*]	2-3
		General Education Course [†]	3
	17		16-17

Third Year

Fall	Credits	Spring	Credits
IE 312	3	ME 454 [*]	3
MATSE 259	3	ENGL 202C ^{††}	3
ME 330 [*]	3	ME 340 [*]	3
ME 370 [*]	3	ME 360 [*]	3
ME 348 [*]	3	ME 320 [*]	3
ME 390	0.5	ME 490	0.5
		General Education Course (GHW)	1.5
	15.5		17

Fourth Year

Fall	Credits	Spring	Credits
Engineering Technical Elective (ETE)	3	ME 440W	3
ME 410 [*]	3	General Education Course [†]	3
ME 450 [*]	3	General Education Course [†]	3
Mechanical Engineering Technical Elective (METE)	3	General Technical Elective (GTE)	3
ME 435 (Mechanical Engineering Lab) ^{*3}	3	Engineering Technical Elective (ETE)	3
General Education Course (GHW)	1.5		
	16.5		15

Total Credits 131-132

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

- ¹ Students who did not take a 1-credit College of Engineering First-Year Seminar should verify completion of this requirement with ME adviser
- ² Science Elective Choices: CHEM 112, BIOL 141, BIOL 161, or CHEM 111 and PHYS 214 (3 credits total)
- ³ Recommend ME 410 before or concurrent

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

College Notes:

- Successful completion of MATH and EMCH courses before the 5th semester is important for future course sequencing.
- EMCH 210 or EMCH 210H is not a direct substitute for EMCH 211 and EMCH 213 requirements and should not be taken for ME_BS
- Information on Technical Elective requirements can be found at: <https://www.me.psu.edu/students/undergraduate/curriculum-electives.aspx>

- General Education in ME_BS Curriculum:
 - Single Domain: 3 credits GS (ECON 102 or ECON 104), 3 credits GN (CHEM 110), 3 Credits GA, 3 Credits GH, 3 Credits GHW
 - Inter-Domain: 6 credits
 - Exploratory: 6 credits GN (PHYS 211 and PHYS 212), 3 credits any GA/GH/GS/GN/Inter-Domain or 12th credit level language
- Students must take 3 credits of United State Cultures (US) and 3 credits of International Cultures (IL) (these can be captured in the General Education selections)

Mechanical Engineering, B.S. at University Park Campus (Last Names Starting with L-Z)

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

If you are starting at a campus other than the one this plan is ending at, please refer to: <https://advising.engr.psu.edu/degree-requirements/academic-plans-by-major.aspx>

First Year

Fall	Credits Spring	Credits
First-Year Seminar ¹	1 Science Elective ²	3
ENGL 15 ^{††}	3 ECON 102 or 104 (GS)	3
EDSGN 100 ^{*#}	3 MATH 141 ^{*†#†}	4
General Education Course [†]	3 General Education Course [†]	3
MATH 140 ^{*†#†}	4 PHYS 211 ^{*#†}	4
CHEM 110 ^{*#†}	3	
	17	17

Second Year

Fall	Credits Spring	Credits
CMPSC 200	3 EMCH 212 [*]	3
CAS 100A or 100B ^{††}	3 EMCH 213 [*]	3
EMCH 211 [*]	3 ME 300 [*]	3
MATH 251 [*]	4 MATH 231	2
PHYS 212 ^{*†}	4 MATH 220 [*]	2-3
	General Education Course [†]	3
	17	16-17

Third Year

Fall	Credits Spring	Credits
ENGL 202C ^{††}	3 IE 312	3
General Education Course [†]	3 MATSE 259	3
ME 340 [*]	3 ME 330 [*]	3
ME 360 [*]	3 ME 370 [*]	3
ME 320 [*]	3 ME 348 [*]	3
General Education Course (GHW)	1.5 ME 390	0.5
	16.5	15.5

Fourth Year

Fall	Credits Spring	Credits
ME 440W	3 Engineering Technical Elective (ETE)	3
General Education Course [†]	3 ME 410 [*]	3
ME 454 [*]	3 ME 450 [*]	3
General Technical Elective (GTE)	3 Mechanical Engineering Technical Elective (METE)	3
Engineering Technical Elective (ETE)	3 ME 435 (Mechanical Engineering Lab) ^{*3}	3

ME 490	0.5 General Education Course (GHW)	1.5
	15.5	16.5

Total Credits 131-132

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

- ¹ Students who did not take a 1-credit College of Engineering First-Year Seminar should verify completion of this requirement with ME adviser
- ² Science Elective Choices: CHEM 112, BIOL 141, BIOL 161, or CHEM 111 and PHYS 214 (3 credits total)
- ³ Recommend ME 410 before or concurrent

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

College Notes:

- Successful completion of MATH and EMCH courses before the 5th semester is important for future course sequencing.
- EMCH 210 or EMCH 210H is not a direct substitute for EMCH 211 and EMCH 213 requirements and should not be taken for ME_BS
- Information on Technical Elective requirements can be found at: <https://www.me.psu.edu/students/undergraduate/curriculum-electives.aspx>
- General Education in ME_BS Curriculum:
 - Single Domain: 3 credits GS (ECON 102 or ECON 104), 3 credits GN (CHEM 110), 3 Credits GA, 3 Credits GH, 3 Credits GHW
 - Inter-Domain: 6 credits
 - Exploratory: 6 credits GN (PHYS 211 and PHYS 212), 3 credits any GA/GH/GS/GN/Inter-Domain or 12th credit level language
- Students must take 3 credits of United State Cultures (US) and 3 credits of International Cultures (IL) (these can be captured in the General Education selections)

Mechanical Engineering, B.S. at Scranton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
First-Year Seminar	1 ECON 102 or 104 (GS)	3
CHEM 110 ^{*#†}	3 General Education Course (GA, GH, or GS) [†]	3
ENGL 15 ^{‡†}	3 MATH 141 ^{*‡#†}	4
EDSGN 100 ^{*#}	3 PHYS 211 ^{*#†}	4
General Education Course (GA, GH, or GS) [†]	3 Science Elective (see below)	3
MATH 140 ^{*‡#†}	4	
	17	17

Second Year

Fall	Credits Spring	Credits
CAS 100A or 100B ^{‡†}	3 EMCH 212 [*]	3
CMPSC 200	3 EMCH 213 [*]	3
EMCH 211 [*]	3 General Education Course (GA, GH, GS) [†]	3
MATH 251 [*]	4 MATH 220 [*]	2
PHYS 212 ^{*†}	4 MATH 231	2
	ME 300 [*]	3
	17	16

Third Year

Fall	Credits Spring	Credits
ENGL 202C ^{‡†}	3 IE 312	3
ME 320 [*]	3 MATSE 259	3
ME 340 [*]	3 ME 330 [*]	3
ME 360 [*]	3 ME 348 [*]	3
ME 390	0.5 ME 370 [*]	3
General Education Course (GA, GH, or GS) [†]	3 ME 490	0.5
General Education Course (GHW)	1.5	
	17	15.5

Fourth Year

Fall	Credits Spring	Credits
ME 440W [*]	3 ME 410 [*]	3
ME 454 [*]	3 ME 435 (Mechanical Engineering Lab) [*]	3
Engineering Technical Elective (ETE)	3 ME 450 [*]	3
General Technical Elective (GTE)	3 Engineering Technical Elective (ETE)	3
General Education Course (GA, GH, or GS) [†]	3 Mechanical Engineering Technical Elective (METE)	3

General Education Course (GHW)	1.5
--------------------------------	-----

15

16.5

Total Credits 131

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

College Notes:

- Science elective choices: CHEM 112, BIOL 141, BIOL 161, or CHEM 111 and PHYS 214 (3 credits total)
- Completion of EMCH and MATH courses before the 5th semester is important for future course sequencing
- Details on the METE, ETE and GTE can be found at <https://www.me.psu.edu/students/undergraduate/curriculum-electives.aspx>

Career Paths

University Park: Penn State's mechanical engineering curriculum offers many opportunities to gain hands-on experience in the profession. At the University Park campus, our experiential laboratory components and design course sequence are tailored to prepare you to enter industry or graduate school. The design component of the curriculum culminates in an industry-sponsored senior design project, in which you'll work in a multidisciplinary team to solve a real-world issue. Our laboratory course encourages higher-order thinking skills. Students explore fundamental mechanical engineering knowledge through the lens of solving real-world problems in topics such as energy and sustainability, autonomy and robotics, and machine learning.

Penn State Scranton: Penn State Scranton is one of only five campuses that offer the mechanical engineering major. The Bachelor of Science in Mechanical Engineering provides students with the necessary

training and education to become technical leaders in various industrial, commercial, consulting, and governmental organizations.

Careers

University Park: Penn State's mechanical engineering program at the University Park campus has had a long and successful history. Mechanical engineering was introduced at Penn State in 1881. Graduates from our department go on to work in a diverse range of industries for large multinational companies and small local firms. Mechanical engineers are well prepared to work as managers due to their broad backgrounds and creative problem-solving skills. Historically, our graduates regularly accept positions at Fortune 500 companies, such as Ingersoll Rand, Boeing, Toshiba-Westinghouse, General Electric, Lockheed Martin, Northrop Grumman, Dow Chemical, ExxonMobil, Procter & Gamble, United Technologies Corporation, and Johnson & Johnson.

Penn State Scranton: The mechanical engineering program at Penn State Scranton prepares you for entering the mechanical engineering industry or going on to graduate school. Mechanical engineering is called "*the mother of all engineering majors*" for a reason; it gives the student exposure to many different disciplines. Mechanical engineering graduates get jobs in many different types of industries both locally, nationally, and globally. Examples of career opportunities for mechanical engineers are:

- design engineers
- research engineers
- biomedical equipment
- analyst
- entrepreneur
- test engineer
- rocket engineer
- project manager
- sales engineer

According to the Bureau of Labor Statistics mechanical engineers earn an average starting salary of \$70,000 and mid-career salary of \$100,000.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE MECHANICAL ENGINEERING PROGRAM (<https://www.me.psu.edu/students/undergraduate/what-is-an-engineer.aspx#MechanicalENGINEER>)

Opportunities for Graduate Studies

University Park: If you want to work with renowned faculty, scientists, and engineers, the Department of Mechanical Engineering located at the University Park campus is a great place for you. We are one of the nation's largest engineering departments with more than 60 full-time faculty, numerous research staff, visiting faculty, scientists, and more than 300 graduate students. Research funding comes from industry and government sources, including the Department of Energy, the National Science Foundation, the Army, the Air Force, and NASA. Our graduates are known for their ability to find high-level positions in national research centers and laboratories as well as postdoctoral and tenure-track positions in top-tier research universities.

Penn State Scranton: Mechanical Engineering graduates of Penn State Scranton campus are eligible to continue for a master's degree at many US colleges and universities.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.me.psu.edu/research/>)

Professional Resources

- American Society of Mechanical Engineers (ASME) (<https://sites.psu.edu/asmeuniversitypark/>)
- Professional Licensure/Certification Disclosures by State (<https://app.powerbi.com/view/?r=eyJrJoiNjAxYmU1N2MtNzRmZC00NjRmLWJlMzAtYmQ1NDliYjU1MjUzliwidCI6IjdjZjQ4ZDQ1LTNkZGhNNDM4OS1hOWMxLWwMTU1MjZlYjYzS1smMiOjF9&>)

Accreditation

The Bachelor of Science in Mechanical Engineering at University Park and Penn State Scranton is Accredited by the Engineering accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Mechanical and Similarly Named Engineering Programs.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

University Park

DEPARTMENT OF MECHANICAL ENGINEERING
140 Reber Building
University Park, PA 16802
814-863-1503
undergrad@me.psu.edu

<https://www.me.psu.edu>

Scranton

120 Ridge View Drive
Dunmore, PA 18512
570-963-2578
chatsaz@psu.edu

<https://scranton.psu.edu/academics/degrees/bachelors/mechanical-engineering> (<https://scranton.psu.edu/academics/degrees/bachelors/mechanical-engineering/>)

Altoona

DIVISION OF BUSINESS, ENGINEERING, AND INFORMATION SCIENCES AND TECHNOLOGY
203 Force Advanced Technology Center
3000 Ivyside Park
Altoona, PA 16601
814-949-5074
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<https://altoona.psu.edu/academics/bachelors-degrees/mechanical-engineering> (<https://altoona.psu.edu/academics/bachelors-degrees/mechanical-engineering/>)

Nanotechnology, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

The primary goal of the program is to offer students and incumbent workers worldwide the opportunity to earn this 18-credit certificate, which will be available only online. All candidates are required to successfully complete the required courses.

What is Nanotechnology?

Nanotechnology is inherently interdisciplinary and bridges across physics, biology, materials science, and chemistry. It is a general purpose, enabling technology that is already impacting a broad spectrum of human endeavors, from medicine and catalysis to textiles and quantum computing. The Nanotechnology certificate is designed to help prepare students from a broad range of disciplines for careers or graduate study in fields involving nanotechnology. It builds upon the strengths of Penn State's faculty, expertise, academic programs, and nanofabrication facilities, including its class 1 and class 10 cleanrooms. The curriculum provides students with fundamental knowledge and skills in nanoscale simulation, design, syntheses, characterization, properties, processing, manufacturing, and applications.

You Might Like This Program If...

You are interested in gaining fundamental knowledge and skills in nanoscale simulation, design, syntheses, characterization, properties, processing, manufacturing, and applications.

Program Requirements

To earn an undergraduate certificate in Nanotechnology, a minimum of 18 credits is required.

Code	Title	Credits
Prescribed Courses		
ESC 211	Material, Safety and Equipment Overview for Nanotechnology	3
ESC 212	Basic Nanotechnology Processes	3
ESC 213	Materials in Nanotechnology	3
ESC 214	Patterning for Nanotechnology	3
ESC 215	Nanotechnology Applications	3
ESC 216	Characterization, Testing of Nanotechnology Structures and Materials	3

Prerequisites Required.

Certificate Learning Objectives

- **Characterization:** Students will examine characterization techniques and measurements essential for testing and for controlling material fabrication and final device performance.
- **Material Modification:** Students will learn in detail processing techniques and about the operation of specialty tools used in materials modification in forming nanoscale devices and systems. Students will also learn to avoid unintentional material modifications. Application fields of nanotechnology in health sciences, energy, manufacturing, food, agriculture, medicine and environmental discussions will be highlighted.

- **Materials and Safety:** Students will learn the principles and practices of safe equipment operation/maintenance and materials handling in regards to environment, health and safety issues. Material classification methods based on their physical, mechanical and optical properties will be covered while vacuum systems are introduced.
- **Nanostructure:** Students will develop a detailed understanding of how materials are fabricated into nano-structures used in nanotechnology. Nanoparticles, quantum dots will be covered with their bio applications. Oxidation and plasma techniques will also be studied.
- **Nanotechnology Processes:** Students will be introduced to the basic processes involved in "top down", "bottom up", and hybrid nanofabrication including deposition, etching, and pattern transfer. Students will learn the similarities and differences in the equipment used and process flows. Nano-characterization methods will also be outlined.
- **Patterning:** Students will be able to identify techniques of advanced pattern transfer and select the appropriate tool and technique that will best create the product needed in the competitive modern workplace.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Mark Horn

Professor

305C Earth and Engineering Sciences Building

University Park, PA

814-865-0332

mwh4@psu.edu

World Campus

Undergraduate Academic Advising

301 Outreach Building

University Park, PA 16802

814-863-3283

advising@outreach.psu.edu

Career Paths

In addition to preparing students for career opportunities in a diverse variety of fields such as microelectronics, information storage, optoelectronics, pharmaceuticals, agriculture, and medicine, the certificate also prepares undergraduate students for exciting research

opportunities and multidisciplinary nanotechnology-based advanced degree programs in graduate schools around the world.

Contact

University Park

DEPARTMENT OF ENGINEERING SCIENCE AND MECHANICS
212 Earth and Engineering Sciences Building
University Park, PA 16802
814-865-4523
mwh4@psu.edu

<https://www.esm.psu.edu>

World Campus

ENGINEERING SCIENCE AND MECHANICS/CENTER FOR
NANOTECHNOLOGY EDUCATION AND UTILIZATION
118 Research West
University Park, PA 16802
814-865-9635
nanotech@enr.psu.edu

Nanotechnology, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Nanotechnology minor is designed to help prepare students from diverse disciplines for careers in a broad range of industries innovating with nanotechnology. The minor builds on the singular strengths of Penn State's nanofabrication facilities including its class 1 and class 10 clean rooms, its faculty, and existing academic programs. The minor provides students with fundamental knowledge and skills in simulation, design, modeling, syntheses, characterization, properties, processing, manufacturing, and applications at the nano scale.

As nanotechnology increasingly bridges across disciplines, a basic understanding of mathematics, physics, biology, and chemistry is recommended. To complete the 18 credit nanotechnology minor, students will take two prescribed courses (6 credits) in nanoscience fundamentals, and then select four additional courses (12 credits) from a growing list of courses that address the areas described in the previous paragraph.

In addition to nanotechnology career opportunities in microelectronics, information storage, optoelectronics, bioelectronics, pharmaceuticals, agriculture, medicine, life sciences and the sciences, the minor prepares undergraduate students to support major new nanotechnology research programs as graduate students. Interested 3rd and 4th year students from related fields in engineering, the chemical, physical, and the biological sciences, medicine, life, and agricultural sciences are encouraged to enroll.

What is Nanotechnology?

Nanotechnology is inherently interdisciplinary and bridges across physics, biology, materials science, and chemistry. It is a general purpose, enabling technology that is already impacting a broad spectrum of

human endeavors, from medicine and catalysis to textiles and quantum computing.

You Might Like This Program If...

- You are interested in an interdisciplinary minor that bridges across physics, biology, materials science, and chemistry.
- You are interested in gaining fundamental knowledge and skills in nanoscale simulation, design, syntheses, characterization, properties, processing, manufacturing, and applications.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ESC 312	Engineering Applications of Wave, Particle, and Ensemble Concepts	3
ESC 313	Introduction to Principles, Fabrication Methods, and Applications of Nanotechnology	3

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better
Select 12 credits (at least 6 credits at the 400 level) from an approved 12 list

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Mark Horn
Professor
305C Earth and Engineering Sciences Building
University Park, PA
814-865-0332
mwh4@psu.edu

Career Paths

In addition to preparing students for career opportunities in a diverse variety of fields such as microelectronics, information storage, optoelectronics, pharmaceuticals, agriculture, and medicine, the minor also prepares undergraduate students for exciting research opportunities and multidisciplinary nanotechnology-based advanced degree programs in graduate schools around the world. Graduate students in engineering science and mechanics conduct innovative research with a diverse, award-winning faculty on interdisciplinary programs that address society's grand challenges.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN NANOTECHNOLOGY (<http://www.esm.psu.edu/academics/resources/career-resources.aspx>)

Opportunities for Graduate Studies

The ESM department offers the following graduate degree options:

- Master of Engineering (M.Eng.) in Engineering Mechanics
- Master of Engineering (M.Eng.) in Additive Manufacturing
- Master of Science (M.S.) in Engineering at the Nano-scale
- Master of Science (M.S.) in Engineering Science and Mechanics
- Master of Science (M.S.) in Additive Manufacturing
- Doctor of Philosophy (Ph.D.) in Engineering Science and Mechanics
- Doctor of Medicine and Doctor of Philosophy in Engineering Science and Mechanics (M.D./Ph.D.)
- Graduate Certificate in Laser-Materials Processing and Laser-Based Manufacturing

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<http://www.esm.psu.edu/academics/graduate/prospective-students.aspx>)

Contact

University Park

DEPARTMENT OF ENGINEERING SCIENCE AND MECHANICS
212 Earth and Engineering Sciences Building
University Park, PA 16802
814-865-4523
mwh4@psu.edu

<http://www.esm.psu.edu/>

Nuclear Engineering, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The overall educational objective of the Nuclear Engineering program is to help prepare our graduates to function effectively in the marketplace in a wide range of career paths in Nuclear Engineering. The technical part of the curriculum, emphasizes nuclear power engineering, which refers to complex systems used to generate electricity. Because of our strong educational and research emphasis in nuclear power engineering, and because a shortage for this expertise exists in the industry, generally the industry values our graduates highly. We recognize that nuclear science, including nuclear security and non-proliferation, is an important growth area. We constantly assess and review the needs of our undergraduate

students and their most frequent employers and use this feedback to consider revisions to our curriculum so that it is responsive to the needs of our constituents.

The first two years of the program stress fundamentals in mathematics, chemistry, physics, computer programming, and engineering sciences such as mechanics, materials, and thermodynamics. The last two years provide the breadth and depth in nuclear science, behavior of heat and fluids, reactor theory and engineering, and radiation measurement. The laboratory work includes experiments using the University's 1,000-kilowatt research reactor. Engineering design is incorporated in many courses from the freshman year to the senior year, but is particularly emphasized in the senior capstone design course, which integrates the critical elements of reactor theory, reactor engineering, safety considerations and economic optimization into a reactor design.

Many graduates are employed by electric power companies that use nuclear power plants, or by companies that help service and maintain those plants. They use their knowledge of engineering principles, radioactive decay, interactions of radiation with matter, and nuclear reactor behavior to help assure that the power plants meet the demand for reliable, economic electricity while ensuring a safe environment. To do this, graduates must be problem solvers who can develop and use complex computer models and sophisticated monitoring systems, design systems to handle radioactive waste, determine if the materials in the plant are becoming brittle or corroded, or manage the fuel in the reactor to get the maximum energy from it. Other graduates work in industries that use radioactivity or radiation to detect problems or monitor processes. Jobs are also found in branches of the government as designers of the next generation of reactors for submarines, aircraft carriers, or space probes, or to manage and clean up contaminated wastes. They could also be involved with regulation of nuclear power or radiation uses, or in research to develop advanced technologies that will be used in next-generation power plants. Graduates who want to further their education in the fields of health physics, radiation biology, or nuclear medical applications find this degree to be a useful preparation.

What is Nuclear Engineering?

Nuclear Engineering is a multidisciplinary field that goes beyond providing nuclear power for electrical production. Nuclear engineers may apply their knowledge in various fields, including disease treatment, safeguarding food supplies, operate nuclear energy systems, develop regulations to ensure safety, or facilitate space exploration.

You Might Like This Program If...

You are interested in using basic science to make the world a better place for humankind through the production of clean energy, keeping the country safe from nuclear attack, and the application of nuclear science.

Entrance to Major

In order to be eligible for entrance to this major, students must satisfy the following requirements by the end of the semester during which the admission to major process is carried out.

- Completed 29-55 cumulative credits (credits completed at Penn State for which a quality letter grade was earned)
- Completed with a C or better the following courses: EDSGN 100, CHEM 110, MATH 140, MATH 141, and PHYS 211
- Attained at least a 2.6 cumulative grade point average

* In the event that the major is under enrollment control, a higher minimum cumulative grade-point average is likely to be needed and students must be enrolled in the College of Engineering or Division of Undergraduate Studies at the time of confirming their major choice.

Degree Requirements

For the Bachelor of Science degree in Nuclear Engineering, a minimum of 129 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	111

27 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 9 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
CHEM 111	Experimental Chemistry I	1
EE 212	Introduction to Electronic Measuring Systems	3
EMCH 211	Statics	3
EMCH 212	Dynamics	3
EMCH 213	Strength of Materials	3
EMCH 315	Mechanical Response of Engineering Materials	2
EMCH 316	Experimental Determination of Mechanical Response of Materials	1
MATH 230	Calculus and Vector Analysis	4
ME 300	Engineering Thermodynamics I	3
ME 320	Fluid Flow	3
ME 410	Heat Transfer	3
NUCE 310W	Issues in Nuclear Engineering	2
NUCE 403	Advanced Reactor Design	3
NUCE 451	Experiments in Reactor Physics	3
NUCE 431W	Nuclear Reactor Core Design Synthesis	4
PHYS 214	General Physics: Wave Motion and Quantum Physics	2
<i>Prescribed Courses: Require a grade of C or better</i>		
CHEM 110	Chemical Principles I	3
EDSGN 100	Cornerstone Engineering Design	3
ENGL 202C	Effective Writing: Technical Writing	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
MATH 251	Ordinary and Partial Differential Equations	4
NUCE 301	Fundamentals of Reactor Physics	4
NUCE 302	Introduction to Reactor Design	4
NUCE 309	Analytical Techniques for Nuclear Concept	3
NUCE 430	Design Principles of Reactor Systems	3

NUCE 450	Radiation Detection and Measurement	3
PHYS 211	General Physics: Mechanics	4
PHYS 212	General Physics: Electricity and Magnetism	4

Additional Courses

Select 1 credit of First-Year Seminar		1
CMPSC 200	Programming for Engineers with MATLAB	3
or CMPSC 201	Programming for Engineers with C++	
Select one of the following:		3
ECON 102	Introductory Microeconomic Analysis and Policy	
ECON 104	Introductory Macroeconomic Analysis and Policy	
EBF 200	Introduction to Energy and Earth Sciences Economics	

Select 6 credits, of which 3 credits must be designated as design, from the following:

BME 406	Medical Imaging	
NUCE 405	Nuclear and Radiochemistry	
NUCE 408	Radiation Shielding	
NUCE 409	Nuclear Materials	
NUCE 420	Radiological Safety	
NUCE 428	Radioactive Waste Control	
NUCE 470	Power Plant Simulation	
NUCE 490	Introduction to Plasmas	
NUCE 496	Independent studies	
NUCE 497	Special Topics	
500-level NUCE courses with approval of adviser		

Additional Courses: Require a grade of C or better

CAS 100A	Effective Speech	3
or CAS 100B	Effective Speech	
ENGL 15	Rhetoric and Composition	3
or ENGL 30H	Honors Rhetoric and Composition	

Supporting Courses and Related Areas

Select 3 credits in General Technical Elective (GTE) courses from department list ^{1,2}

¹ These courses may have to be chosen so that the engineering design or engineering science requirements for the major are met.

² Students who complete Basic ROTC may substitute 6 of the ROTC credits for 3 credits of GTE and 3 credits of GHW.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or

within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Educational Objectives

Accordingly, we will endeavor to maintain and provide a curriculum that prepares our graduates such that:

- Within two to three years of graduation, we expect the majority of our B.S. graduates to:
 - be working in industry, especially related to nuclear power engineering,
 - be working in government agencies or national laboratories,
 - be pursuing advanced degrees.
- We expect that our students will continue to develop professionally and establish themselves in their careers and in this way may take the opportunity to further their education and training by attending graduate school or by pursuing other professional development.

Student Outcomes

Student outcomes describe what students are expected to know and be able to do by the time of graduation. The Nuclear Engineering program is designed to enable students to:

1. Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. Apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. Communicate effectively with a range of audiences
4. Recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. Acquire and apply new knowledge as needed, using appropriate learning strategies.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Amanda Johnsen

Assistant Professor and Undergraduate Program Director of Nuclear Engineering

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Nuclear Engineering, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

If you are starting at a campus other than the one this plan is ending at, please refer to: <http://advising.engr.psu.edu/degree-requirements/academic-plans-by-major.aspx>

First Year

Fall	Credits	Spring	Credits
CHEM 110 (GN) ^{*#†}	3	ENGL 15, 30H, or ESL 15 (GWS) ^{††}	3
CHEM 111 (GN)	1	MATH 141 or 141E (GQ) ^{*†#†}	4
ECON 102 or 104 (GS) [†]	3	PHYS 211 (GN, PHYSICS 211L & PHYSICS 211R) ^{*#†}	4
EDSGN 100 ^{*#}	3	First Year Seminar [†]	1
MATH 140 or 140E (GQ) ^{*†#†}	4	General Education Course [†]	3
General Education Course [†]	3	General Education Course (GHW) [†]	1.5
	17		16.5

Second Year

Fall	Credits	Spring	Credits
CMPSC 200 (CMPSC 201 acceptable)	3	EMCH 212	3
EMCH 211	3	EMCH 213 or 213D	3
MATH 251 [*]	4	MATH 230	4
PHYS 212 (GN, PHYSICS 212L & PHYSICS 212R) ^{*†}	4	ME 300	3
General Education Course [†]	3	PHYS 214	2
		General Education Course (GHW) [†]	1.5
	17		16.5

Third Year

Fall	Credits	Spring	Credits
CAS 100A or 100B (GWS) ^{††}	3	EE 212	3
ME 320	3	EMCH 315	2
NUCE 301 [*]	4	EMCH 316	1
NUCE 309 [*]	3	ME 410	3
NUCE 310W	2	NUCE 302 [*]	4
		NUCE 450 [*]	3
	15		16

Fourth Year

Fall	Credits	Spring	Credits
ENGL 202C (GWS) ^{††}	3	NUCE 431W	4
NUCE 403	3	General Technical Elective (GTE)	3
NUCE 430 [*]	3	Nuclear Engineering Elective (NETE)	3
NUCE 451	3	General Education Course [†]	3
Nuclear Engineering Elective (NETE)	3	General Education Course [†]	3
	15		16

Total Credits 129

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

College Notes:

- **General Technical Elective (GTE):** Select from NUCE program lists. Students who complete the ROTC Program may substitute 3 ROTC credits for the GHW requirement and 3 ROTC credits for the GTE requirement. Students who complete three co-op rotations may substitute 3 co-op credits for the GTE requirement.

- **Health and Physical Activity Elective:** Students who complete the ROTC Program may substitute 3 ROTC credits for the GHW requirement and 3 ROTC credits for the GTE requirement.
- **Nuclear Engineering Elective (NETE):** Select from NUCE program lists.
- **These courses offered at University Park in fall semester only:**
 - NUCE 301
 - NUCE 309
 - NUCE 310W
 - NUCE 403
 - NUCE 430
 - NUCE 451
- **These courses offered at University Park in spring semester only:**
 - NUCE 302
 - NUCE 431W
 - NUCE 450

Career Paths

Penn State's nuclear engineering program relates theory to practice in a way that most universities cannot. Penn State is one of the few universities where undergraduate students can work with a functioning nuclear reactor. The Breazeale Nuclear Reactor is the longest operating licensed research reactor in the country and is one of the premier nuclear research facilities in the world. In addition to University facilities, students also gain professional experience through an industry-sponsored project in their capstone design course. Penn State's collaboration with Westinghouse, as well as other nuclear companies and agencies, provides an unmatched educational experience using the simulation and analysis codes currently used in industry. Penn State also collaborates effectively with industry, the military, and government as sponsors of the capstone design project.

Careers

Many nuclear engineering graduates work for electric power companies that use nuclear power plants or help service and maintain these plants. Other graduates work in industries that use radioactivity or radiation, such as medicine, food, and agriculture. These fields need nuclear engineers to detect problems, monitor processes, and protect the public. The federal government also hires nuclear engineers to design next-generation reactors for submarines, aircraft carriers, and space probes; regulate nuclear power or radiation uses; and develop advanced technologies that will be used in future power plants. Other industries where nuclear engineers may work include energy, government, medicine, agriculture, and space.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE NUCLEAR ENGINEERING PROGRAM (<https://www.nuce.psu.edu/industry/>)

Opportunities for Graduate Studies

Penn State University is home to the Breazeale Nuclear Reactor, one of the premier reactor research facilities in the country. Our students have the unique opportunity to learn and research in state-of-the-art experimental facilities under the supervision of internationally renowned faculty, scientists, and engineers. We have especially strong research programs in nuclear power, reactor design, nuclear science, and nuclear materials.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.nuce.psu.edu/students/graduate/prospective.aspx>)

Accreditation

The Bachelor of Science in Nuclear Engineering at University Park is accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Nuclear, Radiological, and similarly Named Engineering Programs.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

University Park

KEN AND MARY ALICE DEPARTMENT OF NUCLEAR ENGINEERING
113 Hallowell Building
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lay1@psu.edu

<https://www.nuce.psu.edu/about/contact-us.aspx>

Product Innovation Entrepreneurship, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

Learn and practice the entrepreneurial mindset in the Product Innovation Entrepreneurship Certificate. This certificate prepares you to run an entrepreneurial venture or to be an intrapreneur where you utilize the entrepreneurial mindset within an existing organization. Learn and practice business fundamentals from an entrepreneurial perspective and deal with the challenges of leading a creative entrepreneurial organization and the associated ambiguity. The certificate is open to any student who has the goal to own their own business or wants to learn to think outside the box. This certificate will help the student work effectively within any organization, always looking for ways to be more creative and innovative.

Program Requirements

To earn an undergraduate certificate in Product Innovation Entrepreneurship, a minimum of 9 credits is required.

Code	Title	Credits
Required Courses		
BA 250 or ENGR 411	Small Business Management Entrepreneurship Business Basics	3
Select 6 credits from the following:		6
ENGR 310	Entrepreneurial Leadership	
ENGR 407	Technology-Based Entrepreneurship	
ENGR 415	Launching Innovation: Ideas to Opportunities	
ENR 300	Principles of Entrepreneurship	
ENR 430	Entrepreneurship and New Product Development	
MGMT 427	Managing an Entrepreneurial Start-Up Company	

MGMT 431	Entrepreneurship and Small Business Management
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Contact

University Park

SCHOOL OF ENGINEERING DESIGN AND INNOVATION
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University Park, PA 16802
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sedcourses@psu.edu

<https://www.sedi.psu.edu>

Residential Construction, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The objective of the Residential Construction Minor is to provide an opportunity for students to gain an understanding of the residential building construction topics and issues with emphasis on sustainable land development, design and construction of residential buildings, as well as construction management of residential projects. Residential building construction is a unique interdisciplinary field that draws upon civil and architectural engineering, architecture, real estate, management, finance, and marketing disciplines, and design principles including economical, safe, and serviceable structural design, green building systems design, sustainable land development, and construction management. This minor is expected to be primarily of interest to students from Civil and Environmental Engineering, Architectural Engineering, and Architecture majors, but students from other majors can also enroll in this minor. This minor will help students to increase their competitiveness for employment in residential market and construction industry.

What is Residential Construction?

Residential Construction is the building of single- and multi-family single-units, manufactured, duplex and quad-plex homes and apartments and condominiums.

You Might Like This Program If...

- You have an interest in architectural engineering, civil engineering, or architecture.
- You want to build residential homes.
- You have an interest in real estate.

Program Requirements

Requirement	Credits
Requirements for the Minor	22

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>).

In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
AE 470	Residential Building Design and Construction	3
AE 471	CONSTRUCTION MANAGEMENT OF RESIDENTIAL BUILDING PROJECTS	3
ARCH 412	Integrative Energy and Environmental Design	3
CE 411	Residential Construction Design Project	1
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 12 credits from one of the following tracks:		12
<i>Architecture Track</i>		
AE 211		
AE 421	Architectural Structural Systems I	
AE 422	Architectural Structural Systems II	
FIN 100	Introduction to Finance	
RM 303	Real Estate Fundamentals	
<i>Architectural Engineering Track</i>		
AE 202	Introduction to Architectural Engineering Concepts	
AE 372	Introduction to the Building Construction Industry	
AE 402	Design of Concrete Structures for Buildings	
AE 404	Building Structural Systems in Steel and Concrete	
AE 454	Advanced Heating, Ventilating, and Air Conditioning	
AE 456		
AE 542	Building Enclosure Science and Design	
BE 462	Design of Wood Structures	
<i>Civil Engineering Track</i>		
AE 432	Design of Masonry Structures	
AE 542	Building Enclosure Science and Design	
BE 462	Design of Wood Structures	
CE 332	Professionalism, Economics & Construction Project Delivery	
CE 341	Design of Concrete Structures	
CE 410W		

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Ali Memari

Professor and Bernard and Henrietta Hankin Chair in Residential Building Construction
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814-863-9788
amm7@psu.edu

Career Paths

Students with a minor in Residential Construction serve in a variety of roles relating to design, construction, research and education.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN RESIDENTIAL CONSTRUCTION (<http://www.ae.psu.edu/industry/career-fair/>)

Opportunities for Graduate Studies

Students with a minor in Residential Construction may be interested in graduate studies in architectural engineering, facilities engineering and management or civil engineering.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<http://www.ae.psu.edu/academics/graduate/>)

Contact

University Park

DEPARTMENT OF ARCHITECTURAL ENGINEERING
104 Engineering Unit A
University Park, PA 16802
814-865-6394
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<https://www.ae.psu.edu/academics/undergraduate/residential-construction-minor.aspx>

Service Enterprise Engineering, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

Service sector represents over 80% of the economy and represents over 70% of jobs in the U.S. Service enterprises constitute a wide range in terms of labor intensity, information intensity, and prevailing productivity. Examples of service enterprises include hospitals, retailers, banks, financial institutions, and airlines. This minor is designed for students interested in learning about applying industrial engineering techniques to service enterprises. Students completing this minor will gain an understanding of applying industrial engineering and operations research tools for modeling, analysis, design and control of service enterprises.

In addition to the stated courses for the minor, students in IE pursuing this minor may be required to take the prerequisites for the courses listed for the Service Cluster. Students in HPA, HDFS and any other major will require MATH 220 as a prerequisite for IE 405. IE 405 and IE 322 (or

an equivalent course in probability and statistics) are prerequisites for IE 460.

What is Service Enterprise Engineering?

Service Enterprise Engineering is the study, design, and implementation of new systems that improve the processes and efficiencies of the service sector, in which 80 percent of the U.S. workforce is employed. The minor answers a critical need for operational expertise in health care and human service fields. Students completing this minor will gain an understanding of applying industrial engineering and operations research tools for modeling, analysis, design and control of service enterprises.

You Might Like This Program If...

Most applicable for those students in industrial engineering, health policy administration, and human development and family studies, this minor gives students the ability to apply industrial engineering techniques to processes in hospitals, nonprofit organizations, retailers, banks, financial institutions, airlines, and more.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
IE 460	Service Systems Engineering	3
IE 478	Retail Services Engineering	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 6 credits from Engineering Cluster:		6
IE 302	Engineering Economy	
IE 322	Probabilistic Models in Industrial Engineering	
IE 323	Statistical Methods in Industrial Engineering	
IE 330	Engineering Analytics	
IE 402	Advanced Engineering Economy	
IE 405	Deterministic Models in Operations Research	
	or MATH 484 Linear Programs and Related Problems	
IE 424	Process Quality Engineering	
IE 467	Facility Layout and Location	
IE 468	Optimization Modeling and Methods	
IE 480W	Capstone Design Project	
Select 6 credits from the Service Cluster:		6
HDFS 311	Human Development and Family Studies Interventions	
HDFS 455	Development and Administration of Human Services Programs	
HPA 332	Health Systems Management	

HPA 433	Administration of Hospital and Health Service Systems
HPA 442	Long-Term Care Management
HPA 475	Health Care Quality

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Vittal Prabhu

Professor & Charles and Enid Schneider Faculty Chair in Service Enterprise Engineering
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Career Paths

Over 60 percent of graduating industrial engineering students have started their careers in the service sector. Industries that have hired include consulting, retailing, supply chain, logistics, distribution, transportation, government, entertainment, financial analyst, revenue management, and health care services.

Contact

University Park

HAROLD AND INGE MARCUS DEPARTMENT OF INDUSTRIAL AND MANUFACTURING ENGINEERING
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University Park, PA 16802
814-865-7601
psuie@psu.edu

<http://www.ime.psu.edu/index.aspx> (<http://www.ime.psu.edu/>)

Six Sigma, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

Six Sigma has been increasingly internalized by companies involved in manufacturing, health care, and service industries. The Six Sigma process has also been used to address environmental concerns such as water quality and energy conservation. Thus, this minor is designed for students who are interested in the Six Sigma statistical methodology for increasing productivity and enhancing quality. The minor will provide students with an understanding of how business models are changing in response to globalization and how the Six Sigma process and product improvement methodology is thus a vehicle for industry prosperity in this climate. Students completing the minor will develop their analytical and statistical skills, and gain a competitive advantage in the work place.

What is Six Sigma?

Six Sigma is a highly disciplined process that puts sharp focus on developing and delivering near-perfect products and services. It has been used to shape both the strategy and operation of companies of all sizes and sectors. Six Sigma provides a framework for quality improvement and innovation that builds upon statistical tools to achieve results. Students completing the minor should:

- Be knowledgeable about why organizations use Six Sigma and how they apply it
- Gain experience with using the DMAIC methodology for problem solving
- Gain experience with using the DMADOV methodology for new product innovation
- Understand the links between customer requirements, product specifications, and process capability
- Understand the theory and application of regression analysis, design of experiments, and statistical quality control
- Be familiar with the project selection process including knowing when to use the Six Sigma methodology.

You Might Like This Program If...

- You are interested in problem solving in business operations, lean manufacturing/business practices, and improving industry efficiencies.

The Six Sigma Minor is an 18-credit minor designed for any student who is interested in the Six Sigma statistical methodology. Industries utilizing Six Sigma skills include: manufacturing, transportation, warehousing, health care, defense, financial services, retail, leisure/hospitality, education, construction, consulting, and more.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		

IE 305	Product Design, Specification and Measurement	3
IE 322	Probabilistic Models in Industrial Engineering	3
IE 323	Statistical Methods in Industrial Engineering	3
IE 433	Regression Analysis and Design of Experiments	3
IE 434	Statistical Quality Control	3
IE 436	Six Sigma Methodology	3

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Giancarlo Labruna

Academic Adviser
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Contact

University Park

HAROLD AND INGE MARCUS DEPARTMENT OF INDUSTRIAL AND MANUFACTURING ENGINEERING
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Space Systems Engineering, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

This certificate program is designed to prepare students for careers in the space industry and for work on space systems. To achieve this, a minimum program of three space systems engineering related courses, a space systems engineering seminar, and project work is to be completed.

You Might Like This Program If...

You would like to explore a how to approach the engineering of complex systems; you have an interest in space, aerospace engineering, or satellites, or have an interest in working within the defense and/or aerospace industry.

Entrance to Certificate

For entrance into the certificate program, students must be at least 5th semester standing. The cumulative GPA considered for admission will be consistent with, or equivalent to, the GPA minimum of 2.00 for maintaining good academic standing.

Program Requirements

To earn an undergraduate certificate in Space Systems Engineering, a minimum of 12 credits is required.

Students must earn a C grade or better in each of the courses to continue with the certificate.

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
EE 474	Satellite Communications Systems	3
Select one of the following:		2-9
AERSP 401A	Spacecraft Design–Preliminary	
AERSP 401B	Spacecraft Design–Detailed	
AERSP 430	Space Propulsion and Power Systems	
AERSP 450	Orbit and Attitude Control of Spacecraft	
AERSP 492	Space Astronomy and Introduction to Space Science	
AERSP 497	Special Topics	
AERSP 550	Astrodynamics	
AERSP 597	Special Topics	
AERSP 597	Special Topics	
EE 472	Space Astronomy and Introduction to Space Science	
EE 474	Satellite Communications Systems	
Select one of the following:		3-9
AERSP 55	Space Science and Technology	
AERSP 309	Astronautics	
AERSP 540	Theory of Plasma Waves	
EDSGN 597	Special Topics	
EE 471	Introduction to Plasmas	
EE 477	Fundamentals of Remote Sensing Systems	
EE 534	Conformal Antennas	
EE 541	Manufacturing Methods in Microelectronics	
EE 576	Inversion Techniques in Remote Sensing	
EE 579	Microwave Radar Remote Sensing	
EE 580	Linear Control Systems	
EE 581	Optimal Control	
GEOSC 21	Earth and Life: Origin and Evolution	
GEOSC 474	Astrobiology	
METEO 477	Fundamentals of Remote Sensing Systems	
NUCE 490	Introduction to Plasmas	

NUCE 540	Theory of Plasma Waves
STS 55	Space Science and Technology

Students must complete an application. A project report must be submitted adhering to SPSYS Certificate formatting and systems content guidelines.

Prerequisites Required.

Certificate Learning Objectives

- Students will complete a hands-on project experience representing the application of principles learned.
- Students will demonstrate a basic understanding of the following: systems approach to engineering; several technical subjects related to space systems; processes and procedures for development of space hardware.
- Students will work effectively in multifunctional teams.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Sven Bilén

Professor of Engineering Design, Electrical Engineering, and Aerospace Engineering

213B Hammond Building

University Park, PA 16802

814-863-1526

sgb100@psu.edu

Career Paths

Students will learn more about how to plan, design, build, integrate, test launch, operate, and manage various forms of space systems, subsystems, launch vehicles, spacecraft, payload or ground systems in order to work as space system architects, launch system experts, propulsion technicians and much more.

Contact

University Park

SCHOOL OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCE

Electrical Engineering East

University Park, PA 16802

814-863-1526

sgb100@psu.edu

<https://www.eecs.psu.edu/students/undergraduate/Majors-Minors-Certificates.aspx>

Surveying Engineering Technology, A.ENG.T.

Begin Campus: Wilkes-Barre

End Campus: Wilkes-Barre

Program Description

The Surveying Engineering Technology major provides the basic undergraduate education required for private and public service as a technician in the surveying profession. Basic knowledge is provided in the areas of boundary, construction, topographic, photogrammetry, laser scanning, and land development. The curriculum is designed to develop an individual understanding of the skills and equipment needed to make precise surveying measurements.

Graduates of the Surveying Engineering Technology major may qualify for admission to the baccalaureate degree majors in Surveying Engineering or Structural Design and Construction Engineering Technology.

What is Surveying Engineering Technology?

Surveying is the science of measuring physical features of Earth to collect spatial information and to establish land boundaries. Survey engineering technologists learn the elements of surveying as applied to construction, land, topographic, geodetic, city, and photogrammetric surveys.

You Might Like This Program If...

- You enjoy the outdoors.
- You have an interest in math and science.
- You are passionate about robotic, GPS, scanner, GIS, and drone technology.
- You are interested in geographic data and how it is captured, stored, manipulated, analyzed, and managed.

Entrance to Major

Students must have a minimum 2.0 GPA to change to this Associate degree after admission to the University.

Degree Requirements

For the Associate in Engineering Technology degree in Surveying Engineering Technology, a minimum of 66-69 credits is required:

Requirement	Credits
General Education	21
Requirements for the Major	57-60

12 of the 21 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GN courses; 3 credits of GQ courses; 6 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as

specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
EDSGN 100	Cornerstone Engineering Design	3
SUR 132	Surveying Software Analysis Tools	3
SUR 213	Route and Construction Surveying	3
SUR 222	Photogrammetry	3
SUR 241	Surveying Measurement Analysis	3
SUR 361	Surveying Laser Scanning	3
SUR 382	Subdivision Design	2
<i>Prescribed Courses: Require a grade of C or better</i>		
SUR 121	Elementary Surveying	3
SUR 122	Control Surveying	3
SUR 221	Large-scale Mapping Surveys	3
SUR 373W	Cadastral and Legal Aspects of Surveying	4
Additional Courses		
ENGL 202C	Effective Writing: Technical Writing	3
or ENGL 202D	Effective Writing: Business Writing	
MATH 22 & MATH 26	College Algebra With Analytic Geometry and Applications II and Plane Trigonometry and Applications of Trigonometry	5-6
or MATH 40	Algebra, Trigonometry, and Analytic Geometry	
Select 3-4 credits from the following:		3-4
PHYS 150	Technical Physics I	
PHYS 211	General Physics: Mechanics	
PHYS 250	Introductory Physics I	
Select 3-4 credits from the following:		3-4
PHYS 151	Technical Physics II	
PHYS 212	General Physics: Electricity and Magnetism	
PHYS 251	Introductory Physics II	
<i>Additional Courses: Require a grade of C or better</i>		
CAS 100A	Effective Speech	3
or CAS 100B	Effective Speech	
ENGL 15	Rhetoric and Composition	3
or ENGL 30H	Honors Rhetoric and Composition	
MATH 110	Techniques of Calculus I	4
or MATH 140	Calculus With Analytic Geometry I	

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all associate degree students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 3 credits
- **Writing and Speaking (GWS):** 3 credits

Knowledge Domains

- **Arts (GA):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Note: Up to six credits of Inter-Domain courses may be used for any Knowledge Domain requirement, but when a course may be used to satisfy more than one requirement, the credits from the course can be counted only once.

Exploration

- **Any General Education course (including GHW and Inter-Domain):** 3 credits

University Degree Requirements

Cultures Requirement

3 credits of United States (US) or International (IL) cultures coursework are required and may satisfy other requirements

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 60 degree credits must be earned for an associate degree. The requirements for some programs may exceed 60 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Educational Objectives

The Associate Surveying Engineering Technology program prepares students with technical and professional skills for professional practice. Within three to five years of graduation, our Associate Surveying Engineering Technology graduates will have:

1. Demonstrated proficiency in applying basic principles and methods of surveying practice to perform surveys, analyze results, and assist in surveying and/or engineering design solutions.

2. Demonstrated proficiency in effectively articulating technical and non-technical concepts to diverse audiences through written, verbal, and graphical mediums.
3. Worked collaboratively within multidisciplinary teams, showcasing their ability to function as productive team members, respect diverse perspectives, and contribute to team success.
4. Engaged in continuous professional development, or further their education to pursue professional certification(s), or participating in professional organizations, to enhance their knowledge and skills and stay current in the field.

Student Outcomes

Student outcomes describe what students are expected to know and be able to do by the time of graduation. The Associate Surveying Engineering Technology program is designed to enable students to:

1. Apply knowledge, techniques, skills, and modern tools of mathematics, science, engineering, and technology to solve well-defined engineering problems appropriate to the discipline.
2. Design solutions for well-defined technical problems and assist with the engineering design of systems, components, or processes appropriate to the discipline.
3. Apply written, oral, and graphical communication in well-defined technical and non-technical environments; and an ability to identify and use appropriate technical literature.
4. Conduct standard tests, measurements, and experiments and to analyze and interpret the results.
5. Function effectively as a member of a technical team.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Wilkes-Barre

Dimitrios Bolkas

Program Coordinator, Surveying Engineering Programs
Center for Technology, 104
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Dallas, PA 18612
570-675-9127
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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://>

bulletins.psu.edu/undergraduate/archive/) to view the appropriate Undergraduate Bulletin edition.

Surveying Engineering Technology, A.ENG.T. at Wilkes-Barre Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year		
Fall	Credits Spring	Credits
ENGL 15 (GWS) ^{††}	3 MATH 110 or 140 (GQ) ^{*††}	4
MATH 40 or 22 <i>and</i> 26	5-6 PHYS 150 or 250 (GN) [†]	3-4
EDSGN 100	3 SUR 122 [*]	3
SUR 121 [*]	3 SUR 132	3
General Education Course	3 CAS 100A or 100B (GWS) ^{††}	3
17-18		16-17
Second Year		
Fall	Credits Spring	Credits
PHYS 151 or 251 (GN)	3-4 ENGL 202C or 202D	3
SUR 221 [*]	3 SUR 222	3
SUR 213	3 SUR 373W [*]	4
SUR 241	3 SUR 382	2
SUR 361	3 General Education Course	3
	General Education Course	3
15-16		18

Total Credits 66-69

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

Graduates from the surveying engineering technology program work at government agencies and private industry companies and specialize in boundary surveying, geodesy, image analysis (photogrammetry and remote sensing), and geographic information systems.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE SURVEYING ENGINEERING TECHNOLOGY PROGRAM (<http://career.engr.psu.edu/>)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<http://www.engr.psu.edu/students/grad-prospective/default.aspx>)

Accreditation

The A.ENG.T. in Surveying Engineering Technology at Penn State Wilkes-Barre is Accredited by the Engineering Technology Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Surveying/Geomatics Engineering Technology and Similarly named Programs.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

University Park

SCHOOL OF ENGINEERING DESIGN AND INNOVATION
213 Hammond Building
University Park, PA 16802
814-865-2952

<https://www.sedi.psu.edu/>

Wilkes-Barre

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<https://wilkesbarre.psu.edu/academics/surveying/associate> (<https://wilkesbarre.psu.edu/academics/surveying/associate/>)

Surveying Engineering, B.S.

Begin Campus: Wilkes-Barre

End Campus: Wilkes-Barre

Program Description

The Surveying Engineering major provides a basic undergraduate education required for private and public service in the profession of surveying. Particular emphasis is placed on fundamental surveying principles required in all areas of surveying. Instruction is provided in the main divisions of surveying, including land surveying, boundary mapping, photogrammetry, laser scanning, data analysis and adjustment, geodesy and map projection coordinate systems, remote sensing, geographic information systems, and land development. Students study various data collection techniques using surveying tools including total stations, photogrammetry, laser scanners, unmanned aerial systems (UASs), remote sensing satellite imagery, and the global navigation satellite system (GNSS). They also study legal principles related to land surveying, professional ethics, applications for Geographic Information Systems

(GIS) in surveying, and data management techniques, and point cloud processing methods for 3D modeling and surveying product delivery.

What is Surveying Engineering?

Surveying is the science of measuring physical features of Earth to collect spatial information and to establish land boundaries. Surveying engineers learn the elements of surveying as applied to construction, land, topographic, geodetic, city, and photogrammetric surveys.

You Might Like This Program If...

- You enjoy the outdoors.
- You have an interest in math and science.
- You are passionate about robotic, GPS, scanner, GIS, and drone technology.
- You are interested in geographic data and how it is captured, stored, manipulated, analyzed, and managed.

Direct Admission to the Major

Incoming first-year students who meet the program admission requirements are admitted directly into the major. Admission restrictions may apply for change-of-major and/or change-of-campus students.

For more information about the admission process for this major, please send a request to the college, campus, or program contact (listed in the Contact tab).

Degree Requirements

For the Bachelor of Science degree in Surveying Engineering, a minimum of 127-128 credits is required:

Requirement	Credits
General Education	45
Electives	0-1
Requirements for the Major	108-110

27 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 9 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
EDSGN 100	Cornerstone Engineering Design	3
MATH 230	Calculus and Vector Analysis	4
MATH 251	Ordinary and Partial Differential Equations	4
PHYS 211	General Physics: Mechanics	4
PHYS 212	General Physics: Electricity and Magnetism	4
PHYS 214	General Physics: Wave Motion and Quantum Physics	2
SUR 132	Surveying Software Analysis Tools	3
SUR 213	Route and Construction Surveying	3
SUR 222	Photogrammetry	3

SUR 341	Adjustment Computations	3
SUR 352	Geometric and Physical Geodesy	3
SUR 361	Surveying Laser Scanning	3
SUR 381	Stormwater Hydraulics and Hydrology	4
SUR 421	Advanced Photogrammetry	3
SUR 441	Data Analysis and Project Design	3
SUR 455	Precise Positioning Systems	3
SUR 471	Professional Aspects of Land Surveying	3

Prescribed Courses: Require a grade of C or better

MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
MATH 220	Matrices	2-3
SUR 121	Elementary Surveying	3
SUR 122	Control Surveying	3
SUR 221	Large-scale Mapping Surveys	3
SUR 241	Surveying Measurement Analysis	3
SUR 373W	Cadastral and Legal Aspects of Surveying	4

Additional Courses

CE 410	Sustainable Residential Subdivision Design	3
or SUR 482	Land Development Design	
CMPS 201	Programming for Engineers with C++	3
or CMPS 200	Programming for Engineers with MATLAB	
STAT 401	Experimental Methods	3-4
or STAT 200	Elementary Statistics	

Select one of the following:		3
ECON 102	Introductory Microeconomic Analysis and Policy	
ECON 104	Introductory Macroeconomic Analysis and Policy	
ECON 14	Principles of Economics	

Additional Courses: Require a grade of C or better

CAS 100A	Effective Speech	3
or CAS 100B	Effective Speech	
ENGL 15	Rhetoric and Composition	3
or ENGL 30H	Honors Rhetoric and Composition	
ENGL 202C	Effective Writing: Technical Writing	3
or ENGL 202D	Effective Writing: Business Writing	

Supporting Courses and Related Areas

Select 6 credits from the following:		6
CE 300-level courses ¹		
CE 400-level courses ¹		
IE 302	Engineering Economy	
SUR 313	Integrated Surveying	
SUR 362	Introduction to Geospatial Information Engineering	
SUR 424	Monitoring Applications in Surveying	
SUR 432	Geospatial Applications in Surveying	
SUR 496	Independent Studies	
SUR 497	Special Topics	

¹ These courses are not offered at Wilkes-Barre campus. They are provided to accommodate concurrent degree students in CE and SURE.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills

necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits.

Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Educational Objectives

The Surveying Engineering program prepares students with technical and professional skills for professional practice. Within three to five years of graduation, our Surveying Engineering graduates will have:

1. Forged careers as surveyors, engineers, and/or managers within surveying, engineering, or related fields, whether in the private or public sector, actively contributing to business operations.
2. Demonstrated expertise in using mathematics, scientific principles, measurement techniques, and contemporary technology tools in surveying for proficiently collecting and analyzing spatial data, as well as for developing surveying and/or engineering design solutions for practical applications.
3. Exhibited a strong commitment to ethical and professional conduct, consistently adhering to industry standards and ethical principles across all aspects of their professional work.
4. Demonstrated proficiency in effectively articulating technical and non-technical concepts to diverse audiences through written, verbal, and graphical mediums.
5. Worked collaboratively within multidisciplinary teams, showcasing their ability to function as productive team members, lead projects, respect diverse perspectives, and contribute to team success.
6. Engaged in continuous professional development, including pursuing advanced degrees, pursuing professional certification(s) and/or licensure, or participating in professional organizations, to stay current in the field, enhance their knowledge and skills, and share that with the professional community.

Student Outcomes

Student outcomes describe what students are expected to know and be able to do by the time of graduation. The Surveying Engineering program is designed to enable students to:

1. Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. Apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. Communicate effectively with a range of audiences
4. Recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the

impact of engineering solutions in global, economic, environmental, and societal contexts

5. Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. Acquire and apply new knowledge as needed, using appropriate learning strategies.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Wilkes-Barre

Dimitrios Bolkas

Program Coordinator, Surveying Engineering
Center for Technology, 104
44 University Drive
Dallas, PA 18612
570-675-9127
dxb80@psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Surveying Engineering, B.S. at Wilkes-Barre Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

If you are starting at a campus other than the one this plan is ending at, please refer here:

<http://advising.engr.psu.edu/degree-requirements/academic-plans-by-major.aspx>

First Year

Fall	Credits Spring	Credits
ENGL 15 (GWS) ^{††}	3 ECON 102 or 104 (GS) [†]	3
EDSGN 100	3 MATH 141 (GQ) ^{*††}	4
PSU 8	1 PHYS 211 (GN) [†]	4
MATH 140 (GQ) ^{*††}	4 STAT 200	4
General Education Course	3 General Education Course	3
General Education Course	3	3
17		18

Second Year

Fall	Credits Spring	Credits
MATH 230	4 MATH 251	4
PHYS 212 (GN) [†]	4 PHYS 214 (GN)	2
CMPSC 201 or 200	3 ENGL 202C or 202D (GWS) ^{††}	3
SUR 121 [*]	3 SUR 122 [*]	3
	SUR 132	3
	MATH 220 [*]	2
14		17

Third Year

Fall	Credits Spring	Credits
SUR 221 [*]	3 SUR 222	3
SUR 213	3 SUR 373W [*]	4
SUR 241 [*]	3 SUR 341	3
SUR 361	3 SUR 352	3
CAS 100A or 100B (GWS) ^{††}	3 SUR 381	4
General Education Course (GHW)	1.5	
16.5		17

Fourth Year

Fall	Credits Spring	Credits
SUR 441	3 SUR 471	3
SUR 455	3 SUR 482	3
SUR 421	3 SUR 432 or 313 (Technical Elective)	3
SUR 362, 424, or IE 302 (Technical Elective)	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course	3
13.5		15

Total Credits 128

- * Course requires a grade of C or better for the major
 ‡ Course requires a grade of C or better for General Education
 # Course is an Entrance to Major requirement
 † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

Graduates from the surveying engineering program work at government agencies and private industry companies and specialize in boundary surveying, geodesy, image analysis (photogrammetry and remote sensing), and geographic information systems.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE SURVEYING ENGINEERING PROGRAM (<http://career.engr.psu.edu/>)

Professional Resources

- National Society of Professional Engineers (<https://nspes.us.com>)
- American Society of Civil Engineers (<http://www.asce.org>)

Accreditation

The Bachelor of Science in Surveying Engineering at Penn State Wilkes-Barre is accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Surveying and Similarly Named Engineering Programs.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

University Park

SCHOOL OF ENGINEERING DESIGN AND INNOVATION
 213 Hammond Building
 University Park, PA 16802
 814-865-2952
adviser@engr.psu.edu

<https://www.sedi.psu.edu/>

Wilkes-Barre

44 University Drive
 Dallas, PA 18612
 570-675-9127
dx80@psu.edu

<https://wilkesbarre.psu.edu/academics/surveying> (<https://wilkesbarre.psu.edu/academics/surveying/>)

Health and Human Development

About the College

Craig J. Newschaffer, Raymond E. and Erin Stuart Schultz Dean, College of Health and Human Development

The College of Health and Human Development (HHD) prepares students to succeed in careers in clinical healthcare professions, public health, human services, education, law and in the business of hospitality, recreation, tourism, healthcare and related services. Students explore the integration of the life and health sciences, the social and behavioral sciences, and organizational management and leadership skills in our academic programs. Experiential education through internships and project-based courses connects students with businesses, organizations and Penn State alumni in the field. Students have direct contact with patients, clients, families and consumers through global and cultural learning opportunities and service-learning programs. Innovative courses and undergraduate research opportunities with outstanding faculty who are respected scholars and leaders in their fields create a stimulating intellectual environment for students. An education in HHD is dedicated to all aspects of human health and wellness, improving the quality of human life, and addressing the challenges and opportunities the future presents. Our students and alumni are truly committed to helping people live their best lives.

MORE INFORMATION ABOUT THE COLLEGE (<https://hhd.psu.edu/>)

Mission and Goals

The College of Health and Human Development is a collaborative community of faculty, staff, students, and alumni that seeks to improve human health, development, and the quality of life for all people through innovative education, interdisciplinary research, and effective outreach with a scope that encompasses cells to society and conception through the end of life.

MORE INFORMATION ABOUT THE MISSION AND GOALS OF THE COLLEGE OF HEALTH AND HUMAN DEVELOPMENT (<https://hhd.psu.edu/about/strategic-plan/>)

Departments and Schools

Department of Biobehavioral Health

Biobehavioral Health is an innovative department that explores health in an integrated way by considering how behavioral, biological, social, cultural and environmental factors may influence health. Biobehavioral Health students develop a strong foundation for future work or study in a range of fields, such as public health, health care, epidemiology, psychology, genetics, neuroscience, health promotion, biomedical research, and medicine.

MORE INFORMATION ABOUT THE DEPARTMENT OF BIOBEHAVIORAL HEALTH (<https://hhd.psu.edu/bbh/>)

Department of Communication Sciences and Disorders

Communication Sciences and Disorders is a leader in preparing professionals who address prevention and rehabilitation of speech, language and hearing problems. The major incorporates linguistics, acoustics, psychology, anatomy, and neurobiology. Students typically pursue graduate study and professional certification and licensure and hold positions in hospitals, clinics, schools, research centers, and other settings.

MORE INFORMATION ABOUT THE DEPARTMENT OF COMMUNICATION SCIENCES AND DISORDERS (<https://hhd.psu.edu/csd/>)

Department of Health Policy and Administration

The nationally recognized program in Health Policy and Administration (HPA) prepares students to understand the problems of health care access, cost, and quality. HPA prepares students to work in health care management, policy analysis, or to pursue graduate study in business, law, medicine, health administration, health services research, or public health.

MORE INFORMATION ABOUT THE DEPARTMENT OF HEALTH POLICY AND ADMINISTRATION (<https://hhd.psu.edu/hpa/>)

School of Hospitality Management

The School of Hospitality Management (SHM) prepares our graduates to make a difference in the global world of hospitality through their skills in management and problem-solving, by combining people-skills along with analytical prowess. Our graduates learn in real-world facilities, research labs solving real-world problems, travel for domestic and international learning experiences, and engage as much with people as with novel technologies. The learning and engagement at SHM reflect today's relevant industry landscape providing experiences that prepare students for the many career opportunities offered in the diverse and exciting segments of the global hospitality industry, and will power their success in any complex, people-centric enterprise. Penn State's Hospitality Management program is amongst the oldest program in the nation, and amongst the most prestigious of its kind in the world.

MORE INFORMATION ABOUT THE SCHOOL OF HOSPITALITY MANAGEMENT (<https://hhd.psu.edu/shm/>)

Department of Human Development and Family Studies

Human Development and Family Studies (HDFS) is a social science program that emphasizes engaged learning to prepare students to work in a wide range of applied settings, including aging, family services, youth programs, child care and early childhood education, drug and alcohol rehabilitation, human resources, and other human service fields. Our graduates pursue advanced degrees in social work, psychology, counseling, human development, sociology, law, medicine, and public health fields. Coursework emphasizes psychological, social, and biological influences on individuals and families, and provides students with skills and experiences to prepare them to positively impact individuals, families, and communities.

MORE INFORMATION ABOUT THE DEPARTMENT OF HUMAN DEVELOPMENT AND FAMILY STUDIES (<https://hhd.psu.edu/hdfs/>)

Department of Kinesiology

Kinesiology offers an interdisciplinary program focused on human movement related to health, wellness, and performance. Students apply skills and knowledge in biomechanics, exercise physiology, motor-control, psychology, philosophy/history, and athletic training to real-life problems, preparing them for graduate study in allied health/medical professions and careers in fitness, wellness, teaching, and coaching.

MORE INFORMATION ABOUT THE DEPARTMENT OF KINESIOLOGY (<https://hhd.psu.edu/kines/>)

Department of Nutritional Sciences

Nutritional science is a dynamic discipline that applies biology and biochemistry concepts through understanding how the body utilizes

nutrients and related substances to optimize health throughout the life span. Students gain an understanding of the interplay of nutrition and lifestyle, food and food systems, food security and access to food, and how these areas relate to current public health issues, as well as to the development and dietary management of diseases. Students in Nutritional Sciences are prepared for careers in a variety of health/medical professions, behavioral nutrition, public health nutrition, industry, food systems management, and dietetics-related careers.

Students may select one or more Options: Behavioral Nutrition and Public Health, Nutritional Physiology and Biochemistry, and Nutrition and Dietetics. The Nutrition and Dietetics Option is accredited by the Accreditation Council for Education in Nutrition and Dietetics (ACEND).

MORE INFORMATION ABOUT THE DEPARTMENT OF NUTRITIONAL SCIENCES (<https://hhd.psu.edu/nutrition/>)

Department of Recreation, Park, and Tourism Management

Our goal is to educate and inspire students to facilitate recreation, park and tourism activities to transform health and human well-being for individuals and for communities. We integrate topics such as environmental sustainability, human development, health and well-being, social innovation and entrepreneurship, community and economic development, and leadership with an eye toward diversity and inclusion. RPTM students are prepared for graduate study as well as careers in natural resource and park management, sports, tourism (including ecotourism), event planning, resorts, live entertainment events, environmental education and interpretation, community recreation and non-profits, professional golf management and related fields.

MORE INFORMATION ABOUT THE DEPARTMENT OF RECREATION, PARK, AND TOURISM MANAGEMENT (<https://hhd.psu.edu/rptm/>)

Baccalaureate Degrees

- Biobehavioral Health, B.S. (Health and Human Development)
- Communication Sciences and Disorders, B.S. (Health and Human Development)
- Health Policy and Administration, B.S. (Health and Human Development)
- Hospitality Management, B.S. (Health and Human Development)
- Human Development and Family Studies, B.S. (Health and Human Development)
- Kinesiology, B.S. (Health and Human Development)
- Nutritional Sciences, B.S.
- Recreation, Park, and Tourism Management, B.S. (Health and Human Development)

Associate Degrees

- Human Development and Family Studies, A.S. (Health and Human Development)

Minors

- Diversity and Inclusion in Health and Human Development, Minor
- Global Health, Minor
- Health Policy and Administration, Minor
- Human Development and Family Studies, Minor

- Information Sciences and Technology in Health Policy and Administration, Minor
- Kinesiology, Minor
- Nutrition Studies, Minor
- Nutritional Sciences, Minor
- Recreation, Park, and Tourism Management, Minor
- Sport Studies, Minor

Certificates

- Meeting and Event Management, Certificate
- Professional Snowsports Education, Certificate

College Procedures

Change of Campus

Students may begin their studies in the College of Health and Human Development at any of the Penn State campuses and are expected to remain at the campus of admission until achieving fifth semester standing (59.1 or greater total credits earned). Students initiate a request for Change of Campus using the Update Campus application in LionPATH.

MORE INFORMATION ABOUT CHANGE OF CAMPUS (<https://hhd.psu.edu/undergraduate/advising/change-campus/>)

Concurrent Majors

A Concurrent Majors Program is one in which students take courses to concurrently meet the requirements of at least two majors, with graduation for all majors in the program occurring during the same semester. To add a concurrent major in the College of Health and Human Development, students must initiate the Add Major function in LionPATH located in Update Academics and complete the steps required for gaining approval for a concurrent major (<https://undergrad.psu.edu/aappm/M-3-concurrent-and-sequential-majors-program.html>). Students should work with academic advisers in both majors before initiating the LionPATH Update Academics request.

MORE INFORMATION ABOUT CONCURRENT MAJORS (<https://undergrad.psu.edu/aappm/M-3-concurrent-and-sequential-majors-program.html>)

READ SENATE POLICY 60-00: COMPLETING MORE THAN ONE UNDERGRADUATE MAJOR PROGRAM (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/60-00-completing-more-than-one-undergraduate-program/#60-00>)

Academic Warning

A student who fails to earn a 2.00 cumulative grade-point average will be placed on academic warning. A student placed on academic warning will have a hold placed on registration and will be required to meet with an academic adviser in order for this registration hold to be removed. Notifications concerning the hold will be sent to a student's campus email address. To remove academic warning, the cumulative grade-point average must be 2.00 or higher.

MORE INFORMATION ABOUT ACADEMIC WARNING (<https://hhd.psu.edu/undergraduate/advising/academic-progress/>)

READ SENATE POLICY 54-20: ACADEMIC WARNING (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-20>)

Academic Suspension

A student in academic warning who fails to maintain a semester grade-point average of 2.00 or higher will be academically suspended. A student who has been academically suspended may not schedule courses at the University for two consecutive semesters. (Note: Summer session is equal to one semester.) If suspended, a student should meet with their adviser to discuss re-enrollment.

MORE INFORMATION ABOUT ACADEMIC SUSPENSION (<https://hhd.psu.edu/undergraduate/advising/academic-progress/>)

READ SENATE POLICY 54-40: ACADEMIC SUSPENSION (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-40>)

Resources

Advising

The Center for Student Advising and Engagement serves as a central location to support College of Health and Human Development students and their families. The Center assists undergraduate students to explore educational opportunities and develop decision-making skills that will contribute to their academic, career, and life goals.

MORE INFORMATION ABOUT THE CENTER FOR STUDENT ADVISING AND ENGAGEMENT (<https://hhd.psu.edu/hhd/undergraduate/advising/>)

Diversity and Inclusion

The mission of the Office for Diversity and Inclusion is to promote and enhance the diversity of the college's faculty and student body, and to foster a welcoming and inclusive environment for everyone. With Student, Faculty, and Staff Engagement, we support the college's efforts to recruit, retain, and graduate underrepresented students in our majors. Furthermore, we provide direction, resources, and training to advance individual understanding of diversity, equity, and inclusion that affirms the collective responsibility of creating belonging.

MORE INFORMATION ABOUT THE OFFICE FOR DIVERSITY AND INCLUSION (<https://hhd.psu.edu/diversity-equity-inclusion/>)

Research Opportunities

Faculty in the College of Health and Human Development are world renowned for multidisciplinary research on all aspects of human health, developmental sciences, and management in hospitality, healthcare, human services, recreation and other service organizations. Undergraduates have opportunities to work with some of the brightest and most well-respected researchers in the world.

MORE INFORMATION ABOUT RESEARCH AND RESEARCH CENTERS (<https://hhd.psu.edu/undergraduate/research-opportunities/>)

Study Abroad

Resources available through the College of Health and Human Development can identify the best study abroad program for you. We have many faculty-led study abroad programs in the College, and can connect you with other Penn State-approved programs. We are also home to the Global Health minor.

MORE INFORMATION ABOUT STUDY ABROAD (<https://hhd.psu.edu/undergraduate/study-abroad/>)

Internship and Career Opportunities

Graduates from the College of Health and Human Development work in nearly every segment of the services economy—healthcare, hospitality, tourism, recreation, parks, sports, education, and all human service fields. The rapidly growing career paths offer meaningful and purposeful work improving the quality of life for people.

MORE INFORMATION ABOUT INTERNSHIP AND CAREER OPPORTUNITIES (<https://hhd.psu.edu/undergraduate/career-development/>)

College of Health and Human Development Mentoring Program

The College of Health and Human Development Mentoring Program connects HHD students and alumni by matching students who are juniors in their academic department with professionals in their field(s) of interest who can offer advice and information about career options or other issues relevant to particular fields.

MORE INFORMATION ABOUT THE COLLEGE OF HEALTH AND HUMAN DEVELOPMENT MENTORING PROGRAM (<https://hhd.psu.edu/alumni/get-involved/mentoring/>)

College Scholarships

The College of Health and Human Development (HHD) awards scholarships on the basis of academic achievement, financial need, school/community activities, leadership positions, and work experience. Students must be enrolled in the College of Health and Human Development or its majors to receive scholarship support. For questions or additional information regarding college scholarships please contact HHDScholarships@psu.edu.

MORE INFORMATION ABOUT THE COLLEGE OF HEALTH AND HUMAN DEVELOPMENT SCHOLARSHIPS (<https://hhd.psu.edu/scholarships/>)

Honors Programs

Schreyer Honors College

The Schreyer Honors College, regarded as one of the nation's top programs of its kind, promotes achieving academic excellence with integrity, building a global perspective, and creating opportunities for leadership and civic engagement. Schreyer Scholars, including those admitted after their first or second year of enrollment, are a diverse and motivated group of approximately 2,000 students at University Park and 20 Commonwealth campuses. The College strives to educate students who will have an important and ethical influence in the world, to improve educational practice, and to continue to be recognized as a leading force in honors education nationwide.

MORE INFORMATION ABOUT THE SCHREYER HONORS COLLEGE (<https://www.shc.psu.edu>)

Honors in the College of Health and Human Development

The College of Health and Human Development has a vibrant community of more than 100 Schreyer Honors College students. Department faculty advisers work closely with students to connect them with research

opportunities, fellowships and scholarships, and internships and clinical experiences.

MORE INFORMATION ABOUT HONORS IN THE COLLEGE OF HEALTH AND HUMAN DEVELOPMENT (<https://hhd.psu.edu/undergraduate/honors-programs/>)

Contact

COLLEGE OF HEALTH AND HUMAN DEVELOPMENT
Office of Undergraduate and Outreach Programs
104 Henderson Building
University Park, PA 16802
814-865-1428
healthhd@psu.edu

<https://hhd.psu.edu/>

Biobehavioral Health, B.S. (Health and Human Development)

Begin Campus: Any Penn State Campus

End Campus: University Park, World Campus

Program Description

This major provides interdisciplinary training designed to integrate biological, behavioral, and social science approaches to the study of human health and illness. Emphasis is placed on the study of physical health. The goal of this major is to help students gain working familiarity with multiple perspectives, approaches, and methods needed to address and solve problems of human health and illness. Students may select courses in the supporting courses category that will fulfill requirements for admission to graduate and professional programs. This major helps prepare graduates for entry-level jobs in a range of biomedical and health-related areas, including roles as research assistants, laboratory managers, biomedical product representatives, technical support positions in biomedical and health-related fields. This major also will provide excellent preparation for advanced study in natural and social science disciplines and related professional areas such as epidemiology, public health, environmental health and safety, and human services.

What is Biobehavioral Health?

Biobehavioral Health is the integrative scientific study of the many different factors (e.g., biology, psychology, environment) that affect health. The discipline focuses on how these different factors influence health and the development of interventions to improve health outcomes.

You Might Like This Program If...

- You are curious about all aspects of health.
- You want to understand the multiple and layered factors that influence health.
- You like to answer important questions by considering different perspectives, and you like to study information from many disciplines (e.g., biology, psychology, neuroscience, sociology, anthropology).
- You want to pursue a health-related career, whether it be in a laboratory, clinical practice, or consulting capacity.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Biobehavioral Health, a minimum of 121 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	97-99

21-22 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 3-4 credits of GQ courses; 9 credits of GN courses; 6 credits of GS courses; 3 credits of GHW courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned. BBH requires students to complete 24 credits for the major through courses taken at University Park, Greater Allegheny, New Kensington and through World Campus. For more information, check the Suggested Academic Plan for this major.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
NUTR 251	Introductory Principles of Nutrition	3
<i>Prescribed Courses: Require a grade of C or better</i>		
BBH 101	Introduction to Biobehavioral Health	3
BBH/AFAM 302	Diversity and Health	3
BBH 310	Research Strategies for Studying Biobehavioral Health	3
BBH 311	Interdisciplinary Integration in Biobehavioral Health	3
BBH 316	Foundations and Principles of Health Promotion	3
BBH 411W	Research and Applications in Biobehavioral Health	3
BBH/HPA 440	Principles of Epidemiology	3
BIOL 110	Biology: Basic Concepts and Biodiversity	4
BIOL 161	Human Anatomy and Physiology I - Lecture	3
BIOL 163	Human Anatomy and Physiology II - Lecture	3
PSYCH 100	Introductory Psychology	3
Additional Courses		
Select 3 credits from the following:		3
BBH 210	Biobehavioral Aspects of Genetics	
BIOL 133	Genetics and Evolution of the Human Species	
BIOL 222	Genetics	

Select 3 credits from the following: 3

BBH 301W Values and Ethics in Biobehavioral Health Research and Practice

PHIL 110 Philosophy of Science

PHIL 132/
BIOET 100 Bioethics

Select 9 credits from the following: 9

ANTH 21 Introductory Biological Anthropology

ANTH 22 Humans as Primates

ANTH 216N Sex and Evolution

BIOL 155 Introduction to the Biology of Aging

BIOL 162 Human Anatomy and Physiology I - Laboratory

BIOL 164 Human Anatomy and Physiology II - Laboratory

BIOL 220W Biology: Populations and Communities

BIOL 230W Biology: Molecules and Cells

BIOL 240W Biology: Function and Development of Organisms

BIOL 409 Biology of Aging

BIOL 422 Advanced Genetics

BMB 211 Elementary Biochemistry

CHEM 110 Chemical Principles I

CHEM 111 Experimental Chemistry I

CHEM 112 Chemical Principles II

CHEM 113 Experimental Chemistry II

CHEM 130 Introduction to General, Organic, and Biochemistry

CHEM 202 Fundamentals of Organic Chemistry I
or CHEM 210 Organic Chemistry ICHEM 203 Fundamentals of Organic Chemistry II
or CHEM 213 Laboratory in Organic Chemistry

CHEM 212 Organic Chemistry II

EARTH 100 Environment Earth

EARTH 100H Environment Earth: Environment and Energy

EARTH 103N Earth in the Future: Predicting Climate Change and Its Impacts Over the Next Century

EGEE/MATSE
101 Energy and the Environment

EGEE 101H Energy and the Environment

EGEE 102 Energy Conservation for Environmental Protection

EGEE 102H Energy Conservation for Environmental Protection

EMSC 101 Resource Wars

FDSC 404 Sensory Evaluation of Foods

FDSC 405 Food Engineering Principles

FDSC 406W Physiology of Nutrition

FDSC 407 Food Toxins

FDSC 408 Food Microbiology

GEOG 110 Climates of the World

GEOG 110H Climates of the World

GEOG 314 Biogeography and Global Ecology

MICRB 106 Elementary Microbiology

MICRB 107 Elementary Microbiology Laboratory

MICRB 201 Introductory Microbiology

MICRB 202 Introductory Microbiology Laboratory

PHYS 250 Introductory Physics I

PHYS 251 Introductory Physics II

PSYCH 260/
BBH 203 Neurological Bases of Human Behavior

PSYCH 460 Comparative Psychology

PSYCH 461 Advanced Conditioning and Learning

PSYCH 462 Physiological Psychology

PSYCH 464 Behavior Genetics

PSYCH 470 Abnormal Psychology

PSYCH 473 Behavior Modification

VBSC 211 The Immune System and Disease

VBSC 230 The Science of Poisons

VBSC 231 Introduction to Cancer Research and Medicine

Select 9 credits from the following: 9

CSD 100 Vocal Health for Life

CSD 146 Introduction to Communication Sciences and Disorders

CSD 218 American Sign Language I

CSD 230 Introduction to Audiology

CSD 269 Deaf Culture

HDFS 229 Infant and Child Development

HDFS 239 Adolescent Development

HDFS 249N Adult Development and Aging

HDFS/WMNST
250 Sexual Identity over the Life Span

HDFS 302A Leadership and Technology Skills for Human Services Professionals A

HDFS 311 Human Development and Family Studies Interventions

HDFS 315 Family Development

HDFS 405 Gender and Social Development

HDFS 416/
SOC 411 Racial and Ethnic Diversity and the American Family

HDFS 418 Family Relationships

HDFS 428 Infant Development

HDFS 429 Advanced Child Development

HDFS/SOC
431 Family Disorganization: Stress Points in the Contemporary Family

HDFS 433 Developmental Transition to Adulthood

HDFS 445/
PSYCH 416 Development Throughout Adulthood

HPA 57 Consumer Choices in Health Care

HPA 101 Introduction to Health Services Organization

HPA 310 Health Care and Medical Needs

KINES 100 The Cultural and Behavioral Foundations of Kinesiology

KINES 101 The Biophysical Foundations of Kinesiology

KINES 203 Medical Terminology for Allied Health Professionals

KINES 356 Activity and Disease

KINES 358 Ergogenic Aids

NURS 401 Concepts of Health

NURS/BBH/
WMNST 452 Women's Health Issues

NUTR 358 Assessment of Nutritional Status

NUTR 360 Nutrition Education and Behavior Change Theory

PSYCH 212	Introduction to Developmental Psychology	
PSYCH 243	Introduction to Well-being and Positive Psychology	
PSYCH 270	Introduction to Abnormal Psychology	
Select 3 credits from the following:		3
HDFS 129	Introduction to Human Development and Family Studies	
HDFS 229	Infant and Child Development	
HDFS 239	Adolescent Development	
HDFS 249N	Adult Development and Aging	
<i>Additional Courses: Require a grade of C or better</i>		
STAT 200	Elementary Statistics	3-4
or STAT 250	Introduction to Biostatistics	
Select 3-4 credits from the following:		3-4
BIOL 230W	Biology: Molecules and Cells	
CHEM 101	Introductory Chemistry	
CHEM 110	Chemical Principles I	
CHEM 110H	Chemical Principles I - Honors	
CHEM 130	Introduction to General, Organic, and Biochemistry	
MICRB 106	Elementary Microbiology	
Select 12 credits from the following (at least 6 credits must be at the 400 level):		12
BBH 203/ PSYCH 260	Neurological Bases of Human Behavior	
BBH 251	Straight Talks I: Advanced Sexual Orientation/ Gender Identity Peer Education	
BBH/AFR 305	Introduction to Global Health Issues	
BBH 315	Gender and Biobehavioral Health	
BBH 324	HealthWorks Peer Education Training	
BBH 325	Health Promotion Services Training	
BBH 368	Neuroanatomy, Behavior, and Health	
BBH 370	Environmental Health and Sustainability	
BBH 390A	Preparation for Global Health Field Experience	
BBH 402	African Health & Development	
BBH 407	Global Health Equity	
BBH 410	Developmental and Health Genetics	
BBH 416	Health Promotion II: Planning, Implementation, and Evaluation	
BBH 417	Advanced Applications in Health Promotion	
BBH 432	Biobehavioral Aspects of Stress	
BBH 446	Human Sexuality as a Health Concern	
BBH 451	Pharmacological Influences on Health	
BBH/WMNST 452	Women's Health Issues	
BBH/WMNST 458	Critical Feminist Issues in Reproduction	
BBH 468	Neuroanatomical Bases for Disorders of Behavior and Health	
BBH/BIOL 469	Neurobiology	
BBH/BIOL 470	Functional and Integrative Neuroscience	
BBH 490	Introduction to Internship Experience	

Supporting Courses and Related Areas

Select 3 credits in health promotion from approved list, in consultation with adviser 3

Select 12 credits in University-wide offerings from approved list, in consultation with adviser (Students may apply 6 credits of ROTC.) 12

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Biobehavioral Health and M.P.H. in Public Health

Requirements for the Integrated B.S. in Biobehavioral Health and M.P.H. in Public Health can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/public-health/#integratedundergradgradprogramstext>).

Program Learning Objectives

- **Critical Evaluation of Research:** Critically evaluate current empirical research on health and disease, explaining implications and limitations to the lay public.
- **Disparity Mechanisms:** Explain how the fundamental processes underlying health and disease can interact to produce individual differences in health, and health disparities among groups.
- **Ethics:** Understand and apply ethical principles in the conduct of research and professional practice and in the analyses in implementations of health-related policies and programs.
- **Health Factors:** Describe and understand the fundamental biological, behavioral, social, cultural and environmental processes that influence health and disease.
- **Promotion/Prevention:** Plan, implement, and evaluate health promotion/disease prevention programs for diverse populations.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary

academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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World Campus

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Biobehavioral Health, B.S. at University Park Campus and World Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BBH 101*	3 BIOL 110**†	4
BIOL 161**†	3 BIOL 163**†	3
BIOL 162 (Recommended Basic Science Course for Health Professions) ¹	1 BIOL 164 (Recommended Basic Science Course for Health Professions) ¹	1
General Education Course (GWS) (ENGL 15, ENGL 30H, ESL 15, ENGL/CAS 137H recommended) [‡]	3 HDFS 129, 229, 239, or 249N [†]	3
General Education Course (GQ) [‡]	3 Health and Developmental Science ²	3
First Year Seminar	1-2 PSYCH 100**†	3
	14-15	17

Second Year

Fall	Credits Spring	Credits
BBH 316*	3 BBH 301W, PHIL 110, or PHIL 132 (Ethics)	3
STAT 200 or 250**††	3-4 BBH 311*	3
Health and Developmental Science ²	3 NUTR 251 [†]	3
Life Science*	3 General Education Course (GWS) (CAS 100A, CAS 100B, CAS 100C, ENGL/CAS 138T recommended) [‡]	3
General Education Course (Integrative Studies: Inter-Domain)	3 General Education Course (Integrative Studies: Inter-Domain)	3
	15-16	15

Third Year

Fall	Credits Spring	Credits
BBH 210, BIOL 133, or BIOL 222 [†]	3 Basic Science ¹	3
BBH 302*	3 BBH Additional 2XX-4XX level ^{*5}	3
BBH 310 or 310H*	3 University-Wide Offerings ⁴	3
BBH Additional 2XX-4XX level ^{*5}	3 General Education Course (GWS) (ENGL 202A or 202D preferred) [‡]	3
Health and Developmental Science ²	3 General Education Course (GH)	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
BBH 440*	3 Basic Science ¹	1-3

BBH 411W*	3 BBH Additional 4XX level ^{*5}	3
Basic Science ¹	3 BBH Additional 4XX level ^{*5}	3
Health Promotion ⁶	3 University-Wide Offerings ⁴	5-6
University-Wide Offerings ⁴	3 General Education Course (GA)	3
	15	15-18

Total Credits 121-126

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Basic Science: ANTH 21, ANTH 22, ANTH 216N, ANTH 411, BMB 211, BIOL 155, BIOL 162, BIOL 164, BIOL 220W, BIOL 230W, BIOL 240W, BIOL 422, BIOL 409, BIOL 475N, BIOL 479, CHEM 110, CHEM 111, CHEM 112, CHEM 113, CHEM 202 or CHEM 210, CHEM 203 or CHEM 213, CHEM 212, EARTH 100, EARTH 103N, EGEE 101, EGEE 102, EMSC 101, FDSC 404, FDSC 405, FDSC 406, FDSC 407, FDSC 408, GEOG 110, GEOG 314, KINES 202, MICRB 106, MICRB 107, MICRB 201, MICRB 202, PHYS 250, PHYS 251, PSYCH 260, PSYCH 460, PSYCH 461, PSYCH 462, PSYCH 464, PSYCH 470, PSYCH 473, VBSC 211, VBSC 230, VBSC 231.

² Health and Developmental Science: CMAS 258, CMAS 465, CMAS 466, CSD 100, CSD 146, CSD 218, CSD 230, CSD 269, HPA 57, HPA 101, HPA 310, HPA 410, HDFS 229, HDFS 239, HDFS 249N, HDFS 250, HDFS 254N, HDFS 258, HDFS 302A, HDFS 311, HDFS 315, HDFS 405, HDFS 416, HDFS 418, HDFS 428, HDFS 429, HDFS 431, HDFS 433, HDFS 445, HDFS 465, HDFS 467, KINES 100, KINES 101, KINES 141, KINES 180, KINES 203, KINES 233, KINES 321, KINES 356, KINES 358, KINES 426, KINES 428, NURS 203, NURS 251, NURS 225, NUTR 111, NUTR 358, NUTR 360, NUTR 361, NUTR 425, NUTR 453, NUTR 456, NUTR 466, NUTR 495, PSYCH 212, PSYCH 243, PSYCH 270, PSYCH 410, PSYCH 412, PSYCH 413, PSYCH 414, PSYCH 415, PSYCH 422, RPTM 100, RPTM 120, RHS 403, SPAN 300B.

³ Life Sciences: CHEM 130, CHEM 110, MICRB 106, or BIOL 230W.

⁴ University-Wide Offerings: Choose in consultation with adviser.

⁵ BBH Additional Courses: BBH 203, BBH 251, BBH 302, BBH 305, BBH 315, BBH 324, BBH 325 (only 3 credits of BBH 324 or 325 can be taken), BBH 368, BBH 390A, BBH 402, BBH 407, BBH 410, BBH 416, BBH 417, BBH 432, BBH 446, BBH 451, BBH 452, BBH 458, BBH 468, BBH 469, BBH 470, BBH 490.

⁶ Health Promotion: BBH 416, 417, 495, 497S, CAS 453, HDFS 401, 410, 414, 415, 440, 446, 450, 452, 453, 454, 455, HPA 401, 433, 450, KINES 403, 445, NURS 401, 464, NUTR 495, PSYCH 441, 474.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain

attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

Exceptions may be permitted if a required Entrance to Major course is not offered at a student's designated campus. Students should speak to their academic adviser if this applies to them.

LIMITATIONS ON SOURCE AND TIME FOR CREDIT ACQUISITION: Per Senate policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Most majors in Health and Human Development require students to complete up to 24 credits for the major through courses taken at University Park. Courses taken at other Penn State campuses may not be counted toward this 24 credit minimum.

Within the 30 credits of required General Education Domain courses, students must take 6 credits of **Integrative Studies courses**. If you need additional clarification, consult with your academic adviser.

HHD allows up to 6 credits from ROTC study to be counted toward General Education and major requirements. Some programs allow additional ROTC credits to be used for degree requirements.

Biobehavioral Health, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BBH 101 (or Health and Developmental Science) ^{*1}	3 BIOL 163 ^{*†}	3
General Education Course (GQ) [‡]	3 BIOL 164 (Recommended Basic Science) ²	1
General Education Course (GWS) (ENGL 15, ENGL 30H, ESL 15, ENGL/CAS 137H recommended) [‡]	3 HDFS 129, 229, 239, or 249N [†]	3
PSYCH 100 ^{*†}	3 Health and Developmental Science ¹	3
BIOL 161 ^{*†}	3 General Education Course (GA) (Recommended Inter-Domain)	3
BIOL 162 (Recommended Basic Science) ²	1 BIOL 110 ^{*†}	4
PSU First-Year Seminar	2	
	18	17

Second Year

Fall	Credits Spring	Credits
General Education Course (GA)	3 BBH 301W, PHIL 110, or PHIL 132 (Ethics)	3
STAT 200 or 250 ^{*††}	3-4 Basic Science ²	3
CHEM 130, 110, MICRB 106, or BIOL 230W ^{*3}	3-4 NUTR 251 [†]	3
Health and Developmental Science ¹	3 General Education Course (GWS) (CAS 100, CAS 100A, CAS 100B, CAS 100C, ENGL/CAS 138T recommended) [‡]	3
University-Wide Offerings ⁴	3 General Education (GH) (Recommended Inter-Domain)	3
	15-17	15

Third Year

Fall	Credits Spring	Credits
BBH 101 (or Health and Developmental Science) ^{*1}	3 BBH 310 [*]	3
General Education Course (GWS) (ENGL 202A recommended) [‡]	3 BIOL 133, 222, or BBH 210	3
Basic Science ²	3 BBH 311 [*]	3
University-Wide Offerings ⁴	3 BBH 316 [*]	3
General Education Course (GH)	3 Basic Science ²	1
	15	13

Fourth Year

Fall	Credits Spring	Credits
BBH 302 [*]	3 BBH Additional 2XX-4XX Level ^{*5}	3
BBH 411W [*]	3 BBH Additional 2XX-4XX Level ^{*5}	3
BBH 440 [*]	3 BBH Additional 4XX Level ^{*5}	3
Health Promotion ⁶	3 BBH Additional 4XX Level ^{*5}	3
University-Wide Offerings ⁴	3 University Wide Offerings ⁴	3
	15	15

Total Credits 123-125

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Health and Developmental Science: CMAS 258, CMAS 465, CMAS 466, CSD 100, CSD 146, CSD 218, CSD 230, CSD 269, HPA 57, HPA 101, HPA 310, HPA 410, HDFS 229, HDFS 239, HDFS 249N, HDFS 250, HDFS 254N, HDFS 258, HDFS 302A, HDFS 311, HDFS 315, HDFS 405, HDFS 416, HDFS 418, HDFS 428, HDFS 429, HDFS 431, HDFS 433, HDFS 445, HDFS 465, HDFS 467, KINES 100, KINES 101, KINES 141, KINES 180, KINES 203, KINES 233, KINES 321, KINES 356, KINES 358, KINES 426, KINES 428, NURS 203, NURS 251, NURS 225, NURS 466, NUTR 111, NUTR 358, NUTR 360, NUTR 361, NUTR 425, NUTR 453, NUTR 456, NUTR 495, PSYCH 212, PSYCH 243, PSYCH 270, PSYCH 410, PSYCH 412, PSYCH 413, PSYCH 414, PSYCH 415, PSYCH 422, RPTM 100 RPTM 120, RHS 403, SPAN 300B.

² Basic Science: ANTH 21, ANTH 22, ANTH 216N, ANTH 411, BMB 211, BIOL 155, BIOL 162, BIOL 164, BIOL 220W, BIOL 230W, BIOL 240W, BIOL 422, BIOL 409, BIOL 475N, BIOL 479, CHEM 110, CHEM 111, CHEM 112, CHEM 113, CHEM 202 or CHEM 210, CHEM 203 or CHEM 213, CHEM 212, EARTH 100, EARTH 103, EGEE 101, EGEE 102, EMSC 101, FDSC 404, FDSC 405, FDSC 406, FDSC 407, FDSC 408, GEOG 110, GEOG 314, GEOSC 10, KINES 202, MICRB 106, MICRB 107, MICRB 201, MICRB 202, PHYS 250, PHYS 251, PSYCH 260, PSYCH 460, PSYCH 461, PSYCH 462, PSYCH 464, PSYCH 470, PSYCH 473, VBSC 211, VBSC 230, VBSC 231.

³ Life Sciences: CHEM 130, CHEM 110, MICRB 160 or BIOL 230W.

⁴ University-Wide Offerings: AIR 151, 152, 251, 252, 351, ARMY 101, 102, 203, 204, 301, 302, BBH 48, 148S, 390B, 494, 494H, 496, BIOL 162, 164, 400, 411, 496, BISC 2, 3, 4, BMB 211, 401 CHEM 111, 113, 202, 203, 210, 212, 213, CMAS 258, 465, 466, 493, CAS 203, 250, 253, 271, CED 152, 155 ECON 102, ECON 104 HDFS 465, 496, HHD 397, MICRB 107, 201, 202 NAVSC 101, 102, 204, 205, 311 PHYS 211, 212, 250, 251, PSU 1st Year Seminars, PSYCH 221, 231, 238, 256, 494, 496 RHS 300, RHS 301, RHS 303, SOC 1, 3, 5, 30, 119, SPAN 1, 2, 3, 100B, (additional courses can be considered in consultation with a BBH adviser).

⁵ BBH Elective: BBH 203, BBH 251, BBH 302, BBH 305, BBH 315, BBH 324, BBH 325 (only 3 credits of BBH 324 or 325 can be taken), BBH 368, BBH 390A, BBH 402, BBH 407, BBH 410, BBH 416, BBH 417, BBH 432, BBH 446, BBH 451, BBH 452, BBH 458, BBH 468, BBH 469, BBH 470, BBH 490.

⁶ Health Promotion: BBH 416, 417, 495, 497S, CAS 453, HDFS 401, 410, 414, 415, 440, 446, 450, 452, 453, 454, 455, HPA 401, 433, 450, KINES 403, 445, NURS 401, 464, NUTR 495, PSYCH 441, 474.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

LIMITATIONS ON SOURCE AND TIME FOR CREDIT ACQUISITION: Per Senate policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Most majors in Health and Human Development require students to complete up to 24 credits for the major through courses taken at University Park. Courses taken at other Penn State campuses may not be counted toward this 24 credit minimum.

Within the 30 credits of required General Education Domain courses, students must take 6 credits of **Integrative Studies courses** (Inter-domain or Linked courses). If you need additional clarification, consult with your academic adviser.

Career Paths

Students with a B.S. in Biobehavioral Health have been successful in establishing careers in a variety of fields. Four example areas of employment include: clinical professions in health care, biomedical and pharmaceutical research support, health advocacy and consulting, and public health. Advanced career tracks may require a graduate or professional degree. Students are encouraged to engage in practical learning experiences that complement formal classroom learning. These can include training at the University Health Services or a hospital, working in a research laboratory, and/or a health-related internship or travel experience. Several engaged learning experience programs available include: BBH Internship program, Global Health minor, BBH research laboratory assistant, Clinical Volunteer Training, and HealthWorks.

Careers

- Examples of careers that BBH graduates might pursue include:
- Clinic Professions in Health care: physician assistant, physician, pharmacist, nurse, health care support staff
- Biomedical and Pharmaceutical Research Support: laboratory manager, study coordinator, research assistant
- Health Advocacy and Consulting: health education specialist, social worker, genetic counselor
- Public Health: public and community health worker, epidemiologist, substance abuse, behavioral disorder, and mental health counselors

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE BIOBEHAVIORAL HEALTH PROGRAM (<https://hhd.psu.edu/bbh/undergraduate/internships-and-career-opportunities/career-areas-major/career-opportunities/>)

Opportunities for Graduate Studies

Depending on your career goals, BBH students might consider completing a graduate degree in biomedical, pharmaceutical or related health services research (e.g., M.S., Ph.D.), a clinical graduate program (e.g., M.D., D.O., P.A., Pharm. D.) or a professional degree in public health, health administration, social work, public policy or administration or law (e.g., M.P.H., M.H.A., M.S.W., M.P.A., M.P.P., J.D.)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://hhd.psu.edu/bbh/graduate/>)

Professional Resources

- Explore Health Careers (<https://explorehealthcareers.org/>)
- National Institutes of Health Postbaccalaureate Intramural Research Training Award (<https://www.training.nih.gov/research-training/pb/pb/>)
- American Academy of Physical Assistants - 5 Tips for Getting into PA School (<https://www.aapa.org/news-central/2014/06/5-tips-for-getting-into-pa-school/>)
- Accreditation Council for Genetic Counseling – List of Accredited Programs (<https://www.gceducation.org/students-volunteers/#program>)
- American Physical Therapy Association – List of Accredited Programs (<https://aptaapps.apta.org/accreditedschoolsdirectory/captedirectory.aspx>)
- American Occupational Therapy Association, Inc (<https://www.aota.org/>)
- Association of Schools and Programs of Public Health (<https://aspgh.org/student-journey/>)
- Honoring Diversity in BBH (<https://hhd.psu.edu/bbh/honoring-diversity/>)

Contact

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<https://greaterallegheny.psu.edu/academics/degree-programs/biobehavioral-health> (<https://greaterallegheny.psu.edu/academics/degree-programs/biobehavioral-health/>)

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<https://harrisburg.psu.edu/behavioral-sciences-education/biobehavioral-health-bs> (<https://harrisburg.psu.edu/behavioral-sciences-education/biobehavioral-health-bs/>)

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<https://lehighvalley.psu.edu/academics/degrees/biobehavioral-health>
(<https://lehighvalley.psu.edu/academics/degrees/biobehavioral-health/>)

New Kensington

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<https://newkensington.psu.edu/academics/4-year-biobehavioral-health>
(<https://newkensington.psu.edu/academics/4-year-biobehavioral-health/>)

World Campus

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-biobehavioral-health-bachelor-of-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-biobehavioral-health-bachelor-of-science-degree>)

Communication Sciences and Disorders, B.S. (Health and Human Development)

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

This major offers a comprehensive program of study for preparing students who want to become speech-language pathologists or audiologists. The curriculum is specifically designed for the sole purpose of preparing undergraduate students for graduate study in communication sciences and disorders or related areas. This occurs because state licensure laws and professional certifications require that a speech-language pathologist or audiologist must have a master's degree, pass a national test, and complete a clinical fellowship year.

Overall, the curriculum enables students to develop fundamental knowledge based on scientific principles, skills, and attitudes required for habilitating and rehabilitating persons of all ages with a wide range of speech, language, and hearing problems. Further, the curriculum allows students an opportunity to explore all aspects of communication sciences and disorders as well as elect courses of special interest.

The first two years of study emphasize general education and background study. The last two years of study emphasize normal and disordered aspects of speech, language, and hearing as well as professional management, concerns, and obligations. Clinical observation and diversity focused coursework are included in the curriculum.

What is Communication Sciences and Disorders?

Communication Sciences and Disorders (CSD) is the study of human communication disorders. Undergraduate students acquire a strong foundation in the basic sciences and processes related to typical, delayed and disordered speech, language, cognition, swallowing, and hearing. Students gain critical-thinking abilities necessary to apply foundational knowledge and skills to the identification, assessment, and treatment of communication disorders. Graduates proceed to advanced degrees in speech-language pathology or audiology to habilitate and rehabilitate children and adults with a variety of disorders and delays through service and research. Speech-language pathologists and audiologists are employed in environments such as schools, hospitals, rehabilitation centers, community clinics and nursing homes.

You Might Like This Program If...

- You know you will find fulfillment in working closely with others.
- You want to pursue a career in a helping profession.
- You envision yourself teaching people skills to improve their quality of life.
- You want to develop new interventions for those with communications disorders.

MORE INFORMATION ABOUT COMMUNICATION SCIENCES AND DISORDERS (<https://hhd.psu.edu/csd/communication-sciences-and-disorders-undergraduate-program/>)

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Communication Sciences and Disorders, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	30
Requirements for the Major	54-55

9-10 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GS courses; 3-4 credits of GQ courses.

To satisfy graduation requirements, students must have completed 6 credits from courses offered in the college and outside the department in which the major is offered.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned. CSD requires students to complete 24 credits for the major through courses taken at University Park. Courses taken at other Penn State campuses may not be counted toward this 24 credit minimum. For more information, check the Suggested Academic Plan for this major.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
PSYCH 100	Introductory Psychology	3
<i>Prescribed Courses: Require a grade of C or better</i>		
CSD 146	Introduction to Communication Sciences and Disorders	3
CSD 230	Introduction to Audiology	3
CSD 269	Deaf Culture	3
CSD 300	Developmental Considerations in the Assessment and Treatment of Language Disorders	3
CSD 311	Clinical Phonetics	3
CSD 331	Anatomy and Physiology for Speech and Hearing	3
CSD 341	Acoustic Principles in Communication Sciences and Disorders	3
CSD 433	Aural Rehabilitation	3
CSD 442	Introduction to Disorders of Articulation and Phonology	3
CSD 444	Introduction to Organic Disorders of Speech and Language	3
CSD 451	An Introduction to Augmentative and Alternative Communication	3
CSD 459W	Principles of Clinical Management in Communication Disorders	3
CSD 462	Clinical Bases of Language Disorders	3
Additional Courses		
EDPSY 14	Learning and Instruction	3
or PSYCH 261	Introduction to Psychology of Learning	
HDFS 129	Introduction to Human Development and Family Studies	3
or PSYCH 212	Introduction to Developmental Psychology	
Select 3-4 credits of the following:		3-4
EDPSY 101	Analysis and Interpretation of Statistical Data in Education	
PSYCH 200	Elementary Statistics in Psychology	
STAT 200	Elementary Statistics	
Select one of the following:		3
HDFS 229	Infant and Child Development	
HDFS 249N	Adult Development and Aging	

HDFS 315	Family Development
HDFS 411	The Helping Relationship
HDFS 418	Family Relationships
HDFS 432	Developmental Problems in Childhood and Adolescence
PSYCH 270	Introduction to Abnormal Psychology
PSYCH 471	Psychology of Adjustment and Social Relationships

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- Communication Skills:
 - Demonstrate effective written communication skills to explain and describe content and research knowledge, and critical thinking skills as they apply to topics in CSD
 - Demonstrate effective spoken communication skills to explain and describe content and research knowledge, and critical thinking skills as they apply to topics in CSD
- Content Knowledge:
 - Explain and apply knowledge of the developmental norms for speech/language acquisition
 - Explain and apply knowledge of the theoretical and scientific foundations of CSD
 - Explain and apply knowledge of speech, language and hearing disorders
 - Explain how individual, cultural, and linguistic differences contribute to understanding of language and communication
 - Discuss current technological advances and illustrate their use for clinical problem solving
 - Demonstrate knowledge of the basic clinical process for the evaluation and remediation of communication disorders and differences
- Critical Thinking Skills and Research Knowledge:
 - Apply critical thinking, problem solving and logical reasoning skills to topics in CSD
 - Develop and explain the scientific method and basic analytic skills for interpretation of research
 - Identify and apply "evidence-informed decision making" as a lifelong learning perspective

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Undergraduate Advising

308 Ford Building
University Park, PA 16802
814-865-3584
csdinfo@psu.edu

<https://hhd.psu.edu/csd/undergraduate/advising-csd> (<https://hhd.psu.edu/csd/undergraduate/advising-csd/>)

Harrisburg

Paul M. Evitts, Ph.D., CCC-SLP

Program Chair
777 West Harrisburg Pike
W-344 Olmsted Building
Middletown, PA 17057
717-948-6326
pxe5073@psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Communication Sciences and Disorders, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CSD 146*	3 CSD 230*	3
General Education Course (GWS) (ENGL 15, ENGL 30H, ESL 15, or ENGL/CAS 137H recommended) [†]	3 HDFS 129 or PSYCH 212 (General Education Course, GS, Exploration) [†]	3

PSYCH 100 (GS) [†]	3 STAT 200, EDPSY 101, or PSYCH 200 (STAT 200 Recommended) ^{‡†}	3-4
General Education Course (Integrative Studies: Inter-Domain) ¹	3 General Education Course (GWS) (CAS 100A, CAS 100B, CAS 100C or ENGL/CAS 138T recommended) [‡]	3
General Education Course (GH) ¹	3 General Education Course (GN) Human Biological ²	3
First Year Seminar	1-2	
16-17		15-16

Second Year

Fall	Credits Spring	Credits
CSD 269*	3 CSD 311*	3
CSD 300*	3 CSD 331*	3
HDFS 229, 249N, 315, 411, 418, 432, PSYCH 270, or PSYCH 471	3 EDPSY 14 or PSYCH 261	3
General Education Course (Integrative Studies: Inter-Domain) ¹	3 General Education Course (Exploration) ¹	3
General Education Course (GN, Physical Science, Exploration) ²	3 General Education Course (GA) ¹	3
15		15

Third Year

Fall	Credits Spring	Credits
CSD 433*	3 CSD 341*	3
CSD 442*	3 CSD 462*	3
General Education Course (GQ) ^{‡1}	3 General Education Course (GWS) (ENGL 202A or ENGL 202B recommended) [‡]	3
General Education Course (GHW) ¹	3 Elective ¹	3
Elective ¹	3 Elective ¹	3
15		15

Fourth Year

Fall	Credits Spring	Credits
CSD 444*	3 CSD 459W*	3
CSD 451*	3 Elective (CSD 431 recommended) ¹	3
Elective ¹	3 Elective ¹	3
Elective ¹	3 Elective ¹	3-4
Elective ¹	3 Elective ¹	2-3
15		14-16

Total Credits 120-124

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

or Audiology require a biological science course and a physical science (physics or chemistry) course, so GN courses should be selected with this in mind. For course suggestions, please visit: <https://hhd.psu.edu/csd/student-support/courses> (<https://hhd.psu.edu/csd/student-support/courses/>).

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- ASHA (<https://www.asha.org/>) requires 25 documented guided observation hours with an ASHA-certified speech pathologist or audiologist. These may be completed on your own or through a credit-bearing course.
- For CSD majors, the Writing Across the Curriculum requirement is completed once the student has passed CSD 459W.
- Some CSD courses may be offered at locations other than University Park.
- HHD allows up to 6 credits from ROTC study to be counted toward General Education and major requirements. Some programs allow additional ROTC credits to be used for degree requirements.

¹ For course suggestions, please visit: <https://hhd.psu.edu/csd/student-support/courses> (<https://hhd.psu.edu/csd/student-support/courses/>).

² ASHA (<https://www.asha.org/certification/course-content-areas-for-slp-standards/>) requirements for admission to graduate school in SLP

Communication Sciences and Disorders, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSYCH 100 (GS) [†]	3 HDFS 129 or PSYCH 212 (GS) [†]	3
General Education Course (GWS) (ENGL 15, ENGL 30H, ESL 15, or ENGL/CAS 137H recommended) [‡]	3 STAT 200, EDPSY 101, or PSYCH 200 (GQ) ^{†‡}	4-3
General Education Course (Integrative Studies) ¹	3 General Education Course (GWS) (CAS 100A, CAS 100B, CAS 100C, or ENGL/CAS 138T recommended) [‡]	3
General Education Course (GH) ¹	3 General Education Course (GN) Human Biological ²	3
General Education Course (GA) ¹	3 General Education Course (Integrative Studies) ¹	3
PSU First Year Seminar ³	1	
	16	16-15

Second Year

Fall	Credits Spring	Credits
HDFS 229, 249N, 315, 411, 418, 432, PSYCH 270, or PSYCH 471	3 EDPSY 14 or PSYCH 261	3
General Education Course (Exploration) ¹	3 General Education Course (GWS) (ENGL 202A or 202B recommended) [‡]	3
General Education Course (GN) Physical Science ²	3 General Education Course (GQ) ^{†1}	3
General Education Course (GHW) ¹	3 Elective ¹	3
Elective ¹	3 Elective ¹	3
	15	15

Third Year

Fall	Credits Spring	Credits
CSD 146 [*]	3 CSD 300 [*]	3
CSD 230 [*]	3 CSD 311 [*]	3
CSD 269 [*]	3 CSD 331 [*]	3
Elective ¹	3 CSD 433 [*]	3
Elective ¹	3 Elective ¹	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
CSD 341 [*]	3 CSD 451 [*]	3
CSD 442 [*]	3 CSD 462 [*]	3
CSD 444 [*]	3 CSD 459W [*]	3

Elective ¹	3 Elective (CSD 431 recommended) ¹	3
Elective ¹	3 Elective ¹	1-2
	15	13-14

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ For course suggestions, please visit: <https://hhd.psu.edu/csd/student-support/courses> (<https://hhd.psu.edu/csd/student-support/courses/>).

² ASHA (<https://www.asha.org/certification/course-content-areas-for-slp-standards/>) requirements for admission to graduate school in SLP or Audiology require a biological science course and a physical science (physics or chemistry) course, so GN courses should be selected with this in mind. For course suggestions, please visit: <https://hhd.psu.edu/csd/student-support/courses> (<https://hhd.psu.edu/csd/student-support/courses/>).

³ First year seminar not required at some campuses.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- ASHA (<https://www.asha.org/>) requires 25 documented guided observation hours with an ASHA-certified speech pathologist or audiologist. These may be completed on your own or through a credit-bearing course.
- For CSD majors, the Writing Across the Curriculum requirement is completed once the student has passed CSD 459W.
- Some CSD courses may be offered at locations other than University Park.

Career Paths

Students who complete an advanced degree in speech-language pathology evaluate, diagnose and provide treatment for people of all ages who have communication disabilities and differences. Speech-language pathologists with master's degrees work in hospital and rehabilitation centers, schools, community clinics, nursing homes, and private practice. Audiology students who complete a clinical doctorate of audiology degree (Au.D.) evaluate, diagnose and treat people of all ages with hearing loss. Speech-language pathologists and audiologists who

earn doctorate (Ph.D.) degrees typically teach and conduct research in a university setting.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE COMMUNICATION SCIENCES AND DISORDERS PROGRAM (<https://hhd.psu.edu/csd/undergraduate/careers/>)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://hhd.psu.edu/csd/communication-sciences-and-disorders-graduate-program/>)

Professional Resources

- American Speech-Language-Hearing Association (ASHA) (<https://www.asha.org>)
- National Student Speech Language Hearing Association (NSSLHA) (<https://www.nsslha.org>)
- National#Black#Association#for#Speech-Language#and#Hearing#(NBASLH) (<https://www.nbaslh.org>)
- Penn#State#Sign#Language#Organization (<https://pennstateslo.weebly.com>)

Contact

University Park

DEPARTMENT OF COMMUNICATION SCIENCES AND DISORDERS
308 Ford Building
University Park, PA 16802
814-865-3584
csdinfo@psu.edu

<https://hhd.psu.edu/csd> (<https://hhd.psu.edu/csd/>)

Harrisburg

COMMUNICATIONS SCIENCES AND DISORDERS PROGRAM
777 West Harrisburg Pike
W-344 Olmsted
Middletown, PA 17057
717-948-6326
pxe5073@psu.edu

<https://harrisburg.psu.edu/humanities/communication-sciences-disorders-bs> (<https://harrisburg.psu.edu/humanities/communication-sciences-disorders-bs/>)

Diversity and Inclusion in Health and Human Development, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Diversity and Inclusion in Health and Human Development helps students explore and understand the impacts racial, ethnic, socioeconomic status, and cultural diversity have in the world of health care, education, hospitality, recreation, and tourism.

What is Diversity and Inclusion in Health and Human Development?

The minor in Diversity and Inclusion in Health and Human Development seeks to provide students with the competencies needed to be successful in a multi-cultural and global society. Graduates need to be able to appreciate diverse perspectives, work in diverse teams, and welcome and include individuals from many different backgrounds. The minor allows students to cluster their studies in one of three areas:

1. Global Health Diversity and Inclusion;
2. Health and Identity;
3. Work, Recreation, Family and Community.

The courses that students select can cut across several different content areas including nutrition, biobehavioral health, kinesiology, health policy, hospitality and tourism, recreation and parks, communication disorders, and human development.

You Might Like This Program If...

You enjoy working with diverse communities or in a diverse environment, or just seek to understand how diversity and inclusion are related to quality of life, or can be important for a community, school, healthcare organization, hotel, restaurant, recreation program or other employer. Employers in health care, hospitality, tourism, education, and recreation have high demand for employees who understand the diverse customers served and can be part of a multi-cultural team that meets their needs.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select two of the following:		6
BBH 101	Introduction to Biobehavioral Health	
CSD 146	Introduction to Communication Sciences and Disorders	
HDFS 129	Introduction to Human Development and Family Studies	
HM 201	Introduction to Management in the Hospitality Industry	
HPA 101	Introduction to Health Services Organization	
KINES 100	The Cultural and Behavioral Foundations of Kinesiology	
NUTR 251	Introductory Principles of Nutrition	
RPTM 120	Leisure and Human Behavior	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Choose 12 credits from one of the following clusters. At least 6 credits must be at the 400 level and at least 3 credits outside of your major: 12

Global Health Diversity and Inclusion:

BBH 302	Diversity and Health
BBH 305	Introduction to Global Health Issues
BBH 402	African Health & Development
BBH 407	Global Health Equity
BBH/HPA 440	Principles of Epidemiology
HPA 410	Principles of Public Health Administration
NUTR 425	Global Nutrition Problems: Health, Science, and Ethics
RPTM 300Y	Tourism and Leisure Behavior

Health and Identity:

BBH 251	Straight Talks I: Advanced Sexual Orientation/Gender Identity Peer Education
BBH 302	Diversity and Health
BBH 315	Gender and Biobehavioral Health
BBH/NURS/WMNST 452	Women's Health Issues
CSD 269	Deaf Culture
HDFS/WMNST 250	Sexual Identity over the Life Span
HDFS 405	Gender and Social Development
KINES/WMNST 424	Women and Sport

Work, Recreation, Family and Community:

HDFS 315	Family Development
HDFS 424	Family Development in an Economic Context
HM 466	Human Resource Management in the Hospitality Industry
KINES 341	The Historical, Cultural, and Social Dynamics of Sport
NUTR 456	
RPTM 277	Inclusive Leisure Services

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Caroline Condon-Lewis
Academic Adviser

604 Ford Building
University Park, PA 16802
814-863-2900
cxc29@psu.edu

Career Paths

Students might use the minor in Diversity and Inclusion in Health and Human Development to prepare for future positions in diversity leadership in organizations or for further graduate studies related to culturally appropriate health care, culturally sensitive tourism and hospitality, or simply to better prepare them for a diverse and global future.

Careers

Many employers are recognizing that being a successful company in the 21st century requires a full commitment to diversity and inclusion. Career paths now exist for individuals who specialize in understanding the challenges of serving diverse patients, students, customers, or clients and developing programs to ensure the organization is welcoming to all, able to recruit and retain a diverse workforce, and provide ongoing training that improves inclusion.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN DIVERSITY AND INCLUSION IN HEALTH AND HUMAN DEVELOPMENT (<https://www.indeed.com/career-advice/finding-a-job/diversity-inclusion-and-belonging-jobs-rise/>)

Opportunities for Graduate Studies

Students continuing on to graduate study in clinical fields will find tremendous growth in personalized medicine, which fully appreciates the unique characteristics of persons, as well as in societal determinants of health, which recognizes health is shaped by our cultural environment. Students seeking further study in social and behavioral sciences can gain a strong platform for graduate programs that emphasize how culture, society and behavior interact in ways that impact health and quality of life. Students interested in graduate studies in business or management can develop an understanding of one of the critical issues facing leaders in any business organization.

Contact

University Park

DEPARTMENT OF HEALTH POLICY AND ADMINISTRATION
601F Donald H. Ford Building
University Park, PA 16802
814-863-2861
mxs838@psu.edu

<https://hhd.psu.edu/contact/mark-sciegaj> (<https://hhd.psu.edu/contact/mark-sciegaj/>)

Global Health, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Global Health Minor (GLBHL) is designed to provide undergraduate students with a multidisciplinary exposure to the theoretical and practical

issues affecting the health of populations in various countries and regions of the world. This minor is appropriate for students whose career goals incorporate public health interventions, education, policy, or research related to global health. Coursework and supervised field work will draw on the diversity and abundance of the Penn State faculty's international resources and networks.

You Might Like This Program If...

- You are interested in advancing your understanding of issues affecting the health of various populations in the world.
- You want to think critically about current challenges in health, public health and global health, and their solutions and outcomes.
- You seek a better understanding of health disparities, determinants, and behaviors across cultures and countries.
- You seek an experiential component to your learning through participation in an international or domestic field work experience in global health.

MORE INFORMATION ABOUT GLOBAL HEALTH (<https://hhd.psu.edu/bbh/undergraduate/global-health-minor/>)

Entrance to Minor

Students desiring to enter the minor must submit an application to the Director. Applications to the Global Health Minor:

- must have declared a major field of study
- must include with the application a proposed plan of study. This plan should include the student's contact information and GPA, a brief statement about the relationship of this minor to the student's major plan of study and career goals, a list of proposed supporting courses, and a proposed supervised fieldwork experience. The student's application to the minor must be signed by the student's academic/faculty adviser.
- previously completed coursework and/or supervised fieldwork experience may be retroactively included in the plan of study if approved by the Director of the minor.

Program Requirements

Requirement	Credits
Requirements for the Minor	27-28

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
BBH 101	Introduction to Biobehavioral Health	3
BBH 305	Introduction to Global Health Issues	3
BBH 390A	Preparation for Global Health Field Experience	3
BBH 390B	Global Health Field Experience	6
BBH/HPA 440	Principles of Epidemiology	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		

STAT 200	Elementary Statistics	3-4
or STAT 250	Introduction to Biostatistics	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 6 credits (at least 3 credits at the 400 level) from the list of approved supporting courses in consultation with the Global Health Director ¹ 6

Supervised Fieldwork Experience

An approved, supervised fieldwork experience dealing with a global health issue is a requirement of this minor (BBH 390B) ²

¹ Other courses (e.g. special topics courses, independent study) that are not on the list of approved supporting courses may also be used to meet the credit requirements for the GLBHL minor. However, all course substitutions require approval of the Director.

² BBH 390A must be taken prior to this field experience (BBH 390B). Global health field sites may be international or domestic, but must be approved by the Director.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Dana Naughton

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Career Paths

For more information about potential career paths for graduates with a minor in Global Health, please visit: <https://hhd.psu.edu/bbh/undergraduate/global-health-minor> (<https://hhd.psu.edu/bbh/undergraduate/global-health-minor/>).

Contact

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219 Biobehavioral Health Building

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814-863-7256

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<https://hhd.psu.edu/bbh/undergraduate/global-health-minor> (<https://hhd.psu.edu/bbh/undergraduate/global-health-minor/>)

Health Policy and Administration, B.S. (Health and Human Development)

Begin Campus: Any Penn State Campus

End Campus: University Park, World Campus

Program Description

This major helps prepare students for management and policy positions or graduate study in the field of health care. Students in the major develop the skills and knowledge needed to understand the complex societal problem of providing access to quality health care at reasonable cost. All Health Policy and Administration students complete an internship in a health-care-related setting, giving them valuable experience and contacts in the industry. HPA students study a multidisciplinary curriculum that prepares them to work as health services managers or health analysts. Health services managers, also called health care executives or health care administrators, plan, direct, and coordinate medical, health, and/or long-term care services. They might manage an entire facility or specialize in managing a specific clinical area or department, administrate a program or manage a practice for a group of providers. Health analysts are employed throughout the health care industry gathering, compiling, modeling, validating, and analyzing data needed by different organizations of providers, payers, and policy makers. Analysts help these organizations understand the current trends in the health care system and to make well-informed decisions. Both health services managers and analysts must be able to adapt to changes in health care laws, regulations, and technology. HPA students have also used the degree to prepare for graduate study in business, law, medicine or allied health fields, health administration, health services research or policy, and public health.

What is Health Policy and Administration?

Health Policy and Administration (HPA) is a multidisciplinary course of study with courses in the liberal arts, business administration, and health sciences. In general, HPA students are prepared to work in six types of health care organizations including:

1. Health care providers (hospitals, physician practices, nursing facilities, home health agencies, etc.)
2. Health insurers (nonprofit and commercial insurers, health maintenance organizations, etc.)
3. Health care consulting firms
4. Health care supply companies (pharmaceutical companies, medical device manufacturers, etc.)
5. Health services research and policy organizations (health policy research groups, industry trade groups, etc.);
6. Local, state, and federal health agencies and public health organizations (local public health departments, state Department of Health, federal Department of Health and Human Services, etc.).

MORE INFORMATION ABOUT HEALTH POLICY AND ADMINISTRATION (<https://hhd.psu.edu/hpa/>)

You Might Like This Program If...

- You are interested in business administration or management and want to focus primarily in the healthcare industry.
- You are interested in influencing health policy and public health by working in government at the state or federal level or nonprofit organizations
- You are interested in improving access to health care for underserved populations
- You are interested in reducing health care costs or improving health care quality through policy reform or business leadership.

MORE INFORMATION ABOUT WHY STUDENTS CHOOSE TO STUDY HEALTH POLICY AND ADMINISTRATION (<https://hhd.psu.edu/hpa/bachelor-science-bs-health-policy-and-administration/>)

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Health Policy and Administration, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	4-6
Requirements for the Major	81-83

12 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GQ courses; 6 credits of GS courses.

The requirements for the major are outlined below. Students may select courses in the Supporting Courses and Related Areas category to fulfill requirements for a minor, to develop a specialization, or to complete courses required for admission to medical, dental, law, or other graduate schools.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. H P A requires students to complete 24 credits for the major through courses taken at University Park. Courses taken at other Penn State campuses may not be counted toward this 24 credit minimum. For more information, check the Suggested Academic Plan for this major.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ECON 102	Introductory Microeconomic Analysis and Policy	3
HPA 101	Introduction to Health Services Organization	3
HPA 210	Health Care Payment	3
HPA 211	Financial Decisions in Health Care Organizations	3
HPA 301	Health Services Policy Issues	3
HPA 310	Health Care and Medical Needs	3
HPA 311	Population Health and Healthcare	3
HPA 332	Health Systems Management	3
HPA 390	Professional Development in Health Policy & Administration	3
HPA 395	Field Experience in Health Policy and Administration	3
HPA 455	Strategic Planning and Marketing for Health Services	3
PLSC 1	American Politics: Principles, Processes and Powers	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
CMPSC 101	Introduction to Programming	3-4
	or CMPSC 203 Introduction to Spreadsheets and Databases	
	or MIS 204 Introduction to Management Information Systems	
STAT 200	Elementary Statistics	3-4
	or STAT 250 Introduction to Biostatistics	
Select 9 credits from the following:		9
HPA 401	Comparative Health Systems	
HPA 410	Principles of Public Health Administration	
HPA 420	Principles of Managed Care	
HPA 430	Health Care Leadership	
HPA 433	Administration of Hospital and Health Service Systems	
HPA 435	Safety Net Health Care	
HPA 438	Culturally Competent Health Services for Diverse Populations	
HPA 440	Principles of Epidemiology	
HPA 442	Long-Term Care Management	
HPA 443	Nursing Home Administration	
HPA 444	Aging Policy in the United States	
HPA 445	Health Economics	
HPA 446	Economics and Health In Low- and Middle-Income Countries	
HPA 447	Financing Health Care	
HPA 450	Healthcare Policies and Politics	
HPA 454	Health Care Professional Communication	
HPA 460	Human Resource Management in Health Care Organizations	
HPA 470	Health Care Information Management	
HPA 475	Health Care Quality	
HPA 490	Physician Practice Management	
HPA 497	Special Topics	

Supporting Courses and Related Areas

Select 30 credits from University-wide offerings on department list in consultation with adviser ¹ 30

¹ Must include at least 9 credits at the 400 level.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Health Policy and Administration and M.H.A. in Health Policy and Administration

Available at the following campuses: University Park

Requirements for the Integrated B.S. in Health Policy and Administration and M.H.A. in Health Policy and Administration can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/health-policy-administration/#integratedundergradgradprogramstext>).

Integrated B.S. in Health Policy and Administration and M.I.A. in International Affairs

Available at the following campuses: University Park

Requirements for the Integrated B.S. in Health Policy and Administration and M.I.A. in International Affairs can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/international-affairs/#integratedundergradgradprogramstext>).

Integrated B.S. in Health Policy and Administration and M.P.H. in Public Health

Available at the following campuses: University Park

Requirements for the Integrated B.S. in Health Policy and Administration and M.P.H. in Public Health can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/public-health/#integratedundergradgradprogramstext>).

Integrated B.S. in Health Policy and Administration and M.P.P. in Public Policy

Available at the following campuses: University Park

Requirements for the Integrated B.S. in Health Policy and Administration and M.P.P. in Public Policy can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/public-policy/#integratedundergradgradprogramstext>).

Program Learning Objectives

- **Know Health Organizations:** HPA graduates will possess in depth understanding of health and health care, including the structures, policies, processes and institutions that make up the U.S. health care system.
- **Organize and Direct Resources:** HPA graduates will possess the knowledge and skills necessary for organizing and directing resources towards the achievement of organizational objectives.
- **Policy Analysis:** HPA graduates will possess the knowledge and skills necessary to analyze, synthesize, and evaluate public policy.
- **Emotional Intelligence:** HPA graduates will possess an awareness of and the ability to manage ones own emotions in a way that enables positive interpersonal interactions and the building of productive relationships.
- **Diversity Adeptness:** HPA graduates will recognize the value of diversity and possess sensitivity to underrepresented and underserved groups in health care.
- **Critical Thinking:** HPA graduates will be able to interpret, analyze, and evaluate information to identify, examine, and solve problems that occur in the health care system.
- **Communication:** HPA graduates will be able to effectively receive, process, and relay information through speaking, writing, and listening.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Health Policy and Administration, B.S. at Beaver Campus, Harrisburg Campus, Hazleton Campus, Lehigh Valley Campus, Mont Alto Campus, Shenango Campus, University Park Campus, and World Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BISC 4, BIOL 141, BIOL 161, or BBH 101	3 HPA 210*	3
ECON 102**†	3 PLSC 1 (General Education Course, GS, Exploration)**†	3
HPA 101*	3 General Education Course (GWS) (CAS 100, CAS 100A, CAS 100B, CAS 100C, ENGL/ CAS 138T recommended)‡	3
General Education Course (GWS) (ENGL 15, ENGL 30H, ESL 15, ENGL/ CAS 137H recommended)‡	3 General Education Course (GH)	3
First-Year Seminar	1-2 Supporting Course ¹	3
General Education Course (GA)	3	3
16-17		15

Second Year

Fall	Credits Spring	Credits
HPA 211*	3 HPA 332*	3

STAT 200 or 250*†	3-4 HPA 301W*2	3
Supporting Course ¹	3 General Education (Integrative Studies: Inter-Domain)	3
General Education Course (Exploration)	3 General Education Course (GN or GHW)	3
Supporting Course ¹	3 General Education Course (Exploration)	3

Course is an Entrance to Major requirement
 † Course satisfies General Education and degree requirement

- ¹ The Supporting Course List can be found here: <https://hhd.psu.edu/hpa/supporting-courses> (<https://hhd.psu.edu/hpa/supporting-courses/>)
² HPA 301W and HPA 390W fulfill the Writing Across the Curriculum requirement.
³ HPA 395 can be taken in fall or spring semester with permission for variable credits.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

Minimum credits required for graduation is 120.

LIMITATIONS ON SOURCE AND TIME FOR CREDIT ACQUISITION: Per Senate policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Most majors in Health and Human Development require students to complete up to 24 credits for the major through courses taken at University Park. Courses taken at other Penn State campuses may not be counted toward this 24 credit minimum.

Within the 30 credits of required General Education Domain courses, students must take 6 credits of **Integrative Studies courses** (Inter-domain or Linked courses). If you need additional clarification, consult with your academic adviser.

Take GHW if BBH 101 was not completed in first year; Take GN if BISC 4 or BIOL 141 or BIOL 161 was not completed in first year.

HHD allows up to 6 credits from ROTC study to be counted toward General Education and major requirements. Some programs allow additional ROTC credits to be used for degree requirements.

15-16		15	
Third Year			
Fall	Credits Spring	Credits Summer	Credits
HPA 310*	3 HPA 311*	3 HPA 395* ³	3
HPA 390W* ²	3 HPA 400 level course (see degree audit)*	3	
CMPSC 101, 203, or MIS 204*†	3-4 General Education Course (Integrative Studies: Inter-Domain)	3	
Elective	3 Supporting Course ¹	3	
Supporting Course ¹	3 Supporting Course (400 level) ¹	3	

15-16		15	3
Fourth Year			
Fall	Credits Spring	Credits	
General Education Course (GWS) (ENGL 202A or 202D preferred) [†]	3 HPA 455*	3	
HPA 400 level Course (see degree audit)*	3 HPA 400 Level Course (see degree audit)*	3	
Elective	2-3 Supporting Course ¹	3	
Supporting Course ¹	3 Supporting Course (400 level) ¹	3	
Supporting Course (400 level) ¹	3		

Total Credits 120-124

* Course requires a grade of C or better for the major
 † Course requires a grade of C or better for General Education

Health Policy and Administration, B.S. at Abington Campus, Altoona Campus, Berks Campus, Erie Campus, and Schuylkill Campus

This Suggested Academic Plan is for students on Commonwealth Campuses where the HPA major is not offered.

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BISC 4, BIOL 141, BIOL 161, or BBH 101 (GN or GHW)	3 CAS 100A, 100B, 100C, ENGL 138T, or CAS 138T (GWS) [‡]	3
ECON 102 (GS) ^{††}	3 PLSC 1 (Exploration GS) ^{††}	3
ENGL 15, 30H, ESL 15, ENGL 137H, or CAS 137H (GWS) [‡]	3 STAT 200 or 250 (GQ) ^{††}	3-4
General Education Course (GA)	3 Supporting Course ¹	3
General Education Course (GH)	3 General Education Course (GN)	3

15 **15-16**

Second Year

Fall	Credits Spring	Credits
Supporting Course ¹	3 CMPSC 101, 203, or MIS 204 (GQ) ^{††}	3-4
Supporting Course ¹	3 ENGL 202 (ENGL 202A or ENGL 202D preferred) (GWS) [‡]	3
General Education Course (GHW or other Exploration) ⁴	3 General Education Course (Inter-Domain)	3
General Education Course (GN or other Exploration) ³	3 Supporting Course ¹	3

General Education Course (Inter-Domain)	3 Supporting Course ¹	3	
15		15-16	
Third Year			
Fall	Credits Spring	Credits Summer	Credits
HPA 101 [*]	3 HPA 211 [*]	3 HPA 395 ^{*5}	3
HPA 210 [*]	3 HPA 301W ^{*2}	3	
HPA 310 [*]	3 HPA 332 [*]	3	
Supporting Course ¹	3 HPA 390W ^{*2}	3	
400-Level Supporting Course ¹	3 Supporting Course ¹	3	
15		15	
		3	
Fourth Year			
Fall	Credits Spring	Credits	
HPA 311 [*]	3 HPA 455 [*]	3	
HPA 400-Level Course [*]	3 HPA 400-Level Course [*]	3	
HPA 400-Level Course [*]	3 400-Level Supporting Course ¹	3	
400-Level Supporting Course ¹	3 Elective	3	
Elective	3		
15		12	
Total Credits 120-122			

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ The Supporting Course List can be found here: <https://hhd.psu.edu/hpa/supporting-courses/> (<https://hhd.psu.edu/hpa/supporting-courses/>)

² HPA 301W and HPA 390W fulfill the Writing Across the Curriculum requirement.

³ Take GN only if BISC 4 or BIOL 141 or BIOL 161 was not completed in first year.

⁴ Take GHW only if BBH 101 was not completed in first year.

⁵ HPA 395 can be taken in fall or spring semester with permission for variable credits.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

Minimum credits required for graduation is 120.

LIMITATIONS ON SOURCE AND TIME FOR CREDIT ACQUISITION: Per Senate policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Most majors in Health and Human Development require students to complete up to 24 credits for the major through courses taken at University Park. Courses taken at other Penn State campuses may not be counted toward this 24 credit minimum.

Within the 30 credits of required General Education Domain courses, students must take 6 credits of **Integrative Studies courses**. If you need additional clarification, consult with your academic adviser.

Career Paths

The mission of the Bachelor of Science Program (B.S.) in HPA is to develop graduates with the knowledge, skills, and values appropriate to work in entry-level management or policy-related positions or for the pursuit of graduate education in health administration, health policy, health law, health services research, public health, and other health related fields. HPA students develop the skills and knowledge needed to understand the complex societal problem of providing access to quality health care at reasonable cost.

Careers

The HPA curriculum prepares students to work as health services managers or health policy analysts. Health services managers plan, direct, and coordinate medical, behavioral, and/or long-term care services. These individuals might oversee matters of personnel, budgeting, billing, equipment outlays, information systems, planning and more. Health policy analysts are responsible for analyzing, compiling, and validating information needed by different organizations of providers, payers, and policy makers. Analysts help these organizations understand the current trends in the health care system and to make well-informed business and policy decisions. Employment of health policy and administration graduates is projected to grow 28 percent from 2022 to 2032, much faster than all other occupations.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE HEALTH POLICY AND ADMINISTRATION PROGRAM (<https://hhd.psu.edu/hpa/undergraduate/career-opportunities/career-outlook-health-care-professionals/>)

Opportunities for Graduate Studies

HPA's blend of courses in liberal arts, business administration, and the health sciences, is designed to prepare students for careers or further study in health care. HPA students have used the degree to prepare for graduate study in business, law, medicine or allied health fields, health administration, health services research or policy, and public health.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://hhd.psu.edu/hpa/undergraduate/integrated-undergraduate/graduate-programs/>)

Professional Resources

- Association of University Programs in Health Administration (<https://www.aupha.org/resourcecenter/futurestudents/>)
- American College of Health Care Administrators (<https://www.achca.org/student-societies/>)
- American College of Healthcare Executives (<https://www.ache.org>)
- National Association of Health Services Executives (NAHSE) (<https://www.nahse.org>), a non-profit association of Black health care executives
- National Association of Latino Healthcare Executives (<https://www.nalhe.org>)
- Academy Health (<https://academyhealth.org>), the professional home and leading national organization for health services researchers, policymakers, and health care practitioners and stakeholders

Accreditation

HPA is a fully certified member of the Association of University Programs in Health Administration (AUPHA). As such it has been recognized for having withstood the rigors of peer review wherein curricula, faculty, and educational outcomes have been critically examined by external peer review. In a process comparable to other specialty program accreditations, programs seeking AUPHA certification must submit an extensive self-study detailing the program's structure, educational processes, and assessment mechanisms in response to national criteria established by AUPHA.

MORE INFORMATION ABOUT ACCREDITATION BY THE ASSOCIATION OF UNIVERSITY PROGRAMS IN HEALTH ADMINISTRATION (<https://www.aupha.org/main-site/certification/certification/>)

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-health-policy-and-administration-bachelor-of-science-degree>

(<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-health-policy-and-administration-bachelor-of-science-degree/>)

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Health Policy and Administration, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The minor in Health Policy and Administration (HPA) is designed to provide students with a background in the policy issues and administrative challenges related to quality, cost, and access to health care. The minor is most appropriate for students interested in clinical and health-related fields (e.g., nursing, nutrition, biobehavioral health, or medicine), professional fields (e.g. business administration or law), or the social sciences (e.g., economics, sociology, political science, psychology), giving these students an understanding of the health care industry and the impact of business and government on that industry.

What is Health Policy and Administration?

Health Policy and Administration (HPA) provides a solid foundation for students interested in business administration and health sciences. Students interested in clinical fields such as nursing, physical therapy, biobehavioral health or medicine can gain an understanding of the impact of business and government on their professions. The world of health care offers students interested in economics, sociology, psychology, human development and family studies, political science or other social science fields a host of challenges, from insuring the uninsured and regulating managed care to reforming Medicare. Students interested in business or law can learn about one of the country's fastest growing industries representing 17 percent of the U.S. economy.

MORE INFORMATION ABOUT HEALTH POLICY AND ADMINISTRATION (<https://hhd.psu.edu/hpa/undergraduate/minors/>)

You Might Like This Program If...

- You are interested in a career as a health care provider and want to know more about how services are reimbursed or how federal and state policies might impact your practice.
- You are interested in business administration or management but want to focus primarily in the healthcare industry.
- You are interested in economics, sociology or politics and want to learn about one of the country's fastest growing industries representing 17 percent of the U.S. economy.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
HPA 57	Consumer Choices in Health Care	3
HPA 101	Introduction to Health Services Organization	3
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 3-6 credits of the following:		3-6
HPA 210	Health Care Payment	
HPA 211	Financial Decisions in Health Care Organizations	
HPA 301W	Health Services Policy Issues	
HPA 310	Health Care and Medical Needs	
HPA 311	Population Health and Healthcare	
HPA 332	Health Systems Management	
Select 6-9 credits from 400-level HPA courses		6-9

Note: Some courses have additional prerequisites that must be met.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Michelle Pittman

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Career Paths

HPA courses help you develop the skills and knowledge needed to understand the complex societal problem of providing access to quality health care at reasonable cost. The HPA minor will help prepare you for work in entry-level management or policy-related positions or for the pursuit of graduate education.

Careers

The HPA minor can help prepare you for work as a health services manager/administrator or health analyst. Health services managers/administrators plan, direct, and coordinate medical, behavioral, and/or long-term care services. These individuals might oversee matters of personnel, budgeting, billing, equipment outlays, information systems, planning and more. Health analysts are responsible for analyzing, compiling, and validating information needed by different organizations of providers, payers, and policy makers. Analysts help these organizations understand the current trends in the health care system and to make well-informed decisions. Employment in the health care sector is projected to grow 28 percent from 2022 to 2032, much faster than all other occupations.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN HEALTH POLICY AND ADMINISTRATION (<https://hhd.psu.edu/hpa/undergraduate/career-opportunities/career-outlook-health-care-professionals/>)

Opportunities for Graduate Studies

When added to your academic major course of study, students have used the HPA minor to prepare for graduate study in business, law, medicine or allied health fields, health administration, health services research or policy, and public health.

Contact

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Hospitality Management, B.S. (Health and Human Development)

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The School of Hospitality Management (SHM) prepares our graduates to make a difference in the global world of hospitality through their skills in management and problem-solving, by combining people-skills along with analytical prowess. Our graduates learn in real-world facilities, research labs solving real-world problems, travel for domestic and international learning experiences, and engage as much with people as with novel technologies. The learning and engagement at SHM reflect today's relevant industry landscape providing experiences that prepare students for the many career opportunities offered in the diverse and exciting segments of the global hospitality industry, and will power their success in any complex, people-centric enterprise. Penn State's Hospitality Management program is amongst the oldest program in the nation, and amongst the most prestigious of its kind in the world.

HOSPITALITY MANAGEMENT OPTION

Available at the following campuses: University Park

This option prepares students for management positions in any sector of the hospitality industry, including lodging, event planning, food service, food supply chain, gaming, and with a wide range of manufacturing and service businesses that support the hospitality industry. The management focus helps provide students with the analytical, interpersonal, and organizational skills necessary to effectively function as hospitality professionals.

HOSPITALITY ENTREPRENEURSHIP OPTION

Available at the following campuses: Berks

This option helps prepare students for careers as owners or managers of small independently-owned hospitality operations or as entrepreneurs within large hospitality corporations or management companies in hospitality segments such as a restaurants, hotels, and non-commercial operations. The entrepreneurship focus helps provide students with creative problem solving, opportunity recognition, and leadership skills necessary to effectively manage small or individual unit's hospitality operations.

What is Hospitality Management?

Hospitality refers to the relationship that exists between a host and a guest. The Hospitality discipline prepares students to create value in

this relationship, both from the host and the guest's perspectives. This involves the creation and management of products and services by the hosts for the guests, based on the preferences and behaviors of the guests. Hospitality major is therefore an interdisciplinary field of study that prepares students for a global and diverse, world of management and entrepreneurship opportunities. Hospitality graduates are trained to own and manage hotels, restaurants, resorts, corporate dining, stadiums and arena catering, theme parks, country clubs, cruise ships, casinos, event management, and the vast array of manufacturing and service businesses that support the hospitality industry. From exotic locales to familiar destinations, from international postings to entrepreneurial prospects, from planning events to corporate finance, and from school food service to senior living, the possibilities are endless. This major prepares students for the multi-faceted hospitality industry and for the many career opportunities available to hospitality management graduates.

You Might Like This Program If...

- You enjoy working with people and helping others, have strong interpersonal skills, creativity and a good work ethic.
- You are looking for a creative, fast-paced career, in a diverse and high-energy environment, with opportunities to work in a variety of locations, within the US and internationally.
- You have a strong balance of interpersonal and people-management skills, and operations and business analysis abilities.

MORE INFORMATION ABOUT HOSPITALITY MANAGEMENT (<https://hhd.psu.edu/shm/>)

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Hospitality Management, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	3-11
Requirements for the Major	73-84

9-12 of the 45 credits for General Education are included in the Requirements for the Major. For the Hospitality Management option, this includes 12 credits of General Education courses: 6 credits of GQ courses; 3 credits of GS courses; 3 credits of GHW courses. For the Hospitality Entrepreneurship option, this includes 9 credits of General Education courses: 6 credits of GQ courses and 3 credits of GS courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. SHM requires students to complete 24 credits for the major

through courses taken at University Park. Courses taken at other Penn State campuses may not be counted toward this 24 credit minimum. For more information, check the Suggested Academic Plan for this major.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
ECON 102	Introductory Microeconomic Analysis and Policy	3
HM 202	Colloquium in Hospitality Management	1
HM 203	Hospitality Professional Development Seminar	1
HM 271	Hospitality Information Technology Fundamentals	2
HM 330	Food Production and Operations Management	3
HM 336	Hospitality Managerial Accounting	3
HM 366	Human Resource Management in the Hospitality Industry	3
HM 430	Applied Leadership in Foodservice Operations Management	3
HM 490	Strategic Hospitality Management	3
HM 492	Advanced Professional Seminar in Hospitality Management	1
<i>Prescribed Courses: Require a grade of C or better</i>		
HM 101	Exploring the Global Hospitality Industry	3
HM 230	Principles of Food Production Management	3
HM 235	Hospitality Financial Accounting	3
HM 242	Hospitality Marketing	3
HM 265W	Teams and Leadership in the Hospitality Industry	3
HM 272	Introduction to Worksheet-Based Analysis and Modeling for Managerial Decision Making	2
HM 280	Fundamentals of Hotel and Accommodations Management	3
HM 350	Hospitality Revenue and Profit Optimization	3

Additional Courses

Additional Courses: Require a grade of C or better

STAT 100	Statistical Concepts and Reasoning	3-4
or STAT 200	Elementary Statistics	

Requirements for the Option

Select an option 24-34

Requirements for the Option

Hospitality Management Option (34 credits)

Available at the following campuses: University Park

Code	Title	Credits
Prescribed Courses		
HM 355	Legal Aspects of the Hospitality Industry	3
HM 480	Applied Hospitality Concepts and Decision Making	3
NUTR 100	Nutrition Applications for a Healthy Lifestyle	3

Supporting Courses and Related Areas

Select 25 credits of HM courses from an approved department list, up to 25 to 4 credits of any world language, and other courses in consultation with an adviser

Hospitality Entrepreneurship Option (24-25 credits)

Available at the following campuses: Berks

Code	Title	Credits
Prescribed Courses		
HM 305	Restaurant Management	3
HM 319	Hospitality Facilities Management	3
HM 435	Hospitality Corporate Finance	3
<i>Prescribed Courses: Require a grade of C or better</i>		
HM 484	Hospitality Entrepreneurship and Innovation	3
MGMT 215	Entrepreneurial Mindset	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 9-10 credits from the following:		9-10
BA 243	Social, Legal, and Ethical Environment of Business	
BA 250	Small Business Management	
ENGR 310	Entrepreneurial Leadership	
MGMT/ENGR 425	New Venture Creation	
MGMT 427	Managing an Entrepreneurial Start-Up Company	

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses**. This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- Critically analyze industry metrics, assess current trends, and effectively communicate organizational and operational performance to stakeholders.
- Adapt to change and develop the ability for complex problem solving and decision-making.
- Develop a strong service orientation and work ethic.
- Cultivate the ability to lead and manage people and processes.
- Acquire the skills to create and innovate as entrepreneurs and intrapreneurs.

- Navigate legal, ethical, and moral landscapes.
- Develop intellectual curiosity for lifelong learning and personal metrics for self assessment.
- Graduate as future leaders and innovators in the diverse, multicultural, and global hospitality industry.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Hospitality Management Option: Hospitality Management, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If**

report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or ESL 15 [‡]	3 ECON 102 [†]	3
HM 101 ^{*†}	3 HM 271	2
HM 202	1 HM 272 [*]	2
HM 203	1 HM 355	3
General Education Course (GN)	3 General Education Course (GH)	3
General Education Course (Exploration)	3 General Education Course (Exploration)	3
First-Year Seminar	1-2	
	15-16	16

Second Year

Fall	Credits Spring	Credits
HM 230 [*]	3 HM 290W [*]	3
HM 235 [*]	3 HM 336	3
HM Elective	3 HM 280 [*]	3
HM 265W [*]	3 General Education Course (Exploration)	3
STAT 100 or 200 ^{††}	3-4 HM Elective	3
	15-16	15

Third Year

Fall	Credits Spring	Credits
ENGL 202A, 202B, 202C, or 202D (202D is preferred) [‡]	3 HM 330	3
HM 242 [*]	3 HM 366	3
HM 350 ^{*††}	3 NUTR 100 [†]	3
General Education Course (Integrative Studies: Inter-Domain)	3 HM Elective	3
HM Elective	3 General Education Course (GA)	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
HM 430	3 HM 490	3
CAS 100, CAS 100A, CAS 100B, or CAS 100C [‡]	3 HM 492 ¹	1
HM Elective	3 HM Elective	3
HM 480	3 HM Elective	4
HM Elective	3 General Education Course (Integrative Studies: Inter-Domain)	3
	15	14

Total Credits 120-122

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ All students must complete the SHM Professional Work Experience Requirement. Completion of this requirement is a prerequisite for enrolling in HM 492. This can be completed during summers or by working part-time during the school year. Please visit the SHM website (<https://hhd.psu.edu/shm/undergraduate/hospitality-professional-experience-requirement/>) for further details of this requirement.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Additional Notes:

LIMITATIONS ON SOURCE AND TIME FOR CREDIT ACQUISITION Per Senate policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Most majors in Health and Human Development require students to complete up to 24 credits for the major through courses taken at University Park. Courses taken at other Penn State campuses may not be counted toward this 24 credit minimum.

Advising Notes:

Within the 30 credits of required General Education Domain courses, students must take 6 credits of **Integrative Studies courses**. If you need additional clarification, consult with your academic adviser.

HHD allows up to 6 credits from ROTC study to be counted toward General Education and major requirements. Some programs allow additional ROTC credits to be used for degree requirements.

Hospitality Management Option: Hospitality Management, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or ESL 15 [‡]	3 ECON 102 [†]	3
MGMT 301 (Recommended substitute for HM 265W) [*]	3 General Education Course (GA)	3
General Education Course (GH)	3 General Education Course (Exploration)	3
General Education Course (GN)	3 General Education Course (Exploration)	3
General Education Course (Exploration)	3 HM Elective	3
PSU First-Year Seminar (if required at campus)	0-1	
	15-16	15

Second Year

Fall	Credits Spring	Credits
CAS 100, CAS 100A, CAS 100B, or CAS 100C [†]	3 ACCTG 211 (Recommended substitute for HM 235) [*]	4
MKTG 301 or BA 303 (HM Elective)	3 BA 243 (Recommended substitute for HM 355)	4
STAT 100 or 200 ^{††}	3-4 ENGL 202A, 202B, 202C, or 202D (202D preferred) [‡]	3
General Education Course (Integrative Studies: Interdomain)	3 NUTR 100 [†]	3
General Education Course (Integrative Studies: Interdomain)	3 Elective (depending on First-Year Seminar)	0-1
	15-16	14-15

Third Year

Fall	Credits Spring	Credits
HM 101 ^{*†}	3 HM 290W [*]	3
HM 202	1 HM 336	3
HM 203	1 HM 350 ^{*††}	3
HM 271	2 HM 280 [*]	3
HM 272 or MIS 250 [*]	2-3 HM Elective	3
HM 230 [*]	3	
HM Elective	3	
	15-16	15

Fourth Year

Fall	Credits Spring	Credits
HM 330	3 HM 430	3
HM Elective	3 HM 366	3
HM 242 [*]	3 HM 490	3
HM 480	3 HM 492 ¹	1

HM Elective	3-4 HM Elective	3
	HM Elective	3
	15-16	16

Total Credits 120-125

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ All students must complete the SHM Professional Work Experience Requirement. Completion of this requirement is a prerequisite for enrolling in HM 492. This can be completed during summers or by working part-time during the school year. Please visit the SHM website (<https://hhd.psu.edu/shm/undergraduate/hospitality-professional-experience-requirement/>) for further details of this requirement.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Additional Notes:

LIMITATIONS ON SOURCE AND TIME FOR CREDIT ACQUISITION Per Senate policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Most majors in Health and Human Development require students to complete up to 24 credits for the major through courses taken at University Park. Courses taken at other Penn State campuses may not be counted toward this 24 credit minimum.

Advising Notes:

Within the 30 credits of required General Education Domain courses, students must take 6 credits of **Integrative Studies courses**. If you need additional clarification, consult with your academic adviser.

Career Paths

Penn State Hospitality Management graduates are placed globally to manage hotels and lodging operations, restaurants, resorts, business dining, college and school food service, casinos, clubs, cruise ships, and senior living communities. They work in positions including meeting and events, revenue management, human resources, sales and marketing, finance and accounting, real estate and asset management, and for the businesses that supply them. Hospitality Management graduates are in demand with the many hospitality employers that visit the School's in-house Career Placement Center each year. Graduates move quickly to

upper management roles, corporate-level positions, and entrepreneurial opportunities.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE HOSPITALITY MANAGEMENT PROGRAM (<https://hhd.psu.edu/shm/undergraduate/career-opportunities/>)

Opportunities for Graduate Studies

Students completing the undergraduate program in Hospitality Management are prepared for graduate professional study in hospitality management and for graduate research programs in hospitality and related fields. At Penn State, we offer the Master of Professional Studies, which prepares students for enterprise level and executive positions in the hospitality industry and the Ph.D., which prepares students for advanced academic and research positions at the university level.

MORE ABOUT THE MASTER OF PROFESSIONAL STUDIES IN HOSPITALITY MANAGEMENT (<https://hhd.psu.edu/shm/graduate/mps-hospitality-management/>)

MORE ABOUT THE PH.D. PROGRAM IN HOSPITALITY MANAGEMENT (<https://hhd.psu.edu/shm/graduate/phd-program-hospitality-management/>)

Professional Resources

- Penn State Hotel & Restaurant Society (<https://hhd.psu.edu/alumni/pshrs/>)
- Eta Sigma Delta International Hospitality Management Society (<https://www.chrie.org/whats-esd-/>)
- The Hospitality Sales and Marketing Association International (HSMIA) (<https://global.hsmia.org>)
- Professional Convention Management Association (PCMA) (<https://www.pcma.org>)
- National Society of Minorities in Hospitality (NSMH) (<https://www.nsmh.org>)
- Hospitality Financial and Technology Professionals (<https://www.hftp.org>)

Contact

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<https://hhd.psu.edu/shm> (<https://hhd.psu.edu/shm/>)

Berks

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<https://berks.psu.edu/academics/bs-hospitality-management> (<https://berks.psu.edu/academics/bs-hospitality-management/>)

Human Development and Family Studies, A.S. (Health and Human Development)

Begin Campus: Altoona, Brandywine, DuBois, Fayette, Mont Alto, Schuylkill, Shenango, World Campus, Scranton, York

End Campus: Altoona, Brandywine, DuBois, Fayette, Mont Alto, Schuylkill, Scranton, Shenango, World Campus, York

Program Description

This major integrates practical and academic experiences to provide the student with entry-level professional competence in the human service field. The objective of the major is to offer a general education background, a knowledge base in life span and family development, and a core of professional skills that may be applied in program planning and service delivery activities. The major is offered part-time, in the evening, and through independent learning.

Adult Development and Aging Services Option

Available at the following campuses: Altoona, Brandywine, DuBois, Fayette, Mont Alto, Schuylkill, Scranton, Shenango, World Campus, York

This option is designed to prepare students for a wide variety of service roles in mental health facilities, nursing homes and other institutions for the aged, area agencies on aging, public welfare and family service agencies, women's resource centers, human relations programs, employee assistance programs and customer services and consumer relations programs in business and industry. An approved field experience in any of a wide variety of settings that serve adults, the aged, and their families, is required for this option.

Children, Youth, and Family Services Option

Available at the following campuses: Altoona, Brandywine, DuBois, Fayette, Mont Alto, Schuylkill, Scranton, Shenango, World Campus, York

This option is designed to prepare students for service roles in preschools; day care centers; hospitals; institutional and community programs for emotionally disturbed, abused, or neglected children and adolescents; as well as a variety of public welfare and family service agencies. An approved field experience in a children, youth, or family services setting is required for this option.

Early Childhood Care and Education Option

Available at the following campuses: DuBois, Fayette, Shenango, York

This option is designed to increase professional capabilities in child care training in regard to issues of quality, affordability, and accessibility of programming. The primary foci are on language, literacy, and science reasoning. In the coursework, there is a blending of theory and practice that requires experience in a group setting with young children. Courses concentrate on infants and toddlers as well as older preschoolers. Each course has a strong parent/family communications component and stresses observation techniques appropriate for assessing and evaluating the development of young children.

What is Human Development and Family Studies?

Penn State's Human Development and Family Studies (HDFS) program prepares students for careers across a wide range of human service, healthcare, and helping professions. The HDFS degree is grounded in research-based knowledge on the psychological, biological, social, cultural, and economic influences that impact the well-being of individuals, families, and communities across the lifespan. HDFS coursework guides students to develop skills for working with and caring for diverse individuals and groups through emphasizing mindfulness, compassion, diversity, equity, advocacy and inclusion. Students take courses on infancy, childhood, and adolescent development, transitioning and thriving in adulthood, and healthy aging. Classroom experiences are supplemented by a range of engaged learning opportunities, including internships, research participation, and community partnerships through which HDFS students acquire skills preparing them for impactful careers. The program's flexible curriculum allows academic pathways and engagement experiences to be customized to align with students' career goals.

You Might Like This Program If...

- You are passionate about pursuing work focused on improving the lives and wellness of individuals, families, and communities.
- You are interested to learn about individual, family, community, and social factors influencing development as well as evidence-based practices that promote the cognitive, social, physical, and emotional well-being of children, adults, families, organizations, and communities.
- You are enthusiastic to use flexible degree requirements and integrated opportunities to pursue career exploration, experiential and engaged learning, and skill development specialized to your specific career goals.

Entrance to Major

Students must have a minimum 2.0 GPA to change to this Associate degree after admission to the University.

Degree Requirements

For the Associate in Science degree in Human Development and Family Studies, a minimum of 60 credits is required:

Requirement	Credits
General Education	21
Electives	0-3
Requirements for the Major	51-55

15 of the 21 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GWS courses; 3 credits of GS courses; 3 credits of GN courses; and 3 credits of GQ courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
CAS 100	Effective Speech	3
ENGL 15	Rhetoric and Composition	3
HDFS 395	Internship	6
PSYCH 100	Introductory Psychology	3
<i>Prescribed Courses: Require a grade of C or better</i>		
HDFS 129	Introduction to Human Development and Family Studies	3
HDFS 301	Values and Ethics in Health and Human Development Professions	3
Additional Courses		
Select one of the following:		3
BIOL 141	Introduction to Human Physiology	
BIOL 155	Introduction to the Biology of Aging	
BISC 4	Human Body: Form and Function	
<i>Additional Courses: Require a grade of C or better</i>		
SOC 30	Sociology of the Family (SOC 30 does not require a grade of C or better)	3
or HDFS 315	Family Development	
Select one of the following:		3-4
EDPSY 101	Analysis and Interpretation of Statistical Data in Education	
STAT 100	Statistical Concepts and Reasoning	
STAT 200	Elementary Statistics	
Requirements for the Option		
Select an option		21-24

Requirements for the Option

Adult Development and Aging Services Option (21 credits)

Available at the following campuses: Altoona, Brandywine, DuBois, Fayette, Mont Alto, Schuylkill, Scranton, Shenango, World Campus, York

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
HDFS 249N	Adult Development and Aging	3
HDFS 311	Human Development and Family Studies Interventions	3

Supporting Courses and Related Areas

Select 15 credits in consultation with the adviser from University-wide offerings that enhance competence in the option

Children, Youth, and Family Services Option (24 credits)

Available at the following campuses: Altoona, Brandywine, DuBois, Fayette, Mont Alto, Schuylkill, Scranton, Shenango, World Campus, York

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
HDFS 229	Infant and Child Development	3
HDFS 239	Adolescent Development	3
HDFS 311	Human Development and Family Studies Interventions	3

Supporting Courses and Related Areas

Select 15 credits in consultation with the adviser from University-wide offerings that enhance competence in the option

Early Childhood Care and Education Option (24 credits)

Available at the following campuses: DuBois, Fayette, Shenango, York

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
HDFS 229	Infant and Child Development	3
HDFS 230	Overview of Curricular Practices in Early Childhood Care and Education	3
HDFS 231	Guidance in Early Childhood Care and Education	3
HDFS 232	Creativity and Play in Early Childhood Care and Education	3
HDFS 233	Emergent Language and Literacy: Development and Practice in Early Childhood Care and Educat	3
HDFS 234	Mathematics and Science Reasoning: Development and Practice in Early Childhood Care and Educat	3
HDFS 311	Human Development and Family Studies Interventions	3
HDFS 330	Observation or Experience with Children, Youth, and Families	3

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all associate degree students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 3 credits
- **Writing and Speaking (GWS):** 3 credits

Knowledge Domains

- **Arts (GA):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Note: Up to six credits of Inter-Domain courses may be used for any Knowledge Domain requirement, but when a course may be used to satisfy more than one requirement, the credits from the course can be counted only once.

Exploration

- **Any General Education course (including GHW and Inter-Domain):** 3 credits

University Degree Requirements

Cultures Requirement

3 credits of United States (US) or International (IL) cultures coursework are required and may satisfy other requirements

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 60 degree credits must be earned for an associates degree. The requirements for some programs may exceed 60 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Application of HDFS Theory & Research:** Summarize and apply theory and research to practice and policy.
- **Application to Service and Policy:** Summarize and apply processes, policies, and contextual factors that affect the delivery of human services to individuals and families.
- **Diversity & Equity Practice:** Describe and apply research on inequality and diversity to inform and engage in practice that reduces inequality and promotes equity, inclusion, and well-being for all people.
- **Professional Conduct:** Demonstrate appropriate professional behaviors characterized by ethical and culturally sensitive standards of conduct.
- **Professional Skill:** Demonstrate competence in foundation skills for human service work.
- **Theories of Human Development and Family Science:** Summarize and apply theories and concepts to demonstrate an understanding of the complexity of individual and family development across the lifespan in diverse contexts and changing environments.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary

academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Adult Development and Aging Option: Human Development and Family Studies, A.S. at World Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 [‡]	3 HDFS 249N [*]	3
HDFS 129 ^{*†}	3 HDFS 301 [*]	3
PSYCH 100 ^{*†}	3 CAS 100B or 100C [‡]	3
STAT 100, 200, or EDPSY 101 ^{*†}	3-4 General Education Course (GA)	3
Supporting Course ¹	3 Supporting Course ¹	3
15-16		15

Second Year

Fall	Credits Spring	Credits
HDFS 315, 315Y, or SOC 30 [*]	3 BIOL 141, 155, or BISC 4 [†]	3
HDFS 395 (Pre-Internship Coursework) [*]	3 HDFS 395 (Internship Site Experience) [*]	3
HDFS 311 [*]	3 General Education Course (GH)	3

Supporting Course ¹	3 Supporting Course ¹	3
Supporting Course ¹	3 Elective	3
	15	15

Total Credits 60-61

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Academic Advising Notes:

Students selecting a GH course or supporting course are encouraged to schedule a course with the US or IL designation.

Students selecting a GQ course are encouraged to check with an academic adviser for appropriate MATH entrance requirements.

It is recommended that students fulfill the Writing Across the Curriculum requirement by taking HDFS 315Y via the World Campus. If HDFS 315Y is not taken, HDFS 312 or another writing intensive course will fulfill that requirement. Check with your adviser to ensure you are taking a course that fulfills the Writing Across the Curriculum requirement.

Program Notes:

Many of the courses required for the Associate degree in HDFS may apply to the HDFS baccalaureate degree program.

¹ Students are encouraged to review the HDFS Supporting Courses list (<https://hhd.psu.edu/hdfs/undergraduate/courses/supporting-courses> (<https://hhd.psu.edu/hdfs/undergraduate/courses/supporting-courses/>)) for appropriate courses to fulfill the supporting course requirements.

Children Youth and Family Studies Option: Human Development and Family Studies, A.S. at World Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 [‡]	3 HDFS 229 or 239 [*]	3
HDFS 129 ^{*†}	3 HDFS 301 [*]	3
PSYCH 100 ^{*†}	3 CAS 100B or 100C [‡]	3
STAT 100, 200, or EDPSY 101 ^{*†}	3-4 General Education Course (GA)	3
Supporting Course ¹	3 Supporting Course ¹	3
15-16		15

Second Year

Fall	Credits Spring	Credits
HDFS 315, 315Y, or SOC 30 [*]	3 BIOL 141, 155, or BISC 4 [†]	3
HDFS 229 or 239 [*]	3 HDFS 395 (Internship Site Experience) [*]	3
HDFS 395 (Pre-Internship Coursework) [*]	3 General Education Course (GH)	3
HDFS 311 [*]	3 Supporting Course ¹	3
Supporting Course ¹	3 Supporting Course ¹	3
15		15

Total Credits 60-61

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Academic Advising Notes:

Students selecting a GH course or supporting course are encouraged to schedule a course with the US or IL designation.

Students selecting a GQ course are encouraged to check with an academic adviser for appropriate MATH entrance requirements.

It is recommended that students fulfill the Writing Across the Curriculum requirement by taking HDFS 315Y via the World Campus. If HDFS 315Y

is not taken, HDFS 312 or another writing intensive course will fulfill that requirement. Check with your adviser to ensure you are taking a course that fulfills the Writing Across the Curriculum requirement.

Program Notes:

Many of the courses required for the Associate degree in HDFS may apply to the HDFS baccalaureate degree program.

¹ Students are encouraged to review the HDFS Supporting Courses list (<https://hhd.psu.edu/hdfs/undergraduate/courses/supporting-courses>) for appropriate courses to fulfill the supporting course requirements.

Career Paths

The Associate's Degree in HDFS provides students with a valuable foundation of skills and knowledge for pursuing entry level positions in careers focused on helping promote health and wellness across the lifespan. Many graduates of the A.S. in HDFS program also continue to pursue their B.S. in HDFS. Our A.S. degree is designed to allow for a smooth transition into the B.S. degree, after which graduates are positioned for career advancement or to work in additional areas described in the B.S. degree. HDFS Students are encouraged to customize their degree to align with their career interests.

Careers

Students graduating with their A.S. degree in HDFS pursue a range of positions in areas that include:

- Health and Human Services (e.g. youth and family services, child advocacy, health education)
- Early Childhood Development (e.g. early childhood education, early intervention specialist)
- Child and Youth Services
- Foster Care and Adoption
- Services for Older Adults
- Services for Individuals with Disabilities

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE HUMAN DEVELOPMENT AND FAMILY STUDIES PROGRAM (<https://hhd.psu.edu/undergraduate/internships-and-career-opportunities/career-areas-major/careers-human-development-and/>)

Opportunities for Graduate Studies

After completing their associate's degree, many HDFS students go on to complete their Bachelor of Science degree in HDFS. This degree opens up opportunities for students to attend graduate research or professional programs in several fields, including:

- Counseling (e.g., addiction counseling, marriage and family therapy, mental health counseling, counseling psychology, educational and vocational counseling)
- Social Work and Public Health
- Clinical Health Professions (e.g. psychiatry, pediatrics, adolescent medicine, family medicine, obstetrics and gynecology, geriatrics, occupational therapy)
- Program Administration and Management
- Special Education
- Family Law

- Public Policy and Advocacy
- Research (e.g., on lifespan human development, psychology, sociology, prevention)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://hhd.psu.edu/hdfs/human-development-and-family-studies-graduate-program/>)

Professional Resources

- Diversity, Equity and Inclusion in HDFS (<https://hhd.psu.edu/hdfs/about/diversityandequity/initiatives/>)

Contact

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World Campus

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-human-development-and-family-studies-associate-in-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-human-development-and-family-studies-associate-in-science-degree/>)

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<https://altoona.psu.edu/academics/associate-degrees/human-development-family-studies> (<https://altoona.psu.edu/academics/associate-degrees/human-development-family-studies/>)

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<https://fayette.psu.edu/academics/associate/assoc-human-development-and-family-studies> (<https://fayette.psu.edu/academics/associate/assoc-human-development-and-family-studies/>)

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<https://montalto.psu.edu/academics/associate/associate-human-development-family-studies-degree> (<https://montalto.psu.edu/academics/associate/associate-human-development-family-studies-degree/>)

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<https://scranton.psu.edu/academics/degrees/associate/hdfs> (<https://scranton.psu.edu/academics/degrees/associate/hdfs/>)

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<https://shenango.psu.edu/academics/degrees/2-year-human-development-family-studies> (<https://shenango.psu.edu/academics/degrees/2-year-human-development-family-studies/>)

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<https://www.york.psu.edu/academics/associate/human-development-and-family-studies> (<https://www.york.psu.edu/academics/associate/human-development-and-family-studies/>)

Human Development and Family Studies, B.S. (Health and Human Development)

Begin Campus: Any Penn State Campus

End Campus: University Park, World Campus

Program Description

This major is a multidisciplinary program that examines the development of individuals and families across the life span. HDFS prepares graduates for professional, managerial, or scientific roles in health and human services professions, in public and nonprofit agencies, and in business and industry, as well as for advanced professional or graduate study. Students obtain a broad background in individual and family development across the life span. Courses emphasize biological, psychological, social/cultural, and economic aspects of development as well as applied skill development. We strive for our curriculum (and the experienced and opportunities we extend to students) to foster cultural humility and highlight diverse characteristics, contexts and considerations that impact individuals, families, and communities.

Two options are available within the major:

1. Human Development and Family Science Option
2. Developmental Science for Health Professions Option

All students pursuing the HDFS B.S. are guided to complete a capstone experience customized to their interests. Capstones may include approved field experiences (internships), guided research experiences/projects, and advanced coursework selected to align with individual student interests.

Human Development and Family Science Option

Available at the following campuses: Altoona, Brandywine, DuBois, Fayette, Harrisburg, Mont Alto, Scranton, Shenango, University Park, World Campus, York

This option focuses on the acquisition and application of scientific knowledge about development and family functioning across the life span for the purposes of enhancing personal and family development. Courses emphasize:

1. understanding the biological, psychological, and social development across the life span, and the structuring and functioning of families;
2. understanding basic theoretical and methodological issues; and
3. the development of applied skills in intervention and evaluation, prevention, and in the formulation of social policy.

Students in this option often pursue internships in service settings that work with children, youth, and/or adults. Typical employment settings include preschools, daycare centers, hospital programs for children, youth, and families, institutional and community mental health programs for individuals and families, programs for abused or neglected children and adolescents, women's resource centers, human resources programs, employee assistance programs, nursing homes, area agencies on aging and other community settings for older adults, and public welfare and family service agencies. This option also provides preparation for advanced training in careers in developmental or family research, teaching at a college or university, or for professional careers that require graduate training. Typical postgraduate pursuits of students completing

this option include graduate study in human development, family studies, psychology, or sociology, or advanced professional training in psychology, law, behavioral health, counseling or social work, or other programs related to services for individuals and families.

Developmental Science for Health Professions Option

Available at the following campuses: Altoona, Brandywine, DuBois, Fayette, Mont Alto, Scranton, Shenango, University Park, York

This option is designed for students interested in focusing on human development/developmental science as a foundation to pursue health-related post graduate studies or work careers. This option guides students to acquire and apply scientific knowledge about human development (and family functioning) across the life span; emphasizing understanding biological, psychological, and social development across the life span. Additional coursework focuses on health across contexts. Students also select science foundation courses to complement their study of development across the lifespan and align with their career/post-graduate study interests. Typical postgraduate pursuits of students completing this option include graduate or professional studies in health-related areas (e.g. pediatrics, adolescent medicine, geriatrics, family medicine, psychiatry).

What is Human Development and Family Studies?

Penn State's Human Development and Family Studies (HDFS) program prepares students for careers across a wide range of human service, healthcare, and helping professions. The HDFS degree is grounded in research-based knowledge on the psychological, biological, social, cultural, and economic influences that impact the well-being of individuals, families, and communities across the lifespan. HDFS coursework guides students to develop skills for working with and caring for diverse individuals and groups through emphasizing mindfulness, compassion, diversity, equity, advocacy and inclusion. Students take courses on infancy, childhood, and adolescent development, transitioning and thriving in adulthood, and healthy aging. Classroom experiences are supplemented by a range of engaged learning opportunities, including internships, research participation, and community partnerships through which HDFS students acquire skills preparing them for impactful careers. The program's flexible curriculum allows academic pathways and engagement experiences to be customized to align with students' career goals.

You Might Like This Program If...

- You are passionate about pursuing work focused on improving the lives and wellness of individuals, families, and communities.
- You are interested to learn about individual, family, community, and social factors influencing development as well as evidence-based practices that promote the cognitive, social, physical, and emotional well-being of children, adults, families, organizations, and communities.
- You are enthusiastic to use flexible degree requirements and integrated opportunities to pursue career exploration, experiential and engaged learning, and skill development specialized to your specific career goals.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Human Development and Family Studies, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	12-18
Requirements for the Major	60-67

3-4 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 3-4 credits of GQ courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
HDFS 216	Thoughtful Communication for Navigating Human Interactions and Relationships	3
HDFS 301	Values and Ethics in Health and Human Development Professions	3
HDFS 311	Human Development and Family Studies Interventions	3
HDFS 312W	Empirical Inquiry in Human Development	3

Additional Courses

Additional Courses: Require a grade of C or better

Select 3 credits from the following courses in Introduction to Human Development and Family Science: 3

HDFS 129	Introduction to Human Development and Family Studies	
HDFS 101N	¿Helping People:¿ Introduction to Understanding Social Problems & How to Help	

Select 6 credits from the following courses in Foundations of Lifespan Human Development: 6

HDFS 229	Infant and Child Development	
HDFS 239	Adolescent Development	
HDFS 249N	Adult Development and Aging	

Select 3 credits from the following courses in Family Foundations: 3

HDFS 315	Family Development	
HDFS 315Y	Family Development	
SOC 30	Sociology of the Family	

Select at least 3 credits from the following courses in Statistics/Quantitative Skills: 3-4

EDPSY 101	Analysis and Interpretation of Statistical Data in Education	
HDFS 200	Quantitative Skills for Human Services	
STAT 200	Elementary Statistics	

For the Career Development and Experiential Learning Capstone, select 15 credits from one of the following pathways: 15

<i>Traditional Capstone Internship</i>		
HDFS 490	Professional Development and Preparation for Internship Experience	
HDFS 495A	Internship: Advanced Experience (9 credits)	
HDFS 495B	Internship: Advanced Project	
<i>Modified Internship (Option only available with department approval)</i>		
HDFS 490	Professional Development and Preparation for Internship Experience	
HDFS 495B	Internship: Advanced Project	
HDFS 495C	Professional Practicum in Human Services (3 credits)	

6 Additional Credits with Department Approval

<i>Experiential Mix</i>		
HDFS 490	Professional Development and Preparation for Internship Experience	
HDFS 495A	Internship: Advanced Experience (3-6 credits)	
HDFS 495B	Internship: Advanced Project	

3-6 Credits of 300-/400-Level Career-Related Course Work (with Department Approval)

<i>Research Emphasis</i>		
HDFS 494	Research Project (6 credits)	
	or HDFS 494 Senior Honors Thesis	
	or HDFS 496 Independent Studies	
3 Credits of 400-Level HDFS		
6 Additional Credits of 300-/400-Level Research Credits (e.g. HDFS 300H, HDFS 310M, HDFS 494, HDFS 494H, HDFS 496) or 300-/400-Level Career-Related Course Work (with Department Approval)		

Requirements for the Option

Requirements for the Option: Require a grade of C or better
Select an option 18-24

Requirements for the Option

Human Development and Family Science Option (18 credits)

Available at the following campuses: Altoona, Brandywine, DuBois, Fayette, Harrisburg, Mont Alto, Scranton, Shenango, University Park, World Campus, York

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits from the following courses in Advanced Development:		3
HDFS 405	Gender and Social Development	
HDFS 413	Developmental Problems in Adulthood	

HDFS 428	Infant Development	
HDFS 429	Advanced Child Development	
HDFS 432	Developmental Problems in Childhood and Adolescence	
HDFS 433	Developmental Transition to Adulthood	
HDFS 434	Perspectives on Aging	
HDFS 445	Development Throughout Adulthood	
HDFS 447	Issues in Gerontology	
Select 3 credits from the following courses in Advanced Family Topics:		3
HDFS 412	Adult-Child Relationships	
HDFS 415	Program Development in Family Relationships	
HDFS 416/ SOC 411	Racial and Ethnic Diversity and the American Family	
HDFS 417	Biocultural Studies of Family Organization	
HDFS 418	Family Relationships	
HDFS 424	Family Development in an Economic Context	
HDFS 431	Family Disorganization: Stress Points in the Contemporary Family	
HDFS 469U	Family Change in the Global Economy	
HDFS 477	Analysis of Family Problems	
SOC 430	Family in Cross-Cultural Perspective	

Select 6 credits from the following courses in Professional Skills for HDFS Careers: 6

HDFS 410	Communities and Families	
HDFS 411	The Helping Relationship	
HDFS 414	Resolving Human Development and Family Problems	
HDFS 430	Experience in Preschool Groups	
HDFS 440	Family Policy	
HDFS 455	Development and Administration of Human Services Programs	
HDFS/CMAS 465	Child Maltreatment: Prevention and Treatment	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Diversity and Development: Select 6 credits from HDFS at any level or choose from approved list of University-wide offerings 6

Developmental Science for Health Professions Option (24 credits)

Available at the following campuses: Altoona, Brandywine, DuBois, Fayette, Harrisburg, Mont Alto, Scranton, Shenango, University Park, York

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits from the following courses in Health and Society:		3
BBH 407	Global Health Equity	
SOC 451	Health, Disease & Society	
Select 6 credits from the following courses in Advanced Development:		6
HDFS 405	Gender and Social Development	
HDFS 413	Developmental Problems in Adulthood	
HDFS 428	Infant Development	
HDFS 429	Advanced Child Development	

HDFS 432	Developmental Problems in Childhood and Adolescence	
HDFS 433	Developmental Transition to Adulthood	
HDFS 434	Perspectives on Aging	
HDFS 445	Development Throughout Adulthood	
HDFS 447	Issues in Gerontology	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Diversity and Development: Select 3 credits from HDFS at any level or choose from approved list of University-wide offerings 3

Science and Health Foundations: Select 12 credits from approved list of University-wide offerings 12

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Understand Development:** Demonstrate an understanding of the complexity of individual and family development across the life span in diverse contexts and changing environments
- **Evaluate and Assess Research and Theory:** Demonstrate an ability to evaluate and apply research and theory to practice and policy
- **Analyze Human Service Delivery Factors:** Analyze processes, policies, and contextual factors that affect the delivery of human services to individuals and families
- **Demonstrate Appropriate Standards of Conduct:** Demonstrate professional, ethical, and culturally sensitive standards of conduct
- **Human Service Admin Skills:** Demonstrate knowledge and competence in helping, leadership, and administrative skills for human services
- **DEI:** Integrate theory and research on inequality and diversity into HDFS undergraduate courses to prepare our students to address inequality and promote equity, inclusion, and well-being for all people.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of

both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Developmental Science for Health Professions Option: Human Development and Family Studies, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year		
Fall	Credits Spring	Credits
HDFS 129*	3 HDFS 229, 239, or 249N*	3
HDFS 197 (HDFS First-Year Seminar)	2 General Education Course (GWS) (CAS 100A, CAS 100B, or CAS 100C recommended) [‡]	3
General Education Course (GWS) (ENGL 15, ENGL 30H, ESL 15 recommended) [‡]	3 General Education Course (GQ) [‡]	3
General Education Course (GH)	3 General Education Course (GA)	3
General Education Course (GS)	3 General Education Course (GS)	3
PSU First-Year Seminar	1	
	15	15

Second Year		
Fall	Credits Spring	Credits
HDFS 315*	3 HDFS 301*	3
HDFS 229, 239, or 249N*	3 HDFS 311*	3
EDPSY 101, STAT 200, or HDFS 200* ^{††}	3-4 HDFS 312W* ¹	3
General Education Course (GN)	3 HDFS-US Cultures Requirement*	3
General Education Course (GH)	3 General Education Course (GN)	3
General Education Course (GHW)	1.5	
	16.5-17.5	15

Third Year		
Fall	Credits Spring	Credits
HDFS 310M (or HDFS selection, see degree audit)*	3-4 HDFS 300 (or HDFS selection, see degree audit)*	3
HDFS 428, 429, 433, or 445*	3 HDFS 418*	3
Supporting Course ²	3 HDFS 428, 429, 433, or 445*	3
General Education Course (GWS) (ENGL 202A recommended) [‡]	3 Supporting Course 400-level ²	3
General Education Course (GA)	3 General Education Course (GN)	3
	15-16	15

Fourth Year		
Fall	Credits Spring	Credits
HDFS 494 or 494H*	3 HDFS 494 or 494H*	3
HDFS 400-level*	3 HDFS 400-level*	3
HDFS 400-level*	3 Supporting Course 400-level ²	3
Supporting Course 400-level ²	3 Supporting Course ²	3
Elective	2 General Education (GHW)	1.5
	14	13.5

Total Credits 119-121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Students are encouraged to take HDFS 312W during the second year, if possible. In consultation with an adviser, students will find a faculty member during their 5th or 6th semesters to serve as the supervisor for HDFS 494 research project. This is a two-semester senior-year project, culminating in a Semester 8 research paper.

² Students are encouraged to review the HDFS Supporting Courses list (<https://hhd.psu.edu/hdfs/undergraduate/courses/supporting-courses/>) for appropriate courses to fulfill the supporting course requirements.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

Within the 30 credits of required General Education Domain courses, students must take 6 credits of Integrative Studies courses (p. 3188) (Inter-domain or Linked courses). If you need additional clarification, consult with your academic adviser.

It is recommended that General Education Arts (GA) and Humanities (GH) courses be taken in the third and fourth year if student plans to study abroad. HDFS US Cultures Requirement suggested in Semester 4 is in addition to the university requirement. HDFS 315 satisfies the university requirement for US Cultures. International Cultures (IL) may be combined with GA, GH, or GS. Credit adjustments should be made if elective credits are needed, for a total of 120 credits minimum (which includes Semester 8)

LIMITATIONS ON SOURCE AND TIME FOR CREDIT ACQUISITION: Per Senate policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Most majors in Health and Human Development require students to complete up to 24 credits for the major through courses taken at University Park. Courses taken at other Penn State campuses may not be counted toward this 24 credit minimum.

Human Development and Family Science Option: Human Development and Family Studies, B.S. at University Park Campus and World Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
HDFS 129*	3 HDFS 229, 239, or 249N*	3
HDFS 297 (HDFS First-Year Seminar)	2 EDPSY 101, STAT 200, or HDFS 200*††	3-4
General Education Course (GWS) (ENGL 15, ENGL 30H, ESL 15 recommended)‡	3 General Education Course (GWS) (CAS 100A, CAS 100B, or CAS 100C recommended)‡	3
General Education Course (GS)	3 General Education Course (GA)	3
General Education Course (GQ)‡	3 General Education Course (GS)	3
PSU First-Year Seminar	1	
	15	15-16

Second Year

Fall	Credits Spring	Credits
HDFS 315*	3 HDFS 311*	3
HDFS 229, 239, or 249N*	3 General Education Course (GWS) (ENGL 202A recommended)‡	3
HDFS 312W* ¹	3 General Education Course (GN)	3
Supporting Course ²	3 General Education Course (GN)	3
General Education Course (GH)	3 General Education Course (GH)	3
General Education Course (GHW)	1.5	
	16.5	15

Third Year

Fall	Credits Spring	Credits
HDFS 301*	3 HDFS 418*	3
HDFS 411*	3 HDFS 414*	3
HDFS 300 or 400-level course*	3 HDFS 428, 429, 433, or 445*	3
Supporting Course 400-Level ²	3 HDFS 300 or 400-level course*	3
General Education Course (GN)	3 General Education Course (GA)	3
General Education Course (GHW)	1.5	
	16.5	15

Fourth Year

Fall	Credits Spring	Credits
HDFS 401 or 490* ^{3,4}	2-3 HDFS 495A or 495C* ⁵	8-9
HDFS 455*	3 HDFS 495B or 402* ⁵	3-4
HDFS US Cultures Requirement*	3	
Supporting Course 400-level ²	3	
Elective	4	
	15-16	11-13

Total Credits 119-123

- * Course requires a grade of C or better for the major
 ‡ Course requires a grade of C or better for General Education
 # Course is an Entrance to Major requirement
 † Course satisfies General Education and degree requirement

- ¹ Students are encouraged to take HDFS 312W during the second year, if possible.
² Students are encouraged to review the HDFS Supporting Courses list (<https://hhd.psu.edu/hdfs/undergraduate/courses/supporting-courses/>) for appropriate courses to fulfill the supporting course requirements.
³ Enroll in HDFS 401 only if HDFS 402 and HDFS 495C will be taken. World Campus students will take HDFS 490.
⁴ Enroll in HDFS 490 only if HDFS 495A and 495B will be taken.
⁵ Students at University Park and World Campus will take HDFS 495A (9 cr.) and HDFS 495B (3 cr.). Students at a Commonwealth Campus will take HDFS 495C (8 cr.) and HDFS 402 (4 cr.)

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

Honors Students should be in the Life Span Developmental Sciences option. See Adviser to discuss.

Within the 30 credits of required General Education Domain courses, students must take 6 credits of Integrative Studies courses (p. 3188) (Inter-domain or Linked courses). If you need additional clarification, consult with your academic adviser.

It is recommended that General Education Arts (GA) and Humanities (GH) courses be taken in the third and fourth year if student plans to study abroad. HDFS US Cultures Requirement suggested in Semester 4 is in addition to the university requirement. HDFS 315 satisfies the university requirement for US Cultures. International Cultures (IL) may be combined with GA, GH, or GS. Credit adjustments should be made if elective credits are needed, for a total of 120 credits minimum (which includes Semester 8)

LIMITATIONS ON SOURCE AND TIME FOR CREDIT ACQUISITION: Per Senate policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Most majors in Health and Human Development require students to complete up to 24 credits for the major through courses taken at University Park. Courses taken at other Penn State campuses may not be counted toward this 24 credit minimum.

Elementary & Early Childhood Education Concurrent Degree: Human Development and Family Studies, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or ESL 15 [†]	3 HDFS 229 ^{*#}	3
HDFS 129 [*]	3 EDPSY 14 ^{*#}	3
EDTHP 115 ^{*#}	3 CAS 100A, 100B, or 100C [†]	3
MATH 200 ^{*#1}	3 EDPSY 101 or STAT 200 ^{*#†}	3-4
General Education Course (GN) Biological Sciences ^{*#†}	3 General Education Course (GH) US History [*]	3
PSU First-Year Seminar (HDFS or Education)	1	
	16	15-16

Second Year

Fall	Credits Spring	Credits
HDFS 315 [*]	3 HDFS 311 [*]	3
HDFS 239 ^{*†}	3 CI 280 [*]	3
CI 295A or HDFS 330 ^{*2}	3 HDFS 312W ^{*3}	3
GEOG 30N, 123, or 126 ^{*†}	3 KINES 126 ^{*4,5}	1.5
General Education Course (GH) Literature ^{*†}	3 General Education Course (GQ) [*]	3
General Education Course (GN) Earth Science [*]	3 General Education Course (GN) Physical Science [*]	3
	18	16.5

Third Year

Fall	Credits Spring	Credits
ECE 451 [*]	3 ECE 479 [*]	3
HDFS 411 [*]	3 HDFS 418 [*]	3
SPLD 400 [*]	4 HDFS 414 [*]	3
ENGL 202A or 202B [†]	3 HDFS 428 [*]	3
	KINES 127 ^{*4,5}	1.5
	13	13.5

Fourth Year

Fall	Credits Spring	Credits
HDFS 429 [*]	3 LLED 400 [*]	3
HDFS 455 [*]	3 LLED 401 [*]	3
HDFS 301 [*]	3 LLED 402 [*]	3
SPLD 403A [*]	3 AED 303 [*]	3
General Education Course (GA)	3 MUSIC 241 [*]	3
	15	15

Fifth Year

Fall	Credits Spring	Credits
MTHED 420 [*]	3 CI 495F ^{*6}	3
SCIED 458 [*]	3 CI 495D ^{*6}	12

SSED 430W [*]	3 No additional coursework permitted during Student Teaching
CI 495A [*]	3
US Cultures [*]	3
	15
	15

Total Credits 152-153

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Enrollment into MATH 200 is controlled. Students must work closely with an academic adviser to secure enrollment in this class.

² Due to certification requirements, students in EECE are encouraged to take CI 295A, not HDFS 330.

³ Students are encouraged to take HDFS 312W during the second year, if possible.

⁴ Alternate courses can be found at: <https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/undergraduate-teacher-education-pk-12/elementary-early-childhood-education-bs-pk-4/suggested-courses> (<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/undergraduate-teacher-education-pk-12/elementary-early-childhood-education-bs-pk-4/suggested-courses/>)

⁵ Petitioning for KINES 126 and/or 127 to fulfill the GHW requirement will require 1.5-3 credits of additional electives.

⁶ HDFS will use CI 495F and CI 495D for the HDFS internship block.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- General Education Natural Science (GN) with a lab is required for the EECE major.
- Credits may be reduced if students have approved AP credits or transfer credits to apply to the curriculum requirements.

- The College of Education requires students enrolled in the EECE PK-4 program to purchase a notebook computer.
- Eligibility for entrance to the PK-4 teaching option in the Childhood and Early Adolescent (EECE) major is based on: (1) formal application, (2) completion of specified prerequisites, and (3) cumulative grade point average.
- Students must participate in a formal Entrance to Major process in a designated selection pool typically during the fourth semester in the Spring.

LIMITATIONS ON SOURCE AND TIME FOR CREDIT ACQUISITION Per Senate policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Most majors in Health and Human Development require students to complete up to 24 credits for the major through courses taken at University Park. Courses taken at other Penn State campuses may not be counted toward this 24 credit minimum.

Career Paths

Demand for HDFS graduates is strong because the major provides students with a valuable foundation for understanding important social trends and guides students to develop the knowledge and skills to positively impact individuals, families, and communities. HDFS Students can customize their degree to align with career interests. HDFS students specialize through minors, certificates and credit-based hands-on learning opportunities.

HDFS students complete a capstone experience customized to their interests and designed to enhance their qualifications. Capstones include approved internships, guided research experiences, or advanced courses. The HDFS department capstone program provides:

- A capstone preparation class to help students explore interests, identify opportunities, and submit professional applications - and -
- Experienced capstone coordinators to help students get the most out of the capstone experience

Careers

Many HDFS graduates go directly to the workplace based on their understanding of people, their knowledge of group dynamics, and their skills in training and in program development and evaluation. HDFS students pursue positions right out of college in:

- Health and Human Services Professions (e.g. youth and family services, child advocacy, health education)
- Early Childhood Development (e.g. early childhood education, early intervention specialists, applied behavioral analysis)
- Child and Youth Services
- Foster Care and Adoption
- Family Education and Intervention
- Services for Older Adults
- Services for Individuals with Disabilities
- Program Administration and Advocacy (e.g. volunteer coordination, program management and evaluation, human resources)

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE HUMAN DEVELOPMENT AND FAMILY STUDIES PROGRAM (<https://hhd.psu.edu/undergraduate/internships-and-career-opportunities/career-areas-major/careers-human-development-and/>)

Opportunities for Graduate Studies

A degree in HDFS is also a great foundation for individuals who are interested in pursuing advanced professional training/graduate study in:

- Counseling (e.g., addiction counseling, marriage and family therapy, mental health counseling, counseling psychology, educational and vocational counseling)
- Social Work and Public Health
- Clinical Health Professions (e.g. psychiatry, pediatrics, adolescent medicine, family medicine, obstetrics and gynecology, geriatrics, occupational therapy)
- Program Administration and Management
- Special Education
- Family Law
- Public Policy and Advocacy
- Research (e.g., on lifespan human development, psychology, sociology, prevention)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://hhd.psu.edu/hdfs/human-development-and-family-studies-graduate-program/>)

Professional Resources

- Diversity, Equity and Inclusion in HDFS (<https://hhd.psu.edu/hdfs/about/diversityandequity/initiatives/>)

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-human-development-and-family-studies-bachelor-of-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-human-development-and-family-studies-bachelor-of-science-degree/>)

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<https://fayette.psu.edu/academics/baccalaureate/human-development-and-family-studies-bs> (<https://fayette.psu.edu/academics/baccalaureate/human-development-and-family-studies-bs/>)

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<https://www.york.psu.edu/academics/baccalaureate/human-development-and-family-studies> (<https://www.york.psu.edu/academics/baccalaureate/human-development-and-family-studies/>)

Human Development and Family Studies, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

What is Human Development and Family Studies?

Students from many different majors benefit from the knowledge and experience they gain from HDFS courses. The minor in Human Development and Family Studies, one of the most popular minors at Penn State, helps students with a broad array of career aspirations understand human behavior. Students learn how people relate to one another and how to make a positive impact through the work they do. HDFS takes an interdisciplinary approach to helping students understand how individuals develop from birth to old age, how families, communities and workplaces influence individual development, and how they can apply this knowledge to develop, implement and evaluate programs designed to improve lives. The knowledge and skills gained through minoring in HDFS guides students to lead healthy, productive lives and excel in their careers. Whether you are studying business, education, nursing, communications, pre-health, pre-law, or a range of other fields, the HDFS minor has something to offer.

MORE INFORMATION ABOUT HUMAN DEVELOPMENT AND FAMILY STUDIES (<https://hhd.psu.edu/hdfs/undergraduate/minor-human-development-and-family-studies/>)

You Might Like This Program If...

- You want to understand how individuals develop and change from birth to old age, how families and communities influence individual development, and how to apply this knowledge to improve the lives of individuals and families.
- You plan to pursue a career in which knowledge about individual and family development can be useful, such as human services, health professions (speech pathology, occupational therapy, nursing, medicine) education and business (marketing, human resources).

MORE INFORMATION ABOUT WHY STUDENTS CHOOSE TO STUDY HUMAN DEVELOPMENT AND FAMILY STUDIES (<https://hhd.psu.edu/>)

hdfs/undergraduate/minor-human-development-and-family-studies/hdfs-minor-faqs/)

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
HDFS 129	Introduction to Human Development and Family Studies	3
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 9 credits of HDFS courses		9
Select 6 credits of 400-level HDFS courses		6

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Career Paths

Students from many different majors benefit from the knowledge and experience they gain from HDFS courses. The working knowledge and skillset one gains through minoring in HDFS is helpful for all kinds of students by guiding them to lead healthy and productive lives, to work well with others, and excel in their careers. A minor in HDFS is especially helpful if you are interested and passionate about improving the lives of individuals, families, and/or communities through the work you aspire to do.

Careers

HDFS is a great minor if you plan to pursue work in:

- Health and human service professions
- Early Childhood Development/Education settings
- Program Administration and advocacy
- Counseling, social work, or other direct service work
- Program Administration, management, and other business careers
- Human resources and organizational leadership
- Public policy, equity, and advocacy
- Research

Students minoring in HDFS are encouraged to customize their HDFS course selection to align with their specific interests.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN HUMAN DEVELOPMENT AND FAMILY STUDIES (<https://hhd.psu.edu/hdfs/undergraduate/careers-hdfs-majors/>)

Opportunities for Graduate Studies

The HDFS minor, when combined with an appropriate major field of study, can provide useful preparation for graduate school in the social, behavioral, and health sciences. In recent years, HDFS students have pursued graduate studies in:

- Counseling (e.g., school counseling, counseling psychology)
- Social work
- Health professions (e.g., nursing, occupational therapy, medicine)
- Psychology and Human Development & Family Studies
- Elementary and Secondary Education
- Law and business

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://hhd.psu.edu/hdfs/undergraduate/careers-hdfs-majors/>)

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Information Sciences and Technology in Health Policy and Administration, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The learning objectives of the minor in Information Sciences and Technology in Health Policy and Administration (ISHPA) are to equip students with the skills and knowledge to meet the critical need for persons with expertise in health care information technology. Specialists in this field assist health care organizations develop and apply the information technologies needed to develop Web-based systems for patient education, physician-patient interaction and physician-physician consultation, securely transmit sensitive medical information electronically, and even pioneer efforts for advanced technologies like remote robotic surgery. The ISHPA minor provides students with a solid base in the information sciences and technology through courses in IST's core curriculum. This core is then supported by selections from a group of HPA courses studying the application of information technology in health planning, financing, or marketing. Students must apply for entrance to the minor no later than the beginning of their seventh semesters.

What is Information Sciences and Technology in Health Policy and Administration?

The minor in Information Sciences and technology in Health Policy and Administration (IST/HPA) provides you with a solid base in the information sciences and technology through courses in IST's core curriculum, the same ones taken by all students majoring in IST. You

may then select from a group of HPA courses in which you will study the application of information technology in such areas as health care planning, financing, and marketing. Job opportunities for information science and technology professionals, especially in healthcare, are growing rapidly. Hospitals, physician offices, nursing homes, or other health care organizations in the modern world of medicine could not survive, much less save patients' lives, without high quality information systems professionals assisting their clinical staff. From developing artificial intelligence decision-making systems to providing bedside information technology, information sciences and technology has become integral to today's health care.

You Might Like This Program If...

You like the idea of taking information sciences and technologies and applying to practical and challenging real-world problems in the life and health sciences, clinical medicine, and the business of health care. Graduates in this field need to be able to develop competency in IST, and the ability to work with health professionals, clinicians, patients and families who rely on these information systems for life saving interventions.

MORE INFORMATION ABOUT INFORMATION SCIENCES AND TECHNOLOGY IN HEALTH POLICY AND ADMINISTRATION (<https://www.ahima.org/careers/healthinfo/>)

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
HPA 470	Health Care Information Management	3
IST 110	Information, People and Technology	3
IST 210	Organization of Data	3
IST 220	Networking and Telecommunications	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 6 credits of the following:		6
HPA 433	Administration of Hospital and Health Service Systems	
HPA/BBH 440	Principles of Epidemiology	
HPA 447	Financing Health Care	
HPA 455	Strategic Planning and Marketing for Health Services	

Note: The HPA courses have additional prerequisites that must be met.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their

intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Career Paths

Careers and opportunities for graduate studies in the area of IST/HPA are diverse. Some individuals begin work in these fields in positions that do not require an undergraduate degree, such as health information clerk or medical biller. Career ladders extend through undergraduate and graduate degree opportunities, with growing responsibilities. Many organizations now have a top level leader, Chief Information Officer (CIO) responsible for all aspects of information and knowledge management and leadership.

Careers

Information sciences and technology careers span an array of positions in health care organizations, including opportunities in compliance and risk management, informatics and data analysis, medical records administration and operations, and finance and billing. Professional organizations like the Health Information Management Systems Society (HIMSS) and the American Health Information Management Association (AHIMA) provide excellent career and professional resources for students.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN INFORMATION SCIENCES AND TECHNOLOGY IN HEALTH POLICY AND ADMINISTRATION (<https://www.ahima.org>)

Opportunities for Graduate Studies

Graduate degree opportunities include professional master's degrees in health information management or health informatics, as well as more research oriented programs in areas like bioinformatics, health services research, or health informatics. Rapidly growing areas include

cybersecurity and medical privacy, big data and analytics, artificial intelligence and similar fields.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.huck.psu.edu/graduate-programs/bioinformatics-and-genomics/>)

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<https://hhd.psu.edu/hpa/bachelor-science-bs-health-policy-and-administration> (<https://hhd.psu.edu/hpa/bachelor-science-bs-health-policy-and-administration/>)

<https://hhd.psu.edu/hpa/bachelor-science-bs-health-policy-and-administration> (<https://hhd.psu.edu/hpa/bachelor-science-bs-health-policy-and-administration/>)

Mont Alto

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Kinesiology, B.S. (Health and Human Development)

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

Kinesiology offers a comprehensive program of study in the science of human movement and is designed for students who want to prepare for professions involving physical activity and for graduate study in related areas. The Kinesiology major options are: Applied Exercise and Health; Movement Science; and Exercise Science. All options require a culminating practicum or research experience. Relocation away from the University Park campus is generally necessary for the practicum. All options require a minimum of 120 credits for graduation. Information about the major and its options can be found at: <https://hhd.psu.edu/kines> (<https://hhd.psu.edu/kines/>).

Applied Exercise and Health Option

Available at the following campuses: *University Park*

This option provides applied interdisciplinary training in the foundations of the scientific understanding of exercise and health through the lifespan. Students select one of two areas of emphasis that are certification-based and practice-oriented: (a) courses and practical experiences directed toward certification by organizations such as the American College of Sports Medicine (ACSM) or the National

Strength and Conditioning Association (NSCA), or (b) health and physical education; a series of courses and student teaching leading to teacher certification. The completion of the Applied Exercise and Health Option will prepare students to work in the private or corporate fitness arenas, community-based fitness organizations, and university or hospital settings, or be Pennsylvania certified in health and physical education (K-12) and secure teaching positions in public or private schools.

Movement Science Option

Available at the following campuses: Altoona, University Park

This option provides interdisciplinary scientific training in academic areas such as biomechanics, exercise physiology, movement neuroscience, psychology of physical activity, and sport history and philosophy to understand movement for prevention and diagnosis of chronic disease, rehabilitation and treatment, and/or theoretical study. Students are prepared for graduate study in many clinical fields including medicine, physical therapy, occupational therapy, physician assistant, cardiac rehabilitation, as well as a broad range of careers in biomedical and health-related fields.

Exercise Science Option

Available at the following campuses: Altoona, Berks, Harrisburg

This option is a program of study in the science of exercise. This program offers Kinesiology background and applied experience in fitness assessment, exercise physiology, exercise psychology, motor skill development, nutrition, and healthy living skills. Graduates will be able to scientifically assess fitness levels of individuals. Analyzing those assessments, graduates will then be capable of designing and implementing appropriate exercise programs. Students in the Business Emphasis acquire basic business skills in accounting, marketing, management and entrepreneurial skills. Students choosing the Science Emphasis will select courses from a department list, including courses in basic science, social science, exercise and health sciences, and other related coursework, that will enhance their opportunity for graduate studies in fields related to Kinesiology and allied health, such as physical therapy, athletic training, and medicine. The completion of the Exercise Science Option will enable graduates to compete for employment in private, corporate, or community-based fitness organizations, in hospital or university settings, and be prepared to apply for graduate programs in allied health fields.

What is Kinesiology?

Kinesiology refers to the study of human movement. This interdisciplinary field of study focuses on physical activity, movement and sport and includes specialized areas of study that include the arts, humanities, sciences and professional disciplines. These areas include biomechanics, psychology of physical activity, exercise physiology, history and philosophy of physical activity, motor development, as well as sports medicine and physical education pedagogy. This multi-disciplinary approach is useful for addressing health and wellness in a complex society.

MORE INFORMATION ABOUT KINESIOLOGY (<https://nationalacademyofkinesiology.org/what-is-kinesiology/>)

You Might Like This Program If...

You enjoy working with people, have a passion for health and wellness, and are open to approaching problems with interdisciplinary strategies. As you learn about the human body as a whole, you will also have the opportunity to understand how you can apply your knowledge and skills

to develop solutions that can help others in a number of ways, whether in a rehabilitation facility, with a professional sports team, in a corporate office or in a school setting.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Kinesiology a minimum of 120 credits is required for the Applied Exercise Health option, a minimum of 120 credits is required for the Movement Science option, and a minimum of 122 credits is required for the Exercise Science option:

Requirement	Credits
General Education	45
Electives	0-16
Requirements for the Major	80-108

18-27 of the 45 credits for General Education are included in the Requirements for the Major. This includes: Applied Exercise and Health Option - 9 credits GN, 6 credits GQ, 3 credits of GH, 6 credits of GS and 3 credits of GHW; Movement Science Option - 9 credits of GN courses, 6 credits of GQ courses, 3 credits of GS courses, 3 credits of GHW courses; Exercise Science Option - 9 credits of GN courses, 6 credits of GQ courses, 3 credits of GHW courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. KINES requires students to complete 24 credits for the major through courses taken at University Park. Courses taken at other Penn State campuses may not be counted toward this 24 credit minimum. For more information, check the Suggested Academic Plan for this major.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
BIOL 161	Human Anatomy and Physiology I - Lecture	3
BIOL 163	Human Anatomy and Physiology II - Lecture	3
KINES 100	The Cultural and Behavioral Foundations of Kinesiology	3
KINES 101	The Biophysical Foundations of Kinesiology	3
KINES 202	Functional Human Anatomy	3

KINES 295B	Kines Careers & Observation	1
KINES 321	Psychology of Movement Behavior	3
KINES 341	The Historical, Cultural, and Social Dynamics of Sport	3
KINES 345	Meaning, Ethics, and Movement	3
KINES 350	Exercise Physiology	3
KINES 360	The Neurobiology of Motor Control and Development	3
KINES 384	Biomechanics	3
NUTR 251	Introductory Principles of Nutrition	3

Additional Courses*Additional Courses: Require a grade of C or better*

Select 3-4 credits from the following: 3-4

SCM 200	Introduction to Statistics for Business	
STAT 200	Elementary Statistics	
STAT 250	Introduction to Biostatistics	

Requirements for the Option*Requirements for the Option: Require a grade of C or better*

Select an option 40-67

Requirements for the Option**Applied Exercise and Health Option (60-67 credits)***Available at the following campuses: University Park*

Code	Title	Credits
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Prescribed Courses*Prescribed Courses: Require a grade of C or better*

CI 280	Introduction to Teaching English Language Learners	3
EDPSY 10	Individual Differences and Education	3
KINES 200	Muscle Training: Physiology, Programs, Techniques	3
KINES 201	Cardiorespiratory Training for Health and Performance	3
KINES 267	Fundamental Movement Skills Instruction	1
KINES 367	Games and Sports Instruction Across the Lifespan	1
KINES 368	Individual Fitness and Wellness	2
KINES 401	Applied Group Fitness Exercise Prescription and Program Design	3
KINES 456	Physical Fitness Appraisal	4
PSYCH 100	Introductory Psychology	3

Additional Courses*Additional Courses: Require a grade of C or better*

MATH 26 or a higher level MATH course recommended by math placement test. Course list includes: MATH 26, MATH 40, MATH 41, MATH 110 or MATH 140 3

Select 3-5 credits from: 3-5

CHEM 101	Introductory Chemistry	
CHEM 106	Introductory and General Chemistry	
CHEM 110	Chemical Principles I	
CHEM 130	Introduction to General, Organic, and Biochemistry	

Select 3-4 credits from: 3-4

PHYS 150	Technical Physics I	
PHYS 250	Introductory Physics I	

Supporting Courses and Related Areas*Supporting Courses and Related Areas: Require a grade of C or better*

Take the following required courses with selected emphasis area: 25-29

HPE Certification Emphasis:

KINES 366	The Process of Teaching Physical Education
KINES 395A	Ldrshp Prac:Tchrs
KINES 400	Adapted Physical Education
KINES 464	Physical Education Programming and Practicum
KINES 468W	Health Instruction in the School-Content and Method
KINES 495A	Practicum in Student Teaching
SPLD 400	Inclusive Special Ed Foundations: Legal, Characteristics, Collaboration, Assessment, and Management

ACSM/NSCA Certification Emphasis:

KINES 395B	Leadership Practicum: KINES
KINES 421	Exercise Psychology
KINES 425W	Physical Activity in Diverse Populations or KINES 48: Scientific Basis of Exercise for Older Adults or KINES 49: Programming for Business and Agencies or KINES 49: Principles and Ethics of Coaching
KINES 457	Exercise Prescription and Case Studies
KINES 485	Science and Practice of Training Athletes
KINES 495B	Field and/or Research Practicum in Kinesiology
KINES 495E	Advanced Professional Development in Kinesiology

Select 3 credits from approved 400-level courses:

NUTR 407	Nutrition for Exercise and Sports
KINES 402	Human Anatomy Cadaver Dissection
KINES 405N	Bicycling Culture and Urban Design
KINES 410	Physical Growth and Motor Development
KINES 411	Introduction to Musculoskeletal Injury and Rehabilitation
KINES 419	Disability Sport and Recreation
KINES 422	Physical Activity Interventions
KINES 423	Psychology of Sports Injuries
KINES 424	Women and Sport
KINES 425W	Physical Activity in Diverse Populations
KINES 426	Physical Activity and Public Health
KINES 427	Developmental Sport & Exercise Psychology
KINES 428	Motivation and Emotion in Movement
KINES 429	Psychology of Sport Performance
KINES 430W	Groups in Physical Activity
KINES 431	Concussion in Athletics: Brain to Behavior
KINES 454	Women's Health and Exercise Across the Lifespan
KINES 455	Physiological Basis of Exercise as Medicine
KINES 458	Introduction to Electrocardiogram Interpretation
KINES 459	Community Engagement and Outreach in Kinesiology
KINES 460	Movement Disorders
KINES 465	Neurobiology of Sensorimotor Stroke Rehabilitation
KINES 467	The Science of Performance Enhancement
KINES 481W	Scientific Basis of Exercise for Older Adults

KINES 483	Motor Patterns of Children
KINES 493	Principles and Ethics of Coaching
KINES 493W	Principles and Ethics of Coaching
KINES 495D	Expanded Field and/or Research Practicum in Kinesiology
KINES 499	Foreign Studies

Movement Science Option (40-42 credits)*Available at the following campuses: Altoona, University Park*

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
BIOL 162	Human Anatomy and Physiology I - Laboratory	1
BIOL 164	Human Anatomy and Physiology II - Laboratory	1
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
CHEM 113	Experimental Chemistry II	1
KINES 395B	Leadership Practicum: KINES	1
KINES 495B	Field and/or Research Practicum in Kinesiology	3
PHYS 250	Introductory Physics I	4
PSYCH 100	Introductory Psychology	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
CHEM 106	Introductory and General Chemistry	3-5
or CHEM 110	Chemical Principles I	
MATH 26 or a higher level MATH course recommended by math placement test. Course list includes: MATH 26, MATH 40, MATH 41, MATH 110 or MATH 140		3
Select 12 additional credits from 400-level Kines courses except KINES 403. No more than 3 credits of KINES 496, 408 or 495D may count toward this requirement		12

Exercise Science Option (52-55 credits)*Available at the following campuses: Altoona, Berks, Harrisburg*

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
KINES 200	Muscle Training: Physiology, Programs, Techniques	3
KINES 201	Cardiorespiratory Training for Health and Performance	3
KINES 260	Research Skills in Kinesiology	3
KINES 356	Activity and Disease	3
KINES 358	Ergogenic Aids	1
KINES 456	Physical Fitness Appraisal	4
KINES 457	Exercise Prescription and Case Studies	3
KINES 495C	Exercise Science Practicum	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits from KINES 1 to KINES 99		3
MATH 22 or Satisfactory performance on the MATH placement examination – i.e., placement beyond the level of MATH 22		3
PHYS 150	Technical Physics I	3-4

or PHYS 250	Introductory Physics I	
Select one of the following:		3-5
CHEM 101	Introductory Chemistry	
CHEM 106	Introductory and General Chemistry	
CHEM 110 & CHEM 111	Chemical Principles I and Experimental Chemistry I	
CHEM 130	Introduction to General, Organic, and Biochemistry	

Supporting Courses and Related Areas

<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 16 credits from one of the following emphasis area from an approved list, in consultation with adviser. At least 3 credits must be at the 400 level.		16
Business Emphasis		
Science Emphasis		

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3

credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Kinesiology and M.P.H. in Public Health

Available at the following campuses: University Park

Requirements for the Integrated B.S. in Kinesiology and M.P.H. in Public Health can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/public-health/#integratedundergradprogramtext>).

Program Learning Objectives

- Students will demonstrate personal, professional, and ethical competency within the discipline of kinesiology.
- Students will be able to define fundamental processes, theories, and methods in kinesiology including the physiology, psychology, biomechanics, motor control, history, and philosophy of human movement.
- Students will be able to define and demonstrate competency for planning and implementing kinesiology-related health, fitness, performance, and behavior change interventions and programs.
- Students will be able to perform assessments of physical activity and fitness.

- Students will demonstrate skills related to thinking critically, evaluating research knowledge and evidence, and analyzing quantitative data.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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<https://hhd.psu.edu/kines/undergraduate/advising/appointment-scheduling-current-penn-state-students-located-university-park> (<https://hhd.psu.edu/kines/undergraduate/advising/appointment-scheduling-current-penn-state-students-located-university-park/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Applied Exercise Health Option - Health and Physical Education Certificate Emphasis: Kinesiology, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
KINES 101 ^{*#2}	3 CHEM 101, 106, 110, or 130 ^{*†}	3-5
BIOL 161 ^{*†}	3 KINES 100 ^{*#2}	3
MATH 26 ^{*#2}	3 STAT 200, 250, or SCM 200 ^{*†#2}	3-4
General Education Course (GWS) (ENGL 15, ENGL 30H, ESL 15, ENGL/CAS 137H recommended) ^{†#2}	3 General Education Course (GWS) (CAS 100, CAS 100A, CAS 100B, CAS 100C, ENGL/CAS 138T recommended) [†]	3
General Education Course (GA)	3 General Education Course (Integrative Studies: Inter-Domain)	3
First-Year Seminar	1-2	
	16-17	15-18

Second Year

Fall	Credits Spring	Credits
KINES 200 [*]	3 KINES 201 [*]	3
KINES 202 ^{*#2}	3 BIOL 163 ^{*†}	3
KINES 295B ^{*#2}	1 NUTR 251 ^{*†}	3
KINES 321 [*]	3 PHYS 250 or 150 [*]	3-4
PSYCH 100 ^{*#†2}	3 KINES 345 [*]	3
General Education Course (Integrative Studies: Inter-Domain) ^{#†1,2}	3 KINES 267 [*]	1
	16	16-17

Third Year

Fall	Credits Spring	Credits
EDPSY 10 ^{*#†2}	3 CI 280 ^{*†}	3
KINES 341 [*]	3 KINES 360 [*]	3
KINES 350 [*]	3 KINES 384 [*]	3
KINES 367 [*]	1 KINES 456 [*]	4
KINES 368 [*]	2 General Education Course (GWS) (ENGL 202A or 202D suggested) [†]	3
KINES 401 [*]	3	
	15	16

Fourth Year

Fall	Credits Spring	Credits
KINES 366 [*]	3 KINES 495A [*]	12
KINES 395A [*]	1	
KINES 400 [*]	3	
KINES 464 [*]	3	
KINES 468W [*]	3	
SPLD 400 [*]	4	
	17	12

Total Credits 123-128

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ Select one integrative studies from the approved literature list: <https://sites.psu.edu/educationadvising/course-lists/lit/>

² More information about Entrance-to-Major requirements for the HPE Emphasis can be found at: <https://hhd.psu.edu/sites/default/files/kinesiology-kines/undergraduate-programs/kinesiology-kines-undergraduate-programs-aeheoptionhpeemphasisentrancerequirementspdf.pdf>

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

NOTE: The Kinesiology/AEH Academic Requirements takes precedence over the Suggested Academic Plan for graduation requirements.

LIMITATIONS ON SOURCE AND TIME FOR CREDIT ACQUISITION: In accordance with Policy 83-80.5, the Department of Kinesiology requires at least 24 credits of prescribed coursework in the major to be completed at the location or in the college or program where the degree is earned. World Campus courses may not be counted toward this 24 credit

minimum. The 24 credits include the capstone course in the major: KINES 495A for the AEH (HPE Emphasis).

Select from the approved literature list at: <https://sites.psu.edu/educationadvising/course-lists/lit/>.

HHD allows up to 6 credits from ROTC study to be counted toward General Education and major requirements. Some programs allow additional ROTC credits to be used for degree requirements.

Applied Exercise Health Option - American College of Sports Medicine/National Strength and Conditioning Association Certificate Emphasis: Kinesiology, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
KINES 101*	3 CHEM 101, 106, 110, or 130**†	3-5
BIOL 161**†	3 KINES 100*	3
MATH 26*	3 STAT 200, 250, or SCM 200**†	3-4
General Education Course (GWS) (ENGL 15, ENGL 30H, ESL 15, ENGL/CAS 137H recommended)†	3 General Education Course (GWS) (CAS 100, CAS 100A, CAS 100B, CAS 100C, ENGL/CAS 138T recommended)†	3
General Education Course (GA)	3 General Education Course (Integrative Studies: Inter-Domain) ¹	3
First-Year Seminar	1-2	
	16-17	15-18

Second Year

Fall	Credits Spring	Credits
KINES 200*	3 KINES 201*	3
KINES 202*	3 BIOL 163**†	3
KINES 295B*	1 NUTR 251**†	3
KINES 321*	3 PHYS 250*	4
PSYCH 100**†	3 KINES 345*	3
General Education Course (Integrative Studies: Inter-Domain) ¹	3 KINES 267*	1
	16	17

Third Year

Fall	Credits Spring	Credits
EDPSY 10**†	3 CI 280**†	3
KINES 341*	3 KINES 401*	3
KINES 367*	1 KINES 384*	3
KINES 395B*	1 KINES 456*	4
KINES 421*	3 General Education Course (GWS) (ENGL 202A or 202D suggested)†	3
KINES 368*	2	
KINES 350*	3	
	16	16

Fourth Year

Fall	Credits Spring	Credits
KINES 360*	3 KINES 457*	3
KINES 492W, 481W, 425W, or 493W*	3 KINES 495B*	6

KINES 485*	3 KINES 495E*	3
KINES 400-level*	3	
	12	12

Total Credits 120-124

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

NOTE: The Kinesiology/AEH Academic Requirements Report (Degree Audit) takes precedence over the Suggested Academic Plan for graduation requirements.

LIMITATIONS ON SOURCE AND TIME FOR CREDIT ACQUISITION: In accordance with Policy 83-80.5, the Department of Kinesiology requires at least 24 credits of prescribed coursework in the major to be completed at the location or in the college or program where the degree is earned. World Campus courses may not be counted toward this 24 credit minimum. The 24 credits include the capstone course in the major: KINES 495B for the AEH (ACSM/NSCA Emphasis).

HHD allows up to 6 credits from ROTC study to be counted toward General Education and major requirements. Some programs allow additional ROTC credits to be used for degree requirements.

Movement Science Option: Kinesiology, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
KINES 100*	3 KINES 101*	3
BIOL 161**†	3 BIOL 163**†	3
BIOL 162*	1 BIOL 164*	1
MATH 26*	3 NUTR 251**†	3
General Education Course (GWS) (ENGL 15, ENGL 30H, ESL 15, ENGL/CAS 137H recommended)†	3 General Education Course (GH)	3
First-Year Seminar	1-2 General Education Course (Integrative Studies: Inter-Domain)	3
14-15		16

Second Year

Fall	Credits Spring	Credits
KINES 202*	3 PSYCH 100**†	3
CHEM 110*	3 BIOL 110**†	4
CHEM 111*	1 KINES 321*	3
KINES 295B*	1 CHEM 112*	3
General Education Course (GWS) (CAS 100, CAS 100A, CAS 100B, CAS 100C, ENGL/CAS 138T recommended)†	3 CHEM 113*	1
General Education Course (GA)	3 General Education Course (Exploration)	3
General Education Course (Integrative Studies: Inter-Domain)	3	
17		17

Third Year

Fall	Credits Spring	Credits
KINES 350*	3 KINES 345*	3
KINES 395B*	1 KINES 360*	3
PHYS 250*	4 KINES 400-level	3
KINES 341*	3 Elective (Suggest Graduate School Prerequisite)	4
Elective (Suggest Graduate School Prerequisite)	3 Elective (Suggest Graduate School Prerequisite)	3
14		16

Fourth Year

Fall	Credits Spring	Credits
KINES 384**††	3 KINES 495B*	3

KINES 425W, 430W, 439W, KINES 447W, KINES 481W, KINES 492W, or KINES 493W (Writing Across Curriculum)	3 KINES 400-level	3
STAT 200, 250, or SCM 200**†	3-4 General Education Course (GWS) (ENGL 202A or 202D suggested)†	3
KINES 400-level	3 Elective (Suggest Graduate School Prerequisite)	3
Elective (Suggest Graduate School Prerequisite)	3	
15-16		12

Total Credits 121-123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

NOTE: The Kinesiology/MOVSCI Academic Requirements Report (Degree Audit) takes precedence over the Suggested Academic Plan for graduation requirements.

LIMITATION on the number of TRANSFER COURSES used for KINES 300-Level Core: Two courses (6 credits) can be transferred into PSU and applied to graduation requirements for the KINES major. KINES 300-level courses include KINES 321, 341, 345, 350, 360 & 384.

LIMITATIONS on SOURCE & TIME for CREDIT ACQUISITION: In accordance with Policy 83-80.5, the Department of Kinesiology requires that a minimum of 24 credits of prescribed major coursework be completed at the location or in the college or program where the degree is earned. World Campus courses may not count towards this 24 credit minimum. The 24 credits include the capstone course in the major: KINES 495B in Movement Science.

HHD allows up to 6 credits from ROTC study to be counted toward General Education and major requirements. Some programs allow additional ROTC credits to be used for degree requirements.

Applied Exercise Health Option - Health and Physical Education Track: Kinesiology, B.S. at Commonwealth Campuses (Early Change of Campus)

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 161 ^{**}	3 BIOL 163 [†]	3
MATH 26 [*]	3 CHEM 101 or 130 ^{**†}	3
PSYCH 100	3 STAT 200, 250, or SCM 200 ^{**†}	3-4
General Education Course (GWS) (ENGL 15, ENGL 30H, ESL 15, ENGL/CAS 137H recommended) [†]	3 General Education Course (GWS) (CAS 100, CAS 100A, CAS 100B, CAS 100C, ENGL/CAS 138T recommended) [†]	3
General Education Course (GA)	3 General Education Course (Inter-Domain) ¹	3
PSU First-Year Seminar	1	
	16	15-16

Second Year

Fall	Credits Spring	Credits
EDPSY 10 ^{**†}	3 CI 280	3
NUTR 251	3 PHYS 250	4
KINES 202	3 KINES 100	3
KINES 295B	1 KINES 350	3
KINES 101	3 General Education Course (GWS) (ENGL 202A or 202D suggested) [†]	3
General Education Course (Inter-Domain) ¹	3	
	16	16

Third Year

Fall	Credits Spring	Credits
KINES 201	3 KINES 456	4
KINES 360	3 KINES 384	3
KINES 341	3 KINES 401	3
KINES 200	3 KINES 321	3
KINES 367	1 KINES 345	3
KINES 267	1	
KINES 368	2	
	16	16

Fourth Year

Fall	Credits Spring	Credits
KINES 366 [*]	3 KINES 495A	12
KINES 395A [*]	1	
KINES 400	3	
KINES 464	3	
KINES 468W	3	

SPLD 400	4	
	17	12

Total Credits 124-125

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Note:

Students who request an Early Change of Campus to University Park for fall semester of their second year should have completed the following courses in the first year:

- ENGL 15
- MATH 26
- PSYCH 100
- BIOL 161 and BIOL 163
- CHEM 101 or CHEM 130

Select one integrative studies from the approved literature list: <https://sites.psu.edu/educationadvising/course-lists/lit/>.

Applied Exercise Health Option - American College of Sports Medicine/National Strength and Conditioning Association Track: Kinesiology, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 161 ^{**†}	3 CHEM 101, 106, 110, or 130 ^{**†}	3-5
MATH 26 ^{**†}	3 STAT 200, 250, or SCM 200 ^{**†}	3-4
General Education Course (GWS) (ENGL 15, ENGL 30H, ESL 15, ENGL/CAS 137H recommended) [‡]	3 General Education Course (GWS) (CAS 100, CAS 100A, CAS 100B, CAS 100C, ENGL/CAS 138T recommended) [‡]	3
General Education Course (GA)	3 General Education Course (Inter-Domain)	3
PSU First-Year Seminar	1	
	13	12-15

Second Year

Fall	Credits Spring	Credits
EDPSY 10 ^{**†}	3 CI 280 ^{**†}	3
NUTR 251 ^{**†}	3 PHYS 250 or 150 [*]	3-4
BIOL 163 ^{**†}	3 PSYCH 100 ^{**†}	3
General Education Course (Inter-Domain)	3 General Education Course (GWS) (ENGL 202A or 202D suggested) [‡]	3
	12	12-13

Third Year

Fall	Credits Spring	Credits
KINES 100 [*]	3 KINES 321 [*]	3
KINES 201 [*]	3 KINES 350 [*]	3
KINES 295B [*]	1 KINES 401 [*]	3
KINES 101 [*]	3 KINES 341 [*]	3
KINES 202 [*]	3 KINES 345 [*]	3
KINES 200 [*]	3 KINES 368 [*]	2
KINES 267 [*]	1 KINES 395B [*]	1
KINES 367 [*]	1	
	18	18

Fourth Year

Fall	Credits Spring	Credits
KINES 360 [*]	3 KINES 495B [*]	6
KINES 421 [*]	3 KINES 495E [*]	3
KINES 456 [*]	4 KINES 457 [*]	3
KINES 384 [*]	3 KINES 485 [*]	3
KINES 425W, 481W, 492W, or 493W [*]	3	

KINES 400-Level [*]	3
	19
	15

Total Credits 119-123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

NOTE: The Kinesiology/AEH Academic Requirements Report (Degree Audit) takes precedence over the Suggested Academic Plan for graduation requirements.

LIMITATIONS ON SOURCE AND TIME FOR CREDIT ACQUISITION: In accordance with Policy 83-80.5, the Department of Kinesiology requires at least 24 credits of prescribed coursework in the major to be completed at the location or in the college or program where the degree is earned. World Campus courses may not be counted toward this 24 credit minimum. The 24 credits include the capstone course in the major: KINES 495B for the AEH (ACSM/NSCA Emphasis).

Movement Science Option: Kinesiology, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSYCH 100 ^{*†}	3 BIOL 163 ^{*†}	3
BIOL 161 ^{*†}	3 BIOL 164 [*]	1
BIOL 162 [*]	1 General Education Course (GA)	3
MATH 26 [*]	3 General Education Course (GH)	3
General Education Course (GWS) (ENGL 15, ENGL 30H, ESL 15, ENGL/CAS 137H recommended) [‡]	3 General Education Course (Inter-Domain)	3
PSU First-Year Seminar	1 Elective (Suggest Graduate School Prerequisite)	3
	14	16

Second Year

Fall	Credits Spring	Credits
CHEM 110 [*]	3 STAT 200, 250, or SCM 200 ^{*†}	3-4
CHEM 111 [*]	1 BIOL 110 ^{*†}	4
NUTR 251 ^{*†}	3 CHEM 112 [*]	3
PHYS 250 [*]	4 CHEM 113 [*]	1
General Education Course (GWS) (CAS 100, CAS 100A, CAS 100B, CAS 100C, ENGL/CAS 138T recommended) [‡]	3 Elective (Suggest Graduate School Prerequisite)	4
General Education Course (Inter-Domain)	3	
	17	15-16

Third Year

Fall	Credits Spring	Credits
KINES 101 [*]	3 KINES 100 [*]	3
KINES 202 [*]	3 KINES 384 ^{*††}	3
KINES 295B or 295 [*]	1 KINES 350 [*]	3
Elective (Suggest Graduate School Prerequisite)	3 KINES 395B [*]	1
General Education Course (GWS) (ENGL 202A or 202D suggested) [‡]	3 Elective (Suggest Graduate School Prerequisite)	3
General Education Course: Exploration (GN, GA, GH, GS, Inter-Domain or up to 3 units of 12th unit and beyond World Language)	3 KINES 400-level ¹	3
	16	16

Fourth Year

Fall	Credits Spring	Credits
KINES 360 [*]	3 KINES 495B [*]	3
KINES 321 [*]	3 KINES 400-level ¹	3
KINES 341 [*]	3 KINES 425W, 439W, KINES 447W, KINES 481W, KINES 492W, or KINES 493W	3
KINES 345 [*]	3 Elective (Suggest Graduate School Prerequisite)	3
KINES 400-level ¹	3	
	15	12

Total Credits 121-122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ **Course List:** CAMS 442, HDF5 427, KINES 410, KINES 411, KINES 419, KINES 420, KINES 421, KINES 422, KINES 423, KINES 424, KINES 425, KINES 426, KINES 427, KINES 428, KINES 429, KINES 439W, KINES 440, KINES 441, KINES 442, KINES 443, KINES 444, KINES 446, KINES 447W, KINES 450, KINES 452, KINES 453, KINES 454, KINES 455, KINES 456, KINES 457, KINES 458, KINES 460, KINES 463, KINES 465, KINES 467, KINES 481W, KINES 483, KINES 484, KINES 485, KINES 488, KINES 492W, KINES 493, KINES 493W, KINES 495E, KINES 499, WMNST 424

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Note:

Each campus will need to adjust the semester course schedule planning according to their course offerings.

The Kinesiology/MOVSCI Academic Requirements Report (Degree Audit) takes precedence over the Suggested Academic Plan for graduation requirements.

Advising Notes:

LIMITATION on the number of TRANSFER COURSES used for KINES 300-Level Core: A limit of two courses (6 credits) can be transferred into Penn State and applied to graduation requirements for both KINES and Athletic Training majors. KINES 300-level courses include KINES 321, 341, 345, 350, 360 & 384.

LIMITATIONS on SOURCE & TIME for CREDIT ACQUISITION: In accordance with Policy 83-80.5, the Department of Kinesiology requires that a minimum of 24 credits of prescribed major coursework be completed at the location or in the college or program where the degree is earned. World Campus courses may not count towards this 24 credit minimum. The 24 credits include the capstone course in the major: KINES 495B in Movement Science: ATHTR 495C in Athletic Training: KINES 495B in AEH (ACSM/NSCA Certification Emphasis).

The Kinesiology MOVCS Degree Audit (LionPATH: Academic Record) is the official student record for graduation purposes. The Suggested Academic Plan is a tool for student usage, not an official university record.

Career Paths

A Kinesiology degree can provide many opportunities for students ranging from fulfilling careers in health and wellness to graduate research and professional studies in a wide range of biomedical, clinical and allied health fields. The hands-on learning opportunities and internships in the program allow students to build experience, gain professional skills and explore their interests to create a strong foundation for a post-graduation career or in the next step of their education.

Careers

Kinesiology students have many career options after graduation. Discussion with Kinesiology faculty, an adviser, or professionals in the field through internship experiences can provide additional insight. Many students use their Penn State Kinesiology degree in allied health and wellness fields, working with a wide range of populations in many different settings. The applied learning opportunities in our curriculum give students hands-on experience to work with children and adults to promote health and wellness. Kinesiology graduates are well-rounded and valuable employees with their strong scientific foundation that can be applied to solving problems related to human movement.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE KINESIOLOGY PROGRAM (<https://americankinesiology.org/careers-in-kinesiology/>)

Opportunities for Graduate Studies

Many Kinesiology students aim to pursue graduate or professional school after they complete their undergraduate program. Kinesiology students are often interested in graduate study in physical or occupational therapy, athletic training, physician's assistant, medical school, orthotics and prosthetics, dentistry, nursing, or chiropractic school. Students also opt to attend graduate programs in Kinesiology to advance their understanding in one of the sub-disciplines of the field. Some Kinesiology students also pursue professional degrees in public health, health education or related fields after graduation. The Kinesiology undergraduate program includes many of the prerequisite courses needed for these post-bachelor programs, providing students with a strong scientific foundation for further study.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://science.psu.edu/current-students/advising-and-student-services/prehealth-advising/>)

Professional Resources

- National Academy of Kinesiology (<https://nationalacademyofkinesiology.org>)
- American College of Sports Medicine (<https://www.acsm.org/>)

- National Strength and Conditioning Association (<https://www.nasca.com/>)
- SHAPE: Society of Health and Physical Educators (<https://www.shapeamerica.org/>)
- American Kinesiology Association (<https://americankinesiology.org/>)
- PA Department of Education (<https://www.education.pa.gov/Teachers%20-%20Administrators/Curriculum/HealthPhysicalEd/Pages/default.aspx>)
- SHAPE Equity, Diversity and Inclusion podcast (<https://www.shapeamerica.org/MemberPortal/prodev/edi-podcast.aspx>)

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

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<https://hhd.psu.edu/kines/undergraduate/major-kinesiology> (<https://hhd.psu.edu/kines/undergraduate/major-kinesiology/>)

Altoona

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202 Adler Athletic Complex
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<https://altoona.psu.edu/academics/bachelors-degrees/kinesiology> (<https://altoona.psu.edu/academics/bachelors-degrees/kinesiology/>)

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<https://berks.psu.edu/academics/bs-kinesiology> (<https://berks.psu.edu/academics/bs-kinesiology/>)

Harrisburg

SCHOOL OF BEHAVIORAL SCIENCES AND EDUCATION
Educational Activities Building, 0216
Middletown, PA 17057
717-948-6742
rlp26@psu.edu

<https://harrisburg.psu.edu/behavioral-sciences-education/kinesiology-bs> (<https://harrisburg.psu.edu/behavioral-sciences-education/kinesiology-bs/>)

Kinesiology, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

What is Kinesiology?

Kinesiology refers to the study of human movement. This interdisciplinary field of study focuses on physical activity, movement and sport and includes specialized areas of study that include the arts, humanities, sciences and professional disciplines. These areas include biomechanics, psychology of physical activity, exercise physiology, history and philosophy of physical activity, motor development, as well as sports medicine and physical education pedagogy. This multi-disciplinary approach is useful for addressing health and wellness in a complex society.

MORE INFORMATION ABOUT KINESIOLOGY (<https://hhd.psu.edu/kines/undergraduate/minors/>)

MORE INFORMATION ABOUT THE UNDERGRADUATE CORE IN KINESIOLOGY (<https://americankinesiology.org/the-undergraduate-core/>)

You Might Like This Program If...

You enjoy working with people, have a passion for health and wellness, and are open to approaching problems with interdisciplinary strategies. As you learn about the human body as a whole, you will also have the opportunity to understand how you can apply your knowledge and skills to develop solutions that can help others in a number of ways, whether in a rehabilitation facility, with a professional sports team, or in a corporate office.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Students in the Athletic Training Major are not permitted to obtain a Kinesiology Minor.

Students may need additional prerequisites to complete this minor.

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 6 credits from the following:		6
KINES 100	The Cultural and Behavioral Foundations of Kinesiology	
KINES 101	The Biophysical Foundations of Kinesiology	
KINES 202	Functional Human Anatomy	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 12 credits from approved list, 6 credits must be at the 400-level: 12

KINES 100	The Cultural and Behavioral Foundations of Kinesiology
KINES 101	The Biophysical Foundations of Kinesiology
KINES 160N	Fitness with Exercise Physiology
KINES 202	Functional Human Anatomy
KINES 303	Emergency Recognition and Care with BLS CPR
KINES 321	Psychology of Movement Behavior
KINES 341	The Historical, Cultural, and Social Dynamics of Sport
KINES 345	Meaning, Ethics, and Movement
KINES 350	Exercise Physiology
KINES 360	The Neurobiology of Motor Control and Development
KINES 384	Biomechanics

Any KINES 400-level course. Exclude: KINES 408, KINES 495B, KINES 495C, KINES 495D. No more than 3 credits of KINES 496 may count towards the minor.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Career Paths

Careers

Students with a Kinesiology minor have many career options after graduation. Discussion with an adviser, Kinesiology faculty, or

professionals in the field can provide additional insight. Many students use their Penn State Kinesiology minor in allied health and wellness fields, working with a wide range of populations in many different settings. Our applied learning opportunities give students hands-on experience to work with children and adults to promote health and wellness. Kinesiology minor students are valuable employees, with their strong scientific background that they can apply to solving problems related to human movement.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN KINESIOLOGY (<https://americankinesiology.org/careers-in-kinesiology/>)

Opportunities for Graduate Studies

Many students in the Kinesiology minor are looking to attend graduate or professional school after they complete their undergraduate program. Kinesiology minor students are often interested in careers in physical therapy, occupational therapy, physician's assistant, medical school, dentistry, nursing, or chiropractic school. Students may also opt to attend graduate programs in Kinesiology to advance their understanding in one of the sub-disciplines in the field. The Kinesiology undergraduate minor program can include a strong scientific foundation for further study in these fields.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://science.psu.edu/interdisciplinary-programs/premedicine/prehealth-advising/>)

Contact

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<https://hhd.psu.edu/kines/undergraduate/major-kinesiology> (<https://hhd.psu.edu/kines/undergraduate/major-kinesiology/>)

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Meeting and Event Management, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

This certificate will build on HM's and RPTM's core strengths, including their strategic teaching and service/outreach initiatives. Through coursework and experiential learning opportunities, students will be provided opportunities for engaged scholarship within the Commonwealth, across the United States, and in International contexts. This additional credential can help differentiate our graduates in the competitive job market across tourism and hospitality. Likewise the

opportunity to expose more Penn State students to either of our fields through the certificate can enhance our diversity of students and awareness of our professional education programs.

The MEMC is intended to complement the professional certification programs offered by organizations such as Meeting Professionals International or the Professional Convention Management Association. It is designed for students interested in the academic and experiential components of the events and meeting industry. Emphasis is on engaging students in the industry prior to graduation and developing the management competencies necessary for success in the industry.

To obtain the Certificate students will be required to complete 9 core credits, including a 3 credit internship experience, and 6 supplemental credits in HM and/or RPTM for a total of 15 credits. Graduates will be competitive for positions as managers and planners in a variety of public, nonprofit and private businesses/agencies. The certificate credential delivery model for the Meeting and Events Management Certificate was selected over identifying a Meeting and Events Management minor so as to attract professionals, alumni, and others who are working in or are interested in gaining credentials in the field of meeting and events management but who may not be enrolled in an undergraduate program at Penn State.

What is Meeting and Event Management?

The Meeting and Events Management Certificate (MEMC) combines the practice and theory of event management, planning, coordination, and design. Students develop knowledge and skills that complement professional certifications (e.g., Certified Meeting Professional, Certified Festival and Event Executive). Through the combined expertise in the School of Hospitality Management (SHM) and the Department of Recreation, Park, and Tourism Management (RPTM), students develop, or augment knowledge and skills needed to work as event or event-related professionals in hospitality, entertainment, recreation and parks, corporate, medical, professional, social and governmental associations, sports, and more. Key skill areas include event design, marketing, budgeting and forecasting, contracting, supplier sourcing, risk assessment, sustainability practices, on-site management, event strategy and project and stakeholder management. Before pursuing the MEMC, students interested in strategic event management in diverse segments of hospitality management (e.g. lodging, food service, gaming) should contact SHM. Students interested in strategic event management related to recreation, community, amusement or entertainment, or health and sport should contact RPTM.

You Might Like This Program If...

- You recognize event strategy as a major component to 21st century business, marketing, community, and brand building initiatives.
- You want to design events and meetings of various scales across industries (e.g. hospitality, entertainment, tourism, recreation, and sport), and communities in different context (e.g. convention centers, arenas, hotels, festivals).
- You enjoy the process of assessing, developing, and operationalizing an organization or customer's vision and purpose for an event or meeting.
- You view events, gatherings, meetings and experiences as important components of social well-being and connectedness.

Program Requirements

To earn an undergraduate certificate in Meeting and Event Management, a minimum of 15 credits is required.

Code	Title	Credits
Required Courses		
HM 384	Introduction to Meeting and Event Management	3
RPTM 356		3
or HM 485	Advanced Meeting and Event Management	
RPTM 395		3
Select 6 credits from the following:		6
HM 201	Introduction to Management in the Hospitality Industry	
HM 271	Hospitality Information Technology Fundamentals	
HM 484	Hospitality Entrepreneurship and Innovation	
HM 442	Hospitality Marketing	
HM 455		
HM 485	Advanced Meeting and Event Management	
RPTM 300Y	Tourism and Leisure Behavior	
RPTM 334	Non-profit Recreation Agency Operations	
or RPTM 370	Introduction to Arena Management	
RPTM 356		
RPTM 410	Marketing of Recreation Services	
RPTM 415	Commercial Recreation Management	

Program Learning Objectives

- Describe the events management industry
- Articulate possible career pathways in events
- Summarize three to four industry knowledge domains
- Practice and apply technical skills such as:
 - modeling strategic event planning practice
 - creating and manipulating budgets, pricing schedules, revenue management
 - employ marketing strategy and tactics
 - manage sites and coordinate with partners in event management supply chain
- Recall and appropriately use industry terminology
- Summarize the relationship the study of events (i.e., events management) has with branches of knowledge in other academic disciplines (e.g., anthropology, sociology, psychology)

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Kristin Thomas

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Nada Madrid

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World Campus

Undergraduate Academic Advising

301 Outreach Building
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814-863-3283
advising@outreach.psu.edu

Career Paths

Completing an undergraduate degree that includes the Meeting and Events Management Certificate can lead to careers as Event Coordinators, Managers, Hospitality Managers, Convention Services Managers, or Event Marketing Specialists. Graduate school options include Master's degrees in Hospitality or Event Management, an MBA for broader business knowledge, Master's in Tourism Management, or doctoral programs for research and academia. These pathways offer opportunities for advancement and specialization in the dynamic field of meeting and events management.

Careers

Completing an undergraduate degree in that includes the Meeting and Events Management Certificate can lead to careers as: Event Coordinators, where professionals who handle logistics and planning; Event Managers who oversee entire event processes, ensuring smooth execution; Hospitality Managers who manage operations within hotels or event venues, emphasizing guest satisfaction; Convention Services Managers who facilitate large-scale events by coordinating logistics and exhibitors; and Event Marketing Specialists who promote events to attract attendees and enhance brand visibility. These roles offer opportunities for creativity, organization, and leadership within the field of meeting and events management.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A CERTIFICATE IN MEETING AND EVENT MANAGEMENT (<https://www.bls.gov/ooh/business-and-financial/meeting-convention-and-event-planners.htm>)

Opportunities for Graduate Studies

After completing an undergraduate degree with the Meeting and Event Management Certificate, students can pursue graduate studies for a Master's in Hospitality Management, focusing on advanced hospitality operations and strategic leadership. Alternatively, they may opt for a Master's in Recreation, Park, and Tourism Management with a possible focus on areas like sustainable tourism practices or national park

management. Other options include a Master's in Event Management, and delving deeper into event planning or pursuing an MBA for broader business acumen. If a research emphasis is desired, a Master's of Science or doctoral programs lead to opportunities in research and academia. These graduate opportunities offer specialized study, preparing students for leadership and advancement in the field.

Contact

University Park

DEPARTMENT OF RECREATION, PARK, AND TOURISM MANAGEMENT
801 Ford Building
University Park, PA 16802
814-865-1851
klt16@psu.edu

<https://hhd.psu.edu/rptm/undergraduate/meetings-and-event-management-certificate> (<https://hhd.psu.edu/rptm/undergraduate/meetings-and-event-management-certificate/>)

SCHOOL OF HOSPITALITY MANAGEMENT
201 Mateer Building
University Park, PA 16802
814-865-1853
pennstateshm@psu.edu

<https://hhd.psu.edu/shm> (<https://hhd.psu.edu/shm/>)

World Campus

DEPARTMENT OF RECREATION, PARK, AND TOURISM MANAGEMENT
801 Ford Building
University Park, PA 16802
814-865-1851
klt16@psu.edu

Nutrition Studies, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Nutrition Studies minor is a flexible minor designed to help students understand the role of nutrition and foods on health promotion and chronic disease prevention and its application and implementation in the social and behavioral sciences, food systems, community nutrition and policy, and many other related areas. Students will explore various areas of nutrition as it relates to nutrition and food policy at local community, national, and global levels, food access and insecurity, understanding nutrition's role and impact on individuals' health and well-being at various life stages, the application of nutrition principles to target audiences, community health promotion, and delivering nutrition messages to improve the well-being and health of individuals, families, and communities.

You Might Like This Program if...

- You are majoring in a health professions or health-related discipline such as Nursing, Biobehavioral Health, Human Development and Family Sciences, Recreation Parks and Tourism Management, and other majors connected to health promotion and wellness.

You are majoring in Psychology, Education, Agricultural Education, Hospitality Management, and other majors connected to education, sustainable systems, social and behavioral sciences, and/or food systems.

You want to learn more about nutrition and apply it to your own life.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
NUTR 251	Introductory Principles of Nutrition	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 9 credits from the following list of courses. Please check the listed prerequisites to ensure you meet the criteria to enroll in the course.		9
NUTR 123S	First Year Seminar in Nutritional Sciences	
NUTR 144	Our Plates: Exploring Food and Healthy Eating Patterns Through Cooking	
NUTR 170	Careers in Nutrition	
NUTR 175N	Healthy Food for All: Factors that Influence What we Eat in the US	
NUTR 320	Science and Methods of Food Preparation	
NUTR 358	Assessment of Nutritional Status	
NUTR 360	Nutrition Education and Behavior Change Theory	
NUTR 361	Community and Public Health Nutrition	
NUTR 386	Managing Quality in Food and Nutrition Services	
NUTR 390	Nutritional Biochemistry and Physiology	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 6 credits from the following list of 400-level courses. Please check the Bulletin to understand the required prerequisite courses to ensure you meet the criteria to enroll in the courses listed below.		6
NUTR 400	Introduction to Nutrition Counseling	
NUTR 407	Nutrition for Exercise and Sports	
NUTR 410	Eating and Weight Disorders	
NUTR 421	Biocultural Perspectives on Public Health Nutrition	
NUTR 425	Global Nutrition Problems: Health, Science, and Ethics	
NUTR 445	Energy and Macronutrient Metabolism	
NUTR 446	Micronutrient Metabolism	
NUTR 451	Nutrition throughout the Life Cycle	
NUTR 452	Nutritional Aspects of Disease	
NUTR 460	Nutritional Neuroscience	

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Tom Oziemblowsky

Nutritional Sciences Academic Adviser

110 Chandlee Laboratory

University Park, PA 16802

814-863-5826

nutrisci@psu.edu

Career Paths

Completing a minor in nutrition studies offers career opportunities as a nutrition educator, health coach, or dietary aide in healthcare settings, wellness programs, or community organizations. Graduate school options include pursuing a Master's in Nutrition or Dietetics for specialized knowledge in clinical nutrition, public health, or sports nutrition. Alternatively, students may pursue a Master's in Public Health (MPH) with a focus on nutrition, preparing for roles in public health policy, nutrition research, or community nutrition programs. These pathways provide avenues for advancing knowledge and skills in promoting healthful eating habits and addressing nutritional challenges.

Careers

Completing a minor in nutrition studies offers career roles involve educating individuals or groups about healthy eating, providing guidance on nutrition and lifestyle changes, assisting in meal planning, developing wellness programs, or creating content related to nutrition and healthy eating habits.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN NUTRITION STUDIES (<https://hhd.psu.edu/nutrition/undergraduate/career-opportunities/>)

Opportunities for Graduate Studies

A minor in nutrition studies enhances graduate school opportunities by providing a solid foundation in dietary sciences, which can be valuable for various graduate programs. It demonstrates a commitment to understanding health-related topics, making candidates more competitive for programs in public health, nutrition science, dietetics, clinical health profession or related fields. Additionally, it may fulfill prerequisites or provide a strong background for advanced coursework in these areas, preparing students for success in graduate studies and future careers focused on improving health outcomes through nutrition interventions.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://hhd.psu.edu/nutrition/graduate-program/>)

Contact

University Park

DEPARTMENT OF NUTRITIONAL SCIENCES

110 Chandlee Laboratory

University Park, PA 16802

814-863-0806

nutrinfo@psu.edu

Nutritional Sciences, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

Nutrition is a dynamic science that incorporates knowledge of human biology and biochemistry to understand how the body utilizes nutrients and related substances for optimal health throughout the lifecycle. Students gain an understanding of how the interplay of nutrition and lifestyle relate to current public health issues as well as the development and nutrition management of chronic and acute diseases. Students learn the scientific rationale and practice methodology to assess the nutritional status of individuals in the clinical setting and for population analysis. They will use these skills to implement medical nutrition therapy or understand nutrition guidelines, standards, and policies to improve the health and well-being of the population.

Students may select one or more Options: Behavioral Nutrition and Public Health, Nutritional Physiology and Biochemistry, and Nutrition and Dietetics. The Nutrition and Dietetics Option is accredited by the Accreditation Council for Education in Nutrition and Dietetics (ACEND).

Behavioral Nutrition and Public Health Option

This option integrates knowledge of social and behavioral sciences with human physiology and nutrition. Students learn to apply knowledge of nutrition to improve the health and well-being of individuals and populations by applying nutrition principles in different practice settings. Graduates of this option can seek employment in public health and policy, business including the food industry, community, and international agencies, schools, or continue to graduate study in nutrition or related fields.

Nutrition and Dietetics Option

This option offers multi-disciplinary training in the biological sciences, social and behavioral sciences, and business principles to prepare students to work in a variety of settings and to be eligible to continue their education to acquire the Registered Dietitian Nutritionist (RDN) credential. It links nutrition and human behavior by applying nutrition principles, counseling skills, and educational skills to improving the nutritional status and health of individuals and communities. Students gain training that will prepare them to work in a variety of clinical, community, and business settings. It also prepares students for management positions in the nutrition field and food systems settings. Graduates satisfy the current requirements for application to accredited post-baccalaureate dietetic supervised practice programs and Master's degree programs. Upon satisfactory completion of these programs,

graduates are eligible to take the registration examination to become a Registered Dietitian Nutritionist (RDN).

Nutritional Physiology and Biochemistry Option

This option incorporates knowledge from biology, chemistry, physiology, and physics with nutrition. This option is recommended for students preparing for careers in medicine and other health-related fields such as dentistry, optometry, physician assistant, physical therapy, and chiropractic, as well as graduate school. Also, this option prepares students for careers in laboratory research in the pharmaceutical or food industries, government, or academia.

What is Nutritional Sciences?

Nutritional Sciences uses nutrition as the backbone to integrate physiological science, behavioral sciences, foods, food systems management, and nutrition as medicine to prepare students to help individuals and communities locally and globally. Students are uniquely prepared to integrate their strong science foundation and nutrition knowledge to help others lead healthier lives. Areas of study include the application of nutrition principles to health promotion and wellness, sports performance, research and intervention science, medical nutrition therapy, and behavioral interventions.

MORE INFORMATION ABOUT NUTRITIONAL SCIENCES (<https://hhd.psu.edu/nutrition/>)

You Might Like This Program If...

- You want to learn about nutrition and foods' connection to health.
- You plan to go to medical school, physician assistant school, and other health-related pre-professional programs.
- You want to become a Registered Dietitian Nutritionist.
- You want to work in scientific research related to human health or the food industry.
- You want to advocate for healthier communities using sustainable food practices and access to nutritious food.
- You want to learn about interventions to nutrition-related health problems that affect the world's populations.

MORE INFORMATION ABOUT WHY STUDENTS CHOOSE TO STUDY NUTRITIONAL SCIENCES (<https://hhd.psu.edu/nutrition/undergraduate/career-opportunities/>)

Entrance to Major

Behavioral Nutrition and Public Health Option

In order to be eligible for entrance to the Behavioral Nutrition and Public Health option in the major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have third-semester classification (<http://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

Nutrition and Dietetics Option

In order to be eligible for entrance to the Nutrition and Dietetics option in the major, a student must:

1. attain a C or better in NUTR 251, BIOL 161, BIOL 162, BIOL 163, BIOL 164, and CHEM 110 or CHEM 130.

Nutritional Physiology and Biochemistry Option

In order to be eligible for entrance to the Nutritional Physiology and Biochemistry option in the major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have third-semester classification (<http://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

Retention Requirements

Retention for the Nutrition and Dietetics option will be determined through verification of sustained academic growth as demonstrated by earning of grades of C or higher in all of the Nutritional Sciences prescribed and related courses. Failure to do so will result in referral of the student to the student's academic adviser so that they may work together to develop a clear written strategy and a time frame for the student to return to good standing. Should the student not address the issue, the faculty may advise the student into a different Nutritional Sciences option. To graduate, a student enrolled in the nutrition and dietetics option must earn a grade of C or better in all prescribed and major requirement courses, as specified by Senate Policy 82-44.

Degree Requirements

For the Bachelor of Science degree in Nutritional Sciences, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	2-5
Requirements for the Major	88-91

17-18 of the 45 credits for General Education are included in the Requirements for the Major. This includes: Nutritional Physiology and Biochemistry Option: 6 credits of GQ courses; 3 credits of GHW courses; 9 credits of GN courses. Behavioral Nutrition and Public Health Option: 3 credits of GQ courses; 3 credits of GHW courses; 8 credits of GN courses; 3 credits of GS courses. Nutrition and Dietetics Option: 3 credits of GQ courses; 3 credits of GHW courses; 9 credits of GN courses; 3 credits of GS courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. NUTR requires students to complete 24 credits for the major through courses taken at University Park. Courses taken at other Penn State campuses may not be counted toward this 24 credit minimum. For more information, check the Suggested Academic Plan for this major.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
BIOL 161	Human Anatomy and Physiology I - Lecture	3

BIOL 163	Human Anatomy and Physiology II - Lecture	3
BMB 211	Elementary Biochemistry	3
NUTR 251	Introductory Principles of Nutrition	3
NUTR 445	Energy and Macronutrient Metabolism	3
NUTR 446	Micronutrient Metabolism	3
NUTR 451	Nutrition throughout the Life Cycle	3

Additional Courses

Additional Courses: Require a grade of C or better

STAT 200	Elementary Statistics	3
or STAT 250	Introduction to Biostatistics	

Requirements for the Option

Select an option 64-67

Requirements for the Option**Behavioral Nutrition and Public Health Option (64 credits)**

Code	Title	Credits
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Prescribed Courses

BBH 101	Introduction to Biobehavioral Health	3
BBH/HPA 440	Principles of Epidemiology	3
BIOL 162	Human Anatomy and Physiology I - Laboratory	1
BIOL 164	Human Anatomy and Physiology II - Laboratory	1
NUTR 211R	Applying Biochemistry to Nutrition	1
NUTR 320	Science and Methods of Food Preparation	4
NUTR 358	Assessment of Nutritional Status	3
NUTR 360	Nutrition Education and Behavior Change Theory	3
NUTR 361	Community and Public Health Nutrition	3
NUTR 452	Nutritional Aspects of Disease	3
NUTR 490W	Nutrition Seminar	3

Additional Courses

CHEM 110	Chemical Principles I	3
or CHEM 130	Introduction to General, Organic, and Biochemistry	
CHEM 202	Fundamentals of Organic Chemistry I	3
or CHEM 210	Organic Chemistry I	
HDFS 129	Introduction to Human Development and Family Studies	3
or PSYCH 100	Introductory Psychology	
NUTR 421	Biocultural Perspectives on Public Health Nutrition	3
or NUTR 425	Global Nutrition Problems: Health, Science, and Ethics	
NUTR 175		3
or NUTR 175Z	Healthy Food for All: Factors that Influence What we Eat in the US	

Select one of the following: 3

AGBM 101	Economic Principles of Agribusiness Decision Making	
ECON 102	Introductory Microeconomic Analysis and Policy	
ECON 104	Introductory Macroeconomic Analysis and Policy	

Food, Nutrition, and Sustainability

Students must choose six (6) credits from the courses listed: 6

AEE 440	Communication Methods and Media	
AEE 450		
AGBM 102	Economics of the Food System	
AGBM 170	Investigating the U.S. Food System: How food moves from field to table	

AGBM 170Z	Investigating the U.S. Food System: How food moves from field to table	
CED 152	Community Development Concepts and Practice	
COMM 320	Introduction to Advertising	
COMM 370	Public Relations	
FOR 201	Global Change and Ecosystems	
GEOG 3N	Food and the Future Environment	
GEOG 30N	Environment and Society in a Changing World	
GEOG 230	Geographic Perspectives on Environment, Society and Sustainability	
HDFS 210Z	Ethnicity, Health and Aging	
HM/FDSYS 407	The Sustainable Fork: Food Systems Decisions for Away-From-Home Eating	
INTAG 100N	Everyone Eats: Hunger, Food Security & Global Agriculture	
NUTR 386	Managing Quality in Food and Nutrition Services	
RPTM 220	Sustainability, Society, and Well-being	
SOC 23	Population and Policy Issues	
SOC 30	Sociology of the Family	

Global Health and Nutrition Policy

Students must choose six (6) credits from the courses listed: 6

AEE 465	Leadership Practices: Power, Influences, and Impact	
BBH/AFAM 302	Diversity and Health	
BBH 305	Introduction to Global Health Issues	
BBH 316	Foundations and Principles of Health Promotion	
BBH 407	Global Health Equity	
BBH/WMNST/ NURS 452	Women's Health Issues	
COMM 320	Introduction to Advertising	
COMM 370	Public Relations	
GEOG 30N	Environment and Society in a Changing World	
HDFS 210Z	Ethnicity, Health and Aging	
HPA 101	Introduction to Health Services Organization	
SOC 210Z	Social Determinants of Health	

Supporting Courses and Related Areas

Choose six (6) additional supporting credits at the 400 level, in consultation with an adviser, from University-wide offerings that provide relevance to this option. No more than three (3) credits may be NUTR 496. See program list of recommended courses. 6

Nutrition and Dietetics Option (64 credits)

Code	Title	Credits
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Prescribed Courses

Prescribed Courses: Require a grade of C or better

BIOL 162	Human Anatomy and Physiology I - Laboratory	1
BIOL 164	Human Anatomy and Physiology II - Laboratory	1
HM 230	Principles of Food Production Management	3
HM 330	Food Production and Operations Management	3
MICRB 106	Elementary Microbiology	3
MICRB 107	Elementary Microbiology Laboratory	1
NUTR 211R	Applying Biochemistry to Nutrition	1
NUTR 320	Science and Methods of Food Preparation	4

NUTR 358	Assessment of Nutritional Status	3
NUTR 360	Nutrition Education and Behavior Change Theory	3
NUTR 361	Community and Public Health Nutrition	3
NUTR 386	Managing Quality in Food and Nutrition Services	3
NUTR 391	Professional Preparation in Nutrition and Dietetics	2
NUTR 393	Dietetic Internship Application Development	1
NUTR 400	Introduction to Nutrition Counseling	2
NUTR 452	Nutritional Aspects of Disease	3
NUTR 453	Medical Nutrition Therapy	3
NUTR 490W	Nutrition Seminar	3
NUTR 495	Advanced Field Experience in Nutrition	3

Additional Courses

CHEM 202	Fundamentals of Organic Chemistry I	3
or CHEM 210	Organic Chemistry I	
HDFS 129	Introduction to Human Development and Family Studies	3
or PSYCH 100	Introductory Psychology	

Additional Courses: Require a grade of C or better

CHEM 110	Chemical Principles I	3
or CHEM 130	Introduction to General, Organic, and Biochemistry	

Supporting Courses and Related Areas

Select 9 credits, in consultation with an adviser, from University-wide offerings that provide relevance to this option. See program list of recommended courses. (At least 6 credits must be at the 400 level and, of those, no more than 3 credits may be NUTR 496.) Three (3) credits may be substituted with credits earned through ROTC.

Nutritional Physiology and Biochemistry Option (66-67 credits)

Code	Title	Credits
Prescribed Courses		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
BIOL 162	Human Anatomy and Physiology I - Laboratory	1
BIOL 164	Human Anatomy and Physiology II - Laboratory	1
BIOL 230W	Biology: Molecules and Cells	4
BMB 212	Elementary Biochemistry Laboratory	1
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
CHEM 113	Experimental Chemistry II	1
MATH 140	Calculus With Analytic Geometry I	4
NUTR 175Z	Healthy Food for All: Factors that Influence What we Eat in the US	3
NUTR 211R	Applying Biochemistry to Nutrition	1
NUTR 358	Assessment of Nutritional Status	3
NUTR 452	Nutritional Aspects of Disease	3
NUTR 490W	Nutrition Seminar	3
PHYS 250	Introductory Physics I	4
PHYS 251	Introductory Physics II	4

Additional Courses

CHEM 202 & CHEM 203	Fundamentals of Organic Chemistry I and Fundamentals of Organic Chemistry II	6
or CHEM 210 & CHEM 212	Organic Chemistry I and Organic Chemistry II	

MICRB 106 & MICRB 107	Elementary Microbiology and Elementary Microbiology Laboratory	4-5
or MICRB 201 & MICRB 202	Introductory Microbiology and Introductory Microbiology Laboratory	
NUTR 421	Biocultural Perspectives on Public Health Nutrition	3
or NUTR 425	Global Nutrition Problems: Health, Science, and Ethics	

Supporting Courses and Related Areas

Select 9 credits, in consultation with an adviser, from University-wide offerings that provide relevance to this option. Students need to complete at least three (3) credits that cover the topic of ethics. At least six (6) credits must be at the 400 level with no more than three (3) credits of NUTR 496. See program list of recommended courses. Three (3) credits may be substituted with credits earned through ROTC.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Nutritional Sciences and M.P.S. in Nutritional Sciences

Requirements for the Integrated B.S. in Nutritional Sciences and M.P.S. in Nutritional Sciences can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/nutritional-sciences/#integratedundergradgradprogramstext>).

Integrated B.S. in Nutritional Sciences and M.P.H. in Public Health

Requirements for the Integrated B.S. in Nutritional Sciences and M.P.H. in Public Health can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/public-health/#integratedundergradgradprogramstext>).

Program Learning Objectives

- Explain the role of chemical, biochemical, microbiological, and physiological processes and demonstrate how they interrelate with the body's utilization of nutrients and food components during digestion, absorption, metabolism, and excretion.
- Describe and apply the functions and interrelationships of nutrients and food in human health, disease prevention, and disease states.

- Describe food and nutrition programs that contribute to the continuum of nutrition services to improve the health of our population: preconception to old age.
- Apply leadership and management theory within the healthcare and food service management systems.
- Integrate the biological, behavioral, socioeconomic and environmental factors related to food and nutrient intakes and needs across the lifespan.
- Interpret and evaluate nutrition standards and analyze nutritional assessment data to make evidence-based decisions.
- Locate, interpret, and evaluate research findings and professional literature to explain implications, limitations, and applications to practice.
- Demonstrate effective and professional technical and scientific written communication skills using various media formats.
- Demonstrate effective and professional technical and scientific oral communication skills using various media formats.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Behavioral Nutrition and Public Health Option: Nutritional Sciences, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If**

report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 161 (GN) ^{*†}	3 NUTR 175N (US)	3
BIOL 162 [*]	1 BIOL 163 (GN) ^{*†}	3
NUTR 251 (GHW) ^{*†}	3 BIOL 164 [*]	1
General Education Course (GWS) (ENGL 15, ENGL 30H, ESL 15, ENGL/CAS 137H recommended) ^{†1}	3 BBH 101	3
First-Year Seminar	1-2 GQ per ALEKS score ²	3
General Education Course (GA)	3 General Education Course (GWS) (CAS 100, CAS 100A, CAS 100B, CAS 100C, ENGL/CAS 138T recommended) ^{††1}	3
14-15		16

Second Year

Fall	Credits Spring	Credits
CHEM 110 or 130 (GN) ^{†2}	3 NUTR 361	3
PSYCH 100 or HDFS 129 (GS) [†]	3 General Education Course (Exploration)	3
NUTR 360	3 General Education Course (Integrative Studies - Inter-Domain)	3
General Education Course (GH)	3 Select course in Food, Nutrition, and Sustainability in consultation with adviser	3
ECON 102, 104, or AGBM 101	3 Select course in Global Health and Nutrition Policy in consultation with adviser	3
15		15

Third Year

Fall	Credits Spring	Credits
NUTR 358	3 NUTR 452 [*]	3
NUTR 372	3 NUTR 421 or 425 ³	0-3
NUTR 421 or 425 ³	0-3 STAT 200 or 250 (GQ) ^{*††}	3-4
Select course in Food, Nutrition, and Sustainability in consultation with adviser	3 Elective	6
General Education Course (GWS) (ENGL 202A or ENGL 202C recommended)	3 General Education Course (Exploration) [†]	3
General Education Course (Integrative Studies - Inter-Domain)	3	
15-18		15-19

Fourth Year

Fall	Credits Spring	Credits
NUTR 490W [*]	3 NUTR 451 [*]	3
BBH/HPA 440	3 Select course in Global Health and Nutrition Policy in consultation with adviser	3

NUTR 409	3 Select supporting courses 400 level in consultation with adviser	6
Elective	3 Elective	3
Select supporting course 400 level in consultation with adviser	3	
15		15

Total Credits 120-128

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Schreyer Honors College first year students at University Park will take ENGL/CAS 137H in the fall semester and ENGL/CAS 138T in the spring semester. These courses carry GWS designation and replace both ENGL 30 and CAS 100. Each course is 3 credits. At the discretion of the college, ENGL/CAS 138T satisfies the first-year seminar requirement.

² Enforced MATH prerequisites for Chemistry: CHEM 110 - ALEKS score > 61 or completion of MATH 22; CHEM 130 ALEKS score > 46 or completion of MATH 21. If ALEKS score is not in the needed range, elective credits should be used for MATH preparation.

³ Students need to take either NUTR 421, offered in the Fall semester, or NUTR 425, offered in the Spring semester.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- HHD allows up to 6 credits from ROTC study to be counted toward General Education and major requirements. Some programs allow additional ROTC credits to be used for degree requirements.

Behavioral Nutrition and Public Health Option: Nutritional Sciences, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 161 (GN) ^{††}	3 NUTR 251 (GHW) ^{††}	3
BIOL 162 (GN) [†]	1 BIOL 163 (GN) ^{††}	3
PSYCH 100 or HDFS 129 (GS) [†]	3 BIOL 164 (GN) [†]	1
GQ per ALEKS score ^{††2}	3 ECON 102, 104, or AGBM 101	3
General Education Course (GWS) (ENGL 15, ENGL 30H, ESL 15, ENGL/CAS 137H recommended) ^{††1}	3 General Education Course (GWS) (CAS 100, CAS 100A, CAS 100B, CAS 100C, ENGL/CAS 138T recommended) ^{††1}	3
First-Year Seminar (elective)	1 General Education Course (Exploration)	3
	14	16

Second Year

Fall	Credits Spring	Credits
CHEM 110 or 130 ²	3 CHEM 202 or 210 ³	3
BBH 101	3 STAT 200 or 250 (GQ) ^{††}	3-4
Select 3-4 credits of Electives	3-4 NUTR 360 (through DLC)	3
General Education Course (GH)	3 General Education Course (GWS) (ENGL 202A or ENGL 202C recommended) ^{††}	3
General Education Course (GA)	3 General Education Course (Integrative Studies)	3
	15-16	15-16

Third Year

Fall	Credits Spring	Credits
BMB 211 [*]	3 NUTR 320	4
NUTR 175N (US) [†]	3 NUTR 358	3
NUTR 211R	1 NUTR 425 (IL) or Select 3 credits from one of the two themes in consultation with academic adviser ^{†4}	3
NUTR 361 (US) [†]	3 NUTR 445 [*]	3
NUTR 421 (IL) or Select 3 credits from one of the two themes in consultation with academic adviser ^{†4}	3 Select 3 credits from one of the two themes in consultation with academic adviser	3
	13	16

Fourth Year

Fall	Credits Spring	Credits
NUTR 446 [*]	3 NUTR 451 [*]	3

BBH 440 or HPA 440 (US/IL) [†]	3 NUTR 452	3
Select 3 credits from one of the two themes in consultation with academic adviser	3 NUTR 490W	3
Select 3 credits of 400-level supporting credits in consultation with academic adviser ⁴	3 Select 3 credits from one of the two themes in consultation with academic adviser	3
Select 3 credits of 400-level supporting credits in consultation with academic adviser ⁴	3 General Education Course (Integrative Studies)	3
	15	15

Total Credits 119-121

- * Course requires a grade of C or better for the major
 ‡ Course requires a grade of C or better for General Education
 # Course is an Entrance to Major requirement
 † Course satisfies General Education and degree requirement

- ¹ Schreyer Honors College first year students at University Park will take ENGL/CAS 137H in the fall semester and ENGL/CAS 138T in the spring semester. These courses carry GWS designation and replace both ENGL 30 and CAS 100. Each course is 3 credits. At the discretion of the college, ENGL/CAS 138T satisfies the first-year seminar requirement.
² Enforced MATH prerequisites for Chemistry: CHEM 110 - ALEKS score > 61 or completion of MATH 22; CHEM 130 ALEKS score > 46 or completion of MATH 21. If ALEKS score is not in the needed range, elective credits should be used for MATH preparation.
³ Students must complete CHEM 110 and CHEM 112 before enrolling in CHEM 210.
⁴ Students should take either NUTR 421 or NUTR 425.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

Scheduling patterns for courses not taught each semester:

- Courses taught spring semester only – NUTR 170 (suggested, not required), NUTR 425.
- Courses taught fall semester only – NUTR 421.

- NUTR 175N: If it is taught at a commonwealth campus, students can take this in the second year prior to transferring to UP.

Nutritional Physiology and Biochemistry

Option: Nutritional Sciences, B.S. at All Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
CHEM 110 (GN) ^{†1}	3	BIOL 161 (GN) ^{**†}	3
CHEM 111	1	BIOL 162 [*]	1
MATH 140 (GQ) ^{††}	4	CHEM 112	3
NUTR 175N	3	CHEM 113	1
General Education Course (GWS) (ENGL 15, ENGL 30H, ESL 15, ENGL/CAS 137H recommended) ^{†2}	3	NUTR 251 (GHW) ^{**†}	3
First-Year Seminar	1-2	General Education Course (GH)	3
		General Education Course (GWS) (CAS 100, CAS 100A, CAS 100B, CAS 100C, ENGL/CAS 138H recommended) ^{†2}	3
	15-16		17

Second Year

Fall	Credits	Spring	Credits
CHEM 202 or 210	3	CHEM 203 or 212	3
BIOL 163 (GN) [*]	3	BIOL 230W	4
BIOL 164 [*]	1	STAT 200 or 250 (GQ) ^{**††}	3-4
General Education Course (Exploration)	3	General Education Course (Exploration)	3
General Education Course (Integrative Studies: Inter-Domain)	3	Select from University-Wide Offerings in consultation with adviser	3
General Education Course (GA)	3		
	16		16-17

Third Year

Fall	Credits	Spring	Credits
BMB 211	3	NUTR 445	3
BMB 212	1	PHYS 251	4
PHYS 250	4	NUTR 358	3
NUTR 421 or 425 ³	0-3	NUTR 421 or 425 ³	0-3
MICRB 106, and MICRB 107, or MICRB 201 and MICRB 202	4-5	General Education Course (GWS) (ENGL 202A or ENGL 202C recommended) [†]	3
Select from University-Wide Offerings in consultation with adviser (ethics course recommended)	3	Select from University-Wide Offerings 400 level course in consultation with adviser	3
	15-19		16-19

Fourth Year

Fall	Credits	Spring	Credits
NUTR 446	3	NUTR 451 [*]	3
Select from University-Wide Offerings 400 level course in consultation with adviser	3	NUTR 452 [*]	3
Elective	8	NUTR 490W [*]	3
		Elective	4
	14		13

Total Credits 122-131

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Enforced MATH prerequisites for Chemistry: CHEM 110 - ALEKS score > 61 or completion of MATH 22; CHEM 130 ALEKS score > 46 or completion of MATH 21. If ALEKS score is not in the needed range, elective credits should be used for MATH preparation.

² Schreyer Honors College first year students at University Park will take ENGL/CAS 137H in the fall semester and ENGL/CAS 138T in the spring semester. These courses carry GWS designation and replace both ENGL 30 and CAS 100. Each course is 3 credits. At the discretion of the college, ENGL/CAS 138T satisfies the first-year seminar requirement.

³ Students need to take either NUTR 421, offered in the Fall semester, or NUTR 425, offered in the Spring semester.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- If NUTR 175N is offered at your commonwealth campus, students are advised to take 175N at the campus before coming to UP.
- HDD allows up to 6 credits from ROTC study to be counted toward General Education and major requirements. Some programs allow additional ROTC credits to be used for degree requirements.

Nutrition and Dietetics Option: Nutritional Sciences, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 161 (GN) ^{*#†}	3 BIOL 163 (GN) ^{*#†}	3
BIOL 162 ^{*#}	1 BIOL 164 ^{*#}	1
GQ per ALEKS score ^{‡2}	3 CHEM 110 or 130 (GN) ^{#†2}	3
General Education Course (Integrative Studies: Inter-Domain; NUTR 175N or NUTR 291N recommended)	3 NUTR 251 (GHW) ^{*#†}	3
General Education Course (GWS) (ENGL 15, ENGL 30H, ESL 15, ENGL/CAS 137H recommended) ^{‡1}	3 PSYCH 100 or HDFS 129 (GS) [†]	3
First-Year Seminar	1-2 Supporting Course (CHEM 111 recommended)	1
	General Education Course (GWS) (CAS 100, CAS 100A, CAS 100B, CAS 100C, ENGL/CAS 138T recommended) ^{‡1}	3
14-15		17

Second Year

Fall	Credits Spring	Credits
CHEM 202 or 210	3 NUTR 360	3
MICRB 106 [*]	3 STAT 200 or 250 (GQ) ^{*††}	3-4
General Education Course (Exploration)	3 BMB 211	3

General Education Course (Integrative Studies: Inter-Domain; NUTR 310N recommended)	3 General Education Course (Exploration)	3
General Education Course (GA)	3 General Education Course (GH)	3

15

15-16

Third Year

Fall	Credits Spring	Credits Summer	Credits
NUTR 320	4 NUTR 358	3 NUTR 495	3
HM 230	3 NUTR 391	2	
NUTR 361	3 HM 330	3	
NUTR 445	3 NUTR 386	3	
General Education Course (GWS) (ENGL 202A or ENGL 202C recommended) [‡]	3 NUTR 446	3	
16		14	3

Fourth Year

Fall	Credits Spring	Credits
NUTR 393	1 NUTR 451 [*]	3
NUTR 400	2 NUTR 490W [*]	3
NUTR 452 [*]	3 Select Supporting Course 400 level in consultation with adviser	3
NUTR 453	3 Select Supporting Course in consultation with adviser	3
Elective	2	
Select Supporting Course 400 level in consultation with adviser	3	
14		12

Total Credits 120-122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Schreyer Honors College first year students at University Park will take ENGL/CAS 137H in the fall semester and ENGL/CAS 138T in the spring semester. These courses carry GWS designation and replace both ENGL 30 and CAS 100. Each course is 3 credits. At the discretion of the college, ENGL/CAS 138T satisfies the first-year seminar requirement.

² Enforced MATH prerequisites for Chemistry: CHEM 110 - ALEKS score > 61 or completion of MATH 22; CHEM 130 ALEKS score > 46 or completion of MATH 21. If ALEKS score is not in the needed range, elective credits should be used for MATH preparation.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- Courses taught Fall semester only: NUTR 400, NUTR 453
- Courses taught Spring semester only: NUTR 386, NUTR 451
- HHD allows up to 6 credits from ROTC study to be counted toward General Education and major requirements. Some programs allow additional ROTC credits to be used for degree requirements.

Nutrition and Dietetics Option: Nutritional Sciences, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
GQ per ALEKS score	3 NUTR 251 (GHW) ^{**†}	3
BIOL 161 & BIOL 162 (GN) ^{*#†}	4 BIOL 163 & BIOL 164 (GN) ^{*#†}	4
PSYCH 100 or HDFS 129 (GS) [†]	3 General Education Course (GA)	3
General Education Course (GWS) (ENGL 15, ENGL 30H, ESL 15, ENGL/CAS 137H recommended) ^{††}	3 CHEM 110 or 130 ^{#2}	3
First-Year Seminar	1 CHEM 111 (Lab) recommended with CHEM 110/130	1
	14	14

Second Year

Fall	Credits Spring	Credits
CHEM 202 or 210 ³	3 NUTR 360 (through DLC)	3
MICRB 106 (GN) [†]	3 STAT 200 or 250 (GQ) ^{††}	3-4
General Education Course (GWS) (CAS 100, CAS 100A, CAS 100B, CAS 100C, ENGL/CAS 138T recommended) ^{††1}	3 General Education Course (GWS) (ENGL 202A or ENGL 202C recommended) ^{††}	3
General Education Course (Exploration)	3 General Education Course (Integrative Studies)	3
3 credits electives in consultation with adviser	3 General Education Course (GH)	3
	15	15-16

Third Year

Fall	Credits Spring	Credits Summer	Credits
BMB 211	3 NUTR 358	3 NUTR 495	3
NUTR 320	4 NUTR 386	3	
NUTR 361 [†]	3 NUTR 391	2	
HM 230	3 NUTR 445 [*]	3	
General Education Integrative Studies (NUTR 175N or NUTR 291N suggested)	3 HM 330	3	
	16	14	3

Fourth Year

Fall	Credits Spring	Credits
NUTR 393	1 NUTR 451 [*]	3
NUTR 400	2 NUTR 490W	3
NUTR 452	3 NUTR 446 [*]	3
NUTR 453	3 Select 3 credits from 400-level supporting courses in consultation with an academic adviser ⁴	3
Select 3 credits from 400-level supporting courses in consultation with an academic adviser ⁴	3 Select 3 credits from supporting courses in consultation with an academic adviser ⁴	3
	12	15

Total Credits 118-119

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ All incoming Schreyer Honors College first year students at University Park will take ENGL/CAS 137H in the fall semester and ENGL/CAS138T in the spring semester. These courses carry GWS designation and replace ENGL 15/30 and CAS 100. Each course is 3 credits. At the discretion of the college, ENGL/CAS 138T satisfies the first-year seminar requirement.

² Enforced MATH prerequisites for Chemistry: CHEM 110 - ALEKS score > 61 or completion of MATH 22; CHEM 130 ALEKS score > 46 or completion of MATH 21. If ALEKS score is not in the needed range, elective credits should be used for MATH preparation.

³ Students must complete CHEM 110 and CHEM 112 before enrolling in CHEM 210.

⁴ Supporting Course List: <https://hhd.psu.edu/nutrition/supporting-courses> (<https://hhd.psu.edu/nutrition/supporting-courses/>).

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

Scheduling patterns for courses not taught each semester:

- Courses taught fall semester only – NUTR 386, NUTR 421.
- Courses taught spring semester only – NUTR 170 (suggested, not required), NUTR 391, NUTR 425.

HM 230: if it is taught at a commonwealth campus, students can enroll in the 4th semester prior to coming to UP.

Career Paths

The multidisciplinary nature of the Nutritional Sciences degree prepares students for a variety of career options and for graduate study in research and advanced professional training. Armed with an undergraduate degree in Nutritional Sciences, students will leverage their Penn State education and a vast network of like-minded professionals to find a fulfilling career that incorporates the physiological and biochemical aspects of nutritional practices in the context of health and wellness. There are an endless array of positions in healthcare settings, academia, research, management and policy in which nutritional skills and knowledge are needed.

Careers

The Nutrition and Dietetics option prepares students for Nutrition and Dietetics graduate programs that lead to the Registered Dietitian Nutritionist (RDN) credential. With the RDN, students pursue careers in clinical dietetics, nutrition education and counseling, sports nutrition, retail and industry, and related fields. This option also prepares students for accelerated Master's degree programs in Nursing.

The Nutritional Physiology and Biochemistry option provides a strong science foundation for biomedical careers, including medical, dental, physician assistant and other related fields. Students may also seek biomedical careers in research, pharmaceutical or other health related industries.

The Behavioral Nutrition and Public Health option prepares students to work in careers in global and local public health, food systems and sustainability, or health promotion and education.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE NUTRITIONAL SCIENCES PROGRAM (<https://hhd.psu.edu/nutrition/graduate-program/careers/>)

Opportunities for Graduate Students

Students seeking the RDN credential are required to complete a master's degree and supervised practice hours to sit for the RDN exam. Penn State students can apply to Penn State's Integrated Undergraduate Graduate program or apply to accredited graduate programs in Nutrition and Dietetics.

Students completing any of the options in Nutritional Sciences are well prepared for either research-focused graduate programs in nutrition and biomedical fields or professional master's degree programs in public health, health education, or similar programs. Students completing the Nutritional Physiology and Biochemistry option are also prepared for graduate programs in clinical fields.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://hhd.psu.edu/nutrition/graduate-program/>)

Professional Resources

- Academy of Nutrition and Dietetics (<https://www.eatright.org>)
- American Society for Nutrition (<https://nutrition.org>)
- Society for Nutrition Behavior and Education (<https://www.sneb.org>)
- Pennsylvania Academy of Nutrition and Dietetics (<https://eatrightpa.org>)
- American Association of Medical Colleges (allopathic) (<https://www.aamc.org>)
- American Association of Colleges of Osteopathic Medicine (<https://www.aacom.org>)
- Physician Assistant Education Association (<https://paeonline.org>)
- American Dental Education Association (<https://www.adea.org>)
- American Association of Colleges of Nursing (<https://www.aacnnursing.org>)
- American Association of Schools & Programs of Public Health (<https://aspph.org>)
- ACEND Diversity, Equity, and Inclusion (<https://www.eatrightpro.org/acend/about-acend/diversity-equity-and-inclusion/>)

Accreditation

The Accreditation Council for Education in Nutrition and Dietetics (ACEND) is the accrediting body for the Didactic Program in Dietetics, which is the Nutrition and Dietetics option of the Nutritional Sciences major.

The Pennsylvania State University Didactic Program in Dietetics is accredited by the Accreditation Council for Education in Nutrition and Dietetics (ACEND) of the Academy of Nutrition and Dietetics, 120 Riverside Plaza, Suite 2190, Chicago, IL 60606-6995, 312-899-0040, ext 5400.

MORE INFORMATION ABOUT THE ACCREDITATION COUNCIL FOR EDUCATION IN NUTRITION AND DIETETICS (<https://www.eatrightpro.org/acend/>)

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

University Park

DEPARTMENT OF NUTRITIONAL SCIENCES

110 Chandlee Laboratory

University Park, PA 16802

814-863-0806

nutrinfo@psu.edu

Nutritional Sciences, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

What is Nutritional Sciences?

Nutritional Sciences uses nutrition as the backbone to integrate physiological science, behavioral sciences, foods, food systems management, and nutrition as medicine to prepare students to help individuals and communities locally and globally. Students are uniquely prepared to integrate their strong science foundation and nutrition knowledge to help others lead healthier lives. Areas of study include the application of nutrition principles to health promotion and wellness, sports performance, research and intervention science, medical nutrition therapy, and behavioral interventions.

You Might Like This Program If...

- You are majoring in a health-related discipline such as Biobehavioral Health, Kinesiology, Pre-medicine, Human Development and Family Studies, Biology, Biochemistry, Chemistry, and other majors connected to the health professions.
- You want to pursue a career as a physician, dentist, physician assistant, nurse or other health professional.
- You are majoring in Agricultural Sciences, Food Science, Food Systems, Sustainability, and other majors connected to agriculture and foods.
- You want to learn more about nutrition and apply it to your own life.

MORE INFORMATION ABOUT NUTRITIONAL SCIENCES (<https://hhd.psu.edu/nutrition/undergraduate/minor/>)

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
NUTR 251	Introductory Principles of Nutrition	3
NUTR 358	Assessment of Nutritional Status	3
NUTR 445	Energy and Macronutrient Metabolism	3

Additional Courses

Additional Courses: Require a grade of C or better

Students must take 6 additional 400 level nutritional sciences credits excluding NUTR 495. NUTR 496 (Independent Study) credit may be counted towards the minor up to a 3 credit maximum.

Select 3 additional credits from NUTR courses, excluding NUTR 100 3

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Tom Oziembolowsky

Nutritional Sciences Academic Adviser

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University Park, PA 16802

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nutrsci@psu.edu

Career Paths

Information about Career and Graduate Studies opportunities can be found on the College of Health and Human Development website (<https://hhd.psu.edu/nutrition/undergraduate/career-opportunities/>).

Contact

University Park

DEPARTMENT OF NUTRITIONAL SCIENCES

110 Chandlee Laboratory

University Park, PA 16802

814-863-0806

nutrinfo@psu.edu

Professional Snowsports Education, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

This nine credit certificate program introduces students to professional snowsports education and focuses on three components. First component, becoming a member of the Professional Ski Instructors of America- American Association of Snowboard Instructors (PSIA-AASI), preparing for and completing the level I certificate. Second component, learning about snowsports areas and leadership responsibilities when

working in winter environments (including nutrition, group management, health and safety, fitness and physical conditioning). Final component, developing an understanding of leisure and the role it plays in people lives and theories that can help in enhancing the guest experience.

What is Professional Snowsports Education?

The Snowsports Education Certificate program is a 9 credit certificate that guides students on a first step into teaching people about snowsports and understanding the snowsports industry. The program is available in a convenient hybrid format, with most course content taught on-line and a three day snow assessment course which can be taken in various snowsport resorts across the country.

You Might Like This Program If...

- You enjoy winter sports and spending time with people who are learning new skills.
- You want to provide potential employers with a credential that shows your expertise in teaching about snowsports.

Program Requirements

To earn an undergraduate certificate in Professional Snowsports Education, a minimum of 9 credits is required.

Code	Title	Credits
Prescribed Courses		
RPTM 120	Leisure and Human Behavior	3
RPTM 215	Snowsports Education	3
RPTM 115	Leadership Development in Snowsports	3

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Pete Allison, Ph.D.

Associate Professor

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University Park, PA 16802

pra7@psu.edu

Career Paths

There are multiple career paths open to those completing the certificate including further Penn State certificates and qualifications to teach snowsports through our partnership with the Professional Ski Instructors

of America and the American Association of Snowboard Instructors (PSIA-AASI). In addition to teaching snowsports at winter resorts, opportunities in ski patrol positions, or operations that support snowsports areas are also possible. Training in snowsports education can provide career advancement in many outdoor adventure recreation fields.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A CERTIFICATE IN PROFESSIONAL SNOWSPORTS EDUCATION (<https://hhd.psu.edu/bbh/undergraduate/internships-and-career-opportunities/career-areas-major/career-opportunities/>)

Professional Resources

- Professional Ski Instructors of America / American Association of Snowboard Instructors (PSIA-AASI) (<http://www.thesnowpros.org>)

Contact

University Park and World Campus

DEPARTMENT OF RECREATION, PARK AND TOURISM MANAGEMENT
801 Ford Building
University Park, PA 16802
pra7@psu.edu (pra7@psu.edu)

<https://hhd.psu.edu/rptm> (<https://hhd.psu.edu/rptm/>)

Recreation, Park, and Tourism Management, B.S. (Health and Human Development)

Begin Campus: Any Penn State Campus

End Campus: University Park, World Campus

Program Description

The program prepares students for supervisory and administrative positions with park systems, environmental centers, commercial recreation and tourism agencies, golf courses, hospitals and assisted living facilities, private voluntary agencies, schools and colleges, and other commercial, nonprofit, and public organizations that provide recreation and leisure services. The program combines a broad educational foundation with specific courses designed to accommodate career interests in recreation, park, and tourism management. The program helps students gain the theoretical, managerial, technical, and experiential skills they need to become the next generation of leaders in the field. Additionally, students obtain real-world experience through our internship experiences.

Four (4) options are offered:

Commercial Recreation and Tourism Management Option

Available at the following campuses: Abington, Greater Allegheny, University Park, World Campus

This option focuses on management in the private/commercial, non-profit, and public sectors of recreation/leisure services. The private/commercial focus will be of interest to students seeking careers in a variety of commercial settings such as resorts; theme parks, convention centers; sports and fitness facilities, including arenas and stadiums; tourism promotion/planning agencies; and employee recreation

departments within corporations. This focus will also appeal to students wishing to become entrepreneurs.

Community Recreation Management Option

Available at the following campuses: Abington, Greater Allegheny, University Park, World Campus

For those interested in the community, public, or non-profit sectors for positions within municipal, state, and federal government agencies; recreation divisions of the armed services; YMCA agencies; United Way agencies; scouting organizations; university-affiliated units such as student unions, intramural and alumni services; and other non-profit organizations.

Professional Golf Management Option

Available at the following campuses: University Park

Accredited by the Professional Golfers' Association of America, the Professional Golf Management Option prepares students for careers in the golf industry. Students will be prepared to assess leadership and management principles including customer service, interpersonal skills, business communication, conflict resolution, time management, negotiating, project management, marketing, and community relations. In addition to the core curriculum, the program has a strong business focus and is drawn from several nationally recognized academic disciplines on campus.

Outdoor Recreation Management Option

Available at the following campuses: University Park

This option prepare students for careers in Park Management and Environmental Interpretation (PMEI), Adventure Recreation, or in both fields. The Adventure Recreation pathway emphasizes outdoor experiential leadership, including wilderness experiences and personal development. The PMEI pathway focuses on natural and cultural history environmental interpretation and education and the social science of conservation. The third pathway provides a flexible route for students to combine parts of the Adventure Recreation and PMEI pathways to create a meaningful personalized set of courses that could include study abroad experiences and prepare students for international contexts of recreation management. The Outdoor Recreation Management option is of interest to students seeking employment in a variety of outdoor recreation and park settings (local, state, and national from urban to wilderness) offering outdoor activities and personal development to the public.

What is Recreation, Park and Tourism Management?

Recreation, Park and Tourism Management students learn how to manage and lead in a variety of organizations to help humans derive benefits from leisure activities. Students learn about a disciplinary and interdisciplinary perspectives to better understand the natural, psychological, social, economic, political and cultural systems that influence human behavior in the context of recreation, park and tourism. Core business and management skills are applied to the types of organizations in the recreation, park and tourism sectors. This approach enables students to address issues of human well-being and sustainable development in leading and managing these organizations. Our mission is to transform human health and well-being through engaging people in recreation, park, tourism and leisure activities.

MORE INFORMATION ABOUT RECREATION, PARK, AND TOURISM MANAGEMENT (<https://hhd.psu.edu/rptm/>)

You Might Like This Program If...

- You like working with people in a hands-on learning environment that involves recreation, parks, sustainability and leisure.
- You enjoy business, management or entrepreneurship and a career setting focused on the outdoors, entertainment, sports, fitness, or events.
- You like building community through organizing recreation programs for young people, families, those in the military or older persons.
- You enjoy tourism, visiting new places, meeting new people, and helping others travel and learn about other cultures.

Entrance to Major

Students who have completed 29.1 credits with a 2.00 cumulative grade-point average are eligible for entrance into the major, except for the Professional Golf Management option.

First-year students are admitted directly into the Golf Management option at the University Park campus only. In addition to the University's academic requirements, each student admitted to the Golf Management option must have a playing proficiency represented by a minimum golf handicap of 12 or lower. This must be certified in writing by a Professional Golf Association member or golf coach.

Direct Admission to the Professional Golf Management Option

Incoming first-year students who meet the program admission requirements are admitted directly into the major. Admission restrictions may apply for change-of-major and/or change-of-campus students.

For more information about the admission process for this major, please send a request to the college, campus, or program contact (listed in the Contact tab).

Degree Requirements

For the Bachelor of Science degree in Recreation, Park, and Tourism Management, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	4-14
Requirements for the Major	64-71

3-4 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 0-3 credits of GS courses; 0-4 credits of GQ courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. RPTM requires students to complete 24 credits for the major through courses taken at University Park. Courses taken at other Penn State campuses may not be counted toward this 24 credit minimum. For more information, check the Suggested Academic Plan for this major.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as

specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
RPTM 120	Leisure and Human Behavior	3
RPTM 220	Sustainability, Society, and Well-being	3
RPTM 236	Leadership and Group Dynamics in Recreation Services	3
RPTM 277	Inclusive Leisure Services	3
RPTM 390	Political and Legal Aspects of Recreation Services	3
RPTM 410	Marketing of Recreation Services	3
RPTM 433W	Program Evaluation and Research in Recreation Services	3
RPTM 456	Programming in Recreation Services	3

Requirements for the Option

Select an option 40-47

Requirements for the Option

Commercial Recreation and Tourism Management Option (46-47 credits)

Available at the following campuses: Abington, Greater Allegheny, University Park, World Campus

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
RPTM 101	Introduction to Recreation Services	3
RPTM 210	Introduction to Commercial Recreation and Tourism	3
RPTM 300Y	Tourism and Leisure Behavior	3
RPTM 394	Orientation to Internship	1
RPTM 415	Commercial Recreation Management	3
RPTM 495A	Internship in Recreation Services	12

Additional Courses

CAS 283	Communication and Information Technology I	3-4
or CMPSC 203	Introduction to Spreadsheets and Databases	
RPTM 370	Introduction to Arena Management	3
or RPTM 435	Recreation Facilities Planning and Management	

Select 6 credits from the following: 6

ACCTG 211	Financial and Managerial Accounting for Decision Making	
BA 100	Introduction to Business	
BA 242	Social and Ethical Environment of Business	
BA 250	Small Business Management	
BA 301	Finance	
BA 303	Marketing	
BA 304	Management and Organization	
FIN 100	Introduction to Finance	
HM 201	Introduction to Management in the Hospitality Industry	
LHR 100	Exploring Work and Employment	
LHR/AFAM/ WMNST 136	Race, Gender, and Employment	

MGMT 100	Survey of Management	
MGMT 301	Basic Management Concepts	
MKTG 221		
MKTG 301	Principles of Marketing	
RPTM 336	Accounting in Recreation, Park, and Tourism Management	

Supporting Courses and Related Areas

Consult with an adviser to review course recommendations, Minors, and Certificate Programs. 9

Community Recreation Management Option (43-44 credits)

Available at the following campuses: Abington, Greater Allegheny, University Park, World Campus

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
RPTM 101	Introduction to Recreation Services	3
RPTM 201	Introduction to Community Recreation	3
RPTM 334	Non-profit Recreation Agency Operations	3
RPTM 394	Orientation to Internship	1
RPTM 495A	Internship in Recreation Services	12

Additional Courses

CAS 283	Communication and Information Technology I	3-4
or CMPSC 203	Introduction to Spreadsheets and Databases	
RPTM 370	Introduction to Arena Management	3
or RPTM 435	Recreation Facilities Planning and Management	

Supporting Courses and Related Areas

Consult with an adviser to review course recommendations, Minors, and Certificate Programs. 15

Outdoor Recreation Management Option (40-41 credits)

Available at the following campuses: University Park

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
RPTM 101	Introduction to Recreation Services	3
RPTM 320	Recreation Resource Planning and Management	3
RPTM 394	Orientation to Internship	1
RPTM 435	Recreation Facilities Planning and Management	3
RPTM 495A	Internship in Recreation Services	12

Additional Courses

CAS 283	Communication and Information Technology I	3-4
or CMPSC 203	Introduction to Spreadsheets and Databases	

Supporting Courses and Related Areas

Select 15 credits in an Outdoor Recreation Management Pathway. Consult with an adviser to review course recommendations, Minors and Certificate Programs. 15

Professional Golf Management Option (47 credits)

Available at the following campuses: University Park

Code	Title	Credits
Prescribed Courses		
RPTM 100S	Introduction to Golf Management	2
RPTM 250	PGA Facility Management 1	2

RPTM 254	PGA Teaching and Coaching 2	2
RPTM 295A	Introduction to Golf Management	3
RPTM 350	PGA Facility Management Level 3	2
RPTM 360	Golf Operations Management	3
RPTM 395B	Participation in Golf Management	3
RPTM 495B	Internship in Golf Management	3

Additional Courses

Select 12 credits from the following: 12

BA 303	Marketing
BA 304	Management and Organization
HM 466	Human Resource Management in the Hospitality Industry
RPTM 336	Accounting in Recreation, Park, and Tourism Management
RPTM 415	Commercial Recreation Management

Supporting Courses and Related Areas

Please consult with your academic adviser to review course recommendation, Minors and Certificate Programs. 15

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Content Knowledge:** Demonstrate knowledge of the fundamental concepts in RPTM including social & behavioral science theories and models used in RPTM, leadership, programming, facility design & management, evaluation, inclusion of diverse populations, marketing, and operations & strategic management.
- **Communication:** Demonstrate effective oral and written communication skills.
- **Critical Thinking and Analytical Skills:** Apply critical thinking, analytical, and deductive reasoning skills to evaluate and synthesize information from diverse sources and to make appropriate decisions and/or take appropriate action.
- **Management:** Use appropriate leadership and management skills to design, implement, and evaluate an initiative.
- **Professionalism:** Demonstrate a consistent ability to work autonomously in a professional manner and manage complex ethical

and professional issues in accordance with current professional and/or ethical codes of practice.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Commercial Recreation and Tourism Option: Recreation, Park, and Tourism Management, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
RPTM 101*	3 RPTM 210*	3
RPTM 120 or 120S	3 General Education Course (Integrative Studies: Inter-Domain)	3
General Education Course (GWS) (ENGL 15, ENGL 30H, ESL 15, or ENGL/CAS 137H recommended)†	3 General Education Course (GA)	3
General Education Course (GH)	3 General Education Course (Exploration)	3
General Education Course (GN)	3 General Education Course (GQ)†	3
First Year Seminar	1-2 General Education Course (GHW)	1.5
16-17		16.5

Second Year

Fall	Credits Spring	Credits
RPTM 236*	3 RPTM 220*	3
RPTM 277*	3 RPTM 390*	3
General Education Course (GQ)†	3 RPTM 300Y*	3
General Education Course (Integrative Studies: Inter-Domain)	3 General Education Course (Exploration)	3
General Education Course (GS)	3 General Education Course (Exploration)	3
	General Education Course (GHW)	1.5
15		16.5

Third Year

Fall	Credits Spring	Credits
RPTM 456*	3 CAS 283 or CMPSC 203†	3-4
RPTM 370 or 435*	3 RPTM 410	3
Supporting Course in Consultation with Academic Adviser ¹	3 RPTM 394*	1

General Education Course (GWS) (CAS 100, CAS 100A, CAS 100B, CAS 100C, or ENGL/CAS 138T recommended) [‡]	3 Elective or GQ (if CMPSC 203 not taken) ^{‡1}	3
Supporting Course in Consultation with Academic Adviser ¹	3 Supporting Course in Consultation with Academic Adviser ¹	3
	Elective	1
	15	14-15

Fourth Year

Fall	Credits Spring	Credits
RPTM 415*	3 RPTM 495A*	12
RPTM 433W*	3	
Supporting Course in Consultation with Academic Adviser ¹	3	
Supporting Course in Consultation with Academic Adviser ¹	3	
General Education Course (GWS) (ENGL 202D preferred) [‡]	3	
	15	12

Total Credits 120-122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Supporting Course List: <https://hhd.psu.edu/rptm/undergraduate/supporting-courses> (<https://hhd.psu.edu/rptm/undergraduate/supporting-courses/>).

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

Within the 30 credits of required General Education Domain courses, students must take 6 credits of **Integrative Studies courses**. If you need additional clarification, consult with your academic adviser.

HHD allows up to 6 credits from ROTC study to be counted toward General Education and major requirements. Some programs allow additional ROTC credits to be used for degree requirements.

Community Recreation Management Option: Recreation, Park, and Tourism Management, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
RPTM 101*	3	RPTM 201*	3
RPTM 120 or 120S*	3	General Education Course (Integrative Studies: Inter-Domain)	3
General Education Course (GWS) (ENGL 15, ENGL 30H, ESL 15, ENGL/CAS 137H recommended) [‡]	3	General Education Course (GA)	3
General Education Course (GH)	3	General Education Course (Exploration)	3
General Education Course (GN)	3	General Education Course (GQ) [‡]	3
First Year Seminar	1.5	1-2 General Education Course (GHW)	1.5
		16-17	16.5

Second Year

Fall	Credits	Spring	Credits
RPTM 236*	3	RPTM 220*	3
Supporting Course in Consultation with Academic Adviser [†]	3	RPTM 390*	3
RPTM 277*	3	RPTM 334*	3
General Education Course (Integrative Studies: Inter-Domain)	3	General Education Course (Exploration)	3
General Education Course (GS)	3	General Education Course (Exploration)	3
		General Education Course (GHW)	1.5
		15	16.5

Third Year

Fall	Credits	Spring	Credits
RPTM 456*	3	RPTM 410*	3
RPTM 370 or 435*	3	RPTM 394*	1
Supporting Course in Consultation with Academic Adviser ¹	3	Supporting Course in Consultation with Academic Adviser ¹	3
General Education Course (GWS) (CAS 100, CAS 100A, CAS 100B, CAS 100C, or ENGL/CAS 138T recommended) [‡]	3	Supporting Course in Consultation with Academic Adviser ¹	3
Elective or GQ (if CMPSC 203 not taken) [‡]	3	Elective	4

CAS 283 or CMPSC 203 [‡]	3-4		
		18-19	14
Fourth Year			
Fall		Credits Spring	Credits
RPTM 433W*	3	RPTM 495A*	12
Supporting Course in Consultation with Academic Adviser ¹	3		
Supporting Course in Consultation with Academic Adviser ¹	3		
Supporting Course in Consultation with Academic Adviser ¹	3		
General Education Course (GWS) (ENGL 202D preferred) [‡]	3		
		15	12

Total Credits 123-125

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ Supporting course list: <https://hhd.psu.edu/rptm/undergraduate/supporting-courses> (<https://hhd.psu.edu/rptm/undergraduate/supporting-courses/>).

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

Within the 30 credits of required General Education Domain courses, students must take 6 credits of **Integrative Studies courses**. If you need additional clarification, consult with your academic adviser.

HHD allows up to 6 credits from ROTC study to be counted toward General Education and major requirements. Some programs allow additional ROTC credits to be used for degree requirements.

Outdoor Recreation Management Option: Recreation, Park, and Tourism Management, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
RPTM 101*		3 RPTM 220*	3
RPTM 120 or 120S*		3 General Education Course (Integrative Studies: Inter-Domain)	3
General Education Course (GWS) (ENGL 15, ENGL 30H, ESL 15, ENGL/CAS 137H recommended)‡		3 General Education Course (Exploration)	3
General Education Course (GH)		3 General Education Course (GA)	3
General Education Course (GN)		3 General Education Course (GQ)‡	3
First-Year Seminar		1-2 General Education Course (GHW)	1.5
		16-17	16.5

Second Year

Fall	Credits	Spring	Credits
CMPSC 203 or CAS 283‡		3-4 RPTM 277*	3
RPTM 236*		3 RPTM 390*	3
RPTM 320		3 RPTM 410*	3
Elective or GQ (if CMPSC 203 not taken)‡		3 General Education Course (Integrative Studies: Inter-Domain)	3
General Education Course (Exploration)		3 General Education Course (GHW)	1.5
General Education Course (GS)		3	
		18-19	13.5

Third Year

Fall	Credits	Spring	Credits
RPTM 325*		3 RPTM 230 (or Supporting Course in Consultation with Academic Adviser)	3
RPTM 330*		3 RPTM 326 (or Supporting Course in Consultation with Academic Adviser)	3
RPTM 394*		1 RPTM 327 (or Supporting Course in Consultation with Academic Adviser)	3
RPTM 456*		3 RPTM 425 (or Supporting Course in Consultation with Academic Adviser)	3

General Education Course (GWS) (CAS 100, CAS 100A, CAS 100B, CAS 100C, ENGL/CAS 138T recommended)‡	3 RPTM 430 (or Supporting Course in Consultation with Academic Adviser)	3
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General Education Course (Exploration)	3	
	16	15

Fourth Year

Fall	Credits	Spring	Credits
RPTM 433W*		3 RPTM 495A*	12
RPTM 435		3	
General Education Course (GWS) (ENGL 202D preferred)‡		3	
Elective		4	
		13	12

Total Credits 120-122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Additional Notes:

LIMITATIONS ON SOURCE AND TIME FOR CREDIT ACQUISITION Per Senate policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Most majors in Health and Human Development require students to complete up to 24 credits for the major through courses taken at University Park. Courses taken at other Penn State campuses may not be counted toward this 24 credit minimum.

Advising Notes:

Within the 30 credits of required General Education Domain courses, students must take 6 credits of **Integrative Studies courses**. If you need additional clarification, consult with your academic adviser.

HHD allows up to 6 credits from ROTC study to be counted toward General Education and major requirements. Some programs allow additional ROTC credits to be used for degree requirements.

Professional Golf Management Option: Recreation, Park, and Tourism Management, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits Summer	Credits
PSU 14	1 ECON 102 (GS) [†]	3 RPTM 295A	3
ENGL 15, 30H, or ESL 15 (GWS) [‡]	3 General Education Course (GHW; KINES 93 Recommended)	3	
RPTM 120*	3 RPTM 220*	3	
RPTM 100S	2 RPTM 100B (Counts for elective credits)	3	
General Education Course (GH)	3 General Education Course (GA)	3	
General Education Course (GN)	3 General Education Course (GQ) [‡]	3	
RPTM 100A (Counts for elective credits) ¹	3		
	18	18	3

Second Year

Fall	Credits Spring	Credits Summer	Credits
BA 304	3 RPTM 100B (Counts for elective credits)	0-3 RPTM 395B	3
RPTM 277*	3 RPTM 236*	3	
RPTM 250	2 RPTM 360	3	
RPTM 100A (Counts for elective credits)	0-3 General Education Course (Explorative)	3	
STAT 200 or 100 (GQ) ^{†‡}	3-4 General Education Course (Integrative Studies: Inter-Domain)	3	
Supporting Course (TURF 100 Turfgrass Mgmt. Recommended) ²	3 Supporting Course (ACCTG 211 Recommended) ³	4	
	14-18	16-19	3

Third Year

Fall	Credits Spring	Credits Summer	Credits
BA 303 ⁴	3 RPTM 100B (Counts for elective credit)	0-3 RPTM 495B	3
RPTM 410*	3 RPTM 390*	3	
RPTM 456*	3 RPTM 350	2	
RPTM 100A (Counts for elective credit)	0-3 CAS 100A or 100B (GWS) [‡]	3	
RPTM 254 (Golf Instruction)	2 Elective (BA 302 Recommended for students seeking Smeal Business Certificate)	0-3	
RPTM 336 ²	3 General Education Course (Exploration)	3	
Supporting (BLAW 243 recommended)	0-3 General Education Course (Integrative Studies: Inter-Domain)	3	
	14-20	14-20	3

Fourth Year

Fall	Credits Spring	Credits Summer	Credits
RPTM 495C (Counts for supporting credits in the major)	3 ENGL 202D (GWS) [‡]	3 RPTM 495D (Counts for supporting credits in the major)	2
	HM 466 or RPTM 415 ⁴	3	
	RPTM 100B (Counts for elective credit)	0-3	
	RPTM 433W*	3	
	General Education Course (Exploration)	3	
	Elective (BA 301 recommended for students seeking Smeal Business Certificate)	0-3	
	Elective (RPTM 354 recommended)	0-2	
	3	12-20	2

Total Credits 120-147

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Continuous enrollment in Player Development is required the first year and each semester thereafter until the PGA PAT is passed.

² Fall Only Offering

³ Spring Only Offering

⁴ Students seeking the Sports Studies minor should take BA 303 or RPTM 415

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- Total credits are variable depending on the Business Certificate, the Sports Studies Minor and total credits from Player Development.
- Students who have completed 29.1 credits with a 2.00 cumulative grade-point average are eligible for entrance into the major, except for the Professional Golf Management option.
- First-year students are admitted directly into the Golf Management option at the University Park campus only. In addition to the University's academic requirements, each student admitted to the Golf Management option must have a playing proficiency represented by a minimum golf handicap of 12 or lower. This must be certified in writing by a Professional Golf Association member or golf coach.

Commercial Recreation and Tourism Option: Recreation, Park, and Tourism Management, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
General Education Course (GWS) (ENGL 15, ENGL 30H, ESL 15 recommended) [†]	3	CMPC 203 (or General Education Course - GQ) ^{**††}	4
General Education Course (GH)	3	ECON 102	3
General Education Course (GN)	3	General Education Course (GA)	3
General Education Course (GQ) [‡]	3	General Education Course (GN)	3
General Education Course (GS)	3	Elective	2
PSU First Year Seminar (if required at campus)	0-1		
		15-16	15

Second Year

Fall	Credits	Spring	Credits
CAS 283 (or Elective if CMPC 203 taken as GQ) [‡]	3	Supporting Course in Consultation with Academic Adviser ¹	3
Supporting Course in Consultation with Academic Adviser ¹	3	General Education Course (GSW) (ENGL 202D preferred) [‡]	3
General Education Course (GWS) (CAS 100, CAS 100A, CAS 100B, CAS 100C recommended) [‡]	3	General Education Course (GA)	3
General Education Course (GH)	3	General Education Course (GN)	3
General Education Course (GHW)	1.5	General Education Course (GHW)	1.5
		General Education Course (GS)	3
		13.5	16.5

Third Year

Fall	Credits	Spring	Credits
RPTM 101 [*]	3	RPTM 277 [*]	3
RPTM 120 [*]	3	RPTM 300Y [*]	3
RPTM 210 [*]	3	RPTM 390 [*]	3
RPTM 220 [*]	3	RPTM 394 [*]	1
RPTM 236 [*]	3	RPTM 410 [*]	3

Supporting Course in Consultation with Academic Adviser ¹	2-3	Supporting Course in Consultation with Academic Adviser ¹	3
		17-18	16
Fourth Year			
Fall	Credits Spring		Credits
RPTM 370 or 435 [*]	3 RPTM 495A [*]		12
RPTM 415 [*]	3		
RPTM 433W [*]	3		
RPTM 456 [*]	3		
Supporting Course in Consultation with Academic Adviser ¹	3		
		15	12

Total Credits 120-122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Supporting Course List (<https://hhd.psu.edu/rptm/undergraduate/supporting-courses/>)

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Additional Notes:

LIMITATIONS ON SOURCE AND TIME FOR CREDIT ACQUISITION Per Senate policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Most majors in Health and Human Development require students to complete up to 24 credits for the major through courses taken at University Park. Courses taken at other Penn State campuses may not be counted toward this 24 credit minimum.

Advising Notes:

Within the 30 credits of required General Education Domain courses, students must take 6 credits of **Integrative Studies courses** (Inter-domain or Linked courses). If you need additional clarification, consult with your academic adviser.

Community Recreation Management Option: Recreation, Park, and Tourism Management, B.S. at Commonwealth Campuses

First Year		
Fall	Credits Spring	Credits
General Education Course (GWS) (ENGL 15, ENGL 30H, ESL 15 recommended) [‡]	3 CMPSC 203 (or other General Education Course GQ) ^{*†}	4
General Education Course (GH)	3 ECON 102	3
General Education Course (GN)	3 General Education Course (GA)	3
General Education Course (GQ) [‡]	3 General Education Course (GN)	3
General Education Course (GS)	3 Elective	3
PSU First Year Seminar (if required at campus)	0-1	
15-16		16
Second Year		
Fall	Credits Spring	Credits
CAS 283 (or Elective if CMPSC 203 taken as GQ) [*]	3 General Education Course (GWS) (ENGL 202D preferred) [‡]	3
General Education Course (GWS) (CAS 100, CAS 100A, CAS 100B, CAS 100C recommended) [‡]	3 General Education Course (GA)	3
General Education Course (GH)	3 General Education Course (GN)	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
Supporting Course in Consultation with Academic Adviser ¹	3 Supporting Course in Consultation with Academic Adviser ¹	3
	Elective	2
13.5		15.5
Third Year		
Fall	Credits Spring	Credits
RPTM 101 [*]	3 RPTM 277 [*]	3
RPTM 120 [*]	3 RPTM 334 [*]	3
RPTM 201	3 RPTM 390 [*]	3
RPTM 220	3 RPTM 394 [*]	1
RPTM 236 [*]	3 RPTM 410 [*]	3
Supporting Course in Consultation with Academic Adviser ¹	3 Supporting Course in Consultation with Academic Adviser ¹	3
18		16
Fourth Year		
Fall	Credits Spring	Credits
RPTM 370 or 435 [*]	3 RPTM 495A [*]	12
RPTM 433W [*]	3	
RPTM 456 [*]	3	

Supporting Course in Consultation with Academic Adviser ¹	3
Supporting Course in Consultation with Academic Adviser ¹	3
15	
12	

Total Credits 121-122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Supporting Course List (<https://hhd.psu.edu/rptm/undergraduate/supporting-courses/>)

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Additional Notes:

LIMITATIONS ON SOURCE AND TIME FOR CREDIT ACQUISITION Per Senate policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Most majors in Health and Human Development require students to complete up to 24 credits for the major through courses taken at University Park. Courses taken at other Penn State campuses may not be counted toward this 24 credit minimum.

Advising Notes:

Within the 30 credits of required General Education Domain courses, students must take 6 credits of **Integrative Studies courses** (Inter-domain or Linked courses). If you need additional clarification, consult with your academic adviser.

Outdoor Recreation Management Option: Recreation, Park, and Tourism Management, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
General Education Course (GWS) (ENGL 15, ENGL 30H, ESL 15 recommended) [‡]	3 CMPSC 203 (or other General Education Course GQ) ^{*††}	3-4
General Education Course (GH)	3 General Education Course (GA)	3
General Education Course (GN)	3 General Education Course (GN)	3
General Education Course (GQ)	3 General Education Course (GS)	3
General Education Course (GS)	3	
PSU First-Year Seminar (if required at campus)	0-1	

15-16

12-13

Second Year

Fall	Credits Spring	Credits
CAS 283 (or Elective if CMPSC 203 taken as GQ)	3 RPTM 120 (hybrid web section) [*]	3
General Education Course (GWS) (CAS 100, CAS 100A, CAS 100B, CAS 100C recommended) [‡]	3 General Education Course (GWS) (ENGL 202D preferred) [‡]	3
General Education Course (GA)	3 General Education Course (GH)	3
General Education Course (GN)	3 General Education Course (GHW)	1.5
General Education Course (GHW)	1.5 Elective	2-3

13.5

12.5-13.5

Third Year

Fall	Credits Spring	Credits
RPTM 101 [*]	3 RPTM 230 (or Supporting Course in Consultation with Academic Adviser)	3
RPTM 220	3 RPTM 326 (or Supporting Course in Consultation with Academic Adviser)	3
RPTM 236 [*]	3 RPTM 327 (or Supporting Course in Consultation with Academic Adviser)	3
RPTM 277 [*]	3 RPTM 425 (or Supporting Course in Consultation with Academic Adviser)	3

RPTM 320 [*]	3 RPTM 470 (or Supporting Course in Consultation with Academic Adviser)	3
RPTM 325 [*]	3 RPTM 430 (or Supporting Course in Consultation with Academic Adviser)	3
18		18

Fourth Year

Fall	Credits Spring	Credits
RPTM 330 [*]	3 RPTM 495A [*]	12
RPTM 390 [*]	3	
RPTM 394 [*]	1	
RPTM 410 [*]	3	
RPTM 433W [*]	3	
RPTM 435 [*]	3	
RPTM 456 [*]	3	
19		12

Total Credits 120-123

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Additional Notes:

LIMITATIONS ON SOURCE AND TIME FOR CREDIT ACQUISITION Per Senate policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Most majors in Health and Human Development require students to complete up to 24 credits for the major through courses taken at University Park. Courses taken at other Penn State campuses may not be counted toward this 24 credit minimum.

Advising Notes:

Within the 30 credits of required General Education Domain courses, students must take 6 credits of **Integrative Studies courses** (Inter-domain or Linked courses). If you need additional clarification, consult with your academic adviser.

Career Paths

Careers in Recreation, Park and Tourism Management (RPTM) include management positions in commercial resorts, event management businesses, golf courses and golf industry businesses, national and local park systems, environmental centers, outdoor adventure businesses and sports, fitness and recreation facilities in communities, universities, workplaces, military settings, and other locations. Graduate programs in RPTM educate students about research, theory and practice related to leisure and recreation of individuals and groups, including societal and cross-cultural dimensions. RPTM students can also use their degree to prepare for additional graduate training in public health, public administration, public policy, health administration, business or law.

Careers

Careers for RPTM graduates typically fit with the options within the degree program, including positions in:

- Commercial Recreation, Event and Tourism Management positions such as resort and cruise recreation director, travel and tourism management, corporate recreation and events planning, and sport and fitness venue management, including our Professional Golf Management option.
- Community and Nonprofit Recreation Management positions, including roles in community recreation centers, military recreation leadership, youth camp or senior center management and related positions.
- Outdoor Adventure and Natural Resource Management positions, such as park ranger, environmental or outdoor educator, wilderness program supervisor and outdoor recreation planner, among others.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE RECREATION, PARK, AND TOURISM MANAGEMENT PROGRAM (<https://hhd.psu.edu/rptm/undergraduate/career-opportunities/>)

Opportunities for Graduate Studies

Whether you are looking for a master's degree or your doctorate in RPTM, our multi-disciplinary graduate program is designed to educate students about research, theory and practice related to recreation, parks, tourism and leisure. Both the master of science (M.S.) and the doctor of philosophy (Ph.D.) programs help you develop an understanding of the social, environmental, psychological and economic aspects of human behavior in relation to the experience and delivery of recreation, park, tourism and leisure activities.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://hhd.psu.edu/rptm/graduate/rptm-graduate-career-opportunities/>)

Professional Resources

- Professional Golfers' Association of America (<https://www.pga.org>)
- Kurt Hahn Consortium for Values and Experiential Learning (<https://hhd.psu.edu/rptm/research/research-labs-and-initiatives/kurt-hahn-consortium-values-and-experiential-learning-1/>)
- Denali National Park and Preserve (<https://hhd.psu.edu/rptm/research/research-labs-and-initiatives/outdoor-recreation-protected-area-and-environmental-education-research-group/>)
- Shaver's Creek Environmental Center (<https://www.shaverscreek.org>)
- National Park and Recreation Association (<https://www.nrpa.org>)
- Pennsylvania Recreation and Park Society (<https://prps.org>)

- Equity in Parks and Recreation (<https://www.nrpa.org/our-work/Three-Pillars/equity/>)
- PGA of America Diversity, Equity & Inclusion (<https://www.pga.com/pga-of-america/pga-of-america-diversity-equity-and-inclusion/>)

Accreditation

Accredited by the Professional Golfers' Association of America, the PGM option helps prepare students to manage golf facilities and programs within diverse settings including private, public, resort and military sectors. In addition, students may choose career paths related to marketing/sales of golf equipment and apparel, teaching and coaching, as well as tournament operations.

MORE INFORMATION ABOUT ACCREDITATION OF THE RECREATION, PARK, AND TOURISM MANAGEMENT PROGRAM (<https://hhd.psu.edu/rptm/undergraduate/major-recreation-park-and-tourism-management/pga-professional-golf-management-4/>)

Contact

University Park

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814-865-7034
kmp39@psu.edu

<https://hhd.psu.edu/rptm/contact/faculty-staff> (<https://hhd.psu.edu/rptm/contact/faculty-staff/>)

World Campus

DEPARTMENT OF RECREATION, PARK, AND TOURISM MANAGEMENT
801 Ford Building
University Park, PA 16802
814-865-1851
bjs48@psu.edu

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-recreation-park-and-tourism-management-bachelor-of-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-recreation-park-and-tourism-management-bachelor-of-science-degree/>)

Abington

DIVISION OF SOCIAL SCIENCES
1600 Woodland Road
Abington, PA 19001
215-881-7528
jab908@psu.edu

<https://www.abington.psu.edu/academics/majors-at-abington/recreation-park-and-tourism-management> (<https://www.abington.psu.edu/academics/majors-at-abington/recreation-park-and-tourism-management/>)

Greater Allegheny

RECREATION PARK & TOURISM MANAGEMENT
Main Building, 104B
4000 University Drive
McKeesport, PA 15132
412-675-9052

kkm6102@psu.edu

<https://greaterallegHENY.psu.edu/academics/degree-programs/recreation-park-tourism-management> (<https://greaterallegHENY.psu.edu/academics/degree-programs/recreation-park-tourism-management/>)

Recreation, Park, and Tourism Management, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The minor in Recreation, Park, and Tourism Management provides an introduction to recreation/leisure services, and emphasizes professional skills essential for successful delivery of these services. Examples of settings offering recreation/leisure services include resorts, theme parks, convention centers, sports and fitness facilities, private corporations, nonprofit agencies, governmental agencies (municipal, state, and federal levels), armed services, colleges and universities, correctional facilities, camps, public parks, nature centers, hospitals and other health care agencies.

Students who minor in Recreation, Park, and Tourism Management gain knowledge and competencies in recreation leadership, program development and implementation, and administration of recreation services. In addition, students explore the relevance of recreation and leisure in their own lives. Support courses enable the student to focus on specialized services, such as commercial recreation and tourism, community recreation, park management, event management, and environmental interpretation.

You Might Like This Program If...

You like to work with people and want to work in a field that provides experiences for participants through events, specialized facilities, hands on experiences, tourism and recreation and in the outdoors.

MORE INFORMATION ABOUT RECREATION, PARK, AND TOURISM MANAGEMENT (<https://hhd.psu.edu/rptm/undergraduate/minor-recreation-park-and-tourism-management/>)

Program Requirements

Requirement	Credits
Requirements for the Minor	21

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
RPTM 101	Introduction to Recreation Services	3
RPTM 120	Leisure and Human Behavior	3

RPTM 236	Leadership and Group Dynamics in Recreation Services	3
RPTM 456	Programming in Recreation Services	3
RPTM 410	Marketing of Recreation Services	3

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 6 credits in RPTM, three of which must be from 400-level RPTM courses	6
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Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Laura Hennessey
Academic Adviser
701B Ford Building
University Park, PA 16802
814-863-8989
lah197@psu.edu

Career Paths

A minor in Recreation, Park, and Tourism Management can be an excellent complementary set of courses for students interested in working or going on the graduate school in several fields, including hospitality management, kinesiology, human development and family studies, environmental or educational fields and more. The specialized business knowledge of how programs and organizations in the RPTM field can enrich opportunities for students who will work in these fields as they partner with RPTM organizations.

Careers

Effective and engaging use of leisure time is an increasingly important part of American society, as well as an issue for an increasingly global world. Whether working in human resources, community nonprofits, business development or more, an RPTM minor can be a differentiator in highlighting a student's ability to connect with the interests in recreational facilities, national parks or tourism and travel.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN RECREATION, PARK, AND TOURISM MANAGEMENT (<https://www.nrpa.org/careers-education/>)

Opportunities for Graduate Studies

Students interested in graduate studies in hospitality or sports management, environmental tourism and sustainability, business, law, or related fields may find the RPTM minor helpful.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://hhd.psu.edu/rptm/recreation-park-and-tourism-management-graduate-program/>)

Contact

University Park

DEPARTMENT OF RECREATION, PARK, AND TOURISM MANAGEMENT
801 Ford Building
University Park, PA 16802
814-863-8989
lah197@psu.edu

<https://hhd.psu.edu/rptm/contact> (<https://hhd.psu.edu/rptm/contact/>)

Sport Studies, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Sport Studies minor is a broad, interdisciplinary, intercollege educational program for teaching students how to critically explore the role of sport (broadly defined) in human societies. It brings together the multitude of scholarly resources that Penn State currently possesses in the study of sport in society into a coherent program to provide novel learning opportunities for undergraduates. The Sport Studies minor fosters a critical understanding of sport in human societies. The program stresses the connections between sport and other social institutions and cultural concepts, examines sporting traditions across cultures and time periods, and analyzes sport from a multiple methodological perspectives. The minor examines the role of sport in shaping identities - including ethnic, racial, class, and gender identities as well as local, regional, national, and global identities. The minor explores how the commercialization of sport effects the way it is marketed and the extent to which economic incentives shape sport and how other businesses use sport. The minor also employs sport to explore the relationships between multiple knowledge domains - from the Arts, Humanities, Business, Law, and the Sciences (including the Health Sciences, Natural Sciences, and the Social and Behavioral Sciences) - that provide a broad overview of the world we inhabit.

What is Sport Studies?

Sport Studies is an interdisciplinary field that examines the social, cultural, historical, ethical, philosophical, psychological, organizational, and economic aspects of sport and physical activity. It delves into the relationships between sport and society, including issues of gender, race, ethnicity, (dis)ability, social class, and religion. Through research and critical analysis, Sport Studies explores topics such as sport media, governance, fan behavior, marketing, and globalization. Sport Studies contributes to our understanding of human behavior, social dynamics, and the broader cultural significance of sport worldwide.

You Might Like This Program If...

- You want to gain insights into social issues through sport
- You want to explore diverse aspects of sport, from history to economics
- You want to analyze the interactions between sport, culture, and identity
- You want to pursue careers in sports journalism, management, marketing, ethics, history, or research

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 6 credits from the following:		6
AFAM 114N	Race, Gender and Sport	
ASIA 101N	Sports in Asia	
COMM 170	Introduction to the Sports Industry	
ENGL 234	Sports, Ethics, and Literature	
HIST 113	Baseball in Comparative History	
KINES 100	The Cultural and Behavioral Foundations of Kinesiology	
RPTM 120	Leisure and Human Behavior	

Supporting Courses and Related Areas

<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 12 credits of electives, at least 6 of which must be at the 400-		12
level:		
AMST/KINES 441	History of Sport in American Society	
AFAM 114N	Race, Gender and Sport	
ASIA 101N	Sports in Asia	
CAMS/KINES 442		
COMM 170	Introduction to the Sports Industry	
COMM 412	Sports, Media and Society	
COMM 476	Sports Writing	
COMM 477	Sports Broadcasting	
COMM 478	Sports Information	
COMM 498	Special Topics	
ECON 460	Issues in Sports Economics	
ECON 447W		
ENGL 234	Sports, Ethics, and Literature	
HDFS/KINES 427	Developmental Sport & Exercise Psychology	
HIST 113	Baseball in Comparative History	
LHR 459	Collective Bargaining in Professional Sports	

KINES 100	The Cultural and Behavioral Foundations of Kinesiology
KINES 321	Psychology of Movement Behavior
KINES 341	The Historical, Cultural, and Social Dynamics of Sport
KINES 345	Meaning, Ethics, and Movement
KINES 419	Disability Sport and Recreation
KINES 420	Psychosocial Dimensions of Physical Activity
KINES 421	Exercise Psychology
KINES 422	Physical Activity Interventions
KINES 423	Psychology of Sports Injuries
KINES/ WMNST 424	Women and Sport
KINES 425W	Physical Activity in Diverse Populations
KINES 426	Physical Activity and Public Health
KINES 428	Motivation and Emotion in Movement
KINES 429	Psychology of Sport Performance
KINES 439W	
KINES 440	Philosophy and Sport
KINES 446	History of Sport in the Modern World
KINES 447W	Representing Sport in Popular Film
KINES 486	
KINES 493	Principles and Ethics of Coaching
KINES 493W	Principles and Ethics of Coaching
MKTG 443	Sports Marketing
MKTG 449	Sports Business Market Strategy
RPTM 120	Leisure and Human Behavior
RPTM 201	Introduction to Community Recreation
RPTM 210	Introduction to Commercial Recreation and Tourism
RPTM 277	Inclusive Leisure Services
RPTM 300Y	Tourism and Leisure Behavior
RPTM 320	Recreation Resource Planning and Management
RPTM 390	Political and Legal Aspects of Recreation Services
RPTM 410	Marketing of Recreation Services
RPTM 415	Commercial Recreation Management
RPTM 435	Recreation Facilities Planning and Management
RPTM 470	Recreation and Park Management

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Jaime Schultz

Professor of Kinesiology
268M Recreation Building
University Park, PA 16802
814-865-1032
jaimeschultz@psu.edu

Career Paths

Upon completing an undergraduate degree that includes a minor in Sport Studies, students can pursue various career paths. Opportunities include roles in sport journalism, management, marketing, and research. Participants may choose to further their education by pursuing graduate studies in fields such as sports management, sports psychology, or sports sociology. Advanced degrees can lead to positions in research, higher education, or specialized roles within the sport industry.

Careers

Completing an undergraduate degree that includes a minor in Sports Studies opens doors to entry-level positions such as sport analyst, marketing assistant for sport organizations, athletic program coordinator, consultant, and journalist. These opportunities provide avenues to apply knowledge gained in Sports Studies while exploring diverse aspects of the sports industry.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN SPORT STUDIES (<https://www.jobsinsports.com/blog/>)

Opportunities for Graduate Studies

Upon completing an undergraduate degree with a minor in Sports Studies, students can pursue graduate studies in specialized areas such as sport history, sport philosophy, sport management, sport communications, sport psychology, and sport sociology. Graduate programs offer opportunities for advanced research, internships, and mentorship, preparing students for leadership roles in the sports industry, academia, or research institutions.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://hhd.psu.edu/kines/graduate/master-science-kinesiology/>)

Contact

University Park

DEPARTMENT OF KINESIOLOGY
276 Recreation Building
University Park, PA 16802
814-863-1163
KINESinfo@psu.edu

<https://hhd.psu.edu/kines/undergraduate/minor-kinesiology/minor-sport-studies> (<https://hhd.psu.edu/kines/undergraduate/minor-kinesiology/minor-sport-studies/>)

Information Sciences and Technology

About the College

Andrea Tapia, Dean, Information Sciences and Technology

In the College of Information Sciences and Technology (IST), we're about solving problems – not those found only in textbooks, but real-world problems that impact everyday lives. Our students are challenged to think critically and work in teams, leveraging information and using technology to tackle the greatest challenges of the 21st century. An IST education is one-of-a-kind. Our faculty bring expertise and projects from industry, government, the military, and non-profit organizations to the classroom. Our students develop career versatility by blending technological expertise with skills in business, computer science, psychology, engineering, sociology, mathematics, law, and other fields. And our graduates demonstrate their technical and interpersonal skills in a variety of unique careers to become leaders in the information age. In the College of IST, we thrive at the intersection of information, technology, and people, finding ways to improve the way we live, work, and play.

MORE INFORMATION ABOUT THE COLLEGE (<https://ist.psu.edu/about/>)

Mission and Goals

The College of Information Sciences and Technology fosters an inclusive and diverse community engaged in innovative interdisciplinary education, research, and service to prepare leading professionals and scholars who leverage technology and critical thinking skills to solve the complex challenges of an information society.

MORE INFORMATION ABOUT THE MISSION AND GOALS OF THE COLLEGE OF INFORMATION SCIENCES AND TECHNOLOGY (<https://ist.psu.edu/about/we-are/mission/>)

Baccalaureate Degrees

- Cybersecurity Analytics and Operations, B.S. (Information Sciences and Technology)
- Data Sciences, B.S. (Information Sciences and Technology)
- Enterprise Technology Integration, B.S. (Information Sciences and Technology)
- Human-Centered Design and Development, B.S. (Information Sciences and Technology)
- Information Sciences and Technology, B.S. (Information Sciences and Technology)
- Security and Risk Analysis, B.S. (Information Sciences and Technology)

Associate Degrees

- Information Sciences and Technology, A.S. (Information Sciences and Technology)

Minors

- Information Sciences and Technology, Minor
- Security and Risk Analysis, Minor

Certificates

- Information Sciences and Technology, Certificate
- National Security Agency, Certificate
- Security and Risk Analysis, Certificate

College Procedures

Administrative Enrollment Controls

Students should work with an appropriate academic adviser to determine their Entrance to Major (ETM) requirements for their intended College of Information Sciences and Technology major.

MORE INFORMATION ABOUT ADMINISTRATIVE ENROLLMENT CONTROLS FOR PROGRAMS IN THE COLLEGE OF INFORMATION SCIENCES AND TECHNOLOGY (p. 3153)

Change of Campus

Undergraduate students can request a permanent or temporary change of campus through their Student Center in LionPATH. Students should discuss this decision with their assigned academic adviser. The change of major and change of campus are two separate and distinct processes. Change of majors should always be completed first.

MORE INFORMATION ABOUT CHANGE OF CAMPUS (<https://ist.psu.edu/current/undergraduate/advising/>)

Concurrent Majors

A Concurrent Majors Program is one in which students take courses to concurrently meet the requirements of at least two majors, with graduation for all majors in the program occurring during the same semester. Requests for a concurrent major or majors can be made, at the earliest, once the student has been approved for their primary major and has met the Entrance-to-Major requirements for the concurrent major. This varies depending on the primary college of enrollment and entrance to major criteria.

READ SENATE POLICY 60-00: COMPLETING MORE THAN ONE UNDERGRADUATE MAJOR PROGRAM (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/60-00-completing-more-than-one-undergraduate-program/#60-00>)

MORE INFORMATION ABOUT CONCURRENT MAJORS (<https://ist.psu.edu/current/undergraduate/advising/>)

Academic Warning

A student who fails to earn a 2.00 cumulative grade-point average will be placed on academic warning. A student placed on academic warning will have a hold placed on registration and will be required to meet with an academic adviser in order for this registration hold to be removed. To remove academic warning, the cumulative grade-point average must be 2.00 or higher.

Students on academic warning should work closely with their assigned academic adviser to identify and address issues impacting their academic success.

READ SENATE POLICY 54-20: ACADEMIC WARNING (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-20>)

MORE INFORMATION ABOUT ACADEMIC WARNING (<https://ist.psu.edu/current/undergraduate/advising/>)

Academic Suspension

A student in academic warning who fails to maintain a semester grade-point average of 2.00 or higher will be academically suspended. A student who has been academically suspended may not schedule courses at

the University for two consecutive semesters. (Note: Summer session is equal to one semester.)

A student seeking to return to the College of IST after academic suspension is required to meet with an academic adviser and follow the procedures outlined by the College of IST Undergraduate Advising Office.

READ SENATE POLICY 54-40: ACADEMIC SUSPENSION (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-40>)

MORE INFORMATION ABOUT ACADEMIC SUSPENSION (<https://ist.psu.edu/current/undergraduate/advising/>)

Resources

Undergraduate Academic Advising

IST's academic advisers help undergraduate students achieve their fullest academic potential by assisting with course selection, reviewing degree audits, and planning for individual goals like enrolling in concurrent majors or education abroad.

MORE INFORMATION ABOUT UNDERGRADUATE ACADEMIC ADVISING (<https://ist.psu.edu/current/undergraduate/advising/>)

Career Solutions

The Office of Career Solutions and Corporate Engagement assists students with pursuing their internship and career-related goals. They offer a variety of programs, services, and resources to help students pursue professional opportunities such as resume reviews, career fairs, networking events, and job and internship postings.

MORE INFORMATION ABOUT CAREER SOLUTIONS (<https://ist.psu.edu/current/careers/>)

Inclusion and Diversity Engagement

The Office of Inclusion and Diversity Engagement works to support a welcoming and inclusive community in the College of IST. They aim to create and maintain an equitable climate by developing strategies that engage and retain students, faculty, and staff from underrepresented groups, including women.

MORE INFORMATION AND INCLUSION AND DIVERSITY ENGAGEMENT (<https://ist.psu.edu/about/diversity/>)

Student Engagement

IST offers a variety of student engagement experiences including education abroad, student organizations, undergraduate research, and experiential programs like alternative spring break and Penn State Startup Week. Each supplements a student's academic experience by offering engaged scholarship to complement what they learn in the classroom.

MORE INFORMATION ABOUT STUDENT ENGAGEMENT (<https://ist.psu.edu/current/undergraduate/engagement/>)

Honors Programs

Schreyer Honors College

The Schreyer Honors College, regarded as one of the nation's top programs of its kind, promotes achieving academic excellence with integrity, building a global perspective, and creating opportunities for leadership and civic engagement. Schreyer Scholars, including those admitted after their first or second year of enrollment, are a diverse and

motivated group of approximately 2,000 students at University Park and 20 Commonwealth campuses. The College strives to educate students who will have an important and ethical influence in the world, to improve educational practice, and to continue to be recognized as a leading force in honors education nationwide.

MORE INFORMATION ABOUT THE SCHREYER HONORS COLLEGE (<https://www.shc.psu.edu>)

Honors in the College of Information Sciences and Technology

The College of Information Sciences and Technology partners with the Schreyer Honors College to offer an honors education to IST students. Our goal is to produce critical thinkers who push the boundaries of what we know, and thoughtful researchers who undertake meaningful and rigorous studies of the impact of information technologies on individuals, organizations, and society. The College of IST offers courses (including independent studies and research project courses), a thesis experience, research opportunities, internships, study abroad experiences, graduate opportunities, and advising to students who seek an honors education.

MORE INFORMATION ABOUT HONORS IN THE COLLEGE OF INFORMATION SCIENCES AND TECHNOLOGY (<https://ist.psu.edu/current/undergraduate/honors/>)

Contact

COLLEGE OF INFORMATION SCIENCES AND TECHNOLOGY
411 Eric J. Barron Innovation Hub Building
University Park, PA 16802
814-865-8947

<https://ist.psu.edu/about/contact> (<https://ist.psu.edu/about/contact/>)

Cybersecurity Analytics and Operations, B.S. (Information Sciences and Technology)

Begin Campus: Any Penn State Campus

End Campus: University Park, World Campus

Program Description

The Bachelor of Science in Cybersecurity Analytics and Operations in the College of Information Sciences and Technology (IST) is an interdisciplinary program that prepares students for careers as cybersecurity professionals. It educates students on the essential concepts of cyber-defense and the analytical fundamentals of cybersecurity, with a focus on the analytical and risk management underpinnings and associated cyber-defense techniques and strategies for ensuring the safety of online information stored in large and heterogeneous networks that are embedded within and across the complex socio-technical infrastructures that are pervasive in today's business, government and military organizations. Students will acquire the knowledge and skills needed to critically assess and respond to modern information security threats, using approaches that are grounded in a holistic understanding of adversarial strategies and effective responses. More specifically, it will offer an in-depth and domain-independent approach to the development of skills in cyberdefense technologies, tools and processes; cybersecurity analytics and visualization; and cybersecurity risk analysis and management.

The major draws from concepts and skills associated with a number of disciplines, including information science, management science, statistics and data science, human behavior, and law/policy. Graduates will be prepared to join the rapidly growing cybersecurity workforce deployed across organizations of diverse sizes and missions.

What is Cybersecurity Analytics and Operations?

Cybersecurity is a field that deals with the protection of computer systems, networks, programs, and data from attacks and unauthorized access. This includes the development of cyber defense tools to protect critical infrastructure as well as the analysis and mitigation of cyber threats.

Cybersecurity is a very broad field. This program focuses students beyond the information technology field and instead focuses on the analysis of cybersecurity data, identification of cyber incidents, understanding the actions of malware, communication of concerns to business stakeholders and the general public. High performing cyber analysts have a strong mathematical and computational background. They often employ computer programming and scripting to solve problems and integrate existing tools. They analyze the data they are presented with from intrusion detection sensors, firewalls, and anti-malware tools.

Cybersecurity professionals apply their skills for organizations to prevent cyber criminals, hacktivists, and persistent nation-state actors. They protect organizations, companies, healthcare institutions, and government agencies from the loss of confidential data. They keep abreast of new developments technically, as well as those in the work domain of the organization and events that occur in the world at large.

MORE INFORMATION ABOUT CYBERSECURITY ANALYTICS AND OPERATIONS (<https://ist.psu.edu/prospective/undergraduate/academics/cybersecurity/>)

You Might Like This Program If...

- You enjoy working with and on computers as well as their operating systems and applications.
- You have an interest in business and organizations and securing
- You want to protect digital information, data stores, and computer networks from threats.
- You want to learn the cyber defense strategies used to anticipate, recognize, and defend against computer attacks.
- You're passionate about how we can keep sensitive information out of the hands of hackers, cybercriminals, and terrorist organizations.
- You enjoy working on a team to solve technical problems for organizations.
- You are interested in computer programming and mathematics.

MORE INFORMATION ABOUT WHY STUDENTS CHOOSE TO STUDY CYBERSECURITY ANALYTICS AND OPERATIONS (<https://ist.psu.edu/prospective/undergraduate/academics/cybersecurity/>)

Entrance to Major University Park

This program currently has administrative enrollment controls. Administrative Enrollment Controls are initiated when limitations of space, faculty, or other resources in a major prevent accommodating all students who request them. Students must follow the administrative

enrollment controls that are in effect for the semester that they enter the university.

First-Year Students Entering Summer 2024, Fall 2024, Spring 2025

In order to be eligible for entrance to this major, students must satisfy the following requirements:

- be enrolled in the College of Information Sciences and Technology or the Division of Undergraduate Studies
- 40-70 graded Penn State credits (excludes transfer and AP credits)
- completed with a grade of C or better: CYBER 100/CYBER 100S, IST 210, IST 220, IST 242 or CMPSC 122 or CMPSC 132, STAT 200 or SCM 200
- earned a minimum cumulative grade-point average (GPA) of 2.90

Students Who Entered Prior to Summer 2024

Students who entered the University from Summer 2018 through Spring 2024 should view the administrative enrollment controls in the appropriate Undergraduate Bulletin archive (<https://bulletins.psu.edu/undergraduate/archive/>). Students who entered the University prior to the summer 2018 semester should consult with their academic adviser about the administrative enrollment controls in effect for the semester they entered the university.

World Campus

To be eligible for the Cybersecurity Analytics and Operations major, students must:

1. Have completed the following entrance-to-major requirements with a grade of C or better in each: CYBER 100 or CYBER 100S, IST 210, IST 220, IST 242 or CMPSC 122 or CMPSC 132, and STAT 200 or SCM 200.
2. Have achieved a minimum cumulative grade point average of 2.00 prior to and through the end of the semester during which the entrance to major is requested.

Degree Requirements

For the B.S. degree in Cybersecurity Analytics and Operations, a minimum of 123 credits is required:

Requirement	Credits
General Education	45
Electives	3
Requirements for the Major	87

12 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GQ courses, 3 credits of GS courses, 3 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CYBER 262	Cyber-Defense Studio	3
CYBER 342W	Cyber Incident Handling and Response	3

CYBER 362	Cybersecurity Analytics Studio	3
CYBER 366	Malware Analytics	3
CYBER 440	Cybersecurity Capstone	3
IST 210	Organization of Data	3
IST 220	Networking and Telecommunications	3
IST 230	Language, Logic, and Discrete Mathematics	3
IST 432	Legal and Regulatory Environment of Information Science and Technology	3
IST 451	Network Security	3
IST 454	Computer and Cyber Forensics	3
IST 456	Information Security Management	3
IST 495	Internship	1
SRA 111	Introduction to Security and Risk Analysis	3
SRA 211	Threat of Terrorism and Crime	3
SRA 221	Overview of Information Security	3
SRA 231	Decision Theory and Analysis	3
SRA 311	Risk Analysis in a Security Context	3
SRA 365	Statistics for Security and Risk Analysis	3

Additional Courses

Additional Courses: Require a grade of C or better

CYBER 100	Computer Systems Literacy	3
or CYBER 100S Computer Systems Literacy		
ENGL 202C	Effective Writing: Technical Writing	3
or ENGL 202D Effective Writing: Business Writing		
MATH 110	Techniques of Calculus I	4
or MATH 140 Calculus With Analytic Geometry I		
STAT 200	Elementary Statistics	4
or SCM 200 Introduction to Statistics for Business		
Select one of the following:		3
CMPSC 121	Introduction to Programming Techniques	
CMPSC 131	Programming and Computation I: Fundamentals	
IST 140	Introduction to Application Development	
Select one of the following:		3
CMPSC 122	Intermediate Programming	
CMPSC 132	Programming and Computation II: Data Structures	
IST 242	Intermediate & Object-Oriented Application Development	
Select one of the following:		3
IST 256	Programming for the Web	
IST 261	Application Development Design Studio I	
IST 361	Application Development Design Studio II	

Supporting Courses and Related Areas

Select 9 credits from one of the Application Focus course lists. At least 3 credits must be at the 400-level. Students may also complete a custom Application Focus sequence with approval from an academic adviser and a CYBER undergraduate program coordinator. 9

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate

students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Cybersecurity Analytics and Operations and M.S. in Cybersecurity Analytics and Operations

Available at the following campuses: University Park

Requirements for the Integrated B.S. in Cybersecurity Analytics and Operations and M.S. in Cybersecurity Analytics and Operations can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/cybersecurity-analytics-operations/#integratedundergradgradtext>).

Integrated B.S. in Cybersecurity Analytics and Operations and M.P.S. in Cybersecurity Analytics and Operations

Available at the following campuses: World Campus

Requirements for the Integrated B.S. in Cybersecurity Analytics and Operations and M.P.S. in Cybersecurity Analytics and Operations can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/cybersecurity-analytics-operations/#integratedundergradgradtext>).

Integrated B.S. in Cybersecurity Analytics and Operations and M.S. in Informatics

Available at the following campuses: University Park

Requirements for the Integrated B.S. in Cybersecurity Analytics and Operations and M.S. in Informatics can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/informatics/#integratedundergradgradprogramstext>).

Program Learning Objectives

- **Knowledge/Application:** Understand and apply the interdisciplinary knowledge of information sciences in a security context to recognize, analyze, defend against, and manage cyber risks.
 - Understand the components and interoperability of computer hardware, operating systems, networks and databases.
 - Demonstrate proficiency in programming and scripting to perform Cybersecurity automation and analysis.
 - Understand Cyber threats and appropriate defensive designs and tools to mitigate the risk of attack.

- Understand the procedures for Cybersecurity Incident Handling and Response.
- Understand the static and dynamic analysis of malware.
- **Problem-Solving:** Understand, apply and adapt various problem solving strategies, using appropriate technology and methods.
 - Identify Cybersecurity threats and implement complementary defensive measures to mitigate risk.
 - Apply data analytics in a security context to analyze, predict and prevent cyberattacks.
 - Perform malware analysis and forensics to understand the nature and origin of attacks.
 - Evaluate several Cybersecurity frameworks and provide analysis that culminates in a high level executive briefing exercise.
- **Evaluation and Communication (Individual and Team):** Communicate and work effectively (both individually and in teams) with a range of perspectives and audiences through a variety of media.
 - Synthesize data from multiple sources to help make informed decisions.
 - Communicate effectively to a variety of audiences through writing and the spoken word.
- **Professional Responsibilities:** Understand professional responsibilities in terms of the ethical, legal and security policy aspects of information assurance and security.
 - Understand the rules, regulations and issues related to compliance with applicable laws and regulations related to Information Security and Privacy.
 - Understand the legal and ethical ramifications of violating the trust that organizations will place in you as a Cybersecurity professional.
- **Lifelong Learning:** Commit to the continuous acquisition of relevant knowledge for professional development by self-teaching and/or on-going education and certification.
 - Employ information-seeking strategies and self-directed learning in pursuit of current knowledge.
 - Enroll in professional development and pursue industry certifications to enhance your career and the profession.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Undergraduate Academic Advising Center

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World Campus

Undergraduate Academic Advising

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Cybersecurity Analytics and Operations, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
IST 140*	3 IST 220*#	3
CYBER 100S*#	3 SRA 111*	3
MATH 110*†	4 STAT 200*‡#	4
ENGL 15, CAS 100A, or CAS 100B (GWS)	3 ENGL 15, CAS 100A, or CAS 100B (GWS)	3
General Education Course (GA/GH)	3 General Education Course (GS) ¹	3

16

16

Second Year

Fall	Credits Spring	Credits
IST 210 ^{*#}	3 IST 261 or 256 [*]	3
IST 242 ^{*#}	3 SRA 221 [*]	3
CYBER 262 [*]	3 SRA 211 [*]	3
General Education Course (GN)	3 IST 230 [*]	3
Application Focus Selection 1	3 General Education Course (GN)	3
	15	15

Third Year

Fall	Credits Spring	Credits Summer	Credits
CYBER 362 [*]	3 CYBER 342W [*]	3 IST 495 ^{*2}	1
SRA 231 [*]	3 SRA 311 [*]	3	
SRA 365 [*]	3 CYBER 366 [*]	3	
ENGL 202C or 202D [†]	3 Application Focus Selection 2	3	
General Education Course (GHW)	1.5 General Education Course (GA/GH)	3	
General Education Course (GA/GH)	3		
	16.5	15	1

Fourth Year

Fall	Credits Spring	Credits
IST 432 [*]	3 CYBER 440 [*]	3
IST 451 [*]	3 IST 454 [*]	3
IST 456 [*]	3 Application Focus Selection 3	3
General Education Course (GN)	3 General Education Course (GA/GH)	3
General Education Course (GHW)	1.5 Elective	3
	13.5	15

Total Credits 123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Consider courses that are prerequisites for an application focus

² 1 credit of IST 495 is required. A grade of "SA" must be earned in this course. This course can be completed at any time before graduation.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Application Focus Areas:

Students pick one of the seven tracks below or create a custom 3-course application focus. Students must pick three (3) credits at the 400 level. All nine (9) credits must be in the same application focus area. It is recommended that students use the application focus area list to select a course that meets a General Education requirement (GS/GHW) and serves as a prerequisite for more advanced coursework within the application focus. This course does not count as part of the 9 credits of application focus sequence.

Application Development

Code	Title	Credits
IST 311	Object-Oriented Design and Software Applications	3
IST 331	Foundations of Human-Centered Design	3
IST 361	Application Development Design Studio II	3
IST 402	Emerging Issues and Technologies	3
IST 411	Distributed-Object Computing	3
IST 412	The Engineering of Complex Software Systems	3

Economics

The Economics focus is for students who have an interest in pursuing cybersecurity careers in the financial services sector or government. Designed to help students understand today's financial and economic environments, this focus highlights the importance of translating the financial and economic impact of cybersecurity activities to effectively manage any program.

Code	Title	Credits
BA 301	Finance	3
or FIN 301	Corporation Finance	
BLAW 243	Legal Environment of Business	3
ECON 302	Intermediate Microeconomic Analysis	3
ECON 399	Foreign Studies	1-12
ECON 402	Decision Making and Strategy in Economics	3
ECON 438	Winners and Losers from Globalization	3
ECON 445	Health Economics	3
ECON 447	Economics of Sports	3

ECON 470	International Trade and Finance	3	GEOG 333	Human Dimensions of Natural Hazards	3
ECON 479	Economics of Matching	3	GEOG 363	Geographic Information Systems	3
HPA 445	Health Economics	3	IB 440	Globalization and Its Implications	3
PLSC 412	International Political Economy	3	IST 301	Information and Organizations	3
PLSC 481	Global Political Economy	3	PLSC 291	Introduction to Peace and Conflict Studies	3

ENTERPRISE TECHNOLOGY

Code	Title	Credits
BA 302	Supply Chains	3
ETI 300W	Development and Documentation of Enterprise Web	3
ETI 435	Enterprise Analytics	3
ETI 461	Database Management and Administration	3
ETI 463	Distributed Database Management Systems	3
IST 301	Information and Organizations	3
IST 302	IT Project Management	3
IST 420	Fundamentals of Systems and Enterprise Integration	3
IST 421	Advanced Enterprise Integration: Technologies and Applications	3
IST 423	Enterprise Information Management and Storage Architecture	3

Entrepreneurship and Business of Tech

New companies and ventures often develop new tools and technologies. Cybersecurity aspects are sometimes overlooked. Students pursuing this focus gain an understanding of new business ventures and can apply their cybersecurity knowledge, skills, and abilities to ensure that new offerings don't open up vulnerabilities that will be quickly exploited. Alternatively, cybersecurity students might find new business opportunities to offer cybersecurity services for hire as entrepreneurs, or as intrapreneurs in larger organizations.

Code	Title	Credits
IB 303	International Business Operations	3
IST 237	Digital Entrepreneurship	3
IST 337	Technologies for Digital Entrepreneurs	3
IST 425	New Venture Creation	3
IST 426	Invention Commercialization	3
IST 431	The Information Environment	3
IST 437	Digital Design & Innovation	3
IST 442	Information Technology in an International Context	3
IST 445	Globalization Trends and World Issues	3
MGMT 215	Entrepreneurial Mindset	3

Geopolitics

Understanding the geopolitical landscape is key to understanding and modeling cyberthreats from nation-states and other threat actors. The Geopolitics focus is for students who have an interest in pursuing cybersecurity careers in government or related consulting sectors.

Code	Title	Credits
AFR/PLSC 440	Globalization and Its Implications	3
CAS 404	Conflict Resolution and Negotiation	3
COMM 458	Media Law and Ethics	3
GEOG 260	Geographic Information in a Changing World: Introduction to GIScience	3

PLSC 461	Politics of the European Union	3
PLSC 467	International Relations of the Middle East	3
PLSC 481	Global Political Economy	3
PLSC 491	Peace and Conflict Studies Seminar	3
SRA 421	The Intelligence Environment	3
SRA 433	Deception and Counterdeception	3
SRA 450	Cyber-Crime and Cyber-Warfare	3
SRA 471	Informatics, Risk, and the Post-Modern World	3
SRA 480	Crisis Informatics	3
Any ARMY, AIR, NAVSC ROTC		1-9

Health Care

Hospitals, pharmaceutical companies, and government agencies are just a few of the sectors that have strict requirements around protecting health care data. The Health Care focus is for students who have an interest in pursuing cybersecurity careers in a health care environment. Understanding how information is managed in these environments will help students thrive in a health care-related career.

Code	Title	Credits
ECON 445	Health Economics	3
HPA 101	Introduction to Health Services Organization	3
HPA 211	Financial Decisions in Health Care Organizations	3
HPA 301W	Health Services Policy Issues	3
HPA 311	Population Health and Healthcare	3
HPA 332	Health Systems Management	3
HPA/BBH 440	Principles of Epidemiology	3
HPA 445	Health Economics	3
HPA 450	Healthcare Policies and Politics	3
HPA 470	Health Care Information Management	3
IST 402	Emerging Issues and Technologies	3
NURS 357	Introduction to Nursing Informatics (offered at Commonwealth and World Campuses; not at University Park)	3
NURS 458	Ethical Challenges in Healthcare Informatics (offered at Commonwealth and World Campuses; not at University Park)	3

Law and Policy

Cybersecurity careers in law enforcement require knowledge of laws and policies focused on the handling of evidence related to digital forensics and monitoring. Individuals in the private sector and government agencies must also understand and adhere to these topics as they involve cybersecurity. The Law and Policy focus is for students who want to understand law and policy as they relate to digital data.

Code	Title	Credits
COMM 404	Telecommunications Law	3
CRIM/CRIMJ/SOC 406	Sociology of Deviance	3
CRIM 430	American Correctional System	3
CRIM/CRIMJ 451	Race, Crime, and Justice	3

CRIM/CRIMJ/ SOC 467	Law and Society	3
CRIM 469	Seminar in the Law	3-4
CRIMJ 304	Security Administration	3
CRIMJ 430	Alternatives to Incarceration	3
CRIMJ 435	Border Security	3
HLS/PADM 401	Introduction to Homeland Security (offered by Harrisburg and World Campus only)	3
IST 452	Legal and Regulatory Environment of Privacy and Security	3
PLSC 438	National Security Policies	3
PLSC/CRIMJ 439	The Politics of Terrorism	3
PLSC 440	Globalization and Its Implications	3
PLSC 442	American Foreign Policy	3
PLSC/STS 460	Science, Technology, and Public Policy	3
PLSC 467	International Relations of the Middle East	3
PLSC 471	American Constitutional Law	3
PLSC 487	International Law and Organizations (not offered at University Park)	3

Custom Application Focus

There is an option for a student to create a custom 3-course application focus sequence. It must be a coherent sequence of courses that provides context for the student in terms of cybersecurity content. It must contain three (3) credits of 400-level coursework. The focus area courses must be selected in consultation with a teaching CYBER faculty member and an academic adviser.

Career Paths

Cybersecurity blends the technical expertise needed to analyze security issues and create cyberdefense strategies with the interpersonal skills needed to communicate threats to a variety of audiences. The program prepares students to meet the growing need for professionals who can defend against threats to digital information and assets. IST's Office of Career Solutions helps students navigate their internship and career development in the field through coaching, workshops, interview preparation, resume reviews, career fairs, job postings, and networking opportunities.

Careers

Because our courses blend technical knowledge with skills in communication and business, a Cybersecurity Analytics and Operations degree allows students to pursue opportunities as cybersecurity analysts, cyberthreat advisers, penetration testers, and a number of other unique careers in fields such as defense, government, and business.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE CYBERSECURITY ANALYTICS AND OPERATIONS PROGRAM (<https://www.ist.psu.edu/current/careers/development/process/path/>)

Contact

University Park

COLLEGE OF INFORMATION SCIENCES AND TECHNOLOGY
411 Eric J. Barron Innovation Hub Building
State College, PA 16801
814-865-3528

World Campus

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411 Eric J. Barron Innovation Hub Building
State College, PA 16801
814-865-3528

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-cybersecurity-analytics-and-operations-bachelor-of-science-degree>
(<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-cybersecurity-analytics-and-operations-bachelor-of-science-degree/>)

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1600 Woodland Road
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<https://www.abington.psu.edu/academics/majors-at-abington/cybersecurity> (<https://www.abington.psu.edu/academics/majors-at-abington/cybersecurity/>)

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<https://altoona.psu.edu/academics/bachelors-degrees/cybersecurity-analytics-operations> (<https://altoona.psu.edu/academics/bachelors-degrees/cybersecurity-analytics-operations/>)

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<https://berks.psu.edu/academics/bs-cybersecurity-analytics-and-operation> (<https://berks.psu.edu/academics/bs-cybersecurity-analytics-and-operation/>)

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<https://www.brandywine.psu.edu/academics/bachelors-degrees/cybersecurity-analytics-operations> (<https://www.brandywine.psu.edu/academics/bachelors-degrees/cybersecurity-analytics-operations/>)

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<https://www.york.psu.edu/academics/baccalaureate/cybersecurity-analytics-and-operations> (<https://www.york.psu.edu/academics/baccalaureate/cybersecurity-analytics-and-operations/>)

Data Sciences, B.S. (Information Sciences and Technology)

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

Data Sciences is a field of study concerned with developing, applying, and validating methods, processes, systems, and tools for drawing useful knowledge, justifiable conclusions, and actionable insights from large, complex and diverse data through exploration, prediction, and inference. Data Sciences integrate aspects of Computer Science, Informatics, and Statistics to yield powerful data science methods, systems, tools, and best practices that find applications across a broad range of application domains. The curriculum for the major is designed to equip students with the knowledge and the skills needed to elicit, formulate, and solve data sciences problems using modern data science methods, tools, and best practices for data management, data exploration, data integration, predictive modeling (using machine learning), and effectively communicate their findings to, and collaborate with a broad range of stakeholders. The students will gain the critical analytical skills needed to assess the feasibility, benefits, effectiveness, limitations, risks, and ethical implications of applying data sciences methods in different settings. Experiences such as the capstone project prepare students to function effectively as members of interdisciplinary data science teams to harness the potential of data to enable discovery, optimize products and processes, and inform decisions. As distinct from majors that focus primarily on developing data science knowledge and skills to support inquiry in other domains, the primary focus of the Data Sciences major is on the development, evaluation, application, and validation of the data science tools themselves. All students in the major receive in-depth training in data sciences through a set of core courses. Additionally, data sciences students specialize in one of the following options: applied, computational, or statistical modeling data sciences, as described below.

Applied Data Sciences (DATSC_BS)

Only available through the College of Information Sciences and Technology

The students in the Applied DS option will receive exposure to an application domain so they are equipped to formulate and solve data science problems drawn from the chosen domain, e.g., life and health sciences, business, behavioral and cognitive sciences, physical sciences, agricultural sciences, among others.

Computational Data Sciences (DTSCE_BS)

Only available through the College of Engineering

The students in the Computational DS option will receive additional training in Computer Science to be able to design, analyze, implement, and deploy advanced algorithms, hardware and software architectures, and systems for data management and analyses.

Statistical Modeling Data Sciences (DTSCS_BS)

Only available through the Eberly College of Science

The students in the Statistical modeling DS option will receive additional training in Statistics to be able to formulate, develop, and apply the proper statistical models and methods for data analyses, e.g., experiment design, sampling, hypotheses testing, and limiting false discovery.

What is Data Sciences?

Data Sciences is a field that explores the methods, systems, and processes used to extract knowledge from data and turn these insights into discoveries, decisions, and actions. The emergence of massive amounts of data – also known as “big data” – found in our world through healthcare records, human sensors, digital media, and a number of other sources has increased the need for individuals who can obtain

useful knowledge from big data and apply it to address major societal challenges across a variety of fields. Students pursuing this degree will develop the knowledge and skills needed to manage and analyze large-scale, unstructured data to address an expanding range of problems in industry, government, and academia.

MORE INFORMATION ABOUT DATA SCIENCES (<https://ist.psu.edu/prospective/undergraduate/academics/data-sciences/>)

You Might Like This Program If...

- You are curious about analyzing information to discover new insights.
- You want to apply data analytics to make strategic decisions.
- You want to understand how data can be used to visualize phenomena using AI and data science techniques.
- You are interested in statistics, mathematics, and the social sciences, and want to combine these disciplines to understand what data is really telling us.

MORE INFORMATION ABOUT WHY STUDENTS CHOOSE TO STUDY DATA SCIENCES (<https://ist.psu.edu/prospective/undergraduate/academics/data-sciences/>)

Entrance to Major

To be eligible for entrance into the Data Sciences major, a degree candidate must satisfy requirements for entrance to the major.

Specific entrance requirements include:

1. The degree candidate must be taking, or have taken, a program appropriate for entry to the major as shown in the bulletin.
2. The degree candidate must complete the following entrance-to-major requirements: CMPSC 121* or CMPSC 131*, CMPSC 122* or CMPSC 132*, MATH 140*, MATH 141*, STAT 200* or DS 200*. These courses must be completed by the end of the semester during which the entrance to major process is carried out.

* Course requires a grade of C or better.

Degree Requirements

For the Bachelor of Science degree in Data Sciences, a minimum of 123 credits is required:

Requirement	Credits
General Education	45
Electives	3-12
Requirements for the Major	72-81

6 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GQ courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
DS 220	Data Management for Data Sciences	3
DS 340W	Applied Data Sciences	3
DS 435	Ethical Issues in Data Science Practice	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
MATH 220	Matrices	2
STAT 184	Introduction to R	2
STAT 380	Data Science Through Statistical Reasoning and Computation	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
1 credit of First-Year Seminar		1
CMPSC 121	Introduction to Programming Techniques	3
or CMPSC 131	Programming and Computation I: Fundamentals	
CMPSC 122	Intermediate Programming	3
or CMPSC 132	Programming and Computation II: Data Structures	
DS 440	Data Sciences Capstone Course	3
or DS 440W	Data Science Capstone	
Requirements for the Option		
Select an option		38-47

Requirements for the Option

Applied Data Sciences (DATSC_BS): 47 credits

Only Available through the College of Information Sciences and Technology

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
DS 200	Introduction to Data Sciences	4
DS 300	Privacy and Security for Data Sciences	3
DS 305	Algorithmic Methods and Tools	3
DS 310	Machine Learning for Data Analytics	3
DS 320	Data Integration	3
DS 330	Visual Analytics for Data Sciences	3
DS/CMPSC 410	Programming Models for Big Data	3
IST 495	Internship	1
Additional Courses		
Select 6 credits from any combination:		6
DS 402	Emerging Trends in the Data Sciences	
DS 420	Network Analytics	
DS/CMPSC 442	Artificial Intelligence	
DS 494	Research Project	
IST 441	Information Retrieval and Organization	
IST 442	Information Technology in an International Context	
SODA 308	Research Design for Social Data Analytics	
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits from the following:		3
CMPSC 360	Discrete Mathematics for Computer Science	
IST 230	Language, Logic, and Discrete Mathematics	
MATH 311W	Concepts of Discrete Mathematics	

Select 3 credits from the following: 3

STAT/MATH 318	Elementary Probability	
STAT/MATH 414	Introduction to Probability Theory	
STAT/MATH 418	Introduction to Probability and Stochastic Processes for Engineering	

Supporting Courses and Related Areas¹

Select 12 credits from the lists of Application Focus courses; 6 credits must at at the 300- or 400-levels. 12

¹ Students may apply up to 3 credits of ROTC as option Application Focus list credits and 3 credits of ROTC as GHW credits.

LIST OF APPLIED DATA SCIENCES COURSES (p. 1052)

Computational Data Sciences (DTSCE_BS): 47 credits Only Available through the College of Engineering

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CMPSC 221	Object Oriented Programming with Web-Based Applications	3
CMPSC 360	Discrete Mathematics for Computer Science	3
CMPSC 442	Artificial Intelligence	3
CMPSC 448	Machine Learning and Algorithmic AI	3
CMPSC 461	Programming Language Concepts	3
CMPSC 465	Data Structures and Algorithms	3
DS/CMPSC 410	Programming Models for Big Data	3
MATH 230	Calculus and Vector Analysis	4
STAT/MATH 414	Introduction to Probability Theory	3
STAT/MATH 415	Introduction to Mathematical Statistics	3

Additional Courses

Additional Courses: Require a grade of C or better

DS 200	Introduction to Data Sciences	4
or STAT 200	Elementary Statistics	

Supporting Courses and Related Areas¹

Select 6 credits from Computational Option List A in Appendix C 6
 Select 6 credits from Computational Option List B in Appendix C 6

¹ Students may apply up to 3 credits of ROTC as option list credits and 3 credits of ROTC as GHW credits.

LIST OF COMPUTATIONAL DATA SCIENCES COURSES (<http://www.eecs.psu.edu/students/undergraduate/Data-Sciences.aspx>)

Statistical Modeling Data Sciences (DTSCS_BS): 38 credits Only Available through the Eberly College of Science

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
MATH 230	Calculus and Vector Analysis	4
STAT/MATH 414	Introduction to Probability Theory	3
STAT/MATH 415	Introduction to Mathematical Statistics	3
STAT 440	Computational Statistics	3
STAT 462	Applied Regression Analysis	3

Additional Courses

Additional Courses: Require a grade of C or better

DS 200	Introduction to Data Sciences	4
or STAT 200	Elementary Statistics	
DS 310	Machine Learning for Data Analytics	3
or CMPSC 448	Machine Learning and Algorithmic AI	
MATH 311W	Concepts of Discrete Mathematics	3
or CMPSC 360	Discrete Mathematics for Computer Science	

Supporting Courses and Related Areas¹

Select 6 credits from Statistical Modeling Option List A courses, see Appendix D 6

Select 6 credits from Statistical Modeling Option List B courses, see Appendix D 6

¹ Students may apply up to 3 credits of ROTC as option list credits and 3 credits of ROTC as GHW credits.

LIST OF STATISTICAL MODELING DATA SCIENCES COURSES (p. 563)

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Knowledge/Application:** Understand the technical fundamentals of data sciences with a focus on developing the knowledge and skills needed to manage and analyze data to solve problems in our world.
 - Integrate statistical concepts/methods and computational/machine learning methods to discover the structure of data and build predictive models.
 - Apply the principles of data management to organize and use different types of data, both structured and unstructured.
- **Problem-Solving & Evaluation:** Identify, formulate and solve data science problems that arise in various applications.
 - Identify and incorporate relevant abstraction and domain knowledge to formulate data science problems in different application contexts.
 - Design or adapt appropriate statistical, machine learning, and other data science methods for solving specific problems.

- Compare, contrast, and evaluate competing data science methods appropriate to the context of the problem.
- Employ modern computing infrastructure to scale up data science methods for massive and complex data.
- Integrate data from multiple sources while considering the best practices, challenges, and pitfalls of using heterogeneous data to solve problems.
- **Communication (Individual and Team):** Articulate the benefits, risks, formulation, solution, and results of data science projects to diverse stakeholders, including fellow data scientists, collaborators with subject matter expertise, and the general public, using written, verbal, and visual forms.
- **Teamwork:** Participate effectively on teams in order to accomplish the goals of a project containing data science components.
- **Data Ethics:** Critically evaluate and conscientiously respond to the ethical and societal implications of data science practice.
 - Analyze the potential human impacts of data-driven technologies, especially for marginalized communities.
 - Develop strategies to solve data science problems that reflect shared social and ethical values, such as privacy, security, fairness, and accountability.
 - Interpret and apply the ethical responsibilities of computing professionals.
 - Ensure reproducibility of data science analyses.
- **Lifelong Learning:** Recognize the importance of continued learning beyond graduation.
 - Demonstrate readiness to join an evolving professional community by participating in professional development, such as reading trade journals and engaging with appropriate professional organizations.
 - Demonstrate readiness for independent learning by performing literature reviews and staying abreast of current trends within the field of data science.
- **Option Objectives:**
 - **Applied Data Sciences Option:** Gain in-depth knowledge in a chosen application focus area and demonstrate skills to formulate and solve data science problems in the context of applications in that area.
 - **Computational Data Sciences Option:** Design, development, and analysis of software (computational solutions) for data science problems.
 - **Statistical Modeling Data Sciences Option:** Demonstrate facility with common regression-based inferential modeling techniques including analysis of variance, generalized linear models, multiple regression, and logistic regression, as well as proficiency in basic statistical optimization and simulation techniques.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary

academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Eberly College of Science

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Applied Data Sciences Option: Data Sciences, B.S. at University Park Campus

- View the Suggested Academic Plan for the Computational Data Sciences Option (p. 847)
- View the Suggested Academic Plan for the Statistical Modeling Data Sciences Option (p. 563)

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 (GQ) ^{*†#}	4 MATH 141 (GQ) ^{*#}	4
CMPSC 131 ^{*#}	3 CMPSC 132 ^{*#}	3
ENGL 15 (GWS) [‡]	3 DS 200 ^{*#}	4
General Education Course	3 General Education Course	3

PSU 17	1 General Education Course	3
14		17

Second Year

Fall	Credits Spring	Credits
DS 220 [*]	3 IST 230, CMPSC 360, or MATH 311W [*]	3
MATH 220 [*]	2 STAT/MATH 318, 414, or 418 [*]	3
CAS 100 (GWS) [‡]	3 ENGL 202 (GWS) [‡]	3
STAT 184	2 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course	3	
16		15

Third Year

Fall	Credits Spring	Credits Summer	Credits
DS 300 [*]	3 DS 310 [*]	3 IST 495 ^{*1}	1
DS 305 [*]	3 DS 330 [*]	3	
DS 320 [*]	3 DS 410 [*]	3	
STAT 380 [*]	3 Application Focus Selection	3	
Application Focus Selection	3 General Education Course	3	
15		15	1

Fourth Year

Fall	Credits Spring	Credits
DS 340W [*]	3 DS 440 or 440W [*]	3
DS 442, IST 442, SODA 308, IST 445, DS 420, DS 441, DS 402, or IST 494	3 DS 442, IST 442, SODA 308, IST 445, DS 420, DS 441, DS 402, or IST 494	3
DS 435 [*]	3 Application Focus Selection (300- or 400-level)	3
Application Focus Selection (300- or 400-level)	3 General Education Course	3

General Education Course	3 Elective	3
	15	15

Total Credits 123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ 1 credit of IST 495 is required. A grade of "SA" must be earned in this course. This course can be completed at any time before graduation.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- DS, IST, SRA, and MATH courses have enforced prerequisites.

Application Focus Areas:

Select a minimum of 12 credits from your chosen focus area; at least 6 credits must be at the 300- or 400-levels. Students may also propose a custom application focus, with guidance and approval by an academic adviser or the program coordinator of the Applied DS Option.

Astronomy

Code	Title	Credits
ASTRO 21	Introduction to Research in Astronomy	2
ASTRO 120	The Big Bang Universe	3
ASTRO 130	Black Holes in the Universe	3
ASTRO 140	Life in the Universe	3
ASTRO 291	Astronomical Methods and the Solar System	3
ASTRO 292	Astronomy of the Distant Universe	3
ASTRO 401	Fundamentals of Planetary Science and Astronomy	4

ASTRO 402W	Astronomical Telescopes, Techniques, and Data Analysis	3
ASTRO 496	Independent Studies	1-3
BIOL/GEOSC 474	Astrobiology	3
DS 402	Emerging Trends in the Data Sciences	3
PHYS 211	General Physics: Mechanics	4
PHYS 212	General Physics: Electricity and Magnetism	4
PHYS 250	Introductory Physics I	4
PHYS 251	Introductory Physics II	4

Business Fundamentals

Code	Title	Credits
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
BA 301	Finance	3
or FIN 100	Introduction to Finance	
or FIN 301	Corporation Finance	
BA 302	Supply Chains	3
or SCM 301	Supply Chain Management	
BA 303	Marketing	3
or MKTG 221W	Contemporary American Marketing	
or MKTG 301	Principles of Marketing	
or MKTG 301W	Principles of Marketing	
BA 304	Management and Organization	3
or MGMT 100	Survey of Management	
or MGMT 100W	Survey of Management	
or MGMT 301	Basic Management Concepts	
or MGMT 301W	Basic Management Concepts	
BLAW 243	Legal Environment of Business	3
DS 402	Emerging Trends in the Data Sciences	3
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
IB 303	International Business Operations	3
SCM 200	Introduction to Statistics for Business	4
STAT 200	Elementary Statistics	4

Economics

Code	Title	Credits
DS 402	Emerging Trends in the Data Sciences	3
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
ECON 106	Statistical Foundations for Econometrics	3
ECON 302	Intermediate Microeconomic Analysis	3
ECON 304	Intermediate Macroeconomic Analysis	3
ECON 315	Labor Economics	3
ECON 323	Public Finance	3
ECON 333	International Economics	3
ECON 342	Industrial Organization	3
ECON 402	Decision Making and Strategy in Economics	3
ECON 407	Political Economy	3
ECON 410	Economics of Labor Markets	3
ECON 415	The Economics of Global Climate Change	3
ECON 425	Economics of Public Expenditures	3
ECON 428	Environmental Economics	3

ECON 442	Managerial Economics	3
ECON 445	Health Economics	3
ECON 447	Economics of Sports	3
ECON 471	Growth and Development	3
ECON 479	Economics of Matching	3
ECON 480	Mathematical Economics	3
SCM 200	Introduction to Statistics for Business	4
STAT 200	Elementary Statistics	4

Food Science

Code	Title	Credits
BMB 211	Elementary Biochemistry	3
BMB 212	Elementary Biochemistry Laboratory	1
CHEM 110	Chemical Principles I	3
DS 402	Emerging Trends in the Data Sciences	3
FDSC 105	Food Facts and Fads	3
FDSC 200	Introductory Food Science	3
FDSC 201	Introductory Food Science Practicum	1
FDSC 206	Improving Food Quality	3
FDSC 400	Food Chemistry and Analysis (I)	3
FDSC 403	Sensory Data Collection & Analysis	3
FDSC 404	Sensory Evaluation of Foods	3
FDSC 405	Food Engineering Principles	3
FDSC 406W	Physiology of Nutrition	3
FDSC 408	Food Microbiology	3
FDSC 409	Laboratory in Food Microbiology	2
FDSC 410	Food Chemistry and Analysis (II)	3
FDSC 413	Science and Technology of Plant Foods	3
FDSC 414	Science and Technology of Dairy Foods	3
FDSC 415	Science and Technology of Muscle Foods	3
FDSC 430	Unit Operations in Food Processing	3
FDSC 444	Arguing about Food	3
MICRB 201	Introductory Microbiology	3
MICRB 202	Introductory Microbiology Laboratory	2
STAT 200	Elementary Statistics	4
STAT 240	Introduction to Biometry	3
STAT 250	Introduction to Biostatistics	3

Human-Centered Design and Development

Code	Title	Credits
DS 402	Emerging Trends in the Data Sciences	3
HCDD 113	Foundations of Human-Centered Design and Development	3
HCDD 113S	Foundations of Human-Centered Design and Development FYS	3
HCDD 264	Design Practice in Human-Centered Design and Development	3
HCDD 340	Human-Centered Design for Mobile Computing	3
HCDD 364W	Methods for Studying Users	3
IST 140	Introduction to Application Development	3
IST 210	Organization of Data	3
IST 220	Networking and Telecommunications	3
IST 240	Introduction to Computer Languages	3

IST 242	Intermediate & Object-Oriented Application Development	3
IST 261	Application Development Design Studio I	3
IST 311	Object-Oriented Design and Software Applications	3
IST 402	Emerging Issues and Technologies	3

Information and Cybersecurity Sciences

Code	Title	Credits
CYBER 100	Computer Systems Literacy	3
CYBER 100S	Computer Systems Literacy	3
CYBER 262	Cyber-Defense Studio	3
DS 402	Emerging Trends in the Data Sciences	3
IST 140	Introduction to Application Development	3
IST 210	Organization of Data	3
IST 220	Networking and Telecommunications	3
IST 240	Introduction to Computer Languages	3
IST 242	Intermediate & Object-Oriented Application Development	3
IST 261	Application Development Design Studio I	3
IST 451	Network Security	3
IST 454	Computer and Cyber Forensics	3
IST 456	Information Security Management	3
SRA 111	Introduction to Security and Risk Analysis	3
SRA 211	Threat of Terrorism and Crime	3
SRA 221	Overview of Information Security	3
SRA 231	Decision Theory and Analysis	3
SRA 365	Statistics for Security and Risk Analysis	3
SRA 450	Cyber-Crime and Cyber-Warfare	3
SRA 468	Spatial Analysis of Risks	3
SRA 480	Crisis Informatics	3
STAT 200	Elementary Statistics	4

Nutrition

Code	Title	Credits
BIOL 141	Introduction to Human Physiology	3
BMB 211	Elementary Biochemistry	3
CHEM 110	Chemical Principles I	3
CHEM 112	Chemical Principles II	3
CHEM 202	Fundamentals of Organic Chemistry I	3
CHEM 210	Organic Chemistry I	3
DS 402	Emerging Trends in the Data Sciences	3
NUTR 100	Nutrition Applications for a Healthy Lifestyle	3
NUTR 175N	Healthy Food for All: Factors that Influence What we Eat in the US	3
NUTR 211R	Applying Biochemistry to Nutrition	1
NUTR 251	Introductory Principles of Nutrition	3
NUTR 358	Assessment of Nutritional Status	3
NUTR 360	Nutrition Education and Behavior Change Theory	3
NUTR 361	Community and Public Health Nutrition	3
NUTR 390	Nutritional Biochemistry and Physiology	4
NUTR 400	Introduction to Nutrition Counseling	2
NUTR 407	Nutrition for Exercise and Sports	3
NUTR 410	Eating and Weight Disorders	3
NUTR 421	Biocultural Perspectives on Public Health Nutrition	3

NUTR 425	Global Nutrition Problems: Health, Science, and Ethics	3
NUTR 445	Energy and Macronutrient Metabolism	3

Psychology

Code	Title	Credits
DS 402	Emerging Trends in the Data Sciences	3
PSYCH 100	Introductory Psychology	3
PSYCH 200	Elementary Statistics in Psychology	4
PSYCH 212	Introduction to Developmental Psychology	3
PSYCH 221	Introduction to Social Psychology	3
PSYCH 243	Introduction to Well-being and Positive Psychology	3
PSYCH 253	Introduction to Psychology of Perception	3
PSYCH 256	Introduction to Cognitive Psychology	3
PSYCH 260	Neurological Bases of Human Behavior	3
PSYCH 261	Introduction to Psychology of Learning	3
PSYCH 270	Introduction to Abnormal Psychology	3
PSYCH 370	Psychology of the Differently-Abled	3
PSYCH 404	Principles of Measurement	3
PSYCH 410	Child Development	3
PSYCH 412	Adolescence	3
PSYCH 413	Cognitive Development	3
PSYCH 419	Psychology and a Sustainable World	3
PSYCH 423	Social Psychology of Interpersonal/Intergroup Relationships	3
PSYCH 424	Applied Social Psychology	3
PSYCH 425	Psychology of Human Emotion	3
PSYCH 441	Health Psychology	3
PSYCH 449	Basic Counseling Skills	3
PSYCH 452	Learning and Memory	3
PSYCH 455	Cognitive Neuroscience	3
PSYCH 456	Advanced Cognitive Psychology	3
PSYCH 457	Psychology of Language	3
PSYCH 458	Visual Cognition	3
PSYCH 473	Behavior Modification	3
PSYCH 484	Work Attitudes and Motivation	3
STAT 200	Elementary Statistics	4

Custom Application Focus

There is an option for a student to create a custom 4-course application focus sequence. It must be a coherent sequence of courses that provides context for the student in terms of content relevant to the Data Sciences program. This sequence gives the student an opportunity to receive cross-training in another domain so that the student can effectively formulate and solve data science problems in the context of the chosen domain. The sequence should contain at least six credits of 300- or 400-level coursework. It must be selected in consultation with an academic adviser or the program coordinator for the Applied Option of the Data Sciences program.

Career Paths

Data Sciences blends the technical expertise needed to analyze, interpret, and manage big data with the interpersonal skills needed to communicate insights to a variety of audiences. The program prepares students to meet the growing need for professionals who have the analytical and problem-solving skills to address a wide range of societal

and technical challenges. Many companies participate in career fairs in Engineering, IST and Science with an express interest in hiring data science interns or graduates. A growing number of M.S. and Ph.D. programs await those who wish to pursue more advanced studies.

Careers

Because our courses blend technical knowledge with skills in communication and business, a Data Sciences degree allows students to compete for leading-edge analytics positions across many different industry sectors. Possible careers include: Data Science and AI Engineers, Data Scientist, Data Analyst, Data Specialist, Data Visualization Specialist, IT Analyst, Machine Learning Engineer, Data Engineer, Business Systems Analyst/Consultant.

MORE INFORMATION FOR THE APPLIED DATA SCIENCES OPTION (<https://www.ist.psu.edu/current/careers/development/process/path/>)

MORE INFORMATION FOR THE COMPUTATIONAL DATA SCIENCES OPTION (<https://www.eecs.psu.edu/students/undergraduate/Data-Sciences.aspx>)

MORE INFORMATION FOR THE STATISTICAL MODELING DATA SCIENCES OPTION (<https://science.psu.edu/stat/undergraduate-programs/>)

Professional Resources

- Association for Computing Machinery (<https://acm.psu.edu>)
- Association for Information Science and Technology (<https://www.asist.org>)

Contact

University Park

College of Information Sciences and Technology

COLLEGE OF INFORMATION SCIENCES AND TECHNOLOGY
411 Eric J. Barron Innovation Hub Building
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Enterprise Technology Integration, B.S. (Information Sciences and Technology)

Begin Campus: Any Penn State Campus

End Campus: University Park, World Campus

Program Description

The Enterprise Technology Integration major (ETI) in the College of Information Sciences and Technology is a Bachelor of Science degree program that educates students in the fundamental concepts and state-of-the-art skills in three essential areas: information technology (IT), business concepts, and "soft skills" such as working in teams. The ETI major focuses on the technology implementation perspective of enterprise system integration. The learning outcomes focus on a) information systems interconnectedness, data interchange, process modeling and reengineering, and distributed computing environments; b) business knowledge in accounting, supply chains and more; and c) teaming, leadership, and other "soft skills." Students graduating with a degree in ETI are prepared for successful careers across industries and government in systems integration and development, as well as IT and business consulting.

The ETI major is interdisciplinary, combining foundational coursework in information technology, application development and business with specialized courses in systems integration. The major draws on courses including introductory programming, databases, networks, organizational theory, project management and enterprise integration. In the ETI major, we add courses in emerging information technologies used to integrate information systems from an underlying back-end technology needed to accomplish system integration.

What is Enterprise Technology Integration?

Enterprise technology integration (ETI) explores how information technology resources and data are linked together within and across companies and organizations. Integrating information technology solutions in an enterprise is essential for businesses in conducting day-to-day activities as well as moving organizations forward as new business strategies emerge. Enterprises that can readily unify applications, services, information systems and databases through information technology integration experience a competitive advantage. As an ETI major, you will gain knowledge and skills in analyzing the technology-related needs of an organization, formulating and implementing technology-based solutions, and evaluating the outcomes.

MORE INFORMATION ABOUT ENTERPRISE TECHNOLOGY INTEGRATION (<https://ist.psu.edu/prospective/undergraduate/academics/eti/>)

You Might Like This Program If...

- You have an interest in information technology and business.
- You want to help organizations operate more effectively by creating and implementing information technology solutions and evaluating outcomes.
- You are interested in emerging technologies, such as cloud computing and advanced databases.
- You want to understand how computing systems and programs operate.

- You enjoy working on a team to solve information technology problems.

MORE INFORMATION ABOUT WHY STUDENTS CHOOSE TO STUDY ENTERPRISE TECHNOLOGY INTEGRATION (<https://ist.psu.edu/prospective/undergraduate/academics/eti/>)

Entrance to Major

To be eligible for the Enterprise Technology Integration major, students must:

1. Have completed the following entrance-to-major requirements with a grade of C or better in each: HCDD 113S (FYS) or HCDD 113 or IST 110 or CYBER 100 or CYBER 100S (FYS), IST 140 or CMPSC 121 or CMPSC 131, IST 210, IST 220, IST 242 or CMPSC 122 or CMPSC 132, STAT 200 or SCM 200
2. Have achieved a minimum cumulative grade point average of 2.00 prior to and through the end of the semester during which the entrance to major is requested.

Degree Requirements

For the Bachelor of Science degree in Enterprise Technology Integration, a minimum of 124 credits is required:

Requirement	Credits
General Education	45
Electives	5-6
Requirements for the Major	91-92

18 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GS courses, 6 credits of GQ courses, 9 credits of GWS courses.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
ETI 300W	Development and Documentation of Enterprise Web	3
ETI 461	Database Management and Administration	3
IST 210	Organization of Data	3
IST 220	Networking and Telecommunications	3
IST 230	Language, Logic, and Discrete Mathematics	3
IST 256	Programming for the Web	3
IST 301	Information and Organizations	3
IST 302	IT Project Management	3
IST 495	Internship	1
IST 420	Fundamentals of Systems and Enterprise Integration	3

IST 421	Advanced Enterprise Integration: Technologies and Applications	3
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Additional Courses*Additional Courses: Require a grade of C or better*

BA 302	Supply Chains	3
or SCM 301	Supply Chain Management	

CAS/ENGL 138T	Rhetoric and Civic Life II	3
or CAS 100	Effective Speech	

ECON 102	Introductory Microeconomic Analysis and Policy	3
or ECON 104	Introductory Macroeconomic Analysis and Policy	

ENGL 202C	Effective Writing: Technical Writing	3
or ENGL 202D	Effective Writing: Business Writing	

HCDD 264	Design Practice in Human-Centered Design and Development	3
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or IST 331	Foundations of Human-Centered Design	
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IST 402	Emerging Issues and Technologies	3
or IST 423	Enterprise Information Management and Storage Architecture	

MATH 110	Techniques of Calculus I	4
or MATH 140	Calculus With Analytic Geometry I	

STAT 200	Elementary Statistics	4
or SCM 200	Introduction to Statistics for Business	

Select 3-4 credits from the following:		3-4
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BA 243	Social, Legal, and Ethical Environment of Business	
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BA 301	Finance	
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BA 303	Marketing	
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BA 304	Management and Organization	
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BLAW 243	Legal Environment of Business	
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FIN 301	Corporation Finance	
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IB 303	International Business Operations	
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MGMT 301	Basic Management Concepts	
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MKTG 301	Principles of Marketing	
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Select 3 credits from the following:		3
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CAS/ENGL 137H	Rhetoric and Civic Life I	
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ENGL 15	Rhetoric and Composition	
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ENGL 30H	Honors Rhetoric and Composition	
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Select 3 credits from the following:		3
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CMPSC 121	Introduction to Programming Techniques	
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CMPSC 131	Programming and Computation I: Fundamentals	
-----------	---	--

IST 140	Introduction to Application Development	
---------	---	--

Select 3 credits from the following:		3
--------------------------------------	--	---

CMPSC 122	Intermediate Programming	
-----------	--------------------------	--

CMPSC 132	Programming and Computation II: Data Structures	
-----------	---	--

IST 242	Intermediate & Object-Oriented Application Development	
---------	--	--

Select 3 credits from the following:		3
--------------------------------------	--	---

CYBER 100	Computer Systems Literacy	
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CYBER 100S	Computer Systems Literacy	
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HCDD 113	Foundations of Human-Centered Design and Development	
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HCDD 113S	Foundations of Human-Centered Design and Development FYS	
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IST 110	Information, People and Technology	
---------	------------------------------------	--

Select 3 credits from the following:		3
--------------------------------------	--	---

ETI 435	Enterprise Analytics	
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ETI 463	Distributed Database Management Systems	
---------	---	--

IST 440W	Information Sciences and Technology Integration and Problem Solving	
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Supporting Courses and Related Areas*Supporting Courses and Related Areas: Require a grade of C or better*

A student must complete 12 credits from a single Application Focus. 12

For most focuses, at least 3 of those credits must be at the 400-level.

¹ As an alternative to the pre-defined application focuses, a student may select 12 credits, with at least 3 credits at the 400-level from any courses offered by the university if done so in consultation with an academic adviser and with approval of a teaching faculty member of the Enterprise Technology Integration major.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Enterprise Technology Integration and M.S. in Cybersecurity Analytics and Operations

Available at the following campuses: University Park

Requirements for the Integrated B.S. in Enterprise Technology Integration and M.S. in Cybersecurity Analytics and Operations can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/cybersecurity-analytics-operations/#integratedundergradgradtext>).

Program Learning Objectives

1. **Knowledge Application:** Understand and apply the interdisciplinary, theoretical knowledge of enterprise technology integration (ETI)
 - a. Define and explain the core concepts, principles, processes, and theories within the academic major
 - b. Apply the core concepts of ETI to real-world problems
2. **Problem Solving:** Understand, apply and adapt various problem solving strategies, using appropriate technology and methods
 - a. Identify information problems and/or opportunities in terms of the human, informational and technology dimensions
 - b. Analyze issues surrounding the problem and/or opportunity in terms of the human, informational, and technology dimensions; and determine the requirements appropriate to understanding the situation
 - c. Design systems, architectures, processes, components, or programs to meet desired needs of the human context at varying levels of analysis (e.g., individual, group, organization, society, and/or world)
 - d. Deploy up-to-date and appropriate techniques, methodologies, and/or tools necessary for understanding opportunities and constraints and/or the optimal design, implementation and continuance of an information-based solution
 - e. Evaluate the success of systems, architecture, processes, components, or programs intended to meet desired needs of the human context at varying levels of analysis (e.g., individual, group, organization, society, and/or world)
3. **Communication:** Communicate and work effectively (both individually and in teams) with a range of perspectives and audiences through a variety of media
 - a. Participate effectively on teams in order to accomplish a common goal
 - b. Communicate effectively with a range of audiences, formally or informally, through writing and the spoken word
 - c. Seek out, analyze, and incorporate diverse ideas and broader perspectives represented in the diversity of people
 - d. Make respectful and inclusive choices in interacting with customers, peers, supervisors, and/or subordinates with a diversity of identity characteristics (e.g., age, ancestry, color, disability or handicap, national origin, race, religious creed, sex, sexual orientation, gender identify, or veteran status)
4. **Professional Responsibilities:** Understand professional responsibilities in terms of the ethical, legal, security and social aspects of any given problem and its solution
 - a. Demonstrate an understanding of the cognitive, social, legal, ethical, diversity, and security perspectives surrounding a given problem
 - b. Assess the impact of information, computing and technology on individuals, groups, organizations, society, and the world for the purpose of making informed decisions from a sociological, governmental, legal, and/or security perspective.
5. **Lifelong Learning:** Commit to the continuous acquisition of relevant knowledge for professional development by self-teaching and/or on-going education and learning
 - a. Employ information-seeking strategies and self-directed learning in pursuit of current knowledge
 - b. Enroll in professional development and tutoring opportunities

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Undergraduate Academic Advising Center

E103 Westgate Building
University Park, PA 16802
814-865-8947
advising@ist.psu.edu

World Campus

Undergraduate Academic Advising

301 Outreach Building
University Park, PA 16802
814-863-3283
advising@outreach.psu.edu

Harrisburg

David Kitlan Ph.D.

Program Coordinator
Olmsted Building E335
Middletown, PA 17057
717-948-6639
dpk104@psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Enterprise Technology Integration, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
IST 140 ^{*#1}	3 IST 242 ^{*#1}	3
IST 110 or CYBER 100 ^{*#}	3 IST 220 ^{*#}	3
MATH 110 ^{*‡}	4 ECON 102 or 104 [*]	3
ENGL 15 or 30H [‡]	3 CAS 100 [‡]	3

General Education Selection	3 General Education Selection	3	
16		15	
Second Year			
Fall	Credits Spring	Credits	
IST 210 ^{*#}	3 IST 256 [*]	3	
IST 230 [*]	3 ACCTG 211 [*]	4	
Pick from Smeal College Business Fundamentals Certificate list [*]	3 Application Focus Selection ¹	3	
Elective	3 General Education Selection	3	
General Education Selection	3 STAT 200 ^{‡#}	4	
15		17	
Third Year			
Fall	Credits Spring	Credits Summer	Credits
ETI 300W [*]	3 IST 302 [*]	3 IST 495 ^{*2}	1
IST 301 [*]	3 ETI 461 [*]	3	
BA 302 [*]	3 IST 331 or HCDD 264 [*]	3	
ENGL 202C or 202D [‡]	3 Application Focus Selection ¹	3	
General Education Selection ¹	3 General Education Selection ¹	3	
15		15	
1			
Fourth Year			
Fall	Credits Spring	Credits	
IST 420 [*]	3 IST 421 [*]	3	
IST 423 or 402 [*]	3 Elective	3	
ETI 435, 463, or IST 440W [*]	3 Application Focus Selection ¹	3	
Application Focus Selection ¹	3 General Education Selection ¹	3	
General Education Selection ¹	3 General Education Selection	1.5	
General Education Selection	1.5		
16.5		13.5	

Total Credits 124

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Student can also take CMPSC 121 and CMPSC 122; or CMPSC 131 and CMPSC 132

² 1 credit of IST 495 is required. A grade of "SA" must be earned in this course. This course can be completed at any time before graduation.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Application Focus Areas:

- Students pick one of the tracks below or create a custom 4-course application focus. All 12 credits must be in the same application focus area.
- **Application Development**
 - Select 12 credits from below, with at least three (3) credits at the 400 level:
 - Any 200-400 level HCDD Course
 - IST 261
 - IST 311
 - IST 361
 - IST 411
 - IST 412
 - IST 413
- **Business Competency**
 - Select 12 credits from the courses below:
 - BA 301 or FIN 100 or FIN 301
 - BA 303 or MKTG 221W or MKTG 301 or MKTG 301W
 - BA 304 or MGMT 100 or MGMT 100W or MGMT 301 or MGMT 301W
 - BLAW 243
 - IB 303
 - Note 1: This option does not require 3-credits of 400-level courses as part of the application focus.
 - Note 2: Students are encouraged to take these courses from the Smeal College of Business at University Park.

- Note 3: One of these courses is required to be taken to satisfy major requirements. The student needs to take the remaining courses on this list to complete the application focus. The student may not double-count these credits as both a requirement of the major and to meet the requirements of the application focus.
- Note 4: Taking all of the courses listed here, along with BA 302, ECON 102 or ECON 104, a Statistics course, and ACCTG 211 (which are requirements of the ETI major) will meet the requirements for the Smeal Business Fundamentals Certificate.

• Cybersecurity

- Select 12 credits from below, with at least three (3) credits at the 400 level:
 - CYBER 262
 - Any CYBER course at the 300- or 400-level
 - IST 451
 - IST 454
 - IST 456
 - SRA 111
 - SRA 221

• International and World Cultures

- Select 12 credits from below, with at least three (3) credits at the 400 level:
 - AFR 440
 - IST 199
 - IST 299
 - IST 399
 - IST 445

• People, Policy and Context

- Select 12 credits from below, with at least three (3) credits at the 400 level:
 - IST 234N
 - IST 431
 - IST 432
 - IST 442
 - IST 452
 - IST 453
 - SRA 472

• ROTC, Intelligence and Cyberwarfare

- Select 12 credits from below, with at least three (3) credits at the 400 level:
 - Any courses in AIR, NAVSC or ARMY ROTC Programs
 - SRA 211
 - SRA 231
 - SRA 421
 - SRA 450

• Custom Application Focus

- There is an option for a student to create a custom 4-course application focus sequence. It must be a coherent sequence of courses that provides context for the student in terms of ETI content. Students can select the custom application focus in consultation with an academic adviser, and courses must be selected in consultation with an ETI teaching faculty member. Students may want to consider choosing courses that also fulfill US and/or IL requirements.

Career Paths

The Enterprise Technology Integration program responds to growing national and international needs in organizational computing, particularly in the areas of application systems integration, cloud computing and database technologies. The ETI degree prepares students to analyze organizational challenges and employ information technology solutions.

IST's Office of Career Solutions helps students navigate their internship and career development in the field through coaching, workshops, interview preparation, resume reviews, career fairs, job postings, and networking opportunities.

Careers

ETI graduates will be prepared for careers in application systems integration, as well as IT and business consulting. The program equips graduates with the skills needed to analyze business processes; identify information requirements and the systems essential to implement solutions; and implement those solutions in information systems in a variety of computing environments. The program positions graduates to compete with information systems professionals and technical business analysts who drive innovation through data, information and systems implementation to solve problems for organizations and the people within them.

MORE INFORMATION ABOUT POTENTIAL CAREER OPPORTUNITIES FOR GRADUATES OF THE ENTERPRISE TECHNOLOGY INTEGRATION PROGRAM (<https://www.ist.psu.edu/current/careers/development/>)

Contact

University Park

COLLEGE OF INFORMATION SCIENCES AND TECHNOLOGY
411 Eric J. Barron Innovation Hub Building
State College, PA 16801
814-865-3528

World Campus

COLLEGE OF INFORMATION SCIENCES AND TECHNOLOGY
411 Eric J. Barron Innovation Hub Building
State College, PA 16801
814-865-3528

Harrisburg

SCHOOL OF BUSINESS ADMINISTRATION
Olmsted Building, E-355
Middletown, PA 17057
717-948-6141
ljc43@psu.edu

<https://harrisburg.psu.edu/business-administration/enterprise-technology-integration-bs> (<https://harrisburg.psu.edu/business-administration/enterprise-technology-integration-bs/>)

Human-Centered Design and Development, B.S. (Information Sciences and Technology)

Begin Campus: Abington, Altoona, Berks, Beaver, Brandywine, DuBois, Erie, Fayette, Greater Allegheny, Harrisburg, Hazleton, Lehigh Valley, Mont

Alto, New Kensington, Shenango, Schuylkill, University Park, Wilkes-Barre, Scranton, York

End Campus: University Park

Program Description

The Human-Centered Design and Development major (HCDD) in the College of Information Sciences and Technology is a Bachelor of Science degree program that will educate students in the fundamental concepts and state-of-the-art skills in developing applications of technology for people, with a focus on learning outcomes needed to: a) identify opportunities to support human activity with technology; b) design and create useful and usable technology-mediated activities; and c) evaluate and iterate designed technologies in their context of use. Students graduating with a degree in HCDD will be positioned for successful careers in industry, government, and education, helping to ensure that our world of increasingly complex and pervasive technologies remains aligned with human aspirations, requirements, and limitations.

The HCDD major is interdisciplinary, combining foundational coursework in mathematics, statistics, information technology, and application development with specialized courses in social and psychological aspects of information and technology use, usability engineering, user research methods, and user interface design. The major draws on courses already taught as part of the IST BS degree, but also includes new courses that expand the user-centered analysis and design concepts and methodological rigor needed to succeed as an HCDD professional.

What is Human-Centered Design and Development?

Human-Centered Design and Development is the study of how to identify, design, build, and evaluate technologies to enhance people's lives. The field focuses on understanding people and their use of technology, the methods and tools used for designing and building effective technology solutions, and the modern information technologies used to create effective solutions. The field involves working with potential users and customers to understand their needs and unique contexts, and then how to design, build, and evaluate impactful products and services. Human-centered design and development integrates ideas from design thinking, human-computer interaction (HCI), interaction design, and user experience design with the skills and techniques needed for software development.

MORE INFORMATION ABOUT HUMAN-CENTERED DESIGN AND DEVELOPMENT (<https://ist.psu.edu/prospective/undergraduate/academics/hcdd/>)

You Might Like This Program If...

- You are passionate about designing and building interactive technologies
- You want to design, build, and evaluate web, mobile, and other software applications
- You enjoy working with people to understand how they live and how technology fits into their lives
- You want to design, conduct, and interpret data from user studies
- You embrace uncertainty and change, and are not afraid to fail on the path to getting things right

MORE INFORMATION ABOUT WHY STUDENTS CHOOSE TO STUDY HUMAN-CENTERED DESIGN AND DEVELOPMENT (<https://ist.psu.edu/prospective/undergraduate/academics/hcdd/>)

Entrance to Major

This program currently has administrative enrollment controls. Administrative Enrollment Controls are initiated when limitations of space, faculty, or other resources in a major prevent accommodating all students who request them. Students must follow the administrative enrollment controls that are in effect for the semester that they enter the university.

First-Year Students Entering Summer 2024, Fall 2024, Spring 2025

In order to be eligible for entrance to this major, students must satisfy the following requirements:

- be enrolled in the College of Information Sciences and Technology or the Division of Undergraduate Studies
- 40-70 graded Penn State credits (excludes transfer and AP credits)
- completed with a grade of C or better:
 - HCDD 113 or HCDD 113S
 - IST 140 or CMPSC 121 or CMPSC 131, or CMPSC 101 and IST 240
 - IST 242 or CMPSC 122 and CMPSC 221, or CMPSC 132 and CMPSC 221
 - IST 210, IST 220, STAT 200
- earned a minimum cumulative grade-point average (GPA) of 2.70

Students Who Entered Prior to Summer 2024

Students who entered the University from Summer 2018 through Spring 2024 should view the administrative enrollment controls in the appropriate Undergraduate Bulletin archive (<https://bulletins.psu.edu/undergraduate/archive/>). Students who entered the University prior to the summer 2018 semester should consult with their academic adviser about the administrative enrollment controls in effect for the semester they entered the university.

Degree Requirements

For the Bachelor of Science degree in Information Sciences and Technology, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	6-12
Requirements for the Major	78-84

15 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GQ courses, 3 credits of GS courses, 6 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
IST 495	Internship	1
<i>Prescribed Courses: Require a grade of C or better</i>		
HCDD 264	Design Practice in Human-Centered Design and Development	3
HCDD 340	Human-Centered Design for Mobile Computing	3
HCDD 364W	Methods for Studying Users	3
HCDD 440	Human-Centered Design and Development Capstone Course	3
IST 210	Organization of Data	3
IST 220	Networking and Telecommunications	3
IST 230	Language, Logic, and Discrete Mathematics	3
IST 256	Programming for the Web	3
IST 311	Object-Oriented Design and Software Applications	3
IST 402	Emerging Issues and Technologies	3
IST 411	Distributed-Object Computing	3
IST 412	The Engineering of Complex Software Systems	3
STAT 200	Elementary Statistics	4
Additional Courses		
ENGL 15	Rhetoric and Composition	3
or ENGL 30H	Honors Rhetoric and Composition	
ENGL 202C	Effective Writing: Technical Writing	3
or ENGL 202D	Effective Writing: Business Writing	
PSYCH 100	Introductory Psychology	3
or SOC 3	Introductory Social Psychology	
Select 12 credits from the Application Focus course listings. These are listings maintained by the department as support of major courses. At least one course must be at the 400 level. Students may also complete a custom Application Focus course sequence with approval from an academic adviser and an HCDD teaching faculty member. Students may want to consider choosing courses that also fulfill US and/or IL requirements.		12
<i>Additional Courses: Require a grade of C or better</i>		
HCDD 113S	Foundations of Human-Centered Design and Development FYS	3
or HCDD 113	Foundations of Human-Centered Design and Development	
IST 261	Application Development Design Studio I	3
or IST 361	Application Development Design Studio II	
MATH 110	Techniques of Calculus I	4
or MATH 140	Calculus With Analytic Geometry I	
Select one of the following:		3-6
IST 140	Introduction to Application Development	
CMPSC 121	Introduction to Programming Techniques	
CMPSC 131	Programming and Computation I: Fundamentals	
CMPSC 101 & IST 240	Introduction to Programming and Introduction to Computer Languages	
Select one of the following:		3-6
IST 242	Intermediate & Object-Oriented Application Development	
CMPSC 221 & CMPSC 122	Object Oriented Programming with Web-Based Applications and Intermediate Programming	

CMPS 132 Programming and Computation II: Data Structures
& CMPS 221 and Object Oriented Programming with Web-
Based Applications

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Human-Centered Design and Development and M.S. in Cybersecurity Analytics and Operations

Available at the following campuses: University Park

Requirements for the Integrated B.S. in Human-Centered Design and Development and M.S. in Cybersecurity Analytics and Operations can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/cybersecurity-analytics-operations/#integratedundergradgradtext>).

Integrated B.S. in Human-Centered Design and Development and M.S. in Informatics

Available at the following campuses: University Park

Requirements for the Integrated B.S. in Human-Centered Design and Development and M.S. in Informatics can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/informatics/#integratedundergradgradprogramstext>).

Program Learning Objectives

- **Understanding Humans:** Understanding how humans' physical and cognitive capabilities inform interaction and experience design.
- **Understanding Context:** Understanding the context and technology requirements of users and other stakeholders, and articulating how design and evaluation concerns are affected by their context.
- **Modeling Human Activity:** Developing models of human activity with and without technology support.
- **Prototyping:** Envisioning, designing, and evaluating new technology prototypes using appropriate interaction modalities, styles and techniques.
- **Developing Production and Technologies:** Developing working, production technologies to address identified design opportunities.

- **Evaluating:** Applying and developing skills in a mix of qualitative and quantitative methods to collect and analyze formative and summative usability data.
- **Managing HCDD Projects:** Selecting, organizing and implementing design and development activities involving users and other stakeholders.
- **Communicating:** Communicating with colleagues, users, and other stakeholders about complex ideas describing actual and envisioned technology in use.
- **Enacting Ethics:** Understanding the importance of professional ethics and enacting these in human-centered design and development practice.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Undergraduate Academic Advising Center

E103 Westgate Building
 University Park, PA 16802
 814-865-8947
 advising@ist.psu.edu

Harrisburg

David Kitlan

Program Coordinator
 Olmsted Building E335
 Middletown, PA 17057
 717-948-6639
 dpk104@psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Human-Centered Design and Development, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If**

report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year					
Fall	Credits	Spring	Credits		
HCDD 113/113S ^{*#}	3	STAT 200 (GQ) ^{*‡#}	4		
IST 140 ^{**}	3	IST 220 ^{**}	3		
MATH 110 or 140 (GQ) [‡]	4	IST 242 ^{**}	3		
PSYCH 100 or SOC 3 (GS) [‡]	3	ENGL 15 or 30H (GWS) [‡]	3		
General Education Selection	3	General Education Selection	3		
16		16			
Second Year					
Fall	Credits	Spring	Credits		
HCDD 264 [*]	3	IST 311 [*]	3		
IST 210 ^{**}	3	IST 256 [*]	3		
IST 230 [*]	3	CAS 100 (GWS) [‡]	3		
IST 261 [*]	3	Application Focus Selection	3		
Application Focus Selection	3	Elective	3		
15		15			
Third Year					
Fall	Credits	Spring	Credits Summer	Credits	
HCDD 340 [*]	3	HCDD 364W [*]	3	IST 495 ^{*1}	1
ENGL 202C or 202D (GWS) [‡]	3	IST 361 (or Elective) [*]	3		
Application Focus Selection	3	IST 412 [*]	3		
General Education Selection	3	General Education Selection	3		
General Education Selection	3	General Education Selection	3		
15		15		1	
Fourth Year					
Fall	Credits	Spring	Credits		
IST 411 [*]	3	HCDD 440 [*]	3		
IST 402 [*]	3	General Education Selection	3		
Application Focus Selection (400-level)	3	General Education Selection	3		
General Education Selection	3	Elective	3		

Elective	3
12	15

Total Credits 120

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ 1 credit of IST 495 is required. A grade of "SA" must be earned in this course. This course can be completed at any time before graduation.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Application Focus Areas:

Students pick one of the application focuses areas below or create a custom four-course application focus. Students must pick three credits at the 400 level. All twelve credits must be in the same application focus area.

Data Sciences

Code	Title	Credits
DS 120	Scripting for Data Sciences	1
DS 200	Introduction to Data Sciences	4
DS 220	Data Management for Data Sciences	3
DS 300	Privacy and Security for Data Sciences	3
DS 310	Machine Learning for Data Analytics	3
DS 330	Visual Analytics for Data Sciences	3
DS 402	Emerging Trends in the Data Sciences	3
DS 410	Programming Models for Big Data	3
MIS 301	Business Analytics	3
MIS 431	Business Data Management	3
MIS 441	Business Intelligence for Decision Making	3
MIS 445	Business Intelligence	4
STAT 184	Introduction to R	2

STAT 380	Data Science Through Statistical Reasoning and Computation	3
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Digital Arts and Communication

Code	Title	Credits
AA 121	Design Thinking and Creativity	3
AA 122	Introduction to Graphic Storytelling	3
CAS 101N	Introduction to Human Communication	3
CAS 175N	Persuasion and Propaganda	3
CAS 215	Argumentation	3
CAS 271N	Intercultural Communication	3
CAS 383N	Culture and Technology	3
CAS 471	Intercultural Communication Theory and Research	3
COMM 100N	The Mass Media and Society	3
COMM 190/ GAME 140	Gaming and Interactive Media	3
COMM 241	Graphic Design for Communications	3
COMM 310	Digital Media Metrics	3
COMM 320	Introduction to Advertising	3
COMM 325	Effects of digital games	3
COMM 370	Public Relations	3
COMM 372	Digital Public Relations	3
COMM 418	Media Effects: Theory and Research	3
COMM 420	Research Methods in Advertising and Public Relations	3
COMM 422	Advertising Media Planning	3
COMM 441	Advanced Graphic Design for Communications	3
COMM 450	Digital Advertising	3
COMM 450A	Digital Campaigns	3
GD 100	Introduction to Graphic Design	3

- Note that the College of Arts and Architecture is currently developing new courses that will fit into this focus area and added to this list once the new courses are approved and available.

Geographic Information Systems

Code	Title	Credits
CAS 101N	Introduction to Human Communication	3
GEOG 6N	Maps and the Geospatial Revolution	3
GEOG 260	Geographic Information in a Changing World: Introduction to GIScience	3
GEOG 361	Cartography--Maps and Map Construction	3
GEOG 362	Image Analysis	3
GEOG 363	Geographic Information Systems	3
GEOG 364	Spatial Analysis	3
GEOG 461W	Dynamic Cartographic Representation	3
GEOG 463	Geospatial Information Management	3
GEOG 464	Advanced Spatial Analysis	3
GEOG 485	GIS Programming and Software Development	3
Any ARMY, NAVSC, AIR ROTC		1-6

Healthcare

Code	Title	Credits
BBH 101	Introduction to Biobehavioral Health	3
BBH 302	Diversity and Health	3

BBH 305	Introduction to Global Health Issues	3
BBH 315	Gender and Biobehavioral Health	3
BBH 316	Foundations and Principles of Health Promotion	3
BBH 402	African Health & Development	3
BBH 432	Biobehavioral Aspects of Stress	3
BBH 440	Principles of Epidemiology	3
HDFS 210	Ethnicity, Health and Aging	3
HDFS 249N	Adult Development and Aging	3
HDFS 445	Development Throughout Adulthood	3
HPA 101	Introduction to Health Services Organization	3
HPA 210	Health Care Payment	3
HPA 211	Financial Decisions in Health Care Organizations	3
HPA 301W	Health Services Policy Issues	3
HPA 311	Population Health and Healthcare	3
HPA 332	Health Systems Management	3
HPA 470	Health Care Information Management	3

Informatics

Code	Title	Credits
ENGR 310	Entrepreneurial Leadership	3
IST 222H	Community Informatics	3
IST 234N	Digital Cultures	3
IST 237	Digital Entrepreneurship	3
IST 301	Information and Organizations	3
IST 337	Technologies for Digital Entrepreneurs	3
IST 402	Emerging Issues and Technologies	3
IST 431	The Information Environment	3
IST 437	Digital Design & Innovation	3
IST 446	An Introduction to Building Computer/Video Games	3
MGMT 215	Entrepreneurial Mindset	3

Psychology

Code	Title	Credits
PSYCH 221	Introduction to Social Psychology	3
PSYCH 244	Introduction to the Psychology of Human Factors Engineering	3
PSYCH 253	Introduction to Psychology of Perception	3
PSYCH 256	Introduction to Cognitive Psychology	3
PSYCH 301W	Basic Research Methods in Psychology	4
PSYCH 370	Psychology of the Differently-Abled	3
PSYCH 420	Advanced Social Psychology	3
PSYCH 421	Self and Social Judgment	3
PSYCH 423	Social Psychology of Interpersonal/Intergroup Relationships	3
PSYCH 458	Visual Cognition	3

- Note that this assumes PSYCH 100 will be chosen from Additional Courses, as it is a prerequisite for many of these classes.

Security and Risk

Code	Title	Credits
CYBER 100	Computer Systems Literacy	3
CYBER 262	Cyber-Defense Studio	3
CYBER 366	Malware Analytics	3

SRA 111	Introduction to Security and Risk Analysis	3
SRA 211	Threat of Terrorism and Crime	3
SRA 221	Overview of Information Security	3
SRA 231	Decision Theory and Analysis	3
SRA 268	Visual Analytics	3
SRA 311	Risk Analysis in a Security Context	3
SRA 421	The Intelligence Environment	3
SRA 468	Spatial Analysis of Risks	3
SRA 472	Integration of Privacy and Security	3
Any ARMY, NAVSC, AIR ROTC		1-6

Sociology

Code	Title	Credits
SOC 207	Research Methods in Sociology	3
SOC 403	Advanced Social Psychology	3
SOC 404	Social Influence and Small Groups	3
SOC 405	Sociological Theory	3
SOC 425	Social Conflict	3
SOC 429	Social Stratification	3
SOC 435/ HDFS 434	Perspectives on Aging	3
SOC 471	Qualitative Research Methods in Sociology	3

- Note that this assumes SOC 3 will be chosen from Additional Courses, as it is a prerequisite for many of these classes.

Custom Application Focus

There is an option for a student to create a custom 4-course application focus sequence. It must be a coherent sequence of courses that provides context for the student in terms of content relevant to the HCDD program. It must contain three credits of 400-level coursework, so it's important to consider course prerequisites when creating your custom application focus area. It must be selected in consultation with a teaching HCDD faculty member and an academic adviser.

Human-Centered Design and Development, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
HCDD 113/113S* [#]	3 IST 220* [#]	3
IST 210* [#]	3 STAT 200 (GQ)* ^{††}	4
MATH 110 or 140 (GQ) ^{††}	4 ENGL 15 or 30H (GWS) [†]	3
General Education Selection	3 CAS 100 (GWS) [†]	3
General Education Selection	3 General Education Selection	3
	16	16

Second Year

Fall	Credits Spring	Credits
IST 140* ^{#1}	3 IST 242* ^{#2}	3
PSYCH 100 or SOC 3 (GS) ^{††}	3 Application Focus Selection or General Education Selection	3
Application Focus Selection or General Education Selection	3 General Education Selection	3
General Education Selection	3 General Education Selection	3
Elective	3 Elective	3
	15	15

Third Year

Fall	Credits Spring	Credits Summer	Credits
IST 311*	3 HCDD 364W*	3 IST 495* ³	1
HCDD 264*	3 IST 361*	3	
ENGL 202C or 202D (GWS) [†]	3 IST 230*	3	
IST 261 (or Elective)*	3 IST 256*	3	
Application Focus Selection or General Education Selection	3 Application Focus Selection or General Education Selection	3	
	15	15	1

Fourth Year

Fall	Credits Spring	Credits
IST 412*	3 HCDD 440*	3
IST 402*	3 IST 411*	3
HCDD 340*	3 Application Focus Selection	3
Application Focus Selection (400-level)	3 General Education Selection	3
	Elective	3
	12	15

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Students may meet the requirement for IST 140 by taking one of the following alternate paths: CMPSC 121, or CMPSC 131, or CMPSC 101 and IST 240

² Students may meet the requirement for IST 242 by taking one of the following alternate paths: CMPSC 121 and CMPSC 221, or CMPSC 131 and CMPSC 221

³ 1 credit of IST 495 is required. A grade of "SA" must be earned in this course. This course can be completed at any time before graduation.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Application Focus Areas:

Students pick one of the application focuses listed on the "University Park Campus" plan or create a custom four-course application focus. It must contain three credits of 400-level coursework, so it's important to consider course prerequisites when creating your custom application focus area. All twelve credits must be in the same application focus area. Not all application focuses are available at all campuses. See your

academic adviser to find out which courses and focuses are available at your campus.

Career Paths

Society increasingly recognizes the need for technologies designed to account for people's capabilities, needs, desires, and limitations. Human-Centered Design and Development graduates have many career paths available to them depending on their strengths, interests, and focus of study.

Students with more technical interests can become web and mobile application developers, front-end developers, and user interface/user experience designers and developers. Those most interested in the human dimension of technology can become usability researchers, interaction designers, and product managers. In addition, there are many opportunities to pursue graduate study in these areas.

MORE INFORMATION ABOUT POTENTIAL CAREER OPPORTUNITIES FOR GRADUATES OF THE HUMAN-CENTERED DESIGN AND DEVELOPMENT PROGRAM (<https://www.ist.psu.edu/current/careers/development/process/path/>)

Contact

University Park

COLLEGE OF INFORMATION SCIENCES AND TECHNOLOGY
411 Eric J. Barron Innovation Hub Building
State College, PA 16801
814-865-3528

Harrisburg

SCHOOL OF BUSINESS ADMINISTRATION
Olmsted Building, E355
Middletown, PA 17057
717-948-6141
ljc43@psu.edu

<https://harrisburg.psu.edu/business-administration/human-centered-design-development-bs> (<https://harrisburg.psu.edu/business-administration/human-centered-design-development-bs/>)

Information Sciences and Technology, A.S. (Information Sciences and Technology)

Begin Campus: World Campus

End Campus: World Campus

Program Description

This associate degree major is structured to prepare graduates for immediate and continuing employment opportunities in the broad disciplines of information science and technology. This includes positions such as application programmers, associate systems designers, network managers, web designers and administrators, or information systems support specialists. Specifically, the major is designed to ensure a thorough knowledge of information systems and includes extensive practice using contemporary technologies in the creation, organization, storage, analysis, evaluation, communication, and transmission of information. The major fosters communications, interpersonal, and group interaction skills through appropriate

collaborative and active learning projects and experiences. Technical material covers the structure of database systems, web and multimedia systems, and considerations in the design of information systems. Team projects in most courses, a required internship, and a second-year capstone experience provide additional, focused venues for involving students in the cutting-edge issues and technologies in the field.

The Associate of Science in IST degree will be offered at multiple campuses within the Penn State system of colleges and campuses. Note that not all options will be available at all locations.

Application Development Option

Available at the following campuses: Berks, Greater Allegheny, Hazleton, Mont Alto, Scranton, World Campus, York

The Application Development option prepares students for entry level position in applications development and/or web development. It also prepares students for IST related baccalaureate degrees such as HCDD, IT, ETI, and CYBER. Students take courses such as web development and advanced java programming as well as usability.

Custom Option

Available at the following campuses: Berks, DuBois, Greater Allegheny, Hazleton, Mont Alto, Scranton, Wilkes-Barre, World Campus, York

The Custom option enables students to work closely with an adviser to develop a plan of study that meets the dual objectives of allowing a flexible academic program and a specific theme related to technology. Some examples of themes are web development, psychology, and usability.

Cybersecurity Option

Available at the following campuses: Berks, Greater Allegheny, Mont Alto, World Campus, York

The Cybersecurity option prepares students for an entry level position in the cyber security field. It also prepares students for IST related baccalaureate degrees such as Cybersecurity Analytics and Operations and SRA. Students take introductory courses in CYBER and SRA as well as advanced hand-on courses in these areas.

Generalized Business Option

Available at the following campuses: Berks, DuBois, Greater Allegheny, Mont Alto, Scranton, World Campus, York

The Generalized Business option enables students to specialize in the general business areas of accounting, marketing, and management, and is closely aligned with the requirements of the ETI major.

Networking Option

Available at the following campuses: DuBois, Mont Alto, World Campus

The Networking option prepares graduates for positions as entry-level computer network administrators. Students take courses in personal computer hardware, networking essentials, and network administration.

What is Information Sciences and Technology?

Information Sciences and Technology is a discipline that explores how we can strengthen the power of information and technology, and use it to increase human potential. This includes focusing on creating innovative systems and technological solutions that benefit businesses,

organizations, and individuals, and understanding the role of technology in how we live our lives.

Entrance to Major

Students must have a minimum 2.0 GPA to change to this Associate degree after admission to the University.

Degree Requirements

For the Associate in Science degree in Information Sciences and Technology, a minimum of 60 credits is required:

Requirement	Credits
General Education	21
Electives	0-5
Requirements for the Major	43-47

6-9 of the 21 credits for General Education are included in the Requirements for the Major. For all options, this includes: 3 credits of GQ courses; 3 credits of GWS courses; 0-3 credits of GS courses. (3 credits of GQ courses in Additional Courses includes MATH 21, MATH 22, MATH 110, SCM 200 or STAT 200) and 3 credits of GWS courses including ENGL 15 or CAS 100 which are Prescribed Courses. Students may also overlap 3 credits of GS if they select SRA 111 in Additional Courses for the Major or if they select ECON 102/ECON 104 in the Generalized Business Option Additional Courses.)

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CAS 100	Effective Speech	3
ENGL 15	Rhetoric and Composition	3
IST 140	Introduction to Application Development	3
IST 210	Organization of Data	3
IST 220	Networking and Telecommunications	3
IST 260W	Introduction to Systems Analysis and Design	3
Additional Courses		
ENGL 202C	Effective Writing: Technical Writing	3
or ENGL 202D	Effective Writing: Business Writing	
<i>Additional Courses: Require a grade of C or better</i>		
IST 250	Introduction to Web Design and Development	3
or IST 256	Programming for the Web	
Select 3 credits from the following: ¹		3
CYBER 100	Computer Systems Literacy	
CYBER 100S	Computer Systems Literacy	
HCDD 113	Foundations of Human-Centered Design and Development	
HCDD 113S	Foundations of Human-Centered Design and Development FYS	
IST 110	Information, People and Technology	

SRA 111	Introduction to Security and Risk Analysis	
Select 1 credit from the following:		1
IST 295A	Distributed Team Project	
IST 295B	IST Internship	
IST 495	Internship	
Select 3-4 credits from the following:		3-4
MATH 21	College Algebra with Analytic Geometry with Applications I	
MATH 22	College Algebra With Analytic Geometry and Applications II	
MATH 26	Plane Trigonometry and Applications of Trigonometry	
MATH 110	Techniques of Calculus I	
MATH 140	Calculus With Analytic Geometry I	
SCM 200	Introduction to Statistics for Business	
STAT 200	Elementary Statistics	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Any first-year seminar course. Students who complete CYBER 100S or HCDD 113S as additional courses do not have to schedule an additional first-year seminar.

Requirements for the Option

Requirements for the Option: Require a grade of C or better

Select an option 12-14

¹ Students planning to complete the Cybersecurity option must select CYBER 100/CYBER 100S. Courses may not double count with option requirements.

Requirements for the Option

Application Development Option (12 credits)

Available at the following campuses: Berks, Greater Allegheny, Hazleton, Mont Alto, Scranton, World Campus, York

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 12 credits from the following:		12
IST 242	Intermediate & Object-Oriented Application Development	
IST 256	Programming for the Web ¹	
IST 261	Application Development Design Studio I	
IST 311	Object-Oriented Design and Software Applications	
HCDD 264	Design Practice in Human-Centered Design and Development	
or IST 331	Foundations of Human-Centered Design	

¹ IST 256 may count in the major requirements or the option, but may not double count toward both requirements.

Custom Option (12 credits)

Available at the following campuses: Berks, DuBois, Greater Allegheny, Hazleton, Mont Alto, Scranton, Wilkes-Barre, World Campus, York

Code	Title	Credits
IST 227	Network Administration	3
IST 228	Advanced Network Administration	3

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 12 credits in consultation with an adviser. All courses are C- required. Examples of specific themes include: Web Development, Psychology, Usability. 12

Cybersecurity Option (12 credits)

Available at the following campuses: Berks, Greater Allegheny, Mont Alto, World Campus, York

Code	Title	Credits
Additional Courses		

Additional Courses: Require a grade of C or better

Select 12 credits from the following: ¹ 12

CYBER 262	Cyber-Defense Studio	
IST 242	Intermediate & Object-Oriented Application Development	
SRA 111	Introduction to Security and Risk Analysis	
SRA 211	Threat of Terrorism and Crime	
SRA 221	Overview of Information Security	

¹ Courses may not double count with the major requirements.

Generalized Business Option (12-14 credits)

Available at the following campuses: Berks, DuBois, Greater Allegheny, Mont Alto, Scranton, World Campus, York

Code	Title	Credits
Additional Courses		

Additional Courses: Require a grade of C or better

Select 12-14 credits from the following: 12-14

ACCTG 211	Financial and Managerial Accounting for Decision Making	
BA 243	Social, Legal, and Ethical Environment of Business	
	or BLAW 243 Legal Environment of Business	
	or BA 241 Legal Environment of Business	
	& BA 242 and Social and Ethical Environment of Business	
BA 301	Finance	
	or FIN 301 Corporation Finance	
BA 302	Supply Chains	
	or SCM 301 Supply Chain Management	
BA 303	Marketing	
	or MKTG 301 Principles of Marketing	
BA 304	Management and Organization	
	or MGMT 30 Basic Management Concepts	
ECON 102	Introductory Microeconomic Analysis and Policy	
	or ECON 104 Introductory Macroeconomic Analysis and Policy	

Networking Option (12 credits)

Available at the following campuses: DuBois, Mont Alto, World Campus

Code	Title	Credits
Prescribed Courses		

Prescribed Courses: Require a grade of C or better

IST 225	PC Hardware Basics	3
IST 226	Networking Essentials	3

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all associate degree students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 3 credits
- **Writing and Speaking (GWS):** 3 credits

Knowledge Domains

- **Arts (GA):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Note: Up to six credits of Inter-Domain courses may be used for any Knowledge Domain requirement, but when a course may be used to satisfy more than one requirement, the credits from the course can be counted only once.

Exploration

- **Any General Education course (including GHW and Inter-Domain):** 3 credits

University Degree Requirements**Cultures Requirement**

3 credits of United States (US) or International (IL) cultures coursework are required and may satisfy other requirements

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 60 degree credits must be earned for an associates degree. The requirements for some programs may exceed 60 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate->

students/82-00-and-83-00-degree-requirements/#83-80)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Know Networking Systems and Industry Methods:** Demonstrate ability to apply various industry standards in system development, system maintenance, and ISO/IEC/IEEE standards.
- **Know Security Risk Factors:** Demonstrate knowledge of security risk factors impacting on various system components; understand the impact of those risk factors on the larger information system; and demonstrate the ability to design, develop, and implement secure information systems, using the latest industry standards and best practices, (i.e., securing hardware, software compliance, etc.).
- **Know the System Development Lifecycle (SDLC):** Demonstrate knowledge of the SDLC by applying its methods to information systems projects and lab exercises.
- **Manage Information Systems:** Demonstrate knowledge and execution of designing and managing various information systems.
- **Use Communication Skills:** Apply written, oral, and graphic communication effectively in both technical and nontechnical environments, and use appropriate technical literature.
- **Use Information Sciences Theory/Practice:** Use management theory and information technology processes in managing information systems, which include best practices for system design, development, and implementation.
- **Use Team Membership Skills:** Function effectively as a member of a technical team.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-information-sciences-and-technology-associate-in-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-information-sciences-and-technology-associate-in-science-degree/>)

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Information Sciences and Technology, B.S. (Information Sciences and Technology)

Begin Campus: Any Penn State Campus

End Campus: University Park, World Campus

INFORMATION TECHNOLOGY: INTEGRATION & APPLICATION OPTION CURRENTLY ON HOLD AND NOT ACCEPTING NEW STUDENTS AT WORLD CAMPUS.

Begin Date of Enrollment Hold: January 30, 2024

OPTION AVAILABLE AT ALL OTHER LISTED CAMPUSES

Program Description

This major is structured to provide students with the theoretical frameworks and skill sets necessary to compete and be productive in the information technology-intensive global context that defines the new "Information Age." Specifically, the degree will be focused on a program that will build an understanding of core information technologies and related areas of study; will prepare students for the practical application of various information sciences and related technologies; and engage students in sharpening their abilities to think critically and to work in teams. All this will be done with considerable interdisciplinary integration in order to expose students to the cognitive, social, institutional, and global environments of IST. Team projects in most courses, a required internship, and a senior capstone experience provide additional, focused

venues for involving students in the cutting-edge issues and technologies of the field.

Information Context: People, Organizations, and Society Option

Available at the following campuses: University Park

This option focuses on how information technology affects social change and the delivery of information to the consumer. This includes the human-machine interface; organization and retrieval of information; digital libraries; information and telecommunications services; information and media industry structures; software services and intermediaries; telecommunications and information law and policy; sociological aspects of technology change; multimedia; and art, design, and aesthetics.

Information Systems: Design & Development Option

Available at the following campuses: Harrisburg, World Campus

This option is focused on expanding the skills needed to develop advanced information technology systems using state-of-the-art tools and techniques. The emphasis is on providing the student with both knowledge in the design, implementation, testing and evolution of complex software systems as well as a set of project-oriented, team-programming experiences.

Information Technology: Integration & Application Option

Available at the following campuses: Harrisburg, World Campus

This option is designed to prepare students to use information technology to realize a variety of system-based goals (e.g., reliability, accessibility, efficiency, etc.). It is focused on developing a theoretical foundation and the skill set needed for integrating information technology into different systems for the purpose of enhancing system performance. The emphasis is on providing the student with both the theoretical frameworks needed to use information technology as a system attribute as well as a set of application-oriented experiences and skills.

What is Information Sciences and Technology?

Information Sciences and Technology is a discipline that explores how we can strengthen the power of information and technology, and use it to increase human potential. This includes focusing on creating innovative systems and technological solutions that benefit businesses, organizations, and individuals, and understanding the role of technology in how we live our lives.

MORE INFORMATION ABOUT INFORMATION SCIENCES AND TECHNOLOGY (<https://ist.psu.edu/prospective/undergraduate/academics/ist/>)

You Might Like This Program If...

- You want to develop new software and web applications, help businesses operate more effectively by creating and implementing technological solutions, or understand how technology is connected to broader social issues.
- You are interested in technology but also want to work with people.
- You enjoy coming up with creative solutions to difficult challenges.

MORE INFORMATION ABOUT WHY STUDENTS CHOOSE TO STUDY INFORMATION SCIENCES AND TECHNOLOGY (<https://ist.psu.edu/prospective/undergraduate/academics/ist/>)

Entrance to Major University Park

This program currently has administrative enrollment controls. Administrative Enrollment Controls are initiated when limitations of space, faculty, or other resources in a major prevent accommodating all students who request them. Students must follow the administrative enrollment controls that are in effect for the semester that they enter the university.

First-Year Students Entering Summer 2024, Fall 2024, Spring 2025

In order to be eligible for entrance to this major, students must satisfy the following requirements:

- be enrolled in the College of Information Sciences and Technology or the Division of Undergraduate Studies
- 40-70 graded Penn State credits (excludes transfer and AP credits)
- completed with a grade of C or better: IST 110, IST 140 or CMPSC 101 or CMPSC 121, IST 210, IST 220
- earned a minimum cumulative grade-point average (GPA) of 2.70

Students Who Entered Prior to Summer 2024

Students who entered the University from Summer 2018 through Spring 2024 should view the administrative enrollment controls in the appropriate Undergraduate Bulletin archive (<https://bulletins.psu.edu/undergraduate/archive/>). Students who entered the University prior to the summer 2018 semester should consult with their academic adviser about the administrative enrollment controls in effect for the semester they entered the university.

World Campus

To be eligible for entrance to the Information Sciences and Technology (ISTBS) major, students must:

1. have completed the following entrance-to-major requirements with a grade of C or better in each: IST 110; IST 140 (or equivalent CMPSC 101 or CMPSC 121) IST 210; and IST 220.
2. have achieved a minimum cumulative grade point average of 2.00 prior to and through the end of the semester during which the entrance-to-major procedure is carried out.

Degree Requirements

For the Bachelor of Science degree in Information Sciences and Technology, a minimum of 125 credits is required:

Requirement	Credits
General Education	45
Electives	8
Requirements for the Major	84

12 of the 45 credits for General Education are included in the Requirements for the Major. This includes 12 credits of General Education courses: 6 credits of GQ courses; 3 credits of GS courses; and 3 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
STAT 200	Elementary Statistics	4
<i>Prescribed Courses: Require a grade of C or better</i>		
IST 110	Information, People and Technology	3
IST 210	Organization of Data	3
IST 220	Networking and Telecommunications	3
IST 230	Language, Logic, and Discrete Mathematics	3
IST 301	Information and Organizations	3
IST 331	Foundations of Human-Centered Design	3
IST 440W	Information Sciences and Technology Integration and Problem Solving	3
IST 495	Internship	1
Additional Courses		
Select one of the following: 3		
ECON 14	Principles of Economics	
ECON 102	Introductory Microeconomic Analysis and Policy	
ECON 104	Introductory Macroeconomic Analysis and Policy	
<i>Additional Courses: Require a grade of C or better</i>		
ENGL 202C	Effective Writing: Technical Writing	3
or ENGL 202D	Effective Writing: Business Writing	
MATH 110	Techniques of Calculus I	4
or MATH 140	Calculus With Analytic Geometry I	
Select one of the following: 3		
CMPSC 101	Introduction to Programming	
CMPSC 121	Introduction to Programming Techniques	
IST 140	Introduction to Application Development	
Supporting Courses and Related Areas		
Attainment of third-level proficiency in a single world language ¹ 12		
Select 6 credits of international courses in foreign culture from College-approved list 6		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 3 credits at the 400 level in emerging issues and technologies from College-approved list 3		
Requirements for the Option		
Select an option 24		

¹ Proficiency must be demonstrated by either examination or course work. See the admission section of the general information in this Bulletin for the placement policy for Penn State world language courses.

Requirements for the Option

Information Context: People, Organizations, and Society Option (24 credits)

Available at the following campuses: University Park

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
IST 431 & IST 432	The Information Environment and Legal and Regulatory Environment of Information Science and Technology	6
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
IST 240 or IST 242	Introduction to Computer Languages Intermediate & Object-Oriented Application Development	3
IST 302 or IST 413	IT Project Management Usability Engineering	3
Supporting Courses and Related Areas		
Select 12 credits from College-approved list (at least 3 credits at the 400-level and no more than 6 credits below the 200-level) 12		
Information Systems: Design & Development Option (24 credits)		
<i>Available at the following campuses: Harrisburg, World Campus</i>		
Code Title Credits		
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
IST 242	Intermediate & Object-Oriented Application Development ¹	3
IST 311	Object-Oriented Design and Software Applications	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
IST 261 or IST 361	Application Development Design Studio I Application Development Design Studio II	3
Select 6 credits of the following: 6		
IST 411	Distributed-Object Computing	
IST 412	The Engineering of Complex Software Systems	
IST 413	Usability Engineering	
Supporting Courses and Related Areas		
Select 9 credits from College-approved list (at least 3 credits must be at the 400-level) 9		
¹ Students in the Information Systems: Design and Development Option are expected to take IST 242 prior to taking the prescribed and additional courses for that option.		
Information Technology: Integration & Application Option (24 credits)		
<i>Available at the following campuses: Harrisburg, World Campus</i>		
Code Title Credits		
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
IST 302	IT Project Management	3
IST 420	Fundamentals of Systems and Enterprise Integration	3
IST 421	Advanced Enterprise Integration: Technologies and Applications	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
IST 240	Introduction to Computer Languages	3

or IST 242 Intermediate & Object-Oriented Application Development

Supporting Courses and Related Areas

Select 12 credits from College-approved list (at least 3 credits at the 400-level and no more than 6 credits below the 200-level) 12

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Information Sciences and Technology and M.S. in Informatics

Available at the following campuses: University Park

Requirements for the Integrated B.S. in Information Sciences and Technology and M.S. in Informatics can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/informatics/#integratedundergradgradprogramstext>).

Program Learning Objectives

- **Knowledge/Application:** Understand and apply the interdisciplinary, theoretical knowledge of the information sciences or security sciences
 - Define and explain the core concepts, principles, processes, and theories within the academic majors of IST and/or SRA
 - Apply the core concepts of the academic majors of IST and/or SRA to real-world problems
- **Problem-Solving:** Demonstrate, apply and adapt various problem solving strategies, using appropriate technology and methods
 - Identify information problems and/or opportunities in terms of the human, informational and technology dimensions
 - Analyze issues surrounding the problem and/or opportunity in terms of the human, informational, and technology dimensions; and determine the requirements appropriate to understanding the situation
 - Design systems, architectures, processes, components, or programs to meet desired needs of the human context at varying levels of analysis (e.g., individual, group, organization, society, and/or world)
 - Deploy up-to-date, relevant and appropriate techniques, methodologies, and/or tools necessary for understanding opportunities and constraints and/or the optimal design,

implementation and continuance of an information based solution

- Evaluate the success of systems, architecture, processes, components, or programs intended to meet desired needs of the human context at varying levels of analysis (e.g., individual, group, organization, society, and/or world)
- **Communication (Individual and Team):** Communicate and work effectively (both individually and in teams) with a range of perspectives and audiences through a variety of media
 - Participate effectively on teams in order to accomplish a common goal
 - Communicate effectively with a range of audiences, formally or informally, through writing and the spoken word
 - Seek out, analyze, and incorporate diverse ideas and broader perspectives represented in the diversity of people
 - Demonstrate respectful and inclusive choices in interacting with customers, peers, supervisors, and/or subordinates with a diversity of identity characteristics (e.g., age, ancestry, color, disability or handicap, national origin, race, religious creed, sex, sexual orientation, gender identify, or veteran status)
- **Professional Responsibilities:** Understand professional responsibilities in terms of the ethical, legal, security and social aspects of any given problem and its solution
 - Demonstrate an understanding of the cognitive, social, legal, ethical, diversity, and security perspectives surrounding a given problem
 - Assess the impact of information, computing and technology on individuals, groups, organizations, society, and the world for the purpose of making informed decisions from a sociological, governmental, legal, and/or security perspective.
- **Lifelong Learning:** Commit to the continuous acquisition of relevant knowledge for professional development by self-teaching and/or on-going education and learning
 - Employ information-seeking strategies and self-directed learning in pursuit of current knowledge
 - Enroll and participate in professional development and tutoring opportunities

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

People, Organizations, and Society Option: Information Sciences and Technology, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
IST 110 ^{*#}	3 IST 220 [*]	3
IST 140, CMPSC 101, or CMPSC 121 ^{*#}	3 ECON 102 or 104	3
MATH 110 or 140 ^{*‡}	4 ENGL 15, 30H, or ESL 15 [‡]	3
World Language Level 1	4 General Education Course (GHW, GN, GA, or GS)	3
General Education Course (GHW, GN, GA, or GS)	3 World Language Level 2	4
17		16

Second Year

Fall	Credits Spring	Credits
IST 210 ^{*#}	3 IST 240 or 242	3
IST 230 [*]	3 STAT 200 [‡]	4

World Language Level 3	4 CAS 100 [‡]	3
General Education Course (GHW, GN, GA, or GS)	3 General Education Course (GHW, GN, GA, or GS)	3
General Education Course (GHW, GN, GA, or GS)	3 General Education Course (GHW, GN, GA, or GS)	3
16		16

Third Year

Fall	Credits Spring	Credits Summer	Credits
IST 301 [*]	3 IST 431 [*]	3 IST 495 ^{*1}	1
IST 331 [*]	3 IST 302 or 413	3	
Support of Option	3 ENGL 202C or 202D [‡]	3	
Elective	3 World Cultures (IL)	3	
General Education Course (GHW, GN, GA, or GS)	3 Support of Option	3	
15		15	1

Fourth Year

Fall	Credits Spring	Credits
IST 402	3 IST 440W [*]	3
IST 432 [*]	3 Support of Option 400 Level	3
Support of Option	3 General Education Course (GHW, GN, GA, or GS)	3
World Cultures (IL)	3 US Cultures or Elective (US)	3
General Education Course (GHW, GN, GA, or GS)	3 Elective	2
15		14

Total Credits 125

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ 1 credit of IST 495 is required. A grade of "SA" must be earned in this course. This course can be completed at any time before graduation.**University Requirements and General Education Notes:**

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- For current Support of Option course list see department website (<https://ist.psu.edu/current/undergraduate/major-requirements/ist/>).

Career Paths

IST allows you to explore some of the biggest challenges facing society and work to solve them by leveraging information and using technology. It blends skills from a number of fields – computer science, business, psychology, math, sociology, political science – so you can help people and organizations thrive. IST's Office of Career Solutions helps students navigate their internship and career development in the field through coaching, workshops, interview preparation, resume reviews, career fairs, job postings, and networking opportunities.

Careers

Because our courses blend technical knowledge with skills in communication and business, an IST degree allows for careers in nearly every industry including consulting, business, government, defense, entertainment, and medicine.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE INFORMATION SCIENCES AND TECHNOLOGY PROGRAM (<https://www.ist.psu.edu/current/careers/development/process/path/>)

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814-865-3528<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-information-sciences-and-technology-bachelor-of-science-degree>

(<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-information-sciences-and-technology-bachelor-of-science-degree/>)

Harrisburg

SCHOOL OF BUSINESS ADMINISTRATION
Olmsted Building, E355
717-948-6141
ljc43@psu.edu

<https://harrisburg.psu.edu/business-administration/information-sciences-technology-bs> (<https://harrisburg.psu.edu/business-administration/information-sciences-technology-bs/>)

Information Sciences and Technology, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

You Might Like This Program If...

- You want to develop new software and web applications, help businesses operate more effectively by creating and implementing technological solutions, or understand how technology is connected to broader social issues.
- You are interested in technology but also want to work with people.
- You enjoy coming up with creative solutions to difficult challenges.

Program Requirements

To earn an undergraduate certificate in Information Sciences and Technology, a minimum of 12 credits is required.

A grade of "C" or higher is required in all courses for the certificate; no course substitutions are permitted. Courses taken more than 10 years ago will not apply automatically towards completion of the certificate but instead will require review by the academic unit.

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
IST 110	Information, People and Technology	3
IST 210	Organization of Data	3
IST 220	Networking and Telecommunications	3
IST 250	Introduction to Web Design and Development	3

No Prerequisites Required.

Certificate Learning Objectives

- **Communication (Individual and Team):** Communicate and work effectively (both individually and in teams) with a range of perspectives and audiences through a variety of media
 - Participate effectively on teams in order to accomplish a common goal
 - Communicate effectively with a range of audiences, formally or informally, through writing and the spoken word
 - Seek out, analyze, and incorporate diverse ideas and broader perspectives represented in the diversity of people
 - Make respectful and inclusive choices in interacting with customers, peers, supervisors, and/or subordinates with a

diversity of identity characteristics (e.g., age, ancestry, color, disability or handicap, national origin, race, religious creed, sex, sexual orientation, gender identify, or veteran status).

- **Knowledge/Application:** Understand and apply the interdisciplinary, theoretical knowledge of the information sciences or security sciences
 - Define and explain the core concepts, principles, processes, and theories within the academic majors of IST and/or SRA
 - Apply the core concepts of the academic majors of IST and/or SRA to real-world problem
- **Problem-Solving:** Understand, apply and adapt various problem solving strategies, using appropriate technology and methods
 - Identify information problems and/or opportunities in terms of the human, informational and technology dimensions
 - Analyze issues surrounding the problem and/or opportunity in terms of the human, informational, and technology dimensions; and determine the requirements appropriate to understanding the situation
 - Design systems, architectures, processes, components, or programs to meet desired needs of the human context at varying levels of analysis (e.g., individual, group, organization, society, and/or world)
 - Deploy up-to-date and appropriate techniques, methodologies, and/or tools necessary for understanding opportunities and constraints and/or the optimal design, implementation and continuance of an information based solution
 - Evaluate the success of systems, architecture, processes, components, or programs intended to meet desired needs of the human context at varying levels of analysis (e.g., individual, group, organization, society, and/or world)

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Undergraduate Academic Advising Center
E103 Westgate Building
University Park, PA 16802
814-865-8947
advising@ist.psu.edu

Hazleton

Debra Conway
Director of Continuing Education
202 Slusser Bayzick

Hazleton, PA 18202
570-450-3136
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World Campus

Undergraduate Academic Advising

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University Park, PA 16802
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advising@outreach.psu.edu

York

Bill Cantor

Assistant Teaching Professor in Information Sciences and Technology
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York, PA 17403
717-771-4143
wpc2@psu.edu

Career Paths

IST allows you to explore some of the biggest challenges facing society and work to solve them by leveraging information and using technology. It blends skills from a number of fields – computer science, psychology, math, business, sociology, political science – so you can help people and organizations thrive. IST's Office of Career Solutions helps students navigate their internship and career development in the field through coaching, workshops, interview preparation, resume reviews, career fairs, job postings, and networking opportunities.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A CERTIFICATE IN INFORMATION SCIENCES AND TECHNOLOGY (<https://ist.psu.edu/current/careers/development/process/path/>)

Opportunities for Graduate Studies

Because our courses blend technical knowledge with skills in communication and business, an IST degree allows for careers in nearly every industry including government, defense, consulting, business, entertainment, and medicine.

Contact

University Park

COLLEGE OF INFORMATION SCIENCES AND TECHNOLOGY
411 Eric J. Barron Innovation Hub Building
State College, PA 16801
814-865-3528

Hazleton

OFFICE OF CONTINUING EDUCATION
202 Slusser Bayzick
Hazleton, PA 18202
570-450-3136
dxk40@psu.edu

<https://hazleton.psu.edu/ce> (<https://hazleton.psu.edu/ce/>)

World Campus

COLLEGE OF INFORMATION SCIENCES AND TECHNOLOGY
411 Eric J. Barron Innovation Hub Building
State College, PA 16801

814-865-3528

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-information-sciences-and-technology-undergraduate-certificate>
(<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-information-sciences-and-technology-undergraduate-certificate/>)

York

1031 Edgecomb Ave.
York, PA 17403
717-771-4143
wpc2@psu.edu

<https://www.york.psu.edu/academics/certificates/information-sciences-and-technology> (<https://www.york.psu.edu/academics/certificates/information-sciences-and-technology/>)

Information Sciences and Technology, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

This minor is structured to provide students with the theoretical frameworks and skill sets necessary to compete and be productive in the information technology-intensive global context that defines the new "Information Age." Specifically, the minor will be focused on a program that will build an understanding of core information technologies and related areas of study; will prepare students for the practical application of various information sciences and related technologies; and engage students in sharpening their abilities to think critically and to work in teams. All this will be done with the intent to expose students to the cognitive, social, institutional, and global environments of Information Sciences and Technology and to then apply that knowledge as a supplement to their major.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
IST 110	Information, People and Technology	3
IST 210	Organization of Data	3
IST 220	Networking and Telecommunications	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits of the following:		3

IST 140	Introduction to Application Development	
IST/COMM 234		
IST/WMNST 235	Gender and the Global Information Technology Sector	
IST 250	Introduction to Web Design and Development	
IST 301	Information and Organizations	
IST 302	IT Project Management	
Select 6 credits of the following:		6
IST 402	Emerging Issues and Technologies	
IST 431	The Information Environment	
IST 432	Legal and Regulatory Environment of Information Science and Technology	
IST 442	Information Technology in an International Context	
IST 445	Globalization Trends and World Issues	
IST 452	Legal and Regulatory Environment of Privacy and Security	
IST 453	Legal, Regulatory, Policy Environment of Cyber Forensics	

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

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READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Brandywine

Nannette D'Imperio
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Media, PA 19063
610-892-1343
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Greater Allegheny

Advising Office
Academic Affairs
101 Frable Building
4000 University Drive
McKeesport, PA 15132
412-675-9140
GA-Academics@lists.psu.edu

Harrisburg

Jesse Middaugh, PMP
Program Coordinator
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Hazleton

Barbara Brazon
Assistant Teaching Professor of Information Sciences and Technology
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Hazleton, PA 18202
570-450-3089
bxb30@psu.edu

Mont Alto

John Henry
Lecturer in IST
10 Bookstore Building
Mont Alto, PA 17237
717-749-6126
jch164@psu.edu

New Kensington

Harold Smith
Associate Professor
3550 Seventh Street Rd.
New Kensington, PA 15068
724-334-6138
hhs10@psu.edu

Wilkes-Barre

Wei-Fan Chen

Program Co-Coordinator, IST
44 University Drive
Dallas, PA 18612
570-675-9142
weifan@psu.edu

World Campus

Undergraduate Academic Advising

301 Outreach Building
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York

Bill Cantor

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wpc2@psu.edu

Career Paths

IST allows you to explore some of the biggest challenges facing society and work to solve them by leveraging information and using technology. It blends skills from a number of fields – computer science, psychology, math, business, sociology, political science – so you can help people and organizations thrive. IST's Office of Career Solutions helps students navigate their internship and career development in the field through coaching, workshops, interview preparation, resume reviews, career fairs, job postings, and networking opportunities.

Careers

Because our courses blend technical knowledge with skills in communication and business, an IST degree allows for careers in nearly every industry including government, defense, consulting, business, entertainment, and medicine.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN INFORMATION SCIENCES AND TECHNOLOGY (<https://ist.psu.edu/current/careers/development/process/path/>)

Contact

University Park

COLLEGE OF INFORMATION SCIENCES AND TECHNOLOGY
411 Eric J. Barron Innovation Hub Building
State College, PA 16801
814-865-3528

Abington

DIVISION OF SCIENCE AND ENGINEERING
1600 Woodland Road
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Beaver

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Berks

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BKInfoTech@psu.edu

Brandywine

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610-892-1343
nxd13@psu.edu

Greater Allegheny

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4000 University Drive
McKeesport, PA 15132
412-675-9140
GA-Academics@lists.psu.edu

<https://greaterallegheny.psu.edu/minors> (<https://greaterallegheny.psu.edu/minors/>)

Harrisburg

SCHOOL OF BUSINESS ADMINISTRATION
Olmsted Building, E355
717-948-6141
kms68@psu.edu

<https://harrisburg.psu.edu/business-administration/information-sciences-technology-minor> (<https://harrisburg.psu.edu/business-administration/information-sciences-technology-minor/>)

Hazleton

Kostos 117
Hazleton, PA 18202
570-450-3089
bxb30@psu.edu

<https://hazleton.psu.edu/information-sciences-and-technology-minor> (<https://hazleton.psu.edu/information-sciences-and-technology-minor/>)

Mont Alto

INFORMATION TECHNOLOGY PROGRAM
10 Bookstore Building
Mont Alto, PA 17237
717-749-6126
jch164@psu.edu

<https://montalto.psu.edu/academics/bachelors/minors> (<https://montalto.psu.edu/academics/bachelors/minors/>)

New Kensington

3550 Seventh Street Rd.
New Kensington, PA 15068
724-334-6138
hhs10@psu.edu

Wilkes-Barre

44 University Drive

Dallas, PA 18612
570-675-9142
weifan@psu.edu

<https://wilkesbarre.psu.edu/academics/ist/minor> (<https://wilkesbarre.psu.edu/academics/ist/minor/>)

World Campus

COLLEGE OF INFORMATION SCIENCES AND TECHNOLOGY
411 Eric J. Barron Innovation Hub Building
State College, PA 16801
814-865-3528

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-information-sciences-and-technology-minor> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-information-sciences-and-technology-minor/>)

York

1031 Edgecomb Ave.
York, PA 17403
717-771-4143
wpc2@psu.edu

National Security Agency, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

The NSA certificate indicates students have completed the courses representing the required knowledge units as specified by the National Security Agency and the Department of Homeland Security as part of Penn State's designation as a National Center of Academic Excellence in Cyber Defense.

What is National Security Agency?

Penn State and the College of Information Sciences and Technology are designated as a national Center of Academic Excellence (CAE) in Cyber Defense by the National Security Agency and the Department of Homeland Security. As such, the College of IST is authorized to grant security certificates of recognition and achievement to graduating students who meet certain academic criteria. The certificates certify that the student graduated from an institution and program whose faculty, resources, curricula, and commitment were evaluated and found to be of high quality, as defined by NSA/DHS for cyber security professionals.

MORE INFORMATION ABOUT NATIONAL SECURITY AGENCY (<https://ist.psu.edu/current/undergraduate/certificates/nsa/>)

You Might Like This Program If...

- You want to protect digital information, data stores, and computer networks from threats.
- You want to learn the cyberdefense strategies used to anticipate, recognize, and defend against computer attacks.
- You're passionate about how we can keep sensitive information out of the hands of hackers, cybercriminals, and terrorist organizations.

MORE INFORMATION ABOUT WHY STUDENTS CHOOSE TO STUDY NATIONAL SECURITY AGENCY (<https://ist.psu.edu/current/undergraduate/certificates/nsa/>)

Entrance to Certificate

Must be enrolled in ISTBS, SRA, SRAAL, SRABK or SRACA major.

Program Requirements

To earn an undergraduate certificate in National Security Agency, a minimum of 28 credits is required.

A grade of "C" or higher is required in all courses for the certificate; no course substitutions are permitted. Courses taken more than 10 years ago will not apply automatically towards completion of the certificate but instead will require review by the academic unit.

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
IST 140	Introduction to Application Development	3
	or CMPSC 101 Introduction to Programming	
IST 210	Organization of Data	3
IST 220	Networking and Telecommunications	3
IST 451	Network Security	3
IST 454	Computer and Cyber Forensics	3
IST 456	Information Security Management	3
SRA 111	Introduction to Security and Risk Analysis	3
SRA 221	Overview of Information Security	3
STAT 200	Elementary Statistics	4

Certificate Learning Objectives

- **Knowledge/Application:** Explain and apply the interdisciplinary knowledge of information sciences in a security context to recognize, analyze, defend against, and manage cyber risks.
 - Students will be able to describe which cryptographic protocols, tools and techniques are appropriate for a given situation.
- **Problem-Solving:** Understand, apply and adapt various problem solving strategies, using appropriate technology and methods.
 - Students will be able to demonstrate proficiency in the use of a programming language to solve complex problems in a secure and robust manner.
 - Students will be able to demonstrate the ability to design and develop basic programs for modern computing platforms (e.g., PC, cloud, mobile, web).
 - Students will be able to write simple linear and looping scripts.
 - Students will be able to write simple and compound conditions within a programming language or similar environment (e.g., scripts, macros, SQL).
 - Students will be able to describe how basic statistics and statistical methods can be applied in a given situation.
 - Students will be able to evaluate probabilities to solve applied problems.
 - Students will be able to apply standard statistical inference procedures to draw conclusions from data.
 - Students shall be able to use one or more common DF tools, such as EnCase, FTK, ProDiscover, Xways, SleuthKit.
 - Students will be able to identify the bad actors in cyberspace and compare and contrast their resources, capabilities/techniques, motivations, aversion to risk.

- Students will be able to examine the placement of security functions in a system and describe the strengths and weaknesses.
- **Communication (Individual and Team):** Communicate and work effectively (both individually and in teams) with a range of perspectives and audiences through a variety of media.
 - Students will be able to develop system specific plans for (IST 456):
 - The protection of intellectual property; - The implementation of access controls; and
 - Patch and change management.
 - Students will be able to develop contingency plans for various size organizations to include: business continuity, disaster recovery and incident response.
- **Professional Responsibilities:** Describe professional responsibilities in terms of the ethical, legal and security policy aspects of information assurance and security.
 - Students shall be able to discuss the rules, laws, policies, and procedures that affect digital forensics.
 - Students will be able to describe the steps in performing digital forensics from the initial recognition of an incident through the steps of evidence gathering, preservation and analysis, through the completion of legal proceedings.
 - Students will be able to describe how the type of legal dispute (civil, criminal, private) affects the evidence used to resolve it.
 - Students will be able to list the applicable laws and policies related to cyber defense and describe the major components of each pertaining to the storage and transmission of data.
 - Students will be able to describe how standards, such as the Orange Book, may be applied to the requirements for a sub-contractor or customer.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Undergraduate Academic Advising Center

E103 Westgate Building
University Park, PA 16802
814-865-8947
advising@ist.psu.edu

Career Paths

Students who earn the Security certificate are prepared to pursue careers in intelligence, risk analysis, defense, and emergency management.

Earning the certificate demonstrates that the student completed a program whose curriculum and resources were designated as high quality by the National Security Agency and Department of Homeland Security.

Careers

Because our courses blend technical knowledge with skills in communication and business, a Security certificate allows students to pursue opportunities in intelligence, counterterrorism, computer forensics, and a number of other growing careers.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A CERTIFICATE IN NATIONAL SECURITY AGENCY (<https://ist.psu.edu/current/careers/development/process/path/>)

Contact

University Park

COLLEGE OF INFORMATION SCIENCES AND TECHNOLOGY
411 Eric J. Barron Innovation Hub Building
State College, PA 16801
814-865-3528

Security and Risk Analysis, B.S. (Information Sciences and Technology)

Begin Campus: Any Penn State Campus

End Campus: University Park, World Campus

Program Description

The Bachelor of Science in Security and Risk Analysis (SRA) in the College of Information Sciences and Technology responds to the expanding need for a highly trained analytic workforce to address a wide range of security and risk domains including national/homeland security, emergency and disaster management, law and crime, as well as enterprise risk management.

SRA program prepares students with core competence in four knowledge areas:

1. understanding the fundamentals of security, risk, analytic methods and decision support for the purpose of recognizing, articulating, and addressing analytic needs;
2. understanding the roles of data and analytics in various security domains and organizational contexts;
3. applying data analytics, methods, and tools (structured analytics; data gathering and manipulation; visual analytics; analytic judgements and presentation) to derive and communicate insights and actionable knowledge;
4. the legal, ethical, and professional issues within which analytics of security and risk are conducted.

Students may specialize in risk domains ranging from national security to community emergency preparedness and response. The SRA program positions our students to be future leaders to address the current and emerging security and risk challenges that face individuals, organizations and our nation.

SRA majors will choose one of the following options:

Intelligence Analysis and Modeling Option

Available at the following campuses: University Park, World Campus

This option focuses on developing a more thorough knowledge of the strategic and tactical levels of intelligence collection, analysis, and decision-making. This includes examining the foundations of decision analysis, economic theory, statistics, data mining, and knowledge management, as well as the security-specific contexts in which such knowledge is applied.

Information and Cyber Security Option

Available at the following campuses: Altoona, Berks, Harrisburg, University Park, World Campus

This option includes a set of courses that provides an understanding of the theories, skills, and technologies associated with network security, cyber threat defense, information warfare, and critical infrastructure protection across multiple venues.

What is Security and Risk Analysis?

Security and risk analysis is a field that explores the integrated processes conducted to provide decision-makers with the information needed to understand factors that can negatively influence operations and outcomes, and make informed judgments concerning the extent of actions needed to reduce vulnerabilities, protect resources, and optimize investments. Security and risk analysis is a field of practice with two blended concentration areas: 1) security, which seeks to identify, understand, and analyze critical local, national and international security issues, and 2) risk, which includes risk assessment, risk characterization, risk communication, risk management, and the formulation of risk policy. In practice, the issues and processes for conducting of security and risk analytics are neither separate nor sequential. To be effective, the issues of security and risk must be addressed concurrently and synergistically.

MORE INFORMATION ABOUT SECURITY AND RISK ANALYSIS (<https://ist.psu.edu/prospective/undergraduate/academics/sra/>)

You Might Like This Program If...

- You want to protect people, information, and assets from manmade and natural threats.
- You want to understand the role of data in protecting individuals, organizations and our nation.
- You are mission oriented, a good critical thinker and wish to put your problem-solving skills to work to make the world a safer place.
- You want to make informed strategic decisions that help to defend critical infrastructures that supports our daily lives.

MORE INFORMATION ABOUT WHY STUDENTS CHOOSE TO STUDY SECURITY AND RISK ANALYSIS (<https://ist.psu.edu/prospective/undergraduate/academics/sra/>)

Entrance to Major University Park

This program currently has administrative enrollment controls. Administrative Enrollment Controls are initiated when limitations of space, faculty, or other resources in a major prevent accommodating all students who request them. Students must follow the administrative

enrollment controls that are in effect for the semester that they enter the university.

First-Year Students Entering Summer 2024, Fall 2024, Spring 2025

In order to be eligible for entrance to this major, students must satisfy the following requirements:

- be enrolled in the College of Information Sciences and Technology or the Division of Undergraduate Studies
- 40-70 graded Penn State credits (excludes transfer and AP credits)
- completed with a grade of C or better: IST 140 or CMPSC 101 or CMPSC 121, IST 210, SRA 111, SRA 211
- earned a minimum cumulative grade-point average (GPA) of 2.70

Students Who Entered Prior to Summer 2024

Students who entered the University from Summer 2018 through Spring 2024 should view the administrative enrollment controls in the appropriate Undergraduate Bulletin archive (<https://bulletins.psu.edu/undergraduate/archive/>). Students who entered the University prior to the summer 2018 semester should consult with their academic adviser about the administrative enrollment controls in effect for the semester they entered the university.

World Campus

In addition to the minimum grade point average (GPA) requirements described in the University Policies*, all Security and Risk Analysis (SRA) entrance to major course requirements must also be completed with a minimum grade of C: IST 140 (or equivalent CMPSC 101 or CMPSC 121), IST 210, SRA 111, and SRA 211. All of these courses must be completed by the end of the semester during which the admission to major process is carried out.

** In the event that the major is under enrollment control, a higher minimum cumulative grade-point average is likely to be needed at the time of confirming their major choice.*

Degree Requirements

For the Bachelor of Science degree in Security and Risk Analysis, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	5-13
Requirements for the Major	77-85

15 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GQ courses; 6 credits of GS courses; and 3 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
IST 110	Information, People and Technology	3

IST 210	Organization of Data	3
IST 432	Legal and Regulatory Environment of Information Science and Technology	3
IST 495	Internship	1
SRA 111	Introduction to Security and Risk Analysis	3
SRA 211	Threat of Terrorism and Crime	3
SRA 221	Overview of Information Security	3
SRA 231	Decision Theory and Analysis	3
STAT 200	Elementary Statistics	4

Additional Courses

ENGL 202C	Effective Writing: Technical Writing	3
or ENGL 202D	Effective Writing: Business Writing	
PSYCH 100	Introductory Psychology	3
or SOC 5	Social Problems	

Select one of the following: 3

AGBM 101	Economic Principles of Agribusiness Decision Making	
ECON 102	Introductory Microeconomic Analysis and Policy	
ECON 104	Introductory Macroeconomic Analysis and Policy	

Select one of the following: 3-5

MATH 22	College Algebra With Analytic Geometry and Applications II	
MATH 26	Plane Trigonometry and Applications of Trigonometry	
MATH 40	Algebra, Trigonometry, and Analytic Geometry	
MATH 41	Trigonometry and Analytic Geometry	
MATH 110	Techniques of Calculus I	
MATH 140	Calculus With Analytic Geometry I	

Select one of the following: 3

GEOG 128	Geography of International Affairs	
PLSC 1	American Politics: Principles, Processes and Powers	
PLSC 14	International Relations	

Additional Courses: Require a grade of C or better

SRA 365	Statistics for Security and Risk Analysis	3
or STAT 460	Intermediate Applied Statistics	

Select one of the following: 3

IST 140	Introduction to Application Development	
CMPSC 101	Introduction to Programming	
CMPSC 121	Introduction to Programming Techniques	

Requirements for the Option

Select an option 30-36

Requirements for the Option**Intelligence Analysis and Modeling Option (36 credits)**

Available at the following campuses: University Park, World Campus

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
IST 452	Legal and Regulatory Environment of Privacy and Security	3
SRA 268	Visual Analytics	3
SRA 311W	Risk Analysis in a Security Context	3

SRA 421	The Intelligence Environment	3
SRA 433	Deception and Counterdeception	3
SRA 440W	Security and Risk Analysis Capstone Course	3
SRA 468	Spatial Analysis of Risks	3

Supporting Courses and Related Areas

Select 15 credits from College-approved list (at least 3 credits must be at the 400-level) 15

Information and Cyber Security Option (30 credits)

Available at the following campuses: Altoona, Berks, Harrisburg, University Park, World Campus

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
IST 220	Networking and Telecommunications	3
IST 451	Network Security	3
IST 454	Computer and Cyber Forensics	3
IST 456	Information Security Management	3
SRA 311	Risk Analysis in a Security Context	3

Additional Courses

<i>Additional Courses: Require a grade of C or better</i>		
IST 440W	Information Sciences and Technology Integration and Problem Solving	3
or SRA 440W	Security and Risk Analysis Capstone Course	

Supporting Courses and Related Areas

Select 12 credits from College-approved list (at least 3 credits must be at the 400-level) 12

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Security and Risk Analysis and M.S. in Informatics

Available at the following campuses: University Park

Requirements for the Integrated B.S. in Security and Risk Analysis and M.S. in Informatics can be found in the Graduate Bulletin

(<https://bulletins.psu.edu/graduate/programs/majors/informatics/#integratedundergradgradprogramstext>).

Integrated B.S. in Security and Risk Analysis and M.I.A. in International Affairs

Available at the following campuses: University Park

Requirements for the Integrated B.S. in Security and Risk Analysis and M.I.A. in International Affairs can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/international-affairs/#integratedundergradgradprogramstext>).

Program Learning Objectives

- **Knowledge/Application:** Understand and apply the language of security and risk analysis sciences
 - Define and explain the core concepts, principles, processes, and theories within the academic SRA Major
 - Apply the core concepts of SRA to real-world problems
- **Problem-Solving:** Understand, apply and adapt various problem solving strategies to address security and risk problems within the individual, community, organizational and national security dimensions
 - Identify security and risk problem terms of the individual, community, organizational and national security levels of analysis
 - Analyze issues surrounding the problem and/or opportunity in terms of the human, informational, and technology dimensions; and determine the requirements appropriate to understanding the situation
 - Identify and recognize countermeasure application strategies to address security needs to include architectures, processes, components, or programs to meet desired needs at varying levels of analysis (e.g., individual, community, organizational and/or national security)
- **Communication (Individual and Team):** Communicate and work effectively (both individually and in teams) with a range of perspectives and audiences through a variety of media
 - Participate effectively on teams in order to accomplish a common goal
 - Communicate effectively with a range of audiences, formally or informally, through writing and the spoken word from an analytic perspective to include concision, analytic reasoning and active voice
 - Seek out, analyze, and incorporate diverse ideas and broader perspectives represented in the diversity of people
 - Make respectful and inclusive choices in interacting with customers, peers, supervisors, and/or subordinates with a diversity of identity characteristics (e.g., age, ancestry, color, disability or handicap, national origin, race, religious creed, sex, sexual orientation, gender identify, or veteran status)
- **Professional Responsibilities:** Understand professional responsibilities in terms of the ethical, legal, security and social aspects of any given problem and its solution
 - Demonstrate an understanding of the cognitive, social, legal, ethical, diversity, and security perspectives surrounding a given problem
 - Assess the impact of information, computing and technology on individuals, groups, organizations, society, and the world for

the purpose of making informed decisions from a sociological, governmental, legal, and/or security perspective.

- **Lifelong Learning:** Commit to the continuous acquisition of relevant knowledge for professional development by self-teaching and/or on-going education and learning
 - Employ information-seeking strategies and self-directed learning in pursuit of current knowledge
 - Enroll in professional development and tutoring opportunities

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Undergraduate Academic Advising Center

E103 Westgate Building
University Park, PA 16802
814-865-8947
advising@ist.psu.edu

Altoona

David Barnes

Teaching Professor, Information Sciences and Technology
Penn Building 212C, 3000 Ivyside Park
Altoona, PA 16601
814-949-5275
drb21@psu.edu

Berks

Tricia Clark

Program Coordinator, Instructor
Gaige 211
Reading, PA 19610
610-396-6349
BKSecRiskAnalysis@psu.edu

Harrisburg

Jesse Middaugh, PMP

Program Coordinator
Olmsted Building E335
Middletown, PA 17057
717-948-6153
jlm10@psu.edu

World Campus

Undergraduate Academic Advising

301 Outreach Building

University Park, PA 16802
814-863-3283
advising@outreach.psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Intelligence Analysis and Modeling Option: Security and Risk Analysis, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
SRA 111 ^{*#}	3 SRA 211 ^{*#}	3
IST 110 ^{*#}	3 CAS 100 [†]	3
ENGL 15, 30H, or ESL 15 [†]	3 ECON 102, 104, or AGBM 101	3
IST 140 ^{*#}	3 MATH 22, 26, 40, 41, 110, or 140	3-5
General Education Course (GN, GA, GH, or GHW)	3 General Education Course (GN, GA, GH, or GHW)	3

15 **15-17**

Second Year

Fall	Credits Spring	Credits
SRA 221 [*]	3 SRA 231 [*]	3
STAT 200 [†]	4 PSYCH 100 or SOC 5	3
SRA 268 [*]	3 IST 210 ^{*#}	3
PLSC 1, 14, or GEOG 128	3 US or IL or Elective	3
Supporting Course	3 Supporting Course	3

16 **15**

Third Year

Fall	Credits Spring	Credits Summer	Credits
SRA 311W [*]	3 SRA 468 [*]	3 IST 495 ^{*1}	1
SRA 365 or STAT 460 [*]	3 ENGL 202C or 202D [†]	3	
US or IL or Elective	3 IST 432 [*]	3	
Supporting Course	3 General Education Course (GN, GA, GH, or GHW)	3	

General Education Course (GN, GA, GH, or GHW)	3 General Education Course (GN, GA, GH, or GHW)	3	
	15	15	1
Fourth Year			
Fall	Credits Spring	Credits	
IST 452*	3 SRA 433*	3	
SRA 421*	3 SRA 440W*	3	
400 Level Support of Option	3 Support of Option	3	
General Education Course (GN, GA, GH, or GHW)	3 General Education Course (GN, GA, GH, or GHW)	3	
General Education Course (GN, GA, GH, or GHW)	3 Elective	1	
	15	13	

For current Supporting Courses and Related Areas list see department website (<https://ist.psu.edu/current/undergraduate/major-requirements/sra/>).

Total Credits 120-122

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ 1 credit of IST 495 is required. A grade of C or better must be earned in this course. This requirement can be completed at any time before graduation.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

Information and Cyber Security Option: Security and Risk Analysis, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
SRA 111 ^{*#}	3 SRA 211 ^{*#}	3
IST 110 ^{*#}	3 CAS 100 [‡]	3
ENGL 15 or 30H [†]	3 ECON 102	3
IST 140 ^{*#}	3 MATH 22, 26, 40, 41, 110, or 140 (GQ)	3-5
General Education (GN, GA, GH or GHW)	3 General Education (GN, GA, GH or GHW)	3
15		15-17

Second Year

Fall	Credits Spring	Credits
SRA 221 [*]	3 SRA 231 [*]	3
STAT 200 [‡]	4 PSYCH 100 or SOC 5 (GS)	3
IST 220 [*]	3 IST 210 [*]	3
GEOG 128, PLSC 1, or PLSC 14 (GS)	3 US or IL or Elective	3
Supporting Course from Department List	3 Supporting Course from Department List	3
16		15

Third Year

Fall	Credits Spring	Credits Summer	Credits
SRA 311 [*]	3 IST 432 [*]	3 IST 495 ^{*1}	1
SRA 365 [*]	3 IST 451 [*]	3	
Supporting Course from Department List	3 ENGL 202C or 202D [‡]	3	
International Course (IL)	3 General Education Course (GA, GH, or GHW)	3	
General Education Course (GA)	3 Elective	3	
15		15	1

Fourth Year

Fall	Credits Spring	Credits
IST 456 [*]	3 SRA 440W [*]	3

400 level Supporting Course from Department List	3 IST 454 [*]	3
General Education Course (GA, GH, or GHW)	3 General Education Course (GA, GH, or GHW)	3
General Education Course (GA, GH, or GHW)	3 General Education Course (GA, GH, or GHW)	3
Elective	3 Elective	1
15		13

Total Credits 120-122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ 1 credit of IST 495 is required. A grade of C or better must be earned in this course. This requirement can be completed at any time before graduation.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

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All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- For current Supporting Courses and Related Areas list see department website (<https://ist.psu.edu/current/undergraduate/major-requirements/sra/>).

Career Paths

The Security and Risk Analysis program responds to the expanding need for a highly trained analytic workforce to address a wide range of security and risk domains including national/homeland security, emergency and disaster management, law and crime, as well as enterprise risk

management. The SRA degree prepares students to be future leaders to address the current and emerging security and risk challenges that face individuals, organizations and our nation. IST's Office of Career Solutions helps students navigate internship and career development through coaching, workshops, interview preparation, resume reviews, career fairs, job postings, and networking opportunities.

Careers

Security and Risk Analysis students may specialize in risk domains ranging from national security to community emergency preparedness and response. Because our courses blend technical knowledge with skills in communication and business, a Security and Risk Analysis degree allows students to pursue opportunities in intelligence, counterterrorism, computer forensics, and a number of other growing careers. SRA graduates work in a variety of fields, including defense, business, and emergency management; and many graduates go on to work for government intelligence agencies like the CIA, FBI, and NSA.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE SECURITY AND RISK ANALYSIS PROGRAM (<https://www.ist.psu.edu/current/careers/development/process/path/>)

Opportunities for Graduate Studies

With a focus on problem solving, critical thinking and the presentation of analytic findings, the SRA program is a great stepping-stone to graduate education and higher learning. Many SRA graduates will go on to pursue graduate degrees in fields like law, cyber security, and data science. The foundational skills obtained in the SRA degree directly apply to graduate education.

Contact

University Park

COLLEGE OF INFORMATION SCIENCES AND TECHNOLOGY
411 Eric J. Barron Innovation Hub Building
State College, PA 16801
814-865-3528

World Campus

COLLEGE OF INFORMATION SCIENCES AND TECHNOLOGY
411 Eric J. Barron Innovation Hub Building
State College, PA 16801
814-865-3528

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-security-and-risk-analysis-information-and-cybersecurity-bachelor-of-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-security-and-risk-analysis-information-and-cybersecurity-bachelor-of-science-degree/>)

Altoona

DIVISION OF BUSINESS, ENGINEERING, AND INFORMATION SCIENCES AND TECHNOLOGY
Penn Building 212C, 3000 Ivyside Park
Altoona, PA 16601
814-949-5275
drb21@psu.edu

<https://altoona.psu.edu/academics/bachelors-degrees/security-risk-analysis> (<https://altoona.psu.edu/academics/bachelors-degrees/security-risk-analysis/>)

Berks

EBC DIVISION
Gaige Building
Reading, PA
610-396-6349
BKSecRiskAnalysis@psu.edu

<https://berks.psu.edu/academics/bs-security-and-risk-analysis> (<https://berks.psu.edu/academics/bs-security-and-risk-analysis/>)

Harrisburg

DEPARTMENT OF SECURITY AND RISK ANALYSIS
Olmsted Building E355
Middletown, PA 17057
717-948-6141
ljc43@psu.edu

<https://harrisburg.psu.edu/business-administration/security-risk-analysis-bs> (<https://harrisburg.psu.edu/business-administration/security-risk-analysis-bs/>)

Security and Risk Analysis, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

Our society operates through information and communication technology-based infrastructures from the Internet to cell phones to organization-specific information systems across all sectors of our economy. We use these infrastructures to communicate; to conduct business; to facilitate relationships between governments; to analyze data for trends in business, social, and international settings; and to use the outputs to make decisions in countless venues. These infrastructures hold data which holds clues to how we interact with society, government, and the economy. The SRA certificate provides introductory curriculum that covers information systems, information assurance (both digital and physical security) and intelligence analysis.

What is Security and Risk Analysis?

Security and risk analysis is a field that explores the integrated processes conducted to provide decision-makers with the information needed to understand factors that can negatively influence operations and outcomes, and make informed judgments concerning the extent of actions needed to reduce vulnerabilities, protect resources, and optimize investments. Security and risk analysis is a field of practice with two blended concentration areas: 1) security, which seeks to identify, understand, and analyze critical local, national and international security issues, and 2) risk, which includes risk assessment, risk characterization, risk communication, risk management, and the formulation of risk policy. In practice, the issues and processes for conducting of security and risk analytics are neither separate nor sequential. To be effective, the issues of security and risk must be addressed concurrently and synergistically.

You Might Like This Program If...

- You want to protect people, information, and assets from manmade and natural threats.
- You want to understand the role of data in protecting individuals, organizations and our nation.

- You are mission-oriented, a good critical thinker and wish to put your problem-solving skills to work to make the world a safer place.
- You want to make informed strategic decisions that help to defend critical infrastructures that support our daily lives.

Program Requirements

To earn an undergraduate certificate in Security and Risk Analysis, a minimum of 15 credits is required.

A grade of "C" or higher is required in all courses for the certificate; no course substitutions are permitted. Courses taken more than 10 years ago will not apply automatically towards completion of the certificate but instead will require review by the academic unit.

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
IST 110	Information, People and Technology	3
SRA 111	Introduction to Security and Risk Analysis	3
SRA 211	Threat of Terrorism and Crime	3
SRA 221	Overview of Information Security	3
Select one of the following:		3
CMPSC 101	Introduction to Programming	
CMPSC 121	Introduction to Programming Techniques	
IST 140	Introduction to Application Development	

Certificate Learning Objectives

- **Knowledge/Application:** Understand and apply the interdisciplinary, theoretical knowledge of the information sciences or security sciences.
 - Define and explain the core concepts, principles, processes, and theories within the academic majors of IST and/or SRA
 - Apply the core concepts of the academic majors of IST and/or SRA to real-world problems
- **Problem-Solving:** Understand, apply and adapt various problem solving strategies to address security and risk problems within the individual, community, organizational and national security dimensions.
 - Identify security and risk problem terms of the individual, community, organizational and national security levels of analysis
 - Analyze issues surrounding the problem and/or opportunity in terms of the human, informational, and technology dimensions; and determine the requirements appropriate to understanding the situation
 - Identify and recognize countermeasure application strategies to address security needs to include architectures, processes, components, or programs to meet desired needs at varying levels of analysis (e.g., individual, community, organizational and/or national security)
- **Communication (Individual and Team):** Communicate and work effectively (both individually and in teams) with a range of perspectives and audiences through a variety of media.
 - Participate effectively on teams in order to accomplish a common goal
 - Communicate effectively with a range of audiences, formally or informally, through writing and the spoken word
 - Seek out, analyze, and incorporate diverse ideas and broader perspectives represented in the diversity of people

- Make respectful and inclusive choices in interacting with customers, peers, supervisors, and/or subordinates with a diversity of identity characteristics (e.g., age, ancestry, color, disability or handicap, national origin, race, religious creed, sex, sexual orientation, gender identify, or veteran status)
- **Professional Responsibilities:** Understand professional responsibilities in terms of the ethical, legal, security and social aspects of any given problem and its solution.
 - Demonstrate an understanding of the cognitive, social, legal, ethical, diversity, and security perspectives surrounding a given problem
 - Assess the impact of information, computing and technology on individuals, groups, organizations, society, and the world for the purpose of making informed decisions from a sociological, governmental, legal, and/or security perspective

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Undergraduate Academic Advising Center

E103 Westgate Building
University Park, PA 16802
814-865-8947
advising@ist.psu.edu

World Campus

Undergraduate Academic Advising

301 Outreach Building
University Park, PA 16802
814-863-3283
advising@outreach.psu.edu

Schuylkill

Academic Advising Office

Academic Affairs
200 University Drive
Schuylkill Haven, PA 17972
570-385-6111
sl-advising@psu.edu

Career Paths

The Security and Risk Analysis program responds to the expanding need for a highly trained analytic workforce to address a wide range of security and risk domains including national/homeland security, emergency and disaster management, law and crime, as well as enterprise risk

management. The SRA degree prepares students to be future leaders to address the current and emerging security and risk challenges that face individuals, organizations and our nation. IST's Office of Career Solutions helps students navigate internship and career development through coaching, workshops, interview preparation, resume reviews, career fairs, job postings, and networking opportunities.

Careers

Security and Risk Analysis students may specialize in risk domains ranging from national security to community emergency preparedness and response. Because our courses blend technical knowledge with skills in communication and business, a Security and Risk Analysis degree allows students to pursue opportunities in intelligence, counterterrorism, computer forensics, and a number of other growing careers. SRA graduates work in a variety of fields, including defense, business, and emergency management; and many graduates go on to work for government intelligence agencies like the CIA, FBI, and NSA.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A CERTIFICATE IN SECURITY AND RISK ANALYSIS (<https://ist.psu.edu/current/careers/development/process/path/>)

Opportunities for Graduate Studies

With a focus on problem solving, critical thinking and the presentation of analytic findings, the SRA program is a great stepping-stone to graduate education and higher learning. Many SRA graduates will go on to pursue graduate degrees in fields like law, cyber security, and data science. The foundational skills obtained in the SRA degree directly apply to graduate education.

Contact

University Park

COLLEGE OF INFORMATION SCIENCES AND TECHNOLOGY
411 Eric J. Barron Innovation Hub Building
State College, PA 16801
814-865-3528

World Campus

COLLEGE OF INFORMATION SCIENCES AND TECHNOLOGY
411 Eric J. Barron Innovation Hub Building
State College, PA 16801
814-865-3528

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-security-and-risk-analysis-undergraduate-certificate> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-security-and-risk-analysis-undergraduate-certificate/>)

Schuylkill

ACADEMIC AFFAIRS
200 University Drive
Schuylkill Haven, PA 17972
570-385-6076
bkg113@psu.edu

Security and Risk Analysis, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change

from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The minor in Security and Risk Analysis (SRA) is intended to familiarize students with the general frameworks and multidisciplinary theories that define security and related risk analysis. Course work will engage students in the challenges and problems of assuring information confidentiality and integrity (e.g., social, economic, technology, and policy issues) as well as the strengths and weaknesses of various methods for assessing and mitigating associated risk in the students' major field.

The minor provides a grounding in analysis and modeling used in information search, visualization and creative problem solving. This knowledge is set in the context of legal, ethical and regulatory issues of security including analysis of privacy and security law, internal control standards, regulatory policies and basic investigative processes and principles. Such understanding overviews the information technology that plays a critical role in identifying, preventing and responding to security-related events in the student's major field.

You Might Like This Program If...

- You want to protect people, information, and assets from manmade and natural threats.
- You want to understand the role of data in protecting individuals, organizations and our nation.
- You are mission oriented, a good critical thinker and wish to put your problem-solving skills to work to make the world a safer place.
- You want to make informed strategic decisions that help to defend critical infrastructures that supports our daily lives.

Program Requirements

Requirement	Credits
Requirements for the Minor	21

Requirements for the Minor

At least 6 credits must be at the 400 level.

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
SRA 111	Introduction to Security and Risk Analysis	3
SRA 211	Threat of Terrorism and Crime	3
SRA 221	Overview of Information Security	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
IST 140 or CMPSC 101	Introduction to Application Development Introduction to Programming	3
IST 220 or SRA 231	Networking and Telecommunications Decision Theory and Analysis	3
Select 6 credits of the following:		6

IST 432	Legal and Regulatory Environment of Information Science and Technology
IST 451	Network Security
IST 452	Legal and Regulatory Environment of Privacy and Security
IST 453	Legal, Regulatory, Policy Environment of Cyber Forensics
IST 454	Computer and Cyber Forensics
IST 456	Information Security Management
SRA 421	The Intelligence Environment
SRA 468	Spatial Analysis of Risks
SRA 471	Informatics, Risk, and the Post-Modern World
SRA 480	Crisis Informatics

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Undergraduate Academic Advising Center

E103 Westgate Building
University Park, PA 16802
814-865-8947
advising@ist.psu.edu

Abington

Joseph Oakes
Program Chair
1600 Woodland Road
Abington, PA 19001
267-633-3316
jxo19@psu.edu

Beaver

Michelle Kurtyka
Assistant to the Director of Academic Affairs
100 University Drive
Monaca, PA 15061
724-773-3824
mck15@psu.edu

Berks

Tricia Clark
Program Coordinator, Instructor
Gaige 211
Reading, PA 19610

610-396-6349
BKSecRiskAnalysis@psu.edu

Mont Alto

Paul Bart
Lecturer, IST
6 Bookstore Building
Mont Alto, PA 17237
717-749-6241
pjb159@psu.edu

New Kensington

Harold Smith
Associate Professor
3550 Seventh Street Rd.
New Kensington, PA 15068
724-334-6138
hhs10@psu.edu

Scranton

Debra Smarkusky
Associate Professor
212F Dawson
Dunmore, PA 18512
570-963-2593
dls102@psu.edu

Wilkes-Barre

Brian Reese
Program Co-Coordinator, IT
44 University Drive
Dallas, PA 18612
570-675-9277
bzs5097@psu.edu

World Campus

Undergraduate Academic Advising
301 Outreach Building
University Park, PA 16802
814-863-3283
advising@outreach.psu.edu

York

Bill Cantor
Assistant Teaching Professor in Information Sciences and Technology
1031 Edgecomb Ave.
York, PA 17403
717-771-4143
wpc2@psu.edu

Career Paths

The Security and Risk Analysis program responds to the expanding need for a highly trained analytic workforce to address a wide range of security and risk domains including national/homeland security, emergency and disaster management, law and crime, as well as enterprise risk management. The SRA degree prepares students to be future leaders to address the current and emerging security and risk challenges that face individuals, organizations and our nation. IST's Office of Career Solutions helps students navigate internship and career development through

coaching, workshops, interview preparation, resume reviews, career fairs, job postings, and networking opportunities.

Careers

Security and Risk Analysis students may specialize in risk domains ranging from national security to community emergency preparedness and response. Because our courses blend technical knowledge with skills in communication and business, a Security and Risk Analysis degree allows students to pursue opportunities in intelligence, counterterrorism, computer forensics, and a number of other growing careers. SRA graduates work in a variety of fields, including defense, business, and emergency management; and many graduates go on to work for government intelligence agencies like the CIA, FBI, and NSA.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN SECURITY AND RISK ANALYSIS (<https://ist.psu.edu/current/careers/development/process/path/>)

Opportunities for Graduate Studies

With a focus on problem solving, critical thinking and the presentation of analytic findings, the SRA program is a great stepping-stone to graduate education and higher learning. Many SRA graduates will go on to pursue graduate degrees in fields like law, cyber security, and data science. The foundational skills obtained in the SRA degree directly apply to graduate education.

Contact

University Park

COLLEGE OF INFORMATION SCIENCES AND TECHNOLOGY
411 Eric J. Barron Innovation Hub Building
State College, PA 16801
814-865-3528

Abington

DIVISION OF SCIENCE AND ENGINEERING
1600 Woodland Road
Abington, PA 19001
267-633-3316
jxo19@psu.edu

<https://www.abington.psu.edu/joseph-oakes> (<https://www.abington.psu.edu/joseph-oakes/>)

Beaver

100 University Drive
Monaca, PA 15061
724-773-3824
mck15@psu.edu

Berks

EBC DIVISION
Gaige Building
Reading, PA
610-396-6349
BKSecRiskAnalysis@psu.edu

<https://ist.psu.edu/current/undergraduate/minors/security-risk-analysis> (<https://ist.psu.edu/current/undergraduate/minors/security-risk-analysis/>)

Mont Alto

6 Bookstore Building
Mont Alto, PA 17237
717-749-6241
pjb159@psu.edu

<https://montalto.psu.edu/directory/baccalaureate-information-technology-program> (<https://montalto.psu.edu/directory/baccalaureate-information-technology-program/>)

New Kensington

3550 Seventh Street Rd.
New Kensington, PA 15068
724-334-6138
hhs10@psu.edu

Scranton

212F Dawson
Dunmore, PA 18512
570-963-2593
dls102@psu.edu

<https://scranton.psu.edu/academics/minors-programs/security-and-risk-analysis> (<https://scranton.psu.edu/academics/minors-programs/security-and-risk-analysis/>)

Wilkes-Barre

44 University Drive
Dallas, PA 18612
570-675-9277
bzr5097@psu.edu

World Campus

COLLEGE OF INFORMATION SCIENCES AND TECHNOLOGY
411 Eric J. Barron Innovation Hub Building
State College, PA 16801
814-865-3528

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-security-and-risk-analysis-minor> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-security-and-risk-analysis-minor/>)

York

1031 Edgecomb Ave.
York, PA 17403
717-771-4143
wpc2@psu.edu

Intercollege

About the College

The University offers some undergraduate academic programs that cross the disciplinary boundaries of specific colleges, therefore these programs are administered by an intercollege committee under the Office of the Vice President and Dean for Undergraduate Education. These programs provide students a unique opportunity to study at the intersections of knowledge and in some cases allow individualized studies, such as the Bachelor of Philosophy. Such interdisciplinary programs work to address

some of the most interesting and challenging problems facing the world today.

Intercollege programs draw on the resources of faculty and courses from several colleges. Specific college contact information can be found on each individual program page.

Baccalaureate Degrees

- Bachelor of Philosophy Degree
- Business, B.S. (Intercollege)

Minors

- Astrobiology, Minor
- Bioethics and Medical Humanities, Minor
- Child Maltreatment and Advocacy Studies, Minor
- Civic and Community Engagement, Minor
- Disability Studies, Minor
- Entrepreneurship and Innovation, Minor
- Environmental Inquiry, Minor
- Longevity, Aging and Generational Studies, Minor
- Military Studies, Minor
- Neuroscience, Minor
- Science, Technology, and Society, Minor
- Sustainability Leadership, Minor

Certificates

- Presidential Leadership Academy, Certificate

Astrobiology, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

Astrobiology is the study of life in the universe. Astrobiology has become a major focus of scientific research in the United States and a topic often discussed in popular science literature and the general media. The Astrobiology minor is designed to educate students in this interdisciplinary field covering the varied scientific disciplines that contribute to our general understanding of life, the origin of life, the past history of life on Earth, possible futures for life on Earth, and the possible existence of life on other planetary environments. The principal goal of the minor is to develop students' literacy in astrobiology so that they can critically evaluate claims related to this field that they encounter well after their college education has ended.

What is Astrobiology?

Astrobiology is a field devoted to the exploration of potential life outside of Earth and to the investigation of the origin and early evolution of life on Earth. This may include studying ancient Earth rocks that serve as examples of what could have happened to planets in different galaxies, studying meteorites or samples from other bodies in our solar system for indicators that suggest they could or may once have supported life, or observing planetary bodies outside of our solar system to determine if

they might exist under appropriate conditions to potentially support life as we know it.

You Might Like This Program If...

- You want to know more about how life on Earth started.
- You like learning about microbes and other simple forms of life.
- You want to understand what kind of environment is necessary for life to survive.
- You want to know about the environmental limits or "extremes" under which life can exist.
- You're interested in learning about the potential for life on other planets.

Program Requirements

Requirement	Credits
Requirements for the Minor	18-19

At least 6 credits must be taken at the 400 level.

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
BIOL/GEOSC 474	Astrobiology	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
ASTRO 140 or ASTRO 291	Life in the Universe Astronomical Methods and the Solar System	3
EARTH 2 or GEOSC 21	The Earth System and Global Change Earth and Life: Origin and Evolution	3
GEOSC 204 or BIOL 427	Geobiology Evolution	3-4
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 6 credits of the following:		6
ASTRO 475W	Stars and Galaxies	
BIOL 405	Molecular Evolution	
BMB 401	General Biochemistry	
BMB 402	General Biochemistry	
GEOSC 416	Stable and Radioactive Isotopes in Geosciences: Introduction	
GEOSC 419	The Organic Geochemistry of Natural Waters and Sediments	
METEO 466	Planetary Atmospheres	
MICRB 201	Introductory Microbiology	

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of

both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Jacob Hoover

Undergraduate Program Coordinator
542 Deike Building
University Park, PA 16802
814-865-7791
undergrad@geosc.psu.edu

Contact

University Park

DEPARTMENT OF GEOSCIENCES
503 Deike Building
University Park, PA 16802
814-865-6711
contact@geosc.psu.edu

<https://www.geosc.psu.edu>

Bachelor of Philosophy Degree

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The Bachelor of Philosophy (B.Phil.) is an intercollege degree program that allows students to work with a faculty mentor to create their own, individually tailored undergraduate major and personalized curriculum. Bachelor of Philosophy degrees culminate in a capstone project that allows for deep engagement with a topic of the student's choosing.

The Bachelor of Philosophy degree is intended for those few students for whom the present degree requirements are restrictive and not responsive to their needs and who are seeking a rigorous, integrative educational experience. While the educational goals of most students are adequately met by existing degree programs, those who can demonstrate that the usual requirements of conventional programs prevent them from adequately meeting their goals may apply. An important standard for admission to the Bachelor of Philosophy degree program will be the ability of students to demonstrate that their stated goals are viable and worthy of a college degree.

What is the Bachelor of Philosophy Degree?

The Bachelor of Philosophy degree is Penn State's individualized major program. Bachelor of Philosophy degrees bridge traditional disciplines and colleges across the University. Students may bring together

perspectives from the arts, humanities, sciences, and applied fields like engineering and business on topics such as sustainability, democracy, technology, religion, and much more.

You Might Like This Program If...

- You are deeply invested in your learning and want to create a unique educational experience.
- You seek to integrate knowledge across traditional disciplinary boundaries to address a topic of significance.
- You are motivated to cultivate a relationship with a faculty mentor.
- You are seeking the experience of creating and defending your own scholarly work.

Entrance to Major

- An entry interview with the candidate, the faculty mentor, and the members of the Bachelor of Philosophy Degree Committee is required prior to admission to the program. This preliminary interview provides an opportunity for the candidate to discuss and justify the intended use of the Bachelor or Philosophy degree program, and the unique circumstances that surround the applicant.
- Second-, third-, and fourth-semester students may apply; those selected will begin their programs the following semester. Exceptions may be approved by the committee.
- Evidence of successful completion of course work requiring independent research is required. In addition, the committee will consider the applicant's cumulative grade-point average as an index of academic performance and responsibility. Applicants must possess the capability of performing at a 3.0 minimum level.
- Approval of the student's program by the committee is required.

Requirements for Graduation

- Satisfactory completion of a program approved by the committee:
 - a. a minimum of 120 credits to include at least 18 credits at the 400 or 500 level;
 - b. certification by the faculty mentor; and
 - c. approval of a capstone, thesis or equivalent, by the faculty mentor.
- Approval by the committee for graduation following presentation and defense of the capstone, thesis or equivalent.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Bachelor of Philosophy Program Coordinators

Division of Undergraduate Studies
814-865-7576
bphil@psu.edu

Career Paths

Each Bachelor of Philosophy student will gain a unique set of knowledge and skills that will prepare them for career paths and graduate studies of their choosing. Graduates of the program have found work in many different professions, including as business executives, consultants, professors, therapists, marketing managers, interpreters, pastors, and much more. They work in various organizational settings, from global corporations like Nike to government agencies like the U.S. Forest Service to nonprofits like the Urban Sustainability Directors Network. The possibilities are endless and depend on each student's interests.

Please visit dus.psu.edu/bphil/ (<https://dus.psu.edu/bphil/>) for more information.

Contact

DIVISION OF UNDERGRADUATE STUDIES
101 Grange Building
University Park, PA 16802
814-865-7576
bphil@psu.edu

<https://dus.psu.edu/bphil/>

Bioethics and Medical Humanities, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The tremendous current activity in the biomedical sciences affects both the public and private sectors, including medical care, the pharmaceutical industry, genetics, environmental epidemiology, agricultural science, the insurance industry, occupational health, forensic sciences, and behavioral variation. All these areas go beyond the science itself, with varied impact on people in different age, sex, ethnic, geographic, or economic segments of society. For that reason, life and health sciences research has major social implications that bear on humanities disciplines ranging from ethics and history to religious studies and literature, affecting clinical practice, agricultural practice and research, public policy and private investment. Understanding these issues is important for an informed citizenry. Students electing the BMH minor will start with a basic background of biology coursework, and will take a curriculum that includes 18 credit hours, beginning with an introductory course on basic ideas of bioethics, followed by a choice of other relevant humanities courses, and capped with an integrative course involving original research by the student. The minor will be suitable for students in almost any major, especially students going on to further academic work or careers in health, the life sciences, informatics, forensic or legal professions.

What is Bioethics and Medical Humanities?

Should we use medical science to enhance our mental or physical performance? Where does therapy end and enhancement begin? Do we have a right to choose the time and means of our own death—and should medical personnel be permitted to assist us? Do we have a right to health care? Should governments try to influence our food choices in order to promote public health, and counter the influence of advertising and marketing by food companies? What can we learn from the COVID-19 pandemic about addressing systemic racism and structural injustice? These are the kinds of questions we explore in bioethics using philosophy, art, fiction, film ... and much, much more.

You Might Like This Program If...

- You are interested in health care ethics, food ethics, and environmental ethics.
- You want fresh perspectives on ethical issues, new and old—from the genetic modification of our food to the genetic modification of ourselves!
- You want to be part of animated discussions about pressing issues that affect humanity.
- You are studying philosophy, gender and sexuality, public or global health, health administration, anthropology, biobehavioral health, nursing, health communication, etc.
- You are premed or prelaw; or you intend to pursue a career in medicine, law, health care, public health, veterinary science, biological sciences, environmental sciences, bioinformatics, or public policy—among many other areas.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
BMH 490	Bioethics and Medical Humanities Capstone Course	3
PHIL 132/ RLST 131	Bioethics	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 12 credits (at least 3 credits at the 400 level) of the following: ¹ 12		
<i>Ethics</i>		
BBH 301W	Values and Ethics in Biobehavioral Health Research and Practice	
BIOL 461	Contemporary Issues in Science and Medicine	
NURS 464	Dying and Death	
PHIL 432	Medical and Health Care Ethics	

or STS 432	Medical and Health Care Ethics
PHIL 498	
WMNST 458	Critical Feminist Issues in Reproduction
<i>Humanities</i>	
CAS 253	Health Communication
CAS 453	Health Communication Theory and Research
HIST 103	The History of Madness, Mental Illness, and Psychiatry
<i>Other</i>	
ANTH 470	
ANTH 471H	
CSD 269	Deaf Culture
FDSC 280	
HPA 301W	Health Services Policy Issues
KINES 345	Meaning, Ethics, and Movement
WMNST 250	Sexual Identity over the Life Span

¹ One course must be selected from the list of Ethics courses.

Academic Advising

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READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Abington

Pierce Salguero

Associate Professor
1600 Woodland Road
Abington, PA 19001
215-881-7826
salguero@psu.edu

Berks

Kesha Morant Williams

Associate Professor of Communication Arts & Sciences
Franco, 149
Reading, PA 19610

610-396-6218
BKBMH@psu.edu

Mont Alto

Denise Salters

Assistant Teaching Professor, Baccalaureate Biobehavioral Health
Bookstore 008
1 Campus Drive
Mont Alto, PA 17237
717-749-6241
dks6003@psu.edu

Career Paths

Potential career paths include: medicine, law, health or life sciences, health administration, health informatics, or forensics.

Contact

University Park

BIOETHICS PROGRAM
University Park, PA 16802
814-867-0811
mmekel@psu.edu

<https://bioethics.psu.edu/>

Abington

DIVISION OF ARTS AND HUMANITIES
1600 Woodland Road
Abington, PA 19001
215-881-7826
salguero@psu.edu

<https://www.abington.psu.edu/minors-abington/bioethics-medical-humanities-minor/> (<https://www.abington.psu.edu/minors-abington/bioethics-medical-humanities-minor/>)

Berks

HASS DIVISION
Franco Building
Reading, PA 19610
610-396-6218
BKBMH@psu.edu

Mont Alto

BIOBEHAVIORAL HEALTH
Bookstore 008
1 Campus Drive
Mont Alto, PA 17237
717-749-6241
dks6003@psu.edu

Business, B.S. (Intercollege)

Begin Campus: World Campus

End Campus: World Campus

Program Description

The Bachelor of Science in Business (B.S.B.) is a professionally-oriented business degree program that combines the theoretical underpinnings

of core business disciplines, notably business analytics, management, marketing, finance, and supply chain management, with applied study in a practical setting. Through the choice of an 18-credit option, students specialize in a key business sector. Students also develop written and oral communication skills throughout the program, acquire contemporary technology skills, and engage in active and collaborative learning. The degree allows students to become familiar with the unique business environments of their local communities, a design that sets the degree apart from other business degrees offered within the University and throughout the Commonwealth.

Accounting Option

Available at the following campuses: *Abington, Altoona, Beaver, Berks, Brandywine, DuBois, Fayette, Greater Allegheny, Lehigh Valley, New Kensington, Schuylkill, Scranton, Shenango, Wilkes-Barre, World Campus, York*

This option prepares students to pursue careers in business with an emphasis on the areas of financial and managerial accounting, systems and controls, auditing, and taxation.

Business Analytics Option

Available at the following campuses: *Abington, Altoona, Beaver, Berks, Brandywine, DuBois, Greater Allegheny, Hazleton, Lehigh Valley, New Kensington, Schuylkill, Scranton, Wilkes-Barre, York*

The Business Analytics option prepares students to pursue careers in applying business analytics techniques to implement appropriate decision-making outcomes using data for companies.

Entrepreneurship Option

Available at the following campuses: *Altoona, World Campus*

This option prepares students to pursue entrepreneurial careers with emphasis on idea generation, opportunity analysis, new product creation, and business plan development.

Financial Services Option

Available at the following campuses: *Abington, Altoona, Berks, DuBois, Lehigh Valley, Scranton, World Campus*

This option prepares students to pursue careers in financial organizations with emphasis on wealth management, tax planning, risk management, and financial analysis.

Health Services Option

Available at the following campuses: *Abington, Lehigh Valley, Schuylkill, World Campus*

This option prepares students to pursue careers in the health services sector with emphasis on the financial and administrative aspects of health care enterprises.

Individualized Business Option

Available at the following campuses: *Abington, Altoona, Beaver, Berks, Brandywine, DuBois, Fayette, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Shenango, Schuylkill, Scranton, Wilkes-Barre, World Campus, York*

This option provides the opportunity for students to pursue an approved business-focused interdisciplinary program of study.

Management and Marketing Option

Available at the following campuses: *Abington, Altoona, Beaver, Berks, Brandywine, DuBois, Fayette, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Shenango, Schuylkill, Scranton, Wilkes-Barre, World Campus, York*

This option prepares students to pursue careers in business organizations with an emphasis on the skills and knowledge necessary for the business professional to function in community and regional centers of commerce.

What is Business?

Business is a professionally-oriented program providing a broad education and solid grounding of business knowledge. Focusing on practical skills and real-world experience, the program's interdisciplinary perspective provides a versatile base for mobility into all business areas, preparing students for the business world of today and tomorrow. Options provide additional specialization in accounting, entrepreneurship, financial services, health services, management and marketing or the opportunity to develop an individualized plan that fits your career goals.

You Might Like This Program If...

- You want to become a flexible business professional, equipped to adapt to the ever-changing workplace of the future.
- You are interested in an academic challenge with theoretical and practical focus in a competitive yet collaborative learning environment.
- You want transferable skills or you are not sure which business sector you wish to focus.
- You wish to be develop a broad knowledge of business operations.
- You want to develop the skills for working in business.

Entrance To Major

In order to be eligible for entrance to this major, students must complete one of the following courses: MATH 22 or MATH 40 or MATH 41 or MATH 110 or MATH 140.

In addition, students also must satisfy the following requirements:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Business, a minimum of 120 credits is required, 15 of which must be at the 400 level:

Requirement	Credits
General Education	45
Electives	10
Requirements for the Major	80

15 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GQ courses; 6 credits of GS courses; 3 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
<i>Prescribed Courses: Require a grade of C or better</i>		
BA 321	Contemporary Skills for Business Professionals	3
BA 322	Negotiation Skills for Business Professionals	3
BA 420	Preparation for Career Management	1
BA 421	Project Management	3
BA 422W	Strategic Business Planning	3
FIN 301	Corporation Finance	3
IB 303	International Business Operations	3
MGMT 301	Basic Management Concepts	3
MIS 204	Introduction to Management Information Systems	3
MKTG 301	Principles of Marketing	3
SCM 301	Supply Chain Management	3
Additional Courses		
BA 241 & BA 242 or BA 243	Legal Environment of Business and Social and Ethical Environment of Business Social, Legal, and Ethical Environment of Business	4
MATH 110 or MATH 140	Techniques of Calculus I Calculus With Analytic Geometry I	4
<i>Additional Courses: Require a grade of C or better</i>		
BA 495A or BA 495B	Business Internship Undergraduate Research in Business	3-6
ENGL 15 or ENGL 30H	Rhetoric and Composition Honors Rhetoric and Composition	3
SCM 200 or STAT 200	Introduction to Statistics for Business Elementary Statistics	4
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 0-3 credits from 400-level business courses from: ACCTG, BA, ECON, ENTR, FIN, FINSV, HPA, IB, MGMT, MIS, MKTG, RM, or SCM		
Requirements for the Option		
<i>Requirements for the Option: Require a grade of C or better</i>		
Select an option		18

Requirements for the Option Accounting Option (18 credits)

Available at the following campuses: Abington, Altoona, Beaver, Berks, Brandywine, DuBois, Fayette, Greater Allegheny, Lehigh Valley, New

Kensington, Schuylkill, Scranton, Shenango, Wilkes-Barre, World Campus, York

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ACCTG 404	Managerial Accounting: Economic Perspective	3
ACCTG 405	Principles of Taxation I	3
ACCTG 471	Intermediate Financial Accounting I	3
ACCTG 472	Intermediate Financial Accounting II	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
ACCTG 403 or ACCTG 403WAuditing	Auditing	3
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 3 credits of 400-level courses from: ACCTG, BA, ECON, ENTR, FIN, FINSV, HPA, IB, MGMT, MIS, MKTG, RM, or SCM		
Business Analytics Option (18 Credits)		
<i>Available at the following campuses: Abington, Altoona, Beaver, Berks, Brandywine, DuBois, Greater Allegheny, Hazleton, Lehigh Valley, New Kensington, Schuylkill, Scranton, Wilkes-Barre, York</i>		
Code Title Credits		
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
MIS 301	Business Analytics	3
MIS 345	Introduction to Data Analytics	3
MIS 431	Business Data Management	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 9 credits from the following: 9		
COMM/IST 310	Digital Media Metrics	
ECON 481	Business Forecasting Techniques	
MIS 336	Database Management Systems	
MIS 404	Introduction to ERP and Business Processes	
MIS 415	Social Media Management and Analytics	
MIS 441	Business Intelligence for Decision Making	
MIS 445	Business Intelligence	
MKTG 342	Marketing Research	
MKTG 343	Introduction to Marketing Analytics	
MKTG 473	Digital Marketing	
MKTG 474	Marketing Analytics	
MKTG 480	Intermediate Social Media Marketing	
SCM 340	Introduction to Supply Chain Analytics	

Entrepreneurship Option (18 credits)

Available at the following campuses: Altoona, World Campus

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ENTR 300	Principles of Entrepreneurship	3
ENTR 320	Entrepreneurship and New Venture Creation	3

ENTR 400	Financing Entrepreneurial Ventures	3
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Additional Courses

Additional Courses: Require a grade of C or better

CAS 352	Organizational Communication	0-3
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or ENGL 419 Advanced Business Writing

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 6 to 9 credits of 400-level ENTR courses in consultation with your adviser 6-9

Financial Services Option (18 credits)

Available at the following campuses: Abington, Altoona, Berks, DuBois, Lehigh Valley, Scranton, World Campus

Code	Title	Credits
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Prescribed Courses

Prescribed Courses: Require a grade of C or better

ACCTG 405	Principles of Taxation I	3
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FIN 420	Investment and Portfolio Analysis	3
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Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 12 credits in 300 or 400-level (with at least 3 credits at the 400-level) from ACCTG, FIN, FINSV or RM 12

Health Services Option (18 credits)

Available at the following campuses: Abington, Lehigh Valley, Schuylkill, World Campus

Minimum 6 credits at the 400-level.

Code	Title	Credits
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Prescribed Courses

Prescribed Courses: Require a grade of C or better

HPA 101	Introduction to Health Services Organization	3
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HPA 332	Health Systems Management	3
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Additional Courses

Additional Courses: Require a grade of C or better

Select 0-3 credits of the following: 0-3

BBH/AFAM 302	Diversity and Health	
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CAS 352	Organizational Communication	
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CAS 404	Conflict Resolution and Negotiation	
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ENGL 416	Science Writing	
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ENGL 419	Advanced Business Writing	
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LER 424	Employment Compensation	
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LHR/WMNST 472	Work-Life Practices and Policies	
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PSYCH 281	Introduction to Industrial-Organizational Psychology	
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PSYCH 484	Work Attitudes and Motivation	
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PSYCH 485	Leadership in Work Settings	
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Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 3-9 credits from 300 or 400-level HPA courses 3-9

Select 0-6 credits of 300-400-level courses from ACCTG, BA, ECON, ENTR, FIN, FINSV, HPA, IB, MGMT, MKTG, MIS, RM or SCM 0-6

Individualized Business Option (18 credits)

Available at the following campuses: Abington, Altoona, Beaver, Berks, Brandywine, DuBois, Fayette, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Shenango, Schuylkill, Scranton, Wilkes-Barre, World Campus, York

Select 18 credits of study (with at least 3 credits at the 400-level) as submitted by the student and approved by the campus BSB Program Coordinator.

Management and Marketing Option (18 credits)

Available at the following campuses: Abington, Altoona, Beaver, Berks, Brandywine, DuBois, Fayette, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Shenango, Schuylkill, Scranton, Wilkes-Barre, World Campus, York

Code	Title	Credits
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Additional Courses

Additional Courses: Require a grade of C or better

Select one of the following: 0-6

0-6 credits from BA 250, ENGL 419, MKTG 220

CAS 250	Small Group Communication	
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CAS 252	Business and Professional Communication	
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CAS 352	Organizational Communication	
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CAS 404	Conflict Resolution and Negotiation	
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Supporting Courses and Related Areas ¹

Supporting Courses and Related Areas: Require a grade of C or better

Select 3 credits from 300 or 400-level MGMT courses 3

Select 3 credits from 300 or 400-level MKTG courses 3

Select 6-12 additional credits in 300 or 400-level courses from MGMT6-12 or MKTG courses

¹ A minimum of 3 credits of supporting courses must be selected at the 400-level.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- Quantification (GQ): 6 credits
- Writing and Speaking (GWS): 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- Arts (GA): 3 credits
- Health and Wellness (GHW): 3 credits

- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of

both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Accounting Option: Business, B.S. at World Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or ESL 15 [†]	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C [‡]	3
MIS 204	3 ECON 102 [†]	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3

General Education Course	3 MATH 110 ^{††}	4
	15	16

attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 ENGL 202D [‡]	3
BA 243	4 STAT 200 (General Education) ^{‡†}	4
ECON 104 [†]	3 General Education	3
General Education Course	3 General Education	3
Elective	3 Elective	3
	17	16

Third Year

Fall	Credits Spring	Credits
BA 321 [*]	3 BA 322 [*]	3
FIN 301 [*]	3 BA 420 [*]	1
MGMT 301 [*]	3 MKTG 301 [*]	3
ACCTG 471 [*]	3 IB 303 [*]	3
ACCTG 404 [*]	3 ACCTG 472 [*]	3
	ACCTG 403 (or ACCTG 403W) [*]	3
	15	16

Fourth Year

Fall	Credits Spring	Credits
BA 421 [*]	3 BA 422W [*]	3
SCM 301 [*]	3 ACCTG 495 [*]	6
ACCTG 405 [*]	3 400-level Business Supporting Course [*]	0-3
400-level Business Supporting Course (ACCTG 426 is recommended) [*]	3 Elective	1
Elective	3	
	15	10-13

Total Credits 120-123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ MATH 110 or 140 is required for graduation. MATH 22 or higher is required for entrance to major.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain

Entrepreneurship Option: Business, B.S. at World Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or ESL 15 [‡]	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C [‡]	3
MIS 204	3 ECON 102 [†]	3
General Education Course	3 MATH 110 ^{††}	4
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
15		16

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 ENGL 202D [‡]	3
BA 243	4 STAT 200 (General Education) ^{††}	4
ECON 104 [†]	3 General Education	3
General Education Course	3 General Education	3
Elective	3 Elective	3
17		16

Third Year

Fall	Credits Spring	Credits
BA 321 [*]	3 BA 322 [*]	3
FIN 301 [*]	3 BA 420 [*]	1
MGMT 301 [*]	3 SCM 301 [*]	3
MKTG 301W [*]	3 IB 303 [*]	3
ENTR 300 [*]	3 ENTR 320 [*]	3
15		13

Fourth Year

Fall	Credits Spring	Credits
BA 421 [*]	3 BA 422W [*]	3
ENTR 400 [*]	3 BA 495A [*]	6
Option Course - ENTR 4XX [*]	3 Option Course - ENTR 4XX [*]	3
Option Course - ENTR 4XX or CAS 352 - Organizational Communication or ENGL 419 Advanced Business Writing [*]	3 400-level Business Supporting course [*]	0-3
Elective	3 Elective	1
15		13-16

Total Credits 120-123

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ MATH 110 or 140 is required for graduation. MATH 22 or higher is required for entrance to major.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Financial Services Option: Business, B.S. at World Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
ENGL 15, 30H, or ESL 15 [‡]	3	CAS 100, CAS 100A, CAS 100B, or CAS 100C [‡]	3
MIS 204	3	ECON 102 [†]	3
General Education Course	3	General Education Course	3
General Education Course	3	General Education Course	3
General Education Course	3	MATH 110 ^{††}	4
	15		16

Second Year

Fall	Credits	Spring	Credits
ACCTG 211	4	ENGL 202D [†]	3
BA 243	4	STAT 200 (General Education) ^{††}	4
ECON 104 [†]	3	General Education	3
General Education Course	3	General Education	3
Elective	3	Elective	3
	17		16

Third Year

Fall	Credits	Spring	Credits
BA 321 [*]	3	BA 322 [*]	3
FIN 301 [*]	3	IB 303 [*]	3
MGMT 301 [*]	3	MKTG 301 [*]	3
Option Course (ACCTG/FIN/FINSV/RM) 300 or 400 level [*]	3	FINSV 411 (or ACCTG 405 - Federal Income Taxation) [*]	3
Elective	3	Option Course (ACCTG/FIN/FINSV/RM) 300 or 400 level [*]	3
	15		15

Fourth Year

Fall	Credits	Spring	Credits
BA 420 [*]	1	BA 422W [*]	3
BA 421 [*]	3	ACCTG 495 [*]	6
FIN 420 [*]	3	400-level Business Supporting Course [*]	0-3
SCM 301 [*]	3	Option Course (ACCTG/FIN/FINSV/RM) [*]	3
Option Course (ACCTG/FIN/FINSV/RM) 300 or 400 level [*]	3		
Elective	1		
	14		12-15

Total Credits 120-123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ MATH 110 or 140 is required for graduation. MATH 22 or higher is required for entrance to major.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Health Services Option: Business, B.S. at World Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or ESL 15 [‡]	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C [‡]	3
MIS 204	3 ECON 102 [†]	3
General Education Course	3 MATH 110 ^{††}	4
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
	15	16

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 ENGL 202D [‡]	3
BA 243	4 STAT 200 (General Education) ^{††}	4
ECON 104 [†]	3 General Education	3
General Education Course	3 General Education	3
Elective	3 Elective	3
	17	16

Third Year

Fall	Credits Spring	Credits
BA 321 [*]	3 BA 322 [*]	3
FIN 301 [*]	3 BA 420 [*]	1
MGMT 301 [*]	3 SCM 301 [*]	3
MKTG 301W [*]	3 IB 303 [*]	3
HPA 101 [*]	3 HPA 332 [*]	3
	15	13

Fourth Year

Fall	Credits Spring	Credits
BA 421 [*]	3 BA 422W [*]	3
300 or 400-level HPA Course [*]	3 BA 495A [*]	6
Additional Option Course or 300-400 level Business Course [*]	3 300 or 400-level HPA or 300-400 level Business Course [*]	3
300 or 400-level HPA or 300-400 level Business Course [*]	3 400-level Business Supporting courses [*]	0-3
Elective	3 Elective	1
	15	13-16

Total Credits 120-123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ MATH 110 or 140 is required for graduation. MATH 22 or higher is required for entrance to major.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Management and Marketing Option: Business, B.S. at World Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
ENGL 15, 30H, or ESL 15 [‡]	3	CAS 100, CAS 100A, CAS 100B, or CAS 100C [‡]	3
MIS 204	3	ECON 102 [†]	3
General Education Course	3	General Education Course	3
General Education Course	3	General Education Course	3
General Education Course	3	MATH 110 ^{††}	4
	15		16

Second Year

Fall	Credits	Spring	Credits
ACCTG 211	4	ENGL 202D [‡]	3
BA 243	4	STAT 200 (General Education) ^{††}	4
ECON 104 [†]	3	General Education	3
General Education Course	3	General Education	3
Elective	3	Elective	3
	17		16

Third Year

Fall	Credits	Spring	Credits
BA 321 [*]	3	BA 322 [*]	3
FIN 301 [*]	3	IB 303 [*]	3
MGMT 301 [*]	3	Option Course (Communications) or Additional Credits in 300 or 400-level Management or Marketing courses [*]	3
MKTG 301W [*]	3	Option Course 300-400-level Management [*]	3
SCM 301 [*]	3	Option Course 300-400 level Marketing [*]	3
	15		15

Fourth Year

Fall	Credits	Spring	Credits
BA 420 [*]	1	BA 422W [*]	3
BA 421 [*]	3	BA 495A [*]	3
Option Course (300-400-level Management or Marketing) [*]	3	Option Course (Communications) or Additional Credits in 300 or 400-level Management or Marketing courses [*]	3
Option Course 400-level Management or Marketing) [*]	3	400-level Business Supporting courses [*]	3

Elective	3 Elective	1
	13	13

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ MATH 110 or 140 is required for graduation. MATH 22 or higher is required for entrance to major.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Individualized Option: Business, B.S. at World Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or ESL 15 [‡]	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C [‡]	3
MIS 204	3 ECON 102 [†]	3
General Education Course	3 MATH 110 ^{††}	4
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
	15	16

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 ENGL 202D [‡]	3
BA 243	4 STAT 200 (General Education) ^{††}	4
ECON 104 [†]	3 General Education	3
General Education Course	3 General Education	3
Elective	3 Elective	3
	17	16

Third Year

Fall	Credits Spring	Credits
BA 321 [*]	3 BA 322 [*]	3
FIN 301 [*]	3 BA 420 [*]	1
MGMT 301 [*]	3 SCM 301 [*]	3
MKTG 301W [*]	3 IB 303 [*]	3
Individualized Option Course [*]	3 Individualized Option Course [*]	3
	15	13

Fourth Year

Fall	Credits Spring	Credits
BA 421 [*]	3 BA 422W [*]	3
Individualized Option Course [*]	3 BA 495A [*]	3
Individualized Option Course [*]	3 Individualized Option Course [*]	3
Individualized Option Course [*]	3 400-level Business Supporting courses [*]	3
Elective	3 Elective	1
	15	13

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ MATH 110 or 140 is required for graduation. MATH 22 or higher is required for entrance to major.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

In today's economic environment, the Bachelor of Science in Business allows companies to hire individuals who have a broad knowledge of all aspects of business. This broad knowledge give you the opportunity to be effective within many different types of organizations. You will also be well-positioned to pursue admission to graduate programs.

Careers

With a degree in business, you may specialize through options that may vary by campus. With an accounting option, you can work in the areas of financial and managerial accounting, systems and controls, taxation, and auditing. The entrepreneurship option provides the skills for you to start your own business or to work as an entrepreneur within a company. Health services provides the financial and administrative skills and knowledge necessary for you to become a health services managers. With an option in financial services you might pursue positions in wealth and risk management, estate planning or financial and retirement planning. With the management and marketing option you will be prepared for a career in retail management, small business management or in marketing, advertising and promotion. Finally, with an individualized option, you have flexibility to build specialized skills for your personal business career goals.

Opportunities for Graduate Studies

A baccalaureate degree in Business can lead to a Master's degree in Business (MBA) or other business-related masters degrees. MBA programs are offered at Penn State Great Valley, Penn State Erie, Penn State Harrisburg, Penn State Berks, Smeal College of Business and through the World Campus.

Contact

World Campus

UNDERGRADUATE ACADEMIC ADVISING

225 Outreach Building

University Park, PA 16802

814-863-3283

advising@worldcampus.psu.edu

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-business-bachelor-of-science-degree> (<https://>)

www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-business-bachelor-of-science-degree/

Abington

DIVISION OF SOCIAL SCIENCES
1600 Woodland Rd.
Abington, PA 19001
215-421-0030
tws16@psu.edu

<https://www.abington.psu.edu/academics/majors-at-abington> (<https://www.abington.psu.edu/academics/majors-at-abington/>)

Altoona

DIVISION OF BUSINESS, ENGINEERING, AND INFORMATION SCIENCES AND TECHNOLOGY
Penn Building, 223
3000 Ivyside Park
Altoona, PA 16601
814-949-5265
dxh41@psu.edu

<https://altoona.psu.edu/academics/bachelors-degrees/business> (<https://altoona.psu.edu/academics/bachelors-degrees/business/>)

Beaver

100 University Drive
Monaca, PA 15061
724-773-3892
tdh13@psu.edu

<https://beaver.psu.edu/academics/majors/business-accounting> (<https://beaver.psu.edu/academics/majors/business-accounting/>)
<https://beaver.psu.edu/academics/majors/business-management> (<https://beaver.psu.edu/academics/majors/business-management/>)

Berks

EBC DIVISION
Gaige Building
Reading, PA 19610
610-396-6346
BKBusiness@psu.edu

<https://berks.psu.edu/academics/baccalaureate-degrees/bs-business> (<https://berks.psu.edu/academics/baccalaureate-degrees/bs-business/>)

Brandywine

Tomezsko 207J
25 Yearsley Mill Rd.
Media, PA 19063
jvs11@psu.edu

<https://www.brandywine.psu.edu/academics/bachelors-degrees/business> (<https://www.brandywine.psu.edu/academics/bachelors-degrees/business/>)

DuBois

171 Smeal Building
DuBois, PA 15801
814-375-4800
lhp5@psu.edu

<https://dubois.psu.edu/academics/degrees/business> (<https://dubois.psu.edu/academics/degrees/business/>)

Fayette

2201 University Drive
Lemont Furnace, PA
724-430-4245

<https://fayette.psu.edu/academics/baccalaureate/bachelor-science-business> (<https://fayette.psu.edu/academics/baccalaureate/bachelor-science-business/>)

Greater Allegheny

4000 University Drive
McKeesport, PA 15132
412-675-9055
yzb1@psu.edu

<https://greaterallegheny.psu.edu/academics/degree-programs/business> (<https://greaterallegheny.psu.edu/academics/degree-programs/business/>)

Hazleton

301A Schiavo Hall
Hazleton, PA 18202
570-450-3533
skr12@psu.edu

<https://hazleton.psu.edu/bachelors-science-business> (<https://hazleton.psu.edu/bachelors-science-business/>)

Lehigh Valley

2809 Saucon Valley Road
Center Valley, PA 18034
610-285-5117
maungkmin@psu.edu

<https://lehighvalley.psu.edu/academics/degrees/business> (<https://lehighvalley.psu.edu/academics/degrees/business/>)

Mont Alto

205 General Studies Building
Mont Alto, PA 17237
717-749-6027
hhh10@psu.edu

<https://montalto.psu.edu/academics/bachelors/business-degree> (<https://montalto.psu.edu/academics/bachelors/business-degree/>)

New Kensington

111 Administration Bldg.
3550 Seventh Street Road
New Kensington, PA 15068
724-334-6727
sxe5211@psu.edu

<https://newkensington.psu.edu/academics/academics/4-year-business> (<https://newkensington.psu.edu/academics/academics/4-year-business/>)

Schuylkill

ACADEMIC AFFAIRS
200 University Drive

Schuylkill Haven, PA 17972
570-385-6080
amb536@psu.edu

<https://schuylkill.psu.edu/academics/bacc-degrees/business> (<https://schuylkill.psu.edu/academics/bacc-degrees/business/>)

Scranton

117 Business Building
Dunmore, PA 18512
570-963-2643
jmw831@psu.edu

<https://scranton.psu.edu/academics/degrees/bachelors/business-degree> (<https://scranton.psu.edu/academics/degrees/bachelors/business-degree/>)

Shenango

147 Shenango Ave.
309C Sharon Hall
Sharon, PA 16146
724-983-2942
gxm32@psu.edu

<https://shenango.psu.edu/academics/degrees/business-accounting> (<https://shenango.psu.edu/academics/degrees/business-accounting/>)

Wilkes-Barre

44 University Drive
Dallas, PA 18612
570-675-9293
tmc12@psu.edu

<https://wilkesbarre.psu.edu/academics/business> (<https://wilkesbarre.psu.edu/academics/business/>)

York

1031 Edgecomb Ave.
York, PA 17403
717-718-6785
mal489@psu.edu

<https://www.york.psu.edu/academics/baccalaureate/business> (<https://www.york.psu.edu/academics/baccalaureate/business/>)

Child Maltreatment and Advocacy Studies, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Intercollege minor in Child Maltreatment and Advocacy Studies is designed for students who wish to supplement their academic majors with studies in child protection and well-being. The minor provides students with a broad and interdisciplinary introduction to child maltreatment and serves to establish foundational knowledge of the history and etiology of child maltreatment, the structure and administration of child protective service systems, and the identification, investigation, treatment, and prevention of child maltreatment. Students

completing this minor will have an understanding of the issues surrounding child maltreatment and advocacy and will be better prepared for professions across a variety of settings that serve children. To meet a diverse range of student interests, four core courses (12 credits) establish foundational knowledge in child maltreatment and advocacy and two elective courses (6 credits) offer opportunities for students to select course options aligned with their professional goals. A capstone course involving field work, research, or other relevant work is required.

You Might Like This Program If...

The CMAS minor is an interdisciplinary minor designed to allow students majoring in any discipline (ie: BBH, CN ED, CRIM, ED PSY, HDFS NURSING, PSYCH, RHS, and SOC) to enhance their knowledge/professional skills to work in any profession that serves and protects children.

MORE INFORMATION ABOUT THE CHILD MALTREATMENT AND ADVOCACY STUDIES MINOR (<https://www.solutionsnetwork.psu.edu/education/education-child-maltreatment-and-advocacy-studies-minor-overview/>)

Program Requirements

Requirement	Credits
Requirements for the Minor	18

For the minor in Child Maltreatment and Advocacy Studies a minimum of 18 credits are required.

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CMAS 258		3
CMAS 465	Child Maltreatment: Prevention and Treatment	3
CMAS 466	Systems and Community Responses	3
CMAS 493	Child Maltreatment and Advocacy Studies: Capstone Experience	3
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 6 credits of the following:		6
BBH 146	Introduction to Health and Human Sexuality	
BBH 446	Human Sexuality as a Health Concern	
CNED 422	Foundations of Addictions Counseling	
CNED 431	Counseling and Teaching Youth at Risk	
CRIM 12	Criminology	
CRIM 422	Victimization	
CRIM 423	Sexual and Domestic Violence	
CRIM 441	The Juvenile Justice System	
EDPSY 10	Individual Differences and Education	
HDFS 129	Introduction to Human Development and Family Studies	
HDFS 229	Infant and Child Development	

HDFS 239	Adolescent Development
HDFS 432	Developmental Problems in Childhood and Adolescence
HDFS 453	Family Participation and Involvement in Child Services
HDFS 455	Development and Administration of Human Services Programs
NURS 111	
NURS 230	Introduction to the Fundamentals of Nursing
NURS 245	Violence and the Impact on Society
NURS 409	Introduction to Forensic Nursing
PSYCH 231	Introduction to the Psychology of Gender
PSYCH 243	Introduction to Well-being and Positive Psychology
PSYCH 270	Introduction to Abnormal Psychology
PSYCH 421	Self and Social Judgment
PSYCH 436	Humanistic, Existential, and Religious Approaches to Psychology
PSYCH 476	Child Psychopathology
RHS 300	Introduction to Rehabilitation and Human Services
RHS 301	Introduction to Counseling as a Profession
RHS 400W	Case Management and Communication Skills
RHS 401	Community Mental Health Practice and Services
RHS 402	Children and Families in Rehabilitation Settings and Human Services
SOC 5	Social Problems
SOC 430	Family in Cross-Cultural Perspective

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Cheri McConnell

Education Coordinator, Child Maltreatment Solutions Network
202F Henderson Building
University Park, PA 16802
814-865-2193
cln3@psu.edu

Scranton

Janet Melnick

Associate Teaching Professor
111B Dawson Building
Dunmore, PA 18512

570-963-2674
jam81@psu.edu

Career Paths

The minor in Child Maltreatment and Advocacy Studies provides broad, foundational knowledge on the protection of children that is applicable to multiple educational and career pathways. Students receive both academic knowledge and real-world internship experiences that offer them a chance to explore potential career interests working with children or adolescents. With this minor, students set themselves up for career and educational success with specific, marketable skills in the detection, treatment, and prevention of child maltreatment.

Careers

The broad overview of child protection and advocacy including detection, treatment, and prevention of child maltreatment that you will receive gives you a better understanding to work in professions involving children to include, but not limited to: counseling, law enforcement, health, research, social work, education, forensic sciences, child welfare, and law.

Opportunities for Graduate Studies

Child protection and advocacy studies are relevant to masters and doctoral graduate programs across many academic disciplines, including Clinical Psychology, Developmental Psychology, Human Development and Family Studies, Social Work, Sociology, Nursing, Pediatrics, Criminology, Forensic Psychology, and Education, among others.

Contact

University Park

CHILD MALTREATMENT SOLUTIONS NETWORK
202 Henderson Building
University Park, PA 16802
814-865-2193
cln3@psu.edu

<https://www.solutionsnetwork.psu.edu/education/education-child-maltreatment-and-advocacy-studies-minor-overview> (<https://www.solutionsnetwork.psu.edu/education/education-child-maltreatment-and-advocacy-studies-minor-overview/>)

Scranton

111B Dawson Building
Dunmore, PA 18512
570-963-2674
jam81@psu.edu

Civic and Community Engagement, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

Administered by the Department of Communication Arts and Sciences in the College of the Liberal Arts, the Intercollegiate Minor in Civic and Community Engagement (CIVCM minor) is appropriate to undergraduate students seeking to apply domains of knowledge from their majors

or General Education programs to issues of consequence beyond the classroom. In the minor students integrate democratic, professional, and creative development. In particular, the minor serves to encourage, recognize, and systematize student participation in public service or problem-based fieldwork and research that:

- is substantial, sustained, and includes structured opportunities for student reflection and critical assessment; and
- is integrated with and supported by traditional, classroom-based coursework.

Specifically, the minor consists of one prescribed course, Foundations of Civic and Community Engagement (CAS 222N or CIVCM 211N or AYFCE 211N), a supervised fieldwork experience, and supporting coursework selected with the advice and consent of a faculty minor adviser. The minor culminates with an approved capstone project, which may be a significant paper, or annotated portfolio, or other demonstration of substantial assessment and integration of the minor experience and the broader issue of application of academic theory and practice in the civic community. Capstones may be composed and delivered for academic audiences or as public scholarship – or as some combination of the two – depending on a student's professional and civic goals. The completion of the minor is reflected by a formal notation of the student's official record at the time of graduation. To enter the program, a student must submit an application at <https://civcm.psu.edu/requirements-how-to-apply> (<https://civcm.psu.edu/requirements-how-to-apply>).

What is Civic and Community Engagement?

The Intercollege Minor in Civic and Community Engagement provides an opportunity for students to extend their education beyond the classroom through engagement in socially meaningful public scholarship in both pre-existing and newly developing community projects. This minor entails situated as well as experiential learning. Students apply, test, analyze and re-formulate academic material in the context of public problems and community settings. Engaging in "learning-by-doing" allows students to communicate across differences, deliberate public problems, fulfill civic responsibilities, gain insight into personal values and world-views, develop civic skills including observation and listening, and further develop career interests and professional goals.

Entrance to Minor

Applicants to the Intercollege Minor in Civic and Community Engagement:

- Must have a minimum overall GPA of 2.0.
- Must present a proposed plan of study during or soon after the application process via <https://civcm.psu.edu/requirements-how-to-apply> (<https://civcm.psu.edu/requirements-how-to-apply>). The plan of study should include student's contact information and GPA and a brief statement of student's learning objectives in connection with the minor. If student has not already done so, student should consult with minor adviser to propose supporting courses, fieldwork courses, and a potential capstone project.
- May apply no more than 9 credits toward the minor that also count toward the major. Students with multiple majors may have some additional flexibility. Past fieldwork experiences and completed courses may be retroactively included in the plan of study but must be approved by the minor adviser.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CIVCM 211N	Foundations: Civic and Community Engagement	3
Supporting Courses and Related Areas ¹		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 6-9 credits from Program List of public scholarship courses or equivalents chosen in consultation with minor adviser ²		6-9
Select 3-6 credits in related areas in consultation with minor adviser		3-6
Select 3 credits of public scholarship capstone work at the 400 level in consultation with minor adviser		3

¹ At least 6 credits must be taken at the 400 level.

² At least 3 credits must involve supervised field experience and 3-6 credits must be public issues and democracy courses.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Abington

Gary Calore

Associate Professor of Philosophy
1600 Woodland Road
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215-881-7591
gsc1@psu.edu

Beaver

Michelle Kurtyka

Assistant Teaching Professor, Kinesiology
100 University Drive
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Berks

Jill Burk

Program Coordinator, Assistant Professor
Franco 148
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BKCivicCommEng@psu.edu

Brandywine

Lynn Hartle

Professor of Education
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lch1@psu.edu

Erie

David Kahl Jr., Ph.D.

Program Chair and Professor of Communication
44 Kochel Center
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Greater Allegheny

Advising Office

Academic Affairs

101 Frable Building
4000 University Drive
McKeesport, PA 15132
412-675-9140
GA-Academics@lists.psu.edu

Mont Alto

Jacqueline Schwab

Associate Professor of Human Development and Family Studies
11 Bookstore Building
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sen@psu.edu

Schuylkill

Stephen Roman

Social Science Division
200 University Drive
Schuylkill Haven, PA 17972
570-385-6000
spr19@psu.edu

Contact

University Park

DEPARTMENT OF COMMUNICATION ARTS AND SCIENCES
234 Sparks Building
University Park, PA 16802
814-865-3461
rhosa@psu.edu

<https://cas.la.psu.edu/undergraduate/minors/>

<https://civcm.psu.edu/faculty/>

Abington

DIVISION OF SOCIAL SCIENCES
1600 Woodland Road
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<https://www.abington.psu.edu/person/gary-calore> (<https://www.abington.psu.edu/person/gary-calore/>)

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100 University Drive
Monaca, PA 15061
724-773-3824
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<https://beaver.psu.edu/academics> (<https://beaver.psu.edu/academics/>)

Berks

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Brandywine

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<https://www.brandywine.psu.edu/academics/minors/civic-and-community-engagement> (<https://www.brandywine.psu.edu/academics/minors/civic-and-community-engagement/>)

Erie

SCHOOL OF HUMANITIES AND SOCIAL SCIENCES
170 Irvin Kochel Center
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HSSOffice@psu.edu

<https://behrend.psu.edu/school-of-humanities-social-sciences> (<https://behrend.psu.edu/school-of-humanities-social-sciences/>)

Greater Allegheny

101 Frable Building
4000 University Drive

McKeesport, PA 15132
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<https://greaterallegheeny.psu.edu/minors> (<https://greaterallegheeny.psu.edu/minors/>)

Mont Alto

11 Bookstore Building
Mont Alto, PA 17237
717-749-6034
sen@psu.edu

<https://montalto.psu.edu/directory/civic-and-community-engagement>
(<https://montalto.psu.edu/directory/civic-and-community-engagement/>)

Schuylkill

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200 University Drive
Schuylkill Haven, PA 17972
570-385-6000
spr19@psu.edu

<https://schuylkill.psu.edu/academics> (<https://schuylkill.psu.edu/academics/>)

Disability Studies, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Disability Studies minor is designed for students to learn about the lived experiences, cultural history, social systems, and institutional forces of ableism surrounding disability. In addition to the requirements of the student's major department, the minor consists of 18 credits selected from several colleges and departments. For those majoring in health care disciplines (e.g. speech and communication, psychology, special education, rehabilitation and human services, nursing and pre-med), a Disability Studies minor provides relevant interdisciplinary links that broaden exposure to conversations around disability beyond the clinical and administrative realms. For students in the humanities (e.g. history, philosophy, political science, and literature), Disability Studies offers important new dimensions of and challenges to dominant accounts of human value and political agency. For students with personal experience of disability and their allies, the minor provides an academic grounding and community for disability advocacy and intersectional activism on personal, community, and national levels.

What is Disability Studies?

The minor includes courses on disability culture, activism, and history. It asks the following questions: what counts as "normal" and why? What are the racialized and class dimensions of "ability"? How do people with disabilities navigate a largely inaccessible world? What does disability look like on a global scale? What are the lived experiences of disability, and how are they central to American history and culture? How is disability coded by gender or sexuality? What is the value of learning about the lives and contributions of people with disability? How is disability related to environmental studies, bioethics, animal studies?

You Might Like This Program If...

- You are interested in the engineering or architecture of built environments, health care professions, art and performance, social history, social justice activism, the political philosophy of citizenship, contemporary literature, legal studies, community advocacy, universal design. The list is endless, since Disability Studies is a genuinely multidisciplinary field. All students are welcome.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ENGL 228	Introduction to Disability Studies in the Humanities	3
RHS 100	Introduction to Disability Culture	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits from ENGL 496, or an equivalent independent research course or internship approved by the faculty member in charge		3
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select at least three courses for at least 9 credits from an approved department list in consultation with adviser		9

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in- and out-of-class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic->

adviser(s) to see the contact information for the specific adviser(s) of this program

Career Paths

Ph.D. in Disability Studies, supportive courses for graduate degrees in Occupational Therapy, Speech Therapy, Physical Therapy, Social Work, medical school, design engineering, others.

Careers

Coordinator for diversity and accessibility programs within universities, corporations, or non-profit organizations; OT, PT, Speech Therapy, disability programming, community education and outreach, consultation.

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<https://english.la.psu.edu/undergraduate/minors/>

Entrepreneurship and Innovation, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

Skills attributed to entrepreneurial behavior and innovative thinking are beneficial for students in most if not all majors, and are critical to career success in established companies and new organizations to address pressing needs around the globe. This interdisciplinary minor uses problem-based learning and other active learning pedagogies to prepare students to create value and be agents of positive change in their discipline and their careers. The courses develop skills, knowledge and values in problem solving, innovation, opportunity recognition, self-efficacy, leadership, ethics, communications and learning from failure. To meet the students' broad range of entrepreneurship and innovation interests, core courses (9 credits) establish foundational knowledge, and then students select a concentration cluster aligned to specific contexts such as entrepreneurship in food and bio-innovation, technology, bio-tech, the arts, media, hospitality, digital, social entrepreneurship, advocacy or new ventures. Students who complete the ENTI minor will be better prepared to be innovation leaders in their chosen career path, such as being entrepreneurial in an existing company (intrapreneurship), engaging in a start-up venture full or part-time, finding avenues to leverage their art or craft, or creating alliances to meet social or business needs.

Advising for students in this minor and approval of curriculum exceptions will be available through the Entrepreneurship and Innovation (ENTI) adviser for each cluster.

Bio-Tech Cluster (Eberly College of Science)

This specialization prepares students to develop an entrepreneurial mindset and apply innovative strategies to find solutions that benefit

humans, animals, and the environment. Students will also develop unique skills in career readiness such as teamwork, leadership and communication. Students who complete this cluster will be better able to take an interdisciplinary approach to solving problems through Biotechnology.

Digital Entrepreneurship and Innovation Cluster (College of Information Sciences and Technology)

This specialization prepares a student to harness digital technologies and digital business models to develop their own concepts into commercial concerns or to contribute to the innovation activities of existing organizations (i.e., intrapreneurship). The IST Digital Entrepreneurship & Innovation cluster focuses on the impact of Information Technology (IT)-driven innovation across multiple industry sectors including for-profit, non-profit and governmental organizations. IT-driven innovation has created new business opportunities for both entrepreneurs and intrapreneurs and is key to increasing efficiencies and expanding the linkage between user-centric products and services. Students who complete this cluster will gain a foundational understanding of emerging information technologies, the components of digital business models, and implementation and design techniques that meet or exceed user-centric requirements.

Entrepreneurship as Advocacy Cluster (College of the Liberal Arts)

This specialization empowers students to utilize the process of entrepreneurship as a form of advocacy to improve the human condition and enhance public life. The cluster leverages a critique of the business paradigm of "maximize shareholder value" to encourage students to create organizations that can be a force for positive change in society.

Food and Bio-innovation Cluster (College of Agricultural Sciences)

This specialization will develop future entrepreneurs and innovators to address opportunities and challenges in the agriculture and life sciences space. The cluster focuses on the cornerstone challenge for agriculture: producing food for the world with entrepreneurial activity and innovation to develop, convert and use biological materials and natural resources (plants, animals, ecosystems and organisms, etc.) to meet the material and energy needs of society. Students are encouraged to take a series of courses in the cluster that complement their personal venture interests and engage in a series of immersive venturing experiences that can range from creating new ventures to mentoring with seasoned entrepreneurs or working within entrepreneurial organizations.

Hospitality Management Cluster (College of Health and Human Development)

This specialization prepares a student to create and develop novel but sound entrepreneurial concepts related to the hospitality industry in such businesses as lodging and food service. For example, through this cluster, students could develop and refine entrepreneurial concepts related to hotels, motels, bed & breakfasts, quick-service restaurants, upscale restaurants, mobile dining such as food trucks, on-line travel agencies, and other on-line ventures. The minor is also designed to prepare students to be innovators within existing organizations. Students who complete this cluster develop skills in creating business plans, feasibility studies, competitive analysis, supply and demand analysis, market analysis and financial forecasting. Students in this concentration are expected to include a mix of majors, not only students majoring in hospitality management.

New Media Cluster (College of Communications)

This specialization examines opportunities and challenges in the creation and distribution of news, entertainment and information. The same technological innovations that make it easy to start a media enterprise have introduced a host of editorial and business complexities. Media production and distribution skills and knowledge of media business, technologies, law and ethics are critical.

New Ventures Cluster (Smeal College of Business)

This specialization helps students develop the skills and ways of thinking required to create, develop, innovate and manage entrepreneurial companies. Students learn about acquiring and balancing limited resources, changing business direction quickly, building a coherent team, managing intellectual property, and creating new markets. This cluster develops a wide range of managerial skills not usually demanded in one person within a larger organization.

Product innovation Cluster (College of Engineering)

This specialization develops skills and knowledge through a practical entrepreneurial experience in a technology based environment. Technology and engineering design topics form the practical content of the cluster. General entrepreneurial business topics and tracking current and emerging technologies provide additional foundation structure for this cluster. Students understand and apply fundamental engineering design skills, product feasibility analysis and marketing techniques to move innovative products toward commercialization.

Social Entrepreneurship Cluster (College of Engineering)

This specialization focuses on creating sustainable social impact within marginalized communities. The cluster grounds students in social business, user-centered design for extreme affordability, systems thinking and scholarly research to develop innovative and appropriate technology-based solutions to address compelling global challenges. Travel and fieldwork in which students work in multidisciplinary teams to research, design, test, and commercialize ventures are required.

What is Entrepreneurship and Innovation?

Entrepreneurship and innovation is an interdisciplinary field that deals with new enterprise creation and the process of change and transformation in methods, ideas, and products. It is about problem-solving and the creation of value and positive change in business and society.

You Might Like This Program If...

- You want to learn what entrepreneurs do and how innovators create and solve problems in any field. Whatever you're majoring in or whatever career you've chosen, entrepreneurs and innovators are there already making a positive difference. You can learn to be one, too.
- You're passionate about starting your own business, non-profit, or social enterprise (entrepreneurship) or pursuing a career as an innovator within an existing firm or organization (intrapreneurship).
- You want to learn the skills and develop the mindset of an entrepreneur and innovator.

MORE INFORMATION ABOUT ENTREPRENEURSHIP AND INNOVATION (<https://cpsse.psu.edu/enti/>)

Program Requirements

Requirement	Credits
Requirements for the Minor	18-19

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ENGR 310	Entrepreneurial Leadership	3
ENGR/IST/MGMT 425	New Venture Creation	3
MGMT 215	Entrepreneurial Mindset	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 9 or more credits from one of the clusters listed below ¹		9-10

¹ Students may not use a required course from their major in their chosen cluster. Other courses, such as technical electives, out-of-college electives, and general education courses may be able to be used to meet requirements in major as well as the ENTI Minor. In all clusters, students may substitute up to 3 credits of research topics, internship or independent studies courses focused on relevant entrepreneurship or innovation topics in consultation with an adviser. Each cluster is structured to provide a clear course "path" so any student from any major can complete the cluster and therefore the ENTI minor.

Bio-Tech Cluster

Code	Title	Credits
Required Courses		
Choose one foundational course for the Bio-Tech cluster from the following list:		3-4
BIOL 230W	Biology: Molecules and Cells	
BIOL 230M	Honors Biology: Molecules and Cells	
BMB/MICRB 251	Molecular and Cell Biology I	
BMB 251H	Molecular and Cell Biology I	
MICRB 201	Introductory Microbiology	
MICRB 201H	Introductory Microbiology	
Choose one of the following advanced courses for the Bio-Tech cluster:		3-4
BIOL 405	Molecular Evolution	
BIOL 409	Biology of Aging	
BIOL 412	Ecology of Infectious Diseases	
BIOL 415	Ecotoxicology	
BIOL 416	Biology of Cancer	
BIOL 419	Ecological and Environmental Problem Solving	
BIOL 419H	Ecological and Environmental Problem Solving	
BIOL 424	Seeds of Change: The Uses of Plants	

BIOL 426	Developmental Neurobiology
BIOL 431	Reproductive Biology
BIOL 432	Developmental Genetics
BIOL 439	Practical Bioinformatics
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 451	Biology of RNA
BIOL/ANTH 460	Human Genetics
BIOL 461	Contemporary Issues in Science and Medicine
BIOL 467	Molecular Basis of Neurological Diseases
BIOL/BBH 469	Neurobiology
BIOTC/BIOL/HORT 459	Plant Tissue Culture and Biotechnology
BIOTC/AGRO 460	Advances and Applications of Plant Biotechnology
BMB 401	General Biochemistry
BMB 442	Laboratory in Proteins, Nucleic Acids, and Molecular Cloning
BMB/MICRB 480	Cancer Development and Progression
BMB 482	Introduction to Computational Biology
BMB 484	Functional Genomics
BMB/VBSC 485	Human Genomics and Biomedical Informatics
CHEM 402	Environment Chemistry: Atmosphere
CHEM 423W	Chemical Spectroscopy
CHEM 425W	Chromatography and Electrochemistry
CHEM 431W	Advanced Synthetic Methodologies
CHEM 459W	Advanced Experimental Physical Chemistry
CHEM 476	Biological Chemistry
FRNSC 427W	Forensic Chemistry
MATH 405	Advanced Calculus for Engineers and Scientists I
MATH 406	Advanced Calculus for Engineers and Scientists II
MATH 448	Mathematics of Finance
MATH 450	Mathematical Modeling
MATH 484	Linear Programs and Related Problems
MATH 486	Mathematical Theory of Games
MICRB 401	Microbial Physiology and Structure
PHYS 462	Applications of Physics in Medicine
PHYS 465	Network analysis of biological systems
PHYS 472	Elements of Nuclear Physics and its Applications to Medical Imaging and Treatments

Choose one of the following capstone courses for the Bio-Tech cluster.¹ 3

BIOTC/MICRB 416	Microbial Biotechnology
BIOTC/BIOL/HORT 459	Plant Tissue Culture and Biotechnology

¹ Note: if a course is taken to satisfy 400-level elective, it cannot also be used to satisfy capstone requirement.

Digital Entrepreneurship and Innovation Cluster

Code	Title	Credits
Required Courses		
IST 237	Digital Entrepreneurship	3
IST 337	Technologies for Digital Entrepreneurs	3
IST 437	Digital Design & Innovation ¹	3

¹ IST 237 is prerequisite for IST 437.

Entrepreneurship as Advocacy Cluster

Code	Title	Credits
Required Courses		
LA 202	Innovation and Entrepreneurship in the Liberal Arts ¹	3
LA 424	Liberal Arts Venture Development ¹	3
Select 3 credits from the following: 3		
AFAM 100N	Black Freedom Struggles	
AFAM/SOC/WMNST 103	Racism and Sexism	
AFAM/LHR/WMNST 136	Race, Gender, and Employment	
AFAM/HIST/WMNST 213Y	African American Women's History	
CAS/ENGL 137H	Rhetoric and Civic Life I	
CAS 175N	Persuasion and Propaganda	
CAS 210	Landmark Speeches on Democracy and Dissent	
CAS 220	Persuasion	
CAS 222N/A YFCE 211N/CIVCM 211N	Foundations: Civic and Community Engagement	
CAS 321	Rhetoric and Law	
CAS 373	The Rhetorics of War and Peace	
ENGL 162N	Communicating Care	
ENGL 228	Introduction to Disability Studies in the Humanities	
ENGL 236N	Inequality: Economics, Philosophy, Literature	
LHR 100	Exploring Work and Employment	
LHR 201	Employment Relationship: Law and Policy	
PLSC 202	American Public Policy	
PLSC 210N	Rights in America	
PLSC 291	Introduction to Peace and Conflict Studies	
PSYCH 100	Introductory Psychology	
SOC 1	Introductory Sociology	
SOC 5	Social Problems	
SOC/CRIM/CRIMJ 12	Criminology	
SOC 23	Population and Policy Issues	
WMNST 100	Introduction to Women's and Gender Studies	
WMNST 105N	Living in a Diverse World	
WMNST 200	Global Feminisms	

¹ LA 202 and LA 424 should be taken in sequence.

Food and Bio-innovation Cluster

Code	Title	Credits
Required Courses		
Select up to 6 credits of the following 200-300 level courses in the College of Agricultural Sciences:		6
AEE 201	Interpersonal Skills for Tomorrow's Leaders	
AEE 360	Leadership Development for Small Groups	
AGBM 200	Introduction to Agricultural Business Management	
AGBM 302	Food Product Marketing	
AGBM 308W	Strategic Decision Making in Agribusiness	
AGBM 338	Agribusiness in the Global Economy	
ANSC 201	Animal Science	
ANSC 306	Swine Production and Management	
ANSC 308	Sheep and Goat Production and Management	
ANSC 309	Beef Cattle Production and Management	
ANSC 310	Dairy Cattle Production and Management	
ANSC 311	Poultry Production and Management	
ANSC 324	Value Determination of Meat Animals	
ANSC 327	Horse Production and Management	
ANSC 346	Animal Enterprise Analysis	
ANSC 350	Dairy Problem Solving	
BE/ABSM 391	Communication Skills for BE and ABSM Students	
BE/ABSM 392	Leadership and Ethics for BE and ABSM Students	
CED 375	Community, Local Knowledge, and Democracy	
ERM 300	Basic Principles and Calculations in Environmental Analysis	
FDSC 200	Introductory Food Science	
FDSC 206	Improving Food Quality	
FORT 250	Forest Management Practices	
HORT 250	Landscape Contracting Design/Build Principles	
Select at least 3 credits of the following 400 level courses in the College of Agricultural Sciences:		3
ABSM/ERM 402	Foundations of Sustainable Business	
ABSM 429	Agricultural and Biorenewable Systems Analysis and Management	
AEE 460	Foundations in Leadership Development	
AGBM 407	Farm Planning and Financial Management	
AGBM 408	Financial Decision Making for Agribusiness	
AGBM 440	Food Product Innovation Management	
AGBM 445	AgTech Entrepreneurship	
AGBM/HORT 455	Retail Horticulture Business Management	
AGBM 460	Managing the Food System	
ANSC 410	Advanced Dairy Herd Management	
ANSC 429	Advanced Beef Cattle Production	
ANSC 450	Dairy Farm Management Systems	
BRS 437	Bioproduct Marketing and Sales	
CED 417	Power, Conflict, and Community Decision Making	
CED 425	International Community and Economic Development	
CED 430W	Principles of Community Economic Development	
ERM 411	Legal Aspects of Resource Management	

ERM 412	Resource Systems Analysis	
ERM 413W	Case Studies in Ecosystem Management	
FDSC 411	Managing Food Quality	
FDSC 430	Unit Operations in Food Processing	
FDSC 444	Arguing about Food	
FDSC 450	Food Innovation and Product Design	
FDSC/INTAG 460	International Food Production	
FOR 440	Forest and Conservation Economics	
HORT 410W	Issues in Landscape Contracting	
HORT 453	Flower Crop Production and Management	
HORT/AGBM 455	Retail Horticulture Business Management	
TURF 436W	Case Studies in Turfgrass Management	

Hospitality Management Cluster

Code	Title	Credits
Required Courses		
HM 484	Hospitality Entrepreneurship and Innovation	3
Select 6 credits from the following:		6
HM 382	Franchising in the Hospitality Industry	
HM 407	The Sustainable Fork: Food Systems Decisions for Away-From-Home Eating	
HM 435	Hospitality Corporate Finance	
HM 482	Hospitality Real Estate	
HM 485	Advanced Meeting and Event Management	
HM 488	Hospitality Asset Management	

New Media Cluster

Code	Title	Credits
Required Courses		
COMM 271	Principles of Journalism	3
Select 6 credits from the following:		6
COMM 361	Entrepreneurial Journalism	
COMM 362	Podcasting	
COMM 384	Telecommunications Promotion and Sales	
COMM 461A	Digital Magazine Production	
COMM 462	Feature Writing	
COMM 483	Wireless Communications Industry	
COMM 484	Emerging Telecommunications Technologies	
COMM 492	Internet Law and Policy	
COMM 493	Entrepreneurship in the Information Age	

New Ventures Cluster

Code	Title	Credits
Required Courses		
Select 6-7 credits from the following category: ¹		6-7
BA 241 & BA 242	Legal Environment of Business and Social and Ethical Environment of Business	
or BA 243	Social, Legal, and Ethical Environment of Business	
or BLAW 243	Legal Environment of Business	
or BLAW 341	Business Law I: Introduction to Contracts, Liability Issues, and Intellectual Property	
BA 250	Small Business Management	
BA 322	Negotiation Skills for Business Professionals	

MGMT 365	Social Entrepreneurship	
MGMT/ENGR/IST 426	Invention Commercialization	
MGMT 427	Managing an Entrepreneurial Start-Up Company	
MGMT 427W	Managing an Entrepreneurial Start-up	
MGMT 451	Business, Ethics, and Society	
MGMT 451W	Business, Ethics, and Society	
MGMT 453	Creativity and Innovation	
Select 3 credits from the following category:	¹	3
MGMT 426	Invention Commercialization	
MGMT 427	Managing an Entrepreneurial Start-Up Company	
MGMT 427W	Managing an Entrepreneurial Start-up	
MGMT 451	Business, Ethics, and Society	
MGMT 451W	Business, Ethics, and Society	
MGMT 453	Creativity and Innovation	

¹ Courses cannot double count in these categories.

Product innovation Cluster

Code	Title	Credits
Required Courses		
ENGR 407	Technology-Based Entrepreneurship	3
ENGR 411	Entrepreneurship Business Basics	3
Select 3 credits from the following:		3
EDSGN 367	Design Thinking and Making	
EDSGN 467	Prototyping to Launch	
ENGR 408	Leadership Principles	
ENGR 415	Launching Innovation: Ideas to Opportunities	

Social Entrepreneurship Cluster

Code	Title	Credits
Required courses to be taken in the following order:		
ENGR 451	Social Entrepreneurship	3
EDSGN 452	Projects in Humanitarian Engineering	2
EDSGN 453	Design for Developing Communities	1
EDSGN 454	Humanitarian Engineering and Social Entrepreneurship Field Experience	0.5
ENGR 455	Humanitarian Engineering and Social Entrepreneurship Reflection and Research Dissemination	3

Academic Advising

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University Park

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Mont Alto

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Environmental Inquiry, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

This intercollege minor is designed for students across the disciplines who wish to prepare for addressing environmental issues or problems as professionals or citizens. The minor is available to all undergraduates regularly enrolled in a degree program at the University. The objectives are to allow students to gain the multiple perspectives necessary for understanding environmental issues as well as to increase skills in collaborating with those from very different disciplinary backgrounds to find acceptable solutions. Students will be challenged to move beyond the channels of thinking characteristic of their own discipline to new ways of knowing, new sensitivities, and new analytical approaches. The program will engage students actively in learning experiences outside their major course of study. This minor is intended not to replace existing minors but to be a true intercollege, interdisciplinary minor.

Advising for students in this minor and approval of curriculum exceptions will be available through the Environmental Inquiry adviser designated within each participating college.

What is Environmental Inquiry?

This interdisciplinary, intercollege minor can enrich all areas of academic study with essential, cross-disciplinary understanding of crucial environmental issues and how they are being framed and tackled from both scientific and policy perspectives. The minor's coursework can give students a greater appreciation of the environment, a broader understanding of environmental issues and problems, and insight into alternative methods of inquiry. If you have a background in science but also have ambitions to do something about the environment, you might find that a lot of the decisions about the environment are made in political settings. To have success in improving the environment will require you to speak the language of policy makers. The minor can help you on this track, exposing students to both the scientific background needed to understand environmental issues as well as the social science you need to promote these issues successfully.

You Might Like This Program If...

- You are interested in how the human impact on the environment is becoming increasingly relevant as population grows, resources are consumed, and businesses and industries become ever more productive.
- You are interested in the complex debates that engage professionals from all fields. Now, more than ever, concerned agencies, organizations, and companies seek individuals knowledgeable about these important issues with experience communicating with people in professions outside of their own.
- You want to be familiar with current environmental issues across all professional fields.

Program Requirements

Requirement	Credits
Requirements for the Minor	18-19

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
<i>Introductory Course</i>		
Select one of the following: ¹		3-4
AGECO 121	Plant Stress: It's Not Easy Being Green	
ANTH 45N	Cultural Diversity: A Global Perspective	
BIOL 120N		
BIOL 110	Biology: Basic Concepts and Biodiversity	
BISC 3	Environmental Science	
CED 152	Community Development Concepts and Practice	
EARTH 2	The Earth System and Global Change	
EARTH 100	Environment Earth	
EARTH 101	Natural Disasters: Hollywood vs. Reality	
EARTH 111		
EGEE/MATSE 101	Energy and the Environment	
EGEE 102	Energy Conservation for Environmental Protection	
EMSC/STS 150		
ENGL 180	Literature and the Natural World	
ENT 202		
ENVST 100		
ERM 210	Environmental Factors and Their Effect on Your Food Supply	
FDSC/STS 105	Food Facts and Fads	
GEOG 30N	Environment and Society in a Changing World	
GEOG 110	Climates of the World	
GEOG 123	Geography of Developing World	
GEOSC 21	Earth and Life: Origin and Evolution	
GEOSC 40	The Sea Around Us	
HIST/STS 151N	Technology and Society in American History	
HORT 101	Horticultural Science	
HORT 150N	Plants in the Human Context	
INTAG 100		
MATSE 81	Materials in Today's World	
PHIL 118	Environmental Philosophy	
PLSC/STS 135		
SOC 23	Population and Policy Issues	
SOILS 71	Environmental Sustainability	
SOILS 101	Introductory Soil Science	
WFS 209N	Wildlife and Fisheries Conservation	
<i>Cluster Selection</i>		
Select 9 credits from one of the following clusters:		9
Biodiversity and Ecosystems		
Environment and Society		

Environmental Explorations	
Ideas About the Environment	
Water Resources	
Human Settlements	
Energy Resources	
<i>Final Course</i>	
Select one of the following: ²	3
BIOL 419	Ecological and Environmental Problem Solving
BIOL 461	Contemporary Issues in Science and Medicine
CED 410	The Global Seminar
ERM 430	Air Pollution Impacts to Terrestrial Ecosystems
GEOG 412W	Climatic Change and Variability
GEOG 430	Human Use of Environment
GEOG 436	Ecology, Economy, and Society
GEOSC 451	Natural Resources: Origins, Economics and Environmental Impact
NUTR 497	Special Topics
SOC 422	World Population Diversity
SOILS 422	Natural Resources Conservation and Community Sustainability
STS 420	Energy and Modern Society
WFS/FOR 430	Conservation Biology

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select one 400-level course from a cluster option other than the one you have chosen (field experience courses are encouraged) 3

¹ The introductory course offers a broad overview of a topic that relates to an environmental theme. It is designed as a preface to learn about the many disciplines and approaches used to study the environment.

² This is the capstone course of the minor which allows students to explore more deeply and recap their study within the minor's curriculum.

Cluster Course Selections

Students may not use a course from their major in their chosen cluster. In all cases/clusters, students may substitute up to 3 credits of research topics, internship, or independent studies courses focused on a relevant environmental topic in consultation with an adviser.

Biodiversity and Ecosystems

This specialization prepares a student to learn about the importance of biodiversity in ecosystems. Over the last 100 years, humans have dramatically reduced the biodiversity on the earth primarily through loss of habitat. Reducing the pressure on the world's biological resources will take political will, scientific research, and creativity in planning. A central focus is on developing effective understanding of land management practices that can enhance the prospects for biological diversity.

Code	Title	Credits
BIOL 127	Introduction to Plant Biology	3
BIOL 220W	Biology: Populations and Communities	4
BIOL 417	Invertebrate Zoology	4
BIOL 435	Ecology of Lakes and Streams	3
BIOL 448	Ecology of Plant Reproduction	3

BIOL 482	Coastal Biology	3
BIOL 499A	Tropical Field Ecology	3
CE 370	Introduction to Environmental Engineering	3
CHEM 20	Environmental Chemistry	3
CHEM 301	Environmental Chemistry and Analysis	3
CHEM 402	Environment Chemistry: Atmosphere	3
ENT 202		3
FOR 308	Forest Ecology	3
FOR 401	Urban Forest Management	3
FORT 100	Introduction to Forestry	1
GEOG 110	Climates of the World	3
GEOG 123	Geography of Developing World	3
GEOG 314	Biogeography and Global Ecology	3
GEOG 310	Introduction to Global Climatic Systems	3
GEOSC 21	Earth and Life: Origin and Evolution	3
HORT 101	Horticultural Science	3
INTAG 100		3
LARCH 245	Ecology & Plants II	3
METEO 451	Introduction to Physical Oceanography	3
PPEM 120	The Fungal Jungle: A Mycological Safari From Truffles to Slime Molds	3
SOILS 101	Introductory Soil Science	3
SOILS 412W	Soil Ecology	3
STS 201	Climate Change, Energy, and Biodiversity	3
WFS/FOR 430	Conservation Biology	3

Environment and Society

This specialization provides insights into the debates and challenges about the distribution and utilization of the world's environmental resources. All people deserve to live in a safe environment regardless of their income, skin color, religion, or gender. Yet, many of the poorest people in the world live in unsafe environmental contexts. Research in many different fields of social science, as well as ethical research, is required to understand how to promote and achieve environmental justice.

Code	Title	Credits
ANTH 456		3
CED 152	Community Development Concepts and Practice	3
CED 230	Development Issues in the Global Context	3
CED 309	Land Economics and Policy	3
CED 410	The Global Seminar	3
CED/CEDEV 430		3
CED 201	Introductory Environmental and Resource Economics	3
CED 429	Natural Resource Economics	3
CED 431		3
EARTH 101	Natural Disasters: Hollywood vs. Reality	3
ECON 428	Environmental Economics	3
EMSC 101	Resource Wars	3
ERM 411	Legal Aspects of Resource Management	3
GEOG 124	Elements of Cultural Geography	3
GEOG 438W	Human Dimensions of Global Warming	3
GEOSC 109H	Earthquakes and Society	3
GEOSC 310	Earth History	4

GEOSC 402Y	Natural Disasters	3
HIST 453	American Environmental History	3
INTAG 100		3
NUTR 497	Special Topics	1-9
PHIL 132	Bioethics	3
RSOC 11	Intro Rural Sociology	3
SOC 423	Social Demography	3
SOC 450	Justice and the Environment	3
SOILS 71	Environmental Sustainability	3
STS 201	Climate Change, Energy, and Biodiversity	3
STS 420	Energy and Modern Society	3

Environmental Explorations

This specialization scrutinizes the range of debates, practices, and possibilities guiding discussions of how to achieve equitable and sustainable development. Global and national discussions are beginning to probe how we can move toward a future where resources are more effectively utilized and the environment is maintained while achieving well-being for the whole world. A cross-disciplinary approach is necessary to promote an understanding of these broad discussions.

Students must take 3 credits each of social science, natural science, and arts and humanities courses.

Code	Title	Credits
Social Science		
ANTH 40	Biocultural Evolution	3
or ANTH 146	Indigenous North America	
CED 201	Introductory Environmental and Resource Economics	3
CED 429	Natural Resource Economics	3
CED 431		3
CED 410	The Global Seminar	3
ECON 428	Environmental Economics	3
FDSC/PHIL 280		3
GEOSC 451	Natural Resources: Origins, Economics and Environmental Impact	3
LARCH 65	Built Environment and Culture: Examining the Modern City	3
NUTR 497	Special Topics	1-9
PLSC 412	International Political Economy	3
or PLSC 420	State Making	
SOC 422	World Population Diversity	3
TURF 425	Turfgrass Cultural Systems	3
Select one of the following:		3
ANTH 152	Hunters and Gatherers	
ANTH 456		
Select one of the following:		3
GEOG 20	Human Geography: An Introduction	
GEOG 333	Human Dimensions of Natural Hazards	
GEOG 430	Human Use of Environment	
Natural Science		
BIOL 220W	Biology: Populations and Communities	4
BIOL 427	Evolution	3
EARTH 106		3

EMSC 121	Minerals and Modern Society	3
ERM 300	Basic Principles and Calculations in Environmental Analysis	3
FOR 308	Forest Ecology	3
GEOG 110	Climates of the World	3
or GEOG 115	Landforms of the World	
GEOSC 320	Geology of Climate Change	3
or GEOSC 340	Geomorphology	
METEO 4	Weather and Risk	3
PPEM 120	The Fungal Jungle: A Mycological Safari From Truffles to Slime Molds	3
WFS/FOR 430	Conservation Biology	3
or WFS 408	Mammalogy	
Select one of the following:		3
BIOL 435	Ecology of Lakes and Streams	
BIOL 436	Population Ecology and Global Climate Change	
BIOL 444	Field Ecology	
BIOL 446	Physiological Ecology	
Select one of the following:		3-5
BIOL 450		
BIOL 461	Contemporary Issues in Science and Medicine	
BIOL 499A	Tropical Field Ecology	
Select one of the following:		3
CHEM 20	Environmental Chemistry	
CHEM 301	Environmental Chemistry and Analysis	
CHEM 402	Environment Chemistry: Atmosphere	
Select one of the following:		3
GEOSC 10	Geology of the National Parks	
GEOSC 20	Planet Earth	
GEOSC 303	Introduction to Environmental Geology	
Arts and Humanities		
AMST 50		3
CED 410	The Global Seminar	3
COMM/STS 408	Cultural Foundations of Communications	3
COMM 411	Cultural Aspects of the Mass Media	3
or COMM 459	Cultural Effects of Interactive and Online Media	
EMSC/STS 150		3
ENGL 88	Australian/New Zealand Cultural Perspectives	3
or ENGL 233N	Chemistry and Literature	
ENGL 402/404	Literature and Society	3
ENGL 430	The American Renaissance	3
FDSC/PHIL 280		3
GEOG 434	Politics of the Environment	3
or GEOSC 310	Earth History	
HIST/STS 428	The Darwinian Revolution	3
HIST 453	American Environmental History	3
LARCH 60	Cultural History of Designed Places	3
Select one of the following:		3
PHIL 13	Nature and Environment	
PHIL 132	Bioethics	
PHIL 403	Seminar in Environmental Ethics	

Ideas About the Environment

This specialization engages the philosophical and political challenges underpinning concerns of modern environmentalism. People have always contemplated the meaning of the world around them and the ways in which their reality is shaped by the environment. The meaning and value of the "environment" therefore depends on a person's range of understandings, ideas, and representations about the physical world. To operate effectively, civil society must be based on open discussions including environmental concerns, and this requires basic levels of ecological literacy.

Code	Title	Credits
AG 160	Introduction into Ethics and Issues in Agriculture	3
BIOL 419	Ecological and Environmental Problem Solving	3
BIOL 438	Theoretical Population Ecology	3
BIOL 461	Contemporary Issues in Science and Medicine	3
CED 450	International Development, Renewable Resources, and the Environment	3
ECON 428	Environmental Economics	3
EMSC/STS 150		3
ENGL 88	Australian/New Zealand Cultural Perspectives	3
ENGL 430	The American Renaissance	3
ENVE 460	Environmental Law	3
FDSC/PHIL 280		3
GEOG 123	Geography of Developing World	3
GEOG 434	Politics of the Environment	3
HIST 110	Introduction to Global Environmental History	3
HIST/STS 428	The Darwinian Revolution	3
HIST 453	American Environmental History	3
LARCH 60	Cultural History of Designed Places	3
NUTR 497	Special Topics	1-9
PHIL 403	Seminar in Environmental Ethics	3
SOC 450	Justice and the Environment	3
SOILS 71	Environmental Sustainability	3
STS 100	Science, Technology, and Culture	3
STS 101	Modern Science, Technology, and Human values	3

Water Resources

This specialization emphasizes basic literacy required to understand the debates surrounding water as a resource and offers insights into what people can do to protect and maintain its integrity on a worldwide basis. Water and water resources are central to human life, and yet modern industrialization and human settlement patterns are creating untenable competition for water between humans, and other flora and fauna. Basic science is required to ascertain problems of supply. Social science understanding is required to understand challenges facing water supply and utilization and the search for wise utilization of the world's water resources.

Code	Title	Credits
ASM 327	Soil and Water Resource Management	3
BE 307	Principles of Soil and Water Engineering	3
BIOL 220W	Biology: Populations and Communities	4
BIOL 435	Ecology of Lakes and Streams	3
CE 370	Introduction to Environmental Engineering	3
CE 371	Water and Wastewater Treatment	3
CE 461	Water-resource Engineering	3

CE 475	Water Quality Chemistry	4
EARTH 111		3
EMSC 440	Science Diving	4
ENVE 411	Water Supply and Pollution Control	3
ENVE 415	Hydrology	3
ERM/WFS 450	Wetland Science and Sustainability	3
FOR 470	Watershed Management	3
GEOG 431	Geography of Water Resources	3
GEOSC 40	The Sea Around Us	3
GEOSC 440	Marine Geology	3
GEOSC 452	Hydrogeology	3
METEO 451	Introduction to Physical Oceanography	3
PLANT 217	Landscape Soil and Water Management	3
WFS 422	Ecology of Fishes	3
WFS/ERM 435	Limnology	3

Human Settlements

This specialization examines human settlement patterns and their interaction with the environment. Particular emphasis is placed on patterns of development, human movement and migration patterns, as well as environmental impacts. As population increases worldwide, land is increasingly taxed beyond proper capacity. Zoning regulations, suburban sprawl, and uneven settlement that replaces fertile agricultural land have all become major issues within the policy spectrum that must be dealt with to ensure a positive future for the entire world population.

Code	Title	Credits
AMST 50		3
ANTH 45N	Cultural Diversity: A Global Perspective	3
ARCH 316	Analysis of Human Settlements: Cities	3
BIOL 120N		3
CED 230	Development Issues in the Global Context	3
CED 309	Land Economics and Policy	3
CED 409	Land Use Planning and Procedure	3
CED 431		3
COMM/STS 408	Cultural Foundations of Communications	3
COMM 411	Cultural Aspects of the Mass Media	3
EARTH 101	Natural Disasters: Hollywood vs. Reality	3
EARTH 106		3
ENGL 88	Australian/New Zealand Cultural Perspectives	3
ENGL 402	Literature and Society	3
FDSC/PHIL 280		3
GEOG 20	Human Geography: An Introduction	3
GEOG 333	Human Dimensions of Natural Hazards	3
GEOG 436	Ecology, Economy, and Society	3
GEOSC 109H	Earthquakes and Society	3
LARCH 60	Cultural History of Designed Places	3
LARCH 65	Built Environment and Culture: Examining the Modern City	3
METEO 4	Weather and Risk	3
NUTR 497	Special Topics	1-9
SOILS 71	Environmental Sustainability	3
TURF 425	Turfgrass Cultural Systems	3
WFS/ERM 450	Wetland Science and Sustainability	3

Energy Resources

This specialization offers a glimpse into the emerging technology that exists in the energy sector. As the worldwide supply of fossil fuels diminishes, and the demand for those fuels increases, new energy technology must be developed to power our planet. In recent years, energy sustainability and the use of infinite resources have been considered serious options for the first time. Thus, this cluster option employs an interdisciplinary strategy with the goal of educating individuals on a broad range of emerging technologies in relation to energy resources.

Code	Title	Credits
CED 201	Introductory Environmental and Resource Economics	3
CED 429	Natural Resource Economics	3
CED 431		3
CED 450	International Development, Renewable Resources, and the Environment	3
EGEE/MATSE 101	Energy and the Environment	3
EGEE 102	Energy Conservation for Environmental Protection	3
EGEE 401	Energy in a Changing World	3
EGEE 464W	Energy Design Project	3
EMSC 101	Resource Wars	3
EMSC/STS 150		3
GEOSC 451	Natural Resources: Origins, Economics and Environmental Impact	3
MATSE 81	Materials in Today's World	3

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Brandywine

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Career Paths

The environment provides many exciting, interesting, and satisfying career choices stretching across a tremendous range of fields and disciplines. Working in the environmental field is rewarding because you can contribute to the maintenance and conservation of essential life systems necessary for our human survival.

Careers

Students in the Environmental Inquiry Minor are well-positioned to find employment with diverse organizations spanning business, government, and nonprofit sectors. Such organizations may include (but are not limited to): American Red Cross, Amnesty International, Conservation International, Federal Emergency Management Agency, Heifer International, Natural Resources Defense Council, National Park Service, U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Forest Service, U.S. State Department, local, regional, and state planning agencies, environmental and engineering consulting firms, policy research institutes, private corporations, and humanitarian organizations.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN ENVIRONMENTAL INQUIRY (<https://iee.psu.edu/programs/education/>)

Opportunities for Graduate Studies

A minor in Environmental Inquiry is useful for students who are interested in pursuing graduate degrees in the environmental and social sciences. Alumni enter graduate and professional studies in a variety of programs, including (but not limited to) geography, planning, international development, urban studies, sustainability, environmental sciences, ecology, public policy, emergency management, and law. They sometimes begin graduate or professional programs directly after finishing undergraduate studies, but often get several years' work experience before returning to school, either full-or part-time.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://iee.psu.edu/programs/education/>)

Contact

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302 Walker Building
University Park, PA 16802
814-865-3433
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<https://iee.psu.edu/programs/education> (<https://iee.psu.edu/programs/education/>)

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<https://www.brandywine.psu.edu/academics/minors/environmental-inquiry> (<https://www.brandywine.psu.edu/academics/minors/environmental-inquiry/>)

Longevity, Aging and Generational Studies, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The intercollege minor in Longevity, Aging and Generational Studies is designed for students to gain an in-depth understanding of the aging process and its implications for science and society. With the growth of the number of older people in the population, there is increased need for people with knowledge of the aging process in a variety of professional and occupational roles. In conjunction with the student's major, the minor prepares students for entry-level human service positions working with aging adults, or for graduate or professional school programs including communication disorders, counseling, health planning and administration, medicine, psychology, recreation and park management, social work, and hospitality management where knowledge of the aging process and problems of older people is relevant. Eighteen credits are required for the minor, including at least 6 credits at the 400 level.

What is Longevity, Aging and Generational Studies?

Longevity, Aging and Generational Studies is the comprehensive study of aging as a developmental process using the many disciplinary frameworks of the biological, life, and health sciences, social and behavioral sciences, and arts and humanities. The intercollege minor in Longevity, Aging and Generational Studies at Penn State offers students in all colleges and campuses an opportunity to learn about this complex and important field through multidisciplinary study. As scientific and societal successes extended the human lifespan, population aging has now become a common phenomenon across many nations. There is enormous need for individuals with an understanding of aging processes who can work as clinicians, health professionals, managers, researchers and more.

MORE INFORMATION ABOUT LONGEVITY, AGING AND GENERATIONAL STUDIES (<https://healthyaging.psu.edu>)

You Might Like This Program If...

- You want to learn more about the aging process and problems of older people.
- You want to prepare for an entry-level position working with elderly individuals or elderly populations.
- You plan to pursue a graduate or professional school program in a field in which knowledge of the aging process and problems of older people is relevant, such as communication disorders, counseling, health planning and administration, medicine, psychology, recreation and park management, or social work.

MORE INFORMATION ABOUT WHY STUDENTS CHOOSE TO STUDY LONGEVITY, AGING AND GENERATIONAL STUDIES (<https://businessandaging.blogs.com>)

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
HDFS 249N	Adult Development and Aging	3
HDFS 445	Development Throughout Adulthood	3
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 12 credits from the following (including at least 3 credits at the 400 level):		12
ADTED 460	Introduction to Lifelong Learning and Adult Education	
AYFCE/CIED 845	Intergenerational Programs and Practices (must be approved by the Graduate School)	
BBH 316	Foundations and Principles of Health Promotion	
BBH 368	Neuroanatomy, Behavior, and Health	
BBH 410	Developmental and Health Genetics	
BBH 416	Health Promotion II: Planning, Implementation, and Evaluation	
BBH 417	Advanced Applications in Health Promotion	
BBH 420	Developing Stress Management Programs	
BBH/HPA 440	Principles of Epidemiology	
BBH 468	Neuroanatomical Bases for Disorders of Behavior and Health	
BBH 469	Neurobiology	
BIOL 155	Introduction to the Biology of Aging	
BIOL 409	Biology of Aging	
CAS 162N	Communicating Care	
CAS 253	Health Communication	
CAS 421	Communication and Aging	
CAS 453	Health Communication Theory and Research	
ENGR 310	Entrepreneurial Leadership	
FIN 330	Personal Financial Planning	
FIN 430	Estate Planning	
FIN 450	Retirement Planning	
HDFS 210Z	Ethnicity, Health and Aging	
HDFS 413	Developmental Problems in Adulthood	
HDFS 434	Perspectives on Aging	
HDFS 447	Issues in Gerontology	
HDFS 448	Death and Bereavement	
HHD 100H	Honors Seminar on Longevity, Health, and Human Development	
HHD 245N	Health, humanity, and longevity: Conversations with elders	

HM 306	Hospitality in Senior Living
HM 413	New Product Development for Commercial Foodservice
HM 483	Revenue Management
HM 484	Hospitality Entrepreneurship and Innovation
HPA 301	Health Services Policy Issues
HPA 332	Health Systems Management
HPA 442	Long-Term Care Management
HPA 443	Nursing Home Administration
HPA 444	Aging Policy in the United States
KINES 350	Exercise Physiology
KINES 360	The Neurobiology of Motor Control and Development
KINES 384	Biomechanics
KINES 465	Neurobiology of Sensorimotor Stroke Rehabilitation
KINES 481W	Scientific Basis of Exercise for Older Adults
MGMT 215	Entrepreneurial Mindset
NURS 115	Medications and the Elderly Client
NURS 310	Therapeutic Nursing Care of the Older Adult Client in a Variety of Settings
NURS 464	Dying and Death
PSYCH 244	Introduction to the Psychology of Human Factors Engineering
PSYCH 260	Neurological Bases of Human Behavior
RM 302	Risk and Insurance
RM 320W	Risk Management and Insurance
RM 401	Fundamentals of Private Pensions
SOC 35	Sociology of Aging
SOC 162N	Communicating Care
SOC 423	Social Demography
SOC 435	Perspectives on Aging

Note: With faculty approval, students may apply credits earned through special topics courses (297, 497), independent study or research that focus on aging or old age towards minor requirements.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Career Paths

With the growth in the number of older persons in the U.S. and globally, nearly every health profession, from geriatricians (physicians who specialize in care for older persons) to hospice nurses, is impacted by the need for health care among an aging population. In addition, older people are living more active lives, so fitness and recreational professionals and hospitality and tourism managers see increased demand from older persons. And, the increase in the aging population is placing new challenges on organizations, families, and communities, so anyone interested in these societal organizations will be affected by gerontological issues.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN LONGEVITY, AGING AND GENERATIONAL STUDIES (<https://agework.geron.org>)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.geron.org/academy-for-gerontology-in-higher-education-aghe/>)

Contact

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<https://hhd.psu.edu/undergraduate/minors> (<https://hhd.psu.edu/undergraduate/minors/>)

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<https://shenango.psu.edu/academics/degrees/human-development-family-studies> (<https://shenango.psu.edu/academics/degrees/human-development-family-studies/>)

Military Studies, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

This interdisciplinary minor is designed for all students with special interests in military and national security affairs. Military emphasis is provided in one of three areas—Aerospace Studies, Military Science, or Naval Science. American military forces have played an important role in our domestic and international history and will continue to have significant involvement in policy arenas relating to national security and international relations. Students elect one military service branch for their prescribed courses and select two additional courses from appropriate history and political science courses emphasizing national security policy.

Program Requirements

Requirement	Credits
Requirements for the Minor	24-27

At least 6 credits must be taken at the 400 level.

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
Select one service branch:		18-21
<i>Air Force</i>		
AIR 151	Heritage and Values of the United States Air Force I	
AIR 152	Heritage and Values of the United States Air Force II	
AIR 252	The Evolution of USAF Air and Space Power II	
AIR 351	Leading People and Effective Communication I	
AIR 352	Leading People and Effective Communication II	
AIR 451	National Security, Leadership Responsibilities, and Commissioning Preparation I	
AIR 452	National Security, Leadership Responsibilities, and Commissioning Preparation I	
<i>Army</i>		
ARMY 101	U.S. Army Organization and Functions	
ARMY 102	The Military Profession: Leadership and Management Theory	
ARMY 203		
ARMY 204		
ARMY 301	Advanced Principles of Leadership and Management	
ARMY 302	Advanced Principles of Leadership and Management	
ARMY 401	Organizational Behaviors: Interrelationships of Directing Staffs and Staff Functions	
ARMY 402	Army Personnel Management and Logistics	
<i>Marines</i>		
NAVSC 101	Introduction to Naval Science	
NAVSC 102	Sea Power and Maritime Affairs	
NAVSC 200	Leadership and Management	
NAVSC 313	Fundamentals of Maneuver Warfare	
NAVSC 402	Leadership and Ethics	
NAVSC 411	Evolution of Warfare	
<i>Navy</i>		
NAVSC 101	Introduction to Naval Science	
NAVSC 102	Sea Power and Maritime Affairs	
NAVSC 200	Leadership and Management	
NAVSC 202	Naval Ships Systems I—Naval Engineering	
NAVSC 301	Naval Ships Systems II—Weapons	
NAVSC 401	Naval Operations and Seamanship	
NAVSC 402	Leadership and Ethics	
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 6 credits from the following:		6
HIST 108	Crusades: Holy War in the Middle Ages	
HIST 120N	History of Modern Europe since 1789	
HIST 130	Introduction to the Civil War Era, 1848 through 1877	
HIST 142N	History of Communism	
HIST 143N	History of Fascism and Nazism	
HIST 144	The World at War: 1939-1945	

HIST 151N	Technology and Society in American History
HIST 160	American Naval History
HIST 161	The Battle of Gettysburg in American Historical Memory
HIST 165	Islamic States, Societies and Cultures c. 600-1500
HIST 173	Vietnam in War and Peace
HIST 175	East Asia since 1800
HIST 178	Latin-American History to 1820
HIST 181	Introduction to the Middle East
HIST 192	Modern African History
HIST 420	Recent European History
HIST 430	Eastern Europe in Modern Times
HIST 434	History of the Soviet Union
HIST 441	Revolutionary America, 1753-1783
HIST 444	The United States in Civil War and Reconstruction—1850-1877
HIST 452	History of U.S. Foreign Relations
HIST 454	American Military History
HIST 473	The Contemporary Middle East
PLSC 3	Comparing Politics around the Globe
PLSC 14	International Relations
PLSC 200N	Government and Politics of Europe
PLSC 220	Politics of the Developing World
PLSC 413	The Rise and Fall of the Soviet Union
PLSC 437	War in World Politics
PLSC 438	National Security Policies
PLSC 439	The Politics of Terrorism
PLSC 442	American Foreign Policy
PLSC 452	Government and Politics of Central Europe
PLSC 453	Political Processes in Underdeveloped Systems
PLSC 454	Government and Politics of Africa
PLSC 455	Governments and Politics of Western Europe
PLSC 456	Politics and Institutions of Latin-American Nations
PLSC 458	Government and Politics of East Asia
PLSC 467	International Relations of the Middle East

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Air Force ROTC

Beth Neumann

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Contact

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Neuroscience, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The intercollege minor in neuroscience is designed for the student desiring an in-depth knowledge about the basic and functional aspects of the nervous system. Students in several disciplines ranging from nutrition to psychology to molecular biology could benefit from comprehensive study of the neurosciences in preparation for technical, professional, or research careers. The neurosciences as envisioned here are broadly based, and instruction available spans the levels of investigation from molecular to behavioral and cognitive. Majors complemented by this minor would include, but not be limited to, psychology, biology, biochemistry, nutrition, human development and

family studies, genetics, biobehavioral health, kinesiology, animal and poultry science, and veterinary science.

What is Neuroscience?

Neuroscience is the scientific study of the structure and function of the nervous system. The minor at Penn State involves interdisciplinary training in neuroanatomy and circuitry, neuronal physiology, evolution and development of the nervous system, biochemistry, cellular and molecular processes, and functional neurobiology of disease and behavior.

You Might Like This Program If...

- You are curious about biological processes that support behavior and function.
- You want to understand neurobiological processes at multiple levels, from functional circuitry to molecular processes.
- You like to answer important questions by testing and understanding underlying biological processes.
- You want to pursue a career related to biology and/or health – clinician, research, technician.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
BIOL 469	Neurobiology	3
BIOL 470	Functional and Integrative Neuroscience	3
PSYCH 260	Neurological Bases of Human Behavior	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 9 credits of the following:		9
BBH 410	Developmental and Health Genetics	
BBH 432	Biobehavioral Aspects of Stress	
BBH 451	Pharmacological Influences on Health	
BBH 497	Special Topics	
BIOL 472	Human Physiology	
BIOL 473	Laboratory in Mammalian Physiology	
BIOL 479	General Endocrinology	
KINES 483	Motor Patterns of Children	
KINES 484	Advanced Biomechanics	
PSYCH 462	Physiological Psychology	
PSYCH 475	Psychology of Fear and Stress	
PSYCH 478	Clinical Neuropsychology	

Academic Advising

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University Park

Sonia Cavigelli

Associate Professor

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Career Paths

Students with a Minor in Neuroscience pursue a variety of careers. Many pursue health-related careers, including clinical and/or research tracks. For advanced neuroscience-specific careers (e.g. neuropsychology, neuroscience research, etc.) an advanced degree, graduate or professional, is required. The neuroscience minor provides essential training for this advanced training. Students are encouraged to engage in practical learning experiences to complement formal classroom learning, for example, volunteering in a neuroscience research laboratory.

Contact

University Park

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Presidential Leadership Academy, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

The goal of the program is to prepare students to develop leadership fundamentals to thrive in an environment in which multiple dimensions of an issue are explored, diverse viewpoints are heard, and a fully informed and respectful discourse that leads to sound action. The opportunities available will lead to further development of critical thinking abilities necessary for leaders to implement decisions with sensitivity to the circumstances that led them there. Students will develop the ability to rethink decisions and even change course along the way.

You Might Like This Program If...

You are a Penn State undergraduate student who is interested in developing your leadership abilities and critical thinking skills and are

interested in engaging with and learning from some of the university's top faculty and administrators.

Program Requirements

To earn an undergraduate certificate in Presidential Leadership Academy Program, a minimum of 7 credits is required.

All students are required to take 10 credits, seven through the Presidential Leadership Academy and three credits outside the academy. Courses must be at the 300 level or above.

Code	Title	Credits
Prescribed Courses		
HONOR 201	Developing Critical Thinking for Leadership	1-3
HONOR 301	The Role of Knowledge in Society	3
HONOR 401	Honors Seminar	1-6

Blogging

Students must blog once a week throughout their time in the Presidential Leadership Academy analyzing an issue using the critical thinking skills developed in the courses.

Field Trip Experiences

Students must participate in at least three field experiences. Trips planned annually by the Academy which will give students a broader perspective on social and political issues.

Prerequisites Required.

Certificate Learning Objectives

- **Communication:** Students will be able to distinguish the functions of language and its capacity to express and influence meaning, recognize and assess arguments in various forms of reasoning and assess the value of credibility of resources.
- **Critical Thinking:** Students will develop critical thinking abilities necessary for leaders to implement decisions with sensitivity to the circumstances that led them there and the ability to rethink decisions and even change course along the way and understand diverse viewpoints are welcomed and heard and a fully informed and respectful discourse ensues that leads to sound action.
- **Decision Making:** Students will be able to identify, evaluate and construct inductive and deductive arguments and understand and evaluate the options, consequences, values and risks in making decisions
- **Professional:** Students will understand the importance of social and behavioral characteristics such as attire, decorum and personal character.

Academic Advising

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academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

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University Park

Melissa Doberstein

Director, Presidential Leadership Academy
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Contact

University Park

PRESIDENTIAL LEADERSHIP ACADEMY
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Science, Technology, and Society, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

PROGRAM CURRENTLY ON HOLD; NOT ACCEPTING NEW STUDENTS
Begin Date of Enrollment Hold: March 24, 2011

Program Description

This interdisciplinary minor, administered jointly by the College of Engineering and the College of the Liberal Arts, is designed for students in every curriculum at the University. The STS courses help students integrate their other courses within the framework of the relationships of science, technology, and society. This minor enables students to examine critically the impact of scientific investigation and technological development on society's values, priorities, and institutions, and alternatively the influence human needs have upon scientific and technological activities.

Program Requirements

Requirement	Credits
Requirements for the Minor	21

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		

STS 496

3-6

Supporting Courses and Related Areas*Supporting Courses and Related Areas: Require a grade of C or better*

Select 9-12 credits (at least 6 credits at the 400 level) from STS courses 9-12

Select 6 credits in consultation with an adviser ¹ 6¹ These courses may be courses that are also used to fulfill either major or college requirements.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

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READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Engineering Advising Center

208 Hammond Building
University Park, PA 16802
814-863-1033
adviser@enr.psu.edu

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Contact

University Park

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<https://www.enr.psu.edu>

COLLEGE OF THE LIBERAL ARTS
111 Sparks Building
University Park, PA 16802
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<https://la.psu.edu>

Sustainability Leadership, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Intercollege Minor in Sustainability Leadership has been designed for students who wish to promote environmental, social, and economic sustainability in their personal and professional lives. Administered by a University-wide faculty committee, the program provides an opportunity for students in any academic major to develop key competencies that will be the foundation for their growth as sustainability leaders in their civic and professional endeavors. Students cultivate these sustainability leadership competencies in the context of thematic tracks that allow them to focus on particular topics within sustainability studies. The competencies cut across all thematic tracks so that all students in the minor will develop capabilities in:

- systems thinking
- application of sustainability concepts, metrics and analysis
- ethics
- self-knowledge and leadership
- change agency
- collaboration

While these competencies are developed in the context of a specific thematic track, they are transferrable to numerous settings and problems, and graduates of the Sustainability Leadership program will be able to apply them to ethical, social, business and civic issues that they encounter after leaving the University.

All students in the minor are required to take the introductory course, Foundations of Leadership in Sustainability (SUST 200). Within each thematic track, students select twelve credits related to the chosen theme in sustainability leadership. These must include three credits of approved leadership coursework (scholarly explorations of leadership concepts related to the chosen theme) and three credits that offer an immersive experience in sustainability (that is, an opportunity to engage, observe and learn in depth about sustainability challenges and solutions related to the student's chosen theme). The final three credits for each student in the minor is the 400-level Sustainability Leadership Capstone experience. Capstone selection is in consultation with the student's major adviser, the minor adviser or coordinator, and the course instructor. The capstone coursework must be relevant to the chosen theme, must have an approved capstone project that includes scholarly applied or theoretical research on a current issue in sustainability leadership, and must include a critical synthesis of the student's minor curriculum and an articulation of its crosscutting themes.

Design for Sustainable Communities Track

This track allows students to investigate sustainability and leadership in community and urban planning; courses focus on both technical design and community development.

Educating for Sustainability Track

This track provides students with the opportunity to explore a variety of approaches to sustainability education and leadership in sustainability.

Humanistic Understanding of Sustainability Track

Through reading and analysis of significant sustainability-focused texts in philosophy, history, literature, and the social sciences students delve into the evolution and history of thinking on sustainability and leadership in sustainability.

Sustainability and Food Systems Track

Students in this track learn about the nature of food and sustainable food systems, and about sustainability policy and leadership issues related to food, including food security, sustainable production practices, distribution, and safety.

Applicants to the minor present a proposed plan of study for the chosen minor track. The proposed plan of study must be approved by the student's major faculty adviser and by the minor adviser. Entrants to the minor are required to have declared a major field of study.

New Sustainability Leadership minor tracks will be developed over time, and students are encouraged to consult with the minor coordinator early in their program planning, in order to be aware of upcoming additions to the curriculum. In exceptional cases, and by written approval of the program coordinator and major adviser, students may propose a specialized track of their own design.

What is Sustainability Leadership?

Sustainability Leadership competencies cut across disciplines so that all students in the minor will develop capabilities in: systems thinking; application of sustainability concepts, metrics and analysis; ethics; self-knowledge and leadership; change agency; and collaboration. While these competencies are often developed in the context of particular disciplines, they are transferrable to numerous settings and problems. Graduates of the Sustainability Leadership program will be able to apply them to ethical, social, business and civic issues that they encounter after leaving the University.

You Might Like This Program If...

- You care about the state of the world.
- You want to first develop expertise in sustainability themes through engaged scholarship experience in and out of the classroom.
- You want to apply sustainability expertise to your own creative, innovative, and original capstone sustainability project.
- You want to improve your marketability and employability for sustainability-related positions upon graduation.

MORE INFORMATION ABOUT SUSTAINABILITY LEADERSHIP (<http://sustainability.psu.edu/academics/academic-courses-and-degrees/sustainability-leadership-minor/>)

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Students may apply toward the minor no more than six credits from their major requirements and no more than six credits from their other minor requirements. The Sustainability Leadership Capstone credits may not be used simultaneously to fulfill capstone or thesis requirements for any other degree program. All minor programs must include at least six credits at the 400 level.

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
SUST 200	Foundations of Leadership in Sustainability	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Take the following 6 credits, or approved substitutions, in consultation with the minor adviser:		
Select 3 credits from the following:		3
SUST 295	Internship	
SUST 495	Internship	
An approved substitution that provides an immersive sustainability experience		
Select 3 credits from the following:		3
SUST 496	Special Topics (or approved substitution that offers a capstone project in sustainability leadership)	
An approved substitution that offers a capstone project in sustainability leadership		
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select a track (allowable courses in this area vary by Sustainability Leadership Thematic Track)		9
<i>At least three credits from the Additional Courses or the Supporting Courses must be from outside the student's major department.</i>		
Requirements for Sustainability Leadership Minor Thematic Tracks		
Design for Sustainable Communities Track		
Select 6 credits from the following, or approved substitutions:		6
CE 410W		
CED 152	Community Development Concepts and Practice	
CED 309	Land Economics and Policy	
CED 409	Land Use Planning and Procedure	
CED 427		
ENVE 460	Environmental Law	
GEOG 320	Urban Geography: A Global Perspective	
GEOG 429	Geographic Perspectives on Global Urbanization	
GEOG 436	Ecology, Economy, and Society	
GEOG 439	Property and the Global Environment	
LARCH 65	Built Environment and Culture: Examining the Modern City	
LARCH 145	Ecology and Plants I	
LARCH 216	Design IV: Expanded Use, Scale, and Context	
SOILS 422	Natural Resources Conservation and Community Sustainability	
Select 3 credits from the following leadership courses or approved substitutions, in consultation with the SUSLD adviser:		3

AEE 465	Leadership Practices: Power, Influences, and Impact
ARCH 412	Integrative Energy and Environmental Design
CED 375	Community, Local Knowledge, and Democracy
CEDEV 452	Community Structure, Processes and Capacity

Total Credits 9

Educating for Sustainability Track

Code	Title	Credits
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Select 6 credits from the following, or approved substitutions: 6

AEE 350	Teaching Methods for Agricultural and Environmental Laboratories
AEE 400	Global Agriculture Education
AEE 412	Methods of Teaching Agriculture and Environmental Science

AEE 450

EDTHP 435	Child Labor and Education in the Global Economy
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EDTHP/CIED 440	Introduction to Philosophy of Education
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RPTM 325	Principles of Environmental Interpretation
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RPTM 430	Environmental Education Methods and Materials
----------	---

Select 3 credits from the following leadership courses, or approved substitution, in consultation with the SUSLD adviser: 3

AEE 201	Interpersonal Skills for Tomorrow's Leaders
---------	---

AEE 311	Developing Youth Leadership through Organization and Program Structure
---------	--

AEE 360	Leadership Development for Small Groups
---------	---

AEE 460	Foundations in Leadership Development
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AEE 465	Leadership Practices: Power, Influences, and Impact
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EDLDR 409	Leadership Studies in Popular Film
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EDLDR 480	Introduction to Educational Leadership
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PHIL 119	Ethical Leadership
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RPTM 236	Leadership and Group Dynamics in Recreation Services
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SOC 469	Advanced Theory and Practice in Small Group Facilitation
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Total Credits 9

Humanistic Understanding of Sustainability Track

Code	Title	Credits
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Select 6 credits from the following, or approved substitutions: 6

CMLIT 435	Cultures of Globalization
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CMLIT 455	Ethics, Justice, and Rights in World Literature
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ENGL 180	Literature and the Natural World
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ENGL 181A	Adventure Literature: Exploring the Chesapeake Bay
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ENGL 181B	Adventure Literature: Exploring Cape Cod
-----------	--

ENGL 181C	The Beach: Exploring the Literature of the Atlantic Shore
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ENGL 181D	Adventure Literature: Exploring the Literature of American Wilderness
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ENGL 424	Creative Writing and the Natural World
----------	--

ENGL 430	The American Renaissance
----------	--------------------------

HIST 109	Introduction to U.S. Environmental History
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HIST 110	Introduction to Global Environmental History
----------	--

HIST 111	Introduction to U.S. Food History
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HIST 151	
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HIST 453	American Environmental History
----------	--------------------------------

PHIL 13	Nature and Environment
---------	------------------------

PHIL 118	Environmental Philosophy
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PHIL 403	Seminar in Environmental Ethics
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Select 3 credits from the following leadership courses, or approved substitution, in consultation with the SUSLD adviser: 3

CAS 404	Conflict Resolution and Negotiation
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CAS 409	Democratic Deliberation
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PHIL 119	Ethical Leadership
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PLSC 112	
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PUBPL 305	Leadership Studies
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Total Credits 9

Sustainability and Food Systems Track

Code	Title	Credits
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Select 3 credits from the following food/nutrition courses, or approved substitutions: 3

FDSC 406W	Physiology of Nutrition
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NUTR 251	Introductory Principles of Nutrition
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Select 3 credits from the following food system courses, or approved substitutions: 3

AGBM 102	Economics of the Food System
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AGECO 134	
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AGECO 144	Principles and Practices of Organic Agriculture
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ERM 210	Environmental Factors and Their Effect on Your Food Supply
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HIST/NUTR 111	Introduction to U.S. Food History
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NUTR 430	
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Select 3 credits from the following leadership courses, or approved substitution, in consultation with the SUSLD adviser: 3

AEE 201	Interpersonal Skills for Tomorrow's Leaders
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AEE 465	Leadership Practices: Power, Influences, and Impact
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PHIL 119	Ethical Leadership
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PLSC 112	
----------	--

RPTM 236	Leadership and Group Dynamics in Recreation Services
----------	--

Total Credits 9

Academic Advising

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<https://behrend.psu.edu/school-of-science/academic-programs/minors/sustainability-leadership/> (<https://behrend.psu.edu/school-of-science/academic-programs/minors/sustainability-leadership/>)

Liberal Arts

About the College

Clarence Lang, Susan Welch Dean of the College of the Liberal Arts

Students in the College of the Liberal Arts have access to a world-class education in the core values of the liberal arts, to enriching out-of-class experiences, and to a Penn State family invested in your success. We call this unique combination of opportunities the Liberal Arts Edge. Your training in the liberal arts tradition will make you sought after for your ability to think critically and creatively, to communicate artfully, and to motivate and inspire those around you. However, a world-class education cannot be limited to the classroom. We encourage every student to participate in study abroad, research, and internship experiences, and we offer guidance and financial support to make those experiences possible. Our Liberal Arts alumni network cares passionately about the success of

our students and offers financial support, mentoring, and internships, so that you can have the best Penn State experience possible.

MORE INFORMATION ABOUT THE COLLEGE (<https://la.psu.edu/current-students/>)

Mission and Goals

Building upon its status as one of the premier public liberal arts institutions, the College of the Liberal Arts seeks to offer a transformative 21st-century education that prepares students to thrive in today's society. The College will fulfill this mission by:

- Providing an education that combines core liberal arts values with internships, research, and global experiences that allow students to apply skills in real-world contexts and grow personally and professionally
- Recruiting and retaining the best liberal arts faculty to help students develop wisdom and skills to influence and respond to change
- Connecting students with the vast network of college alumni who serve as mentors and help students build professional networks.

MORE INFORMATION ABOUT THE MISSION AND GOALS OF THE COLLEGE OF THE LIBERAL ARTS (<https://la.psu.edu/about/>)

Departments and Schools

Department of African American Studies

The Department of African American Studies is a meeting ground for scholars, students and thinkers committed to the study of African American and African-descended peoples in the Americas. As we foster meaningful engagement with the economic, social and political conditions of black life on campus and beyond, we seek to build a vibrant community of inquiry and innovation at Penn State.

MORE INFORMATION ABOUT THE DEPARTMENT OF AFRICAN AMERICAN STUDIES (<https://afam.la.psu.edu>)

African Studies Program

The African Studies Program offers many opportunities for students to learn about important historical, social, political, and economic features of the African continent. The African Studies Program seeks to expand student knowledge of Africa by, among other things, highlighting Africa's place in the global community, the vital geo-resources sustaining the world's ecosystems, the depth of its artistic creativity and the resourcefulness of its peoples.

MORE INFORMATION ABOUT THE AFRICAN STUDIES PROGRAM (<https://africanstudies.la.psu.edu>)

Department of Anthropology

Anthropology is the study of humanity—our biology and behavior, past and present. Anthropologists study living people across cultures and populations; past people through fossil, archeological, and historical records; as well as living and extinct nonhuman primates. Our students gain holistic, integrative social science training in and out of the classroom.

MORE INFORMATION ABOUT THE DEPARTMENT OF ANTHROPOLOGY (<https://anth.la.psu.edu>)

Department of Applied Linguistics

Our mission is to advance understandings of language use and language learning from a range of anthropological, sociological, and

psychological perspectives. Our faculty are committed to teaching and mentoring students. They are recognized worldwide for their topically and geographically diverse research involving a broad spectrum of languages and settings.

MORE INFORMATION ABOUT THE DEPARTMENT OF APPLIED LINGUISTICS (<https://aplng.la.psu.edu>)

Department of Asian Studies

The Asian studies department offers undergraduate majors and minors in Asian Studies, Chinese, and Japanese, with plans to also expand the Korean and Hindi programs. Students who take courses in our department learn to think critically; to make literary, political, and historical judgments; and to understand the impact of the past on the present and of present choices on the future. Our language programs offer deep immersion in new cultural contexts and broaden linguistic and social horizons.

MORE INFORMATION ABOUT THE DEPARTMENT OF ASIAN STUDIES (<https://asian.la.psu.edu>)

Department of Classics and Ancient Mediterranean Studies

CAMS is the study of ancient civilizations that arose and flourished around the Mediterranean basin (including Egypt, Greece, Rome, Anatolia, Israel, Mesopotamia, and North Africa) from the "cradle of civilization" in Mesopotamia (ca. 4000 BCE) to the end of Greco-Roman antiquity (ca. 600 CE). CAMS investigates the whole scope of the ancient Mediterranean world and trains students to interpret the linguistic and archaeological evidence of the greatest ancient cultures.

MORE INFORMATION ABOUT THE DEPARTMENT OF CLASSICS AND ANCIENT MEDITERRANEAN STUDIES (<https://cams.la.psu.edu>)

Department of Communication Arts and Sciences

CAS is committed to the study, teaching, and practice of human communication for the betterment of Pennsylvania, the nation, and the world. Using methods and theories that span the humanities and social sciences, we create knowledge about the role of communication in diverse interpersonal, communal, national, international, and cultural settings.

MORE INFORMATION ABOUT THE DEPARTMENT OF COMMUNICATION ARTS AND SCIENCES (<https://cas.la.psu.edu>)

Department of Comparative Literature

Our department offers exciting ways to study literature and culture in a global context; to examine global media (print, visual, electronic); and to explore questions of ethics, human rights, and the real-world contexts of literary and cultural production. Training students in important skills such as analytical writing, argumentation, and communication in an international context, comparative literature provides many of the key components to success in the global economy.

MORE INFORMATION ABOUT THE DEPARTMENT OF COMPARATIVE LITERATURE (<https://complit.la.psu.edu>)

Department of Economics

Economics studies the allocation of scarce resources. At the core of economics are theories of how individuals, firms, and other organizations make choices and interact, taking into account constraints on their behaviors. The topics studied by our students include the determination

of prices and quantities in various types of markets; the effects of taxes, subsidies, and regulations; economic growth and income distribution; international trade and international finance; and more.

MORE INFORMATION ABOUT THE DEPARTMENT OF ECONOMICS (<https://econ.la.psu.edu>)

Department of English

Our students explore the imaginative and practical uses of English through courses in literature, writing, rhetoric, and language. They develop perspectives on human nature and cultural values through American, British, and other English literatures; they learn how to gather, analyze, synthesize, and communicate information; they gain mastery over their language. These skills help English majors find careers in such fields as publishing, business, industry, government, and teaching.

MORE INFORMATION ABOUT THE DEPARTMENT OF ENGLISH (<https://english.la.psu.edu>)

Department of French and Francophone Studies

The French language is the most direct route to 150,000,000 people in over 40 countries and territories of Europe, Africa, Asia, North America, and Latin America. If your goals include a future that requires contact with these diverse peoples or if your plan is to teach French, we offer a variety of options that will fit your needs: French/business, French/engineering, French language and culture, French language and literature, French language and linguistics, and applied French.

MORE INFORMATION ABOUT THE DEPARTMENT OF FRENCH AND FRANCOPHONE STUDIES (<https://french.la.psu.edu>)

Department of Germanic and Slavic Languages and Literatures

We offer undergraduate and graduate degrees in German and Russian. Other Slavic languages offered include Ukrainian, Polish, and Czech. Our award-winning faculty is committed to teaching and research in the areas of language, literature, and culture.

MORE INFORMATION ABOUT THE DEPARTMENT OF GERMANIC AND SLAVIC LANGUAGES AND LITERATURES (<https://german.la.psu.edu>)

School of Global Languages, Literatures, and Cultures

The school's purpose is to promote the study and knowledge of languages, literatures, and cultures worldwide. Our member departments offer graduate and undergraduate degrees, study abroad programs, student research opportunities, internships, and more.

MORE INFORMATION ABOUT THE SCHOOL OF GLOBAL LANGUAGES, LITERATURES, AND CULTURES (<https://sgllc.la.psu.edu>)

Department of History

History majors acquire skills critical in today's workplace. History majors learn how to learn. Increasingly, the work world places a premium on this kind of flexibility. Most people change jobs frequently, and jobs themselves are transformed rapidly, which means workers need to learn new skills all the time. History majors can have a long-term edge in this type of environment because they are taught how to conceptualize an issue, research it, weigh evidence, and make conclusions.

MORE INFORMATION ABOUT THE DEPARTMENT OF HISTORY (<https://history.la.psu.edu>)

Jewish Studies Program

Our interdisciplinary program ranges globally in scope from the Israelite origins of the Jewish people to the experiences of postmodern Jews in the 21st century. Our distinguished faculty offers courses across a diverse array of fields and topics, with perspectives that combine the humanities and the social sciences. We offer a major and minor in Jewish studies, a minor in Hebrew, and a certificate in Holocaust and genocide studies.

MORE INFORMATION ABOUT THE JEWISH STUDIES PROGRAM (<https://jewishstudies.la.psu.edu>)

School of Labor and Employment Relations

Our school offers B.S. and B.A. majors in Labor and Employment Relations. LER majors learn about all aspects of work and the employment relationship, including: the best strategies for recruiting and hiring a productive workforce, the laws that protect employees in the workplace, effective human resource practices and policies, the challenge of balancing work and family pressures, the impact of globalization on work and the workforce, and more.

MORE INFORMATION ABOUT THE SCHOOL OF LABOR AND EMPLOYMENT RELATIONS (<https://ler.la.psu.edu>)

Department of Philosophy

We educate undergraduates with an eye toward both of these features of philosophy: its rich and varied historical traditions and its ongoing contemporary relevance. Students not only learn the greatest thinkers, theories, and texts of the history of philosophy, they are also challenged to develop their own ideas, to apply philosophy to their own lives, and to use philosophy to address the pressing issues of our times.

MORE INFORMATION ABOUT THE DEPARTMENT OF PHILOSOPHY (<https://philosophy.la.psu.edu>)

Department of Political Science

Students interested in American politics, the politics of other nations, international relations, and/or political theory can pursue four degree options in the political science department. We offer B.A. degrees in political science and international politics. The department also offers two B.S. degrees—one in political science, the second in social data analytics—that emphasize data analysis and research across all areas of political science.

MORE INFORMATION ABOUT THE DEPARTMENT OF POLITICAL SCIENCE (<https://polisci.la.psu.edu>)

Department of Psychology

Many people associate psychology with psychological therapy and the practice of clinical psychology. There are actually many other important areas of scientific psychology, such as cognitive, developmental, industrial/organizational, and social psychology.

MORE INFORMATION ABOUT THE DEPARTMENT OF PSYCHOLOGY (<https://psych.la.psu.edu>)

School of Public Policy

The School of Public Policy brings together expertise from across the University to educate the next generation of problem solvers and leaders. Current focus areas include data/science analytics, health policy, children and family policy, labor and employment relations, information technology, international policy, and criminal justice.

MORE INFORMATION ABOUT THE SCHOOL OF PUBLIC POLICY (<https://publicpolicy.psu.edu/>)

Department of Sociology and Criminology

Ranked among the top programs in the nation, the sociology program offers undergraduate students a broad liberal arts education with courses in family, religion, government, race, class, and gender, among other areas. The criminology program is one of the nation's top programs in this area. Our undergraduate program promotes an understanding of crime and the criminal justice system and how they are related to human behavior, social environments, and government policy.

MORE INFORMATION ABOUT THE DEPARTMENT OF SOCIOLOGY AND CRIMINOLOGY (<https://sociology.la.psu.edu/>)

Department of Spanish, Italian, and Portuguese

Our department is at the forefront of literary, linguistic, and cultural studies in the United States. Our mission is to provide training that not only meets the highest standards of professional research but also prepares students for civic engagement and intellectual autonomy.

MORE INFORMATION ABOUT THE DEPARTMENT OF SPANISH, ITALIAN AND PORTUGUESE (<https://sip.la.psu.edu>)

Department of Women's, Gender, and Sexuality Studies

Women's studies is an interdisciplinary field of research and teaching that places women's lives, perspectives, and experiences at the center of inquiry. Women's studies asks questions regarding the diversity of women's lives and experiences throughout history, contemporary problems from the perspectives of women and gender, and how changes in fundamental assumptions about the production of knowledge have transformed conventional areas of study.

MORE INFORMATION ABOUT THE DEPARTMENT OF WOMEN'S, GENDER, AND SEXUALITY STUDIES (<https://wgss.la.psu.edu>)

Baccalaureate Degrees

- African American Studies, B.A.
- African and African American Studies, B.A.
- African and African American Studies, B.S.
- African Studies, B.A.
- Anthropological Science, B.S.
- Anthropology, B.A.
- Asian Studies, B.A.
- Chinese, B.A.
- Classics and Ancient Mediterranean Studies, B.A.
- Communication Arts and Sciences, B.A. (Liberal Arts)
- Communication Arts and Sciences, B.S.
- Comparative Literature, B.A.
- Criminology, B.A.
- Criminology, B.S.
- Economics, B.A. (Liberal Arts)
- Economics, B.S.
- English, B.A. (Liberal Arts)
- French and Francophone Studies, B.A.
- French and Francophone Studies, B.S.
- German, B.A.
- German, B.S.

- Global and International Studies Major
- Global and International Studies, B.A.
- Global and International Studies, B.S.
- History, B.A. (Liberal Arts)
- Integrated Social Sciences, B.S.
- International Politics, B.A.
- Italian, B.A.
- Italian, B.S.
- Japanese, B.A.
- Jewish Studies, B.A.
- Korean, B.A.
- Labor and Human Resources, B.A.
- Labor and Human Resources, B.S.
- Latin American Studies, B.A.
- Law and Society, B.A.
- Linguistics, B.A.
- Medieval Studies, B.A.
- Middle East Studies, B.A.
- Multidisciplinary Studies, B.A. (Liberal Arts)
- Organizational and Professional Communication, B.A.
- Organizational and Professional Communication, B.S.
- Organizational Leadership, B.A.
- Organizational Leadership, B.S.
- Philosophy, B.A.
- Philosophy, B.S.
- Political Science, B.A. (Liberal Arts)
- Political Science, B.S.
- Psychology, B.A. (Liberal Arts)
- Psychology, B.S. (Liberal Arts)
- Russian, B.A.
- Social Data Analytics, B.S.
- Sociology, B.A.
- Sociology, B.S. (Liberal Arts)
- Spanish, B.A.
- Spanish, B.S.
- Women's Studies, B.A.
- Women's Studies, B.S.
- Communication Arts and Sciences, Minor
- Creative Writing, Minor
- Digital Humanities, Minor
- Dispute Management and Resolution, Minor
- East European Studies, Minor
- Economics, Minor
- English, Minor (Liberal Arts)
- Ethics, Minor
- French and Francophone Studies, Minor
- German, Minor
- Global and International Studies, Minor
- Global Security, Minor
- Greek, Minor
- Hebrew, Minor
- History, Minor (Liberal Arts)
- Information Sciences and Technology for Labor Studies and Employment Relations, Minor
- Information Sciences and Technology in Communication Arts and Sciences and Labor and Employment Relations, Minor
- Italian, Minor
- Japanese Language, Minor
- Jewish Studies, Minor
- Korean Language, Minor
- Labor and Human Resources, Minor
- Latin American Studies, Minor
- Latin, Minor
- Latina and Latino Studies, Minor
- Legal Studies, Minor
- Linguistics, Minor
- Medieval Studies, Minor
- Middle East Studies, Minor
- Organizational Leadership, Minor
- Pennsylvania Studies, Minor
- Philosophy, Minor
- Political Science, Minor
- Politics and Public Policy, Minor
- Portuguese, Minor
- Psychology, Minor
- Public Policy and Leadership Across Sectors, Minor
- Religious Studies, Minor
- Rhetoric, Minor
- Russian, Minor
- Sexuality and Gender Studies, Minor
- Sociology, Minor
- Spanish, Minor
- Teaching English to Speakers of Other Languages, Minor
- Technical Writing, Minor
- Women's Studies, Minor
- World Literature, Minor

Associate Degrees

- Labor and Human Resources, A.S.
- Multidisciplinary Studies, A.A. (Liberal Arts)

Minors

- African American Studies, Minor
- African Studies, Minor
- Anthropology, Minor
- Arabic Language, Minor
- Asian Studies, Minor
- Black Diaspora Studies, Minor
- Business and the Liberal Arts, Minor
- Chinese Language, Minor
- Classics and Ancient Mediterranean Studies, Minor

Certificates

- Africa-Asia Studies, Certificate
- African Literature, Visual Arts, and Performance, Certificate
- Biblical Studies, Certificate
- Development and Sustainability in Africa, Certificate
- Diversity Studies, Certificate (Liberal Arts)
- Holocaust and Genocide Studies, Certificate
- Labor and Human Resources, Certificate
- Organizational Communication, Certificate
- Small Group Conflict and Collaboration, Certificate

College Procedures

Change of Campus

Permanent Change of Campus to University Park: Students must (1) meet with a campus representative to review criteria for changing prior to submitting a change of campus request and (2) initiate the change of campus process by using the Update Campus application found in the Student Center.

MORE INFORMATION ABOUT CHANGE OF CAMPUS (<https://www.registrar.psu.edu/degree-planning/change-campus/>)

Concurrent Majors

A Concurrent Majors Program is one in which students take courses to concurrently meet the requirements of at least two majors, with graduation for all majors in the program occurring during the same semester. Students requesting more than one major program shall, for each major, meet the same acceptance standards and graduation requirements as met by all other students. Approval for admission to each major must be obtained from the colleges and departments offering the majors. Students should meet with their Liberal Arts adviser. Application to a Concurrent major is on LionPATH under Update Academics.

READ SENATE POLICY 60-00: COMPLETING MORE THAN ONE UNDERGRADUATE MAJOR PROGRAM (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/60-00-completing-more-than-one-undergraduate-program/#60-00>)

Academic Warning

A student who fails to earn a 2.00 cumulative grade-point average will be placed on academic warning. A student placed on academic warning will have a hold placed on registration and will be required to meet with an academic adviser in order for this registration hold to be removed. To remove academic warning, the cumulative grade-point average must be 2.00 or higher.

A Liberal Arts academic adviser will contact students as soon as they go on academic warning to review the steps required to continue scheduling courses at Penn State. Students must schedule an appointment with an adviser through Starfish (<https://sites.psu.edu/starfishinfo/>) and must complete an Academic Self-Assessment Form before the meeting to be discussed with the adviser.

MORE INFORMATION ABOUT ACADEMIC WARNING (<https://la.psu.edu/current-students/academics/academic-recovery/>)

READ SENATE POLICY 54-20: ACADEMIC WARNING (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-20>)

Academic Suspension

A student in academic warning who fails to maintain a semester grade-point average of 2.00 or higher will be academically suspended. A student who has been academically suspended may not schedule courses at the University for two consecutive semesters. (Note: Summer session is equal to one semester.) Students seeking re-enrollment to the College of the Liberal Arts must receive written support by submitting a written statement (in addition to the required re-enrollment form).

MORE INFORMATION ABOUT ACADEMIC SUSPENSION (<https://la.psu.edu/current-students/academics/academic-recovery/>)

READ SENATE POLICY 54-40: ACADEMIC SUSPENSION (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-40>)

Resources

Academic Advising

There are nearly 20 advisers in the College of the Liberal Arts who are ready to partner with you to plan and realize your academic, personal, and career goals. Our advisers help keep you on track toward your degree and work with you to navigate co-curricular opportunities.

MORE INFORMATION ABOUT ACADEMIC ADVISING (<https://la.psu.edu/student-services/academic-advising/>)

Career Enrichment Network

The Career Enrichment Network is a resource for Liberal Arts students who are seeking opportunities to engage in career-related, international, and professional development activities. Whether you're interested in a full-time internship, a study abroad experience, on-campus research, or you're seeking funding to help support your enrichment activity, the Network is the place to start your search.

MORE INFORMATION ABOUT THE CAREER ENRICHMENT NETWORK (<https://la.psu.edu/current-students/career-enrichment-network/>)

Office of Diversity and Inclusion

The College of the Liberal Arts typically has the most diverse student population of any college at Penn State. Minority students can count on funding, support services, cultural events, and research and professional development opportunities. One of those resources is Earl Merritt, the Director of Diversity and Inclusion in the College of the Liberal Arts, who meets one-on-one with students to help them reach their goals.

MORE INFORMATION ABOUT THE OFFICE OF DIVERSITY AND INCLUSION (<https://la.psu.edu/diversity-equity-inclusion-belonging/>)

First-Year Experience

The First-Year Experience program allows students to learn more about the College of the Liberal Arts and Penn State. Programming and events center around helping students become acclimated to the University, as well as begin to identify with the college, their peers, and their teachers.

Alumni Mentor Program

The Liberal Arts Alumni Mentor Program is your opportunity to leverage the influence of the Penn State Alumni Network. The program pairs

students with Liberal Arts alumni working in fields related to students' majors.

MORE INFORMATION ABOUT THE ALUMNI MENTOR PROGRAM (<https://la.psu.edu/beyond-the-classroom/professional-development/alumni-mentor-program/>)

Honors Programs

Schreyer Honors College

The Schreyer Honors College, regarded as one of the nation's top programs of its kind, promotes achieving academic excellence with integrity, building a global perspective, and creating opportunities for leadership and civic engagement. Schreyer Scholars, including those admitted after their first or second year of enrollment, are a diverse and motivated group of approximately 2,000 students at University Park and 20 Commonwealth campuses. The College strives to educate students who will have an important and ethical influence in the world, to improve educational practice, and to continue to be recognized as a leading force in honors education nationwide.

MORE INFORMATION ABOUT THE SCHREYER HONORS COLLEGE (<https://www.shc.psu.edu>)

Honors in the College of the Liberal Arts

The Paterno Fellows Program is an innovative program offered jointly by the College of the Liberal Arts and the Schreyer Honors College. The Paterno Fellows experience offers "an education for leadership" in the best tradition of the liberal arts. It molds well-rounded students who are ready for the world and prepares them for citizenship, for lifetime learning, and for the satisfaction derived from an exemplary education. Students aspiring to become Fellows are challenged to perform to their full potential and offered the support they need to achieve their academic goals. Paterno Fellows distinguish themselves in areas traditionally associated with the liberal arts: ethics, service, and leadership; excellence in communication; and international and intercultural awareness. Students aspiring to the program have two years to become Fellows and Schreyer Scholars by meeting specific requirements that are outlined in the Paterno Fellows Student Handbook found on the program's website.

MORE INFORMATION ABOUT HONORS IN THE COLLEGE OF THE LIBERAL ARTS (<https://la.psu.edu/current-students/paterno-fellows-program/>)

Contact

COLLEGE OF THE LIBERAL ARTS
118 Sparks Building
University Park, PA 16802
814-865-1438
laus@psu.edu

<https://la.psu.edu>

Africa-Asia Studies, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

For centuries, multiple networks and the circulation of people and goods across the maritime waters of the Indian Ocean had linked diverse spaces and communities in Africa and Asia. The cross-pollination of cultural

ideas is still visible through built spaces, languages, literary works, performances, spiritual cultures, and in many everyday practices. Today many African and Asian countries are mobilizing the history of these exchanges to forge lasting partnerships through economic, educational, environmental, digital, infrastructural, and healthcare projects. This 12-credit certificate in "Africa-Asia Studies" will enable students to gain an integrated and grounded understanding of the past, present, and possible futures for African-Asian exchanges through a range of courses in humanities and social sciences. Students will learn the history of this South-South relationship and how it gained new solidarities in the postcolonial phase after the Bandung Conference in 1955. Students will study how Africa-Asia alliance redefines globalization, global networks, political capital, and also cultural connections. This certificate will also include an optional study abroad opportunity in Africa or Asia.

Program Requirements

To earn an undergraduate certificate in Africa-Asia Studies, a minimum of 12 credits is required.

Code	Title	Credits
Required Courses		
AFR 105 or AFR 110N	African Biodiversity and Conservation Introduction to Contemporary Africa	3
ASIA 100 or ASIA 100Z	What is Asia?	3
Select 6 credits from the following:		6
AFR 191	Early African History	
AFR 192	Modern African History	
AFR 202N	Women, Gender, and Feminisms in Africa	
AFR 399	Foreign Studies	
AFR 405	African Studies Methodologies	
AFR 443	Ethnic Conflict in Africa	
AFR 454	Government and Politics of Africa	
AFR 464	Extractive Industries in Africa	
AFR 497	Special Topics	
AFR 596	Individual Studies	
ANTH 408	Anthropological Demography	
ANTH 458	Ethnographic Field Methods	
ASIA 3	Introduction to the Religions of the East	
ASIA 120Y	South Asia: A Literary History	
ASIA 171		
ASIA 199	Foreign Studies	
ASIA 401	Technology & Society in Modern Asia	
HIST 475Y	The Making and Emergence of Modern India	

Non-Course Requirements:

- As per University policy, all credit courses for a certificate require a grade of "C" or higher and at least two-thirds (2/3) of the credits used to complete a certificate must be earned at Penn State. If a student is completing multiple certificates in African Studies, no more than one (1) course may double-count for each.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of

both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Contact

University Park

AFRICAN STUDIES PROGRAM

133 Willard Building

University Park, PA 16802

814-865-5406

jle1@psu.edu

<https://africanstudies.la.psu.edu>

African American Studies, B.A.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

This major helps students achieve a critical understanding of the forms of knowledge, culture, and social organization that African-Americans have produced, and of the social conditions that have supported and constrained this work. Using interdisciplinary approaches as well as methods drawn from the traditional disciplines, the major exposes students to the ideas, institutions, movements, and practices that African-American peoples have used to survive and shape the modern world. The African American Studies curriculum promotes the critical faculties, cultural competencies, and historical sensibilities of its students, and thereby equips them for success in graduate school, professional school, and the workplace.

What is African American Studies?

African American Studies is an intellectual field of inquiry that examines the history of people of African descent from the colonial period through the present; how systems of racial inequality are produced through state policy, traditional western scholarly disciplines, and popular discourse; and the social, political and cultural movements that black people have developed to identify and resist the unequal material and political conditions that shape black social life in the African Diaspora. The undergraduate major and minor provide a strong foundation in the key theoretical concepts in the discipline, the historical formation

of African American Studies as an interdisciplinary field of study, and prepares students to apply what they have learned in the classroom, in independent research and in internships with social justice/service organizations.

You Might Like This Program If...

- You are passionate about learning more about the history, cultures, and political struggles of people of African-descent in the West.
- You are interested in understanding how racism operates structurally and shapes the social experiences and life chances of black communities.
- You want to study social, cultural, and political movements throughout the African Diaspora.
- You are interested in pursuing independent research or internships with non-profit, research, and community-based organizations committed to racial equity and social justice.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in African American Studies, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	15-21
Bachelor of Arts Degree Requirements	24
Requirements for the Major	36

0-6 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 0-3 credits of GS courses; and 0-3 credits of GH courses.

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified

by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
AFAM 100N	Black Freedom Struggles	3
AFAM 110N	Introduction to African American Studies	3
AFAM/HIST 152	African American History	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits from the following:		3
AFAM/ WMNST 101N	African American Women	
AFAM/ WMNST 102	Women of the African Diaspora	
AFAM 103	Racism and Sexism	
Select 3 credits from the following:		3
AFAM 197	Special Topics	
SOC 207	Research Methods in Sociology ¹	
Select 3 credits from the following:		3
AFAM 401	Afro-American Studies Seminar	
AFAM 494	Research Project	
AFAM 495	Internship	
Area of Concentration		
Select 12 credits from one of the following four areas of concentration, and 6 more credits from any of the other areas. A minimum of 12 credits should be AFAM courses, and at least 12 of these credits must be at the 400-level or above. ²		18
1. Gender and Sexuality		
AFAM/ WMNST 101N	African American Women	
AFAM/ WMNST 102	Women of the African Diaspora	
AFAM/SOC/ WMNST 103	Racism and Sexism	
AFAM 410	Spirit, Space, Survival: Contemporary Black Women	
AFAM/THEA 412	African American Theatre	
AFAM/STS 416	Race, Gender and Science	
AFR/WMNST 202N	Women, Gender, and Feminisms in Africa	
Select 3 credits at the 400-level in consultation with your adviser		
2. Humanities		
AFAM/RLST 145	African Diaspora Religions and Spiritualities	
AFAM/RLST 146	The Life and Thought of Martin Luther King, Jr.	
AFAM/RLST 147	The Life and Thought of Malcolm X	
AFAM/THEA 208	Workshop: Theatre in Diverse Cultures	

AFAM/HIST 210	Freedom's First Generation: African American Life and Work, from the Civil War to World War II	
AFAM 212	African Americans in the New Jim Crow Era, 1968-present	
AFAM/ENGL 235	From Folk Shouts and Songs to Hip Hop Poetry	
AFAM/THEA 412	African American Theatre	
AFAM/CAS 422	Contemporary African American Communication	
AFAM/PHIL 460	African American Philosophy	
AFAM/HIST 465	The Post-World War II Civil Rights Movement	
AFAM/ENGL 469	Slavery and the Literary Imagination	
3. Social Sciences and Community Development		
AFAM/BBH 302	Diversity and Health	
AFAM/SOC 409	Racial and Ethnic Inequality in America	
AFAM/HIST 431	Black Liberation and American Foreign Policy	
AFAM/HIST 432	Between Nation and Empire: The Caribbean in the 20th Century	
AFAM/PLSC/ LER 445Y	Politics of Affirmative Action	
AFR/PLSC 459		
ECON 436W		
EDTHP/SOC 447	Ethnic Minorities and Schools in the United States	
PLSC 223N	Ethnic and Racial Politics	
PLSC 490	Policy Making and Evaluation	
SOC 119N	Race, Ethnicity and Culture	
4. Migration and Diaspora		
AFAM/ WMNST 102	Women of the African Diaspora	
AFAM/SPAN/ AFR 132	Afro-Hispanic Civilization	
AFAM/HIST 211	Slavery and Freedom in the Black Atlantic	
AFAM/HIST 250	Introduction to the Caribbean	
AFAM/HIST 431	Black Liberation and American Foreign Policy	
AFAM/HIST 432	Between Nation and Empire: The Caribbean in the 20th Century	
AFR 110N	Introduction to Contemporary Africa	
AFR/HIST 192	Modern African History	
AFR/IB/PLSC 440	Globalization and Its Implications	
AFR 497	Special Topics	
PLSC 453	Political Processes in Underdeveloped Systems	

¹ SOC 207 is recommended for Political Science, Sociology and HHD-related double majors.

² If you wish to receive credit for courses other than the ones listed, you must seek permission from the AFAM undergraduate director.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Integrated B.A. in African American Studies and M.P.P. in Public Policy

Requirements for the Integrated B.A. in African American Studies and M.P.P. in Public Policy can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/public-policy/#integratedundergradgradprogramstext>).

Program Learning Objectives

- Students will be able to critically reflect on and think about historical and contemporary materials and events throughout the African diaspora.
- Students will be able to identify and synthesize national and global influences on people of African descent.
- Students will be able to be sensitive to and appreciate the perspectives, cultures, institutions, and intellectual agency of people of African descent

- Students will be able to articulate clear and compelling perspectives using strong research, critical thinking, analytical skills, academic writing, and public speaking.
- Students will develop an intersectional analytical framework, understanding the connectedness between race, gender, class, sexuality, ability, nationality, and age.
- Students will engage with campus, local, national, and global events in ways that encourages service and promotes their ability to be scholar-activists.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

African American Studies, B.A. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
ENGL 15, 30H, ESL 15, ENGL 137H, or CAS 137H [‡]	3	World Language Level 2	4
AFAM 152 or HIST 152 [*]	3	CAS 100, ENGL 138T, or CAS 138T [‡]	3

World Language Level 1	4 AFAM 101N, WMNST 101N, AFAM 102, WMNST 102, AFAM 103, WMNST 103, or SOC 103 [*]	3
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General Education Course	3 AFAM 110N [*]	3
First Year Seminar	3 General Education Quantification Course [‡]	3

16 **16**

Second Year

Fall	Credits	Spring	Credits
World Language Level 3	4	General Education Quantification Course [‡]	3

AFAM 100N [*]	3	SOC 207 [*]	3
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Elective	3	General Education Course	3
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General Education Course	3	General Education Course	3
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General Education Course	3	BA Knowledge Domain Course	3
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16 **15**

Third Year

Fall	Credits	Spring	Credits
AFAM any or AFAM elective [*]	3	BA Knowledge Domain Course	3

AFAM 4XX [*]	3	AFAM 4XX [*]	3
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BA World Cultures	3	ENGL 202A, 202B, 202C, or 202D [‡]	3
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General Education Course	3	General Education Course	3
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Elective	3	Elective	3
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15 **15**

Fourth Year

Fall	Credits	Spring	Credits
BA Knowledge Domain Course	3	AFAM any or AFAM elective [*]	3

AFAM 4XX [*]	3	AFAM 401 [*]	3
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AFAM 4XX [*]	3	General Education Course	3
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General Education Health and Wellness (GHW)	1.5	General Education Health and Wellness (GHW)	1.5
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Elective	6	General Education Course	3
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		Elective	2
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16.5 **15.5**

Total Credits 125

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Advising Note:

All incoming freshmen must take a First-Year Seminar (FYS) during Fall or Spring of their first year. Academic advisers can provide a list of FYS being offered and help the student enroll. Most FYS in the College of the Liberal Arts are worth 3 cr. and count as a General Humanities (GH) or General Social Sciences (GS) course. For this reason, the FYS is not listed separately on this eight-semester plan; most students will be able to fulfill the FYS requirement while also fulfilling a GH or GS requirement.

Career Paths

Careers

Graduates in African American Studies go on to pursue a wide-range of career paths including public policy, the law, medicine, public health, social work, criminal justice, social justice advocacy, transnational human rights, community-based organizing, higher education, environmental justice, arts/entertainment, or scholarly research in the social sciences and the humanities.

Opportunities for Graduate Studies

Many students opt to pursue graduate degrees in African American Studies because they want to teach in African American Studies programs at the college or university-level or they want to teach from a critical race theory perspective in traditional disciplines in the social sciences, humanities, law, medicine or other professional programs.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://afam.la.psu.edu/graduate/>)

Professional Resources

- National Council of Black Studies (NCBS) (<https://ncbsonline.org>)
- Association for the Study of African American Life and History (ASALH) (<https://asalh.org/>)

- Association for the Study of the Worldwide African Diaspora (ASWAD) (<https://www.aswadiaspora.org>)

Contact

University Park

DEPARTMENT OF AFRICAN AMERICAN STUDIES
University Park, PA 16802
814-863-4243
jle1@psu.edu

<https://afam.la.psu.edu>

African American Studies, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Department of African American Studies awards a minor to students who, in addition to meeting the requirements for a major, complete 18 credits in the African American Studies minor. This minor is designed for students interested in African American culture and the educational, social, political, and economic development of people of African descent in the United States. In particular, it provides students with the opportunity to explore the experiences of African Americans using theories and methods originating in the field. Students are made aware of the potential to apply such knowledge to the solution of social, political, and economic problems. The minor also promotes greater understanding of the relationship between African Americans and other ethnic groups.

What is African American Studies?

African American Studies is an intellectual field of inquiry that examines the history of people of African descent from the colonial period through the present; how systems of racial inequality are produced through state policy, traditional western scholarly disciplines, and popular discourse; and the social, political and cultural movements that black people have developed to identify and resist the unequal material and political conditions that shape black social life in the African Diaspora. The undergraduate major and minor provides a strong foundation in the key theoretical concepts in the discipline, the historical formation of African American Studies as an interdisciplinary field of study, and prepares students to apply what they have learned in the classroom, in independent research and in internships with social justice/service organizations.

You Might Like This Program If...

- You are passionate about learning more about the history, cultures, and political struggles of people of African-descent in the West.
- You are interested in understanding how racism operates structurally and shapes the social experiences and life chances of black communities.
- You want to study social, cultural, and political movements throughout the African Diaspora.
- You are interested in pursuing independent research or internships with non-profit, research, and community-based organizations committed to racial equity and social justice.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
AFAM 100N	Black Freedom Struggles	3
AFAM/WMNST 101N	African American Women	3
AFAM 110N	Introduction to African American Studies	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 9 credits from the following (at least 6 credits must be at the 400 level):		9
AFAM/WMNST 102	Women of the African Diaspora	
AFAM/SOC/WMNST 103	Racism and Sexism	
AFAM/INART 126N	The Popular Arts in America: The History of Hip-Hop	
AFAM/RLST 145	African Diaspora Religions and Spiritualities	
AFAM/RLST 146	The Life and Thought of Martin Luther King, Jr.	
AFAM/RLST 147	The Life and Thought of Malcolm X	
AFAM/MUSIC 207N	Jazz and the African American Experience	
AFAM/THEA 208	Workshop: Theatre in Diverse Cultures	
AFAM/HIST 210	Freedom's First Generation: African American Life and Work, from the Civil War to World War II	
AFAM 226N	Critical Approaches to Hip-Hop	
AFAM/ENGL 235	From Folk Shouts and Songs to Hip Hop Poetry	
AFAM 401	Afro-American Studies Seminar	
AFAM/SOC 409	Racial and Ethnic Inequality in America	
AFAM 410	Spirit, Space, Survival: Contemporary Black Women	
AFAM/THEA 412	African American Theatre	
AFAM/CAS 422	Contemporary African American Communication	
AFAM/HIST 431	Black Liberation and American Foreign Policy	
AFAM/ENGL 463	African American Autobiography	

AFAM/HIST 465	The Post-World War II Civil Rights Movement
AFAM/ENGL 469	Slavery and the Literary Imagination
COMM/WMNST 205	Gender, Diversity and the Media
CRIMJ/CRIM 451	Race, Crime, and Justice
SOC 119N	Race, Ethnicity and Culture

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

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Abington

Roy Robson

Division Head, Division of Arts and Humanities

1600 Woodland Road

Abington, PA 19001

215-881-7466

rrr5237@psu.edu

Harrisburg

Beatrice Epwene

Assistant Teaching Professor of Communication

777 W. Harrisburg Pike

W356 Olmsted

Middletown, PA 17057

717-948-6189

bne5066@psu.edu

Career Paths

Graduates in African American Studies go on to pursue a wide-range of career paths including public policy, the law, medicine, public health, social work, criminal justice, social justice advocacy, transnational human rights, community-based organizing, higher education, environmental

justice, arts/entertainment, or scholarly research in the social sciences and the humanities.

Opportunities for Graduate Studies

Many students opt to pursue graduate degrees in African American Studies because they want to teach in African American Studies programs at the college or university-level, or they want to teach from a critical race theory perspective in traditional disciplines in the social sciences, humanities, law, medicine or other professional programs.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://afam.la.psu.edu/graduate/>)

Contact

University Park

DEPARTMENT OF AFRICAN AMERICAN STUDIES
133 Willard Building
University Park, PA 16802
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1600 Woodland Road
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<https://www.abington.psu.edu/academics/minors-abington> (<https://www.abington.psu.edu/academics/minors-abington/>)

Harrisburg

SCHOOL OF HUMANITIES
777 W. Harrisburg Pike
W356 Olmsted
Middletown, PA 17057
717-948-6189
bne5066@psu.edu

African and African American Studies, B.A.

Begin Campus: Any Penn State Campus

End Campus: University Park

PROGRAM CURRENTLY ON HOLD; NOT ACCEPTING NEW STUDENTS

Begin Date of Enrollment Hold: May 30, 2012

Program Description

This interdisciplinary major is designed to give students an integrated and critical understanding of the experiences and contributions of peoples of African descent. Students are encouraged to do research and evaluate the relationship between the political, social, and economic developments in Africa and the African Diaspora. Two options are available within the major and are described here.

African American Studies Option

This option provides students with the opportunity to explore the experiences of African Americans using theories and methods originating in the field along with those adopted from the various disciplines. Students are also made aware of the potential to apply knowledge to discern better approaches for solving social, political, and economic problems. The curriculum also promotes greater understanding of the relationship between African American and other ethnic groups in the shaping of American society and culture.

Focus Areas

The African American Studies Option has three focus areas, which are described below.

1. **History Perspective:** While stressing the interdisciplinary nature of the field, this focus allows students to concentrate on the historical experience of the African Americans, including their political, social, and economic relations with other ethnic groups, as well as the shifting historical contexts in which they have contested and shaped the evolution of American society.
2. **Social Sciences and Community Development:** This focus area allows students to concentrate on contemporary political and economic experiences of African Americans as well as on public policy issues that pertain to the economic, political, and social engagement of African Americans in the search for equality in American society.
3. **Cultural and Gender Perspective:** This focus area allows students to concentrate on culture and gender in historical and contemporary terms.

African Studies Option

This option provides students with the opportunity to examine the geographical, cultural, historical, political, and economic aspects of Africa.

Focus Areas

This option has two focus areas as described below.

1. **Humanities Perspective:** This focus area enables students to concentrate on the history and culture of African societies and the evolution of Africa in world history.
2. **Social Science Perspective:** This focus area enables students to concentrate on political and economic developments, including state building and ethnic relations, development strategies, and Africa's position in the global system.

Law and Social Justice Option

This multi-disciplinary program would provide students with the opportunity to study the politics, culture, economics, and history of African Americans in our society and link this understanding with an in depth study of criminal justice and the legal system. Issues that students will focus on will be areas such as, Are African Americans discriminated against in criminal justice decision-making? What is the historic connection between race and punishment in the US legal system? How do issues of class, race and gender impact policy decisions about crime and punishment? What is the socioeconomic impact of high incarceration rates on the African American community? The program is designed to encourage students to think systematically about the relationship among public policy, the criminal justice system, and shifting notions of social justice that have characterized debates over the workings and goals of the prison system in American life and thought.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

- attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
- have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in African and African American Studies, a minimum of 123 credits is required:

Requirement	Credits
General Education	45
Electives	9-18
Bachelor of Arts Degree Requirements	24
Requirements for the Major	45

0-9 of the 45 credits for General Education are included in the Requirements for the Major. This includes: African American Studies Option -- 0-3 credits of GA courses; 0-3 credits of GH courses; 0-3 credits of GS courses. African Studies Option -- 0-3 credits of GH courses; 0-3 credits of GS courses. Law and Social Justice Option -- 0-3 credits of GS courses.

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
AFAM 100N	Black Freedom Struggles	3
AFAM/HIST 211	Slavery and Freedom in the Black Atlantic	3
AFR 110		3
SOC 207	Research Methods in Sociology	3

Requirements for the Option

Requirements for the Option: Require a grade of C or better

Select an option 33

Requirements for the Option

African American Studies Option (33 credits)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
AFAM/WMNST 101		3
AFAM/SOC/WMNST 103	Racism and Sexism	3
AFAM 401	Afro-American Studies Seminar	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 24 credits from one of the following three areas of concentration: ¹		24
1. History Perspective		
AFAM/RLST 146	The Life and Thought of Martin Luther King, Jr.	
AFAM/RLST 147	The Life and Thought of Malcolm X	
AFAM/HIST 210	Freedom's First Generation: African American Life and Work, from the Civil War to World War II	
AFAM/SOC 409	Racial and Ethnic Inequality in America	
AFAM 431	Black Liberation and American Foreign Policy	
AFAM/HIST 465	The Post-World War II Civil Rights Movement	
ENGL 461		
ENGL 469	Slavery and the Literary Imagination	
HIST 152	African American History	
PLSC 474	Civil Liberties and Due Process	
SOC 119		
2. Social Sciences and Community Development		
AFAM/WMNST 102	Women of the African Diaspora	
AFAM/RLST 146	The Life and Thought of Martin Luther King, Jr.	
AFAM/RLST 147	The Life and Thought of Malcolm X	
AFAM/HIST 210	Freedom's First Generation: African American Life and Work, from the Civil War to World War II	
AFAM/SOC 409	Racial and Ethnic Inequality in America	
AFAM 431	Black Liberation and American Foreign Policy	
AFAM/HIST 465	The Post-World War II Civil Rights Movement	
CRIMJ 451	Race, Crime, and Justice	
ECON 304	Intermediate Macroeconomic Analysis	
ECON 436W		
EDTHP 447	Ethnic Minorities and Schools in the United States	
PLSC 490	Policy Making and Evaluation	
SOC 119		
3. Cultural and Gender Perspective:		
AFAM/WMNST 102	Women of the African Diaspora	

AFAM/RLST 145	African Diaspora Religions and Spiritualities
AFAM/THEA 208	Workshop: Theatre in Diverse Cultures
AFAM 410	Spirit, Space, Survival: Contemporary Black Women
AFAM/THEA 412	African American Theatre
AFAM/CAS 422	Contemporary African American Communication
COMM/WMNST 205	Gender, Diversity and the Media
COMM 411	Cultural Aspects of the Mass Media
EDTHP 447	Ethnic Minorities and Schools in the United States
ENGL 139	African American Literature
ENGL 235	From Folk Shouts and Songs to Hip Hop Poetry
ENGL/WMNST 462	Reading Black, Reading Feminist
ENGL 463	African American Autobiography
ENGL 467	African American Novel II
ENGL 469	Slavery and the Literary Imagination
MUSIC 7	Evolution of Jazz
SOC 119	

¹ A minimum of 12 credits should be AAA S courses, and at least 12 of these credits must be at the 400 level or above.

African Studies Option (33 credits)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
AAAS 400		3
AFR/HIST 191	Early African History	3
AFR/HIST 192	Modern African History	3
AFR/PLSC 454	Government and Politics of Africa	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 21 credits from one of the following two areas of concentration:		¹
1. Humanities Perspective		
AAAS 404		
AFAM 431	Black Liberation and American Foreign Policy	
AFAM/HIST 465	The Post-World War II Civil Rights Movement	
AFR 202N	Women, Gender, and Feminisms in Africa	
CMLIT 3	Introduction to African Literatures	
CMLIT 422	African Drama	
CMLIT 423	African Novel	
FR 458	African Literature of French Expression	
HIST 479	History of Imperialism and Nationalism in Africa	
SWA 1	Elementary Swahili I	
SWA 2	Elementary Swahili II	
2. Social Science Perspective		
AAAS 404		

AFAM 431	Black Liberation and American Foreign Policy
AFAM/HIST 465	The Post-World War II Civil Rights Movement
AFR 202N	Women, Gender, and Feminisms in Africa
AFR 403	South Africa Today
ECON 304	Intermediate Macroeconomic Analysis
ECON 471	Growth and Development
GEOG 444	Resource Governance in Africa
PLSC 453	Political Processes in Underdeveloped Systems
SWA 1	Elementary Swahili I
SWA 2	Elementary Swahili II

¹ A minimum of 12 credits should be AAA S courses, and at least 12 of these credits must be at the 400 level or above.

Law and Social Justice Option (33 credits)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
AFAM/HIST 210	Freedom's First Generation: African American Life and Work, from the Civil War to World War II	3
AFAM 401	Afro-American Studies Seminar	3
CRIM 100	Introduction to Criminal Justice	3
CRIM 451	Race, Crime, and Justice	3
CRIMJ/CRIM/SOC 12	Criminology	3
CRIMJ/CRIM 113	Introduction to Law	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 15 credits of the following:		15
AFAM/SOC 409	Racial and Ethnic Inequality in America	
AFAM/HIST 431	Black Liberation and American Foreign Policy	
AFAM/LER/PLSC 445Y	Politics of Affirmative Action	
AFAM 465	The Post-World War II Civil Rights Movement	
AFR 440	Globalization and Its Implications	
CRIM 430	American Correctional System	
CRIM 433	Sentencing	
CRIM 435	Policing in America	
CRIM 441	The Juvenile Justice System	
CRIM/SOC 467	Law and Society	
CRIM 490	Crime Policy	
CRIMJ/WMNST 453	Women and the Criminal Justice System	
ECON 436W		

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate

students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Contact

University Park

DEPARTMENT OF AFRICAN AMERICAN STUDIES

133 Willard Building
University Park, PA 16802
814-863-4243
jle1@psu.edu

<https://afam.la.psu.edu>

African and African American Studies, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

PROGRAM CURRENTLY ON HOLD; NOT ACCEPTING NEW STUDENTS

Begin Date of Enrollment Hold: February 17, 2012

Program Description

This interdisciplinary major is designed to give students an integrated and critical understanding of the experiences and contributions of peoples of African descent. Students are encouraged to do research and evaluate the relationship between the political, social, and economic developments in Africa and the African Diaspora. An African American Studies Option, African Studies Option, and a Law and Social Justice Option are available within the major. The methodology requirements of the proposed program would enable our students to engage in social science research. It would also prepare them better for graduate programs in the social sciences.

African American Studies Option

This emphasis provides students with the opportunity to explore the experiences of African Americans using theories and methods originating in the field along with those adopted from the various disciplines. Students are also made aware of the potential to apply this knowledge to the solution of social, political, and economic problems. The curriculum also promotes greater understanding of the relationship between African American and other ethnic groups in the shaping of American society and culture.

African Studies Option

This option provides students with the opportunity to examine the geographical, cultural, historical, political, and economic aspects of Africa.

Law and Social Justice Option

This multi-disciplinary program would provide students with the opportunity to study the politics, culture, economics, and history of African Americans in our society and link this understanding with an in depth study of criminal justice and the legal system. Issues that students will focus on will be areas such as, Are African Americans discriminated against in criminal justice decision-making? What is the historic connection between race and punishment in the US legal system? How do issues of class, race, and gender impact policy decisions about crime and punishment? What is the socioeconomic impact of high incarceration rates on the African American community? The program is designed to encourage students to think systematically about the relationship among public policy, the criminal justice system, and shifting notions of social justice that have characterized debates over the workings and goals of the prison system in American life and thought. The proposed program

would enable us to foster a cadre of students who will be particularly suited to pursue graduate work in the area.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in African and African American Studies, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	20
Requirements for the Major	64-65

4-10 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 4 credits of GQ courses; 6 credits of GS courses.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
AFAM 100N	Black Freedom Struggles	3
AFR 110		3
SOC 207	Research Methods in Sociology	3
STAT 200	Elementary Statistics	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
SOC 470	Intermediate Social Statistics	3-4
	or PLSC 309 Quantitative Political Analysis	
Requirements for the Option		
<i>Requirements for the Option: Require a grade of C or better</i>		
Select an option		48

Requirements for the Option African American Studies Option

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
AFAM 101		3
AFAM/HIST 211	Slavery and Freedom in the Black Atlantic	3
AFAM 401	Afro-American Studies Seminar	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 21 credits with at least 3 credits in AAAS courses of the following:		21
AFAM 83	First-Year Seminar in African American Studies	
AFAM/ WMNST 102	Women of the African Diaspora	
AFAM/SOC/ WMNST 103	Racism and Sexism	
AFAM/RLST 146	The Life and Thought of Martin Luther King, Jr.	
AFAM/RLST 147	The Life and Thought of Malcolm X	
AFAM/HIST 210	Freedom's First Generation: African American Life and Work, from the Civil War to World War II	
AFR 197	Special Topics	
AFR 199	Foreign Studies	
ECON 102	Introductory Microeconomic Analysis and Policy	
ECON 104	Introductory Macroeconomic Analysis and Policy	
ECON 304	Intermediate Macroeconomic Analysis	
SOC 119		
Select 18 credits at the 400-level with at least 9 credits in AAAS courses of the following:		18
AAAS 494		
AFAM/SOC 409	Racial and Ethnic Inequality in America	
AFAM 431	Black Liberation and American Foreign Policy	
AFAM/LER/ PLSC 445Y	Politics of Affirmative Action	
AFAM 465	The Post-World War II Civil Rights Movement	
AFR 440	Globalization and Its Implications	
AFR 495	Internship	
AFR 497	Special Topics	
AFR 499	Foreign Studies	
CRIMJ 451	Race, Crime, and Justice	
ECON 436W		
EDTHP 447	Ethnic Minorities and Schools in the United States	
PLSC 490	Policy Making and Evaluation	

African Studies Option

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
AAAS 400		3
AFR 191	Early African History	3
AFR 192	Modern African History	3
Additional Courses		

Additional Courses: Require a grade of C or better

Select 21 credits with at least 3 credits of AAAS courses of the following:		21
AAAS 397		
AFAM 83	First-Year Seminar in African American Studies	
AFAM 211	Slavery and Freedom in the Black Atlantic	
AFR 197	Special Topics	
AFR 199	Foreign Studies	
AFR 202N	Women, Gender, and Feminisms in Africa	
AFR 297	Special Topics	
AFR 299	Foreign Studies	
AFR 395	Internship	
AFR 399	Foreign Studies	
ECON 102	Introductory Microeconomic Analysis and Policy	
ECON 104	Introductory Macroeconomic Analysis and Policy	
ECON 304	Intermediate Macroeconomic Analysis	
SWA 1	Elementary Swahili I	
SWA 2	Elementary Swahili II	
Select 18 credits at the 400-level with at least 9 credits in AAAS courses of the following: ¹		18
AAAS 494		
AFAM 431	Black Liberation and American Foreign Policy	
AFAM/LER/ PLSC 445Y	Politics of Affirmative Action	
AFAM 465	The Post-World War II Civil Rights Movement	
AFR 403	South Africa Today	
AFR 440	Globalization and Its Implications	
AFR 443	Ethnic Conflict in Africa	
AFR 454	Government and Politics of Africa	
AFR 495	Internship	
AFR 497	Special Topics	
AFR 499	Foreign Studies	
ECON 471	Growth and Development	
GEOG 444	Resource Governance in Africa	
PLSC 453	Political Processes in Underdeveloped Systems	

¹ Only 3 credits of Internship (AFR 495) (internship) and 6 credits of Special Topics (AFR 497), Internship (AFR 495), AAAS 494, or Foreign Studies (AFR 499) in any combination may be used to satisfy this requirement.

Law and Social Justice Option

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
AFAM 210	Freedom's First Generation: African American Life and Work, from the Civil War to World War II	3
AFAM 401	Afro-American Studies Seminar	3
CRIMJ/CRIM/ SOC 12	Criminology	3
CRIMJ/CRIM 100	Introduction to Criminal Justice	3
CRIMJ/CRIM 113	Introduction to Law	3
CRIMJ/CRIM 451	Race, Crime, and Justice	3
Additional Courses		

Additional Courses: Require a grade of C or better

Select 30 credits of the following:		30
AFAM 409	Racial and Ethnic Inequality in America	
AFAM/HIST 431	Black Liberation and American Foreign Policy	
AFAM/LER/PLSC 445Y	Politics of Affirmative Action	
AFAM/HIST 465	The Post-World War II Civil Rights Movement	
AFR 440	Globalization and Its Implications	
CRIM 430	American Correctional System	
CRIM 433	Sentencing	
CRIM 435	Policing in America	
CRIM 441	The Juvenile Justice System	
CRIM/SOC 467	Law and Society	
CRIM 490	Crime Policy	
CRIMJ/WMNST 453	Women and the Criminal Justice System	
ECON 436W		

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

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University Park

Liberal Arts Academic Advising

814-865-2545

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Contact

University Park

DEPARTMENT OF AFRICAN AMERICAN STUDIES

133 Willard Building

University Park, PA 16802

814-863-4243

jle1@psu.edu

<https://afam.la.psu.edu>

African Literature, Visual Arts, and Performance, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

The purpose of this 12-credit Certificate is to provide students with an opportunity to comprehend the breadth of African literature, visual arts, and performance, and how these creative cultural practices respond to and shape political, economic, and social concerns. Through courses that introduce them to an inclusive array of African artistic and expressive practices, students will gain fluency in the cultural and creative diversity of African and Afro-diasporic peoples. Students will receive training in critical theory that prepares them to understand and interpret forms of expressive culture in African contexts and through African knowledge systems. They will learn to analyze the complex interrelations of local and global audiences, networks, and traditions in both formal artistic practice and vernacular art forms in their material, immaterial, and embodied expressions. Students may choose to focus on an area of study (e.g. performance) or to pursue an interdisciplinary selection of courses.

Learning objectives include:

- Students will be able to identify, describe, and analyze prevalent forms of African expressive culture and artistic practice and the key issues they address;
- Students will be able to think critically and discuss how local and global networks shape the production, dissemination, and reception of myriad forms of expressive cultures;
- Students will understand the ways in which African creative and artistic expression contributes to politics, social life, and knowledge production;
- Students will gain hands-on experience in field research or artistic practice through study abroad opportunities;
- Students will gain skills related to a career in the arts or in foundations, museums, educational institutions or other non-profits that support, research in, or teach cultural diversity and the arts.

Program Requirements

To earn an undergraduate certificate in African Literature, Visual Arts, and Performance, a minimum of 12 credits is required.

Code	Title	Credits
Core Courses		
Select 6 credits from the following:		6
AFR 150	Africa in Cinema	
AFR 335	African Art	
AFR 405	African Studies Methodologies	
CMLIT 3	Introduction to African Literatures	
DANCE 221	Introduction to West African Dance and Culture	
Elective Courses		
Select 6 credits from the following:		6
AFR 110N	Introduction to Contemporary Africa	
AFR 132	Afro-Hispanic Civilization	
AFR 202N	Women, Gender, and Feminisms in Africa	
AFR 297	Special Topics	
AFR 310	Language Rights, Policy, and Planning	
AFR 447	Topics in the Art of the African Diaspora	
AFR 459		
AFR 497	Special Topics	
ARTH 130	Art of Africa, Oceania, and the Americas	
ARTH 446	Topics in African Art	
CMLIT 422	African Drama	
CMLIT 423	African Novel	
DANCE 220	Mojah Fusion Dance	
DANCE 411		
FR 458	African Literature of French Expression	
WMNST 462	Reading Black, Reading Feminist	

No prerequisites required.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic->

advisers/) to see the contact information for the specific adviser(s) of this program

Contact

University Park

AFRICAN STUDIES PROGRAM
133 Willard Building
University Park, PA 16802
814-865-5406
jle1@psu.edu

<https://africanstudies.la.psu.edu>

African Studies, B.A.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The major in African studies is a multidisciplinary program designed to offer students the opportunity to develop their understanding of various aspects of the African continent, including its socioeconomic conditions and global relations. The program utilizes historical, cultural, geographical, economic, and political approaches to equip students with skills to undertake research on issues pertinent to Africa and to prepare themselves for careers in a range of professions as well for post-graduate studies.

What is African Studies?

Africa is a vast continent that is now transforming politically and economically at an unprecedented pace. Its rich history, resources and spirit of creativity makes it more than ever the continent of hope and opportunity that will see rapid development in the years to come! African Studies will help students develop their understanding of various aspects of the African continent, including topics such as Africa in World History, Africa and the Global Political Economy, Africa and International Relations, Africa and International Development, peace studies, and conflict resolution. We also have courses that emphasize the diversities of culture, race, ethnicity, and religion on the continent. The program utilizes historical, cultural, geographical, economic, and political approaches to equip students with skills to undertake research on issues pertinent to Africa and to prepare themselves for careers in a range of professions as well for post-graduate studies.

You Might Like This Program If...

- You're passionate about gaining skills to think critically, and speak and write articulately about Africa and its peoples.
- You'd like to explore the world through study-abroad opportunities to countries such as South Africa, Morocco, Ghana and Tanzania.
- You'd like to learn more from our faculty who actively teach, conduct research and publish in such topics as African history, politics, art, literature, economics, geography, linguistics, African feminism, demography and health.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and

2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in African Studies, a minimum of 123 credits is required:

Requirement	Credits
General Education	45
Electives	9-18
Bachelor of Arts Degree Requirements	24
Requirements for the Major	45

0-9 credits of the 45 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GA courses; 3 credits of GS courses; and 3 credits of GH courses.

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
AFR 105	African Biodiversity and Conservation	3
AFR 110		3
AFR 191	Early African History	3
AFR 192	Modern African History	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 15 credits of the following (100-300 level courses):		15
AFAM 100N	Black Freedom Struggles	
AFAM 211	Slavery and Freedom in the Black Atlantic	
AFAM 302	Diversity and Health	
AFR 150	Africa in Cinema	
AFR 197	Special Topics	
AFR 199	Foreign Studies	
AFR 202N	Women, Gender, and Feminisms in Africa	
AFR 294	Research Project	

AFR 297	Special Topics
AFR 299	Foreign Studies
AFR 395	Internship
AFR 399	Foreign Studies
ARTH 335	African Art
ECON 102	Introductory Microeconomic Analysis and Policy
ECON 104	Introductory Macroeconomic Analysis and Policy
Select 18 credits with at least 12 from AFR or AFR cross-listed courses of the following: 18	
AFR 403	South Africa Today
AFR 405	African Studies Methodologies
AFR/PLSC 434	War and Development in Africa
AFR/PLSC/IB 440	Globalization and Its Implications
AFR/PLSC 443	Ethnic Conflict in Africa
AFR/PLSC 454	Government and Politics of Africa
AFR/PLSC 459	
AFR 464	Extractive Industries in Africa
AFR 494	Research Project
AFR 495	Internship
AFR 496	Independent Studies
AFR 497	Special Topics
AFR 499	Foreign Studies
GEOG 436	Ecology, Economy, and Society
GEOG 444	Resource Governance in Africa
GEOG/LER 475	
PLSC 481	Global Political Economy

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this

category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- Students will be able to critically reflect on and think about historical and contemporary materials and events throughout the African diaspora.
- Students will be able to identify and synthesize national and global influences on people of African descent.
- Students will be able to be sensitive to and appreciate the perspectives, cultures, institutions, and intellectual agency of people of African descent.
- Students will be able to articulate clear and compelling perspectives using strong research, critical thinking, analytical skills, academic writing, and public speaking.
- Students will develop an intersectional analytical framework, understanding the connectedness between race, gender, class, sexuality, ability, nationality, and age.
- Students will engage with campus, local, national, and global events in ways that encourages service and promotes their ability to be scholar-activists.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

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University Park

Liberal Arts Academic Advising

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://>

bulletins.psu.edu/undergraduate/archive/) to view the appropriate Undergraduate Bulletin edition.

African Studies, B.A. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, ESL 15, ENGL 137H, or CAS 137H [‡]	3 CAS 100, ENGL 138T, or CAS 138T [‡]	3
AFR 110*	3 AFR 105*	3
First Year Seminar	3 General Education Quantification Course [‡]	3
World Language Level 1	4 General Education Course	3
General Education Course	3 World Language Level 2	4
	16	16

Second Year

Fall	Credits Spring	Credits
AFR 191 or HIST 191*	3 General Education Quantification Course [‡]	3
World Language Level 3	4 Major Course from Additional Course List*	3
Major Course from Additional Course List*	3 AFR 192 or HIST 192*	3
Elective	3 BA Knowledge Domain Course	3
Elective	3 Elective	3
	16	15

Third Year

Fall	Credits Spring	Credits
Major Course from Additional Course List*	3 Major Course from Additional Course List*	3
General Education Course	3 Major Course from Additional Course List*	3
General Education Course	3 BA Knowledge Domain Course	3
General Education Course	3 ENGL 202A, 202B, 202C, or 202D [‡]	3
Major Course from Additional Course List*	3 General Education Course	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
Major Course from Additional Course List*	3 Major Course from Additional Course List AFR 4XX*	3
Major Course from Additional Course List AFR 4XX*	3 Major Course from Additional Course List AFR 4XX*	3

BA Knowledge Domain Course	3 General Education Health and Wellness (GHW)	1.5
General Education Course	3 General Education Course	3
AFR 4XX	3 Elective	3
General Education Health and Wellness (GHW)	1.5	
	16.5	13.5

Total Credits 123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Advising Note:

All incoming freshmen must take a First-Year Seminar (FYS) during Fall or Spring of their first year. Academic advisers can provide a list of FYS being offered and help the student enroll. Most FYS in the College of the Liberal Arts are worth 3 cr. and count as a General Humanities (GH) or General Social Sciences (GS) course. For this reason, the FYS is not listed separately on this eight-semester plan; most students will be able to fulfill the FYS requirement while also fulfilling a GH or GS requirement.

Career Paths

Students with Liberal Arts degrees and minors in African Studies have found careers in a wide array of fields. These include US government, international business firms, international think tanks, and other governmental and non-governmental organizations that operate in a wide array of activities in Africa including primary and secondary education, the arts, religion, drought mitigation, wildlife management, and community development. Some students continue on to Graduate School, so our program also aims to help train graduate students, who will have a comparative advantage for African Studies-related employment in academia, bilateral and multilateral agencies.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://africanstudies.la.psu.edu/graduate/>)

Professional Resources

- African Studies Association (ASA) (<https://africanstudies.org>)
- Association for the Study of the Worldwide African Diaspora (ASWAD) (<https://www.aswadiaspora.org>)
- National Model African Union (<https://modelafricanunion.org>)

Contact

University Park

AFRICAN STUDIES PROGRAM
133 Willard Building
University Park, PA 16802
814-865-5406
jle1@psu.edu

<https://africanstudies.la.psu.edu>

African Studies, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The minor in African Studies is designed for students interested in exploring the political, historical, socioeconomic, and cultural aspects of Africa. The minor provides students with the opportunity to examine both the totality of Africa and/or specific geographical and cultural regions from several disciplinary perspectives.

What is African Studies?

Africa is a vast continent that is now transforming politically and economically at an unprecedented pace. Its rich history, resources and spirit of creativity makes it more than ever the continent of hope and opportunity that will see rapid development in the years to come! African Studies will help students develop their understanding of various aspects of the African continent, including topics such as Africa in World History, Africa and the Global Political Economy, Africa and International Relations, Africa and International Development, peace studies, and conflict resolution. We also have courses that emphasize the diversities of culture, race, ethnicity, and religion on the continent. The program utilizes historical, cultural, geographical, economic, and political approaches to equip students with skills to undertake research on issues

pertinent to Africa and to prepare themselves for careers in a range of professions as well for post-graduate studies.

You Might Like This Program If...

- You're passionate about gaining skills to think critically, and speak and write articulately about Africa and its peoples.
- You'd like to explore the world through study-abroad opportunities to countries such as South Africa, Morocco, Ghana and Tanzania.
- You'd like to learn more from our faculty who actively teach, conduct research and publish in such topics as African history, politics, art, literature, economics, geography, linguistics, African feminism, demography and health.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
AFR 110		3
AFR 191	Early African History	3
AFR 192	Modern African History	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 9 credits (including 6 credits of AFR courses at the 400 level) of the following:		9
AFR 105	African Biodiversity and Conservation	
AFR/WMNST 202N	Women, Gender, and Feminisms in Africa	
AFR 209	Poverty in Africa	
AFR 403	South Africa Today	
AFR 405	African Studies Methodologies	
AFR/PLSC 434	War and Development in Africa	
AFR 440	Globalization and Its Implications	
AFR 443	Ethnic Conflict in Africa	
AFR/PLSC 454	Government and Politics of Africa	
AFR/PLSC 459		
AFR/PLSC 464	Extractive Industries in Africa	
AFR 495	Internship	
AFR 496	Independent Studies	
AFR 499	Foreign Studies	
CMLIT 3	Introduction to African Literatures	
CMLIT 422	African Drama	
CMLIT 423	African Novel	
ECON 413W		
ECON 475W		
FR 458	African Literature of French Expression	

GEOG 429	Geographic Perspectives on Global Urbanization
GEOG 444	Resource Governance in Africa
PLSC 481	Global Political Economy

Academic Advising

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Career Paths

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Contact

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AFRICAN STUDIES PROGRAM

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University Park, PA 16802

814-865-5406

jle1@psu.edu

<https://africanstudies.la.psu.edu>

Anthropological Science, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The Bachelor of Science degree in Anthropological Science provides the opportunity to develop a strong foundation in anthropological theory, research methods, quantification, and laboratory science. It prepares students with the skills and competencies needed to pursue graduate study or careers in professions associated with archaeology, biological anthropology, cultural anthropology, ecological anthropology and related fields. Students contemplating futures in anthropological research, biomedical, forensic, or archaeological sciences should consider this degree.

Archaeological Science Option

The Archaeological Science option provides the opportunity to develop a strong foundation in the theory, methods and application of archaeological science. The focus is on advanced research methods, quantification, field methods, and laboratory science. It prepares students with the skills and competencies needed to pursue graduate study in archaeology as well as careers in cultural resource management. Supporting coursework in related disciplines is intended to provide depth and breadth of knowledge from the perspective of related fields.

Biological Anthropology Option

The Biological Anthropology option provides the opportunity to develop a strong foundation in the theory and methods of biological anthropology. The focus is on the theoretical underpinnings of biological anthropology together with advanced research methods, quantification, and laboratory methods current within the field. This option prepares students with the skills and competencies needed to pursue graduate study, training in the medical professions, as well as careers in professions associated with biological anthropology and related fields. Supporting coursework in related disciplines is intended to provide broader understanding of biological, ecological, and evolutionary theory.

Human Ecology Option

The Human Ecology option focuses on the theory and methods of human behavioral ecology and cultural anthropology. Students are introduced to the theories and methods current in the field of human ecology, focusing on understanding the human condition from a variety of theoretical and methodological perspectives. Students will gain competency in human cultural and behavioral variation. This option prepares students for graduate study or a diversity of careers in fields related to anthropology. Supporting coursework in related disciplines is intended to supplement and broaden perspectives on the study of the human condition.

Integrated Anthropological Science Option

The Integrated Anthropological Science option provides students with an opportunity to bridge the three main subdisciplinary areas within Anthropology. This option allows students to focus on the ways in which an integrated theoretical and methodological approach to anthropology can provide powerful insights into the human condition. Coursework cuts across all three areas and allows students to make links between the subdisciplines. This option prepares students for graduate study or careers in any field related to Anthropology.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and

2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science in Anthropological Science, a minimum of 120 credits are required:

Requirement	Credits
General Education	45
Electives	18
Requirements for the Major	61

4 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 4 credits of GQ courses.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ANTH 2N	World Archaeology	3
ANTH 21	Introductory Biological Anthropology	3
ANTH 45N	Cultural Diversity: A Global Perspective	3
STAT 200	Elementary Statistics	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Area/Survey courses:		
Select 6 credits of ANTH courses at the 200 level or below (excluding ANTH 1, ANTH 83S, and courses in the following ranges: 190-199, 290-299, other than 297)		6
Methods courses:		
Select 9 credits from the following:		9
ANTH 321W	Intellectual Background of Archaeology	
ANTH 380	Anthropology Museum Studies	
ANTH 410	Osteology	
ANTH 411	Skeletal Forensic Anthropology	
ANTH 421		
ANTH 425	Zooarchaeology	
ANTH 426W	Archaeological Laboratory Analysis	
ANTH 427		
ANTH 428	Archaeological Methods and Theory	
ANTH 429		
ANTH 431		
ANTH 432	Environmental Archaeology	
ANTH 458	Ethnographic Field Methods	
ANTH 492	Intermediate Field Methods	

ANTH 493 Field Techniques

Requirements for the Option

Requirements for the Option: Require a C or better

Select an Option 33

Requirements for the Option

Archaeological Science Option (33 credits)

Code	Title	Credits
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Additional Courses

Additional Courses: Require a grade of C or better

Select 12 archaeology credits from the range ANTH 420-439	12
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Select 3 biological anthropology credits from ANTH 400-419, ANTH 460-473	3
--	---

Select 3 human ecology/cultural anthropology credits from ANTH 440-459, ANTH 474-479	3
--	---

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 15 credits of supporting courses from the list of approved courses in consultation with an adviser. See department for current list for the Archaeological Science Option.	15
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¹ See the suggested academic plan (p. 1163) for the department list.

Biological Anthropology Option (33 credits)

Code	Title	Credits
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Additional Courses

Additional Courses: Require a grade of C or better

Select 12 biological anthropology credits from ANTH 400-419, ANTH 460-473	12
---	----

Select 3 archaeology credits from the range ANTH 420-439	3
--	---

Select 3 human ecology/cultural anthropology credits from ANTH 440-459, ANTH 474-479	3
--	---

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 15 credits of supporting courses from the list of approved courses in consultation with an adviser. See department for current list for the Biological Anthropology Option.	15
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¹ See the suggested academic plan (p. 1163) for the department list.

Human Ecology Option (33 credits)

Code	Title	Credits
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Additional Courses

Additional Courses: Require a grade of C or better

Select 12 human ecology/cultural anthropology credits from ANTH 440-459, ANTH 474-479	12
---	----

Select 3 archaeology credits from the range ANTH 420-439	3
--	---

Select 3 biological anthropology credits from ANTH 400-419, ANTH 460-473	3
--	---

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 15 credits of supporting courses from the list of approved courses in consultation with an adviser. See department for current list for the Human Ecology Option.	15
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¹

¹ See the suggested academic plan (p. 1163) for the department list.

Integrated Anthropological Science Option (33 credits)

Code	Title	Credits
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Additional Courses

Additional Courses: Require a grade of C or better

Select 6 archaeology credits from the range ANTH 420-439	6
--	---

Select 6 biological anthropology credits from ANTH 400-419, ANTH 460-473	6
--	---

Select 6 human ecology/cultural anthropology credits from ANTH 440-459, ANTH 474-479	6
--	---

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 15 credits of supporting courses from the list of approved courses in consultation with an adviser. See department for current list of courses. Students in the Integrated Anthropological Science option must take at least 3 unique credits from each of the three subject area lists (Archaeological Science, Biological Anthropology, Human Ecology).	15
--	----

¹ See the suggested academic plan (p. 1163) for the department list.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- Quantification (GQ): 6 credits
- Writing and Speaking (GWS): 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- Arts (GA): 3 credits
- Health and Wellness (GHW): 3 credits
- Humanities (GH): 3 credits
- Social and Behavioral Sciences (GS): 3 credits
- Natural Sciences (GN): 3 credits

Integrative Studies

- Inter-Domain Courses (Inter-Domain): 6 credits

Exploration

- GN, may be completed with Inter-Domain courses: 3 credits
- GA, GH, GN, GS, Inter-Domain courses. This may include 3 credits of World Language course work beyond the 12th credit level or the

requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.A. degree in Anthropology or B.S. degree in Anthropological Science, B.A. degree in Classics and Ancient Mediterranean Studies (CAMS), and M.A. degree in Anthropology

Requirements for the Integrated B.A. degree in Anthropology or B.S. degree in Anthropological Science, B.A. degree in Classics and Ancient Mediterranean Studies (CAMS), and M.A. degree in Anthropology can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/anthropology/#integratedundergradprogramtext>).

Program Learning Objectives

- Communication:
 - Demonstrate an ability to communicate core concepts of anthropological science effectively in both written and oral formats
- Content:
 - Demonstrate knowledge of the major concepts and theories of anthropology (archaeological, biological, cultural)
 - Demonstrate an understanding of human diversity, variation, and adaptation from cultural, biological, and historical perspectives
 - Demonstrate informed knowledge of other cultures and diverse ways of life, both past and present, and an understanding of how diverse lines of anthropological inquiry can be integrated to understand the human condition
- Critical Thinking:
 - Demonstrate the ability to use critical thinking and the scientific approach to solve problems related to biological and cultural variation
 - Demonstrate critical thinking in the analysis, evaluation, and interpretation of information from the scientific literature
 - Demonstrate the ability to synthesize and integrate information and findings from diverse sources
- Research:
 - Demonstrate an understanding of current anthropological field and laboratory research methods and how these methods can be used to test hypotheses related to past and present human variation and adaptation in both cultural and biological contexts
 - Demonstrate an ability to analyze and interpret quantitative anthropological data based on statistics, graphs, and data tables

Academic Advising

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years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Archaeological Science Option: Anthropological Science, B.S. at University Park Campus

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First Year

Fall	Credits	Spring	Credits
ANTH 2N, 45N, or 21*	3	ANTH 2N, 45N, or 21*	3
General Education Course (GWS) [‡]	3	General Education Course (GWS) [‡]	3
General Education Course or First-Year Seminar	3	General Education Course (GQ) [‡]	3
General Education Course	3	General Education Course	3
General Education Course	3	Elective	3
	15		15

Second Year

Fall	Credits	Spring	Credits
ANTH 2N, 45N, or 21*	3	ANTH Survey Course (200-Level and Below)*	3
ANTH Survey Course (200-Level and Below)*	3	Supporting Course (Archaeological) ^{*1}	3
Supporting Course (Archaeological) ^{*1}	3	General Education Course (GWS) [‡]	3
STAT 200 (GQ) ^{*††}	4	General Education Course	3
General Education Course	3	Elective	3
	16		15

Third Year

Fall	Credits	Spring	Credits
ANTH Methods Course (ANTH 426W or ANTH 427W) ^{*2}	3	ANTH Methods Course ^{*2}	3
Supporting Course (Archaeological) ^{*1}	3	ANTH (400-Level Archaeological Science Course)*	3
ANTH (400-Level Archaeological Science Course)*	3	ANTH (400-Level Biological Anthropology or Human Ecology Course)*	3
General Education Course	3	General Education Course	3
Elective	3	Elective	3
	15		15

Fourth Year

Fall	Credits	Spring	Credits
ANTH Methods Course ^{*2}	3	ANTH (400-Level Archaeological Science Course)*	3

ANTH (400-Level Archaeological Science Course)*	3	ANTH (400-Level Biological Anthropology or Human Ecology Course)*	3
Supporting Course (Archaeological) ^{*1}	3	Supporting Course (Archaeological) ^{*1}	3
General Education Course	3	General Education Course (GHW)	1.5
General Education Course (GHW)	1.5	Elective	3
Elective	3		
	16.5		13.5

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Choose from approved list of supporting Archaeological courses: ARTH 111, ARTH 120, ARTH 130, ARTH 140, ARTH 301, ARTH 311, ARTH 460, CAMS 5, CAMS 10, CAMS 15, CAMS 20, CAMS 109Y, CAMS 140, CAMS 150, CAMS 210, CAMS 400W, CAMS 405, CAMS 440W, GEOG 20, GEOSC 1, GEOSC 320, GEOSC 303, HIST 110, HIST 122, HIST 123, HIST 188, HIST 191, HIST 471Y, HIST 490, LARCH 65, LARCH 450, SOILS 101, SOILS 416

² Methods Courses: ANTH 321W, ANTH 380, ANTH 410, ANTH 411, ANTH 421, ANTH 425, ANTH 426W, ANTH 427W, ANTH 428, ANTH 429, ANTH 431, ANTH 432, ANTH 458, ANTH 492, ANTH 493

**Please note: to fulfill the Writing Across the Curriculum requirement, choose one of the listed W courses.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Note:

All students must take an LA First Year Seminar that will also count as General Education.

Biological Anthropology Option: Anthropological Science, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
ANTH 2N, 45N, or 21 [*]	3	ANTH 2N, 45N, or 21 [*]	3
General Education Course (GWS) [‡]	3	General Education Course (GWS) [‡]	3
General Education Course or First-Year Seminar	3	General Education Course (GQ) [‡]	3
General Education Course	3	General Education Course	3
General Education Course	3	Elective	3
15		15	

Second Year

Fall	Credits	Spring	Credits
ANTH 2N, 45N, or 21 [*]	3	ANTH Survey Course (200-Level and Below) [*]	3
ANTH Survey Course (200-Level and Below) [*]	3	Supporting Course (Biological) ^{*1}	3
Supporting Course (Biological) ^{*1}	3	General Education Course (GWS) [‡]	3
STAT 200 (GQ) ^{*††}	4	General Education Course	3
General Education Course	3	Elective	3
16		15	

Third Year

Fall	Credits	Spring	Credits
ANTH Methods Course (ANTH 426W or ANTH 427W) ^{*2}	3	ANTH Methods Course ^{*2}	3
Supporting Course (Biological) ^{*1}	3	ANTH (400-Level Biological Anthropology Course) [*]	3
ANTH (400-Level Biological Anthropology Course) [*]	3	ANTH (400-Level Archaeological Science or Human Ecology Course) [*]	3
General Education Course	3	General Education Course	3
Elective	3	Elective	3
15		15	

Fourth Year

Fall	Credits	Spring	Credits
ANTH Methods Course ^{*2}	3	ANTH (400-Level Biological Anthropology Course) [*]	3
ANTH (400-Level Biological Anthropology Course) [*]	3	ANTH (400-Level Archaeological Science or Human Ecology Course) [*]	3
Supporting Course (Biological) ^{*1}	3	Supporting Course (Biological) ^{*1}	3
General Education Course	3	General Education Course (GHW)	1.5

General Education Course (GHW)	1.5	Elective	3
16.5		13.5	

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Choose from approved list of supporting Biological courses: BIOL 110, BIOL 129, BIOL 141, BIOL 177, BIOL 230W, BIOL 240W, BIOL 411, BIOL 421, BIOL 433, BIOL 472, BMB 251, BMB 401, BMB 484, BMB 485, GEOSC 402Y, GEOSC 422, GEOSC 424, PSYCH 268, PSYCH 269, PSYCH 422

² Methods Courses: ANTH 321W, ANTH 380, ANTH 410, ANTH 411, ANTH 421, ANTH 425, ANTH 426W, ANTH 427W, ANTH 428, ANTH 429, ANTH 431, ANTH 432, ANTH 458, ANTH 492, ANTH 493

**Please note: to fulfill the Writing Across the Curriculum requirement, choose one of the listed W courses.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Note:

All students must take an LA First Year Seminar that will also count as General Education.

Human Ecology/Cultural Anthropology Option: Anthropological Science, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ANTH 2N, 45N, or 21 [*]	3 ANTH 2N, 45N, or 21 [*]	3
General Education Course (GWS) [‡]	3 General Education Course (GWS) [‡]	3
General Education Course or First-Year Seminar	3 General Education Course (GQ) [‡]	3
General Education Course	3 General Education Course	3
General Education Course	3 Elective	3
	15	15

Second Year

Fall	Credits Spring	Credits
ANTH 2N, 45N, or 21 [*]	3 ANTH Survey Course (200-Level and Below) [*]	3
ANTH Survey Course (200-Level and Below) [*]	3 Supporting Course (Human Ecology) ^{*1}	3
Supporting Course (Human Ecology) ^{*1}	3 General Education Course (GWS) [‡]	3
STAT 200 (GQ) ^{*††}	4 General Education Course	3
General Education Course	3 Elective	3
	16	15

Third Year

Fall	Credits Spring	Credits
ANTH Methods Course (ANTH 426W or ANTH 427W) ^{*2}	3 ANTH Methods Course ^{*2}	3
Supporting Course (Human Ecology) ^{*1}	3 ANTH (400-Level Human Ecology Course) [*]	3
ANTH (400-Level Human Ecology Course) [*]	3 ANTH (400-Level Archaeological Science or Biological Anthropology Course) [*]	3
General Education Course	3 General Education Course	3
Elective	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
ANTH Methods Course ^{*2}	3 ANTH (400-Level Human Ecology Course) [*]	3
ANTH (400-Level Human Ecology Course) [*]	3 ANTH (400-Level Archaeological Science or Biological Anthropology Course) [*]	3
Supporting Course (Human Ecology) ^{*1}	3 Supporting Course (Human Ecology) ^{*1}	3

General Education Course	3 General Education Course (GHW)	1.5
General Education Course (GHW)	1.5 Elective	3
Elective	3	
	16.5	13.5

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Choose from approved list of supporting HE-Cultural courses: AGECO 134, BIOL 120, BIOL 220W, BIOL 419, CED 200, CED 209, ENVSC 494, ERM 210, GEOG 1, GEOG 6, GEOG 30, GEOG 220, GEOG 230, GEOG 260, GEOG 314, GEOG 330, GEOG 414, GEOG 421, GEOG 426, GEOG 430, GEOG 439, HIST 110, LARCH 65, LARCH 145, LARCH 450, RPTM 220, SOC 1, SOC 23, SOC 30, SOC 110, SOC 119, SOC 408, SOC 422, SOC 423, SUST 200, SOILS 422

² Methods Courses: ANTH 321W, ANTH 380, ANTH 410, ANTH 411, ANTH 421, ANTH 425, ANTH 426W, ANTH 427W, ANTH 428, ANTH 429, ANTH 431, ANTH 432, ANTH 458, ANTH 492, ANTH 493

**Please note: to fulfill the Writing Across the Curriculum requirement, choose one of the listed W courses.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Note:

All students must take an LA First Year Seminar that will also count as General Education.

Integrated Option: Anthropological Science, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
ANTH 2N, 45N, or 21 [*]	3	ANTH 2N, 45N, or 21 [*]	3
General Education Course (GWS) [‡]	3	General Education Course (GWS) [‡]	3
General Education Course or First-Year Seminar	3	General Education Course (GQ) [‡]	3
General Education Course	3	General Education Course	3
General Education Course	3	Elective	3
	15		15

Second Year

Fall	Credits	Spring	Credits
ANTH 2N, 45N, or 21 [*]	3	ANTH Survey Course (200-Level and Below) [*]	3
ANTH Survey Course (200-Level and Below) [*]	3	Supporting Course ^{* 1, 2, or 3}	3
Supporting Course ^{* 1, 2, or 3}	3	General Education Course (GWS) [‡]	3
STAT 200 (GQ) ^{*††}	4	General Education Course	3
General Education Course	3	Elective	3
	16		15

Third Year

Fall	Credits	Spring	Credits
ANTH Methods Course (ANTH 426W or ANTH 427W) ^{*4}	3	ANTH Methods Course ^{*4}	3
Supporting Course ^{* 1, 2, or 3}	3	ANTH (400-Level Biological Anthropology Course) [*]	3
ANTH (400-Level Archaeological Science Course) [*]	3	ANTH (400-Level Human Ecology Course) [*]	3
General Education Course	3	General Education Course	3
Elective	3	Elective	3
	15		15

Fourth Year

Fall	Credits	Spring	Credits
ANTH Methods Course ^{*4}	3	ANTH (400-Level Biological Anthropology Course) [‡]	3
ANTH (400-Level Archaeological Science Course) [*]	3	ANTH (400-Level Human Ecology Course) [*]	3
Supporting Course ^{* 1, 2, or 3}	3	Supporting Course ^{* 1, 2, or 3}	3
General Education Course	3	General Education Course (GHW)	1.5
General Education Course (GHW)	1.5	Elective	3

Elective	3
	16.5
	13.5

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Choose from approved list of supporting Archaeological courses: ARTH 111, ARTH 120, ARTH 130, ARTH 140, ARTH 301, ARTH 311, ARTH 460, CAMS 5, CAMS 10, CAMS 15, CAMS 20, CAMS 109Y, CAMS 140, CAMS 150, CAMS 210, CAMS 400W, CAMS 405, CAMS 440W, GEOG 20, GEOSC 1, GEOSC 320, GEOSC 303, HIST 110, HIST 122, HIST 123, HIST 188, HIST 191, HIST 471Y, HIST 490, LARCH 65, LARCH 450, SOILS 101, SOILS 416

² Choose from approved list of supporting Biological courses: BIOL 110, BIOL 129, BIOL 141, BIOL 177, BIOL 230W, BIOL 240W, BIOL 411, BIOL 421, BIOL 433, BIOL 472, BMB 251, BMB 401, BMB 484, BMB 485, GEOSC 402Y, GEOSC 422, GEOSC 424, PSYCH 268, PSYCH 269, PSYCH 422

³ Choose from approved list of supporting HE-Cultural courses: AGECO 134, BIOL 120, BIOL 220W, BIOL 419, CED 200, CED 209, ENVSC 494, ERM 210, GEOG 1, GEOG 6, GEOG 30, GEOG 220, GEOG 230, GEOG 260, GEOG 314, GEOG 330, GEOG 414, GEOG 421, GEOG 426, GEOG 430, GEOG 439, HIST 110, LARCH 65, LARCH 145, LARCH 450, RPTM 220, SOC 1, SOC 23, SOC 30, SOC 110, SOC 119, SOC 408, SOC 422, SOC 423, SUST 200, SOILS 422

⁴ Methods Courses: ANTH 321W, ANTH 380, ANTH 410, ANTH 411, ANTH 421, ANTH 425, ANTH 426W, ANTH 427W, ANTH 428, ANTH 429, ANTH 431, ANTH 432, ANTH 458, ANTH 492, ANTH 493

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Archaeological Science Option: Anthropological Science, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
ANTH 2N, 45N, or 21 [*]	3	ANTH 2N, 45N, or 21 [*]	3
General Education Course (GWS) [‡]	3	General Education Course (GWS) [‡]	3
General Education Course or First-Year Seminar	3	General Education Course (GQ) [‡]	3
General Education Course	3	General Education Course	3
General Education Course	3	Elective	3
	15		15

Second Year

Fall	Credits	Spring	Credits
ANTH 2N, 45N, or 21 [*]	3	ANTH Survey Course (200-Level and Below) [*]	3
ANTH Survey Course (200-Level and Below) [*]	3	Supporting Course (Archaeological) ^{*1}	3
Supporting Course (Archaeological) ^{*1}	3	General Education Course (GWS) [‡]	3
STAT 200 (GQ) ^{*††}	4	General Education Course	3
General Education Course	3	Elective	3
	16		15

Third Year

Fall	Credits	Spring	Credits
ANTH Methods Course (ANTH 426W or ANTH 427W) ^{*2}	3	ANTH Methods Course ^{*2}	3
Supporting Course (Archaeological) ^{*1}	3	ANTH (400-Level Archaeological Science Course) [*]	3
ANTH (400-Level Archaeological Science Course) [*]	3	ANTH (400-Level Biological Anthropology or Human Ecology Course) [*]	3
General Education Course	3	General Education Course	3
Elective	3	Elective	3
	15		15

Fourth Year

Fall	Credits	Spring	Credits
ANTH Methods Course ^{*2}	3	ANTH (400-Level Archaeological Science Course) [*]	3
ANTH (400-Level Archaeological Science Course) [*]	3	ANTH (400-Level Biological Anthropology or Human Ecology Course) [*]	3
Supporting Course (Archaeological) ^{*1}	3	Supporting Course (Archaeological) ^{*1}	3

General Education Course	3 General Education Course (GHW)	1.5
General Education Course (GHW)	1.5 Elective	3
Elective	3	
	16.5	13.5

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Choose from approved list of supporting Archaeological courses: ARTH 111, ARTH 120, ARTH 130, ARTH 140, ARTH 301, ARTH 311, ARTH 460, CAMS 5, CAMS 10, CAMS 15, CAMS 20, CAMS 109Y, CAMS 140, CAMS 150, CAMS 210, CAMS 400W, CAMS 405, CAMS 440W, GEOG 20, GEOSC 1, GEOSC 320, GEOSC 303, HIST 110, HIST 122, HIST 123, HIST 188, HIST 191, HIST 471Y, HIST 490, LARCH 65, LARCH 450, SOILS 101, SOILS 416

² Methods Courses: ANTH 321W, ANTH 380, ANTH 410, ANTH 411, ANTH 421, ANTH 425, ANTH 426W, ANTH 427W, ANTH 428, ANTH 429, ANTH 431, ANTH 432, ANTH 458, ANTH 492, ANTH 493

**Please note: to fulfill the Writing Across the Curriculum requirement, choose one of the listed W courses.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Biological Anthropology Option: Anthropological Science, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
ANTH 2N, 45N, or 21 [*]	3	ANTH 2N, 45N, or 21 [*]	3
General Education Course (GWS) [‡]	3	General Education Course (GWS) [‡]	3
General Education Course or First-Year Seminar	3	General Education Course (GQ) [‡]	3
General Education Course	3	General Education Course	3
General Education Course	3	Elective	3
	15		15

Second Year

Fall	Credits	Spring	Credits
ANTH 2N, 45N, or 21 [*]	3	ANTH Survey Course (200-Level and Below) [*]	3
ANTH Survey Course (200-Level and Below) [*]	3	Supporting Course (Biological) ^{*1}	3
Supporting Course (Biological) ^{*1}	3	General Education Course (GWS) [‡]	3
STAT 200 (GQ) ^{*††}	4	General Education Course	3
General Education Course	3	Elective	3
	16		15

Third Year

Fall	Credits	Spring	Credits
ANTH Methods Course (ANTH 426W or ANTH 427W) ^{*2}	3	ANTH Methods Course ^{*2}	3
Supporting Course (Biological) ^{*1}	3	ANTH (400-Level Biological Anthropology Course) [*]	3
ANTH (400-Level Biological Anthropology Course) [*]	3	ANTH (400-Level Archaeological Science or Human Ecology Course) [*]	3
General Education Course	3	General Education Course	3
Elective	3	Elective	3
	15		15

Fourth Year

Fall	Credits	Spring	Credits
ANTH Methods Course ^{*2}	3	ANTH (400-Level Biological Anthropology Course) [*]	3
ANTH (400-Level Biological Anthropology Course) [*]	3	ANTH (400-Level Archaeological Science or Human Ecology Course) [*]	3
Supporting Course (Biological) ^{*1}	3	Supporting Course (Biological) ^{*1}	3
General Education Course	3	General Education Course (GHW)	1.5

General Education Course (GHW)	1.5	Elective	3
	16.5		13.5

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Choose from approved list of supporting Biological courses: BIOL 110, BIOL 129, BIOL 141, BIOL 177, BIOL 230W, BIOL 240W, BIOL 411, BIOL 421, BIOL 433, BIOL 472, BMB 251, BMB 401, BMB 484, BMB 485, GEOSC 402Y, GEOSC 422, GEOSC 424, PSYCH 268, PSYCH 269, PSYCH 422

² Methods Courses: ANTH 321W, ANTH 380, ANTH 410, ANTH 411, ANTH 421, ANTH 425, ANTH 426W, ANTH 427W, ANTH 428, ANTH 429, ANTH 431, ANTH 432, ANTH 458, ANTH 492, ANTH 493

**Please note: to fulfill the Writing Across the Curriculum requirement, choose one of the listed W courses.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Human Ecology/Cultural Anthropology Option: Anthropological Science, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ANTH 2N, 45N, or 21 [*]	3 ANTH 2N, 45N, or 21 [*]	3
General Education Course (GWS) [‡]	3 General Education Course (GWS) [‡]	3
General Education Course or First-Year Seminar	3 General Education Course (GQ) [‡]	3
General Education Course	3 General Education Course	3
General Education Course	3 Elective	3
	15	15

Second Year

Fall	Credits Spring	Credits
ANTH 2N, 45N, or 21 [*]	3 ANTH Survey Course (200-Level and Below) [*]	3
ANTH Survey Course (200-Level and Below) [*]	3 Supporting Course (Human Ecology) ^{*1}	3
Supporting Course (Human Ecology) ^{*1}	3 General Education Course (GWS) [‡]	3
STAT 200 (GQ) ^{*††}	4 General Education Course	3
General Education Course	3 Elective	3
	16	15

Third Year

Fall	Credits Spring	Credits
ANTH Methods Course (ANTH 426W or ANTH 427W) ^{*2}	3 ANTH Methods Course ^{*2}	3
Supporting Course (Human Ecology) ^{*1}	3 ANTH (400-Level Human Ecology Course) [*]	3
ANTH (400-Level Human Ecology Course) [*]	3 ANTH (400-Level Archaeological Science or Biological Anthropology Course) [*]	3
General Education Course	3 General Education Course	3
Elective	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
ANTH Methods Course ^{*2}	3 ANTH (400-Level Human Ecology Course) [*]	3
ANTH (400-Level Human Ecology Course) [*]	3 ANTH (400-Level Archaeological Science or Biological Anthropology Course) [*]	3
Supporting Course (Human Ecology) ^{*1}	3 Supporting Course (Human Ecology) ^{*1}	3

General Education Course	3 General Education Course (GHW)	1.5
General Education Course (GHW)	1.5 Elective	3
Elective	3	
	16.5	13.5

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Choose from approved list of supporting HE-Cultural courses: AGECO 134, BIOL 120, BIOL 220W, BIOL 419, CED 200, CED 209, ENVSC 494, ERM 210, GEOG 1, GEOG 6, GEOG 30, GEOG 220, GEOG 230, GEOG 260, GEOG 314, GEOG 330, GEOG 414, GEOG 421, GEOG 426, GEOG 430, GEOG 439, HIST 110, LARCH 65, LARCH 145, LARCH 450, RPTM 220, SOC 1, SOC 23, SOC 30, SOC 110, SOC 119, SOC 408, SOC 422, SOC 423, SUST 200, SOILS 422

² Methods Courses: ANTH 321W, ANTH 380, ANTH 410, ANTH 411, ANTH 421, ANTH 425, ANTH 426W, ANTH 427W, ANTH 428, ANTH 429, ANTH 431, ANTH 432, ANTH 458, ANTH 492, ANTH 493

**Please note: to fulfill the Writing Across the Curriculum requirement, choose one of the listed W courses.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Integrated Option: Anthropological Science, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ANTH 2N, 45N, or 21 [*]	3 ANTH 2N, 45N, or 21 [*]	3
General Education Course (GWS) [‡]	3 General Education Course (GWS) [‡]	3
General Education Course or First-Year Seminar	3 General Education Course (GQ) [‡]	3
General Education Course	3 General Education Course	3
General Education Course	3 Elective	3
	15	15

Second Year

Fall	Credits Spring	Credits
ANTH 2N, 45N, or 21 [*]	3 ANTH Survey Course (200-Level and Below) [*]	3
ANTH Survey Course (200-Level and Below) [*]	3 Supporting Course ^{* 1, 2, or 3}	3
Supporting Course ^{* 1, 2, or 3}	3 General Education Course (GWS) [‡]	3
STAT 200 (GQ) ^{*††}	4 General Education Course	3
General Education Course	3 Elective	3
	16	15

Third Year

Fall	Credits Spring	Credits
ANTH Methods Course (ANTH 426W or ANTH 427W) ^{*4}	3 ANTH Methods Course ^{*4}	3
Supporting Course ^{* 1, 2, or 3}	3 ANTH (400-Level Biological Anthropology Course) [*]	3
ANTH (400-Level Archaeological Science Course) [*]	3 ANTH (400-Level Human Ecology Course) [*]	3
General Education Course	3 General Education Course	3
Elective	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
ANTH Methods Course ^{*4}	3 ANTH (400-Level Biological Anthropology Course) [‡]	3
ANTH (400-Level Archaeological Science Course) [*]	3 ANTH (400-Level Human Ecology Course) [*]	3
Supporting Course ^{* 1, 2, or 3}	3 Supporting Course ^{* 1, 2, or 3}	3
General Education Course	3 General Education Course (GHW)	1.5
General Education Course (GHW)	1.5 Elective	3

Elective	3	
	16.5	13.5

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Choose from approved list of supporting Archaeological courses: ARTH 111, ARTH 120, ARTH 130, ARTH 140, ARTH 301, ARTH 311, ARTH 460, CAMS 5, CAMS 10, CAMS 15, CAMS 20, CAMS 109Y, CAMS 140, CAMS 150, CAMS 210, CAMS 400W, CAMS 405, CAMS 440W, GEOG 20, GEOSC 1, GEOSC 320, GEOSC 303, HIST 110, HIST 122, HIST 123, HIST 188, HIST 191, HIST 471Y, HIST 490, LARCH 65, LARCH 450, SOILS 101, SOILS 416

² Choose from approved list of supporting Biological courses: BIOL 110, BIOL 129, BIOL 141, BIOL 177, BIOL 230W, BIOL 240W, BIOL 411, BIOL 421, BIOL 433, BIOL 472, BMB 251, BMB 401, BMB 484, BMB 485, GEOSC 402Y, GEOSC 422, GEOSC 424, PSYCH 268, PSYCH 269, PSYCH 422

³ Choose from approved list of supporting HE-Cultural courses: AGECO 134, BIOL 120, BIOL 220W, BIOL 419, CED 200, CED 209, ENVSC 494, ERM 210, GEOG 1, GEOG 6, GEOG 30, GEOG 220, GEOG 230, GEOG 260, GEOG 314, GEOG 330, GEOG 414, GEOG 421, GEOG 426, GEOG 430, GEOG 439, HIST 110, LARCH 65, LARCH 145, LARCH 450, RPTM 220, SOC 1, SOC 23, SOC 30, SOC 110, SOC 119, SOC 408, SOC 422, SOC 423, SUST 200, SOILS 422

⁴ Methods Courses: ANTH 321W, ANTH 380, ANTH 410, ANTH 411, ANTH 421, ANTH 425, ANTH 426W, ANTH 427W, ANTH 428, ANTH 429, ANTH 431, ANTH 432, ANTH 458, ANTH 492, ANTH 493

**Please note: to fulfill the Writing Across the Curriculum requirement, choose one of the listed W courses.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Contact

University Park

DEPARTMENT OF ANTHROPOLOGY

410 Carpenter Building

University Park, PA 16802

814-865-2509

anthropology@la.psu.edu

<https://anth.la.psu.edu>

Anthropology, B.A.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

Anthropology is a holistic scientific discipline having links to the humanities. Anthropologists document, describe, and explain the physical and cultural differences of societies, both past and present. Anthropology sees the individual as part of a larger social order that both impinges upon and is molded by those who belong to it. Anthropology investigates how cultures interact and relate within specific economic, political, and ecological frameworks over time.

The Bachelor of Arts major focuses on the biological and cultural variations of human populations through archaeology, biological anthropology, and cultural anthropology. In addition to class work, students receive practical training in laboratory and field work.

What is Anthropology?

Anthropology is the study of human diversity – our biology, behavior, cultural complexity, and evolution. Anthropologists study living people across cultures and populations; past people through the fossil, archaeological, and historical records; as well as living and extinct nonhuman primates. Anthropologists document, describe, and seek to understand biological and cultural variation in humans both past and present as a way to understand and explain the human condition. The field is divided into several integrated areas of study. Archaeology focuses on past societies, both ancient and historic, in order to understand and explain culture change over time. Biological Anthropology describes and explains human biological variation today and in the past. Human Ecology or Cultural Anthropology studies contemporary societies and cultures and their interactions with the environment.

You Might Like This Program If...

- You are interested in human cultural and biological variation and you want to understand human behavior and biology.
- You find human diversity fascinating and want to explore and understand the human condition.
- You want to study important questions such as 'what makes us human?' and 'what is the origin and importance of human diversity?'
- You want to pursue a career in anthropological research, museum curation, education, health professions, law, non-governmental organizations, or international relations.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Anthropology, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	21
Bachelor of Arts Degree Requirements	24
Requirements for the Major	37

4 of the 45 credits for General Education are included in the Requirements for the Major. This includes 4 credits of General Education GQ courses.

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ANTH 2N	World Archaeology	3
ANTH 21	Introductory Biological Anthropology	3
ANTH 45N	Cultural Diversity: A Global Perspective	3
STAT 200	Elementary Statistics	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
<i>Area/Survey Courses</i>		
Select 6 credits in ANTH courses at the 200 level or below (excluding ANTH 1, ANTH 83S, and courses in the following ranges: 190-199, 290-299, other than 297)		6
<i>Methods Courses</i>		
Select 6 credits of Methods courses from:		6
ANTH 321W	Intellectual Background of Archaeology	
ANTH 380	Anthropology Museum Studies	
ANTH 410	Osteology	
ANTH 411	Skeletal Forensic Anthropology	
ANTH 421		
ANTH 425	Zooarchaeology	
ANTH 426W	Archaeological Laboratory Analysis	
ANTH 427W	Forensic Archaeology	
ANTH 428	Archaeological Methods and Theory	

ANTH 429	
ANTH 431	
ANTH 432	Environmental Archaeology
ANTH 458	Ethnographic Field Methods
ANTH 492	Intermediate Field Methods
ANTH 493	Field Techniques
<i>Advanced Theory and Method Courses</i>	
Select 12 credits from the following ranges (at least 3 credits must be in each range):	12
Archaeology: ANTH 420-439	
Biological anthropology: ANTH 400-419, ANTH 460-473	
Human Ecology/Cultural anthropology: ANTH 440-459, ANTH 474-479	

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Integrated B.A. degree in Anthropology or B.S. degree in Anthropological Science, B.A. degree in Classics and Ancient Mediterranean Studies (CAMS), and M.A. degree in Anthropology

Requirements for the Integrated B.A. degree in Anthropology or B.S. degree in Anthropological Science, B.A. degree in Classics and Ancient Mediterranean Studies (CAMS), and M.A. degree in Anthropology can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/anthropology/#integratedundergradprogramstext>).

Program Learning Objectives

- **Content:** Students will demonstrate knowledge of the major concepts and theories of anthropology (archaeological, biological, cultural) and an understanding of human diversity, variation, and adaptation from cultural, biological, and historical perspectives.
- **Integrated Anthropological Inquiry:** Students will demonstrate informed knowledge of other cultures and diverse ways of life, both past and present, and an understanding of how diverse lines of anthropological inquiry can be integrated to understand the human condition.
- **Critical and Synthetic Thinking:** Students will 1) demonstrate the ability to use critical thinking and the scientific approach to solve problems related to biological and cultural variation, 2) demonstrate critical thinking in the analysis, evaluation, and interpretation of information from the scientific literature, and 3) demonstrate the ability to synthesize and integrate information and findings from diverse sources.
- **Effective Communication:** Students will demonstrate an ability to communicate core concepts of anthropological science effectively in both written and oral formats.
- **Methods and Research Skills:** Students will 1) demonstrate an understanding of current anthropological field and laboratory research methods and how these methods can be used to test hypotheses related to past and present human variation and adaptation in both cultural and biological contexts and 2) demonstrate an ability to analyze and interpret quantitative anthropological data based on statistics, graphs, and data tables.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Anthropology, B.A. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ANTH 45N or 21*	3 ANTH 21*	3
World Language Level 1	4 World Language Level 2	4
ANTH 2N*	3 General Education Course (GQ) [†]	3
General Education Course (GWS) [†]	3 General Education Course	3
General Education Course or First-Year Seminar	3 General Education Course (GWS) [†]	3
	16	16

Second Year

Fall	Credits Spring	Credits
ANTH Survey Course (200-Level and Below)*	3 ANTH Survey Course (200-Level and Below)*	3
World Language Level 3	4 STAT 200 (GQ) ^{*††}	4
General Education Course	3 ANTH Methods Course ^{*1}	3
General Education Course	3 General Education Course	3
Elective	3 Elective	3
	16	16

Third Year

Fall	Credits Spring	Credits
ANTH Methods Course (ANTH 426W or ANTH 427W) ^{*1}	3 ANTH (400-Level)*	3
ANTH (400-Level)*	3 BA Fields	3
General Education Course (GWS) [†]	3 General Education Course	3
General Education Course	3 General Education Course	3
Elective	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
ANTH (400-Level)*	3 ANTH (400-Level)*	3
BA Fields	3 BA Fields	3
General Education Course	3 General Education Course (GHW)	1.5
General Education Course (GHW)	1.5 Elective	3
Elective	3 Elective/World Cultures	3
	13.5	13.5

Total Credits 121

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ Methods Courses: ANTH 321W, ANTH 380, ANTH 410, ANTH 411, ANTH 421, ANTH 425, ANTH 426W, ANTH 427W, ANTH 428, ANTH 429, ANTH 431, ANTH 432, ANTH 458, ANTH 492, ANTH 493

**Please note: to fulfill the Writing Across the Curriculum requirement, choose one of the listed W courses.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Advising Notes:

- All students must take an LA First Year Seminar that will also count as General Education.

Anthropology, B.A. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ANTH 45N or 21*	3 ANTH 45N or 21*	3
World Language Level 1	4 World Language Level 2	4
ANTH 2N*	3 General Education Course (GQ) [‡]	3
General Education Course (GWS) [‡]	3 General Education Course	3
General Education Course or First-Year Seminar	3 General Education Course (GWS) [‡]	3
	16	16

Second Year

Fall	Credits Spring	Credits
ANTH Survey Course (200-Level and Below)*	3 ANTH Survey Course (200-Level and Below)*	3
World Language Level 3	4 STAT 200 (GQ) ^{*††}	4
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
Elective	3 Elective	3
	16	16

Third Year

Fall	Credits Spring	Credits
ANTH Methods Course (ANTH 426W or ANTH 427W) ^{*1}	3 ANTH Methods Course ^{*1}	3
ANTH (400-Level)*	3 ANTH (400-Level)*	3
General Education Course	3 BA Fields	3
General Education Course	3 General Education Course (GWS) [‡]	3
Elective	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
ANTH (400-Level)*	3 ANTH (400-Level)*	3
BA Fields	3 BA Fields	3
General Education Course	3 BA World Cultures	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
Elective	3 Elective	3
	13.5	13.5

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Methods Courses: ANTH 321W, ANTH 380, ANTH 410, ANTH 411, ANTH 421, ANTH 425, ANTH 426W, ANTH 427W, ANTH 428, ANTH 429, ANTH 431, ANTH 432, ANTH 458, ANTH 492, ANTH 493

**Please note: to fulfill the Writing Across the Curriculum requirement, choose one of the listed W courses.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Career Paths

Graduates with a B.A. in Anthropology from Penn State excel in diverse professional careers, ranging from academic research, law, medicine, and government to business, cultural resource management, non-governmental organizations, and education. Penn State Anthropology students develop a diversity of sought-after skills in problem-solving, analytical methods, teamwork, and effective oral and written communication. Students are strongly encouraged to become involved in departmental research while at Penn State to augment their training and enhance their prospects for employment or graduate study.

Careers

Possible career paths include:

- Human Services
- Non-profit organizations
- Non-governmental organizations
- Law
- Health professions
- Human resources
- Marketing
- Public health

- Government agencies: Environmental Protection Agency (EPA), Equal Employment Opportunity Commission (EEOC), US Department of State-Foreign Service
- Advanced research in the field

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE ANTHROPOLOGY PROGRAM (<https://americananthro.org/careers/careers-in-anthropology/>)

Opportunities for Graduate Studies

Anthropology majors will find that their undergraduate education is excellent preparation for the advanced training required for many professions. Our majors often go on to receive specialized graduate instruction in medicine, law, journalism, public administration, and virtually all of the "human services" fields. Although many professional schools require that undergraduate applicants have some specialized training (for example, chemistry courses for pre-med students), such course requirements are easily accommodated within the anthropology major. Most professional schools and graduate programs seek well-rounded, broadly educated applicants who can understand the implications of the advanced, specialized training they will receive in post-graduate training.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://bioanth.org/career/career-biological-anthropology/>)

Professional Resources

- American Anthropological Association (<https://americananthro.org>)
- American Association of Physical Anthropologists (<https://bioanth.org>)
- Society for American Anthropology (<https://www.saa.org>)

Contact

University Park

DEPARTMENT OF ANTHROPOLOGY
410 Carpenter Building
University Park, PA 16802
814-865-2509
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<https://anth.la.psu.edu>

Anthropology, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Anthropology minor is designed to provide undergraduate students with exposure to the range of human variation across time and space. Our minors enroll in courses that explore that variation through the subdisciplines of archaeological, biological, and cultural anthropology. We maintain laboratory facilities in all three subdisciplines and the Matson Museum of Anthropology, all excellent learning facilities for our students. In addition, the department offers summer field school opportunities in cultural anthropology and archaeology. A Minor in Anthropology is excellent preparation for further study in any discipline that requires ability to understand and deal with other

cultures, for example, teaching, counseling, business, medicine, law, or communications.

What is Anthropology?

Anthropology is the study of humanity - our biology, behavior, cultural complexity, and evolution. Anthropologists study living people across cultures and populations; past people through the fossil, archaeological, and historical records; as well as living and extinct nonhuman primates. Anthropologists document, describe, and seek to understand biological and cultural variation in humans both past and present as a way to understand and explain the human condition. The field is divided into several integrated areas of study. Archaeology focuses on past societies, both ancient and historic, in order to understand and explain culture change over time. Biological Anthropology describes and explains human biological variation today and in the past. Human Ecology or Cultural Anthropology studies contemporary societies and cultures and their interactions with the environment.

You Might Like This Program If...

- You are interested in human cultural and biological variation and you want to understand human behavior and biology.
- You find human diversity fascinating and want to explore and understand the human condition.
- You want to study important questions such as 'what makes us human?' and 'what is the origin and importance of human diversity?'
- You want to pursue a career in anthropological research, museum curation, education, health professions, law, non-governmental organizations, or international relations.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ANTH 2N	World Archaeology	3
ANTH 21	Introductory Biological Anthropology	3
ANTH 45N	Cultural Diversity: A Global Perspective	3
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 3 credits from any ANTH course except ANTH 1		3
Select 6 credits from the ANTH 400-489 range		6

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Abington

Michael Bernstein

Associate Professor of Psychology
1600 Woodland Road
Abington, PA 19001
215-881-7479
mjb70@psu.edu

Career Paths

A minor in Anthropology from Penn State is useful for students interested in a range of professional career paths, including academic research, law, medicine, government, business, non-governmental organizations, and education.

Careers

Possible career paths include:

- Human Services
- Non-profit organizations
- Non-governmental organizations
- Law
- Health professions
- Human resources
- Marketing
- Public health
- Government agencies: Environmental Protection Agency (EPA), Equal Employment Opportunity Commission (EEOC), US Department of State-Foreign Service
- Advanced research in the field

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN ANTHROPOLOGY (<https://americananthro.org/careers/careers-in-anthropology/>)

Opportunities for Graduate Studies

Students who minor in Anthropology will find that their undergraduate education is excellent preparation for the advanced training required for many professions. The minor track can supplement study in a range of other fields and prepare students for specialized graduate study in medicine, law, journalism, public administration, and virtually all of the "human services" fields. Most professional schools and graduate

programs seek well-rounded, broadly educated applicants who can understand the implications of the advanced, specialized training they will receive in post-graduate training.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://bioanth.org/career/career-biological-anthropology/>)

Contact

University Park

DEPARTMENT OF ANTHROPOLOGY
410 Carpenter Building
University Park, PA 16802
814-865-2509
anthropology@la.psu.edu

<https://anth.la.psu.edu>

Abington

DIVISION OF SOCIAL SCIENCES
1600 Woodland Road
Abington, PA 19001
215-881-7479
mjb70@psu.edu

<https://www.abington.psu.edu/michael-bernstein-ph-d> (<https://www.abington.psu.edu/michael-bernstein-ph-d/>)

Arabic Language, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

Modern Arabic is a crucially important world language. The minor in Arabic is intended to provide students with a good working knowledge of modern Arabic language, cultures, and societies, in order to broaden students' horizons and sharpen their awareness and abilities in internationalism and globalization. Students undertake three years of language study (or equivalent); education abroad can be included.

Program Requirements

Requirement	Credits
Requirements for the Minor	21

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ARAB 1	Elementary Modern Standard Arabic I	4
ARAB 2	Elementary Modern Standard Arabic II	4
ARAB 3	Intermediate Modern Standard Arabic	4

Additional Courses

Additional Courses: Require a grade of C or better

Select 3 credits of the following: ¹ 3

ARAB 110 Arab Language, Cultures, and Current Topics

ARAB 197 Special Topics

ARAB 199 Foreign Studies

ARAB 296 Independent Studies

ARAB 297 Special Topics

ARAB 299 Foreign Studies

ARAB 397 Special Topics

ARAB 399 Foreign Studies

Select 6 credits of the following: ¹ 6

ARAB 401 Advanced Language & Cultures I

ARAB 402 Advanced Language & Cultures II

ARAB 494 Research Project

ARAB 496 Independent Studies

ARAB 497 Special Topics

ARAB 499 Foreign Studies

¹ Because this minor focuses on developing language proficiency in modern Arabic, special topics courses in English or other courses taught in English do not satisfy this requirement.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Contact

University Park

COLLEGE OF THE LIBERAL ARTS

111 Sparks Building

University Park, PA 16802

814-865-7691

<https://la.psu.edu>

Asian Studies, B.A.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

This is an interdisciplinary major, with a strong disciplinary core, for students who want a basic understanding of the background and contemporary aspect of East, Southeast, or South Asia. Students are expected to focus their coursework largely on one major Asian area.

What is Asian Studies?

Asian Studies focuses on the history, culture, and societies of Asia. It can include the study of the languages, societies, cultures, histories, economies, and politics of the countries and peoples of Asia. This is an interdisciplinary major, with a strong disciplinary core, for students who want a basic understanding of the background and contemporary aspect of East, Southeast, or South Asia.

MORE INFORMATION ABOUT ASIAN STUDIES (<https://asian.la.psu.edu/undergraduate/>)

You Might Like This Program If...

- You are interested in the languages, cultures, histories, or societies of one or more of the countries of Asia.
- You are curious about other parts of the world.
- You want to think contextually about cultures, historical trends, social change, and political structures.
- You want to understand the history of the world as a group of systems and as a single system.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Asian Studies, a minimum of 124 credits is required:

Requirement	Credits
General Education	45
Electives	24
Bachelor of Arts Degree Requirements	24
Requirements for the Major	31

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ASIA 405Y	Seminar in Asian Studies	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 4 credits beyond the 12-credit level of proficiency in an Asian language from the following, or the equivalent:		4
CHNS 110	Level Two Chinese B	
HINDI 110	Intermediate Hindi	
JAPNS 110	Level Two Japanese B	
KOR 110	Level Two Korean B	
Select 6 credits from the following:		6
ASIA 3	Introduction to the Religions of the East	
ASIA 100	What is Asia?	
ASIA 101N	Sports in Asia	
ASIA 102	Asian Popular Culture	
ASIA 103	Introduction to Hinduism	
ASIA 104	Introduction to Buddhism	
ASIA 105	War and Memory in Asia: Twentieth Century and beyond	
ASIA 106N	Asian Traditions of Health, Medicine, and the Body	
ASIA 197	Special topics	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better
Select 18 credits from a department list with at least 12 credits of which are to be at the 400-level¹

¹ Independent study credits selected in consultation with adviser; additional further credits in language studies may be permitted up to 6 credits. Credit received for a specific course will not count in more than one category. Courses not on the list that deal substantially with some aspect of Asia in any discipline may also count, pending approval of an adviser.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education

Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Integrated B.A. in Asian Studies and M.I.A. in International Affairs

Requirements for the Integrated B.A. in Asian Studies and M.I.A. in International Affairs can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/international-affairs/#integratedundergradgradprogramstext>).

Program Learning Objectives

- **Compare and contrast Asian subregions:** Students will be able to compare and contrast two or more subregions of Asia in regard to their cultural, social, religious, literary, linguistic, political, economic, or other practices.
- **Developing a thesis:** Students are able to develop an effective thesis based on evidence.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

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academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Asian Studies, B.A. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ASIA 3, 100, 100Z, ASIA 101N, ASIA 102, ASIA 103, ASIA 104, ASIA 105, ASIA 106N, or ASIA 197*	3 ASIA 3, 100, 100Z, ASIA 101N, ASIA 102, ASIA 103, ASIA 104, ASIA 105, ASIA 106N, or ASIA 197*	3
ENGL 15, 30H, ESL 15, ENGL 137H, or CAS 137H [†]	3 CAS 100, ENGL 138T, or CAS 138T	3
Asian Language Level 1	4 Asian Language Level 2	4
General Education Course	3 General Education Course	3
First-Year Seminar	3 General Education Course (GQ) [‡]	3
	16	16

Second Year

Fall	Credits Spring	Credits
Major Course from Supporting Courses and Related Areas List*	3 Asian Language Level 110*	4
Asian Language Level 3	4 General Education Course	3
General Education Course (GQ) [‡]	3 General Education Course	3
General Education Course	3 US Cultures Course	3
BA Knowledge Domain Course	3 BA Knowledge Domain Course	3
	16	16

Third Year

Fall	Credits Spring	Credits
ASIA 405Y*	3 Asian Language Level 402	4
General Education Course	3 4XX Level Major Course from Supporting Courses and Related Areas List*	3
General Education Course	3 ENGL 202B†	3
BA Knowledge Domains Course	3 General Education Course	3
Asian Language Level 401	4 Elective	3
	16	16

Fourth Year

Fall	Credits Spring	Credits
4XX Level Major Course from Supporting Courses and Related Areas List*	3 Asian Language Level 404	4
Asian Language Level 403	4 4XX Level Major Course from Supporting Courses and Related Areas List*	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
Elective	3 Elective	3
Elective	3 Elective	2
	14.5	13.5

Total Credits 124

- * Course requires a grade of C or better for the major
 ‡ Course requires a grade of C or better for General Education
 # Course is an Entrance to Major requirement
 † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World

Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Advising Notes:

- All incoming freshmen must take a First-Year Seminar (FYS) during Fall or Spring of their first year. Academic advisers can provide a list of FYS being offered and help the student enroll. Most FYS in the College of the Liberal Arts are worth 3 cr. and count as a General Humanities (GH) or General Social Sciences (GS) course. For this reason, the FYS is not listed separately on this eight-semester plan; most students will be able to fulfill the FYS requirement while also fulfilling a GH or GS requirement.
- Students pursuing this major at a campus might require summer attendance, study abroad, or additional semesters to complete the major coursework. In their second semester, students should contact the University Park adviser to discuss options and plan their major courses accordingly.

Career Paths

A B.A. in Asian Studies can be the basis for careers in the public sector (diplomatic corps, armed forces, intelligence, etc.), international law, business, public relations, journalism, travel and hospitality, careers requiring foreign travel or living abroad in Asia, language specialist (translating, interpreting, teaching).

Careers

With an Asian Studies degree, you'll be prepared for a career in a wide range of industries and professions, including the public sector (diplomatic corps, armed forces, intelligence, etc.), international law, business, public relations, journalism, travel and hospitality, careers requiring foreign travel or living abroad in Asia, language specialist (translating, interpreting, teaching).

Opportunities for Graduate Studies

International Affairs programs, law, or the study of Asia in various disciplines, such as art history, literature, history, religion, philosophy, political science, and sociology.

Professional Resources

- Association of Asian Studies (<https://www.asianstudies.org>)

Contact

University Park

DEPARTMENT OF ASIAN STUDIES
 102 Old Botany Building
 University Park, PA 16802
 814-867-3260
asianstudies@psu.edu

<https://asian.la.psu.edu>

Asian Studies, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

This is an interdisciplinary minor designed for students with special interests in the Asian area. In addition to the requirements of the student's major department, the minor consists of 21 credits selected from such disciplines as anthropology, art history, economics, geography, history, linguistics, literature, philosophy, political science, religious studies, speech, theatre arts, and appropriate Asian languages.

What is Asian Studies?

Asian Studies focuses on the history, culture, and societies of Asia. It can include the study of the languages, societies, cultures, histories, economies, and politics of the countries and peoples of Asia. This is an interdisciplinary major, with a strong disciplinary core, for students who want a basic understanding of the background and contemporary aspect of East, Southeast, or South Asia.

MORE INFORMATION ABOUT ASIAN STUDIES (<https://asian.la.psu.edu/undergraduate/>)

You Might Like This Program If...

- You are interested in the languages, cultures, histories, or societies of one or more of the countries of Asia.
- You are curious about other parts of the world.
- You want to think contextually about cultures, historical trends, social change, and political structures.
- You want to understand the history of the world as a group of systems and as a single system.

Program Requirements

Requirement	Credits
Requirements for the Minor	21

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 6 credits from the following:		6
ASIA 3	Introduction to the Religions of the East	
ASIA 100	What is Asia?	
ASIA 101N	Sports in Asia	
ASIA 102	Asian Popular Culture	
ASIA 103	Introduction to Hinduism	
ASIA 104	Introduction to Buddhism	
ASIA 105	War and Memory in Asia: Twentieth Century and beyond	

ASIA 106N Asian Traditions of Health, Medicine, and the Body

ASIA 197 Special topics

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 15 credits from a departmental list, at least 6 at the 400 level; 15 independent study credits selected in consultation with adviser; additional further credits in language studies may be permitted up to 6 credits.¹

¹ Courses not on the list that deal substantially with some aspect of Asia in any discipline may also count, pending approval of an adviser. Students seeking to combine an Asian Studies minor with a major in an Asian language (such as CHNS or JAPNS) may include up to 15 credits of language study in a SECOND Asian language, but must have at least 3 courses that do not overlap with their other major(s) or minor(s) in Asian Studies or other Asian languages.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

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Abington

Pierce Salguero

Associate Professor of Asian History and Religious Studies

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Career Paths

A Minor in Asian Studies can be the basis for careers in the public sector (diplomatic corps, armed forces, intelligence, etc.), international law, business, public relations, journalism, travel and hospitality, careers requiring foreign travel or living abroad in Asia, language specialist (translating, interpreting, teaching).

Careers

With a Minor in Asian Studies, you'll be prepared for a career in a wide range of industries and professions, including the public sector (diplomatic corps, armed forces, intelligence, etc.), international law, business, public relations, journalism, travel and hospitality, careers requiring foreign travel or living abroad in Asia, language specialist (translating, interpreting, teaching).

Opportunities for Graduate Studies

International Affairs programs, law, or the study of Asia in various disciplines, such as art history, literature, history, religion, philosophy, political science, and sociology.

Contact

University Park

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102 Old Botany Building
University Park, PA 16802
814-867-3260
asianstudies@psu.edu

<https://asian.la.psu.edu>

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1600 Woodland Road
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215-881-7826
salgero@psu.edu

<https://www.abington.psu.edu/pierce-salguero> (<https://www.abington.psu.edu/pierce-salguero/>)

Biblical Studies, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

The Biblical Studies Certificate program is designed to provide students with a foundation in the academic study of the Bible, both the Jewish and Christian canons. Through a flexible and student-centered course of study, beginning with courses in the Hebrew Bible/Old Testament and the New Testament, and including a variety of elective courses within or related to the field of Biblical Studies, students will be exposed to the academic methods and approaches to understanding the Bible.

Program Requirements

To earn an undergraduate certificate in Biblical Studies, a minimum of 12 credits is required.

Code	Title	Credits
Required Courses		
JST 110	Hebrew Bible: Old Testament	3
JST 112	Jesus the Jew	3
or JST 120	New Testament	
or JST 124	Early and Medieval Christianity	
Additional courses, no more than one of which may be a language course:		6

JST 4	Jewish and Christian Foundations
JST 10	Jewish Civilization
JST 12	
JST 70	
JST 90	Jerusalem: Past, Present, and Future
JST 102	Ancient Israel
JST 104	The Bible as Literature
JST 111	Early Judaism
JST 122	Apocalypse and Beyond
JST 123	History of God: Origins of Monotheism
JST 153	Dead Sea Scrolls
JST 420	Archaeology of the Near East
JST 421	Aramaic
JST 425W	Books of the Bible: Readings and Interpretation
GREEK 2	
HEBR 151	Introductory Biblical Hebrew
HEBR 152	Intermediate Biblical Hebrew

Non-Course Requirements:

- As per University policy, all credit courses for a certificate require a grade of "C" or higher, and at least two-thirds (2/3) of the credits used to complete a certificate must be earned at Penn State.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Contact

University Park

DEPARTMENT OF CLASSICS AND ANCIENT MEDITERRANEAN STUDIES
108 Weaver Building
University Park, PA 16802
814-865-8851
bdw150@psu.edu

<https://cams.la.psu.edu/degrees-and-certificates/biblical-studies-certificate/>

Black Diaspora Studies, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The minor in Black Diaspora Studies is designed to broaden the perspectives of students through an examination of the international/transnational dimensions of the experiences of African and African-descent populations, particularly those in the Western Hemisphere. Since the early sixteenth century, when Europe, the Americas, and Africa were brought into a pattern of sustained interaction following the onset of the Age of European Discovery, the African slave trade and other forms of migration and exchange have been critical to the formative experience of Africans and African-descent populations linked by the Atlantic. The intensity and impact of those exchanges have varied over time, but the presence of Africans and African-descent populations in the evolution of Atlantic civilization constitutes the core of the study of the African Diaspora.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
AFAM 100N	Black Freedom Struggles	3
AFAM/HIST 211	Slavery and Freedom in the Black Atlantic	3
AFR 110		3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 9 credits (at least 6 credits at the 400 level) of the following:		9
AFAM 132	Afro-Hispanic Civilization	
AFAM 250	Introduction to the Caribbean	
AFAM 431	Black Liberation and American Foreign Policy	
AFAM 432	Between Nation and Empire: The Caribbean in the 20th Century	
AFR 191	Early African History	
AFR 440	Globalization and Its Implications	
PLSC 453	Political Processes in Underdeveloped Systems	

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their

intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Contact

University Park

COLLEGE OF THE LIBERAL ARTS

111 Sparks Building

University Park, PA 16802

814-865-7691

<https://la.psu.edu>

Business and the Liberal Arts, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

This minor offers fundamental courses in business, the opportunity for more advanced business courses, and Liberal Arts coursework emphasizing entrepreneurship, ethics, and a range of perspectives on business.

What is Business and the Liberal Arts?

This minor offers fundamental courses in business, the opportunity for more advanced business courses, and Liberal Arts coursework emphasizing entrepreneurship, ethics, and a range of perspectives on business. All students take a course on Business and the Liberal Arts co-taught by alumni, along with a course on Leadership, and have a reasonable degree of flexibility in remaining courses.

You Might Like This Program If...

You want to mix business courses with Liberal Arts courses to acquire core knowledge and quantitative skills that are invaluable assets for success in the business professions. Companies will favor liberal arts majors with a business minor because you have the business expertise through your minor, but there's an added bonus: your major likely provided

you with communication skills, worldly knowledge, cultural awareness, or expertise in government/politics—all things beneficial for an organization.

Program Requirements

Requirement	Credits
Requirements for the Minor	25

Requirements for the Minor

Students pursuing the Minor in Business and the Liberal Arts are encouraged to use ENGL 202D to satisfy their English 202 requirement. ECON 102 is a required prerequisite for some of the business courses.

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
BA 301	Finance	3
LA 202	Innovation and Entrepreneurship in the Liberal Arts	3
PHIL 119	Ethical Leadership	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 6 credits of the following:		6
BA 302	Supply Chains	
or SCM 301	Supply Chain Management	
BA 303	Marketing	
or MKTG 221		
or MKTG 301	Principles of Marketing	
BA 304	Management and Organization	
or MGMT 10	Survey of Management	
or MGMT 30	Basic Management Concepts	
BLAW 243	Legal Environment of Business	
or BA 243	Social, Legal, and Ethical Environment of Business	
COMM 385	Media Programming Strategies	
COMM 424	Advertising Campaigns	
COMM 473	Public Relations Campaigns	
COMM 493	Entrepreneurship in the Information Age	
IB 303	International Business Operations	
LA 495	Undergraduate Field Experience or Practicum	
LER 100		
LER 201		
MGMT 425	New Venture Creation	
MGMT 426	Invention Commercialization	
MKTG 302	Marketing Techniques for Electronic Commerce	
MKTG 310	Public Relations and Marketing	
MKTG 327	Retailing	
MKTG 330	Consumer Behavior	
MKTG 342	Marketing Research	
Select 6 credits of the following:		6

CAS 403	Interpersonal Communication Theory and Research
CAS 404	Conflict Resolution and Negotiation
CAS 470	Nonverbal Communication
CAS 475	Studies in Public Address
CAS 426W	Communication Ethics
CAS 450W	Group Communication Theory and Research
CAS 452	Organizational Communication Theory and Research
CAS 452W	Organizational Communication Theory and Research
CAS 471	Intercultural Communication Theory and Research
CRIM 467	Law and Society
CRIMJ 460	History and Function of Criminal Justice Components
CRIMJ 467	Law and Society
ECON 402	Decision Making and Strategy in Economics
ECON 410	Economics of Labor Markets
ECON 412	Labor Economics and Labor Markets: Theory, Evidence, and Policy
ECON 428	Environmental Economics
ECON 433	Advanced International Trade Theory and Policy
ECON 434	International Finance and Open Economy Macroeconomics
ECON 442	Managerial Economics
ECON 443	Economics of Law and Regulation
ECON 444	Economics of the Corporation
ECON 445	Health Economics
ECON 463	
ECON 471	Growth and Development
ENGL 419	Advanced Business Writing
ENGL 460	Business and Literature
FR 409	French for Professional Purposes
GER 308Y	German Business Communication
GER 408	Advanced German Business Communications
HIST 445	The Emergence of Modern America
HIST 446	America Between the Wars
HIST 447	Recent American History
HIST 453	American Environmental History
HIST 458Y	History of Work in America
HIST 475Y	The Making and Emergence of Modern India
HIST 481	Modern Japan Since 1800
HIST 486	China in Revolution
JAPNS 403Y	Level Four Japanese A
JAPNS 404	Level Four Japanese B
LER 400	
LER 401	
LER 424	Employment Compensation
LER 425	Employee Benefits
LER 426	
LER 434	
LER 437	
LER 444	

LER 458Y	
LER 460	
LER 464	
LER 465	
PHIL 406	
PHIL 418	Seminar in Ethical Theory
PHIL 432	Medical and Health Care Ethics
PLSC 412	International Political Economy
PLSC 419	The Bureaucratic State
PLSC 426	Political Parties and Interest Groups
PLSC 440	Globalization and Its Implications
PLSC 444	Government and the Economy
PLSC 445Y	Politics of Affirmative Action
PLSC 474	Civil Liberties and Due Process
PSYCH 482	Selection and Assessment in Organizations
PSYCH 484	Work Attitudes and Motivation
PSYCH 485	Leadership in Work Settings
SOC 422	World Population Diversity
SPAN 412	Translation
SPAN 413	Interpretation
SPAN 420	Spanish for Business and International Trade
WMNST 420	
WMNST 472	Work-Life Practices and Policies

Academic Advising

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University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Career Paths

The business minor offers you an excellent opportunity to complement your major program of study and expand your employment and career opportunities upon graduation. Common majors with this minor include Recreation Tourism Management, majors in the College of

Communications, Liberal Arts majors such as Economics and Labor Employment Relations.

Careers

- Financial Analysts
- Human Resources Managers
- Personal Financial Advisors
- Management Analysts
- Banking
- Education
- Accounting
- Finance
- Marketing

Contact

University Park

DEPARTMENT OF POLITICAL SCIENCE

202 Pond Lab

University Park, PA 16802

814-865-4597

<https://polisci.la.psu.edu/undergraduate/advising/>

<https://polisci.la.psu.edu/>

Chinese Language, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Chinese Language minor is intended to provide students with a good working knowledge of the Chinese language, taught in a context that emphasizes the characteristics and diversity of Chinese culture and society. Students undertake three years of language study (or equivalent); education abroad can be included.

What is Chinese?

The Chinese program provides students with an opportunity to concentrate on acquiring expertise in an important modern language and its culture. Giving students a strong working knowledge of the Chinese language and understanding of Chinese culture, the program can help prepare students for work in contexts where the language and culture are pertinent, to live and work in Sinophone areas of the world as informed and capable individuals equipped with appropriate intercultural skills and awareness, or for graduate study in China-related fields. Graduates may work in government service, domestic and foreign offices, or international agencies. Many go on to teach English in China, or to do translation work. Employment may also be available with trade organizations, international banking houses, or U.S. companies abroad. Domestic and multinational companies are increasingly seeking employees with backgrounds in multicultural studies as a way of dealing with the global market.

You Might Like This Program If...

- You are interested in Chinese language, culture, history, or society.
- You want to live or work in a Sinophone country.

- You are aiming for a career involving travel to Sinophone countries and interaction with native speakers of Chinese.

Program Requirements

Requirement	Credits
Requirements for the Minor	18-20

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>).

In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CHNS 2	Level One Chinese B	4
CHNS 3	Level Two Chinese A	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
CHNS 110	Level Two Chinese B	4
or CHNS 299	Foreign Studies	
Select 6-8 credits of the following:		6-8
ASIA 499	Foreign Studies	
CHNS 401	Level Three Chinese A	
CHNS 402	Level Three Chinese B	
CHNS 403W	Level Four Chinese A	
CHNS 404	Level Four Chinese B	
CHNS 410	Chinese Through Film	
CHNS 411	Chinese Written Characters	
CHNS 414	Introduction to Chinese Language, Culture and Society	
CHNS 415	China Beyond China	
CHNS 416	Gender and Sexuality in China	
CHNS 417	The Warrior, the Courtesan and the Ghost in Classical Chinese Novels	
CHNS 418	Confucius and the Great Books of China	
CHNS 419	The Chinese Rhetorical Tradition	
CHNS 452	Contemporary China: Culture and Trends	
CHNS 453	Chinese Film	
CHNS 454	Introduction to Classical Chinese	
CHNS 455	Masterpieces of Traditional Chinese Literature	
CHNS 496	Independent Studies	
CHNS 497	Special Topics	
CHNS 499	Foreign Studies	

Academic Advising

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University Park

Liberal Arts Academic Advising

814-865-2545

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Career Paths

A minor in Chinese can be the basis for careers in the public sector (diplomatic corps, armed forces, intelligence, etc.), international law, business, public relations, journalism, travel and hospitality, careers requiring foreign travel or living abroad in Japan language specialist (translating, interpreting, teaching).

Careers

With a Chinese minor, you'll be prepared for a career in a wide range of industries and professions, including the public sector (diplomatic corps, armed forces, intelligence, etc.), international law, business, public relations, journalism, travel and hospitality, careers requiring foreign travel or living abroad in Asia, language specialist (translating, interpreting, teaching).

Opportunities for Graduate Studies

International Affairs programs, law, or the study of Asia in various disciplines, such as art history, literature, history, religion, philosophy, political science, and sociology.

Contact

University Park

DEPARTMENT OF ASIAN STUDIES
102 Old Botany Building
University Park, PA 16802
814-867-3260
asianstudies@psu.edu

<https://asian.la.psu.edu>

Chinese, B.A.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

Currently more than a billion people speak Chinese, making it one of the most widely spoken languages in the world. As a rising superpower with an increasingly global impact, China is a major international presence. The major in Chinese is designed to develop skills in speaking, understanding, reading, and writing Chinese, as well as to promote an

understanding of the diverse literatures, cultures, and traditions of the Chinese-speaking world, ranging from China itself to Chinese-speaking America. The major can help students prepare for professional careers in which knowledge of Chinese, especially Mandarin, is useful. Students are strongly encouraged to study abroad.

Students planning to teach in public schools should schedule the appropriate courses leading to certification in consultation with an adviser in the College of Education.

What is Chinese?

The Chinese program provides students with an opportunity to concentrate on acquiring expertise in an important modern language and its culture. Giving students a strong working knowledge of the Chinese language and understanding of Chinese culture, the program can help prepare students for work in contexts where the language and culture are pertinent, to live and work in Sinophone areas of the world as informed and capable individuals equipped with appropriate intercultural skills and awareness, or for graduate study in China-related fields. Graduates may work in government service, domestic and foreign offices, or international agencies. Many go on to teach English in China, or to do translation work. Employment may also be available with trade organizations, international banking houses, or U.S. companies abroad. Domestic and multinational companies are increasingly seeking employees with backgrounds in multicultural studies as a way of dealing with the global market.

You Might Like This Program If...

- You are interested in Chinese language, culture, history, or society.
- You want to live or work in a Sinophone country.
- You are aiming for a career involving travel to Sinophone countries and interaction with native speakers of Chinese.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Chinese, a minimum of 124 credits is required:

Requirement	Credits
General Education	45
Electives	20-28
Bachelor of Arts Degree Requirements	24
Requirements for the Major	35

0-6 of the 45 credits for General Education are included in the Requirements for the Major. This includes 0-6 credits of General Education GA, GH, or GS courses.

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

At least 21 credits must be at the 400 level.

Students are strongly encouraged to take at least 12 of their credits as part of a study abroad program in a Chinese-speaking location. For curricular sequencing, the program encourages students to pursue this Education Abroad experience in the summer or fall semester of the junior year.

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CHNS 110	Level Two Chinese B	4
CHNS 401	Level Three Chinese A	4
CHNS 402	Level Three Chinese B	4
CHNS 403W	Level Four Chinese A	4
CHNS 404	Level Four Chinese B	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
CHNS 120	Introduction to Chinese Literature and Culture	3
	or CHNS 121N Chinese Film and New Media	
	Select 3 credits from the CHNS 414-419 level	3
	Select 3 credits from the CHNS 450-459 level	3
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
	Select 6 credits pertaining to China, such as courses in art history, Asian studies, comparative literature, economics, geography, history, philosophy, political science, religious studies, theatre arts, or other fields, selected from departmental list	6

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Integrated B.A. in Chinese and M.I.A. in International Affairs

Requirements for the Integrated B.A. in Chinese and M.I.A. in International Affairs can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/international-affairs/#integratedundergradgradprogramstext>).

Program Learning Objectives

- Students will have developed oral skills in Chinese to allow them to communicate efficiently in a range of settings from informal to professional.
- Students will have developed literacy skills that allow them to both read and write in Chinese.
- Students will have developed an understanding of the structure of the Chinese language.
- Students will understand the role of culture in everyday interactions in Chinese speaking communities.
- Students will be prepared for graduate study on a China-related topic or work in a Chinese-language context. They will have developed critical thinking skills that analyze and evaluate cross-cultural phenomena through constant reflection and comparison.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the

habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

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University Park

Liberal Arts Academic Advising

814-865-2545

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Chinese, B.A. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
CHNS 1*	4	CHNS 2*	4
ENGL 15, 30H, ESL 15, ENGL 137H, or CAS 137H [†]	3	CAS 100, ENGL 138T, or CAS 138T [‡]	3
General Education Course	3	Any Level China-Related Course from Supporting Course and Related Areas List*	3
General Education Course	3	General Education Course (GQ) [‡]	3
First-Year Seminar	3	General Education Course	3
	16		16

Second Year

Fall	Credits	Spring	Credits
CHNS 3*	4	CHNS 110*	4
CHNS 120 or 121N*	3	General Education Course	3
General Education Course (GQ) [‡]	3	General Education Course	3
General Education Course	3	US Cultures	3
BA Knowledge Domain Course	3	BA Knowledge Domain Course	3
	16		16

Third Year

Fall	Credits	Spring	Credits
CHNS 401*	4	CHNS 402	4
General Education Course	3	CHNS 415, 416, 417, 418, or 419*	3
General Education Course	3	ENGL 202B [‡]	3
BA Knowledge Domain Course	3	General Education Course	3
Elective	3	Elective	3
	16		16

Fourth Year

Fall	Credits	Spring	Credits
CHNS 403W	4	CHNS 404*	4
CHNS 452, 453, 454, or 455	3	Any Level China-Related Course from Supporting Course and Related Areas List*	3
General Education Course (GHW)	1.5	General Education Course (GHW)	1.5
Elective	3	Elective	3
Elective	3	Elective	2
	14.5		13.5

Total Credits 124

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may

not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Advising Notes:

- All incoming freshmen must take a First-Year Seminar (FYS) during Fall or Spring of their first year. Academic advisers can provide a list of FYS being offered and help the student enroll. Most FYS in the College of the Liberal Arts are worth 3 cr. and count as a General Humanities (GH) or General Social Sciences (GS) course. For this reason, the FYS is not listed separately on this eight-semester plan; most students will be able to fulfill the FYS requirement while also fulfilling a GH or GS requirement.
- Students pursuing this major at a campus might require summer attendance, study abroad, or additional semesters to complete the major coursework. In their second semester, students should contact the University Park adviser to discuss options and plan their major courses accordingly.

Career Paths

A B.A. in Chinese can be the basis for careers in the public sector (diplomatic corps, armed forces, intelligence, etc.), international law, business, public relations, journalism, travel and hospitality, careers requiring foreign travel or living abroad in Japan language specialist (translating, interpreting, teaching).

Careers

With a Chinese degree, you'll be prepared for a career in a wide range of industries and professions, including the public sector (diplomatic corps, armed forces, intelligence, etc.), international law, business, public relations, journalism, travel and hospitality, careers requiring foreign travel or living abroad in Asia, language specialist (translating, interpreting, teaching).

Opportunities for Graduate Studies

International Affairs programs, law, or the study of Asia in various disciplines, such as art history, literature, history, religion, philosophy, political science, and sociology.

Professional Resources

- Association of Asian Studies (<https://www.asianstudies.org>)

Contact

University Park

DEPARTMENT OF ASIAN STUDIES
102 Old Botany Building
University Park, PA 16802
814-867-3260
asianstudies@psu.edu

<https://asian.la.psu.edu>

Classics and Ancient Mediterranean Studies, B.A.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

Classics and Ancient Mediterranean Studies is concerned with the civilizations of the ancient Mediterranean world, including the ancient Greeks, Romans, and the peoples of Egypt and the Near East. The study of these civilizations includes their languages and literatures, history and politics, religion and mythologies, philosophies, and material culture. All students in the major are particularly encouraged to participate in one of the Penn State Education Abroad Programs and/or archaeological field schools in the Mediterranean area. Approved archaeological fieldwork is required for the AMA Option. Up to 15 credits of appropriate education abroad courses may be applied to requirements for the major.

Students electing the CAMS major follow one of three options:

Ancient Languages Option

The Ancient Languages Option requires study of Greek or Latin, one or more of the languages of the ancient Near East, or a combination of languages, and is recommended especially for students planning to pursue any classical, Near Eastern, or Egyptian subject in graduate school; planning rabbinic or seminary study; or preparing to teach Latin or Greek at the secondary level. Students in the Language Option are urged to schedule at least one course in historical linguistics or comparative grammar.

Ancient Mediterranean Archaeology Option

The Ancient Mediterranean Archaeology (AMA) Option is designed for students interested in the physical evidence for ancient Mediterranean cultures, including the rise and development of settlements and cities; ceramics, metals, stone, and organic remains; and population changes over time.

Classics and Ancient Mediterranean Studies Option

The Classics and Ancient Mediterranean Studies (CAMS) Option is suitable for students interested in a broadly interdisciplinary study of the cultures of the ancient Mediterranean and does not require study of language, although students are encouraged to study the appropriate ancient languages.

What is Classics and Ancient Mediterranean Studies?

Classics and Ancient Mediterranean Studies (CAMS) is the study of ancient civilizations that arose and flourished around the Mediterranean basin (including Egypt, Greece, Rome, Anatolia, Israel, Mesopotamia, and North Africa) from the "cradle of civilization" in Mesopotamia (ca. 4000 BCE) to the end of Greco-Roman antiquity (ca. 600 CE). CAMS investigates the whole scope of the ancient Mediterranean world and trains students to interpret the linguistic and archaeological evidence of the greatest ancient cultures.

You Might Like This Program If...

- You want to learn the methods of archaeology and archaeological interpretation with the goal of reconstructing the social practices and historical development of different peoples in the ancient Mediterranean.

- You want to master an interdisciplinary subject with a long-term perspective on the human condition and on cultural achievements across diverse geographical regions.
- You want to pursue a career in education, archaeology, or law.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

- attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
- have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Classics and Ancient Mediterranean Studies, a minimum of 123 credits is required:

Requirement	Credits
General Education	45
Electives	20-24
Bachelor of Arts Degree Requirements	24
Requirements for the Major	30-34

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

No more than 15 credits in courses numbered 099, 199, 299, 399, or 499 may count toward the requirements for the major.

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CAMS 5	Ancient Mediterranean Civilizations	3
CAMS 400W	Comparative Study of the Ancient Mediterranean World	3

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 3 credits in Greek or Roman literature and language, civilization, or archaeology from approved department list 3

Select 3 credits in Near Eastern literature and language, civilization, or archaeology from approved department list 3

Select 6 credits, at or above the 100 level, from approved department list¹ 6

Requirements for the Option

Requirements for the Option: Require a grade of C or better

Select an option 12-16

¹ Appropriate offerings include ancient Near Eastern languages and literatures, ancient history, anthropology, art history, classics and ancient Mediterranean studies, Greek, Hebrew, Jewish studies, Latin, linguistics, philosophy, or religious studies.

Requirements for the Option

Ancient Mediterranean Archaeology Option (15-16 credits)

Students in this option must complete one season of approved archaeological fieldwork at an ancient Mediterranean or related site. Up to 6 credits of fieldwork may be applied to the Common Requirements for the Major.

Code	Title	Credits
Additional Courses		

Additional Courses: Require a grade of C or better

CAMS 440W	Studies in Classical and Ancient Mediterranean Archaeology	3
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Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 6 credits of the following: 6

CAMS 492	Intermediate Field Methods
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CAMS 493	Intermediate Field Analysis
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400-level fieldwork course in an approved archaeological project in the Mediterranean region or Near East in consultation with major adviser

Select 3 credits of the following: 3

CAMS 90	Jerusalem: Past, Present, and Future
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or JST 90	Jerusalem: Past, Present, and Future
-----------	--------------------------------------

or RLST 90	Jerusalem: Past, Present, and Future
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CAMS 104	Ancient Egypt
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or HIST 104	Ancient Egypt
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or RLST 104	Introduction to Buddhism
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CAMS 140	Classical Archaeology--Ancient Greece
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or CAMS 150	Classical Archaeology--Ancient Rome
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Select 3-4 credits of the following: 3-4

ANTH 410	Osteology
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ANTH 420	
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or JST 420	Archaeology of the Near East
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ANTH 426W	Archaeological Laboratory Analysis
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or ANTH 428	Archaeological Methods and Theory
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Ancient Languages Option (12 credits)

Code	Title	Credits
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Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 12 credits at the 400 level in either Greek or Latin or in Akkadian, Aramaic, Biblical Hebrew, Egyptian, Hittite, Sumerian, or other ancient Near Eastern language in consultation with major adviser¹

¹ At least 6 credits must be in one language.

Classical and Ancient Mediterranean Studies Option (12 credits)

Code	Title	Credits
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
	Select 6 credits at the 400 level from Classics and Ancient Mediterranean Studies (CAMS), ancient Near Eastern languages, Greek, or Latin courses	6
	Select 6 credits at the 400 level from approved department list ¹	6

¹ Appropriate courses include ancient Near Eastern languages and literature, ancient history, anthropology, Classics and Ancient Mediterranean Studies, Jewish studies, linguistics, philosophy, or religious studies.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

12 University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Integrated B.A. in Anthropology or B.S. in Anthropological Science, B.A. in Classics and Ancient Mediterranean Studies (CAMS), and M.A. in Anthropology

Requirements for the Integrated B.A. in Anthropology or B.S. in Anthropological Science, B.A. in Classics and Ancient Mediterranean Studies (CAMS), and M.A. in Anthropology can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/anthropology/#integratedundergradgradprogramstext>).

Program Learning Objectives

- **Critical Thinking:** Students will have acquired the ability to read, interpret, and analyze a broad range of literary, historical, artistic, and social texts relating to the ancient Mediterranean world. Majors in the Language Track should have acquired the ability to read, interpret, and analyze literary texts in their relevant ancient languages.
- **Cultural Competence:** Students will have acquired the ability to interpret and analyze the historical and cultural development of at least one major ancient Mediterranean civilization or cultural sphere (Egyptian, Mesopotamian, Hebrew/Israelite, Greek, Roman), and learned salient facts concerning the main cultural traits of at least one other major ancient Mediterranean civilization.
- **Geographic Awareness:** Students will have learned salient facts concerning the geography and major archaeological monuments of at least one major ancient Mediterranean Civilization.
- **Literary Analysis:** Students will have acquired the ability to read, interpret, and analyze the landmarks of literary tradition associated with at least one major ancient Mediterranean civilization.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous

years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Classical and Ancient Mediterranean Option: Classics and Ancient Mediterranean Studies, B.A. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year		
Fall	Credits Spring	Credits
CAMS 5*	3 General Education Course	3
General Education Course (GWS) [‡]	3 General Education Course	3
General Education Course	3 General Education Course (GQ) [‡]	3
General Education Course (GQ) [‡]	3 World Language Level 2	4
World Language Level 1	4 00- or 100-Level Course in CAMS*	3
16		16
Second Year		
Fall	Credits Spring	Credits
00- or 100-Level Course in CAMS*	3 100-Level or Above in CAMS or Related Area*	3
General Education Course (GWS) [‡]	3 General Education Course (GN)	3
General Education Course	3 General Education Course (GA)	3
General Education Course	3 B.A. Knowledge Domains	3
World Language Level 3	4 Elective	3
16		15
Third Year		
Fall	Credits Spring	Credits
General Education Course (GN)	3 General Education Course (GWS) [‡]	3
B.A. Knowledge Domains	3 General Education Course (GA)	3
Elective	3 Elective	3
400-Level Course in CAMS or Ancient Language*	3 Elective	3
100-Level or Above in CAMS or Related Area*	3 400-Level Course in CAMS or Ancient Language*	3
15		15
Fourth Year		
Fall	Credits Spring	Credits
CAMS 400W*	3 General Education Course (GHW)	1.5
B.A. Knowledge Domains	3 Elective	3

400-Level Course in CAMS or Related Area*	3 400-Level Course in CAMS or Related Area*	3
Elective	3 Elective	3
World Cultures	3 Elective	3
General Education Course (GHW)	1.5	
	16.5	13.5

Total Credits 123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Ancient Mediterranean Archaeology Option: Classics and Ancient Mediterranean Studies, B.A. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CAMS 5*	3 General Education Course	3
General Education Course (GWS)†	3 General Education Course	3
General Education Course	3 General Education Course (GQ)†	3
General Education Course (GQ)†	3 World Language Level 2	4
World Language Level 1	4 00- or 100-Level Course in CAMS*	3
	16	16

Second Year

Fall	Credits Spring	Credits
General Education Course (GWS)†	3 100-Level or Above in CAMS or Related Area*	3
00- or 100-Level Course in CAMS*	3 General Education Course (GN)	3
General Education Course	3 General Education Course (GA)	3
General Education Course	3 B.A. Knowledge Domains	3
World Language Level 3	4 Course in Archaeology	3
	16	15

Third Year

Fall	Credits Spring	Credits
General Education Course (GN)	3 General Education Course (GWS)†	3
Course in Archaeological Methods*	3-4 400-Level Field Work*	6
CAMS 440W*	3 General Education Course (GA)	3
B.A. Knowledge Domains	3 Elective	3
Elective	3	
	15-16	15

Fourth Year

Fall	Credits Spring	Credits
CAMS 400W*	3 General Education Course (GHW)	1.5
World Cultures	3 100-Level or Above in CAMS or Related Area*	3
B.A. Knowledge Domains	3 Elective	3
Elective	3 Elective	3
Elective	3 Elective	3

General Education Course (GHW)	1.5	
	16.5	13.5

Total Credits 123-124

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Ancient Languages Option: Classics and Ancient Mediterranean Studies, B.A. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
General Education Course (GWS) [‡]	3	General Education Course	3
CAMS 5 [*]	3	General Education Course	3
General Education Course	3	General Education Course (GQ) [‡]	3
General Education Course (GQ) [‡]	3	Ancient Language Level 2	4
Ancient Language Level 1	4		
	16		13

Second Year

Fall	Credits	Spring	Credits
00- or 100-Level Course in CAMS [*]	3	100-Level or Above in CAMS or Related Area [*]	3
General Education Course (GWS) [‡]	3	Elective	3
General Education Course	3	General Education Course (GN)	3
General Education Course	3	General Education Course (GA)	3
Ancient Language Level 3	4	B.A. Knowledge Domains	3
	16		15

Third Year

Fall	Credits	Spring	Credits
100-Level or Above in CAMS or Related Area	3	400-Level Ancient Language Course [*]	3
400-Level English Language Course [*]	3	Elective	3
General Education Course (GN)	3	General Education Course (GA)	3
B.A. Knowledge Domains	3	General Education Course (GWS) [‡]	3
Elective	3	Elective	3
	15		15

Fourth Year

Fall	Credits	Spring	Credits
400-Level Ancient Language Course [*]	3	400-Level Language Course [*]	3
CAMS 400W [*]	3	General Education Course (GHW)	1.5
World Cultures	3	Elective	3
B.A. Knowledge Domains	3	Elective	3
Elective	3	Elective	3

General Education Course (GHW)	1.5	
	16.5	13.5

Total Credits 120

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Career Paths

The study of CAMS requires the mastery of skills in assessing a range of evidence, deliberation and argumentation, analytical thinking, and writing and communication. The perspectives and skills developed as a CAMS student are valued in a wide range of professions, and our graduates have entered a great variety of careers.

Careers

- Secondary and College Level Teaching
- Archaeology
- Secondary Teaching
- Business Leaders
- Law

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE CLASSICS AND ANCIENT MEDITERRANEAN STUDIES PROGRAM (<https://la.psu.edu/current-students/career-enrichment-network/>)

Opportunities for Graduate Studies

Some of our majors plan academic careers in CAMS-related fields. Our students have enrolled in graduate programs in Classics, Ancient History, Near Eastern Studies, Egyptology, Biblical Studies, Archaeology, Art History, and related fields.

Professional Resources

- American Philological Association (<https://classicalstudies.org>)
- Archaeological Institute of America (<https://www.archaeological.org>)
- Association of Ancient Historians (<https://associationofancienthistorians.org>)

Contact

University Park

DEPARTMENT OF CLASSICS AND ANCIENT MEDITERRANEAN STUDIES
108 Weaver Building
University Park, PA 16802
814-865-8851
bdw150@psu.edu

<https://cams.la.psu.edu/>

Classics and Ancient Mediterranean Studies, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The CAMS minor recognizes the completion of a broadly interdisciplinary study of the cultures of the ancient Mediterranean world through 18 credits of course work, including 6 credits at the 400-level. The courses offered are concerned with the cultures of the ancient Near East, Egypt, and Mesopotamia, Greece, and Rome in such fields as civilization, archaeology, history, philosophy, religion, and mythologies. Students who complete the Penn State Athens Education Abroad Program and its prerequisite course may apply to receive the minor. Students in the minor may also receive credit for participating in approved archaeological fieldwork in the Mediterranean region. While the study of language is not required, students are encouraged to study the appropriate ancient languages. The minor is especially suitable for students in such fields as history, medieval studies, anthropology, literature, philosophy, and education.

What is Classics and Ancient Mediterranean Studies?

Classics and Ancient Mediterranean Studies (CAMS) is the study of ancient civilizations that arose and flourished around the Mediterranean basin (including Egypt, Greece, Rome, Anatolia, Israel, Mesopotamia, and North Africa) from the "cradle of civilization" in Mesopotamia (ca. 4000 BCE) to the end of Greco-Roman antiquity (ca. 600 CE). CAMS

investigates the whole scope of the ancient Mediterranean world and trains students to interpret the linguistic and archaeological evidence of the greatest ancient cultures.

You Might Like This Program If...

- You want to learn the methods of archaeology and archaeological interpretation with the goal of reconstructing the social practices and historical development of different peoples in the ancient Mediterranean.
- You want to master an interdisciplinary subject with a long-term perspective on the human condition and on cultural achievements across diverse geographical regions.
- You want to pursue a career in education, archaeology, or law.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
	Select 12 credits from CAMS courses	12
	Select 6 credits of 400-level CAMS courses	6

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Career Paths

The study of CAMS requires the mastery of skills in assessing a range of evidence, deliberation and argumentation, analytical thinking, and writing and communication. The perspectives and skills developed as a CAMS student are valued in a wide range of professions, and our graduates have entered a great variety of careers.

Careers

- Secondary and College Level Teaching
- Archaeology
- Secondary Teaching
- Business Leaders
- Law

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN CLASSICS AND ANCIENT MEDITERRANEAN STUDIES (<https://la.psu.edu/current-students/career-enrichment-network/>)

Opportunities for Graduate Studies

Some of our majors plan academic careers in CAMS-related fields. Our students have enrolled in graduate programs in Classics, Ancient History, Near Eastern Studies, Egyptology, Biblical Studies, Archaeology, Art History, and related fields.

Contact

University Park

DEPARTMENT OF CLASSICS AND ANCIENT MEDITERRANEAN STUDIES
108 Weaver Building
University Park, PA 16802
814-865-8851
bdw150@psu.edu

<https://cams.la.psu.edu/>

Communication Arts and Sciences, B.A. (Liberal Arts)

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

This major helps students better understand and analyze how people communicate in order to influence others and impact the world around them. The ability to communicate effectively in personal, social, professional, and multicultural situations is an essential skill in modern society. Discovering how to improve practices of communication in any of those situations—whether from a humanistic or scientific perspective—is equally vital. Students of Communication Arts and Sciences will therefore learn to argue persuasively, think critically, solve problems collaboratively, understand and manage conflict, influence people ethically, form and keep relationships, and participate constructively in civic life. The flexibility of this program offers preparation for a variety of careers, which include administration, business, health, higher education, human resources, law, public service, social or political advocacy, and more. Such flexibility is illustrated in the fact that this degree offers two different options for completion based on varying instructional and student needs (the Communication Studies option and the Foundations,

Scholarship, and Practice option). For these reasons, majoring in Communication Arts and Sciences also offers an excellent concurrent degree program: a substantive understanding of human communication—which is valuable in numerous forms of personal, social, or professional life—can significantly enhance students' preparation in many fields of study.

Two degree options are available for the Communication Arts and Sciences B.A. in order to provide flexibility based on student and faculty needs at different campuses where the degree is offered:

Communication Studies Option

Available at the following campuses: Berks, Brandywine

The B.A. in Communication Arts and Sciences (Communication Studies) provides increased knowledge and skill concerning the practice of human communication across an array of interpersonal, organizational, social, and cultural contexts. Students pursuing the B.A. in this degree option will learn to argue persuasively, think critically, solve problems collaboratively, understand and manage conflict, influence people ethically, form and keep relationships, and participate constructively in civic life. The flexibility of this program offers preparation for a variety of careers, which include administration, business, health, higher education, human resources, law, public service, social or political advocacy, and more. The B.A. in Communication Arts and Sciences (Communication Studies) also offers an excellent concurrent degree program: a substantive understanding of human communication—which is valuable in numerous forms of personal, social, and professional life—can significantly enhance students' preparation in many fields of study.

Foundations, Scholarship, and Practice Option

Available at the following campuses: University Park

The B.A. in Communication Arts and Sciences (Foundations, Scholarship, and Practice) promotes an understanding of fundamental facets of human communication, knowledge of theories and research that illuminate communication processes, and expertise in practical applications of communication research to civic, cultural, family, health, interpersonal, organizational, and social contexts. Students pursuing the B.A. in this degree option will learn to argue persuasively, think critically, solve problems collaboratively, understand and manage conflict, influence people ethically, form and keep relationships, and participate constructively in civic life. The flexibility of this program offers preparation for a variety of careers, which include administration, business, health, higher education, human resources, law, public service, social or political advocacy, and more. The B.A. in Communication Arts and Sciences (Foundations, Scholarship, and Practice) also offers an excellent concurrent degree program: A substantive understanding of human communication—which is valuable in numerous forms of personal, social, or professional life—can significantly enhance students' preparation in many fields of study.

What is Communication Arts and Sciences?

Communication Arts and Sciences (CAS) privileges the study and practice of communication in interpersonal, organizational, public, and intercultural contexts. Using methods and theories that span the humanities and social sciences, faculty and students create knowledge about the history, present state, and prospects of the fact that we can and do influence one another. This major inspires students to be more

effective and ethical in the personal, professional, and public roles their futures have in store for them.

You Might Like This Program If...

- You want to learn about the history and theory of communication from both humanistic and social scientific perspectives.
- You are curious about relationships, group dynamics, power, and conflict.
- You want to learn to craft powerful, ethical messages that make a difference.
- You want to develop analytical and critical thinking skills to understand how messages influence people and shape situations and institutions.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Communication Arts and Sciences, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	12-15
Bachelor of Arts Degree Requirements	24
Requirements for the Major	36-39

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CAS 301	Rhetorical Theory	3

CAS 303	Communication Theory	3
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Supporting Courses and Related Areas

<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 15 credits of other CAS courses; at least 12 credits must be at the 400 level. A maximum of 3 credits from CAS 494, CAS 495, CAS 496, and CAS 499 may satisfy this requirement. CAS 126 and CAS 195 may not be counted as part of the major.	15	

Requirements for the Option

<i>Requirements for the Option: Require a grade of C or better</i>		
Select an option	15-18	

Requirements for the Option

Communication Studies Option (15 Credits)

Available at the following campuses: Berks, Brandywine

Code	Title	Credits
Prescribed Courses		

<i>Prescribed Courses: Require a grade of C or better</i>		
CAS 204	Communication Research Methods	3

Additional Courses

<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits from the following list:	3	

CAS 203	Interpersonal Communication	
CAS 213	Persuasive Speaking	
CAS 214W	Speech Writing	
CAS 216	Practical Parliamentary Procedure	
CAS 250	Small Group Communication	
CAS 252	Business and Professional Communication	
CAS 271N	Intercultural Communication	
CAS 280W	Storytelling and Speaking	
CAS 283	Communication and Information Technology I	

Select 3 credits from the following list:	3	
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CAS 302	Social Influence	
CAS 311	Methods of Rhetorical Criticism	
CAS 321	Rhetoric and Law	
CAS 352	Organizational Communication	
CAS 373	The Rhetorics of War and Peace	
CAS 375	Rhetoric and Public Controversy	
CAS 383N	Culture and Technology	
CAS 398	Special Topics	
CAS 399	Foreign Studies	

Supporting Courses and Related Areas

<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 6 credits from CAS courses, 3 credits maximum from:	6	

CAS 494	Research Topics	
CAS 495	Internship	
CAS 496	Independent Studies	
CAS 499	Foreign Studies	

Foundations, Scholarship, and Practice Option (18 Credits)

Available at the following campuses: University Park

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		

CAS 101N	Introduction to Human Communication	3
CAS 304	Quantitative Methods for Communication Research	3
CAS 311	Methods of Rhetorical Criticism	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 9 credits from the following list:		9
CAS 203	Interpersonal Communication	
CAS 210	Landmark Speeches on Democracy and Dissent	
CAS 215	Argumentation	
CAS 220	Persuasion	

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Integrated B.A. in Communication Arts and Sciences and M.S. in Human Resources and Employment Relations

Available at the following campuses: University Park

Requirements for the Integrated B.A. in Communication Arts and Sciences and M.S. in Human Resources and Employment Relations

can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/human-resources-employment-relations/#integratedundergradgradprogramstext>).

Integrated B.A. in Communication Arts and Sciences and M.A. in Media Studies

Available at the following campuses: University Park

Requirements for the Integrated B.A. in Communication Arts and Sciences and M.A. in Media Studies can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/media-studies/#integratedundergradgradprogramstext>).

Integrated B.A. in Communication Arts and Sciences and Master of Public Policy

Available at the following campuses: University Park

Requirements for the Integrated B.A. in Communication Arts and Sciences and Master of Public Policy can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/public-policy/#integratedundergradgradprogramstext>).

Program Learning Objectives

- **Content Knowledge:** Learn communication concepts and theory.
- **Limited Difficulty Outside Classroom:** Ability to focus on material owing to limited serious challenges beyond classroom.
- **Research Practice and Methods:** Learn the practice of rhetorical or communication science research.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Berks

Jill Burk

Program Coordinator, Assistant Professor
Franco 148

Reading, PA 19610
610-396-6094
BKCommArtSci@psu.edu

Brandywine

Joshua Phillips

Assistant Teaching Professor Communication Arts and Sciences
25 Yearsley Mill Road
Media, PA 19063
610-892-1426
jdp5595@psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Communication Arts and Sciences, B.A. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 (or honors equivalent (GWS))*	3 CAS 100 (or honors equivalent (GWS))*	3
CAS 101N*	3 CAS Additional course (work with adviser)*	3
Quantification (GQ)*	3 Humanities (GH) + (US)	3
Social and Behavioral Sciences (GS) (FYS)	3 Natural Sciences (GN)	3
World Language 1	4 World Language 2	4
	16	16

Second Year

Fall	Credits Spring	Credits
CAS Additional course (work with adviser)*	3 CAS Additional course (work with adviser)*	3
Quantification (GQ)*	3 Natural Sciences (GN)	3
Arts (GA) + (IL)	3 Social and Behavioral Sciences (GS)	3
BA Fields	3 Humanities (GH)	3
World Language 3	4 BA Fields	3
	16	15

Third Year

Fall	Credits Spring	Credits
CAS 301*	3 CAS 303*	3
CAS 4XX-level course (work with adviser)*	3 CAS 311*	3
Natural Sciences (GN)	3 BA Fields	3

Arts (GA)	3 ENGL 202A, 202B, 202C, or 202D*	3
Elective	3 Elective	3
15		15
Fourth Year		
Fall	Credits Spring	Credits
CAS 304*	3 CAS 4XX-level course (work with adviser)*	3
CAS 4XX-level course (work with adviser)*	3 CAS 4XX-level course (work with adviser)*	3
Supporting CAS course (work with adviser)*	3 Elective	3
World Cultures	3 Elective	3
Health and Wellness (GHW)	3	
15		12
Total Credits 120		

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Advising Notes

This document is only for planning purposes and cannot replace working with an academic adviser. Each student is unique, and some campuses may not offer many CAS courses. Most students are "off the plan" after one semester.

Students need at least 24 credits in CAS courses completed at UP due to competency requirements. Campus advisers may work with the UP CAS adviser if they have questions about what their current students might take.

Two general education courses (GQ, GN, GA, GH, GS) must be integrative studies courses - Inter-Domain or Linked.

Depending on placement and proficiency, world language courses may need to be replaced with elective credits.

Students are required to take one Writing across the Curriculum course. There are three CAS 4XX-level courses that will fulfill this requirement, but any W course will work.

Career Paths

CAS graduates are analysts, strategists, persuaders, facilitators, negotiators, collaborators, connectors, and leaders. The CAS B.A. equips students for success in the workforce, graduate and law school, and civic life.

Careers

The CAS B.A. prepares students for success in careers that value a rigorous and diverse understanding of communication practices. Graduates thrive in careers in business, government, law, public relations, public policy, sales, and more.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE COMMUNICATION ARTS AND SCIENCES PROGRAM (<https://cas.la.psu.edu/undergraduate/careers-in-cas/>)

Opportunities for Graduate Studies

The CAS B.A. provides excellent preparation for graduate study in rhetoric, as well as fields such as business, human resources and employment relations, law, and public policy. CAS at University Park has three integrated undergraduate-graduate degrees through which approved CAS majors can earn an undergraduate and graduate degree in five years instead of six: Public Policy, Media Studies, and Human Resources and Employment Relations.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://cas.la.psu.edu/undergraduate/integrated-undergraduate-graduate-programs/>)

Professional Resources

- National Communication Association (<https://www.natcom.org/>)
- International Communication Association (<https://www.icahdq.org>)
- Rhetoric Society of America (<https://rhetoricsociety.org>)
- International Society for the History of Rhetoric (https://ishr-web.org/aw/ISHR/pt/sp/home_page/)
- Lambda Pi Eta (<https://www.natcom.org/lambda-pi-eta/>)

Contact

University Park

DEPARTMENT OF COMMUNICATION ARTS AND SCIENCES

234 Sparks Building
University Park, PA 16802
sas519@psu.edu and cas@psu.edu

<https://cas.la.psu.edu/>

Berks

DIVISION OF HUMANITIES, ARTS AND SOCIAL SCIENCES

Franco Building
Reading, PA 19610
610-396-6094
BKCommArtSci@psu.edu

<https://berks.psu.edu/academics/ba-communication-arts-sciences>
(<https://berks.psu.edu/academics/ba-communication-arts-sciences/>)

Brandywine

25 Yearsley Mill Road
Media, PA 19063
610-892-1426
jdp5595@psu.edu

<https://www.brandywine.psu.edu/academics/bachelors-degrees/communication-arts-and-sciences> (<https://www.brandywine.psu.edu/academics/bachelors-degrees/communication-arts-and-sciences/>)

Communication Arts and Sciences, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The B.S. in Communication Arts and Sciences promotes an understanding of fundamental facets of human communication, knowledge of theories and research that illuminate communication processes, and expertise in practical applications of communication research to civic, cultural, family, health, interpersonal, organizational, and social contexts. The ability to communicate effectively in personal, social, professional, and multicultural situations is an essential skill in modern society. Discovering how to improve practices of communication in any of those situations—whether from a humanistic or scientific perspective—is equally vital. Students of Communication Arts and Sciences will therefore learn to argue persuasively, think critically, solve problems collaboratively, understand and manage conflict, influence people ethically, form and keep relationships, and participate constructively in civic life. The flexibility of this program offers preparation for a variety of careers, which include administration, business, health, higher education, human resources, law, public service, social or political advocacy, and more. For these reasons, majoring in Communication Arts and Sciences also offers an excellent concurrent degree program: a substantive understanding of human communication—which is valuable in numerous forms of personal, social, or professional life—can significantly enhance students' preparation in many fields of study.

What is Communication Arts and Sciences?

Communication Arts and Sciences (CAS) privileges the study and practice of communication in interpersonal, organizational, public,

and intercultural contexts. Using methods and theories that span the humanities and social sciences, faculty and students create knowledge about the history, present state, and prospects of the fact that we can and do influence one another. This major inspires students to be more effective and ethical in the personal, professional, and public roles their futures have in store for them.

You Might Like This Program If...

- You want to learn about the history and theory of communication from both social scientific and humanistic perspectives.
- You are curious about relationships, group dynamics, power, and conflict.
- You want to learn to craft powerful, ethical messages that make a difference.
- You want to develop analytical and critical thinking skills to understand how messages influence people and shape situations and institutions.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science in Communication Arts and Sciences, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	21
Requirements for the Major	54

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CAS 101N	Introduction to Human Communication	3
CAS 301	Rhetorical Theory	3
CAS 303	Communication Theory	3

CAS 304	Quantitative Methods for Communication Research	3
CAS 311	Methods of Rhetorical Criticism	3

Additional Courses

Additional Courses: Require a grade of C or better

Select 9 credits from the following 200-level foundational course options: 9

CAS 203	Interpersonal Communication	
CAS 210	Landmark Speeches on Democracy and Dissent	
CAS 215	Argumentation	
CAS 220	Persuasion	

Supporting Courses and Related Areas

Select 15 credits of other CAS courses. At least 12 credits must be at the 400 level. A maximum of 3 credits from CAS 494, CAS 495, CAS 496, and CAS 499 may satisfy this requirement. CAS 126 and CAS 195 may not be counted as part of the major. 15

Select 12 credits in quantification from department list. Department list includes courses in MATH (MATH 38, MATH 110, MATH 111, MATH 140, MATH 141, MATH 211, MATH 318, MATH 319) and Statistics (STAT 100, STAT 200, STAT 301, STAT 318, STAT 319, STAT 401, STAT 414, STAT 415, STAT 416, STAT 418, STAT 440, STAT 460, STAT 461, STAT 462, STAT 464, STAT 466, STAT 470W, STAT 480, STAT 482, STAT 483). 12

Select 3 credits in related disciplines from departmental list of approved courses 3

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Communication Arts and Sciences and M.S. in Human Resources and Employment Relations

Available at the following campuses: University Park

Requirements for the Integrated B.S. in Communication Arts and Sciences and M.S. in Human Resources and Employment Relations can be found in the Graduate Bulletin (<https://bulletins.psu.edu/>)

[graduate/programs/majors/human-resources-employment-relations/#integratedundergradgradprogramstext](https://bulletins.psu.edu/graduate/programs/majors/human-resources-employment-relations/#integratedundergradgradprogramstext)).

Integrated B.S. in Communication Arts and Sciences and M.A. in Media Studies

Requirements for the Integrated B.S. in Communication Arts and Sciences and M.A. in Media Studies can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/media-studies/#integratedundergradgradprogramstext>).

Integrated B.S. in Communication Arts and Sciences and Master of Public Policy

Requirements for the Integrated B.S. in Communication Arts and Sciences and Master of Public Policy can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/public-policy/#integratedundergradgradprogramstext>).

Program Learning Objectives

- **Content Knowledge:** Learn communication concepts and theory.
- **Limited Difficulty Outside Classroom:** Ability to focus on material owing to limited serious challenges beyond classroom.
- **Research Practice and Methods:** Learn the practice of rhetorical or communication science research.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Communication Arts and Sciences, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
ENGL 15 (or honors equivalent (GWS))*	3	CAS 100 (or honors equivalent (GWS))*	3
CAS 101N*	3	CAS Additional course (work with adviser)*	3
Quantification (GQ)*	3	Humanities (GH) + (US)	3
Social and Behavioral Sciences (GS) (FYS)	3	Natural Sciences (GN)	3
Elective	3	Supporting Course (work with adviser)*	3
	15		15

Second Year

Fall	Credits	Spring	Credits
CAS Additional course (work with adviser)*	3	CAS Additional course (work with adviser)*	3
Quantification (GQ)*	3	Natural Sciences (GN)	3
Arts (GA) + (IL)	3	Humanities (GH)	3
Social and Behavioral Sciences (GS)	3	Supporting Course (work with adviser)*	3
Elective	3	Arts (GA)	3
	15		15

Third Year

Fall	Credits	Spring	Credits
CAS 301*	3	CAS 303*	3
CAS 4XX-level course (work with adviser)*	3	CAS 311*	3
Natural Sciences (GN)	3	Supporting Course (work with adviser)*	3
Supporting Course (work with adviser)	3	ENGL 202A, 202B, 202C, or 202D*	3
Elective	3	Elective	3
	15		15

Fourth Year

Fall	Credits	Spring	Credits
CAS 304*	3	CAS 4XX-level course (work with adviser)*	3
CAS 4XX-level course (work with adviser)*	3	CAS 4XX-level course (work with adviser)*	3
Supporting CAS course (work with adviser)*	3	Supporting Course (work with adviser)*	3
Health and Wellness (GHW)	1.5	Health and Wellness (GHW)	1.5
Elective	3	Elective	3

Elective	3	
	16.5	13.5

Total Credits 120

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes

This document is only for planning purposes and cannot replace working with an academic adviser. Each student is unique, and some campuses may not offer many CAS courses. Most students are "off the plan" after one semester.

Students need at least 24 credits in CAS courses completed at UP due to competency requirements. Campus advisers may work with the UP CAS adviser if they have questions about what their current students might take.

Two general education courses (GQ, GN, GA, GH, GS) must be integrative studies courses - Inter-Domain or Linked.

Supporting courses include four Methodology courses and one related disciplines course.

Students are required to take one Writing across the Curriculum course. There are three CAS 4XX-level courses that will fulfill this requirement, but any W course will work.

Career Paths

CAS graduates are analysts, strategists, persuaders, facilitators, negotiators, collaborators, connectors, and leaders. The CAS B.S. equips students for success in the workforce, graduate and law school, and civic life.

Careers

The CAS B.S. prepares students for success in careers that value a rigorous and diverse understanding of communication practices. Graduates thrive in careers in business, government, law, public relations, human relations, public policy, public health, healthcare, and more.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE COMMUNICATION ARTS AND SCIENCES PROGRAM (<https://cas.la.psu.edu/undergraduate/careers-in-cas/>)

Opportunities for Graduate Studies

The CAS B.S. provides excellent preparation for graduate study in communication science, as well as fields such as business, human resources and employment relations, law, public policy, and public health. CAS at University Park has three integrated undergraduate-graduate degrees through which approved CAS majors can earn an undergraduate and graduate degree in five years instead of six: Public Policy, Human Resources and Employment Relations, and Media Studies. The first two are good fits with the B.S. degree.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://cas.la.psu.edu/undergraduate/integrated-undergraduate-graduate-programs/>)

Professional Resources

- National Communication Association (<https://www.natcom.org/>)
- International Communication Association (<https://www.icahdq.org>)
- Lambda Pi Eta (<https://www.natcom.org/student-organizations/lambda-pi-eta/>)

Contact**University Park**

DEPARTMENT OF COMMUNICATION ARTS AND SCIENCES
234 Sparks Building
University Park, PA 16802
sas519@psu.edu and cas@psu.edu

<https://cas.la.psu.edu/>

Communication Arts and Sciences, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

This minor in Communication Arts and Sciences allows students maximum curricular flexibility to supplement their primary courses of study and prepare for their careers after graduation. Students who earn this minor will acquire highly desired skills and insights in the areas of communication strategy, group dynamics, interpersonal relationships, conflict resolution, and more. These skills and insights may be applicable in such fields as business, health, law, public advocacy, and many others.

In these ways, the minor valuably supplements many primary undergraduate degrees throughout the university. Knowledge of, and training in, practices of human communication can significantly enhance one's ability to succeed in virtually any academic, professional,

civic, or interpersonal setting. Finally, most undergraduate courses in Communication Arts and Sciences are certified for General Education credit, so students can quickly attain a valuable minor while earning General Education credits at the same time.

What is Communication Arts and Sciences?

Communication Arts and Sciences (CAS) privileges the study and practice of communication in interpersonal, organizational, public, and intercultural contexts. Using methods and theories that span the humanities and social sciences, faculty and students create knowledge about the history, present state, and prospects of the fact that we can and do influence one another. This major inspires students to be more effective and ethical in the personal, professional, and public roles their futures have in store for them.

You Might Like This Program If...

- You want to supplement your primary degree by learning about the importance of human communication from either social scientific and humanistic perspectives.
- You want to learn how to craft effective messages for different audiences.
- You want to develop analytic and critical thinking skills in order to understand how messages influence audiences.
- You want to acquire theories, methods, and practical tools of communication to help advance your professional or civic goals.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CAS 101N	Introduction to Human Communication	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 6 credits from the following:		6
CAS 203	Interpersonal Communication	
CAS 210	Landmark Speeches on Democracy and Dissent	
CAS 215	Argumentation	
CAS 220	Persuasion	

Supporting Courses and Related Areas

<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 3 additional credits from any 200-level CAS course		3
Select 6 additional credits from any 400-level CAS course (excluding CAS 493, CAS 494, CAS 495, CAS 496, or CAS 499)		6

Note: CAS 100, CAS 126, or CAS 195 may not be counted as part of the minor.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Abington

Roy Robson

Division Head, Division of Arts and Humanities
1600 Woodland Road
Abington, PA 19001
215-881-7466
rrr5237@psu.edu

Brandywine

Kimberly Blockett

Associate Professor of English
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610-892-1376
kdb13@psu.edu

Berks

Jill Burk

Program Coordinator, Assistant Professor
Franco 148
Reading, PA 19610
610-396-6094
BKCommArtSci@psu.edu

Schuylkill

Valerie Schrader

Professor, Communication, Arts and Sciences
200 University Drive
Schuylkill Haven, PA 17972
570-385-6072
vls146@psu.edu

Career Paths

CAS students are change makers: analysts, strategists, persuaders, facilitators, collaborators, connectors, and scholars. The CAS minor

serves as a valuable supplement to a wide array of majors, and helps to equip students for success in the work force, graduate school, and civic life. CAS courses provide students with the theories, methods, practical tools, and experiences to understand the roots of social conflict and the sources of well-being.

Careers

A Minor in CAS prepares students for post-graduate success by demonstrating that they have sought a rigorous and diverse understanding of communication practices beyond their primary courses of study. The applied communication focus of this minor can benefit graduates in careers that prioritize an ability to communicate effectively, including business, government, health and human services, human development, law, public relations, sales, and more.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN COMMUNICATION ARTS AND SCIENCES (<https://cas.la.psu.edu/undergraduate/careers-in-cas/>)

Opportunities for Graduate Studies

A Minor in CAS also provides excellent preparation for graduate study in either communication science or rhetoric, as well as fields such as business, health and human services, human development, public policy, social work, and more.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://cas.la.psu.edu/graduate/>)

Contact

University Park

DEPARTMENT OF COMMUNICATION ARTS AND SCIENCES
234 Sparks Building
University Park, PA 16802
814-865-3461
sas519@psu.edu

<https://cas.la.psu.edu/>

Abington

DIVISION OF ARTS AND HUMANITIES
1600 Woodland Road
Abington, PA 19001
215-881-7466
rrr5237@psu.edu

Berks

DIVISION OF HUMANITIES, ARTS AND SOCIAL SCIENCES
Franco Building
Reading, PA 19610
610-396-6094
BKCommArtSci@psu.edu

Brandywine

25 Yearsley Mill Road
Media, PA 19063
610-892-1376
kdb13@psu.edu

<https://www.brandywine.psu.edu/academics/minors/communication-arts-and-sciences> (<https://www.brandywine.psu.edu/academics/minors/communication-arts-and-sciences/>)

Schuylkill

ACADEMIC AFFAIRS
200 University Drive
Schuylkill Haven, PA 17972
570-385-6072
vls146@psu.edu

Comparative Literature, B.A.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

Designed for students who want to study literature with an interdisciplinary and global perspective, the major in Comparative Literature crosses the boundaries of geography, time, nationalities, languages, and cultures. The world of literature taught draws upon readings from the Americas, Europe, Africa, Asia, and the Middle East, and from many historical periods. The range includes recognized great books along with less-known works, timeless myths and up-to-date graphic novels and video games, gender studies, colonial and postcolonial literatures, indigenous literatures, testimonies, legends, banned books, literatures of the occult, detective fictions, virtual worlds, and cultural theory, and more. Students engage with different languages and cultures, develop the critical skills for literary and cultural analysis, and relate literature to other media, including film and digital media. The major also encourages students to explore the relationship between literature and ethics through course offerings focused on transnational identities, human rights, cultures of globalization, and the problem of violence. A senior seminar clarifies the mysteries of literary theory and provides opportunities for individual projects.

Students majoring in Comparative Literature take courses in the Department of Comparative Literature and in other departments. They also develop competence in a world language. Study abroad is encouraged: students may count up to 18 Education Abroad credits toward the major. The department endeavors to provide all Comparative Literature majors with opportunities for an individualized "engaged scholarship" experience, such as an undergraduate research project, an opportunity to assist faculty in research or teaching, an internship, an experience studying or working abroad, etc.

Graduates of the Department of Comparative Literature have undertaken careers in teaching, completed advanced degrees in literature, librarianship, law, and similar fields, entered the Peace Corps or other types of government service, and pursued careers in writing and communications.

The department offers a minor in World Literature, a major in Comparative Literature and an innovative integrated undergraduate-graduate degree through which students obtain both a B.A. and an M.A. in Comparative Literature.

What is Comparative Literature?

Comparative literature is a discipline of literary studies that explores exciting approaches to literature and culture in a global context. It also examines global media (print, visual, electronic), and engages with questions of ethics, human rights, and the real world contexts of literary and cultural production.

MORE INFORMATION ABOUT COMPARATIVE LITERATURE (<https://complit.la.psu.edu/undergraduate/>)

You Might Like This Program If...

- You are curious about other cultures beyond your own and want to learn to think critically and creatively about cultural difference and convergence in our interconnected world.
- You want to acquire important skills such as analytical writing, argumentation, and communication in an international context.
- You are interested in acquiring knowledge of a second language and/or culture, which is a key component to success in the global economy.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Comparative Literature, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	15
Bachelor of Arts Degree Requirements	24
Requirements for the Major	36

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CMLIT 10	World Literatures	3
CMLIT 100	Reading Across Cultures	3
CMLIT 400Y	Senior Seminar in Literary Criticism and Theory	3

Supporting Courses and Related Areas

Select 27 credits from sections A, B, and C, including at least 15 credits at the 400 level: 27

A. Concentration

Select one of the following concentrations:

Language Emphasis

Select 6-18 credits in the study of a single world language and/or literature beyond the 12th credit level; see department list

Student-designed Thematic Emphasis

Select 6-18 credits of CMLIT courses, in consultation with your adviser, organized around a theme you devise, subject to your adviser's approval of a 1-page academic plan in which you explain your theme and the courses that fit into it.

B. Literatures

Select at least 6-18 credits in courses on literature. Up to 12 of these credits can be taken through departments other than Comparative Literature. Up to 18 credits may be taken as courses offered through an Education Abroad program with departmental approval.

C. Comparative Literature

Select 3 credits in Comparative Literature at the 400 level

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the

requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor,

elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Integrated B.A. in Comparative Literature and M.A. in Comparative Literature

Requirements for the Integrated B.A. in Comparative Literature and M.A. in Comparative Literature can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/comparative-literature/#integratedundergradgradprogramstext>).

Program Learning Objectives

- Identify formal and aesthetic aspects of literary texts—including genre, period, style, theme, language, and narrative structure—as they emerge within global patterns of production, translation, or circulation.
- Analyze literary texts and other artistic media through close readings within a comparative or global context.
- Utilize library and digital resources to locate, access, and assess relevant research materials.
- Compare literary texts from different cultures, regions, languages, time periods, and genres with special attention to the benefits and challenges of the comparative method.
- Produce written arguments that advance a compelling rhetorical or theoretical position through analysis of textual evidence, a strong thesis statement, and a sophisticated understanding of how to read global literatures.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://>

bulletins.psu.edu/undergraduate/archive/) to view the appropriate Undergraduate Bulletin edition.

Comparative Literature, B.A. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
00 or 100 Level Course in Comparative Literature*	3 CMLIT 100*	3
ENGL 15, 30H, 137H, CAS 137H, or ESL 15 (GWS)†	3 CAS 100A, 100B, 100C, 138T, or ENGL 138T (GWS)‡	3
General Education Course	3 General Education Course (GQ)‡	3
General Education Course	3 General Education Course	3
World Language Level 1	4 World Language Level 2	4
	16	16

Second Year

Fall	Credits Spring	Credits
General Education Course	3 World Language level 4*	3
Any Level Course in Comparative Literature*	3 BA Requirements	3
General Education Course	3 General Education Course (GQ)*	3
General Education Course	3 General Education Course	3
World Language Level 3	4 CMLIT 10 (IL)*	3
	16	15

Third Year

Fall	Credits Spring	Credits
World Language level 5*	3 400 Level Course in CMLIT*	3
400 Level Course in Comparative Literature, English Literature, or World Language*	3 BA World Cultures Course/ Elective	3
General Education Course	3 ENGL 202A, 202B, 202C, or 202D (GWS)‡	3
BA Requirements	3 BA Requirements	3
General Education Course	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
400 Level Course in Comparative Literature, English Literature, or World Language*	3 400 Level Course in Comparative Literature, English Literature, or Foreign Literature*	3
Elective	3 400 Level Course in Comparative Literature, English Literature, or Foreign Literature*	3

Elective	3 General Education Course (GHW)	1.5
Elective	3 Elective	3
General Education Course (GHW)	1.5 Elective	3
CMLIT 400Y (US/IL)*	3	
	16.5	13.5

Total Credits 123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Advising Notes:

- All incoming freshmen must take a First-Year Seminar (FYS) during Fall or Spring of their first year. Academic advisers can provide a list of FYS being offered and help the student enroll. Most FYS in the College of the Liberal Arts are worth 3 cr. and count as a General Humanities (GH) or General Social Sciences (GS) course. For this reason, the FYS is not listed separately on this eight-semester plan; most students will be able to fulfill the FYS requirement while also fulfilling a GH or GS requirement.

Career Paths

Comparative Literature will give you a deeper understanding of this planet and its people, and open doors to new intellectual and cultural worlds. It will train you in important skills such as analytical writing, argumentation, and communication in an international context. The study of world literature, ethics and human rights, and global media—key areas in our program—gives students in professional and technical areas the “soft skills” that allow them to stand out from other applicants when they enter the job market and to build long-lasting careers out of the first job. Comparative Literature will expand your professional and intellectual options, not only immediately after graduation, but for the rest of your life.

Careers

A degree in Comparative Literature will aid you in finding employment in domestic and international business, public relations, publishing, education, non-profit organizations, and museum acquisitions. Our alumni also pursue graduate degrees in advanced literary studies, law, and library science; and they have become professors, attorneys, librarians, and leaders in business, private institutions, and government service.

Opportunities for Graduate Studies

The graduate program in Comparative Literature offers students small seminars on a diverse range of topics related to world literatures and cultures across the globe examined from a variety of theoretical approaches. We are committed to the intellectual development and professional success of all our students. We make sure they have opportunities to teach literature classes in their field(s) of study, and we work with them beginning in the second year to prepare them to write for publication. We also offer students the possibility of pursuing internships that prepare them for careers in and beyond academia.

Contact

University Park

DEPARTMENT OF COMPARATIVE LITERATURE
442 Burrowes Building
University Park, PA 16802
814-863-0589
cmlit@psu.edu

Creative Writing, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

This minor offers students not majoring in English the opportunity to explore different forms of creative writing—fiction, poetry, and nonfiction—or to focus primarily on one of them. Students receive instruction and practice the art and craft of writing in small, workshop courses.

What is Creative Writing?

Creative writing is a liberal arts discipline concerned with the practice of literary art, the life of the imagination, and the capacities of language. Creative writing students analyze masterworks of fiction, poetry, and literary nonfiction from different periods and cultures; compose their own

original works; develop editing and communication skills; and explore the world of contemporary publishing.

You Might Like This Program If...

The qualities we encourage in our students prepare them to be dynamic employees who are creative thinkers and problem-solvers. Many of our students have gone on to careers as published writers, novelists, poets, essayists, short story writers, and writers of young adult literature. Other students find they are well prepared for careers in writing for the media, business, public and private foundations, and government. Higher and secondary education careers have been popular choices as well. Our students often pursue advanced degrees in fields such as creative writing, literature, law, psychology, linguistics, and ethnic and gender studies.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

Some courses may require prerequisites.

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 9 credits of introductory-level courses (200-level) from the following:		9
ENGL 212	Introduction to Fiction Writing	
ENGL 213	Introduction to Poetry Writing	
ENGL 214	Introduction to Creative Nonfiction Writing	
ENGL 215	Introduction to General Nonfiction Writing	
ENGL 281	Television Script Writing	
Select 9 credits of advanced-level writing workshop courses (400-level) from the following:		9
ENGL 401	Studies in Genre	
ENGL 411M	Honors Seminar in English: Creative Writing	
ENGL 412	Advanced Fiction Writing	
ENGL 413	Advanced Poetry Writing	
ENGL 414	Biographical Writing	
ENGL 415	Advanced Nonfiction Writing	
ENGL 422	Fiction Workshop	
ENGL/ENVST 424	Creative Writing and the Natural World	
ENGL 425		
ENGL/CMLIT 429	New Media and Literature	
ENGL 435	The American Short Story	
ENGL 436	American Fiction Since 1945	
ENGL 437	The Poet in America	
ENGL 439	American Nonfiction Prose	

ENGL 486 The World Novel in English

ENGL 495 Internship

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Erie

Tom Noyes, Ph.D.

Professor of English and Creative Writing

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Erie, PA 16563

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Harrisburg

Maggie Gerrity, Ph.D.

Program Coordinator

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Middletown, PA 17057

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Contact

University Park

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434 Burrowes Building

University Park, PA 16802

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<https://english.la.psu.edu/undergraduate/>

Erie

SCHOOL OF HUMANITIES AND SOCIAL SCIENCES

170 Kochel Center

Erie, PA 16563

814-898-6108

hssoffice@psu.edu

<https://behrend.psu.edu/school-of-humanities-social-sciences> (<https://behrend.psu.edu/school-of-humanities-social-sciences/>)

Harrisburg

SCHOOL OF HUMANITIES

Olmsted Building, W356

Middletown, PA 17057

717-948-6189

mpf5451@psu.edu

<https://harrisburg.psu.edu/humanities/creative-writing-minor> (<https://harrisburg.psu.edu/humanities/creative-writing-minor/>)

Criminology, B.A.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The Bachelor of Arts degree in Criminology is offered by the Criminology Program in the Department of Sociology.

This major provides students with a broadly based liberal education focused on the understanding and analysis of crime and justice systems. Students obtain a foundation of knowledge of the basic components of the criminal justice and legal systems as well as abilities to solve problems, think and read critically, and write effectively within the context of criminal justice and criminological research and theory.

The B.A. degree is suitable for students seeking entry-level positions in the criminal justice system and for students interested in graduate and law school. Students interested in acquiring strong quantitative skills should consider the B.S. degree.

What is Criminology?

Criminology is a broad and interdisciplinary field of study that promotes an understanding of crime and the criminal justice system and how they relate to human behavior, social environments, and government policy. Examples of topics studied in Criminology are: the causes and consequences of deviant and/or criminal behavior; the structure and functions of the criminal justice system; societal and individual reactions to crimes and criminal justice processing; the spatial and geographical elements associated with crime and poverty; and the dynamics of criminal justice policy making.

You Might Like This Program If...

- You are interested in studying human behavior through an interdisciplinary lens.
- You are fascinated with deviance and/or criminal behavior.
- You would like to study the functioning of the criminal justice system.
- You're passionate about issues of social justice.
- You would like to go to law school or graduate school.
- You want to pursue a career in policing, corrections or governmental.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Criminology, a minimum of 121 credits is required:

Requirement	Credits
General Education	45
Electives	16
Bachelor of Arts Degree Requirements	24
Requirements for the Major	40

4 of the 45 credits for General Education are included in the Requirements for the Major. This includes 4 credits of General Education GQ courses.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CRIM/CRIMJ/ SOC 12	Criminology	3
CRIM/CRIMJ 100	Introduction to Criminal Justice	3
CRIM 249	Criminology Theory and Evidence	3
CRIM 250W	Research Methods in Criminology	3
STAT 200	Elementary Statistics	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select one of the following:		3
CAS 283	Communication and Information Technology I	
CMPSC 100	Computer Fundamentals and Applications	
CMPSC 101	Introduction to Programming	
Select one of the following:		3
SOC 1	Introductory Sociology	
SOC 3	Introductory Social Psychology	
SOC 5	Social Problems	
Select two of the following core courses:		6
CRIM 430	American Correctional System	

CRIM/CRIMJ 432	Crime and the American Court System	
CRIM 435	Policing in America	
CRIM/CRIMJ 451	Race, Crime, and Justice	
CRIM/CRIMJ/ WMNST 453	Women and the Criminal Justice System	
CRIM/CRIMJ/ SOC 467	Law and Society	
CRIM 490	Crime Policy	
Select 6 credits from non-core CRIM/CRIMJ courses at the 400 level (including no more than 3 credits of LA 496, CRIM 494, or CRIM 499)		6
Select 6 credits in race, ethnicity and gender:		6
AA 100	Introduction to International Arts	
AMST 105	American Popular Culture and Folklife	
AMST 432	Ethnicity and the American Experience	
ANTH 146	Indigenous North America	
CAS 271N	Intercultural Communication	
CAS 455	Topics in Gender and Communication	
CAS 471	Intercultural Communication Theory and Research	
CMLIT 101	Race, Gender, and Identity in World Literature	
CRIM 451	Race, Crime, and Justice	
CRIM 453	Women and the Criminal Justice System	
ENGL 135	Alternative Voices in American Literature	
ENGL 139	African American Literature	
ENGL 462	Reading Black, Reading Feminist	
HIST 154	History of Welfare and Poverty in the United States	
PHIL 9	Race, Racism, and Diversity	
PSYCH 432	Multicultural Psychology in America	
SOC 103	Racism and Sexism	
SOC 119N	Race, Ethnicity and Culture	
SOC 409	Racial and Ethnic Inequality in America	
SOC 419	Race and Public Policy	
SOC 429	Social Stratification	
WMNST 1	Introduction to Women's Studies	
WMNST 104	Women and the American Experience	
WMNST 136	Race, Gender, and Employment	

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or

within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Integrated B.A. in Criminology and M.P.S. in Criminal Justice Policy and Administration

Requirements for the Integrated B.A. in Criminology and M.P.S. in Criminal Justice Policy and Administration can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/criminal-justice-policy-administration/#integratedundergradgradprogramstext>).

Integrated B.A. in Criminology and M.I.A. in International Affairs

Requirements for the Integrated B.A. in Criminology and M.I.A. in International Affairs can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/international-affairs/#integratedundergradgradprogramstext>).

Program Learning Objectives

- Recognize the causes and consequences of crime at the micro and macro levels and match these with prominent criminological perspectives.
- Describe the interrelated institutions and processes of the criminal justice system.
- Apply theories of crime and criminal justice to explain actual and hypothetical scenarios, behaviors, and trends.
- Explain the various social science methods of inquiry and use these to test specific criminological research questions.
- Recognize and explain macro-social inequities in crime and criminal justice processes by race, social class, gender, region and age.
- Locate and consult works in the area to produce a research paper that is coherent, cogent, and attentive to conventions of the field.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of

both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Criminology, B.A. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
General Education (GWS) [‡]	3 CRIM/SOC 12 [*]	3
CRIM 100 [*]	3 General Education (GWS) [‡]	3
World Language level 1	4 STAT 200 (GQ) ^{*††}	4
General Education Quantification (GQ) [‡]	3 World Language level 2	4
General Education or First-Year Seminar	3 General Education Course	3
	16	17

Second Year

Fall	Credits Spring	Credits
SOC 1, 3, or 5 [*]	3 Race, Ethnicity, and Gender Course from List [*]	3
World Language Level 3	4 CRIM 250W [*]	3
CRIM 249 [*]	3 General Education Course	3
General Education Course	3 BA Fields	3
Elective	3 Elective	3
	16	15

Third Year

Fall	Credits Spring	Credits
CAS 283, CMPSC 100, or CMPSC 101 [*]	3 4XX Level Course from List [*]	3
4XX Level Course from List [*]	3 Race, Ethnicity, and Gender Course from List [*]	3
General Education Course	3 General Education Course	3
General Education Course	3 BA Fields	3
Elective	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
4XX-Level CRIM Core Course from List [*]	3 4XX-Level CRIM Core Course from List [*]	3
General Education Course (GWS) [‡]	3 BA Fields	3
General Education Course	3 General Education Course	3
BA World Cultures Course	3 General Education Course (GHW)	1.5
General Education Course (GHW)	1.5 Elective	3
	13.5	13.5

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may

not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Advising Notes:

- All incoming first-year students must take a First-Year Seminar (FYS) during Fall or Spring of their first year. Academic advisers can provide a list of FYS being offered and help the student enroll. Most FYS in the College of the Liberal Arts are worth 3 credits and count as a General Humanities (GH) or General Social Sciences (GS) course. For this reason, the FYS is not listed separately on this eight-semester plan; most students will be able to fulfill the FYS requirement while also fulfilling a GH or GS requirement.
- The following sequence **MUST** be followed: CRIM 12/SOC 12 # CRIM 249 # CRIM 250W. It is suggested that CRIM 12 and CRIM 249 be taken as early as possible. CRIM 100 and CRIM 249 can be taken in the same semester. CRIMJ 250W will only be used as elective credits.
- While CRIM 294, CRIM 296, and CRIM 494 provide students with terrific opportunities and learning experiences, these credits may **NOT** be counted in fulfillment of the Criminology major requirements. They may, however, be used as elective credits to count toward the credit requirement for graduation
- Internship credits will be counted towards elective credits, unless approved by the internship coordinator to meet a general 3 credit 400 level CRIM course requirement
- 3 credits of the Netherlands Education Abroad experience (CRIMJ 499) can be used to meet a general 400 level course requirement. A total of 15 education abroad credits (max) may be applied toward the major; courses must be approved by the department for application toward the major. CRIM 12/SOC 12, CRIM 100, CRIM 249 and CRIM 250W cannot be taken abroad.

Criminology, B.A. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
General Education Course (GWS) [‡]	3 CRIM 12, CRIMJ 12, or SOC 12 [*]	3
CRIM 100 or CRIMJ 100 [*]	3 STAT 200 ^{*††}	4
World Language Level 1	4 General Education Course (GWS) [‡]	3
General Education Course (GQ) [‡]	3 World Language Level 2	4
General Education Course	3 General Education Course	3
16		17

Second Year

Fall	Credits Spring	Credits
SOC 1, 3, or 5 [*]	3 Race, Ethnicity, and Gender Course from List [*]	3
World Language Level 3	4 General Education Course	3
General Education Course	3 BA Fields	3
General Education Course	3 Elective	3
Elective	3 Elective	3
16		15

Third Year

Fall	Credits Spring	Credits
CAS 283, CMPSC 100, or CMPSC 101 [*]	3 CRIM 250W [*]	3
CRIM 249 [*]	3 Race, Ethnicity, and Gender Course from List [*]	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
Elective	3 BA Fields	3
15		15

Fourth Year

Fall	Credits Spring	Credits
4XX Level Course from List [*]	3 Core CRIM Course from List [*]	3
CRIM Core Course from List [*]	3 4XX Level Course from List [*]	3
General Education Course (GWS) [‡]	3 BA Fields	3
BA World Cultures Course	3 General Education Course (GHW)	1.5
General Education Course (GHW)	1.5 Elective	3
13.5		13.5

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Career Paths

There are opportunities for careers in criminology for everyone. Whether you like field work, working in a laboratory or working behind the scenes in research or administration, the chances are you'll find a rewarding career.

Careers

Majoring in Criminology will prepare you for a wide array of criminal justice careers, such as law enforcement, corrections and rehabilitation, research analysis, governmental and non-governmental organizations.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE CRIMINOLOGY PROGRAM (<https://sociology.la.psu.edu/undergraduate/criminology/careers-in-criminology/>)

Opportunities for Graduate Studies

A baccalaureate degree in Criminology is suitable for students seeking entry-level positions in the criminal justice system and for students interested in graduate and law school.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://sociology.la.psu.edu/graduate/>)

Professional Resources

- The American Society of Criminology (<https://asc41.com/>)
- American Sociological Association (<https://www.asanet.org/>)
- Penn State Justice Association (<https://pennstateja.wixsite.com/justice-association/academics/>)

Contact

University Park

DEPARTMENT OF SOCIOLOGY AND CRIMINOLOGY

211 Oswald Tower

University Park, PA 16802

814-865-2527

sociology@psu.edu

<https://sociology.la.psu.edu>

Criminology, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

This major provides the opportunity to develop a stronger foundation in research methods, quantification, and the sciences. It prepares students with relevant aptitudes for pursuing further studies or finding employment where such knowledge is advantageous. Students contemplating futures in social science research, business, forensics, public service, and paralegal positions should consider this degree or some of its recommended courses.

Either the B.A. or B.S. degree is suitable for students seeking entry level positions in the criminal justice system and for students interested in graduate and law school. Students interested in acquiring strong quantitative skills should consider the B.S. degree.

What is Criminology?

Criminology is a broad and interdisciplinary field of study that promotes an understanding of crime and the criminal justice system and how they relate to human behavior, social environments, and government policy. Examples of topics studied in Criminology are: the causes and consequences of deviant and/or criminal behavior; the structure and functions of the criminal justice system; societal and individual reactions to crimes and criminal justice processing; the spatial and geographical elements associated with crime and poverty; and the dynamics of criminal justice policy making.

You Might Like This Program If...

- You are interested in studying human behavior through an interdisciplinary lens.
- You are fascinated with deviance and/or criminal behavior.
- You would like to study the functioning of the criminal justice system.
- You're passionate about issues of social justice.
- You would like to go to law school or graduate school.
- You want to pursue a career in policing, corrections or governmental.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Criminology, a minimum of 121 credits is required:

Requirement	Credits
General Education	45
Electives	17-19
Requirements for the Major	61-63

4 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 4 credits of GQ courses.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Recommended Academic Plan for your intended program.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CRIM/CRIMJ/ SOC 12	Criminology	3
CRIM/CRIMJ 100	Introduction to Criminal Justice	3
CRIM 249	Criminology Theory and Evidence	3
CRIM 250W	Research Methods in Criminology	3
STAT 200	Elementary Statistics	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select one of the following:		3
CAS 283	Communication and Information Technology I	
CMPSC 100	Computer Fundamentals and Applications	
CMPSC 101	Introduction to Programming	
Select one of the following:		3
SOC 1	Introductory Sociology	
SOC 3	Introductory Social Psychology	
SOC 5	Social Problems	
Select 6 credits in race, ethnicity, and gender from the following:		6
AFAM 100N	Black Freedom Struggles	
AFAM 101N	African American Women	

AFAM/SOC/ WMNST 103	Racism and Sexism	
AMST/ WMNST 104	Women and the American Experience	
AMST 105	American Popular Culture and Folklife	
AMST 432	Ethnicity and the American Experience	
ANTH 146	Indigenous North America	
CAS 271N	Intercultural Communication	
CAS 422	Contemporary African American Communication	
CAS 455	Topics in Gender and Communication	
CAS 471	Intercultural Communication Theory and Research	
CMLIT 101	Race, Gender, and Identity in World Literature	
CRIM 451	Race, Crime, and Justice	
CRIMJ/ WMNST 453	Women and the Criminal Justice System	
ENGL 135	Alternative Voices in American Literature	
ENGL 139	African American Literature	
ENGL 462	Reading Black, Reading Feminist	
HIST 154	History of Welfare and Poverty in the United States	
LER/WMNST 136		
PHIL 9	Race, Racism, and Diversity	
PSYCH 432	Multicultural Psychology in America	
SOC 119N	Race, Ethnicity and Culture	
SOC 409	Racial and Ethnic Inequality in America	
SOC 419	Race and Public Policy	
SOC 429	Social Stratification	
WMNST 1	Introduction to Women's Studies	
Select 6 credits from the core courses of the following:		6
CRIM 430	American Correctional System	
CRIM/CRIMJ 432	Crime and the American Court System	
CRIM 435	Policing in America	
CRIM/CRIMJ 451	Race, Crime, and Justice	
CRIM/CRIMJ/ WMNST 453	Women and the Criminal Justice System	
CRIM/CRIMJ/ SOC 467	Law and Society	
CRIM 490	Crime Policy	

Select 6 credits from non-core CRIM/CRIMJ courses at the 400 level 6
(including no more than 3 credits of LA 495, CRIM 494, or CRIM 499)

Requirements for the Option

Requirements for the Option: Require a grade of C or better

Select an option 21-23

Requirements for the Option

Business/Public Administration Option (21 credits)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3

Additional Courses

Additional Courses: Require a grade of C or better

Select 15 credits with at least 3 credits each from groups A, B, C, and D: 15

Group A

ECON 302	Intermediate Microeconomic Analysis
BA 301	Finance

Group B

BA 303	Marketing
BA 304	Management and Organization
PSYCH 281	Introduction to Industrial-Organizational Psychology
PSYCH 482	Selection and Assessment in Organizations
PSYCH 484	Work Attitudes and Motivation
PSYCH 485	Leadership in Work Settings

Group C

BLAW 243	Legal Environment of Business
LER 401	
LER 434	
LER 435	
LER 437	
SOC 455	Work and Occupations

Group D

CAS 404	Conflict Resolution and Negotiation
CAS 450W	Group Communication Theory and Research
CAS 452	Organizational Communication Theory and Research
CAS 471	Intercultural Communication Theory and Research
CAS 483	Communication and Information Technology II
ENGL 418	Advanced Technical Writing and Editing
ENGL 419	Advanced Business Writing
ENGL 421	Advanced Expository Writing
GER 408	Advanced German Business Communications
HIST 458Y	History of Work in America
LER 400-level course(s)	
PLSC 412	International Political Economy
PLSC 417	
PLSC 419	The Bureaucratic State
PLSC 444	Government and the Economy
PLSC 490	Policy Making and Evaluation
PSYCH 482	Selection and Assessment in Organizations
PSYCH 484	Work Attitudes and Motivation
PSYCH 485	Leadership in Work Settings
SOC 455	Work and Occupations
SOC 456	Gender, Occupations, and Professions
SPAN 412	Translation

Computing and Statistics Option (21 credits)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
SOC 470	Intermediate Social Statistics	4
STAT 480	Introduction to SAS	1

Additional Courses

Additional Courses: Require a grade of C or better

Select 16 credits of the following: 16

Code	Title	Credits
CAS 483	Communication and Information Technology II	
CMPSC 203	Introduction to Spreadsheets and Databases	
MATH 110 & MATH 111	Techniques of Calculus I and Techniques of Calculus II	
or MATH 141 & MATH 141	Calculus With Analytic Geometry I and Calculus with Analytic Geometry II	
MIS 204	Introduction to Management Information Systems	
STAT 460	Intermediate Applied Statistics	
STAT 462	Applied Regression Analysis	
STAT 464	Applied Nonparametric Statistics	

Legal Studies Option (21 credits)

Code Title Credits

Prescribed Courses

Prescribed Courses: Require a grade of C or better

PHIL 12 Symbolic Logic 3

Additional Courses

Additional Courses: Require a grade of C or better

Select one of the following: 3

CAS 213	Persuasive Speaking	
CAS 215	Argumentation	
CAS 250	Small Group Communication	
CAS 321	Rhetoric and Law	

Select 12 credits of the following: 12

BLAW 243	Legal Environment of Business	
COMM 403	Law of Mass Communications	
CRIM 432	Crime and the American Court System	
or CRIM/ SOC 467	Law and Society	
CRIM 469	Seminar in the Law	
LST 370	Research Methods for Law and Government Information Resources	
PHIL 105	Philosophy of Law	
PHIL 108	Social and Political Philosophy	
PHIL 408W	Seminar in Social and Political Philosophy	
PLSC 403	The Legislative Process	
PLSC 431	Ancient, Medieval, and Renaissance Political Theories	
PLSC 432	Modern and Contemporary Political Theories	
PLSC 471	American Constitutional Law	
PLSC 472	The American Legal Process	
SOC 405	Sociological Theory	

Select one of the following: 3

HIST 449	Constitutional History of the United States to 1877	
HIST 450	Constitutional History of the United States since 1877	
PLSC 474	Civil Liberties and Due Process	

Social Science Research Option (22-23 credits)

Code Title Credits

Prescribed Courses

Prescribed Courses: Require a grade of C or better

SOC 470	Intermediate Social Statistics	4
STAT 480	Introduction to SAS	1

Additional Courses

Additional Courses: Require a grade of C or better

Select 8-9 credits of the following: 8-9

MATH 110 & MATH 111	Techniques of Calculus I and Techniques of Calculus II	
or MATH 141 & MATH 141	Calculus With Analytic Geometry I and Calculus with Analytic Geometry II	
STAT 460	Intermediate Applied Statistics	
STAT 462	Applied Regression Analysis	
STAT 464	Applied Nonparametric Statistics	

Select 9 credits of the following: 9

HDFS 401	Project Planning, Implementation, and Evaluation in the Human Services	
PLSC 490	Policy Making and Evaluation	
Any 400-level STAT course		

NOTE: Internships will be counted as elective credits (CRIM 395).

NOTE: The following themes should be incorporated into all CRIM classes, as appropriate: ethical issues, ethnicity and gender issues, and theory.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Criminology and M.P.S. in Criminal Justice Policy and Administration

Requirements for the Integrated B.S. in Criminology and M.P.S. in Criminal Justice Policy and Administration can be found in the Graduate Bulletin

(<https://bulletins.psu.edu/graduate/programs/majors/criminal-justice-policy-administration/#integratedundergradprogramstext>).

Integrated B.S. in Criminology and M.I.A. in International Affairs

Requirements for the Integrated B.S. in Criminology and M.I.A. in International Affairs can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/international-affairs/#integratedundergradprogramstext>).

Integrated B.S. in Criminology and M.P.P. in Public Policy

Requirements for the Integrated B.S. in Criminology and M.P.P. in Public Policy can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/public-policy/#integratedundergradprogramstext>).

Program Learning Objectives

- Recognize the causes and consequences of crime at the micro and macro levels and match these with prominent criminological perspectives.
- Describe the interrelated institutions and processes of the criminal justice system.
- Apply theories of crime and criminal justice to explain actual and hypothetical scenarios, behaviors, and trends.
- Explain the various social science methods of inquiry and use these to test specific criminological research questions.
- Recognize and explain macro-social inequities in crime and criminal justice processes by race, social class, gender, region and age.
- Locate and consult works in the area to produce a research paper that is coherent, cogent, and attentive to conventions of the field.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

All Options: Criminology, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
General Education Course (GWS) [‡]	3 CRIM/SOC 12 [*]	3
CRIM 100 [*]	3 General Education Course (GWS) [‡]	3
General Education Quantification (GQ) [‡]	3 STAT 200 (GQ) ^{*††}	4
General Education Course	3 General Education Course	3
General Education Course or First-Year Seminar	3 Elective	3
	15	16

Second Year

Fall	Credits Spring	Credits
SOC 1, 3, or 5 [*]	3 Race, Ethnicity, and Gender Course from List [*]	3
CRIM 249 [*]	3 CRIM 250W [*]	3
General Education Course	3 BS Option Course [*]	3
General Education Course	3 General Education Course	3
Elective	3 General Education Course	3
	15	15

Third Year

Fall	Credits Spring	Credits
CAS 283, CMPSC 100, or CMPSC 101 [*]	3 4XX Level Course from List [*]	3
4XX Level Course from List [*]	3 Race, Ethnicity, and Gender Course from List [*]	3
BS Option Course [*]	3 BS Option Course [*]	3
General Education Course	3 BS Option Course [*]	3
Elective	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
CRIM 4XX Level Core Course from List [*]	3 CRIM 4XX Level Core Course from List [*]	3
General Education (GWS) [‡]	3 General Education Course	3
BS Option Course [*]	3 BS Option Course [*]	3
BS Option Course [*]	3 General Health and Wellness (GHW)	1.5

General Health and Wellness Course (GHW)	1.5 Elective	3
Elective	3	
	16.5	13.5

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- All incoming first-year students must take a First-Year Seminar (FYS) during Fall or Spring of their first year. Academic advisers can provide a list of FYS being offered and help the student enroll. Most FYS in the College of the Liberal Arts are worth 3 credits and count as a General Humanities (GH) or General Social Sciences (GS) course. For this reason, the FYS is not listed separately on this eight-semester plan; most students will be able to fulfill the FYS requirement while also fulfilling a GH or GS requirement.
- The following sequence **MUST** be followed: CRIM 12/SOC 12 # CRIM 249 # CRIM 250W. It is suggested that CRIM 12 and CRIM 249 be taken as early as possible. CRIM 100 and CRIM 249 can be taken in the same semester. CRIMJ 250W will only be used as elective credits.
- While CRIM 294, CRIM 296, and CRIM 494 provide students with terrific opportunities and learning experiences, these credits may NOT be counted in fulfillment of the Criminology major requirement. They may, however, be used as elective credits to count toward the credit requirement for graduation.
- Internship credits will be counted towards elective credits, unless approved by the internship coordinator to meet a general 3 credit 400 level CRIM course requirement.
- 3 credits of the Netherlands Education Abroad experience (CRIMJ 499) can be used to meet a general 400 level course

requirement. A total of 15 education abroad credits (max) may be applied toward the major; courses must be approved by the department for application toward the major. CRIM 12/SOC 12, CRIM 100, CRIM 249, and CRIM 250W cannot be taken abroad.

All Options: Criminology, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
General Education Course (GWS) [‡]	3 CRIM/SOC 12 or CRIMJ 12 [*]	3
CRIM 100 or CRIMJ 100 [*]	3 General Education Course (GWS) [‡]	3
General Education Quantification (GQ) [‡]	3 STAT 200 ^{*††}	4
General Education Course	3 General Education Course	3
General Education Course	3 Elective	3
	15	16

Second Year

Fall	Credits Spring	Credits
SOC 1, 3, or 5 [*]	3 Race, Ethnicity, and Gender Course from List [*]	3
General Education Course	3 BS Option Course [*]	3
General Education Course	3 General Education Course	3
BS Option Course [*]	3 General Education Course	3
Elective	3 General Education Course	3
	15	15

Third Year

Fall	Credits Spring	Credits
CRIM 249 [*]	3 CRIM 250W [*]	3
CAS 283, CMPSC 100, or CMPSC 101 [*]	3 Race, Ethnicity, and Gender course from list [*]	3
BS option Course [*]	3 BS Option Course [*]	3
General Education Course	3 BS Option Course [*]	3
Elective	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
Core CRIM course from list [*]	3 Core CRIM course from list [*]	3
CRIM 4XX Level Course from List [*]	3 CRIM 4XX Level Course from List [*]	3
General Education Course (GWS) [‡]	3 BS Option Course [*]	3
BS Option Course [*]	3 General Health and Wellness (GHW)	1.5
General Health and Wellness Course (GHW)	1.5 Elective	3
Elective	3	
	16.5	13.5

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Career Paths

There are opportunities for careers in criminology for everyone. Whether you like field work, working in a laboratory or working behind the scenes in research or administration, the chances are you'll find a rewarding career.

Careers

Majoring in Criminology will prepare you for a wide array of criminal justice careers, such as law enforcement, corrections and rehabilitation, research analysis, governmental and non-governmental organizations.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE CRIMINOLOGY PROGRAM (<https://sociology.la.psu.edu/undergraduate/criminology/careers-in-criminology/>)

Opportunities for Graduate Studies

A baccalaureate degree in Criminology is suitable for students seeking entry-level positions in the criminal justice system and for students interested in graduate and law school.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://sociology.la.psu.edu/graduate/>)

Professional Resources

- The American Society of Criminology (<https://asc41.org/>)
- American Sociological Association (<https://www.asanet.org/>)
- Penn State Justice Association (<https://pennstateja.wixsite.com/justice-association/academics/>)

Contact

University Park

DEPARTMENT OF SOCIOLOGY AND CRIMINOLOGY

211 Oswald Tower
University Park, PA 16802
814-865-2527
sociology@psu.edu

<https://sociology.la.psu.edu>

Development and Sustainability in Africa, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

The African continent is the most ecologically and geographically diverse region in the world. It is the most resource rich, yet it is considered, at least in the Western world, the poorest and most “in need of help”. Why is this so? This 12-credit certificate in Development and Sustainability in Africa will engage students with the issues, debates, and analyses related to sustainable, equitable, and decolonial development in Africa. Students will learn about relationships between development and the different environments on the continent, Students will consider the inter-relationships between development and equality, as well as the key drivers of change. This certificate will provide students an opportunity to engage with current topics from a specifically African perspective. Students will receive training in development theory and practice to understand the place of Africa in global environmental change. Students will learn to critically analyze the complex interrelationships and trades offs between development and environmental costs. Students can choose to focus on an area of study such as: resource extraction and governance (e.g. mining), food and agriculture, water, renewable energy (e.g. solar), and, development practice. This certificate will include an optional study abroad opportunity. Learning Outcomes: By the end of the certificate, students will be able to: - (PO1) Identify, describe, and compare key issues in sustainability and development in Africa; - (PO2) Think critically and discuss the drivers of development and environmental degradation; - (PO3) Understand and interpret the ways the continent is embedded in global systems that impact sustainability and development locally and globally.

Program Requirements

To earn an undergraduate certificate in Development and Sustainability in Africa, a minimum of 12 credits is required.

Code	Title	Credits
Required Courses		
AFR 105	African Biodiversity and Conservation	3
AFR 205	Development and Sustainability in Africa	3
Select 6 credits from the following (relevant African Studies course, or focal topic course taught by an affiliated faculty member):		
AFR 440	Globalization and Its Implications	
AFR 444	Resource Governance in Africa	
AFR 464	Extractive Industries in Africa	
AFR/RPTM 497	Special Topics	
GEOG 230	Geographic Perspectives on Environment, Society and Sustainability	
GEOG 430	Human Use of Environment	

FOR 418 Agroforestry: Science, Design, and Practice

FOR 488Y Global Forest Conservation

Upper-level independent study with approved faculty

Non-Course Requirements:

Per University policy, all credit courses for a certificate require a grade of 'C' or higher, and at least two-thirds (2/3) of the credits used to complete a certificate must be earned at Penn State.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Contact

University Park

AFRICAN STUDIES PROGRAM

133 Willard Building

University Park, PA 16802

814-865-5406

jle1@psu.edu

<https://africanstudies.la.psu.edu>

Digital Humanities, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Digital Humanities minor combines historical and theoretical course work with intensive practical training in the creation and use of digital media tools and computational systems. Combining the broad perspective of liberal arts training with in-demand technical skills, the minor seeks to incorporate a public facing projects and digital research opportunities in order to provide students with a successful transition from college to an increasingly technological job market. With a large

number of courses from a variety of programs, collaboration between colleges, departments, and faculty, and students will be a hallmark of the minor.

Program Requirements

Requirement	Credits
Requirements for the Minor	21

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
DIGIT 100	Introduction to Digital Humanities	3
DIGIT 110	Text Encoding Fundamentals	3
DIGIT 210	Large Scale Text Analysis	3
DIGIT 400	Digital Project Design	3

Additional Courses

Additional Courses: Require a grade of C or better

Project Design Skills: Select 6 credits from the following courses:		6
ART 168	The Digital Medium	
ART 201		
ART 203		
ART 302		
COMM 118	Introduction to Media Effects	
COMM 180	Survey of Electronic Media and Telecommunications	
COMM 234		
ENGL 229	Digital Studies	
WMNST 157		

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 3 credits from a list of courses maintained by the Associate Dean for the College of the Liberal Arts	3
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Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Contact

University Park

DEPARTMENT OF HISTORY

108 Weaver Building

University Park, PA 16802

814-865-1367

bdw150@psu.edu

<https://history.la.psu.edu>

Dispute Management and Resolution, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

This interdisciplinary minor is administered by the Departments of Communication Arts and Sciences and the School of Labor and Employment Relations. It has as specific learning objectives (1) the development of skills appropriate to the management and resolution of problems created by difference in attitudes, power, beliefs, values, and behavioral preferences of individuals and (2) learning how to apply these skills across multiple contexts, including interpersonal, group, and organizational contexts, and, to a lesser extent, international contexts. The minor draws from the Department of Communication Arts and Sciences and the School of Labor and Employment Relations to provide broad theoretical foundations that address conflict and means for dealing with it, while also allowing for opportunity to focus on particular subject matter suited to students' interests.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

Students pursuing the minor must complete 9 credits of prescribed course work and 9 credits of additional course work distributed across at least two of the eight areas identified below. Of the 18 credits selected, at least 9 must be at the 400 level, 6 must be from Communication Arts and Sciences, and 6 must be from Labor and Employment Relations.

Only courses in which the student earns a grade of C or better may be counted toward fulfillment of requirements for the minor.

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules->

for-undergraduate-students/59-00-minors-and-certificates/#59-10). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CAS 203	Interpersonal Communication	3
LHR 304	Labor and Employment Relations Fundamentals	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 12 credits of which 9 credits must be taken at the 400 level:		12
LHR 437	Workplace Dispute Resolution	
or CAS 404	Conflict Resolution and Negotiation	
Select 6 credits from the following:		
CAS 250	Small Group Communication	
CAS 403	Interpersonal Communication Theory and Research	
CAS 426W	Communication Ethics	
CAS 452W	Organizational Communication Theory and Research	
CAS 471	Intercultural Communication Theory and Research	
LHR 201	Employment Relationship: Law and Policy	
LHR 434	Advanced Collective Bargaining and Contract Administration	
LHR 459	Collective Bargaining in Professional Sports	
LHR/OLEAD 465	Collective Decision Making	
PSYCH 281	Introduction to Industrial-Organizational Psychology	
Select 3 credits from the following:		
CAS/WMNST 455	Topics in Gender and Communication	
CAS 471	Intercultural Communication Theory and Research	
LHR/AFAM/WMNST 136	Race, Gender, and Employment	

Some courses may require other course works as some courses have prerequisites.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

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READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

World Campus

Undergraduate Academic Advising

301 Outreach Building

University Park, PA 16802

814-863-3283

advising@outreach.psu.edu

Contact

University Park

DEPARTMENT OF COMMUNICATION ARTS AND SCIENCES

234 Sparks Building

University Park, PA 16802

814-865-3461

sas519@psu.edu

<https://cas.la.psu.edu>

World Campus

DEPARTMENT OF COMMUNICATION ARTS AND SCIENCES

234 Sparks Building

University Park, PA 16802

814-865-3461

sas519@psu.edu

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-dispute-management-and-resolution-minor> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-dispute-management-and-resolution-minor/>)

Diversity Studies, Certificate (Liberal Arts)

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

The Diversity Studies certificate is an interdisciplinary and online program of study that explores social difference and inequality related to gender, race, ethnicity, sexuality, class, aging, religion, and disability. How we experience and view the world around us, the opportunities presented to us, and even the people that we surround ourselves with are constrained by invisible and unconscious systems of power. These systems organize our schools, workplaces, healthcare systems, criminal justice system, and media, and reproduce inequality rooted in ignoring or downplaying diversity. The Diversity Studies certificate will encourage students to take an intersectional approach to expose, critique, and confront historical and contemporary sources of social inequality. This certificate will enable students to complement their existing course portfolio by providing an opportunity to deepen their knowledge around issues of difference through a broad range of interdisciplinary coursework. An interdisciplinary approach will make it easier for students to see connections across disciplines and allow them to cluster their

coursework in a meaningful and related way. Given the breadth of courses currently offered through World Campus on diversity, as well as the relative flexibility of the proposed certificate, new course development is minimal. Delivery of coursework exclusively through existing online courses will allow the most flexibility to our diverse student population.

The Diversity Studies certificate is designed to encourage reflection on the ethical challenges that arise when we become aware of how privilege, power, and difference are embedded in our world and daily lives. The aim is to move the discourse away from mere tolerance, celebration or appreciation to a deeper understanding and critique of discrimination, intolerance, and inequality in the historical and contemporary global society. The certificate will provide students with skills vital to careers in fields such as human resources, non-profit agencies, social welfare, education, and health and medicine. We have designed the certificate around an intersectional perspective that invites students to see the ways that race, class, gender, disability, sexuality, etc. operate together in overlapping and conflicting ways to affect all aspects of human experience. WMNST 105N, the one PRESCRIBED course for the certificate, introduces students to this intersectional perspective and situates discussions of race, class, gender, sexuality, ethnicity, and disability within institutional spaces that include: education, the family, work, religion, the criminal justice system, and the media. After completing this course, students are then required to take 3 credits of ADDITIONAL COURSES that include: AFAM 100N, WMNST 100, WMNST 106N, and ENGL 245/WMNST 245. These courses were selected because they all explicitly take this intersectional approach to understanding social identity, privilege and inequality. After the completion of at least 6 introductory credits, students should be conversant in intersectional, feminist, and critical theory and able to:

1. Apply basic theories of identity, difference, social power and privilege to a wide range of textual and visual materials, and to their own interactions in the context of day-to-day life.
2. Critically engage how race, gender, sexuality, class, ethnicity, and disability have been constructed in the United States.
3. Consider transnational dimensions of similar dynamics and contrast these with the United States context.
4. Identify and analyze the multiple ways individuals, communities, and social movements have resisted and remade categories of identity and changed relations of power over time and space.
5. Recognize and explore the constructions of social identity.

For the 6 remaining credits for the certificate, students are given the freedom to choose SUPPORTING COURSES AND RELATED AREAS according to their particular area of interest and/or career focus, be it Human Development and Family Studies, Sociology, Anthropology or Communication Arts and Sciences. We have carefully reviewed the syllabi for all of the courses to be included in the certificate to ensure that, despite having different programmatic orientations, all adhere to a common commitment to understanding power and inequality from a social justice perspective. Given the number of online courses at our university that examine issues of diversity, it is important to allow students to select a portion of their certificate coursework based on what will be most interesting and useful to them in their academic and professional lives.

What is Diversity Studies?

Diversity Studies is an interdisciplinary academic field that is interested in examining social differences defined by culturally constructed categories of race, class, gender, religion, ethnicity, age, diversity, and

other markers of identity. Diversity Studies however tends to focus on our own lived experiences, and how our perception of these markers influences personal and cultural interactions – especially our own! It investigates systems of power that organize our schools, workplaces, healthcare systems, criminal justice system, and media, many of them invisible to us. Around the globe those systems of power are organized very differently, sometimes in fundamental ways. Diversity Studies approaches differences intersectionally to expose, critique, and confront historical and contemporary sources of social and cultural conflict. This does not mean “looking past” differences; rather, looking straight at them to find the common ground and empathy that can make us better citizens.

You Might Like This Program If...

- You want to translate your curiosities, experiences, passions and interests into actionable and meaningful work.
- You seek out inclusive environments, with persons of different backgrounds, cultures, and races to understand their points of view.
- You are passionate about gender equity, human rights, and social justice.
- You want to explore how gender and sexuality play a role in culture, the arts, literature, health, politics, the sciences, law, and education.
- You see yourself as a change agent in this world!

Program Requirements

To earn an undergraduate certificate in Diversity Studies, a minimum of 12 credits is required.

Code	Title	Credits
Prescribed Courses		
WMNST 105N	Living in a Diverse World	3
Additional Courses		
Select 3 credits from the following:		3
AFAM 100N	Black Freedom Struggles	
WMNST 100	Introduction to Women's and Gender Studies	
WMNST 106N	Representing Women and Gender in Literature, Art and Popular Cultures	
WMNST/ENGL 245	Introduction to LGBTQ Studies	
Select 6 credits from the following:		6
AFAM/SOC 409	Racial and Ethnic Inequality in America	
AFR 110N	Introduction to Contemporary Africa	
AMST 140Y	Religion in American Life and Thought	
ANTH 1	Understanding Humans	
ANTH 45N	Cultural Diversity: A Global Perspective	
ANTH 146	Indigenous North America	
ASIA 100	What is Asia?	
BBH 302	Diversity and Health	
BBH 315	Gender and Biobehavioral Health	
CAS 271N	Intercultural Communication	
CAS 426W	Communication Ethics	
CAS 455	Topics in Gender and Communication	
CAS 475	Studies in Public Address	
CMLIT 10	World Literatures	
CMLIT 153	International Cultures: Film and Literature	

COMM 205	Gender, Diversity and the Media
CRIM/SOC 201	Presumed Innocent? Social Science of Wrongful Conviction
CSD 269	Deaf Culture
FR 139	France and the French-speaking World
HDFS 249N	Adult Development and Aging
HDFS 250	Sexual Identity over the Life Span
HDFS 254N	Reading Our Lives: Understanding Diversity and Human Development through Memoirs
HIST 447	Recent American History
HIST 479	History of Imperialism and Nationalism in Africa
JST 10	Jewish Civilization
LHR/WMNST 136	Race, Gender, and Employment
LHR 410	Employment Strategies for People with Disabilities
LHR 458Y	History of Work in America
OLEAD 410	Leadership in a Global Context
OLEAD 411	Women and Leadership
PLSC 210N	Rights in America
PSYCH 422	Human Sexuality
RHS 100	Introduction to Disability Culture
RHS 410	Employment Strategies for People with Disabilities
RLST 1	Introduction to World Religions
RPTM 120	Leisure and Human Behavior
SOC 35	Sociology of Aging
SOC 119N	Race, Ethnicity and Culture
SOC 456	Gender, Occupations, and Professions
SPLED 461	Introduction to Autism Spectrum Disorders: Issues and Concerns
WMNST 100	Introduction to Women's and Gender Studies
WMNST 106N	Representing Women and Gender in Literature, Art and Popular Cultures
WMNST 120	Sex, Gender, and the Body
WMNST/ENGL 245	Introduction to LGBTQ Studies

Certificate Learning Objectives

- **Critical Constructions of Identity:** Critically engage how race, gender, sexuality, class, ethnicity, and disability have been constructed in the United States.
- **Resistance:** Identify and analyze the multiple ways individuals, communities, and social movements have resisted and remade categories of identity and changed relations of power over time and space.
- **Theories of Identity:** Apply basic theories of identity, difference, social power and privilege to a wide range of textual and visual materials, and to their own interactions in the context of day-to-day life.
- **Transnational Contexts:** Consider transnational dimensions of similar dynamics and contrast these with the United States context.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of

both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Career Paths

Employers today value effective communication, analytical thinking, and teamwork. With its emphasis on how gender, sexuality, race and other forms of diversity impact the experiences of every individual, this curriculum trains its students to recognize the impacts of bias and unequal social power in the social, cultural and political arenas. Graduates enter their post-graduate world sensitive to diverse perspectives that can either facilitate or impede team building, problem solving, and negotiation. Diversity Studies graduates—no matter where their career paths lead—are committed to the kind of institutional and social change that values all voices, and supports social justice.

Careers

Diversity Studies graduates from Penn State work in a wide variety of professions and industries. You will find us in the legal profession (one alumna runs her own legal firm, serving lower-income clients and gender-based discrimination cases). Others work in communications, marketing and advertising, business, banking and human resources. Activist students find their way into non-profits, advocacy groups, government, human development, journalism and communications. Women's health is a dynamic field—medical care, nursing and research positions are out there, as well as health administration. Teaching attracts many of our graduates.

Opportunities for Graduate Studies

The scholarly field of Diversity Studies prepares students to study some of the most complex challenges in a world where gender, race, class, sexuality and power are always intertwined. As an interdisciplinary field, it spans the arts and sciences, the humanities, and policy fields and provides applicable training for students seeking to continue their studies. Our scholars gain experience as researchers and teachers with the innovative tools to prepare them as leaders across the public, private and educational sectors.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://wgss.la.psu.edu/graduate/>)

Professional Resources

- National Women's Studies Association (<https://www.nwsa.org/>)
- National Organization for Women (<https://now.org/>)

Contact

University Park

DEPARTMENT OF WOMEN'S, GENDER, AND SEXUALITY STUDIES

134 Willard Building

University Park, PA 16802

814-863-4025

lts5125@psu.edu

<https://wgss.la.psu.edu>

East European Studies, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The East-European Studies Minor is an interdisciplinary program designed for students having a special interest in the geographical area that includes the former Soviet Union and Central and Eastern Europe and considering an academic or professional career requiring a knowledge of a world language combined with regional specialization. The minor combines courses in languages, literature and cultures of Russia and other nations of the region with courses in history, political science, economics, and other related disciplines. The minor may be combined with any undergraduate major in the University such as History, International Relations, Political Science, Sociology, Journalism, Business, or other fields in which a knowledge of an East-European language and civilization is advantageous. The minor helps prepare students for further academic work in the area of East European, Eurasian, and Global Studies at the graduate level or to pursue careers as area specialists in commerce, industry, journalism, education, and various governmental and international agencies.

Students can select different tracks depending on their linguistic skills and focus of interest. Thus, students can choose between pursuing in-depth studies of Russian language and civilization or broadening their linguistic experience by studying several East-European languages in combination with content courses related to this region.

Study abroad is strongly encouraged.

Program Requirements

Requirement	Credits
Requirements for the Minor	26-28

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
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Prescribed Courses

<i>Prescribed Courses: Require a grade of C or better</i>		
RUS 100	Russian Culture and Civilization	3

Additional Courses

<i>Additional Courses: Require a grade of C or better</i>		
Select one of the following tracks:		11-16

Track 1 (This track is for those students who want to pursue in-depth studies in Russian):

RUS 3	Intermediate Russian I	
or RUS 410	Heritage Russian	

RUS 200	Intermediate Russian II	
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RUS 401	Advanced Russian A	
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Track 2:

UKR 3	Intermediate Ukrainian	
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Select one of the following:

POL 1 & POL 2 & POL 3	Level One Polish A and Level One Polish B and Level Two Polish A	
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RUS 1 & RUS 2 & RUS 3	Elementary Russian I and Elementary Russian II and Intermediate Russian I	
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Track 3:

POL 3	Level Two Polish A	
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Select one of the following:

UKR 1 & UKR 2 & UKR 3	Elementary Ukrainian I and Elementary Ukrainian II and Intermediate Ukrainian	
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RUS 1 & RUS 2 & RUS 3	Elementary Russian I and Elementary Russian II and Intermediate Russian I	
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Track 4:

RUS 3	Intermediate Russian I	
or RUS 410	Heritage Russian	

Select one of the following:

POL 1 & POL 2 & POL 3	Level One Polish A and Level One Polish B and Level Two Polish A	
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UKR 1 & UKR 2 & UKR 3	Elementary Ukrainian I and Elementary Ukrainian II and Intermediate Ukrainian	
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Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select one of the following: ¹	9-12
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Students who choose Track 1 (Russian language only) must select 12 course credits other than RUS (e.g., HIST, PLSC, ECON, etc.) from the departmental list of courses in East European area studies (at least two courses must be at the 400-level).

Students who choose Track 2, 3, and 4 must select 9 credits from the departmental list of courses in East European area studies (at least two courses must be at the 400-level).

¹ Other courses approved by the program adviser, such as *97, can also be used.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Contact

University Park

DEPARTMENT OF GERMANIC AND SLAVIC LANGUAGES AND LITERATURES

442 Burrowes Building

University Park, PA 16802

814-865-5481

psugerman@psu.edu

<https://german.la.psu.edu/slavic/>

Economics, B.A. (Liberal Arts)

Begin Campus: Any Penn State Campus

End Campus: University Park, World Campus

Program Description

This major is designed for those who seek a broad understanding of the operation of the economic system and training in the methods and uses of economic analysis. Graduates are equipped for employment in many areas of business operations, labor unions, and agencies of government at all levels; and to undertake the graduate work necessary to become professional economists.

Students may choose either a Bachelor of Arts or a Bachelor of Science program. An honors program is also offered.

What is Economics?

Economics is the study of how individuals, firms, and governments allocate their scarce resources. This major is designed for those who seek a broad understanding of the operation of the economic system and training in the methods and uses of economic analysis. Graduates are equipped for employment in many areas of business operations, banking, risk assessment, and agencies of government at all levels;

and to undertake the graduate work necessary to become professional economists.

You Might Like This Program If...

You have an interest in decisions made by individuals and firms, policies made by governments, and their effects. Economists advise presidents, make forecasts about unemployment and the stock market, and create Federal Reserve Bank policies. But economists also study health care, crime, environmental issues, inequality, and more. Perhaps most importantly, Economics provides knowledge and logic for making everyday decisions, big and small. This includes everything from where to eat lunch to what career you choose.

Entrance to Major

To be eligible for entrance into the Economics (ECLBA) major, a degree candidate must satisfy requirements for entrance to the major.

Specific entrance requirements include:

The degree candidate must have completed the following entrance-to-major requirements with a grade of C or better: ECON 102 and ECON 104.

In addition, students also must satisfy the following requirements:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Economics, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	15
Bachelor of Arts Degree Requirements	24
Requirements for the Major	36

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
ECON 106	Statistical Foundations for Econometrics	3
ECON 302	Intermediate Microeconomic Analysis	3
ECON 304	Intermediate Macroeconomic Analysis	3
ECON 306	Introduction to Econometrics	3
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 18 credits in Economics 300 or 400 level with department approval, including at least 9 credits at the 400 level		18

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Integrated B.A. in Economics and M.A. in Economics

Requirements for the Integrated B.A. in Economics and M.A. in Economics can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/economics/#integratedundergradgradprogramstext>).

Program Learning Objectives

- **Applied Economics Fields:** Students will be knowledgeable about at least two applied fields in economics.
- **Economic Analysis:** Students will be able to apply the tools of economic analysis, and most notably the basic supply and demand model, to various issues and phenomena, dealing with individuals, firms, markets, and public policy.
- **Economics Writing:** Students will be able to write a paper in economics that includes economic analysis and that is coherent, cogent, and grammatically correct.
- **Intermediate Theory:** Students will be familiar with intermediate microeconomic theory and intermediate macroeconomic theory.
- **Quantitative Economic Analysis:** Students will be able to carry out quantitative analyses of economic data.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

World Campus

Undergraduate Academic Advising

301 Outreach Building
University Park, PA 16802
814-863-3283
advising@outreach.psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Economics, B.A. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit

(accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ECON 102 or 104 ^{*#}	3 ECON 102 or 104 ^{*#}	3
ENGL 15, 30H, or ESL 15 (GWS) [‡]	3 General Education Course (GQ) [‡]	3
General Education Course (First Year Seminar)	3 General Education Course (IL or US Cultures)	3
General Education Course (GQ) [‡]	3 General Education Course (Inter-Domain)	3
World Language Level 1	4 World Language Level 2	4
16		16

Second Year

Fall	Credits Spring	Credits
ECON 302 or 304 [*]	3 ECON 302 or 304 [*]	3
CAS 100A, 100B, or 100C (GWS) [‡]	3 300 Level ECON Course [*]	3
ECON 106 [*]	3 General Education Course (Inter-Domain)	3
General Education Course (IL or US Cultures)	3 General Education Course	3
World Language Level 3	4 General Education Course	3
16		15

Third Year

Fall	Credits Spring	Credits
300/400 Level ECON Course [*]	3 300/400 Level ECON Course [*]	3
ECON 306 [*]	3 400 Level ECON Course [*]	3
General Education Course (Writing Across the Curriculum)	3 BA Requirement: World Cultures	3
BA Requirement: Arts, Humanities, Social Sciences, Natural Sciences, Quantification or World Language	3 BA Requirement: Arts, Humanities, Social Sciences, Natural Sciences, Quantification or World Language	3
Elective	3 Elective	3
15		15

Fourth Year

Fall	Credits Spring	Credits
400 Level ECON Course [*]	3 400 Level ECON Course [*]	3
ENGL 202A, 202B, 202C, or 202D (GWS) [‡]	3 BA Requirement: Arts, Humanities, Social Sciences, Natural Sciences, Quantification, or World Language	3
General Education Course	3 General Education Course (GHW)	1.5
General Education Course (GHW)	1.5 Elective	3

Elective	3 Elective	3
	13.5	13.5

Total Credits 120

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Economics, B.A. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ECON 102 or 104 ^{*#}	3 ECON 102 or 104 ^{*#}	3
ENGL 15, 30H, or ESL 15 (GWS) [‡]	3 General Education Course	3
General Education Course (First Year Seminar)	3 General Education Course (IL or US Cultures)	3
General Education Course (GQ) [‡]	3 General Education Course (Inter-Domain)	3
World Language Level 1	4 World Language Level 2	4
	16	16

Second Year

Fall	Credits Spring	Credits
CAS 100A, 100B, or 100C (GWS) [‡]	3 BA Requirement: Arts, Humanities, Social Sciences, Natural Sciences, Quantification, or World Language	3
General Education Course (GQ) [‡]	3 General Education Course	3
General Education Course (IL or US Cultures)	3 General Education Course	3
World Language Level 3	4 General Education Course (Inter-Domain)	3
Elective	3 Elective	3
	16	15

Third Year

Fall	Credits Spring	Credits
ECON 302 or 304 [*]	3 ECON 302 or 304 [*]	3
ECON 106 [*]	3 ECON 306 [*]	3
General Education Course (Writing Across the Curriculum)	3 300/400 Level ECON Course [*]	3
BA Requirement: Arts, Humanities, Social Sciences, Natural Sciences, Quantification or World Language	3 BA Requirement: World Cultures	3
Elective	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
300/400 Level ECON Course [*]	3 400 Level ECON Course [*]	3
300/400 Level ECON Course [*]	3 400 Level ECON Course [*]	3

400 Level ECON Course [*]	3 BA Requirement: Arts, Humanities, Social Sciences, Natural Sciences, Quantification, or World Language	3
ENGL 202A, 202B, 202C, or 202D (GWS) [‡]	3 General Education Course (GHW)	1.5
General Education Course (GHW)	1.5 Elective	3
	13.5	13.5

Total Credits 120

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Career Paths

The economics major leads to several exciting and well-paying career opportunities in the corporate sector, the public sector, and in the nonprofit sector. This is the case because of the important skills acquired in an economics major including qualitative and quantitative analytical skills, critical-thinking skills, as well as communication skills.

Careers

In the corporate sector, economics majors help managers and decisionmakers understand the impact of economic conditions on their businesses. Economics majors analyze issues such as prices and consumer demand, which helps businesses to maximize profit.

In the public sector, economics majors can be found at the federal level as well as at the state and local levels of government. Economics

graduates collect and analyze data on employment, prices, productivity, wages, and many other types of data. They also help project revenues and spending needs that help policymakers understand the impact of laws and regulations. Some economics graduates are employed in international agencies, research firms, think tanks, and other nonprofit organizations.

A recent publication by the U.S. Bureau of Labor Statistics lists economics as one of the top well-paying majors overall and top among the arts and social sciences.

Economics graduates may work in various occupations including:

- Actuaries or actuarial assistants where they use mathematics and statistics to analyze financial costs of risk and uncertainty.
- Financial Analysts where they use qualitative and quantitative tools to provide guidance to businesses and individual investment decisions.
- Market research analysts where they analyze market conditions and project potential sales for a particular product or service.
- Budget analysts where they help private and public agencies plan their finances more efficiently and effectively.
- Research assistants: economics majors may help design surveys, collect data, analyze the data, prepare reports, and give presentations on a wide range of areas including health issues, labor market issues, environment, social issues, etc.
- Operations research analysts where they employ various mathematical and analytical tools to help private and public agencies solve complicated operations problems.
- Urban and Regional Planners where they help to develop land use plans to create better communities and accommodate changes in population.
- Policy analysts where they use both qualitative and quantitative analytical skills to identify a problem, analyze the issue, provide a solution, and evaluate competing potential solutions to the problem. Policy analysts may also be tasked with identifying the effects of proposed or implemented policies on various categories of people.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE ECONOMICS PROGRAM (<https://econ.la.psu.edu/undergraduate/prospective-students/>)

Opportunities for Graduate Studies

A bachelor's degree in Economics from Penn State will also prepare students for post-graduate studies in pursuit of a Master's degree or Ph.D. in Economics.

MORE INFORMATION ABOUT MATH PREPARATION FOR GRADUATE STUDIES (<https://econ.la.psu.edu/undergraduate/care/care-quantitative-requirements/>)

Contact

University Park

DEPARTMENT OF ECONOMICS
403 Kern Graduate Building
University Park, PA 16802
814-865-1457
prd138@psu.edu

<https://econ.la.psu.edu/undergraduate/>

World Campus

DEPARTMENT OF ECONOMICS
403 Kern Graduate Building
University Park, PA 16802
814-865-1457
prd138@psu.edu

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-economics-bachelor-of-arts-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-economics-bachelor-of-arts-degree/>)

Economics, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park, World Campus

Program Description

This major is designed for those who seek a broad understanding of the operation of the economic system and training in the methods and uses of economic analysis. Graduates are equipped for employment in many areas of business operations, labor unions, and agencies of government at all levels; and to undertake the graduate work necessary to become professional economists.

The B.S. degree program is intended for students with a strong interest in quantitative skills. An honors program is also offered.

What is Economics?

Economics is the study of how individuals, firms, and governments allocate their scarce resources. This major is designed for those who seek a broad understanding of the operation of the economic system and training in the methods and uses of economic analysis. Graduates are equipped for employment in many areas of business operations, banking, risk assessment, and agencies of government at all levels; and to undertake the graduate work necessary to become professional economists.

You Might Like This Program If...

You have an interest in decisions made by individuals and firms, policies made by governments, and their effects. Economists advise presidents, make forecasts about unemployment and the stock market, and create Federal Reserve Bank policies. But economists also study health care, crime, environmental issues, inequality, and more. Perhaps most importantly, Economics provides knowledge and logic for making everyday decisions, big and small. This includes everything from where to eat lunch to what career you choose.

Entrance to Major

To be eligible for entrance into the Economics (ECLBS) major, a degree candidate must satisfy requirements for entrance to the major.

Specific entrance requirements include:

The degree candidate must have completed the following entrance-to-major requirements with a grade of C or better: ECON 102 and ECON 104.

In addition, students also must satisfy the following requirements:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and

2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Economics, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	26
Requirements for the Major	55

6 of the 45 credits for General Education are included in the Requirements for the Major. This includes 6 credits of General Education GQ courses.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
ECON 106	Statistical Foundations for Econometrics	3
ECON 302	Intermediate Microeconomic Analysis	3
ECON 304	Intermediate Macroeconomic Analysis	3
ECON 306	Introduction to Econometrics	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
CMPSC 101	Introduction to Programming	3-4
or CMPSC 203	Introduction to Spreadsheets and Databases	
MATH 110	Techniques of Calculus I	4
or MATH 140	Calculus With Analytic Geometry I	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 3 credits in social and behavioral sciences from department list		3
Select 6 credits in arts, humanities, social and behavioral sciences from department list		6
Select 3 credits in quantification from department list		3
Select 18 credits in economics at the 300 or 400 level with department approval, including at least 9 credits at the 400 level		18

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- Quantification (GQ): 6 credits
- Writing and Speaking (GWS): 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- Arts (GA): 3 credits
- Health and Wellness (GHW): 3 credits
- Humanities (GH): 3 credits
- Social and Behavioral Sciences (GS): 3 credits
- Natural Sciences (GN): 3 credits

Integrative Studies

- Inter-Domain Courses (Inter-Domain): 6 credits

Exploration

- GN, may be completed with Inter-Domain courses: 3 credits
- GA, GH, GN, GS, Inter-Domain courses. This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Economics and M.A. in Economics

Requirements for the Integrated B.S. in Economics and M.A. in Economics can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/economics/#integratedundergradgradprogramstext>).

Program Learning Objectives

- **Applied Economics Fields:** Students will be knowledgeable about at least two applied fields in economics.
- **Economic Analysis:** Students will be able to apply the tools of economic analysis, and most notably the basic supply and demand model, to various issues and phenomena, dealing with individuals, firms, markets, and public policy.
- **Economics Writing:** Students will be able to write a paper in economics that includes economic analysis and that is coherent, cogent, and grammatically correct.
- **Intermediate Theory:** Students will be familiar with intermediate microeconomic theory and intermediate macroeconomic theory.
- **Quantitative Economic Analysis:** Students will be able to carry out quantitative analyses of economic data.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

World Campus

Undergraduate Academic Advising

301 Outreach Building

University Park, PA 16802

814-863-3283

advising@outreach.psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Economics, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ECON 102 or 104 ^{*#}	3 ECON 102 or 104 ^{*#}	3
ENGL 15, 30H, or ESL 15 (GWS) [†]	3 MATH 110 or 140 (GQ) ^{*‡}	4
General Education Course (First Year Seminar)	3 General Education Course (IL or US Cultures)	3
General Education Course (Inter-Domain)	3 General Education Course (Inter-Domain)	3
General Education Course	3 General Education Course	3
15		16

Second Year

Fall	Credits Spring	Credits
ECON 106 [*]	3 ECON 302 or 304 [*]	3
ECON 302 or 304 [*]	3 CMPSC 101 or 203 (GQ) ^{*‡}	3
CAS 100A, 100B, or 100C (GWS) [†]	3 300 Level ECON Course [*]	3
General Education Course (IL or US Cultures)	3 Arts, Humanities, Social and Behavioral Science from approved Department List [*]	3
Elective	3 Elective	3
15		15

Third Year

Fall	Credits Spring	Credits
300/400 Level ECON Course*	3 300/400 Level ECON Course*	3
ECON 306*	3 400 level ECON Course*	3
Arts, Humanities, Social and Behavioral Science from approved Department List*	3 Social and Behavioral Science from approved Department List*	3
General Education Course (Writing Across the Curriculum)	3 Quantification from approved Department List*	3
Elective	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
400 Level ECON Course*	3 400 Level ECON Course*	3
ENGL 202A, 202B, 202C, or 202D (GWS) [‡]	3 General Education Course (GHW)	1.5
General Education Course (GHW)	1.5 General Education Course	3
Elective	3 Elective	3
Elective	3 Elective	3
	Elective	2
	13.5	15.5

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Economics, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ECON 102 or 104 ^{*#}	3 ECON 102 or 104 ^{*#}	3
ENGL 15, 30H, or ESL 15 (GWS) [‡]	3 MATH 110 or 140 (GQ) ^{*‡}	4
General Education Course (First Year Seminar)	3 General Education Course (IL or US Cultures)	3
General Education Course	3 General Education Course (Inter-Domain)	3
General Education Course	3 General Education Course	3
	15	16

Second Year

Fall	Credits Spring	Credits
CMPSC 101 or 203 (GQ) ^{*‡}	3 General Education Course (Inter-Domain)	3
CAS 100A, 100B, or 100C (GWS) [‡]	3 General Education Course (Writing Across the Curriculum)	3
Social and Behavioral Science from approved Department List [*]	3 Arts, Humanities, Social and Behavioral Science from approved Department List [*]	3
General Education Course (IL or US Cultures)	3 Elective	3
Elective	3 Elective	3
	15	15

Third Year

Fall	Credits Spring	Credits
ECON 302 or 304 [*]	3 ECON 302 or 304 [*]	3
ECON 106 [*]	3 ECON 306 [*]	3
Quantification from approved Department List [*]	3 300 Level ECON Course [*]	3
Elective	3 Arts, Humanities, Social and Behavioral Science from approved Department List [*]	3
Elective	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
300/400 Level ECON Course [*]	3 400 Level ECON Course [*]	3
300/400 Level ECON Course [*]	3 400 Level ECON Course [*]	3
400 Level ECON Course [*]	3 General Education Course (GHW)	1.5
General Education Course (GHW)	1.5 Elective	3

ENGL 202A, 202B, 202C, or 202D (GWS) [‡]	3 Elective	3
	Elective	2
	13.5	15.5

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

The economics major leads to several exciting and well-paying career opportunities in the corporate sector, the public sector, and in the nonprofit sector. This is the case because of the important skills acquired in an economics major including qualitative and quantitative analytical skills, critical-thinking skills, as well as communication skills.

Careers

In the corporate sector, economics majors help managers and decisionmakers understand the impact of economic conditions on their businesses. Economics majors analyze issues such as prices and consumer demand, which helps businesses to maximize profit.

In the public sector, economics majors can be found at the federal level as well as at the state and local levels of government. Economics graduates collect and analyze data on employment, prices, productivity, wages, and many other types of data. They also help project revenues and spending needs that help policymakers understand the impact of laws and regulations. Some economics graduates are employed in international agencies, research firms, think tanks, and other nonprofit organizations.

A recent publication by the U.S. Bureau of Labor Statistics lists economics as one of the top well-paying majors overall and top among the arts and social sciences.

Economics graduates may work in various occupations including:

- Actuaries or actuarial assistants where they use mathematics and statistics to analyze financial costs of risk and uncertainty.
- Financial Analysts where they use qualitative and quantitative tools to provide guidance to businesses and individual investment decisions.

- Market research analysts where they analyze market conditions and project potential sales for a particular product or service.
- Budget analysts where they help private and public agencies plan their finances more efficiently and effectively.
- Research assistants: economics majors may help design surveys, collect data, analyze the data, prepare reports, and give presentations on a wide range of areas including health issues, labor market issues, environment, social issues, etc.
- Operations research analysts where they employ various mathematical and analytical tools to help private and public agencies solve complicated operations problems.
- Urban and Regional Planners where they help to develop land use plans to create better communities and accommodate changes in population.
- Policy analysts where they use both qualitative and quantitative analytical skills to identify a problem, analyze the issue, provide a solution, and evaluate competing potential solutions to the problem. Policy analysts may also be tasked with identifying the effects of proposed or implemented policies on various categories of people.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE ECONOMICS PROGRAM (<https://econ.la.psu.edu/undergraduate/prospective-students/>)

Opportunities for Graduate Studies

A bachelor's degree in Economics from Penn State will also prepare students for post-graduate studies in pursuit of a Master's degree or Ph.D. in Economics.

MORE INFORMATION ABOUT MATH PREPARATION FOR GRADUATE STUDIES (<https://econ.la.psu.edu/undergraduate/care/care-quantitative-requirements/>)

Contact

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403 Kern Graduate Building
University Park, PA 16802
814-865-1457
prd138@psu.edu

<https://econ.la.psu.edu/undergraduate/>

World Campus

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403 Kern Graduate Building
University Park, PA 16802
814-865-1457
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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-economics-bachelor-of-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-economics-bachelor-of-science-degree/>)

Economics, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change

from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

What is Economics?

Economics is the study of how individuals, firms, and governments allocate their scarce resources. This major is designed for those who seek a broad understanding of the operation of the economic system and training in the methods and uses of economic analysis. Graduates are equipped for employment in many areas of business operations, banking, risk assessment, and agencies of government at all levels; and to undertake the graduate work necessary to become professional economists.

You Might Like This Program If...

You have an interest in decisions made by individuals and firms, policies made by governments, and their effects. Economists advise presidents, make forecasts about unemployment and the stock market, and create Federal Reserve Bank policies. But economists also study health care, crime, environmental issues, inequality, and more. Perhaps most importantly, Economics provides knowledge and logic for making everyday decisions, big and small. This includes everything from where to eat lunch to what career you choose.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
ECON 302	Intermediate Microeconomic Analysis	3
ECON 304	Intermediate Macroeconomic Analysis	3

Supporting Courses and Related Areas

<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 6 credits of additional ECON courses at the 400-level		6

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary

academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

World Campus

Undergraduate Academic Advising

301 Outreach Building

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advising@outreach.psu.edu

Career Paths

The field of Economics provides many opportunities (in both the public and private sector), as well as opportunities for graduate studies.

Careers

Employers know that a degree in Economics provides students with a logical way of making decisions for individuals and firms, as well as understanding the creation of policies and their consequences. Recent graduates have started private sector careers in consulting, sales, banking, and financial advising, as well as public sector careers with the FDA and DOJ. An economist will help a firm or public agency make important decisions using quantitative cost/benefit analysis, and will be able to understand how new policies will affect the firm.

Opportunities for Graduate Studies

Many schools offer graduate (both M.A. and Ph.D.) programs in Economics. In addition, with the logical thought processes learned and appropriate math background, the Economics degree will prepare students for an M.B.A. or J.D. If you are considering graduate studies in Economics, the B.S. is recommended with extra math preparation, particularly calculus and linear algebra.

MORE INFORMATION ABOUT MATH PREPARATION FOR GRADUATE STUDIES (<https://econ.la.psu.edu/undergraduate/care/care-quantitative-requirements/>)

Contact

University Park

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World Campus

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-economics-minor> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-economics-minor/>)

English, B.A. (Liberal Arts)

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

Majors explore the imaginative and practical uses of English through courses in literature, writing, rhetoric, and language. They develop perspectives on human nature and cultural values through American, British, and other English literatures; they learn how to gather, analyze, synthesize, and communicate information; they gain mastery over their language. These skills help English majors find careers in such fields as publishing, business, industry, government, and teaching. English majors often go on to postgraduate study not only in English but in such areas as law, business, education, or other liberal disciplines.

Majors can emphasize writing, literature, or rhetoric, or a mix of literature, writing, and rhetoric. All provide a liberal education and all develop analytic and writing skills. Qualified students may participate in the career internship and in the English honors program.

Students interested in earning certification in secondary education should contact the College of Education, Department of Curriculum and Instruction. (See also Teacher Education Programs (<https://ed.psu.edu/academics/teacher-testing-certification/>)).

Traditions of Innovation Option

Available at the following campuses: Brandywine, Scranton, University Park

This option allows students to explore the imaginative and practical uses of English language through a variety of courses in literature, writing, and rhetoric across historical periods. The flexibility of the English curriculum allows students to focus in literary and cultural studies, creative writing, professional and media writing, and/or rhetoric, according to individual interests and goals. In the process, students learn to gather, analyze, synthesize, and communicate information as they improve their language skills across diverse creative and critical scenarios. These skills prepare students for careers in a wide range of professional fields.

Writing and Literature in Context Option

Available at the following campuses: Abington, Altoona, Brandywine, Scranton, York

This option focuses on English as a foundation for strong critical thinking and distinctive communication skills, imaginative approaches to problem solving, and collaboration with aligned fields. The flexibility of the major allows students to study literature, creative writing, theatre, media studies, professional writing, and/or other disciplines, according to their individual interests and goals. These foundations prepare English majors for careers in a wide range of professional fields.

What is English?

English refers to a broad field of study related to literature, professional writing, creative writing, and rhetoric. Majors develop critical thinking

skills and produce influential academic, creative, professional, and digital texts. They learn to analyze genres, texts, and contexts that involve, for instance, race, class, gender, sexuality, and nationality. They also learn how various texts communicate value, meaning, and social and cultural critique.

You Might Like This Program If...

- You enjoy writing in different genres, styles, and media, e.g. videos, print or web magazine articles, critical essays, reviews, short stories, poems, etc.
- You enjoy addressing social justice issues that give context to texts.
- You want to use communication to help solve problems involving science, technology, medicine, law, business, or society.
- You enjoy making connections between historical eras and current realities.
- You want to a career in law, non-profit work, medicine, education, or writing/editing.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in English, a minimum of 123 credits is required:

Requirement	Credits
General Education	45
Electives	18
Bachelor of Arts Degree Requirements	24
Requirements for the Major	36

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
ENGL 200 or ENGL 201	Introduction to Critical Reading What is Literature	3
ENGL 494H or ENGL 487W	Senior Thesis in English Senior Seminar	3
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
In consultation with adviser, select 18 credits in literature, writing, or rhetoric. At least 9 credits must be at the 300/400 level. At least 3 of the 300/400 level credits must fulfill a departmental diversity requirement for a course related to race, gender, sexuality, disability, ethnicity, and/or postcolonial issues.		18
Requirements for the Option		
<i>Requirements for the Option: Require a grade of C or better</i>		
Select an option		12

Requirements for the Option

Traditions of Innovation Option (12 Credits)

Available at the following campuses: Brandywine, Scranton, University Park

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits of 300/400 level course in each of the following areas:		12
Medieval through Sixteenth Century		
Sixteenth Century through Eighteenth Century		
The Nineteenth Century		
Twentieth Century to the Present		

Writing and Literature in Context Option (12 Credits)

Available at the following campuses: Abington, Altoona, Brandywine, Scranton, York

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits of 400-level pre-1800 courses		3
Select 3 credits of 400-level post-1800 courses		3
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 6 credits of English courses at any level		6

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Integrated B.A. in English and M.A. in English

Available at the following campuses: University Park

Requirements for the Integrated B.A. in English and M.A. in English can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/english/#integratedundergradgradprogramstext>).

Program Learning Objectives

- Apply critical, theoretical, and/or disciplinary approaches to the reading and analysis of texts in multiple genres and/or media.
- Analyze the aesthetic and/or cultural significance of the ideas, values, conventions, forms, and genres associated with texts.
- Gather, evaluate, and employ an array of research materials in support of critical studies, and/or creative activity, in ways consistent with standards of academic integrity.
- Demonstrate writing and rhetorical skills appropriate to critical and/or creative tasks in a variety of media and genres.
- Analyze representative literary, theoretical, and cultural texts within significant historical, geographical, and cultural contexts.
- Analyze the role of literature and rhetoric in the representation, continuation, or transformation of social and structural processes including but not limited to race, gender, sexuality, disability, class, ethnicity, and postcolonialism.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

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Brandywine

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Traditions of Innovation Option: English, B.A. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or 137H [†]	3 Concentration Course [*]	3
World Language Level 1	4 CAS 100, ENGL 138T, or CAS 138T [†]	3
General Education Course (GQ) [†]	3 General Education Course [†]	3
General Education Course [†]	3 World Language Level 2	4
Elective	3 General Education Course [†]	3
	16	16

Second Year

Fall	Credits Spring	Credits
ENGL 200 or 201 [*]	3 Concentration Course [*]	3
Concentration Course [*]	3 Elective	3
World Language Level 3	4 General Education Course [†]	3
General Education Course (GQ) [†]	3 General Education Course [†]	3
General Education Course [†]	3 BA Requirement	3
	16	15

Third Year

Fall	Credits Spring	Credits
Concentration Course [*]	3 ENGL 4XX [*]	3
ENGL 4XX [*]	3 Concentration Course [*]	3
General Education Course	3 ENGL 202A, 202B, 202C, or 202D [†]	3
BA Requirement	3 General Education Course	3
Elective	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
ENGL 4XX [*]	3 ENGL 4XX [*]	3
Concentration Course [*]	3 ENGL 487W [*]	3
BA World Cultures	3 General Education Course (GHW)	1.5
BA Requirement	3 General Education Course [†]	3
General Education Course (GHW)	1.5 Elective	3

Elective	3	
	16.5	13.5

Total Credits 123

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Advising Notes:

- All incoming freshmen must take a First-Year Seminar (FYS) during Fall or Spring of their first year. Academic advisers can provide a list of FYS being offered and help the student enroll. Most FYS in the College of the Liberal Arts are worth 3 cr. and count as a General Humanities (GH) or General Social Sciences (GS) course. For this reason, the FYS is not listed separately on this eight-semester plan; most students will be able to fulfill the FYS requirement while also fulfilling a GH or GS requirement.

Career Paths**Careers**

Our graduates use their training in careers as attorneys, publishers, professional writers, editors, public relations directors, non-profit

professionals, foreign service specialists, entrepreneurs, teachers, and education professionals.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE ENGLISH PROGRAM (<https://english.la.psu.edu/undergraduate/career-enrichment-network/>)

Opportunities for Graduate Studies

English majors often go on to postgraduate study not only in English but in areas such as law, medicine, business, education, or liberal arts disciplines.

More information about opportunities for graduate studies can be found through the following websites:

- Association of Departments of English (<https://www.maps.mla.org/About-MAPS/ADE/>)
- Law School Admissions Council (<https://www.lsac.org/>)
- Association of American Medical Colleges (<https://www.aamc.org/>)
- AWP Guide to Writing Programs (https://www.awpwriter.org/guide/guide_writing_programs/)

Professional Resources

- Department Website with information on Major, Minor, concentrations, and other opportunities (<https://english.la.psu.edu/undergraduate/majors/>)
- Kalliope, Penn State's undergraduate literary magazine (<https://kalliope.psu.edu/>)
- Creative Writing Club, A community for improving and sharing creative writing (<https://sites.psu.edu/creativewritingclub/>)
- W.O.R.D.S., Writers Organized to Represent Diverse Stories (<https://sites.psu.edu/wordspennstate/>)
- Career Enrichment Network, resource for career-related, international, and professional development (<https://la.psu.edu/current-students/career-enrichment-network/>)
- Modern Language Association, Guide for Undergraduate Research (<https://www.mla.org>)
- Conference on College Composition and Communication (<https://ccon.ncte.org/>)
- National Council of Teachers of English (<https://ncte.org/>)
- American Bar Association (<https://www.americanbar.org/>)
- AWP
- American Society of Journalists and Authors (<https://www.asja.org/>)
- National Association of Science Writers (<https://www.nasw.org/>)
- Society for Technical Communication (<https://www.stc.org/>)
- Society of Professional Journalists (<https://www.spj.org/>)
- Association of Writers and Writing Programs (<https://www.awpwriter.org/>)
- American Grant Writers' Association (<http://www.agwa.us/>)
- International Writing Centers Association (<https://writingcenters.org/>)
- TESOL International Association (<https://www.tesol.org/>)

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English, Minor (Liberal Arts)

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

What is English?

English refers to a broad field of study related to literature, professional writing, creative writing, and rhetoric. Majors develop critical thinking skills and produce influential academic, creative, professional, and digital texts. They learn to analyze genres, texts, and contexts that involve, for instance, race, class, gender, sexuality, and nationality. They also learn how various texts communicate value, meaning, and social and cultural critique.

You Might Like This Program If...

- You are a professional in business, science, social service, government or education and want to communicate your ideas and plans more effectively.
- You want to gain insights into human behavior and aspirations through the study of literature and writing.
- You want to learn to think logically about a body of evidence in order to formulate a point of view and to find the most precise and appealing ways in which to present it.
- You want to develop more nuanced understandings of cultural values and perspectives through the analysis of texts.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

For the minor in English, a minimum of 18 credits are required.

Requirements for the Minor

Students may not count courses used to satisfy General Education Writing/Speaking Skills.

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 6 credits from ENGL 200 - ENGL 299		6
Select 6 credits from ENGL 400 - ENGL 499		6
Select 6 additional credits in English		6

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

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Ethics, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

This interdisciplinary minor, housed in the Department of Philosophy, is designed to provide students with training in ethical reasoning, frameworks, and methods, as well as offer the opportunity to work in various fields of applied ethics. In addition to the requirements for the student's major department the minor consists of 18 credits selected from a wide range of disciplines (e.g., philosophy, communication, engineering, law, psychology, sociology, anthropology, public policy, international studies, and environmental studies). Courses deal with ethics from various perspectives, for example research ethics, media ethics, environmental ethics, bioethics, and business ethics.

Students in the minor will choose from a broad range of 0-, 100-, and 400-level ethics-related courses offered in the Philosophy Department, and will have the chance to take up to two ethics-related courses outside the department. Some Philosophy ethics-related courses cover prominent and powerful historical and contemporary approaches to ethical decision-making and leadership; others cover specific problems in ethical thinking or applications to concrete areas of life. The minor will be suitable for students in almost any major, especially students going on to further academic work or careers in medicine, teaching and education, communication, business, law, the health or life sciences, health administration, public policy, politics, computer science, or engineering.

What is Ethics?

The interdisciplinary Ethics minor at Penn State University includes fields such as philosophy, communication, engineering, law, psychology, sociology, anthropology, public policy, international studies, and environmental studies. Students will have the opportunity to learn about various ethical perspectives and challenges that relate to research ethics, business ethics, bioethics, media ethics, and more.

You Might Like This Program If...

- You want to learn about ethical frameworks and methods to guide successful execution of both professional and personal endeavors.
- You want to understand ethical issues involved in global situations such as the collapse of the stock market and global financial systems.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 0-6 credits from the following PHIL 0-level ethics-related courses:		0-6
PHIL 2	Individuals in Society	
PHIL 3	Ethical Life	
PHIL 8	Gender Matters	

PHIL 9	Race, Racism, and Diversity
PHIL 14	Love and Sex
Select at least 6 credits from the following PHIL 100- or 200-level ethics-related courses:	6
PHIL 103	Ethics
PHIL 103W	Ethics
PHIL 105	Philosophy of Law
PHIL 106	Business Ethics
PHIL 108	Social and Political Philosophy
PHIL 108W	Social and Political Philosophy
PHIL 115	Philosophy and Education
PHIL 118	Environmental Philosophy
PHIL 119	Ethical Leadership
PHIL 120N	Knowing Right from Wrong
PHIL 123	Media Ethics
PHIL 132	Bioethics
PHIL 133N	Ethics of Climate Change
PHIL 134	Food, Values, and Health
PHIL 135	Ethics in Jewish Tradition and Thought
PHIL 242N	Happiness and Well-Being
Select at least 3 credits from the following PHIL 400-level ethics-related courses (Students need at least one other 400-level ethics related course, from PHIL or another department):	3
PHIL 403	Seminar in Environmental Ethics
PHIL 405	Seminar in Philosophy of Law
PHIL 406	
PHIL 407	Seminar in Philosophy of Technology
PHIL 408W	Seminar in Social and Political Philosophy
PHIL 418	Seminar in Ethical Theory
PHIL 418W	Seminar in Ethical Theory
PHIL 432	Medical and Health Care Ethics
PHIL 460	African American Philosophy
PHIL 478	Ethics After the Holocaust
Select 0-6 credits from the following non-PHIL ethics-related courses:	0-6
AFAM 103	Racism and Sexism
AFAM 409	Racial and Ethnic Inequality in America
AFAM 445Y	Politics of Affirmative Action
AG 160	Introduction into Ethics and Issues in Agriculture
ANTH 45N	Cultural Diversity: A Global Perspective
APLNG 310	Language Rights, Policy, and Planning
AYFCE 438	Living in an Increasingly Diverse Society
ASIA 418	Confucius and the Great Books of China
BA 242	Social and Ethical Environment of Business
BA 243	Social, Legal, and Ethical Environment of Business
BA 342	Socially Responsible, Sustainable and Ethical Business Practice
BBH 301W	Values and Ethics in Biobehavioral Health Research and Practice
CED 417	Power, Conflict, and Community Decision Making
CMLIT 130	Banned Books: International and Comparative Perspectives
CMLIT 143	Human Rights and World Literature
CMLIT 455	Ethics, Justice, and Rights in World Literature

CNED 432	Ethical, Legal, and Professional Issues in Counseling
COMM 205	Gender, Diversity and the Media
COMM 222N	Social Justice and the Image
COMM 409	News Media Ethics
COMM 417	Ethics and Regulation in Advertising and Public Relations
COMM 458	Media Law and Ethics
COMM 486W	Telecommunications Ethics
CRIMJ 451	Race, Crime, and Justice
CRIMJ 465	Ethics in Criminal Justice
EDTHP 115A	Competing Rights: Issues in American Education
EDTHP 441	Education, Schooling, and Values
EDUC 400	Diversity and Cultural Awareness Practices in the K-12 Classroom
ENGL 135	Alternative Voices in American Literature
ENGL 234	Sports, Ethics, and Literature
ENGL 236N	Inequality: Economics, Philosophy, Literature
FDSC 280	
FDSC 444	Arguing about Food
FIN 476	Financial Ethics
GEOG 130	
GEOG 433	Geographies of Justice
HDFS 108N	Art and Science of Human Flourishing
HDFS 301	Values and Ethics in Health and Human Development Professions
HIST 116	
JST 409Y	Antisemitisms
KINES 345	Meaning, Ethics, and Movement
KINES 439W	
KINES 440	Philosophy and Sport
LER 460	
MGMT 451W	Business, Ethics, and Society
NAVSC 402	Leadership and Ethics
NURS 350	Professional Role Development II: Ethics, Legal and Genetic Issues
NURS 458	Ethical Challenges in Healthcare Informatics
PLSC 17N	Introduction to Political Theory
PLSC 112	
PLSC 430	Selected Works in the History of Political Theory
PLSC 431	Ancient, Medieval, and Renaissance Political Theories
PLSC 432	Modern and Contemporary Political Theories
PLSC 435	Foundations of American Political Theory
PLSC 477	Sex, Race, & Justice: The U.S. Supreme Court and Equality
PSYCH 243	Introduction to Well-being and Positive Psychology
PSYCH 466	The Psychology of Evil
RLST 130	
SOC 450	Justice and the Environment
WMNST 301N	Sexualities, Gender and Power: Feminist Thought and Politics
WMNST 400N	Debates in Contemporary Feminism

Academic Advising

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Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

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Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Career Paths

Philosophy students learn the kinds of critical, interpretive, analytical, and argumentative skills highly prized by employers in a wide variety of fields, including publishing, non-profit work, consulting, information technology, law, business, education, journalism, medicine, and public service.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN ETHICS (<https://philosophy.la.psu.edu/undergraduate/>)

Opportunities for Graduate Studies

Philosophy students score consistently higher than other majors on LSAT, MCAT, and GMAT exams. The study of philosophy provides students with an outstanding preparation for law school, medical school, and other advanced degrees.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://philosophy.la.psu.edu/undergraduate/>)

Contact

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French and Francophone Studies, B.A.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The B.A. major in French and Francophone Studies encourages students to develop fluency in the language as well as an appreciation of francophone literature and culture. The major can also help to prepare students for interdisciplinary professional careers in which a knowledge of a world language is useful. At present, the B.A. major in French and Francophone Studies is available as a Language and Culture option, Language and Linguistics option, or as a Language and Literature option.

What is French and Francophone Studies?

The B.A. major in French and Francophone Studies provides students with an opportunity to develop proficiency in the French language as well as cultivate an appreciation and understanding of the various contexts that comprise the French and Francophone literary and cultural traditions. Students receive instruction in small, interactive classrooms that foster communication and exchange. Our courses promote critical thinking with an emphasis on cultural, literary and linguistic analysis. Majors are encouraged to participate in language immersive events such as embedded courses, faculty led courses, and study abroad. The major can also help to prepare students for interdisciplinary professional careers for which a knowledge of French language and culture is useful. At present, the B.A. major in French and Francophone Studies is available either as a Language and Culture, Language and Literature, and Language and Linguistics option.

You Might Like This Program If...

- You are interested in critical thinking about the cultural frames and literary objects that comprise French and Francophone literature/culture.
- You are planning a career in which French proficiency is useful.
- You are eager to connect with French-speaking communities both home and abroad.
- You seek to cultivate a professional profile that will increase your chances on the job market.
- You aspire to explore the various people, places and things that make up the French-speaking world.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in French, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	18

Bachelor of Arts Degree Requirements	24
Requirements for the Major	33

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
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Prescribed Courses

Prescribed Courses: Require a grade of C or better

FR 201	Oral Communication and Reading Comprehension	3
FR 202	Grammar and Composition	3

Additional Courses

Additional Courses: Require a grade of C or better:

Select three of the following:			9
FR 331	French and Francophone Culture I		
FR 332	French and Francophone Culture II		
FR 351	French and Francophone Literature I		
FR 352	French and Francophone Literature II		

Requirements for the Option

Requirements for the Option: Require a grade of C or better

Select an option	18
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Requirements for the Option

Language and Culture Option (18 credits)

Code	Title	Credits
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Prescribed Courses

Prescribed Courses: Require a grade of C or better

FR 402Y	Advanced Grammar and Writing	3
FR 430	Contemporary France	3

Additional Courses

Additional Courses: Require a grade of C or better

Select one of the following:			3
FR 316	French Linguistics		
FR 417	French Phonology		
FR 418	French Syntax		
FR 419	French Semantics		

Select 9 credits in French literature or culture at the 400 level	9
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Language and Literature Option (18 credits)

Code	Title	Credits
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Additional Courses

Additional Courses: Require a grade of C or better

Select 3 credits in French linguistics from:	3
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FR 316	French Linguistics	
FR 417	French Phonology	
FR 418	French Syntax	
FR 419	French Semantics	

Select 15 credits in French literature at the 400 level from:	15
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FR 422		
FR 426Y		
FR 436Y		
FR 445Y	Self and Society in Eighteenth-Century France	
FR 452Y	Nineteenth-Century French Literature	
FR 453Y	La Belle Epoque: Politics, Society, and Culture in France, 1880-1914	
FR 458	African Literature of French Expression	
FR 460	Contemporary French Literature	
FR 470	Race and Gender Issues in Literatures in French	
FR 487	Topics in French Film History and Theory I: 1895-1945	
FR 497	Special Topics	

Language and Linguistics Option (18 credits)

Code	Title	Credits
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Prescribed Courses

Prescribed Courses: Require a grade of C or better

FR 316	French Linguistics	3
FR 402Y	Advanced Grammar and Writing	3
FR 417	French Phonology	3
FR 418	French Syntax	3
FR 419	French Semantics	3

Additional Courses

Additional Courses: Require a grade of C or better

Select one of the following:	3
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LING 402	Syntax I	
LING 404	Phonology I	
LING 449	Semantics I	

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or

within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- **Communication:** Students will have developed cultural and intercultural competence in French that allows them to communicate efficiently in social, cultural and global settings ranging from informal to professional contexts.
- **Critical Thinking:** Students will have developed analytical skills in order to improve their understanding of French and Francophone cultural phenomena, linguistics, literary works, and theoretical texts.
- **Cultural Comparisons:** Students will be able to use their proficiency in French language and culture to make pertinent comparisons with their own language and culture and thus demonstrate a critical understanding of the nature and function of both.
- **Francophone Communities:** Students will be able to discuss issues surrounding different marginalized Francophone communities in terms of social justice, equity, diversity and inclusion.
- **Francophone Historical Contexts:** Students will be able to describe Francophone contexts, issues related to colonialism and post-colonialism, and their historical implications.
- **Immersive Learning:** Students will have participated in immersion opportunities, ideally study abroad or internships, but also departmental and campus-wide events, with the goal of promoting growth in language skills, intercultural understanding, and academic achievement in French and Francophone studies.
- **Self-Expression:** Students will use French for artistic, creative and other forms of meaningful self-expression.
- **The Three Modes:** Students will have developed interpretive, interpersonal and presentational skills that allow them to successfully engage with and interpret a variety of text types including literary, scholarly, scientific and visual texts.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Language & Culture Option: French and Francophone Studies, B.A. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
FR 1	4 FR 2	4
ENGL 15, 30H, ESL 15, ENGL 137H, or CAS 138T (GWS) [‡]	3 CAS 100, ENGL 138T, or CAS 138T (GWS) [‡]	3
General Education Quantification (GQ) [‡]	3 General Education Course (N)	3
General Education Course (N)	3 General Education Course	3
General Education Course	3 BA Requirement	3
	16	16

Second Year

Fall	Credits Spring	Credits
FR 3	4 FR 201 [*]	3
General Education Quantification (GQ) [‡]	3 FR 202 [*]	3
General Education Course (US)	3 General Education Course	3
General Health and Wellness (GHW)	1.5 General Education Course	3

BA Requirement	3 BA Requirement	3
	14.5	15
Third Year		
Fall	Credits Spring	Credits
FR 316 [*]	3 FR 332, 331, 351, or 352 [*]	3
FR 331, 332, 351, or 352 [*]	3 FR 351, 331, 332, or 352 [*]	3
General Education Course	3 FR 402Y [*]	3
Elective	3 General Education Course	3
Elective	3 Elective	3
	15	15
Fourth Year		
Fall	Credits Spring	Credits
4xx level FR course [*]	3 FR 430 [*]	3
4xx level FR course [*]	3 4xx level FR course [*]	3
ENGL 202B (GWS) [‡]	3 BA World Cultures Course (or Elective)	3
Elective	3 Elective	3
General Health and Wellness (GHW)	1.5 Elective	3
	13.5	15

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may

not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Advising Notes:

- All incoming first-year students must take a First-Year Seminar (FYS) during Fall or Spring of their first year. Academic advisers can provide a list of FYS being offered and help the student enroll. Most FYS in the College of the Liberal Arts are worth 3 cr. and count as a General Humanities (GH) or General Social Sciences (GS) course. For this reason, the FYS is not listed separately on this eight-semester plan; most students will be able to fulfill the FYS requirement while also fulfilling a GH or GS requirement.
- Students pursuing this major at a Commonwealth Campus might require summer attendance, study abroad, or additional semesters to complete the major coursework. Students should contact the University Park adviser to plan their major courses accordingly.

French Language & Linguistics Option: French and Francophone Studies, B.A. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
FR 1	4 FR 2	4
ENGL 15, 30H, ESL 15, ENGL 137H, or CAS 138T (GWS) [‡]	3 CAS 100, ENGL 138T, or CAS 138T (GWS) [‡]	3
General Education Quantification (GQ) [‡]	3 General Education Course (N)	3
General Education Course	3 General Education Course	3
General Education Course	3 BA Requirement	3
16		16

Second Year

Fall	Credits Spring	Credits
FR 3	4 FR 201 [*]	3
General Education Quantification (GQ) [‡]	3 FR 202 [*]	3
General Education Course (US)	3 General Education Course	3
General Health and Wellness (GHW)	1.5 General Education Course	3
BA Requirement	3 BA Requirement	3
14.5		15

Third Year

Fall	Credits Spring	Credits
FR 316 [*]	3 FR 332, 331, 351, or 352 [*]	3
FR 331, 332, 351, or 352 [*]	3 FR 351, 331, 332, or 352 [*]	3
General Education Course	3 FR 402Y [*]	3
Elective	3 General Education Course	3
Elective	3 Elective Course	3
15		15

Fourth Year

Fall	Credits Spring	Credits
LING 402, 404, or 449 [*]	3 FR 417, 418, or 419 [*]	3
FR 417, 418, or 419 [*]	3 BA World Cultures Course (or Elective)	3
FR 417, 418, or 419 [*]	3 Elective	3
ENGL 202B (GWS) [‡]	3 Elective	3
General Health and Wellness (GHW)	1.5 Elective	3
13.5		15

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Advising Notes:

- All incoming first-year students must take a First-Year Seminar (FYS) during Fall or Spring of their first year. Academic advisers can provide a list of FYS being offered and help the student enroll. Most FYS in the College of the Liberal Arts are worth 3 cr. and count as a General Humanities (GH) or General Social Sciences (GS) course. For this reason, the FYS is not listed separately on this eight-semester plan; most students will be able to fulfill the FYS requirement while also fulfilling a GH or GS requirement.
- Students pursuing this major at a Commonwealth Campus might require summer attendance, study abroad, or additional semesters to complete the major coursework. Students should contact the University Park adviser to plan their major courses accordingly.

Language & Literature Option: French and Francophone Studies, B.A. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
FR 1	4 FR 2	4
ENGL 15, 30H, ESL 15, ENGL 137H, or CAS 138T (GWS) [‡]	3 CAS 100, ENGL 138T, or CAS 138T (GWS) [‡]	3
General Education Quantification (GQ) [‡]	3 General Education Course (N)	3
General Education Course (N)	3 General Education Course	3
General Education Course	3 BA Requirement	3
16		16

Second Year

Fall	Credits Spring	Credits
FR 3	4 FR 201 [*]	3
General Education Quantification (GQ) [‡]	3 FR 202 [*]	3
General Education Course (US)	3 General Education Course	3
General Health and Wellness (GHW)	1.5 General Education Course	3
BA Requirement	3 BA Requirement	3
14.5		15

Third Year

Fall	Credits Spring	Credits
FR 316 [*]	3 FR 332, 331, 351, or 352 [*]	3
FR 331, 332, 351, or 352 [*]	3 FR 351, 331, 332, or 352 [*]	3
General Education Course	3 4XX Level FR Literature Course [*]	3
Elective	3 General Education Course	3
Elective	3 Elective	3
15		15

Fourth Year

Fall	Credits Spring	Credits
4XX Level FR Literature Course (W/Y Course) [*]	3 4XX Level FR Literature Course [*]	3
4XX Level FR Literature Course [*]	3 4XX Level FR Literature Course [*]	3
ENGL 202B (GWS) [‡]	3 BA World Cultures Course (or Elective)	3
General Health and Wellness (GHW)	1.5 Elective	3

Elective	3 Elective	3
13.5		15

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures.

See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Advising Notes:

- All incoming first-year students must take a First-Year Seminar (FYS) during Fall or Spring of their first year. Academic advisers can provide a list of FYS being offered and help the student enroll. Most FYS in the College of the Liberal Arts are worth 3 cr. and count as a General Humanities (GH) or General Social Sciences (GS) course. For this reason, the FYS is not listed separately on this eight-semester plan; most students will be able to fulfill the FYS requirement while also fulfilling a GH or GS requirement.
- Students pursuing this major at a Commonwealth Campus might require summer attendance, study abroad, or additional semesters to complete the major coursework. Students should contact the University Park adviser to plan their major courses accordingly.

Career Paths

With a B.A. degree in French, students have a variety of pathways open to them. Our graduates have gone on to pursue a myriad of exciting careers that have allowed them to use their proficiency in the French language, understanding of French and Francophone cultural artefacts, grasp of French and Francophone ways of seeing and making sense of the world, and the skills of critical thinking acquired in our classrooms

Careers

Our majors have taught in France as Fulbright Scholars or on French government teaching assistantships; worked for the Peace Corps, Homeland Security, the State department, world health organizations, and the non-profit sector; pursued careers in the foreign service; become high school teachers, university professors, and instructional designers; and gone into film, journalism, advertising, fashion, public relations, and information technology – among many other professions.

Opportunities for Graduate Studies

Our graduates have gone on to pursue graduate studies in French, Comparative Literature and other disciplines within the humanities. Many have also opted to pursue Law school, Medical school, and advanced degrees in International Politics, Public Health, International Studies and Art History.

Contact

University Park

DEPARTMENT OF FRENCH AND FRANCOPHONE STUDIES

442 Burrowes Building

University Park, PA 16802

814-865-1492

hjm10@psu.edu

<https://french.la.psu.edu>

French and Francophone Studies, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The B.S. degree is designed to allow students to combine fluency in French with other academic disciplines. The Business option develops basic skills in French (speaking, understanding, reading, writing) and acquaints students with a number of fields essential to business, especially in the international area. The Engineering option has a required overseas study or work component. The Applied French option develops basic skills in French (speaking, understanding, reading, writing) as well as a basic knowledge of French literature and culture. At the same time, it provides a concentration in a professional area in which a command of French can be particularly relevant or useful. Courses in French culture and civilization are essential to all B.S. options, and students are encouraged to participate in the University's International Studies programs in France.

What is French and Francophone Studies?

The B.S. degree in French and Francophone Studies is designed to develop proficiency in the French language and deepen knowledge of

French cultural artifacts and frames, allowing students to combine both sets of skills with other academic disciplines. Students receive instruction in small, interactive classrooms that foster communication and exchange. Majors are encouraged to participate in language immersive events such as embedded courses, faculty led courses, and study abroad. The Business option acquaints students with concepts essential to business. The Engineering option is intended for engineering students who envision using French in their primary career. The Applied French option permits students to combine their French degree with another major or concentration in a professional area in which a command of French can be particularly relevant or useful. All options have a focus on developing proficiency and literacy in French with an eye toward using French in a professional context.

You Might Like This Program If...

- You are interested in combining your love of French with another discipline.
- You are planning a career in which French proficiency would give you a professional boost.
- You are eager to connect with French-speaking communities in your home community and abroad.
- You seek to cultivate a professional profile that will give you an edge on the job market.
- You aspire to explore the various people, places and things that make up the French-speaking world.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in French and Francophone Studies (all options) a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	20-24
Requirements for the Major	51-68

13 of the 45 credits for General Education are included in the Requirements for the Major. For the French-Business Option, 4 credits of GQ courses; 6 credits of GS courses; 3 credits of GWS courses.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each

course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
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Prescribed Courses

Prescribed Courses: Require a grade of C or better

FR 201	Oral Communication and Reading Comprehension	3
FR 202	Grammar and Composition	3
FR 401	Advanced Oral Communication	3
FR 402Y	Advanced Grammar and Writing	3

Additional Courses

Additional Courses: Require a grade of C or better

Select one of the following: 3

FR 316	French Linguistics	
FR 417	French Phonology	
FR 418	French Syntax	
FR 419	French Semantics	

Select three of the following: 9

FR 331	French and Francophone Culture I	
FR 332	French and Francophone Culture II	
FR 351	French and Francophone Literature I	
FR 352	French and Francophone Literature II	

Requirements for the Option

Requirements for the Option: Require a grade of C or better

Select an option 27-44

Requirements for the Option

French-Business Option (44 credits)

Code	Title	Credits
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Prescribed Courses

Prescribed Courses: Require a grade of C or better

ACCTG 211	Financial and Managerial Accounting for Decision Making	4
BA 301	Finance	3
BA 303	Marketing	3
BA 304	Management and Organization	3
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
ENGL 202D	Effective Writing: Business Writing	3
FR 409	French for Professional Purposes	3
FR 430	Contemporary France	3
IB 303	International Business Operations	3

Additional Courses

Additional Courses: Require a grade of C or better

MKTG 220	Introduction to Selling Techniques	3
or IB 403	International Business and National Policies	
SCM 200	Introduction to Statistics for Business	4
or STAT 200	Elementary Statistics	

Select one of the following: 3

ECON 333	International Economics	
MGMT 461	International Management	
MKTG 445	Global Marketing	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 3 credits in French at the 400 level 3

French-Engineering Option (30 credits)

Open only to students enrolled in an engineering major.

Code	Title	Credits
------	-------	---------

Prescribed Courses

Prescribed Courses: Require a grade of C or better

FR 409	French for Professional Purposes	3
FR 430	Contemporary France	3

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 21 credits of engineering courses, including ENGR 295 and ENGR 395, in consultation with the engineering adviser 21

Select 3 credits in French at the 400 level 3

Note: All French-Engineering majors are required to participate in a one-semester engineering internship in France, arranged by the College of Engineering, during which up to 9 credits in French and up to 12 credits in engineering may be earned. The work experience may take the form of a professional internship (ENGR 195I) or be part of a cooperative education sequence (ENGR 295I, ENGR 395I, or ENGR 495I).

Applied French Option (27 credits)

Code	Title	Credits
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Prescribed Courses

Prescribed Courses: Require a grade of C or better

FR 430	Contemporary France	3
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Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 18 credits (at least 6 credits at the 400 level) in related areas in consultation with an adviser ¹ 18

Select 6 credits in French at the 400 level 6

¹ Select from related areas such as:

- Hotel, Restaurant, and Institutional Management
- Linguistics
- Sociology
- Economics
- Science, Technology and Society
- Another professional area where competency in French is desirable

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Communication:** Students will have developed cultural and intercultural competence in French that allows them to communicate efficiently in social, cultural and global settings ranging from informal to professional contexts.
- **Critical Thinking:** Students will have developed analytical skills in order to improve their understanding of French and Francophone cultural phenomena, linguistics, literary works, and theoretical texts.
- **Cultural Comparisons:** Students will be able to use their proficiency in French language and culture to make pertinent comparisons with their own language and culture and thus demonstrate a critical understanding of the nature and function of both.
- **Francophone Communities:** Students will be able to discuss issues surrounding different marginalized Francophone communities in terms of social justice, equity, diversity and inclusion.
- **Francophone Historical Contexts:** Students will be able to describe Francophone contexts, issues related to colonialism and post-colonialism, and their historical implications.
- **Immersive Learning:** Students will have participated in immersion opportunities, ideally study abroad or internships, but also departmental and campus-wide events, with the goal of promoting growth in language skills, intercultural understanding, and academic achievement in French and Francophone studies.
- **Self-Expression:** Students will use French for artistic, creative and other forms of meaningful self-expression.
- **The Three Modes:** Students will have developed interpretive, interpersonal and presentational skills that allow them to successfully engage with and interpret a variety of text types including literary, scholarly, scientific and visual texts.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Applied French Option: French and Francophone Studies, B.S. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
FR 1	4 FR 2	4
ENGL 15, 30H, ESL 15, ENGL 137H, or CAS 138T (GWS) [‡]	3 CAS 100, ENGL 138T, or CAS 138T (GWS) [‡]	3
General Education Quantification (GQ) [‡]	3 General Education Course (N)	3
General Education Course (N)	3 General Education Course	3
General Education Course	3 General Health and Wellness (GHW)	1.5
	16	14.5

Second Year

Fall	Credits Spring	Credits
FR 3	4 FR 201 [*]	3
General Education Quantification (GQ) [‡]	3 FR 202 [*]	3
General Education Course (US)	3 General Education Course	3
General Health and Wellness (GHW)	1.5 General Education Course	3
Applied Option Course [*]	3 Applied Option Course [*]	3
	14.5	15

Third Year

Fall	Credits Spring	Credits
FR 316 [*]	3 FR 332, 331, 351, or 352 [*]	3
FR 331, 332, 351, or 352 [*]	3 FR 351, 331, 332, or 352 [*]	3
General Education Course	3 FR 402Y [*]	3
FR 401 [*]	3 General Education Course	3
Applied Option Course [*]	3 Elective Course	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
ENGL 202B (GWS) [‡]	3 FR 430 [*]	3
4xx level FR course [*]	3 4xx level FR course [*]	3
Applied Option Course [*]	3 Applied Option Course at the 4xx level [*]	3
Applied option course at the 4xx level [*]	3 Elective	3
Elective	3 Elective	3
	15	15

Total Credits 120

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- All incoming first-year students must take a First-Year Seminar (FYS) during Fall or Spring of their first year. Academic advisers can provide a list of FYS being offered and help the student enroll. Most FYS in the College of the Liberal Arts are worth 3 cr. and count as a General Humanities (GH) or General Social Sciences (GS) course. For this reason, the FYS is not listed separately on this eight-semester plan; most students will be able to fulfill the FYS requirement while also fulfilling a GH or GS requirement.
- Students pursuing this major at a Commonwealth Campus might require summer attendance, study abroad, or additional semesters to complete the major coursework. Students should contact the University Park adviser to plan their major courses accordingly

French-Business Option: French and Francophone Studies, B.S. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
FR 1	4 FR 2	4
ENGL 15, 30H, ESL 15, ENGL 137H, or CAS 138T (GWS) [‡]	3 CAS 100A, 100B, 100C, 138T, or ENGL 138T (GWS) [‡]	3
ECON 102 (GS) ^{*†}	3 ECON 104 (GS) ^{*†}	3
General Education Course (GQ) [‡]	3 General Education Course (N)	3
First-Year Seminar Course (FYS)	3 General Education Course	3
	16	16

Second Year

Fall	Credits Spring	Credits
FR 3	4 FR 201 [*]	3
BA 303 [*]	3 FR 202 [*]	3
STAT 200 (GQ) ^{*††}	4 ACCTG 211 [*]	4
General Education Course (N)	3 BA 304 [*]	3
General Education Course (GHW)	1.5 General Education Course	3
	15.5	16

Third Year

Fall	Credits Spring	Credits
FR 316 [*]	3 FR 332, 331, 351, or 352 [*]	3
FR 331, 332, 351, or 352 [*]	3 FR 351, 331, 332, or 352 [*]	3
FR 401 [*]	3 FR 402Y [*]	3
BA 301 [*]	3 ENGL 202D (GWS) ^{*††}	3
General Education Course	3 General Education Course	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
FR 409 [*]	3 FR 430 (IL) [*]	3
IB 303 [*]	3 MKTG 220 or IB 403 [*]	3
ECON 333, MGMT 461, or MKTG 445 [*]	3 4XX Level FR Course [*]	3
General Education Course (GHW)	1.5 General Education Course	3
Elective (US)	3 Elective	1
	13.5	13

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- Students pursuing this major at a Commonwealth Campus might require summer attendance, study abroad, or additional semesters to complete the major coursework. Students should contact the University Park adviser to plan their major courses accordingly.

French-Engineering Option: French and Francophone Studies, B.S. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
FR 1	4 FR 2	4
ENGL 15, 30H, ESL 15, ENGL 137H, or CAS 138T (GWS) [‡]	3 CAS 100A, 100B, 100C, 138T, or ENGL 138T (GWS) [‡]	3
General Education Course	3 General Education Course	3
General Education Course (GQ) [‡]	3 General Education Course (N)	3
General Education Course (FYS)	3 General Education Course	3
	16	16

Second Year

Fall	Credits Spring	Credits
FR 3	4 FR 201 [*]	3
Engineering Course ^{*1}	3 FR 202 [*]	3
General Education Course (GQ) [‡]	3 Engineering Course ^{*1}	3
General Education Course (N)	3 Engineering Course ^{*1}	3
General Education Course (GHW)	1.5 General Education Course	3
	14.5	15

Third Year

Fall	Credits Spring	Credits
FR 316 [*]	3 FR 332, 331, 351, or 352 [*]	3
FR 331, 332, 351, or 352 [*]	3 FR 351, 331, 332, or 352 [*]	3
FR 401 [*]	3 FR 402Y [*]	3
Engineering Course ^{*1}	3 ENGL 202 (GWS) [‡]	3
General Education Course	3 General Education Course	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
FR 409 [*]	3 FR 430 (IL) [*]	3
4XX Level FR Course [*]	3 Engineering Course ^{*1}	3
Engineering Course ^{*1}	3 Engineering Course ^{*1}	3
General Education Course (GHW)	1.5 Elective	3
Elective (US)	3 Elective	3
	13.5	15

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Engineering Courses are planned in consultation with the engineering adviser. All French-Engineering majors are required to participate in a one-semester engineering internship in France, arranged by the College of Engineering, during which up to 9 credits in French and up to 12 credits in engineering may be earned. The work experience may take the form of a professional internship (ENGR 195I) or be part of a cooperative education sequence (ENGR 295I, ENGR 395I, or ENGR 495I).

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- Students pursuing this major at a Commonwealth Campus might require summer attendance, study abroad, or additional semesters to complete the major coursework. Students should contact the University Park adviser to plan their major courses accordingly.

Career Paths

With a B.S. degree in French, students have a variety of pathways open to them. Our graduates have gone on to pursue a myriad of exciting careers that have allowed them to use their proficiency in the French language, understanding of French and Francophone cultural artifacts, grasp of French and Francophone ways of seeing and making sense of the world, and the skills of critical thinking acquired in our classrooms.

Careers

Our majors have taught in France as Fulbright Scholars or on French government teaching assistantships; worked for the Peace Corps, Homeland Security, the State department, world health organizations, and the non-profit sector; pursued careers in the foreign service; worked in the culinary arts and hotel and restaurant management; held positions in business and management; and gone into film, journalism, advertising, fashion, public relations, and information technology – among many other professions.

Opportunities for Graduate Studies

Our B.S. graduates have gone on to pursue graduate studies domains that represent many fields both in the humanities and in STEM fields. Many have also opted to pursue Law school, Medical school, and advanced degrees in International Politics, Public Health, International Studies, Agriculture and Public Policy.

Contact

University Park

DEPARTMENT OF FRENCH AND FRANCOPHONE STUDIES

442 Burrowes Building

University Park, PA 16802

814-865-1492

hjm10@psu.edu

<https://french.la.psu.edu>

French and Francophone Studies, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The French and Francophone Studies minor is designed to give students the opportunity to improve their knowledge of French language and culture (literature, civilization, film). Courses taken for the minor may also be counted for Basic Degree and major requirements.

What is French and Francophone Studies?

A minor in French and Francophone Studies promotes proficiency in the French language as well as an appreciation and understanding of French and Francophone literature and culture. Minors can expect to cultivate their knowledge of the various cultural objects that are vital to an understanding of French and Francophone culture. Having a French minor will increase your intercultural competence and give you an international perspective, one that will be both personally enriching as well as valued by future employers. French minors have the linguistic proficiency to be able to participate in study abroad and other language-immersive experiences.

You Might Like This Program If...

- You want to develop your interpretive, interpersonal and presentational skills in French.
- You are planning a career in which French proficiency would give you a professional boost.
- You seek to cultivate a professional profile that will give you an edge on the job market.
- You would like to explore the various people, places and things that make up the French-speaking world.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
FR 201	Oral Communication and Reading Comprehension	3
FR 202	Grammar and Composition	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 6 credits from a and b, or b and c, or a and c:		6
a)		
FR 316	French Linguistics	
b)		
FR 331	French and Francophone Culture I	
or FR 332	French and Francophone Culture II	
c)		
FR 351	French and Francophone Literature I	
or FR 352	French and Francophone Literature II	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 6 credits of 400-level French courses		6

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Career Paths

French minors are able to complement their existing major by demonstrating proficiency in the French language. Additionally, French minors have an enhanced professional profile and are able to present themselves as true global citizens, ones who realize the importance of

having an international perspective. Students who minor in French go on the job market with the linguistic and intercultural competence to tackle any career in which such skills are required.

Careers

French minors have gone on to pursue a vast array of different careers in the fields of business, public relations, law, education, industry, communications, scientific research, art, medicine, architecture, journalism and fashion. Students minoring in French can expect to be recruited for their communication skills, international perspective, and knowledge of the various cultural contexts where French is spoken.

Opportunities for Graduate Studies

In our classes, which are small and interactive, French minors are given the critical thinking and communication skills necessary to pursue any number of advanced degrees. Students who minor in French are prepared for the academic and linguistic challenges that graduate school can present, and have a leg up on students who are monolingual.

Contact

University Park

DEPARTMENT OF FRENCH AND FRANCOPHONE STUDIES
442 Burrowes Building
University Park, PA 16802
814-865-1492
hjm10@psu.edu

<https://french.la.psu.edu>

German, B.A.

Begin Campus: Any Penn State Campus

End Campus: University Park

What is German?

German Studies is an interdisciplinary academic sub-field of the Humanities concerned with the languages, literatures, arts, and politics of German-speaking communities in Europe and across the world (e.g., Pennsylvania Germans). In pursuing each of these areas German Studies intersects with the related fields of linguistics, literary studies, visual studies, and history, respectively.

You Might Like This Program If...

- You are passionate about the language, literature, and arts in Germany, Austria, Switzerland, and other German-speaking regions.
- You understand the critical role Germany plays in the EU and the world today.
- Your other major is in one of the numerous other fields in which knowledge of the German language and culture is advantageous, such as Comparative Literature, Philosophy, History, or Political Science.
- You are considering an academic or professional career requiring knowledge of a world language and critical thinking skills.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in German, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	17
Bachelor of Arts Degree Requirements	24
Requirements for the Major	34

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
GER 301	Intermediate Speaking and Listening	3
GER 302W	Intermediate Composition and Grammar	3
GER 310	Introduction to the Study of German Literature	3
GER 344	Intermediate German Culture	3
GER 401Y	Advanced Composition	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
GER 201	Conversation and Composition	4
	or GER 208Y	
Select 3 credits of the following:		3
GER 200	German at the 100-level	
Select 6 credits in German literature and culture from the following:		6
GER 420	Genre	
GER 431	History of German Literature and Culture I	
GER 432	History of German Literature and Culture II	
GER 440	Seminar in German Culture	

GER 472	Romanticism	
GER 489	Introduction to German Film History and Theory in Context	
Select 3 credits in German linguistics and applied linguistics from the following:		3
GER 411	The Teaching of German	
GER 412	Contrastive Analysis of Modern German and English	
GER 430	History of the German Language	
Select 3 additional credits of German at the 300- or 400-level		3

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Integrated B.A. in German and M.I.A. in International Affairs

Requirements for the Integrated B.A. in German and M.I.A. in International Affairs can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/international-affairs/#integratedundergradgradprogramstext>).

Program Learning Objectives

- Students will have developed oral skills in German that allow them to communicate efficiently in a range of settings from informal to professional.
- Students will have developed literacy skills that allow them to both read and write in German. Majors should be able to read and interpret a variety of media ranging from newspapers to literary texts to formal academic prose.
- Students will have developed an understanding of the structure of the German language.
- Students will have developed an understanding of the significance of the major cultural and historical events, personages and developments in Germany, Austria, and Switzerland.
- Students will be familiar with major authors and literary works in German.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

German, B.A. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year		
Fall	Credits Spring	Credits
GER 1	4 GER 2	4
ENGL 15, 30H, 137H, CAS 137H, or ESL 15 [‡]	3 CAS 100A, 100B, 100C, 138T, or ENGL 138T [‡]	3
General Education Course (N)	3 General Education Course (N)	3
General Education Course	3 General Education Course	3
First Year Seminar (FYS)	3 General Education Course (GQ) [‡]	3
	16	16

Second Year		
Fall	Credits Spring	Credits
GER 3	4 GER 201 or 208Y (IL) [*]	4
GER 200 (GH;IL) or 100-level GER [*]	3 General Education Course	3
General Education Course (GQ) [‡]	3 General Education Course	3
General Education Course	3 BA World Cultures Course	3
General Education Course	3 US Cultures Course	3
	16	16

Third Year		
Fall	Credits Spring	Credits
GER 301 (IL) [*]	3 GER 401Y (IL) [*]	3
GER 302W [*]	3 Select 3 credits of 300- or 400-level courses in GER, in consultation with major adviser [*]	3
BA Requirements	3 GER 344 (IL) [*]	3
General Education Course	3 BA Requirements	3
Elective	3 Elective	3
	15	15

Fourth Year		
Fall	Credits Spring	Credits
GER 411, 412, or 430 [*]	3 German Literature or Culture (from list) [*]	3
German Literature or Culture (from list) [*]	3 Select 3 credits of 300- or 400-level courses in GER, in consultation with major adviser [*]	3
GER 310 [*]	3 General Education Course (GHW)	1.5
ENGL 202B [‡]	3 Elective	3
General Education Course (GHW)	1.5 Elective	2
	13.5	12.5

Total Credits 120

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Advising Notes:

- All incoming freshmen must take a First-Year Seminar (FYS) during Fall or Spring of their first year. Academic advisers can provide a list of FYS being offered and help the student enroll. Most FYS in the College of the Liberal Arts are worth 3 cr. and count as a General Humanities (GH) or General Social Sciences (GS) course. For this reason, the FYS is not listed separately on this eight-semester plan; most students will be able to fulfill the FYS requirement while also fulfilling a GH or GS requirement.
- Students pursuing this major at a Commonwealth Campus might require summer attendance, study abroad, or additional semesters to complete the major coursework. Students should contact the University Park adviser to plan their major courses accordingly.

Career Paths

German is one of the three official working languages of the European Union, and it is the most widely spoken native language in Europe. A degree in German opens up doors to a variety of careers in the US government and military, international business, international relations, international law, human rights, information technology, professional translation, publishing, education, the travel industry, and more. A number of our graduates have been awarded Fulbright and DAAD grants, and some have gone on to pursue graduate degrees in German Studies or related fields (Comparative Literature, Linguistics).

Contact

University Park

DEPARTMENT OF GERMANIC AND SLAVIC LANGUAGES AND LITERATURES

442 Burrowes Building
University Park, PA 16802
814-865-5481
psugerman@psu.edu

<https://german.la.psu.edu>

German, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The B.S. degree in German is designed to allow students to combine fluency in the German language and culture with other academic disciplines. The German-Business option develops basic German business-communication skills as well as fundamental knowledge of German economics. The German-Engineering and Applied German options have a required overseas study and internship component.

Courses in German literature and culture are essential to all German B.S. options, and students in the German-Business option are encouraged to participate in the University's study abroad programs in Germany.

Applied German Option

This option is designed to provide German majors with a background in an area of study where knowledge of German is useful. In consultation with an adviser, majors in this option are required to either study abroad or do an internship that corresponds with their related area of study.

German Business Option

This option is designed to introduce German majors to the principles of business administration. The curriculum combines an exposure to managerial processes with world language competency in German.

German Engineering Option

This option is designed to combine the study of German and Engineering in order to internationalize and enhance the study and practice of the engineering profession. (Open only to students enrolled in an engineering major.)

What is German?

German Studies is an interdisciplinary academic sub-field of the Humanities concerned with the languages, literatures, arts, and politics of German-speaking communities in Europe and across the world (e.g., Pennsylvania Germans). In pursuing each of these areas German Studies intersects with the related fields of linguistics, literary studies, visual studies, and history, respectively.

You Might Like This Program If...

- You are passionate about the language, literature, and arts in Germany, Austria, Switzerland, and other German-speaking regions.
- You understand the critical role Germany plays in the EU and the world today.

- Your other major is in one of the numerous other fields in which knowledge of the German language and culture is advantageous, such as Comparative Literature, Philosophy, History, or Political Science.
- You are considering an academic or professional career requiring knowledge of a world language and critical thinking skills.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in German, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	20-23
Requirements for the Major	52-66

0-13 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 0-6 credits of GS courses; 0-3 credits of GWS courses; 0-4 credits of GQ courses.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
GER 301	Intermediate Speaking and Listening	3
GER 302W	Intermediate Composition and Grammar	3
GER 310	Introduction to the Study of German Literature	3
GER 344	Intermediate German Culture	3
GER 401Y	Advanced Composition	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
GER 201 or GER 208Y	Conversation and Composition	4
GER 431	History of German Literature and Culture I	3

or GER 432 History of German Literature and Culture II

Requirements for the Option

Requirements for the Option: Require a grade of C or better

Select an option 30-44

Requirements for the Option

Applied German Option (30 credits)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
GER 200N	Contemporary German Culture	3
GER 399	Foreign Study--German	3
GER 499	Foreign Study--German	3

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 18 credits in related areas such as Hospitality Management, Linguistics, Applied Linguistics, Sociology, Economics, Science, Technology and Society, or in another professional area where competency in German is desirable. The courses are to be selected in consultation with an adviser. At least 6 credits of such courses must be at the 400 level.

Select 3 credits in German at the 300 or 400 level 3

Note: A work experience in a German-speaking country may be substituted for GER 399 or GER 499. The work experience may take the form of an internship (LA 495 or GER 495). If the number of work-experience credits for which a student registered is less than 6, the difference in the number of credits must be earned by taking additional courses in consultation with the Department of Germanic and Slavic Languages and Literatures.

German Business Option (44 credits)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
BA 301	Finance	3
BA 303	Marketing	3
BA 304	Management and Organization	3
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
ENGL 202D	Effective Writing: Business Writing	3
GER 308Y	German Business Communication	3
GER 408	Advanced German Business Communications	3
IB 303	International Business Operations	3
IB 403	International Business and National Policies	3

Additional Courses

Additional Courses: Require a grade of C or better

SCM 200 Introduction to Statistics for Business 4
or STAT 200 Elementary Statistics

Select 3 credits from: 3

ECON 333 International Economics
MGMT 461 International Management
MKTG 445 Global Marketing

Select an additional 3 credits of German courses at the 400 level 3

German Engineering Option (33 credits)

Open only to students enrolled in an engineering major.

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
GER 308Y	German Business Communication	3
GER 399	Foreign Study--German	3
GER 408	Advanced German Business Communications	3
GER 499	Foreign Study--German	3
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 21 credits of engineering courses in consultation with the engineering adviser		21

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in German and M.I.A. in International Affairs

Requirements for the Integrated B.S. in German and M.I.A. in International Affairs can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/international-affairs/#integratedundergradgradprogramstext>).

Program Learning Objectives

- Students will have developed oral skills in German that allow them to communicate efficiently in a range of settings from informal to professional.
- Students will have developed literacy skills that allow them to both read and write in German. Majors should be able to read and interpret a variety of media ranging from newspapers to literary texts to formal academic prose.
- Students will have developed an understanding of the structure of the German language.
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University Park

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Suggested Academic Plan

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Applied German Option: German, B.S. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
GER 1	4 GER 2	4
ENGL 15, 30H, 137H, CAS 137H, or ESL 15 [†]	3 CAS 100A, 100B, or 100C [‡]	3
General Education Course (N)	3 General Education Course (GQ) [‡]	3
General Education Course	3 General Education Course (N)	3
First Year Seminar (FYS)	3 General Education Course	3
	16	16

Second Year

Fall	Credits Spring	Credits
GER 3	4 GER 201 or 208Y (IL) [*]	4
Applied Option Course, in consultation with adviser [*]	3 Applied Option Course, in consultation with adviser [*]	3

General Education Course (GQ) [‡]	3 GER 200N (GH;IL) [*]	3
General Education Course	3 General Education Course	3
General Education Course	3 US Cultures Course (US)	3
	16	16

Third Year

Fall	Credits Spring	Credits
GER 301 (IL) [*]	3 GER 401Y (IL) [*]	3
GER 302W [*]	3 GER 344 (IL) [*]	3
Applied Option Course, in consultation with adviser [*]	3 GER 399 (IL) [*]	3
Applied Option Course, in consultation with adviser [*]	3 GER 499 (IL) [*]	3
General Education Course	3 General Education Course	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
GER 310 (IL) [*]	3 Select 3 credits of 300- or 400- level courses in GER, in consultation with adviser [*]	3
GER 431 or 432 (IL) [*]	3 400-level applied option course, in consultation with adviser [*]	3
400-level Applied Option Course, in consultation with adviser [*]	3 General Education Course (GHW)	1.5
ENGL 202 (GWS) [‡]	3 Elective	3
General Education Course (GHW)	1.5 Elective	2
	13.5	12.5

Total Credits 120

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education

requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- All incoming freshmen must take a First-Year Seminar (FYS) during Fall or Spring of their first year. Academic advisers can provide a list of FYS being offered and help the student enroll. Most FYS in the College of the Liberal Arts are worth 3 cr. and count as a General Humanities (GH) or General Social Sciences (GS) course. For this reason, the FYS is not listed separately on this eight-semester plan; most students will be able to fulfill the FYS requirement while also fulfilling a GH or GS requirement.
- Students pursuing this major at a Commonwealth Campus might require summer attendance, study abroad, or additional semesters to complete the major coursework. Students should contact the University Park adviser to plan their major courses accordingly.

German Business Option: German, B.S. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
GER 1	4 GER 2	4
ENGL 15, 30H, 137H, CAS 137H, or ESL 15 (GWS) [‡]	3 CAS 100A, 100B, 100C, 138T, or ENGL 138T (GWS) [‡]	3
ECON 102 (GS) ^{*††}	3 ECON 104 (GS) ^{*††}	3
General Education Course (GQ) [‡]	3 General Education Course (N)	3
General Education Course (FYS)	3 General Education Course	3
	16	16

Second Year

Fall	Credits Spring	Credits
GER 3	4 GER 201 or 208Y (IL) [*]	4
BA 301 [*]	3 ACCTG 211 [*]	4
STAT 200 (GQ) ^{*††}	4 BA 303 [*]	3
General Education Course (N)	3 General Education Course	3
General Education Course (GHW)	1.5	
	15.5	14

Third Year

Fall	Credits Spring	Credits
GER 301 [*]	3 GER 310 [*]	3
GER 302W [*]	3 GER 401Y [*]	3
ENGL 202D (GWS) ^{*††}	3 ECON 333, MGMT 461, or MKTG 445 [*]	3
BA 304 [*]	3 General Education Course	3
General Education Course	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
IB 303 [*]	3 GER 408 (IL) [*]	3
GER 344 [*]	3 GER 431 or 432 [*]	3
GER 308Y [*]	3 IB 403 [*]	3
General Education Course (GHW)	1.5 Elective	3
Elective (US)	3 Elective	3
	13.5	15

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- Students pursuing this major at a Commonwealth Campus might require summer attendance, study abroad, or additional semesters to complete the major coursework. Students should contact the University Park adviser to plan their major courses accordingly.

German Engineering Option: German, B.S. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
GER 1	4 GER 2	4
ENGL 15, 30H, 137H, CAS 137H, or ESL 15 (GWS) [‡]	3 CAS 100A, 100B, 100C, 138T, or ENGL 138T (GWS) [‡]	3
General Education Course	3 General Education Course	3
General Education Course (GQ) [‡]	3 General Education Course (N)	3
General Education Course (FYS)	3 General Education Course	3
	16	16

Second Year

Fall	Credits Spring	Credits
GER 3	4 GER 201 or 208Y (IL) [*]	4
Engineering Course ^{*1}	3 Elective (US)	3
General Education Course (GQ) [‡]	3 Engineering Course ^{*1}	3
General Education Course (N)	3 Engineering Course ^{*1}	3
General Education Course (GHW)	1.5 General Education Course	3
	14.5	16

Third Year

Fall	Credits Spring	Credits
GER 301 [*]	3 GER 399 [*]	3
GER 302W [*]	3 GER 499 [*]	3
ENGL 202 (GWS) [‡]	3 GER 310 [*]	3
Engineering Course ^{*1}	3 Engineering Course ^{*1}	3
General Education Course	3 Engineering Course ^{*1}	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
GER 401Y [*]	3 GER 408 (IL) [*]	3
GER 344 [*]	3 GER 431 or 432 [*]	3
GER 308Y [*]	3 Engineering Course ^{*1}	3
General Education Course (GHW)	1.5 Engineering Course ^{*1}	3
Elective	3 Elective	3
	13.5	15

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Engineering Courses are planned in consultation with the engineering adviser. All German-Engineering majors are required to participate in a one-semester study abroad experience.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- Students pursuing this major at a Commonwealth Campus might require summer attendance, study abroad, or additional semesters to complete the major coursework. Students should contact the University Park adviser to plan their major courses accordingly.

Career Paths

German is one of the three official working languages of the European Union, and it is the most widely spoken native language in Europe. A degree in German opens up doors to a variety of careers in the US government and military, international business, international relations, international law, human rights, information technology, professional translation, publishing, education, the travel industry, and more. A number of our graduates have been awarded Fulbright and DAAD grants, and some have gone on to pursue graduate degrees in German Studies or related fields (Comparative Literature, Linguistics).

Contact

University Park

DEPARTMENT OF GERMANIC AND SLAVIC LANGUAGES AND LITERATURES
442 Burrowes Building
University Park, PA 16802
814-865-5481
psugerman@psu.edu

<https://german.la.psu.edu>

German, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The German minor is designed for students who want to study the language, literature, and culture of German-speaking countries in order to broaden their horizons and meet an increasing demand for people with world language skills and international expertise. German is one of the most important languages in Western Europe, being the mother tongue of approximately 100 million Europeans, and in the countries of Eastern Europe it is the most important world language of business and commerce.

The Department of Germanic and Slavic Languages and Literatures offers a wide array of courses in German language, literature and culture as well as in professional and business German, allowing students great independence in shaping their own academic program. Students are encouraged to take advantage of Penn State's study abroad opportunities, which include semester and year programs in Freiburg, Berlin, and Vienna plus summer and year programs in Marburg.

The German minor opens employment opportunities for its graduates in fields and professions where proficiency in one or more world languages is desirable or required, i.e., secondary and higher education, government, business, the media, and public relations.

What is German?

German Studies is an interdisciplinary academic sub-field of the Humanities concerned with the languages, literatures, arts, and politics of German-speaking communities in Europe and across the world (e.g., Pennsylvania Germans). In pursuing each of these areas German Studies intersects with the related fields of linguistics, literary studies, visual studies, and history, respectively.

You Might Like This Program If...

- You are passionate about the language, literature, and arts in Germany, Austria, Switzerland, and other German-speaking regions.
- You understand the critical role Germany plays in the EU and the world today.
- Your other major is in one of the numerous other fields in which knowledge of the German language and culture is advantageous, such as Comparative Literature, Philosophy, History, or Political Science.
- You are considering an academic or professional career requiring knowledge of a world language and critical thinking skills.

Program Requirements

Requirement	Credits
Requirements for the Minor	19

Requirements for the Minor

All courses in the minor must be taught in German.

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>).

In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
GER 301	Intermediate Speaking and Listening	3
GER 302W	Intermediate Composition and Grammar	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
GER 201	Conversation and Composition	4
or GER 208Y		
Select one of the following:		3
GER 308Y	German Business Communication	
GER 310	Introduction to the Study of German Literature	
GER 344	Intermediate German Culture	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 6 credits of 400-level GER courses		6

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Career Paths

German is one of the three official working languages of the European Union, and it is the most widely spoken native language in Europe. A degree in German opens up doors to a variety of careers in the US government and military, international business, international relations, international law, human rights, information technology, professional translation, publishing, education, the travel industry, and more.

Contact

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DEPARTMENT OF GERMANIC AND SLAVIC LANGUAGES AND LITERATURES

442 Burrowes Building
University Park, PA 16802
814-865-5481
psugerman@psu.edu

<https://german.la.psu.edu>

Global and International Studies Major

Begin Campus: University Park

End Campus: University Park

PROGRAM CURRENTLY ON HOLD; NOT ACCEPTING NEW STUDENTS

Begin Date of Enrollment Hold: Fall Semester 2015

Program Description

The interdisciplinary major in Global and International Studies is intended to prepare students for lives and careers in a world that is increasingly interdependent. It reflects a "One World" concept that emphasizes the importance of global perspectives, world language study, and education or working experience abroad. The structure of the major also recognizes the fact that the majority of the world's people live in regions other than the European and North American sphere, and that a knowledge of non-Anglophone cultures is an important form of preparation for global citizenship. Because students need specific fields of knowledge as well as a global framework, this major is available only as a concurrent or sequential major, and students must first have a primary major. Some components of the Global and International Studies requirements may overlap with those of the primary major; for details, consult the adviser for the Global and International Studies major.

The degree (e.g., B.A., B.S., B.F.A., etc.) will normally match that of the student's first major.

Students in baccalaureate degree programs other than those leading to the B.A. who desire a B.A. degree in International Studies will receive concurrent degrees and have to fulfill all requirements for concurrent degrees and for the B.A. degree as indicated under "Concurrent Majors and Sequential Majors" in the GENERAL INFORMATION section of this bulletin and under "Baccalaureate Degree Requirements" at the beginning of this college section.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

- attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
- have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

Requirement	Credits
Requirements for the Major	30

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

This major also requires significant experience abroad, of at least 8 weeks in length. The requirement for experience abroad can be fulfilled by formal study abroad, and/or approved internship or employment or comparable experience (such as Peace Corps service).

Code	Title	Credits
Prescribed Courses		
CMLIT 10	World Literatures	3
Additional Courses		
Select 3 credits in Global Approaches of the following:		3
AA 100	Introduction to International Arts	
ANTH 45N	Cultural Diversity: A Global Perspective	
CMLIT 13	Virtual Worlds: Antiquity to the Present	
CMLIT 143	Human Rights and World Literature	
ECON 104	Introductory Macroeconomic Analysis and Policy	
FR 139	France and the French-speaking World	
GEOG 40	World Regional Geography	
HIST 10	World History to 1500	
HIST 11	World History since 1500	
MUSIC 9	Introduction to World Musics	
PLSC 3	Comparing Politics around the Globe	
PLSC 14	International Relations	
RLST 1	Introduction to World Religions	
Supporting Courses and Related Areas ¹		
<i>A. World Language</i>		
Select 12 credits EITHER in a language beyond the 12th -credit-level proficiency OR in a second world language, or equivalent proficiencies ²		12
<i>B. Global Perspectives</i>		
Select 6 credits from departmental list ³		6
<i>C. World Regions</i>		
Select from departmental list 6 credits in courses focused on one of the following world regions: ⁴		6
Africa		
Asia and the Pacific		
Eastern European and Slavic Cultures		
Latin America and the Caribbean		
Middle East		

¹ Must include at least 12 credits at the 400 level.

² For world language majors, study must be in a world language other than primary major.

³ One course in this area or in Area C must be a 400-level course in CMLIT.

⁴ Language courses beyond the sixth semester are eligible if they focus on significant content beyond language skills. One course in this area or in Area B must be a 400-level course in CMLIT.

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Contact

University Park

GLOBAL AND INTERNATIONAL STUDIES PROGRAM

442 Burrowes Building

University Park, PA 16802

814-863-0589

glis@psu.edu

<https://glis.la.psu.edu>

Global and International Studies, B.A.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The interdisciplinary B.A. degree in Global and International Studies is intended to prepare students for lives and careers in a world that is increasingly interdependent. It reflects a "One World" concept that emphasizes the importance of global perspectives, international communication, and study or working experience abroad. The major combines the expertise of multiple disciplines, including the Social Sciences and the Humanities, to suggest a variety of methods for understanding the dynamic issues facing human beings across the globe. The structure of the major also recognizes the fact that the vast majority of the world's people live in regions other than the European and North American spheres, and that a knowledge of non-Anglophone cultures is an important form of preparation for global citizenship.

The major develops transnational and trans-regional literacy, drawing on coursework both in the Humanities and the Social Sciences to focus on questions of globalization, ethical imagination, and ways to engage peoples and cultures in local terms. Students learn to situate global trends, both macro and micro in nature, in relation to other historical processes. Most courses for the GLIS major will demonstrate a global or regional (rather than national) perspective and address a central topic in one of five designated Pathways.

Human Rights

This Pathway examines the history, development, enforcement, and violations of concepts of the basic rights of mankind. Whether through questions of torture, freedom of conscience, trafficking of women and children, agreements about prisoners of war, human rights constantly need redefining and rethinking if they are to be broad enough to cover everyone on our planet and specific enough to have a real effect on human behavior.

Culture and Identity

Global economic, political, and cultural processes are bound up with complex questions of culture and identity at the individual, familial, and community levels. Examining how differences in language, ideology,

religion, race, gender, ethnicity, and sexual orientation among others impact our sense of self and other, this Pathway considers:

- foundational expressions of social and cultural values;
- the formation and contestation of identity over time;
- the impacts of modernization on individual, family, and community identity;
- genetic manipulation and modification; and
- questions of colonization and colonialism on political and cultural structures.

Global Conflict

This Pathway examines war, peace, and security on a global and historical scale to reveal the contingent decisions, random accidents, and devious schemes which continue to be at the root of violence around the world. This Pathway studies conflicts great and small, from tribal warfare to national and international wars, revolutions, acts of terrorism, and so on. It also considers successful and unsuccessful efforts to halt conflict, and how and why approaches to and experiences with peace can affect conflict situations.

Wealth and Inequality

This Pathway considers global distribution of people, goods, and money, both in the contemporary world and in deep historical time, examining feudalism, trade, imperialism, nationalism, and the socioeconomic impacts of globalization. Some of the themes on which it focuses include:

- motivations for and experiences of such human movement as migration, exploration, travel, slavery, diaspora, asylum, and exile;
- demographic change;
- poverty, wealth, and economic inequality; and
- political, social, and cultural incentives for and restrictions on circulation (censorship, translation, free trade, prize culture, protectionism, access, privilege, bias).

Health and Environment

This Pathway considers the direct impact of global issues on the life on our planet. As intercontinental travel makes nearly every epidemic already global today, the more and more the health of individuals is directly connected to the health of the globe. Growing populations, aging demographics, increasing pollution, and decreasing food resources present new challenges for global human health. Similarly the global cycles of climate change and crisis force us to reconsider both natural processes and anthropogenic influences, examining the philosophy and history of human's place in nature. Some of the themes on which this Pathway focuses include:

- the relationship between local resources and global geopolitics;
- cultural, economic, and social effects of global climate change;
- pollution and conservation;
- environmental movements; and
- evolution and extinction.

Alternatively, students with a GPA above 3.5 may work with advisers and faculty to create a personalized Pathway that reflects their interests.

The B.A. degree requires six credits of world-language study beyond the 12-credit proficiency level, or in a second world language. The B.A. degree may include a significant engaged scholarship experience (such as undertaking an internship, job, volunteer position, or period of study)

located either abroad or in a majority non-English-speaking part of the United States.

What is Global and International Studies?

The Global and International Studies (GLIS) Program is devoted to understanding human cultures and societies as bounded by "One World". The GLIS program emphasizes developing a global perspective through scholarly study, research, international communication and experience abroad. The GLIS Program brings together expertise from the Humanities and Social Sciences for an interdisciplinary approach to the global problems facing us.

You Might Like This Program If...

You are concerned about global problems that face everyone and cannot be explained by a single discipline or approach. Our majors and minors are engaged in thinking about the issues of planetary concern from Humanities and Social Science perspectives. If you think laws, economics, social statistics, history, and culture of importance in solving problems like war, starvation, mass migration, and climate change, think about GLIS.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Global and International Studies, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	15
Bachelor of Arts Degree Requirements	24
Requirements for the Major	36

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

Code	Title	Credits
Prescribed Courses		
GLIS 101N	Globalization	3
GLIS 102N	Global Pathways	3

GLIS 400Y	Seminar in Global and International Studies	3
-----------	---	---

Additional Courses

Select EITHER 6 credits in a language beyond 12th-credit level proficiency, OR 6 credits in a second world language, or equivalent proficiencies ¹	6
---	---

Supporting Courses and Related Areas

Select 21 credits in the Pathway courses ²	21
---	----

¹ Courses must be taught in the language, i.e., not in English.

² Lists of the Pathway courses are kept by departmental advisers, and appear online on the program's website, glis.la.psu.edu. (<http://glis.la.psu.edu>) 15 credits of these 21 will be in a single Pathway concentration (no more than 6 credits towards the Pathway completion are to be from courses in a single department). 6 credits of these 21 are from other Pathway concentrations. At least 12 credits must be taken at the 400 level or higher.

With approval of the academic adviser and/or the directors of undergraduate studies for the GLIS major, students are encouraged to substitute up to 15 credits of their Pathway work with equivalent coursework in significant engaged scholarship experience (such as undertaking an internship, job, volunteer position, or period of study) located either abroad or in a majority non-English-speaking part of the United States.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the

requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor,

elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Integrated B.A. in Global and International Studies and M.I.A. in International Affairs

Requirements for the Integrated B.A. in Global and International Studies and M.I.A. in International Affairs can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/international-affairs/#integratedundergradgradprogramstext>).

Program Learning Objectives

- **Content Knowledge:** Students will be able to identify and define two or more global issues; and then explain how they influence each other.
- **Comparative Analysis:** Students will be able to compare global and international phenomena using a real-world example.
- **Application:** Students will be able to interpret and critically analyze how a global issue shapes an individual, local, national, or international outcome from social scientific and humanistic perspectives.
- **Synthesis:** Students will be able to synthesize the knowledge gained from their global studies through written and oral formats.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Global And International Studies, B.A. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
GLIS 101N*	3	GLIS 102N*	3
General Education Course	3	CAS 100, CAS 100A, CAS 100B, CAS 100C, ENGL 138T, or CAS 138T [‡]	3
ENGL 15, 30H, ESL 15, ENGL 137H, or CAS 137H [‡]	3	General Education Course	3
World Language Level 1	4	World Language Level 2	4
General Education Course	3	General Education Course (GQ) [‡]	3
		16	16

Second Year

Fall	Credits	Spring	Credits
Major Course from List*	3	Major Course from List*	3
General Education Course	3	World Language Level 4 or Second World Language Level 1*	3
General Education Course	3	BA Requirement	3
World Language Level 3	4	General Education Course (GQ) [‡]	3
General Education Course	3	General Education Course	3
		16	15

Third Year

Fall	Credits	Spring	Credits
Major Course from List*	3	4XX Level Major Course*	3
World Language Level 5 or Second World Language Level 2*	3	4XX Level Major Course*	3
General Education Course	3	ENGL 202A or 202B [‡]	3
General Education Course	3	BA World Cultures Course	3
BA Requirement	3	BA Requirement	3
		15	15

Fourth Year

Fall	Credits	Spring	Credits
4XX Level Major Course*	3	4XX Level Major Course*	3
GLIS 400Y*	3	Elective	3
General Education Course (GHW)	1.5	Elective	3
Writing Across the Curriculum Course	3	Elective	3

Elective	3 General Education Course (GHW)	1.5
13.5		13.5

Total Credits 120

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Advising Note:

All incoming freshmen must take a First-Year Seminar (FYS) during Fall or Spring of their first year. Academic advisers can provide a list of FYS being offered and help the student enroll. Most FYS in the College of the Liberal Arts are worth 3 cr. and count as a General Humanities (GH) or General Social Sciences (GS) course. For this reason, the FYS is not listed separately on this eight-semester plan; most students will be able to fulfill the FYS requirement while also fulfilling a GH or GS requirement.

Career Paths

For undergraduates, a Global Studies major offers excellent preparation for careers in government, education, diplomatic service, intelligence analysis, international business and finance, NGOs, and non-profit organizations. Graduates are also prepared for competitive graduate

programs in fields as diverse as international law, international development, global education, administration, public policy, and the humanities and social sciences.

Careers

Bios of our recent alumni explaining how GLIS fit into their career paths are available on the GLIS website (<https://glis.la.psu.edu/alumni/>). Their careers include, Account Management in Advertising Technology, International Relocation Services, Social Media Advertising, Regional Policy Officer, State Department, Financial Analyst, Seimens Healthcare, Strategy and Business Development, Senior Director, Strategic Accounts, Teacher, Sales, Gilead Sciences, Office Operations and Facilities, Commissioner's Office Major League Baseball, Management Consultant in Talent and Organization Strategy at Accenture Federal Services (AFS), Study abroad programs, including IES, and Independent Creative Writer.

Opportunities for Graduate Studies

- Masters in Global Studies
- Law School
- Graduate Work in Economics
- Political Science
- Comparative Literature
- Area Studies

Contact**University Park**

GLOBAL AND INTERNATIONAL STUDIES PROGRAM
442 Burrowes Building
University Park, PA 16802
814-863-0589
glis@psu.edu

<https://glis.la.psu.edu>

Global and International Studies, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The interdisciplinary B.S. degree in Global and International Studies is intended to prepare students for lives and careers in a world that is increasingly interdependent. It reflects a "One World" concept that emphasizes the importance of global perspectives, international communication, and study or working experience abroad. The major combines the expertise of multiple disciplines, including the Social Sciences and the Humanities, to suggest a variety of methods for understanding the dynamic issues facing human beings across the globe. The structure of the major also recognizes the fact that the vast majority of the world's people live in regions other than the European and North American spheres, and that a knowledge of non-Anglophone cultures is an important form of preparation for global citizenship.

The major develops transnational and trans-regional literacy, drawing on coursework both in the Humanities and the Social Sciences to focus on questions of globalization, ethical imagination, and ways to engage peoples and cultures in local terms. Students learn to situate global trends, both macro and micro in nature, in relation to other historical processes. Most courses for the GLIS major will demonstrate a global or

regional (rather than national) perspective and address a central topic in one of five designated Pathways.

Human Rights

This Pathway examines the history, development, enforcement, and violations of concepts of the basic rights of mankind. Whether through questions of torture, freedom of conscience, trafficking of women and children, agreements about prisoners of war, human rights constantly need redefining and rethinking if they are to be broad enough to cover everyone on our planet and specific enough to have a real effect on human behavior.

Culture and Identity

Global economic, political, and cultural processes are bound up with complex questions of culture and identity at the individual, familial, and community levels. Examining how differences in language, ideology, religion, race, gender, ethnicity, and sexual orientation among others impact our sense of self and other, this Pathway considers:

- foundational expressions of social and cultural values;
- the formation and contestation of identity over time;
- the impacts of modernization on individual, family, and community identity;
- genetic manipulation and modification; and
- questions of colonization and colonialism on political and cultural structures.

Global Conflict

This Pathway examines war, peace, and security on a global and historical scale to reveal the contingent decisions, random accidents, and devious schemes which continue to be at the root of violence around the world. This Pathway studies conflicts great and small, from tribal warfare to national and international wars, revolutions, acts of terrorism, and so on. It also considers successful and unsuccessful efforts to halt conflict, and how and why approaches to and experiences with peace can affect conflict situations.

Wealth and Inequality

This Pathway considers global distribution of people, goods, and money, both in the contemporary world and in deep historical time, examining feudalism, trade, imperialism, nationalism, and the socioeconomic impacts of globalization. Some of the themes on which it focuses include:

- motivations for and experiences of such human movement as migration, exploration, travel, slavery, diaspora, asylum, and exile;
- demographic change;
- poverty, wealth, and economic inequality; and
- political, social, and cultural incentives for and restrictions on circulation (censorship, translation, free trade, prize culture, protectionism, access, privilege, bias).

Health and Environment

This Pathway considers the direct impact of global issues on the life on our planet. As intercontinental travel makes nearly every epidemic already global today, the more and more the health of individuals is directly connected to the health of the globe. Growing populations, aging demographics, increasing pollution, and decreasing food resources present new challenges for global human health. Similarly the global cycles of climate change and crisis force us to reconsider both natural processes and anthropogenic influences, examining the philosophy and

history of human's place in nature. Some of the themes on which this Pathway focuses include:

- the relationship between local resources and global geopolitics;
- cultural, economic, and social effects of global climate change;
- pollution and conservation;
- environmental movements; and
- evolution and extinction.

Alternatively, students with a GPA above 3.5 may work with advisers and faculty to create a personalized Pathway that reflects their interests.

The B.S. degree requires six credits in quantitative competencies appropriate to the social sciences. The B.S. degree may include a significant engaged scholarship experience (such as undertaking an internship, job, volunteer position, or period of study) located either abroad or in a majority non-English-speaking part of the United States.

What is Global and International Studies?

The Global and International Studies (GLIS) Program is devoted to understanding human cultures and societies as bounded by "One World". The GLIS program emphasizes developing a global perspective through scholarly study, research, international communication and experience abroad. The GLIS Program brings together expertise from the Humanities and Social Sciences for an interdisciplinary approach to the global problems facing us.

You Might Like This Program If...

You are concerned about global problems that face everyone and cannot be explained by a single discipline or approach. Our majors and minors are engaged in thinking about the issues of planetary concern from Humanities and Social Science perspectives. If you think laws, economics, social statistics, history, and culture of importance in solving problems like war, starvation, mass migration, and climate change, think about GLIS.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Global and International Studies, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	21-24
Requirements for the Major	57-58

3-6 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 3-6 credits of GQ credits.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

Code	Title	Credits
Prescribed Courses		
GLIS 101N	Globalization	3
GLIS 102N	Global Pathways	3
GLIS 400Y	Seminar in Global and International Studies	3
MATH 21	College Algebra with Analytic Geometry with Applications I	3
Additional Courses		
Select 3-4 credits of the following:		3-4
PSYCH 200	Elementary Statistics in Psychology	
STAT 100	Statistical Concepts and Reasoning	
STAT 200	Elementary Statistics	
SOC 207	Research Methods in Sociology	
Supporting Courses and Related Areas		
Select 21 credits in the Pathway courses ¹		21
Select 21 credits (at least 6 credits at the 400-level) in related areas in consultation with an adviser ²		21

¹ Lists of the Pathway courses are kept by departmental advisers, and appear online on the program's website, glis.la.psu.edu (<http://glis.la.psu.edu>). 15 credits of these 21 will be in a single Pathway concentration (no more than 6 credits towards the Pathway completion are to be from courses in a single department). 6 credits of these 21 are from other Pathway concentrations. At least 12 credits must be taken at the 400 level or higher. These credits do not have to be within a single Pathway.

² Related areas include the following:

- Engineering
- Business
- Science
- Humanities
- Social Sciences
- Another area where competency in Global and International Studies is desirable

With approval of the academic adviser and/or the directors of undergraduate studies for the GLIS major, students with equivalent coursework in significant engaged scholarship experience (such as undertaking an internship, job, volunteer position, or period of study) located either abroad or in a majority non-English-speaking part of the United States, may use up to 15 of those credits to substitute for credits in the Pathways.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate

students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Global and International Studies and M.I.A. in International Affairs

Requirements for the Integrated B.S. in Global and International Studies and M.I.A. in International Affairs can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/international-affairs/#integratedundergradgradprogramstext>).

Program Learning Objectives

- **Content Knowledge:** Students will be able to identify and define two or more global issues; and then explain how they influence each other.
- **Comparative Analysis:** Students will be able to compare global and international phenomena using a real-world example.
- **Application:** Students will be able to interpret and critically analyze how a global issue shapes an individual, local, national, or international outcome from social scientific and humanistic perspectives.
- **Synthesis:** Students will be able to synthesize the knowledge gained from their global studies through written and oral formats.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic->

[advisers/](#)) to see the contact information for the specific adviser(s) of this program

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Global And International Studies, B.S. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
GLIS 101N*	3 GLIS 102N*	3
ENGL 15, 30H, ESL 15, ENGL 137H, or CAS 137H [‡]	3 CAS 100, CAS 100A, CAS 100B, CAS 100C, ENGL 138T, or CAS 138T [‡]	3
Related Course Any Level*	3 Related Course Any Level*	3
General Education Course	3 General Education Course	3
General Education Course	3 MATH 21 ^{††}	3
15		15

Second Year

Fall	Credits Spring	Credits
Major Course from List*	3 Major Course from List*	3
Related Course Any Level*	3 Related Course Any Level	3
General Education Course	3 STAT 100, 200, SOC 207, or PSYCH 200*	3
General Education Course	3 General Education Course	3
General Education Course	3 Elective	3
15		15

Third Year

Fall	Credits Spring	Credits
Major Course from List*	3 Related Course Any Level*	3
Related Course Any Level*	3 4XX Level Major Course*	3
General Education Course	3 4XX Level Major Course*	3
General Education Course	3 ENGL 202A, 202B, 202C, or 202D [‡]	3
General Education Course	3 Elective	3
15		15

Fourth Year

Fall	Credits Spring	Credits
4XX Level Major Course*	3 4XX Level Major Course*	3
GLIS 400Y*	3 General Education Course (GHW)	1.5
General Education Course (GHW)	1.5 4XX Level Related Area Course	3

Writing Across the Curriculum Course	3 Elective	3
Elective	3 Elective	3
Elective	3	
	16.5	13.5

Total Credits 120

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Note:

All incoming freshmen must take a First-Year Seminar (FYS) during Fall or Spring of their first year. Academic advisers can provide a list of FYS being offered and help the student enroll. Most FYS in the College of the Liberal Arts are worth 3 cr. and count as a General Humanities (GH) or General Social Sciences (GS) course. For this reason, the FYS is not listed separately on this eight-semester plan; most students will be able to fulfill the FYS requirement while also fulfilling a GH or GS requirement.

Career Paths

For undergraduates, a Global Studies major offers excellent preparation for careers in government, education, diplomatic service, intelligence analysis, international business and finance, NGOs, and non-profit organizations. Graduates are also prepared for competitive graduate programs in fields as diverse as international law, international development, global education, administration, public policy, and the humanities and social sciences.

Careers

Bios of our recent alumni explaining how GLIS fit into their career paths are available on the GLIS website (<https://glis.la.psu.edu/alumni/>). Their careers include, Account Management in Advertising Technology, International Relocation Services, Social Media Advertising, Regional

Policy Officer, State Department, Financial Analyst, Siemens Healthcare, Strategy and Business Development, Senior Director, Strategic Accounts, Teacher, Sales, Gilead Sciences, Office Operations and Facilities, Commissioner's Office Major League Baseball, Management Consultant in Talent and Organization Strategy at Accenture Federal Services (AFS), Study abroad programs, including IES, and Independent Creative Writer.

Opportunities for Graduate Studies

- Masters in Global Studies
- Law School
- Graduate Work in Economics
- Political Science
- Comparative Literature
- Area Studies

Contact**University Park**

GLOBAL AND INTERNATIONAL STUDIES PROGRAM
442 Burrowes Building
University Park, PA 16802
814-863-0589
glis@psu.edu

<https://glis.la.psu.edu>

Global and International Studies, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The International Studies minor is intended to recognize, for undergraduate students in any major, the completion of an education abroad program, world language competency, and related advanced course work. Ideally, the language, international, and advanced study should be integrated around some thematic or geographical focus.

Program Requirements

Requirement	Credits
Requirements for the Minor	18-30

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Supporting Courses and Related Areas		

Supporting Courses and Related Areas: Require a grade of C or better

Demonstrate 12th-credit-level proficiency in one world language by 0-12 coursework or examination

Students must complete 12 credits as participants in an approved Penn State Education Abroad Program, no more than 6 credits of which may be world language study beyond the 12-credit level

12

Select 6 credits (400 level) related to the education abroad experience, or the student's major, or complete a thematic concentration¹

6

¹ Courses must be selected from the approved list of courses with international focus or in consultation with the International Studies Minor adviser.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

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Brandywine

Paul Greene

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Scranton

Rivera Barnes

Associate Professor
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Contact

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Brandywine

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<https://www.brandywine.psu.edu/academics/minors/global-international-studies> (<https://www.brandywine.psu.edu/academics/minors/global-international-studies/>)

Scranton

213 Dawson Building
Dunmore, PA 18512
570-963-2673
bur3@psu.edu

<https://scranton.psu.edu/academics/minors-programs/global-and-international-studies> (<https://scranton.psu.edu/academics/minors-programs/global-and-international-studies/>)

Global Security, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Global Security Minor will be jointly offered by the College of Information Sciences and Technology and the College of the Liberal Arts and overseen by the Department of Political Science. This joint minor is intended to provide students with a background of the theoretical frameworks and skill sets needed to understand the concepts essential to security and related analyses; the challenges and problems faced when dealing with threats to security (e.g., technology, policies, and regulations); and the strengths and weaknesses of various methods of analyzing and responding to challenges to security. The minor includes a grounding in social, historical, and cultural factors that underlie both

conflict between states and conflicts between state and non-state actors, as well as the legal, ethical, and regulatory issues related to security.

What is Global Security?

Global Security minor is designed to help students explore the global, international, national, and human dimensions of security, conflict, and conflict resolution in contemporary international relations using the analytic tools provided in different social science disciplines. This joint minor is intended to provide students with a background of the theoretical frameworks and skill sets needed to understand the concepts essential to security and related analyses; the challenges and problems faced when dealing with threats to security (e.g., technology, policies, and regulations); and the strengths and weaknesses of various methods of analyzing and responding to challenges to security.

You Might Like This Program If...

You like the challenges and problems faced when dealing with threats to security and the strengths and weaknesses of various methods of analyzing and responding to challenges to security. Those threats could include technology, policies and regulations. This minor is jointly offered with the College of Information Sciences and Technology, allowing students to get introduced to Security Risk Analysis courses through IST as well as Liberal Arts.

Program Requirements

Requirement	Credits
Requirements for the Minor	18-30

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
PLSC 7N	Contemporary Political Ideologies	3
SRA 111	Introduction to Security and Risk Analysis	3
SRA 211	Threat of Terrorism and Crime	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 6 credits of the following:		6
PLSC 410	Strategy and Politics	
PLSC 415		
PLSC 418	International Relations Theory	
PLSC 437	War in World Politics	
PLSC 438	National Security Policies	
PLSC 439	The Politics of Terrorism	
PLSC 442	American Foreign Policy	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Demonstrate 12th-credit-level proficiency in one world language by coursework or examination		0-12
Select 3 credits of the following:		3
COMM 490		

COMM 491	
COMM 492	Internet Law and Policy
GEOG 424	Geography of the Global Economy
GEOG 463	Geospatial Information Management
GEOG 464	Advanced Spatial Analysis
HIST 420	Recent European History
HIST 434	History of the Soviet Union
HIST 452	History of U.S. Foreign Relations
HIST 467	Latin America and the United States
HIST 473	The Contemporary Middle East
HIST 475Y	The Making and Emergence of Modern India
HIST 479	History of Imperialism and Nationalism in Africa
HIST 486	China in Revolution
Select 3 credits of appropriate internship work in consultation with adviser	

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Career Paths

Graduates who can understand the cognitive, social, economic and policy issues involved in global security and risk management as well as the basics of information technology and analytics that are included in the security/risk arena will be successful.

Careers

- Business analyst
- Legal assistant
- Policy and research analyst
- FBI agent
- CIA
- Global human resources
- Higher education
- Intelligence officer

- United Nations officer
- Government and national security jobs

Contact

University Park

DEPARTMENT OF POLITICAL SCIENCE

202 Pond Lab

University Park, PA 16802

814-865-4597

<https://polisci.la.psu.edu/undergraduate/advising/>

<https://polisci.la.psu.edu>

Greek, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Greek minor focuses on establishing proficiency in reading and interpreting classical Greek literature. After completing an introductory course sequence (elementary classical Greek) that teaches students the vocabulary, morphology and syntax of classical Greek, students complete at least six credits in Greek language and literature at the 400-level for a total of 18 credits for the minor. In advanced courses in Greek language and literature, students gain analytical and interpretive skills by reading a wide range of classical Greek literature, including Greek drama, history, and philosophy, as well as the Greek New Testament. Students minoring in Greek will find their studies mesh well with a number of majors and graduate fields, including anthropology, archaeology, history, English, comparative literature, philosophy, and law.

What is Greek?

“Classical Greek” refers mainly to the Greek dialect spoken in Athens in the 5th and 4th centuries BCE (Attic Greek). As such, Classical Greek was the language of the first great democratic state; eventually, it became the standard dialect that was read and studied for more than a thousand years down through the era of the Roman and Byzantine empires. After the Classical period, the Greek language continued to evolve, forming a standard common dialect (koine Greek) that was used throughout the Hellenistic world of the eastern Mediterranean and beyond. This was the dialect used by the writers of the New Testament to make it accessible to the widest literate audience. The modern Greek language is its descendant, though greatly changed after more than a thousand years of linguistic development.

You Might Like This Program If...

- You hope to analyze some of the world’s greatest classical texts in their original language.
- You want to pursue a career or engage in graduate studies in fields such as archaeology, theater, philosophy, literature, religious studies, law, and more.
- You are interested in gaining further insight into the societies.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student’s major(s).

Code	Title	Credits
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
	Select 12 credits of GREEK courses	12
	Select 6 credits of 400-level GREEK courses	6

Academic Advising

The objectives of the university’s academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee’s unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

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Career Paths

A Greek minor provides students with the tools necessary to analyze numerous classical texts firsthand in their original language, a skill that proves highly valued in various careers, such as archaeology, and especially in graduate studies where knowledge of the Greek language is required for research.

Careers

- Teaching
- Archaeology
- Theater
- Philosophy
- Law

Contact

University Park

DEPARTMENT OF CLASSICS AND ANCIENT MEDITERRANEAN STUDIES
108 Weaver Building
University Park, PA 16802
814-865-8851
bdw150@psu.edu

<https://cams.la.psu.edu>

Hebrew, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The minor in Hebrew is intended to provide students with a good working knowledge of the Hebrew language, taught in a context that emphasizes the characteristics of Jewish tradition and Israeli culture and society. Students undertake three years of language study (or equivalent); education abroad can be included.

What is Hebrew?

Hebrew has been in use for over three thousand years, making it one of the very few languages that is attested both in ancient and modern times. It is best known as the language of the Hebrew Bible (Old Testament), which is a collection of books that were written between about 1200 BCE and 150 BCE. Following the Roman invasions into the biblical lands in the first two centuries CE, Hebrew fell out of use as a spoken language by around the 3rd century CE. It remained in use, however, as a literary and liturgical language among the Jews, and there is a huge corpus of Hebrew literature from that period, through medieval times, and into the modern era. In the late 19th century, Hebrew was revived as a spoken language, and today has about 5 million native speakers in Israel and abroad.

You Might Like This Program If...

- You want to be able to analyze classical Jewish texts in their original language.
- You hope to further pursue an education and career in religious studies.
- You have an interest in learning about Jewish culture in a more immersive way.

Program Requirements

Requirement	Credits
Requirements for the Minor	21

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
HEBR 1	Basic Modern Hebrew I	4
HEBR 2	Basic Modern Hebrew II	4
HEBR 3	Intermediate Modern Hebrew	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits of the following:		3
HEBR 151	Introductory Biblical Hebrew	
HEBR 152	Intermediate Biblical Hebrew	
HEBR 199	Foreign Study--Basic Hebrew	
HEBR 296	Independent Studies	
HEBR 297	Special Topics	
HEBR 399	Foreign Study--Intermediate Hebrew	
JST/HEBR 10	Jewish Civilization	
JST 12		
Select 6 credits of the following:		6
HEBR 401	Advanced Hebrew--Conversation Emphasis	
HEBR 402	Advanced Hebrew--Reading Emphasis	
HEBR 451	Advanced Biblical Hebrew	
HEBR 452	Readings in Biblical Hebrew	
HEBR 496	Independent Studies	
HEBR 497	Special Topics	
HEBR 499	Foreign Study--Advanced Hebrew	

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

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University Park

Liberal Arts Academic Advising

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Career Paths

A minor in Hebrew can help supplement a career in various fields, both religious and non-religious. If considering pursuing a graduate degree

through a program in which you'll be analyzing classical texts, a minor in Hebrew will ensure you have the tools necessary for your research.

Careers

- Teaching
- Public Service
- The Ministry (both Jewish and non-Jewish)
- Archaeology

Contact

University Park

JEWISH STUDIES PROGRAM
108 Weaver Building
University Park, PA 16802
814-863-8939
jstd@psu.edu

<https://jewishstudies.la.psu.edu>

History, B.A. (Liberal Arts)

Begin Campus: Any Penn State Campus

End Campus: University Park, World Campus

Program Description

This major provides a broad introduction to the history of the great civilizations of the world and specific areas of historical inquiry. Centered in one of the basic, traditional disciplines, the History major offers invaluable preparation for students interested in a career in government, international relations, law, or librarianship, as well as essential training for those interested in a professional career as an academic or public historian, archivist, or secondary school teacher. Along with the perspective on the present that a study of the past engenders, the program develops skills in research, analysis, and synthesis that have proved useful in commerce and industry. The History major permits easy combination with minors, area studies, or even a concurrent major, providing flexibility in one's career choice.

What is History?

History is an interdisciplinary field that offers a unique analytical perspective on the world. To understand history, we not only need to understand politics and war, but also the significance of cultural, religious, social, and intellectual developments. The study of history provides a breadth of knowledge and an understanding of diverse perspectives. This diversity includes the opportunity to incorporate anthropology, the scientific study of humanity, into their coursework. A history major will not only enable a student to have a better comprehension of the development of today's complex world, but will also help a student develop a range of skills that are applicable in a wide variety of careers, including education, law, museum studies, and business.

You Might Like This Program If...

- You want to learn to assess the credibility of sources; in today's media-rich environment, you will put this skill to work every day.
- You want to gain a deeper understanding of complex causalities; as a history student you will practice thinking about the significance

of multiple, often interlinking factors and the way they contribute to complex events.

- You're interested in pursuing a career in law, business, or education.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

World Campus

Direct Admission to the Major

Incoming first-year students who meet the program admission requirements are admitted directly into the major. Admission restrictions may apply for change-of-major and/or change-of-campus students.

For more information about the admission process for this major, please send a request to the college, campus, or program contact (listed in the Contact tab).

Degree Requirements

For the Bachelor of Arts degree in History, a minimum of 123 credits is required:

Requirement	Credits
General Education	45
Electives	18
Bachelor of Arts Degree Requirements	24
Requirements for the Major	36

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
HIST 302W	Undergraduate Seminar	3
Additional Courses		

Additional Courses: Require a grade of C or better

Select one sequence of the following:	6
HIST 1 & HIST 2	Western Civilization I and Western Civilization II
HIST 10 & HIST 11	World History to 1500 and World History since 1500
HIST 20 & HIST 21	American Civilization to 1877 and American Civilization Since 1877

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 12 credits, in consultation with an adviser, at the 100-200-level, one course from each of the following field categories: Europe, United States, Global, Pre-Modern ¹

Select 3 credits at the 100-400-level 3

Select 12 credits at the 400-level, at least one course which must be in Global History 12

¹ Courses that appear in two History categories (such as HIST 174) cannot be double-counted to be applied to two field categories. However, the student may choose to which category to apply the course.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the

requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor,

elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Integrated B.A. in History and M.A. in History

Available at the following campuses: University Park

Requirements for the Integrated B.A. in History and M.A. in History can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/history/#integratedundergradgradprogramstext>).

Program Learning Objectives

- **Critical Understanding of the Past:** Apply a critical lens to the study of the past, understanding that history is not simply an account of what happened but the result of a process of interpretation and contextualization.
- **Historical Causality:** Analyze the complex causality of past events, articulating the how and why of past events to move beyond monocausal explanations.
- **Chronological Thinking:** Demonstrate chronological thinking, making sense of the past through periodization and tracking patterns of change and continuity over time.
- **Evaluation of Historical Sources:** Evaluate and interpret both primary and secondary source materials, judging credibility, reconstructing historical context, and making inferences about genre, audience, perspective, and purpose.
- **Create Historical Arguments:** Create historical arguments on the basis of evidence, in ways consistent with standards of academic integrity.

Academic Advising

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University Park

Liberal Arts Academic Advising

814-865-2545

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World Campus

Undergraduate Academic Advising

301 Outreach Building
University Park, PA 16802

814-863-3283

advising@outreach.psu.edu

Abington

David Ruth

Program Chair, History

1600 Woodland Road

Abington, PA 19001

215-881-7640

dxr35@psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

History, B.A. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
HIST Survey Course I*	3 Hist Survey Course II*	3
General Education Course (GWS) [‡]	3 General Education Course	3
World Language Level 1	3 General Education Course	3
General Education Course	3 General Education Course (GQ) [‡]	3
General Education Course (GQ) [‡]	3 World Language Level 2	3
	15	15

Second Year

Fall	Credits Spring	Credits
100- or 200-Level HIST Course*	3 100- or 200-Level HIST Course*	3
General Education Course (GWS) [‡]	3 100- or 200-Level HIST Course*	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
World Language Level 3	4 B.A. Knowledge Domains	3
	16	15

Third Year

Fall	Credits Spring	Credits
HIST 302W	3 100- or 200-Level HIST Course*	3
100- or 200-Level HIST Course*	3 General Education Course (GWS) [‡]	3
General Education Course	3 400-Level HIST Course*	3
B.A. Knowledge Domains	3 General Education Course	3

Elective	3 Elective	3
15		15
Fourth Year		
Fall	Credits Spring	Credits
400-Level HIST Course*	3 400-Level HIST Course*	3
400-Level HIST Course*	3 General Education Course (GHW)	1.5
World Cultures	3 Elective	3
B.A. Knowledge Domains	3 Elective	3
Elective	3 Elective	3
General Education Course (GHW)	1.5	
16.5		13.5

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Career Paths

Penn State History majors have enjoyed success in a wide variety of fields. They are found in careers that relate to the major, such as historic preservation, museum work, and education; a healthy representation of our majors go on to law school and graduate school. However, it is not unusual to find former history majors in areas that might not immediately come to mind. Penn State history majors can be found in architecture, software development, web development, banking, federal government work, and the Peace Corps, to name just a few. They tend to do well because their basic skills are sound.

Careers

- Law
- Secondary Teaching
- Historic Preservation
- Governmental Organizations
- United Nations Organizations
- Non-Governmental Organizations
- Industry Leaders

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE HISTORY PROGRAM (<https://la.psu.edu/current-students/career-enrichment-network/>)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://history.la.psu.edu/graduate/>)

Professional Resources

- Phi Alpha Theta National History Honor Society (<https://www.phialphatheta.org>)

Contact

University Park

DEPARTMENT OF HISTORY
108 Weaver Building
University Park, PA 16802
814-865-1367
bdw150@psu.edu

<https://history.la.psu.edu>

World Campus

DEPARTMENT OF HISTORY
108 Weaver Building
University Park, PA 16802
814-865-1367
bdw150@psu.edu

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-history-bachelor-of-arts-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-history-bachelor-of-arts-degree/>)

Abington

DIVISION OF ARTS AND HUMANITIES
1600 Woodland Road
Abington, PA 19001
215-881-7640
dxr35@psu.edu

<https://www.abington.psu.edu/academics/majors-at-abington/history>
(<https://www.abington.psu.edu/academics/majors-at-abington/history/>)

History, Minor (Liberal Arts)

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The minor in history is designed to complement a wide range of social studies and humanities majors by affording students the opportunity to examine change and development in human societies over time. Students are free to select courses in the topics (military history, social history, cultural history, etc.), geographical areas (the United States, Latin America, Europe, Asia, and Africa), and time periods that most suit their needs and interests. The requirements for entering the minor are fifth semester standing (eligible courses taken previously will count toward the minor) and having already declared a major.

What is History?

History is an interdisciplinary field that offers a unique analytical perspective on the world. To understand history, we not only need to understand politics and war, but also the significance of cultural, religious, social, and intellectual developments. The study of history provides a breadth of knowledge and an understanding of diverse perspectives. This diversity includes the opportunity to incorporate anthropology, the scientific study of humanity, into their coursework. A history major will not only enable a student to have a better comprehension of the development of today's complex world, but will also help a student develop a range of skills that are applicable in a wide variety of careers, including education, law, museum studies, and business.

You Might Like This Program If...

- You want to learn to assess the credibility of sources; in today's media-rich environment, you will put this skill to work every day.
- You want to gain a deeper understanding of complex causalities; as a history student you will practice thinking about the significance of multiple, often interlinking factors and the way they contribute to complex events.
- You're interested in pursuing a career in law, business, or education.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		

Select 12 credits of HIST courses	12
Select 6 credits of 400-level HIST courses	6

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

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University Park

Liberal Arts Academic Advising

814-865-2545

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Abington

Friederike Baer

Program Chair
1600 Woodland Road
Abington, PA 19001
215-881-7593
fbaer@psu.edu

Altoona

Douglas D. Page

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Berks

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Shenango

Philip Nash

Associate Professor
147 Shenango Avenue
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Sharon, PA 16146
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World Campus

Undergraduate Academic Advising

301 Outreach Building
University Park, PA 16802
814-863-3283
advising@outreach.psu.edu

York

Joy Giguere, Ph.D.

Associate Professor of History
1031 Edgecomb Avenue
York, PA 17403
717-771-8449
jmg66@psu.edu

Career Paths

Penn State History student have enjoyed success in a wide variety of fields. They are found in careers that relate to the major, such as historic preservation, museum work, and education; a healthy representation of our majors go on to law school and graduate school. However, it is not unusual to find former history students in areas that might not immediately come to mind. Penn State history students can be found in architecture, software development, web development, banking, federal government work, and the Peace Corps, to name just a few. They tend to do well because their basic skills are sound.

Careers

- Law
- Secondary Teaching
- Historic Preservation
- Governmental Organizations
- United Nations Organizations
- Non-Governmental Organizations
- Industry Leaders

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN HISTORY (<https://la.psu.edu/current-students/career-enrichment-network/>)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://history.la.psu.edu/graduate/>)

Contact

University Park

DEPARTMENT OF HISTORY
108 Weaver Building
University Park, PA 16802
814-865-1367
bdw150@psu.edu

<https://history.la.psu.edu>

Abington

DIVISION OF ARTS AND HUMANITIES
1600 Woodland Road
Abington, PA 19001
215-881-7593

fbaer@psu.edu

<https://www.abington.psu.edu/academics/majors-at-abington/history>
(<https://www.abington.psu.edu/academics/majors-at-abington/history/>)

Altoona

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<https://altoona.psu.edu/academics/bachelors-degrees/history> (<https://altoona.psu.edu/academics/bachelors-degrees/history/>)

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<https://shenango.psu.edu/academics/degrees/multidisciplinary-studies>
(<https://shenango.psu.edu/academics/degrees/multidisciplinary-studies/>)

World Campus

DEPARTMENT OF HISTORY
108 Weaver Building
University Park, PA 16802
814-865-1367
bdw150@psu.edu

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-history-minor> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-history-minor/>)

York

1031 Edgecomb Avenue
York, PA 17403
717-771-8449
jmg66@psu.edu

Holocaust and Genocide Studies, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

The goal of the Holocaust and Genocide Studies certificate program is to provide students a wide-ranging and interdisciplinary foundation in the study of the Holocaust and related fields of genocide, anti-Semitism and

prejudice, and historical trauma. The curriculum covers history, cultural studies, philosophy, literary and film criticism, ethics, and political science approaches. Candidates are required to take 12 credits from an approved list of courses.

What is Holocaust and Genocide Studies?

The purpose of the Holocaust and Genocide Studies Certificate is to understand and interpret mass eliminationist violence in human history. This area of study employs varying disciplines- such as literature, film, history, philosophy and ethics, and political science- to educate students on genocide, antisemitism and prejudice, and historical trauma.

You Might Like This Program If...

- You want to study the causes and effects of different cases of genocide throughout history.
- You are interested in complementing your degree in History, Jewish Studies, or other similar fields with a specialization in a significant area of study.

Program Requirements

To earn an undergraduate certificate in Holocaust and Genocide Studies, a minimum of 12 credits is required.

Code	Title	Credits
Prescribed Courses		
Select 12 credits from the following:		12
JST/HIST 121	History of the Holocaust 1933-1945	
JST/CMLIT/ ENGL 128		
JST/HIST 143		
JST/HIST 205		
JST/HIST 409Y	Antisemitisms	
JST/HIST 426	Holocaust	
JST/HIST 439	Women and the Holocaust	
JST/PLSC 450H	Genocide and Tyranny	
JST/RLST 478	Ethics After the Holocaust	

Certificate Learning Objectives

- **Application of Knowledge:** Students who complete the certificate will be able to apply knowledge about the Holocaust and other genocides to a critical evaluation of material used by and/or created and disseminated by deniers of the Holocaust and other genocides.
- **Assess Prevention of Future Genocides:** Students who complete the certificate will be able to assess the importance of democracy, civil rights and the protection of ethnic, racial, religious and other minorities against discrimination as safeguards against discrimination and violent persecution of specific groups.
- **Content Knowledge:** Students who complete the certificate will be able to distinguish between the Holocaust and other genocides.
- **Description of Causes Behind Genocides:** Students who complete the certificate will be able to describe why the Holocaust and other genocides were the result of conscious decision making.
- **Explain Function of Ideology:** Students who complete the certificate will be able to explain the importance of ideology and indoctrination as motivating factors for perpetrators.

- **Explanation of Relevance:** Students who complete the certificate will be able to explain the relevance of Holocaust and Genocide studies to those with little or no knowledge about it.
- **Understanding of Holocaust as Watershed Event:** Students who complete the certificate will be able to demonstrate an understanding of why the Holocaust and other genocides constitute watershed events in recent history.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Contact

University Park

DEPARTMENT OF JEWISH STUDIES

108 Weaver Building

University Park, PA 16802

814-863-8939

jstd@psu.edu

<https://jewishstudies.la.psu.edu>

Information Sciences and Technology for Labor Studies and Employment Relations, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The joint minor in Information Sciences and Technology for Labor and Employment Relations (ISLER) is designed to provide students with the opportunity to develop working knowledge of information technology, labor and employment relations, and their interdisciplinary synergies. The joint minor is designed to prepare students for professional careers

in human resource management, labor relations, information systems, software development, consulting, and government.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
IST 110	Information, People and Technology	3
IST 210	Organization of Data	3
IST 220	Networking and Telecommunications	3
LER 100		3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 6 credits of the following:		6
LER 400		
LER 401		
LER 424	Employment Compensation	
LER 434		
LER 435		
LER 437		
LER 444		
LER 460		
LER 464		
LER 465		
LER 497		

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising
814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Contact

University Park

SCHOOL OF LABOR AND EMPLOYMENT RELATIONS
506 Keller Building
University Park, PA 16802
814-865-5425
lerpsu@psu.edu

<https://ler.la.psu.edu>

Information Sciences and Technology in Communication Arts and Sciences and Labor and Employment Relations, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

With technology as its fundamental consideration, this minor will provide students with insight and aptitude for communication skills in the workplace with opportunities to specialize for their professional interests. With foundational courses in Information Science and Technology, students can enhance their understanding of various employment relationships and communication strategies. This minor is the fruition of collaboration among three distinct university academic departments.

What is Information Sciences and Technology in Communication Arts and Sciences and Labor and Employment Relations?

This minor examines the intersections among human communication, technology and information, and the work place. Using various forms of technology is ubiquitous in the professional settings, and human communication is at the center of most of this use of technology. The minor considers the evolving nature of the workplace and is designed to assist students in the development of their professional specialties by offering coursework in interrelated matters of effective communication, workplace relations, and information technology. In so doing, students will learn the theory and practice behind being effective communicators in the workplace and also gain skills in self-presentation in online contexts. Some topics covered in the minor include communication ethics, culture, group communication, law, workplace dispute or conflict, and fundamentals of human resources. Completing the minor requires that students take classes in Communication Arts and Sciences, Information Sciences and Technology, and Labor and Employment Relations. In general, this minor is designed to help students most effectively use technology for communication in, around, and about the workplace.

You Might Like This Program If...

You have an interest in human communication, technology, information sciences, or understanding the workplace. The minor includes applications for anyone who might find themselves in the workplace in the future. If you anticipate needing to present yourself using technology in or around a workplace, this minor might benefit your understanding of human communication and employee relations.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CAS 283	Communication and Information Technology I	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
LER 100		3
	or LER 136	
Select two from the following:		6
IST 110	Information, People and Technology	
IST 210	Organization of Data	
IST 220	Networking and Telecommunications	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
CAS and LER Coursework. Choose 6 credits from the following (one course must be at the 300-400 level):		6
CAS 272N	Political Communication and Technology	
CAS 352	Organizational Communication	
CAS 426W	Communication Ethics	
CAS 383		
CAS 450W	Group Communication Theory and Research	
CAS 483	Communication and Information Technology II	
LER 201		
LER 202		
LER 305		
LER 437		
LER/OLEAD 464		
LER/OLEAD 465		

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of

both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Career Paths

Various positions within corporations, information technology specialists, corporate communication officers. Any position within a company or organization that intersects with information management or communication via technology.

Contact

University Park

DEPARTMENT OF COMMUNICATION ARTS AND SCIENCES
234 Sparks Building
University Park, PA 16802
814-865-3461
sas519@psu.edu

<https://cas.la.psu.edu>

Integrated Social Sciences, B.S.

Begin Campus: World Campus

End Campus: World Campus

Program Description

The social sciences are concerned with the study of society and the relations among individuals and institutions within society. The multi-disciplinary Bachelor of Science in Integrated Social Sciences synthesizes the broad sweep of the content, theories, and methodologies of the social sciences. The program draws on core social science disciplines:

- Anthropology,
- Communication Arts and Sciences,
- Economics,
- Political Science,
- Psychology, and
- Sociology.

A final capstone portfolio will document integration and synthesis of major themes explored in the program.

What is Integrated Social Sciences?

The Bachelor of Science in Integrated Social Sciences combines the content, theories and methodologies of the social sciences into one program. The course work is based on the core social science disciplines of anthropology, communication arts, and sciences, economics, political science, psychology, and sociology. The integrated social sciences comprise the study of society and relationships among individuals and institutions.

You Might Like This Program If...

As a student of the integrated social sciences, you want acquire a versatile skill set that includes the ability to effectively create and communicate information, develop and execute systems and processes, exercise critical thinking and apply theory to practice. This online 120 – credit interdisciplinary program is an excellent choice for students who want to build upon previous education to complete an unfinished degree.

Direct Admission to the Major

Incoming first-year students who meet the program admission requirements are admitted directly into the major. Admission restrictions may apply for change-of-major and/or change-of-campus students.

For more information about the admission process for this major, please send a request to the college, campus, or program contact (listed in the Contact tab).

Degree Requirements

For the Bachelor of Science degree in Integrated Social Sciences, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	20-42
Requirements for the Major	51-55

0-18 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 0-6 credits of GQ courses; 0-6 credits of GS courses, and 0-6 credits of GH courses.

Per Senate Policy 83-80.1, "Per University Faculty Senate Policy 83-80.1, every candidate for a degree shall earn as a degree candidate at least 36 of the last 60 credits required for a baccalaureate degree in courses offered by the University or in cooperative degree programs that have been established by formal agreement and approved by the University Faculty Senate."

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
LA 201W	Experiential Learning Portfolio	3

LA 496	Independent Studies	3
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Additional Courses

Additional Courses: Require a grade of C or better

In consultation with your adviser, select 6-8 credits in quantification from MATH, CMPSC, IST, PHIL, ACCT, or STAT 6-8

Select 3-4 credits in statistics of the following: 3-4

PLSC 309 Quantitative Political Analysis

PSYCH 200 Elementary Statistics in Psychology

STAT 200 Elementary Statistics

Select 3 credits in ethics of the following: 3

LER 460

PHIL 103 Ethics

PHIL 103W Ethics

PHIL 119 Ethical Leadership

Select 3-4 credits in research methods of the following: 3-4

CAS 390 Qualitative Research Methods

LER 312

PSYCH 301W Basic Research Methods in Psychology

SOC 207 Research Methods in Sociology

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

In consultation with your adviser, select 30 credits from social science courses in the following areas:¹ 30

ANTH, CAS, ECON, PLSC, PSYCH, or SOC

LA 295 Undergraduate Field Experience or Practicum

LA 395 Internship

LA 495 Undergraduate Field Experience or Practicum

¹ Students must select at least 15 credits at the 400 level; 9 credits of the 400-level courses must be in one discipline and 6 credits must be in a second discipline.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits

- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Argumentation:** Students will be able to formulate, debate, and articulate arguments about social phenomena using the language and constructs of the social sciences

- **Content Knowledge:** Students will be able to articulate the varied theoretical and applied methodologies and interrelationships across the social sciences
- **Critical Thinking:** Students will utilize critical thinking in analyzing and applying social science perspectives to society's problems
- **Professional Skills:** Students will be able to apply professional and career related skills in integrated social sciences
- **Research Literacy:** Students will demonstrate the ability to conduct, evaluate, and critique quantitative and qualitative social science research

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

World Campus

Undergraduate Academic Advising

301 Outreach Building
University Park, PA 16802
814-863-3283
advising@outreach.psu.edu

University Park

Liberal Arts Academic Advising

814-865-2545
Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Career Paths

The concepts you'll study in this interdisciplinary online program can prepare you for employment in a variety of fields, or position you for advancement in your current role. As a graduate, your heightened understanding of human behavior and societal relationships will be applicable to any number of careers, including social services, marketing, advertising, human resources, finance, government, and many more.

Careers

- Advancement in your current position
- Social services
- Marketing
- Advertising
- Human resources
- Finance

- Government
- Non-profit and NGO management

Contact

World Campus

FILIPPELLI INSTITUTE FOR E-EDUCATION AND OUTREACH
8 Thomas Building
University Park, PA 16802
814-863-5965
blm26@psu.edu

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-integrated-social-sciences-bachelor-of-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-integrated-social-sciences-bachelor-of-science-degree/>)

International Politics, B.A.

Begin Campus: Any Penn State Campus

End Campus: University Park, World Campus

Program Description

This major, administered within the Department of Political Science, is designed to provide students with a broad, comprehensive education in international politics by offering students options in International Relations, International Political Economy, and Security Studies. While most of the required courses are in the areas of international and comparative politics, the curriculum includes courses in economics, geography, risk analysis, and history. The major provides an opportunity to study in detail a variety of crucial contemporary issues—conflict among and within nations, democratization, economic and political globalization, regional conflicts and the emerging importance of non-state actors—as well as analysis of foreign and economic policy making and security issues in the United States and other nations.

The major prepares students for career opportunities:

- with U.S. government executive agencies dealing with foreign affairs, international and homeland security, and the international economy;
- with relevant committees of the U.S. Congress;
- with multinational corporations, banks, and consulting firms; and
- with international organizations.

The major also provides preparation for law and business schools and for graduate study in political science and international relations.

What is International Politics?

International Politics is an interdisciplinary major focused on how power operates within and between states in the international arena. The program combines economics, history, and political science to examine topics such as human rights, ethnic conflict, terrorism, economic and political development and globalization, the environment, foreign and economic policy making, and national security. Students have the option to concentrate in either International Relations, International Political Economy, or National Security Studies.

You Might Like This Program If...

You are interested in learning about different cultures and political systems around the world and how their interactions create and are influenced by political and economic cooperation and conflict. This major

is a good choice for students interested in national security, foreign policy, war, crime, and terrorism as well as in languages and history. International Relations is an exciting interdisciplinary major dealing with today's global problems and potential solutions.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

World Campus

Direct Admission to the Major

Incoming first-year students who meet the program admission requirements are admitted directly into the major. Admission restrictions may apply for change-of-major and/or change-of-campus students.

For more information about the admission process for this major, please send a request to the college, campus, or program contact (listed in the Contact tab).

Degree Requirements

For the Bachelor of Arts degree in International Politics, a minimum of 123 credits is required:

Requirement	Credits
General Education	45
Electives	15-18
Bachelor of Arts Degree Requirements	24
Requirements for the Major	39

0-3 of the 45 credits for General Education are included in the Requirements for the Major. This includes 0-3 credits of GS General Education courses.

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
PLSC 14	International Relations	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
PLSC 7N	Contemporary Political Ideologies ¹	3
or PLSC 1	American Politics: Principles, Processes and Powers	
Select one of the following:		3
PLSC 3	Comparing Politics around the Globe	
PLSC 20		
PLSC 22		
Requirements for the Option		
<i>Requirements for the Option: Require a grade of C or better</i>		
Select an option		30

¹ PLSC 7N is recommended for students choosing the National Security Option.

**Requirements for the Option
International Relations Option (30 credits)**

Available at the following campuses: University Park, World Campus

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
PLSC 412	International Political Economy	3
or PLSC 481	Global Political Economy	
PLSC 418	International Relations Theory	3
or PLSC 442	American Foreign Policy	
Select 3-6 credits (no more than 3 credits below the 300 level) of the following:		3-6
HIST 120		
HIST 142N	History of Communism	
HIST 143N	History of Fascism and Nazism	
HIST 144	The World at War: 1939-1945	
HIST 173	Vietnam in War and Peace	
HIST 175	East Asia since 1800	
HIST 179	Latin-American History Since 1820	
HIST 181	Introduction to the Middle East	
HIST 192	Modern African History	
HIST 320	Contemporary World History and Issues	
HIST 420	Recent European History	
HIST 423	Orthodox Christianity: History and Interpretations	
HIST 427	Germany Since 1860	
HIST 430	Eastern Europe in Modern Times	
HIST/AFAM 431	Black Liberation and American Foreign Policy	
HIST/AFAM 432	Between Nation and Empire: The Caribbean in the 20th Century	
HIST 434	History of the Soviet Union	
HIST 435	Topics in European History	
HIST 446	America Between the Wars	

HIST 447	Recent American History	
HIST 452	History of U.S. Foreign Relations	
HIST 454	American Military History	
HIST 460		
HIST 467	Latin America and the United States	
HIST 468	Mexico and the Caribbean Nations in the Twentieth Century	
HIST 473	The Contemporary Middle East	
HIST 479	History of Imperialism and Nationalism in Africa	
HIST 481	Modern Japan Since 1800	
HIST 486	China in Revolution	

Select 3-6 credits (no more than 3 credits below the 300 level) of the following:

ECON 102	Introductory Microeconomic Analysis and Policy	
ECON 104	Introductory Macroeconomic Analysis and Policy	
ECON 333	International Economics	
or IB 303	International Business Operations	

Select 3-6 credits (no more than 3 credits below the 300 level) of the following:

GEOG 123	Geography of Developing World	
GEOG 124	Elements of Cultural Geography	
GEOG 128	Geography of International Affairs	
GEOG 364	Spatial Analysis	
GEOG 424	Geography of the Global Economy	
GEOG 430	Human Use of Environment	
GEOG 431	Geography of Water Resources	
GEOG 438W	Human Dimensions of Global Warming	
GEOG 444	Resource Governance in Africa	
GEOG 463	Geospatial Information Management	
GEOG 464	Advanced Spatial Analysis	
GEOG 468	Geographic Information Systems Design and Evaluation	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 12 credits from one of the following: 12

400-level political science courses in International Relations, Comparative Politics, or Theory/Methodology (excluding courses taken to fulfill other requirements in the major) from an approved department list in consultation with an adviser

World language courses beyond the 12th-credit level ¹

¹ 9 of these credits must be at the 400 level. With adviser approval, all 12 credits may be below the 400 level, but must be in addition to the language proficiency for BA requirements.

National Security Option (30 credits)

Available at the following campuses: University Park, World Campus

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CRIM 406	Sociology of Deviance	3
SRA 111	Introduction to Security and Risk Analysis	3
SRA 211	Threat of Terrorism and Crime	3
Additional Courses		

Additional Courses: Require a grade of C or better

Select 3 credits of the following: 3

ECON 102	Introductory Microeconomic Analysis and Policy
ECON 104	Introductory Macroeconomic Analysis and Policy
ECON 333	International Economics
or IB 303	International Business Operations
GEOG 123	Geography of Developing World
GEOG 124	Elements of Cultural Geography
GEOG 128	Geography of International Affairs
GEOG 364	Spatial Analysis
GEOG 424	Geography of the Global Economy
GEOG 430	Human Use of Environment
GEOG 431	Geography of Water Resources
GEOG 438W	Human Dimensions of Global Warming
GEOG 444	Resource Governance in Africa
GEOG 463	Geospatial Information Management
GEOG 464	Advanced Spatial Analysis
GEOG 468	Geographic Information Systems Design and Evaluation
HIST 120	
HIST 142N	History of Communism
HIST 143N	History of Fascism and Nazism
HIST 144	The World at War: 1939-1945
HIST 173	Vietnam in War and Peace
HIST 175	East Asia since 1800
HIST 179	Latin-American History Since 1820
HIST 181	Introduction to the Middle East
HIST 192	Modern African History
HIST 320	Contemporary World History and Issues
HIST 420	Recent European History
HIST 423	Orthodox Christianity: History and Interpretations
HIST 427	Germany Since 1860
HIST 430	Eastern Europe in Modern Times
HIST/AFAM 431	Black Liberation and American Foreign Policy
HIST/AFAM 432	Between Nation and Empire: The Caribbean in the 20th Century
HIST 434	History of the Soviet Union
HIST 435	Topics in European History
HIST 446	America Between the Wars
HIST 447	Recent American History
HIST 452	History of U.S. Foreign Relations
HIST 454	American Military History
HIST 460	
HIST 467	Latin America and the United States
HIST 468	Mexico and the Caribbean Nations in the Twentieth Century
HIST 473	The Contemporary Middle East
HIST 479	History of Imperialism and Nationalism in Africa
HIST 481	Modern Japan Since 1800
HIST 486	China in Revolution
Select 6 credits of the following:	6
PLSC 412	International Political Economy

PLSC 418 International Relations Theory

PLSC/CRIMJ 439 The Politics of Terrorism

PLSC 442 American Foreign Policy

PLSC 481 Global Political Economy

Supporting Courses and Related Areas*Supporting Courses and Related Areas: Require a grade of C or better*

Select 12 credits from one of the following: 12

400-level political science courses in International Relations, Comparative Politics, or Theory/Methodology (excluding courses taken to fulfill other requirements in the major) from an approved department list in consultation with an adviser

World language courses beyond the 12th-credit level ¹

¹ 9 of these credits must be at the 400 level. With adviser approval, all 12 credits may be below the 400 level, but must be in addition to the language proficiency for BA requirements.

International Political Economy Option (30 credits)*Available at the following campuses: University Park, World Campus*

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
PLSC 412	International Political Economy	3
or PLSC 481	Global Political Economy	
PLSC 418	International Relations Theory	3
or PLSC 442	American Foreign Policy	
Select 9 credits (no more than 3 credits below the 300 level) of the following:		9
ECON 102	Introductory Microeconomic Analysis and Policy	
ECON 104	Introductory Macroeconomic Analysis and Policy	
ECON 333	International Economics	
ECON 433	Advanced International Trade Theory and Policy	
ECON 434	International Finance and Open Economy Macroeconomics	
ECON 443	Economics of Law and Regulation	
ECON 444	Economics of the Corporation	
ECON 451	Monetary Theory and Policy	
ECON 471	Growth and Development	
ECON 472N	Russian Economic History	
IB 303	International Business Operations	
Select 3 credits of the following:		3
AFAM/HIST 431	Black Liberation and American Foreign Policy	
GEOG 123	Geography of Developing World	
GEOG 124	Elements of Cultural Geography	
GEOG 128	Geography of International Affairs	
GEOG 364	Spatial Analysis	
GEOG 424	Geography of the Global Economy	
GEOG 430	Human Use of Environment	
GEOG 431	Geography of Water Resources	
GEOG 438W	Human Dimensions of Global Warming	
GEOG 444	Resource Governance in Africa	
GEOG 463	Geospatial Information Management	

GEOG 464	Advanced Spatial Analysis
GEOG 468	Geographic Information Systems Design and Evaluation
HIST 120	
HIST 142N	History of Communism
HIST 143N	History of Fascism and Nazism
HIST 144	The World at War: 1939-1945
HIST 173	Vietnam in War and Peace
HIST 175	East Asia since 1800
HIST 179	Latin-American History Since 1820
HIST 181	Introduction to the Middle East
HIST 192	Modern African History
HIST 320	Contemporary World History and Issues
HIST 420	Recent European History
HIST 423	Orthodox Christianity: History and Interpretations
HIST 427	Germany Since 1860
HIST 430	Eastern Europe in Modern Times
HIST/AFAM 432	Between Nation and Empire: The Caribbean in the 20th Century
HIST 434	History of the Soviet Union
HIST 435	Topics in European History
HIST 446	America Between the Wars
HIST 447	Recent American History
HIST 452	History of U.S. Foreign Relations
HIST 454	American Military History
HIST 460	
HIST 467	Latin America and the United States
HIST 468	Mexico and the Caribbean Nations in the Twentieth Century
HIST 473	The Contemporary Middle East
HIST 479	History of Imperialism and Nationalism in Africa
HIST 481	Modern Japan Since 1800
HIST 486	China in Revolution

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 12 credits from 400-level political science courses in International Relations, Comparative Politics, or Theory/Methodology (excluding courses taken to fulfill other requirements in the major) from an approved department list in consultation with an adviser

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or

within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Integrated B.A. in International Politics and M.I.A. in International Affairs

Available at the following campuses: University Park

Requirements for the Integrated B.A. in International Politics and M.I.A. in International Affairs can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/international-affairs/#integratedundergradgradprogramstext>).

Program Learning Objectives

- Students will develop substantive knowledge of the discipline of Political Science.
 - Students will be able to define and use the concepts political scientists employ to make and substantiate knowledge claims.
 - Students will be able to describe the central debates and theoretical frameworks of political science and international politics.
- Students will develop knowledge about how political scientists use empirical analysis to gain insight into political and social processes, to advance political and social goals, and to evaluate the effects of programs and policies.
 - Students will be able to explain multiple approaches to empirical research, such as large-scale observational research, experiments, surveys, case studies, formal modeling, and elite interviewing.
 - Students will be able to describe both the application, and the advantages and disadvantages of different research methods in relation to particular problems.
- Students will develop the ability to create coherent, persuasive, and empirically grounded oral and written arguments.
 - Students will be able to construct and defend logical arguments.
 - Students will be able to present evidence to support empirical claims.
 - Students will be able to communicate ideas effectively in conformity with academic standards.
- Students will develop the ability to systematically analyze problems and draw evidenced based inferences. Students in different majors

will accomplish this with different emphases depending on the courses they take as part of the BA/BS.

- Bachelor of Arts students in PLSC and INTPL will analyze problems and draw evidence based inferences using a broad range of techniques according to programmatic focus and individual preference.
- PLSC Bachelor of Science majors will analyze problems and draw inferences using various data sources and statistical tools.
- PLSC SODA majors will analyze problems and draw inferences using computational tools appropriate to large complex data sets.
- Students will develop the ability to combine the substantive knowledge, modes of inquiry, and analytic skills learned in the classroom to address contemporary problems in an uncertain world.
 - Students will be able to draw upon political science research to construct testable explanations of novel situations.
 - Students will be able to weigh the arguments, evidence and inferences used to address problems under conditions of uncertainty.
- Students will develop ethical reasoning and citizenship skills to participate in a global, pluralistic society.
 - Students will be able to trace the possible ethical implications of public policies and political structures and their consequences for democratic political values.
 - Students will be able to articulate the goals, conditions, and challenges of democracy and describe the roles of citizens and public officials in manifesting and preserving democratic values.
 - Students will be able to critically evaluate the values inherent in the exercise of power through political systems, social structures, information, and collective action.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

World Campus

Undergraduate Academic Advising

301 Outreach Building

University Park, PA 16802
814-863-3283
advising@outreach.psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

International Political Economy Option: International Politics, B.A. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PLSC 14 (IL)*	3 PLSC 3, 20, or 22*	3
World Language Level 1	4 World Language Level 2	4
General Education Quantification [‡]	3 General Education Course	3
FYS/General Education Course	3 General Education Course	3
ENGL 15, 30H, 137H, CAS 137H, or ESL 15 (GWS) [‡]	3 CAS 100, CAS 100A, CAS 100B, CAS 100C, CAS 138T, or ENGL 138T (GWS) [‡]	3
	16	16

Second Year

Fall	Credits Spring	Credits
PLSC 1 or 7N (US)*	3 PLSC 400-level (non-American)	3
World Language Level 3	4 ECON 102 or 104*	3
HIST/GEOG Option*	3 General Education Course	3
General Education Quantification [‡]	3 General Education Course	3
General Education Course	3 BA Fields	3
	16	15

Third Year

Fall	Credits Spring	Credits
PLSC 400-level (non-American)	3 PLSC 400-level (non-American)	3
ECON advanced-level option*	3 ECON advanced-level option*	3
General Education Course	3 General Education Course	3
ENGL 202A, 202B, 202C, or 202D (GWS) [‡]	3 BA Fields	3
BA Fields	3 Elective (WAC)	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
PLSC 400-level (non-American)	3 PLSC 412, 418, 439, or 442*	3
PLSC 412, 418, 439, or 442*	3 Elective	3
General Education Course	3 Elective	3
Elective (OC)	3 Elective	3
Elective	3 General Education Course (GHW)	3
	15	15

Total Credits 123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

International Relations Option: International Politics, B.A. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PLSC 14 (IL)*	3 PLSC 3, 20, or 22*	3
World Language Level 1	4 World Language Level 2	4
General Education Quantification†	3 General Education Course	3
FYS/General Education Course	3 General Education Course	3
ENGL 15, 30H, 137H, CAS 137H, or ESL 15 (GWS)‡	3 CAS 100, CAS 100A, CAS 100B, CAS 100C, CAS 138T, or ENGL 138T (GWS)‡	3
	16	16

Second Year

Fall	Credits Spring	Credits
PLSC 1 or 7N (US)*	3 PLSC 400-level (non-American) or beyond 12th credit level of World Language*	3
World Language Level 3	4 HIST/ECON/GEOG option*	3
HIST/ECON/GEOG option*	3 General Education Course	3
General Quantification (GQ)‡	3 General Education Course	3
General Education Course	3 BA Fields	3
	16	15

Third Year

Fall	Credits Spring	Credits
PLSC 400-level (non-American) or 400-level World Language*	3 PLSC 400-level (non-American) or 400-level World Language*	3
HIST/ECON/GEOG option*	3 HIST/ECON/GEOG option*	3
General Education Course	3 General Education Course	3
ENGL 202A, 202B, 202C, or 202D (GWS)‡	3 BA Fields	3
BA Fields	3 Elective (WAC)	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
PLSC 400-level (non-American) or 400-level World Language*	3 PLSC 412, 418, 439, or 442*	3
PLSC 412, 418, 439, or 442*	3 Elective	3
General Education Course	3 Elective	3
Elective (OC)	3 Elective	3

Elective	3 General Education Course (GHW)	3
	15	15

Total Credits 123

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

National Security Option: International Politics, B.A. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PLSC 14 (IL)*	3 PLSC 3, 20, or 22*	3
World Language Level 1	4 World Language Level 2	4
General Education Quantification†	3 SOC/CRIM 12 (GS)	3
FYS/General Education Course	3 General Education Course	3
ENGL 15, 30H, 137H, CAS 137H, or ESL 15 (GWS)‡	3 CAS 100, CAS 100A, CAS 100B, CAS 100C, CAS 138T, or ENGL 138T (GWS)‡	3
	16	16

Second Year

Fall	Credits Spring	Credits
PLSC 1 or 7N (US)*	3 PLSC 400-level (non-American) or beyond 12th credit level of World Language*	3
World Language Level 3	4 SRA 111*	3
HIST/ECON/GEOG option*	3 General Education Course	3
General Education Quantification†	3 General Education Course	3
General Education Course	3 BA Fields	3
	16	15

Third Year

Fall	Credits Spring	Credits
PLSC 400-level (non-American) or 400-level World Language*	3 PLSC 400-level (non-American) or 400-level World Language*	3
SRA 211*	3 CRIM 406*	3
General Education Course	3 General Education Course	3
ENGL 202A, 202B, 202C, or 202D (GWS)‡	3 BA Fields	3
BA Fields	3 Elective (WAC)	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
PLSC 400-level (non-American) or 400-level World Language*	3 PLSC 412, 418, 439, or 442*	3
PLSC 412, 418, 439, or 442*	3 Elective	3
General Education Course	3 Elective	3
Elective (OC)	3 Elective	3

Elective	3 General Education Course (GHW)	3
	15	15

Total Credits 123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

International Political Economy Option: International Politics, B.A. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PLSC 14 (IL)*	3 PLSC 3, 20, or 22*	3
World Language Level 1	4 World Language Level 2	4
General Education Quantification†	3 General Education Course	3
FYS/General Education Course	3 General Education Course	3
ENGL 15, 30H, or ESL 15 (GWS)‡	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C (GWS)‡	3
	16	16

Second Year

Fall	Credits Spring	Credits
PLSC 1 or 7N (US)*	3 HIST/GEOG option*	3
World Language Level 3	4 General Education Course	3
General Education Quantification†	3 General Education Course	3
General Education Course	3 General Education Course (GHW)	3
General Education Course	3 Elective (WAC)	3
	16	15

Third Year

Fall	Credits Spring	Credits
PLSC 400-level (non-American)*	3 PLSC 400-level (non-American)*	3
ECON 102 or 104*	3 ECON advanced-level option*	3
General Education Course	3 General Education Course	3
ENGL 202A, 202B, 202C, or 202D (GWS)‡	3 BA Fields	3
BA Fields	3 Elective (OC)	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
PLSC 400-level (non-American)*	3 PLSC 400-level (non-American)*	3
PLSC 412, 418, 439, or 442*	3 PLSC 412, 418, 439, or 442*	3
ECON advanced-level option*	3 Elective	3
BA Fields	3 Elective	3
Elective	3 Elective	3
	15	15

Total Credits 123

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

* Course requires a grade of C or better for the major

International Relations Option: International Politics, B.A. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PLSC 14 (IL)*	3 PLSC 3, 20, or 22*	3
World Language Level 1	4 World Language Level 2	4
General Education Quantification†	3 General Education Course	3
FYS/General Education Course	3 General Education Course	3
ENGL 15, 30H, or ESL 15 (GWS)‡	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C (GWS)‡	3
	16	16

Second Year

Fall	Credits Spring	Credits
PLSC 1 or 7N (US)*	3 HIST/ECON/GEOG option*	3
World Language Level 3	4 General Education Course	3
General Education Quantification†	3 General Education Course	3
General Education Course	3 General Education Course (GHW)	3
General Education Course	3 Elective (WAC)	3
	16	15

Third Year

Fall	Credits Spring	Credits
PLSC 400-level (non-American) or beyond 12th credit level of World Language*	3 PLSC 400-level (non-American) or 400-level World Language*	3
HIST/ECON/GEOG option*	3 HIST/ECON/GEOG option*	3
General Education Course	3 General Education Course	3
ENGL 202A, 202B, 202C, or 202D (GWS)‡	3 BA Fields	3
BA Fields	3 Elective (OC)	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
PLSC 400-level (non-American) or 400-level World Language*	3 PLSC 400-level (non-American) or 400-level World Language*	3
PLSC 412, 418, 439, or 442*	3 PLSC 412, 418, 439, or 442*	3
HIST/ECON/GEOG option*	3 Elective	3
BA Fields	3 Elective	3
Elective	3 Elective	3
	15	15

Total Credits 123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

National Security Option: International Politics, B.A. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PLSC 14 (IL)*	3 PLSC 3, 20, or 22*	3
World Language Level 1	4 World Language Level 2	4
General Education Quantification†	3 SOC/CRIM 12 (GS)	3
FYS/General Education Course	3 General Education Course	3
ENGL 15, 30H, or ESL 15 (GWS)‡	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C (GWS)‡	3
	16	16

Second Year

Fall	Credits Spring	Credits
PLSC 1 or 7N (US)*	3 HIST/ECON/GEOG option*	3
World Language Level 3	4 General Education Course	3
General Education Quantification†	3 General Education Course	3
General Education Course	3 General Education Course (GHW)	3
General Education Course	3 Elective (WAC)	3
	16	15

Third Year

Fall	Credits Spring	Credits
PLSC 400-level (non-American) or beyond 12th credit level of World Language*	3 PLSC 400-level (non-American) or 400-level World Language*	3
SRA 111*	3 SRA 211*	3
General Education Course	3 General Education Course	3
ENGL 202A, 202B, 202C, or 202D (GWS)‡	3 BA Fields	3
BA Fields	3 Elective (OC)	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
PLSC 400-level (non-American) or 400-level World Language*	3 PLSC 400-level (non-American) or 400-level World Language*	3
PLSC 412, 418, 439, or 442*	3 PLSC 412, 418, 439, or 442*	3
CRIM 406*	3 Elective	3
BA Fields	3 Elective	3
Elective	3 Elective	3
	15	15

Total Credits 123

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Career Paths

Employment opportunities have grown steadily for international politics graduates due to the global integration of political and economic activity and the increasingly global scale of both human problems and efforts to solve them. The ability to navigate across cultures, as well as a knowledge of foreign governments, legislative processes, international organizations, terrorism and conflict, and economic development are vital to the fields of business, finance, journalism, and activism for social change at the global level. The BA in International Politics prepares people for governmental and non-governmental jobs, as well as positions in multinational corporations, banks, consulting firms, and international organizations.

Careers

Graduates of the program have pursued careers with the federal government in positions with the CIA, the military, U.S. embassies, and the Department of Commerce. Others work for international organizations such as the United Nations, UNICEF, and the Red Cross as well as in international business and legislative affairs.

Contact

University Park

DEPARTMENT OF POLITICAL SCIENCE
202 Pond Lab
University Park, PA 16802
814-865-4597
<https://polisci.la.psu.edu/undergraduate/advising/>

<https://polisci.la.psu.edu>

World Campus

DEPARTMENT OF POLITICAL SCIENCE
220 Pond Lab
University Park, PA 16802
814-865-7515
ajh38@psu.edu

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-international-politics-bachelor-of-arts-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-international-politics-bachelor-of-arts-degree/>)

Italian, B.A.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The major offers training in the skills required for fluency in Italian and knowledge in Italian culture, civilization, and literature. Its aim is to open to the student both the traditions of one of the major formative components of the Western world and the continuing vitality of modern Italian and Italian-American life.

As one of the humanistic programs of the College of the Liberal Arts, the Italian major prepares students for rewarding and unique careers in business, media, travel, ministry, banking, and education. In addition, the federal government employs liberal arts graduates with world-language skills in organizations including the National Security Agency, the Central Intelligence Agency, the U.S. Information Agency, and the Department of Labor. The Italian major is also preparatory for graduate work directed to the Ph.D. degree required for teaching and research in colleges and universities. Students with degrees in the humanities are particularly successful applicants to professional schools, such as law and medicine.

What is Italian?

Italian is the voice of one of the formative cultural traditions of the Western world. The study of Italy and its language offers a rigorous, interdisciplinary exploration of the continuing vitality of modern Italian and Italian American culture through literature, cinema, translation studies, the arts, Roman thought, fashion, tourism, Mediterranean cuisine, and much more. Italian, in its humanistic breadth and depth, offers students access to a wide variety of professional pathways through an emphasis on global communicative understanding and cultural sensitivity. Italian is increasingly important in business; six of the 100 biggest companies are headquartered in Italy, and Italy is the world's fifth largest industrial producer of goods. Learning a world language also improves oral and written skills in English interactions. Penn State's Italian program is small, and prides itself on its capacity to provide individual attention and mentoring to each of its majors and minors.

You Might Like This Program If...

- You enjoy learning languages and communicating with people from a particularly rich cultural civilization.
- You dream of studying abroad. More Penn State students currently study in Italy than in any other nation of the world, and you will enjoy more memorable experiences with a deeper preparation through advanced coursework in Italian.

- You wish to learn more about the roots of your family heritage and traditions.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

- attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
- have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Italian, a minimum of 122 credits is required:

Requirement	Credits
General Education	45
Electives	17
Bachelor of Arts Degree Requirements	24
Requirements for the Major	36

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
IT 301	Advancing Italian in Context	3
IT 320	Global Italy: An Introduction to Italian Culture	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 9 credits from the following courses in Italian:		9
IT 310	Advancing Conversation	
IT 325	Italy's Inspiration for Your Life	
IT 330W	Greatest Books of Italian Literature	
IT 399	Foreign Study--Italian	
IT 412	Theory and Practice of Translation	
IT 422	Topics in the Italian Renaissance	

IT 430	Italian Children's Literature	
IT 450	Nineteenth-Century Italian Literature	
IT 460	Twentieth-Century Italian Literature	
Select 9 credits at the 400-level:		9
IT 412	Theory and Practice of Translation	
IT 422	Topics in the Italian Renaissance	
IT 430	Italian Children's Literature	
IT 450	Nineteenth-Century Italian Literature	
IT 460	Twentieth-Century Italian Literature	
IT 470	Ghosts and Otherworldly Visions in Italy c. 1300-1600	
IT 475	Modern Italian Literature and Cinema	
IT/WMNST 480	Italian Women Writers	
IT 485	Italian American Cultural Studies	
Select one course on Dante:		3
IT 415	Dante	
IT 490	Dante in Translation	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 3 credits from the following:		3
IT 130	Italian Culture and Civilization	
IT 131	Introduction to Italian American Culture	
IT/CMLIT/ HIST/WMNST 240Q	Artistic Patronage in Europe	
IT/CRIM 225N	Organized Crime in Film and Society	

Select 6 credits in a Penn State or Penn State approved education abroad program in Italy or the equivalent experience approved by an Italian major adviser or 6 credits in related disciplines at the 400-level including Art History, History, Comparative Literature, Political Science, Philosophy or others in consultation with an Italian major adviser.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- Students will have developed oral skills in Italian that allow them to communicate effectively and accurately in a range of settings.
- Students will have developed written skills in Italian that allow them to communicate effectively and accurately in a range of settings.
- Students will have developed literacy skills that allow them to read and understand texts in a variety of media ranging from newspapers to literary texts and formal academic prose.
- Students will have developed a cultural awareness that allows them to interact well with Italians in informal and formal situations and to use knowledge of target culture to interpret texts read, heard or viewed in Italian or English.
- Students will, ideally, have spent at least six weeks in Italy immersed in the target language and its culture.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Italian, B.A. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year		
Fall	Credits Spring	Credits
IT 1	4 IT 2	4
ENGL 15, 30H, ESL 15, ENGL 137H, or CAS 137H (GWS) [‡]	3 CAS 100, ENGL 138T, or CAS 138T (GWS) [‡]	3
General Education Quantification Course (GQ) [‡]	3 IT 130, 131, 225N, or 240Q [*]	3
General Education Course (N)	3 General Education Quantification (GQ) Course [‡]	3
General Education Course	3 General Health and Wellness (GHW)	3
	16	16

Second Year		
Fall	Credits Spring	Credits
IT 3	4 IT Education Abroad X99 Course or 4XX Related in consultation with advising ^{*1,2}	3
General Education Course (N)	3 IT Education Abroad X99 Course or 4XX Related in consultation with advising ^{*1,2}	3
BA Fields	3 General Education Course	3
Elective (World Cultures)	3 BA Fields	3
Elective (WAC)	3 Elective	3
	16	15

Third Year		
Fall	Credits Spring	Credits
IT 301 [*]	3 IT 320 [*]	3
IT Additional Courses from List ^{*1}	3 IT Additional Courses from List ^{*1}	3
IT Additional Courses from List ^{*1}	3 400-Level IT Course from List ^{*1}	3
General Education Course	3 General Education Course	3
General Education Course	3 BA Fields	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
IT 415 or 490 [*]	3 400-Level IT Course from List ^{*1}	3
400-Level IT Course from List ^{*1}	3 General Education Course	3
ENGL 202 (GWS) [†]	3 Elective (IL)	3
General Education Course	3 Elective	3
Elective (US)	3 Elective	2
	15	14

Total Credits 122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ In consultation with IT adviser

² Study abroad is encouraged but this requirement may be met in other ways in consultation with an adviser

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Advising Notes:

- All incoming first-year students must take a First-Year Seminar (FYS) during Fall or Spring of their first year. Academic advisers can provide a list of FYS being offered and help the student enroll. Most FYS in the College of the Liberal Arts are worth 3 cr. and count as a General Humanities (GH) or General Social Sciences (GS) course. For this reason, the FYS is not listed separately on this eight-semester plan; most students will be able to fulfill the FYS requirement while also fulfilling a GH or GS requirement.
- Students pursuing this major at a Commonwealth Campus might require summer attendance, study abroad, or additional semesters to complete the major coursework. Students should contact the University Park adviser to plan their major courses accordingly.

Career Paths

Because the study of Italian comprises advanced-level language proficiency and the development of cultural understanding, critical thinking, and communicative capacities, successful Penn State students have gone on to pursue many professions. In the Italian program, majors and minors have access to:

- Individualized advising aimed at integrating complementary majors/minors, study abroad, and internship opportunities.
- Italian-specific fellowships, prizes, and capstone project opportunities to ready them for future goals.
- Mentorship that connects Italian students with alumni who have applied successfully to graduate schools, participated in Fulbright/Peace Corps/Teach for America/etc., or are making contributions in the career path of particular interest.

Careers

As a humanistic program in the liberal arts, Italian is not designed to be directly vocational. Italian prepares students to access a wide array of rewarding and unique careers, including those related to international business, travel, journalism, ministry, diplomacy, banking, science fields, the arts, and education. The federal government employs graduates with advanced world language skills in organizations including the National Security Agency, the Central Intelligence Agency, the U.S. Information Agency, and the Department of Labor. Students with degrees in the humanities are also particularly successful applicants to graduate and professional schools, such as law, business, and medicine.

Opportunities for Graduate Studies

Any of the three baccalaureate degree options in Italian (the Bachelor of Arts in Italian Language and Literature, the Bachelor of Arts in Italian Studies, or the Bachelor of Science in Applied Italian) can serve as the foundation for graduate studies in Italian, as well as other humanistic, social science, and STEM disciplines. Italian can also lead to advanced professional degrees in business, educational administration, law, and medicine.

Contact

University Park

DEPARTMENT OF SPANISH, ITALIAN AND PORTUGUESE
442 Burrowes Building
University Park, PA 16802
814-865-4252
sp-it-port@psu.edu

<https://sip.la.psu.edu/undergraduate/italian/>

Italian, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

Italian is the voice of one of the formative cultural traditions of the Western world. The study of Italy and its language offers a rigorous, interdisciplinary exploration of the continuing vitality of modern Italian and Italian American culture through literature, cinema, translation studies, the arts, Roman thought, fashion, tourism, Mediterranean cuisine, and much more. Italian, in its humanistic breadth and depth, offers students access to a wide variety of professional pathways through an emphasis on global communicative understanding and cultural sensitivity. Learning a world language also improves oral and written skills in English interactions. The Italian B.S. encourages students to develop skills in Italian (speaking, reading, writing) in preparation for careers in professional areas where fluency in Italian is particularly relevant and useful.

What is Italian?

Italian is the voice of one of the formative cultural traditions of the Western world. The study of Italy and its language offers a rigorous, interdisciplinary exploration of the continuing vitality of modern Italian and Italian American culture through literature, cinema, translation studies, the arts, Roman thought, fashion, tourism, Mediterranean cuisine, and much more. Italian, in its humanistic breadth and depth, offers students access to a wide variety of professional pathways through an emphasis on global communicative understanding and cultural sensitivity. Italian is increasingly important in business; six of the 100 biggest companies are headquartered in Italy, and Italy is the world's fifth largest industrial producer of goods. Learning a world language also improves oral and written skills in English interactions. Penn State's Italian program is small, and prides itself on its capacity to provide individual attention and mentoring to each of its majors and minors.

You Might Like This Program If...

- You enjoy learning languages and communicating with people from a particularly rich cultural civilization.
- You dream of studying abroad. More Penn State students currently study in Italy than in any other nation of the world, and you will enjoy more memorable experiences with a deeper preparation through advanced coursework in Italian.
- You wish to learn more about the roots of your family heritage and traditions.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Italian, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	24
Requirements for the Major	51

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
IT 301	Advancing Italian in Context	3
IT 412	Theory and Practice of Translation	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
IT 310	Advancing Conversation	3
or IT 320	Global Italy: An Introduction to Italian Culture	
Select 15 credits from the following:		15
IT 130	Italian Culture and Civilization	
or IT 131	Introduction to Italian American Culture	
or IT 225N	Organized Crime in Film and Society	
or IT 240Q	Artistic Patronage in Europe	
IT 310	Advancing Conversation	
IT 320	Global Italy: An Introduction to Italian Culture	
IT 325	Italy's Inspiration for Your Life	
IT 330W	Greatest Books of Italian Literature	
IT 399	Foreign Study--Italian	
IT 415	Dante	
or IT 490	Dante in Translation	
IT 422	Topics in the Italian Renaissance	
IT 430	Italian Children's Literature	
IT 450	Nineteenth-Century Italian Literature	
IT 460	Twentieth-Century Italian Literature	
IT 470	Ghosts and Otherworldly Visions in Italy c. 1300-1600	
IT 475	Modern Italian Literature and Cinema	
IT 480	Italian Women Writers	
IT 485	Italian American Cultural Studies	
IT 497	Special Topics	
Other course in consultation with major adviser		
Supporting Courses and Related Areas		

Supporting Courses and Related Areas: Require a grade of C or better

Select a minimum of 6 credits in a Penn State or Penn State approved education abroad program in Italy or an equivalent experience approved after consultation with an adviser. (IT 99, IT 199, IT 299, IT 399) 6

Select 21 credits (at least 6 credits at the 400-level) in consultation with the adviser in any related area of study such as social services, Hotel, Restaurant and Institutional Management, Linguistics, Sociology, Economics or any other professional area in which competency in Italian is desirable. 21

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- Students will have developed oral skills in Italian that allow them to communicate effectively and accurately in a range of settings.
- Students will have developed written skills in Italian that allow them to communicate effectively and accurately in a range of settings.
- Students will have developed literacy skills that allow them to read and understand texts in a variety of media ranging from newspapers to literary texts and formal academic prose.
- Students will have developed a cultural awareness that allows them to interact well with Italians in informal and formal situations and to use knowledge of target culture to interpret texts read, heard or viewed in Italian or English.
- Students will, ideally, have spent at least six weeks in Italy immersed in the target language and its culture.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary

academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Italian, B.S. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
IT 1	4 IT 2	4
ENGL 15, 30H, ESL 15, ENGL 137H, or CAS 137H (GWS) [‡]	3 CAS 100, ENGL 138T, or CAS 138T (GWS) [‡]	3
General Education Quantification (GQ) [‡]	3 General Education Course (N)	3
General Education Course (N)	3 General Education Course	3
General Education Course	3 General Health and Wellness (GHW)	1.5
	16	14.5

Second Year

Fall	Credits Spring	Credits
IT 3	4 IT Additional Courses from List ^{*1}	3
General Education Quantification (GQ) [‡]	3 IT Additional Courses from List ^{*1}	3
General Education Course	3 IT Education Abroad X99 Course ^{*1,2}	3
General Health and Wellness (GHW)	1.5 IT Education Abroad X99 Course ^{*1,2}	3
Applied Option Course ^{*1}	3 Elective	3
	14.5	15

Third Year

Fall	Credits Spring	Credits
IT 301 [*]	3 IT 310 or 320 [*]	3

IT Additional Courses from List ^{*1}	3 Applied Option Course ^{*1}	3
Applied Option Course ^{*1}	3 Applied Option Course ^{*1}	3
General Education Course	3 IT Additional Courses from List ^{*1}	3
General Education Course	3 General Education Course	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
IT 412 [*]	3 Applied Option Course at the 4XX Level ^{*1}	3
ENGL 202 (GWS) [‡]	3 Applied Option Course ^{*1}	3
IT Additional Courses from List ^{*1}	3 General Education Course	3
Applied Option Course at the 4XX Level ^{*1}	3 Elective	3
Elective	3 Elective	3
	15	15

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ In consultation with IT adviser.

² Study abroad is encouraged but this requirement may be met in other ways in consultation with an adviser.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- All incoming first-year students must take a First-Year Seminar (FYS) during Fall or Spring of their first year. Academic advisers can provide a list of FYS being offered and help the student enroll. Most FYS in the College of the Liberal Arts are worth 3 cr. and count as a General

Humanities (GH) or General Social Sciences (GS) course. For this reason, the FYS is not listed separately on this eight-semester plan; most students will be able to fulfill the FYS requirement while also fulfilling a GH or GS requirement.

- Students pursuing this major at a Commonwealth Campus might require summer attendance, study abroad, or additional semesters to complete the major coursework. Students should contact the University Park adviser to plan their major courses accordingly.

Career Paths

Because the study of Italian comprises advanced-level language proficiency and the development of cultural understanding, critical thinking, and communicative capacities, successful Penn State students have gone on to pursue many professions. In the Italian program, majors and minors have access to:

- Individualized advising aimed at integrating complementary majors/minors, study abroad, and internship opportunities.
- Italian-specific fellowships, prizes, and capstone project opportunities to ready them for future goals.
- Mentorship that connects Italian students with alumni who have applied successfully to graduate schools, participated in Fulbright/Peace Corps/Teach for America/etc., or are making contributions in the career path of particular interest.

Careers

As a humanistic program in the liberal arts, Italian is not designed to be directly vocational. Italian prepares students to access a wide array of rewarding and unique careers, including those related to international business, travel, journalism, ministry, diplomacy, banking, science fields, the arts, and education. The federal government employs graduates with advanced world language skills in organizations including the National Security Agency, the Central Intelligence Agency, the U.S. Information Agency, and the Department of Labor. Students with degrees in the humanities are also particularly successful applicants to graduate and professional schools, such as law, business, and medicine.

Opportunities for Graduate Studies

Any of the three baccalaureate degree options in Italian (the Bachelor of Arts in Italian Language and Literature, the Bachelor of Arts in Italian Studies, or the Bachelor of Science in Applied Italian) can serve as the foundation for graduate studies in Italian, as well as other humanistic, social science, and STEM disciplines. Italian can also lead to advanced professional degrees in business, educational administration, law, and medicine.

Contact

University Park

DEPARTMENT OF SPANISH, ITALIAN AND PORTUGUESE
442 Burrowes Building
University Park, PA 16802
814-865-4252
sp-it-port@psu.edu

<https://sip.la.psu.edu/undergraduate/italian/>

Italian, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change

from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Italian minor offers training in the skills required for fluency in Italian and knowledge in Italian culture, civilization, and literature. Its aim is to open to the student both the traditions of one of the major formative components of the Western world and the continuing vitality of modern Italian and Italian-American life.

As one of the humanistic programs of the College of the Liberal Arts, the Italian minor is not designed to be directly vocational. Nevertheless, rigorous training in this minor can prepare students for rewarding and unique careers in business, travel, ministry, banking, and education. In addition, the federal government employs liberal arts graduates with world language skills in organizations including the National Security Agency, the Central Intelligence Agency, the U.S. Information Agency, and the Department of Labor. The Italian minor can be preparatory for the major and for study abroad, as well as graduate work directed to the Ph.D. degree required for teaching and research in colleges and universities. Students with backgrounds in the humanities are particularly successful applicants to professional schools, such as law and medicine.

What is Italian?

Italian is the voice of one of the formative cultural traditions of the Western world. The study of Italy and its language offers a rigorous, interdisciplinary exploration of the continuing vitality of modern Italian and Italian American culture through literature, cinema, translation studies, the arts, Roman thought, fashion, tourism, Mediterranean cuisine, and much more. Italian, in its humanistic breadth and depth, offers students access to a wide variety of professional pathways through an emphasis on global communicative understanding and cultural sensitivity. Italian is increasingly important in business; six of the 100 biggest companies are headquartered in Italy, and Italy is the world's fifth largest industrial producer of goods. Learning a world language also improves oral and written skills in English interactions. Penn State's Italian program is small, and prides itself on its capacity to provide individual attention and mentoring to each of its majors and minors.

You Might Like This Program If...

- You enjoy learning languages and communicating with people from a particularly rich cultural civilization.
- You dream of studying abroad. More Penn State students currently study in Italy than in any other nation of the world, and you will enjoy more memorable experiences with a deeper preparation through advanced coursework in Italian.
- You wish to learn more about the roots of your family heritage and traditions.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 12 credits of Italian courses		12
Select 6 credits of 400-level Italian courses		6

Note: Elementary Italian Language courses (IT 1, IT 2, and IT 10) and lower-division Culture and Civilization (IT 130 and IT 131) or lower division Literature in Translation (IT 230) courses may not be credited toward the minor.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

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Career Paths

Because the study of Italian comprises advanced-level language proficiency and the development of cultural understanding, critical thinking, and communicative capacities, successful Penn State students have gone on to pursue many professions. In the Italian program, majors and minors have access to:

- Individualized advising aimed at integrating complementary majors/minors, study abroad, and internship opportunities.
- Italian-specific fellowships, prizes, and capstone project opportunities to ready them for future goals.
- Mentorship that connects Italian students with alumni who have applied successfully to graduate schools, participated in Fulbright/Peace Corps/Teach for America/etc., or are making contributions in the career path of particular interest.

Careers

As a humanistic program in the liberal arts, Italian is not designed to be directly vocational. Italian prepares students to access a wide array of rewarding and unique careers, including those related to international business, travel, journalism, ministry, diplomacy, banking, science fields, the arts, and education. The federal government employs graduates with advanced world language skills in organizations including the National

Security Agency, the Central Intelligence Agency, the U.S. Information Agency, and the Department of Labor. Students with degrees in the humanities are also particularly successful applicants to graduate and professional schools, such as law, business, and medicine.

Contact

University Park

DEPARTMENT OF SPANISH, ITALIAN AND PORTUGUESE
442 Burrowes Building
University Park, PA 16802
814-865-4252
sp-it-port@psu.edu

<https://sip.la.psu.edu/undergraduate/italian/>

Japanese Language, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The minor in Japanese is intended to provide students with a good working knowledge of the Japanese language, culture, and society in order to broaden their horizons and sharpen their awareness in internationalism and globalization. Students undertake three years of language and culture/film/literature study (or equivalent); education abroad can be included.

What is Japanese?

The Japanese program provides students with an opportunity to concentrate on acquiring expertise in an important modern language and its culture. Giving students a strong working knowledge of the Japanese language and understanding of Japanese culture, the program can help prepare students for work in contexts where the language and culture are pertinent, to live and work in Japan as informed and capable individuals equipped with appropriate intercultural skills and awareness, or for graduate study in Japan-related fields. Graduates may work in government service, domestic and foreign offices, or international agencies. Many go on to teach English in Japan or to do translation work. Employment may also be available with trade organizations, international banking houses, or U.S. companies abroad. Domestic and multinational companies are increasingly seeking employees with backgrounds in multicultural studies as a way of dealing with the global market.

You Might Like This Program If...

- You are interested in Japanese language, culture, history, or society.
- You want to live or work in Japan.
- You are aiming for a career involving travel to Japan and interaction with native speakers of Japanese.

Program Requirements

Requirement	Credits
Requirements for the Minor	18-20

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules->

for-undergraduate-students/59-00-minors-and-certificates/#59-10). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
JAPNS 2	Level One Japanese B	4
JAPNS 3	Level Two Japanese A	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 4 credits of the following: ¹		4
JAPNS 110	Level Two Japanese B	
JAPNS 299	Foreign Study	
Select 6-8 credits of the following: ¹		6-8
ASIA 499	Foreign Studies	
JAPNS 401	Level Three Japanese A	
JAPNS 402	Level Three Japanese B	
JAPNS 403Y	Level Four Japanese A	
JAPNS 404	Level Four Japanese B	
JAPNS 410	Japanese Through Manga	
JAPNS 430	Japan in the World	
JAPNS 431	Courtly Japan	
JAPNS 432	War and the Warrior in Japan	
JAPNS 433		
JAPNS 434	Beyond Anime	
JAPNS 452	Contemporary Japan: Cultures, Lifestyles, Trends	
JAPNS 453	Japanese Film	
JAPNS 454	Japanese Literature	
JAPNS 496	Independent Studies	
JAPNS 497	Special Topics	
JAPNS 499	Foreign Study	

¹ Special topics courses in English or other courses in English do not satisfy this requirement.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Career Paths

A minor in Japanese can be the basis for careers in the public sector (diplomatic corps, armed forces, intelligence, etc.), international law, business, public relations, journalism, travel and hospitality, careers requiring foreign travel or living abroad in Japan language specialist (translating, interpreting, teaching).

Careers

With a Japanese minor you'll be prepared for a career in a wide range of industries and professions, including the public sector (diplomatic corps, armed forces, intelligence, etc.), international law, business, public relations, journalism, travel and hospitality, careers requiring foreign travel or living abroad in Asia, language specialist (translating, interpreting, teaching).

Opportunities for Graduate Studies

International Affairs programs, law, or the study of Asia in various disciplines, such as art history, literature, history, religion, philosophy, political science, and sociology.

Contact

University Park

DEPARTMENT OF ASIAN STUDIES
102 Old Botany Building
University Park, PA 16802
814-867-3260
asianstudies@psu.edu

<https://asian.la.psu.edu>

Japanese, B.A.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The major in Japanese strengthens students' overall skills in internationalism and provides a focus on one of the world's most important nations. The Japanese major is designed for students who want to develop proficiency in speaking, listening, reading, and writing Japanese, and acquire profound knowledge of Japanese culture, history, and civilization in the context of East Asia.

The Japanese major requires students to study abroad in order to deepen their understanding of the language, culture and contemporary society, and to develop intercultural and comparative perspectives.

The major can also help students prepare for graduate study in Japan-related fields and professional careers where proficiency in Japanese is required, such as government services, or multinational companies.

Students planning to teach in public schools should schedule the appropriate courses leading to certification in consultation with an adviser in the College of Education.

What is Japanese?

The Japanese program provides students with an opportunity to concentrate on acquiring expertise in an important modern language and its culture. Giving students a strong working knowledge of the Japanese language and understanding of Japanese culture, the program can help prepare students for work in contexts where the language and culture are pertinent, to live and work in Japan as informed and capable individuals equipped with appropriate intercultural skills and awareness, or for graduate study in Japan-related fields. Graduates may work in government service, domestic and foreign offices, or international agencies. Many go on to teach English in Japan or to do translation work. Employment may also be available with trade organizations, international banking houses, or U.S. companies abroad. Domestic and multinational companies are increasingly seeking employees with backgrounds in multicultural studies as a way of dealing with the global market.

You Might Like This Program If...

- You are interested in Japanese language, culture, history, or society.
- You want to live or work in Japan.
- You are aiming for a career involving travel to Japan and interaction with native speakers of Japanese.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Japanese, a minimum of 124 credits is required:

Requirement	Credits
General Education	45
Electives	20-26
Bachelor of Arts Degree Requirements	24
Requirements for the Major	35

0-6 of the 45 credits for General Education are included in the Requirements for the Major. This includes 0-6 credits of General Education GA, GH, or GS courses.

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if foreign language proficiency is demonstrated by examination.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major

to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

At least 21 credits must be at the 400 level.

Students are strongly encouraged to take at least 12 of their credits in Japan, either in a Penn State Education Abroad program or another program subject to departmental approval. For curricular sequencing, the program encourages students to pursue this Education Abroad experience in the fall semester of the junior year, unless the host institution runs on the Japanese academic schedule, in which case study abroad should be in the spring semester, or for the entire year.

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
JAPNS 110	Level Two Japanese B	4
JAPNS 401	Level Three Japanese A	4
JAPNS 402	Level Three Japanese B	4
JAPNS 403Y	Level Four Japanese A	4
JAPNS 404	Level Four Japanese B	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
JAPNS 120	Japanese Literature in Its Cultural Context	3
	or JAPNS 121N Japanese Film and New Media	
	Select 3 credits from the JAPNS 430-439 level	3
	Select 3 credits from the JAPNS 450-459 level	3
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
	Select 6 credits pertaining to Japan, such as courses in art history, comparative history, geography, history, Japanese, philosophy, political science, religious studies, theatre arts, or other fields, selected from departmental list	6

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or

within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Integrated B.A. in Japanese and M.I.A. in International Affairs

Requirements for the Integrated B.A. in Japanese and M.I.A. in International Affairs can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/international-affairs/#integratedundergradgradprogramstext>).

Program Learning Objectives

- **Familiarity with language style:** Students will be able to choose and maintain the appropriate speech and writing styles of Japanese language based on purpose, formality of setting, and interlocutor/audience.
- **Familiarity with resources in language and culture:** Students will be able to choose and use resources in Japanese language and culture that would effectively improve their skills.
- **Knowledge of major cultural and historical events:** Students will be able to analyze and discuss the influence of historical events on current Japanese culture.
- **Listening comprehension:** Students will be able to listen to and watch, without aid, a variety of everyday Japanese audio-visual materials and comprehend them. They demonstrate, in either a written or oral format, their comprehension by identifying and interpreting the main points and some details contained in the materials.
- **Proficiency in speech:** Students will be able to describe and explain their personal interests and familiar matters regularly encountered in work, school, and leisure in connected sentences in speech in Japanese.
- **Reading comprehension:** Students will be able to read, without aid, a variety of everyday Japanese texts and comprehend them. They demonstrate, in either a written or oral format, their comprehension by identifying and interpreting the main points and some details contained in the texts.
- **Writing proficiency:** Students will be able to describe and explain their personal interests and familiar matters regularly encountered

in work, school, and leisure in connected sentences using Japanese characters appropriately.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Japanese, B.A. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
JAPNS 1*	4 JAPNS 2*	4
ENGL 15, 30H, ESL 15, ENGL 137H, or CAS 137H [†]	3 CAS 100, ENGL 138T, or CAS 138T [†]	3
General Education Course	3 Major Course from Supporting Courses and Related Areas*	3
General Education Course	3 General Education Course	3
First-Year Seminar	3 General Education Course (GQ) [‡]	3
	16	16

Second Year

Fall	Credits Spring	Credits
JAPNS 3*	4 JAPNS 110*	4
JAPNS 120 or 121N*	3 General Education Course	3
BA Knowledge Domains Course	3 General Education Course	3
General Education Course (GQ) [‡]	3 BA Knowledge Domains Course	3
General Education Course	3 Elective	3
	16	16

Third Year

Fall	Credits Spring	Credits
JAPNS 401*	4 JAPNS 402*	4
General Education Course	3 JAPNS 450, JAPNS 452, JAPNS 453, or JAPNS 454*	3
General Education Course	3 ENGL 202B [‡]	3
BA Knowledge Domains Course	3 General Education Course	3
Elective	3 Elective	3
	16	16

Fourth Year

Fall	Credits Spring	Credits
JAPNS 403Y*	4 JAPNS 404*	4
JAPNS 426, 430, 431, 432, 433, or JAPNS 434*	3 Major Course from Supporting Courses and Related Areas*	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
Elective	3 Elective	3
Elective	3 Elective	2
	14.5	13.5

Total Credits 124

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry

the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Advising Notes:

- All incoming freshmen must take a First-Year Seminar (FYS) during Fall or Spring of their first year. Academic advisers can provide a list of FYS being offered and help the student enroll. Most FYS in the College of the Liberal Arts are worth 3 cr. and count as a General Humanities (GH) or General Social Sciences (GS) course. For this reason, the FYS is not listed separately on this eight-semester plan; most students will be able to fulfill the FYS requirement while also fulfilling a GH or GS requirement.
- Students pursuing this major at a campus might require summer attendance, study abroad, or additional semesters to complete the major coursework. In their second semester, students should contact the University Park adviser to discuss options and plan their major courses accordingly.

Career Paths

A B.A. in Japanese can be the basis for careers in the public sector (diplomatic corps, armed forces, intelligence, etc.), international law, business, public relations, journalism, travel and hospitality, careers requiring foreign travel or living abroad in Japan language specialist (translating, interpreting, teaching).

Careers

With a Japanese degree, you'll be prepared for a career in a wide range of industries and professions, including the public sector (diplomatic corps, armed forces, intelligence, etc.), international law, business, public relations, journalism, travel and hospitality, careers requiring foreign travel or living abroad in Asia, language specialist (translating, interpreting, teaching).

Opportunities for Graduate Studies

International Affairs programs, law, or the study of Asia in various disciplines, such as art history, literature, history, religion, philosophy, political science, and sociology.

Professional Resources

- Association of Asian Studies (<https://www.asianstudies.org>)

Contact

University Park

DEPARTMENT OF ASIAN STUDIES
102 Old Botany Building

University Park, PA 16802
814-867-3260
asianstudies@psu.edu

<https://asian.la.psu.edu>

Jewish Studies, B.A.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The Jewish Studies major provides broad inquiry into the history, culture, society, literature, philosophy, politics, language, and religious beliefs of the Jewish people from Biblical times to the present. By nature interdisciplinary, and emphasizing critical thinking and global engagement, the Jewish Studies major is flexible and adaptable to a wide variety of courses of study. Students in the major must complete a total of thirty (30) credits, at least fifteen (15) of which must be at the 400-level. No more than eight (8) credits of Hebrew may count toward the 30-credit total. All students in the major must complete JST 10, an introduction to Jewish Civilization, and select from approved lists or in consultation with the Director three courses that address Jewish studies across its history.

- one course in Jewish Studies of the Ancient through the Medieval periods,
- one course in Jewish Studies of the Early Modern through the Contemporary periods, and
- one course in Jewish Studies of the Diaspora.

All students in the major are particularly encouraged to participate in a relevant internships, education abroad programs, and/or archaeological fieldwork for which course credits and scholarships are available. Penn State students also may enroll to study abroad at a university in Israel, and up to 15 credits of related education abroad courses in any country may be applied to requirements for the major in consultation with the adviser.

What is Jewish Studies?

Jewish Studies is an interdisciplinary program where students can learn about the history, cultures, literatures, and languages of the Jews. Specializations can include, but are not limited to, Modernity and the Jews; Ancient Israel, Bible, and Early Judaism; Holocaust, Anti-Semitism, and Genocide; Jews in America; Jewish Culture and Literature; Israel and Zionism; or Jewish-Christian Relations.

You Might Like This Program If...

- You want to think critically about the world we all live in.
- You have interest in experiences such as lectures, film series, symposia, discussions, and sponsored trips to museums and Jewish cultural sites.
- You hope to enrich your understanding of Jews, Judaism, and the Jewish experience.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and

2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Jewish Studies, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	21
Bachelor of Arts Degree Requirements	24
Requirements for the Major	30

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

15 of these must be at the 400-level. No more than 15 credits in courses numbered 99, 199, 299, 399, or 499 may count toward the requirements for the major.

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
JST/HEBR 10	Jewish Civilization	3
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 3 credits in Jewish Studies in the Ancient Period through Medieval Period from approved program list or in consultation with the director		3
Select 3 credits in Jewish Studies from the Early Modern Period through the Contemporary period from approved program list or in consultation with the director		3
Select 3 credits in Jewish Studies concerned with Jewish culture in Diaspora from approved program list or in consultation with the director		3
Select 18 credits from Jewish Studies, Hebrew, or appropriate courses in Anthropology, Classics and Ancient Mediterranean Studies, Comparative Literature, English, History, Philosophy, or Religious Studies from approved program list		18

No more than 8 credits of Hebrew Language courses may count toward the requirements for the major.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- **Critical thinking and reading skills:**
 - Develop and enhance skills in analyzing texts, images and objects.
 - Learn to identify and evaluate an author's perspective, the argument, and the use of different kinds of sources.
 - Differentiate between relevant and less relevant information.
- **Content Knowledge:**
 - Students will develop knowledge of the evolution of different forms of Jewish life and Jewish/non-Jewish relations within various settings and time periods with a focus on cultural, religious, social and economic aspects, as well as contemporary relevance. Develop the ability to compare or explain different communities or eras.
 - Through studying Jewish experiences and Jewish-non-Jewish relations in different cultural settings over time and comparatively, students will learn about international cultures and civilizations to sharpen abilities to reflect on cultural differences.

- Students will read and understand major Jewish texts and significance within Jewish spheres and beyond.
- Students will critique stereotypes and prejudices directed against members of specific groups.
- Students will develop an understanding of different conceptions of Judaism and how these relate to ideas about human existence, God, and the world.
- Acquiring language skills in Hebrew contributes to the development of analytical and organizational skills and of intercultural skills, in regard to communication, cultural sensitivity and competence.
- Students will acquire a specific skill set related to a course or sub-discipline (i.e. Archaeology, Comp. Lit., History, Political Science, Philosophy).
- For students specifically focusing on Hebrew language the study of language reaches into culture, connecting with the cross-cultural requirement. It refines intellectual skills applicable to all areas of learning, and it explores the richness of other cultures.
 - Learning a foreign language not only implies challenging our personal and cultural ideas, but it is also a unique method to further our intellectual and personal growth.
 - Studying a language that is not our own pushes us to communicate through a great variety of sounds and letters, while providing us with a special opportunity to gain deeper insight into the practices of other individuals, places, and cultures.
 - Language learning is intimately intertwined with our cognitive abilities, such as memory and creativity, attention control and problem solving
- **Expressive skills:**
 - In both written and oral form, students will craft a sound narrative that is backed up by sources, contains an argument, and reflects the results of the research conducted using a range of different materials.
 - Students will be able to summarize information in a concise and accessible manner.
- **Research Skills:**
 - Understand and apply theoretical and conceptual approaches guiding research.
 - Develop questions that engage critically with a topic and devise a research strategy to analyze a certain aspect of the topic in greater detail.
 - Learn to differentiate between primary vs. secondary sources.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Jewish Studies, B.A. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
JST 10*	3 Course at Any Level in JST or Related Area*	3
General Education Course (GWS)†	3 General Education Course	3
General Education Course	3 General Education Course (GQ)‡	3
General Education Course (GQ)‡	3 General Education Course	3
HEBR 1	4 HEBR 2	4
	16	16

Second Year

Fall	Credits Spring	Credits
General Education Course (GWS)†	3 400-Level Course in HEBR*	3
Course at Any Level in JST or Related Area*	3 Course at Any Level in JST or Related Area*	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
HEBR 3	4 B.A. Knowledge Domains	3
	16	15

Third Year

Fall	Credits Spring	Credits
Course at Any Level in JST or Related Area*	3 General Education Course (GWS)‡	3
400-Level Course in JST, HEBR, or Related Area*	3 400-Level Course in JST, HEBR, or Related Area*	3
General Education Course	3 General Education Course	3

B.A. Knowledge Domains	3 Elective	3
Elective	3 Elective	3
	15	15
Fourth Year		
Fall	Credits Spring	Credits
400-Level Course in JST, HEBR, or Related Area*	3 400-Level Course in JST, HEBR, or Related Area*	3
World Cultures	3 General Education Course (GHW)	1.5
B.A. Knowledge Domains	3 Elective	3
Elective	3 Elective	3
General Education Course (GHW)	1.5 Elective	3
	13.5	13.5

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Career Paths

Jewish Studies offers a flexible curriculum that's a natural complement to many other courses of study. Our graduates have gone on to work in business, education and academia, public service, museums, philanthropy, and many other fields. A Jewish Studies degree will make you more attractive to employers seeking well-rounded applicants who are globally conscious citizens and critical thinkers.

Careers

- Secondary and College Level Teaching
- Public Service
- The Ministry (both Jewish and non-Jewish)
- Business
- Law
- Medicine
- Archaeology

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE JEWISH STUDIES PROGRAM (<https://la.psu.edu/current-students/career-enrichment-network/>)

Contact

University Park

DEPARTMENT OF JEWISH STUDIES
108 Weaver Building
University Park, PA 16802
814-863-8939
jstd@psu.edu

<https://jewishstudies.la.psu.edu>

Jewish Studies, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Jewish Studies is a flexible interdisciplinary minor for students interested in the study of Jewish history, thought, and culture. Historical coverage ranges from ancient Israel and the contemporary world. Specializations can include, but are not limited to

- Modernity and the Jews;
- Ancient Israel, Bible, and Early Judaism;
- Holocaust, Anti-Semitism, and Genocide;
- Jews in America;
- Jewish Culture and Literature;
- Israel and Zionism; or
- Jewish-Christian Relations.

What is Jewish Studies?

Jewish Studies is an interdisciplinary program where students can learn about the history, cultures, literatures, and languages of the Jews. Specializations can include, but are not limited to, Modernity and the Jews; Ancient Israel, Bible, and Early Judaism; Holocaust, Anti-Semitism,

and Genocide; Jews in America; Jewish Culture and Literature; Israel and Zionism; or Jewish-Christian Relations.

You Might Like This Program If...

- You want to think critically about the world we all live in.
- You have interest in experiences such as lectures, film series, symposia, discussions, and sponsored trips to museums and Jewish cultural sites.
- You hope to enrich your understanding of Jews, Judaism, and the Jewish experience.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

For the minor in Jewish Studies, a minimum of 18 credits is required, with at least 6 credits at the 400 level.

Requirements for the Minor

Up to 9 credits of study abroad may be substituted for supporting course requirements. No more than 4 credits of Modern Hebrew may count toward the requirements for the minor.

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
JST/HEBR 10	Jewish Civilization	3
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 15 credits in Jewish Studies, 6 credits of which must be at the 400 level		15

Up to 9 credits of education abroad courses selected in consultation with the adviser may be applied to the requirements for the minor. No more than 4 credits of Modern Hebrew may count toward the requirements for the minor.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Career Paths

Jewish Studies offers a flexible curriculum that's a natural complement to many other courses of study. Our graduates have gone on to work in business, education and academia, public service, museums, philanthropy, and many other fields. A Jewish Studies degree will make you more attractive to employers seeking well-rounded applicants who are globally conscious citizens and critical thinkers.

Careers

- Secondary and College Level Teaching
- Public Service
- The Ministry (both Jewish and non-Jewish)
- Business
- Law
- Medicine
- Archaeology

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN JEWISH STUDIES (<https://la.psu.edu/current-students/career-enrichment-network/>)

Contact

University Park

DEPARTMENT OF JEWISH STUDIES

108 Weaver Building

University Park, PA 16802

814-863-8939

jstd@psu.edu

<https://jewishstudies.la.psu.edu>

Korean Language, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Korean Language Minor is intended to provide students with a good working knowledge of the Korean language, culture, and society in order to broaden their horizons and sharpen their awareness of Korea in this era of internationalism and globalization. Students undertake two to three years of language study (or equivalent); education abroad can be included.

What is Korean Language?

The Korean program provides students with an opportunity to concentrate on acquiring expertise in an important modern language and its culture. Giving students a strong working knowledge of the Korean language and understanding of Korean culture, the program can help prepare students for work in contexts where the language and culture are pertinent, to live and work in Korea as informed and capable individuals equipped with appropriate intercultural skills and awareness, or for graduate study in Korea-related fields. Graduates may work in government service, domestic and foreign offices, or international agencies. Many go on to teach English in Korea or to do translation work. Employment may also be available with trade organizations, international banking houses, or U.S. companies abroad. Domestic and multinational companies are increasingly seeking employees with backgrounds in multicultural studies as a way of dealing with the global market.

You Might Like This Program If...

- You are interested in Korean language, culture, history, or society.
- You want to live or work in Korea.
- You are aiming for a career involving travel to Korea and interaction with native speakers of Korean.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
KOR 2	Level One Korean B	4
KOR 3	Level Two Korean A	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 4 credits of the following:		4
KOR 110	Level Two Korean B	
KOR 296	Independent Studies	
KOR 299	Foreign Studies	
Select 6 credits of the following:		6
ASIA 499	Foreign Studies	
KOR 401	Level 3 Korean A	
KOR 402	Level 3 Korean B	
KOR 424	Transnational Korean Literature	
KOR 425	Global Korean Cinema	
KOR 496	Independent Studies	
KOR 498	Special Topics	
KOR 499	Foreign Studies	

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Career Paths

A minor in Korean can be the basis for careers in the public sector (diplomatic corps, armed forces, intelligence, etc.), international law, business, public relations, journalism, travel and hospitality, careers requiring foreign travel or living abroad in Japan language specialist (translating, interpreting, teaching).

Careers

With a Korean minor you'll be prepared for a career in a wide range of industries and professions, including the public sector (diplomatic corps, armed forces, intelligence, etc.), international law, business, public relations, journalism, travel and hospitality, careers requiring foreign travel or living abroad in Asia, language specialist (translating, interpreting, teaching).

Opportunities for Graduate Studies

International Affairs programs, law, or the study of Asia in various disciplines, such as art history, literature, history, religion, philosophy, political science, and sociology.

Contact

University Park

DEPARTMENT OF ASIAN STUDIES
102 Old Botany Building
University Park, PA 16802
814-867-3260
asianstudies@psu.edu

<https://asian.la.psu.edu>

Korean, B.A.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The major in Korean provides students with an opportunity to concentrate on acquiring expertise in an important modern language and culture and strengthens students' overall skills in internationalism and global perspectives. The Korean major is designed for students who want to develop proficiency in speaking, listening, reading, and writing in Korean, and acquire profound knowledge of Korean culture, history, tradition, and civilization in the context of the Asian region.

The Korean major encourages students to study abroad in order to deepen their understanding of the language, culture and contemporary society, and to develop intercultural and comparative perspectives.

The major can also help students prepare for graduate study in Korea-related fields, for work in contexts where the language and culture are pertinent, or to live and work in Korea.

Students planning to teach in public schools should schedule the appropriate courses leading to certification in consultation with an adviser in the College of Education.

What is Korean?

The Korean program provides students with an opportunity to concentrate on acquiring expertise in an important modern language and its culture. Giving students a strong working knowledge of the Korean language and understanding of Korean culture, the program can help prepare students for work in contexts where the language and culture are pertinent, to live and work in Korea as informed and capable individuals equipped with appropriate intercultural skills and awareness, or for graduate study in Korea-related fields. Graduates may work in government service, domestic and foreign offices, or international agencies. Many go on to teach English in Korea or to do translation work. Employment may also be available with trade organizations, international banking houses, or U.S. companies abroad. Domestic and multinational companies are increasingly seeking employees with backgrounds in multicultural studies as a way of dealing with the global market.

You Might Like This Program If...

- You are interested in Korean language, culture, history, or society.
- You want to live or work in Korea.
- You are aiming for a career involving travel to Korea and interaction with native speakers of Korean.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Korean, a minimum of 124 credits is required:

Requirement	Credits
General Education	45
Electives	20
Bachelor of Arts Degree Requirements	24
Requirements for the Major	35

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

At least 22 credits must be at the 400 level.

Students are strongly encouraged to take at least 12 of their credits in Korea, either in a Penn State Education Abroad program or another program subject to departmental approval. For curricular sequencing, the program encourages students to pursue this Education Abroad experience in the fall semester of the junior year, unless the host institution runs on the Korean academic schedule, in which case study abroad should be in the spring semester, or for the entire year.

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
KOR 110	Level Two Korean B ¹	4
KOR 401	Level 3 Korean A ¹	4
KOR 402	Level 3 Korean B ¹	4
KOR 403Y	Level 4 Korean A ¹	4
KOR 404	Level 4 Korean B ¹	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select one the following:		3
KOR 120	Introduction to Korean Culture ¹	
KOR 121	Korean Popular Culture ¹	
KOR 197	Special Topics ¹	
Select one the following:		3
KOR 422	Introduction to Korean Linguistics ¹	
KOR 423	Korean Media and Communication ¹	
KOR/ASIA/ CMLIT 424	Transnational Korean Literature ¹	
KOR/ASIA/ CMLIT 425	Global Korean Cinema ¹	
KOR 498	Special Topics ¹	
Select one the following:		3

KOR 450	Korean Cultures in Global Contexts ¹
KOR 451	Food and Foodways in Korea ¹
KOR 452	Korean Language and Culture ¹

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 6 credits pertaining to Korea, such as courses in Korean, Asian Studies, Art History, Comparative Literature, Economics, Geography, History, Philosophy, Political Science, Religious Studies, Theatre Arts, or other fields. Courses in related fields may count with the approval from the Korean adviser.

¹ A grade of C or better per course is required for teacher certification.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- **Familiarity with Language Style:** Familiarity with language style: Students will be able to choose and maintain the appropriate speech and writing styles based on purpose, formality of setting, and interlocutor/audience.
- **Familiarity with Resources in Language and Culture:** Familiarity with resources in language and culture: Students will be able to

choose and use resources in Korean language and culture that would effectively improve their skills.

- **Knowledge of Major Cultural and Historical Events:** Students will be able to analyze and discuss the influence of historical events on current Korean culture.
- **Listening Comprehension:** Students will be able to listen to and watch, without aid, a variety of everyday Korean audio-visual materials and comprehend them. They demonstrate, in both a written and oral format, their comprehension by identifying and interpreting main points and some details contained in the materials.
- **Proficiency in Speech:** Students will be able to describe and explain their personal interests and familiar matters regularly encountered in everyday life as well as to deal with a social situation with an unexpected complication using connected sentences. They can also engage in conversation in a participatory manner in order to communicate information on topics of community, national, or international interest with sufficient control of basic structures and generic vocabulary to be understood by (non-)native speakers of the language.
- **Reading Comprehension:** Students will be able to read, without aid, a variety of everyday Korean texts and comprehend them. They demonstrate their comprehension by identifying and interpreting main ideas and supporting details on a variety of general interest topics in written and spoken Korean in connected discourse of paragraphs.
- **Writing Proficiency:** Students will be able to write their routine, personal interests and familiar matters, informal and some formal correspondence as well as narratives, descriptions, summaries of a factual nature with great control of frequently used structures and generic vocabulary using the major time frames of past, present, and future in connected discourse of paragraph length and structure.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

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University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Korean, B.A. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
KOR 1*	4 KOR 2*	4
ENGL 15, 30H, ESL 15, ENGL 137H, or CAS 137H [†]	3 CAS 100, ENGL 138T, or CAS 138T [‡]	3
General Education Course	3 Korea related courses from KOR and Beyond Coursework*	3
General Education Course	3 General Education Course	3
First-Year Seminar	3 General Education Course (GQ) [‡]	3
	16	16

Second Year

Fall	Credits Spring	Credits
KOR 3*	4 KOR 110*	4
KOR 120 or 121*	3 General Education Course	3
BA Knowledge Domains Course	3 General Education Course	3
General Education Course (GQ) [‡]	3 BA Knowledge Domains Course	3
General Education Course	3 Elective	3
	16	16

Third Year

Fall	Credits Spring	Credits
KOR 401*	4 KOR 402*	4
General Education Course	3 KOR 450, 451, or 452*	3
General Education Course	3 ENGL 202B [‡]	3
BA Knowledge Domains Course	3 General Education Course	3
Elective	3 Elective	3
	16	16

Fourth Year

Fall	Credits Spring	Credits
KOR 403Y*	4 KOR 404*	4
KOR 422, 423, 424, 425, or 498*	3 Korea related courses from KOR and Beyond Coursework*	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5

Elective	3 Elective	3
Elective	3 Elective	2
	14.5	13.5

Total Credits 124

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Advising Notes:

- All incoming freshmen must take a First-Year Seminar (FYS) during Fall or Spring of their first year. Academic advisers can provide a list of FYS being offered and help the student enroll. Most FYS in the College of the Liberal Arts are worth 3 cr. and count as a General Humanities (GH) or General Social Sciences (GS) course. For this reason, the FYS is not listed separately on this eight-semester plan; most students will be able to fulfill the FYS requirement while also fulfilling a GH or GS requirement.
- Students pursuing this major at a campus might require summer attendance, study abroad, or additional semesters to complete the major coursework. In their second semester, students should contact

the University Park adviser to discuss options and plan their major courses accordingly.

Career Paths

A B.A. in Korean can be the basis for careers in the public sector (diplomatic corps, armed forces, intelligence, etc.), international law, business, public relations, journalism, travel and hospitality, careers requiring foreign travel or living abroad in Korean language specialist (translating, interpreting, teaching), etc.

Careers

With a Korean degree, you'll be prepared for a career in a wide range of industries and professions, including domestic and multinational companies and agencies who are looking for employees who possess linguistic abilities and cultural knowledge of Korea. Upon graduation, students can also work in various fields, including information technology, culture industries, diplomacy, and business. Students can also pursue graduate-level study in Korea-related fields to become qualified researchers and educators in many parts of the world. Many Korean majors/minors pursue opportunities to teach English in Korea (through the CIEE and English Program in Korea (EPIK) programs) and travel in the country after graduation.

Opportunities for Graduate Studies

International Affairs programs, law, or the study of Asia in various disciplines, such as art history, literature, history, religion, philosophy, political science, and sociology.

Contact

University Park

DEPARTMENT OF ASIAN STUDIES
102 Old Botany Building
University Park, PA 16802
814-867-3260
asianstudies@psu.edu

<https://asian.la.psu.edu>

Labor and Human Resources, A.S.

Begin Campus: University Park, World Campus

End Campus: University Park, World Campus

Program Description

This Associate of Science (A.S.) degree in Labor and Human Resources permits students to undertake a study of work and the employment relationship in the context of a liberal arts education. An introductory foundation of theoretical and professional knowledge is provided through a multidisciplinary approach. The degree draws on the perspectives of disciplines such as industrial relations, economics, history, law, sociology, and psychology.

Graduates of the Labor and Human Resources A.S. degree program are equipped for employment in business, government, and labor organizations as labor relations assistants, personnel and human resource assistants, and payroll assistants. The degree is also appropriate preparation for the B.A. or B.S degree in Labor and Human Resources, or other social science or business Bachelors' degrees.

What is Labor and Human Resources?

Every day, 135 million Americans go to work and surprising stuff happens. Welcome to the world of human resources and labor relations! Labor and Human Resources focuses on subjects ranging from globalization and talent management, to unions and social justice, to gender equity and workers' rights. It encompasses a variety of growing career areas, all of which address the complex social, cultural, and professional issues one is likely to encounter in modern workplaces. You will learn in a highly student-centered program with great faculty, wonderful resources, and an in-house career counselor for help as you approach completion.

You Might Like This Program If...

You want to earn a first-rate liberal arts education and a ticket to a satisfying, remunerative, and fascinating career, or continued study in one of our baccalaureate programs. Our great student groups are fun, encourage student professional development, and explore issues like voting rights, student debt, and immigration reform.

Entrance to Major

Students must have a minimum 2.0 GPA to change to this Associate degree after admission to the University.

Degree Requirements

For the Associate of Science degree in Labor and Human Resources, a minimum of 60 credits is required:

Requirement	Credits
General Education	21
Electives	8-9
Requirements for the Major	30-31

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
LHR 100	Exploring Work and Employment	3
LHR 201	Employment Relationship: Law and Policy	3
LHR 304	Labor and Employment Relations Fundamentals	3
LHR 305	Human Resources Fundamentals	3
LHR 312	Research Methods in Labor and Employment Relations	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
ECON 14	Principles of Economics	3
or ECON 102	Introductory Microeconomic Analysis and Policy	
or ECON 104	Introductory Macroeconomic Analysis and Policy	
LHR 202	Understanding Employee Behavior	3
or PSYCH 281	Introduction to Industrial-Organizational Psychology	
Select 3 credits of the following:		3

LHR/WMNST Race, Gender, and Employment
136
or LHR/ History of Work in America
HIST 458Y

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 3 credits of LHR courses. (LHR courses that are used in the Additional Courses category may not be double-counted to satisfy this requirement. Some courses in this category have prerequisites that are not included in the major.) 3

Select 3-4 credits from the following list in consultation with adviser: 3-4

ACCTG 211	Financial and Managerial Accounting for Decision Making
AFAM 100N	Black Freedom Struggles
AFAM 110N	Introduction to African American Studies
BA 243	Social, Legal, and Ethical Environment of Business
BA 304	Management and Organization
BLAW 243	Legal Environment of Business
CAS 203	Interpersonal Communication
CAS 352	Organizational Communication
ECON 342	Industrial Organization
HIST 155	American Business History
MGMT 100	Survey of Management
MGMT 301	Basic Management Concepts
MGMT 321	Leadership and Motivation
OLEAD 100	Introduction to Leadership
OLEAD 409	Leadership Development: A Life-Long Learning Perspective
OLEAD 464	Communication Skills for Leaders in Groups and Organizations
OLEAD 465	Collective Decision Making
SOC 103	Racism and Sexism
SOC 110	Sociology of Gender
SOC 119N	Race, Ethnicity and Culture
Any 400-level AFAM, CAS, ECON, HIST, LTNST, MGMT, PHIL, PSYCH, SPAN, SOC, WMNST course	

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all associate degree students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 3 credits
- **Writing and Speaking (GWS):** 3 credits

Knowledge Domains

- **Arts (GA):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Note: Up to six credits of Inter-Domain courses may be used for any Knowledge Domain requirement, but when a course may be used to satisfy more than one requirement, the credits from the course can be counted only once.

Exploration

- **Any General Education course (including GHW and Inter-Domain):** 3 credits

University Degree Requirements

Cultures Requirement

3 credits of United States (US) or International (IL) cultures coursework are required and may satisfy other requirements

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 60 degree credits must be earned for an associate degree. The requirements for some programs may exceed 60 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

Graduates will be able to analyze the interrelationships among fundamental theories, concepts, facts, and issues involving labor, ER, and HR topics related to workplaces, workers, and their communities.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged

in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

World Campus

Undergraduate Academic Advising

301 Outreach Building

University Park, PA 16802

814-863-3283

advising@outreach.psu.edu

Career Paths

A Labor and Human Resources education prepares students for many career opportunities and graduate studies. The majority of our grads work as human resource and employment relations (HRER) specialists—a growing field according to the U.S. Bureau of Labor Statistics. Others have gone on to work as labor union organizers, labor arbitrators, and professionals in non-profit careers. Virtually every employer—multinational corporations, small companies, hospitals, non-profit agencies, universities, and federal, state, and local governments—employ HRER professionals.

Careers

Labor and Human Resources grads do exceedingly well in the job market, and have been hired by a long list of companies ([link below](#)). For students interested in social and economic justice at work, a career with a union provides an opportunity to put your beliefs into actions. Our alums have gone on to work for national and international labor organizations and unions such as the AFL-CIO, United Steelworkers, and the American Federation of Teachers to name a few. Government agencies such as the National Labor Relations Board and the U.S. and state Departments of Labor regularly hire Penn State LER School grads.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE LABOR AND HUMAN RESOURCES PROGRAM (<https://ler.la.psu.edu/careers/where-are-they-now/>)

Opportunities for Graduate Studies

Along with three top Masters programs (M.S. and M.P.S. degrees in Human Resources and Employment Relations and an M.P.S. in Labor and Global Workers Rights, we offer a five-year Integrated Undergraduate Graduate (IUG) program through which you can earn your Bachelors and Masters degrees in a total of five years, instead of six years as can otherwise be needed. Students with a Masters degree land much better paying jobs in coveted. Many of our top performing IUG students receive assistantships that helps to pay their tuition.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://ler.la.psu.edu/graduate/>)

Professional Resources

- Society for Human Resource Management (<https://www.shrm.org/pages/default.aspx>)
- Penn State World Campus (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-labor-and-human-resources-associate-in-science-degree/>)
- The LABOR School at Penn State (<https://ler.la.psu.edu/outreach/labor-school/>)
- Academy of Human Capital Development (<https://ler.la.psu.edu/outreach/>)
- International Brotherhood of Teamsters (<https://teamster.org>)
- American Federation of Labor and Congress of Industrial Organizations (AFL-CIO) (<https://aflcio.org/>)

Contact

University Park

SCHOOL OF LABOR AND EMPLOYMENT RELATIONS

506 Keller Building

University Park, PA 16802

814-865-5425

lerpsu@psu.edu

<https://ler.la.psu.edu>

World Campus

SCHOOL OF LABOR AND EMPLOYMENT RELATIONS

506 Keller Building

University Park, PA 16802

814-865-5425

pxm205@psu.edu

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-labor-and-human-resources-associate-in-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-labor-and-human-resources-associate-in-science-degree/>)

Labor and Human Resources, B.A.

Begin Campus: Any Penn State Campus

End Campus: University Park, World Campus

Program Description

This major permits students to undertake a study of work and the employment relationship in the context of a liberal arts education. A broad foundation of theoretical and professional knowledge is provided through a multidisciplinary approach. The B.A. and B.S. degrees draw on the perspectives of disciplines such as industrial relations, economics, history, law, sociology, and psychology. This focus includes the nature and functions of the institutions involved in the employment relationship. The B.S. degree requires more course work in quantification than the B.A. degree.

Graduates of Labor and Human Resources are equipped for careers in business, government, and labor organizations as labor relations specialists, personnel and human resource specialists, researchers, organizers, consultants, and professionals in mediation and arbitration.

The degree is also appropriate preparation for graduate study and law school.

What is Labor and Human Resources?

Every day, 135 million Americans go to work and surprising stuff happens. Welcome to the world of human resources and labor relations! Labor and Human Resources focuses on subjects ranging from globalization and talent management, to unions and social justice, to gender equity and workers' rights. It encompasses a variety of growing career areas, all of which address the complex social, cultural, and professional issues one is likely to encounter in modern workplaces. You will learn in a highly student-centered program with great faculty, wonderful resources, and an in-house career counselor for help as you approach completion.

You Might Like This Program If...

You want to earn a first-rate liberal arts education and a ticket to a satisfying, remunerative, and fascinating career. Our students receive tons of support! Recent courses have taken students to globally reputed workplaces in Silicon Valley, Ireland, China, and Sweden. Our students also land summer internships around the country and globe. Our great student groups are fun, encourage student professional development, and explore issues like voting rights, student debt, immigration reform.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

World Campus

Direct Admission to the Major

Incoming first-year students who meet the program admission requirements are admitted directly into the major. Admission restrictions may apply for change-of-major and/or change-of-campus students.

For more information about the admission process for this major, please send a request to the college, campus, or program contact (listed in the Contact tab).

Degree Requirements

For the Bachelor of Arts degree in Labor and Human Resources, a minimum of 123 credits is required:

Requirement	Credits
General Education	45
Electives	18-21
Bachelor of Arts Degree Requirements	24
Requirements for the Major	39

3-6 of the 45 credits for General Education are included in the Requirements for the Major. This includes 3-6 credits of GS courses.

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
LHR 100	Exploring Work and Employment	3
LHR 201	Employment Relationship: Law and Policy	3
LHR 304	Labor and Employment Relations Fundamentals	3
LHR 305	Human Resources Fundamentals	3
LHR 312	Research Methods in Labor and Employment Relations	3
LHR 460	Ethics in the Workplace	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
ECON 14	Principles of Economics	3
or ECON 102	Introductory Microeconomic Analysis and Policy	
or ECON 104	Introductory Macroeconomic Analysis and Policy	
LHR 202	Understanding Employee Behavior	3
or PSYCH 281	Introduction to Industrial-Organizational Psychology	
LHR/WMNST 136Y	Race, Gender, and Employment	3
or LHR 458Y	History of Work in America	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 6 credits from any 400-level LHR courses (only 3 credits of LA 495 or LA 496 may be used to satisfy this requirement)		6
Select 6 credits from the following list in consultation with an adviser:		6
ACCTG 211	Financial and Managerial Accounting for Decision Making	
AFAM 100N	Black Freedom Struggles	
AFAM 110N	Introduction to African American Studies	
BA 243	Social, Legal, and Ethical Environment of Business	
BA 304	Management and Organization	
BLAW 243	Legal Environment of Business	
CAS 203	Interpersonal Communication	
CAS 352	Organizational Communication	
ECON 342	Industrial Organization	
HIST 155	American Business History	
MGMT 100	Survey of Management	
MGMT 301	Basic Management Concepts	

MGMT 321	Leadership and Motivation
OLEAD 100	Introduction to Leadership
OLEAD 409	Leadership Development: A Life-Long Learning Perspective
OLEAD 464	Communication Skills for Leaders in Groups and Organizations
OLEAD 465	Collective Decision Making
SOC 103	Racism and Sexism
SOC 110	Sociology of Gender
SOC 119N	Race, Ethnicity and Culture
Any 400-level AFAM, CAS, ECON, HIST, LTNST, MGMT, PHIL, PSYCH, SPAN, SOC, WMNST course	

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- Graduates will be able to evaluate the interrelationships among fundamental theories, concepts, facts, and issues involving labor, ER, and HR topics related to workplaces, workers, and their communities.
- Analyze alternative approaches, solutions, and conclusions related to practical and legal challenges involving labor, ER, and HR by:

- Comparing and contrasting options
- Identifying relative strengths and weaknesses of different approaches
- Recognizing the interests and perspectives of different stakeholders including employees, employers, the public, and the organizations that represent them
- Summarizing different disciplinary perspectives, such as those of sociology, psychology, political science, and economics
- Evaluating and synthesizing relevant research and theories (All of the above referred to below as "critical thinking skills")
- Demonstrate effective communication skills in two-way interactions with individuals and groups involving labor, ER, and HR facts, concepts, and principles in order to interact effectively with other stakeholders (referred to below as "communications skills").
- Solve multi-faceted problems in labor, ER, and HR by selecting, adapting (when necessary), and applying relevant knowledge and skills to help develop, implement, and enforce organizational policies and strategies in domestic and global workplaces (referred to below as "applications capabilities.")
- Respond to practical, legal, and ethical challenges in domestic and global workplaces in accordance with societal norms, values, mores, as well as professional and ethical standards. Be able to address ethical issues with appropriate recognition of human rights, social responsibility and sustainability principles (referred to below as "ethical competence.")
- Summarize the interactive impact of numerous cultural and international factors on work, workers, employers, and industries by synthesizing information about:
 - National and transnational cultures and institutions
 - International businesses, global trade, foreign investments, and global business strategies
 - Global workers' rights
 - Workplace diversity
 - Work-family and work-life dilemmas
 - Immigration
 - (All of the above referred to below as "global awareness")

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

World Campus

Undergraduate Academic Advising

301 Outreach Building
University Park, PA 16802
814-863-3283
advising@outreach.psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Labor and Human Resources, B.A. at University Park Campus and World Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or 137H [†]	3 CAS 100, CAS 138T, or ENGL 138T [†]	3
ECON 14, 102, or 104 (GS) ^{**†}	3 LHR 100 [*]	3
World Language Level 1	4 World Language Level 2	4
General Education Course (GN)	3 General Education Course (GS) - PSYCH 100 suggested	3
First-Year Seminar (GH)	3 General Education Course (GQ) [†]	3
	16	16

Second Year

Fall	Credits Spring	Credits
General Education Course (GQ) [†]	3 General Education Course (GN)	3
General Education Course (GA)	3 General Education Course (GH - Inter-Domain)	3
World Language Level 3	4 General Education Course (GA)	3
LHR 201 [*]	3 LHR 312 [*]	3
PSYCH 281 or LHR 202 ^{**†1}	3 Supporting Course [*]	3
	16	15

Third Year

Fall	Credits Spring	Credits
BA Fields Course	3 BA Fields Course	3
ENGL 202A, 202B, 202C, or 202D [†]	3 BA Fields Course	3
LHR 304 [*]	3 LHR 4XX [*]	3

LHR 305*	3 Elective	3
Elective	3 Elective	3
15		15
Fourth Year		
Fall	Credits Spring	Credits
AFAM/LHR/WMNST 136Y, HIST 458Y, or LHR 458Y*	3 LHR 4XX*	3
LHR 460*	3 Supporting Course*	3
Elective	3 Elective	3
Elective	3 Elective	3
Elective	3 General Education Course (GHW)	1.5
General Education Course (GHW)	1.5	
16.5		13.5
Total Credits 123		

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Only PSYCH 281 satisfies a GS.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures.

See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Advising Notes:

- Students are welcome to take LHR courses via the World Campus—in the **summer session** only.
- LHR 304, LHR 305, and LHR 312 may be taken in any order; these courses are not sequential in any way.
- LHR 460 and LHR 458Y do not count as LHR 4XX.
- The list of Supporting Courses may be found under Program Requirements in the Bulletin.
- The undergraduate course designation is expected to change from LER to LHR; students should be prepared to search under both course designations during this transition.

Labor and Human Resources, B.A. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or 137H [‡]	3 CAS 100, CAS 138T, or ENGL 138T [‡]	3
ECON 14, 102, or 104 [†]	3 Elective	3
World Language Level 1	4 World Language Level 2	4
General Education Course (GN - InterDomain)	3 General Education Course (GS) - PSYCH 100 recommended	3
First-Year Seminar (GH)	3 General Education Course (GQ) [‡]	3
16		16

Second Year

Fall	Credits Spring	Credits
Supporting Course*	3 General Education Course (GN)	3
Elective	3 General Education Course (GH - Inter-Domain)	3
World Language Level 3	4 General Education Course (GA)	3
General Education Course (GQ) [‡]	3 ENGL 202A, 202B, 202C, or 202D (GWS) [‡]	3
General Education Course (GA)	3 Supporting Course*	3
16		15

Third Year

Fall	Credits Spring	Credits
LHR 100*	3 LHR 312*	3
LHR 201*	3 LHR 304*	3
LHR 202 or PSYCH 281 ^{**†1}	3 LHR 305*	3
BA Fields Course	3 Elective	3

BA Fields Course	3 Elective	3
	15	15
Fourth Year		
Fall	Credits Spring	Credits
LHR 4XX*	3 LHR 460*	3
LHR 4XX*	3 AFAM/LHR/WMNST 136Y, HIST 458Y, or LHR 458Y*	3
Elective	3 Elective	3
Elective	3 BA Fields Course	3
Elective	3 General Education Course (GHW)	1.5
General Education Course (GHW)	1.5	
	16.5	13.5
Total Credits 123		

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Only PSYCH 281 satisfies a GS.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Advising Notes:

- Students are welcome to take LHR courses via the World Campus—in the **summer session** only.
- LHR 304, LHR 305, and LHR 312 may be taken in any order; these courses are not sequential in any way.
- LHR 460 and LHR 458Y do not count as LHR 4XX.

- The list of Supporting Courses may be found under Program Requirements in the Bulletin.

- The undergraduate course designation is expected to change from LER to LHR; students should be prepared to search under both course designations during this transition.

Career Paths

Statistics. Others have gone on to work as labor union organizers, labor arbitrators, and professionals in non-profit careers. Virtually every employer—multinational corporations, small companies, hospitals, non-profit agencies, universities, and federal, state, and local governments—employ HRER professionals. Labor and Human Resources majors have gone on to graduate school earning advanced degrees in Human Resource Management, Law, Business, and Sociology.

Careers

Labor and Human Resources majors do exceedingly well in the job market, and have been hired by a long list of companies (link below). For students interested in social and economic justice at work, a career with a union provides an opportunity to put your beliefs into actions. Our alums have gone on to work for national and international labor organizations and unions such as the AFL-CIO, United Steelworkers, and the American Federation of Teachers to name a few. Government agencies such as the National Labor Relations Board and the U.S. and state Departments of Labor regularly hire Penn State LER School grads.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE LABOR AND HUMAN RESOURCES PROGRAM (<https://ler.la.psu.edu/careers/where-are-they-now/>)

Opportunities for Graduate Studies

Along with three top Masters programs (M.S. and M.P.S. degrees in Human Resources and Employment Relations and an M.P.S. in Labor and Global Workers Rights, we offer a five-year Integrated Undergraduate Graduate (IUG) program through which you can earn your Bachelors and Masters degrees in a total of five years, instead of six years as can otherwise be needed. Students with a Masters degree land better paying jobs in coveted positions. Many of our top performing IUG students receive assistantships that helps to pay their tuition.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://ler.la.psu.edu/graduate/>)

Professional Resources

- Society for Human Resource Management (<https://www.shrm.org/pages/default.aspx>)
- Penn State World Campus (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-labor-and-human-resources-bachelor-of-arts-degree/>)
- The LABOR School at Penn State (<https://ler.la.psu.edu/outreach/labor-school/>)
- Academy of Human Capital Development (<https://ler.la.psu.edu/outreach/>)
- International Brotherhood of Teamsters (<https://teamster.org>)
- American Federation of Labor and Congress of Industrial Organizations (AFL-CIO) (<https://aflcio.org/>)

Contact

University Park

SCHOOL OF LABOR AND EMPLOYMENT RELATIONS

506 Keller Building
University Park, PA 16802
814-865-5425
lerpsu@psu.edu

<https://ler.la.psu.edu>

World Campus

SCHOOL OF LABOR AND EMPLOYMENT RELATIONS
506 Keller Building
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814-865-5425
pxm205@psu.edu

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-labor-and-human-resources-bachelor-of-arts-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-labor-and-human-resources-bachelor-of-arts-degree/>)

Labor and Human Resources, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park, World Campus

Program Description

This major permits students to undertake a study of work and the employment relationship in the context of a liberal arts education. A broad foundation of theoretical and professional knowledge is provided through a multidisciplinary approach. The B.A. and B.S. degrees draw on the perspectives of disciplines such as industrial relations, economics, history, law, sociology, and psychology. This focus includes the nature and functions of the institutions involved in the employment relationship. The B.S. degree requires more course work in quantification than the B.A. degree.

Graduates of Labor and Human Resources are equipped for careers in business, government, and labor organizations as labor relations specialists, personnel and human resource specialists, researchers, organizers, consultants, and professionals in mediation and arbitration. The degree is also appropriate preparation for graduate study and law school.

What is Labor and Human Resources?

Every day, 135 million Americans go to work and surprising stuff happens. Welcome to the world of human resources and labor relations! Labor and Human Resources focuses on subjects ranging from globalization and talent management, to unions and social justice, to gender equity and workers' rights. It encompasses a variety of growing career areas, all of which address the complex social, cultural, and professional issues one is likely to encounter in modern workplaces. You will learn in a highly student-centered program with great faculty, wonderful resources, and an in-house career counselor for help as you approach completion.

You Might Like This Program If...

You want to earn a first-rate liberal arts education and a ticket to a satisfying, remunerative, and fascinating career. Our students receive tons of support! Recent courses have taken students to globally reputed workplaces in Silicon Valley, Ireland, China, and Sweden. Our students also land summer internships around the country and globe. Our great

student groups are fun, encourage student professional development, and explore issues like voting rights, student debt, immigration reform.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

World Campus

Direct Admission to the Major

Incoming first-year students who meet the program admission requirements are admitted directly into the major. Admission restrictions may apply for change-of-major and/or change-of-campus students.

For more information about the admission process for this major, please send a request to the college, campus, or program contact (listed in the Contact tab).

Degree Requirements

For the Bachelor of Science degree in Labor and Human Resources, a minimum of 123 credits is required:

Requirement	Credits
General Education	45
Electives	23-27
Requirements for the Major	61-62

7-10 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 3-6 credits of GS courses; 4 credits of GQ courses.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

Some courses have prerequisites that are not included in the major.

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
LHR 100	Exploring Work and Employment	3
LHR 201	Employment Relationship: Law and Policy	3
LHR 304	Labor and Employment Relations Fundamentals	3

LHR 305	Human Resources Fundamentals	3
LHR 312	Research Methods in Labor and Employment Relations	3
LHR 460	Ethics in the Workplace	3

Additional Courses*Additional Courses: Require a grade of C or better*

ECON 14	Principles of Economics	3
or ECON 102	Introductory Microeconomic Analysis and Policy	
or ECON 104	Introductory Macroeconomic Analysis and Policy	
LHR 202	Understanding Employee Behavior	3
or PSYCH 281	Introduction to Industrial-Organizational Psychology	
SCM 200	Introduction to Statistics for Business	4
or STAT 200	Elementary Statistics	
LHR/WMNST 136Y	Race, Gender, and Employment	3
or LHR 458Y	History of Work in America	

Requirements for the Option*Requirements for the Option: Require a grade of C or better*

Select an option 30-31

Requirements for the Option**Human Resources Option (30-31 Credits)***Available at the following campuses: University Park, World Campus*

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
LHR 403	International Human Resource Studies	3
LHR 426	Staffing and Training Strategies in Organizations	3
LHR 427	Understanding Business Processes for LHR Professionals	3
LHR 428	Total Rewards	3

Supporting Courses and Related Areas*Supporting Courses: Require a grade of C or better*

Select 9 credits from any 400-level LHR courses (only 3 credits of LA 495 or LA 496 may be used to satisfy this requirement) 9

Select 9-10 credits from the following list in consultation with an adviser. 9-10

ACCTG 211	Financial and Managerial Accounting for Decision Making	
AFAM 100N	Black Freedom Struggles	
AFAM 110N	Introduction to African American Studies	
BA 243	Social, Legal, and Ethical Environment of Business	
BLAW 243	Legal Environment of Business	
CAS 203	Interpersonal Communication	
CAS 352	Organizational Communication	
ECON 342	Industrial Organization	
HIST 155	American Business History	
MGMT 100	Survey of Management	
MGMT 301	Basic Management Concepts	
MGMT 321	Leadership and Motivation	
OLEAD 100	Introduction to Leadership	
OLEAD 409	Leadership Development: A Life-Long Learning Perspective	

OLEAD 464	Communication Skills for Leaders in Groups and Organizations	
OLEAD 465	Collective Decision Making	
SOC 103	Racism and Sexism	
SOC 110	Sociology of Gender	
SOC 119N	Race, Ethnicity and Culture *	
Any 400-level AFAM, CAS, ECON, HIST, LTNST, MGMT, PHIL, PSYCH, SPAN, SOC, WMNST course		

Labor and Employment Relations Option (30-31 Credits)*Available at the following campuses: University Park, World Campus*

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
LHR 400	Comparative Employment Relations Systems	3
LHR 401	The Law of Labor-Management Relations	3

Additional Courses*Additional Courses: Require a grade of C or better*

Select 6 credits from the following: 6

LHR 428	Total Rewards	
LHR 434	Advanced Collective Bargaining and Contract Administration	
LHR 435	Labor Relations in the Public Sector	
LHR 437	Workplace Dispute Resolution	
LHR 444	Workplace Safety and Health: Principles and Practices	
LHR 459	Collective Bargaining in Professional Sports	
LHR 466	Labor Union Structure, Administration and Governance	
LHR 468	American Labor Unions	
LHR 472	Work-Life Practices and Policies	
LHR 475H	Labor in the Global Economy	

Supporting Courses and Related Areas*Supporting Courses: Require a grade of C or better*

Select 6 credits from any 400-level LHR courses (only 3 credits of LA 495 or LA 496 may be used to satisfy this requirement) 6

Select 12-13 credits from the following list in consultation with an adviser. 12-13

ACCTG 211	Financial and Managerial Accounting for Decision Making	
AFAM 100N	Black Freedom Struggles	
AFAM 110N	Introduction to African American Studies	
BA 243	Social, Legal, and Ethical Environment of Business	
BLAW 243	Legal Environment of Business	
CAS 203	Interpersonal Communication	
CAS 352	Organizational Communication	
ECON 342	Industrial Organization	
HIST 155	American Business History	
MGMT 100	Survey of Management	
MGMT 301	Basic Management Concepts	
MGMT 321	Leadership and Motivation	
OLEAD 100	Introduction to Leadership	
OLEAD 409	Leadership Development: A Life-Long Learning Perspective	

OLEAD 464	Communication Skills for Leaders in Groups and Organizations
OLEAD 465	Collective Decision Making
SOC 103	Racism and Sexism
SOC 110	Sociology of Gender
SOC 119N	Race, Ethnicity and Culture

Any 400-level AFAM, CAS, ECON, HIST, LTNST, MGMT, PHIL, PSYCH, SPAN, SOC, WMNST course

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Labor and Human Resources and M.S. in Human Resources and Employment Relations

Available at the following campuses: University Park

Requirements for the Integrated B.S. in Labor and Human Resources and M.S. in Human Resources and Employment Relations can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/human-resources-employment-relations/#integratedundergradgradprogramstext>).

Integrated B.S. in Labor and Human Resources and M.P.S. in Human Resources and Employment Relations

Available at the following campuses: World Campus

Requirements for the Integrated B.S. in Labor and Human Resources and M.P.S. in Human Resources and Employment Relations can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/human-resources-employment-relations/#integratedundergradgradprogramstext>).

Program Learning Objectives

- Graduates will be able to evaluate the interrelationships among fundamental theories, concepts, facts, and issues involving labor, ER, and HR topics related to workplaces, workers, and their communities.
- Analyze alternative approaches, solutions, and conclusions related to practical and legal challenges involving labor, ER, and HR by:

- Comparing and contrasting options
- Identifying relative strengths and weaknesses of different approaches
- Recognizing the interests and perspectives of different stakeholders including employees, employers, the public, and the organizations that represent them
- Summarizing different disciplinary perspectives, such as those of sociology, psychology, political science, and economics
- Evaluating and synthesizing relevant research and theories (All of the above referred to below as "critical thinking skills")
- Demonstrate effective communication skills in two-way interactions with individuals and groups involving labor, ER, and HR facts, concepts, and principles in order to interact effectively with other stakeholders (referred to below as "communications skills").
- Solve multi-faceted problems in labor, ER, and HR by selecting, adapting (when necessary), and applying relevant knowledge and skills to help develop, implement, and enforce organizational policies and strategies in domestic and global workplaces (referred to below as "applications capabilities.")
- Respond to practical, legal, and ethical challenges in domestic and global workplaces in accordance with societal norms, values, mores, as well as professional and ethical standards. Be able to address ethical issues with appropriate recognition of human rights, social responsibility and sustainability principles (referred to below as "ethical competence.")
- Summarize the interactive impact of numerous cultural and international factors on work, workers, employers, and industries by synthesizing information about:
 - National and transnational cultures and institutions
 - International businesses, global trade, foreign investments, and global business strategies
 - Global workers' rights
 - Workplace diversity
 - Work-family and work-life dilemmas
 - Immigration
 - (All of the above referred to below as "global awareness")

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

World Campus

Undergraduate Academic Advising

301 Outreach Building
University Park, PA 16802
814-863-3283
advising@outreach.psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Human Resources Option: Labor and Human Resources, B.S. at University Park Campus and World Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or 137H [‡]	3 CAS 100, CAS 138T, or ENGL 138T [‡]	3
General Education Course (GA)	3 LHR 100 [*]	3
General Education Course (GS) - PSYCH 100 suggested	3 PSYCH 281 or LHR 202 ^{*†1}	3
General Education Course (GN - Inter-Domain)	3 ECON 14, 102, or 104 (GS) ^{*†}	3
First-Year Seminar (GH)	3 General Education Course (GQ) [‡]	3
	15	15

Second Year

Fall	Credits Spring	Credits
General Education Course - STAT 200 or SCM 200 (GQ) [‡]	4 General Education Course (GN)	3
General Education Course (GA)	3 General Education Course (GH - Inter-Domain)	3
Supporting Course [*]	3 LHR 312 [*]	3
LHR 201 [*]	3 LHR 305 [*]	3
Elective	3 Supporting Course [*]	3
	16	15

Third Year

Fall	Credits Spring	Credits
ENGL 202A, 202B, 202C, or 202D [‡]	3 LHR 4XX - Prescribed HR Option Course ^{*2}	3
LHR 304 [*]	3 LHR 4XX [*]	3

LHR 4XX - Prescribed HR Option Course ^{*2}	3 Supporting Course [*]	3
Elective	3 General Education Course (GN)	3
Elective	3 Elective	3
15		15
Fourth Year		
Fall	Credits Spring	Credits
LHR 460 [*]	3 AFAM/LHR/WMNST 136Y, HIST 458Y, or LHR 458Y [*]	3
LHR 4XX - Prescribed HR Option Course ^{*2}	3 LHR 4XX [*]	3
LHR 4XX - Prescribed HR Option Course ^{*2}	3 LHR 4XX [*]	3
Elective	3 Elective	3
Elective	3 Elective	2
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
16.5		15.5

Total Credits 123

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ Only PSYCH 281 satisfies a GS.

² Students must take ALL of the following courses for the HR option:
LHR 403, LHR 426, LHR 427, LHR 428.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- Students are welcome to take LHR courses via the World Campus—in the summer session **ONLY**.

- LHR 304, LHR 305, and LHR 312 may be taken in any order; they are not sequential courses.
- LHR 460 and LHR 458Y do not count as LHR 4XX.
- The list of Supporting Courses can be found under Program Requirements in the Bulletin.
- Course designations for the LHRBS major will eventually change from LER to LHR; students should search for courses under both designations during the transition.

Labor and Employment Relations Option: Labor and Human Resources, B.S. at University Park Campus and World Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or 137H [‡]	3 CAS 100, CAS 138T, or ENGL 138T [‡]	3
General Education Course (GA)	3 LHR 100 [*]	3
General Education Course (GS) - PSYCH 100 suggested	3 PSYCH 281 or LHR 202 ^{**1}	3
General Education Course (GN - Inter-Domain)	3 ECON 14, 102, or 104 (GS) ^{**†}	3
First Year Seminar (GH)	3 General Education Course (GQ) [‡]	3
	15	15

Second Year

Fall	Credits Spring	Credits
General Education Course - STAT 200 or SCM 200 (GQ) [‡]	4 General Education Course (GN)	3
General Education Course (GA)	3 General Education Course (GH)	3
Supporting Course [*]	3 LHR 312 [*]	3
LHR 201 [*]	3 LHR 305 [*]	3
Elective	3 Supporting Course [*]	3
	16	15

Third Year

Fall	Credits Spring	Credits
ENGL 202A, 202B, 202C, or 202D [‡]	3 LHR 401 (Prescribed LHR Option Course) [*]	3
LHR 304 [*]	3 LHR 401 (Prescribed LHR Option Course) [*]	3
LHR 4XX - Prescribed LHR Option Course [*]	3 LHR 4XX [*]	3
Elective	3 Supporting Course [*]	3
Elective	3 Elective	3
	Elective	3
	15	18

Fourth Year

Fall	Credits Spring	Credits
LHR 460 [*]	3 AFAM/LHR/WMNST 136Y, HIST 458Y, or LHR 458Y [*]	3
LHR 4XX - LHR Option Course from Approved List ^{*2}	3 LHR 4XX [*]	3
LHR 4XX - LHR Option Course from Approved List ^{*2}	3 Supporting Course [*]	3
Elective	3 Elective	3

Elective	3 Elective	2
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
	16.5	15.5

Total Credits 126

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ Only PSYCH 281 satisfies a GS.

² Students should select two Labor and Employment option courses from this list for 6 credits: LHR 428, LHR 434, LHR 435, LHR 437, LHR 444, LHR 459, LHR 466, LHR 468, LHR 472/WMNST 472, LHR 475H.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- Students are welcome to take LHR courses via the World Campus—in the summer session **ONLY**.
- LHR 304, LHR 305, and LHR 312 may be taken in any order; they are not sequential courses.
- LHR 460 and LHR 458Y do not count as LHR 4XX.
- The list of Supporting Courses can be found under Program Requirements in the Bulletin.
- Course designations for the LHRBS major will eventually change from LER to LHR; students should search for courses under both designations during the transition.

Human Resources Option: Labor and Human Resources, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or 137H [†]	3 CAS 100, CAS 138T, or ENGL 138T [‡]	3
General Education Course (GA)	3 Supporting Course [*]	3
General Education Course (GS) - PSYCH 100 suggested	3 General Education Course (GH - Inter-Domain)	3
General Education Course (GN - Inter-Domain)	3 ECON 14, 102, or 104 (GS) ^{*†}	3
First-Year Seminar (GH)	3 General Education Course (GQ) [‡]	3
	15	15

Second Year

Fall	Credits Spring	Credits
General Education Course - STAT 200 or SCM 200 (GQ) [‡]	4 General Education Course (GN)	3
General Education Course (GA)	3 General Education Course (GH)	3
Supporting Course [*]	3 Supporting Course [*]	3
Supporting Course [*]	3 ENGL 202A, 202B, 202C, or 202D [‡]	3
Elective	3 Elective	3
	16	15

Third Year

Fall	Credits Spring	Credits
LHR 100 [*]	3 LHR 4XX (one which does not have LHR 304 or 305 as a prerequisite) [*]	3
LHR 202 or PSYCH 281 ^{*†1}	3 LHR 304 [*]	3
LHR 201 [*]	3 LHR 305 [*]	3
Elective	3 LHR 312 [*]	3
Elective	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
LHR 4XX [*]	3 AFAM/LHR/WMNST 136Y, HIST 458Y, or LHR 458Y [*]	3
LHR 4XX [*]	3 LHR 460 [*]	3
LHR 4XX - Prescribed HR Option Course ^{*2}	3 LHR 4XX - Prescribed HR Option Course ^{*2}	3
LHR 4XX - Prescribed HR Option Course ^{*2}	3 LHR 4XX - Prescribed HR Option Course ^{*2}	3
Elective	3 Elective	2

General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
	16.5	15.5

Total Credits 123

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ Only PSYCH 281 satisfies a GS.

² Students must take ALL of the following courses for the HR option: LHR 403, LHR 426, LHR 427, LHR 428.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- Students are welcome to take LHR courses via the World Campus—in the summer session **ONLY**.
- LHR 304, LHR 305, and LHR 312 may be taken in any order; they are not sequential courses.
- LHR 460 and LHR 458Y do not count as LHR 4XX.
- The list of Supporting Courses can be found under Program Requirements in the Bulletin.
- Course designations for the LHRBS major will eventually change from LER to LHR; students should search for courses under both designations during the transition.

Labor and Employment Relations Option: Labor and Human Resources, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or 137H [‡]	3 CAS 100, CAS 138T, or ENGL 138T [‡]	3
General Education Course (GA)	3 Supporting Course [*]	3
General Education Course (GS) - PSYCH 100 suggested	3 General Education Course (GH - Inter-Domain)	3
General Education Course (GN - Inter-Domain)	3 ECON 14, 102, or 104 (GS) ^{**†}	3
First-Year Seminar (GH)	3 General Education Course (GQ) [‡]	3
	15	15

Second Year

Fall	Credits Spring	Credits
General Education Course - STAT 200 or SCM 200 (GQ) [‡]	4 General Education Course (GN)	3
General Education Course (GA)	3 General Education Course (GH)	3
Supporting Course [*]	3 Supporting Course [*]	3
Supporting Course [*]	3 ENGL 202A, 202B, 202C, or 202D [‡]	3
Elective	3 Elective	3
	16	15

Third Year

Fall	Credits Spring	Credits
LHR 100 [*]	3 LHR 4XX (one which does not have LHR 304 or 305 as a prerequisite) [*]	3
LHR 202 or PSYCH 281 ^{**†1}	3 LHR 304 [*]	3
LHR 201 [*]	3 LHR 305 [*]	3
Elective	3 LHR 312 [*]	3
Elective	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
LHR 401 [*]	3 LHR 400 [*]	3
LHR 4XX - LHR Option Course from Approved List ^{*2}	3 LHR 4XX - LHR Option Course from Approved List ^{*2}	3
LHR 4XX [*]	3 LHR 4XX [*]	3
LHR 460 [*]	3 AFAM/LHR/WMNST 136Y, HIST 458Y, or LHR 458Y [*]	3
Elective	3 Elective	2

General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
	16.5	15.5

Total Credits 123

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ Only PSYCH 281 satisfies a GS.

² Students should select two Labor and Employment option courses from this list for 6 credits: LHR 428, LHR 434, LHR 435, LHR 437, LHR 444, LHR 459, LHR 466, LHR 468, LHR 472/WMNST 472, LHR 475H.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- Students are welcome to take LHR courses via the World Campus—*in the summer session ONLY*.
- LHR 304, LHR 305, and LHR 312 may be taken in any order; they are not sequential courses.
- The list of Supporting Courses can be found under **Program Requirements** in the Bulletin.
- LHR 400 and LHR 401 are required courses for the Labor and Employment Relations Option.
- LHR 460 and LHR 458Y do not count as LHR 4XX.
- Course designations for the LHRBS major will eventually change from LER to LHR; students should search for courses under both designations during the transition.

Career Paths

The Labor and Human Resources major prepares students for many career opportunities and graduate studies. The majority of our majors work as human resource and employment relations (HRER) specialists—a growing field according to the U.S. Bureau of Labor Statistics.

Others have gone on to work as labor union organizers, labor arbitrators, and professionals in non-profit careers. Virtually every employer—multinational corporations, small companies, hospitals, non-profit agencies, universities, and federal, state, and local governments—employ HRER professionals. Labor and Human Resources majors have gone on to graduate school earning advanced degrees in Human Resource Management, Law, Business, and Sociology.

Careers

Labor and Human Resources majors do exceedingly well in the job market, and have been hired by a long list of companies (link below). For students interested in social and economic justice at work, a career with a union provides an opportunity to put your beliefs into actions. Our alums have gone on to work for national and international labor organizations and unions such as the AFL-CIO, United Steelworkers, and the American Federation of Teachers to name a few. Government agencies such as the National Labor Relations Board and the U.S. and state Departments of Labor regularly hire Penn State LER School grads.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE LABOR AND HUMAN RESOURCES PROGRAM (<https://ler.la.psu.edu/careers/where-are-they-now/>)

Opportunities for Graduate Studies

Along with three top Masters programs (M.S. and M.P.S. degrees in Human Resources and Employment Relations and an M.P.S. in Labor and Global Workers Rights, we offer a five-year Integrated Undergraduate Graduate (IUG) program through which you can earn your Bachelors and Masters degrees in a total of five years, instead of six years as can otherwise be needed. Students with a Masters degree land much better paying jobs in coveted. Many of our top performing IUG students receive assistantships that helps to pay their tuition.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://ler.la.psu.edu/graduate/>)

Professional Resources

- Society for Human Resource Management (<https://www.shrm.org/pages/default.aspx>)
- Penn State World Campus (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-labor-and-human-resources-bachelor-of-science-degree/>)
- The LABOR School at Penn State (<https://ler.la.psu.edu/outreach/labor-school/>)
- Academy of Human Capital Development (<https://ler.la.psu.edu/outreach/>)
- International Brotherhood of Teamsters (<https://teamster.org>)
- American Federation of Labor and Congress of Industrial Organizations (AFL-CIO) (<https://aflcio.org/>)

Contact

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-labor-and-human-resources-bachelor-of-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-labor-and-human-resources-bachelor-of-science-degree/>)

Labor and Human Resources, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

Penn State's online certificate in Labor and Human Resources is designed to provide students with a foundation in human resources and employment relations. It examines the law and best practices within these disciplines and will help students recognize and resolve issues that emerge in the workplace.

What is Labor and Human Resources?

Every day, 135 million Americans go to work and surprising stuff happens. Welcome to the world of human resources and labor relations! Labor and Human Resources focuses on subjects ranging from globalization and talent management, to unions and social justice, to gender equity and workers' rights. It encompasses a variety of growing career areas, all of which address the complex social, cultural, and professional issues one is likely to encounter in modern workplaces. You will learn in a highly student-centered program with great faculty, wonderful resources, and an in-house career counselor for help as you approach completion.

You Might Like This Program If...

You aspire to work in human resources or a related field, this online certificate in labor studies and employment relations can help you acquire a foundation in a range of subjects, including employment law, collective bargaining, and workplace diversity. It can be used as an important first step in your education or as a recognized stand-alone credential. If you already have a degree, this certificate program is an excellent complement.

Program Requirements

To earn an undergraduate certificate in Labor and Human Resources, a minimum of 12 credits is required.

Code	Title	Credits
Prescribed Courses		
LHR 100	Exploring Work and Employment	3
LHR 201	Employment Relationship: Law and Policy	3
Elective Courses		
Select 6 credits of the following:		6
LHR 304	Labor and Employment Relations Fundamentals	
LHR 305	Human Resources Fundamentals	

LHR 400 Comparative Employment Relations Systems

LHR 403 International Human Resource Studies

No Prerequisites Required.

Certificate Learning Objectives

- **Application Skills:** Solve multi-faceted problems in labor, ER, and HR by selecting, adapting (when necessary), and applying relevant knowledge and skills to help develop, implement, and enforce organizational policies and strategies in domestic and global workplaces.
- **Communication Skills:** Demonstrate effective communication skills in two-way interactions with individuals and groups involving labor, ER, and HR facts, concepts, and principles in order to interact effectively with other stakeholders.
- **Critical Thinking:** Analyze alternative approaches, solutions, and conclusions related to practical and legal challenges involving labor and ER.
- **Ethical Competence:** Respond to practical, legal, and ethical challenges in domestic and global workplaces in accordance with societal norms, values, mores, as well as professional and ethical standards.
- **Global Awareness:** Summarize the interactive impact of numerous cultural and international factors on work, workers, employers, and industries.
- **Knowledge:** Summarize and explain the interrelationships among fundamental theories, concepts, facts, and issues involving labor and employment relations (ER) related to workplaces, workers, and their communities.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

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World Campus

Undergraduate Academic Advising

301 Outreach Building
University Park, PA 16802

814-863-3283

advising@outreach.psu.edu

Career Paths

By completing this program provided through Penn State's World Campus, you can be prepared for a variety of positions, including benefits associate, labor relations assistant, recruitment and placement assistant, human resources assistant.

Contact

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-labor-and-human-resources-undergraduate-certificate> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-labor-and-human-resources-undergraduate-certificate/>)

Labor and Human Resources, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

This interdisciplinary minor is designed for students in any major of the University who wish to supplement their knowledge in the areas of labor studies and industrial relations. The minor consists of 18 credits, at least 6 of which must be at the 400 level. A certificate is awarded to students who complete the requirements of the minor.

What is Labor and Human Resources?

Every day, 135 million Americans go to work and surprising stuff happens. Welcome to the world of human resources and labor relations! Labor and Human Resources focuses on subjects ranging from globalization and talent management, to unions and social justice, to gender equity and workers' rights. It encompasses a variety of growing career areas, all of which address the complex social, cultural, and professional issues one is likely to encounter in modern workplaces. You will learn in a highly student-centered program with great faculty, wonderful resources, and an in-house career counselor for help as you approach completion.

You Might Like This Program If...

You desire a broad background in the issues of work, employment, the employment relationship, and human resource management. By

obtaining your Labor and Human Resources minor, you can have a better understanding of your role in the workplace while you gain a more flexible career path. The Labor and Human Resources minor is beneficial to students from a wide range of study areas, and can be most useful if you are majoring in psychology, organizational leadership, or business.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

At least 6 credits must be at the 400 level.

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
LHR 100	Exploring Work and Employment	3
LHR 304	Labor and Employment Relations Fundamentals	3
LHR 305	Human Resources Fundamentals	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
LHR 201 or LHR 401	Employment Relationship: Law and Policy The Law of Labor-Management Relations	3
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 3 credits from any 400-level LHR course		3
Select 3 credits from the following list in consultation with an adviser		3
ACCTG 211	Financial and Managerial Accounting for Decision Making	
AFAM 100N	Black Freedom Struggles	
AFAM 110N	Introduction to African American Studies	
BA 243	Social, Legal, and Ethical Environment of Business	
CAS 203	Interpersonal Communication	
CAS 352	Organizational Communication	
ECON 342	Industrial Organization	
HIST 155	American Business History	
MGMT 100	Survey of Management	
MGMT 301	Basic Management Concepts	
MGMT 321	Leadership and Motivation	
OLEAD 100	Introduction to Leadership	
OLEAD 409	Leadership Development: A Life-Long Learning Perspective	
OLEAD 464	Communication Skills for Leaders in Groups and Organizations	
OLEAD 465	Collective Decision Making	
SOC 103	Racism and Sexism	
SOC 110	Sociology of Gender	
SOC 119N	Race, Ethnicity and Culture	

Any 400-level AFAM, CAS, ECON, HIST, LTNST, MGMT, PHIL, PSYCH, SPAN, SOC, WMNST course

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-labor-and-human-resources-minor> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-labor-and-human-resources-minor/>)

Latin American Studies, B.A.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

This interdisciplinary major is designed for students who want a basic understanding of Latin America. The program is organized so that it may be combined with a second major or a minor subject.

What is Latin American Studies?

Latin American studies covers numerous disciplines such as history, politics, art, geography, gender studies, and sociology and uses them to critically examine and analyze the experiences of Latin Americans in Latin America and elsewhere.

You Might Like This Program If...

- You're interested in gaining further understanding of Latin America and the many rich histories and cultures that it encompasses.
- You want to take part in exciting study abroad opportunities to places such as Santiago, Dominican Republic and Sao Paulo, Brazil.
- You're looking for an interdisciplinary area of study that can lead you toward multiple paths: Anthropology, art, language, and more.
- You want to be involved with a dynamic and diverse community of faculty and students through enriching courses and opportunities.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Latin American Studies, a minimum of 121 credits is required:

Requirement	Credits
General Education	45
Electives	21-24
Bachelor of Arts Degree Requirements	24
Requirements for the Major	40

9-12 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GH courses; 3-6 credits of GS courses.

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ANTH 45N	Cultural Diversity: A Global Perspective	3
HIST 178	Latin-American History to 1820	3
HIST 179	Latin-American History Since 1820	3
PLSC 456	Politics and Institutions of Latin-American Nations	3
PORT 1	Elementary Portuguese I	4
SPAN 131	Ibero-American Civilization	3
SPAN 200	Intensive Grammar and Composition	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 18 credits of the following:		18
AFAM/SPAN 132	Afro-Hispanic Civilization	
ANTH 8	Aztec, Inca, Maya	
ANTH 422	Meso-American Archaeology and Ethnography	
CMLIT 405	Inter-American Literature	
ECON 14	Principles of Economics ¹	
	or ECON 102 Introductory Microeconomic Analysis and Policy	
	or ECON 104 Introductory Macroeconomic Analysis and Policy	
ECON 333	International Economics	
ECON 433	Advanced International Trade Theory and Policy	
HIST 467	Latin America and the United States	
HIST 468	Mexico and the Caribbean Nations in the Twentieth Century	
PLSC 422	Comparative Urban Politics	
PLSC 442	American Foreign Policy	
PORT 2	Elementary Portuguese II	
PORT 3	Intermediate Portuguese	
PORT 405	Advanced Composition and Conversation	
SPAN 300	Advanced Grammar and Composition Through Reading	
SPAN 305	Spanish for Social Services	
SPAN 410	Advanced Oral Expression and Communication	
SPAN 412	Translation	
SPAN 472	The Contemporary Spanish American Novel	
SPAN 476	Masterpieces of Spanish American Literature	

¹ Choose only one course from ECON 102, ECON 104, or ECON 14.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- **Critical Understanding of the Region:** Graduates will be able to explain the geography, history, and cultures of Latin America within a regional comparative context.
- **Develop Arguments:** Graduates will be able to develop arguments or intellectual positions regarding Latin America's past and present, built on evidence, in ways consistent with standards of academic integrity.
- **Evaluation of Multidisciplinary Methods and Sources:** Graduates will be able to evaluate and interpret both primary and secondary source materials, as well as varying methodological approaches, as found in the many disciplines applied to the study of Latin America.
- **Hemispheric and Diasporic Thinking:** Graduates will be able to demonstrate hemispheric (i.e., the Americas) and diasporic thinking, by comparing North and Latin America, and by contrasting the experiences of Latin Americans both within their own nations and across the hemispheric diaspora.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of

both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

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University Park

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Latin American Studies, B.A. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
General Education Course (GWS) [‡]	3 Course in LATAM Related Topic ^{*1}	3
Course in LATAM Related Topic ^{*1}	3 HIST 178 (GH) ^{**†}	3
ANTH 45N (GS) ^{**†}	3 General Education Course	3
General Education Course (GQ) ^{‡†}	3 General Education Course (GQ) [‡]	3
SPAN 1 ⁺²	4 SPAN 2 ⁺²	4
	16	16

Second Year

Fall	Credits Spring	Credits
General Education Course (GWS) [‡]	3 SPAN 131 [*]	3
Course in LATAM Related Topic ^{*2}	3 PORT 1 [*]	4
HIST 179 (GH) ^{**†}	3 General Education Course [†]	3
General Education Course [†]	3 General Education Course [†]	3

SPAN 3 ⁺²	4 SPAN 100 ⁺²	3
	16	16

Third Year

Fall	Credits Spring	Credits
400 Level Course in LATAM Related Topic ^{*1}	3 400 Level Course in LATAM Related Topic ^{*1}	3
SPAN 200 [*]	3 General Education Course (GWS) [‡]	3
General Education Course [†]	3 General Education Course [†]	3
BA Requirement [†]	3 Elective ³	3
Elective ³	3 Elective ³	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
400 Level Course in LATAM Related Topic ^{*1}	3 Elective ³	3
PLSC 456 [*]	3 Elective ³	3
BA World Cultures ⁺¹	3 Elective ³	3
BA Requirement [†]	3 Elective ³	3
General Education Course (GHW) [†]	1.5 General Education Course (GHW) [†]	1.5
	13.5	13.5

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ See adviser for approved list.

² SPAN 1, 2, 3, and 100 are not required for the Latin American Studies major. Students who place into SPAN 200 based on other criteria need to replace the skipped credits with additional electives.

³ Electives: 15 credits or more, depending on major. Students are able to focus these courses in a secondary program.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will

replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Advising Notes:

- All incoming freshmen must take a First-Year Seminar (FYS) during Fall or Spring of their first year. Academic advisers can provide a list of FYS being offered and help the student enroll. Most FYS in the College of the Liberal Arts are worth 3 cr. and count as a General Humanities (GH) or General Social Sciences (GS) course. For this reason, the FYS is not listed separately on this eight-semester plan; most students will be able to fulfill the FYS requirement while also fulfilling a GH or GS requirement.
- Students pursuing this major at a campus might require summer attendance, study abroad, or additional semesters to complete the major coursework. In their second semester, students should contact the University Park adviser to discuss options and plan their major courses accordingly.

Career Paths

The major and minor in LAS are designed to be combined with other majors and minors to create a multidisciplinary degree that will enrich the student's educational experience at Penn State and be appealing to potential graduate programs and employers. Most LAS majors go on to law school or graduate school; others find jobs with corporations that have Latin American interests or with US government agencies such as the NSA and State Department.

Careers

- Law
- Business
- NSA or State Department
- Historic Preservation
- United Nations Organizations / Non-Governmental Organizations
- Medicine
- Secondary Education Teaching

Contact

University Park

LATIN AMERICAN STUDIES
108 Weaver Building
University Park, PA 16802
814-865-1367
bdw150@psu.edu

<https://latinamericanstudies.la.psu.edu>

Latin American Studies, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

This interdisciplinary minor is designed for students in any college or program of the University who want to supplement their knowledge and skills with the study of Latin America. A certificate is awarded to students who complete the requirements of the minor.

What is Latin American Studies?

Latin American studies covers numerous disciplines such as history, politics, art, geography, gender studies, and sociology and uses them to critically examine and analyze the experiences of Latin Americans in Latin America and elsewhere.

You Might Like This Program If...

- You're interested in gaining further understanding of Latin America and the many rich histories and cultures that it encompasses.
- You want to take part in exciting study abroad opportunities to places such as Santiago, Dominican Republic and Sao Paulo, Brazil.
- You're looking for an interdisciplinary area of study that can lead you toward multiple paths: Anthropology, art, language, and more.
- You want to be involved with a dynamic and diverse community of faculty and students through enriching courses and opportunities.

Program Requirements

Requirement	Credits
Requirements for the Minor	18-19

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
PLSC 456	Politics and Institutions of Latin-American Nations	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
HIST 178 or HIST 179	Latin-American History to 1820 Latin-American History Since 1820	3
PORT 1 or SPAN 100	Elementary Portuguese I Intermediate Grammar and Composition	3-4

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 9 credits (at least 3 credits at the 400 level) from an approved list in consultation with the adviser 9

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

ERIE

Maggie Shum, Ph.D.

Assistant Professor, Political Science

164 Koche Center

Erie, PA 16563

814-898-6648

mps6969@psu.edu

Career Paths

The major and minor in LAS are designed to be combined with other majors and minors to create a multidisciplinary degree that will enrich the student's educational experience at Penn State and be appealing to potential graduate programs and employers. Most LAS majors go on to law school or graduate school; others find jobs with corporations that have Latin American interests or with US government agencies such as the NSA and State Department.

Careers

- Law
- Business
- NSA or State Department
- Historic Preservation
- United Nations Organizations / Non-Governmental Organizations
- Medicine
- Secondary Education Teaching

Contact

University Park

LATIN AMERICAN STUDIES

108 Weaver Building

University Park, PA 16802

814-865-1367

bdw150@psu.edu

<https://latinamericanstudies.la.psu.edu/>

Erie

SCHOOL OF HUMANITIES AND SOCIAL SCIENCES

170 Koche Center

Erie, PA 16563

814-898-6108

HSSOffice@psu.edu

<https://behrend.psu.edu/school-of-humanities-social-sciences> (<https://behrend.psu.edu/school-of-humanities-social-sciences/>)

Latin, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Latin minor emphasizes the development of skills in the linguistic and literary aspects of the Latin language. Through 18 credits of coursework, including 6 at the 400-level, students develop:

- mastery of the grammatical structures essential to the ability to read Latin;
- a vocabulary adequate to the sight recognition of a large number of Latin vocabulary items; and
- a thorough understanding of the formal system of word inflection and derivation which forms the grammatical core of the language.

Once students have completed the basic 12 credits in LATIN 1, LATIN 2 and LATIN 3, they have the opportunity to pursue their studies in a wide variety of 400-level courses, which include prose authors such as historians, poets who wrote in epic and elegiac styles, playwrights, and other literary stylists who round out the vast body of Latin literature. In addition, 400-level courses are available on such topics as Latin prose composition, in which students learn to write Latin, and Latin linguistic history. The minor is appropriate for a wide number of majors, including history, medieval studies, archaeology, medicine, philosophy, and law.

What is Latin?

Latin is the language formerly spoken throughout the Roman empire and is the language of early art, literature, and political thought. Latin is also the mother of the modern romance languages, such as French, Spanish, Portuguese, and Italian. Knowledge of Latin can be a great advantage to students interested in graduate study in Ancient History, Classics, Archaeology, Linguistics, Medieval Studies, Comparative Literature, and other fields.

You Might Like This Program If...

- You're looking to supplement your major with a language that can greatly improve your vocabulary and grammar.
- You want to develop a mastery of the grammatical structures essential to the ability to read Latin.
- You hope to improve your skill of formulating persuasive and clear messages.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 12 credits of LATIN courses		12
Select 6 credits of 400-level LATIN courses		6

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

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University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Career Paths

A minor in Latin provides students with a strong foundation for skills such as language analysis, research, critical thinking, and the ability to craft clear and artful writing. Such skills highly appeal to potential graduate programs and employers.

Careers

- Law
- Business
- Journalism
- Archivist

Contact

University Park

DEPARTMENT OF CLASSICS AND ANCIENT MEDITERRANEAN STUDIES

108 Weaver Building
University Park, PA 16802
814-865-8851
bdw150@psu.edu

<https://cams.la.psu.edu/>

Latina and Latino Studies, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

This minor in Latina and Latino Studies offers students across the University an opportunity to learn about the diverse histories, cultures, politics, migration patterns, and other aspects of Latina/o populations in the United States. Classes will be offered on:

- Latino history;
- the artistic achievements of Latinas/os in popular culture, literature, theatre, film, and television;
- the migratory flows of Latina/o populations;
- education;
- other issues related to language and identity; and
- family issues.

These courses demonstrate that studying Latina/o social formations is a critical component of understanding the social fabric of the U.S. as well as the U.S. presence in Latin America and the complex phenomenon of globalization. Although the emphasis of Latina/o Studies is on the U.S., the role of Latina/o immigration within wider shifts related to globalization requires an understanding of Mexico, Central and South America, and the Spanish-speaking Caribbean.

What is Latina and Latino Studies?

Latina/o Studies is an interdisciplinary field that critically analyzes the local, national, and hemispheric importance of the Latino/s in the U.S. It draws from a variety of established disciplinary methods, including social sciences, history, and literary and cultural studies. It traces the birth and transformation of Latino communities within American society from the colonial period to the present. The field comparatively studies U.S. and Latin American contexts, and engages multilingual aspects of Latino culture. The field also studies the sociocultural experiences and cultural production of Latinas and Latinos. It serves as a bridge between the academic and non-academic worlds in order to understand the complexity of all the Latino national groups: scholars of the field often both document and engage with the struggles and political activism of Latino/as in their search for equality, representation, and social justice. (An area of local interest is the growth of immigrant populations in Pennsylvania.)

You Might Like This Program If...

- You want to study the history and culture of Latino communities in the U.S., which constitute the fastest growing minority in American society.
- You want to put into dialogue different disciplines and approaches to study the phenomenon of "Latinidad."
- You value bilingualism and multilingualism.

- You appreciate Latino literature, arts, and culture.
- You believe that colleges and universities should engage with Latino communities in order to better understand their different problematics and propose innovative projects.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

The minor consists of 18 credits, at least 6 of which must be at the 400 level.

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
LTNST 100	Introduction to Latina/o Studies	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 9 credits of the following:		9
LTNST/ENGL 226	Latina and Latino Border Theories	
LTNST/WMNST 300	Latinx Gender and Sexuality Studies	
LTNST/SPAN 315N	Spanish and Spanish-speakers in the U.S.	
LTNST/CMLIT 403	Latina/o Literature and Culture	
LTNST/ENGL 426	Chicana and Chicano Cultural Production: Literature, Film, Music	
3 credits of SPAN 3 or above		

Supporting Courses and Related Areas

<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 6 credits from approved list in consultation with an academic adviser		6

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

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University Park

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Career Paths

The program develops a critical understanding of the history and contemporary position of Latinas/os in the U.S. It provides valuable cultural fluency for students from a wide variety of career paths. Given the growing importance of the Latino/a population in the U.S., such knowledge is very advantageous in many professional settings.

Careers

A minor in Latino/a Studies, will enrich and enhance your career possibilities in fields including but not limited to, public service, education, marketing, law, politics, business, manufacturing and agriculture.

Opportunities for Graduate Studies

Graduate students from any Ph.D.-granting program may pursue a Latina/o Studies graduate minor, an interdisciplinary doctoral minor. The minor for each student will be planned jointly by the student, the student's doctoral adviser, and an adviser designated by the Latina/o Studies Initiative committee. In addition, there are methodology and pedagogy seminars designed to introduce graduate students to teaching undergraduates in the field, as well as actual opportunities to teach the introductory undergraduate seminar as the instructor of record and thus build a teaching expertise in the field.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://latino.la.psu.edu/graduate/>)

Contact

University Park

LATINA/O STUDIES PROGRAM
442 Burrowes Building
University Park, PA 16802
814-865-4252
jochoa@psu.edu

<https://latino.la.psu.edu>

Law and Society, B.A.

Begin Campus: World Campus

End Campus: World Campus

Program Description

The Bachelor of Arts in Law and Society provides an interdisciplinary approach to studying law and legal institutions that emphasizes the analytical and methodical aspects of law and society knowledge development. In addition to general coursework in disciplines foundational to the study of law and society, students will complete courses that will develop their analytical abilities, research methods

fluency, and communication abilities. Students will also develop their interests and career-related skills through courses that employ substantive knowledge about law and society to better understand and address contemporary issues relevant to law and society. A Law and Society degree provides excellent preparation for additional educational programs such as law school or graduate study in criminology, history, political science, sociology, or human resources and employment relations (HREER). The major enhances career options in law, law enforcement, military service, regulatory agencies, social service agencies, non-profit organizations, and groups that determine public policy. A Law and Society degree also provides valuable knowledge for entrepreneurs or small business owners.

What is Law and Society?

The College of the Liberal Arts Law and Society program provides a comprehensive liberal arts education across multiple disciplines with a focus on understanding how social, cultural, economic, and political forces treat the law within the context of historical and contemporary trends. Students will study the interrelationships of social, political, and legal issues and learn how the law reflects and defines social values. The program stresses the importance of developing students' research, writing, analytical, and reasoning skills. The major offers coursework in disciplines related to law and society, including communication, English, history, philosophy, political science, and sociology. Students will consider the relationship between law, legal processes, human behavior, and legal and social institutions. The conventions of reading, argument, logic, and problem-solving will be used to explore issues. Beyond required courses, students will have the opportunity to select coursework that furthers their interests and career goals.

You Might Like This Program If...

You are interested in an interdisciplinary program intended to provide you with a greater understanding of the law, legal principles, and the legal systems of the United States. Many occupations today require at least some legal knowledge. With a Bachelor of Arts in Law and Society, you will not only learn about legal principles, institutions, and processes in the United States, but you can also become skillful in argumentation, logic, rhetoric, research, and writing. This program will empower you to develop a portfolio of critical and immediately deployable skills that are integral to careers in many areas related to law and society.

Direct Admission to the Major

Incoming first-year students who meet the program admission requirements are admitted directly into the major. Admission restrictions may apply for change-of-major and/or change-of-campus students.

For more information about the admission process for this major, please send a request to the college, campus, or program contact (listed in the Contact tab).

Degree Requirements

For the Bachelor of Arts degree in Law and Society, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	24-30

Bachelor of Arts Degree Requirements	24
Requirements for the Major	36

9-15 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GH courses; 0-3 credits of GQ courses; 3-6 credits of GS courses.

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
HIST 20	American Civilization to 1877	3
HIST 21	American Civilization Since 1877	3
LA 201W	Experiential Learning Portfolio	3
PLSC 1	American Politics: Principles, Processes and Powers	3
PLSC 472	The American Legal Process	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 6 credits from the following:		6
CAS 215	Argumentation	
CAS 321	Rhetoric and Law	
CAS 390	Qualitative Research Methods	
PHIL 10	Critical Thinking	
PHIL 12	Symbolic Logic	
PLSC 10	Scientific Study of Politics	
PLSC 309	Quantitative Political Analysis	
SOC 207	Research Methods in Sociology	
Courses from a department approved list		
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 15 credits from the following, with at least 12 credits at the 400 level:		15
CAS 252	Business and Professional Communication	
CAS 404	Conflict Resolution and Negotiation	
CAS 426W	Communication Ethics	
CAS 475	Studies in Public Address	
CRIM/CRIMJ	Criminology	
12		

CRIM/CRIMJ 100	Introduction to Criminal Justice
CRIM 113	Introduction to Law
CRIM/SOC 467	Law and Society
CRIMJ 220	Courts and the Prosecution Process
CRIMJ 420	Criminal Law and Procedure
LA 402	Fundraising Leadership: Building a Strong Base
LA 404	Careers in Fundraising and Development
LA 496	Independent Studies
LHR 201	Employment Relationship: Law and Policy
LHR 401	The Law of Labor-Management Relations
LHR 458Y	History of Work in America
PHIL 103	Ethics
PHIL 105	Philosophy of Law
PHIL 119	Ethical Leadership
PLSC 210N	Rights in America
PLSC 471	American Constitutional Law
PLSC 473	American Judicial Behavior
Courses from a department approved list	

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- **Communication:** Students will be able to effectively communicate about law and society in both written and oral formats
- **Content Knowledge:** Students will be able to explain how law is embedded in social contexts and how it is socially and historically constructed
- **Professional Skills:** Students will be able to apply career related skills in law and society
- **Research Skills:** Students will show proficiency in commonly used research methods—including techniques from history, political science, and sociology—in law and society
- **Thinking Skills:** Students will utilize critical thinking in analyzing and applying law and society perspectives to society's problems

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

World Campus

Undergraduate Academic Advising

301 Outreach Building
University Park, PA 16802
814-863-3283
advising@outreach.psu.edu

Career Paths

- Business
- Public service
- Social services
- Legal administration
- Human resources
- Nonprofit and NGO organization
- Law or graduate school

Contact

World Campus

FILIPPELLI INSTITUTE FOR E-EDUCATION AND OUTREACH
8 Thomas Building
University Park, PA 16802
814-863-5965
blm26@psu.edu

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-law-and-society-bachelor-of-arts-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-law-and-society-bachelor-of-arts-degree/>)

Legal Studies, Minor

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

Laws affect every person, everywhere, every day. Laws structure the rights and responsibilities of citizens, the conduct of business, and the powers and obligations of governments. The minor in legal studies introduces students to a variety of perspectives on the law, its operation, and its effects in different contexts. Students take a core set of courses that examine how laws are made, how they are put into practice, and how they affect the broader world. They build on this foundation with coursework focused on specific aspects of law or areas of its application.

This minor is an excellent complement to the major field of study for students who are interested in the broad ways that law touches citizens' everyday lives as well as for students with more focused interests in the legal environment and consequences of their primary area of study. The program will be particularly valuable to students outside of the liberal arts who are interested in law. The array of courses from which students can choose to complete the minor makes the program compatible with a wide range of majors, including engineering, business, criminal justice, communication, environmental/resource management and sustainability, information technology, and intellectual property.

The Legal Studies minor requires 18 credits. 9 credits are required courses that provide a foundational understanding of various facets of the law, including the US legal system, the power and function of law as a social institution, and the sources and effects of change in legal orders. The remaining 9 credits are selected from a cross disciplinary list that enables students to focus their study of law in accordance with their interests and professional goals.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
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Prescribed Courses

Prescribed Courses: Require a grade of C or better

PLSC 1	American Politics: Principles, Processes and Powers	3
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Additional Courses

Additional Courses: Require a grade of C or better

Select 6 credits from the following: 6

PLSC 210N	Rights in America	
PLSC 471	American Constitutional Law	
or PLSC 471	American Constitutional Law	
PLSC 472	The American Legal Process	
PLSC 473	American Judicial Behavior	
PLSC 474	Civil Liberties and Due Process	
PLSC 476	Empirical Legal Studies	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 9 credits from the following list of courses. At least 6 credits must be at the 400-level or above. No more than 6 credits can be from the same discipline. 9

AA 324	Arts Entrepreneurship and the Law	
ANTH 433	Archaeological Ethics and Law	
BIOET 401Q	Science, Ethics, Policy, and Law	
BLAW 243	Legal Environment of Business	
BLAW 341	Business Law I: Introduction to Contracts, Liability Issues, and Intellectual Property	
BLAW 424	Real Estate Law	
BLAW 441	Business Law II: Agency, Employment and Business Structure	
BLAW 445	Advanced Intellectual Property and Competition Law	
BLAW 446	Employment Law	
BLAW 447	Entertainment Law	
CAS 321	Rhetoric and Law	
CAS 404	Conflict Resolution and Negotiation	
COMM 303	Entertainment Law	
COMM 403	Law of Mass Communications	
or COMM 403	Law of Mass Communications	
COMM 404	Telecommunications Law	
COMM 428B	Strategic Communications Law	
COMM 458	Media Law and Ethics	
COMM 492	Internet Law and Policy	
CRIM 100	Introduction to Criminal Justice	
CRIM 201	Presumed Innocent? Social Science of Wrongful Conviction	
CRIM 433	Sentencing	
CRIM 435	Policing in America	
CRIM 441	The Juvenile Justice System	
CRIM 451	Race, Crime, and Justice	
CRIM 469	Seminar in the Law	
CRIMJ 113	Introduction to Law	
CRIMJ 220	Courts and the Prosecution Process	
CRIMJ 410	The Pennsylvania Court System	

CRIMJ 412	Crime, Social Control, and the Legal System	
CRIMJ 420	Criminal Law and Procedure	
CRIMJ 431	Offender and Prisoner Rights	
CRIMJ 432	Crime and the American Court System	
CRIMJ 457	American Guns: History, Law & Criminal Justice Challenges	
CRIMJ 462	Comparative Criminal Justice Systems	
CRIMJ/CRIM/ SOC 467	Law and Society	
CRIMJ 471	Legal Rights, Duties, Liabilities of Criminal Justice Personnel	
CRIMJ 473	Criminal Procedure and Evidence in the Business Community	
EBF 402	Energy Law and Contracts	
ECON 443	Economics of Law and Regulation	
EDLDR 476	The Teacher and the Law	
EDTHP 433	Education and Civil Rights	
ENVE 460	Environmental Law	
ERM 411	Legal Aspects of Resource Management	
IB 350	International Business Law	
IST 432	Legal and Regulatory Environment of Information Science and Technology	
IST 452	Legal and Regulatory Environment of Privacy and Security	
IST 453	Legal, Regulatory, Policy Environment of Cyber Forensics	
LHR 201	Employment Relationship: Law and Policy	
LHR 401	The Law of Labor-Management Relations	
LST 370	Research Methods for Law and Government Information Resources	
PHIL 105	Philosophy of Law	
or PHIL 105H	Honors Philosophy of Law	
PHIL 405	Seminar in Philosophy of Law	
PLSC 120N	State, Society, and Public Policy	
PLSC 125	Pennsylvania Government and Politics	
PLSC 177N	Politics and Government in Washington DC	
PLSC 178	Organized Crime, Law, and Politics	
PLSC 202	American Public Policy	
PLSC 223N	Ethnic and Racial Politics	
PLSC 403	The Legislative Process	
PLSC 404	Analyzing Public Policy in the American States	
PLSC 419	The Bureaucratic State	
PLSC 444	Government and the Economy	
PLSC 446	Business and Government Relations	
PLSC 471	American Constitutional Law	
or PLSC 471H	American Constitutional Law	
PLSC 472	The American Legal Process	
PLSC 473	American Judicial Behavior	
PLSC 474	Civil Liberties and Due Process	
PLSC 476	Empirical Legal Studies	
PLSC 477	Sex, Race, & Justice: The U.S. Supreme Court and Equality	
PLSC 482	American State and Urban Politics	
PLSC 480W	Congress and the Presidency	

PLSC 487	International Law and Organizations
RPTM 390	Political and Legal Aspects of Recreation Services
SOC 412	Crime, Social Control, and the Legal System

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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ERIE

Robert Speel, Ph.D.

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Contact

University Park

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Linguistics, B.A.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

This major would allow students to receive a BA degree in Linguistics. Linguistics, which is the study of language as a structural, cognitive, historical, and cultural phenomenon, intersects with many different academic disciplines and career paths. Linguists study how people acquire their knowledge of a language (or multiple languages), how this knowledge interacts with other cognitive processes, and how best to model this knowledge. They study how to represent the structure of the various aspects of language (such as sounds or meaning), how to account for different linguistic patterns theoretically, and how the different components of language interact with each other. Since every language is spoken across multiple communities of practice, linguists also study variation in language based on region, ethnicity, gender, or any number of other social factors. In order to learn about as many of the world's 7000 languages as possible, many linguists do fieldwork. This means that they work with speakers of little-studied languages to discover grammatical patterns and/or to document the language. Other linguists search databases (or corpora) of spoken and written language to find patterns there. Yet others run carefully-designed experiments with children and adults in schools, in the field, and in university labs. Linguistics is the scientific study of language in all its complexity.

What is Linguistics?

Linguistics is the scientific study of language: how it is structured, how it is acquired, how it is used to convey information, and how it changes over time. While many linguists do speak more than one language—or at least know how to approach the study of other languages—linguistics is much more than this. Through courses and a wide variety of research opportunities, our students explore how languages are structured (sentence structure, sound patterns, meaning and more), and how those structures are processed by the human brain. Since language is integral to all societies, linguists are interested in how language affects culture, and how social factors (place of birth, social class, ethnicity, gender, age, etc.) impact language use. We approach language from a global perspective, investigating commonalities and differences across languages in order to increase our understanding of what makes human communication unique.

You Might Like This Program If...

- You enjoy studying languages, particularly finding and applying linguistic patterns.
- You are interested in communication, and learning more about the function of language(s) in society.
- You like to think about how the human brain functions, and want to know more about language and cognition.
- You like logic, computer programming, and/or abstract puzzles.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and

2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Linguistics, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	21
Bachelor of Arts Degree Requirements	24
Requirements for the Major	33-34

3-4 credits of the 45 credits for General Education are included in the Requirements for the Major. This includes: 3-4 credits of GQ courses.

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
LING 100	Foundations of Linguistics	3
LING 402	Syntax I ¹	3
LING 404	Phonology I ¹	3
LING 449	Semantics I	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
STAT 200 or appropriate statistics course		3-4
Select one of the following:		3
LING 405	Introduction to Historical Linguistics	
LING 448	Sociolinguistics	
APLNG 200	Introduction to Language, Culture, and Social Interaction	
Select one of the following:		3
FR 316	French Linguistics	
FR 417	French Phonology	
FR 418	French Syntax	
FR 419	French Semantics	
GER 412	Contrastive Analysis of Modern German and English	
GER 430	History of the German Language	
LATIN 450W	History of Latin	

LING 493	Field Methods	
SPAN 314	Spanish Sounds	
SPAN 315N	Spanish and Spanish-speakers in the U.S.	
SPAN 316	Building Words and Sentences in Spanish	
SPAN 418	The Evolution of Spanish	
Select 6 additional credits in Linguistics at the 400 level (list kept in department)		6
Select 6 additional credits from Linguistics courses and/or approved related fields		6

¹ A grade of C or better per course is required for teacher certification.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- **Analytical Ability:** Students will be able to find and describe patterns in language data using methodologies common in any subfield of linguistics
- **Communication:** Linguistics students will be able to communicate their knowledge and understanding efficiently and clearly

- **Content Knowledge:** Students will be able to explain and use major concepts, theories, and empirical findings within the field of linguistics
- **Creativity:** Students are able to apply their knowledge of linguistic theory to describe elements of the grammar at least one non-English language

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Linguistics, B.A. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, 137H, CAS 137H, or ESL 15 (GWS) [‡]	3 CAS 100, CAS 100A, CAS 100B, CAS 100C, CAS 138T, or ENGL 138T (GWS) [‡]	3
LING 100 (IL/US) [*]	3 General Education Course (GQ) [‡]	3
General Education Course	3 Linguistics Social Science Requirement [*]	3
World Language Level 1	4 World Language Level 2	4

Elective	3 Elective	3
	16	16

Second Year

Fall	Credits Spring	Credits
LING 404 [‡]	3 LING 402 [*]	3
General Education Course	3 STAT 200 (GQ) ^{††}	4
General Education Course	3 BA Field Course	3
World Language Level 3	4 BA Field Course	3
Elective	3 Elective	3
	16	16

Third Year

Fall	Credits Spring	Credits
LING 449 [*]	3 Non-English Linguistics Course [*]	3
ENGL 202 [‡]	3 General Education Course	3
General Education Course	3 BA Field Course	3
General Education Course	3 BA World Cultures Course	3
Elective	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
Any LING 4XX Course [*]	3 Any LING 4XX Course [*]	3
Related Area Course [*]	3 Related Area Course [*]	3
General Education Course	3 General Education Course	3
General Education Course	3 Elective	2
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
	13.5	12.5

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will

replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Career Paths

A linguistics major can help students in a variety of career paths. The critical thinking and language analysis skills gained by our students provide good preparation for careers in information science and technology (especially when combined with computer science courses), education (especially language teaching), speech pathology, or audiology. Linguistics also provides good preparation for legal studies, law enforcement and related careers, as well as fields requiring precise use of language, such as advertising, publishing, or journalism. Students interested in international business or global studies would also benefit from studying linguistics.

Careers

Courses in linguistics provide students the opportunity to practice and hone skills such as analytical reasoning, critical thinking, formulating hypotheses and argumentation, so linguistics students can easily pursue a variety of different career paths. The skills gained by our students provide good preparation for careers in information science and technology, education (especially language teaching), speech pathology, or audiology. Linguistics also provides good preparation for legal studies, law enforcement and related careers, as well as fields requiring precise use of language, such as advertising, publishing, or journalism. Students interested in international business or global studies would also benefit from studying linguistics.

Information Science and Technology

The analytical tools taught in linguistics have many parallels to the tools needed for programming and related IT skills. In addition, there are many job opportunities relating to helping computers understand language or using computers to analyze language.

Language Teaching

Students who study linguistics are uniquely positioned to understand language structures, particularly grammar and pronunciation. These skills transfer very well into the language classroom, whether teaching English as a Foreign Language, or helping English speakers learn another language.

Advertising and Publishing

The ability to understand language at a structural level, particularly regarding meaning, is useful in pursuing careers that require the creative use of language.

Law Enforcement and Intelligence Agencies

Agencies value employees with backgrounds in fields like linguistics that teach crucial analytical skills. Additionally, linguistics students gain

skills that can help with learning languages quickly and training others in language learning, which is a crucial skill in a globalized world.

Legal and Forensic Consultation

An understanding of dialects, language variation, and speech analysis are often crucial in making legal arguments, and forensic linguistics is an important aspect of the field.

Speech Pathology/Speech and Hearing Science

Training in linguistics is a key to understanding speech, and thus majoring or minoring in linguistics is a useful complement to study in the Department of Communication Sciences and Disorders.

Government Services and NGO Work

Course work in sociolinguistics and language variation are attractive qualifications for public sector jobs, and crucial for development projects around the world.

Contact

University Park

LINGUISTICS PROGRAM
247 Burrowes Building
University Park, PA 16802
814-865-6583
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Linguistics, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

This minor is designed for students in any major of the University who wish to supplement their knowledge in the area of linguistics. The minor consists of 18 credits. A certificate is awarded to students who complete the requirements of the minor.

For more information on the Linguistics Program, visit our website: <http://linguistics.la.psu.edu>.

What is Linguistics?

Linguistics is the scientific study of language: how it is structured, how it is acquired, how it is used to convey information, and how it changes over time. While many linguists do speak more than one language—or at least know how to approach the study of other languages—linguistics is much more than this. Through courses and a wide variety of research opportunities, our students explore how languages are structured (sentence structure, sound patterns, meaning and more), and how those structures are processed by the human brain. Since language is integral to all societies, linguists are interested in how language affects culture, and how social factors (place of birth, social class, ethnicity, gender, age, etc.) impact language use. We approach language from a global perspective, investigating commonalities and differences across languages in order to increase our understanding of what makes human communication unique.

You Might Like This Program If...

- You enjoy studying languages, particularly finding and applying grammatical patterns.
- You are interested in communication, and learning more about the function of language(s) in society and how language structure and use varies depending on social context.
- You like to think about how the human brain functions, and want to know more about language and cognition, language learning (by children or adults!), or how the brain handles multiple languages.
- You like logic, computer programming, and/or abstract puzzles.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
LING 402	Syntax I	3
LING 404	Phonology I	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
LING 1	Language, Life and Society	3
or LING 100	Foundations of Linguistics	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 9 credits from LING offerings		9

Academic Advising

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adviser/) to see the contact information for the specific adviser(s) of this program

Career Paths

Courses in linguistics provide students the opportunity to practice and hone skills such as analytical reasoning, critical thinking, formulating hypotheses and argumentation, so linguistics students can easily pursue a variety of different career paths. The skills gained by our students provide good preparation for careers in information science and technology, education (especially language teaching), speech pathology, or audiology. Linguistics also provides good preparation for legal studies, law enforcement and related careers, as well as fields requiring precise use of language, such as advertising, publishing, or journalism. Students interested in international business or global studies would also benefit from studying linguistics.

Careers

Information Science and Technology: Linguistics training can provide tools to be applied in areas of speech recognition, text-to-speech synthesis, artificial intelligence, natural language processing, computer-mediated language learning, and other technological domains.

Language Teaching: Students who study linguistics are uniquely positioned to understand language structures, particularly grammar and pronunciation. These skills transfer very well into the language classroom, whether teaching English as a Foreign Language, or helping English speakers learn another language. Other career paths would include those in the fields of advertising and publishing, law enforcement and intelligence, legal and forensic consultation, speech pathology, speech and hearing science, government services and NGO work.

Opportunities for Graduate Studies

A linguistics minor or major is useful to students wanting to pursue the following types of graduate studies: M.A. or Ph.D. in Linguistics M.A. or Ph.D. in a particular language, or language education M.A. (or Ph.D.) in communication sciences and disorders (speech pathology, audiology, etc.) M.A. or Ph.D. in Computer Science Law School (JD) At Penn State, the Linguistics program offers a Dual-Title Doctoral Degree in Language Science to graduate students enrolled in the doctoral programs in Communication Sciences and Disorders, German, Psychology, or Spanish. Dual-title degree students receive interdisciplinary training in the theoretical and methodological approaches of several disciplines (i.e., linguistics, psychology, speech-language pathology, and cognitive neuroscience).

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://linguistics.la.psu.edu/graduate/>)

Contact

University Park

DEPARTMENT OF SPANISH, ITALIAN AND PORTUGUESE
442 Burrowes Building
University Park, PA 16802
814-865-4252
sp-it-port@psu.edu

<https://linguistics.la.psu.edu/undergraduate/>

Medieval Studies, B.A.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

This is an interdisciplinary program of study designed to give students an integrated knowledge of medieval civilization. While the main area of study is the fifth to sixteenth centuries in Europe, a global perspective is offered with particular attention to the Near East and the Pacific Rim.

What is Medieval Studies?

Medieval Studies is an interdisciplinary field that ranges widely across periods and geographies. We usually imagine the Middle Ages as the millennium between the end of classical antiquity and the start of the Renaissance. But concepts and institutions that we take as distinctively modern—the individual, companionate marriage, the state, vernacular languages as expressions of national identity—begin in the Middle Ages. And the Middle Ages return as a powerful source for imaginative expression in the art and literature of the nineteenth and twentieth centuries and in digital culture in the twenty-first century.

You Might Like This Program If...

- You want to grow as an analytical thinker with good writing skills, the ability to synthesize disparate materials, and a deep sense of context.
- You have an interest in studying a rich and dynamic period, and wish to further understand the time through its history, literature, philosophy, and culture.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Medieval Studies, a minimum of 123 credits is required:

Requirement	Credits
General Education	45
Electives	24
Bachelor of Arts Degree Requirements	24
Requirements for the Major	30

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major

to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
MEDVL 107	Medieval Europe	3
or HIST 107	Medieval Europe	
MEDVL 108	Medieval Civilization	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 24 credits (at least 12 credits at the 400-level) from the program list of courses dealing with the Middle Ages from no less than three of the following areas:		24
<i>Art</i>		
ARTH 201	Ancient to Medieval Architecture	
ARTH 312	Romanesque and Gothic Art	
ARTH 402	The Illuminated Manuscript	
ARTH 412	The Gothic Cathedral	
ARTH 422	Studies in Medieval Sculpture	
ARTH 442	Late Antique and Early Christian Art	
ARTH 452	Byzantine Art	
<i>History</i>		
HIST 105	The Byzantine Empire	
HIST 108	Crusades: Holy War in the Middle Ages	
HIST 141	Medieval and Modern Russia	
HIST 165	Islamic States, Societies and Cultures c. 600-1500	
HIST 407	Early Medieval Society	
HIST 408	Church and State in the High Middle Ages	
HIST 411	Medieval Britain	
HIST 412	Innovation in Medieval Europe	
HIST 413	Medieval Celtic Studies	
HIST 471Y	Classical Islamic Civilization, 600-1258	
HIST 480	Japan in the Age of Warriors	
<i>Literature and Language</i>		
CMLIT 1	Introduction to Western Literatures Through the Renaissance	
CMLIT 106	The Arthurian Legend	
CMLIT 401Y		
CMLIT 408	Heroic Literature	
ENGL 221W	British Literature to 1798	
ENGL 441	Chaucer	
ENGL 442	Medieval English Literature	
FR 351	French and Francophone Literature I	
GER 175	Germanic Heroic and Medieval Literature in English Translation	
GER 430	History of the German Language	

GER 431	History of German Literature and Culture I
HEBR 10	Jewish Civilization
IT 415	Dante
IT 490	Dante in Translation
SPAN 130	Iberian Civilization
SPAN 353	Topics in the Cultures of Spain
SPAN 418	The Evolution of Spanish
<i>Medieval Studies</i>	
MEDVL 197	Special Topics
MEDVL 199	Foreign Studies
MEDVL 294	Research Project
MEDVL 299	Foreign Studies
MEDVL 395	Internship
MEDVL 399	Foreign Studies
MEDVL 411	Medieval Britain
MEDVL 413	Medieval Celtic Studies
MEDVL 494	Research Project
MEDVL 496	Independent Studies
MEDVL 497	Special Topics
MEDVL 499	Foreign Studies
<i>Philosophy and Religious Studies</i>	
PHIL 201	Medieval Philosophy
RLST 120	New Testament
RLST 420	Major Christian Thinkers (upon advising)

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses**. This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or

beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- **Communication and rhetorical skills:** Demonstrate analytical and writing skills conducive to the study of different cultural, religious, social, and intellectual traditions and developments, medieval and modern.
- **Critical and cultural analysis:** Analyze a range of medieval texts, traditions, objects, institutions, and technologies, with critical consideration of historical, cultural, and linguistic frameworks.
- **Historical and cultural analysis:** Analyze different instances and influences of cultural contact during the medieval past, along with modern outcomes and implications of that contact.
- **Research and methodology:** Assess and apply disciplinary and interdisciplinary approaches to the study and analysis of medieval cultures and their reception and influence in different modern discourses and contexts.
- **Research practices:** Gather, evaluate, and synthesize a range of research materials to facilitate the study of diverse perspectives from the medieval past.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Medieval Studies, B.A. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
MEDVL 107*	3	MEDVL 108*	3
General Education Course (GWS)‡	3	General Education Course	3
General Education Course	3	General Education Course	3
General Education Course (GQ)‡	3	General Education Course (GQ)‡	3
World Language Level 1	4	World Language Level 2	4
16		16	

Second Year

Fall	Credits	Spring	Credits
General Education Course (GWS)‡	3	Course at Any Level in Related Area*	3
Course at Any Level in Related Area*	3	Course at Any Level in Related Area*	3
General Education Course	3	General Education Course	3
General Education Course	3	General Education Course	3
World Language Level 3	4	B.A. Knowledge Domains	3
16		15	

Third Year

Fall	Credits	Spring	Credits
400-Level Course in MEDVL or Related Area*	3	General Education Course (GWS)‡	3
Course at Any Level in Related Area*	3	400-Level Course in MEDVL or Related Area*	3
General Education Course	3	General Education Course	3
B.A. Knowledge Domains	3	Elective	3
Elective	3	Elective	3
15		15	

Fourth Year

Fall	Credits	Spring	Credits
400-Level Course in MEDVL or Related Area*	3	400-Level Course in MEDVL or Related Area*	3
World Cultures	3	General Education Course (GHW)	1.5
B.A. Knowledge Domains	3	Elective	3
Elective	3	Elective	3
Elective	3	Elective	3
General Education Course (GHW)	1.5		
16.5		13.5	

Total Credits 123

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Medieval Studies, B.A. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If report**). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
General Education Course (GWS) [‡]	3	General Education Course	3
General Education Course	3	General Education Course	3
General Education Course (GQ) [‡]	3	General Education Course (GQ) [‡]	3
World Language Level 1	4	World Language Level 2	4
Elective	3	Elective	3
16		16	

Second Year

Fall	Credits	Spring	Credits
General Education Course (GWS) [‡]	3	Course at Any Level in Related Area [*]	3
Course at Any Level in Related Area [*]	3	Course at Any Level in Related Area [*]	3
General Education Course	3	General Education Course	3
General Education Course	3	General Education Course	3
World Language Level 3	4	B.A. Knowledge Domains	3
16		15	

Third Year

Fall	Credits	Spring	Credits
MEDVL 107 [*]	3	MEDVL 108 [*]	3
400-Level Course in MEDVL or Related Area [*]	3	General Education Course (GWS) [‡]	3
Course at Any Level in Related Area [*]	3	400-Level Course in MEDVL or Related Area [*]	3
General Education Course	3	General Education Course	3
B.A. Knowledge Domains	3	Elective	3
		Elective	3
15		18	

Fourth Year

Fall	Credits	Spring	Credits
400-Level Course in MEDVL or Related Area [*]	3	400-Level Course in MEDVL or Related Area [*]	3
World Cultures	3	General Education Course (GHW)	1.5
B.A. Knowledge Domains	3	Elective	3
Elective	3	Elective	3
Elective	3	Elective	3
General Education Course (GHW)	1.5		
16.5		13.5	

Total Credits 126

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Career Paths

The Bachelor of Arts degree in Medieval Studies prepares students for those careers which require a broad knowledge of the humanities. Many students combine a Medieval Studies major with a major such as art history, broadcasting, art, language and literature, political science or any of the liberal arts majors, or students may take courses in areas like economics, speech communication, and sociology.

Careers

- Publishing
- Teaching
- Museum Curatorship
- Archiving
- Business
- Medicine

Opportunities for Graduate Studies

Graduate work is required for teaching at the college or university level. Former students in the Penn State major have continued their studies at universities such as Oxford, Catholic University, Bryn Mawr, St. Andrews, and Dublin. Many students continue their work in medieval studies or related fields like art, music, theatre, literature, history, or philosophy at the graduate level.

Contact

University Park

MEDIEVAL STUDIES

108 Weaver Building
University Park, PA 16802
814-865-1367
bdw150@psu.edu

<https://medieval.la.psu.edu/>

Medieval Studies, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Medieval Studies minor encourages an interdisciplinary approach to the diverse and interconnected cultures of Europe and the Mediterranean rim between the fifth and the fifteenth centuries and to contact zones in the Americas, Near East, and the northwestern Pacific. Students survey and evaluate key dimensions of the medieval period across disciplinary boundaries. They develop skills in critical writing and in analyzing documents, monuments, contexts, and conventions of expression; consider emerging fields such as digital humanities and new media; and examine the abiding cross-cultural and trans-historical significance of historical, social, religious, creative, and linguistic developments from the medieval period. The minor allows students to combine courses, guided readings, and research projects in fields such as history, art, archaeology, literature, languages, philosophy, and religious studies.

What is Medieval Studies?

Medieval Studies is an interdisciplinary field that ranges widely across periods and geographies. We usually imagine the Middle Ages as the millennium between the end of classical antiquity and the start of the Renaissance. But concepts and institutions that we take as distinctively modern—the individual, companionate marriage, the state, vernacular languages as expressions of national identity—begin in the Middle Ages. And the Middle Ages return as a powerful source for imaginative expression in the art and literature of the nineteenth and twentieth centuries and in digital culture in the twenty-first century.

You Might Like This Program If...

- You want to grow as an analytical thinker with good writing skills, the ability to synthesize disparate materials, and a deep sense of context.
- You have an interest in studying a rich and dynamic period, and wish to further understand the time through its history, literature, philosophy, and culture.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
MEDVL/HIST 107	Medieval Europe	3
MEDVL 108	Medieval Civilization	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 12 credits (at least 6 credits at the 400-level) of the following:		12
<i>Art History</i>		
ARTH 111	Ancient to Medieval Art	
ARTH 140	Introduction to the Art and Architecture of the Mayas, Aztecs, and Incas	
ARTH 201	Ancient to Medieval Architecture	
ARTH 302	Pagans and Christians: Encounters in Early Medieval Art	
ARTH 312	Romanesque and Gothic Art	
ARTH 330		
ARTH 402	The Illuminated Manuscript	
ARTH 412	The Gothic Cathedral	
ARTH 413	Architecture of the Medieval Monastery	
ARTH 422	Studies in Medieval Sculpture	
ARTH 442	Late Antique and Early Christian Art	
ARTH 452	Byzantine Art	
ARTH 460	Art and Empire: Aztec, Inca and Spanish	
<i>History</i>		
HIST 105	The Byzantine Empire	
HIST 108	Crusades: Holy War in the Middle Ages	
HIST 141	Medieval and Modern Russia	
HIST 165	Islamic States, Societies and Cultures c. 600-1500	
HIST 406W	Research in Medieval Sources	
HIST 407	Early Medieval Society	
HIST 408	Church and State in the High Middle Ages	
HIST 411	Medieval Britain	
HIST 412	Innovation in Medieval Europe	
HIST 413	Medieval Celtic Studies	
HIST 471Y	Classical Islamic Civilization, 600-1258	
HIST 480	Japan in the Age of Warriors	
<i>Literature and Language</i>		
CMLIT 1	Introduction to Western Literatures Through the Renaissance	
CMLIT 106	The Arthurian Legend	
CMLIT 401Y		
CMLIT 408	Heroic Literature	
ENGL 221W	British Literature to 1798	
ENGL 441	Chaucer	
ENGL 442	Medieval English Literature	
FR 351	French and Francophone Literature I	
GER 175	Germanic Heroic and Medieval Literature in English Translation	
GER 430	History of the German Language	
GER 431	History of German Literature and Culture I	
HEBR 10	Jewish Civilization	
IT 330W	Greatest Books of Italian Literature	

IT 415	Dante
IT 490	Dante in Translation
SPAN 130	Iberian Civilization
SPAN 353	Topics in the Cultures of Spain
SPAN 418	The Evolution of Spanish
<i>Medieval Studies</i>	
MEDVL 197	Special Topics
MEDVL 199	Foreign Studies
MEDVL 294	Research Project
MEDVL 299	Foreign Studies
MEDVL 395	Internship
MEDVL 399	Foreign Studies
MEDVL 411	Medieval Britain
MEDVL 413	Medieval Celtic Studies
MEDVL 494	Research Project
MEDVL 496	Independent Studies
MEDVL 497	Special Topics
MEDVL 499	Foreign Studies
<i>Philosophy and Religious Studies</i>	
PHIL 201	Medieval Philosophy
RLST 120	New Testament
RLST 420	Major Christian Thinkers (upon advising)

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Career Paths

A minor in Medieval Studies prepares students for those careers which require a broad knowledge of the humanities. Many students combine a Medieval Studies major with a major such as art history, broadcasting, art, language and literature, political science or any of the liberal arts majors, or students may take courses in areas like economics, speech communication, and sociology.

Careers

- Publishing
- Teaching
- Museum Curatorship
- Archiving
- Business
- Medicine

Opportunities for Graduate Studies

Graduate work is required for teaching at the college or university level. Former students in the Penn State major have continued their studies at universities such as Oxford, Catholic University, Bryn Mawr, St. Andrews, and Dublin. Many students continue their work in medieval studies or related fields like art, music, theatre, literature, history, or philosophy at the graduate level.

Contact

University Park

MEDIEVAL STUDIES
108 Weaver Building
University Park, PA 16802
814-865-1367
bdw150@psu.edu

<https://medieval.la.psu.edu>

Middle East Studies, B.A.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The Middle East Studies major fosters the study of the Middle East from a variety of perspectives and disciplines. The core of the major is a foundation in the history of the region and the politics, societies, and cultures of the past and the present, in a global context. The major promotes the development of analytical skills, articulate expression of ideas, awareness of current events, and engagement in meaningful discussion.

What is Middle East Studies?

Middle Eastern Studies intends to instill an understanding of the history and culture of the multiple countries that make up the Middle East, from ancient through modern times. It is an interdisciplinary area of study that encompasses various aspects of the Middle East such as history, politics, religion, language, literature, art history, and more. Middle Eastern Studies offers a way to investigate a region of the world from multiple perspectives engaging a variety of methods of study.

You Might Like This Program If...

- You are interested in gaining further insight into the politics, societies, and cultures of the Middle East.
- You are interested in adding the Middle East Studies major to your major in a related field such as History, Global and International Studies, Political Science, and Arabic.
- You have a desire to do in depth research on the Middle East, and hope to spend time in the Middle East.

- You are interested in a career in international trade, diplomacy, aid, education, and more.
- You are interested in graduate studies in fields such as history, middle east studies, Islamic studies, Jewish studies, archaeology, philosophy, comparative literature, religious studies, political science, sociology, economics, and more.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Middle East Studies, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	18
Bachelor of Arts Degree Requirements	24
Requirements for the Major	33

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
HIST/JST 181	Introduction to the Middle East	3
HIST/JST 305Y	Middle East Studies Research Workshop	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits from the following: 3		
CMLIT 7	Introduction to Middle Eastern Literatures	
HIST/ARAB/RLST 165	Islamic States, Societies and Cultures c. 600-1500	
HIST/JST 190	The Middle East Today	
PLSC 267N	Government and Politics of the Middle East	
RLST 107	Introduction to Islam	

Students should choose 24 credits from the list below with the following criteria: 9 credits at the 400-level; no more than 12 credits of languages. ¹ 24

ANTH/JST/PLSC/SOC 60N	Society and Cultures in Modern Israel
ARAB 1	Elementary Modern Standard Arabic I
ARAB 2	Elementary Modern Standard Arabic II
ARAB 3	Intermediate Modern Standard Arabic
ARAB 110	Arab Language, Cultures, and Current Topics
ARAB/RLST 164	Introduction to the Qur'an
ARAB/HIST/RLST 165	Islamic States, Societies and Cultures c. 600-1500
ARAB 401	Advanced Language & Cultures I
ARAB 402	Advanced Language & Cultures II
ARTH 125	Islamic Architecture and Art
ASIA/HIST/JST 186	The Silk Roads
ASIA 401	Technology & Society in Modern Asia
CAMS 10	Mesopotamian Civilization
CAMS 10U	MESOPOTAMIAN CIVILIZATION
CAMS 20	Egyptian Civilization
CAMS/RLST 44	Myth in Egypt and the Near East
CAMS/JST/RLST 90	Jerusalem: Past, Present, and Future
CAMS/HIST/JST/RLST 102	Ancient Israel
CAMS/HIST 104	Ancient Egypt
CAMS 115	Literature of the Ancient Near East
CAMS 405	Law & Economy in the Ancient Near East
CAMS 470	Languages and Cultures of the Ancient Near East
CMLIT 7	Introduction to Middle Eastern Literatures
CMLIT 449	Literary Cultures of Islam
HEBR 1	Basic Modern Hebrew I
HEBR 2	Basic Modern Hebrew II
HEBR 3	Intermediate Modern Hebrew
HEBR 401	Advanced Hebrew--Conversation Emphasis
HEBR 402	Advanced Hebrew--Reading Emphasis
HIST 105	The Byzantine Empire
HIST 106	Early Modern Empires of Islam: The Ottomans, Safavids, and Mughals
HIST 108	Crusades: Holy War in the Middle Ages
HIST/JST 140	The History of the Israel-Palestine Conflict (1917-Present)
HIST 169	The Indian Ocean World
HIST/JST 193	Modern Iran
HIST 238N	Society and Culture in Palestine/Israel
HIST 245	Middle Eastern Cities
HIST 252	Revolutions in the Middle East
HIST/JST 260	The Middle East in Film
HIST/JST 416	Zionism

HIST/RLST 423	Orthodox Christianity: History and Interpretations
HIST/JST 443	Jewish Histories of the Middle East
HIST/RLST 471Y	Classical Islamic Civilization, 600-1258
HIST 472	The Ottoman Empire
HIST/JST 473	The Contemporary Middle East
PLSC 267N	Government and Politics of the Middle East
PLSC 467	International Relations of the Middle East
RLST 107	Introduction to Islam

¹ Honors version of courses may count toward the major. Additional courses may count toward the major in consultation with the director of Middle East Studies.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3

credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- **Art and Literature:** Analyze, evaluate, and interpret forms of art, architecture, literature, music, or popular culture produced in or about the Middle East

- **Historical Trends:** Analyze historical trends and events in the Middle East
- **Physical and Social Geography:** Demonstrate an understanding of the physical geography and ecology of the Middle East and the diversity of the regions peoples, religions, and cultures
- **Political Systems:** Apply a critical lens to the current and historical political systems of the Middle East
- **Source Analysis:** Evaluate and interpret primary and secondary source materials, judging credibility, reconstructing context, and making inferences about genre, audience, perspective, and purpose

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Contact

University Park

MIDDLE EASTERN STUDIES

108 Weaver Building

University Park, PA 16802

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<https://mes.la.psu.edu/>

Middle East Studies, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

This interdisciplinary program is designed for students having special interest in the Middle East broadly defined. In addition to the requirements for the minor, students may select other courses dealing with the Middle East, including courses studied abroad, subject to the

approval of the Middle East Studies director. A certificate is awarded to students who complete the requirements of the minor.

What is Middle East Studies?

Middle Eastern Studies intends to instill an understanding of the history and culture of the multiple countries that make up the Middle East, from ancient through modern times. It is an interdisciplinary area of study that encompasses various aspects of the Middle East such as history, politics, religion, language, literature, art history, and more. Middle Eastern Studies offers a way to investigate a region of the world from multiple perspectives engaging a variety of methods of study.

You Might Like This Program If...

- You want to pursue a career or engage in graduate studies in fields such as archaeology, philosophy, literature, religious studies, political sciences, and more.
- You are interested in gaining further insight into the societies and cultures of ancient civilizations.
- You have a desire to do in depth research on the Middle East, and hope to spend time abroad to immerse yourself in the cultures and languages.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>).

In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade C or better</i>		
Select 3 credits from the following:		3
CMLIT 7	Introduction to Middle Eastern Literatures	
HIST/ARAB/RLST 165	Islamic States, Societies and Cultures c. 600-1500	
HIST/JST 181	Introduction to the Middle East	
HIST 190	The Middle East Today	
PLSC 267N	Government and Politics of the Middle East	
RLST 107	Introduction to Islam	
Select 15 credits from the following (at least 6 credits at the 400-level and no more than 6 credits from language study): ¹		15
ANTH/JST/PLSC 60N	Society and Cultures in Modern Israel	
ARAB 1	Elementary Modern Standard Arabic I	
ARAB 2	Elementary Modern Standard Arabic II	
ARAB 3	Intermediate Modern Standard Arabic	
ARAB 110	Arab Language, Cultures, and Current Topics	
ARAB/RLST 164	Introduction to the Qur'an	
ARAB/HIST/RLST 165	Islamic States, Societies and Cultures c. 600-1500	
ARAB 401	Advanced Language & Cultures I	

ARAB 402	Advanced Language & Cultures II
ARTH 125	Islamic Architecture and Art
ASIA 186	The Silk Roads
ASIA 401	Technology & Society in Modern Asia
CAMS 10	Mesopotamian Civilization
CAMS 10U	MESOPOTAMIAN CIVILIZATION
CAMS 20	Egyptian Civilization
CAMS 44	Myth in Egypt and the Near East
CAMS/JST/ RLST 90	Jerusalem: Past, Present, and Future
CAMS/JST/ RLST 102	Ancient Israel
CAMS 104	Ancient Egypt
CAMS 115	Literature of the Ancient Near East
CAMS 405	Law & Economy in the Ancient Near East
CAMS 470	Languages and Cultures of the Ancient Near East
CMLIT 7	Introduction to Middle Eastern Literatures
CMLIT 449	Literary Cultures of Islam
HEBR 1	Basic Modern Hebrew I
HEBR 2	Basic Modern Hebrew II
HEBR 3	Intermediate Modern Hebrew
HEBR 401	Advanced Hebrew–Conversation Emphasis
HEBR 402	Advanced Hebrew–Reading Emphasis
HIST 105	The Byzantine Empire
HIST 106	Early Modern Empires of Islam: The Ottomans, Safavids, and Mughals
HIST 108	Crusades: Holy War in the Middle Ages
HIST/JST 140	The History of the Israel-Palestine Conflict (1917-Present)
HIST 169	The Indian Ocean World
HIST 181	Introduction to the Middle East
HIST 190	The Middle East Today
HIST/JST 193	Modern Iran
HIST 238N	Society and Culture in Palestine/Israel
HIST 245	Middle Eastern Cities
HIST 252	Revolutions in the Middle East
HIST 260	The Middle East in Film
HIST 305Y	Middle East Studies Research Workshop
HIST/JST 416	Zionism
HIST/RLST 423	Orthodox Christianity: History and Interpretations
HIST/JST 443	Jewish Histories of the Middle East
HIST/RLST 471Y	Classical Islamic Civilization, 600-1258
HIST 472	The Ottoman Empire
HIST/JST 473	The Contemporary Middle East
PLSC 267N	Government and Politics of the Middle East
PLSC 467	International Relations of the Middle East
RLST 107	Introduction to Islam

¹ Courses with Middle East content not listed below may count toward the minor in consultation with the director of Middle East Studies.

Some courses may require other course work as some courses have prerequisites.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Career Paths

A minor in Middle Eastern Studies offers students the opportunity to take part in enriching experiences that can lead to exciting careers in fields such as archaeology, politics, religious studies, and more. Students who achieve a minor in Middle Eastern Studies offer knowledge and understanding of complex histories that employers and graduate programs find appealing.

Careers

- Secondary and College Teaching
- Archaeology
- Philosophy
- Politics

Contact

University Park

MIDDLE EASTERN STUDIES

108 Weaver Building

University Park, PA 16802

814-865-1367

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<https://mes.la.psu.edu/>

Multidisciplinary Studies, A.A. (Liberal Arts)

Begin Campus: University Park, World Campus

End Campus: University Park, World Campus

Program Description

The objectives of the Multidisciplinary Studies major are to broaden the student's understanding, interests, and skills; to help the student become a more responsible, productive member of the family and community; and to offer a degree program with sufficient electives to permit some specialization according to the student's interests or career plans. Multidisciplinary Studies is a complete two-year degree major. However, graduates who later seek admission to baccalaureate degree majors may apply baccalaureate credits toward the new degree.

In addition to a wide variety of baccalaureate majors offered at University Park campus, graduates of the Multidisciplinary Studies major may qualify for admission to the baccalaureate degree majors in Behavioral Sciences, Elementary Education, Humanities, or Public Policy offered at Penn State Harrisburg. Or they may qualify for any of a large number of baccalaureate degree majors offered by Penn State Erie, The Behrend College, in business, the liberal arts, and sciences.

Entrance to Major

Students must have a minimum 2.0 GPA to change to this Associate degree after admission to the University.

Degree Requirements

For the Associate in Arts degree in Multidisciplinary Studies, a minimum of 60 credits is required:

Requirement	Credits
General Education	21
Electives	15
Requirements for the Major	30

6 of the 21 credits for General Education are included in the Requirements for the Major. This includes 6 credits of General Education GWS courses.

Requirements for the Major

The required credits of General Education and Requirements for the Major must be baccalaureate-level courses. For students intending to seek admission to a baccalaureate program upon graduation, it is recommended that most, if not all, of the courses be at the baccalaureate level. For those students who will seek a bachelor of arts degree upon graduation from Multidisciplinary Studies, it is strongly recommended that a world language be taken since admission to a bachelor of arts program in the College of the Liberal Arts requires one college-level course, or the equivalent, in a world language.

Courses that will satisfy the arts, humanities, social and behavioral sciences, natural sciences, and quantification requirements are defined on the Multidisciplinary Studies checklist, which may be obtained from the College of the Liberal Arts associate dean for undergraduate studies at the University Park campus or from any Multidisciplinary Studies representative at other locations.

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CAS 100	Effective Speech	3
ENGL 15	Rhetoric and Composition	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select one of the following:		3
ENGL 202A	Effective Writing: Writing in the Social Sciences	
ENGL 202B	Effective Writing: Writing in the Humanities	
ENGL 202C	Effective Writing: Technical Writing	
ENGL 202D	Effective Writing: Business Writing	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 3 credits in any course designated as arts		3
Select 3 credits in any course designated as humanities		3
Select 3 credits in any course designated as social and behavioral sciences		3
Select 3 credits in any course designated as physical, biological, or earth sciences		3
Select 9 credits in any one of the following areas: arts, humanities, social and behavioral sciences, natural sciences and quantification, and world language skills ¹		9

¹ If world language courses are chosen, it is recommended that these courses be in one world language sequence.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all associate degree students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 3 credits
- **Writing and Speaking (GWS):** 3 credits

Knowledge Domains

- **Arts (GA):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Note: Up to six credits of Inter-Domain courses may be used for any Knowledge Domain requirement, but when a course may be used to

satisfy more than one requirement, the credits from the course can be counted only once.

Exploration

- **Any General Education course (including GHW and Inter-Domain):** 3 credits

University Degree Requirements

Cultures Requirement

3 credits of United States (US) or International (IL) cultures coursework are required and may satisfy other requirements

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 60 degree credits must be earned for a associates degree. The requirements for some programs may exceed 60 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Communication:** Students will be able to effectively communicate in both written and oral formats.
- **Information Literacy:** Students will display informational literacy that enables the effective creation and delivery of documents via various electronic media, with attention to message content, page layout, and graphical elements.
- **Knowledge:** Students will be able to integrate knowledge from multiple disciplines into a degree program that reflects their theme.
- **Research:** Students will be able to conduct research and apply empirical or creative processes specific to their fields of specialization.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary

academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Multidisciplinary Studies, A.A. at University Park Campus and World Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [†]	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C [†]	3
General Education Quantification (GQ) [†]	3 General Education Course	3
General Education Course	3 General Education Course	3
Social and Behavioral Sciences for the Major [*]	3 Area of Emphasis Course for the Major [*]	3
Elective	3 Elective	3
	15	15

Second Year

Fall	Credits Spring	Credits
Arts Course for the Major [*]	3 Area of Emphasis Course for the Major [*]	3
Physical, Biological or Earth Sciences Course for the Major [*]	3 Humanities Course for the Major [*]	3

Area of Emphasis Course for the Major*	3 ENGL 202 for the major*	3
Elective: Writing Across the Curriculum Requirement	3 General Education Course	3
Elective	3 Elective	3
	15	15

Total Credits 60

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Note:

All incoming freshmen must take a First-Year Seminar (FYS) during Fall or Spring of their first year. Academic advisers can provide a list of FYS being offered and help the student enroll. Most FYS in the College of the Liberal Arts are worth 3 cr. and count as a General Humanities (GH) or General Social Sciences (GS) course. For this reason, the FYS is not listed separately on this eight-semester plan; most students will be able to fulfill the FYS requirement while also fulfilling a GH or GS requirement.

Contact**University Park**

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-multidisciplinary-studies-associate-in-arts-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-multidisciplinary-studies-associate-in-arts-degree/>)

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Erie

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Erie, PA 16563
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<https://behrend.psu.edu/school-of-humanities-social-sciences> (<https://behrend.psu.edu/school-of-humanities-social-sciences/>)

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Lemont Furnace, PA 15456
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lmj133@psu.edu

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New Kensington

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Scranton

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Dunmore, PA 18512
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Shenango

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Wilkes-Barre

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Dallas, PA 18612
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<https://wilkesbarre.psu.edu/academics/multidisciplinary> (<https://wilkesbarre.psu.edu/academics/multidisciplinary/>)

Multidisciplinary Studies, B.A. (Liberal Arts)

Begin Campus: Any Penn State Campus

End Campus: University Park, World Campus

Program Description

Multidisciplinary Studies is a multi-disciplinary, theme-oriented, and student-designed major leading to a bachelor of arts degree. The major consists of 36 credits, divided into two sections. The core (12 credits) consists of 3 credits each in the following: research methods/projects; communication skills; theory/application; and critical analysis. The additional courses (24 credits) consist of courses directed toward the student's theme, 15 credits of which must be at the 400 level.

Early Admission Program for Professional Schools

If a student is accepted and enrolled as a degree candidate in a professional postgraduate degree program requiring three years or more to complete (such as medical school, dental school, law school, theological seminary, etc.) and if that student completes 94 undergraduate credits at Penn State including General Education, B.A. requirements, and the Multidisciplinary Studies 12-credit core requirements, that student may use up to 30 credits from the professional school to complete the B.A. Multidisciplinary Studies.

It must be emphasized that only top students are accepted into professional school programs on such an early admission basis and that not every professional school has such a policy. Students must have enrolled in Multidisciplinary Studies prior to attending the professional school to request graduation in Multidisciplinary Studies.

What is Multidisciplinary Studies?

You can customize a Bachelor's Degree in Multidisciplinary Studies to fit your area of interest. The 120-credit program allows you to focus on developing your skills in communication and analysis along with your leadership abilities. You will work closely with your adviser to design a program that creates intellectual depth in an area of study that is unique

to your interests, but also aligns with the theoretical foundation of a liberal arts degree. The goal of the Bachelor's degree in Multidisciplinary Studies is to provide a broad education that introduces methods of analysis used in the liberal arts disciplines. In addition, it can also prepare you to address the complex social, cultural, ethical, and organizational issues you may face in leadership positions.

You Might Like This Program If...

You have not earned an undergraduate degree, you wish to complete a degree or you wish to customize a degree to fit your career goals.

Entrance To Major

In order to be eligible for entrance to the major, the student must submit a proposal. In consultation with a Multidisciplinary Studies adviser, the student formulates a proposal designing a program that investigates a theme from the viewpoint of at least three different subject areas. Students may not duplicate existing majors from any academic area. An important standard for entrance to the Multidisciplinary Studies major is the student's ability to design a program with academic integrity worthy of a bachelor of arts degree.

World Campus

Direct Admission to the Major

Incoming first-year students who meet the program admission requirements are admitted directly into the major. Admission restrictions may apply for change-of-major and/or change-of-campus students.

For more information about the admission process for this major, please send a request to the college, campus, or program contact (listed in the Contact tab).

Degree Requirements

For the Bachelor of Arts degree in Multidisciplinary Studies, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	15
Bachelor of Arts Degree Requirements	24
Requirements for the Major	36

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

Courses must be selected in consultation with an adviser.

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified

by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 24 credits from University-wide offerings to include:		24
12 credits at the 400 level representing at least three different subject areas		
3 credit 400-level capstone course		
A minimum 9 credits from the humanities and social sciences		
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 3 credits in research methods/projects from courses that involve research methodology or that focus on a research project		3
Select 3 credits in communication skills from courses that focus on expression including those in verbal, symbolic, and written skills		3
Select 3 credits in theory/application from courses that focus on theory, principle, central concepts, or fundamental issues		3
Select 3 credits in critical analysis from courses that focus on evaluation, synthesis, and analysis		3

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the

requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor,

elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- **Communication:** Students will be able to effectively communicate about the letters, arts and sciences in both written and oral formats.
- **Knowledge:** Students will be able to integrate knowledge and methods from multiple disciplines into a degree program that reflects their theme.
- **Professional Identity:** Students will be able to synthesize multiple disciplinary perspectives into an intellectual or professional identity.
- **Research:** Students will be able to conduct research and apply empirical or creative process specific to their fields of specialization.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Multidisciplinary Studies, B.A. at University Park Campus and World Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, ESL 15, ENGL 137H, or CAS 137H [†]	3 CAS 100, ENGL 138T, or CAS 138T [†]	3
Foreign Language (Level 1)	4 General Education Quantification Course (GQ) [†]	3
General Education Quantification (GQ) [†]	3 Foreign Language (Level 2)	4
General Education Course	3 General Education Course	3
First-Year Seminar	3 General Education Course	3
	16	16

Second Year

Fall	Credits Spring	Credits
Core course for major [*]	3 Major Core Course [*]	3
Major Option Course [*]	3 Major Option Course [*]	3
BA World Cultures Course	3 General Education Course	3
World Language (Level 3)	4 General Education Course	3
Elective	3 BA Knowledge Domains Course	3
	16	15

Third Year

Fall	Credits Spring	Credits
Major Core Course [*]	3 Major Core Course [*]	3
Major Option Course [*]	3 Major Option Course [*]	3
General Education Course	3 ENGL 202A, 202B, 202C, or 202D [†]	3
BA Knowledge Domains Course	3 General Education Course	3
Elective course	3 General Education Course	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
Major Option Course *	3 Major Capstone Course *	3
Major Option Course *	3 Major Option Course *	3
BA Knowledge Domain Course	3 General Education Health and Wellness (GHW)	1.5
Elective	3 Elective	3
General Education Health and Wellness (GHW)	1.5 Elective	3
13.5		13.5

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Advising Note:

All incoming freshmen must take a First-Year Seminar (FYS) during Fall or Spring of their first year. Academic advisers can provide a list of FYS being offered and help the student enroll. Most FYS in the College of the Liberal Arts are worth 3 cr. and count as a General Humanities (GH) or General Social Sciences (GS) course. For this reason, the FYS is not listed

separately on this eight-semester plan; most students will be able to fulfill the FYS requirement while also fulfilling a GH or GS requirement.

Multidisciplinary Studies, B.A. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
ENGL 15, 30H, ESL 15, ENGL 137H, or CAS 137H [‡]	3	CAS 100, ENGL 138T, or CAS 138T [‡]	3
Foreign Language (Level 1)	4	General Education Quantification Course (GQ) [‡]	3
General Education Quantification (GQ) [‡]	3	Foreign Language (Level 2)	4
General Education Course	3	General Education Course	3
First-Year Seminar	3	General Education Course	3
	16		16

Second Year

Fall	Credits	Spring	Credits
Core course for major [*]	3	Major Core Course [*]	3
Major Option Course [*]	3	Major Option Course [*]	3
BA World Cultures Course	3	General Education Course	3
World Language (Level 3)	4	General Education Course	3
Elective	3	BA Knowledge Domains Course	3
	16		15

Third Year

Fall	Credits	Spring	Credits
Major Core Course [*]	3	Major Core Course [*]	3
Major Option Course [*]	3	Major Option Course [*]	3
General Education Course	3	ENGL 202A, 202B, 202C, or 202D [‡]	3
BA Knowledge Domains Course	3	General Education Course	3
Elective course	3	General Education Course	3
	15		15

Fourth Year

Fall	Credits	Spring	Credits
Major Option Course [*]	3	Major Capstone Course [*]	3
Major Option Course [*]	3	Major Option Course [*]	3
BA Knowledge Domain Course	3	General Education Health and Wellness (GHW)	1.5
Elective	3	Elective	3
General Education Health and Wellness (GHW)	1.5	Elective	3
	13.5		13.5

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Advising Note:

All incoming freshmen must take a First-Year Seminar (FYS) during Fall or Spring of their first year. Academic advisers can provide a list of FYS being offered and help the student enroll. Most FYS in the College of the Liberal Arts are worth 3 cr. and count as a General Humanities (GH) or General Social Sciences (GS) course. For this reason, the FYS is not listed separately on this eight-semester plan; most students will be able to fulfill the FYS requirement while also fulfilling a GH or GS requirement.

Career Paths

- Government agencies
- For-profit organizations
- Non-profit organizations
- Education
- Health care
- Business
- Human resources

Contact

University Park

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DuBois, PA 15801
814-375-4815 or 814-375-4814
jka1@psu.edu or ajv2@psu.edu

<https://dubois.psu.edu/academics/degrees/mds> (<https://dubois.psu.edu/academics/degrees/mds/>)

Greater Allegheny

4000 University Drive
McKeesport, PA 15132
412-675-9053 or 412-675-9461
mpv2@psu.edu or mxh68@psu.edu

<https://greaterallegheny.psu.edu/academics/degree-programs/multidisciplinary-studies> (<https://greaterallegheny.psu.edu/academics/degree-programs/multidisciplinary-studies/>)

Hazleton

Butler 203
76 University Drive
Hazleton, PA 18202
570-450-3558
cxd35@psu.edu

<https://hazleton.psu.edu/multidisciplinary-studies> (<https://hazleton.psu.edu/multidisciplinary-studies/>)

Mont Alto

208 Sci-Tech
Mont Alto, PA 17237
717-749-6237
lkh1@psu.edu

<https://montalto.psu.edu/academics/bachelors/letters-arts-sciences-degree> (<https://montalto.psu.edu/academics/bachelors/letters-arts-sciences-degree/>)

Scranton

12 Library Building
Dunmore, PA 18512
570-963-2660
pjp3@psu.edu

<https://scranton.psu.edu/academics/degrees/bachelors/multidisciplinary-studies> (<https://scranton.psu.edu/academics/degrees/bachelors/multidisciplinary-studies/>)

Shenango

147 Shenango Avenue
310C Sharon Hall
Sharon, PA 16146
724-983-2978
pxn4@psu.edu

<https://shenango.psu.edu/academics/degrees/multidisciplinary-studies> (<https://shenango.psu.edu/academics/degrees/multidisciplinary-studies/>)

Organizational and Professional Communication, B.A.

Begin Campus: World Campus

End Campus: World Campus

Program Description

A Bachelor of Arts in Organizational and Professional Communication provides increased understanding and practice in how people communicate to influence others and shape the world around them. Modern society requires effective communication in professional, personal, social, and multicultural settings. The flexibility of the program offers preparation for a variety of careers, such as law, business, communication, health, administration, social services, and human relations. The bachelor of arts program will facilitate students' learning of

effective oral and written communication, specifically helping students to understand and generate professional texts in a variety of genres.

What is Organizational and Professional Communication?

This program prepares its students to:

- Apply and critique communication concepts and principles to a variety of organizational contexts
- Apply qualitative research methods to organizational and professional contexts
- Demonstrate logical, critical, creative, and ethical thinking about communication
- Generate communication appropriate to audience, purpose, and context
- Synthesize and assimilate information and for communication analysis and practice
- Engage diverse communities and function as a member of society

You Might Like This Program If...

You are a working professional seeking an applied learning experience that cannot only help you advance your career, but also empower you to make critical contributions toward improved organizational practices at work, in society, and beyond.

Direct Admission to the Major

Incoming first-year students who meet the program admission requirements are admitted directly into the major. Admission restrictions may apply for change-of-major and/or change-of-campus students.

For more information about the admission process for this major, please send a request to the college, campus, or program contact (listed in the Contact tab).

Degree Requirements

For the Bachelor of Arts degree in Organizational and Professional Communication, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	12
Bachelor of Arts Degree Requirements	24
Requirements for the Major	48

9 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GH; and 6 credits of GS courses.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
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Prescribed Courses

Prescribed Courses: Require a grade of C or better

CAS 204	Communication Research Methods	3
CAS 301	Rhetorical Theory	3
CAS 303	Communication Theory	3
CAS 390	Qualitative Research Methods	3
CAS 426W	Communication Ethics	3
CAS 452	Organizational Communication Theory and Research	3
CAS 496	Independent Studies ¹	3
LA 201W	Experiential Learning Portfolio	3

Additional Courses

Additional Courses: Require a grade of C or better

Select 3 credits in speaking and argumentation from: 3

CAS 212	Professional Public Speaking	
CAS 215	Argumentation	
CAS 252	Business and Professional Communication	
CAS 340	Communication and Civility	

Select 3 credits in interpersonal communication or conflict management from: 3

CAS 203	Interpersonal Communication	
CAS 271N	Intercultural Communication	
CAS 302	Social Influence	
CAS 352	Organizational Communication	

Select 3 credits in written communication from: 3

ENGL 418	Advanced Technical Writing and Editing	
ENGL 419	Advanced Business Writing	
ENGL 420	Writing for the Web	
ENGL 480	Communication Design for Writers	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 15 credits from the following courses; at least 9 credits must be at the 400-level. ² 15

CAS 203	Interpersonal Communication	
CAS 212	Professional Public Speaking	
CAS 215	Argumentation	
CAS 252	Business and Professional Communication	
CAS 271N	Intercultural Communication	
CAS 283	Communication and Information Technology I	
CAS 302	Social Influence	
CAS 340	Communication and Civility	
CAS 352	Organizational Communication	
CAS 404	Conflict Resolution and Negotiation	
CAS 455	Topics in Gender and Communication	
CAS 475	Studies in Public Address	
COMM 428A	Principles of Strategic Communications	
ENGL 418	Advanced Technical Writing and Editing	
ENGL 419	Advanced Business Writing	
ENGL 420	Writing for the Web	
ENGL 480	Communication Design for Writers	
LHR/OLEAD 464	Communication Skills for Leaders in Groups and Organizations	

LHR/OLEAD Collective Decision Making
465

OLEAD 410 Leadership in a Global Context

¹ A student may only apply up to 6 credits of CAS 496 in Requirements for the Major.

² A student may not use a course as both an Additional course and as a Supporting course.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- **Application of Communication Theory and Concepts:** Students in this program should discover relevance of coursework to their professional lives
- **Core Research Knowledge:** Students majoring in the program should obtain essential research skills in the core courses
- **Professional Relevance:** Apply communication concepts, principles, theories, and perspectives to a variety of organizational and professional contexts in a way that is relevant and meaningful to PSU students

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park and World Campus

Undergraduate Academic Advising

301 Outreach Building
University Park, PA 16802
814-863-3283
advising@outreach.psu.edu

Career Paths

Careers

The flexibility of the Bachelor of Science in Organizational and Professional Communication program offers preparation for a variety of careers, including law, business, communication, health, administration, social services, and human relations.

Opportunities for Graduate Studies

The flexibility of the Bachelor of Science in Organizational and Professional Communication program offers preparation for graduate studies in a variety of fields, including law, business, communication, health, administration, social services, and human relations.

Contact

University Park

DEPARTMENT OF COMMUNICATION ARTS AND SCIENCES
234 Sparks Building
University Park, PA 16802
814-865-3461
amw306@psu.edu

World Campus

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234 Sparks Building
University Park, PA 16802
814-865-3461
amw306@psu.edu

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-organizational-and-professional-communication-bachelor-of-arts-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-organizational-and-professional-communication-bachelor-of-arts-degree/>)

Organizational and Professional Communication, B.S.

Begin Campus: World Campus

End Campus: World Campus

Program Description

A Bachelor of Science in Organizational and Professional Communication provides increased understanding and practice in how people communicate to influence others and shape the world around them. Modern society requires effective communication in professional, personal, social, and multicultural settings. The flexibility of the program offers preparation for a variety of careers, such as law, business, communication, health, administration, social services, and human relations. The Bachelor of Science degree will allow exploration of the group communication context and the principles of leadership.

What is Organizational and Professional Communication?

This B.S. degree allows exploration of the group communication context and the principles of leadership, and prepares its students to apply and critique communication concepts, principles, theories, and perspectives to a variety of organizational contexts; demonstrate logical, critical, creative, and ethical thinking about communication; generate messages appropriate to audience, purpose, and context; synthesize and assimilate information for use in communication analysis and practice within organizations; engage diverse communities and function as a member of a deliberative society; facilitate group communication and functions; apply leadership principles to interpersonal and group situations.

You Might Like This Program If...

You are a working professional seeking an applied learning experience that cannot only help you advance your career, but also empower you to make critical contributions toward improved organizational practices at work, in society, and beyond.

Direct Admission to the Major

Incoming first-year students who meet the program admission requirements are admitted directly into the major. Admission restrictions may apply for change-of-major and/or change-of-campus students.

For more information about the admission process for this major, please send a request to the college, campus, or program contact (listed in the Contact tab).

Degree Requirements

For the Bachelor of Science degree in Organizational and Professional Communication, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	27
Requirements for the Major	57

9 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GH; 6 credits of GS courses.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CAS 204	Communication Research Methods	3
CAS 301	Rhetorical Theory	3
CAS 303	Communication Theory	3
CAS 390	Qualitative Research Methods	3
CAS 426W	Communication Ethics	3
CAS 452	Organizational Communication Theory and Research	3
LA 201W	Experiential Learning Portfolio	3
SOC 207	Research Methods in Sociology	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 6 credits in speaking and argumentation from: ¹		6
CAS 212	Professional Public Speaking	
CAS 215	Argumentation	
CAS 252	Business and Professional Communication	
CAS 340	Communication and Civility	
Select 6 credits in interpersonal communication or conflict management from: ¹		6
CAS 203	Interpersonal Communication	
CAS 271N	Intercultural Communication	
CAS 302	Social Influence	
CAS 352	Organizational Communication	
Select 6 credits in leadership/group communication from: ¹		6
LHR/OLEAD 464	Communication Skills for Leaders in Groups and Organizations	
LHR/OLEAD 465	Collective Decision Making	
MGMT 321	Leadership and Motivation	
OLEAD 410	Leadership in a Global Context	
PSYCH 484	Work Attitudes and Motivation	
PSYCH 485	Leadership in Work Settings	
SOC 404	Social Influence and Small Groups	
SOC/WMNST 456	Gender, Occupations, and Professions	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 15 credits from the following courses; 6-9 credits must be at the 400-level. ¹		15
CAS 203	Interpersonal Communication	
CAS 212	Professional Public Speaking	
CAS 215	Argumentation	
CAS 252	Business and Professional Communication	
CAS 271N	Intercultural Communication	
CAS 283	Communication and Information Technology I	

CAS 302	Social Influence
CAS 340	Communication and Civility
CAS 352	Organizational Communication
CAS 404	Conflict Resolution and Negotiation
CAS 455	Topics in Gender and Communication
CAS 475	Studies in Public Address
COMM 428A	Principles of Strategic Communications
ENGL 418	Advanced Technical Writing and Editing
ENGL 419	Advanced Business Writing
ENGL 420	Writing for the Web
LHR/OLEAD 464	Communication Skills for Leaders in Groups and Organizations
LHR/OLEAD 465	Collective Decision Making
MGMT 321	Leadership and Motivation
OLEAD 410	Leadership in a Global Context
PSYCH 484	Work Attitudes and Motivation
PSYCH 485	Leadership in Work Settings
SOC 404	Social Influence and Small Groups
SOC/WMNST 456	Gender, Occupations, and Professions

¹ A student may not use a course as both an Additional course and as a Supporting course.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses**. This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Application of Communication Theory and Concepts:** Students in this program should discover relevance of coursework to their professional lives
- **Core Research Knowledge:** Students majoring in the program should obtain essential research skills in the core courses
- **Professional Relevance:** Apply communication concepts, principles, theories, and perspectives to a variety of organizational and professional contexts in a way that is relevant and meaningful to PSU students

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park and World Campus

Undergraduate Academic Advising

301 Outreach Building
University Park, PA 16802
814-863-3283
advising@outreach.psu.edu

Career Paths

Careers

The flexibility of the Bachelor of Science in Organizational and Professional Communication program offers preparation for a variety of careers, including law, business, communication, health, administration, social services, and human relations.

Opportunities for Graduate Studies

The flexibility of the Bachelor of Science in Organizational and Professional Communication program offers preparation for graduate studies in a variety of fields, including law, business, communication, health, administration, social services, and human relations.

Contact

University Park

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-organizational-and-professional-communication-bachelor-of-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-organizational-and-professional-communication-bachelor-of-science-degree/>)

Organizational Communication, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

This program can help you improve internal and external communication in the context of your current position or prepare you to move into a new career as a communications professional. Because the curriculum focuses on research-based skills that go beyond mere technical expertise with presentation software, the practical insights presented in this program will hold their value throughout your career.

What is Organizational Communication?

In today's complex world of information and knowledge, organizations large and small increasingly recognize that effective communication is an essential ingredient for success. The certificate program in organizational communication is designed to help you make practical improvements in this critical area in order to make communication with peers, supervisors, customers and other stakeholders as efficient and effective as possible. This program can help you improve internal and external communication in the context of your current position or prepare you to move into a new career as a communications professional. Because the curriculum focuses on research-based skills that go beyond mere technical expertise with presentation software, the practical insights presented in this program will hold their value throughout your career.

You Might Like This Program If...

You want to learn to improve internal and external communications in the context of your current position, or to prepare you to move into a new career as a communications professional.

Program Requirements

To earn an undergraduate certificate in Organizational Communication, a minimum of 12 credits is required.

Code	Title	Credits
Prescribed Courses		
CAS 283	Communication and Information Technology I	3
CAS 352	Organizational Communication	3
Select 6 credits of the following:		6
CAS 404	Conflict Resolution and Negotiation	
CAS 452	Organizational Communication Theory and Research	
CAS 475	Studies in Public Address	
ENGL 419	Advanced Business Writing	

No Prerequisites Required.

Certificate Learning Objectives

- **Breadth of application across different communication contexts:** Demonstrate relevance of program to a range of majors
- **Organizational communication theory and research:** Mastery of the theory and methods taught in the certificate program's core courses

- **Professional relevance:** Program applies communication concepts, principles, theories, and perspectives to a variety of organizational contexts in a way that is relevant and meaningful to PSU students

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

World Campus

Undergraduate Academic Advising

301 Outreach Building
University Park, PA 16802
814-863-3283
advising@outreach.psu.edu

Career Paths

The certificate program in organizational communication is designed to help you make practical improvements in this critical area in order to make communication with peers, supervisors, customers and other stakeholders as efficient and effective as possible. This program can help you improve internal and external communication in the context of your current position or prepare you to move into a new career as a communications professional.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A CERTIFICATE IN ORGANIZATIONAL COMMUNICATION (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-organizational-communication-undergraduate-certificate/>)

Contact

University Park

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234 Sparks Building
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mdl20@psu.edu

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-organizational-communication-undergraduate-certificate> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-organizational-communication-undergraduate-certificate/>)

World Campus

DEPARTMENT OF COMMUNICATION ARTS AND SCIENCES
234 Sparks Building
University Park, PA 16802
814-865-3461
amw306@psu.edu

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-organizational-communication-undergraduate-certificate> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-organizational-communication-undergraduate-certificate/>)

Organizational Leadership, B.A.

Begin Campus: Any Penn State Campus

End Campus: University Park, World Campus

Program Description

The degree draws on many of the disciplines of the liberal arts, as well as business and science, to illuminate the issues that all leaders face regarding work and employment issues in the 21st Century, as well as in other aspects of organizational life more generally. Students select courses in crime, law, and justice, political science, sociology, labor and employment relations, communication arts and sciences, management, and psychology. The goal is to provide a broad education that introduces methods of analysis used in the disciplines of the liberal arts and prepares students to understand the complex social, cultural, and organizational issues that they will confront in leadership positions in the modern world.

What is Organizational Leadership?

A rapidly growing global environment creates demand for professionals who are schooled in leadership. Employers prefer individuals who exhibit strengths in problem solving, teamwork, critical thinking, decision-making, listening, and conflict management. Courses in psychology, sociology, communication, philosophy, management, and labor and employment relations can prepare you for a change in career or help you to advance into leadership positions. The Bachelor of Arts in Organizational Leadership includes a curriculum immersed in the social sciences, humanities, and language, in addition to prescribed organizational leadership courses. It can help you explore the role of leadership from a relationship-based perspective.

You Might Like This Program If...

You are interested in an online program that offers convenience to study around your schedule with world-class faculty, to expand your employment opportunities or obtain a degree for professional advancement. An education in organizational leadership can provide you with a broad perspective to prepare for today's complex social, cultural, and professional issues that you are likely to encounter in positions of leadership. The unique student OLEAD club offers professional development opportunities and community building.

Direct Admission to the Major

Incoming first-year students who meet the program admission requirements are admitted directly into the major. Admission restrictions may apply for change-of-major and/or change-of-campus students.

For more information about the admission process for this major, please send a request to the college, campus, or program contact (listed in the Contact tab).

Degree Requirements

For the Bachelor of Arts degree in Organizational Leadership, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	24-30
Bachelor of Arts Degree Requirements	24
Requirements for the Major	33

6-12 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 0-6 credits of GH courses; 6 credits of GS courses.

0-12 of the 24 credits for Bachelor of Arts Degree Requirements are included in Electives if world language proficiency is demonstrated by examination.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
OLEAD 100	Introduction to Leadership	3
OLEAD 201	Organizational Theory and Functions for Leaders	3
OLEAD 210	Evidence-Based Leadership	3
OLEAD/LHR 464	Communication Skills for Leaders in Groups and Organizations	3
OLEAD/LHR 465	Collective Decision Making	3
PSYCH 100	Introductory Psychology	3
PSYCH 484	Work Attitudes and Motivation	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select one course from each area:		12
<i>a) Critical Thinking</i>		
IST 110	Information, People and Technology	
PHIL 10	Critical Thinking	
<i>b) Organizational Behavior</i>		
LHR 202	Understanding Employee Behavior	
PSYCH 281	Introduction to Industrial-Organizational Psychology	
<i>c) Conflict Management</i>		

CAS 404	Conflict Resolution and Negotiation
LHR 312	Research Methods in Labor and Employment Relations
LHR 437	Workplace Dispute Resolution
SOC 207	Research Methods in Sociology
<i>d) Ethics</i>	
LHR 460	Ethics in the Workplace
PHIL 119	Ethical Leadership

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- **Roles and Functions of Leadership:** Understand the roles and the major functions of leadership in contemporary organizations;
- **Leadership Foundations:** Articulate the theoretical and empirical foundations for different approaches to the exercise of leadership;
- **Strategy:** Detect, accurately frame, and select appropriate strategies for overcoming obstacles to effective organizational performance that leaders face;
- **Organizational Tasks and Relationship Management:** Exhibit intellectual and behavioral competencies useful in the successful

execution of critical organizational tasks and the management of relationships;

- **Organizational Structure:** Recognize the internal structures of organizations and their impact on members' performance;
- **Social Processes:** Appreciate the social processes operative in the exercise of influence, as well as how to improve them;
- **Upward Mobility:** Draw on their knowledge of leadership in transitioning from lower-level to higher-level positions of responsibility and authority in organizations;
- **Global Perspective:** Bring a global perspective to the exercise of leadership;
- **Ethics:** Grasp the importance of enacting leadership responsibly and in an ethically defensible manner.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

World Campus

Undergraduate Academic Advising

301 Outreach Building
University Park, PA 16802
814-863-3283
advising@outreach.psu.edu

Career Paths

A Bachelor of Arts in Organizational Leadership can prepare you to work in a range of relationship-focused careers in which you can showcase your ability to manage and nurture business and professional relationships through motivational strategies, conflict management, and other forms of interpersonal and social influence. The degree will benefit any career in which leadership skills are necessary for the advancement of the overall business climate through interpersonal interactions.

Careers

The degree is perfect for collaborative work environments in manufacturing, service industries, government, communications, charitable and nonprofit organizations, and multinational organizations.

Graduates of Penn State's School of Labor and Employment Relations, of which the OLEAD program is a part, have found employment in such companies as Google, Ernst and Young, GE, Amazon, Lockheed Martin, Samsung Electronics, PriceWaterHouseCoopers Consulting, government agencies such as the U. S. Department of Labor, and in labor unions such as the AFL-CIO, American Federation of Teachers, and the Service Employees International Union.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE ORGANIZATIONAL LEADERSHIP PROGRAM (<https://ler.la.psu.edu/careers/where-are-they-now/>)

Opportunities for Graduate Studies

Penn State World Campus offers a Master of Professional Studies in Human Resources and Employment Relations (HRER) in which the curriculum balances advanced theory with practical knowledge. After receiving strong fundamental knowledge, the program focuses on the complex personal, legal and organizational issues inherent in the relationship between employers, employees, unions, and government. As in the undergraduate OLEAD program, students in the M.P.S. in HRER program have the opportunity to study with highly regarded faculty from Penn State's College of the Liberal Arts, one of the premier institutions in the world to study and work in the liberal arts disciplines.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.worldcampus.psu.edu/degrees-and-certificates/>)

Professional Resources

- Society for Human Resource Management (<https://www.shrm.org/pages/default.aspx>)
- Penn State World Campus (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-organizational-leadership-bachelor-of-science-degree/>)
- The LABOR School at Penn State (<https://ler.la.psu.edu/outreach/labor-school/>)
- Academy of Human Capital Development (<https://ler.la.psu.edu/outreach/>)
- International Brotherhood of Teamsters (<https://teamster.org>)
- American Federation of Labor and Congress of Industrial Organizations (AFL-CIO) (<https://aflcio.org/>)

Contact

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506 Keller Building
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814-865-5425
lerpsu@psu.edu

<https://ler.la.psu.edu>

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-organizational-leadership-bachelor-of-arts-degree> ([https://](https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-organizational-leadership-bachelor-of-arts-degree)

www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-organizational-leadership-bachelor-of-arts-degree/

Organizational Leadership, B.S.

Begin Campus: Any Penn State Campus

End Campus: Berks, University Park, World Campus

Program Description

The degree draws on many of the disciplines of the liberal arts, as well as business and science, to illuminate the issues that all leaders face regarding work and employment issues in the 21st Century, as well as in other aspects of organizational life more generally. Students select courses in crime, law, and justice, economics, political science, sociology, labor and employment relations, communication arts and sciences, statistics, management, and psychology. The goal is to provide a broad education that introduces methods of analysis used in the disciplines of the liberal arts and prepares students to understand the complex social, cultural, and organizational issues that they will confront in leadership positions in the modern world.

What is Organizational Leadership?

A rapidly growing global environment creates demand for professionals who are schooled in leadership. Employers prefer individuals who exhibit strengths in problem solving, teamwork, critical thinking, decision-making, listening, and conflict management. Courses in psychology, sociology, communication, philosophy, management, and labor and employment relations can prepare you for a change in career or help you to advance into leadership positions. The Bachelor of Arts in Organizational Leadership includes a curriculum immersed in the social sciences, humanities, and language, in addition to prescribed organizational leadership courses. It can help you explore the role of leadership from a relationship-based perspective.

You Might Like This Program If...

You are interested in an online program that offers convenience to study around your schedule with world-class faculty, to expand your employment opportunities or obtain a degree for professional advancement. An education in organizational leadership can provide you with a broad perspective to prepare for today's complex social, cultural, and professional issues that you are likely to encounter in positions of leadership. The unique student OLEAD club offers professional development opportunities and community building.

Direct Admission to the Major

Incoming first-year students who meet the program admission requirements are admitted directly into the major. Admission restrictions may apply for change-of-major and/or change-of-campus students.

For more information about the admission process for this major, please send a request to the college, campus, or program contact (listed in the Contact tab).

Degree Requirements

For the Bachelor of Science degree in Organizational Leadership, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	20-21
Requirements for the Major	58-59

4 of the 45 credits for General Education are included in the Requirements for the Major. This includes 4 credits of GQ courses.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
LHR 312	Research Methods in Labor and Employment Relations	3
OLEAD 100	Introduction to Leadership	3
OLEAD 201	Organizational Theory and Functions for Leaders	3
OLEAD 210	Evidence-Based Leadership	3
OLEAD/LHR 464	Communication Skills for Leaders in Groups and Organizations	3
OLEAD/LHR 465	Collective Decision Making	3
PSYCH 100	Introductory Psychology	3
PSYCH 484	Work Attitudes and Motivation	3
STAT 200	Elementary Statistics	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select one course from each area:		15
<i>a) Critical Thinking</i>		
IST 110	Information, People and Technology	
PHIL 10	Critical Thinking	
<i>b) Diversity and Inclusion</i>		
LHR/AFAM/ WMNST 136Y	Race, Gender, and Employment	
OLEAD 220	Emotional, Social, and Cultural Intelligences and the Implications for Leadership	
OLEAD 410	Leadership in a Global Context	
OLEAD 411	Women and Leadership	
WMNST 105N	Living in a Diverse World	
<i>c) Organizational Behavior</i>		
LHR 202	Understanding Employee Behavior	
PSYCH 281	Introduction to Industrial-Organizational Psychology	
<i>d) Conflict Management</i>		
CAS 404	Conflict Resolution and Negotiation	
LHR 437	Workplace Dispute Resolution	
<i>e) Ethics</i>		
BA 100	Introduction to Business	
LHR 427	Understanding Business Processes for LHR Professionals	
LHR 460	Ethics in the Workplace	

PHIL 119 Ethical Leadership

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 15-16 credits from the following 400-level courses:¹ 15-16

ACCTG, AFAM, AFR, AGBM, AMST, ANTH, ASIA, BA, BBH, BLAW, CAS, CEDEV, COMM, CRIM, CRIMJ, ECON, EDUC, ENTR, FIN, FR, GER, HIST, HDFS, HLS, HPA, IB, IST, IT, LA, LAS, LAWSC, LHR, MATH, MGMT, MIS, MKTG, OLEAD, PHIL, PLSC, PSYCH, PUBPL, RUS, SCM, SOC, SPAN, STAT, WMNST

¹ Courses that are used in the Additional Courses category may not be double-counted to satisfy this requirement.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Functions of Leadership:** Explain the roles and the major functions of leadership in contemporary organizations;
- **Theory Foundations:** Apply the theoretical and empirical foundations for different approaches to the exercise of leadership;
- **Strategies for overcoming obstacles:** Detect, accurately frame, and select appropriate strategies for overcoming obstacles to effective organizational performance that leaders face;
- **Critical organizational Tasks and management of relationships:** Exhibit intellectual and behavioral competencies useful in the successful execution of critical organizational tasks and the management of relationships;
- **Evaluation of organizations:** Evaluate the internal structures of organizations and their impact on members' performance;
- **Social Processes:** Identify the social processes operative in the exercise of influence, as well as how to improve them;
- **Evaluate Leadership at all levels:** Evaluate the knowledge of leadership in transitioning from lower-level to higher-level positions of responsibility and authority in organizations;
- **Global Leadership Perspectives:** Evaluate and explain a global perspective to the exercise of leadership
- **Diversity and Inclusion:** Demonstrate the value of diversity & inclusion by discussing the role of the leader in creating an inclusive culture.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Berks

Catherine Catanach

Program Chair of Organizational Leadership and Assistant Teaching Professor in Communication Arts and Sciences
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BKOrgLead@psu.edu

World Campus

Undergraduate Academic Advising

301 Outreach Building
University Park, PA 16802
814-863-3283
advising@outreach.psu.edu

Career Paths

A Bachelor of Science in Organizational Leadership can prepare you to work in a range of relationship-focused careers in which you can showcase your ability to manage and nurture business and professional relationships through through evidenced-based decisions, motivational strategies, conflict management, ethical decision making, and other forms of interpersonal and social influence. The degree will benefit any career in which leadership skills are necessary for the advancement of the overall business climate through interpersonal interactions.

Careers

The degree is perfect for collaborative work environments in manufacturing, service industries, government, communications, charitable and nonprofit organizations, and multinational organizations. Graduates of Penn State's School of Labor and Employment Relations, of which the OLEAD program is a part, have found employment in such companies as Google, Earnst and Young, GE, Amazon, Lockheed Martin, Samsung Electronics, PriceWaterHouseCoopers Consulting, government agencies such as the U. S. Department of Labor, and in labor unions

such as the AFL-CIO, American Federation of Teachers, and the Service Employees International Union.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE ORGANIZATIONAL LEADERSHIP PROGRAM (<https://ler.la.psu.edu/careers/where-are-they-now/>)

Opportunities for Graduate Studies

Penn State World Campus offers a Master of Professional Studies in Human Resources and Employment Relations (HRER) in which the curriculum balances advanced theory with practical knowledge. After receiving strong fundamental knowledge, the program focuses on the complex personal, legal and organizational issues inherent in the relationship between employers, employees, unions, and government. As in the undergraduate OLEAD program, students in the M.P.S. in HRER program have the opportunity to study with highly regarded faculty from Penn State's College of the Liberal Arts, one of the premier institutions in the world to study and work in the liberal arts disciplines.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.worldcampus.psu.edu/degrees-and-certificates/>)

Professional Resources

- Society for Human Resource Management (<https://www.shrm.org/pages/default.aspx>)
- Penn State World Campus (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-organizational-leadership-bachelor-of-science-degree/>)
- The LABOR School at Penn State (<https://ler.la.psu.edu/outreach/labor-school/>)
- Academy of Human Capital Development (<https://ler.la.psu.edu/outreach/>)
- International Brotherhood of Teamsters (<https://teamster.org>)
- American Federation of Labor and Congress of Industrial Organizations (AFL-CIO) (<https://aflcio.org/>)

Contact

University Park

SCHOOL OF LABOR AND EMPLOYMENT RELATIONS
506 Keller Building
University Park, PA 16802
814-865-5425
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<https://ler.la.psu.edu>

Berks

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<https://berks.psu.edu/academics/organizational-leadership> (<https://berks.psu.edu/academics/organizational-leadership/>)

World Campus

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-organizational-leadership-bachelor-of-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-organizational-leadership-bachelor-of-science-degree/>)

Organizational Leadership, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

This interdisciplinary online minor is designed for World Campus students in any major who wish to supplement their knowledge in the areas related to leadership in organizations. The OLEAD minor focuses on the development of:

1. understanding of the role, functions, and enactment of leadership as an instrument of influence in the modern organization;
2. familiarity with pertinent scholarly inquiry; and
3. competencies essential to success in leadership.

Leadership is of interest in numerous disciplines. The curriculum in Organizational Leadership provides the opportunity to select from them on the basis of specialized interests relating to: business administration, communication arts and sciences, criminal justice, economics, history, labor studies and employment relations, philosophy, political science, psychology, sociology, and women's studies. The OLEAD minor is of value to anyone pursuing a baccalaureate degree who envisions being, or is, in a position of authority (manager, supervisor, executive, officer, and the like) in an organization.

What is Organizational Leadership?

Effective managers and supervisors must have an understanding of the role of leadership as a means of influence and motivation in the modern organization. Penn State's organizational leadership minor provides you with the opportunity to study a wide range of topics to complement your interests, background, and career aspirations. In learning about key leadership concepts and practices, you will be able to select from courses relating to business administration, communication arts and sciences, criminal justice, economics, history, labor studies and employment relations, philosophy, political science, psychology, sociology, and women's studies.

You Might Like This Program If...

You envision being — or are currently — in a position of authority in an organization, and wish to study with highly regarded faculty from Penn State's College of the Liberal Arts, one of the premier institutions in the world to study and work in the liberal arts disciplines.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules->

[for-undergraduate-students/59-00-minors-and-certificates/#59-10](https://senate.psu.edu/policies-and-rules-)). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
OLEAD 100	Introduction to Leadership	3
OLEAD 201	Organizational Theory and Functions for Leaders	3
OLEAD 210	Evidence-Based Leadership	3
OLEAD/LER 464	Communication Skills for Leaders in Groups and Organizations	3
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 6 credits in the approved list of courses in the OLEAD Curriculum		6

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

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World Campus

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Catherine Dunning Catanach

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Contact

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<https://ler.la.psu.edu>

World Campus

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-organizational-leadership-minor> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-organizational-leadership-minor/>)

Berks

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Reading, PA 19610
610-396-6159
BKOrgLead@psu.edu

Pennsylvania Studies, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

This minor is for students who want to emphasize the history, culture, politics, and other important features of Pennsylvania in their academic programs. A certificate is awarded to students who complete the requirements of the minor.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

The minor consists of 18 credits, at least 6 of which must be at the 400 level.

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
HIST 12	History of Pennsylvania	3
Additional Courses		

Additional Courses: Require a grade of C or better

Select 6-9 credits of the following:		6-9
AMST 50		
GER 157N	The Amish	
HIST 150	America in the 1960s: An Introduction	
HIST 200	American Local History	
PLSC 125	Pennsylvania Government and Politics	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 6-9 credits (at least 6 at the 400 level) in consultation with the Pennsylvania Studies adviser from among courses that focus substantially on Pennsylvania, including the following: ¹		6-9
LA 496	Independent Studies	
LER 100		
PLSC 130		
PLSC 426	Political Parties and Interest Groups	
SOC 454	The City in Postindustrial Society	

¹ With the approval of the Pennsylvania Studies adviser, students may count up to 3 credits for internships in Pennsylvania. Students may enroll in the College of the Liberal Arts internship program or a departmental internship program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Contact

University Park

COLLEGE OF THE LIBERAL ARTS
111 Sparks Building
University Park, PA 16802
814-865-7691

<https://la.psu.edu>

Philosophy, B.A.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

This major provides in-depth study of fundamental issues that confront all people. Topics include ethics, social and political philosophy, and aesthetics—study of the good life, justice, and beauty; metaphysics, philosophy of mind, and philosophy of religion—study of the nature of reality, mind, body, and the meaning of life and death; epistemology, philosophy of science, and logic—study of the nature of knowledge, truth, objectivity, and principles of sound reasoning; and subjects such as comparative philosophies, theories of race, gender, and class, and philosophical issues in technology, language, education, and the professions of law, business, medicine, communications, engineering, and agriculture. These studies enhance imaginative, interpretive, analytical, critical, and communicative capacities. Majors should acquire the intellectual abilities crucial for self-fulfillment, responsible participation in public life, and success in a wide range of careers—including law, business, education, journalism, medicine, and public service.

Majors may pursue concentration in the history of philosophy; humanities and arts; philosophy of science and mathematics; social sciences; the professions; or justice, law, and values. These concentrations are combined easily with minors, area studies, and concurrent majors. Qualified students participate in honors study and internships.

General Philosophy Option

This option provides students with a concentration in the history of western philosophy and the historical development and impact of philosophical ideas and issues—from the ancient to the contemporary period. It is designed for all students who seek a broad liberal education, including students interested in graduate study in philosophy.

Humanities and Arts Option

This option provides students with a concentration in philosophical issues in the arts, art history, literature, languages, history, and religion. It is designed for students primarily interested in the philosophical dimensions of the arts, humanities, and cultural studies, including students with career or further educational goals in these fields.

Philosophy of Science and Mathematics Option

This option provides students with a concentration in philosophical issues in the life sciences, the physical sciences, mathematics, engineering, and technology. It is designed for students primarily interested in the philosophical dimensions of the natural sciences, technology, engineering, and mathematics (STEM), including students with career or further educational goals in these fields.

Social Sciences Option

This option provides students with a concentration in philosophical issues in the social sciences, social and political theory, and education. It is designed for students primarily interested in the philosophical dimensions of social thought and methodological and normative issues in the social sciences, educational theory, and public policy, including students with career or further educational goals in these fields.

Professional Studies Option

This option provides students with a concentration in philosophical issues and dimensions in the theory and practice of the professions of agriculture, business, engineering, journalism, law, and medicine and health care. It is designed for students seeking a foundation in the philosophical dimensions of these professions, including students who wish to combine humanistic study with career or further educational goals in these fields.

Justice, Law, and Values Option

This option provides students with a concentration in philosophical issues in ethics, jurisprudence, social and political theory, and everyday life. It is designed for students primarily interested in moral, social, political, and legal questions concerning value and is especially appropriate for those anticipating future educational work in law school.

What is Philosophy?

Philosophy is the oldest of the liberal arts, and is often defined simply as the love of wisdom. Philosophy is at the core of the liberal arts tradition and provided the foundation for the modern university, yet it remains highly relevant to life in technologically complex, diverse, global, information driven societies such as our own. The Philosophy major provides in-depth study of fundamental issues that inescapably confront all persons, such as ethics, social and political philosophy, aesthetics, metaphysics, philosophy of mind, philosophy of religion, epistemology, philosophy of science, and logic. These studies enhance imaginative, interpretive, analytical, critical, and communicative capacities. Majors thus may acquire intellectual abilities crucial for self-fulfillment, responsible participation in public life, and success in a wide range of careers—including law, business, education, journalism, medicine, and public service.

You Might Like This Program If...

- You want to develop critical thinking skills, including constructing, interpreting, and critically analyzing philosophical arguments.
- You want to learn about major thinkers, schools, and trends of the Western philosophical tradition, and to appreciate the importance and value of other thought.
- You want to compose clear, coherent written expressions of complex philosophical ideas, theories, and arguments.
- You have enthusiasm for inquiry and want engage in philosophical discussions about ethics, social and political philosophy, metaphysics, and aesthetics.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Philosophy, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	21
Bachelor of Arts Degree Requirements	24
Requirements for the Major	30

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 9 credits in philosophy at the 200 level		9
Requirements for the Option		
<i>Requirements for the Option: Require a grade of C or better</i>		
Select an option		21

Requirements for the Option

General Philosophy Option (21 credits)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
PHIL 12	Symbolic Logic	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 6 credits in philosophy at the 00 or 100 level		6
Select one of the following:		3
PHIL 200	Ancient Philosophy	
PHIL 201	Medieval Philosophy	
PHIL 202	Modern Philosophy: 1600-1800	
PHIL 203	Nineteenth Century Philosophy	
PHIL 204	Twentieth Century Philosophy	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better
 Select 9 credits in philosophy at the 400 level, in consultation with adviser 9

Humanities and Arts Option (21 credits)

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		

PHIL 10	Critical Thinking	3
or PHIL 12	Symbolic Logic	
Select 6 credits in philosophy at the 00 or 100 level		6
Select one of the following:		3
PHIL 401	American Philosophy	
PHIL 402	Seminar in European Philosophy	
PHIL 409	Seminar in Aesthetics	
PHIL 413	Seminar in Philosophy of Literature	
PHIL 424	Seminar in Philosophy of Religion	
PHIL 435	Science and Religion	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better
 Select 6 additional credits in philosophy at the 400 level, in consultation with adviser 6
 Select 3 credits at the 400 level in a related arts or humanities discipline, in consultation with adviser 3

Philosophy of Science and Mathematics Option (21 credits)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
PHIL 12	Symbolic Logic	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 6 credits in philosophy at the 00 or 100 level		6
Select one of the following:		3
PHIL 407	Seminar in Philosophy of Technology	
PHIL 410	Seminar in Philosophy of Science	
PHIL 425W	Seminar in Epistemology	
PHIL 426W	Seminar in Metaphysics	
PHIL 427	Seminar in Philosophy of Mind	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better
 Select 6 additional credits in philosophy at the 400 level, in consultation with adviser 6
 Select 3 credits at the 400 level in a mathematics or natural science discipline, in consultation with adviser 3

Social Sciences Option (21 credits)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
PHIL 12	Symbolic Logic	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 6 credits in philosophy at the 00 or 100 level		6
Select one of the following:		3

PHIL 401	American Philosophy	
PHIL 408W	Seminar in Social and Political Philosophy	
PHIL 416	Philosophy of Social Science	
PHIL 425W	Seminar in Epistemology	
PHIL 438	Seminar in Feminist Philosophy	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 6 additional credits in philosophy at the 400 level, in consultation with adviser 6

Select 3 credits at the 400 level in social science, in consultation with adviser 3

Professional Studies Option (21 credits)

Code	Title	Credits
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Additional Courses

Additional Courses: Require a grade of C or better

Select 6 credits in philosophy at the 00 or 100 level 6

PHIL 10	Critical Thinking	3
or PHIL 12	Symbolic Logic	

Select one of the following: 3

PHIL 405	Seminar in Philosophy of Law	
PHIL 418	Seminar in Ethical Theory	
PHIL 432	Medical and Health Care Ethics	
PHIL 433	Ethics in Science and Engineering	
PHIL 435	Science and Religion	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 9 credits at the 400 level in a professional area outside philosophy, in consultation with adviser 9

Justice, Law, and Values Option (21 credits)

Code	Title	Credits
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Prescribed Courses

Prescribed Courses: Require a grade of C or better

PHIL 105	Philosophy of Law	3
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Additional Courses

Additional Courses: Require a grade of C or better

PHIL 10	Critical Thinking	3
or PHIL 12	Symbolic Logic	

Select 3 credits in philosophy at the 00 or 100 level 3

Select 3 credits in philosophy at the 400 level 3

Select one of the following: 3

PHIL 403	Seminar in Environmental Ethics	
PHIL 405	Seminar in Philosophy of Law	
PHIL 407	Seminar in Philosophy of Technology	
PHIL 408W	Seminar in Social and Political Philosophy	
PHIL 418	Seminar in Ethical Theory	
PHIL 425W	Seminar in Epistemology	
PHIL 432	Medical and Health Care Ethics	
PHIL 433	Ethics in Science and Engineering	
PHIL 438	Seminar in Feminist Philosophy	

Select two of the following: 6

AFAM 409	Racial and Ethnic Inequality in America	
AFAM 465	The Post-World War II Civil Rights Movement	
CAS 321	Rhetoric and Law	
COMM 403	Law of Mass Communications	
HIST 449	Constitutional History of the United States to 1877	
HIST 450	Constitutional History of the United States since 1877	
LST 370	Research Methods for Law and Government Information Resources	

PLSC 403	The Legislative Process
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PLSC 412	International Political Economy
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PLSC 424	Topics in Comparative Government and Institutions
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PLSC 431	Ancient, Medieval, and Renaissance Political Theories
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PLSC 432	Modern and Contemporary Political Theories
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PLSC 471	American Constitutional Law
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PLSC 472	The American Legal Process
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PLSC 474	Civil Liberties and Due Process
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WMNST 423	Sexual and Domestic Violence
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WMNST 453	Women and the Criminal Justice System
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General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- Learning about major philosophical figures, issues, traditions, methods, and trends.
- Understanding the relevance of the philosophical ideas and approaches for contemporary life, including in theoretical, scientific, existential, religious, cultural, ethical, social, and political contexts.

- Developing critical writing, reading, and speaking skills with an eye towards understanding, constructing, and assessing abstract, complex, or controversial philosophical arguments.
- Acquiring an inquisitive disposition toward philosophical questions and a willingness to justify and modify one's views about those questions through respectful conversation.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

General Philosophy Option: Philosophy, B.A. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, ESL 15, ENGL 137H, or CAS 137H [‡]	3 1-100 level PHIL Course	3
First Year Seminar	3 General Education Course	3
World Language Level 1	4 General Education Course	3
1-100 level PHIL Course	3 World Language Level 2	4
General Education Quantification Course [‡]	3 General Education Quantification Course [‡]	3

Second Year

Fall	Credits Spring	Credits
CAS 100, ENGL 138T, or CAS 138T [‡]	3 PHIL 12 [*]	3
Concentration Course [*]	3 Concentration Course [*]	3
General Education Course	3 General Education Course	3
World Language Level 3	4 General Education Course	3
General Education Course	3 BA Knowledge Domain Course	3
	16	15

Third Year

Fall	Credits Spring	Credits
Concentration Course [*]	3 Concentration Course [*]	3
General Education Course	3 ENGL 202A, 202B, 202C, or 202D [‡]	3
BA Knowledge Domain Course	3 General Education Course	3
Elective	3 Elective	3
Elective	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
Concentration Course [*]	3 Concentration Course [*]	3
Concentration Course	3 Elective	3
BA World Cultures	3 Elective	3
BA Knowledge Domain Course	3 Elective	3
General Education Health and Wellness (GHW)	1.5 General Education Health and Wellness (GHW)	1.5
	13.5	13.5

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education

requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Advising Note:

All incoming freshmen must take a First-Year Seminar (FYS) during Fall or Spring of their first year. Academic advisers can provide a list of FYS being offered and help the student enroll. Most FYS in the College of the Liberal Arts are worth 3 cr. and count as a General Humanities (GH) or General Social Sciences (GS) course. For this reason, the FYS is not listed separately on this eight-semester plan; most students will be able to fulfill the FYS requirement while also fulfilling a GH or GS requirement.

Humanities and Arts Option: Philosophy, B.A. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
ENGL 15, 30H, ESL 15, ENGL 137H, or CAS 137H [‡]	3	1-100 level PHIL Course	3
First Year Seminar	3	General Education Course	3
World Language Level 1	4	General Education Course	3
Concentration Course [*]	3	World Language Level 2	4
General Education Quantification Course [‡]	3	General Education Quantification Course [‡]	3
16		16	

Second Year

Fall	Credits	Spring	Credits
CAS 100, ENGL 138T, or CAS 138T [‡]	3	PHIL 12 or 10 [*]	3
Concentration Course [*]	3	Concentration Course [*]	3
General Education Course	3	General Education Course	3
World Language Level 3	4	General Education Course	3
General Education Course	3	BA Knowledge Domain Course	3
16		15	

Third Year

Fall	Credits	Spring	Credits
Concentration Course [*]	3	PHIL 401, 402, 409, 413, 424, or 435 [*]	3
General Education Course	3	ENGL 202A, 202B, 202C, or 202D [‡]	3
BA Knowledge Domain Course	3	General Education Course	3
Elective	3	Elective	3
Elective	3	Elective	3
15		15	

Fourth Year

Fall	Credits	Spring	Credits
Concentration Course [*]	3	Concentration Course [*]	3
4xx level in Humanities [*]	3	Elective	3
BA World Cultures	3	Elective	3
BA Knowledge Domain Course	3	Elective	3
General Education Health and Wellness (GHW)	1.5	General Education Health and Wellness (GHW)	1.5
13.5		13.5	

Total Credits 120

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Advising Note:

All incoming freshmen must take a First-Year Seminar (FYS) during Fall or Spring of their first year. Academic advisers can provide a list of FYS being offered and help the student enroll. Most FYS in the College of the Liberal Arts are worth 3 cr. and count as a General Humanities (GH) or General Social Sciences (GS) course. For this reason, the FYS is not listed separately on this eight-semester plan; most students will be able to fulfill the FYS requirement while also fulfilling a GH or GS requirement.

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Philosophy of Science and Mathematics Option: Philosophy, B.A. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
ENGL 15, 30H, ESL 15, ENGL 137H, or CAS 137H [‡]	3	1-100 level PHIL Course	3
First Year Seminar	3	General Education Course	3
World Language Level 1	4	General Education Course	3
Concentration Course [*]	3	World Language Level 2	4
General Education Quantification Course [‡]	3	General Education Quantification Course [‡]	3
16		16	

Second Year

Fall	Credits	Spring	Credits
CAS 100, ENGL 138T, or CAS 138T [‡]	3	PHIL 12 [*]	3
Concentration Course [*]	3	Concentration Course [*]	3
General Education Course	3	General Education Course	3
World Language Level 3	4	General Education Course	3
General Education Course	3	BA Knowledge Domain Course	3
16		15	

Third Year

Fall	Credits	Spring	Credits
Concentration Course [*]	3	PHIL 407, 410, 425W, 426W, or 427 [*]	3
General Education Course	3	ENGL 202A, 202B, 202C, or 202D [‡]	3
BA Knowledge Domain Course	3	General Education Course	3
Elective	3	Elective	3
Elective	3	Elective	3
15		15	

Fourth Year

Fall	Credits	Spring	Credits
Concentration Course [*]	3	Concentration Course [*]	3
4xx level in Mathematics and Science [*]	3	Elective	3
BA World Cultures	3	Elective	3
BA Knowledge Domain Course	3	Elective	3
General Education Health and Wellness (GHW)	1.5	General Education Health and Wellness (GHW)	1.5
13.5		13.5	

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Advising Note:

All incoming freshmen must take a First-Year Seminar (FYS) during Fall or Spring of their first year. Academic advisers can provide a list of FYS being offered and help the student enroll. Most FYS in the College of the Liberal Arts are worth 3 cr. and count as a General Humanities (GH) or General Social Sciences (GS) course. For this reason, the FYS is not listed separately on this eight-semester plan; most students will be able to fulfill the FYS requirement while also fulfilling a GH or GS requirement.

Social Sciences Option: Philosophy, B.A. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
ENGL 15, 30H, ESL 15, ENGL 137H, or CAS 137H [†]	3	1-100 level PHIL Course	3
First Year Seminar	3	General Education Course	3
World Language Level 1	4	General Education Course	3
Concentration Course [*]	3	World Language Level 2	4
General Education Quantification Course [‡]	3	General Education Quantification Course [‡]	3
16		16	

Second Year

Fall	Credits	Spring	Credits
CAS 100, ENGL 138T, or CAS 138T [†]	3	PHIL 12 [*]	3
Concentration Course [*]	3	Concentration Course [*]	3
General Education Course	3	General Education Course	3
World Language Level 3	4	General Education Course	3
General Education Course	3	BA Knowledge Domain Course	3
16		15	

Third Year

Fall	Credits	Spring	Credits
Concentration Course [*]	3	PHIL 401, 408W, 416, 425W, or 438 [*]	3
General Education Course	3	ENGL 202A, 202B, 202C, or 202D [†]	3
BA Knowledge Domain Course	3	General Education Course	3
Elective	3	Elective	3
Elective	3	Elective	3
15		15	

Fourth Year

Fall	Credits	Spring	Credits
Concentration Course [*]	3	Concentration Course [*]	3
4xx level in Social Sciences [*]	3	Elective	3
BA World Cultures	3	Elective	3
BA Knowledge Domain Course	3	Elective	3
General Education Health and Wellness (GHW)	1.5	General Education Health and Wellness	1.5
13.5		13.5	

Total Credits 120

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Advising Note:

All incoming freshmen must take a First-Year Seminar (FYS) during Fall or Spring of their first year. Academic advisers can provide a list of FYS being offered and help the student enroll. Most FYS in the College of the Liberal Arts are worth 3 cr. and count as a General Humanities (GH) or General Social Sciences (GS) course. For this reason, the FYS is not listed separately on this eight-semester plan; most students will be able to fulfill the FYS requirement while also fulfilling a GH or GS requirement.

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Professional Studies Option: Philosophy, B.A. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
ENGL 15, 30H, ESL 15, ENGL 137H, or CAS 137H [‡]	3	1-100 level PHIL Course	3
First Year Seminar	3	General Education Course	3
World Language Level 1	4	General Education Course	3
Concentration Course [*]	3	World Language Level 2	4
General Education Quantification Course [‡]	3	General Education Quantification Course [‡]	3
16		16	

Second Year

Fall	Credits	Spring	Credits
CAS 100, ENGL 138T, or CAS 138T [‡]	3	PHIL 12 or 10 [*]	3
Concentration Course [*]	3	Concentration Course [*]	3
General Education Course	3	General Education Course	3
World Language Level 3	4	General Education Course	3
General Education Course	3	BA Knowledge Domain Course	3
16		15	

Third Year

Fall	Credits	Spring	Credits
Concentration Course [*]	3	PHIL 405, 418, 432, 433, or 435 [*]	3
General Education Course	3	ENGL 202A, 202B, 202C, or 202D [‡]	3
BA Knowledge Domain Course	3	General Education Course	3
Elective	3	Elective	3
Elective	3	Elective	3
15		15	

Fourth Year

Fall	Credits	Spring	Credits
Concentration Course [*]	3	Concentration Course [*]	3
Concentration Course [*]	3	Elective	3
BA World Cultures	3	Elective	3
BA Knowledge Domain Course	3	Elective	3
General Education Health and Wellness (GHW)	1.5	General Education Health and Wellness	1.5
13.5		13.5	

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Advising Note:

All incoming freshmen must take a First-Year Seminar (FYS) during Fall or Spring of their first year. Academic advisers can provide a list of FYS being offered and help the student enroll. Most FYS in the College of the Liberal Arts are worth 3 cr. and count as a General Humanities (GH) or General Social Sciences (GS) course. For this reason, the FYS is not listed separately on this eight-semester plan; most students will be able to fulfill the FYS requirement while also fulfilling a GH or GS requirement.

Justice, Law, and Values Option: Philosophy, B.A. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
ENGL 15, 30H, ESL 15, ENGL 137H, or CAS 137H [†]	3	PHIL 105 [*]	3
First Year Seminar	3	General Education Course	3
World Language Level 1	4	General Education Course	3
Concentration Course [*]	3	World Language Level 2	4
General Education Quantification Course [‡]	3	General Education Quantification Course [‡]	3
16		16	

Second Year

Fall	Credits	Spring	Credits
CAS 100, ENGL 138T, or CAS 138T [‡]	3	PHIL 12 or 10 [*]	3
Concentration Course [*]	3	Concentration Course [*]	3
General Education Course	3	General Education Course	3
World Language Level 3	4	General Education Course	3
General Education Course	3	BA Knowledge Domain Course	3
16		15	

Third Year

Fall	Credits	Spring	Credits
Concentration Course [*]	3	PHIL 403, 405, 407, 408W, 418, 425W, 432, 433, or 438 [*]	3
General Education Course	3	ENGL 202A, 202B, 202C, or 202D [‡]	3
BA Knowledge Domain Course	3	General Education Course	3
Elective	3	Elective	3
Elective	3	Elective	3
15		15	

Fourth Year

Fall	Credits	Spring	Credits
Concentration Course [*]	3	AFAM 409, 465, CAS 321, COMM 402, HIST 449, HIST 450, LST 370, PLSC 403, PLSC 412, PLSC 431, PLSC 432, PLSC 471, PLSC 472, PLSC 473, PLSC 474, WMNST 423, or WMNST 453 [*]	3
BA World Cultures	3	Elective	3
BA Knowledge Domain Course	3	Elective	3
General Education Health and Wellness (GHW)	1.5	Elective	3

AFAM 409, 465, CAS 321, COMM 402, HIST 449, HIST 450, LST 370, PLSC 403, PLSC 412, PLSC 431, PLSC 432, PLSC 471, PLSC 472, PLSC 473, PLSC 474, WMNST 423, or WMNST 453 [*]	3	General Education Health and Wellness	1.5
13.5		13.5	

Total Credits 120

- * Course requires a grade of C or better for the major
 ‡ Course requires a grade of C or better for General Education
 # Course is an Entrance to Major requirement
 † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Advising Note:

All incoming freshmen must take a First-Year Seminar (FYS) during Fall or Spring of their first year. Academic advisers can provide a list of FYS being offered and help the student enroll. Most FYS in the College of the Liberal Arts are worth 3 cr. and count as a General Humanities (GH) or General Social Sciences (GS) course. For this reason, the FYS is not listed separately on this eight-semester plan; most students will be able to fulfill the FYS requirement while also fulfilling a GH or GS requirement.

Career Paths

Students in the Philosophy major may choose to pursue one of several areas of concentration, including the history of philosophy, humanities and arts, natural sciences and mathematics, social sciences, professional studies, or justice, law and values. Each option is designed to prepare students to reach career or educational goals in its associated field.

Careers

Philosophy students learn the kinds of critical, interpretive, analytical, and argumentative skills highly prized by employers in a wide variety of fields, including publishing, non-profit work, consulting, information technology, law, business, education, journalism, medicine, and public service.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE PHILOSOPHY PROGRAM (<https://philosophy.la.psu.edu/undergraduate/>)

Opportunities for Graduate Studies

Philosophy students score consistently higher than other majors on LSAT, MCAT, and GMAT exams. The study of philosophy provides students with an outstanding preparation for law school, medical school, and other advanced degrees. For those students interested in pursuing graduate work in philosophy, our department has a strong record of placing its graduates into top-notch doctoral programs.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://philosophy.la.psu.edu/undergraduate/>)

Professional Resources

- American Philosophical Association (<https://www.apaonline.org>)
- Society for Phenomenology and Existential Philosophy (<https://www.spep.org/about/mission/>)

Contact

University Park

DEPARTMENT OF PHILOSOPHY
234 Sparks Building
University Park, PA 16802
814-865-6397
npr109@psu.edu

<https://philosophy.la.psu.edu>

Philosophy, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The Philosophy B.S. option is intended for students who wish to study philosophy as part of a multiple major program with other B.S. degree programs, especially those connected to the life sciences, the physical sciences, mathematics, engineering, or technology. It allows such students to study the philosophical, critical, and ethical dimensions of pure and applied sciences, including the areas of philosophy foundational for such study. The focus is, then, on analytic and normative reasoning connected to reasoning and explanation; theory and practice; the nature and limits of human understanding; and the structure and knowability of the world it seeks to understand.

What is Philosophy?

Philosophy is the oldest of the liberal arts, and is often defined simply as the love of wisdom. Philosophy is at the core of the liberal arts tradition and provided the foundation for the modern university, yet it remains highly relevant to life in technologically complex, diverse, global, information driven societies such as our own. The Philosophy major provides in-depth study of fundamental issues that inescapably confront all persons, such as ethics, social and political philosophy, aesthetics, metaphysics, philosophy of mind, philosophy of religion, epistemology, philosophy of science, and logic. These studies enhance imaginative, interpretive, analytical, critical, and communicative capacities. Majors thus may acquire intellectual abilities crucial for self-fulfillment, responsible participation in public life, and success in a wide range of careers—including law, business, education, journalism, medicine, and public service.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

- attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
- have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Philosophy, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	36
Requirements for the Major	39

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
PHIL 12	Symbolic Logic	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 9 credits in Philosophical Foundations of Science:		9
PHIL 11	Science and Truth	
PHIL 13	Nature and Environment	

PHIL 110	Philosophy of Science	
PHIL 125	Theories of Knowledge	
	or PHIL 125V Theories of Knowledge	
PHIL 126	Metaphysics	
	or PHIL 126W Metaphysics	
PHIL 127	Philosophy of Mind	
PHIL 129	Philosophy of Language	
Select 6 credits in Ethics and Science:		6
PHIL 107	Philosophy of Technology	
PHIL 118	Environmental Philosophy	
PHIL 132	Bioethics	
PHIL 133N	Ethics of Climate Change	
PHIL 134	Food, Values, and Health	
Select 6 credits in Advanced Topics:		6
PHIL 403	Seminar in Environmental Ethics	
PHIL 407	Seminar in Philosophy of Technology	
PHIL 410	Seminar in Philosophy of Science	
PHIL 425W	Seminar in Epistemology	
PHIL 426W	Seminar in Metaphysics	
PHIL 427	Seminar in Philosophy of Mind	
PHIL 432	Medical and Health Care Ethics	
Select 6 credits in Formal Reasoning:		6
CMPSC 111	Logic for Computer Science	
CMPSC 121	Introduction to Programming Techniques	
CMPSC 131	Programming and Computation I: Fundamentals	
CMPSC 360	Discrete Mathematics for Computer Science	
CMPSC 441	Artificial Intelligence	
CMPSC 442	Artificial Intelligence	
ECON 306	Introduction to Econometrics	
ECON 402	Decision Making and Strategy in Economics	
ECON 411	Behavioral Economics	
ECON 414		
ECON 474	Experimental and Behavioral Economics	
IST 230	Language, Logic, and Discrete Mathematics	
IST 240	Introduction to Computer Languages	
MATH 315		
MATH 427	Foundations of Geometry	
MATH 457	Introduction to Mathematical Logic	
MATH 465	Number Theory	
MATH 475Y	History of Mathematics	
MATH 486	Mathematical Theory of Games	
RM 301	Risk and Decisions	
SC 205N	BS: Identifying Bias and Falsehood	
SRA 231	Decision Theory and Analysis	
STAT 318	Elementary Probability	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 3 credits PHIL elective, unrestricted topic 3

Select 6 credits Advanced Topics supporting program, choose from: 6
Advanced Topics, Formal Reasoning, or by approval

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- Learning about major philosophical figures, issues, traditions, methods, and trends.
- Understanding the relevance of the philosophical ideas and approaches for contemporary life, including in theoretical, scientific, existential, religious, cultural, ethical, social, and political contexts.
- Developing critical writing, reading, and speaking skills with an eye towards understanding, constructing, and assessing abstract, complex, or controversial philosophical arguments.
- Acquiring an inquisitive disposition toward philosophical questions and a willingness to justify and modify one's views about those questions through respectful conversation.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Philosophy, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
GWS	3 GWS	3
First-Year Seminar	3 Philosophy (Foundation Course)	3
Philosophy (Any Course)	3 General Quantification	3
General Education Course	3 General Education Course	3
General Quantification	3 General Education Course	3
	15	15

Second Year

Fall	Credits Spring	Credits
Philosophy (Foundation Course)	3 Philosophy (Foundation Course)	3
Philosophy Ethics and Science Course	3 Formal Reasoning Course	3
General Education Course	3 General Education Course	3
Elective	3 Elective	3
Elective	3 Elective	3
	15	15

Third Year

Fall	Credits Spring	Credits
Formal Reasoning Course	3 GWS	3
Philosophy Ethics and Science Course	3 PHIL 12	3
General Education Course	3 General Education Course	3
Elective	3 Elective	3
Elective	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
Advanced PHIL Topics	3 Advanced PHIL Topics	3
Supporting Advanced PHIL	3 Supporting Advanced PHIL	3
General Education Course	3 General Education Course	3
Elective	4.5 Elective	4.5
General Health and Wellness	1.5 General Health and Wellness	1.5
	15	15

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Contact

University Park

DEPARTMENT OF PHILOSOPHY

234 Sparks Building

University Park, PA 16802

814-865-6397

npr109@psu.edu

<https://philosophy.la.psu.edu>

Philosophy, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

Many students find that their studies in their major field can be profitably supplemented by pursuing their studies in philosophy. The Philosophy minor is designed for students who desire a significant background in philosophy while majoring in a different field. Students from many disciplines pursue the Philosophy minor, including English, History, Physics, Mathematics, Management Studies, and so on. Declaring a minor in Philosophy will allow you to continue your philosophy studies throughout your degree, and you will receive a certificate in Philosophy when you graduate.

What is Philosophy?

Philosophy is the oldest of the liberal arts, and is often defined simply as the love of wisdom. Philosophy is at the core of the liberal arts tradition and provided the foundation for the modern university, yet it

remains highly relevant to life in technologically complex, diverse, global, information driven societies such as our own. The Philosophy major provides in-depth study of fundamental issues that inescapably confront all persons, such as ethics, social and political philosophy, aesthetics, metaphysics, philosophy of mind, philosophy of religion, epistemology, philosophy of science, and logic. The Philosophy minor is designed for students who desire a significant background in Philosophy while majoring in a different field. Students from many disciplines pursue Philosophy minors, including English, History, Physics, Mathematics, Management Studies, and others.

You Might Like This Program If...

- You want to gain a significant background in Philosophy while majoring in a different field.
- You want to develop critical thinking skills, including constructing, interpreting, and critically analyzing philosophical arguments.
- You want to acquire intellectual abilities crucial for self-fulfillment, responsible participation in public life, and success in a wide range of careers.
- You have enthusiasm for inquiry and want engage in philosophical discussions about ethics, social and political philosophy, metaphysics, and aesthetics.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
In consultation with a faculty adviser:		
	Select 6 credits of Philosophy courses	6
	Select 6 credits of Philosophy courses at the 200 level	6
	Select 6 credits of Philosophy courses at the 400 level	6

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Abington

Pierce Salguero

Associate Professor of Asian History and Religious Studies

1600 Woodland Road

Abington, PA 19001

215-881-7826

salguero@psu.edu

Career Paths

Careers

Philosophy students learn the kinds of critical, interpretive, analytical, and argumentative skills highly prized by employers in a wide variety of fields, including publishing, non-profit work, consulting, information technology, law, business, education, journalism, medicine, and public service.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN PHILOSOPHY (<https://philosophy.la.psu.edu/undergraduate/>)

Opportunities for Graduate Studies

Philosophy students score consistently higher than other majors on LSAT, MCAT, and GMAT exams. The study of philosophy provides students with an outstanding preparation for law school, medical school, and other advanced degrees.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://philosophy.la.psu.edu/undergraduate/>)

Contact

University Park

DEPARTMENT OF PHILOSOPHY

234 Sparks Building

University Park, PA 16802

814-865-6397

npr109@psu.edu

<https://philosophy.la.psu.edu/undergraduate/philosophy-minor/>

Abington

DIVISION OF ARTS AND HUMANITIES

1600 Woodland Road

Abington, PA 19001

215-881-7826

salguero@psu.edu

Political Science, B.A. (Liberal Arts)

Begin Campus: Any Penn State Campus

End Campus: University Park, World Campus

Program Description

The Political Science major offers the student an opportunity to understand not only American federal, state, and local governments, but also the political systems of other nations and the philosophies that underlie them. Courses are offered in American, comparative, and international politics, and in political theory and methodology. Internship opportunities are available.

What is Political Science?

Political science is one of the social sciences. It is the study of systems of governance and governmental institutions, political activity, political thought, and political behavior. Political science draws from many other academic disciplines, including economics, law, sociology, history, philosophy, geography, psychology, and anthropology. There also are subfields of political science, such as comparative politics, political theory, international relations, international law, public administration, and public policy. Political science students study how American government works (and doesn't work) and what can be done to improve government at the federal, state, and local level. In comparative government and international relations coursework, students study the politics and policies of other countries. Political theory courses examine the ideas of famous political philosophers, while courses on law and the legal process provide knowledge about the criminal justice and civil litigation systems.

You Might Like This Program If...

You are interested in how power and resources are allocated in society. Students in this major study governments, public policies, and political behavior in the United States and around the world from both a humanistic and scientific perspective. If you're interested in how history, culture, and economics shape our lives and impact things like economic development, conflict, foreign policy, terrorism, globalization, and the environment, then this is the major for you.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

World Campus

Direct Admission to the Major

Incoming first-year students who meet the program admission requirements are admitted directly into the major. Admission restrictions may apply for change-of-major and/or change-of-campus students.

For more information about the admission process for this major, please send a request to the college, campus, or program contact (listed in the Contact tab).

Degree Requirements

For the Bachelor of Arts degree in Political Science, a minimum of 123 credits is required:

Requirement	Credits
General Education	45
Electives	15
Bachelor of Arts Degree Requirements	24
Requirements for the Major	39

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

In meeting the requirements for the major, students must take at least one course at any level from FOUR of the five fields offered in the department: Political Theory, Methodology, American Politics/Public Administration, Comparative Politics, and International Relations.

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 15 credits in PLSC at or above the 400 level		15
Select 15 credits in PLSC at any level, with at least 9 of these credits above the 100 level or above ¹		15
Select 9 credits from the following:		9
PLSC 1	American Politics: Principles, Processes and Powers	
PLSC 3	Comparing Politics around the Globe	
PLSC 10	Scientific Study of Politics	
PLSC 14	International Relations	
PLSC 14H	International Relations Honors	
PLSC 17N	Introduction to Political Theory	
PLSC 17W	Introduction to Political Theory	

¹ Up to 6 credits of these 15 credits at any level may be taken in related or complementary disciplines with approval of an academic adviser.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing

intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- Quantification (GQ): 6 credits
- Writing and Speaking (GWS): 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- Arts (GA): 3 credits
- Health and Wellness (GHW): 3 credits
- Humanities (GH): 3 credits
- Social and Behavioral Sciences (GS): 3 credits
- Natural Sciences (GN): 3 credits

Integrative Studies

- Inter-Domain Courses (Inter-Domain): 6 credits

Exploration

- GN, may be completed with Inter-Domain courses: 3 credits
- GA, GH, GN, GS, Inter-Domain courses. This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Integrated B.A. in Political Science and M.I.A. in International Affairs

Available at the following campuses: University Park

Requirements for the Integrated B.A. in Political Science and M.I.A. in International Affairs can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/international-affairs/#integratedundergradgradprogramstext>).

Integrated B.A. in Political Science and M.P.P. In Public Policy

Available at the following campuses: University Park

Requirements for the Integrated B.A. in Political Science and M.P.P. in Public Policy can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/public-policy/#integratedundergradgradprogramstext>).

Program Learning Objectives

- Students will develop substantive knowledge of the discipline of Political Science.
 - Students will be able to define and use the concepts political scientists employ to make and substantiate knowledge claims.
 - Students will be able to describe the central debates and theoretical frameworks of political science and international politics.

- Students will develop knowledge about how political scientists use empirical analysis to gain insight into political and social processes, to advance political and social goals, and to evaluate the effects of programs and policies.
 - Students will be able to explain multiple approaches to empirical research, such as large-scale observational research, experiments, surveys, case studies, formal modeling, and elite interviewing.
 - Students will be able to describe both the application, and the advantages and disadvantages of different research methods in relation to particular problems.
- Students will develop the ability to create coherent, persuasive, and empirically grounded oral and written arguments.
 - Students will be able to construct and defend logical arguments.
 - Students will be able to present evidence to support empirical claims.
 - Students will be able to communicate ideas effectively in conformity with academic standards.
- Students will develop the ability to systematically analyze problems and draw evidenced based inferences. Students in different majors will accomplish this with different emphases depending on the courses they take as part of the BA/BS.
 - Bachelor of Arts students in PLSC and INTPL will analyze problems and draw evidence based inferences using a broad range of techniques according to programmatic focus and individual preference.
 - PLSC Bachelor of Science majors will analyze problems and draw inferences using various data sources and statistical tools.
 - PLSC SODA majors will analyze problems and draw inferences using computational tools appropriate to large complex data sets.
- Students will develop the ability to combine the substantive knowledge, modes of inquiry, and analytic skills learned in the classroom to address contemporary problems in an uncertain world.
 - Students will be able to draw upon political science research to construct testable explanations of novel situations.
 - Students will be able to weigh the arguments, evidence and inferences used to address problems under conditions of uncertainty.
- Students will develop ethical reasoning and citizenship skills to participate in a global, pluralistic society.
 - Students will be able to trace the possible ethical implications of public policies and political structures and their consequences for democratic political values.
 - Students will be able to articulate the goals, conditions, and challenges of democracy and describe the roles of citizens and public officials in manifesting and preserving democratic values.
 - Students will be able to critically evaluate the values inherent in the exercise of power through political systems, social structures, information, and collective action.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Harrisburg

Daniel J. Mallinson, Ph.D.

Program Coordinator

Olmsted W160

Middletown, PA 17057

717-948-6503

djm466@psu.edu

World Campus

Undergraduate Academic Advising

301 Outreach Building

University Park, PA 16802

814-863-3283

advising@outreach.psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Political Science, B.A. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PLSC 1 (US)*	3 PLSC 14 (IL)*	3
World Language Level 1	4 World Language Level 2	4
General Education Course (GQ)†	3 General Education Course	3
FYS/General Education Course	3 General Education Course	3

ENGL 15, 30H, 137H, CAS 137H, or ESL 15 (GWS)‡	3 CAS 100, CAS 100A, CAS 100B, CAS 100C, CAS 138T, or ENGL 138T (GWS)‡	3
16		16

Second Year

Fall	Credits Spring	Credits
PLSC 3, 20, or 22*	3 PLSC 7N, 10, or 17N*	3
World Language Level 3	4 PLSC 400-Level*	3
General Education Course (GQ)†	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course	3 BA Fields	3
16		15

Third Year

Fall	Credits Spring	Credits
PLSC 400-Level*	3 PLSC 400-Level*	3
Related Course in Consultation with Adviser*	3 Related Course in Consultation with Adviser*	3
General Education Course	3 General Education Course	3
ENGL 202A, 202B, 202C, or 202D (GWS)‡	3 BA Fields	3
BA Fields	3 Elective (WAC)	3
15		15

Fourth Year

Fall	Credits Spring	Credits
PLSC 400-Level*	3 PLSC 400-Level*	3
Related Course in Consultation with Adviser*	3 Elective	3
Elective	3 Elective	3
Elective (OC)	3 Elective	3
Elective	3 General Education Course (GHW)	3
15		15

Total Credits 123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Political Science, B.A. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PLSC 1 (US)*	3 PLSC 14 (IL)*	3
World Language Level 1	4 World Language Level 2	4
General Education Course (GQ)†	3 General Education Course	3
FYS/General Education Course	3 General Education Course	3
ENGL 15, 30H, or ESL 15 (GWS)‡	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C (GWS)‡	3
	16	16

Second Year

Fall	Credits Spring	Credits
PLSC 3, 20, or 22*	3 General Education Course	3
World Language Level 3	4 General Education Course	3
General Education Course (GQ)†	3 General Education Course	3
General Education Course	3 General Education Course (GHW)	3
General Education Course	3 Elective (WAC)	3
	16	15

Third Year

Fall	Credits Spring	Credits
PLSC 7N, 10, or 17N*	3 PLSC 400-Level*	3
General Education Course	3 PLSC 400-Level*	3
ENGL 202A, 202B, 202C, or 202D (GWS)‡	3 Related Course in Consultation with Adviser*	3
BA Fields	3 BA Fields	3
Elective (OC)	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
PLSC 400-Level*	3 PLSC 400-Level*	3
PLSC 400-Level*	3 Related Course in Consultation with Adviser	3
Related Course in Consultation with Adviser*	3 Elective	3
BA Fields	3 Elective	3
Elective	3 Elective	3
	15	15

Total Credits 123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Career Paths

Political Science is one of the most versatile majors in the liberal arts. The program provides students with an in-depth understanding of political issues while honing their ability to think critically and communicate persuasively. As a political science major, you will learn to conduct research and to evaluate information and assemble empirically supported arguments. These skills are necessary for success in a variety of careers, including law, public policy, lobbying, business, political campaigning, and government, as well as with non-profit organizations.

Careers

Penn State Political Science graduates are serving as advisers to the State Department; as attorneys and management specialists in the Department of Justice; as speech writers, lobbyists and policy analysts on Capitol Hill; and even in the United States Senate. Our alumni have built successful careers in business, and as lawyers, teachers, and journalists. Many are successful entrepreneurs, some work for NGOs, others are leaders of major corporations. You can learn from their experience through our alumni mentoring program.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE POLITICAL SCIENCE PROGRAM (<https://www.apsanet.org/CAREERS/Careers-for-Political-Scientists/Careers-Sectors-for-Political-Science/>)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://polisci.la.psu.edu/undergraduate/student-life/alumni-mentor-program/>)

Contact

University Park

DEPARTMENT OF POLITICAL SCIENCE

202 Pond Lab

University Park, PA 16802

814-865-4597

<https://polisci.la.psu.edu/undergraduate/advising/>

<https://polisci.la.psu.edu/>

World Campus

DEPARTMENT OF POLITICAL SCIENCE

220 Pond Lab

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ajh38@psu.edu

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-political-science-bachelor-of-arts-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-political-science-bachelor-of-arts-degree/>)

Harrisburg

SCHOOL OF PUBLIC AFFAIRS

Olmsted Building, W160

Middletown, PA 17057

717-948-6779

aqk5884@psu.edu

<https://harrisburg.psu.edu/public-affairs/political-science-ba> (<https://harrisburg.psu.edu/public-affairs/political-science-ba/>)

Political Science, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park, World Campus

Program Description

The Bachelor of Science Degree in Political Science emphasizes the technical aspects of political science knowledge development and application. In addition to broad coursework in political science, students will complete courses in statistics and research design, advanced classes in social science methods and upper level political science courses that employ quantitative research skills in exploring substantive themes. Students have the opportunity to complete either a research practicum within the Political Science Department, an internship or a TA-ship. This degree will serve students who are interested in political science from the point of view of the practitioner, as well as those who are interested in acquiring practical skills relevant to a variety of careers in politics, government and business.

What is Political Science?

Political science is one of the social sciences. It is the study of systems of governance and governmental institutions, political activity, political thought, and political behavior. Political science draws from many other academic disciplines, including economics, law, sociology, history, philosophy, geography, psychology, and anthropology. There also are subfields of political science, such as comparative politics, political theory, international relations, international law, public administration, and public policy. Political science students study how American government

works (and doesn't work) and what can be done to improve government at the federal, state, and local level. In comparative government and international relations coursework, students study the politics and policies of other countries. Political theory courses examine the ideas of famous political philosophers, while courses on law and the legal process provide knowledge about the criminal justice and civil litigation systems.

You Might Like This Program If...

You are an active learner interested in politics, government, policy or business and you enjoy solving problems and the elegance of the scientific method. You might also choose the Bachelor of Science if you are interested in working as a lobbyist, campaign strategist, or policy analyst. This program will enable you to develop a portfolio of concrete and immediately marketable set of skills that are increasingly necessary for employments in these fields

Entrance to the Major

Admission to the major requires a grade of C or better in MATH 110 or MATH 140 and a grade of B or better in PLSC 309. These courses must be completed by the end of the semester during which the admission to major process is carried out.

Degree Requirements

For the Bachelor of Science degree in Political Science, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	13-14
Requirements for the Major	67-68

6 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GQ courses.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of B or better</i>		
PLSC 309	Quantitative Political Analysis	3
<i>Prescribed Courses: Require a grade of C or better</i>		
PLSC 10	Scientific Study of Politics	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
MATH 110 or MATH 140	Techniques of Calculus I Calculus With Analytic Geometry I	4
PLSC 308 or PLSC 300	Introduction to Political Research Introduction to Independent Thesis Research	3
Select 9 credits from the following:		
PLSC 1	American Politics: Principles, Processes and Powers	9
PLSC 3	Comparing Politics around the Globe	
PLSC 7N	Contemporary Political Ideologies	

PLSC 14	International Relations	
PLSC 17N	Introduction to Political Theory	
Select 3-4 credits from the following:		3-4
CMPSC 101	Introduction to Programming	
CMPSC 121	Introduction to Programming Techniques	
CMPSC 203	Introduction to Spreadsheets and Databases	
Select 9 credits of data intensive PLSC courses from a department list		9
Select 9 credits of any 400-level PLSC course		9
Select 9 credits of methodology from the following:		9
GEOG 363	Geographic Information Systems	
GEOG 364	Spatial Analysis	
PLSC 410	Strategy and Politics	
STAT 380	Data Science Through Statistical Reasoning and Computation	
STAT 461	Analysis of Variance	
STAT 462	Applied Regression Analysis	
STAT 463	Applied Time Series Analysis	
STAT 466	Survey Sampling	
Courses from a department approved list		
Select 3 credits from the following:		3
LA 495	Undergraduate Field Experience or Practicum	
PLSC 494	Research Project	
PLSC 496	Independent Studies	
Data intensive course from a department list		

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 12 credits from department approved list of courses in the arts, humanities, languages, social and behavioral sciences, natural sciences, and related fields. Students can take a range of courses across disciplines or concentrate their selection to complete a minor in a supporting field. 12

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- Students will develop substantive knowledge of the discipline of Political Science.
 - Students will be able to define and use the concepts political scientists employ to make and substantiate knowledge claims.
 - Students will be able to describe the central debates and theoretical frameworks of political science and international politics.
- Students will develop knowledge about how political scientists use empirical analysis to gain insight into political and social processes, to advance political and social goals, and to evaluate the effects of programs and policies.
 - Students will be able to explain multiple approaches to empirical research, such as large-scale observational research, experiments, surveys, case studies, formal modeling, and elite interviewing.
 - Students will be able to describe both the application, and the advantages and disadvantages of different research methods in relation to particular problems.
- Students will develop the ability to create coherent, persuasive, and empirically grounded oral and written arguments.
 - Students will be able to construct and defend logical arguments.
 - Students will be able to present evidence to support empirical claims.
 - Students will be able to communicate ideas effectively in conformity with academic standards.
- Students will develop the ability to systematically analyze problems and draw evidenced based inferences. Students in different majors will accomplish this with different emphases depending on the courses they take as part of the BA/BS.
 - Bachelor of Arts students in PLSC and INTPL will analyze problems and draw evidence based inferences using a broad range of techniques according to programmatic focus and individual preference.
 - PLSC Bachelor of Science majors will analyze problems and draw inferences using various data sources and statistical tools.
 - PLSC SODA majors will analyze problems and draw inferences using computational tools appropriate to large complex data sets.
- Students will develop the ability to combine the substantive knowledge, modes of inquiry, and analytic skills learned in the classroom to address contemporary problems in an uncertain world.
 - Students will be able to draw upon political science research to construct testable explanations of novel situations.
 - Students will be able to weigh the arguments, evidence and inferences used to address problems under conditions of uncertainty.
- Students will develop ethical reasoning and citizenship skills to participate in a global, pluralistic society.
 - Students will be able to trace the possible ethical implications of public policies and political structures and their consequences for democratic political values.
 - Students will be able to articulate the goals, conditions, and challenges of democracy and describe the roles of citizens and public officials in manifesting and preserving democratic values.
 - Students will be able to critically evaluate the values inherent in the exercise of power through political systems, social structures, information, and collective action.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

World Campus

Undergraduate Academic Advising

301 Outreach Building

University Park, PA 16802

814-863-3283

advising@outreach.psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Political Science, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 110 or 140 (GQ) ^{**†}	4 CMPSC 101, 131, or 203 (GQ) ^{**††}	3
PLSC 10 (GS) [*]	3 PLSC 1, 3, 7N, 14, or 17N [*]	3
PLSC 1, 3, 7N, 14, or 17N [*]	3 General Education Course	3
FYS/General Education Course	3 General Education Course	3

ENGL 15, 30H, 137H, CAS 137H, or ESL 15 (GWS) [‡]	3 CAS 100, CAS 100A, CAS 100B, CAS 100C, CAS 138T, or ENGL 138T (GWS) [‡]	3
16		15

Second Year

Fall	Credits Spring	Credits
STAT 184	2 PLSC 308*	3
PLSC 1, 3, 7N, 14, or 17N*	3 PLSC 400-Level ^{*1}	3
PLSC 309*	3 Related Course In Consultation with Adviser*	3
General Education Course (IL)	3 General Education Course (US)	3
General Education Course	3 General Education Course	3
14		15

Third Year

Fall	Credits Spring	Credits
PLSC 400-Level ^{*1}	3 PLSC 400-Level ^{*1}	3
PLSC 400-Level ^{*1}	3 Methodology Course*	3
Related Course in Consultation with Adviser*	3 Related Course in Consultation with Adviser*	3
ENGL 202A, 202B, 202C, or 202D (GWS) [‡]	3 General Education Course	3
General Education Course	3 Elective	3
15		15

Fourth Year

Fall	Credits Spring	Credits
PLSC 400-Level ^{*1}	3 PLSC Capstone*	3
Methodology Course*	3 PLSC 400-Level ^{*1}	3
Related Course in Consultation with Adviser*	3 Methodology Course*	3
Elective (WAC)	3 Elective	3
Elective	3 General Education Course (GHW)	3
15		15

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Select 18 credits of PLSC 400-level courses; at least 9 credits must be data intensive from department list

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number

used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Political Science, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 110 or 140 (GQ) ^{**†}	4 CMPSC 101, 131, or 203 (GQ) ^{*††}	3
PLSC 1, 3, 7N, 14, or 17N [*]	3 PLSC 1, 3, 7N, 14, or 17N [*]	3
General Education Course	3 General Education Course	3
FYS/Elective	3 General Education Course	3
ENGL 15, 30H, or ESL 15 (GWS) [‡]	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C (GWS) [‡]	3
	16	15

Second Year

Fall	Credits Spring	Credits
PLSC 1, 3, 7N, 14, or 17N [*]	3 General Education Course (US)	3
General Education Course (IL)	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course (GHW)	3
Elective (WAC)	3 Elective	3
	15	15

Third Year

Fall	Credits Spring	Credits
PLSC 10 (GS) [*]	3 PLSC 308 [*]	3
PLSC 309 [*]	3 PLSC 400-Level ^{*1}	3
Related Course in Consultation with Adviser [*]	3 PLSC 400-Level ^{*1}	3
ENGL 202A, 202B, 202C, or 202D (GWS) [‡]	3 Related Course in Consultation with Adviser [*]	3
STAT 184	2 Methodology Course [*]	3
	14	15

Fourth Year

Fall	Credits Spring	Credits
PLSC 400-Level ^{*1}	3 PLSC Capstone [*]	3
PLSC 400-Level ^{*1}	3 PLSC 400-Level ^{*1}	3
PLSC 400-Level ^{*1}	3 Methodology Course [*]	3
Methodology Course [*]	3 Related Course in Consultation with Adviser [*]	3
Related Course in Consultation with Adviser [*]	3 Elective	3
	15	15

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Select 18 credits of PLSC 400-level courses; at least 9 credits must be data intensive from department list

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

Students completing the Bachelor of Science degree develop a portfolio of concrete and immediately marketable set of skills that are in demand among employers. They are prepared to begin careers as campaign strategists, policy analysts and lobbyists, as well as in business and in national defense and other aspects of government. The program is also an excellent foundation for graduate study in law, public policy, business and the social sciences.

Careers

Penn State Political Science graduates are serving as advisers to the State Department; as attorneys and management specialists in the Department of Justice; as speech writers, lobbyists and policy analysts on Capitol Hill; and even in the United States Senate. Our alumni have built successful careers in business, and as lawyers, teachers, and journalists. Many are successful entrepreneurs, some work for NGOs, others are leaders of major corporations. You can learn from their experience through our alumni mentoring program.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE POLITICAL SCIENCE PROGRAM (<https://www.apsanet.org/CAREERS/Careers-for-Political-Scientists/Careers-Sectors-for-Political-Science/>)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.apsanet.org/CAREERS/Careers-for-Political-Scientists/After-Completing-a-Bachelors-Degree/>)

Contact

University Park

DEPARTMENT OF POLITICAL SCIENCE

202 Pond Lab

University Park, PA 16802

814-865-4597

<https://polisci.la.psu.edu/undergraduate/advising/>

<https://polisci.la.psu.edu>

World Campus

DEPARTMENT OF POLITICAL SCIENCE
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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-political-science-bachelor-of-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-political-science-bachelor-of-science-degree/>)

Political Science, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Political Science minor consists of 18 credits with at least one course in each of the following Political Science areas: American, theory/methodology, comparative, and international relations. Six (6) of these 18 credits must be at the 400 level.

When electing this minor, the student should have junior (fifth-semester) standing. Special attention should be given to the fact that courses used to satisfy general education, degree requirements, electives, and major requirements may also be used to satisfy minor requirements.

What is Political Science?

Political science is one of the social sciences. It is the study of systems of governance and governmental institutions, political activity, political thought, and political behavior. Political science draws from many other academic disciplines, including economics, law, sociology, history, philosophy, geography, psychology, and anthropology. There also are subfields of political science, such as comparative politics, political theory, international relations, international law, public administration, and public policy. Political science students study how American government works (and doesn't work) and what can be done to improve government at the federal, state, and local level. In comparative government and international relations course work, students study the politics and policies of other countries. Political theory courses examine the ideas of famous political philosophers, while courses on law and the legal process provide knowledge about the criminal justice and civil litigation systems.

You Might Like This Program If...

You are in a major where your intended career is increasingly involved with governmental regulation or policy or if you want political or law background. It may lay the ground for better understanding your own field. It will also help you make sense of an increasingly complicated political world that confronts them in their own roles as citizens. A minor in political science is designed for students who want to improve their ability to deal intelligently and critically with issues and ideas about government and politics.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
	Select 18 credits in Political Science, include at least one course in each of the following areas: American, Comparative, International Relations, and Theory ¹	18

¹ Select at least 6 credits at the 400 level.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Altoona

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Career Paths

A minor in political science can add depth to a variety of majors. For example, if students are interested in a career in medicine, public health or business, it can help them understand how the political system shapes regulations that will impact their professional lives. If students are studying philosophy or history, political science can add social science analytical tools to complement what students are learning in their study of the humanities. If a student is interested in becoming a lawyer, studying political science is invaluable in providing a basic grounding for studies in the law.

Careers

The political science minor is excellent supplemental preparation, in addition to a student's major, for a career in law, public service, Foreign Service, non-profit organizations, business and education.

Contact

University Park

DEPARTMENT OF POLITICAL SCIENCE

202 Pond Lab

University Park, PA 16802

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Altoona

DIVISION OF ARTS AND HUMANITIES

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3000 Ivyside Park

Altoona, PA 16601

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mde15@psu.edu

<https://altoona.psu.edu/academics/minor-programs/political-science/request-information> (<https://altoona.psu.edu/academics/minor-programs/political-science/request-information/>)

Berks

HASS DIVISION

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Harrisburg

SCHOOL OF PUBLIC AFFAIRS

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Middletown, PA 17057

717-948-6648

aqk5884@psu.edu

<https://harrisburg.psu.edu/public-affairs/political-science-minor> (<https://harrisburg.psu.edu/public-affairs/political-science-minor/>)

World Campus

DEPARTMENT OF POLITICAL SCIENCE

220 Pond Lab

University Park, PA 16802

814-865-7515

ajh38@psu.edu

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-political-science-minor> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-political-science-minor/>)

Politics and Public Policy, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The minor in Politics and Public Policy enables students in any major to develop a robust understanding of the political and governmental processes through which public policies are formulated and implemented. Students learn various frameworks for designing and evaluating governmental policies, along with tools to analyze the impact and effectiveness of those policies. The knowledge and skills cultivated by the minor are important to any citizen interested in how government can and does respond to collective problems, as well as to future leaders who strive to influence the policymaking process. The minor is particularly useful to students who are interested in applying the expertise they are developing in their major field of study to public debate, decisions, and administration, and to those aspiring to careers at the intersection of industry and government regulation.

To complete the minor, students take 9 credits of required courses that provide a foundational understanding of the public policy process; the political context of policy advocacy, debate, and decisions; and the predominant methods of policy analysis and evaluation. They build upon this core knowledge with a choice of 9 credits of introductory and upper level courses from Political Science and partner disciplines that focus on the policy process itself, the actors and institutions that are central to the policy process, and the development of specific policy areas.

Program Requirements

Requirement	Credits
Requirements for the Minor	18-19

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>).

In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
PLSC 1	American Politics: Principles, Processes and Powers	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
PLSC 202 or PUBPL 304	American Public Policy Public Policy Analysis	3
Select 3-4 credits from the following:		3-4
PLSC 309	Quantitative Political Analysis	
PLSC 309H	Quantitative Political Analysis	
STAT 200	Elementary Statistics	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 9 credits from the following (at least 6 credits must be at the 400-level or above):		9
AFAM 416	Race, Gender and Science	
AFAM 431	Black Liberation and American Foreign Policy	
AFAM 435N	Black Ecologies	
AFAM 445Y	Politics of Affirmative Action	
AFAM 465	The Post-World War II Civil Rights Movement	
AFAM 492	Identities, Power and Perceptual Pedagogies in Teaching and Learning	
AFR 305	Introduction to Global Health Issues	
AFR 310	Language Rights, Policy, and Planning	
AFR 440	Globalization and Its Implications	
AFR 479	History of Imperialism and Nationalism in Africa	
AGBM 430	U.S. Food and Agricultural Policy	
APLNG 230N	Language and Social Justice	
APLNG 310	Language Rights, Policy, and Planning	
ARCH 311W	Architectural and Planning Theories	
ARCH 316	Analysis of Human Settlements: Cities	
ARCH 412	Integrative Energy and Environmental Design	
BIOL 418	Biology of Human Infectious Diseases	
BIOL 419	Ecological and Environmental Problem Solving	
BRS 350	Introduction to Life Cycle Assessment	
BRS 402	Foundations of Sustainable Business	
BRS 422	Energy Analysis in Agricultural and Biorenewable Systems	
BRS 426	Safety and Health in Agriculture and Biorenewable Industries	
CAS 375	Rhetoric and Public Controversy	
CED 201	Introductory Environmental and Resource Economics	
CED 309	Land Economics and Policy	
CED 375	Community, Local Knowledge, and Democracy	
CED 409	Land Use Planning and Procedure	
CED 417	Power, Conflict, and Community Decision Making	
CED 430W	Principles of Community Economic Development	

CED 431W	Economic Analysis of Environmental and Resource Policies
CED 460W	Policy, Politics and Perspectives on Social & Environmental Responsibility
CRIMJ 415	Drug Control Policy in Comparative Perspective
CRIMJ 416	The Death Penalty
CRIMJ 417	Hate Crime, Extremism, and Terrorism
CRIMJ 435	Border Security
CRIMJ 441	The Juvenile Justice System
CRIMJ 469	Drugs and Drug Policy in the United States
CYBER 262	Cyber-Defense Studio
CYBER 342W	Cyber Incident Handling and Response
EBF 402	Energy Law and Contracts
EBF 473	Risk Management in Energy Industries
ECON 102	Introductory Microeconomic Analysis and Policy
ECON 104	Introductory Macroeconomic Analysis and Policy
EDTHP 115	Education in American Society
EDTHP 115S	Competing Rights: Issues in American Education
EDTHP 200	Educational Reform and Public Policy
EDTHP 420	Education and Public Policy
EDTHP 426	Economic Foundations of Education Policy
EDTHP 427	Intelligence and Educational Policy
EDTHP 430	History of Education in the United States
EDTHP 447	Ethnic Minorities and Schools in the United States
ENVE 424	Solid Waste Management
ENVE 425	Hazardous Waste Management
ENVE 430	Sustainable Engineering
ENVE 460	Environmental Law
ENVE 470	Air Quality
ENVSC 297	Special Topics in Environmental Science
ENVSC 400W	Case Studies in Environmental Analysis and Problem-Solving
ENVSE 450	Environmental Health and Safety
ERM 402	Foundations of Sustainable Business
ERM 411	Legal Aspects of Resource Management
ERM 429	The Chesapeake Bay Watershed: Issues and Careers in Complex Environmental Problem Solving
ERM 430	Air Pollution Impacts to Terrestrial Ecosystems
ERM 449	Sustainable Water Management: Economics and Policy
ERM 497	Special Topics
FDSYS 490	From Agriculture to Culture: Perspectives on your food from seed to plate
FOR 450W	Human Dimensions of Natural Resources
FOR 480	Policy and Administration
HPA 401	Comparative Health Systems
HPA 440	Principles of Epidemiology
HPA 444	Aging Policy in the United States
HPA 447	Financing Health Care
IST 432	Legal and Regulatory Environment of Information Science and Technology
IST 445	Globalization Trends and World Issues

IST 452	Legal and Regulatory Environment of Privacy and Security
IST 453	Legal, Regulatory, Policy Environment of Cyber Forensics
LER 445Y	Politics of Affirmative Action
LHR 400	Comparative Employment Relations Systems
LHR 401	The Law of Labor-Management Relations
LHR 410	Employment Strategies for People with Disabilities
LHR 434	Advanced Collective Bargaining and Contract Administration
LHR 435	Labor Relations in the Public Sector
LHR 458Y	History of Work in America
LHR 466	Labor Union Structure, Administration and Governance
LHR 468	American Labor Unions
LHR 475H	Labor in the Global Economy
NUCE 420	Radiological Safety
NUCE 442	Nuclear Security System Design
NUCE 446	Reliability and Risk Concepts in Design
PLSC 120N	State, Society, and Public Policy
PLSC 177N	Politics and Government in Washington DC
PLSC 223N	Ethnic and Racial Politics
PLSC 297	Special Topics
PLSC 403	The Legislative Process
PLSC 404	Analyzing Public Policy in the American States
PLSC 405	The American Presidency
PLSC 419	The Bureaucratic State
PLSC 425	Government and Politics of the American States
PLSC 426	Political Parties and Interest Groups
PLSC 438	National Security Policies
PLSC 442	American Foreign Policy
PLSC 444	Government and the Economy
PLSC 460	Science, Technology, and Public Policy
PLSC 473	American Judicial Behavior
PLSC 476	Empirical Legal Studies
PLSC 477	Sex, Race, & Justice: The U.S. Supreme Court and Equality
PLSC 482	American State and Urban Politics
PLSC 488	Comparative Public Policy
PLSC 489	Public Administration
PLSC 490	Policy Making and Evaluation
PUBPL 305	Leadership Studies
PUBPL 306	Introduction to Crisis and Emergency Management
PUBPL 419	Race and Public Policy
PUBPL 475	Critical Infrastructure Protection
PUBPL 476	Homeland Security Intelligence
PUBPL 481	Seminar in Environmental Policy
PUBPL 482	Seminar in Health Policy
PUBPL 483	Seminar in National Security Policy
PUBPL 490	Seminar in Public Policy
PUBPL 495	Internship
PUBPL 496	Independent Studies
PUBPL 497	Special Topics

SOC 201	Presumed Innocent? Social Science of Wrongful Conviction
SOC 210Z	Social Determinants of Health
SOC 269	Intercultural Dialogue Concepts and Practice
SOC 409	Racial and Ethnic Inequality in America
SOC 428	Homelessness in America
SOC 440	Family Policy
SOC 445	U.S. Immigration
SOC 447	Ethnic Minorities and Schools in the United States
SOC 450	Justice and the Environment
SOC 451	Health, Disease & Society
SOC 452	Spatial Inequality
SOC 454	The City in Postindustrial Society
SOC 459	Communities and Crime
SOILS 422	Natural Resources Conservation and Community Sustainability
STS 233Z	Ethics and the Design of Technology
STS 416	Race, Gender and Science
STS 420	Energy and Modern Society
STS 460	Science, Technology, and Public Policy
SUST 150N	The Science of Sustainable Development
SUST 325N	Health and Environmental Sustainability
WFS 209N	Wildlife and Fisheries Conservation
WFS 430	Conservation Biology
WFS 450	Wetland Science and Sustainability
WMNST 103	Racism and Sexism
WMNST 116N	Family and Gender Roles in Modern History
WMNST 120	Sex, Gender, and the Body
WMNST 136	Race, Gender, and Employment
WMNST 420W	Gender and International Development
WMNST 423	Sexual and Domestic Violence
WMNST 424	Women and Sport
WMNST 428	Gender and Politics
WMNST 453	Women and the Criminal Justice System
WMNST 456	Gender, Occupations, and Professions
WMNST 458	Critical Feminist Issues in Reproduction
WMNST 472	Work-Life Practices and Policies

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

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Contact

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aqk5884@psu.edu

Portuguese, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The minor in Portuguese is designed to cultivate our students' understanding, respect, and appreciation of the rich literary and cultural traditions of Portuguese-speaking peoples; to provide a sound foundation for further study related to the Portuguese worlds; and to develop our students' ability to analyze literary and cultural works in Portuguese.

Through their coursework in the Minor, students will be introduced to the disciplines of Portuguese letters, and also explore connections between Portuguese and other disciplines in the humanities or in the social sciences. For the Portuguese Minor, students will need a minimum of 19 credits of Portuguese (at least 6 of which must be at the 400 level), with grades of C or better. Students will be able to select from a comprehensive list of courses that can count toward the Minor. Students are held to the requirements that are in effect when they officially declare the Minor. They can take more than the minimum 19 credits if they so desire; there is no penalty for students who change their minds and ultimately do not complete all the Minor requirements (i.e., they are not disqualified from graduating if they do not complete declared minor requirements; they simply do not receive the minor).

What is Portuguese?

Portuguese and Luso-Afro-Brazilian studies is the academic discipline concerned with studying the languages, cultural expressions, and peoples of the Lusophone, or Portuguese-speaking, world. Scholars in this discipline analyze literary and artistic works from Brazil, Portugal, and/or Lusophone Africa, often within a comparative context. This field contextualizes artistic and cultural expressions in terms of history, politics, social practices, and economics. Studies in this field may examine the experiences and expressions within the Lusophone context through the lens of Latin American studies, hemispheric American studies, or Transatlantic studies. Questions of race, gender, and class, the legacies of slavery and colonialism, and the repercussions of dictatorships and civil wars often animate research in this field.

You Might Like This Program If...

- You want to learn or improve your Portuguese and discover more about countries where Portuguese is spoken.
- You are interested in how music, film, literature, and culture intersect with politics, social movements, and historical events.
- You want to pursue a career in international business, government, non profits, translation, education, or the arts.

Program Requirements

Requirement	Credits
Requirements for the Minor	19

The prerequisite for the Minor's prescribed PORT 3 course is PORT 2.

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		

PORT 3	Intermediate Portuguese	4
PORT 405	Advanced Composition and Conversation	3
Supporting Courses		
<i>Supporting Courses: Require a grade of C or better</i>		
Select 9 credits of PORT courses beyond the 003 level		9
Select 3 credits of 400-level PORT courses		3

Academic Advising

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University Park

Liberal Arts Academic Advising

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Career Paths

A minor in Portuguese is an excellent complement to degrees in journalism, business, global and international studies, international relations, communications, anthropology, film and media studies, or journalism. It prepares you to use spoken and written Portuguese effectively in a professional setting, to analyze complex problems, to write clearly, and to engage in cross-cultural communication. These are key skills for fields like public relations, management, journalism, government, education, translation/interpretation, law, and nonprofits. Students can also pursue graduate study in Luso-Brazilian studies, Latin American studies, comparative literature, history, or education.

Careers

Penn State students with a minor in Portuguese received fellowships as Fulbright teaching assistants in Brazil and have pursued a range of internships and career opportunities in fields such as technology, management, journalism, education, government, and law. Given students' ability to communicate in Portuguese, they are prepared to work with Portuguese-speaking populations and clients in important markets like Brazil, Portugal, and Angola.

Opportunities for Graduate Studies

Penn State students with a minor in Portuguese are prepared to pursue graduate study of master's or doctorate work in Portuguese/Luso-Brazilian studies, Latin American studies, or comparative literature. They could also further their study of Portuguese language in a linguistics or applied linguistics program, or pursue master's degrees in translation,

interpretation, education, journalism, public policy, or international relations. Given their strong communication skills and training to think analytically, students with a Portuguese minor are also excellent candidates for attending law school.

Contact

University Park

DEPARTMENT OF SPANISH, ITALIAN AND PORTUGUESE
442 Burrowes Building
University Park, PA 16802
814-865-4252
sp-it-port@psu.edu

<https://sip.la.psu.edu/undergraduate/portuguese/>

Psychology, B.A. (Liberal Arts)

Begin Campus: Any Penn State Campus

End Campus: University Park, World Campus

Program Description

This major is designed for students who want to learn about behavior, normal and abnormal, how it is studied, and its relation to applied areas. Students are encouraged to conduct research with members of the faculty and/or take a practicum in an applied setting. Graduates are equipped for various positions in human service agencies, industrial settings, or laboratories. Others go on to professional school, e.g., medical school, law school, or to continue their training in psychology working toward a master's or a doctoral degree. Majors may elect either a Bachelor of Arts or a Bachelor of Science program.

What is Psychology?

Psychology is the scientific study of thought, behavior, and experience. Many people associate psychology with psychological therapy and the practice of clinical psychology. There are also many other important areas of scientific psychology, such as cognitive, developmental, industrial/organizational, and social psychology. What these subfields of psychology have in common is the use of the scientific method to understand human behavior and apply that understanding to the development of theory and practice. Psychologists are increasingly making use of neuroscience methods and theories to understand psychological phenomena. As a profession, psychology is related to fields such as health, education, marketing, human resources, social work, and more. The principles of psychology are relevant to almost all areas of human endeavor, and the career paths of psychology students reflect this wealth of possibilities.

You Might Like This Program If...

- You want to better understand people's thoughts, feelings, and behavior.
- You want to learn about how the brain works, how it malfunctions, and how it recovers.
- You are interested in child development, mental health, personality, social interactions, organizations, and neuroscience.
- You want a career as a psychologist, counselor, social worker, or other human services professional.
- You want a broad understanding of human behavior to help you pursue a career in any of many fields.

Entrance to Major

In order to be eligible for entrance to the PSYBA major, a student at any location must have:

1. attained at least a 2.00 cumulative grade-point average;
2. completed PSYCH 100 with a grade of C or better;
3. completed STAT 200 or PSYCH 200, at least 3 credits of GQ courses (not including STAT 200), and at least 3 credits of GS courses (not including PSYCH 100) with a grade of C or better.

Degree Requirements

For the Bachelor of Arts degree in Psychology, a minimum of 123 credits is required:

Requirement	Credits
General Education	45
Electives	7-13
Bachelor of Arts Degree Requirements	24
Requirements for the Major	47

0-6 of the 45 credits for General Education are included in the Requirements for the Major. This includes 0-6 credits of GQ courses.

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
PSYCH 100	Introductory Psychology	3
PSYCH 105	Psychology as a Science and Profession	3
PSYCH 301W	Basic Research Methods in Psychology	4
PSYCH 490	Senior Seminar in Psychology	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 6 credits of GQ courses		6
PSYCH 200	Elementary Statistics in Psychology	4
or STAT 200	Elementary Statistics	
Select 12 credits of 200-level PSYCH courses ¹		12
At least 3 credits must be from each group a, b, and c:		
a.		
PSYCH 253	Introduction to Psychology of Perception	

PSYCH 256	Introduction to Cognitive Psychology
PSYCH 260	Neurological Bases of Human Behavior
PSYCH 261	Introduction to Psychology of Learning

b.

PSYCH 212	Introduction to Developmental Psychology
PSYCH 221	Introduction to Social Psychology
PSYCH 231	Introduction to the Psychology of Gender
PSYCH 238	Introduction to Personality Psychology

c.

PSYCH 243	Introduction to Well-being and Positive Psychology
PSYCH 269	Evolutionary Psychology
PSYCH 270	Introduction to Abnormal Psychology
PSYCH 281	Introduction to Industrial-Organizational Psychology

Select 12 credits of PSYCH courses at the 400 level² 12

¹ Selection not to include PSYCH 294, PSYCH 296, or PSYCH 297.

² Selection not to include PSYCH 490, and including no more than 3 credits of PSYCH 493, PSYCH 494, PSYCH 495, or PSYCH 496.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

Content Knowledge:

1. Students will demonstrate knowledge of major psychological concepts, theories, and empirical findings
2. Students will demonstrate the ability to apply psychological concepts and theories to research and real life situations.
3. Students will demonstrate knowledge about the history, values, and scientific foundations of the field of psychology.*

Thinking Skills:

1. Students will use critical and creative thinking, skeptical inquiry, and the scientific approach to solve problems related to behavior and mental processes.
2. Students will demonstrate critical thinking in the analysis, evaluation, and interpretation of information in the scientific literature to distinguish the scientific literature from other sources.
3. Students will demonstrate the ability to formulate and defend one's own scholarly opinion based on reading, interpreting, and synthesizing psychological literature.*

Communication Skills:

1. Students will communicate effectively (in writing and/or orally) the results of a project or internship.
2. Students will demonstrate the ability to effectively extract central points and summarize psychological research literature and to write in the format of psychological research.
3. Students will demonstrate the ability to translate psychological knowledge into everyday language.*

Research Skills:

1. Students will differentiate among the research methods used in psychology and apply the designs in evaluation or development of a research study.
2. Students will demonstrate the ability to analyze and interpret quantitative psychological data using statistics, graphs, and data tables.

Diversity and Ethical Considerations:

1. Students will show evidence of knowledge and appreciation for cultural diversity and relativity in human. Students will experience and for the complexity of human behavior and interactions.
2. Students will demonstrate knowledge, and the application of, basic principles of scientific and professional ethics
3. Students will demonstrate sensitivity to ethical concerns and professionalism (including cultural considerations) in settings where applications of psychology and/or psychological research occur.

Career-related Skills:

1. Students will demonstrate knowledge of professional options and required training for careers in the major subfields of psychology.
2. Students will demonstrate the ability to identify personally-relevant career options to implement their psychological knowledge, skills, and values in occupational pursuits in a variety of settings.

* Indicates a University Park specific learning objective

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

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University Park

Liberal Arts Academic Advising

814-865-2545

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World Campus

Undergraduate Academic Advising

301 Outreach Building

University Park, PA 16802

814-863-3283

advising@outreach.psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Psychology, B.A. at University Park Campus and World Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
ENGL 15, 30H, ESL 15, ENGL 137H, or CAS 137H [†]	3	CAS 100, ENGL 138T, or CAS 138T [†]	3
PSYCH 100 ^{*#}	3	PSYCH 2xx Level (Group A, B, C or Additional) [*]	3
General Education Course (GQ) ^{*†##}	3	World Language Level 2	4
World Language Level 1	4	General Education Course (GHW)	1.5

First-Year Seminar/General Education Course	3 General Education Course (GS) ^{*#}	3
		16

Second Year

Fall	Credits	Spring	Credits
STAT 200 or PSYCH 200 ^{*#}	4	PSYCH 105 [*]	3
PSYCH 2XX Level Course (Group A, B, C or Additional) [*]	3	PSYCH 2XX Level Course (Group A, B, C, or Additional) [*]	3
World Language Level 3	4	General Education Course (GQ) ^{*†}	3
General Education Course (Integrative Studies)	3	General Education Course (Integrative Studies)	3
General Education Course (IL)	3	General Education Course (US)	3
		17	15

Third Year

Fall	Credits	Spring	Credits
BA Knowledge Domains Course	3	PSYCH 4XX Level Course [*]	3
PSYCH 4XX Level Course [*]	3	PSYCH 301W or 301M (WAC) [*]	4
PSYCH 2XX Level Course (Group A, B, C or Additional) [*]	3	BA World Cultures Course	3
General Education Course	3	BA Knowledge Domains Course	3
Elective	3	Elective	3
General Education Course (GHW)	1.5		
		16.5	16

Fourth Year

Fall	Credits	Spring	Credits
ENGL 202A, 202B, 202C, or 202D [‡]	3	PSYCH 4XX Level Course [*]	3
PSYCH 4XX Level Course [*]	3	PSYCH 490 [*]	3
General Education Course	3	BA Knowledge Domain Course	3
Elective	3	General Education	3
Elective	1	Elective	3
		13	15

Total Credits 123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Advising Notes:

- All incoming first-year students must take a First-Year Seminar (FYS) during Fall or Spring of their first year. Academic advisers can provide a list of FYS being offered and help the student enroll. Most FYS in the College of the Liberal Arts are worth 3 cr. and count as a General Humanities (GH) or General Social Sciences (GS) course. For this reason, the FYS is not listed separately on this eight-semester plan; most students will be able to fulfill the FYS requirement while also fulfilling a GH or GS requirement.

Psychology, B.A. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, ESL 15, ENGL 137H, or CAS 137H [†]	3 CAS 100, ENGL 138T, or CAS 138T [*]	3
PSYCH 100 [*]	3 PSYCH 2XX Level Course (Group A, B, C, or Additional) [*]	3
General Education Course (GQ) ^{†#†}	3 World Language Level 2	4
World Language Level 1	4 General Education Course (Integrative Studies)	3
First-Year Seminar/General Education Course	3 General Education Course	3
	16	16

Second Year

Fall	Credits Spring	Credits
STAT 200 or PSYCH 200 ^{**#}	4 PSYCH 2XX Level Course (Group A, B, C, or Additional) [*]	3
PSYCH 2XX Level Course (Group A, B, C or Additional) [*]	3 General Education Course (GQ) [†]	3
World Language Level 3	4 General Education Course (Integrative Studies)	3
BA Knowledge Domain Course	3 General Education Course (US)	3
General Education Course (GHW)	1.5 General Education Course	3
	15.5	15

Third Year

Fall	Credits Spring	Credits
PSYCH 2XX Level Course (Group A, B, C or Additional) [*]	3 PSYCH 4XX Level Course [*]	3
PSYCH 4XX Level Course [*]	3 PSYCH 301W or 301M [*]	4
PSYCH 105 [*]	3 BA World Cultures Course	3
General Education Course (IL)	3 General Education Course	3
Elective	3 General Education Course	3
	15	16

Fourth Year

Fall	Credits Spring	Credits
PSYCH 4XX Level Course [*]	3 PSYCH 4XX Level Course [*]	3
ENGL 202A, 202B, 202C, or 202D [†]	3 PSYCH 490 [*]	3
BA Knowledge Domain Course	3 BA Knowledge Domain Course	3
Elective	3 General Education Course	3
Elective	3 Elective	1

General Education Course (GHW)	1.5
15	14.5

Total Credits 123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Career Paths

Psychology students pursue a wide variety of careers. Many earn graduate degrees that qualify them for careers in clinical psychology, counseling psychology, school psychology, social work, or other helping professions. Others work in health, business, research, school, or government settings. Many businesses seek psychology majors for their knowledge of human behavior, research methods, and data analysis.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE PSYCHOLOGY PROGRAM (<https://psych.la.psu.edu/undergraduate/planning-and-career-resources/graduate-school-and-career-planning/>)

Opportunities for Graduate Studies

Some psychology students pursue research-oriented doctoral degrees, entering Ph.D. programs in a variety of areas of psychology. These degrees prepare students for careers in academic, research, business, or government settings. Others pursue the practice-oriented Psy.D. degree. Masters degrees in counseling, school psychology, social work, counselor education, and other fields prepare students for a variety of practice

settings. Some psychology students also prepare for health-services degrees. Law school or MBA programs are also possibilities.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://psych.la.psu.edu/undergraduate/planning-and-career-resources/graduate-school-and-career-planning/>)

Professional Resources

- American Psychological Association (<https://www.apa.org/>)
- Association for Psychological Science (<https://www.psychologicalscience.org>)

Contact

University Park

DEPARTMENT OF PSYCHOLOGY
125 Moore Building
University Park, PA 16802
814-863-1811
ugpsychupwc@psu.edu

<https://psych.la.psu.edu>

World Campus

DEPARTMENT OF PSYCHOLOGY
125 Moore Building
University Park, PA 16802
814-863-1811
ugpsychupwc@psu.edu

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-psychology-bachelor-of-arts-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-psychology-bachelor-of-arts-degree/>)

Psychology, B.S. (Liberal Arts)

Begin Campus: Any Penn State Campus

End Campus: University Park, World Campus

Program Description

This major is designed for students who want to learn about behavior, normal and abnormal, how it is studied, and its relation to applied areas. Students are encouraged to conduct research with members of the faculty and/or take a practicum in an applied setting. Graduates are equipped for various positions in human service agencies, industrial settings, or laboratories. Others go on to professional school, e.g., medical school, law school, or to continue their training in psychology working toward a master's or a doctoral degree. Majors may elect either a Bachelor of Arts or a Bachelor of Science program.

The B.S. degree program requires more coursework in the sciences than the B.A. program, and students may select courses from one of four areas—mathematics/computer science, statistics, business, or biology—which may be taken instead of a world language.

What is Psychology?

Psychology is the scientific study of thought, behavior, and experience. Many people associate psychology with psychological therapy and the practice of clinical psychology. There are also many other important areas of scientific psychology, such as cognitive, developmental,

industrial/organizational, and social psychology. What these subfields of psychology have in common is the use of the scientific method to understand human behavior and apply that understanding to the development of theory and practice. Psychologists are increasingly making use of neuroscience methods and theories to understand psychological phenomena. As a profession, psychology is related to fields such as health, education, marketing, human resources, social work, and more. The principles of psychology are relevant to almost all areas of human endeavor, and the career paths of psychology students reflect this wealth of possibilities.

You Might Like This Program If...

- You want to better understand people's thoughts, feelings, and behavior.
- You want to learn about how the brain works, how it malfunctions, and how it recovers.
- You are interested in child development, mental health, personality, social interactions, organizations, and neuroscience.
- You want a career as a psychologist, counselor, social worker, or other human services professional.
- You want a broad understanding of human behavior to help you pursue a career in business, law, or medicine.

Entrance to Major

In order to be eligible for entrance to the PSYBS major, a student at any location must have:

1. attained at least a 2.00 cumulative grade-point average;
2. completed PSYCH 100 with a grade of C or better;
3. completed STAT 200 or PSYCH 200, at least 3 credits of GQ courses (not including STAT 200), and at least 3 credits of GS courses (not including PSYCH 100) with a grade of C or better.

Degree Requirements

For the Bachelor of Science degree in Psychology, a minimum of 123 credits is required:

Requirement	Credits
General Education	45
Electives	10-13
Requirements for the Major	74-77

9 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GWS courses and 6 credits of GQ courses.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ENGL 202A	Effective Writing: Writing in the Social Sciences	3
PSYCH 100	Introductory Psychology	3
PSYCH 105	Psychology as a Science and Profession	3
PSYCH 301W	Basic Research Methods in Psychology	4
PSYCH 490	Senior Seminar in Psychology	3

Additional Courses*Additional Courses: Require a grade of C or better*

Select 6 credits of GQ courses		6
PSYCH 200	Elementary Statistics in Psychology	4
or STAT 200	Elementary Statistics	
Select 12 credits of 200-level PSY courses (not to include PSYCH 294, PSYCH 296, or PSYCH 297). At least 3 credits must be from each group A, B, and C:		12

Group A

PSYCH 253	Introduction to Psychology of Perception	
PSYCH 256	Introduction to Cognitive Psychology	
PSYCH 260	Neurological Bases of Human Behavior	
PSYCH 261	Introduction to Psychology of Learning	

Group B

PSYCH 212	Introduction to Developmental Psychology	
PSYCH 221	Introduction to Social Psychology	
PSYCH 231	Introduction to the Psychology of Gender	
PSYCH 238	Introduction to Personality Psychology	

Group C

PSYCH 243	Introduction to Well-being and Positive Psychology	
PSYCH 269	Evolutionary Psychology	
PSYCH 270	Introduction to Abnormal Psychology	
PSYCH 281	Introduction to Industrial-Organizational Psychology	

Select 12 credits of PSYCH courses at the 400 level (not including PSYCH 490, and including no more than 3 credits of PSYCH 493, PSYCH 494, PSYCH 495, or PSYCH 496)

Requirements for the Option*Requirements for the Option: Require a grade of C or better*

Select an option 24-27

Requirements for the Option**Life Sciences Option (24 credits)***Available at the following campuses: University Park, World Campus*

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 15 credits from groups A, B, C, and D, including at least 3 credits from each of three different groups:		15
<i>A. Genetics</i>		
ANTH 218		
ANTH 460	Human Genetics	
BIOL 133	Genetics and Evolution of the Human Species	
or BIOL 222	Genetics	
<i>B. Biological Anthropology</i>		

ANTH 21	Introductory Biological Anthropology	
ANTH 22	Humans as Primates	
ANTH 40	Biocultural Evolution	
ANTH 401	Human Evolution: The Material Evidence	
BBH 410	Developmental and Health Genetics	
HPA 310	Health Care and Medical Needs	
NUTR 251	Introductory Principles of Nutrition	

C. Biological Implications

Any BBH course (except BBH 310)		
HDFS 417	Biocultural Studies of Family Organization	
RHS 100	Introduction to Disability Culture	
RHS 300	Introduction to Rehabilitation and Human Services	
RHS 403	Medical Aspects of Disability	

D. Biology and Chemistry

BIOL 110	Biology: Basic Concepts and Biodiversity	
BIOL 141	Introduction to Human Physiology	
BIOL 155	Introduction to the Biology of Aging	
BIOL 161	Human Anatomy and Physiology I - Lecture	
BIOL 177	Biology of Sex	
CHEM 110	Chemical Principles I	
CHEM 111	Experimental Chemistry I	
CHEM 112	Chemical Principles II	
CHEM 113	Experimental Chemistry II	
CHEM 210	Organic Chemistry I	
CHEM 212	Organic Chemistry II	
CHEM 213	Laboratory in Organic Chemistry	

Supporting Courses and Related Areas*Supporting Courses and Related Areas: Require a grade of C or better*

Select 3 credits in natural sciences from department list	3
Select 6 credits in social and behavioral sciences from department list	6

Business Option (24 credits)*Available at the following campuses: University Park, World Campus*

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 15 credits from at least three different groups of the following (3 credits in any category can be replaced by LA 495, but internship credits alone cannot be used to complete a category):		15
<i>Group 1, Section A</i>		
ECON 14	Principles of Economics	
ECON 102	Introductory Microeconomic Analysis and Policy	
ECON 104	Introductory Macroeconomic Analysis and Policy	
ECON 302	Intermediate Microeconomic Analysis (or higher-numbered ECON course)	
PLSC 412	International Political Economy	
PLSC 444	Government and the Economy	
PLSC 481	Global Political Economy	
PLSC 490	Policy Making and Evaluation	
<i>Group 1, Section B</i>		
BA 301	Finance	

FIN 301 Corporation Finance (or any higher-numbered FIN course)

Group 1, Section C

BA 303 Marketing

MKTG 301 Principles of Marketing (or any higher-numbered MKTG course)

Group 1, Section D

ACCTG 211 Financial and Managerial Accounting for Decision Making

Group 2, Section A (Management)

BA 304 Management and Organization

HPA 57 Consumer Choices in Health Care

HPA 101 Introduction to Health Services Organization

HPA 210 Health Care Payment

HPA 211 Financial Decisions in Health Care Organizations

HPA 301W Health Services Policy Issues (or any higher-numbered HPA course)

LER 305

MGMT 301 Basic Management Concepts (or any higher-numbered MGMT course)

Group 2, Section B (Law and Ethics)

BA 302 Supply Chains

BLAW 243 Legal Environment of Business

LER 460

PHIL 119 Ethical Leadership

PHIL 406

PHIL/STS 407 Seminar in Philosophy of Technology

PHIL 418 Seminar in Ethical Theory

PHIL/STS 432 Medical and Health Care Ethics

SCM 301 Supply Chain Management

Group 2, Section C (Labor Relations)

LER 100

LER 304

Any LER 400-level course

Group 2, Section D (Communication)

CAS 352 Organizational Communication

CAS 450W Group Communication Theory and Research

CAS 452 Organizational Communication Theory and Research

ENGL 419 Advanced Business Writing

ENGL 460 Business and Literature

LER 464

Group 3, Section A (Global View)

ENGR 451 Social Entrepreneurship

GEOG 424 Geography of the Global Economy

GEOG 439 Property and the Global Environment

GLIS 102N Global Pathways

HPA 401 Comparative Health Systems

IB 303 International Business Operations

LA 202 Innovation and Entrepreneurship in the Liberal Arts

Group 3, Section B (Diversity)

AFAM/HIST 210 Freedom's First Generation: African American Life and Work, from the Civil War to World War II

AFAM/LER/PLSC 445Y Politics of Affirmative Action

AFAM/SOC 409 Racial and Ethnic Inequality in America

AFR/IB/PLSC 440 Globalization and Its Implications

CED/WMNST 420W Gender and International Development

LER/WMNST 136

LER 201

LER/RHS 410

LER/WMNST 472

LER 475

RHS 300 Introduction to Rehabilitation and Human Services

Group 3, Section C (History)

HIST 151

HIST 155 American Business History

HIST/LER 458Y History of Work in America

Group 3, Section D (Technology)

IST 110 Information, People and Technology

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 3 credits in arts/humanities from department list 3

Select 3 credits in natural sciences from department list 3

Select 3 credits in social and behavioral sciences from department list 3

Neuroscience Option (24-27 credits)

Available at the following campuses: University Park

Students planning to apply to medical school should select this option and choose courses to meet the following minimal requirements for most medical schools:

- BIOL 110 and BIOL 230W or BIOL 240W
- CHEM 110, CHEM 111, CHEM 112, CHEM 113, CHEM 210, CHEM 212, and CHEM 213
- PHYS 211 and PHYS 212, or PHYS 250 and PHYS 251.

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
PSYCH 260	Neurological Bases of Human Behavior (also counts in category A of COMMON REQUIREMENTS FOR THE MAJOR)	3
Select 15 credits from groups A, B, C, D, and E, including at least 3 credits from each of four different groups:		15
<i>A. Genetics</i>		
BIOL 110	Biology: Basic Concepts and Biodiversity	
BIOL 133	Genetics and Evolution of the Human Species	
BIOL 222	Genetics	
<i>B. Physiology</i>		
BIOL 141	Introduction to Human Physiology	
BIOL 161	Human Anatomy and Physiology I - Lecture	

BIOL 472	Human Physiology
<i>C. Organic Chemistry</i>	
CHEM 202	Fundamentals of Organic Chemistry I
CHEM 210	Organic Chemistry I
CHEM 212	Organic Chemistry II
<i>D. Cell Biology</i>	
BIOL 230W	Biology: Molecules and Cells
BIOL 469	Neurobiology
MICRB 106	Elementary Microbiology
MICRB 201	Introductory Microbiology
MICRB 251	Molecular and Cell Biology I
<i>E. Other Topics</i>	
BIOL 177	Biology of Sex
BIOL 240W	Biology: Function and Development of Organisms
BIOL 409	Biology of Aging
BBH 470	Functional and Integrative Neuroscience

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 6 credits in natural sciences from department list	6
Select 3 credits in social and behavioral sciences from department list	3

Quantitative Skills Option (24 credits)

Available at the following campuses: University Park

Students may fulfill the requirements of the Quantitative Skills option by completing a minor in either Statistics or Computer Science and Engineering in lieu of the course requirements listed above. Students choosing this option are encouraged to consult with an adviser designated by the Department of Psychology to determine the suitability of particular courses given their quantitative backgrounds. Other courses with advanced quantitative content may be substituted in Group D with adviser's approval.

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select a total of 15 credits from groups A, B, C, and D:		15
<i>Group A</i>		
Select at least 3 credits of the following:		
MATH 38	Elementary Linear Algebra	
MATH 110	Techniques of Calculus I	
MATH 111	Techniques of Calculus II	
MATH 140	Calculus With Analytic Geometry I	
MATH 141	Calculus with Analytic Geometry II	
<i>Group B (optional) - Students may take only one of the courses in Group B for credit</i>		
Select 3 credits of the following:		3
CMPSC 101	Introduction to Programming	
CMPSC 121	Introduction to Programming Techniques	
CMPSC 201	Programming for Engineers with C++	
CMPSC 203	Introduction to Spreadsheets and Databases	
<i>Group C, Section 1 - Students may take only one of the courses in Group C, Section 1 for credit</i>		
Select 3 credits of the following:		

STAT 318	Elementary Probability
STAT 414	Introduction to Probability Theory
STAT 418	Introduction to Probability and Stochastic Processes for Engineering

Group C, Section 2

Select at least 3 credits of the following:

STAT 319	Elementary Mathematical Statistics
STAT 415	Introduction to Mathematical Statistics
STAT 416	Stochastic Modeling
STAT 460	Intermediate Applied Statistics
STAT 462	Applied Regression Analysis
STAT 464	Applied Nonparametric Statistics

Group D

CAS 483	Communication and Information Technology II
CMPSC 122	Intermediate Programming
PSYCH 404	Principles of Measurement

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 3 credits in arts/humanities from department list	3
Select 6 credits in natural sciences from department list	6

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the

requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Psychology and M.S. in Human Resources and Employment Relations

Available at the following campuses: University Park

Requirements for the Integrated B.S. in Psychology and M.S. in Human Resources and Employment Relations can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/human-resources-employment-relations/#integratedundergradgradprogramstext>).

Program Learning Objectives

- **Knowledge of concepts, theories, and findings:** Demonstrate knowledge of major psychological concepts, theories, and empirical findings .
- **Ability to apply concepts and theories to research and real life:** Demonstrate the ability to apply psychological concepts and theories to research and real life situations.
- **Demonstrate knowledge:** Demonstrate knowledge about the history, values, and scientific foundations of the field of psychology.
- **Use critical scientific approach to solve problems:** Use critical and creative thinking, skeptical inquiry, and the scientific approach to solve problems related to behavior and mental processes.
- **Critical thinking in application of science:** Demonstrate critical thinking in the analysis, evaluation, and interpretation of information in the scientific literature to distinguish the scientific literature from other sources.
- **Formulate and defend a scholarly opinion based on the literature:** Demonstrate the ability to formulate and defend one's own scholarly opinion based on reading, interpreting, and synthesizing psychological literature.
- **Communicate results:** Communicate effectively (in writing and/or orally) the results of a project or internship.
- **Extract, summarize, and write using psychological research:** Demonstrate the ability to effectively extract central points and summarize psychological research literature and to write in the format of psychological research.
- **Translate psychological knowledge into everyday language:** Demonstrate the ability to translate psychological knowledge into everyday language.
- **Research methods and design:** Differentiate among the research methods used in psychology and apply the designs in evaluation or development of a research study.
- **Analyze data using stats, graphs, and tables:** Demonstrate the ability to analyze and interpret quantitative psychological data using statistics, graphs, and data tables.
- **Knowledge/appreciation of diversity:** Show evidence of knowledge and appreciation for cultural diversity and relativity in human experience and for the complexity of human behavior and interactions.
- **Application of scientific and professional ethics:** Demonstrate knowledge, and the application of, basic principles of scientific and professional ethics.
- **Demonstrate sensitivity to ethical concerns and professionalism:** Demonstrate sensitivity to ethical concerns and professionalism (including cultural considerations) in settings where applications of psychology and/or psychological research occur.
- **Knowledge of professional options and training:** Demonstrate knowledge of professional options and required training for careers in the major subfields of psychology.
- **Identify career options:** Demonstrate the ability to identify personally-relevant career options to implement their psychological knowledge, skills, and values in occupational pursuits in a variety of settings.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of

both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

World Campus

Undergraduate Academic Advising

301 Outreach Building
University Park, PA 16802
814-863-3283
advising@outreach.psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

All Options: Psychology, B.S. at University Park Campus and World Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
ENGL 15, 30H, ESL 15, ENGL 137H, or CAS 137H [†]	3	CAS 100, ENGL 138T, or CAS 138T [†]	3
PSYCH 100 ^{*#}	3	PSYCH 2XX Level (Group A, B, C or Additional) [*]	3
General Education Course (GQ) ^{*‡#†}	3	General Education Course (GHW)	1.5
First-Year Seminar	3	General Education Course (GS) ^{#*}	3
Option Course [*]	3	STAT 200 or PSYCH 200 ^{*#}	4
	15		14.5

Second Year

Fall	Credits	Spring	Credits
PSYCH 2XX Level (Group A, B, C or Additional) [*]	3	PSYCH 105 [*]	3
General Education Course (Integrative Studies)	3	Option Course [*]	3
General Education Course (GQ) ^{*‡†}	3	PSYCH 2XX Level (Group A, B, C or Additional) [*]	3
General Education Course (IL)	3	General Education Course (Integrative Studies)	3
Option Supporting Course [*]	3	General Education Course (US)	3
		General Education Course (GHW)	1.5
	15		16.5

Third Year

Fall	Credits	Spring	Credits
PSYCH 2XX Level (Group A, B, C or Additional) [*]	3	PSYCH 4XX Level Course [*]	3
PSYCH 4XX Level Course [*]	3	PSYCH 301W or 300 [*]	4
General Education Course	3	Option Course [*]	3
Elective	3	Option Supporting Course [*]	3
Option Course [*]	3	Elective	3
	15		16

Fourth Year

Fall	Credits	Spring	Credits
PSYCH 4XX Level Course [*]	3	PSYCH 4XX Level Course [*]	3
General Education Course	3	PSYCH 490 [*]	3
ENGL 202A ^{*‡}	3	Option Course [*]	3
General Education Course	3	Option Supporting Course [*]	3
Elective	3	Elective	3
		Elective	1
	15		16

Total Credits 123

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- All incoming first-year students must take a First-Year Seminar (FYS) during Fall or Spring of their first year. Academic advisers can provide a list of FYS being offered and help the student enroll. Most FYS in the College of the Liberal Arts are worth 3 cr. and count as a General Humanities (GH) or General Social Sciences (GS) course. For this reason, the FYS is not listed separately on this eight-semester plan; most students will be able to fulfill the FYS requirement while also fulfilling a GH or GS requirement.
- The Neuroscience option is not available at World Campus.

All Options: Psychology, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
General Education Course (GWS) [‡]	3	General Education Course (GWS) [‡]	3
PSYCH 100 ^{*#}	3	PSYCH 2XX Level (Group A, B, C or Additional) [*]	3
General Education Course (GQ) ^{*‡#†}	3	General Education Course (GHW)	1.5
First-Year Seminar/General Education Course	3	General Education Course (GS) [#]	3
Option Course [*]	3	STAT 200 or PSYCH 200	4
	15		14.5

Second Year

Fall	Credits	Spring	Credits
PSYCH 2XX Level (Group A, B, C or Additional) [*]	3	General Education Course (US)	3
General Education Course (Integrative Studies)	3	Option Course [*]	3
General Education Course (GQ) ^{*‡†}	3	PSYCH 2XX Level (Group A, B, C or Additional) [*]	3
General Education Course (IL)	3	General Education Course (Integrative Studies)	3
Option Supporting Course [*]	3	General Education Course (GHW)	1.5
	15		16.5

Third Year

Fall	Credits	Spring	Credits
PSYCH 2XX Level (Group A, B, C or Additional) [*]	3	PSYCH 4XX Level Course [*]	3
General Education Course	3	PSYCH 301W or 300 (WAC) [*]	4
PSYCH 105 [*]	3	Option Course [*]	3
PSYCH 4XX Level Course [*]	3	Option Supporting Course [*]	3
Option Course [*]	3	Elective	3
	15		16

Fourth Year

Fall	Credits	Spring	Credits
PSYCH 4XX Level Course [*]	3	PSYCH 4XX Level Course [*]	3
General Education Course	3	PSYCH 490 [*]	3
ENGL 202A ^{*‡}	3	Option Course [*]	3
Elective	3	Option Supporting Course [*]	3
Elective	3	Elective	3

Elective	1
15	16

Total Credits 123

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Option coursework lists can be found at: <https://psych.la.psu.edu/undergraduate/degrees-and-requirements/psychology-bachelor-of-science/>.
- Option supporting coursework lists can be found at: <https://psych.la.psu.edu/undergraduate/degrees-and-requirements/option-supporting-courses/>
- The Neuroscience option is not available at World Campus. Also Neuroscience option students are required to take PSYCH 260/BBH 203 and it can be used as Psych 2XX level Group A or Additional Course choice.

Career Paths

Psychology students pursue a wide variety of careers. Many earn graduate degrees that qualify them for careers in clinical psychology, counseling psychology, school psychology, social work, or other helping professions. Others work in health, business, research, school, or government settings. Many businesses seek psychology majors for their knowledge of human behavior, research methods, and data analysis.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE PSYCHOLOGY PROGRAM (<https://psych.la.psu.edu/undergraduate/planning-and-career-resources/graduate-school-and-career-planning/>)

Opportunities for Graduate Studies

Some psychology students pursue research-oriented doctoral degrees, entering Ph.D. programs in a variety of areas of psychology. These degrees prepare students for careers in academic, research, business, or government settings. Others pursue the practice-oriented Psy.D. degree. Masters degrees in counseling, school psychology, social work, counselor education, and other fields prepare students for a variety of practice settings. Some psychology students also prepare for medical school or

related health-services degrees. Law school or MBA programs are also possibilities.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://psych.la.psu.edu/undergraduate/planning-and-career-resources/graduate-school-and-career-planning/>)

Professional Resources

- American Psychological Association (<https://www.apa.org>)
- Association for Psychological Science (<https://www.psychologicalscience.org>)

University Park

DEPARTMENT OF PSYCHOLOGY

125 Moore Building

University Park, PA 16802

814-863-1811

ugpsychupwc@psu.edu

<https://psych.la.psu.edu>

World Campus

DEPARTMENT OF PSYCHOLOGY

125 Moore Building

University Park, PA 16802

814-863-1811

ugpsychupwc@psu.edu

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-psychology-bachelor-of-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-psychology-bachelor-of-science-degree/>)

Psychology, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Psychology minor is designed to provide undergraduate students with a broad overview of topics and domains within psychology, knowledge and skills related to research methods in psychology, and deeper knowledge of research, theory, and application in one or two specific content domains. Students completing this minor will find a flexible selection of coursework in psychology. The content domains from which students may select courses include biological, clinical, cognitive, developmental, industrial-organizational, and social psychology. Students may choose courses that emphasize theory or application of psychological principles. A number of these courses examine the application of psychological research to societal issues.

The required research methods course, Basic Research Methods in Psychology (PSYCH 301W), carries a statistics prerequisite that can be met by either Elementary Statistics in Psychology (PSYCH 200) or Elementary Statistics (STAT 200). Elementary Statistics (STAT 200) does not count toward the minimum 18 credits required for the minor. Students minoring in Psychology at University Park are encouraged to consult the Psychology Advising Center early in the process of planning their minor.

The Psychology minor may be appropriate for students pursuing graduate training or professional careers in fields such as health, business, education, and human services, as well as in psychology.

What is Psychology?

Psychology is the scientific study of thought, behavior, and experience. Many people associate psychology with psychological therapy and the practice of clinical psychology. There are also many other important areas of scientific psychology, such as cognitive, developmental, industrial/organizational, and social psychology. What these subfields of psychology have in common is the use of the scientific method to understand human behavior and apply that understanding to the development of theory and practice. Psychologists are increasingly making use of neuroscience methods and theories to understand psychological phenomena. As a profession, psychology is related to fields such as health, education, marketing, human resources, social work, and more. The principles of psychology are relevant to almost all areas of human endeavor, and the career paths of psychology students reflect this wealth of possibilities.

You Might Like This Program If...

- You want to better understand people's thoughts, feelings, and behavior.
- You want to learn about how the brain works, how it malfunctions, and how it recovers.
- You are interested in child development, mental health, personality, social interactions, organizations, and neuroscience.
- You want a career as a psychologist, counselor, social worker, or other human services professional.
- You want a broad understanding of human behavior to help you pursue a career in any of many fields.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
PSYCH 100	Introductory Psychology	3
PSYCH 301W	Basic Research Methods in Psychology	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 11 credits (at least 6 credits at the 400 level) in PSYCH		11

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of

both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

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Brad Pinter

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Kevin Bennett

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Greater Allegheny

Advising Office

Academic Affairs

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Robin Yaure

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Rena McNaair

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Billie Jean Horvath

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World Campus

Undergraduate Academic Advising

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York

Mark A. Casteel

Professor of Psychology
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Contact

University Park

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Abington

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<https://www.abington.psu.edu/academics/majors-at-abington/pss-degree> (<https://www.abington.psu.edu/academics/majors-at-abington/pss-degree/>)

Altoona

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<https://altoona.psu.edu/academics/bachelors-degrees/psychology> (<https://altoona.psu.edu/academics/bachelors-degrees/psychology/>)

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<https://greaterallegheny.psu.edu/minors> (<https://greaterallegheny.psu.edu/minors/>)

Harrisburg

SCHOOL OF BEHAVIORAL SCIENCES AND EDUCATION
Olmsted Building, W311
Middletown, PA 17057
717-948-6034
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<https://harrisburg.psu.edu/behavioral-sciences-education/psychology-minor> (<https://harrisburg.psu.edu/behavioral-sciences-education/psychology-minor/>)

Mont Alto

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<https://montalto.psu.edu/academics/bachelors/minors> (<https://montalto.psu.edu/academics/bachelors/minors/>)

Schuylkill

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<https://schuylkill.psu.edu/academics/bacc-degrees/psychology> (<https://schuylkill.psu.edu/academics/bacc-degrees/psychology/>)

Scranton

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World Campus

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-psychology-minor> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-psychology-minor/>)

York

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Public Policy and Leadership Across Sectors, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Public Policy and Leadership Across Sectors (PPLAS) minor is appropriate for anyone interested in contemporary public policy, but it has been designed with science, technology, engineering, and mathematics (STEM) and business majors in mind. The minor introduces you to the practice of policy analysis, the process of policymaking and the values of public service. You will develop skills for effective cross-sectoral collaboration in the making and implementation of public policies.

Recognizing the multi-sector future of public policy is what drives the PPLAS curriculum. Popular courses in STEM and business fields provide pathways into the minor. Two required courses on policy analysis and leadership provide core skills for understanding and shaping public policies. Additional courses challenge you to apply those core skills to a variety of vexing policy problems and round out your preparation for inter-sectoral work. Whether you enter public service at the start, middle, or end of your career, the PPLAS minor provides you with an understanding of why that service is important to our society and how to approach it.

The program is a part of the Next Generation Service Corps (NextGen) initiative supported by the Volcker Alliance. Enrolling in the minor gives you the opportunity to participate in NextGen program activities ranging from lectures by policy leaders to service-learning activities. You will also be able to participate in the activities of any NextGen partner institution. These activities are not strictly required, giving you maximum flexibility to use the NextGen program to fulfill your interests.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
PUBPL 304W	Public Policy Analysis	3
PUBPL 305	Leadership Studies	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 6 credits from the following:		6
AFAM 409	Racial and Ethnic Inequality in America	
PUBPL/SOC 419	Race and Public Policy	
PUBPL 471	Economic Inequality and Public Policy	
PUBPL 481	Seminar in Environmental Policy	
PUBPL 482	Seminar in Health Policy	
PUBPL 490	Seminar in Public Policy	
SOC 428	Homelessness in America	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 6 credits from the following:		6
BIOET 401Q	Science, Ethics, Policy, and Law	
BLAW 341	Business Law I: Introduction to Contracts, Liability Issues, and Intellectual Property	
CED 155	Science, Technology and Public Policy	
CIVCM 211N	Foundations: Civic and Community Engagement	
EDLDR 480	Introduction to Educational Leadership	
EDSGN 100	Cornerstone Engineering Design	
FOR 480	Policy and Administration	
IST 110	Information, People and Technology	
IST 432	Legal and Regulatory Environment of Information Science and Technology	
LHR 201	Employment Relationship: Law and Policy	
METEO 133N	Ethics of Climate Change	
METEO 332N	Science and policy of global greenhouse gas emissions and management	
MGMT 320	Establishing Workforce Diversity and Inclusion	
MGMT 365	Social Entrepreneurship	
MKTG 442	Sustainable Behavior of Consumers, Firms, and Societies	
OLEAD 201	Organizational Theory and Functions for Leaders	
OLEAD 210	Evidence-Based Leadership	
OLEAD 409	Leadership Development: A Life-Long Learning Perspective	
OLEAD 464	Communication Skills for Leaders in Groups and Organizations	
OLEAD 465	Collective Decision Making	
PLSC 202	American Public Policy	
PLSC 404	Analyzing Public Policy in the American States	
PLSC 438	National Security Policies	
PLSC 490	Policy Making and Evaluation	
PUBPL 120N	State, Society, and Public Policy	
PUBPL 483	Seminar in National Security Policy	

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Contact

University Park

SCHOOL of PUBLIC POLICY

322 Pond Lab

University Park, PA 16802

814-863-5346

publicpolicy@psu.edu

<https://publicpolicy.psu.edu>

Religious Studies, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The minor in Religious Studies requires 18 hours of course work in RLST. It:

1. acquaints the student with the methods for studying religion (how one studies a religion),
2. provides an elementary introduction to the world's main religious traditions (names, dates, ideas, similarities and differences), and
3. offers the opportunity to investigate a particular topic or religion in greater detail.

Students are required to take one survey course (either RLST 1, RLST 3, or RLST 4), which provides a broad historical overview of several religions, from their foundation to the present day.

The interaction between religions and their cultural contexts is emphasized, as is the evolution of an individual religion. After this introduction, the student is free to choose from a broad array of courses

on the psychological, sociological, historical, and textual aspects of religions, both living and dead, both familiar and foreign. For example, a student may study Hinduism, Islam, Christianity, Norse religion, Greco-Roman religion, or the sociological aspects of religions. Reading skills and critical thinking skills are important and will be further developed in the courses.

The minor is excellent preparation for a career in the professions (law, medicine), and many students use this classical humanities topic to augment a major in the pure sciences.

What is Religious Studies?

Religious Studies focuses on providing an understanding of the world's diverse religions, their beliefs, and traditions. The relationship between religion and culture is closely examined to gain a better understanding of how religion affects politics, art, science, and other aspects of society. Research is done through multiple disciplines such as: philosophy, anthropology, sociology, history, and more.

You Might Like This Program If...

- You are interested in exploring the complexities of the diverse religions of the world.
- You hope to examine how religion has influenced local and global communities, from antiquity through present-day.
- You would like to pursue a career in the humanities and hope to use a minor in Religious Studies to broaden your knowledge of diverse cultures.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits of the following:		3
RLST 1	Introduction to World Religions	
RLST 3	Introduction to the Religions of the East	
RLST 4	Jewish and Christian Foundations	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better
Select 15 credits (at least 6 credits at the 400-level) in Religious Studies 15

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Abington

Pierce Salguero

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Career Paths

A minor in Religious Studies provides students with the tools necessary to pursue multiple career paths. Through this minor students improve their skills in critical thinking, writing clear and persuasive messages, and in-depth analysis of texts.

Careers

- Medicine
- Law
- Social Work
- Business
- Government

Contact

University Park

DEPARTMENT OF CLASSICS AND ANCIENT MEDITERRANEAN STUDIES
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University Park, PA 16802
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Abington

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<https://www.abington.psu.edu/pierce-salguero> (<https://www.abington.psu.edu/pierce-salguero/>)

Rhetoric, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Rhetoric Minor provides undergraduate students an opportunity to acquire special competence in the history, theory, and criticism of civic discourse and cultural practices. It brings together courses from both the Department of English and the Department of Communication Arts and Sciences, from which students may learn about the nature and function of rhetoric in politics, the professions, the classroom, and the media. The list of course offerings is designed to feature applied as well as theoretical approaches, and allows students to explore the subject in breadth as well as depth. Students completing the minor will command a greater knowledge of an appreciation for the significance of rhetoric as a central component of civic life.

You Might Like This Program If...

- You want to develop effective writing and speaking skills.
- You are interested in learning about persuasive communication.
- You want to learn effective methods of influence.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A minimum of 6 credits at the 400 level; maximum of 6 credits may be double-counted.

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CAS 301	Rhetorical Theory	3
ENGL 471	Rhetorical Traditions	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select three of the following:		9
CAS 175	Persuasion and Propaganda	
CAS 311	Methods of Rhetorical Criticism	
CAS 321	Rhetoric and Law	
CAS 375	Rhetoric and Public Controversy	
CAS 411	Rhetorical Criticism	
CAS 415	Rhetoric of Film and Television	
CAS 420	Rhetorical Theory	

CAS 426W	Communication Ethics
CAS 475	Studies in Public Address
CAS 478	Contemporary U.S. Political Rhetoric
ENGL 415	Advanced Nonfiction Writing
ENGL 416	Science Writing
ENGL 417	The Editorial Process
ENGL 420	Writing for the Web
ENGL 472	Current Theories of Writing and Reading
ENGL 473	Rhetorical Approaches to Discourse
ENGL 474	Issues in Rhetoric and Composition

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 3 credits of the following in consultation with adviser: 3

CAS 494H	Research Topics or ENGL 310
CAS 499	Foreign Studies or ENGL 499 Foreign Study--English
ENGL 487W	Senior Seminar
LA 495	Undergraduate Field Experience or Practicum

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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Career Paths

CAS students are change makers: analysts, strategists, persuaders, facilitators, collaborators, connectors, and scholars. The CAS minor serves as a valuable supplement to a wide array of majors, and helps to equip students for success in the work force, graduate school, and civic life. CAS courses provide students with the theories, methods, practical tools, and experiences to understand the roots of social conflict and the sources of well-being.

Careers

A CAS undergraduate minor helps to prepare students for careers in academics, law, sales, corporate communication, health and human services, community activism, and digital technology. Students graduating from CAS studies may work as analysts, strategists, facilitators, collaborators, or negotiators.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN RHETORIC (<https://cas.la.psu.edu/undergraduate/careers-in-cas/>)

Opportunities for Graduate Studies

The CAS minors supplement a wide variety of major fields in its preparation of students for graduate study in communication science or rhetoric, as well as in law, public policy, behavioral science, health and human services, human development, business, social work, and other related fields.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://cas.la.psu.edu/undergraduate/careers-in-cas/>)

Contact

University Park

DEPARTMENT OF COMMUNICATION ARTS AND SCIENCES
234 Sparks Building
University Park, PA 16802
814-865-3461
sas519@psu.edu

<https://cas.la.psu.edu/undergraduate/minors/>

Russian, B.A.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The B.A. in Russian provides the student with a command of spoken and written Russian and a general knowledge of the literature and culture of the Russian people. For admission to the major students must have completed RUS 3 and RUS 410 or demonstrate an equivalent level. Study in Russia under the University's Education Abroad Program is available for qualified students. Students are advised to combine their study of Russian with another major or minor, such as another world language, English, history, political science, the East European Studies minor, the Business/Liberal Arts minor, or the Linguistics minor. Graduates of this program have found employment in international business, the U.S. government, in the educational and publishing fields, and in the travel industry.

What is Russian?

Russian Studies is an interdisciplinary sub-field of the Humanities and Slavic Studies that pertains to linguistics, literature, arts, history, politics, and more, with a primary focus on the language, literature, and culture of historical and contemporary Russia, including the Soviet period and the Russian-speaking diaspora.

You Might Like This Program If...

- You understand the critical role that Russia plays in the world.
- You are considering an academic or professional career requiring strong training in a world language.
- Your first major is History, Comparative Literature, International Relations, Journalism, Linguistics, or other fields in which a knowledge of Russian is advantageous.
- You want to discover the rich world of Russian literature, arts, and cinema.
- Mastering Russian is important in your field, for example, in aerospace engineering, the computer sciences, and other sciences.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Russian, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	22
Bachelor of Arts Degree Requirements	24
Requirements for the Major	29

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
RUS 100	Russian Culture and Civilization	3
RUS 200	Intermediate Russian II	4
RUS 401	Advanced Russian A	4

RUS 405	Seminar in Russian Literature	3
RUS 420	Senior Seminar in Russian Culture	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 9 credits at the 400-level		9
RUS 141Y	Russian Literature in English Translation: 1800-1870	3
or RUS 142Y	Russian Literature in English Translation: 1870 to Present	

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Integrated B.A. in Russian and M.I.A. in International Affairs

Requirements for the Integrated B.A. in Russian and M.I.A. in International Affairs can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/international-affairs/#integratedundergradprogramstext>).

Program Learning Objectives

- Students will be able to communicate efficiently in a range of settings from informal to professional.

- Students will be able to read, translate, summarize, and interpret a variety of Russian-language media ranging from newspapers to literary texts to formal academic prose.
- Students will be able to demonstrate their mastery of the structure of the Russian language at different levels.
- Students will be able to write expository texts using the conventions of standard Russian with style and vocabulary appropriate to the genre.
- Students will be able to identify and critically discuss the major events, personages and developments related to Russian culture, history, and literature.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

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University Park

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Russian, B.A. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
RUS 1	4 RUS 2	4
ENGL 15, 30H, 137H, CAS 137H, or ESL 15 (GWS) [‡]	3 RUS 100 (GH;IL) [*]	3

General Education Course (N) [†]	3 CAS 100A, 100B, or 100C (GWS) [‡]	3
General Education Course [†]	3 General Education Course (N) [†]	3
First-Year Seminar (FYS)	3 General Education Course (GQ) [‡]	3
16		16

Second Year

Fall	Credits Spring	Credits
RUS 3	4 RUS 200 (IL) [*]	4
RUS 141Y or 142Y [*]	3 World Cultures Course	3
General Education Course [†]	3 General Education Course [†]	3
General Education Course [†]	3 US Cultures Course	3
General Education Course (GQ) [‡]	3 Elective (US)	3
16		16

Third Year

Fall	Credits Spring	Credits
RUS 401, 402, or 403 [*]	3 RUS 400 (IL) [*]	3
BA Requirements	3 400 Level Russian [*]	3
General Education Course [†]	3 BA Requirements	3
General Education Course [†]	3 General Education Course [†]	3
Elective	3 Elective	3
15		15

Fourth Year

Fall	Credits Spring	Credits
RUS 405 (IL) [*]	3 400 Level Russian [*]	3
400 Level Russian [*]	3 General Education Course (GHW) [†]	1.5
ENGL 202 (GWS) [‡]	3 BA Requirements	3
General Education Course (GHW) [†]	1.5 Elective	3
Elective	3 Elective	2
13.5		12.5

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain

attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Advising Notes:

- All incoming freshmen must take a First-Year Seminar (FYS) during Fall or Spring of their first year. Academic advisers can provide a list of FYS being offered and help the student enroll. Most FYS in the College of the Liberal Arts are worth 3 cr. and count as a General Humanities (GH) or General Social Sciences (GS) course. For this reason, the FYS is not listed separately on this eight-semester plan; most students will be able to fulfill the FYS requirement while also fulfilling a GH or GS requirement.
- Students pursuing this major at a Commonwealth Campus might require summer attendance, study abroad, or additional semesters to complete the major coursework. Students should contact the University Park adviser to plan their major courses accordingly.

Career Paths

The US Department of State designates Russian as one of the "critical languages" and the Department of Defense lists it as a strategic language. It is one of the five official languages of the UN. It also remains the unofficial lingua franca of the former Soviet republics and an indispensable communications tool across all of the Caucasus and Central Asia.

Careers

Besides graduate studies in the field of Slavic Languages and Literatures and related fields, a B.A. in Russian opens the door to a variety of careers in the US government and military, international business, international relations, international law, human rights, information technology, professional translation, publishing, education, the travel industry, and more.

Professional Resources

- American Association of Teachers of Slavic and East European Languages (AATSEEL) (<https://www.aatseel.org>)
- American Council of Teachers of Russian (ACTR) (<https://www.actr.org>)

Contact

University Park

DEPARTMENT OF GERMANIC AND SLAVIC LANGUAGES AND LITERATURES

442 Burrowes Building
University Park, PA 16802
814-865-5481
psugerman@psu.edu

<https://german.la.psu.edu>

Russian, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Russian minor is designed for students who want to study the language, literature, and culture of Russia in order to broaden their horizons and meet an increasing demand for people with world language skills and international expertise. Russian is a major world language with a rich cultural and scientific heritage. It is spoken throughout the former Soviet Union and widely understood in the countries of Eastern Europe.

The Department of Germanic and Slavic Languages and Literatures offers an array of courses in Russian language, literature, and culture. Study abroad in Russia at St. Petersburg University under the University's study abroad program is available. For the Russian minor, students must select courses (at least 6 credits at the 400 level) in Russian to account for 20 credits.

The Russian minor opens employment opportunities for its graduates in fields and professions where proficiency in one or more world languages is desirable or required. Graduates of this program have found employment with businesses having contact with the former Soviet Union, with various agencies of the U.S. government, in the educational and publishing fields, and in the travel industry.

What is Russian?

Russian Studies is an interdisciplinary sub-field of the Humanities and Slavic Studies that pertains to linguistics, literature, arts, history, politics, and more, with a primary focus on the language, literature, and culture of historical and contemporary Russia, including the Soviet period and the Russian-speaking diaspora.

You Might Like This Program If...

- You understand the critical role that Russia plays in the world.
- You are considering an academic or professional career requiring strong training in a world language.
- Your major is History, Comparative Literature, International Relations, Journalism, Linguistics, or other fields in which a knowledge of Russian is advantageous.
- You want to discover the rich world of Russian literature, arts, and cinema.
- Mastering Russian is important in your field, for example, in aerospace engineering, the computer sciences, and other sciences.

Entrance to Minor

To be admitted to the minor students must have completed RUS 3 or RUS 410 or have an equivalent level of Russian.

Program Requirements

Requirement	Credits
Requirements for the Minor	20

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
RUS 100	Russian Culture and Civilization	3
RUS 200	Intermediate Russian II	4
RUS 401	Advanced Russian A	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select one of the following:		3
RUS 101N	Russian Cinema	
RUS 110	Russian Folklore	
RUS 141Y	Russian Literature in English Translation: 1800-1870	
RUS 142Y	Russian Literature in English Translation: 1870 to Present	
RUS/GER 143	The Culture of Stalinism and Nazism	
RUS 144	Multicultural Russia: Narratives of Race and Ethnicity in Russian Literature and Culture	
RUS 145	Putin's Russia and Its Protest Culture	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 6 credits of 400-level Russian courses		6

Academic Advising

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Career Paths

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Careers

A knowledge of Russian opens the door to a variety of careers in the US government and military, international business, international relations, international law, human rights, information technology, professional translation, publishing, education, the travel industry, and more.

Contact

University Park

DEPARTMENT OF GERMANIC AND SLAVIC LANGUAGES AND LITERATURES

442 Burrowes Building

University Park, PA 16802

814-865-5481

psugerman@psu.edu

<https://german.la.psu.edu/slavic/>

Sexuality and Gender Studies, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The minor in Sexuality and Gender Studies addresses human sexuality and gender as they have been conceptualized and investigated by diverse disciplines:

- humanities (including history and cultural studies),
- behavioral and social sciences,
- biological sciences, and
- visual and performance arts.

Courses in the minor require students to explore scholarship and research on sexuality, sexual orientation, and gender across the lifespan, across cultures, and throughout history. Developing students' critical skills in a variety of disciplines, courses in the minor cover theories of

- sexuality and gender;
- sexual orientation;
- lesbian, gay, bisexual, and transgender movements;
- the history of sexual norms;

- queer theory;
- gender identity;
- and impact of gender identities and erotic orientations on the arts; etc.

What is Sexuality and Gender Studies?

Sexuality and Gender Studies investigates human sexuality and gender identity from a broad, interdisciplinary, and cross-cultural perspective. Over the course of history and development of diverse cultures, notions of sexuality and gender have varied. Sexuality and Gender Studies pushes beyond a binary understanding of sex and gender, while interrogating the development and maintenance of norms. For example, a minor in Sexuality and Gender Studies helps students to question how gender identity, sexuality, and ideas of “normal” work in tandem with race, ethnicity, nationality, class, disability, age, religion, and more to create social categories that result in structural, institutional, and ideological inequality and oppression. This program draws from many disciplines, each one contributing a unique perspective on how we “live” our gender and sexuality, to enable students to analyze the myriad dimensions of human identity and experience that are shaped by sexuality and gender.

You Might Like This Program If...

- You want to translate your curiosities, experiences, passions and interests into actionable and meaningful work.
- You seek out inclusive environments, with persons of different backgrounds, cultures, and races to understand their points of view.
- You are passionate about gender equity, human rights, and social justice.
- You want to explore how gender and sexuality play a role in culture, the arts, literature, health, politics, the sciences, law, and education.
- You see yourself as a change agent in this world!

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ENGL 245	Introduction to LGBTQ Studies	3
HDFS/WMNST 250	Sexual Identity over the Life Span	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select at least 12 credits (at least 6 credits at the 400 level) from the two categories below, with a minimum of 3 credits from each category, of the following: ¹		12
A. Sexuality Studies in Humanities and the Arts		
CHNS 416	Gender and Sexuality in China	
ENGL 225N	Sexuality and Modern Visual Culture	

ENGL 227	Introduction to Queer Theory
HIST/WMNST 116N	Family and Gender Roles in Modern History
HIST/WMNST 166	History of Sexuality
HIST/WMNST 466	Lesbian and Gay History
PHIL 14	Love and Sex
WMNST 106N	Representing Women and Gender in Literature, Art and Popular Cultures
WMNST 301	
WMNST 400N	Debates in Contemporary Feminism
<i>B. Sexuality Studies in the Sciences</i>	
AFAM/SOC/WMNST 103	Racism and Sexism
AFAM/WMNST 364	
ANTH 216N	Sex and Evolution
ANTH 416	The Evolution of Human Mating
ANTH/WMNST 476W	Anthropology of Gender
BBH 146	Introduction to Health and Human Sexuality
BBH 251	Straight Talks I: Advanced Sexual Orientation/Gender Identity Peer Education
BBH 315	Gender and Biobehavioral Health
BBH 446	Human Sexuality as a Health Concern
BIOL 177	Biology of Sex
GEOG/WMNST 426W	Gendered Worlds
HDFS 405	Gender and Social Development
PSYCH 231	Introduction to the Psychology of Gender
PSYCH 422	Human Sexuality
PSYCH 479/WMNST 471	The Psychology of Gender
SOC/WMNST 110	Sociology of Gender

¹ In order to fulfill the interdisciplinary nature of the minor, students must study both in arts and humanities and in sciences. With the permission of the person in charge of the minor, "Special Topics" courses may be substituted for courses listed.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Career Paths

Employers today value effective communication, analytical thinking, and teamwork. With its emphasis on how gender, sexuality, race and other forms of diversity impact the experiences of every individual, this curriculum trains its minors to recognize the impacts of bias and unequal social power in the social, cultural and political arenas. Graduates enter their post-graduate world sensitive to diverse perspectives that can either facilitate or impede team building, problem solving, and negotiation. Sexuality and Gender Studies graduates—no matter where their career paths lead—are committed to the kind of institutional and social change that values all voices, and supports social justice.

Careers

Sexuality and Gender Studies graduates from Penn State work in a wide variety of professions and industries. You will find us in the legal profession (one alumna runs her own legal firm, serving lower-income clients and gender-based discrimination cases). Others work in communications, marketing and advertising, business, banking and human resources. Activist students find their way into non-profits, advocacy groups, government, human development, journalism and communications. Women's health is a dynamic field—medical care, nursing and research positions are out there, as well as health administration. Teaching attracts many of our graduates.

Opportunities for Graduate Studies

The scholarly field of Sexuality and Gender Studies prepares students to study some of the most complex challenges in a world where gender, race, class, sexuality and power are always intertwined. As an interdisciplinary field, it spans the arts and sciences, the humanities, and policy fields and provides applicable training for students seeking to continue their studies. Our scholars gain experience as researchers and teachers with the innovative tools to prepare them as leaders across the public, private and educational sectors.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://wgss.la.psu.edu/graduate/>)

Contact

University Park

DEPARTMENT OF WOMEN'S, GENDER, AND SEXUALITY STUDIES

133 Willard Building

University Park, PA 16802

814-863-4025

jle1@psu.edu

<https://wgss.la.psu.edu>

Small Group Conflict and Collaboration, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

The undergraduate certificate in Small Group Conflict and Collaboration is designed and delivered by the World in Conversation (WinC), Penn State's undergraduate center for public diplomacy. Students who complete this 15-credit certificate will be trained dialogue facilitators: they will have an understanding of the forces that shape human communication on the interpersonal, societal, and global levels, and they will be able to apply this understanding by leading small group dialogues, applying a unique communication methodology developed by WinC over two decades. WinC is a laboratory for the sociological study of small groups and facilitation techniques that make communication across borders possible. As such, the study of facilitated dialogue that a student undertakes at WinC is truly "applied sociology"—because sociological concepts practically intersect with and shape communication technologies. The combination of mindset and skills that a facilitator develops as a result of this fusion of disciplines is what makes impossible conversations possible. While students at WinC are trained in the specific academic context of applied sociology, trained facilitators are necessary in all environments in which human beings conflict and collaborate. As such, the competencies developed through this certificate are relevant across all academic disciplines. This certificate will prepare students to take on key roles in high level decision-making in education, politics, business, or law. They might also use this credential to build a career in areas as varied as Science, Medicine, Organizational Change and Leadership, Social Policy, Business Management, Marketing, Social Work, and Education.

Program Requirements

To earn an undergraduate certificate in Small Group Conflict and Collaboration, a minimum of 15 credits is required.

Code	Title	Credits
Required Courses		
LA 496	Independent Studies	6
SOC 369	Foundational Theory and Practice in Small Group Facilitation	3-4
SOC 469	Advanced Theory and Practice in Small Group Facilitation	6

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Contact

University Park

DEPARTMENT OF SOCIOLOGY AND CRIMINOLOGY

211 Oswald Tower

University Park, PA 16802

814-865-2527

sociology@psu.edu

<https://sociology.la.psu.edu>

Social Data Analytics, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

Social Data Analytics is an interdisciplinary major that prepares students to participate in both a research environment where "big data" is a major source of insight into social and political processes, and an economy increasingly organized around data analytics. Students completing the major will have the technical skills to handle, analyze, apply and present big data, and the disciplinary knowledge to draw valid inferences from such information to address real world problems. The program integrates coursework in the social sciences with courses in statistics, mathematics, information science and computer science to develop the unique skill set necessary to conceptualize data sources in relation to the social conditions from which they arise; to think critically about big data in relation to specific problems; and to derive and test hypotheses through application of data tools and techniques. Students will gain valuable practical experience working with data through a capstone experience and participation in faculty research.

This major is intended to produce graduates who are big picture thinkers with the knowledge to formulate good questions and leverage vast stores of unstructured data in answering them. Students will be prepared for careers in government, business, healthcare, and industry. The major also provides a strong foundation for advanced study in social science, law, business and public policy.

What is Social Data Analytics?

Social Data Analytics (SoDA) is an interdisciplinary major that teaches students to use the increasingly vast stores of information generated from social media, cell phones, "smart objects" and other technology that captures moment to moment changes in where people are, what they are doing and thinking, and with whom they are associating. This data (often called "social data" or "big data") can help researchers and policy makers address a wide variety of political, economic and social problems. It can be used, for example, to improve government services; to identify patterns of armed conflict, human rights abuses, and disease before they

escalate; to enhance the efficiency of businesses; and to create more resilient communities in the face of climate change. Students in this major learn data analysis techniques and how to apply them to develop reliable answers to questions about the social and political world.

You Might Like This Program If...

You want to develop data analytics skills to solve real-world problems in the political, social, and economic arenas. The Social Data Analytics major combines social science, computer science, statistics, and visual communication to prepare students to use “big data” – effectively and ethically – to improve how people live and work together.

Entrance to Major

Admission to the major requires a grade of C or better in MATH 140, MATH 141, and CMPSC 131 and CMPSC 132, and a grade of B or better in PLSC 309. These courses must be completed by the end of the semester during which the admission to major process is carried out.

Degree Requirements

For the Bachelor of Science degree in Social Data Analytics, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	87

12 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GQ courses, 6 credits of GS courses.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CMPSC 131	Programming and Computation I: Fundamentals	3
CMPSC 132	Programming and Computation II: Data Structures	3
CMPSC 221	Object Oriented Programming with Web-Based Applications	3
CMPSC 360	Discrete Mathematics for Computer Science	3
DS 220	Data Management for Data Sciences	3
DS 300	Privacy and Security for Data Sciences	3
DS 310	Machine Learning for Data Analytics	3
DS 330	Visual Analytics for Data Sciences	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
MATH 220	Matrices	2
PLSC 1	American Politics: Principles, Processes and Powers	3
PLSC 10	Scientific Study of Politics	3
PLSC 309	Quantitative Political Analysis	3
SODA 308	Research Design for Social Data Analytics	3

SODA 496	Special Topics	6
STAT 184	Introduction to R	2
STAT/MATH 318	Elementary Probability	3
STAT 380	Data Science Through Statistical Reasoning and Computation	3

Additional Courses

Additional Courses: Require a grade of C or better

Select 3 credits from the following: 3

PLSC 3	Comparing Politics around the Globe
PLSC 7N	Contemporary Political Ideologies
PLSC 14	International Relations
PLSC 17N	Introduction to Political Theory

Select 3 credits from the following: 3

PHIL 106	Business Ethics
PHIL 107	Philosophy of Technology
PHIL 233Z	Ethics and the Design of Technology
PHIL 406	
PHIL 407	Seminar in Philosophy of Technology

Select 12 credits of PLSC courses at the 400 level of which at least 9 credits must be data intensive courses from a department list, including but not limited to PLSC 404, PLSC 429, PLSC 447, PLSC 476. 12

Select 9 credits from the following: 9

CMPSC 431W	Database Management Systems
CMPSC 448	Machine Learning and Algorithmic AI
CMPSC 465	Data Structures and Algorithms
DS 320	Data Integration
DS 402	Emerging Trends in the Data Sciences
DS/CMPSC 410	Programming Models for Big Data
STAT/MATH 319	Elementary Mathematical Statistics
STAT 440	Computational Statistics
STAT 464	Applied Nonparametric Statistics
Analytics courses from a department list	

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- Develop capacity for cross disciplinary communication and the ability to work in teams.
- Handle large, heterogenous data; analyze data; and create data visualizations.
- Integrate data analytics skills, social science methodology and substantive knowledge to draw inferences about social and political phenomena, assess the validity of those inferences and apply conclusions to real life problems and decisions.
- Understand data in relation to both broader social and political problems and the social context that generates that information.
- Develop substantive knowledge in a social science discipline.
- Develop proficiency in research design, experimentation, statistical processes, hypothesis testing and validation.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Social Data Analytics, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 (GQ) ^{*†#†}	4 MATH 141 (GQ) ^{*†#†}	4
CMPSC 131 [*]	3 CMPSC 132 ^{*#}	3
PLSC 10 (GS) ^{*†}	3 PLSC 309 ^{*#}	3
FYS (GH)	3 IST 210 [*]	3
ENGL 15, 30H, 137H, CAS 137H, or ESL 15 (GWS) [‡]	3 CAS 100, CAS 100A, CAS 100B, CAS 100C, CAS 138T, or ENGL 138T (GWS) [‡]	3
	16	16

Second Year

Fall	Credits Spring	Credits
MATH 220 [*]	2 DS 220 [*]	3
STAT 184	2 CMPSC 360 [*]	3
CMPSC 221 [*]	3 STAT 318 [*]	3
PLSC 1 (GS) (US) ^{*†}	3 PLSC any level (WAC) [*]	3
PLSC 3, 7N, 14, or 17N [*]	3 General Education Course (IL)	3
General Education Course	3	
	16	15

Third Year

Fall	Credits Spring	Credits
DS 300, 310, or 330 [*]	3 DS 300, 310, or 330 [*]	3
PLSC 400-level ^{*1}	3 PLSC 400-level ^{*1}	3
STAT 380 [*]	3 Advanced Analytics ^{*2}	3
SODA 308 [*]	3 ENGL 202A, 202B, 202C, or 202D (GWS) [‡]	3
General Education Course	3 Ethics (GH) ^{*†3}	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
SODA 496 [*]	3 SODA 496 [*]	3
DS 300, 310, or 330 [*]	3 PLSC 400-level ^{*1}	3
PLSC 400-level ^{*1}	3 Advanced Analytics ^{*2}	3
Advanced Analytics ^{*2}	3 General Education Course [*]	3
General Education Course	3 General Education Course (GHW)	3
	15	15

Total Credits 123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Select 12 credits of PLSC 400-level courses; at least 9 credits must be data intensive from department list

² Select 9 credits of advanced analytics from department list

³ Select 3 credits of ethics from department list

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Social Data Analytics, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 (GQ) ^{*‡#†}	4 MATH 141 (GQ) ^{*‡#†}	4
CMPSC 131 [*]	3 CMPSC 132 ^{*#}	3
General Education Course	3 General Education Course	3
FYS (GH)	3 General Education Course (IL)	3
ENGL 15, 30H, 137H, CAS 137H, or ESL 15 (GWS) [‡]	3 CAS 100, CAS 100A, CAS 100B, CAS 100C, CAS 138T, or ENGL 138T (GWS) [‡]	3
	16	16

Second Year

Fall	Credits Spring	Credits
MATH 220 [*]	2 DS 220 [*]	3
STAT 184	2 CMPSC 360 [*]	3
CMPSC 221 [*]	3 STAT 318 [*]	3
PLSC 309 ^{*#}	3 PLSC 1 (GS)(US) ^{*†}	3
IST 210 [*]	3 PLSC 3, 7N, 14, or 17N [*]	3
PLSC 10 (GS) ^{*†}	3	
	16	15

Third Year

Fall	Credits Spring	Credits
DS 300, 310, or 330 [*]	3 DS 300, 310, or 330 [*]	3
PLSC 400-level ^{*1}	3 PLSC 400-level ^{*1}	3
STAT 380 [*]	3 Advanced Analytics ^{*2}	3
SODA 308 [*]	3 ENGL 202A, 202B, 202C, or 202D (GWS) [‡]	3
PLSC any level (WAC) [*]	3 Ethics (GH) ^{*†3}	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
SODA 496 [*]	3 SODA 496 [*]	3
DS 300, 310, or 330 [*]	3 PLSC 400-level ^{*1}	3
PLSC 400-level ^{*1}	3 Advanced Analytics ^{*2}	3
Advanced Analytics ^{*2}	3 General Education Course [*]	3
General Education Course	3 General Education Course (GHW)	3
	15	15

Total Credits 123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Select 12 credits of PLSC 400-level courses; at least 9 credits must be data intensive from department list

² Select 9 credits of advanced analytics from department list

³ Select 3 credits of ethics from department list

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Career Paths

Businesses and governments increasingly need employees who know how to handle, analyze and communicate with and about large and complex bodies of information. Glass Door described being a data scientist as the "best job in America" in 2016 because these positions are abundant and they command high salaries. Employers need people who can turn data into insights about the kind of problems they are trying to solve. The Social Data Analytics major provides students with a unique interdisciplinary training that develops their ability to think about data in relation to the complex social realities from which it is generated.

Careers

Some Social Data Analytics majors will use their training with companies seeking new markets, improved work flows, more effective marketing, or better investment climates. Others may work for government agencies such as the Department of Defense, the National Institute of Health, the Department of Energy or the Department of State, forecasting political change and coordinating resources to improve human health and security. The degree also prepares students to be strategists for political campaigns or to work in law enforcement. Additionally, this degree is excellent preparation for a variety of graduate programs, including social science, public policy, urban planning, and law.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE SOCIAL DATA ANALYTICS PROGRAM (<https://soda.la.psu.edu/programs/undergraduate/prospective-students/>)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://soda.la.psu.edu/programs/graduate-program/requirements/>)

Contact

University Park

DEPARTMENT OF POLITICAL SCIENCE

202 Pond Lab

University Park, PA 16802

814-865-4597

<https://polisci.la.psu.edu/undergraduate/advising/>

<https://polisci.la.psu.edu>

Sociology, B.A.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The major provides graduates with a sociological perspective on human behavior informed by exposure to different substantive areas of the field; an understanding of the structure of American society, its internal diversity, and its international context; an understanding of basic principles of the scientific method, statistics, research design, computer use, logic and critical thinking, and how these apply to the study of human behavior; and experience in posing sociological questions and collecting and analyzing data to bear on those questions. Graduates have the background to seek employment in a variety of public and private sector jobs, to pursue graduate study in sociology or related areas, or to enter professional schools in social work, law, business, or health fields.

Students may choose either a Bachelor of Arts or a Bachelor of Science degree program. The B.A. degree in Sociology is a classic liberal arts degree. The B.S. degree is intended for students with a strong interest in quantitative skills. Students completing the B.S. degree have additional training in mathematics and other social science disciplines.

Opportunities to work as departmental teaching and research assistants are available. Students are encouraged to participate in study abroad and/or internship experiences while enrolled in either the B.A. or B.S. sociology majors.

Graduates of this program have found positions in social research, social service agencies, government and business research and planning offices, other business positions (especially sales and marketing), or have entered graduate school in sociology, social work, policy analysis or law school.

What is Sociology?

Sociology is the scientific study of social behavior and human social groups. The topics covered in sociology are as diverse as society itself, from families to gangs, from non-profit organizations to nations. Sociology focuses on the ways that groups and individuals interact, examining how social environments, like neighborhoods, schools, religious organizations, workplaces, and social networks shape individuals' behaviors and create cooperation or conflict. Sociology uses different methods (surveys, interviews, network analysis, observation, social media, censuses, case studies) to make the invisible patterns of the social world visible.

Sociology especially helps us understand the roots of racial, gender, and class inequality by investigating the ways that social groups control resources, enforce social boundaries, and accept unequal social

outcomes. But sociology also helps us to understand how societies change, whether due to the impact of large-scale events like pandemics and economic recessions, or through social movements and labor unions.

You Might Like This Program If...

- You want to understand how society influence our lives, both in the United States and throughout the global community.
- You would like to learn skills for social research, group facilitation, or organizational leadership.
- You want to pursue a career in research, law, social work, business, community organizing, social entrepreneurship, education, non-profit organizations, public policy, counseling, or the health professions.
- You want to understand social inequality as well as social change.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Sociology, a minimum of 123 credits is required:

Requirement	Credits
General Education	45
Electives	20
Bachelor of Arts Degree Requirements	24
Requirements for the Major	38

4 of the 45 credits for General Education are included in the Requirements for the Major. This includes 4 credits of General Education GQ courses.

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if foreign language proficiency is demonstrated by examination.

This degree may be combined with a minor such as Business/Liberal Arts, Human Development and Family Studies, or Information Systems and Statistical Analysis, among others.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified

by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CAS 283	Communication and Information Technology I	3
SOC 1	Introductory Sociology	3
SOC 207	Research Methods in Sociology	3
SOC 400W	Senior Research Seminar	3
SOC 405	Sociological Theory	3
SOC 470	Intermediate Social Statistics	4
STAT 200	Elementary Statistics	4
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 15 credits in sociology, at least 9 credits at the 400 level		15

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3

credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Integrated B.A. in Sociology and M.I.A. in International Affairs

Requirements for the Integrated B.A. in Sociology and M.I.A. in International Affairs can be found in the Graduate Bulletin (<https://>

bulletins.psu.edu/graduate/programs/majors/international-affairs/#integratedundergradgradprogramstext).

Program Learning Objectives

- **Career-Related Skills:**
 - Demonstrate an understanding of the career options available to someone with a background in sociology
- **Communication Skills:**
 - Write a paper following the format of published sociological research, including each of the major sections of a research paper.
 - Communicate the results of sociological research in oral form.
 - Content Knowledge: Describe the focus of sociology as a discipline.
 - State what is distinctive about the sociological perspective.
 - Apply the sociological perspective to a problem or scenario.
- **Knowledgeable Consumers of Research:**
 - Comprehend and effectively extract central points from sociological research as this research is presented in professional articles, including substantive content, theory, methods and conclusions.
- **Research Skills:**
 - Demonstrate the ability to analyze and interpret quantitative sociological data using statistics, graphs, and data tables.
 - Do research that develops and tests hypotheses using data, including use of appropriate previous research, theory, data collection, statistical analysis techniques, interpretation of research results and development of conclusions.
 - Present research results in correct tabular and written form.
- **Understanding of Theory:**
 - Identify theories and concepts from classical sociological theories.
 - Apply theories and concepts from classical sociological theories.
 - Identify theories and concepts from contemporary sociological theories.
 - Apply theories and concepts from contemporary sociological theories.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising
814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Sociology, B.A. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year		
Fall	Credits Spring	Credits
General Education Course (GWS) [‡]	3 General Education Course (GWS) [‡]	3
SOC 1 [*]	3 SOC (Lower Level Course) [*]	3
World Language Level 1	4 World Language Level 2	4
General Education Course or First-Year Seminar	3 General Education Course	3
General Education Course (GQ) [‡]	3 General Education Course	3
16		16
Second Year		
Fall	Credits Spring	Credits
SOC (Lower Level Course) [*]	3 SOC 207 [*]	3
STAT 200 (GQ) ^{*††}	4 BA Fields	3
CAS 283 [*]	3 General Education Course	3
World Language Level 3	4 General Education Course	3
General Education Course	3 Elective	3
17		15
Third Year		
Fall	Credits Spring	Credits
SOC (400-Level Course) [*]	3 General Education Course (GWS) [‡]	3
General Education Course	3 SOC 405 [*]	3
General Education Course	3 SOC 470 [*]	4
BA Fields	3 BA Fields	3
Elective	3 Elective	3
15		16
Fourth Year		
Fall	Credits Spring	Credits
SOC 400W [*]	3 SOC (400-Level Course) [*]	3
SOC (400-Level Course) [*]	3 General Health and Wellness Course (GHW)	1.5
General Health and Wellness Course (GHW)	1.5 General Education Course	3

BA World Cultures Course	3 Elective	3
Elective	3 Elective	3
	Elective	1
13.5		14.5

- 3 credits of United States Culture (US)
- 3 credits of International Culture (IL)
- 6 credits of Inter-Domain (N) or 6 credits of Linked (Z) coursework

Total Credits 123

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Advising Note:

- All incoming freshmen must take a First-Year Seminar (FYS) during Fall or Spring of their first year. Academic advisers can provide a list of FYS being offered and help the student enroll. Most FYS in the College of the Liberal Arts are worth 3 cr. and count as a General Humanities (GH) or General Social Sciences (GS) course. For this reason, the FYS is not listed separately on this eight-semester plan; most students will be able to fulfill the FYS requirement while also fulfilling a GH or GS requirement.
- When planning general education and elective courses, students should factor in the following requirements:

Sociology, B.A. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
General Education Course (GWS) [‡]	3 SOC (Lower-Level Course) [*]	3
SOC 1 [*]	3 World Language Level 2	4
World Language Level 1	4 General Education Course (GWS) [‡]	3
General Education Quantification (GQ) [‡]	3 General Education Course	3
General Education Course	3 General Education Course	3
16		16

Second Year

Fall	Credits Spring	Credits
SOC (Lower-Level Course) [*]	3 BA Fields	3
STAT 200 ^{*††}	4 General Education Course	3
World Language Level 3	4 General Education Course	3
General Education Course	3 Elective	3
Elective	3 Elective	3
17		15

Third Year

Fall	Credits Spring	Credits
SOC 207 [*]	3 SOC 405 [*]	3
SOC (400-Level Course) [*]	3 SOC 470 [*]	4
CAS 283 [*]	3 General Education Course (GWS) [‡]	3
General Education Course	3 General Education Course	3
BA Fields	3 BA Fields	3
15		16

Fourth Year

Fall	Credits Spring	Credits
SOC 400W [*]	3 SOC 4xx level [*]	3
SOC (400-Level Course) [*]	3 General Health and Wellness (GHW)	1.5
General Health and Wellness (GHW)	1.5 Elective	3
BA World Cultures Course	3 Elective	3
Elective	3 Elective	1
	Elective	3
13.5		14.5

Total Credits 123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Advising Note:

- All incoming freshmen must take a First-Year Seminar (FYS) during Fall or Spring of their first year. Academic advisers can provide a list of FYS being offered and help the student enroll. Most FYS in the College of the Liberal Arts are worth 3 cr. and count as a General Humanities (GH) or General Social Sciences (GS) course. For this reason, the FYS is not listed separately on this eight-semester plan; most students will be able to fulfill the FYS requirement while also fulfilling a GH or GS requirement.
- When planning general education and elective courses, students should factor in the following requirements:
 - 3 credits of United States Culture (US)
 - 3 credits of International Culture (IL)
 - 6 credits of Inter-Domain (N) or 6 credits of Linked (Z) coursework

Career Paths

Sociology helps you to prepare for your future career in multiple ways. Sociology trains students how to design social research, how to collect data, how to analyze data, and how to interpret data. For example, students can observe and facilitate small groups, analyze a nationally representative survey, or collect social media data. Sociology provides insight about how and why society works, giving students tools to critically examine social and propose creative solutions to social problems. Sociology also gives in-depth knowledge on key aspects of social life: race, family, immigration, gender, religion, work, sexuality, violence, social movements, and more.

Careers

People with sociological training can be found in a range of careers, since sociology provides skills that translate to numerous contexts and specialized knowledge on specific topics. Our recent graduates have pursued careers in law, social work, social media, research, business,

community organizing, social entrepreneurship, education, non-profit organizations, public policy, counseling, health professions, government, and criminal justice. Since our department offers a wide range of courses, students can tailor to their interests. Students also have numerous opportunities for research, career, or teaching internships.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE SOCIOLOGY PROGRAM (<https://sociology.la.psu.edu/undergraduate/sociology/careers-in-sociology/>)

Opportunities for Graduate Studies

Sociology provides a strong foundation for graduate study. Many students choose sociology as a step towards graduate school because it provides intensive training in data analysis and critical thinking skills. Sociology students have multiple chances to develop their communication skills, through writing, speaking, and data presentation. Research, teaching, and community internships all provide opportunities for advanced skill development and mentorship. Over half of recent sociology students have considered graduate school, especially in the fields of law, business, data analytics, human services, education, and public health.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://sociology.la.psu.edu/graduate/sociology/>)

Professional Resources

- American Sociological Association (<https://www.asanet.org/>)
- The International Sociology Honor Society (<https://alphakappadelta.org/>)

Contact

University Park

DEPARTMENT OF SOCIOLOGY AND CRIMINOLOGY
211 Oswald Tower
University Park, PA 16802
814-865-2527
sociology@psu.edu

<https://sociology.la.psu.edu/undergraduate/sociology/majors/>

Sociology, B.S. (Liberal Arts)

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The Sociology BS major provides students with a sociological perspective on human behavior through coursework and learning experiences that are especially focused on connecting sociological concepts and knowledge with advanced research skills. Students choose an option to pursue an area of specialized interest. Students can tailor advanced coursework around areas such as social inequality, social data, social networks, social change, social diversity, conflict, and cooperation. Courses on these topics examine sociological aspects of race, ethnicity, immigration, gender, health, politics, economics, culture, deviance, religion, social movement organizations, and more. Coursework also includes learning basic principles of the scientific method, research design, logic, data collection, coding, and statistics. Students learn

how to pose sociological questions and analyze data to answer those questions.

Opportunities to work as departmental teaching and research assistants on faculty-guided research projects are available. Students are encouraged to participate in dialogue facilitation, study abroad and/or internship experiences as part of their learning.

Graduates of this program have found positions in social media, social entrepreneurship, social research, social service agencies, and non-profit organizations. Graduates are very well prepared to enter professional schools in law, business, social work, or health fields, as well as graduate school in the social sciences.

What is Sociology?

Sociology is the scientific study of social behavior and human social groups. The topics covered in sociology are as diverse as society itself, from families to gangs, from non-profit organizations to nations. Sociology focuses on the ways that groups and individuals interact, examining how social environments, like neighborhoods, schools, religious organizations, workplaces, and social networks shape individuals' behaviors and create cooperation or conflict. Sociology uses different methods (surveys, interviews, network analysis, observation, social media, censuses, case studies) to make the invisible patterns of the social world visible.

Sociology especially helps us understand the roots of racial, gender, and class inequality by investigating the ways that social groups control resources, enforce social boundaries, and accept unequal social outcomes. But sociology also helps us to understand how societies change, whether due to the impact of large-scale events like pandemics and economic recessions, or through social movements and labor unions.

You Might Like This Program If...

- You want to understand how society influence our lives, both in the United States and throughout the global community.
- You would like to advanced learn skills for social research, including statistics and data analysis.
- You want to pursue a career in research, law, social work, business, community organizing, social entrepreneurship, education, non-profit organizations, public policy, counseling, or the health professions.
- You want to understand social inequality as well as social change.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Sociology, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	22-25
Requirements for the Major	59

6-9 of the 45 credits for General Education are included in the Requirements for the Major. This includes 6 credits of GQ courses; 0-3 credits of GS courses.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
SOC 1	Introductory Sociology	3
SOC 207	Research Methods in Sociology ¹	3
SOC 400W	Senior Research Seminar ¹	3
SOC 405	Sociological Theory ¹	3
SOC 470	Intermediate Social Statistics	4
STAT 184	Introduction to R	2
STAT 200	Elementary Statistics ¹	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
MATH 110	Techniques of Calculus I	4
	or MATH 140 Calculus With Analytic Geometry I	
Select 3 credits from the following:		3
CMPSC 101	Introduction to Programming (Students should take 101 version based in Python, not C++)	
CMPSC 121	Introduction to Programming Techniques	
CMPSC 131	Programming and Computation I: Fundamentals	
Select 15 credits in sociology, 9 credits must be at the 400 level		15
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select one of the following five possible pathways:		15
1. Data Analysis		
Select 15 credits from the following:		
CMPSC 203	Introduction to Spreadsheets and Databases	
DS 220	Data Management for Data Sciences	
DS 310	Machine Learning for Data Analytics	
DS 330	Visual Analytics for Data Sciences	
DS 402	Emerging Trends in the Data Sciences	
DS 410	Programming Models for Big Data	
DS 420	Network Analytics	
MATH 220	Matrices	
MATH 441	Matrix Algebra	

STAT 380	Data Science Through Statistical Reasoning and Computation
STAT 460	Intermediate Applied Statistics
STAT 461	Analysis of Variance
STAT 462	Applied Regression Analysis
STAT 463	Applied Time Series Analysis
STAT 464	Applied Nonparametric Statistics
STAT 466	Survey Sampling
2. Geographic Information Systems	
GEOG 260	Geographic Information in a Changing World: Introduction to GIScience
Select 12 credits from the following:	
GEOG 363	Geographic Information Systems
GEOG 364	Spatial Analysis
GEOG 365	Introduction to GIS Programming
GEOG 463	Geospatial Information Management
GEOG 464	Advanced Spatial Analysis
GEOG 465	Advanced Geographic Information Systems Modeling
GEOG 483	Problem-Solving with GIS
GEOG 484	GIS Database Development
GEOG 485	GIS Programming and Software Development
GEOG 489	Advanced Python Programming for GIS
3. Social Demography	
SOC 23	Population and Policy Issues
Select 12 credits from the following:	
GEOG 126	Economic Geography
GEOG 220	Perspectives on Human Geography
GEOG 421	Population Geography
GEOG 422W	Globalization, Migration, and Displacement
GEOG 425	Geography of Race, Class, and Poverty in America
SOC 408	Urban Ecology
SOC 411	Racial and Ethnic Diversity and the American Family
SOC 422	World Population Diversity
SOC 423	Social Demography
SOC 452	Spatial Inequality
SOC 459	Communities and Crime
4. Political Analysis	
PLSC 1	American Politics: Principles, Processes and Powers
PLSC 309	Quantitative Political Analysis
Select 9 credits from the following:	
PLSC 404	Analyzing Public Policy in the American States
PLSC 410	Strategy and Politics
PLSC 429	Analysis of Electoral Politics
PLSC 447	Analysis of Public Opinion and Political Attitudes
PLSC 476	Empirical Legal Studies
SOC 180N	State, Society, and Public Policy
SOC 419	Race and Public Policy
SOC 432	Social Movements
SOC 446	Political Sociology
5. Health and Society	

SOC 451	Health, Disease & Society
Select 12 credits from the following:	
SOC 35	Sociology of Aging
SOC 150N	Healthy People, Healthy Society
SOC 162N	Communicating Care
SOC 309	Sociology of Health
SOC 428	Homelessness in America
SOC 435	Perspectives on Aging
SOC 450	Justice and the Environment
SOC 466	Solving Community Problems

¹ Sequencing: SOC 207 and STAT 200 prior to SOC 470; SOC 470 and SOC 405 prior to SOC 400W.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Sociology and M.I.A. in International Affairs

Requirements for the Integrated B.S. in Sociology and M.I.A. in International Affairs can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/international-affairs/#integratedundergradgradprogramstext>).

Integrated B.S. in Sociology and Masters of Public Policy

Requirements for the Integrated Undergraduate/Graduate Degree Program B.S. in Sociology and Masters of Public Policy can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/public-policy/#integratedundergradgradprogramstext>).

Program Learning Objectives

- **Career-Related Skills:**
 - Demonstrate an understanding of the career options available to someone with a background in sociology
- **Communication Skills:**
 - Write a paper following the format of published sociological research, including each of the major sections of a research paper.

- Communicate the results of sociological research in oral form.
- Content Knowledge: Describe the focus of sociology as a discipline.
- State what is distinctive about the sociological perspective.
- Apply the sociological perspective to a problem or scenario.
- **Knowledgeable Consumers of Research:**
 - Comprehend and effectively extract central points from sociological research as this research is presented in professional articles, including substantive content, theory, methods and conclusions.
- **Research Skills:**
 - Demonstrate the ability to analyze and interpret quantitative sociological data using statistics, graphs, and data tables.
 - Do research that develops and tests hypotheses using data, including use of appropriate previous research, theory, data collection, statistical analysis techniques, interpretation of research results and development of conclusions.
 - Present research results in correct tabular and written form.
- **Understanding of Theory:**
 - Identify theories and concepts from classical sociological theories.
 - Apply theories and concepts from classical sociological theories.
 - Identify theories and concepts from contemporary sociological theories.
 - Apply theories and concepts from contemporary sociological theories.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

bulletins.psu.edu/undergraduate/archive/) to view the appropriate Undergraduate Bulletin edition.

Sociology, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 110 or 140 (GQ) ^{**†}	4 STAT 200 (GQ) ^{**†}	4
SOC 1 [*]	3 SOC Lower-Level Course [*]	3
General Education Course (GWS) [‡]	3 General Education Course (GWS) [‡]	3
General Education Course	3 General Education Course	3
Elective	3 Elective	3
16		16

Second Year

Fall	Credits Spring	Credits
CMPSC 101, 121, or 131 [*]	3 SOC 470 [*]	4
SOC 207 [*]	3 SOC Lower-Level Course [*]	3
SOC Lower-Level Course [*]	3 General Education Course	3
Pathway Course [*]	3 General Education Course	3
General Education Course	3 Elective	3
15		16

Third Year

Fall	Credits Spring	Credits
STAT 184 [*]	2 SOC 405 [*]	3
SOC 400-Level Course [*]	3 Pathway Course [*]	3
Pathway Course [*]	3 General Education Course	3
General Education Course	3 General Education Health and Wellness (GHW)	1.5
General Education Course	3 Elective	3
General Health and Wellness (GHW)	1.5	
15.5		13.5

Fourth Year

Fall	Credits Spring	Credits
SOC 400W [*]	3 SOC 400-Level Course [*]	3
SOC 400-Level Course [*]	3 Pathway Course [*]	3
Pathway Course [*]	3 General Education Course (GWS) [‡]	3
General Education Course	3 Elective	3
Elective	3 Elective	2-3
15		14-15

Total Credits 121-122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- All incoming freshmen must take a First-Year Seminar (FYS) during Fall or Spring of their first year. Academic advisers can provide a list of FYS being offered and help the student enroll. Most FYS in the College of the Liberal Arts are worth 3 cr. and count as a General Humanities (GH) or General Social Sciences (GS) course. For this reason, the FYS is not listed separately on this eight-semester plan; most students will be able to fulfill the FYS requirement while also fulfilling a GH or GS requirement.
- When planning general education and elective courses, students should factor in the following requirements:
 - 3 credits of United States Culture (US)
 - 3 credits of International Culture (IL)
 - 6 credits of Inter-Domain (N) coursework

Sociology, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 110 or 140 (GQ) ^{**†}	4 STAT 200 (GQ) ^{**†}	4
SOC 1 [*]	3 SOC Lower-Level Course [*]	3
General Education Course (GWS) [‡]	3 General Education Course (GWS) [‡]	3
General Education Course	3 General Education Course	3
Elective	3 Elective	3
	16	16

Second Year

Fall	Credits Spring	Credits
CMPSC 101, 121, or 131 [*]	3 SOC Lower-Level Course [*]	3
SOC Lower-Level Course [*]	3 Pathway Course [*]	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
Elective	3 Elective	3
	15	15

Third Year

Fall	Credits Spring	Credits
SOC 207 [*]	3 SOC 405 [*]	3
STAT 184 [*]	2 SOC 470 [*]	4
SOC 400-Level Course [*]	3 Pathway Course [*]	3
General Education Course	3 General Education Health and Wellness (GHW)	1.5
General Education Course	3 Elective	3
General Health and Wellness (GHW)	1.5	
	15.5	14.5

Fourth Year

Fall	Credits Spring	Credits
SOC 400W [*]	3 SOC 400-Level Course [*]	3
SOC 400-Level Course [*]	3 Pathway Course [*]	3
Pathway Course [*]	3 Pathway Course [*]	3
General Education Course	3 General Education Course (GWS) [‡]	3
Elective	3 Elective	2-3
	15	14-15

Total Credits 121-122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- When planning general education and elective courses, students should factor in the following requirements:
 - 3 credits of United States Culture (US)
 - 3 credits of International Culture (IL)
 - 6 credits of Inter-Domain (N) coursework

Career Paths

The Sociology BS major trains students in how to design social research, how to collect data, how to analyze data, and how to interpret data. This includes advanced training in data management and statistical analysis, with chances to focus on social media data, surveys, and network analysis. Sociology provides insight about how and why society works, giving students tools to critically examine social and propose creative solutions to social problems. Sociology also gives in-depth knowledge on key aspects of social life: race, family, immigration, gender, religion, work, sexuality, violence, social movements, and more.

Careers

People with sociological training can be found in a range of careers, since sociology provides skills that translate to numerous contexts and specialized knowledge on specific topics. BS graduates are especially skilled in data management and data analysis. Our recent graduates have pursued careers in law, social work, social media, research, business, community organizing, social entrepreneurship, education, non-profit organizations, public policy, counseling, health professions, government, and criminal justice. Since our department offers a wide range of courses, students can tailor to their interests. Students also have numerous opportunities for research, career, or teaching internships.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE SOCIOLOGY PROGRAM (<https://sociology.la.psu.edu/undergraduate/sociology/careers-in-sociology/>)

Opportunities for Graduate Studies

Sociology provides a strong foundation for graduate study. Many students choose sociology as a step towards graduate school because it provides intensive training in data analysis and critical thinking skills. Sociology students have multiple chances to develop their communication skills, through writing, speaking, and data presentation. Research, teaching, and community internships all provide opportunities for advanced skill development and mentorship. Over half of recent sociology students have considered graduate school, especially in the fields of law, business, data analytics, human services, education, and public health.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://sociology.la.psu.edu/graduate/sociology/>)

Professional Resources

- American Sociological Association (<https://www.asanet.org/>)
- The International Sociology Honor Society (<https://alphakappadelta.org>)

Contact

University Park

DEPARTMENT OF SOCIOLOGY AND CRIMINOLOGY

211 Oswald Tower

University Park, PA 16802

814-865-2527

sociology@psu.edu

<https://sociology.la.psu.edu/undergraduate/sociology/majors/>

Sociology, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The sociology minor allows students to explore the wide range of topics, social groups, and social interactions studied by sociologists. From social inequalities and social problems to the social institutions of family, school, religion, and government, the diversity of courses available allows sociology minors to explore courses relevant to their interests. The courses also provide multiple viewpoints, studying the intimate interactions of families and small groups and the complex interactions of global economies and political alliances. Requiring a minimum of 18 credits in sociology, including SOC 1 and two courses at the 400 level, students have flexibility in choosing a set of courses for their sociology minor.

What is Sociology?

Sociology is the scientific study of social behavior and human social groups. The topics covered in sociology are as diverse as society itself, from families to gangs, from non-profit organizations to nations. Sociology focuses on the ways that groups and individuals interact, examining how social environments, like neighborhoods, schools, religious organizations, workplaces, and social networks shape individuals' behaviors and create cooperation or conflict. Sociology uses different methods (surveys, interviews, network analysis, observation, social media, censuses, case studies) to make the invisible patterns of the social world visible.

Sociology especially helps us understand the roots of racial, gender, and class inequality by investigating the ways that social groups control resources, enforce social boundaries, and accept unequal social outcomes. But sociology also helps us to understand how societies change, whether due to the impact of large-scale events like pandemics and economic recessions, or through social movements and labor unions.

You Might Like This Program If...

- You want to understand how society influence our lives, both in the United States and throughout the global community.

- You would like to learn skills for social research, group facilitation, or organizational leadership.
- You want to pursue a career in research, law, social work, business, community organizing, social entrepreneurship, education, non-profit organizations, public policy, counseling, or the health professions.
- You want to understand social inequality as well as social change.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

At least 12 credits must be taken within the Penn State system, including 3 credits at the 400 level. No more than 6 credits may be from study-abroad courses. Students must declare the SOC minor prior to the end of the late drop period of the student's final semester.

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
SOC 1	Introductory Sociology	3
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 15 credits in sociology; at least 6 of those credits must be at the 400 level. Note:		15
Students may count up to 3 credits of Research Project courses (SOC 294/SOC 494) and up to 3 credits of Internship courses (SOC 296/SOC 496) towards the minor.		
Students may count up to 4 credits of SOC 269 or SOC 369 towards the minor.		
Students may count up to 3 credits of SOC 469 towards the minor.		
Students may count up to 3 credits of SOC 469 or SOC 494 or SOC 496 towards the 400-level requirement for the minor.		
Students may count up to 6 credits of SOC 469, SOC 294, SOC 494, SOC 296, or SOC 496 towards the minor, but an individual course may not provide more than 3 credits towards the minor.		
Students may not count SOC 300 (Preceptorship) credits towards the minor.		

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary

academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

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Schuylkill

Ron Kelly

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World Campus

Undergraduate Academic Advising

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University Park, PA 16802

814-863-3283

advising@outreach.psu.edu

Career Paths

Sociology helps you to prepare for your future career in multiple ways. Sociology trains students how to design social research, how to collect data, how to analyze data, and how to interpret data. For example, students can observe and facilitate small groups, analyze a nationally representative survey, or collect social media data. Sociology provides insight about how and why society works, giving students tools to critically examine social and propose creative solutions to social problems. Sociology also gives in-depth knowledge on key aspects of social life: race, family, immigration, gender, religion, work, sexuality, violence, social movements, and more.

Careers

People with sociological training can be found in a range of careers, since sociology provides skills that translate to numerous contexts and specialized knowledge on specific topics. Our recent graduates have pursued careers in law, social work, social media, research, business, community organizing, social entrepreneurship, education, non-profit organizations, public policy, counseling, health professions, government, and criminal justice. Since our department offers a wide range of courses, students can tailor to their interests. Students also have numerous opportunities for research, career, or teaching internships.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN SOCIOLOGY (<https://sociology.la.psu.edu/undergraduate/sociology/careers-in-sociology/>)

Opportunities for Graduate Studies

Sociology provides a strong foundation for graduate study. Many students choose sociology as a step towards graduate school because it provides intensive training in data analysis and critical thinking skills. Sociology students have multiple chances to develop their communication skills, through writing, speaking, and data presentation. Research, teaching, and community internships all provide opportunities for advanced skill development and mentorship. Over half of recent sociology students have considered graduate school, especially in the fields of law, business, data analytics, human services, education, and public health.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://sociology.la.psu.edu/graduate/sociology/>)

Contact

University Park

DEPARTMENT OF SOCIOLOGY AND CRIMINOLOGY

211 Oswald Tower

University Park, PA 16802

814-865-2527

sociology@psu.edu

<https://sociology.la.psu.edu/>

Abington

DIVISION OF SOCIAL SCIENCES

1600 Woodland Road

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mjb70@psu.edu

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Altoona

DIVISION OF EDUCATION, HUMAN DEVELOPMENT, AND SOCIAL SCIENCES

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3000 Ivyside Park
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kdm12@psu.edu

<https://altoona.psu.edu/academics/sociology/minor> (<https://altoona.psu.edu/academics/sociology/minor/>)

Erie

SCHOOL OF HUMANITIES AND SOCIAL SCIENCES

170 Irvin Kochel Center
4951 College Drive
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<https://behrend.psu.edu/school-of-humanities-social-sciences> (<https://behrend.psu.edu/school-of-humanities-social-sciences/>)

Harrisburg

SCHOOL OF BEHAVIORAL SCIENCES AND EDUCATION

Olmsted Building, W311
Middletown, PA 17057
717-948-6034
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<https://harrisburg.psu.edu/behavioral-sciences-education/sociology-minor> (<https://harrisburg.psu.edu/behavioral-sciences-education/sociology-minor/>)

Schuylkill

ACADEMIC AFFAIRS
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570-385-6075
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World Campus

DEPARTMENT OF SOCIOLOGY AND CRIMINOLOGY
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University Park, PA 16802
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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-sociology-minor> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-sociology-minor/>)

Spanish, B.A.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

This major is designed to develop basic skills in speaking, understanding, reading, and writing Spanish. In addition, the program aims to acquaint students with the literature and civilization of the Hispanic world and introduce them to the study of Hispanic linguistics. Enough flexibility is provided to permit a degree of concentration in either Hispanic literature or linguistics. Specialized courses are offered in translation techniques and in the use of Spanish for social services. Courses taken in the University's Education Abroad Program in Spain and Mexico may be applied to the major. In conjunction with the College of Education, students may take work leading to certification as Spanish teachers in the secondary or elementary schools.

Combined with course work in business, social welfare, or bilingual education, the B.A. in Spanish can facilitate entry into a number of professional areas. In addition, it provides the traditional foundation for advanced degree work required for such careers as college teaching and government service. Students are eligible to participate in the University's Education Abroad Programs.

What is Spanish?

Spanish is the native language of nearly 500 million people, making it the second-most widely spoken language in the world. It is an official language in 21 countries, each with a rich history and culture that are reflected in the grammar, vocabulary and pronunciation of this one language in its many dialectal variations. It is one of the six official languages of the United Nations, and is the second most spoken language in the United States, which currently ranks as the third largest Spanish-speaking country in the world (after Mexico and Colombia).

You Might Like this Program If...

- You are passionate about serving others at home and abroad.
- You are fascinated by language, how it works, and how a language changes from one region to another.
- You understand that proficiency in Spanish opens a lot of doors.
- You want to share your passion for the Spanish language and culture with your students, in a career in education.
- You love to travel.
- You are a foodie, a film-buff, a word-gamer, or an adventurer.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Spanish, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	15
Bachelor of Arts Degree Requirements	24
Requirements for the Major	36

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
SPAN 215	The Science of Spanish: A Beginner's Guide to Hispanic Linguistics	3
SPAN 253W	Introduction to Literary & Cultural Studies en Español	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
SPAN 200	Intensive Grammar and Composition ¹	3
	or SPAN 200A Intensive Grammar and Composition for Spanish Bilinguals	
Select 3 credits from the following:		3
SPAN 100	Intermediate Grammar and Composition	
SPAN 100A	Intermediate Grammar and Composition for Spanish Bilinguals ¹	
SPAN 100B	Intermediate Grammar and Composition for Students in Medical-Related Fields	
SPAN 100C	Intermediate Grammar and Composition for Students in Communication-related Fields	
Select 3 credits of 400-level Hispanic Linguistics:		3
SPAN 411	The ABCs of Bilingualism: Acquisition, Brain, and Community	
SPAN 417	How Languages Are Learned	
SPAN 418	The Evolution of Spanish	
SPAN 497	Special Topics	
Select 3 credits of 400-level Hispanic Literature:		3
SPAN 439	Don Quijote	
SPAN/LTNST 470	Youth Cultures in Latin(a/o) America	
SPAN 472	The Contemporary Spanish American Novel	
SPAN 474	Many Mexicos	

SPAN 476	Masterpieces of Spanish American Literature	
SPAN/LTNST 479	U.S. Latina/o Culture en Espanol	
SPAN 488	War, Revolution, and the Struggles for Modernity: Spain 1898-1939	
SPAN 490	Masterpieces of Spanish Prose	
SPAN 491	Masterpieces of Spanish Drama and Poetry	
SPAN 497	Special Topics	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 9 additional credits from the following 200- and 300-level course list:		9
SPAN 210	Readings in Iberian Civilization	
SPAN 220	Readings in Ibero-American Civilization	
SPAN 297	Special Topics	
SPAN 299	Foreign Study--Intermediate Conversational Spanish	
SPAN 300	Advanced Grammar and Composition Through Reading	
SPAN 300B	Advanced Grammar and composition for Students in Medical-related Fields	
SPAN 305	Spanish for Social Services	
SPAN 314	Spanish Sounds	
SPAN 315N	Spanish and Spanish-speakers in the U.S.	
SPAN 316	Building Words and Sentences in Spanish	
SPAN 353	Topics in the Cultures of Spain	
SPAN 354	Topics in Cultural Contact and Exchange	
SPAN 355	Topics in the Cultures of Latin America	
SPAN 356	Topics in the Cultures of the Americas	
SPAN 397	Special Topics	
SPAN 399	Foreign Study--Spanish	
Select 9 additional credits from the following 400-level course list: ²		9
SPAN 410	Advanced Oral Expression and Communication ¹	
SPAN 411	The ABCs of Bilingualism: Acquisition, Brain, and Community	
SPAN 412	Translation	
SPAN 413	Interpretation	
SPAN 417	How Languages Are Learned	
SPAN 418	The Evolution of Spanish	
SPAN 420	Spanish for Business and International Trade	
SPAN 439	Don Quijote	
SPAN/LTNST 470	Youth Cultures in Latin(a/o) America	
SPAN 472	The Contemporary Spanish American Novel	
SPAN 474	Many Mexicos	
SPAN 476	Masterpieces of Spanish American Literature	
SPAN 479	U.S. Latina/o Culture en Espanol	
SPAN 488	War, Revolution, and the Struggles for Modernity: Spain 1898-1939	
SPAN 490	Masterpieces of Spanish Prose	
SPAN 491	Masterpieces of Spanish Drama and Poetry	
SPAN 497	Special Topics	
SPAN 499	Foreign Study--Spanish	

¹ Heritage speakers (students with Spanish language in family background) and native speakers of Spanish must take SPAN 100A and SPAN 200A instead of SPAN 100 and SPAN 200. May not take SPAN 100, SPAN 200, SPAN 300, or SPAN 410.

² Courses satisfying this requirement are *in addition* to the 400-level Hispanic Literature and Hispanic Linguistics requirements. Courses may not count in multiple areas.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- Students will have developed oral skills in Spanish that allow them to communicate efficiently in a range of settings from informal to professional.
- Students will have developed literacy skills that allow them to read texts written for native speakers of Spanish. Majors should be able to understand and interpret a variety of media ranging from newspapers to literary texts to formal academic prose.
- Students will have developed control of Spanish grammar and syntax as demonstrated in written work.
- Students will have developed a broad cultural awareness of the Spanish-speaking world.

- Students will be familiar with major authors and literary works from Spain and Latin America.
- Students will have been strongly encouraged to spend at least one semester abroad immersed in the target language and its culture through a study abroad program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Spanish, B.A. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
SPAN 1 ¹	4	SPAN 2	4
ENGL 15, 30H, 137H, CAS 137H, or ESL 15 (GWS) [‡]	3	CAS 100A, 100B, 100C, 138T, or ENGL 138T (GWS) [‡]	3
General Education Course (GQ) [‡]	3	General Education Course (N)	3
General Education Course (N)	3	General Education Course	3
General Education Course	3	BA Requirements	3
	16		16

Second Year

Fall	Credits	Spring	Credits
SPAN 3	4	SPAN 100, 100A, 100B, or 100C*	3
General Education Course	3	General Education Course	3
General Education Course (GQ) [‡]	3	General Education Course	3
General Education Course (GHW)	1.5	BA Requirements	3
BA Requirements	3	Elective (US)	3
	14.5		15

Third Year

Fall	Credits	Spring	Credits
SPAN 200 or 200A*	3	SPAN 253W*	3
SPAN 215*	3	200- or 300- level course in SPAN, in consultation with major adviser*	3
General Education Course	3	200- or 300- level course in SPAN, in consultation with major adviser*	3
General Education Course	3	Elective	3
Elective	3	Elective	3
	15		15

Fourth Year

Fall	Credits	Spring	Credits
ENGL 202B (GWS) [‡]	3	400-level SPAN, in consultation with major adviser*	3
General Education Course (GHW)	1.5	400-level SPAN, in consultation with major adviser*	3
200- or 300- level course in SPAN, in consultation with major adviser*	3	400-level SPAN, in consultation with major adviser*	3
400-level SPAN literature, in consultation with major adviser*	3	BA World Cultures ²	3
400-level SPAN linguistics, in consultation with major adviser*	3	Elective	3
	13.5		15

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Most students start at level 2 or 3. Students starting at level 1 may accelerate their progress by taking intensive SPAN 10 and 20 instead of the SPAN 1-3 sequence, or by taking 3-9 cr. of SPAN through the summer program in Seville, Spain or Puebla, Mexico.

² Unless prior course has fulfilled that requirement, then pick an elective

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Advising Notes:

- All incoming freshmen must take a First-Year Seminar (FYS) during Fall or Spring of their first year. Academic advisers can provide a list of FYS being offered and help the student enroll. Most FYS in the College of the Liberal Arts are worth 3 cr. and count as a General Humanities (GH) or General Social Sciences (GS) course. For this reason, the FYS is not listed separately on this eight-semester plan; most students will be able to fulfill the FYS requirement while also fulfilling a GH or GS requirement.
- Students pursuing this major at a Commonwealth Campus might require summer attendance, study abroad, or additional semesters to complete the major coursework. Students should contact the University Park adviser to plan their major courses accordingly.

Career Paths

A degree in Spanish will prepare you to make a significant impact in the service of the Spanish-speaking community in the United States, as Spanish is increasingly necessary in the professions, business, and government. It will also open opportunities to live and work abroad, whether in vibrant, modern cities or in the service of developing communities. With your enhanced communication skills and global awareness, you will be a strong candidate for almost any job. If teaching is your passion, your Spanish degree will lead to your success in the Spanish language classroom at home, and the English language classroom abroad.

Careers

Your degree in Spanish will be highly prized by employers in business, who value international competence; in government, who need both your Spanish proficiency and the cultural awareness acquired in learning a language; in medicine, where health care practitioners who speak Spanish are in great demand and short supply; in law and law enforcement, where too few are trained to address the needs and interests of Spanish speakers. Research in Spanish Linguistics promises insights into the nature of language learning and processing; Spanish literature and film scholars are dispelling myths and stereotypes toward a more informed view of Hispanic realities.

Opportunities for Graduate Studies

A Bachelor of Arts degree in Spanish will prepare students for a teaching career and is extremely valuable in many other career paths and choices. It can also lead to advanced degrees in Spanish literature or linguistics, general linguistics, second language acquisition, comparative literature, law, medicine, international business, international relations or politics, education, translation and interpretation, environmental and sustainability studies, and labor and employment relations.

Contact

University Park

DEPARTMENT OF SPANISH, ITALIAN AND PORTUGUESE
442 Burrowes Building
University Park, PA 16802
814-865-4252
sp-it-port@psu.edu

<https://sip.la.psu.edu/>

Spanish, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

This major encourages students to prepare for careers in which fluency in Spanish can be combined with training in other academic disciplines.

Applied Spanish Option

This option is designed to develop basic skills in Spanish (speaking, understanding, reading, writing) and to provide Spanish majors with concentration in a professional area where a command of Spanish can be particularly relevant and useful. Students are eligible to participate in the University's Education Abroad Programs.

Business Option

This option is designed to develop basic skills in Spanish (speaking, understanding, reading, writing) and to acquaint students with a number of fields essential to business, especially in the international area. Courses in translation techniques, Spanish civilization, and Ibero-American civilization are an integral part of the option. Students are eligible to participate in the University's Education Abroad Programs.

What is Spanish?

Spanish is the native language of nearly 500 million people, making it the second-most widely spoken language in the world. It is an official language in 21 countries, each with a rich history and culture that are

reflected in the grammar, vocabulary and pronunciation of this one language in its many dialectal variations. It is one of the six official languages of the United Nations, and is the second most spoken language in the United States, which currently ranks as the third largest Spanish-speaking country in the world (after Mexico and Colombia).

You Might Like This Program If...

- You are passionate about Spanish and eager to use it professionally.
- You understand that proficiency in Spanish opens a lot of doors.
- You love to travel.
- You want to make your passion for the Spanish language and culture work for you, and for your future employer.
- You look forward to serving the Spanish-speaking community in the United States as a bilingual professional.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Spanish, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	15-17
Requirements for the Major	60-71

0-13 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 0-4 credits of GQ courses; 0-6 credits of GS courses, 0-3 credits of GWS courses.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
SPAN 215	The Science of Spanish: A Beginner's Guide to Hispanic Linguistics	3

SPAN 253W	Introduction to Literary & Cultural Studies en Español	3
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Additional Courses

Additional Courses: Require a grade of C or better

SPAN 200	Intensive Grammar and Composition ¹	3
or SPAN 200A	Intensive Grammar and Composition for Spanish Bilinguals	

Select 3 credits from the following: 3

SPAN 100	Intermediate Grammar and Composition	
SPAN 100A	Intermediate Grammar and Composition for Spanish Bilinguals ¹	
SPAN 100B	Intermediate Grammar and Composition for Students in Medical-Related Fields	
SPAN 100C	Intermediate Grammar and Composition for Students in Communication-related Fields	

Select 9 credits from the following: 9

SPAN 210	Readings in Iberian Civilization	
SPAN 220	Readings in Ibero-American Civilization	
SPAN 297	Special Topics	
SPAN 299	Foreign Study--Intermediate Conversational Spanish	
SPAN 300	Advanced Grammar and Composition Through Reading	
SPAN 300B	Advanced Grammar and composition for Students in Medical-related Fields	
SPAN 305	Spanish for Social Services	
SPAN 314	Spanish Sounds	
SPAN 315N	Spanish and Spanish-speakers in the U.S.	
SPAN 316	Building Words and Sentences in Spanish	
SPAN 353	Topics in the Cultures of Spain	
SPAN 354	Topics in Cultural Contact and Exchange	
SPAN 355	Topics in the Cultures of Latin America	
SPAN 356	Topics in the Cultures of the Americas	
SPAN 397	Special Topics	
SPAN 399	Foreign Study--Spanish	
SPAN 411	The ABCs of Bilingualism: Acquisition, Brain, and Community	
SPAN 417	How Languages Are Learned	
SPAN/LTNST 470	Youth Cultures in Latin(a/o) America	
SPAN 474	Many Mexicos	
SPAN 491	Masterpieces of Spanish Drama and Poetry	

Requirements for the Option

Requirements for the Option: Require a grade of C or better

Select an option 39-50

¹ Heritage speakers (students with Spanish language in family background) and native speakers of Spanish must take SPAN 100A and SPAN 200A instead of SPAN 100 and SPAN 200. May not take SPAN 100, SPAN 200, or SPAN 410.

Requirements for the Option Applied Spanish Option (39 credits)

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits of 400-level Hispanic Linguistics:		3
SPAN 411	The ABCs of Bilingualism: Acquisition, Brain, and Community	
SPAN 417	How Languages Are Learned	
SPAN 418	The Evolution of Spanish	
SPAN 497	Special Topics	
Select 3 credits of 400-level Hispanic Literature:		3
SPAN 439	Don Quijote	
SPAN/LTNST 470	Youth Cultures in Latin(a/o) America	
SPAN 472	The Contemporary Spanish American Novel	
SPAN 474	Many Mexicos	
SPAN 476	Masterpieces of Spanish American Literature	
SPAN/LTNST 479	U.S. Latina/o Culture en Espanol	
SPAN 488	War, Revolution, and the Struggles for Modernity: Spain 1898-1939	
SPAN 490	Masterpieces of Spanish Prose	
SPAN 491	Masterpieces of Spanish Drama and Poetry	
SPAN 497	Special Topics	
Select 12 additional credits from the following 400-level course list: ¹		12
SPAN 410	Advanced Oral Expression and Communication	
SPAN 411	The ABCs of Bilingualism: Acquisition, Brain, and Community	
SPAN 412	Translation	
SPAN 413	Interpretation	
SPAN 417	How Languages Are Learned	
SPAN 418	The Evolution of Spanish	
SPAN 420	Spanish for Business and International Trade	
SPAN 439	Don Quijote	
SPAN/LTNST 470	Youth Cultures in Latin(a/o) America	
SPAN 472	The Contemporary Spanish American Novel	
SPAN 474	Many Mexicos	
SPAN 476	Masterpieces of Spanish American Literature	
SPAN/LTNST 479	U.S. Latina/o Culture en Espanol	
SPAN 488	War, Revolution, and the Struggles for Modernity: Spain 1898-1939	
SPAN 490	Masterpieces of Spanish Prose	
SPAN 491	Masterpieces of Spanish Drama and Poetry	
SPAN 497	Special Topics	
SPAN 499	Foreign Study--Spanish	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 21 credits (at least 6 credits at the 400 level) in consultation with the adviser in any related area of study such as social services, the teaching of English as a second language, or in any other professional area in which competency in Spanish is desirable

¹ Courses satisfying this requirement are *in addition* to the 400-level Hispanic Linguistics and Hispanic Literature requirements. Courses may not count in multiple areas.

Business Option (50 credits)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
ECON 333	International Economics	3
ENGL 202D	Effective Writing: Business Writing	3
IB 303	International Business Operations	3
IB 403	International Business and National Policies	3
SPAN 420	Spanish for Business and International Trade	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
BA 301	Finance	3
or FIN 301	Corporation Finance	
BA 303	Marketing	3
or MKTG 301	Principles of Marketing	
BA 304	Management and Organization	3
or MGMT 301	Basic Management Concepts	
SCM 200	Introduction to Statistics for Business	4
or STAT 200	Elementary Statistics	
Select 12 credits from the following:		12
SPAN 410	Advanced Oral Expression and Communication	
SPAN 411	The ABCs of Bilingualism: Acquisition, Brain, and Community	
SPAN 412	Translation	
SPAN 413	Interpretation	
SPAN 417	How Languages Are Learned	
SPAN 418	The Evolution of Spanish	
SPAN 439	Don Quijote	
SPAN/LTNST 470	Youth Cultures in Latin(a/o) America	
SPAN 472	The Contemporary Spanish American Novel	
SPAN 474	Many Mexicos	
SPAN 476	Masterpieces of Spanish American Literature	
SPAN/LTNST 479	U.S. Latina/o Culture en Espanol	
SPAN 488	War, Revolution, and the Struggles for Modernity: Spain 1898-1939	
SPAN 490	Masterpieces of Spanish Prose	
SPAN 491	Masterpieces of Spanish Drama and Poetry	
SPAN 497	Special Topics	
SPAN 499	Foreign Study--Spanish	

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills

necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits.

Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Spanish and M.S. in Human Resources and Employment Relations

Requirements for the Integrated B.S. in Spanish and M.S. in Human Resources and Employment Relations can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/human-resources-employment-relations/#integratedundergradgradprogramstext>).

Program Learning Objectives

- Students will have developed oral skills in Spanish that allow them to communicate efficiently in a range of settings from informal to professional.
- Students will have developed literacy skills that allow them to read texts written for native speakers of Spanish. Majors should be able to understand and interpret a variety of media ranging from newspapers to literary texts to formal academic prose.
- Students will have developed control of Spanish grammar and syntax as demonstrated in written work.
- Students will have developed a broad cultural awareness of the Spanish-speaking world.
- Students will be familiar with major authors and literary works from Spain and Latin America.
- Students will have been strongly encouraged to spend at least one semester abroad immersed in the target language and its culture through a study abroad program.

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academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

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University Park

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Suggested Academic Plan

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Applied Spanish Option: Spanish, B.S. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, 137H, CAS 137H, or ESL 15 (GWS) ^{††}	3 CAS 100A, 100B, 100C, 138T, or ENGL 138T (GWS) ^{††}	3
General Education Course (GQ) [‡]	3 General Education Course (N)	3
General Education Course (N)	3 General Education Course	3
General Education Course	3 SPAN 2 ¹	4
SPAN 1 ¹	4	
	16	13

Second Year

Fall	Credits Spring	Credits
General Education Course (GQ) [‡]	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course	1.5 SPAN 100, 100A, 100B, or (GHW) 100C [*]	3
Applied Option Course ^{*2}	3 Applied Option Course ^{*2}	3
SPAN 3	4 Elective (US)	3
	14.5	15

Third Year

Fall	Credits Spring	Credits
SPAN 200 or 200A [*]	3 SPAN 253W [*]	3
SPAN 215 [*]	3 200- or 300-Level Course in SPAN ^{*2}	3

Applied Option Course ^{*2}	3 200- or 300-Level Course in SPAN ^{*2}	3
Applied Option Course ^{*2}	3 Applied Option Course ^{*2}	3
General Education Course	3 General Education Course	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
ENGL 202 (GWS) [‡]	3 400-Level SPAN Course ^{*2}	3
General Education Course (GHW)	1.5 400-Level SPAN Course ^{*2}	3
200- or 300-level course in SPAN ^{*2}	3 400-Level SPAN Course ^{*2}	3
400-Level SPAN Literature ^{*2}	3 400-Level SPAN Course ^{*2}	3
400-Level SPAN Linguistics ^{*2}	3 400-Level Applied Option Course ^{*2}	3
400-Level Applied Option Course ^{*2}	3	
	16.5	15

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Most students start at level 2 or 3. Students starting at level 1 may accelerate their progress by taking intensive SPAN 10 and 20 instead of the SPAN 1-3 sequence, or by taking 3-9 cr. of SPAN through the summer program in Seville, Spain or Puebla, Mexico.

² In consultation with SPAN adviser

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- All incoming freshmen must take a First-Year Seminar (FYS) during Fall or Spring of their first year. Academic advisers can provide a list

of FYS being offered and help the student enroll. Most FYS in the College of the Liberal Arts are worth 3 cr. and count as a General Humanities (GH) or General Social Sciences (GS) course. For this reason, the FYS is not listed separately on this eight-semester plan; most students will be able to fulfill the FYS requirement while also fulfilling a GH or GS requirement.

- Students pursuing this major at a Commonwealth Campus might require summer attendance, study abroad, or additional semesters to complete the major coursework. Students should contact the University Park adviser to plan their major courses accordingly.

Business Option: Spanish, B.S. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, 137H, CAS 137H, or ESL 15 (GWS) [‡]	3 CAS 100A, 100B, 100C, 138T, or ENGL 138T (GWS) ^{‡†}	3
General Education Course (GQ) [‡]	3 General Education Course (N)	3
General Education Course (N)	3 General Education Course	3
ECON 102 (GS) ^{*†}	3 ECON 104 (GS) ^{*†}	3
SPAN 1 ¹	4 SPAN 2 ¹	4
	16	16

Second Year

Fall	Credits Spring	Credits
STAT 200 (GQ) ^{*††}	4 General Education Course	3
General Education Course	3 General Education Course (GHW)	1.5
Elective	2 SPAN 100, 100A, 100B, or 100C [*]	3
SPAN 3	4 Elective (US)	3
	ACCTG 211 [*]	4
	13	14.5

Third Year

Fall	Credits Spring	Credits
SPAN 200 or 200A [*]	3 SPAN 253W [*]	3
SPAN 215 [*]	3 ECON 333 [*]	3
BA 303 or MKTG 301 [*]	3 200- or 300-Level Course in SPAN ^{*2}	3
BA 304 or MGMT 301 [*]	3 200- or 300-Level Course in SPAN ^{*2}	3
General Education Course	3 General Education Course	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
ENGL 202D (GWS) ^{‡†}	3 400-Level SPAN Course ^{*2}	3
SPAN 420 [*]	3 400-Level SPAN Course ^{*2}	3
IB 303 [*]	3 400-Level SPAN Course ^{*2}	3
General Education Course (GHW)	1.5 BA 301 or FIN 301 [*]	3
200- or 300-Level Course in SPAN ^{*2}	3 IB 403 [*]	3
400-Level SPAN Course ^{*2}	3	
	16.5	15

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Most students start at level 2 or 3. Students starting at level 1 may accelerate their progress by taking intensive SPAN 10 and 20 instead of the SPAN 1-3 sequence, or by taking 3-9 cr. of SPAN through the summer program in Seville, Spain or Puebla, Mexico.

² In consultation with SPAN adviser

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- All incoming freshmen must take a First-Year Seminar (FYS) during Fall or Spring of their first year. Academic advisers can provide a list of FYS being offered and help the student enroll. Most FYS in the College of the Liberal Arts are worth 3 cr. and count as a General Humanities (GH) or General Social Sciences (GS) course. For this reason, the FYS is not listed separately on this eight-semester plan; most students will be able to fulfill the FYS requirement while also fulfilling a GH or GS requirement.
- Students pursuing this major at a Commonwealth Campus might require summer attendance, study abroad, or additional semesters to complete the major coursework. Students should contact the University Park adviser to plan their major courses accordingly.

Career Paths

A Bachelor of Science in Spanish will prepare you to shape the career you want, combining strong Spanish skills with a depth of knowledge in another discipline. Whether choosing the Business or Applied Option, majors will find careers in medicine, law, government, education, sociology, psychology, agriculture, international relations, politics, or business, especially those companies with a strong international presence or those whose market includes the US Hispanic Community. As a complement to any major, this major will improve your communication skills as well as your international awareness, making you a stronger candidate in today's global market.

Careers

Your Bachelor of Science in Spanish will be valued by employers who seek international expertise, including global corporations in finance and accounting, the travel industry, high tech companies, automobile companies, and import/export companies. Increasing numbers of U.S. companies are looking for Spanish speakers to work in telecommunications, health care services, real estate, and advertising and marketing to domestic Spanish-speaking consumers. Human Resource Directors need Spanish-speakers on their teams, and the hospitality industry hires many Spanish-speakers to fill management, sales, and marketing positions. Spanish is in great demand in the burgeoning business of eco-tourism, but students with this degree are also prepared to be teachers of Spanish, social workers whose work requires proficiency in Spanish, counselors whose clients include Spanish speakers, as well as doctors, lawyers, psychologists, foreign service officers, and other government officials.

Opportunities for Graduate Studies

Students wishing to continue on to graduate study will find that this degree may lead to advanced degrees in business administration, labor and employment relations, hotel and restaurant management, environmental and sustainability studies, public relations, second language acquisition, Spanish linguistics, and translation and interpretation. This degree is also excellent preparation for advanced degrees in anthropology, sociology, psychology, education, medicine, law, international relations or politics.

Contact

University Park

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University Park, PA 16802
814-865-4252
sp-it-port@psu.edu

<https://sip.la.psu.edu/>

Spanish, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

What is Spanish?

Spanish is the native language of nearly 500 million people, making it the second-most widely spoken language in the world. It is an official language in 21 countries, each with a rich history and culture that are reflected in the grammar, vocabulary and pronunciation of this one language in its many dialectal variations. It is one of the six official languages of the United Nations, and is the second most spoken language in the United States, which currently ranks as the third largest Spanish-speaking country in the world (after Mexico and Colombia).

You Might Like This Program If...

- You are majoring in a social science and may wish to serve the Spanish-speaking community.
- You like Spanish, but the demands of your major prevent you from majoring in it.
- You understand that familiarity with Spanish opens doors.

- You want to share your interest in the Spanish language and culture with your students, in a career in education.
- You want to travel.
- You are a foodie, a film-buff, a word-gamer, or an adventurer.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

Courses that do not require knowledge of Spanish may not be counted toward the minor.

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
SPAN 200 or SPAN 301	Intensive Grammar and Composition ¹ Intensive Grammar and Composition for Spanish Bilinguals	3
SPAN 215 or SPAN 253W	The Science of Spanish: A Beginner's Guide to Hispanic Linguistics Introduction to Literary & Cultural Studies en Español	3
Select one of the following:		3
SPAN 100	Intermediate Grammar and Composition ¹	
SPAN 100A	Intermediate Grammar and Composition for Spanish Bilinguals	
SPAN 100B	Intermediate Grammar and Composition for Students in Medical-Related Fields	
SPAN 100C	Intermediate Grammar and Composition for Students in Communication-related Fields	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 3 credits of the following:		3
SPAN 210	Readings in Iberian Civilization	
SPAN 220	Readings in Ibero-American Civilization	
SPAN 297	Special Topics	
SPAN 299	Foreign Study--Intermediate Conversational Spanish	
SPAN 300	Advanced Grammar and Composition Through Reading ¹	
SPAN 305	Spanish for Social Services	
SPAN 314	Spanish Sounds	
SPAN 316	Building Words and Sentences in Spanish	
SPAN 353	Topics in the Cultures of Spain	
SPAN 354	Topics in Cultural Contact and Exchange	
SPAN 355	Topics in the Cultures of Latin America	
SPAN 356	Topics in the Cultures of the Americas	
SPAN 397	Special Topics	
SPAN 399	Foreign Study--Spanish	

Select 6 credits of the following:

SPAN 410	Advanced Oral Expression and Communication ¹
SPAN 412	Translation
SPAN 413	Interpretation
SPAN 418	The Evolution of Spanish
SPAN 420	Spanish for Business and International Trade
SPAN 439	Don Quijote
SPAN 472	The Contemporary Spanish American Novel
SPAN 474	Many Mexicos
SPAN 476	Masterpieces of Spanish American Literature
SPAN 479	U.S. Latina/o Culture en Espanol
SPAN 490	Masterpieces of Spanish Prose
SPAN 497	Special Topics
SPAN 499	Foreign Study--Spanish

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Mont Alto

Robin Yaure
Teaching Professor in HDFS
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r2y@psu.edu

Career Paths

A minor in Spanish enhances almost any major, as it indicates a level of proficiency that employers in government, business, law, medicine, and education value. If in addition to completing a minor you have also studied in Spain or Latin America, you will find that your knowledge of Spanish language and culture will place you ahead of other applicants. You will very likely discover that while you may not be hired because of your Spanish skill, it will never be irrelevant. When your employer realizes you can communicate with foreign clients, vendors, officials, patients, students, migrants, your stock may soar.

Careers

Your minor in Spanish will appeal to employers in business, who value international competence; in government, where you may find a career with almost every agency serving an increasing Hispanic population; in medicine, where health care practitioners with knowledge of Spanish are in great demand; in law and law enforcement, where too few are trained to address the needs and interests of Spanish speakers. No matter what your major might be, or where your career may take you, your Spanish minor will be a significant career enhancer.

¹ Heritage speakers (students with Spanish language in family background) and native speakers of Spanish should take SPAN 100A and SPAN 301 instead of SPAN 100 and SPAN 200. May not take SPAN 410.

SPAN 199, SPAN 299, SPAN 399, and SPAN 499 (Study Abroad - Spanish) and SPAN 197, SPAN 297, SPAN 397, SPAN 497 (Special Topics Courses) may also be applied to the Spanish minor and will be substituted for the appropriate course by the Spanish minor adviser. All courses taken abroad must be taught in Spanish.

NOTE: SPAN 130, SPAN 131, SPAN 230 and any course that does not require a knowledge of Spanish do not count toward the Spanish minor.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Altoona

Kathryn A. Mussett

Assistant Teaching Professor, Spanish
Hawthorn Building 126

Opportunities for Graduate Studies

A minor in Spanish will cover your world language requirement in graduate school. It will also strengthen your application to graduate school in certain fields, including comparative literature, international relations or politics, medicine, law, cultural anthropology, and sociology.

Contact

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Teaching English to Speakers of Other Languages, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The minor in Teaching English to Speakers of Other Languages (TESOL) provides students, regardless of academic major, with basic professional knowledge and skills in the teaching of English as a second language (ESL) in adult programs in the United States and English-as-a-foreign-language (EFL) in settings abroad. It is also excellent preparation for graduate work in TESOL and Applied Linguistics.

The program of study includes an introduction to the study of language use, culture, and social interaction from a variety of perspectives, to the role of English in globalization processes and to how globalization changes the structure, norms, and usage of English. It also provides students with an overview of current theories and practices in the teaching of English language and culture, and practical experiences in and basic tools for planning, delivering, and evaluating instruction.

Individuals who obtain a minor in TESOL may participate in one of the teaching exchanges sponsored by the Department of Applied Linguistics upon graduation. They may also find teaching positions in private language institutes or as private language tutors in the United States and abroad as well as through organizations such as the Peace Corps and the Fulbright Exchange.

This minor does not duplicate other undergraduate degree programs within the department, college or University. It may be pursued concurrently with any undergraduate major.

What is Teaching English To Speakers of Other Languages?

The Teaching English to Speakers of Other Languages (TESOL) Minor prepares you to teach adult English language learners (ELLs) in the U.S. and abroad. Through the coursework and hands-on experiences, you get the practical knowledge and skills you need to work with culturally and linguistically diverse adults in entry-level teaching and tutoring opportunities. As a speaker of English, regardless of where you go or why you go there, you may be asked to teach or tutor ELLs. The TESOL Minor can be a valuable addition to any major as you can from this list of majors our TESOL Minor students represent: Anthropology Arts and Architecture Asian Studies Community, Education and Development Communication Sciences and Disorders Education and Public Policy English Journalism Psychology We would like to add your major to our list!

You Might Like This Program If...

- You enjoy working with people from other cultures and language backgrounds.

- You want to go abroad, join the Peace Corps, apply for a Fulbright Exchange Program or Critical Languages Scholarship.
- You want to work with adult English language learners in the U.S. or overseas.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

The minor consists of 18 credit hours. All students are required to take four three-credit courses, for a total of 12 credits in the study of language use, culture and interaction, English as a global language, functional grammar and teaching methods.

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
APLNG 200	Introduction to Language, Culture, and Social Interaction	3
APLNG 210	Global English	3
APLNG 484	Discourse-Functional Grammar	3
APLNG 493	Teaching English as a Second Language	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 6 credits of the following:		6
APLNG 83	First-Year Seminar in Applied Linguistics: Language as Social Practice	
APLNG 220N	Multilingual Lives: Stories of Language and Culture Learning	
APLNG 250	Peer Tutoring for Multilingual Writers	
APLNG 410	Teaching American English Pronunciation	
APLNG 412	Teaching Second Language Writing	
APLNG 482Y	Introduction to Applied Linguistics	
APLNG 491	Theory: Second Language Acquisition	

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Abington

Roxanna Senyshyn

Assistant Professor of Applied Linguistics and Communication Arts and Sciences

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215-881-7827

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Career Paths

The TESOL Minor provides you with foundational knowledge, skills, and experiences for teaching English with adult English language learners in programs in the U.S. and around the world. These programs may be offered by literacy councils, non-profit or government organizations at the local, state, national or international level, public and private schools, faith-based groups, and other community-based organizations. The TESOL Minor is also excellent preparation for graduate work in TESOL and Applied Linguistics.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATE WITH A MINOR IN TEACHING ENGLISH TO SPEAKERS OF OTHER LANGUAGES (<https://aplng.la.psu.edu/programs/m-a-tesl-degree/>)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://aplng.la.psu.edu/programs/m-a-tesl-degree/>)

Contact

University Park

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University Park, PA 16802

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<https://aplng.la.psu.edu/programs/tesol-minor/>

Abington

DIVISION OF SOCIAL SCIENCES

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<https://www.abington.psu.edu/person/roxanna-senyshun-ph-d> (<https://www.abington.psu.edu/person/roxanna-senyshun-ph-d/>)

Technical Writing, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Department of English offers an 18-credit minor leading to a Technical Writing certificate to all students, regardless of major or college, who want to do concentrated work in technical writing.

What is Technical Writing?

The Minor in Technical Writing responds to the growing need in business, industry, and government for people who can communicate the results of technical work at a level of competence substantially above that usually found in beginning professionals. Indeed, industry and government leaders testify repeatedly that professional success depends both on excellent professional work and on the powerful communication of that work. This 18-credit minor provides all undergraduate students, regardless of college or major, the opportunity for concentrated work in technical writing.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ENGL 418	Advanced Technical Writing and Editing	3
Additional Courses ¹		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3-6 credits from the following:		3-6
CAS 452	Organizational Communication Theory and Research	
CAS 452W	Organizational Communication Theory and Research	
ENGL 470	Rhetorical Theory and Practice	
ENGL 471	Rhetorical Traditions	
ENGL 472	Current Theories of Writing and Reading	
ENGL 473	Rhetorical Approaches to Discourse	
ENGL 474	Issues in Rhetoric and Composition	
STS/PHIL 407		
STS/PHIL 433	Ethics in Science and Engineering	
Select 6-9 credits from the following:		6-9
ENGL 415	Advanced Nonfiction Writing	
ENGL 416	Science Writing	
ENGL 417	The Editorial Process	

ENGL 419	Advanced Business Writing	
ENGL 420	Writing for the Web	
ENGL 421	Advanced Expository Writing	
ENGL 480	Communication Design for Writers	
ENGL 495	Internship	
Select 3-6 credits from the following:		3-6
ART 2	Interactive Learning and Web-Design	
ART 3	Visual Images on the Web	
ART 101	Introduction to Web Design	
GD 100	Introduction to Graphic Design	
LDT 100	World Technologies and Learning	
INSYS 441	Design, Development, and Evaluation of Internet Resources	
PSYCH 444	Engineering Psychology	
PSYCH 456	Advanced Cognitive Psychology	

Supporting Courses and Related Areas¹

Supporting Courses and Related Areas: Require a grade of C or better

Select 0-3 credits	0-3
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¹ Some courses in this category may have prerequisites that are not required in the minor.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

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Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

harrisburg

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Harrisburg

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724-334-6031
aea13@psu.edu

Women's Studies, B.A.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

This interdisciplinary major is designed to develop a broad understanding of the study of women and women's perspectives in all areas of academic scholarship. The focus is on feminist analyses of women's lives, of women's social, cultural, and scientific contributions, and of the structure of sex/gender systems. The interdisciplinary and inclusive nature of the field is reflected in a curricular structure that includes courses cross-listed with a wide variety of departments, courses that deal with aspects of women's lives throughout history, and courses that recognize the diversities of culture, race, religion, ethnicity, age, disability, and sexual orientation.

What is Women's Studies?

Women's Studies explores the intersection of identity, social power, and privilege. Concerned with how societies "construct" inequality and social bias, Women's Studies analyzes every aspect of our lives through a critical lens, without filtering out impacts of socio-political inequalities, and lived experiences of women and their families. With cross-listed courses in Anthropology, Communications, Government, History, Psychology, Sociology, Women's Health and more fields, students can approach Women's Studies from almost any direction. Alongside the U.S. history of women and feminist movement, "transnational" feminism offers a wider comparative study of: constructions of gender across cultures; the legal and political standing of women and marginalized populations; the nature and impacts of gender-based violence, mass

migration, militarization, climate change, food insecurity and other contemporary challenges on the physical, social and political wellbeing of women around the globe.

You Might Like This Program If...

- You want to translate your curiosities, experiences, passions and interests into actionable and meaningful work.
- You seek out inclusive environments, with persons of different backgrounds, cultures, and races to understand their points of view.
- You are passionate about gender equity, human rights, and social justice.
- You want to explore how gender and sexuality play a role in culture, the arts, literature, health, politics, the sciences, law, and education.
- You see yourself as a change agent in this world!

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Women's Studies, a minimum of 123 credits is required:

Requirement	Credits
General Education	45
Electives	18
Bachelor of Arts Degree Requirements	24
Requirements for the Major	36

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if foreign language proficiency is demonstrated by examination.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
WMNST 301		3

WMNST 400N	Debates in Contemporary Feminism	3
WMNST 492W	Contemporary Feminist Analysis: The Capstone Senior Seminar	3

Additional Courses

Additional Courses: Require a grade of C or better

Select one of the following: 3

WMNST 83N First-Year Seminar in Women's Studies

WMNST 100 Introduction to Women's and Gender Studies

WMNST 106N Representing Women and Gender in Literature, Art and Popular Cultures

Select one of the following: 3

WMNST 494 Research Project

WMNST 495 Internship

WMNST 496 Independent Studies

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 6 credits from the program-approved list at the 100-200 level 6

Select 15 credits (at least 3 credits at the 400 level) in Women's Studies from the program-approved list and in consultation with an adviser, including: 15

3 credits of arts and humanities courses

6 credits of natural or social sciences courses

3 credits that focus on non-Western women

3 credits that focus on women of color in the United States

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or

beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- **Career-Related Skills:**
 - Describe professional options;
 - Identify personally relevant career options to implement their gender knowledge, critical and communication skills, and feminist values in a variety of settings;
 - Develop a resumé centering around skills relevant to a business-oriented position and to placement in a graduate program.
- **Communication Skills:**
 - Communicate effectively (in writing and/or orally) the results of a project or internship;
 - Demonstrate knowledge and comprehension of major feminist theories;
 - Translate feminist theory and concepts into everyday language.
- **Content Knowledge:**
 - Define/explain major concepts underlying women's and gender studies;
 - Describe the basic history of Women's Studies (the "three waves" and beyond);
 - Define feminist concepts and theories;
 - Describe the interdisciplinary nature of the fields of Women's, Gender, and Sexuality Studies;
 - Demonstrate awareness of feminist history and movement outside of the United States, i.e., global or transnational feminism;
 - Summarize the history and fundamental contributions of black feminism in relation to mainstream feminism.
- **Diversity and Ethical Considerations:**
 - Name the principles for a feminist classroom (confidentiality, respect of all, disagreeing through reason, not emotion, etc.) and practice them;
 - Integrate knowledge of cultural diversity in the context of human rights frameworks;
 - Apply basic principles of ethics to real-life situations, such as bystander action, or intervening in other forms of prejudice and hate.
- **Research Skills:**
 - Differentiate schools of feminist thought, and how research methods vary from one to the other (e.g. feminist literary analysis vs. psychological experimentation and protocols);
 - Integrate research from various academic fields into one's own research and writing;
 - Gain first-hand experience with faculty research (as a research assistant) and/or with working as an intern with a faculty member (as a teaching assistant) or with a diversity-oriented organization (as an intern).
- **Thinking Skills:**
 - Use critical and creative thinking, skeptical inquiry, and (if relevant) quantitative and qualitative research to analyze real life

issues related to gender and sexuality, and/or textual analysis (depending on the student's secondary disciplinary focus);

- Synthesize theoretical concepts;
- Formulate activist activities based on theoretical principles;
- Formulate and defend one's own scholarly opinion regarding feminism based on reading, interpreting, and synthesizing the literature;
- Relate classroom and course knowledge to current events, feminist concepts and theories to research and to real life.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Women's Studies, B.A. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 (or Honors Equivalent (GWS))*	3 CAS 100 (or Honors Equivalent (GWS))*	3
WMNST 100, 106N, or 83S*	3 WMNST Course (Work with Adviser)*	3

General Education Course (GQ)*	3 General Education Course (GH) (US)	3
General Education Course (GS) (FYS)	3 General Education Course (GN)	3
World Language Level 1	4 World Language Level 2	4
16		16

Second Year

Fall	Credits Spring	Credits
WMNST Course (Work with Adviser)*	3 WMNST 301*	3
General Education Course (GQ)*	3 General Education Course (GN)	3
General Education Course (GA) (IL)	3 General Education Course (GS)	3
BA Fields	3 General Education Course (GH)	3
World Language Level 3	4 BA Fields	3
16		15

Third Year

Fall	Credits Spring	Credits
WMNST 400N or 401*	3 WMNST Course (Work with Adviser)*	3
WMNST Course (Work with Adviser)*	3 WMNST Course (Work with Adviser)*	3
General Education Course (GN)	3 BA Fields	3
General Education Course (GA)	3 ENGL 202A, 202B, 202C, or 202D*	3
Elective	3 Elective	3
15		15

Fourth Year

Fall	Credits Spring	Credits
WMNST 494, 495, or 496*	3 WMNST 492W*	3
WMNST Course (Work with Adviser)*	3 WMNST Course (Work with Adviser)*	3
General Education Course (GHW)	3 Elective	3
World Cultures	3 Elective	3
Elective	3 Elective	3
15		15

Total Credits 123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Advising Notes:

- This document is only for planning purposes. Most students are "off the plan" after one semester. At the campuses, students may sub WMNST 301 with any WMNST course if not available.
- Students need at least 24 credits in WMNST courses completed at UP due to competency requirements. Campus advisers may make work UP advisers if they have questions about their current students.
- Two general education courses (GQ, GN, GA, GH, GS) must be integrative studies courses - Inter-Domain or Linked.
- Depending on placement and proficiency, world language courses may need to be replaced with elective credits.

Career Paths

Employers today value effective communication, analytical thinking, and teamwork. With its emphasis on how gender, sexuality, race and other forms of diversity impact the experiences of every individual, the Women's Studies curriculum trains its majors to recognize the impacts of bias and unequal social power in the social, cultural and political arenas. Graduates enter their post-graduate world sensitive to diverse perspectives that can either facilitate or impede team building, problem solving, and negotiation. Women's Studies graduates—no matter where their career paths lead—are committed to the kind of institutional and social change that values all voices, and supports social justice.

Careers

Women's Studies graduates from Penn State work in a wide variety of professions and industries. You will find us in the legal profession (one alumna runs her own legal firm, serving lower-income clients and gender-based discrimination cases). Others work in communications, marketing and advertising, business, banking and human resources. Activist students find their way into non-profits, advocacy groups, government, human development, journalism and communications. Women's health is a dynamic field—medical care, nursing and research positions are out

there, as well as health administration. Teaching attracts many of our graduates.

Opportunities for Graduate Studies

The scholarly field of Women's, Gender, and Sexuality Studies prepares students to study some of the most complex challenges in a world where gender, race, class, sexuality, and power are always intertwined. As an interdisciplinary field, WGSS spans the arts and sciences, the humanities, and policy fields and provides applicable training for students seeking to continue their studies. Our scholars gain experience as researchers and teachers with the innovative tools to prepare them as leaders across the public, private, and educational sectors.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://wgss.la.psu.edu/graduate/>)

Professional Resources

- National Women's Studies Association (<https://www.nwsa.org/>)
- National Organization for Women (<https://now.org/>)

Contact

University Park

DEPARTMENT OF WOMEN'S, GENDER, AND SEXUALITY STUDIES
133 Willard Building
University Park, PA 16802
814-863-4025
jle1@psu.edu

<https://wgss.la.psu.edu>

Women's Studies, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

This interdisciplinary major is designed to develop a broad understanding of the study of women and women's perspectives in all areas of academic scholarship. The focus is on feminist analyses of women's lives, of women's social, cultural, and scientific contributions, and of the structure of sex/gender systems. The interdisciplinary and inclusive nature of the field is reflected in a curricular structure that includes courses cross-listed with a wide variety of departments, courses that deal with aspects of women's lives throughout history, and courses that recognize the diversities of culture, race, religion, ethnicity, age, disability, and sexual orientation.

Students may choose either a Bachelor of Arts or a Bachelor of Science Program. The B.A. degree in Women's Studies is a traditional Women's Studies degree. The B.S. degree is intended for students with strong interest in quantitative skills, women's health and sexuality, and/or women and science, or who wish to pursue a multiple major program with other B.S. degree programs.

What is Women's Studies?

Women's Studies explores the intersection of identity, social power, and privilege. Concerned with how societies "construct" inequality and social bias, Women's Studies analyzes every aspect of our lives through a critical lens, without filtering out impacts of socio-political inequalities, and lived experiences of women and their families. With

cross-listed courses in Anthropology, Communications, Government, History, Psychology, Sociology, Women's Health and more fields, students can approach Women's Studies from almost any direction. Alongside the U.S. history of women and feminist movement, "transnational" feminism offers a wider comparative study of: constructions of gender across cultures; the legal and political standing of women and marginalized populations; the nature and impacts of gender-based violence, mass migration, militarization, climate change, food insecurity and other contemporary challenges on the physical, social and political wellbeing of women around the globe.

You Might Like This Program If...

- You want to translate your curiosities, experiences, passions and interests into actionable and meaningful work.
- You seek out inclusive environments, with persons of different backgrounds, cultures, and races to understand their points of view.
- You are passionate about gender equity, human rights, and social justice.
- You want to explore how gender and sexuality play a role in culture, the arts, literature, health, politics, the sciences, law, and education.
- You see yourself as a change agent in this world!

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Women's Studies, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	21-30
Requirements for the Major	57

3-12 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 3-6 credits of GQ courses, 0-3 credits of GH courses, and 0-3 credits of GS courses.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
WMNST 301		3
WMNST 492W	Contemporary Feminist Analysis: The Capstone Senior Seminar	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
WMNST 100	Introduction to Women's and Gender Studies	3
	or WMNST 106N Representing Women and Gender in Literature, Art and Popular Cultures	
WMNST 400N	Debates in Contemporary Feminism	3
	or WMNST 401 Doing Feminism: Theory and Practice	
Select 3 credits from the following:		3
WMNST 494	Research Project	
WMNST 495	Internship	
WMNST 496	Independent Studies	
Select 27 credits (at least 9 credits at the 400 level) in Women's Studies from the program-approved lists, including: ¹		27
6 credits of arts and humanities courses from the following:		
WMNST 83N	First-Year Seminar in Women's Studies	
WMNST 101		
WMNST 102	Women of the African Diaspora	
WMNST 104	Women and the American Experience	
WMNST 106N	Representing Women and Gender in Literature, Art and Popular Cultures	
WMNST 117	Women in United States History	
WMNST 137	Gender, Sexuality, and Religion	
WMNST 194	Women Writers	
WMNST 407W	Women and Theatre	
WMNST 438	Seminar in Feminist Philosophy	
WMNST 462	Reading Black, Reading Feminist	
WMNST 466	Lesbian and Gay History	
WMNST 490	Women Writers and Their Worlds	
9 credits of natural or social sciences courses from the following:		
WMNST 100	Introduction to Women's and Gender Studies	
WMNST 103	Racism and Sexism	
WMNST 110	Sociology of Gender	
WMNST 116		
WMNST 136	Race, Gender, and Employment	
WMNST 157		
WMNST 202N	Women, Gender, and Feminisms in Africa	
WMNST 205	Gender, Diversity and the Media	
WMNST 412	Education and the Status of Women	
WMNST 426Y		
WMNST 420		
WMNST 423	Sexual and Domestic Violence	
WMNST 424	Women and Sport	
WMNST 428	Gender and Politics	
WMNST 452		
WMNST 453	Women and the Criminal Justice System	
WMNST 455	Topics in Gender and Communication	
WMNST 456	Gender, Occupations, and Professions	

WMNST 458 Critical Feminist Issues in Reproduction

WMNST 471 The Psychology of Gender

WMNST 476W Anthropology of Gender

6 credits that focus on women's health and sexuality or women in science and technology from the following:

WMNST 157

WMNST 205 Gender, Diversity and the Media

WMNST 452

WMNST 458 Critical Feminist Issues in Reproduction

3 credits that focus on non-Western women from the following:

WMNST 102 Women of the African Diaspora

WMNST 202N Women, Gender, and Feminisms in Africa

WMNST 420

WMNST 476W Anthropology of Gender

3 credits that focus on women of color in the United States from the following:

WMNST 101

WMNST 103 Racism and Sexism

WMNST 136 Race, Gender, and Employment

WMNST 205 Gender, Diversity and the Media

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 15 credits total from the following groups with at least 3 credits from each group:

Quantification (GQ) and Research Methods

Values, Ethics, and Scientific Inquiry

Social and behavioral sciences, health sciences, or natural sciences

¹ The same course may be used to fulfill more than one requirement within Additional Courses.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- Quantification (GQ): 6 credits
- Writing and Speaking (GWS): 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- Arts (GA): 3 credits
- Health and Wellness (GHW): 3 credits

- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Career-Related Skills:**
 - Describe professional options;
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 - Develop a resumé centering around skills relevant to a business-oriented position and to placement in a graduate program.
- **Communication Skills:**
 - Communicate effectively (in writing and/or orally) the results of a project or internship;
 - Demonstrate knowledge and comprehension of major feminist theories;
 - Translate feminist theory and concepts into everyday language.
- **Content Knowledge:**
 - Define/explain major concepts underlying women's and gender studies;
 - Describe the basic history of Women's Studies (the "three waves" and beyond);
 - Define feminist concepts and theories;
 - Describe the interdisciplinary nature of the fields of Women's, Gender, and Sexuality Studies;
 - Demonstrate awareness of feminist history and movement outside of the United States, i.e., global or transnational feminism;
 - Summarize the history and fundamental contributions of black feminism in relation to mainstream feminism.
- **Diversity and Ethical Considerations:**
 - Name the principles for a feminist classroom (confidentiality, respect of all, disagreeing through reason, not emotion, etc.) and practice them;
 - Integrate knowledge of cultural diversity in the context of human rights frameworks;
 - Apply basic principles of ethics to real-life situations, such as bystander action, or intervening in other forms of prejudice and hate.
- **Research Skills:**
 - Differentiate schools of feminist thought, and how research methods vary from one to the other (e.g. feminist literary analysis vs. psychological experimentation and protocols);
 - Integrate research from various academic fields into one's own research and writing;
 - Gain first-hand experience with faculty research (as a research assistant) and/or with working as an intern with a faculty member (as a teaching assistant) or with a diversity-oriented organization (as an intern).
- **Thinking Skills:**
 - Use critical and creative thinking, skeptical inquiry, and (if relevant) quantitative and qualitative research to analyze real life issues related to gender and sexuality, and/or textual analysis (depending on the student's secondary disciplinary focus);
 - Synthesize theoretical concepts;
 - Formulate activist activities based on theoretical principles;
 - Formulate and defend one's own scholarly opinion regarding feminism based on reading, interpreting, and synthesizing the literature;

- Relate classroom and course knowledge to current events, feminist concepts and theories to research and to real life.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Women's Studies, B.A. at University Park Campus and Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
ENGL 15 (or Honors Equivalent (GWS))*	3	CAS 100 (or Honors Equivalent (GWS))*	3
WMNST 100, 106N, or 83S*	3	WMNST Course (Work with Adviser)*	3
General Education Course (GQ)*	3	General Education Course (GH) (US)	3
General Education Course (GS) (FYS)	3	General Education Course (GN)	3
Major Supporting or Related Courses*	3	Major Supporting or Related Courses*	3
	15		15

Second Year

Fall	Credits	Spring	Credits
WMNST Course (Work with Adviser)*	3	WMNST 301*	3
General Education Course (GQ)*	3	General Education Course (GN)	3
General Education Course (GA) (IL)	3	General Education Course (GH)	3
General Education Course (GS)	3	Major Supporting or Related Courses*	3
Elective	3	General Education Course (GA)	3
	15		15

Third Year

Fall	Credits	Spring	Credits
WMNST 400N or 401*	3	WMNST Course (Work with Adviser)*	3
WMNST Course (Work with Adviser)*	3	WMNST Course (Work with Adviser)*	3
General Education Course (GN)	3	WMNST Course (Work with Adviser)*	3
Major Supporting or Related Courses*	3	ENGL 202A, 202B, 202C, or 202D*	3
Elective	3	Elective	3
	15		15

Fourth Year

Fall	Credits	Spring	Credits
WMNST 494, 495, or 496*	3	WMNST 492W*	3
WMNST Course (Work with Adviser)*	3	WMNST Course (Work with Adviser)*	3
WMNST Course (Work with Adviser)	3	Major Supporting or Related Courses*	3
General Education Course (GHW)	3	Elective	3
Elective	3	Elective	3
	15		15

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain

attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- This document is only for planning purposes. Most students are "off the plan" after one semester. At the campuses, students may sub WMNST 301 with any WMNST course if not available.
- Students need at least 24 credits in WMNST courses completed at UP due to competency requirements. Campus advisers may make work UP advisers if they have questions about their current students.
- Two general education courses (GQ, GN, GA, GH, GS) must be integrative studies courses - Inte-Domain or Linked.
- 12 credits of Major Supporting and Related Courses could fulfill general education requirements as well, which would mean a student needs more electives than what are listed here.

Career Paths

Employers today value effective communication, analytical thinking, and teamwork. With its emphasis on how gender, sexuality, race and other forms of diversity impact the experiences of every individual, the Women's Studies curriculum trains its majors to recognize the impacts of bias and unequal social power in the social, cultural and political arenas. Graduates enter their post-graduate world sensitive to diverse perspectives that can either facilitate or impede team building, problem solving, and negotiation. Women's Studies graduates—no matter where their career paths lead—are committed to the kind of institutional and social change that values all voices, and supports social justice.

Careers

Women's Studies graduates from Penn State work in a wide variety of professions and industries. You will find us in the legal profession (one alumna runs her own legal firm, serving lower-income clients and gender-based discrimination cases). Others work in communications, marketing and advertising, business, banking and human resources. Activist students find their way into non-profits, advocacy groups, government, human development, journalism and communications. Women's health is a dynamic field—medical care, nursing and research positions are out there, as well as health administration. Teaching attracts many of our graduates.

Opportunities for Graduate Studies

The scholarly field of Women's, Gender, and Sexuality Studies prepares students to study some of the most complex challenges in a world where gender, race, class, sexuality, and power are always intertwined. As an interdisciplinary field, WGSS spans the arts and sciences, the humanities, and policy fields and provides applicable training for students seeking to continue their studies. Our scholars gain experience as researchers and teachers with the innovative tools to prepare them as leaders across the public, private, and educational sectors.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://wgss.la.psu.edu/graduate/>)

Professional Resources

- National Women's Studies Association (<https://www.nwsa.org/>)
- National Organization for Women (<https://now.org/>)

Contact

University Park

DEPARTMENT OF WOMEN'S, GENDER, AND SEXUALITY STUDIES
133 Willard Building
University Park, PA 16802
814-863-4025
jle1@psu.edu

<https://wgss.la.psu.edu>

Women's Studies, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

This interdisciplinary minor is designed to develop a broad understanding of the study of women and women's perspectives in all areas of academic scholarship. The primary focus is on feminist analyses of women's lives, women's social, cultural, and scientific contributions, and the structure of sex/gender systems. The interdisciplinary and inclusive nature of the field is reflected in a curriculum that includes courses cross-listed with a wide variety of departments, courses that deal with aspects of women's lives throughout history, and courses that recognize the diversities of culture, race, religion, ethnicity, age, disability, and sexual orientation. The Women's Studies minor emphasizes the development of critical and analytical skills, creative approaches to problem solving, and the ability to articulate productive alternatives.

Women's Studies minors have a definite career advantage, and can be successful in a wide variety of career paths. Some of these include:

- legal advocacy
- counseling
- journalism
- public relations
- management
- nonprofit administration
- teaching
- medicine
- politics
- art

In addition, many alumnae/i are currently studying in professional, law, or graduate schools.

What is Women's Studies?

Women's Studies explores the intersection of identity, social power, and privilege. Concerned with how societies "construct" inequality and social bias, Women's Studies analyzes every aspect of our lives through a critical lens, without filtering out impacts of socio-political inequalities, and lived experiences of women and their families. With cross-listed courses in Anthropology, Communications, Government,

History, Psychology, Sociology, Women's Health and more fields, students can approach Women's Studies from almost any direction. Alongside the U.S. history of women and feminist movement, "transnational" feminism offers a wider comparative study of: constructions of gender across cultures; the legal and political standing of women and marginalized populations; the nature and impacts of gender-based violence, mass migration, militarization, climate change, food insecurity and other contemporary challenges on the physical, social and political wellbeing of women around the globe.

You Might Like This Program If...

- You want to translate your curiosities, experiences, passions and interests into actionable and meaningful work.
- You seek out inclusive environments, with persons of different backgrounds, cultures, and races to understand their points of view.
- You are passionate about gender equity, human rights, and social justice.
- You want to explore how gender and sexuality play a role in culture, the arts, literature, health, politics, the sciences, law, and education.
- You see yourself as a change agent in this world!

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
WMNST 301		3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
WMNST 100	Introduction to Women's and Gender Studies	3
	or WMNST 106 Representing Women and Gender in Literature, Art and Popular Cultures	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
	Select 12 credits in Women's Studies or from the program-approved list; at least 6 credits must be at the 400-level and 3 credits from each of the following categories:	12
	Arts or humanities	
	Natural or social sciences	
	Focusing on non-Western women or on women of color in the United States	

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of

both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

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University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Abington

Karen Weekes

Associate Professor of English
1600 Woodland Road
Abington, PA 19001
215-881-7656
kew16@psu.edu

Altoona

Megan B. Simpson

Associate Professor of English and Women's, Gender, and Sexuality Studies
Hawthorn Building 213
3000 Ivyside Park
Altoona, PA 16601
814-949-5288
mbs12@psu.edu

Berks

Lauren Jade Martin

Associate Professor of Sociology
Gaige 304
Reading, PA 19610
610-396-6214
BKWomensStud@psu.edu

Brandywine

Maureen Fielding

Associate Professor of English and Women's Studies
25 Yearsley Mill Road
Media, PA 19063
610-892-1439
mdf6@psu.edu

DuBois

Jackie Atkins

Assistant Teaching Professor in English
180 Smeal
DuBois, PA 15801
814-375-4815

jkatkins@psu.edu

Erie

Sarah Whitney, Ph.D.

Assistant Teaching Professor of English and Women's Studies
144 Kochel
Erie, PA 16563
814-898-6325
sew17@psu.edu

Mont Alto

Alice Royer

Assistant Teaching Professor of English and Women's Studies
313 General Studies Building
Mont Alto, PA 17237
717-749-6234
axr24@psu.edu

Career Paths

Employers today value effective communication, analytical thinking, and teamwork. With its emphasis on how gender, sexuality, race and other forms of diversity impact the experiences of every individual, this curriculum trains its minors to recognize the impacts of bias and unequal social power in the social, cultural and political arenas. Graduates enter their post-graduate world sensitive to diverse perspectives that can either facilitate or impede team building, problem solving, and negotiation. Women's Studies graduates—no matter where their career paths lead—are committed to the kind of institutional and social change that values all voices, and supports social justice.

Careers

Women's Studies graduates from Penn State work in a wide variety of professions and industries. You will find us in the legal profession (one alumna runs her own legal firm, serving lower-income clients and gender-based discrimination cases). Others work in communications, marketing and advertising, business, banking and human resources. Activist students find their way into non-profits, advocacy groups, government, human development, journalism and communications. Women's health is a dynamic field—medical care, nursing and research positions are out there, as well as health administration. Teaching attracts many of our graduates.

Opportunities for Graduate Studies

The scholarly field of Women's, Gender, and Sexuality Studies prepares students to study some of the most complex challenges in a world where gender, race, class, sexuality and power are always intertwined. As an interdisciplinary field, WGSS spans the arts and sciences, the humanities, and policy fields and provides applicable training for students seeking to continue their studies. Our scholars gain experience as researchers and teachers with the innovative tools to prepare them as leaders across the public, private and educational sectors.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES
(<https://wgss.la.psu.edu/graduate/>)

Contact

University Park

DEPARTMENT OF WOMEN'S, GENDER, AND SEXUALITY STUDIES
133 Willard Building
University Park, PA 16802

814-863-4025

jle1@psu.edu

<https://wgss.la.psu.edu>

Abington

DIVISION OF ARTS AND HUMANITIES
1600 Woodland Road
Abington, PA 19001
215-881-7656
kew16@psu.edu

Altoona

DIVISION OF ARTS AND HUMANITIES
Hawthorn Building 213
3000 Ivyside Park
Altoona, PA 16601
814-949-5288
mbs12@psu.edu

<https://altoona.psu.edu/academics/womens-gender-sexuality-studies/>
(<https://altoona.psu.edu/academics/womens-gender-sexuality-studies/>)

Berks

DIVISION OF HUMANITIES, ARTS AND SOCIAL SCIENCES
Franco Building
Reading, PA 19610
610-396-6214
BKWomensStud@psu.edu

Brandywine

ACADEMIC AFFAIRS
25 Yearsley Mill Road
Media, PA 19063
610-892-1439
mdf6@psu.edu

<https://www.brandywine.psu.edu/academics/minors/womens-gender-sexuality-studies/>
(<https://www.brandywine.psu.edu/academics/minors/womens-gender-sexuality-studies/>)

DuBois

180 Smeal
DuBois, PA 15801
814-375-4815
jkatkins@psu.edu

<https://dubois.psu.edu/womens-studies-undergraduate-minor-program/>
(<https://dubois.psu.edu/womens-studies-undergraduate-minor-program/>)

Erie

SCHOOL OF HUMANITIES AND SOCIAL SCIENCES
170 Irvin Kochel Center
Erie, PA 16563
814-898-6108
HSSOffice@psu.edu

<https://behrend.psu.edu/school-of-humanities-social-sciences/academic-programs/minors/womens-gender-studies-minor/>
(<https://behrend.psu.edu/school-of-humanities-social-sciences/academic-programs/minors/womens-gender-studies-minor/>)

Mont Alto

313 General Studies Building
Mont Alto, PA 17237
717-749-6234
axr24@psu.edu

<https://montalto.psu.edu/directory/womens-studies> (<https://montalto.psu.edu/directory/womens-studies/>)

World Literature, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The minor in World Literature enables students to create a package of literature courses tailored to their interests. It offers an international approach to the study of literatures and cultures around the globe. A Senior Seminar is the culminating course. Education abroad can be included in this minor.

What is World Literature?

World Literature is component of comparative literature, a discipline of literary studies that explores exciting approaches to literature and culture in a global context. It also examines global media (print, visual, electronic), and engages with questions of ethics, human rights, and the real world contexts of literary and cultural production.

MORE INFORMATION ABOUT WORLD LITERATURE (<https://complit.la.psu.edu/undergraduate/>)

You Might Like This Program If...

- You are curious about other cultures beyond your own and want to learn to think critically and creatively about cultural difference and convergence in our interconnected world.
- You want to acquire important skills such as analytical writing, argumentation, and communication in an international context.
- You are interested in acquiring knowledge of a second language and/or culture, which is a key component to success in the global economy.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CMLIT 400Y	Senior Seminar in Literary Criticism and Theory	3
Additional Courses		

Additional Courses: Require a grade of C or better

CMLIT 10	World Literatures	3
or CMLIT 100	Reading Across Cultures	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 12 credits (at least 3 credits at the 400 level) in Comparative Literature, unified by topic, theme, period, or a similar principle, subject to approval of a faculty adviser. 12

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Career Paths

World Literature will give you a deeper understanding of this planet and its people. It will train you in important skills such as analytical writing, argumentation, and communication in an international context. The study of world literature in our program gives students in professional and technical areas the "soft skills" that allow them to stand out from other applicants when they enter the job market and to build long-lasting careers out of the first job. World Literature will expand your professional and intellectual options, not only immediately after graduation, but for the rest of your life.

Careers

A Minor in World Literature will aid you in finding employment in domestic and international business, public relations, publishing, education, non-profit organizations, and museum acquisitions. Our alumni also pursue graduate degrees in advanced literary studies, law, and library science; and they have become professors, attorneys, librarians, and leaders in business, private institutions, and government service.

Contact

University Park

DEPARTMENT OF COMPARATIVE LITERATURE
442 Burrowes Building
University Park, PA 16802

814-863-0589
cmilit@psu.edu

<https://complit.la.psu.edu/undergraduate/>

Nursing

About the College

Laurie Badzek, Dean and Professor, College of Nursing

Penn State's Nursing program began in 1964 to provide an academically grounded clinical training program for future nurses. Since then, the Ross and Carol Nese College of Nursing (Nese CON) has steadily evolved to meet the demands of modern healthcare. We provide diverse, hands-on clinical experiences, a well-rounded classroom curriculum, and cutting-edge technology to today's students. Through three unique Nursing degree program options - General Bachelor of Science in Nursing (B.S.N.), Second Degree in Nursing, and R.N. to B.S.N. - Penn State provides opportunities for students to begin their journey into nursing or expand their nursing education in ways that fit their needs. Students in the Nese CON enjoy the rich benefits of the extensive Penn State system while also connecting closely with colleagues, faculty and staff within our small college. Through the College's commitment to improve the lives of others, our students are empowered to provide high-quality and compassionate healthcare to the people they serve.

MORE INFORMATION ABOUT THE COLLEGE (<https://www.nursing.psu.edu/>)

Mission and Goals

We are creating nurse leaders to transform lives and health around the world.

MORE INFORMATION ABOUT THE MISSION AND GOALS OF THE COLLEGE OF NURSING (<https://www.nursing.psu.edu/mission-vision-values-and-strategic-plan/>)

Accreditation

The Bachelor of Science in Nursing Programs are approved by the Pennsylvania State Board of Nursing and accredited by the:

Commission on Collegiate Nursing Education (CCNE)

655 K Street, NW

Suite 750

Washington, DC 20001

202-887-6791 - Phone

202-887-8476 – Fax

<https://www.aacnnursing.org/ccne-accreditation> (<https://www.aacnnursing.org/ccne-accreditation/>)

Baccalaureate Degrees

- Nursing, B.S.N.

Certificates

- Nursing Forensics, Certificate
- Nursing Informatics, Certificate
- Nursing Management, Certificate

College Procedures

Change of Campus

General B.S.N. and Second Degree students must start and remain at the campus to which they are admitted into the Nursing program. University Park students are required to spend one full academic year at the Penn State Milton S. Hershey Medical Center. R.N. to B.S.N. students may request a temporary or permanent change of campus (<https://www.registrar.psu.edu/degree-planning/change-campus/>) to an alternative campus. Students initiate this request using the Update Campus application (<https://lionpathsupport.psu.edu/student-help/>) found in the Student Center of LionPATH.

MORE INFORMATION ABOUT CHANGE OF CAMPUS (<https://www.registrar.psu.edu/degree-planning/change-campus/>)

Concurrent Majors

A Concurrent Majors Program is one in which students take courses to concurrently meet the requirements of at least two majors, with graduation for all majors in the program occurring during the same semester. Nursing students may be eligible for a concurrent major with careful, proactive consultation with academic advisers in both programs. Nursing is always considered the primary major. Due to the progressive nature of nursing education, students are expected to prioritize their Nursing curriculum over that of their concurrent major. Students should consult with their Nursing academic adviser prior to declaring a concurrent major.

READ SENATE POLICY 60-00: COMPLETING MORE THAN ONE UNDERGRADUATE MAJOR PROGRAM (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/60-00-completing-more-than-one-undergraduate-program/#60-00>)

Academic Warning

The Ross and Carol Nese College of Nursing's Academic Progression Policy supersedes University policy on Academic Warning for General B.S.N. and Second Degree Students. A student who fails to earn a 2.00 cumulative grade-point average will be placed on academic warning. A student placed on academic warning will have a hold placed on registration and will be required to meet with an academic adviser in order for this registration hold to be removed. To remove academic warning, the student must reach a cumulative grade-point average of 2.00 or higher.

MORE INFORMATION ABOUT ACADEMIC WARNING (<https://www.nursing.psu.edu/academic-warnings-and-suspensions/>)

READ SENATE POLICY 54-20: ACADEMIC WARNING (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-20>)

Academic Suspension

The College of Nursing's Academic Progression Policy supersedes University policy on Academic Suspension for General B.S.N. and Second Degree Students. A student in academic warning who fails to maintain a semester grade-point average of 2.00 or higher will be academically suspended. A student who has been academically suspended may not schedule courses at the University for two consecutive semesters. (Note: Summer session is equal to one semester.)

MORE INFORMATION ABOUT ACADEMIC SUSPENSION (<https://www.nursing.psu.edu/academic-warnings-and-suspensions/>)

READ SENATE POLICY 54-40: ACADEMIC SUSPENSION (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-40>)

Resources

Academic Advising

Once admitted to the program, all students will be assigned to an academic or faculty adviser according to their campus location. The University Park/World Campus Academic Advising office is located at 109 Nursing Sciences Building and can be reached by calling 814-863-2229 or emailing nursing@psu.edu.

MORE INFORMATION ABOUT ACADEMIC ADVISING (<https://www.nursing.psu.edu/academic-advising/>)

Diversity and Inclusion Initiatives

The Ross and Carol Nese College of Nursing's Office for Diversity and Inclusion fosters a welcoming and inclusive community while promoting and enhancing the diversity of the College's students, faculty, and staff. Our goal is to support the College's efforts related to the recruitment, retention, development, and graduation of underrepresented students in Nursing. For more information, please contact 814-863-2229.

MORE INFORMATION ABOUT DIVERSITY AND INCLUSION INITIATIVES (<https://www.nursing.psu.edu/diversity-equity-and-inclusion/>)

Study Abroad

B.S.N. students in the General Nursing Option have the opportunity to study abroad. However, due to the sequential nature of the Nursing curriculum, students who wish to stay "on time" with their program may study abroad only during the summer or semester breaks, or with an embedded program of shorter duration. The Ross and Carol Nese College of Nursing offers embedded programs during the academic year for upper-division students. Other international experiences can be arranged through Penn State Global.

MORE INFORMATION ABOUT STUDY ABROAD OPPORTUNITIES (<https://www.nursing.psu.edu/study-abroad/>)

Academic Support

The Academic Success Team consists of the student, course coordinators, clinical faculty, Academic Success Coach, Student Success Center adviser, and professionals from a variety of campus resources. Students may be referred to the Academic Success Coach by faculty or staff, or may independently request support for nursing courses starting in the sophomore year.

MORE INFORMATION ABOUT ACADEMIC SUPPORT (<https://www.nursing.psu.edu/student-resources/>)

CON Ambassadors: Ross and Carol Nese College of Nursing Student Ambassadors (CONAM)

This student group represents the Nese College of Nursing and provides a student perspective at information and recruitment events. Ambassadors embody Nursing students of varied interests, activities, and backgrounds and volunteer to share their love of Penn State and all things nursing.

MORE INFORMATION ABOUT THE CONAMBASSADORS (<https://www.snap.psu.edu/con-ambassadors/>)

The Art of Nursing

The Art of Nursing is a choir of nursing and allied students who connect with the same patients/residents student nurses care for during local clinical rotations. They strive to bring joy and healing to the elderly and sick through song.

Men in Nursing

Men in Nursing facilitates opportunities for networking and mentoring, and assists interested males with information about the nursing major. Additionally, Men in Nursing actively promotes men's health, discusses factors that impact men in nursing, and joins with all nursing students and nurses in providing services and support for the underprivileged.

MORE INFORMATION ABOUT MEN IN NURSING (<https://orgcentral.psu.edu/organization/men-in-nursing/>)

Multi-Cultural Students Nurses Association (MSNA)

The Multi-Cultural Students Nurses Association was formed to provide an inclusive environment to multicultural students and allies in the nursing major. MSNA coordinates social events and educational opportunities that create a safe space for students to strengthen their community and develop professional skills for career success.

MORE INFORMATION ABOUT MULTI-CULTURAL STUDENTS NURSES ASSOCIATION (MSNA) (<https://sites.psu.edu/msna/>)

Student Nurses' Association of Pennsylvania (SNAPS)

The Student Nurses' Association at Penn State (SNAPS) chapter is open to all nursing students. Members take part in professional development, community service and social events such as Homecoming, THON, Relay for Life, career fairs, state and national conventions, workshops and numerous other activities throughout the year.

MORE INFORMATION ABOUT THE STUDENT NURSES' ASSOCIATION OF PENNSYLVANIA (SNAPS) (<https://www.snap.psu.edu/>)

Honors Programs

Schreyer Honors College

The Schreyer Honors College, regarded as one of the nation's top programs of its kind, promotes achieving academic excellence with integrity, building a global perspective, and creating opportunities for leadership and civic engagement. Schreyer Scholars, including those admitted after their first or second year of enrollment, are a diverse and motivated group of approximately 2,000 students at University Park and 20 Commonwealth campuses. The College strives to educate students who will have an important and ethical influence in the world, to improve educational practice, and to continue to be recognized as a leading force in honors education nationwide.

MORE INFORMATION ABOUT THE SCHREYER HONORS COLLEGE (<https://www.shc.psu.edu>)

Honors in the College of Nursing

Nursing students in the Schreyer Honors Program are expected to demonstrate excellent academic achievement with integrity, build a global perspective, and seek opportunities for leadership and civic engagement. In addition to completing B.S.N. program requirements, honors students engage in academic enrichment including honors courses, research placement and the completion of a thesis. College of

Nursing students may pursue Schreyer Honors College (SHC) in one of two ways:

1. First-year applicants may apply to SHC (<https://www.shc.psu.edu/admissions/first-year/>) at the time of application to the College of Nursing.
2. Current Nursing undergraduates may have the opportunity to seek entry to the SHC in the spring of sophomore year, through a process known as the *Current Student Gateway*. Please be aware that this opportunity is contingent upon available space in the current Nursing Schreyer cohort.

MORE INFORMATION ABOUT HONORS IN THE COLLEGE OF NURSING (<https://www.nursing.psu.edu/student-life/>)

Contact

ROSS AND CAROL NESE COLLEGE OF NURSING
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nursing@psu.edu

<https://www.nursing.psu.edu/>

Nursing Forensics, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

This 12-credit certificate introduces students to forensic health sciences, forensic nursing, and the nursing role in the scientific investigation of violence. Through this course series, nurses gain foundational forensics knowledge and skills, including evidence collection and preservation; forensic documentation; recognition of domestic violence, assault, and stalking; related public policy and regulatory guidelines; and legal and ethical issues. This program prepares nurses to provide care that is more specialized for victims and perpetrators of physical, psychological, and social violence or abuse.

What is Nursing Forensics?

Violence impacts our communities at a local, national, and global level. It's an unfortunate reality that a high number of patients who access healthcare services are the victims of violence, abuse, or neglect. When these victims enter the healthcare system, professionals trained in forensic nursing are often their first line of defense. In addition to providing routine medical care, forensic nurses must understand the legal and ethical implications of treating victims of violence and abuse. Forensic nurses must be skilled at injury identification, evaluation, and documentation. Proper observation, collection, and preservation of evidence is often critical in determining the legal outcome of traumatic events. Penn State's Nursing Forensics certificate provides nurses with the knowledge and skills to effectively help these patients.

You Might Like This Program If...

You are interested in working with victims who have experienced violence or trauma. Forensic nurses are vital in bridging the gap between medical care and the legal system. Students will learn to identify signs of violence, understand the resources and interventions available to help,

and provide compassionate care while preserving physical evidence that may assist in criminal investigations. Enrollment in this certificate allows Nursing students to gain an additional area of concentration while pursuing their degree. This certificate introduces forensic nursing and may serve as a starting point for SANE (Sexual Assault Nurse Examiner) certification (<https://www.forensicnurses.org/page/aboutSANE/>).

Program Requirements

To earn an undergraduate certificate in Nursing Forensics, a minimum of 12 credits is required.

Code	Title	Credits
Prescribed Courses		
NURS 245	Violence and the Impact on Society	3
NURS 409	Introduction to Forensic Nursing	3
NURS 410	Forensic Evidence Collection and Preservation	3
NURS 411	Seminar in Forensic Nursing	3

Prerequisites Required.

Certificate Learning Objectives

- Identify and analyze current forensic science and nursing issues and trends.
- Verbalize the complicated issues and variables surrounding violence in societies.
- Identify the role of the forensic nurse in the multidisciplinary team, providing service from initial contact through courtroom adjudication.
- Critically analyze the role of the forensic nurse in healthcare and private industry, criminal justice, community organizations, and law enforcement entities.

Academic Advising

University Park

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Schuylkill

Marianne Adam
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Career Paths

Forensic nurses connect the medical and legal communities by completing medical assessments and providing treatment, as well as collecting evidence and giving expert testimony to support criminal investigations. A general understanding of nursing forensics can support any nurse working in their traditional role in community and emergency services. Nurses may also pursue more specialized forensic nursing roles or pursue graduate degree programs and board certification.

Careers

Graduates of the Nursing Forensics Certificate Program obtain positions in hospitals, community anti-violence centers, medical examiners/coroner offices, corrections institutions, public health departments, and psychiatric hospitals. Typical roles could include:

- medical examiner nurse investigator
- forensic clinical nurse specialist
- correctional facility nurse
- emergency room forensic nurse
- nurse coroner
- assault or abuse nurse examiner
- legal nurse consultant

Nurses interested in earning the Sexual Assault Nurse Examiners (SANE), or Advanced Forensics Nursing Board Certification, may use the undergraduate Forensic Nursing Certificate Program as a starting point for meeting eligibility requirements, though the certificate program will not fulfill all criteria. Additional information about these certifications can be found on the International Association of Forensic Nurses website (<https://www.forensicnurses.org/>).

Opportunities for Graduate Studies

Nurses interested in advancing their education in forensics nursing can pursue graduate-level forensic Nursing certificates and degree programs. Additionally, to apply for Advanced Forensics Nursing Board certification, a graduate degree in nursing is required. Although Board Certification is not a requirement to practice in most areas, certification demonstrates expertise and a commitment to excellence in the area of forensics nursing. More information can be found on the International Association of Forensic Nurses website (<https://www.forensicnurses.org/>).

Professional Resources

- International Association of Forensic Nurses (<https://www.forensicnurses.org>)

Contact

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-nursing-forensics-undergraduate-certificate> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-nursing-forensics-undergraduate-certificate/>)

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<https://schuylkill.psu.edu/academics> (<https://schuylkill.psu.edu/academics/>)

Nursing Informatics, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

This 9-credit course series is designed to provide nurses with informatics knowledge and to prepare them to practice in information and technology rich health care environments. Those who complete the certificate will be prepared to assist in the implementation of informatics tools in healthcare environments such as electronic health records, clinical decision support tools, database management and data mining, patient safety technologies such as Bar Code Medication Administration (BCMA), RFID technologies and smart pumps. The ethical management of private health information and legislative aspects such as HIPAA and the HITECH act are also included.

What is Nursing Informatics?

Nursing informatics (NI) is the specialty that integrates nursing science with multiple information and analytical sciences to identify, define, manage and communicate data, information, knowledge and wisdom in nursing practice. For many people, NI, and healthcare informatics in general, are about technology. This is especially true of electronic health records (EHRs) that are required of all care facilities. (Source: American Nurses Association, Nursing Informatics: Scope and Standards of Practice, 2nd Edition, 2015)

You Might Like This Program If...

The Nursing Informatics Certificate might be for you if you are interested in increasing your knowledge of healthcare information technologies or want to maximize use within your organization, as well as better understand and overcome the barriers that arise with the integration of technology innovations into healthcare delivery. Enrollment in this certificate also allows Nursing students to gain an additional area of concentration while pursuing the B.S.N. degree.

Program Requirements

To earn an undergraduate certificate in Nursing Informatics, a minimum of 9 credits is required.

Code	Title	Credits
Prescribed Courses		
NURS 357	Introduction to Nursing Informatics	3
NURS 458	Ethical Challenges in Healthcare Informatics	3
NURS 460	Advanced Concepts in Clinical Nursing Informatics	3

Prerequisites Required.

Certificate Learning Objectives

- Explore the use of the computer and health care technologies for nursing applications in selected areas of nursing practice.
- Synthesize an ethical framework for dealing with selected healthcare informatics dilemmas.
- Discover the competencies, skills, roles, and standards of informatics nursing practice.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Career Paths

With the development of new technologies and the integration and expansion of these tools throughout all levels of healthcare, professionals with focused training and experience in Informatics are increasingly essential to healthcare organizations.

Careers

There is steady job growth in informatics positions in health care. Graduates of the Nursing Informatics Certificate Program obtain positions within various organizations including:

- hospitals and healthcare systems
- public health agencies
- consulting firms
- health care product or technology vendors
- home health agencies
- managed care or insurance companies
- government and military healthcare settings

A comprehensive understanding of information systems and applications is essential for nurses interested in or currently working in management and leadership roles in health care.

Opportunities for Graduate Studies

Baccalaureate-educated Nurses may want to consider pursuing an advanced nursing degree with a specialization in Nursing Informatics. Professionals with graduate degrees that include the essentials of Nursing Informatics can explore job advancement opportunities as information officers, health systems analysts, IT training managers, and project managers. Nurses with this background are highly competitive for roles in nursing leadership within a variety of healthcare organizations.

Professional Resources

- American Medical Informatics Association (AMIA) (<https://amia.org>)
- Nursing Informatics Working Group (<https://amia.org/communities/nursing-informatics/>)
- Alliance for Nursing Informatics (ANI) (<https://www.allianceni.org>)
- Healthcare Information and Management Systems Society (HIMSS): Nursing Informatics (<https://www.himss.org/resources-informatics/>)

Contact

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-nursing-informatics-undergraduate-certificate> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-nursing-informatics-undergraduate-certificate/>)

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Nursing Management, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

The Nursing Management Certificate Program includes a series of four three-credit courses designed to enhance the career opportunities for currently licensed R.N.s who are working in nursing. This program is designed for registered nurses who have, or aspire to hold, entry level nurse manager positions. The program will enrich participants' knowledge of basic health care organizations and administration; collection, analysis and management of nursing data; concepts and techniques for managing nursing personnel; and concepts and techniques for enhancing nursing managerial behaviors. Courses are aligned with the core curriculum and competencies for nurse managers, developed by the American Organization of Nurse Executives.

What is Nursing Management?

In all healthcare facilities, there is demand for dedicated and experienced nurse leaders to competently manage employees, collaborate with other healthcare managers and make higher-level decisions for the betterment of the organization. Nursing managers must build and retain a quality staff, maintain a budget and ensure excellent patient care while supervising day-to-day operations. Additionally, effective nurse managers and supervisors must motivate and lead their staff through continual healthcare changes to meet the needs of various stakeholders which include clients, insurance companies and upper-level healthcare administration. Penn State's Nursing Management Certificate is designed to equip nurses to advance into these roles by expanding their knowledge of management theories and styles, healthcare organizational structure, human resources, information systems and current issues.

You Might Like This Program If...

The Nursing Management Certificate may be for you if you are interested in pursuing a supervisory role in the healthcare field or are already working in a supervisory role and want to improve your management skills and better understand the structure of healthcare organizations and administration. Enrollment in this certificate allows Nursing students to gain an additional area of concentration while pursuing their degree.

Program Requirements

To earn an undergraduate certificate in Nursing Management, a minimum of 12 credits is required.

Code	Title	Credits
Prescribed Courses		
NURS 430	Organization and Administration for the Nurse Manager	3
NURS 431	Data Management for Nurse Managers	3
NURS 432	Nursing Management of Human Resources	3
NURS 433	Seminar for Nurse Managers	3

Prerequisites Required.

Certificate Learning Objectives

- **Analysis: Staffing:** Analyze the role of the nurse manager to effectively staff for the delivery of patient care.
- **Content Knowledge: Evaluation Measures:** Describe the utilization of efficiency and productivity measures to evaluate the costs of delivering care.
- **Content Knowledge: Roles and Responsibilities of NM:** Discuss the role and responsibilities of nurse managers.
- **Professional: Analyze Issues and Trends:** Analyze issues and trends that will affect the future of nursing management.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Career Paths

With the demand for nurse leaders in all levels of healthcare, professionals with focused training and experience in Nursing Management are increasingly essential to their organizations. Nurses with an interest in management have many opportunities to advance into leadership positions within an organization, such as department manager, health services manager, nursing manager, or clinical coordinator.

Opportunities for Graduate Studies

Baccalaureate-educated Nurses wanting to further specialize in management may consider pursuing a post-baccalaureate certificate, or a master's or doctoral degree with a concentration in healthcare leadership. Professionals with graduate-level education in healthcare administration might explore job advancement opportunities as senior administrators within a variety of healthcare organizations. Penn State offers several graduate options for B.S.N.-educated nurses, including the M.S.N. with Nurse Administrator Option, Doctor of Nursing Practice (D.N.P.) and Ph.D. degree programs, and the graduate Nursing Administrator Certificate Program.

Professional Resources

- Pennsylvania of Nurse Leaders (<https://www.ponl.net>)
- American Organization for Nursing Leadership (<https://www.aonl.org>)

Contact

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<https://www.nursing.psu.edu/undergraduate-certificates/>

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-nursing-management-undergraduate-certificate> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-nursing-management-undergraduate-certificate/>)

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Nursing, B.S.N.

Begin Campus: Any Penn State Campus

End Campus: Abington, Altoona, Erie, Fayette, Harrisburg, Mont Alto, New Kensington, Schuylkill, Scranton, Shenango, University Park, World Campus

Program Description

The Bachelor of Science Degree in Nursing (B.S.N.) prepares professional practitioners in areas of health promotion and maintenance, illness care, and rehabilitation. The program has three options; two options (GNURS and SCND) prepare prelicensure students and one option (RNBSN) prepares post-licensure (RN) students. BSN majors will choose one of the three options.

After earning the BSN degree, prelicensure students are qualified to take the registered nurse examination for licensure (NCLEX) by the State Board of Nursing.

Graduates of BSN Program may qualify for admission to a graduate nursing program.

B.S.N. Nursing majors will choose one of the following options:

General Nursing Option (NURS GNURS)

Available at the following campuses: Altoona, Erie, Fayette, Mont Alto, Schuylkill, Scranton, University Park

Students start and remain at the campus of admission for the entire program.

The General Nursing Option admits first year students directly to the major at seven Penn State campuses (University Park, Altoona, Erie, Fayette, Mont Alto, Schuylkill, or Scranton) for Summer or Fall entry. Non-nursing students may not transfer or change major into the 4-year nursing program at University Park; however, students may apply through a competitive Entrance to Major Review process at the six other campuses offering the General Nursing Program.

Nursing students start and remain at the campus of admission all four years. University Park students spend one full academic year at Penn State Hershey Medical Center campus, which requires students to reside at the location.

Clinical experiences occur at clinical facilities within approximately a 50-mile radius of campus.

All transportation and expenses related to clinical are the responsibility of the student. Students must carry professional liability insurance, complete an annual health examination, criminal background (State and Federal) and child abuse history clearance and drug screening, maintain CPR certification, and adhere to any additional requirements of the clinical facilities. Students may need the use of a car.

RN to BSN Option (NURS RNBSN)

Available at the following campuses: Abington, Fayette, New Kensington, Shenango, University Park, World Campus

Students start and remain at the campus of admission for the entire program.

The RN to BSN option admits registered nurse students directly to the major at six Penn State campuses (Abington, Fayette, New Kensington, Shenango, University Park and World Campus). The University Park site

is a blended program, which includes resident instruction and online nursing courses. The World Campus site is completely online.

For the RN to BSN option, a minimum of 120 credits is required.

Senate legislation 42-97 Credit by Portfolio Assessment enables students to receive credit for certain prescribed nursing courses based on their R.N. licensure which go toward the required minimum of 120 credits.

All transportation and expenses related to clinical are the responsibility of the student. Clinical requirements may include CPR certification, professional liability insurance, health examination including required vaccinations, drug screening, criminal background check (State and Federal) and child abuse history clearances. Students may need the use of a car.

Second Degree Option (NURS SCND)

Available at the following campuses: Altoona, Erie, Harrisburg*

Students start and remain at the campus of admission for the entire program.

**Please note, the Second Degree option at the Erie campus is currently paused.*

The SCND degree option admits students who have successfully completed a bachelor's degree in another discipline to the Nursing major through a competitive Entrance to Major Review process. Students must have met all prerequisite course requirements.

The SCND degree option is available at Penn State Altoona, Penn State Erie, and Penn State Harrisburg.

This option admits students who have successfully completed a bachelor's degree in another discipline to the Nursing major through a competitive Entrance to Major Review process. Students must have met all prerequisite course requirements.

Students start and remain at the campus of admission for the entire program.

Clinical experiences occur at facilities within approximately a 50-mile radius of the campus.

All transportation and expenses related to clinical are the responsibility of the student. Students must carry professional liability insurance; complete an annual health examination, criminal background (State and Federal) and child abuse history clearance and drug screening; maintain CPR certification; and adhere to any additional requirements of the clinical facilities. Students may need the use of a car.

What is Nursing?

Nurses serve on the front lines of the healthcare industry. They work in emergency rooms, outpatient clinics, inpatient facilities, schools, and private homes. As the cornerstone of the medical team, nurses assess and monitor patients' body systems, symptoms, and vital signs; administer prescribed medications; and provide routine care, such as bathing, dressing, and wound care. Working closely with clients and their families, nurses are often the first to alert doctors of changes in the patient's medical condition.

However, nursing is a profession that requires more than book knowledge and medical skills. Nurses must also act as compassionate caregivers, supportive advocates, and thorough educators to improve and preserve the health and quality of life of their patients. Nurses must be flexible,

attentive and demonstrate strong critical thinking skills. They must be prepared to act quickly and competently to save lives.

You Might Like This Program If...

Do you love people and want to make a difference by helping people during some of the happiest, most challenging, and most vulnerable times of their lives? If so, Nursing may be the major for you! You may like this major if you enjoy learning about the human body and how it functions and heals. Nurses must be flexible, adaptable, patient, and have a strong work ethic. They work closely with clients and their families while providing respectful and compassionate healthcare. Nurses must demonstrate excellent critical thinking and communication skills. Students pursuing this degree should strive to be leaders in the healthcare field and exhibit professionalism and ethical integrity.

Direct Admission to the Major

Incoming first-year students who meet the program admission requirements are admitted directly into the major. Admission restrictions may apply for change-of-major and/or change-of-campus students.

For more information about the admission process for this major, please send a request to the college, campus, or program contact (listed in the Contact tab).

MORE INFORMATION ON ADMISSIONS TO NURSING (<https://www.nursing.psu.edu/general-bsn-degree-program/>)

Retention Requirements

Nursing students are expected to maintain high academic, ethical, and integrity standards. The Nursing Progression Policy delineates the standards required of students admitted to the General Bachelor of Science in Nursing (GNURS) and the Second Degree Bachelor of Science in Nursing (SCND) pre-licensure (students without R.N. license) options of the undergraduate nursing program. Details of the Nursing Progression Policy are available in the student handbooks (<https://www.nursing.psu.edu/student-handbooks/>).

Academic Standards: Students who exceed the designated number of attempts will be dismissed from the nursing major.

- Two attempts of any prerequisite course
- One attempt of any two different required NURS course
- Two attempts of the same required NURS course

Ethical Standards: Violations of the Nursing Student Ethical Behavior policy which is based on the Nursing Code of Ethics may result in dismissal from the nursing major.

Academic Integrity Standards: Violations of Penn State Academic Integrity Policy G-9 (<https://undergrad.psu.edu/aappm/G-9-academic-integrity.html>) may result in dismissal from the nursing major.

Degree Requirements

For the Bachelor of Science in Nursing degree in Nursing, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	4-9
Requirements for the Major	90-98

21-31 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GHW courses; 9 credits of GN courses; 3-4 credits of GQ courses; 6 credits of GS courses; 0-9 credits of GWS courses.

The Second or Additional Degree Option requires the completion of 60 credits of general education and prerequisite courses in the first degree program (prior to admission) and 60 credits of nursing courses completed after admission.

Requirements for the Major

Requirements for the Major must be completed prior to admission for students taking the Second Degree Option.

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
BIOL 161	Human Anatomy and Physiology I - Lecture ¹	3
BIOL 162	Human Anatomy and Physiology I - Laboratory ¹	1
BIOL 163	Human Anatomy and Physiology II - Lecture ¹	3
BIOL 164	Human Anatomy and Physiology II - Laboratory ¹	1
HDFS 129	Introduction to Human Development and Family Studies	3
MICRB 106	Elementary Microbiology	3
MICRB 107	Elementary Microbiology Laboratory	1
NUTR 251	Introductory Principles of Nutrition	3
PSYCH 100	Introductory Psychology	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
CHEM 130	Introduction to General, Organic, and Biochemistry ³⁻⁴ ¹	
or CHEM 110 & CHEM 111	Chemical Principles I and Experimental Chemistry I	
SOC 1	Introductory Sociology	3
or SOC 5	Social Problems	
STAT 200	Elementary Statistics	3-4
or STAT 250	Introduction to Biostatistics	
Requirements for the Option		
<i>Requirements for the Option: Require a grade of C or better</i>		
Select an option		60-66

¹ A grade of C or better per course is required for teacher certification.

Requirements for the Option General Nursing Option (66 credits)

Available at the following campuses: Altoona, Erie, Fayette, Mont Alto, Schuylkill, Scranton, University Park

Students start and remain at the campus of admission for the entire program.

Due to restricted enrollment, the Nese College of Nursing assigns the semester in which students enroll in the following Prescribed Courses and all course prerequisites must be successfully completed.

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CAS 100	Effective Speech	3
ENGL 15	Rhetoric and Composition	3
NURS 200W	Principles of Nursing Research and Evidence-Based Practice	3
NURS 225	Pathophysiology	3
NURS 230	Introduction to the Fundamentals of Nursing	4
NURS 250	Professional Role Dev I: Intro to Professional Issues in Nursing Practice and Nursing Informatics	2
NURS 251	Health Assessment	3
NURS 301	Nursing Care of the Adult Client Requiring Medical-Surgical Intervention	4
NURS 302	Clinical Judgement in Nursing	1
NURS 305	Introduction to Pharmacological Concepts	3
NURS 306	Nursing Care of Children and Adolescents	3
NURS 310	Therapeutic Nursing Care of the Older Adult Client in a Variety of Settings	3
NURS 320	Nursing Care of the Childbearing Family and Gynecological Client	3
NURS 350	Professional Role Development II: Ethics, Legal and Genetic Issues	2
NURS 405A	Nursing Care of the Adult Client with Complex Health Problems: Part A	4
NURS 405B	Nursing Care of the Adult Client with Complex Health Problems: Part B	4
NURS 415	Community and Family Health Nursing	4
NURS 420	Mental Health Nursing	4
NURS 450A	Professional Role Development III: Leadership and Management	2
NURS 450B	Professional Role Development III: Clinical Capstone	3
NURS 480	NCLEX Prep	2
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits from the following:		3
ENGL 202A	Effective Writing: Writing in the Social Sciences	
ENGL 202B	Effective Writing: Writing in the Humanities	
ENGL 202C	Effective Writing: Technical Writing	
ENGL 202D	Effective Writing: Business Writing	

RN to BSN Option (61 credits)

Available at the following campuses: Abington, Fayette, New Kensington, Shenango, University Park, World Campus

Students start and remain at the campus of admission for the entire program.

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
NURS 200W	Principles of Nursing Research and Evidence-Based Practice	3

NURS 225	Pathophysiology	3
NURS 230	Introduction to the Fundamentals of Nursing	4
NURS 250	Professional Role Dev I: Intro to Professional Issues in Nursing Practice and Nursing Informatics	2
NURS 301	Nursing Care of the Adult Client Requiring Medical-Surgical Intervention	4
NURS 305	Introduction to Pharmacological Concepts	3
NURS 306	Nursing Care of Children and Adolescents	3
NURS 310	Therapeutic Nursing Care of the Older Adult Client in a Variety of Settings	3
NURS 320	Nursing Care of the Childbearing Family and Gynecological Client	3
NURS 357	Introduction to Nursing Informatics	3
NURS 390	Transition and the Professional Nursing Role	3
NURS 405B	Nursing Care of the Adult Client with Complex Health Problems: Part B	4
NURS 417	Family and Community Health Concepts	4
NURS 420	Mental Health Nursing	4
NURS 465	Health Concepts for Adults with Complex Health Care Needs	3
NURS 475	Integrated Concepts in Nursing Practice	3

Additional Courses

Additional Courses: Require a grade of C or better

NURS 251	Health Assessment ¹	3
or NURS 352	Advanced Health Assessment for the Registered Nurse	

Supporting Courses and Related Areas

Select 3 credits of NURS 400-Level and 3 credits of lower level (NURS XXX) Supporting Courses 6

¹ A grade of C or better per course is required for teacher certification.

Second Degree Option (60 credits)

Available at the following campuses: Altoona, Erie, Harrisburg*

Students start and remain at the campus of admission for the entire program.

**Please note, the Second Degree option at the Erie campus is currently paused.*

Due to restricted enrollment, the Nese College of Nursing assigns the semester in which students enroll in the following Prescribed Courses and all course prerequisites must be successfully completed.

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
NURS 200W	Principles of Nursing Research and Evidence-Based Practice	3
NURS 225	Pathophysiology	3
NURS 230	Introduction to the Fundamentals of Nursing	4
NURS 250	Professional Role Dev I: Intro to Professional Issues in Nursing Practice and Nursing Informatics	2
NURS 251	Health Assessment	3
NURS 301	Nursing Care of the Adult Client Requiring Medical-Surgical Intervention	4
NURS 302	Clinical Judgement in Nursing	1

NURS 305	Introduction to Pharmacological Concepts	3
NURS 306	Nursing Care of Children and Adolescents	3
NURS 310	Therapeutic Nursing Care of the Older Adult Client in a Variety of Settings	3
NURS 320	Nursing Care of the Childbearing Family and Gynecological Client	3
NURS 350	Professional Role Development II: Ethics, Legal and Genetic Issues	2
NURS 405A	Nursing Care of the Adult Client with Complex Health Problems: Part A	4
NURS 405B	Nursing Care of the Adult Client with Complex Health Problems: Part B	4
NURS 415	Community and Family Health Nursing	4
NURS 420	Mental Health Nursing	4
NURS 450A	Professional Role Development III: Leadership and Management	2
NURS 450B	Professional Role Development III: Clinical Capstone	3
NURS 480	NCLEX Prep	2
NURS 495	Nursing Study in Specialized Setting	3

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Altoona

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Academic Advising Second Degree:

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University Park

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World Campus

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Undergraduate Advising**
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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

General Nursing Option: Nursing, B.S.N. at University Park, Altoona, Erie, Fayette, Mont Alto, Schuylkill, and Scranton Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year		
Fall	Credits Spring	Credits
BIOL 161 ^{##† 1}	3 BIOL 163 ^{##† 1}	3
BIOL 162 ^{##† 1}	1 BIOL 164 ^{*†}	1
ENGL 15 or 30H [‡]	3 HDFS 129 ^{*†}	3
PSYCH 100 ^{*†}	3 NUTR 251 ^{*†}	3
NURS 100 (or other First Year Seminar - as required by campus) ²	1 CAS 100A, 100B, or 100C [‡]	3
General Education Course (GH)	3 General Education Course (GQ) ^{‡3}	3
General Education Course (GA)	3	
17		16
Second Year		
Fall	Credits Spring	Credits
CHEM 130 or 110 <i>and</i> 111 ^{*3}	3-4 SOC 1 or 5 [*]	3
MICRB 106 ^{*†}	3 STAT 200 or 250 ^{*††}	3-4
MICRB 107 ^{*†}	1 NURS 225 [*]	3
NURS 250 [*]	2 NURS 230 [*]	4
NURS 251 [*]	3 Integrative Studies Interdomain Course	3
Elective	2-3	
14-16		16-17
Third Year		
Fall	Credits Spring	Credits
NURS 305 [*]	3 NURS 200W [*]	3
NURS 301 [*]	4 NURS 302 [*]	1
NURS 310 [*]	3 NURS 306 [*]	3
NURS 350 [*]	2 NURS 320 [*]	3
Integrative Studies Interdomain Course	3 ENGL 202A, 202B, 202C, or 202D [‡]	3
	Elective	3
15		16
Fourth Year		
Fall	Credits Spring	Credits
NURS 405A [*]	4 NURS 450B [*]	3
NURS 450A [*]	2 NURS 405B [*]	4
NURS 415 [*]	4 NURS 420 [*]	4
Elective	3 NURS 480 [*]	2
	NURS 400-level Supporting Course [*]	3
13		16
Total Credits 123-126		

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ BIOL 161, BIOL 162, and BIOL 163 are Entrance-to-Major courses for students not directly admitted to the Nursing program who are applying for admission to the Commonwealth Campus Nursing programs through the Review Process.

² Alternative First Year Seminar courses can be petitioned to fulfill this requirement.

³ MATH 21 is a prerequisite for CHEM 130. MATH 22 is a prerequisite for CHEM 110. If a student places higher than MATH 21 on the ALEKS Assessment Exam, any GQ may be scheduled.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Program Notes:

- Third and fourth years include 6-12 hours of clinical experience per week. Students studying at UP will spend one (either third or fourth year, selected through a modified lottery) year or two years (years three and four) in residence at Hershey Medical Center (HMC). Otherwise, students at all campuses will attend clinicals within 50 miles of their campus location.

Advising Notes:

- GWS, GHW, GQ, GN, GA, GH, and GS are attributes used to identify General Education requirements.
- All NURS courses define "C" as 75% or higher. See course syllabi for grade equivalents in other courses. See additional notes below.
 - See Nese College of Nursing Grading Scale and Academic Progression Policy in the B.S.N. Nursing Handbook at: <https://www.nursing.psu.edu/student-handbooks/>.
 - Clarification of Academic Progression Policy: Each prerequisite requirement permits two attempts. For example, STAT 200 and STAT 250 are the same prerequisite requirement; CHEM 130 and CHEM 110/CHEM 111 are the same prerequisite requirement, etc.
 - Most NURS courses, major requirements/prerequisites, GQ and GHW are all "C"-required courses. Elective courses, GA, GH, and the NURS 100 FYS course are not "C"-required.
- **Students should consult with their academic adviser to select appropriate courses.** Within the 30 credits of required General Education Domain courses, students must complete 6 credits of Integrative Studies (Inter-Domain, e.g., "dual-domain") courses. Inter-Domain courses are designated with suffixes N (Inter-Domain) or Q (Honors Inter-Domain).

- In addition, students must complete at least 3 credits each of single-domain General Education Arts (GA) and General Education Humanities (GH) outside of Integrative studies. Effective Summer 2018+.
- BIOL 161 and BIOL 163 must be passed with a quality grade of "C" or better to progress to 2xx-level nursing courses. All 2xx clinical courses must be passed with a "C" or higher to progress to 3xx clinical courses, and all 3xx clinical courses must be passed with a "C" or higher to progress to 4xx clinical courses. Students who are unsuccessful in one or more courses will fall out of sequence and receive an individualized plan of study.
- Scheduling Patterns: NURS courses are offered only in the semester indicated with the following exceptions: NURS 200W is generally offered spring only, but an Honors section is offered in fall semester which is sometimes opened to non-Schreyer students to fill. NURS 415 and NURS 420 may be taken in fall OR spring of fourth year.
- MATH 21 (or an ALEKS score of 30+) is a prerequisite for CHEM 130. MATH 22 (or an ALEKS score of 46+) is a prerequisite for CHEM 110. If a student places higher than MATH 22 (score of 61+) on the ALEKS Assessment, any GQ may be scheduled. Students who complete Calculus in high school receive an ALEKS of 101 and may schedule any GQ.
- "US, IL", and "US; IL" are attributes used to designate courses that satisfy University United States/International Cultures requirements. These University requirements are integrated into the Nursing curriculum (NURS 250 and NURS 415) and do not require additional courses to be taken.

RN to BSN Option: Nursing, B.S.N. at University Park, Abington, Fayette, New Kensington, Shenango, and World Campus Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 161 ^{**†}	3 BIOL 163 ^{**†}	3
BIOL 162 ^{**†}	1 BIOL 164 ^{**†}	1
ENGL 15 or 30H [‡]	3 HDFS 129 ^{**†}	3
PSYCH 100 ^{**†}	3 NUTR 251 ^{**†}	3
General Education Course (GH) ¹	3 CAS 100A, 100B, or 100C [‡]	3
General Education Course (GA) ¹	3 General Education Course (GQ) ^{‡ 1,2}	3
	16	16

Second Year

Fall	Credits Spring	Credits
CHEM 130 or 110 <i>and</i> 111 ^{**2}	3-4 SOC 1 or 5 [*]	3
MICRB 106 ^{**†}	3 STAT 200 or 250 ^{**†}	3-4
MICRB 107 ^{**†}	1 NURS 251 or 352 [*]	3
NURS 390 ^{*3}	3 NURS Supporting Course [*]	3
NURS 357 [*]	3 Integrative Studies Interdomain Course	3
Elective	2-3	
	15-17	15-16

Third Year

Fall	Credits Spring	Credits
NURS 417 [*]	4 NURS 200W [*]	3
Integrative Studies Interdomain Course	3 NURS 465 [*]	3
Elective	3 ENGL 202A, 202B, 202C, or 202D [‡]	3
	10	9

Fourth Year

Fall	Credits Spring	Credits
NURS 475 ^{*4}	3 NURS 475 ^{*4}	3
NURS 400-level Supporting Course [*]	3	
NURS 400-level Supporting Course [*]	3	
	9	3

Total Credits 93-96

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Within the 30 credits of required General Education Domain courses, students must take 6 credits of Integrative Studies courses (Inter-Domain or Linked courses). Students should consult with their academic adviser to select appropriate courses.

² MATH 21 is a prerequisite for CHEM 130. MATH 22 is a prerequisite for CHEM 110. If a student places higher than MATH 21 on the ALEKS Assessment Exam, any GQ may be scheduled.

³ NURS 390 should be the first NURS course taken in the R.N. to B.S.N. option.

⁴ NURS 475 should be the final NURS course taken in the R.N. to B.S.N. option.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Program Notes:

- Typically, students entering the RN BSN major have many General Education and/or major requirements completed through transfer credits from other institutions. Consult with an adviser to have transfer transcripts evaluated.

Advising Notes:

- GWS, GHW, GQ, GN, GA, GH, and GS are attributes used to identify General Education requirements.
- All NURS courses define "C" as 75% or higher. See course syllabi for grade equivalents in other courses. See additional notes below.
 - See the Nese College of Nursing Grading Scale and Academic Difficulty Policy in the RN to BSN Nursing Handbook at <https://www.nursing.psu.edu/student-handbooks/>.
- All NURS courses, major requirements/prerequisites, GQ and GHW are all "C"-required courses. Elective courses, GA, and GH are not "C"-required.
- Students should consult with their academic adviser to select appropriate courses.** Within the 30 credits of required General Education Domain courses, students must complete 6 credits of Integrative Studies (Inter-Domain, e.g., "dual-domain") courses. Inter-Domain courses are designated with suffixes N (Inter-Domain) or Q (Honors Inter-Domain). Alternatively, this requirement may be fulfilled

by successfully completing an Experiential Learning Assessment in NURS 390 or via Canvas. Effective Fall 2021+.

- In addition, students must complete at least 3 credits each of General Education Arts (GA) and General Education Humanities (GH) outside of Integrative Studies. Effective Summer 2018+.
- MATH 21 (or an ALEKS score of 30+) is a prerequisite for CHEM 130. MATH 22 (or an ALEKS score of 46+) is a prerequisite for CHEM 110. If a student places higher than MATH 22 (score of 61+) on the ALEKS Assessment, any GQ may be scheduled. Students who completed Calculus in high school receive an ALEKS of 101 and may schedule any GQ.
- “US, IL”, and “US; IL” are attributes used to designate courses that satisfy University United States/International Cultures requirements. These University requirements are integrated into the Nursing curriculum (NURS 417) and do not require additional courses to be taken.
- Student’s adviser will submit Portfolio Credits to CSRS before completion of the student’s final semester.
- 45 hours clinical component required in **NURS 475**. Clinical hours are completed via a health-related project or other activity approved by the course instructor.

Second Degree in Nursing Option: Nursing, B.S.N. at Altoona and Harrisburg Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits Summer	Credits
NURS 250*	2 NURS 350*	2 NURS 320*	3
NURS 225*	3 NURS 301*	4 NURS 306*	3
NURS 230*	4 NURS 310*	3 NURS 420*	4
NURS 305*	3 NURS 415*	4 NURS 405B*	4
NURS 251*	3 NURS 405A*	4	
	15	17	14

Second Year

Fall	Credits
NURS 302*	1
NURS 450A*	2
NURS 450B*	3
NURS 480*	2
NURS 495*	3
NURS 200W*	3
	14

Total Credits 60

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

Additional Notes:

- All General Education and prerequisite courses are completed with the student's first degree and prior to program admission.
- All courses require a quality grade of "C" or better. All NURS courses define "C" as 75% or higher.
 - See the Nese College of Nursing Grading Scale and Academic Progression Policy in the Second Degree B.S.N. Nursing Handbook at <https://www.nursing.psu.edu/student-handbooks/>.
 - The SCND curriculum is sequential and prescribed. All 2xx clinical courses must be passed with a "C" or higher to progress to 3xx clinical courses, and all 3xx clinical courses must be passed with a "C" or higher to progress to 4xx clinical courses. Students who are unsuccessful in one or more courses will fall out of sequence and receive an individualized plan of study.
- Course sequencing may vary by campus due to clinical site availability.
- "US, IL", and "US; IL" are attributes used to designate courses that satisfy University United States/International Cultures requirements. "W" is the attribute used to designate courses that satisfy University Writing Across the Curriculum requirement. These University requirements are integrated into the Nursing curriculum (NURS 250,

NURS 415, and NURS 200W) and do not require additional courses to be taken.

- NURS 495 Nursing Study in Specialized Setting: clinical immersion practicum for in-depth study and practice in a clinical specialty area of choice under a clinical preceptor. Students will work with a faculty member to identify the practicum site.

Career Paths

After earning a B.S.N. and successfully passing the NCLEX-RN licensing exam, Registered Nurses have the opportunity to enter into a stable and growing work force. Additionally, the Penn State B.S.N. degree creates a strong foundation for continuing into advanced nursing roles through a variety of graduate level nursing programs. The versatility of the B.S.N. degree provides graduates with the skills and background to pursue the career path that is right for them. Nurses have countless options to explore different specialties, advance into leadership roles, and continue with lifelong learning while providing high quality nursing care to their clients.

Careers

Demand for nurses continues to rise. The B.S.N. degree in Nursing is rapidly becoming the degree of choice for many healthcare facilities, rendering baccalaureate-educated nurses highly marketable. Graduates of the baccalaureate nursing program have a vast array of rewarding employment opportunities. Employment settings include:

- Trauma centers and community hospitals caring for the critically ill or injured
- Home health agencies providing medical care to homebound clients
- Rehabilitation and long-term care facilities
- Hospice agencies caring for people with terminal illnesses
- Schools or pediatric/neonatal units working with children and newborns
- Military bases
- Insurance agencies evaluating patient claims and teaching classes to insurance agents
- Travel and cruise ship nursing

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE NURSING, B.S.N. PROGRAM (<https://www.bls.gov/ooh/healthcare/registered-nurses.htm>)

Opportunities for Graduate Studies

A baccalaureate degree in nursing is typically required to pursue advanced degrees in nursing, which prepares the nurse for roles such as nurse educator, nurse practitioner, clinical nurse specialist, nurse midwife, nurse anesthetist, nurse administrator, and nurse researcher. The Ross and Carol Nese College of Nursing at Penn State offers several advanced-degree options for B.S.N. educated nurses. On-campus options are available for nurses interested in research through the Ph.D. in Nursing or dual-title Ph.D. programs in Nursing & Bioethics or Nursing and Clinical & Translational Sciences (CTS). Several online options are offered to provide flexibility to working nurses across the country. These programs include M.S.N. degrees in Nurse Administration and Nurse Education and a Doctor of Nursing Practice (D.N.P.) degree with options in leadership and nurse practitioner with options in Psych-Mental Health, Family/Individual Across the Lifespan, Adult-Gerontology Primary Care, and Adult-Gerontology Acute Care Nurse Practitioner.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://bulletins.psu.edu/graduate/programs/majors/nursing/>)

Professional Resources

- Student Nurses' Association of Pennsylvania (SNAPS) (<https://www.snap-online.org/>)
- National Student Nurses' Association (NSNA) (<https://www.nсна.org>)
- Sigma Theta Tau International (<https://www.sigmanursing.org>)
- Pennsylvania State Board of Nursing (<https://www.dos.pa.gov/ProfessionalLicensing/BoardsCommissions/Nursing/Pages/default.aspx#VTEYxCFVhBd>)
- National Council of State Boards of Nursing (<https://www.ncsbn.org>)
- Nursys® (<https://www.nursys.com/>)
- Nurse Licensure Compact (<https://www.nursecompact.com/>)

Accreditation

The Bachelor of Science in Nursing Programs are approved by the Pennsylvania State Board of Nursing and accredited by the:

Commission on Collegiate Nursing Education (CCNE)
655 K Street, NW
Suite 750
Washington, DC 20001
202-887-6791 - Phone
202-887-8476 – Fax
<https://www.aacnnursing.org/ccne-accreditation> (<https://www.aacnnursing.org/ccne-accreditation/>)

MORE INFORMATION ABOUT THE AMERICAN ASSOCIATION OF COLLEGES OF NURSING (<https://www.aacnnursing.org/>)

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

Altoona

NURSING MAJOR
Sheetz Family Health Center 106
3000 Ivyside Park
Altoona, PA 16601
814-949-5114
skk6@psu.edu

<https://altoona.psu.edu/academics/bachelors-degrees/nursing> (<https://altoona.psu.edu/academics/bachelors-degrees/nursing/>)

Erie

NURSING MAJOR
1 Prischak
4205 College Drive
Erie, PA 16563
814-898-6105
behrend-science@psu.edu

<https://behrend.psu.edu/school-of-science> (<https://behrend.psu.edu/school-of-science/>)

Fayette

NURSING MAJOR
2201 University Drive
Lemont Furnace, PA 15456
724-430-4220
mbm12@psu.edu

<https://fayette.psu.edu/academics/baccalaureate/nursing> (<https://fayette.psu.edu/academics/baccalaureate/nursing/>)

Harrisburg

NURSING MAJOR
Olmsted Building W314
Middletown, PA 17057
717-948-6735
kqr1@psu.edu

<https://harrisburg.psu.edu/behavioral-sciences-education/nursing-bsn> (<https://harrisburg.psu.edu/behavioral-sciences-education/nursing-bsn/>)

Mont Alto

NURSING MAJOR
104F Sci-Tech
Mont Alto, PA 17237
717-749-6205
cmb207@psu.edu

<https://montalto.psu.edu/directory/baccalaureate-nursing-program> (<https://montalto.psu.edu/directory/baccalaureate-nursing-program/>)

Schuylkill

NURSING MAJOR
Classroom Building 101-E
Schuylkill Haven, PA 17972
570-385-6061
mta133@psu.edu

<https://schuylkill.psu.edu/academics/bacc-degrees/nursing> (<https://schuylkill.psu.edu/academics/bacc-degrees/nursing/>)

Scranton

NURSING MAJOR
4 Library Building
Dunmore, PA 18512
570-963-2656
jmm795@psu.edu

<https://scranton.psu.edu/academics/degrees/bachelors/nursing-degree> (<https://scranton.psu.edu/academics/degrees/bachelors/nursing-degree/>)

University Park

STUDENT SUCCESS CENTER
UNDERGRADUATE ADVISING OFFICE
109 Nursing Sciences Building
University Park, PA 16802
814-863-2229
nursing@psu.edu

<https://www.nursing.psu.edu/academic-advising/>

World Campus

STUDENT SUCCESS CENTER
UNDERGRADUATE ADVISING OFFICE
109 Nursing Sciences Building
University Park, PA 16802
814-863-2229
nursing@psu.edu

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-rn-to-bsn-nursing-bachelor-of-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-rn-to-bsn-nursing-bachelor-of-science-degree/>)

Penn State Abington, The Abington College

About the College

Andrew August, Interim Chancellor and Dean, Penn State Abington

Located just five miles north of Philadelphia, Penn State Abington's vibrant college environment is enhanced by the resources of a world-class research university. Our accomplished faculty is invested in the success of a diverse student body, offering an affordable, accessible, and high-impact education.

Abington is a dynamic community comprised of more than 3,100 students who are guided by the principles of innovation, engagement, multiculturalism, and inclusion. Students can choose from 25 bachelor's degree programs and earn their Penn State degree at Abington or start the first two years of more than 275 Penn State majors at Abington. Co-curricular opportunities include undergraduate research, the Abington Honors program and the Schreyer Honors College, short- and long-term study abroad, NCAA Division III athletics, the Lions Gate student apartments, and more than 35 clubs and organizations. We offer continuing education, programs for working professionals, and the LaunchBox innovation hub for entrepreneurs.

MORE INFORMATION ABOUT THE COLLEGE (<https://www.abington.psu.edu/>)

Mission and Goals

We provide an affordable, accessible, and high-impact education resulting in the success of a diverse student body. We aspire to be a campus where students, regardless of their starting point, discover pathways to graduation and achievement in a lifelong quest for learning, service, and fulfillment of personal and collective potential.

MORE INFORMATION ABOUT THE MISSION AND GOALS OF PENN STATE ABINGTON (<https://www.abington.psu.edu/this-is-penn-state/mission-vision-identity/>)

Baccalaureate Degrees

- Accounting, B.S. (Abington)
- American Studies, B.A. (Abington)
- Art, B.A. (Abington)
- Biology, B.S. (Abington)
- Business, B.S. (Abington)
- Computer Science, B.S. (Abington)

- Corporate Communication, B.A. (Abington)
- Criminal Justice, B.A. (Abington)
- Criminal Justice, B.S. (Abington)
- Cybersecurity Analytics and Operations, B.S. (Abington)
- English, B.A. (Abington)
- Finance, B.S. (Abington)
- Health Humanities, B.A.
- Health Humanities, B.S.
- History, B.A. (Abington)
- Information Technology, B.S. (Abington)
- Integrative Arts, B.A. (Abington)
- Integrative Science, B.S. (Abington)
- Multidisciplinary Studies, B.A. (Abington)
- Project and Supply Chain Management, B.S. (Abington)
- Psychological and Social Sciences, B.A.
- Psychological and Social Sciences, B.S.
- Race and Ethnic Studies, B.A.
- Recreation, Park, and Tourism Management, B.S. (Abington)
- Rehabilitation and Human Services, B.S. (Abington)

Associate Degrees

- Business Administration, A.S. (Abington)
- Multidisciplinary Studies, A.A. (Abington)

Minors

- Mathematics Applications, Minor
- Public History, Minor

Certificates

- Chemical Dependency Prevention and Counseling, Certificate

College Procedures

Change of Campus

If you are transitioning to University Park, you will need to be accepted into a major before changing your campus. You may be able to transition to another Penn State campus without first being accepted into a major, but you should consult your academic adviser before adjusting your campus assignment.

MORE INFORMATION ABOUT CHANGE OF CAMPUS (<https://www.abington.psu.edu/registrar/change-campus/>)

Concurrent Majors

A Concurrent Majors Program is one in which students take courses to concurrently meet the requirements of at least two majors, with graduation for all majors in the program occurring during the same semester. Concurrent majors must be all at the baccalaureate degree level or all at the associate degree level.

MORE INFORMATION ABOUT CONCURRENT MAJORS (<https://www.abington.psu.edu/academics/academic-support/advising-center/advising-center-faqs/>)

Academic Warning

A student who fails to earn a 2.00 cumulative grade-point average will be placed on academic warning. A student placed on academic warning will have a hold placed on registration and will be required to meet with an academic adviser in order for this registration hold to be removed. To remove academic warning, the cumulative grade-point average must be 2.00 or higher.

Students in Academic Warning should work closely with their assigned academic adviser, the Abington College Advising Center, or the Office of Student Success to identify and address issues impacting their academic success.

READ SENATE POLICY 54-20: ACADEMIC WARNING (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-20>)

Academic Suspension

A student in academic warning who fails to maintain a semester grade-point average of 2.00 or higher will be academically suspended. A student who has been academically suspended may not schedule courses at the University for two consecutive semesters. (Note: Summer session is equal to one semester.)

Students who are academically suspended should work closely with their assigned academic adviser, the Abington College Advising Center, or the Office of Student Success to develop a success plan that will be implemented during suspension. At the conclusion of suspension, students must apply for re-enrollment and submit the required materials for college review.

READ SENATE POLICY 54-40: ACADEMIC SUSPENSION (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-40>)

Resources

Academic Advising Center

Abington's professional advisers work primarily with students enrolled in the Division of Undergraduate Studies (DUS) who are exploring major options, provisional students, and non-degree students. Our advisers work with many first-year students through the New Student Orientation program and collaborate with our admissions office to guide incoming transfer students.

MORE INFORMATION ABOUT THE ACADEMIC ADVISING CENTER (<https://www.abington.psu.edu/academics/academic-support/advising-center/>)

Office of Admissions

The Abington admissions staff helps prospective students explore the Penn State degree that matches their lives, expectations, and aspirations. They specialize in guiding first-year, transfer, and international students on the path to enrolling at Abington.

MORE INFORMATION ABOUT THE OFFICE OF ADMISSIONS (<https://www.abington.psu.edu/admissions/>)

Center for Career and Professional Development

The Abington Center for Career and Professional Development supports students and alumni in all areas related to career development and

preparation including career counseling and coaching, internships, resume creation, interview training, and job search strategies.

MORE INFORMATION ABOUT THE CENTER FOR CAREER AND PROFESSIONAL DEVELOPMENT (<https://www.abington.psu.edu/campus-life/careers/>)

Center for Student Achievement (CSA)

The Center for Student Achievement (CSA) supports and celebrates students in their efforts to develop and strive for success. The CSA provides students with free subject tutoring, writing consultations, individualized success coaching, and success workshops on topics such as time-management, study skills, goal-setting, and self-advocacy. The Center for Student Achievement also serves as an opportunity for students to develop as peer mentors and leaders for the Penn State Abington community.

MORE INFORMATION ABOUT THE CENTER FOR STUDENT ACHIEVEMENT (CSA) (<https://www.abington.psu.edu/center-student-achievement/>)

Counseling and Psychological Services

Abington Counseling and Psychological Services (CAPS) offers free, confidential counseling and psychological services to students. CAPS services include emotional support, counseling, consultation, academic advocacy, reporting options, and connections to other services.

MORE INFORMATION ABOUT COUNSELING AND PSYCHOLOGICAL SERVICES (<https://www.abington.psu.edu/counseling-psychological-services/>)

NCAA Division III Athletics

Penn State Abington fields 13 NCAA Division III athletics teams for men and women including basketball, baseball, cross country, golf, lacrosse, soccer, softball, tennis, and volleyball.

MORE INFORMATION ABOUT NCAA DIVISION III ATHLETICS (<https://abingtonsports.com/>)

Office of Diversity, Equity, and Inclusion

The Abington Office of Diversity, Equity, and Inclusion (ODEI) supports students in their exploration of personal growth, awareness, advocacy, social justice, and inclusivity. The office provides a network of services and programs that foster discussions related to the creation of a multiethnic, culturally conscious campus.

MORE INFORMATION ABOUT THE OFFICE OF DIVERSITY, EQUITY, AND INCLUSION (<https://www.abington.psu.edu/office-diversity-equity-and-inclusion/>)

Office of Global Programs

The Abington Office of Global Programs' mission is to support students in the development of cross-cultural awareness, an appreciation of other cultures, the development of intercultural competencies, and responsible global citizenry by providing diverse global opportunities.

MORE INFORMATION ABOUT THE OFFICE OF GLOBAL PROGRAMS (<https://www.abington.psu.edu/academics/global-programs/>)

Office of the Registrar

The Abington College Office of the Registrar provides oversight to students enrolled in the Abington College while supporting students at the campus, regardless of academic college.

MORE INFORMATION ABOUT THE OFFICE OF THE REGISTRAR (<https://www.abington.psu.edu/academics/registrar/>)

Student Engagement AND Leadership

Student Engagement and Leadership (SEAL) at Abington connects students to community service projects, student organizations, cultural immersion adventures, performances and festivals, athletics, and more. SEAL's mission is to help students form lasting friendships and become confident, ethical, and active leaders in a diverse, safe, and inclusive environment.

MORE INFORMATION ABOUT STUDENT ENGAGEMENT AND LEADERSHIP (<https://www.abington.psu.edu/SEAL/>)

Tuition and Financial Aid

The Abington Financial Aid Office links first-year, continuing, and transfer students with financial assistance. Nearly 80 percent of Abington students receive aid in the form of federal and state grants, student loans, academic scholarships, and/or work study.

MORE INFORMATION ABOUT TUITION AND FINANCIAL AID (<https://www.abington.psu.edu/tuition-financial-aid/>)

Honors Programs

Schreyer Honors College

The Schreyer Honors College, regarded as one of the nation's top programs of its kind, promotes achieving academic excellence with integrity, building a global perspective, and creating opportunities for leadership and civic engagement. Schreyer Scholars, including those admitted after their first or second year of enrollment, are a diverse and motivated group of approximately 2,000 students at University Park and 20 Commonwealth campuses. The College strives to educate students who will have an important and ethical influence in the world, to improve educational practice, and to continue to be recognized as a leading force in honors education nationwide.

MORE INFORMATION ABOUT THE SCHREYER HONORS COLLEGE (<https://www.shc.psu.edu>)

Other Honors Programs

The Abington Honors Program fosters a community of outstanding students and committed faculty and staff. Select first-year students are invited to participate based on exceptional academic achievement and potential.

Faculty and staff work to provide a rich and challenging academic experience with perks and privileges that reflect students' honors status. Benefits include an honors scholarship, priority course registration, distinctive honors curriculum courses in smaller classes, international study, and leadership opportunities. Many students also choose to participate in the Abington College Undergraduate Research Activities (ACURA) program to perform hands-on undergraduate research in close collaboration with a faculty mentor.

MORE INFORMATION ABOUT OTHER HONORS PROGRAMS AT PENN STATE ABINGTON (<https://www.abington.psu.edu/academics/honors-program/>)

Contact

PENN STATE ABINGTON
1600 Woodland Road
Abington, PA 19001-3990
215-881-7300
abingtonadmissions@psu.edu

<https://www.abington.psu.edu>

Accounting, B.S. (Abington)

Begin Campus: Any Penn State Campus

End Campus: Abington

Program Description

This major helps students prepare for careers in auditing and public accounting, industrial and managerial accounting, and in governmental and not-for-profit accounting. It also provides a sound background for students who plan to pursue graduate studies in accounting or related fields. Students who complete the prescribed courses and earn a Bachelor of Science degree will satisfy the academic requirements to sit for the Certified Public Accountant (CPA) examination. Graduates may also elect to pursue other professional certifications, including Certified Management Accountant (CMA), Certified Internal Auditor (CIA), Certified Fraud Examiner (CFE), and Certified Government Financial Manager (CGFM).

What is Accounting?

Accountants develop and interpret financial data required for decision-making by managers, investors, regulators, and other stakeholders. To perform their functions, accountants must work with both numerical information and concepts, and they must be able to function effectively as individuals and in teams. Accountants work with people in their own specialized departments, and with users of financial information throughout their organization. Because of this close association with other parts of the organization, the accountant is in a unique position to develop a broad business perspective.

You Might Like This Program If...

- You are comfortable with numbers and interested in the messages and the information that they provide.
- You are organized and detail-oriented. You want to pursue a career in business or finance.

Entrance to Major

Entry to the Accounting major requires the completion of 8 entry-to-major courses: ACCTG 211¹, ECON 102, ENGL 15¹ or ENGL 30H¹, FIN 301, MATH 110¹ or MATH 140¹, MGMT 301, MKTG 301, SCM 200¹ or STAT 200¹; and a 2.00 or higher cumulative grade-point average.

¹ Course requires a grade of C or better.

Degree Requirements

For the Bachelor of Science degree in Accounting, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives (non-business courses)	8
Requirements for the Major	79

12 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GWS courses; 3 credits of GS courses; 6 credits of GQ courses.

Consistent with Senate policy, at least 24 credits of course work in the major and the capstone course must be completed in the respective College to earn the degree. No more than 60 credits should be from business and business-related courses.

Students wishing to fulfill the 150 credit-hour education option to become a CPA in Pennsylvania (which reduces the experience requirement for certification) are encouraged to enter Capital College's Master of Professional Accounting program, or the Master of Business Administration program, or the Master of Science in Information Systems program subsequent to receiving their undergraduate accounting degree.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
BA 364Y	International Business and Society	3
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
FIN 301	Corporation Finance	3
MGMT 301	Basic Management Concepts	3
MIS 204	Introduction to Management Information Systems	3
MIS 390	Information Systems Management and Applications	3
MKTG 301	Principles of Marketing	3
SCM 301	Supply Chain Management	3

Prescribed Courses: Require a grade of C or better

ACCTG 211	Financial and Managerial Accounting for Decision Making	4
ACCTG 310	Federal Taxation I	3
ACCTG 340	Cost Accounting	3
ACCTG 403	Auditing	3
ACCTG 471	Intermediate Financial Accounting I	3
ACCTG 472	Intermediate Financial Accounting II	3
ACCTG 473	Advanced Financial Accounting	3
BA 462	Business Strategy	3
ENGL 202D	Effective Writing: Business Writing	3

Additional Courses

BA 241 & BA 242 or BA 243	Legal Environment of Business and Social and Ethical Environment of Business Social, Legal, and Ethical Environment of Business	4
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Additional Courses: Require a grade of C or better

MATH 110 or MATH 140	Techniques of Calculus I Calculus With Analytic Geometry I	4
SCM 200 or STAT 200	Introduction to Statistics for Business Elementary Statistics	4

Select 6 credits of the following: 6

ACCTG 410	Federal Taxation II	
ACCTG 431	Advanced Auditing	
ACCTG 432	Accounting Information Systems	
ACCTG 440	Advanced Management Accounting	
ACCTG 461	International Accounting	
ACCTG 462	Governmental and Not-for-Profit Accounting	
ACCTG 494	Research Project	
ACCTG 496	Independent Studies	
ACCTG 497	Special Topics	

Supporting Courses and Related Areas

Select 6 credits from 200 - 400 level business courses from: ACCTG, BA, ECON, FIN, MGMT, MKTG, or SCM in consultation with an academic adviser and in support of the student's interests 6

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses**. This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Accounting and M.P.Acc. in Accounting

Available at the following campuses: Abington, Berks

Requirements for the Integrated B.S. in Accounting and M.P.Acc. in Accounting can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/accounting-great-valley/#integratedundergradgradprogramstext>).

Program Learning Objectives

- Demonstrate the necessary skills and abilities to effectively communicate.
- Demonstrate an awareness of ethical issues, social responsibilities and conflict resolution.
- Apply contemporary tools of information technology to include business software applications.
- Compare, contrast and differentiate the business environment of both their local community and the globalized world economy.
- Apply leadership, team building, and project management skills.
- Utilize and apply fundamental business concepts, principles and contemporary business practices.
- Recognize, analyze and solve business problems using quantitative and qualitative measures.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Abington

Tom Stone

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Altoona

William Engelbret, Ph.D., CPA, CGMA

Associate Professor, Accounting
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Berks

Michael Simon

Program Coordinator, Lecturer
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Harrisburg

Renee Flasher, Ph.D., CPA, CFE, CMA

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World Campus

Undergraduate Academic Advising

301 Outreach Building
University Park, PA 16802
814-863-3283
advising@outreach.psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Accounting, B.S. at Abington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H ^{*#†}	3 SCM 200 or STAT 200 ^{*#†}	4
ECON 102 or 104 (ECON 102 is ETM and also satisfies GS) ^{#†}	3 ECON 102 or 104 (ECON 102 is ETM and also satisfies GS) ^{#†}	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
CAS 100A or 100B	3 MATH 110 or 140 ^{*#†}	4
	15	17

Second Year

Fall	Credits Spring	Credits
ACCTG 211 ^{*#}	4 ENGL 202D [†]	3
MGMT 301 or MKTG 301 [#]	3 MGMT 301 or MKTG 301 [#]	3
General Education Course	3 FIN 301 [#]	3
General Education Course	3 MIS 204	3
General Education Course	3 General Education Course (US or IL Cultures)	3
	16	15

Third Year

Fall	Credits Spring	Credits
ACCTG 310 [*]	3 ACCTG 340 [*]	3
ACCTG 471 [*]	3 ACCTG 472 [*]	3
BA 243	4 MIS 390	3
SCM 301	3 Non-Business Elective	3
General Education Course	3 Non-Business Elective	3
	16	15

Fourth Year

Fall	Credits Spring	Credits
ACCTG 473 [*]	3 ACCTG 403 [*]	3
ACCTG 410, 431, 432, 440, 461, 462, 494, 496, or 497 ^{*1}	3 ACCTG 410, 431, 432, 440, 461, 462, 494, 496, or 497 ^{*1}	3
BA 364Y (can fulfill US or IL Cultures, but not both)	3 BA 462 [*]	3
MIS 345 (or 200-400 Business Selection) ²	3 200-400 Level Business Support ²	3
Non-Business Elective	2-3	
	14-15	12

Total Credits 120-121

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ Select courses in consultation with an academic adviser and in support of the student's interests.

² Select 200-400 level business courses from ACCTG, BA, ECON, FIN, MGMT, MIS, MKTG, or SCM in consultation with an academic adviser and in support of the student's interests.

Career Paths

Because the Harrisburg area is the center of industry and economic development for south-central Pennsylvania, Penn State Harrisburg accounting students are provided with many opportunities to experience the world of business.

Careers

An accounting degree helps students prepare for careers in auditing and public accounting, industrial and managerial accounting, and in governmental and not-for-profit accounting. Students who complete the prescribed courses and earn a BS degree will satisfy the academic requirements to sit for the Certified Public Accountant (CPA) examination. Graduates may also elect to pursue other professional certifications, including Certified Management Accountant (CMA), Certified Internal Auditor (CIA), Certified Fraud Examiner (CFE), and Certified Government Financial Manager (CGFM).

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE ACCOUNTING PROGRAM (<https://harrisburg.psu.edu/business-administration/accounting-bs/>)

Opportunities for Graduate Studies

The Bachelor of Science in Accounting provides a sound background for students who plan to pursue graduate studies in accounting or related fields, including Penn State's Master of Professional Accounting.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://harrisburg.psu.edu/business-administration/accounting-bs/>)

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

Abington

DIVISION OF SOCIAL SCIENCES
1600 Woodland Rd.
Abington, PA 19001
215-421-0030
twsl6@psu.edu

<https://www.abington.psu.edu/academics/majors-at-abington> (<https://www.abington.psu.edu/academics/majors-at-abington/>)

Altoona

DIVISION OF BUSINESS, ENGINEERING, AND INFORMATION SCIENCES AND TECHNOLOGY
Aaron Building, 219
3000 Ivyside Park
Altoona, PA 16601
814-949-5274
w7e@psu.edu

<https://altoona.psu.edu/academics/bachelors-degrees/accounting> (<https://altoona.psu.edu/academics/bachelors-degrees/accounting/>)

Berks

EBC DIVISION
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610-396-6448
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<https://berks.psu.edu/academics/baccalaureate-degrees/accounting> (<https://berks.psu.edu/academics/baccalaureate-degrees/accounting/>)

Harrisburg

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Olmsted Building, E355
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<https://harrisburg.psu.edu/business-administration/accounting-bs> (<https://harrisburg.psu.edu/business-administration/accounting-bs/>)

World Campus

SCHOOL OF BUSINESS ADMINISTRATION
Olmsted Building, E355
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ruk158@psu.edu

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-accounting-bachelor-of-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-accounting-bachelor-of-science-degree/>)

American Studies, B.A. (Abington)

Begin Campus: Any Penn State Campus

End Campus: Abington

Program Description

This interdisciplinary major is designed to provide students with an integrated and critical knowledge of American culture, drawing on courses in American Studies and in the traditional disciplines and culminating in two senior seminars. A number of interests may be pursued within the major, including popular culture, art, technology, business, law, archives, museology, and conservation. The major helps prepare students for careers in business, teaching, government, and a number of other areas, and for enrollment in law and other professional programs.

What is American Studies?

American Studies examines the country's history in a way that emphasizes culture – literature, art & architecture, film, folklore, music, and media. While discovering America's past, students learn to think critically – to analyze and evaluate information; to write and speak clearly and expressively; and to conduct research.

You Might Like This Program If...

- You enjoy pop culture and wonder what social and historical forces helped shape it.
- You like making connections between history, society, economics, literature, film, and art.
- You want to understand the American experience beyond just what is relayed in a history text.
- You want to explore the experiences of women, minorities, and different ethnic and religious groups.
- You want to pursue a career in education, law, government, museums, cultural agencies, archives, public policy, or communications.

Entrance to Major

For entrance into the major, the following must be met:

1. At the end of the sophomore year, any student in good standing may gain entrance into the major without having completed specific courses.
2. Any student seeking entrance during the fifth semester will be granted entrance at the discretion of the American Studies Committee and/or Director following evaluation of the student's record.

3. Any student seeking entrance during or after the sixth semester will be expected to have completed at least 12 credits, which may be counted toward the major in American Studies.

Degree Requirements

For the Bachelor of Arts degree in American Studies, a minimum of 123 credits is required:

Requirement	Credits
General Education	45
Electives	21
Bachelor of Arts Degree Requirements	24
Requirements for the Major	33

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
AMST 491W	American Studies Perspectives	6
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
AMST 100 or AMST 100Y	Introduction to American Studies	3
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 9 credits in each of two of the following areas and 6 credits in one other of the areas (include 12 credits at the 400 level distributed in at least two of the areas):		24
American literature		
American history		
American art, philosophy, and religion (humanities)		
American social sciences		

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- Quantification (GQ): 6 credits
- Writing and Speaking (GWS): 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- Arts (GA): 3 credits
- Health and Wellness (GHW): 3 credits
- Humanities (GH): 3 credits
- Social and Behavioral Sciences (GS): 3 credits
- Natural Sciences (GN): 3 credits

Integrative Studies

- Inter-Domain Courses (Inter-Domain): 6 credits

Exploration

- GN, may be completed with Inter-Domain courses: 3 credits
- GA, GH, GN, GS, Inter-Domain courses. This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- Identify major themes and issues prompted by the question "What does it mean to be an American".
- Recognize the multiple ways Americans have expressed, institutionalized, celebrated, and contested identity in visual and material culture, literature, history, politics, and popular culture.
- Appreciate the cultural diversity of the American experience, especially in terms of class, ethnicity, gender, sexual orientation, and race.
- Analyze in depth an aspect of American culture using interdisciplinary source materials, research methodologies, and intellectual approaches.
- Develop conclusions based on that analysis and communicate them effectively.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

American Studies, B.A. at Abington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H	3 World Language level 2	4
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course	3
World Language level 1	4 General Education Course	3
14.5		16

Second Year

Fall	Credits Spring	Credits
World Language level 3	4 AMST 100 or 100Y (GH;US)*	3
General Education Course	3 ENGL 202B ³	3
CAS 100A or 100B	3 General Education Course	3
General Education	3 General Education Course	3

Elective (US;IL)	3 Bachelor of Arts Requirement	3
General Education Course (GHW)	1.5	
17.5		15
Third Year		
Fall	Credits Spring	Credits
AMST Supporting Course ^{1*}	3 AMST Supporting Course ^{1*}	3
400 Level AMST Supporting Course ^{2*}	3 AMST Supporting Course ^{1*}	3
General Education Course	3 400 Level AMST Supporting Course ^{2*}	3
Elective (OC)	3 Bachelor of Arts Requirement	3
Bachelor of Arts Requirement	3 Elective (US;IL)	3
15		15
Fourth Year		
Fall	Credits Spring	Credits
AMST 491W (Course is to be taken as two separate offerings) [*]	3 AMST 491W (Course is to be taken as two separate offerings) [*]	3
400 Level AMST Supporting Course ^{2*}	3 400 Level AMST Supporting Course ^{2*}	3
AMST Supporting Course ^{1*}	3 Elective	3
Elective (US;IL)	3 Elective	3
Elective	3 Elective	3
15		15
Total Credits 123		

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may

not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

¹ AMST supporting courses are distributed among arts, history, humanities, literature, and social sciences courses containing at least 50% American content. Students take three courses each from two areas and two courses from a third.

² At least 12 of these credits are at the 400 level.

³ ENGL 202B is recommended for American Studies majors.

Career Paths

The American Studies program benefits from Penn State Harrisburg's location in a capital region in close proximity to internationally known heritage sites such as the Gettysburg Battlefield, National Civil War Museum, and U.S. Army Heritage and Education Center. Harrisburg is also home to the Pennsylvania Historical and Museum Commission, the State Archives, and the State Museum.

Careers

American Studies majors at Penn State Harrisburg have opportunities to gain a core set of skills in writing, presentation, exhibition, website development, digital documentation, fieldwork and ethnography, and records and cultural resource management in addition to contextual knowledge of American culture, society, arts, and history that can be applied to a number of occupations, particularly in heritage, communications, education, and government sectors. At Penn State Harrisburg, certificates (heritage and museum practice, folklore and ethnography), internships, assistantships, professional workshops, career services, alumni interaction, social media, and online job postings serve to enhance the marketability of majors at various levels.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE AMERICAN STUDIES PROGRAM (<https://harrisburg.psu.edu/humanities/american-studies-ba/career-opportunities/>)

Opportunities for Graduate Studies

The American Studies major at Penn State Harrisburg prepares students for a variety of professions and to participate in the world as critical thinkers, clear communicators, and global citizens, including Penn State's Master of Arts in American Studies and the Doctor of Philosophy in American Studies programs.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://harrisburg.psu.edu/humanities/american-studies-ba/>)

Professional Resources

- American Studies Association (<https://www.theasa.net>)
- Popular Culture Association/American Culture Association (<https://pcaaca.org/>)
- American Folklore Society (<https://americanfolkloresociety.org/>)
- Pennsylvania Historical Association (<https://pa-history.org>)
- Pennsylvania German Society (<https://pgs.org/>)
- Pennsylvania Heritage Society (<https://www.paheritage.org/>)

- Pennsylvania Federation of Museums and Historical Organizations (<https://pamuseums.org>)

Contact

Abington

DIVISION OF ARTS AND HUMANITIES

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215-881-7640

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<https://www.abington.psu.edu/academics/majors-at-abington/american-studies> (<https://www.abington.psu.edu/academics/majors-at-abington/american-studies/>)

Harrisburg

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<https://www.brandywine.psu.edu/academics/bachelors-degrees/american-studies> (<https://www.brandywine.psu.edu/academics/bachelors-degrees/american-studies/>)

Art, B.A. (Abington)

Begin Campus: Any Penn State Campus

End Campus: Abington

Program Description

The B.A. degree in art provides a comprehensive liberal education coupled with professional resident instruction in art. Depending on each student's objectives and course choices, this degree provides preparation for a professional career, a foundation for graduate studies, or a liberal arts education in art. Each student must elect an area of concentration from one of the following: ceramics, drawing and painting, new media, photography, printmaking, or sculpture.

What is Art?

Art is an individual and social practice that makes an impact. When people create or respond to art, they make connections between themselves and the experiences of others. In some cases, art provides a private encounter whereby individual thoughts and feelings are expressed through art, or recognized in the art of someone else. In other cases, art gives form to ideas and issues that concern entire communities. It is because art extends personal and public awareness that it is highly valued as a cultural activity. Those who make art and write about art offer imaginative insights that challenge us to see things differently.

By creating artworks yourself, and enhancing your capacity to interpret artworks made by other individuals, communities, and cultures, you contribute to one of the most important purposes of art, which is to celebrate this unique human form of social communication that shapes the way we see ourselves.

You Might Like this Program If...

You are excited and challenged by the diverse and profound impact art and culture can have in the everyday life of individuals and communities. Art and culture 'workers' take on many creative roles in everyday life and respond imaginatively to the continuous rush of social and cultural change around them by exploring issues, and expressing and communicating ideas using all forms of image, text, and social media.

Entrance Procedures

Detailed information about entrance procedures for incoming first-year students, transfer students, and current Penn State students can be found at on the Penn State Abington website (<https://www.abington.psu.edu/application-entrance-major-ART/>).

Degree Requirements

For the Bachelor of Arts degree in Art, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	5
Bachelor of Arts Degree Requirements	24
Requirements for the Major	52

6 of the 45 credits for General Education are included in the Requirements for the Major. This includes 6 credits of General Education GA courses.

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ART 11	First-Year Seminar- School of Visual Arts	1
ART 110	Ideas as Visual Images	3
ART 111	Ideas as Objects	3
ART 122Y	Commentary on Art	3
ARTH 111	Ancient to Medieval Art ¹	3
ARTH 112	Renaissance to Modern Art ¹	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 15 credits of the following:		15

ART 211	Introduction to Digital Art and Design Criticism
ART 220	Figure Drawing
ART 223	Drawing: Techniques, Materials, and Tools
ART 230	Beginning Sculpture
ART 240	Beginning Printmaking
ART 250	Beginning Oil Painting
ART 260	Water Media
ART 280	Beginning Ceramics
ART 296	Independent Studies (3 credits)
ART 297	Special Topics (3 credits)
ART 299	Foreign Study--Art (3 credits)
DART 202	2D Digital Art & Computer Graphics
DART 206	Web Design and Visual Web Development
PHOTO 100	Introduction to Photography
PHOTO 201	A Chronological Survey of Photography

Supporting Courses and Related Areas²

Select 6 credits in art history 6

Supporting Courses and Related Areas: Require a grade of C or better

Select 15 credits from one of the following areas of concentration: 15
ceramics, drawing and painting, new media, photography, printmaking, and sculpture

¹ These credits may also be counted toward the General Education Arts requirement.

² Include at least 15 credits at the 300 or 400 level.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or

beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- **Communication:**
 - By creating work which evokes a spectator's response that resonates with, without necessarily duplicating, the artist's personal response, understanding through discussion and critique how a spectator arrives at a particular inspiration interacting with one's work.
 - By planning and implementing exhibitions of work, understanding the process from curatorial conceptualization through promotion, preparation and physical installation.
 - By creating and maintaining ongoing documentation of work through portfolio, resume, website and other visual and verbal means of communicating professional development.
- **Craft:**
 - By mastering tools used in traditional and contemporary art and design making contexts, with particular emphasis on a chosen media concentration: Drawing and Painting, Printmaking, Sculpture, Ceramics or New Media.
 - By making intelligent media application decisions to achieve appropriate form in support of intended content.
- **Creative and Critical Thinking:**
 - By synthesizing and evaluating creative output, contributing to critical discourse, responding positively to feedback and understanding how to use critique as part of the creative process.
 - By experimenting with and expanding the use of media with an eye toward future possibilities not prescribed by current standards.
- **Professionalism:**
 - By understanding how art making relates to aspirations for career, further study at the graduate level, or personal growth.
 - By understanding the ethical and professional responsibilities of an artist or designer.
- **Research:**
 - By recalling, understanding, applying and analyzing art history, aesthetic theory, contemporary topics and a liberal arts framework as components of the creative process, all used as foundation for deep, methodical study of the subject of creative investigation.
 - By employing a vocabulary of spoken and written word to clearly express the relevance, motivation and discoveries of the research.
- **Vision:**
 - By creating original, conceptually compelling works of art or design relevant to individual experience and using a personal visual vocabulary.
 - By creating work that evokes a personally meaningful intellectual and emotional response to a zone of personal concern.
- **Visual Literacy:**
 - By recalling, understanding and applying basic visual elements and principals of visual design across two-, three- and four-dimensional media expressions.

- By using a variety of media to develop an articulate, unique visual expression of the world as it is actually seen, abandoning iconic visual classifications and symbolic stereotypes.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Abington

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Art, B.A. at Abington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ART 110*	3 ART 111*	3
ARTH 111*†	3 ARTH 112*†	3
ENGL 15 or 30H	3 ART 122Y	3
General Education Course	3 General Education Course	3

World Language level 1	4 World Language level 2	4
16		16
Second Year		
Fall	Credits Spring	Credits
ART 200 level Studio*	3 ART 200 level Studio*	3
ART 200 level Studio*	3 ART 200 level Studio*	3
ARTH Course*	3 General Education Course	3
General Education Course	3 General Education Course	3
World Language level 3	4 General Education Course	3
16		15
Third Year		
Fall	Credits Spring	Credits
ART 200 level Studio*	3 ART 300/400 level Studio (Concentration)*	4
ARTH Course*	3 ART 300/400 level Studio (Concentration)*	3
General Education Course	3 General Education Course	3
CAS 100A or 100B	3 ENGL 202B	3
B.A. Knowledge Domain	3	
15		13
Fourth Year		
Fall	Credits Spring	Credits
ART 300/400 level Studio*	4 ART 300/400 level Studio*	4
General Education Course	3 Elective	3
B.A. Knowledge Domain	3 Elective	3
B.A. Requirement (World Cultures)	3 B.A. Knowledge Domain	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
14.5		14.5

Total Credits 120

- * Course requires a grade of C or better for the major
 ‡ Course requires a grade of C or better for General Education
 # Course is an Entrance to Major requirement
 † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain requirements). N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World

Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Advising Notes:

Change of major requirements: A minimum grade point average of 2.0 and a successful portfolio review are required.

Note: Many ART Studio courses are repeatable.

Career Paths

As a B.A. graduate with a broad interest in the individual and collective power of the arts to enrich human understanding, you have artistic skills and critical sensibilities that can become life-long assets. Just as art can awaken us to new experience, exploring new ways to integrate knowledge from diverse sources helps make these experiences concrete and alerts us to noticing things not otherwise obvious. Broadening learning to embrace studio-based practices of making and critical reflection opens up options for linking personal and professional career interests, and these can have an enduring impact on what and how one learns.

Careers

The B.A. experience collects and collates many different modalities of thinking and knowing, re-positions them around what we know, and helps us see gaps and what we don't know. The B.A. art experience takes these familiar and new understandings and provides an environment for helping you to discover your personal voice in the work you create. Contemporary studio art practice embraces any conceptually appropriate material and method that best articulates your artistic intention. In addition, professional practice opportunities are embedded into the program that can lead to future accomplishments after school.

Opportunities for Graduate Studies

Due to the emphasis put on developing your personal vision and distinctive artistic voice, a B.A. art graduate will have a heightened sense of individual perspective and an understanding of multiple ways of engaging with ideas, and these dispositions become foundational skills in assessing future educational and professional directions.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://arts.psu.edu/degrees/mfa-art/>)

Professional Resources

- College Art Association (<https://www.collegeart.org/>)
- National Art Education Association (<https://www.arteducators.org>)
- National Council of Art Administration (<https://www.ncaaarts.org/>)
- Pennsylvania Art Education Association (<https://sites.google.com/paea.org/paea/home/>)

Contact

Abington

DIVISION OF ARTS AND HUMANITIES
 1600 Woodland Road
 Abington, PA 19001
 215-881-7300

ymm1@psu.edu

<https://www.abington.psu.edu/academics/majors-at-abington/art>
 (<https://www.abington.psu.edu/academics/majors-at-abington/art/>)

University Park

SCHOOL OF VISUAL ARTS
 210 Patterson Building
 University Park, PA 16802
 814-865-0444
 AAUG@psu.edu

<https://arts.psu.edu/academics/school-of-visual-arts/>

Biology, B.S. (Abington)

Begin Campus: Any Penn State Campus

End Campus: Abington

Program Description

Biology is the scientific study of life: the diversity and organization of organisms, from single-celled bacteria to multi-cellular plants and animals, including humans. These different levels of biological organization range from the molecules and cells that compose an organism, to the interacting organisms that make up an ecosystem. Hands-on experiences, from designing and conducting lab experiments to making field observations, using many different procedures and instruments, play an important role in gaining biological knowledge. Basic research in biology provides many benefits. Faculty in the Department of Biology at Penn State are exploring ways to cure neurological diseases, to conserve coral populations in tropical oceans, to discover more efficient ways to use plants for food and bioenergy, to develop vaccines for infectious diseases, and investigating many other facets of biology, all with the goal of positively impacting humans and the environment.

You Might Like This Program If...

- You are interested in learning about aspects of the biology of organisms that live on Earth.
- You enjoy a dynamic field of study, with new discoveries being made every day.
- You are interested in hands-on experiences, including courses with integrated laboratories and conducting research with faculty.
- You plan to pursue a career in biology research, education or outreach, or attend professional school in areas including medicine and dentistry.

Entrance To Major

In order to be eligible for entrance to the Biology major, a student must have:

1. attained at least a 2.00 cumulative grade point average;
2. completed BIOL 110, CHEM 110, MATH 140, and earned a grade of C or better in each of these courses; and
3. completed at least one of the following courses with a grade of C or better: BIOL 220W, BIOL 230W, or BIOL 240W.

Degree Requirements

For the Bachelor of Science degree in Biology, a minimum of 124 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	94

15 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
CHEM 111	Experimental Chemistry I	1
CHEM 113	Experimental Chemistry II	1
MATH 141	Calculus with Analytic Geometry II	4
<i>Prescribed Courses: Require a grade of C or better</i>		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
BIOL 220W	Biology: Populations and Communities	4
BIOL 230W	Biology: Molecules and Cells	4
BIOL 240W	Biology: Function and Development of Organisms	4
CHEM 110	Chemical Principles I	3
CHEM 112	Chemical Principles II	3
MATH 140	Calculus With Analytic Geometry I	4

Additional Courses

Select one of the following:	8-12
PHYS 211 & PHYS 212 & PHYS 213 & PHYS 214	General Physics: Mechanics and General Physics: Electricity and Magnetism and General Physics: Fluids and Thermal Physics and General Physics: Wave Motion and Quantum Physics
PHYS 250 & PHYS 251	Introductory Physics I and Introductory Physics II
Select one of the following:	3-4
STAT 200	Elementary Statistics
STAT 240	Introduction to Biometry
STAT 250	Introduction to Biostatistics

Requirements for the Option

Select an option	46-51
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Requirements for the Option

Ecology Option (46-51 credits)

Available at the following campuses: Altoona, Schuylkill, University Park

Code	Title	Credits
Prescribed Courses		
BIOL 463	General Ecology	3
Additional Courses		

STAT 462	Applied Regression Analysis	3
or STAT 464	Applied Nonparametric Statistics	

Select one of the following: 6-8

CHEM 202 & CHEM 203	Fundamentals of Organic Chemistry I and Fundamentals of Organic Chemistry II	
CHEM 210 & CHEM 212 & CHEM 213	Organic Chemistry I and Organic Chemistry II and Laboratory in Organic Chemistry	

Groups

Select a minimum of 15 credits of 400-level biology courses, with at least 6 credits from the Ecology group, 3 credits from the Evolution group, and 3 credits from the Practicum group. A maximum of 3 credits of BIOL 400, 494, 495, 496, and SC 295, 395, 495 may be used to fulfill 15 credits minimum in the 400-level biology course requirements. 15

Ecology Group:

BIOL 406	Symbiosis	
BIOL 412	Ecology of Infectious Diseases	
BIOL 415	Ecotoxicology	
BIOL 417	Invertebrate Zoology	
BIOL 419	Ecological and Environmental Problem Solving	
BIOL/PPEM 425	Biology of Fungi	
BIOL 429	Animal Behavior	
BIOL 435	Ecology of Lakes and Streams	
BIOL 436	Population Ecology and Global Climate Change	
BIOL 438	Theoretical Population Ecology	
BIOL 444	Field Ecology	
BIOL 446	Physiological Ecology	
BIOL 450W	Experimental Field Biology	
BIOL 464	Sociobiology	
BIOL 474	Astrobiology	
BIOL 482	Coastal Biology	
BIOL 499A	Tropical Field Ecology	

Evolution Group:

BIOL 405	Molecular Evolution	
BIOL 406	Symbiosis	
BIOL 411	Medical Embryology	
BIOL 414	Taxonomy of Seed Plants	
BIOL 417	Invertebrate Zoology	
BIOL 420	Paleobotany	
BIOL 421	Comparative Anatomy of Vertebrates	
BIOL 422	Advanced Genetics	
BIOL/PPEM 425	Biology of Fungi	
BIOL 427	Evolution	
BIOL 428	Population Genetics	
BIOL 429	Animal Behavior	
BIOL 432	Developmental Genetics	
BIOL 433	Evolution of Vertebrates	
BIOL 434	Pathobiology of Emerging Infectious Disease	
BIOL 436	Population Ecology and Global Climate Change	
BIOL 438	Theoretical Population Ecology	
BIOL 439	Practical Bioinformatics	

BIOL 443	Evo-devo: Evolution of Developmental Mechanisms	
BIOL 446	Physiological Ecology	
BIOL 451	Biology of RNA	
BIOL 460	Human Genetics	
BIOL 463	General Ecology	
BIOL 464	Sociobiology	
BIOL 474	Astrobiology	
BIOL 478	COMPARATIVE NEUROANATOMY	

Practicum Group:

BIOL 400	Teaching in Biology	
BIOL 402W	Biological Experimental Design	
BIOL 407	Plant Developmental Anatomy	
BIOL 414	Taxonomy of Seed Plants	
BIOL 417	Invertebrate Zoology	
BIOL 419	Ecological and Environmental Problem Solving	
BIOL 421	Comparative Anatomy of Vertebrates	
BIOL 422	Advanced Genetics	
BIOL/PPEM 425	Biology of Fungi	
BIOL 433	Evolution of Vertebrates	
BIOL 437	Histology	
BIOL 439	Practical Bioinformatics	
BIOL 444	Field Ecology	
BIOL 450W	Experimental Field Biology	
BIOL 461	Contemporary Issues in Science and Medicine	
BIOL 473	Laboratory in Mammalian Physiology	
BIOL 475N		
BIOL 478	COMPARATIVE NEUROANATOMY	
BIOL 482	Coastal Biology	
BIOL 494	Research Project	
BIOL 495	Internship in Biology	
BIOL 496	Independent Studies	
BIOL 499A	Tropical Field Ecology	
BIOTC 459	Plant Tissue Culture and Biotechnology	
SC 295	Science Co-op Work Experience I	
SC 395	Science Co-op Work Experience II	
SC 495	Science Co-op Work Experience III	

Supporting Courses and Related Areas

Select 17-24 credits from department list 17-24

General Biology Option (46-51 credits)

Available at the following campuses: Abington, Altoona, Beaver, Berks, Brandywine, Harrisburg, Lehigh Valley, Schuylkill, Scranton, University Park, York

Code	Title	Credits
Additional Courses		
Select one of the following:		6-8
CHEM 202 & CHEM 203	Fundamentals of Organic Chemistry I and Fundamentals of Organic Chemistry II	
CHEM 210 & CHEM 212 & CHEM 213	Organic Chemistry I and Organic Chemistry II and Laboratory in Organic Chemistry	

Groups

Select a minimum of 18 credits of 400-level biology courses, with at least 3 credits from each of the following groups (each course may be used to satisfy a requirement in only one group). Moreover, a maximum of 3 credits of BIOL 400, 494, 495, 496 and SC 295, 395, 495 may be used to fulfill the 18 credit minimum in the 400-level biology course requirements.

Plant and Fungi Group:

BIOL 406	Symbiosis
BIOL 407	Plant Developmental Anatomy
BIOL 414	Taxonomy of Seed Plants
BIOL 420	Paleobotany
BIOL 424	Seeds of Change: The Uses of Plants
BIOL/PPEM 425	Biology of Fungi
BIOL 431	Reproductive Biology
BIOL 441	Plant Physiology
BIOL 444	Field Ecology
BIOL 446	Physiological Ecology
BIOL 448	Ecology of Plant Reproduction
BIOL 451	Biology of RNA
BIOL 482	Coastal Biology
BIOL 499A	Tropical Field Ecology
PPEM 427	Mycotoxins: Effects of Fungal Toxins on Human and Animal Health

Evolution Group:

BIOL 405	Molecular Evolution
BIOL 406	Symbiosis
BIOL 411	Medical Embryology
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 420	Paleobotany
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 427	Evolution
BIOL 428	Population Genetics
BIOL 429	Animal Behavior
BIOL 432	Developmental Genetics
BIOL 433	Evolution of Vertebrates
BIOL 434	Pathobiology of Emerging Infectious Disease
BIOL 436	Population Ecology and Global Climate Change
BIOL 438	Theoretical Population Ecology
BIOL 439	Practical Bioinformatics
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 446	Physiological Ecology
BIOL 451	Biology of RNA
BIOL 460	Human Genetics
BIOL 463	General Ecology
BIOL 464	Sociobiology
BIOL 474	Astrobiology
BIOL 478	COMPARATIVE NEUROANATOMY

Genetics and Developmental Biology Group:

BIOL 404	Cellular Mechanisms in Vertebrate Physiology
BIOL 405	Molecular Evolution
BIOL 407	Plant Developmental Anatomy
BIOL 411	Medical Embryology
BIOL 413	Cell Signaling and Regulation
BIOL 416	Biology of Cancer
BIOL 422	Advanced Genetics
BIOL 426	Developmental Neurobiology
BIOL 428	Population Genetics
BIOL 430	Developmental Biology
BIOL 431	Reproductive Biology
BIOL 432	Developmental Genetics
BIOL 439	Practical Bioinformatics
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 448	Ecology of Plant Reproduction
BIOL 451	Biology of RNA
BIOL 460	Human Genetics
BIOL 467	Molecular Basis of Neurological Diseases
BIOL 469	Neurobiology
MICRB 410	Principles of Immunology

Ecology Group:

BIOL 406	Symbiosis
BIOL 412	Ecology of Infectious Diseases
BIOL 415	Ecotoxicology
BIOL 417	Invertebrate Zoology
BIOL 419	Ecological and Environmental Problem Solving
BIOL/PPEM 425	Biology of Fungi
BIOL 429	Animal Behavior
BIOL 435	Ecology of Lakes and Streams
BIOL 436	Population Ecology and Global Climate Change
BIOL 438	Theoretical Population Ecology
BIOL 444	Field Ecology
BIOL 446	Physiological Ecology
BIOL 450W	Experimental Field Biology
BIOL 463	General Ecology
BIOL 464	Sociobiology
BIOL 474	Astrobiology
BIOL 482	Coastal Biology
BIOL 499A	Tropical Field Ecology

Physiology Group:

BIOL 404	Cellular Mechanisms in Vertebrate Physiology
BIOL 406	Symbiosis
BIOL 409	Biology of Aging
BIOL 411	Medical Embryology
BIOL 412	Ecology of Infectious Diseases
BIOL 413	Cell Signaling and Regulation
BIOL 415	Ecotoxicology
BIOL 416	Biology of Cancer
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 424	Seeds of Change: The Uses of Plants
BIOL 426	Developmental Neurobiology

BIOL 430	Developmental Biology
BIOL 431	Reproductive Biology
BIOL 432	Developmental Genetics
BIOL 437	Histology
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 446	Physiological Ecology
BIOL 460	Human Genetics
BIOL 469	Neurobiology
BIOL 470	Functional and Integrative Neuroscience
BIOL 472	Human Physiology
BIOL 478	COMPARATIVE NEUROANATOMY
BIOL 479	General Endocrinology
BIOL 482	Coastal Biology

Practicum Group:

BIOL 400	Teaching in Biology
BIOL 402W	Biological Experimental Design
BIOL 407	Plant Developmental Anatomy
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 419	Ecological and Environmental Problem Solving
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 433	Evolution of Vertebrates
BIOL 437	Histology
BIOL 439	Practical Bioinformatics
BIOL 444	Field Ecology
BIOL 450W	Experimental Field Biology
BIOL 461	Contemporary Issues in Science and Medicine
BIOL 473	Laboratory in Mammalian Physiology
BIOL 475N	
BIOL 476	Advanced Human Anatomy - cadaver based
BIOL 478	COMPARATIVE NEUROANATOMY
BIOL 482	Coastal Biology
BIOL 494	Research Project
BIOL 495	Internship in Biology
BIOL 496	Independent Studies
BIOL 499A	Tropical Field Ecology
BIOTC 459	Plant Tissue Culture and Biotechnology
SC 295	Science Co-op Work Experience I
SC 395	Science Co-op Work Experience II
SC 495	Science Co-op Work Experience III

Supporting Courses and Related Areas

Select 20-27 credits from department list 20-27

Genetics and Developmental Biology Option (46-51 credits)*Available at the following campuses: Abington, Berks, Harrisburg, Schuylkill, University Park, York*

Code	Title	Credits
Prescribed Courses		
BIOL 322	Genetic Analysis	3
BIOL 430	Developmental Biology	3

BMB 401	General Biochemistry	3
BMB 402	General Biochemistry	3
CHEM 210	Organic Chemistry I	3
CHEM 212	Organic Chemistry II	3
CHEM 213	Laboratory in Organic Chemistry	2

Additional Courses

Select 2-5 credits from the following: 2-5

MATH 220	Matrices
MATH 231	Calculus of Several Variables
MICRB 201	Introductory Microbiology
MICRB 202	Introductory Microbiology Laboratory

Groups

Select a minimum of 12 credits of 400-level courses, with at least 6 credits from the Genetics and Developmental Biology group, 3 credits from Evolution, and 3 credits from the Practicum group. A maximum of 3 credits of BIOL 400, 494, 495, 496 and SC 295, 395, 495 may be used to fulfill the 12 credit minimum in the 400-level biology course requirements.

Genetics and Developmental Biology Group:

BIOL 404	Cellular Mechanisms in Vertebrate Physiology
BIOL 405	Molecular Evolution
BIOL 407	Plant Developmental Anatomy
BIOL 411	Medical Embryology
BIOL 413	Cell Signaling and Regulation
BIOL 416	Biology of Cancer
BIOL 422	Advanced Genetics
BIOL 426	Developmental Neurobiology
BIOL 428	Population Genetics
BIOL 431	Reproductive Biology
BIOL 432	Developmental Genetics
BIOL 439	Practical Bioinformatics
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 448	Ecology of Plant Reproduction
BIOL 451	Biology of RNA
BIOL 460	Human Genetics
BIOL 467	Molecular Basis of Neurological Diseases
BIOL 469	Neurobiology
BMB 400	Molecular Biology of the Gene
or BMB 450	Microbial/Molecular Genetics
or BMB 464	Molecular Medicine
or BMB 484	Functional Genomics
or HORT 407	Plant Breeding
or MICRB 41	Principles of Immunology

Evolution Group:

BIOL 405	Molecular Evolution
BIOL 406	Symbiosis
BIOL 411	Medical Embryology
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 420	Paleobotany
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics

BIOL/PPEM 425	Biology of Fungi
BIOL 427	Evolution
BIOL 428	Population Genetics
BIOL 429	Animal Behavior
BIOL 432	Developmental Genetics
BIOL 433	Evolution of Vertebrates
BIOL 434	Pathobiology of Emerging Infectious Disease
BIOL 436	Population Ecology and Global Climate Change
BIOL 438	Theoretical Population Ecology
BIOL 439	Practical Bioinformatics
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 446	Physiological Ecology
BIOL 451	Biology of RNA
BIOL 460	Human Genetics
BIOL 463	General Ecology
BIOL 464	Sociobiology
BIOL 474	Astrobiology
BIOL 478	COMPARATIVE NEUROANATOMY
Practicum Group:	
BIOL 400	Teaching in Biology
BIOL 402W	Biological Experimental Design
BIOL 407	Plant Developmental Anatomy
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 419	Ecological and Environmental Problem Solving
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 433	Evolution of Vertebrates
BIOL 437	Histology
BIOL 439	Practical Bioinformatics
BIOL 444	Field Ecology
BIOL 450W	Experimental Field Biology
BIOL 461	Contemporary Issues in Science and Medicine
BIOL 473	Laboratory in Mammalian Physiology
BIOL 475N	
BIOL 478	COMPARATIVE NEUROANATOMY
BIOL 482	Coastal Biology
BIOL 494	Research Project
BIOL 495	Internship in Biology
BIOL 496	Independent Studies
BIOL 499A	Tropical Field Ecology
SC 295	Science Co-op Work Experience I
SC 395	Science Co-op Work Experience II
SC 495	Science Co-op Work Experience III

Supporting Courses and Related Areas

Select 9-17 credits from department list 9-17

Neuroscience Option (46-51 credits)*Available at the following campuses: University Park*

Code	Title	Credits
Prescribed Courses		
BIOL 469	Neurobiology	3
BMB 401	General Biochemistry	3
BMB 402	General Biochemistry	3
CHEM 210	Organic Chemistry I	3
CHEM 212	Organic Chemistry II	3
CHEM 213	Laboratory in Organic Chemistry	2
Additional Courses		
Select 3 credits from the following:		3
BIOL 426	Developmental Neurobiology	
BIOL 470	Functional and Integrative Neuroscience	
BIOL 478	COMPARATIVE NEUROANATOMY	
Groups		
Select a minimum of 12 credits of 400-level biology courses, with at least 6 credits from the Neuroscience group, 3 credits from the Evolution group, and 3 credits from the Practicum Group. A maximum of 3 credits of BIOL 400, 494, 495, 496 and SC 295, 395, 495 may be used to fulfill the 12 credit minimum in the 400-level biology course requirements.		12
Neuroscience Group:		
BIOL 404	Cellular Mechanisms in Vertebrate Physiology	
BIOL 413	Cell Signaling and Regulation	
BIOL 424	Seeds of Change: The Uses of Plants	
BIOL 426	Developmental Neurobiology	
BIOL 430	Developmental Biology	
BIOL 437	Histology	
BIOL 467	Molecular Basis of Neurological Diseases	
BIOL 470	Functional and Integrative Neuroscience	
BIOL 472	Human Physiology	
BIOL 473	Laboratory in Mammalian Physiology	
BIOL 478	COMPARATIVE NEUROANATOMY	
BIOL 479	General Endocrinology	
BBH 432	Biobehavioral Aspects of Stress	
or BBH 451	Pharmacological Influences on Health	
or BBH 468	Neuroanatomical Bases for Disorders of Behavior and Health	
or HDFS 468		
or NUTR 445	Energy and Macronutrient Metabolism	
or PSYCH 45	Learning and Memory	
or PSYCH 46	Physiological Psychology	
or PSYCH 47	Clinical Neuropsychology	
Evolution Group:		
BIOL 405	Molecular Evolution	
BIOL 406	Symbiosis	
BIOL 411	Medical Embryology	
BIOL 414	Taxonomy of Seed Plants	
BIOL 417	Invertebrate Zoology	
BIOL 420	Paleobotany	
BIOL 421	Comparative Anatomy of Vertebrates	
BIOL 422	Advanced Genetics	
BIOL/PPEM 425	Biology of Fungi	

BIOL 427	Evolution
BIOL 428	Population Genetics
BIOL 429	Animal Behavior
BIOL 432	Developmental Genetics
BIOL 433	Evolution of Vertebrates
BIOL 434	Pathobiology of Emerging Infectious Disease
BIOL 436	Population Ecology and Global Climate Change
BIOL 438	Theoretical Population Ecology
BIOL 439	Practical Bioinformatics
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 446	Physiological Ecology
BIOL 451	Biology of RNA
BIOL 460	Human Genetics
BIOL 463	General Ecology
BIOL 464	Sociobiology
BIOL 474	Astrobiology
BIOL 478	COMPARATIVE NEUROANATOMY
Practicum Group:	
BIOL 400	Teaching in Biology
BIOL 402W	Biological Experimental Design
BIOL 407	Plant Developmental Anatomy
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 419	Ecological and Environmental Problem Solving
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 433	Evolution of Vertebrates
BIOL 437	Histology
BIOL 439	Practical Bioinformatics
BIOL 444	Field Ecology
BIOL 450W	Experimental Field Biology
BIOL 461	Contemporary Issues in Science and Medicine
BIOL 473	Laboratory in Mammalian Physiology
BIOL 475N	
BIOL 478	COMPARATIVE NEUROANATOMY
BIOL 482	Coastal Biology
BIOL 494	Research Project
BIOL 495	Internship in Biology
BIOL 496	Independent Studies
BIOL 499A	Tropical Field Ecology
BIOTC 459	Plant Tissue Culture and Biotechnology
SC 295	Science Co-op Work Experience I
SC 395	Science Co-op Work Experience II
SC 495	Science Co-op Work Experience III

Supporting Courses and Related Areas

Select 14-19 credits from department list 14-19

Plant Biology Option (46-51 credits)*Available at the following campuses: University Park*

Code	Title	Credits
Prescribed Courses		
BIOL 407	Plant Developmental Anatomy	3
BIOL 441	Plant Physiology	3
BMB 401	General Biochemistry	3
BMB 402	General Biochemistry	3
CHEM 210	Organic Chemistry I	3
CHEM 212	Organic Chemistry II	3
CHEM 213	Laboratory in Organic Chemistry	2
Additional Courses		
<i>Groups</i>		
Select a minimum of 12 credits of 400-level biology courses, with at least 6 credits from the Plant and Fungi group, 3 credits from the Evolution group, and 3 credits from the Practicum group. A maximum of 3 credits of BIOL 400, 494, 495, 496 and SC 295, 395, 495 may be used to fulfill the 12 credit minimum in the 400-level biology course requirements.		12
Plant and Fungi Group:		
BIOL 406	Symbiosis	
BIOL 414	Taxonomy of Seed Plants	
BIOL 420	Paleobotany	
BIOL 424	Seeds of Change: The Uses of Plants	
BIOL/PPEM 425	Biology of Fungi	
BIOL 431	Reproductive Biology	
BIOL 444	Field Ecology	
BIOL 446	Physiological Ecology	
BIOL 448	Ecology of Plant Reproduction	
BIOL 451	Biology of RNA	
BIOL 482	Coastal Biology	
BIOL 499A	Tropical Field Ecology	
Evolution Group:		
BIOL 405	Molecular Evolution	
BIOL 406	Symbiosis	
BIOL 411	Medical Embryology	
BIOL 414	Taxonomy of Seed Plants	
BIOL 417	Invertebrate Zoology	
BIOL 420	Paleobotany	
BIOL 421	Comparative Anatomy of Vertebrates	
BIOL 422	Advanced Genetics	
BIOL/PPEM 425	Biology of Fungi	
BIOL 427	Evolution	
BIOL 428	Population Genetics	
BIOL 429	Animal Behavior	
BIOL 432	Developmental Genetics	
BIOL 433	Evolution of Vertebrates	
BIOL 434	Pathobiology of Emerging Infectious Disease	
BIOL 436	Population Ecology and Global Climate Change	
BIOL 438	Theoretical Population Ecology	
BIOL 439	Practical Bioinformatics	
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms	
BIOL 446	Physiological Ecology	

BIOL 451	Biology of RNA
BIOL 460	Human Genetics
BIOL 463	General Ecology
BIOL 464	Sociobiology
BIOL 474	Astrobiology
BIOL 478	COMPARATIVE NEUROANATOMY
Practicum Group:	
BIOL 400	Teaching in Biology
BIOL 402W	Biological Experimental Design
BIOL 407	Plant Developmental Anatomy
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 419	Ecological and Environmental Problem Solving
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 433	Evolution of Vertebrates
BIOL 437	Histology
BIOL 439	Practical Bioinformatics
BIOL 444	Field Ecology
BIOL 450W	Experimental Field Biology
BIOL 461	Contemporary Issues in Science and Medicine
BIOL 473	Laboratory in Mammalian Physiology
BIOL 475N	
BIOL 478	COMPARATIVE NEUROANATOMY
BIOL 482	Coastal Biology
BIOL 494	Research Project
BIOL 495	Internship in Biology
BIOL 496	Independent Studies
BIOL 499A	Tropical Field Ecology
BIOTC 459	Plant Tissue Culture and Biotechnology
SC 295	Science Co-op Work Experience I
SC 395	Science Co-op Work Experience II
SC 495	Science Co-op Work Experience III

Supporting Courses and Related Areas

Select 14-19 credits from department list 14-19

Vertebrate Physiology Option (46-51 credits)*Available at the following campuses: Abington, Altoona, Brandywine, Schuylkill, University Park*

Code	Title	Credits
Prescribed Courses		
BIOL 472	Human Physiology	3
BIOL 473	Laboratory in Mammalian Physiology	2
BMB 401	General Biochemistry	3
BMB 402	General Biochemistry	3
CHEM 210	Organic Chemistry I	3
CHEM 212	Organic Chemistry II	3
CHEM 213	Laboratory in Organic Chemistry	2
Additional Courses		
<i>Groups</i>		

Select a minimum of 12 credits of 400-level courses, with at least 6 12 credits from the Physiology group, 3 credits from the Evolution group, and 3 credits from the Practicum group. A maximum of 3 credits of BIOL 400, 494, 495, 496 and SC 295, 395, 495 may be used to fulfill the 12 credit minimum in the 400-level biology course requirements.

Physiology Group:

BIOL 404	Cellular Mechanisms in Vertebrate Physiology
BIOL 406	Symbiosis
BIOL 409	Biology of Aging
BIOL 411	Medical Embryology
BIOL 412	Ecology of Infectious Diseases
BIOL 413	Cell Signaling and Regulation
BIOL 415	Ecotoxicology
BIOL 416	Biology of Cancer
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 424	Seeds of Change: The Uses of Plants
BIOL 426	Developmental Neurobiology
BIOL 430	Developmental Biology
BIOL 431	Reproductive Biology
BIOL 432	Developmental Genetics
BIOL 437	Histology
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 446	Physiological Ecology
BIOL 460	Human Genetics
BIOL 469	Neurobiology
BIOL 470	Functional and Integrative Neuroscience
BIOL 478	COMPARATIVE NEUROANATOMY
BIOL 479	General Endocrinology
BIOL 482	Coastal Biology
ANSC 431	Physiology of Animal Reproduction
or ANTH 466	The Skull
or BMB 484	Functional Genomics
or ENT 402W	Biology of Animal Parasites
or MICRB 40	Microbial Physiology and Structure
or MICRB 41	Principles of Immunology
or MICRB 41	Medical Microbiology
or MICRB 43	Viral Pathogenesis
or PSYCH 46	Physiological Psychology

Evolution Group:

BIOL 405	Molecular Evolution
BIOL 406	Symbiosis
BIOL 411	Medical Embryology
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 420	Paleobotany
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 427	Evolution
BIOL 428	Population Genetics
BIOL 429	Animal Behavior
BIOL 432	Developmental Genetics

BIOL 433	Evolution of Vertebrates
BIOL 434	Pathobiology of Emerging Infectious Disease
BIOL 436	Population Ecology and Global Climate Change
BIOL 438	Theoretical Population Ecology
BIOL 439	Practical Bioinformatics
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 446	Physiological Ecology
BIOL 451	Biology of RNA
BIOL 460	Human Genetics
BIOL 463	General Ecology
BIOL 464	Sociobiology
BIOL 474	Astrobiology
BIOL 478	COMPARATIVE NEUROANATOMY
Practicum Group:	
BIOL 400	Teaching in Biology
BIOL 402W	Biological Experimental Design
BIOL 407	Plant Developmental Anatomy
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 419	Ecological and Environmental Problem Solving
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 433	Evolution of Vertebrates
BIOL 437	Histology
BIOL 439	Practical Bioinformatics
BIOL 444	Field Ecology
BIOL 448	Ecology of Plant Reproduction
BIOL 450W	Experimental Field Biology
BIOL 461	Contemporary Issues in Science and Medicine
BIOL 473	Laboratory in Mammalian Physiology
BIOL 475N	
BIOL 476	Advanced Human Anatomy - cadaver based
BIOL 478	COMPARATIVE NEUROANATOMY
BIOL 482	Coastal Biology
BIOL 494	Research Project
BIOL 495	Internship in Biology
BIOL 496	Independent Studies
BIOL 499A	Tropical Field Ecology
BIOTC 459	Plant Tissue Culture and Biotechnology
SC 295	Science Co-op Work Experience I
SC 395	Science Co-op Work Experience II
SC 495	Science Co-op Work Experience III

Supporting Courses and Related Areas

Select 15-20 credits from department list 15-20

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense

of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Outcomes

1. Students will be able to describe how heritable changes can lead to differences in populations over time that might result in speciation; trace energy/matter transformation, storage, and mobilization; explain how information is exchanged and stored; recognize how changes in biological structures can have varying effects on function; and/or describe the interactions and interconnections among systems across biological scales and over evolutionary time scales.
2. Students will be able to apply the elements of the process of science such as posing questions, generating novel hypotheses based on the scientific literature; developing appropriate technical skills for research; designing/conducting experiments to test hypotheses in laboratory and/or field settings; summarizing/interpreting data; integrating/evaluating findings in the broader scientific field to construct new knowledge; and/or participating in the peer review/revision process.
3. Students will be able to discriminate among scientific claims presented in a variety of sources based on the strength of evidence; find appropriate published scientific literature; and/or analyze and critically evaluate data/conclusions from the scientific peer-reviewed literature.
4. Students will be able to apply basic quantitative competencies such as algebra, probability, statistics, unit conversions, and fundamental biological equations; organize, summarize, and interpret quantitative data; use modeling/simulation to approach problems from across various scales; and/or find and analyze large databases using statistical methods and/or other approaches.
5. Students will be able to integrate knowledge among biological subfields and between biology and other disciplines.
6. Students will be able to engage with diverse communities and leverage the skills in the community to pose and solve biological questions; demonstrate the ability to work in teams to solve biological problems; and/or communicate in a variety of formal and informal ways in the discussion of biological research.
7. Students will explore the impacts of scientific research on society and the environment and how society influences/relies on research to inform decision-making; evaluate the ethical implications of biological research; recognize ethical issues in a variety of settings; and/or describe how different perspectives and the resulting alternative approaches might be evaluated using ethical principles to identify a solution to an issue.
8. Students will be able to communicate in a professional manner and learn/use professional behaviors in all aspects of college and career building activities, including participation in opportunities such as

research, internships, cooperative education, teaching and tutoring, study abroad, and/or volunteer work.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

General Biology Option: Biology, B.S. at Abington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit

(accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS)	3 BIOL 240W (GN)*	4
MATH 140 or 140B (GQ)**†	4 MATH 141 or 141B (GQ)†	4
BIOL 110 (GN)**†	4 CHEM 112 (GN)**†	3
CHEM 110 (GN)**†	3 CHEM 113 (GN)	1
CHEM 111 (GN)**†	1 General Education Course	3
	General Education Health and Wellness	1.5
	15	16.5

Second Year

Fall	Credits Spring	Credits
BIOL 230W (GN)*	4 STAT 200 or 250 (GQ)	3-4
BIOL 220W (GN)*	4 CHEM 212	3
CHEM 210	3 CHEM 213	2
General Education Course	3 General Education Course	3
Elective	3 General Education Course	3
	Elective	3
	17	17-18

Third Year

Fall	Credits Spring	Credits
BIOL 400-Level Selection (consult with an academic adviser for options)	3 BIOL 400-Level Selection (consult with an academic adviser for options)	3
PHYS 250 (GN)	4 PHYS 251 (GN)	4
CAS 100A or 100B (GWS)	3 General Education Health and Wellness	1.5
General Education Course	3 ENGL 202C (GWS)	3
Elective	3 Elective	3
	16	14.5

Fourth Year

Fall	Credits Spring	Credits
BIOL 400-Level Selection (consult with an academic adviser for options)	3 BIOL 400-Level Selection (consult with an academic adviser for options)	3
BIOL 400-Level Selection (consult with an academic adviser for options)	3 BIOL 400-Level Selection (consult with an academic adviser for options)	3
General Education Course	3 Elective	3
Elective	3 Elective	3
Elective	3 Elective	3
	15	15

Total Credits 126-127

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Course Lists

GROUP I - PLANTS AND FUNGI

BIOL 406 Symbiosis (3 cr.)
 BIOL 441 Plant Physiology (3 cr.)
 BIOL 443 Evo-devo: Evolution of Developmental Mechanisms (3 cr.)
 BIOL 482 Coastal Biology (3 cr.)

GROUP II - EVOLUTIONARY BIOLOGY

BIOL 406 Symbiosis (3 cr.)
 BIOL 427 Evolution (3 cr.)
 BIOL 429 Animal Behavior (3 cr.)
 BIOL 433 Evolution of Vertebrates (3 cr.)
 BIOL 443 Evo-devo: Evolution of Developmental Mechanisms (3 cr.)
 BIOL 460 Human Genetics (3 cr.)

GROUP III - GENETICS

BIOL 416 Biology of Cancer (3 cr.)
 BIOL 422 Advanced Genetics (3 cr.)
 BIOL 430 Developmental Biology (3 cr.)
 BIOL 443 Evo-devo: Evolution of Developmental Mechanisms (3 cr.)
 BIOL 460 Human Genetics (3 cr.)
 BMB 400 Molecular Biology of the Gene (2-3 cr.)
 MICRB 410 Principles of Immunology (3 cr.)
 MICRB 415 General Virology: Bacterial and Animal Viruses (3 cr.)

GROUP IV - ECOLOGY

BIOL 406 Symbiosis (3 cr.)
 BIOL 429 Animal Behavior (3 cr.)
 BIOL 436 Population Ecology and Global Climate Change (3 cr.)
 BIOL 482 Coastal Biology (3 cr.)

GROUP V - ANIMAL PHYSIOLOGY

BIOL 406 Symbiosis (3 cr.)
 BIOL 409 Biology of Aging (3 cr.)
 BIOL 416 Biology of Cancer (3 cr.)
 BIOL 430 Developmental Biology (3 cr.)
 BIOL 437 Histology (4 cr.)
 BIOL 443 Evo-devo: Evolution of Developmental Mechanisms (3 cr.)
 BIOL 460 Human Genetics (3 cr.)
 BIOL 469 Neurobiology (3 cr.)
 BIOL 472 Human Physiology (3 cr.)
 BIOL 479 General Endocrinology (3 cr.)

GROUP VI - PRACTICUM

BIOL 402 (cr.)
 BIOL 437 Histology (4 cr.)
 BIOL 461 Contemporary Issues in Science and Medicine (3 cr.)
 BIOL 473 Laboratory in Mammalian Physiology (2 cr.)

Disallowed Courses

Students may select free elective courses from nearly the entire range of the University's offerings. However, the following courses may NOT be used to satisfy degree requirements in the Biology major, regardless of option, not even as free electives.

ASTRO 001**, 010**, 011**, 120**, 140**

BIOL 011**, 012**

BISC 001, 002, 003**, 004**

BMB 001**

CHEM 001, 002, 006, 101

CMPS 001, 100, 110

ENGL 004, 005

LL ED 005, 010

MATH 001, 002, 003, 004, 017, 018, 021, 022, 026, 030, 035, 036, 040, 041, 081, 082, 083, 110, 111, 200

MICRB 106, 107, 120, 121A, 121B, 150 151A, 151C,

151D, 151E, 151F, 151W

PHYS 001, 150, 151

CAS 004, 126

STAT 100

In addition, the following types of courses may NOT be used to satisfy degree requirements in the Biology major:

- Courses which are remedial in nature or which focus on reading improvement or study skills. NOTE: Only 3 credits of CHEM 017 and only 4 credits of MATH 140A may be used to satisfy degree requirements.
- Courses which substantially duplicate the subject matter covered in other completed courses taught at a comparable level.
- No more than 6 credits of ROTC and 12 credits of Independent Study (296, 496) may be used to satisfy degree requirements. Unless special permission is granted, Independent Study credit may only be used in the "Free Electives" category.
- No more than 5 credits of KINES may be used to satisfy degree requirements.
- ** On rare occasions, with adequate justification, a student may be permitted to use one or more of these courses to satisfy degree requirements. A petition must be submitted to request such an exception and will be considered on a case-by-case basis.

Genetics and Developmental Biology Option: Biology, B.S. at Abington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS)	3 BIOL 240W (GN) ^{*#}	4
MATH 140 or 140B (GQ) ^{*#}	4 MATH 141 or 141B (GQ) [†]	4
BIOL 110 (GN) ^{*#}	4 CHEM 112 (GN) ^{**†}	3
CHEM 110 (GN) ^{*#}	3 CHEM 113 (GN)	1
CHEM 111 (GN) [†]	1 General Education Course	3
	General Education Health and Wellness	1.5
	15	16.5

Second Year

Fall	Credits Spring	Credits
BIOL 230W (GN) ^{*#}	4 STAT 200 or 250 (GQ)	3-4
BIOL 220W (GN) [*]	4 CHEM 212	3
CHEM 210	3 CHEM 213	2
General Education Course	3 MICRB 201	3
Elective	3 MICRB 202	2
	General Education Course	3
	17	16-17

Third Year

Fall	Credits Spring	Credits
BIOL 422 (or BIOL 400-Level Selection [consult with an academic adviser for options])	3 BIOL 430 (or BIOL 400-Level Selection [consult with an academic adviser for options])	3
PHYS 250 (GN)	4 PHYS 251 (GN)	4
CAS 100A or 100B (GWS)	3 General Education Health and Wellness	1.5
General Education Course	3 ENGL 202C (GWS)	3
Elective	3 BIOL 400-Level Selection (consult with an academic adviser for options)	3
	16	14.5

Fourth Year

Fall	Credits Spring	Credits
BIOL 422 (or BIOL 400-Level Selection [consult with an academic adviser for options])	3 BMB 402	3
BMB 401	3 BIOL 430 (or BIOL 400-Level Selection [consult with an academic adviser for options])	3
General Education Course	3 BIOL 400-Level Selection (consult with an academic adviser for options)	3

Elective	3 General Education	3
Elective	3 Elective	3
	15	15

Total Credits 125-126

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Course Lists

GROUP I - CHOOSE 6 CREDITS FROM THE FOLLOWING COURSES:

- BMB 400 Molecular Biology of the Gene (2-3 cr.)
- BIOL 416 Biology of Cancer (3 cr.)
- BIOL 427 Evolution (3 cr.)
- BIOL 437 Histology (4 cr.)
- BIOL 443 Evo-devo: Evolution of Developmental Mechanisms (3 cr.)
- BIOL 460 Human Genetics (3 cr.)
- BIOL 469 Neurobiology (3 cr.)
- MICRB 410 Principles of Immunology (3 cr.)

GROUP II - CHOOSE 3 CREDITS FROM THE FOLLOWING COURSES:

- BIOL 406 Symbiosis (3 cr.)
- BIOL 427 Evolution (3 cr.)
- BIOL 429 Animal Behavior (3 cr.)
- BIOL 443 Evo-devo: Evolution of Developmental Mechanisms (3 cr.)
- BIOL 460 Human Genetics (3 cr.)
- MICRB 415 General Virology: Bacterial and Animal Viruses (3 cr.)

GROUP III - CHOOSE 3 CREDITS FROM THE FOLLOWING COURSES:

- BIOL 402 (cr.)
- BIOL 437 Histology (4 cr.)
- BIOL 473 Laboratory in Mammalian Physiology (2 cr.)
- BIOL 496 Independent Studies
- BMB 442 Laboratory in Proteins, Nucleic Acids, and Molecular Cloning (3 cr.)

Disallowed Courses

Students may select free elective courses from nearly the entire range of the University's offerings. However, the following courses may NOT be used to satisfy degree requirements in the Biology major, regardless of option, not even as free electives.

ASTRO 001**, 010**, 011**, 120**, 140**

BIOL 011**, 012**

BISC 001, 002, 003**, 004**

BMB 001**

CHEM 001, 002, 006, 101

CMPSC 001, 100, 110

ENGL 004, 005

LL ED 005, 010

MATH 001, 002, 003, 004, 017, 018, 021, 022, 026, 030, 035, 036, 040, 041, 081, 082, 083, 110, 111, 200

MICRB 106, 107, 120, 121A, 121B, 150 151A, 151C,

151D, 151E, 151F, 151W

PHYS 001, 150, 151

CAS 004, 126

STAT 100

In addition, the following types of courses may NOT be used to satisfy degree requirements in the Biology major:

- Courses which are remedial in nature or which focus on reading improvement or study skills. NOTE: Only 3 credits of CHEM 017 and only 4 credits of MATH 140A may be used to satisfy degree requirements.
- Courses which substantially duplicate the subject matter covered in other completed courses taught at a comparable level.
- No more than 6 credits of ROTC and 12 credits of Independent Study (296, 496) may be used to satisfy degree requirements. Unless special permission is granted, Independent Study credit may only be used in the "Free Electives" category.
- No more than 5 credits of KINES may be used to satisfy degree requirements.
- ** On rare occasions, with adequate justification, a student may be permitted to use one or more of these courses to satisfy degree requirements. A petition must be submitted to request such an exception and will be considered on a case-by-case basis.

Vertebrate Physiology Option: Biology, B.S. at Abington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS)	3 BIOL 240W (GN)*	4
MATH 140 or 140B (GQ)**†	4 MATH 141 or 141B (GQ)†	4
BIOL 110 (GN)**†	4 CHEM 112 (GN)**†	3
CHEM 110 (GN)**†	3 CHEM 113 (GN)	1
CHEM 111 (GN)†	1 General Education Course	3
	General Education Health and Wellness	1.5
	15	16.5

Second Year

Fall	Credits Spring	Credits
BIOL 230W (GN)*	4 STAT 200 (GQ)	4
BIOL 220W (GN)*	4 CHEM 212	3
CHEM 210	3 CHEM 213	2
General Education Course	3 General Education Course	3
Elective	3 General Education Course	3
	Elective	3
	17	18

Third Year

Fall	Credits Spring	Credits
BIOL 472	3 BIOL 400-Level Selection (consult with an academic adviser for options)	3
BIOL 473	2 PHYS 251 (GN)	4
PHYS 250 (GN)	4 General Education Health and Wellness	1.5
CAS 100A or 100B (GWS)	3 ENGL 202C (GWS)	3
General Education Course	3 Elective	3
Elective	3	
	18	14.5

Fourth Year

Fall	Credits Spring	Credits
BMB 401	3 BMB 402	3
BIOL 400-Level Selection (consult with an academic adviser for options)	3 BIOL 400-Level Selection (consult with an academic adviser for options)	3
General Education Course	3 General Education Course	3
Elective	3 Elective	3
Elective	3 Elective	3
	15	15

Total Credits 129

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Course Lists

GROUP I - CHOOSE 6 CREDITS FROM THE FOLLOWING COURSES:

BIOL 406 Symbiosis (3 cr.)
 BIOL 409 Biology of Aging (3 cr.)
 BIOL 416 Biology of Cancer (3 cr.)
 BIOL 430 Developmental Biology (3 cr.)
 BIOL 437 Histology (4 cr.)
 BIOL 443 Evo-devo: Evolution of Developmental Mechanisms (3 cr.)
 BIOL 460 Human Genetics (3 cr.)
 BIOL 469 Neurobiology (3 cr.)
 BIOL 479 General Endocrinology (3 cr.)
 MICRB 410 Principles of Immunology (3 cr.)

GROUP II - CHOOSE 3 CREDITS FROM THE FOLLOWING COURSES:

BIOL 406 Symbiosis (3 cr.)
 BIOL 427 Evolution (3 cr.)
 BIOL 429 Animal Behavior (3 cr.)
 BIOL 443 Evo-devo: Evolution of Developmental Mechanisms (3 cr.)
 BIOL 460 Human Genetics (3 cr.)
 MICRB 415 General Virology: Bacterial and Animal Viruses (3 cr.)

GROUP III

BIOL 473 Laboratory in Mammalian Physiology (2 cr.)

Disallowed Courses

Students may select free elective courses from nearly the entire range of the University's offerings. However, the following courses may NOT be used to satisfy degree requirements in the Biology major, regardless of option, not even as free electives.

ASTRO 001**, 010**, 011**, 120**, 140**

BIOL 011**, 012**

BISC 001, 002, 003**, 004**

BMB 001**

CHEM 001, 002, 006, 101

CMPSC 001, 100, 110

ENGL 004, 005

LL ED 005, 010

MATH 001, 002, 003, 004, 017, 018, 021, 022, 026, 030, 035, 036, 040, 041, 081, 082, 083, 110, 111, 200

MICRB 106, 107, 120, 121A, 121B, 150 151A, 151C,

151D, 151E, 151F, 151W

PHYS 001, 150, 151

CAS 004, 126

STAT 100

In addition, the following types of courses may NOT be used to satisfy degree requirements in the Biology major:

- Courses which are remedial in nature or which focus on reading improvement or study skills. NOTE: Only 3 credits of CHEM 017 and only 4 credits of MATH 140A may be used to satisfy degree requirements.
- Courses which substantially duplicate the subject matter covered in other completed courses taught at a comparable level.
- No more than 6 credits of ROTC and 12 credits of Independent Study (296, 496) may be used to satisfy degree requirements. Unless special permission is granted, Independent Study credit may only be used in the "Free Electives" category.
- No more than 5 credits of KINES may be used to satisfy degree requirements.
- ** On rare occasions, with adequate justification, a student may be permitted to use one or more of these courses to satisfy degree requirements. A petition must be submitted to request such an exception and will be considered on a case-by-case basis.

Career Paths

A Biology BS degree provides an excellent foundation and the skills required for a wide range of technical careers. While many majors use a Biology degree to prepare for entrance into health professional schools, others follow career paths in research, education, and business. Students also pursue graduate study at universities both across the U.S. and internationally.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE BIOLOGY PROGRAM (<https://science.psu.edu/bio/undergrad/after-graduation/>)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://science.psu.edu/bio/grad/>)

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<https://www.york.psu.edu/academics/baccalaureate/biology> (<https://www.york.psu.edu/academics/baccalaureate/biology/>)

Business Administration, A.S. (Abington)

Begin Campus: Abington

End Campus: Abington

Program Description

The associate degree program in Business Administration provides an introductory foundation to core aspects of the business environment that prepares graduates for future baccalaureate study in business or for direct entry into the work place. The primary objective of this major is to provide a business-oriented program with sufficient communicative and mathematical skills, socially relevant course work, and specific business specialties to develop a well-rounded and knowledgeable graduate.

Students should work closely with academic advisers to schedule coursework required to transition to baccalaureate business programs.

What is Business Administration?

To be successful in today's increasingly complex business world, you need to have a broad understanding of how business works. The Penn State Associate degree in Business Administration prepares students for a professional career in today's business environment. The degree offers students a managerially-oriented program emphasizing communication and mathematical skills, socially relevant course work, and advanced courses in business. While Penn State's Associate in Science in Business

Administration is an excellent stand-alone credential, it can be used to seamlessly transition to a bachelor's degree such as the Bachelor of Science in Business or other business-related programs at the University.

You Might Like This Program If...

- You want to learn to use the latest technical business tools to perform your job duties effectively.
- You analyze and react to issues facing companies today.
- You collect and analyze data to make inferences and solve business problems.
- You need to execute effective communication strategies.

Entrance to Major

Students must have a minimum 2.0 GPA to change to this Associate degree after admission to the University.

Degree Requirements

For the Associate in Science degree in Business Administration, a minimum of 60 credits is required:

Requirement	Credits
General Education	21
Requirements for the Major	48-50

9 of the 21 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GQ General Education courses and 6 credits of GWS General Education courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
CAS 100	Effective Speech	3
MIS 204	Introduction to Management Information Systems	3
<i>Prescribed Courses: Require a grade of C or better</i>		
ENGL 202D	Effective Writing: Business Writing	3
Additional Courses		
BA 241 & BA 242 or BA 243	Legal Environment of Business and Social and Ethical Environment of Business Social, Legal, and Ethical Environment of Business	4
ECON 102 or ECON 104	Introductory Microeconomic Analysis and Policy Introductory Macroeconomic Analysis and Policy	3
SCM 200 or STAT 200	Introduction to Statistics for Business Elementary Statistics	4
Select one of the following:		3-4
MATH 21	College Algebra with Analytic Geometry with Applications I	
MATH 22	College Algebra With Analytic Geometry and Applications II	
MATH 110	Techniques of Calculus I	

Additional Courses: Require a grade of C or better

ENGL 15	Rhetoric and Composition	3
or ENGL 30H	Honors Rhetoric and Composition	
MGMT 301	Basic Management Concepts	3
or MGMT 301W	Basic Management Concepts	
MKTG 301	Principles of Marketing	3
or MKTG 301W	Principles of Marketing	

Supporting Courses and Related Areas

Select 12-13 credits of the following: 12-13

BA 100	Introduction to Business
BA 250	Small Business Management
BA 364Y	International Business and Society
CAS 250	Small Group Communication
or CAS 252	Business and Professional Communication
CAS 352	Organizational Communication
IB 303	International Business Operations
MATH 22	College Algebra With Analytic Geometry and Applications II
MATH 110	Techniques of Calculus I
ACCTG 300 to ACCTG 399	
ECON 100 to ECON 399	
ENTR 100 to ENTR 399	
FIN 100 to FIN 399	
HPA 100 to HPA 399	
LER 100 to LER 399	
MGMT 100 to MGMT 399	
MKTG 100 to MKTG 399	
MIS 100 to MIS 399	
RM 100 to RM 399	
SCM 200 to SCM 399	

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all associate degree students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 3 credits
- **Writing and Speaking (GWS):** 3 credits

Knowledge Domains

- **Arts (GA):** 3 credits
- **Humanities (GH):** 3 credits

- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Note: Up to six credits of Inter-Domain courses may be used for any Knowledge Domain requirement, but when a course may be used to satisfy more than one requirement, the credits from the course can be counted only once.

Exploration

- **Any General Education course (including GHW and Inter-Domain):** 3 credits

University Degree Requirements

Cultures Requirement

3 credits of United States (US) or International (IL) cultures coursework are required and may satisfy other requirements

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 60 degree credits must be earned for a associates degree. The requirements for some programs may exceed 60 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- Demonstrate the necessary skills and abilities to effectively communicate.
- Apply contemporary tools of information technology to include business software applications.
- Apply leadership, team building, and project management skills.
- Compare, contrast and differentiate the business environment of both their local community and the globalized world economy.
- Demonstrate an awareness of ethical issues, social responsibilities and conflict resolution.
- Utilize and apply fundamental business concepts, principles and contemporary business practices.
- Recognize, analyze and solve business problems using quantitative and qualitative measures.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of

both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Business Administration, A.S. at Abington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H ^{*, †}	3 CAS 100A or 100B [†]	3
MATH 21, 22, or 110 [†]	3-4 BA 243	4
ECON 102 or 104	3 MIS 204	3
General Education Course	3 BA 250, CAS 250, CAS 252, 100, 136, ECON 102, ECON 104, MATH 22, MATH 110, or MKTG 220	3-4
General Education Course	3	
15-16		13-14

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 ENGL 202D [*]	3

MGMT 301 or MKTG 301 [*]	3 MGMT 301 or MKTG 301 [*]	3
BA 250, CAS 250, CAS 252, 100, 136, ECON 102, ECON 104, MATH 22, MATH 110, or MKTG 220	3-4 SCM 200 or STAT 200	4
General Education Course	3 BA 250, CAS 250, CAS 252, 100, 136, ECON 102, ECON 104, MATH 22, MATH 110, or MKTG 220	3-4
General Education Course	3 BA 250, CAS 250, CAS 252, 100, 136, ECON 102, ECON 104, MATH 22, MATH 110, or MKTG 220	3-4
16-17		16-18

Total Credits 60-65

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

Business impacts our society in many ways. Every business, from small companies to large corporations provide employment options. The associate in business degree can help prepare you for a wide variety of entry-level careers in this sector or for continued study in business. You will have the opportunity to participate in an elective business internship as part of your curriculum. Internships provide valuable experience before graduation and an important first step toward starting your career.

Careers

Because the Associate in Science in Business Administration can give you a foundation of business concepts and best practices relevant to any industry, as a graduate of the program you can prepare for positions in accounting departments, management trainee opportunities, retail, insurance industry, industrial management opportunities, office manager, or business service manager. Some examples of jobs include:

- Accounting Specialist
- Accounts Examiner
- Appraisers and assessors of real estate
- Assistant Marketing Director
- Assistant Store Manager
- Billing Clerk
- Business services manager

- Computing business coordinator
- Compliance officers
- Insurance sales agent
- Industrial Salesperson
- Management Trainee
- Office Manager
- Payroll Assistant
- Sales Coordinator

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE BUSINESS ADMINISTRATION PROGRAM (<https://www.bls.gov/careeroutlook/2002/winter/art01.pdf>)

Opportunities for Graduate Studies

Upon completion of the associate degree in business, you may also choose to proceed seamlessly to the bachelor of science in business or selected other business-related majors at Penn State.

Contact

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1600 Woodland Road
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Business, B.S. (Abington)

Begin Campus: Any Penn State Campus

End Campus: Abington

Program Description

The Bachelor of Science in Business (B.S.B.) is a professionally-oriented business degree program that combines the theoretical underpinnings of core business disciplines, notably business analytics, management, marketing, finance, and supply chain management, with applied study in a practical setting. Through the choice of an 18-credit option, students specialize in a key business sector. Students also develop written and oral communication skills throughout the program, acquire contemporary technology skills, and engage in active and collaborative learning. The degree allows students to become familiar with the unique business environments of their local communities, a design that sets the degree apart from other business degrees offered within the University and throughout the Commonwealth.

Accounting Option

Available at the following campuses: Abington, Altoona, Beaver, Berks, Brandywine, DuBois, Fayette, Greater Allegheny, Lehigh Valley, New Kensington, Schuylkill, Scranton, Shenango, Wilkes-Barre, World Campus, York

This option prepares students to pursue careers in business with an emphasis on the areas of financial and managerial accounting, systems and controls, auditing, and taxation.

Business Analytics Option

Available at the following campuses: Abington, Altoona, Beaver, Berks, Brandywine, DuBois, Greater Allegheny, Hazleton, Lehigh Valley, New Kensington, Schuylkill, Scranton, Wilkes-Barre, York

The Business Analytics option prepares students to pursue careers in applying business analytics techniques to implement appropriate decision-making outcomes using data for companies.

Entrepreneurship Option

Available at the following campuses: Altoona, World Campus

This option prepares students to pursue entrepreneurial careers with emphasis on idea generation, opportunity analysis, new product creation, and business plan development.

Financial Services Option

Available at the following campuses: Abington, Altoona, Berks, DuBois, Lehigh Valley, Scranton, World Campus

This option prepares students to pursue careers in financial organizations with emphasis on wealth management, tax planning, risk management, and financial analysis.

Health Services Option

Available at the following campuses: Abington, Lehigh Valley, Schuylkill, World Campus

This option prepares students to pursue careers in the health services sector with emphasis on the financial and administrative aspects of health care enterprises.

Individualized Business Option

Available at the following campuses: Abington, Altoona, Beaver, Berks, Brandywine, DuBois, Fayette, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Shenango, Schuylkill, Scranton, Wilkes-Barre, World Campus, York

This option provides the opportunity for students to pursue an approved business-focused interdisciplinary program of study.

Management and Marketing Option

Available at the following campuses: Abington, Altoona, Beaver, Berks, Brandywine, DuBois, Fayette, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Shenango, Schuylkill, Scranton, Wilkes-Barre, World Campus, York

This option prepares students to pursue careers in business organizations with an emphasis on the skills and knowledge necessary for the business professional to function in community and regional centers of commerce.

What is Business?

Business is a professionally-oriented program providing a broad education and solid grounding of business knowledge. Focusing on practical skills and real-world experience, the program's interdisciplinary perspective provides a versatile base for mobility into all business areas, preparing students for the business world of today and tomorrow. Options provide additional specialization in accounting, entrepreneurship, financial services, health services, management and marketing or the opportunity to develop an individualized plan that fits your career goals.

You Might Like This Program If...

- You want to become a flexible business professional, equipped to adapt to the ever-changing workplace of the future.
- You are interested in an academic challenge with theoretical and practical focus in a competitive yet collaborative learning environment.
- You want transferable skills or you are not sure which business sector you wish to focus.
- You wish to be develop a broad knowledge of business operations.
- You want to develop the skills for working in business.

Entrance To Major

In order to be eligible for entrance to this major, students must complete one of the following courses: MATH 22 or MATH 40 or MATH 41 or MATH 110 or MATH 140.

In addition, students also must satisfy the following requirements:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Business, a minimum of 120 credits is required, 15 of which must be at the 400 level:

Requirement	Credits
General Education	45
Electives	10
Requirements for the Major	80

15 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GQ courses; 6 credits of GS courses; 3 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
<i>Prescribed Courses: Require a grade of C or better</i>		
BA 321	Contemporary Skills for Business Professionals	3
BA 322	Negotiation Skills for Business Professionals	3
BA 420	Preparation for Career Management	1
BA 421	Project Management	3
BA 422W	Strategic Business Planning	3
FIN 301	Corporation Finance	3
IB 303	International Business Operations	3
MGMT 301	Basic Management Concepts	3
MIS 204	Introduction to Management Information Systems	3
MKTG 301	Principles of Marketing	3
SCM 301	Supply Chain Management	3
Additional Courses		
BA 241 & BA 242 or BA 243	Legal Environment of Business and Social and Ethical Environment of Business Social, Legal, and Ethical Environment of Business	4
MATH 110 or MATH 140	Techniques of Calculus I Calculus With Analytic Geometry I	4
<i>Additional Courses: Require a grade of C or better</i>		
BA 495A or BA 495B	Business Internship Undergraduate Research in Business	3-6

ENGL 15	Rhetoric and Composition	3
or ENGL 30H	Honors Rhetoric and Composition	
SCM 200	Introduction to Statistics for Business	4
or STAT 200	Elementary Statistics	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 0-3 credits from 400-level business courses from: ACCTG, BA, 0-3 ECON, ENTR, FIN, FINSV, HPA, IB, MGMT, MIS, MKTG, RM, or SCM

Requirements for the Option

Requirements for the Option: Require a grade of C or better

Select an option 18

Requirements for the Option**Accounting Option (18 credits)**

Available at the following campuses: Abington, Altoona, Beaver, Berks, Brandywine, DuBois, Fayette, Greater Allegheny, Lehigh Valley, New Kensington, Schuylkill, Scranton, Shenango, Wilkes-Barre, World Campus, York

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ACCTG 404	Managerial Accounting: Economic Perspective	3
ACCTG 405	Principles of Taxation I	3
ACCTG 471	Intermediate Financial Accounting I	3
ACCTG 472	Intermediate Financial Accounting II	3

Additional Courses

Additional Courses: Require a grade of C or better

ACCTG 403	Auditing	3
	or ACCTG 403WAuditing	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 3 credits of 400-level courses from: ACCTG, BA, ECON, ENTR, FIN, FINSV, HPA, IB, MGMT, MIS, MKTG, RM, or SCM 3

Business Analytics Option (18 Credits)

Available at the following campuses: Abington, Altoona, Beaver, Berks, Brandywine, DuBois, Greater Allegheny, Hazleton, Lehigh Valley, New Kensington, Schuylkill, Scranton, Wilkes-Barre, York

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
MIS 301	Business Analytics	3
MIS 345	Introduction to Data Analytics	3
MIS 431	Business Data Management	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 9 credits from the following:		9
COMM/IST 310	Digital Media Metrics	
ECON 481	Business Forecasting Techniques	
MIS 336	Database Management Systems	
MIS 404	Introduction to ERP and Business Processes	
MIS 415	Social Media Management and Analytics	
MIS 441	Business Intelligence for Decision Making	

MIS 445	Business Intelligence
MKTG 342	Marketing Research
MKTG 343	Introduction to Marketing Analytics
MKTG 473	Digital Marketing
MKTG 474	Marketing Analytics
MKTG 480	Intermediate Social Media Marketing
SCM 340	Introduction to Supply Chain Analytics

Entrepreneurship Option (18 credits)

Available at the following campuses: Altoona, World Campus

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ENTR 300	Principles of Entrepreneurship	3
ENTR 320	Entrepreneurship and New Venture Creation	3
ENTR 400	Financing Entrepreneurial Ventures	3

Additional Courses

Additional Courses: Require a grade of C or better

CAS 352	Organizational Communication	0-3
	or ENGL 419 Advanced Business Writing	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 6 to 9 credits of 400-level ENTR courses in consultation with your adviser 6-9

Financial Services Option (18 credits)

Available at the following campuses: Abington, Altoona, Berks, DuBois, Lehigh Valley, Scranton, World Campus

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ACCTG 405	Principles of Taxation I	3
FIN 420	Investment and Portfolio Analysis	3

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 12 credits in 300 or 400-level (with at least 3 credits at the 400-level) from ACCTG, FIN, FINSV or RM 12

Health Services Option (18 credits)

Available at the following campuses: Abington, Lehigh Valley, Schuylkill, World Campus

Minimum 6 credits at the 400-level.

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
HPA 101	Introduction to Health Services Organization	3
HPA 332	Health Systems Management	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 0-3 credits of the following:		0-3
BBH/AFAM 302	Diversity and Health	
CAS 352	Organizational Communication	

CAS 404	Conflict Resolution and Negotiation
ENGL 416	Science Writing
ENGL 419	Advanced Business Writing
LER 424	Employment Compensation
LHR/WMNST 472	Work-Life Practices and Policies
PSYCH 281	Introduction to Industrial-Organizational Psychology
PSYCH 484	Work Attitudes and Motivation
PSYCH 485	Leadership in Work Settings

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 3-9 credits from 300 or 400-level HPA courses	3-9
Select 0-6 credits of 300-400-level courses from ACCTG, BA, ECON, ENTR, FIN, FINSV, HPA, IB, MGMT, MKTG, MIS, RM or SCM	0-6

Individualized Business Option (18 credits)

Available at the following campuses: Abington, Altoona, Beaver, Berks, Brandywine, DuBois, Fayette, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Shenango, Schuylkill, Scranton, Wilkes-Barre, World Campus, York

Select 18 credits of study (with at least 3 credits at the 400-level) as submitted by the student and approved by the campus BSB Program Coordinator.

Management and Marketing Option (18 credits)

Available at the following campuses: Abington, Altoona, Beaver, Berks, Brandywine, DuBois, Fayette, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Shenango, Schuylkill, Scranton, Wilkes-Barre, World Campus, York

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select one of the following:		0-6
0-6 credits from BA 250, ENGL 419, MKTG 220		
CAS 250	Small Group Communication	
CAS 252	Business and Professional Communication	
CAS 352	Organizational Communication	
CAS 404	Conflict Resolution and Negotiation	

Supporting Courses and Related Areas ¹

Supporting Courses and Related Areas: Require a grade of C or better

Select 3 credits from 300 or 400-level MGMT courses	3
Select 3 credits from 300 or 400-level MKTG courses	3
Select 6-12 additional credits in 300 or 400-level courses from MGMT6-12 or MKTG courses	

¹ A minimum of 3 credits of supporting courses must be selected at the 400-level.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate

students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- Demonstrate the necessary skills and abilities to effectively communicate.
- Apply contemporary tools of information technology to include business software applications.
- Apply leadership, team building, and project management skills.
- Compare, contrast and differentiate the business environment of both their local community and the globalized world economy.
- Demonstrate an awareness of ethical issues, social responsibilities and conflict resolution.
- Utilize and apply fundamental business concepts, principles and contemporary business practices.
- Recognize, analyze and solve business problems using quantitative and qualitative measures.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Accounting Option: Business, B.S. at Abington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H	3 CAS 100A or 100B	3
MATH 22 ^{#1}	3 ECON 104 [†]	3
General Education Course	3 MATH 110 or 140 [†]	4
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
15		16

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 SCM 200 or STAT 200 [†]	4
ECON 102 [†]	3 MIS 204	3
BA 243	4 ENGL 202D	3
General Education Course	3 Elective (US Cultures)	3
General Education Course	3 General Education Course	3
17		16

Third Year

Fall	Credits Spring	Credits
BA 321 [*]	3 IB 303 (IL Cultures) [*]	3
MGMT 301 [*]	3 FIN 301 [*]	3
ACCTG 471 [*]	3 SCM 301 [*]	3
MKTG 301 [*]	3 ACCTG 472 [*]	3
ACCTG 405 [*]	3 BA 322 [*]	3
15		15

Fourth Year

Fall	Credits Spring	Credits
BA 420 [*]	1 BA 422W [*]	3
BA 421 [*]	3 BA 495A ^{*3}	3
ACCTG 403 [*]	3 400 Level Business Course ^{*2}	3

400 Level Business Course ^{*2}	3 Elective	3
ACCTG 404 [*]	3	
Elective	3	
	16	12

Total Credits 122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ Or appropriate MATH course based on ALEKS math assessment.

² Business Courses: ACCTG, BA, ECON, ENTR, HPA, IB, MGMT, MIS, MKTG, RM, SCM in consultation with adviser.

³ Internship may be waived and 3 credits of 400 level Business substituted for adult learners employed in the field.

Minimum of 120 credits required for graduation; 15 credits must be at the 400-level.

Students wishing to complete Pennsylvania State Board of Accountancy Requirements for CPA certification are recommended to use elective credits to meet the additional 30 hours of academic credit by taking the following courses: ACCTG 431, ACCTG 432, ACCTG 461, ACCTG 473, ACCTG 483, ACCTG 497.

Business Analytics Option: Business, B.S. at Abington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H	3 CAS 100A or 100B	3
MATH 22 ^{#1}	3 ECON 104 [†]	3
General Education Course	3 MATH 110 or 140 [†]	4
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
15		16

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 SCM 200 or STAT 200 [†]	4
ECON 102 [†]	3 MIS 204	3
BA 243	4 ENGL 202D	3
General Education Course	3 Elective (US Cultures)	3
General Education Course	3 General Education Course	3
17		16

Third Year

Fall	Credits Spring	Credits
BA 321 [*]	3 BA 322 [*]	3
MGMT 301	3 IB 303 [*]	3
MIS 345 [*]	3 Supporting Data Analytics Course Elective (300 or 400 level with proper prerequisites) [*]	3
SCM 301 [*]	3 MIS 301 [*]	3
MKTG 301	3 FIN 301	3
15		15

Fourth Year

Fall	Credits Spring	Credits
BA 420 [*]	1 BA 422W [*]	3
BA 421 [*]	3 BA 495A or 495B [*]	3
MIS 431 [*]	3 Supporting Data Analytics Course Elective (300 or 400 level with proper prerequisites) [*]	3
Supporting Data Analytics Course Elective (300 or 400 level with proper prerequisites) [*]	3 Elective	3
400-Level Business Course [*]	3	
Elective	3	
16		12

Total Credits 122

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Or appropriate MATH course based on ALEKS math assessment.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- Supporting Data Analytics courses (9 Credits)
 - Select 9 credits from the following list: ECON 481 or COMM 310/IST 310 or MIS 336 or MIS 404 or MIS 415 or MIS 441 or MIS 445 or MKTG 342 or MKTG 343 or MKTG 473 or MKTG 474 or MKTG 480 or SCM 340

* Course requires a grade of C or better for the major

Financial Services Option: Business, B.S. at Abington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H	3 CAS 100A or 100B	3
MATH 22 ^{#1}	3 ECON 104 [†]	3
General Education Course	3 MATH 110 or 140 [†]	4
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
15		16

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 SCM 200 or STAT 200 [†]	4
ECON 102 [†]	3 MIS 204	3
BA 243	4 ENGL 202D	3
General Education Course	3 Elective (US Cultures)	3
General Education Course	3 General Education Course	3
17		16

Third Year

Fall	Credits Spring	Credits
BA 321 [*]	3 Elective	3
MGMT 301 [*]	3 BA 322 [*]	3
SCM 301 [*]	3 IB 303 (IL Cultures) [*]	3
MKTG 301 [*]	3 ACCTG 405 [*]	3
FIN 301 [*]	3 300-400 Level ACCTG, FIN, FINSV or RM Course ^{*2}	3
15		15

Fourth Year

Fall	Credits Spring	Credits
BA 420 [*]	1 BA 422W [*]	3
BA 421 [*]	3 BA 495A or 495B ^{*3}	3
FIN 420 [*]	3 300-400 Level ACCTG, FIN, FINSV or RM Course ^{*2}	3
400 Level Business Course ^{*4}	3 400 Level ACCTG, FIN, FINSV or RM Course ^{*2}	3
300-400 Level ACCTG, FIN, FINSV or RM Course ^{*2}	3 Elective	3
13		15

Total Credits 122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ Or appropriate MATH course based on ALEKS math assessment.

² In consultation with adviser.

³ Internship may be waived and 3 credits of 400 level Business substituted for adult learners employed in the field.

⁴ 400 Level Business Courses: ACCTG, BA, ECON, ENTR, FIN, FINSV, HPA, IB, MGMT, MIS, MKTG, RM, or SCM in consultation with adviser.

Minimum of 120 credits required for graduation; 15 credits must be at the 400-level.

Health Services Option: Business, B.S. at Abington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H	3 CAS 100A or 100B	3
MATH 22 ^{#1}	3 ECON 104 [†]	3
General Education Course	3 MATH 110 or 140 [†]	4
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
15		16

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 SCM 200 or STAT 200 [†]	4
ECON 102 [†]	3 MIS 204	3
BA 243	4 ENGL 202D	3
General Education Course	3 Elective (US Cultures)	3
General Education Course	3 General Education Course	3
17		16

Third Year

Fall	Credits Spring	Credits
BA 321 [*]	3 BA 322 [*]	3
MGMT 301 [*]	3 FIN 301 [*]	3
HPA 101 [*]	3 IB 303 (IL Cultures) [*]	3
MKTG 301 [*]	3 SCM 301 [*]	3
Elective	3 HPA 332 [*]	3
15		15

Fourth Year

Fall	Credits Spring	Credits
BA 420 [*]	1 BA 422W [*]	3
BA 421 [*]	3 BA 495A or 495B ^{*3}	3
300-400 Level HPA Course ^{*5}	3 300-400 Level Business Course ^{*2,5}	3
300-400 Level HPA Course ^{*5}	3 300-400 Level Business Course or Additional Option Course ^{*2,4,5}	3
400 Level Business Course ^{*2}	3 Elective	3
13		15

Total Credits 122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ Or appropriate MATH course based on ALEKS math assessment.

² Business Courses: ACCTG, BA, ECON, ENTR, HPA, IB, MGMT, MIS, MKTG, RM, SCM in consultation with adviser.

³ Internship may be waived and 3 credits of 400 level Business substituted for adult learners employed in the field.

⁴ Additional Option Course (only one course from this list can be taken toward this requirement): BBH 302, CAS 352, CAS 404, ENGL 416, ENGL 419, LER 424, LER 472, PSYCH 281, PSYCH 481, PSYCH 485 in consultation with adviser.

⁵ Of the 12 credits of 300-400 Level HPA Courses, 300-400 Level Business Courses, and Additional Option Course, 6 credits must be at the 400 level.

Minimum of 120 credits required for graduation; 15 credits must be at the 400-level.

University Requirements and General Education Notes:

Management and Marketing Option: Business, B.S. at Abington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H	3 CAS 100A or 100B	3
MATH 22 ^{#1}	3 ECON 104 [†]	3
General Education Course	3 MATH 110 or 140 [†]	4
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
15		16

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 SCM 200 or STAT 200 [†]	4
ECON 102 [†]	3 MIS 204	3
BA 243	4 ENGL 202D	3
General Education Course	3 Elective (US Cultures)	3
General Education Course	3 General Education Course	3
17		16

Third Year

Fall	Credits Spring	Credits
BA 321 [*]	3 BA 322 [*]	3
MGMT 301 [*]	3 FIN 301 [*]	3
SCM 301 [*]	3 IB 303 (IL Cultures) [*]	3
MKTG 301 [*]	3 300-400 Level MKTG Course [*]	3
300-400 Level MGMT or MKTG Course or Business and Communications Selection ^{*4}	3 300-400 Level MGMT Course [*]	3
15		15

Fourth Year

Fall	Credits Spring	Credits
BA 420 [*]	1 BA 422W [*]	3
BA 421 [*]	3 BA 495A or 495B ^{*3}	3
300-400 Level MGMT or MKTG Course [*]	3 400 Level MGMT or MKTG Course [*]	3
300-400 Level MGMT or MKTG Course or Business and Communications Selection ^{*4}	3 Elective	3
400 Level Business Course ^{*2}	3	
Elective	3	
16		12

Total Credits 122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ Or appropriate MATH course based on ALEKS math assessment.

² Business Courses: ACCTG, BA, ECON, ENTR, HPA, IB, MGMT, MIS, MKTG, RM, SCM in consultation with adviser.

³ Internship may be waived and 3 credits of 400 level Business substituted for adult learners employed in the field.

⁴ Business and Communications Selections: BA 250, CAS 250, CAS 252, CAS 352, CAS 404, ENGL 419, MKTG 220 in consultation with adviser. Only one course from CAS 250, CAS 252, CAS 352, or CAS 404 can be taken for this requirement.

Minimum of 120 credits required for graduation, 15 at the 400-level.

Individualized Option: Business, B.S. at Abington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H	3 CAS 100A or 100B	3
MATH 22 ^{#1}	3 ECON 104 [†]	3
General Education Course	3 MATH 110 or 140 [†]	4
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
15		16

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 SCM 200 or STAT 200 [†]	4
ECON 102 [†]	3 MIS 204	3
BA 243	4 ENGL 202D	3
General Education Course	3 Elective (US Cultures)	3
General Education Course	3 General Education Course	3
17		16

Third Year

Fall	Credits Spring	Credits
BA 321 [*]	3 BA 322 [*]	3
MGMT 301 [*]	3 FIN 301 [*]	3
SCM 301 [*]	3 IB 303 (IL Cultures) [*]	3
MKTG 301 [*]	3 200-400 Level Business Course related to individual plan of study ^{*4}	3
400 Level Business Course ^{*2}	3 200-400 Level Business Course related to individual plan of study ^{*4}	3
15		15

Fourth Year

Fall	Credits Spring	Credits
BA 420 [*]	1 BA 422W [*]	3
BA 421 [*]	3 BA 495A or 495B ^{*3}	3
300-400 Level Business Course related to individual plan of study ^{*4}	3 400 Level Business Course related to individual plan of study ^{*4}	3
300-400 Level Business Course related to individual plan of study ^{*4}	3 300-400 Level Business Course related to individual plan of study ^{*4}	3
Elective	3 Elective	3
13		15

Total Credits 122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ Or appropriate MATH course based on ALEKS math assessment.

² Business Courses: ACCTG, BA, ECON, ENTR, HPA, IB, MGMT, MIS, MKTG, RM, SCM in consultation with adviser.

³ Internship may be waived and 3 credits of 400 level Business substituted for adult learners employed in the field.

⁴ Business Course related to individual plan of study. Students must obtain approval from their academic adviser and the Division Head of Social Sciences prior to completion of this course.

Minimum of 120 credits required for graduation, 15 at the 400-level.

Career Paths

In today's economic environment, the Bachelor of Science in Business allows companies to hire individuals who have a broad knowledge of all aspects of business. This broad knowledge give you the opportunity to be effective within many different types of organizations. You will also be well-positioned to pursue admission to graduate programs.

Careers

With a degree in business, you may specialize through options that may vary by campus. With an accounting option, you can work in the areas of financial and managerial accounting, systems and controls, taxation, and auditing. The entrepreneurship option provides the skills for you to start your own business or to work as an entrepreneur within a company. Health services provides the financial and administrative skills and knowledge necessary for you to become a health services managers. With an option in financial services you might pursue positions in wealth and risk management, estate planning or financial and retirement planning. With the management and marketing option you will be prepared for a career in retail management, small business management or in marketing, advertising and promotion. Finally, with an individualized option, you have flexibility to build specialized skills for your personal business career goals.

Opportunities for Graduate Studies

A baccalaureate degree in Business can lead to a Master's degree in Business (MBA) or other business-related masters degrees. MBA programs are offered at Penn State Great Valley, Penn State Erie, Penn State Harrisburg, Penn State Berks, Smeal College of Business and through the World Campus.

Contact

Abington

DIVISION OF SOCIAL SCIENCES

1600 Woodland Rd.

Abington, PA 19001

215-421-0030

tws16@psu.edu

<https://www.abington.psu.edu/academics/majors-at-abington> (<https://www.abington.psu.edu/academics/majors-at-abington/>)

Altoona

DIVISION OF BUSINESS, ENGINEERING, AND INFORMATION SCIENCES
AND TECHNOLOGY

Penn Building, 223

3000 Ivyside Park

Altoona, PA 16601

814-949-5265

dxh41@psu.edu

<https://altoona.psu.edu/academics/bachelors-degrees/business>
(<https://altoona.psu.edu/academics/bachelors-degrees/business/>)

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100 University Drive

Monaca, PA 15061

724-773-3892

tdh13@psu.edu

<https://beaver.psu.edu/academics/majors/business-accounting> (<https://beaver.psu.edu/academics/majors/business-accounting/>)

<https://beaver.psu.edu/academics/majors/business-management>
(<https://beaver.psu.edu/academics/majors/business-management/>)

Berks

EBC DIVISION

Gaige Building

Reading, PA 19610

610-396-6346

BKBusiness@psu.edu

<https://berks.psu.edu/academics/baccalaureate-degrees/bs-business>
(<https://berks.psu.edu/academics/baccalaureate-degrees/bs-business/>)

Brandywine

Tomezsko 207J

25 Yearsley Mill Rd.

Media, PA 19063

jvs11@psu.edu

<https://www.brandywine.psu.edu/academics/bachelors-degrees/business>
(<https://www.brandywine.psu.edu/academics/bachelors-degrees/business/>)

DuBois

171 Smeal Building

DuBois, PA 15801

814-375-4800

lhp5@psu.edu

<https://dubois.psu.edu/academics/degrees/business> (<https://dubois.psu.edu/academics/degrees/business/>)

Fayette

2201 University Drive

Lemont Furnace, PA

724-430-4245

<https://fayette.psu.edu/academics/baccalaureate/bachelor-science-business>
(<https://fayette.psu.edu/academics/baccalaureate/bachelor-science-business/>)

Greater Allegheny

4000 University Drive

McKeesport, PA 15132

412-675-9055

yzb1@psu.edu

<https://greaterallegheny.psu.edu/academics/degree-programs/business>
(<https://greaterallegheny.psu.edu/academics/degree-programs/business/>)

Hazleton

301A Schiavo Hall

Hazleton, PA 18202

570-450-3533

skr12@psu.edu

<https://hazleton.psu.edu/bachelors-science-business> (<https://hazleton.psu.edu/bachelors-science-business/>)

Lehigh Valley

2809 Saucon Valley Road

Center Valley, PA 18034

610-285-5117

maungkmin@psu.edu

<https://lehighvalley.psu.edu/academics/degrees/business> (<https://lehighvalley.psu.edu/academics/degrees/business/>)

Mont Alto

205 General Studies Building

Mont Alto, PA 17237

717-749-6027

hhh10@psu.edu

<https://montalto.psu.edu/academics/bachelors/business-degree>
(<https://montalto.psu.edu/academics/bachelors/business-degree/>)

New Kensington

111 Administration Bldg.

3550 Seventh Street Road

New Kensington, PA 15068

724-334-6727

sxe5211@psu.edu

<https://newkensington.psu.edu/academics/academics/4-year-business>
(<https://newkensington.psu.edu/academics/academics/4-year-business/>)

Schuylkill

ACADEMIC AFFAIRS

200 University Drive

Schuylkill Haven, PA 17972
570-385-6080
amb536@psu.edu

<https://schuylkill.psu.edu/academics/bacc-degrees/business> (<https://schuylkill.psu.edu/academics/bacc-degrees/business/>)

Scranton

117 Business Building
Dunmore, PA 18512
570-963-2643
jmw831@psu.edu

<https://scranton.psu.edu/academics/degrees/bachelors/business-degree> (<https://scranton.psu.edu/academics/degrees/bachelors/business-degree/>)

Shenango

147 Shenango Ave.
309C Sharon Hall
Sharon, PA 16146
724-983-2942
gxm32@psu.edu

<https://shenango.psu.edu/academics/degrees/business-accounting> (<https://shenango.psu.edu/academics/degrees/business-accounting/>)

Wilkes-Barre

44 University Drive
Dallas, PA 18612
570-675-9293
tmc12@psu.edu

<https://wilkesbarre.psu.edu/academics/business> (<https://wilkesbarre.psu.edu/academics/business/>)

World Campus

UNDERGRADUATE ACADEMIC ADVISING
225 Outreach Building
University Park, PA 16802
814-863-3283
advising@worldcampus.psu.edu

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-business-bachelor-of-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-business-bachelor-of-science-degree/>)

York

1031 Edgecomb Ave.
York, PA 17403
717-718-6785
mal489@psu.edu

<https://www.york.psu.edu/academics/baccalaureate/business> (<https://www.york.psu.edu/academics/baccalaureate/business/>)

Chemical Dependency Prevention and Counseling, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

The Certificate in Chemical Dependency Prevention and Counseling introduces students to basic concepts related to chemical dependency, its prevention and treatment, and helping those with problems associated with chemical dependency. The certificate provides students with the academic background to understand content, models, theories, and research relevant to working with chemically dependent persons and their families.

What is Chemical Dependency Prevention and Counseling?

Chemical Dependency Prevention and Counseling focuses on evidence-based practices used in the prevention of substance use disorders and intervention of individuals and families impacted by substance use disorders.

You Might Like This Program If...

- You find it meaningful to work with individuals and families impacted by substance abuse and addiction.
- You aspire to help people enhance their physical and mental wellbeing.
- You value working in settings that focus on holistic approaches to counseling and recovery.

Program Requirements

To earn an undergraduate certificate in Chemical Dependency Prevention and Counseling, a minimum of 18 credits is required.

Code	Title	Credits
Required Courses		
BBH 143	Drugs, Behavior, and Health	3
CNED 401	Foundations of Chemical Dependency Counseling	3
CNED 404	Group Procedures in Guidance and Counseling	3
or RHS 303	Group Work in Rehabilitation Practice and Human Services	
HLHED 443	Alcohol and Drug Education	3
or CNED 421	Counseling Strategies for Preventing Chemical Dependency	
RHS 301	Introduction to Counseling as a Profession	3
or HDFS 414	Resolving Human Development and Family Problems	
Select one of the following:		3
CNED 416	Interpersonal Relationships and Alcohol and Other Drugs (AOD) Dependency	
CNED 420	Chemical Dependency: Youth at Risk	
CNED 423	Student Assistance Programs	

Non-Course Requirements

Courses required for the certificate in Chemical Dependency Prevention and Counseling have prerequisites in counselor education, psychology, sociology, or individual and family studies.

Certificate Learning Objectives

- **Counseling Theories, Techniques, and Skills:** Students will develop a rudimentary understanding of the counseling theories and skills that are often used in human service and rehabilitation practices (including the treatment of substance use disorders).
- **Ethics:** Students will develop an understanding of the professional guidelines, ethical practices, and multicultural considerations associated with treating chemical dependency.
- **Foundations:** Students will develop a broad understanding of the overview of diagnosis, assessment, counseling, and recovery within the context of chemical dependency treatment.
- **Group Counseling Theory and Skills:** Students will learn the essential elements and demonstrate the associated skills for facilitating groups sessions and various team-building activities utilized within the rehabilitation and human services field (including the treatment of substance use disorders).
- **Knowledge of Substances and Effects:** Students will develop a fundamental understanding of the physiological effects of recreational and therapeutic drugs along with the impact of substance use and abuse on the health and well-being of 1) the individual (and the underlying reasons for drug misuse) as well as the impact on 2) family members (and other interpersonal relationships), and 3) society as a whole.
- **Prevention:** Students will develop a comprehensive understanding of the helping professional's role in primary and secondary prevention of substance abuse and related problems, such as delinquency, suicide, health issues, and pregnancy.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Abington

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Lehigh Valley

Teri Kistler

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Career Paths

This program prepares you to work in diverse settings and a variety of fields involved in the prevention and treatment of substance use disorders including criminal justice systems, educational institutions, government entities, medical settings, and human service agencies.

Careers

Substance abuse counselor and case manager positions are common in the following locations: rehabilitation facilities, correctional institutions, state and local government agencies, schools and after-school programs, community mental health and substance abuse centers, hospitals, residential facilities for youth, and medication-assisted treatment centers.

Contact

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Computer Science, B.S. (Abington)

Begin Campus: Any Penn State Campus

End Campus: Abington

Program Description

This program is designed to prepare students for employment as computer scientists in engineering, scientific, industrial, and business environments as software developers, programmers, and systems analysts. While most students will enter the job market directly upon graduation, graduate school in computer science or related areas is also an option. Selection of electives can be tailored for students pursuing this path.

The Computer Science major provides a solid foundation in the areas of systems programming, algorithm design, artificial intelligence, and engineering large software systems using state-of-the-art methodologies and programming languages.

Students may expect to: develop a solid foundation in mathematical studies relevant to computer science; master skills in computer science; enjoy possibilities for internships and part-time employment with local

companies; and become problem solvers. These goals are consistent with the goals outlined by the Association of Computing Machinery.

What is Computer Science?

Computer science is the study of computational methods, including their principles and foundations, their efficient implementation, their analyses, and their practical application in wide-ranging areas. It includes the foundations of software development, computational problem solving, the principles of system software, and the fundamental principles and limits of computing. It is much more than just programming. It includes the mathematical foundations that support analyzing, evaluating, and proving the correctness of computational solutions. It includes specializations such as artificial intelligence, machine learning, cybersecurity, data mining, high-performance computing, computer networks, computer graphics, computer vision, quantum computing, and others. It is continually evolving with the development of new and faster forms of computation and with the identification of new problems that require computational solutions.

You Might Like This Program If...

- You have an interest or aptitude in math.
- You enjoy solving problems and you are good at analytical thinking.
- You are interested in finding more efficient solutions to problems. Remember, computer science is more than just programming.

Entrance to Major

Entry to the Computer Science General Option requires that the student has earned a C or better in the following courses:

- MATH 140
- MATH 141
- CMPSC 121 or CMPSC 131
- CMPSC 122 or CMPSC 132.

A 2.00 or higher cumulative grade-point average is required.

Entry to the Computer Science Data Science Option requires that the student has earned a C or better in the following courses:

- MATH 140
- MATH 141
- CMPSC 131
- CMPSC 132

A 2.00 or higher cumulative grade-point average is required.

Degree Requirements

For the Bachelor of Science degree in Computer Science, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	88

13 of the 45 credits for General Education are included in Requirements for the Major. This includes: 3 credits of GWS courses, 6 credits of GQ courses, and 4 credits of GN courses.

First-Year Seminar: Incoming first-year students are required to complete a course with the suffix S, T, or X, or the PSU abbreviation.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
CMPSC 312	Computer Organization and Architecture ¹	3
CMPSC 430	Database Design ¹	3
CMPSC 460	Principles of Programming Languages ¹	3
CMPSC 462	Data Structures ¹	3
CMPSC 463	Design and Analysis of Algorithms ¹	3
CMPSC 469	Formal Languages with Applications ¹	3
CMPSC 472	Operating System Concepts ¹	3
CMPSC 487W	Software Engineering and Design ¹	3
CMPSC 488	Computer Science Project ¹	3
MATH 220	Matrices	2
PHYS 211	General Physics: Mechanics	4
<i>Prescribed Courses: Require a grade of C or better</i>		
CMPSC 330	Advanced Programming in C++	3
CMPSC 360	Discrete Mathematics for Computer Science ¹	3
ENGL 202C	Effective Writing: Technical Writing	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
Additional Courses		
STAT/MATH 318	Elementary Probability	3
or STAT/ MATH 414	Introduction to Probability Theory	
Requirements for the Option		
Select an option		35

¹ Students must earn a 2.5 or higher grade point average in the following courses:

- For the General Option: CMPSC 221, CMPSC 312, CMPSC 360, CMPSC 430, CMPSC 460, CMPSC 462, CMPSC 463, CMPSC 469, CMPSC 470, CMPSC 472, CMPSC 487W, and CMPSC 488
- For the Data Science Option: DS 220, CMPSC 312, CMPSC 360, CMPSC 430, CMPSC 445, CMPSC 446, CMPSC 460, CMPSC 462, CMPSC 463, CMPSC 469, CMPSC 472, CMPSC 487W, and CMPSC 488

Requirements for the Option Data Science Option (35 credits)

Available at the following campuses: Abington, Harrisburg

Code	Title	Credits
Prescribed Courses		
CMPSC 441	Artificial Intelligence	3
CMPSC 445	Applied Machine Learning in Data Science ¹	3
CMPSC 446	Data Mining ¹	3
DS 220	Data Management for Data Sciences ¹	3
STAT 401	Experimental Methods	3

STAT 462	Applied Regression Analysis	3
<i>Prescribed Courses: Require a grade of C or better</i>		
CMPSC 131	Programming and Computation I: Fundamentals	3
CMPSC 132	Programming and Computation II: Data Structures	3
Additional Courses		
Select at least 6 credits from the following:		6
CMPSC 313	Assembly Language Programming	
CMPSC 412	Data Structures Lab	
CMPSC 413	Algorithms Lab	
CMPSC 414	Contest Programming	
CMPSC 421	Net-centric Computing	
CMPSC 438	Computer Network Architecture and Programming	
CMPSC 444	Secure Programming	
CMPSC/MATH 455	Introduction to Numerical Analysis I	
CMPSC 457	Computer Graphics Algorithms	
CMPSC 470	Compiler Construction	
CMPSC 475	Applications Programming	
CMPSC 496	Independent Studies	
CMPSC 497	Special Topics	
MATH 401	Introduction to Analysis I	
MATH 410	Complex Analysis for Mathematics and Engineering	
MATH 411	Ordinary Differential Equations	
MATH 412	Fourier Series and Partial Differential Equations	
MATH 425	Introduction to Operations Research	
MATH 430	Linear Algebra and Discrete Models I	
MATH 435	Basic Abstract Algebra	
MATH 448	Mathematics of Finance	
MATH 465	Number Theory	
MATH 468	Mathematical Coding Theory	
MATH 485	Graph Theory	
MATH 496	Independent Studies	
MATH 497	Special Topics	
STAT/MATH 415	Introduction to Mathematical Statistics	
STAT 463	Applied Time Series Analysis	

Supporting Courses and Related Areas

Select 5 credits of unrestricted electives at 100-400 level 5

¹ Students must earn a 2.5 or higher grade point average in the following courses:

- For the General Option: CMPSC 221, CMPSC 312, CMPSC 360, CMPSC 430, CMPSC 460, CMPSC 462, CMPSC 463, CMPSC 469, CMPSC 470, CMPSC 472, CMPSC 487W, and CMPSC 488
- For the Data Science Option: DS 220, CMPSC 312, CMPSC 360, CMPSC 430, CMPSC 445, CMPSC 446, CMPSC 460, CMPSC 462, CMPSC 463, CMPSC 469, CMPSC 472, CMPSC 487W, and CMPSC 488

General Option (35 credits)

Available at the following campuses: Abington, Harrisburg

Code	Title	Credits
Prescribed Courses		
CMPSC 221	Object Oriented Programming with Web-Based Applications ¹	3
CMPSC 470	Compiler Construction ¹	3
Additional Courses		
Select 9 credits from the following:		9
CMPSC 313	Assembly Language Programming	
CMPSC 412	Data Structures Lab	
CMPSC 413	Algorithms Lab	
CMPSC 414	Contest Programming	
CMPSC 421	Net-centric Computing	
CMPSC 438	Computer Network Architecture and Programming	
CMPSC 441	Artificial Intelligence	
CMPSC 444	Secure Programming	
CMPSC 445	Applied Machine Learning in Data Science	
CMPSC 446	Data Mining	
CMPSC/MATH 455	Introduction to Numerical Analysis I	
CMPSC 457	Computer Graphics Algorithms	
CMPSC 475	Applications Programming	
CMPSC 496	Independent Studies	
CMPSC 497	Special Topics	
MATH 425	Introduction to Operations Research	
MATH 485	Graph Theory	
Select 6 credits from the following:		6
CMPSC 313	Assembly Language Programming	
CMPSC 412	Data Structures Lab	
CMPSC 413	Algorithms Lab	
CMPSC 414	Contest Programming	
CMPSC 421	Net-centric Computing	
CMPSC 438	Computer Network Architecture and Programming	
CMPSC 441	Artificial Intelligence	
CMPSC 444	Secure Programming	
CMPSC 445	Applied Machine Learning in Data Science	
CMPSC 446	Data Mining	
CMPSC/MATH 455	Introduction to Numerical Analysis I	
CMPSC 457	Computer Graphics Algorithms	
CMPSC 475	Applications Programming	
CMPSC 496	Independent Studies	
CMPSC 497	Special Topics	
MATH 401	Introduction to Analysis I	
MATH 410	Complex Analysis for Mathematics and Engineering	
MATH 411	Ordinary Differential Equations	
MATH 412	Fourier Series and Partial Differential Equations	
MATH 425	Introduction to Operations Research	
MATH 430	Linear Algebra and Discrete Models I	
MATH 435	Basic Abstract Algebra	
MATH 448	Mathematics of Finance	
MATH 465	Number Theory	
MATH 468	Mathematical Coding Theory	

MATH 485	Graph Theory	
MATH 496	Independent Studies	
MATH 497	Special Topics	
STAT 401	Experimental Methods	
STAT/MATH 415	Introduction to Mathematical Statistics	
STAT 462	Applied Regression Analysis	
STAT 463	Applied Time Series Analysis	
<i>Additional Courses: Require a grade of C or better</i>		
CMPSC 121	Introduction to Programming Techniques	3
	or CMPSC 131 Programming and Computation I: Fundamentals	
CMPSC 122	Intermediate Programming	3
	or CMPSC 132 Programming and Computation II: Data Structures	

Supporting Courses and Related Areas

Select 3 credits of unrestricted electives at 300-400 level	3
Select 5 credits of unrestricted electives at 100-400 level	5

¹ Students must earn a 2.5 or higher grade point average in the following courses:

- For the General Option: CMPSC 221, CMPSC 312, CMPSC 360, CMPSC 430, CMPSC 460, CMPSC 462, CMPSC 463, CMPSC 469, CMPSC 470, CMPSC 472, CMPSC 487W, and CMPSC 488
- For the Data Science Option: DS 220, CMPSC 312, CMPSC 360, CMPSC 430, CMPSC 445, CMPSC 446, CMPSC 460, CMPSC 462, CMPSC 463, CMPSC 469, CMPSC 472, CMPSC 487W, and CMPSC 488

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Computer Science and M.S.E. in Software Engineering

Available at the following campuses: Abington

Requirements for the Integrated B.S. in Computer Science and M.S.E. in Software Engineering can be found in the Graduate Bulletin (<https://>

bulletins.psu.edu/graduate/programs/majors/software-engineering/#integratedundergradprogramstext).

Program Learning Objectives

- **Computational Problems and Critical Thinking:** Analyze a complex problem and understand the processes of solving computational problems through a systematic approach.
- **Fundamentals of Computer Science:** Develop a strong foundation in the fundamental areas of Computer Science, including programming, data structures, algorithms, computer architecture and operating systems.
- **Math Foundation:** Develop a solid foundation in mathematical studies relevant to computer science.
- **Professional Communication and Team Work:** Develop strong communication skills and work ethics, and perform effectively in teams activities.
- **Software Engineering Principles:** Ability to apply software engineering principles to the design and implementation of software systems.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

General Option: Computer Science, B.S. at Abington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100 (GWS) [‡]	3
CMPSC 121 or 131 (GQ) ^{*#}	3 CMPSC 122/132 ^{*#}	3
MATH 140 (GQ) ^{*‡#}	4 MATH 141 (GQ) ^{*‡#}	4
General Education Course (GH)	3 General Education Course (GA)	3
General Education Course (GHW)	3 PHYS 211 (GN) [†]	4
PSU 1	1	
	17	17

Second Year

Fall	Credits Spring	Credits
General Education Course (GS)	3 Integrated/Inter-domain	3
General Education Course (GN) ¹	2-3 General Education Course (Exploration)	3
CMPSC 360 ^{*2}	3 MATH 220	2
CMPSC 312 ²	3 MATH 318, STAT 318, or STAT 414	3
CMPSC 330 ²	3 CMPSC 462 ²	3
	CMPSC 469 ²	3
	14-15	17

Third Year

Fall	Credits Spring	Credits
CMPSC 463 ²	3 General Education Course (Exploration)	3
ENGL 202C (GWS) [‡]	3 CMPSC 470 ²	3
CMPSC 221 ²	3 Additional Computer Science (Select 3 Credits)	3
CMPSC 430 ²	3 CMPSC 460 ²	3
Additional Computer Science/Math Courses #(Select 3 Credits)	3 Supporting Courses: Select 3 credits of 100-400 level courses in consultation with an academic adviser ³	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
CMPSC 487W ²	3 CMPSC 472 ²	3
Supporting Courses: Select 2 credits of 100-400 level courses in consultation with an academic adviser ³	2 CMPSC 488 ²	3
Additional Computer Science (Select 3 Credits)	3 Additional Computer Science (Select 3 Credits)	3

Supporting Courses: Select 3 credits of 300-400 level courses in consultation with an academic adviser ³	3 Additional Computer Science/Math Courses (Select 3 Credits)	3
Integrated/Inter-domain	3	
	14	12

Total Credits 121-122

- * Course requires a grade of C or better for the major
 ‡ Course requires a grade of C or better for General Education
 # Course is an Entrance to Major requirement
 † Course satisfies General Education and degree requirement

- ¹ Natural Sciences (GN), recommended courses
 • PHYS 212 General Physics: Electricity and Magnetism
- ² Students must earn a 2.5 or higher grade point average in the following courses: CMPSC 221, CMPSC 312, CMPSC 330, CMPSC 360, CMPSC 430, CMPSC 460, CMPSC 462, CMPSC 463, CMPSC 469, CMPSC 470, CMPSC 472, CMPSC 487W, and CMPSC 488.
- ³ 3 credits from courses at 300-400 level and 5 credits from courses at 100-400 level are to be chosen in consultation with the adviser and with program approval.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

1. General Education & Entrance to Major Requirements (55 credits)
 - a. English (9 credits)
 - i. ENGL 15S (GWS) or ENGL 30T (GWS)
 - ii. ENGL 202C (GWS)
 - iii. CAS 100 (GWS)
 - b. Mathematics (10 credits)
 - i. MATH 140 (GQ)
 - ii. MATH 141 (GQ)
 - iii. MATH 220 (GQ)
 - c. Computer Science (6 credits)
 - i. CMPSC 121/CMPSC 131 (GQ)
 - ii. CMPSC 122/CMPSC 132
 - d. Natural Sciences (6 credits)
 - i. PHYS 211 (GN)
 - ii. Additional 2 credits of any courses with a GN suffix
 - e. Arts† (3 credits)
 - i. 3 credits of any courses with a GA suffix

- f. Humanities† (3 credits)
 - i. 3 credits of any courses with a GH suffix
- g. Social & Behavioral Sciences† (3 credits)
 - i. 3 credits of any courses with a GS suffix
- h. Health & Physical Activities (3 credits)
 - i. 3 credits of any courses with a GHW suffix
 - ii. Integrated/inter-domain courses (6 credits)
 - iii. 6 additional credits of exploration (GA, GH, GN, GS or inter-domain)
2. Core Requirements (65 credits)
 - a. Required Computer Science Courses - Students must earn a 2.5 or higher-grade point average in the Required Computer Science Courses (39 credits):
 - i. CMPSC 221
 - ii. CMPSC 312
 - iii. CMPSC 330
 - iv. CMPSC 360
 - v. CMPSC 430
 - vi. CMPSC 460
 - vii. CMPSC 462
 - viii. CMPSC 463
 - ix. CMPSC 469
 - x. CMPSC 470
 - xi. CMPSC 472
 - xii. CMPSC 487W
 - xiii. CMPSC 488
 - b. Required Mathematics Courses - Select one course from the following (3 credits):
 - i. STAT 318/MATH 318
 - ii. STAT 414/MATH 414
3. Additional Courses: Technical Electives (15 credits)
 - a. Select at least 15 credits from the following. **At least 9 of these additional course credits must be from courses with a CMPSC prefix.** Other courses are to be chosen in consultation with the adviser and with program approval.
 - i. CMPSC 313
 - ii. CMPSC 412
 - iii. CMPSC 413
 - iv. CMPSC 414
 - v. CMPSC 421
 - vi. CMPSC 426
 - vii. CMPSC 438
 - viii. CMPSC 441
 - ix. CMPSC 444
 - x. CMPSC 445
 - xi. CMPSC 446
 - xii. CMPSC 455/MATH 455
 - xiii. CMPSC 457
 - xiv. CMPSC 475
 - xv. CMPSC 496
 - xvi. CMPSC 497
 - xvii. MATH 401
 - xviii. MATH 410
 - xix. MATH 411

- xx. MATH 412
- xxi. MATH 425
- xxii. MATH 430
- xxiii. MATH 435
- xxiv. MATH 448
- xxv. MATH 465
- xxvi. MATH 468
- xxvii. MATH 485
- xxviii. MATH 496
- xxix. MATH 497
- xxx. STAT 401
- xxxi. STAT 415/MATH 415
- xxxii. STAT 462
- xxxiii. STAT 463

4. Supporting Courses (8 credits)

- a. 3 credits from courses at 300-400 level and 5 credits of unrestricted electives at 100-400 level are to be chosen in consultation with the adviser and with program approval.

Data Science Option: Computer Science, B.S. at Abington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [†]	3 CAS 100 (GWS) [‡]	3
CMPSC 131 (GQ) ^{*#}	3 CMPSC 132 ^{*#}	3
MATH 140 (GQ) ^{*‡#}	4 MATH 141 (GQ) ^{*‡#}	4
General Education Course (GH)	3 General Education Course (GA)	3
General Education Course (GHW)	3 PHYS 211 (GN) [†]	4
PSU 1	1	
	17	17

Second Year

Fall	Credits Spring	Credits
General Education Course (GS)	3 Integrated/Inter-domain	3
General Education Course (GN) ¹	2-3 General Education Course (Exploration)	3
CMPSC 360 ^{*2}	3 MATH 220	2
CMPSC 312 ²	3 MATH 318, STAT 318, or STAT 414	3
CMPSC 330 ²	3 CMPSC 462 ²	3
	DS 220 ²	3
	14-15	17

Third Year

Fall	Credits Spring	Credits
CMPSC 463 ²	3 General Education Course (Exploration)	3
ENGL 202C (GWS) [†]	3 CMPSC 445 ²	3
STAT 401	3 CMPSC 469 ²	3
CMPSC 430 ²	3 CMPSC 460 ²	3
CMPSC 441 ²	3 Supporting Courses: Select 3 credits of 100-400 level courses in consultation with an academic adviser ³	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
CMPSC 487W ²	3 CMPSC 472 ²	3
Supporting Courses: Select 2 credits of 100-400 level courses in consultation with an academic adviser ³	2 CMPSC 488 ²	3
CMPSC 446 ²	3 Additional Course (Select 3 Credits)	3

STAT 462	3 Additional Course (Select 3 Credits)	3
Integrated/Inter-domain	3	
	14	12

Total Credits 121-122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Natural Sciences (GN)

² Students must earn a 2.5 or higher grade point average in the following courses: DS 220, CMPSC 312, CMPSC 360, CMPSC 430, CMPSC 445, CMPSC 446, CMPSC 460, CMPSC 462, CMPSC 463, CMPSC 469, CMPSC 470, CMPSC 472, CMPSC 487W, and CMPSC 488.

³ 5 credits of unrestricted electives at 100-400 level are to be chosen in consultation with the adviser and with program approval.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- General Education & Entrance to Major Requirements (55 credits)
 - English (9 credits)
 - ENGL 15S (GWS) or ENGL 30T (GWS)
 - ENGL 202C (GWS)
 - CAS 100 (GWS)
 - Mathematics (10 credits)
 - MATH 140 (GQ)
 - MATH 141 (GQ)
 - MATH 220 (GQ)
 - Computer Science (6 credits)
 - CMPSC 121/CMPSC 131 (GQ)
 - CMPSC 122/CMPSC 132
 - Natural Sciences (6 credits)
 - PHYS 211 (GN)
 - Additional 2 credits of any courses with a GN suffix
 - Arts †: (3 credits)
 - 3 credits of any courses with a GA suffix
 - Humanities †: (3 credits)
 - 3 credits of any courses with a GH suffix
 - Social & Behavioral Sciences †: (3 credits)
 - 3 credits of any courses with a GS suffix

- h. Health & Physical Activities (3 credits)
 - i. 3 credits of any courses with a GHW suffix
 - i. Integrated/inter-domain courses (6 credits)
 - j. 6 additional credits of exploration (GA, GH, GN, GS or inter-domain)
2. Core Requirements (65 credits)
- a. Computer Science/Data Science/Statistics Courses - Students must earn a 2.5 or higher grade-point average in the Required Computer Science Courses (45 credits):
 - i. DS 220
 - ii. CMPSC 312
 - iii. CMPSC 330
 - iv. CMPSC 360
 - v. CMPSC 430
 - vi. CMPSC 441
 - vii. CMPSC 445
 - viii. CMPSC 446
 - ix. CMPSC 460
 - x. CMPSC 462
 - xi. CMPSC 463
 - xii. CMPSC 469
 - xiii. CMPSC 472
 - xiv. CMPSC 487W
 - xv. CMPSC 488
 - b. Required Mathematics/Statistics Courses (9 credits):
 - i. STAT 401
 - ii. STAT 462
 - iii. Select one course from the following:
 - 1. STAT 318/MATH 318
 - 2. STAT 414/ MATH 414
3. Additional Courses: Technical Electives (6 credits)
- a. Select at least 6 credits from the following. Other courses are to be chosen in consultation with the adviser and with program approval.
 - i. CMPSC 313
 - ii. CMPSC 412
 - iii. CMPSC 413
 - iv. CMPSC 414
 - v. CMPSC 421
 - vi. CMPSC 426
 - vii. CMPSC 438
 - viii. CMPSC 444
 - ix. CMPSC 455/ MATH 455
 - x. CMPSC 457
 - xi. CMPSC 470
 - xii. CMPSC 475
 - xiii. CMPSC 496
 - xiv. CMPSC 497
 - xv. MATH 401
 - xvi. MATH 410
 - xvii. MATH 411
 - xviii. MATH 412
 - xix. MATH 425
 - xx. MATH 430

- xxi. MATH 435
- xxii. MATH 448
- xxiii. MATH 465
- xxiv. MATH 468
- xxv. MATH 485
- xxvi. MATH 496
- xxvii. MATH 497
- xxviii. STAT 415/MATH 415
- xxix. STAT 463

4. Supporting Courses (5 credits)

- a. 5 credits of unrestricted electives at 100-400 level are to be chosen in consultation with the adviser and with program approval.

Career Paths

Computer Science jobs are expected to be among the top three fastest growing occupations and one of the top 20 in the number of new jobs created. According to the U.S. Bureau of Labor Statistics, employment opportunities for Computer Science graduates are projected to grow 11 percent from 2019 to 2029, faster than the average for all occupations. Computer Science students are encouraged to incorporate internships into their academic program. Internships can provide valuable hands-on experience that will benefit graduates during their job search. Previous students have completed successful internships with state government, Google, Amazon, Facebook, Microsoft, IBM, UNISYS, and other businesses.

Careers

This program is designed to prepare students for employment as computer scientists in engineering, scientific, industrial, and business environments as software developers, programmers, and systems analysts. Over the last few years, Penn State Harrisburg Computer Science graduates have obtained positions with companies such as Blue Cross/Blue Shield, Google, Boeing, Microsoft, Intel, IBM, Oracle, General Dynamics, Northrop and Grumman, GEOS, Hershey Medical Center, Woolworth, Rite Aid, and EDS.

Opportunities for Graduate Studies

The program provides a sound background for students who plan to pursue graduate studies in computer science, including Penn State's Master of Science in Computer Science program. Selection of electives can be tailored for students pursuing this path.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://harrisburg.psu.edu/science-engineering-technology/computer-science-ms/>)

Professional Resources

- Association for Computer Machinery (ACM) (<https://www.acm.org/>)
- IEEE (<https://www.ieee.org/>)

Contact

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<https://www.abington.psu.edu/academics/majors-at-abington/computer-science> (<https://www.abington.psu.edu/academics/majors-at-abington/computer-science/>)

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Corporate Communication, B.A. (Abington)

Begin Campus: Any Penn State Campus

End Campus: Abington

Program Description

The Penn State Corporate Communication Bachelor of Arts (CCBA) program prepares students for various strategic communication roles inside and outside organizations. Graduates of the program hold titles such as public relations professional, social media strategist, speech and copywriter, political aide, marketing communication manager, organizational learning and development specialist, corporate recruiter, and event planner. Graduates have earned advanced degrees in areas such as Business, Law, and Corporate Communication.

The CCBA program is interdisciplinary. While providing depth of study in Corporate Communication, it also includes mandatory Business courses and courses focusing on web based competencies such as writing for the web and digital design. With its overall emphasis on the human and design aspects of contemporary organizations, the program is particularly well-suited to individuals seeking to develop and apply their analytical, verbal, and creative talents. Such talents foster aptitudes in strategic counseling and integrative praxis that, in part, make a Corporate Communication degree unique and highly sought after in the marketplace.

What is Corporate Communication?

Corporate Communication encompasses all aspects of strategic communication in for-profit and not-for-profit organizations, from internal communication between senior leaders and frontline professionals to communication with external clients. Corporate communicators are highly skilled professionals in the art of planning, problem solving, and persuading with a sharp understanding of their audience's needs, tastes, and interests.

You Might Like This Program If...

- You know you are creative with strong writing and speaking skills.
- You desire to be an ethical communicator who creates meaningful connections with your audience.
- You possess an international, multicultural mindset.
- You want to pursue a career in social media, public relations, or marketing.

MORE INFORMATION ABOUT CORPORATE COMMUNICATION (<https://www.abington.psu.edu/academics/majors-at-abington/corporate-communication/>)

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Corporate Communication, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	2-9
Bachelor of Arts Degree Requirements	24
Requirements for the Major	51-52

3-9 of the 45 credits for General Education are included in Requirements for the Major. This includes: 3-6 credits of GS courses; 0-3 credits of GH courses.

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CAS 204	Communication Research Methods	3
CC 200	Introduction to Corporate Communication	3
CC 401	Internal Communication	3
CC 402	External Communication	3
CC 490W	Seminar in Corporate Communication	3
CC 495A	Internship in Corporate Communication	3
COMM 100		3
MGMT 301	Basic Management Concepts	3
MKTG 301	Principles of Marketing	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
ECON 102	Introductory Microeconomic Analysis and Policy	3

or ECON 104	Introductory Macroeconomic Analysis and Policy	
Select one of the following:		3-4
BA 243	Social, Legal, and Ethical Environment of Business	
PHIL 103	Ethics	
PHIL 106	Business Ethics	
PHIL 123	Media Ethics	
Select one of the following:		3
ART 201		
COMM 241	Graphic Design for Communications	
IST 110	Information, People and Technology	
Select one of the following:		3
CAS 250	Small Group Communication	
CAS 252	Business and Professional Communication	
CAS 352	Organizational Communication	
ENGL 211	Introduction to Writing Studies	
Select one of the following:		3
CC 406	Social Media in Corporate Communication	
ENGL 420	Writing for the Web	
ENGL 480	Communication Design for Writers	
Select two of the following:		6
CAS 403	Interpersonal Communication Theory and Research	
CAS 404	Conflict Resolution and Negotiation	
CAS/WMNST 455	Topics in Gender and Communication	
CAS 471	Intercultural Communication Theory and Research	
MGMT 433	Leadership and Team Building	
MKTG 310	Public Relations and Marketing	
Select one of the following:		3
CC 404	Risk and Crisis in Corporate Communication	
CC 405	Strategic Speaking	
COMM 472	Public Relations Event Planning	

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- **Apply Ethical Corporate Communication Principles and Practice**
 - Identify ethical perspectives.
 - Explain the relevance of various ethical perspectives.
 - Articulate the ethical dimensions of a Corporate Communication situation.
 - Propose solutions for an (un)ethical Corporate Communication situation.
 - Evaluate the ethical elements of a Corporate Communication situation.
- **Create Messages Appropriate to the Audience, Purpose, and Context**
 - Locate and use information relevant to goals, audiences, purposes, and contexts.
 - Select creative and appropriate modalities and technologies to accomplish Corporate Communication goals.
 - Adapt messages to the diverse needs of individuals, groups, and contexts.
 - Present messages in multiple communication modalities and contexts.
 - Adjust messages while in the process of communicating.
 - Critically reflect on one's own messages after the communication event.
- **Critically Analyze Messages**
 - Identify meanings embedded in messages.
 - Articulate characteristics of mediated and non-mediated messages.
 - Recognize the influence of messages.
 - Engage in active listening.
 - Enact mindful responding to messages.
- **Demonstrate the Ability to Accomplish Communicative Goals (Self-Efficacy)**
 - Identify contexts, situations, and barriers that impede communication self-efficacy
 - Perform verbal and nonverbal communication behaviors that illustrate self-efficacy
 - Articulate personal beliefs about abilities to accomplish communication goals
 - Evaluate personal communication strengths and weaknesses.
- **Describe the Corporate Communication field and its central questions**
 - Explain the origins of the Corporate Communication field.
 - Summarize the broad nature of the Corporate Communication field.
 - Categorize the various career pathways for students of Communication.
 - Articulate the importance of Corporate Communication expertise in career development and civic engagement.
 - Examine contemporary debates within the field.
 - Distinguish the Corporate Communication field from related areas of study.
 - Identify with intellectual specialization(s) in the Corporate Communication field.
- **Employ Corporate Communication Theories, Perspectives, Principles, and Concepts**
 - Explain Corporate Communication perspectives, theories, principles, and concepts.
 - Synthesize Corporate Communication perspectives, theories, principles, and concepts.
 - Apply Corporate Communication perspectives, theories, principles, and concepts.
 - Critique Corporate Communication perspectives, theories, principles, and concepts.
- **Engage in Corporate Communication Inquiry**
 - Interpret Corporate Communication scholarship.
 - Evaluate Corporate Communication scholarship.
 - Formulate questions appropriate for Corporate Communication scholarship.
 - Engage in Corporate Communication scholarship using the research traditions of the field.
 - Differentiate among various approaches to the study of Corporate Communication.
 - Contribute to the scholarly conversations appropriate to the purpose of inquiry.
- **Influence for Greater Good**
 - Explain the importance of Corporate Communication for civic life from the local to global levels.
 - Identify the challenges facing communities and the role of Corporate Communication in resolving those challenges.
 - Frame local, national, and/or global issues from a Corporate Communication point of view.
 - Evaluate local, national, and/or global issues from a Corporate Communication point of view.
 - Use Corporate Communication to respond to issues at the local, national, and/or global level.
 - Advocate a course of action to address local, national, and/or global issues from a Corporate Communication point of view.
 - Use Corporate Communication to empower individuals in terms of human rights, human dignity, and human freedom.
- **Utilize Corporate Communication to Embrace Difference**
 - Articulate the connection between Corporate Communication and culture.
 - Recognize individual and cultural similarities and differences.
 - Appreciate individual and cultural similarities and differences.
 - Respect diverse perspectives and the ways they influence communication.

- Articulate one's own cultural standpoint and how it affects communication and world view.
- Demonstrate the ability to be culturally self-aware.
- Adapt one's communication in diverse cultural contexts.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Corporate Communication, B.A. at Abington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H	3 World Language level 2	4
World Language level 1	4 General Education Course	3
COMM 100 or 106*	3 ECON 102 or 104* [†]	3
MATH 21	3 CC 200* ²	3
CAS 204*	3 IST 110, DART 202, or COMM 241*	3
	16	16

Second Year

Fall	Credits Spring	Credits
World Language level 3	4 MGMT 301 [*]	3
CAS 100A or 100B	3 BA 243, PHIL 203, PHIL 106, or PHIL 123 [*]	3
MKTG 301	3 CAS 250, 252, 352, or ENGL 211 [*]	3
General Education Course	3 ENGL 202A, 202B, 202C, or 202D ¹	3
General Education Course	3 General Education Course	3
	16	15

Third Year

Fall	Credits Spring	Credits
CC 401 [*]	3 CC 402 [*]	3
CAS 403, 404, 455, 471, MGMT 433, or MKTG 310 [*]	3 CAS 403, 404, 455, 471, MGMT 433, or MKTG 310 [*]	3
General Education Course	3 CC 404, 405, or COMM 472 [*]	3
General Education Course	3 Bachelor of Arts Requirement	3
Bachelor of Arts Requirement	3 General Education Course or Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
CC 490W [*]	3 CC 495A [*]	3
World Cultures or Elective	3 General Education Course	3
Bachelor of Arts Requirement	3 CC 406/ENGL 420/480 [*]	3
General Education Course (GHW)	3 Elective	3
Elective (2 Credits if took BA 243 4 Credit Class)	3	
	15	12

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

¹ English 202D is recommended for Corporate Communication majors.

² CC 200 is a prerequisite for all other CC courses. Check the Undergraduate Bulletin for additional pre-requisites for specific courses.

Program Notes:

A minimum of 120 credits is required to graduate.

Students must take a minimum of 15 credits at the 400 level or equivalent.

US or IL courses may double count as Gen Ed or other major courses, but not as World Culture courses.

PHIL 10 is a recommended GH course.

MATH 21 and STAT 200 are recommended GQ courses; MATH 21 is a prerequisite for MKTG 301.

BA 303 or MKTG 301 is a prerequisite for MKTG 310.

Career Paths

Corporate Communication is a challenging and exciting career field. Corporate communicators manage the dissemination of information to key constituencies, the execution of corporate strategy, and the development of messages for a variety of purposes inside and outside the organization. Corporate communicators usually oversee media relations, crisis communications, internal communications, reputation management, corporate responsibility, investor relations, government affairs, and sometimes marketing communication. The Penn State Abington Center for Career & Professional Development supports and serves students in all areas related to career development and preparation including career counseling and coaching, internships, resume creation, interview training, and job search strategies.

Careers

A Corporate Communication degree can lead to a career in for-profit businesses or in not-for-profit areas such as charitable, political, health care, and educational organizations. You'll be prepared to work as a professional in a wide range of fields including event planning, human resources, marketing, public relations/public information, and social media relations.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE CORPORATE COMMUNICATION PROGRAM (<https://www.abington.psu.edu/academics/majors-at-abington/corporate-communication/>)

Opportunities for Graduate Studies

A baccalaureate degree in Corporate Communication prepares students to pursue master's degrees in programs such as strategic communication and obtain admission to MBA programs and law schools, among other post-graduate opportunities.

Professional Resources

- Public Relations Society of America (PRSA) (<https://www.prsa.org/home/>)
- Philadelphia Public Relations Association (PPRA) (<https://ppra.net/>)
- National Communication Association (NCA) (<https://www.natcom.org/>)
- International Communication Association (ICA) (<https://www.icahdq.org/>)
- American Marketing Association (AMA) (<https://www.ama.org/>)
- International Association of Business (<https://www.iabc.com/>)
- The Association for Women in Communications (AWC) (<https://womcom.org/contact-us/>)
- Eastern Communication Association (ECA) (https://www.ecasite.org/aw/ECA/pt/sp/home_page/)
- International Advertising Association (<https://www.iaaglobal.org/>)
- Society for Health Communication (<https://www.societyforhealthcommunication.org/>)

Contact

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<https://www.york.psu.edu/academics/baccalaureate/corporate-communication> (<https://www.york.psu.edu/academics/baccalaureate/corporate-communication/>)

Criminal Justice, B.A. (Abington)

Begin Campus: Any Penn State Campus

End Campus: Abington

Program Description

Students receiving a baccalaureate degree in criminal justice should understand each of the three main components of the criminal justice system and their interrelationships, be able to evaluate critically both current and future crime control policy proposals and criminal justice research, and understand the complexity of the crime phenomenon and its relationship to individual, social, and cultural factors. This major includes study in law enforcement, courts and corrections individually and as components of a system, plus work in theories of crime causation, and crime control policy. Students should expect reading, writing, and critical thinking skills to be rigorously applied and developed throughout the degree program. The Bachelor of Arts degree in Criminal Justice provides a broadly based liberal arts background for the study of crime, justice and the criminal justice system. The Bachelor of Science degree offers an opportunity for educational enrichment in fields not traditionally considered part of the liberal arts. Either degree is excellent preparation for a career in criminal justice, graduate, or professional study, or informed citizenship.

What is Criminal Justice?

Criminal justice is the study of the adult and juvenile justice systems, including law enforcement, the courts, and corrections. It is interdisciplinary and includes understanding the intersections of law, public policy, and behavioral science, in an effort to understand crime as a social problem and improve these systems for the good of society.

You Might Like This Program If...

You have an interest in working in corrections, courts, court administration, law enforcement, and probation and parole. Students completing this course of study are prepared to enter law school and graduate degree programs in more specialized areas. Every student in this degree will participate in an internship at a host agency located in a local, state or federal agency of their choice.

MORE INFORMATION ABOUT CRIMINAL JUSTICE (<https://altoona.psu.edu/academics/bachelors-degrees/criminal-justice/>)

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Criminal Justice, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	6-10

Bachelor of Arts Degree Requirements	24
Requirements for the Major	48-49

4-7 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 0-3 credits of GH courses; 4 credits of GQ courses.

3 of the 24 credits for General Education are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CRIMJ 100	Introduction to Criminal Justice	3
CRIMJ 210	Policing in America	3
CRIMJ 220	Courts and the Prosecution Process	3
CRIMJ 230	Corrections in America	3
CRIMJ 290	Introduction to Internship Experience	2
CRIMJ 441	The Juvenile Justice System	3
CRIMJ 450W	Senior Seminar	3
CRIMJ 495	Internship in Criminal Justice	3
SOC 12	Criminology	3
SOC 119N	Race, Ethnicity and Culture	3-4
STAT 200	Elementary Statistics	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
CRIMJ 250W	Research Methods in Criminal Justice	3
or SOC 207	Research Methods in Sociology	
PHIL 103	Ethics	3
or CRIMJ 465	Ethics in Criminal Justice	
Select 9 credits from any 400-level CRIMJ course that does not already fulfill another requirement in the major		9

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

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Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or

within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- **Criminal Justice Policies to Reduce Crime and Delinquency**
 - Identify and summarize the most effective criminal justice policies for reducing adult criminal behavior
 - Identify and summarize the most effective criminal justice policies for reducing juvenile delinquent behavior.
- **Knowledge About Crime and Delinquency**
 - Understand and describe different levels of adult crime and juvenile delinquency.
 - Understand the difference between adult crime and juvenile delinquency.
- **Risk Factors for Crime and Delinquency**
 - Identify well-established biological, psychological, and social risk factors for adult crime.
 - Identify well-established biological, psychological, and social risk factors for juvenile delinquency.
- **The Application of Criminological Theory for Criminal Justice Policy**
 - Summarize how criminological theory can inform and improve criminal justice policy.
 - Demonstrate the ability to critically evaluate criminal justice policies based on knowledge from criminological theories.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

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Criminal Justice, B.A. at Abington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H	3 CRIMJ 12 or SOC 12 ^{**1}	3
General Education Course	3 World Language Level 2	4
World Language Level 1	4 General Education Course	3
General Education Course	3 CAS 100A or 100B	3
CRIMJ 100 [*]	3 Elective	3
	16	16

Second Year

Fall	Credits Spring	Credits
STAT 200 ^{**2}	4 CRIMJ 220 [*]	3
CRIMJ 210 [*]	3 PHIL 103, BA 243, or CRIMJ 465 (PHIL 103 can also satisfy GH) [*]	3-4
CRIMJ 230 [*]	3 ENGL 202A, 202B, 202C, or 202D	3
General Education Course	3 General Education Course	3
World Language 3	4 General Education Course	3
	17	15-16

Third Year

Fall	Credits Spring	Credits
CRIMJ 441 [*]	3 CRIMJ 290 ^{*3}	2
SOC 119N or CRIMJ 451 (US Cultures) ^{**†}	3-4 CRIMJ 250W or SOC 207 [*]	3
Elective (World Cultures)	3 BA Knowledge Domain	3
General Education Course (IL Cultures)	3 CRIMJ 400 Level Course ^{*4}	3
BA Knowledge Domain	3 Elective	3
	15-16	14

Fourth Year

Fall	Credits Spring	Credits
BA Knowledge Domain	3 CRIMJ 450W [*]	3
CRIMJ 400 Level Course ^{*4}	3 CRIMJ 400 Level Course ^{*4}	3
CRIMJ 495 [*]	3 Elective	3
Elective	3 Elective	3

General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
	13.5	13.5

Total Credits 120-122

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

¹ CRIMJ 12 and SOC 12 are cross-listed courses. Only complete one course.

² STAT 200: Course substitution includes PSYCH 200.

³ It is strongly recommended that students enroll in CRIMJ 290 the semester prior to enrolling in CRIMJ 495.

⁴ CRIMJ 400 Level Course constitutes any Criminal Justice 400 Level course within the department that does not already fulfill another requirement in the major.

Career Paths

Graduates of the Criminal Justice program are prepared to enter the workforce or can continue their graduate education in Master's and Ph.D. programs, as well as law school. Penn State Altoona Career Services supports and serves students in all areas related to career development and preparation including: Major and Career Exploration Career Decision-Making Preparation of Employment Documents Internship and Job Search Strategies Interview Preparation Preparing for Graduate School Developing your Professional Online Brand Presentations and Workshops.

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Criminal Justice, B.S. (Abington)

Begin Campus: Any Penn State Campus

End Campus: Abington

Program Description

Students receiving a baccalaureate degree in criminal justice should understand each of the three main components of the criminal justice system and their interrelationships, be able to evaluate critically both current and future crime control policy proposals and criminal justice research, and understand the complexity of the crime phenomenon and its relationship to individual, social, and cultural factors. This major includes study in law enforcement, courts and corrections individually and as components of a system, plus work in theories of crime causation, and crime control policy. Students should expect reading, writing, and critical thinking skills to be rigorously applied and developed throughout the degree program. The Bachelor of Arts degree in Criminal Justice provides a broadly based liberal arts background for the study of crime, justice and the criminal justice system. The Bachelor of Science degree offers an opportunity for educational enrichment in fields not traditionally considered part of the liberal arts. Either degree is excellent preparation for a career in criminal justice, graduate, or professional study, or informed citizenship.

What is Criminal Justice?

Criminal justice is the study of the adult and juvenile justice systems, including law enforcement, the courts, and corrections. It is interdisciplinary and includes understanding the intersections of law, public policy, and behavioral science, in an effort to understand crime as a social problem and improve these systems for the good of society.

You Might Like This Program If...

You have an interest in working in corrections, courts, court administration, law enforcement, and probation and parole. Students completing this course of study are prepared to enter law school and graduate degree programs in more specialized areas. Every student in this degree will participate in an internship at a host agency located in a local, state or federal agency of their choice.

MORE INFORMATION ABOUT CRIMINAL JUSTICE (<https://altoona.psu.edu/academics/bachelors-degrees/criminal-justice/>)

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Criminal Justice, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	18-22
Requirements for the Major	60-61

4-7 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 0-3 credits of GH courses; 4 credits of GQ courses.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CRIMJ/CRIM 100	Introduction to Criminal Justice	3
CRIMJ 210	Policing in America	3
CRIMJ 220	Courts and the Prosecution Process	3
CRIMJ 230	Corrections in America	3
CRIMJ 290	Introduction to Internship Experience	2
CRIMJ/CRIM 441	The Juvenile Justice System	3
CRIMJ 450W	Senior Seminar	3
CRIMJ 495	Internship in Criminal Justice	3
SOC/CRIMJ/CRIM 12	Criminology	3
SOC 119N	Race, Ethnicity and Culture	3-4
STAT 200	Elementary Statistics	4

Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
CRIMJ 250W	Research Methods in Criminal Justice	3
or SOC 207	Research Methods in Sociology	
PHIL 103	Ethics	3
or CRIMJ 465	Ethics in Criminal Justice	
Select 9 credits from any 400-level CRIMJ course that does not already fulfill another requirement in the major		9

Supporting Courses and Related Areas

<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 12 credits, in consultation with the adviser, in one or two of the following skill enhancement areas: accounting, computers, composition and rhetoric, counseling, education, law and legal studies, world language, management, public speaking, research methods and statistics, science and engineering, biobehavioral health; or in the following topics: adolescence, deviant behavior, drugs, minorities		12

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills

necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits.

Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Criminal Justice Policies to Reduce Crime and Delinquency**
 - Identify and summarize the most effective criminal justice policies for reducing adult criminal behavior
 - Identify and summarize the most effective criminal justice policies for reducing juvenile delinquent behavior.
- **Knowledge About Crime and Delinquency**
 - Understand and describe different levels of adult crime and juvenile delinquency.
 - Understand the difference between adult crime and juvenile delinquency.
- **Risk Factors for Crime and Delinquency**
 - Identify well-established biological, psychological, and social risk factors for adult crime.
 - Identify well-established biological, psychological, and social risk factors for juvenile delinquency.
- **The Application of Criminological Theory for Criminal Justice Policy**
 - Summarize how criminological theory can inform and improve criminal justice policy.
 - Demonstrate the ability to critically evaluate criminal justice policies based on knowledge from criminological theories.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H	3 CRIMJ 12 or SOC 12 ^{*†1}	3
General Education Course	3 CRIMJ 220 [*]	3
Elective	3 General Education Course	3
General Education Course	3 General Education Course (IL Cultures)	3
CRIMJ 100 [*]	3 CAS 100A or 100B	3
General Education Course (GHW)	1.5	
	16.5	15

Second Year

Fall	Credits Spring	Credits
STAT 200 ^{*†2}	4 Elective	3
CRIMJ 210 [*]	3 PHIL 103, BA 243, or CRIMJ 465 (PHIL 103 can also satisfy GH) [*]	3-4
CRIMJ 230 [*]	3 ENGL 202A, 202B, 202C, or 202D	3
General Education Course	3 General Education Course	3
General Education Course	3 SOC 119N or CRIMJ 451 (US Cultures) ^{*†}	3-4
	16	15-17

Third Year

Fall	Credits Spring	Credits
CRIMJ 441 [*]	3 CRIMJ 400 Level Course ^{*5}	3
Skills Enhancement Course ^{*3}	3 CRIMJ 250W or SOC 207 [*]	3
Elective	3 Elective	3
Elective	3 Elective	3
CRIMJ 290 ^{*4}	2 Skills Enhancement Course ^{*3}	3
	14	15

Fourth Year

Fall	Credits Spring	Credits
Skills Enhancement Course ^{*3}	3 CRIMJ 450W [*]	3
CRIMJ 400 Level Course ^{*5}	3 CRIMJ 400 Level Course ^{*5}	3
CRIMJ 495 [*]	3 Skills Enhancement Course ^{*3}	3

Elective	3 Elective	3
General Education Course (GHW)	1.5 Elective	3
	13.5	15

Total Credits 120-122

- * Course requires a grade of C or better for the major
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¹ CRIMJ 12 and SOC 12 are cross-listed courses. Only complete one course.

² STAT 200: Course substitution includes PSYCH 200.

³ Consult with adviser.

⁴ It is strongly recommended that students enroll in CRIMJ 290 the semester prior to enrolling in CRIMJ 495.

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pup1@psu.edu

<https://hazleton.psu.edu/criminal-justice> (<https://hazleton.psu.edu/criminal-justice/>)

Lehigh Valley

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<https://lehighvalley.psu.edu/criminal-justice-babs> (<https://lehighvalley.psu.edu/criminal-justice-babs/>)

New Kensington

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<https://newkensington.psu.edu/academics/criminal-justice-ba-or-bs> (<https://newkensington.psu.edu/academics/criminal-justice-ba-or-bs/>)

Schuylkill

200 University Drive
Schuylkill Haven, PA 17972
570-385-6075
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<https://schuylkill.psu.edu/academics/bacc-degrees/criminal-justice> (<https://schuylkill.psu.edu/academics/bacc-degrees/criminal-justice/>)

Shenango

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twm5527@psu.edu

<https://shenango.psu.edu/academics/degrees/criminal-justice> (<https://shenango.psu.edu/academics/degrees/criminal-justice/>)

Wilkes-Barre

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570-675-9216
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<https://wilkesbarre.psu.edu/academics/criminal-justice> (<https://wilkesbarre.psu.edu/academics/criminal-justice/>)

Cybersecurity Analytics and Operations, B.S. (Abington)

Begin Campus: Any Penn State Campus

End Campus: Abington

Program Description

The Bachelor of Science in Cybersecurity Analytics and Operations in the College of Information Sciences and Technology (IST) is an interdisciplinary program that prepares students for careers as cybersecurity professionals. It educates students on the essential concepts of cyber-defense and the analytical fundamentals of cybersecurity, with a focus on the analytical and risk management underpinnings and associated cyber-defense techniques and strategies for ensuring the safety of online information stored in large and heterogeneous networks that are embedded within and across the complex socio-technical infrastructures that are pervasive in today's business, government and military organizations. Students will acquire the knowledge and skills needed to critically assess and respond to modern information security threats, using approaches that are grounded in a holistic understanding of adversarial strategies and effective responses. More specifically, it will offer an in-depth and domain-independent approach to the development of skills in cyberdefense technologies, tools and processes; cybersecurity analytics and visualization; and cybersecurity risk analysis and management. The major draws from concepts and skills associated with a number of disciplines, including information science, management science, statistics and data science, human behavior, and law/policy. Graduates will be prepared to join the rapidly growing cybersecurity workforce deployed across organizations of diverse sizes and missions.

What is Cybersecurity Analytics and Operations?

Cybersecurity is a field that deals with the protection of computer systems, networks, programs, and data from attacks and unauthorized access. This includes the development of cyber defense tools to protect critical infrastructure as well as the analysis and mitigation of cyber threats.

Cybersecurity is a very broad field. This program focuses students beyond the information technology field and instead focuses on the analysis of cybersecurity data, identification of cyber incidents, understanding the actions of malware, communication of concerns to business stakeholders and the general public. High performing cyber analysts have a strong mathematical and computational background. They often employ computer programming and scripting to solve problems and integrate existing tools. They analyze the data they are presented with from intrusion detection sensors, firewalls, and anti-malware tools.

Cybersecurity professionals apply their skills for organizations to prevent cyber criminals, hackers, and persistent nation-state actors. They protect organizations, companies, healthcare institutions, and government agencies from the loss of confidential data. They keep abreast of new developments technically, as well as those in the work domain of the organization and events that occur in the world at large.

MORE INFORMATION ABOUT CYBERSECURITY ANALYTICS AND OPERATIONS (<https://ist.psu.edu/prospective/undergraduate/academics/cybersecurity/>)

You Might Like This Program If...

- You enjoy working with and on computers as well as their operating systems and applications.
- You have an interest in business and organizations and securing
- You want to protect digital information, data stores, and computer networks from threats.
- You want to learn the cyber defense strategies used to anticipate, recognize, and defend against computer attacks.
- You're passionate about how we can keep sensitive information out of the hands of hackers, cybercriminals, and terrorist organizations.
- You enjoy working on a team to solve technical problems for organizations.
- You are interested in computer programming and mathematics.

MORE INFORMATION ABOUT WHY STUDENTS CHOOSE TO STUDY CYBERSECURITY ANALYTICS AND OPERATIONS (<https://ist.psu.edu/prospective/undergraduate/academics/cybersecurity/>)

Entrance to Major

To be eligible for the Cybersecurity Analytics and Operations major, students must:

1. Have completed the following entrance-to-major requirements with a grade of C or better in each: CYBER 100 or CYBER 100S, IST 210, IST 220, IST 242 or CMPSC 122 or CMPSC 132, and STAT 200 or SCM 200.
2. Have achieved a minimum cumulative grade point average of 2.00 prior to and through the end of the semester during which the entrance to major is requested.

Degree Requirements

For the B.S. degree in Cybersecurity Analytics and Operations, a minimum of 123 credits is required:

Requirement	Credits
General Education	45
Electives	3
Requirements for the Major	87

12 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GQ courses, 3 credits of GS courses, 3 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CYBER 262	Cyber-Defense Studio	3
CYBER 342W	Cyber Incident Handling and Response	3

CYBER 362	Cybersecurity Analytics Studio	3
CYBER 366	Malware Analytics	3
CYBER 440	Cybersecurity Capstone	3
IST 210	Organization of Data	3
IST 220	Networking and Telecommunications	3
IST 230	Language, Logic, and Discrete Mathematics	3
IST 432	Legal and Regulatory Environment of Information Science and Technology	3
IST 451	Network Security	3
IST 454	Computer and Cyber Forensics	3
IST 456	Information Security Management	3
IST 495	Internship	1
SRA 111	Introduction to Security and Risk Analysis	3
SRA 211	Threat of Terrorism and Crime	3
SRA 221	Overview of Information Security	3
SRA 231	Decision Theory and Analysis	3
SRA 311	Risk Analysis in a Security Context	3
SRA 365	Statistics for Security and Risk Analysis	3

Additional Courses

Additional Courses: Require a grade of C or better

CYBER 100	Computer Systems Literacy	3
or CYBER 100S Computer Systems Literacy		
ENGL 202C	Effective Writing: Technical Writing	3
or ENGL 202D Effective Writing: Business Writing		
MATH 110	Techniques of Calculus I	4
or MATH 140 Calculus With Analytic Geometry I		
STAT 200	Elementary Statistics	4
or SCM 200 Introduction to Statistics for Business		
Select one of the following:		3
CMPSC 121	Introduction to Programming Techniques	
CMPSC 131	Programming and Computation I: Fundamentals	
IST 140	Introduction to Application Development	
Select one of the following:		3
CMPSC 122	Intermediate Programming	
CMPSC 132	Programming and Computation II: Data Structures	
IST 242	Intermediate & Object-Oriented Application Development	
Select one of the following:		3
IST 256	Programming for the Web	
IST 261	Application Development Design Studio I	
IST 361	Application Development Design Studio II	

Supporting Courses and Related Areas

Select 9 credits from one of the Application Focus course lists. At least 3 credits must be at the 400-level. Students may also complete a custom Application Focus sequence with approval from an academic adviser and a CYBER undergraduate program coordinator. 9

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate

students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Cybersecurity Analytics and Operations, B.S. at Abington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits Summer	Credits
CYBER 100 or 100S ^{*#}	3 IST 210 ^{*#}	3 IST 495 [*]	0-1
IST 140 [*]	3 IST 220 ^{*#}	3	
CAS 100 [†]	3 SRA 111 ^{*†}	3	
MATH 110 ^{*††}	4 ENGL 15 or 30H [†]	3	
General Education Course (GA/GH)	3 General Education Course (GS)	3	
	16	15	0-1

Second Year

Fall	Credits Spring	Credits Summer	Credits
CYBER 262 [*]	3 IST 230 [*]	3 IST 495 [*]	0-1
IST 242 ^{*#}	3 IST 261 [*]	3	
STAT 200 or DS 200 ^{*††}	4 SRA 211 [*]	3	
Application Focus Selection 1	3 SRA 221 [*]	3	
General Education Course (GN)	3 General Education Course (GN)	3	
	16	15	0-1

Third Year

Fall	Credits Spring	Credits Summer	Credits
CYBER 362 [*]	3 CYBER 342W [*]	3 IST 495 [*]	0-1
SRA 231 [*]	3 CYBER 366 [*]	3	
SRA 365 [*]	3 SRA 311 [*]	3	
ENGL 202C or 202D ^{*††}	3 Application Focus Selection 2	3	

General Education Course (GA/GH)	3 General Education Course (GA/GH)	3	
General Education Course (GHW)	1.5		
	16.5	15	0-1

Fourth Year

Fall	Credits Spring	Credits
IST 432 [*]	3 CYBER 440 [*]	3
IST 456 [*]	3 IST 454 [*]	3
IST 451 [*]	3 Application Focus Selection 3	3
General Education Course (GN)	3 General Education Course (GA/GH)	3
General Education Course (GHW)	1.5 Elective	3
	13.5	15

Total Credits 122-125

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

Students pick one of the four tracks below or create a custom 4-course application focus. Students should take one course that meets the GS requirements. Students must pick six (6) credits at the 400 level. All 12 credits must be in the same application focus area.

Law and Policy

Code	Title	Credits
PLSC 1	American Politics: Principles, Processes and Powers	3
COMM 100N	The Mass Media and Society	3
CRIMJ 100	Introduction to Criminal Justice	3
CRIMJ 220	Courts and the Prosecution Process	3
CRIMJ 441	The Juvenile Justice System	3

CRIMJ 451	Race, Crime, and Justice	3
CRIMJ 453	Women and the Criminal Justice System	3
CRIMJ 465	Ethics in Criminal Justice	3
CRIMJ 497	Special Topics (Hate Crime, Extremism, Terrorism)	1-9

Health Care

Code	Title	Credits
HPA 101	Introduction to Health Services Organization	3
HPA 332	Health Systems Management	3
IST 110	Information, People and Technology	3
HPA 470	Health Care Information Management	3
HPA 447	Financing Health Care	3
SOC 451	Health, Disease & Society	3
HIST 114N	Historical Perspectives on HealthCare Innovations	3
BIOET 110N	Health, Illness, and the Human Condition	3

Software Development

Code	Title	Credits
IST 110	Information, People and Technology	3
IST 311	Object-Oriented Design and Software Applications	3
IST 411	Distributed-Object Computing	3
IST 412	The Engineering of Complex Software Systems	3

Business

Code	Title	Credits
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
FIN 301	Corporation Finance	3
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
ACCTG 471	Intermediate Financial Accounting I	3
ACCTG 403	Auditing	3
MGMT 215	Entrepreneurial Mindset	3
MGMT 301	Basic Management Concepts	3
MGMT 425	New Venture Creation	3
MGMT 427	Managing an Entrepreneurial Start-Up Company	3

Custom Application Focus

There is an option for a student to create a custom 4-course application focus sequence. It must be a coherent sequence of courses that provides context for the student in terms of cybersecurity content. It should contain three credits of GS coursework and must contain six credits of 400-level coursework. It must be selected in consultation with a teaching CYBER faculty member and an academic adviser.

Career Paths

Cybersecurity blends the technical expertise needed to analyze security issues and create cyberdefense strategies with the interpersonal skills needed to communicate threats to a variety of audiences. The program prepares students to meet the growing need for professionals who can defend against threats to digital information and assets. IST's Office of Career Solutions helps students navigate their internship and career development in the field through coaching, workshops, interview preparation, resume reviews, career fairs, job postings, and networking opportunities.

Careers

Because our courses blend technical knowledge with skills in communication and business, a Cybersecurity Analytics and Operations degree allows students to pursue opportunities as cybersecurity analysts, cyberthreat advisers, penetration testers, and a number of other unique careers in fields such as defense, government, and business.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE CYBERSECURITY ANALYTICS AND OPERATIONS PROGRAM (<https://www.ist.psu.edu/current/careers/development/process/path/>)

Contact

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jxo19@psu.edu

<https://www.abington.psu.edu/academics/majors-at-abington/cybersecurity> (<https://www.abington.psu.edu/academics/majors-at-abington/cybersecurity/>)

Altoona

DIVISION OF BUSINESS, ENGINEERING, AND INFORMATION SCIENCES AND TECHNOLOGY
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<https://altoona.psu.edu/academics/bachelors-degrees/cybersecurity-analytics-operations> (<https://altoona.psu.edu/academics/bachelors-degrees/cybersecurity-analytics-operations/>)

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University Park

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World Campus

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-cybersecurity-analytics-and-operations-bachelor-of-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-cybersecurity-analytics-and-operations-bachelor-of-science-degree/>)

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<https://www.york.psu.edu/academics/baccalaureate/cybersecurity-analytics-and-operations> (<https://www.york.psu.edu/academics/baccalaureate/cybersecurity-analytics-and-operations/>)

English, B.A. (Abington)

Begin Campus: Any Penn State Campus

End Campus: Abington

Program Description

Majors explore the imaginative and practical uses of English through courses in literature, writing, rhetoric, and language. They develop perspectives on human nature and cultural values through American, British, and other English literatures; they learn how to gather, analyze, synthesize, and communicate information; they gain mastery over their language. These skills help English majors find careers in such fields as publishing, business, industry, government, and teaching. English majors often go on to postgraduate study not only in English but in such areas as law, business, education, or other liberal disciplines.

Majors can emphasize writing, literature, or rhetoric, or a mix of literature, writing, and rhetoric. All provide a liberal education and all develop analytic and writing skills. Qualified students may participate in the career internship and in the English honors program.

Students interested in earning certification in secondary education should contact the College of Education, Department of Curriculum and Instruction. (See also Teacher Education Programs (<https://ed.psu.edu/academics/teacher-testing-certification/>)).

Traditions of Innovation Option

Available at the following campuses: Brandywine, Scranton, University Park

This option allows students to explore the imaginative and practical uses of English language through a variety of courses in literature, writing, and rhetoric across historical periods. The flexibility of the English curriculum allows students to focus in literary and cultural studies, creative writing, professional and media writing, and/or rhetoric, according to individual interests and goals. In the process, students learn to gather, analyze, synthesize, and communicate information as they improve their language skills across diverse creative and critical scenarios. These skills prepare students for careers in a wide range of professional fields.

Writing and Literature in Context Option

Available at the following campuses: Abington, Altoona, Brandywine, Scranton, York

This option focuses on English as a foundation for strong critical thinking and distinctive communication skills, imaginative approaches to problem solving, and collaboration with aligned fields. The flexibility of the major allows students to study literature, creative writing, theatre, media studies, professional writing, and/or other disciplines, according to their individual interests and goals. These foundations prepare English majors for careers in a wide range of professional fields.

What is English?

English refers to a broad field of study related to literature, professional writing, creative writing, and rhetoric. Majors develop critical thinking skills and produce influential academic, creative, professional, and digital texts. They learn to analyze genres, texts, and contexts that involve, for instance, race, class, gender, sexuality, and nationality. They also learn how various texts communicate value, meaning, and social and cultural critique.

You Might Like This Program If...

- You enjoy writing in different genres, styles, and media, e.g. videos, print or web magazine articles, critical essays, reviews, short stories, poems, etc.
- You enjoy addressing social justice issues that give context to texts.
- You want to use communication to help solve problems involving science, technology, medicine, law, business, or society.
- You enjoy making connections between historical eras and current realities.
- You want to a career in law, non-profit work, medicine, education, or writing/editing.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in English, a minimum of 123 credits is required:

Requirement	Credits
General Education	45
Electives	18
Bachelor of Arts Degree Requirements	24
Requirements for the Major	36

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified

by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
ENGL 200	Introduction to Critical Reading	3
or ENGL 201	What is Literature	
ENGL 494H	Senior Thesis in English	3
or ENGL 487W	Senior Seminar	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
In consultation with adviser, select 18 credits in literature, writing, or rhetoric. At least 9 credits must be at the 300/400 level. At least 3 of the 300/400 level credits must fulfill a departmental diversity requirement for a course related to race, gender, sexuality, disability, ethnicity, and/or postcolonial issues.		18
Requirements for the Option		
<i>Requirements for the Option: Require a grade of C or better</i>		
Select an option		12

Requirements for the Option

Traditions of Innovation Option (12 Credits)

Available at the following campuses: Brandywine, Scranton, University Park

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits of 300/400 level course in each of the following areas:		12
Medieval through Sixteenth Century		
Sixteenth Century through Eighteenth Century		
The Nineteenth Century		
Twentieth Century to the Present		

Writing and Literature in Context Option (12 Credits)

Available at the following campuses: Abington, Altoona, Brandywine, Scranton, York

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits of 400-level pre-1800 courses		3
Select 3 credits of 400-level post-1800 courses		3
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 6 credits of English courses at any level		6

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education

Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- **Critical Frameworks for Literary Study:** Apply critical, theoretical, and/or disciplinary approaches to the reading and analysis of texts in multiple genres and/or media.
- **Cultural and Historical Significance:** Analyze the aesthetic and/or cultural significance of the ideas, values, conventions, forms, and genres associated with texts.
- **Research Methods and Ethics:** Gather, evaluate, and employ an array of research materials in support of critical studies, and/or creative activity, in ways consistent with standards of academic integrity.
- **Communication Skills:** Demonstrate writing and rhetorical skills appropriate to critical and/or creative tasks in a variety of media and genres.
- **Analytical Thinking:** Analyze representative literary, theoretical, and cultural texts within significant historical, geographical, and cultural contexts.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The

advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

bulletins.psu.edu/undergraduate/archive/) to view the appropriate Undergraduate Bulletin edition.

Writing and Literature in Context Option: English, B.A. at Abington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 (or Honors Equivalent (GWS)) [†]	3 CAS 100 (or Honors Equivalent (GWS)) [†]	3
General Education Course or BA Requirement	3 English Elective (100-200 Level) [*]	3
Quantification (GQ) [‡]	3 General Education Course	3
First-Year Seminar or General Education Course	3 Natural Sciences (GN)	3
World Language I	4 World Language II	4
	16	16

Second Year

Fall	Credits Spring	Credits
ENGL 200 or 201 [*]	3 ENGL 202A, 202B, 202C, or 202D [‡]	3
Quantification (GQ) [‡]	3 Natural Sciences (GN)	3
General Education Course or BA Requirement	3 General Education Course	3
BA Fields	3 English Elective (100-200 Level) [*]	3
World Language III	4 Health and Wellness	3
	16	15

Third Year

Fall	Credits Spring	Credits
English 4XX-Level Course (work with adviser)	3 ENGL 4XX-Level Course (work with adviser)	3
English Elective/ Concentration Course (any level)	3 English Elective/ Concentration Course (any level)	3
General Education Course/ BA Requirement/Elective	3 BA Fields	3
Arts (GA)	3 General Education Course	3
English Supporting Course	3 English Supporting Course	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
ENGL 487W [*]	3 ENGL 4XX-Level Course (work with adviser) [*]	3
ENGL 4XX-Level Course (work with adviser) [*]	3 ENGL 4XX-Level Course (work with adviser) [*]	3
English Elective/ Concentration Course (any level) [*]	3 General Education Course	3

BA World Cultures	3 English Supporting Course	3
English Supporting Course	3 English Supporting Course	3
15		15

Total Credits 123

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Additional Notes:

This document is only for planning purposes and cannot replace working with an academic adviser. Each student pursues their own path and campuses differ in their ENGL offerings. Most students are "off the plan" after one semester.

One 400-level course must meet the diversity requirement for the major.

Two general education courses (GQ, GN, GA, GH, GS) must be integrative studies courses - Interdomain or linked.

Depending on placement and proficiency, world language courses may need to be replaced with elective credits.

Students are required to take one Writing across the Curriculum course.

"World Cultures" courses may overlap with a general education requirement.

Program Notes:

General Education courses are interchangeable; students may choose the General Education courses they wish to take in any given semester based on preference, availability, and academic goals.

Scheduling patterns vary according to course offerings.

Both US (United States Cultures) and IL (International Cultures) courses must be completed within the degree requirements; these courses may not be used to fulfill the World Cultures requirements.

Career Paths

Careers

Our graduates use their training in careers as attorneys, publishers, professional writers, editors, public relations directors, non-profit professionals, foreign service specialists, entrepreneurs, teachers, and education professionals.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE ENGLISH PROGRAM (<https://english.la.psu.edu/undergraduate/career-enrichment-network/>)

Opportunities for Graduate Studies

English majors often go on to postgraduate study not only in English but in areas such as law, medicine, business, education, or liberal arts disciplines.

More information about opportunities for graduate studies can be found through the following websites:

- Association of Departments of English (<https://www.maps.mla.org/About-MAPS/ADE/>)
- Law School Admissions Council (<https://www.lsac.org/>)
- Association of American Medical Colleges (<https://www.aamc.org/>)
- AWP Guide to Writing Programs (https://www.awpwriter.org/guide/guide_writing_programs/)

Professional Resources

- Department Website with information on Major, Minor, concentrations, and other opportunities (<https://english.la.psu.edu/undergraduate/majors/>)
- Kalliope, Penn State's undergraduate literary magazine (<https://kalliope.psu.edu/>)
- Creative Writing Club, A community for improving and sharing creative writing (<https://sites.psu.edu/creativewritingclub/>)
- W.O.R.D.S., Writers Organized to Represent Diverse Stories (<https://sites.psu.edu/wordspennstate/>)
- Career Enrichment Network, resource for career-related, international, and professional development (<https://la.psu.edu/current-students/career-enrichment-network/>)
- Modern Language Association, Guide for Undergraduate Research (<https://www.mla.org>)
- Conference on College Composition and Communication (<https://cccc.ncte.org/>)
- National Council of Teachers of English (<https://ncte.org/>)
- American Bar Association (<https://www.americanbar.org/>)
- AWP
- American Society of Journalists and Authors (<https://www.asja.org/>)
- National Association of Science Writers (<https://www.nasw.org/>)
- Society for Technical Communication (<https://www.stc.org/>)

- Society of Professional Journalists (<https://www.spj.org/>)
- Association of Writers and Writing Programs (<https://www.awpwriter.org/>)
- American Grant Writers' Association (<http://www.agwa.us/>)
- International Writing Centers Association (<https://writingcenters.org/>)
- TESOL International Association (<https://www.tesol.org/>)

Contact

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<https://www.brandywine.psu.edu/academics/bachelors-degrees/english>
(<https://www.brandywine.psu.edu/academics/bachelors-degrees/english/>)

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<https://scranton.psu.edu/academics/degrees/bachelors/english-degree>
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Finance, B.S. (Abington)

Begin Campus: Any Penn State Campus

End Campus: Abington

Program Description

The finance major emphasizes analytic, problem solving, and computer skills which are necessary for finance and investment industry. The major prepares students for careers in corporate finance, investment and portfolio management, banking, public finance, and international finance. The major also prepares students who want to pursue graduate study in finance. Depending on their interests, graduates may then seek financial services credentials such as Certified Financial Planner (CFP) and Chartered Financial Analyst (CFA).

The requirements in the major complement basic business instruction in accounting, management, marketing, and information systems. With business and non-business electives, the program is designed to develop necessary skills to be an effective financial manager. Because the Harrisburg area is the center of industry and economic development for south-central Pennsylvania, students are provided with many opportunities to experience the world of business.

What is Finance?

Finance focuses on how individuals and business organizations raise money and capital, and how those resources are allocated among competing investment and consumption opportunities. The field focuses on domestic and international financial economies and the role of financial markets and institutions key in the movement of savings and investment capital from lenders to borrowers. It also deals with how individuals and corporate managers evaluate alternative investment and savings opportunities and how they choose among various financial instruments.

You Might Like This Program If...

- You enjoy numbers and "real world" applications of math.
- You are interested in how businesses and banks manage their assets.
- You want a career in business, finance, or investment management.

Entrance to Major

Entry to the Finance major requires the completion of 8 entry-to-major courses: ACCTG 211¹, ECON 102¹, ENGL 15 or ENGL 30H, FIN 301¹, MATH 110¹ or MATH 140¹, MGMT 301, MKTG 301, SCM 200¹ or STAT 200¹; and a 2.00 or higher cumulative grade-point average.

Additional information about this major is available in the office of the Director of Undergraduate Studies, School of Business at Penn State Harrisburg.

¹ Course requires a grade of C or better.

Degree Requirements

For the Bachelor of Science degree in Finance, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives (non-business courses)	8
Requirements for the Major	79

12 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GWS courses; 3 credits of GS courses; 6 credits of GQ courses.

At least 50 percent of the business credit hours required for the degree must be taken at Capital College. No more than 60 credits should be from business and business-related courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
BA 364Y	International Business and Society	3
ENGL 202D	Effective Writing: Business Writing	3
MGMT 301	Basic Management Concepts	3
MIS 204	Introduction to Management Information Systems	3
MIS 390	Information Systems Management and Applications	3
MKTG 301	Principles of Marketing	3
SCM 301	Supply Chain Management	3
<i>Prescribed Courses: Require a grade of C or better</i>		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
BA 462	Business Strategy	3
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
ECON 351	Money and Banking	3
FIN 301	Corporation Finance	3
FIN 302	Introductory Financial Modeling	3
FIN 420	Investment and Portfolio Analysis	3
FIN 475	Financial Decision Making	3
Additional Courses		
BA 241 & BA 242 or BA 243	Legal Environment of Business and Social and Ethical Environment of Business Social, Legal, and Ethical Environment of Business	4
<i>Additional Courses: Require a grade of C or better</i>		
MATH 110 or MATH 140	Techniques of Calculus I Calculus With Analytic Geometry I	4
SCM 200	Introduction to Statistics for Business	4

or STAT 200 Elementary Statistics

Select 9 credits of the following:	9
ACCTG 481	Financial Statement Analysis: Accounting Based Evaluation and Decision Making
FIN 305	Financial Management of the Business Enterprise
FIN 306W	Investment Valuation
FIN 407	Multinational Financial Management ¹
FIN 408	Financial Markets and Institutions
FIN 409	Real Estate Finance and Investment
FIN 413	Risk Management of Financial Institutions
FIN 427	Derivative Securities ¹
FIN 456	International Capital Markets
FIN 461	Portfolio Management and Analysis ¹
FIN 496	Independent Studies
Other finance courses approved by the Program	

Supporting Courses and Related Areas

Select 9 credits of 200-400 level business courses from: ACCTG, BA, ECON, FIN, MGMT, MIS, MKTG, or SCM in consultation with an academic adviser and in support of the student's interests	9
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¹ For students considering CFA exam, FIN 407, FIN 427 and FIN 461 are recommended.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses**. This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- Demonstrate the necessary skills and abilities to effectively communicate.
- Apply contemporary tools of information technology to include business software applications.
- Apply leadership, team building, and project management skills.
- Compare, contrast and differentiate the business environment of both their local community and the globalized world economy.
- Demonstrate an awareness of ethical issues, social responsibilities and conflict resolution.

- Utilize and apply fundamental business concepts, principles and contemporary business practices.
- Recognize, analyze and solve business problems using quantitative and qualitative measures.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

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Suggested Academic Plan

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Finance, B.S. at Abington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H ^{#†}	3 CAS 100A or 100B	3
MATH 110 or 140 ^{*#†}	4 STAT 200 or SCM 200 ^{*#†}	4
ECON 102 ^{*#†}	3 MGMT 301 [#]	3

General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course	3
14.5		16

Second Year

Fall	Credits Spring	Credits
ACCTG 211 ^{*#}	4 FIN 301 ^{*#}	3
MKTG 301 [#]	3 ENGL 202D [†]	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course (US or IL Cultures)	3
General Education Course	3 Non-Business Elective	3
16		15

Third Year

Fall	Credits Spring	Credits
BA 243	4 ECON 351 [*]	3
ECON 104 [*]	3 FIN 420 [*]	3
FIN 302 [*]	3 MIS 390	3
MIS 204	3 200-400 Level Business Course ²	3
General Education Course (GHW)	1.5 FIN 305, 306W, 407, 408, 409, 413, 427, 456, 461, 496, or ACCTG 481 ^{*1}	3
14.5		15

Fourth Year

Fall	Credits Spring	Credits
BA 364Y (can fulfill US or IL Cultures, but not both)	3 BA 462 [*]	3
SCM 301	3 FIN 475 [*]	3
200-400 Level Business Course ²	3 Non-Business Elective	3
FIN 305, 306W, 407, 408, 409, 413, 427, 456, 461, 496, or ACCTG 481 ^{*1}	3 200-400 Level Business Course ²	3
FIN 305, 306W, 407, 408, 409, 413, 427, 456, 461, 496, or ACCTG 481 ^{*1}	3 Non-Business Elective	2-3
15		14-15

Total Credits 120-121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain)

requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ Select courses in consultation with an academic adviser and in support of the student's interests.

² Select 200-400 level business courses from BA, FIN, MIS, MGMT, MKTG, SCM, or ACCTG in consultation with an academic adviser and in support of the student's interests. FIN 495 (Finance Internship) can satisfy a business support requirement. For more information, contact the Business Program Chair.

Career Paths

The Finance major prepares students for careers in corporate finance, investment and portfolio management, banking, public finance, and international finance. The major also prepares students who want to pursue graduate study in finance. Depending on their interests, graduates may then seek financial services credentials such as Certified Financial Planner (CFP) and Chartered Financial Analyst (CFA).

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE FINANCE PROGRAM (<https://harrisburg.psu.edu/business-administration/finance-bs/>)

Opportunities for Graduate Studies

The School of Business Administration offers a limited number of academically superior Bachelor of Science in Finance candidates the opportunity to enroll in an integrated, continuous program of study leading to both the Bachelor of Science in Finance and the Master of Business Administration.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://harrisburg.psu.edu/business-administration/finance-bs-mba/>)

Contact

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215-421-0030
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<https://www.abington.psu.edu/academics/majors-at-abington> (<https://www.abington.psu.edu/academics/majors-at-abington/>)

Harrisburg

SCHOOL OF BUSINESS ADMINISTRATION
Olmsted Building E355
Middletown, PA 1705
717-948-6139
cxs879@psu.edu

<https://harrisburg.psu.edu/business-administration/finance-bs> (<https://harrisburg.psu.edu/business-administration/finance-bs/>)

Health Humanities, B.A.

Begin Campus: Any Penn State Campus

End Campus: Abington

Program Description

The Health Humanities program emphasizes the application of concepts and methods from history, literature, philosophy, communications, religious studies, cultural and language studies, and the arts, to educate us about the human condition. In combination with perspectives drawn from the social and behavioral sciences, it uses an interdisciplinary approach to explore the cultural and ethical aspects of human health and illness. Students in the Health Humanities cultivate empathy, embrace ambiguity, approach problems from a variety of perspectives, and practice self-care, all essential to effective health care practice and to a humanistic approach to studying and representing health and illness. The multiple methods and disciplines in Health Humanities are inherently suited to complement existing biomedical approaches to the study of health and illness.

What is Health Humanities?

The B.A. in Health Humanities draws together perspectives from the humanities, social sciences, and the arts to educate us about the role of health, disease, and medicine in the human experience. It uses an interdisciplinary and holistic approach to explore the social, cultural, political, and ethical aspects of wellbeing, illness, and healthcare. Students in this program cultivate empathy, embrace ambiguity, approach solving problems from a variety of perspectives, and practice self-care, all essential skills for future health care practitioners as well as anyone interested in a humanistic approach to the study and representation of health and illness in the twenty-first century. The B.A. degree provides excellent preparation for graduate school as well as careers in areas such as public health, patient advocacy, law, health education, the arts, rehabilitation, social work, health care administration, and community activism.

You Might Like This Program If...

- You are interested in exploring questions related to health, illness, and healthcare from a range of perspectives beyond biological function.
- You want to gain an understanding of the influence of cultural, social, political, and economic contexts on health, medicine and healthcare.
- You would like to integrate the arts and humanities into the study of wellbeing, health care, and medicine.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Health Humanities, a minimum of 123 credits is required:

Requirement	Credits
General Education	45
Electives	12
Bachelor of Arts Degree Requirements	24
Requirements for the Major	42

0-12 credits of the 24 credits for Bachelor of Arts Degree Requirements are included in Electives if world language proficiency is demonstrated by examination.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
BIOET 110N	Health, Illness, and the Human Condition	3
BMH 490	Bioethics and Medical Humanities Capstone Course	3
PHIL 132/ BIOET 100	Bioethics	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits from the following:		3
AFAM/BBH 302	Diversity and Health	
ASIA 106N	Asian Traditions of Health, Medicine, and the Body	
CAS/ENGL/ SOC 162N	Communicating Care	
HIST/STS 124	History of Western Medicine	
In consultation with adviser, select 6 credits from departmental list of approved courses in the Literary, Visual and Performing Arts		6

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

In consultation with adviser, select 12 credits from departmental list of approved courses in Culture, Society and Health Communication	12
In consultation with adviser, select 12 credits from departmental list of approved courses in Social Sciences and Health Care	12

Additional Information:

- **Diversity requirement:** At least 3 credits in Additional or Supporting Courses must be for a course related to race, gender, sexuality, disability, ethnicity, and/or postcolonial issues.
- **Global/Transnational requirement:** At least 3 credits in Additional or Supporting Courses must be for a course that has a focus that is transnational or outside the United States.
- A single course may not be used to meet both the Diversity and Global/Transnational requirements.
- **400-level requirement:** At least 12 credits in Additional or Supporting Courses must be at the 400-level

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Abington

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Health Humanities, B.A. at Abington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [‡]	3 CAS 100A or 100B [‡]	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
World Language Level 1	4 World Language Level 2	4
General Education Course (GHW)	1.5 General Education Course	3
PSU 1	1	
	15.5	16

Second Year

Fall	Credits Spring	Credits
BIOET 110N [*]	3 Major Additional Course from List (Arts) [*]	3
CAS/ENGL/SOC 162N, AFAM 302, BBH 302, ASIA 106N, HIST 124, or STS 124 [*]	3 PHIL 132/BIOET 100 [*]	3
General Education Course	3 Major Supporting Course from List [*]	3
World Language Level 3	4 BA Knowledge Domain Course	3
BA Knowledge Domain Course	3 General Education Course	3
	16	15

Third Year

Fall	Credits Spring	Credits
ENGL 202A or 202B [‡]	3 BA Knowledge Domain Course	3
General Education Course	3 General Education Course	3
General Education Course	3 Major Additional Course from List (Arts) [*]	3
Major Supporting Course from List (OC) [*]	3 Major Supporting Course from List [*]	3
4xx Major Supporting Course from List [*]	3 4xx Major Supporting Course from List [*]	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
Major Supporting Course from List [*]	3 BMH 490 [*]	3
4xx Major Supporting Course from List [*]	3 4xx Major Supporting Course from List [*]	3
Elective	3 Elective	3
Elective	3 General Education Course (GHW)	1.5
Elective	2 Elective	3
	Elective	3
	14	16.5

Total Credits 123

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Advising Notes:

- Diversity requirement: At least 3 credits in Additional or Supporting Courses must be for a course related to race, gender, sexuality, disability, ethnicity, and/or postcolonial issues.
- Global/Transnational requirement: At least 3 credits in Additional or Supporting Courses must be for a course that has a focus that is transnational or outside the United States.
- A single course may not be used to meet both the Diversity and Global/Transnational requirements.
- With the approval of the adviser, students may substitute up to 3 credits of the required 24 credits in supporting courses with a

significant engaged scholarship experience. The experience should be in areas such as public health, provider/patient relations, or health care that spans disciplinary, global, or cultural boundaries, and include an arts or humanities component. It may lead to a Capstone project or senior thesis.

- The Health Humanities, B.A. department list can be found on the Penn State Abington website at: <https://www.abington.psu.edu/academics/health-humanities/hhum-course-list> (<https://www.abington.psu.edu/academics/health-humanities/hhum-course-list/>).

Career Paths

The B.A. in Health Humanities offers excellent preparation for careers in health-related professions, including in patient care, administration, and human services. In addition, the program's interdisciplinary and holistic approach to the study of health, medicine, healthcare and the body provides students with a strong foundation necessary for a range of roles in fields that are concerned with the cultural, political and societal dimensions of health and healthcare for individuals as well as communities.

Careers

- Healthcare
- Arts
- Business
- Education
- Law
- Journalism
- Public Health
- Social Work

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE HEALTH HUMANITIES PROGRAM (<https://www.abington.psu.edu/academics/majors-at-abington/health-humanities/>)

Opportunities for Graduate Studies

The major prepares students to earn advanced degrees in liberal arts disciplines as well as health-related fields such as occupational therapy and social work.

Professional Resources

- Literature Arts Medicine database (LITMED) (<https://medhum.med.nyu.edu/>)
- American Association for the History of Medicine (<https://www.histmed.org/>)
- Graphic Medicine (<https://www.graphicmedicine.org/>)
- Poetry Therapy (<https://poetrytherapy.org/>)
- Society for Disability Studies (<https://disstudies.org/index.php/sds-principles/>)
- Society for Literature, Science & the Arts (<https://litsciarts.org/>)

Contact

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<https://www.abington.psu.edu/academics/majors-at-abington/health-humanities> (<https://www.abington.psu.edu/academics/majors-at-abington/health-humanities/>)

Health Humanities, B.S.

Begin Campus: Any Penn State Campus

End Campus: Abington

Program Description

The Health Humanities program emphasizes the application of concepts and methods from history, literature, philosophy, communications, religious studies, cultural and language studies, and the arts, to educate us about the human condition. In combination with perspectives drawn from the social and behavioral sciences, it uses an interdisciplinary approach to explore the cultural and ethical aspects of human health and illness. Students in the Health Humanities cultivate empathy, embrace ambiguity, approach problems from a variety of perspectives, and practice self-care, all essential to effective health care practice and to a humanistic approach to studying and representing health and illness.

What is Health Humanities?

The B.S. in Health Humanities provides students with a strong foundation in the sciences in combination with perspectives from the humanities, social sciences, and the arts to examine the role of health, disease, and medicine in the human experience. It uses an interdisciplinary and holistic approach to explore the social, cultural, political, and ethical aspects of wellbeing, illness, and healthcare. Students in this degree program cultivate empathy, embrace ambiguity, approach solving problems from a variety of perspectives, and practice self-care, all essential skills for future health care practitioners as well as anyone interested in a humanistic approach to the study and representation of health and illness in the twenty-first century. The B.S. degree provides excellent preparation for medical school other graduate training in medical fields, as well as careers in areas such as public health, patient advocacy, law, health education, rehabilitation, social work, health care administration, and community activism.

You Might Like This Program If...

- You are interested in exploring questions related to health, illness and healthcare from a range of perspectives in addition to a biomedical approach
- You want to gain an understanding of the influence of cultural, social, political, and economic contexts on health, medicine and healthcare
- You would like to integrate the arts and humanities into the study of health care and medicine
- You are planning to pursue medical school or other graduate health professions study that requires a strong foundation in the sciences

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Health Humanities, a minimum of 123 credits is required:

Requirement	Credits
General Education	45
Electives	32-36
Requirements for the Major	46

0-4 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 0-4 credits of GQ courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
BIOET 110N	Health, Illness, and the Human Condition	3
BMH 490	Bioethics and Medical Humanities Capstone Course	3
PHIL 132/ BIOET 100	Bioethics	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 7 credits from the following:		7
BIOL 110	Biology: Basic Concepts and Biodiversity	
BIOL 161	Human Anatomy and Physiology I - Lecture	
BIOL 162	Human Anatomy and Physiology I - Laboratory	
BIOL 220W	Biology: Populations and Communities	
STAT 200	Elementary Statistics	
STAT 250	Introduction to Biostatistics	
Select 3 credits from the following:		3
AFAM/BBH 302	Diversity and Health	
ASIA 106N	Asian Traditions of Health, Medicine, and the Body	
CAS/ENGL/ SOC 162N	Communicating Care	
HIST/STS 124	History of Western Medicine	
In consultation with adviser, select 3 credits from departmental list of approved courses in the Literary, Visual and Performing Arts		3
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
In consultation with adviser, select 12 credits from departmental list of approved courses in Culture, Society and Health Communication		12
In consultation with adviser, select 12 credits from departmental list of approved courses in Social Sciences and Health Care		12

Additional Information:

- **Diversity requirement:** At least 3 credits in Additional or Supporting Courses must be for a course related to race, gender, sexuality, disability, ethnicity, and/or postcolonial issues.
- **Global/Transnational requirement:** At least 3 credits in Additional or Supporting Courses must be for a course that has a focus that is transnational or outside the United States.
- A single course may not be used to meet both the Diversity and Global/Transnational requirements.
- **400-level requirement:** At least 12 credits in Additional or Supporting Courses must be at the 400-level.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous

years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Health Humanities, B.S. at Abington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [†]	3 BIOL 110, 161 and 162, STAT 200, or STAT 250 [†]	3-4
General Education Course	3 CAS 100A or 100B [†]	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
Elective	3 Elective	3
PSU 1	1	
	16	15-16

Second Year

Fall	Credits Spring	Credits
BIOL 110, 161 and 162, 220W, STAT 200, or STAT 250 [†]	3-4 CAS/ENGL/SOC 162N, AFAM 302, BBH 302, ASIA 106N, HIST 124, or STS 124	3
BIOET 110N [*]	3 PHIL 132/BIOET 100 [*]	3
General Education Course	3 Major Additional Course from List (Arts) [*]	3
Elective	3 General Education Course	3
General Education Course	3 General Education Course or Elective ¹	3
	15-16	15

Third Year

Fall	Credits Spring	Credits
ENGL 202A or 202B [†]	3 4xx Major Supporting Course from List [*]	3
General Education Course	3 Major Supporting Course from List [*]	3
Elective	3 General Education Course	3
Major Supporting Course from List [*]	3 Elective	3
4xx Major Supporting Course from List [*]	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
Major Supporting Course from List [*]	3 BMH 490 [*]	3
4xx Major Supporting Course from List [*]	3 4xx Major Supporting Course from List [*]	3
Major Supporting Course from List [*]	3 Elective	3

Elective	3 General Education Course (GHW)	1.5
Elective	3 Elective	3
General Education Course (GHW)	1.5 Elective ²	0-1
16.5		13.5-14.5

Total Credits 121-124

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ Depending on whether STAT 200 or STAT 250 is counted as GQ

² Number of credits depends on credits earned in Additional Courses (7-8 credits selected from BIOL 110 or BIOL 161/BIOL 162 or STAT 200 or STAT 250)

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Diversity requirement: At least 3 credits in Additional or Supporting Courses must be for a course related to race, gender, sexuality, disability, ethnicity, and/or postcolonial issues.
- Global/Transnational requirement: At least 3 credits in Additional or Supporting Courses must be for a course that has a focus that is transnational or outside the United States.
- The Health Humanities, B.S. department list can be found on the Penn State Abington website at: <https://www.abington.psu.edu/academics/health-humanities/hhum-course-list> (<https://www.abington.psu.edu/academics/health-humanities/hhum-course-list/>).

Career Paths

The B.S. in Health Humanities offers excellent preparation for careers in health professions, such as patient care, patient advocacy, and administration. In addition, the program's interdisciplinary and holistic approach to the study of health, medicine, healthcare and the body provides students with a strong foundation for medical school. Moreover, students acquire the skills and knowledge necessary for a range of roles in fields that are concerned with the cultural, political and societal dimensions of health and healthcare for individuals as well as communities.

Careers

- Healthcare
- Business
- Education
- Law
- Journalism
- Public Health
- Social Work

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE HEALTH HUMANITIES PROGRAM (<https://www.abington.psu.edu/academics/majors-at-abington/health-humanities/>)

Opportunities for Graduate Studies

The major prepares students to earn advanced degrees in medicine and other health-related fields as well as liberal arts disciplines.

Professional Resources

- Association of American Medical Colleges (<https://www.aamc.org/>)
- American Medical Student Association (<https://www.amsa.org/>)
- Literature Arts Medicine database (LITMED) (<https://medhum.med.nyu.edu/>)
- American Association for the History of Medicine (<https://www.histmed.org/>)
- Graphic Medicine (<https://www.graphicmedicine.org/>)
- Poetry Therapy (<https://poetrytherapy.org/>)
- Society for Disability Studies (<https://disstudies.org/index.php/sds-principles/>)
- Society for Literature, Science & the Arts (<https://litsciarts.org/>)

Contact**Abington**

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<https://www.abington.psu.edu/academics/majors-at-abington/health-humanities> (<https://www.abington.psu.edu/academics/majors-at-abington/health-humanities/>)

History, B.A. (Abington)

Begin Campus: Any Penn State Campus

End Campus: Abington

Program Description

This major provides a broad introduction to the history of the great civilizations of the world and specific areas of historical inquiry. Centered in one of the basic, traditional disciplines, the History major offers invaluable preparation for students interested in a career in government, international relations, law, or librarianship, as well as essential training for those interested in a professional career as an academic or public historian, archivist, or secondary school teacher. Along with the perspective on the present that a study of the past engenders, the

program develops skills in research, analysis, and synthesis that have proved useful in commerce and industry. The History major permits easy combination with minors, area studies, or even a concurrent major, providing flexibility in one's career choice.

What is History?

History is an interdisciplinary field that offers a unique analytical perspective on the world. To understand history, we not only need to understand politics and war, but also the significance of cultural, religious, social, and intellectual developments. The study of history provides a breadth of knowledge and an understanding of diverse perspectives. This diversity includes the opportunity to incorporate anthropology, the scientific study of humanity, into their coursework. A history major will not only enable a student to have a better comprehension of the development of today's complex world, but will also help a student develop a range of skills that are applicable in a wide variety of careers, including education, law, museum studies, and business.

You Might Like This Program If...

- You want to learn to assess the credibility of sources; in today's media-rich environment, you will put this skill to work every day.
- You want to gain a deeper understanding of complex causalities; as a history student you will practice thinking about the significance of multiple, often interlinking factors and the way they contribute to complex events.
- You're interested in pursuing a career in law, business, or education.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in History, a minimum of 123 credits is required:

Requirement	Credits
General Education	45
Electives	18
Bachelor of Arts Degree Requirements	24
Requirements for the Major	36

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree

is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
HIST 302W	Undergraduate Seminar	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select one sequence of the following:		6
HIST 1 & HIST 2	Western Civilization I and Western Civilization II	
HIST 10 & HIST 11	World History to 1500 and World History since 1500	
HIST 20 & HIST 21	American Civilization to 1877 and American Civilization Since 1877	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 12 credits, in consultation with an adviser, at the 100-200-level, one course from each of the following field categories: Europe, United States, Global, Pre-Modern ¹		12
Select 3 credits at the 100-400-level		3
Select 12 credits at the 400-level, at least one course which must be in Global History		12

¹ Courses that appear in two History categories (such as HIST 174) cannot be double-counted to be applied to two field categories. However, the student may choose to which category to apply the course.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- **Developing Skills in Analysis, Research, and Communication:**
 - Learn to engage critically with complex arguments, identifying underlying theories, assumptions, and approaches.
 - Generate substantive, open-ended questions about human experiences and develop research strategies to answer them.
 - Demonstrate historical research skills built upon the analysis of primary and secondary sources.
 - Craft well-supported written and oral communication in a variety of media for a variety of audiences.
- **Sharpening Perspectives on the Present:**
 - Develop an appreciation for the perspectives of people whose experiences and values differ dramatically from one's own.
 - Develop an awareness of how understanding the past can help us meet contemporary challenges and opportunities.
- **Understanding Societies and Cultures:**
 - Recognize history as an interpretive account of the human past—one that historians create from surviving evidence.
 - Demonstrate an understanding that historical and geographic contexts influence people's lived experiences and how they make sense of their lives.
 - Develop a body of historical knowledge with breadth of time and place—as well as depth of detail.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Abington

David Ruth

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1600 Woodland Road
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University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

World Campus

Undergraduate Academic Advising

301 Outreach Building
University Park, PA 16802
814-863-3283
advising@outreach.psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

History, B.A. at Abington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
ENGL 15 or 30H	3	HIST survey course 2 ^{*1}	3
HIST survey course 1 ^{*1}	3	General Education Course	3
General Education Course	3	General Education Course	3
General Education Course	3	General Education Course	3
World Language Level 1	4	World Language Level 2	4
	16		16

Second Year

Fall	Credits	Spring	Credits
CAS 100A or 100B	3	100/200 Level HIST Course [*] ₂	3
100/200 Level HIST Course [*] ₂	3	100/200 Level HIST Course [*] ₂	3
General Education Course	3	ENGL 202B	3
General Education Course	3	General Education Course	3
World Language Level 3	4	General Education Course	3
	16		15

Third Year

Fall	Credits	Spring	Credits
400 Level HIST Course ^{*3}	3	400 Level HIST Course ^{*3}	3
100/200 Level HIST Course [*] ₂	3	100-400 Level HIST Course [*] ₂	3
General Education Course	3	General Education Course	3
Bachelor of Arts Requirement	3	Bachelor of Arts Requirement	3
Elective	3	Elective	3
		General Education Course (GHW)	1.5
	15		16.5

Fourth Year

Fall	Credits	Spring	Credits
400 Level HIST Course ^{*3}	3	HIST 302W (or 400 Level HIST Course) [*]	3
HIST 302W (or 400 Level HIST Course) [*]	3	Elective	3
World Cultures, Elective	3	Elective	3
Bachelor of Arts Requirement	3	Elective	3
Elective	3		
General Education Course (GHW)	1.5		
	16.5		12

Total Credits 123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures.

See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

- ¹ All students are required to complete one of three survey sequences: HIST 020 and 021 or HIST 001 and 002 or HIST 010 and 011.
- ² All students must complete one course at the 100/200 level in each of the topic areas: European, United States, Global, and PreModern. See adviser for approved list.
- ³ All students must complete one 400 level HIST course in Global topics. See adviser for approved list.

Additional Notes

Course selections towards the HIST major must include at least 6 credits of Global History courses. Consult department list or adviser.

All students must complete at least one 3 credit Writing Intensive course. HIST 302W required of all History majors satisfied this requirement.

All students must take a United States Cultures (US) and an International Cultures (IL) course. Some of the prescribed courses for History majors may satisfy these requirements (HIST 20 or 21 for US, HIST 1 or 2 or 10 or 11 for IL).

Students who begin the world language sequence at a level higher than 001 need to replace the skipped credits with additional elective credits.

Career Paths

Penn State History majors have enjoyed success in a wide variety of fields. They are found in careers that relate to the major, such as historic preservation, museum work, and education; a healthy representation of our majors go on to law school and graduate school. However, it is not unusual to find former history majors in areas that might not immediately come to mind. Penn State history majors can be found in architecture, software development, web development, banking, federal government work, and the Peace Corps, to name just a few. They tend to do well because their basic skills are sound.

Careers

- Law
- Secondary Teaching
- Historic Preservation
- Governmental Organizations
- United Nations Organizations
- Non-Governmental Organizations
- Industry Leaders

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE HISTORY PROGRAM (<https://la.psu.edu/current-students/career-enrichment-network/>)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://history.la.psu.edu/graduate/>)

Professional Resources

- Phi Alpha Theta National History Honor Society (<https://www.phialphatheta.org>)

Contact

Abington

DIVISION OF ARTS AND HUMANITIES

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<https://www.abington.psu.edu/academics/majors-at-abington/history>
(<https://www.abington.psu.edu/academics/majors-at-abington/history/>)

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World Campus

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-history-bachelor-of-arts-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-history-bachelor-of-arts-degree/>)

Information Technology, B.S. (Abington)

Begin Campus: Any Penn State Campus

End Campus: Abington

Program Description

This degree is a new broad based technical and theoretical degree that will prepare students to implement and use information technology to realize a variety of goals within and between all types of organizations and businesses (e.g., reliability, accessibility, efficiency, cost reduction, and revenue enhancement). The emphasis is on providing the student with the theoretical frameworks needed to use information technology to solve problems while also providing a set of applied, real-world experiences. Students will acquire a broad set of skills across many areas of information technology, including programming and systems development, networking, databases, project management, and information security. Students will consider how the implementation of information technology in organizations affects social change and the delivery of information to the consumer. Upper-level course selections allow for specific advanced options including but not limited to application development, networking, cybersecurity, and business. Project-oriented, team-based projects that include significant writing and presentation components will be integrated throughout the curriculum.

Application Development Option

Available at the following campuses: Abington, Altoona, Beaver, Berks, Brandywine, Lehigh Valley, Schuylkill, Scranton, York

This option prepares students for the design and development of complex object-oriented programming and technical skills to succeed in a fast-paced development and operations environment.

Business Applications Option

Available at the following campuses: Abington, Altoona, Beaver, Berks, Brandywine, DuBois, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Schuylkill, Scranton, York

This option prepares students to pursue careers in Information technology solving business organizational problems with an emphasis on the systems processes and business operations integration.

Custom Information Technology Option

Available at the following campuses: Altoona, Berks, Brandywine, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Schuylkill, Scranton, Wilkes-Barre, York

This option provides the opportunity for students to pursue an approved information technology interdisciplinary or exploratory program of study.

Cybersecurity Option

Available at the following campuses: Altoona, Beaver, Berks, Brandywine, Lehigh Valley, Mont Alto, New Kensington, Schuylkill, Scranton, York

This option will provide students with the knowledge and cyber defense skills needed to critically assess and respond to modern information security threats. They will be prepared to protect information infrastructure and data from attacks and unauthorized access.

Networking Option

Available at the following campuses: Abington, DuBois, Mont Alto

This option prepares students to pursue careers in the design, development, and support of complex networks and networking infrastructure.

Security and Risk Analysis Option

Available at the following campuses: Altoona, Berks, Brandywine, Lehigh Valley, Schuylkill

This option prepares students to address the current and emerging security and risk challenges that face individuals, organizations and our nation, over a variety of domains including national/homeland security, emergency and disaster management, law and crime, and enterprise risk management.

What is Information Technology?

Information Technology offers both broad organizational problem-solving skills and in-depth knowledge in current in-demand technical skills. Using technology to leverage organizational resources and address organizational challenges are at the forefront of the B.S. degree in Information Technology. The program includes required and optional courses in cybersecurity, databases, computer programming, project management, security and risk analysis, networking, web design and development, application development, and systems analysis. This broad base of skills is ideally suited for entry-level positions in all the above content areas.

You Might Like This Program If...

- You enjoy technology and working with others to build solutions.
- You want to create high-tech solutions to organizational and societal challenges.
- You are interested in application development and programming.
- You are interested in improving computer systems and enhancing their safety for individuals and corporations.
- You want to leverage current and emerging technologies to improve business processes.

Entrance to Major

To be eligible for entrance to the B.S. in Information Technology major, students must:

- achieve a minimum cumulative grade point average of 2.00
- complete the following entrance-to-major courses with grades of C or better:
 - IST 110 or CYBER 100 or CYBER 100S
 - IST 140 or CMPSC 121 or CMPSC 131
 - IST 210
 - IST 220

Degree Requirements

For the Bachelor of Science degree in Information Technology, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	7-9
Requirements for the Major	87-89

21 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GWS courses; 6 credits of GQ courses; and 6 credits of GS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ETI 461	Database Management and Administration	3
IST 210	Organization of Data	3
IST 220	Networking and Telecommunications	3
IST 230	Language, Logic, and Discrete Mathematics	3
IST 242	Intermediate & Object-Oriented Application Development	3
IST 256	Programming for the Web	3
IST 260W	Introduction to Systems Analysis and Design	3
IST 302	IT Project Management	3
IST 331	Foundations of Human-Centered Design	3

IST 440W	Information Sciences and Technology Integration and Problem Solving	3
IST 495	Internship	1
SRA 111	Introduction to Security and Risk Analysis	3
SRA 221	Overview of Information Security	3

Additional Courses

Select one of the following: 3

ECON 102	Introductory Microeconomic Analysis and Policy	
ECON 104	Introductory Macroeconomic Analysis and Policy	
PLSC 1	American Politics: Principles, Processes and Powers	
PLSC 14	International Relations	
PSYCH 100	Introductory Psychology	
SOC 5	Social Problems	

Additional Courses: Require a grade of C or better

ENGL 15	Rhetoric and Composition	3
or ENGL 30H	Honors Rhetoric and Composition	
ENGL 202C	Effective Writing: Technical Writing	3
or ENGL 202D	Effective Writing: Business Writing	
MATH 110	Techniques of Calculus I	4
or MATH 140	Calculus With Analytic Geometry I	

Select one of the following: 3

CAS 100A	Effective Speech	
CAS 100B	Effective Speech	
CAS 100C	Effective Speech	

Select one of the following: 3

CMPSC 121	Introduction to Programming Techniques	
CMPSC 131	Programming and Computation I: Fundamentals	
IST 140	Introduction to Application Development	

Select one of the following: 3

CYBER 100	Computer Systems Literacy	
CYBER 100S	Computer Systems Literacy	
IST 110	Information, People and Technology	

Select one of the following: 4

DS 200	Introduction to Data Sciences	
STAT 200	Elementary Statistics	
SCM 200	Introduction to Statistics for Business	

Select one of the following: ¹ 3-4

ACCTG 211	Financial and Managerial Accounting for Decision Making	
BA 100	Introduction to Business	
ECON 102	Introductory Microeconomic Analysis and Policy ²	
ECON 104	Introductory Macroeconomic Analysis and Policy ²	
MGMT 301	Basic Management Concepts	
MKTG 301	Principles of Marketing ²	

Select one of the following: ¹ 3

CYBER 262	Cyber-Defense Studio	
IST 226	Networking Essentials	
IST 451	Network Security	
IST 454	Computer and Cyber Forensics	

Requirements for the Option

Select an option 18-19

¹ These courses may not double count with other additional or option requirements.² Course does not require a grade of C or better.**Requirements for the Option****Application Development Option (18 credits)***Available at the following campuses: Abington, Altoona, Beaver, Berks, Brandywine, Lehigh Valley, Schuylkill, Scranton, York*

Code	Title	Credits
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Additional Courses*Additional Courses: Require a grade of C or better*

Select 12 credits, with at least 3 credits at the 400 level, from the following: 12

IST 261	Application Development Design Studio I	
IST 311	Object-Oriented Design and Software Applications	
IST 361	Application Development Design Studio II	
IST 411	Distributed-Object Computing	
IST 412	The Engineering of Complex Software Systems	
IST 413	Usability Engineering	

Supporting Courses and Related Areas*Supporting Courses and Related Areas: Require a grade of C or better*

Select 6 credits at the 300 or 400 level in Advanced IT courses from College approved list. 6

Business Applications Option (19 credits)*Available at the following campuses: Abington, Altoona, Beaver, Berks, Brandywine, DuBois, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Schuylkill, Scranton, York*

Code	Title	Credits
------	-------	---------

Prescribed Courses*Prescribed Courses: Require a grade of C or better*

ACCTG 211	Financial and Managerial Accounting for Decision Making	4
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Additional Courses*Additional Courses: Require a grade of C or better*Select one of the following: ¹ 3

FIN 301	Corporation Finance	
MGMT 301	Basic Management Concepts	
MKTG 301	Principles of Marketing	
SCM 301	Supply Chain Management	

Supporting Courses and Related Areas*Supporting Courses and Related Areas: Require a grade of C or better*

Select 6 credits from ACCTG, BA, BLAW, EBF, ECON, ENTR, FIN, FINSV, HPA, IB, LER, MIS, MGMT, MKTG, RM, SCM, or STAT, including 3 credits at the 400-level. 6

Select 3 credits at the 300 or 400 level in Advanced IT Business courses from College-approved list. 3

Select 3 credits at the 300 or 400 level in Advanced IT courses from College-approved list. 3

¹ Option courses may not double count with other requirements.

Custom Information Technology Option (18 credits)

Available at the following campuses: Altoona, Berks, Brandywine, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Schuylkill, Scranton, Wilkes-Barre, York

Code	Title	Credits
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 12 credits, with at least 3 credits at the 400 level, in consultation with an adviser that follow a coherent theme in information technology.		12
Select 6 credits at the 300 or 400 level in Advanced IT courses from College-approved list.		6

Cybersecurity Option (18 credits)

Available at the following campuses: Altoona, Beaver, Berks, Brandywine, Lehigh Valley, Mont Alto, New Kensington, Schuylkill, Scranton, York

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 12 credits, with at least 3 credits at the 400 level, from the following:		12
CYBER 262	Cyber-Defense Studio	
IST 451	Network Security	
IST 454	Computer and Cyber Forensics	
IST 456	Information Security Management	
SRA 472	Integration of Privacy and Security	
Any 300 or 400 Level CYBER Course		
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 6 credits at the 300 or 400 level in Advanced IT courses from College-approved list.		6

Networking Option (18 credits)

Available at the following campuses: Abington, DuBois, Mont Alto

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 12 credits, with at least 3 credits at the 400 level, from the following:		12
CYBER 262	Cyber-Defense Studio	
IST 225	PC Hardware Basics	
IST 226	Networking Essentials	
IST 227	Network Administration	
IST 228	Advanced Network Administration	
IST 451	Network Security	
IST 454	Computer and Cyber Forensics	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 6 credits at the 300 or 400 level in Advanced IT courses from College-approved list.		6

Security and Risk Analysis Option (18 credits)

Available at the following campuses: Altoona, Berks, Brandywine, Lehigh Valley, Schuylkill

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 12 credits, with at least 3 credits at the 400 level, from the following:		12
IST 432	Legal and Regulatory Environment of Information Science and Technology	
IST 452	Legal and Regulatory Environment of Privacy and Security	
IST 456	Information Security Management	
SRA 211	Threat of Terrorism and Crime	
SRA 231	Decision Theory and Analysis	
SRA 311	Risk Analysis in a Security Context	
SRA 365	Statistics for Security and Risk Analysis	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better
Select 6 credits at the 300 or 400 level in Advanced IT courses from College-approved list. 6

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Advanced IT Selection – All Options

As noted in each Suggested Academic Plan below, all options of the Information Technology, B.S. major require students to select 300 or 400 level Advanced IT courses from a College-approved list. Students in the Business Application option must select 3 credits of these Advanced IT courses. Students in all other options must select 6 credits of these Advanced IT courses. The list of Advanced IT courses that all students may choose from includes the following:

Code	Title	Credits
IST 402	Emerging Issues and Technologies	3
IST 413	Usability Engineering	3
IST 425	New Venture Creation	3
IST 431	The Information Environment	3
IST 446	An Introduction to Building Computer/Video Games	3
IST 454	Computer and Cyber Forensics	3
IST 456	Information Security Management	3
MIS 390	Foundations of Information Systems	3
MIS 404	Introduction to ERP and Business Processes	3
IST 301	Information and Organizations	3
IST 420	Fundamentals of Systems and Enterprise Integration	3
IST 421	Advanced Enterprise Integration: Technologies and Applications	3
IST 432	Legal and Regulatory Environment of Information Science and Technology	3
IST 452	Legal and Regulatory Environment of Privacy and Security	3

Application Development Option: Information Technology, B.S. at Abington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year		
Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [†]	3 CAS 100 (GWS) [‡]	3
IST 110 or CYBER 100* [#]	3 MATH 110 or 140 (GQ) [‡]	4

IST 140*# or CMPSC 121 (GQ) #‡ or CMPSC 131*#	3 IST 220*#	3
SRA 111 (GS)*†	3 General Education Course (GN or GA or GH)	3
IST 111S (First- Year Seminar)	1 IST 242*	3
General Education Course (GN or GA or GH) or Elective	3	
	16	16

Second Year

Fall	Credits Spring	Credits Summer	Credits
STAT 200‡ (GQ) or SCM 200‡ (GQ) or DS 200*	4 Business Selection*	3 IST 495*	1
IST 256*	3 ENGL 202C or 202D (GWS)‡	3	
ECON 102/ ECON 104 or PSYCH 100/ SOC 5 or PLSC 1/PLSC 14 (GS)†	3 General Education Course (GN or GA or GH)	3	
Elective or General Education Course (GN/GA/ GH)	3 IST 210*#	3	
SRA 221*	3 IST 230*	3	
	IST 390	1	
	16	16	1

Third Year

Fall	Credits Spring	Credits Summer	Credits
IST 302*	3 IST 260W*	3 IST 495*	1
IST 331*	3 IST 311 (Option 2)*	3	
IST 261 or 361 (Option 1)*	3 Networking Selection*	3	
General Education Course (GN or GA or GH)	3 IST 402 (Advanced IT Selection 1)*	3	
General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3	
	IST 390	1	
	15	16	1

Fourth Year

Fall	Credits Spring	Credits
ETI 461*	3 IST 440W*	3

IST 411 (Option 3)*	3 IST 412 or 413 (Option 4)*	3
General Education Course (GHW)	3 IST 446 or MIS 404 (Advanced IT Selection 2)*	3
Elective	3 General Education Course (GN or GA or GH)	3
	Elective	2
	IST 390	1
	12	15

Total Credits 124

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Advanced IT Courses (All Options) Course List:
 - IST 301
 - IST 402
 - IST 413
 - IST 420
 - IST 421
 - IST 425
 - IST 431
 - IST 432
 - IST 446
 - IST 452
 - IST 454
 - IST 456
 - ENGR 425
 - MGMT 425
 - MIS 301
 - MIS 390
 - MIS 404
 - SCM 340

- Business Selection Courses (cannot double count with other Additional or Option requirements):
 - ACCTG 211
 - BA 100
 - ECON 102
 - ECON 104
 - MGMT 301
 - MKTG 301
- Networking Selection Courses (cannot double count with other Additional or Option requirements):
 - CYBER 262
 - IST 226
 - IST 451
 - IST 454

Application Development Courses: (Total 18 Credits)

- Select 12 credits, with at least 3 credits at the 400 level from:
 - IST 261
 - IST 311
 - IST 361
 - IST 411
 - IST 412
 - IST 413
- Select 6 credits, Supporting Courses from:
 - IST 301
 - IST 402
 - IST 413
 - IST 420
 - IST 421
 - IST 425
 - IST 431
 - IST 432
 - IST 446
 - IST 452
 - IST 454
 - IST 456
 - ENGR 425
 - MGMT 425
 - MIS 301
 - MIS 390
 - MIS 404
 - SCM 340

Business Applications Option: Information Technology, B.S. at Abington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100 (GWS) [‡]	3
IST 110 or CYBER 100 ^{*#}	3 MATH 110 or 140 (GQ) [‡]	4
IST 140 ^{*#} or CMPSC 121 (GQ) ^{#‡} or CMPSC 131 ^{*#}	3 IST 220 ^{*#}	3
SRA 111 (GS) ^{+†}	3 General Education Course (GN or GA or GH)	3
IST 111S (First-Year Seminar)	1 IST 242 [*]	3
General Education Course (GN or GA or GH) or Elective	3	
	16	16

Second Year

Fall	Credits Spring	Credits Summer	Credits
IST 256 [*]	3 Business Selection [*]	3 IST 495 [*]	1
STAT 200 [‡] (GQ) or SCM 200 [‡] (GQ) or DS 200 [*]	4 ENGL 202C or 202D (GWS) [‡]	3	
ECON 102/ ECON 104 or PSYCH 100/ SOC 5 or PLSC 1/PLSC 14 (GS) [‡]	3 General Education Course (GN or GA or GH)	3	
Elective or General Education Course (GN/GA/GH)	3 IST 210 ^{*#}	3	
SRA 221 [*]	3 IST 230 [*]	3	
	IST 390	1	
	16	16	1

Third Year

Fall	Credits Spring	Credits Summer	Credits
IST 302 [*]	3 IST 260W [*]	3 IST 495 [*]	1

IST 331 [*]	3 FIN 301, MGMT 301, MKTG 301, or SCM 301 (Option 2) [*]	3	
ACCTG 211 (Option 1) [*]	4 Advanced IT Selection - Business Option [*]	3	
General Education Course (GN or GA or GH)	3 Networking Selection [*]	3	
General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3	
	IST 390	1	
	16	16	1

Fourth Year

Fall	Credits Spring	Credits
ETI 461 [*]	3 IST 440W [*]	3
Option 3 (Business Course) [*]	3 400-Level Business Course (Option 4) [*]	3
General Education Course (GHW)	3 IST 446 or MIS 404 (Advanced IT Selection) [*]	3
Elective	3 General Education Course (GN or GA or GH)	3
	Elective	1
	IST 390	1
	12	14

Total Credits 124

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Advanced IT Courses (All Options) Course List:
 - IST 301
 - IST 402
 - IST 413
 - IST 420
 - IST 421
 - IST 425
 - IST 431
 - IST 432
 - IST 446
 - IST 452
 - IST 454
 - IST 456
 - ENGR 425
 - MGMT 425
 - MIS 301
 - MIS 390
 - MIS 404
 - SCM 340
- Business Selection Courses (cannot double count with other Additional or Option requirements):
 - ACCTG 211
 - BA 100
 - ECON 102
 - ECON 104
 - MGMT 301
 - MKTG 301
- Networking Selection Courses (cannot double count with other Additional or Option requirements):
 - CYBER 262
 - IST 226
 - IST 451
 - IST 454

- Select 3 credits, Supporting Courses- Advanced IT from course list:
 - ENGR 425
 - MGMT 425
 - MIS 301
 - MIS 345
 - MIS 390
 - MIS 404
 - MIS 431
 - SCM 340
 - IST 301
 - IST 402
 - IST 413
 - IST 420
 - IST 421
 - IST 425
 - IST 431
 - IST 432
 - IST 446
 - IST 452
 - IST 454
 - IST 456

Business Application Courses: (Total 19 Credits)

- ACCTG 211
- Select 3 Credits from: FIN 301, MGMT 301, MKTG 301, SCM 301
- Select 6 credits, with at least 3 credits at the 400 level from: ACCTG, BA, BLAW, EBF, ECON, ENTR, FIN, FINSV, HPA, IB, LER, MIS, MGMT, MKTG, RM, SCM, or STAT
- Select 3 credits, Supporting Courses - Advanced IT - Business courses from course list:
 - ENGR 425
 - IST 425
 - IST 456
 - MGMT 425
 - MIS 301
 - MIS 345
 - MIS 390
 - MIS 404
 - MIS 431
 - SCM 340

Networking Option: Information Technology, B.S. at Abington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100 (GWS) [‡]	3
IST 110 or CYBER 100 ^{*#}	3 MATH 110 or 140 (GQ) [‡]	4
IST 140 ^{*#} or CMPSC 121 (GQ) ^{#‡} or CMPSC 131 ^{*#}	3 IST 220 ^{*#}	3
SRA 111 (GS) ^{+†}	3 General Education Course (GN or GA or GH)	3
IST 111S (First-Year Seminar)	1 IST 242 [*]	3
General Education Course (GN or GA or GH) or Elective	3	
	16	16

Second Year

Fall	Credits Spring	Credits Summer	Credits
IST 256 [*]	3 IST 226 or CYBER 262 (Networking Selection) [*]	3 IST 495 [*]	1
STAT 200 [‡] (GQ) or SCM 200 [‡] (GQ) or DS 200 [*]	4 ENGL 202C or 202D (GWS) [‡]	3	
ECON 102/ ECON 104 or PSYCH 100/ SOC 5 or PLSC 1/PLSC 14 (GS) [†]	3 General Education Course (GN or GA or GH)	3	
Elective or General Education Course (GN/GA/GH)	3 IST 210 ^{*#}	3	
SRA 221 [*]	3 IST 230 [*]	3	
	IST 390	1	
	16	16	1

Third Year

Fall	Credits Spring	Credits Summer	Credits
IST 302 [*]	3 IST 260W [*]	3 IST 495 [*]	1

IST 331 [*]	3 IST 228 (Option 2) [*]	3
IST 227 (Option 1) [*]	3 Business Selection [*]	3
General Education Course (GN or GA or GH)	3 IST 402 (Advanced IT Selection 1) [*]	3
General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3
	IST 390	1
	15	16

Fourth Year

Fall	Credits Spring	Credits
ETI 461 [*]	3 IST 440W [*]	3
IST 451 (Option 3) [*]	3 IST 454 (Option 4) [*]	3
General Education Course (GHW)	3 IST 446 or MIS 404 (Advanced IT Selection 2) [*]	3
Elective	3 General Education Course (GN or GA or GH)	3
	Elective	2
	IST 390	1
	12	15

Total Credits 124

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Advanced IT Courses (All Options) Course List:
 - IST 301
 - IST 402
 - IST 413

- IST 420
- IST 421
- IST 425
- IST 431
- IST 432
- IST 446
- IST 452
- IST 454
- IST 456
- ENGR 425
- MGMT 425
- MIS 301
- MIS 390
- MIS 404
- SCM 340
- Business Selection Courses (cannot double count with other Additional or Option requirements):
 - ACCTG 211
 - BA 100
 - ECON 102
 - ECON 104
 - MGMT 301
 - MKTG 301
- Networking Selection Courses (cannot double count with other Additional or Option requirements):
 - CYBER 262
 - IST 226
 - IST 451
 - IST 454

Networking Option Courses: (Total 18 Credits)

- Select 12 credits, with at least 3 credits at the 400 level from:
 - CYBER 262
 - IST 225
 - IST 226
 - IST 227
 - IST 228
 - IST 451
 - IST 454
- Select 6 credits, Supporting Courses- Advanced IT from course list:
 - ENGR 425
 - MGMT 425
 - MIS 301
 - MIS 345
 - MIS 390
 - MIS 404
 - MIS 431
 - SCM 340
 - IST 301
 - IST 402
 - IST 413
 - IST 420
 - IST 421

- IST 425
- IST 431
- IST 432
- IST 446
- IST 452
- IST 454
- IST 456

Career Paths

With a B.S. degree in Information Technology (IT), students will develop an understanding of core information technologies and prepare for the practical application of IT. The combination of a strong technical foundation, well-developed communication and collaborative skills, business core competencies, and specialization in an area of choice produces graduates who are well-qualified to enter the IT workforce in a position that meets their interests and abilities as well as the needs of employers in industries including consulting, business, government, defense, entertainment, and medicine.

Additional information about IT careers can be found at:

- Computer and Information Technology Occupations: Occupational Outlook Handbook:: U.S. Bureau of Labor Statistics (bls.gov) (<https://www.bls.gov/ooh/computer-and-information-technology/home.htm>)
- IS Job Index – AIS – Temple University Information Systems Job Index (<https://isjobindex.com/>)

Opportunities for Graduate Studies

A baccalaureate degree in Information Technology prepares students to pursue master's degrees in programs such as information systems or information technology and obtain admission to MBA programs and law schools, among other post-graduate opportunities.

Penn State offers graduate programs related to information technology:

- Master of Science in Information Systems at Penn State Harrisburg (<https://harrisburg.psu.edu/business-administration/information-systems-ms/>)
- Graduate Education Opportunities at College of Information Sciences and Technology (<https://ist.psu.edu/prospective/graduate/>)

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<https://beaver.psu.edu/academics/majors/it> (<https://beaver.psu.edu/academics/majors/it/>)

Berks

EBC DIVISION
Gauge Building
Reading, PA 19610
610-396-6349
tkc3@psu.edu

<https://berks.psu.edu/academics/baccalaureate-degrees/information-technology> (<https://berks.psu.edu/academics/baccalaureate-degrees/information-technology/>)

Brandywine

25 Yearsley Mill Road
Media, PA 19063
610-892-1343
nxd13@psu.edu

<https://www.brandywine.psu.edu/academics/bachelors-degrees/information-technology> (<https://www.brandywine.psu.edu/academics/bachelors-degrees/information-technology/>)

DuBois

1 College Place
DuBois, PA 16823
814-372-3000
jel115@psu.edu

<https://dubois.psu.edu/academics/degrees/IT/bachelor> (<https://dubois.psu.edu/academics/degrees/IT/bachelor/>)

Greater Allegheny

Frale Building, 201D
4000 University Drive
McKeesport, PA 15132
412-675-9482
lmd347@psu.edu

<https://greaterallegheny.psu.edu/academics/degree-programs/information-technology> (<https://greaterallegheny.psu.edu/academics/degree-programs/information-technology/>)

Hazleton

204 Butler
Hazleton, PA 18202
570-450-3194
HNAdvising@psu.edu

<https://hazleton.psu.edu/information-technology> (<https://hazleton.psu.edu/information-technology/>)

Lehigh Valley

2809 Saucon Valley Road
Center Valley, PA 18034
610-285-5071
kmb6846@psu.edu

<https://lehighvalley.psu.edu/academics/degrees/information-sciences-and-technology> (<https://lehighvalley.psu.edu/academics/degrees/information-sciences-and-technology/>)

Mont Alto

006 Bookstore
1 Campus Drive
Mont Alto, PA 17237
717-749-6048
ebd5343@psu.edu

<https://montalto.psu.edu/academics/bachelors/information-technology> (<https://montalto.psu.edu/academics/bachelors/information-technology/>)

New Kensington

036 Theater & IST Building
3550 Seventh Street Road
New Kensington, PA 15068
724-334-6089
hhs10@psu.edu

<https://newkensington.psu.edu/4-year-information-technology> (<https://newkensington.psu.edu/4-year-information-technology/>)

Schuylkill

200 University Drive
Schuylkill Haven, PA 17972
570-385-6076
bkg113@psu.edu

<https://schuylkill.psu.edu/academics/bacc-degrees/information-technology> (<https://schuylkill.psu.edu/academics/bacc-degrees/information-technology/>)

Scranton

114B Dawson
120 Ridge View Drive
Dunmore, PA 18512
570-963-2593
dls102@psu.edu

<https://scranton.psu.edu/academics/degrees/bachelors/information-sciences-technology-degree> (<https://scranton.psu.edu/academics/degrees/bachelors/information-sciences-technology-degree/>)

Wilkes-Barre

44 University Drive
Dallas, PA 18612
570-675-9142
weifan@psu.edu

<https://wilkesbarre.psu.edu/academics/it> (<https://wilkesbarre.psu.edu/academics/it/>)

York

1031 Edgecomb Ave.
York, PA 17403
717-771-4143
wpc2@psu.edu

<https://www.york.psu.edu/academics/baccalaureate/information-technology> (<https://www.york.psu.edu/academics/baccalaureate/information-technology/>)

Integrative Arts, B.A. (Abington)

Begin Campus: Any Penn State Campus

End Campus: Abington

Program Description

Integrative Arts is an interdisciplinary major available to students who desire a curriculum that crosses over traditional single discipline lines. The Integrative Arts student initially establishes an academic plan with the assistance of an approved adviser. The plan must contain a core component of 42 credits and an elective component of 15 credits. The two components combined must clearly illustrate that the plan has clarity, purpose, and cohesion. All Integrative Arts students must complete 6 credits of history of the arts. These credits may be counted as a part of the major or, if outside the major, may be counted under General Education and/or Bachelor of Arts degree requirements. Consult with adviser for course selection.

What is Integrative Arts?

The Integrative Arts major provides opportunities for students to unite their creative and vocational interests in the arts and design with other areas such as science, technology, business, and more. It's a hands-on, self-directed approach to creative and career development. Creative interests and professional aspirations come together to explore unique and unexpected creative, intellectual, and professional pathways. Combine painting and sculpture with biology; merge a passion for illustration with writing children's literature; enhance digital media with UX design—the possibilities are endless!

You Might Like This Program If...

You're passionate about the arts and design, but can't find a degree program that addresses all of your interests. Or, you want a unique program that lets you cross disciplinary boundaries. Perhaps you want to merge your creative practice with study outside of the arts and design. If so, Integrative Arts might be the place for you. Successful Integrative Arts students are highly motivated individuals who are excited by opportunities for self-directed research. If this sounds like you, then this might be the program for you!

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Integrative Arts, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	15-24
Bachelor of Arts Degree Requirements	24
Requirements for the Major	42

6-15 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 0-3 credits of GHW, 6 credits of GA, and 0-6 credits of GN.

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Requirements for the Major

Must include at least 15 credits at the 400 or equivalent level.

Must include 6 credits in History of the Arts.

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
	Select 24 credits from an arts area	24
	Select 12 credits from other arts areas	12
	Select 6 credits of GA	6

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or

within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- **Curriculum Proposal:** Students will prepare, with appropriate faculty input, a proposal that will outline their post-graduation aspirations and how these targets will be achieved through a concomitant course of study in the arts or an arts-related field.
- **Original Artwork:** Students will present evidence—by means of an original work of art or an analysis of a work of art—that they have an understanding of the art form/forms studied in their academic programs.
- **Academics:** Students will produce oral and written reports/essays that explore and analyze the arts/arts-related subject matter presented in the academic course of study.
- **Independent and Interdisciplinary Work:** Faculty members will be surveyed about graduating students' oral or written work in advanced classes, to evaluate their independent and interdisciplinary nature.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Associate Dean, Academic Affairs and Outreach
104 Borland Building
University Park, PA 16802
814-865-9523
dht2@psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Integrative Arts, B.A. at Abington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
ENGL 15 or 30H	3	History of the Arts *	3
History of the Arts *	3	General Education Course	3
World Language level 1	4	General Education Course	3
Elective	3	World Language level 2	4
General Education Course (GHW)	1.5	General Education Course	3
		14.5	16

Second Year

Fall	Credits	Spring	Credits
Primary or Other Arts Area *	3	Primary or Other Arts Area *	3
General Education Course	3	Primary or Other Arts Area *	3
General Education Course	3	Bachelor of Arts Requirement	3
World Language level 2	4	CAS 100A or 100B	3
General Education Course (GHW)	1.5	General Education Course	3
		14.5	15

Third Year

Fall	Credits	Spring	Credits
Primary or Other Arts Area *	3	300 or 400 Level Arts Area * ²	3
Primary or Other Arts Area *	3	300 or 400 Level Arts Area * ²	3
ENGL 202A, 202B, or 202D ¹	3	Bachelor of Arts Requirement	3
General Education Course	3	General Education Course	3
Bachelor of Arts Requirement	3	Elective (US:IL)	3
		15	15

Fourth Year

Fall	Credits	Spring	Credits
300 or 400 Level Arts Area * ²	3	300 or 400 Level Arts Area * ²	3
Primary or Other Arts Area *	3	300 or 400 Level Arts Area * ²	3
Primary or Other Arts Area *	3	Bachelor of Arts Requirement	3
General Education Course	3	World Cultures	3
Elective (US:IL)	3	Elective	3
		15	15

Total Credits 120

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

¹ ENGL 202A, B, or D is recommended for IARAB majors.

² Students must take at least 15 credits of major courses at the 400 level or its equivalent.

Program Notes

Under their adviser's supervision, new IARAB students must write a proposal outlining the courses they plan to take in the major, demonstrating how those courses work together to achieve their educational goals and/or prepare them for their intended career. The proposal must be approved by the Head of Division of Arts and Humanities. Failure to have an approved proposal on file with the Registrar by the deadline set for the student by the Division of Arts and Humanities incurs a registration hold on the student's account.

Students may use arts courses to fulfill 9 credits of General Education and Bachelor of Arts requirements if: a. All 9 credits are OUTSIDE the students's art area. b. No more than 6 credits are in any one subject area. c. 6 of these credits may double count with College Requirements (History of the Arts).

Career Paths

The Integrative Arts program is unique in the way students can tailor their educational experience to prepare them for multiple career paths and opportunities for graduate study.

Careers

Graduates in Integrative Arts follow diverse career and post-graduate paths, including completion of graduate studies, finding employment in arts and design-related industries, or becoming independent entrepreneurs in the arts and design fields. The Integrative Arts program also encourages students to engage in career-related internships and self-directed research projects, as well as independent study courses, in order to enhance their creative portfolios and to develop meaningful contacts in the professional world.

Opportunities for Graduate Studies

The individualized nature of the Integrative Arts degree allows students interested in pursuing graduate study to prepare for many different kinds of graduate programs. Recent graduates have entered programs in fields as diverse as design for sustainability, visual arts therapies, theatrical screenwriting, and information technology.

Contact

Abington

DIVISION OF ARTS AND HUMANITIES
1600 Woodland Road
Abington, PA 19001
215-881-7826
salguero@psu.edu

<https://www.abington.psu.edu/academics/majors-at-abington/integrative-arts> (<https://www.abington.psu.edu/academics/majors-at-abington/integrative-arts/>)

University Park

INTEGRATIVE ARTS PROGRAM
104 Borland Building
University Park, PA 16802
814-865-9523
dht2@psu.edu

<https://arts.psu.edu/degrees/bachelor-of-arts-in-integrative-arts/>

Integrative Science, B.S. (Abington)

Begin Campus: Any Penn State Campus

End Campus: Abington

Program Description

The Integrative Science major is an interdisciplinary degree that aims to provide a broad, general education in science. The Bachelor of Science (B.S.) curriculum is designed specifically for students who have education goals relating to scientific theory and practice across disciplinary areas, and who seek a high degree of flexibility to obtain their

educational objectives. After completing foundation courses in biology, calculus, chemistry, physics, and statistics, students select additional science courses from designated areas to customize the curriculum to their own interests. A large number of supporting credits enable students to incorporate significant breadth or specialization into their academic training, such as through courses in business, computer and information science, health science, social science, and other fields.

This major helps prepare students for careers in many different job sectors including agriculture, biotechnology, chemistry, education, government, industry, medicine, pharmaceutical, research & development, sustainability, and more. Graduates of this major pursue diverse career paths and hold a variety of roles such as research scientist, data analyst, technician, program coordinator, project manager, consultant, and laboratory associate. The degree can also be tailored to meet specific requirements of professional programs such as medical, dental, physician assistant, pharmacy, or law school, as well as graduate school.

General Science Option

Available at the following campuses: *Abington, Berks, Harrisburg, Scranton, University Park, York*

The General Science option of the B.S. Integrative Science degree allows for the most flexibility.

Achievement in a more specialized set of goals can be met by selecting one of the other B.S. options offered:

Biological Sciences and Health Professions Option

Available at the following campuses: *University Park*

Legal Studies, Government Service, Public Policy Option

Available at the following campuses: *University Park*

Life Sciences Option

Available at the following campuses: *Abington, Berks, Harrisburg, Scranton, York*

Mathematical Sciences Option

Available at the following campuses: *Abington*

Secondary Education Option

Available at the following campuses: *Harrisburg*

Not all of these options are available at all locations. See the Science program director at your College for details regarding program curriculum at your location.

What is Integrative Science?

The Integrative Science major provides a broad and interdisciplinary foundation in the natural sciences. The Integrative Science BS program uses the principles of chemistry, physics, and life sciences to understand how these integrate over general areas including biological sciences and health professions, public policy, and science research and development.

You Might Like This Program If...

- You like learning by doing hands-on experiments.
- You are curious about the natural world and how science disciplines come together to explore and understand it.

- You are intrigued by science and desire a career in current and emerging interdisciplinary science disciplines, health professions, or melding science with law, policy or business.

Entrance to Major

In order to be eligible for entrance to the Integrative Science major, a student at any location must have:

- attained at least a 2.00 cumulative grade-point average;
- completed MATH 140 with a grade of C or better;
- completed at least two of the following courses, BIOL 110; CHEM 110; PHYS 211 or PHYS 250, with a grade of C or better.

Entrance to the Integrative Science Secondary Education option requires the following additional requirements:

- completed at least one of the following courses, BIOL 220W or BIOL 230W or BIOL 240W; PHYS 250, with a grade of C or better;
- attained at least a 3.00 cumulative grade-point average;
- completed ENGL 15 or ENGL 30H;
- completed 3 credits of literature from a department-approved list with a grade of C or better;
- completed 6 credits of college-level mathematics (GQ MATH or STAT prefixes) with a grade of C or better;
- satisfy any entrance testing requirements set out by the Pennsylvania Department of Education in effect at the time of application for the major;
- submission to the Teacher Education Office of current and clear background checks as required by the Pennsylvania Department of Education;
- submission of documentation of 20 pre-major fieldwork hours.

Degree Requirements

For the Bachelor of Science degree in Integrative Science with an option in General Science; Biological Sciences and Health Professions; Legal Studies, Government Service, Public Policy; Life Science; and Mathematical Science, a minimum of 120 credits is required, with at least 15 credits at the 400 level. For the Bachelor of Science degree in Integrative Science with an option in Secondary Education, a minimum of 125 credits is required, with at least 15 credits at the 400 level.

Requirement	Credits
General Education	45
Requirements for the Major	90-110

13-30 of the 45 credits for General Education are included in the Requirements for the Major. For the General Science Option; Biological Sciences and Health Professions Option; Legal Studies, Government Service, Public Policy Option; Life Science Option this includes: 9 credits of GN courses and 4-6 credits of GQ courses. For the Mathematical Science Option this includes: 9 credits of GN courses and 6 credits of GQ courses. For the Secondary Education Option this includes: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GWS courses (ENGL 202C); 3 credits of GH courses (literature department list); 6 credits of GS courses (EDPSY 14 and HDFS 239); 3 credits of Integrative Studies courses (EDUC 466N).

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as

specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
CHEM 113	Experimental Chemistry II	1
<i>Prescribed Courses: Require a grade of C or better</i>		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
CHEM 110	Chemical Principles I	3
MATH 140	Calculus With Analytic Geometry I	4
Requirements for the Option		
Select an option		74-94

Requirements for the Option

General Science Option (74 credits)

Available at the following campuses: Abington, Berks, Harrisburg, Scranton, University Park, York

Code	Title	Credits
Additional Courses		
STAT 200	Elementary Statistics	3-4
or STAT 250	Introduction to Biostatistics	
Select 4 credits from the following:		4
BIOL 161 & BIOL 162	Human Anatomy and Physiology I - Lecture and Human Anatomy and Physiology I - Laboratory	
BIOL 220W	Biology: Populations and Communities	
BIOL 230W	Biology: Molecules and Cells	
BIOL 240W	Biology: Function and Development of Organisms	
Select 8-12 credits from the following:		8-12
PHYS 211 & PHYS 212 & PHYS 213 & PHYS 214	General Physics: Mechanics and General Physics: Electricity and Magnetism and General Physics: Fluids and Thermal Physics and General Physics: Wave Motion and Quantum Physics ¹	
PHYS 250 & PHYS 251	Introductory Physics I and Introductory Physics II ¹	

Supporting Courses and Related Areas

Select 3 credits in Global, Social, and Personal Awareness from department approved course list in consultation with adviser	3
Select 3 credits in Teamwork and Interpersonal Communication from department approved course list in consultation with adviser	3
Select 3 credits in Integrative and Applied Sciences from department approved course list in consultation with adviser	3
Select 6 credits of 400-level courses	6
Select 21-26 credits from program list ^{2,3}	21-26
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>	
Select 18 credits in life, mathematical, or physical sciences, with at least 9 credits at the 400 level ^{4,5}	18

¹ PHYS 211 and PHYS 250 require a grade of C or better.

² A maximum of 12 credits of Independent Study (296, 496) may be applied toward credits for graduation.

³ Students may apply ROTC credits toward the Program List.

⁴ Only the 9 credits at the 400 level require a grade of C or better.

⁵ Life sciences include BIOL, BIOTC, BMB, FRNSC, MICRB. Mathematical sciences include CMPSC, DS, MATH, STAT. Physical sciences include ASTRO, CHEM, PHYS.

Biological Sciences and Health Professions Option (74 credits)

Available at the following campuses: University Park

Code	Title	Credits
Prescribed Courses		
HPA 101	Introduction to Health Services Organization	3
Additional Courses		
STAT 200 or STAT 250	Elementary Statistics Introduction to Biostatistics	3-4
Select 4 credits from the following:		4
BIOL 161 & BIOL 162	Human Anatomy and Physiology I - Lecture and Human Anatomy and Physiology I - Laboratory	
BIOL 220W	Biology: Populations and Communities	
BIOL 230W	Biology: Molecules and Cells	
BIOL 240W	Biology: Function and Development of Organisms	
Select 3-4 credits from the following:		3-4
BIOL 222	Genetics	
BIOL 230W	Biology: Molecules and Cells	
BIOL 322	Genetic Analysis	
BMB 211	Elementary Biochemistry	
BMB/MICRB 251	Molecular and Cell Biology I	
MICRB 201	Introductory Microbiology	
Select 6-8 credits from the following:		6-8
CHEM 202 & CHEM 203	Fundamentals of Organic Chemistry I and Fundamentals of Organic Chemistry II	
CHEM 210 & CHEM 212 & CHEM 213W	Organic Chemistry I and Organic Chemistry II and Laboratory in Organic Chemistry - Writing Intensive	
Select 8-12 credits from the following:		8-12
PHYS 211 & PHYS 212 & PHYS 213 & PHYS 214	General Physics: Mechanics and General Physics: Electricity and Magnetism and General Physics: Fluids and Thermal Physics and General Physics: Wave Motion and Quantum Physics ¹	
PHYS 250 & PHYS 251	Introductory Physics I and Introductory Physics II ¹	
Supporting Courses and Related Areas		
Select 3 credits in Global, Social, and Personal Awareness from department approved course list in consultation with adviser		3
Select 3 credits in Teamwork and Interpersonal Communication from department approved course list in consultation with adviser		3
Select 15 credits in Healthcare/Medicine/Ethical Competencies from department approved course list in consultation with adviser ²		15
Select 9-17 credits from program list ^{3,4}		9-17
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 9 credits of 400-level BMB, BIOL, BIOTC, or MICRB courses		9

¹ PHYS 211 and PHYS 250 require a grade of C or better.

² 6 credits must be at the 400-level.

³ A maximum of 12 credits of Independent Studies (296, 496) may be applied toward credits for graduation.

⁴ Students may apply ROTC credits toward the Program List.

Legal Studies, Government Service, Public Policy Option (74 credits)

Available at the following campuses: University Park

Code	Title	Credits
Additional Courses		
STAT 200 or STAT 250	Elementary Statistics Introduction to Biostatistics	3-4
Select 4 credits from the following:		4
BIOL 161 & BIOL 162	Human Anatomy and Physiology I - Lecture and Human Anatomy and Physiology I - Laboratory	
BIOL 220W	Biology: Populations and Communities	
BIOL 230W	Biology: Molecules and Cells	
BIOL 240W	Biology: Function and Development of Organisms	
Select 8-12 credits from the following:		8-12
PHYS 211 & PHYS 212 & PHYS 213 & PHYS 214	General Physics: Mechanics and General Physics: Electricity and Magnetism and General Physics: Fluids and Thermal Physics and General Physics: Wave Motion and Quantum Physics ¹	
PHYS 250 & PHYS 251	Introductory Physics I and Introductory Physics II ¹	
Supporting Courses and Related Areas		
Select 3 credits in Global, Social, and Personal Awareness from department approved course list in consultation with adviser		3
Select 3 credits in Teamwork and Interpersonal Communication from department approved course list in consultation with adviser		3
Select 18 credits in Legal Studies, Government Service, Public Policy from department approved course list in consultation with adviser ²		18
Select 12-17 credits from program list ^{3,4}		12-17
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 18 credits in life, mathematical, or physical sciences, with at least 9 credits at the 400 level ^{5,6}		18
¹ PHYS 211 and PHYS 250 require a grade of C or better.		
² 6 credits must be at the 400-level.		
³ A maximum of 12 credits of Independent Study (296, 496) may be applied toward credits for graduation.		
⁴ Students may apply ROTC credits toward the Program List.		
⁵ Only the 9 credits at the 400 level require a grade of C or better.		
⁶ Life sciences include BIOL, BIOTC, BMB, FRNSC, MICRB. Mathematical sciences include CMPSC, DS, MATH, STAT. Physical sciences include ASTRO, CHEM, PHYS.		
Life Science Option (74 credits)		
Available at the following campuses: Abington, Berks, Harrisburg, Scranton, York		
Code Title Credits		
Additional Courses		
STAT 200	Elementary Statistics	3-4

or STAT 250	Introduction to Biostatistics	
Select 4 credits from the following:		4
BIOL 220W	Biology: Populations and Communities	
BIOL 230W	Biology: Molecules and Cells	
BIOL 240W	Biology: Function and Development of Organisms	
Select 3-4 credits from the following:		3-4
BIOL 222	Genetics	
BIOL 230W	Biology: Molecules and Cells	
BIOL 322	Genetic Analysis	
BMB 211	Elementary Biochemistry	
BMB/MICRB 251	Molecular and Cell Biology I	
MICRB 201	Introductory Microbiology	
Select 6-8 credits from the following:		6-8
CHEM 202 & CHEM 203	Fundamentals of Organic Chemistry I and Fundamentals of Organic Chemistry II	
CHEM 210 & CHEM 212 & CHEM 213	Organic Chemistry I and Organic Chemistry II and Laboratory in Organic Chemistry	
Select 8-12 credits from the following:		8-12
PHYS 211 & PHYS 212 & PHYS 213 & PHYS 214	General Physics: Mechanics and General Physics: Electricity and Magnetism and General Physics: Fluids and Thermal Physics and General Physics: Wave Motion and Quantum Physics ¹	
PHYS 250 & PHYS 251	Introductory Physics I and Introductory Physics II ¹	

Supporting Courses and Related Areas

Select 3 credits in Global, Social, and Personal Awareness from department approved course list in consultation with adviser	3
Select 3 credits in Teamwork and Interpersonal Communication from department approved course list in consultation with adviser	3
Select 6 credits of 400-level courses	6
Select 21-29 credits from program list ^{2,3}	21-29
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>	
Select 9 credits of 400-level BMB, BIOL, BIOTC, or MICRB courses	9

¹ PHYS 211 and PHYS 250 require a grade of C or better.

² A maximum of 12 credits of Independent Study (296, 496) may be applied toward credits for graduation.

³ Students may apply ROTC credits toward the Program List.

Mathematical Science Option (74 credits)

Available at the following campuses: Abington

Code	Title	Credits
Prescribed Courses		
MATH 220	Matrices	2-3
<i>Prescribed Courses: Require a grade of C or better</i>		
MATH 141	Calculus with Analytic Geometry II	4
Additional Courses		
CMPSC 122	Intermediate Programming	3
or CMPSC 132	Programming and Computation II: Data Structures	
CMPSC 360	Discrete Mathematics for Computer Science	3-4
or MATH 311W	Concepts of Discrete Mathematics	

MATH 230	Calculus and Vector Analysis	4
or MATH 251	Ordinary and Partial Differential Equations	
Select 3 credits from the following:		3
CMPSC 121	Introduction to Programming Techniques	
CMPSC 131	Programming and Computation I: Fundamentals	
CMPSC 201	Programming for Engineers with C++	
Select 3-4 credits from the following:		3-4
STAT 200	Elementary Statistics	
STAT 250	Introduction to Biostatistics	
STAT 318	Elementary Probability	
Select 3-4 credits from the following:		3-4
BIOL 222	Genetics	
BIOL 230W	Biology: Molecules and Cells	
BIOL 322	Genetic Analysis	
BMB 211	Elementary Biochemistry	
BMB/MICRB 251	Molecular and Cell Biology I	
MICRB 201	Introductory Microbiology	
Select 8-12 credits from the following:		8-12
PHYS 211 & PHYS 212 & PHYS 213 & PHYS 214	General Physics: Mechanics and General Physics: Electricity and Magnetism and General Physics: Fluids and Thermal Physics and General Physics: Wave Motion and Quantum Physics ¹	
PHYS 250 & PHYS 251	Introductory Physics I and Introductory Physics II ¹	

Supporting Courses and Related Areas

Select 3 credits in Global, Social, and Personal Awareness from department approved course list in consultation with adviser	3
Select 3 credits in Teamwork and Interpersonal Communication from department approved course list in consultation with adviser	3
Select 6 credits of 400-level courses	6
Select 13-20 credits from program list ^{2,3}	13-20
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>	
Select 9 credits of 400-level CMPSC, MATH, or STAT courses	9

¹ PHYS 211 and PHYS 250 require a grade of C or better.

² A maximum of 12 credits of Independent Study (296, 496) may be applied toward credits for graduation.

³ Students may apply ROTC credits toward the Program List.

SECONDARY EDUCATION OPTION (94 credits)

Available at the following campuses: Harrisburg

Code	Title	Credits
Prescribed Courses		
STAT 200	Elementary Statistics	4
<i>Prescribed Courses: Require a grade of C or better for teacher certification</i>		
EDUC 313	Secondary Education Field Experience	2
EDUC 314	Learning Theory and Instructional Procedures	3
EDUC 315Y	Social and Cultural Factors in Education	3
EDUC 385	Professional Development in Teaching	3
EDUC 400	Diversity and Cultural Awareness Practices in the K-12 Classroom	3

EDUC 414	Teaching Secondary Science	3
EDUC 458	Behavior Management Strategies for Inclusive Classrooms	3
EDUC 459	Strategies for Effective Teaching in Inclusive Classrooms	3
EDUC 490	Student Teaching	9
<i>Prescribed Courses: Require a Grade of C or Better</i>		
EDPSY 14	Learning and Instruction	3
EDUC 466N	Foundations of Teaching English as a Second Language	3
ENGL 202C	Effective Writing: Technical Writing	3
HDFS 239	Adolescent Development	3
MATH 141	Calculus with Analytic Geometry II	4
PHYS 250	Introductory Physics I	4
PHYS 251	Introductory Physics II	4

Additional Courses

Additional Courses: Require a grade of C or better

Select 4 credits from the following:	4
BIOL 220W Biology: Populations and Communities	
BIOL 230W Biology: Molecules and Cells	
BIOL 240W Biology: Function and Development of Organisms	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a Grade of C or Better

Select 3 credits of GH literature from department list	3
Select a 3 credit EARTH course	3
Select a 3 credit ASTRO course	3
Select 9 credits of 400-level earth or physical science courses	9
Select 12 credits of science or education elective courses	12

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits

- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- Have a basic knowledge of the fundamental concepts in molecular, organismal, and population biology.
- Demonstrate the ability to use scientific and quantitative reasoning.

- Demonstrate the ability to retrieve scientific information, analyze scientific data, and use computers and scientific equipment in a laboratory setting.
- Demonstrate the ability to disseminate scientific findings through oral and written communication.
- Demonstrate the ability to work cooperative in teams.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

General Science Option: Integrative Science, B.S. at Abington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110 (GN) ^{*#†}	4 CHEM 112	3
CHEM 110 (GN) ^{*#†}	3 CHEM 113	1
CHEM 111 (GN) [†]	1 Global, Social, and Personal Awareness Course (from Department List)	3
MATH 140 or 140B (GQ) ^{*†#†}	4 CAS 100A, 100B, or 100C (GWS) [†]	3
ENGL 15, 30H, or ESL 15 (GWS) [†]	3 BIOL 240W (or Supporting Course (consult with academic adviser for options))	3-4
First-Year Seminar	1	
	16	13-14

Second Year

Fall	Credits Spring	Credits
BIOL 220W or 230W (or Supporting Course (consult with academic adviser for options))	3-4 STAT 250 or 200 (GQ) [†]	3-4
Life, Mathematical, or Physical Science Course	3 Life, Mathematical, or Physical Science Course	3
Teamwork and Interpersonal Communication Course (from Department List)	3 Integrative and Applied Science Course (from Department List)	3
General Education Course (GS)	3 General Education Course (GA)	3
PHYS 250 (GN) ^{*#}	4 PHYS 251	4
	16-17	16-17

Third Year

Fall	Credits Spring	Credits
Life, Mathematical, or Physical Science Course	3 400-Level Life, Mathemtical, or Physical Science Course*	3
General Education Course (Integrative Studies)	3 General Education Course (Integrative Studies)	3
Supporting Course (consult with academic adviser for options)	3 General Education Course (GH)	3
Supporting Course (consult with academic adviser for options)	3 Supporting Course (consult with academic adviser for options)	3
ENGL 202C (GWS)‡	3 Supporting Course (consult with academic adviser for options)	3
15		15

Fourth Year

Fall	Credits Spring	Credits
400-Level Life, Mathemtical, or Physical Science Course*	3 400-Level Life, Mathemtical, or Physical Science Course*	3
400-Level Supporting Course	3 400-Level Supporting Course	3
General Education Course (GHW)	3 General Education Course (Exploration)	3
Supporting Course (consult with academic adviser for options)	3 Supporting Course (consult with academic adviser for options)	3
Supporting Course (consult with academic adviser for options)	3 Supporting Course (consult with academic adviser for options)	2
15		14

Total Credits 120-123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program List Exclusions: The Following Coursework is not Applicable to Degree Requirements

Students may select supporting courses from nearly the entire range of the University's course offerings. However, the following courses may NOT be used to satisfy degree requirements for the Integrative Science major. This list applies to ALL options in the Integrative Science BS major.

- BIOL 001, 003, 011*, 012*
- BISC 001, 002, 003*, 004*
- BMB 001*
- CAS 126
- CHEM 001, 003, 005, 101, 108
- CMPSC 100
- ENGL 004, 005
- ESL 004, 005
- LL ED 005, 010
- MATH 003, 004, 010, 017, 018, 021, 030, 033, 034, 035, 036, 040, 081, 082, 083, 097, 110, 111, 200
- MICRB 150, 151A, 151B, 151C, 151D, 151E, 151F, 151G, 151W
- PHYS 001, 010, 097, 114, 150, 151
- STAT 100*

*On rare occasions, with adequate justification, a student may be permitted to use one or more of these courses to satisfy degree requirements. A petition must be submitted to request such an exception. Consult with your academic adviser.

In addition, the following types of courses may not be used to satisfy degree requirements in the Integrative Science major:

- Courses which are remedial in nature or which focus on reading improvement or study skills.
- Courses which substantially duplicate the subject matter covered in other completed courses taught at a comparable level.

Some courses may be counted toward degree requirements in the Science and Premedicine majors with some restrictions:

- No more than 4 credits of MATH 140A may be used.
- No more than 6 credits of ROTC courses (AIR, ARMY, NAVSC) may be used.
- No more than 12 credits of independent study (296, 496, etc.) may be used.
 - **Unless special permission is granted, Independent Study credit may only be used in "Supporting Courses" and "Any 400-level Course Work" categories.
- No more than 5 credits of KINES Physical Activity courses may be used.
 - **KINES Health Courses (KINES 180, etc.) are not limited to 5 credits.

Life Science Option: Integrative Science, B.S. at Abington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
BIOL 110 (GN) ^{**†}	4	CHEM 112	3
CHEM 110 (GN) ^{**†}	3	CHEM 113	1
MATH 140 or 140B (GQ) ^{*†##}	4	Global, Social, and Personal Awareness Course (from Department List)	3
ENGL 15, 30H, or ESL 15 (GWS) [‡]	3	CAS 100A, 100B, or 100C (GWS) [‡]	3
CHEM 111 (GN)	1	BIOL 240W (or Supporting Course (consult with academic adviser for options))	3-4
First-Year Seminar	1		
	16		13-14

Second Year

Fall	Credits	Spring	Credits
BIOL 220W or 230W (or Supporting Course (consult with academic adviser for options))	3-4	CHEM 212	3
CHEM 210	3	CHEM 213	2
Teamwork and Interpersonal Communication Course (from Department List)	3	General Education Course (GA)	3
General Education Course (GS)	3	PHYS 251	4
PHYS 250 (GN) ^{*#}	4	Supporting Course (consult with academic adviser for options)	3
	16-17		15

Third Year

Fall	Credits	Spring	Credits
Supporting Course (consult with academic adviser for options)	3	400-level BMB, BIOL, BIOTC, or MICRB course [*]	3
General Education Course (Integrative Studies)	3	MICRB 201 (or Supporting Course (consult with academic adviser for options))	3
Supporting Course (consult with academic adviser for options)	3	General Education Course (Integrative Studies)	3
ENGL 202C (GWS) [‡]	3	General Education Course (GH)	3

STAT 250 or 200 (GQ) [‡]	3-4 Supporting Course (consult with academic adviser for options)	3
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15-16

15

Fourth Year

Fall	Credits	Spring	Credits
400-Level BMB, BIOL, BIOTC, or MICRB course [*]	3	400-level BMB, BIOL, BIOTC, or MICRB course [*]	3
400-Level Supporting Course	3	400-level Supporting Course	3
General Education Course (GHW)	3	General Education Course (Exploration)	3
Supporting Course (consult with academic adviser for options)	3	Supporting Course (consult with academic adviser for options)	3
Supporting Course (consult with academic adviser for options)	3	Supporting Course (consult with academic adviser for options)	2
	15		14

Total Credits 119-122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program List Exclusions: The Following Coursework is not Applicable to Degree Requirements

Students may select supporting courses from nearly the entire range of the University's course offerings. However, the following courses may NOT be used to satisfy degree requirements for the Integrative Science major. This list applies to ALL options in the Integrative Science BS major.

- BIOL 001, 003, 011*, 012*
- BISC 001, 002, 003*, 004*
- BMB 001*
- CAS 126
- CHEM 001, 003, 005, 101, 108
- CMPSC 100
- ENGL 004, 005
- ESL 004, 005
- LL ED 005, 010

- MATH 003, 004, 010, 017, 018, 021, 030, 033, 034, 035, 036, 040, 081, 082, 083, 097, 110, 111, 200
- MICRB 150, 151A, 151B, 151C, 151D, 151E, 151F, 151G, 151W
- PHYS 001, 010, 097, 114, 150, 151
- STAT 100*

*On rare occasions, with adequate justification, a student may be permitted to use one or more of these courses to satisfy degree requirements. A petition must be submitted to request such an exception. Consult with your academic adviser.

In addition, the following types of courses may not be used to satisfy degree requirements in the Integrative Science major:

- Courses which are remedial in nature or which focus on reading improvement or study skills.
- Courses which substantially duplicate the subject matter covered in other completed courses taught at a comparable level.

Some courses may be counted toward degree requirements in the Science and Premedicine majors with some restrictions:

- No more than 4 credits of MATH 140A may be used.
- No more than 6 credits of ROTC courses (AIR, ARMY, NAVSC) may be used.
- No more than 12 credits of independent study (296, 496, etc.) may be used.
 - **Unless special permission is granted, Independent Study credit may only be used in "Supporting Courses" and "Any 400-level Course Work" categories.
- No more than 5 credits of KINES Physical Activity courses may be used.
 - **KINES Health Courses (KINES 180, etc.) are not limited to 5 credits.

Mathematical Science Option: Integrative Science, B.S. at Abington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
MATH 140 (GQ) ^{*†##}	4	MATH 141 (GQ) ^{*††}	4
ENGL 15, 30H, or ESL 15 (GWS) [‡]	3	CAS 100A, 100B, or 100C (GWS) [‡]	3
BIOL 110 (GN) ^{*##}	4	CMPSC 131	3
CHEM 110 (GN) ^{*##†}	3	CHEM 112 (GN)	3
CHEM 111 (GN)	1	CHEM 113 (GN)	1
First-Year Seminar	1	General Education Course (GHW)	1.5
	16		15.5

Second Year

Fall	Credits	Spring	Credits
CMPSC 132	3	DS 220	3
MATH 220	3	MATH 230 or 251	4
General Education Course (GS)	3	General Education Course (Integrative Studies)	3
PHYS 250 (GN) ^{*#}	4	PHYS 251	4
Supporting Course (consult with academic adviser for options)	3	General Education Course (GHW)	1.5
	16		15.5

Third Year

Fall	Credits	Spring	Credits
MATH/STAT 318	3	MATH 311W	4
ENGL 202C (GWS) [‡]	3	MICRB 201	3
Teamwork and Interpersonal Communication Course (from Department List)	3	Global, Social, and Personal Awareness Course (from Department List)	3
MATH 425 [*]	3	CMPSC 446 [*]	3
STAT 401 [*]	3	General Education Course (Integrative Studies)	3
	15		16

Fourth Year

Fall	Credits	Spring	Credits
General Education Course (GA)	3	General Education Course (GH)	3
MATH/CMPSC 455 or STAT 462 [*]	3	CMPSC 445 [*]	3
Supporting Course (consult with academic adviser for options)	3	General Education Course (Exploration)	3
Supporting Course (consult with academic adviser for options)	3	Supporting Course (consult with academic adviser for options)	3

Supporting Course (consult with academic adviser for options) 3

15

12

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program List Exclusions: The Following Coursework is not Applicable to Degree Requirements

Students may select supporting courses from nearly the entire range of the University's course offerings. However, the following courses may NOT be used to satisfy degree requirements for the Integrative Science major. This list applies to ALL options in the Integrative Science BS major.

- BIOL 001, 003, 011*, 012*
- BISC 001, 002, 003*, 004*
- BMB 001*
- CAS 126
- CHEM 001, 003, 005, 101, 108
- CMPSC 100
- ENGL 004, 005
- ESL 004, 005
- LL ED 005, 010
- MATH 003, 004, 010, 017, 018, 021, 030, 033, 034, 035, 036, 040, 081, 082, 083, 097, 110, 111, 200
- MICRB 150, 151A, 151B, 151C, 151D, 151E, 151F, 151G, 151W
- PHYS 001, 010, 097, 114, 150, 151
- STAT 100*

*On rare occasions, with adequate justification, a student may be permitted to use one or more of these courses to satisfy degree requirements. A petition must be submitted to request such an exception. Consult with your academic adviser.

In addition, the following types of courses may not be used to satisfy degree requirements in the Integrative Science major:

- Courses which are remedial in nature or which focus on reading improvement or study skills.

- Courses which substantially duplicate the subject matter covered in other completed courses taught at a comparable level.

Some courses may be counted toward degree requirements in the Science and Premedicine majors with some restrictions:

- No more than 4 credits of MATH 140A may be used.
- No more than 6 credits of ROTC courses (AIR, ARMY, NAVSC) may be used.
- No more than 12 credits of independent study (296, 496, etc.) may be used.
 - **Unless special permission is granted, Independent Study credit may only be used in "Supporting Courses" and "Any 400-level Course Work" categories.
- No more than 5 credits of KINES Physical Activity courses may be used.
 - **KINES Health Courses (KINES 180, etc.) are not limited to 5 credits.

Career Paths

Penn State students with a BS in Integrative Science are prepared for a broad range of careers and graduate programs. The solid foundation of science and math prepares students to think critically and scientifically in a range of industries and professions.

Careers

This program often leads to careers in all healthcare professions, including physicians and physician assistants, dentists, optometrists, and podiatrists; laboratory research associates; scientific product representatives and science-based consulting.

Opportunities for Graduate Studies

Many graduates of the Integrative Science B.S. program choose to pursue graduate studies (MS and PhD) in the natural sciences. Most often, students gravitate to medically-related fields and life science sub-disciplines for focused graduate training. Students in the legal studies and public policy options may choose law school or master's in public policy programs.

Professional Resources

- Association of American Medical Colleges (<https://www.aamc.org>)
- American Association of Colleges of Osteopathic Medicine (<https://www.aacom.org>)
- American Dental Education Association (<https://www.adea.org>)
- Association of Schools and Colleges of Optometry (<https://optometriceducation.org>)
- American Association of Colleges of Podiatric Medicine (<https://aacpm.org>)
- American Academy of Physician Assistants (AAPA) (<https://www.aapa.org>) Physician Assistant Education Association (<https://paeaonline.org>)

Contact

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<https://www.abington.psu.edu/academics/majors-at-abington/science>
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Berks

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(<https://harrisburg.psu.edu/science-engineering-technology/science-bs/>)

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<https://scranton.psu.edu/academics/degrees/bachelors/science>
(<https://scranton.psu.edu/academics/degrees/bachelors/science/>)

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amv12@psu.edu

<https://www.york.psu.edu/academics/baccalaureate/science> (<https://www.york.psu.edu/academics/baccalaureate/science/>)

Mathematics Applications, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The minor in mathematics and its applications is designed to provide students with an interest in applied mathematics, and an opportunity to use mathematical tools and ways of thinking in their own major or area

of concentration. The minor requires students to complete 26-28 credits in Mathematics with 6 credits from the 400-level MATH courses and 6 credits from the 400-level Mathematics Applications courses. The latter are selected in consultation with the coordinator of the minor and are from areas that directly incorporate or support the use of mathematics. Typical selections include computer science, engineering, physics, and statistics.

What is Mathematics Applications?

The minor in mathematics and its applications is designed to provide students with an interest in applied mathematics, and an opportunity to use mathematical tools and ways of thinking in their own major or area of concentration.

You Might Like This Program If...

You are majoring in a mathematically intensive major like computer science, engineering, physics, and statistics, or you simply enjoy mathematics. You want to sharpen your problem-solving skills. You are passionate about mathematics!

Program Requirements

Requirement	Credits
Requirements for the Minor	26-28

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 6-8 credits from the following:		6-8
MATH 220	Matrices	
MATH 230	Calculus and Vector Analysis	
MATH 231	Calculus of Several Variables	
MATH 232	Integral Vector Calculus	
MATH 250	Ordinary Differential Equations	
MATH 251	Ordinary and Partial Differential Equations	
MATH 310	Elementary Combinatorics	
MATH 311W	Concepts of Discrete Mathematics	
MATH 312	Concepts of Real Analysis	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 6 credits of 400-level MATH courses	6
Select 6 credits from 400-level Mathematics Applications courses ¹	6

¹ Mathematics Applications Courses: Through consultation with the coordinator of the minor, courses from areas that directly incorporate or support the use of mathematics will be selected. Typical areas

include computer science, engineering, physics, and statistics. See divisional list of acceptable courses.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Altoona

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Career Paths

Career Services supports and serves students and alumni, faculty and staff, families, and employers in all areas related to career development and preparation. We can assist in any of the following: Major and Career Exploration Career Decision-Making Preparation of Employment Documents Internship and Job Search Strategies Interview Preparation Preparing for Graduate School Developing your Professional Online Brand Presentations and Workshops.

Contact

Altoona

DIVISION OF MATHEMATICS AND NATURAL SCIENCES
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<https://altoona.psu.edu/academics/divisions/mathematics-natural-sciences/administration-staff> (<https://altoona.psu.edu/academics/divisions/mathematics-natural-sciences/administration-staff/>)

Multidisciplinary Studies, A.A. (Abington)

Begin Campus: Abington

End Campus: Abington

Program Description

The objectives of the Multidisciplinary Studies major are to broaden the student's understanding, interests, and skills; to help the student become a more responsible, productive member of the family and community; and to offer a degree program with sufficient electives to permit some specialization according to the student's interests or career plans. Multidisciplinary Studies is a complete two-year degree major. However, graduates who later seek admission to baccalaureate degree majors may apply baccalaureate credits toward the new degree.

In addition to a wide variety of baccalaureate majors offered at University Park campus, graduates of the Multidisciplinary Studies major may qualify for admission to the baccalaureate degree majors in Behavioral Sciences, Elementary Education, Humanities, or Public Policy offered at Penn State Harrisburg. Or they may qualify for any of a large number of baccalaureate degree majors offered by Penn State Erie, The Behrend College, in business, the liberal arts, and sciences.

Entrance to Major

Students must have a minimum 2.0 GPA to change to this Associate degree after admission to the University.

Degree Requirements

For the Associate in Arts degree in Multidisciplinary Studies, a minimum of 60 credits is required:

Requirement	Credits
General Education	21
Electives	15
Requirements for the Major	30

6 of the 21 credits for General Education are included in the Requirements for the Major. This includes 6 credits of General Education GWS courses.

Requirements for the Major

The required credits of General Education and Requirements for the Major must be baccalaureate-level courses. For students intending to seek admission to a baccalaureate program upon graduation, it is recommended that most, if not all, of the courses be at the baccalaureate level. For those students who will seek a bachelor of arts degree upon graduation from Multidisciplinary Studies, it is strongly recommended that a world language be taken since admission to a bachelor of arts program in the College of the Liberal Arts requires one college-level course, or the equivalent, in a world language.

Courses that will satisfy the arts, humanities, social and behavioral sciences, natural sciences, and quantification requirements are defined on the Multidisciplinary Studies checklist, which may be obtained from the College of the Liberal Arts associate dean for undergraduate studies at the University Park campus or from any Multidisciplinary Studies representative at other locations.

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CAS 100	Effective Speech	3
ENGL 15	Rhetoric and Composition	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select one of the following:		3
ENGL 202A	Effective Writing: Writing in the Social Sciences	
ENGL 202B	Effective Writing: Writing in the Humanities	
ENGL 202C	Effective Writing: Technical Writing	
ENGL 202D	Effective Writing: Business Writing	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 3 credits in any course designated as arts		3
Select 3 credits in any course designated as humanities		3
Select 3 credits in any course designated as social and behavioral sciences		3
Select 3 credits in any course designated as physical, biological, or earth sciences		3
Select 9 credits in any one of the following areas: arts, humanities, social and behavioral sciences, natural sciences and quantification, and world language skills ¹		9

¹ If world language courses are chosen, it is recommended that these courses be in one world language sequence.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all associate degree students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 3 credits
- **Writing and Speaking (GWS):** 3 credits

Knowledge Domains

- **Arts (GA):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Note: Up to six credits of Inter-Domain courses may be used for any Knowledge Domain requirement, but when a course may be used to

satisfy more than one requirement, the credits from the course can be counted only once.

Exploration

- **Any General Education course (including GHW and Inter-Domain):** 3 credits

University Degree Requirements

Cultures Requirement

3 credits of United States (US) or International (IL) cultures coursework are required and may satisfy other requirements

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 60 degree credits must be earned for a associates degree. The requirements for some programs may exceed 60 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- To express ideas effectively orally and in writing.
- To enhance students' appreciation of cultural diversity and global/international perspectives.
- To provide students with a broad foundation in arts and sciences.
- To enable students to select a concentration of 9 credits in one area.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Liberal Arts Academic Advising
814-865-2545
Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic->

[advisers/](https://la.psu.edu/student-services/academic-advising/meet-the-academic-)) to see the contact information for the specific adviser(s) of this program

Wilkes-Barre

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Program Coordinator, Letters, Arts, and Sciences
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World Campus

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Contact

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<https://www.abington.psu.edu/academics/multidisciplinary-studies/associate> (<https://www.abington.psu.edu/academics/multidisciplinary-studies/associate/>)

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Erie

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4951 College Drive
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814-898-6108
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<https://behrend.psu.edu/school-of-humanities-social-sciences> (<https://behrend.psu.edu/school-of-humanities-social-sciences/>)

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Harrisburg

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Schuylkill

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World Campus

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-multidisciplinary-studies-associate-in-arts-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-multidisciplinary-studies-associate-in-arts-degree/>)

Multidisciplinary Studies, B.A. (Abington)

Begin Campus: Any Penn State Campus

End Campus: Abington

Program Description

Multidisciplinary Studies is a multi-disciplinary, theme-oriented, and student-designed major leading to a bachelor of arts degree. The major consists of 36 credits, divided into two sections. The core (12 credits) consists of 3 credits each in the following: research methods/projects; communication skills; theory/application; and critical analysis. The additional courses (24 credits) consist of courses directed toward the student's theme, 15 credits of which must be at the 400 level.

Early Admission Program for Professional Schools

If a student is accepted and enrolled as a degree candidate in a professional postgraduate degree program requiring three years or more to complete (such as medical school, dental school, law school, theological seminary, etc.) and if that student completes 94 undergraduate credits at Penn State including General Education, B.A. requirements, and the Multidisciplinary Studies 12-credit core requirements, that student may use up to 30 credits from the professional school to complete the B.A. Multidisciplinary Studies.

It must be emphasized that only top students are accepted into professional school programs on such an early admission basis and that not every professional school has such a policy. Students must have enrolled in Multidisciplinary Studies prior to attending the professional school to request graduation in Multidisciplinary Studies.

What is Multidisciplinary Studies?

You can customize a Bachelor's Degree in Multidisciplinary Studies to fit your area of interest. The 120-credit program allows you to focus on developing your skills in communication and analysis along with your leadership abilities. You will work closely with your adviser to design a program that creates intellectual depth in an area of study that is unique to your interests, but also aligns with the theoretical foundation of a liberal arts degree. The goal of the Bachelor's degree in Multidisciplinary Studies is to provide a broad education that introduces methods of analysis used in the liberal arts disciplines. In addition, it can also prepare you to address the complex social, cultural, ethical, and organizational issues you may face in leadership positions.

You Might Like This Program If...

You have not earned an undergraduate degree, you wish to complete a degree or you wish to customize a degree to fit your career goals.

Entrance To Major

In order to be eligible for entrance to the major, the student must submit a proposal. In consultation with a Multidisciplinary Studies adviser, the student formulates a proposal designing a program that investigates a theme from the viewpoint of at least three different subject areas. Students may not duplicate existing majors from any academic area. An

important standard for entrance to the Multidisciplinary Studies major is the student's ability to design a program with academic integrity worthy of a bachelor of arts degree.

Degree Requirements

For the Bachelor of Arts degree in Multidisciplinary Studies, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	15
Bachelor of Arts Degree Requirements	24
Requirements for the Major	36

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

Courses must be selected in consultation with an adviser.

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 24 credits from University-wide offerings to include:		24
12 credits at the 400 level representing at least three different subject areas		
3 credit 400-level capstone course		
A minimum 9 credits from the humanities and social sciences		
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 3 credits in research methods/projects from courses that involve research methodology or that focus on a research project		3
Select 3 credits in communication skills from courses that focus on expression including those in verbal, symbolic, and written skills		3
Select 3 credits in theory/application from courses that focus on theory, principle, central concepts, or fundamental issues		3
Select 3 credits in critical analysis from courses that focus on evaluation, synthesis, and analysis		3

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing

intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- Students should develop the ability to analyze data and draw appropriate conclusions
- Students should develop the ability to conduct appropriate academic research
- Students should develop the ability to express ideas effectively and efficiently orally and in writing
- Students should develop the ability to apply academic theories and ideas to real-world situations
- Students should develop the ability to be sensitive to diverse backgrounds, talents, interests, and aspirations of different kinds of people.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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World Campus

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Multidisciplinary Studies, B.A. at Abington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H	3 CAS 100A or 100B	3
General Education Course	3 General Education Course	3

General Education Course	3 General Education Course	3
World Language level 1	4 World Language level 2	4
General Education (GHW)	1.5 General Education (GHW)	1.5
14.5		14.5

Second Year

Fall	Credits Spring	Credits
General Education Course	3 General Education Course	3
General Education Course	3 ENGL 202A, 202B, or 202D ²	3
General Education Course	3 General Education Course	3
World Language level 3	4 Theory/Application Skills ^{*3}	3
Additional Course ^{*1}	3 Additional Course ^{*1}	3
16		15

Third Year

Fall	Credits Spring	Credits
General Education Course	3 General Education Course	3
Communication Skills ^{*3}	3 Critical Analysis Skills ^{*3}	3
Additional Course ^{*1}	3 400 Level Course ^{*4}	3
400 Level Course ^{*4}	3 Bachelor of Arts Requirement	3
Bachelor of Arts Requirement	3 Elective (US)	3
15		15

Fourth Year

Fall	Credits Spring	Credits
Bachelor of Arts Requirement	3 400 Level Course ^{*4}	3
Research Methods/Projects ^{*2}	3 400 Level Capstone Course ^{*4}	3
400 Level Course ^{*4}	3 Elective (OC)	3
Elective (IL)	3 Elective	3
Elective (W)	3 Elective	3
15		15

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

¹ The LASAB major comprises 36 credits, at least 9 credits must be in Humanities and Social Sciences disciplines.

² ENGL 202A, B, or D is recommended for LASAB majors.

³ The LASAB major comprises 36 credits, 12 of these credits are in four "core" areas, 3 credits each in Research Methods/Projects, Communication Skills, Critical Analysis Skills, and Theory/Application skills.

⁴ At least 15 credits must be at the 400 level. One of those courses is a capstone course agreed on by the student and his or her adviser. A capstone course is a culminating academic experience bringing together themes outlined in the LAS proposal. It may be an independent study course, an internship, a Study Abroad course, or a regularly scheduled course that offers a culminating academic experience for major the student has designed. Three different academic disciplines must be represented in the 12 credits of 400 level coursework outside of the capstone course.

Program Notes

Under their adviser's supervision, students interested in the LASAB major must write a proposal outlining the courses they plan to take in the major, demonstrating how those courses work together to achieve their educational goals and/or prepare them for their intended career. The proposal must be approved by the Head of Division of Arts and Humanities. Failure to have an approved proposal on file with the Registrar by the deadline set for the student by the Division of Arts and Humanities incurs a registration hold on the student's account.

Career Paths

- Government agencies
- For-profit organizations
- Non-profit organizations
- Education
- Health care
- Business
- Human resources

Contact**Abington**

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<https://la.psu.edu/future-students/academics/degrees/multidisciplinary-studies/>

World Campus

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-multidisciplinary-studies-bachelor-of-arts-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-multidisciplinary-studies-bachelor-of-arts-degree/>)

Project and Supply Chain Management, B.S. (Abington)

Begin Campus: Any Penn State Campus

End Campus: Abington

Program Description

The Project and Supply Chain Management major concentrates on developing knowledge, skills, and abilities in both project and supply chain management, dynamic and important disciplines in modern corporations. Project management skills include the development of new projects, and coordinating procurement and project delivery systems. Supply chain management emphasizes the integration of manufacturing and service operations, logistics, purchasing, and

distribution that enable organizations to develop value-creating supply chain networks. The major provides students with an opportunity to develop the quantitative and people skills necessary to design and operate today's complex management systems. Students learn how to manage critical components in organizational supply chains, and apply business analytic methods for organizing and fully integrating supply chain practices throughout the organization.

Graduates are uniquely well-prepared for careers in some of the highest in-demand professions in the modern business and government environments, managing the supply chain and project initiatives in world-class business firms, public sector organizations, construction, IT organizations, third-party logistics providers, and goods and services distribution operations.

What is Project and Supply Chain Management?

It has been estimated that well over half of all activities in modern corporations are project-based. From developing a new product to constructing a new building, the list of efforts that organizations must plan, manage, and deliver (ideally on time and under budget) is nearly endless. At the same time, globalization creates a growing need for professionals who can effectively manage complex supply chains. The study of project and supply chain management emphasizes the integration of manufacturing and service operations, logistics, purchasing, and distribution—the functions that enable organizations to cultivate value-creating supply chain networks.

You Might Like This Program If...

- You're not intimidated by large projects, or ones that have many moving parts.
- You are detail oriented.
- You are looking for a versatile, in-demand business degree.
- You are interested in pursuing a concurrent certificate in Enterprise Resource Planning (ERP) with SAP (available at Erie, the Behrend College and University College campuses, Beaver, Brandywine, Fayette, Greater Allegheny, Lehigh Valley, New Kensington, Schuylkill, Shenango, Wilkes-Barre and Scranton).

Entrance to Major

Entry to the Project and Supply Chain Management major requires the successful completion of 5 entry-to-major courses: ACCTG 211, ECON 102, ENGL 15 or ENGL 30H, MATH 110 or MATH 140, STAT 200 or SCM 200. Each course requires a C or better grade for successful completion.

Degree Requirements

For the Bachelor of Science degree in Project and Supply Chain Management, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	96

21 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GQ courses; 6 credits of GS courses; 9 credits of GWS courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major

to be taken at the location or in the college or program where the degree is earned.

Requirements for the Major

Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
PSU 7	First-Year Seminar Behrend	1
<i>Prescribed Courses: Require a grade of C or better</i>		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
CAS 100	Effective Speech	3
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
ENGL 202D	Effective Writing: Business Writing	3
FIN 301	Corporation Finance	3
MGMT 301	Basic Management Concepts	3
MGMT 341	Human Resource Management	3
MGMT 418	Project Planning and Resource Management	3
MIS 204	Introduction to Management Information Systems	3
MKTG 301	Principles of Marketing	3
SCM 301	Supply Chain Management	3
SCM 445	Operations Planning and Control	3
SCM 460	Purchasing and Materials Management	3
Additional Courses		
BA 241 & BA 242 or BA 243	Legal Environment of Business and Social and Ethical Environment of Business Social, Legal, and Ethical Environment of Business	4
<i>Additional Courses: Require a grade of C or better</i>		
ENGL 15 or ENGL 30H	Rhetoric and Composition Honors Rhetoric and Composition	3
MATH 110 or MATH 140	Techniques of Calculus I Calculus With Analytic Geometry I	4
SCM 200 or STAT 200	Introduction to Statistics for Business Elementary Statistics	4
MGMT 410 or BA 421	Project Management Project Management	3
MGMT 415 or SCM 416	Project Portfolio Management and Organizations Warehousing and Terminal Management	3
SCM 320 or SCM 455	Transport Systems Logistics Systems Analysis and Design	3
Select 3 credits from the following:		3
BA 364Y	International Business and Society	
ECON 470	International Trade and Finance	
FIN 471	International Finance	
IB 303	International Business Operations	
MGMT 461	International Management	

MKTG 445	Global Marketing	
Other 300- or 400-level international business courses		
Select 6 credits of 300- or 400-level courses such as MIS 404 and MGMT 430		6
Select 3 credits from the following:		3
ECON 481	Business Forecasting Techniques	
MIS 336	Database Management Systems	
MIS 301	Business Analytics	
SCM 340	Introduction to Supply Chain Analytics	
Select 3 credits from:		3
BA 422W	Strategic Business Planning	
BA 462	Business Strategy	
MGMT 471W	Strategic Management and Business Policy	

Supporting Courses and Related Areas

Select 13 credits from any business major field or any non-business major field, except for all KINES (GHW) courses, any ENGL course below ENGL 15, and any MATH course below MATH 110. Exceptions may be petitioned through the applicable department chair. 13

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- Develop business skills and abilities to communicate effectively in both speech and writing.
- Demonstrate strong leadership and teamwork skills necessary for managing modern businesses.
- Demonstrate the ability to think critically and solve problems in the business environment.
- Demonstrate an awareness of ethical issues, social responsibilities, sustainability, and conflict resolution.
- Demonstrate the knowledge and skills necessary for managing modern businesses with the focus of designing and managing modern supply chain networks, including integrated operations, manufacturing, logistics, purchasing and distribution for value-creating, ERP-supported networks.
- Demonstrate the knowledge, skills, and abilities of organizing and managing projects in modern organizations. These project management skills include project portfolio management, scheduling

and coordinating resources, planning and controlling projects, and risk and change management.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Project and Supply Chain Management, B.S. at Abington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) ^{*†††}	3 CAS 100A (GWS) ^{*††}	3
MATH 110 (GQ) ^{*†#††}	4 STAT 200 or SCM 200 (GQ) ^{*†††}	4
ECON 102 (GS) ^{#††}	3 General Education Course (US) ²	3
General Education Course	3 General Education Course	3
PSU 1, 6, or 8	1 General Education Course	3
	14	16

Second Year

Fall	Credits Spring	Credits
ACCTG 211 ^{#1}	4 ENGL 202D (GWS) ^{*††}	3
General Education Course	3 FIN 301 [*]	3
MIS 204 [*]	3 BA 243	4
ECON 104 (GS) [†]	3 MKTG 301 [*]	3
MGMT 301 [*]	3 SCM 301 [*]	3
	16	16

Third Year

Fall	Credits Spring	Credits
BA 321 ^{*3}	3 BA 322 ^{*3}	3
General Education Course	3 IB 303 (UL) ² , MGMT 461, or MKTG 445	3
MIS 404 (or Supporting Course)	3 MGMT 341 [*]	3
SCM 445 [*]	3 MIS 301 or SCM 340 [*]	3
Supporting Course ⁴	3 BA 421 [*]	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
MGMT 415 [*]	3 BA 422W	3
SCM 460 [*]	3 MGMT 418 [*]	3
Supporting Course ⁴	3 SCM 455 [*]	3
Supporting Course ⁴	3 General Education Course	3
General Education Course	3 Supporting Course ⁴	1-3
	15	13-15

Total Credits 120-122

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ ETMs include ACCTG 211, ECON 102, ENGL 15 or ENGL 30H, MATH 110 or MATH 140, STAT 200 or SCM 200, GPA 2.0 or higher

² Students must complete 3 credits of U.S. cultures (US) and 3 credits of international cultures (IL).

³ BA 321 and BA 322 qualify for 6 credits towards the Business Supporting Area for the degree. They are offered regularly and fulfill the prerequisite requirements for BA 421 and BA 422W.

⁴ 13 credits of approved supporting courses include courses in these areas: Management, Accounting, Marketing, and Finance. It's recommended that students include MIS 404 in this category, as this course fulfills the requirements for the ERP certificate with SAP. Any course at the 300-400 level in this category requires a grade of C or higher. The following courses do not meet this supporting courses requirement: KINES, ENGL 1-15, MATH 1-140, ACCTG 151, 152, ECON 14, FIN 100, 108, MGMT 100, MIS 103. Please consult with your adviser to discuss the regularly offered courses which meet this requirement.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

Suggested Academic Plans do not replace the official university degree audit in LionPATH. A minimum of 120 credits are required for graduation. Consult with your adviser when scheduling courses.

Career Paths

The B.S. in Project and Supply Chain Management is one of only a handful of undergraduate degree programs in this field. Graduates are uniquely prepared to work in project-intensive industries such as construction, insurance, information services and information technology,

manufacturing, utilities, pharmaceuticals, third-party logistics, and goods and services distribution operations.

Careers

Employers of recent B.S. in Project and Supply Chain Management graduates include Logistics Plus, Parker Hannifin, Bechtel Plant Machinery, American Eagle, Frito Lay, FairPoint Communications, Pitney Bowes, Spynne, General Electric, Wabtec Railway Electronics, Business Resource Group, Modern Industries, Eddie Bauer, Ferguson Enterprises, Unisys, Eastman Kodak, Tyco Electronics, and IBM.

Opportunities for Graduate Studies

The B.S. in Project and Supply Chain Management can be a starting point for master's- and doctoral-level study of supply chain management, project management, management science, law, organizational behavior, corporate strategy, enterprise architecture, information technology, or another specialized discipline.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES

Professional Resources

- Project Management Institute (<https://www.pmi.org>)

Contact

Abington

DIVISION OF SOCIAL SCIENCES, BUSINESS, AND EDUCATION
1600 Woodland Rd.
Abington, PA 19001
215-421-0030
tw16@psu.edu

<https://www.abington.psu.edu/academics/majors-at-abington/penn-state-abington-means-business> (<https://www.abington.psu.edu/academics/majors-at-abington/penn-state-abington-means-business/>)

Beaver

100 University Drive
Monaca, PA 15061
724-773-3591
aks6310@psu.edu

<https://beaver.psu.edu/academics/majors/pscm> (<https://beaver.psu.edu/academics/majors/pscm/>)

Brandywine

25 Yearsley Mill Road
Media, PA 19063
610-892-1451
cmo16@psu.edu

<https://www.brandywine.psu.edu/academics/bachelors-degrees/project-and-supply-chain-management> (<https://www.brandywine.psu.edu/academics/bachelors-degrees/project-and-supply-chain-management/>)

Erie

BLACK SCHOOL OF BUSINESS
281 Jack Burke Research and Economic Development Center
Erie, PA 16563
814-898-6107
behrend-business@psu.edu

<https://behrend.psu.edu/school-of-business> (<https://behrend.psu.edu/school-of-business/>)

Fayette

2201 University Drive
Lemont Furnace, PA 15456
724-430-4245
wsg3@psu.edu

<https://fayette.psu.edu/academics/baccalaureate/project-and-supply-chain-management> (<https://fayette.psu.edu/academics/baccalaureate/project-and-supply-chain-management/>)

Greater Allegheny

4000 University Drive
McKeesport, PA 15132
412-675-9055
yzb1@psu.edu

<https://greaterallegheny.psu.edu/academics/degree-programs/project-supply-chain-management> (<https://greaterallegheny.psu.edu/academics/degree-programs/project-supply-chain-management/>)

Harrisburg

SCHOOL OF BUSINESS ADMINISTRATION
Olmsted Building, E355
Middletown, PA 17057
717-948-6139
cxs879@psu.edu

<https://harrisburg.psu.edu/business-administration/supply-chain-management-bs> (<https://harrisburg.psu.edu/business-administration/supply-chain-management-bs/>)

Hazleton

Schiavo Hall 208
76 University Drive
Hazleton, PA 18202
570-450-3096
zxl23@psu.edu

<https://hazleton.psu.edu/project-supply-chain-management> (<https://hazleton.psu.edu/project-supply-chain-management/>)

Lehigh Valley

2809 Saucon Valley Road
Center Valley, PA 18034
610-285-5117
maungkmin@psu.edu

<https://lehighvalley.psu.edu/academics/degrees/project-supply-chain-management> (<https://lehighvalley.psu.edu/academics/degrees/project-supply-chain-management/>)

Mont Alto

1 Campus Drive
Mont Alto, PA 17237
717-749-6050
mad10@psu.edu

<https://montalto.psu.edu/academics/bachelors/project-supply-chain-management-degree> (<https://montalto.psu.edu/academics/bachelors/project-supply-chain-management-degree/>)

New Kensington

3550 Seventh Street Rd
New Kensington, PA 15068
724-334-6158
act29@psu.edu

<https://newkensington.psu.edu/academics/4-year-project-supply-chain-management-sap-certificate> (<https://newkensington.psu.edu/academics/4-year-project-supply-chain-management-sap-certificate/>)

Scranton

Business Building 117
Dunmore, PA 18512
570-963-2643
jmw831@psu.edu

<https://scranton.psu.edu/academics/degrees/bachelors/project-supply-chain-management> (<https://scranton.psu.edu/academics/degrees/bachelors/project-supply-chain-management/>)

World Campus

UNDERGRADUATE ACADEMIC ADVISING
225 Outreach Building
University Park, PA 16802
814-863-3283
advising@worldcampus.psu.edu

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-project-and-supply-chain-management-bachelor-of-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-project-and-supply-chain-management-bachelor-of-science-degree/>)

York

221 Grumbacher Building (GISTC)
York, PA 17403
717-771-4115
dxl31@psu.edu

<https://www.york.psu.edu/academics/baccalaureate/project-and-supply-chain-management> (<https://www.york.psu.edu/academics/baccalaureate/project-and-supply-chain-management/>)

Psychological and Social Sciences, B.A.

Begin Campus: Any Penn State Campus

End Campus: Abington

Program Description

Building on the interdisciplinary and cross-disciplinary strengths of Penn State Abington, the Psychological and Social Sciences B.A. is designed to respond to the demand for a program emphasizing the social and behavioral sciences leading to an understanding of human behavior and its influence upon society as well as the influence of social forces on individuals. The program is distinguished by its interdisciplinary and cross-disciplinary coursework and required field

experience. The B.A. provides a broad theoretical foundation in social and psychological theory as well as the opportunity to engage in supervised field experience. The major offers students a choice of course clusters focused on specialized areas such as social psychology, developmental studies, organizational behavior and leadership, bio-behavior and diversity, and counseling. The major is designed to prepare students for a variety of career fields including human resources, business administration, mental health, and social work as well as for continued study in graduate or professional school.

What is Psychological and Social Sciences?

Psychological and Social Sciences fosters an understanding of human behavior and its influence on society as well as the impact of social forces on individuals. It includes the disciplines of psychology, sociology, anthropology, and human development and family studies.

You Might Like This Program If...

- You are curious about people's behavior.
- You are interested in knowing why people behave the way they do.
- You possess a keen interest in how culture and society impact individuals.
- You are a critical thinker and want to develop strong research and communication skills.
- You are interested in a career in mental health or counseling, market research, consulting, occupational therapy, or research oriented careers.
- You want to go to graduate school (Masters or Ph.D. level).

MORE INFORMATION ABOUT PSYCHOLOGICAL AND SOCIAL SCIENCES (<https://www.abington.psu.edu/academics/majors-at-abington/pss-degree/>)

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Psychological and Social Sciences, a minimum of 121 credits is required:

Requirement	Credits
General Education	45
Electives	5-6
Bachelor of Arts Degree Requirements	24
Requirements for the Major	46-47

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and

0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ANTH 45N	Cultural Diversity: A Global Perspective	3
PSYCH 100	Introductory Psychology	3
PSYCH 200	Elementary Statistics in Psychology	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
BBH 301W	Values and Ethics in Biobehavioral Health Research and Practice	3
or HDF5 301	Values and Ethics in Health and Human Development Professions	
HDFS 129	Introduction to Human Development and Family Studies	3
or PSYCH 212	Introduction to Developmental Psychology	
HDFS 312W	Empirical Inquiry in Human Development	3-4
or PSYCH 301W	Basic Research Methods in Psychology	
SOC 1	Introductory Sociology	3
or SOC 5	Social Problems	
Select 3 credits from the following:		3
ANTH 495	Internship	
HDFS 495A	Internship: Advanced Experience	
PSYCH 495	Internship	
SOC 495	Internship	
Supporting Courses and Related Areas ¹		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 6 credits from any HDFS and PSYCH courses on the department approved list		6
Select 6 credits from any of the SOC and ANTH courses on the department approved list		6
Select 9 credits from any ANTH, HDFS, PSYCH, SOC courses on the department approved list that are not used in the Supporting Courses above		9

¹ At least 15 credits must be at the 400-level.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education

Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- **Critical Thinking and Scientific Reasoning:**
 - Understand and utilize the scientific method and basic research methods.
 - Demonstrate critical thinking in the analysis and evaluation of information to distinguish the scientific from the nonscientific.
- **Effective Communication (Writing and Speaking):**
 - Communicate social scientific knowledge orally in a clear and accurate manner.
 - Communicate social scientific knowledge in writing in a clear and accurate manner.
- **Ethics and Diversity:**
 - Evidence knowledge of and appreciation for cultural diversity and relativity in human experience, and for the complexity of human behavior and interactions.
 - Acquire an ethical lens that applies to concrete professional situations and broader issues in society and culture.
- **Knowledge and Application:**
 - Describe key psychological and sociological concepts and theories.
 - Apply concepts and theories to empirical and real life situations.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of

both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Abington

Beth Montemurro

Distinguished Professor of Sociology
1600 Woodland Road
Abington, PA 19001
eam15@psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Psychological and Social Sciences, B.A. at Abington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H	3 PSYCH 212 or HDFS 129*	3
PSYCH 100*	3 World Language level 2	4
World Language level 1	4 MATH 21 (Based on Math Placement Test)	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
	16	16

Second Year

Fall	Credits Spring	Credits
PSYCH 200*	4 ANTH 45N*†	3
World Language level 3	4 PSYCH 301W*	4
General Education Course	3 ENGL 202A	3
CAS 100A or 100B	3 SOC 1 or 5*	3
	General Education Course	3
	14	16

Third Year

Fall	Credits Spring	Credits
HDFS 301*	3 Elective (US;IL)	3

Major Selection 400 level* ¹	3 Major Selection any level* ¹	3
General Education Course	3 Major selection any level* ¹	3
General Education Course	3 Bachelor of Arts Requirement	3
General Education Course (GHW)	3 Humanities (US;IL)	3
15		15
Fourth Year		
Fall	Credits Spring	Credits
Major Selection 400 level* ¹	3 Major Selection 400 level* ¹	3
Major Selection 400 level* ¹	3 Major Selection 400 level* ¹	3
Bachelor of Arts Requirement	3 Bachelor of Arts Requirement	3
General Education	3 Elective	3
XXX 495 Internship* ¹	3 Elective (OC)	3
15		15

Total Credits 122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

¹ At least 15 of 21 required major selection credits must be at the 400 level.

6-15 credits of major courses are required in courses designated PSYCH and/or HDF5.

6-15 credits of major courses are required in courses designated SOC and/or AHTH.

0-9 credits of major courses are required in courses designated as other Social Sciences from the approved PSS program list.

Advising Notes**PSYCH and/or HDF5 courses for Major Requirements:**

PSYCH 221, 281, 407, 412, 415, 416, 420, 422, 423, 424, 426, 438, 441, 470, 478, 479, 481, 484, 485, 496B, 497, HD FS 229, 239, 249, 250, 315, 432, 433, 445, 468

SOC and/or ANTH courses for Major Requirements:

SOC 003, 030, 035, 103, 109, 110, 309, 403, 405, 406, 409, 416, 429, 430, 455, 456, 462, 471, 497, ANTH 002, 011, 022, 040, 146, 197, 199, 216, 321W, 380, 395, 448, 464

Other Social Sciences courses for Major Requirements:

BBH 302, 315, CAS 352, 415, 455, CN ED 404, 407, EDPSY 014, COMM 100N, 120, 411, WMNST 471

Courses cross-listed with the above may be petitioned to meet the 400-level requirement.

Career Paths

A bachelor of arts degree in Psychological and Social Sciences is designed to prepare students for a variety of career fields including human resources, business administration, mental health, and social work or continued study in graduate and professional schools. The Penn State Abington Center for Career & Professional Development supports and serves students in all areas related to career development and preparation including career counseling and coaching, internships, resume creation, interview training, and job search strategies.

Careers

With a bachelor of arts degree in Psychological & Social Sciences, you will be prepared for careers in child and geriatric care; counseling, clinical, and social work; education; human resources; marketing/marketing research; occupational therapy; and research.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE PSYCHOLOGICAL AND SOCIAL SCIENCES PROGRAM (<https://www.abington.psu.edu/academics/majors-at-abington/pss-degree/>)

Opportunities for Graduate Studies

A baccalaureate degree in Psychological and Social Sciences prepares students to earn graduate degrees in a variety of fields or obtain admission to MBA programs and law schools, among other post-graduate opportunities.

Contact

Abington

DIVISION OF SOCIAL SCIENCES, BUSINESS, AND EDUCATION
1600 Woodland Road
Abington, PA 19001
eam15@psu.edu

<https://www.abington.psu.edu/academics/majors-at-abington/pss-degree> (<https://www.abington.psu.edu/academics/majors-at-abington/pss-degree/>)

Psychological and Social Sciences, B.S.

Begin Campus: Any Penn State Campus

End Campus: Abington

Program Description

Building on the interdisciplinary and cross-disciplinary strengths of Penn State Abington, the Psychological and Social Sciences B.S. is designed to respond to the demand for a program emphasizing the social and behavioral sciences leading to an understanding of human behavior and its influence upon society as well as the influence of social forces on individuals. The program is distinguished by its interdisciplinary and cross-disciplinary coursework and required field experience. The degree program offers students a choice of course clusters focused on

specialized areas such as social psychology, developmental studies, organizational behavior and leadership, bio-behavior and diversity, and counseling. The B.S. provides a broad theoretical foundation in social and psychological theory as well as the opportunity to engage in supervised field experience. In addition, the B.S. degree emphasizes quantitative research skills and requires the completion of a senior thesis. The major is designed to prepare students for a variety of career fields including human resources, business administration, mental health, and social work as well as for continued study in graduate or professional school.

What is Psychological and Social Sciences?

Psychological and Social Sciences fosters an understanding of human behavior and its influence on society as well as the impact of social forces on individuals. It includes the disciplines of psychology, sociology, anthropology, and human development and family studies.

You Might Like This Program If...

- You are curious about people's behavior.
- You are interested in knowing why people behave the way they do.
- You possess a keen interest in how culture and society impact individuals.
- You are a critical thinker and want to develop strong research and communication skills.
- You are interested in a career in mental health or counseling, market research, consulting, occupational therapy, or research oriented careers.
- You want to go to graduate school (Masters or Ph.D. level).

MORE INFORMATION ABOUT PSYCHOLOGICAL AND SOCIAL SCIENCES (<https://www.abington.psu.edu/academics/majors-at-abington/pss-degree/>)

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Psychological and Social Sciences, a minimum of 121 credits is required:

Requirement	Credits
General Education	45
Electives	22-23
Requirements for the Major	56-57

3 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GN courses.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ANTH 45N	Cultural Diversity: A Global Perspective	3
PSYCH 100	Introductory Psychology	3
PSYCH 200	Elementary Statistics in Psychology	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
BBH 301W	Values and Ethics in Biobehavioral Health Research and Practice	3
or HDF5 301	Values and Ethics in Health and Human Development Professions	
HDFS 129	Introduction to Human Development and Family Studies	3
or PSYCH 212	Introduction to Developmental Psychology	
PSYCH 301W	Basic Research Methods in Psychology	3-4
or HDF5 312W	Empirical Inquiry in Human Development	
SOC 1	Introductory Sociology	3
or SOC 5	Social Problems	
Select 3 credits from the following:		3
ANTH 495	Internship	
HDFS 495C	Professional Practicum in Human Services	
PSYCH 495	Internship	
SOC 495	Internship	
Select 3 credits from the following:		3
ANTH 494	Research Project	
HDFS 494	Research Project	
PSYCH 494	Research Projects	
SOC 494	Research Project	
Select 4 credits from the following:		4
ANTH 494	Research Project	
HDFS 494	Research Project	
PSYCH 494	Research Projects	
SOC 494	Research Project	
Select 3 credits from the following:		3
BISC 4	Human Body: Form and Function	
BIOL 133	Genetics and Evolution of the Human Species	
BIOL 155	Introduction to the Biology of Aging	
BIOL 161	Human Anatomy and Physiology I - Lecture	
BIOL/PSYCH 169N	What it means to be human	
Supporting Courses and Related Areas ¹		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 6 credits from PSYCH/HDFS (any level)		6
Select 6 credits of SOC/ANTH (any level)		6
Select 9 credits from PSYCH/HDFS/SOC/ANTH		9

¹ 15 credits of PSYCH/SOC/HDFS/ANTH must be at the 400 level. Of these 15 credits, 6 credits must come from this list: ANTH 408, ANTH 428, ANTH 458, HDFS 401, HDFS 415, PSYCH 404/EDPSY 450, PSYCH 406W, PSYCH 407, PSYCH 408, PSYCH 439, PSYCH 492, SOC 405, SOC 413/CRIMJ 413, SOC 423, SOC 470, SOC 471.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Critical Thinking and Scientific Reasoning:**
 - Understand and utilize the scientific method and basic research methods.
 - Demonstrate critical thinking in the analysis and evaluation of information to distinguish the scientific from the nonscientific.
- **Effective Communication (Writing and Speaking):**
 - Communicate social scientific knowledge orally in a clear and accurate manner.
 - Communicate social scientific knowledge in writing in a clear and accurate manner.
- **Ethics and Diversity:**
 - Evidence knowledge of and appreciation for cultural diversity and relativity in human experience, and for the complexity of human behavior and interactions.
 - Acquire an ethical lens that applies to concrete professional situations and broader issues in society and culture.
- **Knowledge and Application:**
 - Describe key psychological and sociological concepts and theories.
 - Apply concepts and theories to empirical and real life situations.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Abington

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Psychological and Social Sciences, B.S. at Abington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
ENGL 15 or 30H*	3	PSYCH 212 or HDFS 129*	3
PSYCH 100*	3	BISC 4, BIOL 133, BIOL 155, BIOL 161, or BIOL 169N*†	3
General Education Course	4	General Education Course	3
General Education Course	3	General Education Course	3
General Education Course	3	General Education Course	3
	16		15

Second Year

Fall	Credits	Spring	Credits
PSYCH 200*	4	PSYCH 301W*	4
ANTH 45N*	3	ENGL 202A	3
SOC 1 or 5*	3	General Education Course	3
Humanities (GH) (US;IL)	3	General Education Course	3
CAS 100A or 100B	3	General Education Course	3
	16		16

Third Year

Fall	Credits	Spring	Credits
400 level class from Methods and Analysis Section*	3	HDFS 301*	3
Major Selection any level* ¹	3	Elective	3

Major Selection any level* ¹	3	Elective	3
Elective	3	400 level class from Methods and Analysis Section*	3
Elective	3	Major Selection 400 level* ¹	3
	15		15

Fourth Year

Fall	Credits	Spring	Credits
XXX 494 Senior Thesis 1*	3	XXX 495 Internship*	3
Major Selection 400 level* ¹	3	Major Selection 400 level* ¹	3
Major Selection 400 level* ¹	3	XXX 494 Senior Thesis 2*	3
Elective	3	Elective	3
Elective (US/IL)	3		
	15		12

Total Credits 120

¹ At least 15 of 21 required major selection credits must be at the 400 level.

6-15 credits of major courses are required in courses designated PSYCH and/or HDFS.

6-15 credits of major courses are required in courses designated SOC and/or ANTH.

0-9 credits of major courses are required in courses designated other Social Sciences from the approved PSS program list.

Methods and Analysis Section: Of your 15 credits of 400 level class, select 6 credits from ANTH 408, ANTH 421, ANTH 428, ANTH 458, HDFS 401, HDFS 415, PSYCH 404 (or EDPsy 450), PSYCH 406W, PSYCH 407, PSYCH 408, PSYCH 439, PSYCH 492, SOC 405, SOC 413 (or CRIMJ 413), SOC 423, SOC 470, SOC 471.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes

PSYCH and/or HDFS courses for Major Requirements:

PSYCH 221, 281, 407, 412, 415, 416, 420, 422, 423, 424, 426, 438, 441, 470, 478, 479, 481, 484, 485, 496B, 497, HD FS 220, 239, 249, 250, 315, 432, 433, 445, 468

SOC and/or ANTH courses for Major Requirements:

SOC 003, 030, 035, 103, 109, 110, 309, 403, 405, 406, 409, 416, 429, 430, 455, 456, 462, 497, ANTH 002, 011, 022, 040, 146, 197, 199, 216, 321W, 380, 395, 448, 464

Other Social Sciences courses for Major Requirements:

BBH 302, 315, CAS 352, 415, 455, CN ED 404, 407, ED PSY 014, COMM 100, 120, 411, WMNST 471

Courses cross-listed with the above may be petitioned to meet the 400-level requirement.

Career Paths

A bachelor of science degree in Psychological and Social Sciences is designed to prepare students for a variety of career fields including human resources, business administration, mental health, and social work, or continued study in graduate and professional schools. The Penn State Abington Center for Career & Professional Development supports and serves students in all areas related to career development and preparation including career counseling and coaching, internships, resume creation, interview training, and job search strategies.

Careers

With a bachelor of science degree in Psychological & Social Sciences, you will be prepared for careers in child and geriatric care; counseling, clinical, and social work; education; human resources; marketing/marketing research; occupational therapy; and research.

Opportunities for Graduate Studies

A baccalaureate degree in Psychological & Social Sciences prepares students to earn graduate degrees in a variety of fields or obtain admission to MBA programs and law schools, among other post-graduate opportunities.

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Public History, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Public History Minor combines history, management, education, communication, civic engagement, and marketing skills, all needed by staff and leaders at museums, historical sites, and in other cultural work. It will help prepare students to foster cultural revitalization in communities, work in philanthropy, and support corporate and non-profit archival and history programs. It will also prepare students to seek the Master's Degree in Public History. The minor's large variety of qualifying courses will invite students in many disciplines to consider doing meaningful civic work with a historical flavor.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
HIST 112	Introduction to Public History	3
HIST 404	Advanced Public History	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits from each of the following four groups listed below.		12
(At least three of these 12 units must be at the 400 level. Non-history majors may have prerequisites to support a 400-level course in their major that they can count for the Public History minor.)		
<i>History Group:</i>		
HIST 10	World History to 1500	
HIST 11	World History since 1500	
HIST 20	American Civilization to 1877	
HIST 21	American Civilization Since 1877	
HIST 161	The Battle of Gettysburg in American Historical Memory	
HIST 495	Internship	
<i>Marketing and Communications Group:</i>		
CC 402	External Communication	
ENGL 420	Writing for the Web	
IST 250	Introduction to Web Design and Development	
MGMT 215	Entrepreneurial Mindset	
MKTG 301	Principles of Marketing	
MKTG 310	Public Relations and Marketing	
<i>Management Group:</i>		
ACCTG 211	Financial and Managerial Accounting for Decision Making	
BA 322	Negotiation Skills for Business Professionals	
BA 421	Project Management	
CIVCM 211N	Foundations: Civic and Community Engagement	
MIS 204	Introduction to Management Information Systems	
MGMT 301	Basic Management Concepts	
<i>Education Group:</i>		
EDPSY 14	Learning and Instruction	
EDTHP 115	Education in American Society	

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of

both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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(<https://www.abington.psu.edu/academics/history/public-history/>)

Race and Ethnic Studies, B.A.

Begin Campus: Any Penn State Campus

End Campus: Abington

Program Description

The Race and Ethnic Studies major is an interdisciplinary liberal arts degree that prepares students to think critically about complex issues, become informed and engaged citizens, and thrive in the diverse workplaces of the 21st century. Students in the major complete several courses that will provide them with a comprehensive introduction to key concepts, theories, and debates that inform the study of race and ethnicity in the United States and beyond. In addition, they select supporting courses that are distributed equally across two areas, a Social Group Area and a Thematic Area. The Social Group Area includes courses that focus on major ethnic and racialized groups, while the Thematic Area includes courses drawn from three broadly defined fields, including History, Culture, and Society; Communication, Media, and the Arts; and Gender and Sexuality. This distribution enables students to focus on a particular social group and issue while ensuring that their studies have thematic and disciplinary breadth.

This interdisciplinary major provides students with excellent preparation for careers and graduate school in fields that include education, law, history, communications, government, sociology, psychology, social work, and business.

You Might Like This Program If...

- You are interested in examining race and ethnicity across disciplines
- You want to gain an understanding of race, racialization, and racial inequalities in the United States and beyond
- You would like to study the experiences of diverse people and communities from various perspectives
- You want to develop skills to lead and advocate for social change

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Race and Ethnic Studies, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	17-18
Bachelor of Arts Degree Requirements	24
Requirements for the Major	33-34

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
AMST 432	Ethnicity and the American Experience	3
SOC 119N	Race, Ethnicity and Culture	3-4
SOC/CRIMJ/ EDUC 205N	Critical Race Theory in the Humanities and Social Sciences	3
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
In consultation with adviser, select 12 credits from departmental lists of approved courses in Social Group Area: ^{1,2}		
Black Studies		
Latin American/Caribbean/Latina/o Studies		
Asian/Asian American Studies		

Middle Eastern/Arab American Studies

Native American/Indigenous Studies

Jewish Studies

In consultation with adviser, select 12 credits from departmental lists 12 of approved courses in Thematic Area: ^{1,2}

History, Culture, and Society

Communications, Media, and the Arts

Gender and Sexuality

¹ Within each Area, no more than 9 credits may be in any single discipline.

² Within each Area, no more than 9 credits may be from courses in any one of the listed topics/fields.

Additional Information:

- At least 12 credits from Supporting Courses and Related Areas must be at the 400-level.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Race and Ethnic Studies, B.A. at Abington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [‡]	3 CAS 100A or 100B [‡]	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
World Language Level 1	4 General Education Course	3
PSU 1	1 World Language Level 2	4
	14	16

Second Year

Fall	Credits Spring	Credits
SOC 119N [*]	3-4 Major Supporting Course from List [†]	3
General Education Course	3 SOC/CRIMJ/EDUC 205N [*]	3
General Education Course (GHW)	1.5 BA Requirement - World Cultures	3
World Language Level 3	4 BA Requirement	3

BA Requirement	3 General Education Course	3
	14.5-15.5	15

Third Year

Fall	Credits Spring	Credits
ENGL 202A or 202B [‡]	3 BA Requirement	3
General Education Course	3 General Education Course	3
Elective	3 Elective	3
Major Supporting Course from List [*]	3 Major Supporting Course from List [*]	3
4XX Major Supporting Course from List [*]	3 4XX Major Supporting Course from List [*]	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
Major Supporting Course from List [*]	3 AMST 432 [*]	3
4XX Major Supporting Course from List [*]	3 4XX Major Supporting Course from List [*]	3
Elective	3 General Education Course	3
Elective ¹	1-2 Elective	3
General Education Course	3 Elective	3
General Education Course (GHW)	1.5	
	14.5-15.5	15

Total Credits 119-121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Number of credits depends on number of credits earned for SOC 119N (3 or 4) and PSU 1

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may

not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Advising Notes:

- Global/Transnational requirement: At least 6 credits from Supporting Courses must be for courses that have a focus that is transnational or outside the United States.
- Gender/Sexuality requirement: At least 3 credits from Supporting Courses must be for courses that have a focus on gender or sexuality.
- A single course may not be used to meet both the Global/Transnational and Gender/Sexuality requirements.
- 400-level requirement: At least 12 credits from Supporting Courses must be at the 400-level.

Career Paths

The Race and Ethnic Studies major is an interdisciplinary liberal arts degree that prepares students for careers in fields that include education, communications, government, social work, community advocacy, and business. It serves as excellent preparation for graduate programs in areas such as law, history, psychology, sociology, social work, or business.

Professional Resources

- Association for Ethnic Studies (<https://ethnicstudies.org/>)

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<https://www.abington.psu.edu/academics/majors-at-abington/race-ethnic-studies> (<https://www.abington.psu.edu/academics/majors-at-abington/race-ethnic-studies/>)

Recreation, Park, and Tourism Management, B.S. (Abington)

Begin Campus: Any Penn State Campus

End Campus: Abington

Program Description

The program prepares students for supervisory and administrative positions with park systems, environmental centers, commercial recreation and tourism agencies, golf courses, hospitals and assisted living facilities, private voluntary agencies, schools and colleges, and other commercial, nonprofit, and public organizations that provide recreation and leisure services. The program combines a broad educational foundation with specific courses designed to accommodate career interests in recreation, park, and tourism management. The program helps students gain the theoretical, managerial, technical, and experiential skills they need to become the next generation of leaders in

the field. Additionally, students obtain real-world experience through our internship experiences.

Four (4) options are offered:

Commercial Recreation and Tourism Management Option

Available at the following campuses: *Abington, Greater Allegheny, University Park, World Campus*

This option focuses on management in the private/commercial, non-profit, and public sectors of recreation/leisure services. The private/commercial focus will be of interest to students seeking careers in a variety of commercial settings such as resorts; theme parks, convention centers; sports and fitness facilities, including arenas and stadiums; tourism promotion/planning agencies; and employee recreation departments within corporations. This focus will also appeal to students wishing to become entrepreneurs.

Community Recreation Management Option

Available at the following campuses: *Abington, Greater Allegheny, University Park, World Campus*

For those interested in the community, public, or non-profit sectors for positions within municipal, state, and federal government agencies; recreation divisions of the armed services; YMCA agencies; United Way agencies; scouting organizations; university-affiliated units such as student unions, intramural and alumni services; and other non-profit organizations.

Professional Golf Management Option

Available at the following campuses: *University Park*

Accredited by the Professional Golfers' Association of America, the Professional Golf Management Option prepares students for careers in the golf industry. Students will be prepared to assess leadership and management principles including customer service, interpersonal skills, business communication, conflict resolution, time management, negotiating, project management, marketing, and community relations. In addition to the core curriculum, the program has a strong business focus and is drawn from several nationally recognized academic disciplines on campus.

Outdoor Recreation Management Option

Available at the following campuses: *University Park*

This option prepare students for careers in Park Management and Environmental Interpretation (PMEI), Adventure Recreation, or in both fields. The Adventure Recreation pathway emphasizes outdoor experiential leadership, including wilderness experiences and personal development. The PMEI pathway focuses on natural and cultural history environmental interpretation and education and the social science of conservation. The third pathway provides a flexible route for students to combine parts of the Adventure Recreation and PMEI pathways to create a meaningful personalized set of courses that could include study abroad experiences and prepare students for international contexts of recreation management. The Outdoor Recreation Management option is of interest to students seeking employment in a variety of outdoor recreation and park settings (local, state, and national from urban to wilderness) offering outdoor activities and personal development to the public.

What is Recreation, Park and Tourism Management?

Recreation, Park and Tourism Management students learn how to manage and lead in a variety of organizations to help humans derive benefits from leisure activities. Students learn about a disciplinary and interdisciplinary perspectives to better understand the natural, psychological, social, economic, political and cultural systems that influence human behavior in the context of recreation, park and tourism. Core business and management skills are applied to the types of organizations in the recreation, park and tourism sectors. This approach enables students to address issues of human well-being and sustainable development in leading and managing these organizations. Our mission is to transform human health and well-being through engaging people in recreation, park, tourism and leisure activities.

MORE INFORMATION ABOUT RECREATION, PARK, AND TOURISM MANAGEMENT (<https://hhd.psu.edu/rptm/>)

You Might Like This Program If...

- You like working with people in a hands-on learning environment that involves recreation, parks, sustainability and leisure.
- You enjoy business, management or entrepreneurship and a career setting focused on the outdoors, entertainment, sports, fitness, or events.
- You like building community through organizing recreation programs for young people, families, those in the military or older persons.
- You enjoy tourism, visiting new places, meeting new people, and helping others travel and learn about other cultures.

Entrance to Major

Students who have completed 29.1 credits with a 2.00 cumulative grade-point average are eligible for entrance into the major, except for the Professional Golf Management option.

First-year students are admitted directly into the Golf Management option at the University Park campus only. In addition to the University's academic requirements, each student admitted to the Golf Management option must have a playing proficiency represented by a minimum golf handicap of 12 or lower. This must be certified in writing by a Professional Golf Association member or golf coach.

Degree Requirements

For the Bachelor of Science degree in Recreation, Park, and Tourism Management, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	4-14
Requirements for the Major	64-71

3-4 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 0-3 credits of GS courses; 0-4 credits of GQ courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. RPTM requires students to complete 24 credits for the major through courses taken at University Park. Courses taken at other Penn

State campuses may not be counted toward this 24 credit minimum. For more information, check the Suggested Academic Plan for this major.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
RPTM 120	Leisure and Human Behavior	3
RPTM 220	Sustainability, Society, and Well-being	3
RPTM 236	Leadership and Group Dynamics in Recreation Services	3
RPTM 277	Inclusive Leisure Services	3
RPTM 390	Political and Legal Aspects of Recreation Services	3
RPTM 410	Marketing of Recreation Services	3
RPTM 433W	Program Evaluation and Research in Recreation Services	3
RPTM 456	Programming in Recreation Services	3
Requirements for the Option		
Select an option		40-47

Requirements for the Option

Commercial Recreation and Tourism Management Option (46-47 credits)
Available at the following campuses: Abington, Greater Allegheny, University Park, World Campus

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
RPTM 101	Introduction to Recreation Services	3
RPTM 210	Introduction to Commercial Recreation and Tourism	3
RPTM 300Y	Tourism and Leisure Behavior	3
RPTM 394	Orientation to Internship	1
RPTM 415	Commercial Recreation Management	3
RPTM 495A	Internship in Recreation Services	12
Additional Courses		
CAS 283 or CMPSC 203	Communication and Information Technology I Introduction to Spreadsheets and Databases	3-4
RPTM 370 or RPTM 435	Introduction to Arena Management Recreation Facilities Planning and Management	3
Select 6 credits from the following:		6
ACCTG 211	Financial and Managerial Accounting for Decision Making	
BA 100	Introduction to Business	
BA 242	Social and Ethical Environment of Business	
BA 250	Small Business Management	
BA 301	Finance	
BA 303	Marketing	
BA 304	Management and Organization	

FIN 100	Introduction to Finance
HM 201	Introduction to Management in the Hospitality Industry
LHR 100	Exploring Work and Employment
LHR/AFAM/ WMNST 136	Race, Gender, and Employment
MGMT 100	Survey of Management
MGMT 301	Basic Management Concepts
MKTG 221	
MKTG 301	Principles of Marketing
RPTM 336	Accounting in Recreation, Park, and Tourism Management

Supporting Courses and Related Areas

Consult with an adviser to review course recommendations, Minors, and Certificate Programs. 9

Community Recreation Management Option (43-44 credits)

Available at the following campuses: Abington, Greater Allegheny, University Park, World Campus

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
RPTM 101	Introduction to Recreation Services	3
RPTM 201	Introduction to Community Recreation	3
RPTM 334	Non-profit Recreation Agency Operations	3
RPTM 394	Orientation to Internship	1
RPTM 495A	Internship in Recreation Services	12

Additional Courses

CAS 283	Communication and Information Technology I	3-4
or CMPSC 203	Introduction to Spreadsheets and Databases	
RPTM 370	Introduction to Arena Management	3
or RPTM 435	Recreation Facilities Planning and Management	

Supporting Courses and Related Areas

Consult with an adviser to review course recommendations, Minors, and Certificate Programs. 15

Outdoor Recreation Management Option (40-41 credits)

Available at the following campuses: University Park

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
RPTM 101	Introduction to Recreation Services	3
RPTM 320	Recreation Resource Planning and Management	3
RPTM 394	Orientation to Internship	1
RPTM 435	Recreation Facilities Planning and Management	3
RPTM 495A	Internship in Recreation Services	12

Additional Courses

CAS 283	Communication and Information Technology I	3-4
or CMPSC 203	Introduction to Spreadsheets and Databases	

Supporting Courses and Related Areas

Select 15 credits in an Outdoor Recreation Management Pathway. Consult with an adviser to review course recommendations, Minors and Certificate Programs. 15

Professional Golf Management Option (47 credits)

Available at the following campuses: University Park

Code	Title	Credits
Prescribed Courses		
RPTM 100S	Introduction to Golf Management	2
RPTM 250	PGA Facility Management 1	2
RPTM 254	PGA Teaching and Coaching 2	2
RPTM 295A	Introduction to Golf Management	3
RPTM 350	PGA Facility Management Level 3	2
RPTM 360	Golf Operations Management	3
RPTM 395B	Participation in Golf Management	3
RPTM 495B	Internship in Golf Management	3

Additional Courses

Select 12 credits from the following: 12

BA 303	Marketing
BA 304	Management and Organization
HM 466	Human Resource Management in the Hospitality Industry
RPTM 336	Accounting in Recreation, Park, and Tourism Management
RPTM 415	Commercial Recreation Management

Supporting Courses and Related Areas

Please consult with your academic adviser to review course recommendation, Minors and Certificate Programs. 15

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses**. This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The

advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Commercial Recreation and Tourism Option: Recreation, Park, and Tourism Management, B.S. at Abington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any

time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or ESL 15 [‡]	3 RPTM 101 [*]	3
RPTM 120 [*]	3 RPTM 210 [*]	3
General Education Course (GH)	3 General Education Course (GS)	3
General Education Course (GN)	3 General Education Course (GN)	3
General Education Course (GA)	3 General Education Course (GQ) [‡]	3
PSU First-Year Seminar	1 General Education Course (GHW)	1.5
	16	16.5

Second Year

Fall	Credits Spring	Credits
RPTM 220 [*]	3 RPTM 236 [*]	3
RPTM 277 [*]	3 RPTM 300Y or MIS 204 [*]	3
General Education Exploration (GA, GH, GN, GS, or Inter-Domain)	3 RPTM 390 [*]	3
General Education Exploration (GA, GH, GN, GS, or Inter-Domain)	3 General Education Course Integrative/Inter-Domain Course	3
General Education Course Integrative/Inter-Domain Course	3 Elective or Supporting Course	3
	General Education Course (GHW)	1.5
	15	16.5

Third Year

Fall	Credits Spring	Credits
CAS 100A, 100B, or 100C	3 RPTM 300Y or MIS 204 [*]	3
RPTM 370 or 435 [*]	3 RPTM 394 [*]	1
RPTM 456 or 433W [*]	3 RPTM 410 [*]	3
Supporting Course in Consultation with Academic Adviser ¹	3 RPTM 415 [*]	3
Elective	3 Supporting Course in Consultation with Academic Adviser ¹	3
	Elective	1
	15	14

Fourth Year

Fall	Credits Spring	Credits
ENGL 202D, 202A, 202B, or 202C (202D Preferred) [‡]	3 RPTM 495A [*]	12
RPTM 456 or 433W [*]	3	
Supporting Course in Consultation with Academic Adviser ¹	3	

Supporting Course in Consultation with Academic Adviser ¹	3
Supporting Course in Consultation with Academic Adviser ¹	3
	15
	12

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Supporting Course List (<https://hhd.psu.edu/rptm/undergraduate/supporting-courses/>)

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

Within the 30 credits of required General Education Domain courses, students must take 6 credits of **Integrative Studies courses** (Inter-domain or Linked courses). If you need additional clarification, consult with your academic adviser.

Community Recreation Management Option: Recreation, Park, and Tourism Management, B.S. at Abington Campus

First Year

Fall	Credits	Spring	Credits
ENGL 15, 30H, or ESL 15 [‡]	3	RPTM 101 [*]	3
RPTM 120 [*]	3	RPTM 201 [*]	3
General Education Course (GA)	3	General Education Course (GS)	3
General Education Course (GH)	3	General Education Course (GN)	3
General Education Course (GN)	3	General Education Course (GQ) [‡]	3
PSU First-Year Seminar	1	General Education Course (GHW)	1.5
	16		16.5

Second Year

Fall	Credits	Spring	Credits
MIS 204 ^{*‡}	3	RPTM 236 [*]	3
RPTM 220 [*]	3	RPTM 334 [*]	3
RPTM 277 [*]	3	RPTM 390 [*]	3
General Education Exploration (GA, GH, GN, GS, or Inter-Domain)	3	General Education Course Integrative/Inter-Domain Course	3
General Education Integrative/Inter-domain Course	3	General Education Course (GHW)	1.5
		Elective or Supporting Course	3
	15		16.5

Third Year

Fall	Credits	Spring	Credits
CAS 100A, 100B, or 100C	3	RPTM 394 [*]	1
RPTM 456 or 433W [*]	3	RPTM 410 [*]	3
RPTM 370 or 435 [*]	3	Supporting Course in Consultation with Academic Adviser ¹	3
Supporting Course in Consultation with Academic Adviser ¹	3	Elective	3
Elective	3		
	15		10

Fourth Year

Fall	Credits	Spring	Credits
ENGL 202D, 202A, 202B, or 202C (202D Preferred) [‡]	3	RPTM 495A [*]	12
RPTM 456 or 433W [*]	3		
Supporting Course in Consultation with Academic Adviser ¹	3		
Supporting Course in Consultation with Academic Adviser ¹	3		

Supporting Course in Consultation with Academic Adviser ¹	3
Supporting Course in Consultation with Academic Adviser ¹	3
18	12

Total Credits 119

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ Supporting Course List (<https://hhd.psu.edu/rptm/undergraduate/supporting-courses/>)

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

Within the 30 credits of required General Education Domain courses, students must take 6 credits of **Integrative Studies courses** (Inter-domain or Linked courses). If you need additional clarification, consult with your academic adviser.

Career Paths

Careers in Recreation, Park and Tourism Management (RPTM) include management positions in commercial resorts, event management businesses, golf courses and golf industry businesses, national and local park systems, environmental centers, outdoor adventure businesses and sports, fitness and recreation facilities in communities, universities, workplaces, military settings, and other locations. Graduate programs in RPTM educate students about research, theory and practice related to leisure and recreation of individuals and groups, including societal and cross-cultural dimensions. RPTM students can also use their degree to prepare for additional graduate training in public health, public administration, public policy, health administration, business or law.

Careers

Careers for RPTM graduates typically fit with the options within the degree program, including positions in:

- Commercial Recreation, Event and Tourism Management positions such as resort and cruise recreation director, travel and tourism management, corporate recreation and events planning, and sport

and fitness venue management, including our Professional Golf Management option.

- Community and Nonprofit Recreation Management positions, including roles in community recreation centers, military recreation leadership, youth camp or senior center management and related positions.
- Outdoor Adventure and Natural Resource Management positions, such as park ranger, environmental or outdoor educator, wilderness program supervisor and outdoor recreation planner, among others.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE RECREATION, PARK, AND TOURISM MANAGEMENT PROGRAM (<https://hhd.psu.edu/rptm/undergraduate/career-opportunities/>)

Opportunities for Graduate Studies

Whether you are looking for a master's degree or your doctorate in RPTM, our multi-disciplinary graduate program is designed to educate students about research, theory and practice related to recreation, parks, tourism and leisure. Both the master of science (M.S.) and the doctor of philosophy (Ph.D.) programs help you develop an understanding of the social, environmental, psychological and economic aspects of human behavior in relation to the experience and delivery of recreation, park, tourism and leisure activities.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://hhd.psu.edu/rptm/graduate/rptm-graduate-career-opportunities/>)

Professional Resources

- Professional Golfers' Association of America (<https://www.pga.org>)
- Kurt Hahn Consortium for Values and Experiential Learning (<https://hhd.psu.edu/rptm/research/research-labs-and-initiatives/kurt-hahn-consortium-values-and-experiential-learning-1/>)
- Denali National Park and Preserve (<https://hhd.psu.edu/rptm/research/research-labs-and-initiatives/outdoor-recreation-protected-area-and-environmental-education-research-group/>)
- Shaver's Creek Environmental Center (<https://www.shaverscreek.org>)
- National Park and Recreation Association (<https://www.nrpa.org>)
- Pennsylvania Recreation and Park Society (<https://prps.org>)
- Equity in Parks and Recreation (<https://www.nrpa.org/our-work/Three-Pillars/equity/>)
- PGA of America Diversity, Equity & Inclusion (<https://www.pga.com/pga-of-america/pga-of-america-diversity-equity-and-inclusion/>)

Contact

Abington

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<https://www.abington.psu.edu/academics/majors-at-abington/recreation-park-and-tourism-management> (<https://www.abington.psu.edu/academics/majors-at-abington/recreation-park-and-tourism-management/>)

Greater Allegheny

RECREATION PARK & TOURISM MANAGEMENT

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McKeesport, PA 15132
412-675-9052
kkm6102@psu.edu

<https://greaterallegheny.psu.edu/academics/degree-programs/recreation-park-tourism-management> (<https://greaterallegheny.psu.edu/academics/degree-programs/recreation-park-tourism-management/>)

University Park

DEPARTMENT OF RECREATION, PARK, AND TOURISM MANAGEMENT/
PGA PROFESSIONAL GOLF MANAGEMENT
801 Ford Building
University Park, PA 16802
814-865-7034
kmp39@psu.edu

<https://hhd.psu.edu/rptm/contact/faculty-staff> (<https://hhd.psu.edu/rptm/contact/faculty-staff/>)

World Campus

DEPARTMENT OF RECREATION, PARK, AND TOURISM MANAGEMENT
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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-recreation-park-and-tourism-management-bachelor-of-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-recreation-park-and-tourism-management-bachelor-of-science-degree/>)

Rehabilitation and Human Services, B.S. (Abington)

Begin Campus: Any Penn State Campus

End Campus: Abington

Program Description

This RHS major helps prepare students for entry-level positions in a variety of human service settings, particularly settings that provide services to persons with physical, emotional, and/or mental disabilities. Graduates pursue employment in a variety of settings including rehabilitation hospitals, drug and alcohol programs, geriatric service centers, community mental health programs, programs for people with intellectual disabilities, justice system, and schools. Increasing opportunities are available in private for-profit insurance programs for the industrially injured, and in employee assistance programs within business and industry. Well-planned use of electives and internships allows for specialization. The internship is provided under the supervision of professionals in human service agencies. These intensive "hands-on" experiences are frequently avenues for employment since the internship is completed during the senior year. Students may not go on internship until they have successfully completed all other course work. Students are encouraged to participate in volunteer experiences that provide opportunities to work with people with disabilities. Students are encouraged to declare a minor in a related area and should be discussed with the student's adviser. The major also helps prepare students for

graduate study in many human service professional disciplines such as rehabilitation counseling, school counseling, occupational therapy, physical therapy, and social work.

You Might Like This Program If...

You enjoy learning about human development, diversity, health and disability, treatment interventions, advocating and working directly with people, and solving individual problems using applied interpersonal skills.

Entrance to Major

Baccalaureate degree candidates must have a minimum 2.0 GPA to be admitted to the Rehabilitation and Human Services (RHS) major; thereafter, students must earn a C or better in all RHS required courses.

Degree Requirements

For the Bachelor of Science degree in Rehabilitation and Human Services, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	17
Requirements for the Major	70-72

12-14 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GS courses; 3-4 credits of GQ courses; 3-4 credits of GN courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
PSYCH 100	Introductory Psychology	3
PSYCH 270	Introduction to Abnormal Psychology	3
SOC 119N	Race, Ethnicity and Culture	4
<i>Prescribed Courses: Require a grade of C or better</i>		
RHS 100	Introduction to Disability Culture	3
RHS 300	Introduction to Rehabilitation and Human Services	3
RHS 301	Introduction to Counseling as a Profession	3
RHS 302	Client Assessment in Rehabilitation and Human Services	3
RHS 303	Group Work in Rehabilitation Practice and Human Services	3
RHS 400W	Case Management and Communication Skills	3
RHS 401	Community Mental Health Practice and Services	3
RHS 402	Children and Families in Rehabilitation Settings and Human Services	3
RHS 403	Medical Aspects of Disability	3
RHS 493	Professional Development and Internship Preparation in RHS	3
RHS 495A	Rehabilitation and Human Services Internship	12
Additional Courses		
CI 185	Principles of Social Justice in Education	3

or SOC 1	Introductory Sociology	
Select one of the following:		3
EDPSY 10	Individual Differences and Education	
HDFS 239	Adolescent Development	
PSYCH 212	Introduction to Developmental Psychology	
Select 3-4 credits from the following:		3-4
ANTH 21	Introductory Biological Anthropology	
BIOL 110	Biology: Basic Concepts and Biodiversity	
BIOL 133	Genetics and Evolution of the Human Species	
BIOL 141	Introduction to Human Physiology	
BISC 1	Structure and Function of Organisms	
BISC 2	Genetics, Ecology, and Evolution	
BISC 3	Environmental Science	
BISC 4	Human Body: Form and Function	

Additional Courses: Require a grade of C or better

Select one of the following:		3-4
EDPSY 101	Analysis and Interpretation of Statistical Data in Education	
STAT 100	Statistical Concepts and Reasoning	
STAT 200	Elementary Statistics	

Supporting Courses and Related Areas

Select 6 credits from the approved courses in this list:		6
CNED 401	Foundations of Chemical Dependency Counseling	
CNED 416	Interpersonal Relationships and Alcohol and Other Drugs (AOD) Dependency	
CNED 421	Counseling Strategies for Preventing Chemical Dependency	
CNED 422	Foundations of Addictions Counseling	
RHS 226	College Student Mental Health and Wellness	
RHS 410	Employment Strategies for People with Disabilities	
RHS 428	Rehabilitation in the Justice System	
RHS 433	Trauma-informed care for school & human service professionals	
SPLED 400	Inclusive Special Ed Foundations: Legal, Characteristics, Collaboration, Assessment, and Management	
SPLED 461	Introduction to Autism Spectrum Disorders: Issues and Concerns	

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or

within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- Advocate for clients
- Assess client needs
- Develop treatment plans
- Identify and use community resources
- Manage caseloads

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Abington

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University Park

College of Education

Advising and Certification Center

228 Chambers Building
University Park, PA 16802

814-865-0488
ed@admissions.psu.edu

Wilkes-Barre

Melisa Littleton

Program Coordinator, Rehabilitation and Human Services
44 University Drive
Dallas, PA 18612
570-675-9213
man20@psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Rehabilitation and Human Services, B.S. at Abington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H	3 PSYCH 100* †	3
SOC 1* †	3 General Education Course	3
General Education Course	3 Natural Science Selection †	3
General Education Course	3 Elective/Minor	3
Elective	3 Elective/Minor	3
First Year Seminar	1 General Education Course (GHW)	1.5
	16	16.5

Second Year

Fall	Credits Spring	Credits
CAS 100A or 100B	3 RHS 300*	3
SOC 119N †	4 RHS 301*	3
ANTH 21, BIOL 133, BIOL 110, BIOL 141, BIOL 160N, BIOL 163, BISC 1, BISC 2, BISC 3, or BISC 4 †	3-4 General Education Course	3
PSYCH 212, HDF5 239, or EDPSY 10 †	3 Elective/Minor/Course for the Chemical Dependency Prevention and Counseling Certificate	3
RHS 100* †	3 General Education Course	3
	General Education Course (GHW)	1.5
	16-17	16.5

Third Year

Fall	Credits Spring	Credits
ENGL 202A or 202B	3 RHS 400W*	3

EDPSY 101, STAT 100, STAT 200, or PSYCH 200 †	3-4 RHS 401*	3
RHS 302*	3 Elective/Minor/Course for the Chemical Dependency Prevention and Counseling Certificate	1-3
RHS 303*	3 One of the following: KINES, BBH, CRIM, SOC, PSYCH, or HDF5 course or Chemical Dependence Prevention and Counseling Certificate course	3
PSYCH 270 or 470*	3 General Education Course	3
	15-16	13-15

Fourth Year

Fall	Credits Spring	Credits
RHS 402*	3 RHS 495A*	12
RHS 403*	3	
RHS 493	3	
One of the following: KINES, BBH, CRIM, SOC, PSYCH, or HDF5 course or Chemical Dependency Prevention and Counseling Certificate course	3	
	12	12

Total Credits 117-121

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

The RHS major provides excellent preparation specifically for graduate programs leading to professions such as occupational therapy, counseling, social work, and physical therapy. Advising of courses outside the major for electives are provided in order to enhance competitiveness of graduate school applications.

MORE INFORMATION ABOUT RHS SPECIAL INTEREST AREAS (<https://ed.psu.edu/rehabilitation-human-services-bs/>)

Careers

RHS allows students to pursue a variety of employment options as case workers and direct service providers in alcohol and other drug treatment centers, correctional facilities, mental health agencies, private non-profit rehabilitation centers, private-for-profit rehabilitation agencies, human resources, programs for children and youth, programs for older adults, public welfare agencies, rehabilitation hospitals, schools, social service agencies, and vocational rehabilitation programs.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE REHABILITATION AND HUMAN SERVICES PROGRAM (<https://ed.psu.edu/rehabilitation-human-services-bs/>)

Opportunities for Graduate Studies

To prepare students for graduate studies, students can work with faculty on independent studies and can petition to take graduate courses within the department. For qualified students, we also offer the Schreyer Honors Program (<https://www.shc.psu.edu/>).

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://ed.psu.edu/rehabilitation-human-services-bs/>)

Accreditation

The College of Education educator preparation programs are fully accredited at the Initial and Advanced levels by the Council for the Accreditation of Educator Preparation (CAEP). The next CAEP program review will be Fall 2026. CAEP advances excellence in educator preparation through evidence-based accreditation that assures quality and supports continuous improvement to strengthen P-12 student learning.

MORE INFORMATION ABOUT ACCREDITATION OF THE REHABILITATION AND HUMAN SERVICES PROGRAM (<https://ed.psu.edu/about/accreditations/>)

Contact

Abington

DIVISION OF SOCIAL SCIENCES
1600 Woodland Road
Abington, PA 19001
215-881-7371
mb1122@psu.edu

<https://www.abington.psu.edu/academics/majors-at-abington/rehabilitation-human-services> (<https://www.abington.psu.edu/academics/majors-at-abington/rehabilitation-human-services/>)

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lrk148@psu.edu

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tpk12@psu.edu

<https://lehighvalley.psu.edu/academics/degrees/rehabilitation-and-human-services> (<https://lehighvalley.psu.edu/academics/degrees/rehabilitation-and-human-services/>)

University Park

DEPARTMENT OF EDUCATIONAL PSYCHOLOGY, COUNSELING, AND SPECIAL EDUCATION
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mmm7153@psu.edu

<https://ed.psu.edu/academics/departments/department-educational-psychology-counseling-and-special-education/rehabilitation-and-human-services> (<https://ed.psu.edu/academics/departments/department-educational-psychology-counseling-and-special-education/rehabilitation-and-human-services/>)

Wilkes-Barre

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570-675-9213
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<https://wilkesbarre.psu.edu/academics/rhs> (<https://wilkesbarre.psu.edu/academics/rhs/>)

Penn State Altoona, The Altoona College

About the College

Ron W. Darbeau, Ph.D., Chancellor, Penn State Altoona

Penn State Altoona is a multi-campus, four-year college of Penn State that offers students accessible education, individualized experiences, and lifelong learning skills that position them to forge their own pathways to personal and professional success. At Penn State Altoona, students may complete 21 baccalaureate and 5 associate degree programs or start the first two years of more than 275 Penn State majors. The campus offers students an array of co-curricular experiences and engagement opportunities, including student clubs and organizations, NCAA Division III athletics, education abroad, undergraduate research, and career counseling and exploration. Located 40 miles from University Park, Penn State Altoona combines the advantages of an intimate college teaching environment with the readily available resources of a major research university.

MORE INFORMATION ABOUT THE COLLEGE (<https://altoona.psu.edu/penn-state/>)

Mission and Goals

Penn State Altoona's mission is to cultivate a vibrant learning environment through excellence in teaching, research, creative activities, outreach and the advancement of personal, social, and intellectual growth, and to empower a diverse student body with the knowledge and skills to be critical thinkers, lifelong learners, and civically-engaged global citizens.

MORE INFORMATION ABOUT THE MISSION AND GOALS OF PENN STATE ALTOONA (<https://altoona.psu.edu/offices-divisions/academic-affairs/planning-and-institutional-research/strategic-plan/>)

Departments and Schools

Division of Arts and Humanities

The Division of Arts and Humanities provides high-quality teaching and programs that allow students to process and document the human experience. Courses equip students with the critical thinking, oral and written communication, ethical decision-making, and creative problem-solving skills necessary for meaningful engagement with the world and professional success.

MORE INFORMATION ABOUT THE DIVISION OF ARTS AND HUMANITIES (<https://altoona.psu.edu/academics/divisions/arts-humanities/>)

Division of Business, Engineering, and Information Sciences and Technology

The Division of Business, Engineering, and Information Sciences and Technology offers high-quality, accredited, diverse programs; exciting student activities; and modern facilities. Our deep dedication to teaching enables our students to excel in the fields of business, engineering, engineering technology, rail transportation engineering, or information sciences.

MORE INFORMATION ABOUT THE DIVISION OF BUSINESS, ENGINEERING, AND INFORMATION SCIENCES AND TECHNOLOGY (<https://altoona.psu.edu/academics/divisions/business-engineering-information-sciences-technology/>)

Division of Education, Human Development, and Social Sciences

The Division of Education, Human Development, and Social Sciences provides innovative and transformative educational and research experiences in a student-centered learning environment. We are committed to preparing students to think critically, solve problems, apply knowledge, demonstrate skills, engage in genuine inquiry, and communicate effectively in an ever-changing global context.

MORE INFORMATION ABOUT THE DIVISION OF EDUCATION, HUMAN DEVELOPMENT, AND SOCIAL SCIENCES (<https://altoona.psu.edu/academics/divisions/education-human-development-social-sciences/>)

Division of Mathematics and Natural Sciences

The Division of Mathematics and Natural Sciences promotes academic excellence through distinctive teaching, research, and service. The Division offers bachelor's degrees in biology and environmental studies and minors in biology, chemistry, environmental studies, mathematics, and mathematics applications.

MORE INFORMATION ABOUT THE DIVISION OF MATHEMATICS AND NATURAL SCIENCES (<https://altoona.psu.edu/academics/divisions/mathematics-natural-sciences/>)

Baccalaureate Degrees

- Accounting, B.S. (Altoona)
- Biology, B.S. (Altoona)
- Business, B.S. (Altoona)
- Communications, B.A. (Altoona)
- Criminal Justice, B.A. (Altoona)

- Criminal Justice, B.S. (Altoona)
- Cybersecurity Analytics and Operations, B.S. (Altoona)
- Electro-Mechanical Engineering Technology, B.S. (Altoona)
- Elementary and Kindergarten Education, B.S. (Altoona)
- English, B.A. (Altoona)
- Environmental Studies, B.A.
- Environmental Studies, B.S.
- History, B.A. (Altoona)
- Human Development and Family Studies, B.S. (Altoona)
- Information Technology, B.S. (Altoona)
- Kinesiology, B.S. (Altoona)
- Mechanical Engineering, B.S. (Altoona)
- Multidisciplinary Studies, B.A. (Altoona)
- Psychology, B.A. (Altoona)
- Psychology, B.S. (Altoona)
- Rail Transportation Engineering, B.S.
- Security and Risk Analysis, B.S. (Altoona)
- Visual Art Studies, B.A.

Associate Degrees

- Business Administration, A.S. (Altoona)
- Criminal Justice, A.S. (Altoona)
- Human Development and Family Studies, A.S. (Altoona)
- Multidisciplinary Studies, A.A. (Altoona)
- Science, A.S.

Minors

- Communications, Minor (Altoona)
- Criminal Justice, Minor
- Dance Studies, Minor
- Entrepreneurship, Minor
- Environmental Studies, Minor
- Global Language and Culture, Minor
- Vocal Studies, Minor

Certificates

- AutoCAD, Certificate
- Information Systems Auditing, Certificate
- Information Systems Security, Certificate

College Procedures

Change of Campus

Change of Campus offers the opportunity to begin at one of our campuses and complete your degree at another campus. The process is based on whether or not a student can schedule classes and make academic progress at their current and proposed campuses. Change of Campus requests for non-academic reasons (e.g., participation in a club/sport, employment, housing, or to enroll in classes for a minor) will not be approved.

MORE INFORMATION ABOUT CHANGE OF CAMPUS (<https://altoona.psu.edu/offices-divisions/academic-affairs/registrar/change-of-campus/>)

Concurrent Majors

A Concurrent Majors Program is one in which students take courses to concurrently meet the requirements of at least two majors, with graduation for all majors in the program occurring during the same semester. Baccalaureate or associate degree students can earn degrees in more than one Penn State major. When completing concurrent majors, students simultaneously complete all academic requirements for their majors with two (or more) degrees in the same semester. Students apply for concurrent majors in the Update Academics module of LionPATH. Students should meet with their advisers for more information and to discuss any program limitations.

READ SENATE POLICY 60-00: COMPLETING MORE THAN ONE UNDERGRADUATE MAJOR PROGRAM (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/60-00-completing-more-than-one-undergraduate-program/#60-00>)

Academic Warning

A student who fails to earn a 2.00 cumulative grade-point average will be placed on academic warning. A student placed on academic warning will have a hold placed on registration and will be required to meet with an academic adviser in order for this registration hold to be removed. To remove academic warning, the cumulative grade-point average must be 2.00 or higher.

READ SENATE POLICY 54-20: ACADEMIC WARNING (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-20>)

Academic Suspension

A student in academic warning who fails to maintain a semester grade-point average of 2.00 or higher will be academically suspended. A student who has been academically suspended may not schedule courses at the University for two consecutive semesters. (Note: Summer session is equal to one semester.)

MORE INFORMATION ABOUT ACADEMIC SUSPENSION (<https://altoona.psu.edu/academics/advising-center/student-resources/forms-policies-procedures/academic-warning-suspension-dismissal/>)

READ SENATE POLICY 54-40: ACADEMIC SUSPENSION (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-40>)

Resources

Wilbur K. Kraybill Academic Advising Center

The Wilbur K. Kraybill Academic Advising Center is staffed by professional Division of Undergraduate Studies advisers. The advisers serve to provide information regarding academic policies and procedures, assist in developing short-term/long-term academic planning, and refer students to campus resources. Our mission is to provide students with access to well-informed academic advisers who will assist them as they explore, develop and implement realistic educational goals and plans.

MORE INFORMATION ABOUT THE WILBUR K. KRAYBILL ACADEMIC ADVISING CENTER (<https://altoona.psu.edu/academics/advising-center/>)

Learning Resources Center

The Learning Resources Center (LRC) helps Penn State Altoona students to be successful in learning. All of our services are free to Penn State Altoona students, and the simplest way to get started is to come and visit

us. The LRC is located on the first floor of the Eiche Library building. Most of our tutoring is handled by professional tutors or by instructors from the discipline. In some subjects, we also offer peer tutoring.

MORE INFORMATION ABOUT THE LEARNING RESOURCES CENTER (<https://altoona.psu.edu/student-success/student-success-center/tutoring/>)

Engaged Scholarship

Penn State Altoona students have a multitude and variety of opportunities to participate in activities outside of the classroom. These out-of-class activities are designed to complement in-class learning. The activities and experiences vary widely, but common examples include study abroad/study away (both domestic and international travel), academic internships/clinical work, research/creative activities, and community-based studies.

MORE INFORMATION ABOUT ENGAGED SCHOLARSHIP (<https://altoona.psu.edu/academics/out-of-class-learning/>)

Health and Wellness Center

Our nationally-accredited Health and Wellness Center is committed to promoting the health, wellness, and safety of our campus community. Our services include health, counseling, disability, and psychiatric and psychological services, as well as health education and other primary prevention programming.

MORE INFORMATION ABOUT THE HEALTH AND WELLNESS CENTER (<https://altoona.psu.edu/offices-divisions/student-affairs/health-wellness/>)

Center for Student and Civic Engagement

The Center for Student and Civic Engagement at Penn State Altoona is committed to providing opportunities for students to connect to the communities they are a part of while affecting positive growth and change for both the student and the community!

MORE INFORMATION ABOUT THE CENTER FOR STUDENT AND CIVIC ENGAGEMENT (<https://altoona.psu.edu/offices-divisions/student-affairs/student-civic-engagement/>)

Honors Programs

Schreyer Honors College

The Schreyer Honors College, regarded as one of the nation's top programs of its kind, promotes achieving academic excellence with integrity, building a global perspective, and creating opportunities for leadership and civic engagement. Schreyer Scholars, including those admitted after their first or second year of enrollment, are a diverse and motivated group of approximately 2,000 students at University Park and 20 Commonwealth campuses. The College strives to educate students who will have an important and ethical influence in the world, to improve educational practice, and to continue to be recognized as a leading force in honors education nationwide.

MORE INFORMATION ABOUT THE SCHREYER HONORS COLLEGE (<https://www.shc.psu.edu>)

Honors at Penn State Altoona

The Altoona Honors Program provides an enriched academic experience for high-achieving, motivated students. The program offers students who qualify with opportunities to shape their coursework, research, and

creative efforts in ways that help them best meet their academic and professional goals.

MORE INFORMATION ABOUT HONORS AT PENN STATE ALTOONA (<https://altoona.psu.edu/academics/honors-program/>)

Contact

PENN STATE ALTOONA
3000 Ivyside Park
Altoona, PA
814-949-5000
AA-REGSTAFF@lists.psu.edu

<https://altoona.psu.edu>

Accounting, B.S. (Altoona)

Begin Campus: Any Penn State Campus

End Campus: Altoona

Program Description

This major helps students prepare for careers in auditing and public accounting, industrial and managerial accounting, and in governmental and not-for-profit accounting. It also provides a sound background for students who plan to pursue graduate studies in accounting or related fields. Students who complete the prescribed courses and earn a Bachelor of Science degree will satisfy the academic requirements to sit for the Certified Public Accountant (CPA) examination. Graduates may also elect to pursue other professional certifications, including Certified Management Accountant (CMA), Certified Internal Auditor (CIA), Certified Fraud Examiner (CFE), and Certified Government Financial Manager (CGFM).

What is Accounting?

Accountants develop and interpret financial data required for decision-making by managers, investors, regulators, and other stakeholders. To perform their functions, accountants must work with both numerical information and concepts, and they must be able to function effectively as individuals and in teams. Accountants work with people in their own specialized departments, and with users of financial information throughout their organization. Because of this close association with other parts of the organization, the accountant is in a unique position to develop a broad business perspective.

You Might Like This Program If...

- You are comfortable with numbers and interested in the messages and the information that they provide.
- You are organized and detail-oriented. You want to pursue a career in business or finance.

Entrance to Major

Entry to the Accounting major requires the completion of 8 entry-to-major courses: ACCTG 211¹, ECON 102, ENGL 15¹ or ENGL 30H¹, FIN 301, MATH 110¹ or MATH 140¹, MGMT 301, MKTG 301, SCM 200¹ or STAT 200¹; and a 2.00 or higher cumulative grade-point average.

¹ Course requires a grade of C or better.

Degree Requirements

For the Bachelor of Science degree in Accounting, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives (non-business courses)	8
Requirements for the Major	79

12 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GWS courses; 3 credits of GS courses; 6 credits of GQ courses.

Consistent with Senate policy, at least 24 credits of course work in the major and the capstone course must be completed in the respective College to earn the degree. No more than 60 credits should be from business and business-related courses.

Students wishing to fulfill the 150 credit-hour education option to become a CPA in Pennsylvania (which reduces the experience requirement for certification) are encouraged to enter Capital College's Master of Professional Accounting program, or the Master of Business Administration program, or the Master of Science in Information Systems program subsequent to receiving their undergraduate accounting degree.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
BA 364Y	International Business and Society	3
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
FIN 301	Corporation Finance	3
MGMT 301	Basic Management Concepts	3
MIS 204	Introduction to Management Information Systems	3
MIS 390	Information Systems Management and Applications	3
MKTG 301	Principles of Marketing	3
SCM 301	Supply Chain Management	3
<i>Prescribed Courses: Require a grade of C or better</i>		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
ACCTG 310	Federal Taxation I	3
ACCTG 340	Cost Accounting	3
ACCTG 403	Auditing	3
ACCTG 471	Intermediate Financial Accounting I	3
ACCTG 472	Intermediate Financial Accounting II	3
ACCTG 473	Advanced Financial Accounting	3
BA 462	Business Strategy	3
ENGL 202D	Effective Writing: Business Writing	3

Additional Courses

BA 241 & BA 242 or BA 243	Legal Environment of Business and Social and Ethical Environment of Business Social, Legal, and Ethical Environment of Business	4
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Additional Courses: Require a grade of C or better

MATH 110 or MATH 140	Techniques of Calculus I Calculus With Analytic Geometry I	4
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SCM 200 or STAT 200	Introduction to Statistics for Business Elementary Statistics	4
------------------------	--	---

Select 6 credits of the following: 6

ACCTG 410	Federal Taxation II	
ACCTG 431	Advanced Auditing	
ACCTG 432	Accounting Information Systems	
ACCTG 440	Advanced Management Accounting	
ACCTG 461	International Accounting	
ACCTG 462	Governmental and Not-for-Profit Accounting	
ACCTG 494	Research Project	
ACCTG 496	Independent Studies	
ACCTG 497	Special Topics	

Supporting Courses and Related Areas

Select 6 credits from 200 - 400 level business courses from: ACCTG, BA, ECON, FIN, MGMT, MKTG, or SCM in consultation with an academic adviser and in support of the student's interests 6

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- Formulate thoughts and ideas in a way that can be clearly understood by a target audience
- Demonstrate competence in Auditing
- Convey ideas in a clear, coherent manner in verbal and written communication
- Be competent in social and ethical decision making
- Recognize and critically assess her/his actions and those of others within the context of business decision making

- Structure and synthesize ambiguous information, analyze and interpret information and, be able to transfer these skills across different settings
- Effectively evaluate the impact and implications of relevant business functions and develop an integrative, interdisciplinary appreciation of business situations, problems and solutions
- Demonstrate competence in the preparation of financial accounting information
- Demonstrate competence in Cost accounting
- Demonstrate competence in Tax Accounting

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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World Campus

Undergraduate Academic Advising

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Accounting, B.S. at Altoona Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 110 or 140 ^{*#†}	4 CAS 100 [‡]	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
ECON 102 ^{‡#}	3 General Education Course	3
ENGL 15 or 30H ^{‡#}	3 MGMT 301 [#]	3
PSU 3	1	
	17	15

Second Year

Fall	Credits Spring	Credits
STAT 200 or SCM 200 ^{*#†}	4 General Education Course	3
ACCTG 211 ^{*#}	4 ECON 104	3
MKTG 301 [#]	3 FIN 301 [#]	3
MIS 204	3 Non-business Elective	3
General Education Course (GHW)	1.5 General Education Course	3
	General Education Course (GHW)	1.5
	15.5	16.5

Third Year

Fall	Credits Spring	Credits
ACCTG 340 [*]	3 ACCTG 310 [*]	3
ACCTG 471 [*]	3 ACCTG 472 [*]	3
BA 241	2 200-400 level Business course in consultation with adviser	3
BA 242	2 200-400 level Business course in consultation with adviser	3
ENGL 202D [‡]	3 SCM 301	3

Non-business Elective	3	
	16	15
Fourth Year		
Fall	Credits Spring	Credits
ACCTG 473*	3 ACCTG 403*	3
ACCTG Elective*	3 BA 462*	3
ACCTG Elective*	3 Non-business Elective	2
BA 364Y	3 General Education Course	3
MIS 390	3	
	15	11

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

Because the Harrisburg area is the center of industry and economic development for south-central Pennsylvania, Penn State Harrisburg accounting students are provided with many opportunities to experience the world of business.

Careers

An accounting degree helps students prepare for careers in auditing and public accounting, industrial and managerial accounting, and in governmental and not-for-profit accounting. Students who complete the prescribed courses and earn a BS degree will satisfy the academic requirements to sit for the Certified Public Accountant (CPA) examination. Graduates may also elect to pursue other professional certifications, including Certified Management Accountant (CMA), Certified Internal Auditor (CIA), Certified Fraud Examiner (CFE), and Certified Government Financial Manager (CGFM).

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE ACCOUNTING PROGRAM (<https://harrisburg.psu.edu/business-administration/accounting-bs/>)

Opportunities for Graduate Studies

The Bachelor of Science in Accounting provides a sound background for students who plan to pursue graduate studies in accounting or related fields, including Penn State's Master of Professional Accounting.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://harrisburg.psu.edu/business-administration/accounting-bs/>)

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

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<https://altoona.psu.edu/academics/bachelors-degrees/accounting>
(<https://altoona.psu.edu/academics/bachelors-degrees/accounting/>)

Abington

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(<https://harrisburg.psu.edu/business-administration/accounting-bs/>)

World Campus

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-accounting-bachelor-of-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-accounting-bachelor-of-science-degree/>)

AutoCAD, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

The AutoCAD: Computer-Aided Drafting Certificate is an introduction to AutoCAD, the industry standard for high-quality engineering graphics. Knowing AutoCAD will open many doors for you in the workplace. In fact, more and more jobs require a working knowledge of AutoCAD, an industry standard for high-quality engineering graphics. Classes will be "hands on" in the computer lab during convenient evening hours. Students who take the classes in this certificate will:

- Learn drawing vocabulary used on blueprints-apply that vocabulary to produce drawings
- Understand sectional views
- Create 2D drawings
- Develop computer skills for drafting-learn commands, views, etc.
- Create 3D models

What is AutoCAD?

Computer software to model, design, and analyze a wide variety of two and three dimensional objects.

You Might Like This Program If...

- You will enter an engineering industry that will require creating, revising, or interpreting 2D or 3D drawings.
- You desire a skill set that applies to most activities involved with modern technology.

Program Requirements

To earn an undergraduate certificate in AutoCAD, a minimum of 8 credits is required.

Code	Title	Credits
Prescribed Courses		
EDSGN 100	Cornerstone Engineering Design	3
EGT 102	Introduction to Computer Aided Drafting	1
EGT 114	Spatial Analysis and Computer-Aided Drafting	2
EGT 201	Advanced Computer Aided Drafting	2

No Prerequisites Required.

Certificate Learning Objectives

- **2D Drawing Standards and Specifications:** Adhere to 2D drawing standards, specifications, and/or codes relevant to the target industry
- **3D Solid Models:** Create 3D solid models using CAD software focused on engineering design intent - parametric variables, material specification, and/or accounting for fabrication process
- **Drawing Views and Terminology:** Recognize drafting terminology and 2D section views used to create 3D models on engineering drawings

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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<https://hazleton.psu.edu/ce> (<https://hazleton.psu.edu/ce/>)

Biology, B.S. (Altoona)

Begin Campus: Any Penn State Campus

End Campus: Altoona

Program Description

Biology is the scientific study of life: the diversity and organization of organisms, from single-celled bacteria to multi-cellular plants and animals, including humans. These different levels of biological organization range from the molecules and cells that compose an organism, to the interacting organisms that make up an ecosystem. Hands-on experiences, from designing and conducting lab experiments to making field observations, using many different procedures and instruments, play an important role in gaining biological knowledge. Basic research in biology provides many benefits. Faculty in the Department of Biology at Penn State are exploring ways to cure neurological diseases, to conserve coral populations in tropical oceans, to discover more efficient ways to use plants for food and bioenergy, to develop vaccines for infectious diseases, and investigating many other facets of biology, all with the goal of positively impacting humans and the environment.

You Might Like This Program If...

- You are interested in learning about aspects of the biology of organisms that live on Earth.
- You enjoy a dynamic field of study, with new discoveries being made every day.
- You are interested in hands-on experiences, including courses with integrated laboratories and conducting research with faculty.
- You plan to pursue a career in biology research, education or outreach, or attend professional school in areas including medicine and dentistry.

Entrance To Major

In order to be eligible for entrance to the Biology major, a student must have:

1. attained at least a 2.00 cumulative grade point average;
2. completed BIOL 110, CHEM 110, MATH 140, and earned a grade of C or better in each of these courses; and
3. completed at least one of the following courses with a grade of C or better: BIOL 220W, BIOL 230W, or BIOL 240W.

Degree Requirements

For the Bachelor of Science degree in Biology, a minimum of 124 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	94

15 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
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Prescribed Courses

CHEM 111	Experimental Chemistry I	1
CHEM 113	Experimental Chemistry II	1
MATH 141	Calculus with Analytic Geometry II	4

Prescribed Courses: Require a grade of C or better

BIOL 110	Biology: Basic Concepts and Biodiversity	4
BIOL 220W	Biology: Populations and Communities	4
BIOL 230W	Biology: Molecules and Cells	4
BIOL 240W	Biology: Function and Development of Organisms	4
CHEM 110	Chemical Principles I	3
CHEM 112	Chemical Principles II	3
MATH 140	Calculus With Analytic Geometry I	4

Additional Courses

Select one of the following: 8-12

PHYS 211 & PHYS 212 & PHYS 213 & PHYS 214	General Physics: Mechanics and General Physics: Electricity and Magnetism and General Physics: Fluids and Thermal Physics and General Physics: Wave Motion and Quantum Physics	
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PHYS 250 & PHYS 251	Introductory Physics I and Introductory Physics II	
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Select one of the following: 3-4

STAT 200	Elementary Statistics	
STAT 240	Introduction to Biometry	
STAT 250	Introduction to Biostatistics	

Requirements for the Option

Select an option 46-51

Requirements for the Option

Ecology Option (46-51 credits)

Available at the following campuses: Altoona, Schuylkill, University Park

Code	Title	Credits
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Prescribed Courses

BIOL 463	General Ecology	3
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Additional Courses

STAT 462 or STAT 464	Applied Regression Analysis Applied Nonparametric Statistics	3
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Select one of the following: 6-8

CHEM 202 & CHEM 203	Fundamentals of Organic Chemistry I and Fundamentals of Organic Chemistry II	
CHEM 210 & CHEM 212 & CHEM 213	Organic Chemistry I and Organic Chemistry II and Laboratory in Organic Chemistry	

Groups

Select a minimum of 15 credits of 400-level biology courses, with at least 6 credits from the Ecology group, 3 credits from the Evolution group, and 3 credits from the Practicum group. A maximum of 3 credits of BIOL 400, 494, 495, 496, and SC 295, 395, 495 may be used to fulfill 15 credits minimum in the 400-level biology course requirements.

Ecology Group:

BIOL 406	Symbiosis	
BIOL 412	Ecology of Infectious Diseases	

BIOL 415	Ecotoxicology
BIOL 417	Invertebrate Zoology
BIOL 419	Ecological and Environmental Problem Solving
BIOL/PPEM 425	Biology of Fungi
BIOL 429	Animal Behavior
BIOL 435	Ecology of Lakes and Streams
BIOL 436	Population Ecology and Global Climate Change
BIOL 438	Theoretical Population Ecology
BIOL 444	Field Ecology
BIOL 446	Physiological Ecology
BIOL 450W	Experimental Field Biology
BIOL 464	Sociobiology
BIOL 474	Astrobiology
BIOL 482	Coastal Biology
BIOL 499A	Tropical Field Ecology
Evolution Group:	
BIOL 405	Molecular Evolution
BIOL 406	Symbiosis
BIOL 411	Medical Embryology
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 420	Paleobotany
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 427	Evolution
BIOL 428	Population Genetics
BIOL 429	Animal Behavior
BIOL 432	Developmental Genetics
BIOL 433	Evolution of Vertebrates
BIOL 434	Pathobiology of Emerging Infectious Disease
BIOL 436	Population Ecology and Global Climate Change
BIOL 438	Theoretical Population Ecology
BIOL 439	Practical Bioinformatics
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 446	Physiological Ecology
BIOL 451	Biology of RNA
BIOL 460	Human Genetics
BIOL 463	General Ecology
BIOL 464	Sociobiology
BIOL 474	Astrobiology
BIOL 478	COMPARATIVE NEUROANATOMY
Practicum Group:	
BIOL 400	Teaching in Biology
BIOL 402W	Biological Experimental Design
BIOL 407	Plant Developmental Anatomy
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 419	Ecological and Environmental Problem Solving
BIOL 421	Comparative Anatomy of Vertebrates

BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 433	Evolution of Vertebrates
BIOL 437	Histology
BIOL 439	Practical Bioinformatics
BIOL 444	Field Ecology
BIOL 450W	Experimental Field Biology
BIOL 461	Contemporary Issues in Science and Medicine
BIOL 473	Laboratory in Mammalian Physiology
BIOL 475N	
BIOL 478	COMPARATIVE NEUROANATOMY
BIOL 482	Coastal Biology
BIOL 494	Research Project
BIOL 495	Internship in Biology
BIOL 496	Independent Studies
BIOL 499A	Tropical Field Ecology
BIOTC 459	Plant Tissue Culture and Biotechnology
SC 295	Science Co-op Work Experience I
SC 395	Science Co-op Work Experience II
SC 495	Science Co-op Work Experience III

Supporting Courses and Related Areas

Select 17-24 credits from department list 17-24

General Biology Option (46-51 credits)

Available at the following campuses: Abington, Altoona, Beaver, Berks, Brandywine, Harrisburg, Lehigh Valley, Schuylkill, Scranton, University Park, York

Code	Title	Credits
Additional Courses		
Select one of the following:		6-8
CHEM 202 & CHEM 203	Fundamentals of Organic Chemistry I and Fundamentals of Organic Chemistry II	
CHEM 210 & CHEM 212 & CHEM 213	Organic Chemistry I and Organic Chemistry II and Laboratory in Organic Chemistry	
<i>Groups</i>		
Select a minimum of 18 credits of 400-level biology courses, with at least 3 credits from each of the following groups (each course may be used to satisfy a requirement in only one group). Moreover, a maximum of 3 credits of BIOL 400, 494, 495, 496 and SC 295, 395, 495 may be used to fulfill the 18 credit minimum in the 400-level biology course requirements.		18
Plant and Fungi Group:		
BIOL 406	Symbiosis	
BIOL 407	Plant Developmental Anatomy	
BIOL 414	Taxonomy of Seed Plants	
BIOL 420	Paleobotany	
BIOL 424	Seeds of Change: The Uses of Plants	
BIOL/PPEM 425	Biology of Fungi	
BIOL 431	Reproductive Biology	
BIOL 441	Plant Physiology	
BIOL 444	Field Ecology	

BIOL 446	Physiological Ecology
BIOL 448	Ecology of Plant Reproduction
BIOL 451	Biology of RNA
BIOL 482	Coastal Biology
BIOL 499A	Tropical Field Ecology
PPEM 427	Mycotoxins: Effects of Fungal Toxins on Human and Animal Health
Evolution Group:	
BIOL 405	Molecular Evolution
BIOL 406	Symbiosis
BIOL 411	Medical Embryology
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 420	Paleobotany
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 427	Evolution
BIOL 428	Population Genetics
BIOL 429	Animal Behavior
BIOL 432	Developmental Genetics
BIOL 433	Evolution of Vertebrates
BIOL 434	Pathobiology of Emerging Infectious Disease
BIOL 436	Population Ecology and Global Climate Change
BIOL 438	Theoretical Population Ecology
BIOL 439	Practical Bioinformatics
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 446	Physiological Ecology
BIOL 451	Biology of RNA
BIOL 460	Human Genetics
BIOL 463	General Ecology
BIOL 464	Sociobiology
BIOL 474	Astrobiology
BIOL 478	COMPARATIVE NEUROANATOMY
Genetics and Developmental Biology Group:	
BIOL 404	Cellular Mechanisms in Vertebrate Physiology
BIOL 405	Molecular Evolution
BIOL 407	Plant Developmental Anatomy
BIOL 411	Medical Embryology
BIOL 413	Cell Signaling and Regulation
BIOL 416	Biology of Cancer
BIOL 422	Advanced Genetics
BIOL 426	Developmental Neurobiology
BIOL 428	Population Genetics
BIOL 430	Developmental Biology
BIOL 431	Reproductive Biology
BIOL 432	Developmental Genetics
BIOL 439	Practical Bioinformatics
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 448	Ecology of Plant Reproduction
BIOL 451	Biology of RNA

BIOL 460	Human Genetics
BIOL 467	Molecular Basis of Neurological Diseases
BIOL 469	Neurobiology
MICRB 410	Principles of Immunology
Ecology Group:	
BIOL 406	Symbiosis
BIOL 412	Ecology of Infectious Diseases
BIOL 415	Ecotoxicology
BIOL 417	Invertebrate Zoology
BIOL 419	Ecological and Environmental Problem Solving
BIOL/PPEM 425	Biology of Fungi
BIOL 429	Animal Behavior
BIOL 435	Ecology of Lakes and Streams
BIOL 436	Population Ecology and Global Climate Change
BIOL 438	Theoretical Population Ecology
BIOL 444	Field Ecology
BIOL 446	Physiological Ecology
BIOL 450W	Experimental Field Biology
BIOL 463	General Ecology
BIOL 464	Sociobiology
BIOL 474	Astrobiology
BIOL 482	Coastal Biology
BIOL 499A	Tropical Field Ecology
Physiology Group:	
BIOL 404	Cellular Mechanisms in Vertebrate Physiology
BIOL 406	Symbiosis
BIOL 409	Biology of Aging
BIOL 411	Medical Embryology
BIOL 412	Ecology of Infectious Diseases
BIOL 413	Cell Signaling and Regulation
BIOL 415	Ecotoxicology
BIOL 416	Biology of Cancer
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 424	Seeds of Change: The Uses of Plants
BIOL 426	Developmental Neurobiology
BIOL 430	Developmental Biology
BIOL 431	Reproductive Biology
BIOL 432	Developmental Genetics
BIOL 437	Histology
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 446	Physiological Ecology
BIOL 460	Human Genetics
BIOL 469	Neurobiology
BIOL 470	Functional and Integrative Neuroscience
BIOL 472	Human Physiology
BIOL 478	COMPARATIVE NEUROANATOMY
BIOL 479	General Endocrinology
BIOL 482	Coastal Biology
Practicum Group:	
BIOL 400	Teaching in Biology
BIOL 402W	Biological Experimental Design

BIOL 407	Plant Developmental Anatomy
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 419	Ecological and Environmental Problem Solving
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 433	Evolution of Vertebrates
BIOL 437	Histology
BIOL 439	Practical Bioinformatics
BIOL 444	Field Ecology
BIOL 450W	Experimental Field Biology
BIOL 461	Contemporary Issues in Science and Medicine
BIOL 473	Laboratory in Mammalian Physiology
BIOL 475N	
BIOL 476	Advanced Human Anatomy - cadaver based
BIOL 478	COMPARATIVE NEUROANATOMY
BIOL 482	Coastal Biology
BIOL 494	Research Project
BIOL 495	Internship in Biology
BIOL 496	Independent Studies
BIOL 499A	Tropical Field Ecology
BIOTC 459	Plant Tissue Culture and Biotechnology
SC 295	Science Co-op Work Experience I
SC 395	Science Co-op Work Experience II
SC 495	Science Co-op Work Experience III

Supporting Courses and Related Areas

Select 20-27 credits from department list 20-27

Genetics and Developmental Biology Option (46-51 credits)

Available at the following campuses: Abington, Berks, Harrisburg, Schuylkill, University Park, York

Code	Title	Credits
Prescribed Courses		
BIOL 322	Genetic Analysis	3
BIOL 430	Developmental Biology	3
BMB 401	General Biochemistry	3
BMB 402	General Biochemistry	3
CHEM 210	Organic Chemistry I	3
CHEM 212	Organic Chemistry II	3
CHEM 213	Laboratory in Organic Chemistry	2

Additional Courses

Select 2-5 credits from the following: 2-5

MATH 220	Matrices
MATH 231	Calculus of Several Variables
MICRB 201	Introductory Microbiology
MICRB 202	Introductory Microbiology Laboratory

Groups

Select a minimum of 12 credits of 400-level courses, with at least 6 credits from the Genetics and Developmental Biology group, 3 credits from Evolution, and 3 credits from the Practicum group. A maximum of 3 credits of BIOL 400, 494, 495, 496 and SC 295, 395, 495 may be used to fulfill the 12 credit minimum in the 400-level biology course requirements.

Genetics and Developmental Biology Group:

BIOL 404	Cellular Mechanisms in Vertebrate Physiology
BIOL 405	Molecular Evolution
BIOL 407	Plant Developmental Anatomy
BIOL 411	Medical Embryology
BIOL 413	Cell Signaling and Regulation
BIOL 416	Biology of Cancer
BIOL 422	Advanced Genetics
BIOL 426	Developmental Neurobiology
BIOL 428	Population Genetics
BIOL 431	Reproductive Biology
BIOL 432	Developmental Genetics
BIOL 439	Practical Bioinformatics
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 448	Ecology of Plant Reproduction
BIOL 451	Biology of RNA
BIOL 460	Human Genetics
BIOL 467	Molecular Basis of Neurological Diseases
BIOL 469	Neurobiology
BMB 400	Molecular Biology of the Gene
or BMB 450	Microbial/Molecular Genetics
or BMB 464	Molecular Medicine
or BMB 484	Functional Genomics
or HORT 407	Plant Breeding
or MICRB 41	Principles of Immunology

Evolution Group:

BIOL 405	Molecular Evolution
BIOL 406	Symbiosis
BIOL 411	Medical Embryology
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 420	Paleobotany
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 427	Evolution
BIOL 428	Population Genetics
BIOL 429	Animal Behavior
BIOL 432	Developmental Genetics
BIOL 433	Evolution of Vertebrates
BIOL 434	Pathobiology of Emerging Infectious Disease
BIOL 436	Population Ecology and Global Climate Change
BIOL 438	Theoretical Population Ecology
BIOL 439	Practical Bioinformatics
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 446	Physiological Ecology

BIOL 451	Biology of RNA
BIOL 460	Human Genetics
BIOL 463	General Ecology
BIOL 464	Sociobiology
BIOL 474	Astrobiology
BIOL 478	COMPARATIVE NEUROANATOMY
Practicum Group:	
BIOL 400	Teaching in Biology
BIOL 402W	Biological Experimental Design
BIOL 407	Plant Developmental Anatomy
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 419	Ecological and Environmental Problem Solving
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 433	Evolution of Vertebrates
BIOL 437	Histology
BIOL 439	Practical Bioinformatics
BIOL 444	Field Ecology
BIOL 450W	Experimental Field Biology
BIOL 461	Contemporary Issues in Science and Medicine
BIOL 473	Laboratory in Mammalian Physiology
BIOL 475N	
BIOL 478	COMPARATIVE NEUROANATOMY
BIOL 482	Coastal Biology
BIOL 494	Research Project
BIOL 495	Internship in Biology
BIOL 496	Independent Studies
BIOL 499A	Tropical Field Ecology
SC 295	Science Co-op Work Experience I
SC 395	Science Co-op Work Experience II
SC 495	Science Co-op Work Experience III

Supporting Courses and Related Areas

Select 9-17 credits from department list 9-17

Neuroscience Option (46-51 credits)*Available at the following campuses: University Park*

Code	Title	Credits
Prescribed Courses		
BIOL 469	Neurobiology	3
BMB 401	General Biochemistry	3
BMB 402	General Biochemistry	3
CHEM 210	Organic Chemistry I	3
CHEM 212	Organic Chemistry II	3
CHEM 213	Laboratory in Organic Chemistry	2
Additional Courses		
Select 3 credits from the following:		3
BIOL 426	Developmental Neurobiology	
BIOL 470	Functional and Integrative Neuroscience	
BIOL 478	COMPARATIVE NEUROANATOMY	

Groups

Select a minimum of 12 credits of 400-level biology courses, with at least 6 credits from the Neuroscience group, 3 credits from the Evolution group, and 3 credits from the Practicum Group. A maximum of 3 credits of BIOL 400, 494, 495, 496 and SC 295, 395, 495 may be used to fulfill the 12 credit minimum in the 400-level biology course requirements.

Neuroscience Group:

BIOL 404	Cellular Mechanisms in Vertebrate Physiology
BIOL 413	Cell Signaling and Regulation
BIOL 424	Seeds of Change: The Uses of Plants
BIOL 426	Developmental Neurobiology
BIOL 430	Developmental Biology
BIOL 437	Histology
BIOL 467	Molecular Basis of Neurological Diseases
BIOL 470	Functional and Integrative Neuroscience
BIOL 472	Human Physiology
BIOL 473	Laboratory in Mammalian Physiology
BIOL 478	COMPARATIVE NEUROANATOMY
BIOL 479	General Endocrinology
BBH 432	Biobehavioral Aspects of Stress
or BBH 451	Pharmacological Influences on Health
or BBH 468	Neuroanatomical Bases for Disorders of Behavior and Health
or HDFS 468	
or NUTR 445	Energy and Macronutrient Metabolism
or PSYCH 45	Learning and Memory
or PSYCH 46	Physiological Psychology
or PSYCH 47	Clinical Neuropsychology

Evolution Group:

BIOL 405	Molecular Evolution
BIOL 406	Symbiosis
BIOL 411	Medical Embryology
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 420	Paleobotany
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 427	Evolution
BIOL 428	Population Genetics
BIOL 429	Animal Behavior
BIOL 432	Developmental Genetics
BIOL 433	Evolution of Vertebrates
BIOL 434	Pathobiology of Emerging Infectious Disease
BIOL 436	Population Ecology and Global Climate Change
BIOL 438	Theoretical Population Ecology
BIOL 439	Practical Bioinformatics
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 446	Physiological Ecology
BIOL 451	Biology of RNA
BIOL 460	Human Genetics

BIOL 463	General Ecology
BIOL 464	Sociobiology
BIOL 474	Astrobiology
BIOL 478	COMPARATIVE NEUROANATOMY
Practicum Group:	
BIOL 400	Teaching in Biology
BIOL 402W	Biological Experimental Design
BIOL 407	Plant Developmental Anatomy
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 419	Ecological and Environmental Problem Solving
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 433	Evolution of Vertebrates
BIOL 437	Histology
BIOL 439	Practical Bioinformatics
BIOL 444	Field Ecology
BIOL 450W	Experimental Field Biology
BIOL 461	Contemporary Issues in Science and Medicine
BIOL 473	Laboratory in Mammalian Physiology
BIOL 475N	
BIOL 478	COMPARATIVE NEUROANATOMY
BIOL 482	Coastal Biology
BIOL 494	Research Project
BIOL 495	Internship in Biology
BIOL 496	Independent Studies
BIOL 499A	Tropical Field Ecology
BIOTC 459	Plant Tissue Culture and Biotechnology
SC 295	Science Co-op Work Experience I
SC 395	Science Co-op Work Experience II
SC 495	Science Co-op Work Experience III

Supporting Courses and Related Areas

Select 14-19 credits from department list 14-19

Plant Biology Option (46-51 credits)*Available at the following campuses: University Park*

Code	Title	Credits
Prescribed Courses		
BIOL 407	Plant Developmental Anatomy	3
BIOL 441	Plant Physiology	3
BMB 401	General Biochemistry	3
BMB 402	General Biochemistry	3
CHEM 210	Organic Chemistry I	3
CHEM 212	Organic Chemistry II	3
CHEM 213	Laboratory in Organic Chemistry	2

Additional Courses*Groups*

Select a minimum of 12 credits of 400-level biology courses, with at least 6 credits from the Plant and Fungi group, 3 credits from the Evolution group, and 3 credits from the Practicum group. A maximum of 3 credits of BIOL 400, 494, 495, 496 and SC 295, 395, 495 may be used to fulfill the 12 credit minimum in the 400-level biology course requirements.

Plant and Fungi Group:

BIOL 406	Symbiosis
BIOL 414	Taxonomy of Seed Plants
BIOL 420	Paleobotany
BIOL 424	Seeds of Change: The Uses of Plants
BIOL/PPEM 425	Biology of Fungi
BIOL 431	Reproductive Biology
BIOL 444	Field Ecology
BIOL 446	Physiological Ecology
BIOL 448	Ecology of Plant Reproduction
BIOL 451	Biology of RNA
BIOL 482	Coastal Biology
BIOL 499A	Tropical Field Ecology

Evolution Group:

BIOL 405	Molecular Evolution
BIOL 406	Symbiosis
BIOL 411	Medical Embryology
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 420	Paleobotany
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 427	Evolution
BIOL 428	Population Genetics
BIOL 429	Animal Behavior
BIOL 432	Developmental Genetics
BIOL 433	Evolution of Vertebrates
BIOL 434	Pathobiology of Emerging Infectious Disease
BIOL 436	Population Ecology and Global Climate Change
BIOL 438	Theoretical Population Ecology
BIOL 439	Practical Bioinformatics
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 446	Physiological Ecology
BIOL 451	Biology of RNA
BIOL 460	Human Genetics
BIOL 463	General Ecology
BIOL 464	Sociobiology
BIOL 474	Astrobiology
BIOL 478	COMPARATIVE NEUROANATOMY

Practicum Group:

BIOL 400	Teaching in Biology
BIOL 402W	Biological Experimental Design
BIOL 407	Plant Developmental Anatomy
BIOL 414	Taxonomy of Seed Plants

BIOL 417	Invertebrate Zoology
BIOL 419	Ecological and Environmental Problem Solving
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 433	Evolution of Vertebrates
BIOL 437	Histology
BIOL 439	Practical Bioinformatics
BIOL 444	Field Ecology
BIOL 450W	Experimental Field Biology
BIOL 461	Contemporary Issues in Science and Medicine
BIOL 473	Laboratory in Mammalian Physiology
BIOL 475N	
BIOL 478	COMPARATIVE NEUROANATOMY
BIOL 482	Coastal Biology
BIOL 494	Research Project
BIOL 495	Internship in Biology
BIOL 496	Independent Studies
BIOL 499A	Tropical Field Ecology
BIOTC 459	Plant Tissue Culture and Biotechnology
SC 295	Science Co-op Work Experience I
SC 395	Science Co-op Work Experience II
SC 495	Science Co-op Work Experience III

Supporting Courses and Related Areas

Select 14-19 credits from department list 14-19

Vertebrate Physiology Option (46-51 credits)

Available at the following campuses: Abington, Altoona, Brandywine, Schuylkill, University Park

Code	Title	Credits
Prescribed Courses		
BIOL 472	Human Physiology	3
BIOL 473	Laboratory in Mammalian Physiology	2
BMB 401	General Biochemistry	3
BMB 402	General Biochemistry	3
CHEM 210	Organic Chemistry I	3
CHEM 212	Organic Chemistry II	3
CHEM 213	Laboratory in Organic Chemistry	2

Additional Courses*Groups*

Select a minimum of 12 credits of 400-level courses, with at least 6 credits from the Physiology group, 3 credits from the Evolution group, and 3 credits from the Practicum group. A maximum of 3 credits of BIOL 400, 494, 495, 496 and SC 295, 395, 495 may be used to fulfill the 12 credit minimum in the 400-level biology course requirements. 12

Physiology Group:

BIOL 404	Cellular Mechanisms in Vertebrate Physiology
BIOL 406	Symbiosis
BIOL 409	Biology of Aging
BIOL 411	Medical Embryology
BIOL 412	Ecology of Infectious Diseases
BIOL 413	Cell Signaling and Regulation

BIOL 415	Ecotoxicology
BIOL 416	Biology of Cancer
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 424	Seeds of Change: The Uses of Plants
BIOL 426	Developmental Neurobiology
BIOL 430	Developmental Biology
BIOL 431	Reproductive Biology
BIOL 432	Developmental Genetics
BIOL 437	Histology
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 446	Physiological Ecology
BIOL 460	Human Genetics
BIOL 469	Neurobiology
BIOL 470	Functional and Integrative Neuroscience
BIOL 478	COMPARATIVE NEUROANATOMY
BIOL 479	General Endocrinology
BIOL 482	Coastal Biology
ANSC 431	Physiology of Animal Reproduction
or ANTH 466	The Skull
or BMB 484	Functional Genomics
or ENT 402W	Biology of Animal Parasites
or MICRB 40	Microbial Physiology and Structure
or MICRB 41	Principles of Immunology
or MICRB 41	Medical Microbiology
or MICRB 43	Viral Pathogenesis
or PSYCH 46	Physiological Psychology

Evolution Group:

BIOL 405	Molecular Evolution
BIOL 406	Symbiosis
BIOL 411	Medical Embryology
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 420	Paleobotany
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 427	Evolution
BIOL 428	Population Genetics
BIOL 429	Animal Behavior
BIOL 432	Developmental Genetics
BIOL 433	Evolution of Vertebrates
BIOL 434	Pathobiology of Emerging Infectious Disease
BIOL 436	Population Ecology and Global Climate Change
BIOL 438	Theoretical Population Ecology
BIOL 439	Practical Bioinformatics
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 446	Physiological Ecology
BIOL 451	Biology of RNA
BIOL 460	Human Genetics
BIOL 463	General Ecology
BIOL 464	Sociobiology

BIOL 474	Astrobiology
BIOL 478	COMPARATIVE NEUROANATOMY
Practicum Group:	
BIOL 400	Teaching in Biology
BIOL 402W	Biological Experimental Design
BIOL 407	Plant Developmental Anatomy
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 419	Ecological and Environmental Problem Solving
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 433	Evolution of Vertebrates
BIOL 437	Histology
BIOL 439	Practical Bioinformatics
BIOL 444	Field Ecology
BIOL 448	Ecology of Plant Reproduction
BIOL 450W	Experimental Field Biology
BIOL 461	Contemporary Issues in Science and Medicine
BIOL 473	Laboratory in Mammalian Physiology
BIOL 475N	
BIOL 476	Advanced Human Anatomy - cadaver based
BIOL 478	COMPARATIVE NEUROANATOMY
BIOL 482	Coastal Biology
BIOL 494	Research Project
BIOL 495	Internship in Biology
BIOL 496	Independent Studies
BIOL 499A	Tropical Field Ecology
BIOTC 459	Plant Tissue Culture and Biotechnology
SC 295	Science Co-op Work Experience I
SC 395	Science Co-op Work Experience II
SC 495	Science Co-op Work Experience III

Supporting Courses and Related Areas

Select 15-20 credits from department list 15-20

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or

within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Outcomes

1. Students will be able to describe how heritable changes can lead to differences in populations over time that might result in speciation; trace energy/matter transformation, storage, and mobilization; explain how information is exchanged and stored; recognize how changes in biological structures can have varying effects on function; and/or describe the interactions and interconnections among systems across biological scales and over evolutionary time scales.
2. Students will be able to apply the elements of the process of science such as posing questions, generating novel hypotheses based on the scientific literature; developing appropriate technical skills for research; designing/conducting experiments to test hypotheses in laboratory and/or field settings; summarizing/interpreting data; integrating/evaluating findings in the broader scientific field to construct new knowledge; and/or participating in the peer review/revision process.
3. Students will be able to discriminate among scientific claims presented in a variety of sources based on the strength of evidence; find appropriate published scientific literature; and/or analyze and critically evaluate data/conclusions from the scientific peer-reviewed literature.
4. Students will be able to apply basic quantitative competencies such as algebra, probability, statistics, unit conversions, and fundamental biological equations; organize, summarize, and interpret quantitative data; use modeling/simulation to approach problems from across various scales; and/or find and analyze large databases using statistical methods and/or other approaches.
5. Students will be able to integrate knowledge among biological subfields and between biology and other disciplines.
6. Students will be able to engage with diverse communities and leverage the skills in the community to pose and solve biological questions; demonstrate the ability to work in teams to solve biological problems; and/or communicate in a variety of formal and informal ways in the discussion of biological research.
7. Students will explore the impacts of scientific research on society and the environment and how society influences/relies on research to inform decision-making; evaluate the ethical implications of biological research; recognize ethical issues in a variety of settings; and/or describe how different perspectives and the resulting alternative approaches might be evaluated using ethical principles to identify a solution to an issue.
8. Students will be able to communicate in a professional manner and learn/use professional behaviors in all aspects of college and career building activities, including participation in opportunities such as research, internships, cooperative education, teaching and tutoring, study abroad, and/or volunteer work.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

General Biology Option: Biology, B.S. at Altoona Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110 ^{**}	4 BIOL 220W or 240W [*]	4
CHEM 110 ^{**†}	3 CHEM 112 ^{*†}	3
CHEM 111 [†]	1 CHEM 113 [†]	1

MATH 140B or 140 ^{*#†}	4 MATH 141B or 141	4
PSU 3	1 ENGL 15, 30H, or ESL 15 [‡]	3
General Education Course	3	
	16	15

Second Year

Fall	Credits Spring	Credits
BIOL 230W [*]	4 BIOL 220W or 240W [*]	4
CHEM 202 or 210 (see adviser for alternative)	3 CHEM 203 (or (CHEM 212 and CHEM 213))	3-5
STAT 200 or 250 [‡]	4 CAS 100 [‡]	3
General Education Course	3 General Education Course	3
Elective Course or Supporting Course	1 General Education (GHW)	1.5
	15	14.5-16.5

Third Year

Fall	Credits Spring	Credits
Biology 400-level Selection (consult with an academic adviser for options)	3 PHYS 251 (see adviser for alternative)	4
PHYS 250 (see adviser for alternative)	4 Biology 400-level Selection (consult with an academic adviser for options)	3
General Education Course	3 Elective Course or Supporting Course	3
Elective Course or Supporting Course	2-4 General Education Course	3
Elective Course or Supporting Course	3 Elective Course or Supporting Course	3
	15-17	16

Fourth Year

Fall	Credits Spring	Credits
Biology 400-level Selection (consult with an academic adviser for options)	3 Biology 400-level Selection (consult with an academic adviser for options)	3
Biology 400-level Selection (consult with an academic adviser for options)	3 Biology 400-level Selection (consult with an academic adviser for options)	3
ENGL 202C	3 General Education Course	3
Elective Course or Supporting Course	3 Elective Course or Supporting Course	3
Elective Course or Supporting Course	3-4 Elective Course or Supporting Course	4
General Education Course (GHW)	1.5	
	16.5-17.5	16

Total Credits 124-129

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Vertebrate Physiology Option: Biology, B.S. at Altoona Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110 ^{**#}	4 BIOL 220W or 240W [*]	4
CHEM 110 ^{**†}	3 CHEM 112 ^{**†}	3
CHEM 111 [†]	1 CHEM 113 [†]	1
MATH 140B or 140 ^{**†}	4 MATH 141B or 141	4
PSU 3	1 ENGL 15, 30H, or ESL 15 [‡]	3
General Education Course	3	
	16	15

Second Year

Fall	Credits Spring	Credits
BIOL 230W [*]	4 BIOL 220W or 240W [*]	4
CHEM 210	3 CHEM 212 & CHEM 213	5
STAT 200 or 250	4 CAS 100 [‡]	3
General Education Course	3 General Education Course	3
Elective Course or Supporting Course	1 General Education Course (GHW)	1.5
	Elective Course or Supporting Course	1
	15	17.5

Third Year

Fall	Credits Spring	Credits
BIOL 472	3 Biology 400-level Selection (consult with an academic adviser for options)	3
BIOL 473	2 Biology 400-level Selection (consult with an academic adviser for options)	3
PHYS 250 (see adviser for alternative)	4 PHYS 251 (see adviser for alternative)	4
General Education Course	3 Elective Course or Supporting Course	3
Elective Course or Supporting Course	3 General Education Course	3
	General Education Course (GHW)	1.5
	15	17.5

Fourth Year

Fall	Credits Spring	Credits
BMB 401	3 BMB 402	3
Biology 400-level Selection (consult with an academic adviser for options)	3 Biology 400-level Selection (consult with an academic adviser for options)	3
ENGL 202C [‡]	3 General Education Course	3

Elective Course or Supporting Course	3 Elective Course or Supporting Course	3-4
Elective or Supporting Course or Biology 400-level Selection (consult with an academic adviser for options)	3-4 Elective Course or Supporting Course	3
	15-16	15-16
Total Credits 126-128		

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Ecology Option: Biology, B.S. at Altoona Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110 ^{**}	4 BIOL 220W or 240W [*]	4
CHEM 110 ^{**†}	3 CHEM 112 ^{*†}	3
CHEM 111 [†]	1 CHEM 113 [†]	1
MATH 140B or 140 ^{**†}	4 MATH 141B or 141 [†]	4
PSU 3	1 ENGL 15, 30H, or ESL 15 [†]	3
General Education Course	3	
	16	15

Second Year

Fall	Credits Spring	Credits
BIOL 230W [*]	4 BIOL 220W or 240W [*]	4
CHEM 202 or 210	3 CHEM 203 (or (CHEM 212 and CHEM 213))	3-5
STAT 200 or 250	4 CAS 100 [‡]	3
General Education Course	3 General Education Course	3
Elective Course or Supporting Course	1 General Education Course (GHW)	1.5
	15	14.5-16.5

Third Year

Fall	Credits Spring	Credits
BIOL 463	3 PHYS 251 (see adviser for alternative)	4
PHYS 250 (see adviser for alternative)	4 STAT 462 or 464	3
General Education Course	3 Biology 400-level Selection (consult with an academic adviser for options)	3
Elective Course or Supporting Course	2-4 Elective Course or Supporting Course	3
Elective Course or Supporting Course	3 General Education Course	3
	General Education Course (GHW)	1.5
	15-17	17.5

Fourth Year

Fall	Credits Spring	Credits
Biology 400-level Course	3 Biology 400-level Selection (consult with an academic adviser for options)	3
Biology 400-level Selection (consult with an academic adviser for options)	3 Biology 400-level Selection (consult with an academic adviser for options)	3
ENGL 202C [‡]	3 General Education Course	3
Elective Course or Supporting Course	3 Elective Course or Supporting Course	3-4

Elective Course or Supporting Course	3-4 Elective Course or Supporting Course	3
	15-16	15-16

Total Credits 123-129

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

A Biology BS degree provides an excellent foundation and the skills required for a wide range of technical careers. While many majors use a Biology degree to prepare for entrance into health professional schools, others follow career paths in research, education, and business. Students also pursue graduate study at universities both across the U.S. and internationally.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE BIOLOGY PROGRAM (<https://science.psu.edu/bio/undergrad/after-graduation/>)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://science.psu.edu/bio/grad/>)

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Business Administration, A.S. (Altoona)

Begin Campus: Altoona

End Campus: Altoona

Program Description

The associate degree program in Business Administration provides an introductory foundation to core aspects of the business environment that prepares graduates for future baccalaureate study in business or for direct entry into the work place. The primary objective of this major is to provide a business-oriented program with sufficient communicative and mathematical skills, socially relevant course work, and specific business specialties to develop a well-rounded and knowledgeable graduate.

Students should work closely with academic advisers to schedule coursework required to transition to baccalaureate business programs.

What is Business Administration?

To be successful in today's increasingly complex business world, you need to have a broad understanding of how business works. The Penn State Associate degree in Business Administration prepares students for a professional career in today's business environment. The degree offers students a managerially-oriented program emphasizing communication and mathematical skills, socially relevant course work, and advanced courses in business. While Penn State's Associate in Science in Business Administration is an excellent stand-alone credential, it can be used to seamlessly transition to a bachelor's degree such as the Bachelor of Science in Business or other business-related programs at the University.

You Might Like This Program If...

- You want to learn to use the latest technical business tools to perform your job duties effectively.
- You analyze and react to issues facing companies today.
- You collect and analyze data to make inferences and solve business problems.
- You need to execute effective communication strategies.

Entrance to Major

Students must have a minimum 2.0 GPA to change to this Associate degree after admission to the University.

Degree Requirements

For the Associate in Science degree in Business Administration, a minimum of 60 credits is required:

Requirement	Credits
General Education	21
Requirements for the Major	48-50

9 of the 21 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GQ General Education courses and 6 credits of GWS General Education courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
CAS 100	Effective Speech	3
MIS 204	Introduction to Management Information Systems	3
<i>Prescribed Courses: Require a grade of C or better</i>		
ENGL 202D	Effective Writing: Business Writing	3
Additional Courses		
BA 241 & BA 242 or BA 243	Legal Environment of Business and Social and Ethical Environment of Business Social, Legal, and Ethical Environment of Business	4
ECON 102 or ECON 104	Introductory Microeconomic Analysis and Policy Introductory Macroeconomic Analysis and Policy	3
SCM 200 or STAT 200	Introduction to Statistics for Business Elementary Statistics	4
Select one of the following:		3-4
MATH 21	College Algebra with Analytic Geometry with Applications I	
MATH 22	College Algebra With Analytic Geometry and Applications II	
MATH 110	Techniques of Calculus I	
<i>Additional Courses: Require a grade of C or better</i>		
ENGL 15 or ENGL 30H	Rhetoric and Composition Honors Rhetoric and Composition	3

MGMT 301 or MGMT 301W	Basic Management Concepts Basic Management Concepts	3
MKTG 301 or MKTG 301W	Principles of Marketing Principles of Marketing	3

Supporting Courses and Related Areas

Select 12-13 credits of the following:		12-13
BA 100	Introduction to Business	
BA 250	Small Business Management	
BA 364Y	International Business and Society	
CAS 250 or CAS 252	Small Group Communication Business and Professional Communication	
CAS 352	Organizational Communication	
IB 303	International Business Operations	
MATH 22	College Algebra With Analytic Geometry and Applications II	
MATH 110	Techniques of Calculus I	
ACCTG 300 to ACCTG 399		
ECON 100 to ECON 399		
ENTR 100 to ENTR 399		
FIN 100 to FIN 399		
HPA 100 to HPA 399		
LER 100 to LER 399		
MGMT 100 to MGMT 399		
MKTG 100 to MKTG 399		
MIS 100 to MIS 399		
RM 100 to RM 399		
SCM 200 to SCM 399		

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all associate degree students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 3 credits
- **Writing and Speaking (GWS):** 3 credits

Knowledge Domains

- **Arts (GA):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Note: Up to six credits of Inter-Domain courses may be used for any Knowledge Domain requirement, but when a course may be used to

satisfy more than one requirement, the credits from the course can be counted only once.

Exploration

- **Any General Education course (including GHW and Inter-Domain):** 3 credits

University Degree Requirements

Cultures Requirement

3 credits of United States (US) or International (IL) cultures coursework are required and may satisfy other requirements

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 60 degree credits must be earned for a associates degree. The requirements for some programs may exceed 60 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Communication Skills:** Demonstrate the necessary skills and abilities to effectively communicate.
- **Data Analysis and Problem-Solving:** Recognize and solve business problems using quantitative and qualitative measures
- **Ethics, Social Responsibility and Conflict Resolution:** Demonstrate an awareness of ethical issues, social responsibilities and conflict resolution.
- **Fundamental Business Knowledge:** Explain fundamental business concepts, principles and contemporary business practices.
- **Technology Tools Skills:** Apply contemporary tools of information technology to include business software applications.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary

academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Placed into MATH 4 and/or ENGL 4: Business Administration, A.S. at Altoona Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits Summer	Credits
MATH 4	3 ACCTG 211	4 ECON 102 or 104	3
ENGL 4*	3 ENGL 15 [†]	3 MIS 204	3
MIS 204	3 MATH 21	3	
PSU 3	1 BA 242*	2	
Business Supporting Course	3 General Education Course	3	
General Education Course	3		
	16	15	6

Second Year

Fall	Credits Spring	Credits
SCM 200	4 MGMT 301*	3
BA 241*	2 MKTG 301W*	3

CAS 100 [‡]	3 ENGL 202D [*]	3
Business Supporting Course	3 Business Supporting Course	3
General Education Course	3 General Education Course	3
<hr/>		
	15	15

Total Credits 67

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Placed Higher than MATH 4 and/or ENGL 4: Business Administration, A.S. at Altoona Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 21	3 ACCTG 211	4
ENGL 15, 30H, or ESL 15 [‡]	3 ECON 102 or 104	3
MIS 204	3 BA 242 [*]	2
PSU 3	1 Business Supporting Course	3
Business Supporting Course	3 General Education Course	3
General Education Course	3	
	16	15

Second Year

Fall	Credits Spring	Credits
SCM 200 or STAT 200	4 MGMT 301 [*]	3
BA 241 [*]	2 MKTG 301W [*]	3
CAS 100 [‡]	3 ENGL 202D [*]	3
Business Supporting Course	3 Business Supporting Course	3
General Education Course	3 General Education Course	3
	15	15

Total Credits 61

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

Business impacts our society in many ways. Every business, from small companies to large corporations provide employment options. The associate in business degree can help prepare you for a wide variety of entry-level careers in this sector or for continued study in business. You will have the opportunity to participate in an elective business internship as part of your curriculum. Internships provide valuable experience before graduation and an important first step toward starting your career.

Careers

Because the Associate in Science in Business Administration can give you a foundation of business concepts and best practices relevant to any industry, as a graduate of the program you can prepare for positions in accounting departments, management trainee opportunities, retail, insurance industry, industrial management opportunities, office manager, or business service manager. Some examples of jobs include:

- Accounting Specialist
- Accounts Examiner
- Appraisers and assessors of real estate
- Assistant Marketing Director
- Assistant Store Manager
- Billing Clerk
- Business services manager
- Computing business coordinator
- Compliance officers
- Insurance sales agent
- Industrial Salesperson
- Management Trainee
- Office Manager
- Payroll Assistant
- Sales Coordinator

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE BUSINESS ADMINISTRATION PROGRAM (<https://www.bls.gov/careeroutlook/2002/winter/art01.pdf>)

Opportunities for Graduate Studies

Upon completion of the associate degree in business, you may also choose to proceed seamlessly to the bachelor of science in business or selected other business-related majors at Penn State.

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Business, B.S. (Altoona)

Begin Campus: Any Penn State Campus

End Campus: Altoona

Program Description

The Bachelor of Science in Business (B.S.B.) is a professionally-oriented business degree program that combines the theoretical underpinnings of core business disciplines, notably business analytics, management, marketing, finance, and supply chain management, with applied study in a practical setting. Through the choice of an 18-credit option, students specialize in a key business sector. Students also develop written and oral communication skills throughout the program, acquire contemporary technology skills, and engage in active and collaborative learning. The degree allows students to become familiar with the unique business environments of their local communities, a design that sets the degree apart from other business degrees offered within the University and throughout the Commonwealth.

Accounting Option

Available at the following campuses: Abington, Altoona, Beaver, Berks, Brandywine, DuBois, Fayette, Greater Allegheny, Lehigh Valley, New Kensington, Schuylkill, Scranton, Shenango, Wilkes-Barre, World Campus, York

This option prepares students to pursue careers in business with an emphasis on the areas of financial and managerial accounting, systems and controls, auditing, and taxation.

Business Analytics Option

Available at the following campuses: Abington, Altoona, Beaver, Berks, Brandywine, DuBois, Greater Allegheny, Hazleton, Lehigh Valley, New Kensington, Schuylkill, Scranton, Wilkes-Barre, York

The Business Analytics option prepares students to pursue careers in applying business analytics techniques to implement appropriate decision-making outcomes using data for companies.

Entrepreneurship Option

Available at the following campuses: Altoona, World Campus

This option prepares students to pursue entrepreneurial careers with emphasis on idea generation, opportunity analysis, new product creation, and business plan development.

Financial Services Option

Available at the following campuses: Abington, Altoona, Berks, DuBois, Lehigh Valley, Scranton, World Campus

This option prepares students to pursue careers in financial organizations with emphasis on wealth management, tax planning, risk management, and financial analysis.

Health Services Option

Available at the following campuses: Abington, Lehigh Valley, Schuylkill, World Campus

This option prepares students to pursue careers in the health services sector with emphasis on the financial and administrative aspects of health care enterprises.

Individualized Business Option

Available at the following campuses: Abington, Altoona, Beaver, Berks, Brandywine, DuBois, Fayette, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Shenango, Schuylkill, Scranton, Wilkes-Barre, World Campus, York

This option provides the opportunity for students to pursue an approved business-focused interdisciplinary program of study.

Management and Marketing Option

Available at the following campuses: Abington, Altoona, Beaver, Berks, Brandywine, DuBois, Fayette, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Shenango, Schuylkill, Scranton, Wilkes-Barre, World Campus, York

This option prepares students to pursue careers in business organizations with an emphasis on the skills and knowledge necessary for the business professional to function in community and regional centers of commerce.

What is Business?

Business is a professionally-oriented program providing a broad education and solid grounding of business knowledge. Focusing on practical skills and real-world experience, the program's interdisciplinary perspective provides a versatile base for mobility into all business areas, preparing students for the business world of today and tomorrow. Options provide additional specialization in accounting, entrepreneurship, financial services, health services, management and marketing or the opportunity to develop an individualized plan that fits your career goals.

You Might Like This Program If...

- You want to become a flexible business professional, equipped to adapt to the ever-changing workplace of the future.

- You are interested in an academic challenge with theoretical and practical focus in a competitive yet collaborative learning environment.
- You want transferable skills or you are not sure which business sector you wish to focus.
- You wish to be develop a broad knowledge of business operations.
- You want to develop the skills for working in business.

Entrance To Major

In order to be eligible for entrance to this major, students must complete one of the following courses: MATH 22 or MATH 40 or MATH 41 or MATH 110 or MATH 140.

In addition, students also must satisfy the following requirements:

- attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
- have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Business, a minimum of 120 credits is required, 15 of which must be at the 400 level:

Requirement	Credits
General Education	45
Electives	10
Requirements for the Major	80

15 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GQ courses; 6 credits of GS courses; 3 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
<i>Prescribed Courses: Require a grade of C or better</i>		
BA 321	Contemporary Skills for Business Professionals	3
BA 322	Negotiation Skills for Business Professionals	3
BA 420	Preparation for Career Management	1
BA 421	Project Management	3
BA 422W	Strategic Business Planning	3
FIN 301	Corporation Finance	3

IB 303	International Business Operations	3
MGMT 301	Basic Management Concepts	3
MIS 204	Introduction to Management Information Systems	3
MKTG 301	Principles of Marketing	3
SCM 301	Supply Chain Management	3

Additional Courses

BA 241	Legal Environment of Business	4
& BA 242	and Social and Ethical Environment of Business	
or BA 243	Social, Legal, and Ethical Environment of Business	
MATH 110	Techniques of Calculus I	4
or MATH 140	Calculus With Analytic Geometry I	

Additional Courses: Require a grade of C or better

BA 495A	Business Internship	3-6
or BA 495B	Undergraduate Research in Business	
ENGL 15	Rhetoric and Composition	3
or ENGL 30H	Honors Rhetoric and Composition	
SCM 200	Introduction to Statistics for Business	4
or STAT 200	Elementary Statistics	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 0-3 credits from 400-level business courses from: ACCTG, BA, ECON, ENTR, FIN, FINSV, HPA, IB, MGMT, MIS, MKTG, RM, or SCM

Requirements for the Option

Requirements for the Option: Require a grade of C or better

Select an option 18

Requirements for the Option

Accounting Option (18 credits)

Available at the following campuses: Abington, Altoona, Beaver, Berks, Brandywine, DuBois, Fayette, Greater Allegheny, Lehigh Valley, New Kensington, Schuylkill, Scranton, Shenango, Wilkes-Barre, World Campus, York

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ACCTG 404	Managerial Accounting: Economic Perspective	3
ACCTG 405	Principles of Taxation I	3
ACCTG 471	Intermediate Financial Accounting I	3
ACCTG 472	Intermediate Financial Accounting II	3

Additional Courses

Additional Courses: Require a grade of C or better

ACCTG 403	Auditing	3
or ACCTG 403W	Auditing	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 3 credits of 400-level courses from: ACCTG, BA, ECON, ENTR, FIN, FINSV, HPA, IB, MGMT, MIS, MKTG, RM, or SCM

Business Analytics Option (18 Credits)

Available at the following campuses: Abington, Altoona, Beaver, Berks, Brandywine, DuBois, Greater Allegheny, Hazleton, Lehigh Valley, New Kensington, Schuylkill, Scranton, Wilkes-Barre, York

Code	Title	Credits
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Prescribed Courses*Prescribed Courses: Require a grade of C or better*

MIS 301	Business Analytics	3
MIS 345	Introduction to Data Analytics	3
MIS 431	Business Data Management	3

Additional Courses*Additional Courses: Require a grade of C or better*

Select 9 credits from the following: 9

COMM/IST 310	Digital Media Metrics	
ECON 481	Business Forecasting Techniques	
MIS 336	Database Management Systems	
MIS 404	Introduction to ERP and Business Processes	
MIS 415	Social Media Management and Analytics	
MIS 441	Business Intelligence for Decision Making	
MIS 445	Business Intelligence	
MKTG 342	Marketing Research	
MKTG 343	Introduction to Marketing Analytics	
MKTG 473	Digital Marketing	
MKTG 474	Marketing Analytics	
MKTG 480	Intermediate Social Media Marketing	
SCM 340	Introduction to Supply Chain Analytics	

Entrepreneurship Option (18 credits)*Available at the following campuses: Altoona, World Campus*

Code	Title	Credits
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Prescribed Courses*Prescribed Courses: Require a grade of C or better*

ENTR 300	Principles of Entrepreneurship	3
ENTR 320	Entrepreneurship and New Venture Creation	3
ENTR 400	Financing Entrepreneurial Ventures	3

Additional Courses*Additional Courses: Require a grade of C or better*

CAS 352	Organizational Communication	0-3
or ENGL 419	Advanced Business Writing	

Supporting Courses and Related Areas*Supporting Courses and Related Areas: Require a grade of C or better*

Select 6 to 9 credits of 400-level ENTR courses in consultation with your adviser 6-9

Financial Services Option (18 credits)*Available at the following campuses: Abington, Altoona, Berks, DuBois, Lehigh Valley, Scranton, World Campus*

Code	Title	Credits
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Prescribed Courses*Prescribed Courses: Require a grade of C or better*

ACCTG 405	Principles of Taxation I	3
FIN 420	Investment and Portfolio Analysis	3

Supporting Courses and Related Areas*Supporting Courses and Related Areas: Require a grade of C or better*

Select 12 credits in 300 or 400-level (with at least 3 credits at the 400-level) from ACCTG, FIN, FINSV or RM 12

Health Services Option (18 credits)*Available at the following campuses: Abington, Lehigh Valley, Schuylkill, World Campus*

Minimum 6 credits at the 400-level.

Code	Title	Credits
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Prescribed Courses*Prescribed Courses: Require a grade of C or better*

HPA 101	Introduction to Health Services Organization	3
HPA 332	Health Systems Management	3

Additional Courses*Additional Courses: Require a grade of C or better*

Select 0-3 credits of the following: 0-3

BBH/AFAM 302	Diversity and Health	
CAS 352	Organizational Communication	
CAS 404	Conflict Resolution and Negotiation	
ENGL 416	Science Writing	
ENGL 419	Advanced Business Writing	
LER 424	Employment Compensation	
LHR/WMNST 472	Work-Life Practices and Policies	
PSYCH 281	Introduction to Industrial-Organizational Psychology	
PSYCH 484	Work Attitudes and Motivation	
PSYCH 485	Leadership in Work Settings	

Supporting Courses and Related Areas*Supporting Courses and Related Areas: Require a grade of C or better*

Select 3-9 credits from 300 or 400-level HPA courses 3-9

Select 0-6 credits of 300-400-level courses from ACCTG, BA, ECON, ENTR, FIN, FINSV, HPA, IB, MGMT, MKTG, MIS, RM or SCM 0-6

Individualized Business Option (18 credits)*Available at the following campuses: Abington, Altoona, Beaver, Berks, Brandywine, DuBois, Fayette, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Shenango, Schuylkill, Scranton, Wilkes-Barre, World Campus, York*

Select 18 credits of study (with at least 3 credits at the 400-level) as submitted by the student and approved by the campus BSB Program Coordinator.

Management and Marketing Option (18 credits)*Available at the following campuses: Abington, Altoona, Beaver, Berks, Brandywine, DuBois, Fayette, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Shenango, Schuylkill, Scranton, Wilkes-Barre, World Campus, York*

Code	Title	Credits
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Additional Courses*Additional Courses: Require a grade of C or better*

Select one of the following: 0-6

0-6 credits from BA 250, ENGL 419, MKTG 220		
CAS 250	Small Group Communication	

CAS 252	Business and Professional Communication
CAS 352	Organizational Communication
CAS 404	Conflict Resolution and Negotiation

Supporting Courses and Related Areas¹

Supporting Courses and Related Areas: Require a grade of C or better

Select 3 credits from 300 or 400-level MGMT courses	3
Select 3 credits from 300 or 400-level MKTG courses	3
Select 6-12 additional credits in 300 or 400-level courses from MGMT6-12 or MKTG courses	

¹ A minimum of 3 credits of supporting courses must be selected at the 400-level.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Communication Skills:** Demonstrate the necessary skills and abilities to effectively communicate.
- **Technology Tools Skills:** Apply contemporary tools of information technology to include business software applications.
- **Leadership, Team Building and Project Management Skills:** Apply leadership, team building, and project management skills.
- **Local and Global Knowledge:** Compare, contrast and differentiate the business environment of both their local community and the globalized world economy.
- **Ethics, Social Responsibility and Conflict Resolution:** Demonstrate an awareness of ethical issues, social responsibilities and conflict resolution.
- **Fundamental Business Knowledge:** Utilize and apply fundamental business concepts, principles and contemporary business practices.
- **Data Analysis and Problem Solving:** Recognize, analyze and solve business problems using quantitative and qualitative measures.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of

both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Accounting Option: Business, B.S. at Altoona Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
MATH 21	3	MATH 22	3
General Education Course	3	CAS 100 [‡]	3
General Education Course	3	General Education Course	3
ECON 102 [†]	3	MGMT 301 [*]	3
ENGL 15, 30H, or ESL 15 [‡]	3	General Education Course	3

PSU 3	1	
	16	15

Second Year

Fall	Credits	Spring	Credits
SCM 200 or STAT 200	4	MATH 110	4
ACCTG 211	4	ECON 104 [†]	3
MKTG 301	3	FIN 301 [*]	3
MIS 204	3	General Education Course	3
General Education Course (GHW)	1.5	General Education Course	3
	15.5		16

Third Year

Fall	Credits	Spring	Credits
ENGL 202D [‡]	3	BA 241	2
BA 321 [*]	3	BA 322 [*]	3
SCM 301	3	ACCTG 472 [*]	3
ACCTG 404 [*]	3	ACCTG 405	3
ACCTG 471 [*]	3	General Education Course	3
	15		14

Fourth Year

Fall	Credits	Spring	Credits
IB 303 [*]	3	BA 422W [*]	3
BA 420 [*]	1	BA 495A or 495B [*]	6
BA 421 [*]	3	ACCTG 432	3
ACCTG 403W	3	Elective	4
BA 242	2		
General Education (GHW)	1.5		
	13.5		16

Total Credits 121

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Integrative Studies (either Inter-domain or Linked Courses)

Integrative Studies may be completed within the 30 Knowledge Domain credits and must be completed with either Inter-domain or Linked courses, not a combination of both. For Inter-domain courses, credit

may apply to both Knowledge Domain designations but does not reduce the total number of credits within the Knowledge Domains and at least 3 credits of single-domain coursework are required in each of the 5 Knowledge Domains. Linked courses used for the Integrative Studies requirement must represent two different Knowledge Domains.

Business Analytics Option: Business, B.S. at Altoona Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 21	3 MATH 22	3
General Education Course	3 CAS 100 [‡]	3
General Education Course	3 General Education Course	3
ECON 102 [†]	3 MGMT 301 [*]	3
ENGL 15, 30H, or ESL 15 [‡]	3 ACCTG 211	4
PSU 3	1	
	16	16

Second Year

Fall	Credits Spring	Credits
SCM 200	4 MATH 110	4
General Education Course	3 ECON 104 [†]	3
MKTG 301	3 FIN 301 [*]	3
MIS 204 or IST 110	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course	3
	14.5	16

Third Year

Fall	Credits Spring	Credits
BA 321 [*]	3 BA 322 [*]	3
MKTG 342 [*]	3 MIS 301 [*]	3
ENGL 202D [‡]	3 MKTG 480 [*]	3
MIS 345 [*]	3 BA 242	2
General Education Course	3 BA 241	2
	General Education Course (GHW)	1.5
	15	14.5

Fourth Year

Fall	Credits Spring	Credits
IB 303 [*]	3 BA 422W [*]	3
BA 420 [*]	1 BA 495A [*]	6
BA 421 [*]	3 BDA Option Course	3
MIS 431 [*]	3	
SCM 301 [*]	3	
General Education Course	3	
	16	12

Total Credits 120

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Integrative Studies (either Inter-domain or Linked Courses)

Integrative Studies may be completed within the 30 Knowledge Domain credits and must be completed with either Inter-domain or Linked courses, not a combination of both. For Inter-domain courses, credit may apply to both Knowledge Domain designations but does not reduce the total number of credits within the Knowledge Domains and at least 3 credits of single-domain coursework are required in each of the 5 Knowledge Domains. Linked courses used for the Integrative Studies requirement must represent two different Knowledge Domains.

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

Entrepreneurship Option: Business, B.S. at Altoona Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 21	3 MATH 22	3
General Education Course	3 CAS 100 [‡]	3
General Education Course	3 General Education Course	3
ECON 102 [†]	3 MGMT 301 [*]	3
ENGL 15, 30H, or ESL 15 [‡]	3 General Education Course	3
PSU 3	1	
	16	15

Second Year

Fall	Credits Spring	Credits
SCM 200 or STAT 200	4 MATH 110	4
ACCTG 211	4 ECON 104 [†]	3
MKTG 301 [*]	3 FIN 301 [*]	3
MIS 204	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course	3
	15.5	16

Third Year

Fall	Credits Spring	Credits
ENGL 202D [‡]	3 BA 322 [*]	3
BA 321 [*]	3 BA 241	2
SCM 301 [*]	3 BA 242	2
ENTR 300 [*]	3 ENTR 320 [*]	3
Elective	3 General Education Course	3
	General Education Course (GHW)	1.5
	15	14.5

Fourth Year

Fall	Credits Spring	Credits
IB 303 [*]	3 BA 422W [*]	3
BA 420 [*]	1 BA 495A [*]	6
BA 421 [*]	3 Entrepreneurship 400-level Course [*]	3
Entrepreneurship 400-level Course [*]	3 Entrepreneurship 400-level Course [*]	3
Elective	1	
ENGL 419 or CAS 352 [*]	3	
	14	15

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Integrative Studies (either Inter-domain or Linked Courses)

Integrative Studies may be completed within the 30 Knowledge Domain credits and must be completed with either Inter-domain or Linked courses, not a combination of both. For Inter-domain courses, credit may apply to both Knowledge Domain designations but does not reduce the total number of credits within the Knowledge Domains and at least 3 credits of single-domain coursework are required in each of the 5 Knowledge Domains. Linked courses used for the Integrative Studies requirement must represent two different Knowledge Domains.

Management and Marketing Option: Business, B.S. at Altoona Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If report**). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 21	3 MATH 22	3
General Education Course	3 CAS 100 [†]	3
General Education Course	3 General Education Course	3
ECON 102 [†]	3 MGMT 301 [*]	3
ENGL 15 or 30H [†]	3 General Education Course	3
PSU 3	1	
	16	15

Second Year

Fall	Credits Spring	Credits
SCM 200 or STAT 200	4 MATH 110	4
ACCTG 211	4 ECON 104 [†]	3
MKTG 301 [*]	3 FIN 301 [*]	3
MIS 204	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course	3
	15.5	16

Third Year

Fall	Credits Spring	Credits
ENGL 202D [‡]	3 BA 322 [*]	3
BA 321 [*]	3 BA 241	2
SCM 301 [*]	3 BA 242 [*]	2
Management and Marketing Option Course [*]	3 Marketing and Management Option Course [*]	3
Management and Marketing Option Course [*] or General Education Course	3 Marketing and Management Option Course [*]	3
	General Education Course (GHW)	1.5
	15	14.5

Fourth Year

Fall	Credits Spring	Credits
IB 303 [*]	3 BA 422W [*]	3
BA 420 [*]	1 BA 495A or 495B [*]	6
BA 421 [*]	3 Management and Marketing Option Course [*]	3
Management or Marketing 400-level Course [*]	3 Elective [*]	4
General Education Course [*]	3	
	13	16

Total Credits 121

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Integrative Studies (either Inter-domain or Linked Courses)

Integrative Studies may be completed within the 30 Knowledge Domain credits and must be completed with either Inter-domain or Linked courses, not a combination of both. For Inter-domain courses, credit may apply to both Knowledge Domain designations but does not reduce the total number of credits within the Knowledge Domains and at least 3 credits of single-domain coursework are required in each of the 5 Knowledge Domains. Linked courses used for the Integrative Studies requirement must represent two different Knowledge Domains.

Career Paths

In today's economic environment, the Bachelor of Science in Business allows companies to hire individuals who have a broad knowledge of all aspects of business. This broad knowledge give you the opportunity to be effective within many different types of organizations. You will also be well-positioned to pursue admission to graduate programs.

Careers

With a degree in business, you may specialize through options that may vary by campus. With an accounting option, you can work in the areas of financial and managerial accounting, systems and controls, taxation, and auditing. The entrepreneurship option provides the skills for you to start your own business or to work as an entrepreneur within a company. Health services provides the financial and administrative skills and knowledge necessary for you to become a health services managers. With an option in financial services you might pursue positions in wealth and risk management, estate planning or financial and retirement planning. With the management and marketing option you will be prepared for a career in retail management, small business management or in marketing, advertising and promotion. Finally, with an individualized option, you have flexibility to build specialized skills for your personal business career goals.

Opportunities for Graduate Studies

A baccalaureate degree in Business can lead to a Master's degree in Business (MBA) or other business-related masters degrees. MBA programs are offered at Penn State Great Valley, Penn State Erie, Penn State Harrisburg, Penn State Berks, Smeal College of Business and through the World Campus.

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Contact

Altoona

DIVISION OF BUSINESS, ENGINEERING, AND INFORMATION SCIENCES
AND TECHNOLOGY
Penn Building, 223
3000 Ivyside Park
Altoona, PA 16601
814-949-5265
dxh41@psu.edu

<https://altoona.psu.edu/academics/bachelors-degrees/business>
(<https://altoona.psu.edu/academics/bachelors-degrees/business/>)

Abington

DIVISION OF SOCIAL SCIENCES
1600 Woodland Rd.
Abington, PA 19001
215-421-0030
twsl6@psu.edu

<https://www.abington.psu.edu/academics/majors-at-abington> (<https://www.abington.psu.edu/academics/majors-at-abington/>)

Beaver

100 University Drive
Monaca, PA 15061
724-773-3892
tdh13@psu.edu

<https://beaver.psu.edu/academics/majors/business-accounting> (<https://beaver.psu.edu/academics/majors/business-accounting/>)
<https://beaver.psu.edu/academics/majors/business-management>
(<https://beaver.psu.edu/academics/majors/business-management/>)

Berks

EBC DIVISION
Gaige Building
Reading, PA 19610
610-396-6346
BKBusiness@psu.edu

<https://berks.psu.edu/academics/baccalaureate-degrees/bs-business>
(<https://berks.psu.edu/academics/baccalaureate-degrees/bs-business/>)

Brandywine

Tomezsko 207J
25 Yearsley Mill Rd.
Media, PA 19063
jvs11@psu.edu

<https://www.brandywine.psu.edu/academics/bachelors-degrees/business> (<https://www.brandywine.psu.edu/academics/bachelors-degrees/business/>)

DuBois

171 Smeal Building
DuBois, PA 15801
814-375-4800
lhp5@psu.edu

<https://dubois.psu.edu/academics/degrees/business> (<https://dubois.psu.edu/academics/degrees/business/>)

Fayette

2201 University Drive
Lemont Furnace, PA
724-430-4245

<https://fayette.psu.edu/academics/baccalaureate/bachelor-science-business> (<https://fayette.psu.edu/academics/baccalaureate/bachelor-science-business/>)

Greater Allegheny

4000 University Drive
McKeesport, PA 15132
412-675-9055
yzb1@psu.edu

<https://greaterallegheny.psu.edu/academics/degree-programs/business>
(<https://greaterallegheny.psu.edu/academics/degree-programs/business/>)

Hazleton

301A Schiavo Hall
Hazleton, PA 18202
570-450-3533
skr12@psu.edu

<https://hazleton.psu.edu/bachelors-science-business> (<https://hazleton.psu.edu/bachelors-science-business/>)

Lehigh Valley

2809 Saucon Valley Road
Center Valley, PA 18034
610-285-5117
maungkmin@psu.edu

<https://lehighvalley.psu.edu/academics/degrees/business> (<https://lehighvalley.psu.edu/academics/degrees/business/>)

Mont Alto

205 General Studies Building
Mont Alto, PA 17237
717-749-6027
hhh10@psu.edu

<https://montalto.psu.edu/academics/bachelors/business-degree>
(<https://montalto.psu.edu/academics/bachelors/business-degree/>)

New Kensington

111 Administration Bldg.
3550 Seventh Street Road
New Kensington, PA 15068
724-334-6727
sxe5211@psu.edu

<https://newkensington.psu.edu/academics/academics/4-year-business>
(<https://newkensington.psu.edu/academics/academics/4-year-business/>)

Schuylkill

ACADEMIC AFFAIRS
200 University Drive

Schuylkill Haven, PA 17972
570-385-6080
amb536@psu.edu

<https://schuylkill.psu.edu/academics/bacc-degrees/business> (<https://schuylkill.psu.edu/academics/bacc-degrees/business/>)

Scranton

117 Business Building
Dunmore, PA 18512
570-963-2643
jmw831@psu.edu

<https://scranton.psu.edu/academics/degrees/bachelors/business-degree> (<https://scranton.psu.edu/academics/degrees/bachelors/business-degree/>)

Shenango

147 Shenango Ave.
309C Sharon Hall
Sharon, PA 16146
724-983-2942
gxm32@psu.edu

<https://shenango.psu.edu/academics/degrees/business-accounting> (<https://shenango.psu.edu/academics/degrees/business-accounting/>)

Wilkes-Barre

44 University Drive
Dallas, PA 18612
570-675-9293
tmc12@psu.edu

<https://wilkesbarre.psu.edu/academics/business> (<https://wilkesbarre.psu.edu/academics/business/>)

World Campus

UNDERGRADUATE ACADEMIC ADVISING
225 Outreach Building
University Park, PA 16802
814-863-3283
advising@worldcampus.psu.edu

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-business-bachelor-of-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-business-bachelor-of-science-degree/>)

York

1031 Edgecomb Ave.
York, PA 17403
717-718-6785
mal489@psu.edu

<https://www.york.psu.edu/academics/baccalaureate/business> (<https://www.york.psu.edu/academics/baccalaureate/business/>)

Communications, B.A. (Altoona)

Begin Campus: Any Penn State Campus

End Campus: Altoona

Program Description

The curriculum of this B.A. in Communications provides a general grounding in traditional media forms along with work in the area of media convergence. Students must do coursework at both the practical and theoretical level. On the theory side, coursework will be offered in the areas of media criticism and theory, visual communications, and media history at the introductory and advanced levels. On the applied side, coursework will be offered in video and audio production, news writing and photojournalism, radio and television studio production, and public relations and advertising at the introductory and advanced levels. In the Convergent Media News Service courses, which form the most distinctive component of the program, students will actually produce and deliver a college news service in print, broadcasting (TV and streaming radio), and a multimedia online format. This hands-on experience will provide students an opportunity to create materials suitable for inclusion in a portfolio. Although not required, students will be strongly encouraged to do an internship sometime during their junior or senior years. Finally, the capstone Convergent Media Seminar will bring seniors together to consider the larger, theoretical issues related to the fast-paced changes in communications today and into the future. With a degree in this program, students will be well-positioned to go right into industry, where they will be able to compete in a number of different job markets, or to graduate school for advanced training.

What is Communications?

Communications is an academic discipline that deals with the creation and distribution of mass communication messages through media such as books, newspapers, television, radio, film, video games, and the Internet. Mass communications use writing, speech, photographs, video, and interactive content to give information or influence the audience. Communications also concerns the study of how we communicate in different ways with diverse audiences through marketing, advertising, public relations, corporate communications, digital journalism, film and other media.

You Might Like This Program If...

- You want the experience, knowledge, and skills you need to become a versatile media practitioner.
- You are interested in a career in journalism, media, public relations, advertising, or marketing.
- You would like to gain practical experience and build a portfolio of work in a state-of-art production facility.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts in Communications, a minimum of 123 credits is required:

Requirement	Credits
General Education	45
Electives	12
Bachelor of Arts Degree Requirements	24
Requirements for the Major	42

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
COMM 100N	The Mass Media and Society	3
COMM 150N	The Art of the Cinema	3
COMM 260W	News Writing and Reporting	3
COMM 490		3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 12 credits from the following, including 6 credits at the 400-level:		12
COMM 1	Newspaper Practicum ¹	
COMM 2	Newspaper Editorial Staff ¹	
COMM 215	Basic Photography for Communications	
COMM 241	Graphic Design for Communications	
COMM 242	Basic Video/Filmmaking	
COMM 251	The Nature of Media	
COMM 269	Photojournalism	
COMM 270	Introduction to Multimedia Production	
COMM 282	Television Field Production	
COMM 283	Television Studio Production	
COMM 296	Independent Studies	
COMM 337	Intermediate Documentary Production	
COMM 339	Intermediate Alternative Production	
COMM 346	Writing for the Screen I	
COMM 360	Radio Reporting	
COMM 374	Audio Production	
COMM 415	Advanced Photography for Communications	
COMM 421W	Advertising Creative Strategies	
COMM 436	Advanced Audio Production	
COMM 439	Advanced Alternative Production (max 6 credits)	
COMM 448	Advanced Group Production I	
COMM 460W	Reporting Methods	
COMM 461	Magazine Writing	
COMM 462	Feature Writing	
COMM 467	News Editing and Evaluation	

COMM 468	Graphic Applications in Print Communications	
COMM 469	Photography for the Mass Media	
COMM 471	Public Relations Media and Methods	
COMM 472	Public Relations Event Planning	
COMM 481	Advanced Multimedia Production	
COMM 495	Internship	
COMM 496	Independent Studies	
Select 12 credits from the following, including 6 credits at the 400-level:		12
COMM 110	Media and Democracy	
COMM 180	Survey of Electronic Media and Telecommunications	
COMM 190	Gaming and Interactive Media	
COMM 205	Gender, Diversity and the Media	
COMM 250	Film History and Theory	
COMM 251	The Nature of Media	
COMM 261	The Literature of Journalism	
COMM 292	Introduction to Media & Politics	
COMM 294	Research Project Courses	
COMM 296	Independent Studies	
COMM 320	Introduction to Advertising	
COMM 370	Public Relations	
COMM 401	Mass Media in History	
COMM 403	Law of Mass Communications	
COMM 408	Cultural Foundations of Communications	
COMM 409	News Media Ethics	
COMM 411	Cultural Aspects of the Mass Media	
COMM 412	Sports, Media and Society	
COMM 413W	The Mass Media and the Public	
COMM 417	Ethics and Regulation in Advertising and Public Relations	
COMM 431	Topics in Television Culture and Communication	
COMM 451	Topics in American Film	
COMM 452	Topics in International Cinema	
COMM 454	Documentary in Film and Television	
COMM 494	Research Project Courses	
COMM 496	Independent Studies	
Select 6 credits from the following:		6
COMM 470A	Convergent Media News Service: Newspaper Production	
COMM 470B	Convergent Media News Service: TV	
COMM 470C	Convergent Media News Service: Radio and Online Publications	

¹ A student may apply only 6 credits total of COMM 1 and COMM 2 towards the requirements of the Communications degree.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate

students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- Effective written communication skills
- Effective oral communication skills.
- Effective visual communication skills
- Knowledge of professional standards and practices.
- Ability to perform in professional settings with clarity, effectiveness, and in a manner that is appropriate to industry standards.
- Ability to understand and connect communications theory and research methods to ensure the development of effective critical thinking skills.
- Knowledge of the roles communications systems and professionals play in shaping communities at the global, national, and local levels.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Altoona

Kevin M. Moist

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Communications, B.A. at Altoona Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or ESL 15 [‡]	3 General Education Course (GQ) [‡]	3
COMM 100N/AMST 106N or 150N [*]	3 General Education Course (GHW)	1.5
PSU 3	1 General Education Course	3
General Education Course	3 Elective	3
World Language Course Level 1	4 World Language Course Level 2	4
General Education Course	3	
	17	14.5

Second Year

Fall	Credits Spring	Credits
General Education Course (GQ) [‡]	3 COMM 242 [*]	3
World Language Course Level 3	4 CAS 100 [‡]	3
COMM 100N/AMST 106N or 150N [*]	3 ENGL 202B [‡]	3
General Education Course	3 General Education Course	3
B.A. Requirement	3 General Education Course (GHW)	1.5
	Elective	2
	16	15.5

Third Year

Fall	Credits Spring	Credits
Communications Theory Course [*]	3 Communications Theory Course [*]	3

Communications Application Course [*]	3 Communications Application Course [*]	3
General Education Course	3 COMM 470A or 470B [*]	3
COMM 260W [*]	3 US Cultures Course	3
B.A. Requirement	3 General Education Course	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
Communications Theory Course [*]	3 COMM 490A [*]	3
Communications Application Course [*]	3 Communications Application Course [*]	3
COMM 470A or 470B [*]	3 B.A. Requirement	3
General Education Course	3 General Education Course	3
Elective	3 Elective	3
	15	15

Total Credits 123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Additional Notes

Communications Theory Courses

Code	Title	Credits
COMM 110	Media and Democracy	3
COMM 180	Survey of Electronic Media and Telecommunications	3
COMM 190	Gaming and Interactive Media	3

COMM 205	Gender, Diversity and the Media	3	COMM 471	Public Relations Media and Methods	3
COMM 250	Film History and Theory	3	COMM 472	Public Relations Event Planning	3
COMM 251	The Nature of Media	3	COMM 481	Advanced Multimedia Production	3
COMM 261	The Literature of Journalism	3	COMM 495	Internship	1-9
COMM 292	Introduction to Media & Politics	3	COMM 496	Independent Studies	1-18
COMM 294	Research Project Courses	1-3			
COMM 296	Independent Studies	1-6			
COMM 320	Introduction to Advertising	3			
COMM 370	Public Relations	3			
COMM 401	Mass Media in History	3			
COMM 403	Law of Mass Communications	3			
COMM 408	Cultural Foundations of Communications	3			
COMM 409	News Media Ethics	3			
COMM 411	Cultural Aspects of the Mass Media	3			
COMM 412	Sports, Media and Society	3			
COMM 413W	The Mass Media and the Public	3			
COMM 454	Documentary in Film and Television	3			
COMM 417	Ethics and Regulation in Advertising and Public Relations	3			
COMM 451	Topics in American Film	3			
COMM 452	Topics in International Cinema	3			
COMM 494	Research Project Courses	1-12			
COMM 496	Independent Studies	1-18			

Communications Application Courses

Code	Title	Credits
COMM 1	Newspaper Practicum	1-3
COMM 2	Newspaper Editorial Staff	1-3
COMM 215	Basic Photography for Communications	3
COMM 241	Graphic Design for Communications	3
COMM 242	Basic Video/Filmmaking	3
COMM 251	The Nature of Media	3
COMM 269	Photojournalism	3
COMM 270	Introduction to Multimedia Production	3
COMM 282	Introduction to Video Field Production	3
COMM 296	Independent Studies	1-6
COMM 337	Intermediate Documentary Production	3
COMM 338	Intermediate Narrative Production	3
COMM 339	Intermediate Alternative Production	3
COMM 346	Writing for the Screen I	3
COMM 360	Audio News Production	3
COMM 374	Audio Production	3
COMM 415	Advanced Photography for Communications	3
COMM 421		3
COMM 438	Advanced Narrative Production	3-6
COMM 439	Advanced Alternative Production	3-6
COMM 448	Advanced Group Production I	3
COMM 460W	Reporting Methods	3
COMM 461	Magazine Writing	3
COMM 462	Feature Writing	3
COMM 467	News Editing and Evaluation	3
COMM 468	Graphic Applications in Print Communications	3
COMM 469	Photography for the Mass Media	3

Career Paths

The Communications major is a good fit for students interested in a career in media, as well as those considering graduate school. The major is designed to give you the experience, knowledge, and skills you need to become a versatile media practitioner. The program emphasizes a balance of theory and practice, as you develop hands-on skills (in a state-of-the-art production facility) while gaining an understanding of the many complexities of today's media landscape. The Communications major is a good fit for students interested in a career in media, as well as those considering graduate school.

Careers

In addition, graduates have achieved distinction in a variety of areas. Recent Communications alumni have won Emmy Awards, the prestigious Murrow Award, and several AP awards in multiple states.

Opportunities for Graduate Studies

Graduates of the Communications program excel in the job market and graduate school. Student acceptance rate among graduate programs exceeds 90 percent.

Contact

Altoona

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Altoona, PA 16601
814-949-5779
kmm104@psu.edu

<https://altoona.psu.edu/academics/bachelors-degrees/communications>
(<https://altoona.psu.edu/academics/bachelors-degrees/communications/>)

Communications, Minor (Altoona)

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Communications minor provides with an introduction to the tools needed to function as a professional communicator, as well as a basic understanding of communication processes and theory. Students seeking careers in fields such as public administration, business, criminal justice, law, information technology, and the medical, social and behavioral professions will find this minor provides instruction in a valuable additional knowledge and skill area important in today's information society. The minor emphasizes the liberal arts core of the Communications program and will equip students with well-developed language and analytical skills.

What is Communications?

Communications is an academic discipline that deals with the creation and distribution of mass communication messages through media such as books, newspapers, television, radio, film, video games, and the Internet. Mass communications use writing, speech, photographs, video, and interactive content to give information or influence the audience. Communications also concerns the study of how we communicate in different ways with diverse audiences through marketing, advertising, public relations, corporate communications, digital journalism, film and other media.

MORE INFORMATION ABOUT COMMUNICATIONS (<https://altoona.psu.edu/academics/minor-programs/communications/>)

You Might Like This Program If...

- You want the experience, knowledge, and skills you need to become a versatile media practitioner.
- You are interested in a career in journalism, media, public relations, advertising, or marketing.
- You would like to gain practical experience and build a portfolio of work in a state-of-art production facility.

Entrance to Minor

Students must apply for entrance to the minor after achieving fifth semester classification.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 6 credits from the following:		6
COMM 100N/ AMST 106N	The Mass Media and Society	
COMM 110	Media and Democracy	
COMM 150N	The Art of the Cinema	
COMM 251	The Nature of Media	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 6 credits from COMM 100-300 level courses		6
Select 6 credits from COMM 400-level courses		6

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of

both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Career Paths

The minor emphasizes the liberal arts core of the Communications program and will equip students with well-developed language and analytical skills.

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(<https://altoona.psu.edu/academics/bachelors-degrees/communications/>)

Criminal Justice, A.S. (Altoona)

Begin Campus: Altoona

End Campus: Altoona

Program Description

Students receiving an associate degree in criminal justice should understand each of the three main components of the criminal justice system and their interrelationships. This program includes study in law enforcement, courts, and corrections individually and as components of a system, plus work in theories of crime causation, and crime control policy. Students should expect reading, writing, and critical thinking skills to be rigorously applied and developed throughout the degree program. The Associate in Science degree in Criminal Justice prepares students for entry-level positions in criminal justice or for study at the baccalaureate level.

What is Criminal Justice?

Criminal justice is the study of the adult and juvenile justice systems, including law enforcement, the courts, and corrections. It is

interdisciplinary and includes understanding the intersections of law, public policy, and behavioral science, in an effort to understand crime as a social problem and improve these systems for the good of society.

You Might Like This Program If...

You have an interest in working in corrections, courts, court administration, law enforcement, or probation and parole. Students completing this course of study are prepared for entry level positions in the criminal justice system or to complete the baccalaureate level.

MORE INFORMATION ABOUT CRIMINAL JUSTICE (<https://altoona.psu.edu/academics/bachelors-degrees/criminal-justice/>)

Entrance to Major

Students must have a minimum 2.0 GPA to change to this Associate degree after admission to the University.

Degree Requirements

For the Associate in Science in Criminal Justice, a minimum of 64 credits is required:

Requirement	Credits
General Education	21
Electives	26
Requirements for the Major	29

12 of the 21 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GH courses; 3 credits of GQ courses; 6 credits of GS courses.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CRIMJ 100	Introduction to Criminal Justice	3
CRIMJ 210	Policing in America	3
CRIMJ 220	Courts and the Prosecution Process	3
CRIMJ 230	Corrections in America	3
PHIL 103	Ethics	3
SOC 12	Criminology	3
SOC 119N	Race, Ethnicity and Culture	4
STAT 200	Elementary Statistics	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
CRIMJ 250		3
or SOC 207	Research Methods in Sociology	

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing

intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all associate degree students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 3 credits
- **Writing and Speaking (GWS):** 3 credits

Knowledge Domains

- **Arts (GA):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Note: Up to six credits of Inter-Domain courses may be used for any Knowledge Domain requirement, but when a course may be used to satisfy more than one requirement, the credits from the course can be counted only once.

Exploration

- **Any General Education course (including GHW and Inter-Domain):** 3 credits

University Degree Requirements

Cultures Requirement

3 credits of United States (US) or International (IL) cultures coursework are required and may satisfy other requirements

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 60 degree credits must be earned for an associate degree. The requirements for some programs may exceed 60 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Knowledge Base in Criminal Justice:** Students will develop knowledge and understanding of the major components of the criminal justice system and juvenile justice system as well as how these components

interact. Student understanding of the criminal justice process will be enhanced through targeted courses in courts, corrections, and policing that highlight the unique needs, challenges, and operation of these components. Across the curriculum, students will be exposed to criminological theories that help to explain the role of gender, race/ ethnicity, and other background characteristics on offending, victimization, and criminal justice processing.

- Describe key concepts, principles, and overarching themes in criminal justice
- Develop a working knowledge of criminal justice content domains
- Describe applications of criminological theory
- **Research Methods:** Students will understand the importance and practical use of social science research methods and the role these play in criminal justice policy.
 - Use scientific reasoning to interpret criminal justice policy
 - Demonstrate criminal justice information literacy
 - Engage in innovative and integrative thinking and problem solving
 - Interpret, design, and conduct basic criminological research
- **Professional Writing and Critical Thinking:** Students will practice writing and critical thinking skills through writing assignments across the curriculum and the completion of at least one writing intensive course.
 - Demonstrate effective writing for different purposes
 - Exhibit effective presentation skills for different purposes
 - Interact effectively with others
 - Demonstrate critical thinking skills concerning issues in criminal justice
- **Ethics:** Students will understand the role of ethics in criminal justice.
 - Apply ethical standards to evaluate criminal justice research and policy
 - Build and enhance interpersonal relationships
 - Adopt values that build community at local, national, and global levels
- **Placement:** Students will be prepared for placement in the criminal justice field through an internship experience.
 - Apply criminal justice content and skills to career goals
 - Exhibit self-efficacy and self-regulation
 - Refine project and time-management skills
 - Enhance teamwork capacity
 - Develop meaningful professional direction for life after graduation

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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jlh379@psu.edu or jcf25@psu.edu

<https://harrisburg.psu.edu/public-affairs/criminal-justice-as> (<https://harrisburg.psu.edu/public-affairs/criminal-justice-as/>)

World Campus

SCHOOL OF PUBLIC AFFAIRS

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jlh379@psu.edu or jcf25@psu.edu

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-criminal-justice-associate-in-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-criminal-justice-associate-in-science-degree/>)

Criminal Justice, B.A. (Altoona)

Begin Campus: Any Penn State Campus

End Campus: Altoona

Program Description

Students receiving a baccalaureate degree in criminal justice should understand each of the three main components of the criminal justice system and their interrelationships, be able to evaluate critically both current and future crime control policy proposals and criminal justice research, and understand the complexity of the crime phenomenon and its relationship to individual, social, and cultural factors. This major includes study in law enforcement, courts and corrections individually and as components of a system, plus work in theories of crime causation, and crime control policy. Students should expect reading, writing, and critical thinking skills to be rigorously applied and developed throughout the degree program. The Bachelor of Arts degree in Criminal Justice provides a broadly based liberal arts background for the study of crime, justice and the criminal justice system. The Bachelor of Science degree offers an opportunity for educational enrichment in fields not traditionally considered part of the liberal arts. Either degree is excellent preparation for a career in criminal justice, graduate, or professional study, or informed citizenship.

What is Criminal Justice?

Criminal justice is the study of the adult and juvenile justice systems, including law enforcement, the courts, and corrections. It is interdisciplinary and includes understanding the intersections of law, public policy, and behavioral science, in an effort to understand crime as a social problem and improve these systems for the good of society.

You Might Like This Program If...

You have an interest in working in corrections, courts, court administration, law enforcement, and probation and parole. Students completing this course of study are prepared to enter law school and graduate degree programs in more specialized areas. Every student in this degree will participate in an internship at a host agency located in a local, state or federal agency of their choice.

MORE INFORMATION ABOUT CRIMINAL JUSTICE (<https://altoona.psu.edu/academics/bachelors-degrees/criminal-justice/>)

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Criminal Justice, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	6-10
Bachelor of Arts Degree Requirements	24
Requirements for the Major	48-49

4-7 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 0-3 credits of GH courses; 4 credits of GQ courses.

3 of the 24 credits for General Education are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CRIMJ 100	Introduction to Criminal Justice	3
CRIMJ 210	Policing in America	3
CRIMJ 220	Courts and the Prosecution Process	3
CRIMJ 230	Corrections in America	3
CRIMJ 290	Introduction to Internship Experience	2
CRIMJ 441	The Juvenile Justice System	3
CRIMJ 450W	Senior Seminar	3
CRIMJ 495	Internship in Criminal Justice	3
SOC 12	Criminology	3
SOC 119N	Race, Ethnicity and Culture	3-4
STAT 200	Elementary Statistics	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
CRIMJ 250W or SOC 207	Research Methods in Criminal Justice Research Methods in Sociology	3

PHIL 103	Ethics	3
or CRIMJ 465	Ethics in Criminal Justice	
Select 9 credits from any 400-level CRIMJ course that does not already fulfill another requirement in the major		9

- United States Cultures: 3 credits
- International Cultures: 3 credits

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- **Knowledge Base in Criminal Justice:** Students will develop knowledge and understanding of the major components of the criminal justice system and juvenile justice system as well as how these components interact. Student understanding of the criminal justice process will be enhanced through targeted courses in courts, corrections, and policing that highlight the unique needs, challenges, and operation of these components. Across the curriculum, students will be exposed to criminological theories that help to explain the role of gender, race/ ethnicity, and other background characteristics on offending, victimization, and criminal justice processing.
 - Describe key concepts, principles, and overarching themes in criminal justice
 - Develop a working knowledge of criminal justice content domains
 - Describe applications of criminological theory

- **Research Methods:** Students will understand the importance and practical use of social science research methods and the role these play in criminal justice policy.
 - Use scientific reasoning to interpret criminal justice policy
 - Demonstrate criminal justice information literacy
 - Engage in innovative and integrative thinking and problem solving
 - Interpret, design, and conduct basic criminological research
- **Professional Writing and Critical Thinking:** Students will practice writing and critical thinking skills through writing assignments across the curriculum and the completion of at least one writing intensive course.
 - Demonstrate effective writing for different purposes
 - Exhibit effective presentation skills for different purposes
 - Interact effectively with others
 - Demonstrate critical thinking skills concerning issues in criminal justice
- **Ethics:** Students will understand the role of ethics in criminal justice.
 - Apply ethical standards to evaluate criminal justice research and policy
 - Build and enhance interpersonal relationships
 - Adopt values that build community at local, national, and global levels
- **Placement:** Students will be prepared for placement in the criminal justice field through an internship experience.
 - Apply criminal justice content and skills to career goals
 - Exhibit self-efficacy and self-regulation
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The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Criminal Justice, B.A. at Altoona Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any

time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CRIMJ 100*	3 CRIMJ 220*	3
ENGL 15, 30H, or ESL 15 [‡]	3 PHIL 103 [†]	3
PSU 3	1 STAT 200 [†]	4
Elective	3 CAS 100 [†]	3
General Education Course	3 World Language Course Level 1	4
General Education (GQ) [‡]	3	
	16	17

Second Year

Fall	Credits Spring	Credits
CRIMJ 210	3 SOC 12 [†]	3
CRIMJ 230	3 SOC 119N [†]	4
World Language Course Level 2	4 World Language Course Level 3	4
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
	General Education Course (GHW)	1.5
	16	18.5

Third Year

Fall	Credits Spring	Credits
CRIMJ 441*	3 CRIMJ 290*	1
General Education Course	3 CRIMJ 465*	3
General Education Course	3 400 Level CRIMJ Selection*	3
General Education Course	3 SOC 207	3
Elective	3 B.A. World Cultures Course	3
	ENGL 202A or 202D [‡]	3
	15	16

Fourth Year

Fall	Credits Spring	Credits
CRIMJ 495*	3-10 CRIMJ 450W ^{††}	3
400 Level CRIMJ Selection*	3 400 Level CRIMJ Selection*	3
Elective	3 Elective	3
General Education Course	3 Elective	3
	12-19	12

Total Credits 122.5-129.5

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Career Paths

Graduates of the Criminal Justice program are prepared to enter the workforce or can continue their graduate education in Master's and Ph.D. programs, as well as law school. Penn State Altoona Career Services supports and serves students in all areas related to career development and preparation including: Major and Career Exploration Career Decision-Making Preparation of Employment Documents Internship and Job Search Strategies Interview Preparation Preparing for Graduate School Developing your Professional Online Brand Presentations and Workshops.

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Criminal Justice, B.S. (Altoona)

Begin Campus: Any Penn State Campus

End Campus: Altoona

Program Description

Students receiving a baccalaureate degree in criminal justice should understand each of the three main components of the criminal justice system and their interrelationships, be able to evaluate critically both current and future crime control policy proposals and criminal justice research, and understand the complexity of the crime phenomenon and its relationship to individual, social, and cultural factors. This major includes study in law enforcement, courts and corrections individually and as components of a system, plus work in theories of crime causation, and crime control policy. Students should expect reading, writing, and critical thinking skills to be rigorously applied and developed throughout the degree program. The Bachelor of Arts degree in Criminal Justice provides a broadly based liberal arts background for the study of crime, justice and the criminal justice system. The Bachelor of Science degree offers an opportunity for educational enrichment in fields not traditionally considered part of the liberal arts. Either degree is excellent preparation

for a career in criminal justice, graduate, or professional study, or informed citizenship.

What is Criminal Justice?

Criminal justice is the study of the adult and juvenile justice systems, including law enforcement, the courts, and corrections. It is interdisciplinary and includes understanding the intersections of law, public policy, and behavioral science, in an effort to understand crime as a social problem and improve these systems for the good of society.

You Might Like This Program If...

You have an interest in working in corrections, courts, court administration, law enforcement, and probation and parole. Students completing this course of study are prepared to enter law school and graduate degree programs in more specialized areas. Every student in this degree will participate in an internship at a host agency located in a local, state or federal agency of their choice.

MORE INFORMATION ABOUT CRIMINAL JUSTICE (<https://altoona.psu.edu/academics/bachelors-degrees/criminal-justice/>)

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Criminal Justice, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	18-22
Requirements for the Major	60-61

4-7 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 0-3 credits of GH courses; 4 credits of GQ courses.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CRIMJ/CRIM 100	Introduction to Criminal Justice	3
CRIMJ 210	Policing in America	3
CRIMJ 220	Courts and the Prosecution Process	3
CRIMJ 230	Corrections in America	3

CRIMJ 290	Introduction to Internship Experience	2
CRIMJ/CRIM 441	The Juvenile Justice System	3
CRIMJ 450W	Senior Seminar	3
CRIMJ 495	Internship in Criminal Justice	3
SOC/CRIMJ/ CRIM 12	Criminology	3
SOC 119N	Race, Ethnicity and Culture	3-4
STAT 200	Elementary Statistics	4

Additional Courses

Additional Courses: Require a grade of C or better

CRIMJ 250W or SOC 207	Research Methods in Criminal Justice Research Methods in Sociology	3
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PHIL 103 or CRIMJ 465	Ethics Ethics in Criminal Justice	3
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Select 9 credits from any 400-level CRIMJ course that does not already fulfill another requirement in the major 9

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 12 credits, in consultation with the adviser, in one or two of the following skill enhancement areas: accounting, computers, composition and rhetoric, counseling, education, law and legal studies, world language, management, public speaking, research methods and statistics, science and engineering, biobehavioral health; or in the following topics: adolescence, deviant behavior, drugs, minorities 12

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Knowledge Base in Criminal Justice:** Students will develop knowledge and understanding of the major components of the criminal justice system and juvenile justice system as well as how these components interact. Student understanding of the criminal justice process will be enhanced through targeted courses in courts, corrections, and policing that highlight the unique needs, challenges, and operation of these components. Across the curriculum, students will be exposed to criminological theories that help to explain the role of gender, race/ ethnicity, and other background characteristics on offending, victimization, and criminal justice processing.

- Describe key concepts, principles, and overarching themes in criminal justice
- Develop a working knowledge of criminal justice content domains
- Describe applications of criminological theory
- **Research Methods:** Students will understand the importance and practical use of social science research methods and the role these play in criminal justice policy.
 - Use scientific reasoning to interpret criminal justice policy
 - Demonstrate criminal justice information literacy
 - Engage in innovative and integrative thinking and problem solving
 - Interpret, design, and conduct basic criminological research
- **Professional Writing and Critical Thinking:** Students will practice writing and critical thinking skills through writing assignments across the curriculum and the completion of at least one writing intensive course.
 - Demonstrate effective writing for different purposes
 - Exhibit effective presentation skills for different purposes
 - Interact effectively with others
 - Demonstrate critical thinking skills concerning issues in criminal justice
- **Ethics:** Students will understand the role of ethics in criminal justice.
 - Apply ethical standards to evaluate criminal justice research and policy
 - Build and enhance interpersonal relationships
 - Adopt values that build community at local, national, and global levels
- **Placement:** Students will be prepared for placement in the criminal justice field through an internship experience.
 - Apply criminal justice content and skills to career goals
 - Exhibit self-efficacy and self-regulation
 - Refine project and time-management skills
 - Enhance teamwork capacity
 - Develop meaningful professional direction for life after graduation

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Criminal Justice, B.S. at Altoona Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year		
Fall	Credits Spring	Credits
CRIMJ 100*	3 CRIMJ 220*	3
ENGL 15, 30H, or ESL 15 [‡]	3 PHIL 103 [†]	3
PSU 3	1 STAT 200 ^{*††}	4
Elective	3 CAS 100 [‡]	3
General Education Course	3 General Education Course	3
General Education (GQ) [‡]	3	
General Education Course (GHW)	1.5	
17.5		16

Second Year		
Fall	Credits Spring	Credits
CRIMJ 210*	3 SOC 12 [†]	3
CRIMJ 230*	3 SOC 119N [†]	4
Elective	3 ENGL 202A or 202D [‡]	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
16.5		17.5

Third Year		
Fall	Credits Spring	Credits
CRIMJ 441*	3 CRIMJ 290*	1
Elective (skills enhancement)*	3 CRIMJ 465*	3
Elective	3 400 Level CRIMJ Selection*	3
Elective	3 SOC 207*	3
Elective	3 Elective (skills enhancement)*	3
15		16

Fourth Year		
Fall	Credits Spring	Credits
CRIMJ 495*	3-10 CRIMJ 450W ^{*†}	3
400 Level CRIMJ Selection*	3 400 Level CRIMJ Selection*	3
Elective (skills enhancement)	3 Elective (skills enhancement)*	3
Elective	3-10 Elective	3
Elective (if needed to reach 124)		3
12-26		15

Total Credits 125.5-139.5

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

Graduates of the Criminal Justice program are prepared to enter the workforce or can continue their graduate education in Master's and PhD programs, as well as law school. Penn State Altoona Career Services supports and serves students in all areas related to career development and preparation including: Major and Career Exploration Career Decision-Making Preparation of Employment Documents Internship and Job Search Strategies Interview Preparation Preparing for Graduate School Developing your Professional Online Brand Presentations and Workshops.

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Criminal Justice, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Criminal Justice minor provides an overview of the criminal justice system and a thorough grounding in criminological theory. Students receive an in-depth look at the three main system components: policing, courts, and corrections, as well as the opportunity to delve into two or more specialized topics relating to criminal justice. The minor is designed not only for students who have a professional interest in criminal justice, but also for those who want to be informed members of the voting citizenry. A functional understanding of crime and the criminal justice system is useful in many careers, including law, social work, education, and journalism.

What is Criminal Justice?

Criminal justice is the study of the adult and juvenile justice systems, including law enforcement, the courts, and corrections. It is interdisciplinary and includes understanding the intersections of law,

public policy, and behavioral science, in an effort to understand crime as a social problem and improve these systems for the good of society.

You Might Like This Program If...

You want to be informed members of the voting citizenry. A functional understanding of crime and the criminal justice system is useful in many careers, including law, social work, education, and journalism.

MORE INFORMATION ABOUT CRIMINAL JUSTICE (<https://altoona.psu.edu/academics/minor-programs/criminal-justice/>)

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CRIMJ 100	Introduction to Criminal Justice	3
CRIMJ 210	Policing in America	3
CRIMJ 220	Courts and the Prosecution Process	3
CRIMJ 230	Corrections in America	3
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 6 credits of 400-level CRIMJ courses (excluding CRIMJ 495)		6

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Career Paths

The minor is designed not only for students who have a professional interest in criminal justice, but also for those who want to be informed members of the voting citizenry. A functional understanding of crime and the criminal justice system is useful in many careers, including law, social work, education, and journalism.

Careers

Career Services supports and serves students and alumni, faculty and staff, families, and employers in all areas related to career development and preparation. We can assist in any of the following: Major and Career Exploration Career Decision-Making Preparation of Employment Documents Internship and Job Search Strategies Interview Preparation Preparing for Graduate School Developing your Professional Online Brand Presentations and Workshops

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN CRIMINAL JUSTICE (<https://altoona.psu.edu/offices-divisions/center-workforce-career-development/career-services/>)

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<https://altoona.psu.edu/academics/bachelors-degrees/criminal-justice> (<https://altoona.psu.edu/academics/bachelors-degrees/criminal-justice/>)

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World Campus

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-criminal-justice-minor> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-criminal-justice-minor/>)

Cybersecurity Analytics and Operations, B.S. (Altoona)

Begin Campus: Any Penn State Campus

End Campus: Altoona

Program Description

The Bachelor of Science in Cybersecurity Analytics and Operations in the College of Information Sciences and Technology (IST) is an interdisciplinary program that prepares students for careers as cybersecurity professionals. It educates students on the essential concepts of cyber-defense and the analytical fundamentals of cybersecurity, with a focus on the analytical and risk management underpinnings and associated cyber-defense techniques and strategies for ensuring the safety of online information stored in large and heterogeneous networks that are embedded within and across the complex socio-technical infrastructures that are pervasive in today's business, government and military organizations. Students will acquire the knowledge and skills needed to critically assess and respond to modern information security threats, using approaches that are grounded in a holistic understanding of adversarial strategies and effective responses. More specifically, it will offer an in-depth and domain-independent approach to the development of skills in cyberdefense technologies, tools and processes; cybersecurity analytics and visualization; and cybersecurity risk analysis and management. The major draws from concepts and skills associated with a number of disciplines, including information science, management science, statistics and data science, human behavior, and law/policy. Graduates will be prepared to join the rapidly growing cybersecurity workforce deployed across organizations of diverse sizes and missions.

What is Cybersecurity Analytics and Operations?

Cybersecurity is a field that deals with the protection of computer systems, networks, programs, and data from attacks and unauthorized access. This includes the development of cyber defense tools to protect critical infrastructure as well as the analysis and mitigation of cyber threats.

Cybersecurity is a very broad field. This program focuses students beyond the information technology field and instead focuses on the analysis of cybersecurity data, identification of cyber incidents, understanding the actions of malware, communication of concerns to business stakeholders and the general public. High performing cyber analysts have a strong mathematical and computational background. They often employ computer programming and scripting to solve problems and integrate existing tools. They analyze the data they are presented with from intrusion detection sensors, firewalls, and anti-malware tools.

Cybersecurity professionals apply their skills for organizations to prevent cyber criminals, hacktivists, and persistent nation-state actors. They protect organizations, companies, healthcare institutions, and government agencies from the loss of confidential data. They keep abreast of new developments technically, as well as those in the work domain of the organization and events that occur in the world at large.

MORE INFORMATION ABOUT CYBERSECURITY ANALYTICS AND OPERATIONS (<https://ist.psu.edu/prospective/undergraduate/academics/cybersecurity/>)

You Might Like This Program If...

- You enjoy working with and on computers as well as their operating systems and applications.
- You have an interest in business and organizations and securing
- You want to protect digital information, data stores, and computer networks from threats.
- You want to learn the cyber defense strategies used to anticipate, recognize, and defend against computer attacks.
- You're passionate about how we can keep sensitive information out of the hands of hackers, cybercriminals, and terrorist organizations.
- You enjoy working on a team to solve technical problems for organizations.
- You are interested in computer programming and mathematics.

MORE INFORMATION ABOUT WHY STUDENTS CHOOSE TO STUDY CYBERSECURITY ANALYTICS AND OPERATIONS (<https://ist.psu.edu/prospective/undergraduate/academics/cybersecurity/>)

Entrance to Major

To be eligible for the Cybersecurity Analytics and Operations major, students must:

1. Have completed the following entrance-to-major requirements with a grade of C or better in each: CYBER 100 or CYBER 100S, IST 210, IST 220, IST 242 or CMPSC 122 or CMPSC 132, and STAT 200 or SCM 200.
2. Have achieved a minimum cumulative grade point average of 2.00 prior to and through the end of the semester during which the entrance to major is requested.

Degree Requirements

For the B.S. degree in Cybersecurity Analytics and Operations, a minimum of 123 credits is required:

Requirement	Credits
General Education	45
Electives	3
Requirements for the Major	87

12 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GQ courses, 3 credits of GS courses, 3 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CYBER 262	Cyber-Defense Studio	3
CYBER 342W	Cyber Incident Handling and Response	3

CYBER 362	Cybersecurity Analytics Studio	3
CYBER 366	Malware Analytics	3
CYBER 440	Cybersecurity Capstone	3
IST 210	Organization of Data	3
IST 220	Networking and Telecommunications	3
IST 230	Language, Logic, and Discrete Mathematics	3
IST 432	Legal and Regulatory Environment of Information Science and Technology	3
IST 451	Network Security	3
IST 454	Computer and Cyber Forensics	3
IST 456	Information Security Management	3
IST 495	Internship	1
SRA 111	Introduction to Security and Risk Analysis	3
SRA 211	Threat of Terrorism and Crime	3
SRA 221	Overview of Information Security	3
SRA 231	Decision Theory and Analysis	3
SRA 311	Risk Analysis in a Security Context	3
SRA 365	Statistics for Security and Risk Analysis	3

Additional Courses

Additional Courses: Require a grade of C or better

CYBER 100	Computer Systems Literacy	3
	or CYBER 100S Computer Systems Literacy	
ENGL 202C	Effective Writing: Technical Writing	3
	or ENGL 202D Effective Writing: Business Writing	
MATH 110	Techniques of Calculus I	4
	or MATH 140 Calculus With Analytic Geometry I	
STAT 200	Elementary Statistics	4
	or SCM 200 Introduction to Statistics for Business	
Select one of the following:		3
CMPSC 121	Introduction to Programming Techniques	
CMPSC 131	Programming and Computation I: Fundamentals	
IST 140	Introduction to Application Development	
Select one of the following:		3
CMPSC 122	Intermediate Programming	
CMPSC 132	Programming and Computation II: Data Structures	
IST 242	Intermediate & Object-Oriented Application Development	
Select one of the following:		3
IST 256	Programming for the Web	
IST 261	Application Development Design Studio I	
IST 361	Application Development Design Studio II	

Supporting Courses and Related Areas

Select 9 credits from one of the Application Focus course lists. At least 3 credits must be at the 400-level. Students may also complete a custom Application Focus sequence with approval from an academic adviser and a CYBER undergraduate program coordinator. 9

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate

students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Knowledge/Application:** Understand and apply the interdisciplinary knowledge of information sciences in a security context to recognize, analyze, defend against, and manage cyber risks.
 - Understand the components and interoperability of computer hardware, operating systems, networks and databases.
 - Demonstrate proficiency in programming and scripting to perform Cybersecurity automation and analysis.
 - Understand Cyber threats and appropriate defensive designs and tools to mitigate the risk of attack.
 - Understand the procedures for Cybersecurity Incident Handling and Response.
 - Understand the static and dynamic analysis of malware.
- **Problem-Solving:** Understand, apply and adapt various problem solving strategies, using appropriate technology and methods.
 - Identify Cybersecurity threats and implement complementary defensive measures to mitigate risk.
 - Apply data analytics in a security context to analyze, predict and prevent cyberattacks.
 - Perform malware analysis and forensics to understand the nature and origin of attacks.
 - Evaluate several Cybersecurity frameworks and provide analysis that culminates in a high level executive briefing exercise.
- **Evaluation and Communication (Individual and Team):** Communicate and work effectively (both individually and in teams) with a range of perspectives and audiences through a variety of media.
 - Synthesize data from multiple sources to help make informed decisions.
 - Communicate effectively to a variety of audiences through writing and the spoken word.
- **Professional Responsibilities:** Understand professional responsibilities in terms of the ethical, legal and security policy aspects of information assurance and security.
 - Understand the rules, regulations and issues related to compliance with applicable laws and regulations related to Information Security and Privacy.
 - Understand the legal and ethical ramifications of violating the trust that organizations will place in you as a Cybersecurity professional.
- **Lifelong Learning:** Commit to the continuous acquisition of relevant knowledge for professional development by self-teaching and/or ongoing education and certification.
 - Employ information-seeking strategies and self-directed learning in pursuit of current knowledge.

- Enroll in professional development and pursue industry certifications to enhance your career and the profession.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://>

bulletins.psu.edu/undergraduate/archive/) to view the appropriate Undergraduate Bulletin edition.

Cybersecurity Analytics and Operations, B.S. at Altoona Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
IST 140 ^{#1}	3 IST 210 ^{*#}	3
CYBER 100 (FYS) ^{*#1}	3 IST 220 ^{*#1}	3
MATH 110 (GQ) ^{*†}	4 SRA 111 (GS) ^{*+1}	3
CAS 100 (GWS) [†]	3 ENGL 15 or 30H (GWS) [†]	3
PSU 3	1 Application Focus	3
General Education (GN, GA, GH, GS, or GHW)	3	
	17	15

Second Year

Fall	Credits Spring	Credits
IST 242 ^{*#1}	3 IST 261 [*]	3
STAT 200 (GQ) ^{*†#}	4 SRA 211 [*]	3
CYBER 262 [*]	3 IST 230 [*]	3
SRA 221 [*]	3 SRA 231 [*]	3
Application Focus	3 General Education (GN, GA, GH, GS, or GHW)	3
	16	15

Third Year

Fall	Credits Spring	Credits
CYBER 362 [*]	3 CYBER 342W [*]	3
IST 451 [*]	3 IST 454 [*]	3
SRA 365 [*]	3 SRA 311W [*]	3
ENGL 202C or 202D (GWS) [†]	3 CYBER 366 [*]	3
General Education (GN, GA, GH, GS, or GHW)	3 Application Focus	3
General Education (GHW)	1.5	
	16.5	15

Fourth Year

Fall	Credits Spring	Credits
IST 432 [*]	3 CYBER 440 [*]	3
IST 456 [*]	3 Application Focus 400 Level	3
SRA 472 [*]	3 General Education (GN, GA, GH, GS, or GHW)	3
General Education (GN, GA, GH, GS, or GHW)	3 Elective	3
General Education (GN, GA, GH, GS, or GHW)	3 Elective	3

General Education (GHW)	1.5
	16.5
	15

Total Credits 126

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ IST/SRA/CYBER course offered both fall and spring semesters at Altoona. Otherwise, IST/SRA/CYBER courses are only offered once per academic year.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

1 credit of IST 495 Internship is also required.

Students pick one of the five tracks below or create a custom 3-course application focus. Students must pick three (3) credits at the 400 level. All nine (9) credits must be in the same application focus area. It is recommended that students use the application focus area list to select a course that meets a General Education requirement (GS/GHW) and serves as a prerequisite for more advanced coursework within the application focus. This course does not count as part of the 9 credits of application focus sequence.

Application Development

Code	Title	Credits
IST 311	Object-Oriented Design and Software Applications	3
IST 331	Foundations of Human-Centered Design	3
IST 361	Application Development Design Studio II	3
IST 402	Emerging Issues and Technologies	3
IST 411	Distributed-Object Computing	3
IST 412	The Engineering of Complex Software Systems	3

Geopolitics

Understanding the geopolitical landscape is key to understanding and modeling cyberthreats from nation-states and other threat actors. The Geopolitics focus is for students who have an interest in pursuing cybersecurity careers in government or related consulting sectors.

Code	Title	Credits
ARMY, AIR, NAVSC (any)		3
AFR/PLSC 440	Globalization and Its Implications	3

CAS 404	Conflict Resolution and Negotiation	3
COMM 458	Media Law and Ethics	3
GEOG 260	Geographic Information in a Changing World: Introduction to GIScience	3
GEOG 333	Human Dimensions of Natural Hazards	3
GEOG 363	Geographic Information Systems	3
IB 440	Globalization and Its Implications	3
IST 301	Information and Organizations	3
PLSC 291	Introduction to Peace and Conflict Studies	3
PLSC 461	Politics of the European Union	3
PLSC 467	International Relations of the Middle East	3
PLSC 481	Global Political Economy	3
PLSC 491	Peace and Conflict Studies Seminar	3
SRA 421	The Intelligence Environment	3
SRA 433	Deception and Counterdeception	3
SRA 450	Cyber-Crime and Cyber-Warfare	3
SRA 471	Informatics, Risk, and the Post-Modern World	3
SRA 480	Crisis Informatics	3

Law and Policy

Cybersecurity careers in law enforcement require knowledge of laws and policies focused on the handling of evidence related to digital forensics and monitoring. Individuals in the private sector and government agencies must also understand and adhere to these topics as they involve cybersecurity. The Law and Policy focus is for students who want to understand law and policy as they relate to digital data.

Code	Title	Credits
COMM 404	Telecommunications Law	3
CRIM/CRIMJ 113	Introduction to Law	3
CRIM/CRIMJ/ SOC 406	Sociology of Deviance	3
CRIM 430	American Correctional System	3
CRIM/CRIMJ 451	Race, Crime, and Justice	3
CRIM/CRIMJ/ SOC 467	Law and Society	3
CRIM 469	Seminar in the Law	3-4
CRIMJ 304	Security Administration	3
CRIMJ 430	Alternatives to Incarceration	3
CRIMJ 435	Border Security	3
FRNSC 100	Introduction to Forensic Science	3
HLS/PADM 401	Introduction to Homeland Security (offered by Harrisburg and World Campus only)	3
IST 452	Legal and Regulatory Environment of Privacy and Security	3
PLSC 438	National Security Policies	3
PLSC 439	The Politics of Terrorism	3
PLSC 440	Globalization and Its Implications	3
PLSC 442	American Foreign Policy	3
PLSC/STS 460	Science, Technology, and Public Policy	3
PLSC 467	International Relations of the Middle East	3
PLSC 471	American Constitutional Law	3
PLSC/CRIMJ 439	The Politics of Terrorism	3

PLSC 487	International Law and Organizations (not offered at University Park)	3
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Economics

The Economics focus is for students who have an interest in pursuing cybersecurity careers in the financial services sector or government. Designed to help students understand today's financial and economic environments, this focus highlights the importance of translating the financial and economic impact of cybersecurity activities to effectively manage any program.

Code	Title	Credits
BLAW 243	Legal Environment of Business	3
BA 301	Finance	3
ECON 302	Intermediate Microeconomic Analysis	3
ECON 399	Foreign Studies	1-12
ECON 402	Decision Making and Strategy in Economics	3
ECON 409		3
ECON 438	Winners and Losers from Globalization	3
ECON 445	Health Economics	3
ECON 447	Economics of Sports	3
ECON 470	International Trade and Finance	3
ECON 479	Economics of Matching	3
FIN 301	Corporation Finance	3
HPA 445	Health Economics	3
PLSC 412	International Political Economy	3
PLSC 481	Global Political Economy	3

ENTERPRISE TECHNOLOGY

Code	Title	Credits
IST 301	Information and Organizations	3
IST 302	IT Project Management	3
IST 420	Fundamentals of Systems and Enterprise Integration	3
IST 421	Advanced Enterprise Integration: Technologies and Applications	3
IST 423	Enterprise Information Management and Storage Architecture	3
ETI 300W	Development and Documentation of Enterprise Web	3
ETI 435	Enterprise Analytics	3
ETI 461	Database Management and Administration	3
ETI 463	Distributed Database Management Systems	3

Health Care

Hospitals, pharmaceutical companies, and government agencies are just a few of the sectors that have strict requirements around protecting health care data. The Health Care focus is for students who have an interest in pursuing cybersecurity careers in a health care environment. Understanding how information is managed in these environments will help students thrive in a health care-related career.

Code	Title	Credits
BBH 101	Introduction to Biobehavioral Health	3
ECON 445	Health Economics	3
HPA 101	Introduction to Health Services Organization	3
HPA 332	Health Systems Management	3

HPA/BBH 440	Principles of Epidemiology	3
HPA 445	Health Economics	3
HPA 450	Healthcare Policies and Politics	3
HPA 470	Health Care Information Management	3
IST 402	Emerging Issues and Technologies	3
NURS 357	Introduction to Nursing Informatics (offered at Commonwealth and World Campuses; not at University Park)	3
NURS 458	Ethical Challenges in Healthcare Informatics (offered at Commonwealth and World Campuses; not at University Park)	3

Custom Application Focus

There is an option for a student to create a custom 3-course application focus sequence. It must be a coherent sequence of courses that provides context for the student in terms of cybersecurity content. It must contain three (3) credits of 400-level coursework. The focus area courses must be selected in consultation with a teaching CYBER faculty member and an academic adviser.

Career Paths

Cybersecurity blends the technical expertise needed to analyze security issues and create cyberdefense strategies with the interpersonal skills needed to communicate threats to a variety of audiences. The program prepares students to meet the growing need for professionals who can defend against threats to digital information and assets. IST's Office of Career Solutions helps students navigate their internship and career development in the field through coaching, workshops, interview preparation, resume reviews, career fairs, job postings, and networking opportunities.

Careers

Because our courses blend technical knowledge with skills in communication and business, a Cybersecurity Analytics and Operations degree allows students to pursue opportunities as cybersecurity analysts, cyberthreat advisers, penetration testers, and a number of other unique careers in fields such as defense, government, and business.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE CYBERSECURITY ANALYTICS AND OPERATIONS PROGRAM (<https://www.ist.psu.edu/current/careers/development/process/path/>)

Contact

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University Park

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814-865-3528

World Campus

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814-865-3528

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-cybersecurity-analytics-and-operations-bachelor-of-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-cybersecurity-analytics-and-operations-bachelor-of-science-degree/>)

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<https://www.york.psu.edu/academics/baccalaureate/cybersecurity-analytics-and-operations> (<https://www.york.psu.edu/academics/baccalaureate/cybersecurity-analytics-and-operations/>)

Dance Studies, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Dance Studies Minor is designed for students interested in furthering their study and exploration of the many areas of dance. Students will explore the creative process of dance as it relates directly to technique and performance. Students have the opportunity to perform with the Ivyside Dance Ensemble, perform in faculty choreography, choreograph for productions, and attend national festivals. The Dance Studies Minor allows students to further enhance their dance study and prepares them for graduate study and a variety of career options.

What is Dance Studies?

Dance Studies explores the world of dance as it relates to human movement, expression, communication and performance. You will gain new perspectives, develop the knowledge and skills to express yourself as a dance artist, and apply this through many performance opportunities.

You Might Like This Program If...

- You are interested in further developing your dance technique.
- You are interested in human movement as a form of expression and communication.
- You are interested in exploring dance artistry, including improvisation and choreography.
- You just want to keep dancing!

MORE INFORMATION ABOUT DANCE STUDIES (<https://altoona.psu.edu/academics/minor-programs/dance-studies/>)

Program Requirements

Requirement	Credits
Requirements for the Minor	21

Twenty-one credits are required for completion of the minor with a minimum of 9 credits at the 400 level.

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
DANCE 270	Introduction to Bartenieff Fundamentals	3
DANCE 365	Contemporary Movement Lab I	3
DANCE 366	Contemporary Movement Lab II	3
DANCE 466	Contemporary Movement Lab III	3
DANCE 472	Introduction to Laban Movement Analysis	3
DANCE 410	Dance History	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select two of the following:		3
DANCE 230	Ballet	
DANCE 240	Jazz Dance I	
DANCE 250	Tap Dance	
DANCE 261	Beginning Modern Dance I	

(All Dance Studies minor students are required to demonstrate proficiency at beginning level technique courses before placement in the intermediate or advanced courses.)

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of

both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Altoona

KT Huckabee

Teaching Professor of Integrative Arts and Dance
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Career Paths

The Dance Studies minor helps prepare you for postgraduate study in Dance, Dance Therapy, Performance Theory, and Movement Analysis. You will also be prepared to utilize and teach dance movement in various settings; studios, community and art centers, performance venues.

Careers

Services supports and serves students and alumni, faculty and staff, families, and employers in all areas related to career development and preparation. We can assist in any of the following: Major and Career Exploration Career Decision-Making Preparation of Employment Documents Internship and Job Search Strategies Interview Preparation Preparing for Graduate School Developing your Professional Online Brand Presentations and Workshops.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN DANCE STUDIES (<https://altoona.psu.edu/offices-divisions/center-workforce-career-development/career-services/>)

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(<https://altoona.psu.edu/academics/minor-programs/dance-studies/>)

Electro-Mechanical Engineering Technology, B.S. (Altoona)

Begin Campus: Any Penn State Campus

End Campus: Altoona

Program Description

The Electro-Mechanical Engineering Technology (B.S. EMET) degree program provides the basic undergraduate education required for a career as an electro-mechanical engineer. The program emphasizes a breadth of knowledge in all fields of engineering technology related to typical, highly-automated manufacturing, production, or assembly plant processes. Basic coverage is provided in all major areas to technology involved in the operation and control of manufacturing and production processes, including instrumentation and monitoring methods, principles of machine design, automated control techniques, thermal and fluid sciences, computerized manufacturing systems, principles of electrical and electronic circuit operation, computer-aided drafting and design, economics of production, and statistical analysis and quality control.

The primary aim of the EMET program is to provide graduates with the knowledge and skills necessary to apply current methods and technology to the development, design, operation, and management of electro-mechanical systems, particularly in those industries where automated systems are prevalent.

The major is organized as a four-year baccalaureate program with the corresponding Penn State admission requirements. Graduates of an associate degree in either electrical or mechanical engineering technology from Penn State may re-enroll in the EMET program. The College of Engineering ENGR students may enroll through "Change of Major" procedures. Students from an engineering technology program at another institution or community college accredited by TAC of ABET may transfer into the program with advanced standing.

What is Electro-Mechanical Engineering?

The Bachelor of Science degree in Electro-Mechanical Engineering Technology responds to a growing demand for engineers with a broad range of technical skills. The program emphasizes knowledge in the field of technology related to the design, maintenance, and operation of electromechanical systems, essentially automation and robotics. These systems incorporate electronic, mechanical, instrumentation and control elements. The program provides students with hands-on experience with these elements, technical knowledge, and the soft skills needed to be successful in the field of engineering. In this curriculum, students receive early exposure to technology by scheduling technical courses in the major. A laboratory component that promotes the understanding of the subject matter through the experiential application of theory accompanies most technical courses. This program culminates with a senior capstone project in which students work together in a team to design and implement an engineering project from initial proposal through product demonstration.

You Might Like This Program If...

You are interested in math and science but prefer spending time applying your skills in a laboratory or field setting as opposed to studying the theory behind these subjects in a classroom setting. If you like to take things apart, to see how they work, this may be for you. There is a greater emphasis on engineering applications while building an understanding of scientific theory.

Direct Admission to the Major

Incoming first-year students who meet the program admission requirements are admitted directly into the major. Admission restrictions may apply for change-of-major and/or change-of-campus students.

For more information about the admission process for this major, please send a request to the college, campus, or program contact (listed in the Contact tab).

Degree Requirements

For the Bachelor of Science degree in Electro-Mechanical Engineering Technology, a minimum of 130 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	109-116

24 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GH courses; 9 credits of GN courses; 6 credits of GQ courses; 6 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
CMPET 211	Embedded Processors and DSP	3
EDSGN 100	Cornerstone Engineering Design	3
EET 105	Electrical Systems	3
EET 275	Introduction to Programmable Logic Controls	3
EGT 114	Spatial Analysis and Computer-Aided Drafting	2
EMET 100	Computation Tools for Engineering Synthesis	1
EMET 215	Manufacturing Engineering	3
EMET 225	Applied Dynamics	2
EMET 325	Electric Drives	3
EMET 326	Mechanical Drives	3
EMET 405	Introduction to Thermal Science Systems	3
EMET 410	Automated Control Systems	4
IET 101	Manufacturing Materials, Processes, and Laboratory	3
IET 333	Engineering Economics for Technologists	2
STS/PHIL 233	Ethics and the Design of Technology	3
<i>Prescribed Courses: Require a grade of C or better</i>		
CMPET 117	Digital Electronics	3
CMPET 120	Digital Electronics Laboratory	1
EET 114	Electrical Circuits II	4
EET 118	Electrical Circuits Laboratory	1
EET 212W	Op Amp and Integrated Circuit Electronics	4
EMET 222	Applied Mechanics	3
EMET 230	Computerized I/O Systems	3
EMET 330	Measurement Theory and Instrumentation	3
ENGL 202C	Effective Writing: Technical Writing	3

MET 111 Mechanics for Technology: Statics 3

Additional Courses

EMET 350 Quality Control, Inspection, and Design 2-3
or EMET 351 Quality Control, Inspection, and Design

EMET 403 & EMET 440 Electromechanical Design Project Preparation and Electro-Mechanical Project Design 4

or EMET 441 & EMET 442 Mechatronics Project Design and Mechatronics Project Implementation

Select 3 credits from the following: 3

CMPSC 121 Introduction to Programming Techniques

CMPSC 131 Programming and Computation I: Fundamentals

CMPSC 200 Programming for Engineers with MATLAB

CMPSC 201 Programming for Engineers with C++

Select 6-8 credits of GN courses from two of the following groups: 6-8

Group 1

CHEM 110 & CHEM 111 Chemical Principles I and Experimental Chemistry I

Group 2

PHYS 150 Technical Physics I

PHYS 211 General Physics: Mechanics

PHYS 250 Introductory Physics I

Group 3

PHYS 151 Technical Physics II

PHYS 212 General Physics: Electricity and Magnetism

PHYS 251 Introductory Physics II

Additional Courses: Require a grade of C or better

MATH 83 Technical Calculus¹ 4
or MATH 140 Calculus With Analytic Geometry I

MATH 210 Calculus with Engineering Technology Applications 3-4

or MATH 141 Calculus with Analytic Geometry II

MATH 250 Ordinary Differential Equations² 3
or MATH 211 Intermediate Calculus and Differential Equations with Applications

Select 3 credits from the following: 3

CAS 100 Effective Speech

CAS 100A Effective Speech

CAS 100B Effective Speech

Select 3-5 credits from the following: 3-5

MATH 26 Plane Trigonometry and Applications of Trigonometry

MATH 40 Algebra, Trigonometry, and Analytic Geometry

MATH 82 Technical Mathematics II³

Supporting Courses and Related Areas

Select 3-4 credits of science courses, in consultation with an adviser, 3-4 from the approved department list

Select 6 credits of General Technical Elective courses, in consultation 6 with an adviser, from the approved department list

¹ Students taking MATH 83 must take MATH 210 and MATH 211.

² Note that MATH 250 does not carry a C-requirement.

³ Students taking MATH 81 and MATH 82 must take MATH 83.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Educational Objectives

The educational objectives of the Electro-Mechanical Engineering Technology program are designed to prepare graduates who, within a few years after graduation, will:

1. Continue to develop and synthesize analytical skills in the specification, procurement, or integration of electromechanical systems.
2. Apply empirical skills in the safe operation, testing, or maintenance of electromechanical systems.
3. Collaborate effectively acting with the highest standards of professional integrity in project team activities through recognizing the global, societal, economical, and ethical contexts of their work.
4. Communicate persuasively ensuring a focus on technical excellence through the preparation and delivery of technical and non-technical documentation and communications.

Student Outcomes

Graduates of the Electro-Mechanical Engineering Technology program should demonstrate:

1. An ability to apply knowledge, techniques, skills, and modern tools of mathematics, science, engineering, and technology to solve broadly-defined engineering problems appropriate to the discipline.
2. An ability to design systems, components, or processes meeting specified needs for broadly-defined engineering problems appropriate to the discipline.
3. An ability to apply written, oral, and graphical communication in broadly-defined technical and non-technical environments; and an ability to identify and use appropriate technical literature.
4. An ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results to improve processes.
5. An ability to function effectively as a member as well as a leader on technical teams.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of

both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

bulletins.psu.edu/undergraduate/archive/) to view the appropriate Undergraduate Bulletin edition.

Electro-Mechanical Engineering Technology, B.S. at Altoona Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
EDSGN 100	3 MATH 82 (GQ) [‡]	3
MATH 81 (GQ) [‡]	3 MET 111 [*]	3
General Education Course	3 CMPET 117 [*]	3
EET 105	3 CMPET 120 [*]	1
IET 101	3 ENGL 15, 30H, or ESL 15 (GWS) ^{††}	3
EMET 100	1 General Education Course	3
PSU 3	1	
	17	16

Second Year

Fall	Credits Spring	Credits
MATH 83 (GQ) [*]	4 MATH 210 [*]	3
EGT 114	2 General Education Course (GN)	3-4
EET 114 [*]	4 EET 212W [*]	4
EET 118 [*]	1 EMET 215	3
EMET 222 [*]	3 EET 275	3
General Education Course	3 EMET 225	2
	17	18-19

Third Year

Fall	Credits Spring	Credits
EMET 230 [*]	3 EMET 330 [*]	3
CMPET 211	3 EMET 325	3
MATH 211 [*]	3 EMET 326	3
ENGL 202C (GWS) ^{††}	3 CAS 100A (GWS) ^{††}	3
General Education Course	3 General Education Course (GN)	3-4
General Education Course (GN)	3-4 General Education Course (GHW)	3
	18-19	18-19

Fourth Year

Fall	Credits Spring	Credits
EMET 405	3 EMET 350	3
EMET 410	4 EMET 440	3
Technical Elective	3 General Education Course	3
IET 333	2 General Education Course	3
General Education Course	3 Technical Elective	3

EMET 403	1	
	16	15

Total Credits 135-138

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

College Notes:**Sequential Nature of the Program:**

Courses offered during each semester of the EMET program generally build upon material taught in previous semesters. Many courses have prerequisites listed in the Undergraduate Degree Programs Bulletin. Therefore, if a student fails to take a course during the targeted semester, he/she may be unable to schedule courses in subsequent semesters as well. The end result may be a degree program that extends beyond the traditional four years.

Note 1: Math Sequence

High school graduates who test into technical mathematics: Math 81, 82, 83, 210 and 211. Additionally, Math 40 or Math 22 and Math 26 may be used to substitute for Math 81 and 82.

High school graduates who test into calculus: Math 83, 210 and 211 or Math 140, 141, and 250. Students who complete either of these sequences to fulfill the math requirements will need to complete additional technical elective credits. Please see an adviser for more information.

Note 2: Science Courses

Students are required to complete nine credits of science. **At least two** courses from the following list must be completed:

- PHYS 150 GN(3) or PHYS 211 GN(4) or PHYS 250 GN(4);
- PHYS 151 GN(3) or PHYS 212 GN(4) or PHYS 251 GN(4);
- CHEM 110 GN(3) and CHEM 111 GN(1);

Students may complete **no more than one selection** from the following. (If the student completes three selections from the first list, no additional courses are required):

- BIOL 011 GN(3) and BIOL 012 GN(1);
- BIOL 110 GN(4);

- BIOL 141 GN(3);
- CHEM 112 GN(3) and CHEM 113 GN(1);
- EGEE 101 GN(3);
- EGEE 102 GN(3);

Due to limited faculty resources, several program courses are only offered during one semester of the year. In addition, EMET courses are not traditionally offered during the summer months.

Approved technical elective courses are:

- CMPSC 201C (3) or CMPSC 121 (3);
- EMET 401 (1), EMET 402 (2), EMET 403 (1), EMET 394 (1-3), EMET 430 (3),
- ENTR 300 (3), ENTR 320 (3),
- MATH 220 (2), MATH 231 (2), STAT 200 (4)
- MGMT 301 (3), MKTG 301 (3)

Other courses may be accepted toward technical elective credits. Please check with your adviser for more information.

Career Paths

The inclusion of both electrical and mechanical coursework in the EMET program makes our students highly marketable to employers.

EMET graduates may pursue engineering work that entails design, prototyping, testing, operation, or maintenance of equipment. Others may work in the areas of research and development, quality control, inspection of procedures and processes, manufacturing, or sales and service. These careers could be in a variety of industries including aerospace, agriculture, automotive, communications, computers, construction, energy, pharmaceuticals, plastics, or robotics to name a few.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE ELECTRO-MECHANICAL ENGINEERING PROGRAM (<https://career.engr.psu.edu/>)

Opportunities for Graduate Studies

Students may choose to further their engineering education through graduate school. EMET graduates are prepared to continue their education into technical or professional Master's Degree programs. Graduate program admissions requirements vary by program and institution. Students intending to pursue this academic path are encouraged to investigate intended programs of interest early in their studies to tailor their course choices during their undergraduate studies.

Since the EMET program is ABET ETAC-accredited, EMET graduates are candidates to sit for the Fundamental of Engineering (FE) Exam, the first step in the engineering licensure process. Acceptable accreditation standards vary from state to state for professional licensure, so students must verify their state's requirements.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.engr.psu.edu/graduate-programs/>)

Accreditation

The Bachelor of Science in Electro-Mechanical Engineering Technology at Penn State Altoona is accredited by the Engineering Technology Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Electromechanical Engineering Technology and Similarly Named Programs.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

Altoona

DIVISION OF BUSINESS, ENGINEERING, AND INFORMATION SCIENCES
AND TECHNOLOGY

Learning Resources Center 145
3000 Ivyside Park
Altoona, PA 16601
814-949-5304
jls5991@psu.edu

<https://altoona.psu.edu/academics/bachelors-degrees/electro-mechanical-engineering-technology> (<https://altoona.psu.edu/academics/bachelors-degrees/electro-mechanical-engineering-technology/>)

Berks

EBC DIVISION
Gaige Building
Reading, PA 19610
610-396-6126
BKElecMechEng@psu.edu

<https://berks.psu.edu/academics/bs-electro-mechanical-engineering-technology> (<https://berks.psu.edu/academics/bs-electro-mechanical-engineering-technology/>)

Fayette

ELECTRO-MECHANICAL ENGINEERING TECHNOLOGY
2201 University Drive
Lemont Furnace, PA 15456
724-430-4109
nab141@psu.edu

<https://fayette.psu.edu/academics/baccalaureate/electro-mechanical-engineering-technology> (<https://fayette.psu.edu/academics/baccalaureate/electro-mechanical-engineering-technology/>)

New Kensington

ELECTRO-MECHANICAL ENGINEERING TECHNOLOGY
3550 Seventh Street Rd.
New Kensington, PA 15068
724-334-6730
jdc167@psu.edu

<https://newkensington.psu.edu/academics/4-year-electro-mechanical-engineering-technology> (<https://newkensington.psu.edu/academics/4-year-electro-mechanical-engineering-technology/>)

University Park

SCHOOL OF ENGINEERING DESIGN AND INNOVATION
213 Hammond Building
University Park, PA 16802
814-865-2952

<https://www.sedi.psu.edu/>

York

ELECTRO-MECHANICAL ENGINEERING TECHNOLOGY
1031 Edgecomb Avenue
York, PA 17403
717-771-4097
hhh2@psu.edu

<https://www.york.psu.edu/academics/baccalaureate/electro-mechanical-engineering-technology> (<https://www.york.psu.edu/academics/baccalaureate/electro-mechanical-engineering-technology/>)

Elementary and Kindergarten Education, B.S. (Altoona)

Begin Campus: Any Penn State Campus

End Campus: Altoona

PROGRAM CURRENTLY ON HOLD; NOT ACCEPTING NEW STUDENTS
Begin Date of Enrollment Hold: September 10, 2010

Individuals interested in earning Pennsylvania teaching credentials for grades PK-4 should refer to the Elementary and Early Childhood Education, B.S. program (p. 688). Individuals interested in earning Pennsylvania teaching credentials for grades 5-8 should refer to the Middle Level Education, B.S. program (p. 706).

****Please Note:** Individuals interested in earning Pennsylvania teaching credentials for grades PK-8 should refer to the **Childhood and Early Adolescent Education** major.

This major offers teaching options in Early Childhood Education and in Elementary Education. Students successfully completing this major will have met all of the requirements for the N-3 or K-6 College Instructional I certificate issued by the Pennsylvania Department of Education. Students must indicate their choice of teaching option at the time they make application for admission to a teacher education major. Students who are undecided at this time about which teaching option to select should contact their adviser and enroll in a field experience featuring participation in the classroom.

Early Childhood Teaching Option

Available at the following campuses: University Park

Students successfully completing this option will have met all of the requirements for the N-3 Instructional I certificate issued by the Pennsylvania Department of Education. Special courses in both human development and education are used to integrate understanding of preschool programs with relevant theories of child development.

Elementary Education Teaching Option

Available at the following campuses: Altoona, Berks, University Park

Students successfully completing this option will have met all of the requirements for the K-6 Instructional I certificate issued by the Pennsylvania Department of Education.

Degree Requirements

For the Bachelor of Science degree in Elementary and Kindergarten Education, a minimum of 129.5 credits is required for the Early Childhood

Teaching Option and a minimum of 122 credits is required for the Elementary Education Teaching Option:

Requirement	Credits
General Education	45
Electives	0-3
Requirements for the Major	101-117

27-30 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GS, 6 credits of GQ, 6 credits of GH, and 9 credits of GN courses for both options. The Early Childhood Teaching option permits 3 credits of GHW.

See also Teacher Education Programs (<https://ed.psu.edu/academics/teacher-testing-certification/>).

Requirements for the Major

A grade of C or better per course is required for teacher certification.

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better for teacher certification</i>		
AED 303	The Visual Arts in the Elementary School	3
CI 295	Introductory Field Experience for Teacher Preparation	2
CI 495B	Clinical Application of Instruction - Middle Level Education	3
CI 495D	Practicum in Student Teaching—Childhood and Early Adolescent Education	12
CI 495F	Professional Development Practicum	3
EDPSY 14	Learning and Instruction	3
ENGL 100	English Language Analysis	3
KINES 126	The Health Program for the Elementary School Child	1.5
LLED 400	Teaching Literacy in Early Childhood	3
LLED 401	Teaching Literacy in Elementary School	3
LLED 402	Teaching Children's Literature	3
MATH 200	Problem Solving in Mathematics	3
MTHED 420	Teaching Mathematics In The Elementary Schools	3
MUSIC 241	Music for Classroom Teachers	3
SCIED 458	Teaching Science in the Elementary School	3
SPLD 400	Inclusive Special Ed Foundations: Legal, Characteristics, Collaboration, Assessment, and Management	3
SSED 430W	Teaching Social Studies in the Elementary Grades	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better for teacher certification</i>		
EDTHP 115	Education in American Society	3
	or EDTHP 115A Competing Rights: Issues in American Education	3
HIST 20	American Civilization to 1877	3
	or HIST 21 American Civilization Since 1877	3
Select one of the following:		3-4
EDPSY 101	Analysis and Interpretation of Statistical Data in Education	

STAT 100	Statistical Concepts and Reasoning	
STAT 200	Elementary Statistics	
Select one of the following:		3
ECON 14	Principles of Economics	
ECON 102	Introductory Microeconomic Analysis and Policy	
ECON 104	Introductory Macroeconomic Analysis and Policy	
Select one of the following:		3
GEOG 20	Human Geography: An Introduction	
GEOG 30N	Environment and Society in a Changing World	
GEOG 122		
GEOG 123	Geography of Developing World	
GEOG 124	Elements of Cultural Geography	
GEOG 126	Economic Geography	
GEOG 128	Geography of International Affairs	
GEOG 320	Urban Geography: A Global Perspective	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better for teacher certification

Select 3 credits in literature GH	3
Select 9 credits: 3 credits each (including one course with a lab) from the following GN biological science, earth science, and physical science	9

Requirements for the Option

Requirements for the Option: Require a grade of C or better for teacher certification

Select an option	16.5-30
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Requirements for the Option**Early Childhood Teaching Option (27-30 credits)**

Available at the following campuses: University Park

Code	Title	Credits
Prescribed Courses		
CI 495A	Clinical Application of Instruction - PK-4	1
ECE 451	Instruction in Early Childhood Education Derived from Development Theories	3
ECE 452		3
ECE 453	Parent Involvement in Home, Center, and Classroom Instruction	2
ECE 454		3
ECE 479	The Young Child's Play as Educative Processes	3
Additional Courses		
HDFS 315	Family Development	3
	or SOC 30 Sociology of the Family	
HDFS 428	Infant Development	3
	or HDFS 429 Advanced Child Development	
HPA 101	Introduction to Health Services Organization	3
	or NUTR 251 Introductory Principles of Nutrition	
PSYCH 100	Introductory Psychology	3-6
& PSYCH 212	and Introduction to Developmental Psychology	
	or HDFS 229 Infant and Child Development	

Elementary Education Teaching Option (16.5-19.5 credits)

Available at the following campuses: Altoona, Berks, University Park

Code	Title	Credits
Prescribed Courses		
KINES 127	The Physical Education Program for the Elementary School Child	1.5
Additional Courses		
Select one of the following:		3-6
EDPSY 10	Individual Differences and Education	
HDFS 229	Infant and Child Development	
PSYCH 100	Introductory Psychology	
& PSYCH 212	and Introduction to Developmental Psychology	
Supporting Courses and Related Areas		
Select 3 credits in MATH or MTHED		3
Select 6 credits of the following:		6
EDTHP at the 400 level		
ECE at the 400 level		
SPLED at the 400 level		
EDLDR 405	Reimagining Classroom Management	
EDLDR 497	Special Topics	
LLED 497	Special Topics	
Select 3 credits in U.S. History		3

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the

requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

College of Education
Advising and Certification Center
228 Chambers Building
University Park, PA 16802
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Altoona

Leigh Ann Haefner
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Berks

Lauren Zuidema
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Contact

Altoona

DIVISION OF EDUCATION, HUMAN DEVELOPMENT, AND SOCIAL SCIENCES
Hawthorn Building 229, 3000 Ivyside Park
Altoona, PA 16601
814-949-5638
lab194@psu.edu

<https://altoona.psu.edu/academics/bachelors-degrees/elementary-early-childhood-education> (<https://altoona.psu.edu/academics/bachelors-degrees/elementary-early-childhood-education/>)

Berks

HUMANITIES, ARTS AND SOCIAL SCIENCES
Gaige Building
Reading, PA 19610
610-396-6455
lzz40@psu.edu

University Park

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141 Chambers Building
University Park, PA 16802
814-865-1500
lloyd@psu.edu

<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction> (<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/>)

English, B.A. (Altoona)

Begin Campus: Any Penn State Campus

End Campus: Altoona

Program Description

Majors explore the imaginative and practical uses of English through courses in literature, writing, rhetoric, and language. They develop perspectives on human nature and cultural values through American, British, and other English literatures; they learn how to gather, analyze, synthesize, and communicate information; they gain mastery over their language. These skills help English majors find careers in such fields as publishing, business, industry, government, and teaching. English majors often go on to postgraduate study not only in English but in such areas as law, business, education, or other liberal disciplines.

Majors can emphasize writing, literature, or rhetoric, or a mix of literature, writing, and rhetoric. All provide a liberal education and all develop analytic and writing skills. Qualified students may participate in the career internship and in the English honors program.

Students interested in earning certification in secondary education should contact the College of Education, Department of Curriculum and Instruction. (See also Teacher Education Programs (<https://ed.psu.edu/academics/teacher-testing-certification/>)).

Traditions of Innovation Option

Available at the following campuses: Brandywine, Scranton, University Park

This option allows students to explore the imaginative and practical uses of English language through a variety of courses in literature, writing, and rhetoric across historical periods. The flexibility of the English curriculum allows students to focus in literary and cultural studies, creative writing, professional and media writing, and/or rhetoric, according to individual interests and goals. In the process, students learn to gather, analyze, synthesize, and communicate information as they improve their language skills across diverse creative and critical scenarios. These skills prepare students for careers in a wide range of professional fields.

Writing and Literature in Context Option

Available at the following campuses: Abington, Altoona, Brandywine, Scranton, York

This option focuses on English as a foundation for strong critical thinking and distinctive communication skills, imaginative approaches to problem solving, and collaboration with aligned fields. The flexibility of the major allows students to study literature, creative writing, theatre, media studies, professional writing, and/or other disciplines, according to their individual interests and goals. These foundations prepare English majors for careers in a wide range of professional fields.

What is English?

English refers to a broad field of study related to literature, professional writing, creative writing, and rhetoric. Majors develop critical thinking skills and produce influential academic, creative, professional, and digital texts. They learn to analyze genres, texts, and contexts that involve, for instance, race, class, gender, sexuality, and nationality. They also learn how various texts communicate value, meaning, and social and cultural critique.

You Might Like This Program If...

- You enjoy writing in different genres, styles, and media, e.g. videos, print or web magazine articles, critical essays, reviews, short stories, poems, etc.
- You enjoy addressing social justice issues that give context to texts.
- You want to use communication to help solve problems involving science, technology, medicine, law, business, or society.
- You enjoy making connections between historical eras and current realities.
- You want to a career in law, non-profit work, medicine, education, or writing/editing.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in English, a minimum of 123 credits is required:

Requirement	Credits
General Education	45
Electives	18
Bachelor of Arts Degree Requirements	24
Requirements for the Major	36

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
ENGL 200	Introduction to Critical Reading	3
or ENGL 201	What is Literature	

ENGL 494H	Senior Thesis in English	3
or ENGL 487W	Senior Seminar	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

In consultation with adviser, select 18 credits in literature, writing, or rhetoric. At least 9 credits must be at the 300/400 level. At least 3 of the 300/400 level credits must fulfill a departmental diversity requirement for a course related to race, gender, sexuality, disability, ethnicity, and/or postcolonial issues.

Requirements for the Option

Requirements for the Option: Require a grade of C or better

Select an option 12

Requirements for the Option

Traditions of Innovation Option (12 Credits)

Available at the following campuses: Brandywine, Scranton, University Park

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits of 300/400 level course in each of the following areas:		12
Medieval through Sixteenth Century		
Sixteenth Century through Eighteenth Century		
The Nineteenth Century		
Twentieth Century to the Present		

Writing and Literature in Context Option (12 Credits)

Available at the following campuses: Abington, Altoona, Brandywine, Scranton, York

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits of 400-level pre-1800 courses		3
Select 3 credits of 400-level post-1800 courses		3
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 6 credits of English courses at any level		6

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or

within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- Apply critical, theoretical, and/or disciplinary approaches to the reading and analysis of texts in multiple genres and/or media.
- Analyze the aesthetic and/or cultural significance of the ideas, values, conventions, forms, and genres associated with texts.
- Gather, evaluate, and employ an array of research materials in support of critical studies, and/or creative activity, in ways consistent with standards of academic integrity.
- Demonstrate writing and rhetorical skills appropriate to critical and/or creative tasks in a variety of media and genres.
- Analyze representative literary, theoretical, and cultural texts within significant historical, geographical, and cultural contexts.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Altoona

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Scranton**Paul Perrone**

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University Park**Liberal Arts Academic Advising**

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

York**Noel Sloboda**

Associate Professor of English
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717-771-4082
njs16@psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Writing and Literature in Context Option: English, B.A. at Altoona Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year		
Fall	Credits Spring	Credits
ENGL 15, 30H, or ESL 15 [‡]	3 English Literature, Writing, or Rhetoric Course [*]	3
PSU 3	1 CAS 100 ^{††}	3
General Education Course [†]	3 General Education Course [†]	3
World Language Course Level 1	4 World Language Course Level 2	4
General Education Course (GQ) ^{††}	3 General Education Course [†]	3
Elective	3	
	17	16

Second Year		
Fall	Credits Spring	Credits
General Education Course [†]	3 English Literature, Writing, or Rhetoric Course [*]	3
ENGL 200 or 201 [*]	3 Elective	3
English literature, writing, or rhetoric [*]	3 General Education Course [†]	3
World Language Course Level 3	4 General Education Course [†]	3
General Education Course (GQ) ^{††}	3 B.A. Requirement	3
	16	15

Third Year		
Fall	Credits Spring	Credits
English Literature, Writing, or Rhetoric Course [*]	3 English 400-level Period Course [*]	3
English 400-Level Period Course [*]	3 English Literature, Writing, or Rhetoric Course [*]	3
General Education Course	3 ENGL 202A, 202B, 202C, or 202D [‡]	3
B.A. Requirement	3 General Education Course ^{††}	3
Elective	3 Elective	3
	15	15

Fourth Year		
Fall	Credits Spring	Credits
ENGL 400-level Period Course [*]	3 ENGL 400-level Period Course [*]	3
English Literature, Writing, or Rhetoric [*]	3 Elective	3
World Cultures Course	3 General Education Course (GHW)	1.5
B.A. Requirement	3 Elective	3
General Education Course (GHW)	1.5 Elective	3
ENGL 487W [*]	3	
	16.5	13.5

Total Credits 124

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Career Paths

Careers

Our graduates use their training in careers as attorneys, publishers, professional writers, editors, public relations directors, non-profit professionals, foreign service specialists, entrepreneurs, teachers, and education professionals.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE ENGLISH PROGRAM (<https://english.la.psu.edu/undergraduate/career-enrichment-network/>)

Opportunities for Graduate Studies

English majors often go on to postgraduate study not only in English but in areas such as law, medicine, business, education, or liberal arts disciplines.

More information about opportunities for graduate studies can be found through the following websites:

- Association of Departments of English (<https://www.maps.mla.org/About-MAPS/ADE/>)
- Law School Admissions Council (<https://www.lsac.org/>)
- Association of American Medical Colleges (<https://www.aamc.org/>)
- AWP Guide to Writing Programs (https://www.awpwriter.org/guide/guide_writing_programs/)

Professional Resources

- Department Website with information on Major, Minor, concentrations, and other opportunities (<https://english.la.psu.edu/undergraduate/majors/>)
- Kalliope, Penn State's undergraduate literary magazine (<https://kalliope.psu.edu/>)

- Creative Writing Club, A community for improving and sharing creative writing (<https://sites.psu.edu/creativewritingclub/>)
- W.O.R.D.S., Writers Organized to Represent Diverse Stories (<https://sites.psu.edu/wordspennstate/>)
- Career Enrichment Network, resource for career-related, international, and professional development (<https://la.psu.edu/current-students/career-enrichment-network/>)
- Modern Language Association, Guide for Undergraduate Research (<https://www.mla.org>)
- Conference on College Composition and Communication (<https://cccc.ncte.org/>)
- National Council of Teachers of English (<https://ncte.org/>)
- American Bar Association (<https://www.americanbar.org/>)
- AWP
- American Society of Journalists and Authors (<https://www.asja.org/>)
- National Association of Science Writers (<https://www.nasw.org/>)
- Society for Technical Communication (<https://www.stc.org/>)
- Society of Professional Journalists (<https://www.spj.org/>)
- Association of Writers and Writing Programs (<https://www.awpwriter.org/>)
- American Grant Writers' Association (<http://www.agwa.us/>)
- International Writing Centers Association (<https://writingcenters.org/>)
- TESOL International Association (<https://www.tesol.org/>)

Contact

Altoona

DIVISION OF ARTS AND HUMANITIES
Hawthorn Building 212
3000 Ivyside Park
Altoona, PA 16601
814-949-5625
ecm14@psu.edu

<https://altoona.psu.edu/academics/bachelors-degrees/english> (<https://altoona.psu.edu/academics/bachelors-degrees/english/>)

Abington

DIVISION OF ARTS AND HUMANITIES
1600 Woodland Road
Abington, PA 19001
215-881-7300
mon4@psu.edu

<https://www.abington.psu.edu/academics/majors-at-abington/english> (<https://www.abington.psu.edu/academics/majors-at-abington/english/>)

Brandywine

Vairo Library, 123
25 Yearsley Mill Road
Media, PA 19063
610-892-1439
mdf6@psu.edu

<https://www.brandywine.psu.edu/academics/bachelors-degrees/english> (<https://www.brandywine.psu.edu/academics/bachelors-degrees/english/>)

Scranton

13 Library Building
Dunmore, PA 18512
570-963-2660
pjp3@psu.edu

<https://scranton.psu.edu/academics/degrees/bachelors/english-degree>
(<https://scranton.psu.edu/academics/degrees/bachelors/english-degree/>)

University Park

DEPARTMENT OF ENGLISH
434 Burrowes Building
University Park, PA 16802
814-863-0258
kkj1@psu.edu

<https://english.la.psu.edu/undergraduate/>

York

Grumbacher Information Sciences and Technology Center, Room 224
York, PA 17403
717-771-4082
njs16@psu.edu

<https://www.york.psu.edu/academics/baccalaureate/english> (<https://www.york.psu.edu/academics/baccalaureate/english/>)

Entrepreneurship, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

Entrepreneurship plays a crucial role in the way new ideas, opportunities, inventions, and technologies are created and introduced into the global marketplace. Students in this minor first develop an understanding of financial forces that affect business ventures. The minor then provides them with a core of courses that enhance their major field of study and that provide a background sufficient for them to take advantage of many entrepreneurial opportunities.

What is an Entrepreneur?

An entrepreneur is commonly thought of as one who starts a business. At Penn State Altoona, we have a more encompassing vision of an entrepreneur, that includes: the person who can work "intrapreneurially" within an existing organization, a person who purchases an existing business, and a person who develops a process and executes solutions for social and environmental issues. Whether a small, midsize, or large organization, greater success can be achieved through the creative and innovative thinking of the entrepreneur.

Program Requirements

Requirement	Credits
Requirements for the Minor	19

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
ECON 102	Introductory Microeconomic Analysis and Policy	3
ENTR 300	Principles of Entrepreneurship	3
ENTR 320	Entrepreneurship and New Venture Creation	3
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 3 credits at the 400-level from entrepreneurship		3
ENGL 419	Advanced Business Writing (or any 400-level Business or Economics course)	3

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Altoona

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djb36@psu.edu

World Campus

Undergraduate Academic Advising
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University Park, PA 16802
814-863-3283
advising@outreach.psu.edu

Career Paths

Our entrepreneurship students will gain skills essential to succeed in any organizational setting, including problem-solving, teamwork, and communication. Our program and our faculty will develop and inspire students to succeed as entrepreneurial leaders, so that they can generate

concepts to patent; turn unique ideas into opportunities; launch a successful business; purchase an existing company or franchise; and become great leaders, managers, and innovators.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN ENTREPRENEURSHIP (<https://altoona.psu.edu/academics/minor-programs/entrepreneurship/>)

Contact

Altoona

DIVISION OF BUSINESS, ENGINEERING, AND INFORMATION SCIENCES AND TECHNOLOGY

3000 Ivyside Park

Altoona, PA 16601

814-949-5294

djb36@psu.edu

<https://altoona.psu.edu/academics/minor-programs/entrepreneurship/>
(<https://altoona.psu.edu/academics/minor-programs/entrepreneurship/>)

World Campus

DIVISION OF BUSINESS, ENGINEERING, AND INFORMATION SCIENCES AND TECHNOLOGY

Sheetz Center for Entrepreneurial Excellence 202

3000 Ivyside Park

Altoona, PA 16601

814-949-5294

djb36@psu.edu

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-entrepreneurship-minor/>
(<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-entrepreneurship-minor/>)

Environmental Studies, B.A.

Begin Campus: Any Penn State Campus

End Campus: Altoona

Program Description

This interdisciplinary major is designed to provide students with an integrated and critical knowledge of the natural environment and human interactions with it. Students will receive a strong foundation in the natural sciences but will extend their studies across several disciplines, emphasizing both public policy issues and the role of the natural environment in history and culture. The goal of the program is "ecological literacy," which means that students will develop a broad-based understanding and awareness of environments and environmental issues, and they will develop the problem-solving skills to address those issues. Program requirements include interdisciplinary courses in environmental studies and a broad array of courses in biology, geology, chemistry, geography, economics, political science, English, history, and philosophy. By selecting appropriate electives to supplement the "additional courses" requirement of the major, students may develop an emphasis in either a specific field (i.e., biology, English) or in a general area of study (natural science, social science, and humanities). Graduates are equipped for employment as environmental consultants in business or with governmental agencies and public interest groups. Many may go on to postgraduate study in environmental science, public policy, or the humanities, or to law school.

What is Environmental Studies?

Environmental Studies provides a broadly-based liberal arts background for the study of environmental issues, blending the principles of the natural sciences with the intellectual traditions of the humanities and the social sciences. Emphasis is placed on experiential learning, ecological literacy, and problem-solving with a goal towards purposeful action.

MORE INFORMATION ABOUT ENVIRONMENTAL STUDIES (<https://altoona.psu.edu/academics/bachelors-degrees/environmental-studies/>)

You Might Like This Program If...

You wish to work closely with faculty and peers on undergraduate research, community service, and out-of-classroom activities. Students also have the opportunity to discuss career goals and job opportunities with alumni working in a student's field of interest.

MORE INFORMATION ABOUT WHY STUDENTS CHOOSE TO STUDY ENVIRONMENTAL STUDIES (<https://altoona.psu.edu/academics/bachelors-degrees/environmental-studies/degree-options/>)

Entrance to Major

A student wishing to transfer into the Environmental Studies program must have completed the following course: ENVST 100N, and have received a grade of C or better in the course.

Degree Requirements

For the Bachelor of Arts degree in Environmental Studies, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	10-11
Bachelor of Arts Degree Requirements	24
Requirements for the Major	64-65

21 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GH courses; 9 credits of GN courses; 3 credits of GQ courses; 6 credits of GS courses.

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
BIOL 220W	Biology: Populations and Communities	4
CHEM 20	Environmental Chemistry	3
CHEM 21	Environmental Chemistry Laboratory	1

ECON 428	Environmental Economics	3
ENGL 180	Literature and the Natural World	3
ENVST 100N	Visions of Nature	3
ENVST 200	Research Methods in Environmental Studies	3
ENVST 400W	Senior Seminar in Environmental Studies	3
GEOG 115	Landforms of the World	3
GEOG 160	Mapping Our Changing World	3
GEOSC 1	Physical Geology	3
PHIL 403	Seminar in Environmental Ethics	3

Additional Courses

Additional Courses: Require a grade of C or better

ECON 102	Introductory Microeconomic Analysis and Policy	3
or ECON 104	Introductory Macroeconomic Analysis and Policy	
GEOG 407		3
or HIST 453	American Environmental History	
PLSC 235	Environmental Politics	3
or PLSC 425	Government and Politics of the American States	
STAT 200	Elementary Statistics	3-4
or STAT 250	Introduction to Biostatistics	
Select 4 credits of the following:		4
ENVST 296	Independent Studies	
& ENVST 496	and Independent Studies	
ENVST 395	Internship	
& INTSP 370	and Internship Preparation	
ENVST 496	Independent Studies	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 9 credits (at least 6 credits at the 400-level and 3 in each departmental list) in consultation with an academic adviser:	9
a. Natural Sciences	
b. Social Sciences	
c. Arts and Humanities	

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- Develop structural knowledge pertaining to an interdisciplinary problem or course theme.
- Integrate and/synthesize information from a variety of contexts or fields of knowledge.
- Apply the knowledge of physical and socio-economic environments in the analysis of multi-dimensional environmental issues.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Altoona

Lisa Emili

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Altoona, PA 16601
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lae18@psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive ([https://](https://bulletins.psu.edu/undergraduate/archive/)

bulletins.psu.edu/undergraduate/archive/) to view the appropriate Undergraduate Bulletin edition.

Environmental Studies, B.A. at Altoona Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or ESL 15 [‡]	3 ENGL 180 [‡]	3
ENVST 100N ^{*‡#†}	3 World Language Course Level 2	4
ECON 102 or 104 [*]	3 BIOL 110 [†]	4
GEOSC 1 [†]	3 MATH 21	3
PSU 3	1 General Education (GHW)	1.5
World Language Course Level 1	4	
	17	15.5

Second Year

Fall	Credits Spring	Credits
World Language Course Level 3	4 ENVST 200 [*]	3
B.A. Requirement Course	3 CAS 100 [†]	3
CHEM 20 [*]	3 B.A. Requirement Course	3
CHEM 21 [*]	1 BIOL 220W [*]	4
STAT 200 or 250 [‡]	3 or 4 GEOG 115 [†]	3
	14-15	16

Third Year

Fall	Credits Spring	Credits
ENGL 202A, 202B, or 202C [‡]	3 ENVST 428 [*]	3
Elective	3 PLSC 235 or 425 [*]	3
BIOL 402W ^{*†}	3 PHIL 403 [*]	3
General Education Course	3 General Education Course	3
GEOG 160 [*]	3 ENVST 395 or 496 [*]	3
INTSP 370 or ENVST 296 [*]	1 General Education (GHW)	1.5
	16	16.5

Fourth Year

Fall	Credits Spring	Credits
HIST 453 [*]	3 Arts and Humanities Course [*]	3
Elective	3 ENVST 400W	3
B.A. Requirement Course	3 B.A. Requirement Course	3
General Education Course	3 Elective	3
	General Education Course (GS) [*]	3
	12	15

Total Credits 122-123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Career Paths

Prepares you for employment as an environmental professional with government agencies, non-profit agencies, consulting firms, and in the areas of conservation, outdoor adventure and sustainability. You will also be prepared for postgraduate study in public policy, the humanities, and law school.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE ENVIRONMENTAL STUDIES PROGRAM (<https://altoona.psu.edu/academics/bachelors-degrees/environmental-studies/career-opportunities/>)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://altoona.psu.edu/academics/bachelors-degrees/environmental-studies/career-opportunities/>)

Contact

Altoona

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Environmental Studies, B.S.

Begin Campus: Any Penn State Campus

End Campus: Altoona

Program Description

This interdisciplinary major is designed to provide students with an integrated and critical knowledge of the natural environment and human interactions with it. Students will receive a strong foundation in the natural and physical sciences, but will extend their studies across several disciplines, emphasizing both public policy issues and the role of the natural environment in literature, history, and culture. The goal of the program is "ecological literacy," which means that students will develop a broad-based understanding and awareness of environments and environmental issues, and they will develop the problem-solving and technical skills to address those issues. Program requirements include interdisciplinary courses in environmental studies and a broad array of courses in biology, geology, chemistry, physics, geography, economics, political science, English, history, and philosophy. By selecting appropriate electives to supplement the "additional courses" requirement of the major, students may develop an emphasis in either a specific field (i.e., biology) or in a general area of study (natural science, social science, and humanities).

The B.S. in Environmental Studies will better prepare our graduates for graduate studies and/or employment in the sciences (e.g., ecology, geosciences, environmental sciences, and physical geography). Many graduate programs require at least one semester of calculus, chemistry, and physics. Furthermore, the requirements of additional 400-level courses in the sciences will permit students to target their undergraduate studies in a particular area of science so that they are best prepared for graduate work in their area of choice and/or employment.

What is Environmental Studies?

Environmental Studies provides a broadly-based liberal arts background for the study of environmental issues, blending the principles of the natural sciences with the intellectual traditions of the humanities and the social sciences. Emphasis is placed on experiential learning, ecological literacy, and problem-solving with a goal towards purposeful action.

MORE INFORMATION ABOUT ENVIRONMENTAL STUDIES (<https://altoona.psu.edu/academics/bachelors-degrees/environmental-studies/>)

You Might Like This Program If...

You wish to develop the analytical tools for understanding environmental issues while maintaining an emphasis on the role of socio-cultural influences in shaping human behavior towards the environment. Students benefit from working closely with faculty and peers on undergraduate research, community service, and out-of-classroom activities.

MORE INFORMATION ABOUT WHY STUDENTS CHOOSE TO STUDY ENVIRONMENTAL STUDIES (<https://altoona.psu.edu/academics/bachelors-degrees/environmental-studies/degree-options/>)

Entrance to Major

For entrance into the Environmental Studies B.S. program, students must have completed the following course: ENVST 100N, and have received a grade of C or better in the course.

Degree Requirements

For the Bachelor of Science degree in Environmental Studies, a minimum of 121 credits is required:

Requirement	Credits
General Education	45
Electives	12
Requirements for the Major	88-90

24 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GH courses; 9 credits of GN courses; 6 credits of GQ courses; 6 credits of GS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
BIOL 220W	Biology: Populations and Communities	4
CHEM 20	Environmental Chemistry	3
CHEM 21	Environmental Chemistry Laboratory	1
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
CHEM 202	Fundamentals of Organic Chemistry I	3
ECON 428	Environmental Economics	3
ENGL 180	Literature and the Natural World	3
ENVST 100N	Visions of Nature	3
ENVST 200	Research Methods in Environmental Studies	3
ENVST 400W	Senior Seminar in Environmental Studies	3
GEOG 115	Landforms of the World	3
GEOG 160	Mapping Our Changing World	3
GEOSC 1	Physical Geology	3
HIST 453	American Environmental History	3
PHIL 403	Seminar in Environmental Ethics	3
PHYS 250	Introductory Physics I	4
SOILS 101	Introductory Soil Science	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
ECON 102 or ECON 104	Introductory Microeconomic Analysis and Policy	3
MATH 110 or MATH 140	Techniques of Calculus I Calculus With Analytic Geometry I	4
PLSC 235 or PLSC 425	Environmental Politics Government and Politics of the American States	3
STAT 200 or STAT 250	Elementary Statistics Introduction to Biostatistics	3-4
Select one of the following:		3-4
BIOL 222	Genetics	
BIOL 230W	Biology: Molecules and Cells	

BIOL 240W	Biology: Function and Development of Organisms	
Select one of the following:		4
ENVST 296 & ENVST 496	Independent Studies and Independent Studies	
ENVST 395 & INTSP 370	Internship and Internship Preparation	
ENVST 496	Independent Studies	

Supporting Courses and Related Areas

Select 12 credits (at least 9 credits at the 400-level) from the three departmental lists, in consultation with an academic adviser:

a. Natural Sciences	6
b. Social Sciences	3
c. Arts and Humanities	3

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- Develop structural knowledge pertaining to an interdisciplinary problem or course theme.
- Integrate and/synthesize information from a variety of contexts or fields of knowledge.
- Apply the knowledge of physical and socio-economic environments in the analysis of multi-dimensional environmental issues.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Altoona

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Environmental Studies, B.S. at Altoona Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or ESL 15 [†]	3 ENGL 180 [†]	3
BIOL 110 [†]	4 BIOL 220W [*]	4
CHEM 20 [*]	3 MATH 22 or 40 [*]	3
CHEM 21 [*]	1 CAS 100 [†]	3
ENVST 100N ^{*†#†}	3 ECON 102 or 104 [*]	3
PSU 3	1	
General Education (GHW)	1.5	
	16.5	16

Second Year

Fall	Credits Spring	Credits
CHEM 110 [*]	3 PHYS 250 [*]	4
CHEM 111 [*]	1 General Education	3
MATH 110 or 140 [*]	4 General Education (GS) [*]	3
SOILS 101 [†]	3 BIOL 230W, 240W, or 222 [*]	3 or 4
GEOSC 1 [†]	3 General Education (GN) [*]	3
General Education (GHW) [†]	1.5	
	15.5	16-17

Third Year

Fall	Credits Spring	Credits
STAT 200 or 250 [*]	4 ENVST 200 [*]	3
CHEM 202 [*]	3 GEOG 115 [†]	3
GEOG 160 [*]	3 ENVST 428 [*]	3
ENGL 202A, 202B, or 202C [†]	3 Elective	3
General Education Course	3 PLSC 235 or 425 [*]	3
	INTSP 370 or ENVST 296 [*]	1
	16	16

Fourth Year		
Fall	Credits Spring	Credits
Arts and Humanities Course*	3 ENVST 400W*	3
HIST 453*	3 PHIL 403*	3
ENVST 395 or 496*	3 Elective	3
General Education Course	3 Elective	3
	Natural Sciences 400-level Course*	3
12		15
Total Credits 123-124		

- * Course requires a grade of C or better for the major
 ‡ Course requires a grade of C or better for General Education
 # Course is an Entrance to Major requirement
 † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

This degree prepares students for graduate studies, and/or employment in the sciences such as environmental science, conservation biology, earth science, geology, and physical geography.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE ENVIRONMENTAL STUDIES PROGRAM (<https://altoona.psu.edu/academics/bachelors-degrees/environmental-studies/career-opportunities/>)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://altoona.psu.edu/academics/bachelors-degrees/environmental-studies/career-opportunities/>)

Contact

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<https://altoona.psu.edu/person/lisa-emili-phd> (<https://altoona.psu.edu/person/lisa-emili-phd/>)

Environmental Studies, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The interdisciplinary minor in Environmental Studies gives students a broad-based introduction to the natural environment and human interactions with it. Students gain awareness and understanding of environmental issues from the perspectives of several disciplines in:

- relevant natural sciences (ecology, biology, geology, and/or environmental chemistry, for instance),
- the social sciences (environmental economics and/or public policy), and
- the arts and humanities (environmental history, ethics, and/or literature).

Core courses in environmental studies, emphasizing applied and experiential learning, serve to integrate and synthesize knowledge from the natural sciences, social sciences, and arts and humanities. The goal of the program is "ecological literacy." Students completing the minor gain sufficient awareness and understanding of environmental issues to put environmental problems in a variety of contexts and to apply pertinent skills and knowledge (from studies in both their major and the minor) in addressing those problems. The minor helps prepare students for employment in the private sector or with government agencies and environmental advocacy groups, or for postgraduate study in environmental science, public policy, the humanities, or law.

What is Environmental Studies?

Environmental Studies provides a broadly-based liberal arts background for the study of environmental issues, blending the principles of the natural sciences with the intellectual traditions of the humanities and the social sciences. Emphasis is placed on experiential learning, ecological literacy, and problem-solving with a goal towards purposeful action.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ENVST 100		3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
ENVST 200	Research Methods in Environmental Studies	3
	or ENVST 400\Senior Seminar in Environmental Studies	

Select 3 credits of the following: 3

BIOL 110	Biology: Basic Concepts and Biodiversity
BIOL 220W	Biology: Populations and Communities
CHEM 20	Environmental Chemistry
CHEM 21	Environmental Chemistry Laboratory
ECON 429	Public Finance and Fiscal Policy
ENGL 180	Literature and the Natural World
GEOC 20	Planet Earth
GEOG 115	Landforms of the World
HIST 453	American Environmental History
PHIL 403	Seminar in Environmental Ethics
STAT 250	Introduction to Biostatistics

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 9 credits (at least 6 credits at the 400-level) in consultation with an academic adviser, 3 credits in each area listed below: ¹ 9

a. Natural Sciences

BIOL 240W	Biology: Function and Development of Organisms
BIOL 417	Invertebrate Zoology
BIOL 427	Evolution
BIOL 435	Ecology of Lakes and Streams
BIOL 446	Physiological Ecology
BIOL 450	
ENVST 497	Special Topics in Environmental Studies
FOR 308	Forest Ecology
FOR/WFS 430	Conservation Biology
GEOC 303	Introduction to Environmental Geology
GEOC 340	Geomorphology
WFS 408	Mammalogy

b. Social Sciences

ANTH 40	Biocultural Evolution
ANTH 146	Indigenous North America
ANTH 152	Hunters and Gatherers
ANTH 456	
ENVST 497	Special Topics in Environmental Studies
GEOG 423Y	
GEOG 430	Human Use of Environment
PLSC 444	Government and the Economy
PLSC 490	Policy Making and Evaluation
STS 47	Wilderness, Technology, and Society

c. Arts and Humanities ²

ENGL 404	Mapping Identity, Difference, and Place
ENGL 412	Advanced Fiction Writing
ENGL 415	Advanced Nonfiction Writing
ENGL 416	Science Writing
ENGL 421	Advanced Expository Writing
ENGL 430	The American Renaissance
ENVST 497	Special Topics in Environmental Studies
HIST/STS 151	
HIST/STS 428	The Darwinian Revolution

- ENGL 400
- ENGL 401
- ENGL 483
- HIST 200
- HIST 497

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Global Language and Culture, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The minor in Global Language and Culture allows students to create an interdisciplinary program combining language study beyond the 12-credit level, an academic or internship experience abroad, and additional courses chosen to complete a thematic area of concentration. The GLC minor recognizes that students from all degree programs can benefit from developing intercultural competencies. It encourages students to

¹ Other courses may be substituted with program approval.

² When topic appropriate and with program approval:

deepen and enhance their understanding of another culture by developing advanced linguistic skills, completing a related experience abroad, and integrating both into an area of concentration of the student's choice. Students may apply toward the minor no more than nine credits from their major requirements.

You Might Like This Program If...

You are interested in a flexible, interdisciplinary minor that enhances intercultural competence and complements a wide array of Penn State programs. You want to develop the skills and gain the experience necessary to work across cultural and linguistic barriers in your chosen profession. You want to continue the study of language and culture beyond the basic level and participate in an academic or internship experience abroad.

Entrance to Minor

Applications to the minor must present a proposed plan of study that includes a clear geographic or thematic focus; this plan must be approved by the adviser for the minor.

Program Requirements

Requirement	Credits
Requirements for the Minor	18-20

Requirements for the Minor

At least 6 credits for the minor must be at the 400-level. 400-level courses may be completed either abroad or at Penn State, and may be either in English or in the target language.

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Language Requirement		
<i>Language Requirement: Requires a grade of C or better</i>		
	Select at least 6 credits beyond the 12-credit proficiency level in a single world language	6
Study Abroad Requirement		
<i>Study Abroad Requirement: Requires a grade of C or better</i>		
	Select one of the following options:	6
	a) At least 6 credits as participants in a single approved Penn State education abroad program, in a country in which the chosen language is one of the major languages spoken ¹	
	b) At least 6 credits of a single accredited internship abroad, in a country in which the chosen language is one of the major languages spoken ¹	
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
	Select at least 6 credits, or as many as needed to complete the 18 credits for the minor after the above two requirements have been met ²	6

¹ Courses taken abroad may be taught either in English (for thematically related courses) or in the target language. When taken abroad, language courses below the 12-credit level may be used to fulfill the

study abroad requirement, but will not count towards the 18 credits for the minor.

² Students must select these courses to complete a geographic or thematic concentration. The rationale for the inclusion of these courses must be described in the student's proposed plan of study, and approved by the adviser for the minor. Courses may be chosen from, but are not limited to, the fields of anthropology, art, communications, history, international studies, international business, literature, political science, or a variety of other disciplines related to international culture.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Altoona

Kathryn A. Mussett

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Career Paths

In a world in which global competency and intercultural awareness are becoming increasingly important, the Global Language and Culture minor makes students in many fields attractive to employers and enhances any number of majors, from the humanities to the sciences, business, and engineering.

Careers

Career Services supports and serves students and alumni, faculty and staff, families, and employers in all areas related to career development and preparation. We can assist in any of the following: Major and Career Exploration Career Decision-Making Preparation of Employment Documents Internship and Job Search Strategies Interview Preparation Preparing for Graduate School Developing your Professional Online Brand Presentations and Workshops.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN GLOBAL LANGUAGE AND CULTURE (<https://altoona.psu.edu/offices-divisions/center-workforce-career-development/career-services/>)

Contact

Altoona

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History, B.A. (Altoona)

Begin Campus: Any Penn State Campus

End Campus: Altoona

Program Description

This major provides a broad introduction to the history of the great civilizations of the world and specific areas of historical inquiry. Centered in one of the basic, traditional disciplines, the History major offers invaluable preparation for students interested in a career in government, international relations, law, or librarianship, as well as essential training for those interested in a professional career as an academic or public historian, archivist, or secondary school teacher. Along with the perspective on the present that a study of the past engenders, the program develops skills in research, analysis, and synthesis that have proved useful in commerce and industry. The History major combines easily with minors or even multiple majors, providing flexibility in one's career choice.

What is History?

History is an interdisciplinary field that offers a unique analytical perspective on the world. To understand history, we not only need to understand politics and war, but also the significance of cultural, religious, social, and intellectual developments. The study of history provides a breadth of knowledge and an understanding of diverse perspectives. This diversity includes the opportunity to incorporate anthropology, the scientific study of humanity, into their coursework. A history major will not only enable a student to have a better comprehension of the development of today's complex world, but will also help a student develop a range of skills that are applicable in a wide variety of careers, including education, law, museum studies, and business.

You Might Like This Program If...

- You have a passion for the past.
- You want to connect with the people and events that have shaped our world.
- You are interested in learning how to effectively analyze the past while also preparing to become a critical thinker and leader of tomorrow.

MORE INFORMATION ABOUT WHY STUDENTS CHOOSE TO STUDY HISTORY (<https://altoona.psu.edu/academics/bachelors-degrees/history/>)

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in History, a minimum of 124 credits is required:

Requirement	Credits
General Education	45
Electives	18
Bachelor of Arts Degree Requirements	24
Requirements for the Major	37

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
HIST 302W	Undergraduate Seminar	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
HIST 494 or HIST 495	Research Project Internship	4
Select two of the following three focus areas:		12
HIST 1 & HIST 2	Western Civilization I and Western Civilization II	
HIST 10 & HIST 11	World History to 1500 and World History since 1500	
HIST 20 & HIST 21	American Civilization to 1877 and American Civilization Since 1877	
Supporting Courses and Related Areas ¹		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 12 credits in history		12
Select 6 credits in non-Western history		6

¹ At least 8 credits must be at the 400-level.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in

interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits.

Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- Develop chronological thinking about the past.
- Develop historical understanding and comprehension.
- Develop interpretations of historical change and continuity over time.
- Read and summarize primary and secondary source materials.
- Evaluate and interpret primary and secondary source materials.
- Create evidence-based historical arguments (theses) based on accepted standards of methodology and practice.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Altoona

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

History, B.A. at Altoona Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or ESL 15 [‡]	3 CAS 100 [‡]	3
PSU 3	1 World Language Course Level 1	4
World Language Course Level 1	4 General Education Course	3
General Education Course (GQ) [‡]	3 History Survey [*]	3
History Survey Course [*]	3 General Education Course	3
General Education (GHW)	1.5	
	15.5	16

Second Year

Fall	Credits Spring	Credits
Elective	3 Elective	3
World Language Course Level 3	4 General Education Course (GQ) [‡]	3
General Education Course	3 General Education Course	3
Elective	3 HIST 302W [*]	3
History Survey Course [*]	3 History Survey Course [*]	3
	16	15

Third Year

Fall	Credits Spring	Credits
B.A. Course	3 B.A. Course	3
HIST Course [*]	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course	3 HIST 400-level Course [*]	3
HIST 400-level Course [*]	3 HIST Course (Non-Western) [*]	3

General Education (GHW)	1.5	
	16.5	15
Fourth Year		
Fall	Credits Spring	Credits
B.A. Course	3 B.A. Course	3
HIST 400-level Course [*]	3 HIST 494 or 495	3
HIST 494 or 495	1 HIST Course (Non-Western) [*]	3
ENGL 202B [‡]	3 Elective	3
Elective	3 General Education Course	3
Elective	3	
	16	15

Total Credits 125

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Career Paths

As a History major, you will develop your talent in research, reporting, evaluating evidence and artifacts, and gaining understanding of your own and foreign cultures. The bachelor of arts degree in History, with its emphasis on analytical and communication skills, helps prepare students for a broad spectrum of possibilities in business, sales, law, government, and museum and library careers. Our alumni have gone on to become educators, museum administrators, park rangers, and professionals in a variety of private-sector settings.

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Human Development and Family Studies, A.S. (Altoona)

Begin Campus: Altoona

End Campus: Altoona

Program Description

This major integrates practical and academic experiences to provide the student with entry-level professional competence in the human service field. The objective of the major is to offer a general education background, a knowledge base in life span and family development, and a core of professional skills that may be applied in program planning and service delivery activities. The major is offered part-time, in the evening, and through independent learning.

Adult Development and Aging Services Option

Available at the following campuses: Altoona, Brandywine, DuBois, Fayette, Mont Alto, Schuylkill, Scranton, Shenango, World Campus, York

This option is designed to prepare students for a wide variety of service roles in mental health facilities, nursing homes and other institutions for the aged, area agencies on aging, public welfare and family service agencies, women's resource centers, human relations programs, employee assistance programs and customer services and consumer relations programs in business and industry. An approved field experience in any of a wide variety of settings that serve adults, the aged, and their families, is required for this option.

Children, Youth, and Family Services Option

Available at the following campuses: Altoona, Brandywine, DuBois, Fayette, Mont Alto, Schuylkill, Scranton, Shenango, World Campus, York

This option is designed to prepare students for service roles in preschools; day care centers; hospitals; institutional and community programs for emotionally disturbed, abused, or neglected children and adolescents; as well as a variety of public welfare and family service agencies. An approved field experience in a children, youth, or family services setting is required for this option.

Early Childhood Care and Education Option

Available at the following campuses: DuBois, Fayette, Shenango, York

This option is designed to increase professional capabilities in child care training in regard to issues of quality, affordability, and accessibility of programming. The primary foci are on language, literacy, and science reasoning. In the coursework, there is a blending of theory and practice that requires experience in a group setting with young children. Courses concentrate on infants and toddlers as well as older preschoolers.

Each course has a strong parent/family communications component and stresses observation techniques appropriate for assessing and evaluating the development of young children.

What is Human Development and Family Studies?

Penn State's Human Development and Family Studies (HDFS) program prepares students for careers across a wide range of human service, healthcare, and helping professions. The HDFS degree is grounded in research-based knowledge on the psychological, biological, social, cultural, and economic influences that impact the well-being of individuals, families, and communities across the lifespan. HDFS coursework guides students to develop skills for working with and caring for diverse individuals and groups through emphasizing mindfulness, compassion, diversity, equity, advocacy and inclusion. Students take courses on infancy, childhood, and adolescent development, transitioning and thriving in adulthood, and healthy aging. Classroom experiences are supplemented by a range of engaged learning opportunities, including internships, research participation, and community partnerships through which HDFS students acquire skills preparing them for impactful careers. The program's flexible curriculum allows academic pathways and engagement experiences to be customized to align with students' career goals.

You Might Like This Program If...

- You are passionate about pursuing work focused on improving the lives and wellness of individuals, families, and communities.
- You are interested to learn about individual, family, community, and social factors influencing development as well as evidence-based practices that promote the cognitive, social, physical, and emotional well-being of children, adults, families, organizations, and communities.
- You are enthusiastic to use flexible degree requirements and integrated opportunities to pursue career exploration, experiential and engaged learning, and skill development specialized to your specific career goals.

Entrance to Major

Students must have a minimum 2.0 GPA to change to this Associate degree after admission to the University.

Degree Requirements

For the Associate in Science degree in Human Development and Family Studies, a minimum of 60 credits is required:

Requirement	Credits
General Education	21
Electives	0-3
Requirements for the Major	51-55

15 of the 21 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GWS courses; 3 credits of GS courses; 3 credits of GN courses; and 3 credits of GQ courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and->

rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
CAS 100	Effective Speech	3
ENGL 15	Rhetoric and Composition	3
HDFS 395	Internship	6
PSYCH 100	Introductory Psychology	3
<i>Prescribed Courses: Require a grade of C or better</i>		
HDFS 129	Introduction to Human Development and Family Studies	3
HDFS 301	Values and Ethics in Health and Human Development Professions	3
Additional Courses		
Select one of the following:		3
BIOL 141	Introduction to Human Physiology	
BIOL 155	Introduction to the Biology of Aging	
BISC 4	Human Body: Form and Function	
<i>Additional Courses: Require a grade of C or better</i>		
SOC 30	Sociology of the Family (SOC 30 does not require a grade of C or better)	3
or HDFS 315	Family Development	
Select one of the following:		3-4
EDPSY 101	Analysis and Interpretation of Statistical Data in Education	
STAT 100	Statistical Concepts and Reasoning	
STAT 200	Elementary Statistics	
Requirements for the Option		
Select an option		21-24

Requirements for the Option

Adult Development and Aging Services Option (21 credits)

Available at the following campuses: Altoona, Brandywine, DuBois, Fayette, Mont Alto, Schuylkill, Scranton, Shenango, World Campus, York

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
HDFS 249N	Adult Development and Aging	3
HDFS 311	Human Development and Family Studies Interventions	3
Supporting Courses and Related Areas		
Select 15 credits in consultation with the adviser from University-wide offerings that enhance competence in the option		15

Children, Youth, and Family Services Option (24 credits)

Available at the following campuses: Altoona, Brandywine, DuBois, Fayette, Mont Alto, Schuylkill, Scranton, Shenango, World Campus, York

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
HDFS 229	Infant and Child Development	3
HDFS 239	Adolescent Development	3

HDFS 311	Human Development and Family Studies Interventions	3
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Supporting Courses and Related Areas

Select 15 credits in consultation with the adviser from University-wide offerings that enhance competence in the option 15

Early Childhood Care and Education Option (24 credits)

Available at the following campuses: DuBois, Fayette, Shenango, York

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
HDFS 229	Infant and Child Development	3
HDFS 230	Overview of Curricular Practices in Early Childhood Care and Education	3
HDFS 231	Guidance in Early Childhood Care and Education	3
HDFS 232	Creativity and Play in Early Childhood Care and Education	3
HDFS 233	Emergent Language and Literacy: Development and Practice in Early Childhood Care and Educat	3
HDFS 234	Mathematics and Science Reasoning: Development and Practice in Early Childhood Care and Educat	3
HDFS 311	Human Development and Family Studies Interventions	3
HDFS 330	Observation or Experience with Children, Youth, and Families	3

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all associate degree students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 3 credits
- **Writing and Speaking (GWS):** 3 credits

Knowledge Domains

- **Arts (GA):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Note: Up to six credits of Inter-Domain courses may be used for any Knowledge Domain requirement, but when a course may be used to satisfy more than one requirement, the credits from the course can be counted only once.

Exploration

- **Any General Education course (including GHW and Inter-Domain):** 3 credits

University Degree Requirements

Cultures Requirement

3 credits of United States (US) or International (IL) cultures coursework are required and may satisfy other requirements

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 60 degree credits must be earned for a associates degree. The requirements for some programs may exceed 60 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- Understanding of the complexity of individual and family development across the lifespan in diverse contexts and in changing environments.
- Evaluate and Apply Research and Theory to Practice and Policy.
- Ability to analyze processes, policies, and contextual factors that affect the delivery of human services to individuals and families.
- Professional ethical and culturally sensitive standards of conduct.
- Knowledge and competence in helping, leadership, and administrative human service skills.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Career Paths

The Associate's Degree in HDFS provides students with a valuable foundation of skills and knowledge for pursuing entry level positions in careers focused on helping promote health and wellness across the lifespan. Many graduates of the A.S. in HDFS program also continue to pursue their B.S. in HDFS. Our A.S. degree is designed to allow for a smooth transition into the B.S. degree, after which graduates are positioned for career advancement or to work in additional areas described in the B.S. degree. HDFS Students are encouraged to customize their degree to align with their career interests.

Careers

Students graduating with their A.S. degree in HDFS pursue a range of positions in areas that include:

- Health and Human Services (e.g. youth and family services, child advocacy, health education)
- Early Childhood Development (e.g. early childhood education, early intervention specialist)
- Child and Youth Services
- Foster Care and Adoption
- Services for Older Adults
- Services for Individuals with Disabilities

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE HUMAN DEVELOPMENT AND FAMILY STUDIES PROGRAM (<https://hhd.psu.edu/undergraduate/internships-and-career-opportunities/career-areas-major/careers-human-development-and/>)

Opportunities for Graduate Studies

After completing their associate's degree, many HDFS students go on to complete their Bachelor of Science degree in HDFS. This degree opens up opportunities for students to attend graduate research or professional programs in several fields, including:

- Counseling (e.g., addiction counseling, marriage and family therapy, mental health counseling, counseling psychology, educational and vocational counseling)
- Social Work and Public Health

- Clinical Health Professions (e.g. psychiatry, pediatrics, adolescent medicine, family medicine, obstetrics and gynecology, geriatrics, occupational therapy)
- Program Administration and Management
- Special Education
- Family Law
- Public Policy and Advocacy
- Research (e.g., on lifespan human development, psychology, sociology, prevention)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://hhd.psu.edu/hdfs/human-development-and-family-studies-graduate-program/>)

Professional Resources

- Diversity, Equity and Inclusion in HDFS (<https://hhd.psu.edu/hdfs/about/diversityandequity/initiatives/>)

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<https://altoona.psu.edu/academics/associate-degrees/human-development-family-studies> (<https://altoona.psu.edu/academics/associate-degrees/human-development-family-studies/>)

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<https://dubois.psu.edu/academics/degrees/hdfs> (<https://dubois.psu.edu/academics/degrees/hdfs/>)

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<https://fayette.psu.edu/academics/associate/assoc-human-development-and-family-studies> (<https://fayette.psu.edu/academics/associate/assoc-human-development-and-family-studies/>)

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<https://montalto.psu.edu/academics/associate/associate-human-development-family-studies-degree> (<https://montalto.psu.edu/>)

[academics/associate/human-development-family-studies-degree/](https://www.york.psu.edu/academics/associate/human-development-and-family-studies-degree/)

Schuylkill

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World Campus

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-human-development-and-family-studies-associate-in-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-human-development-and-family-studies-associate-in-science-degree/>)

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<https://www.york.psu.edu/academics/associate/human-development-and-family-studies> (<https://www.york.psu.edu/academics/associate/human-development-and-family-studies/>)

Human Development and Family Studies, B.S. (Altoona)

Begin Campus: Any Penn State Campus

End Campus: Altoona

Program Description

This major is a multidisciplinary program that examines the development of individuals and families across the life span. HDFS prepares graduates for professional, managerial, or scientific roles in health and human services professions, in public and nonprofit agencies, and in business and industry, as well as for advanced professional or graduate study. Students obtain a broad background in individual and family development across the life span. Courses emphasize biological, psychological, social/cultural, and economic aspects of development as well as applied skill development. We strive for our curriculum (and the experienced and opportunities we extend to students) to foster cultural humility and highlight diverse characteristics, contexts and considerations that impact individuals, families, and communities.

Two options are available within the major:

1. Human Development and Family Science Option
2. Developmental Science for Health Professions Option

All students pursuing the HDFS B.S. are guided to complete a capstone experience customized to their interests. Capstones may include approved field experiences (internships), guided research experiences/projects, and advanced coursework selected to align with individual student interests.

Human Development and Family Science Option

Available at the following campuses: Altoona, Brandywine, DuBois, Fayette, Harrisburg, Mont Alto, Scranton, Shenango, University Park, World Campus, York

This option focuses on the acquisition and application of scientific knowledge about development and family functioning across the life span for the purposes of enhancing personal and family development. Courses emphasize:

1. understanding the biological, psychological, and social development across the life span, and the structuring and functioning of families;
2. understanding basic theoretical and methodological issues; and
3. the development of applied skills in intervention and evaluation, prevention, and in the formulation of social policy.

Students in this option often pursue internships in service settings that work with children, youth, and/or adults. Typical employment settings include preschools, daycare centers, hospital programs for children, youth, and families, institutional and community mental health programs for individuals and families, programs for abused or neglected children and adolescents, women's resource centers, human resources programs, employee assistance programs, nursing homes, area agencies on aging and other community settings for older adults, and public welfare and family service agencies. This option also provides preparation for advanced training in careers in developmental or family research,

teaching at a college or university, or for professional careers that require graduate training. Typical postgraduate pursuits of students completing this option include graduate study in human development, family studies, psychology, or sociology, or advanced professional training in psychology, law, behavioral health, counseling or social work, or other programs related to services for individuals and families.

Developmental Science for Health Professions Option

Available at the following campuses: Altoona, Brandywine, DuBois, Fayette, Mont Alto, Scranton, Shenango, University Park, York

This option is designed for students interested in focusing on human development/developmental science as a foundation to pursue health-related post graduate studies or work careers. This option guides students to acquire and apply scientific knowledge about human development (and family functioning) across the life span; emphasizing understanding biological, psychological, and social development across the life span. Additional coursework focuses on health across contexts. Students also select science foundation courses to complement their study of development across the lifespan and align with their career/post-graduate study interests. Typical postgraduate pursuits of students completing this option include graduate or professional studies in health-related areas (e.g. pediatrics, adolescent medicine, geriatrics, family medicine, psychiatry).

What is Human Development and Family Studies?

Penn State's Human Development and Family Studies (HDFS) program prepares students for careers across a wide range of human service, healthcare, and helping professions. The HDFS degree is grounded in research-based knowledge on the psychological, biological, social, cultural, and economic influences that impact the well-being of individuals, families, and communities across the lifespan. HDFS coursework guides students to develop skills for working with and caring for diverse individuals and groups through emphasizing mindfulness, compassion, diversity, equity, advocacy and inclusion. Students take courses on infancy, childhood, and adolescent development, transitioning and thriving in adulthood, and healthy aging. Classroom experiences are supplemented by a range of engaged learning opportunities, including internships, research participation, and community partnerships through which HDFS students acquire skills preparing them for impactful careers. The program's flexible curriculum allows academic pathways and engagement experiences to be customized to align with students' career goals.

You Might Like This Program If...

- You are passionate about pursuing work focused on improving the lives and wellness of individuals, families, and communities.
- You are interested to learn about individual, family, community, and social factors influencing development as well as evidence-based practices that promote the cognitive, social, physical, and emotional well-being of children, adults, families, organizations, and communities.
- You are enthusiastic to use flexible degree requirements and integrated opportunities to pursue career exploration, experiential and engaged learning, and skill development specialized to your specific career goals.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Human Development and Family Studies, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	12-18
Requirements for the Major	60-67

3-4 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 3-4 credits of GQ courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
HDFS 216	Thoughtful Communication for Navigating Human Interactions and Relationships	3
HDFS 301	Values and Ethics in Health and Human Development Professions	3
HDFS 311	Human Development and Family Studies Interventions	3
HDFS 312W	Empirical Inquiry in Human Development	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits from the following courses in Introduction to Human Development and Family Science:		3
HDFS 129	Introduction to Human Development and Family Studies	
HDFS 101N	¿Helping People:¿ Introduction to Understanding Social Problems & How to Help	
Select 6 credits from the following courses in Foundations of Lifespan Human Development:		6
HDFS 229	Infant and Child Development	

HDFS 239	Adolescent Development	
HDFS 249N	Adult Development and Aging	
Select 3 credits from the following courses in Family Foundations:		3
HDFS 315	Family Development	
HDFS 315Y	Family Development	
SOC 30	Sociology of the Family	
Select at least 3 credits from the following courses in Statistics/ Quantitative Skills:		3-4
EDPSY 101	Analysis and Interpretation of Statistical Data in Education	
HDFS 200	Quantitative Skills for Human Services	
STAT 200	Elementary Statistics	
For the Career Development and Experiential Learning Capstone, select 15 credits from one of the following pathways:		15
<i>Traditional Capstone Internship</i>		
HDFS 490	Professional Development and Preparation for Internship Experience	
HDFS 495A	Internship: Advanced Experience (9 credits)	
HDFS 495B	Internship: Advanced Project	
<i>Modified Internship (Option only available with department approval)</i>		
HDFS 490	Professional Development and Preparation for Internship Experience	
HDFS 495B	Internship: Advanced Project	
HDFS 495C	Professional Practicum in Human Services (3 credits)	
6 Additional Credits with Department Approval		
<i>Experiential Mix</i>		
HDFS 490	Professional Development and Preparation for Internship Experience	
HDFS 495A	Internship: Advanced Experience (3-6 credits)	
HDFS 495B	Internship: Advanced Project	
3-6 Credits of 300-/400-Level Career-Related Course Work (with Department Approval)		
<i>Research Emphasis</i>		
HDFS 494	Research Project (6 credits) or HDFS 494 Senior Honors Thesis or HDFS 496 Independent Studies	
3 Credits of 400-Level HDFS		
6 Additional Credits of 300-/400-Level Research Credits (e.g. HDFS 300H, HDFS 310M, HDFS 494, HDFS 494H, HDFS 496) or 300-/400- Level Career-Related Course Work (with Department Approval)		

Requirements for the Option

Requirements for the Option: Require a grade of C or better
Select an option 18-24

Requirements for the Option

Human Development and Family Science Option (18 credits)

*Available at the following campuses: Altoona, Brandywine, DuBois, Fayette,
Harrisburg, Mont Alto, Scranton, Shenango, University Park, World Campus,
York*

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits from the following courses in Health and Society:		3
BBH 407	Global Health Equity	
SOC 451	Health, Disease & Society	
Select 6 credits from the following courses in Advanced Development:		6

Select 3 credits from the following courses in Advanced
Development: 3

HDFS 405	Gender and Social Development	
HDFS 413	Developmental Problems in Adulthood	
HDFS 428	Infant Development	
HDFS 429	Advanced Child Development	
HDFS 432	Developmental Problems in Childhood and Adolescence	
HDFS 433	Developmental Transition to Adulthood	
HDFS 434	Perspectives on Aging	
HDFS 445	Development Throughout Adulthood	
HDFS 447	Issues in Gerontology	

Select 3 credits from the following courses in Advanced Family
Topics: 3

HDFS 412	Adult-Child Relationships	
HDFS 415	Program Development in Family Relationships	
HDFS 416/ SOC 411	Racial and Ethnic Diversity and the American Family	
HDFS 417	Biocultural Studies of Family Organization	
HDFS 418	Family Relationships	
HDFS 424	Family Development in an Economic Context	
HDFS 431	Family Disorganization: Stress Points in the Contemporary Family	
HDFS 469U	Family Change in the Global Economy	
HDFS 477	Analysis of Family Problems	
SOC 430	Family in Cross-Cultural Perspective	

Select 6 credits from the following courses in Professional Skills for
HDFS Careers: 6

HDFS 410	Communities and Families	
HDFS 411	The Helping Relationship	
HDFS 414	Resolving Human Development and Family Problems	
HDFS 430	Experience in Preschool Groups	
HDFS 440	Family Policy	
HDFS 455	Development and Administration of Human Services Programs	
HDFS/CMAS 465	Child Maltreatment: Prevention and Treatment	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better
Diversity and Development: Select 6 credits from HDFS at any level or
choose from approved list of University-wide offerings 6

Developmental Science for Health Professions Option (24 credits)

*Available at the following campuses: Altoona, Brandywine, DuBois, Fayette,
Harrisburg, Mont Alto, Scranton, Shenango, University Park, York*

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits from the following courses in Health and Society:		3
BBH 407	Global Health Equity	
SOC 451	Health, Disease & Society	
Select 6 credits from the following courses in Advanced Development:		6

HDFS 405	Gender and Social Development
HDFS 413	Developmental Problems in Adulthood
HDFS 428	Infant Development
HDFS 429	Advanced Child Development
HDFS 432	Developmental Problems in Childhood and Adolescence
HDFS 433	Developmental Transition to Adulthood
HDFS 434	Perspectives on Aging
HDFS 445	Development Throughout Adulthood
HDFS 447	Issues in Gerontology

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Diversity and Development: Select 3 credits from HDFS at any level or choose from approved list of University-wide offerings 3

Science and Health Foundations: Select 12 credits from approved list of University-wide offerings 12

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- Understanding of the complexity of individual and family development across the lifespan in diverse contexts and in changing environments;
- Ability to evaluate and apply theory and research to practice and policy;
- Ability to analyze processes, policies, and contextual factors that affect the delivery of human services to individuals and families;
- Professional ethical and culturally sensitive standards of conduct
- Knowledge and competence in helping, leadership, and administrative human service skills.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of

both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Undergraduate Academic Advising

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Human Development and Family Science Option: Human Development and Family Studies, B.S. at Altoona Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
HDFS 129*	3 HDFS 229, 239, or 249N*	3
ENGL 15 or 30H [‡]	3 CAS 100 [‡]	3
PSU 3	1 STAT 200 or EDPSY 101 (GQ) ^{*†}	3-4
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education (GQ) [‡]	3	
16		15-16

Second Year

Fall	Credits Spring	Credits
HDFS 229, 239, or 249N (GS) [*]	3 ENGL 202A (GWS) [‡]	3
HDFS 311*	3 HDFS 312W or 315Y*	3
HDFS 312W or 315Y*	3 Supporting Course*	3
HDFS Supporting Course ^{*#}	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
16.5		16.5

Third Year

Fall	Credits Spring	Credits
HDFS 433 or 445*	3 HDFS 301*	3
HDFS 400-level Supporting Course	3 HDFS 428 or 429*	3
HDFS 400-level Supporting Course	3 HDFS 411*	3
Other US Cultures Course	3 HDFS Supporting Course*	3
General Education Course	3 General Education Course	3
15		15

Fourth Year

Fall	Credits Spring	Credits
HDFS 401*	3 HDFS 402*	4
HDFS 414*	3 HDFS 495C*	8
HDFS 418*	3	
HDFS 455*	3	
HDFS Supporting Course or Elective	3	
15		12

Total Credits 121-122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes

- GWS, GQ, GA, GH, GS, GN and GHW are codes used to identify General Education requirements (p. 3183).
- US, IL, and US;IL are codes used to designate courses that satisfy University United States/International Cultures requirements. All students are required to take one IL and one US course before graduation. A course designated as US;IL may be used as a US or an IL, not both.
- W suffix signifies the course satisfies the University Writing Across the Curriculum requirement.

Program Notes

Students must complete a 3-credit course in "United States Cultures (US)" and a 3-credit course in "International Cultures (IL)."

Career Paths

Demand for HDFS graduates is strong because the major provides students with a valuable foundation for understanding important social trends and guides students to develop the knowledge and skills to positively impact individuals, families, and communities. HDFS Students can customize their degree to align with career interests. HDFS students specialize through minors, certificates and credit-based hands-on learning opportunities.

HDFS students complete a capstone experience customized to their interests and designed to enhance their qualifications. Capstones include approved internships, guided research experiences, or advanced courses. The HDFS department capstone program provides:

- A capstone preparation class to help students explore interests, identify opportunities, and submit professional applications - and -
- Experienced capstone coordinators to help students get the most out of the capstone experience

Careers

Many HDFS graduates go directly to the workplace based on their understanding of people, their knowledge of group dynamics, and their skills in training and in program development and evaluation. HDFS students pursue positions right out of college in:

- Health and Human Services Professions (e.g. youth and family services, child advocacy, health education)
- Early Childhood Development (e.g. early childhood education, early intervention specialists, applied behavioral analysis)
- Child and Youth Services
- Foster Care and Adoption
- Family Education and Intervention
- Services for Older Adults
- Services for Individuals with Disabilities

- Program Administration and Advocacy (e.g. volunteer coordination, program management and evaluation, human resources)

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE HUMAN DEVELOPMENT AND FAMILY STUDIES PROGRAM (<https://hhd.psu.edu/undergraduate/internships-and-career-opportunities/career-areas-major/careers-human-development-and/>)

Opportunities for Graduate Studies

A degree in HDFS is also a great foundation for individuals who are interested in pursuing advanced professional training/graduate study in:

- Counseling (e.g., addiction counseling, marriage and family therapy, mental health counseling, counseling psychology, educational and vocational counseling)
- Social Work and Public Health
- Clinical Health Professions (e.g. psychiatry, pediatrics, adolescent medicine, family medicine, obstetrics and gynecology, geriatrics, occupational therapy)
- Program Administration and Management
- Special Education
- Family Law
- Public Policy and Advocacy
- Research (e.g., on lifespan human development, psychology, sociology, prevention)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://hhd.psu.edu/hdfs/human-development-and-family-studies-graduate-program/>)

Professional Resources

- Diversity, Equity and Inclusion in HDFS (<https://hhd.psu.edu/hdfs/about/diversityandequity/initiatives/>)

Contact

Altoona

DIVISION OF EDUCATION, HUMAN DEVELOPMENT, AND SOCIAL SCIENCES

123 Hawthorn Building
3000 Ivyside Park
Altoona, PA 16601
914-949-5333
lpj100@psu.edu

<https://altoona.psu.edu/academics/bachelors-degrees/human-development-family-studies> (<https://altoona.psu.edu/academics/bachelors-degrees/human-development-family-studies/>)

Brandywine

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Media, PA 19063
610-892-1438
jmz15@psu.edu

<https://www.brandywine.psu.edu/academics/bachelors-degrees/human-development-and-family-studies> (<https://www.brandywine.psu.edu/academics/bachelors-degrees/human-development-and-family-studies/>)

DuBois

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<https://dubois.psu.edu/academics/degrees/hdfs/bachelor> (<https://dubois.psu.edu/academics/degrees/hdfs/bachelor/>)

Fayette

2201 University Drive
Lemont Furnace, PA 15456
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esb12@psu.edu

<https://fayette.psu.edu/academics/baccalaureate/human-development-and-family-studies-bs> (<https://fayette.psu.edu/academics/baccalaureate/human-development-and-family-studies-bs/>)

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<https://harrisburg.psu.edu/behavioral-sciences-education/human-development-family-studies-bs> (<https://harrisburg.psu.edu/behavioral-sciences-education/human-development-family-studies-bs/>)

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<https://montalto.psu.edu/academics/hdfs> (<https://montalto.psu.edu/academics/hdfs/>)

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<https://scranton.psu.edu/academics/degrees/bachelors/hdfs> (<https://scranton.psu.edu/academics/degrees/bachelors/hdfs/>)

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<https://shenango.psu.edu/academics/degrees/human-development-family-studies> (<https://shenango.psu.edu/academics/degrees/human-development-family-studies/>)

University Park

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<https://hhd.psu.edu/hdfs> (<https://hhd.psu.edu/hdfs/>)

World Campus

DEPARTMENT OF HUMAN DEVELOPMENT AND FAMILY STUDIES

119 Health and Human Development Building

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sac301@psu.edu

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-human-development-and-family-studies-bachelor-of-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-human-development-and-family-studies-bachelor-of-science-degree/>)

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<https://www.york.psu.edu/academics/baccalaureate/human-development-and-family-studies> (<https://www.york.psu.edu/academics/baccalaureate/human-development-and-family-studies/>)

Information Systems Auditing, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

The worlds of accounting and digital information systems, particularly in the area of information security, have become intertwined. Penn State Altoona has created a certificate program to help IT and accounting professionals acquire the skills they need for maintaining and auditing digital information systems. This Information Systems Auditing Certificate, for students enrolled in accounting, business with an accounting option, information sciences and technology, security risk analysis or other related majors integrates critical areas of knowledge of IT and accounting.

Students who complete the certificate program will develop skills useful in obtaining other professional credentials, such as the Certified Information Systems Auditor (CISA) or Certified Information Technology Professional (CITP) credentials.

What is Information Systems Auditing Certificate?

A certificate program that integrates critical areas of knowledge of Information Technology (IT) and accounting principles.

You Might Like This Program If...

- You want to acquire the skills necessary for maintaining and auditing digital information systems.
- You want to develop skills useful in obtaining other professional credentials, such as the Certified Information Systems Auditor (CISA) or Certified Information Technology Professional (CITP) credentials.

Program Requirements

To earn an undergraduate certificate in Information Systems Auditing, a minimum of 37 credits is required.

Code	Title	Credits
Prescribed Courses		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
ACCTG 403	Auditing or ACCTG 403WAuditing	3
ACCTG 432	Accounting Information Systems	3
ACCTG 471	Intermediate Financial Accounting I	3
ACCTG 472	Intermediate Financial Accounting II	3
ACCTG 483	Forensic Accounting	3
CMPSC 101	Introduction to Programming	3
IST 220	Networking and Telecommunications	3
IST 454	Computer and Cyber Forensics	3
IST 456	Information Security Management	3
SRA 111	Introduction to Security and Risk Analysis	3
SRA 221	Overview of Information Security	3

Prerequisites Required.

Program Learning Objectives

- Describe the process of IT auditing and assurance including ethical and reporting dimensions and assist established professionals in planning and executing such engagements.
- Describe and discuss the Systems Development Life Cycle (SDLC) and apply the process of IT auditing and assurance to it in order to assist in providing assurance that the (1) practices for the acquisition, development, testing and implementation of information systems, (2) processes for information systems operations, maintenance and service management, and (3) necessary leadership and organizational structures and processes are in place to meet the organization's strategies and objectives.
- Analyze risks to Information Systems (IS) at all stages of the SDLC and apply appropriate controls to reduce the risks in order to assist in providing assurance that the organization's policies, standards, procedures and controls ensure the confidentiality, integrity and availability of information assets.
- Apply financial accounting standards to financial transaction processing and reporting in order to identify where there may be errors and irregularities in the information system and be able to communicate those findings to others who may aid in investigations.

Academic Advising

Altoona

William G. Engelbret

Associate Professor of Accounting

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Altoona, PA 16601

814-949-5274

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Career Paths

Career Services supports and serves students and alumni, faculty and staff, families, and employers in all areas related to career development and preparation. We can assist in any of the following:

- Major and Career Exploration
- Career Decision-Making Preparation of Employment Documents
- Internship and Job Search Strategies
- Interview Preparation
- Preparing for Graduate School
- Developing your Professional Online Brand
- Presentations and Workshops

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A CERTIFICATE IN INFORMATION SYSTEMS AUDITING (<https://altoona.psu.edu/offices-divisions/center-workforce-career-development/career-services/>)

Contact

Altoona

DIVISION OF BUSINESS, ENGINEERING, AND INFORMATION SCIENCES AND TECHNOLOGY
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<https://altoona.psu.edu/academics/bachelors-degrees/business/program-options/accounting-option-information-systems-auditing-certificate> (<https://altoona.psu.edu/academics/bachelors-degrees/business/program-options/accounting-option-information-systems-auditing-certificate/>)

Information Systems Security, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

By earning this 17 credit certificate in Information Systems Security, the learner will gain knowledge to identify and resolve potential security problems before they become serious and costly. The successful student will be proficient in computer networking and security for both wired and wireless systems, installation and configuration of firewalls and intrusion detection and prevention, risk analysis and management, security management using policies and access control, fault tolerance, disaster recovery planning, computer forensics and investigations, cryptography, and physical security.

Program Requirements

To earn an undergraduate certificate in Information Systems Security, a minimum of 18-19 credits is required.

Code	Title	Credits
Prescribed Courses		
IST 210	Organization of Data	3
IST 220	Networking and Telecommunications	3

IST 250	Introduction to Web Design and Development	3
IST 402	Emerging Issues and Technologies	3
IST 451	Network Security	3
Select one of the following:		3-4
IST 110	Information, People and Technology	
CMPSC 203	Introduction to Spreadsheets and Databases	
CMPSC 101	Introduction to Programming	
MIS 204	Introduction to Management Information Systems	

No Prerequisites Required.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Altoona

INFORMATION SCIENCES AND TECHNOLOGY
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Information Technology, B.S. (Altoona)

Begin Campus: Any Penn State Campus

End Campus: Altoona

Program Description

This degree is a new broad based technical and theoretical degree that will prepare students to implement and use information technology to realize a variety of goals within and between all types of organizations and businesses (e.g., reliability, accessibility, efficiency, cost reduction, and revenue enhancement). The emphasis is on providing the student with the theoretical frameworks needed to use information technology

to solve problems while also providing a set of applied, real-world experiences. Students will acquire a broad set of skills across many areas of information technology, including programming and systems development, networking, databases, project management, and information security. Students will consider how the implementation of information technology in organizations affects social change and the delivery of information to the consumer. Upper-level course selections allow for specific advanced options including but not limited to application development, networking, cybersecurity, and business. Project-oriented, team-based projects that include significant writing and presentation components will be integrated throughout the curriculum.

Application Development Option

Available at the following campuses: *Abington, Altoona, Beaver, Berks, Brandywine, Lehigh Valley, Schuylkill, Scranton, York*

This option prepares students for the design and development of complex object-oriented programming and technical skills to succeed in a fast-paced development and operations environment.

Business Applications Option

Available at the following campuses: *Abington, Altoona, Beaver, Berks, Brandywine, DuBois, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Schuylkill, Scranton, York*

This option prepares students to pursue careers in Information technology solving business organizational problems with an emphasis on the systems processes and business operations integration.

Custom Information Technology Option

Available at the following campuses: *Altoona, Berks, Brandywine, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Schuylkill, Scranton, Wilkes-Barre, York*

This option provides the opportunity for students to pursue an approved information technology interdisciplinary or exploratory program of study.

Cybersecurity Option

Available at the following campuses: *Altoona, Beaver, Berks, Brandywine, Lehigh Valley, Mont Alto, New Kensington, Schuylkill, Scranton, York*

This option will provide students with the knowledge and cyber defense skills needed to critically assess and respond to modern information security threats. They will be prepared to protect information infrastructure and data from attacks and unauthorized access.

Networking Option

Available at the following campuses: *Abington, DuBois, Mont Alto*

This option prepares students to pursue careers in the design, development, and support of complex networks and networking infrastructure.

Security and Risk Analysis Option

Available at the following campuses: *Altoona, Berks, Brandywine, Lehigh Valley, Schuylkill*

This option prepares students to address the current and emerging security and risk challenges that face individuals, organizations and our nation, over a variety of domains including national/homeland security, emergency and disaster management, law and crime, and enterprise risk management.

What is Information Technology?

Information Technology offers both broad organizational problem-solving skills and in-depth knowledge in current in-demand technical skills. Using technology to leverage organizational resources and address organizational challenges are at the forefront of the B.S. degree in Information Technology. The program includes required and optional courses in cybersecurity, databases, computer programming, project management, security and risk analysis, networking, web design and development, application development, and systems analysis. This broad base of skills is ideally suited for entry-level positions in all the above content areas.

You Might Like This Program If...

- You enjoy technology and working with others to build solutions.
- You want to create high-tech solutions to organizational and societal challenges.
- You are interested in application development and programming.
- You are interested in improving computer systems and enhancing their safety for individuals and corporations.
- You want to leverage current and emerging technologies to improve business processes.

Entrance to Major

To be eligible for entrance to the B.S. in Information Technology major, students must:

- achieve a minimum cumulative grade point average of 2.00
- complete the following entrance-to-major courses with grades of C or better:
 - IST 110 or CYBER 100 or CYBER 100S
 - IST 140 or CMPSC 121 or CMPSC 131
 - IST 210
 - IST 220

Degree Requirements

For the Bachelor of Science degree in Information Technology, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	7-9
Requirements for the Major	87-89

21 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GWS courses; 6 credits of GQ courses; and 6 credits of GS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		

ETI 461	Database Management and Administration	3
IST 210	Organization of Data	3
IST 220	Networking and Telecommunications	3
IST 230	Language, Logic, and Discrete Mathematics	3
IST 242	Intermediate & Object-Oriented Application Development	3
IST 256	Programming for the Web	3
IST 260W	Introduction to Systems Analysis and Design	3
IST 302	IT Project Management	3
IST 331	Foundations of Human-Centered Design	3
IST 440W	Information Sciences and Technology Integration and Problem Solving	3
IST 495	Internship	1
SRA 111	Introduction to Security and Risk Analysis	3
SRA 221	Overview of Information Security	3
Additional Courses		
Select one of the following: 3		
ECON 102	Introductory Microeconomic Analysis and Policy	
ECON 104	Introductory Macroeconomic Analysis and Policy	
PLSC 1	American Politics: Principles, Processes and Powers	
PLSC 14	International Relations	
PSYCH 100	Introductory Psychology	
SOC 5	Social Problems	
<i>Additional Courses: Require a grade of C or better</i>		
ENGL 15	Rhetoric and Composition	3
or ENGL 30H	Honors Rhetoric and Composition	
ENGL 202C	Effective Writing: Technical Writing	3
or ENGL 202D	Effective Writing: Business Writing	
MATH 110	Techniques of Calculus I	4
or MATH 140	Calculus With Analytic Geometry I	
Select one of the following: 3		
CAS 100A	Effective Speech	
CAS 100B	Effective Speech	
CAS 100C	Effective Speech	
Select one of the following: 3		
CMPS 121	Introduction to Programming Techniques	
CMPS 131	Programming and Computation I: Fundamentals	
IST 140	Introduction to Application Development	
Select one of the following: 3		
CYBER 100	Computer Systems Literacy	
CYBER 100S	Computer Systems Literacy	
IST 110	Information, People and Technology	
Select one of the following: 4		
DS 200	Introduction to Data Sciences	
STAT 200	Elementary Statistics	
SCM 200	Introduction to Statistics for Business	
Select one of the following: ¹ 3-4		
ACCTG 211	Financial and Managerial Accounting for Decision Making	
BA 100	Introduction to Business	
ECON 102	Introductory Microeconomic Analysis and Policy ²	
ECON 104	Introductory Macroeconomic Analysis and Policy ²	

MGMT 301	Basic Management Concepts	
MKTG 301	Principles of Marketing ²	
Select one of the following: ¹ 3		
CYBER 262	Cyber-Defense Studio	
IST 226	Networking Essentials	
IST 451	Network Security	
IST 454	Computer and Cyber Forensics	
Requirements for the Option		
Select an option 18-19		

¹ These courses may not double count with other additional or option requirements.

² Course does not require a grade of C or better.

Requirements for the Option

Application Development Option (18 credits)

Available at the following campuses: Abington, Altoona, Beaver, Berks, Brandywine, Lehigh Valley, Schuylkill, Scranton, York

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 12 credits, with at least 3 credits at the 400 level, from the following: 12		
IST 261	Application Development Design Studio I	
IST 311	Object-Oriented Design and Software Applications	
IST 361	Application Development Design Studio II	
IST 411	Distributed-Object Computing	
IST 412	The Engineering of Complex Software Systems	
IST 413	Usability Engineering	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 6 credits at the 300 or 400 level in Advanced IT courses from College approved list. 6

Business Applications Option (19 credits)

Available at the following campuses: Abington, Altoona, Beaver, Berks, Brandywine, DuBois, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Schuylkill, Scranton, York

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select one of the following: ¹ 3		
FIN 301	Corporation Finance	
MGMT 301	Basic Management Concepts	
MKTG 301	Principles of Marketing	
SCM 301	Supply Chain Management	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		

Select 6 credits from ACCTG, BA, BLAW, EBF, ECON, ENTR, FIN, FINSV, HPA, IB, LER, MIS, MGMT, MKTG, RM, SCM, or STAT, including 3 credits at the 400-level. 6

Select 3 credits at the 300 or 400 level in Advanced IT Business courses from College-approved list. 3

Select 3 credits at the 300 or 400 level in Advanced IT courses from College-approved list. 3

¹ Option courses may not double count with other requirements.

Custom Information Technology Option (18 credits)

Available at the following campuses: Altoona, Berks, Brandywine, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Schuylkill, Scranton, Wilkes-Barre, York

Code	Title	Credits
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 12 credits, with at least 3 credits at the 400 level, in consultation with an adviser that follow a coherent theme in information technology.		12
Select 6 credits at the 300 or 400 level in Advanced IT courses from College-approved list.		6

Cybersecurity Option (18 credits)

Available at the following campuses: Altoona, Beaver, Berks, Brandywine, Lehigh Valley, Mont Alto, New Kensington, Schuylkill, Scranton, York

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 12 credits, with at least 3 credits at the 400 level, from the following:		12
CYBER 262	Cyber-Defense Studio	
IST 451	Network Security	
IST 454	Computer and Cyber Forensics	
IST 456	Information Security Management	
SRA 472	Integration of Privacy and Security	
Any 300 or 400 Level CYBER Course		

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 6 credits at the 300 or 400 level in Advanced IT courses from College-approved list. 6

Networking Option (18 credits)

Available at the following campuses: Abington, DuBois, Mont Alto

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 12 credits, with at least 3 credits at the 400 level, from the following:		12
CYBER 262	Cyber-Defense Studio	
IST 225	PC Hardware Basics	
IST 226	Networking Essentials	
IST 227	Network Administration	
IST 228	Advanced Network Administration	

IST 451	Network Security
IST 454	Computer and Cyber Forensics

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 6 credits at the 300 or 400 level in Advanced IT courses from College-approved list. 6

Security and Risk Analysis Option (18 credits)

Available at the following campuses: Altoona, Berks, Brandywine, Lehigh Valley, Schuylkill

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 12 credits, with at least 3 credits at the 400 level, from the following:		12
IST 432	Legal and Regulatory Environment of Information Science and Technology	
IST 452	Legal and Regulatory Environment of Privacy and Security	
IST 456	Information Security Management	
SRA 211	Threat of Terrorism and Crime	
SRA 231	Decision Theory and Analysis	
SRA 311	Risk Analysis in a Security Context	
SRA 365	Statistics for Security and Risk Analysis	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 6 credits at the 300 or 400 level in Advanced IT courses from College-approved list. 6

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Advanced IT Selection – All Options

As noted in each Suggested Academic Plan below, all options of the Information Technology, B.S. major require students to select 300 or 400 level Advanced IT courses from a College-approved list. Students in the Business Application option must select 3 credits of these Advanced IT courses. Students in all other options must select 6 credits of these Advanced IT courses. The list of Advanced IT courses that all students may choose from includes the following:

Code	Title	Credits
IST 402	Emerging Issues and Technologies	3
IST 413	Usability Engineering	3
IST 425	New Venture Creation	3
IST 431	The Information Environment	3
IST 446	An Introduction to Building Computer/Video Games	3
IST 454	Computer and Cyber Forensics	3
IST 456	Information Security Management	3
MIS 390	Foundations of Information Systems	3
MIS 404	Introduction to ERP and Business Processes	3
IST 301	Information and Organizations	3
IST 420	Fundamentals of Systems and Enterprise Integration	3
IST 421	Advanced Enterprise Integration: Technologies and Applications	3
IST 432	Legal and Regulatory Environment of Information Science and Technology	3
IST 452	Legal and Regulatory Environment of Privacy and Security	3

Information Technology, B.S. at Altoona Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If**

report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100 (GWS) [‡]	3
IST 110 or CYBER 100 ^{*#}	3 MATH 110 or 140 (GQ) [‡]	4
IST 140 ^{*#} or CMPSC 121 (GQ) ^{#‡} or CMPSC 131 ^{*#}	3 IST 220 ^{*#}	3
SRA 111 (GS) ^{*†}	3 IST 242 [*]	3
First-Year Seminar (IST 111S)	1 General Education Course (GN or GA or GH)	3
General Education Course (GN or GA or GH) or Elective	3	
	16	16

Second Year

Fall	Credits Spring	Credits
Business Selection [*]	3 IST 210 ^{*#}	3
SRA 221 [*]	3 IST 230 [*]	3
STAT 200 [‡] (GQ) or SCM 200 [‡] (GQ) or DS 200 [*]	4 IST 256 [*]	3
ECON 102/ ECON 104 or PSYCH 100/ SOC 5 or PLSC 1/PLSC 14 (GS) [†]	3 ENGL 202C or 202D (GWS) [‡]	3
Elective or General Education Course (GN/GA/GH)	3 General Education Course (GN or GA or GH)	3
	16	15

Third Year

Fall	Credits Spring	Credits Summer	Credits
IST 302 [*]	3 IST 260W [*]	3 IST 495 [*]	1
IST 331 [*]	3 Option 2 [*]	3	
Option 1 [*]	3 Networking Selection [*]	3	
General Education Course (GN or GA or GH)	3 Advanced IT Selection 1 [*]	3	

General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3
	15	15
		1

Fourth Year

Fall	Credits Spring	Credits
ETI 461 [*]	3 IST 440W [*]	3
Option 3 [*]	3 Option 4 [*]	3
General Education Course (GHW)	3 Advanced IT or Business IT Selection 2 [*]	3
Elective	3 General Education Course (GN or GA or GH)	3
	Elective	2
	12	14

Total Credits 120

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Business Selection Courses (cannot double count with other Additional or Option requirements):
 - ACCTG 211
 - BA 100
 - ECON 102
 - ECON 104
 - MGMT 301
 - MKTG 301
- Networking Selection Courses (cannot double count with other Additional or Option requirements):
 - CYBER 262
 - IST 226
 - IST 451
 - IST 454
- Option Courses:

- Application Development:
 - Select 12 credits, with at least 3 credits at the 400 level from: IST 261, IST 311, IST 361, IST 411, IST 412, IST 413
- Business Applications:
 - ACCTG 211
 - Select 3 credits from: FIN 301, MGMT 301, MKTG 301, SCM 301
 - Select 6 credits, with at least 3 credits at the 400 level from: ACCTG, BA, BLAW, EBF, ECON, ENTR, FIN, FINSV, HPA, IB, LER, MIS, MGMT, MKTG, RM, SCM, or STAT
- Cybersecurity:
 - Select 12 credits, with at least 3 credits at the 400 level from: CYBER 262, IST 451, IST 454, IST 456, SRA 472, or any 300 or 400 level CYBER course
- Security and Risk Analysis:
 - Select 12 credits, with at least 3 credits at the 400 level from: SRA 211, SRA 231, SRA 311, SRA 365, IST 432, IST 452, IST 456
- Custom:
 - Select 12 credits, with at least three (3) credits at the 400 level, in consultation with an adviser that follow a coherent theme in information technology
- Advanced IT Courses (All Options)
 - IST 402
 - IST 413
 - IST 425
 - IST 431
 - IST 446
 - IST 454
 - IST 456
 - MIS 301
 - MIS 390
 - MIS 404
 - SCM 340
 - IST 432
 - IST 456
- Advanced IT – Business Applications Option Courses
 - IST 425
 - IST 456
 - MIS 301
 - MIS 345
 - MIS 390
 - MIS 404
 - MIS 431
 - SCM 340

Career Paths

With a B.S. degree in Information Technology (IT), students will develop an understanding of core information technologies and prepare for the practical application of IT. The combination of a strong technical foundation, well-developed communication and collaborative skills, business core competencies, and specialization in an area of choice produces graduates who are well-qualified to enter the IT workforce in a position that meets their interests and abilities as well as the needs of employers in industries including consulting, business, government, defense, entertainment, and medicine.

Additional information about IT careers can be found at:

- Computer and Information Technology Occupations: Occupational Outlook Handbook: U.S. Bureau of Labor Statistics (bls.gov) (<https://www.bls.gov/ooh/computer-and-information-technology/home.htm>)
- IS Job Index – AIS – Temple University Information Systems Job Index (<https://isjobindex.com/>)

Opportunities for Graduate Studies

A baccalaureate degree in Information Technology prepares students to pursue master's degrees in programs such as information systems or information technology and obtain admission to MBA programs and law schools, among other post-graduate opportunities.

Penn State offers graduate programs related to information technology:

- Master of Science in Information Systems at Penn State Harrisburg (<https://harrisburg.psu.edu/business-administration/information-systems-ms/>)
- Graduate Education Opportunities at College of Information Sciences and Technology (<https://ist.psu.edu/prospective/graduate/>)

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<https://greaterallegheny.psu.edu/academics/degree-programs/information-technology> (<https://greaterallegheny.psu.edu/academics/degree-programs/information-technology/>)

Hazleton

204 Butler
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<https://hazleton.psu.edu/information-technology> (<https://hazleton.psu.edu/information-technology/>)

Lehigh Valley

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kmb6846@psu.edu

<https://lehighvalley.psu.edu/academics/degrees/information-sciences-and-technology> (<https://lehighvalley.psu.edu/academics/degrees/information-sciences-and-technology/>)

Mont Alto

006 Bookstore
1 Campus Drive
Mont Alto, PA 17237
717-749-6048
ebd5343@psu.edu

<https://montalto.psu.edu/academics/bachelors/information-technology> (<https://montalto.psu.edu/academics/bachelors/information-technology/>)

New Kensington

036 Theater & IST Building
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New Kensington, PA 15068
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<https://newkensington.psu.edu/4-year-information-technology> (<https://newkensington.psu.edu/4-year-information-technology/>)

Schuylkill

200 University Drive
Schuylkill Haven, PA 17972
570-385-6076
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<https://schuylkill.psu.edu/academics/bacc-degrees/information-technology> (<https://schuylkill.psu.edu/academics/bacc-degrees/information-technology/>)

Scranton

114B Dawson
120 Ridge View Drive
Dunmore, PA 18512
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dls102@psu.edu

<https://scranton.psu.edu/academics/degrees/bachelors/information-sciences-technology-degree> (<https://scranton.psu.edu/academics/degrees/bachelors/information-sciences-technology-degree/>)

Wilkes-Barre

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York

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<https://www.york.psu.edu/academics/baccalaureate/information-technology> (<https://www.york.psu.edu/academics/baccalaureate/information-technology/>)

Kinesiology, B.S. (Altoona)

Begin Campus: Any Penn State Campus

End Campus: Altoona

Program Description

Kinesiology offers a comprehensive program of study in the science of human movement and is designed for students who want to prepare for professions involving physical activity and for graduate study in related areas. The Kinesiology major options are: Applied Exercise and Health; Movement Science; and Exercise Science. All options require a culminating practicum or research experience. Relocation away from the University Park campus is generally necessary for the practicum. All options require a minimum of 120 credits for graduation. Information about the major and its options can be found at: <https://hhd.psu.edu/kines> (<https://hhd.psu.edu/kines/>).

Applied Exercise and Health Option

Available at the following campuses: University Park

This option provides applied interdisciplinary training in the foundations of the scientific understanding of exercise and health through the lifespan. Students select one of two areas of emphasis that are certification-based and practice-oriented: (a) courses and practical experiences directed toward certification by organizations such as the American College of Sports Medicine (ACSM) or the National Strength and Conditioning Association (NSCA), or (b) health and physical education; a series of courses and student teaching leading to teacher certification. The completion of the Applied Exercise and Health Option will prepare students to work in the private or corporate fitness arenas, community-based fitness organizations, and university or hospital settings, or be Pennsylvania certified in health and physical education (K-12) and secure teaching positions in public or private schools.

Movement Science Option

Available at the following campuses: Altoona, University Park

This option provides interdisciplinary scientific training in academic areas such as biomechanics, exercise physiology, movement neuroscience, psychology of physical activity, and sport history and philosophy to understand movement for prevention and diagnosis of chronic disease, rehabilitation and treatment, and/or theoretical study. Students are prepared for graduate study in many clinical fields including medicine, physical therapy, occupational therapy, physician assistant, cardiac rehabilitation, as well as a broad range of careers in biomedical and health-related fields.

Exercise Science Option

Available at the following campuses: Altoona, Berks, Harrisburg

This option is a program of study in the science of exercise. This program offers kinesiology background and applied experience in fitness assessment, exercise physiology, exercise psychology, motor skill development, nutrition, and healthy living skills. Graduates will be able to scientifically assess fitness levels of individuals. Analyzing those assessments, graduates will then be capable of designing and implementing appropriate exercise programs. Students in the Business Emphasis acquire basic business skills in accounting, marketing, management and entrepreneurial skills. Students choosing the Science Emphasis will select courses from a department list, including courses in basic science, social science, exercise and health sciences, and other related coursework, that will enhance their opportunity for graduate studies in fields related to Kinesiology and allied health, such as physical therapy, athletic training, and medicine. The completion of the Exercise Science Option will enable graduates to compete for employment in private, corporate, or community-based fitness organizations, in

hospital or university settings, and be prepared to apply for graduate programs in allied health fields.

What is Kinesiology?

Kinesiology refers to the study of human movement. This interdisciplinary field of study focuses on physical activity, movement and sport and includes specialized areas of study that include the arts, humanities, sciences and professional disciplines. These areas include biomechanics, psychology of physical activity, exercise physiology, history and philosophy of physical activity, motor development, as well as sports medicine and physical education pedagogy. This multi-disciplinary approach is useful for addressing health and wellness in a complex society.

MORE INFORMATION ABOUT KINESIOLOGY (<https://nationalacademyofkinesiology.org/what-is-kinesiology/>)

You Might Like This Program If...

You enjoy working with people, have a passion for health and wellness, and are open to approaching problems with interdisciplinary strategies. As you learn about the human body as a whole, you will also have the opportunity to understand how you can apply your knowledge and skills to develop solutions that can help others in a number of ways, whether in a rehabilitation facility, with a professional sports team, in a corporate office or in a school setting.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Kinesiology a minimum of 120 credits is required for the Applied Exercise Health option, a minimum of 120 credits is required for the Movement Science option, and a minimum of 122 credits is required for the Exercise Science option:

Requirement	Credits
General Education	45
Electives	0-16
Requirements for the Major	80-108

18-27 of the 45 credits for General Education are included in the Requirements for the Major. This includes: Applied Exercise and Health Option - 9 credits GN, 6 credits GQ, 3 credits of GH, 6 credits of GS and 3 credits of GHW; Movement Science Option - 9 credits of GN courses, 6 credits of GQ courses, 3 credits of GS courses, 3 credits of GHW courses; Exercise Science Option - 9 credits of GN courses, 6 credits of GQ courses, 3 credits of GHW courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. KINES requires students to complete 24 credits for the major

through courses taken at University Park. Courses taken at other Penn State campuses may not be counted toward this 24 credit minimum. For more information, check the Suggested Academic Plan for this major.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
BIOL 161	Human Anatomy and Physiology I - Lecture	3
BIOL 163	Human Anatomy and Physiology II - Lecture	3
KINES 100	The Cultural and Behavioral Foundations of Kinesiology	3
KINES 101	The Biophysical Foundations of Kinesiology	3
KINES 202	Functional Human Anatomy	3
KINES 295B	Kines Careers & Observation	1
KINES 321	Psychology of Movement Behavior	3
KINES 341	The Historical, Cultural, and Social Dynamics of Sport	3
KINES 345	Meaning, Ethics, and Movement	3
KINES 350	Exercise Physiology	3
KINES 360	The Neurobiology of Motor Control and Development	3
KINES 384	Biomechanics	3
NUTR 251	Introductory Principles of Nutrition	3

Additional Courses

Additional Courses: Require a grade of C or better

Select 3-4 credits from the following:		3-4
SCM 200	Introduction to Statistics for Business	
STAT 200	Elementary Statistics	
STAT 250	Introduction to Biostatistics	

Requirements for the Option

Requirements for the Option: Require a grade of C or better

Select an option	40-67
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Requirements for the Option

Applied Exercise and Health Option (60-67 credits)

Available at the following campuses: University Park

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CI 280	Introduction to Teaching English Language Learners	3
EDPSY 10	Individual Differences and Education	3
KINES 200	Muscle Training: Physiology, Programs, Techniques	3
KINES 201	Cardiorespiratory Training for Health and Performance	3
KINES 267	Fundamental Movement Skills Instruction	1

KINES 367	Games and Sports Instruction Across the Lifespan	1
KINES 368	Individual Fitness and Wellness	2
KINES 401	Applied Group Fitness Exercise Prescription and Program Design	3
KINES 456	Physical Fitness Appraisal	4
PSYCH 100	Introductory Psychology	3

Additional Courses

Additional Courses: Require a grade of C or better

MATH 26 or a higher level MATH course recommended by math placement test. Course list includes: MATH 26, MATH 40, MATH 41, MATH 110 or MATH 140	3
Select 3-5 credits from:	3-5

CHEM 101	Introductory Chemistry	
CHEM 106	Introductory and General Chemistry	
CHEM 110	Chemical Principles I	
CHEM 130	Introduction to General, Organic, and Biochemistry	
Select 3-4 credits from:		3-4
PHYS 150	Technical Physics I	
PHYS 250	Introductory Physics I	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Take the following required courses with selected emphasis area: 25-29

HPE Certification Emphasis:

KINES 366	The Process of Teaching Physical Education	
KINES 395A	Ldrshp Prac:Tchrs	
KINES 400	Adapted Physical Education	
KINES 464	Physical Education Programming and Practicum	
KINES 468W	Health Instruction in the School-Content and Method	
KINES 495A	Practicum in Student Teaching	
SPLD 400	Inclusive Special Ed Foundations: Legal, Characteristics, Collaboration, Assessment, and Management	

ACSM/NSCA Certification Emphasis:

KINES 395B	Leadership Practicum: KINES	
KINES 421	Exercise Psychology	
KINES 425W	Physical Activity in Diverse Populations or KINES 48: Scientific Basis of Exercise for Older Adults or KINES 49: Programming for Business and Agencies or KINES 49: Principles and Ethics of Coaching	
KINES 457	Exercise Prescription and Case Studies	
KINES 485	Science and Practice of Training Athletes	
KINES 495B	Field and/or Research Practicum in Kinesiology	
KINES 495E	Advanced Professional Development in Kinesiology	
Select 3 credits from approved 400-level courses:		
NUTR 407	Nutrition for Exercise and Sports	
KINES 402	Human Anatomy Cadaver Dissection	
KINES 405N	Bicycling Culture and Urban Design	
KINES 410	Physical Growth and Motor Development	
KINES 411	Introduction to Musculoskeletal Injury and Rehabilitation	
KINES 419	Disability Sport and Recreation	

KINES 422	Physical Activity Interventions
KINES 423	Psychology of Sports Injuries
KINES 424	Women and Sport
KINES 425W	Physical Activity in Diverse Populations
KINES 426	Physical Activity and Public Health
KINES 427	Developmental Sport & Exercise Psychology
KINES 428	Motivation and Emotion in Movement
KINES 429	Psychology of Sport Performance
KINES 430W	Groups in Physical Activity
KINES 431	Concussion in Athletics: Brain to Behavior
KINES 454	Women's Health and Exercise Across the Lifespan
KINES 455	Physiological Basis of Exercise as Medicine
KINES 458	Introduction to Electrocardiogram Interpretation
KINES 459	Community Engagement and Outreach in Kinesiology
KINES 460	Movement Disorders
KINES 465	Neurobiology of Sensorimotor Stroke Rehabilitation
KINES 467	The Science of Performance Enhancement
KINES 481W	Scientific Basis of Exercise for Older Adults
KINES 483	Motor Patterns of Children
KINES 493	Principles and Ethics of Coaching
KINES 493W	Principles and Ethics of Coaching
KINES 495D	Expanded Field and/or Research Practicum in Kinesiology
KINES 499	Foreign Studies

Movement Science Option (40-42 credits)*Available at the following campuses: Altoona, University Park*

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
BIOL 162	Human Anatomy and Physiology I - Laboratory	1
BIOL 164	Human Anatomy and Physiology II - Laboratory	1
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
CHEM 113	Experimental Chemistry II	1
KINES 395B	Leadership Practicum: KINES	1
KINES 495B	Field and/or Research Practicum in Kinesiology	3
PHYS 250	Introductory Physics I	4
PSYCH 100	Introductory Psychology	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
CHEM 106	Introductory and General Chemistry	3-5
or CHEM 110	Chemical Principles I	
MATH 26 or a higher level MATH course recommended by math placement test. Course list includes: MATH 26, MATH 40, MATH 41, MATH 110 or MATH 140		3
Select 12 additional credits from 400-level Kines courses except KINES 403. No more than 3 credits of KINES 496, 408 or 495D may count toward this requirement		12

Exercise Science Option (52-55 credits)*Available at the following campuses: Altoona, Berks, Harrisburg*

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
KINES 200	Muscle Training: Physiology, Programs, Techniques	3
KINES 201	Cardiorespiratory Training for Health and Performance	3
KINES 260	Research Skills in Kinesiology	3
KINES 356	Activity and Disease	3
KINES 358	Ergogenic Aids	1
KINES 456	Physical Fitness Appraisal	4
KINES 457	Exercise Prescription and Case Studies	3
KINES 495C	Exercise Science Practicum	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits from KINES 1 to KINES 99		3
MATH 22 or Satisfactory performance on the MATH placement examination – i.e., placement beyond the level of MATH 22		3
PHYS 150	Technical Physics I	3-4
or PHYS 250	Introductory Physics I	
Select one of the following:		3-5
CHEM 101	Introductory Chemistry	
CHEM 106	Introductory and General Chemistry	
CHEM 110	Chemical Principles I	
& CHEM 111	and Experimental Chemistry I	
CHEM 130	Introduction to General, Organic, and Biochemistry	

Supporting Courses and Related Areas*Supporting Courses and Related Areas: Require a grade of C or better*

Select 16 credits from one of the following emphasis area from an approved list, in consultation with adviser. At least 3 credits must be at the 400 level.

Business Emphasis

Science Emphasis

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits

- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- Students will demonstrate personal, professional, and ethical competency within the discipline of kinesiology.
- Students will be able to define fundamental processes, theories, and methods in kinesiology including the physiology, psychology, biomechanics, motor control, history, and philosophy of human movement.
- Students will be able define and demonstrate competency for planning and implementing kinesiology-related health, fitness, performance, and behavior change interventions and programs.
- Students will be able to perform assessments of physical activity and fitness.
- Students will demonstrate skills related to thinking critically, evaluating research knowledge and evidence, and analyzing quantitative data.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Exercise Science Option - Business Emphasis: Kinesiology, B.S. at Altoona Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 161 ^{**†}	3 CAS 100A or 100B ^{††}	3
ENGL 15, 30H, or ESL 15 ^{††}	3 STAT 200, 250, or SCM 200 ^{**††}	3-4
MATH 22 ^{††}	3 KINES 100 or 101 [*]	3
NUTR 251 ^{**†}	3 BIOL 163 ^{**†}	3
PSU 3	1 General Education	3
General Education Course	3	
	16	15-16

Second Year

Fall	Credits Spring	Credits
KINES 100 or 101 [*]	3 ENGL 202C or 202D [‡]	3
KINES 200 [*]	3 KINES 201 [*]	3
CHEM 101, 110 and 111, or 130 ^{**†}	3-4 KINES 202 [*]	3
PHYS 150 or 250 ^{**†}	3-4 KINES 260 [*]	3
General Education Course	3 KINES 295B [*]	1
	General Education Course	3
	15-17	16

Third Year

Fall	Credits Spring	Credits
KINES 321 [*]	3 KINES 345 [*]	3
KINES 341 [*]	3 KINES 358 [*]	1
KINES 350 [*]	3 KINES 360 [*]	3
KINES 356 [*]	3 KINES 456 [*]	4
ECON 102	3 General Education Course	3
	15	14

Fourth Year

Fall	Credits Spring	Credits
KINES 384 [*]	3 KINES 420 (or 400-level equivalent) [*]	3
KINES 457 [*]	3 KINES 1-99 [*]	3
KINES 492W [*]	3 KINES 495C [*]	4
MGMT 301 or MKTG 301	3 ACCTG 211	4
General Education Course	3 MGMT 301 or MKTG 301	3
	15	17

Total Credits 123-126

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Exercise Option - Science Emphasis: Kinesiology, B.S. at altoona campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 161 ^{*†}	3 BIOL 163 ^{*†}	3
ENGL 15, 30H, or ESL 15 ^{††}	3 CAS 100A or 100B ^{††}	3
MATH 22 ^{††}	3 STAT 200, 250, or SCM 200 ^{*††}	3-4
NUTR 251 ^{*†}	3 KINES 100 or 101 [*]	3
PSU 3	1 General Education	3
General Education Course	3	
	16	15-16

Second Year

Fall	Credits Spring	Credits
KINES 100 or 101 [*]	3 ENGL 202C or 202D [†]	3
KINES 200 [*]	3 KINES 201 [*]	3
CHEM 101, 110 <i>and</i> 111, or 130 ^{*†}	3-4 KINES 202 [*]	3
PHYS 150 or 250 ^{*†}	3-4 KINES 260 [*]	3
General Education Course	3 KINES 295B [*]	1
	General Education Course	3
	15-17	16

Third Year

Fall	Credits Spring	Credits
KINES 321 [*]	3 KINES 345 [*]	3
KINES 341 [*]	3 KINES 358 [*]	1
KINES 350 [*]	3 KINES 360 [*]	3
KINES 356 [*]	3 KINES 456 [*]	4
General Education Course	3 General Education Course	3
	15	14

Fourth Year

Fall	Credits Spring	Credits
KINES 1-99 [*]	3 KINES 420 (or 400-level equivalent) [*]	3
KINES 384 [*]	3 KINES 462W [*]	2
KINES 457 [*]	3 KINES 495C [*]	4
KINES 461W [*]	2 Emphasis Selection	3
Emphasis Selection	3 Emphasis Selection	3
Emphasis Selection	3	
	17	15

Total Credits 123-126

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Movement Science Option: Kinesiology, B.S. at Altoona Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or ESL 15 [‡]	3 BIOL 163 ^{*†}	3
BIOL 161 ^{*†}	3 BIOL 164 ^{*†}	1
BIOL 162 ^{*†}	1 KINES 100 or 101 [*]	3
MATH 26 ^{††}	3 NUTR 251 ^{*†}	3
PSU 3	1 General Education Course	3
PSYCH 100 ^{*†}	3 General Education Course	3
	14	16

Second Year

Fall	Credits Spring	Credits
BIOL 110 ^{*†}	4 CHEM 112 ^{*†}	3
CAS 100A, 100B, or 100C [‡]	3 CHEM 113 ^{*†}	1
CHEM 110 ^{*†}	3 ENGL 202A, 202B, 202C, or 202D (202A or 202D suggested) [‡]	3
CHEM 111 ^{*†}	1 KINES 202 [*]	3
KINES 100 or 101 [*]	3 KINES 295B [*]	1
General Education Course	3 General Education Course	3
	17	14

Third Year

Fall	Credits Spring	Credits
KINES 321 [*]	3 KINES 345	3
KINES 341 [*]	3 KINES 360 [*]	3
KINES 350 [*]	3 KINES 400-level Course	3
KINES 395B [*]	1 PHYS 251R or 251L ^{*†}	4
PHYS 250R or 250L ^{*†}	4 General Education Course	3
Supporting Course (suggest Grad School prerequisite)	3	
	17	16

Fourth Year

Fall	Credits Spring	Credits
KINES 384 [*]	3 KINES 495B [*]	6
KINES 425W, 439W, KINES 447W, KINES 481W, or KINES 492W	3 KINES 400-level Course	3
STAT 200, 250, or SCM 200 ^{*†}	3-4 Supporting Course (suggest grad school prerequisite)	3
KINES 400-level Course	3	
Supporting Course (suggest Graduate School prerequisite)	3	
	15-16	12

Total Credits 121-122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

A Kinesiology degree can provide many opportunities for students ranging from fulfilling careers in health and wellness to graduate research and professional studies in a wide range of biomedical, clinical and allied health fields. The hands-on learning opportunities and internships in the program allow students to build experience, gain professional skills and explore their interests to create a strong foundation for a post-graduation career or in the next step of their education.

Careers

Kinesiology students have many career options after graduation. Discussion with Kinesiology faculty, an adviser, or professionals in the field through internship experiences can provide additional insight. Many students use their Penn State Kinesiology degree in allied health and wellness fields, working with a wide range of populations in many different settings. The applied learning opportunities in our curriculum give students hands-on experience to work with children and adults to promote health and wellness. Kinesiology graduates are well-rounded and valuable employees with their strong scientific foundation that can be applied to solving problems related to human movement.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE KINESIOLOGY PROGRAM (<https://americankinesiology.org/careers-in-kinesiology/>)

Opportunities for Graduate Studies

Many Kinesiology students aim to pursue graduate or professional school after they complete their undergraduate program. Kinesiology students are often interested in graduate study in physical or occupational therapy, athletic training, physician's assistant, medical school, orthotics and prosthetics, dentistry, nursing, or chiropractic school. Students also opt to attend graduate programs in Kinesiology to advance their understanding in one of the sub-disciplines of the field. Some Kinesiology students also pursue professional degrees in public health, health education or related fields after graduation. The Kinesiology undergraduate program includes many of the prerequisite courses needed for these post-bachelor programs, providing students with a strong scientific foundation for further study.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://science.psu.edu/current-students/advising-and-student-services/prehealth-advising/>)

Professional Resources

- National Academy of Kinesiology (<https://nationalacademyofkinesiology.org>)
- American College of Sports Medicine (<https://www.acsm.org/>)
- National Strength and Conditioning Association (<https://www.nasca.com/>)
- SHAPE: Society of Health and Physical Educators (<https://www.shapeamerica.org/>)
- American Kinesiology Association (<https://americankinesiology.org/>)
- PA Department of Education (<https://www.education.pa.gov/Teachers%20-%20Administrators/Curriculum/HealthPhysicalEd/Pages/default.aspx>)
- SHAPE Equity, Diversity and Inclusion podcast (<https://www.shapeamerica.org/MemberPortal/prodev/edi-podcast.aspx>)

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<https://altoona.psu.edu/academics/bachelors-degrees/kinesiology>
(<https://altoona.psu.edu/academics/bachelors-degrees/kinesiology/>)

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<https://berks.psu.edu/academics/bs-kinesiology> (<https://berks.psu.edu/academics/bs-kinesiology/>)

Harrisburg

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<https://harrisburg.psu.edu/behavioral-sciences-education/kinesiology-bs>
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<https://hhd.psu.edu/kines/undergraduate/major-kinesiology> (<https://hhd.psu.edu/kines/undergraduate/major-kinesiology/>)

Mechanical Engineering, B.S. (Altoona)

Begin Campus: Any Penn State Campus

End Campus: Altoona

Program Description

Mechanical Engineering is one of the broadest engineering disciplines and is central in many new technological developments. Mechanical engineers create things that help improve the health, happiness and safety of our everyday lives such as biomedical devices, aircraft and cars, and ways to store renewable energies. Mechanical engineering is divided into two broad areas: mechanical systems and thermal systems. Mechanical systems include the design of mechanisms and the analysis of the strength and wear of materials. Thermal systems include methods of energy conversions, heat transfer and fluid flow.

What is Mechanical Engineering?

Mechanical engineering is the largest and broadest engineering discipline. It uses a combination of physics, chemistry, mathematics, and materials science to study mechanical, fluid, and thermal systems. Mechanical engineers are problem solvers: They use their foundational knowledge to apply scientific and engineering methods to the design, construction, and testing of products and components to ensure that they are safe, reliable, and cost effective. Mechanical engineering differs from mechanical engineering technology in that it emphasizes the math and science behind the theoretical development of engineering analysis and design process principles rather than the application of these principles. Mechanical engineers design everything from athletic equipment, medical devices, theme park rides, and personal computers to engines and power plants.

You Might Like This Program If...

You think outside the box to develop solutions to everyday problems. Mechanical engineers contribute to our health, happiness and safety, and often change the way we think about the world.

Entrance to Major

In order to be eligible for entrance to this major, students must satisfy the following requirements by the end of the semester during which the admission to major process is carried out:

- 29-55 cumulative credits (excludes transfer and AP credits)
- completed with a grade of C or better: CHEM 110, EDSGN 100, MATH 140, MATH 141, and PHYS 211
- earned a minimum cumulative grade-point average (GPA) of 2.60

* In the event that the major is under enrollment control, a higher minimum cumulative grade-point average is likely to be needed and students must be enrolled in the College of Engineering or Division of Undergraduate Studies at the time of confirming their major choice.

Degree Requirements

For the Bachelor of Science degree in Mechanical Engineering, a minimum of 131 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	113-114

27 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 9 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
IE 312	Product Design and Manufacturing Processes	3
MATH 231	Calculus of Several Variables	2
MATSE 259	Properties and Processing of Engineering Materials	3
ME 390	Academic and Career Development for Mechanical Engineers	0.5
ME 490	Professional Development for Mechanical Engineers	0.5
<i>Prescribed Courses: Require a grade of C or better</i>		
CHEM 110	Chemical Principles I	3
EDSGN 100	Cornerstone Engineering Design	3
EMCH 211	Statics	3
EMCH 212	Dynamics	3
EMCH 213	Strength of Materials	3
ENGL 202C	Effective Writing: Technical Writing	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
MATH 220	Matrices	2-3
MATH 251	Ordinary and Partial Differential Equations	4
ME 300	Engineering Thermodynamics I	3
ME 320	Fluid Flow	3
ME 330	Computational Tools	3
ME 340	Mechanical Engineering Design Methodology	3
ME 348	Circuit Analysis, Instrumentation, and Statistics	3
ME 360	Mechanical Design	3
ME 370	Vibration of Mechanical Systems	3
ME 410	Heat Transfer	3
ME 435	Mechanical Engineering Systems Lab	3
ME 450	Modeling of Dynamic Systems	3
ME 454	Mechatronics	3
PHYS 211	General Physics: Mechanics	4
PHYS 212	General Physics: Electricity and Magnetism	4
Additional Courses		
Select 1 credit of First-Year Seminar		1

CMPSC 200	Programming for Engineers with MATLAB	3
or CMPSC 201	Programming for Engineers with C++	
ME 440W	Mechanical Systems Design Project	3
or ME 441W	Thermal Systems Design Project	
Select 3 credits from the following:		3
BIOL 141	Introduction to Human Physiology	
BIOL 161	Human Anatomy and Physiology I - Lecture	
CHEM 111 & PHYS 214	Experimental Chemistry I and General Physics: Wave Motion and Quantum Physics	
CHEM 112	Chemical Principles II	
Select 3 credits from the following:		3
ECON 14	Principles of Economics	
ECON 102	Introductory Microeconomic Analysis and Policy	
ECON 104	Introductory Macroeconomic Analysis and Policy	
<i>Additional Courses: Require a grade of C or better</i>		
CAS 100A	Effective Speech	3
or CAS 100B	Effective Speech	
ENGL 15	Rhetoric and Composition	3
or ENGL 30H	Honors Rhetoric and Composition	

Supporting Courses and Related Areas

Select 3 credits in a 400-level ME Technical Elective course from department list excluding ME 410, ME 435, ME 440W, ME 441W, ME 442W, ME 443W, ME 450, ME 454, ME 490, ME 494, and ME 496		3
Select 6 credits in Engineering Technical Elective courses from department list		6
Select 3 credits in General Technical Elective courses from department list ^{1,2}		3

¹ Three rotations of Engr Co-op (ENGR 295, ENGR 395, and ENGR 495) can be used as 3 credits of GTE.

² Students who complete Basic ROTC may substitute 6 ROTC credits for 3 credits of GTE and 3 credits of GHW.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Mechanical Engineering, B.S. at Altoona Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
First-Year Seminar	1 Science Elective (see below)	3
ENGL 15 ^{‡†}	3 ECON 102 or 104 (GS)	3
EDSGN 100 ^{*#}	3 MATH 141 ^{*‡#†}	4
General Education Course (GA, GH, or GS) [†]	3 General Education Course (GA, GH, or GS) [†]	3
MATH 140 ^{*‡#†}	4 PHYS 211 ^{*#†}	4
CHEM 110 ^{*#†}	3	
	17	17

Second Year

Fall	Credits Spring	Credits
CMPSC 200	3 EMCH 212 [*]	3
CAS 100A or 100B ^{‡†}	3 EMCH 213 [*]	3
EMCH 211 [*]	3 ME 300 [*]	3
MATH 251 [*]	4 MATH 231	2
PHYS 212 ^{*†}	4 MATH 220	2
	General Education Course (GA, GH, GS) [†]	3
	17	16

Third Year

Fall	Credits Spring	Credits
IE 312	3 ME 454 [*]	3
MATSE 259	3 ENGL 202C ^{‡†}	3
ME 330 [*]	3 ME 340 [*]	3
ME 370 [*]	3 ME 360 [*]	3
ME 348 [*]	4 ME 320 [*]	3
ME 390	0.5 ME 490	0.5
	General Education Course (GHW) [†]	1.5
	16.5	17

Fourth Year

Fall	Credits Spring	Credits
Engineering Technical Elective (ETE)	3 ME 440W	3
ME 410 [*]	3 General Education Course (GA, GH, or GS) [†]	3
ME 450 [*]	3 General Education Course (GA, GH, or GS) [†]	3
Mechanical Engineering Technical Elective (METE)	3 General Technical Elective (GTE)	3
ME 315, 325, 355, 375, or EMCH 316 (Mechanical Engineering Lab)	1 ME 315, 325, 355, 375, or EMCH 316 (Mechanical Engineering Lab)	1
General Education Course (GHW) [†]	1.5 Engineering Technical Elective (ETE)	3
	14.5	16

Total Credits 131

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

College Notes:

- Science elective choices: CHEM 112, BIOL 141, or CHEM 111 **and** PHYS 214 (3 credits total)
- An Engineering Technical Elective (<https://www.me.psu.edu/students/undergraduate/curriculum-electives.aspx>) is any three credit, 400-level engineering course NOT required for the major.
- To graduate, two of the following lab courses must be taken: ME 315, ME 325, ME 355, ME 375, and EMCH 316.
- A Mechanical Engineering Technical Elective (METE) is any three# credit, 400#level ME course that is not required for the major. ME 494 or ME 496 may not be used.
- Three credits of co-op may also be used for the GTE after completion of three co-op rotations, internships, or a combination of both.
- Students must take 3 credits of United States Cultures (US) and 3 credits of International Cultures (IL) and 6 credits integrative studies (Inter-Domain or Linked) in conjunction with General Education GA, GH, GS courses courses.

Career Paths

University Park: Penn State's mechanical engineering curriculum offers many opportunities to gain hands-on experience in the profession. At the University Park campus, our experiential laboratory components and design course sequence are tailored to prepare you to enter industry or graduate school. The design component of the curriculum culminates in an industry-sponsored senior design project, in which you'll work in a multidisciplinary team to solve a real-world issue. Our laboratory course encourages higher-order thinking skills. Students explore fundamental mechanical engineering knowledge through the lens of solving real-world problems in topics such as energy and sustainability, autonomy and robotics, and machine learning.

Penn State Scranton: Penn State Scranton is one of only five campuses that offer the mechanical engineering major. The Bachelor of Science in Mechanical Engineering provides students with the necessary

training and education to become technical leaders in various industrial, commercial, consulting, and governmental organizations.

Careers

University Park: Penn State's mechanical engineering program at the University Park campus has had a long and successful history. Mechanical engineering was introduced at Penn State in 1881. Graduates from our department go on to work in a diverse range of industries for large multinational companies and small local firms. Mechanical engineers are well prepared to work as managers due to their broad backgrounds and creative problem-solving skills. Historically, our graduates regularly accept positions at Fortune 500 companies, such as Ingersoll Rand, Boeing, Toshiba-Westinghouse, General Electric, Lockheed Martin, Northrop Grumman, Dow Chemical, ExxonMobil, Procter & Gamble, United Technologies Corporation, and Johnson & Johnson.

Penn State Scranton: The mechanical engineering program at Penn State Scranton prepares you for entering the mechanical engineering industry or going on to graduate school. Mechanical engineering is called "*the mother of all engineering majors*" for a reason; it gives the student exposure to many different disciplines. Mechanical engineering graduates get jobs in many different types of industries both locally, nationally, and globally. Examples of career opportunities for mechanical engineers are:

- design engineers
- research engineers
- biomedical equipment
- analyst
- entrepreneur
- test engineer
- rocket engineer
- project manager
- sales engineer

According to the Bureau of Labor Statistics mechanical engineers earn an average starting salary of \$70,000 and mid-career salary of \$100,000.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE MECHANICAL ENGINEERING PROGRAM (<https://www.me.psu.edu/students/undergraduate/what-is-an-engineer.aspx#MechanicalENGINEER>)

Opportunities for Graduate Studies

University Park: If you want to work with renowned faculty, scientists, and engineers, the Department of Mechanical Engineering located at the University Park campus is a great place for you. We are one of the nation's largest engineering departments with more than 60 full-time faculty, numerous research staff, visiting faculty, scientists, and more than 300 graduate students. Research funding comes from industry and government sources, including the Department of Energy, the National Science Foundation, the Army, the Air Force, and NASA. Our graduates are known for their ability to find high-level positions in national research centers and laboratories as well as postdoctoral and tenure-track positions in top-tier research universities.

Penn State Scranton: Mechanical Engineering graduates of Penn State Scranton campus are eligible to continue for a master's degree at many US colleges and universities.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.me.psu.edu/research/>)

Professional Resources

- American Society of Mechanical Engineers (ASME) (<https://sites.psu.edu/asmeuniversitypark/>)
- Professional Licensure/Certification Disclosures by State (<https://app.powerbi.com/view/?r=eyJrJoiNjAxYmU1N2MtNzRmZC00NjRmLWJlMzAtYmQ1NDliYjU1MjUzliwidCl6IjdjZjQ4ZDQ1LTnkZGltNDM4O S1hOWMxLWMxMTU1MjZlYjUyZSIsImMiOjF9&>)

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Multidisciplinary Studies, A.A. (Altoona)

Begin Campus: Altoona

End Campus: Altoona

Program Description

The objectives of the Multidisciplinary Studies major are to broaden the student's understanding, interests, and skills; to help the student become a more responsible, productive member of the family and community; and to offer a degree program with sufficient electives to permit some specialization according to the student's interests or career plans. Multidisciplinary Studies is a complete two-year degree major. However, graduates who later seek admission to baccalaureate degree majors may apply baccalaureate credits toward the new degree.

In addition to a wide variety of baccalaureate majors offered at University Park campus, graduates of the Multidisciplinary Studies major may qualify for admission to the baccalaureate degree majors in Behavioral Sciences, Elementary Education, Humanities, or Public Policy offered at Penn State Harrisburg. Or they may qualify for any of a large number of baccalaureate degree majors offered by Penn State Erie, The Behrend College, in business, the liberal arts, and sciences.

Entrance to Major

Students must have a minimum 2.0 GPA to change to this Associate degree after admission to the University.

Degree Requirements

For the Associate in Arts degree in Multidisciplinary Studies, a minimum of 60 credits is required:

Requirement	Credits
General Education	21
Electives	15
Requirements for the Major	30

6 of the 21 credits for General Education are included in the Requirements for the Major. This includes 6 credits of General Education GWS courses.

Requirements for the Major

The required credits of General Education and Requirements for the Major must be baccalaureate-level courses. For students intending to seek admission to a baccalaureate program upon graduation, it is recommended that most, if not all, of the courses be at the baccalaureate level. For those students who will seek a bachelor of arts degree upon graduation from Multidisciplinary Studies, it is strongly recommended that a world language be taken since admission to a bachelor of arts program in the College of the Liberal Arts requires one college-level course, or the equivalent, in a world language.

Courses that will satisfy the arts, humanities, social and behavioral sciences, natural sciences, and quantification requirements are defined on the Multidisciplinary Studies checklist, which may be obtained from the College of the Liberal Arts associate dean for undergraduate studies at the University Park campus or from any Multidisciplinary Studies representative at other locations.

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CAS 100	Effective Speech	3
ENGL 15	Rhetoric and Composition	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select one of the following:		3
ENGL 202A	Effective Writing: Writing in the Social Sciences	
ENGL 202B	Effective Writing: Writing in the Humanities	

ENGL 202C	Effective Writing: Technical Writing	
ENGL 202D	Effective Writing: Business Writing	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 3 credits in any course designated as arts		3
Select 3 credits in any course designated as humanities		3
Select 3 credits in any course designated as social and behavioral sciences		3
Select 3 credits in any course designated as physical, biological, or earth sciences		3
Select 9 credits in any one of the following areas: arts, humanities, social and behavioral sciences, natural sciences and quantification, and world language skills ¹		9

¹ If world language courses are chosen, it is recommended that these courses be in one world language sequence.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all associate degree students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 3 credits
- **Writing and Speaking (GWS):** 3 credits

Knowledge Domains

- **Arts (GA):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Note: Up to six credits of Inter-Domain courses may be used for any Knowledge Domain requirement, but when a course may be used to satisfy more than one requirement, the credits from the course can be counted only once.

Exploration

- **Any General Education course (including GHW and Inter-Domain):** 3 credits

University Degree Requirements

Cultures Requirement

3 credits of United States (US) or International (IL) cultures coursework are required and may satisfy other requirements

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 60 degree credits must be earned for a associates degree. The requirements for some programs may exceed 60 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Application:** Students will be able to apply empirical or creative process specific to their fields of specialization.
- **Communication:** Students will be able to communicate clearly and persuasively the integration of their learning of multiple disciplines in a degree program that reflects their theme.
- **Cultural Competence:** Students will be able to engage meaningfully and respectfully with others who have different perspectives or world views.
- **Professional Identity:** Students will be able to synthesize multiple disciplinary perspectives into an intellectual or professional identity.

Academic Advising

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Multidisciplinary Studies, A.A. at Altoona Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [‡]	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C [‡]	3
PSU 3	1 General Education Course	3
General Education (GQ) [‡]	3 General Education Course	3
General Education Course	3 Area of Emphasis Course for the Major [*]	3
Social and Behavioral Science for the Major [*]	3 Elective	3
Elective	3	
	16	15

Second Year

Fall	Credits Spring	Credits
Arts Course for the Major [*]	3 Area of Emphasis Course for the Major [*]	3
Physical, Biological or Earth Sciences Course for the Major [*]	3 Humanities Course for the Major [*]	3
Area of Emphasis Course for the Major [*]	3 ENGL 202A, 202B, 202C, or 202D [‡]	3
Elective: Writing Across the Curriculum Requirement	3 General Education Course	3
Elective	3 Elective	3
	15	15

Total Credits 61

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Additional Notes

The associate degree in letters, arts, and sciences (2 LAS) is a degree which allows learners to experience a variety of academic disciplines as well as prepare for continued studies in a bachelor degree program.

Please consult with your adviser if you have a particular bachelor degree in mind. Your adviser can help build a plan to help you meet any admission or course prerequisite requirements for the bachelor degree.

Students must complete one course with each of the following designations: W: Writing intensive; US and IL for International competency. This require can be met through General Education or Related courses.

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Multidisciplinary Studies, B.A. (Altoona)

Begin Campus: Any Penn State Campus

End Campus: Altoona

Program Description

Multidisciplinary Studies is a multi-disciplinary, theme-oriented, and student-designed major leading to a bachelor of arts degree. The major consists of 36 credits, divided into two sections. The core (12 credits) consists of 3 credits each in the following: research methods/projects; communication skills; theory/application; and critical analysis. The additional courses (24 credits) consist of courses directed toward the student's theme, 15 credits of which must be at the 400 level.

Early Admission Program for Professional Schools

If a student is accepted and enrolled as a degree candidate in a professional postgraduate degree program requiring three years or more to complete (such as medical school, dental school, law school, theological seminary, etc.) and if that student completes 94 undergraduate credits at Penn State including General Education, B.A. requirements, and the Multidisciplinary Studies 12-credit core requirements, that student may use up to 30 credits from the professional school to complete the B.A. Multidisciplinary Studies.

It must be emphasized that only top students are accepted into professional school programs on such an early admission basis and that not every professional school has such a policy. Students must have enrolled in Multidisciplinary Studies prior to attending the professional school to request graduation in Multidisciplinary Studies.

What is Multidisciplinary Studies?

You can customize a Bachelor's Degree in Multidisciplinary Studies to fit your area of interest. The 120-credit program allows you to focus on developing your skills in communication and analysis along with your leadership abilities. You will work closely with your adviser to design a program that creates intellectual depth in an area of study that is unique to your interests, but also aligns with the theoretical foundation of a liberal arts degree. The goal of the Bachelor's degree in Multidisciplinary Studies is to provide a broad education that introduces methods of analysis used in the liberal arts disciplines. In addition, it can also prepare you to address the complex social, cultural, ethical, and organizational issues you may face in leadership positions.

You Might Like This Program If...

You have not earned an undergraduate degree, you wish to complete a degree or you wish to customize a degree to fit your career goals.

Entrance To Major

In order to be eligible for entrance to the major, the student must submit a proposal. In consultation with a Multidisciplinary Studies adviser, the student formulates a proposal designing a program that investigates a theme from the viewpoint of at least three different subject areas. Students may not duplicate existing majors from any academic area. An important standard for entrance to the Multidisciplinary Studies major is the student's ability to design a program with academic integrity worthy of a bachelor of arts degree.

Degree Requirements

For the Bachelor of Arts degree in Multidisciplinary Studies, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	15
Bachelor of Arts Degree Requirements	24
Requirements for the Major	36

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

Courses must be selected in consultation with an adviser.

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 24 credits from University-wide offerings to include:		24
12 credits at the 400 level representing at least three different subject areas		
3 credit 400-level capstone course		
A minimum 9 credits from the humanities and social sciences		
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 3 credits in research methods/projects from courses that involve research methodology or that focus on a research project		3
Select 3 credits in communication skills from courses that focus on expression including those in verbal, symbolic, and written skills		3
Select 3 credits in theory/application from courses that focus on theory, principle, central concepts, or fundamental issues		3
Select 3 credits in critical analysis from courses that focus on evaluation, synthesis, and analysis		3

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- Students should develop the ability to analyze data and draw appropriate conclusions.
- Students should develop the ability to conduct appropriate academic research.
- Students should develop the ability to express ideas effectively and efficiently orally and in writing.
- Students should develop the ability to understand theories and to apply them to specific academic and real-world situations.
- Students should develop the ability to recognize and understand interdisciplinary influences and connections.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Multidisciplinary Studies, B.A. at Altoona Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
ENGL 15 or 30H (GWS) [†]	3	CAS 100 (GWS) [‡]	3
PSU 3	1	Elective	3
Quantification (GQ) [‡]	3	Arts (GA)	3
Humanities (GH)	3	Natural Sciences (GN)	3
Natural Sciences (GN)	3	Social/Behavioral Sciences (GS)	3

Health and Physical Activity (GHW)	1.5	Health and Physical Activity (GHW)	1.5
Elective	3		
17.5		16.5	

Second Year

Fall	Credits	Spring	Credits
Quantification (GQ) [‡]	3	Natural Sciences (GN)	3
Arts (GA)	3	B.A. World Language Course	4
B.A. World Language Course	4	Letters, Arts, and Sciences Additional Selection or Core Course*	3
Social/Behavioral Sciences (GS)	3	B.A. Knowledge Domain Course	3
		Humanities (GH)	3
13		16	

Third Year

Fall	Credits	Spring	Credits
Letter, Arts, and Sciences Additional Selection or Core Course*	3	Letter, Arts, and Sciences Additional Selection or Core Course*	3
Letters, Arts, and Sciences 400-level Course*	3	Letter, Arts, and Sciences 400-level Course*	3
B.A. Knowledge Domain Course or Elective	3	B.A. World Cultures Course	3
B.A. World Language Course	4	B.A. Knowledge Domain Course	3
ENGL 202 (GWS) [‡]	3	Elective	3
16		15	

Fourth Year

Fall	Credits	Spring	Credits
Letter, Arts, and Sciences Additional Selection or Core Course*	6	Letter, Arts, and Sciences 400-level Course (may be capstone)*	3
Letter, Arts, and Sciences 400-level Course (may be capstone)*	6	Letter, Arts, and Sciences Additional Selection or Core Course*	6
Elective	3	Elective	3
15		12	

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain)

requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Advising Notes:

For more information and resources on the Multidisciplinary Studies degree program, please visit the following site: <https://altoona.psu.edu/academics/bachelors-degrees/multidisciplinary-studies/resources-current-students> (<https://altoona.psu.edu/academics/bachelors-degrees/multidisciplinary-studies/resources-current-students/>)

Career Paths

- Government agencies
- For-profit organizations
- Non-profit organizations
- Education
- Health care
- Business
- Human resources

Contact

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Misciagna Family Center for Performing Arts 129
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<https://montalto.psu.edu/academics/bachelors/letters-arts-sciences-degree> (<https://montalto.psu.edu/academics/bachelors/letters-arts-sciences-degree/>)

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(<https://shenango.psu.edu/academics/degrees/multidisciplinary-studies/>)

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World Campus

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blm26@psu.edu

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-multidisciplinary-studies-bachelor-of-arts-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-multidisciplinary-studies-bachelor-of-arts-degree/>)

Psychology, B.A. (Altoona)

Begin Campus: Any Penn State Campus

End Campus: Altoona

Program Description

The Psychology major will combine the knowledge, skills, and values of psychology with a liberal arts foundation. Students should:

- develop a knowledge base consisting of concepts, theory, empirical findings, and trends within psychology;
- understand and apply basic research methods in psychology;
- use critical thinking and the scientific approach to solve problems related to behavior and mental processes;
- apply psychological principles to personal and social issues;
- and be able to understand the gender, sexual orientation, race, ethnicity, culture, and class issues in psychological theory, research, and practice.

Students should also develop information and computer competence, communication skills, and develop realistic ideas about how to implement their psychology education in occupational pursuits in a variety of settings. The major may lead to either a Bachelor of Arts or a Bachelor of Science degree. The B.A. degree incorporates a broad exposure to the many facets of the field of psychology, in addition to the B.A. requirements. The B.S. degree provides the same exposure to the field of psychology and adds options in Science and Business to prepare students for more specific career directions. Students in both degree programs may also prepare for graduate school; research experience with faculty members is encouraged for such students.

What is Psychology?

Psychology is the scientific study of thought, behavior, and experience. Many people associate psychology with psychological therapy and the practice of clinical psychology. There are also many other important areas of scientific psychology, such as cognitive, developmental, industrial/organizational, and social psychology. What these subfields of psychology have in common is the use of the scientific method to understand human behavior and apply that understanding to the development of theory and practice. Psychologists are increasingly making use of neuroscience methods and theories to understand psychological phenomena. As a profession, psychology is related to fields such as health, education, marketing, human resources, social work, and more. The principles of psychology are relevant to almost all areas of human endeavor, and the career paths of psychology students reflect this wealth of possibilities.

You Might Like This Program If...

You are interested in people and in learning to use science to better understand them. As a major, you'll have opportunities to do research with faculty and to work in career-relevant settings.

MORE INFORMATION ABOUT PSYCHOLOGY (<https://altoona.psu.edu/academics/bachelors-degrees/psychology/>)

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Psychology, a minimum of 124 credits is required:

Requirement	Credits
General Education	45
Electives	14-18
Bachelor of Arts Degree Requirements	24
Requirements for the Major	41

0-4 of the 45 credits for General Education are included in the Requirements for the Major. This includes 0-4 credits of General Education GQ courses.

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified

by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
PSYCH 100	Introductory Psychology	3
PSYCH 301W	Basic Research Methods in Psychology	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
PSYCH 200	Elementary Statistics in Psychology	4
or STAT 200	Elementary Statistics	
Select 18 credits of the following, with a minimum of 3 credits from each of the following six categories: ¹		18
<i>Learning and Cognition</i>		
PSYCH 256	Introduction to Cognitive Psychology	
PSYCH 261	Introduction to Psychology of Learning	
PSYCH 268	Animal Minds	
PSYCH 426	Language and Thought	
PSYCH 427	Language Acquisition	
PSYCH 452	Learning and Memory	
PSYCH 456	Advanced Cognitive Psychology	
PSYCH 457	Psychology of Language	
PSYCH 458	Visual Cognition	
PSYCH 459		
PSYCH 461	Advanced Conditioning and Learning	
<i>Social and Personality Psychology</i>		
PSYCH 221	Introduction to Social Psychology	
PSYCH 231	Introduction to the Psychology of Gender	
PSYCH 232	Cross-Cultural Psychology	
PSYCH 238	Introduction to Personality Psychology	
PSYCH 419	Psychology and a Sustainable World	
PSYCH 420	Advanced Social Psychology	
PSYCH 421	Self and Social Judgment	
PSYCH 423	Social Psychology of Interpersonal/Intergroup Relationships	
PSYCH 424	Applied Social Psychology	
PSYCH 432	Multicultural Psychology in America	
PSYCH 438	Personality Theory	
PSYCH 479	The Psychology of Gender	
<i>Biological Bases of Behavior</i>		
PSYCH 253	Introduction to Psychology of Perception	
PSYCH 260	Neurological Bases of Human Behavior	
PSYCH 269	Evolutionary Psychology	
PSYCH 441	Health Psychology	
PSYCH 460	Comparative Psychology	
PSYCH 462	Physiological Psychology	
PSYCH 464	Behavior Genetics	
PSYCH 475	Psychology of Fear and Stress	
PSYCH 478	Clinical Neuropsychology	
<i>Developmental Psychology</i>		
PSYCH 212	Introduction to Developmental Psychology	
PSYCH 410	Child Development	

PSYCH 412	Adolescence	
PSYCH 413	Cognitive Development	
PSYCH 414	Social and Personality Development	
PSYCH 415	Topics in Developmental Psychology	
PSYCH 416/ HDFS 445	Development Throughout Adulthood	
PSYCH 474	Psychological Intervention in Childhood	
<i>Applied and Clinical Psychology</i>		
PSYCH 243	Introduction to Well-being and Positive Psychology	
PSYCH 244	Introduction to the Psychology of Human Factors Engineering	
PSYCH 270	Introduction to Abnormal Psychology	
PSYCH 281	Introduction to Industrial-Organizational Psychology	
PSYCH 370	Psychology of the Differently-Abled	
PSYCH 404	Principles of Measurement	
PSYCH 408	Program Evaluation	
PSYCH 443	Treatment and Education in Developmental Disabilities	
PSYCH 444	Engineering Psychology	
PSYCH 445	Forensic Psychology	
PSYCH 470	Abnormal Psychology	
PSYCH 471	Psychology of Adjustment and Social Relationships	
PSYCH 473	Behavior Modification	
PSYCH 476	Child Psychopathology	
PSYCH 477	Mental Health Practicum with Children	
PSYCH 481	Introduction to Clinical Psychology	
PSYCH 482	Selection and Assessment in Organizations	
PSYCH 484	Work Attitudes and Motivation	
PSYCH 485	Leadership in Work Settings	
<i>Capstone Experience</i>		
PSYCH 439	History and Systems of Psychology	
PSYCH 490	Senior Seminar in Psychology	
PSYCH 493	Senior Thesis	
PSYCH 494	Research Projects	
PSYCH 495	Internship	
PSYCH 496	Independent Studies	
Select 12 credits of additional Psychology courses from any offered for a total of 30 credits of Psychology courses beyond PSYCH 100 and PSYCH 301W ¹		12

¹ At least 15 of these 30 Additional Courses credits must be at the 400-level.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education

Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- **Knowledge Base in Psychology:** Students should demonstrate fundamental knowledge and comprehension of the major concepts, theoretical perspectives, historical trends, and empirical findings to discuss how psychological principles apply to behavioral problems. Students completing Foundation courses should demonstrate breadth of their knowledge and application of psychological ideas to simple problems; students completing a baccalaureate degree should show depth in their knowledge and application of psychological concepts and frameworks to problems of greater complexity.
 - Describe key concepts, principles, and overarching themes in psychology
 - Develop a working knowledge of psychology's content domains
 - Describe applications of psychology
- **Scientific Inquiry and Critical Thinking:** The skills in this domain involve the development of scientific reasoning and problem solving, including effective research methods. Students completing Foundation courses should learn basic skills and concepts in interpreting behavior, studying research, and applying research design principles to drawing conclusions about psychological phenomena; students completing a baccalaureate degree should focus on theory use as well as designing and executing research plans.
 - Use scientific reasoning to interpret psychological phenomena
 - Demonstrate psychology information literacy
 - Engage in innovative and integrative thinking and problem solving
 - Interpret, design, and conduct basic psychological research
 - Incorporate sociocultural factors in scientific inquiry

- **Ethical and Social Responsibility in a Diverse World:** The skills in this domain involve the development of ethically and socially responsible behaviors for professional and personal settings in a landscape that involves increasing diversity. Students completing Foundation courses should become familiar with the formal regulations that govern professional ethics in psychology and begin to embrace the values that will contribute to positive outcomes in work settings and in building a society responsive to multicultural and global concerns. Students completing a baccalaureate degree should have more direct opportunities to demonstrate adherence to professional values that will help them optimize their contributions and work effectively, even with those who don't share their heritage and traditions. This domain also promotes the adoption of personal and professional values that can strengthen community relationships and contributions.

- Apply ethical standards to evaluate psychological science and practice
- Build and enhance interpersonal relationships
- Adopt values that build community at local, national, and global levels

- **Communication:** Students should demonstrate competence in writing, oral, and interpersonal communication skills. Students completing Foundation courses should write a cogent scientific argument, present information using a scientific approach, engage in discussion of psychological concepts, explain the ideas of others, and express their own ideas with clarity. Students completing a baccalaureate degree should produce a research study or other psychological project; explain scientific results, and present information to a professional audience. They should also develop flexible interpersonal approaches that optimize information exchange and relationship development.

- Demonstrate effective writing for different purposes
- Exhibit effective presentation skills for different purposes
- Interact effectively with others

- **Professional Development:** The emphasis in this goal is on application of psychology-specific content and skills, effective self-reflection, project-management skills, teamwork skills, and career preparation. Foundation outcomes concentrate on the development of work habits and ethics to succeed in academic settings. The skills in this goal at the Baccalaureate level refer to abilities that sharpen student readiness for post-baccalaureate employment, graduate school, or professional school. These skills can be developed and refined both in traditional academic settings and extracurricular involvement. In addition, career professionals can be enlisted to support occupational planning and pursuit. This emerging emphasis should not be construed as obligating psychology programs to obtain employment for their graduates, but instead encourages programs to optimize the competitiveness of their graduates for securing places in the workforce.

- Apply psychological content and skills to career goals
- Exhibit self-efficacy and self-regulation
- Refine project-management skills
- Enhance teamwork capacity
- Develop meaningful professional direction for life after graduation

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of

both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Psychology, B.A. at Altoona Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSYCH 100*	3 PSYCH 200-Level- Category Selection*	3
ENGL 15 or 30H [†]	3 CAS 100 [‡]	3
PSU 3	1 General Education Course (GQ) [‡]	3
General Education Course	3 General Education Course	3
B.A. Requirement Course	3 B.A. Requirement Course (World Language Level 2 recommended)	3 or 4
B.A. Requirement (World Language Level 1 recommended)	3 or 4	
	16-17	15-16

Second Year

Fall	Credits Spring	Credits
PSYCH 200-Level- Category Selection*	3 PSYCH 200-level Course	3
STAT 200 [‡]	4 PSYCH 301W	4
General Education Course	3 General Education Course	3
Elective	3 General Education Course	3
B.A. Requirement Course (World Language Level 3 recommended)	3 or 4 B.A. Requirement Course	3
	16-17	16

Third Year

Fall	Credits Spring	Credits
PSYCH 200-level Course	3 PSYCH 200-Level- Category Selection	3
PSYCH 400-level Course	3 PSYCH 400-Level- Category Selection*	3
General Education Course	3 B.A. Requirement Course	3
General Education Course	3 General Education Course	3
ENGL 202A [‡]	3 General Education Course	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
PSYCH 400-level Course	3 PSYCH Capstone	3
B.A. Requirement Course	3 PSYCH 400-Level Course	3

General Education Course	3 B.A. Requirement Course	3
Elective	3 Elective	3
Elective	3 Elective	3
Elective (if needed)	0-3	
15-18		15

Total Credits 123-129

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Career Paths

Graduates of our program enter the workforce or pursue additional education in a variety of programs, including both Master's and Ph.D. programs in experimental, counseling, school, and clinical psychology.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE PSYCHOLOGY PROGRAM (<https://altoona.psu.edu/academics/bachelors-degrees/psychology/handbook/>)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://altoona.psu.edu/academics/bachelors-degrees/psychology/handbook/>)

Professional Resources

- American Psychology Association (<https://www.apa.org>)
- Association for Psychological Science (<https://www.psychologicalscience.org>)
- Psi Chi (<https://www.psichi.org>)

Contact

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lms42@psu.edu

<https://hazleton.psu.edu/psychology-degrees> (<https://hazleton.psu.edu/psychology-degrees/>)

Lehigh Valley

2809 Saucon Valley Road
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<https://lehighvalley.psu.edu/academics/degrees/psychology> (<https://lehighvalley.psu.edu/academics/degrees/psychology/>)

Mont Alto

112 Wiestling Hall
Mont Alto, PA 17237
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<https://montalto.psu.edu/academics/bachelors/psychology-degree> (<https://montalto.psu.edu/academics/bachelors/psychology-degree/>)

New Kensington

3550 Seventh Street Rd.
New Kensington, PA 15068
724-334-6735
rjh27@psu.edu

<https://newkensington.psu.edu/academics/4-year-psychology/ba-degree-information> (<https://newkensington.psu.edu/academics/4-year-psychology/ba-degree-information/>)

Schuylkill

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A201C 200 University Drive
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<https://schuylkill.psu.edu/academics/bacc-degrees/psychology> (<https://schuylkill.psu.edu/academics/bacc-degrees/psychology/>)

Scranton

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<https://scranton.psu.edu/academics/degrees/bachelors/psychology-degree> (<https://scranton.psu.edu/academics/degrees/bachelors/psychology-degree/>)

York

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<https://www.york.psu.edu/academics/baccalaureate/psychology>
(<https://www.york.psu.edu/academics/baccalaureate/psychology/>)

Psychology, B.S. (Altoona)

Begin Campus: Any Penn State Campus

End Campus: Altoona

Program Description

The Psychology major will combine the knowledge, skills, and values of psychology with a liberal arts foundation. Students should:

- develop a knowledge base consisting of concepts, theory, empirical findings, and trends within psychology;
- understand and apply basic research methods in psychology;
- use critical thinking and the scientific approach to solve problems related to behavior and mental processes;
- apply psychological principles to personal and social issues;
- and be able to understand the gender, sexual orientation, race, ethnicity, culture, and class issues in psychological theory, research, and practice.

Students should also develop information and computer competence, communication skills, and develop realistic ideas about how to implement their psychology education in occupational pursuits in a variety of settings. The major may lead to either a Bachelor of Arts or a Bachelor of Science degree. The B.A. degree incorporates a broad exposure to the many facets of the field of psychology, in addition to the B.A. requirements. The B.S. degree provides the same exposure to the field of psychology and adds options in Science and Business to prepare students for more specific career directions. Students in both degree programs may also prepare for graduate school; research experience with faculty members is encouraged for such students.

What is Psychology?

Psychology is the scientific study of thought, behavior, and experience. Many people associate psychology with psychological therapy and the practice of clinical psychology. There are also many other important areas of scientific psychology, such as cognitive, developmental, industrial/organizational, and social psychology. What these subfields of psychology have in common is the use of the scientific method to understand human behavior and apply that understanding to the development of theory and practice. Psychologists are increasingly making use of neuroscience methods and theories to understand psychological phenomena. As a profession, psychology is related to fields such as health, education, marketing, human resources, social work, and more. The principles of psychology are relevant to almost all areas of human endeavor, and the career paths of psychology students reflect this wealth of possibilities.

You Might Like This Program If...

You are interested in people and in learning to use science to better understand them. As a major, you'll have opportunities to do research with faculty and to work in career-relevant settings.

MORE INFORMATION ABOUT PSYCHOLOGY (<https://altoona.psu.edu/academics/bachelors-degrees/psychology/>)

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Psychology, a minimum of 124 credits is required:

Requirement	Credits
General Education	45
Electives	14-18
Requirements for the Major	65

0-4 of the 45 credits for General Education are included in the Requirements for the Major. This includes 0-4 credits of General Education GQ courses.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
PSYCH 100	Introductory Psychology	3
PSYCH 301W	Basic Research Methods in Psychology	4
Additional Courses ¹		
<i>Additional Courses: Require a grade of C or better</i>		
PSYCH 200	Elementary Statistics in Psychology	4
or STAT 200	Elementary Statistics	
Select 18 credits of the following, with a minimum of 3 credits from each of the following six categories: 18		
<i>Learning and Cognition</i>		
PSYCH 256	Introduction to Cognitive Psychology	
PSYCH 261	Introduction to Psychology of Learning	
PSYCH 268	Animal Minds	
PSYCH 426	Language and Thought	
PSYCH 427	Language Acquisition	
PSYCH 452	Learning and Memory	
PSYCH 456	Advanced Cognitive Psychology	
PSYCH 457	Psychology of Language	
PSYCH 458	Visual Cognition	
PSYCH 459		
PSYCH 461	Advanced Conditioning and Learning	
<i>Social and Personality Psychology</i>		

PSYCH 221	Introduction to Social Psychology
PSYCH 231	Introduction to the Psychology of Gender
PSYCH 232	Cross-Cultural Psychology
PSYCH 238	Introduction to Personality Psychology
PSYCH 419	Psychology and a Sustainable World
PSYCH 420	Advanced Social Psychology
PSYCH 421	Self and Social Judgment
PSYCH 423	Social Psychology of Interpersonal/Intergroup Relationships
PSYCH 424	Applied Social Psychology
PSYCH 432	Multicultural Psychology in America
PSYCH 438	Personality Theory
PSYCH 479	The Psychology of Gender
<i>Biological Bases of Behavior</i>	
PSYCH 253	Introduction to Psychology of Perception
PSYCH 260	Neurological Bases of Human Behavior
PSYCH 269	Evolutionary Psychology
PSYCH 441	Health Psychology
PSYCH 460	Comparative Psychology
PSYCH 462	Physiological Psychology
PSYCH 464	Behavior Genetics
PSYCH 475	Psychology of Fear and Stress
PSYCH 478	Clinical Neuropsychology
<i>Developmental Psychology</i>	
PSYCH 212	Introduction to Developmental Psychology
PSYCH 410	Child Development
PSYCH 412	Adolescence
PSYCH 413	Cognitive Development
PSYCH 414	Social and Personality Development
PSYCH 415	Topics in Developmental Psychology
PSYCH 416/ HDFS 445	Development Throughout Adulthood
PSYCH 474	Psychological Intervention in Childhood
<i>Applied and Clinical Psychology</i>	
PSYCH 243	Introduction to Well-being and Positive Psychology
PSYCH 244	Introduction to the Psychology of Human Factors Engineering
PSYCH 270	Introduction to Abnormal Psychology
PSYCH 281	Introduction to Industrial-Organizational Psychology
PSYCH 370	Psychology of the Differently-Abled
PSYCH 404	Principles of Measurement
PSYCH 408	Program Evaluation
PSYCH 443	Treatment and Education in Developmental Disabilities
PSYCH 444	Engineering Psychology
PSYCH 445	Forensic Psychology
PSYCH 470	Abnormal Psychology
PSYCH 471	Psychology of Adjustment and Social Relationships
PSYCH 473	Behavior Modification
PSYCH 476	Child Psychopathology
PSYCH 477	Mental Health Practicum with Children

PSYCH 481	Introduction to Clinical Psychology	
PSYCH 482	Selection and Assessment in Organizations	
PSYCH 484	Work Attitudes and Motivation	
PSYCH 485	Leadership in Work Settings	
<i>Capstone Experience</i>		
PSYCH 439	History and Systems of Psychology	
PSYCH 490	Senior Seminar in Psychology	
PSYCH 493	Senior Thesis	
PSYCH 494	Research Projects	
PSYCH 495	Internship	
PSYCH 496	Independent Studies	
Select 12 credits of additional Psychology courses from any offered for a total of 30 credits of Psychology courses beyond PSYCH 100 and PSYCH 301W		12
Requirements for the Option		
<i>Requirements for the Option: Require a grade of C or better</i>		
Select an option		24

¹ Must select at least 15 credits at the 400-level.

Requirements for the Option

Science Option (24 credits)

Available at the following campuses: Altoona, Beaver, Berks, Brandywine, Fayette, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Schuylkill, Scranton, York

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 15 credits of the following:		15
ANTH 21	Introductory Biological Anthropology	
ANTH 22	Humans as Primates	
BBH 101	Introduction to Biobehavioral Health	
Any BIOL course		
Any CHEM course		
Any MICRB course		
Any PHYS course		
Supporting Courses		
<i>Supporting Courses: Require a grade of C or better</i>		
Select 6 credits in natural sciences/quantification from department list		6
Select 3 credits in social and behavioral sciences from department list		3

Business Option (24 credits)

Available at the following campuses: Altoona, Beaver, Berks, Brandywine, Fayette, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Schuylkill, Scranton, York

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 15 credits of the following:		15
Any ACCTG course		
BA 100	Introduction to Business	

BA 241	Legal Environment of Business	
& BA 242	and Social and Ethical Environment of Business	
or BA 243	Social, Legal, and Ethical Environment of Business	
Any ECON course		
Any FIN course		
Any HPA course		
Any IB course		
Any MGMT course		
Any MKTG course		
Any SCM course except SCM 200		
Supporting Courses		
<i>Supporting Courses: Require a grade of C or better</i>		
Select 6 credits in natural sciences/quantification from department list ¹		6
Select 3 credits in social and behavioral sciences from department list		3
¹ MATH 22 or MATH 110 recommended.		

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Knowledge Base in Psychology:** Students should demonstrate fundamental knowledge and comprehension of the major concepts, theoretical perspectives, historical trends, and empirical findings to discuss how psychological principles apply to behavioral problems. Students completing Foundation courses should demonstrate breadth of their knowledge and application of psychological ideas to simple problems; students completing a baccalaureate degree should show depth in their knowledge and application of psychological concepts and frameworks to problems of greater complexity.
 - Describe key concepts, principles, and overarching themes in psychology
 - Develop a working knowledge of psychology's content domains
 - Describe applications of psychology
- **Scientific Inquiry and Critical Thinking:** The skills in this domain involve the development of scientific reasoning and problem solving, including effective research methods. Students completing Foundation courses should learn basic skills and concepts in interpreting behavior, studying research, and applying research design principles to drawing conclusions about psychological phenomena; students completing a baccalaureate degree should focus on theory use as well as designing and executing research plans.
 - Use scientific reasoning to interpret psychological phenomena
 - Demonstrate psychology information literacy
 - Engage in innovative and integrative thinking and problem solving
 - Interpret, design, and conduct basic psychological research
 - Incorporate sociocultural factors in scientific inquiry
- **Ethical and Social Responsibility in a Diverse World:** The skills in this domain involve the development of ethically and socially responsible behaviors for professional and personal settings in a landscape that involves increasing diversity. Students completing Foundation courses should become familiar with the formal regulations that govern professional ethics in psychology and begin to embrace the values that will contribute to positive outcomes in work settings and in building a society responsive to multicultural and global concerns. Students completing a baccalaureate degree should have more direct opportunities to demonstrate adherence to professional values that will help them optimize their contributions and work effectively, even with those who don't share their heritage and traditions. This domain also promotes the adoption of personal and professional values that can strengthen community relationships and contributions.
 - Apply ethical standards to evaluate psychological science and practice
 - Build and enhance interpersonal relationships
 - Adopt values that build community at local, national, and global levels
- **Communication:** Students should demonstrate competence in writing, oral, and interpersonal communication skills. Students completing Foundation courses should write a cogent scientific argument, present information using a scientific approach, engage in discussion of psychological concepts, explain the ideas of others, and express their own ideas with clarity. Students completing a baccalaureate degree should produce a research study or other psychological project; explain scientific results, and present information to a professional audience. They should also develop flexible interpersonal approaches that optimize information exchange and relationship development.
 - Demonstrate effective writing for different purposes
 - Exhibit effective presentation skills for different purposes
 - Interact effectively with others
- **Professional Development:** The emphasis in this goal is on application of psychology-specific content and skills, effective self-reflection, project-management skills, teamwork skills, and career preparation. Foundation outcomes concentrate on the development of work habits and ethics to succeed in academic settings. The skills in this goal at the Baccalaureate level refer to abilities that sharpen student readiness for post-baccalaureate employment, graduate school, or professional school. These skills can be developed and refined both in traditional academic settings and extracurricular involvement. In addition, career professionals can be enlisted to support occupational planning and pursuit. This emerging emphasis should not be construed as obligating psychology programs to obtain employment for their graduates, but instead encourages programs to optimize the competitiveness of their graduates for securing places in the workforce.

- Apply psychological content and skills to career goals
- Exhibit self-efficacy and self-regulation
- Refine project-management skills
- Enhance teamwork capacity
- Develop meaningful professional direction for life after graduation

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Science Option: Psychology, B.S. at Altoona Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSYCH 100 ^{†*}	3 PSYCH 200-Level- Category Selection ^{*2}	3
ENGL 15 or 30H [‡]	3 CAS 100 [‡]	3
PSU 3	1 General Education Course	3
General Education Course	3 Science Option Selection Course	3
General Education Course	3 General Education Course (GQ) [‡]	3
Elective	3	
	16	15

Second Year

Fall	Credits Spring	Credits
PSYCH 200-Level- Category Selection ^{*2}	3 PSYCH 200-level Course	3
STAT 200 (GQ) [‡]	4 PSYCH 301W	4
General Education Course	3 General Education Course	3
Science Option Selection ^{*1}	3 General Education Course	3
B.S. Option Course (Social Science)	3 B.S. Option Course (Natural Sciences; Quantification)	3
	16	16

Third Year

Fall	Credits Spring	Credits
PSYCH 200-level Course	3 PSYCH 200-level Course	3
PSYCH 400-level Course	3 PSYCH 400-level Course	3
General Education Course	3 General Education Course	3
General Education Course	3 Science Option Course	3
ENGL 202A [‡]	3 General Education Course	3

	Elective	Credits
		3
	15	18
Fourth Year		
Fall	Credits Spring	Credits
PSYCH 400-level Course ^{*2}	3 PSYCH Capstone	3
Science Option Course [*]	3 PSYCH 400-Level Course ^{*2}	3
B.S. Option Course (Natural Sciences; Quantification)	3 Science Option Course	3
Elective	3 Elective	3
Elective	3 Elective	3
	15	15

Total Credits 126

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ BS Science Option students must take 24 credits in science option courses. **Consult Psychology Program Coordinator for a list of course selections.**

² Students must take 30 credits in PSYCH. Among these, students must take at least 15 credits at the 400-level and at least 3 credits in each of six categories: Learning and Cognition; Social and Personality Psychology; Biological Bases of Behavior; Developmental Psychology; Applied and Clinical Psychology; Capstone Experience. **Consult the Psychology Program Coordinator for specific course options.**

Business Option: Psychology, B.S. at Altoona Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSYCH 100 (GS) ^{†*}	3 PSYCH 200-level Course	3
ENGL 15, 30H, or ESL 15 [‡]	3 CAS 100 [‡]	3
General Education Course	3 General Education Course (GQ) [‡]	3
General Education Course	3 General Education Course	3
Elective	3 General Education Course	3
	15	15

Second Year

Fall	Credits Spring	Credits
PSYCH 200-level Course	3 PSYCH 200-level Course	3
STAT 200 (GQ) [‡]	4 PSYCH 301W [*]	4
General Education Course	3 General Education Course	3
Business Option Selection Course	3 General Education Course	3
B.S. Option Course (Social Science)	3 B.S. Option Course (Natural Sciences; Quantification)	3
	16	16

Third Year

Fall	Credits Spring	Credits
PSYCH 200-level Course ^{*2}	3 PSYCH 200-level Course	3
PSYCH 400-level Course ^{*2}	3 PSYCH 400-level Course ^{*2}	3
General Education Course	3 General Education Course	3
General Education Course	3 Business Option Selection Course	3
ENGL 202A [‡]	3 General Education Course	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
PSYCH 400-level Course	3 PSYCH Capstone	3
Business Option Selection Course	3 PSYCH 400-level Course	3
B.S. Option Course (Natural Sciences; Quantification)	3 Business Option Selection Course	3
Elective	3 Elective	3
Elective	3 Elective	3
	15	15

Total Credits 122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ BS Science Option students must take 24 credits in science option courses. **Consult Psychology Program Coordinator for a list of course selections.**

² Students must take 30 credits in PSYCH. Among these, students must take at least 15 credits at the 400-level and at least 3 credits in each of six categories: Learning and Cognition; Social and Personality Psychology; Biological Bases of Behavior; Developmental Psychology; Applied and Clinical Psychology; Capstone Experience. **Consult the Psychology Program Coordinator for specific course options.**

Career Paths

Graduates of our program enter the workforce or pursue additional education in a variety of programs, including both Master's and PhD programs in experimental, counseling, school, and clinical psychology.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE PSYCHOLOGY PROGRAM (<https://altoona.psu.edu/academics/bachelors-degrees/psychology/handbook/>)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://altoona.psu.edu/academics/bachelors-degrees/psychology/handbook/>)

Professional Resources

- American Psychology Association (<https://www.apa.org>)
- Association for Psychological Science (<https://www.psychologicalscience.org>)
- Psi Chi (<https://www.psichi.org>)

Contact

Altoona

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610-892-1409
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<https://www.brandywine.psu.edu/academics/bachelors-degrees/psychology> (<https://www.brandywine.psu.edu/academics/bachelors-degrees/psychology/>)

Fayette

2201 University Drive
Lemont Furnace, PA 15456
724-430-4284
esb12@psu.edu

<https://fayette.psu.edu/academics/baccalaureate/psychology> (<https://fayette.psu.edu/academics/baccalaureate/psychology/>)

Greater Allegheny

104 Main Building
4000 University Drive
McKeesport, PA 15132
412-675-9186
exm32@psu.edu

<https://greaterallegheny.psu.edu/academics/degree-programs/psychology> (<https://greaterallegheny.psu.edu/academics/degree-programs/psychology/>)

Hazleton

Graham Building, 111
Hazleton, PA 18202
570-450-3023
lms42@psu.edu

<https://hazleton.psu.edu/psychology-degrees> (<https://hazleton.psu.edu/psychology-degrees/>)

Lehigh Valley

2809 Saucon Valley Road
Center Valley, PA 18034
610-285-5062

kjk13@psu.edu

<https://lehighvalley.psu.edu/academics/degrees/psychology> (<https://lehighvalley.psu.edu/academics/degrees/psychology/>)

Mont Alto

112 Wiestling Hall
Mont Alto, PA 17237
717-749-6210
r2y@psu.edu

<https://montalto.psu.edu/academics/bachelors/psychology-degree> (<https://montalto.psu.edu/academics/bachelors/psychology-degree/>)

New Kensington

3550 Seventh Street Rd.
New Kensington, PA 15068
724-334-6735
rjh27@psu.edu

<https://newkensington.psu.edu/academics/4-year-psychology/4-year-psychologygree-information> (<https://newkensington.psu.edu/academics/4-year-psychology/4-year-psychologygree-information/>)

Schuylkill

ACADEMIC AFFAIRS
A201C 200 University Drive
Schuylkill Haven, PA 17972
570-385-6066
crs15@psu.edu

<https://schuylkill.psu.edu/academics/bacc-degrees/psychology> (<https://schuylkill.psu.edu/academics/bacc-degrees/psychology/>)

Scranton

113 Dawson Building
Dunmore, PA 18512
570-963-2715
trw115@psu.edu

<https://scranton.psu.edu/academics/degrees/bachelors/psychology-degree> (<https://scranton.psu.edu/academics/degrees/bachelors/psychology-degree/>)

York

210 Grumbacher Building (GISTC)
York, PA 17403
717-771-4028
mac13@psu.edu

<https://www.york.psu.edu/academics/baccalaureate/psychology> (<https://www.york.psu.edu/academics/baccalaureate/psychology/>)

Rail Transportation Engineering, B.S.

Begin Campus: Any Penn State Campus

End Campus: Altoona

Program Description

The Bachelor of Science in Rail Transportation Engineering (RTEAL) will provide students with the necessary skills for careers in the rail freight and passenger transportation industries. The RTEAL degree

provides a solid background in engineering design, but also focuses on the maintenance and management skills required by the rail industry. The program provides a breadth of knowledge in the major areas associated with the design, operation, and maintenance of rail systems, including the engineering of rail and track structures, basic rail operating practices and safety, wheel/track dynamics, construction and maintenance of railroad infrastructure, and basic railroad communications and signals. Laboratories are used throughout the RTEAL curriculum to provide students with experiences in the field with actual rail equipment, and extensive team-based laboratory activities are used to develop the leadership qualities that are essential of rail professionals. In order to prepare students for the occupational challenges associated with careers in the rail industry, careful and candid discussions of career possibilities and working environments typical of railway professionals are provided throughout the RTEAL program.

What is Rail Transportation Engineering?

Rail Transportation Engineering (RTE) prepares students for careers in freight and transit rail. The curriculum is based on civil engineering with emphasis on rail transportation.

MORE INFORMATION ABOUT RAIL TRANSPORTATION ENGINEERING (<https://altoona.psu.edu/academics/bachelors-degrees/rail-transportation-engineering/program-overview/>)

You Might Like This Program If...

You are seeking a technological career in a robust industry.

MORE INFORMATION ABOUT WHY STUDENTS CHOOSE TO STUDY RAIL TRANSPORTATION ENGINEERING (<https://altoona.psu.edu/academics/bachelors-degrees/rail-transportation-engineering/>)

Entrance to Major

All students applying for entrance to the RTEAL major must have at least a 2.0 cumulative GPA by the end of the semester prior to applying for entrance to the major and have completed, with a minimum grade of C: CHEM 110, MATH 140, MATH 141, and PHYS 211. These courses must be completed by the end of the semester during which the admission to major process is carried out.

Degree Requirements

For the Bachelor of Science degree in Rail Transportation Engineering, a minimum of 130 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	112

27 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GWS, 6 credits of GQ, 9 credits of GN, 3 credits of GS.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
CE 310	Surveying	3
CE 360	Fluid Mechanics	3
ECON 102	Introductory Microeconomic Analysis and Policy	3
EDSGN 100	Cornerstone Engineering Design	3
ENGL 202C	Effective Writing: Technical Writing	3
GEOSC 1	Physical Geology	3
MATH 220	Matrices	2
MATH 251	Ordinary and Partial Differential Equations	4
PHYS 212	General Physics: Electricity and Magnetism	4
RTE 301	Railroad Industry Overview and Economic Regulation	3
RTE 402	Railroad Operations Practicum	3
RTE 403	Railroad Track Practicum	3
RTE 404	Railroad Mechanical Practicum	3
RTE 406	Railroad Capstone Project	4
STAT 401	Experimental Methods	3
<i>Prescribed Courses: Require a grade of C or better</i>		
CE 332	Professionalism, Economics & Construction Project Delivery	3
CE 333W	Construction Management I	3
CE 335	Engineering Mechanics of Soils	3
CE 336	Materials Science for Civil Engineers	4
CE 340	Structural Analysis	3
CHEM 110	Chemical Principles I	3
EMCH 211	Statics	3
EMCH 212	Dynamics	3
EMCH 213	Strength of Materials	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
PHYS 211	General Physics: Mechanics	4
RTE 302	Railroad Track Location, Construction and Maintenance	3
RTE 303	Railroad Operation and Safety	3
RTE 305	Railroad Communications and Signals	3
Additional Courses		
CAS 100A	Effective Speech	3
or CAS 100B	Effective Speech	
CMPSC 201	Programming for Engineers with C++	3
or CMPSC 202		
ENGL 15	Rhetoric and Composition	3
or ENGL 30H	Honors Rhetoric and Composition	
Select 3 credits of technical electives from departmental list in consultation with adviser		3

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense

of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Altoona

Steve Dillen

Assistant Teaching Professor, RTE Program Coordinator
Penn Building 216A
3000 Ivyside Park
Altoona, PA 16601
814-940-3331
sld130@psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Rail Transportation Engineering, B.S. at Altoona Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 ^{*†#†}	4 MATH 141 ^{**}	4
ECON 102 or 104 ^{*†}	3 CAS 100 [‡]	3
CHEM 110 ^{†#†}	3 PHYS 211 ^{*†#†}	4
CHEM 111 [*]	1 ENGL 15, 30H, or ESL 15 [‡]	3
EDSGN 100	3 General Education Course	3
PSU 3	1	
General Education Course	3	
	18	17

Second Year

Fall	Credits Spring	Credits
MATH 251	4 MATH 220	2
PHYS 212 [‡]	4 CMPSC 201	3
EMCH 211 [*]	3 EMCH 212 [*]	3
GEOC 1	3 EMCH 213 [*]	3
General Education Course	3 ENGL 202C [‡]	3
	General Education Course	3
	17	17

Third Year

Fall	Credits Spring	Credits
CE 310	3 CE 335 [*]	3
RTE 301	3 CE 336 [*]	3
RTE 303 [*]	3 CE 337	1
RTE 305 [*]	3 CE 360	3
STAT 401	3 RTE 302 [*]	3
	RTE 402	3
	15	16

Fourth Year

Fall	Credits Spring	Credits
CE 333W [*]	3 ACCTG 211	4
CE 340 [*]	3 RTE 406	4
CE 332 [*]	3 Technical Elective	3
RTE 403	3 General Education Course	3
RTE 404	3 General Education Course	3
	15	17

Total Credits 132

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain)

requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

Career Services supports and serves students and alumni, faculty and staff, families, and employers in all areas related to career development and preparation. We can assist in any of the following: Major and Career Exploration Career Decision-Making Preparation of Employment Documents Internship and Job Search Strategies Interview Preparation Preparing for Graduate School Developing your Professional Online Brand Presentations and Workshops.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE RAIL TRANSPORTATION ENGINEERING PROGRAM (<https://altoona.psu.edu/offices-divisions/center-workforce-career-development/career-services/>)

Professional Resources

- AREMA (<https://www.arena.org>)

Accreditation

The Bachelor of Science in Rail Transportation Engineering at Penn State Altoona is accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria with no applicable program criteria.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

Altoona

DIVISION OF BUSINESS, ENGINEERING, AND INFORMATION SCIENCES
AND TECHNOLOGY
Elm Building 103
3000 Ivyside Park
Altoona, PA 16601
814-949-5756
alg177@psu.edu

<https://altoona.psu.edu/academics/bachelors-degrees/rail-transportation-engineering> (<https://altoona.psu.edu/academics/bachelors-degrees/rail-transportation-engineering/>)

Science, A.S.

Begin Campus: Altoona

End Campus: Altoona

Program Description

The Science major is designed primarily to provide for the basic educational needs of students who want to pursue professional programs in various scientific or medical fields. The program provides a fundamental group of science courses of value to those who seek

positions in government or industry where such knowledge is necessary or desirable. The program offers sufficient flexibility to meet diverse academic and career goals.

Graduates of the of the program may qualify for admission to the baccalaureate degrees in science. Students planning on continuing in baccalaureate degrees are encouraged to work closely with their advisers.

What is Science?

Science is the study of scientific theory and practice with a strong foundation in the basic sciences (biology, chemistry, mathematics, and physics).

You Might Like This Program If...

- You want to pursue a profession in various scientific and medical fields.
- You seek positions in government or industry where such fundamental science knowledge is necessary or desirable.
- You want to pursue a more advanced degree in science

MORE INFORMATION ABOUT SCIENCE (<https://altoona.psu.edu/academics/associate-degrees/science/>)

Entrance to Major

Students must have a minimum 2.0 GPA to change to this Associate degree after admission to the University.

Degree Requirements

For the Associate in Science degree in Science, a minimum of 67 credits is required:

Requirement	Credits
General Education	21
Requirements for the Major	61

15 of the 21 credits for General Education are included in the Requirements for the Major. This includes 15 credits: 3 credits of GN courses; 3 credits of GQ courses; 3 credits of GWS courses; 3 credits of GH courses; 3 credits of GQ, GWS, GH, or GN courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
CAS 100	Effective Speech	3
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
ENGL 15	Rhetoric and Composition	3
Additional Courses		
CHEM 112	Chemical Principles II	3
or CHEM 202	Fundamentals of Organic Chemistry I	

Select one of the following:		4-6
MATH 22 & MATH 26	College Algebra With Analytic Geometry and Applications II and Plane Trigonometry and Applications of Trigonometry	

MATH 40	Algebra, Trigonometry, and Analytic Geometry	
MATH 140	Calculus With Analytic Geometry I ¹	

Select one of the following:		3-4
STAT 200	Elementary Statistics	
STAT 250	Introduction to Biostatistics	

Select one of the following:		3
PHIL 2	Individuals in Society	
PHIL 103	Ethics	
PHIL 110	Philosophy of Science	
PHIL 118	Environmental Philosophy	
PHIL 221		

Select one of the following:		3
CMPSC 100	Computer Fundamentals and Applications	
CMPSC 101	Introduction to Programming	
MIS 103	Microcomputer Applications in Business	

Select one of the following:		6-8
PHYS 150 & PHYS 151	Technical Physics I and Technical Physics II	
PHYS 250 & PHYS 251	Introductory Physics I and Introductory Physics II ¹	

Supporting Courses and Related Areas

Select 20-25 credits from approved departmental list of BIOLOGICAL/20-25 MATH/PHYSICAL SCIENCES

¹ PHYS 250 and PHYS 251 and MATH 140 are recommended for students planning to continue in baccalaureate programs of science.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all associate degree students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 3 credits
- **Writing and Speaking (GWS):** 3 credits

Knowledge Domains

- **Arts (GA):** 3 credits
- **Humanities (GH):** 3 credits

- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Note: Up to six credits of Inter-Domain courses may be used for any Knowledge Domain requirement, but when a course may be used to satisfy more than one requirement, the credits from the course can be counted only once.

Exploration

- **Any General Education course (including GHW and Inter-Domain):** 3 credits

University Degree Requirements

Cultures Requirement

3 credits of United States (US) or International (IL) cultures coursework are required and may satisfy other requirements

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 60 degree credits must be earned for a associates degree. The requirements for some programs may exceed 60 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

Understanding scientific concepts: Students will demonstrate understanding of scientific concepts including the process of science and experimentation.

Understanding Chemistry Concepts: Students will demonstrate a thorough knowledge of basic chemistry principles.

Understanding Biological concepts: Students will demonstrate a thorough understanding of biological concepts including cellular organization, genetics, physiology, ecology, and evolution.

Understanding Physical concepts: Students will demonstrate a thorough understanding of physical concepts including fundamental laws of physics.

Interpreting scientific data and primary literature: Students will demonstrate the ability to collect, analyze and interpret scientific data and interpret primary scientific literature.

Communication: Students will demonstrate the ability to communicate scientific findings via oral and written communication.

Scientific skills: Students will demonstrate appropriate laboratory skills including scientific technique, maintaining a laboratory notebook, and adhering to safety procedures.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Altoona

Richard Bell

Associate Professor of Chemistry
104 Science Building
3000 Ivyside Park
Altoona, PA 16601
814-949-5712
rcb155@psu.edu

Career Paths

Careers

Students may pursue careers in health sciences, practical health care professions, and technical service industries.

Opportunities for Graduate Studies

Graduates of the program may qualify for admission to baccalaureate degree programs in mathematics and the sciences. Students planning on continuing in baccalaureate degrees are encouraged to work closely with their advisers.

Contact

Altoona

DIVISION OF MATHEMATICS AND NATURAL SCIENCES
104 Science Building
3000 Ivyside Park
Altoona, PA 16601
814-949-5172
rcb155@psu.edu

<https://altoona.psu.edu/academics/associate-degrees/science> (<https://altoona.psu.edu/academics/associate-degrees/science/>)

Security and Risk Analysis, B.S. (Altoona)

Begin Campus: Any Penn State Campus

End Campus: Altoona

Program Description

The Bachelor of Science in Security and Risk Analysis (SRA) in the College of Information Sciences and Technology responds to the expanding need for a highly trained analytic workforce to address a wide range of security and risk domains including national/homeland security, emergency and disaster management, law and crime, as well as enterprise risk management.

SRA program prepares students with core competence in four knowledge areas:

1. understanding the fundamentals of security, risk, analytic methods and decision support for the purpose of recognizing, articulating, and addressing analytic needs;
2. understanding the roles of data and analytics in various security domains and organizational contexts;
3. applying data analytics, methods, and tools (structured analytics; data gathering and manipulation; visual analytics; analytic judgements and presentation) to derive and communicate insights and actionable knowledge;
4. the legal, ethical, and professional issues within which analytics of security and risk are conducted.

Students may specialize in risk domains ranging from national security to community emergency preparedness and response. The SRA program positions our students to be future leaders to address the current and emerging security and risk challenges that face individuals, organizations and our nation.

SRA majors will choose one of the following options:

Intelligence Analysis and Modeling Option

Available at the following campuses: University Park, World Campus

This option focuses on developing a more thorough knowledge of the strategic and tactical levels of intelligence collection, analysis, and decision-making. This includes examining the foundations of decision analysis, economic theory, statistics, data mining, and knowledge management, as well as the security-specific contexts in which such knowledge is applied.

Information and Cyber Security Option

Available at the following campuses: Altoona, Berks, Harrisburg, University Park, World Campus

This option includes a set of courses that provides an understanding of the theories, skills, and technologies associated with network security, cyber threat defense, information warfare, and critical infrastructure protection across multiple venues.

What is Security and Risk Analysis?

Security and risk analysis is a field that explores the integrated processes conducted to provide decision-makers with the information needed to understand factors that can negatively influence operations and outcomes, and make informed judgments concerning the extent of actions needed to reduce vulnerabilities, protect resources, and optimize investments. Security and risk analysis is a field of practice with two blended concentration areas: 1) security, which seeks to identify, understand, and analyze critical local, national and international security issues, and 2) risk, which includes risk assessment, risk characterization, risk communication, risk management, and the formulation of risk policy.

In practice, the issues and processes for conducting of security and risk analytics are neither separate nor sequential. To be effective, the issues of security and risk must be addressed concurrently and synergistically.

MORE INFORMATION ABOUT SECURITY AND RISK ANALYSIS (<https://ist.psu.edu/prospective/undergraduate/academics/sra/>)

You Might Like This Program If...

- You want to protect people, information, and assets from manmade and natural threats.
- You want to understand the role of data in protecting individuals, organizations and our nation.
- You are mission oriented, a good critical thinker and wish to put your problem-solving skills to work to make the world a safer place.
- You want to make informed strategic decisions that help to defend critical infrastructures that supports our daily lives.

MORE INFORMATION ABOUT WHY STUDENTS CHOOSE TO STUDY SECURITY AND RISK ANALYSIS (<https://ist.psu.edu/prospective/undergraduate/academics/sra/>)

Entrance to Major

In addition to the minimum grade point average (GPA) requirements described in the University Policies*, all Security and Risk Analysis (SRA) entrance to major course requirements must also be completed with a minimum grade of C: IST 140 (or equivalent CMPSC 101 or CMPSC 121), IST 210, SRA 111, and SRA 211. All of these courses must be completed by the end of the semester during which the admission to major process is carried out.

** In the event that the major is under enrollment control, a higher minimum cumulative grade-point average is likely to be needed at the time of confirming their major choice.*

Degree Requirements

For the Bachelor of Science degree in Security and Risk Analysis, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	5-13
Requirements for the Major	77-85

15 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GQ courses; 6 credits of GS courses; and 3 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
IST 110	Information, People and Technology	3
IST 210	Organization of Data	3

IST 432	Legal and Regulatory Environment of Information Science and Technology	3
IST 495	Internship	1
SRA 111	Introduction to Security and Risk Analysis	3
SRA 211	Threat of Terrorism and Crime	3
SRA 221	Overview of Information Security	3
SRA 231	Decision Theory and Analysis	3
STAT 200	Elementary Statistics	4

Additional Courses

ENGL 202C	Effective Writing: Technical Writing	3
or ENGL 202D	Effective Writing: Business Writing	
PSYCH 100	Introductory Psychology	3
or SOC 5	Social Problems	
Select one of the following:		3

AGBM 101	Economic Principles of Agribusiness Decision Making	
ECON 102	Introductory Microeconomic Analysis and Policy	
ECON 104	Introductory Macroeconomic Analysis and Policy	

Select one of the following: 3-5

MATH 22	College Algebra With Analytic Geometry and Applications II	
MATH 26	Plane Trigonometry and Applications of Trigonometry	
MATH 40	Algebra, Trigonometry, and Analytic Geometry	
MATH 41	Trigonometry and Analytic Geometry	
MATH 110	Techniques of Calculus I	
MATH 140	Calculus With Analytic Geometry I	

Select one of the following: 3

GEOG 128	Geography of International Affairs	
PLSC 1	American Politics: Principles, Processes and Powers	
PLSC 14	International Relations	

Additional Courses: Require a grade of C or better

SRA 365	Statistics for Security and Risk Analysis	3
or STAT 460	Intermediate Applied Statistics	

Select one of the following: 3

IST 140	Introduction to Application Development	
CMPS 101	Introduction to Programming	
CMPS 121	Introduction to Programming Techniques	

Requirements for the Option

Select an option 30-36

Requirements for the Option**Intelligence Analysis and Modeling Option (36 credits)**

Available at the following campuses: University Park, World Campus

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
IST 452	Legal and Regulatory Environment of Privacy and Security	3
SRA 268	Visual Analytics	3
SRA 311W	Risk Analysis in a Security Context	3
SRA 421	The Intelligence Environment	3

SRA 433	Deception and Counterdeception	3
SRA 440W	Security and Risk Analysis Capstone Course	3
SRA 468	Spatial Analysis of Risks	3

Supporting Courses and Related Areas

Select 15 credits from College-approved list (at least 3 credits must be at the 400-level) 15

Information and Cyber Security Option (30 credits)

Available at the following campuses: Altoona, Berks, Harrisburg, University Park, World Campus

Code	Title	Credits
Prescribed Courses		

Prescribed Courses: Require a grade of C or better

IST 220	Networking and Telecommunications	3
IST 451	Network Security	3
IST 454	Computer and Cyber Forensics	3
IST 456	Information Security Management	3
SRA 311	Risk Analysis in a Security Context	3

Additional Courses

Additional Courses: Require a grade of C or better

IST 440W	Information Sciences and Technology Integration and Problem Solving	3
or SRA 440W	Security and Risk Analysis Capstone Course	

Supporting Courses and Related Areas

Select 12 credits from College-approved list (at least 3 credits must be at the 400-level) 12

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- Quantification (GQ): 6 credits
- Writing and Speaking (GWS): 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- Arts (GA): 3 credits
- Health and Wellness (GHW): 3 credits
- Humanities (GH): 3 credits
- Social and Behavioral Sciences (GS): 3 credits
- Natural Sciences (GN): 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- Understand and apply the interdisciplinary, theoretical knowledge of the information sciences or security sciences
 - Define and explain the core concepts, principles, processes, and theories within the academic majors of IST and/or SRA
 - Apply the core concepts of the academic majors of IST and/or SRA to real-world problems

- Understand, apply and adapt various problem solving strategies, using appropriate technology and methods
 - Identify information problems and/or opportunities in terms of the human, informational and technology dimensions.
 - Analyze issues surrounding the problem and/or opportunity in terms of the human, informational, and technology dimensions; and determine the requirements appropriate to understanding the situation.
 - Design systems, architectures, processes, components, or programs to meet desired needs of the human context at varying levels of analysis (e.g., individual, group, organization, society, and/or world).
 - Deploy up-to-date and appropriate techniques, methodologies, and/or tools necessary for understanding opportunities and constraints and/or the optimal design, implementation and continuance of an information based solution.
 - Evaluate the success of systems, architecture, processes, components, or programs intended to meet desired needs of the human context at varying levels of analysis (e.g., individual, group, organization, society, and/or world).
- Communicate and work effectively (both individually and in teams) with a range of perspectives and audiences through a variety of media
 - Participate effectively on teams in order to accomplish a common goal.
 - Communicate effectively with a range of audiences, formally or informally, through writing and the spoken word.
 - Seek out, analyze, and incorporate diverse ideas and broader perspectives represented in the diversity of people.
 - Make respectful and inclusive choices in interacting with customers, peers, supervisors, and/or subordinates with a diversity of identity characteristics (e.g., age, ancestry, color, disability or handicap, national origin, race, religious creed, sex, sexual orientation, gender identify, or veteran status).
- Understand professional responsibilities in terms of the ethical, legal, security and social aspects of any given problem and its solution
 - Demonstrate an understanding of the cognitive, social, legal, ethical, diversity, and security perspectives surrounding a given problem.
 - Assess the impact of information, computing and technology on individuals, groups, organizations, society, and the world for the purpose of making informed decisions from a sociological, governmental, legal, and/or security perspective.
- Commit to the continuous acquisition of relevant knowledge for professional development by self teaching and/or on-going education and learning NOW RISK FACTORS
 - Employ information-seeking strategies and self-directed learning in pursuit of current knowledge.
 - Enroll in professional development and tutoring opportunities.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged

in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Undergraduate Academic Advising

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Information and Cyber Security Option: Security and Risk Analysis, B.S. at Altoona Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If**

report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
IST 140, CMPSC 101, or CMPSC 131 ^{*#1,2}	3 SRA 211 ^{*#}	3
SRA 111 (GS) ^{*#1}	3 MATH 22, 26, 40, 41, 110, or 140 (GQ) [‡]	3
IST 110 [*]	3 General Education Course (GN, GA, GH, GS, or GHW)	3
ENGL 15 or 30H (GWS) [‡]	3 CAS 100 (GWS) [‡]	3
General Education Course (GN, GA, GH, GS, or GHW)	3 ECON 102, 104, or AGBM 101 (GS)	3
PSU 3	1	
	16	15

Second Year

Fall	Credits Spring	Credits
SRA 221 [*]	3 SRA 231 [*]	3
STAT 200 (GQ) [‡]	4 PSYCH 100 or SOC 5 [†]	3
IST 220 ^{*1}	3 IST 210 ^{*#}	3
GEOG 128, PLSC 1, or PLSC 14 [†]	3 US or IL	3
Support of Option	3 Support of Option	3
	16	15

Third Year

Fall	Credits Spring	Credits
IST 451 [*]	3 IST 454 [*]	3
SRA 365 or STAT 460 ^{*3}	3 SRA 311W [*]	3
Support of Option	3 ENGL 202C or 202D (GWS) [‡]	3
General Education Course (GN, GA, GH, GS, or GHW)	3 General Education Course (GN, GA, GH, GS, or GHW)	3
General Education Course (GN, GA, GH, GS, or GHW)	3 US or IL	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
IST 432 [*]	3 SRA 440W [*]	3
IST 456 [*]	3 Support of Option 400 Level	3
General Education Course (GN, GA, GH, GS, or GHW)	3 General Education Course (GN, GA, GH, GS, or GHW)	3
General Education Course (GN, GA, GH, GS, or GHW)	3 General Education Course (GN, GA, GH, GS, or GHW)	3
Elective	3 Elective	3
	15	15

Total Credits 122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ IST/SRA/CYBER course offered both fall and spring semesters at Altoona. Otherwise, IST/SRA/CYBER courses are only offered once per academic year.

² CMPSC 101 is not recommended.

³ STAT 460 is no longer offered at Altoona.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- 1 credit of IST 495 Internship is also required

Career Paths

The Security and Risk Analysis program responds to the expanding need for a highly trained analytic workforce to address a wide range of security and risk domains including national/homeland security, emergency and disaster management, law and crime, as well as enterprise risk management. The SRA degree prepares students to be future leaders to address the current and emerging security and risk challenges that face individuals, organizations and our nation. IST's Office of Career Solutions helps students navigate internship and career development through coaching, workshops, interview preparation, resume reviews, career fairs, job postings, and networking opportunities.

Careers

Security and Risk Analysis students may specialize in risk domains ranging from national security to community emergency preparedness and response. Because our courses blend technical knowledge with skills in communication and business, a Security and Risk Analysis degree allows students to pursue opportunities in intelligence, counterterrorism, computer forensics, and a number of other growing careers. SRA graduates work in a variety of fields, including defense, business, and emergency management; and many graduates go on to work for government intelligence agencies like the CIA, FBI, and NSA.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE SECURITY AND RISK ANALYSIS PROGRAM (<https://www.ist.psu.edu/current/careers/development/process/path/>)

Opportunities for Graduate Studies

With a focus on problem solving, critical thinking and the presentation of analytic findings, the SRA program is a great stepping-stone to graduate education and higher learning. Many SRA graduates will go on to pursue graduate degrees in fields like law, cyber security, and data science. The foundational skills obtained in the SRA degree directly apply to graduate education.

Contact

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<https://altoona.psu.edu/academics/bachelors-degrees/security-risk-analysis> (<https://altoona.psu.edu/academics/bachelors-degrees/security-risk-analysis/>)

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<https://harrisburg.psu.edu/business-administration/security-risk-analysis-bs> (<https://harrisburg.psu.edu/business-administration/security-risk-analysis-bs/>)

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State College, PA 16801
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World Campus

COLLEGE OF INFORMATION SCIENCES AND TECHNOLOGY
411 Eric J. Barron Innovation Hub Building
State College, PA 16801
814-865-3528

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-security-and-risk-analysis-information-and-cybersecurity-bachelor-of-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-security-and-risk-analysis-information-and-cybersecurity-bachelor-of-science-degree/>)

Visual Art Studies, B.A.

Begin Campus: Any Penn State Campus

End Campus: Altoona

Program Description

The Bachelor of Arts degree in Visual Art Studies offers students the opportunity to explore studio work in Art within the context of a broader

liberal arts education. Students can learn fundamental techniques and concepts common to the Visual Arts. Emphasis is also put on creative problem solving through advanced investigations of artistic themes and issues. Coursework includes requirements (classes) related to the portfolio preparation necessary for employment in creative fields or for education at the graduate level.

What is Visual Art Studies?

Visual arts studies is the creative, theoretical, and critical exploration of making images, objects, and ideas through various artistic media. Visual Art Studies may be a good fit for you if you are happiest drawing, painting, sculpting, designing, working with the computer or performing in unique ways. If you don't have a lot of experience making art—no worries! Maybe you enjoy looking at art or writing or reading about it? Visual Art Studies may be for you! There are no required skillsets or portfolio reviews required for admission into Visual Art Studies. The faculty are experienced at introducing an array of tools, materials, and methods to beginning students.

MORE INFORMATION ABOUT VISUAL ART STUDIES (<https://altoona.psu.edu/academics/bachelors-degrees/visual-art-studies/>)

You Might Like This Program If...

- You get a kick out of seeing how things are made.
- You have ideas and opinions about your world—big, small, and everything in between.
- You want to be a part of a vibrant inclusive community of creative thinkers and makers.
- You need to fill your artistic toolbox with more tools, technologies, and materials.
- You love making or fixing stuff.
- You customize the day-to-day things around you to make them more you.

Entrance to Major

Entry into the Visual Art Studies major requires an entrance interview. The entrance interview will be based on the student's work and academic interests and will take place during their first semester.

Degree Requirements

For the Bachelor of Arts degree in Visual Art Studies, a minimum of 121 credits is required:

Requirement	Credits
General Education	45
Electives	12
Bachelor of Arts Degree Requirements	24
Requirements for the Major	46

6 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GA courses.

0-12 of the 45 credits for Bachelor of Arts Degree Requirements are included in Electives if world language proficiency is demonstrated by examination.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ART 165	Artistic Concepts of Space	3
ART 265	Artistic Concepts of Color	3
ART 266	Artistic Concepts of Light	3
ART 269	Methods and Materials I	3
ART 365	Themes and Issues I	3
ART 366	Themes and Issues II	3
ART 465	Individual Approaches I	3
ART 466W	Individual Approaches II	3
ART 469	Methods and Materials II	3
ARTH 111	Ancient to Medieval Art	3
ARTH 112	Renaissance to Modern Art	3
GD 100	Introduction to Graphic Design	3
GD 101	Design Foundation I	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits from the following:		3
ART 30	Introduction to Sculpture	
ART 80	Introduction to Ceramics	
ART 166	Artistic Concepts of Form	
Select 3 credits of 400-level ARTH courses		3

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- Quantification (GQ): 6 credits
- Writing and Speaking (GWS): 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- Arts (GA): 3 credits
- Health and Wellness (GHW): 3 credits
- Humanities (GH): 3 credits

- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- Critique technical, aesthetic, and conceptual competence in art works verbally and in written form
- Apply problem solving techniques in art planning, art making and execution
- Execute exhibition best practices, standards, and professional procedures when preparing artwork for display
- Create professional portfolio of art work and supplemental materials suitable for gallery submission, graduate school admissions, or entrance level creative field application
- Demonstrate competency in many forms of art making including 2D, 3D, and digital media
- Operate rigorous and safe studio practice and material handling
- Cite and inform upon historical and contemporary art movements in art work
- Interpret issues in art, society, and culture via personal concepts in art work creation

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Altoona

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Visual Art Studies, B.A. at Altoona Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ART 165	3 ART 166, 30, 80, or 120	3
ARTH 111	3 ARTH 112	3
ENGL 15, 30H, or ESL 15 [‡]	3 GD 100	3
World Language Course Level 1	4 World Language Course Level 2	4
	General Education Course (GQ) [‡]	3
13		16

Second Year

Fall	Credits Spring	Credits
ART 265	3 ART 266	3
ART 269	3 GD 101	4
World Language Course Level 3	4 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
16		16

Third Year

Fall	Credits Spring	Credits
ART 365	3 ART 366	3
ART 468	3 General Education Course	3
General Education	3 Elective	3
General Education (GQ) [‡]	3 B.A. World Cultures	3
CAS 100 [‡]	3 General Education Course	3
15		15

Fourth Year

Fall	Credits Spring	Credits
ART 465	3 ART 466W	3
ART 469	3 Art History 400-level Course	3
ENGL 202B [‡]	3 General Education Course	3
General Education Course	3 Elective	3
Elective	3 Elective	3
15		15

Total Credits 121

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Career Paths

With Penn State Altoona's Visual Art Studies (VAST) program, you will be equipped with the conceptual, technical, and professional frameworks needed to be a confident and productive artist, as well as the skills necessary for employment in creative fields or admission into graduate study.

Professional Resources

- College Art Association (<https://www.collegeart.org>)
- National Council of Arts Administrators (<https://www.ncaaarts.org>)
- National Council on Education of the Ceramic Arts (<https://nceca.net>)
- Special Interest Group on Computer Graphics and Interactive Techniques (<https://www.siggraph.org>)

Contact

Altoona

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<https://altoona.psu.edu/academics/bachelors-degrees/visual-art-studies>
(<https://altoona.psu.edu/academics/bachelors-degrees/visual-art-studies/>)

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Vocal Studies, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The vocal studies minor focuses on the study of the human voice from the perspectives of performance, pedagogy, history, and acoustical science. Students will study the human voice from several different perspectives through courses in applied voice, vocal pedagogy, music history and/or theory, and acoustics. They will also explore the art of vocal performance through participation in choral ensembles and/or musical productions.

Program Requirements

Requirement	Credits
Requirements for the Minor	20

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
MUSIC 215	The Craft of Singing	3
MUSIC 104	Chamber Singers	2
VOICE 100	Voice: Secondary	2
VOICE 110	Voice: Secondary	4

Additional Courses

<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits from the following:		3
INART 50	The Science of Music	
MUSIC 4	Film Music	
MUSIC 5	An Introduction to Western Music	
MUSIC 7	Evolution of Jazz	
MUSIC 8	Rudiments of Music	
MUSIC 9	Introduction to World Musics	

Supporting Courses and Related Areas

<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 6 credits from the following:		6
COMM 436	Advanced Audio Production	
INART 494	Research Projects	
MUSIC 404	Adv Chamber Singer	
MUSIC 420	Song Writing and Recording	
MUSIC 497	Special Topics	

Penn State Berks, The Berks College

About the College

Radha Pyati, Chancellor and Dean, Penn State Berks

At Penn State Berks, students earn a Penn State degree in a small campus setting. The college enrolls nearly 2,900 students and offers 20 bachelors and 4 associate degree programs, and 2 master's degree programs. Students can also choose to complete the first two years of more than 160 Penn State degree programs at Berks, and finish their degree at another campus. Berks offers students many opportunities, such as conducting research with faculty members and gaining real-world experience through internships as part of their degree programs. The college is located on 258 scenic acres in Spring Township, and the campus includes 28 buildings with residence halls providing housing for 804 students. Students enjoy a rich student life: Berks has 12 varsity athletic programs and competes as members of the NCAA Division III and North Eastern Athletic Conference. The college also offers a wide variety of clubs and organizations.

MORE INFORMATION ABOUT THE COLLEGE (<https://berks.psu.edu>)

Mission and Goals

The college provides a Penn State education in a small campus setting that integrates high-quality teaching, research, and dynamic community outreach. As part of a premier land-grant institution, the college stresses excellence in all areas while providing opportunities for students from a range of abilities to reach their full potential. Berks is committed to engaged learning that encourages individual growth, cultural awareness, ethical decision-making, and civic responsibility for all members of the community.

MORE INFORMATION ABOUT THE MISSION AND GOALS OF PENN STATE BERKS (<https://berks.psu.edu/penn-state/planning-research-assessment/penn-state-berks-mission-vision-and-values/>)

Accreditation

The Pennsylvania State University is accredited by the Middle States Commission on Higher Education, a regional accrediting agency recognized by the U.S. Secretary of Education and the Council for Higher Education Accreditation. This accreditation applies to all campuses and colleges of the University.

MORE INFORMATION ABOUT THE MIDDLE STATES COMMISSION ON HIGHER EDUCATION (<https://opair.psu.edu/accreditation/>)

Baccalaureate Degrees

- Accounting, B.S. (Berks)
- Biochemistry and Molecular Biology, B.S. (Berks)
- Biology, B.S. (Berks)
- Business, B.S. (Berks)
- Communication Arts and Sciences, B.A. (Berks)
- Criminal Justice, B.A. (Berks)
- Criminal Justice, B.S. (Berks)
- Cybersecurity Analytics and Operations, B.S. (Berks)
- Electro-Mechanical Engineering Technology, B.S. (Berks)
- Elementary and Kindergarten Education, B.S. (Berks)
- Global Studies, B.A.
- Hospitality Management, B.S. (Berks)

- Information Technology, B.S. (Berks)
- Integrative Science, B.S. (Berks)
- Kinesiology, B.S. (Berks)
- Mechanical Engineering, B.S. (Berks)
- Psychology, B.A. (Berks)
- Psychology, B.S. (Berks)
- Security and Risk Analysis, B.S. (Berks)
- Writing and Digital Media, B.A.

Associate Degrees

- Business Administration, A.S. (Berks)
- Information Sciences and Technology, A.S. (Berks)
- Multidisciplinary Studies, A.A. (Berks)
- Occupational Therapy, A.S. (Berks)

Minors

- Global Studies, Minor
- Writing and Digital Media, Minor

Certificates

- Foundations of Organizational Leadership, Certificate
- Keystone Certificate for Integrative Humanities, Certificate
- Social Justice, Certificate
- Spanish for Healthcare, Certificate

College Procedures

Change of Campus

Students generally declare their academic major at the end of their second year of enrollment during the entrance-to-major process. If the student applies for a major that is not offered at the student's current location, the student will be required to select an approved location during the entrance-to-major process.

MORE INFORMATION ABOUT CHANGE OF CAMPUS (<https://berks.psu.edu/academics/registrar/change-campus/>)

Concurrent Majors

A Concurrent Majors Program is one in which students take courses to concurrently meet the requirements of at least two majors, with graduation for all majors in the program occurring during the same semester. Concurrent majors must be all at the baccalaureate or associate degree level.

MORE INFORMATION ABOUT CONCURRENT MAJORS (<https://undergrad.psu.edu/aappm/M-3-concurrent-and-sequential-majors-program.html>)

READ SENATE POLICY 60-00: COMPLETING MORE THAN ONE UNDERGRADUATE MAJOR PROGRAM (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/60-00-completing-more-than-one-undergraduate-program/#60-00>)

Academic Warning

A student who fails to earn a 2.00 cumulative grade-point average will be placed on academic warning. A student placed on academic warning will have a hold placed on registration and will be required to meet with an academic adviser in order for this registration hold to be removed. To

remove academic warning, the cumulative grade-point average must be 2.00 or higher.

MORE INFORMATION ABOUT ACADEMIC WARNING (<https://berks.psu.edu/academic-warning/>)

READ SENATE POLICY 54-20: ACADEMIC WARNING (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-20>)

Academic Suspension

A student in academic warning who fails to maintain a semester grade-point average of 2.00 or higher will be academically suspended. A student who has been academically suspended may not schedule courses at the University for two consecutive semesters. (Note: Summer session is equal to one semester.)

MORE INFORMATION ABOUT ACADEMIC SUSPENSION (<https://berks.psu.edu/academic-suspension/>)

READ SENATE POLICY 54-40: ACADEMIC SUSPENSION (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-40>)

Resources

Academic Advising Center

The Center provides academic advising, information, and referral services to Division of Undergraduate students, as well as to students enrolled elsewhere in the University, prospective students, faculty, and staff. Advisers help students evaluate their educational plans, answer questions about major fields, and provide information about policies and procedures.

MORE INFORMATION ABOUT THE ACADEMIC ADVISING CENTER (<https://berks.psu.edu/academic-advising-center/>)

Housing

On-campus housing serves 800+ students in The Village and The Woods. Both offer fully furnished suites that include amenities such as refrigerator/freezers, microwaves, wireless internet, computer ports, and much more. The college provide a safe, inclusive, comfortable, and supportive living environment for all students residing on campus.

MORE INFORMATION ABOUT HOUSING (<https://liveon.psu.edu/berks/>)

Career Services

The Career Services Office is a full-service resource for students and alumni of Penn State Berks, providing online career resources, counseling, and assistance in all facets of career planning and development, including career exploration, assistance for graduating seniors, student career services, internship opportunities, and workshops and networking events.

MORE INFORMATION ABOUT CAREER SERVICES (<https://berks.psu.edu/academics/career-services/>)

Canvas

Canvas is Penn State's online system for teaching and learning. It allows students to view their grades, keep track of due dates for assignments, submit assignments and quizzes, post and respond to discussions, and send and receive messages.

MORE INFORMATION ABOUT CANVAS (<https://canvas.psu.edu>)

Financial Aid

The Financial Aid Office works provides information about federal financial aid programs, including grants, loans, and work-study programs; state grant funds; and scholarship support. First-year students do not have to apply for funds as all students are reviewed in early spring for eligibility, based upon their prior academic performance.

MORE INFORMATION ABOUT FINANCIAL AID (<https://berks.psu.edu/tuition-and-financial-aid/financial-aid/>)

Honors Programs

Schreyer Honors College

The Schreyer Honors College, regarded as one of the nation's top programs of its kind, promotes achieving academic excellence with integrity, building a global perspective, and creating opportunities for leadership and civic engagement. Schreyer Scholars, including those admitted after their first or second year of enrollment, are a diverse and motivated group of approximately 2,000 students at University Park and 20 Commonwealth campuses. The College strives to educate students who will have an important and ethical influence in the world, to improve educational practice, and to continue to be recognized as a leading force in honors education nationwide.

MORE INFORMATION ABOUT THE SCHREYER HONORS COLLEGE (<https://www.shc.psu.edu>)

Honors at Penn State Berks

Penn State Berks offers the Berks College Honors Program. Students may select from a variety of special honors courses, honors options, independent study, and research programs. At the beginning of each academic semester, students work closely with both an academic adviser and the honors coordinator to develop individualized academic plans. Students receive several benefits including priority registration, semester-long library loans, partially-funded international travel, access to the Honors Student Lounge, and guidance on national and international scholarships.

MORE INFORMATION ABOUT HONORS AT PENN STATE BERKS (<https://berks.psu.edu/academics/special-programs/honors-programs/>)

Contact

PENN STATE BERKS
P.O. Box 7009
Reading, PA 19610-6009
610-396-6000
berksmaster@psu.edu

<https://berks.psu.edu>

Accounting, B.S. (Berks)

Begin Campus: Any Penn State Campus

End Campus: Berks

Program Description

This major helps students prepare for careers in auditing and public accounting, industrial and managerial accounting, and in governmental and not-for-profit accounting. It also provides a sound background

for students who plan to pursue graduate studies in accounting or related fields. Students who complete the prescribed courses and earn a Bachelor of Science degree will satisfy the academic requirements to sit for the Certified Public Accountant (CPA) examination. Graduates may also elect to pursue other professional certifications, including Certified Management Accountant (CMA), Certified Internal Auditor (CIA), Certified Fraud Examiner (CFE), and Certified Government Financial Manager (CGFM).

What is Accounting?

Accountants develop and interpret financial data required for decision-making by managers, investors, regulators, and other stakeholders. To perform their functions, accountants must work with both numerical information and concepts, and they must be able to function effectively as individuals and in teams. Accountants work with people in their own specialized departments, and with users of financial information throughout their organization. Because of this close association with other parts of the organization, the accountant is in a unique position to develop a broad business perspective.

You Might Like This Program If...

- You are comfortable with numbers and interested in the messages and the information that they provide.
- You are organized and detail-oriented. You want to pursue a career in business or finance.

Entrance to Major

Entry to the Accounting major requires the completion of 8 entry-to-major courses: ACCTG 211¹, ECON 102, ENGL 15¹ or ENGL 30H¹, FIN 301, MATH 110¹ or MATH 140¹, MGMT 301, MKTG 301, SCM 200¹ or STAT 200¹; and a 2.00 or higher cumulative grade-point average.

¹ Course requires a grade of C or better.

Degree Requirements

For the Bachelor of Science degree in Accounting, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives (non-business courses)	8
Requirements for the Major	79

12 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GWS courses; 3 credits of GS courses; 6 credits of GQ courses.

Consistent with Senate policy, at least 24 credits of course work in the major and the capstone course must be completed in the respective College to earn the degree. No more than 60 credits should be from business and business-related courses.

Students wishing to fulfill the 150 credit-hour education option to become a CPA in Pennsylvania (which reduces the experience requirement for certification) are encouraged to enter Capital College's Master of Professional Accounting program, or the Master of Business Administration program, or the Master of Science in Information Systems program subsequent to receiving their undergraduate accounting degree.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
BA 364Y	International Business and Society	3
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
FIN 301	Corporation Finance	3
MGMT 301	Basic Management Concepts	3
MIS 204	Introduction to Management Information Systems	3
MIS 390	Information Systems Management and Applications	3
MKTG 301	Principles of Marketing	3
SCM 301	Supply Chain Management	3
<i>Prescribed Courses: Require a grade of C or better</i>		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
ACCTG 310	Federal Taxation I	3
ACCTG 340	Cost Accounting	3
ACCTG 403	Auditing	3
ACCTG 471	Intermediate Financial Accounting I	3
ACCTG 472	Intermediate Financial Accounting II	3
ACCTG 473	Advanced Financial Accounting	3
BA 462	Business Strategy	3
ENGL 202D	Effective Writing: Business Writing	3
Additional Courses		
BA 241 & BA 242 or BA 243	Legal Environment of Business and Social and Ethical Environment of Business Social, Legal, and Ethical Environment of Business	4
<i>Additional Courses: Require a grade of C or better</i>		
MATH 110 or MATH 140	Techniques of Calculus I Calculus With Analytic Geometry I	4
SCM 200 or STAT 200	Introduction to Statistics for Business Elementary Statistics	4
Select 6 credits of the following:		6
ACCTG 410	Federal Taxation II	
ACCTG 431	Advanced Auditing	
ACCTG 432	Accounting Information Systems	
ACCTG 440	Advanced Management Accounting	
ACCTG 461	International Accounting	
ACCTG 462	Governmental and Not-for-Profit Accounting	
ACCTG 494	Research Project	
ACCTG 496	Independent Studies	
ACCTG 497	Special Topics	
Supporting Courses and Related Areas		
Select 6 credits from 200 - 400 level business courses from: ACCTG, BA, ECON, FIN, MGMT, MKTG, or SCM in consultation with an academic adviser and in support of the student's interests		6

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Accounting and M.P.Acc. in Accounting

Available at the following campuses: Abington, Berks

Requirements for the Integrated B.S. in Accounting and M.P.Acc. in Accounting can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/accounting-great-valley/#integratedundergradprogramstext>).

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Berks

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Abington

Tom Stone

Program Chair
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Altoona

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Harrisburg

Renee Flasher, Ph.D., CPA, CFE, CMA

Program Coordinator
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717-948-4316
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World Campus

Undergraduate Academic Advising

301 Outreach Building
University Park, PA 16802
814-863-3283
advising@outreach.psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Accounting, B.S. at Berks Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) ^{†#}	3 CAS 100A or 100B (GWS) [†]	3
MATH 110 or 140 (GQ) ^{†#}	4 SCM 200 or STAT 200 (GQ) ^{†#}	4
ECON 102 (GS) ^{#†}	3 ECON 104	3
General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3
General Education Course (GN or GA or GH)	3 General Education Course (GN)	3
First-Year Seminar	1	
	17	16

Second Year

Fall	Credits Spring	Credits
ACCTG 211 ^{*#}	4 ENGL 202D (GWS) [†]	3
MGMT 301 or MKTG 301 [#]	3 MGMT 301 or MKTG 301 [#]	3

General Education Course (Integrative Studies)	3 FIN 301 [#]	3
General Education Course (Integrative Studies)	3 MIS 204	3
General Education Course (Exploration)	3 General Education Course (Exploration)	3
16		15

Third Year

Fall	Credits Spring	Credits
ACCTG 340 [*]	3 ACCTG 310 [*]	3
ACCTG 471 [*]	3 ACCTG 472 [*]	3
BA 243	4 MIS 390	3
SCM 301	3 Elective: Writing Across The Curriculum	3
General Education Course (GHW)	3 Elective	3
16		15

Fourth Year

Fall	Credits Spring	Credits
ACCTG 473 [*]	3 ACCTG 403 [*]	3
BA 364Y	3 BA 462 [*]	3
300 - 400 Level ACCTG Selection [*]	3 300 - 400 Level ACCTG Selection [*]	3
200 - 400 Level Business Selection	3 200 - 400 Level Business Selection	3
Elective	3	
15		12

Total Credits 122

- * Course requires a grade of C or better for the major
 ‡ Course requires a grade of C or better for General Education
 # Course is an Entrance to Major requirement
 † Course satisfies General Education and degree requirement

¹ For General Education Course notations, please be sure to include three (3) credits of United States (US) Cultures and three (3) credits of International (IL) Cultures. Consult adviser for details.

² The following courses are offered Fall Semester only: ACCTG 340, ACCTG 471, ACCTG 473.

³ The following courses are offered Spring Semester only: ACCTG 310, ACCTG 472, MIS 390.

⁴ For 300 - 400 Level ACCTG Selection, consult adviser for list.

⁵ For 200 - 400 Level Business Selection, consult adviser for list.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain

attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

Because the Harrisburg area is the center of industry and economic development for south-central Pennsylvania, Penn State Harrisburg accounting students are provided with many opportunities to experience the world of business.

Careers

An accounting degree helps students prepare for careers in auditing and public accounting, industrial and managerial accounting, and in governmental and not-for-profit accounting. Students who complete the prescribed courses and earn a BS degree will satisfy the academic requirements to sit for the Certified Public Accountant (CPA) examination. Graduates may also elect to pursue other professional certifications, including Certified Management Accountant (CMA), Certified Internal Auditor (CIA), Certified Fraud Examiner (CFE), and Certified Government Financial Manager (CGFM).

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE ACCOUNTING PROGRAM (<https://harrisburg.psu.edu/business-administration/accounting-bs/>)

Opportunities for Graduate Studies

The Bachelor of Science in Accounting provides a sound background for students who plan to pursue graduate studies in accounting or related fields, including Penn State's Master of Professional Accounting.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://harrisburg.psu.edu/business-administration/accounting-bs/>)

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

Berks

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 610-396-6448
 BKAccounting@psu.edu

<https://berks.psu.edu/academics/baccalaureate-degrees/accounting/>
[\(https://berks.psu.edu/academics/baccalaureate-degrees/accounting/\)](https://berks.psu.edu/academics/baccalaureate-degrees/accounting/)

Abington

DIVISION OF SOCIAL SCIENCES
 1600 Woodland Rd.
 Abington, PA 19001
 215-421-0030
 tws16@psu.edu

<https://www.abington.psu.edu/academics/majors-at-abington> (<https://www.abington.psu.edu/academics/majors-at-abington/>)

Altoona

DIVISION OF BUSINESS, ENGINEERING, AND INFORMATION SCIENCES
AND TECHNOLOGY

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Altoona, PA 16601
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<https://altoona.psu.edu/academics/bachelors-degrees/accounting>
(<https://altoona.psu.edu/academics/bachelors-degrees/accounting/>)

Harrisburg

SCHOOL OF BUSINESS ADMINISTRATION

Olmsted Building, E355
Middletown, PA 17057
717-948-6139
cxs879@psu.edu

<https://harrisburg.psu.edu/business-administration/accounting-bs>
(<https://harrisburg.psu.edu/business-administration/accounting-bs/>)

World Campus

SCHOOL OF BUSINESS ADMINISTRATION

Olmsted Building, E355
Middletown, PA 17057
717-948-6139
ruk158@psu.edu

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-accounting-bachelor-of-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-accounting-bachelor-of-science-degree/>)

Biochemistry and Molecular Biology, B.S. (Berks)

Begin Campus: Any Penn State Campus

End Campus: Berks

Program Description

Students in this major apply basic principles of chemistry and physics to the study of living cells and their components to explain biology at molecular, genetic, and cellular levels. Students will develop a strong foundation in quantitative and analytical biological sciences, including molecular biology, biochemistry, enzymology, metabolism, cell biology, and molecular genetics.

Biochemistry Option

Available at the following campuses: Berks, University Park

The Biochemistry Option is offered for students who have interests in the structures, properties and functions of macromolecules, and in the quantitative and analytical techniques used to characterize these macromolecules.

Molecular and Cell Biology Option

Available at the following campuses: Berks, University Park

The Molecular and Cell Biology Option is available to students whose interests relate to the growth, reproduction and differentiation of cells and to signaling processes that occur in multicellular systems that activate and modulate these processes. The curriculum is designed to prepare students for advanced study leading to careers in research, medicine, and education, or to secure employment in biotechnology and health-related industries, including government, academic, and private laboratories.

What is Biochemistry and Molecular Biology?

Biochemistry and Molecular Biology is the study of the molecular basis of life. Biochemistry uses the principles of chemistry and physics to understand biological molecules, structures, and reactions. Molecular biology focuses on how biological molecules interact to form cells, organisms, and behaviors.

You Might Like This Program If...

- You like learning by doing experiments.
- You want to know how life works at the most fundamental level.
- You are interested in understanding the molecular basis of health, disease, and behavior.
- You want to learn how molecules can be manipulated to address global challenges such as disease, famine, and energy needs.

Entrance to Major

In order to be eligible for entrance to the Biochemistry and Molecular Biology major, a student must have:

1. attained at least a 2.00 cumulative grade-point average, and
2. completed CHEM 110, CHEM 111, CHEM 112, and MATH 140; and
3. earned a grade of C or better in each of these courses.

Degree Requirements

For the Bachelor of Science degree in Biochemistry and Molecular Biology, a minimum of 125 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	95

15 of the 45 credits for General Education are included in the Requirements for the Major. This: 9 credits of GN courses; 6 credits of GQ courses.

Requirements for the Major

To graduate, a grade of C or better is required in 9 credits of any BMB or MICRB 400-level course except: BMB 408, BMB 442, BMB 443W, BMB 445W, BMB 448, BMB 488, BMB 496 MICRB 408, MICRB 421W, MICRB 422, MICRB 447.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
BIOL 322	Genetic Analysis	3
BMB 251	Molecular and Cell Biology I ¹	3
BMB 252	Molecular and Cell Biology II ¹	3
BMB 400	Molecular Biology of the Gene	2
BMB 401	General Biochemistry	3
BMB 402	General Biochemistry	3
BMB 442	Laboratory in Proteins, Nucleic Acids, and Molecular Cloning	3
BMB 443W	Laboratory in Protein Purification and Enzymology	3
CHEM 113	Experimental Chemistry II	1
CHEM 210	Organic Chemistry I	3
CHEM 212	Organic Chemistry II	3
CHEM 213	Laboratory in Organic Chemistry	2
MATH 141	Calculus with Analytic Geometry II	4
MICRB 201	Introductory Microbiology ¹	3
MICRB 202	Introductory Microbiology Laboratory	2
PSU 16	First-Year Seminar Science	1
<i>Prescribed Courses: Require a grade of C or better</i>		
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
MATH 140	Calculus With Analytic Geometry I	4
Additional Courses		
BMB 445W	Laboratory in Molecular Genetics	2
or BMB 448	Model Systems and Approaches in Cell Biology Inquiry	
Requirements for the Option		
Select an option		40

¹ To graduate, a grade of C or better is required in two of the following courses: MICRB 201, BMB 251/MICRB 251, and/or BMB 252/MICRB 252.

**Requirements for the Option
Biochemistry Option (40 credits)**

Available at the following campuses: Berks, University Park

Code	Title	Credits
Prescribed Courses		
BMB 474	Analytical Biochemistry	3
CHEM 450	Physical Chemistry - Thermodynamics	3
CHEM 452	Physical Chemistry - Quantum Chemistry	3
PHYS 211	General Physics: Mechanics	4
PHYS 212	General Physics: Electricity and Magnetism	4
PHYS 213	General Physics: Fluids and Thermal Physics	2
PHYS 214	General Physics: Wave Motion and Quantum Physics	2
Supporting Courses and Related Areas		
Select 7-9 credits from any 400-level BMB/CHEM/MICRB course or from department list D (additional 400-level courses) ¹		7-9

Select 2-3 credits in the mathematical sciences from department list B
 Select 7-10 credits from department list C 7-10

¹ With a maximum of 3 credits in BMB 408 and/or MICRB 408 and a maximum of 4 credits in BMB 488 and/or BMB 496.

Molecular and Cell Biology Option (40 credits)

Available at the following campuses: Berks, University Park

Code	Title	Credits
Prescribed Courses		
BMB 430	Developmental Biology	3
BMB 460	Cell Growth and Differentiation	3
MICRB 410	Principles of Immunology	3
Additional Courses		
Select 8 credits of the following:		8
PHYS 211	General Physics: Mechanics	
& PHYS 212	and General Physics: Electricity and Magnetism	
PHYS 250	Introductory Physics I	
& PHYS 251	and Introductory Physics II	
Select 3-6 credits of the following:		3-6
BMB 428	Physical Chemistry with Biological Applications	
CHEM 450	Physical Chemistry - Thermodynamics	
& CHEM 452	and Physical Chemistry - Quantum Chemistry	

Supporting Courses and Related Areas

Select 5-6 credits from any 400-level BMB/MICRB course or from department list D (additional 400-level courses) ¹ 5-6

Select 2-3 credits in the mathematical sciences from department list B 2-3

Select 8-13 credits from department list C 8-13

¹ With a total maximum of 3 credits in BMB 408 and/or MICRB 408 and a maximum of 4 credits in BMB 488 and/or BMB 496.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- Arts (GA): 3 credits
- Health and Wellness (GHW): 3 credits
- Humanities (GH): 3 credits
- Social and Behavioral Sciences (GS): 3 credits
- Natural Sciences (GN): 3 credits

Integrative Studies

- Inter-Domain Courses (Inter-Domain): 6 credits

Exploration

- GN, may be completed with Inter-Domain courses: 3 credits
- GA, GH, GN, GS, Inter-Domain courses. This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

• Collaboration and Communication:

- Students will be able to:
 - demonstrate the ability to work in teams to solve biochemical problems
 - communicate in a variety of formal and informal ways to discuss biochemical data

• Core Concepts:

- Students will be able to:
 - trace energy/matter transformation, storage, and mobilization in biological systems
 - explain how genetic information is exchanged and stored
 - recognize how changes in biological structures can have varying effects on function
 - describe how evolutionary processes are an integral part of the molecular life sciences
 - explain examples of how organisms maintain cellular and molecular homeostasis

• Process of Science:

- Students will be able to:
 - develop a hypothesis, design and conduct appropriate experiments
 - analyze and interpret data using appropriate quantitative modeling and simulation tools
 - keep an accurate laboratory notebook
 - participate in the peer review/revision process

• Quantitative Reasoning and Data Science:

- Students will be able to:
 - apply basic quantitative competencies such as algebra, probability, statistics, unit conversions, and fundamental biological equations
 - organize, summarize, and interpret quantitative data
 - find and analyze data from large databases

• Science and Society:

- Students will be able to:
 - explore the impacts of scientific research on society and how society influences/relies on research to inform decision-making
 - evaluate the ethical implications of biochemical research
 - recognize ethical issues in a variety of settings

• Scientific Evidence Evaluation:

- Students will be able to:
 - discriminate among scientific claims presented in a variety of sources based on the strength of evidence
 - find appropriate published scientific literature
 - analyze and critically evaluate data/conclusions from the scientific peer-reviewed literature

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged

in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Berks

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Biochemistry Option: Biochemistry and Molecular Biology, B.S. at Berks Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
ENGL 15 or 30H (GWS) [†]	3	CAS 100A or 100B (GWS) [‡]	3
MATH 140 or 140B (GQ) ^{*†#}	4	MATH 141 or 141B (GQ) [‡]	4
CHEM 110 (GN) ^{*#†}	3	CHEM 112 (GN) ^{*#†}	3
CHEM 111 (GN) ^{*#†}	1	CHEM 113 (GN) [†]	1
General Education Course (GA or GH or GS)	3	PHYS 211 [†]	4
First-Year Seminar	1	General Education Course (GHW)	1.5
	15		16.5

Second Year

Fall	Credits	Spring	Credits
BMB 251 [*]	3	ENGL 202C (GWS) [‡]	3
CHEM 210	3	BMB 252 [*]	3
PHYS 212	4	CHEM 212	3
MICRB 201 [*]	3	CHEM 213	2

MICRB 202	2	PHYS 213	2
		PHYS 214	2
		General Education Course (GHW)	1.5
	15		16.5

Third Year

Fall	Credits	Spring	Credits
BMB 401	3	BMB 402	3
BMB 442	3	BMB 443W	3
BIOL 322	3	CHEM 452	3
CHEM 450	3	STAT 250	3
General Education Course (GA or GH or GS)	3	General Education Course (GA or GH or GS)	3
	15		15

Fourth Year

Fall	Credits	Spring	Credits
BMB 448 (Students must complete either BMB 445W or BMB 448. BMB 445W is offered Spring Semester only and BMB 448 is offered Fall Semester only.)	2	BMB 445W (Students must complete either BMB 445W or BMB 448. BMB 445W is offered Spring Semester only and BMB 448 is offered Fall Semester only.)	2
400 Level BIOL or BMB or CHEM or MICRB Selection	3	BMB 400	3
400 Level BIOL or BMB or CHEM or MICRB Selection	3	BMB 474	3
Department List Selection	3	400 Level BIOL or BMB or CHEM or MICRB Selection	3
General Education Course (Integrative Studies)	3	Department List Selection	3
General Education Course (Exploration)	3	General Education Course (Integrative Studies)	3
	17		17

Total Credits 127

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

- ¹ For General Education Course notations, please be sure to include three (3) credits of United States (US) Cultures and three (3) credits of International (IL) Cultures. Consult adviser for details.
- ² The following courses are offered Fall Semester only: BIOL 322, BMB 251, BMB 401, BMB 442, CHEM 210, CHEM 450.
- ³ The following courses are offered Spring Semester only: BMB 252, BMB 400, BMB 402, BMB 443W, BMB 474, CHEM 452, PHYS 213, PHYS 214.
- ⁴ Students must earn a quality grade of C or better in nine (9) credits of BMB and/or MICRB courses. Consult adviser for details.
- ⁵ For STAT 250, the following courses may be substituted: CMPSC 101, CMPSC 201, MATH 220, MATH 231, MATH 250, STAT 200, or STAT 401. STAT 401 is offered Spring Semester only.

Molecular and Cell Biology Option: Biochemistry and Molecular Biology, B.S. at Berks Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100A or 100B (GWS) [‡]	3
MATH 140 or 140B (GQ) ^{‡#}	4 MATH 141 or 141B (GQ) [‡]	4
CHEM 110 (GN) ^{**†}	3 CHEM 112 (GN) ^{**†}	3
CHEM 111 (GN) ^{**†}	1 CHEM 113 (GN) [†]	1
General Education Course (GA or GH or GS)	3 General Education Course (GA or GH or GS)	3
First-Year Seminar	1 General Education Course (GA or GH or GS)	3
	15	17

Second Year

Fall	Credits Spring	Credits
BMB 251 [*]	3 ENGL 202C (GWS) [‡]	3
CHEM 210	3 BMB 252 [*]	3
PHYS 250 [†]	4 CHEM 212	3
MICRB 201 [*]	3 CHEM 213	2
MICRB 202	2 PHYS 251	4
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
	16.5	16.5

Third Year

Fall	Credits Spring	Credits
BMB 401	3 BMB 402	3
BMB 430	3 BMB 443W	3
BMB 442	3 MICRB 410	3
BIOL 322	3 STAT 250	3
General Education Course (Integrative Studies)	3 General Education Course (Integrative Studies)	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
BMB 448 (Students must complete either BMB 445W or BMB 448. BMB 445W is offered Spring Semester only and BMB 448 is offered Fall Semester only.)	2 BMB 445W (Students must complete either BMB 445W or BMB 448. BMB 445W is offered Spring Semester only and BMB 448 is offered Fall Semester only.)	2
BMB 428	3 BMB 400	3
BMB 460	3 400 Level BIOL or BMB or CHEM or MICRB Selection	3
400 Level BIOL or BMB or CHEM or MICRB Selection	3 Department List Selection	3
Department List Selection	3 General Education Course (Exploration)	3

Department List Selection	3
	17
	14

Total Credits 126

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ For General Education Course notations, please be sure to include three (3) credits of United States (US) Cultures and three (3) credits of International (IL) Cultures. Consult adviser for details.

² The following courses are offered Fall Semester only: BIOL 322, BMB 251, BMB 401, BMB 430, BMB 442, BMB 460, CHEM 210, PHYS 250.

³ The following courses are offered Spring Semester only: BMB 252, BMB 400, BMB 402, BMB 443W, MICRB 410, PHYS 251.

⁴ Students must earn a quality grade of C or better in nine (9) credits of BMB and/or MICRB courses. Consult adviser for details.

⁵ For PHYS 250 and PHYS 251, the following course sequence may be substituted: PHYS 211, PHYS 212, PHYS 213, PHYS 214. PHYS 213 and PHYS 214 are offered Spring Semester only.

⁶ For STAT 250, the following courses may be substituted: CMPSC 101, CMPSC 201, MATH 220, MATH 231, MATH 250, STAT 200, or STAT 401. STAT 401 is offered Spring Semester only.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

Penn State students with a B.S. in Biochemistry & Molecular Biology are prepared for jobs in industry as well as government, medical, and university research laboratories. Many students also decide to continue their studies by attending graduate programs or professional schools including medical, dental, business, and law school.

Careers

A B.S. in Biochemistry and Molecular Biology prepares students for a wide variety of careers, including health related professions, professions in academia, government, and industry. Examples of biochemistry related careers are:

- Agricultural Scientist
- Biological / Media Illustrator
- Biomedical Researcher
- Drug Development

- Genetic Counselor
- Genetic Engineer
- Health Professions – e.g. Dentist, Optometrist, Pharmacist, Physician, Physician Assistant
- Industry Scientist
- Pharmaceutical Sales
- Pharmaceutical Sciences
- Professor
- Science Policy Expert
- Optometrist
- Science Writer / Editor
- Patent Attorney
- Research Technician

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE BIOCHEMISTRY AND MOLECULAR BIOLOGY PROGRAM (<https://www.asbmb.org/career-resources/>)

Opportunities for Graduate Study

Many Penn State students with a BS in Biochemistry and Molecular Biology will pursue graduate education in biochemistry or other related disciplines (biology, bioinformatics, chemistry, genomics, immunology, neurobiology, toxicology, pharmacology, and others). A B.S. in Biochemistry and Molecular Biology also prepares students to pursue higher degrees in the health professions. Opportunities for graduate studies include, but are not limited to, the following:

- Graduate Studies (M.S. or Ph.D.)
- Dental School Medical School (MD or DO)
- Optometry School, Pharmacy School
- Physical Therapy School
- Veterinary School.

In addition, graduates with a BMB degree may decide to pursue further education in law or business.

Professional Resources

- American Society for Biochemistry and Molecular Biology (<https://www.asbmb.org/>)

Contact

Berks

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<https://berks.psu.edu/academics/bs-biochemistry-molecular-biology>
(<https://berks.psu.edu/academics/bs-biochemistry-molecular-biology/>)

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<https://science.psu.edu/bmb/undergraduate/contacts> (<https://science.psu.edu/bmb/undergraduate/contacts/>)

Biology, B.S. (Berks)

Begin Campus: Any Penn State Campus

End Campus: Berks

Program Description

Biology is the scientific study of life: the diversity and organization of organisms, from single-celled bacteria to multi-cellular plants and animals, including humans. These different levels of biological organization range from the molecules and cells that compose an organism, to the interacting organisms that make up an ecosystem. Hands-on experiences, from designing and conducting lab experiments to making field observations, using many different procedures and instruments, play an important role in gaining biological knowledge. Basic research in biology provides many benefits. Faculty in the Department of Biology at Penn State are exploring ways to cure neurological diseases, to conserve coral populations in tropical oceans, to discover more efficient ways to use plants for food and bioenergy, to develop vaccines for infectious diseases, and investigating many other facets of biology, all with the goal of positively impacting humans and the environment.

You Might Like This Program If...

- You are interested in learning about aspects of the biology of organisms that live on Earth.
- You enjoy a dynamic field of study, with new discoveries being made every day.
- You are interested in hands-on experiences, including courses with integrated laboratories and conducting research with faculty.
- You plan to pursue a career in biology research, education or outreach, or attend professional school in areas including medicine and dentistry.

Entrance To Major

In order to be eligible for entrance to the Biology major, a student must have:

1. attained at least a 2.00 cumulative grade point average;
2. completed BIOL 110, CHEM 110, MATH 140, and earned a grade of C or better in each of these courses; and
3. completed at least one of the following courses with a grade of C or better: BIOL 220W, BIOL 230W, or BIOL 240W.

Degree Requirements

For the Bachelor of Science degree in Biology, a minimum of 124 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	94

15 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
CHEM 111	Experimental Chemistry I	1
CHEM 113	Experimental Chemistry II	1
MATH 141	Calculus with Analytic Geometry II	4
<i>Prescribed Courses: Require a grade of C or better</i>		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
BIOL 220W	Biology: Populations and Communities	4
BIOL 230W	Biology: Molecules and Cells	4
BIOL 240W	Biology: Function and Development of Organisms	4
CHEM 110	Chemical Principles I	3
CHEM 112	Chemical Principles II	3
MATH 140	Calculus With Analytic Geometry I	4
Additional Courses		
Select one of the following:		8-12
PHYS 211 & PHYS 212 & PHYS 213 & PHYS 214	General Physics: Mechanics and General Physics: Electricity and Magnetism and General Physics: Fluids and Thermal Physics and General Physics: Wave Motion and Quantum Physics	
PHYS 250 & PHYS 251	Introductory Physics I and Introductory Physics II	
Select one of the following:		3-4
STAT 200	Elementary Statistics	
STAT 240	Introduction to Biometry	
STAT 250	Introduction to Biostatistics	
Requirements for the Option		
Select an option		46-51

Requirements for the Option Ecology Option (46-51 credits)

Available at the following campuses: Altoona, Schuylkill, University Park

Code	Title	Credits
Prescribed Courses		
BIOL 463	General Ecology	3
Additional Courses		
STAT 462 or STAT 464	Applied Regression Analysis Applied Nonparametric Statistics	3
Select one of the following:		6-8
CHEM 202 & CHEM 203	Fundamentals of Organic Chemistry I and Fundamentals of Organic Chemistry II	
CHEM 210 & CHEM 212 & CHEM 213	Organic Chemistry I and Organic Chemistry II and Laboratory in Organic Chemistry	

Groups

Select a minimum of 15 credits of 400-level biology courses, with at least 6 credits from the Ecology group, 3 credits from the Evolution group, and 3 credits from the Practicum group. A maximum of 3 credits of BIOL 400, 494, 495, 496, and SC 295, 395, 495 may be used to fulfill 15 credits minimum in the 400-level biology course requirements.

Ecology Group:		
BIOL 406	Symbiosis	
BIOL 412	Ecology of Infectious Diseases	
BIOL 415	Ecotoxicology	
BIOL 417	Invertebrate Zoology	
BIOL 419	Ecological and Environmental Problem Solving	
BIOL/PPEM 425	Biology of Fungi	
BIOL 429	Animal Behavior	
BIOL 435	Ecology of Lakes and Streams	
BIOL 436	Population Ecology and Global Climate Change	
BIOL 438	Theoretical Population Ecology	
BIOL 444	Field Ecology	
BIOL 446	Physiological Ecology	
BIOL 450W	Experimental Field Biology	
BIOL 464	Sociobiology	
BIOL 474	Astrobiology	
BIOL 482	Coastal Biology	
BIOL 499A	Tropical Field Ecology	
Evolution Group:		
BIOL 405	Molecular Evolution	
BIOL 406	Symbiosis	
BIOL 411	Medical Embryology	
BIOL 414	Taxonomy of Seed Plants	
BIOL 417	Invertebrate Zoology	
BIOL 420	Paleobotany	
BIOL 421	Comparative Anatomy of Vertebrates	
BIOL 422	Advanced Genetics	
BIOL/PPEM 425	Biology of Fungi	
BIOL 427	Evolution	
BIOL 428	Population Genetics	
BIOL 429	Animal Behavior	
BIOL 432	Developmental Genetics	
BIOL 433	Evolution of Vertebrates	
BIOL 434	Pathobiology of Emerging Infectious Disease	
BIOL 436	Population Ecology and Global Climate Change	
BIOL 438	Theoretical Population Ecology	
BIOL 439	Practical Bioinformatics	
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms	
BIOL 446	Physiological Ecology	
BIOL 451	Biology of RNA	
BIOL 460	Human Genetics	
BIOL 463	General Ecology	
BIOL 464	Sociobiology	
BIOL 474	Astrobiology	
BIOL 478	COMPARATIVE NEUROANATOMY	

Practicum Group:

BIOL 400	Teaching in Biology
BIOL 402W	Biological Experimental Design
BIOL 407	Plant Developmental Anatomy
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 419	Ecological and Environmental Problem Solving
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 433	Evolution of Vertebrates
BIOL 437	Histology
BIOL 439	Practical Bioinformatics
BIOL 444	Field Ecology
BIOL 450W	Experimental Field Biology
BIOL 461	Contemporary Issues in Science and Medicine
BIOL 473	Laboratory in Mammalian Physiology
BIOL 475N	
BIOL 478	COMPARATIVE NEUROANATOMY
BIOL 482	Coastal Biology
BIOL 494	Research Project
BIOL 495	Internship in Biology
BIOL 496	Independent Studies
BIOL 499A	Tropical Field Ecology
BIOTC 459	Plant Tissue Culture and Biotechnology
SC 295	Science Co-op Work Experience I
SC 395	Science Co-op Work Experience II
SC 495	Science Co-op Work Experience III

Supporting Courses and Related Areas

Select 17-24 credits from department list 17-24

General Biology Option (46-51 credits)

Available at the following campuses: Abington, Altoona, Beaver, Berks, Brandywine, Harrisburg, Lehigh Valley, Schuylkill, Scranton, University Park, York

Code	Title	Credits
Additional Courses		
Select one of the following:		6-8
CHEM 202 & CHEM 203	Fundamentals of Organic Chemistry I and Fundamentals of Organic Chemistry II	
CHEM 210 & CHEM 212 & CHEM 213	Organic Chemistry I and Organic Chemistry II and Laboratory in Organic Chemistry	

Groups

Select a minimum of 18 credits of 400-level biology courses, with at least 3 credits from each of the following groups (each course may be used to satisfy a requirement in only one group). Moreover, a maximum of 3 credits of BIOL 400, 494, 495, 496 and SC 295, 395, 495 may be used to fulfill the 18 credit minimum in the 400-level biology course requirements. 18

Plant and Fungi Group:

BIOL 406	Symbiosis
BIOL 407	Plant Developmental Anatomy

BIOL 414	Taxonomy of Seed Plants
BIOL 420	Paleobotany
BIOL 424	Seeds of Change: The Uses of Plants
BIOL/PPEM 425	Biology of Fungi
BIOL 431	Reproductive Biology
BIOL 441	Plant Physiology
BIOL 444	Field Ecology
BIOL 446	Physiological Ecology
BIOL 448	Ecology of Plant Reproduction
BIOL 451	Biology of RNA
BIOL 482	Coastal Biology
BIOL 499A	Tropical Field Ecology
PPEM 427	Mycotoxins: Effects of Fungal Toxins on Human and Animal Health

Evolution Group:

BIOL 405	Molecular Evolution
BIOL 406	Symbiosis
BIOL 411	Medical Embryology
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 420	Paleobotany
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 427	Evolution
BIOL 428	Population Genetics
BIOL 429	Animal Behavior
BIOL 432	Developmental Genetics
BIOL 433	Evolution of Vertebrates
BIOL 434	Pathobiology of Emerging Infectious Disease
BIOL 436	Population Ecology and Global Climate Change
BIOL 438	Theoretical Population Ecology
BIOL 439	Practical Bioinformatics
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 446	Physiological Ecology
BIOL 451	Biology of RNA
BIOL 460	Human Genetics
BIOL 463	General Ecology
BIOL 464	Sociobiology
BIOL 474	Astrobiology
BIOL 478	COMPARATIVE NEUROANATOMY

Genetics and Developmental Biology Group:

BIOL 404	Cellular Mechanisms in Vertebrate Physiology
BIOL 405	Molecular Evolution
BIOL 407	Plant Developmental Anatomy
BIOL 411	Medical Embryology
BIOL 413	Cell Signaling and Regulation
BIOL 416	Biology of Cancer
BIOL 422	Advanced Genetics
BIOL 426	Developmental Neurobiology
BIOL 428	Population Genetics

BIOL 430	Developmental Biology
BIOL 431	Reproductive Biology
BIOL 432	Developmental Genetics
BIOL 439	Practical Bioinformatics
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 448	Ecology of Plant Reproduction
BIOL 451	Biology of RNA
BIOL 460	Human Genetics
BIOL 467	Molecular Basis of Neurological Diseases
BIOL 469	Neurobiology
MICRB 410	Principles of Immunology
Ecology Group:	
BIOL 406	Symbiosis
BIOL 412	Ecology of Infectious Diseases
BIOL 415	Ecotoxicology
BIOL 417	Invertebrate Zoology
BIOL 419	Ecological and Environmental Problem Solving
BIOL/PPEM 425	Biology of Fungi
BIOL 429	Animal Behavior
BIOL 435	Ecology of Lakes and Streams
BIOL 436	Population Ecology and Global Climate Change
BIOL 438	Theoretical Population Ecology
BIOL 444	Field Ecology
BIOL 446	Physiological Ecology
BIOL 450W	Experimental Field Biology
BIOL 463	General Ecology
BIOL 464	Sociobiology
BIOL 474	Astrobiology
BIOL 482	Coastal Biology
BIOL 499A	Tropical Field Ecology
Physiology Group:	
BIOL 404	Cellular Mechanisms in Vertebrate Physiology
BIOL 406	Symbiosis
BIOL 409	Biology of Aging
BIOL 411	Medical Embryology
BIOL 412	Ecology of Infectious Diseases
BIOL 413	Cell Signaling and Regulation
BIOL 415	Ecotoxicology
BIOL 416	Biology of Cancer
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 424	Seeds of Change: The Uses of Plants
BIOL 426	Developmental Neurobiology
BIOL 430	Developmental Biology
BIOL 431	Reproductive Biology
BIOL 432	Developmental Genetics
BIOL 437	Histology
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 446	Physiological Ecology
BIOL 460	Human Genetics
BIOL 469	Neurobiology
BIOL 470	Functional and Integrative Neuroscience

BIOL 472	Human Physiology
BIOL 478	COMPARATIVE NEUROANATOMY
BIOL 479	General Endocrinology
BIOL 482	Coastal Biology
Practicum Group:	
BIOL 400	Teaching in Biology
BIOL 402W	Biological Experimental Design
BIOL 407	Plant Developmental Anatomy
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 419	Ecological and Environmental Problem Solving
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 433	Evolution of Vertebrates
BIOL 437	Histology
BIOL 439	Practical Bioinformatics
BIOL 444	Field Ecology
BIOL 450W	Experimental Field Biology
BIOL 461	Contemporary Issues in Science and Medicine
BIOL 473	Laboratory in Mammalian Physiology
BIOL 475N	
BIOL 476	Advanced Human Anatomy - cadaver based
BIOL 478	COMPARATIVE NEUROANATOMY
BIOL 482	Coastal Biology
BIOL 494	Research Project
BIOL 495	Internship in Biology
BIOL 496	Independent Studies
BIOL 499A	Tropical Field Ecology
BIOTC 459	Plant Tissue Culture and Biotechnology
SC 295	Science Co-op Work Experience I
SC 395	Science Co-op Work Experience II
SC 495	Science Co-op Work Experience III

Supporting Courses and Related Areas

Select 20-27 credits from department list

20-27

Genetics and Developmental Biology Option (46-51 credits)*Available at the following campuses: Abington, Berks, Harrisburg, Schuylkill, University Park, York*

Code	Title	Credits
Prescribed Courses		
BIOL 322	Genetic Analysis	3
BIOL 430	Developmental Biology	3
BMB 401	General Biochemistry	3
BMB 402	General Biochemistry	3
CHEM 210	Organic Chemistry I	3
CHEM 212	Organic Chemistry II	3
CHEM 213	Laboratory in Organic Chemistry	2
Additional Courses		
Select 2-5 credits from the following:		2-5
MATH 220	Matrices	
MATH 231	Calculus of Several Variables	

MICRB 201	Introductory Microbiology
MICRB 202	Introductory Microbiology Laboratory

Groups

Select a minimum of 12 credits of 400-level courses, with at least 6 credits from the Genetics and Developmental Biology group, 3 credits from Evolution, and 3 credits from the Practicum group. A maximum of 3 credits of BIOL 400, 494, 495, 496 and SC 295, 395, 495 may be used to fulfill the 12 credit minimum in the 400-level biology course requirements.

Genetics and Developmental Biology Group:

BIOL 404	Cellular Mechanisms in Vertebrate Physiology
BIOL 405	Molecular Evolution
BIOL 407	Plant Developmental Anatomy
BIOL 411	Medical Embryology
BIOL 413	Cell Signaling and Regulation
BIOL 416	Biology of Cancer
BIOL 422	Advanced Genetics
BIOL 426	Developmental Neurobiology
BIOL 428	Population Genetics
BIOL 431	Reproductive Biology
BIOL 432	Developmental Genetics
BIOL 439	Practical Bioinformatics
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 448	Ecology of Plant Reproduction
BIOL 451	Biology of RNA
BIOL 460	Human Genetics
BIOL 467	Molecular Basis of Neurological Diseases
BIOL 469	Neurobiology
BMB 400	Molecular Biology of the Gene
or BMB 450	Microbial/Molecular Genetics
or BMB 464	Molecular Medicine
or BMB 484	Functional Genomics
or HORT 407	Plant Breeding
or MICRB 41	Principles of Immunology

Evolution Group:

BIOL 405	Molecular Evolution
BIOL 406	Symbiosis
BIOL 411	Medical Embryology
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 420	Paleobotany
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 427	Evolution
BIOL 428	Population Genetics
BIOL 429	Animal Behavior
BIOL 432	Developmental Genetics
BIOL 433	Evolution of Vertebrates
BIOL 434	Pathobiology of Emerging Infectious Disease
BIOL 436	Population Ecology and Global Climate Change
BIOL 438	Theoretical Population Ecology

BIOL 439	Practical Bioinformatics
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 446	Physiological Ecology
BIOL 451	Biology of RNA
BIOL 460	Human Genetics
BIOL 463	General Ecology
BIOL 464	Sociobiology
BIOL 474	Astrobiology
BIOL 478	COMPARATIVE NEUROANATOMY
Practicum Group:	
BIOL 400	Teaching in Biology
BIOL 402W	Biological Experimental Design
BIOL 407	Plant Developmental Anatomy
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 419	Ecological and Environmental Problem Solving
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 433	Evolution of Vertebrates
BIOL 437	Histology
BIOL 439	Practical Bioinformatics
BIOL 444	Field Ecology
BIOL 450W	Experimental Field Biology
BIOL 461	Contemporary Issues in Science and Medicine
BIOL 473	Laboratory in Mammalian Physiology
BIOL 475N	
BIOL 478	COMPARATIVE NEUROANATOMY
BIOL 482	Coastal Biology
BIOL 494	Research Project
BIOL 495	Internship in Biology
BIOL 496	Independent Studies
BIOL 499A	Tropical Field Ecology
SC 295	Science Co-op Work Experience I
SC 395	Science Co-op Work Experience II
SC 495	Science Co-op Work Experience III

Supporting Courses and Related Areas

Select 9-17 credits from department list 9-17

Neuroscience Option (46-51 credits)

Available at the following campuses: University Park

Code	Title	Credits
Prescribed Courses		
BIOL 469	Neurobiology	3
BMB 401	General Biochemistry	3
BMB 402	General Biochemistry	3
CHEM 210	Organic Chemistry I	3
CHEM 212	Organic Chemistry II	3
CHEM 213	Laboratory in Organic Chemistry	2
Additional Courses		
Select 3 credits from the following:		3

BIOL 426	Developmental Neurobiology
BIOL 470	Functional and Integrative Neuroscience
BIOL 478	COMPARATIVE NEUROANATOMY

Groups

Select a minimum of 12 credits of 400-level biology courses, with at least 6 credits from the Neuroscience group, 3 credits from the Evolution group, and 3 credits from the Practicum Group. A maximum of 3 credits of BIOL 400, 494, 495, 496 and SC 295, 395, 495 may be used to fulfill the 12 credit minimum in the 400-level biology course requirements.

Neuroscience Group:

BIOL 404	Cellular Mechanisms in Vertebrate Physiology
BIOL 413	Cell Signaling and Regulation
BIOL 424	Seeds of Change: The Uses of Plants
BIOL 426	Developmental Neurobiology
BIOL 430	Developmental Biology
BIOL 437	Histology
BIOL 467	Molecular Basis of Neurological Diseases
BIOL 470	Functional and Integrative Neuroscience
BIOL 472	Human Physiology
BIOL 473	Laboratory in Mammalian Physiology
BIOL 478	COMPARATIVE NEUROANATOMY
BIOL 479	General Endocrinology
BBH 432	Biobehavioral Aspects of Stress
or BBH 451	Pharmacological Influences on Health
or BBH 468	Neuroanatomical Bases for Disorders of Behavior and Health
or HDFS 468	
or NUTR 445	Energy and Macronutrient Metabolism
or PSYCH 45	Learning and Memory
or PSYCH 46	Physiological Psychology
or PSYCH 47	Clinical Neuropsychology

Evolution Group:

BIOL 405	Molecular Evolution
BIOL 406	Symbiosis
BIOL 411	Medical Embryology
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 420	Paleobotany
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 427	Evolution
BIOL 428	Population Genetics
BIOL 429	Animal Behavior
BIOL 432	Developmental Genetics
BIOL 433	Evolution of Vertebrates
BIOL 434	Pathobiology of Emerging Infectious Disease
BIOL 436	Population Ecology and Global Climate Change
BIOL 438	Theoretical Population Ecology
BIOL 439	Practical Bioinformatics
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms

BIOL 446	Physiological Ecology
BIOL 451	Biology of RNA
BIOL 460	Human Genetics
BIOL 463	General Ecology
BIOL 464	Sociobiology
BIOL 474	Astrobiology
BIOL 478	COMPARATIVE NEUROANATOMY

Practicum Group:

BIOL 400	Teaching in Biology
BIOL 402W	Biological Experimental Design
BIOL 407	Plant Developmental Anatomy
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 419	Ecological and Environmental Problem Solving
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 433	Evolution of Vertebrates
BIOL 437	Histology
BIOL 439	Practical Bioinformatics
BIOL 444	Field Ecology
BIOL 450W	Experimental Field Biology
BIOL 461	Contemporary Issues in Science and Medicine
BIOL 473	Laboratory in Mammalian Physiology
BIOL 475N	
BIOL 478	COMPARATIVE NEUROANATOMY
BIOL 482	Coastal Biology
BIOL 494	Research Project
BIOL 495	Internship in Biology
BIOL 496	Independent Studies
BIOL 499A	Tropical Field Ecology
BIOTC 459	Plant Tissue Culture and Biotechnology
SC 295	Science Co-op Work Experience I
SC 395	Science Co-op Work Experience II
SC 495	Science Co-op Work Experience III

Supporting Courses and Related Areas

Select 14-19 credits from department list 14-19

Plant Biology Option (46-51 credits)

Available at the following campuses: University Park

Code	Title	Credits
Prescribed Courses		
BIOL 407	Plant Developmental Anatomy	3
BIOL 441	Plant Physiology	3
BMB 401	General Biochemistry	3
BMB 402	General Biochemistry	3
CHEM 210	Organic Chemistry I	3
CHEM 212	Organic Chemistry II	3
CHEM 213	Laboratory in Organic Chemistry	2

Additional Courses**Groups**

Select a minimum of 12 credits of 400-level biology courses, with at least 6 credits from the Plant and Fungi group, 3 credits from the Evolution group, and 3 credits from the Practicum group. A maximum of 3 credits of BIOL 400, 494, 495, 496 and SC 295, 395, 495 may be used to fulfill the 12 credit minimum in the 400-level biology course requirements.

Plant and Fungi Group:

BIOL 406	Symbiosis
BIOL 414	Taxonomy of Seed Plants
BIOL 420	Paleobotany
BIOL 424	Seeds of Change: The Uses of Plants
BIOL/PPEM 425	Biology of Fungi
BIOL 431	Reproductive Biology
BIOL 444	Field Ecology
BIOL 446	Physiological Ecology
BIOL 448	Ecology of Plant Reproduction
BIOL 451	Biology of RNA
BIOL 482	Coastal Biology
BIOL 499A	Tropical Field Ecology
Evolution Group:	
BIOL 405	Molecular Evolution
BIOL 406	Symbiosis
BIOL 411	Medical Embryology
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 420	Paleobotany
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 427	Evolution
BIOL 428	Population Genetics
BIOL 429	Animal Behavior
BIOL 432	Developmental Genetics
BIOL 433	Evolution of Vertebrates
BIOL 434	Pathobiology of Emerging Infectious Disease
BIOL 436	Population Ecology and Global Climate Change
BIOL 438	Theoretical Population Ecology
BIOL 439	Practical Bioinformatics
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 446	Physiological Ecology
BIOL 451	Biology of RNA
BIOL 460	Human Genetics
BIOL 463	General Ecology
BIOL 464	Sociobiology
BIOL 474	Astrobiology
BIOL 478	COMPARATIVE NEUROANATOMY
Practicum Group:	
BIOL 400	Teaching in Biology
BIOL 402W	Biological Experimental Design
BIOL 407	Plant Developmental Anatomy
BIOL 414	Taxonomy of Seed Plants

BIOL 417	Invertebrate Zoology
BIOL 419	Ecological and Environmental Problem Solving
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 433	Evolution of Vertebrates
BIOL 437	Histology
BIOL 439	Practical Bioinformatics
BIOL 444	Field Ecology
BIOL 450W	Experimental Field Biology
BIOL 461	Contemporary Issues in Science and Medicine
BIOL 473	Laboratory in Mammalian Physiology
BIOL 475N	
BIOL 478	COMPARATIVE NEUROANATOMY
BIOL 482	Coastal Biology
BIOL 494	Research Project
BIOL 495	Internship in Biology
BIOL 496	Independent Studies
BIOL 499A	Tropical Field Ecology
BIOTC 459	Plant Tissue Culture and Biotechnology
SC 295	Science Co-op Work Experience I
SC 395	Science Co-op Work Experience II
SC 495	Science Co-op Work Experience III

Supporting Courses and Related Areas

Select 14-19 credits from department list 14-19

Vertebrate Physiology Option (46-51 credits)

Available at the following campuses: *Abington, Altoona, Brandywine, Schuylkill, University Park*

Code	Title	Credits
Prescribed Courses		
BIOL 472	Human Physiology	3
BIOL 473	Laboratory in Mammalian Physiology	2
BMB 401	General Biochemistry	3
BMB 402	General Biochemistry	3
CHEM 210	Organic Chemistry I	3
CHEM 212	Organic Chemistry II	3
CHEM 213	Laboratory in Organic Chemistry	2

Additional Courses

Groups

Select a minimum of 12 credits of 400-level courses, with at least 6 credits from the Physiology group, 3 credits from the Evolution group, and 3 credits from the Practicum group. A maximum of 3 credits of BIOL 400, 494, 495, 496 and SC 295, 395, 495 may be used to fulfill the 12 credit minimum in the 400-level biology course requirements.

Physiology Group:

BIOL 404	Cellular Mechanisms in Vertebrate Physiology
BIOL 406	Symbiosis
BIOL 409	Biology of Aging
BIOL 411	Medical Embryology
BIOL 412	Ecology of Infectious Diseases
BIOL 413	Cell Signaling and Regulation

BIOL 415	Ecotoxicology
BIOL 416	Biology of Cancer
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 424	Seeds of Change: The Uses of Plants
BIOL 426	Developmental Neurobiology
BIOL 430	Developmental Biology
BIOL 431	Reproductive Biology
BIOL 432	Developmental Genetics
BIOL 437	Histology
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 446	Physiological Ecology
BIOL 460	Human Genetics
BIOL 469	Neurobiology
BIOL 470	Functional and Integrative Neuroscience
BIOL 478	COMPARATIVE NEUROANATOMY
BIOL 479	General Endocrinology
BIOL 482	Coastal Biology
ANSC 431	Physiology of Animal Reproduction or ANTH 466 The Skull or BMB 484 Functional Genomics or ENT 402W Biology of Animal Parasites or MICRB 40 Microbial Physiology and Structure or MICRB 41 Principles of Immunology or MICRB 41 Medical Microbiology or MICRB 43 Viral Pathogenesis or PSYCH 46 Physiological Psychology
Evolution Group:	
BIOL 405	Molecular Evolution
BIOL 406	Symbiosis
BIOL 411	Medical Embryology
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 420	Paleobotany
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 427	Evolution
BIOL 428	Population Genetics
BIOL 429	Animal Behavior
BIOL 432	Developmental Genetics
BIOL 433	Evolution of Vertebrates
BIOL 434	Pathobiology of Emerging Infectious Disease
BIOL 436	Population Ecology and Global Climate Change
BIOL 438	Theoretical Population Ecology
BIOL 439	Practical Bioinformatics
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 446	Physiological Ecology
BIOL 451	Biology of RNA
BIOL 460	Human Genetics
BIOL 463	General Ecology
BIOL 464	Sociobiology

BIOL 474	Astrobiology
BIOL 478	COMPARATIVE NEUROANATOMY
Practicum Group:	
BIOL 400	Teaching in Biology
BIOL 402W	Biological Experimental Design
BIOL 407	Plant Developmental Anatomy
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 419	Ecological and Environmental Problem Solving
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 433	Evolution of Vertebrates
BIOL 437	Histology
BIOL 439	Practical Bioinformatics
BIOL 444	Field Ecology
BIOL 448	Ecology of Plant Reproduction
BIOL 450W	Experimental Field Biology
BIOL 461	Contemporary Issues in Science and Medicine
BIOL 473	Laboratory in Mammalian Physiology
BIOL 475N	
BIOL 476	Advanced Human Anatomy - cadaver based
BIOL 478	COMPARATIVE NEUROANATOMY
BIOL 482	Coastal Biology
BIOL 494	Research Project
BIOL 495	Internship in Biology
BIOL 496	Independent Studies
BIOL 499A	Tropical Field Ecology
BIOTC 459	Plant Tissue Culture and Biotechnology
SC 295	Science Co-op Work Experience I
SC 395	Science Co-op Work Experience II
SC 495	Science Co-op Work Experience III

Supporting Courses and Related Areas

Select 15-20 credits from department list

15-20

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or

within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Outcomes

1. Students will be able to describe how heritable changes can lead to differences in populations over time that might result in speciation; trace energy/matter transformation, storage, and mobilization; explain how information is exchanged and stored; recognize how changes in biological structures can have varying effects on function; and/or describe the interactions and interconnections among systems across biological scales and over evolutionary time scales.
2. Students will be able to apply the elements of the process of science such as posing questions, generating novel hypotheses based on the scientific literature; developing appropriate technical skills for research; designing/conducting experiments to test hypotheses in laboratory and/or field settings; summarizing/interpreting data; integrating/evaluating findings in the broader scientific field to construct new knowledge; and/or participating in the peer review/revision process.
3. Students will be able to discriminate among scientific claims presented in a variety of sources based on the strength of evidence; find appropriate published scientific literature; and/or analyze and critically evaluate data/conclusions from the scientific peer-reviewed literature.
4. Students will be able to apply basic quantitative competencies such as algebra, probability, statistics, unit conversions, and fundamental biological equations; organize, summarize, and interpret quantitative data; use modeling/simulation to approach problems from across various scales; and/or find and analyze large databases using statistical methods and/or other approaches.
5. Students will be able to integrate knowledge among biological subfields and between biology and other disciplines.
6. Students will be able to engage with diverse communities and leverage the skills in the community to pose and solve biological questions; demonstrate the ability to work in teams to solve biological problems; and/or communicate in a variety of formal and informal ways in the discussion of biological research.
7. Students will explore the impacts of scientific research on society and the environment and how society influences/relies on research to inform decision-making; evaluate the ethical implications of biological research; recognize ethical issues in a variety of settings; and/or describe how different perspectives and the resulting alternative approaches might be evaluated using ethical principles to identify a solution to an issue.
8. Students will be able to communicate in a professional manner and learn/use professional behaviors in all aspects of college and career building activities, including participation in opportunities such as research, internships, cooperative education, teaching and tutoring, study abroad, and/or volunteer work.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

General Biology Option: Biology, B.S. at Berks Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [†]	3 CAS 100A or 100B (GWS) [†]	3
MATH 140 or 140B (GQ) ^{*†#}	4 MATH 141 or 141B (GQ) [†]	4
BIOL 110 ^{*#}	4 BIOL 240W ^{*#}	4

CHEM 110 (GN) ^{**†}	3 CHEM 112 (GN) ^{**†}	3
CHEM 111 (GN) [†]	1 CHEM 113 (GN) [†]	1
First-Year Seminar	1 General Education Course (GHW)	1.5
16		16.5

Second Year

Fall	Credits Spring	Credits
BIOL 220W ^{*#}	4 ENGL 202C (GWS) [‡]	3
BIOL 230W ^{*#}	4 CHEM 203 or 212 <i>and</i> 213	3-5
CHEM 202 or 210	3 STAT 200 or 250	3-4
General Education Course (GA or GH or GS)	3 Department List Selection	3
General Education Course (GA or GH or GS)	3 General Education Course (GA or GH or GS)	3
17		15-18

Third Year

Fall	Credits Spring	Credits
PHYS 250 [†]	4 PHYS 251	4
400 Level BIOL Selection - Group 2: Evolutionary Biology	3 400 Level BIOL Selection - Group 1: Plants and Fungi	3
Department List Selection	3 400 Level BIOL Selection - Group 3: Genetics and Development	3
Department List Selection	3 Department List Selection	3
General Education Course (Integrative Studies)	3 General Education Course (Integrative Studies)	3
16		16

Fourth Year

Fall	Credits Spring	Credits
400 Level BIOL Selection - Group 4: Ecology	3 400 Level BIOL Selection - Group 6: Practicum	3
400 Level BIOL Selection - Group 5: Animal Physiology	3 Department List Selection	3
Department List Selection	3 Department List Selection	3
Department List Selection	3 Department List Selection	3
General Education Course (Exploration)	3 General Education Course (GHW)	1.5
15		13.5

Total Credits 125-128

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ For General Education Course notations, please be sure to include three (3) credits of United States (US) Cultures and three (3) credits of International (IL) Cultures. Consult adviser for details.

² The following courses fulfill the Writing Across The Curriculum requirement: BIOL 220W, BIOL 230W, and BIOL 240W. Students must complete all three (3) courses to fulfill this requirement.

³ The following courses are offered Fall Semester only: BIOL 220W, BIOL 230W, CHEM 202, CHEM 210, PHYS 250.

⁴ The following courses are offered Spring Semester only: BIOL 240W, CHEM 203, CHEM 212, CHEM 213, PHYS 251.

⁵ Students must complete one (1) of the following courses to satisfy Entrance-to-Major requirements: BIOL 220W, BIOL 230W, or BIOL 240W.

⁶ For PHYS 250 and PHYS 251, the following course sequence may be substituted: PHYS 211, PHYS 212, PHYS 213, PHYS 214. PHYS 213 and PHYS 214 are offered Spring Semester only.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Genetics & Developmental Biology Option: Biology, B.S. at Berks Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [†]	3 CAS 100A or 100B (GWS) [‡]	3
MATH 140 or 140B (GQ) ^{†‡#}	4 MATH 141 or 141B (GQ) [†]	4
BIOL 110 ^{*#}	4 BIOL 240W ^{*#}	4
CHEM 110 (GN) ^{*#†}	3 CHEM 112 (GN) ^{*†}	3
CHEM 111 (GN) [†]	1 CHEM 113 (GN) [†]	1
First-Year Seminar	1 General Education Course (GHW)	1.5
	16	16.5

Second Year

Fall	Credits Spring	Credits
BIOL 220W ^{*#}	4 ENGL 202C (GWS) [†]	3
BIOL 230W ^{*#}	4 MICRB 201	3
CHEM 210	3 CHEM 212	3
STAT 250	3 CHEM 213	2
General Education Course (GA or GH or GS)	3 General Education Course (GA or GH or GS)	3
	17	14

Third Year

Fall	Credits Spring	Credits
PHYS 211 or 250 [†]	4 PHYS 212 or 251	4
BMB 401	3 BMB 402	3
400 Level BIOL Selection - Group 1: Genetics/Developmental Biology	3 400 Level BIOL Selection - Group 2: Evolutionary Biology	3
BIOL 322	3 Department List Selection	3
General Education Course (GA or GH or GS)	3 Department List Selection	3
	16	16

Fourth Year

Fall	Credits Spring	Credits
BIOL 430	3 400 Level BIOL Selection - Group 3: Practicum	3
400 Level BIOL Selection - Group 1: Genetics and Developmental Biology	3 Department List Selection	3
PHYS 213 (or Elective)	2 Department List Selection	3
PHYS 214 (or Elective)	2 General Education Course (Integrative Studies)	3
Department List Selection	3 General Education Course (GHW)	1.5
General Education Course (Integrative Studies)	3	

General Education Course (Exploration)	3	
	19	13.5

Total Credits 128

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ For General Education Course notations, please be sure to include three (3) credits of United States (US) Cultures and three (3) credits of International (IL) Cultures. Consult adviser for details.

² The following courses fulfill the Writing Across The Curriculum requirement: BIOL 220W, BIOL 230W, and BIOL 240W. Students must complete all three (3) courses to fulfill this requirement.

³ The following courses are offered Fall Semester only: BIOL 220W, BIOL 230W, BIOL 322, BIOL 430, BMB 401, CHEM 210, PHYS 250.

⁴ The following courses are offered Spring Semester only: BIOL 240W, BMB 402, CHEM 212, CHEM 213, PHYS 251.

⁵ Students must complete one (1) of the following courses to satisfy Entrance-to-Major requirements: BIOL 220W, BIOL 230W, or BIOL 240W.

⁶ Students should take PHYS 213 and PHYS 214 only if they completed PHYS 211 and PHYS 212. Consult adviser for details.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

A Biology BS degree provides an excellent foundation and the skills required for a wide range of technical careers. While many majors use a Biology degree to prepare for entrance into health professional schools, others follow career paths in research, education, and business. Students also pursue graduate study at universities both across the U.S. and internationally.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE BIOLOGY PROGRAM (<https://science.psu.edu/bio/undergrad/after-graduation/>)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://science.psu.edu/bio/grad/>)

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Business Administration, A.S. (Berks)

Begin Campus: Berks

End Campus: Berks

Program Description

The associate degree program in Business Administration provides an introductory foundation to core aspects of the business environment that prepares graduates for future baccalaureate study in business or for direct entry into the work place. The primary objective of this major is to provide a business-oriented program with sufficient communicative and mathematical skills, socially relevant course work, and specific business specialties to develop a well-rounded and knowledgeable graduate.

Students should work closely with academic advisers to schedule coursework required to transition to baccalaureate business programs.

What is Business Administration?

To be successful in today's increasingly complex business world, you need to have a broad understanding of how business works. The Penn State Associate degree in Business Administration prepares students for a professional career in today's business environment. The degree offers students a managerially-oriented program emphasizing communication and mathematical skills, socially relevant course work, and advanced courses in business. While Penn State's Associate in Science in Business Administration is an excellent stand-alone credential, it can be used to seamlessly transition to a bachelor's degree such as the Bachelor of Science in Business or other business-related programs at the University.

You Might Like This Program If...

- You want to learn to use the latest technical business tools to perform your job duties effectively.
- You analyze and react to issues facing companies today.
- You collect and analyze data to make inferences and solve business problems.
- You need to execute effective communication strategies.

Entrance to Major

Students must have a minimum 2.0 GPA to change to this Associate degree after admission to the University.

Degree Requirements

For the Associate in Science degree in Business Administration, a minimum of 60 credits is required:

Requirement	Credits
General Education	21
Requirements for the Major	48-50

9 of the 21 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GQ General Education courses and 6 credits of GWS General Education courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
CAS 100	Effective Speech	3
MIS 204	Introduction to Management Information Systems	3
<i>Prescribed Courses: Require a grade of C or better</i>		
ENGL 202D	Effective Writing: Business Writing	3
Additional Courses		
BA 241 & BA 242 or BA 243	Legal Environment of Business and Social and Ethical Environment of Business Social, Legal, and Ethical Environment of Business	4
ECON 102 or ECON 104	Introductory Microeconomic Analysis and Policy Introductory Macroeconomic Analysis and Policy	3

SCM 200 or STAT 200	Introduction to Statistics for Business Elementary Statistics	4
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Select one of the following: 3-4

MATH 21	College Algebra with Analytic Geometry with Applications I	
MATH 22	College Algebra With Analytic Geometry and Applications II	
MATH 110	Techniques of Calculus I	

Additional Courses: Require a grade of C or better

ENGL 15 or ENGL 30H	Rhetoric and Composition Honors Rhetoric and Composition	3
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MGMT 301 or MGMT 301W	Basic Management Concepts Basic Management Concepts	3
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MKTG 301 or MKTG 301W	Principles of Marketing Principles of Marketing	3
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Supporting Courses and Related Areas

Select 12-13 credits of the following: 12-13

BA 100	Introduction to Business	
BA 250	Small Business Management	
BA 364Y	International Business and Society	
CAS 250 or CAS 252	Small Group Communication Business and Professional Communication	
CAS 352	Organizational Communication	
IB 303	International Business Operations	
MATH 22	College Algebra With Analytic Geometry and Applications II	
MATH 110	Techniques of Calculus I	
ACCTG 300 to ACCTG 399		
ECON 100 to ECON 399		
ENTR 100 to ENTR 399		
FIN 100 to FIN 399		
HPA 100 to HPA 399		
LER 100 to LER 399		
MGMT 100 to MGMT 399		
MKTG 100 to MKTG 399		
MIS 100 to MIS 399		
RM 100 to RM 399		
SCM 200 to SCM 399		

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all associate degree students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 3 credits
- **Writing and Speaking (GWS):** 3 credits

Knowledge Domains

- **Arts (GA):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Note: Up to six credits of Inter-Domain courses may be used for any Knowledge Domain requirement, but when a course may be used to satisfy more than one requirement, the credits from the course can be counted only once.

Exploration

- **Any General Education course (including GHW and Inter-Domain):** 3 credits

University Degree Requirements

Cultures Requirement

3 credits of United States (US) or International (IL) cultures coursework are required and may satisfy other requirements

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 60 degree credits must be earned for an associates degree. The requirements for some programs may exceed 60 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- Demonstrate the necessary skills and abilities to effectively communicate.
- Apply contemporary tools of information technology to include business software applications.
- Apply leadership, team building, and project management skills.
- Compare, contrast and differentiate the business environment of both their local community and the globalized world economy.
- Demonstrate an awareness of ethical issues, social responsibilities and conflict resolution.
- Utilize and apply fundamental business concepts, principles and contemporary business practices.

- Recognize, analyze and solve business problems using quantitative and qualitative measures.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

General Business Option: Business Administration, A.S. at Berks Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [†]	3 ECON 102 or 104	3
MATH 21, 22, or 110	3-4 ACCTG 211	4
CAS 100A or 100B [†]	3 Business Elective	3

General Education Course (GN or GA or GH of GS)	3 General Education Course (GN or GA or GH of GS)	3
General Education Course (GN or GA or GH of GS)	3	
First-Year Seminar	1	

16-17 **13**

Second Year

Fall	Credits Spring	Credits
BA 243	4 ENGL 202D*	3
MIS 204	3 SCM 200 or STAT 200 (GQ) [‡]	4
Business Elective	3 MGMT 301*	3
Business Elective	3 MKTG 301*	3
General Education Course (GN or GA or GH of GS)	3 Business Elective	3
16		16

Total Credits 61-62

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ For General Education Course notations, please be sure to include either three (3) credits of United States (US) Cultures or three (3) credits of International (IL) Cultures. Consult adviser for details.

² Students must complete the Writing Across The Curriculum requirement through one (1) of the requirements listed above. Consult adviser for details.

³ Students interested in pursuing the B.S. in Business degree should follow those course recommendations. Consult adviser for details.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

Business impacts our society in many ways. Every business, from small companies to large corporations provide employment options. The associate in business degree can help prepare you for a wide variety of entry-level careers in this sector or for continued study in business. You will have the opportunity to participate in an elective business internship as part of your curriculum. Internships provide valuable experience before graduation and an important first step toward starting your career.

Careers

Because the Associate in Science in Business Administration can give you a foundation of business concepts and best practices relevant to any industry, as a graduate of the program you can prepare for positions in accounting departments, management trainee opportunities, retail,

insurance industry, industrial management opportunities, office manager, or business service manager. Some examples of jobs include:

- Accounting Specialist
- Accounts Examiner
- Appraisers and assessors of real estate
- Assistant Marketing Director
- Assistant Store Manager
- Billing Clerk
- Business services manager
- Computing business coordinator
- Compliance officers
- Insurance sales agent
- Industrial Salesperson
- Management Trainee
- Office Manager
- Payroll Assistant
- Sales Coordinator

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE BUSINESS ADMINISTRATION PROGRAM (<https://www.bls.gov/careeroutlook/2002/winter/art01.pdf>)

Opportunities for Graduate Studies

Upon completion of the associate degree in business, you may also choose to proceed seamlessly to the bachelor of science in business or selected other business-related majors at Penn State.

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<https://fayette.psu.edu/academics/associate/business-administration> (<https://fayette.psu.edu/academics/associate/business-administration/>)

Greater Allegheny

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<https://greaterallegheny.psu.edu/academics/business-administration-associate> (<https://greaterallegheny.psu.edu/academics/business-administration-associate/>)

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<https://wilkesbarre.psu.edu/academics/business> (<https://wilkesbarre.psu.edu/academics/business/>)

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University Park, PA 16802
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advising@worldcampus.psu.edu

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-business-administration-associate-in-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-business-administration-associate-in-science-degree/>)

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<https://www.york.psu.edu/academics/associate/business-administration> (<https://www.york.psu.edu/academics/associate/business-administration/>)

Business, B.S. (Berks)

Begin Campus: Any Penn State Campus

End Campus: Berks

Program Description

The Bachelor of Science in Business (B.S.B.) is a professionally-oriented business degree program that combines the theoretical underpinnings of core business disciplines, notably business analytics, management, marketing, finance, and supply chain management, with applied study in a practical setting. Through the choice of an 18-credit option, students specialize in a key business sector. Students also develop written and oral communication skills throughout the program, acquire contemporary technology skills, and engage in active and collaborative learning. The degree allows students to become familiar with the unique business environments of their local communities, a design that sets the degree apart from other business degrees offered within the University and throughout the Commonwealth.

Accounting Option

Available at the following campuses: *Abington, Altoona, Beaver, Berks, Brandywine, DuBois, Fayette, Greater Allegheny, Lehigh Valley, New Kensington, Schuylkill, Scranton, Shenango, Wilkes-Barre, World Campus, York*

This option prepares students to pursue careers in business with an emphasis on the areas of financial and managerial accounting, systems and controls, auditing, and taxation.

Business Analytics Option

Available at the following campuses: *Abington, Altoona, Beaver, Berks, Brandywine, DuBois, Greater Allegheny, Hazleton, Lehigh Valley, New Kensington, Schuylkill, Scranton, Wilkes-Barre, York*

The Business Analytics option prepares students to pursue careers in applying business analytics techniques to implement appropriate decision-making outcomes using data for companies.

Entrepreneurship Option

Available at the following campuses: *Altoona, World Campus*

This option prepares students to pursue entrepreneurial careers with emphasis on idea generation, opportunity analysis, new product creation, and business plan development.

Financial Services Option

Available at the following campuses: *Abington, Altoona, Berks, DuBois, Lehigh Valley, Scranton, World Campus*

This option prepares students to pursue careers in financial organizations with emphasis on wealth management, tax planning, risk management, and financial analysis.

Health Services Option

Available at the following campuses: *Abington, Lehigh Valley, Schuylkill, World Campus*

This option prepares students to pursue careers in the health services sector with emphasis on the financial and administrative aspects of health care enterprises.

Individualized Business Option

Available at the following campuses: *Abington, Altoona, Beaver, Berks, Brandywine, DuBois, Fayette, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Shenango, Schuylkill, Scranton, Wilkes-Barre, World Campus, York*

This option provides the opportunity for students to pursue an approved business-focused interdisciplinary program of study.

Management and Marketing Option

Available at the following campuses: *Abington, Altoona, Beaver, Berks, Brandywine, DuBois, Fayette, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Shenango, Schuylkill, Scranton, Wilkes-Barre, World Campus, York*

This option prepares students to pursue careers in business organizations with an emphasis on the skills and knowledge necessary for the business professional to function in community and regional centers of commerce.

What is Business?

Business is a professionally-oriented program providing a broad education and solid grounding of business knowledge. Focusing on practical skills and real-world experience, the program's interdisciplinary perspective provides a versatile base for mobility into all business areas, preparing students for the business world of today and tomorrow. Options provide additional specialization in accounting, entrepreneurship, financial services, health services, management and marketing or the opportunity to develop an individualized plan that fits your career goals.

You Might Like This Program If...

- You want to become a flexible business professional, equipped to adapt to the ever-changing workplace of the future.
- You are interested in an academic challenge with theoretical and practical focus in a competitive yet collaborative learning environment.
- You want transferable skills or you are not sure which business sector you wish to focus.
- You wish to be develop a broad knowledge of business operations.
- You want to develop the skills for working in business.

Entrance To Major

In order to be eligible for entrance to this major, students must complete one of the following courses: MATH 22 or MATH 40 or MATH 41 or MATH 110 or MATH 140.

In addition, students also must satisfy the following requirements:

- attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
- have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Business, a minimum of 120 credits is required, 15 of which must be at the 400 level:

Requirement	Credits
General Education	45
Electives	10
Requirements for the Major	80

15 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GQ courses; 6 credits of GS courses; 3 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
<i>Prescribed Courses: Require a grade of C or better</i>		
BA 321	Contemporary Skills for Business Professionals	3
BA 322	Negotiation Skills for Business Professionals	3
BA 420	Preparation for Career Management	1
BA 421	Project Management	3
BA 422W	Strategic Business Planning	3
FIN 301	Corporation Finance	3
IB 303	International Business Operations	3
MGMT 301	Basic Management Concepts	3
MIS 204	Introduction to Management Information Systems	3
MKTG 301	Principles of Marketing	3
SCM 301	Supply Chain Management	3
Additional Courses		
BA 241 & BA 242	Legal Environment of Business and Social and Ethical Environment of Business	4

or BA 243	Social, Legal, and Ethical Environment of Business	
MATH 110	Techniques of Calculus I	4
or MATH 140	Calculus With Analytic Geometry I	
<i>Additional Courses: Require a grade of C or better</i>		
BA 495A	Business Internship	3-6
or BA 495B	Undergraduate Research in Business	
ENGL 15	Rhetoric and Composition	3
or ENGL 30H	Honors Rhetoric and Composition	
SCM 200	Introduction to Statistics for Business	4
or STAT 200	Elementary Statistics	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 0-3 credits from 400-level business courses from: ACCTG, BA, 0-3 ECON, ENTR, FIN, FINSV, HPA, IB, MGMT, MIS, MKTG, RM, or SCM

Requirements for the Option

Requirements for the Option: Require a grade of C or better

Select an option 18

Requirements for the Option

Accounting Option (18 credits)

Available at the following campuses: Abington, Altoona, Beaver, Berks, Brandywine, DuBois, Fayette, Greater Allegheny, Lehigh Valley, New Kensington, Schuylkill, Scranton, Shenango, Wilkes-Barre, World Campus, York

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ACCTG 404	Managerial Accounting: Economic Perspective	3
ACCTG 405	Principles of Taxation I	3
ACCTG 471	Intermediate Financial Accounting I	3
ACCTG 472	Intermediate Financial Accounting II	3

Additional Courses

Additional Courses: Require a grade of C or better

ACCTG 403	Auditing	3
or ACCTG 403WAuditing		

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 3 credits of 400-level courses from: ACCTG, BA, ECON, ENTR, FIN, FINSV, HPA, IB, MGMT, MIS, MKTG, RM, or SCM

Business Analytics Option (18 Credits)

Available at the following campuses: Abington, Altoona, Beaver, Berks, Brandywine, DuBois, Greater Allegheny, Hazleton, Lehigh Valley, New Kensington, Schuylkill, Scranton, Wilkes-Barre, York

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
MIS 301	Business Analytics	3
MIS 345	Introduction to Data Analytics	3
MIS 431	Business Data Management	3

Additional Courses

Additional Courses: Require a grade of C or better

Select 9 credits from the following: 9

COMM/IST 310	Digital Media Metrics
ECON 481	Business Forecasting Techniques
MIS 336	Database Management Systems
MIS 404	Introduction to ERP and Business Processes
MIS 415	Social Media Management and Analytics
MIS 441	Business Intelligence for Decision Making
MIS 445	Business Intelligence
MKTG 342	Marketing Research
MKTG 343	Introduction to Marketing Analytics
MKTG 473	Digital Marketing
MKTG 474	Marketing Analytics
MKTG 480	Intermediate Social Media Marketing
SCM 340	Introduction to Supply Chain Analytics

Entrepreneurship Option (18 credits)

Available at the following campuses: Altoona, World Campus

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ENTR 300	Principles of Entrepreneurship	3
ENTR 320	Entrepreneurship and New Venture Creation	3
ENTR 400	Financing Entrepreneurial Ventures	3

Additional Courses

Additional Courses: Require a grade of C or better

CAS 352	Organizational Communication	0-3
or ENGL 419	Advanced Business Writing	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 6 to 9 credits of 400-level ENTR courses in consultation with your adviser 6-9

Financial Services Option (18 credits)

Available at the following campuses: Abington, Altoona, Berks, DuBois, Lehigh Valley, Scranton, World Campus

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ACCTG 405	Principles of Taxation I	3
FIN 420	Investment and Portfolio Analysis	3

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 12 credits in 300 or 400-level (with at least 3 credits at the 400-level) from ACCTG, FIN, FINSV or RM 12

Health Services Option (18 credits)

Available at the following campuses: Abington, Lehigh Valley, Schuylkill, World Campus

Minimum 6 credits at the 400-level.

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
HPA 101	Introduction to Health Services Organization	3

HPA 332	Health Systems Management	3
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Additional Courses

Additional Courses: Require a grade of C or better

Select 0-3 credits of the following: 0-3

BBH/AFAM 302	Diversity and Health
CAS 352	Organizational Communication
CAS 404	Conflict Resolution and Negotiation
ENGL 416	Science Writing
ENGL 419	Advanced Business Writing
LER 424	Employment Compensation
LHR/WMNST 472	Work-Life Practices and Policies
PSYCH 281	Introduction to Industrial-Organizational Psychology
PSYCH 484	Work Attitudes and Motivation
PSYCH 485	Leadership in Work Settings

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 3-9 credits from 300 or 400-level HPA courses 3-9

Select 0-6 credits of 300-400-level courses from ACCTG, BA, ECON, ENTR, FIN, FINSV, HPA, IB, MGMT, MKTG, MIS, RM or SCM 0-6

Individualized Business Option (18 credits)

Available at the following campuses: Abington, Altoona, Beaver, Berks, Brandywine, DuBois, Fayette, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Shenango, Schuylkill, Scranton, Wilkes-Barre, World Campus, York

Select 18 credits of study (with at least 3 credits at the 400-level) as submitted by the student and approved by the campus BSB Program Coordinator.

Management and Marketing Option (18 credits)

Available at the following campuses: Abington, Altoona, Beaver, Berks, Brandywine, DuBois, Fayette, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Shenango, Schuylkill, Scranton, Wilkes-Barre, World Campus, York

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select one of the following: 0-6		
0-6 credits from BA 250, ENGL 419, MKTG 220		
CAS 250	Small Group Communication	
CAS 252	Business and Professional Communication	
CAS 352	Organizational Communication	
CAS 404	Conflict Resolution and Negotiation	

Supporting Courses and Related Areas¹

Supporting Courses and Related Areas: Require a grade of C or better

Select 3 credits from 300 or 400-level MGMT courses 3

Select 3 credits from 300 or 400-level MKTG courses 3

Select 6-12 additional credits in 300 or 400-level courses from MGMT6-12 or MKTG courses

¹ A minimum of 3 credits of supporting courses must be selected at the 400-level.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Business Competency:** Application of business concepts learned in courses ranging from BA 321, BA 322, BA 421, FIN 301, MGMT 301, MKTG 301, SCM 301, is used in BA 422W (Strategic Business Planning).
- **Data Analysis and Problem Solving:** Recognize, analyze and solve business problems using quantitative and qualitative measures.
- **Effective Communication:** In addition to hard skills, expect students to improve soft skills for both oral and written communications.
- **Ethical Awareness:** Demonstrate awareness of ethical issues, social responsibilities and conflict resolution.
- **Global & Diverse Perspectives:** Compare, contrast and differentiate the business environment of both their local community and the globalized world economy.
- **Leadership & Teamwork:** Apply leadership, team building, and project management skills
- **Use Management Theory/Practice:** Utilize and apply fundamental business concepts, principles and contemporary business practices.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary

academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Accounting Option: Business, B.S. at Berks Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100A or 100B (GWS) [‡]	3
MATH 110	4 BA 243	4
ECON 102 (GS) [†]	3 ECON 104 [†]	3
General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3
General Education Course (GN or GA or GH)	3 General Education Course (GN)	3
First-Year Seminar	1	
	17	16

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 ENGL 202D (GWS) [‡]	3

MIS 204 (GQ) [‡]	3 SCM 200 or STAT 200 (GQ) [‡]	4
General Education Course (Integrative Studies)	3 General Education Course (Integrative Studies)	3
General Education Course (Exploration)	3 General Education Course (GHW)	3
Elective	3 Elective	3
	16	16

Third Year

Fall	Credits Spring	Credits
BA 321 [*]	3 BA 322 [*]	3
MGMT 301 [*]	3 BA 420 [*]	1
FIN 301 [*]	3 MKTG 301 [*]	3
ACCTG 404 [*]	3 IB 303 [*]	3
ACCTG 471 [*]	3 ACCTG 403 [*]	3
	ACCTG 472 [*]	3
	15	16

Fourth Year

Fall	Credits Spring	Credits
BA 421 [*]	3 BA 422W [*]	3
SCM 301 [*]	3 BA 495A or 495B [*]	6
Option Requirement [*]	3 ACCTG 405 [*]	3
Elective	3	
Elective	1-3	
	13-15	12

Total Credits 121-123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ For General Education Course notations, please be sure to include three (3) credits of United States (US) Cultures and three (3) credits of International (IL) Cultures. Consult adviser for details.

² The following courses are offered Fall Semester only: ACCTG 404, ACCTG 471.

³ The following courses are offered Spring Semester only: ACCTG 403, ACCTG 405, ACCTG 472.

⁴ For Option Requirement, choose one (1) course from the following: ACCTG, BA, ECON, ENTR, FIN, FINSV, HPA, IB, MGMT, MIS, MKTG, RM, or SCM. Consult adviser for details.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain

attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Business Analytics Option: Business, B.S. at Berks Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100A or 100B (GWS) [‡]	3
MATH 110	4 BA 243	4
ECON 102 (GS) [†]	3 ECON 104 [†]	3
General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3
General Education Course (GN or GA or GH)	3 General Education Course (GN)	3
First-Year Seminar	1	
	17	16

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 ENGL 202D (GWS) [‡]	3
MIS 204 (GQ) [‡]	3 SCM 200 or STAT 200 (GQ) [‡]	4
General Education Course (Integrative Studies)	3 General Education Course (Integrative Studies)	3
General Education Course (Exploration)	3 General Education Course (GHW)	3
Elective	3 Elective	3
	16	16

Third Year

Fall	Credits Spring	Credits
BA 321 [*]	3 BA 322 [*]	3
MGMT 301 [*]	3 BA 420 [*]	1
MKTG 301 [*]	3 FIN 301 [*]	3
SCM 301 [*]	3 IB 303 [*]	3
MIS 301 [*]	3 MIS 345 [*]	3
	Elective	3
	15	16

Fourth Year

Fall	Credits Spring	Credits
BA 421 [*]	3 BA 422W [*]	3
MIS 404 [*]	3 BA 495A or 495B [*]	6
MIS 431 [*]	3 MKTG 480 [*]	3
MKTG 473 [*]	3	
	12	12

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ The following courses are offered Fall Semester only: MIS 404, MKTG 473.

² The following courses are offered Spring Semester only: MKTG 480.

³ MIS 345 and MIS 431 can be completed via the Digital Learning Cooperative (DLC). Consult adviser for details.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Financial Services Option: Business, B.S. at Berks Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100A or 100B (GWS) [‡]	3
MATH 110	4 BA 243	4
ECON 102 (GS) [†]	3 ECON 104 [†]	3
General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3
General Education Course (GN or GA or GH)	3 General Education Course (GN)	3
First-Year Seminar	1	
	17	16

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 ENGL 202D (GWS) [‡]	3
MIS 204 (GQ) [‡]	3 SCM 200 or STAT 200 (GQ) [‡]	4
General Education Course (Integrative Studies)	3 General Education Course (Integrative Studies)	3
General Education Course (Exploration)	3 General Education Course (GHW)	3
Elective	3 Elective	3
	16	16

Third Year

Fall	Credits Spring	Credits
BA 321 [*]	3 BA 322 [*]	3
MGMT 301 [*]	3 BA 420 [*]	1
MKTG 301 [*]	3 FIN 420 [*]	3
FIN 301 [*]	3 SCM 301 [*]	3
Option Requirement [*]	3 ACCTG 405 [*]	3
	Elective	3
	15	16

Fourth Year

Fall	Credits Spring	Credits
BA 421 [*]	3 BA 422W [*]	3
IB 303 [*]	3 BA 495A or 495B [*]	6
Option Requirement [*]	3 Option Requirement [*]	3
Option Requirement [*]	3	
Elective	1-3	
	13-15	12

Total Credits 121-123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ For General Education Course notations, please be sure to include three (3) credits of United States (US) Cultures and three (3) credits of International (IL) Cultures. Consult adviser for details.

² The following courses are offered Spring Semester only: ACCTG 405, FIN 420.

³ For Option Requirements, choose four (4) 300 level to 400 level courses from the following: ACCTG, FIN, FINSV, or RM. Consult adviser for details.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Individualized Option: Business, B.S. at Berks Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GQ) [‡]	3 CAS 100A or 100B (GWS) [‡]	3
MATH 110	4 BA 243	4
ECON 102 (GS) [†]	3 ECON 104 [†]	3
General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3
General Education Course (GN or GA or GH)	3 General Education Course (GN)	3
First-Year Seminar	1	
	17	16

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 ENGL 202D (GWS) [‡]	3
MIS 204 (GQ) [‡]	3 SCM 200 or STAT 200 (GQ) [‡]	4
General Education Course (Integrative Studies)	3 General Education Course (Integrative Studies)	3
General Education Course (Exploration)	3 General Education Course (GHW)	3
Elective	3 Elective	3
	16	16

Third Year

Fall	Credits Spring	Credits
BA 321 [*]	3 BA 322 [*]	3
MGMT 301 [*]	3 BA 420 [*]	1
MKTG 301 [*]	3 FIN 301	3
IB 303 [*]	3 SCM 301 [*]	3
Elective	3 Option Requirement [*]	3
	Option Requirement [*]	3
	15	16

Fourth Year

Fall	Credits Spring	Credits
BA 421 [*]	3 BA 422W [*]	3
Option Requirement [*]	3 BA 495A or 495B [*]	6
Option Requirement [*]	3 Option Requirement [*]	3
Option Requirement [*]	3	
Elective	1-3	
	13-15	12

Total Credits 121-123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ For General Education Course notations, please be sure to include three (3) credits of United States (US) Cultures and three (3) credits of International (IL) Cultures. Consult adviser for details.

² Students must obtain Program Chair approval prior to the completion of this option. Consult Program Chair for details.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Management & Marketing Option: Business, B.S. at Berks Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100A or 100B (GWS) [‡]	3
MATH 110	4 BA 243	4
ECON 102 (GS) [†]	3 ECON 104 [†]	3
General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3
General Education Course (GN or GA or GH)	3 General Education Course (GN)	3
First-Year Seminar	1	
	17	16

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 ENGL 202D (GWS) [‡]	3
MIS 204 (GQ) [‡]	3 SCM 200 or STAT 200 (GQ) [‡]	4
General Education Course (Integrative Studies)	3 General Education Course (Integrative Studies)	3
General Education Course (Exploration)	3 General Education Course (GHW)	3
Elective	3 Elective	3
	16	16

Third Year

Fall	Credits Spring	Credits
BA 321 [*]	3 BA 322 [*]	3
MGMT 301 [*]	3 BA 420 [*]	1
MKTG 301 [*]	3 FIN 301 [*]	3
IB 303 [*]	3 SCM 301 [*]	3
Elective	3 Option Requirement [*]	3
	Option Requirement [*]	3
	15	16

Fourth Year

Fall	Credits Spring	Credits
BA 421 [*]	3 BA 422W [*]	3
Option Requirement [*]	3 BA 495A or 495B [*]	6
Option Requirement [*]	3 Option Requirement [*]	3
Option Requirement [*]	3	
Elective	1-3	
	13-15	12

Total Credits 121-123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ For General Education Course notations, please be sure to include three (3) credits of United States (US) Cultures and three (3) credits of International (IL) Cultures. Consult adviser for details.

² For Option Requirement, choose four to six (4-6) 300 level to 400 level MGMT courses and 300 level to 400 level MKTG courses including at least one (1) MGMT course, at least one (1) MKTG course, and at least one (1) 400 level course. Additionally, students may choose zero to two (0-2) courses from the following: BA 250, CAS 250, CAS 252, CAS 352, CAS 404, ENGL 419, MGMT 215, or MKTG 220. Consult adviser for details.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

In today's economic environment, the Bachelor of Science in Business allows companies to hire individuals who have a broad knowledge of all aspects of business. This broad knowledge give you the opportunity to be effective within many different types of organizations. You will also be well-positioned to pursue admission to graduate programs.

Careers

With a degree in business, you may specialize through options that may vary by campus. With an accounting option, you can work in the areas of financial and managerial accounting, systems and controls, taxation, and auditing. The entrepreneurship option provides the skills for you to start your own business or to work as an entrepreneur within a company. Health services provides the financial and administrative skills and knowledge necessary for you to become a health services managers. With an option in financial services you might pursue positions in wealth and risk management, estate planning or financial and retirement planning. With the management and marketing option you will be prepared for a career in retail management, small business management or in marketing, advertising and promotion. Finally, with an individualized option, you have flexibility to build specialized skills for your personal business career goals.

Opportunities for Graduate Studies

A baccalaureate degree in Business can lead to a Master's degree in Business (MBA) or other business-related masters degrees. MBA programs are offered at Penn State Great Valley, Penn State Erie, Penn State Harrisburg, Penn State Berks, Smeal College of Business and through the World Campus.

Contact

Berks

EBC DIVISION
Gaige Building
Reading, PA 19610
610-396-6346
BKBusiness@psu.edu

<https://berks.psu.edu/academics/baccalaureate-degrees/bs-business>
(<https://berks.psu.edu/academics/baccalaureate-degrees/bs-business/>)

Abington

DIVISION OF SOCIAL SCIENCES
1600 Woodland Rd.
Abington, PA 19001
215-421-0030
tws16@psu.edu

<https://www.abington.psu.edu/academics/majors-at-abington> (<https://www.abington.psu.edu/academics/majors-at-abington/>)

Altoona

DIVISION OF BUSINESS, ENGINEERING, AND INFORMATION SCIENCES
AND TECHNOLOGY
Penn Building, 223
3000 Ivyside Park
Altoona, PA 16601
814-949-5265
dxh41@psu.edu

<https://altoona.psu.edu/academics/bachelors-degrees/business>
(<https://altoona.psu.edu/academics/bachelors-degrees/business/>)

Beaver

100 University Drive
Monaca, PA 15061
724-773-3892
tdh13@psu.edu

<https://beaver.psu.edu/academics/majors/business-accounting> (<https://beaver.psu.edu/academics/majors/business-accounting/>)
<https://beaver.psu.edu/academics/majors/business-management>
(<https://beaver.psu.edu/academics/majors/business-management/>)

Brandywine

Tomezsko 207J
25 Yearsley Mill Rd.
Media, PA 19063
jvs11@psu.edu

<https://www.brandywine.psu.edu/academics/bachelors-degrees/business>
(<https://www.brandywine.psu.edu/academics/bachelors-degrees/business/>)

DuBois

171 Smeal Building
DuBois, PA 15801
814-375-4800
lhp5@psu.edu

<https://dubois.psu.edu/academics/degrees/business> (<https://dubois.psu.edu/academics/degrees/business/>)

Fayette

2201 University Drive
Lemont Furnace, PA
724-430-4245

<https://fayette.psu.edu/academics/baccalaureate/bachelor-science-business>
(<https://fayette.psu.edu/academics/baccalaureate/bachelor-science-business/>)

Greater Allegheny

4000 University Drive
McKeesport, PA 15132
412-675-9055
yzb1@psu.edu

<https://greaterallegheny.psu.edu/academics/degree-programs/business>
(<https://greaterallegheny.psu.edu/academics/degree-programs/business/>)

Hazleton

301A Schiavo Hall
Hazleton, PA 18202
570-450-3533
skr12@psu.edu

<https://hazleton.psu.edu/bachelors-science-business> (<https://hazleton.psu.edu/bachelors-science-business/>)

Lehigh Valley

2809 Saucon Valley Road
Center Valley, PA 18034
610-285-5117
maungkmin@psu.edu

<https://lehighvalley.psu.edu/academics/degrees/business> (<https://lehighvalley.psu.edu/academics/degrees/business/>)

Mont Alto

205 General Studies Building
Mont Alto, PA 17237
717-749-6027
hhh10@psu.edu

<https://montalto.psu.edu/academics/bachelors/business-degree>
(<https://montalto.psu.edu/academics/bachelors/business-degree/>)

New Kensington

111 Administration Bldg.
3550 Seventh Street Road
New Kensington, PA 15068
724-334-6727
sxe5211@psu.edu

<https://newkensington.psu.edu/academics/academics/4-year-business>
(<https://newkensington.psu.edu/academics/academics/4-year-business/>)

Schuylkill

ACADEMIC AFFAIRS
200 University Drive

Schuylkill Haven, PA 17972
570-385-6080
amb536@psu.edu

<https://schuylkill.psu.edu/academics/bacc-degrees/business> (<https://schuylkill.psu.edu/academics/bacc-degrees/business/>)

Scranton

117 Business Building
Dunmore, PA 18512
570-963-2643
jmw831@psu.edu

<https://scranton.psu.edu/academics/degrees/bachelors/business-degree> (<https://scranton.psu.edu/academics/degrees/bachelors/business-degree/>)

Shenango

147 Shenango Ave.
309C Sharon Hall
Sharon, PA 16146
724-983-2942
gxm32@psu.edu

<https://shenango.psu.edu/academics/degrees/business-accounting> (<https://shenango.psu.edu/academics/degrees/business-accounting/>)

Wilkes-Barre

44 University Drive
Dallas, PA 18612
570-675-9293
tmc12@psu.edu

<https://wilkesbarre.psu.edu/academics/business> (<https://wilkesbarre.psu.edu/academics/business/>)

World Campus

UNDERGRADUATE ACADEMIC ADVISING
225 Outreach Building
University Park, PA 16802
814-863-3283
advising@worldcampus.psu.edu

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-business-bachelor-of-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-business-bachelor-of-science-degree/>)

York

1031 Edgecomb Ave.
York, PA 17403
717-718-6785
mal489@psu.edu

<https://www.york.psu.edu/academics/baccalaureate/business> (<https://www.york.psu.edu/academics/baccalaureate/business/>)

Communication Arts and Sciences, B.A. (Berks)

Begin Campus: Any Penn State Campus

End Campus: Berks

Program Description

This major helps students better understand and analyze how people communicate in order to influence others and impact the world around them. The ability to communicate effectively in personal, social, professional, and multicultural situations is an essential skill in modern society. Discovering how to improve practices of communication in any of those situations—whether from a humanistic or scientific perspective—is equally vital. Students of Communication Arts and Sciences will therefore learn to argue persuasively, think critically, solve problems collaboratively, understand and manage conflict, influence people ethically, form and keep relationships, and participate constructively in civic life. The flexibility of this program offers preparation for a variety of careers, which include administration, business, health, higher education, human resources, law, public service, social or political advocacy, and more. Such flexibility is illustrated in the fact that this degree offers two different options for completion based on varying instructional and student needs (the Communication Studies option and the Foundations, Scholarship, and Practice option). For these reasons, majoring in Communication Arts and Sciences also offers an excellent concurrent degree program: a substantive understanding of human communication—which is valuable in numerous forms of personal, social, or professional life—can significantly enhance students' preparation in many fields of study.

Two degree options are available for the Communication Arts and Sciences B.A. in order to provide flexibility based on student and faculty needs at different campuses where the degree is offered:

Communication Studies Option

Available at the following campuses: *Berks, Brandywine*

The B.A. in Communication Arts and Sciences (Communication Studies) provides increased knowledge and skill concerning the practice of human communication across an array of interpersonal, organizational, social, and cultural contexts. Students pursuing the B.A. in this degree option will learn to argue persuasively, think critically, solve problems collaboratively, understand and manage conflict, influence people ethically, form and keep relationships, and participate constructively in civic life. The flexibility of this program offers preparation for a variety of careers, which include administration, business, health, higher education, human resources, law, public service, social or political advocacy, and more. The B.A. in Communication Arts and Sciences (Communication Studies) also offers an excellent concurrent degree program: a substantive understanding of human communication—which is valuable in numerous forms of personal, social, and professional life—can significantly enhance students' preparation in many fields of study.

Foundations, Scholarship, and Practice Option

Available at the following campuses: *University Park*

The B.A. in Communication Arts and Sciences (Foundations, Scholarship, and Practice) promotes an understanding of fundamental facets of human communication, knowledge of theories and research that illuminate communication processes, and expertise in practical applications of communication research to civic, cultural, family, health, interpersonal, organizational, and social contexts. Students pursuing the B.A. in this degree option will learn to argue persuasively, think critically, solve problems collaboratively, understand and manage conflict, influence people ethically, form and keep relationships, and participate constructively in civic life. The flexibility of this program

offers preparation for a variety of careers, which include administration, business, health, higher education, human resources, law, public service, social or political advocacy, and more. The B.A. in Communication Arts and Sciences (Foundations, Scholarship, and Practice) also offers an excellent concurrent degree program: A substantive understanding of human communication—which is valuable in numerous forms of personal, social, or professional life—can significantly enhance students' preparation in many fields of study.

What is Communication Arts and Sciences?

Communication Arts and Sciences (CAS) privileges the study and practice of communication in interpersonal, organizational, public, and intercultural contexts. Using methods and theories that span the humanities and social sciences, faculty and students create knowledge about the history, present state, and prospects of the fact that we can and do influence one another. This major inspires students to be more effective and ethical in the personal, professional, and public roles their futures have in store for them.

You Might Like This Program If...

- You want to learn about the history and theory of communication from both humanistic and social scientific perspectives.
- You are curious about relationships, group dynamics, power, and conflict.
- You want to learn to craft powerful, ethical messages that make a difference.
- You want to develop analytical and critical thinking skills to understand how messages influence people and shape situations and institutions.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Communication Arts and Sciences, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	12-15
Bachelor of Arts Degree Requirements	24
Requirements for the Major	36-39

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CAS 301	Rhetorical Theory	3
CAS 303	Communication Theory	3

Supporting Courses and Related Areas

<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 15 credits of other CAS courses; at least 12 credits must be at the 400 level. A maximum of 3 credits from CAS 494, CAS 495, CAS 496, and CAS 499 may satisfy this requirement. CAS 126 and CAS 195 may not be counted as part of the major.	15	

Requirements for the Option

<i>Requirements for the Option: Require a grade of C or better</i>		
Select an option	15-18	

Requirements for the Option

Communication Studies Option (15 Credits)

Available at the following campuses: Berks, Brandywine

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CAS 204	Communication Research Methods	3

Additional Courses

<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits from the following list:	3	
CAS 203	Interpersonal Communication	
CAS 213	Persuasive Speaking	
CAS 214W	Speech Writing	
CAS 216	Practical Parliamentary Procedure	
CAS 250	Small Group Communication	
CAS 252	Business and Professional Communication	
CAS 271N	Intercultural Communication	
CAS 280W	Storytelling and Speaking	
CAS 283	Communication and Information Technology I	
Select 3 credits from the following list:	3	
CAS 302	Social Influence	
CAS 311	Methods of Rhetorical Criticism	
CAS 321	Rhetoric and Law	
CAS 352	Organizational Communication	
CAS 373	The Rhetorics of War and Peace	
CAS 375	Rhetoric and Public Controversy	

CAS 383N Culture and Technology

CAS 398 Special Topics

CAS 399 Foreign Studies

Supporting Courses and Related Areas*Supporting Courses and Related Areas: Require a grade of C or better*

Select 6 credits from CAS courses, 3 credits maximum from: 6

CAS 494 Research Topics

CAS 495 Internship

CAS 496 Independent Studies

CAS 499 Foreign Studies

Foundations, Scholarship, and Practice Option (18 Credits)*Available at the following campuses: University Park*

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CAS 101N	Introduction to Human Communication	3
CAS 304	Quantitative Methods for Communication Research	3
CAS 311	Methods of Rhetorical Criticism	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 9 credits from the following list:		9
CAS 203	Interpersonal Communication	
CAS 210	Landmark Speeches on Democracy and Dissent	
CAS 215	Argumentation	
CAS 220	Persuasion	

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this

category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- **Praxis and Reflection:** Appreciation for the significance of communication in everyday experience and as a distinctive intellectual paradigm
- **Theoretical Knowledge:** Ability to understand, apply, critique, and extend communication concepts, principles, theories, and perspectives
- **Epistemology and Research Methodologies:** Skill at communication inquiry, including humanistic and social scientific approaches
- **Critical Thinking:** Logical, critical, creative, and ethical thinking about communication for decision-making and problem-solving
- **Message Creation and Critique:** Competency at generating and performing messages appropriate to their audience, purpose, and context
- **Research Literacy:** Facility with locating, synthesizing, and assimilating new information from a variety of sources and using it to inform communication analysis and practice
- **Ethics and Diversity:** Interest, understanding, and capacity to engage diverse communities, both local and global, and to function as a member of a deliberative society

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Communication Arts and Sciences, B.A. at Berks Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100A or 100B (GWS) [‡]	3
General Education Course (GQ) [‡]	3 General Education Course (GQ) [‡]	3
World Language Level 1	4 World Language Level 2	4
CAS Selection [*]	3 CAS Selection [*]	3
General Education Course (GN or GA or GH or GS)	3 General Education Course (GN or GA or GH or GS)	3
First-Year Seminar	1	
	17	16

Second Year

Fall	Credits Spring	Credits
CAS Selection [*]	3 ENGL 202A, 202B, 202C, or 202D (GWS) [‡]	3
CAS 301 or 303 [*]	3 CAS 204 (or 300 Level CAS Selection (CAS 311)) [*]	3
World Language Level 3	4 200 Level CAS Selection [*]	3
General Education Course (GN or GA or GH or GS)	3 General Education Course (GN or GA or GH or GS)	3
General Education Course (GN)	3 General Education Course (GHW)	3
	16	15

Third Year

Fall	Credits Spring	Credits
CAS 301 or 303 [*]	3 CAS 204 (or 300 Level CAS Selection (CAS 311)) [*]	3

Bachelor of Arts Degree Requirement: Knowledge Domain	3 Bachelor of Arts Degree Requirement: Knowledge Domain	3
General Education Course (Integrative Studies)	3 General Education Course (Integrative Studies)	3
General Education Course (Exploration)	3 General Education Course (Exploration)	3
Elective (Writing Across the Curriculum)	3 Elective	3
15		15

Fourth Year

Fall	Credits Spring	Credits
400 Level CAS Selection *	3 400 Level CAS Selection *	3
400 Level CAS Selection *	3 400 Level CAS Selection *	3
Bachelor of Arts Degree Requirement: Knowledge Domain	3 Bachelor of Arts Degree Requirement: World Cultures	3
Elective	3 Elective	3
Elective	3 Elective	3
15		15

Total Credits 124

- * Course requires a grade of C or better for the major
 ‡ Course requires a grade of C or better for General Education
 # Course is an Entrance to Major requirement
 † Course satisfies General Education and degree requirement

- ¹ For General Education Course notations, please be sure to include three (3) credits of United States (US) Cultures and three (3) credits of International (IL) Cultures. Consult adviser for details.
² The following courses are offered Spring Semester only: ENGL 202B.
³ The following courses are offered every other Fall semester only: CAS 301, CAS 303.
⁴ The following courses are offered every other Spring semester only: CAS 204, CAS 311.
⁵ For CAS Selection, consult adviser for list. CAS 101N is recommended.
⁶ For 200 Level CAS Selection, consult adviser for list.
⁷ For 300 Level CAS Selection, consult adviser for list.
⁸ For 400 Level CAS Selection, consult adviser for list.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Career Paths

CAS graduates are analysts, strategists, persuaders, facilitators, negotiators, collaborators, connectors, and leaders. The CAS B.A. equips students for success in the workforce, graduate and law school, and civic life.

Careers

The CAS B.A. prepares students for success in careers that value a rigorous and diverse understanding of communication practices. Graduates thrive in careers in business, government, law, public relations, public policy, sales, and more.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE COMMUNICATION ARTS AND SCIENCES PROGRAM (<https://cas.la.psu.edu/undergraduate/careers-in-cas/>)

Opportunities for Graduate Studies

The CAS B.A. provides excellent preparation for graduate study in rhetoric, as well as fields such as business, human resources and employment relations, law, and public policy. CAS at University Park has three integrated undergraduate-graduate degrees through which approved CAS majors can earn an undergraduate and graduate degree in five years instead of six: Public Policy, Media Studies, and Human Resources and Employment Relations.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://cas.la.psu.edu/undergraduate/integrated-undergraduate-graduate-programs/>)

Professional Resources

- National Communication Association (<https://www.natcom.org/>)
- International Communication Association (<https://www.icahdq.org>)
- Rhetoric Society of America (<https://rhetoricsociety.org>)
- International Society for the History of Rhetoric (https://ishr-web.org/aws/ISHR/pt/sp/home_page/)
- Lambda Pi Eta (<https://www.natcom.org/lambda-pi-eta/>)

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<https://www.brandywine.psu.edu/academics/bachelors-degrees/communication-arts-and-sciences> (<https://www.brandywine.psu.edu/academics/bachelors-degrees/communication-arts-and-sciences/>)

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Criminal Justice, B.A. (Berks)

Begin Campus: Any Penn State Campus

End Campus: Berks

Program Description

Students receiving a baccalaureate degree in criminal justice should understand each of the three main components of the criminal justice system and their interrelationships, be able to evaluate critically both current and future crime control policy proposals and criminal justice research, and understand the complexity of the crime phenomenon and its relationship to individual, social, and cultural factors. This major includes study in law enforcement, courts and corrections individually and as components of a system, plus work in theories of crime causation, and crime control policy. Students should expect reading, writing, and critical thinking skills to be rigorously applied and developed throughout the degree program. The Bachelor of Arts degree in Criminal Justice provides a broadly based liberal arts background for the study of crime, justice and the criminal justice system. The Bachelor of Science degree offers an opportunity for educational enrichment in fields not traditionally considered part of the liberal arts. Either degree is excellent preparation for a career in criminal justice, graduate, or professional study, or informed citizenship.

What is Criminal Justice?

Criminal justice is the study of the adult and juvenile justice systems, including law enforcement, the courts, and corrections. It is interdisciplinary and includes understanding the intersections of law, public policy, and behavioral science, in an effort to understand crime as a social problem and improve these systems for the good of society.

You Might Like This Program If...

You have an interest in working in corrections, courts, court administration, law enforcement, and probation and parole. Students completing this course of study are prepared to enter law school and graduate degree programs in more specialized areas. Every student in this degree will participate in an internship at a host agency located in a local, state or federal agency of their choice.

MORE INFORMATION ABOUT CRIMINAL JUSTICE (<https://altoona.psu.edu/academics/bachelors-degrees/criminal-justice/>)

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Criminal Justice, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	6-10
Bachelor of Arts Degree Requirements	24
Requirements for the Major	48-49

4-7 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 0-3 credits of GH courses; 4 credits of GQ courses.

3 of the 24 credits for General Education are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CRIMJ 100	Introduction to Criminal Justice	3
CRIMJ 210	Policing in America	3
CRIMJ 220	Courts and the Prosecution Process	3
CRIMJ 230	Corrections in America	3
CRIMJ 290	Introduction to Internship Experience	2
CRIMJ 441	The Juvenile Justice System	3
CRIMJ 450W	Senior Seminar	3
CRIMJ 495	Internship in Criminal Justice	3
SOC 12	Criminology	3
SOC 119N	Race, Ethnicity and Culture	3-4
STAT 200	Elementary Statistics	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
CRIMJ 250W or SOC 207	Research Methods in Criminal Justice Research Methods in Sociology	3

PHIL 103	Ethics	3
or CRIMJ 465	Ethics in Criminal Justice	
Select 9 credits from any 400-level CRIMJ course that does not already fulfill another requirement in the major		9

- United States Cultures: 3 credits
- International Cultures: 3 credits

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- **Knowledge of the field:** Students will demonstrate an understanding about the roles and functions of the central components of the United States criminal justice system.
- **Theory:** Students will be able to apply major theoretical frameworks to understanding and analyzing the causes and prevention of crime.
- **Research:** Students will recognize the importance of scientific inquiry and how to use quantitative and qualitative research methods to study issues in the field.
- **Ethics:** Students will demonstrate the importance of ethics to the field of criminal justice.
- **Professionalism:** Students will behave professionally and ethically in all academic and professional experiences.
- **Diversity and Justice:** Students will recognize the roles that race, ethnicity, gender, and social class have in the criminal justice field

and the need to be prepared to interact with individuals with diverse backgrounds.

- **Communication and Critical Thinking:** Students will demonstrate proficiency in writing, oral communication, and critical thinking.
- **Preparation:** Students will be prepared to either work in the criminal justice field or attend related graduate programs.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Criminal Justice, B.A. at Berks Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3	CAS 100A or 100B (GWS) [‡]	3
CRIMJ 100 [*]	3	CRIMJ 12 [*]	3
World Language Level 1	4	World Language Level 2	4
General Education Course (GN or GA or GS)	3	General Education Course (GQ) [‡]	3
General Education Course (GN or GA or GS)	3	General Education Course (GN or GA or GS)	3
First-Year Seminar	1		
	17		16

Second Year

Fall	Credits	Spring	Credits
CRIMJ 210 [*]	3	ENGL 202A, 202B, 202C, or 202D (GWS) [‡]	3
PHIL 103 (GH)* [†] or CRIMJ 465 [*]	3	CRIMJ 220 [*]	3

PSYCH 200 or STAT 200 (GQ) [‡]	4	CRIMJ 230 [*]	3
World Language Level 3	4	General Education Course (GN)	3
General Education Course (GHW)	1.5	General Education Course (Integrative Studies)	3
	15.5		15

Third Year

Fall	Credits	Spring	Credits
CRIMJ 250W or SOC 207 [*]	3	400 Level CRIMJ Selection [*]	3
CRIMJ 290 [*]	3	Bachelor of Arts Degree Requirement: Knowledge Domain	3
CRIMJ 441 [*]	3	Bachelor of Arts Degree Requirement: World Cultures	3
SOC 119N [*]	4	General Education Course (Integrative Studies) [*]	3
Bachelor of Arts Degree Requirement: Knowledge Domain	3	Elective	3
	16		15

Fourth Year

Fall	Credits	Spring	Credits
CRIMJ 495 [*]	3	CRIMJ 450W [*]	3
400 Level CRIMJ Selection [*]	3	400 Level CRIMJ Selection [*]	3
Bachelor of Arts Degree Requirement: Knowledge Domain	3	General Education Course (Exploration)	3
General Education Course (Exploration)	3	Elective	3
General Education Course (GHW)	1.5	Elective	1
	13.5		13

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ For General Education Course notations, please be sure to include three (3) credits of United States (US) Cultures and three (3) credits of International (IL) Cultures. Consult adviser for details.

² The following courses are offered Spring Semester only: ENGL 202B.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number

used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Career Paths

Graduates of the Criminal Justice program are prepared to enter the workforce or can continue their graduate education in Master's and Ph.D. programs, as well as law school. Penn State Altoona Career Services supports and serves students in all areas related to career development and preparation including: Major and Career Exploration Career Decision-Making Preparation of Employment Documents Internship and Job Search Strategies Interview Preparation Preparing for Graduate School Developing your Professional Online Brand Presentations and Workshops.

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<https://www.abington.psu.edu/academics/majors-at-abington/criminal-justice> (<https://www.abington.psu.edu/academics/majors-at-abington/criminal-justice/>)

Altoona

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Criminal Justice, B.S. (Berks)

Begin Campus: Any Penn State Campus

End Campus: Berks

Program Description

Students receiving a baccalaureate degree in criminal justice should understand each of the three main components of the criminal justice system and their interrelationships, be able to evaluate critically both current and future crime control policy proposals and criminal justice research, and understand the complexity of the crime phenomenon and its relationship to individual, social, and cultural factors. This major includes study in law enforcement, courts and corrections individually and as components of a system, plus work in theories of crime causation, and crime control policy. Students should expect reading, writing, and critical thinking skills to be rigorously applied and developed throughout the degree program. The Bachelor of Arts degree in Criminal Justice provides a broadly based liberal arts background for the study of crime, justice and the criminal justice system. The Bachelor of Science degree offers an opportunity for educational enrichment in fields not traditionally considered part of the liberal arts. Either degree is excellent preparation for a career in criminal justice, graduate, or professional study, or informed citizenship.

What is Criminal Justice?

Criminal justice is the study of the adult and juvenile justice systems, including law enforcement, the courts, and corrections. It is interdisciplinary and includes understanding the intersections of law, public policy, and behavioral science, in an effort to understand crime as a social problem and improve these systems for the good of society.

You Might Like This Program If...

You have an interest in working in corrections, courts, court administration, law enforcement, and probation and parole. Students completing this course of study are prepared to enter law school and graduate degree programs in more specialized areas. Every student in this degree will participate in an internship at a host agency located in a local, state or federal agency of their choice.

MORE INFORMATION ABOUT CRIMINAL JUSTICE (<https://altoona.psu.edu/academics/bachelors-degrees/criminal-justice/>)

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Criminal Justice, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	18-22
Requirements for the Major	60-61

4-7 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 0-3 credits of GH courses; 4 credits of GQ courses.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CRIMJ/CRIM 100	Introduction to Criminal Justice	3
CRIMJ 210	Policing in America	3
CRIMJ 220	Courts and the Prosecution Process	3
CRIMJ 230	Corrections in America	3
CRIMJ 290	Introduction to Internship Experience	2
CRIMJ/CRIM 441	The Juvenile Justice System	3

CRIMJ 450W	Senior Seminar	3
CRIMJ 495	Internship in Criminal Justice	3
SOC/CRIMJ/ CRIM 12	Criminology	3
SOC 119N	Race, Ethnicity and Culture	3-4
STAT 200	Elementary Statistics	4

Additional Courses

Additional Courses: Require a grade of C or better

CRIMJ 250W or SOC 207	Research Methods in Criminal Justice Research Methods in Sociology	3
PHIL 103 or CRIMJ 465	Ethics Ethics in Criminal Justice	3

Select 9 credits from any 400-level CRIMJ course that does not already fulfill another requirement in the major 9

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 12 credits, in consultation with the adviser, in one or two of the following skill enhancement areas: accounting, computers, composition and rhetoric, counseling, education, law and legal studies, world language, management, public speaking, research methods and statistics, science and engineering, biobehavioral health; or in the following topics: adolescence, deviant behavior, drugs, minorities 12

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Knowledge of the field:** Students will demonstrate an understanding about the roles and functions of the central components of the United States criminal justice system.
- **Theory:** Students will be able to apply major theoretical frameworks to understanding and analyzing the causes and prevention of crime.
- **Research:** Students will recognize the importance of scientific inquiry and how to use quantitative and qualitative research methods to study issues in the field.

- **Ethics:** Students will demonstrate the importance of ethics to the field of criminal justice.
- **Professionalism:** Students will behave professionally and ethically in all academic and professional experiences.
- **Diversity and Justice:** Students will recognize the roles that race, ethnicity, gender, and social class have in the criminal justice field and the need to be prepared to interact with individuals with diverse backgrounds.
- **Communication and Critical Thinking:** Students will demonstrate proficiency in writing, oral communication, and critical thinking.
- **Preparation:** Students will be prepared to either work in the criminal justice field or attend related graduate programs.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Criminal Justice, B.S. at Berks Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100A or 100B (GWS) [‡]	3
CRIMJ 100 [*]	3 CRIMJ 12 [*]	3
General Education Course (GN or GA or GS)	3 General Education Course (GQ) [‡]	3
General Education Course (GN or GA or GS)	3 General Education Course (GN)	3
General Education Course (GN or GA or GS)	3 General Education Course (Integrative Studies)	3
First-Year Seminar	1	
	16	15

Second Year

Fall	Credits Spring	Credits
CRIMJ 210 [*]	3 ENGL 202A, 202B, 202C, or 202D (GWS) [‡]	3
PHIL 103 (GH)* [†] or CRIMJ 465	3 CRIMJ 220 [*]	3
PSYCH 200 or STAT 200 (GQ) [‡]	4 CRIMJ 230 [*]	3
General Education Course (Integrative Studies)	3 General Education Course (Exploration)	3
General Education Course (GHW)	1.5 General Education Course (Exploration)	3
	14.5	15

Third Year

Fall	Credits Spring	Credits
CRIMJ 250W or SOC 207 [*]	3 400 Level CRIMJ Selection [*]	3
CRIMJ 290 [*]	3 Skills Enhancement Selection [*]	3
CRIMJ 441 [*]	3 Elective	3
SOC 119N [*]	4 Elective	3
Skills Enhancement Selection [*]	3 Elective	3
	16	15

Fourth Year

Fall	Credits Spring	Credits
CRIMJ 495 [*]	3 CRIMJ 450W [*]	3
400 Level CRIMJ Selection [*]	3 400 Level CRIMJ Selection [*]	3
Skills Enhancement Selection [*]	3 Skills Enhancement Selection [*]	3
Elective	3 Elective	3
Elective	3 Elective	1
General Education Course (GHW)	1.5	
	16.5	13

Total Credits 121

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

- ¹ For General Education Course notations, please be sure to include three (3) credits of United States (US) Cultures and three (3) credits of International (IL) Cultures. Consult adviser for details.
- ² The following courses are offered Spring Semester only: ENGL 202B.
- ³ For Skills Enhancement Selection, choose from the following: Business, Communication Arts & Sciences, Information Sciences & Technology, Psychology, Science, Security & Risk Analysis, Sociology, and World Language courses. Consult adviser for details.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

Graduates of the Criminal Justice program are prepared to enter the workforce or can continue their graduate education in Master's and PhD programs, as well as law school. Penn State Altoona Career Services supports and serves students in all areas related to career development and preparation including: Major and Career Exploration Career Decision-Making Preparation of Employment Documents Internship and Job Search Strategies Interview Preparation Preparing for Graduate School Developing your Professional Online Brand Presentations and Workshops.

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Cybersecurity Analytics and Operations, B.S. (Berks)

Begin Campus: Any Penn State Campus

End Campus: Berks

Program Description

The Bachelor of Science in Cybersecurity Analytics and Operations in the College of Information Sciences and Technology (IST) is an interdisciplinary program that prepares students for careers as cybersecurity professionals. It educates students on the essential concepts of cyber-defense and the analytical fundamentals of cybersecurity, with a focus on the analytical and risk management underpinnings and associated cyber-defense techniques and strategies for ensuring the safety of online information stored in large and heterogeneous networks that are embedded within and across the complex socio-technical infrastructures that are pervasive in today's business, government and military organizations. Students will acquire the knowledge and skills needed to critically assess and respond to modern information security threats, using approaches that are grounded in a holistic understanding of adversarial strategies and effective responses. More specifically, it will offer an in-depth and domain-independent approach to the development of skills in cyberdefense technologies, tools and processes; cybersecurity analytics and visualization; and cybersecurity risk analysis and management. The major draws from concepts and skills associated with a number of disciplines, including information science, management science, statistics and data science, human behavior, and law/policy. Graduates will be prepared to join the rapidly growing cybersecurity workforce deployed across organizations of diverse sizes and missions.

What is Cybersecurity Analytics and Operations?

Cybersecurity is a field that deals with the protection of computer systems, networks, programs, and data from attacks and unauthorized access. This includes the development of cyber defense tools to protect critical infrastructure as well as the analysis and mitigation of cyber threats.

Cybersecurity is a very broad field. This program focuses students beyond the information technology field and instead focuses on the analysis of cybersecurity data, identification of cyber incidents, understanding the actions of malware, communication of concerns to business stakeholders and the general public. High performing cyber analysts have a strong mathematical and computational background. They often employ computer programming and scripting to solve problems and integrate existing tools. They analyze the data they are presented with from intrusion detection sensors, firewalls, and anti-malware tools.

Cybersecurity professionals apply their skills for organizations to prevent cyber criminals, hacktivists, and persistent nation-state actors. They protect organizations, companies, healthcare institutions, and government agencies from the loss of confidential data. They keep abreast of new developments technically, as well as those in the work domain of the organization and events that occur in the world at large.

MORE INFORMATION ABOUT CYBERSECURITY ANALYTICS AND OPERATIONS (<https://ist.psu.edu/prospective/undergraduate/academics/cybersecurity/>)

You Might Like This Program If...

- You enjoy working with and on computers as well as their operating systems and applications.
- You have an interest in business and organizations and securing
- You want to protect digital information, data stores, and computer networks from threats.
- You want to learn the cyber defense strategies used to anticipate, recognize, and defend against computer attacks.
- You're passionate about how we can keep sensitive information out of the hands of hackers, cybercriminals, and terrorist organizations.
- You enjoy working on a team to solve technical problems for organizations.
- You are interested in computer programming and mathematics.

MORE INFORMATION ABOUT WHY STUDENTS CHOOSE TO STUDY CYBERSECURITY ANALYTICS AND OPERATIONS (<https://ist.psu.edu/prospective/undergraduate/academics/cybersecurity/>)

Entrance to Major

To be eligible for the Cybersecurity Analytics and Operations major, students must:

1. Have completed the following entrance-to-major requirements with a grade of C or better in each: CYBER 100 or CYBER 100S, IST 210, IST 220, IST 242 or CMPSC 122 or CMPSC 132, and STAT 200 or SCM 200.
2. Have achieved a minimum cumulative grade point average of 2.00 prior to and through the end of the semester during which the entrance to major is requested.

Degree Requirements

For the B.S. degree in Cybersecurity Analytics and Operations, a minimum of 123 credits is required:

Requirement	Credits
General Education	45
Electives	3
Requirements for the Major	87

12 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GQ courses, 3 credits of GS courses, 3 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CYBER 262	Cyber-Defense Studio	3
CYBER 342W	Cyber Incident Handling and Response	3
CYBER 362	Cybersecurity Analytics Studio	3
CYBER 366	Malware Analytics	3
CYBER 440	Cybersecurity Capstone	3
IST 210	Organization of Data	3
IST 220	Networking and Telecommunications	3
IST 230	Language, Logic, and Discrete Mathematics	3
IST 432	Legal and Regulatory Environment of Information Science and Technology	3
IST 451	Network Security	3
IST 454	Computer and Cyber Forensics	3
IST 456	Information Security Management	3
IST 495	Internship	1
SRA 111	Introduction to Security and Risk Analysis	3
SRA 211	Threat of Terrorism and Crime	3
SRA 221	Overview of Information Security	3
SRA 231	Decision Theory and Analysis	3
SRA 311	Risk Analysis in a Security Context	3
SRA 365	Statistics for Security and Risk Analysis	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
CYBER 100 or CYBER 100S	Computer Systems Literacy	3
ENGL 202C or ENGL 202D	Effective Writing: Technical Writing	3
MATH 110 or MATH 140	Techniques of Calculus I	4
STAT 200 or SCM 200	Elementary Statistics	4
Select one of the following:		3
CMPSC 121	Introduction to Programming Techniques	

CMPSC 131	Programming and Computation I: Fundamentals	
IST 140	Introduction to Application Development	
Select one of the following:		3
CMPSC 122	Intermediate Programming	
CMPSC 132	Programming and Computation II: Data Structures	
IST 242	Intermediate & Object-Oriented Application Development	
Select one of the following:		3
IST 256	Programming for the Web	
IST 261	Application Development Design Studio I	
IST 361	Application Development Design Studio II	

Supporting Courses and Related Areas

Select 9 credits from one of the Application Focus course lists. At least 3 credits must be at the 400-level. Students may also complete a custom Application Focus sequence with approval from an academic adviser and a CYBER undergraduate program coordinator. 9

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3

credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Knowledge/Application:** Understand and apply the interdisciplinary knowledge of information sciences in a security context to recognize, analyze, defend against, and manage cyber risks.
 - Understand the components and interoperability of computer hardware, operating systems, networks and databases.
 - Demonstrate proficiency in programming and scripting to perform Cybersecurity automation and analysis.
 - Understand Cyber threats and appropriate defensive designs and tools to mitigate the risk of attack.
 - Understand the procedures for Cybersecurity Incident Handling and Response.
 - Understand the static and dynamic analysis of malware.
- **Problem-Solving:** Understand, apply and adapt various problem solving strategies, using appropriate technology and methods.
 - Identify Cybersecurity threats and implement complementary defensive measures to mitigate risk.
 - Apply data analytics in a security context to analyze, predict and prevent cyberattacks.
 - Perform malware analysis and forensics to understand the nature and origin of attacks.

- Evaluate several Cybersecurity frameworks and provide analysis that culminates in a high level executive briefing exercise.
- **Evaluation and Communication (Individual and Team):** Communicate and work effectively (both individually and in teams) with a range of perspectives and audiences through a variety of media.
 - Synthesize data from multiple sources to help make informed decisions.
 - Communicate effectively to a variety of audiences through writing and the spoken word.
- **Professional Responsibilities:** Understand professional responsibilities in terms of the ethical, legal and security policy aspects of information assurance and security.
 - Understand the rules, regulations and issues related to compliance with applicable laws and regulations related to Information Security and Privacy.
 - Understand the legal and ethical ramifications of violating the trust that organizations will place in you as a Cybersecurity professional.
- **Lifelong Learning:** Commit to the continuous acquisition of relevant knowledge for professional development by self-teaching and/or on-going education and certification.
 - Employ information-seeking strategies and self-directed learning in pursuit of current knowledge.
 - Enroll in professional development and pursue industry certifications to enhance your career and the profession.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Cybersecurity Analytics and Operations, B.S. at Berks Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100A or 100B (GWS) [‡]	3
MATH 110 (GQ) ^{*‡}	4 STAT 200 (GQ) ^{**‡#}	4
IST 140 ^{*#}	3 IST 210 ^{*#}	3
CYBER 100 ^{*#}	3 IST 242 ^{*#}	3
General Education Course (GN or GA or GH)	3 SRA 111 (GS) ^{*†}	3
First-Year Seminar (IST 111S recommended)	1	
	17	16

Second Year

Fall	Credits Spring	Credits
IST 220 ^{*#}	3 ENGL 202C or 202D (GWS) [‡]	3
SRA 211 [*]	3 IST 256 or 261 [*]	3
SRA 221 [*]	3 SRA 231 [*]	3
General Education Course (GN or GA or GH)	3 CYBER 262 [*]	3
General Education Course (GN or GA or GH)	3 General Education Course (GN)	3
	15	15

Third Year

Fall	Credits Spring	Credits
IST 230*	3 IST 454*	3
SRA 311*	3 CYBER 342W*	3
SRA 365*	3 CYBER 366*	3
Application Focus Selection	3 Application Focus Selection	3
General Education Course (Integrative Studies)	3 General Education Course (Integrative Studies)	3
General Education Course (GHW)	1.5	
16.5		15

Fourth Year

Fall	Credits Spring	Credits
IST 432*	3 IST 451*	3
IST 495*	1 IST 456*	3
CYBER 362*	3 General Education Course (Exploration)	3
CYBER 440*	3 Application Focus Selection	3
General Education Course (Exploration)	3 Elective	2
	General Education Course (GHW)	1.5
13		15.5

Total Credits 123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ For General Education Course notations, please be sure to include three (3) credits of United States (US) Cultures and three (3) credits of International (IL) Cultures. Consult adviser for details.

² The following courses are offered Fall Semester only: CYBER 362, CYBER 440, IST 432, SRA 311, SRA 365.

³ The following courses are offered Spring Semester only: CYBER 262, CYBER 342W, CYBER 366, IST 261, IST 451, IST 456, SRA 231.

⁴ For Application Focus Selection, students must select three (3) credits at the 400 level. Consult adviser for list.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

Students pick one of five (5) tracks below or create a custom three (3) course application focus. Students must pick three (3) credits at the 400-level. All nine (9) credits must be in the same application focus area.

Application Development

Code	Title	Credits
IST 110	Information, People and Technology	3
IST 311	Object-Oriented Design and Software Applications	3
IST 331	Foundations of Human-Centered Design	3
IST 361	Application Development Design Studio II	3
IST 402	Emerging Issues and Technologies	3
IST 411	Distributed-Object Computing	3
IST 412	The Engineering of Complex Software Systems	3

Geopolitics

Understanding the geopolitical landscape is key to understanding and modeling cyberthreats from nation-states and other threat actors. The Geopolitics focus is for students who have an interest in pursuing cybersecurity careers in government or related consulting sectors.

Code	Title	Credits
GEOG 160	Mapping Our Changing World	3
GEOG 260	Geographic Information in a Changing World: Introduction to GIScience	3
IB 440	Globalization and Its Implications	3
PLSC 14	International Relations	3
PLSC 461	Politics of the European Union	3
PLSC 467	International Relations of the Middle East	3
PLSC 481	Global Political Economy	3
GEOG 333	Human Dimensions of Natural Hazards	3
GEOG 363	Geographic Information Systems	3
AFR/PLSC 440	Globalization and Its Implications	3
SRA 450	Cyber-Crime and Cyber-Warfare	3
SRA 480	Crisis Informatics	3

Law and Policy

Cybersecurity careers in law enforcement require knowledge of laws and policies focused on the handling of evidence related to digital forensics and monitoring. Individuals in the private sector and government agencies must also understand and adhere to these topics as they involve cybersecurity. The Law and Policy focus is for students who want to understand law and policy as they relate to digital data.

Code	Title	Credits
COMM 180	Survey of Electronic Media and Telecommunications	3
COMM 404	Telecommunications Law	3
CRIM/CRIMJ 100	Introduction to Criminal Justice	3
CRIM/CRIMJ 113	Introduction to Law	3
PLSC 14	International Relations	3
PLSC 140	Contemporary Controversies in International Relations	3
PLSC 438	National Security Policies	3
PLSC 442	American Foreign Policy	3
PLSC/STS 460	Science, Technology, and Public Policy	3
PLSC 467	International Relations of the Middle East	3

CRIM/CRIMJ/ SOC 467	Law and Society	3
HLS/PADM 401	Introduction to Homeland Security (offered by Harrisburg and World Campus only)	3
PLSC/CRIMJ 439	The Politics of Terrorism	3
PLSC 487	International Law and Organizations (not offered at University Park)	3

Economics

The Economics focus is for students who have an interest in pursuing cybersecurity careers in the financial services sector or government. Designed to help students understand today's financial and economic environments, this focus highlights the importance of translating the financial and economic impact of cybersecurity activities to effectively manage any program.

Code	Title	Credits
ECON 102	Introductory Microeconomic Analysis and Policy	3
BLAW 243	Legal Environment of Business	3
BA 301	Finance	3
ECON 302	Intermediate Microeconomic Analysis	3
ECON 402	Decision Making and Strategy in Economics	3
ECON 409		3
ECON 445	Health Economics	3
ECON 470	International Trade and Finance	3
FIN 301	Corporation Finance	3
HPA 445	Health Economics	3
PLSC 412	International Political Economy	3
PLSC 481	Global Political Economy	3

Health Care

Hospitals, pharmaceutical companies, and government agencies are just a few of the sectors that have strict requirements around protecting health care data. The Health Care focus is for students who have an interest in pursuing cybersecurity careers in a health care environment. Understanding how information is managed in these environments will help students thrive in a health care-related career.

Code	Title	Credits
HPA 101	Introduction to Health Services Organization	3
BBH 101	Introduction to Biobehavioral Health	3
ECON 445	Health Economics	3
HPA 332	Health Systems Management	3
HPA 445	Health Economics	3
HPA 450	Healthcare Policies and Politics	3
IST 110	Information, People and Technology	3
NURS 357	Introduction to Nursing Informatics (offered at Commonwealth and World Campuses; not at University Park)	3
HPA/BBH 440	Principles of Epidemiology	3
HPA 470	Health Care Information Management	3
NURS 458	Ethical Challenges in Healthcare Informatics (offered at Commonwealth and World Campuses; not at University Park)	3

Custom Application Focus

There is an option for a student to create a custom 4-course application focus sequence. It must be a coherent sequence of courses that provides

context for the student in terms of cybersecurity content. It should contain three credits of GS coursework and must contain six credits of 400-level coursework. It must be selected in consultation with a teaching CYBER faculty member and an academic adviser.

Career Paths

Cybersecurity blends the technical expertise needed to analyze security issues and create cyberdefense strategies with the interpersonal skills needed to communicate threats to a variety of audiences. The program prepares students to meet the growing need for professionals who can defend against threats to digital information and assets. IST's Office of Career Solutions helps students navigate their internship and career development in the field through coaching, workshops, interview preparation, resume reviews, career fairs, job postings, and networking opportunities.

Careers

Because our courses blend technical knowledge with skills in communication and business, a Cybersecurity Analytics and Operations degree allows students to pursue opportunities as cybersecurity analysts, cyberthreat advisers, penetration testers, and a number of other unique careers in fields such as defense, government, and business.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE CYBERSECURITY ANALYTICS AND OPERATIONS PROGRAM (<https://www.ist.psu.edu/current/careers/development/process/path/>)

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World Campus

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-cybersecurity-analytics-and-operations-bachelor-of-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-cybersecurity-analytics-and-operations-bachelor-of-science-degree/>)

York

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<https://www.york.psu.edu/academics/baccalaureate/cybersecurity-analytics-and-operations> (<https://www.york.psu.edu/academics/baccalaureate/cybersecurity-analytics-and-operations/>)

Electro-Mechanical Engineering Technology, B.S. (Berks)

Begin Campus: Any Penn State Campus

End Campus: Berks

Program Description

The Electro-Mechanical Engineering Technology (B.S. EMET) degree program provides the basic undergraduate education required for a career as an electro-mechanical engineer. The program emphasizes a breadth of knowledge in all fields of engineering technology related to typical, highly-automated manufacturing, production, or assembly plant processes. Basic coverage is provided in all major areas to technology involved in the operation and control of manufacturing and production processes, including instrumentation and monitoring methods, principles of machine design, automated control techniques, thermal and fluid sciences, computerized manufacturing systems, principles of electrical and electronic circuit operation, computer-aided drafting and design, economics of production, and statistical analysis and quality control.

The primary aim of the EMET program is to provide graduates with the knowledge and skills necessary to apply current methods and technology to the development, design, operation, and management of electro-mechanical systems, particularly in those industries where automated systems are prevalent.

The major is organized as a four-year baccalaureate program with the corresponding Penn State admission requirements. Graduates of an associate degree in either electrical or mechanical engineering

technology from Penn State may re-enroll in the EMET program. The College of Engineering ENGR students may enroll through "Change of Major" procedures. Students from an engineering technology program at another institution or community college accredited by TAC of ABET may transfer into the program with advanced standing.

What is Electro-Mechanical Engineering?

The Bachelor of Science degree in Electro-Mechanical Engineering Technology responds to a growing demand for engineers with a broad range of technical skills. The program emphasizes knowledge in the field of technology related to the design, maintenance, and operation of electromechanical systems, essentially automation and robotics. These systems incorporate electronic, mechanical, instrumentation and control elements. The program provides students with hands-on experience with these elements, technical knowledge, and the soft skills needed to be successful in the field of engineering. In this curriculum, students receive early exposure to technology by scheduling technical courses in the major. A laboratory component that promotes the understanding of the subject matter through the experiential application of theory accompanies most technical courses. This program culminates with a senior capstone project in which students work together in a team to design and implement an engineering project from initial proposal through product demonstration.

You Might Like This Program If...

You are interested in math and science but prefer spending time applying your skills in a laboratory or field setting as opposed to studying the theory behind these subjects in a classroom setting. If you like to take things apart, to see how they work, this may be for you. There is a greater emphasis on engineering applications while building an understanding of scientific theory.

Direct Admission to the Major

Incoming first-year students who meet the program admission requirements are admitted directly into the major. Admission restrictions may apply for change-of-major and/or change-of-campus students.

For more information about the admission process for this major, please send a request to the college, campus, or program contact (listed in the Contact tab).

Degree Requirements

For the Bachelor of Science degree in Electro-Mechanical Engineering Technology, a minimum of 130 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	109-116

24 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GH courses; 9 credits of GN courses; 6 credits of GQ courses; 6 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
CMPET 211	Embedded Processors and DSP	3
EDSGN 100	Cornerstone Engineering Design	3
EET 105	Electrical Systems	3
EET 275	Introduction to Programmable Logic Controls	3
EGT 114	Spatial Analysis and Computer-Aided Drafting	2
EMET 100	Computation Tools for Engineering Synthesis	1
EMET 215	Manufacturing Engineering	3
EMET 225	Applied Dynamics	2
EMET 325	Electric Drives	3
EMET 326	Mechanical Drives	3
EMET 405	Introduction to Thermal Science Systems	3
EMET 410	Automated Control Systems	4
IET 101	Manufacturing Materials, Processes, and Laboratory	3
IET 333	Engineering Economics for Technologists	2
STS/PHIL 233	Ethics and the Design of Technology	3
<i>Prescribed Courses: Require a grade of C or better</i>		
CMPET 117	Digital Electronics	3
CMPET 120	Digital Electronics Laboratory	1
EET 114	Electrical Circuits II	4
EET 118	Electrical Circuits Laboratory	1
EET 212W	Op Amp and Integrated Circuit Electronics	4
EMET 222	Applied Mechanics	3
EMET 230	Computerized I/O Systems	3
EMET 330	Measurement Theory and Instrumentation	3
ENGL 202C	Effective Writing: Technical Writing	3
MET 111	Mechanics for Technology: Statics	3
Additional Courses		
EMET 350	Quality Control, Inspection, and Design	2-3
or EMET 351	Quality Control, Inspection, and Design	
EMET 403	Electromechanical Design Project Preparation	4
& EMET 440	and Electro-Mechanical Project Design	
or EMET 441	Mechatronics Project Design	
& EMET 442	and Mechatronics Project Implementation	
Select 3 credits from the following:		3
CMPSC 121	Introduction to Programming Techniques	
CMPSC 131	Programming and Computation I: Fundamentals	
CMPSC 200	Programming for Engineers with MATLAB	
CMPSC 201	Programming for Engineers with C++	
Select 6-8 credits of GN courses from two of the following groups:		6-8
<i>Group 1</i>		
CHEM 110	Chemical Principles I	
& CHEM 111	and Experimental Chemistry I	
<i>Group 2</i>		
PHYS 150	Technical Physics I	
PHYS 211	General Physics: Mechanics	
PHYS 250	Introductory Physics I	
<i>Group 3</i>		
PHYS 151	Technical Physics II	
PHYS 212	General Physics: Electricity and Magnetism	
PHYS 251	Introductory Physics II	

Additional Courses: Require a grade of C or better

MATH 83	Technical Calculus ¹	4
or MATH 140	Calculus With Analytic Geometry I	
MATH 210	Calculus with Engineering Technology Applications	3-4
or MATH 141	Calculus with Analytic Geometry II	
MATH 250	Ordinary Differential Equations ²	3
or MATH 211	Intermediate Calculus and Differential Equations with Applications	
Select 3 credits from the following:		3
CAS 100	Effective Speech	
CAS 100A	Effective Speech	
CAS 100B	Effective Speech	
Select 3-5 credits from the following:		3-5
MATH 26	Plane Trigonometry and Applications of Trigonometry	
MATH 40	Algebra, Trigonometry, and Analytic Geometry	
MATH 82	Technical Mathematics II ³	

Supporting Courses and Related Areas

Select 3-4 credits of science courses, in consultation with an adviser, 3-4 from the approved department list

Select 6 credits of General Technical Elective courses, in consultation 6 with an adviser, from the approved department list

¹ Students taking MATH 83 must take MATH 210 and MATH 211.

² Note that MATH 250 does not carry a C-requirement.

³ Students taking MATH 81 and MATH 82 must take MATH 83.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Educational Objectives

The educational objectives of the Electro-Mechanical Engineering Technology program are designed to prepare graduates who, within a few years after graduation, will:

1. Continue to develop and synthesize analytical skills in the specification, procurement, or integration of electromechanical systems.

2. Apply empirical skills in the safe operation, testing, or maintenance of electromechanical systems.
3. Collaborate effectively acting with the highest standards of professional integrity in project team activities through recognizing the global, societal, economical, and ethical contexts of their work.
4. Communicate persuasively ensuring a focus on technical excellence through the preparation and delivery of technical and non-technical documentation and communications.

Student Outcomes

Graduates of the Electro-Mechanical Engineering Technology program should demonstrate:

1. An ability to apply knowledge, techniques, skills, and modern tools of mathematics, science, engineering, and technology to solve broadly-defined engineering problems appropriate to the discipline.
2. An ability to design systems, components, or processes meeting specified needs for broadly-defined engineering problems appropriate to the discipline.
3. An ability to apply written, oral, and graphical communication in broadly-defined technical and non-technical environments; and an ability to identify and use appropriate technical literature.
4. An ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results to improve processes.
5. An ability to function effectively as a member as well as a leader on technical teams.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

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READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Electro-Mechanical Engineering Technology, B.S. at Berks Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100A or 100B (GWS) [‡]	3
MATH 26 (GQ) [‡]	3 MATH 83 (GQ) ^{*‡}	4
EDSGN 100	3 EET 114 [*]	4
EET 105	3 EET 118 [*]	1
IET 101	3 MET 111 [*]	3
First Year Seminar	1 EMET 100	1
	16	16

Second Year

Fall	Credits Spring	Credits
MATH 210 [*]	3 ENGL 202C (GWS) [‡]	3
CMPET 117 [*]	3 MATH 211 [*]	3

CMPET 120*	1 EET 275	3
CMPSC 131	3 IET 333	2
EGT 114	2 General Education Course (GA)	3
EMET 222*	3 General Education Course (GS)	3
	15	17

Third Year

Fall	Credits Spring	Credits
EET 212W*	4 CMPET 211	3
EMET 215	3 EMET 325	3
EMET 225	2 EMET 326	3
EMET 230*	3 EMET 330*	3
PHYS 150 (GN) [†]	3 EMET 351	2
STS 233 (GH) [†]	3 Supporting Science Course	3-4
	18	17-18

Fourth Year

Fall	Credits Spring	Credits
CHEM 110 (GN) [†]	3 EMET 405	3
CHEM 111 [†]	1 EMET 442	2
EMET 410	4 Technical Elective	3
EMET 441	2 General Education Course (Integrative Studies)	3
Technical Elective	3 General Education Course (GHW)	3
General Education Course (Integrative Studies)	3	
General Education Course (Exploration)	3	
	19	14

Total Credits 132-133

- * Course requires a grade of C or better for the major
 ‡ Course requires a grade of C or better for General Education
 # Course is an Entrance to Major requirement
 † Course satisfies General Education and degree requirement

¹ For General Education Course notations, please be sure to include three (3) credits of United States (US) Cultures and three (3) credits of International (IL) Cultures. Consult adviser for details.

² Students who begin their mathematics sequence beyond MATH 26 will need to complete three (3) additional credits of Technical Electives. Consult adviser for details.

³ The following courses are offered Fall Semester only: CMPET 117, CMPET 120, EET 212W, EGT 114, EMET 215, EMET 215, EMET 222, EMET 225, EMET 230, EMET 351, EMET 410 (and Summers), EMET 441, IET 101, MATH 210, PHYS 150, STS 233.

⁴ The following courses are offered Spring Semester only: CMPET 211, EET 114 (and Summers), EET 118 (and Summers), EET 275, EMET 100, EMET 325, EMET 326, EMET 330, EMET 351, EMET 442, IET 333, MATH 211, MET 111.

⁵ For Supporting Science Course, choose from the following: BIOL 11 & BIOL 12, BIOL 110, BIOL 141, CHEM 112 & CHEM 113, EGEE 101, EGEE 102, GEOG 30N, PHYS 151, PHYS 211, PHYS 212, PHYS 250, PHYS 251.

⁶ For Technical Elective, choose from the following: EDSGN 468, EMET 394, EMET 430, EMET 432, EMET 433, EMET 495, EMET 496,

EMET 497, ENGR 310, ENGR 405, ENGR 408, ENGR 410, ENGR 425, MATH 220, MATH 230, MATH 231, ME 300, MET 365. Additional courses may be substituted. Consult adviser for details.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

The inclusion of both electrical and mechanical coursework in the EMET program makes our students highly marketable to employers.

EMET graduates may pursue engineering work that entails design, prototyping, testing, operation, or maintenance of equipment. Others may work in the areas of research and development, quality control, inspection of procedures and processes, manufacturing, or sales and service. These careers could be in a variety of industries including aerospace, agriculture, automotive, communications, computers, construction, energy, pharmaceuticals, plastics, or robotics to name a few.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE ELECTRO-MECHANICAL ENGINEERING PROGRAM (<https://career.engr.psu.edu/>)

Opportunities for Graduate Studies

Students may choose to further their engineering education through graduate school. EMET graduates are prepared to continue their education into technical or professional Master's Degree programs. Graduate program admissions requirements vary by program and institution. Students intending to pursue this academic path are encouraged to investigate intended programs of interest early in their studies to tailor their course choices during their undergraduate studies.

Since the EMET program is ABET ETAC-accredited, EMET graduates are candidates to sit for the Fundamental of Engineering (FE) Exam, the first step in the engineering licensure process. Acceptable accreditation standards vary from state to state for professional licensure, so students must verify their state's requirements.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.engr.psu.edu/graduate-programs/>)

Accreditation

The Bachelor of Science in Electro-Mechanical Engineering Technology at Penn State Berks is accredited by the Engineering Technology Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Electromechanical Engineering Technology and Similarly Named Programs.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

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<https://www.york.psu.edu/academics/baccalaureate/electro-mechanical-engineering-technology> (<https://www.york.psu.edu/academics/baccalaureate/electro-mechanical-engineering-technology/>)

Elementary and Kindergarten Education, B.S. (Berks)

Begin Campus: Any Penn State Campus

End Campus: Berks

PROGRAM CURRENTLY ON HOLD; NOT ACCEPTING NEW STUDENTS
Begin Date of Enrollment Hold: September 10, 2010

Individuals interested in earning Pennsylvania teaching credentials for grades PK-4 should refer to the Elementary and Early Childhood Education, B.S. program (p. 688). Individuals interested in earning Pennsylvania teaching credentials for grades 5-8 should refer to the Middle Level Education, B.S. program (p. 706).

****Please Note:** Individuals interested in earning Pennsylvania teaching credentials for grades PK-8 should refer to the **Childhood and Early Adolescent Education** major.

This major offers teaching options in Early Childhood Education and in Elementary Education. Students successfully completing this major will have met all of the requirements for the N-3 or K-6 College Instructional I certificate issued by the Pennsylvania Department of Education. Students must indicate their choice of teaching option at the time they make application for admission to a teacher education major. Students who are undecided at this time about which teaching option to select should contact their adviser and enroll in a field experience featuring participation in the classroom.

Early Childhood Teaching Option

Available at the following campuses: University Park

Students successfully completing this option will have met all of the requirements for the N-3 Instructional I certificate issued by the Pennsylvania Department of Education. Special courses in both human development and education are used to integrate understanding of preschool programs with relevant theories of child development.

Elementary Education Teaching Option

Available at the following campuses: Altoona, Berks, University Park

Students successfully completing this option will have met all of the requirements for the K-6 Instructional I certificate issued by the Pennsylvania Department of Education.

Degree Requirements

For the Bachelor of Science degree in Elementary and Kindergarten Education, a minimum of 129.5 credits is required for the Early Childhood

Teaching Option and a minimum of 122 credits is required for the Elementary Education Teaching Option:

Requirement	Credits
General Education	45
Electives	0-3
Requirements for the Major	101-117

27-30 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GS, 6 credits of GQ, 6 credits of GH, and 9 credits of GN courses for both options. The Early Childhood Teaching option permits 3 credits of GHW.

See also Teacher Education Programs (<https://ed.psu.edu/academics/teacher-testing-certification/>).

Requirements for the Major

A grade of C or better per course is required for teacher certification.

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better for teacher certification</i>		
AED 303	The Visual Arts in the Elementary School	3
CI 295	Introductory Field Experience for Teacher Preparation	2
CI 495B	Clinical Application of Instruction - Middle Level Education	3
CI 495D	Practicum in Student Teaching—Childhood and Early Adolescent Education	12
CI 495F	Professional Development Practicum	3
EDPSY 14	Learning and Instruction	3
ENGL 100	English Language Analysis	3
KINES 126	The Health Program for the Elementary School Child	1.5
LLED 400	Teaching Literacy in Early Childhood	3
LLED 401	Teaching Literacy in Elementary School	3
LLED 402	Teaching Children's Literature	3
MATH 200	Problem Solving in Mathematics	3
MTHED 420	Teaching Mathematics In The Elementary Schools	3
MUSIC 241	Music for Classroom Teachers	3
SCIED 458	Teaching Science in the Elementary School	3
SPLD 400	Inclusive Special Ed Foundations: Legal, Characteristics, Collaboration, Assessment, and Management	3
SSED 430W	Teaching Social Studies in the Elementary Grades	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better for teacher certification</i>		
EDTHP 115	Education in American Society	3
	or EDTHP 115A Competing Rights: Issues in American Education	3
HIST 20	American Civilization to 1877	3
	or HIST 21 American Civilization Since 1877	3
Select one of the following:		3-4
EDPSY 101	Analysis and Interpretation of Statistical Data in Education	

STAT 100	Statistical Concepts and Reasoning	
STAT 200	Elementary Statistics	
Select one of the following:		3
ECON 14	Principles of Economics	
ECON 102	Introductory Microeconomic Analysis and Policy	
ECON 104	Introductory Macroeconomic Analysis and Policy	
Select one of the following:		3
GEOG 20	Human Geography: An Introduction	
GEOG 30N	Environment and Society in a Changing World	
GEOG 122		
GEOG 123	Geography of Developing World	
GEOG 124	Elements of Cultural Geography	
GEOG 126	Economic Geography	
GEOG 128	Geography of International Affairs	
GEOG 320	Urban Geography: A Global Perspective	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better for teacher certification

Select 3 credits in literature GH	3
Select 9 credits: 3 credits each (including one course with a lab) from the following GN biological science, earth science, and physical science	9

Requirements for the Option

Requirements for the Option: Require a grade of C or better for teacher certification

Select an option	16.5-30
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Requirements for the Option

Early Childhood Teaching Option (27-30 credits)

Available at the following campuses: University Park

Code	Title	Credits
Prescribed Courses		
CI 495A	Clinical Application of Instruction - PK-4	1
ECE 451	Instruction in Early Childhood Education Derived from Development Theories	3
ECE 452		3
ECE 453	Parent Involvement in Home, Center, and Classroom Instruction	2
ECE 454		3
ECE 479	The Young Child's Play as Educative Processes	3
Additional Courses		
HDFS 315	Family Development	3
	or SOC 30 Sociology of the Family	
HDFS 428	Infant Development	3
	or HDFS 429 Advanced Child Development	
HPA 101	Introduction to Health Services Organization	3
	or NUTR 251 Introductory Principles of Nutrition	
PSYCH 100	Introductory Psychology	3-6
& PSYCH 212	and Introduction to Developmental Psychology	
	or HDFS 229 Infant and Child Development	

Elementary Education Teaching Option (16.5-19.5 credits)

Available at the following campuses: Altoona, Berks, University Park

Code	Title	Credits
Prescribed Courses		
KINES 127	The Physical Education Program for the Elementary School Child	1.5
Additional Courses		
Select one of the following:		3-6
EDPSY 10	Individual Differences and Education	
HDFS 229	Infant and Child Development	
PSYCH 100	Introductory Psychology	
& PSYCH 212	and Introduction to Developmental Psychology	
Supporting Courses and Related Areas		
Select 3 credits in MATH or MTHED		3
Select 6 credits of the following:		6
EDTHP at the 400 level		
ECE at the 400 level		
SPLED at the 400 level		
EDLDR 405	Reimagining Classroom Management	
EDLDR 497	Special Topics	
LLED 497	Special Topics	
Select 3 credits in U.S. History		3

General Education

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READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Foundations of Organizational Leadership, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

This 12-credit certificate will provide a solid foundation in leadership concepts and employment relations that can enhance student leadership and managerial skills. The courses can be applied to the bachelor's degree in Organizational Leadership.

Specifically built for adult learners, students will learn with a Penn State instructor and other adult learners. Accelerated evening courses meet once a week for seven weeks in-person or via live video instruction with online learning components. As a participant either in the classroom or via video technology, students can communicate with the instructor and interact with other students.

What is Foundations of Organizational Leadership?

The Foundations of Organizational Leadership certificate is a 12-credit sequence of classes that provides an introduction to key leadership concepts and practices and provides students with the knowledge and skills that are characteristic of effective leaders. Certificate programs focus on a specific skill set, allowing you to earn this Penn State credential in a relatively short time.

You Might Like This Program If...

- You want to enhance your leadership and management skills while gaining skills that are characteristic of effective leaders.
- You want to gain specialized knowledge on workplace and employment issues from both the employee's and employer's perspective.
- You want to build your resume to advance your career.

MORE INFORMATION ABOUT FOUNDATIONS OF ORGANIZATIONAL LEADERSHIP (<https://berks.psu.edu/continuing-education/certificate-programs-adult-learners/foundations-organizational-leadership-certificate/>)

Program Requirements

To earn an undergraduate certificate in Foundations of Organizational Leadership, a minimum of 12 credits is required.

Code	Title	Credits
Required Courses		
OLEAD 100	Introduction to Leadership	3
OLEAD 201	Organizational Theory and Functions for Leaders	3
OLEAD 210	Evidence-Based Leadership	3
OLEAD/LHR 465	Collective Decision Making	3

Certificate Learning Objectives

- **Functions of Leadership:** Explain the roles and the major functions of leadership in contemporary organizations;

- **Theoretical and Empirical Approaches to Leadership:** Apply the theoretical and empirical foundations for different approaches to the exercise of leadership
- **Identify Social Influence and How to Improve:** Identify the social processes operative in the exercise of influence, as well as how to improve them;
- **Execution of Critical Organizational Tasks:** Exhibit intellectual and behavioral competencies useful in the successful execution of critical organizational tasks and the management of relationships.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Berks

Solange Israel-Mintz

Adult Student Enrollment Coordinator
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Career Paths

This certificate can provide you with a solid foundation in leadership concepts and employment relationships, enhancing your leadership and managerial skills.

Careers

The purpose of this certificate is to familiarize students with employment relationships and the interrelated interests of managements, workers, unions, and the public, including the legal frameworks that govern collective bargaining between employers and unions in federal, state and local governments.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A CERTIFICATE IN FOUNDATIONS OF ORGANIZATIONAL LEADERSHIP (<https://berks.psu.edu/continuing-education/certificate-programs-adult-learners/foundations-organizational-leadership-certificate/>)

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<https://berks.psu.edu/continuing-education/certificate-programs-adult-learners/foundations-organizational-leadership-certificate> (<https://berks.psu.edu/continuing-education/certificate-programs-adult-learners/foundations-organizational-leadership-certificate/>)

Global Studies, B.A.

Begin Campus: Any Penn State Campus

End Campus: Berks

Program Description

This major is designed for students who are interested in a liberal arts degree with a concentration in global studies. Featuring both active and collaborative classroom experiences in addition to intensive study abroad/internship experiences, the program is designed for students who wish to develop a set of analytical and interpersonal skills that will prepare them for entry-level employment in a wide range of government and non-profit organizations and agencies and in businesses and industry. Because of the flexible and broad nature of the degree, students might also use this major as preparation for graduate or professional school in business, law, or the social sciences. This program differs most notably from traditional majors in international/global studies by requiring core courses in world literature and intercultural communication, while retaining the traditional world language, history, and political science emphasis of most other programs. Study abroad and an internship with an international organization are also important features of this degree.

What is Global Studies?

If you are interested in helping to make the world a better place, the Bachelor of Arts in Global Studies degree may be the perfect fit for you. Global Studies is the study of globalization as it relates to the economy, market relations, the movement of people and resources, communications, politics, the effect of human activity on the environment, and cultural interconnectedness. Global Studies promotes intercultural understanding and sensitivity to diversity, critical components to navigating the twenty-first century global environment.

You Might Like This Program If...

- You enjoy working with individuals and groups from diverse populations and reaching common understanding.
- You are concerned with global issues such as the environment, human rights, immigration, diplomacy, and international business.
- You like to look at the big picture and to help others see issues from a broader perspective.
- You would like the flexibility of a broad, liberal arts major that prepares you to enter a variety of fields or to enter graduate or professional school.

MORE INFORMATION ABOUT GLOBAL STUDIES (<https://berks.psu.edu/academics/ba-global-studies/>)

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and

2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Global Studies, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	3-6
Bachelor of Arts Degree Requirements	24
Requirements for the Major	45-48

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Requirements for the Major

A minimum of 3 credits of study abroad (meeting any requirement) and 3 credits of INTST 495 are required for the completion of this degree. At least 18 credits at the 400-level must be completed on the Berks campus. Courses taken abroad will qualify to meet a student's requirements.

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ENGL 403	Literature and Culture	3
HIST 320W	Contemporary World History and Issues	3
INTST 495	Internship	3-6
PLSC 14	International Relations	3
PLSC 440	Globalization and Its Implications	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
CAS 271N	Intercultural Communication	3
or INTST 100	Introduction to International Studies	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 6 credits from Africa, Asia and the Middle East Regions:		6
ASIA 182	Asian Trade: Economy, Industrialization and Capitalism in Asia	
CMLIT 3	Introduction to African Literatures	
CMLIT 4	Introduction to Asian Literatures	
ECON 473		
HIST 175	East Asia since 1800	
HIST 181	Introduction to the Middle East	
HIST 192	Modern African History	

PLSC 443	Ethnic Conflict in Africa	
PLSC 454	Government and Politics of Africa	
RLST 107	Introduction to Islam	
Select 6 credits from Europe Region:		6
FR 139	France and the French-speaking World	
GER 100	German Culture and Civilization	
HIST 120		
HIST 435	Topics in European History	
PLSC 413	The Rise and Fall of the Soviet Union	
Select 6 credits from Latin America Region:		6
HIST 179	Latin-American History Since 1820	
HIST 250	Introduction to the Caribbean	
HIST 467	Latin America and the United States	
HIST 468	Mexico and the Caribbean Nations in the Twentieth Century	
SPAN 131	Ibero-American Civilization	
SPAN 253W	Introduction to Literary & Cultural Studies en Español	
SPAN 297	Special Topics	
SPAN 497	Special Topics	
Select 9 credits from International Transnational Issues:		9
CMLIT 153	International Cultures: Film and Literature	
ENGL 182	Literature and Empire	
HIST 488	American Diplomacy Since 1914	
IB 303	International Business Operations	
INTAG 100		
PLSC 412	International Political Economy	
PLSC/CRIMJ 439	The Politics of Terrorism	
PLSC 487	International Law and Organizations	

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits

- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- Evaluate global issues theoretically and critically.
- Use appropriate tools to critically evaluate global issues and interpret these sources for bias and validity.
- Effectively use information systems.
- Evaluate and/or conduct research related to global issues.
- Use oral and written communication skills regarding global issues.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

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Berks

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Global Studies, B.A. at Berks Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If**

report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [†]	3 CAS 100A or 100B (GWS) [†]	3
General Education Course (GQ) [‡]	3 General Education Course (GQ) [‡]	3
World Language Level 1	4 World Language Level 2	4
General Education Course (GN or GA or GH or GS)	3 PLSC 14 [*]	3
General Education Course (GN or GA or GH or GS)	3 General Education Course (GN or GA or GH or GS)	3
First-Year Seminar	1	
	17	16

Second Year

Fall	Credits Spring	Credits
CAS 271N or INTST 100 [*]	3 ENGL 202A, 202B, 202C, or 202D (GWS) [‡]	3
World Language Level 3	4 Global Regions & Issues Selection [*]	3
General Education Course (GN or GA or GH or GS)	3 General Education Course (GN)	3
General Education Course (Integrative Studies)	3 General Education Course (Integrative Studies)	3
General Education Course (Exploration)	3 General Education Course (Exploration)	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
	17.5	16.5

Third Year

Fall	Credits Spring	Credits
Global Regions & Issues Selection [*]	3 ENGL 403 [*]	3
Global Regions & Issues Selection [*]	3 HIST 320W [*]	3
Bachelor of Arts Degree Requirement: Knowledge Domain	3 Global Regions & Issues Selection [*]	3
Bachelor of Arts Degree Requirement: Knowledge Domain	3 Global Regions & Issues Selection [*]	3
Bachelor of Arts Degree Requirement: Knowledge Domain	3 Bachelor of Arts Degree Requirement: World Cultures	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
INTST 495 [*]	3 PLSC 440 [*]	3
Global Regions & Issues Selection [*]	3 Global Regions & Issues Selection [*]	3
Global Regions & Issues Selection [*]	3 Global Regions & Issues Selection [*]	3

Elective	3 Elective	3
	12	12

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ For General Education Course notations, please be sure to include three (3) credits of United States (US) Cultures and three (3) credits of International (IL) Cultures. Consult adviser for details.

² The following courses are offered Fall Semester only: CAS 271N, INTST 100.

³ The following courses are offered Spring Semester only: ENGL 202B, ENGL 403, HIST 320W, PLSC 14, PLSC 440.

⁴ A minimum of three (3) credits of study abroad is required and may fulfill any requirement. Consult adviser for details.

⁵ For Global Regions & Issues Selection, consult adviser for list.

⁶ Students are required to complete a minimum of 18 credits of 400 level coursework at Berks.

⁷ Students may take either one (1) six (6) credit internship or two (2) three (3) credit internships. Students who complete a 6 credit internship will take only 3 credits of Electives. Consult adviser for details.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Career Paths

A degree in Global Studies provides an excellent academic foundation for students to enter a wide variety of careers in which they will be interacting with diverse populations to find solutions to global issues. The degree helps students to understand, analyze, and interpret global

issues from cultural, historical, literary, and political perspectives while gaining the skills necessary to explain how issues impact people at the local, national, and global levels.

Careers

Graduates will be prepared for a wide range of positions in the following fields: government agencies, nonprofit agencies dealing with human rights issues, environmental agencies, immigration law, international media, public and private schools, study abroad offices, international corporations, research institutes, police departments, foreign ministries, and the United Nations.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE GLOBAL STUDIES PROGRAM (<https://berks.psu.edu/academics/ba-global-studies/>)

Opportunities for Graduate Studies

The flexibility of a broad, liberal arts major prepares you to enter a variety of fields or to enter graduate or professional school. The B.A. in Global Studies also prepares students for graduate study in fields such as law, international affairs, international diplomacy, history, and political science.

Contact

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Global Studies, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The minor in Global Studies is intended to prepare students from all degree programs within the Berks College (with the exception of the major in Global Studies) to gain a global perspective, which would be useful in a variety of workplace and academic settings. HIST 320W, PLSC 14, and CAS 271 provide the necessary background to help students understand and appreciate broad issues of international concern. A combination of more specific option courses will deepen students' experience of the world and enhance analytical and interpersonal skills.

What is Global Studies?

If you are interesting in helping to make the world a better place, the minor in Global Studies may be the perfect fit for you. Global Studies is the study of globalization as it relates to the economy, market relations, the movement of people and resources, communications, politics, the effect of human activity on the environment, and cultural interconnectedness. Global Studies promotes intercultural understanding

and sensitivity to diversity, critical components to navigating the twenty-first century global environment.

You Might Like This Program If...

- You enjoy working with individuals and groups from diverse populations and reaching common understanding.
- You are concerned with global issues such as the environment, human rights, immigration, diplomacy, and international business.
- You like to look at the big picture and to help others see issues from a broader perspective.
- You would like the flexibility of a broad, liberal arts minor that prepares you to enter a variety of fields.

MORE INFORMATION ABOUT GLOBAL STUDIES (<https://berks.psu.edu/academics/ba-global-studies/>)

Entrance to Minor

All students taking this minor will be required to show a 12-credit-level proficiency in a world language.

Program Requirements

Requirement	Credits
Requirements for the Minor	18-30

Eighteen credits are required for the minor in Global Studies.

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select two of the following:		6
CAS 271N	Intercultural Communication	
HIST 320W	Contemporary World History and Issues	
PLSC 14	International Relations	
Select 12 credits (at least 6 at the 400 level) from the following:		12
ENGL 403	Literature and Culture	
FR 139	France and the French-speaking World	
GER 100	German Culture and Civilization	
HIST 120		
HIST 175	East Asia since 1800	
HIST 179	Latin-American History Since 1820	
HIST 181	Introduction to the Middle East	
HIST 192	Modern African History	
HIST 435	Topics in European History	
HIST 467	Latin America and the United States	
HIST 468	Mexico and the Caribbean Nations in the Twentieth Century	
HIST 488	American Diplomacy Since 1914	
PLSC 412	International Political Economy	
PLSC 413	The Rise and Fall of the Soviet Union	

PLSC 424	Topics in Comparative Government and Institutions
PLSC 454	Government and Politics of Africa
PLSC 487	International Law and Organizations
RUS 100	Russian Culture and Civilization
SPAN 100	Intermediate Grammar and Composition
SPAN 130	Iberian Civilization
SPAN 131	Ibero-American Civilization
SPAN 132	Afro-Hispanic Civilization
SPAN 200	Intensive Grammar and Composition
SPAN 220	Readings in Ibero-American Civilization
SPAN 253W	Introduction to Literary & Cultural Studies en Español
SPAN 300	Advanced Grammar and Composition Through Reading
SPAN 420	Spanish for Business and International Trade
SPAN 476	Masterpieces of Spanish American Literature
UKR 100	Ukrainian Culture and Civilization

World Language Requirement

Demonstrate proficiency in a single world language by either examination or coursework equivalent to completion of 12 credits of coursework¹

0-12

¹ See the Admission section of the General Information in this Bulletin for the Placement Policy for Penn State World Language Courses (under Opportunities for Credit by Acquisition).

Academic Advising

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Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Berks

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Career Paths

A degree in Global Studies provides an excellent academic foundation for students to enter a wide variety of careers in which they will be interacting with diverse populations to find solutions to global issues.

The degree helps students to understand, analyze, and interpret global issues from cultural, historical, literary, and political perspectives while gaining the skills necessary to explain how issues impact people at the local, national, and global levels.

Careers

Graduates will be prepared for a wide range of positions in the following fields: government agencies, nonprofit agencies dealing with human rights issues, environmental agencies, immigration law, international media, public and private schools, study abroad offices, international corporations, research institutes, police departments, foreign ministries, and the United Nations.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN GLOBAL STUDIES (<https://berks.psu.edu/academics/ba-global-studies/>)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://berks.psu.edu/academics/ba-global-studies/>)

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<https://berks.psu.edu/academics/ba-global-studies/> (<https://berks.psu.edu/academics/ba-global-studies/>)

Hospitality Management, B.S. (Berks)

Begin Campus: Any Penn State Campus

End Campus: Berks

Program Description

The School of Hospitality Management (SHM) prepares our graduates to make a difference in the global world of hospitality through their skills in management and problem-solving, by combining people-skills along with analytical prowess. Our graduates learn in real-world facilities, research labs solving real-world problems, travel for domestic and international learning experiences, and engage as much with people as with novel technologies. The learning and engagement at SHM reflect today's relevant industry landscape providing experiences that prepare students for the many career opportunities offered in the diverse and exciting segments of the global hospitality industry, and will power their success in any complex, people-centric enterprise. Penn State's Hospitality Management program is amongst the oldest program in the nation, and amongst the most prestigious of its kind in the world.

Hospitality Management Option

Available at the following campuses: *University Park*

This option prepares students for management positions in any sector of the hospitality industry, including lodging, event planning, food service, food supply chain, gaming, and with a wide range of manufacturing and service businesses that support the hospitality industry. The management focus helps provide students with the

analytical, interpersonal, and organizational skills necessary to effectively function as hospitality professionals.

Hospitality Entrepreneurship Option

Available at the following campuses: Berks

This option helps prepare students for careers as owners or managers of small independently-owned hospitality operations or as entrepreneurs within large hospitality corporations or management companies in hospitality segments such as a restaurants, hotels, and non-commercial operations. The entrepreneurship focus helps provide students with creative problem solving, opportunity recognition, and leadership skills necessary to effectively manage small or individual unit's hospitality operations.

What is Hospitality Management?

Hospitality refers to the relationship that exists between a host and a guest. The Hospitality discipline prepares students to create value in this relationship, both from the host and the guest's perspectives. This involves the creation and management of products and services by the hosts for the guests, based on the preferences and behaviors of the guests. Hospitality major is therefore an interdisciplinary field of study that prepares students for a global and diverse, world of management and entrepreneurship opportunities. Hospitality graduates are trained to own and manage hotels, restaurants, resorts, corporate dining, stadiums and arena catering, theme parks, country clubs, cruise ships, casinos, event management, and the vast array of manufacturing and service businesses that support the hospitality industry. From exotic locales to familiar destinations, from international postings to entrepreneurial prospects, from planning events to corporate finance, and from school food service to senior living, the possibilities are endless. This major prepares students for the multi-faceted hospitality industry and for the many career opportunities available to hospitality management graduates.

You Might Like This Program If...

- You enjoy working with people and helping others, have strong interpersonal skills, creativity and a good work ethic.
- You are looking for a creative, fast-paced career, in a diverse and high-energy environment, with opportunities to work in a variety of locations, within the US and internationally.
- You have a strong balance of interpersonal and people-management skills, and operations and business analysis abilities.

MORE INFORMATION ABOUT HOSPITALITY MANAGEMENT (<https://hhd.psu.edu/shm/>)

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Hospitality Management, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	3-11
Requirements for the Major	73-84

9-12 of the 45 credits for General Education are included in the Requirements for the Major. For the Hospitality Management option, this includes 12 credits of General Education courses: 6 credits of GQ courses; 3 credits of GS courses; 3 credits of GHW courses. For the Hospitality Entrepreneurship option, this includes 9 credits of General Education courses: 6 credits of GQ courses and 3 credits of GS courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. SHM requires students to complete 24 credits for the major through courses taken at University Park. Courses taken at other Penn State campuses may not be counted toward this 24 credit minimum. For more information, check the Suggested Academic Plan for this major.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
ECON 102	Introductory Microeconomic Analysis and Policy	3
HM 202	Colloquium in Hospitality Management	1
HM 203	Hospitality Professional Development Seminar	1
HM 271	Hospitality Information Technology Fundamentals	2
HM 330	Food Production and Operations Management	3
HM 336	Hospitality Managerial Accounting	3
HM 366	Human Resource Management in the Hospitality Industry	3
HM 430	Applied Leadership in Foodservice Operations Management	3
HM 490	Strategic Hospitality Management	3
HM 492	Advanced Professional Seminar in Hospitality Management	1
<i>Prescribed Courses: Require a grade of C or better</i>		
HM 101	Exploring the Global Hospitality Industry	3
HM 230	Principles of Food Production Management	3
HM 235	Hospitality Financial Accounting	3
HM 242	Hospitality Marketing	3
HM 265W	Teams and Leadership in the Hospitality Industry	3
HM 272	Introduction to Worksheet-Based Analysis and Modeling for Managerial Decision Making	2
HM 280	Fundamentals of Hotel and Accommodations Management	3

HM 350	Hospitality Revenue and Profit Optimization	3
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Additional Courses

Additional Courses: Require a grade of C or better

STAT 100	Statistical Concepts and Reasoning	3-4
or STAT 200	Elementary Statistics	

Requirements for the Option

Select an option	24-34
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Requirements for the Option**Hospitality Management Option (34 credits)**

Available at the following campuses: University Park

Code	Title	Credits
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Prescribed Courses

HM 355	Legal Aspects of the Hospitality Industry	3
HM 480	Applied Hospitality Concepts and Decision Making	3
NUTR 100	Nutrition Applications for a Healthy Lifestyle	3

Supporting Courses and Related Areas

Select 25 credits of HM courses from an approved department list, up to 4 credits of any world language, and other courses in consultation with an adviser

Hospitality Entrepreneurship Option (24-25 credits)

Available at the following campuses: Berks

Code	Title	Credits
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Prescribed Courses

HM 305	Restaurant Management	3
HM 319	Hospitality Facilities Management	3
HM 435	Hospitality Corporate Finance	3
<i>Prescribed Courses: Require a grade of C or better</i>		
HM 484	Hospitality Entrepreneurship and Innovation	3
MGMT 215	Entrepreneurial Mindset	3

Additional Courses

Additional Courses: Require a grade of C or better

Select 9-10 credits from the following:	9-10
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BA 243	Social, Legal, and Ethical Environment of Business	
BA 250	Small Business Management	
ENGR 310	Entrepreneurial Leadership	
MGMT/ENGR 425	New Venture Creation	
MGMT 427	Managing an Entrepreneurial Start-Up Company	

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Entrepreneurship:** Be an entrepreneur or an intrapreneur within the hospitality industry
 - Demonstrate self-efficacy, leadership, resourcefulness and creativity.
 - Demonstrate the ability to recognize new opportunities.
- **Knowledge:** Have Substantive Content Knowledge
 - Demonstrate the knowledge, skills, and attitudes to function effectively in a diverse and global organizational environment
 - Synthesize and evaluate core concepts in the areas of hospitality accounting, finance, human resources, marketing, operations, and quantitative methods
- **Managerial Skills:** Have Leadership, Communication, Interpersonal, and Social Skills
 - Demonstrate the ability to read, listen, and clearly express themselves using written, oral, visual, and quantitative methods to communicate effectively with superiors, coworkers, customers, and members of the community
 - Demonstrate personal and professional standards for ethical decision-making and social behavior
- **Skills:** Have Analytical, Critical, and Strategic Thinking Skills
 - Apply the basic principles of analytical thinking and problem solving when examining hospitality management issues
 - Demonstrate the ability to integrate concepts and theories across functional business domains (e.g. Finance, Marketing, Human Resources, Operations, etc.)

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

Hospitality Entrepreneurship Option: Hospitality Management, B.S. at Berks Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [†]	3 CAS 100A or 100B (GWS) [†]	3
HM 101 [*]	3 HM 265W [*]	3
HM 202	1 HM 280 [*]	3
HM 203	1 ECON 102 (GS) [†]	3
General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3
General Education Course (GN or GA or GH)	3	
First-Year Seminar	1	
	15	15

Second Year

Fall	Credits Spring	Credits
HM 235 [*]	3 ENGL 202A, 202B, 202C, or 202D (GWS) [†]	3
HM 319	3 HM 271	2
SCM 200, STAT 100, or STAT 200 (GQ) ^{††}	3-4 HM 272 [*]	2
General Education Course (GN)	3 HM 336	3
General Education Course (Integrative Studies)	3 General Education Course (Integrative Studies)	3
	Elective	3
	15-16	16

Third Year

Fall	Credits Spring	Credits
HM 230 [*]	3 HM 242 [*]	3

HM 305	3 HM 350 (GQ) ^{††}	3
HM 330	3 BA 250 [*]	3
MGMT 215 [*]	3 General Education Course (GHW)	1.5
General Education Course (Exploration)	3 Elective	3
15		13.5
Fourth Year		
Fall	Credits Spring	Credits
HM 366	3 HM 484 [*]	3
HM 430	3 MGMT 427 [*]	3
HM 435	3 General Education Course (Exploration)	3
HM 490	3 General Education Course (GHW)	1.5
HM 492	1 Elective	3
ENGR 310 [*]	3 Elective	1
16		14.5

Total Credits 120-121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ For General Education Course notations, please be sure to include three (3) credits of United States (US) Cultures and three (3) credits of International (IL) Cultures. Consult adviser for details.

² The following courses are offered Fall Semester only: ENGR 310, HM 101, HM 202, HM 203, HM 230, HM 235, HM 305, HM 319, HM 366, HM 430, HM 435, HM 490, HM 492, MGMT 215.

³ The following courses are offered Spring Semester only: BA 250, ENGL 202B, HM 242, HM 265W, HM 271, HM 272, HM 280, HM 336, HM 350, HM 435, HM 484, MGMT 427.

⁴ Students can complete the Entrepreneurship & Innovation (ENTI_UMNR) Minor - New Ventures Cluster by taking BA 243 and MGMT 425. MGMT 425 is offered Spring Semester only. Consult adviser for details.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

Penn State Hospitality Management graduates are placed globally to manage hotels and lodging operations, restaurants, resorts, business dining, college and school food service, casinos, clubs, cruise ships, and senior living communities. They work in positions including meeting and events, revenue management, human resources, sales and marketing, finance and accounting, real estate and asset management, and for the businesses that supply them. Hospitality Management graduates are in demand with the many hospitality employers that visit the School's in-house Career Placement Center each year. Graduates move quickly to upper management roles, corporate-level positions, and entrepreneurial opportunities.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE HOSPITALITY MANAGEMENT PROGRAM (<https://hhd.psu.edu/shm/undergraduate/career-opportunities/>)

Opportunities for Graduate Studies

Students completing the undergraduate program in Hospitality Management are prepared for graduate professional study in hospitality management and for graduate research programs in hospitality and related fields. At Penn State, we offer the Master of Professional Studies, which prepares students for enterprise level and executive positions in the hospitality industry and the Ph.D., which prepares students for advanced academic and research positions at the university level.

MORE ABOUT THE MASTER OF PROFESSIONAL STUDIES IN HOSPITALITY MANAGEMENT (<https://hhd.psu.edu/shm/graduate/mps-hospitality-management/>)

MORE ABOUT THE PH.D. PROGRAM IN HOSPITALITY MANAGEMENT (<https://hhd.psu.edu/shm/graduate/phd-program-hospitality-management/>)

Professional Resources

- Penn State Hotel & Restaurant Society (<https://hhd.psu.edu/alumni/pshrs/>)
- Eta Sigma Delta International Hospitality Management Society (<https://www.chrie.org/whats-esd/>)
- The Hospitality Sales and Marketing Association International (HSMIA) (<https://global.hsmia.org>)
- Professional Convention Management Association (PCMA) (<https://www.pcma.org>)
- National Society of Minorities in Hospitality (NSMH) (<https://www.nsmh.org>)
- Hospitality Financial and Technology Professionals (<https://www.hftp.org>)

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Information Sciences and Technology, A.S. (Berks)

Begin Campus: Berks

End Campus: Berks

Program Description

This associate degree major is structured to prepare graduates for immediate and continuing employment opportunities in the broad disciplines of information science and technology. This includes positions such as application programmers, associate systems designers, network managers, web designers and administrators, or information systems support specialists. Specifically, the major is designed to ensure a thorough knowledge of information systems and includes extensive practice using contemporary technologies in the creation, organization, storage, analysis, evaluation, communication, and transmission of information. The major fosters communications, interpersonal, and group interaction skills through appropriate collaborative and active learning projects and experiences. Technical material covers the structure of database systems, web and multimedia systems, and considerations in the design of information systems. Team projects in most courses, a required internship, and a second-year capstone experience provide additional, focused venues for involving students in the cutting-edge issues and technologies in the field.

The Associate of Science in IST degree will be offered at multiple campuses within the Penn State system of colleges and campuses. Note that not all options will be available at all locations.

Application Development Option

Available at the following campuses: Berks, Greater Allegheny, Hazleton, Mont Alto, Scranton, World Campus, York

The Application Development option prepares students for entry level position in applications development and/or web development. It also prepares students for IST related baccalaureate degrees such as HCDD, IT, ETI, and CYBER. Students take courses such as web development and advanced java programming as well as usability.

Custom Option

Available at the following campuses: Berks, DuBois, Greater Allegheny, Hazleton, Mont Alto, Scranton, Wilkes-Barre, World Campus, York

The Custom option enables students to work closely with an adviser to develop a plan of study that meets the dual objectives of allowing a flexible academic program and a specific theme related to technology. Some examples of themes are web development, psychology, and usability.

Cybersecurity Option

Available at the following campuses: Berks, Greater Allegheny, Mont Alto, World Campus, York

The Cybersecurity option prepares students for an entry level position in the cyber security field. It also prepares students for IST related baccalaureate degrees such as Cybersecurity Analytics and Operations and SRA. Students take introductory courses in CYBER and SRA as well as advanced hand-on courses in these areas.

Generalized Business Option

Available at the following campuses: Berks, DuBois, Greater Allegheny, Mont Alto, Scranton, World Campus, York

The Generalized Business option enables students to specialize in the general business areas of accounting, marketing, and management, and is closely aligned with the requirements of the ETI major.

Networking Option

Available at the following campuses: DuBois, Mont Alto, World Campus

The Networking option prepares graduates for positions as entry-level computer network administrators. Students take courses in personal computer hardware, networking essentials, and network administration.

What is Information Sciences and Technology?

Information Sciences and Technology is a discipline that explores how we can strengthen the power of information and technology, and use it to increase human potential. This includes focusing on creating innovative systems and technological solutions that benefit businesses, organizations, and individuals, and understanding the role of technology in how we live our lives.

Entrance to Major

Students must have a minimum 2.0 GPA to change to this Associate degree after admission to the University.

Degree Requirements

For the Associate in Science degree in Information Sciences and Technology, a minimum of 60 credits is required:

Requirement	Credits
General Education	21
Electives	0-5
Requirements for the Major	43-47

6-9 of the 21 credits for General Education are included in the Requirements for the Major. For all options, this includes: 3 credits of GQ courses; 3 credits of GWS courses; 0-3 credits of GS courses. (3 credits of GQ courses in Additional Courses includes MATH 21, MATH 22, MATH 110, SCM 200 or STAT 200) and 3 credits of GWS courses including ENGL 15 or CAS 100 which are Prescribed Courses. Students may also overlap 3 credits of GS if they select SRA 111 in Additional Courses for the Major or if they select ECON 102/ECON 104 in the Generalized Business Option Additional Courses.)

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as

specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CAS 100	Effective Speech	3
ENGL 15	Rhetoric and Composition	3
IST 140	Introduction to Application Development	3
IST 210	Organization of Data	3
IST 220	Networking and Telecommunications	3
IST 260W	Introduction to Systems Analysis and Design	3
Additional Courses		
ENGL 202C	Effective Writing: Technical Writing	3
or ENGL 202D	Effective Writing: Business Writing	
<i>Additional Courses: Require a grade of C or better</i>		
IST 250	Introduction to Web Design and Development	3
or IST 256	Programming for the Web	
Select 3 credits from the following: ¹		3
CYBER 100	Computer Systems Literacy	
CYBER 100S	Computer Systems Literacy	
HCDD 113	Foundations of Human-Centered Design and Development	
HCDD 113S	Foundations of Human-Centered Design and Development FYS	
IST 110	Information, People and Technology	
SRA 111	Introduction to Security and Risk Analysis	
Select 1 credit from the following:		1
IST 295A	Distributed Team Project	
IST 295B	IST Internship	
IST 495	Internship	
Select 3-4 credits from the following:		3-4
MATH 21	College Algebra with Analytic Geometry with Applications I	
MATH 22	College Algebra With Analytic Geometry and Applications II	
MATH 26	Plane Trigonometry and Applications of Trigonometry	
MATH 110	Techniques of Calculus I	
MATH 140	Calculus With Analytic Geometry I	
SCM 200	Introduction to Statistics for Business	
STAT 200	Elementary Statistics	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Any first-year seminar course. Students who complete CYBER 100S or HCDD 113S as additional courses do not have to schedule an additional first-year seminar.	0-1	
Requirements for the Option		
<i>Requirements for the Option: Require a grade of C or better</i>		
Select an option		12-14

¹ Students planning to complete the Cybersecurity option must select CYBER 100/CYBER 100S. Courses may not double count with option requirements.

Requirements for the Option

Application Development Option (12 credits)

Available at the following campuses: Berks, Greater Allegheny, Hazleton, Mont Alto, Scranton, World Campus, York

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 12 credits from the following:		12
IST 242	Intermediate & Object-Oriented Application Development	
IST 256	Programming for the Web ¹	
IST 261	Application Development Design Studio I	
IST 311	Object-Oriented Design and Software Applications	
HCDD 264	Design Practice in Human-Centered Design and Development	
or IST 331	Foundations of Human-Centered Design	

¹ IST 256 may count in the major requirements or the option, but may not double count toward both requirements.

Custom Option (12 credits)

Available at the following campuses: Berks, DuBois, Greater Allegheny, Hazleton, Mont Alto, Scranton, Wilkes-Barre, World Campus, York

Code	Title	Credits
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 12 credits in consultation with an adviser. All courses are C- required. Examples of specific themes include: Web Development, Psychology, Usability.		12

Cybersecurity Option (12 credits)

Available at the following campuses: Berks, Greater Allegheny, Mont Alto, World Campus, York

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 12 credits from the following: ¹		12
CYBER 262	Cyber-Defense Studio	
IST 242	Intermediate & Object-Oriented Application Development	
SRA 111	Introduction to Security and Risk Analysis	
SRA 211	Threat of Terrorism and Crime	
SRA 221	Overview of Information Security	

¹ Courses may not double count with the major requirements.

Generalized Business Option (12-14 credits)

Available at the following campuses: Berks, DuBois, Greater Allegheny, Mont Alto, Scranton, World Campus, York

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 12-14 credits from the following:		12-14
ACCTG 211	Financial and Managerial Accounting for Decision Making	
BA 243	Social, Legal, and Ethical Environment of Business	
	or BLAW 243 Legal Environment of Business	
	or BA 241 Legal Environment of Business	
	& BA 242 and Social and Ethical Environment of Business	
BA 301	Finance	
	or FIN 301 Corporation Finance	
BA 302	Supply Chains	
	or SCM 301 Supply Chain Management	
BA 303	Marketing	
	or MKTG 301 Principles of Marketing	
BA 304	Management and Organization	
	or MGMT 301 Basic Management Concepts	
ECON 102	Introductory Microeconomic Analysis and Policy	
	or ECON 104 Introductory Macroeconomic Analysis and Policy	

Networking Option (12 credits)

Available at the following campuses: DuBois, Mont Alto, World Campus

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
IST 225	PC Hardware Basics	3
IST 226	Networking Essentials	3
IST 227	Network Administration	3
IST 228	Advanced Network Administration	3

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all associate degree students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 3 credits
- **Writing and Speaking (GWS):** 3 credits

Knowledge Domains

- **Arts (GA):** 3 credits
- **Humanities (GH):** 3 credits

- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Note: Up to six credits of Inter-Domain courses may be used for any Knowledge Domain requirement, but when a course may be used to satisfy more than one requirement, the credits from the course can be counted only once.

Exploration

- **Any General Education course (including GHW and Inter-Domain):** 3 credits

University Degree Requirements**Cultures Requirement**

3 credits of United States (US) or International (IL) cultures coursework are required and may satisfy other requirements

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 60 degree credits must be earned for an associates degree. The requirements for some programs may exceed 60 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Knowledge/Application:** Understand and apply the interdisciplinary, theoretical knowledge of the information sciences or security sciences
 - Define and explain the core concepts, principles, processes, and theories within the academic majors of IST and/or SRA
 - Apply the core concepts of the academic majors of IST and/or SRA to real-world problems
- **Problem-Solving:** Understand, apply and adapt various problem solving strategies, using appropriate technology and methods
 - Identify information problems and/or opportunities in terms of the human, informational and technology dimensions
 - Analyze issues surrounding the problem and/or opportunity in terms of the human, informational, and technology dimensions; and determine the requirements appropriate to understanding the situation
 - Design systems, architectures, processes, components, or programs to meet desired needs of the human context at varying levels of analysis (e.g., individual, group, organization, society, and/or world)
 - Deploy up-to-date and appropriate techniques, methodologies, and/or tools necessary for understanding opportunities and

constraints and/or the optimal design, implementation and continuance of an information based solution

- Evaluate the success of systems, architecture, processes, components, or programs intended to meet desired needs of the human context at varying levels of analysis (e.g., individual, group, organization, society, and/or world)
- **Communication (Individual and Team):** Communicate and work effectively (both individually and in teams) with a range of perspectives and audiences through a variety of media
 - Participate effectively on teams in order to accomplish a common goal
 - Communicate effectively with a range of audiences, formally or informally, through writing and the spoken word
 - Seek out, analyze, and incorporate diverse ideas and broader perspectives represented in the diversity of people
 - Make respectful and inclusive choices in interacting with customers, peers, supervisors, and/or subordinates with a diversity of identity characteristics (e.g., age, ancestry, color, disability or handicap, national origin, race, religious creed, sex, sexual orientation, gender identify, or veteran status)
- **Professional Responsibilities:** Understand professional responsibilities in terms of the ethical, legal, security and social aspects of any given problem and its solution
 - Demonstrate an understanding of the cognitive, social, legal, ethical, diversity, and security perspectives surrounding a given problem
 - Assess the impact of information, computing and technology on individuals, groups, organizations, society, and the world for the purpose of making informed decisions from a sociological, governmental, legal, and/or security perspective
- **Lifelong Learning:** Commit to the continuous acquisition of relevant knowledge for professional development by self-teaching and/or on-going education and learning
 - Employ information-seeking strategies and self-directed learning in pursuit of current knowledge
 - Enroll in professional development and tutoring opportunities

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Application Development Option: Information Sciences and Technology, A.S. at Berks Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30T (GWS) [‡]	3 CAS 100A [*]	3
IST 110, CYBER 100, or SRA 111 [*]	3 IST 220 [*]	3
IST 140 [*]	3 IST 242 (Option Requirement) [*]	3
MATH 21, 22, 26, 110, 140, SCM 200, or STAT 200 (GQ) [‡]	3-4 with: General Education Course (GN or GA or GH or GS)	3
General Education Course (GN or GA or GH or GS)	3 General Education Course (GN or GA or GH or GS)	3
First-Year Seminar (IST 111S recommended)	1	
	16-17	15

Second Year

Fall	Credits Spring	Credits
IST 210 [*]	3 ENGL 202C or 202D [*]	3
Option Requirement [*]	3 IST 260W [*]	3
Option Requirement [*]	3 IST 250 or 256 [*]	3
General Education Course (GN or GA or GH or GS)	3 IST 295A, 295B, or 495 [*]	1
General Education (Exploration)	3 Option Requirement [*]	3
	Elective	1
	15	14

Total Credits 60-61

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ The following courses are offered Spring Semester only: ENGL 202C, IST 256, IST 260W.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Application Focus Areas (12 credits from each area):
 - Application Development: IST 242, IST 256, IST 261, IST 311, IST 331
 - Business: ACCTG 211, BA 242/BA 243/BA 301/BA 302/BA 303, BLAW 243, FIN 301, ECON 102/ECON 104, MKTG 301, MGMT 301, SCM 301
 - Cybersecurity: SRA 211, CYBER 262, IST 242, SRA 111, SRA 221
 - Custom: A coherent sequence of courses that provides context for the student in terms of IT content.

Custom Option: Information Sciences and Technology, A.S. at Berks Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30T (GWS) [‡]	3 CAS 100 [*]	3
IST 110, CYBER 100, or SRA 111 [*]	3 IST 220 [*]	3
IST 140 [*]	3 IST 250 or 256 [*]	3
MATH 21, 22, 26, 110, 140, SCM 200, or STAT 200 (GQ) [‡]	3-4 Option Requirement [*]	3
General Education Course (GN or GA or GH or GS)	3 General Education Course (GN or GA or GH or GS)	3
First-Year Seminar (IST 111S recommended)	1	
	16-17	15

Second Year

Fall	Credits Spring	Credits
IST 210 [*]	3 ENGL 202C or 202D [*]	3
Option Requirement [*]	3 IST 260W [*]	3
Option Requirement [*]	3 Option Requirement [*]	3
General Education Course (GN or GA or GH or GS)	3 General Education Course (GN or GA or GH or GS)	3
General Education (Exploration)	3 IST 295A, 295B, or 495 [*]	1
	Elective	1
	15	14

Total Credits 60-61

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ The following courses are offered Spring Semester only: ENGL 202C, IST 256, IST 260W.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Application Focus Areas (12 credits from each area):
 - Application Development: IST 242, IST 256, IST 261, IST 311, IST 331
 - Business: ACCTG 211, BA 242/BA 243/BA 301/BA 302/BA 303, BLAW 243, FIN 301, ECON 102/ECON 104, MKTG 301, MGMT 301, SCM 301
 - Cybersecurity: SRA 211, CYBER 262, IST 242, SRA 111, SRA 221
 - Custom: A coherent sequence of courses that provides context for the student in terms of IT content.

Cybersecurity Option: Information Sciences and Technology, A.S. at Berks Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30T (GWS) [‡]	3 CAS 100 [*]	3
IST 110, CYBER 100, or SRA 111 [*]	3 IST 220 [*]	3
IST 140 [*]	3 IST 250 or 256 [*]	3
MATH 21, 22, 26, 110, 140, SCM 200, or STAT 200 (GQ) [‡]	3-4 SRA 111 (Option Requirement) [*]	3
General Education Course (GN or GA or GH or GS)	3 General Education Course (GN or GA or GH)	3
First-Year Seminar (IST 111S recommended)	1	
	16-17	15

Second Year

Fall	Credits Spring	Credits
IST 210 [*]	3 ENGL 202C or 202D [*]	3
Option Requirement [*]	3 IST 260W [*]	3
Option Requirement [*]	3 Option Requirement [*]	3
General Education Course (GN or GA or GH)	3 Elective	3
General Education (Exploration)	3 IST 295A, 295B, or 495 [*]	1
	Elective	1
	15	14

Total Credits 60-61

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ The following courses are offered Spring Semester only: ENGL 202C, IST 256, IST 260W.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Application Focus Areas (12 credits from each area):
 - Application Development: IST 242, IST 256, IST 261, IST 311, IST 331
 - Business: ACCTG 211, BA 242/BA 243/BA 301/BA 302/BA 303, BLAW 243, FIN 301, ECON 102/ECON 104, MKTG 301, MGMT 301, SCM 301
 - Cybersecurity: SRA 211, CYBER 262, IST 242, SRA 111, SRA 221
 - Custom: A coherent sequence of courses that provides context for the student in terms of IT content.

Generalized Business Option: Information Sciences and Technology, A.S. at Berks Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30T (GWS) [‡]	3 CAS 100 [*]	3
IST 110, CYBER 100, or SRA 111 [*]	3 ECON 102 or 104 (GS) [†]	3
IST 140 [*]	3 IST 220 [*]	3
MATH 21, 22, 26, 110, 140, SCM 200, or STAT 200 (GQ) [‡]	3-4 IST 250 or 256 [*]	3
General Education Course (GN or GA or GH or GS)	3 Option Requirement [*]	3
First-Year Seminar (IST 111S recommended)	1	
	16-17	15

Second Year

Fall	Credits Spring	Credits
IST 210 [*]	3 ENGL 202C or 202D [*]	3
Option Requirement [*]	3 IST 260W [*]	3
Option Requirement [*]	3 Option Requirement [*]	3
General Education Course (GN or GA or GH or GS)	3 General Education Course (GN or GA or GH or GS)	3
General Education (Exploration)	3 IST 295A, 295B, or 495 [*]	1
	Elective	1
	15	14

Total Credits 60-61

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ The following courses are offered Spring Semester only: ENGL 202C, IST 256, IST 260W.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Application Focus Areas (12 credits from each area):
 - Application Development: IST 242, IST 256, IST 261, IST 311, IST 331
 - Business: ACCTG 211, BA 242/BA 243/BA 301/BA 302/BA 303, BLAW 243, FIN 301, ECON 102/ECON 104, MKTG 301, MGMT 301, SCM 301
 - Cybersecurity: SRA 211, CYBER 262, IST 242, SRA 111, SRA 221
 - Custom: A coherent sequence of courses that provides context for the student in terms of IT content.

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<https://dubois.psu.edu/academics/degrees/IT> (<https://dubois.psu.edu/academics/degrees/IT/>)

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<https://montalto.psu.edu/academics/associate/associate-information-sciences-and-technology-degree> (<https://montalto.psu.edu/academics/associate/associate-information-sciences-and-technology-degree/>)

Scranton

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<https://scranton.psu.edu/academics/degrees/associate/ist> (<https://scranton.psu.edu/academics/degrees/associate/ist/>)

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-information-sciences-and-technology-associate-in-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-information-sciences-and-technology-associate-in-science-degree/>)

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<https://www.york.psu.edu/academics/associate/information-sciences-and-technology> (<https://www.york.psu.edu/academics/associate/information-sciences-and-technology/>)

<https://www.york.psu.edu/academics/associate/information-sciences-and-technology> (<https://www.york.psu.edu/academics/associate/information-sciences-and-technology/>)

Information Technology, B.S. (Berks)

Begin Campus: Any Penn State Campus

End Campus: Berks

Program Description

This degree is a new broad based technical and theoretical degree that will prepare students to implement and use information technology to realize a variety of goals within and between all types of organizations and businesses (e.g., reliability, accessibility, efficiency, cost reduction, and revenue enhancement). The emphasis is on providing the student with the theoretical frameworks needed to use information technology to solve problems while also providing a set of applied, real-world experiences. Students will acquire a broad set of skills across many areas of information technology, including programming and systems development, networking, databases, project management, and information security. Students will consider how the implementation

of information technology in organizations affects social change and the delivery of information to the consumer. Upper-level course selections allow for specific advanced options including but not limited to application development, networking, cybersecurity, and business. Project-oriented, team-based projects that include significant writing and presentation components will be integrated throughout the curriculum.

Application Development Option

Available at the following campuses: Abington, Altoona, Beaver, Berks, Brandywine, Lehigh Valley, Schuylkill, Scranton, York

This option prepares students for the design and development of complex object-oriented programming and technical skills to succeed in a fast-paced development and operations environment.

Business Applications Option

Available at the following campuses: Abington, Altoona, Beaver, Berks, Brandywine, DuBois, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Schuylkill, Scranton, York

This option prepares students to pursue careers in Information technology solving business organizational problems with an emphasis on the systems processes and business operations integration.

Custom Information Technology Option

Available at the following campuses: Altoona, Berks, Brandywine, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Schuylkill, Scranton, Wilkes-Barre, York

This option provides the opportunity for students to pursue an approved information technology interdisciplinary or exploratory program of study.

Cybersecurity Option

Available at the following campuses: Altoona, Beaver, Berks, Brandywine, Lehigh Valley, Mont Alto, New Kensington, Schuylkill, Scranton, York

This option will provide students with the knowledge and cyber defense skills needed to critically assess and respond to modern information security threats. They will be prepared to protect information infrastructure and data from attacks and unauthorized access.

Networking Option

Available at the following campuses: Abington, DuBois, Mont Alto

This option prepares students to pursue careers in the design, development, and support of complex networks and networking infrastructure.

Security and Risk Analysis Option

Available at the following campuses: Altoona, Berks, Brandywine, Lehigh Valley, Schuylkill

This option prepares students to address the current and emerging security and risk challenges that face individuals, organizations and our nation, over a variety of domains including national/homeland security, emergency and disaster management, law and crime, and enterprise risk management.

What is Information Technology?

Information Technology offers both broad organizational problem-solving skills and in-depth knowledge in current in-demand technical skills. Using technology to leverage organizational resources and address

organizational challenges are at the forefront of the B.S. degree in Information Technology. The program includes required and optional courses in cybersecurity, databases, computer programming, project management, security and risk analysis, networking, web design and development, application development, and systems analysis. This broad base of skills is ideally suited for entry-level positions in all the above content areas.

You Might Like This Program If...

- You enjoy technology and working with others to build solutions.
- You want to create high-tech solutions to organizational and societal challenges.
- You are interested in application development and programming.
- You are interested in improving computer systems and enhancing their safety for individuals and corporations.
- You want to leverage current and emerging technologies to improve business processes.

Entrance to Major

To be eligible for entrance to the B.S. in Information Technology major, students must:

- achieve a minimum cumulative grade point average of 2.00
- complete the following entrance-to-major courses with grades of C or better:
 - IST 110 or CYBER 100 or CYBER 100S
 - IST 140 or CMPSC 121 or CMPSC 131
 - IST 210
 - IST 220

Degree Requirements

For the Bachelor of Science degree in Information Technology, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	7-9
Requirements for the Major	87-89

21 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GWS courses; 6 credits of GQ courses; and 6 credits of GS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ETI 461	Database Management and Administration	3
IST 210	Organization of Data	3
IST 220	Networking and Telecommunications	3
IST 230	Language, Logic, and Discrete Mathematics	3

IST 242	Intermediate & Object-Oriented Application Development	3
IST 256	Programming for the Web	3
IST 260W	Introduction to Systems Analysis and Design	3
IST 302	IT Project Management	3
IST 331	Foundations of Human-Centered Design	3
IST 440W	Information Sciences and Technology Integration and Problem Solving	3
IST 495	Internship	1
SRA 111	Introduction to Security and Risk Analysis	3
SRA 221	Overview of Information Security	3

Additional Courses

Select one of the following: 3		
ECON 102	Introductory Microeconomic Analysis and Policy	
ECON 104	Introductory Macroeconomic Analysis and Policy	
PLSC 1	American Politics: Principles, Processes and Powers	
PLSC 14	International Relations	
PSYCH 100	Introductory Psychology	
SOC 5	Social Problems	

Additional Courses: Require a grade of C or better

ENGL 15	Rhetoric and Composition	3
or ENGL 30H	Honors Rhetoric and Composition	
ENGL 202C	Effective Writing: Technical Writing	3
or ENGL 202D	Effective Writing: Business Writing	
MATH 110	Techniques of Calculus I	4
or MATH 140	Calculus With Analytic Geometry I	
Select one of the following: 3		
CAS 100A	Effective Speech	
CAS 100B	Effective Speech	
CAS 100C	Effective Speech	

Select one of the following: 3		
CMPSC 121	Introduction to Programming Techniques	
CMPSC 131	Programming and Computation I: Fundamentals	
IST 140	Introduction to Application Development	

Select one of the following: 3		
CYBER 100	Computer Systems Literacy	
CYBER 100S	Computer Systems Literacy	
IST 110	Information, People and Technology	

Select one of the following: 4		
DS 200	Introduction to Data Sciences	
STAT 200	Elementary Statistics	
SCM 200	Introduction to Statistics for Business	

Select one of the following: ¹ 3-4		
ACCTG 211	Financial and Managerial Accounting for Decision Making	

BA 100	Introduction to Business	
ECON 102	Introductory Microeconomic Analysis and Policy ²	
ECON 104	Introductory Macroeconomic Analysis and Policy ²	
MGMT 301	Basic Management Concepts	
MKTG 301	Principles of Marketing ²	

Select one of the following: ¹ 3		
CYBER 262	Cyber-Defense Studio	

IST 226	Networking Essentials
IST 451	Network Security
IST 454	Computer and Cyber Forensics

Requirements for the Option

Select an option 18-19

¹ These courses may not double count with other additional or option requirements.

² Course does not require a grade of C or better.

Requirements for the Option**Application Development Option (18 credits)**

Available at the following campuses: Abington, Altoona, Beaver, Berks, Brandywine, Lehigh Valley, Schuylkill, Scranton, York

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 12 credits, with at least 3 credits at the 400 level, from the following:		12
IST 261	Application Development Design Studio I	
IST 311	Object-Oriented Design and Software Applications	
IST 361	Application Development Design Studio II	
IST 411	Distributed-Object Computing	
IST 412	The Engineering of Complex Software Systems	
IST 413	Usability Engineering	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 6 credits at the 300 or 400 level in Advanced IT courses from College approved list. 6

Business Applications Option (19 credits)

Available at the following campuses: Abington, Altoona, Beaver, Berks, Brandywine, DuBois, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Schuylkill, Scranton, York

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4

Additional Courses

Additional Courses: Require a grade of C or better

Select one of the following:¹ 3

FIN 301	Corporation Finance	
MGMT 301	Basic Management Concepts	
MKTG 301	Principles of Marketing	
SCM 301	Supply Chain Management	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 6 credits from ACCTG, BA, BLAW, EBF, ECON, ENTR, FIN, FINSV, HPA, IB, LER, MIS, MGMT, MKTG, RM, SCM, or STAT, including 3 credits at the 400-level. 6

Select 3 credits at the 300 or 400 level in Advanced IT Business courses from College-approved list. 3

Select 3 credits at the 300 or 400 level in Advanced IT courses from College-approved list. 3

¹ Option courses may not double count with other requirements.

Custom Information Technology Option (18 credits)

Available at the following campuses: Altoona, Berks, Brandywine, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Schuylkill, Scranton, Wilkes-Barre, York

Code	Title	Credits
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 12 credits, with at least 3 credits at the 400 level, in consultation with an adviser that follow a coherent theme in information technology.		12
Select 6 credits at the 300 or 400 level in Advanced IT courses from College-approved list.		6

Cybersecurity Option (18 credits)

Available at the following campuses: Altoona, Beaver, Berks, Brandywine, Lehigh Valley, Mont Alto, New Kensington, Schuylkill, Scranton, York

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 12 credits, with at least 3 credits at the 400 level, from the following:		12
CYBER 262	Cyber-Defense Studio	
IST 451	Network Security	
IST 454	Computer and Cyber Forensics	
IST 456	Information Security Management	
SRA 472	Integration of Privacy and Security	
Any 300 or 400 Level CYBER Course		

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 6 credits at the 300 or 400 level in Advanced IT courses from College-approved list. 6

Networking Option (18 credits)

Available at the following campuses: Abington, DuBois, Mont Alto

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 12 credits, with at least 3 credits at the 400 level, from the following:		12
CYBER 262	Cyber-Defense Studio	
IST 225	PC Hardware Basics	
IST 226	Networking Essentials	
IST 227	Network Administration	
IST 228	Advanced Network Administration	
IST 451	Network Security	
IST 454	Computer and Cyber Forensics	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 6 credits at the 300 or 400 level in Advanced IT courses from College-approved list. 6

Security and Risk Analysis Option (18 credits)

Available at the following campuses: Altoona, Berks, Brandywine, Lehigh Valley, Schuylkill

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 12 credits, with at least 3 credits at the 400 level, from the following: 12		
IST 432	Legal and Regulatory Environment of Information Science and Technology	
IST 452	Legal and Regulatory Environment of Privacy and Security	
IST 456	Information Security Management	
SRA 211	Threat of Terrorism and Crime	
SRA 231	Decision Theory and Analysis	
SRA 311	Risk Analysis in a Security Context	
SRA 365	Statistics for Security and Risk Analysis	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 6 credits at the 300 or 400 level in Advanced IT courses from College-approved list. 6

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The

advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Advanced IT Selection – All Options

As noted in each Suggested Academic Plan below, all options of the Information Technology, B.S. major require students to select 300 or 400 level Advanced IT courses from a College-approved list. Students in the Business Application option must select 3 credits of these Advanced IT courses. Students in all other options must select 6 credits of these Advanced IT courses. The list of Advanced IT courses that all students may choose from includes the following:

Code	Title	Credits
IST 402	Emerging Issues and Technologies	3
IST 413	Usability Engineering	3
IST 425	New Venture Creation	3
IST 431	The Information Environment	3
IST 446	An Introduction to Building Computer/Video Games	3
IST 454	Computer and Cyber Forensics	3
IST 456	Information Security Management	3
MIS 390	Foundations of Information Systems	3
MIS 404	Introduction to ERP and Business Processes	3
IST 301	Information and Organizations	3
IST 420	Fundamentals of Systems and Enterprise Integration	3
IST 421	Advanced Enterprise Integration: Technologies and Applications	3
IST 432	Legal and Regulatory Environment of Information Science and Technology	3
IST 452	Legal and Regulatory Environment of Privacy and Security	3

Application Development Option: Information Technology, B.S. at Berks Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year		
Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100A or 100B (GWS) [‡]	3
IST 110 or CYBER 100 ^{*#}	3 MATH 110 or 140 (GQ) [‡]	4
IST 140 ^{*#}	3 IST 220 ^{*#}	3
SRA 111 (GS) ^{*†}	3 IST 242 [*]	3
General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3
First-Year Seminar (IST 111S recommended)	1	
	16	16

Second Year		
Fall	Credits Spring	Credits
ECON 102, 104, PLSC 1, PLSC 14, or PSYCH 100 [†]	3 ENGL 202C or 202D (GWS) [‡]	3
IST 210 ^{*#}	3 IST 256 [*]	3
IST 230 [*]	3 IST 260W [*]	3
SCM 200 or STAT 200 (GQ) [‡]	4 SRA 221 [*]	3
General Education Course (GN or GA or GH)	3 Business Selection	3
	16	15

Third Year		
Fall	Credits Spring	Credits
IST 302 [*]	3 IST 261 (Option 2) [*]	3
IST 331 [*]	3 IST 411 (Option 3) [*]	3
IST 311 (Option 1) [*]	3 Networking Selection [*]	3
General Education Course (GN)	3 General Education Course (Integrative Studies) [*]	3
General Education Course (Integrative Studies)	3 General Education Course (Exploration)	3
	15	15

Fourth Year		
Fall	Credits Spring	Credits
IST 495 [*]	1 IST 440W [*]	3
ETI 461 [*]	3 IST 413 (Option 4) [*]	3
Advanced IT Selection 1 [*]	3 Advanced IT Selection 2 [*]	3
General Education Course (GHW)	3 Elective	3
Elective	3 Elective	2
	13	14

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ For General Education Course notations, please be sure to include three (3) credits of United States (US) Cultures and three (3) credits of International (IL) Cultures. Consult adviser for details.

² The following courses are offered Fall Semester only: ETI 461, IST 230, IST 302, IST 311, IST 331.

³ The following courses are offered Spring Semester only: ENGL 202C, IST 256, IST 260W, IST 261, IST 411, IST 413.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Business Selection Courses (cannot double count with other Additional or Option requirements):
 - ACCTG 211
 - BA 100
 - ECON 102
 - ECON 104
 - MGMT 301
 - MKTG 301
- Networking Selection Courses (cannot double count with other Additional or Option requirements):
 - CYBER 262
 - IST 226
 - IST 451
 - IST 454
- Option Courses:
 - Application Development:
 - Select 12 credits, with at least 3 credits at the 400 level from: IST 261, IST 311, IST 361, IST 411, IST 412, IST 413
 - Business Applications:
 - ACCTG 211
 - Select 3 credits from: FIN 301, MGMT 301, MKTG 301, SCM 301
 - Select 6 credits, with at least 3 credits at the 400 level from: ACCTG, BA, BLAW, EBF, ECON, ENTR, FIN, FINSV, HPA, IB, LER, MIS, MGMT, MKTG, RM, SCM, or STAT
 - Cybersecurity:
 - Select 12 credits, with at least 3 credits at the 400 level from: CYBER 262, IST 451, IST 454, IST 456, SRA 472, or any 300 or 400 level CYBER course
 - Security and Risk Analysis:
 - Select 12 credits, with at least 3 credits at the 400 level from: SRA 211, SRA 231, SRA 311, SRA 365, IST 432, IST 452, IST 456

Business Applications Option: Information Technology, B.S. at Berks Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100A or 100B (GWS) [‡]	3
IST 110 or CYBER 100 ^{*#}	3 MATH 110 or 140 (GQ) [‡]	4
IST 140 ^{*#}	3 IST 220 ^{*#}	3
SRA 111 (GS) ^{*†}	3 IST 242 [*]	3
General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3
First-Year Seminar (IST 111S recommended)	1	
	16	16

Second Year

Fall	Credits Spring	Credits
ECON 102, 104, PLSC 1, PLSC 14, or PSYCH 100 [†]	3 ENGL 202C or 202D (GWS) [‡]	3
IST 210 ^{*#}	3 IST 256 [*]	3
IST 230 [*]	3 IST 260W [*]	3
SCM 200 or STAT 200 (GQ) [‡]	4 SRA 221 [*]	3
General Education Course (GN or GA or GH)	3 ACCTG 211 (Option 1) [*]	4
	16	16

Third Year

Fall	Credits Spring	Credits
IST 302 [*]	3 Option 2 [*]	3
IST 331 [*]	3 Option 3 [*]	3
Business Selection [*]	4 Networking Selection [*]	3
General Education Course (GN)	3 General Education Course (Integrative Studies)	3
General Education Course (Integrative Studies)	3 General Education Course (Exploration)	3
	16	15

Fourth Year

Fall	Credits Spring	Credits
IST 495 [*]	1 IST 440W [*]	3
ETI 461 [*]	3 Option 4 [*]	3
Advanced IT Selection - Business Option [*]	3 Advanced IT Selection [*]	3
General Education Course (GHW)	3 Elective	3
Elective	3 Elective	1
	13	13

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ For General Education Course notations, please be sure to include three (3) credits of United States (US) Cultures and three (3) credits of International (IL) Cultures. Consult adviser for details.

² The following courses are offered Fall Semester only: ETI 461, IST 230, IST 302, IST 331.

³ The following courses are offered Spring Semester only: ENGL 202C, IST 256, IST 260W.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Business Selection Courses (cannot double count with other Additional or Option requirements):
 - ACCTG 211
 - BA 100
 - ECON 102
 - ECON 104
 - MGMT 301
 - MKTG 301
- Networking Selection Courses (cannot double count with other Additional or Option requirements):
 - CYBER 262
 - IST 226
 - IST 451
 - IST 454
- Option Courses:
 - Application Development:
 - Select 12 credits, with at least 3 credits at the 400 level from: IST 261, IST 311, IST 361, IST 411, IST 412, IST 413
 - Business Applications:
 - ACCTG 211
 - Select 3 credits from: FIN 301, MGMT 301, MKTG 301, SCM 301
 - Select 6 credits, with at least 3 credits at the 400 level from: ACCTG, BA, BLAW, EBF, ECON, ENTR, FIN, FINSV, HPA, IB, LER, MIS, MGMT, MKTG, RM, SCM, or STAT
 - Cybersecurity:
 - Select 12 credits, with at least 3 credits at the 400 level from: CYBER 262, IST 451, IST 454, IST 456, SRA 472, or any 300 or 400 level CYBER course
 - Security and Risk Analysis:

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- Select 12 credits, with at least 3 credits at the 400 level from:
SRA 211, SRA 231, SRA 311, SRA 365, IST 432, IST 452,
IST 456

Custom Information Technology Option: Information Technology, B.S. at Berks Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100A or 100B (GWS) [‡]	3
IST 110 or CYBER 100 ^{*#}	3 MATH 110 or 140 (GQ) [‡]	4
IST 140 ^{*#}	3 IST 220 ^{*#}	3
SRA 111 (GS) ^{*†}	3 IST 242 [*]	3
General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3
First-Year Seminar (IST 111S recommended)	1	
	16	16

Second Year

Fall	Credits Spring	Credits
ECON 102, 104, PLSC 1, PLSC 14, or PSYCH 100 [†]	3 ENGL 202C or 202D (GWS) [‡]	3
IST 210 ^{*#}	3 IST 256 [*]	3
IST 230 [*]	3 IST 260W [*]	3
SCM 200 or STAT 200 (GQ) [‡]	4 SRA 221 [*]	3
General Education Course (GN or GA or GH)	3 Business Selection [*]	3
	16	15

Third Year

Fall	Credits Spring	Credits
IST 302 [*]	3 Option 2 [*]	3
IST 331 [*]	3 Option 3 [*]	3
Option 1 [*]	3 Networking Selection [*]	3
General Education Course (GN)	3 General Education Course (Integrative Studies) [*]	3
General Education Course (Integrative Studies)	3 General Education Course (Exploration)	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
IST 495 [*]	1 IST 440W [*]	3
ETI 461 [*]	3 Option 4 [*]	3
Advanced IT Selection 1 [*]	3 Advanced IT Selection 2 [*]	3
General Education Course (GHW)	3 Elective	3
Elective	3 Elective	2
	13	14

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ For General Education Course notations, please be sure to include three (3) credits of United States (US) Cultures and three (3) credits of International (IL) Cultures. Consult adviser for details.

² The following courses are offered Fall Semester only: ETI 461, IST 230, IST 302, IST 331.

³ The following courses are offered Spring Semester only: ENGL 202C, IST 256, IST 260W.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Business Selection Courses (cannot double count with other Additional or Option requirements):
 - ACCTG 211
 - BA 100
 - ECON 102
 - ECON 104
 - MGMT 301
 - MKTG 301
- Networking Selection Courses (cannot double count with other Additional or Option requirements):
 - CYBER 262
 - IST 226
 - IST 451
 - IST 454
- Option Courses:
 - Application Development:
 - Select 12 credits, with at least 3 credits at the 400 level from: IST 261, IST 311, IST 361, IST 411, IST 412, IST 413
 - Business Applications:
 - ACCTG 211
 - Select 3 credits from: FIN 301, MGMT 301, MKTG 301, SCM 301
 - Select 6 credits, with at least 3 credits at the 400 level from: ACCTG, BA, BLAW, EBF, ECON, ENTR, FIN, FINSV, HPA, IB, LER, MIS, MGMT, MKTG, RM, SCM, or STAT
 - Cybersecurity:
 - Select 12 credits, with at least 3 credits at the 400 level from: CYBER 262, IST 451, IST 454, IST 456, SRA 472, or any 300 or 400 level CYBER course
 - Security and Risk Analysis:

1950 Information Technology, B.S. (Berks)

- Select 12 credits, with at least 3 credits at the 400 level from:
SRA 211, SRA 231, SRA 311, SRA 365, IST 432, IST 452,
IST 456

CyberSecurity Option: Information Technology, B.S. at Berks Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100A or 100B (GWS) [‡]	3
CYBER 100 ^{*#}	3 MATH 110 or 140 (GQ) [‡]	4
IST 140 ^{*#}	3 IST 220 ^{*#}	3
SRA 111 (GS) ^{*†}	3 IST 242 [*]	3
General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3
First-Year Seminar (IST 111S recommended)	1	
	16	16

Second Year

Fall	Credits Spring	Credits
ECON 102, 104, PLSC 1, PLSC 14, or PSYCH 100 [†]	3 ENGL 202C or 202D (GWS) [‡]	3
IST 210 ^{*#}	3 IST 256 [*]	3
IST 230 [*]	3 IST 260W [*]	3
SCM 200 or STAT 200 (GQ) [‡]	4 SRA 221 [*]	3
General Education Course (GN or GA or GH)	3 CYBER 262 (Option 1) [*]	3
	16	15

Third Year

Fall	Credits Spring	Credits
IST 302 [*]	3 Option 2 [*]	3
IST 331 [*]	3 Option 3 [*]	3
Business Selection [*]	3 Networking Selection [*]	3
General Education Course (GN)	3 General Education Course (Integrative Studies)	3
General Education Course (Integrative Studies)	3 General Education Course (Exploration)	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
IST 495 [*]	1 IST 440W [*]	3
ETI 461 [*]	3 Option 4 [*]	3
Advanced IT Selection 1 [*]	3 Advanced IT Selection 2 [*]	3
General Education Course (GHW)	3 Elective	3
Elective	3 Elective	2
	13	14

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ For General Education Course notations, please be sure to include three (3) credits of United States (US) Cultures and three (3) credits of International (IL) Cultures. Consult adviser for details.

² The following courses are offered Fall Semester only: ETI 461, IST 230, IST 302, IST 331.

³ The following courses are offered Spring Semester only: CYBER 262, ENGL 202C, IST 256, IST 260W.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Business Selection Courses (cannot double count with other Additional or Option requirements):
 - ACCTG 211
 - BA 100
 - ECON 102
 - ECON 104
 - MGMT 301
 - MKTG 301
- Networking Selection Courses (cannot double count with other Additional or Option requirements):
 - CYBER 262
 - IST 226
 - IST 451
 - IST 454
- Option Courses:
 - Application Development:
 - Select 12 credits, with at least 3 credits at the 400 level from: IST 261, IST 311, IST 361, IST 411, IST 412, IST 413
 - Business Applications:
 - ACCTG 211
 - Select 3 credits from: FIN 301, MGMT 301, MKTG 301, SCM 301
 - Select 6 credits, with at least 3 credits at the 400 level from: ACCTG, BA, BLAW, EBF, ECON, ENTR, FIN, FINSV, HPA, IB, LER, MIS, MGMT, MKTG, RM, SCM, or STAT
 - Cybersecurity:
 - Select 12 credits, with at least 3 credits at the 400 level from: CYBER 262, IST 451, IST 454, IST 456, SRA 472, or any 300 or 400 level CYBER course
 - Security and Risk Analysis:

1952 Information Technology, B.S. (Berks)

- Select 12 credits, with at least 3 credits at the 400 level from:
SRA 211, SRA 231, SRA 311, SRA 365, IST 432, IST 452,
IST 456

Security and Risk Analysis Option: Information Technology, B.S. at Berks Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100A or 100B (GWS) [‡]	3
IST 110 or CYBER 100 ^{*#}	3 MATH 110 or 140 (GQ) [‡]	4
IST 140 ^{*#}	3 IST 220 ^{*#}	3
SRA 111 (GS) ^{*†}	3 IST 242 [*]	3
General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3
First-Year Seminar (IST 111S recommended)	1	
	16	16

Second Year

Fall	Credits Spring	Credits
ECON 102, 104, PLSC 1, PLSC 14, or PSYCH 100 [†]	3 ENGL 202C or 202D (GWS) [‡]	3
IST 210 ^{*#}	3 IST 256 [*]	3
IST 230 [*]	3 IST 260W [*]	3
SCM 200 or STAT 200 (GQ) [‡]	4 SRA 221 [*]	3
General Education Course (GN or GA or GH)	3 SRA 211 (Option 1) [*]	3
	16	15

Third Year

Fall	Credits Spring	Credits
IST 302 [*]	3 SRA 231 (Option 2) [*]	3
IST 331 [*]	3 Option 3 [*]	3
Business Selection [*]	3 Networking Selection [*]	3
General Education Course (GN)	3 General Education Course (Integrative Studies) [*]	3
General Education Course (Integrative Studies)	3 General Education Course (Exploration)	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
IST 495 [*]	1 IST 440W [*]	3
ETI 461 [*]	3 Option 4 [*]	3
Advanced IT Selection 1 [*]	3 Advanced IT Selection 2 [*]	3
General Education Course (GHW)	3 Elective	3
Elective	3 Elective	2
	13	14

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ For General Education Course notations, please be sure to include three (3) credits of United States (US) Cultures and three (3) credits of International (IL) Cultures. Consult adviser for details.

² The following courses are offered Fall Semester only: ETI 461, IST 230, IST 302, IST 331.

³ The following courses are offered Spring Semester only: ENGL 202C, IST 256, IST 260W, SRA 231.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Business Selection Courses (cannot double count with other Additional or Option requirements):
 - ACCTG 211
 - BA 100
 - ECON 102
 - ECON 104
 - MGMT 301
 - MKTG 301
- Networking Selection Courses (cannot double count with other Additional or Option requirements):
 - CYBER 262
 - IST 226
 - IST 451
 - IST 454
- Option Courses:
 - Application Development:
 - Select 12 credits, with at least 3 credits at the 400 level from: IST 261, IST 311, IST 361, IST 411, IST 412, IST 413
 - Business Applications:
 - ACCTG 211
 - Select 3 credits from: FIN 301, MGMT 301, MKTG 301, SCM 301
 - Select 6 credits, with at least 3 credits at the 400 level from: ACCTG, BA, BLAW, EBF, ECON, ENTR, FIN, FINSV, HPA, IB, LER, MIS, MGMT, MKTG, RM, SCM, or STAT
 - Cybersecurity:
 - Select 12 credits, with at least 3 credits at the 400 level from: CYBER 262, IST 451, IST 454, IST 456, SRA 472, or any 300 or 400 level CYBER course
 - Security and Risk Analysis:

- Select 12 credits, with at least 3 credits at the 400 level from: SRA 211, SRA 231, SRA 311, SRA 365, IST 432, IST 452, IST 456

Career Paths

With a B.S. degree in Information Technology (IT), students will develop an understanding of core information technologies and prepare for the practical application of IT. The combination of a strong technical foundation, well-developed communication and collaborative skills, business core competencies, and specialization in an area of choice produces graduates who are well-qualified to enter the IT workforce in a position that meets their interests and abilities as well as the needs of employers in industries including consulting, business, government, defense, entertainment, and medicine.

Additional information about IT careers can be found at:

- Computer and Information Technology Occupations: Occupational Outlook Handbook: U.S. Bureau of Labor Statistics (bls.gov) (<https://www.bls.gov/ooh/computer-and-information-technology/home.htm>)
- IS Job Index – AIS – Temple University Information Systems Job Index (<https://isjobindex.com/>)

Opportunities for Graduate Studies

A baccalaureate degree in Information Technology prepares students to pursue master's degrees in programs such as information systems or information technology and obtain admission to MBA programs and law schools, among other post-graduate opportunities.

Penn State offers graduate programs related to information technology:

- Master of Science in Information Systems at Penn State Harrisburg (<https://harrisburg.psu.edu/business-administration/information-systems-ms/>)
- Graduate Education Opportunities at College of Information Sciences and Technology (<https://ist.psu.edu/prospective/graduate/>)

Contact

Berks

EBC DIVISION
Gaige Building
Reading, PA 19610
610-396-6349
tkc3@psu.edu

<https://berks.psu.edu/academics/baccalaureate-degrees/information-technology> (<https://berks.psu.edu/academics/baccalaureate-degrees/information-technology/>)

Abington

DIVISION OF SCIENCE AND ENGINEERING
1600 Woodland Road
Abington, PA 19001
jul62@psu.edu

<https://www.abington.psu.edu/academics/majors-at-abington/information-technology> (<https://www.abington.psu.edu/academics/majors-at-abington/information-technology/>)

Altoona

DIVISION OF BUSINESS, ENGINEERING, AND INFORMATION SCIENCES & TECHNOLOGY
Penn Building, 212C
Altoona, PA 16601
814-949-5275
drb21@psu.edu

<https://altoona.psu.edu/academics/bachelors-degrees/information-technology> (<https://altoona.psu.edu/academics/bachelors-degrees/information-technology/>)

Beaver

100 University Dr.
Monaca, PA 15061
724-773-3814
rkl5137@psu.edu

<https://beaver.psu.edu/academics/majors/it> (<https://beaver.psu.edu/academics/majors/it/>)

Brandywine

25 Yearsley Mill Road
Media, PA 19063
610-892-1343
nxd13@psu.edu

<https://www.brandywine.psu.edu/academics/bachelors-degrees/information-technology> (<https://www.brandywine.psu.edu/academics/bachelors-degrees/information-technology/>)

DuBois

1 College Place
DuBois, PA 16823
814-372-3000
jel115@psu.edu

<https://dubois.psu.edu/academics/degrees/IT/bachelor> (<https://dubois.psu.edu/academics/degrees/IT/bachelor/>)

Greater Allegheny

Frable Building, 201D
4000 University Drive
McKeesport, PA 15132
412-675-9482
lmd347@psu.edu

<https://greaterallegheny.psu.edu/academics/degree-programs/information-technology> (<https://greaterallegheny.psu.edu/academics/degree-programs/information-technology/>)

Hazleton

204 Butler
Hazleton, PA 18202
570-450-3194
HNAdvising@psu.edu

<https://hazleton.psu.edu/information-technology> (<https://hazleton.psu.edu/information-technology/>)

Lehigh Valley

2809 Saucon Valley Road

Center Valley, PA 18034
610-285-5071
kmb6846@psu.edu

<https://lehighvalley.psu.edu/academics/degrees/information-sciences-and-technology> (<https://lehighvalley.psu.edu/academics/degrees/information-sciences-and-technology/>)

Mont Alto

006 Bookstore
1 Campus Drive
Mont Alto, PA 17237
717-749-6048
ebd5343@psu.edu

<https://montalto.psu.edu/academics/bachelors/information-technology> (<https://montalto.psu.edu/academics/bachelors/information-technology/>)

New Kensington

036 Theater & IST Building
3550 Seventh Street Road
New Kensington, PA 15068
724-334-6089
hhs10@psu.edu

<https://newkensington.psu.edu/4-year-information-technology> (<https://newkensington.psu.edu/4-year-information-technology/>)

Schuylkill

200 University Drive
Schuylkill Haven, PA 17972
570-385-6076
bkg113@psu.edu

<https://schuylkill.psu.edu/academics/bacc-degrees/information-technology> (<https://schuylkill.psu.edu/academics/bacc-degrees/information-technology/>)

Scranton

114B Dawson
120 Ridge View Drive
Dunmore, PA 18512
570-963-2593
dls102@psu.edu

<https://scranton.psu.edu/academics/degrees/bachelors/information-sciences-technology-degree> (<https://scranton.psu.edu/academics/degrees/bachelors/information-sciences-technology-degree/>)

Wilkes-Barre

44 University Drive
Dallas, PA 18612
570-675-9142
weifan@psu.edu

<https://wilkesbarre.psu.edu/academics/it> (<https://wilkesbarre.psu.edu/academics/it/>)

York

1031 Edgecomb Ave.
York, PA 17403
717-771-4143

wpc2@psu.edu

<https://www.york.psu.edu/academics/baccalaureate/information-technology> (<https://www.york.psu.edu/academics/baccalaureate/information-technology/>)

Integrative Science, B.S. (Berks)

Begin Campus: Any Penn State Campus

End Campus: Berks

Program Description

The Integrative Science major is an interdisciplinary degree that aims to provide a broad, general education in science. The Bachelor of Science (B.S.) curriculum is designed specifically for students who have education goals relating to scientific theory and practice across disciplinary areas, and who seek a high degree of flexibility to obtain their educational objectives. After completing foundation courses in biology, calculus, chemistry, physics, and statistics, students select additional science courses from designated areas to customize the curriculum to their own interests. A large number of supporting credits enable students to incorporate significant breadth or specialization into their academic training, such as through courses in business, computer and information science, health science, social science, and other fields.

This major helps prepare students for careers in many different job sectors including agriculture, biotechnology, chemistry, education, government, industry, medicine, pharmaceutical, research & development, sustainability, and more. Graduates of this major pursue diverse career paths and hold a variety of roles such as research scientist, data analyst, technician, program coordinator, project manager, consultant, and laboratory associate. The degree can also be tailored to meet specific requirements of professional programs such as medical, dental, physician assistant, pharmacy, or law school, as well as graduate school.

General Science Option

Available at the following campuses: *Abington, Berks, Harrisburg, Scranton, University Park, York*

The General Science option of the B.S. Integrative Science degree allows for the most flexibility.

Achievement in a more specialized set of goals can be met by selecting one of the other B.S. options offered:

Biological Sciences and Health Professions Option

Available at the following campuses: *University Park*

Legal Studies, Government Service, Public Policy Option

Available at the following campuses: *University Park*

Life Sciences Option

Available at the following campuses: *Abington, Berks, Harrisburg, Scranton, York*

Mathematical Sciences Option

Available at the following campuses: *Abington*

Secondary Education Option

Available at the following campuses: *Harrisburg*

Not all of these options are available at all locations. See the Science program director at your College for details regarding program curriculum at your location.

What is Integrative Science?

The Integrative Science major provides a broad and interdisciplinary foundation in the natural sciences. The Integrative Science BS program uses the principles of chemistry, physics, and life sciences to understand how these integrate over general areas including biological sciences and health professions, public policy, and science research and development.

You Might Like This Program If...

- You like learning by doing hands-on experiments.
- You are curious about the natural world and how science disciplines come together to explore and understand it.
- You are intrigued by science and desire a career in current and emerging interdisciplinary science disciplines, health professions, or melding science with law, policy or business.

Entrance to Major

In order to be eligible for entrance to the Integrative Science major, a student at any location must have:

1. attained at least a 2.00 cumulative grade-point average;
2. completed MATH 140 with a grade of C or better;
3. completed at least two of the following courses, BIOL 110; CHEM 110; PHYS 211 or PHYS 250, with a grade of C or better.

Entrance to the Integrative Science Secondary Education option requires the following additional requirements:

1. completed at least one of the following courses, BIOL 220W or BIOL 230W or BIOL 240W; PHYS 250, with a grade of C or better;
2. attained at least a 3.00 cumulative grade-point average;
3. completed ENGL 15 or ENGL 30H;
4. completed 3 credits of literature from a department-approved list with a grade of C or better;
5. completed 6 credits of college-level mathematics (GQ MATH or STAT prefixes) with a grade of C or better;
6. satisfy any entrance testing requirements set out by the Pennsylvania Department of Education in effect at the time of application for the major;
7. submission to the Teacher Education Office of current and clear background checks as required by the Pennsylvania Department of Education;
8. submission of documentation of 20 pre-major fieldwork hours.

Degree Requirements

For the Bachelor of Science degree in Integrative Science with an option in General Science; Biological Sciences and Health Professions; Legal Studies, Government Service, Public Policy; Life Science; and Mathematical Science, a minimum of 120 credits is required, with at least 15 credits at the 400 level. For the Bachelor of Science degree in Integrative Science with an option in Secondary Education, a minimum of 125 credits is required, with at least 15 credits at the 400 level.

Requirement	Credits
General Education	45
Requirements for the Major	90-110

13-30 of the 45 credits for General Education are included in the Requirements for the Major. For the General Science Option; Biological Sciences and Health Professions Option; Legal Studies, Government Service, Public Policy Option; Life Science Option this includes: 9 credits of GN courses and 4-6 credits of GQ courses. For the Mathematical Science Option this includes: 9 credits of GN courses and 6 credits of GQ courses. For the Secondary Education Option this includes: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GWS courses (ENGL 202C); 3 credits of GH courses (literature department list); 6 credits of GS courses (EDPSY 14 and HDFS 239); 3 credits of Integrative Studies courses (EDUC 466N).

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
CHEM 113	Experimental Chemistry II	1
<i>Prescribed Courses: Require a grade of C or better</i>		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
CHEM 110	Chemical Principles I	3
MATH 140	Calculus With Analytic Geometry I	4
Requirements for the Option		
Select an option		74-94

Requirements for the Option

General Science Option (74 credits)

Available at the following campuses: Abington, Berks, Harrisburg, Scranton, University Park, York

Code	Title	Credits
Additional Courses		
STAT 200 or STAT 250	Elementary Statistics Introduction to Biostatistics	3-4
Select 4 credits from the following:		4
BIOL 161 & BIOL 162	Human Anatomy and Physiology I - Lecture and Human Anatomy and Physiology I - Laboratory	
BIOL 220W	Biology: Populations and Communities	
BIOL 230W	Biology: Molecules and Cells	
BIOL 240W	Biology: Function and Development of Organisms	
Select 8-12 credits from the following:		8-12
PHYS 211 & PHYS 212 & PHYS 213 & PHYS 214	General Physics: Mechanics and General Physics: Electricity and Magnetism and General Physics: Fluids and Thermal Physics and General Physics: Wave Motion and Quantum Physics ¹	

PHYS 250 & PHYS 251	Introductory Physics I and Introductory Physics II ¹
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Supporting Courses and Related Areas

Select 3 credits in Global, Social, and Personal Awareness from department approved course list in consultation with adviser	3
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Select 3 credits in Teamwork and Interpersonal Communication from department approved course list in consultation with adviser	3
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Select 3 credits in Integrative and Applied Sciences from department approved course list in consultation with adviser	3
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Select 6 credits of 400-level courses	6
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Select 21-26 credits from program list ^{2,3}	21-26
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Supporting Courses and Related Areas: Require a grade of C or better

Select 18 credits in life, mathematical, or physical sciences, with at least 9 credits at the 400 level ^{4,5}	18
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¹ PHYS 211 and PHYS 250 require a grade of C or better.

² A maximum of 12 credits of Independent Study (296, 496) may be applied toward credits for graduation.

³ Students may apply ROTC credits toward the Program List.

⁴ Only the 9 credits at the 400 level require a grade of C or better.

⁵ Life sciences include BIOL, BIOTC, BMB, FRNSC, MICRB. Mathematical sciences include CMPSC, DS, MATH, STAT. Physical sciences include ASTRO, CHEM, PHYS.

Biological Sciences and Health Professions Option (74 credits)

Available at the following campuses: University Park

Code	Title	Credits
Prescribed Courses		
HPA 101	Introduction to Health Services Organization	3
Additional Courses		
STAT 200 or STAT 250	Elementary Statistics Introduction to Biostatistics	3-4
Select 4 credits from the following:		4
BIOL 161 & BIOL 162	Human Anatomy and Physiology I - Lecture and Human Anatomy and Physiology I - Laboratory	
BIOL 220W	Biology: Populations and Communities	
BIOL 230W	Biology: Molecules and Cells	
BIOL 240W	Biology: Function and Development of Organisms	
Select 3-4 credits from the following:		3-4
BIOL 222	Genetics	
BIOL 230W	Biology: Molecules and Cells	
BIOL 322	Genetic Analysis	
BMB 211	Elementary Biochemistry	
BMB/MICRB 251	Molecular and Cell Biology I	
MICRB 201	Introductory Microbiology	
Select 6-8 credits from the following:		6-8
CHEM 202 & CHEM 203	Fundamentals of Organic Chemistry I and Fundamentals of Organic Chemistry II	
CHEM 210 & CHEM 212	Organic Chemistry I and Organic Chemistry II	
& CHEM 213W	Laboratory in Organic Chemistry - Writing Intensive	
Select 8-12 credits from the following:		8-12

PHYS 211 & PHYS 212 & PHYS 213 & PHYS 214	General Physics: Mechanics and General Physics: Electricity and Magnetism and General Physics: Fluids and Thermal Physics and General Physics: Wave Motion and Quantum Physics ¹
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PHYS 250 & PHYS 251	Introductory Physics I and Introductory Physics II ¹
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Supporting Courses and Related Areas

Select 3 credits in Global, Social, and Personal Awareness from department approved course list in consultation with adviser	3
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Select 3 credits in Teamwork and Interpersonal Communication from department approved course list in consultation with adviser	3
--	---

Select 15 credits in Healthcare/Medicine/Ethical Competencies from department approved course list in consultation with adviser ²	15
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Select 9-17 credits from program list ^{3,4}	9-17
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Supporting Courses and Related Areas: Require a grade of C or better

Select 9 credits of 400-level BMB, BIOL, BIOTC, or MICRB courses	9
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¹ PHYS 211 and PHYS 250 require a grade of C or better.

² 6 credits must be at the 400-level.

³ A maximum of 12 credits of Independent Studies (296, 496) may be applied toward credits for graduation.

⁴ Students may apply ROTC credits toward the Program List.

Legal Studies, Government Service, Public Policy Option (74 credits)

Available at the following campuses: University Park

Code	Title	Credits
Additional Courses		
STAT 200 or STAT 250	Elementary Statistics Introduction to Biostatistics	3-4
Select 4 credits from the following:		4
BIOL 161 & BIOL 162	Human Anatomy and Physiology I - Lecture and Human Anatomy and Physiology I - Laboratory	
BIOL 220W	Biology: Populations and Communities	
BIOL 230W	Biology: Molecules and Cells	
BIOL 240W	Biology: Function and Development of Organisms	
Select 8-12 credits from the following:		8-12
PHYS 211 & PHYS 212 & PHYS 213 & PHYS 214	General Physics: Mechanics and General Physics: Electricity and Magnetism and General Physics: Fluids and Thermal Physics and General Physics: Wave Motion and Quantum Physics ¹	
PHYS 250 & PHYS 251	Introductory Physics I and Introductory Physics II ¹	
Supporting Courses and Related Areas		
Select 3 credits in Global, Social, and Personal Awareness from department approved course list in consultation with adviser		3
Select 3 credits in Teamwork and Interpersonal Communication from department approved course list in consultation with adviser		3
Select 18 credits in Legal Studies, Government Service, Public Policy from department approved course list in consultation with adviser ²		18
Select 12-17 credits from program list ^{3,4}		12-17
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		

Select 18 credits in life, mathematical, or physical sciences, with at least 9 credits at the 400 level^{5,6} 18

¹ PHYS 211 and PHYS 250 require a grade of C or better.

² 6 credits must be at the 400-level.

³ A maximum of 12 credits of Independent Study (296, 496) may be applied toward credits for graduation.

⁴ Students may apply ROTC credits toward the Program List.

⁵ Only the 9 credits at the 400 level require a grade of C or better.

⁶ Life sciences include BIOL, BIOTC, BMB, FRNSC, MICRB. Mathematical sciences include CMPSC, DS, MATH, STAT. Physical sciences include ASTRO, CHEM, PHYS.

Life Science Option (74 credits)

Available at the following campuses: Abington, Berks, Harrisburg, Scranton, York

Code	Title	Credits
Additional Courses		
STAT 200 or STAT 250	Elementary Statistics Introduction to Biostatistics	3-4
Select 4 credits from the following:		4
BIOL 220W	Biology: Populations and Communities	
BIOL 230W	Biology: Molecules and Cells	
BIOL 240W	Biology: Function and Development of Organisms	
Select 3-4 credits from the following:		3-4
BIOL 222	Genetics	
BIOL 230W	Biology: Molecules and Cells	
BIOL 322	Genetic Analysis	
BMB 211	Elementary Biochemistry	
BMB/MICRB 251	Molecular and Cell Biology I	
MICRB 201	Introductory Microbiology	
Select 6-8 credits from the following:		6-8
CHEM 202 & CHEM 203	Fundamentals of Organic Chemistry I and Fundamentals of Organic Chemistry II	
CHEM 210 & CHEM 212 & CHEM 213	Organic Chemistry I and Organic Chemistry II and Laboratory in Organic Chemistry	
Select 8-12 credits from the following:		8-12
PHYS 211 & PHYS 212 & PHYS 213 & PHYS 214	General Physics: Mechanics and General Physics: Electricity and Magnetism and General Physics: Fluids and Thermal Physics and General Physics: Wave Motion and Quantum Physics ¹	
PHYS 250 & PHYS 251	Introductory Physics I and Introductory Physics II ¹	
Supporting Courses and Related Areas		
Select 3 credits in Global, Social, and Personal Awareness from department approved course list in consultation with adviser		3
Select 3 credits in Teamwork and Interpersonal Communication from department approved course list in consultation with adviser		3
Select 6 credits of 400-level courses		6
Select 21-29 credits from program list ^{2,3}		21-29
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 9 credits of 400-level BMB, BIOL, BIOTC, or MICRB courses		9

¹ PHYS 211 and PHYS 250 require a grade of C or better.

² A maximum of 12 credits of Independent Study (296, 496) may be applied toward credits for graduation.

³ Students may apply ROTC credits toward the Program List.

Mathematical Science Option (74 credits)

Available at the following campuses: Abington

Code	Title	Credits
Prescribed Courses		
MATH 220	Matrices	2-3
<i>Prescribed Courses: Require a grade of C or better</i>		
MATH 141	Calculus with Analytic Geometry II	4
Additional Courses		
CMPSC 122 or CMPSC 132	Intermediate Programming Programming and Computation II: Data Structures	3
CMPSC 360 or MATH 311W	Discrete Mathematics for Computer Science Concepts of Discrete Mathematics	3-4
MATH 230 or MATH 251	Calculus and Vector Analysis Ordinary and Partial Differential Equations	4
Select 3 credits from the following:		3
CMPSC 121	Introduction to Programming Techniques	
CMPSC 131	Programming and Computation I: Fundamentals	
CMPSC 201	Programming for Engineers with C++	
Select 3-4 credits from the following:		3-4
STAT 200	Elementary Statistics	
STAT 250	Introduction to Biostatistics	
STAT 318	Elementary Probability	
Select 3-4 credits from the following:		3-4
BIOL 222	Genetics	
BIOL 230W	Biology: Molecules and Cells	
BIOL 322	Genetic Analysis	
BMB 211	Elementary Biochemistry	
BMB/MICRB 251	Molecular and Cell Biology I	
MICRB 201	Introductory Microbiology	
Select 8-12 credits from the following:		8-12
PHYS 211 & PHYS 212 & PHYS 213 & PHYS 214	General Physics: Mechanics and General Physics: Electricity and Magnetism and General Physics: Fluids and Thermal Physics and General Physics: Wave Motion and Quantum Physics ¹	
PHYS 250 & PHYS 251	Introductory Physics I and Introductory Physics II ¹	
Supporting Courses and Related Areas		
Select 3 credits in Global, Social, and Personal Awareness from department approved course list in consultation with adviser		3
Select 3 credits in Teamwork and Interpersonal Communication from department approved course list in consultation with adviser		3
Select 6 credits of 400-level courses		6
Select 13-20 credits from program list ^{2,3}		13-20
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 9 credits of 400-level CMPSC, MATH, or STAT courses		9

¹ PHYS 211 and PHYS 250 require a grade of C or better.

² A maximum of 12 credits of Independent Study (296, 496) may be applied toward credits for graduation.

³ Students may apply ROTC credits toward the Program List.

SECONDARY EDUCATION OPTION (94 credits)

Available at the following campuses: Harrisburg

Code	Title	Credits
Prescribed Courses		
STAT 200	Elementary Statistics	4
<i>Prescribed Courses: Require a grade of C or better for teacher certification</i>		
EDUC 313	Secondary Education Field Experience	2
EDUC 314	Learning Theory and Instructional Procedures	3
EDUC 315Y	Social and Cultural Factors in Education	3
EDUC 385	Professional Development in Teaching	3
EDUC 400	Diversity and Cultural Awareness Practices in the K-12 Classroom	3
EDUC 414	Teaching Secondary Science	3
EDUC 458	Behavior Management Strategies for Inclusive Classrooms	3
EDUC 459	Strategies for Effective Teaching in Inclusive Classrooms	3
EDUC 490	Student Teaching	9
<i>Prescribed Courses: Require a Grade of C or Better</i>		
EDPSY 14	Learning and Instruction	3
EDUC 466N	Foundations of Teaching English as a Second Language	3
ENGL 202C	Effective Writing: Technical Writing	3
HDFS 239	Adolescent Development	3
MATH 141	Calculus with Analytic Geometry II	4
PHYS 250	Introductory Physics I	4
PHYS 251	Introductory Physics II	4

Additional Courses

Additional Courses: Require a grade of C or better

Select 4 credits from the following:	4
BIOL 220W	Biology: Populations and Communities
BIOL 230W	Biology: Molecules and Cells
BIOL 240W	Biology: Function and Development of Organisms

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a Grade of C or Better

Select 3 credits of GH literature from department list	3
Select a 3 credit EARTH course	3
Select a 3 credit ASTRO course	3
Select 9 credits of 400-level earth or physical science courses	9
Select 12 credits of science or education elective courses	12

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate

students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- Quantification (GQ): 6 credits
- Writing and Speaking (GWS): 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- Arts (GA): 3 credits
- Health and Wellness (GHW): 3 credits
- Humanities (GH): 3 credits
- Social and Behavioral Sciences (GS): 3 credits
- Natural Sciences (GN): 3 credits

Integrative Studies

- Inter-Domain Courses (Inter-Domain): 6 credits

Exploration

- GN, may be completed with Inter-Domain courses: 3 credits
- GA, GH, GN, GS, Inter-Domain courses. This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Biology Concepts:** Students will demonstrate a thorough understanding of biological concepts including cellular organization, genetics, ecology, and physiology.
- **Chemistry Knowledge:** Students will demonstrate a thorough understanding of general and organic chemistry.
- **Communication:** Students will disseminate scientific findings via oral and written communication.
- **Data Analysis:** Students will demonstrate ability to retrieve and analyze scientific data.
- **Ethics:** Students will apply ethical principles to specific areas of scientific research and scientifically important applications with sociological consequences such as clinical trials, animal testing, and environmental concerns.
- **Laboratory Skills:** Students will demonstrate appropriate laboratory skills including scientific technique, maintenance of a laboratory notebook, writing laboratory reports, and adhering to all safety procedures.
- **Scientific Concepts:** Students will demonstrate specific understanding of fundamental scientific concepts including, but not limited to, experimental results, theory development, chemical reactions, physical processes, and cellular function.
- **Scientific Literature:** Students will be able to comprehend and critically interpret primary scientific literature.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

General Science Option: Integrative Science, B.S. at Berks Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If**

report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100A or 100B (GWS) [‡]	3
MATH 140 (GQ) ^{*‡#}	4 MATH 141 (GQ) [‡]	4
CHEM 110 (GN) ^{*‡#}	3 CHEM 112 (GN) [†]	3
CHEM 111 (GN) [†]	1 CHEM 113 (GN) [†]	1
BIOL 110 ^{*#†}	4 PHYS 211 ^{*#}	4
First-Year Seminar	1 General Education Course (GHW)	1.5
	16	16.5

Second Year

Fall	Credits Spring	Credits
BIOL 220W, 230W, or 240W	4 ENGL 202A, 202B, 202C, or 202D (GWS) [‡]	3
PHYS 212	4 PHYS 213	2
Earth & Mineral Sciences Selection	3 PHYS 214	2
Life or Math or Physical Science Selection	3 STAT 200, 250, 301, or STAT 401	3-4
Program List Selection	3 General Education Course (GA or GH or GS)	3
	General Education Course (GA or GH or GS)	3
	17	16-17

Third Year

Fall	Credits Spring	Credits
Global, Social & Personal Awareness Selection	3 Teamwork & Interpersonal Communication Selection	3
Life or Math or Physical Science Selection	3 Life or Math or Physical Science Selection	3
Program List Selection	3 Program List Selection	3
Program List Selection	3 Program List Selection	3
General Education Course (GA or GH or GS)	3 General Education Course (Integrative Studies)	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
400 Level General Selection	3 400 Level General Selection	3
400 Level Life or Math or Physical Science Selection [*]	3 400 Level Life or Math or Physical Science Selection [*]	3
400 Level Life or Math or Physical Science Selection [*]	3 Program List Selection	3
General Education Course (Integrative Studies)	3 Program List Selection	3
General Education Course (GHW)	1.5 General Education Course (Exploration)	3
	13.5	15

Total Credits 124-125

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ For General Education Course notations, please be sure to include three (3) credits of United States (US) Cultures and three (3) credits of International (IL) Cultures. Consult adviser for details.

² For the Writing Across The Curriculum Requirement, students must complete this through one of the requirements listed above. Consult adviser for details.

³ For Entrance-to-Major requirements, students must complete two (2) courses from the following: BIOL 110, CHEM 110, and PHYS 211.

⁴ The following courses are offered Spring Semester only: ENGL 202B, PHYS 213, PHYS 214.

⁵ For PHYS 211, PHYS 212, PHYS 213, and PHYS 214, PHYS 250 and PHYS 251 may be substituted. PHYS 250 is offered Fall Semester only. PHYS 251 is offered Spring Semester only.

⁶ For Earth & Mineral Sciences Selection, consult adviser for list.

⁷ For Life or Math or Physical Science Selection, consult adviser for list.

⁸ For Program List Selection, consult adviser for list.

⁹ For 400 Level General Selection, consult adviser for list.

¹⁰ For 400 Level Life or Math or Physical Science Selection, consult adviser for list.

¹¹ For Global, Social & Personal Awareness Selection, consult adviser for list.

¹² For Teamwork & Interpersonal Communication Selection, consult adviser for list.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Life Science Option: Integrative Science, B.S. at Berks Campus

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100A or 100B (GWS) [‡]	3
MATH 140 (GQ) ^{*‡#}	4 MATH 141 (GQ) [‡]	4
CHEM 110 (GN) ^{*‡#}	3 CHEM 112 (GN) [†]	3
CHEM 111 (GN) [†]	1 CHEM 113 (GN) [†]	1
BIOL 110 ^{*‡#}	4 BIOL 220W, 230W, or 240W	4
First-Year Seminar	1 General Education Course (GHW)	1.5
	16	16.5

Second Year

Fall	Credits Spring	Credits
CMPSC 101, MATH 250, or STAT 250	3 ENGL 202A, 202B, 202C, or 202D (GWS) [‡]	3
CHEM 210	3 CHEM 212	3
PHYS 250 ^{*#}	4 CHEM 213	2
MICRB 201	3 PHYS 251	4
General Education Course (GA or GH or GS)	3 General Education Course (GA or GH or GS)	3
	General Education Course (GA or GH or GS)	3
	16	18

Third Year

Fall	Credits Spring	Credits
Global, Social & Personal Awareness Selection	3 Teamwork & Interpersonal Communication Selection	3
400 Level Life Science Selection [*]	3 400 Level Life Science Selection [*]	3
Program List Selection	3 Program List Selection	3
Program List Selection	3 Program List Selection	3
General Education Course (Integrative Studies)	3 General Education Course (Integrative Studies)	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
400 Level General Selection	3 400 Level General Selection	3
400 Level Life Science Selection [*]	3 Program List Selection	3
Program List Selection	3 Program List Selection	3
Program List Selection	3 Program List Selection	3
General Education Course (Exploration)	3 General Education Course (GHW)	1.5
	15	13.5

Total Credits 125

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ For General Education Course notations, please be sure to include three (3) credits of United States (US) Cultures and three (3) credits of International (IL) Cultures. Consult adviser for details.

² For the Writing Across The Curriculum Requirement, students must complete this through one of the requirements listed above. Consult adviser for details.

³ For Entrance-to-Major requirements, students must complete two (2) courses from the following: BIOL 110, CHEM 110, and PHYS 211.

⁴ The following courses are offered Fall Semester only: BIOL 220W, BIOL 230W, CHEM 202, PHYS 250.

⁵ The following courses are offered Spring Semester only: BIOL 240W, CHEM 203, ENGL 202B, PHYS 251.

⁶ For PHYS 250 and PHYS 251, PHYS 211, PHYS 212, PHYS 213, and PHYS 214 may be substituted. PHYS 213 and PHYS 214 are offered Spring Semester only.

⁷ For 400 Level Life Science Selection, consult adviser for list.

⁸ For Program List Selection, consult adviser for list.

⁹ For 400 Level General Selection, consult adviser for list.

¹⁰ For CHEM 210, CHEM 212, and CHEM 213, CHEM 202 and CHEM 203 may be substituted.

¹¹ For Global, Social & Personal Awareness Selection, consult adviser for list.

¹² For Teamwork & Interpersonal Communication Selection, consult adviser for list.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

Penn State students with a BS in Integrative Science are prepared for a broad range of careers and graduate programs. The solid foundation of science and math prepares students to think critically and scientifically in a range of industries and professions.

Careers

This program often leads to careers in all healthcare professions, including physicians and physician assistants, dentists, optometrists, and podiatrists; laboratory research associates; scientific product representatives and science-based consulting.

Opportunities for Graduate Studies

Many graduates of the Integrative Science B.S. program choose to pursue graduate studies (MS and PhD) in the natural sciences. Most often, students gravitate to medically-related fields and life science sub-disciplines for focused graduate training. Students in the legal studies

and public policy options may choose law school or master's in public policy programs.

Professional Resources

- Association of American Medical Colleges (<https://www.aamc.org>)
- American Association of Colleges of Osteopathic Medicine (<https://www.aacom.org>)
- American Dental Education Association (<https://www.adea.org>)
- Association of Schools and Colleges of Optometry (<https://optometriceducation.org>)
- American Association of Colleges of Podiatric Medicine (<https://aacpm.org>)
- American Academy of Physician Assistants (AAPA) (<https://www.aapa.org>) Physician Assistant Education Association (<https://paeonline.org>)

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Keystone Certificate for Integrative Humanities, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

The Keystone Certificate for Integrative Humanities includes two foundational courses and two additional courses in a student's area of interest. Students will take two foundational courses (HUM 101 and HUM 102) where they will engage with transformative texts from the humanities and gain a foundation for understanding how their college and professional careers will benefit from the core skills and knowledge taught in the humanities. Students will take an additional two courses in one certificate pathway. Pathways and connected courses will be designated by each participating campus.

At the heart of many current problems and their solutions are the core skills and knowledge students learn in the humanities, from critical and analytic engagements with human values, worldviews, and culture, to abilities of self-expression. A grounding in the humanities provided in this certificate will help students understand how issues of intersectionality, history, interculturalism, global perspectives, democratic and ethical decision making, and many other areas fundamental to a humanities education will make them better citizens at work and in their local, national, and global communities, regardless of college major.

The certificate prepares students for the high-tech global economy that demands agile and flexible thinkers and actors who will amplify the specialized knowledge of their majors with a deeper, broader, and more complex understanding of how their disciplinary majors and future careers impact, or are impacted by, humanity.

What is the Keystone Certificate for Integrative Humanities?

The Keystone Certificate is a 12-credit certificate program focused on core skills and knowledge in the humanities (for example: critical and analytical thinking; interpersonal and cultural competencies; and effective oral and written communication). Students take two gateway courses (HUM 101 and HUM 102) and two elective courses from a specified pathway to complete the certificate. The program is designed so that most students will be able to earn the certificate without having to take additional courses outside of their general education requirements.

You Might Like This Program If...

You are looking for a certificate in the core skills and knowledge that are highly sought after by employers and in advanced degree programs. It is especially useful for students in non-humanities majors in STEM and Business. In a competitive job market, setting yourself apart from other graduates is important. The certificate gives students an edge over other graduates because they will be able to talk about the intersections between their career and humanity, especially how what they produce impacts humanity and how the tendencies of humans should impact decisions related to innovation and creativity. In addition, they can talk about going into depth theoretically and having more practice than others in the core skills and knowledge most in-demand by employers (e.g., oral and written communication, collaborative skills, technological literacy, having a global perspective, ethics, leadership, problem-solving, critical thinking, and an understanding of the importance diversity, equity, inclusion, and belonging philosophically as well as to the "bottom line").

If you start the certificate early enough, you can easily complete it as part of your general education requirements.

Program Requirements

To earn an undergraduate certificate in Keystone Certificate for Integrative Humanities, a minimum of 12 credits is required.

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
HUM 101	Transformative Texts Part 1: Foundational Knowledge	3
HUM 102	Transformative Texts Part 2: Contemporary Issues & Practical Perspectives	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 6 credits from the following:		6
AFAM 100N	Black Freedom Struggles	
AFAM/ WMNST 101N	African American Women	
AFAM/SOC/ WMNST 103	Racism and Sexism	
AFAM 110N	Introduction to African American Studies	
AFAM 114N	Race, Gender and Sport	
AFAM/INART 126N	The Popular Arts in America: The History of Hip-Hop	
AFAM/ENGL 139	African American Literature	
AFAM 147	The Life and Thought of Malcolm X	
AFAM/MUSIC 207N	Jazz and the African American Experience	
AFAM/HIST 210	Freedom's First Generation: African American Life and Work, from the Civil War to World War II	
AFAM 226N	Critical Approaches to Hip-Hop	
AMST/HIST 3	The American Nation: Historical Perspectives	
AMST 100	Introduction to American Studies	
AMST 103	American Masculinities	
AMST/ WMNST 104	Women and the American Experience	

AMST 106N/ COMM 100N	The Mass Media and Society
AMST/RLST 140Y	Religion in American Life and Thought
AMST/HIST 150	America in the 1960s: An Introduction
AMST/HIST/ STS 151N	Technology and Society in American History
AMST 160N/ AAS 100N	Introduction to Asian American Studies
AMST 161N	Chinese in America, Americans in China
AMST 226N	Critical Approaches to Hip-Hop
ANTH 2N	World Archaeology
ANTH 45N	Cultural Diversity: A Global Perspective
ANTH 220	Anthropology and Art/ifacts
APLNG 200	Introduction to Language, Culture, and Social Interaction
APLNG 220N	Multilingual Lives: Stories of Language and Culture Learning
APLNG 230N	Language and Social Justice
ART 10	Introduction to Visual Studies
ART 175N	Intersections Between Art and Psychology
ART/WMNST 207N	LGBTQ+ Identity, Culture and The Arts
ARTH 1S	First-Year Seminar in Art History
ARTH 100	Introduction to Art
ARTH 105N	Pictures and Power
ARTH 111	Ancient to Medieval Art
ARTH 111U	Ancient to Medieval Art
ARTH 112	Renaissance to Modern Art
ARTH 112U	Renaissance to Modern Art
ARTH 120	Asian Art and Architecture
ARTH 125	Islamic Architecture and Art
ARTH 222N	Intersections between Art History and the History of Psychology
ARTH 226	The Comic Book: A History of Sequential Art
ARTH 307N	American Art and Society
ARTH 326	Art Since 1940
ASIA/RLST 3	Introduction to the Religions of the East
ASIA 100	What is Asia?
ASIA/RLST 103	Introduction to Hinduism
ASIA/RLST 104	Introduction to Buddhism
ASIA 106N	Asian Traditions of Health, Medicine, and the Body
ASIA/HIST 182	Asian Trade: Economy, Industrialization and Capitalism in Asia
BBH/CRIMJ 150N	Safe and Sound: The Intersection of Criminal Justice and Public Health
BIOET 100/ PHIL 132	Bioethics
BIOET 110N	Health, Illness, and the Human Condition
BIOL 133	Genetics and Evolution of the Human Species
BIOL 144	Climate Change: Biological Impacts

BIOL/PSYCH 169N	What it means to be human	COMM 250	Film History and Theory
CAMS 25	Greek Civilization	COMM 270	Introduction to Multimedia Production
CAMS/JST/ RLST 110	Hebrew Bible: Old Testament	COMM/SOC 290N	Cinema and Globalization
CAS 101N	Introduction to Human Communication	COMM 292	Introduction to Media & Politics
CAS/ENGL/ SOC 162N	Communicating Care	CRIM 225N	Organized Crime in Film and Society
CAS/IST 170N	What is Information?	CRIMJ/HIST 159	History of the FBI
CAS 175N	Persuasion and Propaganda	CRIMJ/EDUC/ SOC 205N	Critical Race Theory in the Humanities and Social Sciences
CAS 208N	Introduction to Managing Conflict and Bargaining	DIGIT 100	Introduction to Digital Humanities
CAS 210	Landmark Speeches on Democracy and Dissent	EARTH 103N	Earth in the Future: Predicting Climate Change and Its Impacts Over the Next Century
CAS 222N/ AYFCE 211N/ CIVCM 211N	Foundations: Civic and Community Engagement	EARTH 104N	Climate, Energy and Our Future
CAS 232N	Identity, Citizenship, and the Rhetoric of American Horror Film	EARTH 107N	Coastal Processes, Hazards and Society
CAS 253	Health Communication	EARTH 111N	Water: Science and Society
CAS 255	Communicating Gender	EARTH 155N	Scientific Controversies and Public Debate
CAS 271N	Intercultural Communication	ENGL 2	The Great Traditions in English Literature
CAS 272N	Political Communication and Technology	ENGL 88	Australian/New Zealand Cultural Perspectives
CAS 311	Methods of Rhetorical Criticism	ENGL/JST 104	The Bible as Literature
CAS 352	Organizational Communication	ENGL/AMST 105	American Popular Culture and Folklife
CAS 404	Conflict Resolution and Negotiation	ENGL/ARTH 115N	Arts of Love
CAS 452W	Organizational Communication Theory and Research	ENGL 120	Difference in Early Literature
CAS 453	Health Communication Theory and Research	ENGL 129	Shakespeare
CMLIT 3	Introduction to African Literatures	ENGL 130	Reading Popular Texts
CMLIT/ASIA 4	Introduction to Asian Literatures	ENGL/AMST 135	Alternative Voices in American Literature
CMLIT 10	World Literatures	ENGL 140	Contemporary Literature
CMLIT 11	The Hero in World Literature	ENGL/SC 142N	Science in Literature
CMLIT/ENGL/ GER/JST 128N	The Holocaust in Film and Literature	ENGL 144	Everyday Rhetoric
CMLIT 153	International Cultures: Film and Literature	ENGL 161N/ HIST 162N	The Pursuit of Happiness in American Life: Historical Literature and Modern Practice
CMLIT/SC 183Q	From Beast Books to Resurrecting Dinosaurs	ENGL 165N	Work and Literature
CMLIT 490/ GAME 460	Video Game Lit Studies	ENGL 179	Exploring the Literature of Food: Current Trends in American Food Writing and Environmentalism
COMM 20N	Critical Media Literacy	ENGL 180	Literature and the Natural World
COMM 110	Media and Democracy	ENGL 182	Literature and Empire
COMM 118	Introduction to Media Effects	ENGL 182C	Literature and Empire
COMM 168	American Journalism: Values, Traditions, and Practices	ENGL/PLSC 183N	The Cold War in Literature, Politics, and History
COMM/PSYCH 175N	Mental Illness and the Movies	ENGL 184	The Short Story
COMM 190/ GAME 140	Gaming and Interactive Media	ENGL/CMLIT 185	World Novel
COMM/ WMNST 205	Gender, Diversity and the Media	ENGL 191	Science Fiction
COMM 208N	Visual Representations of the Middle East in the US and Middle East	ENGL/WMNST 194	Women Writers
COMM 222N	Social Justice and the Image	ENGL 208N/ MUSIC 209N	The Music of the Beatles and American Popular Culture
COMM/IST 234N	Digital Cultures	ENGL 211	Introduction to Writing Studies
COMM 242	Basic Video/Filmmaking	ENGL 215	Introduction to General Nonfiction Writing

ENGL/ARTH/ WMNST 225N	Sexuality and Modern Visual Culture	HIST/AFR 192	Modern African History
ENGL/LTNST 226	Latina and Latino Border Theories	HIST/ARTH 292N	Witches and Witchcraft from the Middle Ages to the Present
ENGL/WMNST 227	Introduction to Queer Theory	HUM 100N	Foundations in the Humanities: Understanding the Human Experience
ENGL 228	Introduction to Disability Studies in the Humanities	HUM 150N	World Mythologies in the Arts
ENGL 229	Digital Studies	INART 1	The Arts
ENGL/CHEM 233N	Chemistry and Literature	INART 3	Reception of the Arts
ENGL 236N	Inequality: Economics, Philosophy, Literature	INART 5	Performing Arts
ENGL/WMNST 245	Introduction to LGBTQ Studies	INART 10	The Popular Arts in America: Mass Media Arts
ENGR 320Y	Design for Global Society	INART 110	The Dramatic Arts in the Mass Media
ENVST 100N	Visions of Nature	INART 115	The Popular Arts in America: Popular Music
FR 137	Paris: Anatomy of a Global City	INART 116	The Popular Arts in America: The History of Rock and Roll-The 1950s
FR 139	France and the French-speaking World	INART 205	Introducing the Beatles
GAME 180N	The Art and Science of Virtual Worlds	INART 226N	Critical Approaches to Hip-Hop
GEOG 2N	Apocalyptic Geographies: How can we prevent the end of the world?	IST 110	Information, People and Technology
GEOG 30N	Environment and Society in a Changing World	IST 144N	Invasion of Technology from a 21st Century Perspective
GLIS 101N	Globalization	IT 130	Italian Culture and Civilization
GLIS 102N	Global Pathways	KINES 341	The Historical, Cultural, and Social Dynamics of Sport
HDFS 108N	Art and Science of Human Flourishing	LA 135N	College, Work, and Citizenship in the 21st Century
HIST 1	Western Civilization I	LLED 215N	Children's Picture Books as Multimodal Texts
HIST 2	Western Civilization II	LTNST 100	Introduction to Latina/o Studies
HIST/CAMS 5	Ancient Mediterranean Civilizations	LTNST 315N	Spanish and Spanish-speakers in the U.S.
HIST 10	World History to 1500	METEO/HIST 6N	History and Weather: How Weather Played an Instrumental Role in Great World Events
HIST 11	World History since 1500	METEO/PHIL/ RLST 133N	Ethics of Climate Change
HIST 12	History of Pennsylvania	MUSIC 4	Film Music
HIST 20	American Civilization to 1877	MUSIC 5	An Introduction to Western Music
HIST 21	American Civilization Since 1877	MUSIC 7	Evolution of Jazz
HIST 109	Introduction to U.S. Environmental History	MUSIC 9	Introduction to World Musics
HIST 110	Introduction to Global Environmental History	PHIL 1	The Big Questions
HIST 111	Introduction to U.S. Food History	PHIL 3	Ethical Life
HIST 112	Introduction to Public History	PHIL 4	The Human Condition
HIST 114N	Historical Perspectives on HealthCare Innovations	PHIL 7	Asian Philosophy
HIST/WMNST 116N	Family and Gender Roles in Modern History	PHIL 9	Race, Racism, and Diversity
HIST/WMNST 117	Women in United States History	PHIL 10	Critical Thinking
HIST 120N	History of Modern Europe since 1789	PHIL 13	Nature and Environment
HIST/JST 121	History of the Holocaust 1933-1945	PHIL 14	Love and Sex
HIST/STS 124	History of Western Medicine	PHIL 103	Ethics
HIST/LTNST 127	Introduction to U.S. Latina/o History	PHIL 119	Ethical Leadership
HIST/JST 143N	History of Fascism and Nazism	PHIL 123	Media Ethics
HIST 144	The World at War: 1939-1945	PHIL/STS 233	Ethics and the Design of Technology
HIST 153	Native American History	PHIL 242N	Happiness and Well-Being
HIST 173	Vietnam in War and Peace	PLSC 291	Introduction to Peace and Conflict Studies
HIST 179	Latin-American History Since 1820	RHS 100	Introduction to Disability Culture
HIST/JST 181	Introduction to the Middle East	RLST 1	Introduction to World Religions
HIST/AFR 191	Early African History	RLST 101	Comparative Religion
		RLST 105N	Buddhism and US Society
		RLST 107	Introduction to Islam

SC 60N	Art in the Natural World
SC 120N	Plants, Places, and People
SC 125N	History of Infectious Disease and Epidemiology
SOC 119N	Race, Ethnicity and Culture
SUST 150N	The Science of Sustainable Development
THEA 101N	Performance and Society
THEA 105	Introduction to Theatre
THEA 206	Critical Theory for Performance
THEA 208	Workshop: Theatre in Diverse Cultures
WMNST 1	Introduction to Women's Studies
WMNST 301N	Sexualities, Gender and Power: Feminist Thought and Politics

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

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READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Career Paths

The core knowledge and skills students will learn through the Keystone Certificate are essential viable in all a variety of professional contexts as well as within advanced degree programs. Students will understand how issues of intersectionality, history, interculturalism, global perspectives, democratic and ethical decision making, and many other areas covered in the humanities. This knowledge will make them better and more effective citizens at work and in their local, national, and global communities.

The Keystone Certificate is offered at several Penn State campuses, and each campus offers unique career/educational pathways. Sample pathways include: 1) Science & Technology; 2) Environment & Sustainability; 3) Healthcare & Medicine; 4) Management & Organizations; 5) Conflict & Justice; and 6) Culture & Globalization.

Professional Resources

- TEAGLE Cornerstone Learning for Living Initiative (<https://www.teaglefoundation.org/Call-for-Proposals/Initiatives/Cornerstone/>)
- National Endowment for the Humanities (<https://www.neh.gov/>)

Contact

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Reading, PA 19610
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<https://berks.psu.edu/academics/keystone-certificate> (<https://berks.psu.edu/academics/keystone-certificate/>)

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Kinesiology, B.S. (Berks)

Begin Campus: Any Penn State Campus

End Campus: Berks

Program Description

Kinesiology offers a comprehensive program of study in the science of human movement and is designed for students who want to prepare for professions involving physical activity and for graduate study in related areas. The Kinesiology major options are: Applied Exercise and Health; Movement Science; and Exercise Science. All options require a culminating practicum or research experience. Relocation away from the University Park campus is generally necessary for the practicum. All options require a minimum of 120 credits for graduation. Information about the major and its options can be found at: <https://hhd.psu.edu/kines> (<https://hhd.psu.edu/kines/>).

Applied Exercise and Health Option

Available at the following campuses: University Park

This option provides applied interdisciplinary training in the foundations of the scientific understanding of exercise and health through the lifespan. Students select one of two areas of emphasis that are certification-based and practice-oriented: (a) courses and practical experiences directed toward certification by organizations such as the American College of Sports Medicine (ACSM) or the National Strength and Conditioning Association (NSCA), or (b) health and physical education; a series of courses and student teaching leading to teacher certification. The completion of the Applied Exercise and Health Option will prepare students to work in the private or corporate fitness arenas, community-based fitness organizations, and university or hospital settings, or be Pennsylvania certified in health and physical education (K-12) and secure teaching positions in public or private schools.

Movement Science Option

Available at the following campuses: Altoona, University Park

This option provides interdisciplinary scientific training in academic areas such as biomechanics, exercise physiology, movement neuroscience, psychology of physical activity, and sport history and philosophy to understand movement for prevention and diagnosis of chronic disease, rehabilitation and treatment, and/or theoretical study. Students are prepared for graduate study in many clinical fields including medicine, physical therapy, occupational therapy, physician assistant, cardiac rehabilitation, as well as a broad range of careers in biomedical and health-related fields.

Exercise Science Option

Available at the following campuses: Altoona, Berks, Harrisburg

This option is a program of study in the science of exercise. This program offers Kinesiology background and applied experience in fitness assessment, exercise physiology, exercise psychology, motor skill development, nutrition, and healthy living skills. Graduates will be able to scientifically assess fitness levels of individuals. Analyzing those assessments, graduates will then be capable of designing and implementing appropriate exercise programs. Students in the Business Emphasis acquire basic business skills in accounting, marketing, management and entrepreneurial skills. Students choosing the Science Emphasis will select courses from a department list, including courses in basic science, social science, exercise and health sciences, and other related coursework, that will enhance their opportunity for graduate studies in fields related to Kinesiology and allied health, such as physical therapy, athletic training, and medicine. The completion of the Exercise Science Option will enable graduates to compete for employment in private, corporate, or community-based fitness organizations, in hospital or university settings, and be prepared to apply for graduate programs in allied health fields.

What is Kinesiology?

Kinesiology refers to the study of human movement. This interdisciplinary field of study focuses on physical activity, movement and sport and includes specialized areas of study that include the arts, humanities, sciences and professional disciplines. These areas include biomechanics, psychology of physical activity, exercise physiology, history and philosophy of physical activity, motor development, as well as sports medicine and physical education pedagogy. This multi-disciplinary approach is useful for addressing health and wellness in a complex society.

MORE INFORMATION ABOUT KINESIOLOGY (<https://nationalacademyofkinesiology.org/what-is-kinesiology/>)

You Might Like This Program If...

You enjoy working with people, have a passion for health and wellness, and are open to approaching problems with interdisciplinary strategies. As you learn about the human body as a whole, you will also have the opportunity to understand how you can apply your knowledge and skills to develop solutions that can help others in a number of ways, whether in a rehabilitation facility, with a professional sports team, in a corporate office or in a school setting.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and

2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Kinesiology a minimum of 120 credits is required for the Applied Exercise Health option, a minimum of 120 credits is required for the Movement Science option, and a minimum of 122 credits is required for the Exercise Science option:

Requirement	Credits
General Education	45
Electives	0-16
Requirements for the Major	80-108

18-27 of the 45 credits for General Education are included in the Requirements for the Major. This includes: Applied Exercise and Health Option - 9 credits GN, 6 credits GQ, 3 credits of GH, 6 credits of GS and 3 credits of GHW; Movement Science Option - 9 credits of GN courses, 6 credits of GQ courses, 3 credits of GS courses, 3 credits of GHW courses; Exercise Science Option - 9 credits of GN courses, 6 credits of GQ courses, 3 credits of GHW courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. KINES requires students to complete 24 credits for the major through courses taken at University Park. Courses taken at other Penn State campuses may not be counted toward this 24 credit minimum. For more information, check the Suggested Academic Plan for this major.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
BIOL 161	Human Anatomy and Physiology I - Lecture	3
BIOL 163	Human Anatomy and Physiology II - Lecture	3
KINES 100	The Cultural and Behavioral Foundations of Kinesiology	3
KINES 101	The Biophysical Foundations of Kinesiology	3
KINES 202	Functional Human Anatomy	3
KINES 295B	Kines Careers & Observation	1
KINES 321	Psychology of Movement Behavior	3
KINES 341	The Historical, Cultural, and Social Dynamics of Sport	3
KINES 345	Meaning, Ethics, and Movement	3
KINES 350	Exercise Physiology	3
KINES 360	The Neurobiology of Motor Control and Development	3

KINES 384	Biomechanics	3
NUTR 251	Introductory Principles of Nutrition	3

Additional Courses

Additional Courses: Require a grade of C or better

Select 3-4 credits from the following:		3-4
SCM 200	Introduction to Statistics for Business	
STAT 200	Elementary Statistics	
STAT 250	Introduction to Biostatistics	

Requirements for the Option

Requirements for the Option: Require a grade of C or better

Select an option		40-67
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Requirements for the Option

Applied Exercise and Health Option (60-67 credits)

Available at the following campuses: University Park

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CI 280	Introduction to Teaching English Language Learners	3
EDPSY 10	Individual Differences and Education	3
KINES 200	Muscle Training: Physiology, Programs, Techniques	3
KINES 201	Cardiorespiratory Training for Health and Performance	3
KINES 267	Fundamental Movement Skills Instruction	1
KINES 367	Games and Sports Instruction Across the Lifespan	1
KINES 368	Individual Fitness and Wellness	2
KINES 401	Applied Group Fitness Exercise Prescription and Program Design	3
KINES 456	Physical Fitness Appraisal	4
PSYCH 100	Introductory Psychology	3

Additional Courses

Additional Courses: Require a grade of C or better

MATH 26 or a higher level MATH course recommended by math placement test. Course list includes: MATH 26, MATH 40, MATH 41, MATH 110 or MATH 140		3
Select 3-5 credits from:		3-5

CHEM 101	Introductory Chemistry	
CHEM 106	Introductory and General Chemistry	
CHEM 110	Chemical Principles I	
CHEM 130	Introduction to General, Organic, and Biochemistry	

Select 3-4 credits from:		3-4
PHYS 150	Technical Physics I	
PHYS 250	Introductory Physics I	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Take the following required courses with selected emphasis area: 25-29

HPE Certification Emphasis:

KINES 366	The Process of Teaching Physical Education	
KINES 395A	Ldrshp Prac:Tchrs	
KINES 400	Adapted Physical Education	
KINES 464	Physical Education Programming and Practicum	

KINES 468W	Health Instruction in the School—Content and Method
KINES 495A	Practicum in Student Teaching
SPLED 400	Inclusive Special Ed Foundations: Legal, Characteristics, Collaboration, Assessment, and Management
ACSM/NSCA Certification Emphasis:	
KINES 395B	Leadership Practicum: KINES
KINES 421	Exercise Psychology
KINES 425W	Physical Activity in Diverse Populations or KINES 48: Scientific Basis of Exercise for Older Adults or KINES 49: Programming for Business and Agencies or KINES 49: Principles and Ethics of Coaching
KINES 457	Exercise Prescription and Case Studies
KINES 485	Science and Practice of Training Athletes
KINES 495B	Field and/or Research Practicum in Kinesiology
KINES 495E	Advanced Professional Development in Kinesiology
Select 3 credits from approved 400-level courses:	
NUTR 407	Nutrition for Exercise and Sports
KINES 402	Human Anatomy Cadaver Dissection
KINES 405N	Bicycling Culture and Urban Design
KINES 410	Physical Growth and Motor Development
KINES 411	Introduction to Musculoskeletal Injury and Rehabilitation
KINES 419	Disability Sport and Recreation
KINES 422	Physical Activity Interventions
KINES 423	Psychology of Sports Injuries
KINES 424	Women and Sport
KINES 425W	Physical Activity in Diverse Populations
KINES 426	Physical Activity and Public Health
KINES 427	Developmental Sport & Exercise Psychology
KINES 428	Motivation and Emotion in Movement
KINES 429	Psychology of Sport Performance
KINES 430W	Groups in Physical Activity
KINES 431	Concussion in Athletics: Brain to Behavior
KINES 454	Women's Health and Exercise Across the Lifespan
KINES 455	Physiological Basis of Exercise as Medicine
KINES 458	Introduction to Electrocardiogram Interpretation
KINES 459	Community Engagement and Outreach in Kinesiology
KINES 460	Movement Disorders
KINES 465	Neurobiology of Sensorimotor Stroke Rehabilitation
KINES 467	The Science of Performance Enhancement
KINES 481W	Scientific Basis of Exercise for Older Adults
KINES 483	Motor Patterns of Children
KINES 493	Principles and Ethics of Coaching
KINES 493W	Principles and Ethics of Coaching
KINES 495D	Expanded Field and/or Research Practicum in Kinesiology
KINES 499	Foreign Studies

Movement Science Option (40-42 credits)*Available at the following campuses: Altoona, University Park*

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
BIOL 162	Human Anatomy and Physiology I - Laboratory	1
BIOL 164	Human Anatomy and Physiology II - Laboratory	1
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
CHEM 113	Experimental Chemistry II	1
KINES 395B	Leadership Practicum: KINES	1
KINES 495B	Field and/or Research Practicum in Kinesiology	3
PHYS 250	Introductory Physics I	4
PSYCH 100	Introductory Psychology	3

Additional Courses

<i>Additional Courses: Require a grade of C or better</i>		
CHEM 106	Introductory and General Chemistry	3-5
	or CHEM 110 Chemical Principles I	
MATH 26 or a higher level MATH course recommended by math placement test. Course list includes: MATH 26, MATH 40, MATH 41, MATH 110 or MATH 140		3
Select 12 additional credits from 400-level Kines courses except KINES 403. No more than 3 credits of KINES 496, 408 or 495D may count toward this requirement		12

Exercise Science Option (52-55 credits)*Available at the following campuses: Altoona, Berks, Harrisburg*

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
KINES 200	Muscle Training: Physiology, Programs, Techniques	3
KINES 201	Cardiorespiratory Training for Health and Performance	3
KINES 260	Research Skills in Kinesiology	3
KINES 356	Activity and Disease	3
KINES 358	Ergogenic Aids	1
KINES 456	Physical Fitness Appraisal	4
KINES 457	Exercise Prescription and Case Studies	3
KINES 495C	Exercise Science Practicum	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits from KINES 1 to KINES 99		3
MATH 22 or Satisfactory performance on the MATH placement examination – i.e., placement beyond the level of MATH 22		3
PHYS 150	Technical Physics I	3-4
	or PHYS 250 Introductory Physics I	
Select one of the following:		3-5
CHEM 101	Introductory Chemistry	
CHEM 106	Introductory and General Chemistry	
CHEM 110 & CHEM 111	Chemical Principles I and Experimental Chemistry I	

CHEM 130 Introduction to General, Organic, and Biochemistry

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 16 credits from one of the following emphasis area from an approved list, in consultation with adviser. At least 3 credits must be at the 400 level. 16

Business Emphasis

Science Emphasis

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- Students will demonstrate personal, professional, and ethical competency within the discipline of kinesiology.
- Students will be able to define fundamental processes, theories, and methods in kinesiology including the physiology, psychology, biomechanics, motor control, history, and philosophy of human movement.
- Students will be able define and demonstrate competency for planning and implementing kinesiology-related health, fitness, performance, and behavior change interventions and programs.
- Students will be able to perform assessments of physical activity and fitness.
- Students will demonstrate skills related to thinking critically, evaluating research knowledge and evidence, and analyzing quantitative data.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary

academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Exercise Science Option - Business Emphasis: Kinesiology, B.S. at Berks Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [†]	3 CAS 100A or 100B (GWS) [‡]	3
MATH 22 [*]	3 CHEM 110 ^{*†}	3

KINES 100 or 101 [*]	3 CHEM 111 ^{*†}	1
BIOL 161 (GN) ^{*†}	3 KINES 100 or 101 [*]	3
General Education Course (GA or GH or GS)	3 BIOL 163 (GN) ^{*†}	3
First-Year Seminar	1 General Education Course (GA or GH or GS)	3
	16	16

Second Year

Fall	Credits Spring	Credits
KINES 201 [*]	3 ENGL 202C or 202D (GWS) [‡]	3
KINES 202 [*]	3 KINES 200 [*]	3
KINES 260 [*]	3 KINES 295B [*]	1
PHYS 150 or 250 (PHYS 150 recommended) [*]	3-4 KINES 350 [*]	3
General Education Course (GA or GH or GS)	3 NUTR 251 (GHW) ^{*†}	3
	General Education Course (Integrative Studies)	3
	15-16	16

Third Year

Fall	Credits Spring	Credits
KINES 321 [*]	3 KINES 345 [*]	3
KINES 341 [*]	3 KINES 384 (GQ) [‡]	3
KINES 360 [*]	3 MGMT 301	3
ECON 102	3 MKTG 301	3
STAT 200, 250, or SCM 200 (GQ) [‡]	3-4 General Education Course (Integrative Studies)	3
	15-16	15

Fourth Year

Fall	Credits Spring	Credits
KINES 1 - 99	1.5 KINES 1 - 99	1.5
KINES 358 [*]	1 KINES 356 [*]	3
KINES 420 (or 400 Level Equivalent) [*]	3 KINES 457 [*]	3
KINES 456 [*]	4 KINES 492W [*]	3
ACCTG 211	4 KINES 495C [*]	4
General Education Course (Exploration)	3	
	16.5	14.5

Total Credits 124-126

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ For General Education Course notations, please be sure to include three (3) credits of United States (US) Cultures and three (3) credits of International (IL) Cultures. Consult adviser for details.

² The following courses are offered Fall Semester only: KINES 201, KINES 202, KINES 260, KINES 321, KINES 341, KINES 358, KINES 360, KINES 420, KINES 456.

³ The following courses are offered Spring Semester only: KINES 200, KINES 295B, KINES 345, KINES 350, KINES 356, KINES 384, KINES 457, KINES 492W, KINES 495C.

⁴ For students interested in pursuing the Business Minor, the following courses require a grade of C or better: ACCTG 211, ECON 102, MGMT 301, MKTG 301.

⁵ For 400 level Equivalent, consult adviser for list.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Exercise Science Option - Science Emphasis: Kinesiology, B.S. at Berks Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100A or 100B (GWS) [‡]	3
MATH 22 [‡]	3 CHEM 110 ^{**†}	3
KINES 100 or 101 [*]	3 CHEM 111 ^{**†}	1
BIOL 161 (GN) ^{**†}	3 KINES 100 or 101 [*]	3
General Education Course (GA or GH or GS)	3 BIOL 163 (GN) ^{**†}	3
First-Year Seminar	1 General Education Course (GA or GH or GS)	3
	16	16

Second Year

Fall	Credits Spring	Credits
KINES 201 [*]	3 ENGL 202C or 202D (GWS) [‡]	3
KINES 202 [*]	3 KINES 200 [*]	3
KINES 260 [*]	3 KINES 295B [*]	1
PHYS 150 or 250 (PHYS 250 recommended) [*]	3-4 KINES 350 [*]	3
General Education Course (GA or GH or GS)	3 NUTR 251 (GHW) ^{**†}	3
	General Education Course (Integrative Studies)	3
	15-16	16

Third Year

Fall	Credits Spring	Credits
KINES 321 [*]	3 KINES 345 [*]	3
KINES 341 [*]	3 KINES 384 (GQ) [‡]	3
KINES 360 [*]	3 Emphasis Selection	3
STAT 200, 250, or SCM 200 (GQ) [‡]	3-4 Emphasis Selection	3
General Education Course (Integrative Studies)	3 General Education Course (Exploration)	3
	15-16	15

Fourth Year

Fall	Credits Spring	Credits
KINES 1 - 99	1.5 KINES 1-99	1.5
KINES 358 [*]	1 KINES 356 [*]	3
KINES 420 (or 400 Level Equivalent) [*]	3 KINES 457 [*]	3
KINES 456 [*]	4 KINES 462W [*]	2
KINES 461W [*]	2 KINES 495C [*]	4
Emphasis Selection	3 Emphasis Selection	3
	14.5	16.5

Total Credits 124-126

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ For General Education Course notations, please be sure to include three (3) credits of United States (US) Cultures and three (3) credits of International (IL) Cultures. Consult adviser for details.

² The following courses fulfill the Writing Across The Curriculum requirement: KINES 461W & KINES 462W.

³ The following courses are offered Fall Semester only: KINES 201, KINES 202, KINES 260, KINES 321, KINES 341, KINES 358, KINES 360, KINES 420, KINES 456, KINES 461W.

⁴ The following courses are offered Spring Semester only: KINES 200, KINES 295B, KINES 345, KINES 350, KINES 356, KINES 384, KINES 457, KINES 462W, KINES 495C.

⁵ For Emphasis Selection, BIOL 162 and BIOL 164 are recommended but not required. Consult adviser for list.

⁶ For 400 Level Equivalent, consult adviser for list.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

A Kinesiology degree can provide many opportunities for students ranging from fulfilling careers in health and wellness to graduate research and professional studies in a wide range of biomedical, clinical and allied health fields. The hands-on learning opportunities and internships in the program allow students to build experience, gain professional skills and explore their interests to create a strong foundation for a post-graduation career or in the next step of their education.

Careers

Kinesiology students have many career options after graduation. Discussion with Kinesiology faculty, an adviser, or professionals in the field through internship experiences can provide additional insight. Many students use their Penn State Kinesiology degree in allied health and wellness fields, working with a wide range of populations in many different settings. The applied learning opportunities in our curriculum give students hands-on experience to work with children and adults to promote health and wellness. Kinesiology graduates are well-rounded and valuable employees with their strong scientific foundation that can be applied to solving problems related to human movement.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE KINESIOLOGY PROGRAM (<https://americankinesiology.org/careers-in-kinesiology/>)

Opportunities for Graduate Studies

Many Kinesiology students aim to pursue graduate or professional school after they complete their undergraduate program. Kinesiology students are often interested in graduate study in physical or occupational therapy, athletic training, physician's assistant, medical school, orthotics and prosthetics, dentistry, nursing, or chiropractic school. Students also opt to attend graduate programs in Kinesiology to advance their understanding in one of the sub-disciplines of the field. Some Kinesiology students also pursue professional degrees in public health, health education or related fields after graduation. The Kinesiology undergraduate program includes many of the prerequisite courses needed for these post-bachelor programs, providing students with a strong scientific foundation for further study.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://science.psu.edu/current-students/advising-and-student-services/prehealth-advising/>)

Professional Resources

- National Academy of Kinesiology (<https://nationalacademyofkinesiology.org>)
- American College of Sports Medicine (<https://www.acsm.org/>)
- National Strength and Conditioning Association (<https://www.nasca.com/>)
- SHAPE: Society of Health and Physical Educators (<https://www.shapeamerica.org/>)
- American Kinesiology Association (<https://americankinesiology.org/>)
- PA Department of Education (<https://www.education.pa.gov/Teachers%20-%20Administrators/Curriculum/HealthPhysicalEd/Pages/default.aspx>)
- SHAPE Equity, Diversity and Inclusion podcast (<https://www.shapeamerica.org/MemberPortal/prodev/edi-podcast.aspx>)

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<https://hhd.psu.edu/kines/undergraduate/major-kinesiology> (<https://hhd.psu.edu/kines/undergraduate/major-kinesiology/>)

Mechanical Engineering, B.S. (Berks)

Begin Campus: Any Penn State Campus

End Campus: Berks

Program Description

Built upon a broad foundation in physics, chemistry, and mathematics, this major has the objective of educating graduates to be problem solvers. Graduates of this program will have opportunities to learn about applying scientific principles, engineering analysis, and engineering design to solve unstructured problems that are typical of those found in mechanical engineering. The major helps prepare graduates for a lifelong productive career, whether they choose professional practice, graduate school, or some other career path. Graduates will have had opportunities to learn how to work with others toward a common goal, to clearly express their ideas in written and verbal form, and to be independent and capable of adapting to the continuously changing technology of the work environment.

After completing the fundamental science core, students may pursue their interest in mechanical engineering by studying fluid and solid mechanics, engineering materials and their properties, thermodynamics, and heat transfer, computer-aided design, kinematics and dynamics of machine elements, machine design, finite elements, control systems, electricity, and electronic instrumentation and machinery. The students will be required to analyze and solve a significant mechanical engineering design problem during their fourth year.

What is Mechanical Engineering?

Mechanical engineering is the largest and broadest engineering discipline. It uses a combination of physics, chemistry, mathematics, and materials science to study mechanical, fluid, and thermal systems. Mechanical engineers are problem solvers: They use their foundational knowledge to apply scientific and engineering methods to the design, construction, and testing of products and components to ensure that they are safe, reliable, and cost effective. Mechanical engineering differs from mechanical engineering technology in that it emphasizes the math and science behind the theoretical development of engineering analysis and design process principles rather than the application of

these principles. Mechanical engineers design everything from athletic equipment, medical devices, theme park rides, and personal computers to engines and power plants.

You Might Like This Program If...

- You are a curious, creative problem solver.
- You are interested in engineering, math, chemistry, and physics.
- You are looking for a broad discipline with career flexibility.
- You enjoy working on team-based projects.

Entrance to Major

In addition to the Carnegie unit and minimum GPA requirements¹ described by University policies, all students applying for entrance to any of the engineering majors at Behrend, Berks, or Capital College must have at least a 2.0 cumulative GPA by the end of the semester prior to applying for entrance to the major and have completed, with a minimum grade of C: CHEM 110, MATH 140, MATH 141, and PHYS 211. These courses must be completed by the end of the semester during which the entrance-to-major process is carried out.

¹ In the event that the major is under enrollment control, a higher minimum cumulative grade-point average is likely to be needed.

Degree Requirements

For the Bachelor of Science degree in Mechanical Engineering, a minimum of 131 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	107-108

21 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 3 credits of GWS courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned.

Requirements for the Major

Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
CMPSC 200	Programming for Engineers with MATLAB	3
EDSGN 100S	Introduction to Engineering Design	3
EE 211	Electrical Circuits and Power Distribution	3
MATH 230	Calculus and Vector Analysis	4
PHYS 212	General Physics: Electricity and Magnetism	4
<i>Prescribed Courses: Require a grade of C or better</i>		
CHEM 110	Chemical Principles I	3

EMCH 211	Statics	3
ENGL 202C	Effective Writing: Technical Writing	3
EMCH 212	Dynamics	3
EMCH 213	Strength of Materials	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
MATH 220	Matrices	2-3
MATH 251	Ordinary and Partial Differential Equations	4
MATSE 259	Properties and Processing of Engineering Materials	3
ME 300	Engineering Thermodynamics I	3
ME 320	Fluid Flow	3
ME 345W	Instrumentation, Measurements, and Statistics	4
ME 349	Intermediate Mechanics of Materials	3
ME 357	System Dynamics	3
ME 365	Materials Testing Laboratory	1
ME 367	Machine Design	3
ME 380	Machine Dynamics	3
ME 410	Heat Transfer	3
ME 448	Engineering Design Concepts	3
ME 449	Mechanical Design Projects	3
ME 468	Engineering for Manufacturing	3
PHYS 211	General Physics: Mechanics	4

Additional Courses

ECON 102	Introductory Microeconomic Analysis and Policy	3
or ECON 104	Introductory Macroeconomic Analysis and Policy	
Select one of the following:		3
CHEM 111 & PHYS 214	Experimental Chemistry I and General Physics: Wave Motion and Quantum Physics	
CHEM 112	Chemical Principles II	
BIOL 141	Introduction to Human Physiology	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better
 Select 13 credits of program elective courses from school-approved list¹

¹ These credits must be selected to fulfill the thematic requirements of the major.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or

within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Mechanical Engineering, B.S. at Berks Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If**

report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100A or 100B (GWS) [‡]	3
MATH 140 (GQ) ^{*‡#}	4 MATH 141 (GQ) ^{*‡#}	4
CHEM 110 ^{*#}	3 MATH 220 [*]	3
EDSGN 100	3 CMPSC 200	3
General Education Course (GA or GH)	3 PHYS 211 (GN) ^{*#†}	4
First-Year Seminar	1 CHEM 111	1
	17	18

Second Year

Fall	Credits Spring	Credits
EMCH 211 [*]	3 ENGL 202C (GWS) [‡]	3
MATH 230	4 EE 211	3
MATH 251 [*]	4 EMCH 212 [*]	3
PHYS 212 (GN) [†]	4 EMCH 213 [*]	3
General Education Course (GHW)	1.5 ME 300 [*]	3
	PHYS 214 [†]	2
	16.5	17

Third Year

Fall	Credits Spring	Credits
ME 320 [*]	3 ME 357 [*]	3
ME 345W [*]	4 ME 367 [*]	3
ME 349 [*]	3 ME 380 [*]	3
ME 365 [*]	1 ME 410 [*]	3
MATSE 259 [*]	3 General Education Course (GA or GH)	3
ECON 102 or 104 (GS) [†]	3	
	17	15

Fourth Year

Fall	Credits Spring	Credits
ME 355 (Satisfies Technical Lab Elective, Consult adviser for details) [*]	1 ME 449 [*]	3
ME 448 [*]	3 Technical Elective [*]	3
ME 468 [*]	3 Technical Elective [*]	3
Technical Elective [*]	3 General Education Course (Integrative Studies)	3
Technical Elective [*]	3 General Education Course (Exploration)	3
General Education Course (Integrative Studies)	3 General Education Course (GHW)	1.5
	16	16.5

Total Credits 133

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ For General Education Course notations, please be sure to include three (3) credits of United States (US) Cultures and three (3) credits of International (IL) Cultures. Consult adviser for details.

² The following courses are offered Fall Semester only: MATSE 259, ME 320, ME 345, ME 349, ME 355, ME 448, ME 468.

³ The following courses are offered Spring Semester only: EMCH 212, EMCH 213, ME 357, ME 367, ME 380, ME 410, ME 449, PHYS 214.

⁴ Take (CHEM 111 & PHYS 214) or BIOL 141 or BIOL 161 or CHEM 112.

⁵ For Technical Elective, these include for Fall Semester: ME 445, ME 470, ME 495, STAT 401; for Spring Semester: KINES 488, ME 427, ME 461, ME 495; For Summer: ME 495.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

Because every industry values a mechanical engineer's problem-solving capabilities, you'll enjoy tremendous career flexibility in disciplines as varied as research, manufacturing, product and systems design and testing, health care, energy, the military, transportation, and consumer products. A mechanical engineering education also is excellent preparation for technical management, business, law, or technical sales.

Careers

Typical entry-level careers for mechanical engineering graduates are applications engineer, design engineer and mechanical design engineer, test engineer, equipment installation engineering, facilities technician, stress analysis engineer, product development engineer, and project engineer.

Opportunities for Graduate Studies

Graduate programs in mechanical engineering delve more deeply into areas of specialization such as automotive engineering, robotics, advanced manufacturing, thermal science, computational fluid mechanics, combustion modeling, or biomechanical engineering.

Professional Resources

- American Society of Mechanical Engineers (<https://www.asme.org>)
- Society of Women Engineers (<https://swe.org>)
- National Society of Black Engineers (<https://www.nsbe.org>)

Accreditation

The Bachelor of Science in Mechanical Engineering at Penn State Berks is accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria

and Program Criteria for Mechanical and Similarly Named Engineering Programs.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

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Multidisciplinary Studies, A.A. (Berks)

Begin Campus: Berks

End Campus: Berks

Program Description

The objectives of the Multidisciplinary Studies major are to broaden the student's understanding, interests, and skills; to help the student become a more responsible, productive member of the family and community; and to offer a degree program with sufficient electives to permit some specialization according to the student's interests or career plans. Multidisciplinary Studies is a complete two-year degree major. However, graduates who later seek admission to baccalaureate degree majors may apply baccalaureate credits toward the new degree.

In addition to a wide variety of baccalaureate majors offered at University Park campus, graduates of the Multidisciplinary Studies major may qualify for admission to the baccalaureate degree majors in Behavioral Sciences, Elementary Education, Humanities, or Public Policy offered at Penn State Harrisburg. Or they may qualify for any of a large number of baccalaureate degree majors offered by Penn State Erie, The Behrend College, in business, the liberal arts, and sciences.

Entrance to Major

Students must have a minimum 2.0 GPA to change to this Associate degree after admission to the University.

Degree Requirements

For the Associate in Arts degree in Multidisciplinary Studies, a minimum of 60 credits is required:

Requirement	Credits
General Education	21
Electives	15
Requirements for the Major	30

6 of the 21 credits for General Education are included in the Requirements for the Major. This includes 6 credits of General Education GWS courses.

Requirements for the Major

The required credits of General Education and Requirements for the Major must be baccalaureate-level courses. For students intending to seek admission to a baccalaureate program upon graduation, it is recommended that most, if not all, of the courses be at the baccalaureate level. For those students who will seek a bachelor of arts degree upon graduation from Multidisciplinary Studies, it is strongly recommended that a world language be taken since admission to a bachelor of arts program in the College of the Liberal Arts requires one college-level course, or the equivalent, in a world language.

Courses that will satisfy the arts, humanities, social and behavioral sciences, natural sciences, and quantification requirements are defined on the Multidisciplinary Studies checklist, which may be obtained from the College of the Liberal Arts associate dean for undergraduate studies at the University Park campus or from any Multidisciplinary Studies representative at other locations.

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CAS 100	Effective Speech	3
ENGL 15	Rhetoric and Composition	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select one of the following:		3
ENGL 202A	Effective Writing: Writing in the Social Sciences	
ENGL 202B	Effective Writing: Writing in the Humanities	

ENGL 202C Effective Writing: Technical Writing

ENGL 202D Effective Writing: Business Writing

Supporting Courses and Related Areas*Supporting Courses and Related Areas: Require a grade of C or better*

Select 3 credits in any course designated as arts	3
Select 3 credits in any course designated as humanities	3
Select 3 credits in any course designated as social and behavioral sciences	3
Select 3 credits in any course designated as physical, biological, or earth sciences	3
Select 9 credits in any one of the following areas: arts, humanities, social and behavioral sciences, natural sciences and quantification, and world language skills ¹	9

¹ If world language courses are chosen, it is recommended that these courses be in one world language sequence.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all associate degree students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 3 credits
- **Writing and Speaking (GWS):** 3 credits

Knowledge Domains

- **Arts (GA):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Note: Up to six credits of Inter-Domain courses may be used for any Knowledge Domain requirement, but when a course may be used to satisfy more than one requirement, the credits from the course can be counted only once.

Exploration

- **Any General Education course (including GHW and Inter-Domain):** 3 credits

University Degree Requirements**Cultures Requirement**

3 credits of United States (US) or International (IL) cultures coursework are required and may satisfy other requirements

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 60 degree credits must be earned for an associates degree. The requirements for some programs may exceed 60 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- Students will be able to achieve the basis for a liberal arts education.
- Students will be able to achieve communication skills to pursue study in a variety of disciplines.
- Provides foundations for career development.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Liberal Arts Academic Advising

814-865-2545
Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Wilkes-Barre

Christyne Berzsenyi

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World Campus

Undergraduate Academic Advising

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University Park, PA 16802

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advising@outreach.psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Multidisciplinary Studies, A.A. at Berks Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100A or 100B ^{**}	3
General Education Course (GQ) [‡]	3 Supporting Course Selection [*]	3
Supporting Course Selection [*]	3 Supporting Course Selection [*]	3
General Education Course (GN or GA or GH or GS)	3 General Education Course (GN or GA or GH or GS)	3
General Education Course (GN or GA or GH or GS)	3 General Education Course (GN or GA or GH or GS)	3
First-Year Seminar	1	
	16	15

Second Year

Fall	Credits Spring	Credits
Supporting Course Selection [*]	3 ENGL 202A, 202B, 202C, or 202D [*]	3
Related Area Selection [*]	3 Related Area Selection [*]	3
Related Area Selection [*]	3 Elective	3
Elective: Writing Across The Curriculum Requirement [†]	3 Elective	3
Elective	3 Elective	3
	15	15

Total Credits 61

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ For General Education Course notations, please be sure to include either three (3) credits of United States (US) Cultures or three (3) credits of International (IL) Cultures. Consult adviser for details.

² The following courses are offered Spring Semester only: ENGL 202B.

³ For Supporting Course Selection, consult adviser for list.

⁴ For Related Area Selection, consult adviser for list.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Contact

Berks

DIVISION OF HUMANITIES, ARTS AND SOCIAL SCIENCES
Franco Building
Reading, PA 19610
610-396-6298
BKLettersArtSci@psu.edu

<https://berks.psu.edu/academics/multidisciplinary-studies> (<https://berks.psu.edu/academics/multidisciplinary-studies/>)

Abington

DIVISION OF ARTS AND HUMANITIES
1600 Woodland Road
Abington, PA 19001
215-881-7826
salguero@psu.edu

<https://www.abington.psu.edu/academics/multidisciplinary-studies/associate> (<https://www.abington.psu.edu/academics/multidisciplinary-studies/associate/>)

Altoona

DIVISION OF ARTS AND HUMANITIES
Smith Building C112
3000 Ivyside Park
Altoona, PA 16601
814-949-5084
jzg3@psu.edu

<https://altoona.psu.edu/academics/associate-degrees/multidisciplinary-studies/contact-information> (<https://altoona.psu.edu/academics/associate-degrees/multidisciplinary-studies/contact-information/>)

Brandywine

25 Yearsley Mill Road
Media, PA 19063
610-892-1465
pjd15@psu.edu

<https://www.brandywine.psu.edu/academics/associate-degrees/multidisciplinary-studies> (<https://www.brandywine.psu.edu/academics/associate-degrees/multidisciplinary-studies/>)

DuBois

1 College Place
DuBois, PA 15801
814-375-4815 or 814-375-4814
jka1@psu.edu or ajv2@psu.edu

<https://dubois.psu.edu/academics/degrees/mds> (<https://dubois.psu.edu/academics/degrees/mds/>)

Erie

SCHOOL OF HUMANITIES AND SOCIAL SCIENCES

170 Irvin Kochel Center
4951 College Drive
Erie, PA 16563
814-898-6108
HSSOffice@psu.edu

<https://behrend.psu.edu/school-of-humanities-social-sciences> (<https://behrend.psu.edu/school-of-humanities-social-sciences/>)

Fayette

2201 University Drive
Lemont Furnace, PA 15456
724-430-4249
lmj133@psu.edu

<https://fayette.psu.edu/academics/associate/letters-arts-and-sciences> (<https://fayette.psu.edu/academics/associate/letters-arts-and-sciences/>)

Harrisburg

SCHOOL OF HUMANITIES
Olmsted Building, W356
Middletown, PA 17057
717-948-6596
dzs640@psu.edu

<https://harrisburg.psu.edu/humanities/multidisciplinary-studies-aa> (<https://harrisburg.psu.edu/humanities/multidisciplinary-studies-aa/>)

Hazleton

Butler 203
76 University Drive
Hazleton, PA 18202
570-450-3558
cxd35@psu.edu

<https://hazleton.psu.edu/associate-arts-multidisciplinary-studies> (<https://hazleton.psu.edu/associate-arts-multidisciplinary-studies/>)

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Mont Alto, PA 17237
717-749-6055
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<https://montalto.psu.edu/academics/associate/associate-letters-arts-sciences-degree> (<https://montalto.psu.edu/academics/associate/associate-letters-arts-sciences-degree/>)

New Kensington

3550 Seventh Street Rd.
New Kensington, PA 15068
724-334-6094
rah32@psu.edu

<https://newkensington.psu.edu/academics/2-year-letters-arts-sciences> (<https://newkensington.psu.edu/academics/2-year-letters-arts-sciences/>)

Schuylkill

ACADEMIC AFFAIRS
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Schuylkill Haven, PA 17972
570-385-6088
nikki@psu.edu

<https://schuylkill.psu.edu/academics/assoc-degrees/las> (<https://schuylkill.psu.edu/academics/assoc-degrees/las/>)

Scranton

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Dunmore, PA 18512
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pjp3@ (pjp3@psu.edu)psu.edu (pjp3@psu.edu)

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Shenango

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Wilkes-Barre

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<https://wilkesbarre.psu.edu/academics/multidisciplinary> (<https://wilkesbarre.psu.edu/academics/multidisciplinary/>)

World Campus

FILIPPELLI INSTITUTE FOR E-EDUCATION AND OUTREACH
128 Sparks Building
University Park, PA 16802
814-863-3894
blm26@psu.edu

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-multidisciplinary-studies-associate-in-arts-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-multidisciplinary-studies-associate-in-arts-degree/>)

Occupational Therapy, A.S. (Berks)

Begin Campus: Berks

End Campus: Berks

Program Description

The Associate in Science in Occupational Therapy Assistant Program prepares students to work in numerous practice settings, guided by the supervision of occupational therapists. Across the lifespan, individuals engage in meaningful occupations. Learning, playing, working, resting, and caring for self and others are among the occupations of life. A physical or psychological challenge may hinder an individual, group, and/or community from participating fully in meaningful occupations. Occupational therapy makes it possible for people to maintain or reclaim independence; thereby positively engaging in Living Life to its Fullest™. Upon successful graduation from the program, students must sit for and successfully pass the National Board for Certification in Occupational Therapy (NBCOT) national certification examination to practice. Most states also require licensure as a condition for employment. A felony conviction may affect a graduate's ability to sit for the NBCOT certification examination and obtain licensure. NBCOT may be contacted at:

NBCOT
One Bank Street
Suite 300
Gaithersburg, MD 20878
301-990-7979
www.NBCOT.org (<http://www.NBCOT.org>)

To enter this major, students must have a high school diploma or its equivalent. To be admitted to degree candidacy, the applicant must have completed educational background requirements called Carnegie Units or Secondary School Units. Students are responsible for proof of liability insurance and other requirements specified by the facility providing supervised field experience.

The size of each entering class is limited so that optimal clinical experiences and practical application situations can be maintained. Students are expected to progress through the program in the prescribed manner. Fieldwork affiliations are maintained within a specified geographical area. Students may be required to make special housing and transportation arrangements during the fieldwork phase. Students must complete all Level II fieldwork within eighteen months of successful completion of OTA didactic course work. The 20TCC and 20TBL curricula are delivered in five semesters.

What is Occupational Therapy?

Occupational therapy is a practice informed by physical, psychological, and occupational science. It is with these skills and knowledge; occupational therapy assistants employ intervention plans that engage people in maintaining or reclaiming independence. A physical or psychological challenge may hinder an individual, group, and/or community from participating fully in meaningful occupations. When this occurs an occupational therapy assistant works with the client(s) to design a plan to Live Life to its Fullest™. As a certified occupational therapy assistant, you will work in numerous practice settings, guided by the supervision of occupational therapists. Most importantly, by choosing a career in occupational therapy, you will be at the forefront in making

a difference in people's lives by way of therapeutic use of self and an intentional relationship.

You Might Like This Program If...

You want to work with individuals and groups across the lifespan. Occupational Therapy Assistants work in rehabilitation and acute care hospitals, skilled nursing facilities, schools, community health centers, mental health facilities, pediatric specialty settings, and higher education, and can also create their own niches in a variety of settings. If you appreciate helping to solve problems and empower people, being an occupational therapy assistant may be the right fit for you!

Entrance to Major

The Occupational Therapy Assistant program admits students to begin in the fall semester.

Incoming first-year and transfer students who meet the program and campus admission requirements are admitted directly into the major. For more information about the admission process for this major, please send a request to the campus undergraduate admission office or to the program contact (listed in the Contact tab of the Bulletin).

First year students include those who have graduated from high school and have attempted fewer than 18 semester hours of college coursework at another college or university after high school graduation.

The minimum high school units required for admission to the Occupational Therapy Assistant program include four secondary units of English, two units of mathematics (including one unit of algebra), two units of science (one unit must be biology), and five units of arts, humanities, social studies, and/or foreign languages.

Although the minimum high school GPA required for admission is a 2.0 (on a 4.0 scale), this does not guarantee admissions into the program. The program is competitive; therefore, applicants who submit their application to Penn State by December 31 will be reviewed on a space available basis.

Transfer Applicants

In addition to a cumulative grade-point average, it is recommended that a transfer applicant should have demonstrated successful completion of at least three (3) credits of natural science with a lab and one (1) social science related course from another institution. These types of courses may include (but are not limited to) mammalian anatomy, physiology, chemistry, psychology, sociology, and other core biological, chemical, and social sciences. The admissions selection committee strives to select students who have demonstrated the potential to succeed in a rigorous, science-oriented program of study.

- * OT does not offer an advanced placement option for coursework for credit for experiential learning in the OTA program.
- * OT does not require prerequisite education or work-related experience for admission to the OTA program.

Change of Major

Requests will be considered for entrance into the OTP Program based on academic performance and space available in the OTA Program.

Students who wish to change their major must have a cumulative collegiate grade-point average of 2.0 on a 4.0 scale as the minimum University requirement for change of major consideration. In general, change of major to the Occupational Therapy Assistant program requires

a substantially higher cumulative grade-point average. The number of qualified applicants typically exceeds the number of available program spaces; therefore, satisfaction of the minimum requirements does not guarantee approval for entrance to major.

In addition to a cumulative grade-point average, it is recommended that all change of major applicants should have demonstrated successful completion of at least one (1) laboratory based biological and one (1) social science related course prior to the January review:

Biological and Life Sciences (one lecture and one lab)

- BIOL 161/BIOL 162: Anatomy & Physiology I
- BIOL 163/BIOL 164: Anatomy & Physiology II

Social and Behavioral Sciences (choose at least one)

- PSYCH 100: General Psychology
- HDFS 129: Introduction to Human Development and Family Studies or PSYCH 212

Additional Information

Students are responsible for proof of liability insurance and other requirements, including criminal background checks and health information specified by the facility providing supervised field experience.

A felony conviction on record may impact a student's ability to sit for the certification examination administered by NBCOT after graduation; this can subsequently impact a graduate's ability to attain state licensure. Before applying to the OTA program, students can contact NBCOT for information on their early determination program to assess examination eligibility. Contact NBCOT at <https://www.nbcot.org/> for more information.

Retention Requirements

OTA Student Academic Success

Students in the Associate in Science in Occupational Therapy Program must earn a grade of C or better in: BIOL 161, BIOL 162, BIOL 163, BIOL 164, PSYCH 100, HDFS 129 or PSYCH 212, OT 100, OT 101, OT 103, OT 205, OT 207, OT 209, OT 210W, OT 212, OT 214, and OT 216.

As outlined in the course syllabi and the Associate Degree Programs Bulletin, students must earn passing grades in prerequisite occupational therapy courses to enroll in subsequent occupational therapy courses. Students will take the OT didactic courses offered in each semester, concurrently and in the prescribed sequence, since the curriculum is a progressive learning model. Level II fieldwork is completed only after the OT didactic courses and all general education requirements are successfully completed. Level II fieldwork must be completed within 18 months after completion of didactic coursework.

Ongoing Progression in the OTA Program

As per ACOTE Standard 3.4 Criteria for Successful Completion and A.3.5 Evaluation with Student on a Regular Basis, the faculty and administration will provide students regular feedback about their academic standing. Regarding successful completion of the OTA program there are instances where progression in the program is non-negotiable as follows:

1. A student who earns a D or F in any two OT didactic and/or fieldwork courses will not be allowed to continue in the program. Examples

include but are not limited to: Failure of (OT 103 and OT 295E) or (OT 195E and OT 395A) or (OT 101 and OT 210W).

2. A student may be disenrolled from the program for a violation of the Occupational Therapy Code of Ethics and/or Penn State Academic Integrity Policy G-9 .
3. A student may not progress to the 3rd semester of the curriculum until BIOL 161, BIOL 162, BIOL 163, and BIOL 164 have been successfully completed with a C or better. If BIOL courses are not successfully passed by 3rd semester, the student may withdraw from the University or remain active and return to 3rd semester of prescribed OT courses the following year with the approval of Program Director.
4. Students must maintain a minimum grade point of 2.0 to be eligible to engage in Fieldwork Level I & II (OT 195E, OT 295E, OT 395A and OT 395B).

Degree Requirements

For the Associate in Science degree in Occupational Therapy, a minimum of 71 credits is required:

Requirement	Credits
General Education	21
Requirements for the Major	62

12 of the 21 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GWS courses; 6 credits of GS courses; 3 credits of GN courses.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
BIOL 161	Human Anatomy and Physiology I - Lecture	3
BIOL 162	Human Anatomy and Physiology I - Laboratory	1
BIOL 163	Human Anatomy and Physiology II - Lecture	3
BIOL 164	Human Anatomy and Physiology II - Laboratory	1
ENGL 15	Rhetoric and Composition	3
OT 100	Structural Foundations of Occupational Therapy	1
OT 101	Conceptual Foundations of Occupational Therapy Practice	2
OT 103	Occupational Performance Across the Life Span	3
OT 195E	Fieldwork Level I Experience in Occupational Therapy	1
OT 205	Group Process Across The Lifespan	3
OT 207	Assistive Technologies and Methods of Adaptation	3
OT 209	Management, Leadership and Ethics in Occupational Therapy	3
OT 210W	Clinical Reasoning and Documentation in Occupational Therapy	3
OT 212	Occupational Therapy for Child & Adolescent Health	4

OT 214	Occupational Therapy for Psychosocial and Behavioral Health	4
OT 216	Occupational Therapy for Physical Health and Rehabilitation	4
OT 295E	Fieldwork Level I Experience in Occupational Therapy	2
OT 395A	Fieldwork Level II Experience in Occupational Therapy	6
OT 395B	Fieldwork Level II Experience in Occupational Therapy	6
PSYCH 100	Introductory Psychology	3

Additional Courses

Additional Courses: Require a grade of C or better

HDFS 129	Introduction to Human Development and Family Studies	3
or PSYCH 212	Introduction to Developmental Psychology	

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all associate degree students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 3 credits
- **Writing and Speaking (GWS):** 3 credits

Knowledge Domains

- **Arts (GA):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Note: Up to six credits of Inter-Domain courses may be used for any Knowledge Domain requirement, but when a course may be used to satisfy more than one requirement, the credits from the course can be counted only once.

Exploration

- **Any General Education course (including GHW and Inter-Domain):** 3 credits

University Degree Requirements**Cultures Requirement**

3 credits of United States (US) or International (IL) cultures coursework are required and may satisfy other requirements

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 60 degree credits must be earned for an associates degree. The requirements for some programs may exceed 60 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Berks**David Kresse**

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Suggested Academic Plan

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Occupational Therapy, A.S. at Berks Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
OT 100*	1 OT 103*	3
OT 101*	2 HDFS 129 or PSYCH 212*†	3
BIOL 161 (GN)*†	3 BIOL 163*	3
BIOL 162*	1 BIOL 164*	1
ENGL 15 or 30H (GWS)‡	3 General Education Course (GA)	3
PSYCH 100 (GS)*†	3	
	13	13

Second Year

Fall	Credits Spring	Credits Summer	Credits
OT 205*	3 OT 210W*	3 OT 395A*	6
OT 207*	3 OT 212*	4 OT 395B*	6
OT 209*	3 OT 214*	4	
OT 195E*	1 OT 216*	4	
General Education Course (GH)	3 OT 295E*	2	

General Education Course (GQ)‡	3		
	16	17	12

Total Credits 71

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

As per ACOTE Standard A.4.6 (2018) Notice to Applicants related to Criteria for Successful progression, retention, graduation, certification, and credentialing requirements of the Associate in Science in Occupational Therapy Degree.

Successful completion of each segment of the OTA Program requires the following:

- Student must earn a C or better in the OTA major coursework:
 - Each OT Course, BIOL 161, BIOL 162, BIOL 163, BIOL 164, HDFS 129 or PSYCH 212, PSYCH 100
- As per Penn State policy, student must earn C or better in Foundation Courses: ENGL 15(GWS) & MATH (GQ).
- OT course must be taken in the semester designated on this Suggested Academic Plan for OTA.
- Student must pass BIOL 161, BIOL 162, BIOL 163 & BIOL 164 prior to entering 3rd semester.
- Student must pass ENGL 15, PSYCH 100, and HDFS 129 or PSYCH 212 prior to entering the 3rd semester.
- When a student fails an OT course, they may not progress to next semester. Student will need to meet with adviser to discuss options of progression in the program.
- Student must maintain 2.0 GPA, to engage in OT 195E or OT 295E: Level I Fieldwork Experience.
- GQ, GH & GA can be moved around with the curriculum; however, must be completed by end of 3rd semester.
- All didactic degree requirements must be completed with a 2.0 GPA or better prior to enrolling in OT 395A/OT 395B.
- OT 195E, OT 295E, OT 395A, and OT 395B date & site of experience will be scheduled by the Academic Fieldwork Coordinator.

To graduate with an Associate in Science in Occupational Therapy degree:

- Student must maintain a 2.0 GPA per Academic Progress Policy 54-00, "To graduate, a degree candidate must complete the requirements for the candidate's major and earn at least a C (2.00) average for all courses taken at this University as stated in 82-40, subject to the conditions of 51-00."
- Student must complete OT 395A & OT 395B within 18 months of completing the didactic requirements.
- A felony conviction on your record, may affect your ability to sit for the certification examination administered by NBCOT® after you graduate; this can subsequently affect your ability to attain state licensure. Before applying for the OTA program, you can contact NBCOT® for information on their early determination program to assess examination eligibility. Go to NBCOT and read the "Early Review" section for details (<https://www.nbcot.org/exam/edr/>).

Career Paths

Certified Occupational Therapy Assistants (COTA's) work in numerous practice settings. Across the lifespan, individuals engage in meaningful occupations. Learning, playing, working, resting, and caring for self and others are among the occupations of life. A physical or psychological challenge may hinder an individual, group, and/or community from participating fully in meaningful occupations. Occupational therapy makes it possible for people to maintain or reclaim independence. Following graduation from the nationally accredited program, students are eligible to take the National Board for Certification in Occupational Therapy (NBCOT) exam.

Careers

A Certified Occupational Therapy Assistant (COTA) supports individuals of all ages develop, recover, improve, or maintain the skills necessary for daily living, leisure, play, and work. COTA's work in public and private schools, early intervention programs, general, psychiatric, and pediatric hospitals, day treatment centers, hospices and home health agencies, rehabilitation hospitals and centers, skilled and intermediate care facilities, community living programs, community wellness centers, and/or hand therapy clinics.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE OCCUPATIONAL THERAPY PROGRAM (<https://www.bls.gov/ooh/healthcare/occupational-therapy-assistants-and-aides.htm>)

Opportunities for Graduate Studies

Once a Certified Occupational Therapy Assistant (COTA) has completed the associate in science in occupational therapy degree, they may decide to further studies by obtaining a baccalaureate degree. Common degrees include biology, psychology, occupational science, biobehavioral health, integrated social sciences, and other health related degrees.

Many COTA's decide to complete a baccalaureate degree secondary to the benefits of advancing their education as applied to occupational therapy and/or as part of positive progression of employment. Additionally, some COTA's complete a baccalaureate degree to prepare for graduate studies at the master's or doctoral degree entry-level to become occupational therapists.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.aota.org/education/find-a-school/>)

Professional Resources

- American Occupational Therapy Association, Inc. (AOTA) (<https://www.aota.org>)
- Accreditation Council for Occupational Therapy Education (ACOTE) (<https://acoteonline.org>)
- National Board for the Certification of Occupational Therapy, Inc. (NBCOT) (<https://www.nbcot.org>)

Accreditation

The Penn State Occupational Therapy Assistant programs are fully accredited by ACOTE, which can be reached at:

Accreditation Council for Occupational Therapy Education (ACOTE)
7501 Wisconsin Avenue
Suite 510E
Bethesda, MD 20814
email: accred@aota.org
www.acoteonline.org (<https://acoteonline.org>)

The Accreditation Council for Occupational Therapy Education (ACOTE®) is an Associated Advisory Council of the Executive Board of the American Occupational Therapy Association (AOTA®). ACOTE® is recognized as the accrediting agency for occupational therapy education by both the United States Department of Education (USDE (https://www2.ed.gov/admins/finaid/accred/accreditation_pg7.html#health)) and the Council for Higher Education Accreditation (CHEA (<https://www.chea.org/>)).

Program Accreditation Status by Campus

- **Berks:** 2023-2024

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

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<https://montalto.psu.edu/academics/associate/occupational-therapy-assistant-degree> (<https://montalto.psu.edu/academics/associate/occupational-therapy-assistant-degree/>)

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<https://shenango.psu.edu/academics/degrees/2-year-occupational-therapy-assistant> (<https://shenango.psu.edu/academics/degrees/2-year-occupational-therapy-assistant/>)

Psychology, B.A. (Berks)

Begin Campus: Any Penn State Campus

End Campus: Berks

Program Description

The Psychology major will combine the knowledge, skills, and values of psychology with a liberal arts foundation. Students should:

- develop a knowledge base consisting of concepts, theory, empirical findings, and trends within psychology;
- understand and apply basic research methods in psychology;
- use critical thinking and the scientific approach to solve problems related to behavior and mental processes;
- apply psychological principles to personal and social issues;
- and be able to understand the gender, sexual orientation, race, ethnicity, culture, and class issues in psychological theory, research, and practice.

Students should also develop information and computer competence, communication skills, and develop realistic ideas about how to implement their psychology education in occupational pursuits in a variety of settings. The major may lead to either a Bachelor of Arts or a Bachelor of Science degree. The B.A. degree incorporates a broad exposure to the many facets of the field of psychology, in addition to the B.A. requirements. The B.S. degree provides the same exposure to the field of psychology and adds options in Science and Business to prepare students for more specific career directions. Students in both degree programs may also prepare for graduate school; research experience with faculty members is encouraged for such students.

What is Psychology?

Psychology is the scientific study of thought, behavior, and experience. Many people associate psychology with psychological therapy and the practice of clinical psychology. There are also many other important areas of scientific psychology, such as cognitive, developmental, industrial/organizational, and social psychology. What these subfields of psychology have in common is the use of the scientific method to understand human behavior and apply that understanding to the development of theory and practice. Psychologists are increasingly

making use of neuroscience methods and theories to understand psychological phenomena. As a profession, psychology is related to fields such as health, education, marketing, human resources, social work, and more. The principles of psychology are relevant to almost all areas of human endeavor, and the career paths of psychology students reflect this wealth of possibilities.

You Might Like This Program If...

You are interested in people and in learning to use science to better understand them. As a major, you'll have opportunities to do research with faculty and to work in career-relevant settings.

MORE INFORMATION ABOUT PSYCHOLOGY (<https://altoona.psu.edu/academics/bachelors-degrees/psychology/>)

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Psychology, a minimum of 124 credits is required:

Requirement	Credits
General Education	45
Electives	14-18
Bachelor of Arts Degree Requirements	24
Requirements for the Major	41

0-4 of the 45 credits for General Education are included in the Requirements for the Major. This includes 0-4 credits of General Education GQ courses.

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
PSYCH 100	Introductory Psychology	3
PSYCH 301W	Basic Research Methods in Psychology	4
Additional Courses		

Additional Courses: Require a grade of C or better

PSYCH 200	Elementary Statistics in Psychology	4
or STAT 200	Elementary Statistics	

Select 18 credits of the following, with a minimum of 3 credits from each of the following six categories:¹

Learning and Cognition

PSYCH 256	Introduction to Cognitive Psychology
PSYCH 261	Introduction to Psychology of Learning
PSYCH 268	Animal Minds
PSYCH 426	Language and Thought
PSYCH 427	Language Acquisition
PSYCH 452	Learning and Memory
PSYCH 456	Advanced Cognitive Psychology
PSYCH 457	Psychology of Language
PSYCH 458	Visual Cognition
PSYCH 459	
PSYCH 461	Advanced Conditioning and Learning

Social and Personality Psychology

PSYCH 221	Introduction to Social Psychology
PSYCH 231	Introduction to the Psychology of Gender
PSYCH 232	Cross-Cultural Psychology
PSYCH 238	Introduction to Personality Psychology
PSYCH 419	Psychology and a Sustainable World
PSYCH 420	Advanced Social Psychology
PSYCH 421	Self and Social Judgment
PSYCH 423	Social Psychology of Interpersonal/Intergroup Relationships
PSYCH 424	Applied Social Psychology
PSYCH 432	Multicultural Psychology in America
PSYCH 438	Personality Theory
PSYCH 479	The Psychology of Gender

Biological Bases of Behavior

PSYCH 253	Introduction to Psychology of Perception
PSYCH 260	Neurological Bases of Human Behavior
PSYCH 269	Evolutionary Psychology
PSYCH 441	Health Psychology
PSYCH 460	Comparative Psychology
PSYCH 462	Physiological Psychology
PSYCH 464	Behavior Genetics
PSYCH 475	Psychology of Fear and Stress
PSYCH 478	Clinical Neuropsychology

Developmental Psychology

PSYCH 212	Introduction to Developmental Psychology
PSYCH 410	Child Development
PSYCH 412	Adolescence
PSYCH 413	Cognitive Development
PSYCH 414	Social and Personality Development
PSYCH 415	Topics in Developmental Psychology
PSYCH 416/ HDFS 445	Development Throughout Adulthood
PSYCH 474	Psychological Intervention in Childhood

Applied and Clinical Psychology

PSYCH 243	Introduction to Well-being and Positive Psychology
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PSYCH 244	Introduction to the Psychology of Human Factors Engineering
PSYCH 270	Introduction to Abnormal Psychology
PSYCH 281	Introduction to Industrial-Organizational Psychology
PSYCH 370	Psychology of the Differently-Abled
PSYCH 404	Principles of Measurement
PSYCH 408	Program Evaluation
PSYCH 443	Treatment and Education in Developmental Disabilities
PSYCH 444	Engineering Psychology
PSYCH 445	Forensic Psychology
PSYCH 470	Abnormal Psychology
PSYCH 471	Psychology of Adjustment and Social Relationships
PSYCH 473	Behavior Modification
PSYCH 476	Child Psychopathology
PSYCH 477	Mental Health Practicum with Children
PSYCH 481	Introduction to Clinical Psychology
PSYCH 482	Selection and Assessment in Organizations
PSYCH 484	Work Attitudes and Motivation
PSYCH 485	Leadership in Work Settings
<i>Capstone Experience</i>	
PSYCH 439	History and Systems of Psychology
PSYCH 490	Senior Seminar in Psychology
PSYCH 493	Senior Thesis
PSYCH 494	Research Projects
PSYCH 495	Internship
PSYCH 496	Independent Studies

Select 12 credits of additional Psychology courses from any offered for a total of 30 credits of Psychology courses beyond PSYCH 100 and PSYCH 301W¹

¹ At least 15 of these 30 Additional Courses credits must be at the 400-level.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- **Ethical and Social Responsibility in a Diverse World:** The skills in this domain involve the development of ethically and socially responsible behaviors for professional and personal settings in a landscape that involves increasing diversity. Students completing Foundation courses should become familiar with the formal regulations that govern professional ethics in psychology and begin to embrace the values that will contribute to positive outcomes in work settings and in building a society responsive to multicultural and global concerns. Students completing a baccalaureate degree should have more direct opportunities to demonstrate adherence to professional values that will help them optimize their contributions and work effectively, even with those who don't share their heritage and traditions. This domain also promotes the adoption of personal and professional values that can strengthen community relationships and contributions.
 - Apply ethical standards to evaluate psychological science and practice.
 - Build and enhance interpersonal relationships.
 - Adopt values that build community at local, national, and global levels.
- **Knowledge Base in Psychology:** Students should demonstrate fundamental knowledge and comprehension of the major concepts, theoretical perspectives, historical trends, and empirical findings to discuss how psychological principles apply to behavioral problems. Students completing Foundation courses should demonstrate breadth of their knowledge and application of psychological ideas to simple problems; students completing a baccalaureate degree should show depth in their knowledge and application of psychological concepts and frameworks to problems of greater complexity.
 - Describe key concepts, principles, and overarching themes in psychology.
 - Develop a working knowledge of psychology's content domains.
 - Describe applications of psychology.
- **Professional Development:** The emphasis in this goal is on application of psychology-specific content and skills, effective self-reflection, project-management skills, teamwork skills, and career preparation. Foundation outcomes concentrate on the development of work habits and ethics to succeed in academic settings. The skills in this goal at the Baccalaureate level refer to abilities that sharpen student readiness for post-baccalaureate employment, graduate school, or professional school. These skills can be developed and refined both in traditional academic settings and extracurricular

involvement. In addition, career professionals can be enlisted to support occupational planning and pursuit. This emerging emphasis should not be construed as obligating psychology programs to obtain employment for their graduates, but instead encourages programs to optimize the competitiveness of their graduates for securing places in the workforce.

- Apply psychological content and skills to career goals.
- Exhibit self-efficacy and self-regulation.
- Refine project-management skills.
- Enhance teamwork capacity.
- Develop meaningful professional direction for life after graduation.
- **Scientific Inquiry and Critical Thinking:** The skills in this domain involve the development of scientific reasoning and problem solving, including effective research methods. Students completing Foundation courses should learn basic skills and concepts in interpreting behavior, studying research, and applying research design principles to drawing conclusions about psychological phenomena; students completing a baccalaureate degree should focus on theory use as well as designing and executing research plans.
 - Use scientific reasoning to interpret psychological phenomena.
 - Demonstrate psychology information literacy.
 - Engage in innovative and integrative thinking and problem solving.
 - Interpret, design, and conduct basic psychological research.
 - Incorporate sociocultural factors in scientific inquiry.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Psychology, B.A. at Berks Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [†]	3 CAS 100A or 100B (GWS) [†]	3
General Education Course (GQ) [†]	3 200 Level PSYCH Selection ^{*3}	3
PSYCH 100 [*]	3 World Language Level 2	4
World Language Level 1	4 General Education Course (GN or GA or GH or GS)	3
General Education Course (GN or GA or GH or GS)	3 General Education Course (GN or GA or GH or GS)	3

First-Year Seminar	1	
	17	16

Second Year

Fall	Credits Spring	Credits
200 Level PSYCH Selection ^{*3}	3 ENGL 202A (GWS) ^{‡2}	3
World Language Level 3	4 200 Level PSYCH Selection ^{*3}	3
General Education Course (GN or GA or GH or GS)	3 200 Level PSYCH Selection ^{*3}	3
General Education Course (GN)	3 General Education Course (Integrative Studies)	3
General Education Course (Integrative Studies)	3 General Education Course (Exploration)	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
	17.5	16.5

Third Year

Fall	Credits Spring	Credits
PSYCH 200 or STAT 200 (GQ) ^{††}	4 PSYCH 301W ^{*2}	4
200 Level PSYCH Selection ^{*3}	3 400 Level PSYCH Selection ^{*3}	3
400 Level PSYCH Selection ^{*3}	3 Bachelor of Arts Degree Requirement: World Cultures	3
General Education Course (Exploration)	3 Elective	3
Bachelor of Arts Degree Requirement: Knowledge Domain	3 Elective	3
	16	16

Fourth Year

Fall	Credits Spring	Credits
400 Level PSYCH Selection ^{*3}	3 400 Level PSYCH Selection (Capstone Experience) ^{*4}	3
400 Level PSYCH Selection ^{*3}	3 Bachelor of Arts Degree Requirement: Knowledge Domain	3
Bachelor of Arts Degree Requirement: Knowledge Domain	3 Elective	3
Elective	3 Elective	3
Elective	3	
	15	12

Total Credits 126

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ For General Education Course notations, please be sure to include three (3) credits of United States (US) Cultures and three (3) credits of International (IL) Cultures. Consult adviser for details.

² The following courses are offered Spring Semester only: ENGL 202A, PSYCH 301W.

³ For 200 Level PSYCH Selection and 400 Level PSYCH Selection, students must take 30 credits in PSYCH. Among these, students must take at least 15 credits at the 400 level and at least 3 credits in each

of the following six (6) categories: Applied and Clinical Psychology, Biological Bases of Behavior, Developmental Psychology, Learning and Cognition, Social and Personality Psychology, Capstone Experience. Consult adviser for list.

⁴ This requirement can be fulfilled by either completing PSYCH 494 during the Fall Semester or PSYCH 495 during the Spring Semester. Consult adviser for details.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Career Paths

Graduates of our program enter the workforce or pursue additional education in a variety of programs, including both Master's and Ph.D. programs in experimental, counseling, school, and clinical psychology.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE PSYCHOLOGY PROGRAM (<https://altoona.psu.edu/academics/bachelors-degrees/psychology/handbook/>)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://altoona.psu.edu/academics/bachelors-degrees/psychology/handbook/>)

Professional Resources

- American Psychology Association (<https://www.apa.org>)
- Association for Psychological Science (<https://www.psychologicalscience.org>)
- Psi Chi (<https://www.psiichi.org>)

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<https://www.york.psu.edu/academics/baccalaureate/psychology>
(<https://www.york.psu.edu/academics/baccalaureate/psychology/>)

Psychology, B.S. (Berks)

Begin Campus: Any Penn State Campus

End Campus: Berks

Program Description

The Psychology major will combine the knowledge, skills, and values of psychology with a liberal arts foundation. Students should:

- develop a knowledge base consisting of concepts, theory, empirical findings, and trends within psychology;
- understand and apply basic research methods in psychology;
- use critical thinking and the scientific approach to solve problems related to behavior and mental processes;
- apply psychological principles to personal and social issues;
- and be able to understand the gender, sexual orientation, race, ethnicity, culture, and class issues in psychological theory, research, and practice.

Students should also develop information and computer competence, communication skills, and develop realistic ideas about how to implement their psychology education in occupational pursuits in a variety of settings. The major may lead to either a Bachelor of Arts or a Bachelor of Science degree. The B.A. degree incorporates a broad exposure to the many facets of the field of psychology, in addition to the B.A. requirements. The B.S. degree provides the same exposure to the field of psychology and adds options in Science and Business to prepare students for more specific career directions. Students in both degree programs may also prepare for graduate school; research experience with faculty members is encouraged for such students.

What is Psychology?

Psychology is the scientific study of thought, behavior, and experience. Many people associate psychology with psychological therapy and the practice of clinical psychology. There are also many other important areas of scientific psychology, such as cognitive, developmental, industrial/organizational, and social psychology. What these subfields of psychology have in common is the use of the scientific method to understand human behavior and apply that understanding to the development of theory and practice. Psychologists are increasingly making use of neuroscience methods and theories to understand psychological phenomena. As a profession, psychology is related to fields such as health, education, marketing, human resources, social work, and more. The principles of psychology are relevant to almost all areas of human endeavor, and the career paths of psychology students reflect this wealth of possibilities.

You Might Like This Program If...

You are interested in people and in learning to use science to better understand them. As a major, you'll have opportunities to do research with faculty and to work in career-relevant settings.

MORE INFORMATION ABOUT PSYCHOLOGY (<https://altoona.psu.edu/academics/bachelors-degrees/psychology/>)

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Psychology, a minimum of 124 credits is required:

Requirement	Credits
General Education	45
Electives	14-18
Requirements for the Major	65

0-4 of the 45 credits for General Education are included in the Requirements for the Major. This includes 0-4 credits of General Education GQ courses.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
PSYCH 100	Introductory Psychology	3
PSYCH 301W	Basic Research Methods in Psychology	4
Additional Courses ¹		
<i>Additional Courses: Require a grade of C or better</i>		
PSYCH 200 or STAT 200	Elementary Statistics in Psychology Elementary Statistics	4
Select 18 credits of the following, with a minimum of 3 credits from each of the following six categories:		
<i>Learning and Cognition</i>		
PSYCH 256	Introduction to Cognitive Psychology	
PSYCH 261	Introduction to Psychology of Learning	
PSYCH 268	Animal Minds	
PSYCH 426	Language and Thought	
PSYCH 427	Language Acquisition	
PSYCH 452	Learning and Memory	
PSYCH 456	Advanced Cognitive Psychology	
PSYCH 457	Psychology of Language	
PSYCH 458	Visual Cognition	
PSYCH 459		
PSYCH 461	Advanced Conditioning and Learning	
<i>Social and Personality Psychology</i>		
PSYCH 221	Introduction to Social Psychology	
PSYCH 231	Introduction to the Psychology of Gender	
PSYCH 232	Cross-Cultural Psychology	

PSYCH 238	Introduction to Personality Psychology
PSYCH 419	Psychology and a Sustainable World
PSYCH 420	Advanced Social Psychology
PSYCH 421	Self and Social Judgment
PSYCH 423	Social Psychology of Interpersonal/Intergroup Relationships
PSYCH 424	Applied Social Psychology
PSYCH 432	Multicultural Psychology in America
PSYCH 438	Personality Theory
PSYCH 479	The Psychology of Gender

Biological Bases of Behavior

PSYCH 253	Introduction to Psychology of Perception
PSYCH 260	Neurological Bases of Human Behavior
PSYCH 269	Evolutionary Psychology
PSYCH 441	Health Psychology
PSYCH 460	Comparative Psychology
PSYCH 462	Physiological Psychology
PSYCH 464	Behavior Genetics
PSYCH 475	Psychology of Fear and Stress
PSYCH 478	Clinical Neuropsychology

Developmental Psychology

PSYCH 212	Introduction to Developmental Psychology
PSYCH 410	Child Development
PSYCH 412	Adolescence
PSYCH 413	Cognitive Development
PSYCH 414	Social and Personality Development
PSYCH 415	Topics in Developmental Psychology
PSYCH 416/ HDFS 445	Development Throughout Adulthood
PSYCH 474	Psychological Intervention in Childhood

Applied and Clinical Psychology

PSYCH 243	Introduction to Well-being and Positive Psychology
PSYCH 244	Introduction to the Psychology of Human Factors Engineering
PSYCH 270	Introduction to Abnormal Psychology
PSYCH 281	Introduction to Industrial-Organizational Psychology
PSYCH 370	Psychology of the Differently-Abled
PSYCH 404	Principles of Measurement
PSYCH 408	Program Evaluation
PSYCH 443	Treatment and Education in Developmental Disabilities
PSYCH 444	Engineering Psychology
PSYCH 445	Forensic Psychology
PSYCH 470	Abnormal Psychology
PSYCH 471	Psychology of Adjustment and Social Relationships
PSYCH 473	Behavior Modification
PSYCH 476	Child Psychopathology
PSYCH 477	Mental Health Practicum with Children
PSYCH 481	Introduction to Clinical Psychology
PSYCH 482	Selection and Assessment in Organizations
PSYCH 484	Work Attitudes and Motivation

PSYCH 485	Leadership in Work Settings	
<i>Capstone Experience</i>		
PSYCH 439	History and Systems of Psychology	
PSYCH 490	Senior Seminar in Psychology	
PSYCH 493	Senior Thesis	
PSYCH 494	Research Projects	
PSYCH 495	Internship	
PSYCH 496	Independent Studies	
Select 12 credits of additional Psychology courses from any offered for a total of 30 credits of Psychology courses beyond PSYCH 100 and PSYCH 301W		12
Requirements for the Option		
<i>Requirements for the Option: Require a grade of C or better</i>		
Select an option		24

¹ Must select at least 15 credits at the 400-level.

Requirements for the Option Science Option (24 credits)

Available at the following campuses: Altoona, Beaver, Berks, Brandywine, Fayette, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Schuylkill, Scranton, York

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 15 credits of the following:		15
ANTH 21	Introductory Biological Anthropology	
ANTH 22	Humans as Primates	
BBH 101	Introduction to Biobehavioral Health	
Any BIOL course		
Any CHEM course		
Any MICRB course		
Any PHYS course		
Supporting Courses		
<i>Supporting Courses: Require a grade of C or better</i>		
Select 6 credits in natural sciences/quantification from department list		6
Select 3 credits in social and behavioral sciences from department list		3

Business Option (24 credits)

Available at the following campuses: Altoona, Beaver, Berks, Brandywine, Fayette, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Schuylkill, Scranton, York

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 15 credits of the following:		15
Any ACCTG course		
BA 100	Introduction to Business	
BA 241	Legal Environment of Business	
& BA 242	and Social and Ethical Environment of Business	
or BA 243	Social, Legal, and Ethical Environment of Business	
Any ECON course		

Any FIN course	
Any HPA course	
Any IB course	
Any MGMT course	
Any MKTG course	
Any SCM course except SCM 200	
Supporting Courses	
<i>Supporting Courses: Require a grade of C or better</i>	
Select 6 credits in natural sciences/quantification from department list ¹	6
Select 3 credits in social and behavioral sciences from department list	3

¹ MATH 22 or MATH 110 recommended.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3

credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Ethical and Social Responsibility in a Diverse World:** The skills in this domain involve the development of ethically and socially responsible behaviors for professional and personal settings in a landscape that involves increasing diversity. Students completing Foundation courses should become familiar with the formal regulations that govern professional ethics in psychology and begin to embrace the values that will contribute to positive outcomes in work settings and in building a society responsive to multicultural and global concerns. Students completing a baccalaureate degree should have more direct opportunities to demonstrate adherence to professional values that will help them optimize their contributions and work effectively, even with those who don't share their heritage and traditions. This domain also promotes the adoption of personal and professional values that can strengthen community relationships and contributions.
 - Apply ethical standards to evaluate psychological science and practice.
 - Build and enhance interpersonal relationships.
 - Adopt values that build community at local, national, and global levels.
- **Knowledge Base in Psychology:** Students should demonstrate fundamental knowledge and comprehension of the major concepts,

theoretical perspectives, historical trends, and empirical findings to discuss how psychological principles apply to behavioral problems. Students completing Foundation courses should demonstrate breadth of their knowledge and application of psychological ideas to simple problems; students completing a baccalaureate degree should show depth in their knowledge and application of psychological concepts and frameworks to problems of greater complexity.

- Describe key concepts, principles, and overarching themes in psychology.
- Develop a working knowledge of psychology's content domains.
- Describe applications of psychology.
- **Professional Development:** The emphasis in this goal is on application of psychology-specific content and skills, effective self-reflection, project-management skills, teamwork skills, and career preparation. Foundation outcomes concentrate on the development of work habits and ethics to succeed in academic settings. The skills in this goal at the Baccalaureate level refer to abilities that sharpen student readiness for post-baccalaureate employment, graduate school, or professional school. These skills can be developed and refined both in traditional academic settings and extracurricular involvement. In addition, career professionals can be enlisted to support occupational planning and pursuit. This emerging emphasis should not be construed as obligating psychology programs to obtain employment for their graduates, but instead encourages programs to optimize the competitiveness of their graduates for securing places in the workforce.
 - Apply psychological content and skills to career goals.
 - Exhibit self-efficacy and self-regulation.
 - Refine project-management skills.
 - Enhance teamwork capacity.
 - Develop meaningful professional direction for life after graduation.
- **Scientific Inquiry and Critical Thinking:** The skills in this domain involve the development of scientific reasoning and problem solving, including effective research methods. Students completing Foundation courses should learn basic skills and concepts in interpreting behavior, studying research, and applying research design principles to drawing conclusions about psychological phenomena; students completing a baccalaureate degree should focus on theory use as well as designing and executing research plans.
 - Use scientific reasoning to interpret psychological phenomena.
 - Demonstrate psychology information literacy.
 - Engage in innovative and integrative thinking and problem solving.
 - Interpret, design, and conduct basic psychological research.
 - Incorporate sociocultural factors in scientific inquiry.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary

academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Business Option: Psychology, B.S. at Berks Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
ENGL 15 or 30H (GWS) [†]		3 CAS 100A or 100B (GWS) [‡]	3
General Education Course (GQ) [‡]		3 200 Level PSYCH Selection ^{*3}	3
PSYCH 100 [*]		3 General Education Course (GN or GA or GH or GS)	3
General Education Course (GN or GA or GH or GS)		3 General Education Course (GN or GA or GH or GS)	3
General Education Course (GN or GA or GH or GS)		3 General Education Course (GN)	3
First-Year Seminar	1		
	16		15

Second Year

Fall	Credits	Spring	Credits
200 Level PSYCH Selection ^{*3}		3 ENGL 202A (GWS) ^{‡2}	3
Option Requirement - Business Selection ^{*4}		3 200 Level PSYCH Selection ^{*3}	3
General Education Course (Integrative Studies)		3 200 Level PSYCH Selection ^{*3}	3
General Education Course (Exploration)		3 Option Requirement - Business Selection ^{*4}	3
General Education Course (Exploration)		3 General Education Course (Integrative Studies)	3
General Education Course (GHW)	1.5	1.5 General Education Course (GHW)	1.5
	16.5		16.5

Third Year

Fall	Credits	Spring	Credits
PSYCH 200 or STAT 200 (GQ) ^{‡†}		4 PSYCH 301W ^{*2}	4
200 Level PSYCH Selection ^{*3}		3 400 Level PSYCH Selection ^{*3}	3
400 Level PSYCH Selection ^{*3}		3 Option Requirement - Business Selection ^{*4}	3
Option Requirement - Business Selection ^{*4}		3 Elective	3
Option Requirement - Business Selection ^{*4}		3 Elective	3
	16		16

Fourth Year

Fall	Credits	Spring	Credits
400 Level PSYCH Selection ^{*3}		3 400 Level PSYCH Selection (Capstone Experience) ^{*6}	3
400 Level PSYCH Selection ^{*3}		3 Supporting Course Selection - Natural Sciences or Quantification ^{*5}	3

Supporting Course Selection - Natural Sciences or Quantification ^{*5}	3 Supporting Course Selection - Social & Behavioral Sciences ^{*7}	3
Elective	3 Elective	3
Elective	3 Elective	3
	15	15

Total Credits 126

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ For General Education Course notations, please be sure to include three (3) credits of United States (US) Cultures and three (3) credits of International (IL) Cultures. Consult adviser for details.

² The following courses are offered Spring Semester only: ENGL 202A, PSYCH 301W.

³ For 200 Level PSYCH Selection and 400 Level PSYCH Selection, students must take 30 credits in PSYCH. Among these, students must take at least 15 credits at the 400 level and at least 3 credits in each of the following six (6) categories: Applied and Clinical Psychology, Biological Bases of Behavior, Developmental Psychology, Learning and Cognition, Social and Personality Psychology, Capstone Experience. Consult adviser for list.

⁴ For Option Requirement - Business Selection, consult adviser for list.

⁵ For Supporting Course Selection - Natural Sciences or Quantification, consult adviser for list.

⁶ This requirement can be fulfilled by either completing PSYCH 494 during the Fall Semester or PSYCH 495 during the Spring Semester. Consult adviser for details.

⁷ For Supporting Course Selection - Social & Behavioral Sciences, consult adviser for list.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Science Option: Psychology, B.S. at Berks Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
ENGL 15 or 30H (GWS) [†]		3 CAS 100A or 100B (GWS) [†]	3
General Education Course (GQ) [‡]		3 200 Level PSYCH Selection ^{*3}	3
PSYCH 100 [*]		3 General Education Course (GN or GA or GH or GS)	3
General Education Course (GN or GA or GH or GS)		3 General Education Course (GN or GA or GH or GS)	3
General Education Course (GN or GA or GH or GS)		3 General Education Course (GN)	3
First-Year Seminar	1		
	16		15

Second Year

Fall	Credits	Spring	Credits
200 Level PSYCH Selection ^{*3}		3 ENGL 202A (GWS) ^{‡2}	3
Option Requirement - Science Selection ^{*4}		3 200 Level PSYCH Selection ^{*3}	3
General Education Course (Integrative Studies)		3 200 Level PSYCH Selection ^{*3}	3
General Education Course (Exploration)		3 Option Requirement - Science Selection ^{*4}	3
General Education Course (Exploration)		3 General Education Course (Integrative Studies)	3
General Education Course (GHW)	1.5	1.5 General Education Course (GHW)	1.5
	16.5		16.5

Third Year

Fall	Credits	Spring	Credits
PSYCH 200 or STAT 200 (GQ) ^{‡†}		4 PSYCH 301W ^{*2}	4
200 Level PSYCH Selection ^{*3}		3 400 Level PSYCH Selection ^{*3}	3
400 Level PSYCH Selection ^{*3}		3 Option Requirement - Science Selection ^{*4}	3
Option Requirement - Science Selection ^{*4}		3 Elective	3
Option Requirement - Science Selection ^{*4}		3 Elective	3
	16		16

Fourth Year

Fall	Credits	Spring	Credits
400 Level PSYCH Selection ^{*3}		3 400 Level PSYCH Selection (Capstone Experience) ^{*6}	3
400 Level PSYCH Selection ^{*3}		3 Supporting Course Selection - Natural Sciences or Quantification ^{*5}	3

Supporting Course Selection - Natural Sciences or Quantification ^{*5}	3 Supporting Course Selection - Social & Behavioral Sciences ^{*7}	3
Elective	3 Elective	3
Elective	3 Elective	3
	15	15

Total Credits 126

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ For General Education Course notations, please be sure to include three (3) credits of United States (US) Cultures and three (3) credits of International (IL) Cultures. Consult adviser for details.

² The following courses are offered Spring Semester only: ENGL 202A, PSYCH 301W.

³ For 200 Level PSYCH Selection and 400 Level PSYCH Selection, students must take 30 credits in PSYCH. Among these, students must take at least 15 credits at the 400 level and at least 3 credits in each of the following six (6) categories: Applied and Clinical Psychology, Biological Bases of Behavior, Developmental Psychology, Learning and Cognition, Social and Personality Psychology, Capstone Experience. Consult adviser for list.

⁴ For Option Requirement - Science Selection, consult adviser for list.

⁵ For Supporting Course Selection - Natural Sciences or Quantification, consult adviser for list.

⁶ This requirement can be fulfilled by either completing PSYCH 494 during the Fall Semester or PSYCH 495 during the Spring Semester. Consult adviser for details.

⁷ For Supporting Course Selection - Social & Behavioral Sciences, consult adviser for list.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

Graduates of our program enter the workforce or pursue additional education in a variety of programs, including both Master's and PhD programs in experimental, counseling, school, and clinical psychology.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE PSYCHOLOGY PROGRAM (<https://altoona.psu.edu/academics/bachelors-degrees/psychology/handbook/>)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://altoona.psu.edu/academics/bachelors-degrees/psychology/handbook/>)

Professional Resources

- American Psychology Association (<https://www.apa.org>)
- Association for Psychological Science (<https://www.psychologicalscience.org>)
- Psi Chi (<https://www.psiichi.org>)

Contact

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esb12@psu.edu

<https://fayette.psu.edu/academics/baccalaureate/psychology> (<https://fayette.psu.edu/academics/baccalaureate/psychology/>)

Greater Allegheny

104 Main Building

4000 University Drive

McKeesport, PA 15132

412-675-9186

exm32@psu.edu

<https://greaterallegheny.psu.edu/academics/degree-programs/psychology> (<https://greaterallegheny.psu.edu/academics/degree-programs/psychology/>)

Hazleton

Graham Building, 111

Hazleton, PA 18202

570-450-3023

lms42@psu.edu

<https://hazleton.psu.edu/psychology-degrees> (<https://hazleton.psu.edu/psychology-degrees/>)

Lehigh Valley

2809 Saucon Valley Road

Center Valley, PA 18034

610-285-5062

kjk13@psu.edu

<https://lehighvalley.psu.edu/academics/degrees/psychology> (<https://lehighvalley.psu.edu/academics/degrees/psychology/>)

Mont Alto

112 Wiestling Hall

Mont Alto, PA 17237

717-749-6210

r2y@psu.edu

<https://montalto.psu.edu/academics/bachelors/psychology-degree> (<https://montalto.psu.edu/academics/bachelors/psychology-degree/>)

New Kensington

3550 Seventh Street Rd.

New Kensington, PA 15068

724-334-6735

rjh27@psu.edu

<https://newkensington.psu.edu/academics/4-year-psychology/4-year-psychologygree-information> (<https://newkensington.psu.edu/academics/4-year-psychology/4-year-psychologygree-information/>)

Schuylkill

ACADEMIC AFFAIRS

A201C 200 University Drive

Schuylkill Haven, PA 17972

570-385-6066

crs15@psu.edu

<https://schuylkill.psu.edu/academics/bacc-degrees/psychology> (<https://schuylkill.psu.edu/academics/bacc-degrees/psychology/>)

Scranton

113 Dawson Building

Dunmore, PA 18512

570-963-2715

trw115@psu.edu

<https://scranton.psu.edu/academics/degrees/bachelors/psychology-degree> (<https://scranton.psu.edu/academics/degrees/bachelors/psychology-degree/>)

York

210 Grumbacher Building (GISTC)
York, PA 17403
717-771-4028
mac13@psu.edu

<https://www.york.psu.edu/academics/baccalaureate/psychology>
(<https://www.york.psu.edu/academics/baccalaureate/psychology/>)

Security and Risk Analysis, B.S. (Berks)

Begin Campus: Any Penn State Campus

End Campus: Berks

Program Description

The Bachelor of Science in Security and Risk Analysis (SRA) in the College of Information Sciences and Technology responds to the expanding need for a highly trained analytic workforce to address a wide range of security and risk domains including national/homeland security, emergency and disaster management, law and crime, as well as enterprise risk management.

SRA program prepares students with core competence in four knowledge areas:

1. understanding the fundamentals of security, risk, analytic methods and decision support for the purpose of recognizing, articulating, and addressing analytic needs;
2. understanding the roles of data and analytics in various security domains and organizational contexts;
3. applying data analytics, methods, and tools (structured analytics; data gathering and manipulation; visual analytics; analytic judgements and presentation) to derive and communicate insights and actionable knowledge;
4. the legal, ethical, and professional issues within which analytics of security and risk are conducted.

Students may specialize in risk domains ranging from national security to community emergency preparedness and response. The SRA program positions our students to be future leaders to address the current and emerging security and risk challenges that face individuals, organizations and our nation.

SRA majors will choose one of the following options:

Intelligence Analysis and Modeling Option

Available at the following campuses: *University Park, World Campus*

This option focuses on developing a more thorough knowledge of the strategic and tactical levels of intelligence collection, analysis, and decision-making. This includes examining the foundations of decision analysis, economic theory, statistics, data mining, and knowledge

management, as well as the security-specific contexts in which such knowledge is applied.

Information and Cyber Security Option

Available at the following campuses: *Altoona, Berks, Harrisburg, University Park, World Campus*

This option includes a set of courses that provides an understanding of the theories, skills, and technologies associated with network security, cyber threat defense, information warfare, and critical infrastructure protection across multiple venues.

What is Security and Risk Analysis?

Security and risk analysis is a field that explores the integrated processes conducted to provide decision-makers with the information needed to understand factors that can negatively influence operations and outcomes, and make informed judgments concerning the extent of actions needed to reduce vulnerabilities, protect resources, and optimize investments. Security and risk analysis is a field of practice with two blended concentration areas: 1) security, which seeks to identify, understand, and analyze critical local, national and international security issues, and 2) risk, which includes risk assessment, risk characterization, risk communication, risk management, and the formulation of risk policy. In practice, the issues and processes for conducting of security and risk analytics are neither separate nor sequential. To be effective, the issues of security and risk must be addressed concurrently and synergistically.

MORE INFORMATION ABOUT SECURITY AND RISK ANALYSIS (<https://ist.psu.edu/prospective/undergraduate/academics/sra/>)

You Might Like This Program If...

- You want to protect people, information, and assets from manmade and natural threats.
- You want to understand the role of data in protecting individuals, organizations and our nation.
- You are mission oriented, a good critical thinker and wish to put your problem-solving skills to work to make the world a safer place.
- You want to make informed strategic decisions that help to defend critical infrastructures that supports our daily lives.

MORE INFORMATION ABOUT WHY STUDENTS CHOOSE TO STUDY SECURITY AND RISK ANALYSIS (<https://ist.psu.edu/prospective/undergraduate/academics/sra/>)

Entrance to Major

In addition to the minimum grade point average (GPA) requirements described in the University Policies*, all Security and Risk Analysis (SRA) entrance to major course requirements must also be completed with a minimum grade of C: IST 140 (or equivalent CMPSC 101 or CMPSC 121), IST 210, SRA 111, and SRA 211. All of these courses must be completed by the end of the semester during which the admission to major process is carried out.

* *In the event that the major is under enrollment control, a higher minimum cumulative grade-point average is likely to be needed at the time of confirming their major choice.*

Degree Requirements

For the Bachelor of Science degree in Security and Risk Analysis, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	5-13
Requirements for the Major	77-85

15 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GQ courses; 6 credits of GS courses; and 3 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
IST 110	Information, People and Technology	3
IST 210	Organization of Data	3
IST 432	Legal and Regulatory Environment of Information Science and Technology	3
IST 495	Internship	1
SRA 111	Introduction to Security and Risk Analysis	3
SRA 211	Threat of Terrorism and Crime	3
SRA 221	Overview of Information Security	3
SRA 231	Decision Theory and Analysis	3
STAT 200	Elementary Statistics	4
Additional Courses		
ENGL 202C or ENGL 202D	Effective Writing: Technical Writing Effective Writing: Business Writing	3
PSYCH 100 or SOC 5	Introductory Psychology Social Problems	3
Select one of the following:		3
AGBM 101	Economic Principles of Agribusiness Decision Making	
ECON 102	Introductory Microeconomic Analysis and Policy	
ECON 104	Introductory Macroeconomic Analysis and Policy	
Select one of the following:		3-5
MATH 22	College Algebra With Analytic Geometry and Applications II	
MATH 26	Plane Trigonometry and Applications of Trigonometry	
MATH 40	Algebra, Trigonometry, and Analytic Geometry	
MATH 41	Trigonometry and Analytic Geometry	
MATH 110	Techniques of Calculus I	
MATH 140	Calculus With Analytic Geometry I	
Select one of the following:		3
GEOG 128	Geography of International Affairs	

PLSC 1	American Politics: Principles, Processes and Powers	
PLSC 14	International Relations	
<i>Additional Courses: Require a grade of C or better</i>		
SRA 365 or STAT 460	Statistics for Security and Risk Analysis Intermediate Applied Statistics	3
Select one of the following:		3
IST 140	Introduction to Application Development	
CMPSC 101	Introduction to Programming	
CMPSC 121	Introduction to Programming Techniques	
Requirements for the Option		
Select an option		30-36

Requirements for the Option

Intelligence Analysis and Modeling Option (36 credits)

Available at the following campuses: University Park, World Campus

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
IST 452	Legal and Regulatory Environment of Privacy and Security	3
SRA 268	Visual Analytics	3
SRA 311W	Risk Analysis in a Security Context	3
SRA 421	The Intelligence Environment	3
SRA 433	Deception and Counterdeception	3
SRA 440W	Security and Risk Analysis Capstone Course	3
SRA 468	Spatial Analysis of Risks	3
Supporting Courses and Related Areas		
Select 15 credits from College-approved list (at least 3 credits must be at the 400-level)		15

Information and Cyber Security Option (30 credits)

Available at the following campuses: Altoona, Berks, Harrisburg, University Park, World Campus

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
IST 220	Networking and Telecommunications	3
IST 451	Network Security	3
IST 454	Computer and Cyber Forensics	3
IST 456	Information Security Management	3
SRA 311	Risk Analysis in a Security Context	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
IST 440W or SRA 440W	Information Sciences and Technology Integration and Problem Solving Security and Risk Analysis Capstone Course	3
Supporting Courses and Related Areas		
Select 12 credits from College-approved list (at least 3 credits must be at the 400-level)		12

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills

necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits.

Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- Understand and apply the interdisciplinary, theoretical knowledge of the information sciences or security sciences
 - Define and explain the core concepts, principles, processes, and theories within the academic majors of IST and/or SRA
 - Apply the core concepts of the academic majors of IST and/or SRA to real-world problems
 - Apply the core concepts of information and security sciences to an extended work assignment
- Understand, apply and adopt various problem solving strategies, using appropriate technology and methods
 - Identify information problems and/or opportunities in terms of the human, informational and technology dimensions
 - Analyze issues surrounding the problem and/or opportunity in terms of the human, informational, and technology dimensions; and determine the requirements appropriate to understanding the situation
 - Design systems, architectures, processes, components, or programs to meet desired needs of the human context at varying levels of analysis
 - Deploy up-to-date and appropriate techniques, methodologies, and/or tools necessary for understanding opportunities and constraints and/or the optimal design, implementation and continuance of an information based solution
 - Evaluate the success of systems, architecture, processes, components, or programs intended to meet desired needs of the human context at varying levels of analysis
- Communicate and work effectively (both individually and in teams) with a range of perspectives and audiences through a variety of media
 - Participate effectively on teams in order to accomplish a common goal
 - Communicate effectively with a range of audiences, formally or informally, through writing and the spoken word
 - Seek out, analyze, and incorporate diverse ideas and broader perspectives represented in the diversity of people
 - Make respectful and inclusive choices in interacting with customers, peers, supervisors, and/or subordinates with a diversity of identity characteristics
- Understand professional responsibilities in terms of the ethical, legal, security and social aspects of any given problem and its solution

- Demonstrate an understanding of the cognitive, social, legal, ethical, diversity, and security perspectives surrounding a given problem
- Assess the impact of information, computing and technology on individuals, groups, organizations, society, and the world for the purpose of making informed decisions from a sociological, governmental, legal, and/or security perspective
- Commit to the continuous acquisition of relevant knowledge for professional development by self-teaching and/or on-going education and learning
 - Employ information-seeking strategies in pursuit of current knowledge
 - Engage in self-directed learning to meet professional goals
 - Enroll in professional development and tutoring opportunities

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Berks

Tricia Clark

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 Reading, PA 19610
 610-396-6349
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Altoona

David Barnes

Teaching Professor, Information Sciences and Technology
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 Altoona, PA 16601
 814-949-5275
 drb21@psu.edu

Harrisburg

Jesse Middaugh, PMP

Program Coordinator
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 Middletown, PA 17057
 717-948-6153
 jlm10@psu.edu

University Park

Undergraduate Academic Advising Center

E103 Westgate Building
 University Park, PA 16802

814-865-8947
 advising@ist.psu.edu

World Campus

Undergraduate Academic Advising

301 Outreach Building
 University Park, PA 16802
 814-863-3283
 advising@outreach.psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Information & Cyber Security Option: Security and Risk Analysis, B.S. at Berks Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100A or 100B (GWS) [‡]	3
MATH 22 (GQ) [‡]	3 SRA 211 ^{*#}	3
SRA 111 ^{*#}	3 STAT 200 (GQ) [‡]	4
IST 110 [*]	3 IST 210 ^{*#}	3
IST 140 or CMPSC 101 (IST 140 recommended.) ^{*#}	3 General Education Course (GN or GA or GH)	3
First-Year Seminar (IST 111S recommended)	1	
	16	16

Second Year

Fall	Credits Spring	Credits
ECON 102 or 104	3 ENGL 202C or 202D (GWS) [‡]	3
PSYCH 100 [†]	3 SRA 231 [*]	3
SRA 221 [*]	3 General Education Course (GN or GA or GH)	3
IST 220 [*]	3 General Education Course (GN or GA or GH)	3
Elective	3 Elective	3
	15	15

Third Year

Fall	Credits Spring	Credits
SRA 311 [*]	3 IST 451 [*]	3
IST 432 [*]	3 Support of Option Requirement	3
PLSC 1 or 14 (GS) [†]	3 General Education Course (GN)	3
Support of Option Requirement	3 General Education Course (Integrative Studies)	3

General Education Course (Integrative Studies)	3 General Education Course (Exploration)	3
15		15
Fourth Year		
Fall	Credits Spring	Credits
IST 440W or SRA 440W*	3 IST 456*	3
IST 454*	3 Support of Option Requirement	3
IST 495*	1 General Education Course (GHW)	3
SRA 365*	3 Elective	3
Support of Option Requirement	3	
Elective	3	
16		12
Total Credits 120		

- * Course requires a grade of C or better for the major
 ‡ Course requires a grade of C or better for General Education
 # Course is an Entrance to Major requirement
 † Course satisfies General Education and degree requirement

¹ For General Education Course notations, please be sure to include three (3) credits of United States (US) Cultures and three (3) credits of International (IL) Cultures. Consult adviser for details.

² The following courses are offered Fall Semester only: IST 432, PLSC 1, SRA 311, SRA 365.

³ The following courses are offered Spring Semester only: IST 451, IST 456, PLSC 14, SRA 231.

⁴ For Support of Option Requirement, consult adviser for list.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

The Security and Risk Analysis program responds to the expanding need for a highly trained analytic workforce to address a wide range of security and risk domains including national/homeland security, emergency and disaster management, law and crime, as well as enterprise risk management. The SRA degree prepares students to be future leaders to address the current and emerging security and risk challenges that face individuals, organizations and our nation. IST's Office of Career Solutions helps students navigate internship and career development through

coaching, workshops, interview preparation, resume reviews, career fairs, job postings, and networking opportunities.

Careers

Security and Risk Analysis students may specialize in risk domains ranging from national security to community emergency preparedness and response. Because our courses blend technical knowledge with skills in communication and business, a Security and Risk Analysis degree allows students to pursue opportunities in intelligence, counterterrorism, computer forensics, and a number of other growing careers. SRA graduates work in a variety of fields, including defense, business, and emergency management; and many graduates go on to work for government intelligence agencies like the CIA, FBI, and NSA.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE SECURITY AND RISK ANALYSIS PROGRAM (<https://www.ist.psu.edu/current/careers/development/process/path/>)

Opportunities for Graduate Studies

With a focus on problem solving, critical thinking and the presentation of analytic findings, the SRA program is a great stepping-stone to graduate education and higher learning. Many SRA graduates will go on to pursue graduate degrees in fields like law, cyber security, and data science. The foundational skills obtained in the SRA degree directly apply to graduate education.

Contact

Berks

EBC DIVISION
 Gaige Building
 Reading, PA
 610-396-6349
BKSecRiskAnalysis@psu.edu

<https://berks.psu.edu/academics/bs-security-and-risk-analysis> (<https://berks.psu.edu/academics/bs-security-and-risk-analysis/>)

Altoona

DIVISION OF BUSINESS, ENGINEERING, AND INFORMATION SCIENCES
 AND TECHNOLOGY
 Penn Building 212C, 3000 Ivyside Park
 Altoona, PA 16601
 814-949-5275
drb21@psu.edu

<https://altoona.psu.edu/academics/bachelors-degrees/security-risk-analysis> (<https://altoona.psu.edu/academics/bachelors-degrees/security-risk-analysis/>)

Harrisburg

DEPARTMENT OF SECURITY AND RISK ANALYSIS
 Olmsted Building E355
 Middletown, PA 17057
 717-948-6141
ljc43@psu.edu

<https://harrisburg.psu.edu/business-administration/security-risk-analysis-bs> (<https://harrisburg.psu.edu/business-administration/security-risk-analysis-bs/>)

University Park

COLLEGE OF INFORMATION SCIENCES AND TECHNOLOGY
411 Eric J. Barron Innovation Hub Building
State College, PA 16801
814-865-3528

World Campus

COLLEGE OF INFORMATION SCIENCES AND TECHNOLOGY
411 Eric J. Barron Innovation Hub Building
State College, PA 16801
814-865-3528

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-security-and-risk-analysis-information-and-cybersecurity-bachelor-of-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-security-and-risk-analysis-information-and-cybersecurity-bachelor-of-science-degree/>)

Social Justice, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

The Certificate in Social Justice provides concentrated study in the broad field of justice studies. Certificate awardees are required to take 12 credits of courses that examine how unequal power relationships shape human experience and structure life outcomes. These courses will pay particular attention to categories such as race, gender, sexuality, class, nation, faith, physical and mental ability, age, geography, linguistic heritage, citizenship status, and environment. Moving beyond cultural appreciation and difference, affiliated courses will focus on injustice, inequality, and the work of freedom. This certificate program is open to all students and is offered in collaboration with faculty from diverse academic disciplines. With an evidence-driven understanding of history, oppression, and structural inequality, this certificate program champions the ideals of equity, justice, and democracy. Above all, this certificate helps students work toward a future in which all members of our college community and society have been empowered with knowledge and understanding to reach their full potential. Certificate awardees will be better prepared to understand and address issues of injustice not only while in college, but also in their communities and future careers.

Program Requirements

To earn an undergraduate certificate in Social Justice, a minimum of 12 credits is required.

Students must take and earn a C or higher in 4 classes (or 12 credits) in qualifying coursework. There are no entrance requirements nor time limit for completion. All students must take SOC 205N in the Humanities and Social Sciences as well as three other courses from the course list below.

Code	Title	Credits
Required Courses		
SOC 205N	Critical Race Theory in the Humanities and Social Sciences	3
Select 9 credits from the following:		9
AFAM 101N	African American Women	
AMST 226N	Critical Approaches to Hip-Hop	
CAS 222N	Foundations: Civic and Community Engagement	

CAS 271N	Intercultural Communication
CAS 455	Topics in Gender and Communication
CAS 471	Intercultural Communication Theory and Research
CHEM 3	Molecular Science With Laboratory
CI 280	Introduction to Teaching English Language Learners
CRIMJ 406	Sociology of Deviance
CRIMJ 423	Sexual and Domestic Violence
CRIMJ 451	Race, Crime, and Justice
CRIMJ 453	Women and the Criminal Justice System
EARTH 2	The Earth System and Global Change
EDTHP 115A	Competing Rights: Issues in American Education
ENGL 135	Alternative Voices in American Literature
ENGL 139	African American Literature
ENGL 182C	Literature and Empire
ENGL 194	Women Writers
ENGL 236N	Inequality: Economics, Philosophy, Literature
ENGL 472	Current Theories of Writing and Reading
HDFS 175N	Introduction to Youth Development and Arts-based Social Justice
KINES 341	The Historical, Cultural, and Social Dynamics of Sport
MGMT 297	Special Topics
MGMT 497	Special Topics
NUTR 175Z	Healthy Food for All: Factors that Influence What we Eat in the US
PSYCH 441	Health Psychology
RHS 100	Introduction to Disability Culture
SOC 30	Sociology of the Family
SOC 119N	Race, Ethnicity and Culture
SOC 205N	Critical Race Theory in the Humanities and Social Sciences
STS 233Z	Ethics and the Design of Technology
STS 245Z	Globalization, Technology, and Ethics
SUST 242N	Issues in Sustainability
WMNST 100	Introduction to Women's and Gender Studies
WMNST 200	Global Feminisms
WMNST 116N	Family and Gender Roles in Modern History
WMNST 117	Women in United States History

Non-Course Requirements:

- Students must also complete a Capstone Project. The project must be completed in one of the four Certificate courses in consultation with the student's professor(s) and/or Certificate adviser(s).
- If not on the course list above, students may petition for a single course to count toward the Certificate. Such course exceptions will be made by the Certificate Head(s) only.
- Non-listed courses and independent studies must be approved by Certificate Head(s).

Spanish for Healthcare, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

A certificate in Spanish for Healthcare will benefit the students of Penn State Berks who wish to enhance their speaking, reading, writing, and translating skills to use as professionals in various Healthcare and Human Services fields. This certificate will complement Penn State Berks' Spanish minor, several other existing bachelor's degrees throughout Penn State, and Continuing Education programs. The certificate in Spanish for Healthcare may be started and/or completed at Penn State Berks or any other Penn State location offering these courses. The certificate can be completed in conjunction with a major or minor in Spanish, but will be available to all students, regardless of whether they are in a major, minor, associate degree, 2+2 program, or are non-degree seeking students. Upon completing the certificate in Spanish for Healthcare, given that students begin the four-course sequence with at least a 12-credit proficiency level, they should be able to: 1) Communicate (speak, read, write) in Spanish in healthcare settings at an intermediate to advanced level (depending on each student's background) and translate basic (non-specialized) documents accurately; 2) Employ knowledge of specialized healthcare terminology and services relevant to their particular fields; and 3) Recognize cultural practice, apply cultural knowledge, and practice cultural humility in healthcare settings, while considering regional differences in Hispanic cultures and cultural identity.

What is Spanish for Healthcare?

Spanish for Healthcare is a growing field that aims to increase your competence in using the Spanish language (speaking, writing, reading, translating) while working in a variety of healthcare and human services professions. Learning how to use Spanish on a professional level can complement a broad range of disciplines such as education, health sciences, human services, international relations, and many others.

You Might Like This Program If...

- You enjoy learning about cultures and languages.
- You are interested in being able to use the Spanish language for your future job.
- You have a major related to global or international studies, communication, education, or languages.
- Your major is related to human services, science, or healthcare.
- You have some experience learning Spanish but need more instruction to use it in the real world.
- You are a native, heritage, or bilingual speaker of Spanish and want to refine your communication skills.
- You enjoy thinking between languages or learning new ones.
- You are passionate about equal access to healthcare.

Program Requirements

To earn an undergraduate certificate in Spanish for Healthcare, a minimum of 12 credits is required.

Code	Title	Credits
Required Courses		
SPAN 100B	Intermediate Grammar and Composition for Students in Medical-Related Fields	3
SPAN 200	Intensive Grammar and Composition	3
or SPAN 301	Intensive Grammar and Composition for Spanish Bilinguals	

SPAN 300B	Advanced Grammar and composition for Students in Medical-related Fields	3
SPAN 412	Translation	3

Non-Course Requirements:

A student may seek this certificate in any degree program or as a non-degree student, as long as they meet the prerequisites. All four courses of the certificate must be completed with a "C" grade or higher. There is no time limit for completing the certificate. Course substitutions are not anticipated, but may be proposed to the certificate head for review. Penn State requires that at least two-thirds (2/3) of the courses be exact to the certificate requirements. At least 2/3 of the credits used to complete a certificate must be earned at Penn State. All students must add the certificate program in LionPATH and must notify the program chair when they have completed the certificate requirements.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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<https://berks.psu.edu/certificate-spanish-healthcare> (<https://berks.psu.edu/certificate-spanish-healthcare/>)

Writing and Digital Media, B.A.

Begin Campus: Any Penn State Campus

End Campus: Berks

Program Description

The major is intended to prepare students to write effectively in a variety of workplace and academic settings. Methods of instruction draw upon the strategies and techniques of practicing writers outside of the University, including workshops, peer conferencing, collaborative writing, portfolio preparation, and internships. At the same time, theory courses provide the necessary background to help students understand and appreciate the larger issues surrounding the writing and reading of texts.

As a liberal arts degree, the Writing and Digital Media major is appropriate for students who wish to develop a set of applied communication skills to prepare for a wide range of professional positions or for graduate or professional schools. The degree differs from most current English majors in at least three ways:

1. a practical orientation prepares graduates for employment, in addition to post-graduate English studies;
2. a multidisciplinary focus integrates courses from the liberal arts, business, and information technology; and
3. a required internship ensures that students actively apply their skills.

What is Writing and Digital Media?

If you enjoy expressing thoughts and ideas through the written word, the B.A. in Writing and Digital Media may be the right degree for you. A degree in Writing and Digital Media will prepare you to write effectively in a variety of workplace and academic settings. It involves the use of precise language to convey information in a way that is easily understood by its intended audience, and it may be used to inform, persuade, instruct, or encourage action. Employers seek graduates with effective writing skills, and the broad nature of this degree opens doors to a variety of careers and to graduate school.

You Might Like This Program If...

- You enjoy communicating thoughts, ideas, and concepts through the written word.
- You are interested in a degree that emphasizes writing and will provide skills that employers seek.
- You like the flexibility of a broad, liberal arts major that will prepare you to enter a variety of fields or to enter graduate school.

MORE INFORMATION ABOUT WRITING AND DIGITAL MEDIA (<https://berks.psu.edu/academics/ba-writing-and-digital-media/>)

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Writing and Digital Media, a minimum of 123 credits is required:

Requirement	Credits
General Education	45
Electives	21
Bachelor of Arts Degree Requirements	24
Requirements for the Major	39

6 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GH courses and 3 credits of GS courses.

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
COMM 234		3
COMM 270	Introduction to Multimedia Production	3
COMM 271	Principles of Journalism	3
DIGIT 100	Introduction to Digital Humanities	3
ENGL 211W	Introduction to Writing Studies	3
ENGL 214	Introduction to Creative Nonfiction Writing	3
ENGL 420	Writing for the Web	3
ENGL 471	Rhetorical Traditions	3
ENGL 472	Current Theories of Writing and Reading	3
ENGL 491	The Capstone Course in Professional Writing	3
ENGL 495	Internship	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 6 credits from the following:		6
COMM 1	Newspaper Practicum	
COMM 2	Newspaper Editorial Staff	
COMM 260W	News Writing and Reporting	
	or ENGL 110 Newswriting Practicum	
ENGL 130	Reading Popular Texts	
ENGL 213	Introduction to Poetry Writing	
	or ENGL 215 Introduction to General Nonfiction Writing	
ENGL 229	Digital Studies	
ENGL 250	Peer Tutoring in Writing	
	or ENGL 297 Special Topics	
ENGL 415	Advanced Nonfiction Writing	
ENGL 417	The Editorial Process	
ENGL 419	Advanced Business Writing	
ENGL 429	New Media and Literature	
ENGL 474	Issues in Rhetoric and Composition	
ENGL 480	Communication Design for Writers	

ENGL 494 Senior Thesis in English

ENGL 496

GD 100 Introduction to Graphic Design

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- Students will develop a comprehensive understanding of the theories and practice of language use.
- Students will demonstrate advanced critical thinking skills, inclusive of information literacy across a range of print and electronic genres.
- Students will demonstrate sophisticated rhetorical abilities and rhetorical flexibility.
- Students will be able to communicate to diverse audiences in a variety of contexts and genres.
- Students will be prepared for a wide range of writing-related careers or graduate programs.
- Students will have the ability to use, analyze, and learn communication technologies.
- Students will develop exceptional textual, visual, and verbal communication abilities.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Berks

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Writing and Digital Media, B.A. at Berks Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [†]	3 CAS 100A or 100B (GWS) [‡]	3
General Education Course (GQ) [‡]	3 General Education Course (GQ) [‡]	3
World Language Level 1	4 World Language Level 2	4
General Education Course (GN or GA or GS)	3 DIGIT 100 (GH) [†]	3
General Education Course (GN or GA or GS)	3 General Education Course (GN or GA or GS)	3
First-Year Seminar	1	
	17	16

Second Year

Fall	Credits Spring	Credits
ENGL 211W	3 ENGL 202A, 202B, 202C, or 202D (GWS) [‡]	3

ENGL 214	3 COMM 234N (GH & GS) [†]	3
World Language Level 3	4 Bachelor of Arts Degree Requirement: Knowledge Domain	3
General Education Course (GN)	3 General Education Course (Integrative Studies)	3
General Education Course (Integrative Studies)	3 General Education Course (Exploration)	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
	17.5	16.5

Third Year

Fall	Credits Spring	Credits
COMM 270	3 ENGL 471 [*]	3
COMM 271	3 Supporting Course Selection	3
Bachelor of Arts Degree Requirement: Knowledge Domain	3 Elective	3
Bachelor of Arts Degree Requirement: Knowledge Domain	3 Elective	3
Bachelor of Arts Degree Requirement: World Cultures	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
ENGL 420	3 ENGL 472	3
ENGL 495	3 ENGL 491	3
Supporting Course Selection	3 Elective	3
Elective	3 Elective	3
Elective	3	
	15	12

Total Credits 124

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ For General Education Course notations, please be sure to include three (3) credits of United States (US) Cultures and three (3) credits of International (IL) Cultures. Consult adviser for details.

² The following courses are offered Spring Semester only: ENGL 202B.

³ For Supporting Course Selection, consult adviser for list.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain)

requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Career Paths

The Writing and Digital Media degree provides an excellent academic foundation for students to hone their written communication skills. The flexible nature of the program allows graduates to enter a variety of career fields

Careers

The Writing and Digital Media degree provides valuable written communication skills sought by employers in a wide variety of fields. Graduates will be well prepared for positions in media and publishing outlets as editors, news analysts, and reporters; in corporate settings as advertising copywriters, public relations specialists, and technical writers, and in a variety of academic settings.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE WRITING AND DIGITAL MEDIA PROGRAM (<https://berks.psu.edu/academics/ba-writing-and-digital-media/>)

Opportunities for Graduate Studies

The B.A. in Writing and Digital Media also prepares students for graduate study in fields such as rhetoric and composition, journalism, creative writing, and other related programs, as well as business and law.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://berks.psu.edu/academics/ba-writing-and-digital-media/>)

Contact

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<https://berks.psu.edu/academics/ba-writing-and-digital-media> (<https://berks.psu.edu/academics/ba-writing-and-digital-media/>)

Writing and Digital Media, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The minor in Writing and Digital Media is intended to prepare students from all degree programs within the Berks College (with the exception of the major in Writing and Digital Media) to write effectively in a variety of workplace and academic settings. Theory courses provide the necessary background to help students understand and appreciate the larger issues surrounding the writing and reading of texts. At the same time, practice-oriented courses draw upon the strategies and techniques of practicing writers outside and inside of the University, including workshops, peer conferencing, collaborative writing, portfolio preparation, and internships.

Students may not count courses used to satisfy General Education Writing/Speaking Skills.

What is Writing and Digital Media?

If you enjoy expressing thoughts and ideas through the written word, the minor in Writing and Digital Media may be right for you. Writing and Digital Media involves the use of precise language to convey information in a way that is easily understood by its intended audience, and it may be used to inform, persuade, instruct, or encourage action.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ENGL 211W	Introduction to Writing Studies	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 15 credits from the following:		15
CAS 214W	Speech Writing	
COMM/IST 234N	Digital Cultures	
COMM 260W	News Writing and Reporting	
COMM 270	Introduction to Multimedia Production	
COMM 271	Principles of Journalism	
COMM 320	Introduction to Advertising	
COMM 370	Public Relations	
DIGIT 100	Introduction to Digital Humanities	
ENGL 110	Newswriting Practicum	
ENGL 209	Journal or Magazine Practicum	
ENGL 212	Introduction to Fiction Writing	
ENGL 213	Introduction to Poetry Writing	
ENGL 214	Introduction to Creative Nonfiction Writing	
ENGL 215	Introduction to General Nonfiction Writing	
ENGL 229	Digital Studies	
ENGL 237N	Reading and Writing Documentary Poetry	

ENGL 250	Peer Tutoring in Writing
ENGL 412	Advanced Fiction Writing
ENGL 415	Advanced Nonfiction Writing
ENGL 416	Science Writing
ENGL 417	The Editorial Process
ENGL 418	Advanced Technical Writing and Editing
ENGL 419	Advanced Business Writing
ENGL 420	Writing for the Web
ENGL 421	Advanced Expository Writing
ENGL 429	New Media and Literature
ENGL 471	Rhetorical Traditions
ENGL 472	Current Theories of Writing and Reading
ENGL 473	Rhetorical Approaches to Discourse
ENGL 474	Issues in Rhetoric and Composition
ENGL 480	Communication Design for Writers
ENGL 491	The Capstone Course in Professional Writing
ENGL 495	Internship
ENGL 497	Special Topics
GD 100	Introduction to Graphic Design

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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<https://altoona.psu.edu/academics/bachelors-degrees/english> (<https://altoona.psu.edu/academics/bachelors-degrees/english/>)

Penn State Erie, The Behrend College

About the College

Ralph M. Ford, Ph.D., Chancellor and Dean, Penn State Erie, The Behrend College

Penn State Behrend students enjoy access to a global research university within the supportive environment of a welcoming, student-centered college. We're a top public college in Pennsylvania and ranked among the top 10 percent for best value and highest return on tuition investment (PayScale, SmartAsset).

We prepare our students through highly engaged instruction, research, and out-of-class opportunities, combined with a distinctive Open Lab model of learning and discovery that offers real-world experience. We offer nearly fifty degrees in business, engineering, the humanities, the sciences, and nursing.

More than 3,300 students are enrolled in residential instruction, with an additional 950 in Behrend programs offered on World Campus. Small class sizes and low faculty-to-student ratio give Behrend students opportunities to form mentoring relationships with professors.

About 75 percent of Behrend students complete their Penn State degree here. Others study for the first two years of the 275+ degrees offered across the University.

MORE INFORMATION ABOUT THE COLLEGE (<https://behrend.psu.edu/about-the-college/>)

Mission and Goals

Penn State Behrend is an Open Lab, where students partner with external stakeholders to solve real-world challenges. Through an emphasis on student success, curricular excellence, and relevant research, we prepare thinkers, leaders, and innovators to make a positive impact on their professions, their communities, and the greater world.

MORE INFORMATION ABOUT THE MISSION AND GOALS OF PENN STATE ERIE, THE BEHREND COLLEGE (<https://behrend.psu.edu/about-the-college/college-strategy/>)

Departments and Schools

Black School of Business

The Black School of Business is the only institution in northwestern Pennsylvania accredited by AACSB International, the premier accrediting agency for management education. A technology-rich environment and unique learning opportunities are made possible by a \$20 million endowment from the late insurance executive Samuel P. Black Jr. and his wife, Irene.

MORE INFORMATION ABOUT THE BLACK SCHOOL OF BUSINESS (<https://behrend.psu.edu/school-of-business/>)

School of Engineering

The School of Engineering is ranked among the top 40 undergraduate engineering programs nationwide. Why? State-of-the-art facilities, award-winning faculty, ABET-accredited programs in both engineering and engineering technology, small class sizes, emphasis on meaningful student design and research experiences, and superior internship and job placement.

MORE INFORMATION ABOUT THE SCHOOL OF ENGINEERING (<https://behrend.psu.edu/school-of-engineering/>)

School of Humanities and Social Sciences

The School offers diverse four-year degree programs that develop both intellect and practical skills. Our students are tomorrow's historians, writers, communicators, and educators, exploring and reflecting on our society and the larger world beyond. Highly accomplished faculty are scholars, writers, and skilled teachers with years of practical professional experiences.

MORE INFORMATION ABOUT THE SCHOOL OF HUMANITIES AND SOCIAL SCIENCES (<https://behrend.psu.edu/school-of-humanities-social-sciences/>)

School of Science

School of Science students receive a transdisciplinary, hands-on education in basic and applied sciences guided by experienced faculty using state-of-the-art instruments. Students have opportunities for community engagement, service learning, and internships. The hallmark of Science programs is the opportunity to conduct substantive research not typically offered at the undergraduate level.

MORE INFORMATION ABOUT THE SCHOOL OF SCIENCE (<https://behrend.psu.edu/school-of-science/>)

Baccalaureate Degrees

- Accounting, B.S. (Behrend)
- Biology, B.S. (Behrend)
- Business Economics, B.S.
- Chemistry, B.S. (Behrend)
- Communication, B.A. (Behrend)
- Computer Engineering, B.S. (Behrend)
- Computer Science, B.S. (Behrend)
- Creative Writing, B.F.A.
- Digital Media, Arts, and Technology, B.A.
- Economics, B.A. (Behrend)
- Electrical and Computer Engineering Technology, B.S.
- Electrical Engineering, B.S. (Behrend)

- English, B.A. (Behrend)
- Environmental Science, B.S.
- Finance, B.S. (Behrend)
- Functional Data Analytics, B.S.
- General Arts and Sciences, B.A.
- History, B.A. (Behrend)
- Industrial Engineering, B.S. (Behrend)
- Interdisciplinary Business with Engineering Studies, B.S.
- Interdisciplinary Science and Business, B.S.
- International Business, B.S.
- Management Information Systems, B.S. (Behrend)
- Marketing, B.S. (Behrend)
- Mathematics, B.S. (Behrend)
- Mechanical Engineering Technology, B.S. (Behrend)
- Mechanical Engineering, B.S. (Behrend)
- Physics, B.S. (Behrend)
- Plastics Engineering Technology, B.S.
- Political Science, B.A. (Behrend)
- Polymer Engineering and Science, B.S.
- Project and Supply Chain Management, B.S. (Behrend)
- Psychology, B.A. (Behrend)
- Psychology, B.S. (Behrend)
- Science, B.S. (Behrend)
- Secondary Education, B.S. (Behrend)
- Software Engineering, B.S.

Associate Degrees

- Electrical Engineering Technology, A.ENG.T. (Behrend)
- General Business, A.S.
- Mechanical Engineering Technology, A.ENG.T. (Behrend)
- Multidisciplinary Studies, A.A. (Behrend)

Minors

- Accounting, Minor
- Applied Economics, Minor
- Communication Arts and Mass Media, Minor
- Computer Engineering, Minor (Behrend)
- Computer Science, Minor (Behrend)
- Crime, Law, and Psychology, Minor
- Data Visualization, Minor
- English, Minor (Behrend)
- Finance, Minor
- Game Development, Minor
- History, Minor (Behrend)
- Management Information Systems, Minor
- Marketing, Minor
- Mathematics, Minor (Behrend)
- Media Production, Minor
- Operations and Supply Chain Management, Minor
- Politics and Government, Minor
- Project and Supply Chain Management, Minor
- Psychological Science, Minor

- Statistics, Minor (Behrend)
- Technical Sales, Minor
- Transnational Perspectives, Minor

Certificates

- Actuarial Mathematics and Statistics, Certificate
- Advertising, Certificate
- Behavioral Finance, Certificate
- Behavioral Health and Counseling Psychology, Certificate
- Child Development, Certificate
- Crime, Psychology, and Public Policy, Certificate
- Energy Finance, Certificate
- Enterprise Resource Planning with Oracle, Certificate
- Enterprise Resource Planning with SAP, Certificate
- Financial Controllershship, Certificate
- Financial Planning, Certificate
- Financial Risk Management, Certificate
- German Studies, Certificate
- Global Awareness, Certificate
- Human Factors, Certificate
- Medical Plastics, Certificate
- Plastics Processing, Certificate
- Premedical Sciences, Certificate
- Project and Supply Chain Analytics, Certificate
- Public Relations, Certificate
- Sports Administration, Certificate
- Trauma Studies, Certificate

College Procedures

Change of Campus

The University admits first-semester baccalaureate degree students to a campus that can provide at least two semesters of normal progress toward the program they have selected. Generally, students are expected to complete two full years of academic work at their initial campus.

MORE INFORMATION ABOUT CHANGE OF CAMPUS (<https://www.registrar.psu.edu/degree-planning/change-campus/>)

Concurrent Majors

A Concurrent Majors Program is one in which students take courses to concurrently meet the requirements of at least two majors, with graduation for all majors in the program occurring during the same semester. At the baccalaureate- or associate-degree level, students may be approved for admission to more than one major under the Concurrent Majors Program.

READ SENATE POLICY 60-00: COMPLETING MORE THAN ONE UNDERGRADUATE MAJOR PROGRAM (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/60-00-completing-more-than-one-undergraduate-program/#60-00>)

Academic Warning

A student who fails to earn a 2.00 cumulative grade-point average will be placed on academic warning. A student placed on academic warning will have a hold placed on registration and will be required to meet with an academic adviser in order for this registration hold to be removed. To

remove academic warning, the cumulative grade-point average must be 2.00 or higher.

MORE INFORMATION ABOUT ACADEMIC WARNING (<https://behrend.psu.edu/academics/academic-services/academic-advising/academic-resources/academic-standing-warning-recovery/>)

READ SENATE POLICY 54-20: ACADEMIC WARNING (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-20>)

Academic Suspension

A student in academic warning who fails to maintain a semester grade-point average of 2.00 or higher will be academically suspended. A student who has been academically suspended may not schedule courses at the University for two consecutive semesters. (Note: Summer session is equal to one semester.) Students wishing to re-enroll at Penn State Behrend after Academic Suspension must prepare a written statement requesting re-enrollment and submit an Undergraduate Re-Enrollment Form.

MORE INFORMATION ABOUT ACADEMIC SUSPENSION (<https://behrend.psu.edu/academics/academic-services/college-registrar/forms-and-requests/returning-suspension/>)

READ SENATE POLICY 54-40: ACADEMIC SUSPENSION (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-40>)

Resources

Academic and Career Planning Center

Having a solid academic plan and preparation for the internship and job search is vital for success in a competitive world. The Academic and Career Planning Center can assist you with both the big picture ("Which career is right for me?") and the details ("How do I create a resume?").

MORE INFORMATION ABOUT ACADEMIC AND CAREER PLANNING CENTER (<https://behrend.psu.edu/academics/academic-services/exploratory-and-pre-major-advising-and-career-services/>)

Athletics and Recreation

Don't stop playing the sports you love! Penn State Behrend fields twenty-four NCAA DIII athletic teams for men and women, plus offers club sports, intramurals, and recreation programs.

MORE INFORMATION ABOUT ATHLETICS AND RECREATION (<https://www.psb lions.com/landing/index/>)

Division of Undergraduate Studies

Not sure what you want to major in? You're not alone! Most Penn State students begin their college career in the Division of Undergraduate Studies. DUS students pursue their General Education requirements while they explore major options and career interests.

MORE INFORMATION ABOUT THE DIVISION OF UNDERGRADUATE STUDIES (<https://behrend.psu.edu/academics/academic-services/academic-advising/division-of-undergraduate-studies/>)

Educational Equity and Diversity Programs

Penn State Behrend is committed to promoting diversity. The Office of Educational Equity and Diversity Programs supports and serves as an advocate for diverse populations within the college community, creating

an environment that promotes respect for differences while fostering caring relationships and cross-cultural understanding and appreciation.

MORE INFORMATION ABOUT EDUCATIONAL EQUITY AND DIVERSITY PROGRAMS (<https://behrend.psu.edu/student-life/educational-equity-and-diversity/>)

English Language Study Center

The English Language Study Center offers classes and support services designed to help multicultural learners develop the reading, writing, and speaking skills needed to succeed on the job or in the university-level classroom.

MORE INFORMATION ABOUT THE ENGLISH LANGUAGE STUDY CENTER (<https://behrend.psu.edu/school-of-humanities-social-sciences/programs-events/the-english-language-study-center/>)

Health and Wellness Center

Penn State Behrend has two on-campus Health and Wellness Centers that can diagnose and treat most illnesses and minor injuries. The centers also help students to manage chronic health conditions or obtain needed immunizations. Most major insurances are accepted.

MORE INFORMATION ABOUT THE HEALTH AND WELLNESS CENTER (<https://behrend.psu.edu/student-life/student-services/health/>)

Learning Resource Center

The Learning Resource Center offers free tutoring for most first- and second-year courses and some advanced courses, plus exam prep and study-skills development workshops. Tutoring is available seven days a week on an appointment, drop-in, and group-study basis.

MORE INFORMATION ABOUT THE LEARNING RESOURCE CENTER (<https://behrend.psu.edu/academics/academic-services/learning-resource-center-lrc/>)

Open-Lab Learning

Penn State Behrend's open-lab philosophy creates relevant learning experiences by bringing business and industry together with students and faculty members. Together, these academic-professional teams work to solve business, industry, and community challenges and pursue research and development initiatives.

MORE INFORMATION ABOUT OPEN-LAB LEARNING (<https://behrend.psu.edu/academics/academic-programs/open-lab-real-world-experience-students/>)

Personal Counseling

The Office of Personal Counseling offers free individual counseling, support groups, and psychiatric and crisis intervention services to Penn State Behrend students. All services are free and confidential.

MORE INFORMATION ABOUT PERSONAL COUNSELING (<https://behrend.psu.edu/student-life/student-services/personal-counseling/>)

Special Living Options

Special Living Options, or SLOs, are on-campus intentional communities built around a common interest. There are seven SLOs in Penn State Behrend's nineteen residence halls: Discovery House, Engineering House, Global Boarders, Honors House, Ally House, Living in a Free Environment, and Tree House.

MORE INFORMATION ABOUT SPECIAL LIVING OPTIONS (<https://liveon.psu.edu/behrend/>)

Study Abroad

The Learning Resource Center helps students to find, schedule, and pay for learning experiences outside of the United States. Can't commit to a full year abroad? There are many courses that range from ten days to one semester.

MORE INFORMATION ABOUT STUDY ABROAD OPPORTUNITIES (<https://behrend.psu.edu/academics/academic-programs/study-abroad/>)

Honors Programs

Schreyer Honors College

The Schreyer Honors College, regarded as one of the nation's top programs of its kind, promotes achieving academic excellence with integrity, building a global perspective, and creating opportunities for leadership and civic engagement. Schreyer Scholars, including those admitted after their first or second year of enrollment, are a diverse and motivated group of approximately 2,000 students at University Park and 20 Commonwealth campuses. The College strives to educate students who will have an important and ethical influence in the world, to improve educational practice, and to continue to be recognized as a leading force in honors education nationwide.

MORE INFORMATION ABOUT THE SCHREYER HONORS COLLEGE (<https://www.shc.psu.edu>)

Honors at Penn State Erie, The Behrend College

The Penn State Behrend Honors Program offers a richer academic experience to highly qualified first- and second-year students. Benefits to participation include participation in seminar-style Honors classes, greater flexibility for pursuing your personal academic interests, priority scheduling, additional scholarship opportunities, and the ability to live in special Honors housing. Students who complete nine or more Honors credits while maintaining a minimum cumulative grade-point average are awarded an Honors Certificate.

MORE INFORMATION ABOUT HONORS AT PENN STATE ERIE, THE BEHREND COLLEGE (<https://behrend.psu.edu/academics/academic-programs/honors/>)

Contact

PENN STATE ERIE, THE BEHREND COLLEGE
4701 College Drive
Erie, PA 16563
behrend.admissions@psu.edu

<https://behrend.psu.edu>

Accounting, B.S. (Behrend)

Begin Campus: Any Penn State Campus

End Campus: Erie

Program Description

The Accounting major provides an opportunity to pursue a unique program that integrates knowledge and skills in accounting and information management. It helps prepare students for positions in public accounting firms, corporations, government, and not-for-profit

organizations. In addition, the accounting major provides a strong foundation for careers in financial services, forensic investigation, or law.

What is Accounting?

Accountants develop and interpret financial data required for decision-making by managers, investors, regulators, and other stakeholders. To perform their functions, accountants must work with both numerical information and concepts, and they must be able to function effectively as individuals and in teams. Accountants work with people in their own specialized departments, and with users of financial information throughout their organization. Because of this close association with other parts of the organization, the accountant is in a unique position to develop a broad business perspective.

You Might Like This Program If...

- You like numbers.
- You enjoy working with technology.
- You are detail oriented.
- You communicate well and would enjoy working in a client-facing environment.

Entrance to Major

Entry to the Accounting major requires the successful completion of 5 entry-to-major courses: ACCTG 211, ECON 102, ENGL 15 or ENGL 30H, MATH 110 or MATH 140, STAT 200 or SCM 200. Each course requires a C or better grade for successful completion.

Degree Requirements

For the Bachelor of Science degree in Accounting, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	96

21 of the 45 credits for General Education are included in the Requirements for the Major. This includes 6 credits of GQ courses; 6 credits of GS courses; 9 credits of GWS courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned.

Requirements for the Major

Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
BA 241	Legal Environment of Business	2
BA 242	Social and Ethical Environment of Business	2
PSU 7	First-Year Seminar Behrend	1

Prescribed Courses: Require a grade of C or better

ACCTG 211	Financial and Managerial Accounting for Decision Making	4
ACCTG 310	Federal Taxation I	3
ACCTG 312	Accounting Technology Lab	3
ACCTG 340	Cost Accounting	3
ACCTG 371	Intermediate Accounting I	4
ACCTG 403	Auditing	3
ACCTG 422	Accounting Systems	3
ACCTG 450	Advanced Accounting	3
ACCTG 472	Intermediate Financial Accounting II	3
CAS 100	Effective Speech	3
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
ENGL 202D	Effective Writing: Business Writing	3
FIN 301	Corporation Finance	3
MGMT 301	Basic Management Concepts	3
MGMT 471W	Strategic Management and Business Policy	3
MIS 204	Introduction to Management Information Systems	3
MIS 250	Introduction to Problem Solving with Spreadsheet Analysis and Information Systems Management	3
MIS 345	Introduction to Data Analytics	3
MKTG 301	Principles of Marketing	3
SCM 301	Supply Chain Management	3

Additional Courses

Additional Courses: Require a grade of C or better

ENGL 15	Rhetoric and Composition	3
or ENGL 30H	Honors Rhetoric and Composition	
MATH 110	Techniques of Calculus I	4
or MATH 140	Calculus With Analytic Geometry I	
SCM 200	Introduction to Statistics for Business	4
or STAT 200	Elementary Statistics	
Select 3 credits from the following listing:		3
ECON 470	International Trade and Finance	
FIN 471	International Finance	
IB 303	International Business Operations	
MGMT 461	International Management	
MKTG 445	Global Marketing	
Other 300-400-level International Business course		

Select 3 credits from the following listing:		3
ACCTG 411	Accounting Practicum: VITA	
ACCTG 426	Financial Statement Analysis	
ACCTG 495	Internship	
BLAW 444	Advanced UCC and Commercial Transactions	
MIS 336	Database Management Systems	
MIS 344	Introduction to Cybersecurity	
Other 300- to 400-level courses either within the major or from other business areas		

Supporting Courses and Related Areas

Select 9 credits from any business major field or any non-business major course, except for all KINES (GHW) courses, any ENGL course below ENGL 15, and any MATH course below MATH 110. Exceptions may be petitioned through the applicable department chair. 9

- United States Cultures: 3 credits
- International Cultures: 3 credits

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **CRITICAL AND INTEGRATIVE THINKING:** Students will be able to think critically across business disciplines by considering different perspectives and using an integrated, holistic approach to perform relevant analyses, construct valid arguments, and make appropriate conclusions.
- **ORAL COMMUNICATION:** Students will be able to execute the oral communication skills that they have learned in the interactive business courses to business situations where effective explanation, persuasion, exchanging information and ideas are essential.
- **WRITING COMPETENCE:** Students will be able to demonstrate effective business writing skills.
- **TEAMWORK:** Students will be positive contributors to an effective team functioning via application of their functional skills in addition to strong interpersonal skills.
- **ETHICS AND SOCIAL RESPONSIBILITY:** Students will be able to recognize ethical issues and apply ethical theories in business situations at individual and/or organizational levels.
- **FUNCTIONAL AREA KNOWLEDGE (ETS):** Students will be able to apply foundational knowledge to analyze and solve problems and interpret written and visual material across various business domains.
- **FUNCTIONAL AREA KNOWLEDGE (ACCOUNTING):** Students will be able to demonstrate a broad general knowledge of the principles of accounting, both managerial and financial.
- **FUNCTIONAL AREA KNOWLEDGE (ECONOMICS):** Students will be able to demonstrate a broad general knowledge of the principles of economics, both microeconomics and macroeconomics
- **FUNCTIONAL AREA KNOWLEDGE (FINANCE):** Students will be able to demonstrate a broad general knowledge of the principles of finance.

- **FUNCTIONAL AREA KNOWLEDGE (MIS):** Students will be able to describe the benefits and challenges of applying information technology in various organizations and functional areas.
- **FUNCTIONAL AREA KNOWLEDGE (INTERNATIONAL BUSINESS):** Students will be able to apply basic multidisciplinary knowledge needed to conduct international business and analyze the impact of globalization.
- **FUNCTIONAL AREA KNOWLEDGE (LEGAL ENVIRONMENT):** Students will be able to identify key terms, concepts, and theories of the law, evaluate how law affects business, analyze legal issues, and apply the law to business situations.
- **FUNCTIONAL AREA KNOWLEDGE (MANAGEMENT):** Students will be able to demonstrate a broad knowledge of the business discipline of management.
- **FUNCTIONAL AREA KNOWLEDGE (MARKETING):** Students will be able to demonstrate comprehensive knowledge in the field of marketing.
- **FUNCTIONAL AREA KNOWLEDGE (QUANTATIVE BUSINESS ANALYSIS):** Students will be able to demonstrate a broad knowledge of quantitative business analysis.
- **FUNCTIONAL AREA KNOWLEDGE (SUPPLY CHAIN MANAGEMENT):** Students will be able to demonstrate a broad knowledge of supply chain management.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

Ash Deshmukh, Ph.D.

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Accounting, B.S. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes

in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year		
Fall	Credits Spring	Credits
ENGL 15 or 30H ^{*†#†}	3 CAS 100A, 100B, or 100C ^{††}	3
MATH 110 or 140 ^{*†#†}	4 ECON 102 ^{*#†}	3
General Education Course (GH) ³	3 MIS 204 [*]	3
General Education Course (GN) ³	3 General Education Course (GA) ³	3
General Education Course (GHW) ³	1.5 General Education Course (GN) (Standalone or Inter-Domain) ³	3
PSU 7	1	
	15.5	15

Second Year		
Fall	Credits Spring	Credits
ACCTG 211 ^{*#}	4 ENGL 202D ^{††}	3
ECON 104 ^{*†}	3 FIN 301 [*]	3
SCM 200 or STAT 200 ^{*†#†}	4 MGMT 301 [*]	3
General Education Course (Interdomain) ³	3 MKTG 301 [*]	3
General Education Course (GHW) ³	1.5 SCM 301 [*]	3
	15.5	15

Third Year		
Fall	Credits Spring	Credits
ACCTG 310 (Fall Only) [*]	3 ACCTG 312 (Spring Only) [*]	3
ACCTG 371 (Fall Only) [*]	4 ACCTG 472 (Spring Only) [*]	3
BA 241 & BA 242	4 MIS 345 [*]	3
General Education Course (Interdomain) ³	3 Approved Elective ²	3
	General Education Course ³	3
	14	15

Fourth Year		
Fall	Credits Spring	Credits
ACCTG 340 (Fall Only) [*]	3 ACCTG 403 (Spring Only) [*]	3
ACCTG 450 (Fall Only) [*]	3 ACCTG 422 (Spring Only) [*]	3
MIS 250 [*]	3 MGMT 471W [*]	3
General Education Course (GA/GH/GS/GN/Interdomain) ²	3 Additional Business Course [*]	3
Additional Business Course [*]	3 Approved Elective ²	3
IB 303 (or International Business Course (IL)) [*]	3	
	18	15

Total Credits 123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Please see your academic adviser for approval before scheduling your course.

² In order for a course to be eligible for an Approved Elective, the course can not be a lower level ENGL (1-6) or MATH (2-41) OR a GHW designated course. Please see your academic adviser if you have a question on a specific course.

³ All students are required to fulfill 45 credits of General Education courses. More information about this requirement can be found on the Baccalaureate Degree General Education Requirements page in the Bulletin (p. 3184).

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

In addition to preparing you for the traditional roles of CPA, cost accountant, government accountant, or internal auditor, the Penn State Behrend B.S. in Accounting degree program can be a solid foundation for a career in financial services, forensic investigation, or law. There isn't an industry or sector of the economy that doesn't employ accountants, giving you a wide range of career options. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

Recent Behrend B.S. in Accounting graduates have started their careers as budget analysts, trade specialists, underwriters, business management analysts, assurance associates, financial institution examiners, and internal auditors. Accounting alumni with more experience hold positions that include chief accounting officer, tax senior manager, partner, and special agent for the IRS' criminal investigation unit.

MORE INFORMATION ABOUT POTENTIAL CAREER PATHS FOR GRADUATES OF THE ACCOUNTING PROGRAM (<https://behrend.psu.edu/school-of-business/academic-programs/accounting/>)

Opportunities for Graduate Studies

Accounting graduates have many advanced degree options. Penn State Behrend offers a one-year Master of Professional Accounting (M.P.Acc.) degree program that fulfills the educational requirements needed for CPA licensure within graduate-level education. In addition,

students can pursue an M.B.A. with or without a concentration in accounting, or a degree in an entirely different field such as law, financial engineering, investment management, human resource management, project management, business analytics, entrepreneurship, marketing, or management.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-business/academic-programs/master-of-professional-accounting/>)

Professional Resources

- AACSB International (<https://www.aacsb.edu>)
- American Institute of Certified Public Accountants (<https://www.aicpa-cima.com/>)
- Institute of Management Accountants (<https://www.imanet.org>)
- Institute of Certified Fraud Examiners (<https://www.acfe.com>)

Accreditation

The Black School of Business is accredited by AACSB International—The Association to Advance Collegiate Schools of Business. As the world's largest business education alliance, AACSB connects educators, students, and business to achieve a common goal: to create the next generation of great leaders. Synonymous with the highest standards of excellence since 1916, AACSB provides quality assurance, business education intelligence, and professional development services to over 1,500 member organizations and more than 785 accredited business schools worldwide. AACSB's mission is to foster engagement, accelerate innovation, and amplify impact in business education.

MORE INFORMATION ABOUT THE ASSOCIATION TO ADVANCE COLLEGIATE SCHOOLS OF BUSINESS (<https://www.aacsb.edu/>)

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

Erie

BLACK SCHOOL OF BUSINESS
281 Jack Burke Research and Economic Development Center
Erie, PA 16563
814-898-6107
behrendbusiness@psu.edu

<https://behrend.psu.edu/school-of-business> (<https://behrend.psu.edu/school-of-business/>)

Accounting, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The accounting minor requires students to complete 16 additional credits in accounting beyond the 4 credits required in ACCTG 211.

It is designed to introduce students to advanced topics in financial and cost accounting, as well to the basics of income tax accounting for individuals. This minor can provide an enhanced understanding of accounting information flows, costing systems, and the general tax environment to students majoring in other business areas, and it is a particularly good compliment to the finance and management information systems majors. On its own, it will not generally enable students to meet the requirements for professional licensing in accounting.

What is Accounting?

Accountants develop and interpret financial data required for decision-making by managers, investors, regulators, and other stakeholders. To perform their functions, accountants must work with both numerical information and concepts, and they must be able to function effectively as individuals and in teams. Accountants work with people in their own specialized departments, and with users of financial information throughout their organization. Because of this close association with other parts of the organization, the accountant is in a unique position to develop a broad business perspective.

You Might Like This Program If...

- You enjoy numbers and working with technology.
- You are a business major who wants additional education in accounting.

Program Requirements

Requirement	Credits
Requirements for the Minor	20

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
ACCTG 310	Federal Taxation I	3
ACCTG 371	Intermediate Accounting I	4
ACCTG 472	Intermediate Financial Accounting II	3
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 6 credits of additional ACCTG courses, at least 3 credits at the 400-level		6

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Career Paths

The minor in Accounting can be pursued by students in most Black School of Business degree programs. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

Beyond-the-required education in accounting can make you a more competitive job candidate in any field. The minor alone is not preparation for professional practice as an accountant.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN ACCOUNTING (<https://behrend.psu.edu/school-of-business/academic-programs/accounting/minor/>)

Opportunities for Graduate Studies

Adding a specialized minor such as Accounting to a primary business major program demonstrates to graduate programs your commitment to interdisciplinary thinking.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-business/academic-programs/accounting/minor/>)

Contact

Erie

BLACK SCHOOL OF BUSINESS
281 Jack Burke Research and Economic Development Center
Erie, PA 16563
814-898-6107
behrendbusiness@psu.edu

<https://behrend.psu.edu/school-of-business> (<https://behrend.psu.edu/school-of-business/>)

Abington

DIVISION OF SOCIAL SCIENCES
1600 Woodland Road
Abington, PA 19001
215-881-7300
fzz34@psu.edu

<https://abington.psu.edu/academics/accounting> (<https://abington.psu.edu/academics/accounting/>)

Berks

EBC DIVISION
Gaige Building
Reading, PA 19610
610-396-6448
BKAccounting@psu.edu

Actuarial Mathematics and Statistics, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

Designed to prepare students for a career as an actuary. Students completing the certificate are prepared to pass the P/1 (Probability), FM/2 (Financial Mathematics) examination and would obtain via credit for economic, corporate finance and applied statistical methods topics once a second actuarial examination is passed. It is divided with mathematical and statistical prerequisites, upper-level statistics, and finance/economics courses. Requires 31 credit hours and can be completed concurrently with a Penn State degree or via continuing education.

What is Actuarial Mathematics and Statistics?

Actuarial science is an interdisciplinary study that combines mathematics, probability theory, statistics, finance, economics, and computer science. Actuaries study and evaluate risk, often in the insurance and finance sectors.

You Might Like This Program If...

- You enjoy working with numbers and data, both scientific and financial.
- You like not only mathematics but also business and computing.

- You have strong communication skills.
- You are comfortable working on a cross-discipline team.

Program Requirements

To earn an undergraduate certificate in Actuarial Mathematics and Statistics, a minimum of 31 credits is required.

Code	Title	Credits
Prescribed Courses		
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
ECON 481 or ECON 485	Business Forecasting Techniques Econometric Techniques	3
FIN 301	Corporation Finance	3
FIN 427	Derivative Securities	3
MATH 230	Calculus and Vector Analysis	4
STAT 301		3
STAT 414	Introduction to Probability Theory	3
STAT 462	Applied Regression Analysis	3
Select one of the following:		3-4
SCM 200	Introduction to Statistics for Business	
STAT 200	Elementary Statistics	
STAT 401	Experimental Methods	

Prerequisites Required.

Certificate Learning Objectives

- Prepare students for the FM/2 actuary exam.
- Prepare students for the P/1 actuary exam.
- Provide students the opportunity to receive VEE credit.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

Michael Rutter, Ph.D.
Associate Professor of Statistics
3-B Prischak
Erie, PA 16563
814-898-6272
mar36@psu.edu

Career Paths

Actuaries are in high demand and the job outlook is expected to grow much faster than average in the next decade. Qualifications for an actuary are a bachelor's degree in mathematics, finance, or a related field and passing one or more actuary exams. Internships are plentiful and a key component to finding employment as an actuary. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

Students completing the certificate are prepared to pass the P/1 (Probability) and FM/2 (Financial Mathematics) actuary examinations and would obtain Validation by Educational Experience (VEE) credit for economics, corporate finance, and applied statistical methods once a second actuarial examination is passed.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A CERTIFICATE IN ACTUARIAL MATHEMATICS AND STATISTICS (<https://behrend.psu.edu/school-of-science/academic-programs-1/certificate-programs/actuarial-mathematics-and-statistics-certificate/>)

Opportunities for Graduate Studies

A certificate in the sciences, particularly when added to a major program outside of the sciences, demonstrates to graduate school admissions committees your commitment to interdisciplinary thinking.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-science/academic-programs-1/certificate-programs/actuarial-mathematics-and-statistics-certificate/>)

Professional Resources

- Society of Actuaries (<https://www.soa.org>)
- Be An Actuary (<https://www.beanactuary.org/>)

Contact

Erie

SCHOOL OF SCIENCE
1 Prischak
4205 College Drive
Erie, PA 16563
814-898-6105
behrend-science@psu.edu

<https://behrend.psu.edu/school-of-science> (<https://behrend.psu.edu/school-of-science/>)

Advertising, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

The certificate in Advertising offered at Penn State Behrend is designed for communication and business majors who wish to focus their supporting or non-business supporting coursework in a specific professional communication area. The certificate is also designed for working professionals interested in developing their skill-set in

advertising. The foundation of the certificate is developed in the Media Writing, Introduction to Advertising, and Creative Strategies courses. Students are then allowed to choose one additional advanced course to complete the 12 required hours.

What is Advertising?

Advertising is an approach to marketing communication that uses paid messaging to promote or sell a product, service, or idea. Advertising unabashedly attempts to influence opinion or spur an action such as buying a product or voting for a candidate. Advertisements commonly appear in mass media such as newspapers, magazines, television, radio, billboards, and direct mail. Newer forms of advertising include social media, blogs, websites, search results, and text messages.

You Might Like This Program If...

- You are creative.
- You enjoy thinking critically about consumer behavior.
- You envision a career creating advertising content or working at an ad agency.
- You might want to someday buy or sell advertising space, spots, or services.
- You are pursuing a communication- or business-related degree.

Program Requirements

To earn an undergraduate certificate in Advertising, a minimum of 12 credits is required.

Code	Title	Credits
Prescribed Courses		
COMM 315	Applications for Media Writing	3
COMM 320	Introduction to Advertising	3
COMM 421W	Advertising Creative Strategies	3
COMM 422	Advertising Media Planning	3
or COMM 424	Advertising Campaigns	

Certificate Learning Objectives

- Understand and remember main concepts in the field of Advertising.
- Analyze and critique advertisements for its message appeals, and creativity.
- Master creative thinking.
- Create advertisements.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

David Kahl Jr., Ph.D.

Program Chair and Professor of Communication

44 Kochel Center

Erie, PA 16563

814-898-6207

dhk10@psu.edu

Career Paths

The certificate in Advertising can be pursued by students in most Penn State Behrend degree programs and as a stand-alone credential for nondegree students. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

A certificate in Advertising can be a strategic advantage for business and communications students who aspire to work in marketing, sales, or promotion.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A CERTIFICATE IN ADVERTISING (<https://behrend.psu.edu/school-of-humanities-social-sciences/academic-programs-1/certificate-programs/advertising-certificate/>)

Opportunities for Graduate Studies

A certificate in the liberal arts, particularly when added to a major program outside of the liberal arts, demonstrates to graduate school admissions committees your commitment to interdisciplinary thinking.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-humanities-social-sciences/academic-programs-1/certificate-programs/advertising-certificate/>)

Professional Resources

- American Advertising Federation (<https://www.aaf.org/>)

Contact

Erie

SCHOOL OF HUMANITIES AND SOCIAL SCIENCES

170 Irvin Kochel Center

4951 College Drive

Erie, PA 16563

814-898-6108

HSSOffice@psu.edu

<https://behrend.psu.edu/school-of-humanities-social-sciences> (<https://behrend.psu.edu/school-of-humanities-social-sciences/>)

Applied Economics, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The minor in Applied Economics requires completion of 18 credit hours of coursework in economics. In addition to the introductory courses (ECON 102 and ECON 104), students in the applied economics minors must complete 12 hours in economics elective courses at the 300/400 level. Note that at least 6 of those credit hours must be at the 400 level. The applied economics minor is a strong complement to virtually any major, including those within, and outside of, the School of Business. Since most School of Business majors will, already have earned 6 to 9 credits towards the applied economics minor, earning a minor in applied economics is particularly attractive for these students. The applied economics minor provides a general introduction to economic thought helping students better understand a variety of contemporary economic issues. The minor can enhance the major's market value and provide students with options and opportunities beyond the major program of study.

What is Applied Economics?

Economics is the study of how individuals, firms, and governments allocate their scarce resources. A foundation in economic thought and policy complements many degree programs in business and beyond.

You Might Like This Program If...

- You are a non-business major who is curious about how economic principles shape your major field of study.
- You are a business major who wants additional education in economics.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better
Select 12 credits of 300 or 400-level ECON courses, 6 credits must be completed using 400-level courses 12

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged

in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

Kerry Adzima, Ph.D.

Associate Professor of Economics

276 Burke

Erie, PA 16563

814-898-6096

kak38@psu.edu

Career Paths

The minor in Applied Economics can be pursued by students in most Penn State Behrend degree programs. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

Going beyond the required education in economics can make you a more competitive job candidate in any field.

Opportunities for Graduate Studies

Adding a specialized minor such as Applied Economics to a primary business, science, or liberal arts major program demonstrates to graduate programs your commitment to interdisciplinary thinking.

Contact

Erie

BLACK SCHOOL OF BUSINESS

281 Jack Burke Research and Economic Development Center

Erie, PA 16563

814-898-6107

behrendbusiness@psu.edu

<https://behrend.psu.edu/school-of-business> (<https://behrend.psu.edu/school-of-business/>)

Behavioral Finance, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

This certificate is an interdisciplinary certificate offered jointly by the Black School of Business and the School of Humanities and Social Sciences. This certificate program is designed to prepare both current and returning students for a career in personal finance; and, for those interested in better understanding the ways in which social and cognitive psychology impact financial decisions. This certificate will cover core content in social psychology, cognitive psychology, behavioral economics, and behavioral finance. The certificate requires a total of

18 credit hours and can be completed concurrently with a Penn State Behrend degree or via continuing education.

What is Behavioral Finance?

Behavioral Finance is the merger of psychology and financial decision making. We all make shortcuts as we process new information. This discipline explores how these shortcuts impact everyday decisions, investment decisions, and even financial management (i.e., corporate finance) decisions.

You Might Like This Program If...

You are intrigued by why investors buy and sell stocks at certain times. This certificate also considers why financial managers make decisions to merge firms, to pay dividends, or to make many other financial decisions. Psychology influences most decisions that we make, and this certificate explores this area with an eye for finance.

Program Requirements

To earn an undergraduate certificate in Behavioral Finance, a minimum of 18 credits is required.

Code	Title	Credits
Required Courses		
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 474	Experimental and Behavioral Economics	3
FIN 477	Behavioral Finance	3
PSYCH 100	Introductory Psychology	3
PSYCH 221	Introduction to Social Psychology	3
PSYCH 256	Introduction to Cognitive Psychology	3

Certificate Learning Objectives

- Students will gain a basic understanding of economic theory as it applies to decision-making.
- Students will gain an advanced understanding of the interconnectedness of psychological, economic, and financial concepts as they relate to financial decision making.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

Eric Robbins

Assistant Teaching Professor of Finance

215 Burke

Erie, PA 16563
814-898-6940
eric.robbs@psu.edu

Career Paths

Those who are interested in careers in financial planning or financial counseling would benefit from this certificate. There is also a clear personal benefit for those who will make financial decision in any capacity in life.

Contact

Erie

BLACK SCHOOL OF BUSINESS
281 Jack Burke Research and Economic Development Center
Erie, PA 16563
814-898-6107
behrendbusiness@psu.edu

<https://behrend.psu.edu/school-of-business> (<https://behrend.psu.edu/school-of-business/>)

Behavioral Health and Counseling Psychology, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

This 15 credit certificate provides the core information and competencies for students interested in pursuing a position in behavioral health and clinical or counseling psychology. It will be attractive to both psychology majors interested in pursuing clinical psychology and adult students taking courses part time for career advancement. This may also serve as the gateway to a minor or major in psychology. It is consistent with psychology program goals to develop clear career tracks for current students in clinical and counseling psychology.

What is Behavioral Health and Counseling Psychology?

Behavioral health and counseling psychology is an applied field of psychology and counseling that helps people to improve their functioning, both as individuals and in their relationships with others. Clinical and counseling psychologists help people with physical and mental health issues to improve their well-being, reduce stress, and resolve crises.

You Might Like This Program If...

- You are a Psychology major interested in a psychology, counseling, or social work career.
- You are in an applied health career and want to learn more about mental health and counseling.
- You want to work with people using cognitive, behavioral, or emotion regulation techniques.
- You would like to help people who struggle with a mental illness.

Program Requirements

To earn an undergraduate certificate in Behavioral Health and Counseling Psychology, a minimum of 15 credits is required.

Code	Title	Credits
Prescribed Courses		
PSYCH 270	Introduction to Abnormal Psychology	3
PSYCH 481	Introduction to Clinical Psychology	3
PSYCH 495	Internship	3
In addition to the 9 credits of coursework listed, students may choose any two (6 credits) of the following:		6
PSYCH 238	Introduction to Personality Psychology	
PSYCH 243	Introduction to Well-being and Positive Psychology	
PSYCH 404/ EDPSY 450	Principles of Measurement	
PSYCH 423	Social Psychology of Interpersonal/Intergroup Relationships	
PSYCH 470	Abnormal Psychology	
PSYCH 471	Psychology of Adjustment and Social Relationships	
PSYCH 473	Behavior Modification	
PSYCH 474	Psychological Intervention in Childhood	
PSYCH 476	Child Psychopathology	
PSYCH 477	Mental Health Practicum with Children	
PSYCH 478	Clinical Neuropsychology	

Prerequisites Required.

Certificate Learning Objectives

- **Knowledge of Psychological Disorders:** Describe the symptoms and causes (etiology) of psychological disorders.
- **Approaches in Clinical and Counseling Psychology:** Compare the major theoretical orientations and related treatment approaches in clinical and counseling psychology.
- **Process of Clinical Practice:** Explain the process of clinical assessment, case formulation, treatment planning, and clinical treatment.
- **Client Populations:** Apply theoretical and research knowledge in observations of and interactions with client populations.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

Wilson Brown, Ph.D.

Associate Professor of Clinical Psychology
106 Turnbull Hall
Erie, PA 16563
814-898-6936
wilsonbrown@psu.edu

Schuylkill

Academic Advising Office

Academic Affairs

200 University Drive
Schuylkill Haven, PA 17972
570-385-6111
sl-advising@psu.edu

Career Paths

The certificate in Behavioral Health and Counseling Psychology can be pursued by Penn State Behrend undergraduate students and as a stand-alone credential for nondegree students. It is attractive to students interested in pursuing graduate education in clinically related areas and to adults taking courses part-time for career advancement. This certificate provides core competencies for students interested in pursuing a position in behavioral health and clinical or counseling psychology. Abnormal psychology coursework offers an overview of the types and causes of psychological disorders, while clinical psychology classes focus on the assessment and treatment of psychological disorders.

Careers

Behavioral and counseling psychologists frequently specialize in the types of clients they treat. Children, adolescents, couples, family, and group therapy are common specializations. Or, they may concentrate their practice in crisis intervention, disaster, or trauma management. Some practitioners are institution-based, working in hospitals, clinics, schools, universities, or prisons.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A CERTIFICATE IN BEHAVIORAL HEALTH AND COUNSELING PSYCHOLOGY (<https://behrend.psu.edu/school-of-humanities-social-sciences/academic-programs-1/certificate-programs/behavioral-health-and-counseling-psychology-certificate/>)

Opportunities for Graduate Studies

Clinical practice of behavioral health and counseling psychology requires education beyond a bachelor's degree. Penn State Behrend offers a Master of Arts degree program in Applied Clinical Psychology that includes optional preparation for the Licensed Professional Counselor (LPC) credential. Penn State Behrend also offers a graduate certificate in Trauma-Informed Psychotherapy that pairs with the M.A. in Applied Clinical Psychology.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-humanities-social-sciences/academic-programs/master-of-applied-clinical-psychology/>)

Professional Resources

- American Psychological Association (<https://www.apa.org/>)
- American Counseling Association (<https://www.counseling.org/>)

Contact

Erie

SCHOOL OF HUMANITIES AND SOCIAL SCIENCES
170 Irvin Kocheł Center
4951 College Drive
Erie, PA 16563
814-898-6108
HSSOffice@psu.edu

<https://behrend.psu.edu/school-of-humanities-social-sciences> (<https://behrend.psu.edu/school-of-humanities-social-sciences/>)

Schuylkill

ACADEMIC AFFAIRS, SOCIAL SCIENCES
200 University Drive
Schuylkill Haven, PA 17972
570-385-6066
crs15@psu.edu

<https://schuylkill.psu.edu/academics/degrees/bacc-degrees/psychology> (<https://schuylkill.psu.edu/academics/degrees/bacc-degrees/psychology/>)

Biology, B.S. (Behrend)

Begin Campus: Any Penn State Campus

End Campus: Erie

Program Description

The curriculum in Biology is designed to provide students with a strong background in the biological sciences. It provides preparation for students who intend to secure advanced degrees through graduate study, students who intend to prepare for careers in medicine or health-related fields, and students preparing for careers with companies or agencies requiring employees with biological backgrounds. The curriculum has six options allowing students to choose an area of specialization that will best meet their career goals. In addition to selecting an option, students are strongly encouraged to participate in faculty-supervised research. The options are:

1. *General Biology* - various areas of modern biology;
2. *Ecology, Evolution, and Behavior* - theoretical, practical, and applied ecology and evolution of plants and animals;
3. *Genetics and Developmental Biology* - genetics and developmental biology of plants and animals;
4. *Molecular and Cellular Biology and Biochemistry* - molecular and cellular mechanisms of biology;
5. *Medical Technology* - prepares students for careers in clinical laboratories; and
6. *Health Professions* - prepares students for careers in medicine and veterinary sciences; this option also allows exceptional students, who gain early admission to a professional school, to fulfill option requirements with a set number of academic credits taken during the first professional year.

What is Biology?

Biology is the scientific study of life: the diversity and organization of organisms, from single-celled bacteria to multi-cellular plants and animals, including humans. These different levels of biological

organization range from the molecules and cells that compose an organism, to the interacting organisms that make up an ecosystem. Hands-on experiences, from designing and conducting lab experiments to making field observations using different procedures and instruments play an important role in gaining biological knowledge. Biologists explore ways to cure neurological diseases, conserve coral populations in tropical oceans, discover more efficient ways to use plants for food and bio-energy, develop vaccines for infectious diseases, and investigate many other facets of Biology.

You Might Like This Program If...

- You are curious about the natural world, from the smallest of cells to the largest of trees.
- You enjoy theoretical study as well as hands-on laboratory learning.
- You are interested chemistry, physics, and mathematics.
- You can envision yourself in a health care or medical career.
- You are looking for a foundational major that supports diverse career paths in the sciences, engineering, research, education, and health care.

Entrance to Major

In order for entrance to the Biology major, a student must have:

1. attained at least a 2.00 cumulative grade point average;
2. completed BIOL 110 and earned a grade of C or better; and
3. completed at least one of the following courses with a grade of C or better: BIOL 220W, or BIOL 240W.

Degree Requirements

For the Bachelor of Science degree in Biology, a minimum of 124 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	97-99

18 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GWS courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned.

Requirements for the Major

Each student must earn at least a grade of C in each 200-, 300-, and 400-level BIOL, BMB, MICRB, PPEM and WFS course in the major field.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1

CHEM 112	Chemical Principles II	3
CHEM 113	Experimental Chemistry II	1
ENGL 202C	Effective Writing: Technical Writing	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
STAT 250	Introduction to Biostatistics	3

Prescribed Courses: Require a grade of C or better

BIOL 110	Biology: Basic Concepts and Biodiversity	4
BIOL 220W	Biology: Populations and Communities	4
BIOL 230W	Biology: Molecules and Cells	4
BIOL 240W	Biology: Function and Development of Organisms	4
BIOL 322	Genetic Analysis	3

Requirements for the Option

Select an option 56-58

Requirements for the Option

Ecology, Evolution, and Behavior Option (56 credits)

Students can select courses in theoretical or applied ecology, evolution, field biology and animal behavior to build strength in ecological science. The option prepares students for graduate study in ecology and evolution, or careers in zoo science, environmental consulting, environmental management, environmental education or positions with regulatory agencies.

Code	Title	Credits
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Prescribed Courses

Prescribed Courses: Require a grade of C or better

BIOL 427	Evolution	3
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Additional Courses

Select one of the following: 3

BIOL 402W	Biological Experimental Design ¹	
STAT 461	Analysis of Variance	
STAT 462	Applied Regression Analysis	
STAT 464	Applied Nonparametric Statistics	
STAT 466	Survey Sampling	

Select one of the following sequences: 6-8

CHEM 202 & CHEM 203	Fundamentals of Organic Chemistry I and Fundamentals of Organic Chemistry II	
CHEM 210 & CHEM 212 & CHEM 213	Organic Chemistry I and Organic Chemistry II and Laboratory in Organic Chemistry	

Select one of the following sequences: 8-10

PHYS 211 & PHYS 212 & PHYS 213	General Physics: Mechanics and General Physics: Electricity and Magnetism and General Physics: Fluids and Thermal Physics	
PHYS 211 & PHYS 212 & PHYS 214	General Physics: Mechanics and General Physics: Electricity and Magnetism and General Physics: Wave Motion and Quantum Physics	
PHYS 250 & PHYS 251	Introductory Physics I and Introductory Physics II	

Additional Courses: Require a grade of C or better

Select 9 credits of the following: 9

BIOL 428	Population Genetics	
BIOL 429	Animal Behavior	
BIOL 435	Ecology of Lakes and Streams	

BIOL 438	Theoretical Population Ecology	
BIOL 446	Physiological Ecology	
BIOL 463	General Ecology	

Supporting Courses and Related Areas

Select item A or B: 17-21

A		
GEOG 160	Mapping Our Changing World	
& GEOG 161	and Applied Geographic Information Systems	
& GEOG 363	and Geographic Information Systems	
Select 10-14 credits from school approved list		

B		
Select 17-21 credits from school approved list		

*Supporting Courses and Related Areas: Require a grade of C or better*Select 6 credits of 400-level BIOL, BMB, MICRB, PPEM, or WFS courses² 6¹ Course requires a grade of C or better² Excluding BIOL 400 and any courses numbered 494, 495, 496, 497, 498, or 499.**General Biology Option (56 credits)**

Students can select courses from a variety of areas of contemporary biology. The option provides the flexibility to enable students to tailor their program for graduate study in many fields of biology or careers requiring broad backgrounds and diverse skills in the biological sciences.

Code	Title	Credits
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Prescribed Courses*Prescribed Courses: Require a grade of C or better*

BIOL 427	Evolution	3
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Additional Courses

Select one of the following sequences: 6-8

CHEM 202	Fundamentals of Organic Chemistry I	
& CHEM 203	and Fundamentals of Organic Chemistry II	
CHEM 210	Organic Chemistry I	
& CHEM 212	and Organic Chemistry II	
& CHEM 213	and Laboratory in Organic Chemistry	

Select one of the following sequences: 8-10

PHYS 211	General Physics: Mechanics	
& PHYS 212	and General Physics: Electricity and Magnetism	
& PHYS 213	and General Physics: Fluids and Thermal Physics	

PHYS 211	General Physics: Mechanics	
& PHYS 212	and General Physics: Electricity and Magnetism	
& PHYS 214	and General Physics: Wave Motion and Quantum Physics	

PHYS 250	Introductory Physics I	
& PHYS 251	and Introductory Physics II	

Supporting Courses and Related Areas

Select 20-24 credits from school approved list 20-24

*Supporting Courses and Related Areas: Require a grade of C or better*Select 15 credits of 400-level BIOL, BMB, MICRB, PPEM, or WFS courses¹ 15¹ Excluding BIOL 400 and any courses numbered 494, 495, 496, 497, 498, or 499.**Genetics and Developmental Biology Option (56 credits)**

Students can select courses to develop strengths in various areas of transmission, medical, population or molecular genetics and/or study the developmental process at the organismal, histological or molecular levels. The option prepares students for admission to professional programs in the health sciences, graduate programs in genetic counseling, plant or animal breeding, developmental biology, or careers in research or biotechnology.

Code	Title	Credits
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Prescribed Courses

CHEM 210	Organic Chemistry I	3
CHEM 212	Organic Chemistry II	3
CHEM 213	Laboratory in Organic Chemistry	2

Prescribed Courses: Require a grade of C or better

BIOL 427	Evolution	3
MICRB 201	Introductory Microbiology	3
MICRB 202	Introductory Microbiology Laboratory	2

Additional Courses

Select one of the following sequences: 8-10

PHYS 211	General Physics: Mechanics	
& PHYS 212	and General Physics: Electricity and Magnetism	
& PHYS 213	and General Physics: Fluids and Thermal Physics	

PHYS 211	General Physics: Mechanics	
& PHYS 212	and General Physics: Electricity and Magnetism	
& PHYS 214	and General Physics: Wave Motion and Quantum Physics	

PHYS 250	Introductory Physics I	
& PHYS 251	and Introductory Physics II	

Additional Courses: Require a grade of C or better

Select three of the following: 9

BIOL 422	Advanced Genetics	
BIOL 428	Population Genetics	
BIOL 430	Developmental Biology	
BIOL 460	Human Genetics	
BMB 406	Molecular Biology	

Supporting Courses and Related Areas

Select 15-17 credits from school approved list 15-17

*Supporting Courses and Related Areas: Require a grade of C or better*Select 6 credits of 400-level BIOL, BMB, MICRB, PPEM, or WFS courses¹ 6¹ Excluding BIOL 400 and any courses numbered 494, 495, 496, 497, 498, or 499.**Medical Technology Option (56-58 credits)**

Students spend approximately twelve months at an affiliated hospital¹ during their senior year to complete the clinical phase of their baccalaureate studies. A fixed number of spaces are available on a competitive basis of grade-point average and hospital approval. The Bachelor of Science degree in Biology is awarded upon successful completion of the clinical study. The graduate is also eligible to take the national examination for certification and registry as a medical technologist.

¹ Current affiliation is with St. Vincent Health Center, School of Medical Technology, Erie, PA.

Code	Title	Credits
Prescribed Courses		
PHYS 250	Introductory Physics I	4
PHYS 251	Introductory Physics II	4
<i>Prescribed Courses: Require a grade of C or better</i>		
MICRB 201	Introductory Microbiology	3
MICRB 202	Introductory Microbiology Laboratory	2
MICRB 405A	Seminar and Practicum in Medical Technology	8
MICRB 405B	Seminar and Practicum in Medical Technology	1
MICRB 405C	Seminar and Practicum in Medical Technology	6
MICRB 405D	Seminar and Practicum in Medical Technology	5
MICRB 405E	Seminar and Practicum in Medical Technology	7
MICRB 405F	Seminar and Practicum in Medical Technology	3
MICRB 408	Laboratory Instructional Practice	1
Additional Courses		
Select one of the following sequences:		8-10
CHEM 202 & CHEM 203 & CHEM 227	Fundamentals of Organic Chemistry I and Fundamentals of Organic Chemistry II and Analytical Chemistry	
CHEM 210 & CHEM 212 & CHEM 213	Organic Chemistry I and Organic Chemistry II and Laboratory in Organic Chemistry	
Supporting Courses and Related Areas		
Select 1 credit from approved list		1
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 3 credits of 400-level BMB, BIOL, MICRB of the following:		3
BIOL 460	Human Genetics	
BIOL 472	Human Physiology	
BMB 402	General Biochemistry	
BMB 406	Molecular Biology	
MICRB 415	General Virology: Bacterial and Animal Viruses	

Molecular and Cellular Biology and Biochemistry Option (56 credits)

Students can select courses to develop strengths in the study of biology at the cellular and molecular levels, including basic metabolism and its regulations, DNA recombinant technology, bioinformatics and genomics. The option prepares students for admission to professional programs in the health sciences, graduate study, or careers in biotechnology or research.

Code	Title	Credits
Prescribed Courses		
CHEM 210	Organic Chemistry I	3
CHEM 212	Organic Chemistry II	3
CHEM 213	Laboratory in Organic Chemistry	2
<i>Prescribed Courses: Require a grade of C or better</i>		
BIOL 427	Evolution	3
BMB 401	General Biochemistry	3
BMB 402	General Biochemistry	3
BMB 403	Biochemistry Laboratory	1
BMB 406	Molecular Biology	3

MICRB 201	Introductory Microbiology	3
MICRB 202	Introductory Microbiology Laboratory	2

Additional Courses

Select one of the following sequences: 8-10

PHYS 211 & PHYS 212 & PHYS 213	General Physics: Mechanics and General Physics: Electricity and Magnetism and General Physics: Fluids and Thermal Physics	
PHYS 211 & PHYS 212 & PHYS 214	General Physics: Mechanics and General Physics: Electricity and Magnetism and General Physics: Wave Motion and Quantum Physics	
PHYS 250 & PHYS 251	Introductory Physics I and Introductory Physics II	

Additional Courses: Require a grade of C or better

Select one of the following: 3

BIOL 404	Cellular Mechanisms in Vertebrate Physiology	
BIOL 439	Practical Bioinformatics	
BIOL 441	Plant Physiology	
BMB 465	Protein Structure and Function	
MICRB 410	Principles of Immunology	
MICRB 412	Medical Microbiology	
MICRB 415	General Virology: Bacterial and Animal Viruses	

Supporting Courses and Related Areas

Select 14-16 credits from school approved list 14-16

Supporting Courses and Related Areas: Require a grade of C or better

Select 3 credits of 400-level BIOL, BMB, MICRB, PPEM, or WFS courses ¹ 3

¹ Excluding BIOL 400 and any courses numbered 494, 495, 496, 497, 498, or 499.

Health Professions Option (56 credits)

Students can prepare for the rigors of advanced health professions education by following the course of study outlined in this option. This option is also provided for exceptional students who are admitted into a "3+4" accelerated or early acceptance program at an approved or affiliated professional school. Students are granted 21 credits toward the Bachelor of Science degree following the successful completion of the first professional academic year. The Health Professions Committee will work with such students to develop an appropriate program of study.

Code	Title	Credits
Prescribed Courses		
CHEM 210	Organic Chemistry I	3
CHEM 212	Organic Chemistry II	3
CHEM 213	Laboratory in Organic Chemistry	2
<i>Prescribed Courses: Require a grade of C or better</i>		
BIOL 421	Comparative Anatomy of Vertebrates	4
BIOL 427	Evolution	3
BIOL 472	Human Physiology	3
BIOL 473	Laboratory in Mammalian Physiology	2
BMB 402	General Biochemistry	3
BMB 403	Biochemistry Laboratory	1
MICRB 201	Introductory Microbiology	3
MICRB 202	Introductory Microbiology Laboratory	2

Additional Courses

Select one of the following sequences: 8-10

PHYS 211 & PHYS 212 & PHYS 213	General Physics: Mechanics and General Physics: Electricity and Magnetism and General Physics: Fluids and Thermal Physics	
PHYS 211 & PHYS 212 & PHYS 214	General Physics: Mechanics and General Physics: Electricity and Magnetism and General Physics: Wave Motion and Quantum Physics	
PHYS 250 & PHYS 251	Introductory Physics I and Introductory Physics II	

Additional Courses: Require a grade of C or better

BMB 401 or CHEM 472	General Biochemistry General Biochemistry I	3
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Supporting Courses and Related Areas

Select 11-13 credits from school approved list 11-13

Supporting Courses and Related Areas: Require a grade of C or better

Select 3 credits of 400-level BIOL, BMB, MICRB, PPEM, or WFS courses ¹		3
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¹ Excluding BIOL 400 and any courses numbered 494, 495, 496, 497, 498, or 499.**General Education**

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the

requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Biological structures:** Students will be able to articulate and explain for multiple levels of the biological hierarchy the physical and chemical characteristics of biological structures influence their function.
- **Energy and Matter:** Students will be able to articulate and explain for multiple levels of the biological hierarchy that organisms captures and transform energy and matter.
- **Evolution:** Students will be able to articulate and explain for multiple levels of the biological hierarchy that evolution explains the diversity and unity of life.
- **Genetics of organisms:** Students will be able to articulate and explain for multiple levels of the biological hierarchy that organisms store and process information.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

General Biology Option: Biology, B.S. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110 ^{*#}	4 BIOL 240W ^{*#}	4
ENGL 15 or 30H [†]	3 MATH 141 ^{*†}	4
CHEM 110 ^{*†}	3 CHEM 112	3
CHEM 111 [†]	1 CHEM 113	1
MATH 140 (or appropriate MATH Course from ALEKS test) ^{*†}	4 General Education Course	3
PSU 7	1 General Education Course (GHW)	1.5
General Education Course (GHW)	1.5	
	17.5	16.5

Second Year

Fall	Credits Spring	Credits
BIOL 220W ^{*#}	4 BIOL 230W ^{*#}	4

CHEM 210 or 202	3 STAT 250 [*]	3
Elective or MATH 141 (if Calculus not complete)	3-4 CAS 100 [‡]	3
General Education Course	3 CHEM 203 or 212 and 213 [†]	3
General Education Course	3 General Education Course	3
	16-17	16

Third Year

Fall	Credits Spring	Credits
BIOL 322 [*]	3 PHYS 251	4
PHYS 250 [†]	4 BIOL, MICRB, BMB, PPEM, ENT, or WFS 400-level Course [*]	3
ENGL 202C ^{††}	3 Supporting Course (School Approved List)	3
BIOL, MICRB, BMB, PPEM, ENT, or WFS 400-level Course or Supporting Course (School Approved List) [*]	3-4 Supporting Course (School Approved List)	3
General Education Course	3 General Education Course	3
	16-17	16

Fourth Year

Fall	Credits Spring	Credits
BIOL, MICRB, BMB, PPEM, ENT, or WFS 400-level Course [*]	3-4 BIOL 427 [*]	3
BIOL, MICRB, BMB, PPEM, ENT, or WFS 400-level Course [*]	3-4 BIOL, MICRB, BMB, PPEM, ENT, or WFS 400-level Course [*]	3-4
Supporting Course (School Approved List)	3 Supporting Course (School Approved List)	3
Supporting Course (School Approved List)	3 Supporting Course (School Approved List)	3
PHYS 213 or 214 (or Supporting Course (School Approved List))	2 Supporting Course (School Approved List)	3
	14-16	15-16

Total Credits 127-132

* Course requires a grade of C or better for the major
‡ Course requires a grade of C or better for General Education
Course is an Entrance to Major requirement
† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain

attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- Students who have not met the admission requirement of two units of a high school world language must complete a college level-one world language within their first 60 credits.
- **School Approved List of Supporting Courses** - All courses listed in the Penn State University course listings except those specifically listed in the 'non-approved courses' below are considered approved courses and can be used as supporting courses electives.
- **School of Science Non-Approved List of Courses for the BIOBC Major:**
 - BIOL no course under 100
 - MATH no course under MATH 140, MATH 140A(2 of 6 credits)
 - BISC 1, BISC 2, BISC 3, BISC 4
 - MICRB 106 and MICRB 107
 - BMB 1, BMB 3
 - PHYS 1, PHYS 150, PHYS 151
 - CHEM 1, CHEM 3, CHEM 101, CHEM 106(2 of 5 credits), CHEM 108
 - PLSC 7, PLSC 8, PLSC 11
 - CMPSC 1, CMPSC 100
 - LLED 5, LLED 10
 - ENGL 4, ENGL 5
 - STAT 100

Advising Notes:

- CHEM 110: Prerequisite satisfactory performance on the MATH placement test (ALKES) - i.e. placement beyond the level of MATH 22; or CHEM 101 and MATH 22 or MATH 41
- Take PHYS 213 if you have taken PHYS 211 and PHYS 212
- Take PHYS 214 if you have taken PHYS 211 and PHYS 212

Genetics and Development Option: Biology, B.S. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110 ^{*#}	4 BIOL 240W [*]	4
ENGL 15 or 30H [‡]	3 MATH 141 ^{**†}	4
CHEM 110 ^{**†}	3 CHEM 112 [†]	3
CHEM 111 [†]	1 CHEM 113 [†]	1
MATH 140 (or appropriate MATH Course from ALEKS test) ^{**†}	4 General Education Course	3
PSU 7	1 General Education Course (GHW)	1.5
General Education Course (GHW)	1.5	
	17.5	16.5

Second Year

Fall	Credits Spring	Credits
BIOL 220W [*]	4 BIOL 230W [*]	4
CHEM 210	3 CHEM 212	3
General Education Course	3 CHEM 213	2
General Education Course	3 STAT 250 [*]	3
Elective or MATH 141 (if Calculus is not complete)	General Education Course	3
CAS 100 [‡]	3	
	16	15

Third Year

Fall	Credits Spring	Credits
BIOL 322 [*]	3 PHYS 251	4
PHYS 250 [†]	4 General Education Course	3
MICRB 201 [*]	3 BIOL 422, 428, 430, 460, or BMB 406 ^{*1}	3
MICRB 202 [*]	2 BIOL, MICRB, BMB, PPBM, ENT, or WFS 400-level Course [*]	3-4
ENGL 202C ^{‡†}	3 Supporting Course (School Approved List)	3
General Education Course	3	
	18	16-17

Fourth Year

Fall	Credits Spring	Credits
BIOL 422, 428, 430, 460, or BMB 406 ^{*1}	3 BIOL 427 [*]	3
BIOL 422, 428, 430, 460, or BMB 406 ^{*1}	3 BIOL, MICRB, BMB, PPBM, ENT, or WFS 400-level Course [*]	3-4

Supporting Course (School Approved List)	2 Supporting Course (School Approved List)	3
Supporting Course (School Approved List)	3 Supporting Course (School Approved List)	3
Supporting Course (School Approved List)	3 Supporting Course (School Approved List)	3
	14	15-16

Total Credits 128-130

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Please meet with your adviser to discuss in which semesters and years these courses are offered.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- Students who have not met the admission requirement of two units of a high school world language must complete a college level-one world language within their first 60 credits.
- **School Approved List of Supporting Courses:** All courses listed in the Penn State University course listings except those specifically listed in the 'non-approved courses' below are considered approved courses and can be used as supporting courses electives.
- **School of Science Non-Approved List of Courses for the BIOBC Major:**
 - BIOL no course under 100
 - MATH no course under MATH 140, MATH 140A(2 of 6 credits)
 - BISC 1, BISC 2, BISC 3, BISC 4
 - MICRB 106 and MICRB 107
 - BMB 1, BMB 3
 - PHYS 1, PHYS 150, PHYS 151
 - CHEM 1, CHEM 3, CHEM 101, CHEM 106 (2 of 5 credits), CHEM 108
 - PLSC 7, PLSC 8, PLSC 11
 - CMPSC 1, CMPSC 100
 - LLED 5, LLED 10
 - ENGL 4, ENGL 5
 - STAT 100

Advising Notes:

- CHEM 110: Prerequisite satisfactory performance on the MATH placement test (ALKES) - i.e. placement beyond the level of MATH 22; or CHEM 101 and MATH 22 or MATH 41
- MICRB 201 should be taken concurrently with MICRB 202 Lab
- Take PHYS 213 if you have taken PHYS 211 and PHYS 212
- Take PHYS 214 if you have taken PHYS 211 and PHYS 212

Health Professions Option: Biology, B.S. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110 ^{*#}	4 BIOL 240W [*]	4
ENGL 15 or 30H [‡]	3 MATH 141 ^{**†}	4
CHEM 110 ^{*†}	3 CHEM 112 [†]	3
CHEM 111 [†]	1 CHEM 113 [†]	1
MATH 140 (or appropriate MATH Course from ALEKS test) ^{**†}	4 General Education Course	3
PSU 7	1 General Education Course (GHW)	1.5
General Education Course (GHW)	1.5	
	17.5	16.5

Second Year

Fall	Credits Spring	Credits
BIOL 220W [*]	4 BIOL 230W [*]	4
CHEM 210	3 CAS 100 ^{††}	3
SC 201	1 CHEM 212	3
General Education Course	3 CHEM 213	2
Elective or MATH 141 (if Calculus is not complete)	3 STAT 250 [*]	3
General Education Course	3	
	17	15

Third Year

Fall	Credits Spring	Credits
BIOL 322 [*]	3 BIOL 472 [*]	3
PHYS 250 [†]	4 BIOL 473 [*]	2
MICRB 201 [*]	3 BMB 402 & BMB 403 [*]	4
MICRB 202 [*]	2 ENGL 202C ^{††}	3
CHEM 472 [*]	3 PHYS 251	4
	15	16

Fourth Year

Fall	Credits Spring	Credits
BIOL 421 ^{*1}	4 BIOL 427 [*]	3
Supporting Course (School Approved List)	3 BIOL 430, MICRB 410, or MICRB 412 [*]	3
Supporting Course (School Approved List)	3 BIOL, MICRB, BMB, PPEM, ENT, or WFS 400-level Course [*]	3
Supporting Course (School Approved List)	3 General Education Course	3

General Education Course	3
	16
	12

Total Credits 125

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ See adviser for acceptable substitutions

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- Students who have not met the admission requirement of two units of a high school world language must complete a college level-one world language within their first 60 credits.
- **School Approved list of Supporting Courses:** All courses listed in the Penn State University course listings except those specifically listed in the 'non-approved courses' below are considered approved courses and can be used as supporting courses electives.
- **School of Science Non-Approved List of Courses for the BIOBC Major:**
 - BIOL no course under 100
 - MATH no course under MATH 140, MATH 140A (2 of 6 credits)
 - BISC 1, BISC 2, BISC 3, BISC 4
 - MICRB 106 and MICRB 107
 - BMB 1, BMB 3
 - PHYS 1, PHYS 150, PHYS 151
 - CHEM 1, CHEM 3, CHEM 101, CHEM 106 (2 of 5 credits), CHEM 108
 - PLSC 7, PLSC 8, PLSC 11
 - CMPSC 1, CMPSC 100
 - LLED 5, LLED 10
 - ENGL 4, ENGL 5
 - STAT 100
 - BIOL 421: Comparative Anatomy and BIOL 497: Human Anatomy alternate each year

Advising Notes:

- CHEM 110: Prerequisite satisfactory performance on the MATH placement test (ALKES) - i.e. placement beyond the level of MATH 22; or CHEM 101 and MATH 22 or MATH 41

Medical Technology Option: Biology, B.S. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110S ^{*#}	4 BIOL 240W [*]	4
ENGL 15 or 30H [‡]	3 MATH 141 ^{**†}	4
CHEM 110 ^{**†}	3 CHEM 112 [†]	3
CHEM 111 [†]	1 CHEM 113 [†]	1
MATH 140 (or appropriate MATH Course from ALEKS test) ^{**†}	4 General Education Course	3
PSU 7	1 General Education Course (GHW)	1.5
General Education Course (GHW)	1.5	
	17.5	16.5

Second Year

Fall	Credits Spring	Credits
BIOL 220W [*]	4 BIOL 230W [*]	4
CHEM 210 or 202	3 STAT 250 [*]	3
Elective or MATH 141* (if Calculus not complete)	3-4 ENGL 202C ^{††}	3
General Education Course	3 CHEM 203 or 212 and 213	3
General Education Course	3 General Education Course	3
	16-17	16

Third Year

Fall	Credits Spring	Credits
BIOL 322 [*]	3 MICRB 410 ^{*1}	3
MICRB 201 [*]	3 PHYS 251	4
MICRB 202 [*]	2 General Education Course	3
PHYS 250 [†]	4 BMB 406 or BIOL 472 [*]	3
CAS 100 [‡]	3	
General Education Course	3	
	18	13

Fourth Year

Fall	Credits Spring	Credits
MICRB 405A [*]	8 MICRB 405B [*]	1
MICRB 405C [*]	6 MICRB 405D [*]	5
MICRB 405F [*]	3 MICRB 405E [*]	7
	MICRB 408 [*]	1
	17	14

Total Credits 128-129

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ MICRB 410 must be completed before clinical courses at St. Vincent.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

• Program Notes:

- Students who have not met the admission requirement of two units of a high school world language must complete a college level-one world language within their first 60 credits.
- **School Approved List of Supporting Courses:** All courses listed in the Penn State University course listings except those specifically listed in the 'non-approved courses' below are considered approved courses and can be used as supporting courses electives.
- **School of Science Non-Approved List of Courses for the BIOBC Major:**
 - BIOL no course under 100
 - MATH no course under MATH 140, MATH 140A (2 of 6 credits)
 - BISC 1, BISC 2, BISC 3, BISC 4
 - MICRB 106 and MICRB 107
 - BMB 1, BMB 3
 - PHYS 1, PHYS 150, PHYS 151
 - CHEM 1, CHEM 3, CHEM 101, CHEM 106 (2 of 5 credits), CHEM 108
 - PLSC 7, PLSC 8, PLSC 11
 - CMPSC 1, CMPSC 100
 - LLED 5, LLED 10
 - ENGL 4, ENGL 5
 - STAT 100

Advising Notes:

- CHEM 110: Prerequisite satisfactory performance on the MATH placement test (ALKES) - i.e. placement beyond the level of MATH 22; or CHEM 101 and MATH 22 or MATH 41
- MICRB 201 should be taken concurrently with MICRB 202 Lab
- MICRB 410 required for admission to clinical program

Molecular and Cell Biology and Biochemistry Option: Biology, B.S. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110* [#]	4 BIOL 240W*	4
ENGL 15 or 30H [†]	3 MATH 141* ^{††}	4
CHEM 110* ^{††}	3 CHEM 112 [†]	3
CHEM 111 [†]	1 CHEM 113 [†]	1
MATH 140 (or appropriate MATH Course from ALEKS test)* ^{††}	4 General Education Course	3
PSU 7	1 General Education Course (GHW)	1.5
General Education Course (GHW)	1.5	
17.5		16.5

Second Year

Fall	Credits Spring	Credits
BIOL 220W*	4 BIOL 230W*	4
CHEM 210	3 CAS 100	3
Elective or MATH 141* (if Calculus is not completed)	3-4 CHEM 212 & CHEM 213	5
General Education Course	3 STAT 250*	3
General Education Course	3 General Education Course	3
16-17		18

Third Year

Fall	Credits Spring	Credits
BIOL 322*	3 PHYS 251	4
PHYS 250 [†]	4 BMB 406* ¹	3
ENGL 202C ^{††}	3 MICRB 410*	3
MICRB 201*	3 Supporting Course (School Approved List)	3
MICRB 202*	2 General Education Course	3
General Education Course		
15		16

Fourth Year

Fall	Credits Spring	Credits
BIOL, MICRB, BMB, PPEM, ENT, or WFS 400-level course*	3-4 BIOL 427*	3
CHEM 472*	3 BMB 402*	3
BMB 442*	3 BMB 403*	1
Supporting Course (School Approved List)	3 Supporting Course (School Approved List)	3
Supporting Course (School Approved List)	3 Supporting Course (School Approved List)	3

Supporting Course (School Approved List)	3
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15-16	16
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Total Credits 130-132

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ See adviser for acceptable substitutions

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- Students who have not met the admission requirement of two units of a high school world language must complete a college level-one world language within their first 60 credits.
- **School Approved List of Supporting Courses:** All courses listed in the Penn State University course listings except those specifically listed in the 'non-approved courses' below are considered approved courses and can be used as supporting courses electives.
- **School of Science Non-Approved List of Courses for the BIOBC Major:**
 - BIOL no course under 100
 - MATH no course under MATH 140, MATH 140A (2 of 6 credits)
 - BISC 1, BISC 2, BISC 3, BISC 4
 - MICRB 106 and MICRB 107
 - BMB 1, BMB 3
 - PHYS 1, PHYS 150, PHYS 151
 - CHEM 1, CHEM 3, CHEM 101, CHEM 106 (2 of 5 credits), CHEM 108
 - PLSC 7, PLSC 8, PLSC 11
 - CMPSC 1, CMPSC 100
 - LLED 5, LLED 10
 - ENGL 4, ENGL 5
 - STAT 100

Advising Notes:

- CHEM 110: Prerequisite satisfactory performance on the MATH placement test (ALKES) - i.e. placement beyond the level of MATH 22; or CHEM 101 and MATH 22 or MATH 41

Ecology, Evolution, and Behavior Option: Biology, B.S. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110 ^{*#}	4 BIOL 240W [*]	4
ENGL 15 or 30H [†]	3 MATH 141 [†]	4
CHEM 110 ^{**†}	3 CHEM 112 [†]	3
CHEM 111 [†]	1 CHEM 113 [†]	1
MATH 140 (or appropriate MATH Course based on ALEKS scores) ^{**†}	4 General Education Course	3
PSU 7	1 General Education Course (GHW)	1.5
General Education Course (GHW)	1.5	
	17.5	16.5

Second Year

Fall	Credits Spring	Credits
BIOL 220W [*]	4 BIOL 230W [*]	4
CHEM 202 or 210	3 CAS 100	3
Elective or MATH 141 (if Calculus has not been completed)	3-4 CHEM 203 or 212 <i>and</i> 213	3-5
General Education Course	3 STAT 250 [*]	3
General Education Course	1.5 General Education Course	3
	14.5-15.5	16-18

Third Year

Fall	Credits Spring	Credits
BIOL 322 [*]	3 BIOL 429 (or BIOL, MICRB, BMB, PPEM, or WFS 400-level Course) [*]	3
BIOL 435 or 446 (or other BIOL, MICRB, BMB, or WFS 400-level Course) [*]	3-4 BIOL 402W [*]	3
PHYS 250 [†]	4 PHYS 251	4
General Education Course	3 ENGL 202C ^{††}	3
Supporting Course	3 General Education Course	3
	16-17	16

Fourth Year

Fall	Credits Spring	Credits
BIOL 435 or 446 (or other BIOL, MICRB, BMB, or WFS 400-level Course) [*]	3-4 BIOL 427 [*]	3
BIOL 435 or 446 (or other BIOL, MICRB, BMB, or WFS 400-level Course) [*]	3-4 Supporting Course (School Approved List)	3
Supporting Course (School Approved List)	3 Supporting Course (School Approved List)	3

Supporting Course (School Approved List) or STAT Selection [*]	3 Supporting Course (School Approved List)	3
Supporting Course (School Approved List)	3 BIOL 429 (or BIOL, MICRB, BMB, PPEM, or WFS 400-level Course) [*]	3
	15-17	15

Total Credits 126.5-132.5

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- Students who have not met the admission requirement of two units of a high school world language must complete a college level-one world language within their first 60 credits.
- **School Approved List of Supporting Courses:** All courses listed in the Penn State University course listings except those specifically listed in the 'non-approved courses' below are considered approved courses and can be used as supporting courses electives.
- **School of Science Non-Approved List of Courses for the BIOBC Major:**
 - BIOL no course under 100
 - MATH no course under MATH 140, MATH 140A(2 of 6 credits)
 - BISC 1, BISC 2, BISC 3, BISC 4
 - MICRB 106 and MICRB 107
 - BMB 1, BMB 3
 - PHYS 1, PHYS 150, PHYS 151
 - CHEM 1, CHEM 3, CHEM 101, CHEM 106 (2 of 5 credits), CHEM 108
 - PLSC 7, PLSC 8, PLSC 11
 - CMPSC 1, CMPSC 100
 - LLED 5, LLED 10
 - ENGL 4, ENGL 5
 - STAT 100

Advising Notes:

- CHEM 110: Prerequisite satisfactory performance on the MATH placement test (ALKES) - i.e. placement beyond the level of MATH 22; or CHEM 101 and MATH 22 or MATH 41

- Take PHYS 213 if you have taken PHYS 211 and PHYS 212
- Take PHYS 214 if you have taken PHYS 211 and PHYS 212
- Supporting STAT Courses: STAT 461, STAT 462, STAT 464, STAT 466

Career Paths

Biology is among the most versatile of college majors and a jumping-off point for careers that can range from astrobiologist to microbiologist to zoologist. Whether you envision a career working with cancer cells or California condors, a Biology degree from Penn State Behrend can make that happen. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

Biologists are everywhere! Penn State Behrend biology graduates include bioforensic identification specialists, orthotists, research biologists, biophysicists, anesthesiologist, dentists, veterinarians, national park rangers, doctors, high school teachers, physician assistants, college professors, lawyers, and even a lead elephant zookeeper!

MORE INFORMATION ABOUT POTENTIAL CAREER PATHS FOR GRADUATES OF THE BIOLOGY PROGRAM (<https://behrend.psu.edu/school-of-science/academic-programs/biology/>)

Opportunities for Graduate Studies

Biology is a common foundational major for graduate study in a specialized subdiscipline such as aquatic biology or genetics. Its broad diversity of experiences make it a popular undergraduate major for future medical doctors, veterinarians, physician assistants, and other health-care professionals. Penn State Behrend offers numerous pre-health profession options within its degree program, including 3+4 and early admissions programs.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-science/academic-programs/biology/>)

Professional Resources

- American Institute of Biological Sciences (<https://www.aibs.org/home/>)
- American Society for Cell Biology (<https://www.ascb.org/>)
- American Society for Microbiology (<https://www.ascb.org/>)
- American Society of Human Genetics (<https://www.ashg.org/>)
- Entomological Society of America (<https://www.entsoc.org/>)
- National Association of Biology Teachers (<https://nabt.org>)
- Society for the Study of Evolution (<https://www.evolutionsociety.org/>)

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

Erie

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<https://behrend.psu.edu/school-of-science> (<https://behrend.psu.edu/school-of-science/>)

Business Economics, B.S.

Begin Campus: Any Penn State Campus

End Campus: Erie

Program Description

Business Economics is a quantitatively-oriented program of study in applied economics. Leading to a B.S. degree, this major combines in-depth study of economics with a general business background, the latter including courses in accounting, finance, management, management information systems, marketing, and quantitative business analysis. Students may choose upper-division economics courses in business and economic forecasting, econometrics, economic theory, money and banking, international economics, labor economics, managerial economics, and experimental and behavioral economics. Use of computers as analytical and problem-solving tools is emphasized in the program. The major also includes several non-business supporting areas of study from which students may choose courses.

What is Business Economics?

Economics is the science that explores the production, distribution, and consumption of goods and services. Business economics is a quantitative (that is, math-focused) approach to the study of economics. Business economics combines economics with foundational courses in finance, accounting, marketing and management. This versatility is what gives economists their valued role on a leadership team.

You Might Like This Program If...

- You enjoy solving problems using logic and math.
- You are a detail-oriented person.
- You want to develop skills that are applicable in a variety of industries.
- You like working with data.
- You are interested in economic policy or the banking and financial sector.
- You'd like to work at the on-campus Economic Research Institute of Erie (ERIE).

Entrance to Major

Entry to the Business Economics major requires the successful completion of 5 entry-to-major courses: ACCTG 211, ECON 102, ENGL 15 or ENGL 30H, MATH 110 or MATH 140, STAT 200 or SCM 200. Each course requires a C or better grade for successful completion.

Degree Requirements

For the Bachelor of Science degree in Business Economics, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	96

21 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GQ courses; 6 credits of GS courses; 9 credits of GWS courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned.

Requirements for the Major

Each student enrolled in this major must earn at least a grade of C in each 300- and 400-level course.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
BA 241	Legal Environment of Business	2
BA 242	Social and Ethical Environment of Business	2
MIS 204	Introduction to Management Information Systems	3
PSU 7	First-Year Seminar Behrend	1
<i>Prescribed Courses: Require a grade of C or better</i>		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
CAS 100	Effective Speech	3
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
ECON 302	Intermediate Microeconomic Analysis	3
ECON 304	Intermediate Macroeconomic Analysis	3
ECON 470	International Trade and Finance	3
ECON 485	Econometric Techniques	3
ENGL 202D	Effective Writing: Business Writing	3
FIN 301	Corporation Finance	3
MGMT 301	Basic Management Concepts	3
MGMT 471W	Strategic Management and Business Policy	3
MKTG 301	Principles of Marketing	3
SCM 301	Supply Chain Management	3
Additional Courses ¹		
<i>Additional Courses: Require a grade of C or better</i>		
ENGL 15	Rhetoric and Composition	3
or ENGL 30H	Honors Rhetoric and Composition	
MATH 110	Techniques of Calculus I	4
or MATH 140	Calculus With Analytic Geometry I	
SCM 200	Introduction to Statistics for Business	4
or STAT 200	Elementary Statistics	
Select 12 credits from the following listing:		12
ECON 315	Labor Economics	
ECON 351	Money and Banking	

ECON 442	Managerial Economics	
ECON 474	Experimental and Behavioral Economics	
ECON 481	Business Forecasting Techniques	
ECON 495	Internship	
ECON 496	Independent Studies	
ECON 497	Special Topics	
Select 9 credits of 300- or 400-level economics or other courses		9

Supporting Courses and Related Areas

Select 13 credits from any business major field or any non-business major course, except for all KINES (GHW) courses, any ENGL course below ENGL 15, and any MATH course below MATH 110. Exceptions may be petitioned through the applicable department chair.

¹ Some courses in this category have prerequisites that are not required in the program.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3

credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **CRITICAL AND INTEGRATIVE THINKING:** Students will be able to think critically across business disciplines by considering different perspectives and using an integrated, holistic approach to perform relevant analyses, construct valid arguments, and make appropriate conclusions.
- **ORAL COMMUNICATION:** Students will be able to execute the oral communication skills that they have learned in the interactive business courses to business situations where effective explanation, persuasion, exchanging information and ideas are essential.
- **WRITING COMPETENCE:** Students will be able to demonstrate effective business writing skills.
- **TEAMWORK:** Students will be positive contributors to an effective team functioning via application of their functional skills in addition to strong interpersonal skills.
- **ETHICS AND SOCIAL RESPONSIBILITY:** Students will be able to recognize ethical issues and apply ethical theories in business situations at individual and/or organizational levels.
- **FUNCTIONAL AREA KNOWLEDGE (ETS):** Students will be able to apply foundational knowledge to analyze and solve problems

and interpret written and visual material across various business domains.

- **FUNCTIONAL AREA KNOWLEDGE (ACCOUNTING):** Students will be able to demonstrate a broad general knowledge of the principles of accounting, both managerial and financial.
- **FUNCTIONAL AREA KNOWLEDGE (ECONOMICS):** Students will be able to demonstrate a broad general knowledge of the principles of economics, both microeconomics and macroeconomics
- **FUNCTIONAL AREA KNOWLEDGE (FINANCE):** Students will be able to demonstrate a broad general knowledge of the principles of finance.
- **FUNCTIONAL AREA KNOWLEDGE (MIS):** Students will be able to describe the benefits and challenges of applying information technology in various organizations and functional areas.
- **FUNCTIONAL AREA KNOWLEDGE (INTERNATIONAL BUSINESS):** Students will be able to apply basic multidisciplinary knowledge needed to conduct international business and analyze the impact of globalization.
- **FUNCTIONAL AREA KNOWLEDGE (LEGAL ENVIRONMENT):** Students will be able to identify key terms, concepts, and theories of the law, evaluate how law affects business, analyze legal issues, and apply the law to business situations.
- **FUNCTIONAL AREA KNOWLEDGE (MANAGEMENT):** Students will be able to demonstrate a broad knowledge of the business discipline of management.
- **FUNCTIONAL AREA KNOWLEDGE (MARKETING):** Students will be able to demonstrate comprehensive knowledge in the field of marketing.
- **FUNCTIONAL AREA KNOWLEDGE (QUANTATIVE BUSINESS ANALYSIS):** Students will be able to demonstrate a broad knowledge of quantitative business analysis.
- **FUNCTIONAL AREA KNOWLEDGE (SUPPLY CHAIN MANAGEMENT):** Students will be able to demonstrate a broad knowledge of supply chain management.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Business Economics, B.S. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H ^{*†#†}	3 CAS 100A, 100B, or 100C ^{††}	3
MATH 110 or 140 ^{*†#†}	4 ECON 102 ^{*#†}	3
General Education Course (GH) ³	3 MIS 204	3
General Education Course (GN) ³	3 General Education Course (GA) ³	3
General Education Course (GHW) ³	1.5 General Education Course (GN) (Standalone or Inter-Domain) ³	3
PSU 7	1	
	15.5	15

Second Year

Fall	Credits Spring	Credits
ACCTG 211 ^{*#}	4 ENGL 202D ^{††}	3
ECON 104 ^{*†}	3 FIN 301 [*]	3
SCM 200 ^{*†#†}	4 MGMT 301 [*]	3
General Education Course (Inter-Domain) ³	3 MKTG 301 [*]	3
General Education Course (GHW) ³	1.5 SCM 301 [*]	3
	15.5	15

Third Year

Fall	Credits Spring	Credits
BA 241 & BA 242	4 ECON 304 (Spring Only) [*]	3
ECON 302 (Fall Only) [*]	3 Supporting Business Course [*]	3
ECON 470 (IL) [*]	3 Approved Elective ²	3
ECON 485 (Fall Only) [*]	3 Approved Elective ²	3
	General Education Course (Inter-Domain) ³	3
	13	15

Fourth Year

Fall	Credits Spring	Credits
Additional ECON Course [*]	3 MGMT 471W [*]	3
Additional ECON Course [*]	3 Additional ECON Course [*]	3
Approved Elective ²	3 Approved Elective ²	3

General Education Course (GA/GH/GS/GN/Inter-Domain) ³	3 Supporting Business Course [*]	3
Additional ECON Course [*]	3 Supporting Business Course [*]	3
	Approved Elective ²	1
	15	16

Total Credits 120

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ Please see your academic adviser for approval before scheduling your courses.

² In order for a course to be eligible for an Approved Elective, the course can not be a lower level ENGL (1-6) or MATH (2-41) OR a GHW designated course. Please see your academic adviser if you have a question on a specific course.

³ All students are required to fulfill 45 credits of General Education courses. More information about this requirement can be found on the Baccalaureate Degree General Education Requirements page in the Bulletin (p. 3184).

Career Paths

The decision-making skills that Business Economics majors learn are needed across all sectors and segments of our economy, so you'll find employment opportunities in government, business, manufacturing, finance, banking, labor organizations, and academia. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

Graduates of Penn State Behrend's B.S. in Business Economics program hold positions such as benefits consultant, investment analyst, consultant, attorney, loan officer, investment broker, regional economist, field economist, labor relations specialist, financial adviser, market analyst, risk analyst, senior trust accountant, and patent lawyer. To help you tailor your degree to your interests, you can choose to study in one

of three tracts within the major: Economics of Banking and the Financial Sector; Economics of Data; or Economics of Globalization. Or, work with your academic adviser to create a custom track that meets your goals.

MORE INFORMATION ABOUT POTENTIAL CAREER PATHS FOR GRADUATES OF THE BUSINESS ECONOMICS PROGRAM (<https://behrend.psu.edu/school-of-business/academic-programs/business-economics/>)

Opportunities for Graduate Studies

Graduate study allows you to delve deeper into the subdisciplines of economics that interest you most. Examples of master's- and doctoral-level study include history of economic thought, econometric and statistical modeling, game theory, bargaining theory, market structure and pricing, consumption, monetary policy, international economics, labor economics, environmental economics, transportation economics, and regional economics. Penn State Behrend also offers a hybrid MBA program that can be pursued in Erie and in Pittsburgh, Pennsylvania.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/admissions-financial-aid/graduate-admissions/master-of-business-administration/>)

Professional Resources

- AACSB International (<https://www.aacsb.edu/>)
- American Economic Association (<https://www.aeaweb.org/>)

Accreditation

The Black School of Business is accredited by AACSB International—The Association to Advance Collegiate Schools of Business. As the world's largest business education alliance, AACSB connects educators, students, and business to achieve a common goal: to create the next generation of great leaders. Synonymous with the highest standards of excellence since 1916, AACSB provides quality assurance, business education intelligence, and professional development services to over 1,500 member organizations and more than 785 accredited business schools worldwide. AACSB's mission is to foster engagement, accelerate innovation, and amplify impact in business education.

MORE INFORMATION ABOUT THE ASSOCIATION TO ADVANCE COLLEGIATE SCHOOLS OF BUSINESS (<https://www.aacsb.edu/>)

Contact

Erie

BLACK SCHOOL OF BUSINESS
281 Jack Burke Research and Economic Development Center
Erie, PA 16563
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<https://behrend.psu.edu/school-of-business> (<https://behrend.psu.edu/school-of-business/>)

Chemistry, B.S. (Behrend)

Begin Campus: Any Penn State Campus

End Campus: Erie

Program Description

This major is professionally approved by the American Chemical Society and provides a strong foundation in chemistry while preparing students for graduate or professional programs as well as for careers with companies and agencies requiring chemistry or related areas. The major provides students the opportunity to choose an area of specialization to meet their career goals as well as participate in undergraduate research with faculty members and/or industrial internships.

What is Chemistry?

Chemistry is the study of matter and its transformations. Chemists seek a molecular-level understanding of the ways in which atoms combine to form molecules and bulk materials, how molecular structure and interactions lead to macroscopic material properties, and how chemical transformations can be used to create useful materials and store energy. Research in chemistry intersects a variety of other fields including biology, physics, environmental science, geology, material science, medicine, and more.

You Might Like This Program If...

- You are curious about the world around you. How and why does it look, sound, smell, taste, and feel the way it does? What are objects composed of? Why do substances react the way they do?
- You find both theoretical and hands-on laboratory learning appealing.
- You enjoy the challenge of problem-solving.
- You are interested in working with instrumentation and making precise measurements.
- You want to study in an American Chemical Society-approved degree program.

Entrance to Major

In order to be eligible for entrance to the CHMBC major (all options), a student must have: 1) attained at least 29.1 credits; and 2) earned at least a 2.00 cumulative grade-point average.

Degree Requirements

For the Bachelor of Science degree in Chemistry, a minimum of 124 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	97

18-24 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GWS courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned.

Requirements for the Major

Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and->

rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
CHEM 113	Experimental Chemistry II	1
CHEM 210	Organic Chemistry I	3
CHEM 212	Organic Chemistry II	3
CHEM 213	Laboratory in Organic Chemistry	2
CHEM 227	Analytical Chemistry	4
CHEM 358	Literature, Conduct and Safety in the Chemical Sciences	3
CHEM 413	Chemistry of the Elements	4
CHEM 431W	Advanced Synthetic Methodologies	4
CHEM 440	Instrumental Analysis	3
CHEM 441	Instrumental Analysis Laboratory	1
CHEM 450	Physical Chemistry - Thermodynamics	3
CHEM 451	Experimental Physical Chemistry I	1
CHEM 452	Physical Chemistry - Quantum Chemistry	3
CHEM 453	Experimental Physical Chemistry II	1
CHEM 472	General Biochemistry I	3
ENGL 202C	Effective Writing: Technical Writing	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
MATH 230	Calculus and Vector Analysis	4
PHYS 211	General Physics: Mechanics	4
PHYS 212	General Physics: Electricity and Magnetism	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits from the following:		3
BMB 402	General Biochemistry	
MATH 250	Ordinary Differential Equations	
STAT 401	Experimental Methods	
Select 3 credits from the following:		3
CHEM 494	Chemical Research	
CHEM 495	Internship	
CHEM 496	Independent Studies	
Select 6 credits of 400-level CHEM courses (excluding CHEM 494, CHEM 495, and CHEM 496)		6
Supporting Courses and Related Areas		
Select 12 credits from school approved list. ¹		12

¹ Students may apply up to 6 credits of ROTC.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing

intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Chemical Literature:** The student will acquire a foundation of chemistry of sufficient breadth and depth to enable them to critically interpret the primary chemical literature.
- **Collaboration:** The student will develop an ability to function effectively on a team, whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
- **Communication:** The student will develop the ability to effectively communicate scientific information and research results in written and oral formats with a diverse range of audiences.
- **Ethics:** The student will develop an ability to recognize ethical and professional responsibilities in scientific situations and make informed judgements, which must consider the impact of chemical processes in global, economic, environmental, and societal contexts.
- **Experiment Design:** The student will learn the laboratory skills needed to design, safely conduct and interpret chemical experiments and will learn proper ways of disposing of chemical waste.
- **Integrate Knowledge:** The student will understand the interdisciplinary nature of chemistry and will develop an ability to integrate knowledge of mathematics, physics and other disciplines to a wide variety of chemical and environmental problems.
- **Periodic Table:** The student will understand the importance of the Periodic Table of the Elements, how it came to be, and its role in organizing chemical information, and its relationship to the natural world and natural resources.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Professional Chemist Concentration: Chemistry, B.S. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSU 7	1 CHEM 112*	3
CHEM 110*	3 CHEM 113*	1
CHEM 111*	1 MATH 141**†	4
MATH 140**†	4 PHYS 211**†	4
BIOL 110**†	4 General Education Course or ENGL 15‡	3
ENGL 15 (or General Education Course)‡	3 General Education Course	1.5
	16	16.5

Second Year

Fall	Credits Spring	Credits
CHEM 210*	3 CHEM 212*	3
CHEM 227*	4 CHEM 213*	2
MATH 230*	4 MATH 250 or STAT 401* ¹	3
PHYS 212**†	4 ENGL 202C**†	3
General Education Course	1.5 General Education Course	3
	16.5	14

Third Year

Fall	Credits Spring	Credits
CHEM 358*	3 CHEM 440*	3
CHEM 450*	3 BMB 402* ¹	3
CHEM 451*	1 CHEM 441*	1
CHEM 472*	3 CHEM 452*	3
CAS 100‡	3 CHEM 453*	1
General Education Course	3 CHEM 494 or 495*	1
	Supporting Course	3
	16	15

Fourth Year

Fall	Credits Spring	Credits
CHEM 413*	4 CHEM 431W*	4
400-Level Chemistry Elective*	3 400-Level Chemistry Elective*	3
CHEM 494 or 495*	1 CHEM 494 or 495*	1
General Education Course	3 General Education Course	3
Supporting Course	3 Supporting Course	3
General Education Course	3	
	17	14

Total Credits 125

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ 3-credits from BMB 402, MATH 250 or STAT 401 are required. Additional credits from this will be used as a supporting course.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- **Supporting Course List:** Students must take 12 credits of courses that are appropriate for a science major and on the school approved list. These include but are not limited to:
 - Additional 300- or 400-level chemistry courses beyond those required including up to 3 credits of CHEM 494/CHEM 495
 - BIOL 220W or higher
 - BMB 251 or higher
 - CMPEN
 - CMPSC 121 or higher
 - EDSGN 100S
 - ENVSC 200-level or higher
 - GEOG 100-level or higher
 - GEOSC 100-level or higher
 - Language courses 001-003 (e.g., CHNS, FR, GER, SPAN)
 - MATH 200-level or higher
 - MICRB 201 or higher
 - PHYS 213, PHYS 214, PHYS 237, or any 400-level
 - PLET 205 or higher
 - SOILS 100-level or higher

- STAT 250 or higher
- SWENG

Biochemistry Concentration: Chemistry, B.S. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSU 7	1 CHEM 112*	3
CHEM 110*	3 CHEM 113*	1
CHEM 111*	1 MATH 141**†	4
MATH 140**†	4 BIOL 230W	4
BIOL 110**†	4 General Education Course or ENGL 15‡	3
ENGL 15 (or General Education Course)‡	3 General Education Course	1.5
	16	16.5

Second Year

Fall	Credits Spring	Credits
CHEM 210*	3 CHEM 212*	3
CHEM 227*	4 CHEM 213*	2
MATH 230*	4 PHYS 212**†	4
PHYS 211**†	4 ENGL 202C**†	3
General Education Course (GHW)	1.5 General Education Course	3
	16.5	15

Third Year

Fall	Credits Spring	Credits
CHEM 358*	3 CHEM 440*	3
CHEM 450*	3 CHEM 441*	1
CHEM 451*	1 CHEM 452*	3
CHEM 472*	3 CHEM 453*	1
CAS 100‡	3 CHEM 494 or 495*	1
BIOL 322	3 BMB 402*	3
	BMB 403	1
	General Education Course	3
	16	16

Fourth Year

Fall	Credits Spring	Credits
CHEM 413*	4 CHEM 431W*	4
400-Level Chemistry Elective*	3 400-Level Chemistry Elective*	3
CHEM 494 or 495*	1 CHEM 494 or 495*	1
General Education Course	3 General Education Course	3
BMB 406, BIOL 416, or MICRB 201	3 Supporting Course	3
General Education Course	3	
	17	14

Total Credits 127

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- The CHMBC degree requires MATH 250, STAT 401, or BMB 402 and 12 credits of Supporting Courses. For a student interested in a concentration in Biochemistry, they are advised to take BMB 402, BMB 403, BIOL 230W, BIOL 322, BMB 406 or BIOL 416 or MICRB 201, plus one additional Supporting Course of their choice to fulfill these requirements.
- Students who choose to take either BIOL 220W or BIOL 230W as their additional supporting course will qualify for a minor in biology.
- **Supporting Course List:** Students must take 12 credits of courses that are appropriate for a science major and on the school approved list. These include but are not limited to:
 - Additional 300- or 400-level chemistry courses beyond those required including up to 3 credits of CHEM 494/CHEM 495
 - BIOL 220W or higher
 - BMB 251 or higher
 - CMPEN
 - CMPSC 121 or higher
 - EDSGN 100S
 - ENVSC 200-level or higher
 - GEOG 100-level or higher
 - GEOSC 100-level or higher
 - Language courses 001-003 (e.g., CHNS, FR, GER, SPAN)
 - MATH 200-level or higher
 - MICRB 201 or higher
 - PHYS 213, PHYS 214, PHYS 237, or any 400-level
 - PLET 205 or higher
 - SOILS 100-level or higher
 - STAT 250 or higher
 - SWENG

Environmental Concentration: Chemistry, B.S. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSU 7	1 CHEM 112*	3
CHEM 110*	3 CHEM 113*	1
CHEM 111*	1 MATH 141*††	4
MATH 140*††	4 PHYS 211*†	4
BIOL 110*†	4 General Education Course (GA/GH/GS) or ENGL 15†	3
ENGL 15 (or General Education Course (GA/GH/GS))†	3 General Education Course (GHW)	1.5
	16	16.5

Second Year

Fall	Credits Spring	Credits
CHEM 210*	3 CHEM 212*	3
CHEM 227*	4 CHEM 213*	2
MATH 230*	4 PHYS 212*†	4
BIOL 220W	4 ENGL 202C††	3
General Education Course (GA/GH/GS)	3 STAT 401	3
	18	15

Third Year

Fall	Credits Spring	Credits
CHEM 358*	3 CHEM 440*	3
CHEM 450*	3 CHEM 441*	1
CHEM 451*	1 CHEM 452*	3
CHEM 472*	3 CHEM 453*	1
MICRB 201	3 CHEM 494 or 495*	1
MICRB 202	2 CAS 100†	3
	General Education Course (GA/GH/GS)	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
CHEM 413*	4 CHEM 431W*	4
400-Level Chemistry Elective*	3 400-Level Chemistry Elective*	3
CHEM 494 or 495*	1 CHEM 494 or 495*	1
General Education Course (GA/GH/GS) or CHEM 301	3 GEOSC 418	3
General Education Course (GA/GH/GS)	3 General Education Course (GA/GH/GS)	3

General Education Course (GA/GH/GS)	3 General Education Course (GHW)	1.5
	17	15.5

Total Credits 128

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- The CHMBC degree requires MATH 250, STAT 401, or BMB 402 and 12 credits of Supporting Courses. For a student interested in an Environmental Concentration, they are advised to take STAT 401, BIOL 220W, MICRB 201, MICRB 202, CHEM 301 or CHEM 297 (Biogeochemistry, which does not yet have a permanent course number) and GEOSC 418 to fulfill these requirements.
- Supporting Course List:** Students must take 12 credits of courses that are appropriate for a science major and on the school approved list. These include but are not limited to:
 - Additional 300- or 400-level chemistry courses beyond those required including up to 3 credits of CHEM 494/CHEM 495
 - BIOL 220W or higher
 - BMB 251 or higher
 - CMPEN
 - CMPSC 121 or higher
 - EDSGN 100S
 - ENVSC 200-level or higher
 - GEOG 100-level or higher
 - GEOSC 100-level or higher
 - Language courses 001-003 (e.g., CHNS, FR, GER, SPAN)
 - MATH 200-level or higher
 - MICRB 201 or higher
 - PHYS 213, PHYS 214, PHYS 237, or any 400-level
 - PLET 205 or higher
 - SOILS 100-level or higher
 - STAT 250 or higher
 - SWENG

Pre-Health Concentration: Chemistry, B.S. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSU 7	1 CHEM 112*	3
CHEM 110*	3 CHEM 113*	1
CHEM 111*	1 MATH 141**†	4
MATH 140**†	4 BIOL 230W	4
BIOL 110**†	4 General Education Course (GA/GH/GS) or ENGL 15‡	3
ENGL 15 (or General Education Course (GA/GH/GS))‡	3 NUTR 251	3
	16	18

Second Year

Fall	Credits Spring	Credits
CHEM 210*	3 CHEM 212*	3
CHEM 227*	4 CHEM 213*	2
MATH 230*	4 PHYS 211**†	4
BIOL 240W	4 ENGL 202C††	3
SC 201	1 PSYCH 100 or SOC 1 (GS)	3
	16	15

Third Year

Fall	Credits Spring	Credits
CHEM 358*	3 CHEM 440*	3
CHEM 450*	3 CHEM 441*	1
CHEM 451*	1 CHEM 452*	3
CHEM 472*	3 CHEM 453*	1
CAS 100‡	3 CHEM 494 or 495*	1
PHYS 212**†	4 BMB 402*	3
	BIOL 472	3
	17	15

Fourth Year

Fall	Credits Spring	Credits
CHEM 413*	4 CHEM 431W*	4
400-Level Chemistry Elective*	3 400-Level Chemistry Elective*	3
CHEM 494 or 495*	1 CHEM 494 or 495*	1
BIOL 497 or MICRB 201	3-4 General Education Course (GA/GH/GS)	3
General Education Course (GA/GH/GS)	3 General Education Course (GA/GH/GS)	3
General Education Course (GA/GH/GS)	3	
	17-18	14

Total Credits 128-129

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- The CHMBC degree requires MATH 250, STAT 401, or BMB 402 and 12 credits of Supporting Courses. For a student interested in a concentration in Pre-Health, they are advised to take BMB 402, BIOL 230W, BIOL 240W, BIOL 472, and either BIOL 497 (if interested in medical profession) or MICRB 201 (if interested in pharmacy) to fulfill these requirements. A student interested in attending medical school should consider taking MICRB 201 in addition to BIOL 497 and are advised to discuss this with their adviser. Students will qualify for a minor in biology with these courses.
- Students interested in pre-health careers are advised to take either PSYCH 100 and/or SOC 1 in order to fulfill the GS general education requirement and NUTR 251 to fulfill the GHW general education requirement.
- **Supporting Course List:** Students must take 12 credits of courses that are appropriate for a science major and on the school approved list. These include but are not limited to:
 - Additional 300- or 400-level chemistry courses beyond those required including up to 3 credits of CHEM 494/CHEM 495
 - BIOL 220W or higher
 - BMB 251 or higher
 - CMPEN
 - CMPSC 121 or higher
 - EDSGN 100S
 - ENVSC 200-level or higher
 - GEOG 100-level or higher
 - GEOSC 100-level or higher
 - Language courses 001-003 (e.g., CHNS, FR, GER, SPAN)
 - MATH 200-level or higher
 - MICRB 201 or higher
 - PHYS 213, PHYS 214, PHYS 237, or any 400-level
 - PLET 205 or higher
 - SOILS 100-level or higher
 - STAT 250 or higher
 - SWENG

All Options: Chemistry, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
First Year Seminar	1 CHEM 112*	3
CHEM 110*	3 CHEM 113*	1
CHEM 111*	1 MATH 141**†	4
MATH 140**†	4 PHYS 211**	4
BIOL 110**†	4 ENGL 15 (or General Education Course)†	3
ENGL 15 (or General Education Course)†	3 General Education Course	1.5
16		16.5

Second Year

Fall	Credits Spring	Credits
CHEM 210*	3 CHEM 212*	3
CAS 100†	3 CHEM 213*	2
MATH 230*	4 MATH 250 or STAT 401* ¹	3
PHYS 212**†	4 ENGL 202C**†	3
General Education Course	1.5 General Education Course	3
15.5		14

Third Year

Fall	Credits Spring	Credits
CHEM 227*	4 CHEM 440*	3
CHEM 358*	3 CHEM 441*	1
CHEM 450*	3 CHEM 452*	3
CHEM 451*	1 CHEM 453*	1
General Education Course	3 CHEM 494 or 495*	1
General Education Course	3 BMB 402**†	3
	Supporting Course	3
17		15

Fourth Year

Fall	Credits Spring	Credits
CHEM 413*	4 CHEM 431W*	4
CHEM 472*	3 400-Level Chemistry Elective*	3
CHEM 494 or 495*	1 CHEM 494 or 495*	1
General Education Course	3 General Education Course	3
Supporting Course	3 Supporting Course	3
400-Level Chemistry Elective*	3	
17		14

Total Credits 125

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ 3 credits from BMB 402, MATH 250 or STAT 401 are required.

Additional credits from this list will be used as a supporting course.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- **Supporting Course List:** Students must take 12 credits of courses that are appropriate for a science major and on the school approved list. These include but are not limited to:
 - Additional 300- or 400-level chemistry courses beyond those required including up to 3 credits of CHEM 494/CHEM 495
 - BIOL 220W or higher
 - BMB 251 or higher
 - CMPEN
 - CMPSC 121 or higher
 - EDSGN 100S
 - ENVSC 200-level or higher
 - GEOG 100-level or higher
 - GEOSC 100-level or higher
 - Language courses 001 – 003 (e.g., CHNS, FR, GER, SPAN)
 - MATH 200-level or higher
 - MICRB 201 or higher
 - PHYS 213, PHYS 214, PHYS 237, or any 400-level
 - PLET 205 or higher
 - SOILS 100-level or higher
 - STAT 250 or higher
 - SWENG

Career Paths

Chemistry is called “the central science” for good reason—it is an incredibly versatile field of study that directly impacts other scientific fields. To help you tailor your degree to your career interests, Penn State Behrend offers four options for study with the degree program: General Chemistry, Biochemistry, Business, and Education. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

Chemistry offers a wealth of career options in medicine, energy, industry, consumer goods, materials, academia, and government service. Penn State Behrend's B.S. in Chemistry graduates currently work as research scientists, product development scientists, field scientists, physicians, pharmacists, consultants, university professors, technical managers, and quality engineers. They are employed at organizations that include NASA, LORD Corporation, PPG, Hero BX, Associated Clinical Laboratories, and Pyramid Laboratories.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE CHEMISTRY PROGRAM (<https://behrend.psu.edu/school-of-science/academic-programs/chemistry/>)

Opportunities for Graduate Studies

Chemistry is a foundational major for graduate study in specialized sub-disciplines such as biochemistry, toxicology, forensic chemistry, environmental chemistry, materials science, nanotechnology, pharmaceutical synthesis, polymer science, and chemical engineering. Chemistry also is a useful undergraduate major for future doctors, veterinarians, physician assistants, and other health care professionals. Penn State Behrend's B.S. in Chemistry graduates have pursued advanced degrees at universities and colleges across the nation, including University of Michigan, Princeton University, Case Western Reserve University, University of California Irvine, North Carolina State University, University of Maryland, University of Kansas, and Lake Erie College of Osteopathic Medicine, among others.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-science/academic-programs/chemistry/>)

Professional Resources

- American Chemical Society (<https://www.acs.org>)
- The Royal Society of Chemistry (<https://www.rsc.org>)
- American Society for Biochemistry and Molecular Biology (<https://www.asbmb.org>)
- World Association of Theoretical and Computational Chemists (<https://watoc.net>)

Contact

Erie

SCHOOL OF SCIENCE
1 Prischak
4205 College Drive
Erie, PA 16563
814-898-6105
behrend-science@psu.edu

<https://behrend.psu.edu/school-of-science> (<https://behrend.psu.edu/school-of-science/>)

Child Development, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

This 15 credit certificate will provide the core information and competencies for students interested in pursuing the field of child

development. Students will be provided with a broad overview of the developmental processes underlying child and adolescent development. This certificate will be attractive to both psychology majors as well as adult students taking courses part time for career advancement. The certificate may also serve as the gateway to a minor or major in psychology. It is consistent with psychology program goals to develop clear career tracks for current students interested in the applied fields of psychology.

What is Child Development?

Child development is a broad field of study involving the physical, intellectual, psychological, and emotional progression of children and adolescents. The certificate in Child Development offers a wide overview of the processes underlying child and adolescent development and the influences of developmental contexts such as family, school, peers, and culture.

You Might Like This Program If...

- You enjoy working with children and adolescents and want to learn more about their physical, cognitive, social, and emotional development.
- You are interested in a career in human services, behavioral health, education, family services, policy and advocacy work, community programs, or child care.
- You want to pursue a career in education.

Program Requirements

To earn an undergraduate certificate in Child Development, a minimum of 15 credits is required.

Code	Title	Credits
Prescribed Courses		
PSYCH 212 or HDFS 129	Introduction to Developmental Psychology Introduction to Human Development and Family Studies	3
Select 6 credits of the following:		6
PSYCH 410	Child Development	
PSYCH 412	Adolescence	
PSYCH 476	Child Psychopathology	
Select 6 credits of the following:		6
EDPSY 14	Learning and Instruction	
HDFS 229	Infant and Child Development	
PSYCH 221	Introduction to Social Psychology	
PSYCH 238	Introduction to Personality Psychology	
PSYCH 256	Introduction to Cognitive Psychology	
PSYCH 413	Cognitive Development	
PSYCH 414	Social and Personality Development	
PSYCH 473	Behavior Modification	

Certificate Learning Objectives

- Describe key concepts, basic principles, and overarching themes used in developmental psychology.
- Demonstrate knowledge of the major domains of development and the biological, psychological, cognitive, and social influences on development within these domains.

- Explain the differences between the major theories of cognitive development and learning.
- Understanding of developmental considerations that influence the diagnosis, behavioral manifestation, and treatment of childhood disorders.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

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Schuylkill

Academic Advising Office

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570-385-6111
sl-advising@psu.edu

Career Paths

The certificate in Child Development can be pursued by Penn State Behrend undergraduate students and as a stand-alone credential for nondegree students. It is useful for Psychology majors as well as for adult and traditional students interested in careers working with children and adolescents. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

Child development specialists work in day care centers, preschools, schools, social work agencies, hospitals, and health care clinics. They can be teachers, special education paraprofessionals, parent educators, educational consultants, child life specialists, clinicians, psychologists, researchers, or case managers.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A CERTIFICATE IN CHILD DEVELOPMENT (<https://>)

behrend.psu.edu/school-of-humanities-social-sciences/academic-programs-1/certificate-programs/child-development-certificate/)

Opportunities for Graduate Studies

Working with children and adolescents in a clinical or educational setting requires education beyond a bachelor's degree. Penn State Behrend offers a Master of Arts degree program in Applied Clinical Psychology that includes optional preparation for the Licensed Professional Counselor (LPC) credential.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-humanities-social-sciences/academic-programs/master-of-applied-clinical-psychology/>)

Professional Resources

- American Psychological Association (<https://www.apa.org/>)
- Society for Research on Adolescence (<https://www.s-r-a.org/>)

Contact

Erie

SCHOOL OF HUMANITIES AND SOCIAL SCIENCES
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HSSOffice@psu.edu

<https://behrend.psu.edu/school-of-humanities-social-sciences> (<https://behrend.psu.edu/school-of-humanities-social-sciences/>)

Schuylkill

ACADEMIC AFFAIRS, SOCIAL SCIENCES
200 University Drive
Schuylkill Haven, PA 17972
570-385-6083
aem141@psu.edu

Communication Arts and Mass Media, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The CASC minor offers students the opportunity to balance a liberal arts foundation and orientation to communication with the media and production theory and skills necessary for supplementing career fields requiring effective oral, written and media production skills. This minor would complement majors in management, marketing, education, sales, training and development, government, human resources, and development.

What is Communication Arts and Mass Media?

Communications is an academic discipline that deals with the creation and distribution of mass communication messages through media such as books, newspapers, television, radio, film, video games and

the internet. Mass communications use writing, photographs, video and interactive content to give information or influence the audience. Communications also concerns the study of how we communicate in different ways with diverse audiences through marketing, advertising, public relations, journalism, film and other media.

You Might Like This Program If...

- You recognize that having enhanced oral and written communications skills will benefit you professionally regardless of your major discipline.
- You want to build your digital-media production skills.
- You'd like to add a liberal arts balance to a business or technical major.

Entrance to Minor

Students must apply for entrance to the minor after achieving fifth semester classification. This minor is not available to students enrolled in any of the majors in the College of Communications or any other communication major including: CAS, CASBL, CASCC, CCBA, CCCC, COMAL, COMBA, COMCC, or COMCL.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select one of the following:		3
COMM 100N	The Mass Media and Society	
COMM 110	Media and Democracy	
COMM 118	Introduction to Media Effects	
COMM 150N	The Art of the Cinema	
COMM 251	The Nature of Media	
Select one of the following:		3
CAS 101N	Introduction to Human Communication	
CAS 252	Business and Professional Communication	
CAS 301	Rhetorical Theory	
CAS 303	Communication Theory	

Supporting Courses and Related Areas

<i>Supporting Courses and Related Areas: Require a grade of C or better</i>	
Select 6 select credits from any CAS or COMM 200-300 level courses	6
Select 6 credits from any CAS or COMM 400-level courses	6

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of

both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

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Schuylkill

Valerie Schrader

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Career Paths

The minor in Communication Arts and Mass Media can be pursued by students in most Penn State Behrend degree programs. The minor will help you to become a more skilled and critical creator and consumer of communications. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

A minor in Communication Arts and Mass Media will be a plus in any career field that requires facility with written and oral communications and presentation prowess, including education, political science, psychology, economics, accounting, and marketing.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN COMMUNICATION ARTS AND MASS MEDIA (<https://behrend.psu.edu/school-of-humanities-social-sciences/academic-programs-1/minors/communication-arts-and-mass-media-minor/>)

Opportunities for Graduate Studies

A minor in the liberal arts, particularly when added to a major program outside of the liberal arts, demonstrates to graduate school admissions committees your commitment to interdisciplinary thinking.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-humanities-social-sciences/academic-programs-1/minors/communication-arts-and-mass-media-minor/>)

Contact

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Schuylkill

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Communication, B.A. (Behrend)

Begin Campus: Any Penn State Campus

End Campus: Erie

Program Description

The B.A. major in Communication offers a liberal arts background with emphasis in mass media studies and corporate communication. It prepares students for careers in corporate communication, print and broadcast journalism, multi-media and video production, and advertising/public relations by providing an interdisciplinary study of spoken, written, visual, and technically mediated messages.

What is Communication?

Communications is an academic discipline that deals with the creation and distribution of mass communication messages through media such as books, newspapers, television, radio, film, video games, and the Internet. Mass communications use writing, speech, photographs, video, and interactive content to give information or influence the audience. Communications also concerns the study of how we communicate in different ways with diverse audiences through marketing, advertising, public relations, corporate communications, digital journalism, film and other media.

You Might Like This Program If...

- You're the first on board when a social media app is released.
- You can envision yourself presenting creative ideas across multiple communication platforms.
- You welcome the challenges of working with new technology and new communication mediums.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Communication, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	9-21
Bachelor of Arts Degree Requirements	24
Requirements for the Major	45

0-3 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 0-3 credits of GA courses in the Journalism/Media Productions (Multimedia Area).

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CAS 204	Communication Research Methods	3
CAS 303	Communication Theory	3
COMM 160	Basic News Writing Skills	1
COMM 251	The Nature of Media	3
COMM 315	Applications for Media Writing	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
CAS 212	Professional Public Speaking	3
or CAS 252	Business and Professional Communication	
CAS 271N	Intercultural Communication	3
or COMM 410	International Mass Communications	
COMM 242	Basic Video/Filmmaking	3
or COMM 270	Introduction to Multimedia Production	
COMM 494	Research Project Courses	3
or COMM 495	Internship	
Select 3 credits of the following:		3
CAS 101N	Introduction to Human Communication	
CAS 175	Persuasion and Propaganda	
COMM 100N	The Mass Media and Society	

COMM 110	Media and Democracy
COMM 118	Introduction to Media Effects
COMM 150N	The Art of the Cinema
COMM 168	American Journalism: Values, Traditions, and Practices
COMM 180	Survey of Electronic Media and Telecommunications
Select 2 credits of the following:	
COMM 1	Newspaper Practicum
COMM 2	Newspaper Editorial Staff
COMM 3	Radio Studio
COMM 4	Television Studio

2

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 15 credits (at least 9 credits at the 400 level) of supporting coursework, from departmental list ¹ 15

¹ In consultation with an academic adviser, students will select 6-9 credits from 2 of 3 Concentrations:

1. Communication Studies
2. Strategic Communication
3. Journalism/Media Production

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or

beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- **Critical Thinking Skills:** The student will connect communication theory and research methods through effective critical thinking skills.
- **Cultural Competence:** The student will demonstrate culturally competent communication skills and understanding of the role communications systems play in shaping local, national and global citizens and communities.
- **Oral, Written, Visual Communication Skills:** The student will develop strong oral, written, and visual skills.
- **Problem-Solving Skills:** The student will demonstrate advanced creative, analytical, and problem-solving skills in their academic and professional lives.
- **Professional Skills:** The student will generate a body of work that shows career readiness, professional skills, and discipline knowledge.
- **Professional Standards and Ethical Practices:** The student will use professional standards and ethical practices in applied experiences.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Communication, B.A. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year		
Fall	Credits Spring	Credits
World Language (Level One)	4 General Education	3
General Education	3 General Education	3
ENGL 15*	3 Quantification Selection*	3
General Education	3 World Cultures selection	3
First Year Seminar	1 World Language (Level Two)	4
100-Level CAS/COMM Additional Course*	3 COMM 1, 2, 3, or 4*	1
	17	17

Second Year		
Fall	Credits Spring	Credits
COMM 160	1 ENGL 202A, 202B, 202C, or 202D*‡	3
General Education	3 General Education	3
General Education	3 BA Knowledge Domain	3
World Language (Level Three)	4 General Health and Wellness	1.5
CAS 100A or 100B‡	3 Quantification Selection‡	3
COMM 1, 2, 3, or 4*	1 CAS 303*	3
	15	16.5

Third Year		
Fall	Credits Spring	Credits
COMM 315	3 CAS 204*	3
COMM 242 or 270*	3 CAS/COMM Supporting Course*	3
CAS 212 or 252*	3 CAS/COMM Supporting Course*	3
COMM 410 or CAS 271N*	3 General Education*	3
BA Knowledge Domain*	3 400-Level Supporting Course*	3
General Health and Wellness	1.5	
	16.5	15

Fourth Year		
Fall	Credits Spring	Credits
COMM 251*	3 BA Knowledge Domain	3
400-Level Supporting Course*	3 COMM 494 or 495*	3
General Education	3 400-level Supporting Course*	3
Elective*	3 Elective	3
	12	12

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

¹ Arts Selection (GA)

² GD 100 Recommended

Additional Notes

*For the Media Communications Selection, students may select from CAS 101, CAS 175, COMM 100N, COMM 110, COMM 118, COMM 168 or COMM 180.

Career Paths

The B.A. in Communication prepares you for careers in corporate communication, print and broadcast journalism, social media management, advertising, public relations, and media production. You'll practice your craft by writing, editing, or serving as a photographer for The Behrend Beacon newspaper, or writing, producing, or hosting a show on BVZ Radio or PSB-TV. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

Because it is a diverse and practical field of study, Penn State Behrend Communication alumni pursue a wide variety of careers. Our graduates include public relations directors, account executives, marketing managers, teachers, broadcasters, writers, journalists, pastors, coaches, professional videographers and photographers, and sports information directors.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE COMMUNICATION PROGRAM (<https://>

behrend.psu.edu/school-of-humanities-social-sciences/academic-programs/communication/)

Opportunities for Graduate Studies

A B.A. in Communication can be the starting point for graduate-level education in more specialized fields, including journalism, fine-art photography or photojournalism, integrated marketing communication, strategic communications, digital media, communication or media studies, and education at the elementary, secondary, and post-secondary level.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-humanities-social-sciences/academic-programs/communication/>)

Professional Resources

- American Communications Association (<https://www.americancomm.org/>)
- Association for Women in Communications (<https://womcom.org>)
- International Association of Business Communicators (<https://www.iabc.com/>)
- Public Relations Society of America (<https://www.prsa.org/>)
- Society of Professional Journalists (<https://www.spj.org/>)

Contact

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<https://behrend.psu.edu/school-of-humanities-social-sciences> (<https://behrend.psu.edu/school-of-humanities-social-sciences/>)

Computer Engineering, B.S. (Behrend)

Begin Campus: Any Penn State Campus

End Campus: Erie

Program Description

This major provides students with a strong foundation in computer engineering through a combination of classroom study, design projects, and laboratory experience. Analysis and design of computer hardware and software systems are stressed. Built upon a core of science and mathematics courses, this major has the objective of educating graduates to be problem solvers. Students acquire the ability to work as members of a team toward successful attainment of a common goal, preparing them for industry or further study in graduate school. In addition, written and oral communication skills are developed from an early stage, culminating in a senior design project that stresses communication as well as engineering content.

In addition to completing a broad-based science core in mathematics, chemistry and physics, students pursue their interest in computer engineering by studying principles in digital hardware design, computer architecture, computer software, microelectronics, and computer data

communications. The student will be required to analyze and solve a significant computer engineering design problem during the senior year.

What is Computer Engineering?

Computer engineering is the study of the design, analysis, and implementation of computer systems including processors, memory, embedded devices, and data communication systems for a wide range of application domains. It includes the study of digital systems, computer architecture, and computer networks. It encompasses many design activities spanning from designing individual logic components to designing complete computer systems composed of hardware, software, and hardware-software co-design. Computer engineering drives the development of new computing systems that enable the latest technologies impacting our everyday lives.

You Might Like This Program If...

- You've ever opened a computer housing to explore what's inside.
- You enjoy working with both hardware and software.
- You're interested in both engineering and computing—and in the overlap of the two disciplines.
- You'd like to take coursework in computers, engineering, math, and physics.

Entrance to Major

In addition to the Carnegie unit and minimum GPA requirements described by University policies, all students applying for entrance to any of the engineering majors at Behrend College must have at least a 2.0 cumulative GPA by the end of the semester prior to applying for entrance to the major and have completed, with a minimum grade of C: CHEM 110, MATH 140, MATH 141, and PHYS 211. These courses must be completed by the end of the semester during which the admission to major process is carried out.

Degree Requirements

For the Bachelor of Science degree in Computer Engineering, a minimum of 130 credits is required:

Requirement	Credits
General Education	45
Electives	1
Requirements for the Major	105

21 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GWS courses; 3 credits of GS courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned.

Requirements for the Major

Each student must earn at least a grade of C in each 300-and 400-level course in the major field.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and->

[rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44](#)).

Code	Title	Credits
Prescribed Courses		
CMPSC 121	Introduction to Programming Techniques	3
ENGL 202C	Effective Writing: Technical Writing	3
PHYS 212	General Physics: Electricity and Magnetism	4
PHYS 214	General Physics: Wave Motion and Quantum Physics	2
<i>Prescribed Courses: Require a grade of C or better</i>		
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
CMPEN 271	Introduction to Digital Systems	3
CMPEN 275	Digital Design Laboratory	1
CMPEN 351	Microprocessors	3
CMPEN 352W	Embedded Systems Design	3
CMPEN 371	Advanced Digital Design	3
CMPEN 411	VLSI Digital Circuits	3
CMPEN 431	Introduction to Computer Architecture	3
CMPEN 441	Operating Systems	3
CMPEN 461	Communication Networks	3
CMPEN 480	Computer Engineering Design	3
CMPEN 481	Computer Engineering Project	3
CMPSC 122	Intermediate Programming	3
CMPSC 360	Discrete Mathematics for Computer Science	3
CMPSC 465	Data Structures and Algorithms	3
EE 210	Circuits and Devices	4
EE 310	Electronic Circuit Design I	4
EE 352	Signals and Systems: Continuous and Discrete-Time	4
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
MATH 220	Matrices	3
MATH 230	Calculus and Vector Analysis	4
MATH 250	Ordinary Differential Equations	3
PHYS 211	General Physics: Mechanics	4
STAT 301		3
Additional Courses		
ECON 102	Introductory Microeconomic Analysis and Policy	3
or ECON 104	Introductory Macroeconomic Analysis and Policy	
Supporting Courses and Related Areas		
Select 9 credits of technical elective courses from school-approved list		9

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education

Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Computer Engineering, B.S. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CMPSC 121 [†]	3 CHEM 110 ^{*#†}	3
ENGL 15 or 30H ^{††}	3 CHEM 111 ^{*†}	1

MATH 140 ^{*‡##}	4	CMPSC 122 [*]	3
PHYS 211 ^{*##†}	4	MATH 141 ^{*‡##†}	4
PSU 7	1	PHYS 212 [†]	4
General Education Course (GHW)	1.5		
	16.5		15

Second Year

Fall	Credits	Spring	Credits
MATH 250 [*]	3	CMPSC 360 ^{*1}	3
CMPEN 270 or 271 <i>and</i> 275 ^{*1}	4	EE 210 ^{*1}	4
MATH 220 [*]	2	ENGL 202C ^{‡†}	3
ECON 102 or 104 [†]	3	MATH 230 [*]	4
CAS 100 ^{‡†}	3	PHYS 214 [†]	2
General Education Course (GA/GH/GS)	3		
	18		16

Third Year

Fall	Credits	Spring	Credits
CMPEN 351 [*]	3	CMPEN 352W ^{*2}	3
CMPEN 371 [*]	3	CMPEN 411 [*]	3
CMPSC 465 [*]	3	CMPEN 431 [*]	3
EE 310 [*]	4	EE 352 [*]	4
STAT 301 or STAT 318 [*]	3	General Education Course (GA/GH/GS)	3
	16		16

Fourth Year

Fall	Credits	Spring	Credits
CMPEN 441 [*]	3	CMPEN 481 [*]	3
CMPEN 461 [*]	3	Technical Elective (300, 400-level) [*]	3
CMPEN 480 [*]	3	Technical Elective (300, 400-level) [*]	3
Technical Elective (300, 400-level) [*]	3	General Education Course (GA/GH/GS)	3
Technical Elective (300, 400-level) [*]	3	General Education Course (GA/GH/GS)	3
General Education Course (GA/GH/GS)	1.5		
	16.5		15

Total Credits 129

- * Course requires a grade of C or better for the major
‡ Course requires a grade of C or better for General Education
Course is an Entrance to Major requirement
† Course satisfies General Education and degree requirement

¹ Must be completed prior to the third year to ensure that all fall semester third-year prerequisites are met.

² Course will satisfy Writing Across the Curriculum requirement.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- Only students who have gone through the entrance to major (ETM) process and have been accepted into this major may register for junior and senior-level EE, CMPEN, and SWENG courses.

School-Approved Electives for Computer Engineering:

Technical electives allow students to choose areas of interest to explore. Technical electives come in two categories: primary and secondary. Primary technical electives are those courses offered to the Computer Engineering major, which are not required for the Computer Engineering degree. Secondary technical electives are offered outside your home department and give you a broader latitude. **Students must complete at least two primary technical electives and, at most, one secondary technical elective.** Courses listed below as asynchronous are offered as needed when the appropriate faculty member is available.

*Exceptions to the above policy will be granted to students who **successfully** complete a minor in one of the areas listed in the Academic Minors portion of the School of Engineering Advising Handbook.*

Primary Technical Electives:

- Any 300-400 level SWENG course
- Any 300-400 level EE course not already required for the major
- Any 300-400 level CMPEN course not already required for the major
- Any 400 level CMPSC course not already required for the major, with the exception of CMPSC 455 and CMPSC 456
- Any 300-400 level technical gaming course

Secondary Technical Electives:

- CMPEN 395 - Internship
- CMPEN 495 - Internship
- CMPSC 461 - Programming Language Concept
- CMPSC 471 - Introduction to Compiler Construction
- MGMT 409 - Project Management for Engineers
- PSYCH 444 - Engineering Psychology
- ECON 481 - Business Forecasting Techniques
- ECON 485 - Econometric Techniques
- PHYS 458 - Intermediate Optics
- MATH 455 - Introduction to Numerical Analysis
- MATH 456 - Introduction to Numerical Analysis
- IE 302 - Engineering Economy

Career Paths

Breadth of experience with computing technologies makes it possible for computer engineering graduates to begin their careers in nearly every sector of the economy. Entry-level computer engineers typically work in computer design, systems analysis, hardware, software development, signal processing tool design, validation, firmware, and computer vision. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often, and take advantage of the services offered by the Academic and Career Planning Center beginning with your first semester.

Careers

Employers of recent Penn State Behrend B.S. in Computer Engineering graduates include Bechtel Marine Propulsion, Duquesne Light, GE, Intel, Northrop Grumman, RoviSys, ASCO Power Technologies, Siemens, Zoll Medical Corp., Westinghouse, and Texas Instruments.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE COMPUTER ENGINEERING PROGRAM (<https://behrend.psu.edu/school-of-engineering/academic-programs/computer-engineering/>)

Opportunities for Graduate Studies

Graduate programs in computer engineering often delve more deeply into areas of specialization such as control engineering, automation, embedded sensor systems, hardware and software architecture, biomedical technologies, nanotechnologies, and even economic and financial modeling. Or, you can earn a master's degree to learn management skills; Penn State Behrend offers a Master of Manufacturing Management (M.M.M) degree program for aspiring organizational leaders.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-engineering/academic-programs/master-of-manufacturing-management/>)

Professional Resources

- ABET (<https://www.abet.org/>)
- Institution of Electrical and Electronics Engineers (IEEE) Computer Society (<https://www.computer.org/>)
- Association for Computing Machinery (<https://www.acm.org/>)
- Society of Women Engineers (<https://swe.org>)
- National Society of Black Engineers (<https://www.nsbe.org>)

Accreditation

The Bachelor of Science in Computer Engineering at Penn State Behrend is accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Electrical, Computer, Communications, Telecommunication(s), and Similarly Named Engineering Programs.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

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Computer Engineering, Minor (Behrend)

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

This program of study provides graduates with a strong background in computer engineering. Upon completion of the minor, graduates will have developed an understanding of the operation and design of computers. This objective is accomplished through a combination of classroom study, computer-related projects, and laboratory experience. Analysis and design of computer hardware and software systems are stressed. The program requires completion of mandatory courses in analog and digital circuits, microprocessors, transistor logic, and computer programming. Students complete the minor by selecting technical electives in computer hardware and software engineering.

What is Computer Engineering?

Computer engineering is the study of the design, analysis, and implementation of computer systems including processors, memory, embedded devices, and data communication systems for a wide range of application domains. It includes the study of digital systems, computer architecture, and computer networks. It encompasses many design activities spanning from designing individual logic components to designing complete computer systems composed of hardware, software, and hardware-software co-design. Computer engineering drives the development of new computing systems that enable the latest technologies impacting our everyday lives.

You Might Like This Program If...

- You want to add computing expertise to a more general engineering major program.
- You enjoy working with both hardware and software.

Program Requirements

Requirement	Credits
Requirements for the Minor	24

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>).

In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
EE 210	Circuits and Devices	4
EE 310	Electronic Circuit Design I	4
EE 316	Introduction to Embedded Microcontrollers	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
CMPEN 271 & CMPEN 275	Introduction to Digital Systems and Digital Design Laboratory	4
CMPSC 201 or CMPSC 202	Programming for Engineers with C++	3
Select two of the following:		6
CMPEN 352W	Embedded Systems Design	
CMPEN 411	VLSI Digital Circuits	
CMPEN 431	Introduction to Computer Architecture	
CMPEN 441	Operating Systems	
CMPEN 461	Communication Networks	
CMPSC 450	Concurrent Scientific Programming	
SWENG 411	Software Engineering	

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Career Paths

The minor in Computer Engineering can be pursued by students enrolled in several of the School of Engineering degree programs. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often, and take advantage of the services offered by the Academic and Career Planning Center beginning with your first semester.

Careers

The Computer Engineering minor has been designed so that you can choose technical electives in either computer hardware or in software. This allows you to better integrate the minor with your major degree program, tailoring it to the career path of your choosing.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN COMPUTER ENGINEERING (<https://behrend.psu.edu/school-of-engineering/academic-programs/computer-engineering/curriculum/computer-engineering-minor/>)

Opportunities for Graduate Studies

Adding a specialized minor such as Computer Engineering to a broader engineering major program demonstrates to graduate programs your commitment to interdisciplinary research and advanced study.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-engineering/academic-programs/computer-engineering/curriculum/computer-engineering-minor/>)

Contact

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Computer Science, B.S. (Behrend)

Begin Campus: Any Penn State Campus

End Campus: Erie

Program Description

The goals of the Computer Science major at Behrend are to:

- Provide strong fundamentals in both theoretical and applied computer science
- Train our students to solve real-world problems
- Prepare graduates to be employed as a practicing computing professional in fields such as design, research, development, testing, maintenance, and manufacturing
- Assume positions of leadership and responsibility within an organization
- Progress through advanced degree or certificate programs in engineering, science, business, and other professionally related fields.

These goals are consistent with the objectives outlined for the ABET accreditation.

The program consists of a number of core courses in computer programming, algorithm, and computer systems. In addition, the program offers a selection of advanced topics from which students may choose elective courses with concentrations in Cyber Security, Artificial Intelligence and Data Science, and Web Services and Applications. The

students will be required to analyze and solve a significant industry sponsored computer problem during the senior year.

What is Computer Science?

Computer science is the study of computational methods, including their principles and foundations, their efficient implementation, their analyses, and their practical application in wide-ranging areas. It includes the foundations of software development, computational problem solving, the principles of system software, and the fundamental principles and limits of computing. It is much more than just programming. It includes the mathematical foundations that support analyzing, evaluating, and proving the correctness of computational solutions. It includes specializations such as artificial intelligence, machine learning, cybersecurity, data mining, high-performance computing, computer networks, computer graphics, computer vision, quantum computing, and others. It is continually evolving with the development of new and faster forms of computation and with the identification of new problems that require computational solutions.

You Might Like This Program If...

- You enjoy math, logic, coding, and programming, and also want to take coursework in the natural sciences.
- You use all of your devices' capabilities, not just the obvious ones.
- You'd like to work in a specialized field in computer science such as artificial intelligence, machine learning, security, or web development.

Entrance to Major

To be eligible for entrance to the Computer Science (CMPBC) major, a student must have completed MATH 140, MATH 141, CMPSC 121, CMPSC 122, and one of the following: BIOL 110, or CHEM 110 and CHEM 111 or PHYS 211 with a grade of C or better in each of these courses.

Degree Requirements

For a Bachelor of Science degree in Computer Science, a minimum of 122-123 credits is required:

Requirement	Credits
General Education	45
Electives	1
Requirements for the Major	97-98

21 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GQ courses, 6 credits of GWS courses, 9 credits of GN courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned.

Requirements for the Major

A student enrolled in this major must earn at least a grade of C in each 300- and 400-level course in the major field.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and->

[rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44](#)).

Code	Title	Credits
Prescribed Courses		
CMPSC 221	Object Oriented Programming with Web-Based Applications	3
MATH 220	Matrices	2
<i>Prescribed Courses: Require a grade of C or better</i>		
CAS 100A	Effective Speech	3
CMPSC 121	Introduction to Programming Techniques	3
CMPSC 122	Intermediate Programming	3
CMPSC 312	Computer Organization and Architecture	3
CMPSC 335	Fundamentals of Communication Networks	3
CMPSC 360	Discrete Mathematics for Computer Science	3
CMPSC 421	Net-centric Computing	3
CMPSC 431W	Database Management Systems	3
CMPSC 461	Programming Language Concepts	3
CMPSC 465	Data Structures and Algorithms	3
CMPSC 474	Operating System & Systems Programming	3
CMPSC 484	Computer Science Senior Project I	2
CMPSC 485W	Computer Science Senior Project II	3
ENGL 202C	Effective Writing: Technical Writing	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
STAT/MATH 318	Elementary Probability	3
Additional Courses		
Select one of the following sequences:		10-11
CHEM 110 & BIOL 110 & BIOL 220W	Chemical Principles I and Biology: Basic Concepts and Biodiversity and Biology: Populations and Communities	
CHEM 110 & BIOL 110 & BIOL 230W	Chemical Principles I and Biology: Basic Concepts and Biodiversity and Biology: Molecules and Cells	
CHEM 110 & BIOL 110 & BIOL 230M	Chemical Principles I and Biology: Basic Concepts and Biodiversity and Honors Biology: Molecules and Cells	
CHEM 110 & BIOL 110 & BIOL 240W	Chemical Principles I and Biology: Basic Concepts and Biodiversity and Biology: Function and Development of Organisms	
CHEM 110 & BIOL 110 & BIOL 240M	Chemical Principles I and Biology: Basic Concepts and Biodiversity and Honors Biology: Function and Development of Organisms	
CHEM 110 & CHEM 111 & CHEM 112 & CHEM 113 & CHEM 210	Chemical Principles I and Experimental Chemistry I and Chemical Principles II and Experimental Chemistry II and Organic Chemistry I	
PHYS 211 & PHYS 212 & PHYS 213	General Physics: Mechanics and General Physics: Electricity and Magnetism and General Physics: Fluids and Thermal Physics	

PHYS 211 General Physics: Mechanics
& PHYS 212 and General Physics: Electricity and Magnetism
& PHYS 214 and General Physics: Wave Motion and Quantum
Physics

Select at least 15 additional science credits from department approved list 15

Supporting Courses and Related Areas

Select 6 credits from the school approved list ¹ 6

Select 9 additional credits from department approved courses in CMPSC, CMPEN, or SWENG 9

¹ Students may apply 6 credits of ROTC and/or 6 credits of internship CMPSC 495.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Computer Science, B.S. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CMPSC 121 ^{*#†}	3 CMPSC 122 ^{*#}	3
ENGL 15 or 30H ^{††}	3 MATH 141 ^{*†#†}	4
MATH 140 ^{*†#†}	4 Science Sequence Course ⁺³	4
PSU 7	1 General Education Course	3
Science Sequence Course (GN) ^{#†3}	4 General Education Course (GHW)	1.5
	15	15.5

Second Year

Fall	Credits Spring	Credits
CAS 100 ^{††}	3 CMPSC 360 [*]	3
CMPSC 221	3 ENGL 202C ^{††}	3
MATH 220	2 STAT 318 [*]	3
Science Sequence Course ⁺³	2-3 Computer Science and Science Elective	3
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5	
	14.5-15.5	15

Third Year

Fall	Credits Spring	Credits
CMPSC 312 ^{*1}	3 CMPSC 421 ^{*2}	3
CMPSC 335 ^{*1}	3 CMPSC 431W ²	3
CMPSC 465 [*]	3 CMPSC 474 [*]	3
SWENG 411 (Computing Elective) [*]	3 Computer Science and Science Elective	3
Computer Science and Science Elective	3 Supporting and Related Area	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
CMPSC 461 ^{*1}	3 CMPSC 485W ^{*2}	3

CMPSC 484 ^{*1}	2 Computing Elective	3
Computing Elective or Computer Science and Science Elective	3 Computer Science and Science Elective	3
General Education Selection (GA/GH/GS)	3 General Education Course	3
Computer Science and Science Elective	3 General Education Course	3
Supporting and Related Area	3	
	17	15

Total Credits 122-123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ This course is only offered in the **FALL SEMESTER**

² This course is only offered in the **SPRING SEMESTER**

³ Students need to complete one of the following three semester science (GN) course sequences, which will also count toward their general education.

- Biology: CHEM 110, BIOL 110S, and BIOL 220W or BIOL 230W or BIOL 240W
- Chemistry: CHEM 110, CHEM 111, CHEM 112, CHEM 113, and CHEM 210
- Physics: PHYS 211, PHYS 212, and PHYS 213 or PHYS 214

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

School-Approved Electives for Computer Science and Science Electives (15 credits):

Students may choose one of the below options in Computer Science (9 credits):

- Cyber Security – CMPSC 440, CMPSC 443 and SWENG 455
- Artificial Intelligence and Data Science – CMPSC 440, CMPSC 441 and CMPSC 445
- Web Services and Applications – CMPEN 461, CMPSC 475 and SWENG 465

Students may choose from the following courses in Natural Science, MATH, STAT or other CMPSC courses (6 credits):

- 300 and 400-level courses in CMPSC
- ASTRO 291 or higher; BIOL 110 or higher; CHEM 110 or higher
- GEOG 160 or higher, MATH 200-level or higher (Not MATH 311), METEO 101 or higher
- PHYS 211 or higher, except PHYS 250 or PHYS 251
- STAT 300-level or higher

NOTE: Students who take the Chemistry Science Sequence will need to include one course with Natural Science (GN) credit.

School-Approved Computing Electives (9 credits):

Students may choose any courses from:

- Software Engineering: SWENG 411 or higher
- Computer Engineering: CMPEN 270 or higher (except CMPEN 441)
- IE 418
- Other CMPSC 400-level courses

School-Approved Supporting and Related Area Courses (6 credits):

Students may choose from the following:

- 300- and 400-level courses in GAME, MIS, ACCTG, ECON, FIN, PSYCH and ROTC (except MIS 336)
- CMPSC 494 – Research, CMPSC 495 – Internship, and/or CMPSC 496 – Independent Study
- 300 and 400-level courses in CMPSC, CMPEN (except for CMPEN 441), and SWENG (except SWENG 311)

Career Paths

Typical beginning careers for B.S. in Computer Science graduates include applications programmer, systems programmer, systems analyst, systems administrator, and network administrator. You also can prepare for emerging careers in data science, cognitive computing, and artificial intelligence. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

Students entering the workforce with a degree in computer science will find many opportunities in business, industry, government, and academia, and particularly in organizations with a science emphasis. These include traditional and emerging careers such as application programming, systems programming, systems analysis, systems administration, bioinformatics, network administration, and computer modeling.

Employers of recent Behrend B.S. in Computer Science graduates include Amazon, Erie Insurance, Genesys, IBM, Larson Texts, Lockheed Martin, and Northrop Grumman.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE COMPUTER SCIENCE PROGRAM (<https://behrend.psu.edu/school-of-engineering/academic-programs/computer-science/>)

Opportunities for Graduate Studies

Graduate programs in computer science often delve more deeply into the intersections of computer science and the natural sciences, leading to careers in bioinformatics, computational chemistry or physics, or scientific visualization. Or, you can use a master's degree to learn

management skills; Penn State Behrend offers a Master of Manufacturing Management (M.M.M) degree program for aspiring organizational leaders.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-engineering/academic-programs/master-of-manufacturing-management/>)

Professional Resources

- ABET (<https://www.abet.org/>)
- Institution of Electrical and Electronics Engineers (IEEE) Computer Society (<https://www.computer.org/>)
- Association for Computing Machinery (<https://www.acm.org/>)
- Society of Women Engineers (<https://swe.org>)
- National Society of Black Engineers (<https://www.nsbe.org>)

Accreditation

The Bachelor of Science in Computer Science at Penn State Behrend is accredited by the Computing Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Computer Science and Similarly Named Computing Programs.

Contact

Erie

SCHOOL OF ENGINEERING

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5101 Jordan Road

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<https://behrend.psu.edu/school-of-engineering> (<https://behrend.psu.edu/school-of-engineering/>)

Computer Science, Minor (Behrend)

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The computer science minor at Behrend establishes a strong conceptual framework in computer science for students in other majors, so they can apply computer science methods and techniques to their primary field of study. The minor begins with the second level course in computer programming (CMPSC 122), the choice of a course in Object-Oriented Web based programming or design (CMPSC 221 or SWENG 311), a course in discrete math for computer science (CMPSC 360), and a course in Data Structures and Algorithms (CMPSC 465). These twelve credits are followed with an additional six credits of 400-level work in computer science (CMPSC).

Computing has become a critical aspect of most disciplines. This minor provides students with the opportunity to develop computing expertise which can then be applied to their field of study, thus enhancing job placement opportunities after graduation or better preparing the student to pursue graduate work in computing intensive sub-disciplines of their major. The emphasis is on building a conceptual framework which will

allow the student to continue to learn new computing techniques beyond graduation in this rapidly evolving discipline.

What is Computer Science?

Computer science is the study of computational methods, including their principles and foundations, their efficient implementation, their analyses, and their practical application in wide-ranging areas. It includes the foundations of software development, computational problem solving, the principles of system software, and the fundamental principles and limits of computing. It is much more than just programming. It includes the mathematical foundations that support analyzing, evaluating, and proving the correctness of computational solutions. It includes specializations such as artificial intelligence, machine learning, cybersecurity, data mining, high-performance computing, computer networks, computer graphics, computer vision, quantum computing, and others. It is continually evolving with the development of new and faster forms of computation and with the identification of new problems that require computational solutions.

You Might Like This Program If...

- You want to add computing expertise to your major degree program.
- You envision a career in a computing-intensive subfield of your major degree program.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CMPSC 122	Intermediate Programming ¹	3
CMPSC 360	Discrete Mathematics for Computer Science	3
CMPSC 465	Data Structures and Algorithms	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select one of the following:		3
CMPSC 221	Object Oriented Programming with Web-Based Applications	
CMPSC 312	Computer Organization and Architecture	
SWENG 311	Object-Oriented Software Design and Construction	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 6 credits of 400-level (below 490) CMPSC courses		6

¹ CMPSC 121 and MATH 140 are prerequisites for CMPSC 122.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their

intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

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Career Paths

The minor in Computer Science can be pursued by students in most Penn State Behrend degree programs. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

All employers and industry sectors value computing and data-science skills; a minor in Computer Science may set you apart from fellow job-seekers in fields as varied as biology, chemistry, mathematics, physics, science, accounting, economics, business economics, and marketing.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN COMPUTER SCIENCE (<https://behrend.psu.edu/school-of-engineering/academic-programs/computer-science/curriculum/computer-science-minor/>)

Opportunities for Graduate Studies

Adding a specialized minor such as Computer Science to a broader engineering major or to a natural sciences or business degree demonstrates to graduate programs your commitment to interdisciplinary thinking and greatly expands your opportunities for graduate study.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-engineering/academic-programs/computer-science/curriculum/computer-science-minor/>)

Contact

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SCHOOL OF ENGINEERING

242 Jack Burke Research and Economic Development Center

5101 Jordan Road

Erie, PA 16563

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Creative Writing, B.F.A.

Begin Campus: Any Penn State Campus

End Campus: Erie

Program Description

The major allows students to develop their writing skills through craft classes, literature classes, and writing workshops, in preparation for a variety of post-graduation options, from continuing on to M.F.A. degree programs to working in the professional fields of publishing, editing and education. The program recognizes students must understand the relationship between tradition and individual talent, and provides a required sequence of literature courses designed to give students an overview of the historical literary traditions, especially modern and contemporary prose and poetry. It also provides options for sequences of writing workshops, requires a course in creative writing theory, and requires a course that fosters professional development and features live reading by visiting authors. The program culminates in a capstone experience, the senior thesis, a collection of poetry or prose of publishable quality that includes a critical preface demonstrating the students' ability to analyze and contextually their own writing.

What is Creative Writing?

Creative writing is a liberal arts discipline concerned with the practice of literary art, the life of the imagination, and the capacities of language. Creative writing students analyze masterworks of fiction, poetry, and literary nonfiction from different periods and cultures; compose their own original works; develop editing and communication skills; and explore the world of contemporary publishing.

You Might Like This Program If...

- Your nose is always in a book.
- When you're not reading, you're writing.
- You enjoy the editing and revision process.
- You can see yourself working on the editorial staff of Lake Effect, Penn State Behrend's international literary journal.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Fine Arts degree in Creative Writing, a minimum of 121 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	76

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned.

Requirements for the Major

A student enrolled in this major must earn at least a grade of C in each 300- and 400-level course.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
ENGL 6	Creative Writing Common Time ¹	4-8
<i>Prescribed Courses: Require a grade of C or better</i>		
CMLIT 10	World Literatures	3
ENGL 100	English Language Analysis	3
ENGL 200	Introduction to Critical Reading	3
ENGL 212	Introduction to Fiction Writing	3
ENGL 213	Introduction to Poetry Writing	3
ENGL 312	Globality and Literature	3
ENGL 401W	Creative Writing Theory	3
ENGL 420	Writing for the Web	3
ENGL 433	The American Novel: 1900-1945	3
ENGL 436	American Fiction Since 1945	3
ENGL 437	The Poet in America	3
ENGL 458	Twentieth-Century Poetry	3
ENGL 494	Senior Thesis in English	6

Additional Courses

Select 12 credits of a World Language (0-12 credits are included in ELECTIVES if world language proficiency is demonstrated by examination)

Additional Courses: Require a grade of C or better

ENGL 443	The English Renaissance	3
or ENGL 444	Shakespeare	

Select three of the following: 9

ENGL 412	Advanced Fiction Writing	
ENGL 413	Advanced Poetry Writing	
ENGL 422	Fiction Workshop	
ENGL 423	Poetry Writing Workshop	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 6 credits from courses at the 200-level or above in CMLIT or ENGL 6

¹ Students planning to major in creative writing should enroll in this course every semester (typically 8 semesters). A student is required to take this course a minimum of four times.

In addition to the requirements above, for enrichment, students in the B.F.A. degree program have the opportunity of taking ENGL 209, Literary Magazine Practicum, and serving as genre editors or assistant editors on the staff of *Lake Effect*, the national literary journal published by the School of Humanities and Social Sciences at Penn State Erie, The Behrend College. This is a 1-credit course in which students may enroll for up to 8 credits over their time in the degree program.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3

credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

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6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Application of Knowledge:** Apply knowledge of critical, theoretical, and technical traditions to the production of original literary works.
- **Articulation of Knowledge:** Articulate the relationship between their own original literary works and the traditions of literature.
- **Foundational Reading:** Demonstrate familiarity with representative literary texts from a significant number of historical, geographical, and cultural contexts, with particular focus on Modern and contemporary literature.
- **Presentation:** Effectively present their own literary work in public forums
- **Professional Knowledge:** Demonstrate familiarity with the contemporary literary publishing milieu.

Academic Advising

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Erie

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Suggested Academic Plan

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First Year

Fall	Credits Spring	Credits
First Year Seminar	1 ENGL 6	1
ENGL 15, 30H, or ESL 15 [‡]	3 General Education	1.5
ENGL 6	1 CAS 100, CAS 100A, CAS 100B, or CAS 100C [‡]	3
General Education	3 ENGL 212 or 213	3
General Education	3 General Education	3
World Language Level 1	4 World Language (Level 2)	4
	15	15.5

Second Year

Fall	Credits Spring	Credits
ENGL 6	1 ENGL 6	1
ENGL 200	3 ENGL 100	3
200-400 level course in ENGL or CMLIT	3 200-400 Level Course in ENGL or CMLIT	3
ENGL 212 or 213	3 CMLIT 10	3
General Education	3 ENGL 202A or 202B ^{††}	3
World Language Level 3	4 ENGL 412 or 413	3
	17	16

Third Year

Fall	Credits Spring	Credits
ENGL 6	1 ENGL 6	1

ENGL 312*	3 ENGL 422 or 423*	3
ENGL 412 or 413*	3 ENGL 433*	3
General Education	3 General Education	3
ENGL 444 or 443*	3 General Education	3
ENGL 458*	3 General Education	3
	16	16

Fourth Year

Fall	Credits Spring	Credits
ENGL 6	1 ENGL 6	1
ENGL 401W*	3 ENGL 437*	3
ENGL 436*	3 General Education	3
ENGL 494*	3 ENGL 494*	3
General Education	3 General Education	3
General Education	1.5 ENGL 420*	3
	14.5	16

Total Credits 126

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Additional Notes

Academic Advising Notes: The course series listed about is only one of many possible ways to move through this curriculum. Please be sure to consult with an adviser about your intended plan.

Career Paths

As a Creative Writing major, you'll enhance your knowledge and sharpen your skills through a variety of literature courses and writing workshops. Additionally, you'll interact with established writers who visit campus as part of the Smith Creative Writers Reading Series, and you'll have the opportunity to help edit *Lake Effect*, an international literary journal. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

A B.F.A. in Creative Writing can lead to a variety of careers. Graduates of Penn State Behrend's program publish their writing widely. They also work as technical writers, communications coordinators, copy

editors, editors of presses, marketing directors, project managers, media associates, university professors, teachers, lawyers, librarians, and freelance writers and editors.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE CREATIVE WRITING PROGRAM (<https://behrend.psu.edu/school-of-humanities-social-sciences/academic-programs/creative-writing/>)

Opportunities for Graduate Studies

Recent Behrend B.F.A. graduates have earned advanced degrees at the University of Utah, Bowling Green State University, Ohio State University, Indiana University, the University of Minnesota, Wichita State University, George Mason University, the University of North Carolina at Wilmington, the University of Nevada, Las Vegas, the University of Southern California, Northeastern University, the University of North Dakota, the University of Alaska-Fairbanks, Northern Michigan University, Duquesne University, and Syracuse University.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-humanities-social-sciences/academic-programs/creative-writing/>)

Professional Resources

- Association of Writers and Writing Programs (<https://www.awpwriter.org/>)

Contact

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<https://behrend.psu.edu/school-of-humanities-social-sciences> (<https://behrend.psu.edu/school-of-humanities-social-sciences/>)

Crime, Law, and Psychology, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Crime, Law, and Psychology (CLP) minor is a multidisciplinary minor that offers a broad overview of the causes of crime, an understanding of the criminal justice system, and an awareness of how public policy influences criminal law. Classes will provide in-depth understanding of both sociological and psychological causes of criminal behavior, the psychological analysis of crime, the legal process, and policy-making. Students will have flexibility in choosing classes in three domains: Criminology, Psychology, and Political Science. This minor is designed for students with interest in learning about criminal behavior, the causes of criminal behavior, criminal investigation, and the legal system. PSYCH 100 is a prerequisite for all other PSYCH courses. PLSC 1 and PLSC 14 are prerequisites for some of the PLSC courses in the minor.

What is Crime, Law, and Psychology?

Intrigued by the criminal mind? The minor in Crime, Law, and Psychology explores sociological and psychological causes of criminal behavior. Interested in how the law works? The minor also allows you to study the legal process of adjudicating criminal cases and the political process that creates policies to prevent, control, and prosecute crime.

You Might Like This Program If...

- You are fascinated by the causes of criminal behavior and by the effect of crime on society.
- You want a solid understanding of how the criminal-justice system works, and how society treats those processed by the system.
- You envision yourself working in law enforcement, corrections, or social work.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

For the Minor in Crime, Law, and Psychology a minimum of 18 credits is required.

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
SOC/CRIM/	Criminology	3
CRIMJ 12		
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits from the following:		3
PLSC 471	American Constitutional Law	
PLSC 472	The American Legal Process	
PLSC 482	American State and Urban Politics	
PLSC 487	International Law and Organizations	
Select 3 credits from the following:		3
PSYCH 445	Forensic Psychology	
PSYCH 473	Behavior Modification	
PSYCH 476	Child Psychopathology	

Supporting Courses and Related Areas

<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select one course in Criminal Justice, Criminology, and Sociology from approved department list		3
Select one course in Psychology from approved department list		3
Select one course in Political Science from approved department list		3

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of

both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

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Career Paths

The minor in Crime, Law, and Psychology can be pursued by students in most Penn State Behrend degree programs. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

Within the Crime, Law, and Psychology minor, you'll learn about criminal behavior, the reasons for crime, how crime is investigated, and the legal and correctional systems. This knowledge is particularly beneficial if you are considering a career in law enforcement, security, corrections, probations, social work, psychology, and government, or if you plan to attend law school.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN CRIME, LAW, AND PSYCHOLOGY (<https://behrend.psu.edu/school-of-humanities-social-sciences/academic-programs-1/minors/crime-law-and-psychology-minor/>)

Opportunities for Graduate Studies

A minor in the liberal arts, particularly when added to a major program outside of the liberal arts, demonstrates to graduate school admissions committees your commitment to interdisciplinary thinking. Law school is a common graduate-school choice for students who have pursued the Crime, Law, and Psychology minor.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-humanities-social-sciences/academic-programs-1/minors/crime-law-and-psychology-minor/>)

Contact

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<https://behrend.psu.edu/school-of-humanities-social-sciences/> (<https://behrend.psu.edu/school-of-humanities-social-sciences/>)

Crime, Psychology, and Public Policy, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

The 15 credit undergraduate certificate program in Crime, Psychology, and Public Policy (CRMPPP) provides students an overview of the causes of crime and criminal behavior, the legal and criminal justice processes, and public policy toward crime-related issues. Students receive an in-depth understanding of the social and psychological causes of crime, policies to fight and prevent crime, the use of psychology to analyze and investigate criminal behavior, and the legal processes that involve accused and convicted criminals. The certificate program is intended for those who are interested in learning more about the criminal justice system and the causes of crime. Knowledge of the causes of criminal behavior and the criminal justice system are important to careers in the police, security, the correctional system, social work, law, psychology, journalism, and government or politics.

What is Crime, Psychology, and Public Policy?

Crime, Psychology, and Public Policy is a certificate program that provides an overview of the causes of criminal behavior through both a sociological and psychological lens. It also highlights the relationship between public policy and the laws society creates to protect its citizens. The certificate is designed for those interested in learning more about how the criminal justice system uses a multidisciplinary approach to aid in the understanding of crime and justice.

You Might Like This Program If...

- You want to understand the causes of criminal behavior.
- You want an overview of the criminal justice system.
- You are intrigued by the relationship between public policy and criminal law.

Program Requirements

To earn an undergraduate certificate in Crime, Psychology, and Public Policy, a minimum of 15 credits is required.

Students should select 3 credits in each of the following subject areas:

Code	Title	Credits
Prescribed Courses		
<i>Criminology</i>		
SOC 12	Criminology	3
<i>Crime and the Individual</i>		
Select 3 credits from the Crime and the Individual area from approved department list		3
<i>Crime and Society</i>		

Select 3 credits from the Crime and Society area from approved department list 3

Crime and Public Policy

Select 3 credits from the Crime and Public Policy area from approved department list 3

Crime and Law

Select 3 credits from the Crime and Law area from approved department list 3

Certificate Learning Objectives

- **Data analysis:** Analyze quantitative social scientific data, shown in tables and graphs.
- **Policy:** Compare and contrast crime-related policies.
- **Theory:** Use theories to explain criminal behaviors.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

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Schuylkill

Ronald Kelly

Assistant Teaching Professor and Program Coordinator, Criminal Justice

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Career Paths

The certificate in Crime, Psychology, and Public Policy can be pursued by students in most Penn State Behrend degree programs. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

The Crime, Psychology, and Public Policy certificate offers you the opportunity to think deeply about criminal behavior, the reasons for crime,

and the criminal-justice system. This knowledge is important if you are considering a career in government, law enforcement, corrections, social work, psychology, counseling, journalism, or public policy.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A CERTIFICATE IN CRIME, PSYCHOLOGY, AND PUBLIC POLICY (<https://behrend.psu.edu/school-of-humanities-social-sciences/academic-programs-1/certificate-programs/crime-psychology-and-public-policy-certificate/>)

Opportunities for Graduate Studies

A certificate in the liberal arts, particularly when added to a major program outside of the liberal arts, demonstrates to graduate school admissions committees your commitment to interdisciplinary thinking. Law school is a common graduate-school choice for students who have pursued the certificate in Crime, Psychology, and Public Policy.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-humanities-social-sciences/academic-programs-1/certificate-programs/crime-psychology-and-public-policy-certificate/>)

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Schuylkill

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Schuylkill Haven, PA 17972

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Data Visualization, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

Combining aesthetic, statistical, analytical, and programming skills, data visualization transforms numerical patterns into visually attractive shapes, graphics, and contexts, revealing them in an easy to understand format.

What is Data Visualization?

Data Visualization is one of the fastest growing professions. Creating a well-designed and well-structured story with data helps executives and non-technical individuals understand meaning in their numbers. This type of visual storytelling creates insights for decisions makers in government, insurance, banking, health care, research, and education.

You Might Like This Program If...

- You like analyzing data and interpreting its meaning.
- You excel at visual arts and/or graphic design.
- You think about how people respond to and interact with data.
- You see data as an opportunity to tell a story.

Program Requirements

Requirement	Credits
Requirements for the Minor	22-23

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
DIGIT 410	Data Visualization	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
COMM 406 or MIS 415	Electronic News Gathering and Editing Social Media Management and Analytics	3
GEOG 160 or GEOG 260	Mapping Our Changing World Geographic Information in a Changing World: Introduction to GIScience	3
PSYCH 200 or STAT 200	Elementary Statistics in Psychology Elementary Statistics	4
Select 3-4 credits from the following:		3-4
ART 102	Beginning Computer Aided Design for Artists	
PSYCH 246N	Human Factors in Design & Art	
ART 168	The Digital Medium	
DART 303	3D Studio	
COMM 270	Introduction to Multimedia Production	
GD 100	Introduction to Graphic Design	
Select 3 credits from the following:		3
CMPSC 101	Introduction to Programming	
CMPSC 121	Introduction to Programming Techniques	
CMPSC 201	Programming for Engineers with C++	
CMPSC 221	Object Oriented Programming with Web-Based Applications	
DIGIT 210	Large Scale Text Analysis	
IST 242	Intermediate & Object-Oriented Application Development	
IST 256	Programming for the Web	
IST 311	Object-Oriented Design and Software Applications	
Select 3 credits from the following:		3
COMM 310	Digital Media Metrics	
MIS 301	Business Analytics	
MIS 345	Introduction to Data Analytics	

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

Elisa Beshero-Bondar, Ph.D.

Program Chair and Professor of Digital Humanities

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Career Paths

The minor in Data Visualization is open to students in any Behrend major. Students with a major in a data-intensive field such as MIS, science, psychology, or business would benefit from a Data Visualization minor. Professionals in this field work in data analytics studios and corporate and government settings.

Careers

A Data Visualization minor can make you a more competitive job candidate. Employers will value your ability to analyze complex and abstract information and translate it into an easy-to-understand format.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN DATA VISUALIZATION (<https://behrend.psu.edu/Academics/academic-services/acpc/career-resources/>)

Opportunities for Graduate Studies

Adding a specialized minor like Data Visualization will demonstrate your versatility to graduate programs, and your ability to create insights from complex data will be helpful as you pursue graduate studies.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/admissions-financial-aid/graduate-admissions/>)

Contact

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Digital Media, Arts, and Technology, B.A.

Begin Campus: Any Penn State Campus

End Campus: Erie

Program Description

Digital technology has transformed the way we live, interact, learn, and work. The interdisciplinary Digital Media, Arts, and Technology (DIGIT) major is designed for students who are curious about and want to explore the growing significance of technology in the modern world. DIGIT combines historical and theoretical course work with intensive practical training in the creation and use of digital media tools and computational systems. Foundational DIGIT courses familiarize students with the key concepts, methods, history, theories and practices of Digital Liberal Arts while a range of competency courses introduce them to industry-standard software applications alongside cutting edge tools that continue to emerge from the open source community. Combining the broad perspective of liberal arts training with in-demand technical skills, DIGIT incorporates either a capstone project or a digital media internship, in order to provide students with a successful transition from college to an increasingly technological job market.

What is Digital Media, Arts, and Technology?

Technology has transformed the way we learn, work, and interact. Consider the speed of our digital conversion: Just twenty years ago there was no smart phone, mp3 file, streaming video, cloud storage, or GPS. Google wasn't a verb and your social network was limited to your home, school, or office. Digital Media, Arts, and Technology combines the broad perspective of the liberal arts with technical skills so that you can study technology history and theory and also programming languages, digital tools, and computer systems.

You Might Like This Program If...

- You often find yourself thinking about digital media—how it's changed our world, what the future holds, and how the technology can be applied and improved.
- You're an early adopter of the latest apps, software, and devices.
- You welcome the challenges of working with new technology.

Entrance to Major

Students must earn C or better in ENGL 15 or ENGL 30H and COMM 270 to be eligible for entrance to the major.

Degree Requirements

For the Bachelor of Arts degree in Digital Media, Arts, and Technology, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	8-15

Bachelor of Arts Degree Requirements	24
Requirements for the Major	48-49

6-12 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GA courses for all categories; 0-4 credits of GQ courses for Data Visualization and Assessment category; 0-3 credits of GN courses for the Sound and Motion category; 0-6 credits of GS courses for the Modeling and Simulation/Human Computer Interaction category.

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned.

Requirements for the Major

Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ART 168	The Digital Medium	3
COMM 270	Introduction to Multimedia Production	3
DIGIT 100	Introduction to Digital Humanities	3
DIGIT 110	Text Encoding Fundamentals	3
DIGIT 210	Large Scale Text Analysis	3
DIGIT 400	Digital Project Design	3
PHOTO 100	Introduction to Photography	3
Additional Courses		
Select 9 credits from one of the following categories: ¹		
<i>Digital Humanities</i>		
ART 203		
ENGL 50	Introduction to Creative Writing	
ENGL 229	Digital Studies	
GEOG 160 & GEOG 161	Mapping Our Changing World and Applied Geographic Information Systems	
Require a grade of C or better:		
ENGL 420	Writing for the Web (requires a grade of C or better)	
GEOG 363	Geographic Information Systems (requires a grade of C or better)	
HIST/LST 490	Archival Management (requires a grade of C or better)	
<i>Sound and Motion</i>		
COMM 242	Basic Video/Filmmaking	
GD 100	Introduction to Graphic Design	

INART 50	The Science of Music
INART 236	Integrating Music and Animation with Technology
INART 258A	Fundamentals of Digital Audio
MUSIC 8	Rudiments of Music

Require a grade of C or better:

COMM 481	Advanced Multimedia Production (requires a grade of C or better)
MUSIC 458	Electronic Music Composition I (requires a grade of C or better)

Modeling & Simulation/Human Computer Interaction

CMPSC 102	Introduction to Visual Programming
PSYCH 244	Introduction to the Psychology of Human Factors Engineering
PSYCH 253	Introduction to Psychology of Perception

Require a grade of C or better:

CMPSC 302	Intermediate Visual Programming (requires a grade of C or better)
DIGIT 430	Simulations of Human Behavior (requires a grade of C or better)
MIS 387	Website Design and Administration (requires a grade of C or better)
PSYCH 444	Engineering Psychology (requires a grade of C or better)

Data Visualization & Assessment

CMPSC 203	Introduction to Spreadsheets and Databases
MIS 204	Introduction to Management Information Systems
DIGIT 410	Data Visualization (requires a grade of C or better)
MIS 336	Database Management Systems (requires a grade of C or better)
MIS 345	Introduction to Data Analytics (requires a grade of C or better)
MIS 430	Systems Analysis (requires a grade of C or better)

Select 6 credits from a second category not used above 6

Additional Courses: Require a grade of C or better

DIGIT 494	Senior Project	3
or DIGIT 495	Internship	

Select one of the following: 3-4

CAS 426W	Communication Ethics
ENGL 211W	Introduction to Writing Studies
HIST 301W	Scope and Methods of History
PSYCH 301W	Basic Research Methods in Psychology
PLSC 480W	Congress and the Presidency

Supporting Courses

Select 6 credits (at least 3 credits at the 400-level) from the department list or in consultation with adviser 6

¹ May double count with general education courses. Some courses may require prerequisites.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing

intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- **Analysis and Synthesis:** Gain experience with analyzing digital works. Analyze a range of media structures and workflows, and apply systems thinking to gain a holistic understanding of the component parts of a project.
- **Apply Contexts:** Interpret and apply historical, cultural, and theoretical contexts important for digital productions.
- **Design scholarly and artistic projects:** Students design digital projects in multimedia and gain experience with production workflows and portfolio construction. Students should design work effectively to engage target audiences.
- **Digital Literacy:** Gain experience in identifying, researching, and solving technical problems in the process of developing digital projects. Technical problems include: translating file formats, writing and adapting computer code, designing and laying out custom interfaces or displays, working with a variety of software applications and understanding their asset dependencies, adapting a software system in a new or unfamiliar way, accessing and visualizing information, or otherwise solving production issues as they arise in the completion of a project.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Digital Media, Arts, and Technology, B.A. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H ^{†‡}	3 General Education Course (GS)	3
PSU 7	1 General Education Course (GN)	3
General Education Course (GS)	3 General Education Course (GQ)	3
MATH 21 (GQ) [‡]	3 ART 168 [†]	3
General Education Course (GHW)	1.5 World Language 2	4
World Language 1	4	
	15.5	16

Second Year

Fall	Credits Spring	Credits
PHOTO 100 ^{††}	3 DIGIT 100 ^{††}	3
World Cultures Course	3 ENGL 202B or 202C [‡]	3
CAS 100A or 100B [‡]	3 COMM 270 ^{#†}	3
General Education Course (GHW)	1.5 General Education Course (GN)	3

World Language 3	4 Primary Digital Competency Category Selection ¹	3
14.5		15
Third Year		
Fall	Credits Spring	Credits
DIGIT 110*	3 DIGIT 210*	3
General Education Course (US, GH)	3 BA Knowledge Domain (Any General Education Category)	3
Inter-Domain course (N) and/or (IL)	3 General Education Course (GN): INART 50Z	3
Primary Digital Competency Category Selection ¹	3 Primary Digital Competency Category Selection ¹	3
BA Knowledge Domain	3 Secondary Digital Competency Category Selection ¹	3
15		15
Fourth Year		
Fall	Credits Spring	Credits
DIGIT 400*	3 DIGIT 494 or 495*	3
"W" Course: Writing Across the Curriculum [‡]	3 Supporting Course (Any Level) ²	3
Secondary Digital Competency Category Selection ¹	3 BA Knowledge Domain	3
Supporting Course (400-Level) ²	3 Elective	3
Elective	3 Elective	3
15		15

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ **Digital Competency Categories (Select Two Categories):**

- Digital Humanities:
 - ART 203: The Art of Web Design
 - ENGL 050: Introduction to Creative Writing (GA)
 - ENGL 229: Digital Studies
 - ENGL 420: Writing for the Web
 - GEO 160 and 161: Mapping and 1-credit lab (GS)
 - GEO 363: Advanced Mapping
 - HIST 490/LST 490: Archival Management
- Sound and Motion:
 - COMM 242: Basic Video/Filmmaking
 - COMM 481: Advanced Multimedia Production
 - GD 100: Introduction to Graphic Design (GA)
 - INART 050: The Science of Music (GN)
 - INART 236: Integrating Music and Animation with Technology (GA)
 - INART 258A: Fundamentals of Digital Audio (GA)
 - MUSIC 008: Rudiments of Music (GA)
 - MUSIC 458: Electronic Music Composition
- Modeling & Simulation/Human-Computer Interaction:

- CMPSC 102: Introduction to Visual Programming
- CMPSC 302: Intermediate Visual Programming
- DIGIT 430: Principles of Modeling and Simulation
- PSYCH 244: Introduction to the Psychology of Human Factors
- PSYCH 253 Psychology of Perception
- PSYCH 444: Engineering Psychology
- Data Visualization & Assessment - PSYCH 200 or STAT 200 is recommended as the GQ:
 - CMPSC 203: Introduction to Spreadsheets and Databases (GQ)
 - DIGIT 410: Data Visualization
 - MIS 204: Introduction to Business Information Systems
 - MIS 336: Database Management Systems
 - MIS 345 Data Analytics
 - MIS 430: System Analysis

² **List of Supporting Courses (not exhaustive):**

- Art History 112: Survey of Western Art II (GA)
- Art History 326 Contemporary Art (GA)
- CMLIT 490: Video Game Studies
- CMLIT 153: International Cultures: Film and Literature. (GH)
- CMLIT 453 / COMM 453: Narrative Theory: Film and Literature
- CAS 272: Political Rhetoric and Discourse Online
- COMM 110: Media and Democracy
- COMM 150: The Art of Cinema. (GA)
- COMM 251: The Nature of Media
- DART 204: Animation Fundamentals
- ENGL 191: Science Fiction (GH)
- ENGL 403: Literature and Culture
- ENGL 212: Introduction to Fiction Writing
- ENGL 214: Introduction to Creative Nonfiction Writing
- ENGL 215: Introduction to Article Writing
- ENGL 424: Creative Writing and the Natural World.
- HIST 151: Technology and Society in American History
- HIST 320W: Contemporary World History and Issues
- PHIL 5: Philosophy, Art, and Film. (GH)
- PHOTO 200: Photo Studio I
- PLSC 2: American Public Policy
- PLSC 123: Ethnic and Racial Politics (GS; US; IL)
- PLSC 130: American Political Campaigns and Elections (GS;US)
- PLSC 308: Introduction to Political Research
- PLSC 442: American Foreign Policy
- PLSC 458: Government and Politics of East Asia
- PLSC/STS 460: Science, Technology, and Public Policy
- PLSC 467: International Relations of the Middle East
- PLSC 480W: Congress and the Presidency
- PLSC 482: American State and Urban Politics
- PSYCH 232: (GS;US;IL) Cross-Cultural Psychology
- PSYCH 426: Psychology of Language
- PSYCH 434: Psychology of Gaming
- SOC 19: Sociology of Popular Culture(GS)
- WMNST 100: Introduction to Women's and Gender Studies
- WMNST 106: Representing Women and Gender in Literature, Art, and Popular Culture

- WMNST/STS 157: Science, Technology, and Gender
- COMM/WMNST 205: Women, Minorities, and the Media
- WMNST 301: Sexualities, Gender and Power: Feminist Thought and Politics

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Additional Notes:

- Recommended General Education Courses (these are a few of the many courses to choose from)
 - GA Courses:
 - ARTH 112: Survey of Western Art II (GA)
 - ARTH 326: Contemporary Art (GA)
 - ENGL 50: Introduction to Creative Writing (GA)
 - GD 100: Introduction to Graphic Design (GA)
 - INART 258A: Fundamentals of Digital Audio (GA)
 - MUSIC 8: Rudiments of Music (GA)
 - GAME 160N Introduction to Video Game Culture (GA, GH, N)
 - COMM 150N: The art of the cinema (GH, GA & N)
 - AA 193N: The Craft of Comics (GA, GH, & N)
 - GH Courses:
 - CMLIT 153: International Cultures: Film and Literature. (GH)
 - PHIL 5: Philosophy, Art, and Film. (GH)
 - GAME 160N Introduction to Video Game Culture (GA, GH, N)
 - COMM 150N: The art of the cinema (GH, GA & N)
 - CAS 175: Persuasion and Propaganda (GH)
 - PHIL 1: The big questions (GH)
 - AA 193N The Craft of Comics (GA, GH, & N)
 - ENGL 136: The graphic novel (GH)

- HIST 203N: History of Monsters, Aliens & the Supernatural (GS, GH, IL & N)
- GN Courses:
 - INART 50: The Science of Music (GN)
 - BIO 120N: Plants, People and Places (GN & N)
 - STS 110N: Chemistry in World Wars
 - STS 197: Special Topics (Space Exploration)
 - ASTRO 1: Astronomical Universe (GN)
 - GEOSC 20: Planet Earth (GN)
- GQ Courses:
 - CMPSC 203: Introduction to Spreadsheets and Databases (GQ)
 - MATH 34: The math of money
 - PSYCH 200 or STAT 200 (GQ)
- GS Courses:
 - PLSC 123 Ethnic and Racial Politics (GS; IL, US)
 - PLSC 130 American Political Campaigns and Elections (GS; US)
 - GEO 160 and 161: Mapping and 1-credit lab (GS)
 - PSYCH 100: Introduction to Psychology
 - SOC 12: Criminology
 - PLSC 1: American Politics
 - HIST 203N: History of Monsters, Aliens & the Supernatural (GS, GH, IL & N)
- N Courses:
 - GAME 160N Introduction to Video Game Culture (GA, GH, N)
 - BIO 120N: Plants, People and Places (GN & N)
 - COMM 150N: The art of the cinema (GH, GA & N)
 - AA 193N The Craft of Comics (GA, GH, & N)
 - HIST 203N: History of Monsters, Aliens & the Supernatural (GS, GH, IL & N)
- IL or US Cultures Courses:
 - HIST 203N: History of Monsters, Aliens & the Supernatural (GS, GH, IL & N)
 - ART 122Y: Commentary on Art (US & Writing)
 - ART 211Y: Introduction to Digital Art and Design Criticism (US & Writing)
- W - Writing Across the Curriculum Courses:
 - ART 122Y: Commentary on Art (US & Writing)
 - ART 211Y: Introduction to Digital Art and Design Criticism (US & Writing)
 - CAS 452W: Organizational Communication Theory and Research

Career Paths

The B.A. in Digital Media, Arts, and Technology meets growing employer demand for professionals capable of both critical analysis and creative production of digital media, virtual reality, and augmented reality. To tailor the program to your career interests, you'll study in any two of four concentrations: Digital Humanities; Sound and Motion; Modeling and Simulation/Human-Computer Interaction; and Data Visualization and Assessment. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center.

Careers

Career options for graduates of the Digital Media, Arts, and Technology program include web content editor, web designer, digital marketing strategist, social media specialist, digital artist, digital photo/video editor, digital art director, multimedia specialist, music producer, music/sound designer for film and interactive gaming, audio engineer, music/audio software developer, podcast producer, digital media planner, technical producer, public relations or advertising specialist, and graphic designer.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE DIGITAL MEDIA, ARTS, AND TECHNOLOGY PROGRAM (<https://behrend.psu.edu/school-of-humanities-social-sciences/academic-programs/digital-media-arts-and-technology/>)

Opportunities for Graduate Studies

A B.A. in Digital Media, Arts, and Technology can be the starting point for graduate-level education in more specialized fields, including social media marketing, digital journalism, data analytics, digital information management, informatics and visual content management, sound studies, acoustics, music information retrieval, data sonification, music informatics, electronic music composition, VR and AR application, digital publishing, new-media arts, communication and media studies, integrated marketing communication, and digital media education.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-humanities-social-sciences/academic-programs/digital-media-arts-and-technology/>)

Professional Resources

- Digital Media Association (<https://www.digmedia.org/>)
- International Digital Media and Arts Association (<https://idmaa.org/>)
- Association for Computers and the Humanities (<https://ach.org/>)
- Alliance of Digital Humanities Organizations (<https://adho.org/>)
- Text Encoding Initiative (<https://tei-c.org/>)
- W3C: World Wide Web Consortium (<https://www.w3.org/>)

Contact

Erie

SCHOOL OF HUMANITIES AND SOCIAL SCIENCES
170 Irvin Kochel Center
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Erie, PA 16563
814-898-6108
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<https://behrend.psu.edu/school-of-humanities-social-sciences> (<https://behrend.psu.edu/school-of-humanities-social-sciences/>)

Economics, B.A. (Behrend)

Begin Campus: Any Penn State Campus

End Campus: Erie

Program Description

The Economics major is a program of study with a liberal arts orientation. The broad liberal arts background serves as a foundation for advanced study in the methods and techniques of economic analysis. Use of mainframe and microcomputers as analytical and problem-solving tools is emphasized in the program's upper-division courses. Students

may choose upper-division courses in several areas of specialization, including business cycles and forecasting, economic theory, industrial organization, international economics, labor economics, managerial economics, and regional economics.

What is Economics?

Economics is the study of how individuals, firms, and governments allocate their scarce resources. This major is designed for those who seek a broad understanding of the operation of the economic system and training in the methods and uses of economic analysis. Graduates are equipped for employment in many areas of business operations, banking, risk assessment, and agencies of government at all levels; and to undertake the graduate work necessary to become professional economists.

You Might Like This Program If...

- You are interested in both business and the liberal arts.
- You want to develop skills that are applicable in a variety of industries.
- You are a detail-oriented person.
- You'd like to work at the on-campus Economic Research Institute of Erie (ERIE).
- You are interested in working in the government sector or pursuing a law degree .

Entrance to Major

In order to be eligible for entrance to the Economics major, a student must:

1. attain at least a C (2.00) cumulative grade-point prior to entrance
2. have third semester classification; and
3. the degree candidate must have completed the following entrance-to-major requirements with a grade of C or better: ECON 102 and ECON 104

Degree Requirements

For the Bachelor of Arts degree in Economics, a minimum of 122 credits is required:

Requirement	Credits
General Education	45
Electives	22
Bachelor of Arts Degree Requirements	24
Requirements for the Major	44

13 of the 45 credits for General Education are included in the Requirements for the Major. This includes 9 credits of GWS courses; 4 credits of GQ courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned.

Requirements for the Major

Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
PSU 7	First-Year Seminar Behrend	1
<i>Prescribed Courses: Require a grade of C or better</i>		
CAS 100	Effective Speech	3
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
ECON 302	Intermediate Microeconomic Analysis	3
ECON 304	Intermediate Macroeconomic Analysis	3
ENGL 202A	Effective Writing: Writing in the Social Sciences	3
SCM 200	Introduction to Statistics for Business	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
ENGL 15	Rhetoric and Composition	3
	or ENGL 30H Honors Rhetoric and Composition	
Select 18 credits in BECON, ECNS, or ECON above the 300 level, in consultation with an adviser. (Where appropriate toward a specialized undergraduate field of study, the student may petition the director of the School of Business to take up to a maximum of 6 credits in closely related fields toward a major.)		18

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or

beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- **Macroeconomics:** Students will apply the basic market and macroeconomic models to explain changes in price and quantity
- **Microeconomics:** Students will apply concepts associated with free market operations.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Economics, B.A. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year		
Fall	Credits Spring	Credits
ENGL 15 or 30H ^{††}	3 ECON 102 ^{††}	3
General Education Course (GQ) ^{††3}	3 General Education Course (GA/GH/GS/GN/Inter-Domain) ^{††3}	3
General Education Course (GN) ³	3 General Education Course (GN) (Standalone or Inter-Domain) ³	3
General Education Course (GA) ³	3 General Education Course (GHW) ³	1.5
World Language Level 1	4 World Language Level 2	4
	PSU 7	1
	16	15.5

Second Year		
Fall	Credits Spring	Credits
CAS 100A, 100B, or 100C ^{††}	3 ENGL 202A ^{††}	3
ECON 104 ^{††}	3 General Education Course (GA/GH/GS/GN/Inter-Domain) ³	3
SCM 200 or STAT 200 ^{††}	4 General Education Course (Inter-Domain) ³	3
General Education Course (GHW) ³	1.5 General Education Course (Inter-Domain) ³	3
World Language Level 3	4 General Education Course (GS) ³	3
	15.5	15

Third Year		
Fall	Credits Spring	Credits
ECON 302 [*]	3 ECON 304 [*]	3
Additional ECON Course [*]	3 Approved Elective ²	3
Additional ECON Course [*]	3 Approved Elective (W) ²	3
BA Knowledge Domain ¹	3 BA Knowledge Domain ¹	3
General Education Course (GH) ³	3 General Education Course ³	3
	15	15

Fourth Year		
Fall	Credits Spring	Credits
Additional ECON Course [*]	3 Additional ECON Course [*]	3
Additional ECON Course [*]	3 Additional ECON Course [*]	3
Approved Elective ²	3 Approved Elective ²	3
Approved Elective ²	3 Approved Elective ²	3
World Cultures	3 BA Knowledge Domain ¹	3
	15	15

Total Credits 122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

¹ Please see your academic adviser for approval before scheduling your course.

² In order for a course to be eligible for an Approved Elective, the course can not be a lower level ENGL (1-6) or MATH (2-41) OR a GHW designated course. Please see your academic adviser if you have a question on a specific course.

³ All students are required to fulfill 45 credits of General Education courses. More information about this requirement can be found on the Baccalaureate Degree General Education Requirements page in the Bulletin (p. 3184).

Career Paths

The decision-making skills that Economics majors learn are needed across all sectors and segments of our economy, so you'll find employment opportunities in government, business, manufacturing, finance, banking, labor organizations, and academia. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

Employers of recent Behrend B.A. in Economics graduates include the U.S. Senate, the U.S. Department of Commerce, several Federal Reserve Banks, AIG, American Express Financial Advisers, Fleet Bank of New York, NBC Universal, NBNA Marketing Systems, PricewaterhouseCoopers, and the SAS Institute.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE ECONOMICS PROGRAM (<https://behrend.psu.edu/school-of-business/academic-programs/economics/>)

Opportunities for Graduate Studies

Graduate study allows you to delve deeper into the subdisciplines of economics that interest you most. Examples of master's- and doctoral-level study include history of economic thought, econometric and statistical modeling, game theory, bargaining theory, market structure and pricing, consumption, monetary policy, international economics, labor economics, environmental economics, transportation economics, and regional economics. Penn State Behrend also offers a hybrid MBA program that can be pursued in Erie and in Pittsburgh, Pennsylvania.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/admissions-financial-aid/graduate-admissions/master-of-business-administration/>)

Professional Resources

- AACSB International (<https://www.aacsb.edu/>)
- American Economic Association (<https://www.aeaweb.org/>)

Accreditation

The Black School of Business is accredited by AACSB International—The Association to Advance Collegiate Schools of Business. As the world's largest business education alliance, AACSB connects educators, students, and business to achieve a common goal: to create the next generation of great leaders. Synonymous with the highest standards of excellence since 1916, AACSB provides quality assurance, business education intelligence, and professional development services to over 1,500 member organizations and more than 785 accredited business schools worldwide. AACSB's mission is to foster engagement, accelerate innovation, and amplify impact in business education.

MORE INFORMATION ABOUT THE ASSOCIATION TO ADVANCE COLLEGIATE SCHOOLS OF BUSINESS (<https://www.aacsb.edu/>)

Contact

Erie

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behrendbusiness@psu.edu

<https://behrend.psu.edu/school-of-business> (<https://behrend.psu.edu/school-of-business/>)

Electrical and Computer Engineering Technology, B.S.

Begin Campus: Any Penn State Campus

End Campus: Erie

Program Description

This major prepares graduates for careers in such varied areas as electronics, microprocessors, computer hardware and software, communications, instrumentation and control, and power. The major consists of two options, one in Electrical Engineering Technology, the other in Computer Engineering Technology. Both options provide education in applied mathematics, physics, electrical and electronic circuit analysis and design, microprocessors, instrumentation and quality control. The Electrical Engineering Technology option provides specialty

education in control theory, communication systems, and power systems. The Computer Engineering Technology option provides specialty education in software development, embedded computer systems, and networking. Both options in the major culminate with a capstone design project involving an actual design or manufacturing problem, often sponsored by industry. Graduates may qualify as engineering technologists working side-by-side with engineers, scientists, and other skilled workers in these capacities. Occupations include electrical and electronic systems design, microprocessor applications, instrumentation and control, computer programming, electrical testing, plant engineering, quality control, management, and technical sales and service.

This program is accredited by the Engineering Technology Accreditation Commission of ABET, www.abet.org (<http://www.abet.org>).

What is Electrical and Computer Engineering Technology?

The study of electrical and computer engineering technology (ECET) offers a strong education in electrical and electronic systems design, computer programming, microprocessor applications, automation, programmable logic controllers, instrumentation and control, and electrical testing. ECET is different from traditional theory-based electrical engineering degree programs, and also unlike skills-based programs that are focused on repair and maintenance. The applied nature of ECET offers not only working knowledge of the foundational theories of engineering, but also the hands-on laboratory focus that enables students to analyze, design, and implement the many uses of electrical and computer systems. The degree program is industry focused and emphasizes solving real-world problems in the workplace.

You Might Like This Program If...

- You're fascinated by what's inside electrical and computer systems.
- You're interested in knowing how electrical and computer systems work, how to design new systems, and how to test existing systems.
- You're looking for a hands-on applied engineering discipline.
- You're interested in both engineering and computing—and in the application of these two disciplines in solving real-world problems.

Entrance to Major

To be eligible for entrance to the Electrical and Computer Engineering Technology major, a student must have:

1. attained at least a 2.00 cumulative grade-point average;
2. completed MATH 81 or MATH 26, and MATH 82 or MATH 22, and MATH 83 or MATH 140, and PHYS 250, and earned a grade of C or better in each of these courses.

Degree Requirements

For the Bachelor of Science degree in Electrical and Computer Engineering Technology, a minimum of 128 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	107

24 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 6 credits of GWS courses; and 3 credits of GS courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned.

Requirements for the Major

Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
CAS 100	Effective Speech	3
CMPET 5	Engineering Methods in Engineering Technology	1
CMPET 120	Digital Electronics Laboratory	1
CMPET 211	Embedded Processors and DSP	3
EET 101	Electrical Circuits I	3
EET 109	Electrical Circuits Laboratory I	1
EET 212W	Op Amp and Integrated Circuit Electronics	4
EET 214	Electric Machines and Energy Conversion	3
EET 215	Electric Machines and Energy Conversion Laboratory	1
EET 280	System Integration Project	1
ENGL 202C	Effective Writing: Technical Writing	3
MATH 210	Calculus with Engineering Technology Applications	3
MATH 211	Intermediate Calculus and Differential Equations with Applications	3
<i>Prescribed Courses: Require a grade of C or better</i>		
CMPET 117	Digital Electronics	3
CMPET 301	Algorithmic Processes for Electrical Systems	3
CMPET 355	Intermediate Microprocessors and Microcomputers	3
EET 114	Electrical Circuits II	4
EET 118	Electrical Circuits Laboratory	1
EET 315	Linear and Discrete System Analysis	3
EET 341	Measurements and Instrumentation	3
EET 480	Electrical and Computer Systems Senior Seminar	1
EET 490W	Electrical/Computer Senior Design Project	3
MGMT 409	Project Management for Engineers	3
Additional Courses		
ECON 102 or ECON 104	Introductory Microeconomic Analysis and Policy Introductory Macroeconomic Analysis and Policy	3
EET 2 or ET 2	Introduction to Engineering Technology	1
EGT 101 & EGT 102 or EGT 119	Introduction to Computer Aided Drafting and Introduction to Computer Aided Drafting Introduction to CAD for Electrical and Computer Engineering	2
Select one of the following sequences:		10

Sequence A

CHEM 110	Chemical Principles I	
CHEM 111	Experimental Chemistry I	
PHYS 250	Introductory Physics I (requires a grade of C or better)	
2 credits of science		

Sequence B

PHYS 150	Technical Physics I (requires a grade of C or better)	
PHYS 151	Technical Physics II (requires a grade of C or better)	
4 credits of science		

Select 3 credits of the following: 3

EET 275	Introduction to Programmable Logic Controls	
EET 220 and 1 credit in 200 level or higher of technical electives from school-approved list		

Additional Courses: Require a grade of C or better

EET 450		3
or QC 450	Quality Control and Quality Improvement	

MATH 22	College Algebra With Analytic Geometry and Applications II	3
or MATH 82	Technical Mathematics II	

MATH 26	Plane Trigonometry and Applications of Trigonometry	3
or MATH 81	Technical Mathematics I	

MATH 83	Technical Calculus	4
or MATH 140	Calculus With Analytic Geometry I	

Requirements for the Option

Requirements for the Option: Require a grade of C or better

Select an option 18

Requirements for the Option**Electrical Engineering Technology Option (18 credits)**

Code	Title	Credits
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Prescribed Courses

Prescribed Courses: Require a grade of C or better

EET 330	Wireless Communications Systems	3
EET 416	Fluid and Thermal Design in Electrical Systems	3
EET 440	Applied Feedback Controls	3

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 9 credits of technical electives at the 300 or 400 level from school-approved list (students may apply 6 credits of ROTC) 9

Computer Engineering Technology Option (18 credits)

Code	Title	Credits
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Prescribed Courses

Prescribed Courses: Require a grade of C or better

CMPET 333	Computer Networking	3
CMPET 456	Advanced Microprocessors, High Level Interfacing	3
CMPET 457	Software Engineering	3

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 9 credits of technical electives at the 300 or 400 level from school-approved list (students may apply 6 credits of ROTC) 9

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Computer Engineering Technology Option (CMPET): Electrical and Computer Engineering Technology, B.S. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit

(accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
EET 2 ^{†1}	1 CMPET 5	1
EET 101	3 CMPET 117 [*]	3
EET 109	1 CMPET 120	1
ENGL 15 or 30H ^{††}	3 EET 114 [*]	4
MATH 22 ^{*‡#†}	3 EET 118 [*]	1
General Education Course	3 MATH 41 ^{*‡#†}	4
General Education Course (GHW)	1.5 General Education Course	3
	15.5	17

Second Year

Fall	Credits Spring	Credits
CAS 100 ^{††}	3 CHEM 110 [†]	3
CMPET 211	3 CHEM 111 [†]	1
EET 212W ²	4 EET 275	3
EET 214	3 EET 280	1
EET 215	1 EGT 119	2
MATH 83 ^{*#†}	4 MATH 210	3
	PHYS 250 ^{*#†}	4
	18	17

Third Year

Fall	Credits Spring	Credits
CMPET 301 [*]	3 CMPET 333 [*]	3
EET 341 [*]	3 CMPET 355 [*]	3
ENGL 202C ^{††}	3 ECON 102 or 104 [†]	3
MATH 211	3 EET 315 [*]	3
General Education Course	3 General Education Course	3
	General Education Course (GHW)	1.5
	15	16.5

Fourth Year

Fall	Credits Spring	Credits
CMPET 456 [*]	3 EET 490W ^{*2}	3
CMPET 457 [*]	3 QC 450 [*]	3
EET 480 [*]	1 Technical Elective (300, 400-level) [*]	3
MGMT 409 [*]	3 General Education Course	3
Technical Elective (300, 400-level) [*]	3 General Education Course (GN)	2
Technical Elective (300, 400-level) [*]	3	
	16	14

Total Credits 129

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Course will satisfy First-Year Seminar requirement.

² Course will satisfy Writing Across the Curriculum requirement.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- Only students who have gone through the entrance to major process and have been accepted into this major may register for junior and senior-level EET and CMPET courses.
- Permissible Math substitutions: MATH 26 instead of MATH 81, MATH 22 instead of MATH 82, MATH 140 instead of MATH 83.

Advising Notes:

If ENGL 15 is full, schedule an S/H/A, 2nd semester ENGL15, 3rd semester CAS 100, and 4th semester PHYS 250.

School-Approved Electives for Electrical and Computer Engineering Technology

Electrical Engineering Technology Options:

- CMPET 333 (3:2:2) – Computer Networking
- CMPET 456 (3:2:2) – Advance Microprocessors, High Level Interfacing
- CMPET 457 (3:2:2) – Software Engineering

Computer Engineering Technology Options:

- EET 330 (3:2:2) – Wireless Communication Systems
- EET 416 (3:2:2) – Fluid and Thermal Design in Electrical Systems
- EET 440 (3:2:2) – Applied Feedback Controls

Electrical or Computer Engineering Technology Options:

- EET 395* (1-3) – Internship
- EET 397* (1-3) – Special Topics
- EET 461 (3:2:2) – Power Electronics
- EET 475 (3:2:2) – Intermediate Programmable Logic Controllers
- EET 495* (1-3) – Internship
- EET 496* (1-3) – Independent Studies
- EET 497* (1-3) – Special Topics

*Requires prior approval from the Electrical and Computer Engineering Technology Department Chair

Upon approval by the department chair, students may be allowed to select technical elective courses from other disciplines.

Electrical Engineering Technology Option (EET): Electrical and Computer Engineering Technology, B.S. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
EET 2 ^{†1}	1 CMPET 5	1
EET 101	3 CMPET 117 [*]	3
EET 109	1 CMPET 120	1
ENGL 15 or 30H ^{††}	3 EET 114 [*]	4
MATH 22	3 EET 118 [*]	1
General Education Course	3 MATH 41	4
General Education Course (GHW)	1.5 General Education Course	3
	15.5	17

Second Year

Fall	Credits Spring	Credits
CAS 100 ^{††}	3 CHEM 110 [†]	3
CMPET 211	3 CHEM 111 [†]	1
EET 212W ²	4 EET 275	3
EET 214	3 EET 280	1
EET 215	1 EGT 119	2
MATH 83 ^{*#†}	4 MATH 210	3
	PHYS 250 ^{*#†}	4
	18	17

Third Year

Fall	Credits Spring	Credits
CMPET 301 [*]	3 CMPET 355 [*]	3
EET 341 [*]	3 EET 315 [*]	3
ENGL 202C ^{††}	3 EET 330 [*]	3
MATH 211	3 ECON 102 or 104 [†]	3
General Education Course	3 General Education Course	3
	General Education Course (GHW)	1.5
	15	16.5

Fourth Year

Fall	Credits Spring	Credits
EET 416 [*]	3 EET 490W ^{*2}	3
EET 440 [*]	3 QC 450 [*]	3
EET 480 [*]	1 Technical Elective (300, 400-level) [*]	3
MGMT 409 [*]	3 General Education Course	3
Technical Elective (300, 400-level) [*]	3 General Education Course (GN)	2

Technical Elective (300, 400-level) [*]	3	
	16	14

Total Credits 129

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ Course will satisfy First-Year Seminar requirement.

² Course will satisfy Writing Across the Curriculum requirement.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- Only students who have gone through the entrance to major process and have been accepted into this major may register for junior and senior-level EET and CMPET courses.
- Permissible Math substitutions: MATH 26 instead of MATH 81, MATH 22 instead of MATH 82, MATH 140 instead of MATH 83.

Advising Notes:

- If ENGL 15 is full, schedule an S/H/A, 2nd semester ENGL15, 3rd semester CAS 100, and 4th semester PHYS 250.

School-Approved Electives for Electrical and Computer Engineering Technology

Electrical Engineering Technology Options:

- CMPET 333 (3:2:2) – Computer Networking
- CMPET 456 (3:2:2) – Advance Microprocessors, High Level Interfacing
- CMPET 457 (3:2:2) – Software Engineering

Computer Engineering Technology Options:

- EET 330 (3:2:2) – Wireless Communication Systems
- EET 416 (3:2:2) – Fluid and Thermal Design in Electrical Systems
- EET 440 (3:2:2) – Applied Feedback Controls

Electrical or Computer Engineering Technology Options:

- EET 395* (1-3) – Internship
- EET 397* (1-3) – Special Topics
- EET 461 (3:2:2) – Power Electronics

- EET 475 (3:2:2) – Intermediate Programmable Logic Controllers
- EET 495* (1-3) – Internship
- EET 496* (1-3) – Independent Studies
- EET 497* (1-3) – Special Topics

*Requires prior approval from the Electrical and Computer Engineering Technology Department Chair

Upon approval by the department chair, students may be allowed to select technical elective courses from other disciplines.

Career Paths

Within the B.S. in Electrical and Computer Engineering Technology there are two options for emphasis study: Electrical Engineering Technology and Computer Engineering Technology. You'll choose the option that best fits your career aspirations. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

Because of the breadth of experience with both electrical and computer systems, graduates can begin their careers in such areas as electrical and electronic systems design, embedded systems and microcontroller/software applications, automation and process control, field service and application engineering, system integration and testing, quality control, and technical sales and service. Employers of recent Behrend B.S. in Electrical and Computer Engineering Technology graduates include Rovisys, Process and Data Automation, SKF Aeroengine, GE, Northrop Grumman, Lockheed Martin, Eriez Magnetics, First Energy, FMC Technologies, Lutron, and Westinghouse.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE ELECTRICAL AND COMPUTER ENGINEERING TECHNOLOGY PROGRAM (<https://behrend.psu.edu/school-of-engineering/academic-programs/electrical-computer-engineering-technology/>)

Opportunities for Graduate Studies

Master's degree programs in engineering or engineering technology are an option for graduates of the B.S. in Electrical and Computer Engineering Technology. Advanced degree programs delve more deeply into areas of specialization such as embedded systems, automation and process control, software development, networking, and power systems. Or, you can use a master's degree to learn management skills; Penn State Behrend offers a Master of Manufacturing Management (M.M.M) degree program for aspiring organizational leaders.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-engineering/academic-programs/master-of-manufacturing-management/>)

Professional Resources

- ABET (<https://www.abet.org/>)
- Institution of Electrical and Electronics Engineers (<https://www.ieee.org>)
- IEEE Computer Society (<https://www.computer.org/>)
- Association for Computing Machinery (<https://www.acm.org/>)
- Institution of Engineering and Technology (<https://www.theiet.org/>)

- Society of Women Engineers (<https://swe.org>)
- National Society of Black Engineers (<https://www.nsbe.org>)

Accreditation

The Bachelor of Science in Electrical and Computer Engineering Technology at Penn State Behrend is accredited by the Engineering Technology Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Computer Engineering Technology and Similarly Named Programs and Program Criteria for Electrical/Electronic(s) Engineering Technology and Similarly Named Programs.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

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Electrical Engineering Technology, A.ENG.T. (Behrend)

Begin Campus: Erie

End Campus: Erie

Program Description

The Electrical Engineering Technology (2EET) major helps prepare graduates for technical positions in the expanding fields of electronics, computers and microprocessors, instrumentation, and electrical equipment. The primary objective is to provide a broad foundation of theoretical and practical knowledge in the areas of electrical and electronic circuits, digital circuits, computers, electrical machinery, and programmable logic controls.

Graduates of the Electrical Engineering Technology major may qualify for admission to the baccalaureate degree majors in Electrical Engineering Technology offered at Penn State Harrisburg, Capital College; the baccalaureate degree major in Electrical and Computer Engineering Technology at Penn State Erie, The Behrend College; or the baccalaureate degree major in Electro-Mechanical Engineering Technology offered at Penn State Altoona, Penn State Berks, Penn State New Kensington or Penn State York. Two baccalaureate tracks are available to streamline the transition to these degree programs. Students interested in pursuing the baccalaureate degree major of Electrical Engineering Technology at Penn State Harrisburg should follow track c. A general track is also provided

for students who decide not to continue their engineering technology education at the baccalaureate level.

What is Electrical Engineering Technology?

Electrical engineering technology focuses on the planning, designing, installing, operating, and maintaining electrical power systems and electronic devices. Electrical engineering technicians assist engineers with the manufacture, installation, operation, design, and repair of a wide range of electronic products.

You Might Like This Program If...

You are interested in science and technology but prefer spending time applying your skills in a laboratory or field setting as opposed to studying the theory behind these subjects in a classroom setting. If you like to know how things that are controlled by electronics work, from computers to robotics, this may be for you. While theory is covered in this major, there is a greater emphasis on the application of theory with much of what you learn in the classroom being built as lab experiments.

Entrance to Major

Students must have a minimum 2.0 GPA to change to this Associate degree after admission to the University.

Degree Requirements

For the Associate in Engineering Technology degree in Electrical Engineering Technology, a minimum of 65 credits is required:

Requirement	Credits
General Education	21
Requirements for the Major	56-62

12-15 of the 21 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GN courses; 3 credits of GQ courses; 6 credits of GWS courses, 0-3 credits of GH or GS.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
CAS 100	Effective Speech	3
COMPET 211	Embedded Processors and DSP	3
EET 212W	Op Amp and Integrated Circuit Electronics	4
EET 214	Electric Machines and Energy Conversion	3
EET 215	Electric Machines and Energy Conversion Laboratory	1
<i>Prescribed Courses: Require a grade of C or better</i>		
COMPET 117	Digital Electronics	3
COMPET 120	Digital Electronics Laboratory	1
EET 114	Electrical Circuits II	4
EET 118	Electrical Circuits Laboratory	1
Additional Courses		

ENGL 15	Rhetoric and Composition	3
or ENGL 30H	Honors Rhetoric and Composition	
PHYS 150	Technical Physics I	3-4
or PHYS 211	General Physics: Mechanics	
or PHYS 250	Introductory Physics I	

Select 5-6 credits of the following: 5-6

MATH 22 & MATH 26	College Algebra With Analytic Geometry and Applications II and Plane Trigonometry and Applications of Trigonometry ¹	
MATH 40	Algebra, Trigonometry, and Analytic Geometry ¹	
MATH 81 & MATH 82	Technical Mathematics I and Technical Mathematics II ¹	

Select at least 22-26 credits from one of the following three tracks: 22-26

A. General Track ²

EDSGN 100	Cornerstone Engineering Design	
EET 105	Electrical Systems	
EET 275	Introduction to Programmable Logic Controls or EMET 230 Computerized I/O Systems	
IET 101	Manufacturing Materials, Processes, and Laboratory	
MET 111	Mechanics for Technology: Statics	
PHYS 151	Technical Physics II	
or PHYS 212	General Physics: Electricity and Magnetism	
or PHYS 251	Introductory Physics II	
or CHEM 111	Chemical Principles I and Experimental Chemistry I & CHEM 111	
STS 200	Critical Issues in Science, Technology, and Society	
or STS/PHIL 233	Ethics and the Design of Technology	
or STS 245		

Select 3-4 credits in consultation with your adviser from the approved program list

B. Baccalaureate Electrical and Computer Engineering Technology (ECET) Track:

CHEM 110	Chemical Principles I	
CHEM 111	Experimental Chemistry I	
COMPET 5	Engineering Methods in Engineering Technology	
EET 2	Introduction to Engineering Technology	
EET 101	Electrical Circuits I	
EET 109	Electrical Circuits Laboratory I	
EET 275	Introduction to Programmable Logic Controls	
EGT 119	Introduction to CAD for Electrical and Computer Engineering	
MATH 83	Technical Calculus	
or MATH 14	Calculus With Analytic Geometry I	
MATH 210	Calculus with Engineering Technology Applications (or 3 credits of General Education natural science GN)	

C. Baccalaureate Electro-Mechanical Engineering Technology (EMET) Track ^{2,3}

EDSGN 100	Cornerstone Engineering Design	
EET 105	Electrical Systems	

EET 275	Introduction to Programmable Logic Controls or EMET 230 Computerized I/O Systems
IET 101	Manufacturing Materials, Processes, and Laboratory
MET 111	Mechanics for Technology: Statics
MATH 83	Technical Calculus or MATH 14 (Calculus With Analytic Geometry I)
PHYS 151	Technical Physics II or PHYS 212 General Physics: Electricity and Magnetism or PHYS 251 Introductory Physics II or CHEM 110 Chemical Principles I and Experimental Chemistry I & CHEM 111
STS 200	Critical Issues in Science, Technology, and Society or STS/ PHIL 233 or STS 245

¹ A student planning to re-enroll into the baccalaureate degree major of Electro-Mechanical Engineering Technology (EMET), after graduation from the 2 EET program, must receive a grade of C or better in order to meet requirements of the EMET degree.

² This includes 3 credits of General Education courses: 3 credits of GH or GS.

³ A student planning to re-enroll into the baccalaureate degree major of Electrical Engineering Technology at Penn State Harrisburg, after graduation from the 2EET program, should follow Track C. They should select MATH 140 instead of MATH 83.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all associate degree students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 3 credits
- **Writing and Speaking (GWS):** 3 credits

Knowledge Domains

- **Arts (GA):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Note: Up to six credits of Inter-Domain courses may be used for any Knowledge Domain requirement, but when a course may be used to

satisfy more than one requirement, the credits from the course can be counted only once.

Exploration

- **Any General Education course (including GHW and Inter-Domain):** 3 credits

University Degree Requirements

Cultures Requirement

3 credits of United States (US) or International (IL) cultures coursework are required and may satisfy other requirements

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 60 degree credits must be earned for an associates degree. The requirements for some programs may exceed 60 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Educational Objectives

The Associate Electrical Engineering Technology program is designed to provide a curriculum that prepares students to pursue a career in the industry and to develop in their profession. Due to their experience in the Associate Electrical Engineering Technology program, within few years of graduation, we expect our graduates to have the ability to:

1. Apply analytical and empirical skills in the operation, testing, or maintenance of electrical systems.
2. Collaborate effectively in project team activities through recognizing the global, societal, and ethical contexts of their work.
3. Communicate effectively through preparation and delivery of technical and non-technical documentation and communications.

Student Outcomes

Student outcomes describe what students are expected to know and be able to do by the time of graduation. The Associate Electrical Engineering Technology program is designed to enable students to:

1. Apply knowledge, techniques, skills, and modern tools of mathematics, science, engineering, and technology to solve well-defined engineering problems appropriate to the discipline.
2. Design solutions for well-defined technical problems and assist with engineering design of systems, components, or processes appropriate to the discipline.

3. Apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature.
4. Conduct standard tests, measurements, and experiments and to analyze and interpret the results.
5. Function effectively as a member of a technical team.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Electrical Engineering Technology, A.ENG.T. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes

in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
EET 101	3 EET 114*	4
EET 109	1 EET 118*	1
EET 2 [†]	1 CMPET 117*	3
ENGL 15, 30H, or ESL 15 (GWS) ^{††}	3 CMPET 120*	1
General Education Course	3 CMPET 5	1
General Education Course	3 MATH 41	4
	General Education Course	3
	14	17

Second Year

Fall	Credits Spring	Credits
CAS 100 (GWS) ^{††}	3 CHEM 110 (GN) [†]	3
CMPET 211	3 CHEM 111 [†]	1
EET 212W	4 EET 275	3
EET 214	3 EGT 119	2
EET 215	1 MATH 210 (GQ) or Natural Science Course (GN)	3
MATH 83 ^{††}	4 PHYS 250 (GN) [†]	4
	18	16

Total Credits 65

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

College Notes:

- MATH 81 (GQ), MATH 82 (GQ), MATH 83 (GQ), and PHYS 250 (GN)
 - These courses are an entrance to major course to the ECET baccalaureate major requirement. Student must obtain a quality grade of C or better for entrance into the ECET major.
- EET 212W
 - Course will satisfy Writing Across the Curriculum requirement.

Career Paths

For students that do not continue on for a Bachelor of Engineering Technology Degree, there are various opportunities in the field for Electrical Engineering Technology. In many industrial settings, an Engineer works on the design of an electronic device, such as an electronic sensor, or system, such as a robotic arm, and the technician helps to build and test it. The technician might also be responsible for building test equipment to test the device or system once it is manufactured. In addition, the Electronic Technician might also be involved in servicing equipment in the field or be involved in sales.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE ELECTRICAL ENGINEERING TECHNOLOGY PROGRAM (<https://career.engr.psu.edu/>)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.engr.psu.edu/graduate-programs/>)

Accreditation

The A.ENG.T. in Electrical Engineering Technology at Penn State Behrend is accredited by the Engineering Technology Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Electrical/Electronic(s) Engineering Technology and Similarly Named Programs.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

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Electrical Engineering, B.S. (Behrend)

Begin Campus: Any Penn State Campus

End Campus: Erie

Program Description

This major provides students with a strong foundation in electrical engineering through a combination of classroom study, projects, and laboratory experience. Analysis and design of electrical and computer systems are stressed. Built upon a core of science and mathematics courses, this major has the objective of educating graduates to be problem solvers. Students acquire the ability to work as members of a team toward successful attainment of a common goal, preparing them for work in industry, or further study in graduate school. In addition, written and oral communication skills are developed from an early stage, culminating in a senior design project that stresses communication as well as engineering content.

In addition to completing a broad-based science and mathematics core, students pursue their interest in electrical engineering by studying the principles of electrical circuits and microelectronics, digital and computer systems, control and communications systems, and electromagnetic fields and waves. Students obtain a broad-based electrical engineering education that is specialized through the selection of technical electives courses. The student will be required to analyze and solve a significant electrical engineering design problem during the senior year.

What is Electrical Engineering?

Electrical engineering is a broad discipline of study that includes circuit design, analog and digital electronics, electromagnetics, electro-optics, control systems, power systems, communications, and signal/image processing. Electrical engineers study and apply physics and mathematics to design electrical and electronic systems and their components for a wide range of applications such as mobile phones, wireless communications, consumer electronics, computers, computer networks, power generation, machine learning, robotics, nanoelectronics, nanophotonics, bioelectronics, autonomous transportation, wearable electronics, and metamaterials.

You Might Like This Program If...

- You are curious about how electrical and electronic systems function.
- You are interested in engineering, math, and physics.
- You are looking for a broad discipline with career flexibility.
- You enjoy working on team-based projects.

Entrance to Major

In addition to the Carnegie unit and minimum GPA requirements described by University policies, all students applying for entrance to any of the engineering majors at The Behrend College must have at least a 2.0 cumulative GPA by the end of the semester prior to applying for entrance to the major and have completed, with a minimum grade of C: CHEM 110, MATH 140, MATH 141, and PHYS 211. These courses must be completed by the end of the semester during which the admission to major process is carried out.

Degree Requirements

For the Bachelor of Science degree in Electrical Engineering, a minimum of 130 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	106

21 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GWS courses; 3 credits of GS courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned.

Requirements for the Major

Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
CHEM 111	Experimental Chemistry I	1
CMPSC 201	Programming for Engineers with C++	3
EDSGN 100S	Introduction to Engineering Design	3
EMCH 211	Statics	3
ENGL 202C	Effective Writing: Technical Writing	3
PHYS 212	General Physics: Electricity and Magnetism	4
PHYS 214	General Physics: Wave Motion and Quantum Physics	2
<i>Prescribed Courses: Require a grade of C or better</i>		
CHEM 110	Chemical Principles I	3
CMPEN 271	Introduction to Digital Systems	3
CMPEN 275	Digital Design Laboratory	1
EE 210	Circuits and Devices	4
EE 310	Electronic Circuit Design I	4
EE 312	Electrical Circuit Analysis	3
EE 313W	Electronic Circuit Design II	4
EE 316	Introduction to Embedded Microcontrollers	3
EE 331	Electromagnetic Fields and Waves	3

EE 352	Signals and Systems: Continuous and Discrete-Time	4
EE 360	Communications Systems I	3
EE 380	Introduction to Linear Control Systems	3
EE 383	Signals and Controls Laboratory	1
EE 387	Energy Conversion	3
EE 400	Engineering Design Concepts	3
EE 401	Electrical Design Projects	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
MATH 220	Matrices	2
MATH 230	Calculus and Vector Analysis	4
MATH 250	Ordinary Differential Equations	3
PHYS 211	General Physics: Mechanics	4
STAT 301		3

Additional Courses

ECON 102	Introductory Microeconomic Analysis and Policy	3
or ECON 104	Introductory Macroeconomic Analysis and Policy	

Select one of the following: 3

CMPSC 122	Intermediate Programming	
ME 201	Introduction to Thermal Science	
ME 300	Engineering Thermodynamics I ¹	
PHYS 237	Introduction to Modern Physics	

Supporting Courses and Related Areas

Select 9 credits of technical courses from school-approved list ² 9

¹ ME 300 requires a grade of C or better.

² These credits must be selected to fulfill the engineering science and design requirements of the major.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits

- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of

both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Electrical Engineering, B.S. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
EDSGN 100S ¹	3 CHEM 110 ^{*#†}	3
ENGL 15 or 30H ^{††}	3 CMPSC 201 or 121 ²	3
MATH 140 ^{*†#†}	4 MATH 141 ^{*†#†}	4
PHYS 211 ^{*#†}	4 PHYS 212 [†]	4
General Education Course (GA/GH/GS)	3 General Education Course (GHW)	1.5
	17	15.5

Second Year

Fall	Credits Spring	Credits
CAS 100 ^{††}	3 CMPSC 122, EMCH 212, ME 300, or PHYS 237 ³	3
CMPEN 270 or 271 and 275 ^{*2}	4 EE 312 [*]	3
EE 210 ^{*2}	4 MATH 220 [*]	2
EMCH 211	3 MATH 230 [*]	4
MATH 250 [*]	3 PHYS 214 [†]	2
	General Education Course (GA/GH/GS)	3

Third Year

Fall	Credits Spring	Credits
EE 310*	4 ECON 102 or 104	3
EE 316*	3 EE 313W* ⁴	4
EE 352*	4 EE 331*	3
ENGL 202C ^{††}	3 EE 380*	3
STAT 301 or STAT 318*	3 EE 383*	1
	General Education (GHW)	1.5
	17	15.5

Fourth Year

Fall	Credits Spring	Credits
EE 360*	3 EE 401*	3
EE 387*	3 Technical Elective (300, 400-level)*	3
EE 388*	1 Technical Elective (300, 400-level)*	3
EE 400*	3 General Education Course (GA/GH/GS)	3
Technical Elective (300, 400-level)*	3 General Education Course (GA/GH/GS)	3
General Education Course (GA/GH/GS)	3	
	16	15

Total Credits 130

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Course will satisfy First-Year Seminar requirement.

² EE 210, CMPEN 271, CMPEN 275, and CMPSC 201/121 must be completed prior to the third-year to ensure that fall semester third-year prerequisites are met.

³ Students should take one of the following courses: CMPSC 122, EMCH 212, ME 300, or PHYS 237. Student planning on taking the FE Exam are advised to take ME 300.

⁴ Course will satisfy Writing Across the Curriculum requirement.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- Only students who have gone through the entrance to major (ETM) process and have been accepted into this major may register for junior and senior-level EE, CMPEN and SWENG courses.

School-Approved Electives for Electrical Engineering:

Technical electives allow students to choose areas of interest to explore. Technical electives come in two categories: primary and secondary.

Primary technical electives are those courses offered to the Electrical Engineering major, which are not required for the Electrical Engineering degree. Secondary technical electives are offered outside your home department and give you a broader latitude. **Students much complete at least two primary technical electives and, at most, one secondary technical elective.** Courses listed below as asynchronous are offered as needed when the appropriate faculty member is available.

*Exceptions to the above policy will be granted to students who **successfully** complete a minor in one of the areas listed in the Academic Minors portion of the School of Engineering Advising*

Primary Technical Electives:

- Any 300-400 level SWENG course
- Any 300-400 level EE course not already required for the major
- Any 300-400 level CMPEN course not already required for the major
- Any 400 level CMPSC course not already required for the major, with the exception of CMPSC 455 and CMPSC 456
- Any 300-400 level technical gaming course

Secondary Technical Electives:

- EE 395 - Internship
- EE 495 - Internship
- CMPSC 461 - Programming Language Concept
- CMPSC 471 - Introduction to Compiler Construction
- MGMT 409 - Project Management for Engineers
- PSYCH 444 - Engineering Psychology
- ECON 481 - Business Forecasting Techniques
- ECON 485 - Econometric Techniques
- PHYS 458 - Intermediate Optics
- MATH 455 - Introduction to Numerical Analysis I
- MATH 456 - Introduction to Numerical Analysis II
- IE 302 - Engineering Economy

Career Paths

Because the discipline is so far-reaching, electrical engineers typically specialize in an area such as microelectronics, computing, communications, signal processing, control systems, or robotics. From there you can further tailor your electrical engineering career to your unique interests and talents by focusing on design, manufacturing, technical sales, research, or a similar professional specialty. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often, and take advantage of the services offered by the Academic and Career Planning Center beginning with your first semester.

Careers

Employers of recent Penn State Behrend B.S. in Electrical Engineering graduates include BASF, Bechtel, Bettis Atomic Power Laboratory, First

Energy, FMC Technologies, General Dynamics Electric Boat, Lockheed Martin, Mercedes Benz, Westinghouse, Southern Maryland Electric Cooperative, and Zoll Medical Corp.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE ELECTRICAL ENGINEERING PROGRAM (<https://behrend.psu.edu/school-of-engineering/academic-programs/electrical-engineering/>)

Opportunities for Graduate Studies

Graduate programs in electrical engineering delve more deeply into areas of specialization such as signal processing, solid-state devices, photonics, digital systems, computer architecture, and nanotechnology. Electrical engineering can also be a foundation for graduate study in another engineering discipline, such as civil or aerospace engineering. Or, you can earn a master's degree to learn management skills; Penn State Behrend offers a Master of Manufacturing Management (M.M.M) degree program for aspiring organizational leaders.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-engineering/academic-programs/master-of-manufacturing-management/>)

Professional Resources

- ABET (<https://www.abet.org/>)
- Institution of Electrical and Electronics Engineers (IEEE) Computer Society (<https://www.computer.org/>)
- Association for Computing Machinery (<https://www.acm.org/>)
- Society of Women Engineers (<https://swe.org>)
- National Society of Black Engineers (<https://www.nsbe.org>)

Accreditation

The Bachelor of Science in Electrical Engineering at Penn State Behrend is accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Electrical, Computer, Communications, Telecommunication(s), and Similarly Named Engineering Programs.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

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Energy Finance, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

The Energy Finance certificate program is designed for students who desire to combine their engineering emphasis in energy systems with the financial expertise gained through courses in financial analysis and risk management.

You Might Like This Program If...

You are interested in helping risk managers understand the interrelationships among and between the various industries that make up the global energy marketplace. That marketplace has changed dramatically over the last decade, and the headwinds and challenges now facing the energy industry dictate a distinct type of program.

Program Requirements

To earn an undergraduate certificate in Energy Finance, a minimum of 15 credits is required, with a minimum of 6 credits in prerequisites.

Code	Title	Credits
Required Courses		
<i>Required Courses: Require a grade of C or better</i>		
EBF 200	Introduction to Energy and Earth Sciences Economics	3
EBF 301	Global Finance for the Earth, Energy, and Materials Industries	3
or MET 436	Energy Conservation Systems	
EGEE 101	Energy and the Environment	3
FIN 418	Energy Finance	3
FIN 427	Derivative Securities	3

Non-Course Requirements

- All courses must be completed with a C or higher

Certificate Learning Objectives

- **Analyze the Processes and Systems for Energy Conversion:** Analyze the processes and systems for energy conversion, including power, refrigeration and air conditioning cycles, thermoelectrics, etc.
- **Economics of Energy Finance:** Have a clear understanding of the economic rationale behind energy exploration, development, capital budgeting, option pricing and risk management.
- **Energy and Environmental Concepts and Analysis:** Have a clear understanding and appreciation of energy and environmental concepts and interconnectedness; analyze energy consumption patterns; discuss various energy resources that power the modern society; examine the energy conversion processes; explore interrelationships between energy use and industrial progress and environmental consequences; discuss future energy alternatives.
- **Microeconomic Fundamentals of Energy Finance:** Elucidate the microeconomic fundamentals with a focus on the applications of economics to energy and environmental markets.

- **Valuation and Risk:** Master the basic techniques for the valuation of forwards, futures, swaps, and vanilla options (calls and puts), and understand the specifics of risk management in terms of energy risk.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

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READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

Jeff Coy

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Career Paths

Careers

The energy risk professionals are employed in a variety of industries such as energy companies, including oil, power, natural gas and LNG, and renewables; financial institutions, including commercial and investment banks, asset management firms, and hedge funds; and other industries, including consulting and technology firms and government agencies.

Energy risk professionals perform a variety of job roles involving identifying, measuring, and managing the risk related to energy products and industry. Examples of job titles for energy risk professionals are risk analyst, risk manager, energy consultant, and chief risk officer.

Opportunities for Graduate Studies

With this certificate, you may have a "hand up" to enter a master's program in Sustainable Energy or Finance, or a general M.B.A. program.

Professional Resources

- Global Association of Risk Professionals (<https://www.garp.org>)
- Houston Energy Finance Group (<https://hefg.net/>)

Contact

Erie

BLACK SCHOOL OF BUSINESS
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Erie, PA 16563
814-898-6107
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<https://behrend.psu.edu/school-of-business> (<https://behrend.psu.edu/school-of-business/>)

English, B.A. (Behrend)

Begin Campus: Any Penn State Campus

End Campus: Erie

Program Description

This major offers courses in literary and cultural studies, and in various forms of writing. It provides a sound foundation in the liberal arts and opportunities to develop creative and analytical skills, as well as to cultivate an appreciation for literary expression. Students will develop a broad understanding of the ways in which literature works in various critical and cultural contexts. Majors can concentrate on literary and cultural studies or professional and media writing based on their interests and career goals.

Students will learn to communicate in diverse ways, using different technologies and forms of writing to convey their ideas. English majors will be able to reason critically, write cogently, construct and deconstruct ideas and arguments, and verbalize opinions and judgments. In addition, students will become adept researchers, learning how to find information and assess its quality. They will also master skills that will prepare them for success in a variety of careers and graduate programs, including translating technical information into accessible English, managing teams and organizing teamwork, and collaborating efficiently with individuals from different cultural backgrounds. The English major provides an excellent foundation for a variety of postgraduate programs in the humanities and beyond, including law, marketing, administration, education, public relations, and publishing.

What is English?

English refers to a broad field of study related to literature, professional writing, creative writing, and rhetoric. Majors develop critical thinking skills and produce influential academic, creative, professional, and digital texts. They learn to analyze genres, texts, and contexts that involve, for instance, race, class, gender, sexuality, and nationality. They also learn how various texts communicate value, meaning, and social and cultural critique.

You Might Like This Program If...

- You like words.
- You enjoy reading, writing, and editing.
- You love a good argument, a good book, a good play, or a good film.
- You're looking for a degree that can lead to many different career paths.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in English, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	9-12
Bachelor of Arts Degree Requirements	24
Requirements for the Major	39-42

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned.

Requirements for the Major

Each student must earn at least a grade of C or above in all courses required under Common Requirements, Prescribed, Additional, and Supporting courses.

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ENGL 200	Introduction to Critical Reading	3
ENGL 312	Globality and Literature	3
ENGL 482W	Contemporary Literary and Cultural Theory	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
ENGL 443 or ENGL 444	The English Renaissance Shakespeare	3
ENGL 494 or ENGL 495	Senior Thesis in English ¹ Internship	3-6
Select 3 credits from the following:		3
APLNG 210	Global English	
ENGL 100	English Language Analysis	
LING 100	Foundations of Linguistics	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
In consultation with adviser, select 6 credits from the Professional Writing course list. At least 3 credits must be at the 400 level.		6
In consultation with adviser, select 6 credits from the American Literature course list. At least 3 credits must be at the 400 level.		6
In consultation with adviser, select 3 credits from the Gender and Sexuality course list at the 300/400-level.		3

In consultation with adviser, select 3 credits from the Racial and Ethnic Diversity course list at the 400-level.	3
Select 3 credits at the 200 level or below from CMLIT or ENGL courses (except ENGL 50).	3

¹ A student may choose to take both ENGL 494 and ENGL 495 or take one or the other.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- Apply critical, theoretical, and/or disciplinary approaches to the reading and analysis of texts in multiple genres and/or media.
- Analyze the aesthetic and/or cultural significance of the ideas, values, conventions, forms, and genres associated with texts.
- Gather, evaluate, and employ an array of research materials in support of critical studies, and/or creative activity, in ways consistent with standards of academic integrity.
- Demonstrate writing and rhetorical skills appropriate to critical and/or creative tasks in a variety of media and genres.
- Analyze representative literary, theoretical, and cultural texts within significant historical, geographical, and cultural contexts.

Academic Advising

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Erie

Janet Neigh, Ph.D.

Associate Professor of English; Program Chair of English
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Suggested Academic Plan

English, B.A. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
First Year Seminar	1 APLNG 210, ENGL 100, or LING 100*	3
ENGL 15 or 30H [†]	3 General Education (GQ) [‡]	3
General Education (GQ) [‡]	3 General Education	3
General Education	3 General Education	3
General Education	1.5 World Language (Level Two)	4
World Language (Level One)	4	
	15.5	16

Second Year

Fall	Credits Spring	Credits
ENGL 200*	3 ENGL 202B [‡]	3
ENGL 312*	3 200-level or lower ENGL or CMLIT (except ENGL 50)*	3
CAS 100 [‡]	3 American Literature Supporting Course*	3
General Education	3 General Education	3
World Language (Level Three)	4 General Education	3
	16	15

Third Year

Fall	Credits Spring	Credits
ENGL 443 or 444*	3 ENGL 482W*	3
American Literature Supporting Course*	3 Professional Writing Supporting Course*	3
General Education	3 BA Knowledge Domain	3
World Cultures	3 General Education	3
Elective	3 Racial and Ethnic Diversity Supporting Course*	3
	15	15

For the supporting courses in American Literature, Professional Writing, Racial and Ethnic Diversity, and Gender and Sexuality, students (with help from their advisors) will select courses from a list provided by the English program.

Fourth Year

Fall	Credits Spring	Credits
Professional Writing Supporting Course*	3 ENGL 494 and/or ENGL 495*	3-6
BA Knowledge Domain	3 BA Knowledge Domain	3
Elective	3 Elective	3
Elective	3 General Education	1.5
General Education	3 Gender and Sexuality Supporting Course*	3
	15	13.5-16.5

Total Credits 121-124

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Advising Notes:

Career Paths

Penn State Behrend encourages practice of your professional skills. As an English major, you can write, edit, photograph, or sell advertising for The Behrend Beacon newspaper, or write, produce, or host a show on BVZ Radio or PSB-TV. Or join the editorial staff of Lake Effect, an international literary journal that publishes poetry, fiction, and creative nonfiction. Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

An English degree fosters a diverse set of skills that prepare you to thrive in many career fields. These can include education, research, digital media planning, advertising, social media management, professional and technical writing, journalism, publishing, copywriting, public relations, medicine, and law. To help you tailor your degree to your career interests, you'll pursue one of two options within the major: Literature, Film, and Culture or Professional Writing.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE ENGLISH PROGRAM (<https://behrend.psu.edu/school-of-humanities-social-sciences/academic-programs/english/>)

Opportunities for Graduate Studies

A B.A. in English can be the starting point for graduate-level education in ... nearly everything! The critical thinking, research, and interpretive skills you'll learn are valued in any type of post-graduate education. Frequently pursued graduate degrees are the M.F.A. in creative writing, Ph.D. in literature, and teaching certification, but your options are limited only by your imagination. Are you thinking about advanced education in law, advertising, public relations, finance, medicine, journalism, digital media, politics, nonprofit management, the fine arts, counseling, or social work? English can make that happen.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-humanities-social-sciences/academic-programs/english/>)

Professional Resources

- Modern Language Association (<https://www.mla.org/>)
- Association of Departments of English (<https://www.maps.mla.org/About-MAPS/ADE/>)
- National Council of Teachers of English (<https://ncte.org>)
- Association of Writers and Writing Programs (<https://www.awpwriter.org/>)
- Electronic Literature Organization (<https://eliterature.org/>)

Contact

Erie

SCHOOL OF HUMANITIES AND SOCIAL SCIENCES
170 Irvin Kochel Center
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HSSOffice@psu.edu

<https://behrend.psu.edu/school-of-humanities-social-sciences> (<https://behrend.psu.edu/school-of-humanities-social-sciences/>)

English, Minor (Behrend)

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

For the English minor at Penn State Behrend, the student must take (beyond the basic General Education) 18 credits of courses in ENGL or ELISH; 6 of these credits must be at the 400 level. The student is encouraged to take courses from each of the areas within the major (The Canon and Its Critics, Globality and Literature, Cultural Studies), as well courses in creative writing. By doing so, students will develop skills in writing and critical thinking that will prove valuable in their later work experiences.

What is English?

English refers to a broad field of study related to literature, professional writing, creative writing, and rhetoric. Majors develop critical thinking skills and produce influential academic, creative, professional, and digital texts. They learn to analyze genres, texts, and contexts that involve, for instance, race, class, gender, sexuality, and nationality. They also learn how various texts communicate value, meaning, and social and cultural critique.

You Might Like This Program If...

- You are a "words person."
- You enjoy reading, writing, and editing.
- You love a good argument, a good book, a good play, or a good film.
- You'd like to add liberal arts balance to a business or technical major.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select at least 12 credits from ENGL/ELISH 200-ENGL/ELISH 289	¹	12
Select at least 6 credits from ENGL/ELISH 400-ENGL/ELISH 493		6

¹ Students may not count courses used to satisfy General Education Writing/Speaking Skills.

Academic Advising

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both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

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Erie

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Career Paths

The minor in English can be pursued by students in most Penn State Behrend degree programs. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

An English minor helps you to develop a diverse set of skills that prepare you to thrive in many career fields. These can include education, research, digital media planning, advertising, social media management, professional and technical writing, journalism, publishing, copywriting, public relations, medicine, and law.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN ENGLISH (<https://behrend.psu.edu/school-of-humanities-social-sciences/academic-programs-1/minors/english-minor/>)

Opportunities for Graduate Studies

A minor in the liberal arts, particularly when added to a major program outside of the liberal arts, demonstrates to graduate school admissions committees your commitment to interdisciplinary thinking.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-humanities-social-sciences/academic-programs-1/minors/english-minor/>)

Contact

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<https://behrend.psu.edu/school-of-humanities-social-sciences> (<https://behrend.psu.edu/school-of-humanities-social-sciences/>)

Enterprise Resource Planning with Oracle, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

The Certificate in ERP with Oracle will instruct you in Oracle Enterprise Resource Planning software. Oracle ERP is an integrated multi-module application software that supports business processes. Oracle is one of the top ERP vendors and the skills gained by learning this software will allow you to become more valuable in the current marketplace. Oracle certification is valuable to hiring managers who want to distinguish among candidates for critical IT positions. This program enables students to become proficient in Oracle applications and system software and prepares them for the Oracle Certified Professional Consultant exams. Students who complete this certificate will have the ability to implement, integrate, and support eBusiness applications.

Oracle eBusiness is one of the most widely implemented ERP packages worldwide and is used by customers in more than 150 countries. ERP skills are in demand and salaries are on the rise. The certificate in Oracle eBusiness Suite will allow you to become more valuable in the current marketplace and will distinguish you among candidates for critical positions within all functional areas in an organization.

What is Enterprise Resource Planning with Oracle?

Enterprise resource planning, or ERP, is the business function that uses software and other information systems to integrate day-to-day business processes such as accounting, procurement, project management, and manufacturing. ERP systems collect and filter information from multiple sources, eliminating duplication and creating data integrity. This results in greater efficiency, lower operational costs, collaboration across business units, and consistent business infrastructure. Oracle is a leading provider of software- and cloud-based ERP systems. This certificate is excellent preparation for the examination required to become an Oracle E-Business Suite Advanced Supply Chain Planning Consultant Certified Expert.

You Might Like This Program If...

- You are a business major interested in supply chain management.
- You envision a career in information technology.
- You want to start your job search with a professional credential.

Program Requirements

To earn an undergraduate certificate in Enterprise Resource Planning with Oracle, a minimum of 9 credits is required, and an additional 12-13 credits in prerequisites depending on courses chosen.

Code	Title	Credits
Prescribed Courses		
Select 9 credits of the following:		9
MIS 404	Introduction to ERP and Business Processes	
MIS 405	Supply Chain Information Systems with Oracle	

MIS 406 Customer Information Systems with Oracle

MIS 407 Enterprise Integration with Oracle

Certificate Learning Objectives

- **Inventory Management and Production Planning:** Demonstrate proficiency in Oracle E-Business Suite inventory management and production planning.
- **Oracle E-Business Suite CRM:** Demonstrate proficiency in Oracle E-Business Suite Customer Relationship Management.
- **Transaction Processing with ERP:** Demonstrate understanding of Business transactions in Enterprise Resource Planning systems.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

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Erie

Kathleen Noce, D.Ed.

Teaching Professor of Management Information Systems

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Career Paths

The certificate in Enterprise Resource Planning with Oracle is available to most students pursuing degrees within the Black School of Business. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

Certification in Oracle E-Business Suite offers greater credibility when interviewing for jobs and expanded opportunities for advancement, since 97 percent of Fortune 500 companies use Oracle software.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A CERTIFICATE IN ENTERPRISE RESOURCE PLANNING WITH ORACLE (<https://behrend.psu.edu/school-of-business/academic-programs/certificate-programs/enterprise-resource-planning-with-oracle/>)

Opportunities for Graduate Studies

Adding a certificate to your major degree program demonstrates to graduate school admissions committees your commitment to interdisciplinary thinking.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-business/academic-programs/certificate-programs/enterprise-resource-planning-with-oracle/>)

Professional Resources

- AACSB International (<https://www.aacsb.edu>)
- Oracle (<https://www.oracle.com/>)
- Oracle University (<https://education.oracle.com/certification/>)

Contact

Erie

BLACK SCHOOL OF BUSINESS

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Enterprise Resource Planning with SAP, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

The Enterprise Resource Planning (ERP) with Systems, Applications, and Products (SAP) certificate is designed to provide students with practical knowledge of E-Business Application Software. Students must complete three courses that are centered in SAP technology with a C or better. The courses focus on in-depth concepts and theories related to supply chain and management information systems technologies and include numerous learning-by-doing (LBD) activities and hands-on lab exercises. The students will learn from the textbook and instructor lessons advanced business concepts, and will then complete associated LBD assignments. These hands-on exercises will test the application and understanding of the textbook concepts by allowing the students to perform the detailed business process on the latest version of SAP's ERP application platform utilizing the same set of steps that occur in industry.

What is ERP with SAP?

Enterprise resource planning, or ERP, is the business function that uses software and other information systems to integrate day-to-day business processes such as accounting, procurement, project management, and manufacturing. ERP systems collect and filter information from multiple sources, eliminating duplication and creating data integrity. This results in greater efficiency, lower operational costs, collaboration across business units, and consistent business infrastructure. SAP is the world's largest enterprise application software company, with 335,000 customers in over 180 countries. SAP certification helps to validate your expertise and experience.

You Might Like This Program If...

- You are a business major interested in ERP.
- You envision a career in information technology.
- You want to start your job search with a global professional credential.

Program Requirements

To earn an undergraduate certificate in Enterprise Resource Planning with SAP, a minimum of 9 credits is required.

Code	Title	Credits
Required Courses		
<i>Required Courses: Require a grade of C or better</i>		
MIS 404	Introduction to ERP and Business Processes	3
SCM 445	Operations Planning and Control	3
SCM 460	Purchasing and Materials Management	3

Certificate Learning Objectives

- **Process Complexity:** Students will demonstrate technical competency in executing a set of complex tasks associated with two common business processes using both master and transactional data.
- **Process Fundamentals:** Students will demonstrate technical competency in executing the basic tasks associated with common business processes (i.e. procurement, fulfillment, and production).
- **Process Integration:** Students will demonstrate technical competency in executing the tasks associated with an integrative process involving the interaction of three or more common business processes.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

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Career Paths

The certificate in Enterprise Resource Planning with SAP is available to most students pursuing degrees within the Black School of Business. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

Certification in SAP offers career advantages, including greater credibility when interviewing for jobs because it is an external validation of your ERP expertise and experience.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A CERTIFICATE IN ENTERPRISE RESOURCE PLANNING WITH SAP (<https://behrend.psu.edu/school-of-business/academic-programs/certificate-programs/enterprise-resource-planning-with-sap/>)

Opportunities for Graduate Studies

Adding a certificate to your major degree program demonstrates to graduate school admissions committees your commitment to interdisciplinary thinking.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-business/academic-programs/certificate-programs/enterprise-resource-planning-with-sap/>)

Professional Resources

- AACSB International (<https://www.aacsb.edu/>)
- SAP (<https://www.sap.com/>)

Contact

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BLACK SCHOOL OF BUSINESS

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Schuylkill

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Environmental Science, B.S.

Begin Campus: Any Penn State Campus**End Campus:** Erie

Program Description

The B.S. in Environmental Science (ENVSC) employs the principles, processes, and methodologies of the life and physical sciences to develop an integrated understanding of the environment and the effects associated with human use of the Earth's natural resources. Students will work in interdisciplinary teams in a capstone course and in environmental research/internship projects attuned to Great Lakes, water resources, and energy resources issues. Students choosing the Environmental Field Science option will obtain additional strengths in field biology, geographic information systems, and environmental geoscience and field methods. Those choosing the Environmental Lab Science option will obtain additional strengths in analytical chemistry and environmental geochemistry. The curriculum permits additional specialization in allied areas through completion of minors in chemistry, biology, or statistics.

What is Environmental Science?

Environmental science is an interdisciplinary field, meaning that it combines multiple academic studies. Environmental science draws from geology, geography, biology, chemistry, oceanography, limnology, atmospheric science, energy, and many other physical sciences. It also involves non-science areas such as engineering, law, political science, resource management, and environmental education. Study of environmental science prepares students to understand and solve problems at the human-earth interface. Environmental scientists understand environmental processes, analyze and solve environmental problems, and communicate the beneficial and adverse outcomes associated with human use of the Earth's physical and living resources.

You Might Like This Program If...

- You think bugs are beautiful, mud is marvelous, and rocks rock.
- You are interested in examining global environmental issues from multiple perspectives.
- You might like working with environmental data sets to understand how the physical world works.
- You are curious about how the environment affects humans—and about how humans affect their environment, for better and for worse.
- You enjoy theoretical study, hands-on laboratory learning using high-tech equipment, and in-the-dirt outdoor field work.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Environmental Science, a minimum of 121 credits is required, with at least 15 credits at the 400 level:

Requirement	Credits
General Education	45
Electives	0-1
Requirements for the Major	102-103

27 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 6 credits of GS courses; 3 credits of GH courses; 3 credits of GWS courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned.

Requirements for the Major

Each student must earn at least a grade of C in each 300- and 400-level prescribed, additional, and supporting course.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
BIOL 220W	Biology: Populations and Communities	4
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
CHEM 113	Experimental Chemistry II	1
CHEM 202	Fundamentals of Organic Chemistry I	3
ENGL 202C	Effective Writing: Technical Writing	3
GEOG 160	Mapping Our Changing World	3
GEOG 161	Applied Geographic Information Systems	1
MATH 141	Calculus with Analytic Geometry II	4
<i>Prescribed Courses: Require a grade of C or better</i>		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
BIOL 402W	Biological Experimental Design	3
CHEM 110	Chemical Principles I	3
ENVSC 400W	Case Studies in Environmental Analysis and Problem-Solving	3
MATH 140	Calculus With Analytic Geometry I	4

Additional Courses

Select one of the following: 3

CIVCM 211N Foundations: Civic and Community Engagement

PLSC 1 American Politics: Principles, Processes and Powers

SUST 200 Foundations of Leadership in Sustainability

Select one of the following: 3-4

SCM 200 Introduction to Statistics for Business

STAT 200 Elementary Statistics

STAT 250 Introduction to Biostatistics

Select one of the following: 3

EARTH 2 The Earth System and Global Change

GEOG 10 Physical Geography: An Introduction

GEOC 1 Physical Geology

Select one of the following: 3

PHIL 103 Ethics

PHIL 119 Ethical Leadership

PHIL 132 Bioethics

STS 245Z Globalization, Technology, and Ethics

Select one of the following: 3

ECON 102 Introductory Microeconomic Analysis and Policy

ECON 104 Introductory Macroeconomic Analysis and Policy

GEOG 30N Environment and Society in a Changing World

GEOG 126 Economic Geography

Additional Courses: Require a grade of C or better

Select one of the following sequences: 8

PHYS 211 General Physics: Mechanics
& PHYS 212 and General Physics: Electricity and Magnetism ¹

PHYS 250 Introductory Physics I
& PHYS 251 and Introductory Physics II ¹

Supporting Courses and Related Areas

Select 3 credits from the Natural & Physical Sciences program list ² 3

Supporting Courses and Related Areas: Require a grade of C or better

Select 3 credits from BIOL, ENVSC, GEOG, GEOC 494 (Research), 495 (Internship), or 496 (Independent Studies) in consultation with adviser ² 3

Requirements for the Option

Select an option 33

¹ PHYS 212 and PHYS 251 do not require a grade of C or better.

² A maximum of 9 credits of Research (494), Internship (495), or Independent Study (496) may be applied toward credits for graduation in all options.

Requirements for the Option

Environmental Field Science Option (33 credits)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
BIOL 435	Ecology of Lakes and Streams	3
GEOG 363	Geographic Information Systems	3
GEOC 303	Introduction to Environmental Geology	3
GEOC 452	Hydrogeology	3
Additional Courses		
Select one of the following: 3		

Prescribed Courses

Prescribed Courses: Require a grade of C or better

BIOL 435 Ecology of Lakes and Streams 3

GEOG 363 Geographic Information Systems 3

GEOC 303 Introduction to Environmental Geology 3

GEOC 452 Hydrogeology 3

Additional Courses

Select one of the following: 3

CHEM 301 Environmental Chemistry and Analysis ¹

EGEE 101 Energy and the Environment

EGEE 102 Energy Conservation for Environmental Protection

STS 420 Energy and Modern Society ¹

Additional Courses: Require a grade of C or better

GEOC 451 Natural Resources: Origins, Economics and Environmental Impact 3

or GEOC 454 Geology of Oil and Gas

Select 3 credits of the following: 3

Any Biology 400-level field/lab course

GEOC 412 Water Resources Geochemistry

GEOC 418 Soil Environmental Chemistry

Supporting Courses and Related Areas ²

Select 12 credits from the Natural & Physical Sciences and/or the Social Sciences, Arts & Humanities program lists with not more than 6 credits from the latter list ³ 12

² A maximum of 9 credits of Thesis Research (GEOC 494M), GEOC 495, or GEOC 496 may be applied toward credits for graduation in all options.

³ Students may apply 6 credits of basic ROTC.

¹ CHEM 301 and STS 420 require a grade of C or better.

Environmental Lab Science Option (33 credits)

Code	Title	Credits
Prescribed Courses		
CHEM 203	Fundamentals of Organic Chemistry II	3
CHEM 227	Analytical Chemistry	4
MICRB 201	Introductory Microbiology	3
MICRB 202	Introductory Microbiology Laboratory	2
<i>Prescribed Courses: Require a grade of C or better</i>		
CHEM 301	Environmental Chemistry and Analysis	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select one of the following: 3		
GEOC 412	Water Resources Geochemistry	
GEOC 418	Soil Environmental Chemistry	
GEOC 419	The Organic Geochemistry of Natural Waters and Sediments	
Select one of the following: 3		
GEOC 451	Natural Resources: Origins, Economics and Environmental Impact	
GEOC 452	Hydrogeology	
STS 420	Energy and Modern Society	
Supporting Courses and Related Areas ¹		
Choose 9 credits from the Natural & Physical Sciences and/or the Social Sciences, Arts & Humanities program lists with not more than 6 credits from the latter list ² 9		
Choose 3 credits at the 400-level from the Natural & Physical Sciences program list 3		

Prescribed Courses

CHEM 203 Fundamentals of Organic Chemistry II 3

CHEM 227 Analytical Chemistry 4

MICRB 201 Introductory Microbiology 3

MICRB 202 Introductory Microbiology Laboratory 2

Prescribed Courses: Require a grade of C or better

CHEM 301 Environmental Chemistry and Analysis 3

Additional Courses

Additional Courses: Require a grade of C or better

Select one of the following: 3

GEOC 412 Water Resources Geochemistry

GEOC 418 Soil Environmental Chemistry

GEOC 419 The Organic Geochemistry of Natural Waters and Sediments

Select one of the following: 3

GEOC 451 Natural Resources: Origins, Economics and Environmental Impact

GEOC 452 Hydrogeology

STS 420 Energy and Modern Society

Supporting Courses and Related Areas ¹

Choose 9 credits from the Natural & Physical Sciences and/or the Social Sciences, Arts & Humanities program lists with not more than 6 credits from the latter list ² 9

Choose 3 credits at the 400-level from the Natural & Physical Sciences program list 3

¹ A maximum of 9 credits of GEOC 494M, GEOC 495, or GEOC 496 may be applied toward credits for graduation in all options.

² Students may apply 6 credits of basic ROTC.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- Are proficient in the communication of results of field, lab, or literature based research in both oral and written formats, in both solo and team settings.
- Can demonstrate possession of the science skills and quantitative competency necessary to understand, interpret, and analyze data from across the interdisciplinary environmental science spectrum.
- Have proficiency in major concepts and methods in environmental science that are typically required of entry-level scientists in the workforce.
- Have demonstrated undergraduate-level research skills; project and experimental design skills.
- Can demonstrate skills in field/lab data collection, analysis, and synthesis; in utilizing the inter-disciplinary research literature to analyze and synthesize issues in environmental science; and in undergraduate-level grant-writing.
- Can demonstrate possession and application of higher-level learning skills in critical thinking and problem-solving as applied to environmental science.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Environmental Field Science Option: Environmental Science, B.S. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110*	4 CAS 100 [†]	3
CHEM 110 ^{††}	3 CHEM 112 [†]	3
CHEM 111 [†]	1 CHEM 113 [†]	1
ENGL 15 or 30H [†]	3 MATH 140 ^{††}	4
Course Selection (N and PS List) or Course Selection (SSA and H List)	3 General Education Course (GH Selection)	3
PSU 7	1 General Education Course (GHW)	1.5
	15	15.5

Second Year

Fall	Credits Spring	Credits
GEOG 10, GEOSC 1, GEOSC 20, or EARTH 2 [†]	3 PHIL 103, 119, 132, or 245Z [†]	3
BIOL 220W	4 ENVSC 200, SUST 200, CAS 222N, or PLSC 1 ^{††}	3
MATH 141 [†]	4 STAT 200, 250, or SCM 200	3-4
GEOG 160	3 GEOG 363*	3
GEOG 161	1 Course Selection (N and PS List) or Course Selection (SSA and H List)	3
	15	15-16

Third Year

Fall	Credits Spring	Credits
PHYS 211 or 250*	4 BIOL 402W*	3
GEOSC 303*	3 ENGL 202C ^{††}	3
CHEM 301 or STS 420 (or EGEE 101 (MATSE 101) or EGEE 102) ¹	3 GEOG 126, 30N, ECON 102, or ECON 104 [†]	3
General Education Course (GA Selection)	3 PHYS 212 or 251	4

CHEM 202 [†]	3 Course Selection (N and PS List)	3
	16	16

Fourth Year

Fall	Credits Spring	Credits
BIOL/CHEM/GEOSC/ENVSC 494 or 495*	3 GEOSC 418/SOILS 419 or 412 (or 400-level BIOL lab/field course)*	3
BIOL 435*	3 GEOSC 451 or 454* ²	3
General Education Course (GA Selection)	3 GEOSC 452*	3
Course Selection (N and PS List)	3 ENVSC 400W*	3
General Education Course (GHW)	1.5 Course Selection (N and PS List)	3
	13.5	15

Total Credits 121-122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ EGEE 101, MATSE 101, and EGEE 102 do not require a grade of C or better.

² See adviser for acceptable substitutions

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes

1.) Students who have not met the admission requirement of two units of a high school world language must complete a college level-one world language within their first 60 credits.

2.) Not all courses will be offered every year at Penn State Behrend, but a sufficient number of courses will be offered that will allow students to complete their chosen option.

3.) ENVSC 400W is the capstone course.

Natural & Physical Sciences List (N and PS)

BIOL 200-level or higher, BIOL 403, BIOL 415
CHEM 200-level or higher
CMPSC 100-level or higher
EARTH 100, EARTH 103N, EARTH 105N, EARTH 111, EARTH 202, EARTH 204
EGEE 100-level or higher

ENVE 300-level or higher
ENVSC 494, ENVSC 495
ENVSE 400-level
ENVST 200, ENVST 299
GEOG 313, GEOG 362, GEOG 430, GEOG 431, GEOG 432, GEOG 453,
GEOG 463, GEOG 469
GEOSC 1, GEOSC 40, GEOSC 71, GEOSC 200-level or higher
GEOSC 497A
MATH 200-level or higher
MICRB 200-level or higher
PES 213, PES 320, PES 340, PES 341
SOILS 101 or higher
STAT 300-level or higher
STS 201, STS 420
WFS 400-level or higher

Social Sciences, Arts & Humanities List (SSA and H)

COMM 160, COMM 315, COMM 409
ECON 428
ENGL 180, ENGL 424
ENVST 100N
GEOG 30N, GEOG 126
LARCH 60
PHIL 403
PLSC 2, PLSC 14, PLSC 22, PLSC 135, PLSC 299, PLSC 419, PLSC 482,
PLSC 487, PLSC 489, PLSC 499
PSYCH 301W
STS 245Z
Any 1, 2, 3 World Language

Environmental Lab Science Option: Environmental Science, B.S. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110*	4 BIOL 220W	4
CHEM 110*†	3 CHEM 112†	3
CHEM 111†	1 CHEM 113†	1
ENGL 15 or 30H†	3 MATH 140*†	4
Course Selection (N and PS List) or Course Selection (SSA and H List)*	3 General Education Course (GH Selection)†	3
PSU 7	1	
	15	15

Second Year

Fall	Credits Spring	Credits
GEOG 10 or GEOSC 1 (or EARTH 2 or GEOSC 20)†	3 STAT 200 or 250 (or SCM 200)*	3-4
MICRB 201	3 ENVSC 200, SUST 200, CAS 222N, or PLSC 1	3
MICRB 202	2 CAS 100†	3
MATH 141†	4 General Education Course (GA Selection)†	3
GEOG 160	3 Course Selection (N and PS List)	3
GEOG 161	1	
	16	15-16

Third Year

Fall	Credits Spring	Credits
PHYS 211 or 250*	4 PHIL 103 or 119 (or PHIL 132 or STS 245)†	3
CHEM 227	4 BIOL 402W*	3
CHEM 202†	3 PHYS 212 or 251	4
General Education Course (GA Selection)	3 General Education Course (GHW)	1.5
ENGL 202C††	3 CHEM 203	3
	17	14.5

Fourth Year

Fall	Credits Spring	Credits
BIOL/CHEM/GEOSC/ENVSC 494 or 495*	3 ENVSC 400W*	3
CHEM 301*	3 GEOSC 418/SOILS 419 or 412 (or 400-level BIOL lab/field course)*	3
Course Selection (N and PS List)	3 GEOSC 451 or 452 (or STS 420)*	3
Course Selection (N and PS List)	3 GEOG 30N or 126 (or ECON 102 or ECON 104)†	3

400-level Science Course Selection (N and PS List)	3 General Education Course (GHW)	1.5
	15	13.5

Total Credits 121-122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes

- 1.) Students who have not met the admission requirement of two units of a high school world language must complete a college level-one world language within their first 60 credits.
- 2.) Not all courses will be offered every year at Penn State Behrend, but a sufficient number of courses will be offered that will allow students to complete their chosen option.
- 3.) ENVSC 400W is the capstone course.

Natural & Physical Sciences List (N and PS)

BIOL 200-level or higher, BIOL 403, BIOL 415
 CHEM 200-level or higher
 CMPSC 100-level or higher
 EARTH 100, EARTH 103N, EARTH 105N, EARTH 111, EARTH 202, EARTH 204
 EGEE 100-level or higher
 ENVE 300-level or higher
 ENVSC 494, ENVSC 495
 ENVSE 400-level
 ENVST 200, ENVST 299
 GEOG 313, GEOG 362, GEOG 430, GEOG 431, GEOG 432, GEOG 453, GEOG 463, GEOG 469
 GEOSC 1, GEOSC 40, GEOSC 71, GEOSC 200-level or higher
 GEOSC 497A
 MATH 200-level or higher
 MICRB 200-level or higher
 PES 213, PES 320, PES 340, PES 341
 SOILS 101 or higher
 STAT 300-level or higher
 STS 201, STS 420
 WFS 400-level or higher

Social Sciences, Arts & Humanities List (SSA and H)

COMM 160, COMM 315, COMM 409
 ECON 428

ENGL 180, ENGL 424
 ENVST 100N
 GEOG 30N, GEOG 126
 LARCH 60
 PHIL 403
 PLSC 2, PLSC 14, PLSC 22, PLSC 135, PLSC 299, PLSC 419,
 PLSC 482, PLSC 487, PLSC 489, PLSC 499
 PSYCH 301W
 STS 245Z
 Any 1, 2, 3 World Language

Career Paths

The study of environmental science leads to a wide variety of careers. Penn State Behrend offers two options to help you tailor your degree to your interests. The Environmental Field Studies Option has a concentration in field biology, geographic information systems, and environmental geoscience, while the Environmental Lab Science Option emphasizes analytical chemistry and geochemistry. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

State and federal agencies, nonprofits, and corporations are looking for environmental scientists. The U.S. Bureau of Labor Statistics predicts that over the next twenty years the number of jobs for environmental scientists will grow faster than the average for all occupations. This increase will be driven by population growth and the concurrent need for water, energy, and mineral resources. A recent survey of undergraduate institutions showed that environmental science students typically are prepared for careers in many parts of the economy, including government agencies; nonprofit, advocacy, and nongovernmental organizations; consulting; education; industry; and resource management and conservation.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE ENVIRONMENTAL SCIENCE PROGRAM (<https://behrend.psu.edu/school-of-science/academic-programs/environmental-science/>)

Opportunities for Graduate Studies

A graduate degree allows you to take your environmental science education in a targeted direction. Advanced-degree disciplines commonly pursued by environmental science majors include environmental engineering, resource management, environmental science and policy, public health, atmospheric science, oceanography, and sustainability.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-science/academic-programs/environmental-science/>)

Professional Resources

- Association for Environmental Studies and Sciences (<https://aessonline.org/>)
- National Association of Environmental Professionals (<https://www.naep.org/>)
- Geological Society of America (<https://www.geosociety.org/>)
- American Geophysical Union (<https://www.agu.org/>)
- Association of Environmental and Engineering Geologists (<https://www.aegweb.org/>)

- Soil and Water Conservation Society (<https://www.swcs.org/>)
- American Association of Geographers (<https://www.aag.org/>)

Contact

Erie

SCHOOL OF SCIENCE
 1 Prischak
 4205 College Drive
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 814-898-6105
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<https://behrend.psu.edu/school-of-science> (<https://behrend.psu.edu/school-of-science/>)

Finance, B.S. (Behrend)

Begin Campus: Any Penn State Campus

End Campus: Erie, World Campus

Program Description

The Finance major is a unique program that provides the student with a firm foundation in the principles of finance and its major areas: financial management, investments, and financial markets. The coursework is designed to lead to professional certification in financial analysis. Students have job opportunities in a variety of positions with mutual funds, brokerage firms, banks, and insurance companies, as well as positions in corporate finance.

The program provides students with the depth and breadth of knowledge necessary to prepare them for Level I of the Chartered Financial Analysts (CFA) Exam. The rigorous curriculum, including courses in finance, accounting, and economics, is based on the CFA Body of Knowledge developed through surveys of professionals involved in the practice of investment management. Students will be encouraged to take Level I of the CFA exam after graduation.

What is Finance?

Finance focuses on how individuals and business organizations raise money and capital, and how those resources are allocated among competing investment and consumption opportunities. The field focuses on domestic and international financial economies and the role of financial markets and institutions key in the movement of savings and investment capital from lenders to borrowers. It also deals with how individuals and corporate managers evaluate alternative investment and savings opportunities and how they choose among various financial instruments.

You Might Like This Program If...

- You're looking for a versatile business degree.
- You'd like to invest real money as a director of Behrend's Intrinsic Family Student Managed Fund.
- You'd like to work on Behrend's simulated trading floor, and use the same Bloomberg information services as professional traders and investors.
- You want to graduate from one of only two Pennsylvania universities accepted into the Chartered Financial Analyst (CFA) Institution University Recognition Program.

Entrance to Major

Entry to the Finance major requires the successful completion of 5 entry-to-major courses: ACCTG 211, ECON 102, ENGL 15 or ENGL 30H, MATH 110 or MATH 140, STAT 200 or SCM 200, and a 2.00 or higher cumulative grade-point average. Each course requires a C or better grade for successful completion.

Degree Requirements

For the Bachelor of Science degree in Finance, 120-123 credits are required:

Requirement	Credits
General Education	45
Requirements for the Major	96-99

21 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GQ courses; 6 credits of GS courses; 9 credits of GWS courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned.

Requirements for the Major

Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
ECON 104	Introductory Macroeconomic Analysis and Policy	3
PSU 7	First-Year Seminar Behrend	1
<i>Prescribed Courses: Require a grade of C or better</i>		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
ACCTG 426	Financial Statement Analysis	3
CAS 100	Effective Speech	3
ECON 102	Introductory Microeconomic Analysis and Policy	3
ENGL 202D	Effective Writing: Business Writing	3
FIN 301	Corporation Finance	3
FIN 420	Investment and Portfolio Analysis	3
FIN 451	Intermediate Financial Management	3
FIN 471	International Finance	3
MGMT 301	Basic Management Concepts	3
MGMT 471W	Strategic Management and Business Policy	3
MIS 204	Introduction to Management Information Systems	3
MKTG 301	Principles of Marketing	3
SCM 301	Supply Chain Management	3
Additional Courses		
BA 241 & BA 242	Legal Environment of Business and Social and Ethical Environment of Business	4

or BA 243	Social, Legal, and Ethical Environment of Business	
<i>Additional Courses: Require a grade of C or better</i>		
ENGL 15 or ENGL 30H	Rhetoric and Composition Honors Rhetoric and Composition	3
MATH 110 or MATH 140	Techniques of Calculus I Calculus With Analytic Geometry I	4
SCM 200 or STAT 200	Introduction to Statistics for Business Elementary Statistics	4
Select 4-7 credits from one of the following sequences:		4-7
ACCTG 305	Financial Statements and Management Decisions	
ACCTG 371 & ACCTG 472	Intermediate Accounting I and Intermediate Financial Accounting II	
ACCTG 471 & ACCTG 472	Intermediate Financial Accounting I and Intermediate Financial Accounting II	
Select one of the following:		3
ECON 304	Intermediate Macroeconomic Analysis	
ECON 351	Money and Banking	
ECON 442	Managerial Economics	
ECON 481	Business Forecasting Techniques	
ECON 485	Econometric Techniques	
Select 6 additional credits from 400-level FIN elective courses, excluding FIN 494 and FIN 495.		6
Select 6 credits from FIN or other business courses.		6

Supporting Courses and Related Areas

Select 15 credits from any business major field or any non-business major course, except for all KINES (GHW) courses, any ENGL course below ENGL 15, and any MATH course below MATH 110. Exceptions may be petitioned through the applicable department chair.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **CRITICAL AND INTEGRATIVE THINKING:** Students will be able to think critically across business disciplines by considering different perspectives and using an integrated, holistic approach to perform relevant analyses, construct valid arguments, and make appropriate conclusions.
- **ORAL COMMUNICATION:** Students will be able to execute the oral communication skills that they have learned in the interactive

business courses to business situations where effective explanation, persuasion, exchanging information and ideas are essential.

- **WRITING COMPETENCE:** Students will be able to demonstrate effective business writing skills.
- **TEAMWORK:** Students will be positive contributors to an effective team functioning via application of their functional skills in addition to strong interpersonal skills.
- **ETHICS AND SOCIAL RESPONSIBILITY:** Students will be able to recognize ethical issues and apply ethical theories in business situations at individual and/or organizational levels.
- **FUNCTIONAL AREA KNOWLEDGE (ETS):** Students will be able to apply foundational knowledge to analyze and solve problems and interpret written and visual material across various business domains.
- **FUNCTIONAL AREA KNOWLEDGE (ACCOUNTING):** Students will be able to demonstrate a broad general knowledge of the principles of accounting, both managerial and financial.
- **FUNCTIONAL AREA KNOWLEDGE (ECONOMICS):** Students will be able to demonstrate a broad general knowledge of the principles of economics, both microeconomics and macroeconomics
- **FUNCTIONAL AREA KNOWLEDGE (FINANCE):** Students will be able to demonstrate a broad general knowledge of the principles of finance.
- **FUNCTIONAL AREA KNOWLEDGE (MIS):** Students will be able to describe the benefits and challenges of applying information technology in various organizations and functional areas.
- **FUNCTIONAL AREA KNOWLEDGE (INTERNATIONAL BUSINESS):** Students will be able to apply basic multidisciplinary knowledge needed to conduct international business and analyze the impact of globalization.
- **FUNCTIONAL AREA KNOWLEDGE (LEGAL ENVIRONMENT):** Students will be able to identify key terms, concepts, and theories of the law, evaluate how law affects business, analyze legal issues, and apply the law to business situations.
- **FUNCTIONAL AREA KNOWLEDGE (MANAGEMENT):** Students will be able to demonstrate a broad knowledge of the business discipline of management.
- **FUNCTIONAL AREA KNOWLEDGE (MARKETING):** Students will be able to demonstrate comprehensive knowledge in the field of marketing.
- **FUNCTIONAL AREA KNOWLEDGE (QUANTATIVE BUSINESS ANALYSIS):** Students will be able to demonstrate a broad knowledge of quantitative business analysis.
- **FUNCTIONAL AREA KNOWLEDGE (SUPPLY CHAIN MANAGEMENT):** Students will be able to demonstrate a broad knowledge of supply chain management.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary

academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Finance, B.S. at Erie Campus and World Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H ^{*†#†}	3 CAS 100A, 100B, or 100C ^{††}	3
MATH 110 or 140 ^{*†#†}	4 ECON 102 ^{*#†}	3
General Education Course ³	3 MIS 204 [*]	3
General Education Course ³	3 General Education Course ³	3
General Education Course (GHW) ³	1.5 General Education Course ³	3
PSU 7	1	
	15.5	15

Second Year

Fall	Credits Spring	Credits
ACCTG 211 ^{*#}	4 ENGL 202D ^{††}	3
ECON 104 ^{*†}	3 FIN 301 [*]	3
SCM 200 or STAT 200 ^{*†#†}	4 MGMT 301 [*]	3
General Education Course ³	3 MKTG 301 [*]	3
General Education Course (GHW) ³	1.5 SCM 301 [*]	3
	15.5	15

Third Year

Fall	Credits Spring	Credits
BA 241 & BA 242	4 ACCTG 305 (Spring Only) [*]	4
FIN 420 (OR FIN 451 OR FIN 471) [*]	3 FIN 451 (OR FIN 420 OR FIN 471) [*]	3
Approved Elective ²	3 Approved Elective ²	3
Additional ECON Course [*]	3 General Education Course ³	3
General Education Course ³	3	
	16	13

Fourth Year

Fall	Credits Spring	Credits
ACCTG 426 (Fall Only) [*]	3 MGMT 471W [*]	3
FIN 471, 420, or 451 [*]	3 Approved Finance Elective (400 Level) [*]	3
Approved Finance Elective (400 Level) [*]	3 Approved Elective ²	3
Business Supporting Course [*]	3 Approved Elective ²	3
Business Supporting Course [*]	3 Approved Elective ²	3
	15	15

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Please see your academic adviser for approval before scheduling your course.

² In order for a course to be eligible for an Approved Elective, the course can not be a lower level ENGL (1-6) or MATH (2-41) OR a GHW designated course. Please see your academic adviser if you have a question on a specific course.

³ All students are required to fulfill 45 credits of General Education courses. More information about this requirement can be found on the Baccalaureate Degree General Education Requirements page in the Bulletin (p. 3184).

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

Typical entry-level positions for finance majors include financial consultant, securities analyst, staff accountant, financial analyst, investment representative, branch manager, agent, and financial adviser. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

Employers of recent Penn State Behrend B.S. in Finance graduates include Bechtel Plant Machines, Erie Insurance, GE, Lucent Corporation, National City Corporation, Foot Locker, Moody's, NBC Network, Edward Jones, Northwest Savings Bank, Mellon Bank, New York Life, Evans Capital Management, and Robbins Wealth Management.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE FINANCE PROGRAM (<https://behrend.psu.edu/school-of-business/academic-programs/finance/>)

Opportunities for Graduate Studies

Graduate study allows you to delve deeper into the subdisciplines of finance that interest you most. Examples of master's- and doctoral-level study include corporate finance, e-business, financial modeling, law, business strategy, marketing, data science, managerial accounting, and strategic management. Penn State Behrend also offers a hybrid MBA program that can be pursued in Erie and in Pittsburgh, Pennsylvania.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/admissions-financial-aid/graduate-admissions/master-of-business-administration/>)

Professional Resources

- AACSB International (<https://www.aacsb.edu/>)
- Association for Financial Professionals (<https://www.afponline.org/>)
- Chartered Financial Analyst Institute (<https://www.cfainstitute.org/en/programs/cfa/>)

Accreditation

The Black School of Business is accredited by AACSB International—The Association to Advance Collegiate Schools of Business. As the world's largest business education alliance, AACSB connects educators, students, and business to achieve a common goal: to create the next generation of great leaders. Synonymous with the highest standards of excellence since 1916, AACSB provides quality assurance, business education intelligence, and professional development services to over 1,500 member organizations and more than 785 accredited business schools worldwide. AACSB's mission is to foster engagement, accelerate innovation, and amplify impact in business education.

MORE INFORMATION ABOUT THE ASSOCIATION TO ADVANCE COLLEGIATE SCHOOLS OF BUSINESS (<https://www.aacsb.edu/>)

Contact

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-finance-bachelor-of-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-finance-bachelor-of-science-degree/>)

Finance, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

What is Finance?

Finance focuses on how individuals and business organizations raise money and capital, and how those resources are allocated among competing investment and consumption opportunities. The field focuses on domestic and international financial economies and the role of financial markets and institutions key in the movement of savings and investment capital from lenders to borrowers. It also deals with how individuals and corporate managers evaluate alternative investment and savings opportunities and how they choose among various financial instruments.

You Might Like This Program If...

You are a business major who wants additional education in finance.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
FIN 301	Corporation Finance	3
FIN 420	Investment and Portfolio Analysis	3

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better
Select 12 credits in consultation with an adviser from ACCTG 426 or 300- or 400-level FIN courses. (At least 6 credits must be at the 400 level.)

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Career Paths

The minor in Finance can be pursued by students in most Black School of Business degree programs. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

Going beyond the required education in finance can make you a more competitive job candidate. What organization does not want to maximize its financial resources?

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN FINANCE (<https://behrend.psu.edu/school-of-business/academic-programs/finance/curriculum/finance-minor/>)

Opportunities for Graduate Studies

Adding a specialized minor such as Finance to a primary business major program demonstrates to graduate programs your commitment to interdisciplinary thinking.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-business/academic-programs/finance/curriculum/finance-minor/>)

Contact

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-finance-minor> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-finance-minor/>)

Financial Controllership, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

This certificate is designed to provide you with the skill sets to succeed in becoming a corporate accounting and financial management professional. Required coursework is aligned with topics covered by the Certified Management Accountant (CMA) examination. CMA certification demonstrates expertise in financial planning, analysis, control, decision support, and professional ethics.

What is Financial Controllorship?

The financial controller holds a leadership position within an organization. The controller's responsibilities include protecting and preserving the organization's assets; making financial reports to executive leadership, the board of directors, stockholders, and taxing bodies; and involvement in financial decision-making.

You Might Like This Program If...

You are an Accounting or Finance major who aspires to a financial leadership position.

Program Requirements

To earn an undergraduate certificate in Financial Controllership, a minimum of 15 credits is required.

Code	Title	Credits
Prescribed Courses		
ACCTG 340	Cost Accounting	3
ACCTG 422	Accounting Systems	3
ACCTG 426	Financial Statement Analysis	3
FIN 420	Investment and Portfolio Analysis	3
FIN 461	Portfolio Management and Analysis	3

Prerequisites

14 credits of prerequisites are required.

Code	Title	Credits
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
ACCTG 305 or ACCTG 371	Financial Statements and Management Decisions Intermediate Accounting I	4
ACCTG 312	Accounting Technology Lab	3
FIN 301	Corporation Finance	3

Certificate Learning Objectives

- **Critical thinking and problem solving:** Think critically, solve problems, and make decisions. Graduates are able to objectively identify and prioritize accounting problems. Graduates are able to develop alternative solutions to an accounting problem. Graduates demonstrate sufficient skills to read, reason logically, and draw relevant conclusions.
- **Technical Competency - Cost Accounting:** Graduates will demonstrate technical competency in accounting skills in Cost Accounting.
- **Technical Competency - Portfolio Management and Analysis:** Graduates will demonstrate technical competency in Portfolio Management and Analysis.

- **Technical Competency 2 - Accounting Information Systems:** Graduates will demonstrate technical competency in accounting skills in Accounting Information Systems.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

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Career Paths

The certificate in Financial Controllership can be pursued by students in most Black School of Business undergraduate degree programs. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

Course work in the certificate for Financial Controllership is aligned with topics covered by the Certified Management Accountant (CMA) examination. CMA certification demonstrates expertise in financial planning, analysis, control, decision support, and professional ethics.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A CERTIFICATE IN FINANCIAL CONTROLLERSHIP (<https://behrend.psu.edu/school-of-business/academic-programs/certificate-programs/financial-controllership/>)

Opportunities for Graduate Studies

Adding a certificate to your major degree program demonstrates to graduate school admissions committees your commitment to interdisciplinary thinking.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-business/academic-programs/certificate-programs/financial-controllership/>)

Professional Resources

- AACSB International (<https://www.aacsb.edu/>)
- Institute of Management Accountants (<https://www.imanet.org/?ssopc=1>)

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Financial Planning, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

This certificate provides an introduction to personal financial planning and includes the areas of insurance, taxes, investments, retirement planning and estate planning.

What is Financial Planning?

Financial planners are professionals who help individuals and businesses to reach their investment goals. Penn State Behrend's certificate in Financial Planning is a registered program with the Certified Financial Planner Board of Standards and fulfills the coursework requirement for the CFP Board's CFP certification program.

You Might Like This Program If...

You are an Accounting or Finance major who aspires to a financial planning career.

Program Requirements

To earn an undergraduate certificate in Financial Planning, a minimum of 18 credits is required.

Code	Title	Credits
Prescribed Courses		
ACCTG 310	Federal Taxation I	3
FIN 330	Personal Financial Planning	3
FIN 420	Investment and Portfolio Analysis	3
FIN 430	Estate Planning	3
FIN 450	Retirement Planning	3
FIN 491	Financial Planning Capstone	3

Prerequisites Required

Code	Title	Credits
FIN 301	Corporation Finance	3

Certificate Learning Objectives

- **Communication:** Students will be able to effectively communicate the financial plan, both orally and in writing, including information based

on research, peer, colleague or simulated client interaction and/or results emanating from synthesis of material.

- **Financial Plan:** Students will be able to demonstrate a comprehensive understanding of the content found within the Financial Planning curriculum and effectively apply and integrate this information in the formulation of a financial plan.
- **Strategy Development:** Students will be able to analyze personal financial situations, evaluating clients' objectives, needs, and values to develop an appropriate strategy within the financial plan.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

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World Campus

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Career Paths

The certificate in Financial Planning can be pursued by students in most Black School of Business undergraduate degree programs. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

The certificate in Financial Planning offers you a foundational education in the areas of insurance, taxes, investments, retirement planning, and estate planning. It is excellent preparation for entry-level careers in personal and corporate finance.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A CERTIFICATE IN FINANCIAL PLANNING (<https://>)

behrend.psu.edu/school-of-business/academic-programs/certificate-programs/financial-planning/

Opportunities for Graduate Studies

Adding a certificate to your major degree program demonstrates to graduate school admissions committees your commitment to interdisciplinary thinking.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-business/academic-programs/certificate-programs/financial-planning/>)

Professional Resources

- AACSB International (<https://www.aacsb.edu/>)
- Certified Financial Planner Board of Standards (<https://www.cfp.net/>)

Contact

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-financial-planning-undergraduate-certificate> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-financial-planning-undergraduate-certificate/>)

Financial Risk Management, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

This certificate program is designed to prepare students for a career in risk management; and, for those interested, to gain exposure to topic that constitute the first part of the Financial Risk Manager (FRM) exam, sponsored by the Global Association of Risk Professionals (GARP). The FRM exam is the primary industry designation with over 20,000 candidates taking the exam twice a year. Students completing the certificate are prepared to pass the first part of this two-part exam. The certificate requires a total of 21 credit hours and can be completed concurrently with a Penn State Behrend degree or via continuing education. For more information please see: <http://psbehrend.psu.edu/Academics/academic-programs/certificate-programs-1> (<http://psbehrend.psu.edu/Academics/academic-programs/certificate-programs-1/>).

What is Financial Risk Management?

Financial risk management is the practice of managing exposure to potential economic losses. Penn State Behrend's certificate in Financial Risk Management includes preparation for the first part of the Financial Risk Manager certification exam sponsored by the Global Association of Risk Professionals.

You Might Like This Program If...

You are an Accounting or Finance major who aspires to a career in financial risk management.

Program Requirements

To earn an undergraduate certificate in Financial Risk Management, a minimum of 22 credits is required.

Code	Title	Credits
Prescribed Courses		
FIN 301	Corporation Finance	3
FIN 420	Investment and Portfolio Analysis	3
FIN 427	Derivative Securities	3
FIN 461	Portfolio Management and Analysis	3
STAT 200	Elementary Statistics	4
or SCM 200	Introduction to Statistics for Business	
STAT 301		3
STAT 462	Applied Regression Analysis	3
or ECON 485	Econometric Techniques	

Prerequisites Required.

Certificate Learning Objectives

- Understand the importance of linear and multiple regression in many business applications. Coverage includes the understanding of the dependent variable in terms of actual, predicted, and average values. MS Excel is used to develop the regression model after basic understanding of the formulas is covered. Significant time is spent interpreting the significance of the global model and each independent variable. Model building is introduced.
- Have a clear understanding and appreciation of a wide variety of risk types including market (systematic) risk, security (diversifiable) risk, psychological risks for investors, and several unique risks for different securities such as fixed-income securities. This class measures risk in terms of standard deviation (and variance) and in terms of beta. The classes explore a few common risk management techniques including diversification and beta-specific strategies.
- Understand and quantify the role of risk management in two key ways. First, students will explore a variety of securities that would allow an investor or firm to hedge different risks and create value with risk management. Second, applied risk management projects ask students to identify firms that could benefit from management strategies.
- Understand the entire spectrum of derivatives including those based on fixed-income securities, interest rates, foreign exchange, and equities Master the basic techniques for the valuation of forwards, futures, swaps, and vanilla options (calls and puts).
- Understand and apply the Value-at-Risk (VaR) model and how it applies to scenarios and real market historical value.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

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Erie

Timothy Krause, Ph.D.

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Career Paths

The certificate in Financial Risk Management can be pursued by students in most Black School of Business undergraduate degree programs or as a stand-alone credential for nondegree students. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

The Global Association of Risk Professionals notes that as the financial industry becomes increasingly competitive and concerned about managing risk, it is important to distinguish yourself and your ability to add value to an organization. Earning a certificate in Financial Risk Management can do just that.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A CERTIFICATE IN FINANCIAL RISK MANAGEMENT (<https://behrend.psu.edu/school-of-business/academic-programs/certificate-programs/financial-risk-management/>)

Opportunities for Graduate Studies

Adding a certificate to your major degree program demonstrates to graduate school admissions committees your commitment to interdisciplinary thinking.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-business/academic-programs/certificate-programs/financial-risk-management/>)

Professional Resources

- AACSB International (<https://www.aacsb.edu/>)
- Global Association of Risk Professionals (<https://www.garp.org/#!/home>)

Contact

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Functional Data Analytics, B.S.

Begin Campus: Any Penn State Campus

End Campus: Erie, World Campus

Program Description

Functional Data Analytics is an interdisciplinary major that prepares students to be data professionals who are skilled communicators/project managers capable of translating the results of complex data analyses for leaders and decision-makers. Students completing this program will have excellent written, oral, and visual communication/presentation skills and will understand the appropriate application, use of analytical tools, and interpretation of results of analyses. The program begins with courses that provide students with the fundamental communication, mathematical and statistical skills needed to analyze data and communicate the results of the analysis. Three of four data analysis courses covering descriptive, diagnostic, predictive, and prescriptive analytics will be co-taught by a data analytics and an English faculty member to help students learn analytical techniques while practicing essential visualization, oral, and written communication skills. In these courses, students will use real data sets supplied by external partners including businesses or industries. In their second year, students will choose a knowledge domain (e.g., higher education administration, finance, SMART manufacturing, genomics) in which to gain a deeper understanding of domain-specific applications of data analysis. The program will culminate in a two-semester capstone course in which students apply all skills learned in their analytics and domain-specific courses to data provided by an external stakeholder (business, industry, not-for-profit organization, scientific researcher) to address a question posed by that stakeholder.

What is Functional Data Analytics?

The world runs on data, and the people who best understand it—and who can explain it—are essential to any organization. Functional Data Analysts use their deep understanding of the numbers and their communication skills—whether verbal presentations, written reports, or informative graphics—to present a clear, comprehensive story about where an organization has been, where it is now, and where it is headed in the future.

You Might Like This Program If...

- You have both an analytics side and a creative streak, and you think it would be interesting to use both.
- You enjoy looking for—and finding—patterns.
- You're curious about a variety of fields, including business, math, and communications.

Entrance To Major

Entry to the Functional Data Analytics major requires the successful completion of 4 entry-to-major courses: CMPSC 121 or CMPSC 131, DA 101, MATH 110 or MATH 140, and DS 200 or PSYCH 200 or SCM 200 or STAT 200 or STAT 250. Each course requires a C or better grade for successful completion.

Degree Requirements

For the Bachelor of Science degree in Functional Data Analytics, a minimum of 122 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	93-98

18 of the 45 credits for General Education are included in the Requirements for the Major. This includes 3 credits of GH courses; 6 credits of GQ courses; 9 credits of GWS courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned.

Requirements for the Major

Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CAS 100	Effective Speech	3
DA 101	Introduction to Data Analytics	3
DA 201W	Descriptive Analytics	4
DA 301	Diagnostic Analytics	3
DA 302W	Predictive Analytics	4
DA 401W	Prescriptive Analytics	4
DA 402	Qualitative Analytics	3
DA 475	Data Analytics Implementation Capstone I	3
DA 476	Data Analytics Implementation Capstone II	3
DIGIT 410	Data Visualization	3
DIGIT/GAME 430	Simulations of Human Behavior	3
ENGL 202C	Effective Writing: Technical Writing	3
IST 230	Language, Logic, and Discrete Mathematics	3
MGMT 409	Project Management for Engineers	3
MIS 415	Social Media Management and Analytics	3
MIS 447	Data Warehousing	3
PHIL 103	Ethics	3
STAT 184	Introduction to R	2

Additional Courses

Additional Courses: Require a grade of C or better

CMPSC 121	Introduction to Programming Techniques	3
or CMPSC 131	Programming and Computation I: Fundamentals	
DA 305	Data Ethics and Privacy	3
or DS 435	Ethical Issues in Data Science Practice	
ENGL 15	Rhetoric and Composition	3
or ENGL 30H	Honors Rhetoric and Composition	
MATH 110	Techniques of Calculus I	4
or MATH 140	Calculus With Analytic Geometry I	
MIS 336	Database Management Systems	3
or IST 210	Organization of Data	
Select 3-4 credits from the following:		3-4
DS 200	Introduction to Data Sciences	
PSYCH 200	Elementary Statistics in Psychology	
SCM 200	Introduction to Statistics for Business	
STAT 200	Elementary Statistics	
STAT 250	Introduction to Biostatistics	

Supporting Courses and Related Areas

Select one special interest concentration from the program approved list of concentrations.

Select 6 credits from any major field or course, except STAT 100, MATH 200, MATH 201, any ENGL course below ENGL 15, all KINES (GHW) courses, and any MATH course below MATH 83. Petitions for exceptions are available through the applicable program chair.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses**. This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The

advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Functional Data Analytics, B.S. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) ^{*††}	3 CAS 100 (GWS) ^{*††}	3
MATH 110 or 140 (GQ) ^{*†#†}	4 DA 101 (GQ) ^{*†#†}	3
General Education Course (GA)	3 PHIL 103 (GH) ^{*†}	3
General Education Course (GN)	3 STAT 184 [*]	2
General Education Course (GHW)	1.5 General Education Course (GN/Inter-Domain)	3
14.5		14

Second Year

Fall	Credits Spring	Credits
CMPSC 121 or 131 ^{*#}	3 DA 201W [*]	4
IST 230 [*]	3 ENGL 202C (GWS) ^{*††}	3
PSYCH 200, SCM 200, STAT 200, or STAT 250 (GQ) ^{*#}	4 MIS 336 or IST 210 [*]	3
Concentration Course 1	3 Concentration Course 2	3

General Education Course (GHW)	1.5 General Education Course (GS)	3
14.5		16
Third Year		
Fall	Credits Spring	Credits
DA 301*	3 DA 302W*	4
DA 305*	3 DA 402*	3
MGMT 409*	3 DIGIT 410*	3
MIS 447*	3 MIS 415*	3
Concentration Course 3	3 Concentration Course 4	3
15		16
Fourth Year		
Fall	Credits Spring	Credits
DA 401W*	4 DA 476* ²	3
DA 475* ¹	3 DIGIT 430*	3
Approved Elective	3 Approved Elective	3
General Education Course (GA/GH/GN/GS/Inter-Domain)	3 General Education Course (Inter-Domain)	3
General Education Course (Inter-Domain)	3 General Education Course (GA/GH/GN/GS/Inter-Domain)	3
16		15

Total Credits 121

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ Course is fall only offering

² Course is spring only offering

³ All students are required to fulfill 45 credits of General Education courses. More information about this requirement can be found on the Baccalaureate Degree General Education Requirements page in the Bulletin (p. 3184).

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

Skilled professionals who can collect and analyze data, as well as communicate their findings and anticipate future performance, are in

demand. Continued growth of "big data" and the data analytics specialty are expected for the foreseeable future in any field that uses data—in other words, in nearly every field.

Contact

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world campus

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-functional-data-analytics-bachelor-of-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-functional-data-analytics-bachelor-of-science-degree/>)

Game Development, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

Game Development is the craft of transforming a concept into an engaging interactive form. This craft is highly interdisciplinary, requiring students to answer questions about the human condition (what makes a game fun), about psychology (what makes an interface engaging), about aesthetics (what makes something pleasing), and about technical considerations (how to implement a game). Students pursuing the Game Development minor are required to explore a variety of disciplines in the breadth component. Often these classes will also be qualified as general education. Disciplinary depth in selected areas is achieved in the depth component. Finally, student teams complete a capstone design class, working in teams to complete a project from concept to implementation.

What is Game Development?

Game development is the art and science of transforming a gaming concept into an engaging interactive product. This requires interdisciplinary thinking: What makes a game fun in terms of design and gameplay perspectives? What makes a story compelling? How do you build game levels that tell stories and challenge players? How should the playable and non-playable characters look? What are the technical requirements needed to pull the story, the design, and the functional mechanics together? And how do you pitch your game like a professional would?

You Might Like This Program If...

- You're proud to call yourself a gamer.
- You can see yourself coding for Minecraft, mapping new levels for Candy Crush, or writing storylines for Call of Duty.
- You'd like to add a technical component to a liberal arts degree program.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
GAME 220	Introduction to Game Design	3
GAME 250	Technical Game Development	3
GAME 480	Game Development Project	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select one of the following:		3
3 credits of 100 or 200-level GAME courses (excluding GAME 220 and 250)		
PSYCH 244	Introduction to the Psychology of Human Factors Engineering	
Select 6 credits of 400-level GAME courses (excluding GAME 480)		6

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Career Paths

The minor in Game Development can be pursued by students in most Penn State Behrend degree programs. This interdisciplinary minor teaches game programming, design, animation, production, and quality assurance. Above all, the minor offers you coherent and clear knowledge about the video game industry. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

Interactive entertainment is a growing industry, and one that hires college graduates from nearly every academic discipline. Network engineers and marketers, software developers and psychologists, accountants and arts administrators—all can make a career within the field.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN GAME DEVELOPMENT (<https://behrend.psu.edu/school-of-engineering/academic-programs/computer-science/curriculum/game-development-minor/>)

Opportunities for Graduate Studies

The size of the interactive entertainment industry and growing adoption of virtual and augmented reality technology have created many graduate-level educational opportunities. You can further tailor your education with advanced training in such fields as the mechanics of game design, animation, motion capture, data structure, artificial intelligence, quality assurance, and game marketing.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-engineering/academic-programs/computer-science/curriculum/game-development-minor/>)

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(<https://wilkesbarre.psu.edu/academics/minors/game-development/>)

General Arts and Sciences, B.A.

Begin Campus: Any Penn State Campus

End Campus: Erie

Program Description

In this interdisciplinary major students may pursue broad interests and develop their own specialized programs when their interests are not congruent with established programs. The B.A. degree in General Arts and Sciences can be a terminal degree, or students can prepare for graduate school, professional school, or employment in business, government, or industry.

The Liberal Studies option provides the most flexible undergraduate degree program in the University except for the Bachelor of Philosophy degree. Students can use the Liberal Studies option to structure a program of study around their individual interests and career plans and can develop background in areas where Penn State Erie, The Behrend College, does not currently offer majors.

For further information and a complete list of courses, contact the head of the Division of Humanities and Social Sciences.

What is General Arts and Sciences?

General Arts and Sciences is a liberal arts degree built upon study of the humanities, social and behavioral sciences, natural sciences, mathematics, and liberal studies. It is a choose-your-own-adventure academic program with flexibility that allows students to design a major around their personal interests and career goals.

You Might Like This Program If...

- Your career goals are not met by an existing Penn State Behrend degree program.
- You want a flexible major that allows you to explore varied interests.
- You are a transfer or adult student who wants to maximize your previously earned college credits.
- You are a self-directed learner.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in General Arts and Sciences, a minimum of 124 credits is required:

Requirement	Credits
General Education	45
Electives	19
Bachelor of Arts Degree Requirements	24
Requirements for the Major	36

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned.

Requirements for the Major

Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Supporting Courses and Related Areas		
	Select 3 credits in each of the areas of arts, humanities, science/mathematics, and the social and behavioral sciences	12
Requirements for the Option		
	Select an option	24

Requirements for the Option Humanities Option (24 credits)

Code	Title	Credits
Supporting Courses and Related Areas		
	Select 24 credits (at least 15 credits at the 400 level) in humanities from those listed under humanities in the Bachelor of Arts Degree Requirement list, with at least 3 credits in each of three areas.	24

Liberal Studies Option (24 credits)

Code	Title	Credits
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Supporting Courses and Related Areas

In this option, the student shall submit a proposal to the adviser listing his/her choice of subjects beyond those required in the Supporting Courses and Related Areas category. In consultation with the adviser and the General Arts and Sciences program head, the student may choose from any B.A. course offering of the University. Option must be approved no later than the end of the sixth semester. (15 credits must be at the 400 level)	24
---	----

Science/Mathematics Option (24 credits)

Code	Title	Credits
------	-------	---------

Supporting Courses and Related Areas

Select 24 credits (at least 15 credits at the 400 level) in science/mathematics from those listed under science/mathematics in the Bachelor of Arts Degree Requirements list, with at least 3 credits in each of three areas.	24
---	----

Social and Behavioral Sciences Option (24 credits)

Code	Title	Credits
------	-------	---------

Supporting Courses and Related Areas

Select 24 credits (at least 15 at the 400 level) in the social and behavioral sciences from those listed in the Bachelor of Arts Degree Requirements list, with at least 3 credits in each of three areas.	24
--	----

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or

beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- **Capstone Project:** Students should emerge with the abilities to read with comprehension, write with clarity and correctness, listen actively to the opinions and ideas of others, articulate clearly their own ideas and opinions, evaluate evidence and logic, make moral judgments and ethical decisions, and think logically and critically.
- **Diversity, Equity and Inclusion:** Students should acquire a basic understanding of at least one diverse culture.
- **Writing Levels:** Students should also be able to use, evaluate, and integrate published scholarship into their own papers, reports, and essays.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

General Arts and Sciences, B.A. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If**

report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
First-Year Seminar	1 General Education	3
ENGL 15 or 30H ^{††}	3 General Education	3
General Education	3 General Education	3
General Education	3 General Education	3
General Education	1.5 World Language (Level Two)	4
World Language (Level One)	4	
	15.5	16

Second Year

Fall	Credits Spring	Credits
CAS 100 ^{†‡}	3 ENGL 202A, 202B, 202C, or 202D ^{*††}	3
General Education	3 World Cultures	3
General Education	3 General Education	3
General Education	3 General Education	3
World Language (Level Three)	4 General Education	3
	General Education	1.5
	16	16.5

Third Year

Fall	Credits Spring	Credits
BA Knowledge Domain	3 BA Knowledge Domain	3
BA Knowledge Domain	3 Option Requirement any level	3
General Education	3 Option Requirement 400-level	3
General Education	3 Elective	3
Optional Requirement any level	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
Option Requirement any level	3 Option Requirement 400-level*	3
Option Requirement 400-level*	3 Option Requirement 400-level*	3
Option Requirement 400-level*	3 General Education	3
Elective	3 Elective	3
Writing Across the Curriculum "W Course"	3 Elective	3
	15	15

Total Credits 124

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

¹ Arts, Humanities, or Social and Behavioral Science.

² Student need 6 credits in GA, 6 credits in GH, and 6 credits in GS

³ Quantification or Natural Science

⁴ Students need 6 credits in GQ, and 9 credits in GN, one Natural Science (GN) course must include a laboratory component.

⁵ World Language (Level One)

⁶ This Requirement is governed by a placement policy dictated by the number of levels of world language completed prior to admission to college.

⁷ BA Knowledge Domains

⁸ Students are permitted to complete all 9 credits in any one of six domains or a combination thereof, but courses may not be taken in the area of the student's primary major. The six domains are Arts (GA), Humanities (GH), Social & Behavioral Sciences (GS), Natural Sciences (GN), Quantification (GQ), and World Language if the coursework is in a second world language or beyond the 12th credit proficiency of the first world language.

⁹ Option Requirement any level.

¹⁰ GAS majors have four options to choose from: Humanities; Social and Behavioral Sciences; Sciences/Mathematics; Liberal Studies, allowing them to select 24 credits from a variety of courses to meet upper division requirements. This individual program must be approved by the faculty adviser to assure that each student's plans reflect serious thought and a coherent set of goal. See check sheet for more information about options.

¹¹ Writing Across the Curriculum "W Course"

¹² If not taken as a 400 level "W Course".

Additional Notes

GWS, GHW, GQ, GN, GA, GH, and GS are codes used to identify General Education requirements.

US, IL, and US;IL are codes used to designate courses that satisfy University United States/International Cultures requirements.

Both US (United States Cultures) and IL (International Cultures) must be completed within the degree requirements.

Program Notes: Students can double count US & IL requirements for general education courses but not for the World Cultures requirement.

Academic Advising Notes: The course series listed about is only one of many possible ways to move through this curriculum. The number of electives required varies per students. Please be sure to consult with an adviser about your intended plan.

Career Paths

General Arts and Sciences graduates follow diverse career paths, paths as varied as the majors they designed. Some have moved directly into the professional world, while others have pursued graduate education. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

General Arts and Sciences graduates are self-starters who can show employers that they not only possess the skill sets of other liberal arts students, such as critical reading and communication, but also demonstrate a record of taking the initiative to design their own curriculum. Because of the major's flexibility, General Arts and Sciences graduates can work with potential employers to tailor their coursework to the employers' changing needs. This gives them a competitive advantage when applying for jobs.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE GENERAL ARTS AND SCIENCES PROGRAM (<https://behrend.psu.edu/school-of-humanities-social-sciences/academic-programs/general-arts-sciences/>)

Opportunities for Graduate Studies

A B.A. in General Arts and Sciences is a broad degree, making it the perfect starting point for most post-baccalaureate programs. Your options are limited only by your imagination!

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-humanities-social-sciences/academic-programs/general-arts-sciences/>)

Contact

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<https://behrend.psu.edu/school-of-humanities-social-sciences> (<https://behrend.psu.edu/school-of-humanities-social-sciences/>)

General Business, A.S.

Begin Campus: Erie

End Campus: Erie

Program Description

The associate degree major in General Business offers an introduction to several aspects of business. In addition, it provides a foundation that allows those students who qualify for admission to baccalaureate degree programs in business to make a smooth transition into four-year business majors offered at Penn State Erie, The Behrend College. The business coursework required by the major introduces students to basics of accounting, economics, management information systems, quantitative business analysis, business law, the social and ethical environment of business, finance, management, marketing, and supply chain management. To complete the major, students have the option of earning a certificate in Oracle or SAP, Enterprise Resource Planning (ERP) or Financial Planning. The general education and other requirements of the major provide an opportunity for students to strengthen their skills in oral and written communication and quantitative reasoning which are essential for success in business careers.

What is General Business?

To be successful in any business enterprise, you need foundational education in accounting, economics, management information systems, business analysis, and the legal, ethical, and political environments in which businesses operate. The A.S. in General Business offers you that education.

You Might Like This Program If...

- You want a university credential but aren't ready to commit to four years of higher education.
- You are looking for a two-year associate degree program.
- You might want to apply the credits earned in the A.S. to a Penn State Behrend bachelor's degree at some point in the future.

Entrance to Major

Students must have a minimum 2.0 GPA to change to this Associate degree after admission to the University.

Degree Requirements

For the Associate in Science degree in General Business, a minimum of 61 credits is required:

Requirement	Credits
General Education	21
Electives	0-1
Requirements for the Major	51-52

12 of the 21 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GWS courses; 3 credits of GQ courses; 3 credits of GS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
CAS 100	Effective Speech	3

ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
ENGL 15	Rhetoric and Composition	3
ENGL 202D	Effective Writing: Business Writing	3

Prescribed Courses: Require a grade of C or better

ACCTG 211	Financial and Managerial Accounting for Decision Making	4
FIN 301	Corporation Finance	3
MGMT 301	Basic Management Concepts	3
MIS 204	Introduction to Management Information Systems	3
MKTG 301	Principles of Marketing	3
SCM 301	Supply Chain Management	3

Additional Courses

BA 241	Legal Environment of Business	4
& BA 242	and Social and Ethical Environment of Business	
or BA 243	Social, Legal, and Ethical Environment of Business	
SCM 200	Introduction to Statistics for Business	4
or STAT 200	Elementary Statistics	

Select one of the following: 3-4

MATH 21	College Algebra with Analytic Geometry with Applications I	
MATH 22	College Algebra With Analytic Geometry and Applications II	
MATH 110	Techniques of Calculus I	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 6 credits from one of the following supporting course areas: 6

General Education (does not require a grade of C or better)	
Financial Planning	
Oracle Business Suite Certificate	
SAP Certificate	
Other 300- or 400-level business courses in consultation with a faculty adviser	

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all associate degree students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- Quantification (GQ): 3 credits
- Writing and Speaking (GWS): 3 credits

Knowledge Domains

- **Arts (GA):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Note: Up to six credits of Inter-Domain courses may be used for any Knowledge Domain requirement, but when a course may be used to satisfy more than one requirement, the credits from the course can be counted only once.

Exploration

- **Any General Education course (including GHW and Inter-Domain):** 3 credits

University Degree Requirements

Cultures Requirement

3 credits of United States (US) or International (IL) cultures coursework are required and may satisfy other requirements

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 60 degree credits must be earned for a associates degree. The requirements for some programs may exceed 60 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- Students will demonstrate the following quantitative business analysis skills:
 - Apply the basic rules of probability to assess likelihood within a population
 - Identify and apply appropriate probability distribution concepts to analyze data
 - Demonstrate an understanding of correlation and regression analysis
- Students will apply concepts associated with free market operations:
 - Calculate the NPV for three scenarios:
 - base case,
 - best case,
 - and worst case

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their

intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

General Business, A.S. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H ^{††}	3 ACCTG 211 [*]	4
MATH 21, 22, or 110 ^{††}	3-4 CAS 100A, 100B, or 100C [‡]	3
MIS 204 [*]	3 ECON 102 ^{*†}	3
General Education Course (GA) (US or IL) [†]	3 SCM 200 or STAT 200 ^{*†}	4
General Education Course (GH)(US or IL) [†]	3	
PSU 7	1	
	16-17	14

Second Year

Fall	Credits Spring	Credits
ECON 104 ^{*†}	3 BA 241 & BA 242	4
FIN 301 [*]	3 ENGL 202D ^{††}	3
SCM 301 [*]	3 MKTG 301 or MGMT 301 [*]	3
MGMT 301W or MKTG 301W [*]	3 General Education or Supporting Business Course ^{1,2}	3

General Education Course (GN) [†]	3 General Education or Supporting Business Course ^{1,2}	3
15		16

Total Credits 61-62

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ Please see your academic adviser for approval before scheduling this course.

² In order for a course to be eligible for an Approved Elective, the course can not be a lower level ENGL (1-6) or MATH (2-41) OR a GHW designated course. Please see your academic adviser if you have a question on a specific course

Career Paths

An associate degree in General Business might give you the career boost you need. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

General Business is a managerially-oriented program that prepares graduates for careers in all sectors of the economy, including corporate, nonprofit, and government organizations.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE GENERAL BUSINESS PROGRAM (<https://behrend.psu.edu/school-of-business/academic-programs/general-business/>)

Opportunities for Graduate Studies

Admission to a graduate program generally requires completion of a four-year bachelor's degree. Credits earned in the A.S. in General Business program can be applied to many of Penn State Behrend's baccalaureate degree programs.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-business/academic-programs/general-business/>)

Professional Resources

- AACSB International (<https://www.aacsb.edu/>)

Accreditation

The Black School of Business is accredited by AACSB International—The Association to Advance Collegiate Schools of Business. As the world's largest business education alliance, AACSB connects educators, students, and business to achieve a common goal: to create the next generation of great leaders. Synonymous with the highest standards of excellence since 1916, AACSB provides quality assurance, business education intelligence, and professional development services to over 1,500 member organizations and more than 785 accredited business schools worldwide. AACSB's mission is to foster engagement, accelerate innovation, and amplify impact in business education.

MORE INFORMATION ABOUT THE ASSOCIATION TO ADVANCE COLLEGIATE SCHOOLS OF BUSINESS (<http://www.aacsb.edu/>)

Contact

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<https://behrend.psu.edu/school-of-business> (<https://behrend.psu.edu/school-of-business/>)

German Studies, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

The German Studies certificate offered at Penn State Behrend is designed for students who wish to specialize in interdisciplinary German Studies by acquiring advanced German language skills and taking courses in culture, film, history, literature, music, or politics of the German-speaking countries. In-depth knowledge of the German-speaking countries prepares students for a global workforce and careers in international business, engineering, finance, politics, or the sciences.

What is German Studies?

German Studies is an interdisciplinary academic sub-field of the Humanities concerned with the languages, literatures, arts, and politics of German-speaking communities in Europe and across the world (e.g., Pennsylvania Germans). In pursuing each of these areas German Studies intersects with the related fields of linguistics, literary studies, visual studies, and history, respectively.

You Might Like This Program If...

- You're interested in German language, culture, and history.
- You envision working in a German-speaking country or for a German company within the United States.
- You wish to study abroad.
- You plan to apply for fellowships or internships in Germany or Austria.

- You are an engineering student who wants to take advantage of Behrend's relationship with Rosenheim University of Applied Sciences in Rosenheim, Germany.
- You recognize that speaking a second (or third!) language doubles (or triples!) your career options.

Entrance to Certificate

Students who have not reached the third level of German Language proficiency may need to take GER 1 and GER 2 first.

Program Requirements

To earn an undergraduate certificate in German Studies, a minimum of 16-17 credits is required.

Students must have a C or better in each certificate course.

Code	Title	Credits
Required Language Courses		
<i>Required Language Courses: Require a grade of C or better</i>		
GER 3	Intermediate German	4
GER 201 or GER 301	Conversation and Composition Intermediate Speaking and Listening	3-4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select nine credit hours from a program approved list:		9
GER 100	German Culture and Civilization	
GER 189N	German Film	
GER 190	Twentieth-Century German Literature in English Translation	
GER 200N	Contemporary German Culture	
HIST 121	History of the Holocaust 1933-1945	
HIST 143N	History of Fascism and Nazism	
HIST 144	The World at War: 1939-1945	
HIST 427	Germany Since 1860	
MUSIC 5	An Introduction to Western Music	
PLSC 200N	Government and Politics of Europe	

Certificate Learning Objectives

- **Proficiency:** Students will demonstrate intermediate-level proficiency in speaking, reading, writing, and understanding German.
- **Culture:** Students will critically analyze contemporary issues using cultural and historical knowledge of the German speaking world gained through German history, film, literature, music, and politics.
- **Diversity:** Students will be able to compare and contrast the cultures of the German speaking countries and the student's native culture.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The

advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

Eva Kuttenberg, Ph.D.

Associate Professor of German

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Career Paths

The certificate in German Studies can be pursued by students in most Penn State Behrend degree programs. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

Immersive education in German language and culture is a competitive advantage in many professions. Adding a certificate in German Studies to your Penn State Behrend major degree program permits sub-specialization and increases the number of internship and career opportunities available to you.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A CERTIFICATE IN GERMAN STUDIES (<https://behrend.psu.edu/school-of-humanities-social-sciences/academic-programs-1/certificate-programs/german-studies-certificate/>)

Opportunities for Graduate Studies

Graduate study in German opens doors to more specialized careers. These might include translation, technical translation, German language education, English-language learning education, applied linguistics, and diplomacy.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-humanities-social-sciences/academic-programs-1/certificate-programs/german-studies-certificate/>)

Professional Resources

- American Association of Teachers of German (<https://www.aatg.org>)
- Austrian Studies Association (<https://www.austrian-studies.org/>)
- German Studies Association (<https://www.thegsa.org/>)
- German Missions in the United States (<https://www.germany.info/us-en/>)
- Goethe Institutes (<https://www.goethe.de/de/>)
- Cultural Vistas Program (<https://culturalvistas.org/>)
- DAAD Rise Fellowships (<https://www.daad.de/rise/de/>)
- USTA Austria Program (<https://www.usta-austria.at/>)

Contact

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Global Awareness, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

The certificate gives students an appreciation of the world in which they will live and work. By introducing students first to the broad contours of the globalizing world and then adding more narrowly focused courses, the certificate will give students a sense of the diversity and complexity of the modern world.

What is Global Awareness?

No one can become an expert on the nearly 200 countries in the world. However, it is possible—essential, really—to gain an appreciation of the huge diversity and sweep of countries, cultures, and languages on our tiny planet. While you can't learn it all, you can gain an understanding of how the U.S. fits into the jigsaw puzzle that is the modern world.

You Might Like This Program If...

- You are curious about other countries and other cultures.
- You envision working outside the United States.
- You'd like to add liberal arts balance to a business or technical major.

Program Requirements

To earn an undergraduate certificate in Global Awareness, a minimum of 12 credits is required.

All 12 credits must be taken at Penn State; a C or higher is required in each course. Students taking a language can only apply the third level of proficiency when fulfilling the requirement. The third level of proficiency must be demonstrated through class work rather than by testing out of the class. In addition to the six required credits, students must complete six credits that focus on matters outside the United States.

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
HIST 11	World History since 1500	3
PLSC 14	International Relations	3
or PLSC 3	Comparing Politics around the Globe	

No Prerequisites Required.

Certificate Learning Objectives

- List and describe the major inflection points in world history, ~ 1750-present.
- Describe the diversity and complexity of the post-1945 world.
- Recognize linguistic and cultural differences among countries.

- Describe the central role of international organizations, e.g., WTO and European Union, in the modern world.
- Describe the changing role of the U.S. in the "new world order."

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

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Career Paths

The certificate in Global Awareness can be pursued by students in most Penn State Behrend degree programs. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

Given our increasingly globalizing world, the certificate in Global Awareness is desirable, if not essential, for any career path. Cultural competency—the ability to communicate effectively and appropriately with people of other cultures—is highly valued in most organizations.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A CERTIFICATE IN GLOBAL AWARENESS (<https://behrend.psu.edu/school-of-humanities-social-sciences/academic-programs-1/certificate-programs/global-awareness-certificate/>)

Opportunities for Graduate Studies

A certificate in the liberal arts, particularly when added to a major program outside of the liberal arts, demonstrates to graduate school admissions committees your commitment to interdisciplinary thinking.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-humanities-social-sciences/academic-programs-1/certificate-programs/global-awareness-certificate/>)

Contact

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History, B.A. (Behrend)

Begin Campus: Any Penn State Campus

End Campus: Erie

Program Description

The B.A. degree program in History focuses on the study of the evolution of American and European institutions. This program enables students to pursue history in the traditional mode as a study of written records.

What is History?

History is an interdisciplinary field that offers a unique analytical perspective on the world. To understand history, we not only need to understand politics and war, but also the significance of cultural, religious, social, and intellectual developments. The study of history provides a breadth of knowledge and an understanding of diverse perspectives. This diversity includes the opportunity to incorporate anthropology, the scientific study of humanity, into their coursework. A history major will not only enable a student to have a better comprehension of the development of today's complex world, but will also help a student develop a range of skills that are applicable in a wide variety of careers, including education, law, museum studies, and business.

You Might Like This Program If...

- You are looking for a degree program where you can develop highly marketable research, writing, and communication skills.
- You want your degree to satisfy your love of history and anthropology and expand your awareness of global cultures.
- You are eager to improve your historical knowledge to help you better understand the development and significance of current events.
- You are looking for a major that pairs well with a diverse array or even double majors.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

- attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
- have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in History, a minimum of 124 credits is required:

Requirement	Credits
General Education	45
Electives	19
Bachelor of Arts Degree Requirements	24
Requirements for the Major	39

3 of the 45 credits for General Education are included in the Requirements for the Major. This includes 3 credits of General Education GWS courses.

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned.

Requirements for the Major

Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Additional Courses		
ENGL 202A	Effective Writing: Writing in the Social Sciences	3
or ENGL 202B	Effective Writing: Writing in the Humanities	
HIST 1	Western Civilization I	3
or HIST 10	World History to 1500	
Select three of the following:		9
HIST 1	Western Civilization I	
HIST 2	Western Civilization II	
HIST 10	World History to 1500	
HIST 11	World History since 1500	
HIST 20	American Civilization to 1877	
HIST 21	American Civilization Since 1877	
<i>Additional Courses: Require a grade of C or better</i>		
HIST 301W	Scope and Methods of History	3
or HIST 302W	Undergraduate Seminar	
Select 12 credits of the following:		12
HIST at the 400-level		
ANTH 420		
ANTH 492	Intermediate Field Methods	

Supporting Courses and Related Areas

Select 3 credits in each of the area categories: United States, Europe, and World from school-approved list

9

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- **Master historical thinking:** To master historical thinking, students must be able to recount and explain the course of events and the relationships between the forces that influenced the ways events unfolded. They need to be able to present events in chronological order, demonstrate a basic understanding of cause and effect among the events they are assessing, and explain the historical significance of their research topic.
- **Master historical and historiographic analysis:** To master historical and historiographic analysis, students must be able to analyze multiple sources for an historical event or issue for their differing perspectives, to assess why they agree or disagree, and to explain how the differing perspectives can inform our understanding of the event and the study of history. The skills required to master historical and historiographic analysis include the development of critical reading skills, the ability to discern bias or prejudice, the ability to evaluate contradictory data and claims, and the ability to effectively utilize quotes.

- **Demonstrate historical research capabilities built upon the analysis of primary and secondary sources:** To master the use of sources in historical research, students must first be able to locate relevant historical records from the time period being studied (primary sources) as well as scholarly research that analyzes and interprets those primary sources and/or the historical topic being studied, and to apply both categories of sources in their papers. While both primary and secondary sources must be utilized, students are expected to base their own analysis and interpretation on the content of the primary sources.
- **Demonstrative skills in effective written communication:** To master written communication, students must be able to express their findings in a clear and articulate manner. They are expected to construct a thesis statement and then advance their thesis through a series of well-developed paragraphs and examples. They should connect each section of their paper with appropriate transitions, while avoiding grammatical errors that detract from their argument. Finally, they need to complete their paper with a short, crisp conclusion.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

History, B.A. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If**

report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
First Year Seminar	1 CAS 100 ^{††}	3
ENGL 15 ^{††}	3 HIST 10, 2, or 21	3
HIST 11, 1, or 20	3 World Language Level Two	4
World Language Level One	4 General Education	3
General Education	3 General Education	3
General Education	1.5	
	15.5	16

Second Year

Fall	Credits Spring	Credits
European History Course	3 ENGL 202A or 202B ^{††}	3
HIST 20, 1, or 11	3 HIST 21, 2, or 10	3
World Language Level Three	4 Non-Western History or Anthropology Course	3
General Education	3 General Education	3
General Education	3 General Education	3
	16	15

Third Year

Fall	Credits Spring	Credits
HIST 301W [*]	3 400-level HIST course [*]	3
American History Course	3 400-level HIST or ANTH course [*]	3
General Education	3 General Education	3
General Education	3-4 General Education	3
Electives	3 Elective	3
	General Education	1.5
	15-16	16.5

Fourth Year

Fall	Credits Spring	Credits
400-level HIST or ANTH course [*]	3 400-level HIST or ANTH course	3
BA Knowledge Domain	3 BA Knowledge Domain	3
BA Knowledge Domain	3 Elective	3
World Cultures	3 Elective	3
Elective	3 Elective	3
	15	15

Total Credits 124-125

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

¹ World Language Level One

² This requirement is governed by a placement dictated by the number of levels of world language completed prior to admission to college.

³ European History Course

⁴ For European, Non-Western and American History Courses see program-approved lists.

⁵ BA Knowledge Domain

⁶ Students are permitted to complete all 9 credits in any one of six domains or a combination thereof, but courses may not be taken in the area of the student's primary major. The six domains are Arts (GA), Humanities (GH), Social & Behavioral Sciences (GS), Natural Sciences (GN), Quantification (GQ) and World Language if the coursework is in a second world language or beyond the 12th credit proficiency of the first world language. Student's primary major.

Additional Notes

Academic Advising Notes: The course series listed above is only one of many possible ways to move through this curriculum. The number of electives required varies per student. Please be sure to consult with an adviser about your intended plan.

Career Paths

Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often, talk with your history professors, and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

History is the foundation for many interesting career paths. Recent Penn State Behrend History graduates are employed in education, law, state and local government, parks management, law enforcement, library and museum management, business, industry, ministry, the military, and information technology—a diverse and exciting set of occupations.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE HISTORY PROGRAM (<https://behrend.psu.edu/school-of-humanities-social-sciences/academic-programs/history/>)

Opportunities for Graduate Studies

Recent Penn State Behrend History graduates have pursued advanced education in history, law, secondary education, and library studies. The universities they've attended include University of Delaware, University of Minnesota, University of Virginia, University of Wisconsin, West Virginia University, University of Pennsylvania, Ohio State University, Marquette University, Michigan State University, Mercyhurst University, Duquesne University, SUNY Buffalo, University College London, and Scotland's University of Edinburgh.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-humanities-social-sciences/academic-programs/history/>)

Professional Resources

- American Historical Association (<https://www.historians.org/>)
- National Council on Public History (<https://ncph.org/>)
- Organization of American Historians (<https://www.oah.org/>)
- Center for History and New Media (<https://rrchnm.org/>)

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History, Minor (Behrend)

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

What is History?

History is an interdisciplinary field that offers a unique analytical perspective on the world. To understand history, we not only need to understand politics and war, but also the significance of cultural, religious, social, and intellectual developments. The study of history provides a breadth of knowledge and an understanding of diverse perspectives. This diversity includes the opportunity to incorporate anthropology, the scientific study of humanity, into their coursework. A history major will not only enable a student to have a better comprehension of the development of today's complex world, but will also help a student develop a range of skills that are applicable in a wide variety of careers, including education, law, museum studies, and business.

You Might Like This Program If...

- You want your college experience to satisfy your love of history and the humanities while preparing you for your future endeavors.

- You are eager to improve your knowledge of the historical background that will help you to better understand current events.
- You are fascinated by the people and events in Western and non-Western history.
- You dig archaeology and anthropology.
- You'd like to add liberal arts balance to a business or technical degree program.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 12 credits of HIST or HSTRY courses		12
Select 6 credits of 400-level HIST or HSTRY courses		6

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Career Paths

The minor in History can be pursued by students in most Penn State Behrend degree programs. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often, talk with your history professors, and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

The History minor is designed so that you can study in depth the topics, geographical areas, and time periods that interest you most. This allows you to integrate the minor with your major degree program, tailoring it to the career path of your choosing.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN HISTORY (<https://behrend.psu.edu/school-of-humanities-social-sciences/academic-programs-1/minors/history-minor/>)

Opportunities for Graduate Studies

A minor in the liberal arts, particularly when added to a major program outside of the liberal arts, demonstrates to graduate school admissions committees your commitment to interdisciplinary thinking.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-humanities-social-sciences/academic-programs-1/minors/history-minor/>)

Contact

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<https://behrend.psu.edu/school-of-humanities-social-sciences> (<https://behrend.psu.edu/school-of-humanities-social-sciences/>)

Human Factors, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

This 15 credit interdisciplinary certificate program is designed to prepare students with in-depth knowledge of the capabilities and limitations of people and the application of psychological concepts to the design and safety of products and services; including consumer goods, military products, interactive websites and games, and assistive technologies. This certificate requires that students take introductory psychology as well as the two human factors courses (9 credits). Students will also need to take one additional psychology course (3 credits), and one course (3 credits) outside of their major of study in order to foster the interdisciplinary nature of this certificate.

What are Human Factors?

Can we make car crashes less likely by redesigning the dashboard or changing the pedal location? That's a typical question in human factors psychology. By using knowledge of humans' physical and cognitive abilities and limitations, human factors psychologists work to improve organizations, jobs, machines, tools, and consumer products for safe, efficient, and comfortable human use. Human factors draws on many academic disciplines, including psychology, engineering, biomechanics, computer science, and industrial design.

You Might Like This Program If...

- You think about the ways that everyday objects could be improved.
- You are interested in people, technology, and machines.
- You like watching people.
- You enjoy the challenge of learning new technologies.
- You want to make the workplace safer.
- You are majoring in psychology or an engineering discipline.

Entrance to Certificate

Completion of prerequisites for the required courses

Program Requirements

To earn an undergraduate certificate in Human Factors, a minimum of 15 credits is required.

Code	Title	Credits
Prescribed Courses		
PSYCH 100	Introductory Psychology	3
PSYCH 244	Introduction to the Psychology of Human Factors Engineering	3
PSYCH 444	Engineering Psychology	3
Additional Courses		
PSYCH 253	Introduction to Psychology of Perception	3
or PSYCH 256	Introduction to Cognitive Psychology	
Select one of the following: ¹		3
EDSGN 100	Cornerstone Engineering Design	
PSYCH 221	Introduction to Social Psychology	
SOC 5	Social Problems	
STS 200	Critical Issues in Science, Technology, and Society	
STS/PHIL 233	Ethics and the Design of Technology	

¹ This course must be outside the student's major field of study.

Certificate Learning Objectives

- **Personal and Societal Problems:** Describe how psychological science can be applied to personal and societal problems.
- **Human-Machine Relationship:** Identify how psychology theory and research in cognitive, sensation & perception, social, motivation & emotion, and experimental psychology can be used to understand the human-machine relationship.
- **Interactions Between Technology and Society:** Appraise the interactions between technology and society.
- **Design of Products:** Apply human factors psychology theories and research to the design of products.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the

habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

Lisa Jo Elliott, Ph.D.

Assistant Teaching Professor, Psychology

101 Turnbull

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lje12@psu.edu

Career Paths

The certificate in Human Factors can be pursued by students in most Penn State Behrend degree programs. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

Psychologists and engineers with human factors expertise work in every organization where design, safety, and reliability are important issues. They improve the comfort, function, and convenience of consumer products. They design work tools and work spaces to optimize flow, productivity, and employee safety. They improve the user experience in everything from health care and transportation to interactive gaming and military supply.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A CERTIFICATE IN HUMAN FACTORS (<https://behrend.psu.edu/school-of-humanities-social-sciences/academic-programs-1/certificate-programs/human-factors-certificate/>)

Opportunities for Graduate Studies

A graduate program in human factors offers you the opportunity to specialize in a field such as cognitive engineering, human-machine design systems, motor learning, the psychology of human-technology interaction, applied cognition, and applied research.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-humanities-social-sciences/academic-programs-1/certificate-programs/human-factors-certificate/>)

Professional Resources

- Human Factors and Ergonomics Society (<https://www.hfes.org/>)
- American Psychological Association Division 21 Applied Experimental and Engineering Psychology (<https://www.apa.org/about/division/div21/>)
- Association for Computing Machinery SIGCHI (<https://sigchi.org/>)
- User Experience Professionals Association (<https://uxpa.org/>)

Contact

Erie

SCHOOL OF HUMANITIES AND SOCIAL SCIENCES

170 Irvin Kochel Center

Erie, PA 16563
814-898-6108
HSSOffice@psu.edu

<https://behrend.psu.edu/school-of-humanities-social-sciences> (<https://behrend.psu.edu/school-of-humanities-social-sciences/>)

Industrial Engineering, B.S. (Behrend)

Begin Campus: Any Penn State Campus

End Campus: Erie

Program Description

The undergraduate program in industrial engineering, being the first established in the world, has a long tradition of providing a strong, technical, hands-on education in design, control, and operation of manufacturing processes and systems. The curriculum provides a broad-based education in manufacturing, operations research and ergonomics through a base of mathematics, physical and engineering sciences, and laboratory and industrial experiences. It builds a strong foundation for the development of a professionally competent and versatile industrial engineer, able to function in a traditional manufacturing environment as well as in a much broader economy, including careers in financial services, communication, information technology, transportation, health care, consulting, or academia.

After completing courses required for the core and fundamental competencies in the major, students can choose two IE technical elective courses from a department list. In addition, students must also complete the three-credit capstone design course.

What is Industrial Engineering?

Industrial Engineering is rooted in the sciences of engineering, the study of systems, and the management of people. Industrial engineers are big-picture problem solvers who optimize complex engineering systems and processes. They bring together people, machinery, materials, information, energy, and financial resources to improve efficiency, performance, quality, and safety while reducing cost and waste. According to the Institute of Industrial & Systems Engineers, Industrial Engineers "work to eliminate waste of time, money, materials, energy, and other commodities." Because it is a broad and versatile discipline, study of industrial engineering prepares you for careers in every sector of the economy.

You Might Like This Program If...

Largely based in math and science, while incorporating business and psychology, the industrial engineering program is designed to prepare students to become leaders in engineering. We provide students with a comprehensive education in human factors/ergonomics; manufacturing; operations research; and supply chain/service engineering through coursework and hands-on experience. Our students become innovators who discover new solutions that address evolving challenges in a wide variety of sectors including academia, banking, communications, consulting, healthcare, information technology, transportation, etc.

Entrance to Major

In order to be eligible for entrance to this major, students must satisfy the following requirements by the end of the semester during which the admission to major process is carried out.

- Completed 29-55 cumulative credits (credits completed at Penn State for which a quality letter grade was earned)
- Completed with a C or better the following courses: EDSGN 100, CHEM 110, MATH 140, MATH 141, and PHYS 211
- Attained at least a 2.6 cumulative grade point average

* In the event that the major is under enrollment control, a higher minimum cumulative grade-point average is likely to be needed and students must be enrolled in the College of Engineering or Division of Undergraduate Studies at the time of confirming their major choice.

Degree Requirements

For the Bachelor of Science degree in Industrial Engineering, a minimum of 129 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	111

27 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 9 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
CHEM 111	Experimental Chemistry I	1
IE 425	Stochastic Models in Operations Research	3
IE 453	Simulation Modeling for Decision Support	3
IE 460	Service Systems Engineering	3
IE 470	Manufacturing System Design and Analysis	3
IE 480W	Capstone Design Project	3
MATH 220	Matrices	2
MATH 231	Calculus of Several Variables	2
MATH 250	Ordinary Differential Equations	3
MATSE 259	Properties and Processing of Engineering Materials	3
PHYS 212	General Physics: Electricity and Magnetism	4
<i>Prescribed Courses: Require a grade of C or better</i>		
CHEM 110	Chemical Principles I	3
EDSGN 100	Cornerstone Engineering Design	3
EMCH 210	Statics and Strength of Materials	5
ENGL 202C	Effective Writing: Technical Writing	3
IE 302	Engineering Economy	3
IE 305	Product Design, Specification and Measurement	3

IE 322	Probabilistic Models in Industrial Engineering	3
IE 323	Statistical Methods in Industrial Engineering	3
IE 327	Introduction to Work Design	3
IE 330	Engineering Analytics	3
IE 405	Deterministic Models in Operations Research	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
PHYS 211	General Physics: Mechanics	4
Additional Courses		
Select 1 credit of First-Year Seminar		1
CMPSC 200	Programming for Engineers with MATLAB	3
or CMPSC 201 Programming for Engineers with C++		
ECON 102	Introductory Microeconomic Analysis and Policy	3
or ECON 104 Introductory Macroeconomic Analysis and Policy		
Select one of the following: ¹		3
IE 408	Cognitive Work Design	
IE 418	Human/Computer Interface Design	
IE 419	Work Design - Productivity and Safety	
<i>Additional Courses: Require a grade of C or better</i>		
CAS 100A	Effective Speech	3
or CAS 100B Effective Speech		
ENGL 15	Rhetoric and Composition	3
or ENGL 30H Honors Rhetoric and Composition		
Supporting Courses and Related Areas		
Select 3 credits as a science selection from department list		3
Select 6 credits as non-major electives from department list ²		6
Select 3 credits in manufacturing processes from department list ¹		3
Select 6 credits of technical electives from the department list; all 6 credits must be IE credits		6

¹ The course not taken to satisfy this requirement can be taken as a technical elective. Please see the department list.

² Please see the department list.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Educational Objectives

We expect our graduates to:

1. Participate in and lead cross-functional teams, designing, implementing and improving processes and systems in the manufacturing, service, or government sectors;
2. Work effectively in managerial and leadership positions;
3. Work and communicate effectively with internal and external team members in the global environment; and
4. Engage in continuous learning through varied work assignments, graduate school, professional training programs, and independent study.

Program Outcomes

The following outcomes are included in the courses taught in the program:

1. **Management and Information Systems for Industrial Engineering:** apply time value of money to make financial decisions and understand cost-accounting principles; understand probability concepts applicable to solve engineering problems; including reliability issues; conduct tests of hypotheses, create regression models and understand and apply statistical quality control methods such as process capability and control charts; formulate, solve and analyze real problems using Markov chains, network models, dynamic programming, queuing theory and inventory models; create simulation models of manufacturing and service systems and analyze simulation output; and gain an in-depth knowledge of implementation-related issues and theoretical aspects of database and Web-based operations related to industrial engineering.
2. **Manufacturing Engineering:** understand information contained in typical specifications and methods of product verification and conformance to specifications; and program flexible manufacturing equipment and system controllers; design logical manufacturing layouts and implement contemporary systems issues.
3. **Human Factors:** analyze and design both the job and the work site in a cost-effective manner, as well as measure the resulting output; understand and apply cognitive systems engineering: identify visual, auditory, cognitive, perceptual and environmental aspects of human performance, perform task analysis and evaluate human-computer interfaces; and perform work measurement, develop an MTM analysis and carry out a work sampling study.
4. **General:** present engineering study results in technical reports and in oral presentations, demonstrate life-long learning by synthesizing information from several sources, work effectively in groups on case studies and projects, demonstrate knowledge of contemporary issues, understand professional and ethical responsibility and the impact of engineering decisions in a global and societal context; and design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Industrial Engineering, B.S. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CHEM 110 ^{*#†}	3 CMPSC 200 [†]	3
CHEM 111 [†]	1 ECON 102 or 104 [†]	3
EDSGN 100S ^{*#}	3 MATH 141 ^{*†#†}	4
ENGL 15 ^{††}	3 PHYS 211 ^{*#†}	4
MATH 140 ^{*†#†}	4 General Education Course	3
General Education Course	3	
	17	17

Second Year

Fall	Credits Spring	Credits
CAS 100A or 100B ^{††}	3 EMCH 213 [*]	3
EMCH 211 [*]	3 MATH 250	3
MATH 220 [†]	2 Engineering Elective ³	3
MATH 231	2 Engineering Elective ³	3
PHYS 212 [†]	4 Science Elective ³	3

General Education Course	3	
	17	15
Third Year		
Fall	Credits Spring	Credits
IE 302*	3 ENGL 202C ^{††}	3
IE 305* ¹	3 IE 311 or 307 ²	3
IE 322	3 IE 323* ²	3
IE 327* ²	3 IE 330* ²	3
IE 405*	3 MATSE 259	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
	16.5	16.5
Fourth Year		
Fall	Credits Spring	Credits
IE 418 ¹	3 IE 453 ²	3
IE 425 ¹	3 IE 460 ²	3
IE 470 ¹	3 IE 480W ²	3
Specialization Course* ^{1,5}	1 IE Technical Elective ⁴	3
IE Technical Elective ⁴	3 General Education Course	3
General Education Course	3	
	16	15

Total Credits 130

- * Course requires a grade of C or better for the major
 ‡ Course requires a grade of C or better for General Education
 # Course is an Entrance to Major requirement
 † Course satisfies General Education and degree requirement

- ¹ This course is only offered in the **FALL SEMESTER**
² This course is only offered in the **SPRING SEMESTER**
³ Ask department for list
⁴ Must be an IE course
⁵ Students should take IE 497 (**FALL SEMESTER ONLY**)

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Note:

- Only students who have gone through the entrance to major (ETM) process and have been accepted into this major may register for junior and senior-level IE courses.

Career Paths

An undergraduate degree in industrial engineering from Penn State is beneficial in a number of sectors, from finance and banking to manufacturing and material handling to ergonomics and workplace safety to a wide variety of industries within the service world (including theme parks, call centers, hospitals, etc.). Industrial engineers also have an attractive background to a number of graduate degrees that would compliment their skills including engineering design, operations research, mechanical engineering, supply chain management, business management, and more.

Careers

- Human Factors/Ergonomics: Business intelligence team leader, cognitive engineer, ergonomics assessment specialist, ergonomics expert, design engineer, systems engineer, usability expert, user experience engineer.
- Manufacturing: Manufacturing operations manager, production engineer, process control analyst, quality engineering manager, lean Six Sigma manager, product design/specification specialist, cost analysis manager, supply chain manager.
- Operations Research: Operations research engineer, applied research manager, performance engineer, process improvement engineer, global business intelligence and analytics director, operations engineer, statistician.
- Production, Supply Chain, and Service: Enterprise Engineering Analytics manager, global statistics manager, quality assurance director, strategic sourcing manager, operations engineer, new product engineer, process engineer, e-commerce manager, material scientists, service business development manager, Six Sigma analyst.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE INDUSTRIAL ENGINEERING PROGRAM (<https://career.engr.psu.edu>)

Opportunities for Graduate Studies

Opportunities for students with an undergraduate degree in industrial engineering are vast. The following disciplines would highly value an education in industrial engineering in graduate studies: engineering science and mechanics, business management, supply chain management, mechanical engineering, statistics, computer systems, engineering design, operations research, systems engineering, engineering management, economics and more.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.ime.psu.edu/students/graduate/>)

Professional Resources

- Institute of Industrial and Systems Engineers (<https://www.iise.org/Home/>)
- Institute for Operations Research and the Management Sciences (<https://www.informs.org>)
- Human Factors and Ergonomics Society (<https://www.hfes.org>)
- Society of Manufacturing Engineers (SME) (<https://www.sme.org>)

Accreditation

The Bachelor of Science in Industrial Engineering at Penn State Behrend is accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and

Program Criteria for Industrial and Similarly Named Engineering Programs.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

Erie

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5101 Jordan Road
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814-898-6153
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<https://behrend.psu.edu/school-of-engineering> (<https://behrend.psu.edu/school-of-engineering/>)

University Park

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310 Leonhard Building
University Park, PA 16802
814-865-7601
psuie@psu.edu

<https://www.ime.psu.edu/index.aspx> (<https://www.ime.psu.edu/>)

Interdisciplinary Business with Engineering Studies, B.S.

Begin Campus: Any Penn State Campus

End Campus: Erie

Program Description

The Interdisciplinary Business with Engineering Studies major provides students with an interdisciplinary program containing both business and engineering course content. The major includes a set of core courses in both business and engineering/engineering technology that should enable a graduate to function effectively in a technical business environment. In addition, a student will be able to choose, from a selection of modules, a set of courses or electives designed to enable a student to function in a specific business or technical area. The modules provide an entry-level set of skills that will help graduates provide immediate value as an employee. The modules includes Accounting/Finance, Supply Chain Management, Technical Sales, Product Design & Manufacture or a school approved selection of coursework.

In addition to completing the broad-based core in business, science, and engineering, students acquire the ability to work as members of a team toward successful attainment of a common goal, preparing them to work in businesses or to further their study in graduate school. The program develops written and oral communication skills from an early stage and culminates in a capstone course sequence consisting of a project that

stresses communication, strategic product development, and product realization.

What is Interdisciplinary Business with Engineering Studies?

Do you have an aptitude for business, yet are fascinated by engineering? Sometimes choices have to be made—but this is not one of those times. Penn State Behrend's unique B.S. in Interdisciplinary Business with Engineering Studies degree program allows you to combine your interest in both business and engineering in a way that creates multiple career pathways within technology and technical organizations. The breadth of experiences offered by Interdisciplinary Business with Engineering Studies is reflected in the diverse career paths possible in the industrial, service, and academic sectors. Graduates typically enter the business side of technical companies in positions such as technical/industrial sales, technical business/product development, technical support, junior-level product or brand management, production planning, operations analysis, operations/production management, and project management.

You Might Like This Program If...

- You're interested in both business and engineering and don't want to limit your education to one or the other.
- You're looking for a versatile degree program.
- You envision working on the business side of a technical organization or in a tech-rich environment.

Entrance to Major

Entry to the Interdisciplinary Business with Engineering Studies (IBE) major requires successful completion of 5 entry-to-major courses: ACCTG 211, ECON 102, ENGL 15 or ENGL 30H, MATH 110 or MATH 140, STAT 200 or SCM 200. Each course requires a C or better grade for successful completion.

Degree Requirements

For the Bachelor of Science degree in Interdisciplinary Business with Engineering Studies, a minimum of 127 credits are required:

Requirement	Credits
General Education	45
Requirements for the Major	112-114

30 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses, 6 credits of GS courses, 9 credits of GWS courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned.

Requirements for the Major

Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
BA 241	Legal Environment of Business	2
BA 242	Social and Ethical Environment of Business	2
CHEM 110	Chemical Principles I	3
EDSGN 100S	Introduction to Engineering Design	3
PHYS 211	General Physics: Mechanics	4
PHYS 212	General Physics: Electricity and Magnetism	4
<i>Prescribed Courses: Require a grade of C or better</i>		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
CAS 100	Effective Speech	3
CMPSC 201	Programming for Engineers with C++	3
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
EGT 120	Introduction to Graphics and Solid Modeling	3
ENGL 202C	Effective Writing: Technical Writing	3
FIN 301	Corporation Finance	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
MGMT 301	Basic Management Concepts	3
MGMT 410	Project Management	3
MGMT 475W	Strategic Product Development	3
MGMT 476	Product Realization Capstone	3
MIS 204	Introduction to Management Information Systems	3
MKTG 301	Principles of Marketing	3
SCM 301	Supply Chain Management	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
CMPEN 270	Digital Design: Theory and Practice	3-4
or CMPET 117	Digital Electronics	
EE 211	Electrical Circuits and Power Distribution	3
or EET 101	Electrical Circuits I	
EMCH 211	Statics	3
or MET 111	Mechanics for Technology: Statics	
EMCH 213	Strength of Materials	3
or MET 213	Strength and Properties of Materials	
ENGL 15	Rhetoric and Composition	3
or ENGL 30H	Honors Rhetoric and Composition	
ME 300	Engineering Thermodynamics I	3
or MET 330	Thermodynamics	
SCM 200	Introduction to Statistics for Business	4
or STAT 200	Elementary Statistics	
Select 3 credits from the following list:		3
ECON 470	International Trade and Finance	
FIN 471	International Finance	
IB 303	International Business Operations	
MGMT 461	International Management	
MKTG 445	Global Marketing	
Other 300-400-level international business course		
Supporting Courses and Related Areas		

Select one module from School Approved List of Modules 1-5. 15-16
 Except where noted, courses taken to satisfy General Education requirements may not be used to satisfy module requirements.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **CRITICAL AND INTEGRATIVE THINKING:** Students will be able to think critically across business disciplines by considering different perspectives and using an integrated, holistic approach to perform relevant analyses, construct valid arguments, and make appropriate conclusions.
- **ORAL COMMUNICATION:** Students will be able to execute the oral communication skills that they have learned in the interactive business courses to business situations where effective explanation, persuasion, exchanging information and ideas are essential.
- **WRITING COMPETENCE:** Students will be able to demonstrate effective business writing skills.
- **TEAMWORK:** Students will be positive contributors to an effective team functioning via application of their functional skills in addition to strong interpersonal skills.
- **ETHICS AND SOCIAL RESPONSIBILITY:** Students will be able to recognize ethical issues and apply ethical theories in business situations at individual and/or organizational levels.
- **FUNCTIONAL AREA KNOWLEDGE (ETS):** Students will be able to apply foundational knowledge to analyze and solve problems and interpret written and visual material across various business domains.
- **FUNCTIONAL AREA KNOWLEDGE (ACCOUNTING):** Students will be able to demonstrate a broad general knowledge of the principles of accounting, both managerial and financial.
- **FUNCTIONAL AREA KNOWLEDGE (ECONOMICS):** Students will be able to demonstrate a broad general knowledge of the principles of economics, both microeconomics and macroeconomics
- **FUNCTIONAL AREA KNOWLEDGE (FINANCE):** Students will be able to demonstrate a broad general knowledge of the principles of finance.
- **FUNCTIONAL AREA KNOWLEDGE (MIS):** Students will be able to describe the benefits and challenges of applying information technology in various organizations and functional areas.
- **FUNCTIONAL AREA KNOWLEDGE (INTERNATIONAL BUSINESS):** Students will be able to apply basic multidisciplinary knowledge

needed to conduct international business and analyze the impact of globalization.

- **FUNCTIONAL AREA KNOWLEDGE (LEGAL ENVIRONMENT):** Students will be able to identify key terms, concepts, and theories of the law, evaluate how law affects business, analyze legal issues, and apply the law to business situations.
- **FUNCTIONAL AREA KNOWLEDGE (MANAGEMENT):** Students will be able to demonstrate a broad knowledge of the business discipline of management.
- **FUNCTIONAL AREA KNOWLEDGE (MARKETING):** Students will be able to demonstrate comprehensive knowledge in the field of marketing.
- **FUNCTIONAL AREA KNOWLEDGE (QUANTATIVE BUSINESS ANALYSIS):** Students will be able to demonstrate a broad knowledge of quantitative business analysis.
- **FUNCTIONAL AREA KNOWLEDGE (SUPPLY CHAIN MANAGEMENT):** Students will be able to demonstrate a broad knowledge of supply chain management.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Interdisciplinary Business with Engineering Studies, B.S. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CHEM 110 [†]	3 CMPSC 201 or 121 ^{**†}	3
EDSGN 100	3 ECON 102 ^{**†}	3
ENGL 15 or 30H ^{**††}	3 EGT 120 [*]	3
MATH 140 ^{**††}	4 MATH 141 ^{**†}	4
General Education Course (GA) ³	3 General Education Course (GH) ³	3
	16	16

Second Year

Fall	Credits Spring	Credits
BA 241 & BA 242	4 ACCTG 211 ^{*#}	4
CAS 100 ^{††}	3 ENGL 202C ^{††}	3
ECON 104 ^{**†}	3 MET 111 or EMCH 211 [*]	3
MIS 204 [*]	3 PHYS 212 [†]	4
PHYS 211 [†]	4 SCM 200 or STAT 200 ^{**#}	4
	17	18

Third Year

Fall	Credits Spring	Credits
EET 101 or EE 211 [*]	3 FIN 301 [*]	3
MET 213 or EMCH 213 [*]	3 CMPET 117 or CMPEN 271 [*]	3
MGMT 301 [*]	3 ME 300 or MET 330 [*]	3
MKTG 301 [*]	3 Module Elective	3
SCM 301 [*]	3 IB 303 (or International Business Course) [*]	3
General Education Course (GHW)	1.5	
	16.5	15

Fourth Year

Fall	Credits Spring	Credits
MGMT 410 [*]	3 MGMT 476 [*]	3
MGMT 475W [*]	3 General Education Course (Inter-Domain) ³	3
General Education Course (GHW) ³	1.5 General Education Course (Inter-Domain) ³	3
Module Elective	3 Module Elective	3
Module Elective	3 Module Elective	3
	13.5	15

Total Credits 127

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ Please see your academic adviser for approval before scheduling your course.

² In order for a course to be eligible for an Approved Elective, the course can not be a lower level ENGL (1-6) or MATH (2-41) OR a GHW designated course. Please see your academic adviser if you have a question on a specific course.

³ All students are required to fulfill 45 credits of General Education courses. More information about this requirement can be found on the Baccalaureate Degree General Education Requirements page in the Bulletin (p. 3184).

Career Paths

Interdisciplinary Business with Engineering Studies graduates have found early-career success in technical sales, new business development, technical support, brand management, production planning, purchasing, operations analysis and management, plant accounting, and project management. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

Employers of recent Behrend B.S. in Interdisciplinary Business with Engineering Studies graduates include Volvo Groups, Donnelly Mechanical, FMC Technologies, Harris Corp., Exxon Mobil, Barrington Research, Logistics Plus, General Electric, Tenneco, and Covestro.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE INTERDISCIPLINARY BUSINESS WITH ENGINEERING STUDIES PROGRAM (<https://behrend.psu.edu/school-of-business/academic-programs/interdisciplinary-business-engineering-studies/>)

Opportunities for Graduate Studies

Students who have both business and engineering education are well-prepared to continue their education in a master's- or doctoral-level degree program, including Penn State Behrend's master's degree programs in Business Administration (M.B.A.), Manufacturing Management (M.M.M.), or Project Management (M.P.M.).

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/admissions-financial-aid/graduate-admissions/>)

Professional Resources

- AACSB International (<https://www.aacsb.edu/>)
- National Organization of Business and Engineering (<https://www.nobenational.org/>)

Accreditation

The Black School of Business is accredited by AACSB International—The Association to Advance Collegiate Schools of Business. As the world's largest business education alliance, AACSB connects educators, students, and business to achieve a common goal: to create the next generation of great leaders. Synonymous with the highest standards of excellence since 1916, AACSB provides quality assurance, business education intelligence, and professional development services to over 1,500 member organizations and more than 785 accredited business schools worldwide. AACSB's mission is to foster engagement, accelerate innovation, and amplify impact in business education.

MORE INFORMATION ABOUT THE ASSOCIATION TO ADVANCE COLLEGIATE SCHOOLS OF BUSINESS (<https://www.aacsb.edu/>)

Contact

Erie

BLACK SCHOOL OF BUSINESS
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<https://behrend.psu.edu/school-of-business> (<https://behrend.psu.edu/school-of-business/>)

Interdisciplinary Science and Business, B.S.

Begin Campus: Any Penn State Campus

End Campus: Erie

Program Description

This major provides students with an interdisciplinary program containing both science and business course content. The major includes a set of core courses in both science and business that should enable a graduate to function effectively in a business environment that involves science applications or knowledge. A student will be able to choose from a selection of science and business modules that will enable a student to function in specific science and business areas. Each student will choose one science module and one business module. The modules will be approved by both the Schools of Science and Business and will provide an entry-level set of skills that will help graduates provide immediate value as an employee. In addition, the program develops written and oral communication skills from an early stage and culminates in a capstone experience, or an independent study of internship experience that stresses communication, strategic product development, and product realization.

What is Interdisciplinary Science and Business?

Health-care centers, pharmaceutical companies, tech firms, and research facilities are changing our lives every day. Those organizations are based in science but rely on business experts to oversee sales, finances, marketing, supply chains, and more. That's where the B.S. in Interdisciplinary Science and Business has its roots—preparing you to work on the business side of a science-based organization.

You'll build a foundation in science with core classes, then choose a specialized path in either quantitative science, laboratory science, or human health, depending on your personal interests and career goals. Likewise, you'll study the fundamentals of business before choosing to specialize in either accounting and finance, technical sales, or operations and supply chain management.

You Might Like This Program If...

- You have both a brain for business and an interest in understanding the world around you—specifically the scientific world.
- You have wide-ranging interests and can picture yourself working in a variety of career fields.
- You are curious about both science and business and don't both fields fitting into a traditional degree—and see the appeal of a program that is unique to you.

Entrance to Major

To be eligible for the Interdisciplinary Science and Business (ISB) major, students must:

- Have completed the following entrance-to-major requirements with a grade of C or better in each:
 - ACCTG 211
 - BIOL 110 or (CHEM 106 and CHEM 111) or (CHEM 110 and CHEM 111) or PHYS 250
 - ECON 102
 - ENGL 15 or ENGL 30H
 - MATH 83 or MATH 110 or MATH 140
 - SCM 200 or STAT 200 or STAT 250
- Have achieved a minimum cumulative grade point average of 2.00 prior to and through the end of the semester during which the entrance to major is requested.

Degree Requirements

For the Bachelor of Science degree in Interdisciplinary Science and Business, a minimum of 124 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	106-113

27 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses, 6 credits of GQ courses, 6 credits of GS courses, 6 credits of GWS courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned.

Requirements for the Major

Each student must earn at least a C or better in each 300- and 400-level course in the major field.

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
BA 241	Legal Environment of Business	2
BA 242	Social and Ethical Environment of Business	2
BIOL 110	Biology: Basic Concepts and Biodiversity	4
CAS 100	Effective Speech	3
CHEM 111	Experimental Chemistry I	1
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
ENGL 202C	Effective Writing: Technical Writing	3
FIN 301	Corporation Finance	3
ISB 207	Integrating Science and Business	1
ISB 475W	Strategic Integration of Science & Business	3
MIS 204	Introduction to Management Information Systems	3
MGMT 301	Basic Management Concepts	3
MGMT 410	Project Management	3
MKTG 301	Principles of Marketing	3
PSU 7	First-Year Seminar Behrend	1
SCM 301	Supply Chain Management	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
CHEM 106	Introductory and General Chemistry	3-5
or CHEM 110	Chemical Principles I	
PHYS 250	Introductory Physics I	4
or CHEM 112	Chemical Principles II	
& CHEM 113	and Experimental Chemistry II	
Select one of the following:		4
MATH 83	Technical Calculus	
MATH 110	Techniques of Calculus I	
MATH 140	Calculus With Analytic Geometry I	
Select one of the following:		3-4
SCM 200	Introduction to Statistics for Business	
STAT 200	Elementary Statistics	
STAT 250	Introduction to Biostatistics	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 15-16 credits from one business module from School Approved List ¹		15-16
Select 29-32 credits from one science module from School Approved List ¹		29-32

¹ Except where noted, courses taken to satisfy General Education requirements may not be used to satisfy module requirements.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Communication:** Communicating and illustrating complex ideas that require an understanding of both science and business.
- **Evaluation:** Envisioning, designing, and evaluating new products or procedures relevant for science-based businesses.
- **Extending Essential Knowledge:** Extending this essential knowledge in specific areas of science and business in an effort to develop solutions to issues relevant to science-based businesses.
- **Understanding Essential Concepts:** Understanding of the essential concepts of mathematics, statistics, science and business in order to relate these concepts to cases and situations requiring an expertise in both business and science.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Interdisciplinary Science and Business, B.S. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 or 110 (GQ) ^{*†#†}	4 CAS 100A (GWS) ^{*††}	3
BIOL 110 (GN) ^{*#†}	4 STAT 200, 250, or SCM 200 (GQ) ^{*†#†}	3-4
CHEM 110 & CHEM 111 (GN) ^{*#†}	4 PHYS 250 or CHEM 112 and CHEM 113 (GN) ^{*#†}	4
ENGL 15 or 30H (GWS) ^{†#†}	3 ECON 102 (GS) ^{*#†}	3
PSU 7 [*]	1 MIS 204 [*]	3
	16	16-17

Second Year

Fall	Credits Spring	Credits
MKTG 301 [*]	3 FIN 301 [*]	3
ACCTG 211 ^{*#}	4 ENGL 202C (GWS) ^{*††}	3
BA 241 [*]	2 SCM 301 [*]	3
BA 242 [*]	2 Science Module ^{*1}	3
ISB 207 [*]	1 Science Module ^{*1}	3-4
General Education Course (GA/GH/GHW)	3	
	15	15-16

Third Year

Fall	Credits Spring	Credits
ECON 104 (GS) ^{*†}	3 Science Module ^{*1}	3
MGMT 301 [*]	3 Science Module ^{*1}	3-4
Science Module ^{*1}	3 Business Module ^{*1}	3
Science Module ^{*1}	3 Business Module ^{*1}	3

Business Module ^{*1}	3 General Education Course (GA/GH/GHW)	3
General Education Course (GA/GH/GHW)	3	
18		15-16
Fourth Year		
Fall	Credits Spring	Credits
MGMT 410 [*]	3 ISB 475W [*]	3
Science Module ^{*1}	3 Science Module ^{*1}	3
Science Module ^{*1}	3 Science Module ^{*1}	3
Business Module ^{*1}	3-4 General Education Course (GA/GH/GHW)	3
Business Module ^{*1}	3 General Education Course (GA/GH/GHW)	3
15-16		15

Total Credits 125-129

- * Course requires a grade of C or better for the major
 ‡ Course requires a grade of C or better for General Education
 # Course is an Entrance to Major requirement
 † Course satisfies General Education and degree requirement

¹ For the current list of Science and Business module courses, please contact Dr. Michael Rutter (mar36@psu.edu) or Dr. Diane Parente (dhp3@psu.edu)

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- **School Approved Lists for Science Modules**
 - **Human Health Module (required 23 credits):** BIOL 230W, BIOL 240W, KINES 203, MICRB 201, MICRB 202, BIOL 421, BIOL 472. Select an additional nine credits from the following: BIOL 416, BIOL 322, MICRB 410, BIOL 430, BMB 400, CHEM 472.
 - **Laboratory Science Module (required 18-19 credits):** CHEM 210, CHEM 212, CHEM 227, CHEM 440, CHEM 441, MICRB 106 and MICRB 107 or MICRB 201 and MICRB 202. Select an additional eleven credits from the following: BIOL 220W, BIOL 230W, BIOL 240W, BIOL 322, BIOL 416, BIOL 460, BMB 401 or CHEM 472, BMB 406, BMB 442, BMB 465, BMB 484, CHEM 408, CHEM 413, CHEM 430, CHEM 432, CHEM 446, CHEM 450 or BMB 428, CHEM 452, CHEM 457, MICRB 410, CHEM 494 or BIOL 494 or MICRB 494.

- **Quantitative Module (required 9 credits):** CMPSC 101 or CMPSC 121 or CMPSC 131 or CMPSC 200 or CMPSC 201, STAT 461, STAT 462. Select an additional twenty-one credits from the following: DIGIT 410, ECON 481, ECON 485, MATH 482, MIS 315, MIS 336, MIS 345, STAT 318, STAT 414, STAT 464, STAT 466, STAT 494 or MATH 494.
- **School Approved Lists for Business Modules**
 - **Accounting and Finance (required 10 credits):** ACCTG 305, ACCTG 340, and FIN 451. Select an additional six credits from the following: any other 400-level ACCTG and FIN courses.
 - **Technical Sales (required 9 credits):** MKTG 410, SCM 455, SCM 460. Select an additional six credits from the following: MIS 404, MKTG 485, ACCTG 340.
 - **Operations and Supply Chain Management (required 9 credits):** SCM 445, SCM 455, SCM 460. Select an additional six credits from the following: ECON 485, MKTG 485, MIS 404, MIS 336.
- For updates to the list of Science and Business module courses, please contact Dr. Michael Rutter (mar36@psu.edu) or Dr. Diane Parente (dhp3@psu.edu).

Advising Notes:

- Students are encouraged to meet their general education requirements of inter-domain and linked courses in their general education credits.
- Students are encouraged to complete the US and IL general education requirements as part of their general education course selections.

Interdisciplinary Science and Business, B.S. at Commonwealth campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 or 110 (GQ) ^{**#‡}	4 STAT 200, 250, or SCM 200 (GQ) ^{**#‡}	3-4
BIOL 110 (GN) ^{**#}	4 PHYS 250 or CHEM 112 <i>and</i> CHEM 113 (GN) ^{**#}	4
CHEM 110 & CHEM 111 (GN) ^{**#}	4 ECON 102 (GS) ^{**#}	3
ENGL 15 or 30H (GWS) ^{**#‡}	3 MIS 204 [*]	3
First Year Seminar	1 CAS 100A (GWS) ^{**#‡}	3
16		16-17

Second Year

Fall	Credits Spring	Credits
MKTG 301, SCM 301, or MGMT 301*	3 FIN 301*	3
MKTG 301, SCM 301, or MGMT 301*	3 MKTG 301, SCM 301, or MGMT 301*	3
ACCTG 211*#	4 ENGL 202C (GWS)*††	3
General Education Course (GA/GH/GHW/Inter-domain)	3 ECON 104 (GS)*†	3
General Education Course (GA/GH/GHW/Inter-domain)	3 General Education Course (GA/GH/GHW/Inter-domain)	3
	16	15

Third Year

Fall	Credits Spring	Credits
ISB 207*	1 BA 241*	2
Science Module* ¹	3 BA 242*	2
Science Module* ¹	3 Science Module* ¹	3-4
Business Module* ¹	3 Science Module* ¹	3
Business Module* ¹	3 Science Module* ¹	3
General Education Course (GA/GH/GHW/Inter-domain)	3 Business Module* ¹	3
	16	16-17

Fourth Year

Fall	Credits Spring	Credits
MGMT 410*	3 ISB 475W*	3
Science Module* ¹	3-4 Science Module* ¹	3
Science Module* ¹	3 Science Module* ¹	3
Science Module* ¹	3 Business Module* ¹	3-4
Business Module* ¹	3 General Education Course (GA/GH/GHW/Inter-domain)	3
	15-16	15-16

Total Credits 125-129

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

Program Notes:

- **School Approved Lists for Science Modules**
 - **Human Health Module (required 23 credits):** BIOL 230W, BIOL 240W, KINES 203, MICRB 201, MICRB 202, BIOL 421, BIOL 472. Select an additional nine credits from the following: BIOL 416, BIOL 322, MICRB 410, BIOL 430, BMB 400, CHEM 472.
 - **Laboratory Science Module (required 18-19 credits):** CHEM 210, CHEM 212, CHEM 227, CHEM 440, CHEM 441, MICRB 106 and

MICRB 107 or MICRB 201 and MICRB 202. Select an additional eleven credits from the following: BIOL 220W, BIOL 230W, BIOL 240W, BIOL 322, BIOL 416, BIOL 460, BMB 401 or CHEM 472, BMB 406, BMB 442, BMB 465, BMB 484, CHEM 408, CHEM 413, CHEM 430, CHEM 432, CHEM 446, CHEM 450 or BMB 428, CHEM 452, CHEM 457, MICRB 410, CHEM 494 or BIOL 494 or MICRB 494.

- **Quantitative Module (required 9 credits):** CMPSC 101 or CMPSC 121 or CMPSC 131 or CMPSC 200 or CMPSC 201, STAT 461, STAT 462. Select an additional twenty-one credits from the following: DIGIT 410, ECON 481, ECON 485, MATH 482, MIS 315, MIS 336, MIS 345, STAT 318, STAT 414, STAT 464, STAT 466, STAT 494 or MATH 494.
- **School Approved Lists for Business Modules**
 - **Accounting and Finance (required 10 credits):** ACCTG 305, ACCTG 340, and FIN 451. Select an additional six credits from the following: any other 400-level ACCTG and FIN courses.
 - **Technical Sales (required 9 credits):** MKTG 410, SCM 455, SCM 460. Select an additional six credits from the following: MIS 404, MKTG 485, ACCTG 340.
 - **Operations and Supply Chain Management (required 9 credits):** SCM 445, SCM 455, SCM 460. Select an additional six credits from the following: ECON 485, MKTG 485, MIS 404, MIS 336.
- For updates to the list of Science and Business module courses, please contact Dr. Michael Rutter (mar36@psu.edu) or Dr. Diane Parente (dhp3@psu.edu).

Advising Notes:

- Students are encouraged to meet their general education requirements of inter-domain and linked courses in their general education credits.
- Students are encouraged to complete the US and IL general education requirements as part of their general education course selections.

Career Paths

As science, health-care, and technology business continue to grow, demand is expected to increase for employees who understand both what the business does and how to lead it—those with a deep understanding of the science but also a specialization in sales, finance, marketing, or management.

Careers

Interdisciplinary Science and Business graduates can expect to find employment at laboratories, pharmaceutical companies, health-care facilities and medical practices, and environmental firms. Typical entry-level positions include sales representatives, analysts, managers, and specialists in purchasing, supply chain, or operations.

MORE INFORMATION ABOUT POTENTIAL CAREER PATHS FOR GRADUATES OF THE INTERDISCIPLINARY SCIENCE AND BUSINESS PROGRAM (<https://behrend.psu.edu/school-of-science/academic-programs/interdisciplinary-science-and-business/>)

Opportunities for Graduate Studies

Students interested in continuing studies could add to their specialization by pursuing in advanced degrees on either the science side or business side of their undergraduate degree.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/admissions-financial-aid/graduate-degrees/>)

Contact

Erie

SCHOOL OF SCIENCE
1 Prischak Building
Erie, PA 16563
814-898-6105
behrend-science@psu.edu

<https://behrend.psu.edu/school-of-science> (<https://behrend.psu.edu/school-of-science/>)

International Business, B.S.

Begin Campus: Any Penn State Campus

End Campus: Erie

Program Description

The International Business major prepares students to navigate the global business environment.

IB emphasizes the knowledge and skills that are needed to function effectively in a domestic or global setting while considering the impacts on both. Students must first learn that domestic business skills provide a foundation for successfully integrating international and domestic business strategies within an organization. Students will then be exposed to critical global issues to accomplish organizational objectives by coordinating human, material, information, and financial resources across trade organizations and national boundaries.

Students receive a broad introduction to the complexity of international business through coursework. At the same time, exposure to foreign ways of life will raise cultural sensitivity to build solid relationship skills for participation in global teams. Students must be proficient in a second world language, and a study experience outside their home country will be required. In addition to preparing students for an international business environment, the IB major aims to provide them with knowledge of a specific business discipline by completing all the requirements of a second business major.

Graduates of the IB major will possess the drive and curiosity to understand emerging trends and competitive activity in the global space while functioning effectively as employees of small businesses with developing international operations or as members of larger business organizations with extensive global operations.

What is International Business?

We live in an increasingly interdependent world, one in which economic events happening halfway around the globe are as likely to affect us as those occurring in a neighboring state. Global interconnectedness creates demand for decision-makers with the knowledge to conduct business in an international setting. The study of international business teaches the skills needed to meet the challenges of accomplishing organizational objectives while coordinating human, financial, information, or material resources across national boundaries. To offer both depth and breadth of skills, Penn State Behrend's B.S. in International Business is a dual-degree program. Students pursue a second degree in Accounting, Business Economics, Economics, Finance,

Interdisciplinary Business with Engineering Studies, Management Information Systems, Marketing, or Project and Supply Chain Management.

You Might Like This Program If...

- You are interested in business and curious about the wider world around you.
- You envision working in another country or for a multinational organization.
- You intend to study abroad during college.
- You like the idea of earning two undergraduate degrees.

Entrance to Major

Entry to the International Business major requires the successful completion of 5 entry-to-major courses: ACCTG 211, ECON 102, ENGL 15 or ENGL 30H, MATH 110 or MATH 140, STAT 200 or SCM 200. Each course requires a C or better grade for successful completion.

Degree Requirements

For the Bachelor of Science degree in International Business (in conjunction with a second business major), a minimum of 128 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	104

21 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GQ courses, 6 credits of GS courses, 9 credits of GWS courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned.

Requirements for the Major

Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
BA 241	Legal Environment of Business	2
BA 242	Social and Ethical Environment of Business	2
PSU 7	First-Year Seminar Behrend	1
<i>Prescribed Courses: Require a grade of C or better</i>		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
CAS 100	Effective Speech	3
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
ENGL 202D	Effective Writing: Business Writing	3
FIN 301	Corporation Finance	3

IB 303	International Business Operations	3
IB 404	Contemporary Issues in International Business	3
IB 464	International Logistics	3
MGMT 301	Basic Management Concepts	3
MGMT 471W	Strategic Management and Business Policy	3
MIS 204	Introduction to Management Information Systems	3
MKTG 301	Principles of Marketing	3
MKTG 445	Global Marketing	3
SCM 301	Supply Chain Management	3

Additional Courses

Additional Courses: Require a grade of C or better

ENGL 15	Rhetoric and Composition	3
or ENGL 30H	Honors Rhetoric and Composition	
MATH 110	Techniques of Calculus I	4
or MATH 140	Calculus With Analytic Geometry I	
SCM 200	Introduction to Statistics for Business	4
or STAT 200	Elementary Statistics	
Select 6 credits from the following:		6
ACCTG 461	International Accounting	
ECON 470	International Trade and Finance	
FIN 471	International Finance	
IB 350	International Business Law	

Supporting Courses and Related Areas

Select 15 credits in world culture that is foreign to the home country of the student. Four of the fifteen credits may be fulfilled by the third level of a world language that is foreign to the student's home country.¹

Select a minimum of 18 credits from one business supporting course group in consultation with adviser. Students must complete the requirements for a second School of Business major.

Select 3 credits from school-approved, non-business Education Abroad courses or approval from the Program Chair

¹ Students must attain third-level proficiency in a single world language (0-12 credits) and select 3-15 credits from the school-approved list of non-business international courses. See general information section of the *Bulletin* for the Penn State placement policy on world languages. Students receiving advanced placement in world language may substitute courses from school-approved world language and culture course list to complete the credits for this requirement.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the *Bulletin* and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- Quantification (GQ): 6 credits
- Writing and Speaking (GWS): 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- Arts (GA): 3 credits
- Health and Wellness (GHW): 3 credits
- Humanities (GH): 3 credits
- Social and Behavioral Sciences (GS): 3 credits
- Natural Sciences (GN): 3 credits

Integrative Studies

- Inter-Domain Courses (Inter-Domain): 6 credits

Exploration

- GN, may be completed with Inter-Domain courses: 3 credits
- GA, GH, GN, GS, Inter-Domain courses. This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or

within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **CRITICAL AND INTEGRATIVE THINKING:** Students will be able to think critically across business disciplines by considering different perspectives and using an integrated, holistic approach to perform relevant analyses, construct valid arguments, and make appropriate conclusions.
- **ORAL COMMUNICATION:** Students will be able to execute the oral communication skills that they have learned in the interactive business courses to business situations where effective explanation, persuasion, exchanging information and ideas are essential.
- **WRITING COMPETENCE:** Students will be able to demonstrate effective business writing skills.
- **TEAMWORK:** Students will be positive contributors to an effective team functioning via application of their functional skills in addition to strong interpersonal skills.
- **ETHICS AND SOCIAL RESPONSIBILITY:** Students will be able to recognize ethical issues and apply ethical theories in business situations at individual and/or organizational levels.
- **FUNCTIONAL AREA KNOWLEDGE (ETS):** Students will be able to apply foundational knowledge to analyze and solve problems and interpret written and visual material across various business domains.
- **FUNCTIONAL AREA KNOWLEDGE (ACCOUNTING):** Students will be able to demonstrate a broad general knowledge of the principles of accounting, both managerial and financial.
- **FUNCTIONAL AREA KNOWLEDGE (ECONOMICS):** Students will be able to demonstrate a broad general knowledge of the principles of economics, both microeconomics and macroeconomics
- **FUNCTIONAL AREA KNOWLEDGE (FINANCE):** Students will be able to demonstrate a broad general knowledge of the principles of finance.
- **FUNCTIONAL AREA KNOWLEDGE (MIS):** Students will be able to describe the benefits and challenges of applying information technology in various organizations and functional areas.
- **FUNCTIONAL AREA KNOWLEDGE (INTERNATIONAL BUSINESS):** Students will be able to apply basic multidisciplinary knowledge needed to conduct international business and analyze the impact of globalization.
- **FUNCTIONAL AREA KNOWLEDGE (LEGAL ENVIRONMENT):** Students will be able to identify key terms, concepts, and theories of the law, evaluate how law affects business, analyze legal issues, and apply the law to business situations.
- **FUNCTIONAL AREA KNOWLEDGE (MANAGEMENT):** Students will be able to demonstrate a broad knowledge of the business discipline of management.
- **FUNCTIONAL AREA KNOWLEDGE (MARKETING):** Students will be able to demonstrate comprehensive knowledge in the field of marketing.
- **FUNCTIONAL AREA KNOWLEDGE (QUANTATIVE BUSINESS ANALYSIS):** Students will be able to demonstrate a broad knowledge of quantitative business analysis.
- **FUNCTIONAL AREA KNOWLEDGE (SUPPLY CHAIN MANAGEMENT):** Students will be able to demonstrate a broad knowledge of supply chain management.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

International Business, B.S. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H ^{*†‡†}	3 CAS 100A, 100B, or 100C ^{††}	3
MATH 110 or 140 ^{*†‡†}	4 General Education Course (GN) ³	3
General Education Course (GH) ³	3 General Education Course (GA) ³	3

General Education Course (GN) ³	3 General Education Course (GHW) ³	1.5
General Education Course (GHW) ³	1.5 MIS 204 [*]	3
PSU 7	1 ECON 102 ^{*#†}	3

15.5 16.5

Second Year

Fall	Credits Spring	Credits
ACCTG 211 ^{*#}	4 ENGL 202D ^{††}	3
BA 241 & BA 242	4 FIN 301 [*]	3
ECON 104 ^{*†}	3 MGMT 301 [*]	3
SCM 200 or STAT 200 ^{*†#†}	4 MKTG 301 [*]	3
	SCM 301 [*]	3

15 15

Third Year

Fall	Credits Spring	Credits Summer	Credits
IB 303 [*]	3 MKTG 445 [*]	3 Education Abroad Experience ⁴	3
IL/US or Language	3 General Education Course (Inter-Domain) ³	3	
Supporting Course (Second Major) [*]	3 International Business Course (IL) [*]	3	
Supporting Course (Second Major) [*]	3 IL/US or Language	3	
General Education Course (GA/GH/GS/GN/Interdomain) ³	3 Supporting Course (2nd Business Major) [*]	3	
	Supporting Course (2nd Business Major) [*]	3	

15 18 3

Fourth Year

Fall	Credits Spring	Credits
IB 464 [*]	3 MGMT 471W [*]	3
International Business Course [*]	3 IB 404 [*]	3
IL/US or Language	3 IL/US or Language	3
Supporting Course (2nd Business Major) [*]	3 IL/US or Language	3

Supporting Course (2nd Business Major) [*]	3 General Education Course (Inter-Domain) ³	3
15		15

Total Credits 128

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Please see your academic adviser for approval before scheduling your course.

² In order for a course to be eligible for an Approved Elective, the course can not be a lower level ENGL (1-6) or MATH (2-41) OR a GHW designated course. Please see your academic adviser if you have a question on a specific course.

³ All students are required to fulfill 45 credits of General Education courses. More information about this requirement can be found on the Baccalaureate Degree General Education Requirements page in the Bulletin (p. 3184).

⁴ This major has an Education Abroad requirement of at least three credits. These credits do not necessarily have to be taken during the summer, but they are a graduation requirement. School-approved fall and spring semester courses that have an embedded study abroad component also qualify. Contact Ms. Ruth Pflueger (rcp1@psu.edu) or Dr. Diane Parente (dhp3@psu.edu) for more information.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

The ability to graduate with two business degrees and demonstrated skill in a specific business discipline makes Penn State Behrend's B.S. in International Business degree particularly attractive to employers. Positions held by new graduates include foreign exchange settlement analyst, marketing representative, sales and marketing specialist, financial analyst, research and database coordinator, retail planning manager, and economist. Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

Employers of recent Behrend B.S. in International Business graduates include Alliance Bernstein, Ameridrives International, CMI Group, Daido Corp. of America, Eaton, Coca-Cola, Gap Inc., the U.S. Bureau of Labor Statistics, and General Electric.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE INTERNATIONAL BUSINESS PROGRAM (<https://behrend.psu.edu/school-of-business/academic-programs/international-business/>)

Opportunities for Graduate Studies

International Business graduates are well-prepared to pursue master's- or doctoral-level education in international business, in their concurrent degree discipline, or in Penn State Behrend's master's degree programs in Business Administration (M.B.A.), Project Management (M.P.M.) or Manufacturing Management (M.M.M).

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/admissions-financial-aid/graduate-admissions/>)

Professional Resources

- AACSB International (<https://www.aacsb.edu/>)

Accreditation

The Black School of Business is accredited by AACSB International—The Association to Advance Collegiate Schools of Business. As the world's largest business education alliance, AACSB connects educators, students, and business to achieve a common goal: to create the next generation of great leaders. Synonymous with the highest standards of excellence since 1916, AACSB provides quality assurance, business education intelligence, and professional development services to over 1,500 member organizations and more than 785 accredited business schools worldwide. AACSB's mission is to foster engagement, accelerate innovation, and amplify impact in business education.

MORE INFORMATION ABOUT THE ASSOCIATION TO ADVANCE COLLEGIATE SCHOOLS OF BUSINESS (<https://www.aacsb.edu/>)

Contact

Erie

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281 Jack Burke Research and Economic Development Center
Erie, PA 16563
814-898-6107
behrendbusiness@psu.edu

<https://behrend.psu.edu/school-of-business> (<https://behrend.psu.edu/school-of-business/>)

Management Information Systems, B.S. (Behrend)

Begin Campus: Any Penn State Campus

End Campus: Erie

Program Description

The MIS major prepares students for typical IT-related jobs such as programmer/analyst, systems analyst, data analyst, database administrator, team leader, project manager, consultant, and MIS manager. Since the focus of such jobs is on the application of information technology to business problems and opportunities, the MIS curriculum integrates three main areas of study.

In the first area, students take core business courses in order to understand organizational processes and user requirements in analyzing business systems. In the second area, students take core MIS courses in the areas of database management systems, data analysis, and analytics methodologies where the focus is on learning tools, processes, and techniques required for the successful application of information technology to business problems. These core courses are supplemented with a variety of electives and required, and approved internship experience.

What is Management Information Systems?

Data is everywhere: location-based from smart phones, social media, text, corporate data, and more. Companies need to analyze this data to get meaningful information to the people who need it. Hence, Management Information Systems (MIS) lives in the space that intersects technology and business.

You Might Like This Program If...

- Your career interests intersect at "business" and "technology."
- You are equally curious about accounting and coding and economics and database management.
- You are interested in pursuing concurrent education in enterprise resource planning (ERP) with SAP or Oracle.

Entrance to Major

Entry to the Management Information Systems major requires successful completion of 5 entry-to-major courses: ACCTG 211, ECON 102, ENGL 15 or ENGL 30H, MATH 110 or MATH 140, STAT 200 or SCM 200, and a 2.00 or higher cumulative grade-point average. All courses require a C or higher.

Degree Requirements

For the Bachelor of Science degree in Management Information Systems, a minimum of 123 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	99

21 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GQ courses; 6 credits of GS courses; 9 credits of GWS courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned.

Requirements for The Major

Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
BA 241	Legal Environment of Business	2
BA 242	Social and Ethical Environment of Business	2
PSU 7	First-Year Seminar Behrend	1
<i>Prescribed Courses: Require a grade of C or better</i>		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
CAS 100	Effective Speech	3
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
FIN 301	Corporation Finance	3
MGMT 301	Basic Management Concepts	3
MGMT 410	Project Management	3
MGMT 471W	Strategic Management and Business Policy	3
MIS 204	Introduction to Management Information Systems	3
MIS 315	Python Programming	3
MIS 336	Database Management Systems	3
MIS 345	Introduction to Data Analytics	3
MIS 430	Systems Analysis	3
MIS 445	Business Intelligence	4
MIS 495	Internship	3
MKTG 301	Principles of Marketing	3
SCM 301	Supply Chain Management	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
ENGL 15	Rhetoric and Composition	3
or ENGL 30H	Honors Rhetoric and Composition	
ENGL 202C	Effective Writing: Technical Writing	3
or ENGL 202D	Effective Writing: Business Writing	
MATH 110	Techniques of Calculus I	4
or MATH 140	Calculus With Analytic Geometry I	
SCM 200	Introduction to Statistics for Business	4
or STAT 200	Elementary Statistics	
Select 3 credits from the following:		3
ECON 470	International Trade and Finance	
FIN 471	International Finance	
IB 303	International Business Operations	
MGMT 461	International Management	
MKTG 445	Global Marketing	
Other 300- or 400-Level International Business Courses		
Select 6 credits from the business or data analyst focus area:		6
MIS 404 & MIS 387	Introduction to ERP and Business Processes and Website Design and Administration	

MIS 404 & MIS 433	Introduction to ERP and Business Processes and Rapid Application Development
MIS 415 & MIS 447	Social Media Management and Analytics and Data Warehousing

Supporting Courses and Related Areas

Select 12 credits from any MIS/Business/COMPSC courses.	12
Select 6 credits from any business major field or any non-business major field, except for all KINES (GHW) courses, any ENGL course below ENGL 15, and any MATH course below MATH 110. Exceptions may be petitioned through the applicable department chair.	6

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **CRITICAL AND INTEGRATIVE THINKING:** Students will be able to think critically across business disciplines by considering different perspectives and using an integrated, holistic approach to perform relevant analyses, construct valid arguments, and make appropriate conclusions.
- **ORAL COMMUNICATION:** Students will be able to execute the oral communication skills that they have learned in the interactive business courses to business situations where effective explanation, persuasion, exchanging information and ideas are essential.
- **WRITING COMPETENCE:** Students will be able to demonstrate effective business writing skills.
- **TEAMWORK:** Students will be positive contributors to an effective team functioning via application of their functional skills in addition to strong interpersonal skills.
- **ETHICS AND SOCIAL RESPONSIBILITY:** Students will be able to recognize ethical issues and apply ethical theories in business situations at individual and/or organizational levels.
- **FUNCTIONAL AREA KNOWLEDGE (ETS):** Students will be able to apply foundational knowledge to analyze and solve problems and interpret written and visual material across various business domains.
- **FUNCTIONAL AREA KNOWLEDGE (ACCOUNTING):** Students will be able to demonstrate a broad general knowledge of the principles of accounting, both managerial and financial.

- **FUNCTIONAL AREA KNOWLEDGE (ECONOMICS):** Students will be able to demonstrate a broad general knowledge of the principles of economics, both microeconomics and macroeconomics
- **FUNCTIONAL AREA KNOWLEDGE (FINANCE):** Students will be able to demonstrate a broad general knowledge of the principles of finance.
- **FUNCTIONAL AREA KNOWLEDGE (MIS):** Students will be able to describe the benefits and challenges of applying information technology in various organizations and functional areas.
- **FUNCTIONAL AREA KNOWLEDGE (INTERNATIONAL BUSINESS):** Students will be able to apply basic multidisciplinary knowledge needed to conduct international business and analyze the impact of globalization.
- **FUNCTIONAL AREA KNOWLEDGE (LEGAL ENVIRONMENT):** Students will be able to identify key terms, concepts, and theories of the law, evaluate how law affects business, analyze legal issues, and apply the law to business situations.
- **FUNCTIONAL AREA KNOWLEDGE (MANAGEMENT):** Students will be able to demonstrate a broad knowledge of the business discipline of management.
- **FUNCTIONAL AREA KNOWLEDGE (MARKETING):** Students will be able to demonstrate comprehensive knowledge in the field of marketing.
- **FUNCTIONAL AREA KNOWLEDGE (QUANTATIVE BUSINESS ANALYSIS):** Students will be able to demonstrate a broad knowledge of quantitative business analysis.
- **FUNCTIONAL AREA KNOWLEDGE (SUPPLY CHAIN MANAGEMENT):** Students will be able to demonstrate a broad knowledge of supply chain management.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

Kathleen Noce, D.Ed.

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://>

bulletins.psu.edu/undergraduate/archive/) to view the appropriate Undergraduate Bulletin edition.

Management Information Systems, B.S. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30 (GWS) ^{*†#†}	3 CAS 100 (GWS) ^{††}	3
MATH 110 or 140 (GQ) ^{*†#†}	4 ECON 102 ^{*#†}	3
General Education Course (GH)	3 MIS 204 [*]	3
General Education Course (GN)	3 General Education Course (GA)	3
General Education Course (GHW)	1.5 General Education Course (GN) (Single Domain or Inter-Domain)	3
PSU 7	1	
	15.5	15

Second Year

Fall	Credits Spring	Credits
ACCTG 211 ^{*#}	4 ENGL 202D (GWS) ^{††}	3
ECON 104 (GS/Exploratory) ^{*†}	3 FIN 301 [*]	3
SCM 200 or STAT 200 (GQ) ^{*†#†}	4 MGMT 301 [*]	3
General Education Course (Inter-Domain)	3 MKTG 301 [*]	3
General Education Course (GHW)	1.5 SCM 301 [*]	3
	15.5	15

Third Year

Fall	Credits Spring	Credits
BA 241	2 MIS 430 [*]	3
BA 242	2 MIS Business Analyst or Data Analyst Focus Area [*]	3
MIS 336 [*]	3 Supporting Course MIS/CMPSC/Business [*]	3
MIS 315 (or PROGRAMMING COURSE) [*]	3 Supporting Course MIS/CMPSC/Business [*]	3
MIS 345 [*]	3 Approved Elective	3
General Education Course (Inter-Domain)	3	
	16	15

Fourth Year

Fall	Credits Spring	Credits
MGMT 410 [*]	3 IB 303 (or International Business Course) [*]	3
MIS 445 [*]	4 MIS 495 [*]	3

MIS Business Analyst or Data Analyst Focus Area (MIS 447 is Fall only) [*]	3 MGMT 471W [*]	3
Approved Elective	3 Supporting Course MIS/CMPSC/Business [*]	3
General Education Course (GA/GH/GS/GN/Inter-Domain)	3 Supporting Course MIS/CMPSC/Business [*]	3
	16	15

Total Credits 123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ Please see your academic adviser for approval before scheduling your course

² In order for a course to be eligible for an Approved Elective, the course can not be a lower level ENGL (1-6) or MATH (2-41) OR a GHW designated course. Please see your academic adviser if you have a question on a specific course.

³ All students are required to fulfill 45 credits of General Education courses. More information about this requirement can be found on the Baccalaureate Degree General Education Requirements page in the Bulletin (p. 3184).

Career Paths

Tailor Penn State Behrend's MIS degree program to your career interests by pursuing one of three options: Business Analyst, Data Analyst, or Systems Analyst. Graduates typically enter the workforce in IT-related positions such as computer systems analyst, applications developer, web developer, project manager, technology auditor, internet solutions manager, or database administrator. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

Employers of recent Behrend B.S. in Management Information Systems graduates includes Bayer Business Services, Centric Consulting, GE

Transportation, Erie Insurance, Accenture, U.S. Steel, Progressive Insurance, Deloitte, TEKsystems, IBM, and Booz Allen Hamilton.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE MANAGEMENT INFORMATION SYSTEMS PROGRAM (<https://behrend.psu.edu/school-of-business/academic-programs/management-information-systems/>)

Opportunities from Graduate Studies

B.S. in Management Information Systems graduates are well-prepared to pursue master's- or doctoral-level education in a business or technology discipline, or in Penn State Behrend's master's degree programs in Business Administration (M.B.A.), Project Management (M.P.M.) or Manufacturing Management (M.M.M).

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/admissions-financial-aid/graduate-admissions/>)

Professional Resources

- AACSB International (<https://www.aacsb.edu>)
- Association for Information Systems (<https://aisnet.org>)
- Association of Information Technology Professionals (<https://rtp-aitp.org>)

Accreditation

The Black School of Business is accredited by AACSB International—The Association to Advance Collegiate Schools of Business. As the world's largest business education alliance, AACSB connects educators, students, and business to achieve a common goal: to create the next generation of great leaders. Synonymous with the highest standards of excellence since 1916, AACSB provides quality assurance, business education intelligence, and professional development services to over 1,500 member organizations and more than 785 accredited business schools worldwide. AACSB's mission is to foster engagement, accelerate innovation, and amplify impact in business education.

MORE INFORMATION ABOUT THE ASSOCIATION TO ADVANCE COLLEGIATE SCHOOLS OF BUSINESS (<https://www.aacsb.edu>)

Contact

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<https://behrend.psu.edu/school-of-business> (<https://behrend.psu.edu/school-of-business/>)

Management Information Systems, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Management Information Systems minor can open new career options for the student, increase the student's market value, and improve the student's chances for advancement.

What is Management Information Systems?

Data is everywhere: location-based from smart phones, social media, text, corporate data, and more. Companies need to analyze this data to get meaningful information to the people who need it. Hence, Management Information Systems (MIS) lives in the space that intersects technology and business.

You Might Like This Program If...

- Your career interests intersect at "business" and "technology"
- You want to add programming and information-science education to a business or engineering degree program.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
MIS 336	Database Management Systems	3
MIS 430	Systems Analysis	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
MIS 204	Introduction to Management Information Systems	3
or MIS 250	Introduction to Problem Solving with Spreadsheet Analysis and Information Systems Management	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 6 credits from CMPSC or MIS courses		6
Select 3 credits from 400-level CMPSC or MIS		3

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary

academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

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Erie

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Career Paths

The minor in Management Information Systems can be pursued by students in most Black School of Business and School of Engineering degree programs. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

A minor in Management Information Systems can make you a more competitive job candidate by demonstrating skill with the latest information and data-extraction technologies.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN MANAGEMENT INFORMATION SYSTEMS (<https://behrend.psu.edu/school-of-business/academic-programs/management-information-systems/minor/>)

Opportunities for Graduate Studies

Adding a specialized minor such as Management Information Systems to a primary major program demonstrates to graduate programs your commitment to interdisciplinary thinking.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-business/academic-programs/management-information-systems/minor/>)

Contact

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Marketing, B.S. (Behrend)

Begin Campus: Any Penn State Campus

End Campus: Erie

Program Description

The objective of the Marketing major is to provide professional education to students leading to careers in business, government, and non-profit organizations. Typically, graduates are employed in business-to-business marketing, marketing management, sales management, retailing, marketing research, digital marketing, and brand management. The major provides a solid foundation in marketing practice, such as analyzing and understanding the needs and wants of present and potential customers, designing appropriate product offerings, establishing pricing policies, developing communication strategies, devising efficient distribution strategies, researching marketing data for the above functions, and coordinating marketing programs with other functional areas of business.

What is Marketing?

Marketing is a broad field that seeks to understand consumer, firm, and societal behaviors and subsequently identify ideas, products, services, and methodological approaches that deliver value. According to the American Marketing Association, Marketing involves "the set of institutions and processes for creating, communicating, delivering, and exchanging offerings valuable to customers, clients, partners, and society at large. Not only does marketing guide firms' managerial decisions in the marketplace, but it also offers insights into consumer awareness, public policy making, and non-commercial exchange of value (e.g., altruistic giving)."

You Might Like This Program If...

- You're curious about the world around you.
- You're a natural storyteller.
- You think critically and find creative solutions.
- You're analytical and love to support your ideas with data.
- You try to understand how others are feeling.
- You're up-to-date with the latest news and trends.

Entrance to Major

Entry to the Marketing major requires the successful completion of 5 entry-to-major courses: ACCTG 211, ECON 102, ENGL 15 or ENGL 30H, MATH 110 or MATH 140, STAT 200 or SCM 200. Each course requires a C or better grade for successful complete.

Degree Requirements

For the Bachelor of Science degree in Marketing, a minimum of 122 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	98

21 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GQ courses; 6 credits of GS courses; 9 credits of GWS courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned.

Requirements for the Major

Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
BA 241	Legal Environment of Business	2
BA 242	Social and Ethical Environment of Business	2
PSU 7	First-Year Seminar Behrend	1
<i>Prescribed Courses: Require a grade of C or better</i>		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
CAS 100	Effective Speech	3
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
ENGL 202D	Effective Writing: Business Writing	3
FIN 301	Corporation Finance	3
MGMT 301	Basic Management Concepts	3
MGMT 471W	Strategic Management and Business Policy	3
MIS 204	Introduction to Management Information Systems	3
MKTG 301	Principles of Marketing	3
MKTG 342	Marketing Research	3
MKTG 343	Introduction to Marketing Analytics	3
MKTG 444	Buyer Behavior and Applied Research	3
SCM 301	Supply Chain Management	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
ENGL 15	Rhetoric and Composition	3
or ENGL 30H	Honors Rhetoric and Composition	
MATH 110	Techniques of Calculus I	4
or MATH 140	Calculus With Analytic Geometry I	
MKTG 441	Sustainability in Marketing Strategy	3
or MKTG 450W	Marketing Strategy	
SCM 200	Introduction to Statistics for Business	4
or STAT 200	Elementary Statistics	
Select 3 credits from the following list:		3
ECON 470	International Trade and Finance	
FIN 471	International Finance	
IB 303	International Business Operations	
MGMT 461	International Management	
MKTG 445	Global Marketing	
Other 300-400-level International Business courses		
Select 15 credits of Marketing electives from:		15
MKTG 327	Retailing	
MKTG 410	Personal Selling	
MKTG 422	Advertising and Sales Promotion Management	
MKTG 445	Global Marketing	
MKTG 473	Digital Marketing	

MKTG 475	Innovation and Product Management
MKTG 478	Services Marketing Management
MKTG 480	Intermediate Social Media Marketing
MKTG 485	Business-to-Business Marketing
MKTG 494	Research Project
MKTG 495	Internship
MKTG 496	Independent Studies
MKTG 497	Special Topics

Supporting Courses and Related Areas

Select 18 credits from any business major field or any non-business major field, except for all KINES (GHW) courses, any ENGL course below ENGL 15, and any MATH course below MATH 110. Exceptions may be petitioned through the applicable department chair. 18

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

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Erie

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Suggested Academic Plan

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Marketing, B.S. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H ^{*†#†}	3 CAS 100A, 100B, or 100C ^{††}	3
MATH 110 or 140 ^{*†#†}	4 ECON 102 ^{*†}	3
General Education Course (GH) ³	3 MIS 204 [*]	3
General Education Course (GN) ³	3 General Education Course (GA) ³	3
General Education Course (GHW) ³	1.5 General Education Course (Standalone or Inter-Domain) ³	3
PSU 7	1	
	15.5	15

Second Year

Fall	Credits Spring	Credits
ACCTG 211 ^{*#}	4 ENGL 202D ^{††}	3
ECON 104 ^{*†}	3 FIN 301 [*]	3
MKTG 301 [*]	3 MGMT 301 [*]	3
SCM 200 or STAT 200 ^{*†#†}	4 MKTG 342 [*]	3
General Education Course (GHW) ³	1.5 Approved Elective ²	3
	15.5	15

Third Year

Fall	Credits Spring	Credits
BA 241 & BA 242	4 MKTG 444 (Spring Only) [*]	3
MKTG 343 [*]	3 MKTG 445 (IL) or Marketing Elective ^{4*}	3
SCM 301 [*]	3 Approved Elective ²	3
MKTG 327 (Fall Only) [*]	3 General Education Course (GA/GH/GS/GN/Inter-Domain) ³	3
MKTG 485 (or Marketing Elective (Fall Only)) [*]	3 Approved Elective ²	3
	16	15

Fourth Year

Fall	Credits Spring	Credits
MKTG 410 (or Marketing Elective) [*]	3 MKTG 422 (or Marketing Elective) [*]	3

MGMT 471W (or Approved Elective) [*]	3 MKTG 441 or 450W (Spring Only) [*]	3
MKTG 480 (or Marketing Elective) [*]	3 Approved Elective (or MGMT 471W*) ²	3
Approved Elective ²	3 Approved Elective ²	3
General Education Course (Inter-Domain) ³	3 General Education Course (Inter-Domain) ³	3
	15	15

Total Credits 122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Please see your academic adviser for approval before scheduling your course.

² In order for a course to be eligible for an Approved Elective, the course can not be a lower level ENGL (1-6) or MATH (2-41) OR a GHW designated course. Please see your academic adviser if you have a question on a specific course.

³ All students are required to fulfill 45 credits of General Education courses. More information about this requirement can be found on the Baccalaureate Degree General Education Requirements page in the Bulletin (p. 3184).

⁴ MKTG 445 may be used as an International Business course or a Marketing Elective but, may not be used to satisfy the requirement in both categories.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

The Marketing major offers you a solid foundation in marketing concepts and practice, including marketing and consumer analytics, consumer behavior and psychology, distribution channels management, and digital marketing among and across other business units. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

Recent graduates of Penn State Behrend's B.S. in Marketing program work in marketing research, sales, social media analysis, supply chain analysis, marketing intelligence, sales analysis, and managerial

consulting. Their employers include Abercrombie & Fitch, American Eagle, American Express Financial Advisers, Apple, Coca-Cola, Fleet Boston Financial, Hershey Co., IBM, Mars Inc., Naked Lime, Oracle, and Saks Fifth Avenue. Our graduates have also joined Campbell Soup Company, Dick's Sporting Goods, Mediahub, New York Urban League, Barber National Institute, Prada Group, and Lord Corporation.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE MARKETING PROGRAM (<https://behrend.psu.edu/school-of-business/academic-programs/marketing/>)

Opportunities for Graduate Studies

Graduate study allows you to delve deeper into the subdisciplines of marketing that interest you most. Examples of master's- and doctoral-level study include social media management, content marketing, data-driven marketing analysis, digital marketing, consumer behavior, integrated marketing communications, and product marketing. Penn State Behrend also offers a hybrid MBA program that can be pursued in Erie and in Pittsburgh.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/admissions-financial-aid/graduate-admissions/master-of-business-administration/>)

Professional Resources

- AACSB International (<https://www.aacsb.edu/>)
- American Marketing Association (<https://www.ama.org/>)

Accreditation

The Black School of Business is accredited by AACSB International—The Association to Advance Collegiate Schools of Business. As the world's largest business education alliance, AACSB connects educators, students, and business to achieve a common goal: to create the next generation of great leaders. Synonymous with the highest standards of excellence since 1916, AACSB provides quality assurance, business education intelligence, and professional development services to over 1,500 member organizations and more than 785 accredited business schools worldwide. AACSB's mission is to foster engagement, accelerate innovation, and amplify impact in business education.

MORE INFORMATION ABOUT THE ASSOCIATION TO ADVANCE COLLEGIATE SCHOOLS OF BUSINESS (<https://www.aacsb.edu/>)

Contact

Erie

BLACK SCHOOL OF BUSINESS
281 Jack Burke Research and Economic Development Center
Erie, PA 16563
814-898-6107
behrendbusiness@psu.edu

<https://behrend.psu.edu/school-of-business> (<https://behrend.psu.edu/school-of-business/>)

Marketing, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

What is Marketing?

Marketing is a broad field that seeks to understand consumer, firm, and societal behaviors and subsequently identify ideas, products, services, and methodological approaches that deliver value. According to the American Marketing Association, Marketing involves "the set of institutions and processes for creating, communicating, delivering, and exchanging offerings valuable to customers, clients, partners, and society at large. Not only does marketing guide firms' managerial decisions in the marketplace, but it also offers insights into consumer awareness, public policy making, and non-commercial exchange of value (e.g., altruistic giving)."

You Might Like This Program If...

- You're interested in market research.
- You enjoy using technology to solve problems.
- You're empathetic and like to help others.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
MKTG 301	Principles of Marketing	3
MKTG 342	Marketing Research	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
MKTG 330	Consumer Behavior	3
	or MKTG 444 Buyer Behavior and Applied Research	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 9 credits of MKTG courses		9

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

Sean (Hyunsoon) Yim, Ph.D.

Assistant Professor of Marketing

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sean.yim@psu.edu

Career Paths

A minor in Marketing can be pursued by students in most Penn State degree programs. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

A minor in Marketing can make you a more competitive job candidate by demonstrating familiarity with marketing research, analytics, and consumer behavior issues.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN MARKETING (<https://behrend.psu.edu/school-of-business/academic-programs/marketing/minor/>)

Opportunities for Graduate Studies

Adding a specialized minor such as Marketing to a primary major program demonstrates to graduate programs your commitment to interdisciplinary thinking.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-business/academic-programs/marketing/minor/>)

Contact

Erie

BLACK SCHOOL OF BUSINESS

281 Jack Burke Research and Economic Development Center

Erie, PA 16563

814-898-6107

behrendbusiness@psu.edu

<https://behrend.psu.edu/school-of-business> (<https://behrend.psu.edu/school-of-business/>)

Mathematics, B.S. (Behrend)

Begin Campus: Any Penn State Campus

End Campus: Erie

Program Description

This major builds a foundation in mathematics with emphasis on the applications of mathematics and to the development of problem-solving skills. The major has four options that share a common core of mathematics courses for the first two years. The options are Applied Mathematics, Business, Computer Science, and Pure Mathematics. They allow students to concentrate on developing mathematical skills suitable

either for entry level positions in areas including applied mathematics, actuarial sciences, statistics and computer programming, or for graduate studies in mathematics and related fields. Students, with the assistance of a faculty adviser, should select an option in their sophomore year. In addition, students are strongly encouraged to participate in faculty supervised research.

What is Mathematics?

The study of mathematics emphasizes careful problem analysis, precision of thought and expression, and the development of mathematical skills needed for work in many other areas. Theoretical mathematicians increase basic knowledge in "pure" fields like abstract algebra, analysis, or topology. Applied mathematicians use tools growing out of calculus, analysis, computing, statistics, and operations research to solve problems in science, industry, government, and other areas.

You Might Like This Program If...

- You enjoy solving challenging problems.
- You like to know why and how things work.
- You are interested in multiple academic disciplines.
- You are looking for a foundational major that supports diverse career paths in the sciences, engineering, research, education, and computer science.
- You find irrational numbers to be very rational, and calculate pi for fun.

Entrance to Major

In order to be eligible for entrance to the Mathematics major, a student must have:

1. attained at least a 2.00 cumulative grade point average; and
2. completed MATH 140 and MATH 141 and earned a grade of C or better in each of these courses.

Degree Requirements

For the Bachelor of Science degree in Mathematics, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	7-8
Requirements for the Major	85-92

18-24 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 0-6 credits of GS courses; 3 credits of GWS courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned.

Requirements for the Major

A student enrolled in this major must earn at least a grade of C in each 300- and 400-level course in the major.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and->

rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
ENGL 202C	Effective Writing: Technical Writing	3
<i>Prescribed Courses: Require a grade of C or better</i>		
CMPSC 121	Introduction to Programming Techniques	3
CMPSC 122	Intermediate Programming	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
MATH 220	Matrices	2
MATH 230	Calculus and Vector Analysis	4
MATH 251	Ordinary and Partial Differential Equations	4
MATH 311W	Concepts of Discrete Mathematics	4
MATH 312	Concepts of Real Analysis	3
STAT 301		3
STAT 401	Experimental Methods	3

Additional Courses

Select 1 credit of GN designated course and 8 additional credits in one of the following sequences:

BIOL 110 & BIOL 220W	Biology: Basic Concepts and Biodiversity and Biology: Populations and Communities	
CHEM 110 & CHEM 111 & CHEM 112 & CHEM 113	Chemical Principles I and Experimental Chemistry I and Chemical Principles II and Experimental Chemistry II	
PHYS 211 & PHYS 212	General Physics: Mechanics and General Physics: Electricity and Magnetism	
PHYS 250 & PHYS 251	Introductory Physics I and Introductory Physics II	

Requirements for the Option

Requirements for the Option: Require a grade of C or better

Select an option 36-43

Requirements for the Option

Applied Mathematics Option (36 credits)

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 6 credits from CMPSC 221 or higher, except CMPSC 360		6
Select five of the following:		15
MATH 310	Elementary Combinatorics	
MATH 412	Fourier Series and Partial Differential Equations	
MATH 449	Applied Ordinary Differential Equations	
MATH 455	Introduction to Numerical Analysis I	
MATH 456	Introduction to Numerical Analysis II	
MATH 482	Mathematical Methods of Operations Research	
STAT 414	Introduction to Probability Theory	
STAT 461	Analysis of Variance	
STAT 462	Applied Regression Analysis	
STAT 464	Applied Nonparametric Statistics	
STAT 466	Survey Sampling	
Select two of the following:		6

MATH 421	Complex Analysis	
MATH 426	Introduction to Modern Geometry	
MATH 427	Foundations of Geometry	
MATH 429	Introduction to Topology	
MATH 435	Basic Abstract Algebra	
MATH 436	Linear Algebra	
MATH 465	Number Theory	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 9 credits from a school-approved list 9

Business Option (43 credits)

A maximum of 30 credits through the School of Business may be used to fulfill General Education, Major Requirements and Option Requirements.

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
MIS 204	Introduction to Management Information Systems	3

Additional Courses

Additional Courses: Require a grade of C or better

Select 6 credits from CMPSC 221 or higher, except CMPSC 360, and MIS 336 6

Select two of the following: 6

ECON 481	Business Forecasting Techniques	
ECON 485	Econometric Techniques	
FIN 301	Corporation Finance	
FIN 405	Advanced Financial Management	
FIN 420	Investment and Portfolio Analysis	
FIN 427	Derivative Securities	
MGMT 301	Basic Management Concepts	
MGMT 331	Management and Organization	
MGMT 341	Human Resource Management	
MKTG 301	Principles of Marketing	

Select two of the following: 6

MATH 482	Mathematical Methods of Operations Research	
MIS 336	Database Management Systems	
MIS 430	Systems Analysis	
MIS 435	Systems Design and Implementation	
MIS 445	Business Intelligence	
STAT 414	Introduction to Probability Theory	
STAT 461	Analysis of Variance	
STAT 462	Applied Regression Analysis	
STAT 464	Applied Nonparametric Statistics	
STAT 466	Survey Sampling	

Select two of the following: 6

MATH 421	Complex Analysis	
MATH 426	Introduction to Modern Geometry	
MATH 427	Foundations of Geometry	
MATH 429	Introduction to Topology	

MATH 435	Basic Abstract Algebra	
MATH 436	Linear Algebra	
MATH 465	Number Theory	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 6 credits from a school-approved list 6

Computer Science Option (36 credits)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CMPSC 455	Introduction to Numerical Analysis I	3
CMPSC 465	Data Structures and Algorithms	3

Additional Courses

Additional Courses: Require a grade of C or better

CMPSC 221	Object Oriented Programming with Web-Based Applications	3
	or SWENG 311 Object-Oriented Software Design and Construction	
CMPSC 312	Computer Organization and Architecture	3
	or CMPEN 351 Microprocessors	
Select 12 credits from CMPSC courses at the 300- and 400-level		12

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 12 credits from a school-approved list 12

Pure Mathematics Option (36 credits)

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select six of the following:		18
MATH 310	Elementary Combinatorics	
MATH 412	Fourier Series and Partial Differential Equations	
MATH 421	Complex Analysis	
MATH 426	Introduction to Modern Geometry	
MATH 427	Foundations of Geometry	
MATH 429	Introduction to Topology	
MATH 435	Basic Abstract Algebra	
MATH 436	Linear Algebra	
MATH 455	Introduction to Numerical Analysis I	
MATH 456	Introduction to Numerical Analysis II	
MATH 465	Number Theory	
MATH 482	Mathematical Methods of Operations Research	
STAT 414	Introduction to Probability Theory	
STAT 461	Analysis of Variance	
STAT 462	Applied Regression Analysis	
STAT 464	Applied Nonparametric Statistics	
STAT 466	Survey Sampling	
Select three of the following:		9
MATH 403	Classical Analysis I	
MATH 421	Complex Analysis	
MATH 429	Introduction to Topology	
MATH 435	Basic Abstract Algebra	
Supporting Courses and Related Areas		

Supporting Courses and Related Areas: Require a grade of C or better

Select 9 credits from a school-approved list 9

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Communication:** Students will demonstrate and apply communicating mathematics in written form.
- **Modeling:** Students will demonstrate the knowledge to describe physical situations mathematically.
- **Opportunity:** Students will demonstrate knowledge of internship opportunities and opportunities to participate in mathematical research directed by mathematics faculty. Furthermore, each student who participated in an internship or in undergraduate research will be able to describe in a paragraph what he or she learned through the experience.
- **Problem Solving:** Students will demonstrate the knowledge to apply logical skills in order to understand how to approach and solve mathematical problems.
- **Proofs:** Students will demonstrate and apply proof techniques.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Applied Mathematics Option: Mathematics, B.S. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 ^{##†}	4 MATH 141 ^{##}	4
ENGL 15 or 30H [†]	3 MATH 220 [*]	2
CMPSC 121 ^{††}	3 CMPSC 122 [*]	3
General Education Course (GN Selection/Science Sequence Course) [†]	4 General Education Course (GN Selection/Science Sequence Course) [†]	4
PSU 7	1 General Education Course [†]	3
	15	16

Second Year

Fall	Credits Spring	Credits
CAS 100 [‡]	3 MATH 311W [*]	4
MATH 230 [*]	4 MATH 251 [*]	4
STAT 301 ^{*2}	3 STAT 401 [*]	3
General Education Course [†]	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
	14.5	15.5

Third Year

Fall	Credits Spring	Credits
MATH 312 [*]	3 ENGL 202C [‡]	3
Additional Course Selection (Group A) [*]	3 Additional Course Selection (Group A) [*]	3
Additional Course Selection (Group C) [*]	3 Additional Course Selection (Group B) [*]	3
General Education Course [†]	3 Additional Course Selection (Group C) [*]	3
Program List Course [*]	3 General Education Course [†]	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
Additional Course Selection (Group A)*	3 Additional Course Selection (Group A)*	3
Additional Course Selection (Group B)*	3 Additional Course Selection (Group A)*	3
Elective Course	3 Program List Course**†	3
General Education Course†	3 Elective Course	3
Program List Course*	3 General Education Course†	3
	15	15

Total Credits 121

- * Course requires a grade of C or better for the major
 ‡ Course requires a grade of C or better for General Education
 # Course is an Entrance to Major requirement
 † Course satisfies General Education and degree requirement

¹ Prerequisite: satisfactory performance on the MATH placement tests (ALEKS) - i.e. placement beyond the level of MATH 22; or CHEM 101 and MATH 22 or MATH 41

² See adviser for acceptable substitutions

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes

- Students who have not met the admissions requirement of two units of a high school world language must complete a college level-one world language within their first 60 credits. In order to be eligible for entrance to the mathematics major, a student must have attained at least a 2.00 cumulative GPA and completed MATH 140 and MATH 141 earning a grade of C or better in both courses.
- Students graduating from a major must achieve a minimum GPA of 2.00 and earn a grade of C or better in all 300- and 400-level courses within the "prescribed," "additional," and "supporting" courses as specified in Senate Policy 82-44. If a student received a grade below a C, s/he must repeat that course or a School approved alternative, and earn a grade of C or better.
- Students should inquire whether their Program List courses count toward a minor or a certificate.
- A student must earn at least a total of 120 credits for graduation.

Scheduling Patterns

Some course are offered only in the fall or in the spring semester, and some upper-level courses are offered in alternative year pattern. The scheduling pattern below is tentative and subject to change:

Every Fall - MATH 312, MATH 455

Every Spring - MATH 436, STAT 401

Fall (Even Years) - MATH 427, MATH 428, MATH 465, STAT 462

Spring (Odd Years) - MATH 421, MATH 449, STAT 461

Fall (Odd Years) - MATH 412, MATH 435, STAT 414

Spring (Even Years) - MATH 310, MATH 429, MATH 456, MATH 482, one of either STAT 464 or STAT 466

Spring (Occasional Offerings) - MATH 403, MATH 426 or MATH 475Y or MATH 497

Advising NotesScience Sequence Course

Student must complete one of the following two semester science course sequences, which will also count toward their general education Science (GN) requirement:

- BIOL 110S and BIOL 220W
- CHEM 110, CHEM 111, CHEM 112, and CHEM 113
- PHYS 211 and PHYS 212
- PHYS 250 and PHYS 251

Additional Course Selections

Group A: MATH 310, MATH 412, MATH 449, MATH 455, MATH 456, MATH 482, STAT 414, STAT 461, STAT 464, STAT 462, STAT 466

Group B: MATH 421, MATH 426, MATH 427, MATH 429, MATH 435, MATH 436, MATH 465

Group C: CMPSC 221 or higher, with the exception of CMPSC 360

Program List Courses

- All 300- and 400-level courses in BIOL, CHEM, MATH, PHYS, and STAT. No more than three credits of any 495 can be used as supporting courses

- CMPSC 102, CMPSC 221, and all 300-and 400-level CMPSC courses, with the exception of CMPSC 360

- ACCTG 211

- All CMPEN Courses

- All EE Courses

- All EMCH Courses

- All 300- and 400-level courses in ECON

- All 300-and 400-level courses in FIN

- All 200- and above level courses in MIS

- All SCM courses, with the exception of SCM 200

- BA 241 and BA 242

- All ME Courses

- All MGMT courses

- All MRKTG courses

- All SWENG Courses

Business Option: Mathematics, B.S. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 ^{*#†}	4 MATH 141 ^{*#}	4
ENGL 15 [‡]	3 MATH 220 [*]	2
CMPSC 121 ^{**†}	3 CMPSC 122 [*]	3
PSU 7	1 ECON 102 [†]	3
General Education Course (GN Selection/Science Sequence Course) [†]	4 General Education Course (GN Selection/Science Sequence Course) [†]	4
	15	16

Second Year

Fall	Credits Spring	Credits
CAS 100 [‡]	3 MATH 311W [*]	4
MATH 230 [*]	4 MATH 251 [*]	4
STAT 301 ^{*2}	3 STAT 401 [*]	3
ECON 104 [†]	3 MIS 204 [*]	3
General Education Course (GHW)	1.5 General Education Course (GHW)	3
	14.5	17

Third Year

Fall	Credits Spring	Credits
MATH 312 [*]	3 ENGL 202C ^{††}	3
ACCTG 211 [*]	4 Additional Course Selection (Group A) [*]	3
Additional Course Selection (Group A) [*]	3 Additional Course Selection (Group D) [*]	3
General Education Course [†]	3 Additional Course Selection (Group B) [*]	3
General Education Course	3 General Education Course	3
	16	15

Fourth Year

Fall	Credits Spring	Credits
Additional Course Selection (Group B) [*]	3 Additional Course Selection (Group C) [*]	3
Additional Course Selection (Group C) [*]	3 Program List Course [*]	3
Additional Course Selection (Group D) [*]	3 General Education Course	3
Program List Course [*]	3 Elective Course	3
General Education Course	3 Elective Course	3
	15	15

Total Credits 123.5

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Prerequisite: satisfactory performance on the MATH placement tests (ALEKS) - i.e. placement beyond the level of MATH 22; or CHEM 101 and MATH 22 or MATH 41

² See adviser for acceptable substitutions

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes

1.) Students who have not met the admissions requirement of two units of a high school world language must complete a college level-one world language within their first 60 credits. In order to be eligible for entrance to the mathematics major, a student must have attained at least a 2.00 cumulative GPA and completed MATH 140 and MATH 141 earning a grade of C or better in both courses.

2.) Students graduating from a major must achieve a minimum GPA of 2.00 and earn a grade of C or better in all 300- and 400-level courses within the "prescribed," "additional," and "supporting" courses as specified in Senate Policy 82-44. If a student received a grade below a C, s/he must repeat that course or a School approved alternative, and earn a grade of C or better.

3.) Students should inquire whether their Program List courses count toward a minor or a certificate.

4.) A student must earn at least a total of 120 credits for graduation.

Scheduling Patterns

Some course are offered only in the fall or in the spring semester, and some upper-level courses are offered in alternative year pattern. The scheduling pattern below is tentative and subject to change:

Every Fall - MATH 312, MATH 455

Every Spring - MATH 436, STAT 401

Fall (Even Years) - MATH 427, MATH 428, MATH 465, STAT 462

Spring (Odd Years) - MATH 421, MATH 449, STAT 461

Fall (Odd Years) - MATH 412, MATH 435, STAT 414

Spring (Even Years) - MATH 310, MATH 429, MATH 456, MATH 482, one of either STAT 464 or STAT 466

Spring (Occasional Offerings) - MATH 403, MATH 426 or MATH 475Y or MATH 497

Advising Notes

Science Sequence Course

Student must complete one of the following two semester science course sequences, which will also count toward their general education Science (GN) requirement:

- BIOL 110S and BIOL 220W

- CHEM 110, CHEM 111, CHEM 112, and CHEM 113

- PHYS 211 and PHYS 212

- PHYS 250 and PHYS 251

Additional Course Selections

Group A: ECON 481, ECON 485, FIN 301, FIN 405, FIN 420, FIN 427, MGMT 301, MGMT 331, MGMT 341, MKTG 301

Group B: MATH 482, MIS 336, MIS 430, MIS 435, MIS 445, STAT 414, STAT 461, STAT 462, STAT 464, STAT 466

Group C: MATH 421, MATH 426, MATH 427, MATH 429, MATH 435, MATH 436, MATH 465

Group D: MIS 336, CMPSC 221 or higher, with the exception of CMPSC 360

No course may be used to fulfill the requirement in two different groups. For example, a student may not use MIS 336 to satisfy both the Group B and Group D requirements.

Program List Courses

- All 300- and 400-level courses in BIOL, CHEM, MATH, PHYS, and STAT.
No more than three credits of any 495 can be used as supporting courses

- CMPSC 102, CMPSC 221, and all 300-and 400-level CMPSC courses, with the exception of CMPSC 360

- All 300- and 400-level courses in ECON

- All 300-and 400-level courses in FIN

- All 200- and above level courses in MIS

- All SCM courses, with the exception of SCM 200

- BA 241 and BA 242

- All MGMT courses

- All MRKTG courses

Computer Science Option: Mathematics, B.S. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 ^{*#†}	4 MATH 141 ^{*#}	4
ENGL 15 or 30H [†]	3 MATH 220 [*]	2
CMPS 121 ^{*†}	3 CMPS 122 [*]	3
General Education Course (GN Selection/Science Sequence Course) [†]	4 General Education Course (GN Selection/Science Sequence Course) [†]	4
PSU 7	1 General Education Course [†]	3
	15	16

Second Year

Fall	Credits Spring	Credits
CAS 100 [†]	3 MATH 311W [*]	4
MATH 230 [*]	4 MATH 251 [*]	4
STAT 301 ^{*2}	3 STAT 401 [*]	3
General Education Course [†]	3 Additional Course Selection (Group A) [*]	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
	14.5	15.5

Third Year

Fall	Credits Spring	Credits
MATH 312 [*]	3 ENGL 202C [†]	3
Additional Course Selection (Group A) [*]	3 Additional Course Selection (Group A) [*]	3
Additional Course Selection (Group A) [*]	3 Additional Course Selection (Group B) [*]	3
General Education Course [†]	3 Program List Course [*]	3
Program List Course [*]	3 General Education Course [†]	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
Additional Course Selection (Group B) [*]	3 Additional Course Selection (Group B) [*]	3
Additional Course Selection (Group B) [*]	3 Program List Course ^{*†}	3
Elective Course	3 Elective Course	3
General Education Course [†]	3 General Education Course [†]	3
Program List Course [*]	3 General Education Course [†]	3
	15	15

Total Credits 121

* Course requires a grade of C or better for the major

† Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Prerequisite: satisfactory performance on the MATH placement tests (ALEKS) - i.e. placement beyond the level of MATH 22; or CHEM 101 and MATH 22 or MATH 41

² See adviser for acceptable substitutions

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes

1.) Students who have not met the admissions requirement of two units of a high school world language must complete a college level-one world language within their first 60 credits. In order to be eligible for entrance to the mathematics major, a student must have attained at least a 2.00 cumulative GPA and completed MATH 140 and MATH 141 earning a grade of C or better in both courses.

2.) Students graduating from a major must achieve a minimum GPA of 2.00 and earn a grade of C or better in all 300- and 400-level courses within the "prescribed," "additional," and "supporting" courses as specified in Senate Policy 82-44. If a student received a grade below a C, s/he must repeat that course or a School approved alternative, and earn a grade of C or better.

3.) Students should inquire whether their Program List courses count toward a minor or a certificate.

4.) A student must earn at least a total of 120 credits for graduation.

Scheduling Patterns

Some course are offered only in the fall or in the spring semester, and some upper-level courses are offered in alternative year pattern. The scheduling pattern below is tentative and subject to change:

Every Fall - MATH 312, MATH 455

Every Spring - MATH 436, STAT 401

Fall (Even Years) - MATH 427, MATH 428, MATH 465, STAT 462

Spring (Odd Years) - MATH 421, MATH 449, STAT 461

Fall (Odd Years) - MATH 412, MATH 435, STAT 414

Spring (Even Years) - MATH 310, MATH 429, MATH 456, MATH 482, one of either STAT 464 or STAT 466

Spring (Occasional Offerings) - MATH 403, or MATH 426 or MATH 475Y or MATH 497

Advising Notes

Science Sequence Course

Student must complete one of the following two semester science course sequences, which will also count toward their general education Science (GN) requirement:

- BIOL 110S and BIOL 220W

- CHEM 110, CHEM 111, CHEM 112, and CHEM 113

- PHYS 211 and PHYS 212

- PHYS 250 and PHYS 251

Additional Course Selections

Group A: CMPSC 311 or SWENG 311, CMPSC 312 or CMPEN 351, CMPSC 455, CMPSC 465

Group B: CMPSC courses at the 300- and 400-level, with the exception of CMPSC 360

Program List Courses

- All 300- and 400-level courses in MATH and STAT. No more than three credits of any 495 can be used as supporting courses

- CMPSC 102, CMPSC 221, and all 300- and 400-level CMPSC courses, with the exception of CMPSC 360

- CMPEN 441

- All 200- and above level courses in MIS

- All SCM courses, with the exception of SCM 200

Pure Mathematics Option: Mathematics, B.S. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 ^{**†}	4 MATH 141 ^{**}	4
ENGL 15 or 30H [‡]	3 MATH 220 [*]	2
CMPS 121 ^{*†}	3 CMPS 122 [*]	3
General Education Course (GN Selection/Science Sequence Course) [†]	4 General Education Course (GN Selection/Science Sequence Course) [†]	4
PSU 7	1 General Education Course [†]	3
	15	16

Second Year

Fall	Credits Spring	Credits
CAS 100 [‡]	3 MATH 311W [*]	4
MATH 230 [*]	4 MATH 251 [*]	4
STAT 301 ^{*2}	3 STAT 401 [*]	3
General Education Course [†]	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
	14.5	15.5

Third Year

Fall	Credits Spring	Credits
MATH 312 [*]	3 ENGL 202C [‡]	3
Additional Course Selection (Group A) [*]	3 Additional Course Selection (Group A) [*]	3
Additional Course Selection (Group B) [*]	3 Additional Course Selection (Group B) [*]	3
General Education Course [†]	3 Additional Course Selection (Group A) [*]	3
Program List Course [*]	3 General Education Course [†]	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
Additional Course Selection (Group A) [*]	3 Additional Course Selection (Group A) [*]	3
Additional Course Selection (Group B) [*]	3 Additional Course Selection (Group A) [*]	3
Elective Course	3 Program List Course ^{**†}	3
General Education Course [†]	3 Elective Course	3
Program List Course [*]	3 General Education Course [†]	3
	15	15

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Prerequisite: satisfactory performance on the MATH placement tests (ALEKS) - i.e. placement beyond the level of MATH 22; or CHEM 101 and MATH 22 or MATH 41

² See adviser for acceptable substitutions

University Requirements and General Education Notes:

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Program Notes

1.) Students who have not met the admissions requirement of two units of a high school world language must complete a college level-one world language within their first 60 credits. In order to be eligible for entrance to the mathematics major, a student must have attained at least a 2.00 cumulative GPA and completed MATH 140 and MATH 141 earning a grade of C or better in both courses.

2.) Students graduating from a major must achieve a minimum GPA of 2.00 and earn a grade of C or better in all 300- and 400-level courses within the "prescribed," "additional," and "supporting" courses as specified in Senate Policy 82-44. If a student received a grade below a C, s/he must repeat that course or a School approved alternative, and earn a grade of C or better.

3.) Students should inquire whether their Program List courses count toward a minor or a certificate.

4.) A student must earn at least a total of 120 credits for graduation.

Scheduling Patterns

Some course are offered only in the fall or in the spring semester, and some upper-level courses are offered in alternative year pattern. The scheduling pattern below is tentative and subject to change:

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Fall (Even Years) - MATH 427, MATH 428, MATH 465, STAT 462

Spring (Odd Years) - MATH 421, MATH 449, STAT 461

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Spring (Even Years) - MATH 310, MATH 429, MATH 456, MATH 482, one of either STAT 464 or STAT 466

Spring (Occasional Offerings) - MATH 403, or MATH 426 or MATH 475Y or MATH 497

Advising Notes

Science Sequence Course

Student must complete one of the following two semester science course sequences, which will also count toward their general education Science (GN) requirement:

-BIOL 110S and BIOL 220W

-CHEM 110, CHEM 111, CHEM 112, and CHEM 113

-PHYS 211 and PHYS 212

-PHYS 250 and PHYS 251

Additional Course Selections

Group A: MATH 310, MATH 412, MATH 449, MATH 455, MATH 456, MATH 482, STAT 414, STAT 461, STAT 464, STAT 462, STAT 466

Group B: MATH 421, MATH 426, MATH 427, MATH 429, MATH 435, MATH 436, MATH 465

No course may be used to fulfill the requirement in both Group A and Group B

Program List Courses

- All 300- and 400-level courses in BIOL, CHEM, MATH, PHYS, and STAT. No more than three credits of any 495 can be used as supporting courses

- All CMPEN Courses

- CMPSC 102, CMPSC 221, and all 300-and 400-level CMPSC courses, with the exception of CMPSC 360

- All 300- and 400-level courses in ECON

- All EE Courses

- All EMCH Courses

- All 300-and 400-level courses in FIN

- All 200- and above level courses in MIS

- All SCM courses, with the exception of SCM 200

- ACCTG 211

- BA 241 and BA 242

- All ME Courses

- All MGMT courses

- All MRKTG courses

- PHIL 10, PHIL 12

- All SWENG Courses

Career Paths

You can tailor your math degree to your career goals by pursuing one of four options. Applied Mathematics emphasizes numerical analysis, modeling, and problem solving. Pure Mathematics is excellent preparation for graduate school. The Business Option includes additional coursework in statistics, management information systems, economics, and finance. The Computer Science Option emphasizes programming, algorithms, and numerical methods. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center.

Careers

A degree in mathematics can lead to careers in fields as varied as actuarial planning, computer systems design, software engineering, information systems, mathematical biology, mathematics education, operations research, programming management, quality control analysis, system analysis, data analysis, financial analysis, national security and defense, and technical writing. The demand for mathematicians is projected to be strong because of a shortage of science teachers and a growing need for specialists in actuarial mathematics, computer network efficiency, and data analysis. For students interested in both mathematics and teaching, Penn State Behrend also offers a B.S. in Secondary Education in Mathematics.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE MATHEMATICS PROGRAM (<https://behrend.psu.edu/school-of-science/academic-programs/mathematics/>)

Opportunities for Graduate Studies

Graduates may continue their studies to earn a master's or doctoral degree in pure math, applied math, or other technical fields. Mathematics is a common foundational major for graduate study in the natural sciences, engineering, business and economics, statistics or biostatistics, operations research, and national security analysis. Mathematics also is a useful undergraduate major for future architects, doctors, lawyers, and other professionals.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-science/academic-programs/mathematics/>)

Professional Resources

- Mathematical Association of America (<https://maa.org>)
- American Mathematical Society (<https://www.ams.org/home/page/>)
- National Association of Mathematicians (<https://www.nam-math.org/>)
- Society for Industrial and Applied Mathematics (<https://www.siam.org/>)

Contact

Erie

SCHOOL OF SCIENCE
1 Prischak
4205 College Drive
Erie, PA 16563
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behrend-science@psu.edu

<https://behrend.psu.edu/school-of-science> (<https://behrend.psu.edu/school-of-science/>)

Mathematics, Minor (Behrend)

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The minor in mathematics shows students how to use mathematical tools and ways of thinking in many fields. The choice of several upper-level courses allows students to focus on specific areas of interest. Business majors might choose linear programming and operations research. Engineering students could enroll in numerical methods. Chemistry students might choose numerical methods and linear programming, while biology majors could enroll in mathematical modeling and differential equations. A solid mathematical background can be a strong asset in fields of education, neurobiology and behavior, plant biology and agriculture, immune system studies and pathology, medical sciences, marketing and management science, engineering, national security, ecology, and ecosystems.

What is Mathematics?

The study of mathematics emphasizes careful problem analysis, precision of thought and expression, and the development of mathematical skills needed for work in many other areas. Theoretical mathematicians increase basic knowledge in "pure" fields like abstract algebra, analysis, or topology. Applied mathematicians use tools growing

out of calculus, analysis, computing, statistics, and operations research to solve problems in science, industry, government, and other areas.

You Might Like This Program If...

- You want to add a second discipline to your science major.
- You want to add a science discipline to a non-science major.
- You are thinking of graduate study in a technical field.
- You want to expand your employment opportunities by adding science expertise to study of marketing, communications, political science, psychology, chemistry, engineering, or another similarly broad discipline • You are preparing for a career in the health sciences.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
MATH 311W	Concepts of Discrete Mathematics	4
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 8 credits of MATH courses at the level of MATH 140 or above		8
Select 6 credits of 400-level MATH courses ¹		6

¹ No more than three credits from MATH 495 courses can be used to satisfy this requirement.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

Andrew George
Lecturer in Mathematics
7-B Prischak

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814-898-6196
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Career Paths

A mathematics minor can lead to broader and more challenging opportunities in both careers and advanced studies. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

Mathematics' emphasis on problem solving makes it excellent additional preparation for careers in science, engineering, business, or computing. A biologist proficient in mathematics will better understand the numerical aspects of environmental problems. A chemist employing linear programming can model the results of an experiment. An engineer with advanced mathematical skills can tackle non-standard problems with confidence. Business students with mathematical experience are prepared for sophisticated financial analyses.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN MATHEMATICS (<https://behrend.psu.edu/school-of-science/academic-programs-1/mathematics/curriculum/mathematics-minor/>)

Opportunities for Graduate Studies

A minor in the sciences, particularly when added to a major program outside of the sciences, demonstrates to graduate school admissions committees your commitment to interdisciplinary thinking.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-science/academic-programs-1/mathematics/curriculum/mathematics-minor/>)

Contact

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Mechanical Engineering Technology, A. ENGT. (Behrend)

Begin Campus: Erie

End Campus: Erie

Program Description

This major helps graduates prepare for technical positions in manufacturing, machine and tool design, computer drafting and design, computer integrated manufacturing, materials selection and processes, technical sales, and other related industries in mechanical applications.

The primary objective of the program is to provide a broad foundation in mechanical systems and applications; computer systems in drafting (CAD), manufacturing (CAM), and automation and robotics (CIM); production and product design; mechanics, dynamics, and strength of materials.

Graduates of this major may qualify for admission to the baccalaureate degree majors in Mechanical Engineering Technology and Structural Design and Construction Engineering Technology programs at Penn State Harrisburg; the Mechanical Engineering Technology and the Plastics Engineering Technology programs at Penn State Erie, The Behrend College; or the baccalaureate degree major in Electro-Mechanical Engineering Technology offered at Penn State Altoona, Penn State Berks, Penn State New Kensington, or Penn State York. Two tracks are available to streamline the transition to these baccalaureate degree programs. A general track is provided for students who do not plan to continue their engineering technology education at the baccalaureate level.

What is Mechanical Engineering Technology?

Mechanical engineering technology is the understanding of how products and machinery work and how they are designed, made, and used.

You Might Like This Program If...

- You are interested in computer-aided drafting (CAD) and computer-aided manufacturing.
- You enjoy physics, math and statistics.
- You have a passion for robotics and automation.
- You have an interest in programming and data acquisition.

Entrance to Major

Students must have a minimum 2.0 GPA to change to this Associate degree after admission to the University.

Degree Requirements

For the Associate in Engineering Technology degree in Mechanical Engineering Technology, a minimum of 65 credits is required:

Requirement	Credits
General Education	21
Requirements for the Major	54-64

12-15 of the 21 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GN courses; 3 credits of GQ courses; 6 credits of GWS courses, 0-3 credits of GH or GS.

Requirements for the Major

A First-Year Seminar is required for students at Penn State Erie, The Behrend College.

Code	Title	Credits
Prescribed Courses		
CAS 100	Effective Speech	3
IET 215	Production Design	2
IET 216	Production Design Laboratory	2
MET 213	Strength and Properties of Materials	3
MET 214	Strength and Properties of Materials Laboratory ¹	1
MET 210W	Machine Design	3

<i>Prescribed Courses: Require a grade of C or better</i>		
IET 101	Manufacturing Materials, Processes, and Laboratory	3
MET 111	Mechanics for Technology: Statics	3
MET 206	Dynamics	3
Additional Courses		
ENGL 15	Rhetoric and Composition	3
or ENGL 30H	Honors Rhetoric and Composition	
Select 5-6 credits of the following:		5-6
MATH 22 & MATH 26	College Algebra With Analytic Geometry and Applications II and Plane Trigonometry and Applications of Trigonometry	
MATH 40	Algebra, Trigonometry, and Analytic Geometry ^{1,2}	
MATH 81 & MATH 82	Technical Mathematics I and Technical Mathematics II ^{1,2}	
MATH 82	Technical Mathematics II ^{1,2}	
Select 3-4 credits of the following:		3-4
PHYS 150	Technical Physics I	
PHYS 211	General Physics: Mechanics	
PHYS 250	Introductory Physics I	
Select 3-4 credits of the following:		3-4
PHYS 151	Technical Physics II	
PHYS 212	General Physics: Electricity and Magnetism	
PHYS 251	Introductory Physics II	
Select at least 19-24 credits from one of the following three tracks: 19-24		
<i>General Track</i>		
EDSGN 100	Cornerstone Engineering Design	
EDSGN 110	Spatial Analysis in Engineering Design	
or EGT 114	Spatial Analysis and Computer-Aided Drafting	
EET 105	Electrical Systems	
MET 107	Computer Applications for Technologists	
STS 200	Critical Issues in Science, Technology, and Society	
or STS 233	Ethics and the Design of Technology	
or STS 245		
Select at least 6 credits from the approved supporting course list for this track		
<i>Baccalaureate Electro-Mechanical Engineering Technology (EMET) Track</i>		
CMPET 117	Digital Electronics ¹	
CMPET 120	Digital Electronics Laboratory ¹	
EDSGN 100	Cornerstone Engineering Design	
EDSGN 110	Spatial Analysis in Engineering Design	
or EGT 114	Spatial Analysis and Computer-Aided Drafting	
EET 105	Electrical Systems	
EET 114	Electrical Circuits II ¹	
EET 118	Electrical Circuits Laboratory ¹	
MATH 83	Technical Calculus ^{1,2}	
or MATH 140	Calculus With Analytic Geometry I	
STS 200	Critical Issues in Science, Technology, and Society	
or STS/PHIL 233	Ethics and the Design of Technology	
or STS 245		

Baccalaureate Mechanical Engineering Technology (METBC or MET)**Track**

EET 100	Electric Circuits, Power, and Electronics
EGT 120	Introduction to Graphics and Solid Modeling
EGT 121	Applied Solid Modeling
MET 107	Computer Applications for Technologists
Select 1 credit of First-Year Seminar	
Select 6 credits from the approved supporting course list for this track	

¹ Students pursuing the baccalaureate track must take MATH 22 and MATH 26.

² Students who choose to take MATH 81 and MATH 82 must select MATH 83. Students who choose to take MATH 22 and MATH 26 must select MATH 140.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all associate degree students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 3 credits
- **Writing and Speaking (GWS):** 3 credits

Knowledge Domains

- **Arts (GA):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Note: Up to six credits of Inter-Domain courses may be used for any Knowledge Domain requirement, but when a course may be used to satisfy more than one requirement, the credits from the course can be counted only once.

Exploration

- **Any General Education course (including GHW and Inter-Domain):** 3 credits

University Degree Requirements**Cultures Requirement**

3 credits of United States (US) or International (IL) cultures coursework are required and may satisfy other requirements

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 60 degree credits must be earned for an associates degree. The requirements for some programs may exceed 60 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Educational Objectives

The Associate Mechanical Engineering Technology program prepares students with technical and professional skills for the professional practice. Due to their experience in our program, within few years of graduation, we expect our graduates to have the ability to:

1. Safely practice in the areas of applied design, manufacturing, testing, evaluation, technical sales, or 2D and 3D modeling.
2. Collaborate effectively in project team activities through recognizing the global, societal, and ethical contexts of their work.
3. Work collaboratively in multi-disciplinary teams and assume an increasing level of responsibility and leadership within their organizations.
4. Demonstrate troubleshooting skills by following protocols and using technical literature.

Student Outcomes

Student outcomes describe what students are expected to know and be able to do by the time of graduation. The Associate Mechanical Engineering Technology program is designed to enable students to:

1. Apply knowledge, techniques, skills, and modern tools of mathematics, science, engineering, and technology to solve well-defined engineering problems appropriate to the discipline.
2. Design solutions for well-defined technical problems and assist with the engineering design of systems, components, or processes appropriate to the discipline.
3. Apply written, oral, and graphical communication in well-defined technical and non-technical environments; and an ability to identify and use appropriate technical literature.
4. Conduct standard tests, measurements, and experiments and to analyze and interpret the results.
5. Function effectively as a member or leader on a technical team.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Mechanical Engineering Technology, A.ENG.T. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
EGT 120	3 EGT 121	3
ENGL 15 or 30H (GWS) ^{††}	3 IET 215	2
First Year Seminar	1 MATH 41 (GQ) [*]	3
IET 101 [*]	3 MET 111 [*]	3
MATH 22 (GQ) [*]	3 PHYS 250 (GN) [*]	4

General Education Course	3 General Education Course	3
	16	18

Second Year

Fall	Credits Spring	Credits
IET 216	2 CAS 100 (GWS) ^{††}	3
MET 213	3 EET 100	3
MET 214	1 MET 210W	3
MET 107	3 PHYS 251 (GN) [†]	4
MET 206 [*]	3 General Education Course	3
MET Track Elective	3	
MET Track Elective	3	
	18	16

Total Credits 68

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

College Notes:

- Permissible Math substitutions: MATH 26 or MATH 41 instead of MATH 81, MATH 22 instead of MATH 82, and MATH 140 instead of MATH 83.
- 2MET Technical Electives:
 - AET 297* (1-3), BA 242 (2), BA 243 (2), CHEM 101 (3), CHEM 110 (3), CHEM 111 (1), CMPSC 101 (3), EDSCN 210 (2), EET 114 (4), EET 118 (1), EGT 201 (2), EGT 297* (1-9), IET 105 (2), IET 109 (3), IET 297* (1-3), IST 110 (3), IST 210 (4), IST 220 (3), IST 250 (3), MATH 83 (4), MATH 140 (4), MATH 141 (4), MATH 210 (3), MET 281 (4), MET 297* (1-3), MET 306 (3), MET 320 (3), MET 330 (3), MET 341 (3), MGMT 301 (3), PLET 205 (3), STAT 200 (4), SUR 111 (3)
- Upon approval of the College of Engineering, students may be allowed to select technical elective courses from other disciplines. * Requires prior approval from the Mechanical Engineering Technology Department Chair.

Career Paths

Graduates from the mechanical engineering technology program work in a variety of industries such as automotive, aeronautical, petroleum, defense, medical, power generation, transportation, and materials.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE MECHANICAL ENGINEERING TECHNOLOGY PROGRAM (<https://career.engr.psu.edu/>)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.engr.psu.edu/graduate-programs/>)

Accreditation

The A.ENG.T. in Mechanical Engineering Technology at Penn State Behrend is accredited by the Engineering Technology Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Mechanical Engineering Technology and Similarly Named Programs.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

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<https://dubois.psu.edu/academics/degrees/engineering/options> (<https://dubois.psu.edu/academics/degrees/engineering/options/>)

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<https://www.york.psu.edu/academics/associate/mechanical-engineering-technology> (<https://www.york.psu.edu/academics/associate/mechanical-engineering-technology/>)

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<https://www.sedi.psu.edu/>

Mechanical Engineering Technology, B.S. (Behrend)

Begin Campus: Any Penn State Campus

End Campus: Erie

Program Description

This major may be taken either as a four-year baccalaureate program or in a "2+2" degree format. The latter allows graduates of associate degree programs in mechanical engineering technology or related areas to gain greater breadth and depth of knowledge in mechanical engineering technology. The baccalaureate program emphasizes applied design and analysis, complementing a hands-on manufacturing and materials focus. The graduate gains valuable knowledge of total manufacturing processes ranging from applied design to manufacture.

This major includes instruction in materials engineering, thermodynamics, heat transfer, hydraulics, finite-element analysis, and use of parametric solids modeling design packages, as well as supporting course work in mathematics and science. Oral and written communications are stressed, as is the ability to work within a team-oriented environment. The major culminates with a capstone design project involving an actual design or manufacturing problem sponsored by regional industry. This program is accredited by the Engineering Technology Accreditation Commission of ABET, www.abet.org (<http://www.abet.org>).

Graduates have qualified for careers in a wide variety of industries that manufacture or use mechanical systems. Careers include positions in applied product design, manufacturing process development, field service support, supervision of manufacturing facilities, tool and die design, quality control, plant supervision and management, and technical sales.

What is Mechanical Engineering Technology?

Mechanical engineering technology is the application of engineering and technology principles for the creation of products and mechanical systems. It emphasizes applied design and analysis of engineering systems and materials. Mechanical engineering technology differs from mechanical engineering in that its focus is the practical application and implementation of engineering principles as opposed to theoretical development and exploration of those principles.

You Might Like This Program If...

- You like working with your hands.
- You are interested math, physics, and mechanical systems.
- You find complex problems exciting.
- You enjoy working on team-based projects.

Entrance to Major

To be eligible for entrance to the Mechanical Engineering Technology major, a student must have

1. attained at least a 2.00 cumulative grade-point average, and
2. completed MATH 81 or MATH 26, and MATH 82 or MATH 22, and MATH 83 or MATH 140, and PHYS 250, and earned a grade of C or better in each of these courses.

Degree Requirements

For the Bachelor of Science degree in Mechanical Engineering Technology, a minimum of 131 credits is required:

Requirement	Credits
General Education	45
Electives	0-1
Requirements for the Major	103-106

18 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GWS courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned.

Requirements for the Major

A student enrolled in this major must earn at least a grade of C in each 300- and 400-level course.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
ENGL 202C	Effective Writing: Technical Writing	3
IET 215	Production Design	2
IET 216	Production Design Laboratory	2
MATH 211	Intermediate Calculus and Differential Equations with Applications	3
MET 214	Strength and Properties of Materials Laboratory	1
MET 107	Computer Applications for Technologists	3
PHYS 251	Introductory Physics II	4
<i>Prescribed Courses: Require a grade of C or better</i>		
MATH 210	Calculus with Engineering Technology Applications	3
MET 111	Mechanics for Technology: Statics	3
MET 213	Strength and Properties of Materials	3
MET 206	Dynamics	3
MET 210W	Machine Design	3
MET 306	Computer-Aided Design	3
MET 320	Strength of Materials II	3
MET 330	Thermodynamics	3
MET 331W	Heat Transfer	4
MET 341	Mechanical Measurements and Instrumentation	3
MET 415	Finite Element Analysis Applications I	3
MET 425	Finite Element Analysis Applications II	3
MET 432	Fluid Power	3
MET 470	Materials Engineering	3
MET 480	Senior Capstone	1

MET 485	Senior Industrial Project	3
PHYS 250	Introductory Physics I	4

Additional Courses

Select one of the following: 3-4

EET 100	Electric Circuits, Power, and Electronics	
EET 101	Electrical Circuits I	
EET 105 & EET 109	Electrical Systems and Electrical Circuits Laboratory I	

Select one of the following: 6-7

EGT 101 & EGT 102 & EGT 114 & EGT 201 & EGT 205	and Introduction to Computer Aided Drafting and Spatial Analysis and Computer-Aided Drafting and Advanced Computer Aided Drafting and Transition From 2-D CAD to Solid Modeling	
EGT 120 & EGT 121	Introduction to Graphics and Solid Modeling and Applied Solid Modeling	

Additional Courses: Require a grade of C or better

IET 101 or MET 105	Manufacturing Materials, Processes, and Laboratory Mechanical Systems	3
MATH 22 or MATH 82	College Algebra With Analytic Geometry and Applications II Technical Mathematics II	3
MATH 26 or MATH 81	Plane Trigonometry and Applications of Trigonometry Technical Mathematics I	3
MATH 83 or MATH 140	Technical Calculus Calculus With Analytic Geometry I	4

Supporting Courses and Related Areas

Select 6 credits of technical electives from school-approved list 6

Select 2-3 credits of business electives from school-approved list 2-3

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits

- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of

both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Mechanical Engineering Technology, B.S. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
EGT 120	3 EGT 121	3
ENGL 15 or 30H ^{††}	3 MATH 83 ^{*#†}	4
IET 101 [*]	3 MET 111 [*]	3
MATH 41 ^{*#†}	4 PHYS 250 ^{*#†}	4
PSU 7	1 General Education Course	3
General Education Course	3	
	17	17

Second Year

Fall	Credits Spring	Credits
IET 215	2 CHEM 110 [†]	3
MATH 210 [*]	3 CHEM 111 [†]	1
MET 213 [*]	3 EET 100	3
MET 214	1 IET 216	2
MET 107	3 MATH 210 [*]	3
MET 206 [*]	3 MET 320 [*]	3
	15	15

Third Year

Fall	Credits Spring	Credits
CAS 100 ^{††}	3 ENGL 202C ^{††}	3
MET 210W [*]	3 MET 331W [*]	4
MET 306 [*]	3 MET 341 [*]	3
MET 330 [*]	3 MET 415 [*]	3
PHYS 251 [†]	4 MET 432 [*]	3
	General Education Course (GHW)	1.5
	16	17.5

Fourth Year

Fall	Credits Spring	Credits
MET 425 [*]	3 MET 485 ^{*2}	3
MET 470 ^{*1}	3 Technical Elective (300,400-level) [*]	3
MET 480 ^{*1}	1 General Education Course	3
Technical Elective (300,400-level) [*]	3 General Education Course	3
Business Elective	3 General Education Course	3
General Education Course	3 General Education Course (GHW)	1.5
	16	16.5

Total Credits 130

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ The following course is only offered in the **FALL** semester.

² The following courses are only offered in the **SPRING** semester.

Program Notes:

- Permissible Math substitutions: MATH 26 instead of MATH 81, MATH 22 instead of MATH 82, and MATH 140 instead of MATH 83.

Advising Notes:

- Only students who have gone through the entrance-to-major (ETM) process and have been accepted into the MET or IBE majors may register for junior and senior-level MET courses.

Career Paths

Mechanical engineering technology coursework and laboratory experiences emphasize development of your skills in applied design and analysis. You'll also receive instruction in the selection and application of manufacturing processes and engineering materials. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

Penn State Behrend's B.S. in Mechanical Engineering Technology graduates conceptualize new designs and use computer-aided design and measurement technologies to analyze designs, select materials, and discover ways to optimize manufacturing processes and quality control. They work in the automotive, aeronautical, petroleum, defense, medical, power generation, transportation, and materials fields. Their careers include applied product design, manufacturing processes development, field service engineering, quality control, plant management, and technical sales. Employers of recent Behrend MET graduates include Boeing, Cummins, Exxon Mobile, Wabtec, General Dynamics, Komatsu, SKF, Sandia National Laboratory, U.S. Steel, Westinghouse, Zurn Industries, and Parker.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE MECHANICAL ENGINEERING TECHNOLOGY PROGRAM (<https://behrend.psu.edu/school-of-engineering/academic-programs/mechanical-engineering-technology/>)

Opportunities for Graduate Studies

Graduate programs in mechanical engineering technology delve more deeply into methods of analysis, statistical methods, computer network applications, and applied dynamics. Or, you can use a master's degree to learn management skill; Penn State Behrend offers a Master of Manufacturing Management (M.M.M) degree program for aspiring organizational leaders.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-engineering/academic-programs/master-of-manufacturing-management/>)

Professional Resources

- ABET (<https://www.abet.org/>)
- American Society of Mechanical Engineers (<https://www.asme.org/>)
- Institution of Engineering and Technology (<https://www.theiet.org/>)
- Society of Women Engineers (<https://swe.org>)
- National Society of Black Engineers (<https://www.nsbe.org>)

Accreditation

The Bachelor of Science in Mechanical Engineering Technology at Penn State Behrend is accredited by the Engineering Technology Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Mechanical Engineering Technology and Similarly Named Programs.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the

Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

Erie

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Mechanical Engineering, B.S. (Behrend)

Begin Campus: Any Penn State Campus

End Campus: Erie

Program Description

Built upon a broad foundation in physics, chemistry, and mathematics, this major has the objective of educating graduates to be problem solvers. Graduates of this program will have opportunities to learn about applying scientific principles, engineering analysis, and engineering design to solve unstructured problems that are typical of those found in mechanical engineering. The major helps prepare graduates for a lifelong productive career, whether they choose professional practice, graduate school, or some other career path. Graduates will have had opportunities to learn how to work with others toward a common goal, to clearly express their ideas in written and verbal form, and to be independent and capable of adapting to the continuously changing technology of the work environment.

After completing the fundamental science core, students may pursue their interest in mechanical engineering by studying fluid and solid mechanics, engineering materials and their properties, thermodynamics, and heat transfer, computer-aided design, kinematics and dynamics of machine elements, machine design, finite elements, control systems, electricity, and electronic instrumentation and machinery. The students will be required to analyze and solve a significant mechanical engineering design problem during their fourth year.

What is Mechanical Engineering?

Mechanical engineering is the largest and broadest engineering discipline. It uses a combination of physics, chemistry, mathematics, and materials science to study mechanical, fluid, and thermal systems. Mechanical engineers are problem solvers: They use their foundational knowledge to apply scientific and engineering methods to the design, construction, and testing of products and components to ensure that they are safe, reliable, and cost effective. Mechanical engineering differs from mechanical engineering technology in that it emphasizes the math and science behind the theoretical development of engineering analysis and design process principles rather than the application of these principles. Mechanical engineers design everything from athletic equipment, medical devices, theme park rides, and personal computers to engines and power plants.

You Might Like This Program If...

- You are a curious, creative problem solver.
- You are interested in engineering, math, chemistry, and physics.
- You are looking for a broad discipline with career flexibility.
- You enjoy working on team-based projects.

Entrance to Major

In addition to the Carnegie unit and minimum GPA requirements¹ described by University policies, all students applying for entrance to any of the engineering majors at Behrend, Berks, or Capital College must have at least a 2.0 cumulative GPA by the end of the semester prior to applying for entrance to the major and have completed, with a minimum grade of C: CHEM 110, MATH 140, MATH 141, and PHYS 211. These courses must be completed by the end of the semester during which the entrance-to-major process is carried out.

¹ In the event that the major is under enrollment control, a higher minimum cumulative grade-point average is likely to be needed.

Degree Requirements

For the Bachelor of Science degree in Mechanical Engineering, a minimum of 131 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	107-108

21 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 3 credits of GWS courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned.

Requirements for the Major

Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
CMPSC 200	Programming for Engineers with MATLAB	3
EDSGN 100S	Introduction to Engineering Design	3
EE 211	Electrical Circuits and Power Distribution	3
MATH 230	Calculus and Vector Analysis	4
PHYS 212	General Physics: Electricity and Magnetism	4
<i>Prescribed Courses: Require a grade of C or better</i>		
CHEM 110	Chemical Principles I	3
EMCH 211	Statics	3
ENGL 202C	Effective Writing: Technical Writing	3
EMCH 212	Dynamics	3

EMCH 213	Strength of Materials	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
MATH 220	Matrices	2-3
MATH 251	Ordinary and Partial Differential Equations	4
MATSE 259	Properties and Processing of Engineering Materials	3
ME 300	Engineering Thermodynamics I	3
ME 320	Fluid Flow	3
ME 345W	Instrumentation, Measurements, and Statistics	4
ME 349	Intermediate Mechanics of Materials	3
ME 357	System Dynamics	3
ME 365	Materials Testing Laboratory	1
ME 367	Machine Design	3
ME 380	Machine Dynamics	3
ME 410	Heat Transfer	3
ME 448	Engineering Design Concepts	3
ME 449	Mechanical Design Projects	3
ME 468	Engineering for Manufacturing	3
PHYS 211	General Physics: Mechanics	4

Additional Courses

ECON 102	Introductory Microeconomic Analysis and Policy	3
or ECON 104	Introductory Macroeconomic Analysis and Policy	
Select one of the following:		3
CHEM 111 & PHYS 214	Experimental Chemistry I and General Physics: Wave Motion and Quantum Physics	
CHEM 112	Chemical Principles II	
BIOL 141	Introduction to Human Physiology	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 13 credits of program elective courses from school-approved list¹ 13

¹ These credits must be selected to fulfill the thematic requirements of the major.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- Quantification (GQ): 6 credits
- Writing and Speaking (GWS): 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- Arts (GA): 3 credits
- Health and Wellness (GHW): 3 credits
- Humanities (GH): 3 credits
- Social and Behavioral Sciences (GS): 3 credits
- Natural Sciences (GN): 3 credits

Integrative Studies

- Inter-Domain Courses (Inter-Domain): 6 credits

Exploration

- GN, may be completed with Inter-Domain courses: 3 credits
- GA, GH, GN, GS, Inter-Domain courses. This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or

within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Mechanical Engineering, B.S. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If**

report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CHEM 110 ^{*#†}	3 CMPSC 200 [†]	3
CHEM 111 ^{†6}	1 ECON 102 or 104 [†]	3
EDSGN 100S ^{†3,5}	3 MATH 141 ^{*†#†}	4
ENGL 15 or 30H [†]	3 MATH 220 ^{*†}	2
MATH 140 ^{*†#†}	4 PHYS 211 ^{*#†}	4
General Education Course (GA/GH/GS)	3	
	17	16

Second Year

Fall	Credits Spring	Credits
EMCH 211 [*]	3 EE 211	3
MATH 230	4 EMCH 212 [*]	3
MATH 251 [*]	4 EMCH 213 [*]	3
PHYS 212 [†]	4 ME 300 [*]	3
General Education Course (GHW)	1.5 PHYS 214 ^{†6}	2
	General Education Course (GA/GH/GS)	3
	16.5	17

Third Year

Fall	Credits Spring	Credits
ENGL 202C ^{††}	3 CAS 100 ^{††}	3
ME 320 [*]	3 ME 357 [*]	3
ME 345W ^{*4}	4 ME 365 ^{*7}	1
ME 349 [*]	3 ME 367 [*]	3
ME 380 ^{*7}	3 ME 410 [*]	3
	MATSE 259 ^{*7}	3
	16	16

Fourth Year

Fall	Credits Spring	Credits
ME 448 ^{*1}	3 ME 449 ^{*2}	3
ME 468 [*]	3 Program Elective (School Approved List) [*]	3
Lab Elective (300, 400-Level) [*]	1 Program Elective (School Approved List) [*]	3
Program Elective (School Approved List) [*]	3 General Education Course (GA/GH/GS)	3
Program Elective (School Approved List) [*]	3 General Education Course (GA/GH/GS)	3
General Education Course (GA/GH/GS)	3 General Education Course (GHW)	1.5
	16	16.5

Total Credits 131

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ The following course is only offered in the **FALL** semester. ME 448

- ² The following courses are only offered in the **SPRING** semester: ME 449
- ³ Course will satisfy First-Year Seminar requirement.
- ⁴ Course will satisfy Writing Across the Curriculum requirement.
- ⁵ Students starting at a location other than Penn State Behrend must take EDSGN 100 plus a seminar course.
- ⁶ Interested students may substitute BIOL 141 or CHEM 112 for both CHEM 111 and PHYS 214.
- ⁷ ME 380 or the combination of MATSE 259 and ME 365 can be taken in either semester of the Third Year.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

School-Approved Electives for Mechanical Engineering: This elective list is subject to change.

Mechanical Engineering students at Behrend are required to take four 3-credit courses and one 1-credit lab (13 total credits) of technical electives. The courses must be selected from one of the following two thematic areas:

Technical

Take one Lab Course:

- ME 308 Fluid Flow and Heat Transfer Laboratory
- ME 424 Additive Manufacturing Lab
- ME 465 Introduction to Manufacturing Laboratory
- ME 492

Take two courses from Group 1:

- BME 402 Biomedical Instrumentation and Measurements
- BME 443 Biomedical Materials
- EMCH 471 Engineering Composite Materials
- ME 370 Vibration of Mechanical Systems
- ME 401 Refrigeration and Air Conditioning
- ME 408 Energy Systems
- ME 428 Applied Computational Fluid Dynamics
- ME 467 Applied Finite Element Analysis
- ME 469 Metallic Manufacturing Processes
- ME 491 Bioengineering Applications of Mechanical Engineering

Take one course from Group 2:

- Any course in Group 1
- BME 406 Medical Imaging

- IE 405 Deterministic Models in Operations Research
- IE 456 Industrial Robot Applications
- IE 470 Manufacturing System Design and Analysis
- MATH 412 Fourier Series and Partial Differential Equations
- MATH 449 Applied Ordinary Differential Equations
- MATH 455 Introduction to Numerical Analysis I
- MATH 456 Introduction to Numerical Analysis II
- MATH 482 Mathematical Methods of Operations Research
- PHYS 400 Intermediate Electricity and Magnetism
- PHYS 419 Theoretical Mechanics
- PHYS 458 Intermediate Optics
- STAT 414 Introduction to Probability Theory

Take one course from Group 3:

- Any course in Group 1 or 2
- IE 302 Engineering Economy
- ME 494 Research Project*
- ME 495 Internship* (2 rotations required)
- ME 496 Independent Studies*
- ME 497 Special Topics*
- MET 457 Lean Manufacturing
- MGMT 409 Project Management for Non-business Majors
- PSYCH 444 Engineering Psychology (fall, NOTE: requires PSYCH 100)
- QC 450 Quality Control and Quality Improvement

*Selection of ME 494-ME 497 courses require written approval of the program coordinator.

Engineering Management

Take one Lab Course:

- ME 308 Fluid Flow and Heat Transfer Laboratory
- ME 424 Additive Manufacturing Lab
- ME 465 Introduction to Manufacturing Laboratory
- ME 492

Take the following two courses:

- MGMT 409 Project Management for Non-business Majors
- IE 302 Engineering Economy

Take two additional courses from the following list:

- BME 402 Biomedical Instrumentation and Measurements
- BME 406 Medical Imaging
- BME 443 Biomedical Materials
- EMCH 471 Engineering Composite Materials
- IE 405 Deterministic Models in Operations Research
- IE 456 Industrial Robot Applications
- IE 470 Manufacturing System Design and Analysis
- MATH 482 Mathematical Methods of Operations Research
- ME 370 Vibration of Mechanical Systems
- ME 401 Refrigeration and Air Conditioning
- ME 408 Energy Systems
- ME 428 Applied Computational Fluid Dynamics
- ME 467 Applied Finite Element Analysis

- ME 469 Metallic Manufacturing Processes
- ME 491 Bioengineering Applications of Mechanical Engineering

Students in the Engineering Management thematic who also complete either the Operations and Supply Chain Management minor or the Technical Sales minor may substitute 400-level SCM courses for the 6 additional credits of 400-level IE, MATH or ME courses.

Advising Notes:

- Only students who have gone through the entrance-to-major process and have been accepted into this major may register for junior and senior-level ME courses.

Career Paths

Because every industry values a mechanical engineer's problem-solving capabilities, you'll enjoy tremendous career flexibility in disciplines as varied as research, manufacturing, product and systems design and testing, health care, energy, the military, transportation, and consumer products. A mechanical engineering education also is excellent preparation for technical management, business, law, or technical sales.

Careers

Typical entry-level careers for mechanical engineering graduates are applications engineer, design engineer and mechanical design engineer, test engineer, equipment installation engineering, facilities technician, stress analysis engineer, product development engineer, and project engineer.

Opportunities for Graduate Studies

Graduate programs in mechanical engineering delve more deeply into areas of specialization such as automotive engineering, robotics, advanced manufacturing, thermal science, computational fluid mechanics, combustion modeling, or biomechanical engineering.

Professional Resources

- American Society of Mechanical Engineers (<https://www.asme.org>)
- Society of Women Engineers (<https://swe.org>)
- National Society of Black Engineers (<https://www.nsbe.org>)

Accreditation

The Bachelor of Science in Mechanical Engineering at Penn State Behrend is accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Mechanical and Similarly Named Engineering Programs.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

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Media Production, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Media Production Minor is designed to introduce students to the field of media studies through one of several General Education courses, hone their media writing skills, and provide basic training and experience in the media production areas of graphic and multimedia design, photography, audio and sound, and video. The minor is intended to complement and add value to students' major field of study.

What is Media Production?

As social, cultural, and economic aspects of life become more media-saturated, many career fields are demanding capabilities in media production – in writing, photography, videography, audio and sound production, graphic design, and more. The Media Production minor appeals to students from a variety of majors as a supplement to their primary career field. The program allows students to develop a deeper understanding of media and media production, giving them the skills needed to create content for a variety of media platforms.

You Might Like This Program If...

- You want to better understand how media relates to a variety of fields in today's society.
- You appreciate the ways visual media can convey messages and impact audiences.
- You value the use of graphics and multimedia in solving problems and relaying data.

- You view media as a form of art that can bring a deeper understanding of the human condition.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Some courses may require prerequisites.

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Background and Foundations:		
Select 3 credits from the following:		3
COMM 100		
COMM 118	Introduction to Media Effects	
COMM 150N	The Art of the Cinema	
COMM 180	Survey of Electronic Media and Telecommunications	
Writing Skills:		
Select 3 credits from the following:		3
COMM 230W	Writing for Media	
COMM 260W	News Writing and Reporting	
COMM 315	Applications for Media Writing	
Basic Media Production Skills:		
Select 6 credits from the following 100-300 level courses:		6
COMM 215	Basic Photography for Communications	
COMM 241	Graphic Design for Communications	
COMM 242	Basic Video/Filmmaking	
COMM 270	Introduction to Multimedia Production	
COMM 282	Television Field Production	
COMM 283	Television Studio Production	
COMM 337	Intermediate Documentary Production	
COMM 374	Audio Production	
COMM 383	Advanced Video Production	
GD 100	Introduction to Graphic Design	
PHOTO 100	Introduction to Photography	
Advanced Production Skills:		
Select 6 credits from the following 400 level courses:		6
COMM 406	Electronic News Gathering and Editing	
COMM 415	Advanced Photography for Communications	
COMM 436	Advanced Audio Production	
COMM 437	Advanced Documentary Production	
COMM 441	Advanced Graphic Design for Communications	
COMM 468	Graphic Applications in Print Communications	
COMM 470A	Convergent Media News Service: Newspaper Production	
COMM 470B	Convergent Media News Service: TV	

COMM 470C Convergent Media News Service: Radio and Online Publications

COMM 481 Advanced Multimedia Production

ENGL 420 Writing for the Web

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Medical Plastics, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

Plastics play a critical role in a growing medical industry. A significant portion of medical devices, prosthetics, implants, tools and packaging of devices and products are dependent on plastics. Many of products could not exist, or cost would be excessive, without plastics. Medical plastics is a subset of the larger plastics industry and represents a strong growth area. Medical plastics usage is expected to increase approximately 7% per year over at least the next five years. Medical plastics also represents a large opportunity for domestic plastics manufacturers as there is a general resistance to outsourcing this production due to concerns over the quality and safety of third-world suppliers.

What are Medical Plastics?

Plastic materials are lightweight, flexible, easily shaped, and can be kept sterile, making them a no-brainer element for creating implantable medical devices and prosthetics. The certificate in Medical Plastics explores issues related to plastics' use in medicine, including product design, materials choice, manufacturing options, and FDA regulations.

You Might Like This Program If...

- You are interested in the intersections of engineering and medicine.
- You'd like to help people with serious medical issues.
- You are majoring in Plastics Engineering Technology.

Program Requirements

To earn an undergraduate certificate in Medical Plastics, a minimum of 14 credits is required.

Code	Title	Credits
Required Courses		
BISC 4 or MICRB 106	Human Body: Form and Function Elementary Microbiology	3
PLET 380	Introduction to Plastic Medical Devices	1
PLET 481	Plastic Product Development	3
PLET 482	Medical Product Development	1
PLET 483	Plastics in Medical Applications	3
PLET 484	Medical Manufacturing Methods	3

Prerequisites Required.

Certificate Learning Objectives

- Students will, through application, demonstrate the ability to set up and qualify a manufacturing process for medical devices.
- Students will understand the requirements of polymers used in medical devices. This includes considering the needs of the product, manufacturing, and regulations.
- Students will demonstrate an understanding of the regulatory environment in which medical devices are designed, developed, and manufactured.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

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Erie

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Career Paths

The certificate in Medical Plastics is available to students majoring in the B.S. in Plastics Engineering Technology degree program. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

A certificate in Medical Plastics can open doors to careers with medical plastics manufacturers and medical device design firms, and in medical device sales.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A CERTIFICATE IN MEDICAL PLASTICS (<https://behrend.psu.edu/school-of-engineering/academic-programs/certificate-programs/medical-plastics-certificate/>)

Opportunities for Graduate Studies

Students who hold a degree in Plastics Engineering Technology pursue master's and doctoral degrees in plastics engineering, polymer science, materials science, and elastomeric materials. Those specialty fields can be further tailored to your career interest in medical device design and production.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-engineering/academic-programs/certificate-programs/medical-plastics-certificate/>)

Professional Resources

- ABET (<https://www.abet.org/>)
- Society of Plastics Engineers (<https://www.4spe.org/membership/>)
- Institution of Engineering and Technology (<https://www.theiet.org/>)
- Society of Women Engineers (<https://societyofwomenengineers.swe.org/>)

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Multidisciplinary Studies, A.A. (Behrend)

Begin Campus: Erie

End Campus: Erie

Program Description

The objectives of the Multidisciplinary Studies major are to broaden the student's understanding, interests, and skills; to help the student become a more responsible, productive member of the family and community; and to offer a degree program with sufficient electives to permit some specialization according to the student's interests or career plans.

Multidisciplinary Studies is a complete two-year degree major. However, graduates who later seek admission to baccalaureate degree majors may apply baccalaureate credits toward the new degree.

In addition to a wide variety of baccalaureate majors offered at University Park campus, graduates of the Multidisciplinary Studies major may qualify for admission to the baccalaureate degree majors in Behavioral Sciences, Elementary Education, Humanities, or Public Policy offered at Penn State Harrisburg. Or they may qualify for any of a large number of baccalaureate degree majors offered by Penn State Erie, The Behrend College, in business, the liberal arts, and sciences.

Entrance to Major

Students must have a minimum 2.0 GPA to change to this Associate degree after admission to the University.

Degree Requirements

For the Associate in Arts degree in Multidisciplinary Studies, a minimum of 60 credits is required:

Requirement	Credits
General Education	21
Electives	15
Requirements for the Major	30

6 of the 21 credits for General Education are included in the Requirements for the Major. This includes 6 credits of General Education GWS courses.

Requirements for the Major

The required credits of General Education and Requirements for the Major must be baccalaureate-level courses. For students intending to seek admission to a baccalaureate program upon graduation, it is recommended that most, if not all, of the courses be at the baccalaureate level. For those students who will seek a bachelor of arts degree upon graduation from Multidisciplinary Studies, it is strongly recommended that a world language be taken since admission to a bachelor of arts program in the College of the Liberal Arts requires one college-level course, or the equivalent, in a world language.

Courses that will satisfy the arts, humanities, social and behavioral sciences, natural sciences, and quantification requirements are defined on the Multidisciplinary Studies checksheet, which may be obtained from the College of the Liberal Arts associate dean for undergraduate studies at the University Park campus or from any Multidisciplinary Studies representative at other locations.

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CAS 100	Effective Speech	3
ENGL 15	Rhetoric and Composition	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select one of the following:		3
ENGL 202A	Effective Writing: Writing in the Social Sciences	
ENGL 202B	Effective Writing: Writing in the Humanities	
ENGL 202C	Effective Writing: Technical Writing	
ENGL 202D	Effective Writing: Business Writing	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 3 credits in any course designated as arts		3
Select 3 credits in any course designated as humanities		3
Select 3 credits in any course designated as social and behavioral sciences		3
Select 3 credits in any course designated as physical, biological, or earth sciences		3
Select 9 credits in any one of the following areas: arts, humanities, social and behavioral sciences, natural sciences and quantification, and world language skills ¹		9

¹ If world language courses are chosen, it is recommended that these courses be in one world language sequence.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all associate degree students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 3 credits
- **Writing and Speaking (GWS):** 3 credits

Knowledge Domains

- **Arts (GA):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Note: Up to six credits of Inter-Domain courses may be used for any Knowledge Domain requirement, but when a course may be used to

satisfy more than one requirement, the credits from the course can be counted only once.

Exploration

- Any General Education course (including GHW and Inter-Domain): 3 credits

University Degree Requirements

Cultures Requirement

3 credits of United States (US) or International (IL) cultures coursework are required and may satisfy other requirements

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 60 degree credits must be earned for an associates degree. The requirements for some programs may exceed 60 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- Students will be able draw on multiple disciplines to communicate clearly and persuasively.
- Students will be able to engage meaningfully and respectfully with others who have different perspectives or worldviews.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

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Shenango

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University Park

Liberal Arts Academic Advising

814-865-2545
Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Wilkes-Barre

Christyne Berzsenyi

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World Campus

Undergraduate Academic Advising

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University Park, PA 16802
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advising@outreach.psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Multidisciplinary Studies, A.A. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H ^{**†}	3 General Education [*]	3
General Education	3 General Education	3
General Education	3 General Education [*]	3
General Education	3 Major Requirement Area of Emphasis [*]	3
Elective	3 General Education [*]	3
First- Year Seminar	1	
	16	15

Second Year

Fall	Credits Spring	Credits
General Education [*]	3 ENGL 202A (or ENGL 202B or ENGL 202C or ENGL 202D) ^{**†}	3
General Education [*]	3 CAS 100 ^{**†}	3
General Education	3 Major Requirement Area of Emphasis [*]	3
Writing Across the Curriculum "W Course" [*]	3 Elective	3
Major Requirement Area of Emphasis [*]	3 Elective	3
	15	15

Total Credits 61

* Course requires a grade of C or better for the major

† Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Additional Notes

GWS, GHW, GQ, GN, GA, GH, and GS are codes used to identify General Education requirements.

US, IL, and US;IL are codes used to designate courses that satisfy University United States/International Cultures requirements.

Program Notes:

Must complete 3 credits of W or Y (writing Across the Curriculum) and 3 credits of US or IL (United States/International Cultures) within the degree requirements.

When selecting major courses in an "Area of Emphasis" or electives, students should consider taking courses in a discipline in which they may decide to pursue a baccalaureate degree later.

Students must complete a minimum of 60 total credits to graduate with a 2LABC degree; however, they may actually graduate with more than 60 credits if they complete (Or transfer in) more than 15 elective credits.

Academic Advising Notes: The course series listed about is only one of many possible ways to move through this curriculum. The number of electives required varies per student. Please be sure to consult with an adviser about your intended plan.

Contact

Erie

SCHOOL OF HUMANITIES AND SOCIAL SCIENCES
170 Irvin Kochel Center
4951 College Drive
Erie, PA 16563
814-898-6108
HSSOffice@psu.edu

<https://behrend.psu.edu/school-of-humanities-social-sciences> (<https://behrend.psu.edu/school-of-humanities-social-sciences/>)

Abington

DIVISION OF ARTS AND HUMANITIES
1600 Woodland Road
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215-881-7826
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<https://www.abington.psu.edu/academics/multidisciplinary-studies/associate> (<https://www.abington.psu.edu/academics/multidisciplinary-studies/associate/>)

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814-949-5084
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<https://altoona.psu.edu/academics/associate-degrees/multidisciplinary-studies/contact-information> (<https://altoona.psu.edu/academics/associate-degrees/multidisciplinary-studies/contact-information/>)

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University Park

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World Campus

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128 Sparks Building
University Park, PA 16802
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blm26@psu.edu

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-multidisciplinary-studies-associate-in-arts-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-multidisciplinary-studies-associate-in-arts-degree/>)

Operations and Supply Chain Management, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

This minor is designed primarily for students enrolled in non-business majors, especially those in engineering and engineering technology, who wish to augment their majors with further studies in operations and supply chain management. The objective of the minor is to acquaint these students with the issues and methods associated with managing operations within manufacturing or service industries. Relevant studies include principles of management, operations management, logistics systems, procurement, planning and control, enterprise resource planning (ERP), and project management.

What is Operations and Supply Chain Management?

Operations and supply chain management study combines education in the principles of management, operations management, logistical systems, procurement, planning and control, project management, and enterprise resource planning (ERP).

You Might Like This Program If...

- You are an engineering or engineering technology student who wants to add operations management education to your major studies.
- You would like to earn a certificate in Enterprise Resource Planning with SAP concurrent to the minor.

Program Requirements

Requirement	Credits
Requirements for the Minor	19

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
MGMT 301	Basic Management Concepts	3
SCM 301	Supply Chain Management	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
SCM 200	Introduction to Statistics for Business	4
or STAT 200	Elementary Statistics	
Select 9 credits of the following:		9
MGMT 409	Project Management for Engineers	
SCM 445	Operations Planning and Control	
SCM 455	Logistics Systems Analysis and Design	
or SCM 460	Purchasing and Materials Management	
SCM 465	Electronic Business Management	

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

Gary Smith

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Career Paths

The minor in Operations and Supply Chain Management can be pursued by students in School of Engineering degree programs. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic

adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

A minor in Operations and Supply Chain Management can make you a more competitive job candidate by demonstrating foundational skill in business operations techniques and supply chain creation and utilization.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN OPERATIONS AND SUPPLY CHAIN MANAGEMENT (<https://behrend.psu.edu/school-of-business/academic-programs/management/operations-supply-chain-management-minor/>)

Opportunities for Graduate Studies

Adding a specialized minor such as Operations and Supply Chain Management to a primary major program demonstrates to graduate programs your commitment to interdisciplinary thinking.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-business/academic-programs/management/operations-supply-chain-management-minor/>)

Contact

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Physics, B.S. (Behrend)

Begin Campus: Any Penn State Campus

End Campus: Erie

Program Description

The major provides education in the fundamentals of physics and selected advanced topics to prepare graduates for graduate education or for careers in industry. Students have opportunities to participate in research with faculty. In addition to the traditional physics education offered in the General Physics option, the option in applied physics, Computational Physics, provides preparation for careers in technological fields.

What is Physics?

Physicists study natural phenomena in the universe, from the smallest length scales to the largest in the cosmos, to discover the basic principles or laws which govern the physical world. Knowledge of physics is crucial to truly understanding the world around us, the world inside us, and the world beyond us. This degree will provide students with the fundamental conceptual, mathematical, computational, and experimental tools that are needed to attack the scientific and technological problems of today and in the future.

You Might Like This Program If...

- You are interested in science, math, chemistry, astronomy, astrophysics, thermodynamics, optics, quantum mechanics,

theoretical mechanics, electrodynamics, solid state physics, electricity, or magnetics.

- You enjoy both theoretical study and hands-on laboratory work.
- You can envision yourself studying the night sky in Penn State Behrend's Mehalso Observatory or Yahn Planetarium.
- You're looking for a foundational major that supports diverse career paths in the sciences, engineering, research, education, and health care.

Entrance to Major

To be eligible for entrance to the Physics major, a student must have:

1. attained at least a 2.00 cumulative grade-point average;
2. completed CHEM 110, MATH 140, MATH 141, PHYS 211, and PHYS 212, and earned a grade of C or better in each of these courses.

Degree Requirements

For the Bachelor of Science degree in Physics, a minimum of 122 credits is required:

Requirement	Credits
General Education	45
Electives	1
Requirements for the Major	94

18 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GWS courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned.

Requirements for the Major

Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
CHEM 113	Experimental Chemistry II	1
CMPSC 121	Introduction to Programming Techniques	3
ENGL 202C	Effective Writing: Technical Writing	3
MATH 220	Matrices	2
MATH 230	Calculus and Vector Analysis	4
MATH 251	Ordinary and Partial Differential Equations	4
<i>Prescribed Courses: Require a grade of C or better</i>		
CHEM 110	Chemical Principles I	3
MATH 140	Calculus With Analytic Geometry I	4

MATH 141	Calculus with Analytic Geometry II	4
PHYS 211	General Physics: Mechanics	4
PHYS 212	General Physics: Electricity and Magnetism	4
PHYS 213	General Physics: Fluids and Thermal Physics	2
PHYS 214	General Physics: Wave Motion and Quantum Physics	2
PHYS 237	Introduction to Modern Physics	3
PHYS 400	Intermediate Electricity and Magnetism	3
PHYS 419	Theoretical Mechanics	3
PHYS 420	Thermal Physics	3
PHYS 421W	Research Methods in Physics	3
PHYS 458	Intermediate Optics	4
PHYS 494	Physics Research Project	3

Requirements for the Option

Select an option	28
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Requirements for the Option

Computational Physics Option (28 credits)

Code	Title	Credits
Prescribed Courses		
CMPSC 122	Intermediate Programming	3
<i>Prescribed Courses: Require a grade of C or better</i>		
MATH 455	Introduction to Numerical Analysis I	3
PHYS 402	Electronics for Scientists	4

Additional Courses

Additional Courses: Require a grade of C or better

Select one of the following:		
CMPSC 459		3
CMPSC 465	Data Structures and Algorithms	
CMPSC 474	Operating System & Systems Programming	
Select 12 credits of the following:		
EE 352	Signals and Systems: Continuous and Discrete-Time	
EE 453	Fundamentals of Digital Signal Processing	
MATH 456	Introduction to Numerical Analysis II	
ME 410	Heat Transfer	
ME 428	Applied Computational Fluid Dynamics	
PHYS 410	Introduction to Quantum Mechanics I	
PHYS 414	Solid State Physics	
PHYS 446		
PHYS 494	Physics Research Project (1-3 credits)	
PHYS 495	Internship (1-3 credits)	

Supporting Courses and Related Areas

Select 3 credits from a school-approved list	3
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General Physics Option (28 credits)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
PHYS 410	Introduction to Quantum Mechanics I	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 12 credits of the following:		
MATH 421	Complex Analysis	

MATH 455	Introduction to Numerical Analysis I
MATH 456	Introduction to Numerical Analysis II
PHYS 402	Electronics for Scientists
PHYS 414	Solid State Physics
PHYS 446	
PHYS 494	Physics Research Project (1-3 credits)
PHYS 495	Internship (1-3 credits)

Supporting Courses and Related Areas

Select one of the following two sequences: 13

Sequence A

Select 8 credits of a world language ¹

Select 5 credits from a school-approved list

Sequence B

CMPSC 122 Intermediate Programming

Select one of the following:

CMPSC 459 ²

CMPSC 465 Data Structures and Algorithms ²

CMPSC 474 Operating System & Systems Programming ²

Select 7 credits from a school-approved list

¹ Proficiency demo by examination or coursework to the level of the second semester in a world language is required. If fewer than 8 credits are needed to reach the required proficiency, students choose selections from a school-approved list to make a total of 8 credits.

² Course requires a grade of C or better.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Core Knowledge:** Learn, integrate, and apply knowledge and methodological approaches from the basic core areas of electricity and magnetism, thermodynamics, optics, and quantum mechanics.
- **Mathematical Models:** Build a conceptual understanding of the connections between our mathematical models and the nature of the universe.
- **Critical Thinking:** Use critical thinking to formulate and solve quantitative physical problems by applying theory, mathematical, and computational methods.

- **Scientific Inquiry:** Apply the methods of scientific inquiry in designing and performing experiments and using data analysis for laboratory and research projects.
- **Communication:** Effectively communicate their course work and research through organized, logical, and scientifically sound oral and written reports.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

General Physics Option: Physics, B.S. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
CHEM 110 ^{*##†}	3	CHEM 112 [†]	3
CHEM 111 [†]	1	CHEM 113 [†]	1
MATH 140 ^{*##†}	4	MATH 141 ^{*##†}	4
ENGL 15 or 30H ^{††}	3	PHYS 211 ^{*#}	4
General Education Course	3	General Education Course	3
General Education Course (GHW)	1.5	General Education Course (GWH)	1.5

PSU 7	1	
	16.5	16.5

Second Year

Fall	Credits	Spring	Credits
PHYS 212 ^{*#}	4	CMPS 121	3
PHYS 213 [*]	2	PHYS 237 [*]	3
PHYS 214 [*]	2	MATH 251	4
MATH 220	2	CAS 100 ^{††}	3
MATH 230	4	General Education Course	3
General Education Course	3		
	17		16

Third Year

Fall	Credits	Spring	Credits
PHYS 414 (Supports Additional Course Selection) ^{*1}	3	PHYS 419 [*]	3
PHYS 420 [*]	3	PHYS 421W [*]	3
CMPS 122 (or World Language - 4 credits)	3	CMPS 465 or 474 (or World Language - 4 credits) [*]	3
ENGL 202C [†]	3	PHYS 494 or 495 [*]	3
General Education Course (GN)	3	Additional Course Selection [*]	3
	15		15

Fourth Year

Fall	Credits	Spring	Credits
PHYS 400 [*]	3	PHYS 410 [*]	3
PHYS 402 [*]	4	PHYS 458 [*]	4
Additional Course Selection [*]	3	Supporting Courses and Related Areas	3-4
Supporting Courses and Related Areas	3-4	General Education Course	3
General Education Course	3		
	16-17		13-14

Total Credits 125-127

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ See adviser for acceptable substitutions

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain

attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes

Scheduling patterns for courses not taught each semester

Some major requirements will be offered only once a year or every other year depending on demand. 400 level physics courses are taught on a rotating basis; courses are taught only once every other year.

-Fall only courses include: CMPSC 474, MATH 455, PHYS 400, PHYS 402, PHYS 414, PHYS 420

-Spring only courses include: CMPSC 455, MATH 421, ME 428, MATH 456, PHYS 410, PHYS 419, PHYS 421W, PHYS 458

- 1.) All first year baccalaureate degree candidates are required to complete, during the first academic year, a seminar course.
- 2.) Any 300 or 400 level science or mathematics course requires a C or better.
- 3.) Students with a prior introduction to calculus may take MATH 140 and PHYS 211 concurrently in their first semester.
4. A course noting "Supports Additional Course Selection" counts as an "Additional Course Selection." A total of 23 credits must be taken in this area. Possible course substitutions are listed below in the Additional Course Selection List. Please note that three credits of PHYS 494 and/ or PHYS 495 are prescribed. Any additional credits in PHYS 494 or PHYS 495 (up to a maximum of 3 credits) may be applied to the additional course requirement.
- 5.) Supporting Courses - students must select (3) credits from the following: CMPSC 459, CMPSC 456 Introduction to Numerical Analysis II, CMPSC 474 Operating System & Systems Programming. CMPSC 456 is recommended.
- 6.) Students must select (3) credits from the Supporting Course List below. MATH 456 or CMPSC 456 is recommended.

Advising Notes

Additional Course Selection List*

EE 352 Signals and Systems: Continuous and Discrete-Time
 PHYS 414 Solid State Physics
 MATH 421 Complex Analysis
 MATH 455 Introduction to Numerical Analysis I
 MATH 456 Introduction to Numerical Analysis II
 PHYS 402 Electronics for Scientists
 PHYS 446
 PHYS 494 Physics Research Project
 PHYS 495 Internship

Supporting Course List

ASTRO 291 or higher
 BIOL 110 or higher
 CHEM 210 or higher
 CMPSC 200 or higher
 MATH 300 or 400 level*
 Any PHYS 400-level
 STAT 300 or 400 level*

Unacceptable Courses for the Physics Major or Minor

Math courses below MATH 140
 Physics courses below PHYS 211
 PHYS 250
 PHYS 251

Computational Physics Option: Physics, B.S. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CHEM 110 ^{*#†}	3 CHEM 112 [†]	3
CHEM 111 ^{††}	1 CHEM 113 [†]	1
MATH 140 ^{*#†}	4 MATH 141 ^{*†#†}	4
ENGL 15 or 30H ^{††}	3 PHYS 211 ^{*#}	4
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
PSU 7	1	
	16.5	16.5

Second Year

Fall	Credits Spring	Credits
PHYS 212 ^{*#}	4 PHYS 237 [*]	3
PHYS 213 [*]	2 MATH 251	4
PHYS 214 [*]	2 CAS 100 ^{††}	3
MATH 220	2 CMPSC 122	3
MATH 230	4 General Education Course	3
CMPSC 121	3	
	17	16

Third Year

Fall	Credits Spring	Credits
PHYS 414 (Supports Additional Course Selection) ^{*1}	3 PHYS 419 [*]	3
PHYS 420 [*]	3 PHYS 421W [*]	3
General Education Course (GN) [†]	3 CMPSC 465 [*]	3
CMPSC 474 [*]	3 PHYS 494 or 495 [*]	3
ENGL 202C ^{††}	3 General Education Course	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
PHYS 400 [*]	3 EE 352 (Supports Additional Course Selection) [*]	4
PHYS 402 [*]	4 PHYS 458 [*]	4
MATH 455 or CMPSC 455 [*]	3 MATH 456 or CMPSC 456 (MATH 456 Supports Additional Course Selection) [*]	3
Additional Course Selection [*]	3 General Education Course	3
General Education Course	3	
	16	14

Total Credits 126

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ See adviser for acceptable substitutions

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes

Scheduling patterns for courses not taught each semester

Some major requirements will be offered only once a year or every other year depending on demand. 400 level physics courses are taught on a rotating basis; courses are taught only once every other year.

-Fall only courses include: CMPSC 474, MATH 455, PHYS 400, PHYS 402, PHYS 414, PHYS 420

-Spring only courses include: CMPSC 455, MATH 421, ME 428, MATH 456, PHYS 410, PHYS 419, PHYS 421W, PHYS 458

- 1.) All first-year baccalaureate candidates are required to complete, during the first academic year, a seminar course.
- 2.) Any 300 or 400 level Science or Math course requires a C or better.
- 3.) Students with a prior introduction to calculus may take MATH 140 and PHYS 211 concurrently in their first semester.
- 4.) A course noting "Supports Additional Course Selection" counts as an "Additional Course Selection." A total of 23 credits must be taken in this area. Possible course substitutions are listed below in the Additional Course Selection List. Please note that three credits of PHYS 494 and/or PHYS 495 are prescribed. Any additional credits in PHYS 494 or PHYS 495 (up to a maximum of 3 credits) may be applied to the additional course requirement.
- 5.) Supporting Courses - students must select (3) credits from the following: CMPSC 459, CMPSC 456 Introduction to Numerical Analysis II, CMPSC 474 Operating System & Systems Programming. CMPSC 456 is recommended.
- 6.) Students must select (3) credits from the Supporting Course List below. MATH 456 or CMPSC 456 is recommended.

Advising Notes

Additional Course Selection List*

EE 352 Signals and Systems: Continuous and Discrete-Time
 EE 453 Fundamentals of Digital Signal Processing
 MATH 456 Introduction to Numerical Analysis II
 ME 410 Heat Transfer
 ME 428 Applied Computational Fluid Dynamics
 PHYS 410 Introduction to Quantum Mechanics I

PHYS 414 Solid State Physics
 PHYS 494 Physics Research Project
 PHYS 495 Internship

Supporting Course List

ASTRO 291 or higher
 BIOL 110 or higher
 CHEM 210 or higher
 CMPSC 200 or higher
 MATH 300 or 400 level*
 Any PHYS 400-level
 STAT 300 or 400 level*

Unacceptable Courses for the Physics Major or Minor

Math courses below MATH 140
 Physics courses below PHYS 211
 PHYS 250
 PHYS 251

Career Paths

The U.S. Bureau of Labor Statistics predicts physics careers will have higher than average job growth in the next decade. Undergraduate research and internships offer Behrend physics students opportunities to integrate academic study with professional experience. To tailor your degree to your career interests, you'll study one of two options, General Physics and Computational Physics. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

Physics is a discipline without limits. Penn State Behrend B.S. in Physics graduates are working in careers as diverse as laser-light design for major concert and theatre productions to radiation damage research at Los Alamos National Laboratories to component design engineering at Rolls-Royce.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE PHYSICS PROGRAM (<https://behrend.psu.edu/school-of-science/academic-programs/physics/>)

Opportunities for Graduate Studies

Physics is a common foundational major for graduate study. Penn State Behrend Physics graduates have pursued advanced degrees in physics, astronomy, materials science, materials engineering, bioengineering, electrical engineering, and secondary education.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-science/academic-programs/physics/>)

Professional Resources

- Institute of Physics (<https://www.iop.org>)
- American Institute of Physics (<https://www.aip.org>)
- American Physical Society (<https://www.aps.org/>)

Contact

Erie

SCHOOL OF SCIENCE
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 Erie, PA 16563
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Plastics Engineering Technology, B.S.

Begin Campus: Any Penn State Campus

End Campus: Erie

Program Description

This major prepares graduates with the knowledge and skills needed to provide high level engineering technology support to a wide variety of industrial, developmental, commercial, consulting, and sales organizations dealing with the development, manufacture and/or distribution of plastics related products, materials and technologies. The program emphasizes the integration of engineering and scientific principles, practical hands-on experience, application of state-of-the-art computer technologies, and management methods.

Graduates are qualified for positions in product development, part design, tooling design, R&D, processing, plant engineering, production control, technical sales and marketing in the plastics industry, and are provided a path to a wide variety of graduate degrees in engineering, science or business.

The four-year baccalaureate program is accredited by the Engineering Technology Accreditation Commission of ABET, www.abet.org (<http://www.abet.org>). Graduates of the Penn State University associate degree program in Plastics Engineering Technology and Mechanical Engineering Technology may complete this degree in five semesters of full-time study.

What is Plastics Engineering Technology?

Plastics engineering technology is a unique undergraduate engineering discipline that studies optimization of the physical processes required to form raw plastics into usable, cost-efficient parts and components. Coursework in the discipline includes computer-aided design, materials properties, tool design and machining, fluid and thermal science, automation, and project management.

You Might Like This Program If...

- You recognize the ubiquity of plastics—they are everywhere!
- You are a creative problem solver.
- You are looking for a hands-on engineering discipline.
- You'd like to learn and conduct research in the country's largest undergraduate plastics processing lab.
- You want to be an integral part of a sustainable future.

Entrance to Major

To be eligible for entrance to the Plastics Engineering Technology major, a student must have:

1. attained at least a 2.00 cumulative grade-point average;
2. completed MATH 81 or MATH 26, and MATH 82 or MATH 22, and MATH 83 or MATH 140, and PHYS 250, and earned a grade of C or better in each of these courses.

Degree Requirements

For the Bachelor of Science degree in Plastics Engineering Technology, a minimum of 134 credits is required:

Requirement	Credits
General Education	45
Electives	1
Requirements for the Major	106

18 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GWS courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned.

Requirements for the Major

Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
EGT 120	Introduction to Graphics and Solid Modeling	3
EGT 121	Applied Solid Modeling	3
MATH 211	Intermediate Calculus and Differential Equations with Applications	3
<i>Prescribed Courses: Require a grade of C or better</i>		
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
ENGL 202C	Effective Writing: Technical Writing	3
MET 111	Mechanics for Technology: Statics	3
MET 213	Strength and Properties of Materials	3
MET 418	Finite Element Analysis for Plastics Design	3
MGMT 409	Project Management for Engineers	3
PHYS 250	Introductory Physics I	4
PLET 50	Computer Applications for Plastics Engineering Technology	2
PLET 205	Introduction to Plastics	3
PLET 206W	Plastic Materials and Properties	3
PLET 222	Introduction to Plastics Processing	4
PLET 227	Plastics Processing & Statistical Methods	4
PLET 232	Introduction to Part and Tool Design	3
PLET 235	Tool Design & Machining	2
PLET 304	Plastic Material Properties and Applications	3
PLET 323	Packaging Processes	3
PLET 330	Advanced Tooling & Rheology	4
PLET 345	Heat Transfer	3
PLET 350	Design of Plastic Parts	4
PLET 366	Fluid and Thermal Sciences	3

PLET 464	Plastics Failure Analysis	3
PLET 481	Plastic Product Development	3
PLET 494A	Plastics Projects	3

Additional Courses

Additional Courses: Require a grade of C or better

Select 15 credits from one of the following sequences: 15

Sequence A

MATH 22	College Algebra With Analytic Geometry and Applications II
or MATH 82 Technical Mathematics II	
MATH 26	Plane Trigonometry and Applications of Trigonometry
or MATH 81 Technical Mathematics I	
MATH 83	Technical Calculus
or MATH 14(Calculus With Analytic Geometry I	
MATH 210	Calculus with Engineering Technology Applications

2 credits of GN electives

Sequence B

MATH 140	Calculus With Analytic Geometry I
MATH 141	Calculus with Analytic Geometry II

2 credits of GN electives

5 credits of general electives

Supporting Courses and Related Areas

Select a total of 9 credits of technical electives from School-approved 9 list

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Plastics Engineering Technology, B.S. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
EGT 120	3 CHEM 110 (GN) ^{**†}	3
ENGL 15 or 30H (GWS) ^{††}	3 CHEM 111 (GN) ^{**†}	1
MATH 41 (GQ) ^{**††}	4 EGT 121	3
PLET 50 [*]	2 MATH 83 (GN) ^{**††}	4
PSU 7	1 PHYS 250 (GN) ^{**††}	4
General Education Course	3 PLET 205 [*]	3
General Education Course (GHW)	1.5	
	17.5	18

Second Year

Fall	Credits Spring	Credits
CAS 100 (GWS) ^{††}	3 ENGL 202C (GWS) ^{††}	3
ECON 102 (GS)	3 MATH 211 (GQ)	3
MATH 210 (GQ) [*]	3 MET 213 [*]	3
MET 111 [*]	3 PLET 206W ^{*1}	3
PLET 222 [*]	4 PLET 232 [*]	3
	PLET 235 [*]	2
	16	17

Third Year

Fall	Credits Spring	Credits
MGMT 409*	3 MET 418*	3
PLET 304*	3 PLET 227*	4
PLET 330*	4 PLET 345*	3
PLET 366*	3 PLET 350*	4
General Education Course	3 PLET 494A*	1
General Education Course (GN)	1 General Education Course (GHW)	1.5
17		16.5

Fourth Year

Fall	Credits Spring	Credits
PLET 323*	3 PLET 494A*	2
PLET 464*	3 Technical Elective (300, 400-level)*	3
PLET 494A*	3 Technical Elective (300, 400-level)*	3
Technical Elective (300, 400-level)*	3 General Education Course	3
Advanced Technical Elective*	3 General Education Course	3
General Education Course		3
15		17

Total Credits 134

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ Course will satisfy Writing Across the Curriculum requirement.

Program Notes:

- Permissible Math substitutions: MATH 140 instead of MATH 83; MATH 141 instead of MATH 210; MATH 250 or MATH 251 instead of MATH 211.
- The following are the departmentally approved courses for the PLET program. Other courses may be accepted, but approval must be given prior to successfully completing the course.

• Advanced Technical Electives:

- PLET 466
- PLET 481
- PLET 483
- PLET 484
- PLET 497
- PES 340
- PES 460
- CHEM 202
- CHEM 203
- CHEM 210
- CHEM 212

• Technical Electives:

- Any Advanced Technical Elective may be used as a Technical Elective
- PLET 468
- PES 320
- MET 425
- QC 450
- BME 443
- IE 302

- 300- and 400-level SCM, MGMT, and MRKT courses may be substituted for PLET Technical electives *only* if the student *completes* a minor in the business area.

Career Paths

Penn State Behrend's B.S. in Plastics Engineering Technology is the only plastics-specific undergraduate degree in the Penn State system and one of only six accredited programs in the United States. Because plastics are everywhere, plastics engineering technologists find employment in any industry sector that interests them. Automotive, aerospace, medical, electronics, computer, toy, and consumer products manufacturers frequently recruit Behrend graduates for positions in product development, part design, tooling design, processing, project engineering, production control, technical sales, and research.

Careers

Employers of recent B.S. in Plastics Engineering Technology graduates include Apple, General Motors, Graham Packaging, Graco, Microsoft, Nike, Philips Healthcare, Rubbermaid, and Tesla.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE PLASTICS ENGINEERING TECHNOLOGY PROGRAM (<https://behrend.psu.edu/school-of-engineering/academic-programs/plastics-engineering-technology/>)

Opportunities for Graduate Studies

Students who hold a degree in Plastics Engineering Technology pursue master's and doctoral degrees in plastics engineering, polymer science, materials science, medical plastics, and elastomeric materials. Or, you can use a master's degree program to learn management skills; Penn State Behrend offers a Master of Manufacturing Management (M.M.M.) degree program for aspiring organizational leaders.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-engineering/academic-programs/master-of-manufacturing-management/>)

Professional Resources

- ABET (<https://www.abet.org/>)
- Society of Plastics Engineers (<https://www.4spe.org/membership/>)
- Institution of Engineering and Technology (<https://www.theiet.org/>)
- Society of Women Engineers (<https://swe.org>)
- National Society of Black Engineers (<https://www.nsbe.org>)

Accreditation

The Bachelor of Science in Plastics Engineering Technology at Penn State Behrend is accredited by the Engineering Technology Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria with no applicable program criteria.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

Erie

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<https://behrend.psu.edu/school-of-engineering> (<https://behrend.psu.edu/school-of-engineering/>)

Plastics Processing, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

This 16-17 credit program is designed to provide students with an understanding of the basics of the materials and processes used to produce plastic parts. Students learn modern processing techniques and testing methods for plastics.

What is Plastics Processing?

Plastics processing is the study of the materials and processes used to produce usable, cost-effective plastic parts and components. Because plastics are everywhere, graduates with plastics experience find employment in any industry sector that interests them. Automotive, aerospace, medical, electronics, computer, toy, and consumer products manufacturers are among the industries that value advanced knowledge of plastics processing.

You Might Like This Program If...

- You want to add plastics processing expertise to your major degree program.
- You envision yourself working in an plastics-intensive industry such as toy- or consumer-products design or production.

Program Requirements

To earn an undergraduate certificate in Plastics Processing, a minimum of 16 credits is required.

Code	Title	Credits
Prescribed Courses		
PLET 205	Introduction to Plastics	3
PLET 206W	Plastic Materials and Properties	3
PLET 222	Introduction to Plastics Processing	4
PLET 227	Plastics Processing & Statistical Methods	4
Select one of the following:		2-3
PLET 50	Computer Applications for Plastics Engineering Technology	
MET 107	Computer Applications for Technologists	
EDSGN 100	Cornerstone Engineering Design	
EDSGN 100S	Introduction to Engineering Design	

Certificate Learning Objectives

- **Material Testing:** Students will demonstrate technical competency in carrying out tests to determine plastic properties commonly used to evaluate plastic materials.
- **Process Development:** Students will demonstrate technical competency in setting up and developing a robust injection molding process.
- **Process Troubleshooting:** Students will demonstrate technical competency in troubleshooting common injection molding defects.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

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Career Paths

The certificate in Plastics Processing is available to most students majoring in Penn State Behrend School of Engineering degree programs. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your

academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

A certificate in Plastics Processing widens your engineering career opportunities by giving your broad engineering education an element of specialization.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A CERTIFICATE IN PLASTICS PROCESSING (<https://behrend.psu.edu/school-of-engineering/academic-programs/certificate-programs/plastics-processing-certificate/>)

Opportunities for Graduate Studies

Students interested in plastics processing can pursue master's and doctoral degrees in plastics engineering, polymer science, materials science, medical plastics, and elastomeric materials.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-engineering/academic-programs/certificate-programs/plastics-processing-certificate/>)

Professional Resources

- ABET (<https://www.abet.org/>)
- Society of Plastics Engineers (<https://www.4spe.org/membership/>)
- Society of Women Engineers (<https://societyofwomenengineers.swe.org/>)
- National Society of Black Engineers (<https://www.nsbe.org/home.aspx>)

Contact

Erie

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242 Jack Burke Research and Economic Development Center
5101 Jordan Road
Erie, PA 16563
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<https://behrend.psu.edu/school-of-engineering> (<https://behrend.psu.edu/school-of-engineering/>)

Political Science, B.A. (Behrend)

Begin Campus: Any Penn State Campus

End Campus: Erie

Program Description

The discipline of political science consists of different related subfields such as American government, international relations, comparative politics (the study of different political systems), political theory, law, and public policy and administration (the study of how governments accomplish objectives). The major offers students the opportunity to take course work in most subfields as well as seek practical experience through an internship. All students are encouraged to develop research and writing and statistical skills. Many students have continued their education in law or graduate school.

Crime and Law Option

This option requires coursework in criminology and law and helps to prepare students for careers in law and criminal justice, including students planning on law school.

International Relations Option

This option requires coursework in international politics and comparative politics and prepares students for careers with international institutions or in business in other countries, and for graduate school work in international affairs.

Politics and Government Option

This option allows students to choose their own concentrations of coursework within political science and helps to prepare students for a variety of careers, including government employment, social studies secondary education, activist politics, and graduate school in political science.

Public Policy Option

This option requires coursework related to how to make government and policy decisions effectively and prepares students for careers with government offices, businesses, interest groups, or think tanks related to public policy, or in public administration, or for graduate degree programs in public policy or public administration.

What is Political Science?

Political science is one of the social sciences. It is the study of systems of governance and governmental institutions, political activity, political thought, and political behavior. Political science draws from many other academic disciplines, including economics, law, sociology, history, philosophy, geography, psychology, and anthropology. There also are subfields of political science, such as comparative politics, political theory, international relations, international law, public administration, and public policy. Political science students study how American government works (and doesn't work) and what can be done to improve government at the federal, state, and local level. In comparative government and international relations coursework, students study the politics and policies of other countries. Political theory courses examine the ideas of famous political philosophers, while courses on law and the legal process provide knowledge about the criminal justice and civil litigation systems.

You Might Like This Program If...

- You want to understand how political and governmental decisions are made.
- You love discussing and analyzing events in the news.
- You're interested in how the legal system works.
- You're interested in how diplomacy works.
- You're looking for a degree that is useful in many different career paths.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Political Science, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	15
Bachelor of Arts Degree Requirements	24
Requirements for the Major	42-43

0-7 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 0-6 credits of GS courses; 0-4 credits of GQ courses; 0-3 credits of GH courses.

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned.

Requirements for the Major

Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
PLSC 1	American Politics: Principles, Processes and Powers	3
PLSC 3	Comparing Politics around the Globe	3
PLSC 14	International Relations	3
Additional Courses		
Select one of the following:		3
PLSC 7N	Contemporary Political Ideologies	
PLSC 17N	Introduction to Political Theory	
PLSC 17W	Introduction to Political Theory	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 12 additional credits of PLSC courses not used to complete other requirements. At least 12 credits from Additional and Supporting Courses must be at the 400-level.		12
Requirements for the Option		
Select an option		18-19

Requirements for the Option Crime and Law Option (18 Credits)

Code	Title	Credits
Additional Courses		
Select 6 credits from the following:		6
SOC 5	Social Problems	
SOC 12	Criminology	
SOC 13	Juvenile Delinquency	
CRIMJ 100	Introduction to Criminal Justice	
<i>Additional Courses: Require a grade of C or better</i>		
Select 6 credits from the following:		6
PLSC 471	American Constitutional Law	
PLSC 472	The American Legal Process	
PLSC 487	International Law and Organizations	
Supporting Courses and Related Areas		
Select 6 PLSC credits in law courses from an approved list		6

International Relations Option (18 Credits)

Code	Title	Credits
Additional Courses		
ECON 104	Introductory Macroeconomic Analysis and Policy	3
or GEOG 126	Economic Geography	
Select 6 credits from the following:		6
PLSC 90	Introduction to Security	
PLSC 140	Contemporary Controversies in International Relations	
PLSC 200N	Government and Politics of Europe	
PLSC 220	Politics of the Developing World	
Supporting Courses and Related Areas		
Select 3 credits of HIST from approved list (GH)		3
Select 6 credits in PLSC comparative politics or international relations courses from an approved list		6

Politics and Government Option (18 Credits)

Code	Title	Credits
Supporting Courses and Related Areas		
Select 12 credits of PLSC courses		12
Select 6 credits of courses in related areas from a major-approved list		6

Public Policy Option (18-19 Credits)

Code	Title	Credits
Prescribed Courses		
PLSC 202	American Public Policy	3
Additional Courses		
PLSC 111	Debating the Purpose of Government	3
or PLSC 223N	Ethnic and Racial Politics	
<i>Additional Courses: Require a grade of C or better</i>		
Select 3-4 credits from the following:		3-4
PSYCH 200	Elementary Statistics in Psychology	
SCM 200	Introduction to Statistics for Business	
STAT 200	Elementary Statistics	
STAT 250	Introduction to Biostatistics	
Supporting Courses and Related Areas		

Select 3 credits of GEOG from approved list	3
Select 6 PLSC credits in policy courses from approved list	6

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- Understanding of the institutions, processes, constitutional background, and policy outcomes of American government and the ability to compare American government to other countries around the world.
- Knowledge of key theories and concepts, historical developments, organizations, and modern issues in international relations.
- Understanding of government institutions, electoral processes, and policies in a variety of countries around the world and the ability to compare the effectiveness or impact of differing political arrangements across countries.
- Knowledge of some of the philosophical underpinnings of modern politics and government and the legal principles by which political disputes are often settled.
- Ability to use the comparative case study method of analysis, quantitative forms of analysis, and legal analysis in oral communication and in written research.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Political Science, B.A. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year		
Fall	Credits Spring	Credits
ENGL 15 or 30H ^{††}	3 PLSC 1 or 3	3
PLSC 1 or 3	3 General Education	3
General Education	3 General Education	3
World Language (Level One)	4 General Education	3
First-Year Seminar	1 World Language (Level Two)	4
	14	16
Second Year		
Fall	Credits Spring	Credits
PLSC 14 or 17N	3 PLSC 14H or 17N	3
CAS 100 ^{††}	3 ENGL 202A ^{††}	3
General Education	3 General Education	3
General Education	3 General Education	3
World Language (Level Three)	4 General Education	3

General Education		
		1.5
	16	16.5
Third Year		
Fall	Credits Spring	Credits
PL SC 400-level*	3 PL SC 400-level, Writing Across the Curriculum (W) course*	3
PL SC American Government any level	3 PL SC International Politics any level	3
General Education	3 BA Knowledge Domain	3
General Education	1.5 General Education	3
World Cultures	3 Electives	3
	13.5	15
Fourth Year		
Fall	Credits Spring	Credits
PL SC 400-level*	3 PL SC 400-level*	3
PL SC Comparative Politics any level	3 PL SC Gov in Theory and Practice any level	3
BA Knowledge Domain	3 BA Knowledge Domain	3
Electives	3 Electives	3
Electives	3 Electives	3
	15	15

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

- ¹ Quantification of Natural Science
- ² Students need 6 credits in GQ and 9 credits in GN ; one Natural Science (GN) course must include a laboratory component
- ³ World Language (Level One)
- ⁴ This requirement is governed by placement policy dictated by the number of levels of world language completed prior to admission to college.
- ⁵ Arts, Humanities, or Social and Behavioral Science.
- ⁶ Students need 6 credits in GA, 6 credits in GH, and 6 credits in GS. Courses may not be taken in the area of the student's primary major.
- ⁷ PL SC 400-level
- ⁸ W and Y are codes used to designate courses that satisfy University Writing Across the curriculum requirements.
- ⁹ BA Knowledge Domains
- ¹⁰ Students are permitted to complete all 9 credits in an one of six domains or a combination thereof, but courses may not be taken in the area of the student's primary major. The six domains are ARTS (GA), Humanities (GH), Social & Behavioral Sciences (GS), Natural Sciences (GN), Quantification (GQ). and World Language if the coursework is in a second world language or beyond the 12th credit proficiency of the first world language.

Additional Notes

Both US (United States Cultures) and IL (International Cultures) must be completed within the degree requirements.

Program Notes: Students can double count US & IL requirements for general education courses but not for the World Cultures requirement.

Academic Advising Notes: The course series listed above is only one of many possible ways to move through this curriculum. The number of electives required varies per student. Please be sure to consult with an adviser about your intended plan.

Career Paths

The B.A. in Political Science program emphasizes the development of key intellectual skills, ingraining the habits of questioning, debating, challenging, and shaping coherent and persuasive arguments. You'll be expected to master effective writing, speaking, and reasoning, and conduct upper-level research in public affairs—skills that are impressive to future employers. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

Employers of recent Penn State Behrend B.A. in Political Science graduates include the FBI, CIA, U.S. State Department, Social Security Administration, U.S. Department of Labor, Pennsylvania General Assembly, and NASA. Recent Political Science graduates work as attorneys for U.S. Customs and Border Protection, the U.S. Department of Justice, the Michigan Attorney General, The Nature Conservancy, and GEICO, and in policy positions at Toyota Motors, Erie Insurance, and the Center for Naval Analyses. Other recent graduates work in education at the University of California, Los Angeles, University of Notre Dame, University of Connecticut, and in many secondary schools.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE POLITICAL SCIENCE PROGRAM (<https://>

behrend.psu.edu/school-of-humanities-social-sciences/academic-programs/political-science/)

Opportunities for Graduate Studies

Recent Penn State Behrend Political Science alumni have attended the law schools at Cornell University, University of Pittsburgh, New York University, George Washington University, University of Illinois, and Boston College. Other recent graduates have pursued graduate degrees in fields such as public policy and international relations at the University of Pennsylvania, Georgetown University, Cornell University, Johns Hopkins University, Pepperdine University, China's Fudan University, and England's Cambridge University.

If you are interested in a teaching career, you can fast-track your completion of Pennsylvania teacher certification in middle-level or secondary social studies through Penn State Behrend's agreement with Edinboro University of Pennsylvania (<https://behrend.psu.edu/school-of-humanities-social-sciences/academic-programs/political-science/curriculum/social-studies-teacher-certification/>).

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-humanities-social-sciences/academic-programs/political-science/>)

Professional Resources

- American Political Science Association (<https://www.apsanet.org/>)
- American Society for Public Administration (<https://www.aspanet.org/>)
- United Nations Public Administration Network (<https://unpan.un.org/>)

Contact

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170 Irvin Kochel Center
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<https://behrend.psu.edu/school-of-humanities-social-sciences> (<https://behrend.psu.edu/school-of-humanities-social-sciences/>)

Politics and Government, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The study of politics consists of several related subfields, such as American Government, public policy and administration, comparative politics or the study of foreign governments, international relations, and political theory. Students who pursue this minor are expected to develop research and writing skills, in addition to critical analytical skills. Because the policy making process and the processes of globalization affect us in virtually all areas of our lives, the minor is appropriate for supporting the study of any of the majors offered at the College. Similarly, the minor provides an invaluable understanding of the political world that is useful in any career that has an impact on or is affected by public life. Students

who study politics at Behrend also often pursue graduate professional studies in law or in other fields in graduate schools.

What is Politics and Government?

The study of politics and government is useful in any career that has an impact on or is affected by public life, and for anyone who wants to be an engaged citizen in our democracy. Students in the Politics and Government minor study American government, public policy and administration, comparative politics, international relations, and political theory.

You Might Like This Program If...

- You want to be an informed and engaged citizen.
- You enjoy discussing current events.
- You are considering pursuing a law degree.
- You envision working in government or a public-policy field.
- You'd like to add liberal arts balance to a business or technical major.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>).

In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
PLSC 1	American Politics: Principles, Processes and Powers	3
PLSC 3	Comparing Politics around the Globe	3
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 12 credits (at least 6 credits at the 400 level) from PL SC courses		12

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

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Career Paths

The minor in Politics and Government can be pursued by students in most Penn State Behrend degree programs. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

Because globalization and the policy-making process affect virtually all areas of the modern workplace, the minor can be appropriate preparation for any career, and particularly those that demand strong research, writing, and analytical-thinking skills.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN POLITICS AND GOVERNMENT (<https://behrend.psu.edu/school-of-humanities-social-sciences/academic-programs-1/minors/politics-and-government-minor/>)

Opportunities for Graduate Studies

A minor in the liberal arts, particularly when added to a major program outside of the liberal arts, demonstrates to graduate school admissions committees your commitment to interdisciplinary thinking. Many students who choose the Politics and Government minor do so because they intend to pursue a law degree.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-humanities-social-sciences/academic-programs-1/minors/politics-and-government-minor/>)

Contact

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Polymer Engineering and Science, B.S.

Begin Campus: Any Penn State Campus

End Campus: Erie

Program Description

The PES degree will be built upon the established Penn State University Engineering Baccalaureate degree foundations, with emphasis in the

behavior and manipulation of bulk polymer materials. The relationships between polymer processing and chemical and micro structure/property development will be emphasized and a comprehensive understanding of bulk, micro and nano polymer characterization techniques will be stressed. Polymer composite formulation, including polymer/filler interfacial chemistry and failure analysis of polymer products are also important aspects of the PES graduate principal knowledge.

What is Polymer Engineering and Science?

Simply put, polymer engineers and scientists study the materials that make up our world. With the B.S. in Polymer Engineering and Science, you'll learn to analyze the character and structure of materials and use that knowledge to design innovative new products.

You Might Like This Program If...

- You like chemistry, math, and physics.
- You like working on team-based projects.
- You're curious about why materials behave the way they do.
- You've ever wondered how polymers are made and then used to create other things.

Entrance to Major

To be eligible for entrance to the Polymer Engineering and Science major, a student must have:

1. attained at least a 2.00 cumulative grade-point average
2. completed MATH 140 and MATH 141, CHEM 110, and PHYS 211 and earned a grade of C or better in each of these courses

Degree Requirements

For the Bachelor of Science degree in Polymer and Engineering Science, a minimum of 130 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	112-113

27 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GWS courses, 6 credits of GQ courses, 3 credits of GS courses, 9 credits of GN courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CAS 100	Effective Speech	3
CHEM 110	Chemical Principles I	3

CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
CHEM 113	Experimental Chemistry II	1
CHEM 210	Organic Chemistry I	3
CMPSC 200	Programming for Engineers with MATLAB	3
EDSGN 100S	Introduction to Engineering Design	3
EMCH 211	Statics	3
EMCH 213	Strength of Materials	3
EMCH 315	Mechanical Response of Engineering Materials	2
ENGL 15	Rhetoric and Composition	3
ENGL 202C	Effective Writing: Technical Writing	3
IE 424	Process Quality Engineering	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
MATH 220	Matrices	2-3
MATH 231	Calculus of Several Variables	2
MATH 251	Ordinary and Partial Differential Equations	4
MATSE 202	Introduction to Polymer Materials	3
MATSE 445	Thermodynamics, Microstructure, and Characterization of Polymers	3
MATSE 447	Rheology and Processing of Polymers	3
PES 213	Polymer Chemistry Lab	2
PES 305	Fluids/Heat Transfer	3
PES 320	Polymer Sustainability	3
PES 323	Rheology Lab	2
PES 340	Polymer Characterization	2
PES 341	Polymer Characterization Lab	1
PES 351	Polymer Processing Lab	1
PES 365	Processing for Polymer Product Performance	3
PES 440	Failure Analysis and Characterization	3
PES 441	Failure Analysis Lab	1
PES 446W	Senior Project 1	1
PES 447W	Senior Project 2	1
PES 448W	Senior Project 3	1
PES 460	Polymer Formulation for Processing and Design	3
PHYS 211	General Physics: Mechanics	4
PHYS 212	General Physics: Electricity and Magnetism	4

Additional Courses

Additional Courses: Require a grade of C or better

ECON 102	Introductory Microeconomic Analysis and Policy	3
or ECON 104	Introductory Macroeconomic Analysis and Policy	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Students majoring in Polymer Engineering and Science must complete a total of 12 credits (4 courses) of 400-level PES technical electives from the approved list. (Except where noted, courses taken to satisfy General Education requirements may not be used to satisfy PES technical elective requirements.)

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing

intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

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READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

Gregory Dillon, Ph.D.

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Polymer Engineering and Science, B.S. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CHEM 110 ^{*#†}	3 CHEM 112 ^{*†}	3
CHEM 111 ^{*†}	1 CHEM 113 ^{*†}	1

ECON 102 or 104 ^{††}	3 CMPSC 200 ^{*††}	3
EDSGN 100S [*]	3 MATH 141 ^{*††}	4
ENGL 15 ^{*††}	3 PHYS 211 ^{*††}	4
MATH 140 ^{*††}	4 General Education Course (GA/GH/GS)	3
	17	18

Second Year

Fall	Credits Spring	Credits
CAS 100 ^{*††}	3 EMCH 211 [*]	3
CHEM 210 [*]	3 IE 424 [*]	3
MATH 251 [*]	4 MATH 220 ^{*††}	2
PHYS 212 ^{*†}	4 MATH 231 [*]	2
General Education Course (GA/GH/GS)	3 MATSE 202 [*]	3
	PES 213 [*]	2
	17	15

Third Year

Fall	Credits Spring	Credits
EMCH 213 [*]	3 EMCH 315 [*]	2
MATSE 445 [*]	3 ENGL 202C ^{*††}	3
PES 320 [*]	3 MATSE 447 [*]	3
PES 340 [*]	2 PES 305 [*]	3
PES 341 [*]	1 PES 323 [*]	2
PES 365 [*]	3 PES 351 [*]	1
General Education Course (GHW)	1.5 PES 446W [*]	1
	General Education Course (GA/GH/GS)	3
	16.5	18

Fourth Year

Fall	Credits Spring	Credits
PES 440 [*]	3 PES 448W [*]	1
PES 441 [*]	1 Technical Elective [*]	3
PES 447W [*]	1 Technical Elective [*]	3
PES 460 [*]	3 General Education Course (GA/GH/GS)	3
Technical Elective [*]	3 General Education Course (GA/GH/GS)	3
Technical Elective [*]	3 General Education Course (GHW)	1.5
	14	14.5

Total Credits 130

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

School-Approved Electives for Polymer Engineering and Science

- Students majoring in Polymer Engineering and Science must complete a total of 12 credits (4 courses) of 300- or 400-level PES technical electives from the approved list with a grade of C or better. (Except where noted, courses taken to satisfy General Education requirements may not be used to satisfy PES technical elective requirements.)
- 300- and 400-level courses can be selected from the following subjects – BIOL, BMB, BME, CHEM, CMPEN, CMPET, CMPSC, EE, EET, MATH, ME, MET, MCRB, PES, PHYS, PLET, STAT, and SWENG.

Career Paths

The global polymers market is growing—and so is the demand for polymer engineers and scientists. Polymers are needed in a broad variety of industries, including medicine, manufacturing, and sustainability.

Careers

Polymer Engineering and Science graduates work in a variety of industries. With a B.S. degree, they can work as polymer engineers, polymer scientists, process engineers, quality engineers, manufacturing engineers, product failure analysts, material engineers, and polymer test specialists. They are employed at organizations like GM, GE, Avient, Boeing, Shell, Abbott Laboratories, and the U.S. Department of Energy.

MORE INFORMATION ABOUT POTENTIAL CAREER PATHS FOR GRADUATES OF THE POLYMER ENGINEERING AND SCIENCE PROGRAM (<https://behrend.psu.edu/school-of-engineering/academic-programs/polymer-engineering-and-science/>)

Opportunities for Graduate Studies

With the hands-on research experiences you'll get while pursuing Penn State Behrend's B.S. in Polymer Engineering and Science, you'll be well-prepared for future academic pursuits. You'll build your resume, work alongside of established engineers solving real-world problems, and set yourself apart from your peers, leaving you ready to pursue an advanced degree.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-engineering/academic-programs/polymer-engineering-and-science/>)

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<https://behrend.psu.edu/school-of-engineering> (<https://behrend.psu.edu/school-of-engineering/>)

medical, dental, optometry, veterinary science, podiatry, physical therapy, physician assistant, or other allied health schools.

Premedical Sciences, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

Non-degree program designed for academically talented, highly motivated individuals who do not have a science background. In 15-24 months students can complete science coursework required to apply for admission to medical, dental, optometry, veterinary science, podiatry, physical therapy, physician assistant or other allied health schools. Program consists of 40-42 credits of science courses.

What is Premedical Sciences?

Premedical Sciences is a certificate program for college graduates who do not have an undergraduate science background and want to strengthen their application to a health-related professional school by pursuing coursework in biology, chemistry, and physics.

You Might Like This Program If...

- You already hold a bachelor's degree.
- You need additional science coursework to be a competitive applicant to a medical, dental, optometry, veterinary, podiatry, physical therapy, physician assistant, or other health care education program.

Program Requirements

To earn an undergraduate certificate in Premedical Sciences, a minimum of 42 credits is required.

Code	Title	Credits
Prescribed Courses		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
BIOL 141	Introduction to Human Physiology	3
BIOL 142	Physiology Laboratory	1
BIOL 230W	Biology: Molecules and Cells	4
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
CHEM 113	Experimental Chemistry II	1
CHEM 210	Organic Chemistry I	3
CHEM 212	Organic Chemistry II	3
CHEM 213	Laboratory in Organic Chemistry	2
PHYS 250	Introductory Physics I	4
PHYS 251	Introductory Physics II	4
SC 201	Medical Professions	1
In addition to previous courses, health professions related courses selected in consultation with an adviser.		3-5

Prerequisites Required.

Certificate Learning Objectives

- **Preparation for Further Study:** Provide students without a science background the course work required to apply for admission to

Academic Advising

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Erie

Todd Cook, Ph.D.

Assistant Professor of Biology
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tdc15@psu.edu

Career Paths

Demonstrating success in foundational and advanced undergraduate scientific coursework can help you strengthen your health-related professional school application and potentially increase your chances of being placed in the university and program of your choice

Careers

Employment in the health care sector is expected to grow much faster than the average for all occupations, adding about 2.3 million new jobs through 2026.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A CERTIFICATE IN PREMEDICAL SCIENCES (<https://behrend.psu.edu/school-of-science/academic-programs-1/certificate-programs/premedical-certificate/>)

Opportunities for Graduate Studies

The School of Science has an active health professions committee that assists certificate students in their professional-school search.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-science/academic-programs-1/certificate-programs/premedical-certificate/>)

Professional Resources

- American Medical Student Association (<https://www.amsa.org/>)
- Student National Medical Association (<https://snma.org>)

Contact

Erie

SCHOOL OF SCIENCE

1 Prischak
4205 College Drive
Erie, PA 16563
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behrend-science@psu.edu

<https://behrend.psu.edu/school-of-science> (<https://behrend.psu.edu/school-of-science/>)

Project and Supply Chain Analytics, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

The project and supply chain management job market remains strong, and the demand for analytics skills within the domain has been growing significantly. With the newly added electives, including SCM 340: Introduction to Supply Chain Analytics and MGMT 430: Project Risk Management, the analytics components within the PSCM program have been strengthened and emphasized. A Project and Supply Chain Analytics certificate will maximize the value of the course offerings and enhance student employability.

What is Project and Supply Chain Analytics?

Project and Supply Chain Analytics is an interdisciplinary field that integrates principles of project management, supply chain management, and data analytics to improve the flow of goods, services, and information. The certificate is designed to equip students with the comprehensive skills and knowledge required to effectively use analytics to generate solutions and insights for decision-making. This includes enabling students to apply analytical methods to solve real-world problems and to align project and supply chain strategies with organizational goals.

You Might Like This Program If...

If you're passionate about using data to solve problems, then you'll appreciate how this certificate teaches you to apply analytics to improve supply chain and project management processes. This certificate program covers essential skills, including analyzing and applying data, interpreting results, and communicating insights.

Program Requirements

To earn an undergraduate certificate in Project and Supply Chain Analytics, a minimum of 12 credits is required.

Code	Title	Credits
Required Courses		
MGMT 410	Project Management	3
MGMT 430	Project Risk Management	3
SCM 340	Introduction to Supply Chain Analytics	3
SCM 301	Supply Chain Management	3

Academic Advising

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intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

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Erie

Richard Peng, Ph.D.
Associate Professor of Project and Supply Chain Management
281 Burke Center
Erie, PA 16563
814-898-7001
xzp17@psu.edu

Career Paths

The Project and Supply Chain Analytics certificate opens a wide array of career pathways and opportunities for further studies.

Careers

The certificate in Project and Supply Chain Analytics can help prepare students for possible career opportunities including project management, supply chain management, operations management, data analysis and business intelligence, and consulting.

Opportunities Graduate Studies

The certificate can prepare students for further studies, including a master's degree in project management, supply chain management, business analytics, or business administration.

Contact

Erie

BLACK SCHOOL OF BUSINESS
281 Burke Center
Erie, PA 16563
814-898-6107
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<https://behrend.psu.edu/school-of-business> (<https://behrend.psu.edu/school-of-business/>)

Project and Supply Chain Management, B.S. (Behrend)

Begin Campus: Any Penn State Campus

End Campus: Erie, World Campus

Program Description

The Project and Supply Chain Management major concentrates on developing knowledge, skills, and abilities in both project and supply chain management, dynamic and important disciplines in modern

corporations. Project management skills include the development of new projects, and coordinating procurement and project delivery systems. Supply chain management emphasizes the integration of manufacturing and service operations, logistics, purchasing, and distribution that enable organizations to develop value-creating supply chain networks. The major provides students with an opportunity to develop the quantitative and people skills necessary to design and operate today's complex management systems. Students learn how to manage critical components in organizational supply chains, and apply business analytic methods for organizing and fully integrating supply chain practices throughout the organization.

Graduates are uniquely well-prepared for careers in some of the highest in-demand professions in the modern business and government environments, managing the supply chain and project initiatives in world-class business firms, public sector organizations, construction, IT organizations, third-party logistics providers, and goods and services distribution operations.

What is Project and Supply Chain Management?

It has been estimated that well over half of all activities in modern corporations are project-based. From developing a new product to constructing a new building, the list of efforts that organizations must plan, manage, and deliver (ideally on time and under budget) is nearly endless. At the same time, globalization creates a growing need for professionals who can effectively manage complex supply chains. The study of project and supply chain management emphasizes the integration of manufacturing and service operations, logistics, purchasing, and distribution—the functions that enable organizations to cultivate value-creating supply chain networks.

You Might Like This Program If...

- You're not intimidated by large projects, or ones that have many moving parts.
- You are detail oriented.
- You are looking for a versatile, in-demand business degree.
- You are interested in pursuing a concurrent certificate in Enterprise Resource Planning (ERP) with SAP (available at Erie, the Behrend College and University College campuses, Beaver, Brandywine, Fayette, Greater Allegheny, Lehigh Valley, New Kensington, Schuylkill, Shenango, Wilkes-Barre and Scranton).

Entrance to Major

Entry to the Project and Supply Chain Management major requires the successful completion of 5 entry-to-major courses: ACCTG 211, ECON 102, ENGL 15 or ENGL 30H, MATH 110 or MATH 140, STAT 200 or SCM 200. Each course requires a C or better grade for successful completion.

Degree Requirements

For the Bachelor of Science degree in Project and Supply Chain Management, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	96

21 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GQ courses; 6 credits of GS courses; 9 credits of GWS courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned.

Requirements for the Major

Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
PSU 7	First-Year Seminar Behrend	1
<i>Prescribed Courses: Require a grade of C or better</i>		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
CAS 100	Effective Speech	3
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
ENGL 202D	Effective Writing: Business Writing	3
FIN 301	Corporation Finance	3
MGMT 301	Basic Management Concepts	3
MGMT 341	Human Resource Management	3
MGMT 418	Project Planning and Resource Management	3
MIS 204	Introduction to Management Information Systems	3
MKTG 301	Principles of Marketing	3
SCM 301	Supply Chain Management	3
SCM 445	Operations Planning and Control	3
SCM 460	Purchasing and Materials Management	3
Additional Courses		
BA 241 & BA 242 or BA 243	Legal Environment of Business and Social and Ethical Environment of Business Social, Legal, and Ethical Environment of Business	4
<i>Additional Courses: Require a grade of C or better</i>		
ENGL 15 or ENGL 30H	Rhetoric and Composition Honors Rhetoric and Composition	3
MATH 110 or MATH 140	Techniques of Calculus I Calculus With Analytic Geometry I	4
SCM 200 or STAT 200	Introduction to Statistics for Business Elementary Statistics	4
MGMT 410 or BA 421	Project Management Project Management	3
MGMT 415 or SCM 416	Project Portfolio Management and Organizations Warehousing and Terminal Management	3
SCM 320 or SCM 455	Transport Systems Logistics Systems Analysis and Design	3
Select 3 credits from the following:		3

BA 364Y	International Business and Society	
ECON 470	International Trade and Finance	
FIN 471	International Finance	
IB 303	International Business Operations	
MGMT 461	International Management	
MKTG 445	Global Marketing	
Other 300- or 400-level international business courses		
Select 6 credits of 300- or 400-level courses such as MIS 404 and MGMT 430		6
Select 3 credits from the following:		3
ECON 481	Business Forecasting Techniques	
MIS 336	Database Management Systems	
MIS 301	Business Analytics	
SCM 340	Introduction to Supply Chain Analytics	
Select 3 credits from:		3
BA 422W	Strategic Business Planning	
BA 462	Business Strategy	
MGMT 471W	Strategic Management and Business Policy	

Supporting Courses and Related Areas

Select 13 credits from any business major field or any non-business major field, except for all KINES (GHW) courses, any ENGL course below ENGL 15, and any MATH course below MATH 110. Exceptions may be petitioned through the applicable department chair. 13

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

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Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

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- **Humanities (GH):** 3 credits
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- **Natural Sciences (GN):** 3 credits

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- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
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6 credits are required and may satisfy other requirements

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A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **CRITICAL AND INTEGRATIVE THINKING:** Students will be able to think critically across business disciplines by considering different perspectives and using an integrated, holistic approach to perform relevant analyses, construct valid arguments, and make appropriate conclusions.
- **ORAL COMMUNICATION:** Students will be able to execute the oral communication skills that they have learned in the interactive business courses to business situations where effective explanation, persuasion, exchanging information and ideas are essential.

- **WRITING COMPETENCE:** Students will be able to demonstrate effective business writing skills.
- **TEAMWORK:** Students will be positive contributors to an effective team functioning via application of their functional skills in addition to strong interpersonal skills.
- **ETHICS AND SOCIAL RESPONSIBILITY:** Students will be able to recognize ethical issues and apply ethical theories in business situations at individual and/or organizational levels.
- **FUNCTIONAL AREA KNOWLEDGE (ETS):** Students will be able to apply foundational knowledge to analyze and solve problems and interpret written and visual material across various business domains.
- **FUNCTIONAL AREA KNOWLEDGE (ACCOUNTING):** Students will be able to demonstrate a broad general knowledge of the principles of accounting, both managerial and financial.
- **FUNCTIONAL AREA KNOWLEDGE (ECONOMICS):** Students will be able to demonstrate a broad general knowledge of the principles of economics, both microeconomics and macroeconomics
- **FUNCTIONAL AREA KNOWLEDGE (FINANCE):** Students will be able to demonstrate a broad general knowledge of the principles of finance.
- **FUNCTIONAL AREA KNOWLEDGE (MIS):** Students will be able to describe the benefits and challenges of applying information technology in various organizations and functional areas.
- **FUNCTIONAL AREA KNOWLEDGE (INTERNATIONAL BUSINESS):** Students will be able to apply basic multidisciplinary knowledge needed to conduct international business and analyze the impact of globalization.
- **FUNCTIONAL AREA KNOWLEDGE (LEGAL ENVIRONMENT):** Students will be able to identify key terms, concepts, and theories of the law, evaluate how law affects business, analyze legal issues, and apply the law to business situations.
- **FUNCTIONAL AREA KNOWLEDGE (MANAGEMENT):** Students will be able to demonstrate a broad knowledge of the business discipline of management.
- **FUNCTIONAL AREA KNOWLEDGE (MARKETING):** Students will be able to demonstrate comprehensive knowledge in the field of marketing.
- **FUNCTIONAL AREA KNOWLEDGE (QUANTATIVE BUSINESS ANALYSIS):** Students will be able to demonstrate a broad knowledge of quantitative business analysis.
- **FUNCTIONAL AREA KNOWLEDGE (SUPPLY CHAIN MANAGEMENT):** Students will be able to demonstrate a broad knowledge of supply chain management.

Academic Advising

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Project and Supply Chain Management, B.S. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H ^{*†#†}	3 CAS 100A, 100B, or 100C ^{††}	3
MATH 110 or 140 ^{*†#†}	4 ECON 102 ^{*†#†}	3
General Education Course ³	3 MIS 204 [*]	3
General Education Course ³	3 General Education Course ³	3
General Education Course (GHW) ³	1.5 General Education Course ³	3
PSU 7	1	
	15.5	15

Second Year

Fall	Credits Spring	Credits
ACCTG 211 ^{*#}	4 ENGL 202D ^{††}	3
ECON 104 ^{*†}	3 FIN 301 [*]	3
SCM 200 ^{*†#†}	4 MGMT 301 [*]	3
General Education Course ³	3 MKTG 301 [*]	3
General Education Course (GHW) ³	1.5 SCM 301 [*]	3
	15.5	15

Third Year

Fall	Credits Spring	Credits
BA 241 & BA 242	4 MGMT 415 [*]	3
MGMT 410 [*]	3 SCM 460 [*]	3
SCM 445 [*]	3 Approved Elective ²	3
Approved Elective ²	3 International Business Course (IL) [*]	3
General Education Course ³	3 Supporting Business Course [*]	3
	16	15

Fourth Year

Fall	Credits Spring	Credits
ECON 481, MIS 336, or SCM 340 [*]	3 MGMT 471W [*]	3
MGMT 341 (FALL ONLY) [*]	3 Approved Elective ²	3
MGMT 418 [*]	3 Approved Elective	2
SCM 455 [*]	3 General Education Course ³	3
Approved Elective ²	3 Supporting Business Course [*]	3
	15	14

Total Credits 121

* Course requires a grade of C or better for the major
 † Course requires a grade of C or better for General Education
 # Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ Please see your academic adviser for approval before scheduling your course.

² In order for a course to be eligible for an Approved Elective, the course can not be a lower level ENGL (1-6) or MATH (2-41) OR a GHW designated course. Please see your academic adviser if you have a question on a specific course.

³ All students are required to fulfill 45 credits of General Education courses. More information about this requirement can be found on the Baccalaureate Degree General Education Requirements page in the Bulletin (p. 3184).

Career Paths

The B.S. in Project and Supply Chain Management is one of only a handful of undergraduate degree programs in this field. Graduates are uniquely prepared to work in project-intensive industries such as construction, insurance, information services and information technology, manufacturing, utilities, pharmaceuticals, third-party logistics, and goods and services distribution operations.

Careers

Employers of recent B.S. in Project and Supply Chain Management graduates include Logistics Plus, Parker Hannifin, Bechtel Plant Machinery, American Eagle, Frito Lay, FairPoint Communications, Pitney Bowes, Spyne, General Electric, Wabtec Railway Electronics, Business Resource Group, Modern Industries, Eddie Bauer, Ferguson Enterprises, Unisys, Eastman Kodak, Tyco Electronics, and IBM.

Opportunities for Graduate Studies

The B.S. in Project and Supply Chain Management can be a starting point for master's- and doctoral-level study of supply chain management, project management, management science, law, organizational behavior, corporate strategy, enterprise architecture, information technology, or another specialized discipline.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES

Professional Resources

- Project Management Institute (<https://www.pmi.org>)

Accreditation

The B.S. in Project and Supply Chain Management offered by the Black School of Business at Penn State Erie, The Behrend College, and

Penn State Harrisburg's School of Business, is accredited by AACSB International—The Association to Advance Collegiate Schools of Business. As the world's largest business education alliance, AACSB connects educators, students, and business to achieve a common goal: to create the next generation of great leaders. Synonymous with the highest standards of excellence since 1916, AACSB provides quality assurance, business education intelligence, and professional development services to over 1,500 member organizations and more than 785 accredited business schools worldwide. AACSB's mission is to foster engagement, accelerate innovation, and amplify impact in business education.

MORE INFORMATION ABOUT THE ASSOCIATION TO ADVANCE COLLEGIATE SCHOOLS OF BUSINESS (<http://www.aacsb.edu/>)

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World Campus

UNDERGRADUATE ACADEMIC ADVISING

225 Outreach Building

University Park, PA 16802

814-863-3283

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-project-and-supply-chain-management-bachelor-of-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-project-and-supply-chain-management-bachelor-of-science-degree/>)

Abington

DIVISION OF SOCIAL SCIENCES, BUSINESS, AND EDUCATION

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<https://www.abington.psu.edu/academics/majors-at-abington/penn-state-abington-means-business> (<https://www.abington.psu.edu/academics/majors-at-abington/penn-state-abington-means-business/>)

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<https://montalto.psu.edu/academics/bachelors/project-supply-chain-management-degree> (<https://montalto.psu.edu/academics/bachelors/project-supply-chain-management-degree/>)

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<https://newkensington.psu.edu/academics/4-year-project-supply-chain-management-sap-certificate> (<https://newkensington.psu.edu/academics/4-year-project-supply-chain-management-sap-certificate/>)

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<https://scranton.psu.edu/academics/degrees/bachelors/project-supply-chain-management> (<https://scranton.psu.edu/academics/degrees/bachelors/project-supply-chain-management/>)

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Project and Supply Chain Management, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Project and Supply Chain Management Minor is designed to introduce students within the School of Business to advanced topics in supply chain and project management. The minor can provide options and opportunities beyond those offered by a major program of study. Students enrolled in nonbusiness majors should explore the minor in Operations and Supply Chain Management whereas students in a business major can pursue the Project and Supply Chain Management Minor.

What is Project and Supply Chain Management?

It has been estimated that well over half of all activities in modern corporations are project-based. From developing a new product to constructing a new building, the list of efforts that organizations must plan, manage, and deliver (ideally on time and under budget) is nearly

endless. At the same time, globalization creates a growing need for professionals who can effectively manage complex supply chains. The study of project and supply chain management emphasizes the integration of manufacturing and service operations, logistics, purchasing, and distribution—the functions that enable organizations to cultivate value-creating supply chain networks.

You Might Like This Program If...

- You are an business student who wants to take management and supply chain course work beyond what is required for your major.
- You are a business student who would like to add a specialization to your primary field of study.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

For a Minor in Project and Supply Chain Management a minimum of 18 credits are required.

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
MGMT 301	Basic Management Concepts	3
SCM 301	Supply Chain Management	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
MGMT 410	Project Management	3
or BA 421	Project Management	
Select three 400-level MGMT and SCM courses of the following: ¹		9
MGMT 415	Project Portfolio Management and Organizations	
MGMT 418	Project Planning and Resource Management	
SCM 445	Operations Planning and Control	
SCM 455	Logistics Systems Analysis and Design	
SCM 460	Purchasing and Materials Management	

¹ The choices must include at least one MGMT and one SCM course.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary

academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Career Paths

The minor in Project and Supply Chain Management can be pursued by students in Black School of Business degree programs. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

A minor in Project and Supply Chain Management can make you a more competitive job candidate by demonstrating foundational skill in project management techniques and supply chain creation and utilization.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN PROJECT AND SUPPLY CHAIN MANAGEMENT (<https://behrend.psu.edu/school-of-business/academic-programs/management/project-and-supply-chain-management-minor/>)

Opportunities for Graduate Studies

Adding a specialized minor such as Project and Supply Chain Management to a primary major program demonstrates to graduate programs your commitment to interdisciplinary thinking.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-business/academic-programs/management/project-and-supply-chain-management-minor/>)

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Psychological Science, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Psychology minor is designed to provide undergraduate students with a broad overview of topics and domains within psychology, knowledge and skills related to research methods in psychology, and deeper knowledge of research, theory, and application in one or two specific content domains. Students completing this minor will find a flexible selection of coursework in psychology.

What is Psychological Science?

Psychological science is the study of a broad topics in psychology and human behavior— perception, cognition, attention, emotion, intelligence, motivation, brain function, personality, interpersonal relationships, child development, aging, and the other important functions that make us human.

You Might Like This Program If...

- Human behavior fascinates you.
- You're an engineering student interested in how people interact with machines and technology.
- You're a business student interested in workplace dynamics, leadership, motivation, and consumer behavior.
- You're a student in a health-related program interested in brain functioning related to typical and abnormal behaviors.
- You're an education student and interested in child development, parenting, learning, and motivation.
- You're interested in human diversity in all its forms.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
PSYCH 100	Introductory Psychology	3
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 15 credits (at least 6 credits at the 400-level) from PSYCH courses		15

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

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Career Paths

The minor in Psychological Science can be pursued by students in most Penn State Behrend degree programs. In addition to core topics, students pursuing the minor may take courses in applied areas such as clinical, counseling, industrial-organizational, or human factors psychology. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

Regardless of the career path you choose, your interactions will involve other people. For that reason alone, a minor in Psychological Science is valuable. What will convince someone to use your service? Can your product be made more user-friendly? How do you motivate your customers or your students? These are some of the questions that the minor seeks to answer.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN PSYCHOLOGICAL SCIENCE (<https://behrend.psu.edu/school-of-humanities-social-sciences/academic-programs-1/psychology/psych-curriculum/psychology-minor/>)

Opportunities for Graduate Studies

A minor in Psychological Science demonstrates to graduate school admissions committees your commitment to scientific, conceptual, and interdisciplinary thinking. Penn State Behrend offers a Master of Arts degree program in Applied Clinical Psychology that includes optional preparation for the Licensed Professional Counselor (LPC) credential.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-humanities-social-sciences/academic-programs-1/psychology/psych-curriculum/psychology-minor/>)

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<https://behrend.psu.edu/school-of-humanities-social-sciences> (<https://behrend.psu.edu/school-of-humanities-social-sciences/>)

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<https://fayette.psu.edu/psychology> (<https://fayette.psu.edu/psychology/>)

Mont Alto

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Psychology, B.A. (Behrend)

Begin Campus: Any Penn State Campus

End Campus: Erie

Program Description

The Psychology program at Penn State Behrend provides students with a solid foundation in the application of psychological knowledge, skills and techniques for the solution and prevention of individual and social problems. A spectrum of courses (bio-behavioral, clinical, cognitive-experimental, developmental, educational, human factors, industrial/organizational, personality, and social) is united by a strong focus on the scientific method. All students are afforded the opportunity to participate in internships and research assistantships throughout their training. Bachelor-level graduates in psychology are equipped for various positions in human service agencies, businesses, industries, and laboratories. Those not joining the workforce following graduation most often continue their training, working towards a master's or doctoral degree in psychology; others go on to other disciplines, e.g., medical or law school. Courses within this degree can also be used to develop specialty areas such as criminal justice, sociology, or international studies.

The Bachelor of Arts degree requires nine additional credits and proficiency in a second language. The Bachelor of Arts degree helps to prepare students for careers in education-related settings, human services, clinical settings, and other related fields.

What is Psychology?

Psychology is the scientific study of thought, behavior, and experience. Many people associate psychology with psychological therapy and the practice of clinical psychology. There are also many other important areas of scientific psychology, such as cognitive, developmental, industrial/organizational, and social psychology. What these subfields of psychology have in common is the use of the scientific method to understand human behavior and apply that understanding to the development of theory and practice. Psychologists are increasingly making use of neuroscience methods and theories to understand psychological phenomena. As a profession, psychology is related to fields such as health, education, marketing, human resources, social work, and more. The principles of psychology are relevant to almost all areas of human endeavor, and the career paths of psychology students reflect this wealth of possibilities.

You Might Like This Program If...

- Human behavior fascinates you.
- You wonder how personality influences behavior, how brain function relates to behaviors, how memory works, or how people make decisions.
- You're interested in the criminal justice system and forensics.
- You want to know more about child development, parenting, and learning.
- You're interested in human diversity in all its forms, i.e., personality, gender, and culture.
- You'd like to help people who have psychological disorders.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Psychology, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	12
Bachelor of Arts Degree Requirements	24
Requirements for the Major	52

13 of the 45 credits for General Education are included in the Requirements for the Major. This includes 4 credits of GQ courses; 9 credits of GWS courses.

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned.

Requirements for the Major

Each student must earn a grade of C or better for prescribed and additional courses in the major and for each 300- and 400-level course in the major field.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
PSYCH 100	Introductory Psychology	3
PSYCH 301W	Basic Research Methods in Psychology	4
PSYCH 406W	Advanced Research Projects in Psychology	4
PSYCH 489	Professional Development in Psychology	1
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
ENGL 15	Rhetoric and Composition	3
or ENGL 30H	Honors Rhetoric and Composition	

PSYCH 200	Elementary Statistics in Psychology	4
or STAT 200	Elementary Statistics	
Select 3 credits from the following:		3
CAS 100A	Effective Speech	
CAS 100B	Effective Speech	
CAS 100C	Effective Speech	
Select 3 credits from the following:		3
ENGL 202A	Effective Writing: Writing in the Social Sciences	
ENGL 202B	Effective Writing: Writing in the Humanities	
ENGL 202C	Effective Writing: Technical Writing	
ENGL 202D	Effective Writing: Business Writing	
Select 3 credits in four of the following five content categories:		12
1. Biological Bases of Behavior		
PSYCH 253	Introduction to Psychology of Perception	
PSYCH 260	Neurological Bases of Human Behavior	
PSYCH 269	Evolutionary Psychology	
2. Social/Developmental		
HDFS 129	Introduction to Human Development and Family Studies	
HDFS 229	Infant and Child Development	
PSYCH 212	Introduction to Developmental Psychology	
PSYCH 221	Introduction to Social Psychology	
3. Cognitive/Learning		
PSYCH 256	Introduction to Cognitive Psychology	
PSYCH 261	Introduction to Psychology of Learning	
PSYCH 263N	Science of Learning	
PSYCH 268	Animal Minds	
4. Clinical/Applied		
EDPSY 14	Learning and Instruction	
PSYCH 217N	The Science of Human Resilience	
PSYCH 238	Introduction to Personality Psychology	
PSYCH 243	Introduction to Well-being and Positive Psychology	
PSYCH 244	Introduction to the Psychology of Human Factors Engineering	
PSYCH 270	Introduction to Abnormal Psychology	
PSYCH 281	Introduction to Industrial-Organizational Psychology	
5. Diversity		
PSYCH 230	Introduction to Psychologies of Religion	
PSYCH 231	Introduction to the Psychology of Gender	
PSYCH 232	Cross-Cultural Psychology	

Supporting Courses and Related Areas

Select 3 credits of a structured practicum, internship or an approved research experience (PSYCH 294, PSYCH 296, PSYCH 494, PSYCH 495, or PSYCH 496 may be applied to this requirement)	3
Select 3 additional credits of psychology courses at the 200, 300, or 400-level in consultation with your adviser	3
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>	
Select 9 credits of 400-level psychology courses from any combination of categories in consultation with adviser (except PSYCH 494, PSYCH 495, PSYCH 496)	9

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- **Career-Related Skills:**
 - Demonstrate knowledge of professional options and required training for careers in the major subfields of psychology.
 - Demonstrate the ability to identify personally-relevant career options to implement their psychological knowledge, skills, and values in occupational pursuits in a variety of settings.
- **Communication Skills:**
 - Communicate effectively (in writing and/or orally) the results of a project or internship.
 - Demonstrate the ability to effectively extract central points and summarize psychological research literature and to write in the format of psychological research.
- **Content Knowledge:**
 - Demonstrate knowledge of major psychological concepts, theories, and empirical findings.
 - Demonstrate the ability to apply psychological concepts and theories to research and real life situations.
- **Diversity and Ethical Considerations:**
 - Show evidence of knowledge and appreciation for cultural diversity and relativity in human experience and for the complexity of human behavior and interactions.

- Demonstrate knowledge, and the application of, basic principles of scientific and professional ethics.
- Demonstrate sensitivity to ethical concerns and professionalism (including cultural considerations) in settings where applications of psychology and/or psychological research occur.
- **Research Skills:**
 - Differentiate among the research methods used in psychology and apply the designs in evaluation or development of a research study.
 - Demonstrate the ability to analyze and interpret quantitative psychological data using statistics, graphs, and data tables.
 - Use technology for studying concepts and conducting research.
- **Thinking Skills:**
 - Use critical and creative thinking, skeptical inquiry, and the scientific approach to solve problems related to behavior and mental processes.
 - Demonstrate critical thinking in the analysis, evaluation, and interpretation of information in the scientific literature to distinguish the scientific literature from other sources.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Psychology, B.A. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If**

report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
First-Year Seminar	1 Psychology Area Selection	3
ENGL 15 or 30H ^{††}	3 General Education Course	3
PSYCH 100 [*]	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course	1.5 World Language (Level Two)	4
World Language (Level One)	4	
15.5		16

Second Year

Fall	Credits Spring	Credits
Psychology Area Selection [*]	3 Psychology Area Selection [*]	3
Psychology Area Selection [*]	3 PSYCH 200 [‡]	4
CAS 100A, 100B, or 100C [‡]	3 General Education Course	3
General Education Course	3 General Education Course	3
World Language (Level Three)	4 ENGL 202A [‡]	3
16		16

Third Year

Fall	Credits Spring	Credits
PSYCH 301W [*]	4 PSYCH 406W [*]	4
Psychology Area Selection [*]	3 400-level Psychology selection	3
World Cultures	3 BA Knowledge Domain	3
General Education Course	3 General Education Course	3
400-level Psychology selection	3 PSYCH 489 [*]	1
16		14

Fourth Year

Fall	Credits Spring	Credits
400-level Psychology selection	3 PSYCH 494 or 495	3
General Education Course	3 Electives	3
BA Knowledge Domain	3 Electives	1
Electives	3 BA Knowledge Domain	3
General Education Course	1.5 General Education Course	3
13.5		13

Total Credits 120

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Program Notes:

- Choose 3 credits in four of the following five categories of courses:
 - **Biological Bases of Behavior:** choose from PSYCH 253, PSYCH 260, PSYCH 269
 - **Social/Developmental:** choose from HDFS 129, HDFS 229, PSYCH 212, PSYCH 221
 - **Cognitive/Learning:** choose from PSYCH 256, PSYCH 261, PSYCH 263N, PSYCH 268
 - **Clinical/Applied:** choose from EDPSY 14, PSYCH 217N, PSYCH 238, PSYCH 243, PSYCH 244, PSYCH 270, PSYCH 281
 - **Diversity:** choose from PSYCH 230, PSYCH 231, PSYCH 232

Academic Advising Notes:

- The course series listed above is only one of the many possible ways to move through this curriculum. The number of electives required varies per student. Please be sure to consult with an adviser about your intended plan.

Career Paths

The B.A. in Psychology is structured within a liberal arts framework that requires study of a world language and offers coursework options. If you are interested in criminology and law, you can select courses in political sciences and sociology. Students interested in working with children and adolescents take courses in human development, family studies, counseling, trauma studies, and education. All psychology students design and conduct a capstone research project and may participate in outreach and mentoring through Penn State Behrend's Susan Hirt Hagen Center for Community Outreach, Research, and Evaluation, its Prevention of Aggression Resource Center, and its Early Learning Center.

Careers

Penn State Behrend's B.A. in Psychology degree provides you with a strong skill set that is particularly valued in the mental health and social services fields, education, social work, medicine, business, law, and basic and applied research. Recent graduates are working as elementary and special education teachers, school counselors, clinical psychologists, lawyers, research associates, developmental psychologists, industrial

organizational psychologists, human resource managers, data analysts, counselors, caseworkers, and therapeutic support staff.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE PSYCHOLOGY PROGRAM (<https://behrend.psu.edu/school-of-humanities-social-sciences/academic-programs/psychology/>)

Opportunities for Graduate Studies

Psychology graduates have earned master's and doctoral degrees in fields such as psychology, business, human factors, law, education, medicine, physical therapy, and occupational therapy. Some of the schools they have attended include Penn State, Washington University, Columbia University, Johns Hopkins University, University of California, Los Angeles, University of Pittsburgh, and Lake Erie College of Osteopathic Medicine. Additionally, Penn State Behrend offers a Master of Arts degree in Applied Clinical Psychology that includes optional preparation for the Licensed Professional Counselor (LPC) credential.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-humanities-social-sciences/academic-programs/master-of-applied-clinical-psychology/>)

Professional Resources

- American Psychological Association (<https://www.apa.org/>)
- Society for Personality and Social Psychology (<https://spsp.org>)
- National Association of School Psychologists (<https://www.nasponline.org/>)

Contact

Erie

SCHOOL OF HUMANITIES AND SOCIAL SCIENCES
170 Irvin Kochele Center
4951 College Drive
Erie, PA 16563
814-898-6108
HSSOffice@psu.edu

<https://behrend.psu.edu/school-of-humanities-social-sciences> (<https://behrend.psu.edu/school-of-humanities-social-sciences/>)

Psychology, B.S. (Behrend)

Begin Campus: Any Penn State Campus

End Campus: Erie

Program Description

Not all options are available at every campus. Contact the campus you are interested in attending to determine which options are offered.

The Psychology program at Penn State Behrend provides students with a solid foundation in the application of psychological knowledge, skills and techniques for the solution and prevention of individual and social problems. A spectrum of courses (bio-behavioral, clinical, cognitive-experimental, developmental, educational, human factors, industrial/organizational, personality, and social) is united by a strong focus on the scientific method. All students are afforded the opportunity to participate in internships and research assistantships throughout their training. Bachelor-level graduates in psychology are equipped for various positions in human service agencies, businesses, industries, and laboratories. Those not joining the workforce following graduation

most often continue their training, working towards a master's or doctoral degree in psychology; others go on to other disciplines, e.g., medical or law school. Courses within this degree can also be used to develop a specialty in areas such as criminal justice, sociology, or international studies.

The Bachelor of Science degree offers four multidisciplinary options. The Science option is intended for students with a strong interest in science and requires more coursework in the biological, physical, social, and mathematical sciences than does the Bachelor of Arts program. The Psychology in the Workplace option is designed for students who wish to combine their interests in business and psychology. The Human Factors and Design option combines perspectives within the fields of psychology and engineering in order to design products that maximize human functioning. The Data Analytics option emphasizes the applied aspects of quantification. Students will take a closer look at several aspects of analysis and extracting meaning from data sets. The Bachelor of Science degree helps to prepare students for future careers in clinical, developmental, educational, human factors, industrial organization, program evaluation and health-related fields.

What is Psychology?

Psychology is the scientific study of thought, behavior, and experience. Many people associate psychology with psychological therapy and the practice of clinical psychology. There are also many other important areas of scientific psychology, such as cognitive, developmental, industrial/organizational, and social psychology. What these subfields of psychology have in common is the use of the scientific method to understand human behavior and apply that understanding to the development of theory and practice. Psychologists are increasingly making use of neuroscience methods and theories to understand psychological phenomena. As a profession, psychology is related to fields such as health, education, marketing, human resources, social work, and more. The principles of psychology are relevant to almost all areas of human endeavor, and the career paths of psychology students reflect this wealth of possibilities.

You Might Like This Program If...

- Human behavior fascinates you.
- You wonder how personality influences behavior, how brain function relates to behaviors, how memory works, or how people make decisions.
- You're fascinated by how people interact with machines and technology, workplace dynamics, leadership, and motivation.
- You want to know more about child/adolescent development, parenting, and learning.
- You are interested in human diversity in all its forms, including personality, gender, and culture.
- You'd like to help people who have psychological disorders.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Psychology, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	15
Requirements for the Major	73

13 of the 45 credits for General Education are included in the Requirements for the Major. This includes 4 credits of GQ courses; 9 credits of GWS courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned.

Requirements for the Major

Each student must earn a grade of C or better for prescribed and additional courses in the major and for each 300- and 400-level course in the major field.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
PSYCH 100	Introductory Psychology	3
PSYCH 301W	Basic Research Methods in Psychology	4
PSYCH 406W	Advanced Research Projects in Psychology	4
PSYCH 489	Professional Development in Psychology	1
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
ENGL 15	Rhetoric and Composition	3
or ENGL 30H	Honors Rhetoric and Composition	
PSYCH 200	Elementary Statistics in Psychology	4
or STAT 200	Elementary Statistics	
Select 3 credits from the following:		3
CAS 100A	Effective Speech	
CAS 100B	Effective Speech	
CAS 100C	Effective Speech	
Select 3 credits from the following:		3
ENGL 202A	Effective Writing: Writing in the Social Sciences	
ENGL 202B	Effective Writing: Writing in the Humanities	
ENGL 202C	Effective Writing: Technical Writing	
ENGL 202D	Effective Writing: Business Writing	
Select 3 credits in four of the following five content categories:		12

1. Biological Bases of Behavior

PSYCH 253	Introduction to Psychology of Perception
PSYCH 260	Neurological Bases of Human Behavior
PSYCH 269	Evolutionary Psychology

2. Social/Developmental

HDFS 129	Introduction to Human Development and Family Studies
HDFS 229	Infant and Child Development
PSYCH 212	Introduction to Developmental Psychology
PSYCH 221	Introduction to Social Psychology

3. Cognitive/Learning

PSYCH 256	Introduction to Cognitive Psychology
PSYCH 261	Introduction to Psychology of Learning
PSYCH 263N	Science of Learning
PSYCH 268	Animal Minds

4. Clinical/Applied

EDPSY 14	Learning and Instruction
PSYCH 217N	The Science of Human Resilience
PSYCH 238	Introduction to Personality Psychology
PSYCH 243	Introduction to Well-being and Positive Psychology
PSYCH 244	Introduction to the Psychology of Human Factors Engineering
PSYCH 270	Introduction to Abnormal Psychology
PSYCH 281	Introduction to Industrial-Organizational Psychology

5. Diversity

PSYCH 230	Introduction to Psychologies of Religion
PSYCH 231	Introduction to the Psychology of Gender
PSYCH 232	Cross-Cultural Psychology

Supporting Courses and Related Areas

Select 3 credits of quantification courses from the departmental list - Quantification 3

Select 3 credits of a structured practicum, internship or an approved research experience (PSYCH 294, PSYCH 296, PSYCH 477, PSYCH 494, PSYCH 495, or PSYCH 496 may be applied to this requirement) 3

Select 3 additional credits of psychology courses at the 200, 300, or 400-level in consultation with your adviser 3

Supporting Courses and Related Areas: Require a grade of C or better

Select 9 credits of 400-level psychology courses from any combination of categories in consultation with adviser (except PSYCH 494, PSYCH 495, PSYCH 496) ¹ 9

Requirements for the Option

Select an option 18

¹ [PSYCH 477 can only count in one place.](#)

Requirements for the Option

Option courses may not double count with major requirements.

Data Analytics Option (18 credits)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
DA 101	Introduction to Data Analytics	3

DA 201W	Descriptive Analytics	4
STAT 184	Introduction to R	2

Additional Courses

Additional Courses: Require a grade of C or better

CMPSC 121	Introduction to Programming Techniques	3
or CMPSC 131	Programming and Computation I: Fundamentals	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better:

Select 6 credits in data-analytic related courses from the departmental list – Data Analytics Option and in consultation with adviser. ¹ 6

¹ Six credits of PSYCH courses listed in the Additional Courses category for the Data Analytics Option that the student does not apply under Additional Courses for the Data Analytics Option may be taken as Supporting Courses counting toward the Data Analytics Option. However, these credits may not count in both the Data Analytics Option and towards the Additional Courses or Supporting Courses and Related Areas in the Common Requirements for the Major.

Human Factors and Design Option (18 credits)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
PSYCH 244	Introduction to the Psychology of Human Factors Engineering	3
PSYCH 444	Engineering Psychology	3

Additional Courses

Additional Courses: Require a grade of C or better

Select 3 credits from the following: 3		
PSYCH 253	Introduction to Psychology of Perception	
PSYCH 256	Introduction to Cognitive Psychology	
PSYCH 260A	Neurological Bases of Human Behavior	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better:

Select 9 credits in psychology, engineering and business-related courses from the departmental list - Human Factors and Design Option and in consultation with adviser ¹ 9

¹ The 3 PSYCH credits for Additional Courses in the Human Factors and Design Option may not count in both the Human Factors and Design Option and towards the Supporting Courses and Related Areas in the Common Requirements for the Major.

Psychology in the Workplace Option (18 credits)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
PSYCH 281	Introduction to Industrial-Organizational Psychology	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better:</i>		
Select 3 credits from the following: 3		
PSYCH 482	Selection and Assessment in Organizations	
PSYCH 484	Work Attitudes and Motivation	

PSYCH 485 Leadership in Work Settings

Supporting Courses and Related Areas*Supporting Courses and Related Areas: Require a grade of C or better*

Select 12 credits in business-related courses from the departmental list - Psychology in the Workplace Option and in consultation with adviser. A maximum of 3 credits may be selected from the PSYCH courses listed.¹ 12

¹ Six credits of PSYCH courses listed in the Supporting Courses can count toward the Psychology in the Workplace Option. However, these credits may not count in both the Psychology in the Workplace Option and towards the Related Areas Common Requirements for the Major.

Science Option (18 credits)

Code	Title	Credits
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Additional Courses*Additional Courses: Require a grade of C or better*

Select 3 credits from the following:¹ 3

PSYCH 253	Introduction to Psychology of Perception	
PSYCH 256	Introduction to Cognitive Psychology	
PSYCH 260A	Neurological Bases of Human Behavior	
PSYCH 261	Introduction to Psychology of Learning	

Supporting Courses and Related Areas*Supporting Courses and Related Areas: Require a grade of C or better*

Select 15 credits in science-related courses from the departmental list - Science Option and in consultation with adviser¹ 15

¹ Six credits of PSYCH courses listed in the Additional Courses category for the Science Option that the student does not apply under Additional Courses for the Science Option may be taken as Supporting Courses counting toward the Science Option. However, these credits may *not* count in both the Science Option *and* towards the Additional Courses or Supporting Courses and Related Areas in the Common Requirements for the Major.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Career-Related Skills:**
 - Demonstrate knowledge of professional options and required training for careers in the major subfields of psychology.
 - Demonstrate the ability to identify personally-relevant career options to implement their psychological knowledge, skills, and values in occupational pursuits in a variety of settings.
- **Communication Skills:**
 - Communicate effectively (in writing and/or orally) the results of a project or internship.
 - Demonstrate the ability to effectively extract central points and summarize psychological research literature and to write in the format of psychological research.
- **Content Knowledge:**
 - Demonstrate knowledge of major psychological concepts, theories, and empirical findings.
 - Demonstrate the ability to apply psychological concepts and theories to research and real life situations.
- **Diversity and Ethical Considerations:**
 - Show evidence of knowledge and appreciation for cultural diversity and relativity in human experience and for the complexity of human behavior and interactions.
 - Demonstrate knowledge, and the application of, basic principles of scientific and professional ethics.
 - Demonstrate sensitivity to ethical concerns and professionalism (including cultural considerations) in settings where applications of psychology and/or psychological research occur.
- **Research Skills:**
 - Differentiate among the research methods used in psychology and apply the designs in evaluation or development of a research study.
 - Demonstrate the ability to analyze and interpret quantitative psychological data using statistics, graphs, and data tables.
 - Use technology for studying concepts and conducting research.
- **Thinking Skills:**
 - Use critical and creative thinking, skeptical inquiry, and the scientific approach to solve problems related to behavior and mental processes.
 - Demonstrate critical thinking in the analysis, evaluation, and interpretation of information in the scientific literature to distinguish the scientific literature from other sources.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Psychology, B.S. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
First Year Seminar	1 General Education	3
ENGL 15 or 30H [†]	3 General Education*	3
PSYCH 100	3 General Education	3
General Education	3 General Education	3
General Education	3 General Education	3
General Education	1.5	
14.5		15

Second Year

Fall	Credits Spring	Credits
Biology Bases of Behavior Selection*	3 Diversity Selection	3
Clinical\Applied Selection	3 PSYCH 200 or STAT 200	4
General Education	3 Psychology in the Workplace or Human Factors and Design or Science Selection**	3
CAS 100 ^{††}	3 General Education	1.5
General Education	3 ENGL 202A or 202C ^{††}	3
15		14.5

Third Year

Fall	Credits Spring	Credits
PSYCH 301W*	4 PSYCH 406W*	4
400-Level Psychology Selection	3 General Education	3
Psychology in the Workplace Selection or Human Factors and Design Selection or Science Selection**	3 Cognitive/Learning selection**	3

General Education	3 Elective	3
400- Level Psychology Selection	3 Elective	3
	PSYCH 489*	1
	16	17

Fourth Year

Fall	Credits Spring	Credits
400-Level Psychology Selection	3 PSYCH 494*	3
Psychology in the Workplace Selection or Science Selection or Human Factor and Design Selection	3 Psychology in the Workplace Selection or Science Selection or Human Factor and Design Selection**	3
Psychology in the Workplace Selection or Science Selection or Human Factor and Design Selection**	3 Psychology in the Workplace Selection or Science Selection or Human Factor and Design Selection**	3
Elective	3 General Education	3
General Education	3 Elective	3
	15	15

Total Credits 122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Additional Notes

*Choose from the following categories of courses:

Biological Bases of Behavior (choose from PSYCH 253, 260, 261, 269, 425, 439, 441, 461, 462, 464, 475, 478)

Social/Developmental (choose from PSYCH 212, 221, 412, 413, 414, 415, 416, 420, 421, 423, 424)

Cognitive/Learning (choose from PSYCH 253, 256, 261, 268, 413, 426, 427, 439, 452, 453, 456, 461)

Clinical/Applied (choose from EDPSY 14, HDFS 311, 315, PSYCH 238, 244, 270, 281, 370, 404, 408, 414, 419, 438, 443, 470, 471, 481, 482, 484, 485)

Diversity (choose from PSYCH 230, 231, 232, 422, 432, 479)

**Choose from the following three tracks:

Psychology in the Workplace Option: Students must take PSYCH 281 and 15 credits of Business-related courses. 6 credits may be selected from PSYCH 282, 484 or 485.

Science Option: Students must take PSYCH 253, 260A or 261 and 15 credits of science-related courses. 6 credits may be selected from PSYCH 253, 260A or 261 if not used to fulfill the first requirement.

Human Factors/Design Option: Students must take PSYCH 244, 444 and PSYCH 253 or 256. In addition, students must take 9 credits of Psychology, Engineering and Business-related courses.

Academic Advising Notes: The course series listed above is only one of many possible ways to move through this curriculum. The number of electives required varies per student. Please be sure to consult with an adviser about your intended plan.

Career Paths

The B.S. in Psychology takes a quantitative approach and offers three options for specialization: General Science for students interested in health-related careers or neuroscience, Psychology in the Workplace for human resources, administration, management, sales, and marketing careers, and Human Factors and Design, which applies psychological concepts to the design and safety of products and services. All psychology students design and conduct a capstone research project and may participate in outreach and mentoring through Penn State Behrend's Susan Hirt Hagen Center for Community Outreach, Research, and Evaluation, its Prevention of Aggression Resource Center, and its Early Learning Center.

Careers

Penn State Behrend's B.S. in Psychology degree provides you with a strong skill set that is particularly valued in the mental health and social services fields, education, social work, medicine, business, law, and basic and applied research. Recent graduates are working as research associates, industrial organizational psychologists, human resource managers, data analysts, counselors, caseworkers, therapeutic support staff, developmental psychologists, elementary and special education teachers, school counselors, and clinical psychologists.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE PSYCHOLOGY PROGRAM (<https://behrend.psu.edu/school-of-humanities-social-sciences/academic-programs/psychology/>)

Opportunities for Graduate Studies

Psychology graduates have earned master's and doctoral degrees in fields such as psychology, business, human factors, law, education, medicine, physical therapy, and occupational therapy. Some of the schools they have attended include Penn State, Washington University, Columbia University, Johns Hopkins University, University of California, Los Angeles, University of Pittsburgh, and Lake Erie College of Osteopathic Medicine. Additionally, Penn State Behrend offers a Master of Arts degree in Applied Clinical Psychology that includes optional preparation for the Licensed Professional Counselor (LPC) credential.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-humanities-social-sciences/academic-programs/master-of-applied-clinical-psychology/>)

Professional Resources

- American Psychological Association (<https://www.apa.org/>)
- Association for Psychological Science (<https://www.psychologicalscience.org/>)
- Psi Chi National Honor Society (<https://www.psiichi.org/>)

Contact

Erie

SCHOOL OF HUMANITIES AND SOCIAL SCIENCES

170 Irvin Kochel Center

4951 College Drive

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<https://behrend.psu.edu/school-of-humanities-social-sciences> (<https://behrend.psu.edu/school-of-humanities-social-sciences/>)

Public Relations, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

The Certificate in Public Relations offered at Penn State Behrend is designed for communication and business majors who wish to focus their supporting or non-business supporting coursework in a specific professional communication area. The certificate is also designed for working professionals interested in developing their skill-set in public relations. The foundation of the certificate is developed in the Media Writing, Introduction to Public Relations, and Public Relations Media and Methods courses. Students are then allowed to choose one additional advanced course to complete the 12 required hours.

What is Public Relations?

Public relations is the art and science of trying to create strong relationships and goodwill between an individual or an organization and the public. It differs from advertising as it does not usually use paid messaging.

You Might Like This Program If...

- You are creative.
- You have strong oral and written communication skills.
- You think strategically and can formulate plans quickly.
- You are pursuing a communications- or business-related degree.

Program Requirements

To earn an undergraduate certificate in Public Relations, a minimum of 12 credits is required.

Code	Title	Credits
Prescribed Courses		
COMM 315	Applications for Media Writing	3
COMM 370	Public Relations	3
COMM 471	Public Relations Media and Methods	3
COMM 472	Public Relations Event Planning	3
or COMM 473	Public Relations Campaigns	

Certificate Learning Objectives

- The student will develop a critical understanding of the contexts in which public relations operates, the changing dynamics and ethical considerations within the profession, and the value of public relations to society as a whole.
- The student will have a comprehensive grasp regarding the role of theory, research, assessment, and evaluation methods in the public relations process.
- The student will develop consistent and progressive skills in the area of public relations writing, including, but not limited to, print, broadcast, and digital media.
- The student will learn to conceive and implement a variety of wide-range public relations strategy methods regarding campaign development.
- The student will acquire a keen understanding of the public relations practitioner's role in managing the relationship between an organization and various media channels, including a working knowledge of graphic design and the use of social media technologies.
- The student will strengthen presentation skills relevant to public relations roles through individual and group assignments.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

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Erie

David Kahl Jr., Ph.D.

Program Chair and Professor of Communication

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Career Paths

The certificate in Public Relations can be pursued by students in most Penn State Behrend degree programs and as a stand-alone credential for nondegree students. It documents that you have taken courses in a specific and practical skill set, and is a particularly useful complement to communications and business degrees. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

Professional experience in public relations can lead to careers in content management, public affairs, event coordination, lobbying, public information, sports information, account management, digital and social media management, marketing, marketing communications, development, technical writing, and brand management.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A CERTIFICATE IN PUBLIC RELATIONS (<https://behrend.psu.edu/school-of-humanities-social-sciences/academic-programs-1/certificate-programs/public-relations-certificate/>)

Opportunities for Graduate Studies

A certificate in the liberal arts, particularly when added to a major program outside of the liberal arts, demonstrates to graduate school admissions committees your commitment to interdisciplinary thinking.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-humanities-social-sciences/academic-programs-1/certificate-programs/public-relations-certificate/>)

Professional Resources

- Public Relations Society of America (<https://www.prsa.org/>)

Contact

Erie

SCHOOL OF HUMANITIES AND SOCIAL SCIENCES
170 Irvin Kochel Center
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Science, B.S. (Behrend)

Begin Campus: Any Penn State Campus

End Campus: Erie

Program Description

Not all options are available at every campus. Contact the campus you are interested in attending to determine which options are offered.

This interdisciplinary major provides a broad, general education in science. The B.S. degree major includes options in General Science and Environmental Studies, and in Earth and Space Science Pre-certification and General Science Pre-certification for teaching. The curriculum is designed for students who have educational goals not readily met by one of the science majors or for those who require a high degree of flexibility to attain their educational objectives. After completing foundation courses in calculus, chemistry, computer science, the life sciences, and physics, students select additional science courses from designated areas. A large number of supporting credits will permit students to include a minor or course sequences in business, education, technical writing, or other fields.

What is Science?

The Science major provides a broad and interdisciplinary foundation in the natural sciences. The Science BS program uses the principles of chemistry, physics, and life sciences to understand how these integrate over general areas including biological sciences and health professions, public policy, and science research and development.

You Might Like This Program If...

- You are curious about the intersections of the physical, chemical, geological, and biological worlds.
- You enjoy theoretical study, hands-on laboratory learning, fieldwork, and scientific investigation.
- You are looking for a broad science education with significant flexibility.
- You know that you'd like to pursue graduate education in an interdisciplinary science such as meteorology or oceanography.
- You envision yourself teaching general science or earth and space science to middle or high school students.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

- attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
- have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Science, a minimum of 120 credits is required, with at least 15 credits at the 400 level:

Requirement	Credits
General Education	45
Electives	0-1
Requirements for the Major	89-90

15 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned.

Requirements for the Major

Each student must earn at least a grade of C in each 300- and 400-level prescribed, additional, and supporting course.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
CHEM 113	Experimental Chemistry II	1
CMPSC 121	Introduction to Programming Techniques	3
MATH 141	Calculus with Analytic Geometry II	4
<i>Prescribed Courses: Require a grade of C or better</i>		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
CHEM 110	Chemical Principles I	3
MATH 140	Calculus With Analytic Geometry I	4
Additional Courses		
Select one of the following sequences:		8-10
<i>Sequence A</i>		
PHYS 211	General Physics: Mechanics (requires a grade of C or better)	
PHYS 212	General Physics: Electricity and Magnetism	
PHYS 213	General Physics: Fluids and Thermal Physics	
	or PHYS 214 General Physics: Wave Motion and Quantum Physics	
<i>Sequence B</i>		
PHYS 250	Introductory Physics I (requires a grade of C or better)	
PHYS 251	Introductory Physics II	
Select one of the following:		4
BIOL 220W	Biology: Populations and Communities	
BIOL 230W	Biology: Molecules and Cells	
BIOL 240W	Biology: Function and Development of Organisms	
Supporting Courses and Related Areas		
Select 8 credits in a world language ¹		8
Requirements for the Option		
Select an option		43-46

¹ Proficiency demonstrated by examination or coursework to the level of the second semester; if fewer than 8 credits are needed to reach the required proficiency, students choose selections from program list to total 8 credits.

Requirements for the Option

A maximum of 8 credits of Research (494), Internship (495), or Independent Study (296, 496) may be applied toward credits for graduation in all options.

General Science Option (43-46 credits)

Code	Title	Credits
Additional Courses		
Select one of the following:		3-4
CMPSC 122	Intermediate Programming	
MATH 230	Calculus and Vector Analysis	
MATH 250	Ordinary Differential Equations	
STAT 200	Elementary Statistics	
Supporting Courses and Related Areas		
Select 3 credits from geosciences ¹		3

Select 18 credits (at least 9 credits at the 400 level) in one of the following areas: computer sciences, life sciences, mathematical sciences, or physical sciences ¹ 18

Select 18-22 credits (at least 6 credits at the 400 level) from program list ² 18-22

¹ Computer sciences include CENBD and CMPSC; geosciences include GEOG, GEOSC, MATSC, MATSE; life sciences include BIOL, BMB, MICRB; mathematical sciences include MATH and STAT; physical sciences include ASTRO, CHEM, PHYS.

² Students may apply 6 credits of basic ROTC.

Environmental Studies Option (43-46 credits)

Code	Title	Credits
Prescribed Courses		
GEOG 160	Mapping Our Changing World	3
GEOG 161	Applied Geographic Information Systems	1
<i>Prescribed Courses: Require a grade of C or better</i>		
BIOL 402W	Biological Experimental Design	3
Additional Courses		
CHEM 202	Fundamentals of Organic Chemistry I	3-4
	or CHEM 227 Analytical Chemistry	
STAT 200	Elementary Statistics	3-4
	or STAT 250 Introduction to Biostatistics	
Select one of the following:		3-4
BIOL 220W	Biology: Populations and Communities	
BIOL 230W	Biology: Molecules and Cells	
BIOL 240W	Biology: Function and Development of Organisms	
MICRB 201	Introductory Microbiology	
Supporting Courses and Related Areas		
Select 6 credits from geosciences ^{1,2}		6
Select 9-16 credits from Environmental Studies option program list with at least 6 credits with ECON, ECNS, PLSC, or POLSC designations and at least 5-7 credits at the 400 level ³		9-16
Select 2-4 credits of 400-level research, internship, field school, or studies abroad ⁴		2-4
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 6 credits of 400-level courses in computer sciences, life sciences, mathematical sciences, or physical sciences ¹		6

¹ Computer sciences include CENBD and CMPSC; geosciences include GEOG, GEOSC, MATSC, MATSE; life sciences include BIOL, BMB, MICRB; mathematical sciences include MATH and STAT; physical sciences include ASTRO, CHEM, PHYS.

² In addition to courses used to satisfy the prescribed courses requirement.

³ Students may apply 6 credits of basic ROTC.

⁴ A student in this major must complete at least 15 credits of 400-level courses and 3 credits of W courses in prescribed, additional, or supporting courses from one of the areas: computer science, life sciences, mathematical sciences, or physical sciences.

Earth and Space Science Pre-Certification Option (43-46 credits)

This option is designed to prepare students in pre-certification for teaching earth and space science.

Code	Title	Credits
Prescribed Courses		
ASTRO 10	Elementary Astronomy	2
ASTRO 11	Elementary Astronomy Laboratory	1
GEOSC 2	Historical Geology	3
GEOSC 20	Planet Earth	3
GEOSC 40	The Sea Around Us	3
METEO 3	Weather Revealed: Introductory Meteorology	3
Additional Courses		
Select two of the following:		6
ASTRO 291	Astronomical Methods and the Solar System	
ASTRO 292	Astronomy of the Distant Universe	
GEOG 10	Physical Geography: An Introduction	
GEOSC 10	Geology of the National Parks	

Supporting Courses and Related AreasSelect 6 credits from the geosciences ^{1,2} 6Select at least 6 credits at the 400 level in one of the following areas: computer sciences, life sciences, mathematical sciences, or physical sciences ¹ 6Select 10-13 credits (at least 6-9 credits at the 400 level) from the program list ^{3,4} 10-13*Supporting Courses and Related Areas: Require a grade of C or better*

Select at least 6 credits at the 400 level in one of the following areas: computer sciences, life sciences, mathematical sciences, or physical sciences

¹ Computer sciences include CENBD and CMPSC; geosciences include GEOG, GEOSC, MATSC, MATSE; life sciences include BIOL, BMB, MICRB; mathematical sciences include MATH and STAT; physical sciences include ASTRO, CHEM, PHYS.² In addition to courses used to satisfy the prescribed courses requirement.³ A student in this major must complete at least 15 credits of 400-level courses and 3 credits of W courses in prescribed, additional, or supporting courses from one of the areas: computer science, life sciences, mathematical sciences, or physical sciences.⁴ Students may apply 6 credits of basic ROTC.**General Science Pre-Certification Option (43-46 credits)**

This option is designed to prepare students in pre-certification for teaching general science.

Code	Title	Credits
Prescribed Courses		
ASTRO 10	Elementary Astronomy	2
ASTRO 11	Elementary Astronomy Laboratory	1
BIOL 230W	Biology: Molecules and Cells	4
GEOSC 2	Historical Geology	3
GEOSC 20	Planet Earth	3
GEOSC 40	The Sea Around Us	3
METEO 3	Weather Revealed: Introductory Meteorology	3
Additional Courses		
BIOL 220W	Biology: Populations and Communities	4
or BIOL 240W	Biology: Function and Development of Organisms	
Select one of the following:		3-4
CMPSC 122	Intermediate Programming	

MATH 230 Calculus and Vector Analysis

MATH 250 Ordinary Differential Equations

STAT 200 Elementary Statistics

Supporting Courses and Related AreasSelect 10-14 credits (at least 6-9 credits at the 400 level) from the program list ^{2,3} 10-14*Supporting Courses and Related Areas: Require a grade of C or better*Select at least 6 credits at the 400 level in one of the following areas: computer sciences, life sciences, mathematical sciences, or physical sciences ¹ 6¹ Computer sciences include CENBD and CMPSC; geosciences include GEOG, GEOSC, MATSC, MATSE; life sciences include BIOL, BMB, MICRB; mathematical sciences include MATH and STAT; physical sciences include ASTRO, CHEM, PHYS.² A student in this major must complete at least 15 credits of 400-level courses and 3 credits of W courses in prescribed, additional, or supporting courses from one of the areas: computer science, life sciences, mathematical sciences, or physical sciences.³ Students may apply 6 credits of basic ROTC.**General Education**

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- Produce graduates who are well versed in a broad range of topics in the sciences, humanities, and the arts and have a concentration in one of the sciences.
- Produce graduates who possess the necessary scientific knowledge and skills to further their education in graduate school and/or to pursue productive professional careers in the private, state, or federal sectors.
- Produce graduates who can demonstrate application of higher-level learning skills in critical thinking and problem solving as applied to science issues.
- Produce graduates who can effectively apply the principles of the traditional scientific method in modern inter-disciplinary scientific inquiry.
- Produce graduates who will be able to utilize the inter-disciplinary research literature to analyze and synthesize science issues and socio-economic and political implications.

- Produce graduates who can demonstrate success working in interdisciplinary project teams and as independent scholars.
- Produce graduates who can communicate the results of literature, field or lab based research/inquiry in written and spoken formats suitable to specific target audiences.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

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Erie

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Environmental Studies Option: Science, B.S. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CHEM 110 ^{*#†}	3 CHEM 112 ^{*†}	3
CHEM 111 ^{*#†}	1 CHEM 113 ^{*†}	1
MATH 140 ^{*#†}	4 MATH 141 ^{*†}	4
ENGL 15 or 30H [‡]	3 BIOL 110S ^{*#†}	4
PSU 7	1 General Education Course	3
General Education Course	3	
	15	15

Second Year

Fall	Credits Spring	Credits
PHYS 211 or 250	4 CAS 100 [‡]	3
BIOL 220W (or BIOL 230W or BIOL 240W)	4 CMPSC 121 [*]	3
GEOG, GEOSC, MATSC, or MATSE Course (any level)	3 PHYS 212 or 251 [*]	4
World Language Level 1	4 General Education Course (GHW)	1.5
GEOG 160	3 World Language Level 2	4
GEOG 161	1	
	19	15.5

Third Year

Fall	Credits Spring	Credits
PHYS 213 (or PHYS 214 (if following PHYS 211/212 track))	2 Science Course Supporting List [*]	3
World Language Level 1	4 Environmental Course Program List [*]	3
ENGL 202A (or ENGL 202B, or ENGL 202C, or ENGL 202D)	3 General Education Course	3
Environmental Course (Program List)	3 General Education Course	3
General Education Course	3 CHEM 202 or 227 [*]	3-4
BIOL 220W (or BIOL 230W or BIOL 240W)	4	
	19	15-16

Fourth Year

Fall	Credits Spring	Credits
STAT 200 or 250 (or MATH 230 or CMPSC 122)	3-4 Environmental Course Program List [*]	3
GEOG, GEOSC, MATSC, OR MATSE Course (any level) [*]	3 General Education Course	3
400-level Environmental Course Program List [*]	3 400-level Environmental Course Program List [*]	3
Research, Internship, Field School or Study Abroad	3 General Education Course (GHW)	1.5
	BIOL 402 [*]	3
	12-13	13.5

Total Credits 124-126

- * Course requires a grade of C or better for the major
 ‡ Course requires a grade of C or better for General Education
 # Course is an Entrance to Major requirement
 † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes

- Students who have not met the admission requirement of two units of a high school world language must complete a college level-one world language within their first 60 credits.
- Scheduling patterns for courses not taught each semester - some major requirements will be offered only once every other year.
 - **Fall only courses include:** CMPSC 455, MATH 455, PHYS 402, PHYS 414
 - **Spring only courses include:** CMPSC 456, ME 428, MATH 456, PHYS 410, PHYS 420, PHYS 421W, PHYS 458
- All first-year baccalaureate degree candidates are required to complete, during the first academic year, a seminar course
- Students must earn at least a grade of C in each 300- and 400-level prescribed, additional, and supporting course.
- For Science Supporting Courses, students must select 18 credits, with at least 9 credits at the 400-level, in one of the areas: computer sciences, life sciences, mathematical sciences, or physical sciences.
- Students must select 18-22 credits, with at least 6 credits at the 400-level, from the program list.
- Students must complete at least 3 credits of a writing across the curriculum credits. Note that only one credit of each of the BIOL 220W, BIOL 230W, and BIOL 240W courses can be used to meet this requirement.

Advising Notes**Program List Courses**

Students may select courses from nearly the entire range of the University's course offerings, **excluding the following:**

- BIOL 11, BIOL 12
 BISC 1, BISC 2, BISC 3, BISC 4
 BMB 1
 CAS 126
 CHEM 1, CHEM 3, CHEM 101, CHEM 108
 CMPSC 1, CMPSC 100, CMPSC 110
 ENGL 4, ENGL 5, ESL 4
 LLED 5, LLED 10
 MATH 1, MATH 2, MATH 3, MATH 4, MATH 21, MATH 26, MATH 30, MATH 35, MATH 36, MATH 37, MATH 38, MATH 40, MATH 81, MATH 82, MATH 83, MATH 110, MATH 111, MATH 200
 MICRB 106, MICRB 107, MICRB 120, MICRB 121A, MICRB 121B, MICRB 150, and MICRB 151x
 PHYS 1, PHYS 150, PHYS 151, PHYS 126
 STAT 100

Science Supporting Courses List

Computer Science include CENBD and CMPSC courses
 Geosciences include GEOG, GEOSC, MATSC, and MATSE courses
 Life Sciences include BIOL, BMB, and MICRB courses
 Mathematical Sciences include MATH and STAT courses
 Physical Sciences include ASTRO, CHEM, and PHYS courses

General Science Option: Science, B.S. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CHEM 110 ^{##†}	3 CHEM 112 ^{**†}	3
CHEM 111 ^{##†}	1 CHEM 113 ^{**†}	1
MATH 140 ^{##†}	4 MATH 141 ^{**†}	4
ENGL 15 or 30H [‡]	3 BIOL 110S ^{##†}	4
PSU 7	1 General Education Course	3
General Education Course	3	
	15	15

Second Year

Fall	Credits Spring	Credits
CAS 100 [‡]	3 CMPSC 121 [*]	3
PHYS 211 or 250	4 PHYS 212 or 251 [*]	4
BIOL 220W (or BIOL 230W or BIOL 240W)	4 General Education Course	3
GEOG, GEOSC, MATSC, or MATSE Course (any level)	3 General Education Course	3
General Education Course (GHW)	1.5 Science Course Supporting List	3
	15.5	16

Third Year

Fall	Credits Spring	Credits
PHYS 213 (or PHYS 214 (if following PHYS 211/212 track))	2 Science Course Supporting List [*]	3
World Language Level 1	4 400-level Science Course Supporting List [*]	3
ENGL 202A (or ENGL 202B, or ENGL 202C, or ENGL 202D)	3 General Education Course	3
Science Course Supporting List	3 General Education Course (GHW)	1.5
General Education Course	3 World Language Level 2	4
	15	14.5

Fourth Year

Fall	Credits Spring	Credits
STAT 200 or 250 (or MATH 230 or CMPSC 122) [*]	3-4 Course Program List [*]	3
Science 400-level Course Supporting List [*]	3 Course Program List [*]	3
Course Program List [*]	3 400-level Course Program List [*]	3
Course Program List [*]	3 400-level Course Program List [*]	3

Course Program List	3 Science 400-level Course Supporting List [*]	3
	15-16	15

Total Credits 121-122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes

- Students who have not met the admission requirement of two units of a high school world language must complete a college level-one world language within their first 60 credits.
- Scheduling patterns for courses not taught each semester - some major requirements will be offered only once every other year.
 - Fall only courses include:** CMPSC 455, MATH 455, PHYS 402, PHYS 414
 - Spring only courses include:** CMPSC 456, ME 428, MATH 456, PHYS 410, PHYS 420, PHYS 421W, PHYS 458
- All first-year baccalaureate degree candidates are required to complete, during the first academic year, a seminar course
- Students must earn at least a grade of C in each 300- and 400-level prescribed, additional, and supporting course.
- For Science Supporting Courses, students must select 18 credits, with at least 9 credits at the 400-level, in one of the areas: computer sciences, life sciences, mathematical sciences, or physical sciences.
- Students must select 18-22 credits, with at least 6 credits at the 400-level, from the program list.
- Students must complete at least 3 credits of a writing across the curriculum credits. Note that only one credit of each of the BIOL 220W, BIOL 230W, and BIOL 240W courses can be used to meet this requirement.

Advising Notes

Program List Courses

Students may select courses from nearly the entire range of the University's course offerings, **excluding the following:**

BIOL 11, BIOL 12
 BISC 1, BISC 2, BISC 3, BISC 4
 BMB 1
 CAS 126
 CHEM 1, CHEM 3, CHEM 101, CHEM 108
 CMPSC 1, CMPSC 100, CMPSC 110
 ENGL 4, ENGL 5, ESL 4
 LLED 5, LLED 10

MATH 1, MATH 2, MATH 3, MATH 4, MATH 21, MATH 26, MATH 30,
MATH 35, MATH 36, MATH 37, MATH 38, MATH 40, MATH 81, MATH 82,
MATH 83, MATH 110, MATH 111, MATH 200
MICRB 106, MICRB 107, MICRB 120, MICRB 121A, MICRB 121B,
MICRB 150, and MICRB 151x
PHYS 1, PHYS 150, PHYS 151, PHYS 126
STAT 100

Science Supporting Courses List

Computer Science include CENBD and CMPSC courses

Geosciences include GEOG, GEOSC, MATSC, and MATSE courses

Life Sciences include BIOL, BMB, and MICRB courses

Mathematical Sciences include MATH and STAT courses

Physical Sciences include ASTRO, CHEM, and PHYS courses

General Science Pre-Certification Teaching Option: Science, B.S. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CHEM 110 ^{*#†}	3 CHEM 112 ^{*#†}	3
CHEM 111 ^{#†}	1 CHEM 113 ^{*†}	1
MATH 140 ^{*#†}	4 MATH 141 ^{*†}	4
ENGL 15 or 30H [‡]	3 BIOL 110S ^{*#†}	4
PSU 7	1 General Education Course	3
General Education Course	3	
	15	15

Second Year

Fall	Credits Spring	Credits
CAS 100 [‡]	3 GEOSC 2	3
BIOL 220W or 230W (or BIOL 240W)	4 CMPSC 121 [*]	3
PHYS 250 or 211 [*]	4 ASTRO 10	2
GEOSC 20	3 ASTRO 11	1
General Education Course (GHW)	1.5 PHYS 251 or 212 [*]	4
	General Education Course	3
	15.5	16

Third Year

Fall	Credits Spring	Credits
PHYS 213 or PHYS 214 or Elective (if following PHYS 250/251 track) [†]	2-3 World Language Level 2	4
General Education Course	3 General Education Course (GHW)	1.5
ENGL 202A or 202B (or ENGL 202C or ENGL 202D) ^{††}	3 GEOSC 40	3
ASTRO 291 or GEOG 10	3 ASTRO 292	3
World Language Level 1	4 GEOSC 10	3
	400-Level Course Science Supporting List [*]	3
	15-16	17.5

Fourth Year

Fall	Credits Spring	Credits
STAT 250 or 200 (or MATH 230 or CMPSC 122)	3-4 400-Level Course Program List [*]	3
400-Level Course Program List [*]	3 400-Level Course Program List [*]	3
METEO 3 [†]	3 GEOSC Course [*]	3
400-Level Course Science Supporting List [*]	3 General Education Course [†]	3

General Education Course	3 GEOG, GEOSC, MATSC, MATSE Course (any level)	3
	15-16	15

Total Credits 124-126

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes

- 1.) Students who have not met the admission requirement of two units of a high school world language must complete a college level-one world language within their first 60 credits.
- 2.) Scheduling patterns for courses not taught each semester - some major requirements will be offered only once every other year.
 - **Fall only courses include:** CMPSC 455, MATH 455, PHYS 402, PHYS 414
 - **Spring only courses include:** CMPSC 456, ME 428, MATH 456, PHYS 410, PHYS 420, PHYS 421W, PHYS 458
- 3.) All first-year baccalaureate degree candidates are required to complete, during the first academic year, a seminar course
- 4.) Students must earn at least a grade of C in each 300- and 400-level prescribed, additional, and supporting course.
- 5.) For Science Supporting Courses, students must select 18 credits, with at least 9 credits at the 400-level, in one of the areas: computer sciences, life sciences, mathematical sciences, or physical sciences.
- 6.) Students must select 18-22 credits, with at least 6 credits at the 400-level, from the program list.
- 7.) Students must complete at least 3 credits of a writing across the curriculum credits. Note that only one credit of each of the BIOL 220W, BIOL 230W, and BIOL 240W courses can be used to meet this requirement.

Advising Notes

Program List Courses

Students may select courses from nearly the entire range of the University's course offerings, **excluding the following:**

- BIOL 11, BIOL 12
- BISC 1, BISC 2, BISC 3, BISC 4
- BMB 1
- CAS 126
- CHEM 1, CHEM 3, CHEM 101, CHEM 108
- CMPSC 1, CMPSC 100, CMPSC 110
- ENGL 4, ENGL 5, ESL 4
- LLED 5, LLED 10

MATH 1, MATH 2, MATH 3, MATH 4, MATH 21, MATH 26, MATH 30,
MATH 35, MATH 36, MATH 37, MATH 38, MATH 40, MATH 81, MATH 82,
MATH 83, MATH 110, MATH 111, MATH 200
MICRB 106, MICRB 107, MICRB 120, MICRB 121A, MICRB 121B,
MICRB 150, and MICRB 151x
PHYS 1, PHYS 150, PHYS 151, PHYS 126
STAT 100

Science Supporting Courses List

Computer Science include CENBD and CMPSC courses

Geosciences include GEOG, GEOSC, MATSC, and MATSE courses

Life Sciences include BIOL, BMB, and MICRB courses

Mathematical Sciences include MATH and STAT courses

Physical Sciences include ASTRO, CHEM, and PHYS courses

Earth and Space Pre-Certification Teaching Option: Science, B.S. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CHEM 110 ^{*#†}	3 CHEM 112 ^{*#†}	3
CHEM 111 ^{#†}	1 CHEM 113 ^{*†}	1
MATH 140 ^{*#†}	4 MATH 141 ^{*†}	4
ENGL 15 or 30H [‡]	3 BIOL 110S ^{*#†}	4
PSU 7	1 General Education Course [†]	3
General Education Course [†]	3	
	15	15

Second Year

Fall	Credits Spring	Credits
CAS 100 [‡]	3 GEOSC 2	3
BIOL 220W or 230W (or BIOL 240W)	4 CMPSC 121 [*]	3
PHYS 250 or 211 [*]	4 ASTRO 10	2
GEOSC 20	3 ASTRO 11	1
General Education Course (GHW) [†]	1.5 PHYS 251 or 212 [*]	4
	General Education Course ^{*†}	3
	15.5	16

Third Year

Fall	Credits Spring	Credits
PHYS 213 or PHYS 214 or Elective (if following PHYS 250/251 track) [†]	2-3 World Language Level 2	4
General Education Course [†]	3 General Education Course (GHW) ^{*†}	1.5
ENGL 202A or 202B (or ENGL 202C or ENGL 202D) ^{††}	3 GEOSC 40	3
ASTRO 291 or GEOG 10	3 ASTRO 292	3
World Language Level 1	4 GEOSC 10	3
	400-Level Course (Science Supporting List) [*]	3
	15-16	17.5

Fourth Year

Fall	Credits Spring	Credits
STAT 250 or 200 (or MATH 230 or CMPSC 122)	3-4 400-Level Course (Program List) [*]	3
400-Level Course (Program List) [*]	3 400-Level Course (Program List) [*]	3
METEO 3 [†]	3 GEOSC Course [*]	3
400-Level Course (Science Supporting List) [*]	3 General Education Course [†]	3

General Education Course [†]	3 GEOG, GEOSC, MATSC, MATSE Course (any level)	3
	15-16	15

Total Credits 124-126

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes

- 1.) Students who have not met the admission requirement of two units of a high school world language must complete a college level-one world language within their first 60 credits.
- 2.) Scheduling patterns for courses not taught each semester - some major requirements will be offered only once every other year.
 - **Fall only courses include:** CMPSC 455, MATH 455, PHYS 402, PHYS 414
 - **Spring only courses include:** CMPSC 456, ME 428, MATH 456, PHYS 410, PHYS 420, PHYS 421W, PHYS 458
- 3.) All first-year baccalaureate degree candidates are required to complete, during the first academic year, a seminar course
- 4.) Students must earn at least a grade of C in each 300- and 400-level prescribed, additional, and supporting course.
- 5.) For Science Supporting Courses, students must select 18 credits, with at least 9 credits at the 400-level, in one of the areas: computer sciences, life sciences, mathematical sciences, or physical sciences.
- 6.) Students must select 18-22 credits, with at least 6 credits at the 400-level, from the program list.
- 7.) Students must complete at least 3 credits of a writing across the curriculum credits. Note that only one credit of each of the BIOL 220W, BIOL 230W, and BIOL 240W courses can be used to meet this requirement.

Advising Notes

Program List Courses

Students may select courses from nearly the entire range of the University's course offerings, **excluding the following:**

- BIOL 11, BIOL 12
- BISC 1, BISC 2, BISC 3, BISC 4
- BMB 1
- CAS 126
- CHEM 1, CHEM 3, CHEM 101, CHEM 108
- CMPSC 1, CMPSC 100, CMPSC 110
- ENGL 4, ENGL 5, ESL 4
- LLED 5, LLED 10

MATH 1, MATH 2, MATH 3, MATH 4, MATH 21, MATH 26, MATH 30, MATH 35, MATH 36, MATH 37, MATH 38, MATH 40, MATH 81, MATH 82, MATH 83, MATH 110, MATH 111, MATH 200
MICRB 106, MICRB 107, MICRB 120, MICRB 121A, MICRB 121B, MICRB 150, and MICRB 151x
PHYS 1, PHYS 150, PHYS 151, PHYS 126
STAT 100

Science Supporting Courses List

Computer Science include CENBD and CMPSC courses
Geosciences include GEOG, GEOSC, MATSC, and MATSE courses
Life Sciences include BIOL, BMB, and MICRB courses
Mathematical Sciences include MATH and STAT courses
Physical Sciences include ASTRO, CHEM, and PHYS courses

Career Paths

To help you achieve your career goals, you can specialize your Science studies by pursuing one of four options within the degree program: Environmental Studies, General Science, General Science Education Precertification, and Earth and Space Science Education Precertification. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

Your career options are limited only by your imagination, talent, and perseverance. A STEM undergraduate degree such as the B.S. in Science is a very useful foundation for a wide array of possible careers and for many interdisciplinary graduate school programs. Penn State Behrend Science graduates include pharmacists, educational consultants, optometrists, environmental specialists, field engineers, science teachers, analytical research chemists, field biologists, lab managers, and physicians.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE SCIENCE PROGRAM (<https://behrend.psu.edu/school-of-science/academic-programs-1/science-bs/>)

Opportunities for Graduate Studies

Science can be a foundational major for graduate study in any branch of the physical, chemical, or biological sciences, or for graduate education in preparation for a career as a physician, veterinarian, physician assistant, or other health care professional.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-science/academic-programs-1/science-bs/>)

Professional Resources

- American Association for the Advancement of Science (<https://www.aaas.org/>)
- National Science Teachers Association (<https://www.nsta.org/>)
- American Chemical Society (<https://www.acs.org/content/acs/en.html>)
- Mathematical Association of America (<https://maa.org>)
- Association for Environmental Studies and Sciences (<https://www.aessonline.org/>)
- Geological Society of America (<https://www.geosociety.org/>)
- American Physical Society (<https://www.aps.org/>)

Contact

Erie

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behrend-science@psu.edu

<https://behrend.psu.edu/school-of-science> (<https://behrend.psu.edu/school-of-science/>)

Secondary Education, B.S. (Behrend)

Begin Campus: Any Penn State Campus

End Campus: Erie

Program Description

The following teaching options are available for majors in Secondary Education: Biological Science, Chemistry, Earth and Space Science, English, Environmental Education, General Science, Mathematics, Physics, and Social Studies/Citizenship Education.

The Secondary Education major helps prepare students for middle school and/or high school teaching positions and for other employment in fields related to their content specialties.

Biological Science Teaching Option

Available at the following campuses: University Park

This option enables the graduate to meet all of the academic requirements for the Instructional I certificate for teaching at the secondary-school level, which is issued by the Pennsylvania Department of Education.

Chemistry Teaching Option

Available at the following campuses: University Park

This option enables the graduate to meet all of the academic requirements for the Instructional I certificate for teaching at the secondary-school level, which is issued by the Pennsylvania Department of Education.

Earth and Space Science Teaching Option

Available at the following campuses: University Park

This option enables the graduate to meet all of the academic requirements for the Instructional I certificate for teaching at the secondary-school level, which is issued by the Pennsylvania Department of Education.

English Teaching Option

Available at the following campuses: University Park

This option enables the graduate to meet all of the academic requirements for the Instructional I certificate for teaching at the secondary-school level, which is issued by the Pennsylvania Department of Education. A comparable program is also open to student outside the College of Education who desire certification.

Environmental Education Teaching Option

Available at the following campuses: University Park

This option enables the graduate to meet all of the academic requirements for a Pennsylvania teacher certification in Environmental Education when completed in conjunction with another secondary education teaching option (i.e., Biological Science Teaching option). The total number of credits required will depend primarily on that other option.

General Science Teaching Option

Available at the following campuses: University Park

This option enables the graduate to meet all of the academic requirements for the Instructional I certificate for teaching General Science at the secondary-school level, which is issued by the Pennsylvania Department of Education. This option may only be completed in conjunction with another secondary education option (e.g., Biology); the total number of credits required will depend primarily on that other option.

Mathematics Teaching Option

Available at the following campuses: Erie, University Park

This option enables the graduate to meet all of the academic requirements for the Instructional I certificate for teaching at the secondary-school level, which is issued by the Pennsylvania Department of Education.

Physics Teaching Option

Available at the following campuses: University Park

This option enables the graduate to meet all of the academic requirements for the Instructional I certificate for teaching at the secondary-school level, which is issued by the Pennsylvania Department of Education.

Social Studies Teaching Option

Available at the following campuses: University Park

This option enables the graduate to meet all of the academic requirements for the Instructional I certificate for teaching social studies at the secondary-school level, which is issued by the Pennsylvania Department of Education.

What is Secondary Education?

The Secondary Education (SECED) major prepares graduates to teach at the middle school or high school level (grades 7-12) in English, Mathematics, Social Studies (which includes history, geography, government, and the social sciences), or a science subject (Biology, Chemistry, Earth & Space Science, or Physics). The program combines on-campus course work with clinical experiences in schools; graduates are eligible to apply for teacher licensure through the Pennsylvania Department of Education.

You Might Like This Program If...

- You are committed to public service and working with young people, and you appreciate that effective teaching demands both mastery of subject matter knowledge and understanding learners and communities.

- In your subject-matter studies, you tend to find yourself asking: How do we know that? Is there a better way to describe it? What are we overlooking? How could I help others understand this too?

MORE INFORMATION ABOUT SECONDARY EDUCATION (<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/undergraduate-teacher-education-pk-12/secondary-education-7-12/>)

Entrance to Major

Baccalaureate degree candidates must meet the following requirements 1-3 by the end of their third semester:

- A minimum cumulative grade point average of 3.00
- Documentation of at least 80 hours of volunteer or paid education work experience with learners of the age group the candidate plans to teach. Candidates for Secondary Education must document 40 of these hours with learners who come from backgrounds that are different from the candidate's.

Requirements 4-9 must be met by the end of the fourth semester when students typically participate in the Entrance-to-Major process.

- A grade of "C" or better in all specified courses.
- Completion of an early field experience specified by the certification program.
- Completion of a core of Education courses specified by the certification program.
- Completion of additional credits as specified by the certification program.
- Completion of at least 48 semester credit hours, including ENGL 15 or ENGL 30H, three credits of literature, and six credits of quantification
- Approval from the professional education adviser or the head of the pertinent certification program.

Degree Requirements

For the B.S. degree in Secondary Education with an option in Biological Science Teaching, a minimum of 126 credits is required; with an option in Chemistry Teaching, a minimum of 126 credits is required; with an option in Earth and Space Science Teaching, a minimum of 123 credits is required; with an option in English Teaching, a minimum of 126 credits is required; with an option in Environmental Education Teaching and a cohort option, a minimum of 123 credits is required; with an option in General Science Teaching and a cohort option, a minimum of 121 credits is required; with an option in Mathematics Teaching, a minimum of 132 credits is required; with an option in Physics Teaching, a minimum of 121 credits is required; with an option in Social Studies Teaching, a minimum of 129-132 credits is required. (See also Teacher Education Programs (<https://ed.psu.edu/academics/teacher-testing-certification/>)):

Requirement	Credits
General Education	45
Electives	0-20
Requirements for the Major	83-111

12-27 of the 45 credits for General Education are included in the Requirements for the Major. This includes: Biological Science Teaching option, Chemistry Teaching option, Earth and Space Science Teaching option, Environmental Education Teaching option, General Science Teaching option, and Physics Teaching option--6 credits of GH courses; 9 credits of GN courses, 6 credits of GS courses; 6 credits of GQ courses.

English Teaching option--0-6 credits of GA courses; 6 credits of GH courses; 6 credits of GS courses, 0-3 credits of GWS. Mathematics Teaching option--6 credits of GH courses; 6 credits of GS courses; 6 credits of GQ courses. Social Studies Teaching option--6 credits of GH courses; 3 credits of GN courses; 6 credits of GS courses. Six of these credits for any option may also satisfy the Integrative Studies requirement.

Requirements for the Major

A grade of C or better per course is required for teacher certification.

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better for teacher certification</i>		
CI 280	Introduction to Teaching English Language Learners	3
CI 295	Introductory Field Experience for Teacher Preparation	2
CI 495C	Clinical Application of Instruction -- Secondary Education	3
CI 495E	Practicum in Student Teaching--Secondary Education	15
EDPSY 14	Learning and Instruction	3
PSYCH 100	Introductory Psychology	3
SPLED 400	Inclusive Special Ed Foundations: Legal, Characteristics, Collaboration, Assessment, and Management	4
SPLED 403B	Evidence-Based Methods for Teaching Secondary Students with Disabilities in Inclusive Settings	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better for teacher certification</i>		
PSYCH 412	Adolescence	3
or HDFS 239	Adolescent Development	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better for teacher certification</i>		
Select 3 credits of GH courses from Literature Selection		3
Select 3 credits of the following:		3
EDTHP 115	Education in American Society	
EDTHP 115A	Competing Rights: Issues in American Education	
3 credits at the 400 level of any EDTHP course		
Requirements for the Option		
<i>Requirements for the Option: Require a grade of C or better for teacher certification</i>		
Select an option		38-66

Requirements for the Option

Biological Science Teaching Option (63-66 credits)

Available at the following campuses: University Park

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better for teacher certification</i>		

BIOL 110	Biology: Basic Concepts and Biodiversity	4
BIOL 220W	Biology: Populations and Communities	4
BIOL 240W	Biology: Function and Development of Organisms	4
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
CHEM 113	Experimental Chemistry II	1
MATH 140	Calculus With Analytic Geometry I	4
SCIED 411W	Teaching Secondary Science I	3
SCIED 412	Teaching Secondary Science II	3

Additional Courses

Additional Courses: Require a grade of C or better for teacher certification

BMB 251	Molecular and Cell Biology I	4-6
& BMB 252	and Molecular and Cell Biology II	
or BIOL 230W	Biology: Molecules and Cells	
MATH 141 or 4 credits of 200-level STAT GQ courses		4
Select one of the following:		3-4
ANTH 21	Introductory Biological Anthropology	
ANTH 460	Human Genetics	
BIOL 427	Evolution	
GEO SC 204	Geobiology	
GEO SC 424	Paleontology and Fossils	
Select one of the following:		8
PHYS 211	General Physics: Mechanics	
& PHYS 212	and General Physics: Electricity and Magnetism	
PHYS 250	Introductory Physics I	
& PHYS 251	and Introductory Physics II	
Select 6 credits of the following:		6
BMB 211	Elementary Biochemistry	
BMB 212	Elementary Biochemistry Laboratory	
BMB 401	General Biochemistry	
BMB 402	General Biochemistry	
CHEM 202	Fundamentals of Organic Chemistry I	
CHEM 203	Fundamentals of Organic Chemistry II	
CHEM 210	Organic Chemistry I	
CHEM 212	Organic Chemistry II	
CHEM 213	Laboratory in Organic Chemistry	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better for teacher certification</i>		
Select 8 credits of 300-level or 400-level BIOL or biological fields		8

Note 1: Students may complete multiple science teaching options concurrently by completing all of each option's requirements. The six science teaching options are: Biology, Chemistry, Earth and Space Science, Environmental Education, General Science, and Physics.

Note 2: Red Cross certification in First Aid and CPR (or their equivalent) must be earned for science certification.

Chemistry Teaching Option (55-60 credits)

Available at the following campuses: University Park

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better for teacher certification</i>		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
CHEM 113	Experimental Chemistry II	1
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
PHYS 211	General Physics: Mechanics	4
PHYS 212	General Physics: Electricity and Magnetism	4
SCIED 411W	Teaching Secondary Science I	3
SCIED 412	Teaching Secondary Science II	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better for teacher certification</i>		
Select one of the following: 6-8		
CHEM 202 & CHEM 203	Fundamentals of Organic Chemistry I and Fundamentals of Organic Chemistry II	
CHEM 210 & CHEM 212 & CHEM 213	Organic Chemistry I and Organic Chemistry II and Laboratory in Organic Chemistry	
Select 9 credits from 400 level CHEM or related field 9		
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better for teacher certification</i>		
Select 6-9 credits in CHEM or chemistry-related fields at the 200 level or higher (e.g., BMB 211 and BMB 212, BMB 251, BMB 252, MICRB 251, FDSC 400, ANSC 301, NUTR 251, CHEM, CHE) 6-9		

Note 1: Students may complete multiple science teaching options concurrently by completing all of each option's requirements. The six science teaching options are: Biology, Chemistry, Earth and Space Science, Environmental Education, General Science, and Physics.

Note 2: Red Cross certification in First Aid and CPR (or their equivalent) must be earned for science certification.

Earth and Space Science Teaching Option (60-63 credits) *Available at the following campuses: University Park*

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better for teacher certification</i>		
ASTRO 10	Elementary Astronomy	2
ASTRO 11	Elementary Astronomy Laboratory	1
BIOL 110	Biology: Basic Concepts and Biodiversity	4
BIOL 220W	Biology: Populations and Communities	4
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
EARTH 100	Environment Earth	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4

SCIED 411W	Teaching Secondary Science I	3
SCIED 412	Teaching Secondary Science II	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better for teacher certification</i>		
GEOSC 1 or GEOSC 20	Physical Geology Planet Earth	3
GEOSC 21 or GEOSC 204	Earth and Life: Origin and Evolution Geobiology	3-4
Select one of the following: 8		
PHYS 211 & PHYS 212	General Physics: Mechanics and General Physics: Electricity and Magnetism	
PHYS 250 & PHYS 251	Introductory Physics I and Introductory Physics II	
Select 3-4 credits from the following: 3-4		
METEO 3	Weather Revealed: Introductory Meteorology	
METEO 201	Introduction to Weather Analysis	
METEO 300	Fundamentals of Atmospheric Science	
Select 3-4 credits from the following: 3-4		
BIOL 435	Ecology of Lakes and Streams	
BIOL 482	Coastal Biology	
GEOSC 40	The Sea Around Us	
GEOSC 440	Marine Geology	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better for teacher certification

Select 8 credits of 200-400 level from EARTH, GEOSC, METEO, ASTRO, other earth science field, or BIOL 427 8

Note 1: Students may complete multiple science teaching options concurrently by completing all of each option's requirements. The six science teaching options are: Biology, Chemistry, Earth and Space Science, Environmental Education, General Science, and Physics.

Note 2: Red Cross certification in First Aid and CPR (or their equivalent) must be earned for science certification.

English Teaching Option (40-42 credits)

Available at the following campuses: University Park

Note: Must complete at least 3 credits of IL and 3 credits of US Cultures selections.

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better for teacher certification</i>		
CI 492	Identities, Power and Perceptual Pedagogies in Teaching and Learning	3
LLED 411	Teaching Language Arts In Secondary Schools I	3
LLED 412W	Teaching Language Arts in Secondary Schools II	3
LLED 420	Teaching Adolescent Literature and Literacy	3
LLED 421	Teaching Writing in Secondary Schools	3
LLED 422	Teaching the Young Adult Literature Workshop	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better for teacher certification</i>		

Select 1-3 credits of Grammar from the following:	1-3
APLNG 484 Discourse-Functional Grammar	
COMM 160 Basic News Writing Skills	
Select 3 credits of Speech and Oral Performance from the following:	3
CAS 100 Effective Speech	
CAS 280W Storytelling and Speaking	
THEA 102 Fundamentals of Acting	
Select 3 credits of Shakespeare from the following:	3
ENGL 129 Shakespeare	
ENGL 405 Taking Shakespeare From Page to Stage	
ENGL 440 Studies in Shakespeare	
ENGL 444 Shakespeare	
Select 6 credits of British and American Literature from the following:	6
ENGL 221 British Literature to 1798	
ENGL 222 British Literature from 1798	
ENGL 231 American Literature to 1865	
ENGL 232 American Literature from 1865	
Select 3 credits of Multicultural Literature in English from the following:	3
CMLIT/LTNST Latina/o Literature and Culture 403	
ENGL/AMST Alternative Voices in American Literature 135	
ENGL/AFAM African American Literature 139	
ENGL/WMNST Women Writers 194	
ENGL/AAS Asian American Literatures 428	
ENGL 431/ AMST 475 Black American Writers	
ENGL/WMNST Reading Black, Reading Feminist 462	
ENGL/AFAM African American Novel I 466	
ENGL/AFAM African American Novel II 467	
ENGL/AFAM African American Poetry 468	
ENGL/WMNST Women Writers and Their Worlds 490	
ENGL 492/ AMST 476/ WMNST 491 American Women Writers	
Select 3 credits of Nonprint Literature from the following:	3
AFAM/ENGL From Folk Shouts and Songs to Hip Hop Poetry 235	
CMLIT 415 World Graphic Novels	
COMM 150N The Art of the Cinema	
COMM 250 Film History and Theory	
COMM 411 Cultural Aspects of the Mass Media	
ENGL 136 The Graphic Novel	
THEA 100 The Art of the Theatre	
THEA 105 Introduction to Theatre	

Select 3 credits of Writing from the following:	3
ENGL 50 Introduction to Creative Writing	
ENGL 212 Introduction to Fiction Writing	
ENGL 213 Introduction to Poetry Writing	
ENGL 214 Introduction to Creative Nonfiction Writing	
ENGL 215 Introduction to General Nonfiction Writing	

Environmental Education Teaching Option (55-58 credits)
Available at the following campuses: University Park

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better for teacher certification</i>		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
BIOL 220W	Biology: Populations and Communities	4
CHEM 101	Introductory Chemistry	3
MATH 140	Calculus With Analytic Geometry I	4
SCIED 411W	Teaching Secondary Science I	3
SCIED 412	Teaching Secondary Science II	3
SCIED 457		3

Additional Courses

Additional Courses: Require a grade of C or better for teacher certification

Select one of the following:	4
CHEM 20 Environmental Chemistry & CHEM 21 and Environmental Chemistry Laboratory	
CHEM 110 Chemical Principles I & CHEM 111 and Experimental Chemistry I	
Select one of the following:	3-4
BIOL 240W Biology: Function and Development of Organisms	
WFS 407 Ornithology	
WFS 408 Mammalogy	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better for teacher certification

Select two courses (6-8 credits) in environmental law, economics, management and policy (e.g., ECON 428, ERM 411, ERM 412, ERM 413W, WFS 410, WFS 447W, WFS 463W)	6-8
Select 4 credits of an environmentally related course in Science Technology and Society (e.g., STS 100, STS 460)	4
Select at least 14 credits from the cohort Teaching option ¹	14

¹ This option may only be completed in conjunction with another secondary teaching option, such as the Biological Science Teaching option.

Note 1: Students may complete multiple science teaching options concurrently by completing all of each option's requirements. The six science teaching options are: Biology, Chemistry, Earth and Space Science, Environmental Education, General Science, and Physics.

Note 2: Red Cross certification in First Aid and CPR (or their equivalent) must be earned for science certification.

General Science Teaching Option (38 credits)

Available at the following campuses: University Park

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better for teacher certification</i>		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
CHEM 113	Experimental Chemistry II	1
MATH 140	Calculus With Analytic Geometry I	4
SCIED 411W	Teaching Secondary Science I	3
SCIED 412	Teaching Secondary Science II	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better for teacher certification</i>		
MATH 141 or 4 credits of 200-level STAT GQ courses		4
Select one of the following:		4
BIOL 220W	Biology: Populations and Communities	
BIOL 230W	Biology: Molecules and Cells	
BIOL 240W	Biology: Function and Development of Organisms	
Select one of the following:		8
PHYS 211 & PHYS 212	General Physics: Mechanics and General Physics: Electricity and Magnetism	
PHYS 250 & PHYS 251	Introductory Physics I and Introductory Physics II	

Note 1: This option may only be completed in conjunction with another secondary teaching option, such as Biology.

Note 2: Students may complete multiple science teaching options concurrently by completing all of each option's requirements. The six science teaching options are: Biology, Chemistry, Earth and Space Science, Environmental Education, General Science, and Physics. options are: Biology, Chemistry, Earth and Space Science, Environmental Education, General Science, and Physics.

Note 3: Red Cross certification in First Aid and CPR (or their equivalent) must be earned for science certification.

Mathematics Teaching Option (57-59 credits)

Available at the following campuses: Erie, University Park

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better for teacher certification</i>		
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
MATH 220	Matrices	2-3
MATH 310	Elementary Combinatorics	3
MATH 311W	Concepts of Discrete Mathematics	3-4
MATH 312	Concepts of Real Analysis	3
MATH 414	Introduction to Probability Theory	3
MATH 471	Geometry for Teachers	4
MTHED 411	Teaching Secondary Mathematics I	3
MTHED 412W	Teaching Secondary Mathematics II	3

MTHED 427	Teaching Mathematics in Technology-Intensive Environments	3
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Additional Courses		
<i>Additional Courses: Require a grade of C or better for teacher certification</i>		
CMPSC 101 or CMPSC 121	Introduction to Programming or Introduction to Programming Techniques	3
MATH 231 & MATH 232 or MATH 230	Calculus of Several Variables and Integral Vector Calculus or Calculus and Vector Analysis	4
MATH 435 or MATH 470	Basic Abstract Algebra or Algebra for Teachers	3
MATH 436 or MATH 441	Linear Algebra or Matrix Algebra	3
Select one of the following:		3
MATH 415	Introduction to Mathematical Statistics	
STAT 401	Experimental Methods	
3 credits of MTHED from program list		
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 6 credits from 400-level MATH or MTHED courses		6

Physics Teaching Option (55-62 credits)

Available at the following campuses: University Park

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better for teacher certification</i>		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
CHEM 113	Experimental Chemistry II	1
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
MATH 220	Matrices	2-3
PHYS 211	General Physics: Mechanics	4
PHYS 212	General Physics: Electricity and Magnetism	4
PHYS 213	General Physics: Fluids and Thermal Physics	2
PHYS 214	General Physics: Wave Motion and Quantum Physics	2
PHYS 237	Introduction to Modern Physics	3
PHYS 400	Intermediate Electricity and Magnetism	3
PHYS 419	Theoretical Mechanics	3
SCIED 411W	Teaching Secondary Science I	3
SCIED 412	Teaching Secondary Science II	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better for teacher certification</i>		
MATH 230 or MATH 231	Calculus and Vector Analysis or Calculus of Several Variables	2-4
MATH 250 or MATH 251	Ordinary Differential Equations or Ordinary and Partial Differential Equations	3-4

Select one of the following:	1-4
PHYS 402 Electronics for Scientists	
PHYS 457	
PHYS 458 Intermediate Optics	

Note 1: Students may complete multiple science teaching options concurrently by completing all of each option's requirements. The six science teaching options are: Biology, Chemistry, Earth and Space Science, Environmental Education, General Science, and Physics.

Note 2: Red Cross certification in First Aid and CPR (or their equivalent) must be earned for science certification.

Social Studies Teaching Option (57 credits)
Available at the following campuses: University Park

A grade of C or better per course is required for teacher certification.

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better for teacher certification</i>		
ECON 104	Introductory Macroeconomic Analysis and Policy	3
GEOG 30N	Environment and Society in a Changing World	3
HIST 20	American Civilization to 1877	3
HIST 21	American Civilization Since 1877	3
PLSC 1	American Politics: Principles, Processes and Powers	3
SSED 411	Teaching Secondary Social Studies I	3
SSED 412W	Teaching Secondary Social Studies II	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better for teacher certification</i>		
HIST 1 or HIST 10	Western Civilization I World History to 1500	3
HIST 2 or HIST 11	Western Civilization II World History since 1500	3
Select 9 credits of the following:		9
ANTH 45N	Cultural Diversity: A Global Perspective	
ECON 102	Introductory Microeconomic Analysis and Policy	
GEOG 6N	Maps and the Geospatial Revolution	
PLSC 3	Comparing Politics around the Globe	
PLSC 14	International Relations	
SOC 1	Introductory Sociology	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better for teacher certification</i>		
Select 6 credits of 400-level History		6
Select one concentration:		15
<i>Citizenship Education</i>		
Select 6 credits of History at the 100-level or above		
Select 3 credits of the following:		
ANTH 45N	Cultural Diversity: A Global Perspective	
SOC 1	Introductory Sociology	
Select 3 credits of the following:		
ECON 102	Introductory Microeconomic Analysis and Policy	

PLSC 3	Comparing Politics around the Globe
PLSC 14	International Relations
Select 3 credits of the following:	
GEOG 6N	Maps and the Geospatial Revolution
GEOG 10	Physical Geography: An Introduction
GEOG 20	Human Geography: An Introduction
<i>Civics and Government</i>	
PLSC 3	Comparing Politics around the Globe
PLSC 14	International Relations
Select 3 credits of the following:	
PLSC 7N	Contemporary Political Ideologies
PLSC 10	Scientific Study of Politics
PLSC 17N	Introduction to Political Theory
Select 6 credits of 400-level Political Science	
<i>Classics and Ancient Studies</i>	
Select 3 credits from the following:	
CAMS 1	Greek and Roman Literature
CAMS 4	Jewish and Christian Foundations
CAMS 5	Ancient Mediterranean Civilizations
Select 3 credits of 100-level Classics and Ancient Mediterranean Studies	
Select 3 credits of Classics and Ancient Mediterranean Studies below the 400 level	
Select 6 credits of 400-level Classics and Ancient Mediterranean Studies	
<i>Economics</i>	
ECON 102	Introductory Microeconomic Analysis and Policy
ECON 302	Intermediate Microeconomic Analysis
ECON 304	Intermediate Macroeconomic Analysis
Select 6 credits of 400-level Economics	
<i>Geography</i>	
Select 9 credits of Geography below the 400 level	
Select 6 credits of 400-level Geography	
<i>Holocaust and Genocide Studies</i>	
HIST/JST 121	History of the Holocaust 1933-1945
Select 6 credits from the following:	
CMLIT/ENGL/ JST 128N	The Holocaust in Film and Literature
HIST/JST 143N	History of Fascism and Nazism
HIST/JST 195	Genocide in Global perspectives: Twentieth Century and beyond
Select 6 credits from the following:	
HIST/JST 426	Holocaust
HIST/JST/ WMNST 439	Women and the Holocaust
JST/PLSC 450H	Genocide and Tyranny
ASIA/HIST 457/JST 474	Hiroshima & the Holocaust in History and Memory
JST/PHIL/ RLST 478	Ethics After the Holocaust
<i>Social Sciences</i>	

Select 9 credits of Anthropology, Psychology, and/or Sociology below the 400 level

Select 6 credits of 400-level Anthropology, Psychology, and/or Sociology

Note 1: Courses taken to meet Additional Courses and other Supporting Courses and Related Areas requirements cannot also be applied to the concentration. Different courses need to be selected for the concentration and Additional Courses and other Supporting Courses and Related Areas requirements.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Mathematics Teaching Option: Secondary Education, B.S. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 ^{*#†}	4 MATH 141 ^{*#†}	4
ENGL 15 or 30H ^{*#}	3 MATH 220 ^{*#}	2
CMPSC 121 or 101 ^{*#}	3 General Education (GN) [†]	3
PSU 7	1 General Education (GA) [†]	3
PSYCH 100 ^{*#†}	3 General Education (GH) (See approved list below) ^{*#†}	3
General Education (GN) [†]	3 General Education (GHW) [†]	1.5
	17	16.5

Second Year

Fall	Credits Spring	Credits
CAS 100, CAS 100A, or CAS 100B [*]	3 STAT 401 [*]	3
MATH 230 ^{*#}	4 MATH 310 or 436 [*]	3
MATH 311W [*]	4 EDTHP 115A (Satisfies US Culture Requirement) ^{*#†}	3
STAT 301 or STAT 318 [*]	3 CI 295 ^{*#}	3
EDPSY 14 ^{*#}	3 ENGL 202A or 202B [*]	3
	CI 280 ^{*†}	3
	17	18

Third Year

Fall	Credits Spring	Credits
MATH 312 [*]	3 MTHED 411 [*]	3
MATH 435 or 427 and 428	3-4 MTHED 427 [*]	3
SPLD 400 [*]	4 MATH 310 or 436 [*]	3
STAT 414 (or General Education Course (GA)) ^{*†}	3 SPLD 403B [*]	3
400-level MATH Selection [*]	3 PSYCH 412 or HDFS 239 [*]	3
General Education (GHW) [†]	1.5 General Education (GN) [†]	3
	17.5-18.5	18

Fourth Year

Fall	Credits Spring	Credits
MTHED 412W [*]	3 CI 495E [*]	15

STAT 414 (or General Education Course (GA)) ^{*†}	3 No additional coursework permitted during Student Teaching
400-level MATH Selection [*]	3
CI 495C	3
MATH 435 or 427 and 428	3-4
	15-16
	15

Total Credits 134-136

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ Prerequisite: satisfactory performance on the Math placement tests - i.e. placement beyond the level of MATH 22; or CHEM 101 and MATH 22 or MATH 41

Program Notes

- 1.) There are additional entrance to major requirements of PRAXIS Core Exam, 40-hour Work Experience, 3.0 GPA.
- 2.) Additional requirements must be met to be certified - please meet with adviser regularly.

Academic Advising Notes

- 1.) Students interested in dual majoring in MTHBC B.S. alongside SECBC B.S. should carefully select their General Education (GN) courses to fulfill math major requirements. Please meet with adviser to schedule.
- 2.) Several courses above are taught every other year:
 - the following are taught in fall of odd years: MATH 435, STAT 414, MATH 455, MATH 412
 - the following are taught in fall of even years: MATH 427, MATH 428, MATH 465, MATH 455
 - the following is taught in spring of odd years: MATH 436, MATH 421, MATH 449
 - the following is taught in spring of even years: MATH 310, MATH 456, MATH 429, MATH 482
- 3.) Must complete at least 3 credits of IL and 3 credit of US Cultures selections. EDTHP 115A satisfies US Cultures. Either the GA or Literature GH class can be chosen to satisfy the IL requirement.

Approved Literature (GH) Selection:

CMLIT 1, CMLIT 2, CMLIT 3, CMLIT 4, CMLIT 5, CMLIT 6, CMLIT 10, CMLIT 11, CMLIT 83S, CMLIT 100, CMLIT 101, CMLIT 105, CMLIT 106,

CMLIT 107, CMLIT 108, CMLIT 110, CMLIT 111, CMLIT 120, CMLIT 141,
CMLIT 153, ENGL 1, ENGL 2, ENGL 103, ENGL 104, ENGL 129, ENGL 132,
ENGL 133, ENGL 134, ENGL 135, ENGL 139, ENGL 140, ENGL 145,
ENGL 180, ENGL 182, ENGL 184, ENGL 185, ENGL 189, ENGL 191,
ENGL 192, ENGL 194, ENGL 200, ENGL 201, ENGL 221, ENGL 222,
ENGL 226, ENGL 231, ENGL 232, ENGL 233N, ENGL 240, ENGL 261,
ENGL 262, ENGL 263, ENGL 265, ENGL 268, CAMS 1, CAMS 45

Chemistry Pre-Education Option: Secondary Education, B.S. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CHEM 110 ^{**†}	3 CHEM 112 ^{**†}	3
CHEM 111 ^{**†}	1 CHEM 113 ^{**†}	1
MATH 140 ^{**†}	4 MATH 141 ^{**†}	4
ENGL 15 or 30H [‡]	3 PHYS 211 ^{**†}	4
PSU 7	1 General Education Course	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
General Education Course	3	
	16.5	16.5

Second Year

Fall	Credits Spring	Credits
CHEM 210 [*]	3 CHEM 212 [*]	3
CHEM 227 [*]	4 CHEM 213 [*]	2
PHYS 212 ^{**†}	4 ENGL 202C [‡]	3
MATH 230 [*]	4 MATH 250 or STAT 401 [*]	3
	PSYCH 100 ^{**†}	3
	General Education Course	3
	15	17

Third Year

Fall	Credits Spring	Credits
CHEM 450 [*]	3 CHEM 452 [*]	3
CHEM 457 [*]	1 CHEM 457 [*]	1
CHEM 400 [*]	1 CHEM 440 [*]	3
CHEM 472 [*]	3 CHEM 441 [*]	1
CHEM 316 [*]	1 CHEM 494 or 496 [*]	1
CAS 100A [‡]	3 EDPSY 14	3
PSYCH 212 or HDFS 129 [†]	3 CI 295	1
	Supporting Courses and Related Areas ³	
	15	13

Fourth Year

Fall	Credits Spring	Credits
CHEM 413 [*]	4 CHEM 431W [*]	4
CHEM 443 [*]	1 CHEM 494 or 496 [*]	1
CHEM 494 or 496 [*]	1 CHEM 395 [†]	1-2
EDTHP 115	3 CHEM 400-Level Course [*]	3
CI 295	1 General Education Course	3
CHEM 400-Level Selection [*]	3 Supporting Courses and Related Areas	3
	13	15-16

Total Credits 121-122

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes

1.) Students who have not met the admission requirement of two units of a world language must complete a college level-one world language within their first 60 credits.

2.) Scheduling patterns for courses not taught each semester. Some major requirement will be offered only once a year or every other year depending on demand:

Fall only courses include: CHEM 210, CHEM 227, CHEM 316, CHEM 400, CHEM 413, CHEM 450, CHEM 472

Spring only courses include: CHEM 212, CHEM 213, ;CHEM 431W, CHEM 440, CHEM 452

3.) All first-year baccalaureate degree candidates are required to complete, during the first academic year, a seminar course.

4.) 18 credits of supporting courses are required for the general option. There are a variety of courses you may choose from. The list given below is not completely inclusive. If there is a new course or a technical course you feel you would like to include under this selection, please speak with your Academic Adviser or the Academic Coordinator.

Supporting Courses List

EDSGN 100S
 BIOL 110 or higher
 CHNS 1, CHNS 2, CHNS 3
 CMPSC any course
 CMPEN any course
 FR 1, FR 2, FR 3
 GER 1, GER 2, GER 3
 MATH 200-level or higher
 MICRB 201 or MICRB 202
 PHYS 213, PHYS 214, PHYS 237, or any 400-level course
 PLET 206W or higher
 SPAN 1, SPAN 2, SPAN 3
 STAT 250 or higher

The following select courses can also be used as a supporting course under the designated CHMBC option.

Pre-Education Supporting Course List

PSYCH 301W
 PSYCH 253

PSYCH 256
PSYCH 445
PSYCH 412
PSYCH 416
PHIL 10

5.) **Non-approved courses** - Some courses are not appropriate for a chemistry major and will not count toward degree requirements. These courses include, but are not limited to, those listed below:

Non-approved Courses List

BISC 1, BISC 2, BISC 3

BMB 1

CAS 126

CHEM 1, CHEM 3, CHEM 20, CHEM 21, CHEM 101, CHEM 202, CHEM 203

CMPS 100

ENGL 4, ENGL 5

MATH 1, MATH 2, MATH 4, MATH 37, MATH 38

PHYS 1, PHYS 150, PHYS 151, PHYS 250, PHYS 251

STAT 100

General Science Pre-Certification Teaching Option: Secondary Education, B.S. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CHEM 110 ^{*#†}	3 CHEM 112 ^{*#†}	3
CHEM 111 ^{#†}	1 CHEM 113 ^{*†}	1
MATH 140 ^{*#†}	4 MATH 141 ^{*†}	4
ENGL 15 or 30H [†]	3 BIOL 110S ^{*#†}	4
PSU 7	1 General Education Course	3
General Education Course	3	
	15	15

Second Year

Fall	Credits Spring	Credits
CAS 100 [†]	3 GEOSC 2	3
BIOL 220W or 230W (or BIOL 240W)	4 CMPSC 121 [*]	3
PHYS 250 or 211 [*]	4 ASTRO 10	2
GEOSC 20	3 ASTRO 11	1
General Education Course (GHW)	1.5 PHYS 251 or 212 [*]	4
	General Education Course	3
	15.5	16

Third Year

Fall	Credits Spring	Credits
PHYS 213 or PHYS 214 or Elective (if following PHYS 250/251 track) [†]	2-3 World Language Level 2	4
General Education Course	3 General Education Course (GHW)	1.5
ENGL 202A or 202B (or ENGL 202C or ENGL 202D) ^{††}	3 GEOSC 40	3
ASTRO 291 or GEOG 10	3 ASTRO 292	3
World Language Level 1	4 GEOSC 10	3
	400-Level Course Science Supporting List [*]	3
	15-16	17.5

Fourth Year

Fall	Credits Spring	Credits
STAT 250 or 200 (or MATH 230 or CMPSC 122)	3-4 400-Level Course Program List [*]	3
400-Level Course Program List [*]	3 400-Level Course Program List [*]	3
METEO 3 [†]	3 GEOSC Course [*]	3
400-Level Course Science Supporting List [*]	3 General Education Course [†]	3

General Education Course	3 GEOG, GEOSC, MATSC, MATSE Course (any level)	3
	15-16	15

Total Credits 124-126

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes

- 1.) Students who have not met the admission requirement of two units of a high school world language must complete a college level-one world language within their first 60 credits.
- 2.) Scheduling patterns for courses not taught each semester - some major requirements will be offered only once every every other year.
 - **Fall only courses include:** CMPSC 455, MATH 455, PHYS 402 ,PHYS 414
 - **Spring only courses include:** CMPSC 456, ME 428, MATH 456, PHYS 410 ,PHYS 420, PHYS 421W, PHYS 458
- 3.) All first-year baccalaureate degree candidates are required to complete, during the first academic year, a seminar course
- 4.) Students must earn at least a grade of C in each 300- and 400-level prescribed, additional, and supporting course.
- 5.) For Science Supporting Courses, students must select 18 credits, with at least 9 credits at the 400-level, in one of the areas: computer sciences, life sciences, mathematical sciences, or physical sciences.
- 6.) Students must select 18-22 credits, with at least 6 credits at the 400-level, from the program list.
- 7.) Students must complete at least 3 credits of a writing across the curriculum credits. Note that only one credit of each of the BIOL 220W, BIOL 230W, and BIOL 240W courses can be used to meet this requirement.

Advising Notes

Program List Courses

Students may select courses from nearly the entire range of the University's course offerings, **excluding the following:**

- BIOL 11, BIOL 12
- BISC 1, BISC 2, BISC 3, BISC 4
- BMB 1
- CAS 126
- CHEM 1, CHEM 3, CHEM 101, CHEM 108
- CMPSC 1, CMPSC 100, CMPSC 110
- ENGL 4 ,ENGL 5, ESL 4
- LLED 5, LLED 10

MATH 1, MATH 2, MATH 3, MATH 4, MATH 21, MATH 26, MATH 30,
MATH 35, MATH 36, MATH 37, MATH 38, MATH 40, MATH 81, MATH 82,
MATH 83, MATH 110, MATH 111, MATH 200
MICRB 106, MICRB 107, MICRB 120, MICRB 121A, MICRB 121B,
MICRB 150, and MICRB 151x
PHYS 1, PHYS 150, PHYS 151, PHYS 126
STAT 100

Science Supporting Courses List

Computer Science include CENBD and CMPSC courses

Geosciences include GEOG, GEOSC, MATSC, and MATSE courses

Life Sciences include BIOL, BMB, and MICRB courses

Mathematical Sciences include MATH and STAT courses

Physical Sciences include ASTRO, CHEM, and PHYS courses

Earth and Space Pre-Certification Teaching Option: Secondary Education, B.S. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CHEM 110 ^{*#†}	3 CHEM 112 ^{*#†}	3
CHEM 111 ^{#†}	1 CHEM 113 ^{*†}	1
MATH 140 ^{*#†}	4 MATH 141 ^{*†}	4
ENGL 15 or 30H [†]	3 BIOL 110S ^{*#†}	4
PSU 7	1 General Education Course	3
General Education Course	3	
	15	15

Second Year

Fall	Credits Spring	Credits
CAS 100 [†]	3 GEOSC 2	3
BIOL 220W or 230W (or BIOL 240W)	4 CMPSC 121 [*]	3
PHYS 250 or 211 [*]	4 ASTRO 10	2
GEOSC 20	3 ASTRO 11	1
General Education Course (GHW)	1.5 PHYS 251 or 212 [*]	4
	General Education Course	3
	15.5	16

Third Year

Fall	Credits Spring	Credits
PHYS 213 or PHYS 214 or Elective (if following PHYS 250/251 track) [†]	2-3 World Language Level 2	4
General Education Course	3 General Education Course (GHW)	1.5
ENGL 202A or 202B (or ENGL 202C or ENGL 202D) ^{††}	3 GEOSC 40	3
ASTRO 291 or GEOG 10	3 ASTRO 292	3
World Language Level 1	4 GEOSC 10	3
	400-Level Course Science Supporting List [*]	3
	15-16	17.5

Fourth Year

Fall	Credits Spring	Credits
STAT 250 or 200 (or MATH 230 or CMPSC 122)	3-4 400-Level Course Program List [*]	3
400-Level Course Program List [*]	3 400-Level Course Program List [*]	3
METEO 3 [†]	3 GEOSC Course [*]	3
400-Level Course Science Supporting List [*]	3 General Education Course	3

General Education Course	3 GEOG, GEOSC, MATSC, MATSE Course (any level)	3
	15-16	15

Total Credits 124-126

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

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W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes

- 1.) Students who have not met the admission requirement of two units of a high school world language must complete a college level-one world language within their first 60 credits.
- 2.) Scheduling patterns for courses not taught each semester - some major requirements will be offered only once every every other year.
 - **Fall only courses include:** CMPSC 455, MATH 455, PHYS 402, PHYS 414
 - **Spring only courses include:** CMPSC 456, ME 428, MATH 456, PHYS 410, PHYS 420, PHYS 421W, PHYS 458
- 3.) All first-year baccalaureate degree candidates are required to complete, during the first academic year, a seminar course
- 4.) Students must earn at least a grade of C in each 300- and 400-level prescribed, additional, and supporting course.
- 5.) For Science Supporting Courses, students must select 18 credits, with at least 9 credits at the 400-level, in one of the areas: computer sciences, life sciences, mathematical sciences, or physical sciences.
- 6.) Students must select 18-22 credits, with at least 6 credits at the 400-level, from the program list.
- 7.) Students must complete at least 3 credits of a writing across the curriculum credits. Note that only one credit of each of the BIOL 220W, BIOL 230W, and BIOL 240W courses can be used to meet this requirement.

Advising Notes

Program List Courses

Students may select courses from nearly the entire range of the University's course offerings, **excluding the following:**

- BIOL 11, BIOL 12
- BISC 1, BISC 2, BISC 3, BISC 4
- BMB 1
- CAS 126
- CHEM 1, CHEM 3, CHEM 101, CHEM 108
- CMPSC 1, CMPSC 100, CMPSC 110
- ENGL 4, ENGL 5, ESL 4
- LLED 5, LLED 10

MATH 1, MATH 2, MATH 3, MATH 4, MATH 21, MATH 26, MATH 30, MATH 35, MATH 36, MATH 37, MATH 38, MATH 40, MATH 81, MATH 82, MATH 83, MATH 110, MATH 111, MATH 200
MICRB 106, MICRB 107, MICRB 120, MICRB 121A, MICRB 121B, MICRB 150, and MICRB 151x
PHYS 1, PHYS 150, PHYS 151, PHYS 126
STAT 100

Science Supporting Courses List

Computer Science include CENBD and CMPSC courses
Geosciences include GEOG, GEOSC, MATSC, and MATSE courses
Life Sciences include BIOL, BMB, and MICRB courses
Mathematical Sciences include MATH and STAT courses
Physical Sciences include ASTRO, CHEM, and PHYS courses

Career Paths

Our graduates teach in public and private schools in Pennsylvania, elsewhere in the U.S., and around the world. Education is a profession, and all teachers are expected to continue studying and developing new skills throughout their careers. In most U.S. states, teacher certification is a multi-stage process, with graduate study beyond a bachelor's degree expected early in a teacher's career. Graduates of this program who work in public schools usually go on to earn a master's degree. Alumni who wish to continue educational studies at the graduate level through Penn State can do so at University Park and through the University's World Campus.

Careers

In addition to resources like the College's Advising and Certification Center and Penn State Career Services, the University hosts large education career fairs in both the fall and spring semesters, which bring recruiters to campus from throughout Pennsylvania and the United States.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE SECONDARY EDUCATION PROGRAM (<https://studentaffairs.psu.edu/career/>)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/graduate-studies-program-curriculum-and-instruction/>)

Professional Resources

- Pennsylvania State Education Association (<https://www.psea.org/resources-by-profession/student-psea/>)
- Occupational Outlook for High School Teachers (Bureau of Labor Statistics) (<https://www.bls.gov/ooh/education-training-and-library/high-school-teachers.htm>)
- National Council of Teachers of English (NCTE) (<https://ncte.org/>)
- National Council of Teachers of Mathematics (NCTM) (<https://www.nctm.org/>)
- National Council for the Social Studies (NCSS) (<https://www.socialstudies.org>)
- National Science Teachers Association (NSTA) (<https://www.nsta.org/>)

Accreditation

The College of Education educator preparation programs are fully accredited at the Initial and Advanced levels by the Council for the Accreditation of Educator Preparation (CAEP). The next CAEP program

review will be Fall 2026. CAEP advances excellence in educator preparation through evidence-based accreditation that assures quality and supports continuous improvement to strengthen P-12 student learning.

MORE INFORMATION ABOUT ACCREDITATION OF THE SECONDARY EDUCATION PROGRAM (<https://ed.psu.edu/about/accreditations/>)

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

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University Park

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Software Engineering, B.S.

Begin Campus: Any Penn State Campus

End Campus: Erie, World Campus

Program Description

This major provides students with a strong foundation in software engineering through combination of classroom study, software development experience, and design projects. Design, analysis, verification, and maintenance of software systems are stressed. Built upon a core of science and mathematics courses, this major has the objective of educating graduates to be problem solvers. Students acquire the ability to work as members of a team toward successful attainment of a common goal, preparing them for work in industry or further study in graduate school. In addition, written and oral communication skills are developed from an early stage, culminating in a senior design project that stresses communication as well as engineering content.

In addition to completing a broad-based science core in mathematics, chemistry, and physics, students pursue their interest in software engineering by studying principles in computer programming, object-oriented design, software design, software verification, information

systems, operating systems, and data communications. The program has a capstone software design project that requires students to work together on teams to design, plan, manage, and implement a software design project.

What is Software Engineering?

Software engineering applies scientific and technological knowledge to the design, implementation, verification, and documentation of software. The study of software engineering teaches you the newest approaches to create, maintain, and improve software systems in economical, reusable, and extendable ways. Software engineers are creative problem solvers who put the functionality (and fun!) into our technology. Without software engineers there would be no Internet, no social networking, no apps, no streaming, no virtual or augmented reality, and no interactive entertainment.

You Might Like This Program If...

- You are patient in the face of a challenge.
- You are a creative thinker.
- You are interested in coding and programming, and also in mathematics, chemistry, and physics.
- You enjoy working on team-based projects.

Entrance To Major

In addition to the Carnegie unit and minimum GPA requirements described by University policies, all students applying for entrance to any of the engineering majors at The Behrend College must have at least a 2.0 cumulative GPA by the end of the semester prior to applying for entrance to the major and have completed, with a minimum grade of C: CHEM 110, MATH 140, MATH 141, and PHYS 211. These courses must be completed by the end of the semester during which the admission to major process is carried out.

Degree Requirements

For the Bachelor of Science degree in Software Engineering, a minimum of 126 credits is required:

Requirement	Credits
General Education	45
Electives	0-1
Requirements for the Major	101-102

21 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GWS courses; 3 credits of GS courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned.

Requirements for the Major

A student enrolled in this major must earn a grade of C or better in each 300- and 400-level course in the major.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and->

[rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44](#)).

Code	Title	Credits
Prescribed Courses		
CHEM 111	Experimental Chemistry I	1
CMPEN 275	Digital Design Laboratory	1
CMPSC 121	Introduction to Programming Techniques	3
MATH 220	Matrices	2
MATH 250	Ordinary Differential Equations	3
PHYS 212	General Physics: Electricity and Magnetism	4
<i>Prescribed Courses: Require a grade of C or better</i>		
CHEM 110	Chemical Principles I	3
CMPEN 271	Introduction to Digital Systems	3
CMPEN 351	Microprocessors	3
CMPEN 441	Operating Systems	3
CMPEN 461	Communication Networks	3
CMPSC 122	Intermediate Programming	3
CMPSC 360	Discrete Mathematics for Computer Science	3
CMPSC 431W	Database Management Systems	3
CMPSC 461	Programming Language Concepts	3
CMPSC 465	Data Structures and Algorithms	3
ENGL 202C	Effective Writing: Technical Writing	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
MGMT 301	Basic Management Concepts	3
PHYS 211	General Physics: Mechanics	4
STAT 318	Elementary Probability	3
SWENG 311	Object-Oriented Software Design and Construction	3
SWENG 411	Software Engineering	3
SWENG 421	Software Architecture	3
SWENG 431	Software Verification, Validation, and Testing	3
SWENG 452W	Embedded Real Time Systems	3
SWENG 480	Software Engineering Design	3
SWENG 481	Software Engineering Project	3
Additional Courses		
ECON 102	Introductory Microeconomic Analysis and Policy	3
or ECON 104	Introductory Macroeconomic Analysis and Policy	
EE 210	Circuits and Devices	3-4
or EE 211	Electrical Circuits and Power Distribution	
Supporting Courses and Related Areas		
Select 9 credits of technical elective courses from school-approved list		9

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education

Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://>

bulletins.psu.edu/undergraduate/archive/) to view the appropriate Undergraduate Bulletin edition.

Software Engineering, B.S. at Erie Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CHEM 110 ^{*#†}	3 CMPSC 122 [*]	3
CHEM 111 [†]	1 ECON 102 or 104 [†]	3
CMPSC 121 [†]	3 MATH 141 ^{*†#†}	4
ENGL 15 or 30H ^{††}	3 MATH 220 [†]	2
MATH 140 ^{*†#†}	4 PHYS 211 ^{*#†}	4
PSU 7	1	
	15	16

Second Year

Fall	Credits Spring	Credits
CAS 100 ^{††}	3 CMPEN 271 [*]	3
MATH 250	3 CMPEN 275	1
PHYS 212 [†]	4 CMPSC 360 or SWENG 311 [*] 2	3
SWENG 311 or CMPSC 360 ^{*2}	3 EE 210 or 211	3-4
General Education Course (GA/GH/GS)	3 ENGL 202C ^{*††}	3
	STAT 318 [*]	3
	16	16-17

Third Year

Fall	Credits Spring	Credits
CMPEN 351 [*]	3 CMPSC 431W ^{*1}	3
CMPEN 441 [*]	3 SWENG 421 [*]	3
CMPSC 465 [*]	3 SWENG 431 [*]	3
SWENG 411 [*]	3 SWENG 452W ^{*1}	3
Technical Elective (300, 400-level) [*]	3 General Education Course	3
General Education Courses (GHW)	1.5	
	16.5	15

Fourth Year

Fall	Credits Spring	Credits
CMPEN 461 [*]	3 MGMT 301 [*]	3
CMPSC 461 [*]	3 SWENG 481 [*]	3
SWENG 480 [*]	3 Technical Elective (300, 400-level) [*]	3
Technical Elective (300, 400-level) [*]	3 General Education Course (GA/GH/GS)	3
General Education Course (GA/GH/GS)	3 General Education Course (GA/GH/GS)	3

General Education Course (GHW)	1.5	
	16.5	15

Total Credits 126-127

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ Course will satisfy Writing Across the Curriculum requirement.

² CMPEN 271, CMPEN 275, and CMPSC 360 must be completed prior to the third-year to ensure that fall semester third-year prerequisites are met.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- Only students who have gone through the entrance to major (ETM) process and have been accepted into this major may register for third- and fourth-year courses.

School-Approved Electives for Software Engineering:

- Technical electives allow students to choose areas of interest to explore. Technical electives come in two flavors, primary and secondary. Primary technical electives are those courses offered to CSSE majors which are not required for the Software Engineering major. Secondary technical electives are offered outside your home department and give you broader latitude. Students must complete at least two primary technical electives, and, at most, one secondary technical elective.
- **Primary Technical Electives:**
 - Any 300 or 400-level EE course
 - Any 300 or 400-level CMPEN course not already required for the major
 - Any 300 or 400-level CMPSC (except for CMPSC 474 and CMPSC 335) course not already required for the major
 - Any 300 or 400-level SWENG course not already required for the major
 - GAME 450 – Advanced GAME Programming
 - GAME 480 – GAME Development Project
- **Secondary Technical Electives:**
 - SWENG 395 – Internship (Fall/Spring)
 - SWENG 495 – Internship (Fall/Spring)

- MIS 430 – Systems Analysis (Fall/Spring)
- MIS 435 – Systems Design and Implementation (Fall/Spring)
- MIS 445 – Management Report Systems (Fall)
- MIS 470 – Advanced Applications Development (Spring)
- MGMT 409 – Project Management for Engineers (Fall/Spring)
- PSYCH 444 – Engineering Psychology (Fall)
- ECON 481 – Business Forecasting Techniques (Fall)
- ECON 485 – Econometric Techniques (Fall)
- MATH 455 – Introduction to Numerical Analysis I (Fall)
- MATH 456 – Introduction to Numerical Analysis II (Spring – Even Years)
- ENTR 430 – Entrepreneurship & New Product Development (Fall)

Software Engineering, B.S. at World Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CHEM 110 ^{*#†}	3 CMPSC 122 [*]	3
CHEM 111 [†]	1 ECON 102 or 104 [†]	3
CMPSC 121 [†]	3 MATH 141 ^{*†#†}	4
ENGL 15 or 30H ^{††}	3 MATH 220 [†]	2
MATH 140 ^{*†#†}	4 PHYS 211 ^{*#†}	4
PSU 7	1	
	15	16

Second Year

Fall	Credits Spring	Credits
CAS 100 ^{††}	3 CMPEN 271 [*]	3
MATH 250	3 CMPEN 275	1
PHYS 212 [†]	4 CMPSC 360 or SWENG 311 [*]	3
SWENG 311 or CMPSC 360 ^{*2}	3 EE 210 or 211	3-4
General Education Course (GA/GH/GS)	3 ENGL 202C ^{*††}	3
	STAT 318 [*]	3
	16	16-17

Third Year

Fall	Credits Spring	Credits
CMPEN 351 [*]	3 CMPSC 431W ^{*1}	3
CMPEN 441 [*]	3 SWENG 421 [*]	3
CMPSC 465 [*]	3 SWENG 431 [*]	3
SWENG 411 [*]	3 SWENG 452W ^{*1}	3
Technical Elective (300, 400-level) [*]	3 General Education Course (GA/GH/GS)	3
General Education Courses (GHW)	1.5	
	16.5	15

Fourth Year

Fall	Credits Spring	Credits
CMPEN 461 [*]	3 MGMT 301 [*]	3
CMPSC 461 [*]	3 SWENG 481 [*]	3
SWENG 480 [*]	3 Technical Elective (300, 400-level) [*]	3
Technical Elective (300, 400-level) [*]	3 General Education Course (GA/GH/GS)	3
General Education Course (GA/GH/GS)	3 General Education Course (GA/GH/GS)	3
General Education Course (GHW)	1.5	
	16.5	15

Total Credits 126-127

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

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General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- Only students who have gone through the entrance to major (ETM) process and have been accepted into this major may register for junior and senior-level courses.

School-Approved Electives for Software Engineering:

Students should contact their academic adviser or World Campus Academic Advising for list of electives.

Career Paths

Software engineering is a relatively young discipline but has great buzz—the field consistently tops Best Jobs lists because it offers great pay, broad and growing demand, and opportunities for advancement. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

Students who major in software engineering work as developers, programmers, product managers, quality assurance engineers, network architects, support specialists, database administrators, and information security analysts. Software engineering skills are highly transferable and prepare you for careers in applications development, systems development, web development, and embedded systems development. Recent employers of Penn State Behrend's B.S. in Software Engineering graduates include Apple, Google, IBM, Intel, Lockheed Martin, Microsoft, Northrop Grumman, and Progressive Insurance.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE SOFTWARE ENGINEERING PROGRAM (<https://>

behrend.psu.edu/school-of-engineering/academic-programs/software-engineering/

Opportunities for Graduate Studies

Graduate study allows you to delve deeper into the subdisciplines of software engineering that interest you most. Examples of master's-level study include data science, network security, artificial intelligence, systems architecture, applications engineering, requirements engineering, project management, assessment and appraisal, or technical and managerial leadership.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-engineering/academic-programs/software-engineering/>)

Professional Resources

- ABET (<https://www.abet.org/>)
- IEEE (<https://www.computer.org/>)
- Association for Computing Machinery (<https://www.acm.org/>)
- Society of Women Engineers (<https://swe.org>)
- National Society of Black Engineers (<https://www.nsbe.org>)

Accreditation

The Bachelor of Science in Software Engineering at Penn State Behrend is accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Software and Similarly Named Engineering Programs.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

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SCHOOL OF ENGINEERING
242 Jack Burke Research and Economic Development Center
5101 Jordan Road
Erie, PA 16563
814-898-6153
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<https://behrend.psu.edu/school-of-engineering> (<https://behrend.psu.edu/school-of-engineering/>)

World Campus

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-software-engineering-bachelor-of-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-software-engineering-bachelor-of-science-degree>)

www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-software-engineering-bachelor-of-science-degree/

Sports Administration, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

This 15-credit interdisciplinary program offers students an introduction to different aspects of sports administration careers, broadly defined. Students who complete this certificate will enhance their portfolios and career opportunities to include working in the fields of sports management, business/retail, media, sporting teams, and recreational programs.

What is Sports Administration?

Sport management is the broad field of business associated with athletics, sports teams and recreation.

You Might Like This Program If...

- You enjoy sports and recreation.
- You desire to add this knowledge to your major program of study.

Entrance to Certificate

Students should be aware of possible course prerequisites for some of the listed courses.

Program Requirements

To earn an undergraduate certificate in Sports Administration, a minimum of 15 credits is required.

Code	Title	Credits
Required Courses		
COMM 170	Introduction to the Sports Industry	3
Select 3 credits from the following:		3
BA 495A	Business Internship	
CAS 495	Internship	
COMM 495	Internship	
MGMT 495	Internship	
PSYCH 495	Internship	
Select 9 credits from one of the following tracks:		9
<i>Sports Business and Data Analytics</i>		
ACCTG 211	Financial and Managerial Accounting for Decision Making	
ECON 460	Issues in Sports Economics	
FIN 301	Corporation Finance	
MIS 345	Introduction to Data Analytics	
<i>Sports Event Planning and Promotion</i>		
CAS 182N	Communication and Sport	
CAS 252	Business and Professional Communication	
COMM 100N	The Mass Media and Society	
COMM 320	Introduction to Advertising (Third Semester Standing)	
COMM 370	Public Relations	
COMM 412	Sports, Media and Society	

COMM 458	Media Law and Ethics
COMM 472	Public Relations Event Planning
COMM 476	Sports Writing
COMM 478	Sports Information
CRIMJ/CRIM/ SOC 467	Law and Society
MGMT 433	Leadership and Team Building
MKTG 310	Public Relations and Marketing
MKTG 443	Sports Marketing
<i>Sports Marketing</i>	
COMM 100N	The Mass Media and Society
COMM 458	Media Law and Ethics
CRIM/CRIMJ/ SOC 467	Law and Society
MKTG 327	Retailing
MKTG 410	Personal Selling
MKTG 443	Sports Marketing
MKTG 449	Sports Business Market Strategy
MKTG 480	Intermediate Social Media Marketing
MKTG 485	Business-to-Business Marketing
<i>Sports Health and Wellness Management</i>	
KINES 24	Lifetime Sports
KINES 341	The Historical, Cultural, and Social Dynamics of Sport
KINES 395B/ AMST 441	Leadership Practicum: KINES
KINES 441	History of Sport in American Society
NUTR 251	Introductory Principles of Nutrition
NUTR 407	Nutrition for Exercise and Sports

Certificate Learning Objectives

- **Apply Knowledge:** Student will be able to apply knowledge gained from coursework to internship setting.
- **Communication Skills:** Students will be able to communicate both in written and oral format.
- **Problem Solving:** Students will be able to recognize problems and develop solutions in sports administration.

Academic Advising

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Schuylkill

Gina Whalen, D.ED

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Contact

Erie

BLACK SCHOOL OF BUSINESS

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Schuylkill

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<https://schuylkill.psu.edu/academics/bacc-degrees/business/sports-administration-certificate> (<https://schuylkill.psu.edu/academics/bacc-degrees/business/sports-administration-certificate/>)

Statistics, Minor (Behrend)

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The minor in Statistics provides students with a strong statistical background for careers in biology, actuarial science, engineering, mathematics; or for graduate studies in many fields. The minor is designed to make students proficient in the collection, interpretation and analysis of data.

What is Statistics?

Statistics is the field study of that uses mathematics, computing, and analysis, to organize and understand data. Statisticians use critical and abstract thinking through the application of mathematical principles to statistical problems, and combine modeling with computational skills to analyze data.

You Might Like This Program If...

- You question “facts.” How do we know that four out of five doctors recommend a specific type of chewing gum?
- You enjoy working with numbers, data, and computers.
- You enjoy flexing your analytical and critical thinking skills.
- You know that statistical skills will help you be more successful in your field of interest.

Program Requirements

Requirement	Credits
Requirements for the Minor	28-30

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student’s major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
STAT 301		3
STAT 401	Experimental Methods	3
STAT 461	Analysis of Variance	3
STAT 462	Applied Regression Analysis	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
MATH 230	Calculus and Vector Analysis	2-4
	or MATH 231	Calculus of Several Variables
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 6 credits of 400-level STAT or related MATH courses ¹		6

¹ No more than three credits from 495 courses can be used to satisfy this requirement.

Academic Advising

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Erie

Terry Blakney

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Career Paths

As the world generates more and more data, there is an increase in demand for people with statistics and analytics skills. Whether you specialize in statistics or combine it with study in science, business, or the humanities, a background in statistics easily complements most fields through surveying, modeling, mapping, measuring, and predicting data. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

The Statistics minor can help make possible careers in statistics, actuarial sciences, bioinformatics, population studies, institutional research, investment analysis, educational assessment, engineering modeling, and thousands of other data-driven occupations.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN STATISTICS (<https://behrend.psu.edu/school-of-science/academic-programs-1/mathematics/curriculum/statistics-minor/>)

Opportunities for Graduate Studies

A minor in statistics, particularly when added to a major program that utilizes data, demonstrates to graduate school admissions committees your commitment to interdisciplinary thinking. Students with a background in statistics are in high demand in a variety of fields, including those outside of science.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-science/academic-programs-1/mathematics/curriculum/statistics-minor/>)

Contact

Erie

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Erie, PA 16563
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behrend-science@psu.edu

<https://behrend.psu.edu/school-of-science> (<https://behrend.psu.edu/school-of-science/>)

Technical Sales, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

This minor is designed to accommodate undergraduates enrolled in engineering and engineering technology who wish to augment their majors with further studies in industrial or technical sales. This minor is designed for non-business majors. The objective of the minor is to acquaint the technical students of these majors with the issues and methods associated with industrial or technical sales. Relevant studies include principles of management, operations management, supply chain management, marketing, logistics systems, procurement, personal selling or business-to-business marketing, and project management. Students who complete the minor will be positioned for career opportunities as direct sales engineers who play a key role in selection, purchase, installation and maintenance of technical products by selling technology and engineering solutions, or as manufacturing representatives who independently form contracts in exclusive marketing territories for multiple small manufacturers of compatible but not competing technical products.

What is Technical Sales?

A minor in Technical Sales offers engineering, engineering technology, and science students the foundational education in management, marketing, personal selling, and business-to-business marketing needed to build a career in technical sales, industrial sales, procurement, direct sales engineering, and manufacturing representation.

You Might Like This Program If...

- You are a student studying outside of the School of Business who would like to add a business specialization to your major.
- You envision a career in sales, technical marketing, or procurement.

Program Requirements

Requirement	Credits
Requirements for the Minor	19

Students are required to have a technically-oriented major (i.e. engineering, engineering technology, physical sciences, or other major as approved).

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
MGMT 301	Basic Management Concepts	3
MKTG 301	Principles of Marketing	3
SCM 301	Supply Chain Management	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
MKTG 410	Personal Selling (or marketing elective as approved)	3
SCM 200	Introduction to Statistics for Business	4
	or STAT 200 Elementary Statistics	
Select one of the following:		3

MGMT 409	Project Management for Engineers
MGMT 410	Project Management
SCM 455	Logistics Systems Analysis and Design
SCM 460	Purchasing and Materials Management

Academic Advising

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Erie

Gary Smith
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287 Burke
Erie, PA 16563
814-898-6429
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Career Paths

The minor in Technical Sales can be pursued by most students in technical-focused Penn State Behrend degree programs. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

A minor in Technical Sales prepares you for marketing, selling, or procuring technical products, services, and systems. Because all technical organizations are engaged in the selling and purchasing of products, services, and equipment, your career options are limited only by your imagination.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN TECHNICAL SALES (<https://behrend.psu.edu/school-of-business/academic-programs/marketing/technical-sales-minor/>)

Opportunities for Graduate Studies

Adding a specialized minor such as Technical Sales to a primary major program demonstrates to graduate programs your commitment to interdisciplinary thinking.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-business/academic-programs/marketing/technical-sales-minor/>)

Contact

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Transnational Perspectives, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

This interdisciplinary minor is designed for students who wish to supplement their major field of study with international understanding and study. It introduces students to global concerns and multicultural issues and broadens students' understanding of the critical forces molding their nation and their lives in the twenty-first century. The Transnational Perspectives Minor is proposed for students planning international careers in their professional fields, careers in organizations engaged in international activity, and those with a general interest in global studies. The minor consists of 18 to 30 credits, at least 6 of which must be at the 400 level. Twelve credits or evidence of third-semester proficiency of a world language is required. The program of study is to be developed by the student in conjunction with an International Studies adviser.

What is Transnational Perspectives?

Transnational Perspectives is a minor designed to help students better understand how they fit into the complex world of the 21st century, a world consisting of almost 200 countries and more than 100 major international organizations such as the United Nations and the European Union. This understanding adds a vital additional dimension to virtually any field of study. It introduces students to the interconnectedness that defines the modern world and helps students to realize that differences among countries do not imply inferiority or superiority.

You Might Like This Program If...

- You recognize you will live in an economically, politically, and socially interdependent world.
- You are interested in languages and how they relate to history and politics.
- You envision working abroad at some point in your career.
- You realize that virtually any career will be transnational, reaching beyond the boundaries of the U.S.
- You'd like to add liberal arts balance to a business or engineering major program.

Program Requirements

Requirement	Credits
Requirements for the Minor	18-30

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>).

In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
INTST 100	Introduction to International Studies	3
INTST 400	Seminar in International Studies	3
Select 12 credits of a world language or evidence of third-semester proficiency		12
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 12 credits (at least 3 credits at the 400 level outside the student's major) of internationally oriented courses in consultation with adviser ¹		0-12

¹ A list of recommended courses is maintained by Penn State-Behrend's Transnational Perspectives Committee. Credits earned through approved academic study abroad may be counted in this category.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

Lena Surzhko-Harned, Ph.D.

Assistant Teaching Professor of Political Science

149 Kochele

Erie, PA 16563

814-898-6074

lms557@psu.edu

Career Paths

The minor in Transnational Perspectives can be pursued by students in most Penn State Behrend degree programs. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

A minor in Transnational Perspectives is desirable for all careers and essential for many. Virtually all departments of the federal government have international divisions, as do many at the state level. Many nonprofit organizations have international objectives, and it's difficult to find a private sector company not linked to the globalizing economy.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN TRANSNATIONAL PERSPECTIVES (<https://behrend.psu.edu/school-of-humanities-social-sciences/academic-programs-1/minors/international-studies-minor-1/>)

Opportunities for Graduate Studies

A minor in the liberal arts, particularly when added to a major program outside of the liberal arts, demonstrates to graduate school admissions committees your commitment to interdisciplinary thinking.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-humanities-social-sciences/academic-programs-1/minors/international-studies-minor-1/>)

Contact

Erie

SCHOOL OF HUMANITIES AND SOCIAL SCIENCES
170 Irvin Kochel Center
4951 College Drive
Erie, PA 16563
814-898-6108
HSSOffice@psu.edu

<https://behrend.psu.edu/school-of-humanities-social-sciences> (<https://behrend.psu.edu/school-of-humanities-social-sciences/>)

Trauma Studies, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

This 18 credit certificate will provide the core information and competencies for students interested in pursuing research and applied experiences in trauma studies. The certificate is open to all majors; students will be provided with an interdisciplinary understanding of the psychological, historical, sociocultural, political, and physiological aspects of the effects of trauma. It will also provide students a greater understanding of the unique economic, occupational, physical, medical, and interpersonal needs of those recovering from trauma. The certificate is consistent with psychology program goals to develop clear career tracks for current students interested in the applied fields of psychology.

What is Trauma Studies?

Experiencing a traumatic event such as war, urban violence, child abuse, sexual assault, domestic violence, accident, or natural disaster, is known to likely lead to a negative impact on psychological and physical health. Unfortunately, most people experience traumatic events during their lifetimes, making trauma studies one of the fastest growing areas in the social sciences.

You Might Like This Program If...

- You are a Psychology major interested in a counseling or psychotherapy career.
- You are interested in research related to trauma and recovery.
- You are interested in interdisciplinary explanations of human behavior and recovery after trauma.
- You are in an allied health field and would like to better understand the impact of trauma on people's lives.
- You recognize that people recovering from trauma have unique emotional-health needs and want to help them.

Program Requirements

To earn an undergraduate certificate in Trauma Studies, a minimum of 18 credits is required.

Code	Title	Credits
Prescribed Courses		
PSYCH 100	Introductory Psychology	3
PSYCH 442	Trauma and Resiliency	3
Select two of the following:		6
HDFS 258		
KINES 81	Wellness Theory	
KINES 82	Action Methods for Stress Management	
NURS 464	Dying and Death	
PSYCH 243	Introduction to Well-being and Positive Psychology	
SOC 12	Criminology	
SOC 13	Juvenile Delinquency	
SOC 409	Racial and Ethnic Inequality in America	
WMNST 103	Racism and Sexism	
WMNST 423	Sexual and Domestic Violence	
Select two of the following:		6
CMLIT 143	Human Rights and World Literature	
HIST 121	History of the Holocaust 1933-1945	
HIST 130	Introduction to the Civil War Era, 1848 through 1877	
HIST 173	Vietnam in War and Peace	
HIST 444	The United States in Civil War and Reconstruction-1850-1877	
PLSC 14	International Relations	
PLSC 91		
PLSC 123		
PLSC 132	The Politics of International Intolerance	
PLSC 155	Understanding Tyranny	
PLSC 436	Civil Wars	
PLSC 437	War in World Politics	
PLSC 439	The Politics of Terrorism	

Certificate Learning Objectives

- Describe behaviors and mental processes from the major social science perspectives that impact trauma exposure and the development of traumatic stress.
- Explain the epidemiology of trauma, traumatic stress, and resiliency.

- Identify resiliency and vulnerability factors in traumatic stress disorder development, including the effects of biological, developmental, social, historical, and cultural factors.
- Describe the stages of recovery and the prevention and treatment options for trauma.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Erie

Wilson Brown, Ph.D.

Associate Professor of Clinical Psychology

106 Turnbull Hall

Erie, PA 16563

814-898-6936

wilsonbrown@psu.edu

Career Paths

The certificate in Trauma Studies can be pursued by most Penn State Behrend undergraduate students. It provides core competencies to students interested in pursuing research and applied experiences in trauma studies and offers an interdisciplinary understanding of the psychological, historical, sociocultural, political, and physiological aspects of trauma and recovery. Coursework builds a greater understanding of the unique economic, occupational, physical, medical, and interpersonal needs of trauma survivors. This certificate also can help you to develop a career track in the applied fields of psychology.

Careers

Pursuing the certificate in Trauma Studies will help you to develop a deeper understanding of the psychological, historical, sociocultural, political, economic, and physiological effects of trauma. This specialization can offer you additional career opportunities within the field of psychology, counseling, education, political science, history, pre-medicine, human development and family studies, or sociology.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A CERTIFICATE IN TRAUMA STUDIES (<https://behrend.psu.edu/school-of-humanities-social-sciences/academic-programs-1/certificate-programs/trauma-studies-certificate/>)

Opportunities for Graduate Studies

Clinical practice of trauma counseling requires education beyond a bachelor's degree. Penn State Behrend offers a Master of Arts degree program in Applied Clinical Psychology that includes optional preparation for the Licensed Professional Counselor (LPC) credential.

Penn State Behrend also offers a graduate certificate in Trauma-Informed Psychotherapy that pairs with the M.A. in Applied Clinical Psychology.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://behrend.psu.edu/school-of-humanities-social-sciences/academic-programs/master-of-applied-clinical-psychology/>)

Professional Resources

- American Psychological Association (<https://www.apa.org/>)
- International Society for Traumatic Stress Studies (<https://istss.org/home/>)

Contact

Erie

SCHOOL OF HUMANITIES AND SOCIAL SCIENCES

170 Irvin Kochel Center

4951 College Drive

Erie, PA 16563

814-898-6108

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<https://behrend.psu.edu/school-of-humanities-social-sciences> (<https://behrend.psu.edu/school-of-humanities-social-sciences/>)

Penn State Harrisburg, The Capital College

About the College

David M. Callejo Perez, Chancellor and Dean, Penn State Harrisburg

Penn State Harrisburg is an undergraduate college and graduate school of the University. The Harrisburg campus enrolls nearly 5,000 students and offers more than 75 associate, bachelor's, master's, and doctoral degree programs. The college has nationally accredited programs, award-winning faculty who are accomplished teachers and scholars, and the resources of a world-class research university. The college also offers all four years of study in 35 of its baccalaureate programs as well as the first two years of study leading to more than 160 baccalaureate majors offered throughout the University. The college serves students from all campuses of Penn State, as well as transfer students from community colleges and other accredited colleges and universities. Penn State Harrisburg is located on a suburban campus in Middletown, Pennsylvania, eight miles east of Harrisburg.

MORE INFORMATION ABOUT THE COLLEGE (<https://harrisburg.psu.edu/this-is-penn-state-harrisburg/>)

Mission and Goals

The mission of Penn State Harrisburg is to provide an integrated and responsive approach to education that benefits society. As the largest and most comprehensive of the University's Commonwealth Campuses, we strive to achieve national and international standing in academic quality and impact upon the progress of society.

MORE INFORMATION ABOUT THE MISSION AND GOALS OF PENN STATE HARRISBURG (<https://harrisburg.psu.edu/about-us/vision-mission-and-values/>)

Departments and Schools

School of Behavioral Sciences and Education

The School of Behavioral Sciences and Education's programs promote the health and well-being of individuals, families, communities and society through education, physical and mental health research, treatment, and prevention. BSED courses are taught by faculty who are active researchers, scholars, and practitioners, resulting in evidence-based course content and applied training.

MORE INFORMATION ABOUT THE SCHOOL OF BEHAVIORAL SCIENCES AND EDUCATION (<https://harrisburg.psu.edu/behavioral-sciences-education/>)

School of Business Administration

The School of Business Administration is the leading business education center in the region. Its business programs are accredited by the Association to Advance Collegiate Schools of Business (AACSB) International, the premier accrediting body for business schools, and a distinction earned by only 4.5% of business programs worldwide.

MORE INFORMATION ABOUT THE SCHOOL OF BUSINESS ADMINISTRATION (<https://harrisburg.psu.edu/business-administration/>)

School of Humanities

The School of Humanities offers majors in American studies, communications, English, and humanities, with courses in American studies, studio art, art history, communications, English, world languages, history, Jewish studies, media and film studies, music, museum studies, philosophy, religious studies, theatre, women's studies, and writing.

MORE INFORMATION ABOUT THE SCHOOL OF HUMANITIES (<https://harrisburg.psu.edu/humanities/>)

School of Public Affairs

The School of Public Affairs is Penn State's flagship for public affairs education, offering high quality undergraduate and graduate education in six disciplines. Its programs are grounded in applied research and an interdisciplinary approach, foster public service, and provide students with the knowledge and skills to solve society's complex problems.

MORE INFORMATION ABOUT THE SCHOOL OF PUBLIC AFFAIRS (<https://harrisburg.psu.edu/public-affairs/>)

School of Science, Engineering, and Technology

The School of Science, Engineering, and Technology offers multiple Bachelor of Science degrees, with all of its engineering and engineering technology programs ABET-accredited. The school also offers master's degree study in Civil, Electrical, Environmental, and Mechanical Engineering; Computer Science; Engineering Science; Engineering Management; and Environmental Pollution Control.

MORE INFORMATION ABOUT THE SCHOOL OF SCIENCE, ENGINEERING, AND TECHNOLOGY (<https://harrisburg.psu.edu/science-engineering-technology/>)

Baccalaureate Degrees

- Accounting, B.S. (Capital)
- American Studies, B.A. (Capital)
- Biobehavioral Health, B.S. (Capital)
- Biology, B.S. (Capital)

- Civil Engineering, B.S. (Capital)
- Communication Sciences and Disorders, B.S. (Capital)
- Communications, B.A. (Capital)
- Computer Science, B.S. (Capital)
- Criminal Justice, B.S. (Capital)
- Cybersecurity Analytics and Operations, B.S. (Capital)
- Electrical Engineering Technology, B.S. (Capital)
- Electrical Engineering, B.S. (Capital)
- Elementary Education, B.El.Ed.
- English, B.Hum.
- Enterprise Technology Integration, B.S. (Capital)
- Finance, B.S. (Capital)
- Health Policy and Administration, B.S. (Capital)
- Human Capital Management, B.S.
- Human Development and Family Studies, B.S. (Capital)
- Human-Centered Design and Development, B.S. (Capital)
- Humanities, B.A. (Capital)
- Information Sciences and Technology, B.S. (Capital)
- Information Systems, B.S.
- Integrative Science, B.S. (Capital)
- Kinesiology, B.S. (Capital)
- Management, B.S. (Capital)
- Marketing, B.S. (Capital)
- Mathematical Sciences, B.S.
- Mechanical Engineering Technology, B.S. (Capital)
- Mechanical Engineering, B.S. (Capital)
- Political Science, B.A. (Capital)
- Project and Supply Chain Management, B.S. (Capital)
- Psychology, B.S. (Capital)
- Public Policy, B.S.
- Secondary Education Social Studies, B.SOSC.
- Security and Risk Analysis, B.S. (Capital)
- Sociology, B.S. (Capital)
- Structural Design and Construction Engineering Technology, B.S.

Associate Degrees

- Business Administration, A.S. (Capital)
- Criminal Justice, A.S. (Capital)
- Multidisciplinary Studies, A.A. (Capital)

Minors

- American Studies, Minor
- Business Administration, Minor
- Communications, Minor (Capital)
- Computer Science, Minor (Capital)
- Homeland Security, Minor
- Human Resource Management, Minor
- Information Sciences and Technology for Accounting, Minor
- Information Sciences and Technology/Finance, Minor
- International Business Administration, Minor
- Materials Science and Engineering, Minor
- Mechatronics Technology, Minor

- Mechatronics, Minor
- Sales, Minor
- Writing, Minor

Certificates

- Human Capital Management, Certificate

College Procedures

Change of Campus

The University admits first-semester baccalaureate degree candidates to a campus location that can provide at least two semesters of normal progress toward the program they have selected. In most cases, students are expected to complete two full years of academic work at their initial campus.

MORE INFORMATION ABOUT CHANGE OF CAMPUS (<https://www.registrar.psu.edu/degree-planning/change-campus/>)

Concurrent Majors

A Concurrent Majors Program is one in which students take courses to concurrently meet the requirements of at least two majors, with graduation for all majors in the program occurring during the same semester. A student wishing to pursue simultaneous (concurrent) degrees or multiple majors must submit a request to the appropriate Program Coordinator through their faculty adviser. The student must await approval of the academic plan and the majors before enrolling in the second major. Review the full policy below.

MORE INFORMATION ABOUT CONCURRENT MAJORS (<https://harrisburg.psu.edu/policy/3-obtaining-approval-simultaneous-concurrent-degrees-and-multiple-majors-sample-form/>)

READ SENATE POLICY 60-00: COMPLETING MORE THAN ONE UNDERGRADUATE MAJOR PROGRAM (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/60-00-completing-more-than-one-undergraduate-program/#60-00>)

Academic Warning

A student who fails to earn a 2.00 cumulative grade-point average will be placed on academic warning. A student placed on academic warning will have a hold placed on registration and will be required to meet with an academic adviser in order for this registration hold to be removed. To remove academic warning, the cumulative grade-point average must be 2.00 or higher.

MORE INFORMATION ABOUT ACADEMIC WARNING (<https://harrisburg.psu.edu/registrar/academic-warning/>)

READ SENATE POLICY 54-20: ACADEMIC WARNING (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-20>)

Academic Suspension

A student in academic warning who fails to maintain a semester grade-point average of 2.00 or higher will be academically suspended. A student who has been academically suspended may not schedule courses at the University for two consecutive semesters. (Note: Summer session is equal to one semester.)

MORE INFORMATION ABOUT ACADEMIC SUSPENSION (<https://harrisburg.psu.edu/registrar/academic-warning/>)

READ SENATE POLICY 54-40: ACADEMIC SUSPENSION (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-40>)

Resources

Advising Center

The Lambert Undergraduate Advising Center coordinates academic advising for all lower division students and is home to the Division of Undergraduate Studies, an enrollment unit for students who want to explore the University's academic opportunities before selecting a field of study.

MORE INFORMATION ABOUT THE ADVISING CENTER (<https://harrisburg.psu.edu/advising-center/>)

Athletics (Intercollegiate)

The college offers students exemplary athletic programs that help develop quality standards of academic achievement, athletic performance, leadership, community service, and a high level of sportsmanship.

The college is an NCAA Division III school as well as a member of the Capital Athletic Conference (CAC) and sponsors 17 varsity sports.

MORE INFORMATION ABOUT INTERCOLLEGIATE ATHLETICS (<https://athletics.hbg.psu.edu/landing/index/>)

Career Services

Career Services provides career planning and development services to current students and alumni at no charge.

MORE INFORMATION ABOUT CAREER SERVICES (<https://harrisburg.psu.edu/john-crain-kunkel-career-center/>)

Counseling and Psychological Services

Psychologists, counselors, and a drug and alcohol specialist are available to work with any current student to address personal concerns. This office offers evening hours and operates under strict confidentiality guidelines.

MORE INFORMATION ABOUT COUNSELING AND PSYCHOLOGICAL SERVICES (<https://harrisburg.psu.edu/counseling-psychological-services/>)

Graduate Studies Office

The Graduate Studies Office offers support for graduate students and represents the Graduate School at Penn State Harrisburg. Additionally, the office sponsors travel grants for grad students, implements academic policies for graduate programs, and works with the Graduate and Professional Student Council (GPSC).

MORE INFORMATION ABOUT THE GRADUATE STUDIES OFFICE (<https://harrisburg.psu.edu/graduate-studies/>)

Honors Program

Penn State Harrisburg offers two honors programs for students who are highly motivated to achieve academic excellence and want more out of their college education. The two programs are the Capital College Honors Program and the University's Schreyer Honors College.

MORE INFORMATION ABOUT THE HONORS PROGRAM (<https://harrisburg.psu.edu/honors-program/>)

Housing and Food Services

Housing and Food Services provides student resident services, catering, and operates several dining options on campus.

MORE INFORMATION ABOUT HOUSING AND FOOD SERVICES (<https://liveon.psu.edu/harrisburg/>)

International Programs (Study Abroad)

International Programs provides and facilitates international educational opportunities for faculty and students, including study tours and study abroad.

MORE INFORMATION ABOUT INTERNATIONAL PROGRAMS (<https://harrisburg.psu.edu/international-programs/>)

International Student Support Services

Acts as a liaison between Penn State Harrisburg international students and the Office of Global Programs/DISSA at University Park, assisting with immigration issues, hosting employment information sessions, and providing personal development and growth opportunities for students.

MORE INFORMATION ABOUT INTERNATIONAL STUDENT SUPPORT SERVICES (<https://harrisburg.psu.edu/international-students-office/>)

Learning Center

The Learning Center provides tutoring to undergraduate and graduate students in quantitative courses (mathematics, science, business), writing, speeches and presentations, study skills, American and academic literacy. Our mission is to support students' self-management of academic and professional goals through collaboration, guidance, and practice in an environment of inclusive excellence.

MORE INFORMATION ABOUT THE LEARNING CENTER (<https://harrisburg.psu.edu/learning-center/>)

Library

This technologically advanced, academic research library includes 300,000 volumes and more than 200 print journals. The library also includes computer labs, multimedia production studios, classrooms, and a variety of study spaces.

MORE INFORMATION ABOUT THE LIBRARY (<https://libraries.psu.edu/harrisburg/>)

Recreation and Aquatics

The campus has a modern fitness facility that includes: a 5,000-square-foot cardio/weight room, a full-size gymnasium, racquetball courts, group exercise rooms, and a variety of equipment that can be signed out. The Aquatics Center offers class and recreational swimming options including lap and open swim hours.

MORE INFORMATION ABOUT RECREATION AND AQUATICS (<https://harrisburg.psu.edu/recreation-and-aquatics/>)

Research and Outreach

ORO serves as the primary point of contact for external grant submissions, providing assistance with budget preparation, ensuring grants meet sponsor requirements and submitting grants to sponsors on behalf of the University. Additionally, it develops and maintains

relationships with individuals and entities from the public, organizations and private sectors.

MORE INFORMATION ABOUT RESEARCH AND OUTREACH (<https://harrisburg.psu.edu/research-and-outreach/>)

Residence Life

Residence Life provides resources and activities to enhance the personal, physical, educational, and social development of campus residents.

MORE INFORMATION ABOUT RESIDENCE LIFE (<https://harrisburg.psu.edu/residence-life/>)

Student Disability Resources

The Student Disability Resources office provides students with disability accommodations to minimize the effects of their disabilities.

MORE INFORMATION ABOUT STUDENT DISABILITY RESOURCES (<https://harrisburg.psu.edu/student-disability-resources/>)

Student Engagement

The Office of Student Engagement is the place to #getengaged! It coordinates alternative spring break trips, the Multicultural Academic Excellence Program (MAEP), the Chancellors Leadership Access Student Program (CLASP), as well as making connections to organizations in the Capital Area to get students involved in the local community.

MORE INFORMATION ABOUT STUDENT ENGAGEMENT (<https://harrisburg.psu.edu/student-engagement/>)

Student Health Services

Assesses and treats student illnesses and provides wellness counseling and preventive health services. Clinician services are offered by appointment.

MORE INFORMATION ABOUT STUDENT HEALTH SERVICES (<https://harrisburg.psu.edu/student-health-services/>)

Student Life

More than 100 student clubs and organizations fit any interest, whether you're looking to get involved in service projects, join a fraternity or sorority, participate in decision-making for the college through Student Government, or join a club that will help you with your major or career goals.

MORE INFORMATION ABOUT STUDENT LIFE (<https://harrisburg.psu.edu/student-life/>)

University Police and Public Safety

The Department of University Police and Public Safety is staffed with sworn police officers and civilian personnel charged with the responsibility of providing a safe environment to the campus community. The police officers of the department enforce state laws as well as University rules and regulations.

MORE INFORMATION ABOUT UNIVERSITY POLICE AND PUBLIC SAFETY (<https://harrisburg.psu.edu/safety-police-services/>)

Honors Programs Schreyer Honors College

The Schreyer Honors College, regarded as one of the nation's top programs of its kind, promotes achieving academic excellence with

integrity, building a global perspective, and creating opportunities for leadership and civic engagement. Schreyer Scholars, including those admitted after their first or second year of enrollment, are a diverse and motivated group of approximately 2,000 students at University Park and 20 Commonwealth campuses. The College strives to educate students who will have an important and ethical influence in the world, to improve educational practice, and to continue to be recognized as a leading force in honors education nationwide.

MORE INFORMATION ABOUT THE SCHREYER HONORS COLLEGE
(<https://www.shc.psu.edu>)

Honors at Penn State Harrisburg

Penn State Harrisburg offers two honors programs for students who are highly motivated to achieve academic excellence and want more out of their college education. The two programs are the Capital College Honors Program and the University's Schreyer Honors College. Both programs provide students with special honors courses in a wide variety of disciplines, supervised research opportunities, and support for international travel and study abroad. The Honors Programs aim to build a learning community that provides unique learning experience for motivated students.

MORE INFORMATION ABOUT HONORS AT PENN STATE HARRISBURG
(<https://harrisburg.psu.edu/honors-program/>)

Contact

PENN STATE HARRISBURG
777 West Harrisburg Pike
Middletown, PA 17057
717-948-6000
hbgadmit@psu.edu

<https://harrisburg.psu.edu>

Accounting, B.S. (Capital)

Begin Campus: Any Penn State Campus

End Campus: Harrisburg, World Campus

Program Description

This major helps students prepare for careers in auditing and public accounting, industrial and managerial accounting, and in governmental and not-for-profit accounting. It also provides a sound background for students who plan to pursue graduate studies in accounting or related fields. Students who complete the prescribed courses and earn a Bachelor of Science degree will satisfy the academic requirements to sit for the Certified Public Accountant (CPA) examination. Graduates may also elect to pursue other professional certifications, including Certified Management Accountant (CMA), Certified Internal Auditor (CIA), Certified Fraud Examiner (CFE), and Certified Government Financial Manager (CGFM).

What is Accounting?

Accountants develop and interpret financial data required for decision-making by managers, investors, regulators, and other stakeholders. To perform their functions, accountants must work with both numerical information and concepts, and they must be able to function effectively as individuals and in teams. Accountants work with people in their own specialized departments, and with users of financial information

throughout their organization. Because of this close association with other parts of the organization, the accountant is in a unique position to develop a broad business perspective.

You Might Like This Program If...

- You are comfortable with numbers and interested in the messages and the information that they provide.
- You are organized and detail-oriented. You want to pursue a career in business or finance.

Entrance to Major

Entry to the Accounting major requires the completion of 8 entry-to-major courses: ACCTG 211¹, ECON 102, ENGL 15¹ or ENGL 30H¹, FIN 301, MATH 110¹ or MATH 140¹, MGMT 301, MKTG 301, SCM 200¹ or STAT 200¹; and a 2.00 or higher cumulative grade-point average.

¹ Course requires a grade of C or better.

Degree Requirements

For the Bachelor of Science degree in Accounting, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives (non-business courses)	8
Requirements for the Major	79

12 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GWS courses; 3 credits of GS courses; 6 credits of GQ courses.

Consistent with Senate policy, at least 24 credits of course work in the major and the capstone course must be completed in the respective College to earn the degree. No more than 60 credits should be from business and business-related courses.

Students wishing to fulfill the 150 credit-hour education option to become a CPA in Pennsylvania (which reduces the experience requirement for certification) are encouraged to enter Capital College's Master of Professional Accounting program, or the Master of Business Administration program, or the Master of Science in Information Systems program subsequent to receiving their undergraduate accounting degree.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
BA 364Y	International Business and Society	3
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
FIN 301	Corporation Finance	3
MGMT 301	Basic Management Concepts	3
MIS 204	Introduction to Management Information Systems	3

MIS 390	Information Systems Management and Applications	3
MKTG 301	Principles of Marketing	3
SCM 301	Supply Chain Management	3
<i>Prescribed Courses: Require a grade of C or better</i>		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
ACCTG 310	Federal Taxation I	3
ACCTG 340	Cost Accounting	3
ACCTG 403	Auditing	3
ACCTG 471	Intermediate Financial Accounting I	3
ACCTG 472	Intermediate Financial Accounting II	3
ACCTG 473	Advanced Financial Accounting	3
BA 462	Business Strategy	3
ENGL 202D	Effective Writing: Business Writing	3

Additional Courses

BA 241 & BA 242 or BA 243	Legal Environment of Business and Social and Ethical Environment of Business Social, Legal, and Ethical Environment of Business	4
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Additional Courses: Require a grade of C or better

MATH 110 or MATH 140	Techniques of Calculus I Calculus With Analytic Geometry I	4
SCM 200 or STAT 200	Introduction to Statistics for Business Elementary Statistics	4
Select 6 credits of the following:		6
ACCTG 410	Federal Taxation II	
ACCTG 431	Advanced Auditing	
ACCTG 432	Accounting Information Systems	
ACCTG 440	Advanced Management Accounting	
ACCTG 461	International Accounting	
ACCTG 462	Governmental and Not-for-Profit Accounting	
ACCTG 494	Research Project	
ACCTG 496	Independent Studies	
ACCTG 497	Special Topics	

Supporting Courses and Related Areas

Select 6 credits from 200 - 400 level business courses from: ACCTG, BA, ECON, FIN, MGMT, MKTG, or SCM in consultation with an academic adviser and in support of the student's interests

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- Quantification (GQ): 6 credits
- Writing and Speaking (GWS): 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- Arts (GA): 3 credits
- Health and Wellness (GHW): 3 credits
- Humanities (GH): 3 credits
- Social and Behavioral Sciences (GS): 3 credits
- Natural Sciences (GN): 3 credits

Integrative Studies

- Inter-Domain Courses (Inter-Domain): 6 credits

Exploration

- GN, may be completed with Inter-Domain courses: 3 credits
- GA, GH, GN, GS, Inter-Domain courses. This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or

within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Accounting and M.B.A. in Business Administration

Available at the following campuses: Harrisburg

Requirements for the Integrated B.S. in Accounting and M.B.A. in Business Administration can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/business-administration-capital/#integratedundergradgradprogramstext>).

Learning Outcomes

Student graduates of our baccalaureate degree programs should be:

1. Effective communicators.
 - a. Present verbally, thoughts and ideas in a way that can be clearly understood by a target audience.
 - b. Convey ideas in a clear, coherent manner in written communication.
2. Ethical and socially responsible.
 - a. Be competent in analyzing social and ethical decision making issues in organizations.
3. Critical thinkers.
 - a. Be able to think and identify multiple dimensions of company issues and performances and make an assessment of company performances in achieving financial and strategic objectives, tracking their achievements, and giving management of companies a more complete and balanced view of how the organization is performing.
4. Competent in all Accounting Disciplines.
 - a. Demonstrate competence in the preparation of financial accounting information.
 - b. Demonstrate competence in Cost Accounting.
 - c. Demonstrate competence in Tax Accounting.
 - d. Demonstrate competence in Auditing.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Harrisburg

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Accounting, B.S. at Harrisburg Campus and World Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 15S, 30T, or ESL 15 [†] #	3 CAS 100A or 100S [‡]	3
MATH 110 or 140 ^{**†}	4 STAT 200 or SCM 200 ^{*#†}	4

General Education Course	3 MGMT 301 [#]	3
ECON 102 [#]	3 General Education Course	3
General Education Course	3 General Education Course (GHW)	1.5
16		14.5

Second Year

Fall	Credits Spring	Credits
ACCTG 211 ^{*#}	4 FIN 301 [#]	3
MKTG 301 [#]	3 ENGL 202D [‡]	3
General Education Course	3 General Education Course	3
General Education Course	3 MIS 204 or 250	3
General Education Course	3 Non-Business Elective	3
16		15

Third Year

Fall	Credits Spring	Credits
ACCTG 340 [*]	3 ACCTG 310 [*]	3
ACCTG 471 [*]	3 ACCTG 472 [*]	3
BA 241	2 MIS 390	3
BA 242	2 Non-Business Elective	3
ECON 104	3 General Education Course	3
General Education Course (GHW)	1.5	
14.5		15

Fourth Year

Fall	Credits Spring	Credits
ACCTG 403 [*]	3 ACCTG 473 [*]	3
ACCTG Elective [*]	3 ACCTG Elective [*]	3
BA 364Y	3 BA 462 [*]	3
200-400 level Business course in consultation with adviser	3 200-400 level Business course in consultation with Adviser	3
Non-Business Elective	2 SCM 301	3
14		15

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes

- 30 credits of GA, GH, GN, GHW, GS to include 6 Integrative Studies Credits
- 15 credits of GQ and GWS require a grade of "C" or better

Program Notes

- Courses required for the major must generally be taken within 10 years of entrance to major.
- ACCTG 495 - Internship satisfies a business support requirement. For more information, contact the Accounting Program Coordinator.
- Student must complete a 3-credit course in "United State Cultures (US)" and a 3-credit course in "International Cultures (IL)." BA 364Y International Business and Society (US/IL) may be used to meet either the IL or US requirement but may be used to fulfill only 3 of the 6 credit requirement.

Career Paths

Because the Harrisburg area is the center of industry and economic development for south-central Pennsylvania, Penn State Harrisburg accounting students are provided with many opportunities to experience the world of business.

Careers

An accounting degree helps students prepare for careers in auditing and public accounting, industrial and managerial accounting, and in governmental and not-for-profit accounting. Students who complete the prescribed courses and earn a BS degree will satisfy the academic requirements to sit for the Certified Public Accountant (CPA) examination. Graduates may also elect to pursue other professional certifications, including Certified Management Accountant (CMA), Certified Internal Auditor (CIA), Certified Fraud Examiner (CFE), and Certified Government Financial Manager (CGFM).

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE ACCOUNTING PROGRAM (<https://harrisburg.psu.edu/business-administration/accounting-bs/>)

Opportunities for Graduate Studies

The Bachelor of Science in Accounting provides a sound background for students who plan to pursue graduate studies in accounting or related fields, including Penn State's Master of Professional Accounting.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://harrisburg.psu.edu/business-administration/accounting-bs/>)

Accreditation

The B.S. in Accounting offered by the School of Business Administration at Penn State Harrisburg, the Capital College, is accredited by AACSB International – The Association to Advance Collegiate Schools of Business. AACSB's mission is to foster engagement, accelerate innovation, and amplify impact in business education. Synonymous with the highest standards of excellence since 1916, AACSB provides quality assurance, business education intelligence, and professional development services to over 1,600 member organizations and more than 800 accredited business schools worldwide. AACSB International (AACSB) connects educators, students, and business to achieve a common goal: to create the next generation of great leaders.

MORE INFORMATION ABOUT AACSB INTERNATIONAL (<https://www.aacsb.edu/>)

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

Harrisburg

SCHOOL OF BUSINESS ADMINISTRATION
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Middletown, PA 17057
717-948-6139
cxs879@psu.edu

<https://harrisburg.psu.edu/business-administration/accounting-bs>
(<https://harrisburg.psu.edu/business-administration/accounting-bs/>)

Abington

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tw516@psu.edu

<https://www.abington.psu.edu/academics/majors-at-abington> (<https://www.abington.psu.edu/academics/majors-at-abington/>)

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<https://altoona.psu.edu/academics/bachelors-degrees/accounting>
(<https://altoona.psu.edu/academics/bachelors-degrees/accounting/>)

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<https://berks.psu.edu/academics/bs-accounting> (<https://berks.psu.edu/academics/bs-accounting/>)

World Campus

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-accounting-bachelor-of-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-accounting-bachelor-of-science-degree>)

www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-accounting-bachelor-of-science-degree/)

American Studies, B.A. (Capital)

Begin Campus: Any Penn State Campus

End Campus: Harrisburg

Program Description

This interdisciplinary major is designed to provide students with an integrated and critical knowledge of American culture, drawing on courses in American Studies and in the traditional disciplines and culminating in two senior seminars. A number of interests may be pursued within the major, including popular culture, art, technology, business, law, archives, museology, and conservation. The major helps prepare students for careers in business, teaching, government, and a number of other areas, and for enrollment in law and other professional programs.

What is American Studies?

American Studies examines the country's history in a way that emphasizes culture – literature, art & architecture, film, folklore, music, and media. While discovering America's past, students learn to think critically – to analyze and evaluate information; to write and speak clearly and expressively; and to conduct research.

You Might Like This Program If...

- You enjoy pop culture and wonder what social and historical forces helped shape it.
- You like making connections between history, society, economics, literature, film, and art.
- You want to understand the American experience beyond just what is relayed in a history text.
- You want to explore the experiences of women, minorities, and different ethnic and religious groups.
- You want to pursue a career in education, law, government, museums, cultural agencies, archives, public policy, or communications.

Entrance to Major

For entrance into the major, the following must be met:

1. At the end of the sophomore year, any student in good standing may gain entrance into the major without having completed specific courses.
2. Any student seeking entrance during the fifth semester will be granted entrance at the discretion of the American Studies Committee and/or Director following evaluation of the student's record.
3. Any student seeking entrance during or after the sixth semester will be expected to have completed at least 12 credits, which may be counted toward the major in American Studies.

Degree Requirements

For the Bachelor of Arts degree in American Studies, a minimum of 123 credits is required:

Requirement	Credits
General Education	45
Electives	21
Bachelor of Arts Degree Requirements	24
Requirements for the Major	33

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
AMST 491W	American Studies Perspectives	6
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
AMST 100 or AMST 100Y	Introduction to American Studies Introduction to American Studies	3
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 9 credits in each of two of the following areas and 6 credits in one other of the areas (include 12 credits at the 400 level distributed in at least two of the areas):		24
American literature		
American history		
American art, philosophy, and religion (humanities)		
American social sciences		

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Integrated B.A. in American Studies and M.A. in American Studies

Available at the following campuses: Harrisburg

Requirements for the Integrated B.A. in American Studies and M.A. in American Studies can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/american-studies/#integratedundergradprogramstext>).

Program Learning Objectives

- To advance the documentation and interpretation of the American experience, past and present, through research with a variety of evidence, including objects, still and moving images, practices and performances, and oral and written texts.
 - To examine multiple forms of evidence including objects, images, events, and texts to identify themes, ideas, patterns, scenes, and sources of American experience in a historical period, geographical and environmental area, or social and cultural group.
- To build on the intellectual legacy of American Studies as an interdisciplinary movement and emerging discipline with its own theories, methods, and applications.
 - To identify major movements and approaches in the study of the American experience and provide major scholarly bibliographic sources for those movements and approaches, and to discuss causes, consequences, contexts, and correlations of American practices and performances using American Studies methodology such as historical and geographical comparison, symbolic and systematic analysis, ethnography, and rhetorical and literary criticism.
- To prepare students for careers in American Studies by developing knowledge, skills, attitudes, and ethics that can be applied to work in schools, archives, museums, galleries, media organizations, and governmental, commercial, and cultural agencies.
 - To effectively communicate American Studies perspectives in scholarly and public writing, exhibition, community programming, oral presentation, and media presentation.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of

both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

American Studies, B.A. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 15S, 30T, or ESL 15 [†]	3 World Language level 2	4
Quantification (GQ)	3 General Education Course	3

General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course	3
World Language, level 1	4 General Education Course	3
14.5		16
Second Year		
Fall	Credits Spring	Credits
World Language level 3	4 AMST 100 or 100Y*	3
Quantification (GQ)	3 ENGL 202B [‡]	3
CAS 100A or 100S [‡]	3 General Education Course	3
General Education Course	3 General Education Course	3
Elective	3 Bachelor of Arts Requirement Knowledge Domain	3
General Education Course (GHW)	1.5	
17.5		15
Third Year		
Fall	Credits Spring	Credits
AMST Supporting Course*	3 AMST Supporting Course*	3
400-level AMST Supporting Course*	3 AMST Supporting Course*	3
General Education Course	3 400-level AMST Supporting Course*	3
Bachelor of Arts Requirement: World Cultures	3 Bachelor of Arts Requirement: Knowledge Domain	3
Bachelor of Arts Requirement: Knowledge Domain	3 Elective	3
15		15
Fourth Year		
Fall	Credits Spring	Credits
AMST 491W*	3 AMST 491W*	3
400-level AMST Supporting Course*	3 400-level AMST Supporting Course*	3
AMST Supporting Course*	3 Elective	3
Elective	3 Elective	3
Elective	3 Elective	2-3
15		14-15

Total Credits 122-123

- * Course requires a grade of C or better for the major
 ‡ Course requires a grade of C or better for General Education
 # Course is an Entrance to Major requirement
 † Course satisfies General Education and degree requirement

- ¹ ENGL 202B
 ENGL 202B is recommended for American Studies majors.
² AMST 491W
 Should be taken as two separate offerings.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Program Notes

A minimum of 123 credits are required for graduation.

Academic Advising Notes

- AM ST supporting courses are distributed among arts, history, humanities, literature, and social sciences courses containing at least 50% American content. Students take three courses each from two areas and two courses from a third.
- At least 12 of these credits are at the 400 level.
- ENGL 202B is recommended for American Studies majors.
- AM ST 491W is to be taken as two separate offerings.

Career Paths

The American Studies program benefits from Penn State Harrisburg's location in a capital region in close proximity to internationally known heritage sites such as the Gettysburg Battlefield, National Civil War Museum, and U.S. Army Heritage and Education Center. Harrisburg is also home to the Pennsylvania Historical and Museum Commission, the State Archives, and the State Museum.

Careers

American Studies majors at Penn State Harrisburg have opportunities to gain a core set of skills in writing, presentation, exhibition, website development, digital documentation, fieldwork and ethnography, and records and cultural resource management in addition to contextual knowledge of American culture, society, arts, and history that can be applied to a number of occupations, particularly in heritage, communications, education, and government sectors. At Penn State Harrisburg, certificates (heritage and museum practice, folklore and ethnography), internships, assistantships, professional workshops, career services, alumni interaction, social media, and online job postings serve to enhance the marketability of majors at various levels.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE AMERICAN STUDIES PROGRAM (<https://>

harrisburg.psu.edu/humanities/american-studies-ba/career-opportunities/

Opportunities for Graduate Studies

The American Studies major at Penn State Harrisburg prepares students for a variety of professions and to participate in the world as critical thinkers, clear communicators, and global citizens, including Penn State's Master of Arts in American Studies and the Doctor of Philosophy in American Studies programs.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://harrisburg.psu.edu/humanities/american-studies-ba/>)

Professional Resources

- American Studies Association (<https://www.theasa.net>)
- Popular Culture Association/American Culture Association (<https://pcaaca.org/>)
- American Folklore Society (<https://americanfolkloresociety.org/>)
- Pennsylvania Historical Association (<https://pa-history.org>)
- Pennsylvania German Society (<https://pgs.org/>)
- Pennsylvania Heritage Society (<https://www.paheritage.org/>)
- Pennsylvania Federation of Museums and Historical Organizations (<https://pamuseums.org>)

Contact

Harrisburg

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<https://harrisburg.psu.edu/humanities/american-studies-ba> (<https://harrisburg.psu.edu/humanities/american-studies-ba/>)

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<https://www.abington.psu.edu/academics/majors-at-abington/american-studies> (<https://www.abington.psu.edu/academics/majors-at-abington/american-studies/>)

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American Studies, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change

from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

This interdisciplinary minor is designed for students who want to complement their major program. American Studies is an interdisciplinary field that explores the patterns of life and thought of the American peoples, past and present. American Studies helps students prepare for further study or careers in education, government, business, science, communication, law, museums, historical and cultural agencies, and archives. Internships are available for qualified students in American Studies. The internship is an extension of the student's academic studies and is an opportunity to gain practical experience.

A student seeking admission to the American Studies Minor must first be admitted to a major at Penn State. Upon admission, a Minor Adviser will be appointed from within the American Studies faculty to guide the student. For the American Studies Minor, a total of 18 credits is required. At least 6 credits must be at the 400 level.

What is American Studies?

American Studies examines the country's history in a way that emphasizes culture – literature, art & architecture, film, folklore, music, and media. While discovering America's past, students learn to think critically – to analyze and evaluate information; to write and speak clearly and expressively; and to conduct research.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
AMST 491W	American Studies Perspectives	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
AMST 100 or AMST 100Y	Introduction to American Studies	3

Select 12 credits from any American Studies offerings (AMST) or from courses related to American Studies chosen from a list provided by the college. At least six of those credits must be at the 400 level. Substitutions must be approved by the American Studies Program head at the appropriate college.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Biobehavioral Health, B.S. (Capital)

Begin Campus: Any Penn State Campus

End Campus: Harrisburg

Program Description

This major provides interdisciplinary training designed to integrate biological, behavioral, and social science approaches to the study of human health and illness. Emphasis is placed on the study of physical health. The goal of this major is to help students gain working familiarity with multiple perspectives, approaches, and methods needed to address and solve problems of human health and illness. Students may select courses in the supporting courses category that will fulfill requirements for admission to graduate and professional programs. This major helps prepare graduates for entry-level jobs in a range of biomedical and health-related areas, including roles as research assistants, laboratory managers, biomedical product representatives, technical support positions in biomedical and health-related fields. This major also will provide excellent preparation for advanced study in natural and social science disciplines and related professional areas such as epidemiology, public health, environmental health and safety, and human services.

What is Biobehavioral Health?

Biobehavioral Health is the integrative scientific study of the many different factors (e.g., biology, psychology, environment) that affect health. The discipline focuses on how these different factors influence health and the development of interventions to improve health outcomes.

You Might Like This Program If...

- You are curious about all aspects of health.
- You want to understand the multiple and layered factors that influence health.
- You like to answer important questions by considering different perspectives, and you like to study information from many disciplines (e.g., biology, psychology, neuroscience, sociology, anthropology).
- You want to pursue a health-related career, whether it be in a laboratory, clinical practice, or consulting capacity.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Biobehavioral Health, a minimum of 121 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	97-99

21-22 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 3-4 credits of GQ courses; 9 credits of GN courses; 6 credits of GS courses; 3 credits of GHW courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned. BBH requires students to complete 24 credits for the major through courses taken at University Park, Greater Allegheny, New Kensington and through World Campus. For more information, check the Suggested Academic Plan for this major.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
NUTR 251	Introductory Principles of Nutrition	3
<i>Prescribed Courses: Require a grade of C or better</i>		
BBH 101	Introduction to Biobehavioral Health	3
BBH/AFAM 302	Diversity and Health	3
BBH 310	Research Strategies for Studying Biobehavioral Health	3
BBH 311	Interdisciplinary Integration in Biobehavioral Health	3
BBH 316	Foundations and Principles of Health Promotion	3
BBH 411W	Research and Applications in Biobehavioral Health	3
BBH/HPA 440	Principles of Epidemiology	3
BIOL 110	Biology: Basic Concepts and Biodiversity	4
BIOL 161	Human Anatomy and Physiology I - Lecture	3
BIOL 163	Human Anatomy and Physiology II - Lecture	3
PSYCH 100	Introductory Psychology	3
Additional Courses		
Select 3 credits from the following:		3
BBH 210	Biobehavioral Aspects of Genetics	
BIOL 133	Genetics and Evolution of the Human Species	
BIOL 222	Genetics	
Select 3 credits from the following:		3
BBH 301W	Values and Ethics in Biobehavioral Health Research and Practice	
PHIL 110	Philosophy of Science	
PHIL 132/ BIOET 100	Bioethics	
Select 9 credits from the following:		9
ANTH 21	Introductory Biological Anthropology	

ANTH 22	Humans as Primates
ANTH 216N	Sex and Evolution
BIOL 155	Introduction to the Biology of Aging
BIOL 162	Human Anatomy and Physiology I - Laboratory
BIOL 164	Human Anatomy and Physiology II - Laboratory
BIOL 220W	Biology: Populations and Communities
BIOL 230W	Biology: Molecules and Cells
BIOL 240W	Biology: Function and Development of Organisms
BIOL 409	Biology of Aging
BIOL 422	Advanced Genetics
BMB 211	Elementary Biochemistry
CHEM 110	Chemical Principles I
CHEM 111	Experimental Chemistry I
CHEM 112	Chemical Principles II
CHEM 113	Experimental Chemistry II
CHEM 130	Introduction to General, Organic, and Biochemistry
CHEM 202	Fundamentals of Organic Chemistry I or CHEM 211 (Organic Chemistry I)
CHEM 203	Fundamentals of Organic Chemistry II or CHEM 213 (Laboratory in Organic Chemistry)
CHEM 212	Organic Chemistry II
EARTH 100	Environment Earth
EARTH 100H	Environment Earth: Environment and Energy
EARTH 103N	Earth in the Future: Predicting Climate Change and Its Impacts Over the Next Century
EGEE/MATSE 101	Energy and the Environment
EGEE 101H	Energy and the Environment
EGEE 102	Energy Conservation for Environmental Protection
EGEE 102H	Energy Conservation for Environmental Protection
EMSC 101	Resource Wars
FDSC 404	Sensory Evaluation of Foods
FDSC 405	Food Engineering Principles
FDSC 406W	Physiology of Nutrition
FDSC 407	Food Toxins
FDSC 408	Food Microbiology
GEOG 110	Climates of the World
GEOG 110H	Climates of the World
GEOG 314	Biogeography and Global Ecology
MICRB 106	Elementary Microbiology
MICRB 107	Elementary Microbiology Laboratory
MICRB 201	Introductory Microbiology
MICRB 202	Introductory Microbiology Laboratory
PHYS 250	Introductory Physics I
PHYS 251	Introductory Physics II
PSYCH 260/ BBH 203	Neurological Bases of Human Behavior
PSYCH 460	Comparative Psychology
PSYCH 461	Advanced Conditioning and Learning
PSYCH 462	Physiological Psychology
PSYCH 464	Behavior Genetics
PSYCH 470	Abnormal Psychology
PSYCH 473	Behavior Modification

VBSC 211	The Immune System and Disease
VBSC 230	The Science of Poisons
VBSC 231	Introduction to Cancer Research and Medicine
Select 9 credits from the following: 9	
CSD 100	Vocal Health for Life
CSD 146	Introduction to Communication Sciences and Disorders
CSD 218	American Sign Language I
CSD 230	Introduction to Audiology
CSD 269	Deaf Culture
HDFS 229	Infant and Child Development
HDFS 239	Adolescent Development
HDFS 249N	Adult Development and Aging
HDFS/WMNST 250	Sexual Identity over the Life Span
HDFS 302A	Leadership and Technology Skills for Human Services Professionals A
HDFS 311	Human Development and Family Studies Interventions
HDFS 315	Family Development
HDFS 405	Gender and Social Development
HDFS 416/SOC 411	Racial and Ethnic Diversity and the American Family
HDFS 418	Family Relationships
HDFS 428	Infant Development
HDFS 429	Advanced Child Development
HDFS/SOC 431	Family Disorganization: Stress Points in the Contemporary Family
HDFS 433	Developmental Transition to Adulthood
HDFS 445/PSYCH 416	Development Throughout Adulthood
HPA 57	Consumer Choices in Health Care
HPA 101	Introduction to Health Services Organization
HPA 310	Health Care and Medical Needs
KINES 100	The Cultural and Behavioral Foundations of Kinesiology
KINES 101	The Biophysical Foundations of Kinesiology
KINES 203	Medical Terminology for Allied Health Professionals
KINES 356	Activity and Disease
KINES 358	Ergogenic Aids
NURS 401	Concepts of Health
NURS/BBH/WMNST 452	Women's Health Issues
NUTR 358	Assessment of Nutritional Status
NUTR 360	Nutrition Education and Behavior Change Theory
PSYCH 212	Introduction to Developmental Psychology
PSYCH 243	Introduction to Well-being and Positive Psychology
PSYCH 270	Introduction to Abnormal Psychology
Select 3 credits from the following: 3	
HDFS 129	Introduction to Human Development and Family Studies
HDFS 229	Infant and Child Development
HDFS 239	Adolescent Development

HDFS 249N	Adult Development and Aging
<i>Additional Courses: Require a grade of C or better</i>	
STAT 200	Elementary Statistics 3-4
or STAT 250	Introduction to Biostatistics
Select 3-4 credits from the following: 3-4	
BIOL 230W	Biology: Molecules and Cells
CHEM 101	Introductory Chemistry
CHEM 110	Chemical Principles I
CHEM 110H	Chemical Principles I - Honors
CHEM 130	Introduction to General, Organic, and Biochemistry
MICRB 106	Elementary Microbiology
Select 12 credits from the following (at least 6 credits must be at the 400 level): 12	
BBH 203/PSYCH 260	Neurological Bases of Human Behavior
BBH 251	Straight Talks I: Advanced Sexual Orientation/Gender Identity Peer Education
BBH/AFR 305	Introduction to Global Health Issues
BBH 315	Gender and Biobehavioral Health
BBH 324	HealthWorks Peer Education Training
BBH 325	Health Promotion Services Training
BBH 368	Neuroanatomy, Behavior, and Health
BBH 370	Environmental Health and Sustainability
BBH 390A	Preparation for Global Health Field Experience
BBH 402	African Health & Development
BBH 407	Global Health Equity
BBH 410	Developmental and Health Genetics
BBH 416	Health Promotion II: Planning, Implementation, and Evaluation
BBH 417	Advanced Applications in Health Promotion
BBH 432	Biobehavioral Aspects of Stress
BBH 446	Human Sexuality as a Health Concern
BBH 451	Pharmacological Influences on Health
BBH/WMNST 452	Women's Health Issues
BBH/WMNST 458	Critical Feminist Issues in Reproduction
BBH 468	Neuroanatomical Bases for Disorders of Behavior and Health
BBH/BIOL 469	Neurobiology
BBH/BIOL 470	Functional and Integrative Neuroscience
BBH 490	Introduction to Internship Experience

Supporting Courses and Related Areas

Select 3 credits in health promotion from approved list, in consultation with adviser 3	
Select 12 credits in University-wide offerings from approved list, in consultation with adviser (Students may apply 6 credits of ROTC.) 12	

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate

students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Biobehavioral Health and M.P.H. in Public Health

Requirements for the Integrated B.S. in Biobehavioral Health and M.P.H. in Public Health can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/public-health/#integratedundergradgradprogramstext>).

Program Learning Objectives

- **Health Factors:** Describe and understand the fundamental biological, behavioral, social, cultural and environmental processes that influence health and disease.
- **Disparity Mechanisms:** Explain how the fundamental processes underlying health and disease can interact to produce individual differences in health, and health disparities among groups.
- **Critical Evaluation of Research:** Critically evaluate current empirical research on health and disease, explaining implications and limitations to the lay public.
- **Application of Ethics:** Understand and apply ethical principles in the conduct of research and professional practice and in the analyses in implementations of health-related policies and programs.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Biobehavioral Health, B.S. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year		
Fall	Credits Spring	Credits
BBH 101 [*]	3 BIOL 161 ^{*†}	3
BIOL 110 ^{*†}	4 BIOL 162 (Recommended Basic Science) ⁴	1
ENGL 15, 15S, 30T, or ESL 15 [‡]	3 HDFS 129, 229, 239, or 249N [†]	3
PSYCH 100 [*]	3 Health and Developmental Science ¹	3
General Education Course (GH)	3 General Education Course (GA)	3
PSU First Year Seminar	1 General Education Course (GQ) [‡]	3
	17	16

Second Year		
Fall	Credits Spring	Credits
BBH 311 or 316 [*]	3 BBH 301W, PHIL 110, or PHIL 132 (Ethics)	3
BIOL 163 ^{*#}	3 BBH 316 or 311 [*]	3
BIOL 164 (Recommended Basic Science) ⁴	1 NUTR 251 [†]	3
STAT 200 or 250 ^{*††}	3-4 CAS 100A or 100S [‡]	3
Health and Developmental Science ¹	3 CHEM 101, 110, MICRB 106, or BIOL 230W ^{*2}	3-4
University-Wide Offerings ³	3	
	16-17	15-16

Third Year		
Fall	Credits Spring	Credits
ENGL 202A, 202B, 202C, or 202D (202A recommended) [‡]	3 BBH 310 [*]	3
Basic Science ⁴	3 BIOL 133, 222, or BBH 210 [†]	3
BBH Elective ^{*5}	3 General Education Course (GH)	3
BBH Elective ^{*5}	3 BBH Elective ^{*5}	3
Health and Developmental Science ¹	3 University-Wide Offerings ³	3
	15	15

Fourth Year		
Fall	Credits Spring	Credits
BBH 440 [*]	3 BBH 411W [*]	3
BBH Elective ^{*5}	3 General Education Course (GA)	3
Basic Science ⁴	3 Basic Science ⁴	3
Health Promotion ⁶	3 BBH Elective ^{*5}	3
University-Wide Offerings ³	3 University-Wide Offerings ³	3
	15	15

Total Credits 124-126

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Health and Developmental Science: CMAS 258, CMAS 466, CSD 100, CSD 146, CSD 218, CSD 230, CSD 269, HPA 57, HPA 101, HPA 310, HPA

- 410, HDFS 229, HDFS 239, HDFS 249, HDFS 250, HDFS 258, HDFS 302A, HDFS 311, HDFS 315, HDFS 405, HDFS 416, HDFS 418, HDFS 428, HDFS 429, HDFS 431, HDFS 433, HDFS 445, HDFS 468, KINES 100, KINES 101, KINES 141, KINES 180, KINES 203, KINES 233, KINES 321, KINES 356, KINES 358, KINES 426, KINES 428, NURS 203, NURS 251, NURS 225, NUTR 111, NUTR 358, NUTR 360, NUTR 425, NUTR 453, NUTR 456, NUTR 495, PSYCH 212, PSYCH 243, PSYCH 270, RPTM 100.
- ² CHEM 101 will no longer be offered at University Park. Students may take CHEM 130 instead of CHEM 101.
- ³ University-Wide Offerings: AIR 151, 152, 251, 252, 351, ARMY 101, 102, 203, 204, 301, 302, BBH 48, 148S, 390B, 494, 494H, 496, BIOL 162, 164, 400, 411, 496, BISC 2, 3, 4, BMB 211, 401 CHEM 111, 113, 202, 203, 210, 212, 213, CMAS 258, 465, 466, 493, CAS 203, 250, 253, 271, CED 152, 155 ECON 102, ECON 104 HDFS 465, 496, HHD 397, MICRB 107, 201, 202 NAVSC 101, 102, 204, 205, 311 PHYS 211, 212, 250, 251, PSYCH 221, 231, 238, 256, 494, 496 RHS 300, RHS 301, RHS 303, SOC 1, 3, 5, 30, 119, SPAN 1, 2, 3, 100B, (additional courses can be considered in consultation with a BBH adviser).
- ⁴ Basic Science: ANTH 21, ANTH 22, ANTH 216, ANTH 411, BMB 211, BIOL 155, BIOL 129, BIOL 162, BIOL 164, BIOL 220W, BIOL 230W, BIOL 240W, BIOL 422, BIOL 409, BIOL 475N, BIOL 479, CHEM 110, CHEM 111, CHEM 112, CHEM 113, CHEM 202 or CHEM 210, CHEM 203 or CHEM 213, CHEM 212, EARTH 100, EARTH 103N, EGEE 101, EGEE 102, EMSC 101, FDSC 404, FDSC 405, FDSC 406, FDSC 407, FDSC 408, GEOG 110, GEOG 314, GEOSC 10, KINES 202, MICRB 106, MICRB 107, MICRB 201, MICRB 202, PHYS 250, PHYS 251, PSYCH 260, PSYCH 460, PSYCH 461, PSYCH 462, PSYCH 464, PSYCH 470, PSYCH 473, VBSC 211, VBSC 230, VBSC 231.
- ⁵ BBH Elective: BBH 203, BBH 251, BBH 302, BBH 305, BBH 315, BBH 324, BBH 325 (only 3 credits of BBH 324 or 325 can be taken), BBH 368, BBH 390A, BBH 402, BBH 407, BBH 410, BBH 416, BBH 417, BBH 432, BBH 446, BBH 451, BBH 452, BBH 458, BBH 468, BBH 469, BBH 470, BBH 490.
- ⁶ Health Promotion: BBH 416, 417, 495, 497S, CAS 453, HDFS 401, 410, 414, 415, 440, 446, 450, 452, 453, 454, 455, HPA 401, 433, 450, KINES 403, 445, NURS 401, 464, PSYCH 441, 474.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes

LIMITATIONS ON SOURCE AND TIME FOR CREDIT ACQUISITION: Per Senate policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Most majors in Health and Human Development require students to complete up to 24 credits for the major through courses taken at University Park. Courses taken at other Penn State campuses may not be counted toward this 24 credit minimum.

Within the 30 credits of required General Education Domain courses, students must take 6 credits of **Integrative Studies courses** (Inter-domain or Linked courses). If you need additional clarification, consult with your academic adviser.

Career Paths

Students with a B.S. in Biobehavioral Health have been successful in establishing careers in a variety of fields. Four example areas of employment include: clinical professions in health care, biomedical and pharmaceutical research support, health advocacy and consulting, and public health. Advanced career tracks may require a graduate or professional degree. Students are encouraged to engage in practical learning experiences that complement formal classroom learning. These can include training at the University Health Services or a hospital, working in a research laboratory, and/or a health-related internship or travel experience. Several engaged learning experience programs available include: BBH Internship program, Global Health minor, BBH research laboratory assistant, Clinical Volunteer Training, and HealthWorks.

Careers

- Examples of careers that BBH graduates might pursue include:
- Clinic Professions in Health care: physician assistant, physician, pharmacist, nurse, health care support staff
- Biomedical and Pharmaceutical Research Support: laboratory manager, study coordinator, research assistant
- Health Advocacy and Consulting: health education specialist, social worker, genetic counselor
- Public Health: public and community health worker, epidemiologist, substance abuse, behavioral disorder, and mental health counselors

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE BIOBEHAVIORAL HEALTH PROGRAM (<https://hhd.psu.edu/bbh/undergraduate/internships-and-career-opportunities/career-areas-major/career-opportunities/>)

Opportunities for Graduate Studies

Depending on your career goals, BBH students might consider completing a graduate degree in biomedical, pharmaceutical or related health services research (e.g., M.S., Ph.D.), a clinical graduate program (e.g., M.D., D.O., P.A., Pharm. D.) or a professional degree in public health, health administration, social work, public policy or administration or law (e.g., M.P.H., M.H.A., M.S.W., M.P.A., M.P.P., J.D.)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://hhd.psu.edu/bbh/graduate/>)

Professional Resources

- Explore Health Careers (<https://explorehealthcareers.org/>)
- National Institutes of Health Postbaccalaureate Intramural Research Training Award (<https://www.training.nih.gov/research-training/pb/pb/>)
- American Academy of Physical Assistants - 5 Tips for Getting into PA School (<https://www.aapa.org/news-central/2014/06/5-tips-for-getting-into-pa-school/>)
- Accreditation Council for Genetic Counseling – List of Accredited Programs (<https://www.gceducation.org/students-volunteers/#program>)
- American Physical Therapy Association – List of Accredited Programs (<https://aptaapps.apta.org/accreditedschoolsdirectory/capedirectory.aspx>)
- American Occupational Therapy Association, Inc (<https://www.aota.org/>)
- Association of Schools and Programs of Public Health (<https://aspgh.org/student-journey/>)
- Honoring Diversity in BBH (<https://hhd.psu.edu/bbh/honoring-diversity/>)

Contact

Harrisburg

SCHOOL OF BEHAVIORAL SCIENCES AND EDUCATION
Olmsted Building W314
Middletown, PA 17057
717-948-6742
rlp26@psu.edu

<https://harrisburg.psu.edu/behavioral-sciences-education/biobehavioral-health-bs> (<https://harrisburg.psu.edu/behavioral-sciences-education/biobehavioral-health-bs/>)

Greater Allegheny

4000 University Drive
McKeesport, PA 15132
412-675-9140
GA-Academics@lists.psu.edu

<https://greaterallegheny.psu.edu/academics/degree-programs/biobehavioral-health> (<https://greaterallegheny.psu.edu/academics/degree-programs/biobehavioral-health/>)

Lehigh Valley

2809 Saucon Valley Road
Center Valley, PA 18034
610-285-5123
sab705@psu.edu

<https://lehighvalley.psu.edu/academics/degrees/biobehavioral-health> (<https://lehighvalley.psu.edu/academics/degrees/biobehavioral-health/>)

New Kensington

3550 Seventh Street Rd.
New Kensington, PA 15068
724-334-6719
pkm20@psu.edu

<https://newkensington.psu.edu/academics/4-year-biobehavioral-health> (<https://newkensington.psu.edu/academics/4-year-biobehavioral-health/>)

University Park

DEPARTMENT OF BIOBEHAVIORAL HEALTH
219 Biobehavioral Health Building
University Park, PA 16802
814-863-7256
pennstatebbh@psu.edu

<https://hhd.psu.edu/bbh> (<https://hhd.psu.edu/bbh/>)

World Campus

DEPARTMENT OF BIOBEHAVIORAL HEALTH
219 Biobehavioral Health Building
University Park, PA 16802
814-863-5949
mad193@psu.edu

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-biobehavioral-health-bachelor-of-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-biobehavioral-health-bachelor-of-science-degree/>)

Biology, B.S. (Capital)

Begin Campus: Any Penn State Campus

End Campus: Harrisburg

Program Description

Biology is the scientific study of life: the diversity and organization of organisms, from single-celled bacteria to multi-cellular plants and animals, including humans. These different levels of biological organization range from the molecules and cells that compose an organism, to the interacting organisms that make up an ecosystem. Hands-on experiences, from designing and conducting lab experiments to making field observations, using many different procedures and instruments, play an important role in gaining biological knowledge. Basic research in biology provides many benefits. Faculty in the Department of Biology at Penn State are exploring ways to cure neurological diseases, to conserve coral populations in tropical oceans, to discover more efficient ways to use plants for food and bioenergy, to develop vaccines for infectious diseases, and investigating many other facets of biology, all with the goal of positively impacting humans and the environment.

You Might Like This Program If...

- You are interested in learning about aspects of the biology of organisms that live on Earth.
- You enjoy a dynamic field of study, with new discoveries being made every day.
- You are interested in hands-on experiences, including courses with integrated laboratories and conducting research with faculty.
- You plan to pursue a career in biology research, education or outreach, or attend professional school in areas including medicine and dentistry.

Entrance To Major

In order to be eligible for entrance to the Biology major, a student must have:

1. attained at least a 2.00 cumulative grade point average;
2. completed BIOL 110, CHEM 110, MATH 140, and earned a grade of C or better in each of these courses; and
3. completed at least one of the following courses with a grade of C or better: BIOL 220W, BIOL 230W, or BIOL 240W.

Degree Requirements

For the Bachelor of Science degree in Biology, a minimum of 124 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	94

15 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
CHEM 111	Experimental Chemistry I	1
CHEM 113	Experimental Chemistry II	1
MATH 141	Calculus with Analytic Geometry II	4
<i>Prescribed Courses: Require a grade of C or better</i>		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
BIOL 220W	Biology: Populations and Communities	4
BIOL 230W	Biology: Molecules and Cells	4
BIOL 240W	Biology: Function and Development of Organisms	4
CHEM 110	Chemical Principles I	3
CHEM 112	Chemical Principles II	3
MATH 140	Calculus With Analytic Geometry I	4
Additional Courses		
Select one of the following:		8-12
PHYS 211 & PHYS 212 & PHYS 213 & PHYS 214	General Physics: Mechanics and General Physics: Electricity and Magnetism and General Physics: Fluids and Thermal Physics and General Physics: Wave Motion and Quantum Physics	
PHYS 250 & PHYS 251	Introductory Physics I and Introductory Physics II	
Select one of the following:		3-4
STAT 200	Elementary Statistics	
STAT 240	Introduction to Biometry	
STAT 250	Introduction to Biostatistics	

Requirements for the Option

Select an option	46-51
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Requirements for the Option

Ecology Option (46-51 credits)

Available at the following campuses: Altoona, Schuylkill, University Park

Code	Title	Credits
Prescribed Courses		
BIOL 463	General Ecology	3
Additional Courses		
STAT 462 or STAT 464	Applied Regression Analysis Applied Nonparametric Statistics	3
Select one of the following:		6-8
CHEM 202 & CHEM 203	Fundamentals of Organic Chemistry I and Fundamentals of Organic Chemistry II	
CHEM 210 & CHEM 212 & CHEM 213	Organic Chemistry I and Organic Chemistry II and Laboratory in Organic Chemistry	

Groups

Select a minimum of 15 credits of 400-level biology courses, with at least 6 credits from the Ecology group, 3 credits from the Evolution group, and 3 credits from the Practicum group. A maximum of 3 credits of BIOL 400, 494, 495, 496, and SC 295, 395, 495 may be used to fulfill 15 credits minimum in the 400-level biology course requirements.

Ecology Group:		
BIOL 406	Symbiosis	
BIOL 412	Ecology of Infectious Diseases	
BIOL 415	Ecotoxicology	
BIOL 417	Invertebrate Zoology	
BIOL 419	Ecological and Environmental Problem Solving	
BIOL/PPEM 425	Biology of Fungi	
BIOL 429	Animal Behavior	
BIOL 435	Ecology of Lakes and Streams	
BIOL 436	Population Ecology and Global Climate Change	
BIOL 438	Theoretical Population Ecology	
BIOL 444	Field Ecology	
BIOL 446	Physiological Ecology	
BIOL 450W	Experimental Field Biology	
BIOL 464	Sociobiology	
BIOL 474	Astrobiology	
BIOL 482	Coastal Biology	
BIOL 499A	Tropical Field Ecology	
Evolution Group:		
BIOL 405	Molecular Evolution	
BIOL 406	Symbiosis	
BIOL 411	Medical Embryology	
BIOL 414	Taxonomy of Seed Plants	
BIOL 417	Invertebrate Zoology	
BIOL 420	Paleobotany	
BIOL 421	Comparative Anatomy of Vertebrates	
BIOL 422	Advanced Genetics	

BIOL/PPEM 425	Biology of Fungi
BIOL 427	Evolution
BIOL 428	Population Genetics
BIOL 429	Animal Behavior
BIOL 432	Developmental Genetics
BIOL 433	Evolution of Vertebrates
BIOL 434	Pathobiology of Emerging Infectious Disease
BIOL 436	Population Ecology and Global Climate Change
BIOL 438	Theoretical Population Ecology
BIOL 439	Practical Bioinformatics
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 446	Physiological Ecology
BIOL 451	Biology of RNA
BIOL 460	Human Genetics
BIOL 463	General Ecology
BIOL 464	Sociobiology
BIOL 474	Astrobiology
BIOL 478	COMPARATIVE NEUROANATOMY
Practicum Group:	
BIOL 400	Teaching in Biology
BIOL 402W	Biological Experimental Design
BIOL 407	Plant Developmental Anatomy
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 419	Ecological and Environmental Problem Solving
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 433	Evolution of Vertebrates
BIOL 437	Histology
BIOL 439	Practical Bioinformatics
BIOL 444	Field Ecology
BIOL 450W	Experimental Field Biology
BIOL 461	Contemporary Issues in Science and Medicine
BIOL 473	Laboratory in Mammalian Physiology
BIOL 475N	
BIOL 478	COMPARATIVE NEUROANATOMY
BIOL 482	Coastal Biology
BIOL 494	Research Project
BIOL 495	Internship in Biology
BIOL 496	Independent Studies
BIOL 499A	Tropical Field Ecology
BIOTC 459	Plant Tissue Culture and Biotechnology
SC 295	Science Co-op Work Experience I
SC 395	Science Co-op Work Experience II
SC 495	Science Co-op Work Experience III

Supporting Courses and Related Areas

Select 17-24 credits from department list 17-24

General Biology Option (46-51 credits)

Available at the following campuses: Abington, Altoona, Beaver, Berks, Brandywine, Harrisburg, Lehigh Valley, Schuylkill, Scranton, University Park, York

Code	Title	Credits
Additional Courses		
Select one of the following:		6-8
CHEM 202 & CHEM 203	Fundamentals of Organic Chemistry I and Fundamentals of Organic Chemistry II	
CHEM 210 & CHEM 212	Organic Chemistry I and Organic Chemistry II	
CHEM 213	and Laboratory in Organic Chemistry	
Groups		
Select a minimum of 18 credits of 400-level biology courses, with at least 3 credits from each of the following groups (each course may be used to satisfy a requirement in only one group). Moreover, a maximum of 3 credits of BIOL 400, 494, 495, 496 and SC 295, 395, 495 may be used to fulfill the 18 credit minimum in the 400-level biology course requirements.		18
Plant and Fungi Group:		
BIOL 406	Symbiosis	
BIOL 407	Plant Developmental Anatomy	
BIOL 414	Taxonomy of Seed Plants	
BIOL 420	Paleobotany	
BIOL 424	Seeds of Change: The Uses of Plants	
BIOL/PPEM 425	Biology of Fungi	
BIOL 431	Reproductive Biology	
BIOL 441	Plant Physiology	
BIOL 444	Field Ecology	
BIOL 446	Physiological Ecology	
BIOL 448	Ecology of Plant Reproduction	
BIOL 451	Biology of RNA	
BIOL 482	Coastal Biology	
BIOL 499A	Tropical Field Ecology	
PPEM 427	Mycotoxins: Effects of Fungal Toxins on Human and Animal Health	
Evolution Group:		
BIOL 405	Molecular Evolution	
BIOL 406	Symbiosis	
BIOL 411	Medical Embryology	
BIOL 414	Taxonomy of Seed Plants	
BIOL 417	Invertebrate Zoology	
BIOL 420	Paleobotany	
BIOL 421	Comparative Anatomy of Vertebrates	
BIOL 422	Advanced Genetics	
BIOL/PPEM 425	Biology of Fungi	
BIOL 427	Evolution	
BIOL 428	Population Genetics	
BIOL 429	Animal Behavior	
BIOL 432	Developmental Genetics	
BIOL 433	Evolution of Vertebrates	
BIOL 434	Pathobiology of Emerging Infectious Disease	

BIOL 436	Population Ecology and Global Climate Change
BIOL 438	Theoretical Population Ecology
BIOL 439	Practical Bioinformatics
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 446	Physiological Ecology
BIOL 451	Biology of RNA
BIOL 460	Human Genetics
BIOL 463	General Ecology
BIOL 464	Sociobiology
BIOL 474	Astrobiology
BIOL 478	COMPARATIVE NEUROANATOMY
Genetics and Developmental Biology Group:	
BIOL 404	Cellular Mechanisms in Vertebrate Physiology
BIOL 405	Molecular Evolution
BIOL 407	Plant Developmental Anatomy
BIOL 411	Medical Embryology
BIOL 413	Cell Signaling and Regulation
BIOL 416	Biology of Cancer
BIOL 422	Advanced Genetics
BIOL 426	Developmental Neurobiology
BIOL 428	Population Genetics
BIOL 430	Developmental Biology
BIOL 431	Reproductive Biology
BIOL 432	Developmental Genetics
BIOL 439	Practical Bioinformatics
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 448	Ecology of Plant Reproduction
BIOL 451	Biology of RNA
BIOL 460	Human Genetics
BIOL 467	Molecular Basis of Neurological Diseases
BIOL 469	Neurobiology
MICRB 410	Principles of Immunology
Ecology Group:	
BIOL 406	Symbiosis
BIOL 412	Ecology of Infectious Diseases
BIOL 415	Ecotoxicology
BIOL 417	Invertebrate Zoology
BIOL 419	Ecological and Environmental Problem Solving
BIOL/PPEM 425	Biology of Fungi
BIOL 429	Animal Behavior
BIOL 435	Ecology of Lakes and Streams
BIOL 436	Population Ecology and Global Climate Change
BIOL 438	Theoretical Population Ecology
BIOL 444	Field Ecology
BIOL 446	Physiological Ecology
BIOL 450W	Experimental Field Biology
BIOL 463	General Ecology
BIOL 464	Sociobiology
BIOL 474	Astrobiology
BIOL 482	Coastal Biology
BIOL 499A	Tropical Field Ecology

Physiology Group:	
BIOL 404	Cellular Mechanisms in Vertebrate Physiology
BIOL 406	Symbiosis
BIOL 409	Biology of Aging
BIOL 411	Medical Embryology
BIOL 412	Ecology of Infectious Diseases
BIOL 413	Cell Signaling and Regulation
BIOL 415	Ecotoxicology
BIOL 416	Biology of Cancer
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 424	Seeds of Change: The Uses of Plants
BIOL 426	Developmental Neurobiology
BIOL 430	Developmental Biology
BIOL 431	Reproductive Biology
BIOL 432	Developmental Genetics
BIOL 437	Histology
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 446	Physiological Ecology
BIOL 460	Human Genetics
BIOL 469	Neurobiology
BIOL 470	Functional and Integrative Neuroscience
BIOL 472	Human Physiology
BIOL 478	COMPARATIVE NEUROANATOMY
BIOL 479	General Endocrinology
BIOL 482	Coastal Biology
Practicum Group:	
BIOL 400	Teaching in Biology
BIOL 402W	Biological Experimental Design
BIOL 407	Plant Developmental Anatomy
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 419	Ecological and Environmental Problem Solving
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 433	Evolution of Vertebrates
BIOL 437	Histology
BIOL 439	Practical Bioinformatics
BIOL 444	Field Ecology
BIOL 450W	Experimental Field Biology
BIOL 461	Contemporary Issues in Science and Medicine
BIOL 473	Laboratory in Mammalian Physiology
BIOL 475N	
BIOL 476	Advanced Human Anatomy - cadaver based
BIOL 478	COMPARATIVE NEUROANATOMY
BIOL 482	Coastal Biology
BIOL 494	Research Project
BIOL 495	Internship in Biology
BIOL 496	Independent Studies
BIOL 499A	Tropical Field Ecology
BIOTC 459	Plant Tissue Culture and Biotechnology

SC 295	Science Co-op Work Experience I
SC 395	Science Co-op Work Experience II
SC 495	Science Co-op Work Experience III

Supporting Courses and Related Areas

Select 20-27 credits from department list 20-27

Genetics and Developmental Biology Option (46-51 credits)

Available at the following campuses: Abington, Berks, Harrisburg, Schuylkill, University Park, York

Code	Title	Credits
Prescribed Courses		
BIOL 322	Genetic Analysis	3
BIOL 430	Developmental Biology	3
BMB 401	General Biochemistry	3
BMB 402	General Biochemistry	3
CHEM 210	Organic Chemistry I	3
CHEM 212	Organic Chemistry II	3
CHEM 213	Laboratory in Organic Chemistry	2

Additional Courses

Select 2-5 credits from the following: 2-5

MATH 220	Matrices
MATH 231	Calculus of Several Variables
MICRB 201	Introductory Microbiology
MICRB 202	Introductory Microbiology Laboratory

Groups

Select a minimum of 12 credits of 400-level courses, with at least 6 credits from the Genetics and Developmental Biology group, 3 credits from Evolution, and 3 credits from the Practicum group. A maximum of 3 credits of BIOL 400, 494, 495, 496 and SC 295, 395, 495 may be used to fulfill the 12 credit minimum in the 400-level biology course requirements.

Genetics and Developmental Biology Group:

BIOL 404	Cellular Mechanisms in Vertebrate Physiology	12
BIOL 405	Molecular Evolution	
BIOL 407	Plant Developmental Anatomy	
BIOL 411	Medical Embryology	
BIOL 413	Cell Signaling and Regulation	
BIOL 416	Biology of Cancer	
BIOL 422	Advanced Genetics	
BIOL 426	Developmental Neurobiology	
BIOL 428	Population Genetics	
BIOL 431	Reproductive Biology	
BIOL 432	Developmental Genetics	
BIOL 439	Practical Bioinformatics	
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms	
BIOL 448	Ecology of Plant Reproduction	
BIOL 451	Biology of RNA	
BIOL 460	Human Genetics	
BIOL 467	Molecular Basis of Neurological Diseases	
BIOL 469	Neurobiology	
BMB 400	Molecular Biology of the Gene	
or BMB 450	Microbial/Molecular Genetics	
or BMB 464	Molecular Medicine	

or BMB 484 Functional Genomics
or HORT 407 Plant Breeding
or MICRB 41 Principles of Immunology

Evolution Group:

BIOL 405	Molecular Evolution
BIOL 406	Symbiosis
BIOL 411	Medical Embryology
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 420	Paleobotany
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 427	Evolution
BIOL 428	Population Genetics
BIOL 429	Animal Behavior
BIOL 432	Developmental Genetics
BIOL 433	Evolution of Vertebrates
BIOL 434	Pathobiology of Emerging Infectious Disease
BIOL 436	Population Ecology and Global Climate Change
BIOL 438	Theoretical Population Ecology
BIOL 439	Practical Bioinformatics
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 446	Physiological Ecology
BIOL 451	Biology of RNA
BIOL 460	Human Genetics
BIOL 463	General Ecology
BIOL 464	Sociobiology
BIOL 474	Astrobiology
BIOL 478	COMPARATIVE NEUROANATOMY

Practicum Group:

BIOL 400	Teaching in Biology
BIOL 402W	Biological Experimental Design
BIOL 407	Plant Developmental Anatomy
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 419	Ecological and Environmental Problem Solving
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 433	Evolution of Vertebrates
BIOL 437	Histology
BIOL 439	Practical Bioinformatics
BIOL 444	Field Ecology
BIOL 450W	Experimental Field Biology
BIOL 461	Contemporary Issues in Science and Medicine
BIOL 473	Laboratory in Mammalian Physiology
BIOL 475N	
BIOL 478	COMPARATIVE NEUROANATOMY
BIOL 482	Coastal Biology

BIOL 494	Research Project
BIOL 495	Internship in Biology
BIOL 496	Independent Studies
BIOL 499A	Tropical Field Ecology
SC 295	Science Co-op Work Experience I
SC 395	Science Co-op Work Experience II
SC 495	Science Co-op Work Experience III

Supporting Courses and Related Areas

Select 9-17 credits from department list 9-17

Neuroscience Option (46-51 credits)

Available at the following campuses: University Park

Code	Title	Credits
Prescribed Courses		
BIOL 469	Neurobiology	3
BMB 401	General Biochemistry	3
BMB 402	General Biochemistry	3
CHEM 210	Organic Chemistry I	3
CHEM 212	Organic Chemistry II	3
CHEM 213	Laboratory in Organic Chemistry	2

Additional Courses

Select 3 credits from the following: 3

BIOL 426	Developmental Neurobiology
BIOL 470	Functional and Integrative Neuroscience
BIOL 478	COMPARATIVE NEUROANATOMY

Groups

Select a minimum of 12 credits of 400-level biology courses, with at least 6 credits from the Neuroscience group, 3 credits from the Evolution group, and 3 credits from the Practicum Group. A maximum of 3 credits of BIOL 400, 494, 495, 496 and SC 295, 395, 495 may be used to fulfill the 12 credit minimum in the 400-level biology course requirements. 12

Neuroscience Group:

BIOL 404	Cellular Mechanisms in Vertebrate Physiology
BIOL 413	Cell Signaling and Regulation
BIOL 424	Seeds of Change: The Uses of Plants
BIOL 426	Developmental Neurobiology
BIOL 430	Developmental Biology
BIOL 437	Histology
BIOL 467	Molecular Basis of Neurological Diseases
BIOL 470	Functional and Integrative Neuroscience
BIOL 472	Human Physiology
BIOL 473	Laboratory in Mammalian Physiology
BIOL 478	COMPARATIVE NEUROANATOMY
BIOL 479	General Endocrinology
BBH 432	Biobehavioral Aspects of Stress
or BBH 451	Pharmacological Influences on Health
or BBH 468	Neuroanatomical Bases for Disorders of Behavior and Health
or HDFS 468	
or NUTR 445	Energy and Macronutrient Metabolism
or PSYCH 45	Learning and Memory
or PSYCH 46	Physiological Psychology

or PSYCH 47 Clinical Neuropsychology

Evolution Group:

BIOL 405	Molecular Evolution
BIOL 406	Symbiosis
BIOL 411	Medical Embryology
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 420	Paleobotany
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 427	Evolution
BIOL 428	Population Genetics
BIOL 429	Animal Behavior
BIOL 432	Developmental Genetics
BIOL 433	Evolution of Vertebrates
BIOL 434	Pathobiology of Emerging Infectious Disease
BIOL 436	Population Ecology and Global Climate Change
BIOL 438	Theoretical Population Ecology
BIOL 439	Practical Bioinformatics
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 446	Physiological Ecology
BIOL 451	Biology of RNA
BIOL 460	Human Genetics
BIOL 463	General Ecology
BIOL 464	Sociobiology
BIOL 474	Astrobiology
BIOL 478	COMPARATIVE NEUROANATOMY

Practicum Group:

BIOL 400	Teaching in Biology
BIOL 402W	Biological Experimental Design
BIOL 407	Plant Developmental Anatomy
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 419	Ecological and Environmental Problem Solving
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 433	Evolution of Vertebrates
BIOL 437	Histology
BIOL 439	Practical Bioinformatics
BIOL 444	Field Ecology
BIOL 450W	Experimental Field Biology
BIOL 461	Contemporary Issues in Science and Medicine
BIOL 473	Laboratory in Mammalian Physiology
BIOL 475N	
BIOL 478	COMPARATIVE NEUROANATOMY
BIOL 482	Coastal Biology
BIOL 494	Research Project
BIOL 495	Internship in Biology

BIOL 496	Independent Studies
BIOL 499A	Tropical Field Ecology
BIOTC 459	Plant Tissue Culture and Biotechnology
SC 295	Science Co-op Work Experience I
SC 395	Science Co-op Work Experience II
SC 495	Science Co-op Work Experience III

Supporting Courses and Related Areas

Select 14-19 credits from department list 14-19

Plant Biology Option (46-51 credits)

Available at the following campuses: University Park

Code	Title	Credits
Prescribed Courses		
BIOL 407	Plant Developmental Anatomy	3
BIOL 441	Plant Physiology	3
BMB 401	General Biochemistry	3
BMB 402	General Biochemistry	3
CHEM 210	Organic Chemistry I	3
CHEM 212	Organic Chemistry II	3
CHEM 213	Laboratory in Organic Chemistry	2

Additional Courses*Groups*

Select a minimum of 12 credits of 400-level biology courses, with at least 6 credits from the Plant and Fungi group, 3 credits from the Evolution group, and 3 credits from the Practicum group. A maximum of 3 credits of BIOL 400, 494, 495, 496 and SC 295, 395, 495 may be used to fulfill the 12 credit minimum in the 400-level biology course requirements. 12

Plant and Fungi Group:

BIOL 406	Symbiosis
BIOL 414	Taxonomy of Seed Plants
BIOL 420	Paleobotany
BIOL 424	Seeds of Change: The Uses of Plants
BIOL/PPEM 425	Biology of Fungi
BIOL 431	Reproductive Biology
BIOL 444	Field Ecology
BIOL 446	Physiological Ecology
BIOL 448	Ecology of Plant Reproduction
BIOL 451	Biology of RNA
BIOL 482	Coastal Biology
BIOL 499A	Tropical Field Ecology

Evolution Group:

BIOL 405	Molecular Evolution
BIOL 406	Symbiosis
BIOL 411	Medical Embryology
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 420	Paleobotany
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi

BIOL 427	Evolution
BIOL 428	Population Genetics
BIOL 429	Animal Behavior
BIOL 432	Developmental Genetics
BIOL 433	Evolution of Vertebrates
BIOL 434	Pathobiology of Emerging Infectious Disease
BIOL 436	Population Ecology and Global Climate Change
BIOL 438	Theoretical Population Ecology
BIOL 439	Practical Bioinformatics
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 446	Physiological Ecology
BIOL 451	Biology of RNA
BIOL 460	Human Genetics
BIOL 463	General Ecology
BIOL 464	Sociobiology
BIOL 474	Astrobiology
BIOL 478	COMPARATIVE NEUROANATOMY

Practicum Group:

BIOL 400	Teaching in Biology
BIOL 402W	Biological Experimental Design
BIOL 407	Plant Developmental Anatomy
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 419	Ecological and Environmental Problem Solving
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 433	Evolution of Vertebrates
BIOL 437	Histology
BIOL 439	Practical Bioinformatics
BIOL 444	Field Ecology
BIOL 450W	Experimental Field Biology
BIOL 461	Contemporary Issues in Science and Medicine
BIOL 473	Laboratory in Mammalian Physiology
BIOL 475N	
BIOL 478	COMPARATIVE NEUROANATOMY
BIOL 482	Coastal Biology
BIOL 494	Research Project
BIOL 495	Internship in Biology
BIOL 496	Independent Studies
BIOL 499A	Tropical Field Ecology
BIOTC 459	Plant Tissue Culture and Biotechnology
SC 295	Science Co-op Work Experience I
SC 395	Science Co-op Work Experience II
SC 495	Science Co-op Work Experience III

Supporting Courses and Related Areas

Select 14-19 credits from department list 14-19

Vertebrate Physiology Option (46-51 credits)

Available at the following campuses: Abington, Altoona, Brandywine, Schuylkill, University Park

Code	Title	Credits
Prescribed Courses		
BIOL 472	Human Physiology	3
BIOL 473	Laboratory in Mammalian Physiology	2
BMB 401	General Biochemistry	3
BMB 402	General Biochemistry	3
CHEM 210	Organic Chemistry I	3
CHEM 212	Organic Chemistry II	3
CHEM 213	Laboratory in Organic Chemistry	2
Additional Courses		
<i>Groups</i>		
Select a minimum of 12 credits of 400-level courses, with at least 6 credits from the Physiology group, 3 credits from the Evolution group, and 3 credits from the Practicum group. A maximum of 3 credits of BIOL 400, 494, 495, 496 and SC 295, 395, 495 may be used to fulfill the 12 credit minimum in the 400-level biology course requirements.	12	
Physiology Group:		
BIOL 404	Cellular Mechanisms in Vertebrate Physiology	
BIOL 406	Symbiosis	
BIOL 409	Biology of Aging	
BIOL 411	Medical Embryology	
BIOL 412	Ecology of Infectious Diseases	
BIOL 413	Cell Signaling and Regulation	
BIOL 415	Ecotoxicology	
BIOL 416	Biology of Cancer	
BIOL 421	Comparative Anatomy of Vertebrates	
BIOL 424	Seeds of Change: The Uses of Plants	
BIOL 426	Developmental Neurobiology	
BIOL 430	Developmental Biology	
BIOL 431	Reproductive Biology	
BIOL 432	Developmental Genetics	
BIOL 437	Histology	
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms	
BIOL 446	Physiological Ecology	
BIOL 460	Human Genetics	
BIOL 469	Neurobiology	
BIOL 470	Functional and Integrative Neuroscience	
BIOL 478	COMPARATIVE NEUROANATOMY	
BIOL 479	General Endocrinology	
BIOL 482	Coastal Biology	
ANSC 431	Physiology of Animal Reproduction	
	or ANTH 466 The Skull	
	or BMB 484 Functional Genomics	
	or ENT 402W Biology of Animal Parasites	
	or MICRB 40 Microbial Physiology and Structure	
	or MICRB 41 Principles of Immunology	
	or MICRB 41 Medical Microbiology	
	or MICRB 43 Viral Pathogenesis	
	or PSYCH 46 Physiological Psychology	
Evolution Group:		
BIOL 405	Molecular Evolution	
BIOL 406	Symbiosis	
BIOL 411	Medical Embryology	

BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 420	Paleobotany
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 427	Evolution
BIOL 428	Population Genetics
BIOL 429	Animal Behavior
BIOL 432	Developmental Genetics
BIOL 433	Evolution of Vertebrates
BIOL 434	Pathobiology of Emerging Infectious Disease
BIOL 436	Population Ecology and Global Climate Change
BIOL 438	Theoretical Population Ecology
BIOL 439	Practical Bioinformatics
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 446	Physiological Ecology
BIOL 451	Biology of RNA
BIOL 460	Human Genetics
BIOL 463	General Ecology
BIOL 464	Sociobiology
BIOL 474	Astrobiology
BIOL 478	COMPARATIVE NEUROANATOMY
Practicum Group:	
BIOL 400	Teaching in Biology
BIOL 402W	Biological Experimental Design
BIOL 407	Plant Developmental Anatomy
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 419	Ecological and Environmental Problem Solving
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 433	Evolution of Vertebrates
BIOL 437	Histology
BIOL 439	Practical Bioinformatics
BIOL 444	Field Ecology
BIOL 448	Ecology of Plant Reproduction
BIOL 450W	Experimental Field Biology
BIOL 461	Contemporary Issues in Science and Medicine
BIOL 473	Laboratory in Mammalian Physiology
BIOL 475N	
BIOL 476	Advanced Human Anatomy - cadaver based
BIOL 478	COMPARATIVE NEUROANATOMY
BIOL 482	Coastal Biology
BIOL 494	Research Project
BIOL 495	Internship in Biology
BIOL 496	Independent Studies
BIOL 499A	Tropical Field Ecology
BIOTC 459	Plant Tissue Culture and Biotechnology

SC 295	Science Co-op Work Experience I	
SC 395	Science Co-op Work Experience II	
SC 495	Science Co-op Work Experience III	
Supporting Courses and Related Areas		
Select 15-20 credits from department list		15-20

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Outcomes

1. Students will be able to describe how heritable changes can lead to differences in populations over time that might result in speciation; trace energy/matter transformation, storage, and mobilization; explain how information is exchanged and stored; recognize how changes in biological structures can have varying effects on function; and/or describe the interactions and interconnections among systems across biological scales and over evolutionary time scales.
2. Students will be able to apply the elements of the process of science such as posing questions, generating novel hypotheses based on the scientific literature; developing appropriate technical skills for research; designing/conducting experiments to test hypotheses in laboratory and/or field settings; summarizing/interpreting data; integrating/evaluating findings in the broader scientific field to construct new knowledge; and/or participating in the peer review/revision process.
3. Students will be able to discriminate among scientific claims presented in a variety of sources based on the strength of evidence; find appropriate published scientific literature; and/or analyze and critically evaluate data/conclusions from the scientific peer-reviewed literature.
4. Students will be able to apply basic quantitative competencies such as algebra, probability, statistics, unit conversions, and fundamental biological equations; organize, summarize, and interpret quantitative data; use modeling/simulation to approach problems from across various scales; and/or find and analyze large databases using statistical methods and/or other approaches.
5. Students will be able to integrate knowledge among biological subfields and between biology and other disciplines.
6. Students will be able to engage with diverse communities and leverage the skills in the community to pose and solve biological questions; demonstrate the ability to work in teams to solve

biological problems; and/or communicate in a variety of formal and informal ways in the discussion of biological research.

- Students will explore the impacts of scientific research on society and the environment and how society influences/relies on research to inform decision-making; evaluate the ethical implications of biological research; recognize ethical issues in a variety of settings; and/or describe how different perspectives and the resulting alternative approaches might be evaluated using ethical principles to identify a solution to an issue.
- Students will be able to communicate in a professional manner and learn/use professional behaviors in all aspects of college and career building activities, including participation in opportunities such as research, internships, cooperative education, teaching and tutoring, study abroad, and/or volunteer work.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

General Biology Option: Biology, B.S. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110 ^{*#}	4 BIOL 220W, 230W, or 240W ^{*#}	4
CHEM 110 ^{*#†}	3 CHEM 112 ^{*†}	3
CHEM 111 [†]	1 CHEM 113 [†]	1
ENGL 15, 15S, 30T, or ESL 15 [‡]	3 MATH 141 ^{††}	4
MATH 140 ^{*†#†}	4 General Education Course	3
	15	15

Second Year

Fall	Credits Spring	Credits
BIOL 220W, 230W, or 240W ^{*#}	4 BIOL 220W, 230W, or 240W ^{*#}	4
CHEM 210	3 CHEM 212	3
STAT 200	4 CHEM 213	2
General Education Course	3 CAS 100A or 100S [‡]	3
Supporting course (consult with an academic adviser for options)	3 General Education Course	3
	17	15

Third Year

Fall	Credits Spring	Credits
BIOL 4XX	3 BIOL 4XX	3
Supporting Course	3 PHYS 251 (consult with an academic adviser for options)	4
General Education Course	3 Supporting Course (consult with an academic adviser for options)	3
PHYS 250 (consult with academic adviser for alternative options) [†]	4 Supporting Course (consult with an academic adviser for options)	3
Supporting course (consult with an academic adviser for options)	3 General Education Course	3
	16	16

Fourth Year

Fall	Credits Spring	Credits
BIOL 4XX	3 BIOL 4XX	3
BIOL 4XX	3 BIOL 4XX	3

ENGL 202A, 202B, 202C, or 202D [‡]	3 General Education Course	3
General Education Course	3 Supporting Course (consult with an academic adviser for options)	3
Supporting Course (consult with an academic adviser for options)	3 Supporting Course (consult with an academic adviser for options)	3
	15	15

Total Credits 124

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

Be aware that most 400 level biology courses are taught only in one semester and over time, the semester offering can change.

Genetics and Developmental Biology Option: Biology, B.S. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110 ^{*#}	4 BIOL 220W, 230W, or 240W ^{*#}	4
CHEM 110 ^{*#†}	3 CHEM 112 ^{*†}	3
CHEM 111 [†]	1 CHEM 113 [†]	1
ENGL 15, 15S, 30T, or ESL 15 [†]	3 MATH 141 ^{††}	4
MATH 140 ^{*†#†}	4 General Education Course	3
	15	15

Second Year

Fall	Credits Spring	Credits
BIOL 220W, 230W, or 240W ^{*#}	4 BIOL 220W, 230W, or 240W ^{*#}	4
CHEM 210	3 CHEM 212	3
MICRB 201 (consult with an academic adviser for alternative options)	3 CHEM 213	2
General Education Course	3 BIOL 322	3
General Education Course	3 CAS 100A or 100S [‡]	3
	16	15

Third Year

Fall	Credits Spring	Credits
BIOL 430	3 BMB 402	3
BMB 401	3 PHYS 251	4
PHYS 250 (consult with an academic adviser for alternative options) [†]	4 STAT 200 [†]	4
General Education Course	3 General Education Course	3
Supporting course (consult with an academic adviser for options)	3 Supporting course (consult with an academic adviser for options)	3
	16	17

Fourth Year

Fall	Credits Spring	Credits
BIOL 4XX	3 BIOL 4XX	3
BIOL 4XX	3 BIOL 4XX	3
ENGL 202A, 202B, or 202C [‡]	3 General Education Course	3
General Education Course	3 Supporting course (consult with an academic adviser for options)	3
Supporting course (consult with an academic adviser for options)	3 Supporting course (consult with an academic adviser for options)	3
	15	15

Total Credits 124

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Additional Notes:

Scheduling patterns for courses not taught each semester:

- Fall only: MICRB 201, BIOL 430, BMB 401.
- Spring only: BIOL 322, BMB 402, CHEM 212, CHEM 213.

Program Notes:

Be aware that most 400 level Biology courses are taught only in one semester and over time, the semester offering can change.

Career Paths

A Biology BS degree provides an excellent foundation and the skills required for a wide range of technical careers. While many majors use a Biology degree to prepare for entrance into health professional schools, others follow career paths in research, education, and business. Students also pursue graduate study at universities both across the U.S. and internationally.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE BIOLOGY PROGRAM (<https://science.psu.edu/bio/undergrad/after-graduation/>)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://science.psu.edu/bio/grad/>)

Contact

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(<https://harrisburg.psu.edu/science-engineering-technology/biology-bs/>)

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<https://www.york.psu.edu/academics/baccalaureate/biology> (<https://www.york.psu.edu/academics/baccalaureate/biology/>)

Business Administration, A.S. (Capital)

Begin Campus: Harrisburg

End Campus: Harrisburg

Program Description

The associate degree program in Business Administration provides an introductory foundation to core aspects of the business environment that prepares graduates for future baccalaureate study in business or for direct entry into the work place. The primary objective of this major is to provide a business-oriented program with sufficient communicative and mathematical skills, socially relevant course work, and specific business specialties to develop a well-rounded and knowledgeable graduate.

Students should work closely with academic advisers to schedule coursework required to transition to baccalaureate business programs.

What is Business Administration?

To be successful in today's increasingly complex business world, you need to have a broad understanding of how business works. The Penn State Associate degree in Business Administration prepares students for a professional career in today's business environment. The degree offers students a managerially-oriented program emphasizing communication and mathematical skills, socially relevant course work, and advanced courses in business. While Penn State's Associate in Science in Business Administration is an excellent stand-alone credential, it can be used to

seamlessly transition to a bachelor's degree such as the Bachelor of Science in Business or other business-related programs at the University.

You Might Like This Program If...

- You want to learn to use the latest technical business tools to perform your job duties effectively.
- You analyze and react to issues facing companies today.
- You collect and analyze data to make inferences and solve business problems.
- You need to execute effective communication strategies.

Entrance to Major

Students must have a minimum 2.0 GPA to change to this Associate degree after admission to the University.

Degree Requirements

For the Associate in Science degree in Business Administration, a minimum of 60 credits is required:

Requirement	Credits
General Education	21
Requirements for the Major	48-50

9 of the 21 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GQ General Education courses and 6 credits of GWS General Education courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
CAS 100	Effective Speech	3
MIS 204	Introduction to Management Information Systems	3
<i>Prescribed Courses: Require a grade of C or better</i>		
ENGL 202D	Effective Writing: Business Writing	3
Additional Courses		
BA 241 & BA 242 or BA 243	Legal Environment of Business and Social and Ethical Environment of Business Social, Legal, and Ethical Environment of Business	4
ECON 102 or ECON 104	Introductory Microeconomic Analysis and Policy Introductory Macroeconomic Analysis and Policy	3
SCM 200 or STAT 200	Introduction to Statistics for Business Elementary Statistics	4
Select one of the following:		3-4
MATH 21	College Algebra with Analytic Geometry with Applications I	
MATH 22	College Algebra With Analytic Geometry and Applications II	
MATH 110	Techniques of Calculus I	

Additional Courses: Require a grade of C or better

ENGL 15 or ENGL 30H	Rhetoric and Composition Honors Rhetoric and Composition	3
MGMT 301 or MGMT 301W	Basic Management Concepts Basic Management Concepts	3
MKTG 301 or MKTG 301W	Principles of Marketing Principles of Marketing	3

Supporting Courses and Related Areas

Select 12-13 credits of the following:		12-13
BA 100	Introduction to Business	
BA 250	Small Business Management	
BA 364Y	International Business and Society	
CAS 250 or CAS 252	Small Group Communication Business and Professional Communication	
CAS 352	Organizational Communication	
IB 303	International Business Operations	
MATH 22	College Algebra With Analytic Geometry and Applications II	
MATH 110	Techniques of Calculus I	
ACCTG 300 to ACCTG 399		
ECON 100 to ECON 399		
ENTR 100 to ENTR 399		
FIN 100 to FIN 399		
HPA 100 to HPA 399		
LER 100 to LER 399		
MGMT 100 to MGMT 399		
MKTG 100 to MKTG 399		
MIS 100 to MIS 399		
RM 100 to RM 399		
SCM 200 to SCM 399		

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all associate degree students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 3 credits
- **Writing and Speaking (GWS):** 3 credits

Knowledge Domains

- **Arts (GA):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Note: Up to six credits of Inter-Domain courses may be used for any Knowledge Domain requirement, but when a course may be used to satisfy more than one requirement, the credits from the course can be counted only once.

Exploration

- **Any General Education course (including GHW and Inter-Domain):** 3 credits

University Degree Requirements

Cultures Requirement

3 credits of United States (US) or International (IL) cultures coursework are required and may satisfy other requirements

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 60 degree credits must be earned for a associates degree. The requirements for some programs may exceed 60 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Business Administration, A.S. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ECON 102 or 104	3 MGMT 301 or 301W*	3
ENGL 15, 15S, 30T, or ESL 15 [†]	3 CAS 100A or 100S [‡]	3
MATH 21, 22, or 110 ^{††}	3-4 MIS 204 or 250	3
General Education Course	3 General Education Course	3
General Education Course	3 Supporting Course	3
15-16		15

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 BA 242	2
BA 241	2 BA 364Y [†]	3
ENGL 202D ^{*†}	3 General Education Course	3
MKTG 301 or 301W*	3 SCM 200 or STAT 200	4
Supporting Course	3 Supporting Course	3
15		15

Total Credits 60-61

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

ADVISING Notes

- Courses required for the major must generally be taken within 10 years of entrance to the major.
- Students planning to re-enroll into a baccalaureate degree in Business should consider courses such as ECON 102/104 and MATH 110.
- Students are advised to schedule BA 364Y to satisfy the "W" and "United States Cultures (US)" or "International Cultures (IL)."

Supporting courses

- Select 12-13 credits from: BA100(3); BA 250(3); BA 364Y(3); CAS 250(3) or CAS 252(3); CAS 352(3); MATH 22 GQ(3); MATH 110 GQ(4); ACCTG 300 to 399 (3); ECON 100 to ECON 399(3); ENTR 100 to 399(3); FIN 100 to 399(3); HPA 100 to 399(3); IB 303IL(3); LER 100 to 399(3); MGMT 100 to 399(3); MKTG 100 to 399(3); MIS 100 to 399(3); RM 100 to 399(3); or SCM 200 to 399(3)

Career Paths

Business impacts our society in many ways. Every business, from small companies to large corporations provide employment options. The associate in business degree can help prepare you for a wide variety of entry-level careers in this sector or for continued study in business. You will have the opportunity to participate in an elective business internship as part of your curriculum. Internships provide valuable experience before graduation and an important first step toward starting your career.

Careers

Because the Associate in Science in Business Administration can give you a foundation of business concepts and best practices relevant to any industry, as a graduate of the program you can prepare for positions in accounting departments, management trainee opportunities, retail, insurance industry, industrial management opportunities, office manager, or business service manager. Some examples of jobs include:

- Accounting Specialist
- Accounts Examiner
- Appraisers and assessors of real estate
- Assistant Marketing Director
- Assistant Store Manager
- Billing Clerk
- Business services manager
- Computing business coordinator
- Compliance officers
- Insurance sales agent
- Industrial Salesperson
- Management Trainee
- Office Manager
- Payroll Assistant
- Sales Coordinator

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE BUSINESS ADMINISTRATION PROGRAM (<https://www.bls.gov/careeroutlook/2002/winter/art01.pdf>)

Opportunities for Graduate Studies

Upon completion of the associate degree in business, you may also choose to proceed seamlessly to the bachelor of science in business or selected other business-related majors at Penn State.

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Business Administration, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

This interdisciplinary minor provides students in all majors with a business-oriented supplement to their major fields of study. It is intended to provide a set of basic skills that complement the unique competencies gained in their non-business disciplines. It is strongly recommended that students taking this minor elect at least one course in mathematics through college calculus, and a second course in descriptive and inferential statistics, as part of their General Education requirements or electives for the major. Students taking this minor may not have more than 25 percent of their total credits for graduation in business courses, and must receive a grade of C or better in all courses required for the minor. Students pursuing the Business Administration minor should apply to the School of Business Administration and select business courses in consultation with a business adviser.

Program Requirements

Requirement	Credits
Requirements for the Minor	22

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
MGMT 301	Basic Management Concepts	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
ECON 102 or ECON 104	Introductory Microeconomic Analysis and Policy	3
Select 6 credits of the following: ¹		6
BA 100	Introduction to Business	
BA 243 or BLAW 243	Social, Legal, and Ethical Environment of Business Legal Environment of Business	
BA 364Y	International Business and Society	
ECON 342	Industrial Organization	
ECON 351	Money and Banking	
FIN 100 or FIN 301	Introduction to Finance Corporation Finance	
MGMT 321	Leadership and Motivation	
MIS 390	Information Systems Management and Applications	
MKTG 221		

SCM 320	Transport Systems
Supporting Courses and Related Areas	
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>	
Select 6 credits at the 400 level of the following: ¹	
6	
ACCTG, BA, ECON, FIN, HCM, MIS, IST, MGMT, MKTG	
BESC 408	
COMM 414	Media Management
PSYCH 473	Behavior Modification
Other School-approved courses	

¹ Course prerequisites must be met.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

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Civil Engineering, B.S. (Capital)

Begin Campus: Any Penn State Campus

End Campus: Harrisburg

Program Description

The program in Civil and Environmental Engineering is designed to provide the basic undergraduate education required for private practice and public service in civil engineering and/or continue formal education. Emphasis is placed on the fundamentals of civil engineering principles and design techniques. Students utilize basic engineering science concepts in several of the different specialty areas (e.g., construction/management, environmental, materials/pavement design/geotechnical, structures, transportation, and water resources). Finally the students are able to choose an area of specialization for professional practice or graduate studies.

The program is broadened by courses in communication, arts, humanities, social and behavioral sciences, as well as other engineering disciplines. Students gain experience in working as members of a team and using interdisciplinary approaches to solve problems. These experiences, as well as those related to engineering principles and design, are provided through exercises in the classroom, laboratory, and field. The program culmination is a capstone design course wherein the students' knowledge and skills are applied to actual engineering problems.

What is Civil Engineering?

Civil engineering is one of the oldest and most socially-relevant engineering disciplines. Grounded in mathematics and science, civil engineers make a lasting impact as they plan, design, construct, operate, and maintain the everyday, yet critical, infrastructure systems needed in our daily lives. In this challenging and diverse field, civil engineers also find solutions for critical environmental issues, including slowing the progress and mitigating the effects of climate change, eliminating the causes and treating the effects of environmental pollutants, and providing access to clean water. In recent years, the rapid application of new technologies has fostered the development of autonomous vehicles, 3D printing, smart structures, advanced materials, and new forms of renewable energy.

You Might Like This Program If...

- You want to design and build large-scale projects that last a long time.
- You care about the quality of the water that comes out of the faucet.
- You are interested in the operations and safety of future transportation systems.
- You try to find sustainable solutions for every challenge, big or small.
- You would like to use your technical skills in an exciting, people-serving profession.

Entrance to Major

In order to be eligible for entrance to this major, students must satisfy the following requirements by the end of the semester during which the admission to major process is carried out.

- Completed 29-55 cumulative credits (credits completed at Penn State for which a quality letter grade was earned)
- Completed with a C or better the following courses: EDSGN 100, CHEM 110, MATH 140, MATH 141, and PHYS 211
- Attained at least a 2.6 cumulative grade point average

* In the event that the major is under enrollment control, a higher minimum cumulative grade-point average is likely to be needed and students must be enrolled in the College of Engineering or Division of Undergraduate Studies at the time of confirming their major choice.

Degree Requirements

For the Bachelor of Science degree in Civil Engineering, a minimum of 127 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	109

27 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 9 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
CHEM 111	Experimental Chemistry I	1
GEOSC 1	Physical Geology	3
MATH 220	Matrices	2
STAT 401	Experimental Methods	3
<i>Prescribed Courses: Require a grade of C or better</i>		
CE 310	Surveying	3
CE 321	Highway Engineering	3
CE 332	Professionalism, Economics & Construction Project Delivery	3
CE 335	Engineering Mechanics of Soils	3
CE 336	Materials Science for Civil Engineers	3
CE 340	Structural Analysis	3
CE 360	Fluid Mechanics	3
CE 370	Introduction to Environmental Engineering	3
CHEM 110	Chemical Principles I	3
EDSGN 100	Cornerstone Engineering Design	3
EMCH 211	Statics	3
EMCH 212	Dynamics	3
EMCH 213	Strength of Materials	3

ENGL 202C	Effective Writing: Technical Writing	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
MATH 251	Ordinary and Partial Differential Equations	4
PHYS 211	General Physics: Mechanics	4
PHYS 212	General Physics: Electricity and Magnetism	4
Additional Courses		
CE 337	Civil Engineering Materials Laboratory ¹	1
or CE 475	Water Quality Chemistry	
CHE 220	Introduction to Chemical Engineering Thermodynamics ²	3
or ME 201	Introduction to Thermal Science	
CMPSC 200	Programming for Engineers with MATLAB	3
or CMPSC 201	Programming for Engineers with C++	
Select one of the following:		1
CE 100S	Topics and Contemporary Issues in Civil and Environmental Engineering: First-Year Seminar	
1 credit of First-Year Seminar or Elective		
Select one of the following:		3
ECON 14	Principles of Economics	
ECON 102	Introductory Microeconomic Analysis and Policy	
ECON 104	Introductory Macroeconomic Analysis and Policy	
Select 6 credits of the following: ³		6
CE 341	Design of Concrete Structures	
CE 342	Design of Steel Structures	
CE 371	Water and Wastewater Treatment	
CE 441	Structural Design of Foundations	
CE 447	Structural Analysis by Matrix Methods	
CE 461	Water-resource Engineering	
CE 462	Open Channel Hydraulics	
CE 475	Water Quality Chemistry	
CE 476	Solid and Hazardous Wastes	
CE 479	Environmental Microbiology for Engineers	
Select 3 credits of CE 400 level "W" courses		3
<i>Additional Courses: Require a grade of C or better</i>		
CAS 100A	Effective Speech	3
or CAS 100B	Effective Speech	
ENGL 15	Rhetoric and Composition	3
or ENGL 30H	Honors Rhetoric and Composition	
Supporting Courses and Related Areas		
Select 12 credits of technical elective from CE 300-level courses, CE 400-level courses, or department list		12

¹ If CE 475 is taken, one credit goes toward lab requirement and remaining three go towards CE or general technical electives.

² Students may substitute 6 credits of ROTC for 3 credits of GHW courses and 3 credits of ME.

³ Two of those courses must be selected from at least 2 of the 3 remaining technical areas in the Civil Engineering program-- structures (x40), hydrosystems (x60), and environmental (x70).

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills

necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits.

Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Civil Engineering and M.S. in Civil Engineering

Available at the following campuses: Harrisburg

Requirements for the Integrated B.S. in Civil Engineering and M.S. in Civil Engineering can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/civil-engineering-capital/#integratedundergradgradprogramstext>).

Program Educational Objectives

The Program Educational Objectives are designed so that the graduates from the Civil Engineering program at Penn State Harrisburg will:

- Have skills needed to be engaged with industries or government agencies that design, construct, and maintain civil engineering infrastructures.
- Effectively work in and/or lead interdisciplinary teams in addressing multiple facets of sustainable and resilient civil engineering, and
- Have the ability to advance knowledge through professional development and educational opportunities as well as obtain and maintain professional licensing.

Program Outcomes (Student Outcomes)

The students from the Civil Engineering Program at Penn State Harrisburg will have:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. An ability to communicate effectively with a range of audiences.
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.

6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Harrisburg

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Civil Engineering, B.S. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If**

report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 15S, 30T, or ESL 15 [‡]	3 General Education Course	3
EDSGN 100 or 100S	3 ECON 102 or 104 [†]	3
CHEM 110 ^{*#†}	3 CAS 100A or 100S [‡]	3
CHEM 111 [†]	1 MATH 141 ^{*#†}	4
MATH 140 ^{*#†}	4 PHYS 211 ^{*#†}	4
CE 100S	1	
	15	17

Second Year

Fall	Credits Spring	Credits
General Education Course	3 General Education Course	3
GEOSC 1	3 CMPSC 131, 200, or 201	3
EMCH 211 [*]	3 EMCH 212 [*]	3
PHYS 212 [*]	4 EMCH 213 [*]	3
MATH 251 [*]	4 MATH 220	2
	STAT 401	3
	17	17

Third Year

Fall	Credits Spring	Credits
CE 310 [*]	3 CE 321 [*]	3
CE 336 [*]	3 CE 332 [*]	3
CE 337	1 CE 335 [*]	3
CE 340 [*]	3 ME 201	3
CE 360 [*]	3 Civil Engineering Elective	3
CE 370 [*]	3 General Education Course (GHW)	1.5
	16	16.5

Fourth Year

Fall	Credits Spring	Credits
ENGL 202C [‡]	3 CE 4XXW Capstone Design	3
General Education Course	3 Technical Elective	3
Civil Engineering Elective	3 Technical Elective	3
Technical Elective	3 General Education Course	3
Technical Elective	3 General Education Course (GHW)	1.5
	15	13.5

Total Credits 127

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes

- Graduation in this major requires a minimum of 127 total credits.
- **Civil Engineering Elective:** CE Electives must be selected from two of these specific technical areas in the program: Structures; Water Resources Engineering; Environmental Engineering.
- **Health and Physical Activity Elective:** Students who complete the ROTC Program may substitute 3 ROTC credits for the GHW requirement and 3 ROTC credits for ME 201.
- **Technical Elective:** Select from department list. Students who complete the Cooperative Education Program may substitute the 3-credit sequence of ENGR 295, ENGR 395, and ENGR 495 for a Technical Elective.
- ** If a student is pursuing the Structural sub-discipline in Civil Engineering, if CE 340 is not taken in the 5th semester, it may delay graduation.
- *** Environmental and water resources students may substitute 1 credit of CE 475 for CE 337.

Career Paths

Civil engineers are responsible for designing, building, and maintaining the critical systems that support society and protect the environment. Graduates of the civil engineering program are prepared to be innovative leaders in a diverse range of industries. Students are routinely recruited for positions in the public sector with government agencies or in the private sector at consulting firms or construction companies. Students may also choose to continue their formal education by pursuing advanced degrees, and many remain in academia upon graduation.

Careers

Our graduates work in a variety of fields to develop solutions for challenges in design, construction, research, and education. Civil engineering graduates work in the public sector for government agencies or in the private sector at consulting or construction firms. Some civil engineers hold supervisory or administrative positions, while others pursue careers in design, construction, or education.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE CIVIL ENGINEERING PROGRAM (<https://www.asce.org/career-growth/>)

CAREER RESOURCES FOR CIVIL ENGINEERING STUDENTS (<https://www.cee.psu.edu/academics/resources/career-resources.aspx>)

Opportunities for Graduate Studies

In our graduate programs, students learn in the classroom and the laboratory, finding a broad network of mentors and collaborators. After graduation, many career options await.

- The one-year Master of Engineering (M.Eng.) (<https://www.cee.psu.edu/academics/graduate/degrees-and->

requirements.aspx#MEng) program gives you a strong foundation and leads to advanced professional practice.

- The Master of Science (M.S.) (<https://www.cee.psu.edu/academics/graduate/degrees-and-requirements.aspx#MS>) program blends advanced coursework and research, producing highly sought-after graduates.
- The Doctor of Philosophy (Ph.D.) (<https://www.cee.psu.edu/academics/graduate/degrees-and-requirements.aspx#PhD>) program provides a comprehensive educational and research opportunity, challenging students to be leaders of their fields.

What could you achieve with an advanced degree from the Department of Civil and Environmental Engineering at Penn State?

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.cee.psu.edu/academics/graduate/>)
GRADUATE DEGREES AND REQUIREMENTS (<https://www.cee.psu.edu/academics/graduate/degrees-and-requirements.aspx>)

Professional Resources

- American Concrete Institute (<https://www.concrete.org/>)
- American Society of Civil Engineers (<https://www.asce.org>)
- PSU Civil and Environmental Engineering Professional Organization Student Chapter List (<https://www.cee.psu.edu/academics/resources/student-organizations.aspx>)

Accreditation

The Bachelor of Science in Civil Engineering at Penn State Harrisburg is accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Civil and Similarly Named Engineering Programs.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact Harrisburg

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<https://harrisburg.psu.edu/science-engineering-technology/civil-engineering-bs> (<https://harrisburg.psu.edu/science-engineering-technology/civil-engineering-bs/>)

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Communication Sciences and Disorders, B.S. (Capital)

Begin Campus: Any Penn State Campus

End Campus: Harrisburg

Program Description

This major offers a comprehensive program of study for preparing students who want to become speech-language pathologists or audiologists. The curriculum is specifically designed for the sole purpose of preparing undergraduate students for graduate study in communication sciences and disorders or related areas. This occurs because state licensure laws and professional certifications require that a speech-language pathologist or audiologist must have a master's degree, pass a national test, and complete a clinical fellowship year.

Overall, the curriculum enables students to develop fundamental knowledge based on scientific principles, skills, and attitudes required for habilitating and rehabilitating persons of all ages with a wide range of speech, language, and hearing problems. Further, the curriculum allows students an opportunity to explore all aspects of communication sciences and disorders as well as elect courses of special interest.

The first two years of study emphasize general education and background study. The last two years of study emphasize normal and disordered aspects of speech, language, and hearing as well as professional management, concerns, and obligations. Clinical observation and diversity focused coursework are included in the curriculum.

What is Communication Sciences and Disorders?

Communication Sciences and Disorders (CSD) is the study of human communication disorders. Undergraduate students acquire a strong foundation in the basic sciences and processes related to typical, delayed and disordered speech, language, cognition, swallowing, and hearing. Students gain critical-thinking abilities necessary to apply foundational knowledge and skills to the identification, assessment, and treatment of communication disorders. Graduates proceed to advanced degrees in speech-language pathology or audiology to habilitate and rehabilitate children and adults with a variety of disorders and delays through service and research. Speech-language pathologists and audiologists are employed in environments such as schools, hospitals, rehabilitation centers, community clinics and nursing homes.

You Might Like This Program If...

- You know you will find fulfillment in working closely with others.
- You want to pursue a career in a helping profession.
- You envision yourself teaching people skills to improve their quality of life.
- You want to develop new interventions for those with communications disorders.

MORE INFORMATION ABOUT COMMUNICATION SCIENCES AND DISORDERS (<https://hhd.psu.edu/csd/communication-sciences-and-disorders-undergraduate-program/>)

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Communication Sciences and Disorders, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	30
Requirements for the Major	54-55

9-10 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GS courses; 3-4 credits of GQ courses.

To satisfy graduation requirements, students must have completed 6 credits from courses offered in the college and outside the department in which the major is offered.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned. CSD requires students to complete 24 credits for the major through courses taken at University Park. Courses taken at other Penn State campuses may not be counted toward this 24 credit minimum. For more information, check the Suggested Academic Plan for this major.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
PSYCH 100	Introductory Psychology	3
<i>Prescribed Courses: Require a grade of C or better</i>		
CSD 146	Introduction to Communication Sciences and Disorders	3
CSD 230	Introduction to Audiology	3
CSD 269	Deaf Culture	3
CSD 300	Developmental Considerations in the Assessment and Treatment of Language Disorders	3
CSD 311	Clinical Phonetics	3
CSD 331	Anatomy and Physiology for Speech and Hearing	3
CSD 341	Acoustic Principles in Communication Sciences and Disorders	3
CSD 433	Aural Rehabilitation	3

CSD 442	Introduction to Disorders of Articulation and Phonology	3
CSD 444	Introduction to Organic Disorders of Speech and Language	3
CSD 451	An Introduction to Augmentative and Alternative Communication	3
CSD 459W	Principles of Clinical Management in Communication Disorders	3
CSD 462	Clinical Bases of Language Disorders	3
Additional Courses		
EDPSY 14 or PSYCH 261	Learning and Instruction Introduction to Psychology of Learning	3
HDFS 129 or PSYCH 212	Introduction to Human Development and Family Studies Introduction to Developmental Psychology	3
Select 3-4 credits of the following:		3-4
EDPSY 101	Analysis and Interpretation of Statistical Data in Education	
PSYCH 200	Elementary Statistics in Psychology	
STAT 200	Elementary Statistics	
Select one of the following:		3
HDFS 229	Infant and Child Development	
HDFS 249N	Adult Development and Aging	
HDFS 315	Family Development	
HDFS 411	The Helping Relationship	
HDFS 418	Family Relationships	
HDFS 432	Developmental Problems in Childhood and Adolescence	
PSYCH 270	Introduction to Abnormal Psychology	
PSYCH 471	Psychology of Adjustment and Social Relationships	

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits

- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of

both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Communication Sciences and Disorders, B.S. at Harrisburg Campus (Incoming First-year students)

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSYCH 100 (General Education Course (GS)) ^{+1,7}	3 EDPSY 14 or PSYCH 261 (General Education Course (GS/Exploration)) ^{*1}	3
BISC 2, 4, BIOL 155, or BIOL 161 and BIOL 162 (General Education Course (GN/Exploration)) ⁷	3-4 CAS 101N (General Education Course (Inter-Domain))	3
CI 280 or ENGL 228 (General Education Course (GH))	3 CHEM 1, 101, or PHYS 1 (General Education Course (GN)) ⁷	3

ENGL 15, 15S, 30T, or ESL 15 (General Education Course (GWS)) ^{‡2}	3 CAS 100A or 100S (General Education Course (GWS)) ^{‡2}	3
CSD 146 (US) ^{*1}	3 Elective ³	3
15-16		15
Second Year		
Fall	Credits Spring	Credits
MATH 21 (General Education Course (GQ)) ^{‡4}	3 STAT 200 or PSYCH 200 (General Education Course (GQ)) ^{‡7}	4
General Education Course (GHW) (Any GHW class without an N (no Inter-Domain))	3 HDFS 129 or PSYCH 212 (General Education Course (GS)) ^{†1}	3
HDFS 249N (General Education Course (GS) - Inter-Domain) [†]	3 ENGL 202A or 202C (General Education Course (GWS)) [‡]	3
Elective (LING) ^{3,5}	3 SOC 1 (General Education Course (GH/Exploration)) ^{3,7}	3
CSD 269 (IL) ^{*1}	3 CSD 100 (Elective) ³	3
15		16
Third Year		
Fall	Credits Spring	Credits
General Education Course (Exploration) (Any GS/GA/GH/Inter-Domain)	3 CSD 300 ^{*1}	3
General Education Course (GA) (Any GA class without an N (no Inter-Domain))	3 CSD 311 ^{*1}	3
CSD 230 ^{*1}	3 CSD 331 ^{*1}	3
Elective ³	3 CSD 451 ^{*1}	3
Elective ³	3 Elective ³	3
15		15
Fourth Year		
Fall	Credits Spring	Credits
CSD 297 ^{5,6}	3 CSD 431 ^{5,6}	3
CSD 341 ^{*1}	3 CSD 433 ^{*1}	3
CSD 432 ^{5,6}	3 CSD 442 ^{*1}	3
CSD 444 ^{*1}	3 CSD 459W ^{*1}	3
CSD 462 ^{*1}	3 Elective ³	3
15		15

Total Credits 121-122

- * Course requires a grade of C or better for the major
‡ Course requires a grade of C or better for General Education
Course is an Entrance to Major requirement
† Course satisfies General Education and degree requirement

¹ Course is required for the major.

² Students must complete three credits of S courses to satisfy the Penn State Harrisburg First-Year Seminar Credit. Other S courses may be available but are not recommended.

³ CSD strongly recommends the following electives (in this order of preference). Check for prerequisites.
LING 1 (GS), CI 280 (GH), CSD 431, LING 100 (GS), MATH 21 (GQ), SOC 1, SPLED 404, CSD 218, CSD 318, CSD 100, EDUC 458, EDUC 459,

ENGL 228 (GH), CAS 101N (GH/GS), LTNST 127 (GH), SOC 119N (GH/GS), CAS 162N (GH/GS), Any LING/APLNG, Any HDFS, Any PSYCH, Any SOC

⁴ MATH 21 provides preparation to take the Graduate Record Examination (GRE) which may be required by graduate school SLP/AUD programs.

⁵ Although an elective, content in course is/may be required for graduate school admission.

⁶ Course requires a grade of C or higher.

⁷ Meets ASHA prerequisite course content required for SLP/Audiology certification.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- US and IL are abbreviations used to designate courses that satisfy University Requirements (United States and International Cultures).
- **Common Course Substitutions** (Each may be completed once)
 - **Move 3:** An extra GN, GA, GH, GS, or GHW can substitute for a course in one of the other areas (e.g., LING 100 [GS] in place of a GH course)
 - **World Language:** Any language course at the 3 level or higher can substitute for one GN, GS, GH, or GA course (e.g., SPAN 3 in place of a GN course)

Communication Sciences and Disorders, B.S. at Harrisburg Campus (Transfer Students)

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
PSYCH 100 (General Education Course (GS)) ^{†1,7}	3	EDPSY 14 or PSYCH 261 (General Education Course (GS/Exploration)) ^{*1}	3
CI 280 or ENGL 228 (General Education Course (GH))	3	CAS 101N (General Education Course (Inter-Domain))	3
BISC 2, 4, BIOL 155, or BIOL 161 and BIOL 162 (General Education Course (GN/Exploration)) ⁷	3-4	MATH 21 (General Education Course (GQ)) ^{†4}	3
ENGL 15, 15S, 30T, or ESL 15 ^{†2}	3	HDFS 129 or PSYCH 212 (Elective) ^{†1}	3
General Education Course (Exploration) (Any GS/GA/GH/Inter-Domain)	3	Elective ³	3
15-16		15	

Second Year

Fall	Credits	Spring	Credits
CHEM 1, 101, or PHYS 1 (General Education Course (GN)) ⁷	3	STAT 200 or PSYCH 200 (General Education Course (GQ)) ^{††7}	4
General Education Course (GHW) (Any GHW class without an N (no Inter-Domain))	3	CAS 100A or 100S (General Education Course (GWS)) ^{†2}	3
General Education Course (GA) (Any GA class without an N (no Inter-Domain))	3	SOC 1 (General Education Course (GH/Exploration)) ^{3,7}	3
HDFS 249N (General Education Course (GS) - Inter-Domain) [†]	3	ENGL 202A or 202C (General Education Course (GWS)) [†]	3
Elective (LING) ^{3,5}	3	Elective ³	3
15		16	

Third Year

Fall	Credits	Spring	Credits
CSD 146 (US) ^{*1}	3	CSD 100 (Elective) ³	3
CSD 230 ^{*1}	3	CSD 300 ^{*1}	3
CSD 269 (IL) ^{*1}	3	CSD 311 ^{*1}	3
Elective ³	3	CSD 331 ^{*1}	3
Elective ³	3	CSD 451 ^{*1}	3
15		15	

Fourth Year

Fall	Credits	Spring	Credits
CSD 297 ^{5,6}	3	CSD 431 ^{5,6}	3

CSD 341 ^{*1}	3	CSD 433 ^{*1}	3
CSD 432 ^{5,6}	3	CSD 442 ^{*1}	3
CSD 444 ^{*1}	3	CSD 459W ^{*1}	3
CSD 462 ^{*1}	3	Elective ³	3
15		15	

Total Credits 121-122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Course is required for the major.

² Students must complete three credits of S courses to satisfy the Penn State Harrisburg First-Year Seminar Credit. Other S courses may be available but are not recommended.

³ CSD strongly recommends the following electives (in this order of preference). Check for prerequisites.

LING 1 (GS), CI 280 (GH), CSD 431, LING 100 (GS), MATH 21 (GQ), SOC 1, SPLED 404, CSD 218, CSD 318, CSD 100, EDUC 458, EDUC 459, ENGL 228 (GH), CAS 101N (GH/GS), LTNST 127 (GH), SOC 119N (GH/GS), CAS 162N (GH/GS), Any LING/APLNG, Any HDFS, Any PSYCH, Any SOC

⁴ MATH 21 provides preparation to take the Graduate Record Examination (GRE) which may be required by graduate school SLP/AUD programs.

⁵ Although an elective, content in course is/may be required for graduate school admission:

⁶ Course requires a grade of C or higher.

⁷ Meets ASHA prerequisite course content required for SLP/Audiology certification.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- US and IL are abbreviations used to designate courses that satisfy University Requirements (United States and International Cultures).

- Common Course Substitutions** (Each may be completed once)

- Move 3:** An extra GN, GA, GH, GS, or GHW can substitute for a course in one of the other areas (e.g., LING 100 [GS] in place of a GH course)

- World Language:** Any language course at the 3 level or higher can substitute for one GN, GS, GH, or GA course (e.g., SPAN 3 in place of a GN course)

Career Paths

Students who complete an advanced degree in speech-language pathology evaluate, diagnose and provide treatment for people of all ages who have communication disabilities and differences. Speech-language pathologists with master's degrees work in hospital and rehabilitation centers, schools, community clinics, nursing homes, and private practice. Audiology students who complete a clinical doctorate of audiology degree (Au.D.) evaluate, diagnose and treat people of all ages with hearing loss. Speech-language pathologists and audiologists who earn doctorate (Ph.D.) degrees typically teach and conduct research in a university setting.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE COMMUNICATION SCIENCES AND DISORDERS PROGRAM (<https://hhd.psu.edu/csd/undergraduate/careers/>)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://hhd.psu.edu/csd/communication-sciences-and-disorders-graduate-program/>)

Professional Resources

- American Speech-Language-Hearing Association (ASHA) (<https://www.asha.org>)
- National Student Speech Language Hearing Association (NSSLHA) (<https://www.nsslha.org>)
- National#Black#Association#for#Speech-Language#and#Hearing#(NBASLH) (<https://www.nbaslh.org>)
- Penn#State#Sign#Language#Organization (<https://pennstateslo.weebly.com>)

Contact

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777 West Harrisburg Pike
W-344 Olmsted
Middletown, PA 17057
717-948-6326
pxe5073@psu.edu

<https://harrisburg.psu.edu/humanities/communication-sciences-disorders-bs> (<https://harrisburg.psu.edu/humanities/communication-sciences-disorders-bs/>)

University Park

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308 Ford Building
University Park, PA 16802
814-865-3584
csdinfo@psu.edu

<https://hhd.psu.edu/csd> (<https://hhd.psu.edu/csd/>)

Communications, B.A. (Capital)

Begin Campus: Any Penn State Campus

End Campus: Harrisburg

Program Description

Communications is an interdisciplinary program that combines practical, professional instruction with critical and cultural examinations of mass media. Our interdisciplinary and theoretical approach enables our students to understand the contextual relationships between contemporary media and ethics, history, drama, and art, as well as the mechanics of emerging information technologies. We feature small classes, a multidisciplinary faculty with real-world professional experience, high-technology laboratories, and an excellent location for media internships. This major prepares students for careers in areas such as public relations, journalism, graphic design, photography, new media, advertising, media production, and telecommunications. Because of our analytical approach, students can use the major to prepare for postgraduate studies.

What is Communications?

Communications is an academic discipline that deals with the creation and distribution of mass communication messages through media such as books, newspapers, television, radio, film, video games, and the Internet. Mass communications use writing, speech, photographs, video, and interactive content to give information or influence the audience. Communications also concerns the study of how we communicate in different ways with diverse audiences through marketing, advertising, public relations, corporate communications, digital journalism, film and other media.

You Might Like This Program If...

- You enjoy writing, design, photography, or film/video production.
- You enjoy solving problems or influencing others with your ability to create messages.
- You are interested in a career in public relations, journalism, graphic design, advertising, multimedia production.

Entrance to Major

Entry to the Communications major requires a 2.00 or higher cumulative grade-point average and successful completion (earning a grade of C or better) of COMM 100N.

Degree Requirements

For the Bachelor of Arts degree in Communications, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	12
Bachelor of Arts Degree Requirements	24
Requirements for the Major	39

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Requirements for the Major

At least 12 credits of Communications courses must be taken at the 400 level.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
COMM 251	The Nature of Media	3
COMM 342W	Idea Development and Media Writing	3
COMM 456	Media Criticism and Theory	3
COMM 458	Media Law and Ethics	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
COMM 230W	Writing for Media	3
	or COMM 260W News Writing and Reporting	
Select two courses in visual communication from the following:		6
COMM 215	Basic Photography for Communications	
COMM 241	Graphic Design for Communications	
COMM 242	Basic Video/Filmmaking	
COMM 269	Photojournalism	
COMM 270	Introduction to Multimedia Production	
COMM 337	Intermediate Documentary Production	
COMM 415	Advanced Photography for Communications	
COMM 437	Advanced Documentary Production	
COMM 438	Advanced Narrative Production	
COMM 441	Advanced Graphic Design for Communications	
Select 6 credits in Communications from the following:		6
CC 200	Introduction to Corporate Communication	
COMM 110	Media and Democracy	
COMM 150N	The Art of the Cinema	
COMM 160	Basic News Writing Skills	
COMM 168	American Journalism: Values, Traditions, and Practices	
COMM 215	Basic Photography for Communications	
COMM 234N	Digital Cultures	
COMM 241	Graphic Design for Communications	
COMM 242	Basic Video/Filmmaking	
COMM 250	Film History and Theory	
COMM 269	Photojournalism	
COMM 270	Introduction to Multimedia Production	
COMM 320	Introduction to Advertising	
COMM 346	Writing for the Screen I	
COMM 360	Radio Reporting	
COMM 363		
COMM 370	Public Relations	
COMM 372	Digital Public Relations	
COMM 374	Audio Production	
COMM 405	Political Economy of Communications	
COMM 414	Media Management	
COMM 415	Advanced Photography for Communications	
COMM 418	Media Effects: Theory and Research	

COMM 420	Research Methods in Advertising and Public Relations
COMM 421W	Advertising Creative Strategies
COMM 424	Advertising Campaigns
COMM 428E	Social Media Strategies
COMM 430	Mass Media and Politics
COMM 436	Advanced Audio Production
COMM 457	Media Audiences and Contexts
COMM 459	Cultural Effects of Interactive and Online Media
COMM 461	Magazine Writing
COMM 462	Feature Writing
COMM 471	Public Relations Media and Methods
COMM 472	Public Relations Event Planning
COMM 473	Public Relations Campaigns
COMM 474	Depth Reporting
COMM 481	Advanced Multimedia Production
COMM 488	Writers' Seminar
COMM 495	Internship
COMM 496	Independent Studies

Supporting Courses and Related Areas

Select 12 credits in consultation with an academic adviser. These 12 credits, combined with electives, may be applied to a minor in support of the student's interests.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or

beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- **Communications Theory:** Students will recall Communications theory and theorists.
- **Creativity:** Students will assess the Communication situation and create original written documents, images, sound, or graphics accordingly.
- **Practical Knowledge:** Students will construct media projects using a variety of visual, audio and Web technologies.
- **Professional Ethics:** Students will develop the professional, ethical and social responsibilities of the media professions.
- **Research Methods:** Students will analyze media using Communications theory and methods in their own research and writing.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Harrisburg

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Communications, B.A. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit

(accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 15S, 30T, or ESL 15 [‡]	3 CAS 100A or 100S [‡]	3
Quantification (GQ) [‡]	3 COMM 160 (Needed if planning on taking COMM 260W) [*]	1
General Education Course	3 Quantification (GQ) [‡]	3
World Language, Level 1	4 World Language, Level 2	4
General Education Course (GHW)	1.5 General Education Course	3
	General Education Course (GHW)	1.5
	14.5	15.5

Second Year

Fall	Credits Spring	Credits
COMM 100N [#]	3 Elective or Minor Course	3
COMM 251 [*]	3 COMM 215 (or Visual COMM Course from List F) [*]	3
COMM 260W (General Education Course (Choose 260W or 230W)) [*]	3 ENGL 202B or 202D [‡]	3
World Language, Level 3	4 COMM 230W (or General Education Course (Choose 260W or 230W)) [*]	3
General Education Course	3 General Education Course	3
	16	15

Third Year

Fall	Credits Spring	Credits
General Education Course	3 COMM 342W ^{*3}	3
Supporting Course	3 General Education Course	3
Visual COMM Course from List F [*]	3 COMM Selection from List E [*]	3
BA Requirement: World Cultures	3 Elective or Minor Course	3
BA Requirement: BA Fields	3 Supporting Course	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
COMM 456 ^{*4}	3 COMM 458 ^{*5}	3
Supporting Course	3 General Studies Course	3
COMM Selection from List E [*]	3 Supporting Course	3
BA Requirement: BA Fields	3 Elective or Internship	3
Elective or Minor Course	3 BA Requirement: BA Fields	3
	15	15

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ COMM Selection - 6 credits from Department List E, at least 12 credits of COMM courses must be taken at the 400 level. See List E below.

² Visual COMM – 6 credits from Department List F, at least 12 credits of COMM courses must be taken at the 400 level. See List F below.

³ COMM 342W is offered in spring only

⁴ COMM 456 is offered in fall only

⁵ COMM 458 is offered in spring only

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Program Notes:

- Prescribed Courses (12 Credits):
 - Select 6 credits each from the Comm List and the VISUAL COMM List of courses below.
- Supporting Courses (12 Credits):
 - Select 12 credits in consultation with an academic adviser. These credits, combined with electives, may be applied to a minor in support of the student's interests.
- COMM List (E) (6 credits required):
 - COMM 1 Newspaper Practicum (2)
 - COMM 2 Newspaper Editorial Staff (2)
 - COMM 3 Radio Practicum (2)
 - COMM 4 Television Practicum (2)
 - COMM 110 Media and Democracy (3)
 - COMM 150N The Art of the Cinema – The Art of the Cinema (3)
 - COMM 168 American Journalism: Values, Traditions, and Practices (3)
 - COMM 190 Gaming and Interactive Media (3)
 - COMM 234N Digital Cultures (3)
 - COMM 320 Introduction to Advertising (3)

- COMM 346 Writing for the Screen I (3)
- COMM 370 Public Relations (3)
- COMM 372 Digital Public Relations (3)
- COMM 414 Media Management (3)
- COMM 421W Advertising Creative Strategies (3)
- COMM 454 Documentary in Film and Television (3)
- COMM 457 Media Audiences and Contexts (3)
- COMM 471 Public Relations Media and Methods (3)
- COMM 472 Public Relations Event Planning (3)
- COMM 488 Writers' Seminar (3)
- COMM 495 Internship (3)
- COMM 496 Independent Studies (3)
- VISUAL COMM List (F) (6 credits required):
 - COMM 215 Basic Photography for Communications (3)
 - COMM 241 Graphic Design for Communications (3)
 - COMM 242 Basic Video/Filmmaking (3)
 - COMM 269 Photojournalism (3)
 - COMM 337 Intermediate Documentary Production (3)
 - COMM 338 Intermediate Narrative Production (3)
 - COMM 374 Audio Production (3)
 - COMM 415 Advanced Photography for Communications (3)
 - COMM 436 Advanced Audio Production (3)
 - COMM 437 Advanced Documentary Production (3)
 - COMM 441 Advanced Graphic Design for Communications (3)
 - COMM 495 Internship (1-3 per semester/maximum of 6)
 - COMM 496 Independent Studies (3)

Career Paths

Penn State Harrisburg's communications program features small classes, a multidisciplinary faculty with real-world professional experience, high-technology laboratories, and an excellent location for media internships.

Careers

This major prepares students for careers in areas such as public relations, journalism, graphic design, advertising, media production, and telecommunications.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE COMMUNICATIONS PROGRAM (<https://harrisburg.psu.edu/humanities/communications-ba/>)

Opportunities for Graduate Studies

Communications is an interdisciplinary program combining practical, professional instruction with critical and cultural examinations of mass media, including Penn State's Master of Arts in Communications.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://harrisburg.psu.edu/humanities/communications-ma/>)

Contact

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<https://harrisburg.psu.edu/humanities/communications-ba/> (<https://harrisburg.psu.edu/humanities/communications-ba/>)

Communications, Minor (Capital)

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Communications minor provides students with an introduction to the tool skills needed to function as a professional communicator, as well as a basic understanding of communication processes and theory. Students seeking careers in fields such as public administration, business, criminal justice, law, information technology, and the medical, social and behavioral professions will find this minor provides instruction in a valuable additional knowledge and skill area important in today's information society.

What is Communications?

Communications is an academic discipline that deals with the creation and distribution of mass communication messages through media such as books, newspapers, television, radio, film, video games, and the Internet. Mass communications use writing, speech, photographs, video, and interactive content to give information or influence the audience. Communications also concerns the study of how we communicate in different ways with diverse audiences through marketing, advertising, public relations, corporate communications, digital journalism, film and other media.

Entrance to Minor

Students must apply for entrance to the minor after achieving fifth semester classification.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
COMM 251	The Nature of Media	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
COMM 230W	Writing for Media	3
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 12 credits (at least 6 credits at the 400-level) from approved department list		12

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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<https://harrisburg.psu.edu/humanities/communications-minor> (<https://harrisburg.psu.edu/humanities/communications-minor/>)

Computer Science, B.S. (Capital)

Begin Campus: Any Penn State Campus

End Campus: Harrisburg

Program Description

This program is designed to prepare students for employment as computer scientists in engineering, scientific, industrial, and business environments as software developers, programmers, and systems analysts. While most students will enter the job market directly upon graduation, graduate school in computer science or related areas is also an option. Selection of electives can be tailored for students pursuing this path.

The Computer Science major provides a solid foundation in the areas of systems programming, algorithm design, artificial intelligence, and engineering large software systems using state-of-the-art methodologies and programming languages.

Students may expect to: develop a solid foundation in mathematical studies relevant to computer science; master skills in computer science; enjoy possibilities for internships and part-time employment with local

companies; and become problem solvers. These goals are consistent with the goals outlined by the Association of Computing Machinery.

What is Computer Science?

Computer science is the study of computational methods, including their principles and foundations, their efficient implementation, their analyses, and their practical application in wide-ranging areas. It includes the foundations of software development, computational problem solving, the principles of system software, and the fundamental principles and limits of computing. It is much more than just programming. It includes the mathematical foundations that support analyzing, evaluating, and proving the correctness of computational solutions. It includes specializations such as artificial intelligence, machine learning, cybersecurity, data mining, high-performance computing, computer networks, computer graphics, computer vision, quantum computing, and others. It is continually evolving with the development of new and faster forms of computation and with the identification of new problems that require computational solutions.

You Might Like This Program If...

- You have an interest or aptitude in math.
- You enjoy solving problems and you are good at analytical thinking.
- You are interested in finding more efficient solutions to problems. Remember, computer science is more than just programming.

Entrance to Major

Entry to the Computer Science General Option requires that the student has earned a C or better in the following courses:

- MATH 140
- MATH 141
- CMPSC 121 or CMPSC 131
- CMPSC 122 or CMPSC 132.

A 2.00 or higher cumulative grade-point average is required.

Entry to the Computer Science Data Science Option requires that the student has earned a C or better in the following courses:

- MATH 140
- MATH 141
- CMPSC 131
- CMPSC 132

A 2.00 or higher cumulative grade-point average is required.

Degree Requirements

For the Bachelor of Science degree in Computer Science, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	88

13 of the 45 credits for General Education are included in Requirements for the Major. This includes: 3 credits of GWS courses, 6 credits of GQ courses, and 4 credits of GN courses.

First-Year Seminar: Incoming first-year students are required to complete a course with the suffix S, T, or X, or the PSU abbreviation.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
CMPSC 312	Computer Organization and Architecture ¹	3
CMPSC 430	Database Design ¹	3
CMPSC 460	Principles of Programming Languages ¹	3
CMPSC 462	Data Structures ¹	3
CMPSC 463	Design and Analysis of Algorithms ¹	3
CMPSC 469	Formal Languages with Applications ¹	3
CMPSC 472	Operating System Concepts ¹	3
CMPSC 487W	Software Engineering and Design ¹	3
CMPSC 488	Computer Science Project ¹	3
MATH 220	Matrices	2
PHYS 211	General Physics: Mechanics	4
<i>Prescribed Courses: Require a grade of C or better</i>		
CMPSC 330	Advanced Programming in C++	3
CMPSC 360	Discrete Mathematics for Computer Science ¹	3
ENGL 202C	Effective Writing: Technical Writing	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
Additional Courses		
STAT/MATH 318	Elementary Probability	3
or STAT/ MATH 414	Introduction to Probability Theory	
Requirements for the Option		
Select an option		35

¹ Students must earn a 2.5 or higher grade point average in the following courses:

- For the General Option: CMPSC 221, CMPSC 312, CMPSC 360, CMPSC 430, CMPSC 460, CMPSC 462, CMPSC 463, CMPSC 469, CMPSC 470, CMPSC 472, CMPSC 487W, and CMPSC 488
- For the Data Science Option: DS 220, CMPSC 312, CMPSC 360, CMPSC 430, CMPSC 445, CMPSC 446, CMPSC 460, CMPSC 462, CMPSC 463, CMPSC 469, CMPSC 472, CMPSC 487W, and CMPSC 488

Requirements for the Option Data Science Option (35 credits)

Available at the following campuses: Abington, Harrisburg

Code	Title	Credits
Prescribed Courses		
CMPSC 441	Artificial Intelligence	3
CMPSC 445	Applied Machine Learning in Data Science ¹	3
CMPSC 446	Data Mining ¹	3
DS 220	Data Management for Data Sciences ¹	3
STAT 401	Experimental Methods	3

STAT 462	Applied Regression Analysis	3
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Prescribed Courses: Require a grade of C or better

CMPSC 131	Programming and Computation I: Fundamentals	3
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CMPSC 132	Programming and Computation II: Data Structures	3
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Additional Courses

Select at least 6 credits from the following:		6
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CMPSC 313	Assembly Language Programming	
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CMPSC 412	Data Structures Lab	
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CMPSC 413	Algorithms Lab	
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CMPSC 414	Contest Programming	
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CMPSC 421	Net-centric Computing	
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CMPSC 438	Computer Network Architecture and Programming	
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CMPSC 444	Secure Programming	
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CMPSC/MATH 455	Introduction to Numerical Analysis I	
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CMPSC 457	Computer Graphics Algorithms	
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CMPSC 470	Compiler Construction	
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CMPSC 475	Applications Programming	
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CMPSC 496	Independent Studies	
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CMPSC 497	Special Topics	
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MATH 401	Introduction to Analysis I	
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MATH 410	Complex Analysis for Mathematics and Engineering	
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MATH 411	Ordinary Differential Equations	
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MATH 412	Fourier Series and Partial Differential Equations	
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MATH 425	Introduction to Operations Research	
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MATH 430	Linear Algebra and Discrete Models I	
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MATH 435	Basic Abstract Algebra	
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MATH 448	Mathematics of Finance	
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MATH 465	Number Theory	
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MATH 468	Mathematical Coding Theory	
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MATH 485	Graph Theory	
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MATH 496	Independent Studies	
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MATH 497	Special Topics	
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STAT/MATH 415	Introduction to Mathematical Statistics	
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STAT 463	Applied Time Series Analysis	
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Supporting Courses and Related Areas

Select 5 credits of unrestricted electives at 100-400 level		5
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¹ Students must earn a 2.5 or higher grade point average in the following courses:

- For the General Option: CMPSC 221, CMPSC 312, CMPSC 360, CMPSC 430, CMPSC 460, CMPSC 462, CMPSC 463, CMPSC 469, CMPSC 470, CMPSC 472, CMPSC 487W, and CMPSC 488
- For the Data Science Option: DS 220, CMPSC 312, CMPSC 360, CMPSC 430, CMPSC 445, CMPSC 446, CMPSC 460, CMPSC 462, CMPSC 463, CMPSC 469, CMPSC 472, CMPSC 487W, and CMPSC 488

General Option (35 credits)

Available at the following campuses: Abington, Harrisburg

Code	Title	Credits
Prescribed Courses		
CMPSC 221	Object Oriented Programming with Web-Based Applications ¹	3
CMPSC 470	Compiler Construction ¹	3
Additional Courses		
Select 9 credits from the following:		9
CMPSC 313	Assembly Language Programming	
CMPSC 412	Data Structures Lab	
CMPSC 413	Algorithms Lab	
CMPSC 414	Contest Programming	
CMPSC 421	Net-centric Computing	
CMPSC 438	Computer Network Architecture and Programming	
CMPSC 441	Artificial Intelligence	
CMPSC 444	Secure Programming	
CMPSC 445	Applied Machine Learning in Data Science	
CMPSC 446	Data Mining	
CMPSC/MATH 455	Introduction to Numerical Analysis I	
CMPSC 457	Computer Graphics Algorithms	
CMPSC 475	Applications Programming	
CMPSC 496	Independent Studies	
CMPSC 497	Special Topics	
MATH 425	Introduction to Operations Research	
MATH 485	Graph Theory	
Select 6 credits from the following:		6
CMPSC 313	Assembly Language Programming	
CMPSC 412	Data Structures Lab	
CMPSC 413	Algorithms Lab	
CMPSC 414	Contest Programming	
CMPSC 421	Net-centric Computing	
CMPSC 438	Computer Network Architecture and Programming	
CMPSC 441	Artificial Intelligence	
CMPSC 444	Secure Programming	
CMPSC 445	Applied Machine Learning in Data Science	
CMPSC 446	Data Mining	
CMPSC/MATH 455	Introduction to Numerical Analysis I	
CMPSC 457	Computer Graphics Algorithms	
CMPSC 475	Applications Programming	
CMPSC 496	Independent Studies	
CMPSC 497	Special Topics	
MATH 401	Introduction to Analysis I	
MATH 410	Complex Analysis for Mathematics and Engineering	
MATH 411	Ordinary Differential Equations	
MATH 412	Fourier Series and Partial Differential Equations	
MATH 425	Introduction to Operations Research	
MATH 430	Linear Algebra and Discrete Models I	
MATH 435	Basic Abstract Algebra	
MATH 448	Mathematics of Finance	
MATH 465	Number Theory	
MATH 468	Mathematical Coding Theory	

MATH 485	Graph Theory	
MATH 496	Independent Studies	
MATH 497	Special Topics	
STAT 401	Experimental Methods	
STAT/MATH 415	Introduction to Mathematical Statistics	
STAT 462	Applied Regression Analysis	
STAT 463	Applied Time Series Analysis	
<i>Additional Courses: Require a grade of C or better</i>		
CMPSC 121	Introduction to Programming Techniques	3
or CMPSC 131	Programming and Computation I: Fundamentals	
CMPSC 122	Intermediate Programming	3
or CMPSC 132	Programming and Computation II: Data Structures	
Supporting Courses and Related Areas		
Select 3 credits of unrestricted electives at 300-400 level		3
Select 5 credits of unrestricted electives at 100-400 level		5

¹ Students must earn a 2.5 or higher grade point average in the following courses:

- For the General Option: CMPSC 221, CMPSC 312, CMPSC 360, CMPSC 430, CMPSC 460, CMPSC 462, CMPSC 463, CMPSC 469, CMPSC 470, CMPSC 472, CMPSC 487W, and CMPSC 488
- For the Data Science Option: DS 220, CMPSC 312, CMPSC 360, CMPSC 430, CMPSC 445, CMPSC 446, CMPSC 460, CMPSC 462, CMPSC 463, CMPSC 469, CMPSC 472, CMPSC 487W, and CMPSC 488

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Computer Science and M.S. in Computer Science

Available at the following campuses: Harrisburg

Requirements for the Integrated B.S. in Computer Science and M.S. in Computer Science can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/computer-science/#integratedundergradgradprogramstext>).

bulletins.psu.edu/graduate/programs/majors/computer-science/#integratedundergradgradprogramstext).

Program Learning Objectives

- **Know Algorithmic Problem Solving and Analysis:** Formulate and solve problems using appropriate data structures and algorithmic techniques; analyze the efficiency and correctness of the algorithms.
- **Know Computer Hardware and Operating Systems:** Analyze the effects of computer hardware and operating systems design on the efficiency and correctness of software systems.
- **Know Programming Language Paradigms:** Express algorithms clearly and correctly in a variety of programming languages
- **Know Theoretical Foundations of Computer Science:** Explain and use the theoretical foundations of computer science effectively
- **Use Software Engineering Skills:** Design and implement large software systems through a strong foundation in the software development lifecycle, effective communication, and team work

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

General Option: Computer Science, B.S. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
CMPSC 121 or 131 ^{*#}	3	CMPSC 122 or 132 ^{*#}	3
MATH 140 ^{*#†}	4	MATH 141 ^{*#†}	4
ENGL 15S, 30T, or ESL 15 [‡]	3	PHYS 211 [†]	4
General Education Course	3	CAS 100A or 100S [‡]	3
General Education Course	3	General Education Course (GHW)	1.5
		16	15.5

Second Year

Fall	Credits	Spring	Credits
CMPSC 221	3	CMPSC 330 [*]	3
CMPSC 312	3	CMPSC 360 [*]	3
MATH 220	2	ENGL 202C [‡]	3
General Education Course	3	General Education Course	3
General Education Course	3	General Education Course	3
General Education Course (GHW)	1.5		
		15.5	15

Third Year

Fall	Credits	Spring	Credits
MATH/STAT 318 or STAT 414	3	CMPSC 430	3
CMPSC/MATH/STAT elective chosen from department list ¹	3	CMPSC 462	3
General Education Course	3	CMPSC 469	3
100-400 Level Elective	3	CMPSC/MATH/STAT elective chosen from department list ¹	3
300-400 Level Elective	3	General Education Course	2
		15	14

Fourth Year

Fall	Credits	Spring	Credits
CMPSC 463	3	CMPSC 460	3
CMPSC 472	3	CMPSC 470	3
CMPSC 487W	3	CMPSC 488	3
CMPSC/MATH/STAT electives chosen from department list ¹	3	CMPSC/MATH/STAT elective chosen from department list ¹	3

CMPSC/MATH/STAT electives chosen from department list ¹	3	100-400 Level Elective	2
		15	14

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ 9 credits should be in CMPSC.

² Courses listed as "General Education" total 23 credits and should include 3 credits of GA, 3 credits of GH, 2 credits of GN, 3 credits of GS, 6 credits of Inter-Domain, and 6 credits of Exploration. PHYS 212 is recommended to satisfy the 2 credits of GN. The remaining 2 credits can be applied to the Exploration category or the 100-400 level general electives.

³ Students must earn a 2.5 or higher grade point average in the following courses: CMPSC 221, CMPSC 312, CMPSC 330, CMPSC 360, CMPSC 430, CMPSC 460, CMPSC 462, CMPSC 463, CMPSC 469, CMPSC 470, CMPSC 472, CMPSC 487W, and CMPSC 488.

⁴ Students in the Computer Science (COMP_BS) major are required to complete 21 of the 27 credits of 400-level prescribed courses for the major, including the senior capstone course, at Penn State Harrisburg. This is in compliance with Faculty Senate Policy 83-80.5.

⁵ CMPSC/MATH/STAT electives should be chosen from the following lists:

- CMPSC 313, CMPSC 412, CMPSC 413, CMPSC 438, CMPSC 441, CMPSC 444, CMPSC 445, CMPSC 446, CMPSC 455, CMPSC 457, CMPSC 475, CMPSC 496, CMPSC 497
- MATH 401, MATH 411, MATH 412, MATH 425, MATH 430, MATH 431, MATH 435, MATH 445, MATH 449, MATH 450, MATH 455, MATH 465, MATH 468, MATH 496, MATH 497
- STAT 401, STAT 415, STAT 462, STAT 463

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Data science Option: Computer Science, B.S. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
CMPSC 131 ^{*#}	3	CMPSC 132 ^{*#}	3
MATH 140 ^{*#†}	4	MATH 141 ^{*#†}	4
ENGL 15S, 30T, or ESL 15 [‡]	3	PHYS 211 [†]	4
General Education Course	3	CAS 100A or 100S [‡]	3
General Education Course	3	General Education Course (GHW)	1.5
		16	15.5

Second Year

Fall	Credits	Spring	Credits
CMPSC 312	3	CMPSC 330 [*]	3
DS 220	3	CMPSC 360 [*]	3
MATH 220	2	ENGL 202C [‡]	3
General Education Course	3	STAT 401	3
General Education Course	3	General Education Course	3
General Education Course (GHW)	1.5		
		15.5	15

Third Year

Fall	Credits	Spring	Credits
CMPSC 441	3	CMPSC 430	3
MATH/STAT 318 or STAT 414	3	CMPSC 445	3
General Education Course	3	CMPSC 462	3
General Education Course	3	CMPSC 469	3
100-400 Level Elective	3	General Education Course	2
		15	14

Fourth Year

Fall	Credits	Spring	Credits
CMPSC 463	3	CMPSC 446	3
CMPSC 472	3	CMPSC 460	3
CMPSC 487W	3	CMPSC 488	3
STAT 462	3	CMPSC/MATH/STAT elective chosen from department list	3
CMPSC/MATH/STAT elective chosen from department list	3	100-400 Level Elective	2
		15	14

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Courses listed as "General Education" total 23 credits and should include 3 credits of GA, 3 credits of GH, 2 credits of GN, 3 credits of GS, 6 credits of Inter-Domain, and 6 credits of Exploration. PHYS 212 is recommended to satisfy the 2 credits of GN. The remaining 2 credits can be applied to the Exploration category or the 100-400 level general electives.

² Students must earn a 2.5 or higher grade point average in the following courses: DS 220, CMPSC 312, CMPSC 330, CMPSC 360, CMPSC 430, CMPSC 441, CMPSC 460, CMPSC 445, CMPSC 446, CMPSC 462, CMPSC 463, CMPSC 469, CMPSC 472, CMPSC 487W, and CMPSC 488.

³ Students in the Computer Science (COMP_BS) major are required to complete 27 of the 33 credits of 400-level prescribed courses for the major, including the senior capstone course, at Penn State Harrisburg. This is in compliance with Faculty Senate Policy 83-80.5.

⁴ CMPSC/MATH/STAT electives should be chosen from the following lists:

- CMPSC 313, CMPSC 412, CMPSC 413, CMPSC 438, CMPSC 444, CMPSC 455, CMPSC 457, CMPSC 470, CMPSC 475, CMPSC 496, CMPSC 497
- MATH 401, MATH 411, MATH 412, MATH 425, MATH 430, MATH 431, MATH 435, MATH 445, MATH 449, MATH 450, MATH 455, MATH 465, MATH 468, MATH 496, MATH 497
- STAT 415, STAT 463

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

Computer Science jobs are expected to be among the top three fastest growing occupations and one of the top 20 in the number of new jobs created. According to the U.S. Bureau of Labor Statistics, employment opportunities for Computer Science graduates are projected to grow 11 percent from 2019 to 2029, faster than the average for all occupations. Computer Science students are encouraged to incorporate internships into their academic program. Internships can provide valuable hands-on experience that will benefit graduates during their job search. Previous students have completed successful internships with state government, Google, Amazon, Facebook, Microsoft, IBM, UNISYS, and other businesses.

Careers

This program is designed to prepare students for employment as computer scientists in engineering, scientific, industrial, and business environments as software developers, programmers, and systems

analysts. Over the last few years, Penn State Harrisburg Computer Science graduates have obtained positions with companies such as Blue Cross/Blue Shield, Google, Boeing, Microsoft, Intel, IBM, Oracle, General Dynamics, Northrop and Grumman, GEOS, Hershey Medical Center, Woolworth, Rite Aid, and EDS.

Opportunities for Graduate Studies

The program provides a sound background for students who plan to pursue graduate studies in computer science, including Penn State's Master of Science in Computer Science program. Selection of electives can be tailored for students pursuing this path.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://harrisburg.psu.edu/science-engineering-technology/computer-science-ms/>)

Professional Resources

- Association for Computer Machinery (ACM) (<https://www.acm.org/>)
- IEEE (<https://www.ieee.org/>)

Contact

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Computer Science, Minor (Capital)

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

Computing has become an essential component of many disciplines, and it is driving innovation in fields far beyond computer science. The minor in Computer Science at Penn State Harrisburg provides basic proficiency in computer science, with an emphasis on building both a theoretical framework for computer science and providing practical skills needed to apply computer science to other fields of study. The knowledge and skills gained in the minor expands opportunities for students seeking careers in the growing number of fields that require a strong foundation in computer science. In addition, for students seeking to pursue graduate

study, the minor provides background knowledge for the computing intensive aspects of their chosen discipline.

The minor begins with the second-level course in computer programming (CMPSC 122 or CMPSC 132), a course in object-oriented programming in either Java or C++ (CMPSC 221 or CMPSC 330), a course in discrete math for computer science (CMPSC 360), and a course in data structures (CMPSC 462). These twelve credits are followed with an additional six credits of 400-level work in computer science (CMPSC).

What is Computer Science?

Computer science is the study of computational methods, including their principles and foundations, their efficient implementation, their analyses, and their practical application in wide-ranging areas. It includes the foundations of software development, computational problem solving, the principles of system software, and the fundamental principles and limits of computing. It is much more than just programming. It includes the mathematical foundations that support analyzing, evaluating, and proving the correctness of computational solutions. It includes specializations such as artificial intelligence, machine learning, cybersecurity, data mining, high-performance computing, computer networks, computer graphics, computer vision, quantum computing, and others. It is continually evolving with the development of new and faster forms of computation and with the identification of new problems that require computational solutions.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CMPSC 360	Discrete Mathematics for Computer Science	3
CMPSC 462	Data Structures	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
CMPSC 122	Intermediate Programming ¹	3
	or CMPSC 132 Programming and Computation II: Data Structures	
CMPSC 221	Object Oriented Programming with Web-Based Applications	3
	or CMPSC 330 Advanced Programming in C++	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better
Select 6 credits of 400-level CMPSC courses from the department list of approved Additional Courses 6

¹ CMPSC 121 and MATH 140 are prerequisites for CMPSC 122.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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<https://harrisburg.psu.edu/science-engineering-technology/computer-science-minor> (<https://harrisburg.psu.edu/science-engineering-technology/computer-science-minor/>)

Criminal Justice, A.S. (Capital)

Begin Campus: Harrisburg, World Campus

End Campus: Harrisburg, World Campus

Program Description

Students receiving an associate degree in criminal justice should understand each of the three main components of the criminal justice system and their interrelationships. This program includes study in law enforcement, courts, and corrections individually and as components of a system, plus work in theories of crime causation, and crime control policy. Students should expect reading, writing, and critical thinking skills to be rigorously applied and developed throughout the degree program. The Associate in Science degree in Criminal Justice prepares students for entry-level positions in criminal justice or for study at the baccalaureate level.

What is Criminal Justice?

Criminal justice is the study of the adult and juvenile justice systems, including law enforcement, the courts, and corrections. It is interdisciplinary and includes understanding the intersections of law,

public policy, and behavioral science, in an effort to understand crime as a social problem and improve these systems for the good of society.

You Might Like This Program If...

You have an interest in working in corrections, courts, court administration, law enforcement, or probation and parole. Students completing this course of study are prepared for entry level positions in the criminal justice system or to complete the baccalaureate level.

MORE INFORMATION ABOUT CRIMINAL JUSTICE (<https://altoona.psu.edu/academics/bachelors-degrees/criminal-justice/>)

Entrance to Major

Students must have a minimum 2.0 GPA to change to this Associate degree after admission to the University.

Degree Requirements

For the Associate in Science in Criminal Justice, a minimum of 64 credits is required:

Requirement	Credits
General Education	21
Electives	26
Requirements for the Major	29

12 of the 21 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GH courses; 3 credits of GQ courses; 6 credits of GS courses.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CRIMJ 100	Introduction to Criminal Justice	3
CRIMJ 210	Policing in America	3
CRIMJ 220	Courts and the Prosecution Process	3
CRIMJ 230	Corrections in America	3
PHIL 103	Ethics	3
SOC 12	Criminology	3
SOC 119N	Race, Ethnicity and Culture	4
STAT 200	Elementary Statistics	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
CRIMJ 250		3
or SOC 207	Research Methods in Sociology	

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense

of aesthetic appreciation. These are requirements for all associate degree students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 3 credits
- **Writing and Speaking (GWS):** 3 credits

Knowledge Domains

- **Arts (GA):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Note: Up to six credits of Inter-Domain courses may be used for any Knowledge Domain requirement, but when a course may be used to satisfy more than one requirement, the credits from the course can be counted only once.

Exploration

- **Any General Education course (including GHW and Inter-Domain):** 3 credits

University Degree Requirements

Cultures Requirement

3 credits of United States (US) or International (IL) cultures coursework are required and may satisfy other requirements

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 60 degree credits must be earned for a associates degree. The requirements for some programs may exceed 60 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of

both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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 (<https://greaterallegheny.psu.edu/academics/criminal-justice-associate/>)

Criminal Justice, B.S. (Capital)

Begin Campus: Any Penn State Campus

End Campus: Harrisburg, World Campus

Program Description

The Bachelor of Science degree program in Criminal Justice helps provide its graduates with the communications and analytical skills critical to succeed in criminal justice and related careers. Through an interdisciplinary approach to the problems of crime and society, the program also equips students to pursue graduate study in criminal justice or related disciplines, and educates students to become effective problem-solvers as professionals in the field of criminal justice.

The study of criminal justice is approached as an applied interdisciplinary science, teaching students both the theoretical and the practical aspects of crime control and the administration of justice. The Criminal Justice curriculum provides students with the opportunity and assistance to acquire knowledge of the roles of policing, courts, laws, and corrections as they relate to both the adult and juvenile justice system. Students also gain knowledge of the history, concepts, and critical issues related to the role of gender and race/ethnicity in the criminal justice system, victimology, and ethics in criminal justice. The curriculum further provides a theoretical foundation of the discipline, combined with a thorough understanding of the scientific method as it applies to criminal justice. This combination is expected to sharpen the students' talents of reasoning and judgment, qualities imperative to rational functioning in criminal justice and related professions.

What is Criminal Justice?

Criminal justice is the study of the adult and juvenile justice systems, including law enforcement, the courts, and corrections. It is interdisciplinary and includes understanding the intersections of law, public policy, and behavioral science, in an effort to understand crime as a social problem and improve these systems for the good of society.

You Might Like This Program If...

- You enjoy helping others, or doing something for the greater good.
- You are interested in all aspects of the law, including the psychology behind criminal behavior and the way criminal justice and social service agencies operate.
- You want to serve society and have good people skills.
- You are interested in a career in law enforcement, the courts, corrections, or another part of the criminal justice system.

Entrance to Major

The student must have a 2.00 cumulative grade-point average and an average of C (2.00) or better in any course already taken in the major.

Admission Requirements for Transfer Students

Transfer applicants must have at least a 2.00 cumulative grade-point average (4.00 scale). The evaluation of prior college work is conducted on an individual basis by the Office of Enrollment Services at both campuses.

World Campus

Direct Admission to the Major

Incoming first-year students who meet the program admission requirements are admitted directly into the major. Admission restrictions may apply for change-of-major and/or change-of-campus students.

For more information about the admission process for this major, please send a request to the college, campus, or program contact (listed in the Contact tab).

Degree Requirements

For the Bachelor of Science degree in Criminal Justice, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	18
Requirements for the Major	60-61

3-4 of the 45 credits for General Education are included in the Requirements for the Major. This includes 3-4 credits of GQ courses.

Requirements for the Major

At least 9 credits in Additional Courses and/or Supporting Courses must be at the 400 level.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CRIMJ/SOC 12	Criminology	3
CRIMJ/CRIM 100	Introduction to Criminal Justice	3
CRIMJ 210	Policing in America	3
CRIMJ 220	Courts and the Prosecution Process	3
CRIMJ 230	Corrections in America	3
CRIMJ 250W	Research Methods in Criminal Justice	3
CRIMJ 450W	Senior Seminar	3
CRIMJ 465	Ethics in Criminal Justice	3
Additional Courses		
Select 6 credits each from sequence A and B or 12 credits from sequence C:		12
<i>Sequence A</i>		
CRIMJ 221	Issues in the American Criminal Justice System	
CRIMJ 234	Fundamental Techniques of Scientific Criminal Investigation	
CRIMJ 241	Computer Applications in Public Affairs/Criminal Justice	
<i>Sequence B</i>		
CRIMJ 389	Gangs and Gang Behavior	
CRIMJ/SOC/CRIM 406	Sociology of Deviance	
CRIMJ 407	Victimology	
CRIMJ 408	Police Administration	
CRIMJ 409	White Collar Crime	
CRIMJ 410	The Pennsylvania Court System	
CRIMJ/SOC/CRIM 413	Advanced Criminological Theory	
CRIMJ/SOC 414	Criminal Careers and the Organization of Crime	
CRIMJ 415	Drug Control Policy in Comparative Perspective	
CRIMJ 416	The Death Penalty	
CRIMJ/CRIM 421	Violent Crime in the United States	
CRIMJ/WMNST/CRIM 423	Sexual and Domestic Violence	
CRIMJ/CRIM 425	Organized Crime	
CRIMJ 426	Special Offender Types	
CRIMJ 430	Alternatives to Incarceration	
CRIMJ 431	Offender and Prisoner Rights	
CRIMJ/CRIM 441	The Juvenile Justice System	
CRIMJ/WMNST/CRIM 453	Women and the Criminal Justice System	
CRIMJ 460	History and Function of Criminal Justice Components	
CRIMJ 462	Comparative Criminal Justice Systems	
CRIMJ/HIST 469	Drugs and Drug Policy in the United States	
CRIMJ 489W	Victimology: Predatory Crime	
CRIMJ 495	Internship in Criminal Justice	
CRIMJ 496	Independent Studies	
CRIMJ 497	Special Topics	
<i>Additional Courses: Require a grade of C or better</i>		
CRIMJ 260	Statistical Analysis for the Social Sciences or STAT 200 Elementary Statistics	3-4

CRIMJ 489W	Victimology: Predatory Crime	
CRIMJ 495	Internship in Criminal Justice	
CRIMJ 496	Independent Studies	
CRIMJ 497	Special Topics	
<i>Sequence C</i>		
CRIMJ 304	Security Administration	
CRIMJ 389	Gangs and Gang Behavior	
CRIMJ/SOC/CRIM 406	Sociology of Deviance	
CRIMJ 407	Victimology	
CRIMJ 408	Police Administration	
CRIMJ 409	White Collar Crime	
CRIMJ 410	The Pennsylvania Court System	
CRIMJ/SOC/CRIM 413	Advanced Criminological Theory	
CRIMJ/SOC 414	Criminal Careers and the Organization of Crime	
CRIMJ 415	Drug Control Policy in Comparative Perspective	
CRIMJ 416	The Death Penalty	
CRIMJ/CRIM 421	Violent Crime in the United States	
CRIMJ/WMNST/CRIM 423	Sexual and Domestic Violence	
CRIMJ/CRIM 425	Organized Crime	
CRIMJ 426	Special Offender Types	
CRIMJ 430	Alternatives to Incarceration	
CRIMJ 431	Offender and Prisoner Rights	
CRIMJ/CRIM 441	The Juvenile Justice System	
CRIMJ/WMNST/CRIM 453	Women and the Criminal Justice System	
CRIMJ 460	History and Function of Criminal Justice Components	
CRIMJ 462	Comparative Criminal Justice Systems	
CRIMJ/HIST 469	Drugs and Drug Policy in the United States	
CRIMJ 489W	Victimology: Predatory Crime	
CRIMJ 495	Internship in Criminal Justice	
CRIMJ 496	Independent Studies	
CRIMJ 497	Special Topics	
<i>Additional Courses: Require a grade of C or better</i>		
CRIMJ 260	Statistical Analysis for the Social Sciences or STAT 200 Elementary Statistics	3-4
Supporting Courses and Related Areas		
Select 6 credits: 3 credits at the 200 level and 3 credits at the 300 and 400 level or 6 credits at the 300 and 400 level from the following: AFRAS, BESC, PLSC, PUBPL, PSYCH, SOC		6
Select 15 credits in consultation with an academic adviser and in support of the student's interests. For information about specific courses in this area, contact the School of Public Affairs.		15

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Criminal Justice and M.A. in Criminal Justice

Available at the following campuses: Harrisburg

Requirements for the Integrated B.S. in Criminal Justice and M.A. in Criminal Justice can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/criminal-justice/#integratedundergradgradprogramstext>).

Program Learning Objectives

- Interpret behavior and social circumstances from a criminological perspective.
- Apply empirical evidence to describe how the use of the broad discretionary powers of police is controlled and to evaluate innovations in policing.
- Apply law, procedure, and legal philosophy to criminal justice and judicial processes.
- Apply the goals of corrections and principles of behavior modification to offenders and offender populations.
- Employ social science methodology to address criminal justice problems.
- Demonstrate proficiency in written communication at a level appropriate to criminal justice professionals.
- Incorporate contemporary scholarly perspectives on ethics and social justice into decision-making.

Academic Advising

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Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary

academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Harrisburg

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Suggested Academic Plan

Criminal Justice, B.S. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 15S, 30T, or ESL 15 [†]	3 CRIMJ 12 [*]	3
Quantification (GQ)	3 CAS 100A or 100S [‡]	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course	3
	13.5	15

Second Year

Fall	Credits Spring	Credits
CRIMJ 100 [*]	3 CRIMJ 220 [*]	3
General Education Course	3 ENGL 202A, 202B, 202C, or 202D [‡]	3
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course	3
Elective	3 Elective	3
	13.5	15

Third Year

Fall	Credits Spring	Credits
CRIMJ 250W [*]	3 CRIMJ 260 or STAT 200 ^{**}	3-4
CRIMJ 210 [*]	3 Select 3 credits of CRIMJ additional courses from list	6

CRIMJ 230 [*]	3 Select 3 credits in consultation with adviser	3
200-300-400 level from the following: AFRAS, BESC, PLSC, PUBPL, PSYCH, SOC	3 Elective	3
Select credits in consultation with adviser	3	

15 **15-16**

Fourth Year

Fall	Credits Spring	Credits
Select CRIMJ additional courses from list	6 CRIMJ 450W [*]	3
300-400 level from the following: AFRAS, BESC, PLSC, PUBPL, PSYCH, SOC	3 CRIMJ 465 [*]	3
Select credits in consultation with adviser	6 Select credits in consultation with adviser	3
	Elective	7-8
	15	16-17

Total Credits 118-120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes

Internship credits do not count toward criminal justice electives, but can count toward "credits taken in consultation with adviser."

Select 6 credits from the following:

- CRIMJ 200 - Introduction to Security and Loss Control
- CRIMJ 201 - American Legal System (3)
- CRIMJ 221 - Issues in the American Criminal Justice System (3)
- CRIMJ 234 - Fundamental Techniques of Scientific Criminal Investigation (3)
- CRIMJ 241 - Computer Applications in Public Affairs (3)

and Select 6 credits from the following:

- CRIMJ 300H - Honors Seminar; Issues and Trends in Criminal Justice (3-6)

- CRIMJ 301H - (3-6)
- CRIMJ 304 - Security Administration (3)
- CRIMJ 310 - Forensic Science I (3)
- CRIMJ 345 - Criminal Justice and the Community (3)
- CRIMJ 389 - Gangs and Gang Behavior (3)
- CRIMJ 406 - Sociology of Deviance (3)
- CRIMJ 407 - Victimology (US) (3)
- CRIMJ 408 - Legal Aspects of Law Enforcement (3)
- CRIMJ 410 - The Pennsylvania Court System (3)
- CRIMJ 412 - Crime, Social Control, and the Legal System (3)
- CRIMJ 413 - Advanced Criminological Theory (3)
- CRIMJ 414 - Criminal Careers and the Organization of Crime (3)
- CRIMJ 415 - Drug Control Policy in Comparative Perspective (3)
- CRIMJ 416 - The Death Penalty (3)
- CRIMJ 421 - Violent Crime (3)
- CRIMJ 422 - Victimization (3)
- CRIMJ 423 - Sexual and Domestic Violence (US) (3)
- CRIMJ 424 - (CRIM 424) Drugs and Crime
- CRIMJ 425 - Organized Crime (3)
- CRIMJ 426 - Special Offender Types (3)
- CRIMJ 430 - Criminal Law (3)
- CRIMJ 431 - Offender and Prisoner Rights (3)
- CRIMJ 435 - Border Security (3)
- CRIMJ 439 - (PLSC 439) The Politics of Terrorism (3)
- CRIMJ 441 - (US) (CRIM 441) The Juvenile Justice System (3)
- CRIMJ 451 - (US) (CRIM 451) Race, Crime, and Justice (3)
- CRIMJ 453 - Women and the Criminal Justice System (US) (3)
- CRIMJ 455 - Contemporary Issues in Law Enforcement (3)
- CRIMJ 460 - History and Function of Criminal Justice components (3)
- CRIMJ 462 - Comparative Criminal Justice Systems (3)
- CRIMJ 467 - (SOC 467), CRIM 467 Law and Society (3)
- CRIMJ 469 - (HIST 469) Drugs and Drug Policy in the United States (3)
- CRIMJ 471 - Legal Rights, Duties, Liabilities of Criminal Justice Personnel (3)
- CRIMJ 473 - Criminal Procedure and Evidence in the Business Community (3)
- CRIMJ 482 - (CRIM 482) Seminar, Criminal Justice Agency Administration
- CRIMJ 489W - Victimology: Predatory Crime (3)
- CRIMJ 494 - Research Topics (3)
- CRIMJ 494H - Research Topics (3)
- CRIMJ 495 - Internship in Criminal Justice (3-12)
- CRIMJ 496 - Independent Studies (1-18)
- CRIMJ 497 - Special Topics (1-9)
- CRIMJ 499 - (IL) Foreign Studies
- CRIMJ 345 - Criminal Justice and the Community (3)
- CRIMJ 389 - Gangs and Gang Behavior (3)
- CRIMJ 406 - Sociology of Deviance (3)
- CRIMJ 407 - Victimology (US) (3)
- CRIMJ 408 - Legal Aspects of Law Enforcement (3)
- CRIMJ 410 - The Pennsylvania Court System (3)
- CRIMJ 412 - Crime, Social Control, and the Legal System (3)
- CRIMJ 413 - Advanced Criminological Theory (3)
- CRIMJ 414 - Criminal Careers and the Organization of Crime (3)
- CRIMJ 415 - Drug Control Policy in Comparative Perspective (3)
- CRIMJ 416 - The Death Penalty (3)
- CRIMJ 421 - Violent Crime (3)
- CRIMJ 422 - Victimization (3)
- CRIMJ 423 - Sexual and Domestic Violence (US) (3)
- CRIMJ 424 - (CRIM 424) Drugs and Crime
- CRIMJ 425 - Organized Crime (3)
- CRIMJ 426 - Special Offender Types (3)
- CRIMJ 430 - Criminal Law (3)
- CRIMJ 431 - Offender and Prisoner Rights (3)
- CRIMJ 435 - Border Security (3)
- CRIMJ 439 - (PLSC 439) The Politics of Terrorism (3)
- CRIMJ 441 - (US) (CRIM 441) The Juvenile Justice System (3)
- CRIMJ 451 - (US) (CRIM 451) Race, Crime, and Justice (3)
- CRIMJ 453 - Women and the Criminal Justice System (US) (3)
- CRIMJ 455 - Contemporary Issues in Law Enforcement (3)
- CRIMJ 460 - History and Function of Criminal Justice components (3)
- CRIMJ 462 - Comparative Criminal Justice Systems (3)
- CRIMJ 467 - (SOC 467), CRIM 467 Law and Society (3)
- CRIMJ 469 - (HIST 469) Drugs and Drug Policy in the United States (3)
- CRIMJ 471 - Legal Rights, Duties, Liabilities of Criminal Justice Personnel (3)
- CRIMJ 473 - Criminal Procedure and Evidence in the Business Community (3)
- CRIMJ 482 - (CRIM 482) Seminar, Criminal Justice Agency Administration
- CRIMJ 489W - Victimology: Predatory Crime (3)
- CRIMJ 494 - Research Topics (3)
- CRIMJ 494H - Research Topics (3)
- CRIMJ 495 - Internship in Criminal Justice (3-12)
- CRIMJ 496 - Independent Studies (1-18)
- CRIMJ 497 - Special Topics (1-9)
- CRIMJ 499 - (IL) Foreign Studies

or Select 12 credits from the following:

- CRIMJ 300H - Honors Seminar; Issues and Trends in Criminal Justice (3-6)
- CRIMJ 301H - (3-6)
- CRIMJ 304 - Security Administration (3)
- CRIMJ 310 - Forensic Science I (3)

Career Paths

According to the U.S. Bureau of Labor Statistics, employment opportunities in criminal justice professions are projected to grow through the year 2026. In addition, the 2017 Occupational Outlook Handbook reports that employment opportunities for substance abuse, behavioral disorder, and mental health counselors are expected to grow 20 percent through the year 2026, much faster than the national average for all occupations. Police officers have the highest rate of projected openings each year in the criminal justice field.

Careers

Penn State Harrisburg criminal justice graduates have pursued opportunities with the Federal Bureau of Investigation, the U.S. Secret Service, the U.S. Marshals' Office, sheriffs' departments, municipal and state police departments, security and loss prevention programs, court administration, legal aid/paralegal, delinquency prevention programs, juvenile court personnel, youth shelters and other juvenile residential institutions, victim advocate, and probation and parole offices.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE CRIMINAL JUSTICE PROGRAM (<https://harrisburg.psu.edu/public-affairs/criminal-justice-bs/>)

Opportunities for Graduate Studies

While job opportunities are increasing, so is the level of qualified applicants, which makes the field much more competitive. Those interested in working at the federal level and those wishing to pursue supervisory and other upper-level positions in criminal justice are especially encouraged to obtain a graduate degree. Furthermore, a graduate degree in criminal justice, such as Penn State's Master of Arts in Criminal Justice, is a great step for those interested in doctoral studies or a career in the legal system.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://harrisburg.psu.edu/public-affairs/criminal-justice-ma/>)

Contact

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<https://harrisburg.psu.edu/public-affairs/criminal-justice-bs> (<https://harrisburg.psu.edu/public-affairs/criminal-justice-bs/>)

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<https://www.worldcampus.psu.edu/degrees-and-certificates/criminal-justice-bachelors/overview> (<https://www.worldcampus.psu.edu/degrees-and-certificates/criminal-justice-bachelors/overview/>)

Cybersecurity Analytics and Operations, B.S. (Capital)

Begin Campus: Any Penn State Campus

End Campus: Harrisburg

Program Description

The Bachelor of Science in Cybersecurity Analytics and Operations in the College of Information Sciences and Technology (IST) is an interdisciplinary program that prepares students for careers as cybersecurity professionals. It educates students on the essential concepts of cyber-defense and the analytical fundamentals of

cybersecurity, with a focus on the analytical and risk management underpinnings and associated cyber-defense techniques and strategies for ensuring the safety of online information stored in large and heterogeneous networks that are embedded within and across the complex socio-technical infrastructures that are pervasive in today's business, government and military organizations. Students will acquire the knowledge and skills needed to critically assess and respond to modern information security threats, using approaches that are grounded in a holistic understanding of adversarial strategies and effective responses. More specifically, it will offer an in-depth and domain-independent approach to the development of skills in cyberdefense technologies, tools and processes; cybersecurity analytics and visualization; and cybersecurity risk analysis and management. The major draws from concepts and skills associated with a number of disciplines, including information science, management science, statistics and data science, human behavior, and law/policy. Graduates will be prepared to join the rapidly growing cybersecurity workforce deployed across organizations of diverse sizes and missions.

What is Cybersecurity Analytics and Operations?

Cybersecurity is a field that deals with the protection of computer systems, networks, programs, and data from attacks and unauthorized access. This includes the development of cyber defense tools to protect critical infrastructure as well as the analysis and mitigation of cyber threats.

Cybersecurity is a very broad field. This program focuses students beyond the information technology field and instead focuses on the analysis of cybersecurity data, identification of cyber incidents, understanding the actions of malware, communication of concerns to business stakeholders and the general public. High performing cyber analysts have a strong mathematical and computational background. They often employ computer programming and scripting to solve problems and integrate existing tools. They analyze the data they are presented with from intrusion detection sensors, firewalls, and anti-malware tools.

Cybersecurity professionals apply their skills for organizations to prevent cyber criminals, hackers, and persistent nation-state actors. They protect organizations, companies, healthcare institutions, and government agencies from the loss of confidential data. They keep abreast of new developments technically, as well as those in the work domain of the organization and events that occur in the world at large.

MORE INFORMATION ABOUT CYBERSECURITY ANALYTICS AND OPERATIONS (<https://ist.psu.edu/prospective/undergraduate/academics/cybersecurity/>)

You Might Like This Program If...

- You enjoy working with and on computers as well as their operating systems and applications.
- You have an interest in business and organizations and securing
- You want to protect digital information, data stores, and computer networks from threats.
- You want to learn the cyber defense strategies used to anticipate, recognize, and defend against computer attacks.
- You're passionate about how we can keep sensitive information out of the hands of hackers, cybercriminals, and terrorist organizations.

- You enjoy working on a team to solve technical problems for organizations.
- You are interested in computer programming and mathematics.

MORE INFORMATION ABOUT WHY STUDENTS CHOOSE TO STUDY CYBERSECURITY ANALYTICS AND OPERATIONS (<https://ist.psu.edu/prospective/undergraduate/academics/cybersecurity/>)

Entrance to Major

To be eligible for the Cybersecurity Analytics and Operations major, students must:

1. Have completed the following entrance-to-major requirements with a grade of C or better in each: CYBER 100 or CYBER 100S, IST 210, IST 220, IST 242 or CMPSC 122 or CMPSC 132, and STAT 200 or SCM 200.
2. Have achieved a minimum cumulative grade point average of 2.00 prior to and through the end of the semester during which the entrance to major is requested.

Degree Requirements

For the B.S. degree in Cybersecurity Analytics and Operations, a minimum of 123 credits is required:

Requirement	Credits
General Education	45
Electives	3
Requirements for the Major	87

12 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GQ courses, 3 credits of GS courses, 3 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CYBER 262	Cyber-Defense Studio	3
CYBER 342W	Cyber Incident Handling and Response	3
CYBER 362	Cybersecurity Analytics Studio	3
CYBER 366	Malware Analytics	3
CYBER 440	Cybersecurity Capstone	3
IST 210	Organization of Data	3
IST 220	Networking and Telecommunications	3
IST 230	Language, Logic, and Discrete Mathematics	3
IST 432	Legal and Regulatory Environment of Information Science and Technology	3
IST 451	Network Security	3
IST 454	Computer and Cyber Forensics	3
IST 456	Information Security Management	3
IST 495	Internship	1
SRA 111	Introduction to Security and Risk Analysis	3

SRA 211	Threat of Terrorism and Crime	3
SRA 221	Overview of Information Security	3
SRA 231	Decision Theory and Analysis	3
SRA 311	Risk Analysis in a Security Context	3
SRA 365	Statistics for Security and Risk Analysis	3

Additional Courses

Additional Courses: Require a grade of C or better

CYBER 100	Computer Systems Literacy	3
	or CYBER 100S Computer Systems Literacy	
ENGL 202C	Effective Writing: Technical Writing	3
	or ENGL 202D Effective Writing: Business Writing	
MATH 110	Techniques of Calculus I	4
	or MATH 140 Calculus With Analytic Geometry I	
STAT 200	Elementary Statistics	4
	or SCM 200 Introduction to Statistics for Business	
Select one of the following:		3
CMPSC 121	Introduction to Programming Techniques	
CMPSC 131	Programming and Computation I: Fundamentals	
IST 140	Introduction to Application Development	
Select one of the following:		3
CMPSC 122	Intermediate Programming	
CMPSC 132	Programming and Computation II: Data Structures	
IST 242	Intermediate & Object-Oriented Application Development	
Select one of the following:		3
IST 256	Programming for the Web	
IST 261	Application Development Design Studio I	
IST 361	Application Development Design Studio II	

Supporting Courses and Related Areas

Select 9 credits from one of the Application Focus course lists. At least 3 credits must be at the 400-level. Students may also complete a custom Application Focus sequence with approval from an academic adviser and a CYBER undergraduate program coordinator.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Cybersecurity Analytics and Operations, B.S. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
IST 140*	3 MATH 110 (GQ)* [‡]	4
SRA 111 (GS)*	3 CAS 100A or 100S [‡]	3
CYBER 100* [#]	3 IST 242* [#]	3
General Education Selection	3 SRA 211*	3
ENGL 15, 15S, 30T, or ESL 15 [‡]	3 General Education Selection*	3
	15	16

Second Year

Fall	Credits Spring	Credits
CYBER 262*	3 IST 210* [#]	3
IST 220* [#]	3 SRA 231*	3
IST 261*	3 ENGL 202C or 202D [‡]	3
SRA 221*	3 General Education Selection	3
STAT 200* ^{‡#}	4 General Education Selection	3
	16	15

Third Year

Fall	Credits Spring	Credits Summer	Credits
CYBER 362*	3 CYBER 342W*	3 IST 495*	1
IST 230*	3 CYBER 366*	3	
SRA 365*	3 Application Focus Selection 1	3	
SRA 311*	3 General Education Selection	3	
General Education Selection	3 Elective	3	
	15	15	1

Fourth Year

Fall	Credits Spring	Credits
IST 432*	3 CYBER 440*	3
IST 451*	3 IST 454*	3

Application Focus Selection 2	3 IST 456*	3
General Education Selection	3 Application Focus Selection 3	3
General Education Selection	3 General Education Selection	3
	15	15

Total Credits 123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

Students in the Cybersecurity Analytics and Operations (CAOCA_BS) major are expected to complete 24 credits of upper level course work in the major and the senior capstone course (CYBER 440) at Penn State Harrisburg. This is in compliance with Faculty Senate Policy 83-80.5.

CYBER 440 should be taken during the final semester of academic progress.

IST 495 Internship: Supervised work experience where the student is employed in a position related to the student's major. An internship is typically completed the summer after the junior year, but it may be completed at any time during the student's academic career. Students are required to complete one internship but may complete three. A grade of C or better must be earned in this course. For more information, contact your academic adviser.

Students who plan to apply for the National Security Agency Certifications must complete all required courses. No substitutions or transfer credits are permitted.

Students pick one of the five tracks below or create a custom 3-course application focus. Students must pick three (3) credits at the 400 level. All nine (9) credits must be in the same application focus area. It is recommended that students use the application focus area list to select a course that meets a General Education requirement (GS/GHW) and serves as a prerequisite for more advanced coursework within the

application focus. This course does not count as part of the 9 credits of application focus sequence.

Application Development

Code	Title	Credits
IST 311	Object-Oriented Design and Software Applications	3
IST 331	Foundations of Human-Centered Design	3
IST 361	Application Development Design Studio II	3
IST 402	Emerging Issues and Technologies	3
IST 411	Distributed-Object Computing	3
IST 412	The Engineering of Complex Software Systems	3

Business Administration (Harrisburg Students Only)

The Business Administration focus is for students who desire the opportunity to develop and apply skills relevant to businesses and other organizations. Included in this focus area are courses in the core business disciplines of accounting, finance, management, and marketing. Select at least nine (9) credits from below, with at least three (3) credits at the 400 level.

Code	Title	Credits
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
ECON 102 or ECON 104	Introductory Microeconomic Analysis and Policy Introductory Macroeconomic Analysis and Policy	3
MIS 250	Introduction to Problem Solving with Spreadsheet Analysis and Information Systems Management	3
BA 243	Social, Legal, and Ethical Environment of Business	4
BA 364Y	International Business and Society	3

The following courses may require prerequisites:

Code	Title	Credits
MIS 301	Business Analytics	3
MIS 390	Foundations of Information Systems	3
MGMT 301	Basic Management Concepts	3
FIN 301	Corporation Finance	3
MKTG 301	Principles of Marketing	3
SCM 301	Supply Chain Management	3
MGMT 418	Project Planning and Resource Management	3
MGMT 420	Negotiation and Conflict Management	3
MGMT 433	Leadership and Team Building	3
MIS 420	Business Process Management	3

Economics

The Economics focus is for students who have an interest in pursuing cybersecurity careers in the financial services sector or government. Designed to help students understand today's financial and economic environments, this focus highlights the importance of translating the financial and economic impact of cybersecurity activities to effectively manage any program.

Code	Title	Credits
BLAW 243	Legal Environment of Business	3
BA 301	Finance	3
ECON 302	Intermediate Microeconomic Analysis	3
ECON 402	Decision Making and Strategy in Economics	3
ECON 445	Health Economics	3

ECON 470	International Trade and Finance	3
FIN 301	Corporation Finance	3
HPA 445	Health Economics	3
PLSC 412	International Political Economy	3
PLSC 481	Global Political Economy	3

Enterprise Technology

Code	Title	Credits
IST 301	Information and Organizations	3
IST 302	IT Project Management	3
IST 420	Fundamentals of Systems and Enterprise Integration	3
IST 421	Advanced Enterprise Integration: Technologies and Applications	3
IST 423	Enterprise Information Management and Storage Architecture	3
ETI 300W	Development and Documentation of Enterprise Web	3
ETI 435	Enterprise Analytics	3
ETI 461	Database Management and Administration	3
ETI 463	Distributed Database Management Systems	3

Geopolitics

Understanding the geopolitical landscape is key to understanding and modeling cyberthreats from nation-states and other threat actors. The Geopolitics focus is for students who have an interest in pursuing cybersecurity careers in government or related consulting sectors.

Code	Title	Credits
GEOG 160	Mapping Our Changing World	3
GEOG 260	Geographic Information in a Changing World: Introduction to GIScience	3
IB 440	Globalization and Its Implications	3
PLSC 14	International Relations	3
PLSC 461	Politics of the European Union	3
PLSC 467	International Relations of the Middle East	3
PLSC 481	Global Political Economy	3
GEOG 333	Human Dimensions of Natural Hazards	3
GEOG 363	Geographic Information Systems	3
AFR/PLSC 440	Globalization and Its Implications	3
SRA 450	Cyber-Crime and Cyber-Warfare	3
SRA 480	Crisis Informatics	3
ARMY, AIR, NAVSC (any)		3

Health Care

Hospitals, pharmaceutical companies, and government agencies are just a few of the sectors that have strict requirements around protecting health care data. The Health Care focus is for students who have an interest in pursuing cybersecurity careers in a health care environment. Understanding how information is managed in these environments will help students thrive in a health care-related career.

Code	Title	Credits
HPA 101	Introduction to Health Services Organization	3
BBH 101	Introduction to Biobehavioral Health	3
ECON 445	Health Economics	3
HPA 332	Health Systems Management	3

HPA 445	Health Economics	3
HPA 450	Healthcare Policies and Politics	3
NURS 357	Introduction to Nursing Informatics (offered at Commonwealth and World Campuses; not at University Park)	3
HPA/BBH 440	Principles of Epidemiology	3
HPA 470	Health Care Information Management	3
NURS 458	Ethical Challenges in Healthcare Informatics (offered at Commonwealth and World Campuses; not at University Park)	3

Law and Policy

Cybersecurity careers in law enforcement require knowledge of laws and policies focused on the handling of evidence related to digital forensics and monitoring. Individuals in the private sector and government agencies must also understand and adhere to these topics as they involve cybersecurity. The Law and Policy focus is for students who want to understand law and policy as they relate to digital data.

Code	Title	Credits
COMM 180	Survey of Electronic Media and Telecommunications	3
COMM 404	Telecommunications Law	3
CRIM/CRIMJ 113	Introduction to Law	3
PLSC 14	International Relations	3
PLSC 140	Contemporary Controversies in International Relations	3
PLSC 438	National Security Policies	3
PLSC 442	American Foreign Policy	3
PLSC/STS 460	Science, Technology, and Public Policy	3
PLSC 467	International Relations of the Middle East	3
CRIM/CRIMJ/SOC 467	Law and Society	3
HLS/PADM 401	Introduction to Homeland Security (offered by Harrisburg and World Campus only)	3
PLSC/CRIMJ 439	The Politics of Terrorism	3
PLSC 487	International Law and Organizations (not offered at University Park)	3

Custom Application Focus

There is an option for a student to create a custom 4-course application focus sequence. It must be a coherent sequence of courses that provides context for the student in terms of cybersecurity content. It should contain three credits of GS coursework and must contain six credits of 400-level coursework. It must be selected in consultation with a teaching CYBER faculty member and an academic adviser.

Career Paths

Cybersecurity blends the technical expertise needed to analyze security issues and create cyberdefense strategies with the interpersonal skills needed to communicate threats to a variety of audiences. The program prepares students to meet the growing need for professionals who can defend against threats to digital information and assets. IST's Office of Career Solutions helps students navigate their internship and career development in the field through coaching, workshops, interview preparation, resume reviews, career fairs, job postings, and networking opportunities.

Careers

Because our courses blend technical knowledge with skills in communication and business, a Cybersecurity Analytics and Operations degree allows students to pursue opportunities as cybersecurity analysts, cyberthreat advisers, penetration testers, and a number of other unique careers in fields such as defense, government, and business.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE CYBERSECURITY ANALYTICS AND OPERATIONS PROGRAM (<https://www.ist.psu.edu/current/careers/development/process/path/>)

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-cybersecurity-analytics-and-operations-bachelor-of-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-cybersecurity-analytics-and-operations-bachelor-of-science-degree/>)

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Electrical Engineering Technology, B.S. (Capital)

Begin Campus: Any Penn State Campus

End Campus: Harrisburg

Program Description

The Bachelor of Science graduate with a major in Electrical Engineering Technology (EET) is an engineering technologist who can bridge the gap between scientific advancement and practical electrical devices and systems. Research in all fields of electrical engineering has produced an abundance of new knowledge in recent years. Many of these advanced scientific achievements have been unused due to the shortage of engineering technologists specifically educated to convert scientific information into practical devices and systems.

The EET major helps equip students with the various skills necessary to adapt new scientific knowledge to new products. Technical selections are offered in the senior year to provide some degree of specialization, but all graduates receive a well-rounded basic education in electrical and electronic design principles. The strengths of the program include: an applied hands-on program; extensive laboratory experience; promising job placement; and accreditation by the Engineering Technology Accreditation Commission of the Accreditation Board for Engineering and Technology, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, telephone 410-347-7700, Web at <https://www.abet.org>.

EET graduates who wish to continue their professional development can take the Fundamentals of Engineering examination in Pennsylvania, a prerequisite for taking the Professional Engineering examination.

What is Electrical Engineering Technology?

Electrical engineering technology (EET) is an engineering technology field that implements and applies the principles of electrical engineering. Like electrical engineering, EET deals with the design, application, installation, manufacturing, operation or maintenance of electrical/electronic systems. However, EET is a specialized discipline that has more focus on application, theory, and applied design, and implementation, while electrical engineering may have more of a generalized emphasis on theory and conceptual design.

You Might Like This Program If...

- You enjoy problem-solving and math.
- You prefer practical rather than theoretical solutions, and application and implementation over conceptual modeling.
- You enjoy working on multidisciplinary teams on complex problems.
- You want to acquire knowledge to get a good job in industry.

- You want to pursue a career as a technologist in sectors such as manufacturing, product design, testing, or technical services and sales.

Entrance to Major

Entry to the Electrical Engineering Technology major requires a 2.00 or higher cumulative grade-point average.

Re-enrollment

Associate degree students should file a re-enrollment form during the final semester of their associate degree. Students re-enrolling from an associate's degree into the bachelor's degree should run a degree audit from LionPATH, using the EET major code, to determine their curriculum requirements. Similar considerations apply to students changing majors from programs in science or engineering.

Admission Requirements for Transfer Students

Applicants must have earned a high school diploma or equivalent and have attempted at least 18 semester credits at a regionally accredited college or university with at least a 2.0 cumulative grade-point average (4.0 scale). The evaluation of prior college work is done on an individual basis by the Office of Enrollment Services.

Degree Requirements

For the Bachelor of Science degree in Electrical Engineering Technology, a minimum of 128 credits is required:

Requirement	Credits
General Education	45
Electives	5-18
Requirements for the Major	86-96

18-21 of the 45 credits for General Education are included in the Requirements for the Major. For the General Electrical Engineering Technology Option, this includes: 3 credits of GWS courses; 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS. For the Power and Automation Option, this includes: 3 credits of GWS courses; 9 credits of GN courses; 6 credits of GQ courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
EET 419	Capstone Proposal Preparation	1
<i>Prescribed Courses: Require a grade of C or better</i>		
EET 312	Electric Transients	4
EET 331	Electronic Design	4
EET 420W	Electrical Engineering Technology Capstone Design	3
ENGL 202C	Effective Writing: Technical Writing	3
MATH 140	Calculus With Analytic Geometry I	4

MATH 141 Calculus with Analytic Geometry II 4

Additional Courses

CMPEH 472 Microprocessors 3-4
or CMPET 211 Embedded Processors and DSP

EE 310 Electronic Circuit Design I 4
or EET 212W Op Amp and Integrated Circuit Electronics

Select 2-3 credits from the following: 2-3

EDSGN 100 Cornerstone Engineering Design

EDSGN 100S Introduction to Engineering Design

EGT 119 Introduction to CAD for Electrical and Computer Engineering

Select 3 credits from the following: 3

CMPSC 101 Introduction to Programming

CMPSC 121 Introduction to Programming Techniques

CMPSC 131 Programming and Computation I: Fundamentals

CMPSC 201 Programming for Engineers with C++

Select 3-4 credits from the following: 3-4

PHYS 150 Technical Physics I

PHYS 211 General Physics: Mechanics

PHYS 250 Introductory Physics I

Select 3-4 credits from the following: 3-4

PHYS 151 Technical Physics II

PHYS 212 General Physics: Electricity and Magnetism

PHYS 251 Introductory Physics II

Select 3-4 credits from the following: 3-4

IE 424 Process Quality Engineering

MATH 220 Matrices

MATH 230 Calculus and Vector Analysis

MATH 250 Ordinary Differential Equations

MATH/STAT 414 Introduction to Probability Theory

MATH/STAT 418 Introduction to Probability and Stochastic Processes for Engineering

STAT 200 Elementary Statistics

STAT 401 Experimental Methods

Select 4 credits from the following: 4

CMPEN 270 Digital Design: Theory and Practice

CMPEN 271 Introduction to Digital Systems & CMPEN 275 and Digital Design Laboratory

CMPET 117 Digital Electronics & CMPET 120 and Digital Electronics Laboratory

Select 3-5 credits from the following: 3-5

EE 485 Energy Systems and Conversion

EET 213W Fundamentals of Electrical Machines Using Writing Skills

EET 214 Electric Machines and Energy Conversion & EET 215 and Electric Machines and Energy Conversion Laboratory

Additional Courses: Require a grade of C or better

Select 5-8 credits from the following: 5-8

EE 210 Circuits and Devices & EE 317 and Circuits II and Data Acquisition

EET 310 Direct and Alternating Current Circuits

EET 311 Alternating Current Circuits & EET 114 and Electrical Circuits II¹

Requirements for the Option

Select an option 26

¹ EET 114 does not require a grade of C or better.

Requirements for the Option

General Electrical Engineering Technology Option (26 credits)

Available at the following campuses: Harrisburg, Wilkes-Barre

Code	Title	Credits
Prescribed Courses		
ENGR 320Y	Design for Global Society	3
Additional Courses		
<i>System Elective</i>		
Select 8 credits of technical electives from the following:		8
EET 408	Communication System Design	
EET 409	Power System Analysis I	
EET 433	Control System Analysis and Design	
<i>Electronics Elective</i>		
Select 4 credits from the following:		4
EE 413	Power Electronics	
EET 402	High-Frequency Circuit Design	
EET 431	Advanced Electronic Design	
EET 461	Power Electronics	
EET 496	Independent Studies	
<i>GEET Technical Electives</i>		
Select 8 credits of GEET technical electives from the following:		8
CMPEN 431	Introduction to Computer Architecture	
CMPET 401	Data Communication and Networking	
CMPET 402	Data Communication and Networking Laboratory	
CMPET 403	Switching Circuit Design	
CMPET 412	Microcomputers	
EE 413	Power Electronics	
EE 442	Solid State Devices	
EE 453	Fundamentals of Digital Signal Processing	
EE/EGEE/ESC 456	Introduction to Neural Networks	
EE 458	Digital Image Processing and Computer Vision	
EET 402	High-Frequency Circuit Design	
EET 408	Communication System Design	
EET 409	Power System Analysis I	
EET 410	Power System Analysis II	
EET 413	Optoelectronics	
EET 414	Biomedical Instrumentation	
EET 431	Advanced Electronic Design	
EET 433	Control System Analysis and Design	
EET 456	Automation and Robotics	
EET 461	Power Electronics	
EET 478	Digital Communication Systems	
EET 496	Independent Studies	
<i>Science, Engineering, and Technology (SET Electives)</i>		
Select 3 credits from the following:		3

BIOL 141	Introduction to Human Physiology
CHEM 112	Chemical Principles II
CHEM 113	Experimental Chemistry II
CMPSC 122	Intermediate Programming
CMPSC 132	Programming and Computation II: Data Structures
CMPSC 200	Programming for Engineers with MATLAB
CMPSC 201	Programming for Engineers with C++
CMPSC 312	Computer Organization and Architecture
EE 330	Engineering Electromagnetics
EE 341	Semiconductor Device Principles
EMCH 211	Statics
EMCH 212	Dynamics
EMCH 213	Strength of Materials
MATH 220	Matrices
MATH 230	Calculus and Vector Analysis
MATH 231	Calculus of Several Variables
MATH 232	Integral Vector Calculus
MATH 250	Ordinary Differential Equations
MATH 251	Ordinary and Partial Differential Equations
MATH 252	Partial Differential Equations
MATH 430	Linear Algebra and Discrete Models I
ME 201	Introduction to Thermal Science
ME 300	Engineering Thermodynamics I
PHYS 213	General Physics: Fluids and Thermal Physics
PHYS 214	General Physics: Wave Motion and Quantum Physics
PHYS 237	Introduction to Modern Physics
PHYS 462	Applications of Physics in Medicine
SSET 495	Internship
STAT 200	Elementary Statistics

Power and Automation Option (26 credits)*Available at the following campuses: Harrisburg, Wilkes-Barre*

Code	Title	Credits
Additional Courses		
<i>System Electives</i>		
Select 12 credits from the following:		12
EET 409	Power System Analysis I	
EET 410	Power System Analysis II	
EET 433	Control System Analysis and Design	
EET 461	Power Electronics	
EET 475	Intermediate Programmable Logic Controllers	
<i>Additional Electives</i>		
Select 14 credits from the following:		14
CMPET 401	Data Communication and Networking	
CMPET 402	Data Communication and Networking Laboratory	
CMPET 403	Switching Circuit Design	
EET 341	Measurements and Instrumentation	
EET 402	High-Frequency Circuit Design	
EET 408	Communication System Design	
EET 409	Power System Analysis I	
EET 410	Power System Analysis II	

EET 413	Optoelectronics
EET 414	Biomedical Instrumentation
EET 431	Advanced Electronic Design
EET 433	Control System Analysis and Design
EET 456	Automation and Robotics
EET 461	Power Electronics
EET 475	Intermediate Programmable Logic Controllers
EET 478	Digital Communication Systems
EET 495	Internship
EET 496	Independent Studies
EET 497	Special Topics
EMCH 211	Statics
EMCH 212	Dynamics
ME 201	Introduction to Thermal Science

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3

credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Harrisburg

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

General Option: Electrical Engineering Technology, B.S. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 15S, 30T, or ESL 15 ^{†1}	3 CMPSC 121, 131, or 201 ³	3
MATH 140 ^{††}	4 MATH 141 ^{††}	4
CHEM 110 [†]	3 EDGSN 100, 100S, or EGT 119 ¹	3
CHEM 111 [†]	1 PHYS 251, 212, or 151 ^{†2}	3-4
PHYS 250, 211, or 150 ^{†2}	3-4 General Education Course (GA) ⁴	3
General Education Course (GHW)	1.5	
15.5-16.5		16-17

Second Year

Fall	Credits Spring	Credits
CAS 100A or 100S ^{†1}	3 CMPEH 472	4
CMPEN 271	3 ENGL 202C ^{††}	3
CMPEN 275	1 SET Elective	3
General Education Course (GH) ⁴	3 General Education Course (Inter-Domain) ⁴	3
Electives	6 Electives	3
16		16

Third Year

Fall	Credits Spring	Credits
EET 310 ^{*5}	5 EE 310	4
MATH 230, 250, 414, STAT 200, STAT 401, or STAT 418	3 EET 312 ^{*6}	4
General Education Course (Inter-Domain) ⁴	3 EET 331 ^{*6}	4

General Education Course (GHW)	1.5 EE 485 ⁶	3
Electives	4	
	16.5	15

Fourth Year

Fall	Credits Spring	Credits
EET 419	1 EET 420W ^{**†}	3
Electronics Elective	4 ENGR 320Y [†]	3
System Elective	4 System Elective	4
Technical Elective	4 Technical Elective	4
General Education Course (Exploration: GH, GA, or GS) ⁴	3 Electives ⁷	0-3
	16	14-17

Total Credits 125-130

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ First-year students at Penn State Harrisburg must take 1 to 3 credits of a First-Year Seminar course, as indicated by the "S" designation at the end of the course number. The program recommends students complete this during their first semester with one of the following courses: ENGL 15S, EDSGN 100S, or CAS 100S.

² PHYS 250 and PHYS 251 is the recommended physics course sequence for the program.

³ CMPSC 131 recommended.

⁴ One of the General Education courses must satisfy the US or IL requirement (ENGR 320Y satisfies the other). The knowledge domains that must be satisfied are indicated in parentheses, but these courses may be taken in any order.

⁵ EET 310 is only offered during Fall semesters.

⁶ EET 312, EET 331, and EE 485 are only offered during Spring semesters.

⁷ Up to 3 additional credits of electives may be needed to meet the 128-credit graduation requirement if students select courses other than the ones recommended in this suggested academic plan (for example, PHYS 150/PHYS 151 instead of PHYS 250/PHYS 251).

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

A.S. to B.S. General Option: Electrical Engineering Technology, B.S. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

Third Year

Fall	Credits Spring	Credits
CHEM 110 [†]	3 EET 312 ^{*2}	4
CHEM 111 [†]	1 EET 331 ^{*2}	4
EET 311 ^{*1}	4 CMPSC 101, 121, 131, or 201 ³	3
ENGL 202C ^{††}	3 MATH 141 ^{††}	4
MATH 140 ^{††}	4 General Education Course (Inter-Domain) ⁴	3
General Education Course (GHW)	1.5	
	16.5	18

Fourth Year

Fall	Credits Spring	Credits
EET 419	1 EET 420W ^{*†}	3
Electronics Elective	4 ENGR 320Y [†]	3
System Elective	4 System Elective	4
MATH 230, 250, 414, STAT 200, STAT 401, or STAT 418	3 Technical Elective	4
Technical Elective	4 General Education Course (Inter-Domain) ⁴	3
General Education Course (GHW)	1.5	
	17.5	17

Total Credits 69

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ EET 311 is only offered during Fall semesters

² EET 312 and EET 331 are only offered during Spring semesters.

³ CMPSC 131 recommended.

⁴ One of the General Education courses must satisfy the US or IL requirement (ENGR 320Y satisfies the other). The knowledge domains that must be satisfied are indicated in parentheses, but these courses may be taken in any order.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- This suggested academic plan assumes the associate degree contains at least 59 credits of course work. If it contains fewer credits, additional elective credits will be required to meet the total of 128 credits required to complete the B.S. degree.

Career Paths

According to the U.S. Bureau of Labor Statistics, electrical engineering technologists work closely with electrical and electronics engineers and computer hardware engineers in the computer systems design services industry. Opportunities can be found in a variety of firms engaged in electronic manufacturing, industrial control, applications engineering, and in power utilities. EET graduates are encouraged to continue their professional development by taking the Fundamentals of Engineering Examination at the end of their senior year; the FE exam is a prerequisite for taking the Professional Engineering Examination.

Careers

- Design, maintain, troubleshoot electronic circuits and systems. These range from power electronics, fiber optics, control systems, networking technologies, electronic systems, etc.
- Strong focus on power generation and distribution.
- Strong introduction to embedded systems.
- Automation of facilities: From distribution centers to manufacturing plants.
- Experience in the use of hardware used in instrumentation laboratories.
- This program trains students in the same software as currently used by industry.

Opportunities for Graduate Studies

Graduates of the EET program are eligible to pursue graduate studies in a variety of programs such as Electrical Engineering, Systems Engineering, Engineering Management, etc. In some cases prior to being accepted to these programs, graduates of the EET program may be required to take additional math courses.

Accreditation

The Bachelor of Science in Electrical Engineering Technology at Penn State Harrisburg is accredited by the Engineering Technology Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Electrical/Electronic(s) Engineering Technology and Similarly Named Programs.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the

Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

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Electrical Engineering, B.S. (Capital)

Begin Campus: Any Penn State Campus

End Campus: Harrisburg

Program Description

The Bachelor of Science degree in Electrical Engineering provides a solid background in electrical engineering sciences. It also provides an opportunity for students to pursue interests in electrical and electronic circuits, including digital circuits and VLSI and its fabrication, microprocessors and their applications, electromagnetics, communications, control systems, and digital image processing and computer vision. Through participation in a senior capstone design, the curriculum emphasizes written as well as verbal communication and teamwork approach among the students to attain a common goal.

This program helps its graduates develop capabilities to analyze and design a variety of electrical and electronic systems found in many industrial and government settings as well as provide a foundation for further graduate studies. A strong background in the fundamentals is built through a broad base core in basic sciences (physics and chemistry) and mathematics as well as engineering sciences.

What is Electrical Engineering?

Electrical engineering is a broad discipline of study that includes circuit design, analog and digital electronics, electromagnetics, electro-optics, control systems, power systems, communications, and signal/image processing. Electrical engineers study and apply physics and mathematics to design electrical and electronic systems and their components for a wide range of applications such as mobile phones, wireless communications, consumer electronics, computers, computer networks, power generation, machine learning, robotics, nanoelectronics, nanophotonics, bioelectronics, autonomous transportation, wearable electronics, and metamaterials.

You Might Like This Program If...

- You enjoy problem-solving and math.
- You prefer to use analysis and the scientific method to understand things.
- You enjoy working on multidisciplinary teams on complex problems.
- You want to pursue a career in electrical engineering or its sub-branches.

Entrance to Major

Entry to the Electrical Engineering major requires that the student earned a minimum cumulative grade-point average (GPA) of 2.00 and has completed with a grade of C or better: MATH 140, MATH 141, PHYS 211, and CHEM 110.

Degree Requirements

For the Bachelor of Science degree in Electrical Engineering a minimum of 134 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	113-115

24 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GWS courses; 6 credits of GS courses; 9 credits of GN courses; 6 credits of GQ courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
CHEM 111	Experimental Chemistry I	1
CMPEH 472	Microprocessors	4
EDSGN 100S	Introduction to Engineering Design	3
EE 311	Electronic Circuit Design II	3
EE 330	Engineering Electromagnetics	4
EE 341	Semiconductor Device Principles	3
EE 405	Capstone Proposal Preparation	1
EE 461	Communications I	4
EE 481	Control Systems	4
EE 485	Energy Systems and Conversion	3
EMCH 211	Statics	3
ENGR 320Y	Design for Global Society	3
MATH 220	Matrices	2
MATH 230	Calculus and Vector Analysis	4
MATH 250	Ordinary Differential Equations	3
PHYS 213	General Physics: Fluids and Thermal Physics	2
PHYS 214	General Physics: Wave Motion and Quantum Physics	2
SSET 295	Internship	1
<i>Prescribed Courses: Require a grade of C or better</i>		
CHEM 110	Chemical Principles I	3

CMPEN 271	Introduction to Digital Systems	3
CMPEN 275	Digital Design Laboratory	1
EE 210	Circuits and Devices	4
EE 310	Electronic Circuit Design I	4
EE 317	Circuits II and Data Acquisition	2
EE 352	Signals and Systems: Continuous and Discrete-Time	4
EE 406W	Electrical Engineering Capstone Design	3
ENGL 202C	Effective Writing: Technical Writing	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
PHYS 211	General Physics: Mechanics	4
PHYS 212	General Physics: Electricity and Magnetism	4

Additional Courses

CMPSC 201	Programming for Engineers with C++ or CMPSC 121 Introduction to Programming Techniques	3
Select 3 credits from the following:		3
ECON 14	Principles of Economics	
ECON 102	Introductory Microeconomic Analysis and Policy	
ECON 104	Introductory Macroeconomic Analysis and Policy	
Select 3-4 credits from the following:		3-4
STAT 200	Elementary Statistics (requires a grade of C or better)	
STAT 401	Experimental Methods	
STAT 414	Introduction to Probability Theory	
STAT 418	Introduction to Probability and Stochastic Processes for Engineering	

Supporting Courses and Related Areas

Select 11-12 credits in consultation with an academic adviser and in support of the student's interests

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits

- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Electrical Engineering and M.S. in Electrical Engineering

Requirements for the Integrated B.S. in Electrical Engineering and M.S. in Electrical Engineering can be found in the Graduate Bulletin (<https://>

bulletins.psu.edu/graduate/programs/majors/electrical-engineering-capital/#integratedundergradgradprogramstext).

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Harrisburg

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Electrical Engineering, B.S. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CHEM 110 ^{##†}	3 CAS 100A or 100S ^{†1}	3
CHEM 111 [†]	1 EDSGN 100 or 100S ¹	3
ENGL 15, 15S, 30T, or ESL 15 ^{†1}	3 MATH 141 ^{##†}	4
MATH 140 ^{##†}	4 PHYS 211 ^{##†}	4
General Education Course (Inter-Domain) ²	3 General Education Course (Inter-Domain) ²	3
General Education Course (GHW) ²	1.5	
General Education Course (GHW) ²	1.5	
	17	17

Second Year

Fall	Credits Spring	Credits
CMPEN 271 [*]	3 CMPSC 121, 131, or 201 ³	3
CMPEN 275 [*]	1 ECON 102, 104, or 14 [†]	3
EMCH 211	3 ENGL 202C ^{††}	3
MATH 220	2 MATH 250	3
MATH 230	4 PHYS 213	2
PHYS 212 ^{*†}	4 PHYS 214	2
	SSET 295 (see footnotes) ⁴	1
	17	17

Third Year

Fall	Credits Spring	Credits
EE 210 [*]	4 EE 310 [*]	4
EE 341 ⁵	3 EE 317 [*]	2
CMPEH 472	4 EE 330 ⁷	4
STAT 200, 401, 414, or 418 ⁶	3-4 EE 352 [*]	4
General Education Course (GH) ²	3 EE 485 ⁷	3
	17-18	17

Fourth Year

Fall	Credits Spring	Credits
EE 311	3 EE 406W ^{*†}	3
EE 405	1 Technical Elective II	3
EE 461 ⁵	4 Technical Elective III	3
EE 481	4 Technical Elective IV	2-3
Technical Elective I	3 ENGR 320Y [†]	3
General Education Course (GA) ²	3	
	18	14-15

Total Credits 134-136

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ First-year students at Penn State Harrisburg must take 1 to 3 credits of a First-Year Seminar course, as indicated by the "S" designation at the end of the course number. The program recommends students complete this during their first semester with one of the following courses: ENGL 15S, EDSGN 100S, or CAS 100S.

² One of the General Education courses must satisfy the US or IL requirement (ENGR 320Y satisfies the other). The knowledge domains that must be satisfied are indicated in parentheses, but these courses may be taken in any order.

³ CMPSC 131 recommended.

⁴ Most students complete their SSET 295 credit during a summer semester while working at a paid internship with an engineering company.

⁵ EE 341 and EE 461 are only offered during Fall semesters.

⁶ STAT 200 requires a grade of C or better.

⁷ EE 330 and EE 485 are only offered during Spring semesters.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

According to the U.S. Bureau of Labor Statistics, employment of electrical engineers is projected to grow 7 percent from 2016 to 2026, about as fast as the average for all occupations. The rapid pace of technological innovation will likely drive demand for electrical and electronics engineers in research and development, an area in which engineering expertise will be needed to design distribution systems related to new technologies. These engineers will play key roles in new developments with solar arrays, semiconductors, and communications technologies.

Careers

Graduates of the program have gained positions in a number of specialty areas including digital circuits and VSLI and its fabrication, microprocessors and their applications, electromagnetics, communications, control systems, digital image processing, and computer engineering. Career opportunities for these specialties are available in a multitude of industries including computers, automobile, power, communications, manufacturing, pure and applied research, and biomedical and environmental fields.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE ELECTRICAL ENGINEERING PROGRAM (<https://harrisburg.psu.edu/science-engineering-technology/electrical-engineering-bs/career-opportunities/>)

Opportunities for Graduate Studies

The Bachelor of Science degree in Electrical Engineering is designed to provide a solid background for students who plan to pursue graduate studies, including Penn State's Master of Engineering (<https://harrisburg.psu.edu/science-engineering-technology/electrical-engineering-meng/>) and Master of Science (<https://harrisburg.psu.edu/science-engineering-technology/electrical-engineering-ms/>) in Electrical Engineering programs.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://harrisburg.psu.edu/science-engineering-technology/>)

Accreditation

The Bachelor of Science in Electrical Engineering at Penn State Harrisburg is accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Electrical, Computer, Communications, Telecommunication(s), and Similarly Named Engineering Programs.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

Harrisburg

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<https://harrisburg.psu.edu/science-engineering-technology/electrical-engineering-bs> (<https://harrisburg.psu.edu/science-engineering-technology/electrical-engineering-bs/>)

Elementary Education, B.El.Ed.

Begin Campus: Any Penn State Campus

End Campus: Harrisburg

Program Description

The Elementary Education program at Penn State Harrisburg embodies the four tenets of our conceptual framework: constructivism, authenticity, reflectivity, and standards-based curriculum. Constructivism entails a student-centered approach in which teachers help learners build their own understandings. Authenticity refers to developing professional and pedagogical skills in authentic classroom settings; for example, in the junior and senior years prior to student teaching, the program offers extensive field experiences in a variety of settings enrolling students with diverse backgrounds and needs. Reflectivity relates to consciously analyzing course content and one's own learning for the purpose of deeper understanding and self-improvement. Standards-based curriculum means that our candidates are steeped in Pennsylvania Academic Standards as well as the standards of relevant professional organizations. Taken together, these tenets enable our candidates to become *lifelong reflective professionals committed to the learning of all students*.

Students will choose one of four options for the degree:

1. PK-4 Early Childhood Education,
2. Grades 4-8 English/Language Arts and Reading,
3. Grades 4-8 Mathematics, and
4. Grades 4-8 Social Studies.

Upon successful completion of this major, students will have met all of the requirements for either the Grades PK-4, Grades 4-8 English/Language Arts and Reading, Grades 4-8 Mathematics, or Grades 4-8 Social Studies Instructional I certification issued by the Pennsylvania Department of Education. Students must apply for admission to the major.

Prior to the full-time student teaching experience in the senior year, candidates are expected to complete all other courses required for certification, including two field placements. On-campus courses are

scheduled three or four days a week, while field experiences in nearby schools are scheduled part-time, two to three days per week.

What is Elementary Education?

Elementary Education prepares bright, creative and passionate individuals to teach students in the primary and middle-level grades, which includes pre-kindergarten through grade four or grades four through grade eight. This major includes preparation to teach all elementary subjects, as well as classroom management, working with families and evidence-based best practices of teaching and learning. Individuals in the major spend time in primary or middle school classrooms observing, leading activities, teaching lessons, and being mentored by an experienced teacher.

You Might Like This Program If...

- You enjoy working with children.
- You like critical, creative, and reflective thinking.
- You want to have an important and direct impact on the lives of others.
- You want a career in teaching or school administration.

Entrance to Major Admission Requirements

Applicants should be at the fourth-semester level and complete the Entry to Major Requirements listed below with at least a 3.0 cumulative GPA (4.0 scale). The evaluation of prior college work is done on an individual basis by the Office of Enrollment Services at Penn State Harrisburg. Students admitted to the program must have the appropriate clearances required at the time of admission. These may include FBI fingerprint check, Act 151 child abuse history clearance, and Act 34 criminal record check.

Entry to Major Requirements

Entry to the Elementary Education major requires the completion of 45 or more credits in required courses and the state's minimum cumulative GPA criteria of 3.0. Candidates must complete, with a grade of "C" or better, six (6) credits of college-level mathematics (MATH prefix), three (3) credits of college-level English literature and three (3) credits of college-level English composition. Candidates must meet the Basic Skills requirements established by the Pennsylvania Department of Education that are applicable at the time of application for entrance to major. Candidates who desire to pursue this major should plan their freshman and sophomore years carefully to ensure their successful progress during very structured junior and senior years.

Retention Requirements

Monitoring candidate progress in the elementary education program will occur each semester while the candidate is participating in the elementary education program. Candidates will be evaluated for retention in the program based on:

1. maintaining a cumulative GPA of 3.0 or higher;
2. performance on any test requirements set out by the Pennsylvania Department of Education in force at the time of application for entrance to major;
3. satisfactory completion of required courses, including the field experience component;
4. adequate writing and speaking skills as demonstrated in various classroom assignments; and

5. a positive rating on the Penn State Harrisburg Professional Dispositions for Teacher Education Programs monitoring form.

Candidates must pass any entrance test requirements set out by the Pennsylvania Department of Education in effect at the time of application for entrance to the major.

Degree Requirements

For the Bachelor of Elementary Education degree in Elementary Education, PK-4 Early Childhood Option a minimum of 139 credits are required; Grade 4-8 English/Language Arts and Reading Option a minimum of 137 credits are required; Grade 4-8 Mathematics Option a minimum of 139 credits are required; and Grade 4-8 Social Studies Option a minimum of 137 credits are required:

Requirement	Credits
General Education	45
Electives	0-6
Requirements for the Major	131-141

45 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 6 credits of GH courses; 6 credits of GS courses; 9 credits of GWS; 3 credits of GHW; 6 credits of GA. Six of these 45 credits may also satisfy the Integrative Studies requirement.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CAS 100	Effective Speech	3
CI 295	Introductory Field Experience for Teacher Preparation	3
EDPSY 14	Learning and Instruction	3
EDTHP 115	Education in American Society	3
EDUC 303	Inclusive Practices in General Education Classrooms	3
EDUC 304	Classroom Organization and Management	3
EDUC 305	Creative Arts	3
EDUC 315Y	Social and Cultural Factors in Education	3
EDUC 321	Methods in Teaching Intermediate and Advanced Readers	3
EDUC 352	Teaching Language Arts	3
EDUC 353	Teaching Elementary Social Studies	3
EDUC 385	Professional Development in Teaching	3
EDUC 454	Modern Elementary Science Education	3
EDUC 466N	Foundations of Teaching English as a Second Language	3
EDUC 490	Student Teaching	9
EDUC 495A	Junior Field Experience	1
EDUC 495B	Senior Field Experience	3

ENGL 202A	Effective Writing: Writing in the Social Sciences	3
GEOG 126	Economic Geography	3
MATH 200	Problem Solving in Mathematics	3
MATH 201	Problem Solving in Mathematics II	3

Additional Courses*Additional Courses: Require a grade of C or better*

ENGL 15	Rhetoric and Composition	3
or ENGL 30H	Honors Rhetoric and Composition	
HDFS 229	Infant and Child Development ¹	3
or HDFS 239	Adolescent Development	
Select 3 credits from GN Biological Science		3
Select 3 credits from GN Earth Science		3
Select 3 credits from GN Physical Science		3
Select 6 credits from GA courses		6
Select 3 credits from GHW courses		3

Supporting Courses and Related Areas*Supporting Courses and Related Areas: Require a grade of C or better*

Select one of the following certificate requirements: 13-21

1. For the ESL certificate, complete 13 additional credits in:

EDUC 467	English Language Structure for English as a Second Language Teachers	
EDUC 468	Language Acquisition for English as a Second Language Teachers	
EDUC 469	Teaching Methods and Assessment of English as a Second Language	
EDUC 475	ESL Leadership, Research and Advocacy	
EDUC 495	Internship	
2. For the Special Education certificate, complete 21 additional credits in:		
EDUC 452	Teaching Writing	
EDUC 477	Teaching Struggling Readers and Writers	
EDUC 495	Internship	
PSYCH 443	Treatment and Education in Developmental Disabilities	
SPLED 404	Working with Families and Professionals in Special Education	
SPLED 409C	Mathematics Instruction for Students with Special Needs	
SPLED 462	Autism and Applied Behavior Analysis	

Requirements for the Option*Requirements for the Option: Require a grade of C or better*

Select an option 27-29

¹ Students in the PK-4 Early Childhood Option must choose HDFS 229. Students in any of the Grade 4-8 Options should choose HDFS 239.**Requirements for the Option****PK-4 Early Childhood Education Option (29 credits)**

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
EDMTH 301	Mathematics in Elementary Education I	3
EDUC 306	Physical Education, Health, and Safety in Elementary Schools	2

EDUC 320	Methods in Teaching Beginning Readers	3
EDUC 403	Curriculum for Early Childhood	3
EDUC 404	Young Children's Behavior: Observation and Evaluation	3
EDUC 410	The Child and Social Institutions	3
EDUC 421	Children's Literature	3

Additional Courses*Additional Courses: Require a grade of C or better*

Select 3 credits of History courses from the following: 3

HIST/AMST 3	The American Nation: Historical Perspectives	
HIST 12	History of Pennsylvania	
HIST 20	American Civilization to 1877	
HIST 21	American Civilization Since 1877	

Select 3 credits of Literature courses from the following: 3

AA 193N	The Craft of Comics	
AFAM 139	African American Literature	
AFAM/ENGL/INART 141N	African American Read-In Engaged Learning Experience	
AMST 150N	Western Pennsylvania Art, Literature, and Culture	
APLNG 220N	Multilingual Lives: Stories of Language and Culture Learning	
ARTH/ENGL 224N	Authors and Artists	
CMLIT 1	Introduction to Western Literatures Through the Renaissance	
CMLIT 2		
CMLIT 3	Introduction to African Literatures	
CMLIT/ASIA 4	Introduction to Asian Literatures	
CMLIT 5	Introduction to Literatures of the Americas	
CMLIT/PHIL 6	Literature and Philosophy	
CMLIT 10	World Literatures	
CMLIT 11	The Hero in World Literature	
CMLIT 100	Reading Across Cultures	
CMLIT 101	Race, Gender, and Identity in World Literature	
CMLIT 105	The Development of Literary Humor	
CMLIT 106	The Arthurian Legend	
CMLIT 107	Exploration, Travel, Migration, and Exile	
CMLIT 108	Myths and Mythologies	
CMLIT 109	Native American Myths, Legends, and Literatures	
CMLIT 110/JST 131	Jewish Literature: An International Perspective	
CMLIT 111	Introduction to Literatures of India	
CMLIT 130	Banned Books: International and Comparative Perspectives	
CMLIT 140	Literature and the Other Arts: International and Comparative Perspectives	
CMLIT 141	Religion and Literature	
CMLIT 153	International Cultures: Film and Literature	
CMLIT/SC 183Q	From Beast Books to Resurrecting Dinosaurs	
ENGL 101	Introduction to Literature	
ENGL 103	The Great Traditions in American Literature	
ENGL/JST 104	The Bible as Literature	
ENGL 112	Pennsylvania Literature	

ENGL 129	Shakespeare
ENGL 133	Modern American Literature to World War II
ENGL 134	American Comedy
ENGL/AMST 135	Alternative Voices in American Literature
ENGL 140	Contemporary Literature
ENGL/SC 142N	Science in Literature
ENGL 161N/ HIST 162N	The Pursuit of Happiness in American Life: Historical Literature and Modern Practice
ENGL 165N	Work and Literature
ENGL 180	Literature and the Natural World
ENGL 182A	Literature and Empire
ENGL 182C	Literature and Empire
ENGL/PLSC 183N	The Cold War in Literature, Politics, and History
ENGL 184	The Short Story
ENGL 185	World Novel
ENGL 189	
ENGL 191	Science Fiction
ENGL/WMNST 194	Women Writers
ENGL 223N	Shakespeare: Page, Stage, and Screen
ENGL 228	Introduction to Disability Studies in the Humanities
ENGL/CHEM 233N	Chemistry and Literature
ENGL 236N	Inequality: Economics, Philosophy, Literature
ENGL 237N	Reading and Writing Documentary Poetry
ENGL 262	Reading Fiction
ENGL 263	Reading Poetry
ENGL 265	Reading Nonfiction
ENGL 268	Reading Drama
HDFS 254N	Reading Our Lives: Understanding Diversity and Human Development through Memoirs
LLED 215N	Children's Picture Books as Multimodal Texts
Select 3 credits from the following:	3
EDMTH 302 or SPLED 409C for completion of the Special Education certificate	
An elective course for completion of the ESL certificate	

English/Language Arts and Reading (4-8) Option (27 credits)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
EDMTH 302	Mathematics in Elementary Education II	3
EDUC 320	Methods in Teaching Beginning Readers	3
EDUC 416	Teaching Secondary English and the Humanities	3
EDUC 470W	Higher-Order Thinking for Educators	3
LLED 420	Teaching Adolescent Literature and Literacy	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits of British Literature from the following:		3
ENGL 221	British Literature to 1798	
ENGL 222	British Literature from 1798	

ENGL 440	Studies in Shakespeare	
ENGL 441	Chaucer	
ENGL 442	Medieval English Literature	
ENGL 443	The English Renaissance	
ENGL 444	Shakespeare	
ENGL 445		
ENGL 446	Milton	
ENGL 447	The Restoration and the Eighteenth Century	
ENGL 448	The English Novel to Jane Austen	
ENGL 450	The Romantics	
ENGL 451		
ENGL 452	The Victorians	
ENGL 453	Victorian Novel	
ENGL 454	Modern British and Irish Drama	
ENGL 455	Topics in British Literature	
ENGL 456	British Fiction, 1900-1945	
ENGL 457	British Fiction Since 1945	
ENGL 458	Twentieth-Century Poetry	
Select 3 credits of American Literature from the following:	1	3
ENGL 231	American Literature to 1865	
ENGL 232	American Literature from 1865	
ENGL 432	The American Novel to 1900	
ENGL 433	The American Novel: 1900-1945	
ENGL 434	Topics in American Literature	
ENGL 435	The American Short Story	
ENGL 436	American Fiction Since 1945	
ENGL 437	The Poet in America	
ENGL 438	American Drama	
ENGL 439	American Nonfiction Prose	
Select 3 credits of History from the following:		3
HIST/AMST 3	The American Nation: Historical Perspectives	
HIST 12	History of Pennsylvania	
HIST 20	American Civilization to 1877	
HIST 21	American Civilization Since 1877	
Select 3 credits from the following:		3
EDMTH 301 or SPLED 409C for completion of the Special Education certificate		
ESL elective for completion of the ESL certificate		

¹ Choice of American and British literature courses must include 3 credits of a GH course and 6 credits of Inter-Domain or Linked courses.

Mathematics (4-8) Option (29 credits)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
EDMTH 302	Mathematics in Elementary Education II	3
EDUC 417	Teaching Secondary Mathematics	3
MATH 22	College Algebra With Analytic Geometry and Applications II	3
MATH 37	Finite Mathematics	3
MATH 140	Calculus With Analytic Geometry I	4
STAT 200	Elementary Statistics	4

Additional Courses*Additional Courses: Require a grade of C or better*

Select 3 credits of Literature Courses from: 3

AFAM 139	African American Literature
CMLIT 1	Introduction to Western Literatures Through the Renaissance
CMLIT 2	
CMLIT 3	Introduction to African Literatures
CMLIT/ASIA 4	Introduction to Asian Literatures
CMLIT 5	Introduction to Literatures of the Americas
CMLIT/PHIL 6	Literature and Philosophy
CMLIT 10	World Literatures
CMLIT 11	The Hero in World Literature
CMLIT 100	Reading Across Cultures
CMLIT 101	Race, Gender, and Identity in World Literature
CMLIT 105	The Development of Literary Humor
CMLIT 106	The Arthurian Legend
CMLIT 107	Exploration, Travel, Migration, and Exile
CMLIT 108	Myths and Mythologies
CMLIT 110/ JST 131	Jewish Literature: An International Perspective
CMLIT 111	Introduction to Literatures of India
CMLIT 141	Religion and Literature
CMLIT/ENGL 184	The Short Story
CMLIT/ENGL 185	World Novel
CMLIT/ENGL 189	
ENGL 2	The Great Traditions in English Literature
ENGL/JST 104	The Bible as Literature
ENGL 129	Shakespeare
ENGL 129H	Shakespeare
ENGL 133	Modern American Literature to World War II
ENGL 134	American Comedy
ENGL/AMST 135	Alternative Voices in American Literature
ENGL 140	Contemporary Literature
ENGL 180	Literature and the Natural World
ENGL 182A	Literature and Empire
ENGL 182C	Literature and Empire
ENGL 191	Science Fiction
ENGL/WMNST 194	Women Writers
ENGL 194H	Women Writers - Honors
ENGL 262	Reading Fiction
ENGL 263	Reading Poetry
ENGL 265	Reading Nonfiction
ENGL 268	Reading Drama

Select 3 credits from EDMTH 301, SPLED 409C, or an elective for completion of the ESL certificate 3

Select 3 credits of History courses from the following:

HIST/AMST 3 The American Nation: Historical Perspectives

HIST 12	History of Pennsylvania
HIST 20	American Civilization to 1877
HIST 21	American Civilization Since 1877

Social Studies (4-8) Option (27 credits)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
EDMTH 302	Mathematics in Elementary Education II	3
EDUC 415	Teaching Secondary Social Studies	3
HIST 12	History of Pennsylvania	3
HIST 20	American Civilization to 1877	3
HIST 21	American Civilization Since 1877	3
HIST 320	Contemporary World History and Issues	3
PLSC 1	American Politics: Principles, Processes and Powers	3

Additional Courses*Additional Courses: Require a grade of C or better*

Select 3 credits of Literature courses from the following: 3

AA 193N	The Craft of Comics
AFAM 139	African American Literature
AFAM/ENGL/ INART 141N	African American Read-In Engaged Learning Experience
AMST 150N	Western Pennsylvania Art, Literature, and Culture
APLNG 220N	Multilingual Lives: Stories of Language and Culture Learning
ARTH/ENGL 224N	Authors and Artists
CMLIT 1	Introduction to Western Literatures Through the Renaissance
CMLIT 2	
CMLIT 3	Introduction to African Literatures
CMLIT/ASIA 4	Introduction to Asian Literatures
CMLIT 5	Introduction to Literatures of the Americas
CMLIT/PHIL 6	Literature and Philosophy
CMLIT 10	World Literatures
CMLIT 11	The Hero in World Literature
CMLIT 100	Reading Across Cultures
CMLIT 101	Race, Gender, and Identity in World Literature
CMLIT 105	The Development of Literary Humor
CMLIT 106	The Arthurian Legend
CMLIT 107	Exploration, Travel, Migration, and Exile
CMLIT 108	Myths and Mythologies
CMLIT 110/ JST 131	Jewish Literature: An International Perspective
CMLIT 111	Introduction to Literatures of India
CMLIT 130	Banned Books: International and Comparative Perspectives
CMLIT 140	Literature and the Other Arts: International and Comparative Perspectives
CMLIT 141	Religion and Literature
CMLIT 153	International Cultures: Film and Literature
CMLIT/SC 183Q	From Beast Books to Resurrecting Dinosaurs

CMLIT/ENGL 184	The Short Story
CMLIT/ENGL 185	World Novel
CMLIT/ENGL 189	
ENGL 101	Introduction to Literature
ENGL 112	Pennsylvania Literature
ENGL 129	Shakespeare
ENGL 129H	Shakespeare
ENGL 133	Modern American Literature to World War II
ENGL 134	American Comedy
ENGL 135	Alternative Voices in American Literature
ENGL/SC 142N	Science in Literature
ENGL 161N/ HIST 162N	The Pursuit of Happiness in American Life: Historical Literature and Modern Practice
ENGL 165N	Work and Literature
ENGL 180	Literature and the Natural World
ENGL 182A	Literature and Empire
ENGL 182C	Literature and Empire
ENGL/PLSC 183N	The Cold War in Literature, Politics, and History
ENGL 191	Science Fiction
ENGL/WMNST 194	Women Writers
ENGL 194H	Women Writers - Honors
ENGL 223N	Shakespeare: Page, Stage, and Screen
ENGL 236N	Inequality: Economics, Philosophy, Literature
ENGL 237N	Reading and Writing Documentary Poetry
ENGL 262	Reading Fiction
ENGL 263	Reading Poetry
ENGL 265	Reading Nonfiction
ENGL 268	Reading Drama
HDFS 254N	Reading Our Lives: Understanding Diversity and Human Development through Memoirs
LLED 215N	Children's Picture Books as Multimodal Texts
Select 3 credits from the following:	3
EDMTH 301 or SPLED 409C for completion of the Special Education certificate	
ESL course for completion of the ESL certificate	

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Harrisburg

Reuben S. Asempapa, Ph.D.

Program Coordinator
W331D Olmsted Building
Middletown, PA 17057
717-948-6354
rsa26@psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

PK-4 Early Childhood Option: Elementary Education, B.El.Ed. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 15S, 30T, or ESL 15 (GWS) ^{‡#}	3 CAS 100A or 100S [‡]	3

General Education Course (GN) ^{**1}	3 EDTHP 115S (GS/US) ^{*2}	3
MATH 200 (GQ) ^{*#†}	3 MATH 201 (GQ) ^{*#†}	3
HIST 3, 12, 20, or 21 (GH/US) ^{**†}	3 General Education Course (GN) ^{**1}	3
General Education Course	3 HDF5 229 (GS) ^{**†}	3

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Second Year

Fall	Credits Spring	Credits
CI 295A [*]	3 EDUC 466 (GS) [*]	3
EDPSY 14 (GS)	3 ENGL 202A (GWS) ^{**†}	3
Select Literature Course (GH) ^{*#†3}	3 GEOG 126 (GS/IL/US) [*]	3
General Education Course (GN) ^{**1}	3 SPLED 404 [*]	3
General Education Course	3 General Education Course	3

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Third Year

Fall	Credits Spring	Credits Summer	Credits
EDMTH 301 [*]	3 EDUC 304 [*]	3 Optional Add-on ⁶	
EDUC 305 [*]	3 EDUC 352 [*]	3	
EDUC 315Y [*]	3 EDUC 353 [*]	3	
EDUC 410 [*]	3 EDUC 320 [*]	3	
EDUC 454 [*]	3 EDUC 495A [*]	1	
EDUC 421 [*]	3 EDUC 404 [*]	3	
Optional Add-on ⁴	EDUC 306 [*]	2	
	Optional Add-on ⁵		

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Fourth Year

Fall	Credits Spring	Credits
EDUC 303 [*]	3 EDUC 490 [*]	12
EDUC 321 [*]	3 Optional Add-on ⁸	
EDMTH 302 or SPLED 409C [*]	3	
EDUC 495B [*]	3	
EDUC 403 [*]	3	

Optional Add-on⁷

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12

Total Credits 123

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ GN courses must include one Biological Science, one Physical Science, and one Earth Science course.

² If EDTHP 115S is not available, a student may substitute EDTHP 115 and any course that meets the first-year seminar requirement.

³ Select Literature course from list below (or as approved by an academic adviser).

⁴ **Optional Add-on:**

ESL Certificate Course: EDUC 467 or Special Education Certificate Courses: EDUC 477 subs for SPLED 409A.

⁵ **Optional Add-on:**

ESL Certificate Course: EDUC 468. Special Education Certificate Course: EDUC 452 subs for SPLED 409B.

⁶ **Optional Add-on:**

Special Education Course: (Either Summer or Spring of Senior Year) A World Campus course offered in summer may substitute for SPLED 462. Contact adviser before scheduling on World Campus.

⁷ **Optional Add-on:**

ESL Certificate Course: EDUC 469 or Special Education Certificate Course: PSYCH 443 and SPLED 418.

⁸ **Optional Add-on:**

ESL Certificate Courses: EDUC 475 and EDUC 495 (1 credit) or Special Education Certificate Course: SPLED 462 (Take either Summer of Junior Year or Spring of Senior Year). (Note: A World Campus course offered in summer may substitute. Contact adviser before scheduling on World Campus.)

EDUC 495 - Special Ed Internship (3 credits). May be combined with student teaching if all coursework has been completed and is recommended by the adviser.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes (courses not on this list need to be approved by an academic adviser):

Select 3 credits of Literature from the following:

- AA 193N (GA/GH) – The Craft of Comics (3)
- AFAM 141N (GA/GH/US) – African American Read-In Engaged Learning Experience (3)
- AMST 150N (GA/GH/US) – Western Pennsylvania Art, Literature, and Culture (3)
- APLING 220N (GH/GS/IL)- Multilingual Lives: Stories of Language and Culture Learning (3)
- ARTH 224N (GA/GH) – Authors and Artists (3)
- CMLIT 1, 1H (GH/IL) - Introduction to Western Literatures Through the Renaissance (3)
- CMLIT 2 (GH/IL) - Introduction to Western Literatures Since the Renaissance (3)
- CMLIT 3 (GH/IL) - Introduction to African Literatures (3)
- CMLIT 4, 4H/ASIA 4 (GH/IL) - Introduction to Asian Literatures (3)
- CMLIT 5 (GH/IL/US) - Introduction to Literatures of the Americas (3)
- CMLIT 6/PHIL 6 (GH/IL) - Literature and Philosophy (3)
- CMLIT 10 (GH/IL) - World Literatures (3)
- CMLIT 11 (GH/IL) - The Hero in World Literature (3)
- CMLIT 100 (GH/IL) – Reading Across Cultures (3)
- CMLIT 101 (GH/IL/US) - Race, Gender, and Identity in World Literature (3)
- CMLIT 105 (GH/IL) - The Development of Literary Humor (3)
- CMLIT 106 (GH/IL) - The Arthurian Legend (3)
- CMLIT 107 (GH/IL) – Exploration, Travel, Migration, and Exile (3)
- CMLIT 108 (GH/IL) - Myths and Mythologies (3)
- CMLIT 109 (GH/IL/US) – Native American Myths, Legends, and Literatures (3)
- CMLIT 110/JST 131 (GH/IL/US) - Jewish Literature: An International Perspective (3)
- CMLIT 111 (GH/IL) - Introduction to Literatures of India (3)
- CMLIT 130 (GH/IL) – Banned Books: International and Comparative Perspectives (3)
- CMLIT 140 (GH/IL) – Literature and Other Arts: International and Comparative Perspectives (3)
- CMLIT 141 (GH/IL/US) - Religion and Literature (3)
- CMLIT 153 (GH/IL) International Cultures: Film and Literature (3)
- CMLIT 183Q/SC 183Q (GH/GN) – From Beast Books to Resurrecting Dinosaurs (3)
- ENGL 101 (GH) – Introduction to Literature (3)
- ENGL 103 (GH/US) - The Great Traditions in American Literature (3)
- ENGL 104 (GH) - The Bible as Literature (3)
- ENGL 112 (GH/US) – Pennsylvania Literature (3)
- ENGL 129, 129H (GH) - Shakespeare (3)
- ENGL 133 (GH/US) - Modern American Literature to World War II (3)
- ENGL 134 (GH) - American Comedy (3)
- ENGL 135, 135S/AMST 135 (GH/US) - Alternative Voices in American Literature (3)
- ENGL 139/AFAM 139 (GH/US) - African American Literature (3)
- ENGL 140 (GH) - Contemporary Literature (3)
- ENGL 142N/SC 142N (GH/GN) - Science in Literature (3)
- ENGL 161N/HIST 162N (GH/GHW/US) – The Pursuit of Happiness in American Life: Historical Literature and Modern Practice (3)
- ENGL 165N (GH/GS) – Work and Literature (3)
- ENGL 180 (GH) - Literature and the Natural World (3)

- ENGL 182A (GH/IL/US)- Literature and Empire (3)
- ENGL 182C (GH/IL) - Literature and Empire (3)
- ENGL 183N/PLSC 183N (GH/GS/IL) – The Cold War in Literature, Politics, and History (3)
- ENGL 184/CMLIT 184 (GH/IL)- The Short Story (3)
- ENGL 185/CMLIT 185 (GH/IL) – World Novel (3)
- ENGL 189/CMLIT 189 (GH/IL) - Modern Drama (3)
- ENGL 191 (GH) - Science Fiction (3)
- ENGL 194, 194H/WMST 194 (GH/IL/US) - Women Writers (3)
- ENGL 223N (GA/GH) – Shakespeare: Page, Stage, and Screen (3)
- ENGL 224N/ARTH 224N (GH/GN) – Authors and Artists (3)
- ENGL 228 (GH/US) – Introduction to Disability Studies in the Humanities (3)
- ENGL 233N (GH/GN) – Chemistry and Literature (3)
- ENGL 236N (GH/GS) – Inequality: Economics, Philosophy, Literature (3)
- ENGL 237N (GH/GA/US) – Reading and Writing Documentary (3)
- ENGL 262 (GH) - Reading Fiction (3)
- ENGL 263 (GH) - Reading Poetry (3)
- ENGL 265 (GH) - Reading Nonfiction (3)
- ENGL 268 (GH) - Reading Drama (3)
- HDFS 254N (GH/GS/US) – Reading Our Lives: Understanding Diversity and Human Development through Memoirs (3)
- LLED 215N (GH/GA) – Children’s Picture Books as Multimodal Texts (3)

Select 3 credits of Arts courses from the following:

- AA 193N (GA/GH) – The Craft of Comics (3)
- AFAM 126N (GA/GH/US) – The Popular Arts in America: The History of Hip-Hop (3)
- AFAM 141N (GA/GH/US) – African American Read-In Engaged Learning Experience (3)
- AFAM 207N (GA/GS/US) – Jazz and the African American Experience (3)
- AFAM 226N/AMST 226N (GA/GH) – Critical Approaches to Hip-Hop (3)
- AMST 150N (GA/GH/US) – Western Pennsylvania Art, Literature, and Culture (3)
- AMST 307N/ARTH 307N (GA/GH/US) – American Art and Society (3)
- AMST 308N/ARTH 308N (GA/GH/US) – American Architecture (3)
- ARCH 170N (GA/GN) – Introduction to Sustainable Architecture (3)
- ART 51N/METEO 51N (GA/GN) – Meteorology and Visual Arts: To See Is to See (3)
- ART 175N (GA/GS) – Intersections Between Art and Psychology (3)
- ART 207N (GA/GS/US/IL) – LGBTQ+ Identity, Culture, and The Arts (3)
- ARTH 105N (GA/GS) – Pictures and Power (3)
- ARTH 107N (GA/GS) – Rocks, Minerals, and the History of Art (3)
- ARTH 115N (GA/GH) – Arts of Love (3)
- ARTH 202N (GA/GH/IL) – Renaissance to Modern Architecture (3)
- ARTH 222N/ARTH 222Q (GA/GS/IL) – Intersections Between Art History and the History of Psychology (3)
- ARTH 224N (GA/GH) – Authors and Artists (3)
- ARTH 225N/ENGL 225N/WMNST 225N (GA/GH) – Sexuality and Modern Visual Culture (3)

- ASTRO 7N (GA/GN) – The Artistic Universe (3)
- ASTRO 141N (GA/GN) – Film and Extraterrestrial Life: Science Fact or Fiction? (3)
- CHNS 121N (GA/GH/IL) – Chinese Film and New Media (3)
- CMLIT 112N (GA/GH/IL/US) – Introduction to Global Drama, Theatre, and Performance (3)
- CMLIT 128N (GA/GH/IL/US) – The Holocaust in Film and Literature (3)
- CMLIT 191N (GA/GH/US) – Introduction to Video Game Culture (3)
- CMLIT 240Q/HIST 240Q/IT 240Q/WMNST 240Q (GA/GH/IL) – Artistic Patronage in Europe (3)
- COMM 20N/SOC 20N (GA/GS) – Critical Media Literacy (3)
- COMM 101N (GA/GS) – Understanding and Enhancing Creativity (3)
- COMM 150N/Q (GA/GH) – The Art of the Cinema (3)
- COMM 175N/PSYCH 175N (GA/GS) – Mental Illness and the Movies (3)
- COMM 208N (GA/GS) – Visual Representations of the Middle East in the US and the Middle East (3)
- COMM 222N (GA/GH) – Social Justice and the Image (3)
- COMM 290N/SOC 290N (GA/GS/IL) – Cinema and Globalization (3)
- DART 102N (GA/GH) – Introduction to 2d Digital Art and Technology (3)
- ENGL 208N/MUSIC 209N (GA/GH/US) – The Music of the Beatles and American Popular Culture (3)
- ENGL 223N (GA/GH) – Shakespeare: Page, Stage, and Screen (3)
- ENGL 237N (GA/GH/US) – Reading and Writing Documentary (3)
- FR 138N (GA/GH) – French Culture Through Film (3)
- GAME 180N (GA/GN) – The Art and Science of Virtual Worlds (3)
- GER 189N (GA/GH/IL) – German Film (3)
- HDFS 175N (GA/GS) – Introduction to Youth Development and Arts-Based Social Justice (3)
- HUM 150N (GH/GA) – World Mythologies in the Arts (3)
- HUM 311N (GA/GH/IL) – The Western Tradition I (3)
- JAPNS 121N (GA/GH/IL) – Japanese Film and New Media (3)
- LLED 215N (GA/GH) – Children’s Picture Books as Multimodal Texts (3)
- PHIL 136N (GA/GH) – Art and Philosophy in Ancient Greece (3)
- PSYCH 109N (GA/GS) – The Psychology of Artistic Creativity (3)
- PSYCH 246N (GA/GS) – Human Factors in Design and Art (3)
- SC 60N (GA/GN) - Art in the Natural World (3)
- SOC 290N (GA/GS/IL) – Cinema and Globalization (3)
- THEA 101N (GA/GS) – Performance and Society (3)
- WMNST 106N/Q (GA/GH/US/IL) – Representing Women and Gender in Literature, Art and Popular Cultures (3)

Grades 4-8 English/Language Arts and Reading Option: Elementary Education, B.El.Ed. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 15S, 30T, or ESL 15 (GWS) ^{‡#}	3 CAS 100A or 100S [‡]	3
General Education Course (GN) ^{**1}	3 EDTHP 115S (GS/US) ^{*2}	3
MATH 200 (GQ) ^{*#†}	3 MATH 201 (GQ) ^{*#†}	3
HIST 3, 12, 20, or 21 (GH/US) ^{**†}	3 General Education Course (GN) ^{**1}	3
General Education Course	3 HDFFS 239 (GS) ^{*†}	3
	General Education Course (GHW)	1.5
	15	16.5

Second Year

Fall	Credits Spring	Credits
CI 295B [*]	3 EDUC 466 (GS) [*]	3
EDPSY 14 (GS)	3 ENGL 202A (GWS) ^{*‡}	3
Select Literature Course (GH) ^{*#†3}	3 GEOG 126 (GS/IL/US) [*]	3
General Education Course (GN) ^{**1}	3 SPLED 404 [*]	3
General Education Course	3 Select Literature Literature	3
General Education Course (GHW)	1.5	
	16.5	15

Third Year

Fall	Credits Spring	Credits Summer	Credits
EDMTH 301 or SPLED 409C [*]	3 EDUC 304 [*]	3 Optional Add-on ⁶	
EDUC 305 [*]	3 EDUC 320 [*]	3	
EDUC 315Y [*]	3 EDUC 322 [*]	3	
EDUC 454 [*]	3 EDUC 352 [*]	3	
ENGL 470 [*]	3 EDUC 353 [*]	3	

Optional Add-on ⁴	EDUC 495A [*]	1
	Optional Add-on ⁵	
	15	16
		0

Fourth Year

Fall	Credits Spring	Credits
EDUC 303 [*]	3 EDUC 490 [*]	12
EDUC 321 [*]	3 Optional Add-on ⁸	
EDMTH 302 [*]	3	
EDUC 495B [*]	3	
EDUC 416 [*]	3	
Optional Add-on ⁷		
	15	12

Total Credits 121

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ GN courses must include one Biological Science, one Physical Science, and one Earth Science course.

² If EDTHP 115S is not available, a student may substitute EDTHP 115 and any course that meets the first-year seminar requirement.

³ Select Literature course from list below (or as approved by an academic adviser).

⁴ Optional Add-on:

ESL Certificate Course: EDUC 467 or Special Education Certificate Courses: EDUC 477 subs for SPLED 409A.

⁵ Optional Add-on:

ESL Certificate Course: EDUC 468 or Special Education Certificate Course: EDUC 452 subs for SPLED 409B.

⁶ Optional Add-on:

Special Education Course: A World Campus course offered in summer may substitute for SPLED 462 in Spring of Senior Year. Contact adviser before scheduling on World Campus.

⁷ Optional Add-on:

ESL Certificate Course: EDUC 469 or Special Education Certificate Course: PSYCH 443.

⁸ Optional Add-on:

ESL Certificate Courses: EDUC 475 and EDUC 495 (1 credit) or Special Education Certificate Course: SPLED 462 (Take either Summer of Junior Year or Spring of Senior Year). (Note: A World Campus course offered in summer may substitute. Contact adviser before scheduling on World Campus.)

EDUC 495 - Special Ed Internship (3 credits). May be combined with student teaching if all coursework has been completed and is recommended by the adviser.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes (courses not on this list need to be approved by an academic adviser):

Select 3 credits of Literature from the following:

- AA 193N (GA/GH) – The Craft of Comics (3)
- AFAM 141N (GA/GH/US) – African American Read-In Engaged Learning Experience (3)
- AMST 150N (GA/GH/US) – Western Pennsylvania Art, Literature, and Culture (3)
- APLING 220N (GH/GS/IL)- Multilingual Lives: Stories of Language and Culture Learning (3)
- ARTH 224N (GA/GH) – Authors and Artists (3)
- CMLIT 1, 1H (GH/IL) - Introduction to Western Literatures Through the Renaissance (3)
- CMLIT 2 (GH/IL) - Introduction to Western Literatures Since the Renaissance (3)
- CMLIT 3 (GH/IL) - Introduction to African Literatures (3)
- CMLIT 4, 4H/ASIA 4 (GH/IL) - Introduction to Asian Literatures (3)
- CMLIT 5 (GH/IL/US) - Introduction to Literatures of the Americas (3)
- CMLIT 6/PHIL 6 (GH/IL) - Literature and Philosophy (3)
- CMLIT 10 (GH/IL) - World Literatures (3)
- CMLIT 11 (GH/IL) - The Hero in World Literature (3)
- CMLIT 100 (GH/IL) – Reading Across Cultures (3)
- CMLIT 101 (GH/IL/US) - Race, Gender, and Identity in World Literature (3)
- CMLIT 105 (GH/IL) - The Development of Literary Humor (3)
- CMLIT 106 (GH/IL) - The Arthurian Legend (3)
- CMLIT 107 (GH/IL) – Exploration, Travel, Migration, and Exile (3)
- CMLIT 108 (GH/IL) - Myths and Mythologies (3)
- CMLIT 109 (GH/IL/US) – Native American Myths, Legends, and Literatures (3)
- CMLIT 110/JST 131 (GH/IL/US) - Jewish Literature: An International Perspective (3)
- CMLIT 111 (GH/IL) - Introduction to Literatures of India (3)
- CMLIT 130 (GH/IL) – Banned Books: International and Comparative Perspectives (3)
- Date: 1-8-2021 Penn State Harrisburg Teacher Education
- CMLIT 140 (GH/IL) – Literature and Other Arts: International and Comparative Perspectives (3)
- CMLIT 141 (GH/IL/US) - Religion and Literature (3)
- CMLIT 153 (GH/IL) International Cultures: Film and Literature (3)
- CMLIT 183Q/SC 183Q (GH/GN) – From Beast Books to Resurrecting Dinosaurs (3)
- ENGL 101 (GH) – Introduction to Literature (3)
- ENGL 103 (GH/US) - The Great Traditions in American Literature (3)

- ENGL 104 (GH) - The Bible as Literature (3)
- ENGL 112 (GH/US) – Pennsylvania Literature (3)
- ENGL 129, 129H (GH) - Shakespeare (3)
- ENGL 133 (GH/US) - Modern American Literature to World War II (3)
- ENGL 134 (GH) - American Comedy (3)
- ENGL 135, 135S/AMST 135 (GH/US) - Alternative Voices in American Literature (3)
- ENGL 139/AFAM 139 (GH/US) - African American Literature (3)
- ENGL 140 (GH) - Contemporary Literature (3)
- ENGL 142N/SC 142N (GH/GN) - Science in Literature (3)
- ENGL 161N/HIST 162N (GH/GHW/US) – The Pursuit of Happiness in American Life: Historical Literature and Modern Practice (3)
- ENGL 165N (GH/GS) – Work and Literature (3)
- ENGL 180 (GH) - Literature and the Natural World (3)
- ENGL 182A (GH/IL/US)- Literature and Empire (3)
- ENGL 182C (GH/IL) - Literature and Empire (3)
- ENGL 183N/PLSC 183N (GH/GS/IL) – The Cold War in Literature, Politics, and History (3)
- ENGL 184/CMLIT 184 (GH/IL)- The Short Story (3)
- ENGL 185/CMLIT 185 (GH/IL) – World Novel (3)
- ENGL 189/CMLIT 189 (GH/IL) - Modern Drama (3)
- ENGL 191 (GH) - Science Fiction (3)
- ENGL 194, 194H/WMST 194 (GH/IL/US) - Women Writers (3)
- ENGL 223N (GA/GH) – Shakespeare: Page, Stage, and Screen (3)
- ENGL 224N/ARTH 224N (GH/GN) – Authors and Artists (3)
- ENGL 228 (GH/US) – Introduction to Disability Studies in the Humanities (3)
- ENGL 233N (GH/GN) – Chemistry and Literature (3)
- ENGL 236N (GH/GS) – Inequality: Economics, Philosophy, Literature (3)
- ENGL 237N (GH/GA/US) – Reading and Writing Documentary (3)
- ENGL 262 (GH) - Reading Fiction (3)
- ENGL 263 (GH) - Reading Poetry (3)
- ENGL 265 (GH) - Reading Nonfiction (3)
- ENGL 268 (GH) - Reading Drama (3)
- HDFS 254N (GH/GS/US) – Reading Our Lives: Understanding Diversity and Human Development through Memoirs (3)
- LLED 215N (GH/GA) – Children's Picture Books as Multimodal Texts (3)

Select 3 credits of Arts from the following:

- AA 193N (GA/GH) – The Craft of Comics (3)
- AFAM 126N (GA/GH/US) – The Popular Arts in America: The History of Hip-Hop (3)
- AFAM 141N (GA/GH/US) – African American Read-In Engaged Learning Experience (3)
- AFAM 207N (GA/GS/US) – Jazz and the African American Experience (3)
- AFAM 226N/AMST 226N (GA/GH) – Critical Approaches to Hip-Hop (3)
- AMST 150N (GA/GH/US) – Western Pennsylvania Art, Literature, and Culture (3)
- AMST 307N/ARTH 307N (GA/GH/US) – American Art and Society (3)
- AMST 308N/ARTH 308N (GA/GH/US) – American Architecture (3)

- ARCH 170N (GA/GN) – Introduction to Sustainable Architecture (3)
- ART 51N/METEO 51N (GA/GN) – Meteorology and Visual Arts: To See Is to See (3)
- ART 175N (GA/GS) – Intersections Between Art and Psychology (3)
- ART 207N (GA/GS/US/IL) – LGBTQ+ Identity, Culture, and The Arts (3)
- ARTH 105N (GA/GS) – Pictures and Power (3)
- ARTH 107N (GA/GS) – Rocks, Minerals, and the History of Art (3)
- ARTH 115N (GA/GH) – Arts of Love (3)
- ARTH 202N (GA/GH/IL) – Renaissance to Modern Architecture (3)
- ARTH 222N/ARTH 222Q (GA/GS/IL) – Intersections Between Art History and the History of Psychology (3)
- ARTH 224N (GA/GH) – Authors and Artists (3)
- ARTH 225N/ENGL 225N/WMNST 225N (GA/GH) – Sexuality and Modern Visual Culture (3)
- ASTRO 7N (GA/GN) – The Artistic Universe (3)
- ASTRO 141N (GA/GN) – Film and Extraterrestrial Life: Science Fact or Fiction? (3)
- CHNS 121N (GA/GH/IL) – Chinese Film and New Media (3)
- CMLIT 112N (GA/GH/IL/US) – Introduction to Global Drama, Theatre, and Performance (3)
- CMLIT 128N (GA/GH/IL/US) – The Holocaust in Film and Literature (3)
- CMLIT 191N (GA/GH/US) – Introduction to Video Game Culture (3)
- CMLIT 240Q/HIST 240Q/IT 240Q/WMNST 240Q (GA/GH/IL) – Artistic Patronage in Europe (3)
- COMM 20N/SOC 20N (GA/GS) – Critical Media Literacy (3)
- COMM 101N (GA/GS) – Understanding and Enhancing Creativity (3)
- COMM 150N/Q (GA/GH) – The Art of the Cinema (3)
- COMM 175N/PSYCH 175N (GA/GS) – Mental Illness and the Movies (3)
- COMM 208N (GA/GS) – Visual Representations of the Middle East in the US and the Middle East (3)
- COMM 222N (GA/GH) – Social Justice and the Image (3)
- COMM 290N/SOC 290N (GA/GS/IL) – Cinema and Globalization (3)
- DART 102N (GA/GH) – Introduction to 2d Digital Art and Technology (3)
- ENGL 208N/MUSIC 209N (GA/GH/US) – The Music of the Beatles and American Popular Culture (3)
- ENGL 223N (GA/GH) – Shakespeare: Page, Stage, and Screen (3)
- ENGL 237N (GA/GH/US) – Reading and Writing Documentary (3)
- FR 138N (GA/GH) – French Culture Through Film (3)
- GAME 180N (GA/GN) – The Art and Science of Virtual Worlds (3)
- GER 189N (GA/GH/IL) – German Film (3)
- HDFS 175N (GA/GS) – Introduction to Youth Development and Arts-Based Social Justice (3)
- HUM 150N (GH/GA) – World Mythologies in the Arts (3)
- HUM 311N (GA/GH/IL) – The Western Tradition I (3)
- JAPNS 121N (GA/GH/IL) – Japanese Film and New Media (3)
- LLED 215N (GA/GH) – Children's Picture Books as Multimodal Texts (3)
- PHIL 136N (GA/GH) – Art and Philosophy in Ancient Greece (3)
- PSYCH 109N (GA/GS) – The Psychology of Artistic Creativity (3)
- PSYCH 246N (GA/GS) – Human Factors in Design and Art (3)
- SC 60N (GA/GN) - Art in the Natural World (3)
- SOC 290N (GA/GS/IL) – Cinema and Globalization (3)
- THEA 101N (GA/GS) – Performance and Society (3)
- WMNST 106N/Q (GA/GH/US/IL) – Representing Women and Gender in Literature, Art and Popular Cultures (3)

Grades 4-8 Mathematics Option: Elementary Education, B.El.Ed. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 15S, 30T, or ESL 15 (GWS) ^{†#}	3 CAS 100A or 100S [‡]	3
General Education Course (GN) ^{**1}	3 EDTHP 115S (GS/US) ^{*2}	3
MATH 200 (GQ) ^{*#†}	3 Quantification Course MATH 201 (GQ) ^{*#†}	3
HIST 3, 12, 20, or 21 (GH/US) ^{**†}	3 General Education Course (GN) ^{**1}	3
General Education Course	3 HDFS 239 (GS) ^{**†}	3
	General Education Course (GHW)	1.5
	15	16.5

Second Year

Fall	Credits Spring	Credits
CI 295B [*]	3 EDUC 466 (GS) [*]	3
EDPSY 14 (GS)	3 ENGL 202A (GWS) [‡]	3
Select Literature Course ^{*#†3}	3 GEOG 126 (GS/IL/US) [*]	3
General Education Course (GN) ^{**1}	3 SPLED 404 [*]	3
General Education Course	3 General Education Course (GHW)	1.5
MATH 22 [*]	3 MATH 37 [*]	3
	18	16.5

Third Year

Fall	Credits Spring	Credits Summer	Credits
EDUC 305 [*]	3 EDUC 304 [*]	3 Optional Add-on ⁶	
EDUC 315Y [*]	3 EDUC 352 [*]	3	
EDUC 454 [*]	3 EDUC 353 [*]	3	
MATH 140 [*]	4 EDUC 320 [*]	3	
EDMTH 301 or SPLED 409C [*]	3 EDUC 495A [*]	1	

Optional Add-on ⁴	STAT 200 [*]	4	
	Optional Add-on ⁵		
	16	17	0
Fourth Year			
Fall	Credits Spring	Credits	
EDUC 303 [*]	3 EDUC 490 [*]	12	
EDUC 321 [*]	3 Optional Add-on ⁸		
EDMTH 302 [*]	3		
EDUC 495B [*]	3		
EDUC 417 [*]	3		
Optional Add-on ⁷			
	15	12	
Total Credits 126			

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ GN courses must include one Biological Science, one Physical Science, and one Earth Science course.

² If EDTHP 115S is not available, a student may substitute EDTHP 115 and any course that meets the first-year seminar requirement.

³ Select Literature. See list below for Literature courses (or as approved by an academic adviser).

⁴ **Optional Add-on:**

ESL Certificate Course: EDUC 467 or Special Education Certificate Course: EDUC 477 subs for SPLED 409A.

⁵ **Optional Add-on:**

ESL Certificate Course: EDUC 468 or Special Education Certificate Course: EDUC 452 subs for SPLED 409B.

⁶ **Optional Add-on:**

Special Education Course: (Either summer or Spring of Senior Year) A World Campus course offered in summer may substitute for SPLED 462. Contact adviser before scheduling on World Campus.

⁷ **Optional Add-on:**

ESL Certificate Course: EDUC 469 or Special Education Certificate Courses: PSYCH 443 and SPLED 418.

⁸ **Optional Add-on:**

ESL Certificate Courses: EDUC 475 and EDUC 495 (1 credit) or Special Education Certificate Course: SPLED 462. (Either Summer of Junior Year or Spring of Senior Year). (Note: A World Campus course offered in summer may substitute. Contact adviser before scheduling on World Campus.)

EDUC 495 - Special Ed Internship (3 credits). May be combined with student teaching if all coursework has been completed and is recommended by the adviser.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes (courses not on this list need to be approved by an academic adviser):

Select 3 credits of literature from the following:

- AA 193N (GA/GH) – The Craft of Comics (3)
- AFAM 141N (GA/GH/US) – African American Read-In Engaged Learning Experience (3)
- AMST 150N (GA/GH/US) – Western Pennsylvania Art, Literature, and Culture (3)
- APLING 220N (GH/GS/IL)- Multilingual Lives: Stories of Language and Culture Learning (3)
- ARTH 224N (GA/GH) – Authors and Artists (3)
- CMLIT 1, 1H (GH/IL) - Introduction to Western Literatures Through the Renaissance (3)
- CMLIT 2 (GH/IL) - Introduction to Western Literatures Since the Renaissance (3)
- CMLIT 3 (GH/IL) - Introduction to African Literatures (3)
- CMLIT 4, 4H/ASIA 4 (GH/IL) - Introduction to Asian Literatures (3)
- CMLIT 5 (GH/IL/US) - Introduction to Literatures of the Americas (3)
- CMLIT 6/PHIL 6 (GH/IL) - Literature and Philosophy (3)
- CMLIT 10 (GH/IL) - World Literatures (3)
- CMLIT 11 (GH/IL) - The Hero in World Literature (3)
- CMLIT 100 (GH/IL) – Reading Across Cultures (3)
- CMLIT 101 (GH/IL/US) - Race, Gender, and Identity in World Literature (3)
- CMLIT 105 (GH/IL) - The Development of Literary Humor (3)
- CMLIT 106 (GH/IL) - The Arthurian Legend (3)
- CMLIT 107 (GH/IL) – Exploration, Travel, Migration, and Exile (3)
- CMLIT 108 (GH/IL) - Myths and Mythologies (3)
- CMLIT 109 (GH/IL/US) – Native American Myths, Legends, and Literatures (3)
- CMLIT 110/JST 131 (GH/IL/US) - Jewish Literature: An International Perspective (3)
- CMLIT 111 (GH/IL) - Introduction to Literatures of India (3)
- CMLIT 130 (GH/IL) – Banned Books: International and Comparative Perspectives (3)
- CMLIT 140 (GH/IL) – Literature and Other Arts: International and Comparative Perspectives (3)
- CMLIT 141 (GH/IL/US) - Religion and Literature (3)
- CMLIT 153 (GH/IL) International Cultures: Film and Literature (3)
- CMLIT 183Q/SC 183Q (GH/GN) – From Beast Books to Resurrecting Dinosaurs (3)
- ENGL 101 (GH) – Introduction to Literature (3)
- ENGL 103 (GH/US) - The Great Traditions in American Literature (3)
- ENGL 104 (GH) - The Bible as Literature (3)

- ENGL 112 (GH/US) – Pennsylvania Literature (3)
- ENGL 129, 129H (GH) - Shakespeare (3)
- ENGL 133 (GH/US) - Modern American Literature to World War II (3)
- ENGL 134 (GH) - American Comedy (3)
- ENGL 135, 135S/AMST 135 (GH/US) - Alternative Voices in American Literature (3)
- ENGL 139/AFAM 139 (GH/US) - African American Literature (3)
- ENGL 140 (GH) - Contemporary Literature (3)
- ENGL 142N/SC 142N (GH/GN) - Science in Literature (3)
- ENGL 161N/HIST 162N (GH/GHW/US) – The Pursuit of Happiness in American Life: Historical Literature and Modern Practice (3)
- ENGL 165N (GH/GS) – Work and Literature (3)
- ENGL 180 (GH) - Literature and the Natural World (3)
- ENGL 182A (GH/IL/US)- Literature and Empire (3)
- ENGL 182C (GH/IL) - Literature and Empire (3)
- ENGL 183N/PLSC 183N (GH/GS/IL) – The Cold War in Literature, Politics, and History (3)
- ENGL 184/CMLIT 184 (GH/IL)- The Short Story (3)
- ENGL 185/CMLIT 185 (GH/IL) – World Novel (3)
- ENGL 189/CMLIT 189 (GH/IL) - Modern Drama (3)
- ENGL 191 (GH) - Science Fiction (3)
- ENGL 194, 194H/WMST 194 (GH/IL/US) - Women Writers (3)
- ENGL 223N (GA/GH) – Shakespeare: Page, Stage, and Screen (3)
- ENGL 224N/ARTH 224N (GH/GN) – Authors and Artists (3)
- ENGL 228 (GH/US) – Introduction to Disability Studies in the Humanities (3)
- ENGL 233N (GH/GN) – Chemistry and Literature (3)
- ENGL 236N (GH/GS) – Inequality: Economics, Philosophy, Literature (3)
- ENGL 237N (GH/GA/US) – Reading and Writing Documentary (3)
- ENGL 262 (GH) - Reading Fiction (3)
- ENGL 263 (GH) - Reading Poetry (3)
- ENGL 265 (GH) - Reading Nonfiction (3)
- ENGL 268 (GH) - Reading Drama (3)
- HDFS 254N (GH/GS/US) – Reading Our Lives: Understanding Diversity and Human Development through Memoirs (3)
- LLED 215N (GH/GA) – Children’s Picture Books as Multimodal Texts (3)

Select 3 credits of Arts from the following:

- AA 193N (GA/GH) – The Craft of Comics (3)
- AFAM 126N (GA/GH/US) – The Popular Arts in America: The History of Hip-Hop (3)
- AFAM 141N (GA/GH/US) – African American Read-In Engaged Learning Experience (3)
- AFAM 207N (GA/GS/US) – Jazz and the African American Experience (3)
- AFAM 226N/AMST 226N (GA/GH) – Critical Approaches to Hip-Hop (3)
- AMST 150N (GA/GH/US) – Western Pennsylvania Art, Literature, and Culture (3)
- AMST 307N/ARTH 307N (GA/GH/US) – American Art and Society (3)
- AMST 308N/ARTH 308N (GA/GH/US) – American Architecture (3)
- ARCH 170N (GA/GN) – Introduction to Sustainable Architecture (3)

- ART 51N/METEO 51N (GA/GN) – Meteorology and Visual Arts: To See Is to See (3)
- ART 175N (GA/GS) – Intersections Between Art and Psychology (3)
- ART 207N (GA/GS/US/IL) – LGBTQ+ Identity, Culture, and The Arts (3)
- ARTH 105N (GA/GS) – Pictures and Power (3)
- ARTH 107N (GA/GS) – Rocks, Minerals, and the History of Art (3)
- ARTH 115N (GA/GH) – Arts of Love (3)
- ARTH 202N (GA/GH/IL) – Renaissance to Modern Architecture (3)
- ARTH 222N/ARTH 222Q (GA/GS/IL) – Intersections Between Art History and the History of Psychology (3)
- ARTH 224N (GA/GH) – Authors and Artists (3)
- ARTH 225N/ENGL 225N/WMNST 225N (GA/GH) – Sexuality and Modern Visual Culture (3)
- ASTRO 7N (GA/GN) – The Artistic Universe (3)
- ASTRO 141N (GA/GN) – Film and Extraterrestrial Life: Science Fact or Fiction? (3)
- CHNS 121N (GA/GH/IL) – Chinese Film and New Media (3)
- CMLIT 112N (GA/GH/IL/US) – Introduction to Global Drama, Theatre, and Performance (3)
- CMLIT 128N (GA/GH/IL/US) – The Holocaust in Film and Literature (3)
- CMLIT 191N (GA/GH/US) – Introduction to Video Game Culture (3)
- CMLIT 240Q/HIST 240Q/IT 240Q/WMNST 240Q (GA/GH/IL) – Artistic Patronage in Europe (3)
- COMM 20N/SOC 20N (GA/GS) – Critical Media Literacy (3)
- COMM 101N (GA/GS) – Understanding and Enhancing Creativity (3)
- COMM 150N/Q (GA/GH) – The Art of the Cinema (3)
- COMM 175N/PSYCH 175N (GA/GS) – Mental Illness and the Movies (3)
- COMM 208N (GA/GS) – Visual Representations of the Middle East in the US and the Middle East (3)
- COMM 222N (GA/GH) – Social Justice and the Image (3)
- COMM 290N/SOC 290N (GA/GS/IL) – Cinema and Globalization (3)
- DART 102N (GA/GH) – Introduction to 2d Digital Art and Technology (3)
- ENGL 208N/MUSIC 209N (GA/GH/US) – The Music of the Beatles and American Popular Culture (3)
- ENGL 223N (GA/GH) – Shakespeare: Page, Stage, and Screen (3)
- ENGL 237N (GA/GH/US) – Reading and Writing Documentary (3)
- FR 138N (GA/GH) – French Culture Through Film (3)
- GAME 180N (GA/GN) – The Art and Science of Virtual Worlds (3)
- GER 189N (GA/GH/IL) – German Film (3)
- HDFS 175N (GA/GS) – Introduction to Youth Development and Arts-Based Social Justice (3)
- HUM 150N (GH/GA) – World Mythologies in the Arts (3)
- HUM 311N (GA/GH/IL) – The Western Tradition I (3)
- JAPNS 121N (GA/GH/IL) – Japanese Film and New Media (3)
- LLED 215N (GA/GH) – Children's Picture Books as Multimodal Texts (3)
- PHIL 136N (GA/GH) – Art and Philosophy in Ancient Greece (3)
- PSYCH 109N (GA/GS) – The Psychology of Artistic Creativity (3)
- PSYCH 246N (GA/GS) – Human Factors in Design and Art (3)
- SC 60N (GA/GN) - Art in the Natural World (3)
- SOC 290N (GA/GS/IL) – Cinema and Globalization (3)
- THEA 101N (GA/GS) – Performance and Society (3)
- WMNST 106N/Q (GA/GH/US/IL) – Representing Women and Gender in Literature, Art and Popular Cultures (3)

Grades 4-8 Social Studies Option: Elementary Education, B.El.Ed. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 15S, 30T, or ESL 15 (GWS) ^{‡#}	3 CAS 100A or 100S [‡]	3
General Education Course (GN) ^{**†}	3 EDTHP 115S (GS/US) ^{*2}	3
MATH 200 (GQ) ^{*#†}	3 MATH 201 (GQ) ^{*#†}	3
HIST 12 ^{**†}	3 General Education Course (GN) ^{**†}	3
General Education Course	3 HDF5 239 (GS) ^{*†}	3
	General Education Course (GHW)	1.5
	15	16.5

Second Year

Fall	Credits Spring	Credits
CI 295B [*]	3 EDUC 466 (GS) [*]	3
EDPSY 14 (GS)	3 ENGL 202A (GWS) [‡]	3
Select American Course (GH) ^{*#†3}	3 GEOG 126 (GS/IL/US) [*]	3
General Education Course (GN) ^{**†}	3 SPLED 404 [*]	3
General Education Course	3 General Education Course (GHW)	1.5
HIST 20 (GH/US), HIST 21 (GH/US), HIST 320, or PLSC 1 (GS/US) [*]	3 HIST 20 (GH/US), HIST 21 (GH/US), HIST 320, or PLSC 1 (GS/US) [*]	3
	18	16.5

Third Year

Fall	Credits Spring	Credits Summer	Credits
EDMTH 301 or SPLED 409C [*]	3 EDUC 304 [*]	3 Optional Add-on ⁶	
EDUC 305 [*]	3 EDUC 352 [*]	3	
EDUC 315Y [*]	3 EDUC 353 [*]	3	

HIST 20 (GH/US), HIST 21 (GH/US), HIST 320, or PLSC 1 (GS/US) [*]	3 HIST 20 (GH/US), HIST 21 (GH/US), HIST 320, or PLSC 1 (GS/US) [*]	3
EDUC 454 [*]	3 EDUC 320 [*]	3
Optional Add-on ⁴	EDUC 495A [*]	1
	Optional Add-on ⁵	
	15	16

Fourth Year

Fall	Credits Spring	Credits
EDUC 303 [*]	3 EDUC 490 [*]	12
EDUC 321 [*]	3 Optional Add-on ⁸	
EDMTH 302 [*]	3	
EDUC 495B [*]	3	
EDUC 416	3	
Optional Add-on ⁷		
	15	12

Total Credits 124

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

- 1 GN courses must include one Biological Science, one Physical Science, and one Earth Science course.
- 2 If EDTHP 115S is not available, a student may substitute EDTHP 115 and any course that meets the first-year seminar requirement.
- 3 Select Literature. See list below for Literature courses (or as approved by an academic adviser).
- 4 **Optional Add-on:**
ESL Certificate Course: EDUC 467 or Special Education Certificate Course: EDUC 477 subs for SPLED 409A.
- 5 **Optional Add-on:**
ESL Certificate Course: EDUC 468. Special Education Certificate Course: EDUC 452 subs for SPLED 409B.
- 6 **Optional Add-on:**
Special Education Course: (Either Summer or Spring of Senior Year) A World Campus course offered in summer may substitute for SPLED 462. Contact adviser before scheduling on World Campus.
- 7 **Optional Add-on:**
ESL Certificate Course: EDUC 469 or Special Education Certificate Course: PSYCH 443.
- 8 **Optional Add-on:**
ESL Certificate Courses: EDUC 475 and EDUC 495 (1 credit) or Special Education Certificate Course: SPLED 462. (Either Summer or Spring of Senior Year). (Note: A World Campus course offered in summer may substitute. Contact adviser before scheduling on World Campus.)
EDUC 495 - Special Ed Internship (3 credits). May be combined with student teaching if all coursework has been completed and is recommended by the adviser.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes (courses not on this list need to be approved by an academic adviser):

Select 3 credits of Literature from the following:

- AA 193N (GA/GH) – The Craft of Comics (3)
- AFAM 141N (GA/GH/US) – African American Read-In Engaged Learning Experience (3)
- AMST 150N (GA/GH/US) – Western Pennsylvania Art, Literature, and Culture (3)
- APLING 220N (GH/GS/IL)- Multilingual Lives: Stories of Language and Culture Learning (3)
- ARTH 224N (GA/GH) – Authors and Artists (3)
- CMLIT 1, 1H (GH/IL) - Introduction to Western Literatures Through the Renaissance (3)
- CMLIT 2 (GH/IL) - Introduction to Western Literatures Since the Renaissance (3)
- CMLIT 3 (GH/IL) - Introduction to African Literatures (3)
- CMLIT 4, 4H/ASIA 4 (GH/IL) - Introduction to Asian Literatures (3)
- CMLIT 5 (GH/IL/US) - Introduction to Literatures of the Americas (3)
- CMLIT 6/PHIL 6 (GH/IL) - Literature and Philosophy (3)
- CMLIT 10 (GH/IL) - World Literatures (3)
- CMLIT 11 (GH/IL) - The Hero in World Literature (3)
- CMLIT 100 (GH/IL) – Reading Across Cultures (3)
- CMLIT 101 (GH/IL/US) - Race, Gender, and Identity in World Literature (3)
- CMLIT 105 (GH/IL) - The Development of Literary Humor (3)
- CMLIT 106 (GH/IL) - The Arthurian Legend (3)
- CMLIT 107 (GH/IL) – Exploration, Travel, Migration, and Exile (3)
- CMLIT 108 (GH/IL) - Myths and Mythologies (3)
- CMLIT 109 (GH/IL/US) – Native American Myths, Legends, and Literatures (3)
- CMLIT 110/JST 131 (GH/IL/US) - Jewish Literature: An International Perspective (3)
- CMLIT 111 (GH/IL) - Introduction to Literatures of India (3)
- CMLIT 130 (GH/IL) – Banned Books: International and Comparative Perspectives (3)
- CMLIT 140 (GH/IL) – Literature and Other Arts: International and Comparative Perspectives (3)
- CMLIT 141 (GH/IL/US) - Religion and Literature (3)
- CMLIT 153 (GH/IL) International Cultures: Film and Literature (3)

- CMLIT 183Q/SC 183Q (GH/GN) – From Beast Books to Resurrecting Dinosaurs (3)
- ENGL 101 (GH) – Introduction to Literature (3)
- ENGL 103 (GH/US) - The Great Traditions in American Literature (3)
- ENGL 104 (GH) - The Bible as Literature (3)
- ENGL 112 (GH/US) – Pennsylvania Literature (3)
- ENGL 129, 129H (GH) - Shakespeare (3)
- ENGL 133 (GH/US) - Modern American Literature to World War II (3)
- ENGL 134 (GH) - American Comedy (3)
- ENGL 135, 135S/AMST 135 (GH/US) - Alternative Voices in American Literature (3)
- ENGL 139/AFAM 139 (GH/US) - African American Literature (3)
- ENGL 140 (GH) - Contemporary Literature (3)
- ENGL 142N/SC 142N (GH/GN) - Science in Literature (3)
- ENGL 161N/HIST 162N (GH/GHW/US) – The Pursuit of Happiness in American Life: Historical Literature and Modern Practice (3)
- ENGL 165N (GH/GS) – Work and Literature (3)
- ENGL 180 (GH) - Literature and the Natural World (3)
- ENGL 182A (GH/IL/US)- Literature and Empire (3)
- ENGL 182C (GH/IL) - Literature and Empire (3)
- ENGL 183N/PLSC 183N (GH/GS/IL) – The Cold War in Literature, Politics, and History (3)
- ENGL 184/CMLIT 184 (GH/IL)- The Short Story (3)
- ENGL 185/CMLIT 185 (GH/IL) – World Novel (3)
- ENGL 189/CMLIT 189 (GH/IL) - Modern Drama (3)
- ENGL 191 (GH) - Science Fiction (3)
- ENGL 194, 194H/WMST 194 (GH/IL/US) - Women Writers (3)
- ENGL 223N (GA/GH) – Shakespeare: Page, Stage, and Screen (3)
- ENGL 224N/ARTH 224N (GH/GN) – Authors and Artists (3)
- ENGL 228 (GH/US) – Introduction to Disability Studies in the Humanities (3)
- ENGL 233N (GH/GN) – Chemistry and Literature (3)
- ENGL 236N (GH/GS) – Inequality: Economics, Philosophy, Literature (3)
- ENGL 237N (GH/GA/US) – Reading and Writing Documentary (3)
- ENGL 262 (GH) - Reading Fiction (3)
- ENGL 263 (GH) - Reading Poetry (3)
- ENGL 265 (GH) - Reading Nonfiction (3)
- ENGL 268 (GH) - Reading Drama (3)
- HDFS 254N (GH/GS/US) – Reading Our Lives: Understanding Diversity and Human Development through Memoirs (3)
- LLED 215N (GH/GA) – Children's Picture Books as Multimodal Texts (3)

Select 3 credits of Arts from the following:

- AA 193N (GA/GH) – The Craft of Comics (3)
- AFAM 126N (GA/GH/US) – The Popular Arts in America: The History of Hip-Hop (3)
- AFAM 141N (GA/GH/US) – African American Read-In Engaged Learning Experience (3)
- AFAM 207N (GA/GS/US) – Jazz and the African American Experience (3)
- AFAM 226N/AMST 226N (GA/GH) – Critical Approaches to Hip-Hop (3)

- AMST 150N (GA/GH/US) – Western Pennsylvania Art, Literature, and Culture (3)
- AMST 307N/ARTH 307N (GA/GH/US) – American Art and Society (3)
- AMST 308N/ARTH 308N (GA/GH/US) – American Architecture (3)
- ARCH 170N (GA/GN) – Introduction to Sustainable Architecture (3)
- ART 51N/METEO 51N (GA/GN) – Meteorology and Visual Arts: To See Is to See (3)
- ART 175N (GA/GS) – Intersections Between Art and Psychology (3)
- ART 207N (GA/GS/US/IL) – LGBTQ+ Identity, Culture, and The Arts (3)
- ARTH 105N (GA/GS) – Pictures and Power (3)
- ARTH 107N (GA/GS) – Rocks, Minerals, and the History of Art (3)
- ARTH 115N (GA/GH) – Arts of Love (3)
- ARTH 202N (GA/GH/IL) – Renaissance to Modern Architecture (3)
- ARTH 222N/ARTH 222Q (GA/GS/IL) – Intersections Between Art History and the History of Psychology (3)
- ARTH 224N (GA/GH) – Authors and Artists (3)
- ARTH 225N/ENGL 225N/WMNST 225N (GA/GH) – Sexuality and Modern Visual Culture (3)
- ASTRO 7N (GA/GN) – The Artistic Universe (3)
- ASTRO 141N (GA/GN) – Film and Extraterrestrial Life: Science Fact or Fiction? (3)
- CHNS 121N (GA/GH/IL) – Chinese Film and New Media (3)
- CMLIT 112N (GA/GH/IL/US) – Introduction to Global Drama, Theatre, and Performance (3)
- CMLIT 128N (GA/GH/IL/US) – The Holocaust in Film and Literature (3)
- CMLIT 191N (GA/GH/US) – Introduction to Video Game Culture (3)
- CMLIT 240Q/HIST 240Q/IT 240Q/WMNST 240Q (GA/GH/IL) – Artistic Patronage in Europe (3)
- COMM 20N/SOC 20N (GA/GS) – Critical Media Literacy (3)
- COMM 101N (GA/GS) – Understanding and Enhancing Creativity (3)
- COMM 150N/Q (GA/GH) – The Art of the Cinema (3)
- COMM 175N/PSYCH 175N (GA/GS) – Mental Illness and the Movies (3)
- COMM 208N (GA/GS) – Visual Representations of the Middle East in the US and the Middle East (3)
- COMM 222N (GA/GH) – Social Justice and the Image (3)
- COMM 290N/SOC 290N (GA/GS/IL) – Cinema and Globalization (3)
- DART 102N (GA/GH) – Introduction to 2d Digital Art and Technology (3)
- ENGL 208N/MUSIC 209N (GA/GH/US) – The Music of the Beatles and American Popular Culture (3)
- ENGL 223N (GA/GH) – Shakespeare: Page, Stage, and Screen (3)
- ENGL 237N (GA/GH/US) – Reading and Writing Documentary (3)
- FR 138N (GA/GH) – French Culture Through Film (3)
- GAME 180N (GA/GN) – The Art and Science of Virtual Worlds (3)
- GER 189N (GA/GH/IL) – German Film (3)
- HDFS 175N (GA/GS) – Introduction to Youth Development and Arts-Based Social Justice (3)
- HUM 150N (GH/GA) – World Mythologies in the Arts (3)
- HUM 311N (GA/GH/IL) – The Western Tradition I (3)
- JAPNS 121N (GA/GH/IL) – Japanese Film and New Media (3)
- LLED 215N (GA/GH) – Children's Picture Books as Multimodal Texts (3)
- PHIL 136N (GA/GH) – Art and Philosophy in Ancient Greece (3)
- PSYCH 109N (GA/GS) – The Psychology of Artistic Creativity (3)
- PSYCH 246N (GA/GS) – Human Factors in Design and Art (3)
- SC 60N (GA/GN) - Art in the Natural World (3)
- SOC 290N (GA/GS/IL) – Cinema and Globalization (3)
- THEA 101N (GA/GS) – Performance and Society (3)
- WMNST 106N/Q (GA/GH/US/IL) – Representing Women and Gender in Literature, Art and Popular Cultures (3)

Career Paths

Elementary and middle-level teachers introduce children to learning through the basics of numbers, language, science, and social studies. They facilitate classroom activities to meet the needs and abilities of their students. They also work with children independently and in small groups. They provide instruction, conduct assessments, listen to presentations, and maintain a positive classroom climate. They individually meet with families and faculty and serve on faculty and community committees. Elementary and middle-level teachers also become supervisors, administrators, and mentors to new teachers.

Careers

According to the U.S. Bureau of Labor Statistics, overall employment of kindergarten and elementary school teachers is projected to grow 7 percent from 2016 to 2026, about as fast as the average for all occupations. Rising student enrollment should increase demand for kindergarten and elementary teachers, but employment growth will vary by region. The number of students enrolling in public kindergarten and elementary schools is expected to increase over the coming decade, and the number of classes needed to accommodate these students should rise. As a result, more teachers will be needed to teach public kindergarten and elementary school students.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE ELEMENTARY EDUCATION PROGRAM (<https://harrisburg.psu.edu/behavioral-sciences-education/teacher-education/elementary-education-beled/career-opportunities/>)

Opportunities for Graduate Studies

Additional graduate study is available, including graduate certificates in ESL, Special Education, the Master of Education in Teaching and Curriculum, and the Master of Education in Literacy Education.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://harrisburg.psu.edu/behavioral-sciences-education/teacher-education/>)

Professional Resources

- Pennsylvania Department of Education (<https://www.education.pa.gov/Pages/default.aspx>)

Accreditation

This program is accredited by the National Council for the Accreditation of Teacher Education.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the

Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Add-on certifications in Special Education and ESL are possible along with the initial PK-4 or 4-8 PA certifications.

Contact

Harrisburg

TEACHER EDUCATION PROGRAMS
W331 Olmsted Building
Middletown, PA 17057
717-948-6213
rka12@psu.edu

<https://harrisburg.psu.edu/behavioral-sciences-education/teacher-education/elementary-education-beled> (<https://harrisburg.psu.edu/behavioral-sciences-education/teacher-education/elementary-education-beled/>)

English, B.Hum.

Begin Campus: Any Penn State Campus

End Campus: Harrisburg

Program Description

This English major, with its three options, offers students the unique opportunity to study literature in an interdisciplinary context where the relationships among literature and art, history, music, philosophy, media, and American Studies can be investigated. The major offers courses in American, British, and world literatures, emphasizing their cultural and historical contexts as well as teaching students to interpret them from a variety of critical perspectives. Small classes in both creative and expository writing encourage students to develop their writing skills by working closely with faculty.

Creative Writing Option

Emphasizing original works of fiction, poetry, creative nonfiction, and hybrid genres, the Creative Writing Option provides aspiring authors with a literary foundation in the craft of writing and revising original work, as well as practical skills in editing and publishing in traditional and new media formats.

General English Option

With its emphases on interpretive skills, creativity, and writing, the General English Option provides a foundation for careers in such fields as publishing, public relations, communication, government and law, as well as a strong basis for graduate education.

Secondary Education Option

This option prepares students to meet the requirements as established by the Pennsylvania Department of Education to be certified for the English Instructional I Certificate. The major prepares students to teach an array of English and humanities courses at the secondary (grades 7-12) level.

Students are challenged to prepare for teaching assignments at the middle and high school level, and in diverse settings characterized as rural, urban, and suburban. The art and science of teaching in secondary schools is undergoing significant transformation as new technologies,

time allocation for instruction, and new instructional strategies are impacting the delivery of English instruction.

Students admitted to the program must have the appropriate clearances. These include FBI fingerprint check, Act 151 child abuse history clearance, and Act 34 criminal record check.

Students thinking seriously about entering the education program should plan their freshman and sophomore years carefully, especially taking in consideration the optional year-long clinical residency during semesters 7 and 8. Semesters 5 through 8 are very structured.

What is English?

English refers to a broad field of study related to literature, professional writing, creative writing, and rhetoric. Majors develop critical thinking skills and produce influential academic, creative, professional, and digital texts. They learn to analyze genres, texts, and contexts that involve, for instance, race, class, gender, sexuality, and nationality. They also learn how various texts communicate value, meaning, and social and cultural critique.

You Might Like This Program If...

- You enjoy analyzing and exploring literature.
- You are interested in creative writing.
- You want to prepare for a professional field where communication is important, such as medicine or law.
- You want a career as an author, editor, journalist, or English teacher.

Entrance to Major

Entry to the English Major Requires:

1. a 2.00 or higher cumulative grade-point average; and
2. satisfaction of any entrance testing requirements set out by the Pennsylvania Department of Education in effect at the time of application for entrance to major.

Entry to English Major, Secondary Education Option Requires the Following Additional Requirements:

1. A minimum grade point average of 3.0.
2. Completion of ENGL 15 or ENGL 30H.
3. Three credits of literature from approved list with a C or higher grade.
4. Completion of six credits of college-level mathematics (MATH or STAT prefixes) with a C or higher grade.
5. Satisfaction of any entrance testing requirements set out by the Pennsylvania Department of Education in effect at the time of application for the major.
6. Submission of the Teacher Education Office of current and clear background checks required by the Pennsylvania Department of Education.
7. Submission of documentation of 20 pre-major fieldwork hours.

Retention Requirements for the Secondary Education Option

Following entrance to the major to the Secondary English Certification Program, students will be evaluated for retention in the program based on:

1. maintaining a cumulative GPA of 3.0 or higher;
2. completion of required courses with a C or higher grade;

- an acceptable or above rating on the Professional Dispositions for Teacher Education.¹
- current and clear background checks as required by the Pennsylvania Department of Education.

To be eligible to student teach, students must:

- maintain a cumulative GPA of 3.0 or higher;
- complete with a C or higher grade all required Content and Education Courses;
- Satisfaction of any entrance testing requirements set out by the Pennsylvania Department of Education in effect at the time of application for entrance to major;
- be rated acceptable or above on the Professional Dispositions for Teacher Education.¹
- have current and clear background checks as required by the Pennsylvania Department of Education.

In order to successfully complete the Secondary Education Certification Program, students must:

- complete EDUC 490 with a grade of C or higher;
- maintain a cumulative GPA of 2.0 or higher for degree completion;
- maintain a cumulative GPA of 3.0 or higher for Pennsylvania teacher certification;
- complete all required Content and Education Courses with a C or higher grade;
- complete a program portfolio; and
- For Pennsylvania teacher certification, be rated acceptable or above for all criteria on the Final Professional Dispositions Review for Teacher Education.¹

¹ For more detailed information see the Secondary Education Handbook

Degree Requirements

For the Bachelor of Humanities degree in English with a General English Option, a minimum of 120 credits is required; for the Bachelor of Humanities degree in English with a Secondary Education Option, a minimum of 125 credits is required; for the Bachelor of Humanities degree in English with a Creative Writing Option, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	0-18
Bachelor of Humanities Degree Requirements	18
Requirements for the Major	45-77

0-15 of the 45 credits for General Education are included in the Requirements for the Major. This includes: General English Option, 6 credits of General Education Arts (GA) and/or Social and Behavioral Science (GS) courses; Secondary Education Option, 6 credits of General Education Quantification (GQ) courses, 3 credits of General Education Social Sciences (GS) courses, and 6 credits of General Humanities (GH) courses. (Note: Creative Writing Option - 0 credits of General Education).

Requirements for the Major

At least 15 credits of Prescribed, Additional, and/or Supporting courses must be taken at the 400 level.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ENGL 200W	Introduction to Critical Reading	3
ENGL 444	Shakespeare	3
Additional Courses		
Select 3 credits from the following:		3
ENGL 221	British Literature to 1798	
ENGL 221W	British Literature to 1798	
ENGL 222	British Literature from 1798	
ENGL 222W	British Literature from 1798	
ENGL 231	American Literature to 1865	
ENGL 231Y	American Literature to 1865	
ENGL 232	American Literature from 1865	
ENGL 232Y	American Literature from 1865	
Supporting Courses and Related Areas ¹		
Select 3 credits in American ethnic literature or African-American literature from department list		3
Select 3 credits in world literature or comparative literature from department list		3
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 3 credits in American literature at the 300 or 400 level from department list		3
Select 3 credits in British literature at the 300 or 400 level from department list		3
Requirements for the Option		
Select an option		24-56

¹ At least 9 credits must be at the 300-400 level.

Requirements for the Option Creative Writing Option (27 credits)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better:</i>		
COMM 342W	Idea Development and Media Writing	3
ENGL 212	Introduction to Fiction Writing	3
ENGL 213	Introduction to Poetry Writing	3
ENGL 214	Introduction to Creative Nonfiction Writing	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better:</i>		
In semesters 3-5, take 6 credits from this list:		6
COMM 346	Writing for the Screen I	
ENGL 136	The Graphic Novel	

ENGL 180	Literature and the Natural World
ENGL 191	Science Fiction
ENGL 192	The Literature of Fantasy
ENGL 209	Journal or Magazine Practicum
ENGL 210	The Process of Writing
ENGL 211	Introduction to Writing Studies
ENGL 262	Reading Fiction
ENGL 263	Reading Poetry
ENGL 265	Reading Nonfiction

In semesters 5-8, take 6 credits from this list: 6

COMM 446	Writing for the Screen II
ENGL 412	Advanced Fiction Writing
ENGL 413	Advanced Poetry Writing
ENGL 415	Advanced Nonfiction Writing
ENGL 420	Writing for the Web
ENGL 422	Fiction Workshop
ENGL 423	Poetry Writing Workshop
ENGL/ENVST 424	Creative Writing and the Natural World
ENGL 497	Special Topics
ENGL 498	Special Topics

Supporting Courses and Related Areas

Select 3 credits from courses designated as Literature, Writing, or Rhetoric (any courses with an ENGL, except ENGL 4, ENGL 5, ENGL 15, ENGL 202, or CMLIT prefix) or from the department approved list 3

General English Option (24 credits)

Code	Title	Credits
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Additional Courses

Select 3 credits from the following: 3

ENGL 100	English Language Analysis
ENGL 191	Science Fiction
ENGL 261	Exploring Literary Forms
ENGL 262	Reading Fiction
ENGL 263	Reading Poetry
ENGL 265	Reading Nonfiction
ENGL 268	Reading Drama
ENGL 400	Authors, Texts, Contexts
ENGL 401	Studies in Genre
ENGL 407	History of the English Language
ENGL 458	Twentieth-Century Poetry
ENGL 482	Contemporary Literary Theory and Practice

Additional Courses: Require a grade of C or better

Select 3 credits from the following: 3

ENGL 50	Introduction to Creative Writing
ENGL 210	The Process of Writing
ENGL 212	Introduction to Fiction Writing
ENGL 213	Introduction to Poetry Writing
ENGL 215	Introduction to General Nonfiction Writing
ENGL 250	Peer Tutoring in Writing
ENGL 412	Advanced Fiction Writing
ENGL 413	Advanced Poetry Writing

ENGL 415	Advanced Nonfiction Writing
ENGL 416	Science Writing
ENGL 417	The Editorial Process
ENGL 418	Advanced Technical Writing and Editing
ENGL 419	Advanced Business Writing
ENGL 420	Writing for the Web
ENGL 421	Advanced Expository Writing
ENGL 422	Fiction Workshop
ENGL 423	Poetry Writing Workshop
ENGL 470	Rhetorical Theory and Practice
ENGL 491	The Capstone Course in Professional Writing

Supporting Courses and Related Areas

Select 12 credits in Literature, Writing, and/or Rhetoric 12

Select 6 credits from General Education Arts (GA) and/or Social and Behavioral Sciences (GS) 6

Secondary Education Option (56 credits)

Code	Title	Credits
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Prescribed Courses

Prescribed Courses: Require a grade of C or better

EDPSY 14	Learning and Instruction	3
EDUC 313	Secondary Education Field Experience	2
EDUC 314	Learning Theory and Instructional Procedures	3
EDUC 315Y	Social and Cultural Factors in Education	3
EDUC 385	Professional Development in Teaching	3
EDUC 400	Diversity and Cultural Awareness Practices in the K-12 Classroom	3
EDUC 416	Teaching Secondary English and the Humanities	3
EDUC 458	Behavior Management Strategies for Inclusive Classrooms	3
EDUC 459	Strategies for Effective Teaching in Inclusive Classrooms	3
EDUC 466N	Foundations of Teaching English as a Second Language	3
EDUC 490	Student Teaching	9
ENGL 470	Rhetorical Theory and Practice	3
HDFS 239	Adolescent Development	3
LLED 420	Teaching Adolescent Literature and Literacy	3

Additional Courses

Select 6 credits of General Education Quantification courses (GQ) with a MATH or STAT prefix 6

Select 3 credits of GH literature from department list 3

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- Apply critical, theoretical, and/or disciplinary approaches to the reading and analysis of texts in multiple genres and/or media.
- Analyze the aesthetic and/or cultural significance of the ideas, values, conventions, forms, and genres associated with texts.
- Gather, evaluate, and employ an array of research materials in support of critical studies, and/or creative activity, in ways consistent with standards of academic integrity.
- Demonstrate writing and rhetorical skills appropriate to critical and/or creative tasks in a variety of media and genres.
- Analyze representative literary, theoretical, and cultural texts within significant historical, geographical, and cultural contexts.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Harrisburg

Ashley Cowger

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Creative Writing Option: English, B.Hum. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes

in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 15S, 30T, or ESL 15 [†]	3 CAS 100A or 100S	3
Quantification (GQ)	3 Quantification (GQ)	3
General Education Course	3 General Education Course (ENGL 50 suggested)	3
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course (GHW)	3
	General Education Course (GHW)	1.5
	13.5	16.5

Second Year

Fall	Credits Spring	Credits
General Education Course	3 General Education Course	3
General Education Course	3 ENGL 202B [‡]	3
General Education Course	3 Elective	3
General Education Course	3 Select 3 credits in Literature, Writing or Rhetoric from department list	3
ENGL 212, 213, or 214 (or 3-Credit Writing or Rhetoric Course) [*]	3 ENGL 212, 213, or 214 (or 3-Credit Writing or Rhetoric Course) [*]	3
	15	15

Third Year

Fall	Credits Spring	Credits
ENGL 200W [*]	3 HUM 300N	3
ENGL 221, 221W, 222, 222W, 231, 231Y, 232, or 232Y	3 ENGL 444 [*]	3
ENGL 136, 180, 191, 192, 209, 210, 211, 262, 263, 265, 268, or COMM 346 [*]	3 ENGL 212, 213, or 214 (or 3-Credit Writing or Rhetoric Course) [*]	3
ENGL 212, 213, or 214 (or 3-Credit Writing or Rhetoric Course)	3 ENGL 136, 180, 191, 192, 209, 210, 211, 262, 263, 265, 268, or COMM 346 [*]	3
BHUM Degree Required Course	3 BHUM Degree Required Course	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
HUM 400N	3 ENGL 412, 413, 415, 420, 422, 423, 424, 497, 498, or COMM 446	3
ENGL 412, 413, 415, 420, 422, 423, 424, 497, 498, or COMM 446	3 Select 3 credits in American Ethnic Literature or African-American literature from department list (400-level preferred)	3

Select 3 credits in World or Comparative Literature from Department List	3 BHUM Degree required course	3
Select 3 credit in British Literature at the 300-400 level from department list [*]	3 Select 3 credit in American literature at the 300-400-level from department list [*]	3
BHUM Degree required course	3 Elective	3
	15	15

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Departmental Lists:

American ethnic or African-American Literature

- ENGL 135 - Alternative Voices in American Literature
- ENGL 235 - African-American Oral Folk Tradition
- ENGL 431 - Black American Writers
- ENGL 461 - The Vernacular Roots of African American Literature
- ENGL 462 - Reading Black, Reading Feminist
- ENGL 463 - African American Autobiography
- ENGL 466 - African American Novel I
- ENGL 467 - African American Novel II
- ENGL 468 - African American Poetry
- ENGL 469 - Slavery and the Literary Imagination

² World or Comparative Literature

- ENGL 182 - Literature and Empire
- ENGL 185 - The Modern Novel in World Literature
- ENGL 486 - The World Novel in English
- ENGL 488 - Modern Continental Drama
- *or any Comparative Literature class (CMLIT)*

³ Upper-level British Literature

- ENGL 440 - Studies in Shakespeare
- ENGL 441 - Chaucer
- ENGL 442 - Medieval English Literature
- ENGL 443 - The English Renaissance
- ENGL 445 - Shakespeare's Contemporaries
- ENGL 445 - Milton
- ENGL 447 - The Restoration and the Eighteenth Century
- ENGL 448 - The English Novel to Jane Austen
- ENGL 450 - The Romantics
- ENGL 452 - The Victorians
- ENGL 453 - Victorian Novel
- ENGL 454 - British and Irish Drama Since 1890
- ENGL 455 - Topics in British Literature
- ENGL 456 - British Fiction: 1900-1945
- ENGL 457 - British Fiction Since 1945
- ENGL 458 - Twentieth-Century Poetry: British and Irish

⁴ Upper-level American Literature

- ENGL 430 - The American Renaissance
- ENGL 432 - The American Novel to 1900
- ENGL 433 - The American Novel: 1900-1945
- ENGL 434 - Topics in American Literature
- ENGL 435 - The American Short Story
- ENGL 436 - American Fiction Since 1945
- ENGL 437 - The Poet in America
- ENGL 438 - American Drama
- ENGL 439 - American Nonfiction Prose
- ENGL 493 - The Folktale in American Literature

⁵ Select from Literature, Writing, or Rhetoric from department list
Select any course with an ENGL or CMLIT prefix
B HUM Degree require course, of these selections (12 credits) select 4
upper or lower division courses, each from a different major/program
offering from the following list: AAA S, AM ST, ARAB, ART, ART H,
BRASS, CAS, CAMS, CHNS, CMLIT, COMM, DANCE, ENGL, FR, GER,
GREEK, HEBR, HIST, INART, IT, J ST, JAPNS, KOR, LATIN, LING, MEDVL,
MUSIC, PHIL, PORT, RL ST, RUS, SPAN, STS, THEA, WMNST.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes

Students must complete a 3-credit course in "United States Cultures (US)" and a 3-credit course in "International Cultures (IL)."

General English Option: English, B.Hum. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 15S, 30T, or ESL 15 [‡]	3 CAS 100A or 100S [‡]	3
Quantification (GQ)	3 Quantification (GQ)	3
General Education	3 General Education	3
General Education	3 General Education	3
General Education Course (GHW)	1.5 General Education	3
	General Education (GHW)	1.5
	13.5	16.5

Second Year

Fall	Credits Spring	Credits
General Education	3 General Education	3
General Education	3 ENGL 202B [‡]	3
General Education	3 ENGL 221, 221W, 222, 222W, 231, 231Y, 232, or 232Y	3
Elective	6 Elective	6
	15	15

Third Year

Fall	Credits Spring	Credits
ENGL 200W*	3 HUM 300N	3
Select 3 credits of English (ENGL) from approved list (see below)	3 ENGL 444*	3
Select from Literature, Writing, or Rhetoric from department list	3 Select from Literature, Writing, or Rhetoric from department list	3
BHUM Degree required course	3 ENGL 100, 191, 262, 263, 265, 268, 400, 401, 407, 458, or 482	3
Elective	3 BHUM degree required course	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
HUM 400N	3 Select from Literature, Writing, or Rhetoric from department list	6
Select 3 credit from American Ethnic Literature or African-American Literature list (see below)	3 BHUM Degree required course	3
Select 3 credits from World or Comparative Literature list (see below)	3 Select 3 credits from Upper Level American Literature list (see below)*	3

Select 3 credits from Upper Level British Literature list (see below)*	3 Elective	3
BHUM Degree required course	3	
	15	15

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Departmental Lists:

- American ethnic or African-American Literature
 - ENGL 135 - Alternative Voices in American Literature
 - ENGL 235 - African-American Oral Folk Tradition
 - ENGL 431 - Black American Writers
 - ENGL 461 - The Vernacular Roots of African American Literature
 - ENGL 462 - Reading Black, Reading Feminist
 - ENGL 463 - African American Autobiography
 - ENGL 466 - African American Novel I
 - ENGL 467 - African American Novel II
 - ENGL 468 - African American Poetry
 - ENGL 469 - Slavery and the Literary Imagination

² World or Comparative Literature

- ENGL 182 - Literature and Empire
- ENGL 185 - The Modern Novel in World Literature
- ENGL 486 - The World Novel in English
- ENGL 488 - Modern Continental Drama
- or any *Comparative Literature class (CMLIT)*

³ Upper-level British Literature

- ENGL 440 - Studies in Shakespeare
- ENGL 441 - Chaucer
- ENGL 442 - Medieval English Literature
- ENGL 443 - The English Renaissance
- ENGL 445 - Shakespeare's Contemporaries
- ENGL 445 - Milton
- ENGL 447 - The Restoration and the Eighteenth Century
- ENGL 448 - The English Novel to Jane Austen
- ENGL 450 - The Romantics
- ENGL 452 - The Victorians
- ENGL 453 - Victorian Novel
- ENGL 454 - British and Irish Drama Since 1890
- ENGL 455 - Topics in British Literature
- ENGL 456 - British Fiction: 1900-1945
- ENGL 457 - British Fiction Since 1945
- ENGL 458 - Twentieth-Century Poetry: British and Irish

⁴ Upper-level American Literature

- ENGL 430 - The American Renaissance
- ENGL 432 - The American Novel to 1900
- ENGL 433 - The American Novel: 1900-1945
- ENGL 434 - Topics in American Literature

- ENGL 435 - The American Short Story
- ENGL 436 - American Fiction Since 1945
- ENGL 437 - The Poet in America
- ENGL 438 - American Drama
- ENGL 439 - American Nonfiction Prose
- ENGL 493 - The Folktale in American Literature

⁵ Approved ENGL Courses

- ENGL 50 - Introduction to Creative Writing (GA)
- ENGL 210 - The Process of Writing
- ENGL 212 - Introduction to Fiction Writing
- ENGL 213 - Introduction Poetry Writing
- ENGL 215 - Introduction to Article Writing
- ENGL 250 - Peer Tutoring in Writing
- ENGL 412 - Advanced Fiction Writing
- ENGL 413 - Advanced Poetry Writing
- ENGL 415 - Advanced Nonfiction Writing
- ENGL 416 - Science Writing
- ENGL 417 - The Editorial Process
- ENGL 418 - Advanced Technical Writing and Editing
- ENGL 419 - Advanced Business Writing
- ENGL 420 - Writing for the Web
- ENGL 421 - Advanced Expository Writing
- ENGL 422 - Fiction Workshop
- ENGL 423 - Poetry Writing Workshop
- ENGL 470 - Rhetorical Theory and Practice
- ENGL 491 - The Capstone Course in Professional Writing

- ⁶ Select from Literature, Writing, or Rhetoric from department list
Select any course with an ENGL or CMLIT prefix
B HUM Degree require course, of these selections (12 credits) select 4
upper or lower division courses, each from a different major/program
offering from the following list: AAA S, AM ST, ARAB, ART, ART H,
BRASS, CAS, CAMS, CHNS, CMLIT, COMM, DANCE, ENGL, FR, GER,
GREEK, HEBR, HIST, INART, IT, J ST, JAPNS, KOR, LATIN, LING, MEDVL,
MUSIC, PHIL, PORT, RL ST, RUS, SPAN, STS, THEA, WMNST.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes

Students must complete a 3-credit course in "United States Cultures (US)" and a 3-credit course in "International Cultures (IL)."

Secondary Education Option: English, B.Hum. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 15S, 30T, or ESL 15 ^{*†##}	3 CAS 100A or 100S [†]	3
HDFS 239 (GS) [*]	3 MATH 201 (or approved GQ) [†]	3
MATH 200 (or approved GQ) [†]	3 BHUM Course [*]	3
General Education Course (GA) (recommend N)	3 General Education Course (GA)	3
General Education Course (GN)	3 General Education Course (GN)	3
General Education Course (GHW)	1.5 General Education (GHW)	1.5
	16.5	16.5

Second Year

Fall	Credits Spring	Credits
EDPSY 14 ^{*†}	3 EDUC 466N (GH) ^{*†}	3
ENGL 221, 222, 231, or 232 [*]	3 ENGL 202B (GWS) [†]	3
Approved Literature Course (GH) [†]	3 BHUM Course [*] or General Education Course (GH)	3
Approved American Ethnic Literature US ^{*†}	3 Approved World/Comparative Literature (IL) ^{*†}	3
General Education Course (GN, GH, GS) (recommend N)	3 Approved Upper Level Literature [*]	3
	15	15

Third Year

Fall	Credits Spring	Credits
ENGL 200W [*]	3 EDUC 315Y [*]	3
ENGL 470 [*]	3 EDUC 458 [*]	3
EDUC 313 [*]	2 ENGL 444 [*]	3
EDUC 314 [*]	3 LLED 420 [*]	3
HUM 300N [*]	3 General Education Course (GH) or BHUM Course [*]	3
BHUM Course [*]	3 Approved Upper Level British Literature [*]	3
	17	18

Fourth Year

Fall	Credits Spring	Credits
EDUC 400 [*]	3 EDUC 490 [*]	12
EDUC 416 [*]	3	
EDUC 459 [*]	3	

EDUC 495 (or Elective) [*]	3
	12
	12

Total Credits 122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Departmental Lists:

American ethnic or African-American Literature

- ENGL 135 - Alternative Voices in American Literature
- ENGL 235 - African-American Oral Folk Tradition
- ENGL 431 - Black American Writers
- ENGL 461 - The Vernacular Roots of African American Literature
- ENGL 462 - Reading Black, Reading Feminist
- ENGL 463 - African American Autobiography
- ENGL 466 - African American Novel I
- ENGL 467 - African American Novel II
- ENGL 468 - African American Poetry
- ENGL 469 - Slavery and the Literary Imagination

² World or Comparative Literature

- ENGL 182 - Literature and Empire
- ENGL 185 - The Modern Novel in World Literature
- ENGL 486 - The World Novel in English
- ENGL 488 - Modern Continental Drama
- *or any Comparative Literature class (CMLIT)*

³ Upper-level British Literature

- ENGL 440 - Studies in Shakespeare
- ENGL 441 - Chaucer
- ENGL 442 - Medieval English Literature
- ENGL 443 - The English Renaissance
- ENGL 445 - Shakespeare's Contemporaries
- ENGL 445 - Milton
- ENGL 447 - The Restoration and the Eighteenth Century
- ENGL 448 - The English Novel to Jane Austen
- ENGL 450 - The Romantics
- ENGL 452 - The Victorians
- ENGL 453 - Victorian Novel
- ENGL 454 - British and Irish Drama Since 1890
- ENGL 455 - Topics in British Literature
- ENGL 456 - British Fiction: 1900-1945
- ENGL 457 - British Fiction Since 1945
- ENGL 458 - Twentieth-Century Poetry: British and Irish

⁴ Upper-level American Literature

- ENGL 430 - The American Renaissance
- ENGL 432 - The American Novel to 1900
- ENGL 433 - The American Novel: 1900-1945
- ENGL 434 - Topics in American Literature
- ENGL 435 - The American Short Story
- ENGL 436 - American Fiction Since 1945
- ENGL 437 - The Poet in America

- ENGL 438 - American Drama
- ENGL 439 - American Nonfiction Prose
- ENGL 493 - The Folktale in American Literature

⁵ Select from Literature, Writing, or Rhetoric from department list
Select any course with an ENGL or CMLIT prefix
B HUM Degree require course, of these selections (12 credits) select 4 upper or lower division courses, each from a different major/program offering from the following list: AAA S, AM ST, ARAB, ART, ART H, BRASS, CAS, CAMS, CHNS, CMLIT, COMM, DANCE, ENGL, FR, GER, GREEK, HEBR, HIST, INART, IT, J ST, JAPNS, KOR, LATIN, LING, MEDVL, MUSIC, PHIL, PORT, RL ST, RUS, SPAN, STS, THEA, WMNST.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes

Students must complete a 3-credit course in "United States Cultures (US)" and a 3-credit course in "International Cultures (IL)."

Career Paths

Penn State Harrisburg graduates in English have found success as writers, librarians, teachers, graduate students in MFA and other writing programs, and more. Many of these students' testimonials are available on our website.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE ENGLISH PROGRAM (<https://harrisburg.psu.edu/humanities/english-bhum/testimonials/>)

Opportunities for Graduate Studies

Additional graduate study is available in creative writing and literature as part of the Master of Arts in Humanities.

Professional Resources

- National Council of Teachers of English (NCTE) (<https://ncte.org/>)

Accreditation

This program has been recognized by the National Council of Teachers of English (NCTE) and the Secondary Education Option earned National Council for the Accreditation of Teacher Education (NCATE) approval.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the

Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

Harrisburg

SCHOOL OF HUMANITIES
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<https://harrisburg.psu.edu/humanities/english-bhum> (<https://harrisburg.psu.edu/humanities/english-bhum/>)

Enterprise Technology Integration, B.S. (Capital)

Begin Campus: Any Penn State Campus

End Campus: Harrisburg

Program Description

The Enterprise Technology Integration major (ETI) in the College of Information Sciences and Technology is a Bachelor of Science degree program that educates students in the fundamental concepts and state-of-the-art skills in three essential areas: information technology (IT), business concepts, and "soft skills" such as working in teams. The ETI major focuses on the technology implementation perspective of enterprise system integration. The learning outcomes focus on a) information systems interconnectedness, data interchange, process modeling and reengineering, and distributed computing environments; b) business knowledge in accounting, supply chains and more; and c) teaming, leadership, and other "soft skills." Students graduating with a degree in ETI are prepared for successful careers across industries and government in systems integration and development, as well as IT and business consulting.

The ETI major is interdisciplinary, combining foundational coursework in information technology, application development and business with specialized courses in systems integration. The major draws on courses including introductory programming, databases, networks, organizational theory, project management and enterprise integration. In the ETI major, we add courses in emerging information technologies used to integrate information systems from an underlying back-end technology needed to accomplish system integration.

What is Enterprise Technology Integration?

Enterprise technology integration (ETI) explores how information technology resources and data are linked together within and across companies and organizations. Integrating information technology solutions in an enterprise is essential for businesses in conducting day-to-day activities as well as moving organizations forward as new business strategies emerge. Enterprises that can readily unify applications, services, information systems and databases through information technology integration experience a competitive advantage. As an ETI major, you will gain knowledge and skills in analyzing the technology-related needs of an organization, formulating and implementing technology-based solutions, and evaluating the outcomes.

MORE INFORMATION ABOUT ENTERPRISE TECHNOLOGY INTEGRATION (<https://ist.psu.edu/prospective/undergraduate/academics/eti/>)

You Might Like This Program If...

- You have an interest in information technology and business.
- You want to help organizations operate more effectively by creating and implementing information technology solutions and evaluating outcomes.
- You are interested in emerging technologies, such as cloud computing and advanced databases.
- You want to understand how computing systems and programs operate.
- You enjoy working on a team to solve information technology problems.

MORE INFORMATION ABOUT WHY STUDENTS CHOOSE TO STUDY ENTERPRISE TECHNOLOGY INTEGRATION (<https://ist.psu.edu/prospective/undergraduate/academics/eti/>)

Entrance to Major

To be eligible for the Enterprise Technology Integration major, students must:

1. Have completed the following entrance-to-major requirements with a grade of C or better in each: HCDD 113S (FYS) or HCDD 113 or IST 110 or CYBER 100 or CYBER 100S (FYS), IST 140 or CMPSC 121 or CMPSC 131, IST 210, IST 220, IST 242 or CMPSC 122 or CMPSC 132, STAT 200 or SCM 200
2. Have achieved a minimum cumulative grade point average of 2.00 prior to and through the end of the semester during which the entrance to major is requested.

Degree Requirements

For the Bachelor of Science degree in Enterprise Technology Integration, a minimum of 124 credits is required:

Requirement	Credits
General Education	45
Electives	5-6
Requirements for the Major	91-92

18 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GS courses, 6 credits of GQ courses, 9 credits of GWS courses.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
ETI 300W	Development and Documentation of Enterprise Web	3

ETI 461	Database Management and Administration	3
IST 210	Organization of Data	3
IST 220	Networking and Telecommunications	3
IST 230	Language, Logic, and Discrete Mathematics	3
IST 256	Programming for the Web	3
IST 301	Information and Organizations	3
IST 302	IT Project Management	3
IST 495	Internship	1
IST 420	Fundamentals of Systems and Enterprise Integration	3
IST 421	Advanced Enterprise Integration: Technologies and Applications	3

Additional Courses

Additional Courses: Require a grade of C or better

BA 302	Supply Chains	3
or SCM 301	Supply Chain Management	
CAS/ENGL 138T	Rhetoric and Civic Life II	3
or CAS 100	Effective Speech	
ECON 102	Introductory Microeconomic Analysis and Policy	3
or ECON 104	Introductory Macroeconomic Analysis and Policy	
ENGL 202C	Effective Writing: Technical Writing	3
or ENGL 202D	Effective Writing: Business Writing	
HCDD 264	Design Practice in Human-Centered Design and Development	3
or IST 331	Foundations of Human-Centered Design	
IST 402	Emerging Issues and Technologies	3
or IST 423	Enterprise Information Management and Storage Architecture	
MATH 110	Techniques of Calculus I	4
or MATH 140	Calculus With Analytic Geometry I	
STAT 200	Elementary Statistics	4
or SCM 200	Introduction to Statistics for Business	
Select 3-4 credits from the following:		3-4
BA 243	Social, Legal, and Ethical Environment of Business	
BA 301	Finance	
BA 303	Marketing	
BA 304	Management and Organization	
BLAW 243	Legal Environment of Business	
FIN 301	Corporation Finance	
IB 303	International Business Operations	
MGMT 301	Basic Management Concepts	
MKTG 301	Principles of Marketing	
Select 3 credits from the following:		3
CAS/ENGL 137H	Rhetoric and Civic Life I	
ENGL 15	Rhetoric and Composition	
ENGL 30H	Honors Rhetoric and Composition	
Select 3 credits from the following:		3
CMPSC 121	Introduction to Programming Techniques	
CMPSC 131	Programming and Computation I: Fundamentals	
IST 140	Introduction to Application Development	
Select 3 credits from the following:		3
CMPSC 122	Intermediate Programming	

CMPS 132	Programming and Computation II: Data Structures	
IST 242	Intermediate & Object-Oriented Application Development	
Select 3 credits from the following:		3
CYBER 100	Computer Systems Literacy	
CYBER 100S	Computer Systems Literacy	
HCDD 113	Foundations of Human-Centered Design and Development	
HCDD 113S	Foundations of Human-Centered Design and Development FYS	
IST 110	Information, People and Technology	
Select 3 credits from the following:		3
ETI 435	Enterprise Analytics	
ETI 463	Distributed Database Management Systems	
IST 440W	Information Sciences and Technology Integration and Problem Solving	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

A student must complete 12 credits from a single Application Focus. 12
For most focuses, at least 3 of those credits must be at the 400-level.
1

¹ As an alternative to the pre-defined application focuses, a student may select 12 credits, with at least 3 credits at the 400-level from any courses offered by the university if done so in consultation with an academic adviser and with approval of a teaching faculty member of the Enterprise Technology Integration major.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Harrisburg

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Enterprise Technology Integration, B.S. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
HCDD 113, CYBER 100, or IST 110 ^{*#}	3 IST 210 ^{*#}	3
IST 140 ^{*#}	3 IST 242 ^{*#}	3
MATH 110 or 140 (GQ) [†]	4 CAS 100 (GWS)	3

ENGL 15, 30H, or ESL 15 (GWS) [†]	3 ECON 102 or 104	3
General Education Course	3 General Education Course	3

16

15

Second Year

Fall	Credits Spring	Credits
IST 220 ^{*#}	3 IST 256 [*]	3
IST 230 [*]	3 Business Fundamental Course ¹	3
ACCTG 211	4 Application Focus Selection	3
General Education Course	3 STAT 200 (GQ) ^{*†#}	4
Elective	3 General Education Course	3

16

16

Third Year

Fall	Credits Spring	Credits Summer	Credits
ETI 300W [*]	3 IST 301 [*]	3 IST 495 [*]	1
HCDD 264 [*]	3 IST 302 [*]	3	
SCM 301	3 ETI 461 [*]	3	
General Education Course	3 Application Focus Selection	3	
ENGL 202C or 202D [†]	3 General Education Course	3	

15

15

1

Fourth Year

Fall	Credits Spring	Credits
IST 420 [*]	3 IST 421 [*]	3
IST 402 or 423 [*]	3 ETI 435 or 463 [*]	3
Application Focus Selection	3 Application Focus Selection	3
General Education Course	3 General Education Course	3
General Education Course	3 Elective	3

15

15

Total Credits 124

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Business Fundamental Course List: FIN 301, MKTG 301, MGMT 301, BA 243

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

- 1 Credit of IST 495 - Internship is required
- 30 Credits of GA, GH, GHW, GN, GS to include 6 Integrative Studies credits
- 15 Credits of GQ and GWS require a grade of "C" or better

Program Notes:

- ETI / IST courses are only offered once per year.
- IST 495 Internship: (1) Supervised work experience where the student is employed in a position related to the student's major. An internship is typically completed the summer after the junior year, but it may be completed at any time during the student's academic career. Students are required to complete one internship but may complete three. A grade of C or better must be earned in this course. For more information, contact your academic adviser.
- Students must complete a 3-credit course in "United States Cultures (US)" and a 3-credit course in "International Cultures (IL)."
- Students in the Information Sciences and Technology (ISSCA_BS) major are expected to complete 24 credits of upper-level course work in the major and the senior capstone course for the major at Penn State Harrisburg. This is in compliance with Faculty Senate Policy 83-80.5.

Application Focus Areas:

- Select 12 credits from a single Application Focus course listing. These are listings maintained by the department as support of major courses. At least three (3) credits must be at the 400 level. Students may also complete a custom Application Focus course sequence with approval from an academic advisor and an ETI teaching faculty member. Students may want to consider choosing courses that also fulfill US and/or IL requirements.

• University Park Business Competency (complete the Smeal College Business Fundamentals Certificate)

- In addition to meeting all other requirements of the certificate, select 12 credits from the list below to complete all 15 credits of the Smeal Certificate in conjunction with the ETI Degree's requirements:

- BA 301
- BA 303
- BA 304
- Select 3 credits from:
 - BLAW 243
 - IB 303

- Note 1: This option does not require 3-credits of 400-level courses as part of the application focus.

- Note 2: 2+2 students are encouraged to take these courses while at University Park.

• Application Development

- Select 12 credits from below, with at least three (3) credits at the 400 level:
 - Any 200-400 level HCDD Course
 - IST 261
 - IST 311
 - IST 361
 - IST 411
 - IST 412
 - IST 413

• Business Administration (Harrisburg Students Only):

- The Business Administration focus is for students who desire the opportunity to develop and apply skills relevant to businesses and other organizations. Included in this focus area are courses in the core business disciplines of finance, management, and marketing. Select at least twelve (12) credits from below, with at least three (3) credits at the 400 level:

- MIS 250
- BA 243*
- BA 364Y
- The following courses may require prerequisites:
 - MIS 301
 - MIS 390
 - MGMT 301*
 - FIN 301*
 - MKTG 301*
 - MGMT 418
 - MGMT 420
 - MGMT 433
 - MIS 420

- * Course cannot also be counted as a required Business Fundamental Course: FIN 301, MKTG 301, MGMT 301, BA 243.

• Cybersecurity

- Select 12 credits from below, with at least three (3) credits at the 400 level:
 - SRA 111
 - SRA 221
 - CYBER 262
 - Any CYBER course at the 300- or 400-level
 - IST 451

- IST 454
- IST 456
- **People, Policy and Context**
 - Select 12 credits from below, with at least three (3) credits at the 400 level:
 - IST 234N
 - IST 431
 - IST 432
 - IST 452
 - IST 453
 - IST 442
 - SRA 472
- **International and World Cultures**
 - Select 12 credits from below, with at least three (3) credits at the 400 level:
 - IST 199
 - IST 299
 - IST 399
 - IST 499
 - IST 445
 - AFR 440
- **ROTC, Intelligence and Cyberwarfare**
 - Select 12 credits from below, with at least three (3) credits at the 400 level:
 - Any courses in AIR, NAVSC or ARMY ROTC Programs
 - SRA 211
 - SRA 231
 - SRA 421
 - SRA 450
- **Health Informatics (proposed new focus area)**
 - Select 12 credits from below, with at least three (3) credits at the 400 level:
 - HPA 101
 - HPA 210
 - HPA 211
 - HPA 332
 - HPA 470
- **Custom Application Focus**
 - There is an option for a student to create a custom 4-course application focus sequence. It must be a coherent sequence of courses that provides context for the student in terms of the Enterprise Technology Integration content. Students can select the custom application focus with approval from an academic adviser, and courses must be selected in consultation with a faculty member.

Career Paths

The Enterprise Technology Integration program responds to growing national and international needs in organizational computing, particularly in the areas of application systems integration, cloud computing and database technologies. The ETI degree prepares students to analyze organizational challenges and employ information technology solutions.

IST's Office of Career Solutions helps students navigate their internship and career development in the field through coaching, workshops,

interview preparation, resume reviews, career fairs, job postings, and networking opportunities.

Careers

ETI graduates will be prepared for careers in application systems integration, as well as IT and business consulting. The program equips graduates with the skills needed to analyze business processes; identify information requirements and the systems essential to implement solutions; and implement those solutions in information systems in a variety of computing environments. The program positions graduates to compete with information systems professionals and technical business analysts who drive innovation through data, information and systems implementation to solve problems for organizations and the people within them.

MORE INFORMATION ABOUT POTENTIAL CAREER OPPORTUNITIES FOR GRADUATES OF THE ENTERPRISE TECHNOLOGY INTEGRATION PROGRAM (<https://www.ist.psu.edu/current/careers/development/>)

Contact

Harrisburg

SCHOOL OF BUSINESS ADMINISTRATION
Olmsted Building, E-355
Middletown, PA 17057
717-948-6141
ljc43@psu.edu

<https://harrisburg.psu.edu/business-administration/enterprise-technology-integration-bs> (<https://harrisburg.psu.edu/business-administration/enterprise-technology-integration-bs/>)

University Park

COLLEGE OF INFORMATION SCIENCES AND TECHNOLOGY
411 Eric J. Barron Innovation Hub Building
State College, PA 16801
814-865-3528

World Campus

COLLEGE OF INFORMATION SCIENCES AND TECHNOLOGY
411 Eric J. Barron Innovation Hub Building
State College, PA 16801
814-865-3528

Finance, B.S. (Capital)

Begin Campus: Any Penn State Campus

End Campus: Harrisburg

Program Description

The finance major emphasizes analytic, problem solving, and computer skills which are necessary for finance and investment industry. The major prepares students for careers in corporate finance, investment and portfolio management, banking, public finance, and international finance. The major also prepares students who want to pursue graduate study in finance. Depending on their interests, graduates may then seek financial services credentials such as Certified Financial Planner (CFP) and Chartered Financial Analyst (CFA).

The requirements in the major complement basic business instruction in accounting, management, marketing, and information systems.

With business and non-business electives, the program is designed to develop necessary skills to be an effective financial manager. Because the Harrisburg area is the center of industry and economic development for south-central Pennsylvania, students are provided with many opportunities to experience the world of business.

What is Finance?

Finance focuses on how individuals and business organizations raise money and capital, and how those resources are allocated among competing investment and consumption opportunities. The field focuses on domestic and international financial economies and the role of financial markets and institutions key in the movement of savings and investment capital from lenders to borrowers. It also deals with how individuals and corporate managers evaluate alternative investment and savings opportunities and how they choose among various financial instruments.

You Might Like This Program If...

- You enjoy numbers and "real world" applications of math.
- You are interested in how businesses and banks manage their assets.
- You want a career in business, finance, or investment management.

Entrance to Major

Entry to the Finance major requires the completion of 8 entry-to-major courses: ACCTG 211¹, ECON 102¹, ENGL 15 or ENGL 30H, FIN 301¹, MATH 110¹ or MATH 140¹, MGMT 301, MKTG 301, SCM 200¹ or STAT 200¹; and a 2.00 or higher cumulative grade-point average.

Additional information about this major is available in the office of the Director of Undergraduate Studies, School of Business at Penn State Harrisburg.

¹ Course requires a grade of C or better.

Degree Requirements

For the Bachelor of Science degree in Finance, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives (non-business courses)	8
Requirements for the Major	79

12 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GWS courses; 3 credits of GS courses; 6 credits of GQ courses.

At least 50 percent of the business credit hours required for the degree must be taken at Capital College. No more than 60 credits should be from business and business-related courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
BA 364Y	International Business and Society	3
ENGL 202D	Effective Writing: Business Writing	3
MGMT 301	Basic Management Concepts	3
MIS 204	Introduction to Management Information Systems	3
MIS 390	Information Systems Management and Applications	3
MKTG 301	Principles of Marketing	3
SCM 301	Supply Chain Management	3
<i>Prescribed Courses: Require a grade of C or better</i>		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
BA 462	Business Strategy	3
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
ECON 351	Money and Banking	3
FIN 301	Corporation Finance	3
FIN 302	Introductory Financial Modeling	3
FIN 420	Investment and Portfolio Analysis	3
FIN 475	Financial Decision Making	3
Additional Courses		
BA 241	Legal Environment of Business	4
& BA 242	and Social and Ethical Environment of Business	
or BA 243	Social, Legal, and Ethical Environment of Business	
<i>Additional Courses: Require a grade of C or better</i>		
MATH 110	Techniques of Calculus I	4
or MATH 140	Calculus With Analytic Geometry I	
SCM 200	Introduction to Statistics for Business	4
or STAT 200	Elementary Statistics	
Select 9 credits of the following:		9
ACCTG 481	Financial Statement Analysis: Accounting Based Evaluation and Decision Making	
FIN 305	Financial Management of the Business Enterprise	
FIN 306W	Investment Valuation	
FIN 407	Multinational Financial Management ¹	
FIN 408	Financial Markets and Institutions	
FIN 409	Real Estate Finance and Investment	
FIN 413	Risk Management of Financial Institutions	
FIN 427	Derivative Securities ¹	
FIN 456	International Capital Markets	
FIN 461	Portfolio Management and Analysis ¹	
FIN 496	Independent Studies	
Other finance courses approved by the Program		
Supporting Courses and Related Areas		
Select 9 credits of 200-400 level business courses from: ACCTG, BA, ECON, FIN, MGMT, MIS, MKTG, or SCM in consultation with an academic adviser and in support of the student's interests		9

¹ For students considering CFA exam, FIN 407, FIN 427 and FIN 461 are recommended.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Finance and M.B.A. in Business Administration

Available at the following campuses: Harrisburg

Requirements for the Integrated B.S. in Finance and M.B.A. in Business Administration can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/business-administration-capital/#integratedundergradgradprogramstext>).

Learning Outcomes

Student graduates of our baccalaureate degree programs should be:

1. Effective communicators.
 - a. Present verbally, thoughts and ideas in a way that can be clearly understood by a target audience.
 - b. Convey ideas in a clear, coherent manner in written communication.
2. Ethical and socially responsible.
 - a. Be competent in analyzing social and ethical decision making issues in organizations.
3. Critical thinkers.
 - a. Be able to think and identify multiple dimensions of company issues and performances and make an assessment of company performances in achieving financial and strategic objectives, tracking their achievements, and giving management of companies a more complete and balanced view of how the organization is performing.
4. Competent in the Finance Discipline.
 - a. Demonstrate knowledge of time value of money, stock and bond valuations.
 - b. Demonstrate knowledge of how firms budget capital, how firms raise capital, and of cost of capital.
 - c. Demonstrate knowledge of the relationship between risk and return, portfolio theory, and investment analysis.
 - d. Demonstrate knowledge of market efficiency.
 - e. Demonstrate an understanding the nature of demand and supply, how equilibrium arises, equilibrium price and quantity, and how competitive and imperfectly competitive markets work.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Harrisburg

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Abington

Tom Stone

Program Chair
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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Finance, B.S. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 15S, 30T, or ESL 15 ^{†#}	3 CAS 100A or 100S [‡]	3
MATH 110 or 140 ^{**†}	4 STAT 200 or SCM 200 ^{**†}	4
General Education Course	3 MGMT 301 [#]	3
ECON 102 ^{**†}	3 General Education Course	3
General Education Course	1.5 General Education Course	3
	14.5	16

Second Year

Fall	Credits Spring	Credits
ACCTG 211 ^{*#}	4 FIN 301 ^{*#}	3
MKTG 301 [#]	3 ENGL 202D [‡]	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course	3 Non-Business Elective	3
	16	15

Third Year

Fall	Credits Spring	Credits
BA 241	2 ECON 351 [*]	3
BA 242	2 FIN 420 [*]	3
ECON 104 [*]	3 MIS 390	3
FIN 302 [*]	3 200-400 level Business course in consultation with adviser	3
MIS 204 or 250	3 FIN 305, 306W, 407, 408, 409, 413, 427, 456, 461, 496, or ACCTG 481 [*]	3
General Education Course (GHW)	1.5	
	14.5	15

Fourth Year

Fall	Credits Spring	Credits
BA 364Y	3 BA 462 [*]	3
SCM 301	3 FIN 475 [*]	3
200-400 level Business course in consultation with adviser	3 Non-Business Elective	3
FIN 305, 306W, 407, 408, 409, 413, 427, 456, 461, 496, or ACCTG 481 [*]	3 Non-Business Elective	2
FIN 305, 306W, 407, 408, 409, 413, 427, 456, 461, 496, or ACCTG 481 [*]	3 200-400 level Business course in consultation with adviser	3
	15	14

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain

attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes

- 30 credits of GA, GH, GHW, GN, GS to include 6 Integrative Studies credits
- 15 credits of GQ and GWS require a grade of "C" or better
- Courses required for the major must generally be completed within 10 years of entrance into the major
- FIN 495 - Finance Internship satisfies a business support requirement. For more information, contact the Economics and Finance Program Coordinator.
- Student must complete a 3-credit course in "United States Cultures (US)" and a 3-credit course in "International Cultures (IL)." BA 364Y (US/IL) may be used to meet either the IL or US requirement, but may be used to fulfill only 3 of the 6 credit requirement.

Career Paths

The Finance major prepares students for careers in corporate finance, investment and portfolio management, banking, public finance, and international finance. The major also prepares students who want to pursue graduate study in finance. Depending on their interests, graduates may then seek financial services credentials such as Certified Financial Planner (CFP) and Chartered Financial Analyst (CFA).

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE FINANCE PROGRAM (<https://harrisburg.psu.edu/business-administration/finance-bs/>)

Opportunities for Graduate Studies

The School of Business Administration offers a limited number of academically superior Bachelor of Science in Finance candidates the opportunity to enroll in an integrated, continuous program of study leading to both the Bachelor of Science in Finance and the Master of Business Administration.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://harrisburg.psu.edu/business-administration/finance-bs-mba/>)

Accreditation

The B.S. in Finance offered by the School of Business Administration at Penn State Harrisburg, the Capital College, is accredited by AACSB International – The Association to Advance Collegiate Schools of Business. AACSB's mission is to foster engagement, accelerate innovation, and amplify impact in business education. Synonymous with the highest standards of excellence since 1916, AACSB provides quality assurance, business education intelligence, and professional development services to over 1,600 member organizations and more than 800 accredited business schools worldwide. AACSB International (AACSB) connects educators, students, and business to achieve a common goal: to create the next generation of great leaders.

MORE INFORMATION ABOUT AACSB INTERNATIONAL (<https://www.aacsb.edu/>)

Contact Harrisburg

SCHOOL OF BUSINESS ADMINISTRATION
Olmsted Building E355
Middletown, PA 1705

717-948-6139
cxs879@psu.edu

<https://harrisburg.psu.edu/business-administration/finance-bs> (<https://harrisburg.psu.edu/business-administration/finance-bs/>)

Abington

DIVISION OF SOCIAL SCIENCES
1600 Woodland Rd.
Abington, PA 19001
215-421-0030
tws16@psu.edu

<https://www.abington.psu.edu/academics/majors-at-abington> (<https://www.abington.psu.edu/academics/majors-at-abington/>)

Health Policy and Administration, B.S. (Capital)

Begin Campus: Any Penn State Campus

End Campus: Harrisburg

Program Description

This major helps prepare students for management and policy positions or graduate study in the field of health care. Students in the major develop the skills and knowledge needed to understand the complex societal problem of providing access to quality health care at reasonable cost. All Health Policy and Administration students complete an internship in a health-care-related setting, giving them valuable experience and contacts in the industry. HPA students study a multidisciplinary curriculum that prepares them to work as health services managers or health analysts. Health services managers, also called health care executives or health care administrators, plan, direct, and coordinate medical, health, and/or long-term care services. They might manage an entire facility or specialize in managing a specific clinical area or department, administer a program or manage a practice for a group of providers. Health analysts are employed throughout the health care industry gathering, compiling, modeling, validating, and analyzing data needed by different organizations of providers, payers, and policy makers. Analysts help these organizations understand the current trends in the health care system and to make well-informed decisions. Both health services managers and analysts must be able to adapt to changes in health care laws, regulations, and technology. HPA students have also used the degree to prepare for graduate study in business, law, medicine or allied health fields, health administration, health services research or policy, and public health.

What is Health Policy and Administration?

Health Policy and Administration (HPA) is a multidisciplinary course of study with courses in the liberal arts, business administration, and health sciences. In general, HPA students are prepared to work in six types of health care organizations including:

1. Health care providers (hospitals, physician practices, nursing facilities, home health agencies, etc.)
2. Health insurers (nonprofit and commercial insurers, health maintenance organizations, etc.)
3. Health care consulting firms

4. Health care supply companies (pharmaceutical companies, medical device manufacturers, etc.)
5. Health services research and policy organizations (health policy research groups, industry trade groups, etc.);
6. Local, state, and federal health agencies and public health organizations (local public health departments, state Department of Health, federal Department of Health and Human Services, etc.).

MORE INFORMATION ABOUT HEALTH POLICY AND ADMINISTRATION (<https://hhd.psu.edu/hpa/>)

You Might Like This Program If...

- You are interested in business administration or management and want to focus primarily in the healthcare industry.
- You are interested in influencing health policy and public health by working in government at the state or federal level or nonprofit organizations
- You are interested in improving access to health care for underserved populations
- You are interested in reducing health care costs or improving health care quality through policy reform or business leadership.

MORE INFORMATION ABOUT WHY STUDENTS CHOOSE TO STUDY HEALTH POLICY AND ADMINISTRATION (<https://hhd.psu.edu/hpa/bachelor-science-bs-health-policy-and-administration/>)

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Health Policy and Administration, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	4-6
Requirements for the Major	81-83

12 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GQ courses; 6 credits of GS courses.

The requirements for the major are outlined below. Students may select courses in the Supporting Courses and Related Areas category to fulfill requirements for a minor, to develop a specialization, or to complete courses required for admission to medical, dental, law, or other graduate schools.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. H P A requires students to complete 24 credits for the major

through courses taken at University Park. Courses taken at other Penn State campuses may not be counted toward this 24 credit minimum. For more information, check the Suggested Academic Plan for this major.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ECON 102	Introductory Microeconomic Analysis and Policy	3
HPA 101	Introduction to Health Services Organization	3
HPA 210	Health Care Payment	3
HPA 211	Financial Decisions in Health Care Organizations	3
HPA 301	Health Services Policy Issues	3
HPA 310	Health Care and Medical Needs	3
HPA 311	Population Health and Healthcare	3
HPA 332	Health Systems Management	3
HPA 390	Professional Development in Health Policy & Administration	3
HPA 395	Field Experience in Health Policy and Administration	3
HPA 455	Strategic Planning and Marketing for Health Services	3
PLSC 1	American Politics: Principles, Processes and Powers	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
CMPSC 101	Introduction to Programming	3-4
	or CMPSC 203 Introduction to Spreadsheets and Databases	
	or MIS 204 Introduction to Management Information Systems	
STAT 200	Elementary Statistics	3-4
	or STAT 250 Introduction to Biostatistics	
Select 9 credits from the following:		9
HPA 401	Comparative Health Systems	
HPA 410	Principles of Public Health Administration	
HPA 420	Principles of Managed Care	
HPA 430	Health Care Leadership	
HPA 433	Administration of Hospital and Health Service Systems	
HPA 435	Safety Net Health Care	
HPA 438	Culturally Competent Health Services for Diverse Populations	
HPA 440	Principles of Epidemiology	
HPA 442	Long-Term Care Management	
HPA 443	Nursing Home Administration	
HPA 444	Aging Policy in the United States	
HPA 445	Health Economics	
HPA 446	Economics and Health In Low- and Middle-Income Countries	
HPA 447	Financing Health Care	

HPA 450	Healthcare Policies and Politics
HPA 454	Health Care Professional Communication
HPA 460	Human Resource Management in Health Care Organizations
HPA 470	Health Care Information Management
HPA 475	Health Care Quality
HPA 490	Physician Practice Management
HPA 497	Special Topics

Supporting Courses and Related Areas

Select 30 credits from University-wide offerings on department list in consultation with adviser¹ 30

¹ Must include at least 9 credits at the 400 level.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Know Health Organizations:** HPA graduates will possess in depth understanding of health and health care, including the structures, policies, processes and institutions that make up the U.S. health care system.
- **Organize and Direct Resources:** HPA graduates will possess the knowledge and skills necessary for organizing and directing resources towards the achievement of organizational objectives.
- **Policy Analysis:** HPA graduates will possess the knowledge and skills necessary to analyze, synthesize, and evaluate public policy.
- **Emotional Intelligence:** HPA graduates will possess an awareness of and the ability to manage one's own emotions in a way that enables positive interpersonal interactions and the building of productive relationships.
- **Diversity Adeptness:** HPA graduates will recognize the value of diversity and possess sensitivity to underrepresented and underserved groups in health care.
- **Critical Thinking:** HPA graduates will be able to interpret, analyze, and evaluate information to identify, examine, and solve problems that occur in the health care system.
- **Communication:** HPA graduates will be able to effectively receive, process, and relay information through speaking, writing, and listening.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Health Policy and Administration, B.S. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year		
Fall	Credits Spring	Credits
HPA 101*	3 HPA 210*	3
BISC 004 or BIOL 141 or BBH 101	3 General Education Course	3
General Education Course	3 ECON 102*†	3
PL SC 001*†	3 CAS 100A or 100S‡	3
ENGL 15, 15S, 30T, or ESL 15‡	3 Supporting Course	3
15		15

Second Year

Fall	Credits Spring	Credits
HPA 301W*	3 HPA 332*	3
General Education Course	3 HPA 311*	3
STAT 200 or 250**	3-4 General Education Course	3
HPA 211*	3 ENGL 202A†	3
Supporting Course	3 Supporting Course	3
15-16		15

Third Year

Fall	Credits Spring	Credits
HPA 310*	3 HPA 400-level course*	3
HPA 390W*	3 General Education Course (GHW)	1.5
General Education Course	3 HPA 395*	3
CMPSC 101 or 203**	3-4 Supporting Course	3
Supporting Course	3 Elective	4
15-16		14.5

Fourth Year

Fall	Credits Spring	Credits
HPA 400-level Course*	3 HPA 400-level Course*	3
400-level Supporting Course	3 400-level Supporting Course	3
Supporting Course (Select ECON or PLSC)	3 400-level Supporting Course	3
Supporting Course	3 Supporting Course	3
Supporting Course	3 HPA 455*	3
15		15

Total Credits 119.5-121.5

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ ENGL 030 (GWS), Effective Fall 2012, all incoming Schreyer Honors College freshmen at University Park will take ENGL/CAS 137H in the fall semester and ENGL /CAS 138T in the spring semester. These courses carry GWS designation and replace both ENGL 030 and CAS 100. Each course is 3 credits. At the discretion of the college, ENGL/CAS 138T satisfies the first-year seminar requirement.

² CAS 100 (GWS), Effective Fall 2012, all incoming Schreyer Honors College freshmen at University Park will take ENGL/CAS 137H in the fall semester and ENGL /CAS 138T in the spring semester. These courses carry GWS designation and replace both ENGL 030 and CAS 100. Each course is 3 credits. At the discretion of the college,

³ ENGL/CAS 138T satisfies the first-year seminar requirement.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

The mission of the Bachelor of Science Program (B.S.) in HPA is to develop graduates with the knowledge, skills, and values appropriate to work in entry-level management or policy-related positions or for the pursuit of graduate education in health administration, health policy, health law, health services research, public health, and other health related fields. HPA students develop the skills and knowledge needed to understand the complex societal problem of providing access to quality health care at reasonable cost.

Careers

The HPA curriculum prepares students to work as health services managers or health policy analysts. Health services managers plan, direct, and coordinate medical, behavioral, and/or long-term care services. These individuals might oversee matters of personnel, budgeting, billing, equipment outlays, information systems, planning and more. Health policy analysts are responsible for analyzing, compiling, and validating information needed by different organizations of providers, payers, and policy makers. Analysts help these organizations understand the current trends in the health care system and to make well-informed business and policy decisions. Employment of health policy and administration graduates is projected to grow 28 percent from 2022 to 2032, much faster than all other occupations.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE HEALTH POLICY AND ADMINISTRATION PROGRAM (<https://hhd.psu.edu/hpa/undergraduate/career-opportunities/career-outlook-health-care-professionals/>)

Opportunities for Graduate Studies

HPA's blend of courses in liberal arts, business administration, and the health sciences, is designed to prepare students for careers or further study in health care. HPA students have used the degree to prepare for graduate study in business, law, medicine or allied health fields, health administration, health services research or policy, and public health.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://hhd.psu.edu/hpa/undergraduate/integrated-undergraduate/graduate-programs/>)

Professional Resources

- Association of University Programs in Health Administration (<https://www.aupha.org/resourcecenter/futurestudents/>)
- American College of Health Care Administrators (<https://www.achca.org/student-societies/>)
- American College of Healthcare Executives (<https://www.ache.org>)
- National Association of Health Services Executives (NAHSE) (<https://www.nahse.org>), a non-profit association of Black health care executives
- National Association of Latino Healthcare Executives (<https://www.nalhe.org>)

- Academy Health (<https://academyhealth.org>), the professional home and leading national organization for health services researchers, policymakers, and health care practitioners and stakeholders

Accreditation

HPA is a fully certified member of the Association of University Programs in Health Administration (AUPHA). As such it has been recognized for having withstood the rigors of peer review wherein curricula, faculty, and educational outcomes have been critically examined by external peer review. In a process comparable to other specialty program accreditations, programs seeking AUPHA certification must submit an extensive self-study detailing the program's structure, educational processes, and assessment mechanisms in response to national criteria established by AUPHA.

MORE INFORMATION ABOUT ACCREDITATION BY THE ASSOCIATION OF UNIVERSITY PROGRAMS IN HEALTH ADMINISTRATION (<https://www.aupha.org/main-site/certification/certification/>)

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-health-policy-and-administration-bachelor-of-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-health-policy-and-administration-bachelor-of-science-degree/>)

Homeland Security, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Homeland Security minor provides for development of familiarity with homeland security and defense issues, including emergency management, homeland security policy, and the structure of homeland security operations. Students will come to understand the "all hazards" approach to homeland security and defense. Students will be able to develop familiarity with such aspects of homeland security as counterterrorism, emergency management, security administration, border security, critical infrastructure protection, and intelligence through taking elective courses. Recipients of the minor would be positioned to enter the workforce in entry-level positions or to prepare for transition to graduate school.

What is Homeland Security?

Homeland Security is an area of study that focuses on security policy, planning and operations dedicated to the protection of U.S. territory, assets, infrastructure, institutions and citizens from external threats. It is concerned with national security policy, government relations, intelligence, law enforcement, security technology, communications and information technology, disaster planning, and applications to specific threat scenarios.

You Might Like This Program If...

- You enjoy helping others or doing something for the greater good.
- You want to serve society and have good people skills.
- You are interested in working for a local, state, or federal agency that is involved with homeland security.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

At least six credits must be at the 400 level. This means that students must choose at least one elective at the 400 level.

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		

Prescribed Courses: Require a grade of C or better

PUBPL/HLS 201	Introduction to Homeland Security	3
PUBPL/HLS 306	Introduction to Crisis and Emergency Management	3
PUBPL/HLS 483	Seminar in National Security Policy	3

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 9 credits from the following (course substitution possible with permission of adviser):¹

CRIMJ 304	Security Administration
CRIMJ 435	Border Security
PUBPL/HLS 475	Critical Infrastructure Protection
PUBPL/HLS 476	Homeland Security Intelligence
PLSC/CRIMJ 439	The Politics of Terrorism
SRA 421	The Intelligence Environment

¹ At least 3 credits in supporting courses must be at the 400 level: this rule also applies in case of course substitutions.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Human Capital Management, B.S.

Begin Campus: Any Penn State Campus

End Campus: Harrisburg

Program Description

The Human Capital Management major prepares students for a career in human resource management by developing skills and competencies in managing diversity and equal opportunity, ethical and fair treatment of employees, human resource planning and staffing, employee training and development, compensation and benefits, performance management, labor relations, and protecting employee safety and health. Students completing this major would be prepared to demonstrate their knowledge of the core principles of human resource practices and the application of those principles for potential certification such as a Professional in Human Resources (PHR) or Society of Human Resource Management - Certified Professional (SHRM-CP). The Human Capital Management major is not available to students who are currently enrolled in or have completed the requirements for a Management (MNGMT_BS) degree.

What is Human Capital Management?

Human capital management (HCM) is an organization's set of practices used to attract, recruit, train, develop and retain the best employees to achieve short- and long-term objectives. HCM allows companies to invest in their employees who can maximize their potential by contributing at the highest level to the achievement of business goals. HCM sees employees as the essence of the company.

HCM focuses on adding value to an organization's human capital to deliver the best results for all stakeholders. It covers talent acquisition and management, employee relations, compensation, performance, and other key areas vital to the tactical and strategic vision and mission of a company.

HCM can create a strong organizational culture that promotes employee development, honest feedback and commitment to company goals. It can give employees more control over their careers and encourage them to dedicate their skills and talent to the employer for the long term.

You Might Like This Program If...

- You are a people person who is a problem solver.
- You have good communication skills.
- You have strong analytical skills.
- You like dynamic work environments.
- You want to help others.

- You want to have a rewarding career – financially and emotionally – that makes a big impact on the lives of others.
- You are a good listener.
- People trust you.

Entrance to Major

Entry to the Human Capital Management major requires:

1. the completion of 8 entry-to-major courses: ACCTG 211, ECON 102, ENGL 15¹ or ENGL 30H¹ or ESL 15¹, FIN 301, MATH 110¹ or MATH 140¹, MGMT 301¹, MKTG 301, SCM 200¹ or STAT 200¹
2. and a 2.00 or higher cumulative grade-point average.

¹ Course requires a grade of C or better

Degree Requirements

For the Bachelor of Science degree in Human Capital Management, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	93

18 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GWS courses; 6 credits of GQ courses; 3 credits of GS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
BA 364Y	International Business and Society	3
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
FIN 301	Corporation Finance	3
MIS 250	Introduction to Problem Solving with Spreadsheet Analysis and Information Systems Management	3
MIS 390	Information Systems Management and Applications	3
MKTG 301	Principles of Marketing	3
SCM 301	Supply Chain Management	3
<i>Prescribed Courses: Require a grade of C or better</i>		
BA 462	Business Strategy	3
CAS 100	Effective Speech	3
ENGL 202D	Effective Writing: Business Writing	3
MGMT 301	Basic Management Concepts	3
MGMT 341	Human Resource Management	3
MGMT 440	Compensation and Benefits	3
MGMT 441	Organizational Staffing and Development	3

MGMT 443	Performance Management	3
MGMT 495	Internship	3

Additional Courses

BA 241 & BA 242 or BA 243	Legal Environment of Business and Social and Ethical Environment of Business Social, Legal, and Ethical Environment of Business	4
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Additional Courses: Require a grade of C or better

MATH 110 or MATH 140	Techniques of Calculus I Calculus With Analytic Geometry I	4
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SCM 200 or STAT 200	Introduction to Statistics for Business Elementary Statistics	4
------------------------	--	---

Select 3 credits from the following: 3

ENGL 15	Rhetoric and Composition	
ENGL 30H	Honors Rhetoric and Composition	
ESL 15	ESL Composition for American Academic Communication II	

Select 6 credits from the following: 6

MGMT 321	Leadership and Motivation	
MGMT 326	Organizational Behavior and Design	
MGMT 400	Organization Development	
MGMT 410	Project Management	
MGMT 420	Negotiation and Conflict Management	
MGMT 424	Interpersonal Relationships in Organizations	
MGMT 433	Leadership and Team Building	
MGMT 445	Managing a Diverse Workforce	
MGMT 450	Labor Management Relations	
MGMT 483	Compliance and Fairness in Organizations	

Supporting Courses and Related Areas

Select 12 credits from 200-400 level business courses from: ACCTG, 12
BA, ECON, FIN, MIS, MGMT, MKTG, or SCM in consultation with an
academic adviser and in support of the student's interests

Select 5 credits of Non-Business Electives 5

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Human Capital Management, B.S. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 15S, 30T, or ESL 15 ^{*†#}	3 CAS 100A or 100S ^{*†}	3
MATH 110 or 140 ^{*†#}	4 STAT 200 or SCM 200 ^{*†#}	4
General Education Course	3 MKTG 301 [#]	3
ECON 102 (GS) [#]	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course	3
14.5		16

Second Year

Fall	Credits Spring	Credits
ACCTG 211 [#]	4 FIN 301 [#]	3
MGMT 301 ^{*#}	3 MIS 204 or 250	3
General Education Course	3 ENGL 202D ^{*†}	3
General Education Course	3 General Education Course	3

General Education Course	3 General Education Course	3
16		15

Third Year

Fall	Credits Spring	Credits
BA 241	2 MGMT 443 [*]	3
BA 242	2 MGMT 440 [*]	3
ECON 104	3 MIS 390	3
SCM 301	3 200-400 level Business courses in consultation with adviser	3
MGMT 341 [*]	3 Non-Business Elective	3
General Education Course (GHW)	1.5	
14.5		15

Fourth Year

Fall	Credits Spring	Credits
BA 364Y	3 BA 462	3
MGMT 441 [*]	3 300-400 level MGMT credit from approved course list [*]	3
300-400 level MGMT credit from approved course list [*]	3 200-400 level Business courses in consultation with adviser	6
200-400 level Busienss courses in consultation with adviser	3 MGMT 495 [*]	3
Non-Business Elective	2	
14		15

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Courses required for the major must be generally taken within 10 years of entrance to major.
- For more information regarding MGMT 495, contact the HCM Program Coordinator.
- Students must complete a 3-credit course in "United States Cultures (US)" and a 3-credit course in "International Cultures (IL)." BA 364Y

(US/IL) may be used to meet either the IL or US requirement but may be used to fulfill only 3 of the 6 credit requirement.

- 30 credits of GA, GH, GHW, GN, and GS to include 6 Integrative Studies credits.
- 15 credits of GQ and GWS require a grade of "C" or better.

Career Paths

The HCM major prepares students for generalist positions as well as specialized careers in Human Resources. Talent Acquisition and Management, Compensation and Benefits, Employee and Labor Relations, and Human Resource Information Systems are just some of the specialized fields. HR Managers, HR Directors, Vice President of HR and Chief Human Resource Officer are just some of the generalist positions. If you chose not to enter HR, which managerial position does not benefit from an in-depth understanding of managing human resources in a company as well as the legal environment of employment? The HCM major prepares you to enter the workforce.

Accreditation

The B.S. in Human Capital Management offered by the School of Business Administration at Penn State Harrisburg, the Capital College, is accredited by AACSB International – The Association to Advance Collegiate Schools of Business. AACSB's mission is to foster engagement, accelerate innovation, and amplify impact in business education. Synonymous with the highest standards of excellence since 1916, AACSB provides quality assurance, business education intelligence, and professional development services to over 1,600 member organizations and more than 800 accredited business schools worldwide. AACSB International (AACSB) connects educators, students, and business to achieve a common goal: to create the next generation of great leaders. The School of Business Administration was reviewed for accreditation renewal in 2023.

The human capital management program is an SHRM (<https://www.shrm.org/certification/Pages/hr-certification.aspx>)-aligned program.

MORE INFORMATION ABOUT AACSB INTERNATIONAL (<https://www.aacsb.edu/>)

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<https://harrisburg.psu.edu/business-administration/human-capital-management-bs> (<https://harrisburg.psu.edu/business-administration/human-capital-management-bs/>)

Human Capital Management, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

The Human Capital Management certificate provides students with key insights into foundational human capital management processes such as total rewards (compensation and benefits), selection and development, and performance management. As future organizational leaders and managers, the understanding of key human resource practices are needed by all majors from Science, Technology, Engineering, Arts, Math to Business.

What is Human Capital Management?

Human capital management (HCM) is an organization's set of practices used to attract, recruit, train, develop and retain the best employees to achieve short- and long-term objectives. HCM allows companies to invest in their employees who can maximize their potential by contributing at the highest level to the achievement of business goals. HCM sees employees as the essence of the company.

HCM focuses on adding value to an organization's human capital to deliver the best results for all stakeholders. It covers talent acquisition and management, employee relations, compensation, performance, and other key areas vital to the tactical and strategic vision and mission of a company.

HCM can create a strong organizational culture that promotes employee development, honest feedback and commitment to company goals. It can give employees more control over their careers and encourage them to dedicate their skills and talent to the employer for the long term.

You Might Like This Program If...

- You are a people person who is a problem solver.
- You have good communication skills.
- You have strong analytical skills.
- You like dynamic work environments.
- You want to help others.
- You want to have a rewarding career – financially and emotionally – that makes a big impact on the lives of others.
- You are a good listener.
- People trust you.

Program Requirements

To earn an undergraduate certificate in Human Capital Management, a minimum of 12 credits is required.

Code	Title	Credits
Required Courses		
MGMT 341	Human Resource Management	3
MGMT 440	Compensation and Benefits	3
MGMT 441	Organizational Staffing and Development	3
MGMT 443	Performance Management	3

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Human Development and Family Studies, B.S. (Capital)

Begin Campus: Any Penn State Campus

End Campus: Harrisburg

Program Description

This major is a multidisciplinary program that examines the development of individuals and families across the life span. HDFS prepares graduates for professional, managerial, or scientific roles in health and human services professions, in public and nonprofit agencies, and in business and industry, as well as for advanced professional or graduate study. Students obtain a broad background in individual and family development across the life span. Courses emphasize biological, psychological, social/cultural, and economic aspects of development as well as applied skill development. We strive for our curriculum (and the experienced and opportunities we extend to students) to foster cultural humility and highlight diverse characteristics, contexts and considerations that impact individuals, families, and communities.

Two options are available within the major:

1. Human Development and Family Science Option
2. Developmental Science for Health Professions Option

All students pursuing the HDFS B.S. are guided to complete a capstone experience customized to their interests. Capstones may include approved field experiences (internships), guided research experiences/

projects, and advanced coursework selected to align with individual student interests.

Human Development and Family Science Option

Available at the following campuses: Altoona, Brandywine, DuBois, Fayette, Harrisburg, Mont Alto, Scranton, Shenango, University Park, World Campus, York

This option focuses on the acquisition and application of scientific knowledge about development and family functioning across the life span for the purposes of enhancing personal and family development. Courses emphasize:

1. understanding the biological, psychological, and social development across the life span, and the structuring and functioning of families;
2. understanding basic theoretical and methodological issues; and
3. the development of applied skills in intervention and evaluation, prevention, and in the formulation of social policy.

Students in this option often pursue internships in service settings that work with children, youth, and/or adults. Typical employment settings include preschools, daycare centers, hospital programs for children, youth, and families, institutional and community mental health programs for individuals and families, programs for abused or neglected children and adolescents, women's resource centers, human resources programs, employee assistance programs, nursing homes, area agencies on aging and other community settings for older adults, and public welfare and family service agencies. This option also provides preparation for advanced training in careers in developmental or family research, teaching at a college or university, or for professional careers that require graduate training. Typical postgraduate pursuits of students completing this option include graduate study in human development, family studies, psychology, or sociology, or advanced professional training in psychology, law, behavioral health, counseling or social work, or other programs related to services for individuals and families.

Developmental Science for Health Professions Option

Available at the following campuses: Altoona, Brandywine, DuBois, Fayette, Mont Alto, Scranton, Shenango, University Park, York

This option is designed for students interested in focusing on human development/developmental science as a foundation to pursue health-related post graduate studies or work careers. This option guides students to acquire and apply scientific knowledge about human development (and family functioning) across the life span; emphasizing understanding biological, psychological, and social development across the life span. Additional coursework focuses on health across contexts. Students also select science foundation courses to complement their study of development across the lifespan and align with their career/post-graduate study interests. Typical postgraduate pursuits of students completing this option include graduate or professional studies in health-related areas (e.g. pediatrics, adolescent medicine, geriatrics, family medicine, psychiatry).

What is Human Development and Family Studies?

Penn State's Human Development and Family Studies (HDFS) program prepares students for careers across a wide range of human service, healthcare, and helping professions. The HDFS degree is grounded in research-based knowledge on the psychological, biological, social, cultural, and economic influences that impact the well-being of

individuals, families, and communities across the lifespan. HDFS coursework guides students to develop skills for working with and caring for diverse individuals and groups through emphasizing mindfulness, compassion, diversity, equity, advocacy and inclusion. Students take courses on infancy, childhood, and adolescent development, transitioning and thriving in adulthood, and healthy aging. Classroom experiences are supplemented by a range of engaged learning opportunities, including internships, research participation, and community partnerships through which HDFS students acquire skills preparing them for impactful careers. The program's flexible curriculum allows academic pathways and engagement experiences to be customized to align with students' career goals.

You Might Like This Program If...

- You are passionate about pursuing work focused on improving the lives and wellness of individuals, families, and communities.
- You are interested to learn about individual, family, community, and social factors influencing development as well as evidence-based practices that promote the cognitive, social, physical, and emotional well-being of children, adults, families, organizations, and communities.
- You are enthusiastic to use flexible degree requirements and integrated opportunities to pursue career exploration, experiential and engaged learning, and skill development specialized to your specific career goals.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Human Development and Family Studies, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	12-18
Requirements for the Major	60-67

3-4 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 3-4 credits of GQ courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified

by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
HDFS 216	Thoughtful Communication for Navigating Human Interactions and Relationships	3
HDFS 301	Values and Ethics in Health and Human Development Professions	3
HDFS 311	Human Development and Family Studies Interventions	3
HDFS 312W	Empirical Inquiry in Human Development	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits from the following courses in Introduction to Human Development and Family Science:		3
HDFS 129	Introduction to Human Development and Family Studies	
HDFS 101N	¿Helping People:¿ Introduction to Understanding Social Problems & How to Help	
Select 6 credits from the following courses in Foundations of Lifespan Human Development:		6
HDFS 229	Infant and Child Development	
HDFS 239	Adolescent Development	
HDFS 249N	Adult Development and Aging	
Select 3 credits from the following courses in Family Foundations:		3
HDFS 315	Family Development	
HDFS 315Y	Family Development	
SOC 30	Sociology of the Family	
Select at least 3 credits from the following courses in Statistics/Quantitative Skills:		3-4
EDPSY 101	Analysis and Interpretation of Statistical Data in Education	
HDFS 200	Quantitative Skills for Human Services	
STAT 200	Elementary Statistics	
For the Career Development and Experiential Learning Capstone, select 15 credits from one of the following pathways:		15
<i>Traditional Capstone Internship</i>		
HDFS 490	Professional Development and Preparation for Internship Experience	
HDFS 495A	Internship: Advanced Experience (9 credits)	
HDFS 495B	Internship: Advanced Project	
<i>Modified Internship (Option only available with department approval)</i>		
HDFS 490	Professional Development and Preparation for Internship Experience	
HDFS 495B	Internship: Advanced Project	
HDFS 495C	Professional Practicum in Human Services (3 credits)	
6 Additional Credits with Department Approval		
<i>Experiential Mix</i>		
HDFS 490	Professional Development and Preparation for Internship Experience	
HDFS 495A	Internship: Advanced Experience (3-6 credits)	

HDFS 495B	Internship: Advanced Project	
3-6 Credits of 300-/400-Level Career-Related Course Work (with Department Approval)		
<i>Research Emphasis</i>		
HDFS 494	Research Project (6 credits)	
	or HDFS 494 Senior Honors Thesis	
	or HDFS 496 Independent Studies	
3 Credits of 400-Level HDFS		
6 Additional Credits of 300-/400-Level Research Credits (e.g. HDFS 300H, HDFS 310M, HDFS 494, HDFS 494H, HDFS 496) or 300-/400-Level Career-Related Course Work (with Department Approval)		

Requirements for the Option

Requirements for the Option: Require a grade of C or better
 Select an option 18-24

**Requirements for the Option
 Human Development and Family Science Option (18 credits)**

Available at the following campuses: Altoona, Brandywine, DuBois, Fayette, Harrisburg, Mont Alto, Scranton, Shenango, University Park, World Campus, York

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits from the following courses in Advanced Development:		3
HDFS 405	Gender and Social Development	
HDFS 413	Developmental Problems in Adulthood	
HDFS 428	Infant Development	
HDFS 429	Advanced Child Development	
HDFS 432	Developmental Problems in Childhood and Adolescence	
HDFS 433	Developmental Transition to Adulthood	
HDFS 434	Perspectives on Aging	
HDFS 445	Development Throughout Adulthood	
HDFS 447	Issues in Gerontology	
Select 3 credits from the following courses in Advanced Family Topics:		3
HDFS 412	Adult-Child Relationships	
HDFS 415	Program Development in Family Relationships	
HDFS 416/ SOC 411	Racial and Ethnic Diversity and the American Family	
HDFS 417	Biocultural Studies of Family Organization	
HDFS 418	Family Relationships	
HDFS 424	Family Development in an Economic Context	
HDFS 431	Family Disorganization: Stress Points in the Contemporary Family	
HDFS 469U	Family Change in the Global Economy	
HDFS 477	Analysis of Family Problems	
SOC 430	Family in Cross-Cultural Perspective	
Select 6 credits from the following courses in Professional Skills for HDFS Careers:		6
HDFS 410	Communities and Families	
HDFS 411	The Helping Relationship	

HDFS 414	Resolving Human Development and Family Problems	
HDFS 430	Experience in Preschool Groups	
HDFS 440	Family Policy	
HDFS 455	Development and Administration of Human Services Programs	
HDFS/CMAS 465	Child Maltreatment: Prevention and Treatment	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better
 Diversity and Development: Select 6 credits from HDFS at any level or choose from approved list of University-wide offerings 6

Developmental Science for Health Professions Option (24 credits)

Available at the following campuses: Altoona, Brandywine, DuBois, Fayette, Harrisburg, Mont Alto, Scranton, Shenango, University Park, York

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits from the following courses in Health and Society:		3
BBH 407	Global Health Equity	
SOC 451	Health, Disease & Society	
Select 6 credits from the following courses in Advanced Development:		6
HDFS 405	Gender and Social Development	
HDFS 413	Developmental Problems in Adulthood	
HDFS 428	Infant Development	
HDFS 429	Advanced Child Development	
HDFS 432	Developmental Problems in Childhood and Adolescence	
HDFS 433	Developmental Transition to Adulthood	
HDFS 434	Perspectives on Aging	
HDFS 445	Development Throughout Adulthood	
HDFS 447	Issues in Gerontology	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better
 Diversity and Development: Select 3 credits from HDFS at any level or choose from approved list of University-wide offerings 3
 Science and Health Foundations: Select 12 credits from approved list of University-wide offerings 12

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or

within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Understanding Development:** HDFS student will be able to demonstrate an understanding of the complexity of individual and family development across the life span in diverse contexts and changing environments.
 - Summarize, critique, and apply theories and concepts related to individual and family development from a multi-disciplinary, life-cycle perspective;
 - Articulate how biology, psychology, and history influence diversity in individuals, and in family structures and functions in a social/cultural context.
- **Evaluate and Apply:** HDFS student will be able to demonstrate the ability to evaluate and apply theory and research to practice and policy.
 - Demonstrate an understanding of the contribution of original research in human development;
 - Integrate and apply the findings of empirical research within a theoretical framework to human development;
 - Explain the strengths and weaknesses of various research methods in assessing human behavior;
 - Apply research skills in order to better understand in the use of research in agency practice;
 - Explain the process of planning and conducting research, including the role of the IRB;
 - Demonstrate skills to analyze and interpret data;
 - Apply theories to identify and resolve problems.
- **Analyze:** HDFS students will demonstrate the ability to analyze processes, policies, and contextual factors that affect the delivery of human services to individuals and families.
 - Demonstrate knowledge of history and policies for ethical conduct in the delivery of human services;
 - Examine environmental factors shaping individual and family interventions (such as political, social, economic, cultural, and technological);
 - Demonstrate an understanding of community-based programs and services;
 - Understand and articulate individual and family needs and roles of human service organizations in fulfilling those needs;
 - Demonstrate knowledge of HIPAA regulations;
 - Develop a working knowledge of and ability to evaluate community-based programs and services.
- **Ethics and Cultural Sensitivity:** HDFS students will demonstrate professional ethical and culturally sensitive standards of conduct.
 - Articulate understanding of theories, skills, and competencies of an effective helper;
 - Demonstrate knowledge of the main ethical, legal, clinical, professional and personal issues and challenges involved in the helping professions;
 - Demonstrate knowledge of informed consent for working with diverse groups of clients;
 - Understand and apply ethical decision making models;
 - Understanding how personal values and experiences influence one's ability to make professional decisions;

- Recognize stereotypical and prejudicial language and attitudes and their impact on the helping relationship.
- **Knowledge and Competence:** HDFS students will demonstrate knowledge and competence in helping, leadership, and administrative skills for human services.
 - Demonstrate knowledge about human resources in management and how to apply appropriate practices;
 - Demonstrate professional written, oral, and technology-based communication skills;
 - Demonstrate clinical and/or administrative abilities human service professionals must utilize in their practice with clients. Skill areas to be focused upon include assessment, referral, intervention, and administrative skills;
 - Identify the different organizational needs of public, private-for-profits, and private-not-for-profit agencies;
 - Translation of content knowledge to practical settings.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Human Development and Family Studies, B.S. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
HDFS 129*	3 General Education Course	3
ENGL 15, 15S, 30T, or ESL 15 [†]	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course	3 CAS 100A or 100S [‡]	3
Quantification	3 STAT 200, PSYCH 200, or EDPSY 101 (GQ) ^{*†}	4
	15	16

Second Year

Fall	Credits Spring	Credits
HDFS 229, 239, or 249N (GS) [*]	3 HDFS 229, 239, or 249N [*]	3
General Education Course	3 HDFS 301 [*]	3
HDFS - Cultures Requirement (US)	3 HDFS 315 (US) [*]	3
Supporting Course ^{*#}	3 ENGL 202A (GWS) [‡]	3
General Education Course	3 General Education Course	3
	General Education Course (GHW)	1.5
	15	16.5

Third Year

Fall	Credits Spring	Credits
HDFS 311 [*]	3 HDFS 428, 429, 433, or 445 [*]	3
HDFS 312W [*]	3 HDFS 414 [*]	3
HDFS 300-400 level course (HDFS 395 recommended) [*]	3 HDFS 455 [*]	3
Supporting course ^{*#}	3 HDFS 300-400 level course	3
General Education Course	3 Supporting course 400-level [*]	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
HDFS 401 ^{*2}	3 HDFS 402 [*]	4
HDFS 411 [*]	3 HDFS 495C [*]	8

HDFS 418 ^{*1}	3	
Supporting course 400-level [*]	3	
Elective	3	
	15	12

Total Credits 119.5

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ HDFS 418 - Honors students take HDFS 300H and 310M (an honors writing intensive course).

² HDFS 401 - Enroll in HDFS 401 only if HDFS 402 and HDFS 495C will be taken.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes

- GWS, GQ, GA, GH, GS, GN and GHW are codes used to identify General Education requirements.
- US, IL, and US;IL are codes used to designate courses that satisfy University United States/International Cultures requirements. All students are required to take one IL and one US course before graduation. A course designated as US;IL may be used as a US or an IL, not both.
- W suffix signifies the course satisfies the University Writing Across the Curriculum requirement.

Program Notes

Students must complete a 3-credit course in "United States Cultures (US)" and a 3-credit course in "International Cultures (IL)."

Career Paths

Demand for HDFS graduates is strong because the major provides students with a valuable foundation for understanding important social trends and guides students to develop the knowledge and skills to positively impact individuals, families, and communities. HDFS Students can customize their degree to align with career interests. HDFS students specialize through minors, certificates and credit-based hands-on learning opportunities.

HDFS students complete a capstone experience customized to their interests and designed to enhance their qualifications. Capstones include

approved internships, guided research experiences, or advanced courses. The HDFS department capstone program provides:

- A capstone preparation class to help students explore interests, identify opportunities, and submit professional applications - and -
- Experienced capstone coordinators to help students get the most out of the capstone experience

Careers

Many HDFS graduates go directly to the workplace based on their understanding of people, their knowledge of group dynamics, and their skills in training and in program development and evaluation. HDFS students pursue positions right out of college in:

- Health and Human Services Professions (e.g. youth and family services, child advocacy, health education)
- Early Childhood Development (e.g. early childhood education, early intervention specialists, applied behavioral analysis)
- Child and Youth Services
- Foster Care and Adoption
- Family Education and Intervention
- Services for Older Adults
- Services for Individuals with Disabilities
- Program Administration and Advocacy (e.g. volunteer coordination, program management and evaluation, human resources)

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE HUMAN DEVELOPMENT AND FAMILY STUDIES PROGRAM (<https://hhd.psu.edu/undergraduate/internships-and-career-opportunities/career-areas-major/careers-human-development-and/>)

Opportunities for Graduate Studies

A degree in HDFS is also a great foundation for individuals who are interested in pursuing advanced professional training/graduate study in:

- Counseling (e.g., addiction counseling, marriage and family therapy, mental health counseling, counseling psychology, educational and vocational counseling)
- Social Work and Public Health
- Clinical Health Professions (e.g. psychiatry, pediatrics, adolescent medicine, family medicine, obstetrics and gynecology, geriatrics, occupational therapy)
- Program Administration and Management
- Special Education
- Family Law
- Public Policy and Advocacy
- Research (e.g., on lifespan human development, psychology, sociology, prevention)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://hhd.psu.edu/hdfs/human-development-and-family-studies-graduate-program/>)

Professional Resources

- Diversity, Equity and Inclusion in HDFS (<https://hhd.psu.edu/hdfs/about/diversityandequity/initiatives/>)

Contact Harrisburg

SCHOOL OF BEHAVIORAL SCIENCES AND EDUCATION
Olmsted Building, W314
717-948-6227
aua240@psu.edu (aua240@psu.edu)

<https://harrisburg.psu.edu/behavioral-sciences-education/human-development-family-studies-bs> (<https://harrisburg.psu.edu/behavioral-sciences-education/human-development-family-studies-bs/>)

Altoona

DIVISION OF EDUCATION, HUMAN DEVELOPMENT, AND SOCIAL SCIENCES
123 Hawthorn Building
3000 Ivyside Park
Altoona, PA 16601
914-949-5333
lpj100@psu.edu

<https://altoona.psu.edu/academics/bachelors-degrees/human-development-family-studies> (<https://altoona.psu.edu/academics/bachelors-degrees/human-development-family-studies/>)

Brandywine

25 Yearsley Mill Road
Media, PA 19063
610-892-1438
jmz15@psu.edu

<https://www.brandywine.psu.edu/academics/bachelors-degrees/human-development-and-family-studies> (<https://www.brandywine.psu.edu/academics/bachelors-degrees/human-development-and-family-studies/>)

DuBois

1 College Place
DuBois, PA 15801
814-375-4833
jlb5810@psu.edu

<https://dubois.psu.edu/academics/degrees/hdfs/bachelor> (<https://dubois.psu.edu/academics/degrees/hdfs/bachelor/>)

Fayette

2201 University Drive
Lemont Furnace, PA 15456
724-430-4284
esb12@psu.edu

<https://fayette.psu.edu/academics/baccalaureate/human-development-and-family-studies-bs> (<https://fayette.psu.edu/academics/baccalaureate/human-development-and-family-studies-bs/>)

Mont Alto

112 Wiestling Hall
Mont Alto, PA 17237
717-749-6210
r2y@psu.edu

<https://montalto.psu.edu/academics/hdfs> (<https://montalto.psu.edu/academics/hdfs/>)

Scranton

111B Dawson Building
Dunmore, PA 18512
570-963-2674
jam81@psu.edu

<https://scranton.psu.edu/academics/degrees/bachelors/hdfs> (<https://scranton.psu.edu/academics/degrees/bachelors/hdfs/>)

Shenango

147 Shenango Avenue
102 McDowell Hall
Sharon, PA 16146
724-983-2953
rxa32@psu.edu

<https://shenango.psu.edu/academics/degrees/human-development-family-studies> (<https://shenango.psu.edu/academics/degrees/human-development-family-studies/>)

University Park

DEPARTMENT OF HUMAN DEVELOPMENT AND FAMILY STUDIES
119 Health and Human Development Building
University Park, PA 16802
814-863-8000
mup874@psu.edu

<https://hhd.psu.edu/hdfs> (<https://hhd.psu.edu/hdfs/>)

World Campus

DEPARTMENT OF HUMAN DEVELOPMENT AND FAMILY STUDIES
119 Health and Human Development Building
University Park, PA 16802
814-863-8000
sac301@psu.edu

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-human-development-and-family-studies-bachelor-of-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-human-development-and-family-studies-bachelor-of-science-degree/>)

York

13 John J. Romano Administrative Building
York, PA 17403
717-771-4029
ajs49@psu.edu

<https://www.york.psu.edu/academics/baccalaureate/human-development-and-family-studies> (<https://www.york.psu.edu/academics/baccalaureate/human-development-and-family-studies/>)

Human Resource Management, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Human Resource Management minor prepares students for professional certification (Assurance of Learning, Professionals in

Human Resources (PHR) or Senior Professionals in Human Resources (SPHR)) and/or a career in human resource management by developing skills and competencies in managing diversity and equal opportunity, ethical and fair treatment of employees, human resource planning and staffing, employee training and development, compensation and benefits, performance management, labor relations, and protecting employee safety and health.

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

What is Human Resource Management?

Human Resource Management explores how the proper management of employees contributes towards organizational effectiveness. This area of study includes topics such as organizational behavior, employment relations systems and processes, human resource planning, recruitment and selection, performance management, training and development, negotiation and conflict resolution, and occupational health and safety.

You Might Like This Program If...

- You enjoy working with people and are interested in what motivates them.
- You are interested in training and development within a business environment.
- You would like to help a business interact better for and with its employees.
- You would like to work in human resources.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

No more than 12 credits may be utilized to fulfill the Capital College Management degree. The minor is not available to Human Capital Management majors.

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
Basic Management and HR:		
MGMT 301	Basic Management Concepts	3
MGMT 341	Human Resource Management	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3-12 credits from the following advanced HRM courses:		3-12
MGMT 440	Compensation and Benefits	
MGMT 441	Organizational Staffing and Development	
MGMT 443	Performance Management	

MGMT 445 Managing a Diverse Workforce

Supporting Courses and Related Areas*Supporting Courses and Related Areas: Require a grade of C or better*

Select between 0-9 credits from the following: 0-9

ECON 315 Labor Economics

or ECON 410 Economics of Labor Markets

HRM 495 Internship in Human Capital Management

MGMT 321 Leadership and Motivation

or PSYCH 48 Work Attitudes and Motivation

MGMT 326 Organizational Behavior and Design

MGMT 331 Management and Organization

or MGMT 40 Organization Development

MGMT 420 Negotiation and Conflict Management

or CAS 404 Conflict Resolution and Negotiation

MGMT 424 Interpersonal Relationships in Organizations

MGMT 433 Leadership and Team Building

MGMT 450 Labor Management Relations

MGMT 461 International Management

MGMT 483 Compliance and Fairness in Organizations

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Harrisburg

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Contact

Harrisburg

SCHOOL OF BUSINESS ADMINISTRATION

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Middletown, PA 17057

717-948-6139

cxs879@psu.edu

<https://harrisburg.psu.edu/business-administration/human-resources-management-minor/> (<https://harrisburg.psu.edu/business-administration/human-resources-management-minor/>)

Human-Centered Design and Development, B.S. (Capital)

Begin Campus: Any Penn State Campus**End Campus:** Harrisburg

Program Description

The Human-Centered Design and Development major (HCDD) in the College of Information Sciences and Technology is a Bachelor of Science degree program that will educate students in the fundamental concepts and state-of-the-art skills in developing applications of technology for people, with a focus on learning outcomes needed to: a) identify opportunities to support human activity with technology; b) design and create useful and usable technology-mediated activities; and c) evaluate and iterate designed technologies in their context of use. Students graduating with a degree in HCDD will be positioned for successful careers in industry, government, and education, helping to ensure that our world of increasingly complex and pervasive technologies remains aligned with human aspirations, requirements, and limitations.

The HCDD major is interdisciplinary, combining foundational coursework in mathematics, statistics, information technology, and application development with specialized courses in social and psychological aspects of information and technology use, usability engineering, user research methods, and user interface design. The major draws on courses already taught as part of the IST BS degree, but also includes new courses that expand the user-centered analysis and design concepts and methodological rigor needed to succeed as an HCDD professional.

What is Human-Centered Design and Development?

Human-Centered Design and Development is the study of how to identify, design, build, and evaluate technologies to enhance people's lives. The field focuses on understanding people and their use of technology, the methods and tools used for designing and building effective technology solutions, and the modern information technologies used to create effective solutions. The field involves working with potential users and customers to understand their needs and unique contexts, and then how to design, build, and evaluate impactful products and services. Human-centered design and development integrates ideas from design thinking, human-computer interaction (HCI), interaction design, and user experience design with the skills and techniques needed for software development.

MORE INFORMATION ABOUT HUMAN-CENTERED DESIGN AND DEVELOPMENT (<https://ist.psu.edu/prospective/undergraduate/academics/hcdd/>)

You Might Like This Program If...

- You are passionate about designing and building interactive technologies
- You want to design, build, and evaluate web, mobile, and other software applications
- You enjoy working with people to understand how they live and how technology fits into their lives
- You want to design, conduct, and interpret data from user studies
- You embrace uncertainty and change, and are not afraid to fail on the path to getting things right

MORE INFORMATION ABOUT WHY STUDENTS CHOOSE TO STUDY HUMAN-CENTERED DESIGN AND DEVELOPMENT (<https://ist.psu.edu/prospective/undergraduate/academics/hcdd/>)

Entrance to Major

To be eligible for the Human-Centered Design and Development (HCDD) major, students must:

1. Have completed the following entrance-to-major requirements with a grade of C or better in each: HCDD 113S or HCDD 113, IST 140 or (CMPSC 101 and IST 240) or CMPSC 121 or CMPSC 131, IST 210, IST 220, IST 242 or CMPSC 122 or CMPSC 132, STAT 200
2. Have achieved a minimum cumulative grade point average of 2.00 prior to and through the end of the semester during which the entrance to major is requested.

Degree Requirements

For the Bachelor of Science degree in Information Sciences and Technology, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	6-12
Requirements for the Major	78-84

15 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GQ courses, 3 credits of GS courses, 6 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
IST 495	Internship	1
<i>Prescribed Courses: Require a grade of C or better</i>		
HCDD 264	Design Practice in Human-Centered Design and Development	3
HCDD 340	Human-Centered Design for Mobile Computing	3
HCDD 364W	Methods for Studying Users	3
HCDD 440	Human-Centered Design and Development Capstone Course	3
IST 210	Organization of Data	3
IST 220	Networking and Telecommunications	3
IST 230	Language, Logic, and Discrete Mathematics	3
IST 256	Programming for the Web	3
IST 311	Object-Oriented Design and Software Applications	3
IST 402	Emerging Issues and Technologies	3
IST 411	Distributed-Object Computing	3
IST 412	The Engineering of Complex Software Systems	3
STAT 200	Elementary Statistics	4
Additional Courses		
ENGL 15	Rhetoric and Composition	3

or ENGL 30H	Honors Rhetoric and Composition	
ENGL 202C	Effective Writing: Technical Writing	3
or ENGL 202D	Effective Writing: Business Writing	
PSYCH 100	Introductory Psychology	3
or SOC 3	Introductory Social Psychology	

Select 12 credits from the Application Focus course listings. These are listings maintained by the department as support of major courses. At least one course must be at the 400 level. Students may also complete a custom Application Focus course sequence with approval from an academic adviser and an HCDD teaching faculty member. Students may want to consider choosing courses that also fulfill US and/or IL requirements.

Additional Courses: Require a grade of C or better

HCDD 113S	Foundations of Human-Centered Design and Development FYS	3
or HCDD 113	Foundations of Human-Centered Design and Development	
IST 261	Application Development Design Studio I	3
or IST 361	Application Development Design Studio II	
MATH 110	Techniques of Calculus I	4
or MATH 140	Calculus With Analytic Geometry I	

Select one of the following: 3-6

IST 140	Introduction to Application Development	
CMPSC 121	Introduction to Programming Techniques	
CMPSC 131	Programming and Computation I: Fundamentals	
CMPSC 101 & IST 240	Introduction to Programming and Introduction to Computer Languages	

Select one of the following: 3-6

IST 242	Intermediate & Object-Oriented Application Development	
CMPSC 221 & CMPSC 122	Object Oriented Programming with Web-Based Applications and Intermediate Programming	
CMPSC 132 & CMPSC 221	Programming and Computation II: Data Structures and Object Oriented Programming with Web-Based Applications	

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Understanding Humans:** Understanding how humans' physical and cognitive capabilities inform interaction and experience design.
- **Understanding Context:** Understanding the context and technology requirements of users and other stakeholders, and articulating how design and evaluation concerns are affected by their context.
- **Modeling Human Activity:** Developing models of human activity with and without technology support.
- **Prototyping:** Envisioning, designing, and evaluating new technology prototypes using appropriate interaction modalities, styles and techniques.
- **Developing Production and Technologies:** Developing working, production technologies to address identified design opportunities.
- **Evaluating:** Applying and developing skills in a mix of qualitative and quantitative methods to collect and analyze formative and summative usability data.
- **Managing HCDD Projects:** Selecting, organizing and implementing design and development activities involving users and other stakeholders.
- **Communicating:** Communicating with colleagues, users, and other stakeholders about complex ideas describing actual and envisioned technology in use.
- **Enacting Ethics:** Understanding the importance of professional ethics and enacting these in human-centered design and development practice.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Harrisburg

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University Park

Undergraduate Academic Advising Center

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814-865-8947
advising@ist.psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Human-Centered Design and Development, B.S. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
HCDD 113S ^{*#}	3 IST 210 ^{*#}	3
IST 140 ^{*#}	3 IST 242 ^{*#}	3
MATH 110 or 140 (GQ) ^{††}	4 CAS 100A or 100S [‡]	3
Application Focus Selection 1	3 ENGL 15, 15S, 30T, or ESL 15 (GWS) [‡]	3
PSYCH 100 or SOC 3 (GS) ^{††}	3 STAT 200 (GQ) ^{*†#†}	4
	16	16

Second Year

Fall	Credits Spring	Credits
IST 220 ^{*#}	3 IST 311 [*]	3
HCDD 264 [*]	3 Application Focus Selection 2	3
IST 230 [*]	3 Elective	3
General Education Course (GS/GH/GA/GN/GHW)	3 IST 256 [*]	3
IST 261 [*]	3 General Education Course (GS/GH/GA/GN/GHW)	3
	15	15

Third Year

Fall	Credits Spring	Credits Summer	Credits
HCDD 340 [*]	3 HCDD 364W [*]	3 IST 495 ^{*1}	1
Application Focus Selection 3	3 IST 361 (or Elective) [*]	3	
General Education Course (GS/GH/GA/GN/GHW)	3 IST 412 [*]	3	

General Education Course (GS/GH/GA/GN/GHW)	3 General Education Course (GS/GH/GA/GN/GHW)	3
ENGL 202C or 202D (GWS) ^{††}	3 General Education Course (GS/GH/GA/GN/GHW)	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
IST 411 [*]	3 HCDD 440 [*]	3
IST 402 [*]	3 General Education Course (GS/GH/GA/GN/GHW)	3
Application Focus Selection 4	3 General Education Course (GS/GH/GA/GN/GHW)	3
General Education Course (GS/GH/GA/GN/GHW)	3 Elective	3
	Elective	3
	12	15

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ IST 495 is typically completed the summer after junior year, but may be completed at any time during the student's academic career.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will

replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

Students are encouraged to meet the general education requirements of inter-domain and linked courses in their general education credits.

Students are encouraged to complete the US and IL university requirements as part of their General Education course selections or, in some cases, as part of their Application Focus course selections.

Students pick one of the application focuses areas below or create a custom four-course application focus. Students must pick three credits at the 400 level. All twelve credits must be in the same application focus area.

Students in the Human-Centered Design and Development (HCDCA_BS) major are expected to complete 24 credits of upper-level course work in the major at Penn State Harrisburg. This is in compliance with Faculty Senate Policy 83-80.5.

Psychology

Code	Title	Credits
PSYCH 244	Introduction to the Psychology of Human Factors Engineering ¹	3
PSYCH 221	Introduction to Social Psychology ¹	3
PSYCH 253	Introduction to Psychology of Perception	3
PSYCH 256	Introduction to Cognitive Psychology ¹	3
PSYCH 301W	Basic Research Methods in Psychology ¹	4
PSYCH 370	Psychology of the Differently-Abled	3
PSYCH 420	Advanced Social Psychology ¹	3
PSYCH 421	Self and Social Judgment	3
PSYCH 423	Social Psychology of Interpersonal/Intergroup Relationships	3
PSYCH 458	Visual Cognition	3

¹ Course available at Harrisburg campus

- Note that this assumes PSYCH 100 will be chosen from Additional Courses, as it is a prerequisite for many of these classes.

Sociology

Code	Title	Credits
SOC 207	Research Methods in Sociology ¹	3
SOC 403	Advanced Social Psychology ¹	3
SOC 404	Social Influence and Small Groups ¹	3
SOC 405	Sociological Theory ¹	3
SOC 425	Social Conflict ¹	3
SOC 429	Social Stratification ¹	3
SOC 435/ HDFS 434	Perspectives on Aging ¹	3
SOC 471	Qualitative Research Methods in Sociology	3

¹ Course available at Harrisburg campus

- Note that this assumes SOC 3 will be chosen from Additional Courses, as it is a prerequisite for many of these classes.

Informatics

Code	Title	Credits
IST 222H	Community Informatics	3
IST 234N	Digital Cultures	3
IST 237	Digital Entrepreneurship	3
IST 301	Information and Organizations ¹	3
IST 337	Technologies for Digital Entrepreneurs	3
IST 402	Emerging Issues and Technologies ¹	3
IST 437	Digital Design & Innovation	3
IST 431	The Information Environment	3
IST 441		3
IST 446	An Introduction to Building Computer/Video Games	3

¹ Course available at Harrisburg campus

Security and Risk

Code	Title	Credits
CYBER 100	Computer Systems Literacy ¹	3
SRA 111	Introduction to Security and Risk Analysis ¹	3
SRA 211	Threat of Terrorism and Crime ¹	3
SRA 221	Overview of Information Security ¹	3
SRA 231	Decision Theory and Analysis ¹	3
CYBER 262	Cyber-Defense Studio ¹	3
SRA 268	Visual Analytics	3
SRA 311	Risk Analysis in a Security Context ¹	3
CYBER 366	Malware Analytics ¹	3
SRA 421	The Intelligence Environment	3
SRA 468	Spatial Analysis of Risks	3
SRA 472	Integration of Privacy and Security ¹	3

¹ Course available at Harrisburg campus

Geographic Information Systems

Code	Title	Credits
GEOG 6N	Maps and the Geospatial Revolution	3
GEOG 260	Geographic Information in a Changing World: Introduction to GIScience	3
GEOG 361	Cartography–Maps and Map Construction	3
GEOG 362	Image Analysis	3
GEOG 363	Geographic Information Systems	3
GEOG 364	Spatial Analysis	3
CAS 101N	Introduction to Human Communication ¹	3
GEOG 461W	Dynamic Cartographic Representation	3
GEOG 463	Geospatial Information Management	3
GEOG 464	Advanced Spatial Analysis	3
GEOG 485	GIS Programming and Software Development	3

¹ Course available at Harrisburg campus

Digital Arts and Communication

Code	Title	Credits
CAS 101N	Introduction to Human Communication ¹	3
GD 100	Introduction to Graphic Design ¹	3

AA 121	Design Thinking and Creativity ¹	3
COMM 100N	The Mass Media and Society ¹	3
AA 122	Introduction to Graphic Storytelling	3
CAS 175		3
CAS 215	Argumentation	3
CAS 271N	Intercultural Communication	3
CAS 383N	Culture and Technology	3
CAS 471	Intercultural Communication Theory and Research	3
COMM 190/ GAME 140	Gaming and Interactive Media ¹	3
COMM 241	Graphic Design for Communications ¹	3
COMM 310	Digital Media Metrics	3
COMM 318		
COMM 325	Effects of digital games	3
COMM 418	Media Effects: Theory and Research	3
COMM 441	Advanced Graphic Design for Communications ¹	3
COMM 450A	Digital Campaigns	3

¹ Course available at Harrisburg campus

Data Sciences

Code	Title	Credits
DS 120	Scripting for Data Sciences	1
DS 200	Introduction to Data Sciences ¹	4
DS 220	Data Management for Data Sciences	3
DS 310	Machine Learning for Data Analytics	3
STAT 184	Introduction to R ¹	2
DS 300	Privacy and Security for Data Sciences	3
DS 330	Visual Analytics for Data Sciences	3
STAT 380	Data Science Through Statistical Reasoning and Computation ¹	3
DS 402	Emerging Trends in the Data Sciences	3
DS 410	Programming Models for Big Data	3
MIS 301	Business Analytics ¹	3
MIS 431	Business Data Management ¹	3
MIS 441	Business Intelligence for Decision Making ¹	3
MIS 445	Business Intelligence	4

¹ Course available at Harrisburg campus

Healthcare

Code	Title	Credits
HPA 101	Introduction to Health Services Organization ¹	3
HPA 210	Health Care Payment ¹	3
HPA 211	Financial Decisions in Health Care Organizations ¹	3
HPA 332	Health Systems Management ¹	3
HPA 470	Health Care Information Management ¹	3
HDFS 210Z		3
HDFS 249N	Adult Development and Aging ¹	3
HDFS 445	Development Throughout Adulthood ¹	3
BBH 101	Introduction to Biobehavioral Health ¹	3
BBH 302	Diversity and Health ¹	3
BBH 305	Introduction to Global Health Issues ¹	3

BBH 315	Gender and Biobehavioral Health ¹	3
BBH 316	Foundations and Principles of Health Promotion ¹	3
BBH 402	African Health & Development	3
BBH 432	Biobehavioral Aspects of Stress ¹	3
BBH 440	Principles of Epidemiology ¹	3

¹ Course available at Harrisburg campus

Business Administration (Harrisburg Students Only)

The Business Administration focus is for students who desire the opportunity to develop and apply skills relevant to businesses and other organizations. Included in this focus area are courses in the core business disciplines of accounting, finance, management, and marketing. Select at least twelve (12) credits from below, with at least three (3) credits at the 400 level.

Code	Title	Credits
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
ECON 102 or ECON 104	Introductory Microeconomic Analysis and Policy Introductory Macroeconomic Analysis and Policy	3
MIS 250	Introduction to Problem Solving with Spreadsheet Analysis and Information Systems Management	3
BA 243	Social, Legal, and Ethical Environment of Business	4
BA 364Y	International Business and Society	3

The following courses may require prerequisites:

Code	Title	Credits
MIS 301	Business Analytics	3
MIS 390	Foundations of Information Systems	3
MGMT 301	Basic Management Concepts	3
FIN 301	Corporation Finance	3
MKTG 301	Principles of Marketing	3
SCM 301	Supply Chain Management	3
MGMT 418	Project Planning and Resource Management	3
MGMT 420	Negotiation and Conflict Management	3
MGMT 433	Leadership and Team Building	3
MIS 420	Business Process Management	3

Custom Application Focus

There is an option for a student to create a custom 4-course application focus sequence. It must be a coherent sequence of courses that provides context for the student in terms of content relevant to the HCDD program. It must contain three credits of 400-level coursework, so it's important to consider course prerequisites when creating your custom application focus area. It must be selected in consultation with a teaching HCDD faculty member and an academic adviser.

Career Paths

Society increasingly recognizes the need for technologies designed to account for people's capabilities, needs, desires, and limitations. Human-Centered Design and Development graduates have many career paths available to them depending on their strengths, interests, and focus of study.

Students with more technical interests can become web and mobile application developers, front-end developers, and user interface/user

experience designers and developers. Those most interested in the human dimension of technology can become usability researchers, interaction designers, and product managers. In addition, there are many opportunities to pursue graduate study in these areas.

MORE INFORMATION ABOUT POTENTIAL CAREER OPPORTUNITIES FOR GRADUATES OF THE HUMAN-CENTERED DESIGN AND DEVELOPMENT PROGRAM (<https://www.ist.psu.edu/current/careers/development/process/path/>)

Contact

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<https://harrisburg.psu.edu/business-administration/human-centered-design-development-bs> (<https://harrisburg.psu.edu/business-administration/human-centered-design-development-bs/>)

University Park

COLLEGE OF INFORMATION SCIENCES AND TECHNOLOGY
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State College, PA 16801
814-865-3528

Humanities, B.A. (Capital)

Begin Campus: Any Penn State Campus

End Campus: Harrisburg

Program Description

This major helps students appreciate, understand, and interpret relationships among the arts, ideas, media, and values that have shaped Western and world cultures. Students are taught to become active learners who can synthesize, interpret, and communicate knowledge and experience through writing, speaking, and creative expression in a variety of media. The School helps students meet these goals by offering a range of interdisciplinary and discipline-based courses in the arts, art history, communication studies, English, history, literature, music, philosophy, theatre, and writing. The course of study includes interdisciplinary courses which examine topics and time periods from the perspectives of multiple Humanities disciplines. These courses engage students in cross-disciplinary critical thinking and analysis and prepare them for work in an increasingly interdisciplinary world. Students also choose two Humanities subfields to investigate in greater depth, choosing from history and global cultures; the visual and performing arts; philosophy and religious studies; and literature and writing. Students are also encouraged to combine this major with a minor in such fields as business administration, writing, and communications. The Humanities major prepares students for careers in the arts, arts administration, business, corporate communications, government, teaching, museum work, and law, as well as providing a foundation for graduate study in a liberal arts field.

What is Humanities?

Humanities is an area of study that focuses on combined studies and research in the humanities subjects as distinguished from the social

and physical sciences, emphasizing languages, literatures, art, music, philosophy, religion, creative and professional writing, theater, history, and global cultures.

You Might Like This Program If...

- You are interested in critical thinking and interdisciplinary analysis.
- You are drawn to literature and the arts.
- You want to prepare for a professional field such as medicine or law.
- You want a career in the arts, teaching, communications, business, government, or museum work.

Entrance to Major

Entry to the Humanities major requires the completion of 27.1 or more credits and a 2.00 or higher cumulative grade-point average.

Degree Requirements

For the Bachelor of Arts degree in Humanities, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	0-15
Bachelor of Arts Degree Requirements	24
Requirements for the Major	51

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Requirements for the Major

At least 36 of the last 60 credits must be earned at Penn State, according to University Policy 83-80.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
HUM 100N	Foundations in the Humanities: Understanding the Human Experience	3
HUM 200N	Explorations in the Humanities: The Quest	3
HUM 300N	Interpretations in the Humanities	3
HUM 400N	Expressions in the Humanities	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select two Humanities (HUM) courses of the following:		6
HUM 150N	World Mythologies in the Arts	
HUM 311N		
HUM 410	Religion and Culture	
HUM 430	Philosophy and Literature	
HUM 453	Texts and Culture	

HUM 460	Thematic Studies
HUM 461	Selected Periods in the Humanities
HUM 491	Seminar in Interdisciplinary Humanities
HUM 494	Research Project
HUM 495	Internship
HUM 496	Independent Studies
HUM 497	Special Topics
HUM 499	Foreign Studies

Supporting Courses and Related Areas¹

Select 12 credits in one of the four following areas and 9 credits in a 21 second area:

History and Global Cultures

HIST, CMLIT, and SPAN courses	
CAS 271N	Intercultural Communication
ENGL 486	The World Novel in English
ENGL 488	
INTST 100	Introduction to International Studies

Performing and Visual Arts and Art History

ART, ARTH, INART, MUSIC, AND THEA courses	
COMM 215	Basic Photography for Communications
COMM 241	Graphic Design for Communications
COMM 242	Basic Video/Filmmaking
COMM 250	Film History and Theory

Philosophy and Religious Studies

PHIL and RLST courses	
-----------------------	--

Literature and Writing

ENGL and CMLIT courses	
COMM 230W	Writing for Media
COMM 260W	News Writing and Reporting
COMM 332	Reporting
COMM 346	Writing for the Screen I
COMM 474	Depth Reporting

Select 12 credits from AMST, ART, ARTH, CAS, CHNS, CMLIT, COMM, 12 ENGL, FR, HIST, HUM, INART, MUSIC, PHIL, RLST, SPAN, or THEA and/or 12 credits that can be used toward a minor in an area of the student's interests

¹ At least 15 credits of supporting courses must be at the 400 level.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or

within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- Think critically about materials from varied Humanities disciplines and points of view.
 - Write analytical and interpretive essays that effectively integrate the perspectives of two or more Humanities disciplines.
 - Comprehend, interpret, and evaluate visual and written texts.
- Write and speak clearly and persuasively about complex subjects involving multiple Humanities disciplines and perspectives.
 - Demonstrate the ability to use spoken, written, and visual language to communicate complex ideas.
 - Employ a wide range of strategies to communicate effectively with a variety of audiences.
- Understand the methods, approaches, and significant content of several disciplines within the Humanities.
 - Identify and assess a variety of interpretive methods in the Humanities.
 - Effectively employ a variety of the interpretive methods in the Humanities in written work and oral presentations.
 - Explain and analyze the relationship between texts and the historical periods that produced them.
- Demonstrate the ability to conduct in-depth research in the Humanities.
 - Locate, evaluate, and interpret major scholarship in the Humanities.
 - Demonstrate understanding of significant questions and problems in the Humanities.
 - Integrate source materials effectively into essays on a variety of topics.
- Apply and extend the understanding of goals 1 through 4 effectively in internships, employment, further academic or professional study, creative work, or voluntary activity after graduation.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of

both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Harrisburg

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Humanities, B.A. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 15S, 30T, or ESL 15 [†]	3 CAS 100A or 100S [‡]	3
Quantification	3 General Education Course	3
HUM 100N	3 General Education Course	3
World Language level 1	3-4 World Language level 2	3-4
General Education Course	3 General Education Course	3
15-16		15-16

Second Year

Fall	Credits Spring	Credits
General Education Course	3 Quantification	3
World Language level 3	3-4 General Education Course	3

General Education Course	3 ENGL 202A or 202B [‡]	3
HUM 200N	3 General Education Course	3
General Education Course	3 Select course in first subfield (1)	3
15-16		15

Third Year

Fall	Credits Spring	Credits
HUM 300N	3 Select HUM required course (3)	3
Select course in first subfield (1)	3 Select course in first subfield (1)	3
Select course in second subfield (2)	3 Select course in second subfield (2)	3
General Education Course	3 BA Degree required course	3
BA Degree required course	3 Select additional course in specific area or in support of a minor	3
15		15

Fourth Year

Fall	Credits Spring	Credits
HUM 400N	3 HUM required course (3)	3
Select course in first subfield (1)	3 Select course in second subfield (2)	3
Select additional course in specific area or in support of a minor	3 BA Degree required course	3
Select additional course in specific area or in support of a minor	3 Select additional course in specific area or in support of a minor	3
BA Degree required course	3 Elective	3
15		15

Total Credits 120-123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Select course in first subfield, (1) for the subfield of history and global cultures, select from HIST, CMLIT, SPAN (all courses with those prefixes), CAS 271, COMM 350, ENGL 486, ENGL 488, INTST 100; for the subfield of performing and visual arts and art history, select from ART, ART H, INART, MUSIC, THEA (all courses with those prefixes), COMM 215, COMM 241, COMM 242, COMM 250; for the subfield of philosophy and religious studies: select from PHIL, RL ST (all courses with those prefixes) for the subfield of literature and writing, select from ENGL, CMLIT (all courses with those prefixes), COMM 230W, COMM 260W, COMM 332, COMM 346, COMM 474.

² Select course in second subfield (2), for the subfield of history and global cultures, select from HIST, CMLIT, SPAN (all courses with those prefixes), CAS 271, COMM 350, ENGL 486, ENGL 488, INTST 100; for the subfield of performing and visual arts and art history, select from ART, ART H, INART, MUSIC, THEA (all courses with those prefixes), COMM 215, COMM 241, COMM 242, COMM 250; for the subfield of philosophy and religious studies: select from PHIL, RL ST (all courses with those prefixes) for the subfield of literature and writing, select from ENGL,

CMLIT (all courses with those prefixes), COMM 230W, COMM 260W, COMM 332, COMM 346, COMM 474.
³ Select HUM required course (3), select from HUM 150, HUM 311, HUM 410, HUM 430, HUM 453, HUM 460, HUM 461, HUM 491, HUM 494, HUM 495, HUM 496, HUM 497 or HUM 499.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Program Notes

Students must complete a 3-credit course in "United States Cultures (US)" and a 3-credit course in "International Cultures (IL)."

Career Paths

The Humanities major prepares students for careers in the arts, arts administration, business, corporate communications, government, teaching, museum work, and law. Penn State Harrisburg's Career Services office provides numerous resources for students, including: assistance with resumes and interview preparation online resources for finding full or part time, and co-op/intern positions strategies and information on attending and getting the most out of job/intern fairs information and guidance in preparing for graduate study at Penn State or elsewhere.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE HUMANITIES PROGRAM (<https://harrisburg.psu.edu/humanities/humanities-ba/>)

Opportunities for Graduate Studies

The Humanities major also provides a foundation for graduate study in a liberal arts field, including Penn State's Master of Arts in Humanities program.

**Contact
Harrisburg**

SCHOOL OF HUMANITIES

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 717-948-6596
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<https://harrisburg.psu.edu/humanities/humanities-ba> (<https://harrisburg.psu.edu/humanities/humanities-ba/>)

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<https://fayette.psu.edu/academics/baccalaureate/humanities> (<https://fayette.psu.edu/academics/baccalaureate/humanities/>)

Information Sciences and Technology for Accounting, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

Accounting remains a vital organizational function which, in today's business environment, impacts the strategic direction of the firm. Technology has changed the manner in which business organizations are supported by accounting. Thus, accounting professionals with technology skills and technology professionals with accounting skills are extremely valuable in today's modern organization. This new minor will provide students with this integration of knowledge in these two fields.

Entrance to Minor

Students must apply for entrance to the minor no later than the beginning of their sixth semester.

Program Requirements

Requirement	Credits
Requirements for the Minor	21

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ACCTG 403	Auditing	3
ACCTG 432	Accounting Information Systems	3
ACCTG 471	Intermediate Financial Accounting I	3
IST 110	Information, People and Technology	3
IST 210	Organization of Data	3
IST 220	Networking and Telecommunications	3

Additional Courses

Additional Courses: Require a grade of C or better

Select one of the following:

3

ACCTG 310	Federal Taxation I
ACCTG 340	Cost Accounting
ACCTG 472	Intermediate Financial Accounting II

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Harrisburg

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<https://harrisburg.psu.edu/business-administration/information-sciences-technology-accounting-minor> (<https://harrisburg.psu.edu/business-administration/information-sciences-technology-accounting-minor/>)

Information Sciences and Technology, B.S. (Capital)

Begin Campus: Any Penn State Campus

End Campus: Harrisburg

Program Description

This major is structured to provide students with the theoretical frameworks and skill sets necessary to compete and be productive in the information technology-intensive global context that defines the new "Information Age." Specifically, the degree will be focused on a program that will build an understanding of core information technologies and

related areas of study; will prepare students for the practical application of various information sciences and related technologies; and engage students in sharpening their abilities to think critically and to work in teams. All this will be done with considerable interdisciplinary integration in order to expose students to the cognitive, social, institutional, and global environments of IST. Team projects in most courses, a required internship, and a senior capstone experience provide additional, focused venues for involving students in the cutting-edge issues and technologies of the field.

Information Context: People, Organizations, and Society Option

Available at the following campuses: University Park

This option focuses on how information technology affects social change and the delivery of information to the consumer. This includes the human-machine interface; organization and retrieval of information; digital libraries; information and telecommunications services; information and media industry structures; software services and intermediaries; telecommunications and information law and policy; sociological aspects of technology change; multimedia; and art, design, and aesthetics.

Information Systems: Design & Development Option

Available at the following campuses: Harrisburg, World Campus

This option is focused on expanding the skills needed to develop advanced information technology systems using state-of-the-art tools and techniques. The emphasis is on providing the student with both knowledge in the design, implementation, testing and evolution of complex software systems as well as a set of project-oriented, team-programming experiences.

Information Technology: Integration & Application Option

Available at the following campuses: Harrisburg, World Campus

This option is designed to prepare students to use information technology to realize a variety of system-based goals (e.g., reliability, accessibility, efficiency, etc.). It is focused on developing a theoretical foundation and the skill set needed for integrating information technology into different systems for the purpose of enhancing system performance. The emphasis is on providing the student with both the theoretical frameworks needed to use information technology as a system attribute as well as a set of application-oriented experiences and skills.

What is Information Sciences and Technology?

Information Sciences and Technology is a discipline that explores how we can strengthen the power of information and technology, and use it to increase human potential. This includes focusing on creating innovative systems and technological solutions that benefit businesses, organizations, and individuals, and understanding the role of technology in how we live our lives.

MORE INFORMATION ABOUT INFORMATION SCIENCES AND TECHNOLOGY (<https://ist.psu.edu/prospective/undergraduate/academics/ist/>)

You Might Like This Program If...

- You want to develop new software and web applications, help businesses operate more effectively by creating and implementing technological solutions, or understand how technology is connected to broader social issues.
- You are interested in technology but also want to work with people.
- You enjoy coming up with creative solutions to difficult challenges.

MORE INFORMATION ABOUT WHY STUDENTS CHOOSE TO STUDY INFORMATION SCIENCES AND TECHNOLOGY (<https://ist.psu.edu/prospective/undergraduate/academics/ist/>)

Entrance to Major

To be eligible for entrance to the Information Sciences and Technology (ISTBS) major, students must:

1. have completed the following entrance-to-major requirements with a grade of C or better in each: IST 110; IST 140 (or equivalent CMPSC 101 or CMPSC 121) IST 210; and IST 220.
2. have achieved a minimum cumulative grade point average of 2.00 prior to and through the end of the semester during which the entrance-to-major procedure is carried out.

Degree Requirements

For the Bachelor of Science degree in Information Sciences and Technology, a minimum of 125 credits is required:

Requirement	Credits
General Education	45
Electives	8
Requirements for the Major	84

12 of the 45 credits for General Education are included in the Requirements for the Major. This includes 12 credits of General Education courses: 6 credits of GQ courses; 3 credits of GS courses; and 3 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
STAT 200	Elementary Statistics	4
<i>Prescribed Courses: Require a grade of C or better</i>		
IST 110	Information, People and Technology	3
IST 210	Organization of Data	3
IST 220	Networking and Telecommunications	3
IST 230	Language, Logic, and Discrete Mathematics	3
IST 301	Information and Organizations	3
IST 331	Foundations of Human-Centered Design	3
IST 440W	Information Sciences and Technology Integration and Problem Solving	3
IST 495	Internship	1

Additional Courses		
Select one of the following: 3		
ECON 14	Principles of Economics	
ECON 102	Introductory Microeconomic Analysis and Policy	
ECON 104	Introductory Macroeconomic Analysis and Policy	
<i>Additional Courses: Require a grade of C or better</i>		
ENGL 202C	Effective Writing: Technical Writing	3
or ENGL 202D	Effective Writing: Business Writing	
MATH 110	Techniques of Calculus I	4
or MATH 140	Calculus With Analytic Geometry I	
Select one of the following: 3		
CMPSC 101	Introduction to Programming	
CMPSC 121	Introduction to Programming Techniques	
IST 140	Introduction to Application Development	
Supporting Courses and Related Areas		
Attainment of third-level proficiency in a single world language ¹ 12		
Select 6 credits of international courses in foreign culture from College-approved list 6		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 3 credits at the 400 level in emerging issues and technologies from College-approved list 3		
Requirements for the Option		
Select an option 24		

¹ Proficiency must be demonstrated by either examination or course work. See the admission section of the general information in this Bulletin for the placement policy for Penn State world language courses.

Requirements for the Option Information Context: People, Organizations, and Society Option (24 credits)

Available at the following campuses: University Park

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
IST 431	The Information Environment	6
& IST 432	and Legal and Regulatory Environment of Information Science and Technology	
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
IST 240	Introduction to Computer Languages	3
or IST 242	Intermediate & Object-Oriented Application Development	
IST 302	IT Project Management	3
or IST 413	Usability Engineering	
Supporting Courses and Related Areas		
Select 12 credits from College-approved list (at least 3 credits at the 400-level and no more than 6 credits below the 200-level) 12		

Information Systems: Design & Development Option (24 credits)

Available at the following campuses: Harrisburg, World Campus

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
IST 242	Intermediate & Object-Oriented Application Development ¹	3
IST 311	Object-Oriented Design and Software Applications	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
IST 261	Application Development Design Studio I	3
or IST 361	Application Development Design Studio II	
Select 6 credits of the following: 6		
IST 411	Distributed-Object Computing	
IST 412	The Engineering of Complex Software Systems	
IST 413	Usability Engineering	
Supporting Courses and Related Areas		
Select 9 credits from College-approved list (at least 3 credits must be at the 400-level) 9		

¹ Students in the Information Systems: Design and Development Option are expected to take IST 242 prior to taking the prescribed and additional courses for that option.

Information Technology: Integration & Application Option (24 credits)

Available at the following campuses: Harrisburg, World Campus

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
IST 302	IT Project Management	3
IST 420	Fundamentals of Systems and Enterprise Integration	3
IST 421	Advanced Enterprise Integration: Technologies and Applications	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
IST 240	Introduction to Computer Languages	3
or IST 242	Intermediate & Object-Oriented Application Development	
Supporting Courses and Related Areas		
Select 12 credits from College-approved list (at least 3 credits at the 400-level and no more than 6 credits below the 200-level) 12		

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Apply Information or Security Sciences:** Understand and apply the interdisciplinary, theoretical knowledge of the information sciences or security sciences.
- **Apply Problem-Solving Techniques:** Understand, apply and adapt various problem-solving strategies, using appropriate technology and methods.
- **Committed to Learning:** Commit to the continuous acquisition of relevant knowledge for professional development by self-teaching and/or on-going education and learning.
- **Communicate Effectively:** Communicate and work effectively (both individually and in teams) with a range of perspectives and audiences through a variety of media.
- **Understand Responsibilities:** Understand professional responsibilities in terms of the ethical, legal, security and social aspects of any given problem and its solution.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Harrisburg

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University Park

Undergraduate Academic Advising Center

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University Park, PA 16802
814-865-8947
advising@ist.psu.edu

World Campus

Undergraduate Academic Advising

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 University Park, PA 16802
 814-863-3283
 advising@outreach.psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Design and Development Option: Information Sciences and Technology, B.S. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
IST 110 ^{*#}	3 IST 210 ^{*#}	3
IST 140 ^{*#}	3 General Education Course	3
MATH 110 or 140 ^{††}	4 World Language Level 2	4
World Language level 1	4 ECON 102, 104, or 14 [†] ENGL 15, 15S, 30T, or ESL 15 [‡]	3 3
14		16

Second Year

Fall	Credits Spring	Credits
IST 220 ^{*#}	3 IST 311 [*]	3
IST 230 [*]	3 STAT 200 ^{††}	4
IST 242 [*]	3 CAS 100A or 100S ^{*‡}	3
World Language level 3	4 General Education Course	3
General Education Course	3 General Education Course	3
16		16

Third Year

Fall	Credits Spring	Credits Summer	Credits
IST 261 or 361 [*]	3 IST 301 [*]	3 IST 495 [*]	1
IST 331 [*]	3 IST 411 [*]	3	
Support of Option	3 Support of Option	3	

General Education Course	3 Foreign Cultures Requirement	3
General Education Course	3 ENGL 202C or 202D [†]	3
General Education Course (GHW)	1.5	
16.5		15

Fourth Year

Fall	Credits Spring	Credits
IST 402 [*]	3 IST 440W [*]	3
IST 412 [*]	3 Support of Option (400-level) [*]	3
World Cultures Requirement	3 General Education Course	3
Elective	3 Elective	3
General Education Course	3 Elective	2
General Education Course (GHW)	1.5	
16.5		14

Total Credits 125

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ IST 4XX: Select 3 credits from:

- IST 402 - Emerging Issues and Technologies (3)
- IST 441 - Information Retrieval and Organization (3)
- IST 446 - An Introduction to Building Computer/Video Games (3)
- IST 452 - Legal and Regulatory Environment of Privacy and Security (3)
- IST 454 - Computer and Cyber Forensics (3)

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- 1 Credit of IST 495 - Internship is required
- 30 Credits of GA, GH, GHW, GN, GS to include 6 Integrative Studies credits
- 15 Credits of GQ and GWS require a grade of "C" or better

Program Notes:

- Please note: IST courses are only offered once per year.
- IST 495 Internship: (1) Supervised work experience where the student is employed in a position related to the student's major. An internship is typically completed the summer after the junior year, but it may be completed at any time during the student's academic career. Students are required to complete one internship but may complete three. A grade of C or better must be earned in this course. For more information, contact your academic adviser.
- Students must complete a 3-credit course in "United States Cultures (US)" and a 3-credit course in "International Cultures (IL)."
- Students in the Information Sciences and Technology (ISSCA_BS) major are expected to complete 24 credits of upper level course work in the major and the senior capstone course for the major at Penn State Harrisburg. This is in compliance with Faculty Senate Policy 83-80.5.

Integration and Application Option: Information Sciences and Technology, B.S. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
IST 110 ^{*#}	3 IST 210 ^{*#}	3
IST 140 ^{*#}	3 General Education Course	3
MATH 110 or 140 ^{††}	4 World Language level 2	4
World Language level 1	4 ECON 102, 104, or 14 [#]	3
	ENGL 15, 15S, 30T, or ESL 15 [‡]	3
14		16

Second Year

Fall	Credits Spring	Credits
IST 220 ^{*#}	3 IST 242 [*]	3
IST 230 [*]	3 STAT 200 ^{††}	4
World Language level 3	4 CAS 100A or 100S [‡]	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
16		16

Third Year

Fall	Credits Spring	Credits Summer	Credits
IST 331 [*]	3 IST 301 [*]	3 IST 495 [*]	1
Support of Option	3 IST 302 [*]	3	
General Education Course (GHW)	1.5 Support of Option	3	
General Education Course	3 Foreign Cultures Requirement	3	
General Education Course	3 ENGL 202C or 202D [‡]	3	
Elective	3		
16.5		15	1

Fourth Year

Fall	Credits Spring	Credits
IST 4XX - Emerging Issues & Technologies from College approved list [*]	3 IST 440W [*]	3
IST 420 [*]	3 IST 421 [*]	3
Support of Option	3 Support of Option (400-level)	3
World Cultures Requirement	3 Elective	3
General Education Course	3 Elective	2
General Education Course	1.5	
16.5		14

Total Credits 125

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

• Advising Notes:

- 1 Credit of IST 495 - Internship is required.
- 30 Credits of GA, GH, GHW, GN, GS to include 6 Integrative Studies Credits.
- 15 Credits of GQ and GWS require a grade of "C" or better.

Program Notes:

- IST 4XX: Select 3 credit from:
 - IST 402 - Emerging Issues and Technologies (3)
 - IST 441 - Information Retrieval and Organization (3)
 - IST 446 - An Introduction to Building Computer/Video Games (3)
 - IST 452 - Legal and Regulatory Environment of Privacy and Security (3)
 - IST 454 - Computer and Cyber Forensics (3)

- Please note: IST courses are only offered once per year.
- IST 495 Internship: (1) Supervised work experience where the student is employed in a position related to the student's major. An internship is typically completed the summer after the junior year, but it may be completed at any time during the student's academic career. Students are required to complete one internship but may complete three. A grade of C or better must be earned in this course. For more information, contact your academic adviser.
- Students must complete a 3-credit course in "United States Cultures (US)" and a 3-credit course in "International Cultures (IL)."
- Students in the Information Sciences and Technology (ISSCA_BS) major are expected to complete 24 credits of upper level course work in the major and the senior capstone course for the major at Penn State Harrisburg. This is in compliance with Faculty Senate Policy 83-80.5.

Career Paths

IST allows you to explore some of the biggest challenges facing society and work to solve them by leveraging information and using technology. It blends skills from a number of fields – computer science, business, psychology, math, sociology, political science – so you can help people and organizations thrive. IST's Office of Career Solutions helps students navigate their internship and career development in the field through coaching, workshops, interview preparation, resume reviews, career fairs, job postings, and networking opportunities.

Careers

Because our courses blend technical knowledge with skills in communication and business, an IST degree allows for careers in nearly every industry including consulting, business, government, defense, entertainment, and medicine.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE INFORMATION SCIENCES AND TECHNOLOGY PROGRAM (<https://www.ist.psu.edu/current/careers/development/process/path/>)

Contact

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Olmsted Building, E355
717-948-6141
ljc43@psu.edu

<https://harrisburg.psu.edu/business-administration/information-sciences-technology-bs> (<https://harrisburg.psu.edu/business-administration/information-sciences-technology-bs/>)

University Park

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411 Eric J. Barron Innovation Hub Building
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World Campus

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411 Eric J. Barron Innovation Hub Building
State College, PA 16801
814-865-3528

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-information-sciences-and-technology-bachelor-of-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-information-sciences-and-technology-bachelor-of-science-degree/>)

Information Sciences and Technology/Finance, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Information Sciences and Technology/Finance Minor is to enhance skills of students in the information sciences and finance. More organizations are integrating technology as part of their business operations, including finance. Finance is a key function of every business organization. Therefore, technology professionals with finance skills, and finance professionals with technology skills are highly valuable in any organization.

What is Information Sciences and Technology/Finance?

Information Sciences and Technology/Finance is the area of study concerned with the design, implementation, testing and evolution of complex software systems, especially those related to a business' financial operations.

You Might Like This Program If...

- You enjoy numbers and "real world" applications of math.
- You are interested in technology and how businesses and banks use it to manage their assets.
- You want a career in technology as it relates to business or finance.

Entrance to Minor

Students must apply for entrance to the minor no later than the beginning of their seventh semester.

Program Requirements

Requirement	Credits
Requirements for the Minor	21

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ECON 351	Money and Banking	3
FIN 301	Corporation Finance	3
FIN 420	Investment and Portfolio Analysis	3
IST 110	Information, People and Technology	3

IST 210	Organization of Data	3
IST 220	Networking and Telecommunications	3

Additional Courses

Additional Courses: Require a grade of C or better

Select 3 credits of FIN at the 400-level in consultation with an adviser 3

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Harrisburg

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<https://harrisburg.psu.edu/business-administration/information-sciences-technology-finance-minor/> (<https://harrisburg.psu.edu/business-administration/information-sciences-technology-finance-minor/>)

Information Systems, B.S.

Begin Campus: Any Penn State Campus

End Campus: Harrisburg

Program Description

The B.S. in Information Systems is a STEM-designated program that equips students with information systems competencies and business knowledge required to plan for, design, implement, and manage digital assets to support business operations and management of organizations. Students are empowered with digital and analytics capabilities required to leverage current and emerging technologies to help organizations achieve their strategic business objectives.

The B.S. in Information Systems builds on the business common core, which includes coursework in accounting, marketing, management, finance, and supply chain management in order to enable students to excel in future careers such as IT Consultant, Data Analyst (Data Analytics), Applications Developer, and Information Security Specialist. In addition, students in the major have the option of taking nine credits of supporting work in three specialty areas: (1) systems design; (2) data and business analytics; and (3) computing security.

What is Information Systems?

Information systems is the application of business intelligence, and design and development to resolve problems. The program is designed to help create the next generation of IS professionals who become experts in developing, applying, modifying, and strategizing technology to support IT-enabled change in organizations and achieve strategic objectives. This degree will prepare students to work with other business professionals to create platforms that integrate digital technologies to improve business processes and managerial decision making.

You Might Like This Program If...

- Your career interests intersect at business and technology.
- You are passionate about creating high-tech solutions to organizational and societal challenges.
- You are interested in application development and programming.
- You are curious about using business analytic methods to support business operations and management decision making.
- You are interested in leveraging current and emerging technologies to improve business processes and facilitate business transformation.

Entrance to Major

Entry to the Information Systems major requires the completion of 8 entry-to-major courses: ACCTG 211, ECON 102, ENGL 15 or ENGL 30H or ESL 15, FIN 301, MATH 110 or MATH 140, MGMT 301, MKTG 301, SCM 200 or STAT 200; and a 2.00 or higher cumulative grade-point average.

Additional information about this major is available in the office of the Director of Undergraduate Studies, School of Business Administration at Penn State Harrisburg.

Degree Requirements

For the Bachelor of Science degree in Information Systems, a minimum of 121 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	94

18 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GWS courses; 3 credits of GS courses; 6 credits of GQ courses.

Consistent with Senate policy, at least 24 credits of coursework in the major and the capstone course must be completed at the Capital College to earn the degree.

Senate Policy 83-80.5 stipulates that the college dean and program faculty may require up to 24 credits of coursework in the major to be taken in the college where the degree is earned. Based on this policy, the

School of Business Administration has set the following credit earning limitations for INFSY_BS majors:

1. Twenty-one credits of 300/400 level prescribed and additional courses in the major field must be completed at Harrisburg.
2. Six additional credits of 300/400 level supporting courses must also be completed at Harrisburg. See the Information Systems Suggested Academic Plan for details.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
BA 364Y	International Business and Society	3
BA 462	Business Strategy	3
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
FIN 301	Corporation Finance	3
MGMT 301	Basic Management Concepts	3
MKTG 301	Principles of Marketing	3
SCM 301	Supply Chain Management	3
<i>Prescribed Courses: Require a grade of C or better</i>		
CAS 100	Effective Speech	3
ENGL 202D	Effective Writing: Business Writing	3
IST 140	Introduction to Application Development	3
MIS 301	Business Analytics	3
MIS 307	Object-Oriented Programming and Application Development	3
MIS 390	Information Systems Management and Applications	3
MIS 420	Business Process Management	3
MIS 431	Business Data Management	3
MIS 446	Information Technology and Business Strategy	3
MIS 450	System Design Project	3
MIS 495	Internship	3
Additional Courses		
BA 241 & BA 242 or BA 243	Legal Environment of Business and Social and Ethical Environment of Business Social, Legal, and Ethical Environment of Business	4
<i>Additional Courses: Require a grade of C or better</i>		
MATH 110 or MATH 140	Techniques of Calculus I Calculus With Analytic Geometry I	4
MIS 204 or MIS 250	Introduction to Management Information Systems Introduction to Problem Solving with Spreadsheet Analysis and Information Systems Management	3
SCM 200 or STAT 200	Introduction to Statistics for Business Elementary Statistics	4
Select 3 credits from the following:		
ENGL 15	Rhetoric and Composition	3

ENGL 30H	Honors Rhetoric and Composition	
ESL 15	ESL Composition for American Academic Communication II	
Select 9 credits from one of the following three areas of concentration A, B, C, or D. At least one course must be at the 400-level:		9
A. Systems Design Concentration		
MGMT 410	Project Management	
MIS 391		
MIS 413	Interface design for Information Systems Applications	
MIS 461	Web Technologies	
MIS 466	Business Programming for the WEB	
MIS 489	Seminar in Information Systems	
B. Data and Business Analytics Concentration		
MIS 315	Python Programming	
DS 200	Introduction to Data Sciences	
STAT 184	Introduction to R	
STAT 380	Data Science Through Statistical Reasoning and Computation	
MIS 441	Business Intelligence for Decision Making	
MIS 461	Web Technologies	
C. Computing Security Concentration		
IST 454	Computer and Cyber Forensics	
MIS 448	Business Telecommunications	
SRA 111	Introduction to Security and Risk Analysis	
SRA 221	Overview of Information Security	
SRA 472	Integration of Privacy and Security	
D. Individualized Concentration		
Course selections completed in consultation with an adviser		

Supporting Courses and Related Areas

Select 6 credits from 200-400 level business courses from: ACCTG, BA, ECON, FIN, MGMT, MIS, MKTG, or SCM in consultation with an academic adviser and in support of the student's interests

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Information Systems and M.S. in Information Systems

Requirements for the Integrated B.S. in Information Systems and M.S. in Information Systems can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/information-systems/#integratedundergradgradprogramstext>).

Integrated B.S. in Information Systems and M.B.A. in Business Administration

Requirements for the Integrated B.S. in Information Systems and M.B.A. in Business Administration can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/business-administration-capital/#integratedundergradgradprogramstext>).

Learning Outcomes

Student graduates of our baccalaureate degree programs should be:

1. Effective communicators.
 - a. Present verbally, thoughts and ideas in a way that can be clearly understood by a target audience.
 - b. Convey ideas in a clear, coherent manner in written communication.
2. Ethical and socially responsible.
 - a. Be competent in analyzing social and ethical decision making issues in organizations.
3. Critical thinkers.
 - a. Be able to think and identify multiple dimensions of company issues and performances and make an assessment of company performances in achieving financial and strategic objectives, tracking their achievements, and giving management of companies a more complete and balanced view of how the organization is performing.
4. Competent in the Information Systems Discipline.
 - a. Demonstrate knowledge in technologies that support the information environment.
 - b. Demonstrate knowledge in business/organizational procedures that are supported by technology.
 - c. Demonstrate general skills and abilities that promote good communication, problem-solving and analytical abilities as well as the ability to work in a collaborative environment.
 - d. Demonstrate skills to participate in and lead multidisciplinary teams in the development, implementation and management of information technology solutions.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary

academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Harrisburg

Parag Pendharkar, Ph.D.

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717-948-6028
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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Information Systems, B.S. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 15S, 30T, or ESL 15 [‡] #	3 CAS 100A or 100S [‡]	3
MATH 110 or 140 ^{#†}	4 STAT 200 or SCM 200 [#]	4
ECON 102 ^{#†}	3 MGMT 301 [#]	3
General Education Course	3 General Education Course	3
General Education Course	1.5 General Education Course	3
14.5		16

Second Year

Fall	Credits Spring	Credits
ACCTG 211 [#]	4 FIN 301 [#]	3
MKTG 301 [#]	3 IST 140, CMPSC 101, or CMPSC 121	3
MIS 250 or 204	3 ENGL 202D [‡]	3
General Education Course	3 General Education Course	3
General Education Course	3 MIS 390 [*]	3
16		15

Third Year

Fall	Credits Spring	Credits Summer	Credits
BA 241	2 SCM 301	3 MIS 495 [*]	3
BA 242	2 Concentration (Systems Design, Data and Business Analytics, Computing Security or Individualized) [*]	3	
ECON 104	3 MIS 420 [*]	3	
MIS 301 [*]	3 General Education Course	3	
MIS 307 [*]	3 General Education Course	3	
General Education Course	1.5		
14.5		15	3

Fourth Year

Fall	Credits Spring	Credits
BA 364Y	3 BA 462	3
Concentration (Systems Design, Data and Business Analytics, Computing Security or Individualized) [*]	3 MIS 450 [*]	3
MIS 431 [*]	3 Concentration (Systems Design, Data and Business Analytics, Computing Security or Individualized) [*]	3
MIS 446 [*]	3 200-400 level Business courses in consultation with adviser	3
200-400 level Business courses in consultation with adviser	3	
15		12

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Systems Design Concentration: MGMT 410; MIS 391; MIS 413; MIS 461; MIS 466; MIS 489

² Data and Business Analytics Concentration: MIS 315; DS 200; STAT 184; STAT 380; MIS 441; MIS 461

³ Computing Security Concentration: SRA 111; SRA 221; SRA 472; IST 454; MIS 448

⁴ Individualized Concentration: Course selections completed in consultation with an adviser

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- 30 Credits of GA, GH, GHW, GN, GS to include 6 Integrative Studies credits.
- 15 Credits of GWS, and GQ require a grade of "C" or better.
- Courses required for the major must generally be taken within 10 years of entrance to the major.
- Students must complete a 3-credit course in "United States Cultures (US)" and a 3-credit course in "International Cultures (IL)." BA 364 (US/IL) may be used to meet either the IL or US requirement but may be used to fulfill only 3 of the 6 credit requirement.
- Students in the Information Systems (INFSY_BS) major are expected to complete 24 credits of upper-level course work in the major at Penn State Harrisburg. This is in compliance with Faculty Senate Policy 83-80.5.

Career Paths

The B.S. in Information Systems prepares students to meet the rising demand for well-educated IS professionals in business, education, healthcare, and government. Salaries for IS graduates are higher than typical business majors and even higher for those who complete an internship.

Careers

There is an ongoing shortage of people who have both the IT skills and the business acumen to create a competitive advantage in the global marketplace. A recent report from the 2022 Association of Information Systems IS Job Index (<https://isjobindex.com/>) indicates that the IS job market is flourishing. This same report shows the national placement rate is 81%. The most popular jobs are in data analytics, consulting, application development, information security analyst, and systems analyst.

Employers of recent IS graduates include Capital Blue Cross, CGI Federal, Deloitte, Ernst and Young, Highmark Health, RPI Consultants, Lockheed Martin, Select Medical, Shell, and Universal Health Services.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE INFORMATION SYSTEMS PROGRAM (<https://isjobindex.com/>)

Opportunities for Graduate Studies

Penn State Harrisburg's MS in Information Systems is STEM-designated degree program designed to meet the increasing need for technically grounded, upper-level information resources managers within business organizations. A limited number of academically superior B.S. in Information Systems candidates are provided the opportunity to enroll in an integrated, continuous program of study leading to both the Bachelor of Science in Information Systems and the Master of Science in Information Systems in five years.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://harrisburg.psu.edu/business-administration/information-systems/master-science-information-systems/>)

Professional Resources

- Beta Gamma Sigma (<https://www.betagammasigma.org/home/>)
- Upsilon Pi Epsilon (<https://upe.acm.org/>)
- Women in Information Technology (<https://psuharrisburg.campuslabs.com/engage/organization/wit-psh/>)
- Association for Computing Machinery's Council on Women in Computing (ACM-W) (<https://women.acm.org/>)
- Women in CyberSecurity (<https://www.wicys.org/>)
- Salesforce Student User Group
- Cyber Lions (<https://psuharrisburg.campuslabs.com/engage/organization/cyberlions/>)

Accreditation

The B.S. in Information Systems offered by the School of Business Administration at Penn State Harrisburg, the Capital College, is accredited by AACSB International – The Association to Advance Collegiate Schools of Business. Synonymous with the highest standards of excellence since 1916, AACSB provides quality assurance, business education intelligence, and professional development services to over 1,600 member organizations and more than 800 accredited business schools worldwide. In addition, AACSB International (AACSB) connects educators, students, and business to achieve a common goal: to create the next generation of great leaders.

MORE INFORMATION ABOUT AACSB INTERNATIONAL (<https://www.aacsb.edu/>)

Contact Harrisburg

SCHOOL OF BUSINESS ADMINISTRATION
E-355 Olmsted Building
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Middletown, PA 17057
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<https://harrisburg.psu.edu/business-administration> (<https://harrisburg.psu.edu/business-administration/>)

Integrative Science, B.S. (Capital)

Begin Campus: Any Penn State Campus

End Campus: Harrisburg

Program Description

The Integrative Science major is an interdisciplinary degree that aims to provide a broad, general education in science. The Bachelor of Science (B.S.) curriculum is designed specifically for students who have education goals relating to scientific theory and practice across disciplinary areas, and who seek a high degree of flexibility to obtain their educational objectives. After completing foundation courses in biology, calculus, chemistry, physics, and statistics, students select additional science courses from designated areas to customize the curriculum to their own interests. A large number of supporting credits enable students to incorporate significant breadth or specialization into their academic training, such as through courses in business, computer and information science, health science, social science, and other fields.

This major helps prepare students for careers in many different job sectors including agriculture, biotechnology, chemistry, education, government, industry, medicine, pharmaceutical, research & development, sustainability, and more. Graduates of this major pursue diverse career paths and hold a variety of roles such as research scientist, data analyst, technician, program coordinator, project manager, consultant, and laboratory associate. The degree can also be tailored to meet specific requirements of professional programs such as medical, dental, physician assistant, pharmacy, or law school, as well as graduate school.

General Science Option

Available at the following campuses: *Abington, Berks, Harrisburg, Scranton, University Park, York*

The General Science option of the B.S. Integrative Science degree allows for the most flexibility.

Achievement in a more specialized set of goals can be met by selecting one of the other B.S. options offered:

Biological Sciences and Health Professions Option

Available at the following campuses: *University Park*

Legal Studies, Government Service, Public Policy Option

Available at the following campuses: *University Park*

Life Sciences Option

Available at the following campuses: *Abington, Berks, Harrisburg, Scranton, York*

Mathematical Sciences Option

Available at the following campuses: *Abington*

Secondary Education Option

Available at the following campuses: *Harrisburg*

Not all of these options are available at all locations. See the Science program director at your College for details regarding program curriculum at your location.

What is Integrative Science?

The Integrative Science major provides a broad and interdisciplinary foundation in the natural sciences. The Integrative Science BS program uses the principles of chemistry, physics, and life sciences to understand how these integrate over general areas including biological sciences and health professions, public policy, and science research and development.

You Might Like This Program If...

- You like learning by doing hands-on experiments.
- You are curious about the natural world and how science disciplines come together to explore and understand it.
- You are intrigued by science and desire a career in current and emerging interdisciplinary science disciplines, health professions, or melding science with law, policy or business.

Entrance to Major

In order to be eligible for entrance to the Integrative Science major, a student at any location must have:

1. attained at least a 2.00 cumulative grade-point average;
2. completed MATH 140 with a grade of C or better;
3. completed at least two of the following courses, BIOL 110; CHEM 110; PHYS 211 or PHYS 250, with a grade of C or better.

Entrance to the Integrative Science Secondary Education option requires the following additional requirements:

1. completed at least one of the following courses, BIOL 220W or BIOL 230W or BIOL 240W; PHYS 250, with a grade of C or better;
2. attained at least a 3.00 cumulative grade-point average;
3. completed ENGL 15 or ENGL 30H;
4. completed 3 credits of literature from a department-approved list with a grade of C or better;
5. completed 6 credits of college-level mathematics (GQ MATH or STAT prefixes) with a grade of C or better;
6. satisfy any entrance testing requirements set out by the Pennsylvania Department of Education in effect at the time of application for the major;
7. submission to the Teacher Education Office of current and clear background checks as required by the Pennsylvania Department of Education;
8. submission of documentation of 20 pre-major fieldwork hours.

Degree Requirements

For the Bachelor of Science degree in Integrative Science with an option in General Science; Biological Sciences and Health Professions; Legal Studies, Government Service, Public Policy; Life Science; and Mathematical Science, a minimum of 120 credits is required, with at least 15 credits at the 400 level. For the Bachelor of Science degree in Integrative Science with an option in Secondary Education, a minimum of 125 credits is required, with at least 15 credits at the 400 level.

Requirement	Credits
General Education	45
Requirements for the Major	90-110

13-30 of the 45 credits for General Education are included in the Requirements for the Major. For the General Science Option; Biological Sciences and Health Professions Option; Legal Studies, Government Service, Public Policy Option; Life Science Option this includes: 9 credits of GN courses and 4-6 credits of GQ courses. For the Mathematical Science Option this includes: 9 credits of GN courses and 6 credits of GQ courses. For the Secondary Education Option this includes: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GWS courses (ENGL 202C); 3 credits of GH courses (literature department list); 6 credits of GS courses (EDPSY 14 and HDFS 239); 3 credits of Integrative Studies courses (EDUC 466N).

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
CHEM 113	Experimental Chemistry II	1
<i>Prescribed Courses: Require a grade of C or better</i>		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
CHEM 110	Chemical Principles I	3
MATH 140	Calculus With Analytic Geometry I	4
Requirements for the Option		
Select an option		74-94

Requirements for the Option General Science Option (74 credits)

Available at the following campuses: Abington, Berks, Harrisburg, Scranton, University Park, York

Code	Title	Credits
Additional Courses		
STAT 200 or STAT 250	Elementary Statistics Introduction to Biostatistics	3-4
Select 4 credits from the following:		4
BIOL 161 & BIOL 162	Human Anatomy and Physiology I - Lecture and Human Anatomy and Physiology I - Laboratory	
BIOL 220W	Biology: Populations and Communities	
BIOL 230W	Biology: Molecules and Cells	
BIOL 240W	Biology: Function and Development of Organisms	
Select 8-12 credits from the following:		8-12
PHYS 211 & PHYS 212 & PHYS 213 & PHYS 214	General Physics: Mechanics and General Physics: Electricity and Magnetism and General Physics: Fluids and Thermal Physics and General Physics: Wave Motion and Quantum Physics ¹	

PHYS 250 & PHYS 251	Introductory Physics I and Introductory Physics II ¹	
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Supporting Courses and Related Areas

Select 3 credits in Global, Social, and Personal Awareness from department approved course list in consultation with adviser	3
Select 3 credits in Teamwork and Interpersonal Communication from department approved course list in consultation with adviser	3
Select 3 credits in Integrative and Applied Sciences from department approved course list in consultation with adviser	3
Select 6 credits of 400-level courses	6
Select 21-26 credits from program list ^{2,3}	21-26
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>	
Select 18 credits in life, mathematical, or physical sciences, with at least 9 credits at the 400 level ^{4,5}	18

¹ PHYS 211 and PHYS 250 require a grade of C or better.

² A maximum of 12 credits of Independent Study (296, 496) may be applied toward credits for graduation.

³ Students may apply ROTC credits toward the Program List.

⁴ Only the 9 credits at the 400 level require a grade of C or better.

⁵ Life sciences include BIOL, BIOTC, BMB, FRNSC, MICRB. Mathematical sciences include CMPSC, DS, MATH, STAT. Physical sciences include ASTRO, CHEM, PHYS.

Biological Sciences and Health Professions Option (74 credits)

Available at the following campuses: University Park

Code	Title	Credits
Prescribed Courses		
HPA 101	Introduction to Health Services Organization	3
Additional Courses		
STAT 200 or STAT 250	Elementary Statistics Introduction to Biostatistics	3-4
Select 4 credits from the following:		4
BIOL 161 & BIOL 162	Human Anatomy and Physiology I - Lecture and Human Anatomy and Physiology I - Laboratory	
BIOL 220W	Biology: Populations and Communities	
BIOL 230W	Biology: Molecules and Cells	
BIOL 240W	Biology: Function and Development of Organisms	
Select 3-4 credits from the following:		3-4
BIOL 222	Genetics	
BIOL 230W	Biology: Molecules and Cells	
BIOL 322	Genetic Analysis	
BMB 211	Elementary Biochemistry	
BMB/MICRB 251	Molecular and Cell Biology I	
MICRB 201	Introductory Microbiology	
Select 6-8 credits from the following:		6-8
CHEM 202 & CHEM 203	Fundamentals of Organic Chemistry I and Fundamentals of Organic Chemistry II	
CHEM 210 & CHEM 212 & CHEM 213W	Organic Chemistry I and Organic Chemistry II and Laboratory in Organic Chemistry - Writing Intensive	
Select 8-12 credits from the following:		8-12

PHYS 211 & PHYS 212 & PHYS 213 & PHYS 214	General Physics: Mechanics and General Physics: Electricity and Magnetism and General Physics: Fluids and Thermal Physics and General Physics: Wave Motion and Quantum Physics ¹
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PHYS 250 & PHYS 251	Introductory Physics I and Introductory Physics II ¹
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Supporting Courses and Related Areas

Select 3 credits in Global, Social, and Personal Awareness from department approved course list in consultation with adviser	3
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Select 3 credits in Teamwork and Interpersonal Communication from department approved course list in consultation with adviser	3
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Select 15 credits in Healthcare/Medicine/Ethical Competencies from department approved course list in consultation with adviser ²	15
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Select 9-17 credits from program list ^{3,4}	9-17
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Supporting Courses and Related Areas: Require a grade of C or better

Select 9 credits of 400-level BMB, BIOL, BIOTC, or MICRB courses	9
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¹ PHYS 211 and PHYS 250 require a grade of C or better.

² 6 credits must be at the 400-level.

³ A maximum of 12 credits of Independent Studies (296, 496) may be applied toward credits for graduation.

⁴ Students may apply ROTC credits toward the Program List.

Legal Studies, Government Service, Public Policy Option (74 credits)

Available at the following campuses: University Park

Code	Title	Credits
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Additional Courses

STAT 200 or STAT 250	Elementary Statistics Introduction to Biostatistics	3-4
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Select 4 credits from the following:	4
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BIOL 161 & BIOL 162	Human Anatomy and Physiology I - Lecture and Human Anatomy and Physiology I - Laboratory	
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BIOL 220W	Biology: Populations and Communities	
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BIOL 230W	Biology: Molecules and Cells	
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BIOL 240W	Biology: Function and Development of Organisms	
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Select 8-12 credits from the following:	8-12
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PHYS 211 & PHYS 212 & PHYS 213 & PHYS 214	General Physics: Mechanics and General Physics: Electricity and Magnetism and General Physics: Fluids and Thermal Physics and General Physics: Wave Motion and Quantum Physics ¹	
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PHYS 250 & PHYS 251	Introductory Physics I and Introductory Physics II ¹	
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Supporting Courses and Related Areas

Select 3 credits in Global, Social, and Personal Awareness from department approved course list in consultation with adviser	3
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Select 3 credits in Teamwork and Interpersonal Communication from department approved course list in consultation with adviser	3
--	---

Select 18 credits in Legal Studies, Government Service, Public Policy from department approved course list in consultation with adviser ²	18
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Select 12-17 credits from program list ^{3,4}	12-17
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Supporting Courses and Related Areas: Require a grade of C or better

Select 18 credits in life, mathematical, or physical sciences, with at least 9 credits at the 400 level ^{5,6}	18
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¹ PHYS 211 and PHYS 250 require a grade of C or better.

² 6 credits must be at the 400-level.

³ A maximum of 12 credits of Independent Study (296, 496) may be applied toward credits for graduation.

⁴ Students may apply ROTC credits toward the Program List.

⁵ Only the 9 credits at the 400 level require a grade of C or better.

⁶ Life sciences include BIOL, BIOTC, BMB, FRNSC, MICRB. Mathematical sciences include CMPSC, DS, MATH, STAT. Physical sciences include ASTRO, CHEM, PHYS.

Life Science Option (74 credits)

Available at the following campuses: Abington, Berks, Harrisburg, Scranton, York

Code	Title	Credits
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Additional Courses

STAT 200 or STAT 250	Elementary Statistics Introduction to Biostatistics	3-4
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Select 4 credits from the following:	4
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BIOL 220W	Biology: Populations and Communities	
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BIOL 230W	Biology: Molecules and Cells	
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BIOL 240W	Biology: Function and Development of Organisms	
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Select 3-4 credits from the following:	3-4
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BIOL 222	Genetics	
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BIOL 230W	Biology: Molecules and Cells	
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BIOL 322	Genetic Analysis	
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BMB 211	Elementary Biochemistry	
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BMB/MICRB 251	Molecular and Cell Biology I	
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MICRB 201	Introductory Microbiology	
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Select 6-8 credits from the following:	6-8
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CHEM 202 & CHEM 203	Fundamentals of Organic Chemistry I and Fundamentals of Organic Chemistry II	
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CHEM 210 & CHEM 212 & CHEM 213	Organic Chemistry I and Organic Chemistry II and Laboratory in Organic Chemistry	
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Select 8-12 credits from the following:	8-12
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PHYS 211 & PHYS 212 & PHYS 213 & PHYS 214	General Physics: Mechanics and General Physics: Electricity and Magnetism and General Physics: Fluids and Thermal Physics and General Physics: Wave Motion and Quantum Physics ¹	
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PHYS 250 & PHYS 251	Introductory Physics I and Introductory Physics II ¹	
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Supporting Courses and Related Areas

Select 3 credits in Global, Social, and Personal Awareness from department approved course list in consultation with adviser	3
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Select 3 credits in Teamwork and Interpersonal Communication from department approved course list in consultation with adviser	3
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Select 6 credits of 400-level courses	6
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Select 21-29 credits from program list ^{2,3}	21-29
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Supporting Courses and Related Areas: Require a grade of C or better

Select 9 credits of 400-level BMB, BIOL, BIOTC, or MICRB courses	9
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¹ PHYS 211 and PHYS 250 require a grade of C or better.

² A maximum of 12 credits of Independent Study (296, 496) may be applied toward credits for graduation.

³ Students may apply ROTC credits toward the Program List.

Mathematical Science Option (74 credits)

Available at the following campuses: Abington

Code	Title	Credits
Prescribed Courses		
MATH 220	Matrices	2-3
<i>Prescribed Courses: Require a grade of C or better</i>		
MATH 141	Calculus with Analytic Geometry II	4
Additional Courses		
CMPSC 122 or CMPSC 132	Intermediate Programming Programming and Computation II: Data Structures	3
CMPSC 360 or MATH 311W	Discrete Mathematics for Computer Science Concepts of Discrete Mathematics	3-4
MATH 230 or MATH 251	Calculus and Vector Analysis Ordinary and Partial Differential Equations	4
Select 3 credits from the following:		3
CMPSC 121	Introduction to Programming Techniques	
CMPSC 131	Programming and Computation I: Fundamentals	
CMPSC 201	Programming for Engineers with C++	
Select 3-4 credits from the following:		3-4
STAT 200	Elementary Statistics	
STAT 250	Introduction to Biostatistics	
STAT 318	Elementary Probability	
Select 3-4 credits from the following:		3-4
BIOL 222	Genetics	
BIOL 230W	Biology: Molecules and Cells	
BIOL 322	Genetic Analysis	
BMB 211	Elementary Biochemistry	
BMB/MICRB 251	Molecular and Cell Biology I	
MICRB 201	Introductory Microbiology	
Select 8-12 credits from the following:		8-12
PHYS 211 & PHYS 212 & PHYS 213 & PHYS 214	General Physics: Mechanics and General Physics: Electricity and Magnetism and General Physics: Fluids and Thermal Physics and General Physics: Wave Motion and Quantum Physics ¹	
PHYS 250 & PHYS 251	Introductory Physics I and Introductory Physics II ¹	
Supporting Courses and Related Areas		
Select 3 credits in Global, Social, and Personal Awareness from department approved course list in consultation with adviser		3
Select 3 credits in Teamwork and Interpersonal Communication from department approved course list in consultation with adviser		3
Select 6 credits of 400-level courses		6
Select 13-20 credits from program list ^{2,3}		13-20
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 9 credits of 400-level CMPSC, MATH, or STAT courses		9

¹ PHYS 211 and PHYS 250 require a grade of C or better.

² A maximum of 12 credits of Independent Study (296, 496) may be applied toward credits for graduation.

³ Students may apply ROTC credits toward the Program List.

SECONDARY EDUCATION OPTION (94 credits)

Available at the following campuses: Harrisburg

Code	Title	Credits
Prescribed Courses		
STAT 200	Elementary Statistics	4
<i>Prescribed Courses: Require a grade of C or better for teacher certification</i>		
EDUC 313	Secondary Education Field Experience	2
EDUC 314	Learning Theory and Instructional Procedures	3
EDUC 315Y	Social and Cultural Factors in Education	3
EDUC 385	Professional Development in Teaching	3
EDUC 400	Diversity and Cultural Awareness Practices in the K-12 Classroom	3
EDUC 414	Teaching Secondary Science	3
EDUC 458	Behavior Management Strategies for Inclusive Classrooms	3
EDUC 459	Strategies for Effective Teaching in Inclusive Classrooms	3
EDUC 490	Student Teaching	9
<i>Prescribed Courses: Require a Grade of C or Better</i>		
EDPSY 14	Learning and Instruction	3
EDUC 466N	Foundations of Teaching English as a Second Language	3
ENGL 202C	Effective Writing: Technical Writing	3
HDFS 239	Adolescent Development	3
MATH 141	Calculus with Analytic Geometry II	4
PHYS 250	Introductory Physics I	4
PHYS 251	Introductory Physics II	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 4 credits from the following:		4
BIOL 220W	Biology: Populations and Communities	
BIOL 230W	Biology: Molecules and Cells	
BIOL 240W	Biology: Function and Development of Organisms	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a Grade of C or Better</i>		
Select 3 credits of GH literature from department list		3
Select a 3 credit EARTH course		3
Select a 3 credit ASTRO course		3
Select 9 credits of 400-level earth or physical science courses		9
Select 12 credits of science or education elective courses		12

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate

students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Interdisciplinary Thinking:** Integrate knowledge among science subfields and between science and other disciplines in theoretical and practical ways.
- **Overall Program:** See how well the students think the program is providing them support and opportunities in several key learning outcomes.
- **Process of Science:** Apply the elements of the process of science such as posing questions, generating novel hypotheses based on the scientific literature; developing appropriate technical skills for research; designing/conducting experiments to test hypotheses in laboratory and/or field settings; summarizing/interpreting data; integrating/evaluating findings in the broader scientific field to construct new knowledge; and/or participating in the peer review/revision process.
- **Quantitative Reasoning and Data Science:** Apply basic quantitative competencies such as algebra, probability, statistics, unit conversions, and fundamental principles; organize, summarize, and interpret quantitative data; use modeling/simulation to approach problems from across various scales; and/or find and analyze large databases using statistical methods and/or other approaches.
- **Science and Society:** Explore the impacts of scientific research on society and the environment and how society influences/relies on research to inform decision-making; evaluate the ethical implications of scientific research; recognize ethical issues in a variety of settings; and/or describe how different perspectives and the resulting alternative approaches might be evaluated using ethical principles to identify a solution to an issue.
- **Verbal Communication:** Logically present scientific concepts in a compelling manner suited to the audience with appropriate language, supporting material and references.
- **Written Communication:** Logically document/relate scientific concepts in a compelling manner suited to the audience with appropriate supporting data and references.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the

habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://>

bulletins.psu.edu/undergraduate/archive/) to view the appropriate Undergraduate Bulletin edition.

General Option: Integrative Science, B.S. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 15S, 30T, or ESL 15 [†]	3 BIOL 220W, 230W, or 240W	4
MATH 140 ^{*†##}	4 CHEM 112 [†]	3
BIOL 110 ^{*##†}	4 CHEM 113	1
CHEM 110 ^{*##†}	3 MATH 141 ^{††}	4
CHEM 111 [†]	1 General Education Course	3
	15	15

Second Year

Fall	Credits Spring	Credits
CAS 100A or 100S [‡]	3 PHYS 251 (consult with academic adviser for options) [†]	4
PHYS 250 (or consult with academic adviser for options) [†]	4 General Education Course	3
General Education Course	3 Life, Mathematical, or Physical Science Course ¹	3-4
Life, Mathematical, or Physical Science Course ¹	3-4 Earth and Mineral Science Course ²	3
Supporting/Elective Course	3 Global, Social and Personal Awareness Course	3
	16-17	16-17

Third Year

Fall	Credits Spring	Credits
STAT 200 [†]	4 ENGL 202A, 202B, 202C, or 202D [†]	3
General Education Course	3 General Education Course	3
Teamwork and Interpersonal Communications Course	3 400 Level Life, Mathematical, or Physical Science course ^{*3}	3
Supporting/Elective Course	3 Supporting/Elective Course	3
Supporting/Elective Course	3 Supporting/Elective Course	3
	16	15

Fourth Year

Fall	Credits Spring	Credits
400 Level Life, Mathematical, or Physical Science Course ^{*3}	3 400-Level Life, Mathematical, or Physical Science Course ^{*3}	3
400 Level Supporting/Elective Course	3 400-Level Supporting/Elective Course	3
General Education Course	3 General Education Course	3

Supporting/Elective Course	3 Supporting/Elective Course	3
Supporting/Elective Course	3 Supporting Elective Course	3
15		15

Total Credits 123-125

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ Life, Mathematical, or Physical Science Courses

- Life Science: BMB, BIOL, BIOTC, MICRB
- Mathematical Science: CMPSC, MATH, STAT
- Physical Science: ASTRO, CHEM, PHYS

² Earth and Mineral Science Courses: METEO, MATSC, EMSC, EGEE, EARTH, GEOG, GEOSC (see <https://www.ems.psu.edu>)³ 400-Level Life, Mathematical, or Physical Science Courses

- Life Science: BMB, BIOL, BIOTC, MICRB
- Mathematical Science: CMPSC, MATH, STAT
- Physical Science: ASTRO CHEM, PHYS

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- This outline is only a suggested academic plan. There is considerable room for adjusting the necessary courses to fit your individual needs and goals. For example, a student may take CHEM 110 along with CHEM 111 during semester 1, in which case the student may then take CHEM 112 along with CHEM 113 during semester 2. Another example, a student could choose to take a world language course during other/earlier semesters, such as semester 1 and 2. Remember, most students only have to average about 16 credits per semester to graduate in four academic years (or eight semesters). The Science major requires a total of 124 credits.
- Do not overlook the opportunity for Independent Study/Research credit, Cooperative Education, or Study Abroad Opportunities.
- For the various supporting/elective courses each student is required to complete the major, one should consider completing a sequence of courses from the same department/program as opposed to completing all introductory courses from many different departments/programs. Students can even consider completing a minor in another academic discipline with the various supporting/elective courses and any 400 level course work needed.

- See academic adviser for list of courses for: Teamwork and Interpersonal Communications, and Global, Social, and Personal Awareness.
- Course required with a C or better to enter the Science major are: MATH 140; and two out of three of BIOL 110, CHEM 110, and either PHYS 250 or PHYS 211. Consult with an academic adviser for options to satisfy the Writing Across the Curriculum requirement. If using BIOL 220W, BIOL 230W and BIOL 240W for the requirement, all 3 courses must be taken.

Life Science Option: Integrative Science, B.S. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110 ^{**†}	4 BIOL 220W, 230W, or 240W	4
CHEM 110 ^{**†}	3 CHEM 112 [†]	3
CHEM 111 [†]	1 CHEM 113 [†]	1
ENGL 15, 15S, 30T, or ESL 15	3 MATH 141 ^{††}	4
MATH 140 ^{**††}	4 General Education Course	3
	15	15

Second Year

Fall	Credits Spring	Credits
CAS 100A or 100S [‡]	3 CHEM 212	3
CHEM 210	3 CHEM 213	2
PHYS 250 or 211 [*]	4 PHYS 251 or 212	4
General Education Course	3 Teamwork and Interpersonal Communications Course	3
Supporting Course	3-4 General Education Course	3
	16-17	15

Third Year

Fall	Credits Spring	Credits
BMB 251 or MICRB 201	3 Select 3 credits from 400 level Science courses [*]	3
Supporting Course or PHYS 213 and PHYS 214	3-4 General Education Course	3
ENGL 202A, 202B, 202C, or 202D [‡]	3 General Education Course	3
STAT 200, 250, MATH 250, or CMPSC 101	3-4 General Education Course	3
Global, Social and Personal Awareness Course	3 Supporting Course	3
	15-17	15

Fourth Year

Fall	Credits Spring	Credits
400-level Course Selection	3 400-level Course Selection	3
Select 3 credits from 400-level Science courses [*]	3 Select 3 credits from 400-level Science courses [*]	3
General Education Course	3 Supporting Courses	6
Supporting Course	3 General Education Course	3
Supporting Course	3	
	15	15

Total Credits 121-124

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- See academic adviser for list of courses for: Teamwork and Interpersonal Communications, and Global, Social, and Personal Awareness.
- Scheduling patterns for courses not taught each semester:
 - Fall only: MICRB 201.
 - Spring only: CHEM 212, CHEM 213.
- 9 credits of 400 level Science courses include: BMB, BIOL, BIOTC or MICRB courses. Must be a grade of C or better for the major.
- Course required with a C or better to enter the Science major are: MATH 140; and two out of the three of BIOL 110, CHEM 110, and either PHYS 250 or PHYS 211. Consult with an academic Adviser for options to satisfy the Writing Across the Curriculum requirement. If using BIOL 220W, BIOL 230W and BIOL 240W for the requirement, all 3 courses must be taken.

Career Paths

Penn State students with a BS in Integrative Science are prepared for a broad range of careers and graduate programs. The solid foundation of science and math prepares students to think critically and scientifically in a range of industries and professions.

Careers

This program often leads to careers in all healthcare professions, including physicians and physician assistants, dentists, optometrists, and podiatrists; laboratory research associates; scientific product representatives and science-based consulting.

Opportunities for Graduate Studies

Many graduates of the Integrative Science B.S. program choose to pursue graduate studies (MS and PhD) in the natural sciences. Most often, students gravitate to medically-related fields and life science sub-disciplines for focused graduate training. Students in the legal studies and public policy options may choose law school or master's in public policy programs.

Professional Resources

- Association of American Medical Colleges (<https://www.aamc.org>)
- American Association of Colleges of Osteopathic Medicine (<https://www.aacom.org>)
- American Dental Education Association (<https://www.adea.org>)

- Association of Schools and Colleges of Optometry (<https://optometriceducation.org>)
- American Association of Colleges of Podiatric Medicine (<https://aacpm.org>)
- American Academy of Physician Assistants (AAPA) (<https://www.aapa.org>) Physician Assistant Education Association (<https://paeaonline.org>)

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SCHOOL OF SCIENCE, ENGINEERING, AND TECHNOLOGY
Science & Tech Building, TL 177
Middletown, PA 17057
717-948-4387
mrr53@psu.edu

<https://harrisburg.psu.edu/science-engineering-technology/science-bs>
(<https://harrisburg.psu.edu/science-engineering-technology/science-bs/>)

Abington

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1600 Woodland Road
Abington, PA 19001
ldm12@psu.edu

<https://www.abington.psu.edu/academics/majors-at-abington/science>
(<https://www.abington.psu.edu/academics/majors-at-abington/science/>)

Berks

DIVISION OF SCIENCE
Luerssen Science Building
Reading, PA 19610
610-396-6185
BKScience@psu.edu

<https://berks.psu.edu/academics/bs-science> (<https://berks.psu.edu/academics/bs-science/>)

Scranton

Dawson Building 212A
Dunmore, PA 18512
570-963-2528
mlv18@psu.edu (axk55@psu.edu)

<https://scranton.psu.edu/academics/degrees/bachelors/science>
(<https://scranton.psu.edu/academics/degrees/bachelors/science/>)

University Park

SCIENCE MAJOR PROGRAM OFFICE
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University Park, PA 16802
814-863-3889
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<https://science.psu.edu/interdisciplinary-programs/science-major>
(<https://science.psu.edu/interdisciplinary-programs/science-major/>)

York

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York, PA 17403
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amv12@psu.edu

<https://www.york.psu.edu/academics/baccalaureate/science> (<https://www.york.psu.edu/academics/baccalaureate/science/>)

International Business Administration, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

This minor provides undergraduate students in all business administration majors with further studies in such areas as international accounting, finance, information systems, comparative management, international marketing, or economics. The objective of the minor is to provide students who are interested in careers in international business with an understanding of problems and problem-solving methods that transcend national boundaries. Proficiency in a world language and study abroad provide an understanding of the social, political, and cultural context of the global marketplace. Except for Accounting, the minor can be included in the major with no additional courses being required. Professional Accountancy students may have to take 12 additional credits.

What is International Business Administration?

Organizations are increasingly international in the scope of their operations and routinely conduct business around the world. International business administration is a field that facilitates the study of management theory, human resources management, accounting, and logistics, within the greater sphere of multinational corporations. Professionals in international business are expected to analyze business portfolios and create and follow business strategies for global organizations. Trade, markets, and politics all fall within the expertise of a professional working for an international business.

You Might Like This Program If...

- You enjoy problem solving and are a good communicator.
- You are interested in how the economies of various countries are interconnected, and how they are affected by sociopolitical issues.
- You are interested in learning or expanding your knowledge of a world language.
- You enjoy international travel.
- You are interested in a career within the finance, accounting, marketing, or consulting industries.

Program Requirements

Requirement	Credits
Requirements for the Minor	18-24

Requirements for the Minor

A minimum of 3 credits in the minor must be taken in an approved study abroad program.

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
BA 364Y	International Business and Society	3
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 3-12 credits in a single world language equivalent to the 12th credit level		3-12
Select 9-12 credits from the following:		9-12
ACCTG 461	International Accounting	
ECON 333	International Economics	
FIN 407	Multinational Financial Management	
FIN 456	International Capital Markets	
or IB 299	Foreign Studies	
MGMT 461	International Management	
MIS 446	Information Technology and Business Strategy	
MKTG 445	Global Marketing	

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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<https://harrisburg.psu.edu/business-administration/international-business-administration-minor> (<https://harrisburg.psu.edu/business-administration/international-business-administration-minor/>)

Kinesiology, B.S. (Capital)

Begin Campus: Any Penn State Campus

End Campus: Harrisburg

Program Description

Kinesiology offers a comprehensive program of study in the science of human movement and is designed for students who want to prepare for professions involving physical activity and for graduate study in related areas. The Kinesiology major options are: Applied Exercise and Health; Movement Science; and Exercise Science. All options require a culminating practicum or research experience. Relocation away from the University Park campus is generally necessary for the practicum. All options require a minimum of 120 credits for graduation. Information about the major and its options can be found at: <https://hhd.psu.edu/kines> (<https://hhd.psu.edu/kines/>).

Applied Exercise and Health Option

Available at the following campuses: University Park

This option provides applied interdisciplinary training in the foundations of the scientific understanding of exercise and health through the lifespan. Students select one of two areas of emphasis that are certification-based and practice-oriented: (a) courses and practical experiences directed toward certification by organizations such as the American College of Sports Medicine (ACSM) or the National Strength and Conditioning Association (NSCA), or (b) health and physical education; a series of courses and student teaching leading to teacher certification. The completion of the Applied Exercise and Health Option will prepare students to work in the private or corporate fitness arenas, community-based fitness organizations, and university or hospital settings, or be Pennsylvania certified in health and physical education (K-12) and secure teaching positions in public or private schools.

Movement Science Option

Available at the following campuses: Altoona, University Park

This option provides interdisciplinary scientific training in academic areas such as biomechanics, exercise physiology, movement neuroscience, psychology of physical activity, and sport history and philosophy to understand movement for prevention and diagnosis of chronic disease, rehabilitation and treatment, and/or theoretical study. Students are prepared for graduate study in many clinical fields including medicine, physical therapy, occupational therapy, physician assistant, cardiac rehabilitation, as well as a broad range of careers in biomedical and health-related fields.

Exercise Science Option

Available at the following campuses: Altoona, Berks, Harrisburg

This option is a program of study in the science of exercise. This program offers Kinesiology background and applied experience in fitness assessment, exercise physiology, exercise psychology, motor skill development, nutrition, and healthy living skills. Graduates will be able to scientifically assess fitness levels of individuals. Analyzing those assessments, graduates will then be capable of designing and implementing appropriate exercise programs. Students in the Business

Emphasis acquire basic business skills in accounting, marketing, management and entrepreneurial skills. Students choosing the Science Emphasis will select courses from a department list, including courses in basic science, social science, exercise and health sciences, and other related coursework, that will enhance their opportunity for graduate studies in fields related to Kinesiology and allied health, such as physical therapy, athletic training, and medicine. The completion of the Exercise Science Option will enable graduates to compete for employment in private, corporate, or community-based fitness organizations, in hospital or university settings, and be prepared to apply for graduate programs in allied health fields.

What is Kinesiology?

Kinesiology refers to the study of human movement. This interdisciplinary field of study focuses on physical activity, movement and sport and includes specialized areas of study that include the arts, humanities, sciences and professional disciplines. These areas include biomechanics, psychology of physical activity, exercise physiology, history and philosophy of physical activity, motor development, as well as sports medicine and physical education pedagogy. This multi-disciplinary approach is useful for addressing health and wellness in a complex society.

MORE INFORMATION ABOUT KINESIOLOGY (<https://nationalacademyofkinesiology.org/what-is-kinesiology/>)

You Might Like This Program If...

You enjoy working with people, have a passion for health and wellness, and are open to approaching problems with interdisciplinary strategies. As you learn about the human body as a whole, you will also have the opportunity to understand how you can apply your knowledge and skills to develop solutions that can help others in a number of ways, whether in a rehabilitation facility, with a professional sports team, in a corporate office or in a school setting.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Kinesiology a minimum of 120 credits is required for the Applied Exercise Health option, a minimum of 120 credits is required for the Movement Science option, and a minimum of 122 credits is required for the Exercise Science option:

Requirement	Credits
General Education	45
Electives	0-16
Requirements for the Major	80-108

18-27 of the 45 credits for General Education are included in the Requirements for the Major. This includes: Applied Exercise and Health Option - 9 credits GN, 6 credits GQ, 3 credits of GH, 6 credits of GS and

3 credits of GHW; Movement Science Option - 9 credits of GN courses, 6 credits of GQ courses, 3 credits of GS courses, 3 credits of GHW courses; Exercise Science Option - 9 credits of GN courses, 6 credits of GQ courses, 3 credits of GHW courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. KINES requires students to complete 24 credits for the major through courses taken at University Park. Courses taken at other Penn State campuses may not be counted toward this 24 credit minimum. For more information, check the Suggested Academic Plan for this major.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
BIOL 161	Human Anatomy and Physiology I - Lecture	3
BIOL 163	Human Anatomy and Physiology II - Lecture	3
KINES 100	The Cultural and Behavioral Foundations of Kinesiology	3
KINES 101	The Biophysical Foundations of Kinesiology	3
KINES 202	Functional Human Anatomy	3
KINES 295B	Kines Careers & Observation	1
KINES 321	Psychology of Movement Behavior	3
KINES 341	The Historical, Cultural, and Social Dynamics of Sport	3
KINES 345	Meaning, Ethics, and Movement	3
KINES 350	Exercise Physiology	3
KINES 360	The Neurobiology of Motor Control and Development	3
KINES 384	Biomechanics	3
NUTR 251	Introductory Principles of Nutrition	3

Additional Courses

Additional Courses: Require a grade of C or better

Select 3-4 credits from the following:		3-4
SCM 200	Introduction to Statistics for Business	
STAT 200	Elementary Statistics	
STAT 250	Introduction to Biostatistics	

Requirements for the Option

Requirements for the Option: Require a grade of C or better

Select an option		40-67
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Requirements for the Option

**Applied Exercise and Health Option (60-67 credits)
Available at the following campuses: University Park**

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		

CI 280	Introduction to Teaching English Language Learners	3
EDPSY 10	Individual Differences and Education	3
KINES 200	Muscle Training: Physiology, Programs, Techniques	3
KINES 201	Cardiorespiratory Training for Health and Performance	3
KINES 267	Fundamental Movement Skills Instruction	1
KINES 367	Games and Sports Instruction Across the Lifespan	1
KINES 368	Individual Fitness and Wellness	2
KINES 401	Applied Group Fitness Exercise Prescription and Program Design	3
KINES 456	Physical Fitness Appraisal	4
PSYCH 100	Introductory Psychology	3

Additional Courses

Additional Courses: Require a grade of C or better

MATH 26 or a higher level MATH course recommended by math placement test. Course list includes: MATH 26, MATH 40, MATH 41, MATH 110 or MATH 140

Select 3-5 credits from: 3-5

CHEM 101	Introductory Chemistry	
CHEM 106	Introductory and General Chemistry	
CHEM 110	Chemical Principles I	
CHEM 130	Introduction to General, Organic, and Biochemistry	

Select 3-4 credits from: 3-4

PHYS 150	Technical Physics I	
PHYS 250	Introductory Physics I	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Take the following required courses with selected emphasis area: 25-29

HPE Certification Emphasis:

KINES 366	The Process of Teaching Physical Education	
KINES 395A	Ldrshp Prac:Tchrs	
KINES 400	Adapted Physical Education	
KINES 464	Physical Education Programming and Practicum	
KINES 468W	Health Instruction in the School-Content and Method	
KINES 495A	Practicum in Student Teaching	
SPLD 400	Inclusive Special Ed Foundations: Legal, Characteristics, Collaboration, Assessment, and Management	

ACSM/NSCA Certification Emphasis:

KINES 395B	Leadership Practicum: KINES	
KINES 421	Exercise Psychology	
KINES 425W	Physical Activity in Diverse Populations or KINES 48: Scientific Basis of Exercise for Older Adults or KINES 49: Programming for Business and Agencies or KINES 49: Principles and Ethics of Coaching	
KINES 457	Exercise Prescription and Case Studies	
KINES 485	Science and Practice of Training Athletes	
KINES 495B	Field and/or Research Practicum in Kinesiology	
KINES 495E	Advanced Professional Development in Kinesiology	

Select 3 credits from approved 400-level courses:

NUTR 407	Nutrition for Exercise and Sports	
KINES 402	Human Anatomy Cadaver Dissection	
KINES 405N	Bicycling Culture and Urban Design	
KINES 410	Physical Growth and Motor Development	
KINES 411	Introduction to Musculoskeletal Injury and Rehabilitation	
KINES 419	Disability Sport and Recreation	
KINES 422	Physical Activity Interventions	
KINES 423	Psychology of Sports Injuries	
KINES 424	Women and Sport	
KINES 425W	Physical Activity in Diverse Populations	
KINES 426	Physical Activity and Public Health	
KINES 427	Developmental Sport & Exercise Psychology	
KINES 428	Motivation and Emotion in Movement	
KINES 429	Psychology of Sport Performance	
KINES 430W	Groups in Physical Activity	
KINES 431	Concussion in Athletics: Brain to Behavior	
KINES 454	Women's Health and Exercise Across the Lifespan	
KINES 455	Physiological Basis of Exercise as Medicine	
KINES 458	Introduction to Electrocardiogram Interpretation	
KINES 459	Community Engagement and Outreach in Kinesiology	
KINES 460	Movement Disorders	
KINES 465	Neurobiology of Sensorimotor Stroke Rehabilitation	
KINES 467	The Science of Performance Enhancement	
KINES 481W	Scientific Basis of Exercise for Older Adults	
KINES 483	Motor Patterns of Children	
KINES 493	Principles and Ethics of Coaching	
KINES 493W	Principles and Ethics of Coaching	
KINES 495D	Expanded Field and/or Research Practicum in Kinesiology	
KINES 499	Foreign Studies	

Movement Science Option (40-42 credits)

Available at the following campuses: Altoona, University Park

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
BIOL 162	Human Anatomy and Physiology I - Laboratory	1
BIOL 164	Human Anatomy and Physiology II - Laboratory	1
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
CHEM 113	Experimental Chemistry II	1
KINES 395B	Leadership Practicum: KINES	1
KINES 495B	Field and/or Research Practicum in Kinesiology	3
PHYS 250	Introductory Physics I	4
PSYCH 100	Introductory Psychology	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
CHEM 106	Introductory and General Chemistry	3-5
or CHEM 110	Chemical Principles I	

MATH 26 or a higher level MATH course recommended by math placement test. Course list includes: MATH 26, MATH 40, MATH 41, MATH 110 or MATH 140 3

Select 12 additional credits from 400-level Kines courses except KINES 403. No more than 3 credits of KINES 496, 408 or 495D may count toward this requirement 12

Exercise Science Option (52-55 credits)

Available at the following campuses: Altoona, Berks, Harrisburg

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
KINES 200	Muscle Training: Physiology, Programs, Techniques	3
KINES 201	Cardiorespiratory Training for Health and Performance	3
KINES 260	Research Skills in Kinesiology	3
KINES 356	Activity and Disease	3
KINES 358	Ergogenic Aids	1
KINES 456	Physical Fitness Appraisal	4
KINES 457	Exercise Prescription and Case Studies	3
KINES 495C	Exercise Science Practicum	4

Additional Courses

Additional Courses: Require a grade of C or better

Select 3 credits from KINES 1 to KINES 99 3

MATH 22 or Satisfactory performance on the MATH placement examination – i.e., placement beyond the level of MATH 22 3

PHYS 150 Technical Physics I 3-4
or PHYS 250 Introductory Physics I

Select one of the following: 3-5

CHEM 101	Introductory Chemistry	
CHEM 106	Introductory and General Chemistry	
CHEM 110 & CHEM 111	Chemical Principles I and Experimental Chemistry I	
CHEM 130	Introduction to General, Organic, and Biochemistry	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 16 credits from one of the following emphasis area from an approved list, in consultation with adviser. At least 3 credits must be at the 400 level. 16

Business Emphasis
Science Emphasis

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- Quantification (GQ): 6 credits
- Writing and Speaking (GWS): 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- Arts (GA): 3 credits
- Health and Wellness (GHW): 3 credits
- Humanities (GH): 3 credits
- Social and Behavioral Sciences (GS): 3 credits
- Natural Sciences (GN): 3 credits

Integrative Studies

- Inter-Domain Courses (Inter-Domain): 6 credits

Exploration

- GN, may be completed with Inter-Domain courses: 3 credits
- GA, GH, GN, GS, Inter-Domain courses. This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- Students will demonstrate personal, professional, and ethical competency within the discipline of kinesiology.
- Students will be able to define fundamental processes, theories, and methods in kinesiology including the physiology, psychology, biomechanics, motor control, history, and philosophy of human movement.
- Students will be able to define and demonstrate competency for planning and implementing kinesiology-related health, fitness, performance, and behavior change interventions and programs.
- Students will be able to perform assessments of physical activity and fitness.
- Students will demonstrate skills related to thinking critically, evaluating research knowledge and evidence, and analyzing quantitative data.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Exercise Science Option - Business Emphasis: Kinesiology, B.S. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 161 ^{*†}	3 CAS 100A or 100S [‡]	3
ENGL 15, 15S, 30T, or ESL 15 [‡]	3 STAT 200, 250, or SCM 200 ^{*†}	3-4
MATH 22 ^{*†}	3 KINES 100 or 101 [*]	3
NUTR 251 (GHA) ^{*†}	3 BIOL 163 ^{*†}	3
General Education Course	3 General Education Course	3
15		15-16

Second Year

Fall	Credits Spring	Credits
KINES 100 or 101 [*]	3 ENGL 202C or 202D [‡]	3
KINES 200 or 201 [*]	3 KINES 200 or 201 [*]	3
CHEM 101, 130, or 110 and 111 ^{*†}	3-4 KINES 202 [*]	3
PHYS 150 (and PHYS 250/PHYS 250P) ^{*†}	3 KINES 260 [*]	3
General Education Course	3 KINES 295B [*]	1
	KINES 321 [*]	3
15-16		16

Third Year

Fall	Credits Spring	Credits
KINES 345 [*]	3 KINES 341 [*]	3

KINES 356*	3 KINES 384*	3
KINES 350*	3 KINES 456*	4
KINES 360*	3 General Education Course	3
ECON 102	3 General Education Course	3
	15	16

Fourth Year

Fall	Credits Spring	Credits
KINES 1 - 99*	1.5 KINES 1 - 99*	1.5
KINES 4XX	3 KINES 492W*	3
KINES 358*	1 KINES 495C	4
KINES 457*	3 ACCTG 211	4
MGMT 301 or MKTG 301	3 MGMT 301 or MKTG 301	3
General Education Course	3	
	14.5	15.5

Total Credits 122-124

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ CHEM 101 for three (3) credits recommended, but not required. If CHEM 101 is taken, then it must be for three (3) credits.

² PHYS 150L & 150P, are prerequisites for KINES 384 Biomechanics

³ 4xx level course - Consult adviser

⁴ KINES 492W is offered spring semester only

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Exercise Science Option - Science Emphasis: Kinesiology, B.S. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 161 ^{*†}	3 BIOL 163 ^{*†}	3
ENGL 15, 15S, 30T, or ESL 15 [‡]	3 CAS 100A or 100S [‡]	3
MATH 22 ^{*†}	3 STAT 200, 250, or SCM 200 ^{*†}	3-4
NUTR 251 ^{*†}	3 KINES 100 or 101 [*]	3
General Education Course	3 General Education Course	3
	15	15-16

Second Year

Fall	Credits Spring	Credits
KINES 100 or 101 [*]	3 ENGL 202C or 202D [‡]	3
KINES 200 or 201 [*]	3 KINES 200 or 201 [*]	3
CHEM 101, 130, or 110 <i>and</i> 111 ^{*†}	3 KINES 202 [*]	3
PHYS 150 or 250 ^{*†}	3-4 KINES 260 [*]	3
General Education Course	3 KINES 295B [*]	1
	KINES 321 [*]	3
	15-16	16

Third Year

Fall	Credits Spring	Credits
KINES 345 [*]	3 KINES 341 [*]	3
KINES 350 [*]	3 KINES 384 [*]	3
KINES 356 [*]	3 KINES 456 [*]	4
KINES 360 [*]	3 General Education Course	3
General Education Course	3 General Education Course	3
	15	16

Fourth Year

Fall	Credits Spring	Credits
KINES 1 - 99 [*]	3 KINES 495C [*]	4
KINES 4XX	3 Emphasis Selection	3-4
KINES 358	1 Emphasis Selection	3-4
KINES 457 [*]	3 Emphasis Selection	3-4
KINES 491W [*]	3	
Emphasis Selection	3-4	
	16-17	13-16

Total Credits 121-127

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ CHEM 101

Chem 110 & 111 recommended, but not required. If CHEM 101 is taken, then is must be for three (3) credits.

² PHYS 150

Prerequisite for KINES 384 Biomechanics

³ 4xx level course - Consult adviser

⁴ KINES491W is a 3 credit writing requirement. Students must take 13 credits of Science Emphasis selection courses

⁵ Emphasis Selection

Consult adviser for list

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

A Kinesiology degree can provide many opportunities for students ranging from fulfilling careers in health and wellness to graduate research and professional studies in a wide range of biomedical, clinical and allied health fields. The hands-on learning opportunities and internships in the program allow students to build experience, gain professional skills and explore their interests to create a strong foundation for a post-graduation career or in the next step of their education.

Careers

Kinesiology students have many career options after graduation. Discussion with Kinesiology faculty, an adviser, or professionals in the field through internship experiences can provide additional insight. Many students use their Penn State Kinesiology degree in allied health and wellness fields, working with a wide range of populations in many different settings. The applied learning opportunities in our curriculum give students hands-on experience to work with children and adults to promote health and wellness. Kinesiology graduate are well-rounded and valuable employees with their strong scientific foundation that can be applied to solving problems related to human movement.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE KINESIOLOGY PROGRAM (<https://americankinesiology.org/careers-in-kinesiology/>)

Opportunities for Graduate Studies

Many Kinesiology students aim to pursue graduate or professional school after they complete their undergraduate program. Kinesiology students are often interested in graduate study in physical or occupational therapy, athletic training, physician's assistant, medical school, orthotics and prosthetics, dentistry, nursing, or chiropractic school. Students also opt to attend graduate programs in Kinesiology to advance their understanding in one of the sub-disciplines of the field. Some Kinesiology students also pursue professional degrees in public health, health education or related fields after graduation. The

Kinesiology undergraduate program includes many of the prerequisite courses needed for these post-bachelor programs, providing students with a strong scientific foundation for further study.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://science.psu.edu/current-students/advising-and-student-services/prehealth-advising/>)

Professional Resources

- National Academy of Kinesiology (<https://nationalacademyofkinesiology.org>)
- American College of Sports Medicine (<https://www.acsm.org/>)
- National Strength and Conditioning Association (<https://www.nasca.com/>)
- SHAPE: Society of Health and Physical Educators (<https://www.shapeamerica.org/>)
- American Kinesiology Association (<https://americankinesiology.org/>)
- PA Department of Education (<https://www.education.pa.gov/Teachers%20-%20Administrators/Curriculum/HealthPhysicalEd/Pages/default.aspx>)
- SHAPE Equity, Diversity and Inclusion podcast (<https://www.shapeamerica.org/MemberPortal/prodev/edi-podcast.aspx>)

Contact

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(<https://altoona.psu.edu/academics/bachelors-degrees/kinesiology/>)

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Management, B.S. (Capital)

Begin Campus: Any Penn State Campus

End Campus: Harrisburg

Program Description

This major provides students with the knowledge and skills managers need in today's dynamic business environments. Core management courses instill key management competencies, such as effective leadership, team building, conflict management, and facilitating organizational change. Beyond the core courses, an array of supporting courses enables students to focus on areas such as entrepreneurship and small business management, corporate innovation and knowledge management, international management, social entrepreneurship, managing diversity, and so on. Career opportunities exist in general management and management trainee positions, in internal and external management consulting, human resource management, organizational change agents, small and family businesses, as well as entrepreneurial contexts.

What is Management?

Organizations need managers and leaders: people who can effectively lead organizations and manage the people in them, as well as develop and implement strategies that will lead to success. Management majors gain the knowledge and skills that will enable them to deal with the contemporary challenges facing organizations including leading and motivating people, working effectively in teams, developing effective organizational cultures, thinking ethically, inclusively, strategically, and sustainably, balancing the interests of multiple stakeholders in complex, legal, political, and ethical environments, and leading change.

You Might Like This Program If...

- You have an aptitude for leadership or team-building.
- You have strong communication and motivation skills.
- You enjoy working with people.
- You want a career in business or human resources.

Entrance to Major

Entry to the Management major requires the completion of 8 entry-to-major courses: ACCTG 211, ECON 102, ENGL 15* or ENGL 30T* or ENGL 30H* or ESL 15*, FIN 301, MATH 110* or MATH 140*, MGMT 301*, MKTG 301, SCM 200* or STAT 200*; and a 2.00 or higher cumulative grade-point average.

Additional information about this major is available in the office of the Director of Undergraduate Studies, School of Business Administration at Penn State Harrisburg.

* *requires a grade of C or better*

Degree Requirements

For the Bachelor of Science degree in Management, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives (non-business courses)	8
Requirements for the Major	85

18 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GQ courses; 3 credits of GS courses; 9 credits of GWS courses.

Consistent with Senate Policy 83-80.5, at least 24 credits of course work in the major and the capstone course must be completed at the Capital College to earn the degree.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
BA 364Y	International Business and Society	3
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
FIN 301	Corporation Finance	3
MIS 390	Information Systems Management and Applications	3
MKTG 301	Principles of Marketing	3
SCM 301	Supply Chain Management	3
<i>Prescribed Courses: Require a grade of C or better</i>		
BA 462	Business Strategy	3
ENGL 202D	Effective Writing: Business Writing	3
MGMT 301	Basic Management Concepts	3
MGMT 400	Organization Development	3
MGMT 420	Negotiation and Conflict Management	3
MGMT 433	Leadership and Team Building	3
Additional Courses		
BA 241 & BA 242 or BA 243	Legal Environment of Business and Social and Ethical Environment of Business Social, Legal, and Ethical Environment of Business	4
MIS 204 or MIS 250	Introduction to Management Information Systems Introduction to Problem Solving with Spreadsheet Analysis and Information Systems Management	3
<i>Additional Courses: Require a grade of C or better</i>		
MATH 110 or MATH 140	Techniques of Calculus I Calculus With Analytic Geometry I	4
SCM 200 or STAT 200	Introduction to Statistics for Business Elementary Statistics	4
Select 3 credits from the following:		3

CAS 100A	Effective Speech	
CAS 100B	Effective Speech	
CAS 100C	Effective Speech	
CAS 100S	Effective Speech	
Select 3 credits from the following in ENGL or ESL:		3
ENGL 15	Rhetoric and Composition	
ENGL 30T	Honors Freshman Composition First-Year Seminar	
ENGL 30H	Honors Rhetoric and Composition	
ESL 15	ESL Composition for American Academic Communication II	
Select 9 credits in MGMT at the 300-400 level from the following (at least 3 credits at the 400 level), in consultation with an academic adviser:		9
MGMT 326	Organizational Behavior and Design	
MGMT 341	Human Resource Management	
MGMT 355	Leadership and Change in Organizations	
MGMT 365	Social Entrepreneurship	
MGMT 431	Entrepreneurship and Small Business Management	
MGMT 445	Managing a Diverse Workforce	
MGMT 453	Creativity and Innovation	
MGMT 461	International Management	
MGMT 466	Organizational Learning and Knowledge Management	

Supporting Courses and Related Areas

Select 12 credits from 200-400 level business courses from: ACCTG, 12 BA, ECON, FIN, MIS, MGMT, MKTG, or SCM in consultation with an academic adviser and in support of the student's interests

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Management and M.B.A. in Business Administration

Requirements for the Integrated B.S. in Management and M.B.A. in Business Administration can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/business-administration-capital/#integratedundergradgradprogramstext>).

Learning Outcomes

Student graduates of our baccalaureate degree programs should be:

1. Effective communicators.
 - a. Present verbally, thoughts and ideas in a way that can be clearly understood by a target audience.
 - b. Convey ideas in a clear, coherent manner in written communication.
2. Ethical and socially responsible.
 - a. Be competent in analyzing social and ethical decision making issues in organizations.
3. Critical thinkers.
 - a. Be able to think and identify multiple dimensions of company issues and performances and make an assessment of company performances in achieving financial and strategic objectives, tracking their achievements, and giving management of companies a more complete and balanced view of how the organization is performing.
4. Competent in the Management Discipline through knowledge of:
 - a. Leadership and Team Building.
 - i. Demonstrate skills and knowledge necessary to become effective leaders in organizations, including leadership styles, styles of influence, persuasion, and negotiation.
 - ii. Demonstrate skills and knowledge necessary to work effectively with others in team settings, including team building techniques, team performance management, and conflict management.
 - b. Human Resources Management.
 - i. Demonstrate skills and knowledge necessary to plan and implement human resources management functions including staffing, development, appraisal, and rewarding. Learning skills and knowledge of recruiting, training and developing human capital for organizations.
 - c. Negotiation and Conflict Management.
 - i. Recognize and describe the critical concepts in negotiation and conflict management.
 - ii. Develop the ability to negotiate effectively.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Harrisburg

David Morand, Ph.D.

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Management, B.S. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 15S, 30T, or ESL 15 ^{‡#}	3 CAS 100A or 100S [†]	3
MATH 110 or 140 ^{#†}	4 STAT 200 or SCM 200 ^{#†}	4
General Education Course	3 MGMT 301 ^{*#}	3
ECON 102 ^{#†}	3 General Education Course	3
General Education Course	1.5 General Education Course	3
	14.5	16

Second Year

Fall	Credits Spring	Credits
ACCTG 211 [#]	4 FIN 301 [#]	3
MKTG 301 [#]	3 MIS 204 or 250	3
General Education Course	3 ENGL 202D [‡]	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
	16	15

Third Year

Fall	Credits Spring	Credits
BA 241	2 MGMT 420 [*]	3
BA 242	2 MGMT 433 [*]	3
ECON 104	3 MIS 390	3
SCM 301	3 Human Resources Concentration or Entrepreneurship Concentration or Individualized Concentration [*]	3
MGMT 341 [*]	3 Non-Business Elective	3
General Education Course	1.5	
	14.5	15

Fourth Year

Fall	Credits Spring	Credits
BA 364Y	3 BA 462 [*]	3

Human Resources Concentration or Entrepreneurship Concentration or Individualized Concentration [*]	3 300-400 level credits in MGMT [*]	3
200-400 level Business courses in consultation with adviser	6 200-400 level Business courses in consultation with adviser	6
Non-Business Elective	2 Non-Business Elective	3
	14	15

Total Credits 120

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes

- Courses required for the major must be generally taken within 10 years of entrance to major.
- MGMT 495 - Internship satisfies a business support requirement. For more information, contact the Management Program Coordinator.
- Students must complete a 3-credit course in "United States Cultures (US)" and a 3-credit course in "International Cultures (IL)." B A 364 (US/IL) may be used to meet either the IL or US requirement, but may be used to fulfill only 3 of the 6 credit requirement.
- 30 credits of GA, GH, GHW, GN, and GS to include 6 Integrative Studies credits.
- 15 credits of GQ and GWS require a grade of "C" or better.

Career Paths

The Human Resources Management concentration prepares students for a career in human resource management by developing skills and competencies including managing diversity and equal opportunity, ethical and fair treatment of employees, planning and staffing, training and development, compensation and benefits, performance management, and protecting employee safety and health. The Entrepreneurship concentration introduces undergraduate students to the process of new venture development. Topics include business plan development, the nature of management in small business, and the role of creativity and innovation in the entrepreneurial process. Opportunities are provided

for student participation in the development of an actual new business venture.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE MANAGEMENT PROGRAM (<https://harrisburg.psu.edu/business-administration/management-bs/>)

Opportunities for Graduate Studies

The School of Business Administration offers a limited number of academically superior Bachelor of Science in Management candidates the opportunity to enroll in an integrated, continuous program of study leading to both the Bachelor of Science in Management and the Master of Business Administration.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://harrisburg.psu.edu/business-administration/management-bs-mba/>)

Accreditation

The B.S. in Management offered by the School of Business Administration at Penn State Harrisburg, the Capital College, is accredited by AACSB International – The Association to Advance Collegiate Schools of Business. AACSB's mission is to foster engagement, accelerate innovation, and amplify impact in business education. Synonymous with the highest standards of excellence since 1916, AACSB provides quality assurance, business education intelligence, and professional development services to over 1,600 member organizations and more than 800 accredited business schools worldwide. AACSB International (AACSB) connects educators, students, and business to achieve a common goal: to create the next generation of great leaders.

MORE INFORMATION ABOUT AACSB INTERNATIONAL (<https://www.aacsb.edu/>)

Contact Harrisburg

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<https://harrisburg.psu.edu/business-administration/management-bs/>
(<https://harrisburg.psu.edu/business-administration/management-bs/>)

Marketing, B.S. (Capital)

Begin Campus: Any Penn State Campus

End Campus: Harrisburg, World Campus

Program Description

This major is designed for students interested in careers involving sales, promotion, services, distribution, research, and planning for business and the public sector. The major provides students with key concepts and methods of analysis in marketing. It focuses on understanding customer needs, developing products or services, creating and implementing marketing plans, monitoring customer responses, and projecting marketing activities for the future.

What is Marketing?

Marketing is a broad field that seeks to understand consumer, firm, and societal behaviors and subsequently identify ideas, products, services, and methodological approaches that deliver value. According to the American Marketing Association, Marketing involves "the set of institutions and processes for creating, communicating, delivering, and exchanging offerings valuable to customers, clients, partners, and society at large. Not only does marketing guide firms' managerial decisions in the marketplace, but it also offers insights into consumer awareness, public policy making, and non-commercial exchange of value (e.g., altruistic giving)."

You Might Like This Program If...

- You have an aptitude and interest in sales and promotion.
- You have strong communication skills.
- You enjoy working with people and understanding their needs and motivations.
- You want a career in market research, advertising, service industries or product management.

Entrance to Major

Entry to the Marketing major requires the completion of 8 entry-to-major courses: ACCTG 211, ECON 102, ENGL 15 or ENGL 30H, FIN 301, MATH 110 or MATH 140, MGMT 301, MKTG 301¹, SCM 200 or STAT 200; and a 2.00 or higher cumulative grade-point average.

¹ *Course requires a grade of C or better*

Additional information about this major is available in the office of the Director of Undergraduate Studies, School of Business at Penn State Harrisburg.

Degree Requirements

For the Bachelor of Science degree in Marketing, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	8
Requirements for the Major	79

12 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GWS courses; 3 credits of GS courses; 6 credits of GQ courses.

At least 50 percent of the business credit hours required for the degree must be taken at the Capital College. No more than 60 credits should be from business and business-related courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
BA 364Y	International Business and Society	3
BA 462	Business Strategy	3
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
ENGL 202D	Effective Writing: Business Writing	3
FIN 301	Corporation Finance	3
MGMT 301	Basic Management Concepts	3
MIS 204	Introduction to Management Information Systems	3
MIS 390	Information Systems Management and Applications	3
SCM 301	Supply Chain Management	3
<i>Prescribed Courses: Require a grade of C or better</i>		
MKTG 301	Principles of Marketing	3
MKTG 330	Consumer Behavior	3
MKTG 342	Marketing Research	3
MKTG 450W	Marketing Strategy	3
Additional Courses		
BA 241 & BA 242 or BA 243	Legal Environment of Business and Social and Ethical Environment of Business Social, Legal, and Ethical Environment of Business	4
MATH 110 or MATH 140	Techniques of Calculus I Calculus With Analytic Geometry I	4
SCM 200 or STAT 200	Introduction to Statistics for Business Elementary Statistics	4
<i>Additional Courses: Require a grade of C or better</i>		
Select three of the following:		9
ECON 342	Industrial Organization	
MKTG 302	Marketing Techniques for Electronic Commerce	
MKTG 327	Retailing	
MKTG 422	Advertising and Sales Promotion Management	
MKTG 445	Global Marketing	
MKTG 476	Sales Management	
MKTG 478	Services Marketing Management	
MKTG 485	Business-to-Business Marketing	

Supporting Courses and Related Areas

Select 12 credits from 200-400 level business courses from: ACCTG, 12
BA, ECON, FIN, MIS, MGMT, MKTG, or SCM in consultation with an
academic adviser and in support of the student's interests

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Marketing and M.B.A. in Business Administration

Available at the following campuses: Harrisburg

Requirements for the Integrated B.S. in Marketing and M.B.A. in Business Administration can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/business-administration-capital/#integratedundergradgradprogramstext>).

Learning Outcomes

Student graduates of our baccalaureate degree programs should be:

1. Effective communicators.
 - a. Present verbally, thoughts and ideas in a way that can be clearly understood by a target audience.
 - b. Convey ideas in a clear, coherent manner in written communication.
2. Ethical and socially responsible
 - a. Be competent in analyzing social and ethical decision making issues in organizations.
3. Critical thinkers.
 - a. Be able to think and identify multiple dimensions of company issues and performances and make an assessment of company performances in achieving financial and strategic objectives, tracking their achievements, and giving management of companies a more complete and balanced view of how the organization is performing.
4. Competent in the Marketing discipline.
 - a. Understand the concepts and techniques of marketing as it applies to modern organizations.
 - b. Be knowledgeable of the different environments in which marketing programs, plans, and strategies are formulated and implemented.
 - c. Understand the analytical tools necessary to assist brick-and-mortar and on-line marketing operations of companies.
 - d. Develop and carry out a marketing plan for a business.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary

academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Marketing, B.S. at Harrisburg Campus and World Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 15S, 30T, or ESL 15 ^{†#}	3 CAS 100A or 100S [†]	3
MATH 110 or 140 ^{#†}	4 STAT 200 or SCM 200 ^{#†}	4
General Education Course	3 MGMT 301 [#]	3
ECON 102 ^{#†}	3 General Education Course	3
General Education Course	1.5 General Education Course	3
14.5		16

Second Year

Fall	Credits Spring	Credits
ACCTG 211 [#]	4 FIN 301 [#]	3
MKTG 301 ^{*#}	3 MIS 204 or 250	3
General Education Course	3 ENGL 202D [†]	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
16		15

Third Year

Fall	Credits Spring	Credits
BA 241	2 MKTG 342 [*]	3

BA 242	2 MIS 390	3
ECON 104	3 300-400 level MKTG * ¹	3
SCM 301	3 Non-Business Elective	3
MKTG 330*	3 Non-Business Elective	2
General Education Course (GHW)	1.5	
	14.5	14
Fourth Year		
Fall	Credits Spring	Credits
BA 364Y	3 BA 462	3
300-400 level MKTG * ¹	6 MKTG 450W*	3
200-400 level Business courses in consultation with adviser	6 Non-Business Elective	3
	200-400 level Business courses in consultation with adviser	6
	15	15

Total Credits 120

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ Select 3 credits from:

MKTG 302 - Marketing Techniques for Electronic Commerce; MKTG 327 - Retailing; MKTG 422 - Advertising and Sales Promotion Management; MKTG 445 - Global Marketing (US); MKTG 476 - Sales Management; MKTG 478 - Services Marketing Management; MKTG 485 - Business-to-Business Marketing; ECON 342 - Industrial Organization

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes

- Courses required for the major must be generally taken within 10 years of entrance to major.
- MKTG 495 - Internship satisfies a business support requirement. For more information, contact the Marketing Program Coordinator.
- Students must complete a 3-credit course in "United States Cultures (US)" and a 3-credit course in "International Cultures (IL)." B A 364 (US/IL) may be used to meet either the IL or US requirement, but may be used to fulfill only 3 of the 6 credit requirement.

- 30 credits of GA, GH, GHW, GN, and GS to include 6 Integrative Studies credits.
- 15 credits of GQ and GWS require a grade of "C" or better.

Career Paths

Graduates of Penn State Harrisburg's Marketing program can pursue career opportunities in marketing and sales management, advertising, marketing research, retail, public policy, public relations, education and training, and consumer affairs. These opportunities can be found in many settings including small business, large corporations, government, health care, educational institutions, and nonprofit organizations.

Careers

According to the U.S. Bureau of Labor Statistics, overall employment of advertising, promotions, and marketing managers is projected to grow 9 percent from 2016 to 2026, about as fast as the average for all occupations. Employment growth will vary by occupation. Advertising, promotional, and marketing campaigns are expected to continue to be essential as organizations seek to maintain and expand their market share. Advertising and promotions managers will be needed to plan, direct, and coordinate advertising and promotional campaigns, as well as to introduce new products into the marketplace.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE MARKETING PROGRAM (<https://harrisburg.psu.edu/business-administration/marketing-bs/>)

Opportunities for Graduate Studies

The School of Business Administration offers a limited number of academically superior Bachelor of Science in Marketing candidates the opportunity to enroll in an integrated, continuous program of study leading to both the Bachelor of Science in Marketing and the Master of Business Administration.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://harrisburg.psu.edu/business-administration/marketing-bs-mba/>)

Accreditation

The B.S. in Marketing offered by the School of Business Administration at Penn State Harrisburg, the Capital College, is accredited by AACSB International – The Association to Advance Collegiate Schools of Business. AACSB's mission is to foster engagement, accelerate innovation, and amplify impact in business education. Synonymous with the highest standards of excellence since 1916, AACSB provides quality assurance, business education intelligence, and professional development services to over 1,600 member organizations and more than 800 accredited business schools worldwide. AACSB International (AACSB) connects educators, students, and business to achieve a common goal: to create the next generation of great leaders.

MORE INFORMATION ABOUT AACSB INTERNATIONAL (<https://www.aacsb.edu/>)

Contact Harrisburg

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Middletown, PA 17057
717-948-6139
cxs879@psu.edu

<https://harrisburg.psu.edu/business-administration/marketing-bs/>
(<https://harrisburg.psu.edu/business-administration/marketing-bs/>)

World Campus

SCHOOL OF BUSINESS ADMINISTRATION

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-marketing-bachelors-degree/overview> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-marketing-bachelors-degree/overview>)

Materials Science and Engineering, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Minor in Materials Science and Engineering prepares students to understand the materials properties, materials processing techniques, characterization methods, and selection criteria in implementing engineering solutions. The materials selection for cutting edge mechanical design requires precise and definite knowledge of choice of materials, processing route, and mechanical response in service conditions. The materials engineer must have a sound expertise on modeling and experimental tools validating microstructural, mechanical, and electrical properties requirements for a specific design application. Hence, a wide variety of industries such as aerospace, automotive, energy, biomedical, and electronics to name a few, have a demand for engineers with a strong background in materials engineering. The MMSE covers introductory courses and laboratories on materials science in general, properties and processing of materials, materials thermodynamics and kinetics, and characterization of mechanical, microstructural and electrical properties of materials. The introductory courses and labs provide the basic foundation on materials science and engineering; the rest of the courses provide advanced knowledge on properties and selection, processing techniques, and characterization methods. Moreover, thermodynamics and kinetics of materials systems and process are also introduced. The above mentioned topics are covered by offering courses from sophomore through senior level.

What is Materials Science and Engineering?

Materials are ubiquitous. Materials play a role in every industry and facet of life. Materials science and engineering is an interdisciplinary study of the properties of matter and the exploration for new and creative uses of ceramics, metals, polymers and composites. Materials scientists and engineers study the entire life cycle of materials (production, synthesis and processing, manufacturing, use, recycling and reclamation) by employing science to solve engineering problems. This engineering discipline is unique in that our studies begin with understanding materials at the atomic scale, allowing for prediction and measurement of material properties, and creation of materials by design. What do you want to do with your career? Make alternative energy more economical?

Improve human health, cure cancer? Provide clean drinking water to the world? Make transportation more efficient and environmentally friendly? Make everyday materials more sustainable? All these outcomes and more are possible by studying materials.

You Might Like This Program If...

- You enjoy problem-solving, math, and the physical sciences.
- You like understanding why materials react the way they do to various stimuli.
- You are interested in creating tools and materials for the aerospace, automotive, energy, biomedical, or electronics industries.

Entrance to Minor

The Minor is open to any undergraduate who has: A minimum cumulative GPA of 3.0 or better and a minimum grade of "C" or better in the prerequisite courses for the minor.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

The Minor in Materials Science and Engineering requires the completion of a total of 18 credits in materials related and other supporting courses. With the approval of the student's program chair, some of these courses may also be used to satisfy the requirements for the student's major bachelor's degree. At least 9 unique credits counted toward the requirements for a student's minor must not be used to fulfill the requirements for that student's major.

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
MATSE 201	Introduction to Materials Science	3
MATSE 259	Properties and Processing of Engineering Materials	3
MATSE 460	Introductory Laboratory in Materials	1
MATSE 462	General Properties Laboratory in Materials	1
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 10 credits of the following: ¹		10
ESC 314		
MATSE 202	Introduction to Polymer Materials	
MATSE 400	Crystal Chemistry	
MATSE 401	Thermodynamics of Materials	
MATSE 402	Materials Process Kinetics	
MATSE 410	Phase Relations in Materials Systems	
MATSE 413	Solid-State Materials	
MATSE/ESC 417	Electrical and Magnetic Properties	
MATSE 419	Computational Materials Science and Engineering	

MATSE 430	Materials Characterization
MATSE 436	Mechanical Properties of Materials
MATSE 471	Metallurgy Laboratory I
MATSE 496	Independent Studies
MATSE 497	Special Topics
PHYS 414	Solid State Physics

¹ Elective courses may be drawn from a wide variety of courses in Materials Science, Engineering, and Physics.

Completion of the minor may extend graduation date.

Transfer of credits from other institutions may be eligible to satisfy the minor requirements based on adviser review and program approval.

Graduation Requirements

To be given credit for the minor, undergraduate must:

- Maintain a GPA of 3.0 in the minor courses
- Complete 18 credits from the minor

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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<https://harrisburg.psu.edu/science-engineering-technology/mechanical-engineering-bs> (<https://harrisburg.psu.edu/science-engineering-technology/mechanical-engineering-bs/>)

Mathematical Sciences, B.S.

Begin Campus: Any Penn State Campus

End Campus: Harrisburg

Program Description

The three options and the variety of the course offerings provide concentrations in various areas such as actuarial science, management science/operation research, statistics, data science, education, and preparation for graduate studies.

Small classes, excellent faculty, opportunities to work with faculty on projects, and strong employment prospects are just some of the strengths of the program. Students will be helped to develop:

- a solid foundation in mathematical studies;
- an awareness of the utility of mathematics, statistics, and computers;
- skills in translating practical problems into mathematical terms;
- a competency in the use of modern mathematical tools;
- problem-solving skills; and
- an awareness of the importance of mathematics in society.

The program is designed to prepare students for employment in business, industry, government, and education immediately after graduation, but graduate study in mathematics or related disciplines is also a viable alternative. Mathematical modeling is emphasized, and all students are required to take courses in statistics and computer science.

What is Mathematical Sciences?

Mathematical Sciences is the study of mathematics and its application to problems in the real world. This discipline includes both theoretical topics such as calculus, abstract algebra, real analysis, and number theory and applied topics such as statistics, math modeling, operations research, and quantitative finance.

You Might Like This Program If...

- You like mathematics and learning how to apply it to real-life problems.
- You enjoy logical and analytical reasoning.
- You like solving new problems.
- You enjoy understanding the justification of why a mathematical method works.
- You like analyzing methods of solution in order to make those methods more effective.
- You enjoy helping others to learn mathematics and to grasp both its utility and beauty.

Entrance to Major

Entry to the Mathematical Sciences General Option requires the following:

1. completion of MATH 140 and MATH 141 each with a grade of C or higher
2. a cumulative grade-point average of 2.0 or higher

Entry to the Mathematical Sciences Data Science Option requires the following:

1. completion of CMPSC 131, CMPSC 132, MATH 140, MATH 141 each with a grade of C or higher
2. a cumulative grade-point average of 2.0 or higher

Entry to the Mathematical Sciences Secondary Education Option requires the following:

1. completion of ENGL 15 or ENGL 30H, three credits of literature from approved list, MATH 140 and MATH 141 each with a grade of C or higher
2. a cumulative grade-point average of 3.0 or higher
3. satisfaction of any entrance testing requirements set out by the Pennsylvania Department of Education in effect at the time of application for the major
4. submission to the Teacher Education Office of current and clear background checks as required by the Pennsylvania Department of Education
5. submission of documentation of 20 pre-major field work hours

Retention Requirements

Following entrance to the major, students in the Mathematical Sciences Secondary Education option will be evaluated for retention in the program based on:

1. maintaining a cumulative GPA of 3.0 or higher;
2. completion of required courses with a C or higher grade;
3. an acceptable or above rating on the Professional Dispositions for Teacher Education.¹
4. current and clear background checks as required by the Pennsylvania Department of Education

To be eligible to student teach, students must:

1. maintain a cumulative GPA of 3.0 or higher;
2. complete all required Content and Education Courses with a C or higher grade;
3. satisfy any entrance testing requirements set out by the Pennsylvania Department of Education in effect at the time of application for entrance to major;
4. be rated acceptable or above on the Professional Dispositions for Teacher Education.¹
5. have current and clear background checks as required by the Pennsylvania Department of Education.

In order to successfully complete the Secondary Education Mathematics Program, students must:

1. complete EDUC 490 with a grade of C or higher;
2. maintain a cumulative GPA of 2.0 or higher for degree completion
3. maintain a cumulative GPA of 3.0 or higher for Pennsylvania teacher certification
4. complete all required Content and Education Courses with a C or higher grade;
5. complete a program portfolio
6. for Pennsylvania teacher certification, be rated acceptable or above for all criteria on the Final Professional Dispositions Review for Teacher Education.¹

¹ For more detailed information see the Secondary Education Handbook.

Degree Requirements

For the Bachelor of Science degree in Mathematical Sciences, a minimum of 120 credits is required; for the Bachelor of Science degree in Mathematical Sciences with the Secondary Education option, a minimum of 121 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	84-97

9-21 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GQ courses; 3 credits of GWS courses for all options. In addition, the Secondary Education option includes 6 credits of GH courses; 6 credits of GS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ENGL 202C	Effective Writing: Technical Writing	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
MATH 311W	Concepts of Discrete Mathematics	3
MATH 401	Introduction to Analysis I	3
MATH 430	Linear Algebra and Discrete Models I	3

Requirements for the Option

Select an option	64-77
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Requirements for the Option Data Science Option (64 credits)

Code	Title	Credits
Prescribed Courses		
CMPSC 445	Applied Machine Learning in Data Science	3
DS 220	Data Management for Data Sciences	3
MATH 230	Calculus and Vector Analysis	4
MATH 251	Ordinary and Partial Differential Equations	4
STAT 401	Experimental Methods	3
STAT/MATH 414	Introduction to Probability Theory	3
STAT/MATH 415	Introduction to Mathematical Statistics	3
STAT 462	Applied Regression Analysis	3
<i>Prescribed Courses: Require a grade of C or better</i>		
CMPSC 131	Programming and Computation I: Fundamentals	3
CMPSC 132	Programming and Computation II: Data Structures	3
MATH 220	Matrices	2
MATH/CMPSC 455	Introduction to Numerical Analysis I	3

Supporting Courses and Related Areas

Select 15 credits of 300-400 level Mathematics courses.	15
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Select 6 credits of 100-400 level courses. 6

Select 6 credits of 300-400 level courses in consultation with an academic adviser and in support of the student's interests. 6

General Mathematical Sciences Option (64 credits)

Code	Title	Credits
Prescribed Courses		
MATH 220	Matrices	2
MATH 230	Calculus and Vector Analysis	4
MATH 251	Ordinary and Partial Differential Equations	4
MATH 425	Introduction to Operations Research	3
MATH 435	Basic Abstract Algebra	3
MATH 475Y	History of Mathematics	3
STAT 401	Experimental Methods	3

Prescribed Courses: Require a grade of C or better

MATH/CMPSC 455	Introduction to Numerical Analysis I	3
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Additional Courses

CMPSC 121	Introduction to Programming Techniques	3
or CMPSC 131	Programming and Computation I: Fundamentals	
STAT/MATH 318	Elementary Probability	3
or STAT/MATH 414	Introduction to Probability Theory	

Supporting Courses and Related Areas

Select 6 credits of 100-400 level courses. 6

Select 18 credits of 300-400 level Mathematics courses in consultation with an academic adviser. Up to 6 of these credits may be replaced by any 300 or greater level CMPSC course (except CMPSC 360), CMPSC 221 or CMPSC 132. 18

Select 9 credits of 300-400 level courses in consultation with an academic adviser and in support of the student's interests. 9

Secondary Education in Mathematical Sciences Option (77 credits)

Code	Title	Credits
Prescribed Courses		
HDFS 239	Adolescent Development	3
<i>Prescribed Courses: Require a grade of C or better</i>		
EDPSY 14	Learning and Instruction	3
EDUC 313	Secondary Education Field Experience	2
EDUC 314	Learning Theory and Instructional Procedures	3
EDUC 315Y	Social and Cultural Factors in Education	3
EDUC 385	Professional Development in Teaching	3
EDUC 400	Diversity and Cultural Awareness Practices in the K-12 Classroom	3
EDUC 417	Teaching Secondary Mathematics	3
EDUC 458	Behavior Management Strategies for Inclusive Classrooms	3
EDUC 459	Strategies for Effective Teaching in Inclusive Classrooms	3
EDUC 466N	Foundations of Teaching English as a Second Language	3
EDUC 490	Student Teaching	9
MATH 220	Matrices	2
MATH 230	Calculus and Vector Analysis	4
MATH 250	Ordinary Differential Equations	3

MATH 425	Introduction to Operations Research	3
MATH 427	Foundations of Geometry	3
MATH 435	Basic Abstract Algebra	3
MATH 475Y	History of Mathematics	3
STAT 401	Experimental Methods	3

Additional Courses

Additional Courses: Require a grade of C or better

CMPSC 121	Introduction to Programming Techniques	3
or CMPSC 131	Programming and Computation I: Fundamentals	

Supporting Courses and Related Areas

Select 3 credits of 100-400 level courses. 3

Supporting Courses and Related Areas: Require a grade of C or better

Select 3 credits of literature (GH) from department list. 3

Select 3 credits of 300-400 level courses in Mathematics, Computer Science, Statistics, or Education. 3

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3

credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- Restate and write mathematical statements, proofs, or solutions; produce presentations and reports that explain the statements, proofs, or solutions to others.
- Model real world phenomena mathematically.
- Restate and summarize theoretical concepts and axiomatic underpinnings of mathematics and construct proofs at the appropriate level.
- Demonstrate functional proficiency in techniques, algorithms and analysis.
- Analyze data and interpret results.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged

in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Harrisburg

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Data Science Option: Mathematical Sciences, B.S. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CMPSC 131 ^{*#}	3 CAS 100A or 100S [‡]	3
ENGL 15, 15S, 30T, or ESL 15 [‡]	3 CMPSC 132 ^{*#}	3
MATH 140 ^{*#†}	4 MATH 141 ^{*#†}	4
General Education Course	3 MATH 220	2
General Education Course	3 General Education Course	3
	16	15

Second Year

Fall	Credits Spring	Credits
DS 220	3 ENGL 202C [‡]	3
MATH 230	4 MATH 251	4
MATH 311W [*]	3 STAT 401	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	1.5
	16	14.5

Third Year

Fall	Credits Spring	Credits
General Education Course	3 CMPSC 445	3
MATH 430 [*]	3 MATH 414	3
100-400 level General Elective	3 MATH 455 [*]	3

300-400 level Mathematics	3 100-400 level General Elective	3
General Education Course	3 300-400 level Mathematics	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
MATH 415	3 MATH 401 *	3
STAT 462	3 300-400 level General Elective	3
300-400 level General Elective	3 300-400 level Mathematics	3
300-400 level Mathematics	3 General Education Course	3
General Education Course	3 General Education Course	1.5
	15	13.5

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

General Option: Mathematical Sciences, B.S. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 15S, 30T, or ESL 15 [‡]	3 CAS 100A or 100S [‡]	3
MATH 140 ^{**†}	4 MATH 141 ^{**†}	4
General Education Course	3 MATH 220	2
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
	General Education Course (GHW)	1.5
	16	16.5

Second Year

Fall	Credits Spring	Credits
CMPSC 121 or 131	3 ENGL 202C [‡]	3
MATH 230	4 MATH 251	4
MATH 311W [*]	3 STAT 401	3
General Education Course	3 100-400 level General Elective	3
General Education Course (GHW)	1.5 General Education Course	3
	14.5	16

Third Year

Fall	Credits Spring	Credits
MATH 318 or 414	3 MATH 455 [*]	3
MATH 425	3 100-400 level General Elective	3
MATH 430 [*]	3 300-400 level Mathematics ¹	3
300-400 level Mathematics ¹	3 300-400 level Mathematics ¹	3
General Education Course	3 General Education Course	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
MATH 435	3 MATH 401 [*]	3
MATH 475Y	3 300-400 level Mathematics ¹	3
300-400 level Mathematics ¹	3 300-400 level General Elective	3
300-400 level Mathematics ¹	3 300-400 level General Elective	3
300-400 level General Elective	3	
	15	12

Total Credits 120

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Select any 300-400 level Mathematics

In consultation with adviser, select 18 credits of 300-400 level Mathematics courses or SSET 295. Up to six credits may be replaced by an 200 or greater level CMPSC courses or CMPSC 122.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Secondary Education Option: Mathematical Sciences, B.S. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 15S, 30T, or ESL 15 ^{*#†}	3 CAS 100A or 100S [‡]	3
HDFS 239 [†]	3 MATH 141 ^{*#†}	4
MATH 140 ^{*#†}	4 MATH 220 [*]	2
General Education Course	3 Select English Literature ^{*#†}	3
General Education Course	3 General Education Course	3
	General Education Course (GHW)	1.5
	16	16.5

Second Year

Fall	Credits Spring	Credits
CMPSC 121 or 131 [*]	3 ENGL 202C [‡]	3
EDPSY 14 ^{*†}	3 MATH 250 [*]	3
MATH 230 [*]	4 STAT 401 [*]	3
MATH 311W [*]	3 100-400 level support course	3
General Education Course	3 General Education Course	3
	General Education Course (GHW)	1.5
	16	16.5

Third Year

Fall	Credits Spring	Credits
EDUC 313 [*]	2 EDUC 315Y [*]	3
EDUC 314 [*]	3 EDUC 458 [*]	3
MATH 425 [*]	3 EDUC 466N ^{*†}	3
MATH 430 [*]	3 MATH 401 [*]	3
MATH 435 [*]	3 MATH 427 [*]	3
MATH 475Y [*]	3	
	17	15

Fourth Year

Fall	Credits Spring	Credits
EDUC 400 [*]	3 EDUC 490 ^{*1}	12
EDUC 417 [*]	3	
EDUC 459 [*]	3	
300-400 level support course in Computer Science, Education, Mathematics, or Statistics (EDUC 495 recommended for those in residency program) [*]	3	
	12	12

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ EDUC 490 - Student Teaching

A minimum GPA of 3.00 in all previous work is required for admission to EDUC 490.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes

Students must complete, with a grade of "C" or higher, six (6) credit of college level mathematics, three (3) credits of college level English literature and three (3) credits of college level English composition. Students must also complete MATH 140 and MATH 141 for entrance to Secondary Education Option of Mathematical Sciences.

Career Paths

The Mathematical Sciences program is designed to prepare students for employment in business, industry, and government or for graduate studies. The general option provides a core mathematics degree along with flexibility to incorporate courses relevant to other areas such as actuarial science, operations research, statistics, or pure mathematics. The data science option is oriented towards the area of data science. The secondary education option prepares students to teach middle school and high school mathematics and has been recognized by the National Council of Teachers of Mathematics (NCTM) and is approved by the Pennsylvania Department of Education.

Careers

According to projections by the U.S. Bureau of Labor Statistics, employment in occupations that require at least a bachelor's degree in mathematics is expected to grow faster than employment in other sectors of the American labor market. Computer-related occupations are predicted to grow at a rate of more than 100 percent. The demand for secondary math school teachers is projected to increase by 22 percent. Insurance, securities, real estate, and business service occupations are projected to add more than 100,000 jobs, yielding an employment growth rate of 17 percent.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE MATHEMATICAL SCIENCES PROGRAM (<https://>

harrisburg.psu.edu/science-engineering-technology/mathematical-sciences-bs/career-opportunities/)

Opportunities for Graduate Studies

The mathematical sciences general option provides the broad mathematical background requisite for postgraduate studies in mathematical sciences, statistics, or related disciplines. Advanced study will lead to further opportunities within higher education, business, and industry.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://harrisburg.psu.edu/science-engineering-technology/mathematical-sciences-bs/>)

Professional Resources

- Mathematical Association of America (<https://www.maa.org>)
- American Mathematical Society (<https://www.ams.org/home/page/>)
- Society for Industrial and Applied Mathematics (<https://siam.org>)
- National Council of Teachers of Mathematics (<https://www.nctm.org>)
- Pennsylvania Council of Teachers of Mathematics (<https://pctm.org>)

Accreditation

The program is approved by the Pennsylvania Department of Education. This program is recognized by the Pennsylvania Department of Education (PDE) and the National Council of Teachers of Mathematics (NCTM).

MORE INFORMATION ABOUT ACCREDITATION (<https://harrisburg.psu.edu/science-engineering-technology/mathematical-sciences-bs/>)

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

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<https://harrisburg.psu.edu/science-engineering-technology/mathematical-sciences-bs> (<https://harrisburg.psu.edu/science-engineering-technology/mathematical-sciences-bs/>)

Mechanical Engineering Technology, B.S. (Capital)

Begin Campus: Any Penn State Campus

End Campus: Harrisburg

Program Description

The goal of the Mechanical Engineering Technology program is to provide our students with the necessary training and education so

that they can provide high-level technical support to a variety of industrial, commercial, consulting, and governmental organizations. The emphasis of our program is in the application of scientific and engineering principles. Technical communication in oral and written form is also emphasized. Our graduates are expected to appreciate the ethical and societal responsibilities of a technologist, the concepts of Continuous Quality Improvement and the continuing impact of globalization of design, manufacturing and marketing of technical goods and services. Our graduates are trained to deal with choice of materials and methods that are safe, environmentally and aesthetically acceptable and economically competitive. Typical responsibilities that may be assigned to our graduates are the development and evaluation of machines and mechanisms; development, organization and supervision of manufacturing processes and procedures; the instrumentation, control and testing of a process; quality control; technical marketing and sales; design of mechanical systems for heating and cooling and energy management.

The strengths of our program include:

- hands-on training;
- extensive laboratory experience;
- state of the art computer methods; excellent job placement;
- accreditation by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET).

Graduates who wish to continue their professional development can take the Fundamentals of Engineering exam in Pennsylvania, a prerequisite for taking the Professional Engineering exam.

What is Mechanical Engineering Technology?

Mechanical engineering technology is the application of engineering and technology principles for the creation of products and mechanical systems. It emphasizes applied design and analysis of engineering systems and materials. Mechanical engineering technology differs from mechanical engineering in that its focus is the practical application and implementation of engineering principles as opposed to theoretical development and exploration of those principles.

You Might Like This Program If...

- You like hands-on and creative problem-solving.
- You like understanding how mechanical devices work.
- You work well within collaborative, multidisciplinary teams.
- You are interested in a career as an engineering technologist or testing engineer.

Entrance to Major

Entry to the Mechanical Engineering Technology major requires a 2.00 or higher cumulative grade-point average.

Re-enrollment

Associate degree students should file a re-enrollment form during the final semester of their associate degree. Students re-enrolling from an associate's degree into the bachelor's degree should run a degree audit from LionPATH, using the MET major code, to determine their curriculum requirements.

Degree Requirements

For the Bachelor of Science degree in Mechanical Engineering Technology, a minimum of 128 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	104

21 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GWS courses; 9 credits of GN courses; 6 credits of GQ courses, 3 credits of GS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
ENGL 202C	Effective Writing: Technical Writing	3
IET 308	Statistical Quality Control	3
MATH 140	Calculus With Analytic Geometry I	4
MET 321	Analytical Techniques	2
MET 338	Thermal/Fluids Laboratory	1
MET 358	Process Design Engineering	3
MET 370	Engineering Materials Laboratory	1
MET 438	Thermal Engineering B	3
MET 454	Automatic Controls	3
MET 458	Controls Laboratory	1
MET 481	Project Design	3
MET 486	Project Design	3
<i>Prescribed Courses: Require a grade of C or better</i>		
ENGR 320Y	Design for Global Society	3
MET 332	Thermal Engineering A	3
MET 336	Engineering Fluid Mechanics	3
MET 341	Mechanical Measurements and Instrumentation	3
MET 431	Heat Transfer	3
Additional Courses		
EDSGN 100 or EGT 120	Cornerstone Engineering Design Introduction to Graphics and Solid Modeling	3
EET 101 & EET 109 or EET 320	Electrical Circuits I and Electrical Circuits Laboratory I Industrial Electricity and Electronics	3-4
IET 101 or IET 311	Manufacturing Materials, Processes, and Laboratory Elements of Metallurgy	3
IET 215 & IET 216 or IET 321	Production Design and Production Design Laboratory Manufacturing Processes	3-4
MET 210W or MET 365	Machine Design Design of Machine Elements	3

PHYS 150 or PHYS 211	Technical Physics I General Physics: Mechanics	3-4
PHYS 151 or PHYS 212	Technical Physics II General Physics: Electricity and Magnetism	3-4
STAT 200 or MATH 141	Elementary Statistics Calculus with Analytic Geometry II	4
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits from the following:		3
EMCH 211	Statics	
ET 300	Mechanics I: Statics	
MET 111	Mechanics for Technology: Statics	
Select 3 credits from the following:		3
EMCH 212	Dynamics	
ET 321	Dynamics	
MET 206	Dynamics	
Select 3 credits from the following:		3
EMCH 213	Strength of Materials	
ET 322	Strength of Materials	
MET 213	Strength and Properties of Materials	
Supporting Courses and Related Areas		
Select 5-9 credits from the department approved list of courses		5-9
Select 12 credits from 300-400 level technology and engineering elective courses in consultation with an academic adviser and in support of the student's interests		12

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses**. This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The

advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Harrisburg

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Mechanical Engineering Technology, B.S. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 15S, 30T, or ESL 15 [†]	3 STAT 200 or MATH 141 [†]	4
MATH 140 [†]	4 PHYS 150 or 211 [†]	3-4
CHEM 110 [†]	3 CAS 100A or 100S [†]	3
CHEM 111 ^{†1}	1 General Education Course [†]	3
EDSGN 100 or 100S	3 General Education Course [†]	3
General Education Course [†]	3	
	17	16-17

Second Year

Fall	Credits Spring	Credits
PHYS 151 or 212 [†]	3-4 ET 321 [*]	3
ET 300 [*]	3 ET 322 [*]	3
IET 308	3 EET 320	3
IET 321	3 ENGL 202C [†]	3
General Education Course [†]	3 Elective as approved by adviser	3
	15-16	15

Third Year

Fall	Credits Spring	Credits
IET 311	3 MET 321	2
MET 332 [*]	3 MET 358	3
MET 336 [*]	3 MET 365	3
MET 338	1 MET 438	3

MET 370	1 ENGR 320Y ^{*†}	3
General Education Course [†]	3 Elective as approved by adviser	3
General Education Course (GHW) [†]	1.5	
15.5		17

Fourth Year

Fall	Credits Spring	Credits
MET 341 [*]	3 MET 431 [*]	3
MET 454	3 MET 486	3
MET 458	1 300-400 level Technology or Engineering Elective	3
MET 481	3 300-400 level Technology or Engineering Elective	3
300-400 level Technology or Engineering Elective	3 General Education Course (GHW) [†]	1.5
300-400 level Technology or Engineering Elective	3 Elective as approved by adviser	3
16		16.5

Total Credits 128-130

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ CHEM 111: Students may substitute either CHEM 112 or BIOL 141 for the combination of CHEM 111 and PHYS 214.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes

Technology or Engineering Electives include:

- MET 308 - Computer Aided Solid Modeling and Analysis (3)
- MET 417 - Finite Element Analysis (3)
- MET 432 - Fluid Power (3)
- MET 435 - Building Energy Systems (3)
- MET 462 - Internal Combustion Engine Design (3)
- ENVE 430 - Sustainable Engineering (3)
- or others offered by the program.

Career Paths

Mechanical Engineering Technology is a broad engineering discipline that provides a number of career possibilities. The Mechanical Engineering Technology program prepares students to provide high-level technical support to a variety of industrial, commercial, consulting, and governmental organizations.

Careers

Mechanical Engineering Technology graduates should experience good employment potential. Opportunities are expected to grow to keep pace with the demand for technical products. According to the U.S. Bureau of Labor Statistics and O*NET, opportunities for Mechanical Engineering Technologists will grow at a rate of 5-9% through 2026.

Professional Resources

- American Society of Mechanical Engineers (ASME) (<https://www.asme.org/>)
- Society of Automotive Engineers (SAE) (<https://www.sae.org>)
- Society of Women Engineers (SWE) (<https://swe.org>)
- American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE). (<https://www.ashrae.org>)
- National Society of Black Engineers (NSBE) (<https://www.nsbe.org>)

Accreditation

The Bachelor of Science in Mechanical Engineering Technology at Penn State Harrisburg is accredited by the Engineering Technology Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Mechanical Engineering Technology and Similarly Named Programs.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

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Mechanical Engineering, B.S. (Capital)

Begin Campus: Any Penn State Campus

End Campus: Harrisburg

Program Description

Built upon a broad foundation in physics, chemistry, and mathematics, this major has the objective of educating graduates to be problem solvers. Graduates of this program will have opportunities to learn about applying scientific principles, engineering analysis, and engineering design to solve unstructured problems that are typical of those found in mechanical engineering. The major helps prepare graduates for a lifelong productive career, whether they choose professional practice, graduate school, or some other career path. Graduates will have had opportunities to learn how to work with others toward a common goal, to clearly express their ideas in written and verbal form, and to be independent and capable of adapting to the continuously changing technology of the work environment.

After completing the fundamental science core, students may pursue their interest in mechanical engineering by studying fluid and solid mechanics, engineering materials and their properties, thermodynamics, and heat transfer, computer-aided design, kinematics and dynamics of machine elements, machine design, finite elements, control systems, electricity, and electronic instrumentation and machinery. The students will be required to analyze and solve a significant mechanical engineering design problem during their fourth year.

What is Mechanical Engineering?

Mechanical engineering is the largest and broadest engineering discipline. It uses a combination of physics, chemistry, mathematics, and materials science to study mechanical, fluid, and thermal systems. Mechanical engineers are problem solvers: They use their foundational knowledge to apply scientific and engineering methods to the design, construction, and testing of products and components to ensure that they are safe, reliable, and cost effective. Mechanical engineering differs from mechanical engineering technology in that it emphasizes the math and science behind the theoretical development of engineering analysis and design process principles rather than the application of these principles. Mechanical engineers design everything from athletic equipment, medical devices, theme park rides, and personal computers to engines and power plants.

You Might Like This Program If...

- You are a curious, creative problem solver.
- You are interested in engineering, math, chemistry, and physics.
- You are looking for a broad discipline with career flexibility.
- You enjoy working on team-based projects.

Entrance to Major

In addition to the Carnegie unit and minimum GPA requirements¹ described by University policies, all students applying for entrance to any of the engineering majors at Behrend, Berks, or Capital College must have at least a 2.0 cumulative GPA by the end of the semester prior to applying for entrance to the major and have completed, with a minimum grade of C: CHEM 110, MATH 140, MATH 141, and PHYS 211. These courses must be completed by the end of the semester during which the entrance-to-major process is carried out.

¹ In the event that the major is under enrollment control, a higher minimum cumulative grade-point average is likely to be needed.

Degree Requirements

For the Bachelor of Science degree in Mechanical Engineering, a minimum of 131 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	107-108

21 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 3 credits of GWS courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned.

Requirements for the Major

Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
CMPSC 200	Programming for Engineers with MATLAB	3
EDSGN 100S	Introduction to Engineering Design	3
EE 211	Electrical Circuits and Power Distribution	3
MATH 230	Calculus and Vector Analysis	4
PHYS 212	General Physics: Electricity and Magnetism	4
<i>Prescribed Courses: Require a grade of C or better</i>		
CHEM 110	Chemical Principles I	3
EMCH 211	Statics	3
ENGL 202C	Effective Writing: Technical Writing	3
EMCH 212	Dynamics	3
EMCH 213	Strength of Materials	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
MATH 220	Matrices	2-3
MATH 251	Ordinary and Partial Differential Equations	4
MATSE 259	Properties and Processing of Engineering Materials	3
ME 300	Engineering Thermodynamics I	3
ME 320	Fluid Flow	3
ME 345W	Instrumentation, Measurements, and Statistics	4
ME 349	Intermediate Mechanics of Materials	3
ME 357	System Dynamics	3
ME 365	Materials Testing Laboratory	1
ME 367	Machine Design	3
ME 380	Machine Dynamics	3
ME 410	Heat Transfer	3
ME 448	Engineering Design Concepts	3

ME 449	Mechanical Design Projects	3
ME 468	Engineering for Manufacturing	3
PHYS 211	General Physics: Mechanics	4

Additional Courses

ECON 102	Introductory Microeconomic Analysis and Policy	3
or ECON 104	Introductory Macroeconomic Analysis and Policy	

Select one of the following: 3

CHEM 111 & PHYS 214	Experimental Chemistry I and General Physics: Wave Motion and Quantum Physics	
CHEM 112	Chemical Principles II	
BIOL 141	Introduction to Human Physiology	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 13 credits of program elective courses from school-approved list ¹ 13

¹ These credits must be selected to fulfill the thematic requirements of the major.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Mechanical Engineering and M.S. in Mechanical Engineering

Available at the following campuses: Harrisburg

Requirements for the Integrated B.S. in Mechanical Engineering and M.S. in Mechanical Engineering can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/mechanical-engineering-capital/#integratedundergradgradprogramstext>).

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Mechanical Engineering, B.S. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 15S, 30T, or ESL 15 [‡]	3 PHYS 211 ^{*†}	4
MATH 140 ^{*†}	4 MATH 141 ^{*†}	4
EDSGN 100S	3 CAS 100A or 100S [‡]	3
CHEM 110 ^{*†}	3 MATH 220 [*]	2
CHEM 111	1 ECON 102 or 104 [†]	3

General Education Course	3	
	17	16

Second Year

Fall	Credits Spring	Credits
EMCH 211 [*]	3 EMCH 212 [*]	3
PHYS 212	4 EMCH 213 [*]	3
MATH 230	4 ME 300 [*]	3
MATH 251 [*]	4 EE 211, 210, or 212	3
General Education Course (GHW)	1.5 CMPSC 200	3
	General Education Course	3
	16.5	18

Third Year

Fall	Credits Spring	Credits
ENGL 202C [‡]	3 PHYS 214	2
MATSE 259 [*]	3 ME 345W [*]	4
ME 320 [*]	3 ME 357 [*]	3
ME 349 [*]	3 ME 367 [*]	3
ME 365 [*]	1 General Education Course	3
ME 380 [*]	3	
	16	15

Fourth Year

Fall	Credits Spring	Credits
ME 410 [*]	3 ME 449 [*]	3
ME 448 [*]	3 4XX Engineering Elective [*]	3
ME 468 [*]	3 4XX Engineering Elective [*]	3
ME 308 or 465 [*]	1 General Education Course	3
4XX Engineering Elective [*]	3 General Education Course	3
4XX Engineering Elective [*]	3 General Education Course (GHW)	1.5
	16	16.5

Total Credits 131

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ CHEM 111 - Experimental Chemistry I

Students may substitute either CHEM 112 (3) or BIOL 141 (3) for the combination of CHEM 111 (1) and PHYS 214 (2).

² PHYS 214 - General Physics: Wave Motion and Quantum Physics

³ 4XX Engineering Elective

See list below for eligible electives

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes

4XX Engineering Electives include:

- ME 402 - Power Plants
- ME 408 - Energy Systems
- ME 431 - Internal Combustion Engines
- ME 455 - Automatic Control Systems
- ME 460 - Advance Machine Design Problems
- ME 461 - Finite element in Engineering
- ENVE 430 - Sustainable Engineering
- and others offered by the program

Career Paths

Because every industry values a mechanical engineer's problem-solving capabilities, you'll enjoy tremendous career flexibility in disciplines as varied as research, manufacturing, product and systems design and testing, health care, energy, the military, transportation, and consumer products. A mechanical engineering education also is excellent preparation for technical management, business, law, or technical sales.

Careers

Typical entry-level careers for mechanical engineering graduates are applications engineer, design engineer and mechanical design engineer, test engineer, equipment installation engineering, facilities technician, stress analysis engineer, product development engineer, and project engineer.

Opportunities for Graduate Studies

Graduate programs in mechanical engineering delve more deeply into areas of specialization such as automotive engineering, robotics, advanced manufacturing, thermal science, computational fluid mechanics, combustion modeling, or biomechanical engineering.

Professional Resources

- American Society of Mechanical Engineers (<https://www.asme.org>)
- Society of Women Engineers (<https://swe.org>)
- National Society of Black Engineers (<https://www.nsbe.org>)

Accreditation

The Bachelor of Science in Mechanical Engineering at Penn State Harrisburg is accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Mechanical and Similarly Named Engineering Programs.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

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<https://behrend.psu.edu/school-of-engineering> (<https://behrend.psu.edu/school-of-engineering/>)

Mechatronics Technology, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

Mechatronics is an interdisciplinary technical discipline that combines mechanical, electrical, electronics, control and computer engineering technology. The field deals with the design, development, control, and application of advanced electro-mechanical systems. Such systems will include sensors, actuators, microprocessors, controllers, software, computer, and mechanical hardware components. The purpose of the mechatronics technology minor is to provide undergraduate students an opportunity to take relevant courses that will sequentially build on their knowledge and understanding of mechatronic systems and to provide recognition to those who do so.

What is Mechatronics Technology?

Mechatronics Technology is a multidisciplinary field of engineering and technology that includes a combination of mechanical, electronics, computer, systems, and controls technology, and focuses on real-world application of these areas. The field deals with the design, development, control, and application of advanced electro-mechanical systems. Such systems will include sensors, actuators, microprocessors, controllers, software, computer, and mechanical hardware components. The

applications of mechatronics technology include medical, defense, manufacturing, robotics, automotive, and distributed systems and smart consumer products. Mechatronics engineers and technologists develop new solutions to industrial problems using mechanical and electronic systems and computer technology in addition to designing and building completely new products by integrating various technologies. They may also develop and test factory production lines by integrating automation to improve existing process.

You Might Like This Program If...

- You like hands-on and creative problem-solving.
- You like understanding how robotics or automation work.
- You are interested in working with technology as it relates to manufacturing and systems engineering You work well within collaborative, multidisciplinary teams.
- You are interested in a career as a hands-on technologist or test engineer.
- You are interested in the synergy of electrical, computer and mechanical systems.

Program Requirements

Requirement	Credits
Requirements for the Minor	18-23

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
EET 311	Alternating Current Circuits	3-4
or EET 315	Linear and Discrete System Analysis	
Select one of the following:		3
EMCH 211	Statics	
ET 300	Mechanics I: Statics	
MET 111	Mechanics for Technology: Statics	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 6-8 credits of the following: ¹		6-8
<i>Group A</i>		
EE 310	Electronic Circuit Design I	
or EET 212W	Op Amp and Integrated Circuit Electronics	
Select one of the following sequences:		
CMPEN 271 & CMPEN 275	Introduction to Digital Systems and Digital Design Laboratory	
CMPET 117 & CMPET 120	Digital Electronics and Digital Electronics Laboratory	
<i>Group B</i>		
Select one of the following:		
EET 341	Measurements and Instrumentation	
EMET 330	Measurement Theory and Instrumentation	
ME 345	Instrumentation, Measurements, and Statistics	

ME 345W	Instrumentation, Measurements, and Statistics
MET 341	Mechanical Measurements and Instrumentation
Select one of the following:	
EMCH 212	Dynamics
ET 321	Dynamics
MET 206	Dynamics
Select one course each from the following categories:	
<i>Category I</i>	
CMPEH 472	Microprocessors
EE 485	Energy Systems and Conversion
<i>Category II</i>	
EET 433	Control System Analysis and Design
EET 440	Applied Feedback Controls
EMET 410	Automated Control Systems
MET 454	Automatic Controls
MET 455	Mechatronics

¹ Students graduating with an MET major should take 8 credits from Group A; students graduating with an EET major should take 6-7 credits from Group B; all other students should take one course from each group, totaling 7-8 credits.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Mechatronics, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

Mechatronics is an interdisciplinary engineering field that combines mechanical, electrical, electronics, control and computer engineering. The field deals with the design, development, control, and application of advanced electro-mechanical systems. Such systems will include sensors, actuators, microprocessors, controllers, software, computer, and mechanical hardware components. The purpose of the minor is to provide undergraduate students an opportunity to take relevant courses that will sequentially build on their knowledge and understanding of mechatronic systems and to provide recognition to those who do so.

What is Mechatronics?

Mechatronics is a multidisciplinary field of engineering that combines mechanical, electrical, electronics, computer, systems and controls engineering, and focuses on theory and applications of these areas. The field deals with the design, development, control, and application of advanced electro-mechanical systems. Such systems will include sensors, actuators, microprocessors, controllers, software, computer, and mechanical hardware components. The applications of mechatronics engineering include medical, defense, manufacturing, robotics, automotive, and distributed systems and smart consumer products. Mechatronics engineers theorize and develop new solutions to industrial problems using mechanical, electrical and electronic systems and computer technology in addition to designing and building completely new products by integrating various technologies. They may also design and develop newer automated systems by integrating to improve existing process. Recent advances in artificial intelligence and machine learning also provide interesting opportunities for mechatronics engineers to solve many complex real world problems.

You Might Like This Program If...

- You like creative problem-solving and analysis.
- You like understanding how robotics or automation work.
- You like the idea of using mathematics to model and analyze complex systems
- You work well within collaborative, multidisciplinary teams.

Program Requirements

Requirement	Credits
Requirements for the Minor	19-22

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
EE 210	Circuits and Devices	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select one of the following:		3
CMPSC 121	Introduction to Programming Techniques	
CMPSC 200	Programming for Engineers with MATLAB	
CMPSC 201	Programming for Engineers with C++	
Select 6-8 credits of the following: ¹		6-8
<i>Group A</i>		
CMPEN 270	Digital Design: Theory and Practice	
or CMPEN 2 ¹ Introduction to Digital Systems and Digital Design Laboratory & CMPEN 27		
CMPEN 331	Computer Organization And Design	
or EE 310 Electronic Circuit Design I		
or EE 387 Energy Conversion		
<i>Group B</i>		
ME 345	Instrumentation, Measurements, and Statistics	
or ME 345W Instrumentation, Measurements, and Statistics		
ME 357	System Dynamics	
Select 6-7 credits of the following (one course each from Category I and II):		6-7
<i>Category I</i>		
CMPEH 472	Microprocessors	
CMPEN 472	Microprocessors and Embedded Systems	
EE 485	Energy Systems and Conversion	
EE 487	Electric Machinery and Drives	
ME 445	Microcomputer Interfacing for Mechanical Engineers	
<i>Category II</i>		
EE 483	Introduction to Automation and Robotics Systems	
ME 455	Automatic Control Systems	
ME 456	Introduction to Robotics	

¹ Students graduating with a M E major should take 7-8 credits from Group A; students graduating with an EE major should take 7 credits from group B; all other students should take 6-8 credits from both A and B.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary

academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Multidisciplinary Studies, A.A. (Capital)

Begin Campus: Harrisburg, Hershey Med Ctr, Nurses at Hershey

End Campus: Harrisburg, Hershey Med Ctr, Nurses at Hershey

Program Description

The objectives of the Multidisciplinary Studies major are to broaden the student's understanding, interests, and skills; to help the student become a more responsible, productive member of the family and community; and to offer a degree program with sufficient electives to permit some specialization according to the student's interests or career plans. Multidisciplinary Studies is a complete two-year degree major. However, graduates who later seek admission to baccalaureate degree majors may apply baccalaureate credits toward the new degree.

In addition to a wide variety of baccalaureate majors offered at University Park campus, graduates of the Multidisciplinary Studies major may qualify for admission to the baccalaureate degree majors in Behavioral Sciences, Elementary Education, Humanities, or Public Policy offered at Penn State Harrisburg. Or they may qualify for any of a large number of baccalaureate degree majors offered by Penn State Erie, The Behrend College, in business, the liberal arts, and sciences.

Entrance to Major

Students must have a minimum 2.0 GPA to change to this Associate degree after admission to the University.

Degree Requirements

For the Associate in Arts degree in Multidisciplinary Studies, a minimum of 60 credits is required:

Requirement	Credits
General Education	21
Electives	15
Requirements for the Major	30

6 of the 21 credits for General Education are included in the Requirements for the Major. This includes 6 credits of General Education GWS courses.

Requirements for the Major

The required credits of General Education and Requirements for the Major must be baccalaureate-level courses. For students intending to seek admission to a baccalaureate program upon graduation, it is recommended that most, if not all, of the courses be at the baccalaureate level. For those students who will seek a bachelor of arts degree upon graduation from Multidisciplinary Studies, it is strongly recommended that a world language be taken since admission to a bachelor of arts program in the College of the Liberal Arts requires one college-level course, or the equivalent, in a world language.

Courses that will satisfy the arts, humanities, social and behavioral sciences, natural sciences, and quantification requirements are defined on the Multidisciplinary Studies checklist, which may be obtained from the College of the Liberal Arts associate dean for undergraduate studies at the University Park campus or from any Multidisciplinary Studies representative at other locations.

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CAS 100	Effective Speech	3
ENGL 15	Rhetoric and Composition	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select one of the following:		3
ENGL 202A	Effective Writing: Writing in the Social Sciences	
ENGL 202B	Effective Writing: Writing in the Humanities	
ENGL 202C	Effective Writing: Technical Writing	
ENGL 202D	Effective Writing: Business Writing	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 3 credits in any course designated as arts		3
Select 3 credits in any course designated as humanities		3
Select 3 credits in any course designated as social and behavioral sciences		3
Select 3 credits in any course designated as physical, biological, or earth sciences		3
Select 9 credits in any one of the following areas: arts, humanities, social and behavioral sciences, natural sciences and quantification, and world language skills ¹		9

¹ If world language courses are chosen, it is recommended that these courses be in one world language sequence.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all associate degree students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 3 credits
- **Writing and Speaking (GWS):** 3 credits

Knowledge Domains

- **Arts (GA):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Note: Up to six credits of Inter-Domain courses may be used for any Knowledge Domain requirement, but when a course may be used to satisfy more than one requirement, the credits from the course can be counted only once.

Exploration

- **Any General Education course (including GHW and Inter-Domain):** 3 credits

University Degree Requirements

Cultures Requirement

3 credits of United States (US) or International (IL) cultures coursework are required and may satisfy other requirements

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 60 degree credits must be earned for an associates degree. The requirements for some programs may exceed 60 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy

83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- Students will be able to communicate clearly and persuasively the integration of their learning of multiple disciplines in a degree program that reflects their theme.
- Students will be able to apply empirical or creative process specific to their fields of specialization.
- Students will be able to synthesize multiple disciplinary perspectives into an intellectual or professional identity.
- Students will be able to engage meaningfully and respectfully with others who have different perspectives or world views.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

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READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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814-865-2545
Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Wilkes-Barre

Christyne Berzsenyi

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World Campus

Undergraduate Academic Advising

301 Outreach Building
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advising@outreach.psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Multidisciplinary Studies, A.A. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 15S, 30T, or ESL 15 [†]	3 General Education Course	3
Quantification	3 CAS 100A or 100S [‡]	3
General Education Course	3 General Education Course *	3
General Education Course	3 General Education Course	3
General Education Course	3 Elective	3
15		15

Second Year

Fall	Credits Spring	Credits
General Education Course *	3 ENGL 202A [‡]	3
General Education Course *	3 Related Courses Selection *	6
Related Courses Selection *	3 Electives	6
Electives	6	
15		15

Total Credits 60

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Additional Notes

The associate degree in letters, arts, and sciences (2 LAS) is a degree which allows learners to experience a variety of academic disciplines as well as prepare for continued studies in a bachelor degree program. Please consult with your adviser if you have a particular bachelor degree in mind. Your adviser can help build a plan to help you meet any admission or course prerequisite requirements for the bachelor degree.

Students must complete on course with each of the following designations: W: Writing intensive; US and IL for International competency. This require can be met through General Education or Related courses.

Contact

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-multidisciplinary-studies-associate-in-arts-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-multidisciplinary-studies-associate-in-arts-degree/>)

Political Science, B.A. (Capital)

Begin Campus: Any Penn State Campus

End Campus: Harrisburg

Program Description

The Political Science major offers the student an opportunity to understand not only American federal, state, and local governments, but also the political systems of other nations and the philosophies that underlie them. Courses are offered in American, comparative, and

international politics, and in political theory and methodology. Internship opportunities are available.

What is Political Science?

Political science is one of the social sciences. It is the study of systems of governance and governmental institutions, political activity, political thought, and political behavior. Political science draws from many other academic disciplines, including economics, law, sociology, history, philosophy, geography, psychology, and anthropology. There also are subfields of political science, such as comparative politics, political theory, international relations, international law, public administration, and public policy. Political science students study how American government works (and doesn't work) and what can be done to improve government at the federal, state, and local level. In comparative government and international relations coursework, students study the politics and policies of other countries. Political theory courses examine the ideas of famous political philosophers, while courses on law and the legal process provide knowledge about the criminal justice and civil litigation systems.

You Might Like This Program If...

You are interested in how power and resources are allocated in society. Students in this major study governments, public policies, and political behavior in the United States and around the world from both a humanistic and scientific perspective. If you're interested in how history, culture, and economics shape our lives and impact things like economic development, conflict, foreign policy, terrorism, globalization, and the environment, then this is the major for you.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Political Science, a minimum of 123 credits is required:

Requirement	Credits
General Education	45
Electives	15
Bachelor of Arts Degree Requirements	24
Requirements for the Major	39

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree

is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

In meeting the requirements for the major, students must take at least one course at any level from FOUR of the five fields offered in the department: Political Theory, Methodology, American Politics/Public Administration, Comparative Politics, and International Relations.

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 15 credits in PLSC at or above the 400 level		15
Select 15 credits in PLSC at any level, with at least 9 of these credits above the 100 level or above ¹		15
Select 9 credits from the following:		9
PLSC 1	American Politics: Principles, Processes and Powers	
PLSC 3	Comparing Politics around the Globe	
PLSC 10	Scientific Study of Politics	
PLSC 14	International Relations	
PLSC 14H	International Relations Honors	
PLSC 17N	Introduction to Political Theory	
PLSC 17W	Introduction to Political Theory	

¹ Up to 6 credits of these 15 credits at any level may be taken in related or complementary disciplines with approval of an academic adviser.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- Quantification (GQ): 6 credits
- Writing and Speaking (GWS): 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- Arts (GA): 3 credits
- Health and Wellness (GHW): 3 credits

- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency

must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- Understand Governmental Processes, Theories, and International Relations
 - Understand Constitutional Foundations, Processes, Institutions, Non-Government Actors
 - Be Able to Compare Political Systems
 - Understand Political Theory
 - Knowledge of International Relations Concepts, Actors, Processes, Political Economy
 - Knowledge of Policy Issues
- Locate, Assess, Interpret and Communicate Political Information
 - Write effectively
 - Communicate Verbally and with Use of Technology
 - Assess and Interpret Political Data and Events
 - Define Research Problems and Develop Hypotheses
- Exercise Responsibilities of Citizenship in a Democratic Society
 - Understand World, National and Regional Politics
 - Demonstrate an Understanding of Democratic Values
 - Recognize and Understand Opposing Viewpoints

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Harrisburg

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University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

World Campus

Undergraduate Academic Advising

301 Outreach Building

University Park, PA 16802

814-863-3283

advising@outreach.psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Political Science, B.A. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 15S, 30T, or ESL 15 [†]	3 CAS 100A or 100S [‡]	3
PLSC 1 [*]	3 PLSC 14 [*]	3
Quantification (GQ)	3 World Language level 2	4
World Language level 1	4 General Education Course	3
General Education Course (GHW)	1.5 General Education Course	3
	14.5	16

Second Year

Fall	Credits Spring	Credits
World Language level 3	4 ENGL 202 [‡]	3
General Education Course	3 General Education Course	3
General Education Course	3 PLSC 7 or 400-level PLSC or 400-level PUBPL course	3
Quantification	3 General Education Course	3
PLSC 3 or 20 [*]	3 General Education Course	3
	General Education (GHW)	1.5
	16	16.5

Third Year

Fall	Credits Spring	Credits
PLSC 17W or 400 level PLSC or PUBPL course	3 400 level PLSC or PUBPL course [*]	6

400 level PLSC or PUBPL course [*]	3 General Education Course	3
General Education Course	3 US Cultures (prefer PLSC 110, PLSC 123, or PLSC 130)	3
Electives	6 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
400 level PLSC or PUBPL courses or courses in related disciplines, including 300 level PUBPL courses [*]	3 PLSC, PUBPL, or related discipline courses [*]	6
400 level PLSC or PUBPL courses or courses in related disciplines, including 300 level PUBPL courses [*]	3 Bachelor of Arts Degree Requirement	3
Bachelor of Arts Degree Requirement	3 Electives	6
Electives	6	
	15	15

Total Credits 123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ World Language: requires World Language at the 12th credit level.

² • PLSC 7 is typically offered spring semester only.

• PLSC 117W is typically offered fall semester only.

³ Bachelor of Arts Degree Requirement: This requirement cannot be fulfilled by courses offered in a student's primary major, and cannot double count to meet General Education requirements. World Language credits for this requirement must be in a second World Language or beyond the 12th credit level of proficiency in the first World Language.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in

the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Program Notes

- Students must complete at least 15 credits of 400-level courses
- The 9-credit writing requirement for PLSC may be met by taking either PLSC 17W or PUBPL 304W
- Concurrent majors in Political Science and Public Policy are not permitted
- Students must complete a 3-credit course in "United States Cultures (US)" and a 3-credit course in "International Cultures (IL)." (Prefer PLSC 110, PLSC 123, or PLSC 130 for US culture.)

Career Paths

Political Science is one of the most versatile majors in the liberal arts. The program provides students with an in-depth understanding of political issues while honing their ability to think critically and communicate persuasively. As a political science major, you will learn to conduct research and to evaluate information and assemble empirically supported arguments. These skills are necessary for success in a variety of careers, including law, public policy, lobbying, business, political campaigning, and government, as well as with non-profit organizations.

Careers

Penn State Political Science graduates are serving as advisers to the State Department; as attorneys and management specialists in the Department of Justice; as speech writers, lobbyists and policy analysts on Capitol Hill; and even in the United States Senate. Our alumni have built successful careers in business, and as lawyers, teachers, and journalists. Many are successful entrepreneurs, some work for NGOs, others are leaders of major corporations. You can learn from their experience through our alumni mentoring program.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE POLITICAL SCIENCE PROGRAM (<https://www.apsanet.org/CAREERS/Careers-for-Political-Scientists/Careers-Sectors-for-Political-Science/>)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://polisci.la.psu.edu/undergraduate/student-life/alumni-mentor-program/>)

Contact

Harrisburg

SCHOOL OF PUBLIC AFFAIRS
Olmsted Building, W160
Middletown, PA 17057
717-948-6779
aqk5884@psu.edu

<https://harrisburg.psu.edu/public-affairs/political-science-ba> (<https://harrisburg.psu.edu/public-affairs/political-science-ba/>)

University Park

DEPARTMENT OF POLITICAL SCIENCE
202 Pond Lab

University Park, PA 16802
814-865-4597

<https://polisci.la.psu.edu/undergraduate/advising/>

<https://polisci.la.psu.edu/>

World Campus

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220 Pond Lab
University Park, PA 16802
814-865-7515
ajh38@psu.edu

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-political-science-bachelor-of-arts-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-political-science-bachelor-of-arts-degree/>)

Project and Supply Chain Management, B.S. (Capital)

Begin Campus: Any Penn State Campus

End Campus: Harrisburg

Program Description

The Project and Supply Chain Management major concentrates on developing knowledge, skills, and abilities in both project and supply chain management, dynamic and important disciplines in modern corporations. Project management skills include the development of new projects, and coordinating procurement and project delivery systems. Supply chain management emphasizes the integration of manufacturing and service operations, logistics, purchasing, and distribution that enable organizations to develop value-creating supply chain networks. The major provides students with an opportunity to develop the quantitative and people skills necessary to design and operate today's complex management systems. Students learn how to manage critical components in organizational supply chains, and apply business analytic methods for organizing and fully integrating supply chain practices throughout the organization.

Graduates are uniquely well-prepared for careers in some of the highest in-demand professions in the modern business and government environments, managing the supply chain and project initiatives in world-class business firms, public sector organizations, construction, IT organizations, third-party logistics providers, and goods and services distribution operations.

What is Project and Supply Chain Management?

It has been estimated that well over half of all activities in modern corporations are project-based. From developing a new product to constructing a new building, the list of efforts that organizations must plan, manage, and deliver (ideally on time and under budget) is nearly endless. At the same time, globalization creates a growing need for professionals who can effectively manage complex supply chains. The study of project and supply chain management emphasizes the integration of manufacturing and service operations, logistics, purchasing, and distribution—the functions that enable organizations to cultivate value-creating supply chain networks.

You Might Like This Program If...

- You're not intimidated by large projects, or ones that have many moving parts.
- You are detail oriented.
- You are looking for a versatile, in-demand business degree.
- You are interested in pursuing a concurrent certificate in Enterprise Resource Planning (ERP) with SAP (available at Erie, the Behrend College and University College campuses, Beaver, Brandywine, Fayette, Greater Allegheny, Lehigh Valley, New Kensington, Schuylkill, Shenango, Wilkes-Barre and Scranton).

Entrance to Major

Entry to the Project and Supply Chain Management major requires the successful completion of 5 entry-to-major courses: ACCTG 211, ECON 102, ENGL 15 or ENGL 30H, MATH 110 or MATH 140, STAT 200 or SCM 200. Each course requires a C or better grade for successful completion.

Degree Requirements

For the Bachelor of Science degree in Project and Supply Chain Management, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	96

21 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GQ courses; 6 credits of GS courses; 9 credits of GWS courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned.

Requirements for the Major

Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
PSU 7	First-Year Seminar Behrend	1
<i>Prescribed Courses: Require a grade of C or better</i>		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
CAS 100	Effective Speech	3
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
ENGL 202D	Effective Writing: Business Writing	3
FIN 301	Corporation Finance	3
MGMT 301	Basic Management Concepts	3
MGMT 341	Human Resource Management	3

MGMT 418	Project Planning and Resource Management	3
MIS 204	Introduction to Management Information Systems	3
MKTG 301	Principles of Marketing	3
SCM 301	Supply Chain Management	3
SCM 445	Operations Planning and Control	3
SCM 460	Purchasing and Materials Management	3
Additional Courses		
BA 241	Legal Environment of Business	4
& BA 242	and Social and Ethical Environment of Business	
or BA 243	Social, Legal, and Ethical Environment of Business	
<i>Additional Courses: Require a grade of C or better</i>		
ENGL 15	Rhetoric and Composition	3
or ENGL 30H	Honors Rhetoric and Composition	
MATH 110	Techniques of Calculus I	4
or MATH 140	Calculus With Analytic Geometry I	
SCM 200	Introduction to Statistics for Business	4
or STAT 200	Elementary Statistics	
MGMT 410	Project Management	3
or BA 421	Project Management	
MGMT 415	Project Portfolio Management and Organizations	3
or SCM 416	Warehousing and Terminal Management	
SCM 320	Transport Systems	3
or SCM 455	Logistics Systems Analysis and Design	
Select 3 credits from the following:		3
BA 364Y	International Business and Society	
ECON 470	International Trade and Finance	
FIN 471	International Finance	
IB 303	International Business Operations	
MGMT 461	International Management	
MKTG 445	Global Marketing	
Other 300- or 400-level international business courses		
Select 6 credits of 300- or 400-level courses such as MIS 404 and		6
MGMT 430		
Select 3 credits from the following:		3
ECON 481	Business Forecasting Techniques	
MIS 336	Database Management Systems	
MIS 301	Business Analytics	
SCM 340	Introduction to Supply Chain Analytics	
Select 3 credits from:		3
BA 422W	Strategic Business Planning	
BA 462	Business Strategy	
MGMT 471W	Strategic Management and Business Policy	

Supporting Courses and Related Areas

Select 13 credits from any business major field or any non-business major field, except for all KINES (GHW) courses, any ENGL course below ENGL 15, and any MATH course below MATH 110. Exceptions may be petitioned through the applicable department chair.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense

of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Project and Supply Chain Management and M.B.A. in Business Administration

Available at the following campuses: Harrisburg

Requirements for the Integrated B.S. in Project and Supply Chain Management and M.B.A. in Business Administration can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/business-administration-capital/#integratedundergradgradprogramstext>).

Program Learning Objectives

Student graduates of our baccalaureate degree programs should be:

1. Effective communicators
 - a. Present verbally, thoughts and ideas in a way that can be clearly understood by a target audience.
 - b. Convey ideas in a clear, coherent manner in written communication.
2. Ethical and socially responsible
 - a. Be competent in analyzing social and ethical decision making issues in organizations.
3. Critical thinkers
 - a. Be able to think and identify multiple dimensions of company issues and performances and make an assessment of company performances in achieving financial and strategic objectives, tracking their achievements, and giving management of companies a more complete and balanced view of how the organization is performing.
4. Competent in their own discipline
 - a. Calculate reorder point and EOQ for continuous review system as well as annual inventory holding costs and ordering cost. Calculate order-up-to amount for periodic review system.
 - b. Calculate the critical path for a project.
 - c. Explain the functions and flows of the SCOR Model and how they interact.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Project and Supply Chain Management, B.S. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 15S, 30T, or ESL 15 [‡] #	3 CAS 100A or 100S [‡]	3
MATH 110 or 140 ^{#†}	4 STAT 200 or SCM 200 ^{#†}	4
General Education Course	3 MGMT 301 [*]	3
ECON 102 ^{#†}	3 General Education Course	3
General Education Course	1.5 General Education Course	3
	14.5	16

Second Year

Fall	Credits Spring	Credits
ACCTG 211 [#]	4 FIN 301 [*]	3
MKTG 301 [*]	3 ECON 104 [†]	3
MIS 204 or 250	3 ENGL 202D [‡]	3
General Education Course	3 SCM 301 [*]	3
General Education Course	3 Elective	1
	16	13

Third Year

Fall	Credits Spring	Credits
MGMT 410 [*]	3 SCM 460 [*]	3
SCM 320 [*]	3 SCM 445 [*]	3
MIS 301 [*]	3 MGMT 418 [*]	3
Supporting Course	4 Supporting Course	3
General Education Course	1.5 300-400 Level Business Elective	3
	14.5	15

Fourth Year

Fall	Credits Spring	Credits
BA 364Y ^{*†}	3 BA 462 [*]	3
BA 241	2 MGMT 341 [*]	3
BA 242	2 General Education Course	3
SCM 416 [*]	3 Supporting Course	3
Supporting Course	3 300-400 Level Business Elective	3

General Education Course	3
	16
	15

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Supporting Course: Skills Enhancement, this component of the degree program consists of 12 credits that provide students with an opportunity to pursue course work related to their career interests. Students should select their courses (in consultation with an adviser) from the Supporting Courses list below.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes

- 30 Credits of GA, GH, GHW, GN, GS to include 6 Integrative Studies credits.
- 15 Credits of GQ and GWS require a grade of "C" or better
- Courses required for the major must generally be taken within 10 years of Entrance to Major.

supporting courses

Select 13 credits from any business major field or any non-business major field. Courses which are excluded as supporting courses are all KINES courses which are designated as GHW, any ENGL course below ENGL 15, and any MATH course below MATH 110.

Career Paths

The B.S. in Project and Supply Chain Management is one of only a handful of undergraduate degree programs in this field. Graduates are uniquely prepared to work in project-intensive industries such as construction, insurance, information services and information technology, manufacturing, utilities, pharmaceuticals, third-party logistics, and goods and services distribution operations.

Careers

Employers of recent B.S. in Project and Supply Chain Management graduates include Logistics Plus, Parker Hannifin, Bechtel Plant Machinery, American Eagle, Frito Lay, FairPoint Communications, Pitney Bowes, Spyne, General Electric, Wabtec Railway Electronics, Business Resource Group, Modern Industries, Eddie Bauer, Ferguson Enterprises, Unisys, Eastman Kodak, Tyco Electronics, and IBM.

Opportunities for Graduate Studies

The B.S. in Project and Supply Chain Management can be a starting point for master's- and doctoral-level study of supply chain management, project management, management science, law, organizational behavior, corporate strategy, enterprise architecture, information technology, or another specialized discipline.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES

Professional Resources

- Project Management Institute (<https://www.pmi.org>)

Accreditation

The B.S. in Project and Supply Chain Management offered by the School of Business Administration at Penn State Harrisburg, the Capital College, is accredited by AACSB International – The Association to Advance Collegiate Schools of Business. AACSB's mission is to foster engagement, accelerate innovation, and amplify impact in business education. Synonymous with the highest standards of excellence since 1916, AACSB provides quality assurance, business education intelligence, and professional development services to over 1,600 member organizations and more than 800 accredited business schools worldwide. AACSB International (AACSB) connects educators, students, and business to achieve a common goal: to create the next generation of great leaders.

MORE INFORMATION ABOUT AACSB INTERNATIONAL (<https://www.aacsb.edu/>)

Contact

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717-948-6139
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<https://harrisburg.psu.edu/business-administration/supply-chain-management-bs> (<https://harrisburg.psu.edu/business-administration/supply-chain-management-bs/>)

Abington

DIVISION OF SOCIAL SCIENCES, BUSINESS, AND EDUCATION
1600 Woodland Rd.
Abington, PA 19001
215-421-0030
tws16@psu.edu

<https://www.abington.psu.edu/academics/majors-at-abington/penn-state-abington-means-business> (<https://www.abington.psu.edu/academics/majors-at-abington/penn-state-abington-means-business/>)

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<https://beaver.psu.edu/academics/majors/pscm> (<https://beaver.psu.edu/academics/majors/pscm/>)

Brandywine

25 Yearsley Mill Road
Media, PA 19063
610-892-1451
cmo16@psu.edu

<https://www.brandywine.psu.edu/academics/bachelors-degrees/project-and-supply-chain-management> (<https://www.brandywine.psu.edu/academics/bachelors-degrees/project-and-supply-chain-management/>)

Erie

BLACK SCHOOL OF BUSINESS
281 Jack Burke Research and Economic Development Center
Erie, PA 16563
814-898-6107
behrend-business@psu.edu

<https://behrend.psu.edu/school-of-business> (<https://behrend.psu.edu/school-of-business/>)

Fayette

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Lemont Furnace, PA 15456
724-430-4245
wsg3@psu.edu

<https://fayette.psu.edu/academics/baccalaureate/project-and-supply-chain-management> (<https://fayette.psu.edu/academics/baccalaureate/project-and-supply-chain-management/>)

Greater Allegheny

4000 University Drive
McKeesport, PA 15132
412-675-9055
yzb1@psu.edu

<https://greaterallegheny.psu.edu/academics/degree-programs/project-supply-chain-management> (<https://greaterallegheny.psu.edu/academics/degree-programs/project-supply-chain-management/>)

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<https://lehighvalley.psu.edu/academics/degrees/project-supply-chain-management> (<https://lehighvalley.psu.edu/academics/degrees/project-supply-chain-management/>)

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1 Campus Drive

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<https://montalto.psu.edu/academics/bachelors/project-supply-chain-management-degree> (<https://montalto.psu.edu/academics/bachelors/project-supply-chain-management-degree/>)

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-project-and-supply-chain-management-bachelor-of-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-project-and-supply-chain-management-bachelor-of-science-degree/>)

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<https://www.york.psu.edu/academics/baccalaureate/project-and-supply-chain-management> (<https://www.york.psu.edu/academics/baccalaureate/project-and-supply-chain-management/>)

Psychology, B.S. (Capital)

Begin Campus: Any Penn State Campus

End Campus: Harrisburg

Program Description

The Psychology major emphasizes the scientific study of human behavior in areas such as cognition, development, learning, physiology, personality, and social processes. The curriculum is designed to provide students with a broad background in psychological theory and research and to

develop the analytical and critical thinking skills necessary to be good consumers of scientific information.

The Psychology program exposes students to a number of areas of psychology but allows flexibility in the specific courses that are taken in each sub-area. Students are also required to obtain applied experience by completing an internship or by assisting faculty with their research. Elective credits can be used for additional internship or research experience.

The Psychology program prepares students for careers in local, state, and federal government and for entry-level psychological services positions in human service, applied behavior, human resources, and related fields. The Psychology program also provides a strong background for graduate education at both the master's and the doctoral level in counseling, social work, and many areas of psychology.

What is Psychology?

Psychology is the scientific study of thought, behavior, and experience. Many people associate psychology with psychological therapy and the practice of clinical psychology. There are also many other important areas of scientific psychology, such as cognitive, developmental, industrial/organizational, and social psychology. What these subfields of psychology have in common is the use of the scientific method to understand human behavior and apply that understanding to the development of theory and practice. Psychologists are increasingly making use of neuroscience methods and theories to understand psychological phenomena. As a profession, psychology is related to fields such as health, education, marketing, human resources, social work, and more. The principles of psychology are relevant to almost all areas of human endeavor, and the career paths of psychology students reflect this wealth of possibilities.

You Might Like This Program If...

- You are people-oriented and naturally curious about human behavior and mental processes.
- You want a better understanding people's thoughts, feelings, and behavior.
- You are considering a career as a psychologist, counselor, social worker, or other human services professional.
- You desire a broad understanding of human behavior and mental processes, as well as valuable interpersonal and analytical skills that will help you in a variety of career paths, such as business, law, and medicine.

Entrance to Major

Entry to the Psychology major requires a 2.00 cumulative grade-point average and an average of C (2.00) or better in any courses already taken in the major.

Degree Requirements

For the Bachelor of Science degree in Psychology, a minimum of 122 credits is required:

Requirement	Credits
General Education	45
Electives	9
Requirements for the Major	74

6 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GN courses; 3 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ENGL 202A	Effective Writing: Writing in the Social Sciences	3
PSYCH 100	Introductory Psychology	3
PSYCH 301W	Basic Research Methods in Psychology	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits from the following:		3
BIOL 141	Introduction to Human Physiology	
BIOL 161	Human Anatomy and Physiology I - Lecture	
BISC 4	Human Body: Form and Function	
At least 15 credits of the following courses must be at the 400 level:		
Select 4 credits from the following:		4
Category 1 (Statistics)		
PSYCH 200	Elementary Statistics in Psychology or STAT 200 Elementary Statistics	
Select 6 credits from two different developmental categories (3 credits each category):		6
Category 2a (Lifespan)		
PSYCH 212	Introduction to Developmental Psychology	
Category 2b (Adult)		
PSYCH 416/ HDFS 445	Development Throughout Adulthood	
Category 2c (Child)		
PSYCH 410	Child Development	
Category 2d (Adolescence)		
PSYCH 412	Adolescence	
Select 6 credits from two different individual difference categories (3 credits each category):		6
Category 3a (Social Psychology)		
PSYCH 221	Introduction to Social Psychology or PSYCH 420 Advanced Social Psychology	
Category 3b (Personality Psychology)		
PSYCH 238	Introduction to Personality Psychology or PSYCH 430 Personality Theory	
Category 3c (Personal Adjustment)		
PSYCH 243	Introduction to Well-being and Positive Psychology or PSYCH 470 Psychology of Adjustment and Social Relationships	
Category 3d (Health Psychology)		
PSYCH 441	Health Psychology	
Select 6 credits from two different clinical categories (3 credits each category):		6
Category 4a (Physical Disabilities)		

PSYCH 370	Psychology of the Differently-Abled	
Category 4b (Childhood Disorders)		
PSYCH 476	Child Psychopathology	
Category 4c (Abnormal Psychology)		
PSYCH 270	Introduction to Abnormal Psychology or PSYCH 470 Abnormal Psychology	
Category 4d (Behavior Modification)		
PSYCH 473	Behavior Modification	
Category 4e (Developmental Disabilities)		
PSYCH 443	Treatment and Education in Developmental Disabilities	
Select 6 credits from two different experimental categories (3 credits in each category):		6
Category 5a (Physiological Psychology)		
PSYCH 260/ BBH 203	Neurological Bases of Human Behavior	
or PSYCH 460 Physiological Psychology		
Category 5b (Cognitive Psychology)		
PSYCH 256	Introduction to Cognitive Psychology or PSYCH 450 Learning and Memory or PSYCH 455 Advanced Cognitive Psychology	
Category 5c (Learning Theory)		
PSYCH 261	Introduction to Psychology of Learning or PSYCH 465 Advanced Conditioning and Learning	
Select 3 credits from applications in psychology:		3
Category 6 (Applied Experience)		
PSYCH 395	Internship or PSYCH 490 Research Projects or PSYCH 495 Internship	
Select 12 credits of any PSYCH courses not used above, with the exception that only one course selected from any Category 1 through 5 will count for the major		12
Supporting Courses and Related Areas		
Complete 18 credits from department approved list		18

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Content Knowledge:** Content Knowledge: Demonstrates familiarity with the major concepts, theoretical perspectives, empirical findings, and historical trends in psychology. Understand and apply psychological principles to personal, social, and organizational issues.
 - Demonstrate knowledge of major psychological concepts, theories, and empirical findings.
 - Demonstrate the ability to apply psychological concepts and theories to research and real life situations.
- **Research Skills:** Understand basic research methods in psychology, including research design, data analysis, and interpretation.
 - Differentiate among the research methods used in psychology and apply the designs in evaluation or development of a research study.
 - Demonstrate the ability to analyze and interpret quantitative psychological data using statistics, graphs, and data tables.
- **Thinking Skills:** Respect and utilize critical and creative thinking skills.
 - Use critical and creative thinking, skeptical inquiry, and the scientific approach to solve problems related to behavior and mental processes.
 - Demonstrate critical thinking in the analysis and evaluation of information to distinguish scientific from nonscientific claims related to psychology OR Demonstrate critical thinking in the analysis, evaluation, and interpretation of information in the scientific literature to distinguish the scientific literature from other sources.
- **Communication Skills:** Demonstrate the ability to communicate effectively in a research project, or capstone clinical or research experience.
 - Communicate effectively (in writing and/or orally) the results of a project or internship.
 - Demonstrate the ability to effectively extract central points and summarize psychological research literature and to write in the format of psychological research.
- **Diversity and Ethical Considerations:** Be able to tolerate ambiguity, act ethically, and reflect other values that are the underpinnings of psychology as a science.
 - Show evidence of knowledge and appreciation for cultural diversity and relativity in human experience and for the complexity of human behavior and interactions.
 - Demonstrate knowledge, and the application of, basic principles of scientific and professional ethics.
 - Demonstrate sensitivity to ethical concerns and professionalism (including cultural considerations) in settings where applications of psychology and/or psychological research occur.
- **Career-related Skills:** Knowledge of different career areas that are appropriate for psychology majors.
 - Demonstrate knowledge of professional options and required training for careers in the major subfields of psychology.
 - Demonstrate the ability to identify personally-relevant career options to implement their psychological knowledge, skills, and values in occupational pursuits in a variety of settings.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their

intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Harrisburg

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Psychology, B.S. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
ENGL 15, 15S, 30T, or ESL 15 [†]	3	CAS 100A or 100S [‡]	3
Quantification (GQ)	3	Quantification (GQ)	3
General Education Course	3	General Education Course	3
PSYCH 100*	3	General Education Course	3
General Education Course (GHW)	1.5	BIOL 141, BISC 4, or BIOL 161 ^{**†}	3
	13.5		15

Second Year

Fall	Credits	Spring	Credits
General Education Course	3	ENGL 202A [‡]	3
General Education Course	3	General Education Course	3
General Education Course	3	General Education Course	3
PSYCH 200 or STAT 200 (PSYCH 200 recommended)*	4	PSYCH 301W*	4

PSYCH 221 or PSYCH 420; PSYCH 238 or PSYCH 438; PSYCH 243, PSYCH 471, or PSYCH 441*	3	PSYCH 212, 410, 412, or 416*	3
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16 **16**

Third Year

Fall	Credits	Spring	Credits
PSYCH 212, 410, 412, or 416*	3	General Education Course (GHW)	1.5
PSYCH 270 or PSYCH 470; PSYCH 443, PSYCH 476, PSYCH 370, or PSYCH 473*	3	PSYCH 221 or PSYCH 420; PSYCH 238 or PSYCH 438; PSYCH 471 or PSYCH 441*	3
PSYCH 260 or PSYCH 462; PSYCH 261 or PSYCH 461; PSYCH 256, PSYCH 452 or PSYCH 456*	3	PSYCH 270 or PSYCH 470; PSYCH 443, PSYCH 476, PSYCH 370 or PSYCH 473*	3
Select from supporting list #1 (See Program Notes)	3	PSYCH 260 or PSYCH 462; PSYCH 261 or PSYCH 461; PSYCH 256, PSYCH 452, or PSYCH 456*	3
Select from supporting list #2 (See Program Notes)	3	Select from supporting list #2 (See Program Notes)	3

15 **13.5**

Fourth Year

Fall	Credits	Spring	Credits
PSYCH 495 or 494*	3	Select any PSYCH courses not used above*	6
Select any PSYCH courses not used above*	6	Select from supporting list #1 (See Program Notes)	3
Select from supporting list #2 (See Program Notes)	3	Select from supporting list #2 (See Program Notes)	3
Elective	3	Elective	3
		Elective	3

15 **18**

Total Credits 122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes

- GWS, GQ, GA, GH, GS, GN and GHW are codes used to identify General Education requirements.
- US, IL, and US;IL are codes used to designate courses that satisfy University United States/International Cultures requirements. All students are required to take one IL and one US course before graduation. A course designated as US;IL may be used as a US or an IL, not both.
- W suffix signifies the course satisfies the University Writing Across the Curriculum requirement.

Program Notes

- Students must complete a 3-credit course in "United States Cultures (US)" and a 3-credit course in "International Cultures (IL)."
- At least 15 credits from supporting list courses must be at the 400 level.

Supporting Course List #1 (select 6 credits)

- AAA S, AM ST, ARAB, ART, ART H, BRASS, C ART, C HIS, CAMS, CAS, CHNS, CMLIT, COMM, COMMS, DANCE, ENGL, FR, GER, GREEK, HEBR, HIST, HUM, I HUM, INART, IT, J ST, JAPNS, KOR, LATIN, LING, LIT, MEDVL, MUSIC, PHIL, PORT, RL ST, RUS, SP ST, SPAN, STS, THEA, THTRE
- WMNST 101 - African American Women (GH;US) (3)
- WMNST 102 - Women of Color: Cross-Cultural Perspectives (GH;IL) (3)
- WMNST 104 - Women and the American Experience (GH;US) (3)
- WMNST 117 - Women in Modern History (GH;US;IL) (3)
- WMNST 137 - Women and Religion (GH;US;IL) (3)
- WMNST 194 - Women Writers (GH;US;IL) (3)
- WMNST 205 - Women, Minorities, and Media (US) (3)
- WMNST 270 - Race and Gender in Literature Translated from French (3)
- WMNST 407W - Women and Theatre (US) (3)
- WMNST 438 - Feminist Philosophy (3)
- WMNST 455 - Gender Roles in Communication (US) (3)
- WMNST 462 - Reading Black, Reading Feminist (US) (3)
- WMNST 466 - Lesbian and Gay History (US;IL) (3)
- WMNST 490 - Women Writers and Their Worlds (US;IL) (3)
- WMNST 430 - Women in Politics in the U.S. (US) (3)
- WMNST 489 - British Women Writers (3)
- WMNST 491 - American Women Writers (3)

Supporting Course List #2 (select 12 credits)

- ADM J, AAA S, AFRAS, ANTH, BE SC (except BE SC 302), CRIMJ, ECON, HCM, HD FS, PLSC, PUBPL, R SOC, SCLSC, SO SC, SOC
- WMNST 1 - (GS;US) (3)
- WMNST 103 - Racism and Sexism (US) (3)
- WMNST 110 - Sociology of Gender (GS;US) (3)
- WMNST 116 - Family and Sex Roles in Modern History (GS;US;IL) (3)
- WMNST 136 - Race, Gender, and Employment (US) (3)
- WMNST 202N - Gender Dynamics in Africa (GS;IL) (3)
- WMNST 250 - Sexual Identity over the Life Span (US) (3)
- WMNST 423 - Sexual and Domestic Violence (US) (3)
- WMNST 424 - Women and Sport (US) (3)

- WMNST 428 - Gender and Politics (US;IL) (3)
- WMNST 452 - Women's Health Issues (US) (3)
- WMNST 453 - Women and the Criminal Justice System (US) (3)
- WMNST 456 - Gender, Occupations, and Professions (3)
- WMNST 471 - The Psychology of Gender (US) (3)
- WMNST 476W - Anthropology of Gender (3)
- WMNST 464 - Feminine and Masculine (US) (3)

Career Paths

The American Psychological Association's Center for Workforce Studies reported in 2013, that 94% of people holding bachelor's degrees in psychology are employed. According to projections by the U.S. Bureau of Labor Statistics, most bachelor's-level Psychology graduates will move toward positions in human services, where an increase of 13 percent in job growth is expected in some areas. Other employment fields for psychology graduates, including entry-level management, human resources, and sales, anticipate growth between 5 and 7 percent.

Careers

Penn State Harrisburg's B.S. in Psychology degree provides students with a variety of skills that are exceptionally valued in the mental health and social services fields, basic and applied research, applied behavior, human resources, social work, medicine, business, law, and careers in local, state, and federal government.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE PSYCHOLOGY PROGRAM (<https://harrisburg.psu.edu/behavioral-sciences-education/psychology-bs/>)

Opportunities for Graduate Studies

The Psychology program also provides a strong background for graduate education, including Penn State's Master of Arts programs in Applied Behavior Analysis or Applied Clinical Psychology. The Master of Arts degree in Applied Clinical Psychology includes optional preparation for the Licensed Professional Counselor (LPC) credential.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://harrisburg.psu.edu/behavioral-sciences-education/>)

Professional Resources

- American Psychological Association (<https://www.apa.org/>)
- Association for Psychological Science (<https://www.psychologicalscience.org/>)
- Psi Chi International Honor Society in Psychology (<https://www.psiichi.org>)

Contact

Harrisburg

SCHOOL OF BEHAVIORAL SCIENCES AND EDUCATION
Olmsted Building, W311
Middletown, PA 17057
717-948-6034
jsf5@psu.edu

<https://harrisburg.psu.edu/behavioral-sciences-education/psychology-bs>
(<https://harrisburg.psu.edu/behavioral-sciences-education/psychology-bs/>)

Public Policy, B.S.

Begin Campus: Any Penn State Campus

End Campus: Harrisburg

Program Description

The Public Policy major is designed for students interested in policy issues, politics, public administration, and related areas like policy analysis and policy advocacy. The program explores a myriad of critical issues facing our communities, the nation, and the world. Students receive the educational foundation for careers in the public sector, in government-related businesses, and in non-profit organizations, as well as for graduate work in the fields of law, public administration, criminal justice, public policy, political science, and health care administration. Building on the program core, students may choose electives from a broad array of courses in public policy and other areas. For-credit Internship opportunities are available, including the Harrisburg Semester program, where qualifying students may apply for a scholarship.

Students may wish but are not required to pursue a concentration within the Public Policy major. The following concentrations are available:

1. State and Local Government
2. Governmental Affairs and Public Service Careers
3. Policy Analysis and Governance Studies

Students should consult their adviser for a complete listing of courses in each of these concentrations. Overall, the Public Policy program seeks to advance the ideals of civic culture and a commitment to public service.

Our proximity to the state capital at Harrisburg provides students with a rich environment for both study and for internships. In addition to our full-time faculty, Public Policy draws on part-time faculty with particular professional strengths. In recent years students have explored politics and political issues in classes taught by a state senator, a former lieutenant governor, a corrections system administrator, and a governor's press secretary. This integration of academic study with the "real world" of Pennsylvania politics and policy making is further enhanced through quality internships. The Public Policy program prides itself in placing qualified students in internships that facilitate the development of professional skills and promote the prospects for professional employment following graduation.

Students are encouraged to complete an internship during their senior year. Additional information regarding internships may be obtained by contacting the School of Public Affairs Internship Coordinator (see <https://harrisburg.psu.edu/public-affairs/internships> (<https://harrisburg.psu.edu/public-affairs/internships/>)). For-credit Internship opportunities available, including the Harrisburg Semester program, which offers scholarship opportunities to qualifying students. (For more information, see <https://harrisburg.psu.edu/public-affairs/internships/harrisburg-semester-internship-program> (<https://harrisburg.psu.edu/public-affairs/internships/harrisburg-semester-internship-program/>)).

What is Public Policy?

Public Policy is a discipline that focuses on the systematic analysis of public policy issues and decision processes. It includes study in the role of economic and political factors in public decision-making and policy formulation, microeconomic analysis of policy issues, resource allocation and decision modeling, and policy advocacy.

You Might Like This Program If...

- You have an interest in fostering positive policy change.
- You are concerned about critical issues facing your community or nation.
- You would enjoy working with others to solve these critical issues.
- You are interested in a career in government or with an NGO or non-profit.

Entrance to Major

Entry to the Public Policy major requires a 2.00 or higher cumulative grade-point average and an average of C (2.00) or better in any course already taken in the major.

Admission Requirements for Transfer Students

Transfer students must have a 2.00 or higher cumulative grade-point average. The evaluation of prior college work is done on an individual basis by the Office of Enrollment Services at Penn State Harrisburg.

Degree Requirements

For the Bachelor of Science degree in Public Policy, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	16
Requirements for the Major	65

6 of the 45 credits for General Education are included in the Requirements for the Major. This includes 6 credits of General Education GS courses.

Requirements for the Major

At least 15 credits must be at the 400 level.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
PLSC 1	American Politics: Principles, Processes and Powers	3
PLSC 309	Quantitative Political Analysis	3
PUBPL 304W	Public Policy Analysis	3
Additional Courses		
Select 9 credits from the following;		9
PLSC 300-499		
PUBPL/CRIMJ 241	Computer Applications in Public Affairs/Criminal Justice	
PUBPL 300-499		
Select 6 credits from the following;		6
PLSC 419	The Bureaucratic State	

PLSC 425	Government and Politics of the American States	
PLSC 444	Government and the Economy	
PLSC 488	Comparative Public Policy	
PLSC 489	Public Administration	
PUBPL 305	Leadership Studies	
Select 3 credits from the following:		3
PUBPL 481	Seminar in Environmental Policy	
PUBPL 482	Seminar in Health Policy	
PUBPL 483	Seminar in National Security Policy	
PUBPL 490	Seminar in Public Policy	

Supporting Courses and Related Areas

Select 12 credits from the following:		12
ACCTG 200-499		
AFRAS 300-499		
AMST 300-499		
BESC 300-499		
COMMS 300-499		
CRIMJ 300-499		
ECON 300-499		
ENVE 460	Environmental Law	
FIN 300-499		
HIST 300-499		
MGMT 300-499		
MKTG 300-499		
SCLSC 300-499		
SOC 300-499		
SOSC 300-499		
SRA 211	Threat of Terrorism and Crime	
WMNST 300-499		

Select 20 credits in consultation with an academic adviser and in support of the student's interests 20

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

1. **Understand Political Processes and Government Operations at National, State & Local Levels**
 - a. Understand Constitutional Foundations, Institutions & Political Processes in the U.S.
 - b. Understand Role of States in Federal System and Local Governments within States
 - c. Understand Operation of Government Agencies
2. **Understand and Analyze Policy Creation Process, Policy Implementation & Policy Impact**
 - a. Understand Roles of Legislatures, Agencies & Interest Groups in Policy Formation
 - b. Attain Familiarity with Selected Public Policies and Their Impact
 - c. Acquire Ability to Analyze Critically the Content and Impact of Public Policies
3. **Be Prepared to Function in Policy-Related Careers in Government and NGOs**
 - a. Ability to Write Clearly and Concisely
 - b. Ability to Communicate Effectively Using Oral Skills and Technology
 - c. Knowledge of Leadership Qualities and Strategies
 - d. Ability to Function Successfully in Policy-Related Work Environments
 - e. Ability to Understand Research Methods and Use Statistics
 - f. Knowledge of Microeconomics and Macroeconomics

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Harrisburg

Daniel J. Mallinson, Ph.D.

Program Coordinator

Olmsted W160

Middletown, PA 17057

717-948-6503

djm466@psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Public Policy, B.S. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 15S, 30T, or ESL 15 [‡]	3 CAS 100A or 100S [‡]	3
Quantification	3 Quantification	3
General Education Course	3 General Education Course	3
PLSC 1 ^{* †}	3 General Education Course	3
General Education Course (GHW)	1.5 Elective	3
13.5		15

Second Year

Fall	Credits Spring	Credits
General Education Course	3 General Education Course	3
General Education Course	3 ENGL 202 [‡]	3
General Education Course	3 PLSC 300-499 or PUBPL 241 or PUBPL 300-499	3
ECON 102 ^{* †}	3 ECON 104	3
Elective	3 PUBPL 304W [*]	3
General Education Course (GHW)	1.5	
16.5		15

Third Year

Fall	Credits Spring	Credits
PLSC 309 [*]	3 PUBPL 481, 482, 483, 485, or PUBPL 490	3
PLSC 419, 425, 444, 488, 489, or PUBPL 305	3 PLSC 300-499 or PUBPL 241 or PUBPL 300-499	6
PLSC 419, 425, 444, 488, 489, or PUBPL 305	3 Select Supporting Courses in consultation with adviser	3
Select from Supporting courses and Related Areas	6 Elective	3
15		15

Fourth Year

Fall	Credits Spring	Credits
PUBPL 481, 482, 483, 485, or PUBPL 490	3 Select Supporting Courses in consultation with adviser	10
PLSC 300-499 or PUBPL 241 or PUBPL 300-499	3 PUBPL 481, 482, 483, 485, or PUBPL 490	3
Select Supporting Courses in consultation with adviser	4	
Electives	6	
16		13

Total Credits 119

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Select from Supporting Courses and Related Areas: ACCTG 200-400, AFRAS 300-499, BESC 300-499, COMMS 300-499, CRIMJ 300-499, ECON 300-499, ENVE 460, FIN 300-400, HIST 300-499, MGMT 300-400, MKTG 300-400, SCLSC 300-499, SOSC 300-400, SOC 300-499, SRA 211, WMNST 300-499

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes

- Students must complete at least 15 credits of 400-level courses
- Concurrent majors in Political Science and Public Policy are not permitted.
- Students must complete a 3-credit course in "United States Cultures (US)" and a 3-credit course in "International Cultures (IL)."

Career Paths

Our proximity to the state capital in Harrisburg provides students with a rich environment. In addition to our full-time faculty, public policy draws on part-time faculty with particular professional expertise and strengths. In recent years, students have explored politics and political issues in classes taught by a state senator, a former lieutenant governor, a corrections system administrator, and a governor's press secretary. This integration of academic study with the practice of Pennsylvania politics and policy making is further enhanced through quality internships that enhance learning outcomes by immersing students in a credit-earning, real-world experience.

Careers

The Public Policy major is designed for students interested in policy issues, politics, public administration, and related areas like policy analysis and policy advocacy. Students in the Public Policy major receive the educational foundation for careers in the public sector, in government-related businesses, and in non-profit organizations.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE PUBLIC POLICY PROGRAM (<https://harrisburg.psu.edu/public-affairs/public-policy-bs/>)

Opportunities for Graduate Studies

The Public Policy program also provides a strong background for graduate education, including Penn State's Master of Public Administration, Master of Professional Studies in Homeland Security, Master of Health Administration, Master of Arts in Criminal Justice, and the PhD in Public Administration.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://harrisburg.psu.edu/public-affairs/>)

Contact

Harrisburg

SCHOOL OF PUBLIC AFFAIRS

Olmsted Building, W160

Middletown, PA 17057

717-948-6779

aqk5884@psu.edu

<https://harrisburg.psu.edu/public-affairs/public-policy-bs> (<https://harrisburg.psu.edu/public-affairs/public-policy-bs/>)

Sales, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Sales minor is designed for students to develop consultative skills, which will benefit them throughout their careers. Professional selling and sales management careers help graduates learn about what the company has to offer and how to communicate with customers based on their needs. The Sales minor prepares students for professional certification in Sales. The University Sales Center Alliance (USCA), a consortium of recognized and accredited sales programs across the Nation, sponsors the Certified Sales Student designation.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
MGMT 301	Basic Management Concepts	3
MKTG 301	Principles of Marketing	3
MKTG 410	Personal Selling	3
MKTG 476	Sales Management	3
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 6 credits from the following:		6
MGMT 420	Negotiation and Conflict Management	
MKTG 395	Sales Internship	
MKTG 422	Advertising and Sales Promotion Management	
MKTG 443	Sports Marketing	
MKTG 485	Business-to-Business Marketing	

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Harrisburg

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Harrisburg

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717-948-6166
cxs@psu.edu

<https://harrisburg.psu.edu/business-administration> (<https://harrisburg.psu.edu/business-administration/>)

Secondary Education Social Studies, B.SOSC.

Begin Campus: Any Penn State Campus

End Campus: Harrisburg

Program Description

The Secondary Education Social Studies major prepares students to meet the requirements as established by the Pennsylvania Department of Education, to be certified for the Social Studies Instructional I Certificate. The major prepares students to teach history, government, economics, geography, psychology, sociology, and anthropology.

Students are challenged to prepare for teaching assignments at the middle and high school level, and in diverse settings characterized as rural, urban, and suburban. The art and science of teaching social studies in secondary schools is undergoing significant transformation as new technologies, new issues and considerations, and new instructional strategies are all having an impact on the delivery of social studies instruction.

Students admitted to the program must submit and renew annually the appropriate clearances. These include FBI fingerprint check, Act 151 child

abuse history clearance, and Act 34 criminal record check. Additionally, documentation a clear tuberculosis (TB) test must be submitted no more than 90 days prior to any clinical field placement.

Students thinking seriously about entering the education program should plan their freshman and sophomore years carefully, following the Suggested Academic Plan as closely as possible. Semesters 5 through 8 are very structured.

What is Secondary Education Social Studies?

Secondary Education Social Studies prepares individuals to teach students in the secondary grades, which may include grades seven through twelve, depending on the school system or state regulations, in the areas of history, government, economics, geography, psychology, sociology, and anthropology.

You Might Like This Program If...

- You enjoy history, economics, geography, sociology, and government; You like critical, creative, and reflective thinking; You enjoy helping others learn; You want to have an important and direct impact on the lives of others; You want a career in teaching or school administration; You want to help transform the world, one student at a time.

MORE INFORMATION ABOUT THE SECONDARY EDUCATION SOCIAL STUDIES PROGRAM (<https://harrisburg.psu.edu/behavioral-sciences-education/teacher-education/secondary-education-social-studies-bsosc/>)

Entrance to Major

Entry to Secondary Education Social Studies requires the following:

1. A minimum grade point average of 3.0;
2. Completion of ENGL 15 or ENGL 30H and three credits of literature from approved list with a C or higher grade;
3. Three credits of literature from a department-approved list with a C or higher grade;
4. Completion of six credits of college-level mathematics (MATH or STAT prefixes) with a C or higher grade;
5. Satisfaction of any entrance testing requirements set out by the Pennsylvania Department of Education in effect at the time of application for the major;
6. Submission to the Teacher Education Office of current and clear background checks as required by the Pennsylvania Department of Education;
7. Submission of documentation of 20 pre-major fieldwork hours.

Retention Requirements

Following entrance to the major, students will be evaluated for retention in the program based on:

1. maintaining a cumulative GPA of 3.0 or higher;
2. completion of required courses with a C or higher grade;
3. an acceptable or above rating on the Professional Dispositions for Teacher Education;¹

- current and clear background checks as required by the Pennsylvania Department of Education.

To be eligible to student teach, students must:

- maintain a cumulative GPA of 3.0 or higher;
- complete all required Content and Education Courses with a C or higher grade;
- satisfaction of any entrance testing requirements set out by the Pennsylvania Department of Education in effect at the time of application for entrance to major;
- be rated acceptable or above on the Professional Dispositions for Teacher Education;¹
- have current and clear background checks as required by the Pennsylvania Department of Education.

In order to successfully complete the Secondary Education Social Studies Program, students must:

- complete EDUC 490 with a grade of C or higher;
- maintain a cumulative GPA of 2.0 or higher for degree completion;
- maintain a cumulative GPA of 3.0 or higher for Pennsylvania teacher certification;
- Complete all required Content and Education Courses with a C or higher grade;
- complete a program portfolio; and
- For Pennsylvania teacher certification, be rated acceptable or above for all criteria on the Final Professional Dispositions Review for Teacher Education.

¹ For more detailed information see the Secondary Education Handbook.

Degree Requirements

For the Bachelor of Social Science degree in Secondary Education Social Studies, a minimum of 122 credits is required:

Requirement	Credits
General Education	45
Electives	3
Requirements for the Major	95

21 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GH courses; 6 credits of GQ courses; 3 credits of GN courses; 6 credits of GS courses.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
BISC 3	Environmental Science	3
EDPSY 14	Learning and Instruction	3
EDUC 313	Secondary Education Field Experience	2
EDUC 314	Learning Theory and Instructional Procedures	3

EDUC 315Y	Social and Cultural Factors in Education	3
EDUC 385	Professional Development in Teaching	3
EDUC 400	Diversity and Cultural Awareness Practices in the K-12 Classroom	3
EDUC 415	Teaching Secondary Social Studies	3
EDUC 458	Behavior Management Strategies for Inclusive Classrooms	3
EDUC 459	Strategies for Effective Teaching in Inclusive Classrooms	3
EDUC 466N	Foundations of Teaching English as a Second Language	3
EDUC 490	Student Teaching	9
GEOG 40	World Regional Geography	3
GEOG 128	Geography of International Affairs	3
HDFS 239	Adolescent Development	3
HIST 20	American Civilization to 1877	3
HIST 21	American Civilization Since 1877	3
HIST 320	Contemporary World History and Issues	3
PLSC 1	American Politics: Principles, Processes and Powers	3
PSYCH 100	Introductory Psychology	3
SOC 1	Introductory Sociology	3

Additional Courses

Additional Courses: Require a grade of C or better

ECON 104	Introductory Macroeconomic Analysis and Policy	3
or ECON 14	Principles of Economics	

Select 3 credits from the following: 3

HIST 1	Western Civilization I	
HIST 2	Western Civilization II	
HIST 10	World History to 1500	
HIST 11	World History since 1500	

Select 6 credits from the following: 6

MATH 21	College Algebra with Analytic Geometry with Applications I	
MATH 22	College Algebra With Analytic Geometry and Applications II	
MATH 26	Plane Trigonometry and Applications of Trigonometry	
MATH 30	Problem Solving	
MATH 35	General View of Mathematics	
MATH 36	Insights Into Mathematics	
MATH 37	Finite Mathematics	
MATH 38	Elementary Linear Algebra	
MATH 40	Algebra, Trigonometry, and Analytic Geometry	
MATH 200	Problem Solving in Mathematics	
or MATH 221	Matrices	
STAT 100	Statistical Concepts and Reasoning	
STAT 200	Elementary Statistics	

Supporting Courses and Related Areas¹

Supporting Courses and Related Areas: Require a grade of C or better

Select 3 credits of literature courses from approved department list	3
Select 3 credits of African American studies, American studies, history or minority studies from approved department list	3
Select 3 credits of anthropology from approved department list	3

Select 3 credits of political science	3
Select 3 credits of sociology (must be a 400-level course)	3

¹ 6 of these 15 credits must be at the 400-level, 3 of which must be in sociology. In addition, 3 of these must be US Cultures.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Harrisburg

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Secondary Education Social Studies, B.SOSC. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
ENGL 15, 15S, 30T, or ESL 15 (GWS) ^{‡#1}	3	General Education Course (GWS) – CAS 100A or 100S recommended [†]	3
MATH 200 (or other department approved mathematics course (GQ)) ^{‡#†2}	3	MATH 201 (or other department approved mathematics course (GQ)) ^{‡#†2}	3
SOC 1 (GS) [*]	3	BISC 3 (GN) ^{*†}	3
HIST 1, 2, 10, or 11 (GH;IL) [*]	3	PSYCH 100 (GS) ^{*†}	3
General Education Course (GA) - Inter-Domain (N) recommended	3	HIST 20 (GH;US) ^{*†}	3
	15		15

Second Year

Fall	Credits	Spring	Credits
Select department approved literature course [#]	3	ENGL 202A (GWS) ¹	3
EDPSY 14 [*]	3	HDFS 239 (GS) ^{*†}	3
HIST 21 (GH) ^{*†}	3	ECON 14 or 104 [*]	3
GEOG 30N (or other General Education course (GN) – Inter-Domain (N) recommended)	3	PLSC 1 [*]	3
General Education Course (GA)	3	GEOG 40 [*]	3
General Education Course (GHW)	1.5	General Education Course (GHW)	1.5
	16.5		16.5

Third Year

Fall	Credits	Spring	Credits
EDUC 313 [*]	2	EDUC 315Y [*]	3
EDUC 314 [*]	3	EDUC 458 [*]	3
GEOG 128 [*]	3	EDUC 466N [*]	3
HIST 320 [*]	3	Select 3 credits of 400-level SOC ^{*4}	3
Select 3 credits of ANTH – ANTH 45N recommended [*]	3	Select 3 credits of AFAM, AMST, HIST, WMNST, or minority studies from approved department list (US) ^{*3,4}	3
Select 3 credits of PLSC ^{*3}	3	Select GA, GS, or GH Elective ⁵	3
	17		18

Fourth Year

Fall	Credits	Spring	Credits
EDUC 400 [*]	3	EDUC 490 [*]	12
EDUC 415 [*]	3		
EDUC 459 [*]	3		
EDUC 495 (clinical residency/internship) or Elective ^{*5}	3		
	12		12

Total Credits 122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ ENGL 15S or ENGL 30T and ENGL 202A (with a grade of B or higher) together satisfy the reading and writing testing entrance to major requirement.

² MATH 200 and MATH 201 (with a grade of B or higher) together satisfy the mathematics testing entrance to major requirement.

³ At least 3 credits from selected PLSC and AFAM, AMST, HIST, WMNST, or minority studies courses must be at the 400 level.

⁴ At least 3 credits from AFAM, AMST, HIST, WMNST, or minority studies or SOC 400 level courses must be in US Cultures.

⁵ Electives can be taken in any subject area, but courses in education (including those taken toward an add-on certification) or courses relevant to social studies education are encouraged.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

The Secondary Education Social Studies major will prepare students to teach social studies in secondary schools grades 7 to 12. As secondary school teachers, they will delve more deeply into subject matter introduced broadly during the elementary years. Additionally, Secondary Education Social Studies students should graduate with instructional, organizational, administrative, and communications abilities and an excellent background in the social studies. Other career areas requiring these skills include: public relations, sales, social work, employee training and development, social service, and employment counseling.

Careers

The Secondary Education Social Studies major prepares students to meet the requirements to be certified for the Social Studies Instructional I Certificate as established by the Pennsylvania Department of Education.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE SECONDARY EDUCATION SOCIAL STUDIES PROGRAM (<https://harrisburg.psu.edu/behavioral-sciences-education/teacher-education/secondary-education-social-studies-bsosc/careers-teaching/>)

Opportunities for Graduate Studies

Graduate programs for a Master of Education degree are available in Teaching and Curriculum and Literacy Education. Additional certification and endorsement programs in English as a Second Language (ESL), Special Education, and others are also available.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://harrisburg.psu.edu/behavioral-sciences-education/teacher-education/>)

Professional Resources

- National Council for the Social Studies (<https://www.socialstudies.org>)

Accreditation

This program is nationally recognized by the National Council for the Social Studies (NCSS) and endorsed the Pennsylvania Department of Education (PDE).

MORE INFORMATION ABOUT THE NATIONAL COUNCIL FOR THE SOCIAL STUDIES (<https://www.socialstudies.org/standards/national-standards-preparation-social-studies-teachers/>)

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

Harrisburg

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<https://harrisburg.psu.edu/behavioral-sciences-education/teacher-education/secondary-education-social-studies-bsosc> (<https://harrisburg.psu.edu/behavioral-sciences-education/teacher-education/secondary-education-social-studies-bsosc/>)

Security and Risk Analysis, B.S. (Capital)

Begin Campus: Any Penn State Campus

End Campus: Harrisburg

Program Description

The Bachelor of Science in Security and Risk Analysis (SRA) in the College of Information Sciences and Technology responds to the expanding need for a highly trained analytic workforce to address a wide range of security and risk domains including national/homeland security, emergency and disaster management, law and crime, as well as enterprise risk management.

SRA program prepares students with core competence in four knowledge areas:

1. understanding the fundamentals of security, risk, analytic methods and decision support for the purpose of recognizing, articulating, and addressing analytic needs;
2. understanding the roles of data and analytics in various security domains and organizational contexts;
3. applying data analytics, methods, and tools (structured analytics; data gathering and manipulation; visual analytics; analytic judgements and presentation) to derive and communicate insights and actionable knowledge;
4. the legal, ethical, and professional issues within which analytics of security and risk are conducted.

Students may specialize in risk domains ranging from national security to community emergency preparedness and response. The SRA program positions our students to be future leaders to address the current and emerging security and risk challenges that face individuals, organizations and our nation.

SRA majors will choose one of the following options:

Intelligence Analysis and Modeling Option

Available at the following campuses: University Park, World Campus

This option focuses on developing a more thorough knowledge of the strategic and tactical levels of intelligence collection, analysis, and decision-making. This includes examining the foundations of decision analysis, economic theory, statistics, data mining, and knowledge management, as well as the security-specific contexts in which such knowledge is applied.

Information and Cyber Security Option

Available at the following campuses: Altoona, Berks, Harrisburg, University Park, World Campus

This option includes a set of courses that provides an understanding of the theories, skills, and technologies associated with network security, cyber threat defense, information warfare, and critical infrastructure protection across multiple venues.

What is Security and Risk Analysis?

Security and risk analysis is a field that explores the integrated processes conducted to provide decision-makers with the information needed to understand factors that can negatively influence operations and

outcomes, and make informed judgments concerning the extent of actions needed to reduce vulnerabilities, protect resources, and optimize investments. Security and risk analysis is a field of practice with two blended concentration areas: 1) security, which seeks to identify, understand, and analyze critical local, national and international security issues, and 2) risk, which includes risk assessment, risk characterization, risk communication, risk management, and the formulation of risk policy. In practice, the issues and processes for conducting of security and risk analytics are neither separate nor sequential. To be effective, the issues of security and risk must be addressed concurrently and synergistically.

MORE INFORMATION ABOUT SECURITY AND RISK ANALYSIS (<https://ist.psu.edu/prospective/undergraduate/academics/sra/>)

You Might Like This Program If...

- You want to protect people, information, and assets from manmade and natural threats.
- You want to understand the role of data in protecting individuals, organizations and our nation.
- You are mission oriented, a good critical thinker and wish to put your problem-solving skills to work to make the world a safer place.
- You want to make informed strategic decisions that help to defend critical infrastructures that supports our daily lives.

MORE INFORMATION ABOUT WHY STUDENTS CHOOSE TO STUDY SECURITY AND RISK ANALYSIS (<https://ist.psu.edu/prospective/undergraduate/academics/sra/>)

Entrance to Major

In addition to the minimum grade point average (GPA) requirements described in the University Policies*, all Security and Risk Analysis (SRA) entrance to major course requirements must also be completed with a minimum grade of C: IST 140 (or equivalent CMPSC 101 or CMPSC 121), IST 210, SRA 111, and SRA 211. All of these courses must be completed by the end of the semester during which the admission to major process is carried out.

* *In the event that the major is under enrollment control, a higher minimum cumulative grade-point average is likely to be needed at the time of confirming their major choice.*

Degree Requirements

For the Bachelor of Science degree in Security and Risk Analysis, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	5-13
Requirements for the Major	77-85

15 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GQ courses; 6 credits of GS courses; and 3 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and->

[rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44](https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44)).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
IST 110	Information, People and Technology	3
IST 210	Organization of Data	3
IST 432	Legal and Regulatory Environment of Information Science and Technology	3
IST 495	Internship	1
SRA 111	Introduction to Security and Risk Analysis	3
SRA 211	Threat of Terrorism and Crime	3
SRA 221	Overview of Information Security	3
SRA 231	Decision Theory and Analysis	3
STAT 200	Elementary Statistics	4
Additional Courses		
ENGL 202C	Effective Writing: Technical Writing	3
or ENGL 202D	Effective Writing: Business Writing	
PSYCH 100	Introductory Psychology	3
or SOC 5	Social Problems	
Select one of the following:		3
AGBM 101	Economic Principles of Agribusiness Decision Making	
ECON 102	Introductory Microeconomic Analysis and Policy	
ECON 104	Introductory Macroeconomic Analysis and Policy	
Select one of the following:		3-5
MATH 22	College Algebra With Analytic Geometry and Applications II	
MATH 26	Plane Trigonometry and Applications of Trigonometry	
MATH 40	Algebra, Trigonometry, and Analytic Geometry	
MATH 41	Trigonometry and Analytic Geometry	
MATH 110	Techniques of Calculus I	
MATH 140	Calculus With Analytic Geometry I	
Select one of the following:		3
GEOG 128	Geography of International Affairs	
PLSC 1	American Politics: Principles, Processes and Powers	
PLSC 14	International Relations	
<i>Additional Courses: Require a grade of C or better</i>		
SRA 365	Statistics for Security and Risk Analysis	3
or STAT 460	Intermediate Applied Statistics	
Select one of the following:		3
IST 140	Introduction to Application Development	
CMPSC 101	Introduction to Programming	
CMPSC 121	Introduction to Programming Techniques	
Requirements for the Option		
Select an option		30-36

Requirements for the Option

Intelligence Analysis and Modeling Option (36 credits)

Available at the following campuses: University Park, World Campus

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
IST 452	Legal and Regulatory Environment of Privacy and Security	3
SRA 268	Visual Analytics	3
SRA 311W	Risk Analysis in a Security Context	3
SRA 421	The Intelligence Environment	3
SRA 433	Deception and Counterdeception	3
SRA 440W	Security and Risk Analysis Capstone Course	3
SRA 468	Spatial Analysis of Risks	3
Supporting Courses and Related Areas		
Select 15 credits from College-approved list (at least 3 credits must be at the 400-level)		15

Information and Cyber Security Option (30 credits)

Available at the following campuses: Altoona, Berks, Harrisburg, University Park, World Campus

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
IST 220	Networking and Telecommunications	3
IST 451	Network Security	3
IST 454	Computer and Cyber Forensics	3
IST 456	Information Security Management	3
SRA 311	Risk Analysis in a Security Context	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
IST 440W	Information Sciences and Technology Integration and Problem Solving	3
or SRA 440W	Security and Risk Analysis Capstone Course	
Supporting Courses and Related Areas		
Select 12 credits from College-approved list (at least 3 credits must be at the 400-level)		12

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Communication (Individual and Team):** Communicate and work effectively (both individually and in teams) with a range of perspectives and audiences through a variety of media
 - Participate effectively on teams in order to accomplish a common goal
 - Communicate effectively with a range of audiences, formally or informally, through writing and the spoken word
 - Seek out, analyze, and incorporate diverse ideas and broader perspectives represented in the diversity of people
 - Make respectful and inclusive choices in interacting with customers, peers, supervisors, and/or subordinates with a diversity of identity characteristics (e.g., age, ancestry, color, disability or handicap, national origin, race, religious creed, sex, sexual orientation, gender identify, or veteran status)
- **Knowledge/Application:** Understand and apply the interdisciplinary, theoretical knowledge of the information sciences or security sciences
 - Define and explain the core concepts, principles, processes, and theories within the academic majors of IST and/or SRA
 - Apply the core concepts of the academic majors of IST and/or SRA to real-world problems
- **Lifelong Learning:** Commit to the continuous acquisition of relevant knowledge for professional development by self-teaching and/or on-going education and learning
 - Employ information-seeking strategies and self-directed learning in pursuit of current knowledge
 - Enroll in professional development and tutoring opportunities
- **Problem-Solving:** Understand, apply and adapt various problem solving strategies to address security and risk problems within the individual, community, organizational and national security dimensions
 - Identify security and risk problem terms of the individual, community, organizational and national security levels of analysis
 - Analyze issues surrounding the problem and/or opportunity in terms of the human, informational, and technology dimensions; and determine the requirements appropriate to understanding the situation
 - Identify and recognize countermeasure application strategies to address security needs to include architectures, processes, components, or programs to meet desired needs at varying levels of analysis (e.g., individual, community, organizational and/or national security)
- **Professional Responsibilities:** Understand professional responsibilities in terms of the ethical, legal, security and social aspects of any given problem and its solution
 - Demonstrate an understanding of the cognitive, social, legal, ethical, diversity, and security perspectives surrounding a given problem
 - Assess the impact of information, computing and technology on individuals, groups, organizations, society, and the world for the purpose of making informed decisions from a sociological, governmental, legal, and/or security perspective

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of

both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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World Campus

Undergraduate Academic Advising

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Information & Cyber Security Option: Security and Risk Analysis, B.S. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
SRA 111 ^{*#}	3 SRA 211 ^{*#}	3
IST 110 [*]	3 IST 210 ^{*#}	3
ENGL 15, 15S, 30T, or ESL 15 [†]	3 CAS 100A or 100S [†]	3
IST 140 ^{*#}	3 MATH 22	3
General Education Course	3 General Education Course	3
15		15

Second Year

Fall	Credits Spring	Credits
SRA 221 [*]	3 SRA 231 [*]	3
STAT 200 [†]	4 ECON 102 or 104 [†]	3
IST 220 [*]	3 PSYCH 100 or SOC 5	3
General Education Course	3 General Education Course	3
Elective	3 Elective	3
16		15

Third Year

Fall	Credits Spring	Credits Summer	Credits
SRA 311 [*]	3 ENGL 202C or 202D [†]	3 IST 495 [*]	1
IST 432 [*]	3 GEOG 128, PLSC 1, or PLSC 14 [†]	3	
SRA 365 [*]	3 IST 454 [*]	3	
Support of Option	3 Support of Option	3	
General Education Course	3 General Education Course	3	
15		15	1

Fourth Year

Fall	Credits Spring	Credits
IST 451 [*]	3 SRA 440W [*]	3
Elective	3 IST 456 [*]	3
Support of Option	3 Support of Option (400-level)	3

General Education Course	3 Elective	4
General Education Course	3	
15		13

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Students in the Security and Risk Analysis (SRACA_BS) major are expected to complete 24 credits of upper level course work in the major and the senior capstone course (SRA 440W) at Penn State Harrisburg. This is in compliance with Faculty Senate Policy 83-80.5.
- SRA 440W should be taken during the final semester of academic progress.
- IST 495 Internship: Supervised work experience where the student is employed in a position related to the student's major. An internship is typically completed the summer after the junior year, but it may be completed at any time during the student's academic career. Students are required to complete one internship but may complete three. A grade of C or better must be earned in this course. For more information, contact your academic adviser.
- Students who plan to apply for the National Security Agency Certifications must complete all required courses. No substitutions or transfer credits are permitted.

Supporting Course List:

Students select 12 credits from the College-approved list below. At least 3 credits must be at the 400-level.

Business: ACCTG 211*, MGMT 100

Communications: COMM 180, COMM 479* COMM 484*, COMM 489W*, COMM 490*

Crime/Criminology: CRIM 12/SOC 12, CRIM 100, CRIM 406*, CRIM 412*, CRIM 425*, PSYCH 100**, PSYCH 221*, PSYCH 270*, PSYCH 445*, SOC 1,

SOC 405*, SOC 409*, SOC 416*, SOC 419*, SOC 422*, SOC 423*, SOC 424*
SOC 440*, SOC 457*, SOC 461*, SOC 467*, SOC 470*

CYBER/IST/SRA: CYBER 262*, CYBER 362*, IST 230*, IST 240*, IST
242*, IST 301, IST 302, IST 402*, IST 442*, IST 452*, IST 453*, SRA 468*,
SRA 471*, SRA 480

Ethics: PHIL 103*, PHIL 119, PHIL 407*, PHIL 418*

Geography: GEOG 361*, GEOG 362*, GEOG 363*

Global Security: PLSC 7, PLSC 14**, PLSC 410*, PLSC 418*, PLSC 434*,
PLSC 440*, PLSC 442*, PLSC 443*, PLSC 454*, PLSC 455*, PLSC 458*
PLSC 459, PLSC 464*, PLSC 467*

Military Studies: AIR 151, AIR 351, AIR 352, AIR 451, ARMY 101, ARMY
102, ARMY 301, ARMY 402, NAVSC 101, NAVSC 204, NAVSC 311, NAVSC
402

Please be mindful of course prerequisites, as indicated with a single
asterisk (*).

Courses taken to satisfy the SRA major requirements for GEOG/PL SC
(GEOG 40 OR PLSC 1/14) and PSYCH/SOC (PSYCH 100 or soc 5) cannot
be used as a Support of Option course as indicated with a double asterisk
(**).

Career Paths

The Security and Risk Analysis program responds to the expanding need
for a highly trained analytic workforce to address a wide range of security
and risk domains including national/homeland security, emergency
and disaster management, law and crime, as well as enterprise risk
management. The SRA degree prepares students to be future leaders to
address the current and emerging security and risk challenges that face
individuals, organizations and our nation. IST's Office of Career Solutions
helps students navigate internship and career development through
coaching, workshops, interview preparation, resume reviews, career fairs,
job postings, and networking opportunities.

Careers

Security and Risk Analysis students may specialize in risk domains
ranging from national security to community emergency preparedness
and response. Because our courses blend technical knowledge with skills
in communication and business, a Security and Risk Analysis degree
allows students to pursue opportunities in intelligence, counterterrorism,
computer forensics, and a number of other growing careers. SRA
graduates work in a variety of fields, including defense, business,
and emergency management; and many graduates go on to work for
government intelligence agencies like the CIA, FBI, and NSA.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR
GRADUATES OF THE SECURITY AND RISK ANALYSIS PROGRAM ([https://
www.ist.psu.edu/current/careers/development/process/path/](https://www.ist.psu.edu/current/careers/development/process/path/))

Opportunities for Graduate Studies

With a focus on problem solving, critical thinking and the presentation of
analytic findings, the SRA program is a great stepping-stone to graduate
education and higher learning. Many SRA graduates will go on to pursue
graduate degrees in fields like law, cyber security, and data science. The
foundational skills obtained in the SRA degree directly apply to graduate
education.

Contact

Harrisburg

DEPARTMENT OF SECURITY AND RISK ANALYSIS
Olmsted Building E355
Middletown, PA 17057
717-948-6141
ljc43@psu.edu

[https://harrisburg.psu.edu/business-administration/security-risk-
analysis-bs](https://harrisburg.psu.edu/business-administration/security-risk-analysis-bs) ([https://harrisburg.psu.edu/business-administration/
security-risk-analysis-bs/](https://harrisburg.psu.edu/business-administration/security-risk-analysis-bs/))

Altoona

DIVISION OF BUSINESS, ENGINEERING, AND INFORMATION SCIENCES
AND TECHNOLOGY
Penn Building 212C, 3000 Ivyside Park
Altoona, PA 16601
814-949-5275
drb21@psu.edu

[https://altoona.psu.edu/academics/bachelors-degrees/security-risk-
analysis](https://altoona.psu.edu/academics/bachelors-degrees/security-risk-analysis) ([https://altoona.psu.edu/academics/bachelors-degrees/
security-risk-analysis/](https://altoona.psu.edu/academics/bachelors-degrees/security-risk-analysis/))

Berks

EBC DIVISION
Gaige Building
Reading, PA
610-396-6349
BKSecRiskAnalysis@psu.edu

<https://berks.psu.edu/academics/bs-security-and-risk-analysis> ([https://
berks.psu.edu/academics/bs-security-and-risk-analysis/](https://berks.psu.edu/academics/bs-security-and-risk-analysis/))

University Park

COLLEGE OF INFORMATION SCIENCES AND TECHNOLOGY
411 Eric J. Barron Innovation Hub Building
State College, PA 16801
814-865-3528

World Campus

COLLEGE OF INFORMATION SCIENCES AND TECHNOLOGY
411 Eric J. Barron Innovation Hub Building
State College, PA 16801
814-865-3528

[https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-
online-security-and-risk-analysis-information-and-cybersecurity-bachelor-
of-science-degree](https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-security-and-risk-analysis-information-and-cybersecurity-bachelor-of-science-degree) ([https://www.worldcampus.psu.edu/degrees-and-
certificates/penn-state-online-security-and-risk-analysis-information-and-
cybersecurity-bachelor-of-science-degree/](https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-security-and-risk-analysis-information-and-cybersecurity-bachelor-of-science-degree/))

Sociology, B.S. (Capital)

Begin Campus: Any Penn State Campus

End Campus: Harrisburg

Program Description

Sociology is the scientific study of society in all of its complexity. It
includes the study of social structure, social interaction and social

change from the micro level of small groups and families; to the meso level of communities, organizations, and institutions; to the macro level of globalization, war, technology and culture. The world today is undergoing tremendous changes and facing great challenges, problems, and possibilities. Sociology attempts to understand our world and to improve it.

The sociology major at Penn State Harrisburg provides a unique orientation to social change at multiple levels, including families, communities, organizations, social movements, institutions, society, and the world system. The major addresses topics such as culture, race/ethnicity, gender, sexual orientation, social class, inequality, urban life, globalization, environmental change, and political conflict.

The sociology program at Penn State Harrisburg prepares students to succeed in an increasingly complex, diverse, and globalized world. A major in sociology provides opportunities for a wide range of career options. Students with degrees in sociology work in social services, community, advocacy and non-profit organizations, education, business, law, criminal justice, policy-making, social science research, and public administration. An undergraduate degree in sociology also provides a strong foundation for graduate study in sociology and fields such as law, social work, human resources, criminal justice, community psychology, urban planning, political science, and related areas.

Two options are available within the major:

1. General Sociology Option
2. Community Organization and Social Services Option

General Sociology Option

This option provides students with strong education in general sociology in a diverse range of sociological topics. The General Sociology Option is designed for students who seek a solid sociological education with preparation for the widest range of careers and employment opportunities, as well as for graduate education.

Community Organization and Social Services Option

This option provides students with strong preparation for careers working in community settings or in social services. The Community Organization and Social Services Option is designed for students who wish to work directly with people in a broad range of possible settings, in both public and private sectors.

What is Sociology?

Sociology is the scientific study of social behavior and human social groups. The topics covered in sociology are as diverse as society itself, from families to gangs, from non-profit organizations to nations. Sociology focuses on the ways that groups and individuals interact, examining how social environments, like neighborhoods, schools, religious organizations, workplaces, and social networks shape individuals' behaviors and create cooperation or conflict. Sociology uses different methods (surveys, interviews, network analysis, observation, social media, censuses, case studies) to make the invisible patterns of the social world visible.

Sociology especially helps us understand the roots of racial, gender, and class inequality by investigating the ways that social groups control resources, enforce social boundaries, and accept unequal social outcomes. But sociology also helps us to understand how societies

change, whether due to the impact of large-scale events like pandemics and economic recessions, or through social movements and labor unions.

You Might Like This Program If...

- You are people-oriented and naturally curious about group behavior.
- You would like to make the world better.
- You like working with people.
- You wonder why people do the things they do, and how they are influenced by those around them.
- You are interested in a career as a sociologist, or in another profession that requires critical and creative thinking and analytic problem-solving.

Entrance to Major

Entry to the Sociology major requires 2.00 or higher cumulative grade-point average.

Degree Requirements

For the Bachelor of Science degree in Sociology, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	9-15
Requirements for the Major	67-73

7 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GWS courses; 4 credits in GQ courses.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ENGL 202A	Effective Writing: Writing in the Social Sciences	3
SOC 1	Introductory Sociology	3
SOC 207	Research Methods in Sociology	3
SOC 400W	Senior Research Seminar	3
SOC 405	Sociological Theory	3
SOC 495	Internship	3-9
Additional Courses ¹		
<i>Additional Courses: Require a grade of C or better</i>		
A. Statistics		
PSYCH 200 or STAT 200	Elementary Statistics in Psychology Elementary Statistics	4
B. Social Institutions		
Select three of the following:		9
SOC 30	Sociology of the Family	
SOC 403	Advanced Social Psychology	

SOC 411	Racial and Ethnic Diversity and the American Family	
or HDFS 416	Racial and Ethnic Diversity and the American Family	
SOC 416	Sociology of Education	
SOC 429	Social Stratification	
SOC 430	Family in Cross-Cultural Perspective	
SOC 446	Political Sociology	
SOC/WMNST 456	Gender, Occupations, and Professions	
C. Social Change and Global Perspectives		
Select three of the following:		9
SOC 15	Urban Sociology	
SOC 109	Sociological Perspectives	
SOC 297	Special Topics	
SOC 424	Social Change	
SOC 425	Social Conflict	
SOC 432	Social Movements	
SOC 445	U.S. Immigration	
SOC 448		
SOC 454	The City in Postindustrial Society	
D. Diversity		
Select two of the following:		6
AFAM 212	African Americans in the New Jim Crow Era, 1968-present	
BESC/WMNST 464	Feminine/Masculine	
SOC/AFAM/WMNST 103	Racism and Sexism	
SOC/WMNST 110	Sociology of Gender	
SOC/AFAM 409	Racial and Ethnic Inequality in America	
SOC 428	Homelessness in America	
SOC 435	Perspectives on Aging	
or HDFS 434	Perspectives on Aging	
SOC/RLST 461	Sociology of Religion	
WMNST/CED 420		

Requirements for the Option

Requirements for the Option: Require a grade of C or better
 Select an option 21

¹ At least 9 of these credits must be at the 400-level.

**Requirements for the Option
 General Sociology Option (21 credits)**

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits from each of sections B, C and D above		9
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 6 credits (at least 3 credits at the 400-level) in consultation with adviser from AAAS, AFAM, BESC, GEOG, SOC		6

Select 6 credits (at least 3 credits at the 400-level) in consultation with adviser from AMST, ANTH, ART, ARTH, COMM, CRIMJ, ENGL, HDFS, HIST, IHUM, MGMT, MUSIC, PLSC, PSYCH, PUBPL, THEA, WMNST 6

Community Organization and Social Services Option (21 credits)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
BESC 370		3
SOC 5	Social Problems	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits from each of A, B, and C:		9
A. Organization and Leadership		
BESC 408		
MGMT 321	Leadership and Motivation	
MGMT 331	Management and Organization	
SOC 376	Introduction to Human Service Organizations	
B. Community Contexts		
SOC 15	Urban Sociology	
SOC 103	Racism and Sexism	
SOC 406	Sociology of Deviance	
SOC 412	Crime, Social Control, and the Legal System	
C. Group Processes and Dynamics		
BESC 407	Small Groups Counseling	
PSYCH 449	Basic Counseling Skills	
SOC 3	Introductory Social Psychology	
SOC 403	Advanced Social Psychology	
SOC 404	Social Influence and Small Groups	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Choose 6 credits (at least 3 credits at the 400-level) in consultation with adviser from AFAM, AMST, ANTH, ART, ARTH, BESC, COMM, CRIMJ, ENGL, GEOG, HDFS, HIST, IHUM, MGMT, MUSIC, PLSC, PSYCH, PUBPL, SOC, THEA, WMNST		6

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- Acquire a sociological imagination by recognizing the connections between individual lives, social structure and historical change.
 - Students will acquire the knowledge base in sociology in order to recognize and describe human social behavior in specific social-historical context.
 - Students will apply sociological imagination to their own lives.
- Differentiate between micro and macro-sociological perspectives and be able to recognize and use both.
 - Students will be able to describe and distinguish micro and macro perspectives in sociology.
 - Students will be able to apply theories to interpret social phenomena.
- Develop empirical investigations of social phenomena.
 - Recognize the role of theory in sociological research.
 - Students will be able to identify and describe methods for gathering and analyzing sociological data.
 - Students will be able to design a basic study to investigate social phenomena.
- Create written documents with the appropriate to disciplinary standards.
 - Students will be able to write a paper in an appropriate social sciences format.
 - Students will be able to employ appropriate citation practices.
- Recognize and adhere to professional and ethical standards of social science.
 - Students will be able to identify ethical codes of conduct in doing sociological research and practice.
 - Students will adhere to professional and ethical standards of social science research and practice.
- Recognize and consider the diversity of human experience.
 - Students will be able to recognize and describe the diversity of human experience.
 - Students will be able to compare different ways of organizing social life.
 - Students will be able to recognize and describe how diversity is studied as a social problem.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Harrisburg

J. Scott Lewis, Ph.D.
Program Coordinator

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 Middletown, PA 17057
 717-948-6533
 jsl19@psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

General Option: Sociology, B.S. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 15S, 30T, or ESL 15 [‡]	3 CAS 100A or 100S [‡]	3
Quantification (GQ)	3 PSYCH 200 or STAT 200 ^{**†}	4
General Education Course	3 General Education Course	3
SOC 1 ^{**†}	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course	3
	13.5	16

Second Year

Fall	Credits Spring	Credits
General Education Course	3 ENGL 202A [‡]	3
General Education Course (GHW)	1.5 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course	3 Select 3 credits in AMST, ANTH, ART, ARTH, COMM, CRIMJ, ENG, HDFS, HIST, IHUM, MGMT, MUSIC, PLSC, PSYCH, PUBPL, THEA, WMNST	3
Select 3 credits in AFAM, BESC, GEOG, SOC	3 Elective	3
Elective	2	
	15.5	15

Third Year

Fall	Credits Spring	Credits
SOC 30, 403, 411, 416, 429, 430, 446, or 456 [*]	3 SOC 30, 403, 411, 416, 429, 430, 446, or 456 [*]	3
SOC 15, 109, 297, 424, 432, 445, 448, or SOC 454 [*]	3 SOC 15, 109, 297, 424, 432, 445, 448, or SOC 454 [*]	3
AFAM 211, BESC 464, SOC 110, SOC 409, SOC 428, SOC 435, SOC 461, 492, or 420 [*]	3 AFAM 211, BESC 464, SOC 110, SOC 409, SOC 428, SOC 435, SOC 461, 492, or 420 [*]	3
SOC 405 [*]	3 SOC 207 [*]	3

Elective	3 Select 3 credits on the 400-level in AMST, ANTH, ART, ARTH, COMM, CRIMJ, ENG, HDFS, HIST, IHUM, MGMT, MUSIC, PLSC, PSYCH, PUBPL, THEA, WMNST	3
	15	15
Fourth Year		
Fall	Credits Spring	Credits
SOC 30, 403, 411, 416, 429, 430, 446, or 456 [*]	3 SOC 30, 403, 411, 416, 429, 430, 446, or 456 [*]	3
SOC 15, 109, 297, 424, 432, 445, 448, or SOC 454 [*]	3 SOC 15, 109, 297, 424, 432, 445, 448, or SOC 454 [*]	3
AFAM 211, BESC 464, SOC 110, SOC 409, SOC 428, SOC 435, SOC 461, 492, or 420 [*]	3 SOC 400W [*]	3
Select 3 credits on the 400-level in AFAM, BESC, GEOG, SOC [*]	3 SOC 495 or PSYCH 495 [*]	3
Elective	3 Elective	3
	15	15

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Community Option: Sociology, B.S. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 15S, 30T, or ESL 15 [‡]	3 CAS 100A or 100S [‡]	3
Quantification (GQ)	3 PSYCH 200 or STAT 200 ^{*†}	4
General Education Course	3 General Education Course	3
SOC 1 ^{*†}	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course	3
13.5		16

Second Year

Fall	Credits Spring	Credits
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course	3
General Education Course	3 Select 3 credits in AFAM, AMST, ANTH, ART H, BESC, COMM, CRIMJ, ENG, GEOG, HDFS, HIST, IHUM, MGMT, MUSIC, PLSC, PSYCH, PUBPL, SOC, THEA, WMNST	3
General Education Course	3 ENGL 202A [‡]	3
SOC 5 ^{*†}	3 Elective	3
Elective	2	
15.5		15

Third Year

Fall	Credits Spring	Credits
SOC 30, 403, 411, 416, 429, 430, 446, or 456 [*]	3 SOC 30, 403, 411, 416, 429, 430, 446, or 456 [*]	3
SOC 15, 109, 297, 424, 425, 432, 445, 448, or SOC 454 [*]	3 SOC 15, 109, 297, 424, 425, 432, 445, 448, or SOC 454 [*]	3
AFAM 211, BESC 464, SOC 110, SOC 409, SOC 428, SOC 435, SOC 461, 492, or 420 [*]	3 AFAM 211, BESC 464, SOC 110, SOC 409, SOC 428, SOC 435, SOC 461, 492, or 420 [*]	3
SOC 405 [*]	3 SOC 207 [*]	3
Elective	3 Elective	3
15		15

Fourth Year

Fall	Credits Spring	Credits
SOC 30, 403, 411, 416, 429, 430, 446, or 456 [*]	3 SOC 15, 103, 406, or 412 [*]	3
SOC 15, 109, 297, 424, 425, 432, 445, 448, or SOC 454 [*]	3 SOC 400W [*]	3
BESC 407, PSYCH 449, SOC 3, SOC 403, or SOC 404 [*]	3 SOC 495 or PSYCH 495 [*]	3

SOC 376, 408, MGMT 321, or MGMT 331 [*]	3 Select 3 credits on the 400-Level in AFAM, AMST, ANTH, ART H, BESC, COMM, CRIMJ, ENG, GEOG, HDFS, HIST, IHUM, MGMT, MUSIC, PLSC, PSYCH, PUBPL, SOC, THEA, WMNST	3
BESC 370 [*]	3 Elective	3
15		15

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ The following course is only offered in fall semesters:

- SOC 405 - Sociological Theory

² The following are only offered spring semesters

- SOC 1H - Honors Introductory Sociology
- SOC 207 - Research Methods in Sociology
- SOW 400W - Senior Research Seminar
- SOC 495 - Internship

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes

- GWS, GQ, GA, GH, GS, GN and GHW are codes used to identify General Education requirements.
- US, IL, and US;IL are codes used to designate courses that satisfy University United States/International Cultures requirements. All students are required to take one IL and one US course before graduation. A course designated as US;IL may be used as a US or an IL, not both.
- W suffix signifies the course satisfies the University Writing Across the Curriculum requirement.

Program Notes

Students must complete a 3-credit course in "United States Cultures (US)" and a 3-credit course in "International Cultures (IL)."

Career Paths

To succeed in the 21st century new graduates need to have following skills: critical and creative thinking analytic problem-solving conducting

research and data driven analysis communication and collaboration multicultural and global understandings to be able to work in diverse teams whose members are from various cultural and ethnic backgrounds

Careers

The Sociology program at Penn State Harrisburg is designed to provide opportunities for students to study social change, diverse communities, and their interactions through scientific methods. The Bureau of Labor Statistics site states that people with sociology degrees specialize in a wide range of social topics, including health, crime, education, racial and ethnic relations, families, population, gender, poverty, and aging. Studying sociology helps students foster the core set of knowledge and skills that are required by 21st century employers.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE SOCIOLOGY PROGRAM (<https://harrisburg.psu.edu/behavioral-sciences-education/sociology-bs/career-opportunities/>)

Contact

Harrisburg

SCHOOL OF BEHAVIORAL SCIENCES AND EDUCATION
Olmsted Building, W311
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717-948-6034
rka12@psu.edu

<https://harrisburg.psu.edu/behavioral-sciences-education/sociology-bs/>
(<https://harrisburg.psu.edu/behavioral-sciences-education/sociology-bs/>)

Structural Design and Construction Engineering Technology, B.S.

Begin Campus: Any Penn State Campus

End Campus: Harrisburg

Program Description

The program in Structural Design and Construction Engineering Technology provides the basic education required for the structural engineer and construction profession. Students learn the basic general engineering concepts needed for this major with emphasis on the fundamentals, structural design principles, and construction techniques through required course work. They are given the opportunity to focus in a discipline of construction management or structural design through a selected option or choose a broad general option. Courses in communication skills, arts, humanities, social and behavioral sciences, and other engineering related areas broaden the program. Students gain experience in working as members of a team and in using interdisciplinary approaches to solve problems. These experiences, as well as those related to design and construction principles, are taught through exercises in the classroom, laboratory, and field. The program culminates with a capstone project course in which the students' knowledge and skills are applied to specific problems.

What is Structural Design and Construction Engineering Technology?

Structural Design and Construction Engineering Technology is a discipline concerned with basic structural engineering principles and

construction techniques, building site inspection, site supervision, construction personnel supervision, plan and specification interpretation, supply logistics and procurement, applicable building codes, and report preparation.

You Might Like This Program If...

- You like hands-on and creative problem-solving.
- You work well within collaborative, multidisciplinary teams.
- You are interested in a career in the construction industry.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Structural Design and Construction Engineering Technology, a minimum of 125 credits is required:

Requirement	Credits
General Education	45
Electives	0-8
Requirements for the Major	96-106

24 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 3 credits of GWS courses; 3 credits of GHW courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
CET 308	Construction Methods and Materials	3
CET 342	Civil Engineering Materials - Concrete and Bituminous	3
CET 343	Soils Mechanics	3
CET 434	Foundations	3
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
ET 200	Graphic Communications	3
SSET 295	Internship	1
<i>Prescribed Courses: Require a grade of C or better</i>		
CE 254	Personal & Occupational Safety	3
CE 333W	Construction Management I	3

CET 430	Structural Analysis	3
CET 431	Structural Design-Steel	3
CET 432	Structural Design-Reinforced Concrete	3
CET 435	Construction Estimating	3
ENGL 202C	Effective Writing: Technical Writing	3
MATH 140	Calculus With Analytic Geometry I	4
Additional Courses		
CE 310	Surveying	3-4
or SUR 111	Plane Surveying	
ET 323	Strength of Materials Laboratory	1
or MET 214	Strength and Properties of Materials Laboratory	
Select 3 credits from the following: 3		
EGT 102	Introduction to Computer Aided Drafting	
& EGT 201	and Advanced Computer Aided Drafting	
EDSGN 100	Cornerstone Engineering Design	
Select 3-4 credits from the following: 3-4		
PHYS 150	Technical Physics I	
PHYS 211	General Physics: Mechanics	
PHYS 250	Introductory Physics I	
Select 3-4 credits from the following: 3-4		
PHYS 151	Technical Physics II	
PHYS 212	General Physics: Electricity and Magnetism	
PHYS 251	Introductory Physics II	
Select 3 credits from the following: 3		
ECON 14	Principles of Economics	
ECON 102	Introductory Microeconomic Analysis and Policy	
ECON 104	Introductory Macroeconomic Analysis and Policy	
Select 3 credits from the following: 3		
CMPS 101	Introduction to Programming	
CMPS 121	Introduction to Programming Techniques	
CMPS 201	Programming for Engineers with C++	
Select 3-4 credits from the following: 3-4		
ACCTG 211	Financial and Managerial Accounting for Decision Making	
MGMT 100	Survey of Management	
MGMT 301	Basic Management Concepts	
<i>Additional Courses: Require a grade of C or better</i>		
MATH 141	Calculus with Analytic Geometry II	4
or STAT 200	Elementary Statistics	
Select 3 credits from the following: 3		
EMCH 211	Statics	
ET 300	Mechanics I: Statics (does not require a grade of C or better)	
MET 111	Mechanics for Technology: Statics	
Select 3 credits from the following: 3		
EMCH 213	Strength of Materials	
ET 322	Strength of Materials	
MET 213	Strength and Properties of Materials	
Requirements for the Option		
Select an option		19-25

Requirements for the Option Construction Management Option (19-21 credits)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CE 456	Planning and Scheduling	3
CE 458	Construction Management II	3
CE 488C	Capstone Project - Construction	4
Additional Courses		
Select 3-4 credits from the following: 3-4		
ACCTG 211	Financial and Managerial Accounting for Decision Making	
MGMT 100	Survey of Management	
MGMT 301	Basic Management Concepts	
Select 3 credits from the following: 3		
AE 310	Fundamentals of Heating, Ventilating, and Air Conditioning	
CE 321	Highway Engineering	
ENVE 430	Sustainable Engineering	
MET 435	Building Energy Systems	
Supporting Courses and Related Areas		
Select 3-4 credits from approved program list 3-4		

General Option (25 credits)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CE 445	Advanced Structural Analysis	3
CE 449	Advanced Structural Design	3
CE 456	Planning and Scheduling	3
CE 458	Construction Management II	3
Additional Courses		
ET 321	Dynamics	3
or EMCH 212	Dynamics	
CE 360	Fluid Mechanics	3
or CET 361	Fluid Flow	
Select 3 credits from the following: 3		
AE 310	Fundamentals of Heating, Ventilating, and Air Conditioning	
CE 321	Highway Engineering	
ENVE 430	Sustainable Engineering	
MET 435	Building Energy Systems	
<i>Additional Courses: Require a grade of C or better</i>		
CE 488C	Capstone Project - Construction	4
or CE 488D	Capstone Project - Structural Design	

Structural Design Option (19-20 credits)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CE 445	Advanced Structural Analysis	3
CE 449	Advanced Structural Design	3
CE 488D	Capstone Project - Structural Design	4
Additional Courses		

CET 361	Fluid Flow	3
or CE 360	Fluid Mechanics	
ET 321	Dynamics	3
or EMCH 212	Dynamics	

Supporting Courses and Related Areas

Select 3-4 credits from approved program list 3-4

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Harrisburg

Shirley Clark, Ph.D., P.E., DWRE

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://>)

bulletins.psu.edu/undergraduate/archive/) to view the appropriate Undergraduate Bulletin edition.

Structural Design and Construction Engineering Technology, B.S. at Harrisburg Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 15S, 30T, or ESL 15 (GWS) [†]	3 General Education Course	3
EDSGN 100	3 ECON 102 or 104 (GS) [†]	3
MATH 41	3 CAS 100A or 100S (GWS) [†]	3
CHEM 110 (GN) [†]	3 PHYS 150, 211, or 250 (GN) [†]	3-4
CHEM 111 (GN) [†]	1 MATH 140 (GQ) [†]	4
General Education Course	3	
CE 100S	1	
	17	16-17

Second Year

Fall	Credits Spring	Credits
General Education Course	3 CMPSC 101, 131, 200, 201, or 202	3
PHYS 151, 212, or 251 (GN) [†]	3-4 ENGL 202C (GWS) [†]	3
MATH 141 or STAT 200 (GQ) [†]	4 ET 322 or EMCH 213 [*]	3
ET 300 or EMCH 211 [*]	3 ET 323	1
ACCTG 211 or MGMT 301	3-4 General Education Course	3
	General Education Course	3
	16-18	16

Third Year

Fall	Credits Spring	Credits
CE 254 (GHW) ^{**†}	3 CET 343	3
CE 333W ^{**†}	3 CET 308	3
CET 342	3 CET 361 (S)(G) or ACCTG 211 (C) or MGMT 301 (C)	3-4
ET 321 or EMCH 212 (S)(G)	3 CET 430 [*]	3
SUR 111 or CE 310	3-4 ET 200	3
	12-16	15-16

Fourth Year

Fall	Credits Spring	Credits
CET 431 [*]	3 CET 434	3
CET 432 [*]	3 CE 321, MET 435, or ENVE 430 (C)(G)	3
CET 435 [*]	3 CE 488D (S)(G) or CE 488C (C) [*]	3
CE 488D (S)(G) or CE 488C (C) [*]	1 CE 445 (S)(G) [*]	3
CE 456 (C)(G) [*]	3 CE 449 (S)(G) [*]	3
SSET 295	1 CE 458 (C)(G) [*]	3

Approved Selection (C)(S)¹ 3

14-17

12-18

Total Credits 118-135

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ (C) (S) Approved Selection
Choose from the Approved Selection list.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- The minimum number of credits required to graduate is 125.
- Students must select an option in one of the following areas: Construction (C), Structural Design (S), or General (G).

Program Notes:

- Students must complete a 3-credit course in "United States Cultures (US)" and a 3-credit course in "International Cultures (IL)."
- Entrance into SDCET major require a minimum of 29.1 credits and a 2.0 GPA.
- Graduation in this major: Courses listed with an * requires a grade of C or better and an option area.
- SDCET Approved Selections
- Other engineering or business courses may be accepted with permission of the program chair.
- An option-required courses cannot be used for an Approved Selection

List of Approved Courses

- ACCTG 211 FINANCIAL ACCOUNTING
- MET 435 HVAC
- B LAW 243 (4) or B LAW 242 and 241 (2) (2) LEGAL ENVIRONMENT BUSINESS
- CET 361 FLUID FLOW
- C E 321 HIGHWAY ENGINEERING
- C E 424 PROJECT INFORMATION MODELING
- C E 445 ADVANCED STRUCTURAL ANALYSIS
- C E 449 ADVANCED STRUCTURAL DESIGN
- C E 456 PLANNING & SCHEDULING
- C E 458 CONSTRUCTION MANAGEMENT II
- ENVE 415 HYDROLOGY

- ENVE 430 SUSTAINABLE ENGINEERING
- EET 320 INDUSTRIAL ELECTRICITY and ELECTRONICS
- ET 495 INTERNSHIP
- E MCH 212/MET 321 DYNAMICS
- MET 435 BUILDING ENERGY SYSTEMS
- M E 201 INTRODUCTION TO THERMAL SCIENCE
- M E 300 ENGINEERING THERMODYNAMICS
- MGMT 301 BASIC MGMT CONCEPT

Career Paths

The SDCET program is designed to prepare students for careers in the highly specialized construction industry. It allows for flexible scheduling, enabling students to focus their specialization in either construction or design. Study through these options could lead to opportunities as structural designers for bridges, buildings, or other projects or as project managers for commercial construction projects. Career options may also be available in government for state and federal highway projects and with construction firms in the specialty areas of scheduling, estimating, and cost control. Finally, opportunities may exist for graduates to pursue opportunities as designers, owners, or contractor representatives.

Careers

The U.S. Bureau of Labor Statistics expects excellent employment opportunities in the construction industry for the coming years. Penn State Harrisburg graduates in Structural Design and Construction Engineering Technology have had impressive job placements in the last eight years.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE STRUCTURAL DESIGN AND CONSTRUCTION ENGINEERING TECHNOLOGY PROGRAM (<https://harrisburg.psu.edu/science-engineering-technology/structural-design-construction-engineering-technology-bs/>)

Professional Resources

- American Concrete Institute (<https://www.concrete.org/students.aspx>)
- American Institute of Constructors (<https://aic-builds.org/>)
- American Institute of Steel Constructors (<https://www.aisc.org/>)
- American Society of Civil Engineers (<https://www.asce.org/membership/join/>)

Accreditation

The Bachelor of Science in Structural Design and Construction Engineering Technology at Penn State Harrisburg is accredited by the Engineering Technology Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Construction Engineering Technology and Similarly Named Programs.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

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<https://harrisburg.psu.edu/science-engineering-technology/structural-design-construction-engineering-technology-bs> (<https://harrisburg.psu.edu/science-engineering-technology/structural-design-construction-engineering-technology-bs/>)

Writing, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

Writing is valued as a mode of learning, as a means of expression, and as a skill highly desirable in the workplace. Personal development, interpersonal communication, and professional marketability may all be enhanced by the further study and practice of writing. For these reasons, the Writing minor offers students from virtually every discipline across the University an opportunity to learn more about a wide variety of writing: informative/persuasive, professional, and creative, while improving their own writing skills through hands-on writing experiences. In addition to offering students opportunities to study and practice different types of writing, the minor affords students the opportunity to write for/in different media, producing both print and electronic texts.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

For the Writing minor, a total of 18 credits is required. Students may not count courses used to satisfy General Education Writing/Speaking Skills.

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ENGL 211	Introduction to Writing Studies	3
ENGL 420	Writing for the Web	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 6-12 credits of the following: ¹		6-12
ENGL 50	Introduction to Creative Writing	
ENGL 209	Journal or Magazine Practicum	
ENGL 212	Introduction to Fiction Writing	

ENGL 213	Introduction to Poetry Writing
ENGL 215	Introduction to General Nonfiction Writing
ENGL 412	Advanced Fiction Writing
ENGL 413	Advanced Poetry Writing
ENGL 414	Biographical Writing
ENGL 415	Advanced Nonfiction Writing
ENGL 416	Science Writing
ENGL 417	The Editorial Process
ENGL 418	Advanced Technical Writing and Editing
ENGL 419	Advanced Business Writing
ENGL 421	Advanced Expository Writing
ENGL 422	Fiction Workshop
ENGL 423	Poetry Writing Workshop
ENGL 424	Creative Writing and the Natural World
ENGL 425	
ENGL 470	Rhetorical Theory and Practice
ENGL 471	Rhetorical Traditions
ENGL 474	Issues in Rhetoric and Composition

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 0-6 credits from a department-approved list ¹ 0-6

¹ At least 3 credits of Additional/Supporting courses must be taken at the 400 level.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Smeal College of Business

About the College

Charles H. Whiteman, John and Karen Arnold Dean, Smeal College of Business

The Penn State Smeal College of Business is a vibrant intellectual community offering highly ranked undergraduate, graduate, doctoral, and executive education opportunities to more than 8,000 students from across the country and around the world. Since our introduction in 1953, we have prepared more than 90,000 students for professional success, annually adding to Penn State's vast alumni network. We are a destination of choice for top global organizations seeking talent that will make a positive difference. Through our leading faculty and network of research centers and institutes, we are a source of knowledge that influences the business practices of tomorrow. We are forging connections, creating opportunities, and producing results.

MORE INFORMATION ABOUT THE COLLEGE (<https://www.smeal.psu.edu/about-smeal/>)

Mission

A leader in business education and research, we make meaningful impacts on society by:

- Providing extraordinary education with a global perspective and real-world application
- Producing the highest caliber research that that informs and inspires ethical, sustainable, and innovative business practices
- Partnering with and preparing learners for lifelong success
- Building and promoting a culture of integrity, diversity, service, and sustainability

Purpose

Your success as a leader depends on what you know and what you do. Equally important, however, is who you have around you from the start. For this, we are a partner for life. We are everywhere in the world and always in your corner – ready to open doors, offer advice, and cheer you

on. Wherever you are today or imagine yourself tomorrow, bring your talent, drive, and determination, and we'll prepare you for your next great opportunity, and the one after that.

MORE INFORMATION ABOUT THE MISSION AND PURPOSE OF THE SMEAL COLLEGE OF BUSINESS (<https://smeal.psu.edu/about-smeal/>)

Accreditation

The Penn State Smeal College of Business is recognized by the AACSB (Association to Advance Collegiate Schools of Business) as an accredited institution after completing a meticulous internal review and meeting all AACSB standards and requirements.

MORE INFORMATION ABOUT THE ASSOCIATION TO ADVANCE COLLEGIATE SCHOOLS OF BUSINESS (<https://www.aacsb.edu>)

Departments and Schools

Department of Accounting

The mission of the Accounting Department at the Penn State Smeal College of Business is to enhance and disseminate knowledge of accounting and the accounting profession through top-ranked educational opportunities and world-renowned faculty expertise.

MORE INFORMATION ABOUT THE DEPARTMENT OF ACCOUNTING (<https://www.smeal.psu.edu/accounting/>)

Department of Finance

The Penn State Smeal College of Business Finance Department provides students at all levels the opportunity to study investment analysis, management of banks and other financial institutions, and the financial management of corporations. Topics in business finance, security markets, commercial bank management, investment valuations, portfolio management, futures and options markets, and capital budgets are available.

MORE INFORMATION ABOUT THE DEPARTMENT OF FINANCE (<https://www.smeal.psu.edu/finance/>)

Department of Management and Organization

The Management and Organization Department at the Penn State Smeal College of Business is preparing future leaders to respond to challenges associated with creating a successful business in today's global economy while shaping management knowledge and practices for the twenty-first century.

MORE INFORMATION ABOUT THE DEPARTMENT OF MANAGEMENT AND ORGANIZATION (<https://www.smeal.psu.edu/management/>)

Department of Marketing

As a community focused on advancing the art and science of marketing, the Penn State Smeal College of Business Marketing Department combines rigorous and relevant research with an approach to education that is grounded in the fundamentals while embracing leading-edge concepts and tools.

MORE INFORMATION ABOUT THE DEPARTMENT OF MARKETING (<https://www.smeal.psu.edu/marketing/>)

Department of Risk Management

The Penn State Smeal College of Business Risk Management Department offers educational opportunities for students interested in exploring risk

analysis in a variety of business environments, as well as faculty research and expertise in a wide range of topics.

MORE INFORMATION ABOUT THE DEPARTMENT OF RISK MANAGEMENT (<https://www.smeal.psu.edu/risk-management/>)

Department of Supply Chain and Information Systems

Ranked No. 1 as a leader in supply chain education, the Penn State Smeal College of Business Supply Chain and Information Systems Department covers this boundary-spanning field of study through top-ranked degree programs, world-renowned faculty expertise and research, and corporate connections with top companies and supply chain practitioners.

MORE INFORMATION ABOUT THE DEPARTMENT OF SUPPLY CHAIN AND INFORMATION SYSTEMS (<https://www.smeal.psu.edu/scis/>)

Baccalaureate Degrees

- Accounting, B.S. (Business)
- Actuarial Science, B.S.
- Corporate Innovation and Entrepreneurship, B.S.
- Finance, B.S. (Business)
- Management Information Systems, B.S. (Business)
- Management, B.S. (Business)
- Marketing, B.S. (Business)
- Real Estate, B.S.
- Risk Management, B.S.
- Supply Chain and Information Systems, B.S.

Minors

- Information Systems Management, Minor
- International Business, Minor
- Legal Environment of Business, Minor
- Supply Chain and Information Sciences and Technology, Minor
- Supply Chain and Information Systems, Minor

Certificates

- Real Estate Analysis and Development, Certificate
- Smeal College Business Fundamentals, Certificate

College Procedures

Administrative Enrollment Controls

All Smeal majors are under Administrative Enrollment Controls.

MORE INFORMATION ABOUT ADMINISTRATIVE ENROLLMENT CONTROLS FOR PROGRAMS IN THE SMEAL COLLEGE OF BUSINESS (p. 3153)

Change of Campus

Change of campus policies and procedures can be found at the link below.

MORE INFORMATION ABOUT CHANGE OF CAMPUS (<https://ugstudents.smeal.psu.edu/academics-advising/get-into-a-smeal-major/change-of-location/>)

Concurrent Majors

Due to enrollment controls and similarities in the Smeal curriculum, students are not permitted to enroll in more than one Smeal major.

MORE INFORMATION ABOUT CONCURRENT MAJORS (<https://ugstudents.smeal.psu.edu/academics-advising/degree-requirements/concurrent-majors/>)

READ SENATE POLICY 60-00: COMPLETING MORE THAN ONE UNDERGRADUATE MAJOR PROGRAM (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/60-00-completing-more-than-one-undergraduate-program/#60-00>)

Academic Warning

A student who fails to earn a 2.00 cumulative grade-point average will be placed on academic warning. A student placed on academic warning will have a hold placed on registration and will be required to meet with an academic adviser in order for this registration hold to be removed. To remove academic warning, the cumulative grade-point average must be 2.00 or higher.

READ SENATE POLICY 54-20: ACADEMIC WARNING (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-20>)

Academic Suspension

A student in academic warning who fails to maintain a semester grade-point average of 2.00 or higher will be academically suspended. A student who has been academically suspended may not schedule courses at the University for two consecutive semesters. (Note: Summer session is equal to one semester.)

READ SENATE POLICY 54-40: ACADEMIC SUSPENSION (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-40>)

Resources

Smeal College Advising Center

The Smeal College Advising Center is the source for information about undergraduate majors, minors, certificates, scheduling, degree requirements, entrance-to-major, and more. With a team of dedicated academic advisers, students are provided resources and support as they explore choices regarding their academic interests and co-curricular opportunities.

MORE INFORMATION ABOUT THE SMEAL COLLEGE ADVISING CENTER (<https://ugstudents.smeal.psu.edu/academics-advising/get-into-a-smeal-major/>)

Diversity Enhancement Programs

The mission of the Office of Diversity Enhancement Programs is to assist in the development of a diverse learning community by creating a welcoming climate for all undergraduate students. Through a variety of academic, professional, and personal enhancement opportunities, our office helps diversity students leverage the resources available through our distinctive learning community.

MORE INFORMATION ABOUT DIVERSITY ENHANCEMENT PROGRAMS (<https://www.smeal.psu.edu/diversity/>)

Business Career Center

Information on the Business Career Center at Smeal including how to prepare for career fairs; details on applying for internships, co-ops, and full-time positions; and how to get involved in students organizations.

MORE INFORMATION ABOUT THE BUSINESS CAREER CENTER (<https://careerconnections.smeal.psu.edu/>)

Strickler Office of International Programs

The Strickler Office of International Programs (SOIP) advises Smeal and Smeal-bound Division of Undergraduate Studies students on study abroad, international internships, the International Business (IB) Minor and related goals. SOIP advisors can help discuss short-term, summer, and semester study abroad programs, as well as how to develop business skills in a global environment through internships. The IB Minor is designed to provide the knowledge, skills, and experience that help students prepare for a business career in a global world. Study abroad, the IB Minor, and international internships are open to all Smeal majors.

MORE INFORMATION ABOUT STRICKLER OFFICE OF INTERNATIONAL PROGRAMS (<https://ugstudents.smeal.psu.edu/international-programs/>)

Sapphire Leadership Academic Program

The Sapphire Leadership Academic Program is designed for high-achieving students who would like to enhance their business school experience. By providing unique academic content, leadership and professional development opportunities, and real-world application of knowledge gained inside the classroom, the Sapphire Leadership Academic Program empowers student leaders to make an impact on business and society.

MORE INFORMATION ABOUT THE SAPPHIRE LEADERSHIP ACADEMIC PROGRAM (<https://smeal.psu.edu/sapphire/>)

Honors Programs

Schreyer Honors College

The Schreyer Honors College, regarded as one of the nation's top programs of its kind, promotes achieving academic excellence with integrity, building a global perspective, and creating opportunities for leadership and civic engagement. Schreyer Scholars, including those admitted after their first or second year of enrollment, are a diverse and motivated group of approximately 2,000 students at University Park and 20 Commonwealth campuses. The College strives to educate students who will have an important and ethical influence in the world, to improve educational practice, and to continue to be recognized as a leading force in honors education nationwide.

MORE INFORMATION ABOUT THE SCHREYER HONORS COLLEGE (<https://www.shc.psu.edu>)

Honors in the Smeal College of Business

Build the foundation for a successful future in business as a Scholar in the internationally ranked Penn State Smeal College of Business and the Schreyer Honors College. The Smeal curriculum is designed to expand your understanding of the business world and your ability to influence it. Outside the classroom get involved in our network of student organizations, spend a semester abroad, interview for job opportunities with the world's top companies, and connect with professors ranked among the best in the world for academic excellence. As one of the largest business schools in the world, discover the vast opportunities available to Scholars jointly enrolled in Smeal and Schreyer.

MORE INFORMATION ABOUT HONORS IN THE SMEAL COLLEGE OF BUSINESS (<https://ugstudents.smeal.psu.edu/academics-advising/honors-and-leadership/schreyer/>)

Contact

SMEAL COLLEGE OF BUSINESS
202 Business Building
University Park PA, 16802
814-863-1947
SmealAdvising@smeal.psu.edu

<https://www.smeal.psu.edu>

Accounting, B.S. (Business)

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

This major prepares students for careers in public, corporate, not-for-profit, and governmental accounting and also provides an appropriate background for those planning to enter law school or graduate school. Accountants develop and interpret historical and prospective financial data required for decision-making by managers, investors, regulators, and other stakeholders. To perform their functions, accountants must synthesize both numerical and qualitative information, communicate it clearly, and function effectively as individuals and in teams. The field of Accounting is diverse and offers students the opportunity to be generalists or concentrate in one of the following:

Corporate Control & Financial Management - Courses in this concentration prepare students for positions in industry, government, and business advisory services doing financial planning, analysis, control, and decision support. Students can obtain such designations as *Certified Management Accountant (CMA)*. Management accountants provide forecasts, compute costs and benefits, perform variance analysis, and review and monitor performance. Managerial accountants also design systems that provide information to decision makers.

Internal Auditing & Assessment - Courses in this concentration prepare students for positions in industry and government as internal auditors. Students can obtain such designations as *Certified Internal Auditor (CIA)*. Internal auditors are employed by the organization they audit. Internal auditing is a systematic approach to evaluating and improving the effectiveness of risk management, control, and governance processes. Internal auditors also review compliance with standards and assess the organization's risks.

Public Accounting - Public accounting is carried on by independent practitioners, most of whom are Certified Public Accountants (CPAs). In addition to statutory audits, CPAs render other assurance, tax, and management advisory services. To be licensed as a CPA in nearly every state, including Pennsylvania, individuals must complete 150 credit-hours of education, pass a demanding professional examination, and meet certain experience requirements. One way to accomplish this is to enroll in the Integrated B.S. in Accounting and Master of Accounting Program.

What is Accounting?

Accountants develop and interpret financial data required for decision-making by managers, investors, regulators, and other stakeholders. To perform their functions, accountants must work with both numerical

information and concepts, and they must be able to function effectively as individuals and in teams. Accountants work with people in their own specialized departments, and with users of financial information throughout their organization. Because of this close association with other parts of the organization, the accountant is in a unique position to develop a broad business perspective.

MORE INFORMATION ABOUT ACCOUNTING (<https://undergrad.smeal.psu.edu/majors/accounting/>)

Entrance to Major

To be eligible for entrance into the Accounting (ACCTG) major, a degree candidate must be enrolled in the Smeal College of Business or the Division of Undergraduate Studies and satisfy requirements for entrance to the major.

Administrative Enrollment Controls

This program currently has administrative enrollment controls. Administrative Enrollment Controls are initiated when limitations of space, faculty, or other resources in a major prevent accommodating all students who request them. Students must follow the administrative enrollment controls that are in effect for the semester that they enter the university.

First-Year Students Entering Summer 2024, Fall 2024, Spring 2025

In order to be eligible for entrance to this major, students must satisfy the following requirements:

- 36-59 graded Penn State credits (excludes transfer and AP credits)
- completed with a grade of C or better:
 - English - ENGL 15 or ENGL 30H or ESL 15 or ENGL 137H or CAS 137H
 - Mathematics - MATH 110 or MATH 140 or MATH 140B
 - Statistics - SCM 200 or SCM 200H or STAT 200
- completed ECON 102 or ECON 102H
- completed at Penn State (no substitutions or transfers), in addition with a quality grade of "C" or better and no alternative or Pass/Fail (PS) grading:
 - Accounting - ACCTG 211 or ACCTG 211H
 - Management - MGMT 301 or MGMT 301H or MGMT 301M or MGMT 301W
 - Marketing - MKTG 301 or MKTG 301H or MKTG 301W
 - Finance - FIN 301 or FIN 301H
- earned a minimum cumulative grade-point average (GPA) of 3.20

Students Who Entered Prior to Summer 2024

Students who entered the University from Summer 2018 through Spring 2024 should view the administrative enrollment controls in the appropriate Undergraduate Bulletin archive (<https://bulletins.psu.edu/undergraduate/archive/>). Students who entered the University prior to the summer 2018 semester should consult with their academic adviser about the administrative enrollment controls in effect for the semester they entered the university.

Degree Completion

Students accepted into the Accounting (ACCTG_BS) major are expected to enroll at University Park the fall semester after gaining entrance to the major. In addition, Senate Policy 83-80.5 stipulates that the college dean

and program faculty may require up to 24 credits of course work in the major to be taken in the college where the degree is earned. Based on this policy, the Smeal College of Business has set the following credit earning limitations for ACCTG_BS majors:

1. Twenty-one credits of 300/400 level prescribed and additional courses in the major field must be completed with Accounting faculty at University Park.
2. Six additional credits of 300/400 level supporting courses must also be completed at University Park. See the Accounting Suggested Academic Plan for details.

Degree Requirements

For the Bachelor of Science degree in Accounting, a minimum of 120 credits is required with at least 15 credits at the 400 level:

Requirement	Credits
General Education	45
Electives	11
Requirements for the Major	76

12 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GWS courses (ENGL 202D); 6 credits of GQ courses (MATH 110 or MATH 140 and SCM 200 or STAT 200); 3 credits of GS courses (ECON 102).

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
ACCTG 403W	Auditing	3
ACCTG 404	Managerial Accounting: Economic Perspective	3
BA 342	Socially Responsible, Sustainable and Ethical Business Practice	3
BA 411	Analyzing Business and Industry	3
BLAW 341	Business Law I: Introduction to Contracts, Liability Issues, and Intellectual Property	3
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
MIS 250	Introduction to Problem Solving with Spreadsheet Analysis and Information Systems Management	3
SCM 301	Supply Chain Management	3
<i>Prescribed Courses: Require a grade of C or better</i>		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
ACCTG 405	Principles of Taxation I	3
ACCTG 471	Intermediate Financial Accounting I	3
ACCTG 472	Intermediate Financial Accounting II	3
ENGL 202D	Effective Writing: Business Writing	3
FIN 301	Corporation Finance	3
MGMT 301	Basic Management Concepts	3
MKTG 301	Principles of Marketing	3

Additional Courses

Select 6 credits from the following:		6
ACCTG 406	Principles of Taxation II	
ACCTG 432	Accounting Information Systems	
ACCTG 440	Advanced Management Accounting	
ACCTG 473	Advanced Financial Accounting	
ACCTG 481	Financial Statement Analysis: Accounting Based Evaluation and Decision Making	
ACCTG 483	Forensic Accounting	

Additional Courses: Require a grade of C or better

MATH 110	Techniques of Calculus I	4
or MATH 140	Calculus With Analytic Geometry I	
SCM 200	Introduction to Statistics for Business	4
or STAT 200	Elementary Statistics	

Supporting Courses and Related Areas

Select 4 credits: Attainment of 12th credit level proficiency in a single world language. Proficiency must be demonstrated by either examination or course work. 4

Select 6 credits of supporting coursework. See Department List. 6

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Accounting and M.Acc. in Accounting

Requirements for the Integrated B.S. in Accounting and M.Acc. in Accounting can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/accounting-smeal/#integratedundergradgradprogramstext>).

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the

habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Advising Center

Smeal College Undergraduate Education
202 Business Building
University Park, PA 16802
814-863-1947
SmealAdvising@smeal.psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Accounting, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSU 6	1 MGMT 301 ^{1,2}	3
(MATH 110 or MATH 140) or (SCM 200 or STAT 200) (GQ) ^{1,2}	4 (SCM 200 or STAT 200) or (MATH 110 or MATH 140) (GQ) ^{1,2}	4
ENGL 15, 30H, ESL 15, ENGL 137H, or CAS 137H ^{1,2}	3 World Language - Level Two (8th credit level) ³	4
ECON 102 (GS) ²	3 General Education Course (US) ⁴	3
World Language - Level One (4th credit level) ³	4	
	15	14

Second Year

Fall	Credits Spring	Credits
MKTG 301 ^{1,2}	3 FIN 301 ^{1,2}	3
ACCTG 211 ^{1,2}	4 SCM 301	3
ECON 104	3 CAS 100, ENGL 138T, or CAS 138T ¹	3
World Language - Level Three (12th credit level) ³	4 MIS 250	3
General Education Course (IL) ⁴	3 General Education Course ⁴	3
	17	15

Third Year

Fall	Credits Spring	Credits
ACCTG 471 ¹	3 ACCTG 472 ¹	3
ACCTG 404	3 ACCTG 405 ¹	3
ENGL 202D ¹	3 General Education Course (N) ⁴	3
BLAW 341 or BA 342	3 BA 342 or BLAW 341	3
General Education Course ⁴	3 General Education Course ⁴	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
ACCTG 403W (or ACCTG 4XX - Accounting Elective) ⁶	3 ACCTG 403W (or ACCTG 4XX - Accounting Elective) ⁶	3
BA 411 (or ACCTG 4XX - Accounting Elective) ⁶	3 BA 411 (or ACCTG 4XX - Accounting Elective) ⁶	3
Business Breadth Course ⁵	3 Business Breadth Course ⁵	3
General Education Course (N) ⁴	3 General Education Course ⁴	3
Elective ⁴	2 General Education Course ⁴	3
	14	15

Total Credits 120

¹ Course requires a grade of C or better

² Entrance-to-Major Course – complete prior to attaining 59 cumulative credits at Penn State

³ Attain 12th credit level proficiency in a world language (0-12 credits). Credits required vary based on predetermined skill level. Balance of remaining credits are taken as electives. American Sign Language does not satisfy the Smeal College world language requirement.

⁴ When planning general education and elective courses, students should factor in the following requirements:

- 3 credits of United States Culture (US)
- 3 credits of International Culture (IL)
- 6 credits of Inter-Domain (N) coursework

⁵ See the Business Breadth Course list on the Smeal College website.

⁶ See the Accounting Elective (ACCTG 4XX) courses on the Accounting Department website.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry

the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

College and Department Notes:

1. The Smeal College of Business requires that the following entrance-to-major courses be taken at Penn State: ACCTG 211, MGMT 301, MKTG 301, and FIN 301.
2. Pursuant to the Association to Advance Collegiate Schools of Business (AACSB) accreditation standards, the Smeal College of Business requires that all upper division courses within the departments sponsoring the major be completed in residence at University Park under the instruction of Smeal College faculty.
3. **Public Accounting** – Students interested in public accounting should take ACCTG 406 and ACCTG 473 for the Additional ACCTG courses requirement and BLAW 444 in the supporting course or electives area. These courses aid in preparation for the CPA (Certified Public Accountant) examination. To sit for the CPA exam, students must complete 150 specified credits. The Smeal College Integrated MAcc (Master of Accounting) and/or One-Year MAcc program are designed to fully prepare students for the CPA Exam.
4. **Corporate Accounting** – Students interested in corporate accounting should take ACCTG 440 and ACCTG 481 for the Additional ACCTG courses requirement. ACCTG 417 is also recommended as an elective. These courses can be used in the optional Corporate Control and Analysis certificate offered by the Smeal Accounting Department.

Accounting, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
First-Year Seminar (if required by Campus)	1-0 MGMT 301 ^{1,2}	3
(MATH 110 or MATH 140) or (SCM 200 or STAT 200) (GQ) ^{1,2}	4 (SCM 200 or STAT 200) or (MATH 110 or MATH 140) (GQ) ^{1,2}	4
ENGL 15, 30H, ESL 15, ENGL 137H, or CAS 137H ^{1,2}	3 World Language - Level Two (8th credit level) ³	4
ECON 102 (GS) ²	3 General Education Course (US) ⁴	3
World Language - Level One (4th credit level) ³	4	
	15-14	14

Second Year

Fall	Credits Spring	Credits
MKTG 301 ^{1,2}	3 FIN 301 ^{1,2}	3
ACCTG 211 ^{1,2}	4 ENGL 202D ¹	3
ECON 104	3 CAS 100, ENGL 138T, or CAS 138T ¹	3
World Language - Level Three (12th credit level) ³	4 General Education Course ⁴	3
General Education Course (IL) ⁴	3 General Education Course ⁴	3
	17	15

Third Year

Fall	Credits Spring	Credits
ACCTG 471 ¹	3 ACCTG 472 ¹	3
ACCTG 404	3 ACCTG 405 ¹	3
SCM 301	3 General Education Course (N) ⁴	3
BLAW 341 or BA 342	3 BA 342 or BLAW 341	3
MIS 250	3 General Education Course ⁴	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
ACCTG 403W (or ACCTG 4XX - Accounting Elective) ⁶	3 ACCTG 403W (or ACCTG 4XX - Accounting Elective) ⁶	3
BA 411 (or ACCTG 4XX - Accounting Elective) ⁶	3 BA 411 (or ACCTG 4XX - Accounting Elective) ⁶	3
Business Breadth Course ⁵	3 Business Breadth Course ⁵	3
General Education Course (N) ⁴	3 General Education Course ⁴	3
Elective ⁴	2-3 General Education Course ⁴	3
	14-15	15

Total Credits 120

¹ Course requires a grade of C or better

² Entrance-to-Major Course – complete prior to attaining 59 cumulative credits at Penn State

³ Attain 12th credit level proficiency in a world language (0-12 credits). Credits required vary based on predetermined skill level. Balance of remaining credits are taken as electives. American Sign Language does not satisfy the Smeal College world language requirement.

⁴ When planning general education and elective courses, students should factor in the following requirements:

- 3 credits of United States Culture (US)
- 3 credits of International Culture (IL)
- 6 credits of Inter-Domain (N) coursework

⁵ See the Business Breadth Course list on the Smeal College website.

⁶ See the Accounting Elective (ACCTG 4XX) courses on the Accounting Department website.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

College and Department Notes:

- The Smeal College of Business requires that the following entrance-to-major courses be taken at Penn State: ACCTG 211, MGMT 301, MKTG 301, and FIN 301.
- Pursuant to the Association to Advance Collegiate Schools of Business (AACSB) accreditation standards, the Smeal College of Business requires that all upper division courses within the departments sponsoring the major be completed in residence at University Park under the instruction of Smeal College faculty.
- Public Accounting** – Students interested in public accounting should take ACCTG 406 and ACCTG 473 for the Additional ACCTG courses requirement and BLAW 444 in the supporting course or electives area. These courses aid in preparation for the CPA (Certified Public Accountant) examination. To sit for the CPA exam, students must complete 150 specified credits. The Smeal College Integrated MAcc (Master of Accounting) and/or One-Year MAcc program are designed to fully prepare students for the CPA Exam.
- Corporate Accounting** – Students interested in corporate accounting should take ACCTG 440 and ACCTG 481 for the Additional ACCTG courses requirement. ACCTG 417 is also recommended as an elective. These courses can be used in the optional Corporate Control and Analysis certificate offered by the Smeal Accounting Department.

Accreditation

The Smeal College of Business B.S. degree in Accounting (ACCTG_BS) is recognized by the AACSB (Association to Advance Collegiate Schools

of Business) as an accredited program after completing a meticulous internal review and meeting all AACSB standards and requirements.

MORE INFORMATION ABOUT THE ASSOCIATION TO ADVANCE COLLEGIATE SCHOOLS OF BUSINESS (<https://www.aacsb.edu>)

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

The Smeal College baccalaureate degree in Accounting (ACCTG_BS) consists of 120 credits which includes specific accounting and related courses. Graduates of the program are well positioned to sit for the Certified Public Accounting (CPA) exam in most states. To become a certified public accountant, an additional 30 credits are needed along with passing the CPA exam and full-time work experience under the supervision of a CPA accountant. Additional requirements may be necessary and vary from state to state.

Contact

University Park

DEPARTMENT OF ACCOUNTING
354 Business Building
University Park, PA 16802
814-865-1809
accounting@smeal.psu.edu

<https://www.smeal.psu.edu/accounting> (<https://www.smeal.psu.edu/accounting/>)

Ask A Question: <https://directory.smeal.psu.edu/contact/acctg> (<https://directory.smeal.psu.edu/contact/acctg/>)

Actuarial Science, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

An actuary is a business professional who uses mathematical skills to define, analyze, and solve complex business and social problems. The Actuarial Science major stresses the application of mathematical and statistical concepts to the measurement of life, health, pensions, and other contingencies, while at the same time giving the student a broad understanding of the business environment. Students in the Actuarial Science major will be prepared to begin the series of professional examinations leading to Associateship and Fellowship in either the Society of Actuaries (A.S.A./F.S.A.) or the Casualty Actuarial Society (A.C.A.S./F.C.A.S.) while enrolled in the program.

What is Actuarial Science?

The Actuarial Science major provides background in the wide range of knowledge needed to be a professional actuary including calculus, probability and statistics, financial and actuarial mathematics, economics, finance, risk management, pensions, and insurance. Excellent skills in mathematics and statistics is a critical component of this major.

Actuaries are vital to corporate and government agencies, calculating the costs of life or health insurance, or how much an insurance company can expect to pay in claims due to natural disasters, car accidents, and other situations. The curriculum is designed to prepare students for the series of professional examinations needed in order to be a practicing actuary. Students are encouraged to complete several of these exams prior to graduation with employers providing assistance to complete the remaining exams.

Entrance to Major

To be eligible for entrance into the Actuarial Science major, a degree candidate must be enrolled in the Smeal College of Business or the Division of Undergraduate Studies and satisfy requirements for entrance to the major.

Administrative Enrollment Controls

This program currently has administrative enrollment controls. Administrative Enrollment Controls are initiated when limitations of space, faculty, or other resources in a major prevent accommodating all students who request them. Students must follow the administrative enrollment controls that are in effect for the semester that they enter the university.

First-Year Students Entering Summer 2024, Fall 2024, Spring 2025

In order to be eligible for entrance to this major, students must satisfy the following requirements:

- 36-59 graded Penn State credits (excludes transfer and AP credits)
- completed with a grade of C or better:
 - English - ENGL 15 or ENGL 30H or ESL 15 or ENGL 137H or CAS 137H
 - Mathematics - (MATH 140 or MATH 140B) and MATH 141
 - Statistics - SCM 200 or SCM 200H or STAT 200
- completed ECON 102 or ECON 102H
- completed at Penn State (no substitutions or transfers), in addition with a quality grade of "C" or better and no alternative or Pass/Fail (PS) grading:
 - Accounting - ACCTG 211 or ACCTG 211H
 - Management - MGMT 301 or MGMT 301H or MGMT 301M or MGMT 301W
 - Marketing - MKTG 301 or MKTG 301H or MKTG 301W
 - Finance - FIN 301 or FIN 301H
- earned a minimum cumulative grade-point average (GPA) of 3.20

Students Who Entered Prior to Summer 2024

Students who entered the University from Summer 2018 through Spring 2024 should view the administrative enrollment controls in the appropriate Undergraduate Bulletin archive (<https://bulletins.psu.edu/undergraduate/archive/>). Students who entered the University prior to the summer 2018 semester should consult with their academic adviser about the administrative enrollment controls in effect for the semester they entered the university.

Degree Completion

Students accepted into the Actuarial Science (ACTSC_BS) major are expected to enroll at University Park the fall semester after gaining entrance to the major. In addition, Senate Policy 83-80.5 stipulates that the college dean and program faculty may require up to 24 credits of

course work in the major to be taken in the college where the degree is earned. Based on this policy, the Smeal College of Business has set the following credit earning limitations for ACTSC_BS majors:

1. Fifteen credits of 300/400 level prescribed actuarial science and risk management courses in the major field must be completed with Actuarial Science and Risk Management faculty at University Park.
2. Six additional credits of 300/400 level additional Actuarial Science elective courses must also be completed at University Park. See the Actuarial Science Suggested Academic Plan for details.

Degree Requirements

For the Bachelor of Science degree in Actuarial Science, a minimum of 120 credits:

Requirement	Credits
General Education	45
Electives	8
Requirements for the Major	82

15 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GWS courses; 6 credits of GQ courses; 3 credits of GS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
BA 342	Socially Responsible, Sustainable and Ethical Business Practice	3
BA 411	Analyzing Business and Industry	3
BLAW 341	Business Law I: Introduction to Contracts, Liability Issues, and Intellectual Property	3
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
MIS 250	Introduction to Problem Solving with Spreadsheet Analysis and Information Systems Management	3
<i>Prescribed Courses: Require a grade of C or better</i>		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
ENGL 202D	Effective Writing: Business Writing	3
FIN 301	Corporation Finance	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
MATH 231	Calculus of Several Variables	2
MGMT 301	Basic Management Concepts	3
MKTG 301	Principles of Marketing	3
RM 320W	Risk Management and Insurance	3
RM 410	Financial Mathematics for Actuaries	3
RM 411	Long Term Actuarial Mathematics - Fundamentals	3
RM 421	Short Term Actuarial Mathematics - Fundamentals	3
RM 430	Life and Health Insurance	3

STAT/MATH 414	Introduction to Probability Theory	3
STAT/MATH 415	Introduction to Mathematical Statistics	3

Additional Courses

Additional Courses: Require a grade of C or better

RM 412	Long Term Actuarial Mathematics - Advanced Topics	3
or RM 422	Short Term Actuarial Mathematics - Advanced Topics	
SCM 200	Introduction to Statistics for Business	4
or STAT 200	Elementary Statistics	

Select 3 credits from the following: 3

ENGL 15	Rhetoric and Composition	
ENGL 30H	Honors Rhetoric and Composition	
ENGL/CAS 137H	Rhetoric and Civic Life I	
ESL 15	ESL Composition for American Academic Communication II	

Select 3 credits from the following: 3

STAT 380	Data Science Through Statistical Reasoning and Computation	
STAT 462	Applied Regression Analysis	
STAT 483	Statistical Programming in SAS	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Attainment of 12th-credit level proficiency in a single world language. 4
Proficiency must be demonstrated by either examination or course work.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Advising Center

Smeal College Undergraduate Education
202 Business Building
University Park, PA 16802
814-863-1947
SmealAdvising@smear.psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Actuarial Science, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSU 6	1 MGMT 301 ^{1,2}	3
MATH 140 ^{1,2}	4 MATH 141 ^{1,2}	4
ENGL 15, 30H, ESL 15, ENGL 137H, or CAS 137H ^{1,2}	3 World Language - Level Three (12th credit level) ³	4
ECON 102 (GS) ²	3 SCM 200 or STAT 200 ^{1,2}	4
World Language - Level Two (8th credit level) ³	4	
	15	15

Second Year

Fall	Credits Spring	Credits
MKTG 301 ^{1,2}	3 FIN 301 ^{1,2}	3
ACCTG 211 ^{1,2}	4 STAT/MATH 414 ¹	3
ECON 104	3 CAS 100, ENGL 138T, or CAS 138T ¹	3
MATH 231 ¹	2 MIS 250	3
General Education Course	3 General Education Course	3
	15	15

Third Year

Fall	Credits Spring	Credits
RM 320W ¹	3 RM 421 ¹	3
RM 410 ¹	3 STAT 380, 462, or 483	3

BLAW 341 or BA 342	3 BA 342 or BLAW 341	3
STAT/MATH 415 ¹	3 General Education Course	3
ENGL 202D ¹	3 General Education Course	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
RM 411 ¹	3 General Education Course	3
RM 430 ¹	3 General Education Course	3
General Education Course	3 RM 412 or 422 ¹	3
BA 411 (or General Education Course)	3 BA 411 (or General Education Course)	3
General Education Course	3 Elective	3
	15	15

Total Credits 120

¹ Course requires a grade of C or better

² Entrance-to-Major Course – complete prior to attaining 59 cumulative credits at Penn State

³ Attain 12th credit level proficiency in a world language (0-12 credits). Credits required vary based on predetermined skill level. Balance of remaining credits are taken as electives. American Sign Language does not satisfy the Smeal College world language requirement.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Course Planning and Selection Notes:

- I. The Smeal College of Business requires that the following entrance-to-major courses be taken at Penn State: ACCTG 211, MGMT 301, MKTG 301, and FIN 301.
- II. Pursuant to the Association to Advance Collegiate Schools of Business (AACSB) accreditation standards, the Smeal College of Business requires that all upper division courses within the departments sponsoring the major be completed in residence at University Park under the instruction of Smeal College faculty.

Actuarial Science, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
First-Year Seminar (if required by Campus)	1-0 MGMT 301 ^{1,2}	3
MATH 140 ^{1,2}	4 MATH 141 ^{1,2}	4
ENGL 15, 30H, ESL 15, ENGL 137H, or CAS 137H ^{1,2}	3 World Language - Level Three (12th credit level) ³	4
ECON 102 (GS) ²	3 SCM 200 or STAT 200 ^{1,2}	4
World Language - Level Two (8th credit level) ³	4	
15-14		15

Second Year

Fall	Credits Spring	Credits
MKTG 301 ^{1,2}	3 FIN 301 ^{1,2}	3
ACCTG 211 ^{1,2}	4 STAT/MATH 414 ¹	3
ECON 104	3 CAS 100, ENGL 138T, or CAS 138T ¹	3
MATH 231 ¹	2 ENGL 202D ¹	3
General Education Course	3 General Education Course	3
15		15

Third Year

Fall	Credits Spring	Credits
RM 320W ¹	3 RM 421 ¹	3
RM 410 ¹	3 STAT 380, 462, or 483	3
BLAW 341 or BA 342	3 BA 342 or BLAW 341	3
STAT/MATH 415 ¹	3 General Education Course	3
MIS 250	3 General Education Course	3
15		15

Fourth Year

Fall	Credits Spring	Credits
RM 411 ¹	3 General Education Course	3
RM 430 ¹	3 General Education Course	3
General Education Course	3 RM 412 or 422 ¹	3
BA 411 (or General Education Course)	3 BA 411 (or General Education Course)	3
General Education Course	3 Elective	3-4
15		15-16

Total Credits 120

¹ Course requires a grade of C or better

² Entrance-to-Major Course – complete prior to attaining 59 cumulative credits at Penn State

³ Attain 12th credit level proficiency in a world language (0-12 credits). Credits required vary based on predetermined skill level. Balance of

remaining credits are taken as electives. American Sign Language does not satisfy the Smeal College world language requirement.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Course Planning and Selection Notes:

- I. The Smeal College of Business requires that the following entrance-to-major courses be taken at Penn State: ACCTG 211, MGMT 301, MKTG 301, and FIN 301.
- II. Pursuant to the Association to Advance Collegiate Schools of Business (AACSB) accreditation standards, the Smeal College of Business requires that all upper division courses within the departments sponsoring the major be completed in residence at University Park under the instruction of Smeal College faculty.

Career Paths

Actuarial Science has been rated as the No. 1 career path in the nation by The Wall Street Journal. The Actuarial Science major at Smeal prepares students for careers in insurance, consulting, finance, and government agencies that demand quantitative and qualitative skills. This major is also a STEM Designated Degree Program.

Careers

Smeal Actuarial Science students are highly sought by industry and government for internships and full-time jobs. Average starting salaries exceed \$70,000 and internships are paid a competitive wage. Due to the size of the Smeal Actuarial Science program, the college hosts one of the largest actuarial career fairs in the country with more than 30 companies attending each year.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE ACTUARIAL SCIENCE PROGRAM (<https://www.smeal.psu.edu/risk-management/degrees/actsc/>)

Accreditation

The Smeal College of Business B.S. degree in Actuarial Science (ACTSC_BS) is recognized by the AACSB (Association to Advance Collegiate Schools of Business) as an accredited program after completing a meticulous internal review and meeting all AACSB standards and requirements.

MORE INFORMATION ABOUT THE ASSOCIATION TO ADVANCE COLLEGIATE SCHOOLS OF BUSINESS (<https://www.aacsb.edu>)

MORE INFORMATION ABOUT THE SOCIETY OF ACTUARIES (<https://www.soa.org/>)

Contact

University Park

DEPARTMENT OF RISK MANAGEMENT
355 Business Building
814-865-4172
rm@smeal.psu.edu

<https://www.smeal.psu.edu/risk-management> (<https://www.smeal.psu.edu/risk-management/>)

Ask A Question: <https://directory.smeal.psu.edu/contact/rm> (<https://directory.smeal.psu.edu/contact/rm/>)

Corporate Innovation and Entrepreneurship, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The Corporate Innovation and Entrepreneurship major prepares students for challenges in the development of emerging products and new markets for demanding consumers. The ability to adapt to a rapidly changing social and business environment can yield great rewards and returns, but it requires innovative, multifunctional individuals able to adapt to and develop new technologies, innovations and businesses amid a wider environment of change, uncertainty and ambiguity. The major is conceived for students interested in starting and managing new businesses or innovating within existing business with the intent of growing the economy and providing jobs for a diverse workforce. The major focuses on developing problem solving and creative thinking skills, along with the ability to recognize opportunities, spot trends, and develop a plan to capitalize on these ideas. Emerging entrepreneurs and innovative managers of small to large businesses must be competent in various mediums of communication, have good negotiation skills, can lead with ethics and integrity, and are grounded in business aspects of planning, capital investing, goal setting, and decision making.

What is Corporate Innovation and Entrepreneurship?

Most people understand the concept of entrepreneurship – starting and running a new venture or small business. Corporate innovation, however, may not be as clear. The corporate innovation component of the CIENT major focuses on opportunities within the consulting industry as well as new product development and innovation within an existing company. The cornerstone of corporate innovation is the ability to identify opportunities and use corporate resources to implement change. An example can be a well-known chocolate company that initiated printing pictures on small pieces of candy which then opened up a whole new market segment for the company. Think creative ways to breathe life into existing product lines, or taking advantage of technology to lead a division into new business offerings or new business segments. CIENT embraces the mindset to continually look for new opportunities within an entrepreneurial context and a corporate environment.

MORE INFORMATION ABOUT CORPORATE INNOVATION AND ENTREPRENEURSHIP (<https://undergrad.smeal.psu.edu/majors/corporate-innovation-and-entrepreneurship/>)

Entrance to Major

To be eligible for entrance into the Corporate Innovation and Entrepreneurship (CIENT) major, a degree candidate must be enrolled at Penn State as a pre-major in the Smeal College of Business or the Division of Undergraduate Studies and satisfy requirements for entrance to the major.

Administrative Enrollment Controls

This program currently has administrative enrollment controls. Administrative Enrollment Controls are initiated when limitations of space, faculty, or other resources in a major prevent accommodating all students who request them. Students must follow the administrative enrollment controls that are in effect for the semester that they enter the university.

First-Year Students Entering Summer 2024, Fall 2024, Spring 2025

In order to be eligible for entrance to this major, students must satisfy the following requirements:

- 36-59 graded Penn State credits (excludes transfer and AP credits)
- completed with a grade of C or better.
 - English - ENGL 15 or ENGL 30H or ESL 15 or ENGL 137H or CAS 137H
 - Mathematics - MATH 110 or MATH 140 or MATH 140B
 - Statistics - SCM 200 or SCM 200H or STAT 200
- completed ECON 102 or ECON 102H
- completed at Penn State (no substitutions or transfers), in addition with a quality grade of "C" or better and no alternative or Pass/Fail (PS) grading:
 - Accounting - ACCTG 211 or ACCTG 211H
 - Management - MGMT 301 or MGMT 301H or MGMT 301M or MGMT 301W
 - Marketing - MKTG 301 or MKTG 301H or MKTG 301W
 - Finance - FIN 301 or FIN 301H
- earned a minimum cumulative grade-point average (GPA) of 3.20

Students Who Entered Prior to Summer 2024

Students who entered the University from Summer 2018 through Spring 2024 should view the administrative enrollment controls in the appropriate Undergraduate Bulletin archive (<https://bulletins.psu.edu/undergraduate/archive/>). Students who entered the University prior to the summer 2018 semester should consult with their academic adviser about the administrative enrollment controls in effect for the semester they entered the university.

Degree Completion

Students accepted into the Corporate Innovation and Entrepreneurship major are expected to enroll at University Park the fall semester after gaining entrance to the major. In addition, Senate Policy 83-80.5 stipulates that the college dean and program faculty may require up to 24 credits of course work in the major to be taken in the college where the degree is earned. Based on this policy, the Smeal College of Business has set the following credit earning limitations for CIENT majors:

1. Eighteen credits of 300/400 level prescribed and additional courses in the major field must be completed with Management and Entrepreneurship faculty at University Park.

2. Six additional credits of 300/400 level related and supporting courses must also be completed at University Park. See the Corporate Innovation and Entrepreneurship Suggested Academic Plan for details.

Degree Requirements

For the Bachelor of Science degree in Corporate Innovation and Entrepreneurship, a minimum of 120 credits is required with at least 15 credits at the 400 level:

Requirement	Credits
General Education	45
Electives	14
Requirements for the Major	76

15 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GWS courses ((ENGL 15 or ENGL 30H or ENGL 137H/CAS 137H or ESL 15) and ENGL 202D); 6 credits of GQ courses (MATH 110 or MATH 140 and SCM 200 or STAT 200); 3 credits of GS courses (ECON 102)).

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
BA 342	Socially Responsible, Sustainable and Ethical Business Practice	3
BA 411	Analyzing Business and Industry	3
BLAW 341	Business Law I: Introduction to Contracts, Liability Issues, and Intellectual Property	3
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
MIS 250	Introduction to Problem Solving with Spreadsheet Analysis and Information Systems Management	3
SCM 301	Supply Chain Management	3
<i>Prescribed Courses: Require a grade of C or better</i>		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
ENGL 202D	Effective Writing: Business Writing	3
FIN 301	Corporation Finance	3
MGMT 301	Basic Management Concepts	3
MGMT 425	New Venture Creation	3
MGMT 453	Creativity and Innovation	3
MGMT 457W	Strategic Management of Innovation and Technologies	3
MKTG 301	Principles of Marketing	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
MATH 110 or MATH 140	Techniques of Calculus I Calculus With Analytic Geometry I	4
SCM 200 or STAT 200	Introduction to Statistics for Business Elementary Statistics	4

Select 3 credits from the following: 3

ENGL 15	Rhetoric and Composition
ENGL 30H	Honors Rhetoric and Composition
ENGL/CAS 137H	Rhetoric and Civic Life I
ESL 15	ESL Composition for American Academic Communication II

Select 9 credits from the following: 9

MGMT 365	Social Entrepreneurship
MGMT 420	Negotiation and Conflict Management
MGMT 427	Managing an Entrepreneurial Start-Up Company
MGMT 480	Business Transformation Consulting
MGMT 485	Entrepreneurial Opportunity Creation
MGMT 486	Entrepreneurial Investment and Resource Acquisition

Supporting Courses and Related Areas

Attainment of 12th-credit level proficiency in a single world language. Proficiency must be demonstrated by either examination or coursework. 4

Select 6 credits of supporting coursework from an approved department list. 6

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the

requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

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READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Advising Center

Smeal College Undergraduate Education
202 Business Building
University Park, PA 16802
814-863-1947
SmealAdvising@smeal.psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Corporate Innovation and Entrepreneurship, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSU 6	1 MGMT 301 ^{1,2}	3
(MATH 110 or MATH 140) or (SCM 200 or STAT 200) (GQ) ^{1,2}	4 (STAT 200 or SCM 200) or (MATH 110 or MATH 140) (GQ) ^{1,2}	4
ENGL 15, 30H, ESL 15, ENGL 137H, or CAS 137H ^{1,2}	3 World Language - Level Two (8th credit level) ³	4
ECON 102 (GS) ²	3 General Education Course (US) ⁴	3
World Language - Level One (4th credit level) ³	4	
	15	14

Second Year

Fall	Credits Spring	Credits
MKTG 301 ^{1,2}	3 FIN 301 ^{1,2}	3
ACCTG 211 ^{1,2}	4 SCM 301	3
ECON 104	3 CAS 100, ENGL 138T, or CAS 138T ¹	3
World Language - Level Three (12th credit level) ³	4 MIS 250	3
General Education Course (IL) ⁴	3 General Education Course ⁴	3
	17	15

Third Year

Fall	Credits Spring	Credits
MGMT 425 ¹	3 MGMT 457W ¹	3
MGMT 453 ¹	3 MGMT 3XX or MGMT 4XX - CIENT Elective ^{1,6}	3

ENGL 202D ¹	3 General Education Course (N) ⁴	3
BLAW 341 or BA 342	3 BA 342 or BLAW 341	3
General Education Course ⁴	3 General Education Course ⁴	3
15		15
Fourth Year		
Fall	Credits Spring	Credits
MGMT 4XX - CIENT Elective ^{1,6}	3 MGMT 4XX - CIENT Elective ^{1,6}	3
BA 411 (or Business Breadth Course) ⁵	3 BA 411 (or Business Breadth Course) ⁵	3
Business Breadth Course ⁵	3 General Education Course ⁴	3
General Education Course (N) ⁴	3 General Education Course ⁴	3
Elective ⁴	2 Elective ⁴	3
14		15

Total Credits 120

¹ Course requires a grade of C or better

² Entrance-to-Major Course – complete prior to attaining 59 cumulative credits at Penn State

³ Attain 12th credit level proficiency in a world language (0-12 credits). Credits required vary based on predetermined skill level. Balance of remaining credits are taken as electives. American Sign Language does not satisfy the Smeal College world language requirement.

⁴ When planning general education and elective courses, students should factor in the following requirements:

- 3 credits of United States Culture (US)
- 3 credits of International Culture (IL)
- 6 credits of Inter-Domain (N) coursework

⁵ See the Business Breadth Course list on the Smeal College website.

⁶ See the CIENT website for the list of CIENT electives.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

College and Department Notes:

1. The Smeal College of Business requires that the following entrance-to-major courses be taken at Penn State: ACCTG 211, MGMT 301, MKTG 301, and FIN 301.
2. Pursuant to the Association to Advance Collegiate Schools of Business (AACSB) accreditation standards, the Smeal College of Business requires that all upper division courses within the departments sponsoring the major be completed in residence at University Park under the instruction of Smeal College faculty.

Corporate Innovation and Entrepreneurship, B.S. at Commonwealth Campuses

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First Year

Fall	Credits Spring	Credits
First-Year Seminar (if required by Campus)	1-0 MGMT 301 ^{1,2}	3
(MATH 110 or MATH 140) or (SCM 200 or STAT 200) (GQ) ^{1,2}	4 (SCM 200 or STAT 200) or (MATH 110 or MATH 140) (GQ) ^{1,2}	4
ENGL 15, 30H, ESL 15, ENGL 137H, or CAS 137H ^{1,2}	3 World Language - Level Two (8th credit level) ³	4
ECON 102 (GS) ²	3 General Education Course (US) ⁴	3
World Language - Level One (4th credit level) ³	4	
	15-14	14

Second Year

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MKTG 301 ^{1,2}	3 FIN 301 ^{1,2}	3
ACCTG 211 ^{1,2}	4 ENGL 202D ¹	3
ECON 104	3 CAS 100, ENGL 138T, or CAS 138T ¹	3
World Language - Level Three (12th credit level) ³	4 General Education Course ⁴	3
General Education Course (IL) ⁴	3 General Education Course ⁴	3
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Third Year

Fall	Credits Spring	Credits
MGMT 425 ¹	3 MGMT 457W ¹	3
MGMT 453 ¹	3 MGMT 3XX or MGMT 4XX - CIENT Elective ^{1,6}	3
SCM 301	3 General Education Course (N) ⁴	3
BLAW 341 or BA 342	3 BA 342 or BLAW 341	3
MIS 250	3 General Education Course ⁴	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
MGMT 4XX - CIENT Elective ^{1,6}	3 MGMT 4XX - CIENT Elective ^{1,6}	3
BA 411 (or Business Breadth Course) ⁵	3 BA 411 (or Business Breadth Course) ⁵	3
Business Breadth Course ⁵	3 General Education Course ⁴	3
General Education Course (N) ⁴	3 General Education Course ⁴	3

Elective ⁴	2 Elective ⁴	3
	14	15

Total Credits 120-119

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Career Paths

The CIENT_BS major is designed for students interested in managing innovation, re-inventing current businesses, supporting a family business, or starting up new businesses with the intent of growing the economy, and providing jobs for a diverse workforce. By taking this major, students may prepare themselves to launch a new company or pursue professional employment in one of the following business domains:

Corporate Innovation:

- Consulting
- Project Management
- Business Operations

- Customer Development
- Innovation

Entrepreneurship:

- Start a New Venture
- Work for a Small Business
- Further a Family Business
- Work for a Company Investing in a Small Business

Accreditation

The Smeal College of Business B.S. degree in Corporate Innovation and Entrepreneurship (CIENT_BS) is recognized by the AACSB (Association to Advance Collegiate Schools of Business) as an accredited program after completing a meticulous internal review and meeting all AACSB standards and requirements.

MORE INFORMATION ABOUT THE ASSOCIATION TO ADVANCE COLLEGIATE SCHOOLS OF BUSINESS (<https://www.aacsb.edu>)

Contact

University Park

DEPARTMENT OF MANAGEMENT AND ORGANIZATION
452 Business Building
University Park, PA 16802
814-865-1789
mando@smeal.psu.edu

<https://www.smeal.psu.edu/management> (<https://www.smeal.psu.edu/management/>)

Ask A Question: <https://directory.smeal.psu.edu/contact/mando> (<https://directory.smeal.psu.edu/contact/mando/>)

Finance, B.S. (Business)

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

This major provides students with an opportunity to study investment analysis, management of banks and other financial institutions, and financial management of corporations and other businesses. Course coverage includes business finance, security markets, commercial bank management, investment valuations, portfolio management, futures and options markets, and capital budgeting.

What is Finance?

Finance focuses on how individuals and business organizations raise money and capital, and how those resources are allocated among competing investment and consumption opportunities. The field focuses on domestic and international financial economies and the role of financial markets and institutions key in the movement of savings and investment capital from lenders to borrowers. It also deals with how individuals and corporate managers evaluate alternative investment and savings opportunities and how they choose among various financial instruments.

Opportunities to explore and participate in real financial events include:

- **Nittany Lion Fund:** The Nittany Lion Fund is a \$12.5 million investor-owned, student-managed equity hedge fund that was founded twenty years ago. Students manage all aspects of the fund which includes selecting stocks, performance analysis, and investor reports and meetings. The fund places over 50 students per year in Wall Street internships and full-time jobs and has 400 alumni working on Wall Street.
- **Rogers Family Trading Room:** The Trading Room at Smeal (<http://www.smeal.psu.edu/finance/traderoom/>) replicates a real-world trading experience and functions as a classroom and a laboratory. Each of the more than 50 workstations in the facility is equipped with the software needed for simulated trading, deal capture, settlement, analytics, pricing, and other finance-related challenges. The resources include Bloomberg, FactSet, S&P Capital IQ.
- **Lion Leverage Capital (LLC):** LLC is a student managed paper portfolio of leveraged loans and high-yield bonds. LLC students learn the intricacies of credit analysis and how to evaluate leveraged loans and high yield bonds. LLC places over 40 students per year in Wall Street internships and full-time jobs, and has almost 100 alumni working on Wall Street.
- **Wall Street Boot Camp (WSBK):** the WSBK has been in existence for fifteen years. The WSBK is taught by Penn State Wall Street alums and provides students with an overview of Wall Street and prepares students to compete for Wall Street jobs.

MORE INFORMATION ABOUT FINANCE (<https://undergrad.smeal.psu.edu/majors/finance/>)

Entrance to Major

To be eligible for entrance into the Finance (FIN) major, a degree candidate must be enrolled in the Smeal College of Business or the Division of Undergraduate Studies and satisfy requirements for entrance to the major.

Administrative Enrollment Controls

This program currently has administrative enrollment controls. Administrative Enrollment Controls are initiated when limitations of space, faculty, or other resources in a major prevent accommodating all students who request them. Students must follow the administrative enrollment controls that are in effect for the semester that they enter the university.

First-Year Students Entering Summer 2024, Fall 2024, Spring 2025

In order to be eligible for entrance to this major, students must satisfy the following requirements:

- 36-59 graded Penn State credits (excludes transfer and AP credits)
- completed with a grade of C or better:
 - English - ENGL 15 or ENGL 30H or ESL 15 or ENGL 137H or CAS 137H
 - Mathematics - MATH 110 or MATH 140 or MATH 140B
 - Statistics - SCM 200 or SCM 200H or STAT 200
- completed ECON 102 or ECON 102H
- completed at Penn State (no substitutions or transfers), in addition with a quality grade of "C" or better and no alternative or Pass/Fail (PS) grading:

- Accounting - ACCTG 211 or ACCTG 211H
 - Management - MGMT 301 or MGMT 301H or MGMT 301M or MGMT 301W
 - Marketing - MKTG 301 or MKTG 301H or MKTG 301W
 - Finance - FIN 301 or FIN 301H
- earned a minimum cumulative grade-point average (GPA) of 3.50

Students Who Entered Prior to Summer 2024

Students who entered the University from Summer 2018 through Spring 2024 should view the administrative enrollment controls in the appropriate Undergraduate Bulletin archive (<https://bulletins.psu.edu/undergraduate/archive/>). Students who entered the University prior to the summer 2018 semester should consult with their academic adviser about the administrative enrollment controls in effect for the semester they entered the university.

Degree Completion

Students accepted into the Finance major are expected to enroll at University Park the fall semester after gaining entrance to the major. In addition, Senate Policy 83-80.5 stipulates that the college dean and program faculty may require up to 24 credits of course work in the major to be taken in the college where the degree is earned. Based on this policy, the Smeal College of Business has set the following credit earning limitations for FIN majors:

1. Fifteen credits of 300/400 level prescribed and additional courses in the major field must be completed with Finance faculty at University Park.
2. Nine additional credits of 300/400 level related and supporting courses must also be completed at University Park. See the Finance Suggested Academic Plan for details.

Degree Requirements

For the Bachelor of Science degree in Finance, a minimum of 120 credits is required with at least 15 credits at the 400 level:

Requirement	Credits
General Education	45
Electives	14
Requirements for the Major	73

12 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GWS courses (ENGL 202D); 6 credits of GQ courses (MATH 110 or MATH 140 and SCM 200 or STAT 200); 3 credits of GS courses (ECON 102).

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
BA 342	Socially Responsible, Sustainable and Ethical Business Practice	3
BA 411	Analyzing Business and Industry	3

BLAW 341	Business Law I: Introduction to Contracts, Liability Issues, and Intellectual Property	3
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
MIS 250	Introduction to Problem Solving with Spreadsheet Analysis and Information Systems Management	3
SCM 301	Supply Chain Management	3

Prescribed Courses: Require a grade of C or better

ACCTG 211	Financial and Managerial Accounting for Decision Making	4
ENGL 202D	Effective Writing: Business Writing	3
FIN 301	Corporation Finance	3
FIN 305W	Financial Management of the Business Enterprise	3
FIN 406	Security Analysis and Portfolio Management	3
FIN 408	Financial Markets and Institutions	3
MGMT 301	Basic Management Concepts	3
MKTG 301	Principles of Marketing	3

Additional Courses

Additional Courses: Require a grade of C or better

MATH 110	Techniques of Calculus I	4
or MATH 140	Calculus With Analytic Geometry I	
SCM 200	Introduction to Statistics for Business	4
or STAT 200	Elementary Statistics	

Select 6 credits of the following: 6

FIN 405	Advanced Financial Management	
FIN 407	Multinational Financial Management	
FIN 410	Derivative Markets	
FIN 414	Financial Trading and Applications	
FIN 415	Advanced Financial Modeling	
FIN 460	Real Estate Financial Analysis	
or RM 460	Real Estate Financial Analysis	
FIN 470	Real Estate and Capital Markets	
or RM 470	Real Estate and Capital Markets	

Supporting Courses and Related Areas

Attainment of 12th credit level proficiency in a single world language. 4
Proficiency must be demonstrated by either examination or coursework.

Select 3 credits of related coursework. See Department List. 3

Select 6 credits of supporting coursework. See Department List. 6

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or

within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park**Advising Center**

Smeal College Undergraduate Education
202 Business Building
University Park, PA 16802
814-863-1947
SmealAdvising@semeal.psu.edu

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First Year

Fall	Credits Spring	Credits
PSU 6	1 MGMT 301 ^{1,2}	3
(MATH 110 or MATH 140) or (SCM 200 or STAT 200) (GQ) ^{1,2}	4 (SCM 200 or STAT 200) or (MATH 110 or MATH 140) (GQ) ^{1,2}	4
ENGL 15, 30H, ESL 15, ENGL 137H, or CAS 137H ^{1,2}	3 World Language - Level Two (8th credit level) ³	4
ECON 102 (GS) ²	3 General Education Course (US) ⁴	3
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	15	14

Second Year

Fall	Credits Spring	Credits
MKTG 301 ^{1,2}	3 FIN 301 ^{1,2}	3
ACCTG 211 ^{1,2}	4 SCM 301	3
ECON 104	3 CAS 100, ENGL 138T, or CAS 138T ¹	3
World Language - Level Three (12th credit level) ³	4 MIS 250	3
General Education Course (IL) ⁴	3 General Education Course ⁴	3
	17	15

Third Year

Fall	Credits Spring	Credits
FIN 305W ¹	3 FIN 4XX - Finance Elective ^{1,6}	3
FIN 408 or 406 ¹	3 FIN 406 or 408 ¹	3
ENGL 202D ¹	3 General Education Course (N) ⁴	3
BLAW 341 or BA 342	3 BA 342 or BLAW 341	3
General Education Course ⁴	3 General Education Course ⁴	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
FIN 4XX - Finance Elective ^{1,6}	3 Business Breadth Course ⁵	3
BA 411 (or Business Breadth Course) ⁵	3 BA 411 (or Business Breadth Course) ⁵	3
Business Breadth Course ⁵	3 General Education Course ⁴	3
General Education Course (N) ⁴	3 General Education Course ⁴	3
Elective ⁴	2 Elective ⁴	3
	14	15

Total Credits 120

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College and Department Notes:

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MKTG 301 ^{1,2}	3 FIN 301 ^{1,2}	3
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ECON 104	3 CAS 100, ENGL 138T, or CAS 138T ¹	3
World Language - Level Three (12th credit level) ³	4 General Education Course ⁴	3
General Education Course (IL) ⁴	3 General Education Course ⁴	3
	17	15

Third Year

Fall	Credits Spring	Credits
FIN 305W ¹	3 FIN 4XX - Finance Elective ^{1,6}	3
FIN 408 or 406 ¹	3 FIN 406 or 408 ¹	3
SCM 301	3 General Education Course (N) ⁴	3
BLAW 341 or BA 342	3 BA 342 or BLAW 341	3
MIS 250	3 General Education Course ⁴	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
FIN 4XX - Finance Elective ^{1,6}	3 Business Breadth Course ⁵	3
BA 411 (or Business Breadth Course) ⁵	3 BA 411 (or Business Breadth Course) ⁵	3
Business Breadth Course ⁵	3 General Education Course ⁴	3
General Education Course (N) ⁴	3 General Education Course ⁴	3
Elective ⁴	2-3 Elective ⁴	3
	14-15	15

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US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

College and Department Notes:

- The Smeal College of Business requires that the following entrance-to-major courses be taken at Penn State: ACCTG 211, MGMT 301, MKTG 301, and FIN 301.
- Pursuant to the Association to Advance Collegiate Schools of Business (AACSB) accreditation standards, the Smeal College of Business requires that all upper division courses within the departments sponsoring the major be completed in residence at University Park under the instruction of Smeal College faculty.

Career Paths

Finance is a broad field that prepares students for positions in banking, investments, insurance, corporations, and government. Careers include positions in:

- securities analysis and investment management
- retail and commercial bank management
- retail investment brokerage
- financial advising and consulting
- corporate financial management and treasury

Accreditation

The Smeal College of Business B.S. degree in Finance (FIN_BS) is recognized by the AACSB (Association to Advance Collegiate Schools

of Business) as an accredited program after completing a meticulous internal review and meeting all AACSB standards and requirements.

MORE INFORMATION ABOUT THE ASSOCIATION TO ADVANCE COLLEGIATE SCHOOLS OF BUSINESS (<https://www.aacsb.edu>)

Contact

University Park

DEPARTMENT OF FINANCE
352 Business Building
University Park, PA 16802
814-863-0486
FIN@smeal.psu.edu

<https://www.smeal.psu.edu/finance> (<https://www.smeal.psu.edu/finance/>)

Ask A Question: <https://directory.smeal.psu.edu/contact/finance> (<https://directory.smeal.psu.edu/contact/finance/>)

Information Systems Management, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Information Systems Management minor focuses on IT supported techniques for exploring, analyzing, integrating, and reporting business data for fact-based decisions. The coursework enables students to study basic concepts, principles, and methods for information analysis, design and management, and to gain an understanding of the best practices for aligning IT-supported analytics with business strategy.

What is Information Systems Management?

This interdisciplinary minor is designed for students of other majors interested in the study of technology-supported techniques for exploring, analyzing, integrating, and reporting business data to facilitate fact-based decisions. The coursework enables you to study basic concepts, principles, and methods for business analytics and to gain an understanding of the best practices for aligning IT-supported analytics with business strategy.

MORE INFORMATION ABOUT INFORMATION SYSTEMS MANAGEMENT (<https://ugstudents.smeal.psu.edu/academics-advising/degree-requirements/minors/>)

Program Requirements

Requirement	Credits
Requirements for the Minor	19

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>).

In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
MIS 301	Business Analytics	3
MIS 431	Business Data Management	3
MIS 441	Business Intelligence for Decision Making	3
MIS 446	Information Technology and Business Strategy	3
SCM 301	Supply Chain Management	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
SCM 200	Introduction to Statistics for Business	4
or STAT 200	Elementary Statistics	

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Advising Center

Smeal College Undergraduate Education
202 Business Building
University Park, PA 16802
814-863-1947
SmealAdvising@smeal.psu.edu

Contact

University Park

DEPARTMENT OF SUPPLY CHAIN AND INFORMATION SYSTEMS
454 Business Building
814-865-1866
scis@smeal.psu.edu

<https://www.smeal.psu.edu/scis> (<https://www.smeal.psu.edu/scis/>)

International Business, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The International Business minor provides students with knowledge, skills, and experiences that prepare them for a business career that might include international responsibilities. Mastery of fundamental business concepts, coursework in international business or economics, world language skills, and an approved study abroad experience each contribute to build perspectives about the challenges and opportunities of commercial activity in a global business environment.

The minor is designed to complement studies in business where students seek a deeper understanding of commerce and culture beyond their home country. For those interested in studying abroad, the global immersion track offers the chance to experience and study business, language, and culture for six or more weeks through an approved education abroad program. Others may choose the global business track and focus on a deeper understanding of international business. Either way, students develop a life-long appreciation for global business and culture that prepares them for a career beyond traditional boundaries.

What is International Business?

In an increasingly globalized economy, students are strongly encouraged to internationalize their undergraduate education. International business increases one's awareness in the global marketplace while broadening perspectives of different business cultures, practices, and challenges. Companies value candidates who have strong business skills and possess intercultural communication skills.

MORE INFORMATION ABOUT INTERNATIONAL BUSINESS (<https://ugstudents.smeal.psu.edu/international-programs/>)

Entrance to Minor

Enrolling in the International Business minor requires careful and advanced planning in order to avoid curricular and program obstacles that could impede progress towards completion of the minor. To circumvent these issues, the International Business minor has the following entrance requirements which also serve as prerequisites to several courses in the minor:

1. Complete the following core courses with grades of 'C' or better: ACCTG 211, MGMT 301, MKTG 301
2. Submit an International Business minor planning form to the Smeal College Office of International Programs as early as possible for review, planning, and scheduling of components in the minor.

Program Requirements

Requirement	Credits
Requirements for the Minor	27

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
BA 411	Analyzing Business and Industry	3

FIN 301	Corporation Finance	3
SCM 301	Supply Chain Management	3

Additional Courses

Additional Courses: Require a grade of C or better

Select 6 credits from the following:		
IB 303	International Business Operations	
IB 403	International Business and National Policies	
IB 404	Contemporary Issues in International Business	
IB 450	The Business Environment of Europe	
IB 460	International Business in Emerging Nations	
IB 470	International Development in an African Context	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select one of the following tracks: 12

Global Immersion Track

Select 6 credits from an approved study abroad program

Select 6 credits of global business, culture, or language courses in consultation with program faculty

Global Business Track

Select 6 credits of global business or business-related coursework in consultation with program faculty

Select 6 credits of global business, culture, or languages courses in consultation with program faculty

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Smeal College Office of International Programs

203 Business Building
University Park, PA 16802
smeal-international@psu.edu

Contact

University Park

Smeal College Office of International Programs

203 Business Building
University Park, PA 16802
814-865-4264
smeal-international@psu.edu

<https://ugstudents.smeal.psu.edu/international-programs/>

Legal Environment of Business, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

This minor presents students with a structured study of the statutory and common law governing the business environment. Students in this program have the opportunity to learn advanced legal subject matter, including business organization structures, employment law, property law, commercial transactions, intellectual property, environmental law, and government regulation. Content is framed around the organization and support of complex business enterprises from a legal perspective. This includes complex legal transactions, litigation support and avoidance, and the development of enterprises. The emphasis on the complex nature of legal organization formation, transactions, and litigation support is provided through a rigorous selection of business law and core business courses.

What is the Legal Environment of Business?

The Legal Environment of Business minor presents you with a structured study of the statutory and common law governing the business environment. Students in this program have the opportunity to learn advanced legal subject matter, including business organization structures, employment law, property law, commercial transactions, intellectual property, environmental law, and government regulation.

MORE INFORMATION ABOUT LEGAL ENVIRONMENT OF BUSINESS (<https://ugstudents.smeal.psu.edu/academics-advising/degree-requirements/minors/>)

Entrance to Minor

For admission to the minor, students must have completed ACCTG 211 and ECON 102 with grades of C or better.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

At least 6 credits must be at the 400 level.

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
BLAW 341	Business Law I: Introduction to Contracts, Liability Issues, and Intellectual Property	3

BLAW 441	Business Law II: Agency, Employment and Business Structure	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
FIN 301	Corporation Finance	3

Additional Courses

Additional Courses: Require a grade of C or better

Select 6 credits of the following:	6
BLAW/RM 424 Real Estate Law	
BLAW/RM 425	
BLAW 444	Advanced UCC and Commercial Transactions
BLAW 445	Advanced Intellectual Property and Competition Law
BLAW 446	Employment Law

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Advising Center

Smeal College Undergraduate Education
202 Business Building
University Park, PA 16802
814-863-1947
SmealAdvising@smeal.psu.edu

Contact

University Park

DEPARTMENT OF RISK MANAGEMENT
355 Business Building
814-865-4172
rm@smeal.psu.edu

<https://www.smeal.psu.edu/risk-management> (<https://www.smeal.psu.edu/risk-management/>)

Management Information Systems, B.S. (Business)

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The Management Information Systems major focuses on IT-supported techniques for exploring, analyzing, integrating, and reporting business data to facilitate fact-based decisions and enterprise-wide management. The framework encompasses the concepts, principles, and methods for (1) collecting, transforming, and managing data, (2) doing business analytics, (3) communicating and sharing the results, (4) aligning IT-enabled business analytics with business strategy.

Students in this major have the opportunity to take nine credits of supporting work in functional business areas such as accounting, finance, marketing, risk management, and supply chain management. Graduates develop cross-functional literacy in how techniques and technologies help achieve business objectives, along with competency in applying business analytics methods on behalf of the business and in a supporting business area. Thus, graduates are well-prepared for careers in industry, consulting, and government sectors as business analytics professionals.

More information about the broad range of career opportunities is available at <http://www.smeal.psu.edu/scis/recruit> (<http://www.smeal.psu.edu/scis/recruit/>).

What is Management Information Systems?

Data is everywhere: location-based from smart phones, social media, text, corporate data, and more. Companies need to analyze this data to get meaningful information to the people who need it. Hence, Management Information Systems (MIS) lives in the space that intersects technology and business.

Some of the skills learned in the major include how to mine and analyze data, build interactive digital dashboards, create visual analytics, and how to use a variety of business software tools to support companies and facilitate data driven decision making within an organization.

Our MIS graduates use these business software tools to design informative and graphical applications, allowing executives to make strategic decisions analytically. Smeal MIS graduates are well prepared for careers in industry, consulting, and government sectors as business analytics specialists and systems analysis professionals.

Entrance to Major

To be eligible for entrance into the Management Information Systems (MIS) major, a degree candidate must be enrolled in the Smeal College of Business or the Division of Undergraduate Studies and satisfy requirements for entrance to the major.

Administrative Enrollment Controls

This program currently has administrative enrollment controls. Administrative Enrollment Controls are initiated when limitations of space, faculty, or other resources in a major prevent accommodating all students who request them. Students must follow the administrative enrollment controls that are in effect for the semester that they enter the university.

First-Year Students Entering Summer 2024, Fall 2024, Spring 2025

In order to be eligible for entrance to this major, students must satisfy the following requirements:

- 36-59 graded Penn State credits (excludes transfer and AP credits)
- completed with a grade of C or better.
 - English - ENGL 15 or ENGL 30H or ESL 15 or ENGL 137H or CAS 137H
 - Mathematics - MATH 110 or MATH 140 or MATH 140B
 - Statistics - SCM 200 or SCM 200H or STAT 200
- completed ECON 102 or ECON 102H
- completed at Penn State (no substitutions or transfers), in addition with a quality grade of "C" or better and no alternative or Pass/Fail (PS) grading:
 - Accounting - ACCTG 211 or ACCTG 211H
 - Management - MGMT 301 or MGMT 301H or MGMT 301M or MGMT 301W
 - Marketing - MKTG 301 or MKTG 301H or MKTG 301W
 - Finance - FIN 301 or FIN 301H
- earned a minimum cumulative grade-point average (GPA) of 3.00

Students Who Entered Prior to Summer 2024

Students who entered the University from Summer 2018 through Spring 2024 should view the administrative enrollment controls in the appropriate Undergraduate Bulletin archive (<https://bulletins.psu.edu/undergraduate/archive/>). Students who entered the University prior to the summer 2018 semester should consult with their academic adviser about the administrative enrollment controls in effect for the semester they entered the university.

Degree Completion

Students accepted into the Management Information Systems major are expected to enroll at University Park the fall semester after gaining entrance to the major. In addition, Senate Policy 83-80.5 stipulates that the college dean and program faculty may require up to 24 credits of course work in the major to be taken in the college where the degree is earned. Based on this policy, the Smeal College of Business has set the following credit earning limitations for MIS majors:

1. Eighteen credits of 300/400 level prescribed and additional courses in the major field must be completed with Management Information Systems faculty at University Park.
2. Six additional credits of 300/400 level related and supporting courses must also be completed at University Park. See the Management Information Systems Suggested Academic Plan for details.

Degree Requirements

For the Bachelor of Science degree in Management Information Systems, a minimum of 120 credits is required with at least 15 credits at the 400 level:

Requirement	Credits
General Education	45
Electives	14
Requirements for the Major	73

12 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GWS courses

(ENGL 202D); 6 credits of GQ courses (MATH 110 or MATH 140 and SCM 200 or STAT 200); 3 credits of GS courses (ECON 102).

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
BA 342	Socially Responsible, Sustainable and Ethical Business Practice	3
BA 411	Analyzing Business and Industry	3
BLAW 341	Business Law I: Introduction to Contracts, Liability Issues, and Intellectual Property	3
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
SCM 301	Supply Chain Management	3
<i>Prescribed Courses: Require a grade of C or better</i>		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
ENGL 202D	Effective Writing: Business Writing	3
FIN 301	Corporation Finance	3
MGMT 301	Basic Management Concepts	3
MIS 250	Introduction to Problem Solving with Spreadsheet Analysis and Information Systems Management	3
MIS 301	Business Analytics	3
MIS 431	Business Data Management	3
MIS 432	Business Information System Analysis	3
MIS 441	Business Intelligence for Decision Making	3
MIS 446	Information Technology and Business Strategy	3
MIS 479W	Enterprise Information Systems	3
MKTG 301	Principles of Marketing	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
MATH 110 or MATH 140	Techniques of Calculus I Calculus With Analytic Geometry I	4
SCM 200 or STAT 200	Introduction to Statistics for Business Elementary Statistics	4
Supporting Courses and Related Areas		
Attainment of 12th-credit-level proficiency in a single world language. Proficiency must be demonstrated by either examination or coursework.		4
Select 6 credits of supporting coursework. See Department List.		6

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education

Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- Quantification (GQ): 6 credits
- Writing and Speaking (GWS): 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- Arts (GA): 3 credits
- Health and Wellness (GHW): 3 credits
- Humanities (GH): 3 credits
- Social and Behavioral Sciences (GS): 3 credits
- Natural Sciences (GN): 3 credits

Integrative Studies

- Inter-Domain Courses (Inter-Domain): 6 credits

Exploration

- GN, may be completed with Inter-Domain courses: 3 credits
- GA, GH, GN, GS, Inter-Domain courses. This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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202 Business Building
University Park, PA 16802
814-863-1947
SmealAdvising@smeal.psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Management Information Systems, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year		
Fall	Credits Spring	Credits
PSU 6	1 MGMT 301 ^{1,2}	3
(MATH 110 or MATH 140) or (SCM 200 or STAT 200) (GQ) ^{1,2}	4 (SCM 200 or STAT 200) or (MATH 110 or MATH 140) (GQ) ^{1,2}	4
ENGL 15, 30H, ESL 15, ENGL 137H, or CAS 137H ^{1,2}	3 World Language - Level Two (8th credit level) ³	4
ECON 102 (GS) ²	3 General Education Course (US) ⁴	3
World Language - Level One (4th credit level) ³	4	
15		14

Second Year		
Fall	Credits Spring	Credits
MKTG 301 ^{1,2}	3 FIN 301 ^{1,2}	3
ACCTG 211 ^{1,2}	4 SCM 301	3
ECON 104	3 CAS 100, ENGL 138T, or CAS 138T ¹	3
World Language - Level Three (12th credit level) ³	4 MIS 250 ¹	3
General Education Course (IL) ⁴	3 General Education Course ⁴	3
17		15

Third Year		
Fall	Credits Spring	Credits
MIS 301 ¹	3 MIS 431 ¹	3
ENGL 202D ¹	3 Business Breadth Course ⁵	3
General Education Course (N) ⁴	3 General Education Course ⁴	3
BLAW 341 or BA 342	3 BA 342 or BLAW 341	3
General Education Course ⁴	3 General Education Course ⁴	3
15		15

Fourth Year		
Fall	Credits Spring	Credits
MIS 432 ¹	3 MIS 479W ¹	3
MIS 441 or 446 ¹	3 MIS 446 or 441 ¹	3
BA 411 (or Business Breadth Course) ⁵	3 BA 411 (or Business Breadth Course) ⁵	3
General Education Course (N) ⁴	3 General Education Course ⁴	3
Elective ⁴	2 Elective ⁴	3
14		15

Total Credits 120

¹ Course requires a grade of C or better

² Entrance-to-Major Course – complete prior to attaining 59 cumulative credits at Penn State

³ Attain 12th credit level proficiency in a world language (0-12 credits). Credits required vary based on predetermined skill level. Balance of remaining credits are taken as electives. American Sign Language does not satisfy the Smeal College world language requirement.

⁴ When planning general education and elective courses, students should factor in the following requirements:

- 3 credits of United States Culture (US)
- 3 credits of International Culture (IL)
- 6 credits of Inter-Domain (N) coursework

⁵ See the Business Breadth Course list on the Smeal College website.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

College and Department Notes:

- I. The Smeal College of Business requires that the following entrance-to-major courses be taken at Penn State: ACCTG 211, MGMT 301, MKTG 301, and FIN 301.
- II. Pursuant to the Association to Advance Collegiate Schools of Business (AACSB) accreditation standards, the Smeal College of Business requires that all upper division courses within the departments sponsoring the major be completed in residence at University Park under the instruction of Smeal College faculty.

Management Information Systems, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
First-Year Seminar (if required by Campus)	1-0 MGMT 301 ^{1,2}	3
(MATH 110 or MATH 140) or (SCM 200 or STAT 200) (GQ) ^{1,2}	4 (SCM 200 or STAT 200) or (MATH 110 or MATH 140) (GQ) ^{1,2}	4
ENGL 15, 30H, ESL 15, ENGL 137H, or CAS 137H ^{1,2}	3 World Language - Level One (8th credit level) ³	4
ECON 102 (GS) ²	3 General Education Course (US) ⁴	3
World Language - Level One (4th credit level) ³	4	
15-14		14

Second Year

Fall	Credits Spring	Credits
MKTG 301 ^{1,2}	3 FIN 301 ^{1,2}	3
ACCTG 211 ^{1,2}	4 ENGL 202D ¹	3
ECON 104	3 CAS 100, ENGL 138T, or CAS 138T ¹	3
World Language - Level Three (12th credit level) ³	4 General Education Course ⁴	3
General Education Course (IL) ⁴	3 General Education Course ⁴	3
17		15

Third Year

Fall	Credits Spring	Credits
MIS 250 ¹	3 MIS 431 ¹	3
MIS 301 ¹	3 Business Breadth Course ⁵	3
SCM 301	3 General Education Course ⁴	3
BLAW 341 or BA 342	3 BA 342 or BLAW 341	3
General Education Course (N) ⁴	3 General Education Course ⁴	3
15		15

Fourth Year

Fall	Credits Spring	Credits
MIS 432 ¹	3 MIS 479W ¹	3
MIS 441 or 446 ¹	3 MIS 446 or 441 ¹	3
BA 411 (or Business Breadth Course) ⁵	3 BA 411 (or Business Breadth Course) ⁵	3
General Education Course (N) ⁴	3 General Education Course ⁴	3

Elective ⁴	2-3 Elective ⁴	3
14-15		15

Total Credits 120

¹ Course requires a grade of C or better

² Entrance-to-Major Course – complete prior to attaining 59 cumulative credits at Penn State

³ Attain 12th credit level proficiency in a world language (0-12 credits). Credits required vary based on predetermined skill level. Balance of remaining credits are taken as electives. American Sign Language does not satisfy the Smeal College world language requirement.

⁴ When planning general education and elective courses, students should factor in the following requirements:

- 3 credits of United States Culture (US)
- 3 credits of International Culture (IL)
- 6 credits of Inter-Domain (N) coursework

⁵ See the Business Breadth Course list on the Smeal College website.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

College and Department Notes:

- I. The Smeal College of Business requires that the following entrance-to-major courses be taken at Penn State: ACCTG 211, MGMT 301, MKTG 301, and FIN 301.
- II. Pursuant to the Association to Advance Collegiate Schools of Business (AACSB) accreditation standards, the Smeal College of Business requires that all upper division courses within the departments sponsoring the major be completed in residence at University Park under the instruction of Smeal College faculty.

Career Paths

Starting salaries for MIS graduates are typically above average for business graduates along with a placement rate well above 95%. Students in MIS have countless options when thinking about internships and full-time employment. Career paths for MIS students include consulting, analytics, systems analysts, and data analysts. National and global companies visit the Smeal College annually seeking MIS graduates providing them opportunities to gain core competencies that are crucial for career success.

In addition to job-placement services available at the college and University level, the MIS program partners with Smeal's Center for Supply Chain Research (CSCR) in hosting annual fall and spring career fairs attended by more than 100 companies.

Accreditation

The Smeal College of Business B.S. degree in Management Information Systems (MIS_BS) is recognized by the AACSB (Association to Advance Collegiate Schools of Business) as an accredited program after completing a meticulous internal review and meeting all AACSB standards and requirements.

MORE INFORMATION ABOUT THE ASSOCIATION TO ADVANCE COLLEGIATE SCHOOLS OF BUSINESS (<https://www.aacsb.edu>)

Contact

University Park

DEPARTMENT OF SUPPLY CHAIN AND INFORMATION SYSTEMS
University Park, PA 16802
454 Business Building
814-865-1866
scis@smeal.psu.edu

<https://www.smeal.psu.edu/scis> (<https://www.smeal.psu.edu/scis/>)

Ask A Question: <https://directory.smeal.psu.edu/contact/scis> (<https://directory.smeal.psu.edu/contact/scis/>)

Management, B.S. (Business)

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

This major provides students with knowledge and skills managers need to deal with contemporary management challenges, such as leading and motivating people of different ages and backgrounds, developing strategies for competing in the global economy, and balancing the interest of multiple stakeholders in a complex legal, political, and ethical environment. The management core provides a foundational knowledge, skills and competencies essential for being effective and ethical managers and strategic leaders of organizations in a global environment. Students then choose from a host of electives designed to provide the requisite supplementary knowledge, skills and abilities for a wide range of career trajectories.

What is Management?

Organizations need managers and leaders: people who can effectively lead organizations and manage the people in them, as well as develop and implement strategies that will lead to success. Management majors gain the knowledge and skills that will enable them to deal with the contemporary challenges facing organizations including leading and motivating people, working effectively in teams, developing effective organizational cultures, thinking ethically, inclusively, strategically, and sustainably, balancing the interests of multiple stakeholders in complex, legal, political, and ethical environments, and leading change.

MORE INFORMATION ABOUT MANAGEMENT (<https://undergrad.smeal.psu.edu/majors/management/>)

Entrance to Major

To be eligible for entrance into the Management (MGMT) major, a degree candidate must be enrolled at Penn State as a pre-major in the Smeal

College of Business or the Division of Undergraduate Studies and satisfy requirements for entrance to the major.

Administrative Enrollment Controls

This program currently has administrative enrollment controls. Administrative Enrollment Controls are initiated when limitations of space, faculty, or other resources in a major prevent accommodating all students who request them. Students must follow the administrative enrollment controls that are in effect for the semester that they enter the university.

First-Year Students Entering Summer 2024, Fall 2024, Spring 2025

In order to be eligible for entrance to this major, students must satisfy the following requirements:

- 36-59 graded Penn State credits (excludes transfer and AP credits)
- completed with a grade of C or better.
 - English - ENGL 15 or ENGL 30H or ESL 15 or ENGL 137H or CAS 137H
 - Mathematics - MATH 110 or MATH 140 or MATH 140B
 - Statistics - SCM 200 or SCM 200H or STAT 200
- completed ECON 102 or ECON 102H
- completed at Penn State (no substitutions or transfers), in addition with a quality grade of "C" or better and no alternative or Pass/Fail (PS) grading:
 - Accounting - ACCTG 211 or ACCTG 211H
 - Management - MGMT 301 or MGMT 301H or MGMT 301M or MGMT 301W
 - Marketing - MKTG 301 or MKTG 301H or MKTG 301W
 - Finance - FIN 301 or FIN 301H
- earned a minimum cumulative grade-point average (GPA) of 3.20

Students Who Entered Prior to Summer 2024

Students who entered the University from Summer 2018 through Spring 2024 should view the administrative enrollment controls in the appropriate Undergraduate Bulletin archive (<https://bulletins.psu.edu/undergraduate/archive/>). Students who entered the University prior to the summer 2018 semester should consult with their academic adviser about the administrative enrollment controls in effect for the semester they entered the university.

Degree Completion

Students accepted into the Management major are expected to enroll at University Park the fall semester after gaining entrance to the major. In addition, Senate Policy 83-80.5 stipulates that the college dean and program faculty may require up to 24 credits of course work in the major to be taken in the college where the degree is earned. Based on this policy, the Smeal College of Business has set the following credit earning limitations for MGMT majors:

1. Eighteen credits of 300/400 level prescribed and additional courses in the major field must be completed with Management faculty at University Park.
2. Six additional credits of 300/400 level related and supporting courses must also be completed at University Park. See the Management Suggested Academic Plan for details.

Degree Requirements

For the Bachelor of Science degree in Management, a minimum of 120 credits is required with at least 15 credits at the 400 level:

Requirement	Credits
General Education	45
Electives	14
Requirements for the Major	76

15 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GWS courses ((ENGL 15 or ENGL 30H or ENGL 137H/CAS 137H or ESL 15) and ENGL 202D); 6 credits of GQ courses (MATH 110 or MATH 140 and SCM 200 or STAT 200); 3 credits of GS courses (ECON 102)).

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
BA 342	Socially Responsible, Sustainable and Ethical Business Practice	3
BA 411	Analyzing Business and Industry	3
BLAW 341	Business Law I: Introduction to Contracts, Liability Issues, and Intellectual Property	3
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
MIS 250	Introduction to Problem Solving with Spreadsheet Analysis and Information Systems Management	3
SCM 301	Supply Chain Management	3
<i>Prescribed Courses: Require a grade of C or better</i>		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
ENGL 202D	Effective Writing: Business Writing	3
FIN 301	Corporation Finance	3
MGMT 301	Basic Management Concepts	3
MGMT 326	Organizational Behavior and Design	3
MGMT 451W	Business, Ethics, and Society	3
MGMT 481	Global Strategic Management	3
MKTG 301	Principles of Marketing	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
MATH 110 or MATH 140	Techniques of Calculus I Calculus With Analytic Geometry I	4
SCM 200 or STAT 200	Introduction to Statistics for Business Elementary Statistics	4
Select 3 credits from the following:		3
ENGL 15	Rhetoric and Composition	
ENGL 30H	Honors Rhetoric and Composition	
ENGL/CAS 137H	Rhetoric and Civic Life I	

ESL 15	ESL Composition for American Academic Communication II	
Select 9 credits from the following:		9
BA 441	Strategies for Enterprise Sustainability	
MGMT 341	Human Resource Management	
MGMT 355	Leadership and Change in Organizations	
MGMT 420	Negotiation and Conflict Management	
MGMT 441	Organizational Staffing and Development	
MGMT 443	Performance Management	
MGMT 445	Managing a Diverse Workforce	
MGMT 480	Business Transformation Consulting	

Supporting Courses and Related Areas

Attainment of 12th-credit level proficiency in a single world language. Proficiency must be demonstrated by either examination or coursework. 4

Select 6 credits of supporting coursework from an approved department list. 6

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Advising Center

Smeal College Undergraduate Education
202 Business Building
University Park, PA 16802
814-863-1947
SmealAdvising@smear.psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Management, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSU 6	1 MGMT 301 ^{1,2}	3
(MATH 110 or MATH 140) or (SCM 200 or STAT 200) (GQ) ^{1,2}	4 (SCM 200 or STAT 200) or (MATH 110 or MATH 140) (GQ) ^{1,2}	4
ENGL 15, 30H, ESL 15, ENGL 137H, or CAS 137H ^{1,2}	3 World Language - Level Two (8th credit level) ³	4
ECON 102 (GS) ²	3 General Education Course (US) ⁴	3
World Language - Level One (4th credit level) ³	4	
	15	14

Second Year

Fall	Credits Spring	Credits
MKTG 301 ^{1,2}	3 FIN 301 ^{1,2}	3
ACCTG 211 ^{1,2}	4 SCM 301	3
ECON 104	3 CAS 100, ENGL 138T, or CAS 138T ¹	3
World Language - Level Three (12th credit level) ³	4 MIS 250	3
General Education Course (IL) ⁴	3 General Education Course ⁴	3
	17	15

Third Year

Fall	Credits Spring	Credits
MGMT 326 (or MGMT 3XX or MGMT 4XX - Management Elective) ^{1,6}	3 MGMT 326 (or MGMT 3XX or MGMT 4XX - Management Elective or BA 441) ¹	3
BA 441 (or MGMT 4XX - Management Elective) ^{1,6}	3 MGMT 451W (or MGMT 4XX - Management Elective or BA 441) ^{1,6}	3
ENGL 202D ¹	3 Business Breadth Course ⁵	3

BA 342	3 BLAW 341	3
General Education Course ⁴	3 General Education Course ⁴	3
15		15
Fourth Year		
Fall	Credits Spring	Credits
MGMT 451W (or MGMT 4XX - Management Elective or BA 441) ^{1,6}	3 MGMT 481 ¹	3
BA 411 (or Business Breadth Course) ⁵	3 BA 411 (or Business Breadth Course) ⁵	3
General Education Course ⁴	3 General Education Course ⁴	3
General Education Course (N) ⁴	3 General Education Course ⁴	3
Elective ⁴	2 Elective ⁴	3
14		15
Total Credits 120		

¹ Course requires a grade of C or better

² Entrance-to-Major Course – complete prior to attaining 59 cumulative credits at Penn State

³ Attain 12th credit level proficiency in a world language (0-12 credits). Credits required vary based on predetermined skill level. Balance of remaining credits are taken as electives. American Sign Language does not satisfy the Smeal College world language requirement.

⁴ When planning general education and elective courses, students should factor in the following requirements:

- 3 credits of United States Culture (US)
- 3 credits of International Culture (IL)
- 6 credits of Inter-Domain (N) coursework

⁵ See the Business Breadth Course list on the Smeal College website.

⁶ See the Management Department website for the list of MGMT electives.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

College and Department Notes:

1. The Smeal College of Business requires that the following entrance-to-major courses be taken at Penn State: ACCTG 211, MGMT 301, MKTG 301, and FIN 301.
2. Pursuant to the Association to Advance Collegiate Schools of Business (AACSB) accreditation standards, the Smeal College of Business requires that all upper division courses within the departments sponsoring the major be completed in residence at University Park under the instruction of Smeal College faculty.

Management, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
First-Year Seminar (if required by Campus)	1-0 MGMT 301 ^{1,2}	3
(MATH 110 or MATH 140) or (SCM 200 or STAT 200) (GQ) ^{1,2}	4 (SCM 200 or STAT 200) or (MATH 110 or MATH 140) (GQ) ^{1,2}	4
ENGL 15, 30H, ESL 15, ENGL 137H, or CAS 137H ^{1,2}	3 World Language - Level Two (8th credit level) ³	4
ECON 102 (GS) ²	3 General Education Course (US) ⁴	3
World Language - Level One (4th credit level) ³	4	
	15-14	14

Second Year

Fall	Credits Spring	Credits
MKTG 301 ^{1,2}	3 FIN 301 ^{1,2}	3
ACCTG 211 ^{1,2}	4 ENGL 202D ¹	3
ECON 104	3 CAS 100, ENGL 138T, or CAS 138T ¹	3
World Language - Level Three (12th credit level) ³	4 General Education Course ⁴	3
General Education Course (IL) ⁴	3 General Education Course ⁴	3
	17	15

Third Year

Fall	Credits Spring	Credits
MGMT 326 (or MGMT 3XX or MGMT 4XX - Additional Course) ¹	3 MGMT 326 (or MGMT 3XX or MGMT 4XX - Additional Course) ¹	3
BA 441 (or MGMT 4XX) ¹	3 MGMT 451W (or MGMT 3XX/MGMT 4XX/BA 441 - Additional Course) ¹	3
SCM 301	3 Business Breadth Course ⁵	3
BA 342	3 BLAW 341	3
MIS 250	3 General Education Course ⁴	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
MGMT 451W (or MGMT 4XX or BA 441) ¹	3 MGMT 481 ¹	3
BA 411 (or Business Breadth Course) ⁵	3 BA 411 (or Business Breadth Course) ⁵	3
General Education Course ⁴	3 General Education Course ⁴	3
General Education Course (N) ⁴	3 General Education Course ⁴	3

Elective ⁴	2 Elective ⁴	3
	14	15

Total Credits 120-119

¹ Course requires a grade of C or better

² Entrance-to-Major Course – complete prior to attaining 59 cumulative credits at Penn State

³ Attain 12th credit level proficiency in a world language (0-12 credits). Credits required vary based on predetermined skill level. Balance of remaining credits are taken as electives. American Sign Language does not satisfy the Smeal College world language requirement.

⁴ When planning general education and elective courses, students should factor in the following requirements:

- 3 credits of United States Culture (US)
- 3 credits of International Culture (IL)
- 6 credits of Inter-Domain (N) coursework

⁵ See the Business Breadth Course list on the Smeal College website.

⁶ See the Management Department website for the list of MGMT electives.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

College and Department Notes:

1. The Smeal College of Business requires that the following entrance-to-major courses be taken at Penn State: ACCTG 211, MGMT 301, MKTG 301, and FIN 301.
2. Pursuant to the Association to Advance Collegiate Schools of Business (AACSB) accreditation standards, the Smeal College of Business requires that all upper division courses within the departments sponsoring the major be completed in residence at University Park under the instruction of Smeal College faculty.

Career Paths

The Management major prepares students for a variety of career opportunities. Management majors typically find positions across a wide variety of industries in leadership development and rotational programs, corporate human capital management, and consulting; small business management/leadership; and retail, sports, entertainment, or healthcare management. Management majors also pursue graduate school.

Accreditation

The Smeal College of Business B.S. degree in Management (MGMT_BS) is recognized by the AACSB (Association to Advance Collegiate Schools

of Business) as an accredited program after completing a meticulous internal review and meeting all AACSB standards and requirements.

MORE INFORMATION ABOUT THE ASSOCIATION TO ADVANCE COLLEGIATE SCHOOLS OF BUSINESS (<https://www.aacsb.edu>)

Contact

University Park

DEPARTMENT OF MANAGEMENT AND ORGANIZATION
452 Business Building
University Park, PA 16802
814-865-1789
mando@smeal.psu.edu

<https://www.smeal.psu.edu/management> (<https://www.smeal.psu.edu/management/>)

Ask A Question: <https://directory.smeal.psu.edu/contact/mando> (<https://directory.smeal.psu.edu/contact/mando/>)

Marketing, B.S. (Business)

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

This major provides professional education leading to positions in business, government, and other organizations, and helps prepare the student for advanced study at the graduate level. Career opportunities are in marketing management, sales management, advertising, marketing research, retailing, public policy, and consumer affairs. In addition to following a planned course sequence in general marketing management, the students may elect course work that focuses on their interests in consumer or business-to-business marketing, physical goods or services marketing, retail marketing, analytics, brand management, and for-profit or not-for-profit marketing.

The Marketing major is designed to be integrated with the college's professional education in business and builds on that program and on education in the social sciences.

What is Marketing?

Marketing is a broad field that seeks to understand consumer, firm, and societal behaviors and subsequently identify ideas, products, services, and methodological approaches that deliver value. According to the American Marketing Association, Marketing involves "the set of institutions and processes for creating, communicating, delivering, and exchanging offerings valuable to customers, clients, partners, and society at large. Not only does marketing guide firms' managerial decisions in the marketplace, but it also offers insights into consumer awareness, public policy making, and non-commercial exchange of value (e.g., altruistic giving)."

MORE INFORMATION ABOUT MARKETING (<https://undergrad.smeal.psu.edu/majors/marketing/>)

Entrance to Major

To be eligible for entrance into the Marketing (MKTG) major, a degree candidate must be enrolled in the Smeal College of Business or the

Division of Undergraduate Studies and satisfy requirements for entrance to the major.

Administrative Enrollment Controls

This program currently has administrative enrollment controls.

Administrative Enrollment Controls are initiated when limitations of space, faculty, or other resources in a major prevent accommodating all students who request them. Students must follow the administrative enrollment controls that are in effect for the semester that they enter the university.

First-Year Students Entering Summer 2024, Fall 2024, Spring 2025

In order to be eligible for entrance to this major, students must satisfy the following requirements:

- 36-59 graded Penn State credits (excludes transfer and AP credits)
- completed with a grade of C or better:
 - English - ENGL 15 or ENGL 30H or ESL 15 or ENGL 137H or CAS 137H
 - Mathematics - MATH 110 or MATH 140 or MATH 140B
 - Statistics - SCM 200 or SCM 200H or STAT 200
- completed ECON 102 or ECON 102H
- completed at Penn State (no substitutions or transfers), in addition with a quality grade of "C" or better and no alternative or Pass/Fail (PS) grading:
 - Accounting - ACCTG 211 or ACCTG 211H
 - Management - MGMT 301 or MGMT 301H or MGMT 301M or MGMT 301W
 - Marketing - MKTG 301 or MKTG 301H or MKTG 301W
 - Finance - FIN 301 or FIN 301H
- earned a minimum cumulative grade-point average (GPA) of 3.25

Students Who Entered Prior to Summer 2024

Students who entered the University from Summer 2018 through Spring 2024 should view the administrative enrollment controls in the appropriate Undergraduate Bulletin archive (<https://bulletins.psu.edu/undergraduate/archive/>). Students who entered the University prior to the summer 2018 semester should consult with their academic adviser about the administrative enrollment controls in effect for the semester they entered the university.

Degree Requirements

For the Bachelor of Science degree in Marketing, a minimum of 120 credits is required with at least 15 credits at the 400 level:

Requirement	Credits
General Education	45
Electives	14
Requirements for the Major	73

12 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GWS courses (ENGL 202D); 6 credits of GQ courses (MATH 110 or MATH 140 and SCM 200 or STAT 200); 3 credits of GS courses (ECON 102).

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as

specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
BA 342	Socially Responsible, Sustainable and Ethical Business Practice	3
BA 411	Analyzing Business and Industry	3
BLAW 341	Business Law I: Introduction to Contracts, Liability Issues, and Intellectual Property	3
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
MIS 250	Introduction to Problem Solving with Spreadsheet Analysis and Information Systems Management	3
SCM 301	Supply Chain Management	3
<i>Prescribed Courses: Require a grade of C or better</i>		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
ENGL 202D	Effective Writing: Business Writing	3
FIN 301	Corporation Finance	3
MGMT 301	Basic Management Concepts	3
MKTG 301	Principles of Marketing	3
MKTG 330	Consumer Behavior	3
MKTG 342	Marketing Research	3
MKTG 450W	Marketing Strategy	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
MATH 110	Techniques of Calculus I	4
or MATH 140	Calculus With Analytic Geometry I	
SCM 200	Introduction to Statistics for Business	4
or STAT 200	Elementary Statistics	
Select 9 credits from the following:		9
MKTG 327	Retailing	
MKTG 410	Personal Selling	
MKTG 422	Advertising and Sales Promotion Management	
MKTG 426	Business Marketing	
MKTG 428	Advanced Sales Management	
MKTG 437	Advanced Retailing and Merchandise Management	
MKTG 440	Services Marketing	
MKTG 442	Sustainable Behavior of Consumers, Firms, and Societies	
MKTG 443	Sports Marketing	
MKTG 445	Global Marketing	
MKTG 449	Sports Business Market Strategy	
MKTG 472	Strategic Brand Management	
MKTG 473	Digital Marketing	
MKTG 474	Marketing Analytics	
Supporting Courses and Related Areas		
Attainment of 12th credit level proficiency in a single world language. Proficiency must be demonstrated by either examination or coursework.		4
Select 6 credits of supporting coursework. See Department List.		6

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Advising Center

Smeal College Undergraduate Education
202 Business Building
University Park, PA 16802
814-863-1947
SmealAdvising@semeal.psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Marketing, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If**

report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSU 6	1 MGMT 301 ^{1,2}	3
(MATH 110 or MATH 140) or (SCM 200 or STAT 200) (GQ) ^{1,2}	4 (SCM 200 or STAT 200) or (MATH 110 or MATH 140) (GQ) ^{1,2}	4
ENGL 15, 30H, ESL 15, ENGL 137H, or CAS 137H ^{1,2}	3 World Language - Level Two (8th credit level) ³	4
ECON 102 (GS) ²	3 General Education Course (US) ⁴	3
World Language - Level One (4th credit level) ³	4	
	15	14

Second Year

Fall	Credits Spring	Credits
MKTG 301 ^{1,2}	3 FIN 301 ^{1,2}	3
ACCTG 211 ^{1,2}	4 SCM 301	3
ECON 104	3 CAS 100, ENGL 138T, or CAS 138T ¹	3
World Language - Level Three (12th credit level) ³	4 MIS 250	3
General Education Course (IL) ⁴	3 General Education Course ⁴	3
	17	15

Third Year

Fall	Credits Spring	Credits
MKTG 330 or 342 ^{1,7}	3 MKTG 342 or 330 ^{1,7}	3
MKTG 4XX – Marketing Elective ^{1,6}	3 MKTG 4XX – Marketing Elective ^{1,6}	3
ENGL 202D ¹	3 Business Breadth Course ⁵	3
BLAW 341 or BA 342	3 BA 342 or BLAW 341	3
General Education Course ⁴	3 General Education Course ⁴	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
MKTG 450W (or MKTG 4XX - Marketing Elective) ^{1,6}	3 MKTG 450W (or MKTG 4XX – Marketing Elective) ^{1,6}	3
BA 411 (or Business Breadth Course) ⁵	3 BA 411 (or Business Breadth Course) ⁵	3
General Education Course ⁴	3 General Education Course ⁴	3
General Education Course (N) ⁴	3 General Education Course ⁴	3
Elective ⁴	2 Elective ⁴	3
	14	15

Total Credits 120

¹ Course requires a grade of C or better

² Entrance-to-Major Course – complete prior to attaining 59 cumulative credits at Penn State

³ Attain 12th credit level proficiency in a world language (0-12 credits). Credits required vary based on predetermined skill level. Balance of remaining credits are taken as electives. American Sign Language does not satisfy the Smeal College world language requirement.

⁴ When planning general education and elective courses, students should factor in the following requirements:

- 3 credits of United States Culture (US)
- 3 credits of International Culture (IL)
- 6 credits of Inter-Domain (N) coursework

⁵ See the Business Breadth Course list on the Smeal College website.

⁶ See the Marketing Tracks on the Marketing website for selecting the MKTG 4XX courses appropriate for your area of interest.

⁷ MKTG 330 and MKTG 342 must be completed during the first two semesters of enrolling in the MKTG major in order to meet prerequisite requirements for advanced marketing courses.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

College and Department Notes:

- I. The Smeal College of Business requires that the following entrance-to-major courses be taken at Penn State for a letter grade of C or better: ACCTG 211, MGMT 301, MKTG 301, and FIN 301.
- II. Pursuant to the Association to Advance Collegiate Schools of Business (AACSB) accreditation standards, the Smeal College of Business requires that all upper division courses within the departments sponsoring the major be completed in residence at University Park under the instruction of Smeal College faculty.
- III. **MKTG_BS: Marketing Tracks - Select One Track from the following**
 - a. **General Marketing Management -**
 - i. Select three courses from MKTG 410 Personal Selling, MKTG 426 Business Marketing, MKTG 428 Advanced Sales Management, MKTG 437 Advanced Retailing and Merchandise Management, MKTG 440 Services Marketing, MKTG 449 Sports Business Marketing Strategy, MKTG 472 Strategic Brand Management, MKTG 474 Marketing Analytics, and MKTG 495A Penn State Prime Practicum.
 - b. **Business Development and Sales Specialty -**
 - i. Select two courses from MKTG 410 Personal Selling, MKTG 426 Business Marketing, MKTG 428 Advanced Sales Management, and MKTG 440 Services Marketing.

- ii. Select one course from MKTG 422 Advertising and Sales Promotion Management, MKTG 442 Sustainable Behavior of Consumers, Firms, and Societies, MKTG 443 Sports Marketing, MKTG 445 Global Marketing, and MKTG 473 Digital Marketing.

c. **Strategic Insights and Analytics Specialty -**

- i. Select two courses from MKTG 437 Advanced Retailing and Merchandise Management, MKTG 449 Sports Business Marketing Strategy, MKTG 472 Strategic Brand Management, MKTG 474 Marketing Analytics, and MKTG 495A Penn State Prime Practicum.
- ii. Select one course from MKTG 422 Advertising and Sales Promotion Management, MKTG 442 Sustainable Behavior of Consumers, Firms, and Societies, MKTG 443 Sports Marketing, MKTG 445 Global Marketing, and MKTG 473 Digital Marketing.

Marketing, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
First-Year Seminar (if required by Campus)	1-0 MGMT 301 ^{1,2}	3
(MATH 110 or MATH 140) or (SCM 200 or STAT 200) (GQ) ^{1,2}	4 (SCM 200 or STAT 200) or (MATH 110 or MATH 140) (GQ) ^{1,2}	4
ENGL 15, 30H, ESL 15, ENGL 137H, or CAS 137H ^{1,2}	3 World Language - Level Two (8th credit level) ³	4
ECON 102 (GS) ²	3 General Education Course (US) ⁴	3
World Language - Level One (4th credit level) ³	4	
	15-14	14

Second Year

Fall	Credits Spring	Credits
MKTG 301 ^{1,2}	3 FIN 301 ^{1,2}	3
ACCTG 211 ^{1,2}	4 ENGL 202D ¹	3
ECON 104	3 CAS 100, ENGL 138T, or CAS 138T ¹	3
World Language - Level Two (8th credit level) ³	4 General Education Course ⁴	3
General Education Course (IL) ⁴	3 General Education Course ⁴	3
	17	15

Third Year

Fall	Credits Spring	Credits
MKTG 330 or 342 ^{1,7}	3 MKTG 342 or 330 ^{1,7}	3
MKTG 4XX – Marketing Elective ^{1,6}	3 MKTG 4XX – Marketing Elective ^{1,6}	3
SCM 301	3 General Education Course (N) ⁴	3
BLAW 341 or BA 342	3 BA 342 or BLAW 341	3
MIS 250	3 General Education Course ⁴	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
MKTG 450W (or MKTG 4XX - Marketing Elective) ^{1,6}	3 MKTG 450W (or MKTG 4XX – Marketing Elective) ^{1,6}	3
BA 411 (or Business Breadth Course) ⁵	3 BA 411 (or Business Breadth Course) ⁵	3
Business Breadth Course ⁵	3 Business Breadth Course ⁵	3
General Education Course (N) ⁴	3 General Education Course ⁴	3

Elective ⁴	2-3 Elective ⁴	3
	14-15	15

Total Credits 120

¹ Course requires a grade of C or better

² Entrance-to-Major Course – complete prior to attaining 59 cumulative credits at Penn State

³ Attain 12th credit level proficiency in a world language (0-12 credits). Credits required vary based on predetermined skill level. Balance of remaining credits are taken as electives. American Sign Language does not satisfy the Smeal College world language requirement.

⁴ When planning general education and elective courses, students should factor in the following requirements:

- 3 credits of United States Culture (US)
- 3 credits of International Culture (IL)
- 6 credits of Inter-Domain (N) coursework

⁵ See the Business Breadth Course list on the Smeal College website.

⁶ See the Marketing Tracks on the Department website for selecting the MKTG 4XX courses appropriate for your area of interest.

⁷ MKTG 330 and MKTG 342 must be completed during the first two semesters of enrolling in the MKTG major in order to meet prerequisite requirements for advanced marketing courses.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

College and Department Notes:

I. The Smeal College of Business requires that the following entrance-to-major courses be taken at Penn State for a letter grade of C or better: ACCTG 211, MGMT 301, MKTG 301, and FIN 301.

II. Pursuant to the Association to Advance Collegiate Schools of Business (AACSB) accreditation standards, the Smeal College of Business requires that all upper division courses within the departments sponsoring the major be completed in residence at University Park under the instruction of Smeal College faculty.

III. MKTG_BS: Marketing Tracks - Select One Track from the following:

a. General Marketing Management -

- Select three courses from MKTG 410 Personal Selling, MKTG 426 Business Marketing, MKTG 428 Advanced Sales Management, MKTG 437 Advanced Retailing and Merchandise Management, MKTG 440 Services Marketing, MKTG 449 Sports Business Marketing Strategy, MKTG 472 Strategic Brand Management, MKTG 474 Marketing Analytics, and MKTG 495A Penn State Prime Practicum.

b. Business Development and Sales Specialty -

- i. Select two courses from MKTG 410 Personal Selling, MKTG 426 Business Marketing, MKTG 428 Advanced Sales Management, and MKTG 440 Services Marketing.
 - ii. Select one course from MKTG 422 Advertising and Sales Promotion Management, MKTG 442 Sustainable Behavior of Consumers, Firms, and Societies, MKTG 443 Sports Marketing, MKTG 445 Global Marketing, and MKTG 473 Digital Marketing
- c. **Strategic Insights and Analytics Specialty** -
- i. Select two courses from MKTG 437 Advanced Retailing and Merchandise Management, MKTG 449 Sports Business Marketing Strategy, MKTG 472 Strategic Brand Management, MKTG 474 Marketing Analytics, and MKTG 495A Penn State Prime Practicum
 - ii. Select one course from MKTG 422 Advertising and Sales Promotion Management, MKTG 442 Sustainable Behavior of Consumers, Firms, and Societies, MKTG 443 Sports Marketing, MKTG 445 Global Marketing, and MKTG 473 Digital Marketing

Accreditation

The Smeal College of Business B.S. degree in Marketing (MKTG_BS) is recognized by the AACSB (Association to Advance Collegiate Schools of Business) as an accredited program after completing a meticulous internal review and meeting all AACSB standards and requirements.

MORE INFORMATION ABOUT THE ASSOCIATION TO ADVANCE COLLEGIATE SCHOOLS OF BUSINESS (<https://www.aacsb.edu>)

Contact

University Park

DEPARTMENT OF MARKETING
455 Business Building
814-865-1869
marketing@smear.psu.edu

<https://www.smeal.psu.edu/marketing> (<https://www.smeal.psu.edu/marketing/>)

Ask A Question: <https://directory.smeal.psu.edu/contact/mktg> (<https://directory.smeal.psu.edu/contact/mktg/>)

Real Estate Analysis and Development, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

The Real Estate Analysis and Development (RLESAD_UCT) certificate is designed to prepare students for a variety of careers in the real estate industry. It specifies coursework in advanced real estate analysis and investments. Students pursuing this certificate will be encouraged and better prepared to seek careers in commercial real estate development, analysis, investment, valuation, banking, and brokerage. They will be positioned to enter the financial management training programs of leading corporations. Strong demand exists from corporate recruiters for well-prepared graduates to enter these post-graduation training programs.

What is Real Estate Analysis and Development?

The Real Estate Analysis & Development Certificate is designed to prepare students for opportunities to interact with the real estate industry in an intimate way. Students will gain an understating of the complexities of real estate resources, which will assist them in both personal and professional investment decisions. Skills that will be enhanced include negotiations, investment analysis, enhanced financial techniques and institutional knowledge of the real estate sector. By completing the READ Certificate, students will be given opportunities to participate in the Real Estate Boot Camp, which offers site visits, special guest lecture series, a REIT Case Competition and other special opportunities unique to the commercial real estate sector.

Entrance to Certificate

The RLESAD_UCT certificate is only open to students enrolled in a Smeal College of Business major. The RLESAD_UCT certificate is not open to students enrolled in the Risk Management major - Real Estate option.

Program Requirements

To earn an undergraduate certificate in Real Estate Analysis and Development, a minimum of 9 credits is required.

Code	Title	Credits
Required Courses		
RM 303	Real Estate Fundamentals	3
RM 450	Contemporary Issues in Real Estate Markets	3
Select one of the following:		
RM 424	Real Estate Law	3
RM 460	Real Estate Financial Analysis	
RM 470	Real Estate and Capital Markets	
RM 475	Quantitative Analysis for Business	

Non-Course Requirements

Extracurricular Activities - While not a RLESAD_UCT requirement, students who enroll in the certificate are encouraged to participate in the extra-curricular Real Estate Boot Camp offered by the Institute for Real Estate Studies (IRES) which is housed in the Smeal College of Business. Students are also encouraged to join the Real Estate Society club while at Penn State.

Certificate Learning Objectives

- Analytical and Critical Thinking: Students will develop analytical and critical thinking skills needed to excel in today's business environment.
- Foundation Concepts: Students will demonstrate competency in Real Estate and Financial concepts.
- Value System: Students will be able to evaluate the ethical and societal implications of real estate investment and development decisions.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Mallory Meehan

Clinical Assistant Professor of Real Estate, Assistant Director for the Institute of Real Estate St.
323 Business Building
University Park, PA 16802
814-863-1558
mmm446@psu.edu

Contact

University Park

DEPARTMENT OF RISK MANAGEMENT
355 Business Building
University Park, PA 16802
814-865-4172
rm@smeal.psu.edu

<https://www.smeal.psu.edu/risk-management> (<https://www.smeal.psu.edu/risk-management/>)

Real Estate, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The Smeal College of Business Bachelor of Science degree in Real Estate (REST_BS) is targeted at individuals wishing to have a career in the real estate industry or related field. The major will provide students a solid foundation in the concepts associated with real estate finance, investment, and development analysis as well as quantitative research methods that are needed to solve complex problems in the real estate industry. The program will provide students with the required analytical tools necessary to analyze the real estate markets and solve problems or issues they may encounter in this growing industry. Students in the Real Estate major will also receive professional credit toward the required educational hours for the real estate appraisal designation offered through the Appraisal Qualifications Board (AQB) of the Appraisal Foundation. This organization is authorized by Congress as the Source of Appraisal Standards and Appraiser Qualifications.

What is Real Estate?

The Real Estate major features an innovative curriculum that allows students to tailor their coursework towards areas of greatest interest. Courses cover topics in real estate finance, law, investment valuation, appraisal processes, urban and regional economics, property development, and project management. In addition, students have the ability to select courses outside the Smeal College of Business in areas such as landscape architecture, hotel administration, construction

management and engineering, and urban economics. The Real Estate major is also a STEM Designated Degree Program.

Entrance to Major

To be eligible for entrance into the Real Estate (REST) major, a degree candidate must be enrolled in the Smeal College of Business or the Division of Undergraduate Studies and satisfy requirements for entrance to the major.

Administrative Enrollment Controls

This program currently has administrative enrollment controls. Administrative Enrollment Controls are initiated when limitations of space, faculty, or other resources in a major prevent accommodating all students who request them. Students must follow the administrative enrollment controls that are in effect for the semester that they enter the university.

First-Year Students Entering Summer 2024, Fall 2024, Spring 2025

In order to be eligible for entrance to this major, students must satisfy the following requirements:

- 36-59 graded Penn State credits (excludes transfer and AP credits)
- completed with a grade of C or better:
 - English - ENGL 15 or ENGL 30H or ESL 15 or ENGL 137H or CAS 137H
 - Mathematics - MATH 110 or MATH 140 or MATH 140B
 - Statistics - SCM 200 or SCM 200H or STAT 200
- completed ECON 102 or ECON 102H
- completed at Penn State (no substitutions or transfers), in addition with a quality grade of "C" or better and no alternative or Pass/Fail (PS) grading:
 - Accounting - ACCTG 211 or ACCTG 211H
 - Management - MGMT 301 or MGMT 301H or MGMT 301M or MGMT 301W
 - Marketing - MKTG 301 or MKTG 301H or MKTG 301W
 - Finance - FIN 301 or FIN 301H
- earned a minimum cumulative grade-point average (GPA) of 3.20

Students Who Entered Prior to Summer 2024

Students who entered the University from Summer 2018 through Spring 2024 should view the administrative enrollment controls in the appropriate Undergraduate Bulletin archive (<https://bulletins.psu.edu/undergraduate/archive/>). Students who entered the University prior to the summer 2018 semester should consult with their academic adviser about the administrative enrollment controls in effect for the semester they entered the university.

Degree Completion

Students accepted into the Real Estate (REST_BS) major are expected to enroll at University Park the fall semester after gaining entrance to the major or sooner. In addition, Senate Policy 83-80.5 stipulates that the college dean and program faculty may require up to 24 credits of course work in the major to be taken in the college where the degree is earned. Based on this policy and the College's accreditation standards, the Smeal College of Business program faculty have set the following credit earning limitations for REST_BS majors:

1. Eighteen credits of 300/400 level prescribed and additional courses in the major field must be completed with faculty in the Real Estate program.
2. Six additional credits of 300/400 level supporting courses must also be completed at University Park. See the Real Estate Suggested Academic Plan for details.

Degree Requirements

For the Bachelor of Science degree in Real Estate, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	14
Requirements for the Major	76

15 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GQ courses; 6 credits of GWS courses; 3 credits of GS courses.

REQUIREMENTS FOR THE MAJOR

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
BA 342	Socially Responsible, Sustainable and Ethical Business Practice	3
BA 411	Analyzing Business and Industry	3
BLAW 341	Business Law I: Introduction to Contracts, Liability Issues, and Intellectual Property	3
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
MIS 250	Introduction to Problem Solving with Spreadsheet Analysis and Information Systems Management	3
SCM 301	Supply Chain Management	3
<i>Prescribed Courses: Require a grade of C or better</i>		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
ENGL 202D	Effective Writing: Business Writing	3
FIN 301	Corporation Finance	3
MGMT 301	Basic Management Concepts	3
MKTG 301	Principles of Marketing	3
RM 330W	Real Estate Risk Analysis	3
RM 450	Contemporary Issues in Real Estate Markets	3
RM/FIN 460	Real Estate Financial Analysis	3
RM/FIN 470	Real Estate and Capital Markets	3
RM 475	Quantitative Analysis for Business	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
FIN 406	Security Analysis and Portfolio Management	3
or RM/BLAW 424	Real Estate Law	

MATH 110	Techniques of Calculus I	4
or MATH 140	Calculus With Analytic Geometry I	
SCM 200	Introduction to Statistics for Business	4
or STAT 200	Elementary Statistics	
Select 3 credits from the following:		3
ENGL 15	Rhetoric and Composition	
ENGL 30H	Honors Rhetoric and Composition	
ESL 15	ESL Composition for American Academic Communication II	
CAS/ENGL 137H	Rhetoric and Civic Life I	

Supporting Courses and Related Areas

Select 4 credits: Attainment of 12th credit level proficiency in a single world language. Proficiency must be demonstrated by either examination or coursework.	4
Select 6 credits of supporting coursework from an approved department list.	6

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Advising Center

Smeal College Undergraduate Education
202 Business Building
University Park, PA 16802
814-863-1947
SmealAdvising@smeal.psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Real Estate, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSU 6	1 MGMT 301 ^{1,2}	3
(MATH 110 or MATH 140) or (SCM 200 or STAT 200) (GQ) ^{1,2}	4 (SCM 200 or STAT 200) or (MATH 110 or MATH 140) (GQ) ^{1,2}	4
ENGL 15, 30H, ESL 15, ENGL 137H, or CAS 137H ^{1,2}	3 World Language - Level Two (8th credit level) ³	4
ECON 102 (GS) ²	3 General Education Course (US) ⁴	3
World Language - Level One (4th credit level) ³	4	
	15	14

Second Year

Fall	Credits Spring	Credits
MKTG 301 ^{1,2}	3 FIN 301 ^{1,2}	3
ACCTG 211 ^{1,2}	4 SCM 301	3
ECON 104	3 CAS 100, ENGL 138T, or CAS 138T ¹	3
World Language - Level Three (12th credit level) ³	4 MIS 250	3
General Education Course (IL) ⁴	3 General Education Course ⁴	3
	17	15

Third Year

Fall	Credits Spring	Credits
RM 330W ¹	3 RM 450 ¹	3
ENGL 202D ¹	3 RM 475 ¹	3
BLAW 341 or BA 342	3 BA 342 or BLAW 341	3
General Education Course (N) ⁴	3 General Education Course ⁴	3
General Education Course ⁴	3 General Education Course ⁴	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
RM/FIN 460 ¹	3 RM/FIN 470 ¹	3
BA 411 (Real Estate Elective) ^{1,6}	3 BA 411 (or Real Estate Elective) ^{1,6}	3
Business Breadth Course ⁵	3 Business Breadth Course ⁵	3
General Education Course (N) ⁴	3 General Education Course ⁴	3
Elective ⁴	2 Elective Course ⁴	3
	14	15

Total Credits 120

¹ Course requires a grade of C or better

² Entrance-to-Major Course – complete prior to attaining 59 cumulative credits at Penn State

³ Attain 12th credit level proficiency in a world language (0-12 credits). Credits required vary based on predetermined skill level. Balance of remaining credits are taken as electives. American Sign Language does not satisfy the Smeal College world language requirement.

⁴ When planning general education and elective courses, students should factor in the following requirements:

- 3 credits of United States Culture (US)
- 3 credits of International Culture (IL)
- 6 credits of Inter-Domain coursework

⁵ See the Business Breadth Course list on the Smeal College website.

⁶ See the Risk Management Department website for the list of Real Estate electives.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Real Estate, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSU 6	1 MGMT 301 ^{1,2}	3
(MATH 110 or MATH 140) or (SCM 200 or STAT 200) (GQ) ^{1,2}	4 (SCM 200 or STAT 200) or (MATH 110 or MATH 140) (GQ) ^{1,2}	4
ENGL 15, 30H, ESL 15, ENGL 137H, or CAS 137H ^{1,2}	3 World Language - Level Two (8th credit level) ³	4
ECON 102 (GS) ²	3 General Education Course (US) ⁴	3
World Language - Level One (4th credit level) ³	4	
	15	14

Second Year

Fall	Credits Spring	Credits
MKTG 301 ^{1,2}	3 FIN 301 ^{1,2}	3
ACCTG 211 ^{1,2}	4 SCM 301	3
ECON 104	3 CAS 100, ENGL 138T, or CAS 138T ¹	3
World Language - Level Three (12th credit level) ³	4 ENGL 202D ¹	3
General Education Course (IL) ⁴	3 General Education Course ⁴	3
	17	15

Third Year

Fall	Credits Spring	Credits
RM 330W ¹	3 RM 450 ¹	3
MIS 250	3 RM 475 ¹	3
BLAW 341 or BA 342	3 BA 342 or BLAW 341	3
General Education Course (N) ⁴	3 General Education Course ⁴	3
General Education Course ⁴	3 General Education Course ⁴	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
RM/FIN 460 ¹	3 RM/FIN 470 ¹	3
BA 411 (Real Estate Elective) ^{1,6}	3 BA 411 (or Real Estate Elective) ^{1,6}	3
Business Breadth Course ⁵	3 Business Breadth Course ⁵	3
General Education Course (N) ⁴	3 General Education Course ⁴	3
Elective Course ⁴	2 Elective Course ⁴	3
	14	15

Total Credits 120

¹ Course requires a grade of C or better

- ² Entrance-to-Major Course – complete prior to attaining 59 cumulative credits at Penn State
- ³ Attain 12th credit level proficiency in a world language (0-12 credits). Credits required vary based on predetermined skill level. Balance of remaining credits are taken as electives. American Sign Language does not satisfy the Smeal College world language requirement.
- ⁴ When planning general education and elective courses, students should factor in the following requirements:
- 3 credits of United States Culture (US)
 - 3 credits of International Culture (IL)
 - 6 credits of Inter-Domain (N) coursework
- ⁵ See the Business Breadth Course list on the Smeal College website.
- ⁶ See the Risk Management Department website for the list of Real Estate electives.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

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General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

With top-ranked faculty, the Real Estate major prepares students for success in an ever-changing environment. The program offers a wide range of professional opportunities in corporate real estate, investment and counseling, commercial real estate brokerage, appraisal, risk management, mortgage lending and banking, development, and government services. Career paths for our students include:

- Commercial brokerage
- Consulting
- Office Leasing
- Complex valuation and counseling
- Mortgage and construction lending
- Property Management

The Borrelli Institute for Real Estate Studies (IRES) and the Penn State Real Estate Advisory Board provide students access to leading firms and executives for mentoring and internship opportunities. The IRES sponsors an annual Real Estate Boot Camp program that provides students with outstanding extracurricular opportunities and networking events. In addition, the Penn State Real Estate Association provides leadership opportunities and networking ideas.

Accreditation

The Smeal College of Business B.S. degree in Real Estate (REST_BS) is recognized by the AACSB (Association to Advance Collegiate Schools

of Business) as an accredited program after completing a meticulous internal review and meeting all AACSB standards and requirements.

MORE INFORMATION ABOUT THE ASSOCIATION TO ADVANCE COLLEGIATE SCHOOLS OF BUSINESS (<https://www.aacsb.edu>)

Professional Licensure/Certification

The Appraisal Foundation's (TAF) Appraisal Qualification Board (AQB) which is authorized by Congress as the source for appraisal standards and real property appraisal qualifications reviewed the REST_BS program and determined that 86% of the educational qualifications for Certified General Appraisal are satisfied by the REST_BS degree. Over 90% of the educational requirements for Licensed Residential and Certified Residential are also met. For more information on specific qualifications by each state, contact the Real Estate Appraisers Board.

Contact

University Park

DEPARTMENT OF RISK MANAGEMENT
355 Business Building
814-865-4172
rm@smeal.psu.edu

<https://www.smeal.psu.edu/risk-management> (<https://www.smeal.psu.edu/risk-management/>)

Ask A Question: <https://directory.smeal.psu.edu/contact/rm> (<https://directory.smeal.psu.edu/contact/rm/>)

Risk Management, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The Risk Management major prepares students for careers in a wide range of private industries and public service agencies involving such areas as operations, property development, financial strategy, and government. The major is integrative in nature by crossing traditional business boundaries while offering specific areas of study in enterprise risk management, and real estate. High profile risks are faced by leaders and managers up and down the corporate ladder and require specialized skills, knowledge, and preparation. The Risk Management major prepares students for this along with a chance to study risk from various perspectives by offering specialty courses along with a common pool of risk management courses. This structure assures that the students in the risk management major are equipped with the common tools of risk analysis while at the same time permitting the students to tailor the specifics of their training.

Enterprise Management Option

The Enterprise Risk Management Option prepares students to identify, quantify and qualify the regulatory, legal, financial and contractual aspects of enterprise risk; the management of such risks; and the application of risk financing techniques to control risk exposures in organizations. Emphasis is also placed on the understanding of the principles and risks underlying complex business contracts.

Real Estate Option

This option is designed to prepare the student for a wide range of professional opportunities in corporate real estate management, real estate brokerage, appraisal, property management, mortgage lending and banking, development, and governmental service.

What is Risk Management?

Organizations face a wide array of risks in today's rapidly changing and complex business environment. Operations can be disrupted by a variety of unanticipated factors, ranging from external forces like natural disasters and political risks to internal factors like faulty product design and flawed financial systems. CEOs make risky strategic decisions in an increasingly competitive marketplace where the cost of missteps is high. In recent years, firms have encountered new risks in the form of financial mismanagement, global litigation, and the growing costs of human resources.

The goal of Risk Management is to enhance firm value through the optimal treatment of risk. Corporate interest in enterprise risk management has grown steadily in recent years, fueled in part by regulatory mandates for improved risk management systems. In addition, organizations like Standard & Poor's, the Securities and Exchange Commission, and the New York Stock Exchange now require increased risk management disclosure and assessment in corporate financial statements.

Risk Management can often be categorized into four general areas of risk:

1. Hazard Risk: Lawsuits or damage from natural disasters.
2. Operational Risk: Risk resulting from failed systems, poor design, or worker error.
3. Financial Risk: Excessive operating costs and changes in commodity prices or currencies.
4. Strategic Risk: Corporate gains and losses from changes in consumer demand.

MORE INFORMATION ABOUT RISK MANAGEMENT (<https://undergrad.smeal.psu.edu/majors/risk-management/>)

Entrance to Major

To be eligible for entrance into the Risk Management major, a degree candidate must be enrolled in the Smeal College of Business or the Division of Undergraduate Studies and satisfy the requirements for entrance.

Administrative Enrollment Controls

This program currently has administrative enrollment controls. Administrative Enrollment Controls are initiated when limitations of space, faculty, or other resources in a major prevent accommodating all students who request them. Students must follow the administrative enrollment controls that are in effect for the semester that they enter the university.

First-Year Students Entering Summer 2024, Fall 2024, Spring 2025

In order to be eligible for entrance to this major, students must satisfy the following requirements:

- 36-59 graded Penn State credits (excludes transfer and AP credits)
- completed with a grade of C or better:
 - English - ENGL 15 or ENGL 30H or ESL 15 or ENGL 137H or CAS 137H
 - Mathematics - MATH 110 or MATH 140 or MATH 140B
 - Statistics - SCM 200 or SCM 200H or STAT 200
- completed ECON 102 or ECON 102H
- completed at Penn State (no substitutions or transfers), in addition with a quality grade of "C" or better and no alternative or Pass/Fail (PS) grading:
 - Accounting - ACCTG 211 or ACCTG 211H
 - Management - MGMT 301 or MGMT 301H or MGMT 301M or MGMT 301W
 - Marketing - MKTG 301 or MKTG 301H or MKTG 301W
 - Finance - FIN 301 or FIN 301H
- earned a minimum cumulative grade-point average (GPA) of 3.20

Students Who Entered Prior to Summer 2024

Students who entered the University from Summer 2018 through Spring 2024 should view the administrative enrollment controls in the appropriate Undergraduate Bulletin archive (<https://bulletins.psu.edu/undergraduate/archive/>). Students who entered the University prior to the summer 2018 semester should consult with their academic adviser about the administrative enrollment controls in effect for the semester they entered the university.

Degree Requirements

For the Bachelor of Science degree in Risk Management, a minimum of 120 credits is required with at least 15 credits at the 400 level:

Requirement	Credits
General Education	45
Electives	14
Requirements for the Major	73

12 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GWS courses (ENGL 202D); 6 credits of GQ courses (MATH 110 or MATH 140 and SCM 200 or STAT 200); 3 credits of GS courses (ECON 102).

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
BA 342	Socially Responsible, Sustainable and Ethical Business Practice	3
BA 411	Analyzing Business and Industry	3
BLAW 341	Business Law I: Introduction to Contracts, Liability Issues, and Intellectual Property	3
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3

MIS 250	Introduction to Problem Solving with Spreadsheet Analysis and Information Systems Management	3
SCM 301	Supply Chain Management	3
<i>Prescribed Courses: Require a grade of C or better</i>		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
ENGL 202D	Effective Writing: Business Writing	3
FIN 301	Corporation Finance	3
MGMT 301	Basic Management Concepts	3
MKTG 301	Principles of Marketing	3

Additional Courses

Additional Courses: Require a grade of C or better

MATH 110	Techniques of Calculus I	4
or MATH 140	Calculus With Analytic Geometry I	
SCM 200	Introduction to Statistics for Business	4
or STAT 200	Elementary Statistics	

Supporting Courses and Related Areas

Attainment of 12th credit level proficiency in a single world language. Proficiency must be demonstrated by either examination or coursework.	4
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Requirements for the Option

Select an option	24
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Requirements for the Option

Enterprise Risk Management Option (24 credits)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
RM 301	Risk and Decisions	3
RM 320W	Risk Management and Insurance	3
RM 405	Corporate Risk Management	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 9 credits from the following:		9
BLAW 441	Business Law II: Agency, Employment and Business Structure	
FIN 406	Security Analysis and Portfolio Management	
RM 440	Risk, Strategy, and Decision Making	
RM 475	Quantitative Analysis for Business	

Supporting Courses and Related Areas

Select 6 credits of supporting coursework from an approved department list.	6
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Real Estate Option (24 credits)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
RM 330W	Real Estate Risk Analysis	3
RM 450	Contemporary Issues in Real Estate Markets	3
RM/FIN 460	Real Estate Financial Analysis	3
RM/FIN 470	Real Estate and Capital Markets	3
RM 475	Quantitative Analysis for Business	3

Additional Courses

Additional Courses: Require a grade of C or better

Select 3 credits from the following: 3

FIN 406 Security Analysis and Portfolio Management

RM/BLAW 424 Real Estate Law

RM/BLAW 425

RM/IB 480

Supporting Courses and Related Areas

Select 6 credits of supporting coursework from an approved department list. 6

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

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Suggested Academic Plan

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years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Enterprise Risk Management Option: Risk Management, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSU 6	1 MGMT 301 ^{1,2}	3
(MATH 110 or MATH 140) or (SCM 200 or STAT 200) (GQ) ^{1,2}	4 (SCM 200 or STAT 200) or (MATH 110 or MATH 140) (GQ) ^{1,2}	4
ENGL 15, 30H, ESL 15, ENGL 137H, or CAS 137H ^{1,2}	3 World Language - Level Two (8th credit level) ³	4
ECON 102 (GS) ²	3 General Education Course (US) ⁴	3
World Language - Level One (4th credit level) ³	4	
	15	14

Second Year

Fall	Credits Spring	Credits
MKTG 301 ^{1,2}	3 FIN 301 ^{1,2}	3
ACCTG 211 ^{1,2}	4 SCM 301	3
ECON 104	3 CAS 100, ENGL 138T, or CAS 138T ¹	3
World Language - Level Three (12th credit level) ³	4 MIS 250	3
General Education Course (IL) ⁴	3 General Education Course ⁴	3
	17	15

Third Year

Fall	Credits Spring	Credits
RM 320W ¹	3 RM 301 ¹	3
ENGL 202D ¹	3 Enterprise Risk Management Elective ^{1,6}	3
BLAW 341 or BA 342	3 BA 342 or BLAW 341	3
General Education Course (N) ⁴	3 General Education Course ⁴	3
General Education Course ⁴	3 General Education Course ⁴	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
Enterprise Risk Management Elective ^{1,6}	3 RM 405 ¹	3
BA 411 (or Enterprise Risk Management Elective) ^{1,6}	3 BA 411 (or Enterprise Risk Management Elective) ^{1,6}	3
Business Breadth Course ⁵	3 Business Breadth Course ⁵	3

General Education Course (N) ⁴	3 General Education Course ⁴	3
Elective ⁴	2 Elective ⁴	3
	14	15

Total Credits 120

¹ Course requires a grade of C or better

² Entrance-to-Major Course – complete prior to attaining 59 cumulative credits at Penn State

³ Attain 12th credit level proficiency in a world language (0-12 credits). Credits required vary based on predetermined skill level. Balance of remaining credits are taken as electives. American Sign Language does not satisfy the Smeal College world language requirement.

⁴ When planning general education and elective courses, students should factor in the following requirements:

- 3 credits of United States Culture (US)
- 3 credits of International Culture (IL)
- 6 credits of Inter-Domain (N) coursework

⁵ See the Business Breadth Course list on the Smeal College website.

⁶ See the Risk Management Department website for the list of RM-ERM electives.

University Requirements and General Education Notes:

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All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

College and Department Notes:

- I. The Smeal College of Business requires that the following entrance-to-major courses be taken at Penn State: ACCTG 211, MGMT 301, MKTG 301, and FIN 301.
- II. Pursuant to the Association to Advance Collegiate Schools of Business (AACSB) accreditation standards, the Smeal College of Business requires that all upper division courses within the departments sponsoring the major be completed in residence at University Park under the instruction of Smeal College faculty.

Enterprise Risk Management Option: Risk Management, B.S. at Commonwealth Campuses

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First Year

Fall	Credits Spring	Credits
First-Year Seminar (if required by Campus)	1-0 MGMT 301 ^{1,2}	3
(MATH 110 or MATH 140) or (SCM 200 or STAT 200) (GQ) ^{1,2}	4 (SCM 200 or STAT 200) or (MATH 110 or MATH 140) (GQ) ^{1,2}	4
ENGL 15, 30H, ESL 15, ENGL 137H, or CAS 137H ^{1,2}	3 World Language - Level Two (8th credit level) ³	4
ECON 102 (GS) ²	3 General Education Course (US) ⁴	3
World Language - Level One (4th credit level) ³	4	
	15-14	14

Second Year

Fall	Credits Spring	Credits
MKTG 301 ^{1,2}	3 FIN 301 ^{1,2}	3
ACCTG 211 ^{1,2}	4 ENGL 202D ¹	3
ECON 104	3 CAS 100, ENGL 138T, or CAS 138T ¹	3
World Language - Level Three (12th credit level) ³	4 General Education Course ⁴	3
General Education Course (IL) ⁴	3 General Education Course (N) ⁴	3
	17	15

Third Year

Fall	Credits Spring	Credits
RM 320W ¹	3 RM 301 ¹	3
SCM 301	3 Enterprise Risk Management Elective ^{1,6}	3
BLAW 341 or BA 342	3 BA 342 or BLAW 341	3
MIS 250	3 General Education Course ⁴	3
General Education Course ⁴	3 General Education Course ⁴	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
Enterprise Risk Management Elective ^{1,6}	3 RM 405 ¹	3
BA 411 (or Enterprise Risk Management Elective) ^{1,6}	3 BA 411 (or Enterprise Risk Management Elective) ^{1,6}	3
Business Breadth Course ⁵	3 Business Breadth Course ⁵	3
General Education Course (N) ⁴	3 General Education Course ⁴	3

Elective ⁴	2-3 Elective ⁴	3
	14-15	15

Total Credits 120

¹ Course requires a grade of C or better

² Entrance-to-Major Course – complete prior to attaining 59 cumulative credits at Penn State

³ Attain 12th credit level proficiency in a world language (0-12 credits). Credits required vary based on predetermined skill level. Balance of remaining credits are taken as electives. American Sign Language does not satisfy the Smeal College world language requirement.

⁴ When planning general education and elective courses, students should factor in the following requirements:

- 3 credits of United States Culture (US)
- 3 credits of International Culture (IL)
- 6 credits of Inter-Domain (N) coursework

⁵ See the Business Breadth Course list on the Smeal College website.

⁶ See the Risk Management Department website for the list of RM-ERM electives.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

College and Department Notes:

1. The Smeal College of Business requires that the following entrance-to-major courses be taken at Penn State: ACCTG 211, MGMT 301, MKTG 301, and FIN 301.
2. Pursuant to the Association to Advance Collegiate Schools of Business (AACSB) accreditation standards, the Smeal College of Business requires that all upper division courses within the departments sponsoring the major be completed in residence at University Park under the instruction of Smeal College faculty.

Career Paths

Corporations and non-profits have turned to risk management to protect themselves from the adverse consequences of all of these risks. Risk analysis touches a wide range of systems including management and control of risk and legal, political, economic, and property risk assessment. This rigorous program of study is designed to prepare students for careers in risk management, compliance, risk analysis, and government agencies that demand quantitative and qualitative skills needed to meet modern risk assessment requirements.

Risk Management (RM_BS) prepares students to work in the risk management departments of major multinational and domestic corporations. The risk management function interacts with a firm's internal and external auditing functions and reports to the Board of Directors and senior offices of publicly traded companies. Demand for risk management expertise has grown throughout the economy since 2000, especially among healthcare, energy, and financial services firms. Students are recruited in these areas and by firms in industries related to risk management, including accounting firms, insurance companies, insurance brokerage, consultancy, and benefits management.

Average starting salaries for full-time employment are in the \$60,000 range. Internships are paid experiences with hourly rates around \$20.00 an hour.

Accreditation

The Smeal College of Business B.S. degree in Risk Management (RM_BS) is recognized by the AACSB (Association to Advance Collegiate Schools of Business) as an accredited program after completing a meticulous internal review and meeting all AACSB standards and requirements.

MORE INFORMATION ABOUT THE ASSOCIATION TO ADVANCE COLLEGIATE SCHOOLS OF BUSINESS (<https://www.aacsb.edu>)

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

University Park

DEPARTMENT OF RISK MANAGEMENT
355 Business Building
814-865-4172
rm@smeal.psu.edu

<https://www.smeal.psu.edu/risk-management> (<https://www.smeal.psu.edu/risk-management/>)

Ask A Question: <https://directory.smeal.psu.edu/contact/rm> (<https://directory.smeal.psu.edu/contact/rm/>)

Smeal College Business Fundamentals, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

The Smeal College Business Fundamentals Certificate provides non-Smeal students with the background and knowledge for careers in corporate and non-profit settings. Core courses are framed around an integrated approach to management, finance, global operations, product development and promotion, and legal aspects of business. Students gain practical skills needed to compete in today's rapidly changing business environment.

What is Smeal College Business Fundamentals?

The Smeal College Business Fundamentals Certificate will add to your knowledge base across a range of critical business areas and add a Smeal-specific designation to your University transcript upon completion. If you are in a major that is not business related or if you are in a non-Smeal major with a business option or concentration, this certificate will allow you to pursue your interests outside of Smeal while broadening your undergraduate experience to develop fundamental business skills. Prerequisite courses in accounting, economics and statistics will lay the foundation for the core courses in management, marketing, finance and supply chain. In addition, a business elective in either business law or international business may be chosen. This certificate will help you develop the skills that will be needed in whatever career you choose to pursue.

MORE INFORMATION ABOUT SMEAL COLLEGE OF BUSINESS FUNDAMENTALS (<https://www.smeal.psu.edu/business-certificate/>)

Entrance to Certificate

Students must be enrolled in a non-business baccalaureate program to pursue this certificate.

Program Requirements

To earn an undergraduate certificate in Smeal College Business Fundamentals, a minimum of 15 credits is required.

A grade of C or better is required in all prescribed courses; these courses must be taken at Penn State. Provided that at least three of the five courses are taken in the Smeal College of Business, certificate courses may be satisfied by substituting Penn State courses with comparable content at the same level with the approval of the Smeal College.

Code	Title	Credits
Prerequisite Courses		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
ECON 102	Introductory Microeconomic Analysis and Policy	3
Select three credits of 200-level statistics		3
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
BA 301	Finance	3
BA 302	Supply Chains	3
BA 303	Marketing	3
BA 304	Management and Organization	3
BLAW 243	Legal Environment of Business	3
or IB 303	International Business Operations	

Certificate Learning Objectives

- **Business Concepts and Processes:** Students will be able to explain key components of business operations and the internal and external influences impacting local, national, and international corporations.
- **Ethically Responsible Business Practices:** The ability to explain social and ethical responsibility as critical components of a successful organization. Students will be able to identify key issues in an ethical business problem, recognize personal biases influencing decisions, and make ethically responsible decisions for society.
- **Problem Solving and Critical Thinking:** The ability to demonstrate problem solving skills using analytical techniques. Students will be able to understand a given business problem, provide solutions using quantitative tools and analytical techniques.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

April Crawford

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Contact

University Park

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<https://www.smeal.psu.edu/business-certificate> (<https://www.smeal.psu.edu/business-certificate/>)

Supply Chain and Information Sciences and Technology, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The minor in SCIST is structured to provide students not majoring in Supply Chain & Information Systems (SC&IS) or Management Information Systems (MIS) with the opportunity to develop working knowledge of information technology, supply chain management, and their interdisciplinary synergies. The joint minor is designed for professional careers in business, information systems, software development, consulting, and government. The successful minor must, at a minimum, possess basic knowledge of quantitative techniques, computer applications, and microeconomics.

What is Supply Chain and Information Sciences and Technology?

Supply Chain and Information Systems encompasses some of the largest employment sectors in the U.S. economy and offers advancement opportunities in countries around the world, along with excellent salaries. U.S. News and World Report Career Guide and Working Woman magazines have cited this area as a hot career track. Companies seeking students in this area represent: the services sector, which includes consulting, third-party logistics, transportation, warehousing, and retailing; the manufacturing sector, especially the computer, aerospace, pharmaceutical, electronics, petrochemical, auto, food, and consumer products industries; and the government sector, primarily at the federal and state levels.

MORE INFORMATION ABOUT SUPPLY CHAIN AND INFORMATION SCIENCES AND TECHNOLOGY (<https://ugstudents.smeal.psu.edu/academics-advising/degree-requirements/minors/>)

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
IST 110	Information, People and Technology	3
IST 210	Organization of Data	3
IST 220	Networking and Telecommunications	3
SCM 301	Supply Chain Management	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 6 credits of the following:		6
SCM 404	Demand Fulfillment	
SCM 405	Manufacturing and Services Strategies	
SCM 406	Strategic Procurement	

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their

intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Advising Center

Smeal College Undergraduate Education
202 Business Building
University Park, PA 16802
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SmealAdvising@smeal.psu.edu

Contact

University Park

DEPARTMENT OF SUPPLY CHAIN AND INFORMATION SYSTEMS
454 Business Building
814-865-1866
scis@smeal.psu.edu

<https://www.smeal.psu.edu/scis> (<https://www.smeal.psu.edu/scis/>)

Supply Chain and Information Systems, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The Supply Chain and Information Systems major concentrates on the management of value-creating supply chain networks that modern business enterprises use to acquire, produce, and deliver goods and services all over the world and on information technology as the key enabler of supply chain integration. Students learn how to analyze and design supply chains and manage core business processes including (1) sourcing and procuring raw materials, (2) manufacturing and service operations, and (3) planning and fulfilling customer demand. Students also develop knowledge, skills, and abilities in the information systems area, including information processing, databases, information systems design and analysis, and supply chain technologies.

Graduates are well-prepared for careers in the supply chain and information systems area in both industry and government, including manufacturing, service, technology, and merchandising companies, third-party logistics providers, transport system enterprises, consulting firms, and government agencies.

More information about the broad range of career opportunities is available at <http://www.smeal.psu.edu/scis/recruit> (<http://www.smeal.psu.edu/scis/recruit/>).

What is Supply Chain and Information Systems?

Supply Chain and Information Systems (SCIS) is a boundary-spanning field of supply chain networks. A supply chain encompasses business functions and enterprises interconnected by resource flows of goods, services, information, and funds. Supply chain management spans these interconnected networks to acquire, produce, and deliver goods and services in our global economy.

Students selecting the SCIS major develop excellent knowledge and skills in three critically important areas:

- Core flow functions, which include source, make, deliver, and return.
- The role of information systems as the critical enabler for integrating supply chains.
- The cross-functional planning perspectives that span core functions, customer relationships, post-sales support, and new product design and launches.

SCIS emphasizes real world content and exposure to best practices from internships, case studies, visiting business leaders, industry partnerships, company-sponsored research projects, study abroad opportunities, and professional development workshops.

MORE INFORMATION ABOUT SUPPLY CHAIN AND INFORMATION SYSTEMS (<https://undergrad.smeal.psu.edu/majors/supply-chain-information-systems/>)

Entrance to Major

To be eligible for entrance into the Supply Chain and Information Systems (SC&IS) major, a degree candidate must be enrolled in the Smeal College of Business or the Division of Undergraduate Studies and satisfy requirements for entrance to the major.

Administrative Enrollment Controls

This program currently has administrative enrollment controls. Administrative Enrollment Controls are initiated when limitations of space, faculty, or other resources in a major prevent accommodating all students who request them. Students must follow the administrative enrollment controls that are in effect for the semester that they enter the university.

First-Year Students Entering Summer 2024, Fall 2024, Spring 2025

In order to be eligible for entrance to this major, students must satisfy the following requirements:

- 36-59 graded Penn State credits (excludes transfer and AP credits)
- completed with a grade of C or better:
 - English - ENGL 15 or ENGL 30H or ESL 15 or ENGL 137H or CAS 137H
 - Mathematics - MATH 110 or MATH 140 or MATH 140B
 - Statistics - SCM 200 or SCM 200H or STAT 200
- completed ECON 102 or ECON 102H
- completed at Penn State (no substitutions or transfers), in addition with a quality grade of "C" or better and no alternative or Pass/Fail (PS) grading:

- Accounting - ACCTG 211 or ACCTG 211H
 - Management - MGMT 301 or MGMT 301H or MGMT 301M or MGMT 301W
 - Marketing - MKTG 301 or MKTG 301H or MKTG 301W
 - Finance - FIN 301 or FIN 301H
- earned a minimum cumulative grade-point average (GPA) of 3.00

Students Who Entered Prior to Summer 2024

Students who entered the University from Summer 2018 through Spring 2024 should view the administrative enrollment controls in the appropriate Undergraduate Bulletin archive (<https://bulletins.psu.edu/undergraduate/archive/>). Students who entered the University prior to the summer 2018 semester should consult with their academic adviser about the administrative enrollment controls in effect for the semester they entered the university.

Degree Completion

Students accepted into the Supply Chain and Information Systems major are expected to enroll at University Park the fall semester after gaining entrance to the major. In addition, Senate Policy 83-80.5 stipulates that the college dean and program faculty may require up to 24 credits of course work in the major to be taken in the college where the degree is earned. Based on this policy, the Smeal College of Business has set the following credit earning limitations for SCIS majors:

1. Fifteen credits of 300/400 level prescribed and additional courses in the major field must be completed with Supply Chain and Information Systems faculty at University Park.
2. Nine additional credits of 300/400 level related and supporting courses must also be completed at University Park. See the Supply Chain and Information Systems Suggested Academic Plan for details.

Degree Requirements

For the Bachelor of Science degree in Supply Chain and Information Systems, a minimum of 120 credits is required with at least 15 credits at the 400 level:

Requirement	Credits
General Education	45
Electives	14
Requirements for the Major	73

12 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GWS courses (ENGL 202D); 6 credits of GQ courses (MATH 110 or MATH 140 and SCM 200 or STAT 200); 3 credits of GS courses (ECON 102).

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
BA 342	Socially Responsible, Sustainable and Ethical Business Practice	3
BA 411	Analyzing Business and Industry	3

BLAW 341	Business Law I: Introduction to Contracts, Liability Issues, and Intellectual Property	3
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
MIS 250	Introduction to Problem Solving with Spreadsheet Analysis and Information Systems Management	3

Prescribed Courses: Require a grade of C or better

ACCTG 211	Financial and Managerial Accounting for Decision Making	4
ENGL 202D	Effective Writing: Business Writing	3
FIN 301	Corporation Finance	3
MGMT 301	Basic Management Concepts	3
MKTG 301	Principles of Marketing	3
SCM 301	Supply Chain Management	3
SCM 404	Demand Fulfillment	3
SCM 405	Manufacturing and Services Strategies	3
SCM 406	Strategic Procurement	3
SCM 421	Supply Chain Analytics	3
SCM 450W	Strategic Design and Management of Supply Chains	3

Additional Courses

Additional Courses: Require a grade of C or better

MATH 110 or MATH 140	Techniques of Calculus I Calculus With Analytic Geometry I	4
SCM 200 or STAT 200	Introduction to Statistics for Business Elementary Statistics	4

Supporting Courses and Related Areas

Attainment of 12th-credit-level proficiency in a single world language. 4
Proficiency must be demonstrated by either examination or coursework.

Select 3 credits of related coursework. See Department List.	3
Select 6 credits of supporting coursework See Department List.	6

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

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202 Business Building
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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Supply Chain and Information Systems, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSU 6	1 MGMT 301 ^{1,2}	3
(MATH 110 or MATH 140) or (SCM 200 or STAT 200) (GQ) ^{1,2}	4 (SCM 200 or STAT 200) or (MATH 110 or MATH 140) (GQ) ^{1,2}	4
ENGL 15, 30H, ESL 15, ENGL 137H, or CAS 137H ^{1,2}	3 World Language - Level Two (8th credit level) ³	4
ECON 102 (GS) ²	3 General Education Course (US) ⁴	3
World Language - Level One (4th credit level) ³	4	
	15	14

Second Year

Fall	Credits Spring	Credits
MKTG 301 ^{1,2}	3 FIN 301 ^{1,2}	3

ACCTG 211 ^{1,2}	4 SCM 301 ¹	3
ECON 104	3 CAS 100, ENGL 138T, or CAS 138T ¹	3
World Language - Level Three (12th credit level) ³	4 MIS 250 ¹	3
General Education Course (IL) ⁴	3 General Education Course ⁴	3
	17	15

Third Year

Fall	Credits Spring	Credits
SCM 404 or 405 ¹	3 SCM 405 or 404 ¹	3
ENGL 202D ¹	3 SCM 406 ¹	3
BLAW 341 or BA 342	3 BA 342 or BLAW 341	3
Business Breadth Course ⁵	3 General Education Course ⁴	3
General Education Course (N) ⁴	3 General Education Course ⁴	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
SCM 421 ¹	3 SCM 450W ¹	3
BA 411 (or Business Breadth Course) ⁵	3 BA 411 (or Business Breadth Course) ⁵	3
General Education Course ⁴	3 Business Breadth Course ⁵	3
General Education Course (N) ⁴	3 General Education Course ⁴	3
Elective ⁴	2 Elective ⁴	3
	14	15

Total Credits 120

¹ Course requires a grade of C or better

² Entrance-to-Major Course – complete prior to attaining 59 cumulative credits at Penn State

³ Attain 12th credit level proficiency in a world language (0-12 credits). Credits required vary based on predetermined skill level. Balance of remaining credits are taken as electives. American Sign Language does not satisfy the Smeal College world language requirement.

⁴ When planning general education and elective courses, students should factor in the following requirements:

- 3 credits of United States Culture (US)
- 3 credits of International Culture (IL)
- 6 credits of Inter-Domain (N) coursework

⁵ See the Business Breadth Course list on the Smeal College website.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain

attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

College and Department Notes:

- The Smeal College of Business requires that the following entrance-to-major courses be taken at Penn State: ACCTG 211, MGMT 301, MKTG 301, and FIN 301.
- Pursuant to the Association to Advance Collegiate Schools of Business (AACSB) accreditation standards, the Smeal College of Business requires that all upper division courses within the departments sponsoring the major be completed in residence at University Park under the instruction of Smeal College faculty.

Supply Chain and Information Systems, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
First-Year Seminar (if required by Campus)	1-0 MGMT 301 ^{1,2}	3
(MATH 110 or MATH 140) or (SCM 200 or STAT 200) (GQ) ^{1,2}	4 (SCM 200 or STAT 200) or (MATH 110 or MATH 140) (GQ) ^{1,2}	4
ENGL 15, 30H, ESL 15, ENGL 137H, or CAS 137H ^{1,2}	3 World Language - Level Two (8th credit level) ³	4
ECON 102 (GS) ²	3 General Education Course (US) ⁴	3
World Language - Level One (4th credit level) ³	4	
15-14		14

Second Year

Fall	Credits Spring	Credits
MKTG 301 ^{1,2}	3 FIN 301 ^{1,2}	3
ACCTG 211 ^{1,2}	4 ENGL 202D ¹	3
ECON 104	3 CAS 100, ENGL 138T, or CAS 138T ¹	3
World Language - Level Three (12th credit level) ³	4 SCM 301 ¹	3
General Education Course (IL) ⁴	3 General Education Course ⁴	3
17		15

Third Year

Fall	Credits Spring	Credits
SCM 404 or 405 ¹	3 SCM 405 or 404 ¹	3
MIS 250 ¹	3 SCM 406 ¹	3
BLAW 341 or BA 342	3 BA 342 or BLAW 341	3
Business Breadth Course ⁵	3 General Education Course ⁴	3
General Education Course (N) ⁴	3 General Education Course ⁴	3
15		15

Fourth Year

Fall	Credits Spring	Credits
SCM 421 ¹	3 SCM 450W ¹	3
BA 411 (or Business Breadth Course) ⁵	3 BA 411 (or Business Breadth Course) ⁵	3
General Education Course ⁴	3 Business Breadth Course ⁵	3
General Education Course (N) ⁴	3 General Education Course ⁴	3

Elective ⁴	2-3 Elective ⁴	3
14-15		15

Total Credits 120

¹ Course requires a grade of C or better

² Entrance-to-Major Course – complete prior to attaining 59 cumulative credits at Penn State

³ Attain 12th credit level proficiency in a world language (0-12 credits). Credits required vary based on predetermined skill level. Balance of remaining credits are taken as electives. American Sign Language does not satisfy the Smeal College world language requirement.

⁴ When planning general education and elective courses, students should factor in the following requirements:

- 3 credits of United States Culture (US)
- 3 credits of International Culture (IL)
- 6 credits of Inter-Domain (N) coursework

⁵ See the Business Breadth Course list on the Smeal College website.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

College and Department Notes:

- The Smeal College of Business requires that the following entrance-to-major courses be taken at Penn State: ACCTG 211, MGMT 301, MKTG 301, and FIN 301.
- Pursuant to the Association to Advance Collegiate Schools of Business (AACSB) accreditation standards, the Smeal College of Business requires that all upper division courses within the departments sponsoring the major be completed in residence at University Park under the instruction of Smeal College faculty.

Career Paths

Students majoring in Supply Chain and Information Systems (SCIS_BS) gain knowledge, skills, and expertise to manage multiple facets of organization and businesses. Students have access to the Center for Supply Chain Research (CSCR), which provides opportunities for student research with over 35 companies. In addition, the CSCR sponsors a Spring and Fall Career Fair, which boasts over 6,000 total student/recruiter interactions between the five career fair days held during the academic year.

SCIS_BS graduates have opportunities to work in fields including production, logistics, transportation, and more. The SCIS Department at Smeal provides a dedicated job placement services office for students. Companies recruiting majors represent both the services sector (consulting, retail, and health care industries) and the manufacturing

sector (computer, aerospace, pharmaceutical, electronics, petrochemical, auto, food, and consumer products industries).

Accreditation

The Smeal College of Business B.S. degree in Supply Chain and Information Systems (SCIS_BS) is recognized by the AACSB (Association to Advance Collegiate Schools of Business) as an accredited program after completing a meticulous internal review and meeting all AACSB standards and requirements.

MORE INFORMATION ABOUT THE ASSOCIATION TO ADVANCE COLLEGIATE SCHOOLS OF BUSINESS (<https://www.aacsb.edu>)

Contact

University Park

DEPARTMENT OF SUPPLY CHAIN AND INFORMATION SYSTEMS
454 Business Building
814-865-1866
scis@smeal.psu.edu

<https://www.smeal.psu.edu/scis> (<https://www.smeal.psu.edu/scis/>)

Ask A Question: <https://directory.smeal.psu.edu/contact/scis> (<https://directory.smeal.psu.edu/contact/scis/>)

Supply Chain and Information Systems, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Supply Chain and Information Systems (SC&IS) minor is not open to SC&IS major (Smeal) and PSCM majors (Behrend and Capital).

The Supply Chain and Information Systems (SC&IS) minor is structured to provide the student with a working knowledge of the discipline and to complement a student's major field of study. The SC&IS minor provides exposure to core supply chain processes, methods, and techniques and to directly related enabling enterprise system technologies. Students completing the SC&IS minor can apply their expanded knowledge in both manufacturing and service sectors of the economy.

The SC&IS minor is offered on-line through World Campus. SC&IS contains World Campus sections of MIS 404, SCM 445 and SCM 465 that contain SAP-specific topics necessary for the minor. Planning and course selection is important in order to earn proper credit in the SAP-specific courses.

What is Supply Chain and Information Systems?

Supply Chain and Information Systems (SCIS) is a boundary-spanning field of supply chain networks. A supply chain encompasses business functions and enterprises interconnected by resource flows of goods, services, information, and funds. Supply chain management spans these interconnected networks to acquire, produce, and deliver goods and services in our global economy.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
SCM 301	Supply Chain Management	3
SCM 404	Demand Fulfillment	3
SCM 406	Strategic Procurement	3
SCM 445	Operations Planning and Control	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 6 credits of the following:		6
MIS 404	Introduction to ERP and Business Processes	
SCM 460	Purchasing and Materials Management	
SCM 465	Electronic Business Management	

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

World Campus

Undergraduate Academic Advising

301 Outreach Building
University Park, PA 16802
814-863-3283
advising@outreach.psu.edu

Contact

World Campus

454 Business Building
University Park, PA 16802
814-865-1866
adh5253@psu.edu

University College

About the College

Rick Brazier, Interim Dean of University College, Senior Associate Dean for Faculty and Research

University College consists of 14 campuses distributed throughout the Commonwealth. As a land-grant institution, Penn State is committed to providing the citizens of Pennsylvania convenient access to a high-quality education at a campus near them. Many of the more than 10,000 students attending classes at a University College campus will choose to remain at their campus of admission for all four years to complete one of the 18 baccalaureate programs the College offers in a wide variety of academic disciplines, including business, engineering, nursing, the social sciences, the natural sciences, and the humanities. In addition, several campuses offer a variety of professionally-accredited associate programs in the health sciences. Other students starting at a University Campus transition to a second campus after their first two years to complete their selected program of study.

Mission and Goals

University College realizes the University's commitment to educating a diverse and ever-changing demographic of learners, a responsibility at the forefront of the campus mission. It provides a high-quality and innovative Penn State undergraduate education to prepare students for a life of professional success, personal fulfillment, and social engagement. Campuses have an impact that extends beyond their educational mission. They contribute to the educational attainment and local economies of the communities they serve.

Campuses

Penn State Beaver

Penn State Beaver serves a diverse population of approximately 700 students and offers a relaxed environment with baccalaureate degrees, on-campus housing, and varsity sports — all just 35 miles northwest of Pittsburgh.

MORE INFORMATION ABOUT PENN STATE BEAVER (<https://beaver.psu.edu/>)

Penn State Brandywine

Penn State Brandywine, located near Philadelphia, provides the charm and intimacy of a small campus and the resources of a major research university. The campus offers baccalaureate degrees, undergraduate research, internships, global programs, intercollegiate athletics and a variety of student clubs. Students live in on-campus housing or commute to campus from nearby communities.

MORE INFORMATION ABOUT PENN STATE BRANDYWINE (<https://www.brandywine.psu.edu/>)

Penn State DuBois

Penn State DuBois is a small, commuter-based campus that offers cutting-edge technology, faculty expertise, and dedication to excellence. The campus has about 600 students and is located near I-80 in north central Pennsylvania.

MORE INFORMATION ABOUT PENN STATE DUBOIS (<https://dubois.psu.edu/>)

Penn State Fayette

Penn State Fayette, The Eberly Campus, offers bachelor's and associate degrees to about 700 students. Its beautiful 100-acre campus in Pennsylvania's Laurel Highlands is the former site of an 1800's-era farmstead.

MORE INFORMATION ABOUT PENN STATE FAYETTE (<https://fayette.psu.edu/>)

Penn State Greater Allegheny

At Penn State Greater Allegheny, about 600 students enjoy the suburban environment and the neighboring city life in Pittsburgh. The campus offers residence halls, a diverse student body, athletics, and more.

MORE INFORMATION ABOUT PENN STATE GREATER ALLEGHENY (<https://greaterallegheny.psu.edu/>)

Penn State Hazleton

At Penn State Hazleton, about 800 students enjoy a residential campus located in the heart of the Pocono Mountains in northeastern Pennsylvania. Students have the opportunity to work and to learn in state-of-the-art classrooms and labs, all the while being centrally located from New York City, Philadelphia, and University Park.

MORE INFORMATION ABOUT PENN STATE HAZLETON (<https://hazleton.psu.edu/>)

Penn State Lehigh Valley

Penn State Lehigh Valley offers world-class education and opportunities both in and out of the classroom to about 900 students on a small campus near Allentown. Students have access to the area's thriving athletic and cultural attractions.

MORE INFORMATION ABOUT PENN STATE LEHIGH VALLEY (<https://lehighvalley.psu.edu/>)

Penn State Mont Alto

Penn State Mont Alto offers a world-class education on an intimate campus that includes an arboretum. The campus enrolls about 950 students, offers residence halls, and is located 30 minutes from Gettysburg and 90 minutes from Washington, D.C. and Baltimore, Md.

MORE INFORMATION ABOUT PENN STATE MONT ALTO (<https://montalto.psu.edu/>)

Penn State New Kensington

Penn State New Kensington offers an array of degrees, undergraduate research, clubs, and athletics to about 650 students. The 72-acre wooded campus is located just 17 miles from Pittsburgh.

MORE INFORMATION ABOUT PENN STATE NEW KENSINGTON (<https://newkensington.psu.edu/>)

Penn State Scranton

Penn State Scranton provides a welcoming environment to about 1,100 students on its campus in northeastern Pennsylvania. The campus strives to provide innovative instruction to help students achieve their potential.

MORE INFORMATION ABOUT PENN STATE SCRANTON (<https://scranton.psu.edu/>)

Penn State Schuylkill

Located in north central Pennsylvania, Penn State Schuylkill is close to cities such as Harrisburg, Philadelphia and New York. The campus has about 800 students and offers a world-class education in a small-town setting.

MORE INFORMATION ABOUT PENN STATE SCHUYLKILL (<https://schuylkill.psu.edu/>)

Penn State Shenango

Located near the Pennsylvania/Ohio border, Penn State Shenango combines quality academics with the personal attention of a small campus. The campus has about 500 students and is committed to serving the people of northwestern Pennsylvania.

MORE INFORMATION ABOUT PENN STATE SHENANGO (<https://shenango.psu.edu/>)

Penn State Wilkes-Barre

Penn State Wilkes-Barre offers the advantages of an intimate campus atmosphere combined with the resources of a major research university. The campus has about 550 students and is located on a scenic estate in northeastern Pennsylvania.

MORE INFORMATION ABOUT PENN STATE WILKES-BARRE (<https://wilkesbarre.psu.edu/>)

Penn State York

Penn State York has about 1,100 students and offers a wealth of stimulating intellectual, cultural, and historically-significant learning experiences in a welcoming, state-of-the-art campus environment in southern Pennsylvania.

MORE INFORMATION ABOUT PENN STATE YORK (<https://www.york.psu.edu/>)

Baccalaureate Degrees

- Administration of Justice, B.A.
- Administration of Justice, B.S.
- American Studies, B.A. (University College)
- Arts Administration, B.A.
- Biobehavioral Health, B.S. (University College)
- Biology, B.S. (University College)
- Business, B.S. (University College)
- Communication Arts and Sciences, B.A. (University College)
- Communications, B.A. (University College)
- Corporate Communication, B.A. (University College)
- Criminal Justice, B.A. (University College)
- Criminal Justice, B.S. (University College)
- Cybersecurity Analytics and Operations, B.S. (University College)
- English, B.A. (University College)
- Health Policy and Administration, B.S. (University College)
- Human Development and Family Studies, B.S. (University College)
- Humanities, B.A. (University College)
- Information Technology, B.S. (University College)
- Integrative Science, B.S. (University College)
- Multidisciplinary Studies, B.A. (University College)
- Occupational Science, B.S.

- Project and Supply Chain Management, B.S. (University College)
- Psychology, B.A. (University College)
- Psychology, B.S. (University College)
- Recreation, Park, and Tourism Management, B.S. (University College)
- Rehabilitation and Human Services, B.S. (University College)
- Social Work, B.S.W.

Associate Degrees

- Business Administration, A.S. (University College)
- Criminal Justice, A.S. (University College)
- Human Development and Family Studies, A.S. (University College)
- Information Sciences and Technology, A.S. (University College)
- Medical Laboratory Technology, A.S.
- Mining Technology, A.S.
- Multidisciplinary Studies, A.A. (University College)
- Occupational Therapy, A.S. (University College)
- Physical Therapist Assistant, A.S.
- Radiological Sciences, A.S.

Minors

- Business, Minor
- Corporate Communication, Minor
- Management, Minor
- Natural Resources, Minor
- Peace and Conflict Studies, Minor
- Youth Development and Social Justice, Minor

Certificates

- Diversity Studies, Certificate (University College)
- Foundations of Business, Certificate
- Healthcare Informatics, Certificate
- International Studies, Certificate
- Introduction to Business Management, Certificate
- Introduction to Corporate Communication, Certificate
- Spatial Analysis and Engineering Design Principles, Certificate
- Supply Chain Management, Certificate
- Youth Development and Social Justice, Certificate

College Procedures

Change of Campus

Students are expected to remain at their campus of admission for the first two years of study. In exceptional situations, a student may request an early change of campus to maintain progress toward degree. The student must obtain approval from the home campus (first) and at the desired campus (second) in order for the change to be processed.

Concurrent Majors

A Concurrent Majors Program is one in which students take courses to concurrently meet the requirements of at least two majors, with graduation for all majors in the program occurring during the same semester. Students should meet with their academic adviser, review academic plans/approvals noted in Starfish and submit requests through LionPATH. Please review Penn State policies below for step by step

instructions. University College will not approve concurrent majors in the following majors: Science/Biology.

MORE INFORMATION ABOUT CONCURRENT MAJORS (<https://undergrad.psu.edu/aappm/M-3-concurrent-and-sequential-majors-program.html>)

READ SENATE POLICY 60-00: COMPLETING MORE THAN ONE UNDERGRADUATE MAJOR PROGRAM (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/60-00-completing-more-than-one-undergraduate-program/#60-00>)

Academic Warning

A student who fails to earn a 2.00 cumulative grade-point average will be placed on academic warning. A student placed on academic warning will have a hold placed on registration and will be required to meet with an academic adviser in order for this registration hold to be removed. The University College campuses support students through programming and individualized advising services. A student must work with an academic adviser to have the registration hold removed. To remove academic warning, the cumulative grade-point average must be 2.00 or higher.

READ SENATE POLICY 54-20: ACADEMIC WARNING (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-20>)

Academic Suspension

A student in academic warning who fails to maintain a semester grade-point average of 2.00 or higher will be academically suspended. A student who has been academically suspended may not schedule courses at the University for two consecutive semesters. (Note: Summer session is equal to one semester.) These students are encouraged to work closely with their advisers or other designated staff to consider the issues that led to their suspension and may apply for re-enrollment as a degree candidate by contacting any campus Registrar's office.

READ SENATE POLICY 54-40: ACADEMIC SUSPENSION (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-40>)

Resources

Credit-by-Portfolio Assessment

Portfolio Assessment is a process that enables students to demonstrate college-level learning from experiences gained outside the classroom. The process of portfolio assessment requires that students demonstrate knowledge equivalent to a particular course. It is the student's responsibility to identify course(s) for which he or she would like to document identification of appropriate courses. University College provides guides for both faculty and staff.

MORE INFORMATION ABOUT CREDIT-BY-PORTFOLIO ASSESSMENT (<https://www.campuses.psu.edu/uc-academic-policies/>)

Course Substitution Request System

Students should visit their advisers to review their academic plan and petition course substitutions via the Course Substitution Request System. Course descriptions and syllabi for course work completed at other institutions may be required.

LOG IN TO THE COURSE SUBSTITUTION REQUEST SYSTEM (<https://csrs.psu.edu/>)

Digital Learning Cooperative

The Digital Learning Cooperative (DLC) allows students to enroll in online, hybrid, and video courses offered by Penn State campuses across the University. Courses shared on the DLC may count toward students' general education program and fulfill requirements in a wide variety of majors. DLC courses available to students will be listed in the Schedule of Courses for their campus.

Pathway to Student Success: Summer Start (PaSSS)

Assists first-time students in making the transition from high school to college. Students selected for the program are eligible to receive scholarships in the first two summers after their high school graduation and are guaranteed a on-campus job to earn money.

MORE INFORMATION ABOUT THE PATHWAY TO SUCCESS: SUMMER START (PASSS) PROGRAM (<https://summerstart.psu.edu/>)

Undergraduate Research

Penn State undergraduates who are presenting the results of their research or creative work at national or regional professional conferences may request financial support to defray the costs of attendance at the conference. If the request is approved, the costs will be equally split among the University College Dean's Office (OVPC), the Office of Undergraduate Education, the campus, and, if applicable, the Schreyer Honors College. The contribution from each partner is capped at \$400 per student. The student must be a conference presenter to be eligible for funding and the presentation must be related to the student's academic program.

MORE INFORMATION ABOUT UNDERGRADUATE RESEARCH (<https://urfm.psu.edu/programs/undergraduate-research-conference-presentation-support/>)

VIEW APPLICATION FOR FINANCIAL SUPPORT OF RESEARCH/CREATIVE WORK PRESENTATION AT NATIONAL AND REGIONAL PROFESSIONAL CONFERENCES (<https://psu.infoready4.com/>)

Erickson Discovery Grants

The Rodney A. Erickson Discovery Grant Program, named in honor of Penn State's seventeenth President, supports undergraduate student engagement in original research, scholarship, and creative work under the direct supervision of a faculty member. Approximately 60 Erickson Discovery Grants, each in the amount of \$3,500, are available through the Office of Undergraduate Education for summer 2018. Additional grants may be funded through College and/or campus support. The Erickson Discovery Grants are directed to student-initiated projects in the arts, engineering, humanities, sciences, and social sciences that provide experience in all facets of the research, scholarship, or creative processes.

MORE INFORMATION ABOUT ERICKSON DISCOVERY GRANTS (<https://urfm.psu.edu/programs/erickson-discovery-grant/>)

Engineering Summer REU

The Summer Multi-Campus Research Experience for undergraduates (MC REU) occurs during June and July. The MC REU program supports Penn State Undergraduate engineering students to conduct research with Penn State faculty. Selected students will complete their proposal in conjunction with a Penn State faculty member from the student's home campus and a second faculty member at the University Park campus. The objectives of the MC REU are to promote undergraduate students participating in research early in their academic programs; to broaden

their education and increase their chances of entering graduate studies; and to promote awareness and collaboration among faculty across the Commonwealth.

MORE INFORMATION ABOUT THE SUMMER MULTI-CAMPUS RESEARCH EXPERIENCE FOR UNDERGRADUATES (<https://inclusion.engr.psu.edu/research/multi-campus-research-experience.aspx>)

Global Program Student Faculty Funding for International Activities

The University office of Global Programs provides limited funds to support student international travel related to education and research opportunities in any discipline.

MORE INFORMATION ABOUT GLOBAL PROGRAMS TRAVEL GRANTS (<https://global.psu.edu/category/global-programs-travel-grants/>)

CUR Membership

Penn State has an enhanced institutional membership for the Council on Undergraduate Research (CUR). As a result of this enhanced institutional membership, any faculty member, administrator, student, or staff member from any Penn State campus or college may join the CUR at no additional cost to the individual. Membership benefits include a digital subscription to CUR Quarterly, substantial discounts on CUR materials and conferences, access to CUR's online archive of Webinar Recordings and materials, and access to the member's only portion at <https://www.cur.org/>, which includes information on funding opportunities, jobs, and other resources.

Eastern Undergraduate Research Symposium

Penn State's Eastern Regional Campuses' annual Regional Undergraduate Research Symposium communicates and celebrates the participation of undergraduate students from the eastern regional Penn State campuses in their scholarly research endeavors. Undergraduate students who have been selected to represent their local campus will present posters or other exhibits to showcase their work to a general audience. The Symposium is open to the public.

Invent Penn State

Innovation Hubs Across the Commonwealth: LaunchBox's

The Invent Penn State seed grant program provided campuses with grants of \$50,000 to launch or enhance innovation hubs. The impact of these grants is far reaching, with 21 Commonwealth communities now having Invent Penn State-affiliated spaces and programs—free to the community—that will drive innovation and economic growth. The 21 are listed at: <https://invent.psu.edu/programs/pa-innovation-hubs/>.

The Intercollege Minor in Entrepreneurship and Innovation (ENTI)

Because entrepreneurs and innovators exist in all industries and in all types of companies, the ENTI minor appeals to students regardless of their academic discipline. ENTI teaches students foundational skills they will need to succeed in the professional world, including innovative thinking, opportunity recognition, developing budget models, leadership, and project management.

MORE INFORMATION ABOUT THE INTERCOLLEGE MINOR IN ENTREPRENEURSHIP AND INNOVATION (<https://cpsse.psu.edu/enti/>)

Venture and IP Conference

A two-day showcase for Penn state student and faculty start-up companies and innovative technologies.

MORE INFORMATION ABOUT THE VENTURE AND IP CONFERENCE (<https://pennstatevip.com/>)

Resource, IP, and Start-up Navigators

Search portals for everything happening in the entrepreneurship ecosystem.

MORE INFORMATION ABOUT INVENT PENN STATE (<https://invent.psu.edu/>)

Contact

UNIVERSITY COLLEGE

111 Old Main

University Park, PA 16802

814-863-0327

<https://www.campuses.psu.edu/>

Administration of Justice, B.A.

Begin Campus: Any Penn State Campus

End Campus: DuBois, Fayette, Greater Allegheny, Hazleton, Schuylkill, Wilkes-Barre

PROGRAM CURRENTLY ON HOLD; NOT ACCEPTING NEW STUDENTS
Begin Date of Enrollment Hold: October 5, 2020

Program Description

The Bachelor of Arts degree in Administration of Justice provides students with a broadly based liberal education focused on the understanding and analysis of justice systems. Having grappled with the many dilemmas and controversies presented by the problems of administering justice in a complex society, graduates of this program are given the background to be educated, thoughtful, and intelligent citizens.

What is Administration of Justice?

As we continue the journey deeper into the twenty-first century, society is facing the serious social problem of effectively addressing crime in a rapidly changing world. Administration of Justice focuses on the inter-related components of the criminal justice system, public and private sector enforcement, legal systems, correctional treatment and community services. Students achieve a liberal arts education, including competency in world language. There is a focus on the development of critical thinking, written and verbal communication skills necessary to be successful leaders in this and related careers. Students engage in classroom instruction, individual study and possible field experience.

You Might Like This Program If...

- You enjoy communicating with others.
- You are an analytical thinker.
- You wish to individualize a concentration of coursework.
- You intend to become a practitioner in one of the traditional areas of criminal justice, such as law enforcement or corrections.
- You are looking for an exciting career where no two days are alike.

- You will seek employment in a human service field such as counseling, therapy or rehabilitation.
- You are considering graduate study in Administration of Justice, Public Administration, Legal Studies or other related fields.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Administration of Justice, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	11-15
Bachelor of Arts Requirements	24
Requirements for the Major	43-44

4-7 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 0-3 credits of GH courses; 4 credits of GQ courses.

3 of the 24 credits for Bachelor of Arts Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CRIMJ 12	Criminology	3
CRIMJ 100	Introduction to Criminal Justice	3
CRIMJ 221	Issues in the American Criminal Justice System	3
STAT 200	Elementary Statistics	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
CRIMJ 451 or CRIMJ 453	Race, Crime, and Justice Women and the Criminal Justice System	3
Select 3-4 credits of the following:		3-4
BA 241 & BA 242 or BA 243	Legal Environment of Business and Social and Ethical Environment of Business Social, Legal, and Ethical Environment of Business	

CRIMJ 465	Ethics in Criminal Justice
PHIL 3	Ethical Life
PHIL 103	Ethics
PHIL 105	Philosophy of Law
PHIL 106 or PHIL/ STS 107	Business Ethics Philosophy of Technology
STS 100	Science, Technology, and Culture
STS 101 or STS/ PHIL 107	Modern Science, Technology, and Human values

Select 18 credits with at least 9 credits in the 400 level of the following: 18

CRIMJ 13	Juvenile Delinquency
CRIMJ 113	Introduction to Law
CRIMJ 200	Introduction to Security and Loss Control
CRIMJ 210	Policing in America
CRIMJ 220	Courts and the Prosecution Process
CRIMJ 230	Corrections in America
CRIMJ 234	Fundamental Techniques of Scientific Criminal Investigation
CRIMJ 241	Computer Applications in Public Affairs/Criminal Justice
CRIMJ 296	Independent Studies
CRIMJ 297	Special Topics
CRIMJ 300	
CRIMJ 304	Security Administration
CRIMJ 310	Forensic Science I
CRIMJ 345	Criminal Justice and the Community
CRIMJ 389	Gangs and Gang Behavior
CRIMJ 406	Sociology of Deviance
CRIMJ 407	Victimology
CRIMJ 408	Police Administration
CRIMJ 410	The Pennsylvania Court System
CRIMJ 412	Crime, Social Control, and the Legal System
CRIMJ 413	Advanced Criminological Theory
CRIMJ 414	Criminal Careers and the Organization of Crime
CRIMJ 415	Drug Control Policy in Comparative Perspective
CRIMJ 420	Criminal Law and Procedure
CRIMJ 421	Violent Crime in the United States
CRIMJ 422	Victimization
CRIMJ 423	Sexual and Domestic Violence
CRIMJ 424	
CRIMJ 425	Organized Crime
CRIMJ 426	Special Offender Types
CRIMJ 430	Alternatives to Incarceration
CRIMJ 431	Offender and Prisoner Rights
CRIMJ 432	Crime and the American Court System
CRIMJ 435	Border Security
CRIMJ 439	The Politics of Terrorism
CRIMJ 441	The Juvenile Justice System
CRIMJ 450W	Senior Seminar

CRIMJ 460	History and Function of Criminal Justice Components
CRIMJ 462	Comparative Criminal Justice Systems
CRIMJ 467	Law and Society
CRIMJ 469	Drugs and Drug Policy in the United States
CRIMJ 471	Legal Rights, Duties, Liabilities of Criminal Justice Personnel
CRIMJ 473	Criminal Procedure and Evidence in the Business Community
CRIMJ 482	Seminar, Criminal Justice Agency Administration
CRIMJ 489W	Victimology: Predatory Crime
CRIMJ 497	Special Topics

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 6 credits, in consultation with adviser, from University-wide offerings according to student's career plan 6

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3

credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

Greater Allegheny Campus

1. **Know Structure:** Demonstrate understanding around the history, structure and function of the three branches of criminal justice (Courts, Law Enforcement, Corrections).
2. **Know Context:** Demonstrate understanding around the relationship between culture, social class, race and ethnicity, gender and sexuality and criminal justice involvement.
3. **Know and Use Theory:** Demonstrate understanding of core theories in criminology and the sociology of deviance and their relevance to different types of offenses and offenders.
4. **Think Critically:** Demonstrate ability to solve criminal justice problems through an understanding of context, the identification of appropriate evidence, and appreciation of potential barriers and limitations.
5. **Do Research:** Demonstrate ability to formulate research questions, implement basic quantitative and qualitative research methods, collect and analyze limited data.
6. **Communicate:** Demonstrate ability to effectively communicate practical and theoretical criminal justice issues through papers, posters, and oral presentations.

Wilkes-Barre Campus

1. Students will be able to have a basic understanding of the nature of the three branches of the Criminal Justice System (Legal, Law Enforcement, Corrections).
2. Students will be able to have developed critical thinking skills to understand and to formulate solutions to problems relating to criminological issues.
3. The students will have developed a core of criminological knowledge and concepts which will help them understand the functioning of and issues relevant to the criminal justice system.
4. Students will be able to understand and apply theories of criminal and deviant behavior, and the behavior of law.
5. Students will be able to read and correctly interpret Criminal Justice research and data.
6. Students will be able to understand the relationship between culture, social class and criminal justice.
7. Students will be able to communicate criminological issues effectively and deliver written and/or oral presentations.
8. Students will be able to demonstrate knowledge and application skills regarding the fact that the criminal justice professional must operate in a climate of tolerance and respect where opposing viewpoints can be exchanged openly.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary

academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://>

bulletins.psu.edu/undergraduate/archive/) to view the appropriate Undergraduate Bulletin edition.

Administration of Justice, B.A. at DuBois Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or ESL 15 [‡]	3 CRIMJ 12 [*]	3
CRIMJ 100 [*]	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C [‡]	3
World Language level 1	4 World Language level 2	4
PSU 8	1 General Education Course (GQ) [‡]	3
General Education Course	3 General Education Course	3
General Education Course	3	
	17	16

Second Year

Fall	Credits Spring	Credits
BA 243 or PHIL 103 [*]	3-4 ENGL 202A, 202B, 202C, or 202D [‡]	3
STAT 200 ^{*††}	4 CRIMJ 221 [*]	3
World Language level 3	4 BA Fields Course	3
General Education Course	3 General Education Course	3
	General Education Course	3
	14-15	15

Third Year

Fall	Credits Spring	Credits
CRIMJ 451 or 453 [*]	3 CRIMJ Additional Course - any level [*]	3
CRIMJ Additional Course - any level [*]	3 CRIMJ Additional Course - any level [*]	3
General Education Course	3 CRIMJ Additional Course - 400-level [*]	3
General Education Course	3 BA Fields Course	3
General Education Course	3 BA World Cultures Course	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
CRIMJ Additional Course - 400-level [*]	3 CRIMJ Additional Course - 400-level [*]	3
Major Supporting Course [*]	3 Major Supporting Course [*]	3
BA Fields Course	3 Elective	3
General Education Course	3 Elective	3
Elective	3 Elective	3
	15	15

Total Credits 122-123

Administration of Justice, B.A. at Fayette Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [‡]	3 CRIMJ 221 [*]	3
CRIMJ 100 ^{**†}	3 CRIMJ 12 ^{**†}	3
General Education Course	3 CAS 100 [‡]	3
World Language Level 001	4 World Language Level 002	4
Quantification (GQ) [‡]	3 General Education Course	3
PSU 8	1 General Education Course (GHW)	1.5
	17	17.5

Second Year

Fall	Credits Spring	Credits
STAT 200 [‡]	4 CRIMJ 451 or 453 [*]	3
Consultation w/Adviser-Support Area [*]	3 CRIMJ Selection [*]	3
World Language Level 003	4 General Education Course	3
General Education Course	3 Values and Ethics Course [*]	3
General Education Course	3 General Education Course (GHW)	1.5
	Elective	3
	17	16.5

Third Year

Fall	Credits Spring	Credits
CRIMJ Selection [*]	3 CRIMJ 400-Level [*]	3
Consultation w/Adviser-support area [*]	3 CRIMJ 400-Level [*]	3
General Education Course	3 ENGL 202 (A, B, C, or D) (GWS) [‡]	3
General Education Course	3 Bachelor of Arts Fields	3
Writing Across the Curriculum	3 World Cultures	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
CRIMJ 400-Level [*]	3 Bachelor of Arts Fields	3
CRIMJ 400-Level [*]	3 General Education Course	3
Bachelor of Arts Fields	3 General Education Course	3
Elective	3 Elective	3
Elective	3	
	15	12

Total Credits 125

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Administration of Justice, B.A. at Greater Allegheny Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or ESL 15 [‡]	3 CRIMJ 12*	3
CRIMJ 100*	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C [‡]	3
World Language level 1	4 World Language level 2	4
PSU 8	1 General Education Course (GQ) [‡]	3
General Education Course	3 General Education Course	3
General Education Course	3	
	17	16

Second Year

Fall	Credits Spring	Credits
BA 243 or PHIL 103*	3-4 ENGL 202A, 202B, 202C, or 202D [‡]	3
CRIMJ 221*	3 STAT 200* ^{††}	4
World Language level 3	4 BA Fields Course	3
General Education Course	3 General Education Course	3
	General Education Course	3
	13-14	16

Third Year

Fall	Credits Spring	Credits
CRIMJ 210*	3 CRIMJ 220*	3
CRIMJ 451 or 453*	3 CRIMJ 230*	3
General Education Course	3 CRIMJ Additional Course - 400-level*	3
General Education Course	3 BA Fields Course	3
General Education Course	3 BA World Cultures Course	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
CRIMJ Additional Course - 400-level*	3 CRIMJ 424W*	3
Major Supporting Course*	3 CRIMJ 250W*	3
BA Fields Course	3 Elective	3
General Education Course	3 Elective	3
Elective	3 Elective	3
	15	15

Total Credits 122-123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Administration of Justice, B.A. at Hazleton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H ^{††}	3 CRIMJ 12 ^{*†}	3
CRIMJ 100 ^{*†}	3 CRIMJ 221 [*]	3
General Education Course [†]	3 CAS 100 ^{††}	3
General Education Course [†]	3 World Language Level 2 ³	4
World Language Level 1 ³	4 General Education Course [†]	3
PSU 8	1 General Education Course(GHW) [†]	1.5
	17	17.5

Second Year

Fall	Credits Spring	Credits
Consultation with adviser - related area ^{2*}	3 CRIMJ 451 or 453 [*]	3
World Language Level 3 ³	4 CRIMJ Selection ^{1*}	3
STAT 200 ^{*†}	4 Values and Ethics Course [*]	3-4
General Education Course [†]	3 General Education Course (GHW) [†]	1.5
General Education Course [†]	3 General Education Course (GN) [†]	4
	Elective ⁷	3
	17	17.5-18.5

Third Year

Fall	Credits Spring	Credits
CRIMJ Selection ^{1*}	3 CRIMJ 400 level course ^{1*}	3
Consultation with adviser - related area ^{2*}	3 CRIMJ 400 level course ^{1*}	3
Writing Across Curriculum ^{*†}	3 ENGL 202A, 202B, 202C, or 202D ^{††}	3
General Education Course [†]	3 BA Requirement	3
General Education Course [†]	3 BA Requirement, World Cultures	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
CRIMJ 400 level course ^{1*}	3 BA Requirement	3
BA Requirement	3 General Education Course [†]	3
CRIMJ Selection ^{1*}	3 General Education Course [†]	3
Elective ⁴	3 Elective ⁴	3
Elective ⁴	3	
	15	12

Total Credits 126-127

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ Additional CRIMJ courses: Select 18 credits in CRIMJ courses, with at least 9 credits at the 400-level.

² Major supporting courses: Select 6 credits, in consultation with adviser. Recommended options include psychology courses (e.g., abnormal forensic), HDFS courses (e.g., courses on developmental or family problems), IST or SRA security courses, and/or internship (CRIMJ 495).

³ Students must complete the 12th credit level in a second language. Credits vary based on skill level.

⁴ Students typically need 12 - 18 elective credits

Administration of Justice, B.A. at Schuylkill Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or ESL 15 [‡]	3 CRIMJ 12 [*]	3
CRIMJ 100 [*]	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C [‡]	3
World Language level 1	4 World Language level 2	4
PSU 8	2 General Education Course (GQ) [‡]	3
General Education Course	3 General Education Course	3
General Education Course	3	
	18	16

Second Year

Fall	Credits Spring	Credits
BA 243 or PHIL 103 [*]	3-4 ENGL 202A, 202B, 202C, or 202D [‡]	3
STAT 200 ^{*††}	4 CRIMJ 221 [*]	3
World Language level 3	4 BA Fields Course	3
General Education Course	3 General Education Course	3
	General Education Course	3
	14-15	15

Third Year

Fall	Credits Spring	Credits
CRIMJ 451 or 453 [*]	3 CRIMJ Additional Course - any level [*]	3
CRIMJ Additional Course - any level [*]	3 CRIMJ Additional Course - any level [*]	3
General Education Course	3 CRIMJ Additional Course - 400-level [*]	3
General Education Course	3 BA Fields Course	3
General Education Course	3 BA World Cultures Course	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
CRIMJ Additional Course - 400-level [*]	3 CRIMJ Additional Course - 400-level [*]	3
Major Supporting Course [*]	3 Major Supporting Course [*]	3
BA Fields Course	3 Elective	3
General Education Course	3 Elective	3
Elective	3 Elective	3
	15	15

Total Credits 123-124

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Integrative Studies (either Inter-domain or Linked Courses)

Integrative Studies may be completed within the 30 Knowledge Domain credits and must be completed with either Inter-domain or Linked courses, not a combination of both. For Inter-domain courses, credit may apply to both Knowledge Domain designations but does not reduce the total number of credits within the Knowledge Domains and at least 3 credits of single-domain coursework are required in each of the 5 Knowledge Domains. Linked courses used for the Integrative Studies requirement must represent two different Knowledge Domains.

Administration of Justice, B.A. at Wilkes-Barre Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or ESL 15 [‡]	3 CRIMJ 12 [*]	3
CRIMJ 100 [*]	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C [‡]	3
World Language level 1	4 World Language level 2	4
PSU 8	1 General Education Course (GQ) [‡]	3
General Education Course	3 General Education Course	3
General Education Course	3	
17		16

Second Year

Fall	Credits Spring	Credits
BA 243 or PHIL 103 [*]	3-4 ENGL 202A, 202B, 202C, or 202D [‡]	3
STAT 200 ^{*††}	4 CRIMJ 221 [*]	3
World Language level 3	4 BA Fields Course	3
General Education Course	3 General Education Course	3
	General Education Course	3
14-15		15

Third Year

Fall	Credits Spring	Credits
CRIMJ 451 or 453 [*]	3 CRIMJ Additional Course - any level [*]	3
CRIMJ Additional Course - any level [*]	3 CRIMJ Additional Course - any level [*]	3
General Education Course	3 CRIMJ Additional Course - 400-level [*]	3
General Education Course	3 BA Fields Course	3
General Education Course	3 BA World Cultures Course	3
15		15

Fourth Year

Fall	Credits Spring	Credits
CRIMJ Additional Course - 400-level [*]	3 CRIMJ Additional Course - 400-level [*]	3
Major Supporting Course [*]	3 Major Supporting Course [*]	3
BA Fields Course	3 Elective	3
General Education Course	3 Elective	3
Elective	3 Elective	3
15		15

Total Credits 122-123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

This major helps students prepare for a variety of challenging careers through a combination of professional and individualized liberal arts coursework, emphasizing the underlying sociological aspects of criminal justice, in addition to options for graduate study and continued education.

Careers

Graduates in the Administration of Justice program find an array of career opportunities in federal, state, and local law enforcement and correction agencies, probation and parole services, community crime prevention and treatment services, and private sector security. Many opportunities are available in juvenile and drug rehabilitation counseling, recreation programs, forestry settings, and other sites. Career opportunities, which are expanding rapidly, offer a good salary, excellent job security, and extensive possibilities for advancement.

Opportunities for Graduate Studies

The degree also provides you with an excellent opportunity for graduate school, including masters or doctorate programs in law, criminology, human development, psychology, and the social sciences. Students also participate in original research, which provides experience designed to assist you in determining your career goals.

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Administration of Justice, B.S.

Begin Campus: Any Penn State Campus

End Campus: Beaver, DuBois, Fayette, Greater Allegheny, Hazleton, New Kensington, Schuylkill, Shenango, Wilkes-Barre

PROGRAM CURRENTLY ON HOLD; NOT ACCEPTING NEW STUDENTS

Begin Date of Enrollment Hold: October 5, 2020

Program Description

The Bachelor of Science degree is intended to prepare students for careers in the administration of justice. Two emphases are provided:

1. for students interested in entry-level employment in justice agencies;
2. for students interested in academic or research positions and who may seek graduate education before beginning employment.

What is Administration of Justice?

As we continue the journey deeper into the twenty-first century, society is facing the serious social problem of effectively addressing crime in a rapidly changing world. Today's students are tomorrow's front line protectors and policy makers who balance the philosophies of crime control and due process. To be successful, practitioners, managers, and administrators in the criminal justice field must demonstrate a mastery of interdisciplinary knowledge and skills. Administration of Justice focuses on the interrelated components of the criminal justice system, public and private sector enforcement and investigation, legal systems, correctional treatment, and community services and on the development of critical thinking, written and verbal communication skills necessary to be successful leaders in this and related careers. Students engage in classroom instruction, research and experiential learning which prepare them for ethical leadership, global citizenship and engaged service.

You Might Like This Program If...

- You enjoy communicating with others.
- You are an analytical thinker.
- You are interested in the law and in social issues.

- You are interested in gaining invaluable professional experience through an internship within a criminal justice agency.
- You intend to become a practitioner in one of the traditional areas of criminal justice, such as law enforcement or corrections.
- You will seek employment in a supportive field such as counseling, forensics, data analysis, therapy and rehabilitation.
- You are considering graduate study in Administration of Justice, Public Administration, Legal Studies or other related fields.
- You are looking for an exciting career where no two days are ever the same.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Administration of Justice, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	14-18
Requirements for the Major	64-65

4-7 of the 45 credits for General Education are included in the Requirements for the Major. This includes; 0-3 credits of GH courses; 4 credits of GQ courses.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CRIMJ 12	Criminology	3
CRIMJ 100	Introduction to Criminal Justice	3
CRIMJ 221	Issues in the American Criminal Justice System	3
STAT 200	Elementary Statistics	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
CRIMJ 451	Race, Crime, and Justice	3
	or CRIMJ 453	Women and the Criminal Justice System
Select 3-4 credits of the following: ¹		3-4
BA 241	Legal Environment of Business	
& BA 242	and Social and Ethical Environment of Business	
or BA 243	Social, Legal, and Ethical Environment of Business	

CRIMJ 465	Ethics in Criminal Justice
PHIL 3	Ethical Life
PHIL 103	Ethics
PHIL 105	Philosophy of Law
PHIL 106	Business Ethics
or PHIL/ STS 107	Philosophy of Technology
STS 100	Science, Technology, and Culture
STS 101	Modern Science, Technology, and Human values
or STS/ PHIL 107	
Select 18 credits with at least 9 credits in the 400 level of the following:	18
CRIMJ 13	Juvenile Delinquency
CRIMJ 113	Introduction to Law
CRIMJ 200	Introduction to Security and Loss Control
CRIMJ 210	Policing in America
CRIMJ 220	Courts and the Prosecution Process
CRIMJ 230	Corrections in America
CRIMJ 234	Fundamental Techniques of Scientific Criminal Investigation
CRIMJ 241	Computer Applications in Public Affairs/Criminal Justice
CRIMJ 296	Independent Studies
CRIMJ 297	Special Topics
CRIMJ 300	
CRIMJ 304	Security Administration
CRIMJ 310	Forensic Science I
CRIMJ 345	Criminal Justice and the Community
CRIMJ 389	Gangs and Gang Behavior
CRIMJ 406	Sociology of Deviance
CRIMJ 407	Victimology
CRIMJ 408	Police Administration
CRIMJ 410	The Pennsylvania Court System
CRIMJ 412	Crime, Social Control, and the Legal System
CRIMJ 413	Advanced Criminological Theory
CRIMJ 414	Criminal Careers and the Organization of Crime
CRIMJ 415	Drug Control Policy in Comparative Perspective
CRIMJ 420	Criminal Law and Procedure
CRIMJ 421	Violent Crime in the United States
CRIMJ 422	Victimization
CRIMJ 423	Sexual and Domestic Violence
CRIMJ 424	
CRIMJ 425	Organized Crime
CRIMJ 426	Special Offender Types
CRIMJ 430	Alternatives to Incarceration
CRIMJ 431	Offender and Prisoner Rights
CRIMJ 432	Crime and the American Court System
CRIMJ 435	Border Security
CRIMJ 439	The Politics of Terrorism
CRIMJ 441	The Juvenile Justice System
CRIMJ 450W	Senior Seminar

CRIMJ 460	History and Function of Criminal Justice Components
CRIMJ 462	Comparative Criminal Justice Systems
CRIMJ 467	Law and Society
CRIMJ 469	Drugs and Drug Policy in the United States
CRIMJ 471	Legal Rights, Duties, Liabilities of Criminal Justice Personnel
CRIMJ 473	Criminal Procedure and Evidence in the Business Community
CRIMJ 482	Seminar, Criminal Justice Agency Administration
CRIMJ 489W	Victimology: Predatory Crime
CRIMJ 497	Special Topics

Emphasis

Select an emphasis	15
Field Research:	
CRIMJ 240W	Field Research in the Criminal Justice
CRIMJ 290	Introduction to Internship Experience
CRIMJ 494	Research Topics
CRIMJ 495	Internship in Criminal Justice
Research and Policy Analysis:	
Select 15 credits with at least 6 at the 400 level of the following:	
AMST 491W	American Studies Perspectives
CRIMJ 424W	Drugs and Crime
Any CMPSC	
ECON 104	Introductory Macroeconomic Analysis and Policy
LER 100	
LST 370	Research Methods for Law and Government Information Resources
PLSC 2	
PLSC 419	The Bureaucratic State
PLSC 490	Policy Making and Evaluation
SOC 409	Racial and Ethnic Inequality in America
SOC 419	Race and Public Policy
SOC 422	World Population Diversity
SOC 423	Social Demography

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 12 credits, in consultation with adviser, from University-wide offerings according to student's career plan 12

¹ Some of the courses in this category may have prerequisites that are not included in the major.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

Beaver, New Kensington, and Shenango Campuses

1. Students will be able to have a basic understanding of the nature of the three branches of the Criminal Justice System (Legal, Law Enforcement, Corrections).
2. Students will be able to apply analysis and evaluation strategies specific to criminal justice/criminology to formulate solutions to criminological problems.
3. The students will have developed a core of criminological knowledge and concepts which will help them understand the functioning of and issues relevant to the criminal justice system.
4. Students will be able to understand and apply theories of criminal and deviant behavior, and the behavior of law.
5. Students will be able to read and correctly interpret Criminal Justice research and data.
6. Students will be able to understand the relationship between culture, social class and criminal justice.
7. Students will be able to communicate criminological issues effectively and deliver written and/or oral presentations.
8. Students will be able to demonstrate knowledge and application skills regarding the fact that the criminal justice professional must operate in a climate of tolerance and respect where opposing viewpoints can be exchanged openly.
9. Students will be able to show professionalism, interact appropriately with colleagues, uphold professional ethical principal, and work ethically, as part of their internships, consistent with professional standards and practices.

Fayette Campus

1. Recognize the major components of the Criminal Justice System and describe the purpose of each component (Policing, Courts, Corrections)
2. Demonstrate the ability to apply field research methods to the discipline.
3. Understand crime and criminal justice theories relevant to criminology.
4. Identify current issues relating to crime and criminal justice.
5. Understand how the criminal justice system fits within the larger social science field.

Greater Allegheny Campus

1. **Know Structure:** Demonstrate understanding around the history, structure and function of the three branches of criminal justice (Courts, Law Enforcement, Corrections).
2. **Know Context:** Demonstrate understanding around the relationship between culture, social class, race and ethnicity, gender and sexuality and criminal justice involvement.

3. **Know and Use Theory:** Demonstrate understanding of core theories in criminology and the sociology of deviance and their relevance to different types of offenses and offenders.
4. **Think Critically:** Demonstrate ability to solve criminal justice problems through an understanding of context, the identification of appropriate evidence, and appreciation of potential barriers and limitations.
5. **Do Research:** Demonstrate ability to formulate research questions, implement basic quantitative and qualitative research methods, collect and analyze limited data.
6. **Communicate:** Demonstrate ability to effectively communicate practical and theoretical criminal justice issues through papers, posters, and oral presentations.

Hazleton Campus

Students should demonstrate an understanding of the following:

1. Contemporary criminal justice system, major systems of social control and their policies and practices; victimology; juvenile justice; comparative criminal justice; ethics in criminal justice.
2. Women as victims and offenders; race, ethnicity and minority group status in relation to the criminal justice system.
3. History, theory, practice and legal environment, development of correctional philosophy, incarceration, diversions, community-based corrections, treatment of offenders, alternatives to incarceration.
4. The nature and causes of crime and deviance, typologies, offenders, and victims.
5. Criminal law, criminal procedures, prosecution, defense, and court procedures and decision-making.
6. History, theory, practice and legal environment of policing, police organization, discretion, and subculture.
7. Qualitative and Quantitative methodologies-including statistics-and methods for conducting and analyzing criminal justice research in a manner appropriate for undergraduate degree students.

Schuylkill and Wilkes-Barre Campuses

1. Students will be able to have a basic understanding of the nature of the three branches of the Criminal Justice System (Legal, Law Enforcement, Corrections).
2. Students will be able to have developed critical thinking skills to understand and to formulate solutions to problems relating to criminological issues.
3. The students will have developed a core of criminological knowledge and concepts which will help them understand the functioning of and issues relevant to the criminal justice system.
4. Students will be able to understand and apply theories of criminal and deviant behavior, and the behavior of law.
5. Students will be able to read and correctly interpret Criminal Justice research and data.
6. Students will be able to understand the relationship between culture, social class and criminal justice.
7. Students will be able to communicate criminological issues effectively and deliver written and/or oral presentations.
8. Students will be able to demonstrate knowledge and application skills regarding the fact that the criminal justice professional must operate in a climate of tolerance and respect where opposing viewpoints can be exchanged openly.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Administration of Justice, B.S. at Beaver Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [‡]	3 CRIMJ 12 [*]	3
CRIMJ 100 [*]	3 CAS 100 [‡]	3
General Education Course	3 CRIMJ 221 [*]	3
General Education Course	3 General Education Course	3
Quantification (GQ) [‡]	3 General Education Course	3
PSU 8 (if recommended)	0-1 Health & Wellness General Education (GHW)	1.5

15-16

16.5

Second Year

Fall	Credits Spring	Credits
CRIMJ selection (300 level or lower) [*]	3 STAT 200 Elementary Statistics (GQ) ^{* ‡ †}	4
Values & Ethics Course [*]	3-4 CRIMJ selection (300 level or lower) [*]	3
Consultation with adviser - related area [*]	3 ENGL 202A [‡]	3
General Education Course	3 General Education Course	3
Health & Wellness General Education (GHW)	1.5 General Education Course	3
13.5-14.5		16

Third Year

Fall	Credits Spring	Credits
CRIMJ - 400 level [*]	3 CRIMJ - 400 level [*]	3
Consultation with adviser - related area [*]	3 General Education Course	3
Consultation with adviser - related area [*]	3 CRIMJ 451 or 453 [*]	3
CRIMJ Selection [*]	3 Consultation with adviser - related area [*]	3
Elective	3 Elective	3
15		15

Fourth Year

Fall	Credits Spring	Credits
CRIMJ 400 level [*]	3 CRIMJ 494 [*]	5
CRIMJ 290 [*]	1 Elective	3-4
CRIMJ 240W	4 CRIMJ 495 [*]	5
General Education Course	3	
Elective	3	
14		13-14

Total Credits 118-121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ Additional CRIMJ courses: Select 18 credits in CRIMJ courses, with at least 9 credits at the 400-level.

² Major supporting courses: Select 12 credits, in consultation with adviser. Recommended options include psychology courses (e.g., abnormal forensic), HDFS courses (e.g., courses on developmental or family problems), IST or SRA security courses, and/or internship (CRIMJ 495).

³ Values and Ethics course: Needs 3.0 credits. Course List: BA 243

⁴ Students typically need 12- 18 elective credits

Administration of Justice, B.S. at DuBois Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 [‡]	3 CRIMJ 12 [*]	3
General Education (GQ) [‡]	3 Consultation with advisor - related area [*]	3
CRIMJ 100 [*]	3 CAS 100A [‡]	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
PSU 8	1 General Education Course (GHW)	1.5
	16	16.5

Second Year

Fall	Credits Spring	Credits
STAT 200 ^{††}	4 CRIMJ 451 or 453 [*]	3
Consultation with advisor - related area	3 CRIMJ 400-level [*]	3
CRIMJ selection	3 CRIMJ selection	3
General Education Course	3 ENGL 202A [‡]	3
General Education Course	3 General Education Course (GHW)	1.5
	Elective	3
	16	16.5

Third Year

Fall	Credits Spring	Credits
CRIMJ 400-level [*]	3 CRIMJ 290 [*]	1
Consultation with advisor - related area [*]	3 CRIMJ 221 [*]	3
Consultation with advisor - related area [*]	3 CRIMJ 400-level [*]	3
General Education Course	3 CRIMJ selection [*]	3
Elective	3 Elective	3
	15	13

Fourth Year

Fall	Credits Spring	Credits
CRIMJ 400-level [*]	3 CRIMJ 494	4
CRIMJ selection [*]	3 CRIMJ 495	3-12
CRIMJ 240W	4 Elective	4
General Education Course	3	
General Education Course	3	
	16	11-20

Total Credits 120-129

¹ Additional CRIMJ courses: Select 18 credits in CRIMJ courses, with at least 9 credits at the 400-level.

² Major supporting courses: Select 12 credits, in consultation with advisor. Recommended options include psychology

courses (e.g., abnormal forensic), HDFS courses (e.g., courses on developmental or family problems), IST or SRA security courses, and/or internship (CRIMJ 495).

³ Values and Ethics course: Needs 3.0 credits. Course List: BA 243

⁴ Students typically need 12- 18 elective credits

Administration of Justice, B.S. at Fayette Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 [‡]	3 CRIMJ 12 [*]	3
General Education (GQ) [‡]	3 Consultation with advisor - related area [*]	3
CRIMJ 100 [*]	3 CAS 100A [‡]	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
PSU 8	1 General Education Course (GHW)	1.5
	16	16.5

Second Year

Fall	Credits Spring	Credits
STAT 200 ^{††}	4 CRIMJ 451 or 453 [*]	3
Consultation with advisor - related area	3 CRIMJ 400-level [*]	3
CRIMJ selection	3 CRIMJ selection	3
General Education Course	3 ENGL 202A [‡]	3
General Education Course	3 General Education Course (GHW)	1.5
	Elective	3
	16	16.5

Third Year

Fall	Credits Spring	Credits
CRIMJ 400-level [*]	3 CRIMJ 290 [*]	1
Consultation with advisor - related area [*]	3 CRIMJ 221 [*]	3
Consultation with advisor - related area [*]	3 CRIMJ 400-level [*]	3
General Education Course	3 CRIMJ selection [*]	3
Elective	3 Elective	3
	15	13

Fourth Year

Fall	Credits Spring	Credits
CRIMJ 400-level [*]	3 CRIMJ 494	4
CRIMJ selection [*]	3 CRIMJ 495	3-12
CRIMJ 240W	4 Elective	4
General Education Course	3	
General Education Course	3	
	16	11-20

Total Credits 120-129

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Administration of Justice, B.S. at Greater Allegheny Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSU 8	1 CRIMJ 12*	3
ENGL 15, 30H, or ESL 15 (GWS)‡	3 General Education Course	3
CRIMJ 100*	3 General Education Course	3
General Education Course	3 General Education Course (GQ)‡	3
General Education Course	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C‡	3
General Education Course	3	
	16	15

Second Year

Fall	Credits Spring	Credits
CRIMJ 221*	3 ENGL 202A, 202B, 202C, or 202D‡	3
ECON 104*	3 General Education Course	3
Values and Ethics Course*	3 STAT 200*††	4
General Education Course	3 General Education Course	3
	CMPSC 203*	4
	12	17

Third Year

Fall	Credits Spring	Credits
CRIMJ 210*	3 CRIMJ 220*	3
CRIMJ/CRIM 451 or 453*	3 CRIMJ 230*	3
SOC/AFAM 409 or 422*	3 CRIMJ additional course - 400-level*	3
Major supporting course*	3 Major supporting course*	3
General Education Course	3 LER 100*	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
CRIMJ additional course - 400-level*	3 CRIMJ 424W*	3
Major supporting course*	3 CRIMJ 250W*	3
General Education Course	3 Elective	3
Emphasis course 400-level*	3 Elective	3
Elective	3 Elective	3
	15	15

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

Additional CRIMJ courses: Select 18 credits in CRIMJ courses, with at least 9 credits at the 400-level.

Emphasis courses: Research and Policy Analysis Emphasis B only offered [Select 15 credits, at least 6 at the 400 level from: AMST 491W(3-6), CRIMJ 424W(3), any CMPSC (3), ECON 104 GS(3), LER 100 GS(3), LST 370(3), PLSC 002(3), PLSC 419 US(3), PLSC 490(3), SOC 409 US(3), SOC 419(3), SOC 422(3), or SOC 423(3)]

Major supporting courses: Select 12 credits, in consultation with adviser. Recommended options include psychology courses (e.g., abnormal, forensic), HDFS courses (e.g., courses on developmental or family problems), IST or SRA security courses, and/or internship (CRIMJ 495).

Administration of Justice, B.S. at Hazleton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 [‡]	3 CRIMJ 12 [*]	3
General Education (GQ) [‡]	3 Consultation with advisor - related area [*]	3
CRIMJ 100 [*]	3 CAS 100A [‡]	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
PSU 8	1 General Education Course (GHW)	1.5
	16	16.5

Second Year

Fall	Credits Spring	Credits
STAT 200 ^{††}	4 CRIMJ 451 or 453 [*]	3
Consultation with advisor - related area	3 CRIMJ 400-level [*]	3
CRIMJ selection	3 CRIMJ selection	3
General Education Course	3 ENGL 202A [‡]	3
General Education Course	3 General Education Course (GHW)	1.5
	Elective	3
	16	16.5

Third Year

Fall	Credits Spring	Credits
CRIMJ 400-level [*]	3 CRIMJ 290 [*]	1
Consultation with advisor - related area [*]	3 CRIMJ 221 [*]	3
Consultation with advisor - related area [*]	3 CRIMJ 400-level [*]	3
General Education Course	3 CRIMJ selection [*]	3
Elective	3 Elective	3
	15	13

Fourth Year

Fall	Credits Spring	Credits
CRIMJ 400-level [*]	3 CRIMJ 494	4
CRIMJ selection [*]	3 CRIMJ 495	3-12
CRIMJ 240W	4 Elective	4
General Education Course	3	
General Education Course	3	
	16	11-20

Total Credits 120-129

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ Additional CRIMJ courses: Select 18 credits in CRIMJ courses, with at least 9 credits at the 400-level

² Major supporting courses: Select 12 credits, in consultation with adviser. Recommended options include psychology courses (e.g., abnormal forensic), HDFS courses (e.g., courses on developmental or family problems), IST or SRA security courses, and/or internship (CRIMJ 495).

³ Values and Ethics course: Needs 3.0 credits. Course List: BA 243

⁴ Students typically need 12- 18 elective credits

Administration of Justice, B.S. at New Kensington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [‡]	3 CRIMJ 12 [*]	3
Quantification (GQ) [‡]	3 CRIMJ 221 [*]	3
CRIMJ 100 [*]	3 CAS 100A [‡]	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
	Health & Wellness General Education Course (GHW)	1.5
	15	16.5

Second Year

Fall	Credits Spring	Credits
Consultation with adviser - related area	3 STAT 200 ^{††}	4
CRIMJ Selection (300 level or lower) [*]	3 CRIMJ Selection (300 level or lower) [*]	3
Values and Ethics Course [*]	3-4 ENGL 202A [‡]	3
General Education Course	3 General Education Course	3
Health & Wellness General Education Course	1.5 General Education Course	3
	13.5-14.5	16

Third Year

Fall	Credits Spring	Credits
CRIMJ 400-level [*]	3 CRIMJ 400-level [*]	3
CRIMJ Selection [*]	3 CRIMJ 451 or 453 [*]	3
Consultation with adviser - related area [*]	3 Consultation with adviser - related area [*]	3
Consultation with adviser - related area [*]	3 General Education Course	3
Elective	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
CRIMJ 400-level [*]	3 CRIMJ 494	5
CRIMJ 240W [*]	4 CRIMJ 495	5
CRIMJ 290 [*]	1 Elective	3-4
General Education Course	3	
Elective	3	
	14	13-14

Total Credits 118-120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Administration of Justice, B.S. at Schuylkill Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [‡]	3 CRIMJ 12*	3
CRIMJ 100*	3 CRIMJ 221*	3
General Education Course	3 General Education Course	3
General Education Course	3 Natural Science (GN)	3
Quantification (GQ) [‡]	3 CAS 100 [‡]	3
PSU 008 - First Year Seminar	2 General Education Course (GHW)	1.5
	17	16.5

Second Year

Fall	Credits Spring	Credits
CRIMJ Selection*	3 STAT 200 Elementary Statistics (GQ) ^{* ‡ †}	4
Values and Ethics Course*	3-4 CRIMJ Selection*	3
Consultation with adviser - related area*	3 ENGL 202 (A,B,C or D): Effective Writing (GWS) [‡]	3
General Education Course (GA, GH, GS)	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course	3
	13.5-14.5	16

Third Year

Fall	Credits Spring	Credits
CRIMJ - 400 level*	3 CRIMJ - 400 level*	3
Consultation with adviser - related area*	3 General Education Course	3
Consultation with adviser - related area*	3 CRIMJ 451 or 453*	3
CRIMJ Selection*	3 Consultation with adviser - related area*	3
Elective	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
CRIMJ 400 level*	3 CRIMJ 494*	5
CRIMJ 290*	1 Elective	3
CRIMJ 240W	4 CRIMJ 495*	5
General Education Course	3	
Elective	3	
	14	13

Total Credits 120-121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Integrative Studies (either Inter-domain or Linked courses) (6 credits).

Integrative Studies may be completed within the 30 Knowledge Domain credits and must be completed with either Inter-domain or Linked courses, not a combination of both. For Inter-domain courses, credit may apply to both Knowledge Domain designations but does not reduce the total number of credits within the Knowledge Domains and at least 3 credits of single-domain coursework are required in each of the 5 Knowledge Domains. Linked courses used for the Integrative Studies requirement must represent two different Knowledge Domains.

Administration of Justice, B.S. at Shenango Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [‡]	3 CRIMJ 12*	3
Quantification (GQ) [‡]	3 CRIMJ 221*	3
CRIMJ 100*	3 CAS 100A [‡]	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
PSU 8 (if recommended)	0-1 Health & Wellness General Education Course (GHW)	1.5
15-16		16.5

Second Year

Fall	Credits Spring	Credits
Consultation with adviser - related area	3 STAT 200 ^{††}	4
Values and Ethics Course*	3-4 CRIMJ Selection (300 level or lower)*	3
General Education Course	3 CRIMJ Selection (300 level or lower)*	3
General Education Course	3 ENGL 202A [‡]	3
Health & Wellness General Education Course	1.5 General Education Course	3
13.5-14.5		16

Third Year

Fall	Credits Spring	Credits
CRIMJ 400-level*	3 CRIMJ 400-level*	3
CRIMJ Selection*	3 CRIMJ 451 or 453*	3
Consultation with adviser - related area*	3 Consultation with adviser - related area*	3
Consultation with adviser - related area*	3 General Education Course	3
Elective	3 Elective	3
15		15

Fourth Year

Fall	Credits Spring	Credits
CRIMJ 400-level*	3 CRIMJ 494	5
CRIMJ 240W	4 CRIMJ 495	5
CRIMJ 290*	1 Elective	3-4
General Education Course	3	
Elective	3	
14		13-14

Total Credits 118-121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes

As long as two Arts (GA) two Humanities (GH) and two Social Sciences (GS) are taken across the eight semesters, the particular order in which these courses are taken are not relevant. The course series listed above is only one of many possible ways to move through the curriculum.

Academic Advising Notes

A student's career/graduate school plans should be considered in developing an individual academic plan. Be sure to consult an adviser in this department when scheduling courses. Rev/SP07

Administration of Justice, B.S. at Wilkes-Barre Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 [‡]	3 CRIMJ 12 [*]	3
General Education (GQ) [‡]	3 Consultation with advisor - related area [*]	3
CRIMJ 100 [*]	3 CAS 100A [‡]	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
PSU 8	1 General Education Course (GHW)	1.5
	16	16.5

Second Year

Fall	Credits Spring	Credits
STAT 200 ^{††}	4 CRIMJ 451 or 453 [*]	3
Consultation with advisor - related area	3 CRIMJ 400-level [*]	3
CRIMJ selection	3 CRIMJ selection	3
General Education Course	3 ENGL 202A [‡]	3
General Education Course	3 General Education Course (GHW)	1.5
	Elective	3
	16	16.5

Third Year

Fall	Credits Spring	Credits
CRIMJ 400-level [*]	3 CRIMJ 290 [*]	1
Consultation with advisor - related area [*]	3 CRIMJ 221 [*]	3
Consultation with advisor - related area [*]	3 CRIMJ 400-level [*]	3
General Education Course	3 CRIMJ selection [*]	3
Elective	3 Elective	3
	15	13

Fourth Year

Fall	Credits Spring	Credits
CRIMJ 400-level [*]	3 CRIMJ 494	4
CRIMJ selection [*]	3 CRIMJ 495	3-12
CRIMJ 240W	4 Elective	4
General Education Course	3	
General Education Course	3	
	16	11-20

Total Credits 120-129

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

Administration of Justice helps students prepare for a challenging career through this unique combination of theory and application, emphasizing the underlying sociological aspects of criminal justice. Graduates of Administration Justice find an array of career opportunities in addition to options for graduate study and continued education.

Careers

Administration of Justice graduates provide career opportunities in federal, state, and local law enforcement and correction agencies, probation and parole services, community crime prevention and treatment services, and private sector security. Many opportunities are available in juvenile and drug rehabilitation counseling, recreation programs, forestry settings, and other sites. Career opportunities, which are expanding rapidly, offer a good salary, excellent job security, and extensive possibilities for advancement.

Opportunities for Graduate Studies

The degree also provides you with an excellent opportunity for graduate school, including masters or doctorate programs in law, criminology, human development, psychology, and the social sciences. Students also participate in original research, which provides experience designed to assist you in determining your career goals.

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American Studies, B.A. (University College)

Begin Campus: Any Penn State Campus

End Campus: Brandywine

Program Description

This interdisciplinary major is designed to provide students with an integrated and critical knowledge of American culture, drawing on courses in American Studies and in the traditional disciplines and culminating in two senior seminars. A number of interests may be pursued within the major, including popular culture, art, technology, business, law, archives, museology, and conservation. The major helps prepare students for careers in business, teaching, government, and a

number of other areas, and for enrollment in law and other professional programs.

What is American Studies?

American Studies examines the country's history in a way that emphasizes culture – literature, art & architecture, film, folklore, music, and media. While discovering America's past, students learn to think critically – to analyze and evaluate information; to write and speak clearly and expressively; and to conduct research.

You Might Like This Program If...

- You enjoy pop culture and wonder what social and historical forces helped shape it.
- You like making connections between history, society, economics, literature, film, and art.
- You want to understand the American experience beyond just what is relayed in a history text.
- You want to explore the experiences of women, minorities, and different ethnic and religious groups.
- You want to pursue a career in education, law, government, museums, cultural agencies, archives, public policy, or communications.

Entrance to Major

For entrance into the major, the following must be met:

1. At the end of the sophomore year, any student in good standing may gain entrance into the major without having completed specific courses.
2. Any student seeking entrance during the fifth semester will be granted entrance at the discretion of the American Studies Committee and/or Director following evaluation of the student's record.
3. Any student seeking entrance during or after the sixth semester will be expected to have completed at least 12 credits, which may be counted toward the major in American Studies.

Degree Requirements

For the Bachelor of Arts degree in American Studies, a minimum of 123 credits is required:

Requirement	Credits
General Education	45
Electives	21
Bachelor of Arts Degree Requirements	24
Requirements for the Major	33

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
AMST 491W	American Studies Perspectives	6
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
AMST 100 or AMST 100Y	Introduction to American Studies Introduction to American Studies	3
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 9 credits in each of two of the following areas and 6 credits in one other of the areas (include 12 credits at the 400 level distributed in at least two of the areas):		
American literature		
American history		
American art, philosophy, and religion (humanities)		
American social sciences		

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- Gain knowledge of American culture and politics, past and present, including multiple representations of national identity.
- Employ and inter-relate disciplines of history, literature, philosophy, social sciences, humanities, and the arts, within both individual courses and the major as a whole.
- Draw upon the social and historical resources of students' immediate worlds, in their homes and in the Delaware Valley.
- Gain awareness of difference and commonality of race, class, and gender.
- Position United States experience within the wider hemisphere and world.
- Develop skills of critical observation, research, analysis, and writing.
- Bridge the gap between academic and larger worlds by and through community engagement, internships, and job-market preparedness.
- Students should have improved writing skills and greater awareness of American history, politics and culture. They should also have a better understanding of research skills connected to American Studies and related areas.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Brandywine

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

American Studies, B.A. at Brandywine Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
American Focused Course 1-199 level*	3 American Focused Course 1-299 level*	3
AMST 100*	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C [‡]	3
ENGL 15, 30H, or ESL 15 [‡]	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
	General Education Course (GHW)	1.5
	15	16.5

Second Year

Fall	Credits Spring	Credits
World Language level 1	4-6 American Focused Course 1-299 level*	3
General Education Course	3 World Language level 2	4-6
General Education Course	3 ENGL 202A or 202B [‡]	3
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5	
	14.5-16.5	13-15

Third Year

Fall	Credits Spring	Credits
American Focused Course 400 level*	3 American Focused Course 400 level or Major Related Internship*	3
American Focused Course 1-299 level*	3 American Focused Course 400 level*	3
World Language level 3 or General Education Course	3-4 BA Fields Course	3
General Education Course	3 BA Fields Course	3
Elective	3 Elective	3
	15-16	15

Fourth Year

Fall	Credits Spring	Credits
AMST 491W ^{*1}	3 AMST 491W ^{*1}	3
American Focused Course 400 level or Major Related Internship [*]	3 BA World Cultures Course	3
BA Fields Course	3 Elective	3
Elective	3 Elective	3
Elective	3 Elective	3
15		15

Total Credits 119-124

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ AMST 491W, the capstone course of the major, is taken twice with different topics; it also satisfies Penn State's Writing Across the Curriculum (W) requirement. Offered every semester, it may ordinarily be taken from the junior year on depending on student's choice of topics.

Career Paths

The American Studies program benefits from Penn State Harrisburg's location in a capital region in close proximity to internationally known heritage sites such as the Gettysburg Battlefield, National Civil War Museum, and U.S. Army Heritage and Education Center. Harrisburg is also home to the Pennsylvania Historical and Museum Commission, the State Archives, and the State Museum.

Careers

American Studies majors at Penn State Harrisburg have opportunities to gain a core set of skills in writing, presentation, exhibition, website development, digital documentation, fieldwork and ethnography, and records and cultural resource management in addition to contextual knowledge of American culture, society, arts, and history that can be applied to a number of occupations, particularly in heritage, communications, education, and government sectors. At Penn State Harrisburg, certificates (heritage and museum practice, folklore and ethnography), internships, assistantships, professional workshops, career

services, alumni interaction, social media, and online job postings serve to enhance the marketability of majors at various levels.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE AMERICAN STUDIES PROGRAM (<https://harrisburg.psu.edu/humanities/american-studies-ba/career-opportunities/>)

Opportunities for Graduate Studies

The American Studies major at Penn State Harrisburg prepares students for a variety of professions and to participate in the world as critical thinkers, clear communicators, and global citizens, including Penn State's Master of Arts in American Studies and the Doctor of Philosophy in American Studies programs.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://harrisburg.psu.edu/humanities/american-studies-ba/>)

Professional Resources

- American Studies Association (<https://www.theasa.net>)
- Popular Culture Association/American Culture Association (<https://pcaaca.org/>)
- American Folklore Society (<https://americanfolkloresociety.org/>)
- Pennsylvania Historical Association (<https://pa-history.org>)
- Pennsylvania German Society (<https://pgs.org/>)
- Pennsylvania Heritage Society (<https://www.paheritage.org/>)
- Pennsylvania Federation of Museums and Historical Organizations (<https://pamuseums.org>)

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<https://www.brandywine.psu.edu/academics/bachelors-degrees/american-studies> (<https://www.brandywine.psu.edu/academics/bachelors-degrees/american-studies/>)

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<https://www.abington.psu.edu/academics/majors-at-abington/american-studies> (<https://www.abington.psu.edu/academics/majors-at-abington/american-studies/>)

Harrisburg

SCHOOL OF HUMANITIES
Olmsted Building, W356
Middletown, PA 17057
717-948-6596
dzs640@psu.edu

<https://harrisburg.psu.edu/humanities/american-studies-ba> (<https://harrisburg.psu.edu/humanities/american-studies-ba/>)

Arts Administration, B.A.

Begin Campus: Any Penn State Campus

End Campus: Lehigh Valley

PROGRAM CURRENTLY ON HOLD; NOT ACCEPTING NEW STUDENTS

Begin Date of Enrollment Hold: June 7, 2021

Program Description

The Penn State Behrend Arts Administration program is intended for students with an interest in the arts and a desire to pursue careers in the administration or management of arts organizations such as museums, theatre companies, orchestras and choruses. The program combines a broad exposure to the arts with significant training in management, marketing, event planning, strategic planning, writing, development, and digital communication.

The interdisciplinary Arts Administration program answers the growing need for leaders and administrators of arts organizations that must compete, survive, and thrive in a corporate world. Recognizing that these organizations have missions that are different from business corporations, the Arts Administration program aims to produce capable arts administrators, managers, and entrepreneurs with both aesthetic sensibilities and business acumen. Successful arts administration is crucial to the continued vitality of modern cultural institutions, creative enterprises, and arts organizations. If the public is to benefit, skilled arts administrators must facilitate the work of artists to realize their artistic vision and share it with the public, by executing the necessary financial, legal, and organizational decisions. In short, talented arts administrators are partners in a collaborative artistic process. The major includes the following options:

Digital Media Option

Available at the following campuses: *Lehigh Valley*

Emphasizes design and social media engagement, so that a student may create and manage online content for cultural organizations. Students develop proficiency in web writing, image editing, layout, and communication-based advertising.

Marketing Option

Available at the following campuses: *None*

Provides a business core for careers that emphasize fiscal planning with arts organizations. The coursework includes statistics, marketing research, and services marketing which is specific to arts and cultural organizations.

What is Arts Administration?

The arts enrich our lives with moments of beauty, humor, surprise, and delight. But the arts are also a business, and like any business, arts organizations need competent, confident professionals who can manage resources and maximize opportunities. Arts administration combines broad exposure to the arts with intensive training in marketing, management, event planning, and development to produce capable arts administrators, managers, and entrepreneurs with both aesthetic sensibility and business acumen.

You Might Like This Program If...

- Your happy places are museums, art galleries, theatres, opera houses, orchestra pits, auction houses, and dance studios.
- You envision a career in the arts, but are not interested in the unpredictability of a performing or studio art career.
- You like the idea of combining a liberal arts degree with business education.

Entrance to Major

Students must earn C or better in ARTH 111 or ARTH 112, MUSIC 5, THEA 105 to be eligible for entrance to the major.

Degree Requirements

For the Bachelor of Arts degree in Arts Administration, the Marketing Option requires a minimum of 124 credits and the Digital Media Option requires a minimum of 126 credits:

Requirement	Credits
General Education	45
Bachelor of Arts Degree Requirements	24
Requirements for the Major	72-73

15-18 of the 45 credits for General Education are included in the Requirements for the Major. This includes 6 credits of GA courses; 3-6 credits of GQ courses; 3 credits of GS courses, 3 credits of GWS courses.

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned.

Requirements for the Major

Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
BA 241	Legal Environment of Business	2
ECON 102	Introductory Microeconomic Analysis and Policy	3
ENGL 202D	Effective Writing: Business Writing	3
MIS 204	Introduction to Management Information Systems	3
<i>Prescribed Courses: Require a grade of C or better</i>		
ARTSA 301	Introduction to Arts Administration	3
ARTSA 402W	Strategic Management and Planning for the Arts	3

ARTSA 403	Fundraising and Grant Writing	3
ARTSA 404	Event Planning Practicum	3
COMM 370	Public Relations ¹	3
MKTG 301	Principles of Marketing	3
MUSIC 5	An Introduction to Western Music	3
THEA 105	Introduction to Theatre	3
Additional Courses		
MATH 21 or higher		3
<i>Additional Courses: Require a grade of C or better</i>		
ARTH 111	Ancient to Medieval Art ¹	3
	or ARTH 112 Renaissance to Modern Art	
ARTSA 401	Arts Event Planning and Project Management	3
	or COMM 472 Public Relations Event Planning	
ARTSA 495A	²	3
Requirements for the Option		
Select an option		21-22

¹ A grade of C or better per course is required for teacher certification.

² Students desiring to take an internship for ARTSA credit must have a GPA of 3.00. Students with lower than a 3.00 GPA can: 1) request an exemption by providing letters of recommendation for the internship form 2 members of the ARTSA faculty; or 2) enroll in an additional COMM or MKTG course at the 400 level to develop option-specific competencies instead of taking ARTSA 495A.

Requirements for the Option

Digital Media Option (21 credits)

Available at the following campuses: *Lehigh Valley*

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
COMM 320	Introduction to Advertising	3
COMM 441	Advanced Graphic Design for Communications	3
ENGL 420	Writing for the Web	3
Additional Courses		
COMM 270	Introduction to Multimedia Production ¹	3
	or GD 100 Introduction to Graphic Design	
Select 3 credits of the following:		3
ARTH 111	Ancient to Medieval Art	
ARTH 112	Renaissance to Modern Art	
MUSIC 8	Rudiments of Music	
THEA 102	Fundamentals of Acting	
Supporting Courses and Related Areas		
Select 6 credits from program approved list in Music, Theatre or Visual Arts in consultation with adviser and according to student interest		6

¹ ARTH 111 and COMM 270 require a grade of C or better. ARTH 112, MUSIC 8, THEA 102, COMM 270, and GD 100 require a grade of C or better per course for teacher certification.

Marketing Option (22 credits)

Available at the following campuses: *None*

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
MKTG 342	Marketing Research	3
Additional Courses		
Select 3 credits of the following:		3
ARTH 111	Ancient to Medieval Art	
ARTH 112	Renaissance to Modern Art	
MUSIC 8	Rudiments of Music	
THEA 102	Fundamentals of Acting	
<i>Additional Courses: Require a grade of C or better</i>		
MKTG 344		3
	or MKTG 330 Consumer Behavior	
SCM 200	Introduction to Statistics for Business	4
	or STAT 200 Elementary Statistics	
Supporting Courses and Related Areas		
Select 6 credits from program approved list in Music, Theatre or Visual Arts in consultation with adviser and according to student interest		6
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 3 credits from a program-approved list of 400 level courses in Marketing		3

¹ ARTH 111, ARTH 112, MUSIC 8, and THEA 102 require a grade of C or better per course for teacher certification.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses**. This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or

beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- Students will demonstrate skills in effective written and oral communication
- Students will know institutional structures and explain the operation of an arts organization.
- Students will explain the role of arts organizations in their communities and society at large.
- Students will design and execute a successful arts event.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Lehigh Valley

Elizabeth R. Flaherty, Ph.D.

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Digital Media Option: Arts Administration, B.A. at Lehigh Valley campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year		
Fall	Credits Spring	Credits
ENGL 15 or 30H [‡]	3 ECON 102 [†]	3
PSU 8	3 MATH 21 [*]	3
THEA 105 ^{*†#}	3 ARTH 111 ^{*#†}	3
MUSIC 5 ^{*#†}	3 Module Selection	3
World Language Level 1 ¹	4 World Language Level 2 ¹	4
	16	16
Second Year		
Fall	Credits Spring	Credits
MIS 204	3 MKTG 301	3
ACCTG 211	4 CAS 100A [‡]	3
ARTH 111 (IL) ^{*#†}	3 General Education Course	3
General Education Course (GHW)	1.5 Module Selection	3
World Language Level 3 ¹	4 BA 243	4
	15.5	16
Third Year		
Fall	Credits Spring	Credits
ARTSA 301 [*]	3 ARTSA 495A [*]	3
COMM 320	3 ENGL 420	3
COMM 270 or GD 100	3 COMM 370 or MKTG 310	3
ENGL 202D [‡]	3 BA Knowledge Domain	3
General Education Course	3 General Education Course (GQ) [‡]	3
	15	15
Fourth Year		
Fall	Credits Spring	Credits
ARTSA 401 or COMM 472 [*]	3 ARTSA 402W [*]	3
ARTSA 403 [*]	3 ARTSA 404 [*]	3
BA Knowledge Domain	3 COMM 441	3
General Education Course (World Cultures)	3 General Education Course	3
General Education Course	3 BA Knowledge Domain	3
	15	15
Total Credits 123.5		

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Students must demonstrate or complete the third level of proficiency in one world language

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

Based on your career goals, you'll choose one of three modules within the program—Music, Theatre, or Visual Arts—as an area of concentration for your coursework. From there, you'll pick one of two options for further skills development, Digital Media or Marketing.

Careers

There are more than 100,000 arts organizations in the United States, all of which require executive directors, gallery and company managers, tour directors, marketing and public relations specialists, social media managers, fundraisers, event planners, volunteer supervisors, and archivists, to list only a few of your career possibilities.

Opportunities for Graduate Studies

A B.A. in Arts Administration can be the starting point for graduate-level education in more specialized fields, including contemporary art markets, public relations, art conservation, cultural management, cultural tourism, museum services, visual arts management, arts education, arts production and technology, or arts marketing.

Professional Resources

- Association of Arts Administration Educators (<https://artsadministration.org>)
- College Art Association (<https://www.collegeart.org>)

Contact

Lehigh Valley

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Center Valley, PA 18034
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ArtsAdmin@psu.edu

Biobehavioral Health, B.S. (University College)

Begin Campus: Any Penn State Campus

End Campus: Greater Allegheny, Lehigh Valley, New Kensington

Program Description

This major provides interdisciplinary training designed to integrate biological, behavioral, and social science approaches to the study of human health and illness. Emphasis is placed on the study of physical health. The goal of this major is to help students gain working familiarity with multiple perspectives, approaches, and methods needed to address and solve problems of human health and illness. Students may select courses in the supporting courses category that will fulfill requirements for admission to graduate and professional programs. This major helps prepare graduates for entry-level jobs in a range of biomedical and health-related areas, including roles as research assistants, laboratory managers, biomedical product representatives, technical support positions in biomedical and health-related fields. This major also will

provide excellent preparation for advanced study in natural and social science disciplines and related professional areas such as epidemiology, public health, environmental health and safety, and human services.

What is Biobehavioral Health?

Biobehavioral Health is the integrative scientific study of the many different factors (e.g., biology, psychology, environment) that affect health. The discipline focuses on how these different factors influence health and the development of interventions to improve health outcomes.

You Might Like This Program If...

- You are curious about all aspects of health.
- You want to understand the multiple and layered factors that influence health.
- You like to answer important questions by considering different perspectives, and you like to study information from many disciplines (e.g., biology, psychology, neuroscience, sociology, anthropology).
- You want to pursue a health-related career, whether it be in a laboratory, clinical practice, or consulting capacity.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Biobehavioral Health, a minimum of 121 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	97-99

21-22 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 3-4 credits of GQ courses; 9 credits of GN courses; 6 credits of GS courses; 3 credits of GHW courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned. BBH requires students to complete 24 credits for the major through courses taken at University Park, Greater Allegheny, New Kensington and through World Campus. For more information, check the Suggested Academic Plan for this major.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
NUTR 251	Introductory Principles of Nutrition	3
<i>Prescribed Courses: Require a grade of C or better</i>		
BBH 101	Introduction to Biobehavioral Health	3
BBH/AFAM 302	Diversity and Health	3
BBH 310	Research Strategies for Studying Biobehavioral Health	3
BBH 311	Interdisciplinary Integration in Biobehavioral Health	3
BBH 316	Foundations and Principles of Health Promotion	3
BBH 411W	Research and Applications in Biobehavioral Health	3
BBH/HPA 440	Principles of Epidemiology	3
BIOL 110	Biology: Basic Concepts and Biodiversity	4
BIOL 161	Human Anatomy and Physiology I - Lecture	3
BIOL 163	Human Anatomy and Physiology II - Lecture	3
PSYCH 100	Introductory Psychology	3
Additional Courses		
Select 3 credits from the following:		3
BBH 210	Biobehavioral Aspects of Genetics	
BIOL 133	Genetics and Evolution of the Human Species	
BIOL 222	Genetics	
Select 3 credits from the following:		3
BBH 301W	Values and Ethics in Biobehavioral Health Research and Practice	
PHIL 110	Philosophy of Science	
PHIL 132/ BIOET 100	Bioethics	
Select 9 credits from the following:		9
ANTH 21	Introductory Biological Anthropology	
ANTH 22	Humans as Primates	
ANTH 216N	Sex and Evolution	
BIOL 155	Introduction to the Biology of Aging	
BIOL 162	Human Anatomy and Physiology I - Laboratory	
BIOL 164	Human Anatomy and Physiology II - Laboratory	
BIOL 220W	Biology: Populations and Communities	
BIOL 230W	Biology: Molecules and Cells	
BIOL 240W	Biology: Function and Development of Organisms	
BIOL 409	Biology of Aging	
BIOL 422	Advanced Genetics	
BMB 211	Elementary Biochemistry	
CHEM 110	Chemical Principles I	
CHEM 111	Experimental Chemistry I	
CHEM 112	Chemical Principles II	
CHEM 113	Experimental Chemistry II	
CHEM 130	Introduction to General, Organic, and Biochemistry	
CHEM 202	Fundamentals of Organic Chemistry I or CHEM 211 (Organic Chemistry I)	
CHEM 203	Fundamentals of Organic Chemistry II or CHEM 213 (Laboratory in Organic Chemistry)	
CHEM 212	Organic Chemistry II	
EARTH 100	Environment Earth	
EARTH 100H	Environment Earth: Environment and Energy	

EARTH 103N	Earth in the Future: Predicting Climate Change and Its Impacts Over the Next Century		
EGEE/MATSE 101	Energy and the Environment		
EGEE 101H	Energy and the Environment		
EGEE 102	Energy Conservation for Environmental Protection		
EGEE 102H	Energy Conservation for Environmental Protection		
EMSC 101	Resource Wars		
FDSC 404	Sensory Evaluation of Foods		
FDSC 405	Food Engineering Principles		
FDSC 406W	Physiology of Nutrition		
FDSC 407	Food Toxins		
FDSC 408	Food Microbiology		
GEOG 110	Climates of the World		
GEOG 110H	Climates of the World		
GEOG 314	Biogeography and Global Ecology		
MICRB 106	Elementary Microbiology		
MICRB 107	Elementary Microbiology Laboratory		
MICRB 201	Introductory Microbiology		
MICRB 202	Introductory Microbiology Laboratory		
PHYS 250	Introductory Physics I		
PHYS 251	Introductory Physics II		
PSYCH 260/ BBH 203	Neurological Bases of Human Behavior		
PSYCH 460	Comparative Psychology		
PSYCH 461	Advanced Conditioning and Learning		
PSYCH 462	Physiological Psychology		
PSYCH 464	Behavior Genetics		
PSYCH 470	Abnormal Psychology		
PSYCH 473	Behavior Modification		
VBSC 211	The Immune System and Disease		
VBSC 230	The Science of Poisons		
VBSC 231	Introduction to Cancer Research and Medicine		
Select 9 credits from the following:		9	
CSD 100	Vocal Health for Life		
CSD 146	Introduction to Communication Sciences and Disorders		
CSD 218	American Sign Language I		
CSD 230	Introduction to Audiology		
CSD 269	Deaf Culture		
HDFS 229	Infant and Child Development		
HDFS 239	Adolescent Development		
HDFS 249N	Adult Development and Aging		
HDFS/WMNST 250	Sexual Identity over the Life Span		
HDFS 302A	Leadership and Technology Skills for Human Services Professionals A		
HDFS 311	Human Development and Family Studies Interventions		
HDFS 315	Family Development		
HDFS 405	Gender and Social Development		
HDFS 416/ SOC 411	Racial and Ethnic Diversity and the American Family		
HDFS 418	Family Relationships		
HDFS 428	Infant Development		
HDFS 429	Advanced Child Development		
HDFS/SOC 431	Family Disorganization: Stress Points in the Contemporary Family		
HDFS 433	Developmental Transition to Adulthood		
HDFS 445/ PSYCH 416	Development Throughout Adulthood		
HPA 57	Consumer Choices in Health Care		
HPA 101	Introduction to Health Services Organization		
HPA 310	Health Care and Medical Needs		
KINES 100	The Cultural and Behavioral Foundations of Kinesiology		
KINES 101	The Biophysical Foundations of Kinesiology		
KINES 203	Medical Terminology for Allied Health Professionals		
KINES 356	Activity and Disease		
KINES 358	Ergogenic Aids		
NURS 401	Concepts of Health		
NURS/BBH/ WMNST 452	Women's Health Issues		
NUTR 358	Assessment of Nutritional Status		
NUTR 360	Nutrition Education and Behavior Change Theory		
PSYCH 212	Introduction to Developmental Psychology		
PSYCH 243	Introduction to Well-being and Positive Psychology		
PSYCH 270	Introduction to Abnormal Psychology		
Select 3 credits from the following:		3	
HDFS 129	Introduction to Human Development and Family Studies		
HDFS 229	Infant and Child Development		
HDFS 239	Adolescent Development		
HDFS 249N	Adult Development and Aging		
<i>Additional Courses: Require a grade of C or better</i>			
STAT 200	Elementary Statistics	3-4	
or STAT 250	Introduction to Biostatistics		
Select 3-4 credits from the following:		3-4	
BIOL 230W	Biology: Molecules and Cells		
CHEM 101	Introductory Chemistry		
CHEM 110	Chemical Principles I		
CHEM 110H	Chemical Principles I - Honors		
CHEM 130	Introduction to General, Organic, and Biochemistry		
MICRB 106	Elementary Microbiology		
Select 12 credits from the following (at least 6 credits must be at the 400 level):		12	
BBH 203/ PSYCH 260	Neurological Bases of Human Behavior		
BBH 251	Straight Talks I: Advanced Sexual Orientation/Gender Identity Peer Education		
BBH/AFR 305	Introduction to Global Health Issues		
BBH 315	Gender and Biobehavioral Health		
BBH 324	HealthWorks Peer Education Training		
BBH 325	Health Promotion Services Training		
BBH 368	Neuroanatomy, Behavior, and Health		
BBH 370	Environmental Health and Sustainability		

BBH 390A	Preparation for Global Health Field Experience
BBH 402	African Health & Development
BBH 407	Global Health Equity
BBH 410	Developmental and Health Genetics
BBH 416	Health Promotion II: Planning, Implementation, and Evaluation
BBH 417	Advanced Applications in Health Promotion
BBH 432	Biobehavioral Aspects of Stress
BBH 446	Human Sexuality as a Health Concern
BBH 451	Pharmacological Influences on Health
BBH/WMNST 452	Women's Health Issues
BBH/WMNST 458	Critical Feminist Issues in Reproduction
BBH 468	Neuroanatomical Bases for Disorders of Behavior and Health
BBH/BIOL 469	Neurobiology
BBH/BIOL 470	Functional and Integrative Neuroscience
BBH 490	Introduction to Internship Experience

Supporting Courses and Related Areas

Select 3 credits in health promotion from approved list, in consultation with adviser 3

Select 12 credits in University-wide offerings from approved list, in consultation with adviser (Students may apply 6 credits of ROTC.) 12

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Integrated B.S. in Biobehavioral Health and M.P.H. in Public Health

Requirements for the Integrated B.S. in Biobehavioral Health and M.P.H. in Public Health can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/public-health/#integratedundergradgradprogramstext>).

Program Learning Objectives

- **Critical Evaluation of Research:** Critically evaluate current empirical research on health and disease, explaining implications and limitations to the lay public.
- **Disparity Mechanisms:** Explain how the fundamental processes underlying health and disease can interact to produce individual differences in health, and health disparities among groups.
- **Ethics:** Understand and apply ethical principles in the conduct of research and professional practice and in the analyses in implementations of health-related policies and programs.
- **Health Factors:** Describe and understand the fundamental biological, behavioral, social, cultural and environmental processes that influence health and disease.
- **Promotion/Prevention:** Plan, implement, and evaluate health promotion/disease prevention programs for diverse populations.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Greater Allegheny

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World Campus

Undergraduate Academic Advising

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Biobehavioral Health, B.S. at Greater Allegheny Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or ESL 15 [†]	3 CAS 100A, 100B, or 100C [†]	3
HDFS 129 [†]	3 BIOL 230W or MICRB 106 ^{**†}	3-4
BBH 101 [*]	3 PSYCH 100 ^{**†}	3
BIOL 110 ^{**†}	4 Basic Science ¹	3
General Education Course (GQ) [†]	3 General Education Course	3
PSU 8	1	
	17	15-16

Second Year

Fall	Credits Spring	Credits
BBH 311 [*]	3 BBH 316 [*]	3
BIOL 161 ^{**†}	3 BIOL 163 ^{**†}	3
STAT 200 or 250 ^{**†}	3-4 BIOL 222 or BBH 210 ⁵	3
Health and Developmental Science Course ²	3 ENGL 202A [†]	3
Supporting Course from University-Wide Offerings ³	3 NUTR 251 [†]	3
	15-16	15

Third Year

Fall	Credits Spring	Credits
BBH 302 ^{*6}	3 BBH 310 [*]	3
BBH Course ^{*6}	3 General Education Course	3
Basic Science ¹	3 BBH Course ^{*6}	3
Health and Developmental Science Course ²	3 BBH 301W ⁴	3
General Education Course	3 Supporting Course from University-Wide Offerings ³	3
15		15

Fourth Year

Fall	Credits Spring	Credits
BBH 440 [*]	3 BBH 411W [*]	3
400-level BBH Course ^{*6}	3 BBH 416 or PSYCH 441 ⁷	3
Basic Science ¹	3 400-level BBH Course ^{*6}	3
Health and Developmental Science Course ²	3 Supporting Course from University-Wide Offerings ³	3
General Education Course	3 Supporting Course from University-Wide Offerings ³	3
15		15

Total Credits 122-124

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ **Supporting Basic Science Course:** 9 credits are required in Supporting Basic Science courses; some courses in this category also satisfy GN requirements. Choose from CHEM 110 GN (3), CHEM 111 GN(1), CHEM 112 GN(3), CHEM 113 GN(1) CHEM 202(3) or CHEM 210(3), CHEM 203(3) or CHEM 213(2), CHEM 212(3), MICRB 106 GN(3), MICRB 107 GN(1), MICRB 201 GN(3), MICRB 202 GN(2), PSYCH 260(3), ANTH 021 GN(3), ANTH 022 GN(3), ANTH 216 GN;GS(3), B M B 211(3), BIOL 155 GN(3), BIOL 129 GN(4), BIOL 142(1), BIOL 220W GN(4), BIOL 230W GN(4), BIOL 240W GN(4), BIOL 422(3), BIOL 409(3), BIOL 479(3), EARTH 100 GN(3), EARTH 103N GN(3), EGEE 101 GN(3), EGEE 102 GN(3), EM SC 101 US;IL(3), FD SC 404(3), FD SC 405(3), FD SC 406(3), FD SC 407(2), FD SC 408(3), GEOG 110 GN(3), GEOG 314 GN(3), PHYS 250 GN(4), PHYS 251 GN(4), PSYCH 460(3), PSYCH 461(3), PSYCH 462(3), PSYCH 464(3), PSYCH 470(3), PSYCH 473(3), VB SC 211 GN(3), VB SC 230(3), VB SC 231(3)

² **Supporting Health and Developmental Science Course:** 9 credits are required in Health and Developmental Science courses; some courses in this category also satisfy GS requirements. Choose from Select 9 credits from: CSD 100 GHA;US(3), CSD 146 US;IL(3), CSD 218(3), CSD 230(3), CSD 269 GH;US;IL(3), H P A 057 GHA(3), H P A 101(3), H P A 310(3), HD FS 229 GS(3), HD FS 239 GS(3), HD FS 249 GS(3), HD FS 250 US(3), HD FS 302A(3), HD FS 311(3), HD FS 315 US(3), HD FS 405 US(3), HD FS 416 US(3), HD FS 418(3), HD FS 428(3), HD FS 429(3), HD FS 431(3), HD FS 433(3), HD FS 445(3), HD FS 468(3), KINES 100(3), KINES 101(3), KINES 141 US;IL(3), KINES 180(3), KINES 203(3), KINES 356(3), KINES 358(1), NUTR 111 GH;US(3), NUTR 358(2), NUTR 360(3), PSYCH 212 GS(3), PSYCH 243 GS(3), PSYCH 270(3)

³ **Supporting course from University-wide offerings:** 12 credits are required from University-Wide Offerings; courses must be selected from the department list of approved offerings, in consultation with adviser.

⁴ **Ethics Course:** Choose from BBH 301W, PHIL 100, PHIL 132, RLST 131

⁵ BIOL 133 may be taken instead but students may not take this course if they have already completed BIOL 220W, BIOL 230W, or BIOL 240W.

⁶ 12 credits are required from BBH electives; at least 6 credits must come from 400-level courses. Choose from the list in the bulletin and note that some also require a C or higher grade.

⁷ Select 3 credits in health promotion at 400 level from approved list, in consultation with adviser.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Biobehavioral Health, B.S. at Lehigh Valley Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BBH 101 [*]	3 BBH 301W	3
PSYCH 100 ^{**†}	3 CHEM 110 or BIOL 230W ^{**†}	3-4
BIOL 110 ^{**†}	4 HDFS 129, 229, 239, or 249N ^{**†}	3
ENGL 15 or 30H [‡]	3 NUTR 251 [†]	3
PSU 8 (or General Education Course)	3 General Education Course	3
	16	15-16

Second Year

Fall	Credits Spring	Credits
BBH 311 [*]	3 BBH 316 [*]	3
BIOL 161 [†]	3 BIOL 163 [†]	3
BIOL 162 (Recommended Basic Science)	1 BIOL 164 (Recommended Basic Science)	1
STAT 200 ^{**†}	4 CAS 100A [‡]	3
University-wide Offerings	3 Health and Developmental Science	3
General Education Course	3 General Education Course	3
	17	16

Third Year

Fall	Credits Spring	Credits
ENGL 202A [‡]	3 BIOL 133 or 222	3
BBH Elective Course [*]	3 BBH 310 [*]	3
BBH Elective Course [*]	3 BBH Elective Course [*]	3
Basic Science	3 General Education Course	3
Health and Human Development	3 University-wide Offering	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
BBH 411W	3 BBH 416	3
BBH 440 [*]	3 BBH Elective Course [*]	3
Basic Science	3 Basic Science	3
BBH Elective	3 University-wide Offerings	3
University-wide Offerings	3 General Education Course	3
	15	15

Total Credits 124-125

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Biobehavioral Health, B.S. at New Kensington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BBH 101 ^{*†}	3 HDFS 129 ^{*†}	3
PSYCH 100 ^{*†}	3 CHEM 110/101/BIOL 230W ^{*†}	3
BIOL 110 ^{*†}	4 NUTR 251 [†]	3
ENGL 15 or 30H [‡]	3 General Education Course or General Quantification	3
General Education Course or General Quantification	3 General Education Course or General Quantification	3
16		15

Second Year

Fall	Credits Spring	Credits
BIOL 161	3 BIOL 163	3
BBH 311 [*]	3 BBH 316 [*]	3
STAT 200 [‡]	4 CAS 100 [‡]	3
University-Wide Offerings	3 Health and Developmental Science	3
Health and Developmental Sciences	3 Scientific Thought and Philosophy	3
16		15

Third Year

Fall	Credits Spring	Credits
BBH Elective Course [*]	3 BBH Elective Course [*]	3
BBH Elective Course [*]	3 BBH Elective Course [*]	3
ENGL 202A [‡]	3 BIOL 133 or 222 ^{*†}	3
Basic Science	3 University-Wide Offerings	3
Healthy and Developmental Science	3 General Education Course or General Quantification	3
15		15

Fourth Year

Fall	Credits Spring	Credits
BBH 440 [*]	3 BBH 411W [*]	3
BBH 310 [*]	3 BBH Elective Course [*]	3
Basic Science	3 Basic Science	3
Health Promotion	3 University-Wide Offerings	3
University-Wide Offerings	3 General Education Course or General Quantifications	3
15		15

Total Credits 122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

Students with a B.S. in Biobehavioral Health have been successful in establishing careers in a variety of fields. Four example areas of employment include: clinical professions in health care, biomedical and pharmaceutical research support, health advocacy and consulting, and public health. Advanced career tracks may require a graduate or professional degree. Students are encouraged to engage in practical learning experiences that complement formal classroom learning. These can include training at the University Health Services or a hospital, working in a research laboratory, and/or a health-related internship or travel experience. Several engaged learning experience programs available include: BBH Internship program, Global Health minor, BBH research laboratory assistant, Clinical Volunteer Training, and HealthWorks.

Careers

- Examples of careers that BBH graduates might pursue include:
- Clinic Professions in Health care: physician assistant, physician, pharmacist, nurse, health care support staff
- Biomedical and Pharmaceutical Research Support: laboratory manager, study coordinator, research assistant
- Health Advocacy and Consulting: health education specialist, social worker, genetic counselor
- Public Health: public and community health worker, epidemiologist, substance abuse, behavioral disorder, and mental health counselors

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE BIOBEHAVIORAL HEALTH PROGRAM (<https://hhd.psu.edu/bbh/undergraduate/internships-and-career-opportunities/career-areas-major/career-opportunities/>)

Opportunities for Graduate Studies

Depending on your career goals, BBH students might consider completing a graduate degree in biomedical, pharmaceutical or related health services research (e.g., M.S., Ph.D.), a clinical graduate program (e.g., M.D., D.O., P.A., Pharm. D.) or a professional degree in public health, health administration, social work, public policy or administration or law (e.g., M.P.H., M.H.A., M.S.W., M.P.A., M.P.P., J.D.)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://hhd.psu.edu/bbh/graduate/>)

Professional Resources

- Explore Health Careers (<https://explorehealthcareers.org/>)
- National Institutes of Health Postbaccalaureate Intramural Research Training Award (<https://www.training.nih.gov/research-training/pb/pb/>)
- American Academy of Physical Assistants - 5 Tips for Getting into PA School (<https://www.aapa.org/news-central/2014/06/5-tips-for-getting-into-pa-school/>)
- Accreditation Council for Genetic Counseling – List of Accredited Programs (<https://www.gceducation.org/students-volunteers/#program>)
- American Physical Therapy Association – List of Accredited Programs (<https://aptaapps.apta.org/accreditedschoolsdirectory/captedirectory.aspx>)
- American Occupational Therapy Association, Inc (<https://www.aota.org/>)
- Association of Schools and Programs of Public Health (<https://aspqh.org/student-journey/>)
- Honoring Diversity in BBH (<https://hhd.psu.edu/bbh/honoring-diversity/>)

Contact

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<https://lehighvalley.psu.edu/academics/degrees/biobehavioral-health> (<https://lehighvalley.psu.edu/academics/degrees/biobehavioral-health/>)

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<https://newkensington.psu.edu/academics/4-year-biobehavioral-health> (<https://newkensington.psu.edu/academics/4-year-biobehavioral-health/>)

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<https://harrisburg.psu.edu/behavioral-sciences-education/biobehavioral-health-bs> (<https://harrisburg.psu.edu/behavioral-sciences-education/biobehavioral-health-bs/>)

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-biobehavioral-health-bachelor-of-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-biobehavioral-health-bachelor-of-science-degree/>)

Biology, B.S. (University College)

Begin Campus: Any Penn State Campus

End Campus: Beaver, Brandywine, Lehigh Valley, Schuylkill, Scranton, York

Program Description

Biology is the scientific study of life: the diversity and organization of organisms, from single-celled bacteria to multi-cellular plants and animals, including humans. These different levels of biological organization range from the molecules and cells that compose an organism, to the interacting organisms that make up an ecosystem. Hands-on experiences, from designing and conducting lab experiments to making field observations, using many different procedures and instruments, play an important role in gaining biological knowledge. Basic research in biology provides many benefits. Faculty in the Department of Biology at Penn State are exploring ways to cure neurological diseases, to conserve coral populations in tropical oceans, to discover more efficient ways to use plants for food and bioenergy, to develop vaccines for infectious diseases, and investigating many other facets of biology, all with the goal of positively impacting humans and the environment.

You Might Like This Program If...

- You are interested in learning about aspects of the biology of organisms that live on Earth.
- You enjoy a dynamic field of study, with new discoveries being made every day.
- You are interested in hands-on experiences, including courses with integrated laboratories and conducting research with faculty.
- You plan to pursue a career in biology research, education or outreach, or attend professional school in areas including medicine and dentistry.

Entrance To Major

In order to be eligible for entrance to the Biology major, a student must have:

1. attained at least a 2.00 cumulative grade point average;
2. completed BIOL 110, CHEM 110, MATH 140, and earned a grade of C or better in each of these courses; and
3. completed at least one of the following courses with a grade of C or better: BIOL 220W, BIOL 230W, or BIOL 240W.

Degree Requirements

For the Bachelor of Science degree in Biology, a minimum of 124 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	94

15 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
CHEM 111	Experimental Chemistry I	1
CHEM 113	Experimental Chemistry II	1
MATH 141	Calculus with Analytic Geometry II	4
<i>Prescribed Courses: Require a grade of C or better</i>		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
BIOL 220W	Biology: Populations and Communities	4
BIOL 230W	Biology: Molecules and Cells	4
BIOL 240W	Biology: Function and Development of Organisms	4
CHEM 110	Chemical Principles I	3
CHEM 112	Chemical Principles II	3
MATH 140	Calculus With Analytic Geometry I	4
Additional Courses		
Select one of the following:		8-12
PHYS 211 & PHYS 212 & PHYS 213 & PHYS 214	General Physics: Mechanics and General Physics: Electricity and Magnetism and General Physics: Fluids and Thermal Physics and General Physics: Wave Motion and Quantum Physics	
PHYS 250 & PHYS 251	Introductory Physics I and Introductory Physics II	
Select one of the following:		3-4
STAT 200	Elementary Statistics	
STAT 240	Introduction to Biometry	
STAT 250	Introduction to Biostatistics	

Requirements for the Option

Select an option	46-51
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Requirements for the Option

Ecology Option (46-51 credits)

Available at the following campuses: Altoona, Schuylkill, University Park

Code	Title	Credits
Prescribed Courses		
BIOL 463	General Ecology	3
Additional Courses		
STAT 462 or STAT 464	Applied Regression Analysis Applied Nonparametric Statistics	3
Select one of the following:		6-8
CHEM 202 & CHEM 203	Fundamentals of Organic Chemistry I and Fundamentals of Organic Chemistry II	
CHEM 210 & CHEM 212 & CHEM 213	Organic Chemistry I and Organic Chemistry II and Laboratory in Organic Chemistry	

Groups

Select a minimum of 15 credits of 400-level biology courses, with at least 6 credits from the Ecology group, 3 credits from the Evolution group, and 3 credits from the Practicum group. A maximum of 3 credits of BIOL 400, 494, 495, 496, and SC 295, 395, 495 may be used to fulfill 15 credits minimum in the 400-level biology course requirements.

Ecology Group:		
BIOL 406	Symbiosis	
BIOL 412	Ecology of Infectious Diseases	
BIOL 415	Ecotoxicology	
BIOL 417	Invertebrate Zoology	
BIOL 419	Ecological and Environmental Problem Solving	
BIOL/PPEM 425	Biology of Fungi	
BIOL 429	Animal Behavior	
BIOL 435	Ecology of Lakes and Streams	
BIOL 436	Population Ecology and Global Climate Change	
BIOL 438	Theoretical Population Ecology	
BIOL 444	Field Ecology	
BIOL 446	Physiological Ecology	
BIOL 450W	Experimental Field Biology	
BIOL 464	Sociobiology	
BIOL 474	Astrobiology	
BIOL 482	Coastal Biology	
BIOL 499A	Tropical Field Ecology	
Evolution Group:		
BIOL 405	Molecular Evolution	
BIOL 406	Symbiosis	
BIOL 411	Medical Embryology	
BIOL 414	Taxonomy of Seed Plants	
BIOL 417	Invertebrate Zoology	
BIOL 420	Paleobotany	
BIOL 421	Comparative Anatomy of Vertebrates	
BIOL 422	Advanced Genetics	

BIOL/PPEM 425	Biology of Fungi
BIOL 427	Evolution
BIOL 428	Population Genetics
BIOL 429	Animal Behavior
BIOL 432	Developmental Genetics
BIOL 433	Evolution of Vertebrates
BIOL 434	Pathobiology of Emerging Infectious Disease
BIOL 436	Population Ecology and Global Climate Change
BIOL 438	Theoretical Population Ecology
BIOL 439	Practical Bioinformatics
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 446	Physiological Ecology
BIOL 451	Biology of RNA
BIOL 460	Human Genetics
BIOL 463	General Ecology
BIOL 464	Sociobiology
BIOL 474	Astrobiology
BIOL 478	COMPARATIVE NEUROANATOMY
Practicum Group:	
BIOL 400	Teaching in Biology
BIOL 402W	Biological Experimental Design
BIOL 407	Plant Developmental Anatomy
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 419	Ecological and Environmental Problem Solving
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 433	Evolution of Vertebrates
BIOL 437	Histology
BIOL 439	Practical Bioinformatics
BIOL 444	Field Ecology
BIOL 450W	Experimental Field Biology
BIOL 461	Contemporary Issues in Science and Medicine
BIOL 473	Laboratory in Mammalian Physiology
BIOL 475N	
BIOL 478	COMPARATIVE NEUROANATOMY
BIOL 482	Coastal Biology
BIOL 494	Research Project
BIOL 495	Internship in Biology
BIOL 496	Independent Studies
BIOL 499A	Tropical Field Ecology
BIOTC 459	Plant Tissue Culture and Biotechnology
SC 295	Science Co-op Work Experience I
SC 395	Science Co-op Work Experience II
SC 495	Science Co-op Work Experience III

Supporting Courses and Related Areas

Select 17-24 credits from department list 17-24

General Biology Option (46-51 credits)

Available at the following campuses: Abington, Altoona, Beaver, Berks, Brandywine, Harrisburg, Lehigh Valley, Schuylkill, Scranton, University Park, York

Code	Title	Credits
Additional Courses		
Select one of the following:		6-8
CHEM 202 & CHEM 203	Fundamentals of Organic Chemistry I and Fundamentals of Organic Chemistry II	
CHEM 210 & CHEM 212	Organic Chemistry I and Organic Chemistry II	
& CHEM 213	and Laboratory in Organic Chemistry	

Groups

Select a minimum of 18 credits of 400-level biology courses, with at least 3 credits from each of the following groups (each course may be used to satisfy a requirement in only one group). Moreover, a maximum of 3 credits of BIOL 400, 494, 495, 496 and SC 295, 395, 495 may be used to fulfill the 18 credit minimum in the 400-level biology course requirements.

Plant and Fungi Group:

BIOL 406	Symbiosis
BIOL 407	Plant Developmental Anatomy
BIOL 414	Taxonomy of Seed Plants
BIOL 420	Paleobotany
BIOL 424	Seeds of Change: The Uses of Plants
BIOL/PPEM 425	Biology of Fungi
BIOL 431	Reproductive Biology
BIOL 441	Plant Physiology
BIOL 444	Field Ecology
BIOL 446	Physiological Ecology
BIOL 448	Ecology of Plant Reproduction
BIOL 451	Biology of RNA
BIOL 482	Coastal Biology
BIOL 499A	Tropical Field Ecology
PPEM 427	Mycotoxins: Effects of Fungal Toxins on Human and Animal Health

Evolution Group:

BIOL 405	Molecular Evolution
BIOL 406	Symbiosis
BIOL 411	Medical Embryology
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 420	Paleobotany
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 427	Evolution
BIOL 428	Population Genetics
BIOL 429	Animal Behavior
BIOL 432	Developmental Genetics
BIOL 433	Evolution of Vertebrates
BIOL 434	Pathobiology of Emerging Infectious Disease

BIOL 436	Population Ecology and Global Climate Change
BIOL 438	Theoretical Population Ecology
BIOL 439	Practical Bioinformatics
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 446	Physiological Ecology
BIOL 451	Biology of RNA
BIOL 460	Human Genetics
BIOL 463	General Ecology
BIOL 464	Sociobiology
BIOL 474	Astrobiology
BIOL 478	COMPARATIVE NEUROANATOMY
Genetics and Developmental Biology Group:	
BIOL 404	Cellular Mechanisms in Vertebrate Physiology
BIOL 405	Molecular Evolution
BIOL 407	Plant Developmental Anatomy
BIOL 411	Medical Embryology
BIOL 413	Cell Signaling and Regulation
BIOL 416	Biology of Cancer
BIOL 422	Advanced Genetics
BIOL 426	Developmental Neurobiology
BIOL 428	Population Genetics
BIOL 430	Developmental Biology
BIOL 431	Reproductive Biology
BIOL 432	Developmental Genetics
BIOL 439	Practical Bioinformatics
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 448	Ecology of Plant Reproduction
BIOL 451	Biology of RNA
BIOL 460	Human Genetics
BIOL 467	Molecular Basis of Neurological Diseases
BIOL 469	Neurobiology
MICRB 410	Principles of Immunology
Ecology Group:	
BIOL 406	Symbiosis
BIOL 412	Ecology of Infectious Diseases
BIOL 415	Ecotoxicology
BIOL 417	Invertebrate Zoology
BIOL 419	Ecological and Environmental Problem Solving
BIOL/PPEM 425	Biology of Fungi
BIOL 429	Animal Behavior
BIOL 435	Ecology of Lakes and Streams
BIOL 436	Population Ecology and Global Climate Change
BIOL 438	Theoretical Population Ecology
BIOL 444	Field Ecology
BIOL 446	Physiological Ecology
BIOL 450W	Experimental Field Biology
BIOL 463	General Ecology
BIOL 464	Sociobiology
BIOL 474	Astrobiology
BIOL 482	Coastal Biology
BIOL 499A	Tropical Field Ecology

Physiology Group:	
BIOL 404	Cellular Mechanisms in Vertebrate Physiology
BIOL 406	Symbiosis
BIOL 409	Biology of Aging
BIOL 411	Medical Embryology
BIOL 412	Ecology of Infectious Diseases
BIOL 413	Cell Signaling and Regulation
BIOL 415	Ecotoxicology
BIOL 416	Biology of Cancer
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 424	Seeds of Change: The Uses of Plants
BIOL 426	Developmental Neurobiology
BIOL 430	Developmental Biology
BIOL 431	Reproductive Biology
BIOL 432	Developmental Genetics
BIOL 437	Histology
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 446	Physiological Ecology
BIOL 460	Human Genetics
BIOL 469	Neurobiology
BIOL 470	Functional and Integrative Neuroscience
BIOL 472	Human Physiology
BIOL 478	COMPARATIVE NEUROANATOMY
BIOL 479	General Endocrinology
BIOL 482	Coastal Biology
Practicum Group:	
BIOL 400	Teaching in Biology
BIOL 402W	Biological Experimental Design
BIOL 407	Plant Developmental Anatomy
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 419	Ecological and Environmental Problem Solving
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 433	Evolution of Vertebrates
BIOL 437	Histology
BIOL 439	Practical Bioinformatics
BIOL 444	Field Ecology
BIOL 450W	Experimental Field Biology
BIOL 461	Contemporary Issues in Science and Medicine
BIOL 473	Laboratory in Mammalian Physiology
BIOL 475N	
BIOL 476	Advanced Human Anatomy - cadaver based
BIOL 478	COMPARATIVE NEUROANATOMY
BIOL 482	Coastal Biology
BIOL 494	Research Project
BIOL 495	Internship in Biology
BIOL 496	Independent Studies
BIOL 499A	Tropical Field Ecology
BIOTC 459	Plant Tissue Culture and Biotechnology

SC 295	Science Co-op Work Experience I
SC 395	Science Co-op Work Experience II
SC 495	Science Co-op Work Experience III

Supporting Courses and Related Areas

Select 20-27 credits from department list 20-27

Genetics and Developmental Biology Option (46-51 credits)

Available at the following campuses: Abington, Berks, Harrisburg, Schuylkill, University Park, York

Code	Title	Credits
Prescribed Courses		
BIOL 322	Genetic Analysis	3
BIOL 430	Developmental Biology	3
BMB 401	General Biochemistry	3
BMB 402	General Biochemistry	3
CHEM 210	Organic Chemistry I	3
CHEM 212	Organic Chemistry II	3
CHEM 213	Laboratory in Organic Chemistry	2

Additional Courses

Select 2-5 credits from the following: 2-5

MATH 220	Matrices
MATH 231	Calculus of Several Variables
MICRB 201	Introductory Microbiology
MICRB 202	Introductory Microbiology Laboratory

Groups

Select a minimum of 12 credits of 400-level courses, with at least 6 credits from the Genetics and Developmental Biology group, 3 credits from Evolution, and 3 credits from the Practicum group. A maximum of 3 credits of BIOL 400, 494, 495, 496 and SC 295, 395, 495 may be used to fulfill the 12 credit minimum in the 400-level biology course requirements.

Genetics and Developmental Biology Group:

BIOL 404	Cellular Mechanisms in Vertebrate Physiology	12
BIOL 405	Molecular Evolution	
BIOL 407	Plant Developmental Anatomy	
BIOL 411	Medical Embryology	
BIOL 413	Cell Signaling and Regulation	
BIOL 416	Biology of Cancer	
BIOL 422	Advanced Genetics	
BIOL 426	Developmental Neurobiology	
BIOL 428	Population Genetics	
BIOL 431	Reproductive Biology	
BIOL 432	Developmental Genetics	
BIOL 439	Practical Bioinformatics	
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms	
BIOL 448	Ecology of Plant Reproduction	
BIOL 451	Biology of RNA	
BIOL 460	Human Genetics	
BIOL 467	Molecular Basis of Neurological Diseases	
BIOL 469	Neurobiology	
BMB 400	Molecular Biology of the Gene	
or BMB 450	Microbial/Molecular Genetics	
or BMB 464	Molecular Medicine	

or BMB 484 Functional Genomics
or HORT 407 Plant Breeding
or MICRB 41 Principles of Immunology

Evolution Group:

BIOL 405	Molecular Evolution
BIOL 406	Symbiosis
BIOL 411	Medical Embryology
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 420	Paleobotany
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 427	Evolution
BIOL 428	Population Genetics
BIOL 429	Animal Behavior
BIOL 432	Developmental Genetics
BIOL 433	Evolution of Vertebrates
BIOL 434	Pathobiology of Emerging Infectious Disease
BIOL 436	Population Ecology and Global Climate Change
BIOL 438	Theoretical Population Ecology
BIOL 439	Practical Bioinformatics
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 446	Physiological Ecology
BIOL 451	Biology of RNA
BIOL 460	Human Genetics
BIOL 463	General Ecology
BIOL 464	Sociobiology
BIOL 474	Astrobiology
BIOL 478	COMPARATIVE NEUROANATOMY

Practicum Group:

BIOL 400	Teaching in Biology
BIOL 402W	Biological Experimental Design
BIOL 407	Plant Developmental Anatomy
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 419	Ecological and Environmental Problem Solving
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 433	Evolution of Vertebrates
BIOL 437	Histology
BIOL 439	Practical Bioinformatics
BIOL 444	Field Ecology
BIOL 450W	Experimental Field Biology
BIOL 461	Contemporary Issues in Science and Medicine
BIOL 473	Laboratory in Mammalian Physiology
BIOL 475N	
BIOL 478	COMPARATIVE NEUROANATOMY
BIOL 482	Coastal Biology

BIOL 494	Research Project
BIOL 495	Internship in Biology
BIOL 496	Independent Studies
BIOL 499A	Tropical Field Ecology
SC 295	Science Co-op Work Experience I
SC 395	Science Co-op Work Experience II
SC 495	Science Co-op Work Experience III

Supporting Courses and Related Areas

Select 9-17 credits from department list 9-17

Neuroscience Option (46-51 credits)

Available at the following campuses: University Park

Code	Title	Credits
Prescribed Courses		
BIOL 469	Neurobiology	3
BMB 401	General Biochemistry	3
BMB 402	General Biochemistry	3
CHEM 210	Organic Chemistry I	3
CHEM 212	Organic Chemistry II	3
CHEM 213	Laboratory in Organic Chemistry	2

Additional Courses

Select 3 credits from the following: 3

BIOL 426	Developmental Neurobiology
BIOL 470	Functional and Integrative Neuroscience
BIOL 478	COMPARATIVE NEUROANATOMY

Groups

Select a minimum of 12 credits of 400-level biology courses, with at least 6 credits from the Neuroscience group, 3 credits from the Evolution group, and 3 credits from the Practicum Group. A maximum of 3 credits of BIOL 400, 494, 495, 496 and SC 295, 395, 495 may be used to fulfill the 12 credit minimum in the 400-level biology course requirements. 12

Neuroscience Group:

BIOL 404	Cellular Mechanisms in Vertebrate Physiology
BIOL 413	Cell Signaling and Regulation
BIOL 424	Seeds of Change: The Uses of Plants
BIOL 426	Developmental Neurobiology
BIOL 430	Developmental Biology
BIOL 437	Histology
BIOL 467	Molecular Basis of Neurological Diseases
BIOL 470	Functional and Integrative Neuroscience
BIOL 472	Human Physiology
BIOL 473	Laboratory in Mammalian Physiology
BIOL 478	COMPARATIVE NEUROANATOMY
BIOL 479	General Endocrinology
BBH 432	Biobehavioral Aspects of Stress
or BBH 451	Pharmacological Influences on Health
or BBH 468	Neuroanatomical Bases for Disorders of Behavior and Health
or HDFS 468	
or NUTR 445	Energy and Macronutrient Metabolism
or PSYCH 45	Learning and Memory
or PSYCH 46	Physiological Psychology

or PSYCH 47 Clinical Neuropsychology

Evolution Group:

BIOL 405	Molecular Evolution
BIOL 406	Symbiosis
BIOL 411	Medical Embryology
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 420	Paleobotany
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 427	Evolution
BIOL 428	Population Genetics
BIOL 429	Animal Behavior
BIOL 432	Developmental Genetics
BIOL 433	Evolution of Vertebrates
BIOL 434	Pathobiology of Emerging Infectious Disease
BIOL 436	Population Ecology and Global Climate Change
BIOL 438	Theoretical Population Ecology
BIOL 439	Practical Bioinformatics
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 446	Physiological Ecology
BIOL 451	Biology of RNA
BIOL 460	Human Genetics
BIOL 463	General Ecology
BIOL 464	Sociobiology
BIOL 474	Astrobiology
BIOL 478	COMPARATIVE NEUROANATOMY

Practicum Group:

BIOL 400	Teaching in Biology
BIOL 402W	Biological Experimental Design
BIOL 407	Plant Developmental Anatomy
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 419	Ecological and Environmental Problem Solving
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 433	Evolution of Vertebrates
BIOL 437	Histology
BIOL 439	Practical Bioinformatics
BIOL 444	Field Ecology
BIOL 450W	Experimental Field Biology
BIOL 461	Contemporary Issues in Science and Medicine
BIOL 473	Laboratory in Mammalian Physiology
BIOL 475N	
BIOL 478	COMPARATIVE NEUROANATOMY
BIOL 482	Coastal Biology
BIOL 494	Research Project
BIOL 495	Internship in Biology

BIOL 496	Independent Studies
BIOL 499A	Tropical Field Ecology
BIOTC 459	Plant Tissue Culture and Biotechnology
SC 295	Science Co-op Work Experience I
SC 395	Science Co-op Work Experience II
SC 495	Science Co-op Work Experience III

Supporting Courses and Related Areas

Select 14-19 credits from department list 14-19

Plant Biology Option (46-51 credits)

Available at the following campuses: University Park

Code	Title	Credits
Prescribed Courses		
BIOL 407	Plant Developmental Anatomy	3
BIOL 441	Plant Physiology	3
BMB 401	General Biochemistry	3
BMB 402	General Biochemistry	3
CHEM 210	Organic Chemistry I	3
CHEM 212	Organic Chemistry II	3
CHEM 213	Laboratory in Organic Chemistry	2

Additional Courses*Groups*

Select a minimum of 12 credits of 400-level biology courses, with at least 6 credits from the Plant and Fungi group, 3 credits from the Evolution group, and 3 credits from the Practicum group. A maximum of 3 credits of BIOL 400, 494, 495, 496 and SC 295, 395, 495 may be used to fulfill the 12 credit minimum in the 400-level biology course requirements. 12

Plant and Fungi Group:

BIOL 406	Symbiosis
BIOL 414	Taxonomy of Seed Plants
BIOL 420	Paleobotany
BIOL 424	Seeds of Change: The Uses of Plants
BIOL/PPEM 425	Biology of Fungi
BIOL 431	Reproductive Biology
BIOL 444	Field Ecology
BIOL 446	Physiological Ecology
BIOL 448	Ecology of Plant Reproduction
BIOL 451	Biology of RNA
BIOL 482	Coastal Biology
BIOL 499A	Tropical Field Ecology

Evolution Group:

BIOL 405	Molecular Evolution
BIOL 406	Symbiosis
BIOL 411	Medical Embryology
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 420	Paleobotany
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi

BIOL 427	Evolution
BIOL 428	Population Genetics
BIOL 429	Animal Behavior
BIOL 432	Developmental Genetics
BIOL 433	Evolution of Vertebrates
BIOL 434	Pathobiology of Emerging Infectious Disease
BIOL 436	Population Ecology and Global Climate Change
BIOL 438	Theoretical Population Ecology
BIOL 439	Practical Bioinformatics
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 446	Physiological Ecology
BIOL 451	Biology of RNA
BIOL 460	Human Genetics
BIOL 463	General Ecology
BIOL 464	Sociobiology
BIOL 474	Astrobiology
BIOL 478	COMPARATIVE NEUROANATOMY

Practicum Group:

BIOL 400	Teaching in Biology
BIOL 402W	Biological Experimental Design
BIOL 407	Plant Developmental Anatomy
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 419	Ecological and Environmental Problem Solving
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 433	Evolution of Vertebrates
BIOL 437	Histology
BIOL 439	Practical Bioinformatics
BIOL 444	Field Ecology
BIOL 450W	Experimental Field Biology
BIOL 461	Contemporary Issues in Science and Medicine
BIOL 473	Laboratory in Mammalian Physiology
BIOL 475N	
BIOL 478	COMPARATIVE NEUROANATOMY
BIOL 482	Coastal Biology
BIOL 494	Research Project
BIOL 495	Internship in Biology
BIOL 496	Independent Studies
BIOL 499A	Tropical Field Ecology
BIOTC 459	Plant Tissue Culture and Biotechnology
SC 295	Science Co-op Work Experience I
SC 395	Science Co-op Work Experience II
SC 495	Science Co-op Work Experience III

Supporting Courses and Related Areas

Select 14-19 credits from department list 14-19

Vertebrate Physiology Option (46-51 credits)

Available at the following campuses: Abington, Altoona, Brandywine, Schuylkill, University Park

Code	Title	Credits
Prescribed Courses		
BIOL 472	Human Physiology	3
BIOL 473	Laboratory in Mammalian Physiology	2
BMB 401	General Biochemistry	3
BMB 402	General Biochemistry	3
CHEM 210	Organic Chemistry I	3
CHEM 212	Organic Chemistry II	3
CHEM 213	Laboratory in Organic Chemistry	2
Additional Courses		
<i>Groups</i>		
Select a minimum of 12 credits of 400-level courses, with at least 6 credits from the Physiology group, 3 credits from the Evolution group, and 3 credits from the Practicum group. A maximum of 3 credits of BIOL 400, 494, 495, 496 and SC 295, 395, 495 may be used to fulfill the 12 credit minimum in the 400-level biology course requirements.	12	
Physiology Group:		
BIOL 404	Cellular Mechanisms in Vertebrate Physiology	
BIOL 406	Symbiosis	
BIOL 409	Biology of Aging	
BIOL 411	Medical Embryology	
BIOL 412	Ecology of Infectious Diseases	
BIOL 413	Cell Signaling and Regulation	
BIOL 415	Ecotoxicology	
BIOL 416	Biology of Cancer	
BIOL 421	Comparative Anatomy of Vertebrates	
BIOL 424	Seeds of Change: The Uses of Plants	
BIOL 426	Developmental Neurobiology	
BIOL 430	Developmental Biology	
BIOL 431	Reproductive Biology	
BIOL 432	Developmental Genetics	
BIOL 437	Histology	
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms	
BIOL 446	Physiological Ecology	
BIOL 460	Human Genetics	
BIOL 469	Neurobiology	
BIOL 470	Functional and Integrative Neuroscience	
BIOL 478	COMPARATIVE NEUROANATOMY	
BIOL 479	General Endocrinology	
BIOL 482	Coastal Biology	
ANSC 431	Physiology of Animal Reproduction	
	or ANTH 466 The Skull	
	or BMB 484 Functional Genomics	
	or ENT 402W Biology of Animal Parasites	
	or MICRB 40 Microbial Physiology and Structure	
	or MICRB 41 Principles of Immunology	
	or MICRB 41 Medical Microbiology	
	or MICRB 43 Viral Pathogenesis	
	or PSYCH 46 Physiological Psychology	
Evolution Group:		
BIOL 405	Molecular Evolution	
BIOL 406	Symbiosis	
BIOL 411	Medical Embryology	

BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 420	Paleobotany
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 427	Evolution
BIOL 428	Population Genetics
BIOL 429	Animal Behavior
BIOL 432	Developmental Genetics
BIOL 433	Evolution of Vertebrates
BIOL 434	Pathobiology of Emerging Infectious Disease
BIOL 436	Population Ecology and Global Climate Change
BIOL 438	Theoretical Population Ecology
BIOL 439	Practical Bioinformatics
BIOL 443	Evo-devo: Evolution of Developmental Mechanisms
BIOL 446	Physiological Ecology
BIOL 451	Biology of RNA
BIOL 460	Human Genetics
BIOL 463	General Ecology
BIOL 464	Sociobiology
BIOL 474	Astrobiology
BIOL 478	COMPARATIVE NEUROANATOMY
Practicum Group:	
BIOL 400	Teaching in Biology
BIOL 402W	Biological Experimental Design
BIOL 407	Plant Developmental Anatomy
BIOL 414	Taxonomy of Seed Plants
BIOL 417	Invertebrate Zoology
BIOL 419	Ecological and Environmental Problem Solving
BIOL 421	Comparative Anatomy of Vertebrates
BIOL 422	Advanced Genetics
BIOL/PPEM 425	Biology of Fungi
BIOL 433	Evolution of Vertebrates
BIOL 437	Histology
BIOL 439	Practical Bioinformatics
BIOL 444	Field Ecology
BIOL 448	Ecology of Plant Reproduction
BIOL 450W	Experimental Field Biology
BIOL 461	Contemporary Issues in Science and Medicine
BIOL 473	Laboratory in Mammalian Physiology
BIOL 475N	
BIOL 476	Advanced Human Anatomy - cadaver based
BIOL 478	COMPARATIVE NEUROANATOMY
BIOL 482	Coastal Biology
BIOL 494	Research Project
BIOL 495	Internship in Biology
BIOL 496	Independent Studies
BIOL 499A	Tropical Field Ecology
BIOTC 459	Plant Tissue Culture and Biotechnology

SC 295	Science Co-op Work Experience I
SC 395	Science Co-op Work Experience II
SC 495	Science Co-op Work Experience III

Supporting Courses and Related Areas

Select 15-20 credits from department list 15-20

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Outcomes

1. Students will be able to describe how heritable changes can lead to differences in populations over time that might result in speciation; trace energy/matter transformation, storage, and mobilization; explain how information is exchanged and stored; recognize how changes in biological structures can have varying effects on function; and/or describe the interactions and interconnections among systems across biological scales and over evolutionary time scales.
2. Students will be able to apply the elements of the process of science such as posing questions, generating novel hypotheses based on the scientific literature; developing appropriate technical skills for research; designing/conducting experiments to test hypotheses in laboratory and/or field settings; summarizing/interpreting data; integrating/evaluating findings in the broader scientific field to construct new knowledge; and/or participating in the peer review/revision process.
3. Students will be able to discriminate among scientific claims presented in a variety of sources based on the strength of evidence; find appropriate published scientific literature; and/or analyze and critically evaluate data/conclusions from the scientific peer-reviewed literature.
4. Students will be able to apply basic quantitative competencies such as algebra, probability, statistics, unit conversions, and fundamental biological equations; organize, summarize, and interpret quantitative data; use modeling/simulation to approach problems from across various scales; and/or find and analyze large databases using statistical methods and/or other approaches.
5. Students will be able to integrate knowledge among biological subfields and between biology and other disciplines.
6. Students will be able to engage with diverse communities and leverage the skills in the community to pose and solve biological questions; demonstrate the ability to work in teams to solve

biological problems; and/or communicate in a variety of formal and informal ways in the discussion of biological research.

7. Students will explore the impacts of scientific research on society and the environment and how society influences/relies on research to inform decision-making; evaluate the ethical implications of biological research; recognize ethical issues in a variety of settings; and/or describe how different perspectives and the resulting alternative approaches might be evaluated using ethical principles to identify a solution to an issue.
8. Students will be able to communicate in a professional manner and learn/use professional behaviors in all aspects of college and career building activities, including participation in opportunities such as research, internships, cooperative education, teaching and tutoring, study abroad, and/or volunteer work.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Beaver Campus

General Option: Biology, B.S. at Beaver Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110 ^{*#}	4 BIOL 240W ^{*#}	4
CHEM 108 (Recommended)	1 CAS 100A [‡]	3
CHEM 110 ^{*#†}	3 CHEM 112 ^{*†}	3
CHEM 111 [†]	1 CHEM 113 [†]	1
MATH 140 ^{*†#†}	4 MATH 141 [‡]	4
ENGL 15 or 30H [‡]	3 General Education Course (GHW)	1.5
BIOL 1	1	
PSU 8	1	
	18	16.5

Second Year

Fall	Credits Spring	Credits
BIOL 220W ^{*#}	4 BIOL 230W ^{*#}	4
CHEM 210	3 CHEM 212	3
General Education Course	3 CHEM 213	2
General Education Course	3 General Education Course	3
General Education Course (GA/GS/GH)	3 General Education Course	3
	General Education Course (GHW)	1.5
	16	16.5

Third Year

Fall	Credits Spring	Credits
BIOL 4XX (Group I) ¹	3 BIOL 4XX (Group III) ¹	3
BIOL 4XX (Group II) ¹	3 BIOL 4XX (Group IV) ¹	3
PHYS 250 ²	4 ENGL 202C [‡]	3
STAT 200 or 250	3 PHYS 251 ²	4
Elective / Supporting Course	3 Elective / Supporting Course	3
General Education Course	1.5	
	17.5	16

Fourth Year

Fall	Credits Spring	Credits
BIOL 4XX Group V ¹	3 BIOL 4XX	3
BIOL 4XX Group VI ¹	3 BIOL 4XX	3
General Education Course	3 Elective / Supporting Course	3
Elective / Supporting Course	3 Elective / Supporting Course	3

Elective / Supporting Course	3 Elective / Supporting Course	3
	15	15

Total Credits 130.5

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

- ¹ *BIOL course groupings: **Group I** = Plants & fungi; **Group II** = Evolutionary biology; **Group III** = Genetics; **Group IV** = Ecology; **Group V** = Animal physiology; **Group VI** = Practicum
- ² Students in 2+2 biology program are recommended to take PHYS 250 and PHYS 251 in year 2 rather than year 3

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Brandywine Campus

General Option: Biology, B.S. at Brandywine Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110 ^{*#†}	4 BIOL 240W ^{*#†}	4
CHEM 110 ^{*#†}	3 CHEM 112 ^{*†}	3
CHEM 111 [†]	1 CHEM 113 [†]	1
MATH 140B ^{*#†}	4 MATH 141B	4
ENGL 15 or 30H [‡]	3 General Education Course	3
PSU 16	1	
	16	15

Second Year

Fall	Credits Spring	Credits
BIOL 220W ^{*#†}	4 BIOL 230W ^{*#†}	4
CHEM 210	3 CHEM 212	3
CHEM 213	1 CHEM 213	1
CAS 100 [‡]	3 ENGL 202 [‡]	3
General Education Course	3 General Education Course	3
	14	14

Third Year

Fall	Credits Spring	Credits
4XX BIOL	3 4XX BIOL	3
4XX BIOL	3 PHYS 251	4
PHYS 250	4 General Education Course	3
STAT 200	4 Elective	3
General Education Course	3 Elective	3
	17	16

Fourth Year

Fall	Credits Spring	Credits
4XX BIOL	3 4XX BIOL	3
4XX BIOL	3 Elective	2
Elective	3 Elective	3
Elective	3 Elective	3
General Education Course	3 Elective	3
	General Education Course	3
	15	17

Total Credits 124

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

University Requirements and General Education Notes:

Vertebrate Physiology Option: Biology, B.S. at Brandywine Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110*	4 BIOL 240W*	4
CHEM 110*	3 CHEM 112*	3
CHEM 111	1 CHEM 113	1
ENGL 15 or 30H [‡]	3 MATH 141	4
MATH 140B*	4 General Education Course	3
PSU 16	1	
	16	15

Second Year

Fall	Credits Spring	Credits
BIOL 220W*	4 BIOL 230W*	4
CHEM 210	3 CHEM 212	3
CHEM 213	1 CHEM 213	1
CAS 100 [‡]	3 ENGL 202 [‡]	3
General Education Course	3 General Education Course	3
	14	14

Third Year

Fall	Credits Spring	Credits
BMB 401	3 BMB 402	3
4XX BIOL	3 4XX BIOL	3
PHYS 250	4 PHYS 251	4
STAT 200	4 General Education Course	3
General Education Course	3 Elective	3
	17	16

Fourth Year

Fall	Credits Spring	Credits
4XX BIOL	3 BIOL 472	3
4XX BIOL	3 BIOL 473	2
Elective	3 Elective	3
Elective	3 Elective	3
General Education Course	3 Elective	3
	General Education Course	3
	15	17

Total Credits 124

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Lehigh Valley Campus

General Option: Biology, B.S. at Lehigh Valley Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110 ^{*#}	4 BIOL 240W ^{*#}	4
CHEM 110 ^{*#†}	3 CHEM 112 ^{*†}	3
CHEM 111 [†]	1 CHEM 113 [†]	1
ENGL 15S or 30H [†]	3 MATH 140 ^{*†#†}	4
General Education Course/ First-Year Seminar	3 General Education Course	3
	14	15

Second Year

Fall	Credits Spring	Credits
BIOL 220W ^{*#}	4 BIOL 400-Level Selection (consult with an academic adviser for options)	3
BIOL 230W ^{*#}	4 MATH 141 ^{††}	4
CHEM 210	3 CHEM 212	3
CAS 100A [†]	3 CHEM 213	2
General Education Course	3 General Education Course	3
	17	15

Third Year

Fall	Credits Spring	Credits
BIOL 400-Level Selection (consult with an academic adviser for options)	3 BIOL 400-Level Selection (consult with an academic adviser for options)	3
PHYS 250	4 PHYS 251	4
Supporting Course (consult with academic adviser for options)	3 ENGL 202C, 202A, 202B, 202D, or BIOL 403 ^{†1}	3
STAT 200	4 General Education Course	3
Supporting Course (consult with academic adviser for options)	3 Supporting Course (consult with academic adviser for options)	3
	17	16

Fourth Year

Fall	Credits Spring	Credits
BIOL 400-Level Selection (consult with an academic adviser for options)	3 BIOL 400-Level Selection (consult with an academic adviser for options)	3
BIOL 400-Level Selection (consult with an academic adviser for options)	3 Elective-Supporting Course (consult with academic adviser for options)	3
General Education Course	3 General Education Course	3
Supporting Course (consult with academic adviser for options)	3 Supporting Course (consult with academic adviser for options)	3

Supporting Course (consult with academic adviser for options)	3 Supporting Course (consult with academic adviser for options)	3
	15	15

Total Credits 124

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Students can only use BIOL 403 as a Foundations course **or** a 400-level course. The course cannot be used for both.

University Requirements and General Education Notes:

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W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Schuylkill Campus

Ecology Option: Biology, B.S. at Schuylkill Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110 ^{*#†}	4 BIOL 240W ^{*#†}	4
CHEM 110 ^{*#†}	3 CHEM 112 ^{*†}	3
CHEM 111 [†]	1 CHEM 113 [†]	1
ENGL 15, 30H, or ESL 15 [†]	3 MATH 141B [†]	4
MATH 140B ^{*†#1}	4 General Education Course	3
PSU 16	1 General Education Course	1.5
	16	16.5

Second Year

Fall	Credits Spring	Credits
BIOL 220W ^{*#†}	4 General Education Course	3
BIOL 230W ^{*#†}	4 BIOL 463	3
STAT 200 [†]	4 CAS 100A [†]	3
General Education Course	3 General Education Course	3
General Education Course	1.5 Elective-supporting course (consult with academic adviser for options)	3
	16.5	15

Third Year

Fall	Credits Spring	Credits
BIOL 4XX (consult with academic adviser for options)	3 BIOL 4XX (consult with academic adviser for options)	3
STAT 462 or 464	3 ENGL 202C [†]	3
CHEM 210	3 CHEM 212	3
General Education Course	3 CHEM 213	2
Elective- supporting course (consult with academic adviser for options)	3 Elective- supporting course (consult with academic adviser for options)	3
	15	14

Fourth Year

Fall	Credits Spring	Credits
BIOL 4XX (consult with academic adviser for options)	3 BIOL 4XX (consult with academic adviser for options)	3
Elective - supporting course (consult with academic adviser for options)	4 Elective - supporting course (consult with academic adviser for options)	4
General Education Course	3 General Education Course	3
PHYS 250 [†]	4 PHYS 251 [†]	4

BIOL 4XX (consult with academic adviser for options) 3

17

14

Total Credits 124

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ If ALEKS placement is not for MATH 140, then a student may need to start with a pre-requisite MATH course (MATH 21, MATH 22, MATH 26)

University Requirements and General Education Notes:

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W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

General Option: Biology, B.S. at Schuylkill Campus

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First Year

Fall	Credits Spring	Credits
BIOL 110 ^{*#}	4 BIOL 240W ^{*#}	4
CHEM 110 ^{*#}	3 CAS 100A [†]	3
CHEM 111	1 CHEM 112 [*]	3
ENGL 15 or 30H [‡]	3 CHEM 113	1
MATH 140 or 140B ^{*#1}	4 MATH 141 or 141B	4
PSU 16	1 General Education Course (GHW)	1.5
	16	16.5

Second Year

Fall	Credits Spring	Credits
BIOL 220W ^{*#}	4 BIOL 4xx (consult with an Academic Adviser for options)	3
BIOL 230W ^{*#}	4 ENGL 202C [‡]	3
General Education Course (GHW)	1.5 STAT 200	4
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
	15.5	16

Third Year

Fall	Credits Spring	Credits
CHEM 210	3 CHEM 212	3
BIOL 4XX (consult with academic adviser for options)	3 CHEM 213	2
BIOL 4XX (consult with academic adviser for options)	3 Elective-supporting Course (consult with academic adviser for options)	3
General Education Course	3 Elective-supporting Course (consult with academic adviser for options)	3
Elective-supporting Course (consult with academic adviser for options)	3 General Education Course	3
	15	14

Fourth Year

Fall	Credits Spring	Credits
PHYS 250	4 PHYS 251	4
BIOL 4XX (consult with academic adviser for options)	3 BIOL 4XX (consult with academic adviser for options)	3
BIOL 4XX (consult with academic adviser for options)	3 Elective-supporting Course (consult with academic adviser for options)	3

Elective-supporting Course (consult with academic adviser for options)	3 Elective-supporting Course (consult with academic adviser for options)	3
Elective-supporting Course (consult with academic adviser for options)	3 Elective-supporting Course (consult with academic adviser for options)	3
	16	16

Total Credits 125

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ If placement is not for MATH 140, then review math courses will be needed (MATH 21, MATH 22, & MATH 26).

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Integrative Studies (either Inter-domain or Linked Courses):

Integrative Studies may be completed within the 30 Knowledge Domain credits and must be completed with either Inter-domain or Linked courses, not a combination of both. For Inter-domain courses, credit may apply to both Knowledge Domain designations but does not reduce the total number of credits within the Knowledge Domains and at least 3 credits of single-domain coursework are required in each of the 5 Knowledge Domains. Linked courses used for the Integrative Studies requirement must represent two different Knowledge Domains.

Genetics and Developmental Biology Option: Biology, B.S. at Schuylkill Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110 ^{*#†}	4 BIOL 240W ^{*#†}	4
CHEM 110 ^{*#†}	3 CHEM 112 ^{*†}	3
CHEM 111 [†]	1 CHEM 113 [†]	1
ENGL 15, 30H, or ESL 15 [‡]	3 MATH 141B [‡]	4
MATH 140B ^{*†#1}	4 General Education Course	3
PSU 16	1 General Education Course	1.5
	16	16.5

Second Year

Fall	Credits Spring	Credits
BIOL 220W ^{*#†}	4 BIOL 322	3
BIOL 230W ^{*#†}	4 General Education Course	3
CHEM 210	3 CAS 100A [‡]	3
General Education Course	3 CHEM 212	3
General Education Course	1.5 CHEM 213	2
	15.5	14

Third Year

Fall	Credits Spring	Credits
BMB 401	3 BMB 402	3
STAT 200 [†]	4 ENGL 202C [‡]	3
Elective-supporting course (consult with academic adviser for options)	3 BMB 400	3
General Education Course	3 MICRB 201 & MICRB 202	5
General Education Course	3 Elective - supporting course (consult with academic adviser for options)	3
	16	17

Fourth Year

Fall	Credits Spring	Credits
BIOL 460H	4 BIOL 4XX (consult with academic adviser for options)	3
BIOL 4XX (consult with academic adviser for options)	3 Elective - supporting course (consult with academic adviser for options)	3
General Education Course	3 General Education Course	3
PHYS 250 [†]	4 PHYS 251 [†]	4
	BIOL 430	3
	14	16

Total Credits 125

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ If ALEKS placement is not for MATH 140, then a student may need to start with a pre-requisite MATH course (MATH 21, MATH 22, MATH 26)

University Requirements and General Education Notes:

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W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Vertebrate Physiology Option: Biology, B.S. at Schuylkill Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110 ^{**†}	4 BIOL 240W ^{**†}	4
CHEM 110 ^{**†}	3 CHEM 112 ^{**†}	3
CHEM 111 [†]	1 CHEM 113 [†]	1
ENGL 15, 30H, or ESL 15 [†]	3 MATH 141B [†]	4
MATH 140B ^{*†#1}	4 General Education Course	3
PSU 16	1 General Education Course	1.5
	16	16.5

Second Year

Fall	Credits Spring	Credits
BIOL 220W ^{**†}	4 STAT 200 [†]	4
BIOL 230W ^{**†}	4 General Education Course	3
CHEM 210	3 CAS 100A [†]	3
General Education Course	3 CHEM 212	3
General Education Course	1.5 CHEM 213	2
	15.5	15

Third Year

Fall	Credits Spring	Credits
BMB 401	3 BMB 402	3
BIOL 4XX (consult with academic adviser for options)	3 ENGL 202C [†]	3
Elective - supporting course (consult with academic adviser for options)	3 BIOL 4XX (consult with academic adviser for options)	3
General Education Course	3 General Education Course	3
General Education Course	3 Elective - supporting course (consult with academic adviser for options)	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
BIOL 472	3 BIOL 4XX (consult with academic adviser for options)	3
BIOL 473	2 Elective - supporting course (consult with academic adviser for options)	3
BIOL 4XX (consult with academic adviser for options)	3 Elective - supporting course (consult with academic adviser for options)	3
PHYS 250 [†]	4 PHYS 251 [†]	4

Elective - supporting course (consult with academic adviser for options)	3 Elective - supporting course (consult with academic adviser for options)	2
	15	15

Total Credits 123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ If ALEKS placement is not for MATH 140, then a student may need to start with a pre-requisite MATH course (MATH 21, MATH 22, MATH 26)

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Scranton Campus

General Option: Biology, B.S. at Scranton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110 ^{*#}	4 BIOL 230W or 240W ^{*#}	4
CHEM 110 ^{*#†}	3 CHEM 112 ^{*†}	3
CHEM 111 [†]	1 CHEM 113 [†]	1
ENGL 15 or 30H [‡]	3 CAS 100A [‡]	3
MATH 140 or 140B ^{*†#†}	4 MATH 141 or 141B ^{††}	4
PSU 8	1 General Education Course (GHW)	1.5
	16	16.5

Second Year

Fall	Credits Spring	Credits
BIOL 220W ^{*#}	4 BIOL 230W or 240W ^{*#}	4
PHYS 250 [†]	4 PHYS 251	4
CHEM 210	3 CHEM 212 & CHEM 213	5
General Education Course	3 STAT 200	4
General Education Course	3	
	17	17

Third Year

Fall	Credits Spring	Credits
BIOL 4XX ¹	3 BIOL 4XX ¹	3
Elective Supporting Course	3 General Education Course	3
General Education Course	3 General Education Course	3
Elective Supporting Course	3 Elective Supporting Course	3
Elective Supporting Course	3 Elective Supporting Course	3
General Education Course (GHW)	1.5	
	16.5	15

Fourth Year

Fall	Credits Spring	Credits
ENGL 202C [‡]	3 BIOL 4XX ¹	3
BIOL 4XX ¹	3 BIOL 4XX ¹	3
BIOL 4XX ¹	3 Elective Supporting Course	3
Elective Supporting Course	3 Elective Supporting Course	3
General Education Course	3 Elective Supporting Course	3
	15	15

Total Credits 128

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Students must take a minimum of 18 credits of 400-level biology courses with at least 3 credits from each of the following groups (each course may be used to satisfy a requirement in only one group) (sem: 5-8):

- Group I (Plants and Fungi);
- Group II Evolutionary Biology;
- Group III (Genetics and Development);
- Group IV (Ecology);
- Group V (Animal Physiology);
- Group VI (Practicum).

Courses offered to complete these major requirements may be offered on a rotating basis. Consult with an academic adviser in addition to reviewing What-if Report (for pre-majors) or Academic Requirements (for those currently in the major) for course options

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Major Requirements Notes:

- Students may take PHYS 211, PHYS 212, PHYS 213, & PHYS 214 in place of PHYS 250 & PHYS 251. See adviser.
- BIOL 220W is only offered in the fall semesters.

York Campus

General Biology Option: Biology, B.S. at York Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110*	4 BIOL 220W*	4
CHEM 110*	3 CHEM 112*	3
CHEM 111	1 CHEM 113	1
ENGL 15 or 30H [‡]	3 General Education Course	3
General Education Course (GHW)	1.5 MATH 140B*	4
12.5		15

Second Year

Fall	Credits Spring	Credits
BIOL 230W*	4 BIOL 240W*	4
MICRB 201 (or Elective)	3 BIOL 322	3
CHEM 210	3 CHEM 212	3
CAS 100 [‡]	3 CHEM 213	2
MATH 141B*	4 PHYS 250 or 211	4
17		16

Third Year

Fall	Credits Spring	Credits
BIOL 4XX Group I	3 PHYS 213 & PHYS 214 (or Elective)	3-4
ENGL 202C [‡]	3 STAT 200 or 250	3-4
Elective	3 BIOL 4XX Group II	3
PHYS 251 or 212*	4 General Education Course	3
General Education Course	3 Elective	3
16		15-17

Fourth Year

Fall	Credits Spring	Credits
BIOL 4XX Group III	3 BIOL 4XX Group V	3
BIOL 4XX Group IV	3 BIOL 4XX Group VI	3
General Education Course	3 General Education Course	3
Elective	6 General Education Course	3
General Education Course (GHW)	1.5 Elective	3
16.5		15

Total Credits 123-125

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

University Requirements and General Education Notes:

Advising Notes:

- The above academic plan is a suggestion only and may not reflect the course offerings available each semester. Students should work closely with their academic adviser to plan coursework, as course offerings each semester are subject to change.

Genetics and Developmental Biology Option: Biology, B.S. at York Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110*	4 BIOL 220W*	4
CHEM 110*	3 CHEM 112*	3
CHEM 111	1 CHEM 113	1
ENGL 15 or 30H [‡]	3 General Education Course	3
General Education Course (GWH)	1.5 MATH 140B*	4
	12.5	15

Second Year

Fall	Credits Spring	Credits
BIOL 230W*	4 BIOL 240W*	4
MICRB 201	3 BIOL 322	3
CHEM 210	3 CHEM 212	3
CAS 100 [‡]	3 CHEM 213	2
MATH 141B	4 PHYS 250 or 211	4
	17	16

Third Year

Fall	Credits Spring	Credits
BIOL 430	3 STAT 200 or 250	3-4
ENGL 202C [‡]	3 PHYS 213 & PHYS 214 (or Elective)	3-4
BMB 401	3 BMB 402	3
PHYS 251 or 212	4 Elective	3
General Education Course	3 General Education Course	3
	16	15-17

Fourth Year

Fall	Credits Spring	Credits
BIOL 4XX Group I	3 BIOL 4XX Group I	3
BIOL 4XX Group II	3 BIOL 4XX Group III	3
Elective	6 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5 Elective	3
	16.5	15

Total Credits 123-125

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Advising Notes:

- The above academic plan is a suggestion only and may not reflect the course offerings available each semester. Students should work closely with their academic adviser to plan coursework, as course offerings each semester are subject to change.

General Biology Option, 2+2 Plan: Biology, B.S. at York Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110*	4 BIOL 240W*	4
CHEM 110*	3 CHEM 112*	3
CHEM 111	1 CHEM 113	1
ENGL 15 or 30H [‡]	3 PHYS 250 or 211	4
MATH 140*	4 MATH 141	4
General Education Course (GHW)	1.5	
	16.5	16

Second Year

Fall	Credits Spring	Credits
BIOL 230W*	4 BIOL 220W*	4
MICRB 201 (or Biology Option)	3 PHYS 213 (or Elective)	2
PHYS 251 or 212	4 PHYS 214 (or Elective)	2
CHEM 210	3 CHEM 212	3
CAS 100 [‡]	3 CHEM 213 (or General Education Course)	2-3
	Biology Option	3
	17	16-17

Third Year

Fall	Credits Spring	Credits
ENGL 202C [‡]	3 Biology Option	3
CHEM 213 (or General Education Course)	2-3 STAT 200 or 250	3-4
BIOL 4XX Group I	3 Elective	3
BIOL Option	3 BIOL 4XX Group II	3
General Education Course	3 General Education Course	3
	14-15	15-16

Fourth Year

Fall	Credits Spring	Credits
BIOL 4 XX Group III	3 BIOL 4XX Group V	3
BIOL 4XX Group IV	3 BIOL 4 XX Group VI	3
General Education Course	3 Elective	3
Biology Option	6 General Education Course	6

General Education Course (GHW) 1.5

16.5

15

Total Credits 126-129

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Genetics and Developmental Biology Option, 2+2 Plan: Biology, B.S. at York Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110*	4 BIOL 240W*	4
CHEM 110*	3 CHEM 112*	3
CHEM 111	1 CHEM 113	1
ENGL 15 or 30H [‡]	3 PHYS 250 or 211	4
MATH 140*	4 MATH 141	4
General Education Course (GWH)	1.5	
16.5		16

Second Year

Fall	Credits Spring	Credits
BIOL 230W*	4 BIOL 220W*	4
MICRB 201 (or Biology Option)	3 PHYS 213 (or Elective)	2
PHYS 251 or 212	4 PHYS 214 (or Elective)	2
CHEM 210	3 CHEM 212	3
CAS 100 [‡]	3 CHEM 213	2
General Education Course	3 BIOL 322	3
20		16

Third Year

Fall	Credits Spring	Credits
ENGL 202C [‡]	3 Biology Option	3
BMB 401	3 STAT 200 (or STAT 250)	4
CHEM 213 (or General Education Course)	2-3 BMB 402	3
Biology Option	3 BIOL 4 XX Group I	3
General Education Course	3 General Education Course	3
14-15		16

Fourth Year

Fall	Credits Spring	Credits
BIOL 430	3 BIOL 4 XX Group II	3
BIOL 4 XX Group I	3 BIOL 4 XX Group III	3
Biology Option	6 General Education Course	6
General Education Course	3 Electives	6
General Education Course (GHW)	1.5	
16.5		18

Total Credits 133-134

- * Course requires a grade of C or better for the major
[‡] Course requires a grade of C or better for General Education
[#] Course is an Entrance to Major requirement
[†] Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

A Biology BS degree provides an excellent foundation and the skills required for a wide range of technical careers. While many majors use a Biology degree to prepare for entrance into health professional schools, others follow career paths in research, education, and business. Students also pursue graduate study at universities both across the U.S. and internationally.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE BIOLOGY PROGRAM (<https://science.psu.edu/bio/undergrad/after-graduation/>)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://science.psu.edu/bio/grad/>)

Contact**Beaver**

100 University Drive
 Monaca, PA 15061
 724-773-3562
 smc1088@psu.edu

<https://beaver.psu.edu/academics/majors/biology> (<https://beaver.psu.edu/academics/majors/biology/>)

Brandywine

ACADEMIC AFFAIRS
 25 Yearsley Mill Rd
 Media, PA 19063
 610-892-1459
 ead9@psu.edu

<https://www.brandywine.psu.edu/academics/bachelors-degrees/biology> (<https://www.brandywine.psu.edu/academics/bachelors-degrees/biology/>)

Lehigh Valley

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 2809 Saucon Valley Road
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 610-285-5000
 bet12@psu.edu

<https://lehighvalley.psu.edu/biology-bs> (<https://lehighvalley.psu.edu/biology-bs/>)

Schuylkill

ACADEMIC AFFAIRS
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ljs43@psu.edu

<https://schuylkill.psu.edu/academics/bacc-degrees/biology> (<https://schuylkill.psu.edu/academics/bacc-degrees/biology/>)

Scranton

Dawson Building 212A
Dunmore, PA 18512
570-963-2528
mlv18@psu.edu (axk55@psu.edu)

<https://scranton.psu.edu/academics/degrees/bachelors/biology-degree>
(<https://scranton.psu.edu/academics/degrees/bachelors/biology-degree/>)

York

1 Elias Science Building
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717-718-6705
amv12@psu.edu

<https://www.york.psu.edu/academics/baccalaureate/biology> (<https://www.york.psu.edu/academics/baccalaureate/biology/>)

Abington

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ldm12@psu.edu

<https://www.abington.psu.edu/academics/majors-at-abington/biology>
(<https://www.abington.psu.edu/academics/majors-at-abington/biology/>)

Altoona

DIVISION OF MATHEMATICS AND NATURAL SCIENCES
3000 Ivyside Park
Altoona, PA 16601
814-940-3313
cub21@psu.edu

<https://altoona.psu.edu/academics/bachelors-degrees/biology> (<https://altoona.psu.edu/academics/bachelors-degrees/biology/>)

Berks

DIVISION OF SCIENCE
Luerssen Science Building
Reading, PA 19610
610-396-6328
BKbiology@psu.edu

<https://berks.psu.edu/academics/bs-biology> (<https://berks.psu.edu/academics/bs-biology/>)

Harrisburg

SCHOOL OF SCIENCE, ENGINEERING, AND TECHNOLOGY
Science & Tech Building, TL 177
Middletown, PA 17057
717-948-4387

mrr53@psu.edu

<https://harrisburg.psu.edu/science-engineering-technology/biology-bs>
(<https://harrisburg.psu.edu/science-engineering-technology/biology-bs/>)

University Park

DEPARTMENT OF BIOLOGY
228 Ritenour Building
University Park, PA 16802
814-865-2329
bioadvising@psu.edu

<https://science.psu.edu/bio/contact-us> (<https://science.psu.edu/bio/contact-us/>)

Business Administration, A.S. (University College)

Begin Campus: Brandywine, DuBois, Fayette, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Shenango, Schuylkill, Wilkes-Barre, World Campus, Scranton, York

End Campus: Brandywine, DuBois, Fayette, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Schuylkill, Scranton, Shenango, Wilkes-Barre, World Campus, York

Program Description

The associate degree program in Business Administration provides an introductory foundation to core aspects of the business environment that prepares graduates for future baccalaureate study in business or for direct entry into the work place. The primary objective of this major is to provide a business-oriented program with sufficient communicative and mathematical skills, socially relevant course work, and specific business specialties to develop a well-rounded and knowledgeable graduate.

Students should work closely with academic advisers to schedule coursework required to transition to baccalaureate business programs.

What is Business Administration?

To be successful in today's increasingly complex business world, you need to have a broad understanding of how business works. The Penn State Associate degree in Business Administration prepares students for a professional career in today's business environment. The degree offers students a managerially-oriented program emphasizing communication and mathematical skills, socially relevant course work, and advanced courses in business. While Penn State's Associate in Science in Business Administration is an excellent stand-alone credential, it can be used to seamlessly transition to a bachelor's degree such as the Bachelor of Science in Business or other business-related programs at the University.

You Might Like This Program If...

- You want to learn to use the latest technical business tools to perform your job duties effectively.
- You analyze and react to issues facing companies today.
- You collect and analyze data to make inferences and solve business problems.
- You need to execute effective communication strategies.

Entrance to Major

Students must have a minimum 2.0 GPA to change to this Associate degree after admission to the University.

Degree Requirements

For the Associate in Science degree in Business Administration, a minimum of 60 credits is required:

Requirement	Credits
General Education	21
Requirements for the Major	48-50

9 of the 21 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GQ General Education courses and 6 credits of GWS General Education courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
CAS 100	Effective Speech	3
MIS 204	Introduction to Management Information Systems	3
<i>Prescribed Courses: Require a grade of C or better</i>		
ENGL 202D	Effective Writing: Business Writing	3
Additional Courses		
BA 241 & BA 242 or BA 243	Legal Environment of Business and Social and Ethical Environment of Business Social, Legal, and Ethical Environment of Business	4
ECON 102 or ECON 104	Introductory Microeconomic Analysis and Policy Introductory Macroeconomic Analysis and Policy	3
SCM 200 or STAT 200	Introduction to Statistics for Business Elementary Statistics	4
Select one of the following:		3-4
MATH 21	College Algebra with Analytic Geometry with Applications I	
MATH 22	College Algebra With Analytic Geometry and Applications II	
MATH 110	Techniques of Calculus I	
<i>Additional Courses: Require a grade of C or better</i>		
ENGL 15 or ENGL 30H	Rhetoric and Composition Honors Rhetoric and Composition	3
MGMT 301 or MGMT 301W	Basic Management Concepts Basic Management Concepts	3
MKTG 301 or MKTG 301W	Principles of Marketing Principles of Marketing	3
Supporting Courses and Related Areas		
Select 12-13 credits of the following:		12-13
BA 100	Introduction to Business	

BA 250	Small Business Management
BA 364Y	International Business and Society
CAS 250 or CAS 252	Small Group Communication Business and Professional Communication
CAS 352	Organizational Communication
IB 303	International Business Operations
MATH 22	College Algebra With Analytic Geometry and Applications II
MATH 110	Techniques of Calculus I
ACCTG 300 to ACCTG 399	
ECON 100 to ECON 399	
ENTR 100 to ENTR 399	
FIN 100 to FIN 399	
HPA 100 to HPA 399	
LER 100 to LER 399	
MGMT 100 to MGMT 399	
MKTG 100 to MKTG 399	
MIS 100 to MIS 399	
RM 100 to RM 399	
SCM 200 to SCM 399	

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all associate degree students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 3 credits
- **Writing and Speaking (GWS):** 3 credits

Knowledge Domains

- **Arts (GA):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Note: Up to six credits of Inter-Domain courses may be used for any Knowledge Domain requirement, but when a course may be used to satisfy more than one requirement, the credits from the course can be counted only once.

Exploration

- **Any General Education course (including GHW and Inter-Domain):** 3 credits

University Degree Requirements

Cultures Requirement

3 credits of United States (US) or International (IL) cultures coursework are required and may satisfy other requirements

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 60 degree credits must be earned for an associates degree. The requirements for some programs may exceed 60 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

DuBois Campus

- **Communication:** Demonstrate the necessary skills and abilities to effectively communicate.
- **Compare/Contrast Local/Global Economy:** Compare, contrast and differentiate the business environment of both their local community and the globalized world economy.
- **Ethics:** Demonstrate an awareness of ethical issues, social responsibilities and conflict resolution.
- **Fundamental Concepts:** Explain, utilize and apply fundamental business concepts, principles and contemporary business practices.
- **Leadership and Teamwork:** Apply leadership, team building, and project management skills.
- **Problem-Solving:** Recognize, analyze and solve business problems using quantitative and qualitative measures.
- **Technology Tools:** Apply contemporary tools of information technology to include business software applications.

Greater Allegheny Campus

- **Business Applications:** Students will utilize and apply fundamental business concepts, principles and contemporary business practices.
- **Ethics:** Students will demonstrate an awareness of ethical issues, social responsibilities and conflict resolution.

Hazleton Campus

- **Business Applications:** Students will utilize and apply fundamental business concepts, principles and contemporary business practices.
- **Business Environment:** Students will compare, contrast and differentiate the business environment of both the local community and the globalized world economy.
- **Communication:** Students will demonstrate the necessary skills and abilities to effectively communicate.

- **Ethics:** Students will demonstrate an awareness of ethical issues, social responsibilities and conflict resolution.
- **IT Tools:** Students will apply contemporary tools of information technology to include business software applications.
- **Leadership, Team Building, and Project Management:** Students will apply leadership, team building, and project management skills.
- **Quantitative and Qualitative Measures:** Students will recognize, analyze and solve business problems using quantitative and qualitative measures.

Brandywine, Lehigh Valley, Scranton, and York Campuses

- **Data Analysis and Problem Solving:** Recognize, analyze and solve business problems using quantitative and qualitative measures.
- **Effective Communication:** Demonstrate the necessary skills and abilities to effectively communicate.
- **Ethical Awareness:** Demonstrate an awareness of ethical issues, social responsibilities and conflict resolution.
- **Global and Diverse Perspectives:** Compare, contrast and differentiate the business environment of both their local community and the globalized world economy.
- **Leadership and Teamwork:** Apply leadership, team building, and project management skills.
- **Use Management Theory/Practice:** Utilize and apply fundamental business concepts, principles and contemporary business practices.
- **Use Technology:** Apply contemporary tools of information technology to include business software applications.

Fayette and Mont Alto Campuses

- **Communication Skills:** Demonstrate the necessary skills and abilities to effectively communicate
- **Technology Tools:** Apply contemporary tools of information technology to include business software applications.
- **Ethics:** Demonstrate an awareness of ethical issues, social responsibilities and conflict resolution.
- **Fundamental Concepts:** Explain fundamental business concepts, principles and contemporary business practices.
- **Problem Solving:** Recognize and solve business problems using quantitative and qualitative measures.

New Kensington Campus

- **Application of Standards:** Applying the same standards throughout the reporting process, from one period to the next, to ensure financial comparability between periods.
- **Communication during the accounting process:** Students engage in listening, talking straight, persuasion, critical thinking and problem solving, and time management during the accounting period.
- **Data Analysis and Problem Solving:** Recognize, analyze and solve business problems using quantitative and qualitative measures.
- **Ethical Awareness:** Demonstrate an awareness of ethical issues, social responsibilities and conflict resolution.
- **Professional Standards:** Students awareness of professional standards in the accounting field.
- **Study of the Finance and Accounting Industry:** Current events that relate to the finance and accounting industry.

Schuylkill Campus

- **Data Analysis and Problem Solving:** Recognize and solve business problems using quantitative and qualitative measures.
- **Effective Communication:** Demonstrate the necessary skills and abilities to communicate effectively.
- **Ethical Awareness:** Demonstrate an awareness of ethical issues, social responsibilities and conflict resolution.
- **Technology Usage:** Apply contemporary tools of information technology to include business software applications.
- **Use Management Theory/Practice:** Explain fundamental business concepts, principles and contemporary business practices.

Shenango Campus

- **Communication:** Demonstrate the necessary skills and abilities to effectively communicate.
- **Fundamental Concepts:** Explain fundamental business concepts, principles and contemporary business practices.
- **Problem-Solving:** Recognize and solve business problems using quantitative and qualitative measures.
- **Technology Tools:** Apply contemporary tools of information technology to include business software applications.
- **Utilize and apply fundamental business concepts, principles, and contemporary business practices:** Graduates of the BSB program have the technology based analytical skills, critical thinking & problem solving skills, mathematical, and analytical business' strategy skills sought by today's employers.

Wilkes-Barre Campus

- **Data Analysis and Problem Solving:** Recognize, analyze and solve business problems using quantitative and qualitative measures.
- **Ethical Awareness:** Demonstrate an awareness of ethical issues, social responsibilities and conflict resolution.
- **Global and Diverse Perspectives:** Compare, contrast, and differentiate the business environment of both their local community and the global world economy
- **Leadership and Teamwork:** Apply leadership, team building, and project management skills
- **Use Management Theory/Practice:** Explain fundamental business concepts, principles and contemporary business practices.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Brandywine

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Business Administration, A.S. at Brandywine Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H ^{*†}	3 CAS 100A [‡]	3
MATH 21 [‡]	3 ECON 102 or 104	3
MIS 204	3 BA 243	4
General Education Course	3 General Education Course	3
General Education Course	3 Option Selection	3
	15	16

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 ENGL 202D ^{*‡}	3
MGMT 301W [*]	3 STAT 200 or SCM 200	4
MKTG 301 [*]	3 Option Selection	3
General Education Course	3 Option Selection	3
Option Selection	3	
	16	13

Total Credits 60

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ Consultation with adviser is recommended to select the proper course placement

² If a student's plan is to move into the Bachelor of Science in Business degree program, a minimum of MATH 22 is required for entrance to major. If a student's placement is MATH 21 or 22, courses can be used for Business Supporting Courses in the Associate of Science degree plan.

Business Administration, A.S. at DuBois Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15*	3 ECON 104 (GS) [†]	3
MATH 21	3 MIS 204*	3
BA 100S	3 STAT 200	4
General Education Course (GH)	3 CAS 100A [‡]	3
General Education Course (GS)	3 General Education Course (GN)	3
	15	16

Second Year

Fall	Credits Spring	Credits
MKTG 301*	3 Business Elective ¹	3
Business Elective ¹	3 ENGL 202D ^{*‡}	3
Business Elective ¹	3 BA 242*	2
BA 241 (Business Elective)*	2 MGMT 301W*	3
ACCTG 211	4 General Education Course (GA)	3
	15	14

Total Credits 60

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ See adviser for available Business elective courses.

Program Notes:

Classes Available for Business Electives:

Select 12-13 credits from: BA 100(3); BA 250(3); BA 321, BA 322, BA 364(3); CAS 250(3) or CAS 252(3); CAS 352(3); MATH 22 GQ(3); MATH 110 GQ(4); ACCTG 300 to 399(3); ECON 100 to ECON 399(3); ENTR 100 to 399(3); FIN 100 to 399(3); HPA 100 to 399(3); IB 303 IL(3); LER 100 to 399(3); MGMT 100 to 399(3); 399(3) MKTG 100 to 399(3); MIS 100 to 399(3); RM 100 to 399(3); or SCM 200 to 399(3) (Sem: 1-4)

One class in the curriculum must contain a US (US culture) or an IL (International Competency).

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Business Administration, A.S. at Fayette Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [‡]	3 ACCTG 211	4
MIS 204	3 ECON 102 or 104	3
MATH 21	3 CAS 100 [‡]	3
General Education course	6 General Education course	3
	Option Selection	3
	15	16

Second Year

Fall	Credits Spring	Credits
BA 243	4 ENGL 202D [‡]	3
MGMT 301 [*]	3 MKTG 301W [*]	3
SCM 200 or STAT 200 [*]	4 Option Selection	9
Option Selection	3	
	14	15

Total Credits 60

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Business Administration, A.S. at Greater Allegheny Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or ESL 15 ^{‡†}	3 BA 241	2
MATH 21, 22, or 110 [†]	3-4 BA 242	2
General Education Course	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C [†]	3
ECON 102 or 104	3 General Education Course	3
	ACCTG 211	4
	Business Supporting Course	3-4
	12-13	17-18

Second Year

Fall	Credits Spring	Credits
STAT 200 ^{‡†}	4 ENGL 202D [*]	3
MKTG 301 [*]	3 General Education Course	3
Business Supporting Course	3-4 General Education Course	3
Business Supporting Course	3 Business Supporting Course	3
MGMT 301 [*]	3 MIS 204	3
	16-17	15

Total Credits 60-63

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ Consultation with adviser is recommended to select the proper course placement

² If a student's plan is to move into the Bachelor of Science in Business degree program, a minimum of MATH 22 is required for entrance to major. If a student's placement is MATH 21 or 22, courses can be used for Business Supporting Courses in the Associate of Science degree plan.

Business Administration, A.S. at Hazleton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [‡]	3 ECON 102 or 104	3
MIS 204	3 BA 243 or 241 and 242	4
MATH 21	3 CAS 100 [‡]	3
General Education course	6 General Education course	3
	Option Selection	3
	15	16

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 ENGL 202D [‡]	3
MGMT 301 [*]	3 MKTG 301W (or Option Selection)	3
STAT 200	4 Option Selection	9
General Education course	3	
	14	15

Total Credits 60

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ Consultation with adviser is recommended to select the proper course placement

² If a student's plan is to move into the Bachelor of Science in Business degree program, a minimum of MATH 22 is required for entrance to major. If a student's placement is MATH 21 or 22, courses can be used for Business Supporting Courses in the Associate of Science degree plan.

Business Administration, A.S. at Lehigh Valley Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [‡]	3 BA 243	4
MIS 204	3 ECON 102 or 104	3
MATH 21	3 CAS 100 [‡]	3
General Education course	6 General Education course	3
	Option Selection	3
	15	16

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 ENGL 202D [‡]	3
MGMT 301 [*]	3 MKTG 301W (or Option Selection)	3
SCM 200 or STAT 200	4 Option Selection	9
General Education course	3	
	14	15

Total Credits 60

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Business Administration, A.S. at Mont Alto Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [†]	3 BA 243	4
MIS 204	3 ECON 102 or 104	3
MATH 21	3 CAS 100A [‡]	3
General Education course	6 General Education course	3
	Option Selection	3
	15	16

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 ENGL 202D [‡]	3
MKTG 301W (or Option Selection)	3 MGMT 301 [*]	3
SCM 200 or STAT 200	4 Option Selection	9
General Education course	3	
	14	15

Total Credits 60

¹ Consultation with adviser is recommended to select the proper course placement

² If a student's plan is to move into the Bachelor of Science in Business degree program, a minimum of MATH 22 is required for entrance to major. If a student's placement is MATH 21 or 22, courses can be used for Business Supporting Courses in the Associate of Science degree plan.

Advising Notes:

- Students must complete a 3-credit course in "United States Cultures (US)" and a 3-credit course in "International Cultures (IL).
- As long as one Arts (GA), one Humanities (GH), one Natural Sciences (GN) and one Arts (GA) courses are taken across the four semesters, the particular order in which these courses are taken is not relevant. The course series listed above is only one of many possible ways to move through the 2BAUC_AS curriculum.
- Select 12-13 credits from: Supporting courses for the General Business Option: Supporting and Related Areas (12-13 credits) BA 100(3); BA 250(3); BA 364Y(3); CAS 250(3) or CAS 252(3); CAS 352(3); MATH 22 GQ(3); MATH 110 GQ(4); ACCTG 300 to 399(3); ECON 100 to ECON 399(3); ENTR 100 to 399(3); FIN 100 to 399(3); HPA 100 to 399(3); IB 303 IL(3); LER 100 to 399(3); MGMT 100 to 399(3); MKTG 100 to 399(3); MIS 100 to 399(3); RM 100 to 399(3); or SCM 200 to 399(3) (Sem: 1-4)
- Successful completion of MATH 22 or higher (e.g. MATH 40, 41, 110, 140) is required for anyone seeking entrance to the Bachelor of Science in Business program (BSBUC_BS).
- **Important note:** A student's career/graduate school plans should be considered in developing an individual academic plan. Be sure to

consult an Academic Adviser in this department when scheduling courses.

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Business Administration, A.S. at New Kensington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [‡]	3 BA 243	4
MIS 204	3 ECON 102 or 104	3
MATH 21	3 CAS 100A, 100B, or 100C [‡]	3
General Education course	6 General Education course	3
	Option Selection	3
	15	16

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 ENGL 202D [‡]	3
MGMT 301 [*]	3 MKTG 301W (or Option Selection) [*]	3
SCM 200 or STAT 200	4 Option Selection	9
General Education course	3	
	14	15

Total Credits 60

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Business Administration, A.S. at Schuylkill Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [‡]	3 CAS 100 [‡]	3
ECON 102 or 104	3 STAT 200	4
MATH 21	3 General Education Course (GA, GH, GN, GS)	3
General Education Course (GA, GH, GN, GS)	3 General Education course	3
General Education Course (GA, GH, GN, GS)	3 Option Selection	3
	15	16

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 ENGL 202D [‡]	3
MGMT 301 [*]	3 MKTG 301W (or Option Selection)	3
MIS 204	3 Option Selection	3
SCM 200 or BA 243	4 Option Selection	3
	Option Selection	3
	14	15

Total Credits 60

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Business Administration, A.S. at Scranton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [‡]	3 BA 243 (US)	4
MIS 204	3 ECON 102 or 104	3
MATH 21	3 CAS 100A [‡]	3
General Education course	6 General Education course	3
	Supporting Course/Related Area	3
	15	16

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 ENGL 202D [‡]	3
MGMT 301 or 301W [*]	3 MKTG 301 or 301W [*]	3
SCM 200 or STAT 200	4 Supporting Course/Related Area	9
General Education Course	3	
General Education Course	3	
	17	15

Total Credits 63

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- A minimum of 60 credits required for graduation.

Advising Notes:

- Consult an adviser and your degree audit when selecting courses.

Business Administration, A.S. at Shenango Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H ^{††}	3 BA 243	4
MATH 21	3 ECON 102	3
ECON 104	3 CAS 100A or 100B ^{††}	3
General Education Ccourse	3 MATH 22	3
General Education Ccourse	3 MIS 204	3
	15	16

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 ENGL 202D [*]	3
MGMT 301 [*]	3 Option Selection	3
MKTG 301W	3 Option Selection	3
SCM 200 or STAT 200	4 General Education Course	3
	General Education Course	3
	14	15

Total Credits 60

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes

Students must complete a 3-credit course in "United States Cultures (US)" or a 3-credit course in "International Cultures (IL)"

Business Administration, A.S. at Wilkes-Barre Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ECON 102 or 104	3 BA 243	4
ENGL 15 [‡]	3 CAS 100 [‡]	3
MATH 21	3 MIS 204	3
General Education course	6 General Education course	3
	Option Selection	3
	15	16

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 ENGL 202D [‡]	3
MGMT 301 [*]	3 STAT 200	4
MKTG 301W (or Option Selection)	3 Option Selection	9
General Education course	3	
	13	16

Total Credits 60

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Business Administration, A.S. at York Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [‡]	3 BA 243	4
MIS 204	3 ECON 102 or 104	3
MATH 21	3 CAS 100A, 100B, or 100C (GWS) [‡]	3
General Education course	6 General Education course	3
	Option Selection	3
	15	16

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 ENGL 202D [‡]	3
MGMT 301 [*]	3 MKTG 301W (or Option Selection)	3
SCM 200 or STAT 200	4 Option Selection	9
General Education course	3	
	14	15

Total Credits 60

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Business Administration, A.S. at World Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [‡]	3 BA 243	4
MIS 204	3 ECON 102 or 104	3
MATH 21	3 CAS 100 [‡]	3
General Education course	6 General Education course	3
	Option Selection	3
	15	16

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 ENGL 202D [‡]	3
MGMT 301 [*]	3 MKTG 301W [*]	3
SCM 200 or STAT 200 [‡]	4 Option Selection	9
General Education course	3	
	14	15

Total Credits 60

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ Consultation with adviser is recommended to select the proper course placement

² If a student's plan is to move into the Bachelor of Science in Business degree program, a minimum of MATH 22 is required for entrance to major. If a student's placement is MATH 21 or 22, courses can be used for Business Supporting Courses in the Associate of Science degree plan.

Career Paths

Business impacts our society in many ways. Every business, from small companies to large corporations provide employment options. The associate in business degree can help prepare you for a wide variety of entry-level careers in this sector or for continued study in business. You

will have the opportunity to participate in an elective business internship as part of your curriculum. Internships provide valuable experience before graduation and an important first step toward starting your career.

Careers

Because the Associate in Science in Business Administration can give you a foundation of business concepts and best practices relevant to any industry, as a graduate of the program you can prepare for positions in accounting departments, management trainee opportunities, retail, insurance industry, industrial management opportunities, office manager, or business service manager. Some examples of jobs include:

- Accounting Specialist
- Accounts Examiner
- Appraisers and assessors of real estate
- Assistant Marketing Director
- Assistant Store Manager
- Billing Clerk
- Business services manager
- Computing business coordinator
- Compliance officers
- Insurance sales agent
- Industrial Salesperson
- Management Trainee
- Office Manager
- Payroll Assistant
- Sales Coordinator

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE BUSINESS ADMINISTRATION PROGRAM (<https://www.bls.gov/careeroutlook/2002/winter/art01.pdf>)

Opportunities for Graduate Studies

Upon completion of the associate degree in business, you may also choose to proceed seamlessly to the bachelor of science in business or selected other business-related majors at Penn State.

Contact

Brandywine

Main, 207F
25 Yearsley Mill Road
Media, PA 19063
cmo16@psu.edu

<https://www.brandywine.psu.edu/academics/associate-degrees/business-administration> (<https://www.brandywine.psu.edu/academics/associate-degrees/business-administration/>)

DuBois

1 College Place
DuBois, PA 15801
814-375-4803
dll150@psu.edu

<https://dubois.psu.edu/directory/business-administration-program> (<https://dubois.psu.edu/directory/business-administration-program/>)

Fayette

2201 University Drive

Lemont Furnace, PA 15456
724-430-4245
wsg3@psu.edu

<https://fayette.psu.edu/academics/associate/business-administration>
(<https://fayette.psu.edu/academics/associate/business-administration/>)

Greater Allegheny

101 Frable Building
4000 University Drive
McKeesport, PA 15132
412-675-9140
GA-Academics@lists.psu.edu

<https://greaterallegheny.psu.edu/academics/business-administration-associate> (<https://greaterallegheny.psu.edu/academics/business-administration-associate/>)

Hazleton

301A Schiavo Hall
Hazleton, PA 18202
570-450-3533
skr12@psu.edu

<https://hazleton.psu.edu/associate-science-business-administration>
(<https://hazleton.psu.edu/associate-science-business-administration/>)

Mont Alto

205 General Studies Building
Mont Alto, PA 17237
717-749-6229
mxl16@psu.edu

<https://montalto.psu.edu/academics/associate/associate-business-degree> (<https://montalto.psu.edu/academics/associate/associate-business-degree/>)

New Kensington

111 Administration Bldg.
3550 Seventh Street Rd.
New Kensington, PA 15068
724-334-6727
sxe5211@psu.edu

<https://newkensington.psu.edu/academics/2-year-business> (<https://newkensington.psu.edu/academics/2-year-business/>)

Schuylkill

ACADEMIC AFFAIRS
200 University Drive
Schuylkill Haven, PA 17972
570-385-6080
amb536@psu.edu

<https://schuylkill.psu.edu/academics/bacc-degrees/business> (<https://schuylkill.psu.edu/academics/bacc-degrees/business/>)

Scranton

117 Business Building
Dunmore, PA 18512
570-9632643
jmw831@psu.edu

<https://scranton.psu.edu/academics/degrees/bachelors/business-degree> (<https://scranton.psu.edu/academics/degrees/bachelors/business-degree/>)

Shenango

147 Shenango Avenue
309C Sharon Hall
Sharon, PA 16146
724-983-2942
gxm32@psu.edu

<https://shenango.psu.edu/academics/degrees/2-year-business-administration> (<https://shenango.psu.edu/academics/degrees/2-year-business-administration/>)

Wilkes-Barre

44 University Drive
Dallas, PA 18612
570-675-9293
tmc12@psu.edu

<https://wilkesbarre.psu.edu/academics/business> (<https://wilkesbarre.psu.edu/academics/business/>)

World Campus

UNDERGRADUATE ACADEMIC ADVISING
225 Outreach Building
University Park, PA 16802
814-863-3283
advising@worldcampus.psu.edu

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-business-administration-associate-in-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-business-administration-associate-in-science-degree/>)

York

1031 Edgecomb Ave.
York, PA 17403
717-718-6785
mal489@psu.edu

<https://www.york.psu.edu/academics/associate/business-administration>
(<https://www.york.psu.edu/academics/associate/business-administration/>)

Abington

DIVISION OF SOCIAL SCIENCES
1600 Woodland Road
Abington, PA 19001
215-881-7829
fzz34@psu.edu

<https://www.abington.psu.edu/associate-degree-programs/associate-business-administration> (<https://www.abington.psu.edu/associate-degree-programs/associate-business-administration/>)

Altoona

DIVISION OF BUSINESS, ENGINEERING, AND INFORMATION SCIENCES
AND TECHNOLOGY
Penn Building 223, 3000 Ivyside Park
Altoona, PA 16601
814-949-5265

dxh41@psu.edu

<https://altoona.psu.edu/academics/associate-degrees/business-administration> (<https://altoona.psu.edu/academics/associate-degrees/business-administration/>)

Berks

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Reading, PA 19610
610-396-6346
BKBusiness@psu.edu

<https://berks.psu.edu/academics/associate-business-administration> (<https://berks.psu.edu/academics/associate-business-administration/>)

Harrisburg

SCHOOL OF BUSINESS ADMINISTRATION
Olmsted Building, E355
Middletown, PA 17057
717-948-6139
cxs879@psu.edu

<https://harrisburg.psu.edu/business-administration/business-administration-as> (<https://harrisburg.psu.edu/business-administration/business-administration-as/>)

Business, B.S. (University College)

Begin Campus: Any Penn State Campus

End Campus: Beaver, Brandywine, DuBois, Fayette, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Schuylkill, Scranton, Shenango, Wilkes-Barre, York

Program Description

The Bachelor of Science in Business (B.S.B.) is a professionally-oriented business degree program that combines the theoretical underpinnings of core business disciplines, notably business analytics, management, marketing, finance, and supply chain management, with applied study in a practical setting. Through the choice of an 18-credit option, students specialize in a key business sector. Students also develop written and oral communication skills throughout the program, acquire contemporary technology skills, and engage in active and collaborative learning. The degree allows students to become familiar with the unique business environments of their local communities, a design that sets the degree apart from other business degrees offered within the University and throughout the Commonwealth.

Accounting Option

Available at the following campuses: *Abington, Altoona, Beaver, Berks, Brandywine, DuBois, Fayette, Greater Allegheny, Lehigh Valley, New Kensington, Schuylkill, Scranton, Shenango, Wilkes-Barre, World Campus, York*

This option prepares students to pursue careers in business with an emphasis on the areas of financial and managerial accounting, systems and controls, auditing, and taxation.

Business Analytics Option

Available at the following campuses: *Abington, Altoona, Beaver, Berks, Brandywine, DuBois, Greater Allegheny, Hazleton, Lehigh Valley, New Kensington, Schuylkill, Scranton, Wilkes-Barre, York*

The Business Analytics option prepares students to pursue careers in applying business analytics techniques to implement appropriate decision-making outcomes using data for companies.

Entrepreneurship Option

Available at the following campuses: *Altoona, World Campus*

This option prepares students to pursue entrepreneurial careers with emphasis on idea generation, opportunity analysis, new product creation, and business plan development.

Financial Services Option

Available at the following campuses: *Abington, Altoona, Berks, DuBois, Lehigh Valley, Scranton, World Campus*

This option prepares students to pursue careers in financial organizations with emphasis on wealth management, tax planning, risk management, and financial analysis.

Health Services Option

Available at the following campuses: *Abington, Lehigh Valley, Schuylkill, World Campus*

This option prepares students to pursue careers in the health services sector with emphasis on the financial and administrative aspects of health care enterprises.

Individualized Business Option

Available at the following campuses: *Abington, Altoona, Beaver, Berks, Brandywine, DuBois, Fayette, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Shenango, Schuylkill, Scranton, Wilkes-Barre, World Campus, York*

This option provides the opportunity for students to pursue an approved business-focused interdisciplinary program of study.

Management and Marketing Option

Available at the following campuses: *Abington, Altoona, Beaver, Berks, Brandywine, DuBois, Fayette, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Shenango, Schuylkill, Scranton, Wilkes-Barre, World Campus, York*

This option prepares students to pursue careers in business organizations with an emphasis on the skills and knowledge necessary for the business professional to function in community and regional centers of commerce.

What is Business?

Business is a professionally-oriented program providing a broad education and solid grounding of business knowledge. Focusing on practical skills and real-world experience, the program's interdisciplinary perspective provides a versatile base for mobility into all business areas, preparing students for the business world of today and tomorrow. Options provide additional specialization in accounting, entrepreneurship, financial services, health services, management and marketing or the opportunity to develop an individualized plan that fits your career goals.

You Might Like This Program If...

- You want to become a flexible business professional, equipped to adapt to the ever-changing workplace of the future.
- You are interested in an academic challenge with theoretical and practical focus in a competitive yet collaborative learning environment.
- You want transferable skills or you are not sure which business sector you wish to focus.
- You wish to be develop a broad knowledge of business operations.
- You want to develop the skills for working in business.

Entrance To Major

In order to be eligible for entrance to this major, students must complete one of the following courses: MATH 22 or MATH 40 or MATH 41 or MATH 110 or MATH 140.

In addition, students also must satisfy the following requirements:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Business, a minimum of 120 credits is required, 15 of which must be at the 400 level:

Requirement	Credits
General Education	45
Electives	10
Requirements for the Major	80

15 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GQ courses; 6 credits of GS courses; 3 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
<i>Prescribed Courses: Require a grade of C or better</i>		
BA 321	Contemporary Skills for Business Professionals	3
BA 322	Negotiation Skills for Business Professionals	3
BA 420	Preparation for Career Management	1

BA 421	Project Management	3
BA 422W	Strategic Business Planning	3
FIN 301	Corporation Finance	3
IB 303	International Business Operations	3
MGMT 301	Basic Management Concepts	3
MIS 204	Introduction to Management Information Systems	3
MKTG 301	Principles of Marketing	3
SCM 301	Supply Chain Management	3

Additional Courses

BA 241 & BA 242 or BA 243	Legal Environment of Business and Social and Ethical Environment of Business Social, Legal, and Ethical Environment of Business	4
MATH 110 or MATH 140	Techniques of Calculus I Calculus With Analytic Geometry I	4

Additional Courses: Require a grade of C or better

BA 495A or BA 495B	Business Internship Undergraduate Research in Business	3-6
ENGL 15 or ENGL 30H	Rhetoric and Composition Honors Rhetoric and Composition	3
SCM 200 or STAT 200	Introduction to Statistics for Business Elementary Statistics	4

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 0-3 credits from 400-level business courses from: ACCTG, BA, ECON, ENTR, FIN, FINSV, HPA, IB, MGMT, MIS, MKTG, RM, or SCM

Requirements for the Option

Requirements for the Option: Require a grade of C or better

Select an option 18

Requirements for the Option

Accounting Option (18 credits)

Available at the following campuses: Abington, Altoona, Beaver, Berks, Brandywine, DuBois, Fayette, Greater Allegheny, Lehigh Valley, New Kensington, Schuylkill, Scranton, Shenango, Wilkes-Barre, World Campus, York

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ACCTG 404	Managerial Accounting: Economic Perspective	3
ACCTG 405	Principles of Taxation I	3
ACCTG 471	Intermediate Financial Accounting I	3
ACCTG 472	Intermediate Financial Accounting II	3

Additional Courses

Additional Courses: Require a grade of C or better

ACCTG 403 or ACCTG 403WAuditing	Auditing	3
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Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 3 credits of 400-level courses from: ACCTG, BA, ECON, ENTR, FIN, FINSV, HPA, IB, MGMT, MIS, MKTG, RM, or SCM

Business Analytics Option (18 Credits)

Available at the following campuses: Abington, Altoona, Beaver, Berks, Brandywine, DuBois, Greater Allegheny, Hazleton, Lehigh Valley, New Kensington, Schuylkill, Scranton, Wilkes-Barre, York

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
MIS 301	Business Analytics	3
MIS 345	Introduction to Data Analytics	3
MIS 431	Business Data Management	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 9 credits from the following:		9
COMM/IST 310	Digital Media Metrics	
ECON 481	Business Forecasting Techniques	
MIS 336	Database Management Systems	
MIS 404	Introduction to ERP and Business Processes	
MIS 415	Social Media Management and Analytics	
MIS 441	Business Intelligence for Decision Making	
MIS 445	Business Intelligence	
MKTG 342	Marketing Research	
MKTG 343	Introduction to Marketing Analytics	
MKTG 473	Digital Marketing	
MKTG 474	Marketing Analytics	
MKTG 480	Intermediate Social Media Marketing	
SCM 340	Introduction to Supply Chain Analytics	

Entrepreneurship Option (18 credits)

Available at the following campuses: Altoona, World Campus

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ENTR 300	Principles of Entrepreneurship	3
ENTR 320	Entrepreneurship and New Venture Creation	3
ENTR 400	Financing Entrepreneurial Ventures	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
CAS 352	Organizational Communication	0-3
or ENGL 419	Advanced Business Writing	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 6 to 9 credits of 400-level ENTR courses in consultation with your adviser 6-9

Financial Services Option (18 credits)

Available at the following campuses: Abington, Altoona, Berks, DuBois, Lehigh Valley, Scranton, World Campus

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ACCTG 405	Principles of Taxation I	3
FIN 420	Investment and Portfolio Analysis	3

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 12 credits in 300 or 400-level (with at least 3 credits at the 400-level) from ACCTG, FIN, FINSV or RM 12

Health Services Option (18 credits)

Available at the following campuses: Abington, Lehigh Valley, Schuylkill, World Campus

Minimum 6 credits at the 400-level.

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
HPA 101	Introduction to Health Services Organization	3
HPA 332	Health Systems Management	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 0-3 credits of the following:		0-3
BBH/AFAM 302	Diversity and Health	
CAS 352	Organizational Communication	
CAS 404	Conflict Resolution and Negotiation	
ENGL 416	Science Writing	
ENGL 419	Advanced Business Writing	
LER 424	Employment Compensation	
LHR/WMNST 472	Work-Life Practices and Policies	
PSYCH 281	Introduction to Industrial-Organizational Psychology	
PSYCH 484	Work Attitudes and Motivation	
PSYCH 485	Leadership in Work Settings	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 3-9 credits from 300 or 400-level HPA courses 3-9

Select 0-6 credits of 300-400-level courses from ACCTG, BA, ECON, ENTR, FIN, FINSV, HPA, IB, MGMT, MKTG, MIS, RM or SCM 0-6

Individualized Business Option (18 credits)

Available at the following campuses: Abington, Altoona, Beaver, Berks, Brandywine, DuBois, Fayette, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Shenango, Schuylkill, Scranton, Wilkes-Barre, World Campus, York

Select 18 credits of study (with at least 3 credits at the 400-level) as submitted by the student and approved by the campus BSB Program Coordinator.

Management and Marketing Option (18 credits)

Available at the following campuses: Abington, Altoona, Beaver, Berks, Brandywine, DuBois, Fayette, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Shenango, Schuylkill, Scranton, Wilkes-Barre, World Campus, York

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select one of the following:		0-6

0-6 credits from BA 250, ENGL 419, MKTG 220

CAS 250 Small Group Communication

CAS 252 Business and Professional Communication

CAS 352 Organizational Communication

CAS 404 Conflict Resolution and Negotiation

Supporting Courses and Related Areas ¹

Supporting Courses and Related Areas: Require a grade of C or better

Select 3 credits from 300 or 400-level MGMT courses 3

Select 3 credits from 300 or 400-level MKTG courses 3

Select 6-12 additional credits in 300 or 400-level courses from MGMT6-12 or MKTG courses

¹ A minimum of 3 credits of supporting courses must be selected at the 400-level.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3

credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

Beaver, Brandywine, DuBois, Fayette, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Schuylkill, Scranton, Wilkes-Barre, York

- **Effective Communication:** Demonstrate the necessary skills and abilities to effectively communicate.
- **Use Technology:** Apply contemporary tools of information technology to include business software applications.
- **Leadership and Teamwork:** Apply leadership, team building, and project management skills.
- **Global and Diverse Perspectives:** Compare, contrast and differentiate the business environment of both their local community and the globalized world economy.
- **Ethical Awareness:** Demonstrate an awareness of ethical issues, social responsibilities and conflict resolution.
- **Use Management Theory/Practice:** Utilize and apply fundamental business concepts, principles and contemporary business practices.
- **Data Analysis and Problem Solving:** Recognize, analyze and solve business problems using quantitative and qualitative measures.

Shenango Campus

- Decision-related skills to solve business related problems quantitatively, qualitatively, and creatively.
 - Create and interpret financial statements and use finance principles to diagnose the financial health of the enterprise and to make strategic decisions.
 - Analyze, find, and apply primary and secondary market data to support their development of market analyses, SWOT, goals, strategies, and tactics.
 - Use statistical tools to facilitate strategic decision making.
 - Apply microeconomic principles such as supply and demand, market structure, profit maximization, and efficiency to real-world business challenges
 - Analyze qualitative data empirical
 - Develop novel and innovative solutions to business challenges.
- Effective communication skills, both written and oral.
 - Present evidence-based arguments to defend their ideas, recommendations, and finding.
 - Create effective and engaging presentations using appropriate technologies to include the use of spreadsheets, graphics, statistical software, project management software, and other software as needed.
 - Communicate supportively and professionally to build positive interpersonal relationships and be able to engage with diverse audiences.
 - Write effective business documents such as emails, reports, memo, letters, plans, and proposals.
 - Adapt information for presentations across multiple media.
- Ethical behavior and social responsibility.
 - Adhere to the academic integrity standards.
 - Incorporate socially responsible solutions in their coursework and service activities.
 - Distinguish between ethical and unethical behavior and evaluate the impact of unethical behavior on society.
- High level application of business principles and strategies to succeed across global and diverse environments.
 - Demonstrate an understanding of domestic and international markets.
 - Create strategies that address the needs of diverse cultures in business settings.
 - Create and apply an effective situational analysis and SWOT.
 - Create and monitor the effective use of resources such as Human Resources, budget, supply chain, etc.
 - Demonstrate financial literacy.
 - Develop and evaluate a variety of plans including marketing, strategic, business, and financial.
- Leadership, team building, and project management skills.
 - Work collaboratively in teams to accomplish stated goals and objectives.
 - Demonstrate effective conflict resolution and negotiation skills.
 - Apply leadership skills, theories, and behaviors to assignments throughout the BSB curriculum.
 - Complete projects efficiently, effectively, and with given resource.
 - Identify different corporate cultures and the implications of those differences on the effectiveness of the organization.
- Proficiency in common application software relevant to the business world.

- Create professional business documents that are professionally formatted and edited using Microsoft Word or other comparable application.
- Create Excel spreadsheets to include formulas, graphics, and functions.
- Create Power Point presentations that are appropriately formatted and use engaging elements.
- Create a Project Plan using Microsoft Project to be able to track progress, manage budget, and analyze workloads.
- Use Microsoft Access or other database programs to analyze and manage data.
- Demonstrate information literacy using Current, Relevant, Authoritative, Accurate, and Purposeful data sources and protocols.

Academic Advising

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

Beaver

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Scranton

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Beaver Campus

Accounting Option: Business, B.S. at Beaver Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [‡]	3 CAS 100 [‡]	3
MATH Requirement (GQ) [‡]	3-4 ECON 102	3
General Education Course	3 MIS 204	3
General Education Course	3 MATH Requirement (GQ) [‡]	3-4
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5	
16.5-17.5		15-16

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 BA 243	4
ECON 104	3 ENGL 202D [‡]	3
MATH requirement [‡]	3-4 SCM 200 or STAT 200 [‡]	4
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course	3
14.5-15.5		17

Third Year

Fall	Credits Spring	Credits
ACCTG 471 [*]	3 ACCTG 432 [*]	3
BA 321 [*]	3 ACCTG 472 [*]	3
MGMT 301 [*]	3 BA 322 [*]	3
MKTG 301 [*]	3 FIN 301 [*]	3
SCM 301 [*]	3 IB 303 [*]	3
15		15

Fourth Year

Fall	Credits Spring	Credits
ACCTG 403 [*]	3 ACCTG 405 [*]	3
ACCTG 404 [*]	3 BA 422W [*]	3
BA 420 [*]	1 BA 495A [*]	6
BA 421 [*]	3 Elective	3
Elective	3	
13		15

Total Credits 121-124

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain

Business Analytics Option: Business, B.S. at Beaver Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [‡]	3 CAS 100 [‡]	3
MATH 110 [‡]	4 ECON 102 [‡]	3
General Education Course	3 MIS 204	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
PSU 8	1 General Education Course (GHW)	1.5
	17	16.5

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 BA 243	4
ECON 104 [‡]	3 ENGL 202D [‡]	3
Elective	3 SCM 200 or STAT 200 [‡]	4
MGMT 301 [*]	3 General Education Course	3
General Education Course	3 FIN 301 [*]	3
General Education Course (GHW)	1.5	
	17.5	17

Third Year

Fall	Credits Spring	Credits
BA 321 [*]	3 BA 322 [*]	3
SCM 301 [*]	3 IB 303 [*]	3
MKTG 301 [*]	3 Elective	3
MIS 301 [*]	3 MIS 345 [*]	3
Elective	3 MIS 431 [*]	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
BA 420 [*]	1 BA 422W [*]	3
BA 421 [*]	3 400-Level Business Elective	3
Elective	3 Elective	3
Supporting Business Analytics Course Elective (300 or 400 level with proper prerequisites) [*]	3 Supporting Business Analytics Course Elective (300 or 400 level with proper prerequisites) [*]	3
Supporting Business Analytics Course Elective (300 or 400 level with proper prerequisites) [*]	3 BA 495A or 495B [*]	3-6
	13	15-18

Total Credits 126-129

Course is an Entrance to Major requirement

‡ Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- Supporting Courses and Related Areas
 - Select 9 credits from the following (grade of C or better required): (ECON 481, MIS 336, MIS 404, MIS 415, MIS 441, MIS 445, MKTG 342¹, MKTG 343) or (MKTG 473, MKTG 474, MKTG 480², SCM 340)
 - ¹ Course offered online (from World Campus)
 - ² Course offered online (from World Campus, BSBIC_BS)

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Management and Marketing Option: Business, B.S. at Beaver Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [‡]	3 CAS 100 [‡]	3
MATH Requirement (GQ) [‡]	3-4 ECON 102	3
General Education Course	3 MIS 204	3
General Education Course	3 MATH Requirement (GQ) [‡]	3-4
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5	
16.5-17.5		15-16

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 BA 243	4
ECON 104	3 ENGL 202D [‡]	3
MATH Requirement or Elective [‡]	4 SCM 200 or STAT 200 [‡]	4
Management/Marketing Option Course [*]	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course	3
15.5		17

Third Year

Fall	Credits Spring	Credits
BA 321 [*]	3 BA 322 [*]	3
Management/Marketing Option Course [*]	3 FIN 301 [*]	3
MGMT 301 [*]	3 IB 303 [*]	3
MKTG 301 [*]	3 Management/Marketing Option Course [*]	3
SCM 301 [*]	3 Management/Marketing Option Course [*]	3
15		15

Fourth Year

Fall	Credits Spring	Credits
BA 420 [*]	1 BA 422W [*]	3
BA 421 [*]	3 BA 495A or 495B [*]	6
Management/Marketing Option Course [*]	3 Management/Marketing Option Course [*]	3
General Education Course	3 Elective	3
Elective	3	
13		15

Total Credits 122-124

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Brandywine Campus

Accounting Option: Business, B.S. at Brandywine Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [‡]	3 CAS 100 [‡]	3
MATH Requirement (GQ) [‡]	3-4 ECON 102	3
General Education Course	3 MIS 204	3
General Education Course	3 MATH Requirement (GQ) [‡]	3-4
General Education Course	3 General Education Course	3
15-16		15-16

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 ENGL 202D [‡]	3
MATH 110 [‡]	4 SCM 200 or STAT 200 [‡]	4
MIS 204	3 BA 243	4
ECON 102 or 104	3 FIN 301 [*]	3
General Education Course (GHW)	3 General Education Course	3
17		17

Third Year

Fall	Credits Spring	Credits
BA 321 [*]	3 BA 322 [*]	3
MKTG 301 [*]	3 IB 303 [*]	3
SCM 301 [*]	3 MGMT 301 [*]	3
ACCTG 471 [*]	3 ACCTG 472 [*]	3
ACCTG 405 [*]	3 ACCTG 404 [*]	3
15		15

Fourth Year

Fall	Credits Spring	Credits
ACCTG 403 [*]	3 ACCTG 426 ^{*1}	3
BA 420 [*]	1 BA 422W [*]	3
BA 421 [*]	3 BA 495A or 495B [*]	6
Elective	3	
Elective	3	
General Education Course	3	
16		12

Total Credits 122-124

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ These courses are one possible plan, but other supporting courses in this option can be used instead.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Business Analytics Option: Business, B.S. at Brandywine Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) ^{††}	3 CAS 100 (GWS) [‡]	3
MATH Requirement (GQ) ^{‡#}	3-4 MATH Requirement (GQ) ^{‡#}	3-4
ECON 102 or 104 (GS) [†]	3 ECON 102 or 104 (GS) [†]	3
General Education Course	3 MIS 204	3
General Education Course	3 General Education Course	3
PSU 8	1	
	16-17	15-16

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 BA 321 or 322 [*]	3
MATH Requirement (GQ) ^{‡#}	3-4 SCM 200 or STAT 200 [‡]	4
BA 243	4 MKTG 301 [*]	3
General Education Course	3 MGMT 301 [*]	3
	General Education Course	3
	14-15	16

Third Year

Fall	Credits Spring	Credits
BA 321 or 322 [*]	3 ENGL 202D (GWS) [‡]	3
FIN 301 [*]	3 BA 421 [*]	3
MKTG 342 ^{*1}	3 MIS 301 [*]	3
MIS 345 [*]	3 MKTG 480 ^{*1}	3
SCM 301 [*]	3 General Education Course	3
	BA 420 [*]	1
	15	16

Fourth Year

Fall	Credits Spring	Credits
IB 303 [*]	3 BA 422W [*]	3
MIS 404 ^{*1}	3 BA 495A or 495B [*]	6
MIS 431 [*]	3 General Education Course [*]	3
General Education Course (GHW)	3 Elective	3
Elective	3	
	15	15

Total Credits 122-125

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ These courses are one possible plan, but other supporting courses in this option can be used instead.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Management and Marketing Option, Marketing Focus: Business, B.S. at Brandywine Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [‡]	3 CAS 100 [‡]	3
MATH Requirement (GQ) [‡]	3-4 MATH Requirement (GQ) [‡]	3-4
General Education Course	3 General Education Course	3
General Education Course	3 ECON 102 or 104	3
General Education Course	3 General Education Course	3
15-16		15-16

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 ENGL 202D [‡]	3
MATH 110 [‡]	4 SCM 200 or STAT 200 [‡]	4
MIS 204	3 BA 243	4
ECON 102 or 104	3 MGMT 301 [*]	3
General Education Course (GHW)	3 MKTG 301 [*]	3
17		17

Third Year

Fall	Credits Spring	Credits
BA 321 [*]	3 BA 322 [*]	3
FIN 301 [*]	3 IB 303 [*]	3
MKTG 330 [*]	3 MKTG 441 ^{*1}	3
MKTG 342 [*]	3 MKTG 480 ^{*1}	3
SCM 301 [*]	3 MGMT (any 300 or 400 level with proper prerequisites) [*]	3
15		15

Fourth Year

Fall	Credits Spring	Credits
BA 420 [*]	1 BA 422W [*]	3
BA 421 [*]	3 BA 495A or 495B [*]	6
MKTG 443 ^{*1}	3 General Education Course (GHW)	3
General Education Course	3 Elective	3
Elective	3	
13		15

Total Credits 122-124

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ These courses are one possible plan, but other supporting courses in this option can be used instead.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Management and Marketing Option, Management Focus: Business, B.S. at Brandywine Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year		
Fall	Credits Spring	Credits
ENGL 15 or 30H [‡]	3 CAS 100 [‡]	3
MATH Requirement (GQ) [‡]	3-4 MATH Requirement (GQ) [‡]	3-4
General Education Course	3 General Education Course	3
General Education Course	3 ECON 102 or 104	3
General Education Course	3 General Education Course	3
15-16		15-16
Second Year		
Fall	Credits Spring	Credits
ACCTG 211	4 ENGL 202D [‡]	3
MATH Requirement (GQ) [‡]	3-4 SCM 200 or STAT 200 [‡]	4
MIS 204	3 BA 243	4
ECON 102 or 104	3 MGMT 301 [*]	3
General Education Course (GHW)	3 MKTG 301 [*]	3
16-17		17
Third Year		
Fall	Credits Spring	Credits
BA 321 [*]	3 BA 322 [*]	3
FIN 301 [*]	3 IB 303 [*]	3
MGMT 326 [*]	3 MGMT 341 [*]	3
MGMT 321 [*]	3 MGMT 427 ^{*1}	3
SCM 301 [*]	3 General Education Course	3
15		15
Fourth Year		
Fall	Credits Spring	Credits
BA 420 [*]	1 BA 422W [*]	3
BA 421 [*]	3 BA 495A or 495B [*]	6
MKTG 330 or 342 ^{*1}	3 General Education Course (GHW)	3
MGMT 431 ^{*1}	3 Elective	3
Elective	3	
13		15
Total Credits 121-124		

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ These courses are one possible plan, but other supporting courses in this option can be used instead.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

DuBois Campus

Accounting Option: Business, B.S. at DuBois Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
General Education Course	3 General Education Course	3
BA 100S	3 CAS 100A*‡	3
ENGL 15*‡	3 ECON 104	3
General Education Course	3 MIS 204*	3
General Education Course	3 General Education Course	3
15		15

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 BA 242	2
BA 241	2 ENGL 202D††	3
ECON 102 (GS 2) [†]	3 MATH 110 ^{†##}	4
STAT 200*††	4 MGMT 301W*	3
General Education Course	3 FIN 301*	3
16		15

Third Year

Fall	Credits Spring	Credits
ACCTG 471*	3 General Education Course	3
BA 321*	3 BA 322*	3
MKTG 301*	3 BA 420*	1
SCM 301*	3 ACCTG 472*	3
General Education Course	3 ACCTG 404*	3
	Elective	3
15		16

Fourth Year

Fall	Credits Spring	Credits
BA 421*	3 BA 422W*	3
IB 303* ^{†1}	3 BA 495 or ACCTG 495*	6
ACCTG 405*	3 400-Level Business Elective*	3
ACCTG 403*	3	
Elective	4	
16		12

Total Credits 120

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ IB 303 fulfills IL requirement

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- Other Business Electives offered at include: Management 321, English 419 and MKTG 480.
- Management 321 is a Fall Course. English 419 is a Fall course offered every other year.
- Marketing 480 which is a Spring course.
- * Please note you can only select 6 credits from BA 250, MKTG 220 and English 419.

University Requirements and General Education Notes:

Business Analytics Option: Business, B.S. at DuBois Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
General Education Course	3 General Education Course	3
BA 100S	3 CAS 100A ^{*†}	3
ENGL 15 ^{*‡}	3 ECON 104	3
General Education Course	3 MIS 204 [*]	3
General Education Course	3 General Education Course	3
15		15

Second Year

Fall	Credits Spring	Credits
STAT 200 ^{*‡}	4 BA 242	2
BA 241	2 ENGL 202D ^{*‡}	3
ECON 102 (GS 2)	3 MATH 110 ^{*‡#}	4
General Education Course	3 MGMT 301W [*]	3
ACCTG 211	4 FIN 301 [*]	3
16		15

Third Year

Fall	Credits Spring	Credits
BA 321 [*]	3 Business Elective [*]	3
MIS 345 [*]	3 BA 322 [*]	3
MKTG 301 [*]	3 BA 420 [*]	1
SCM 301 [*]	3 Elective	3
General Education Course	3 MIS 301 [*]	3
	MKTG 342 [*]	3
15		16

Fourth Year

Fall	Credits Spring	Credits
BA 421 [*]	3 BA 422W [*]	3
BDA Option Business Elective [*]	3 BA 495 [*]	6
IB 303 ^{*†1}	3 Elective	4
MIS 431 [*]	3	
MKTG 480 [*]	3	
15		13

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ IB 303 fulfills IL requirement

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- Other Business Electives offered at include: Management 321, Management 401, and English 419.
- Management 321 is a Fall Course.
- MGMT 401 is a Spring course. English 419 is a Spring course offered every other year.
- Please note you can only select 6 credits from BA 250, MKTG 220 and English 419.

University Requirements and General Education Notes:

Management and Marketing Option: Business, B.S. at DuBois Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H ^{*‡}	3 CAS 100A ^{*‡}	3
General Education Course	3 ECON 104	3
General Education Course	3 MIS 204 [*]	3
General Education Course	3 General Education Course	3
BA 100S	3 General Education Course	3
	15	15

Second Year

Fall	Credits Spring	Credits
BA 241	2 BA 242	2
ECON 102 (GS 2)	3 ENGL 202D ^{*‡}	3
STAT 200 ^{*‡}	4 MATH 110 ^{*‡}	4
General Education Course	3 MGMT 301W [*]	3
ACCTG 211	4 FIN 301 [*]	3
	16	15

Third Year

Fall	Credits Spring	Credits
BA 321 [*]	3 BA 322 [*]	3
MKTG 301 [*]	3 BA 420 [*]	1
SCM 301 [*]	3 MKTG 342 [*]	3
General Education Course	3 Elective	3
General Education Course	3 MKTG 220 (or Business Elective) [*]	3
	Business Elective	3
	15	16

Fourth Year

Fall	Credits Spring	Credits
BA 421 [*]	3 BA 422W [*]	3
IB 303 ^{*†1}	3 BA 495A [*]	6
MGMT 341 [*]	3 Elective	4
MKTG 480 [*]	3	
Business Elective (300-400) [*]	3	
	15	13

Total Credits 120

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ IB 303 fulfills IL requirement

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- Other Business Electives offered at DuBois include: MGMT 341, MGMT 401, and ENGL 419.
- Management 321 is a Fall Course.
- MGMT 401 is a Spring course. English 419 is a Spring course offered every other year.
- Please note you can only select 6 credits from BA 250, MKTG 220, and ENGL 419.

University Requirements and General Education Notes:

Fayette Campus

Accounting Option: Business, B.S. at Fayette Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [‡]	3 ECON 104 or 102	3
General Education Course	3 MIS 204	3
General Education Course	3 CAS 100 [‡]	3
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course	3
PSU 8	1 General Education Course (GHW)	1.5
	14.5	16.5

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 ENGL 202D [‡]	3
BA 243	4 ECON 102 or 104	3
STAT 200 [‡]	4 MATH 110 [‡]	4
MGMT 301 [*]	3 FIN 301 [*]	3
General Education Course	3 General Education Course	3
	18	16

Third Year

Fall	Credits Spring	Credits
BA 321 [*]	3 ACCTG 472 (Option Course) [*]	3
ACCTG 471 (Option Course) [*]	3 BA 322 [*]	3
ACCTG 404 (Option Course) [*]	3 ACCTG 403 (Option Course) [*]	3
SCM 301 [*]	3 IB 303 [*]	3
Elective	3 MKTG 301 [*]	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
BA 420 [*]	1 BA 422W [*]	3
BA 421 [*]	3 BA 495A or 495B [*]	6
MKTG 422 (or other MGMT/ MKTG 400 level Option Course) [*]	3 Elective	3
Additional credits in option area [*]	3	
Elective	3	
	13	12

Total Credits 120

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Management and Marketing Option: Business, B.S. at Fayette Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [‡]	3 ECON 104 or 102	3
General Education Course	3 MIS 204	3
General Education Course	3 CAS 100 [‡]	3
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course	3
PSU 8	1 General Education Course (GHW)	1.5
	14.5	16.5

Second Year

Fall	Credits Spring	Credits
ECON 102 or 104	3 ACCTG 211	4
BA 243	4 ENGL 202D [‡]	3
STAT 200 [‡]	4 FIN 301 [*]	3
Elective	3 MATH 110 [‡]	4
General Education Course	3 General Education Course	3
	17	17

Third Year

Fall	Credits Spring	Credits
BA 321 [*]	3 BA 322 [*]	3
MGMT 301 [*]	3 Additional credits in Marketing and Management courses - Option Area [*]	3
Additional credits in Option area [*]	3 IB 303 [*]	3
Additional credits in Option area [*]	3 MKTG 301W [*]	3
Elective	3 SCM 301 [*]	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
BA 420 [*]	1 BA 422W [*]	3
BA 421 [*]	3 BA 495A or 495B [*]	6
Additional credits in Marketing and Management courses - Option Area [*]	3 Additional credits in Marketing and Management courses - Option Area [*]	3
Additional credits in Marketing and Management courses - Option Area [*]	3	
Elective	3	
	13	12

Total Credits 120

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

* Course requires a grade of C or better for the major

Greater Allegheny Campus

Accounting Option: Business, B.S. at Greater Allegheny Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or ESL 15 [‡]	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C ^{††}	3
MATH 110 or 140 ^{††}	4 General Education Course	3
General Education Course	3 ECON 102 [†]	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
16		15

Second Year

Fall	Credits Spring	Credits
BA 241	2 ENGL 202D [‡]	3
BA 242	2 ECON 104 [†]	3
General Education Course	3 MIS 204	3
General Education Course	3 STAT 200 ^{††}	4
ACCTG 211	4 Elective	3
14		16

Third Year

Fall	Credits Spring	Credits
FIN 301 [*]	3 BA 322 [*]	3
IB 303 [*]	3 SCM 301 [*]	3
ACCTG 471 [*]	3 MKTG 301 [*]	3
MGMT 301 [*]	3 ACCTG 472 [*]	3
BA 321 [*]	3 400-level Business Course [*]	3
15		15

Fourth Year

Fall	Credits Spring	Credits
BA 420 [*]	1 BA 422W	3
BA 421 [*]	3 BA 495A or 495B [*]	3-6
ACCTG 404 [*]	3 ACCTG 405 [*]	3
ACCTG 403W	3 400-level Business Course ^{* 1}	3
Elective	3	
Elective	3	
16		12-15

Total Credits 119-122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ If 6 credit Internship is taken, then 400-level Business Course is not required in final semester.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Business Analytics Option: Business, B.S. at Greater Allegheny Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100 (GWS) [‡]	3
ECON 102 or 104 (GS) [†]	3 ECON 102 or 104 (GS) [†]	3
General Education Course	3 MATH 110 (GQ) [‡]	4
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
PSU 8	1	
	16	16

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 ENGL 202D (GWS) [‡]	3
BA 241	2 MIS 204	3
BA 242	2 STAT 200 (GQ) [‡]	4
Elective	3 Elective	3
General Education Course	3 General Education Course	3
General Education Course	3	
	17	16

Third Year

Fall	Credits Spring	Credits
IB 303 [*]	3 MKTG 301 [*]	3
FIN 301 [*]	3 BA 322 [*]	3
BA 321 [*]	3 SCM 301 [*]	3
MIS 301 [*]	3 MIS 345 [*]	3
MGMT 301 [*]	3 MIS 431 [*]	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
BA 420 [*]	1 400-Level Business Elective	0-3
BA 421 [*]	3 BA 422W [*]	3
Elective	3 Supporting Business Analytics Course Elective (300 or 400 level with proper prerequisites) [*]	3
Supporting Business Analytics Course Elective (300 or 400 level with proper prerequisites) [*]	3 Elective	3
Supporting Business Analytics Course Elective (300 or 400 level with proper prerequisites) [*]	3 BA 495A or 495B [*]	3-6
	13	12-15

Total Credits 120-123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- Supporting Courses and Related Areas
 - Select 9 credits from the following (grade of C or better required): (ECON 481, MIS 336, MIS 404, MIS 415, MIS 441, MIS 445, MKTG 342¹, MKTG 343) or (MKTG 473, MKTG 474, MKTG 480², SCM 340)
 - ¹ Course offered online (from World Campus)
 - ² Course offered online (from World Campus, BSBIC_BS)

Management and Marketing Option: Business, B.S. at Greater Allegheny Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or ESL 15 [‡]	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C ^{††}	3
MATH 110 or 140 ^{††}	4 General Education Course	3
General Education Course	3 ECON 102 [†]	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
	16	15

Second Year

Fall	Credits Spring	Credits
BA 241	2 ENGL 202D [‡]	3
BA 242	2 ECON 104 [†]	3
General Education Course	3 MIS 204	3
General Education Course	3 STAT 200 ^{††}	4
ACCTG 211	4 Elective	3
	14	16

Third Year

Fall	Credits Spring	Credits
FIN 301 [*]	3 BA 322 [*]	3
MGMT 301 [*]	3 SCM 301 [*]	3
IB 303 [*]	3 MKTG 301 [*]	3
BA 321 [*]	3 300 or 400-level MGMT Course ^{*2}	3
Business or Communications Option Course ^{*1}	3 300 or 400-level MKTG Course ^{*2}	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
BA 420 [*]	1 BA 422W [*]	3
BA 421 [*]	3 BA 495A or 495B [*]	3-6
300 or 400-level MGMT or MKTG Course ^{*2}	3 400-level Business Course ^{*3}	3
300 or 400-level MGMT or MKTG Course ^{*2}	3 Elective	3
400-level Management/Marketing Option Course ^{*2}	3	3
Elective	3	3
	16	12-15

Total Credits 119-122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Choose from B A 250(3), ENGL 419(3), MKTG 220(3) or one of the following, CAS 250(3), CAS 252(3), CAS 352(3), CAS 404(3)

² A minimum of 3 credits of supporting courses must be selected at the 400-level. Select 3 credits from 300 or 400-level MGMT courses Select 3 credits from 300 or 400-level MKTG courses Select 6-12 additional credits in 300 or 400-level courses from MGMT or MKTG courses

³ If 6 credit Internship is taken, then 400-level Business Course is not required in final semester.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Individualized Option: Business, B.S. at Greater Allegheny Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If report**). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or ESL 15 [‡]	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C ^{††}	3
MATH 110 or 140 ^{††}	4 General Education Course	3
General Education Course	3 ECON 102 [†]	3
General Education Course	3 General Education Course	3
General Education Course	3 ACCTG 211	4
	16	16

Second Year

Fall	Credits Spring	Credits
BA 241	2 ENGL 202D [‡]	3
BA 242	2 ECON 104 [†]	3
General Education Course	3 MIS 204	3
General Education Course	3 General Education Course	3
STAT 200 (GQ) ^{††}	4 Elective	3
	14	15

Third Year

Fall	Credits Spring	Credits
FIN 301 [*]	3 BA 322 [*]	3
IB 303 [*]	3 SCM 301 [*]	3
BA 321 [*]	3 MKTG 301 [*]	3
MGMT 301 [*]	3 Individualized Option Course [*]	3
Individualized Option Course [*]	3 Individualized Option Course [*]	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
BA 420 [*]	1 BA 422W	3
BA 421 [*]	3 BA 495A or 495B [*]	3-6
Individualized Option Course [*]	3 Individualized Option Course [*]	3
Individualized Option Course [*]	3 400-level Business Course ^{* 1}	3
Elective	3	
Elective	3	
	16	12-15

Total Credits 119-122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ If 6 credit Internship is taken, then 400-level Business Course is not required in final semester.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Hazleton Campus

Individualized Business Option: Business, B.S. at Hazleton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [‡]	3 ECON 104 [‡]	3
ECON 102 [‡]	3 MIS 204 [*]	3
MATH 110 or 140 [‡]	4 CAS 100A [‡]	3
General Education Course	3 General Education Course	3
General Education Course	3 ACCTG 211	4
PSU 8	1	
	17	16

Second Year

Fall	Credits Spring	Credits
STAT 200 [‡]	4 MKTG 301W [*]	3
MGMT 301 [*]	3 BA 241 [*]	2
General Education Course (Inter-Domain)	3 BA 242 [*]	2
General Education Course	3 ENGL 202D [‡]	3
General Education Course	3 General Education Course (Inter-Domain)	3
	General Education Course (GHW)	1.5
	16	14.5

Third Year

Fall	Credits Spring	Credits
BA 322 [*]	3 BA 321 [*]	3
IB 303 [*]	3 300/400 Business Course in consultation with adviser [*]	3
FIN 301 [*]	3 Business or Business Communications course [*]	3
SCM 301 [*]	3 300/400 Business Course in consultation with adviser [*]	3
Elective	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
BA 421 [*]	3 BA 422W [*]	3
BA 420 [*]	1 BA 495A [*]	6
300/400 Business Course in consultation with adviser [*]	3 300/400 Business Course in consultation with adviser [*]	3
Business or Business Communications course [*]	3	
Elective	3	

General Education Course (GHW)	1.5	
	14.5	12

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Management and Marketing Option: Business, B.S. at Hazleton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [‡]	3 ECON 104 [†]	3
ECON 102 [†]	3 MIS 204 [*]	3
MATH 110 or 140 [‡]	4 CAS 100A [‡]	3
General Education Course	3 ACCTG 211	4
General Education Course	3 General Education Course	3
PSU 8	1	
	17	16

Second Year

Fall	Credits Spring	Credits
STAT 200 [‡]	4 MKTG 301W [*]	3
MGMT 301 [*]	3 BA 241 [*]	2
General Education Course - Inter Domain	3 BA 242 [*]	2
General Education Course	3 ENGL 202D [‡]	3
General Education Course	3 General Education Course - Inter Domain	3
	General Education Course (GHW)	1.5
	16	14.5

Third Year

Fall	Credits Spring	Credits
BA 322 [*]	3 BA 321 [*]	3
IB 303 [*]	3 300/400 Level Management Course [*]	3
FIN 301 [*]	3 Business or Business Communications Course [*]	3
SCM 301 [*]	3 300/400 Level Marketing Course [*]	3
Elective	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
BA 420 [*]	1 BA 422W [*]	3
BA 421 [*]	3 BA 495A [*]	6
Business or Business Communications Course [*]	3 300/400 Level Management or Marketing Course [*]	3
300/400-Level Management or Marketing Course [*]	3	
Elective	3	

General Education Course (GHW)	1.5	
	14.5	12

Total Credits 120

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Lehigh Valley Campus

Accounting Option: Business, B.S. at Lehigh Valley Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) ^{††}	3 CAS 100A [‡]	3
ECON 102 (GS) [†]	3 ECON 104	3
MATH 110 (GQ) ^{‡##}	4 MIS 204	3
General Education Course/ First-Year Seminar	3 General Education Course	3
General Education Course	3 General Education Course	3
	16	15

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 ENGL 202D [‡]	3
MGMT 301 [*]	3 STAT 200 (GQ) [‡]	4
MKTG 301W [*]	3 BA 243 (US Cultures)	4
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
	14.5	15.5

Third Year

Fall	Credits Spring	Credits
ACCTG 471 [*]	3 ACCTG 405 [*]	3
BA 321 [*]	3 ACCTG 472 [*]	3
FIN 301 [*]	3 BA 322 [*]	3
SCM 301 [*]	3 IB 303 (IL) [*]	3
General Education Course	3 General Education Course	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
BA 420 [*]	1 ACCTG 495	6
BA 421 [*]	3 BA 422W [*]	3
ACCTG 403 [*]	3 400-Level ACCTG, FIN, FINSV, ECON Course [*]	3
ACCTG 404 [*]	3 Elective or General Education Course	3
Elective or General Education Course	3	
Elective or General Education Course	3	
	16	15

Total Credits 122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Business Analytics: Business, B.S. at Lehigh Valley Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) ^{††}	3 CAS 100A [‡]	3
ECON 102 (GS) [†]	3 ECON 104	3
MATH 110 or 140 (GQ) ^{‡##}	4 MIS 204	3
General Education Course/ First-Year Seminar	3 General Education Course	3
General Education Course	3 General Education Course	3
	16	15

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 ENGL 202D [‡]	3
MGMT 301 [*]	3 STAT 200 (GQ) [‡]	4
MKTG 301W [*]	3 BA 243 (US Cultures)	4
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
	14.5	15.5

Third Year

Fall	Credits Spring	Credits
BA 321 [*]	3 BA 322 [*]	3
FIN 301 [*]	3 IB 303 (IL) [*]	3
MIS 301 [*]	3 MIS 345 [*]	3
SCM 301 [*]	3 MIS 431 [*]	3
General Education Course	3 Elective or General Education Course	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
BA 420 [*]	1 BA 422W [*]	3
BA 421 [*]	3 BA 495A [*]	6
300 or 400 Supporting Business Analytics Course [*]	3 300 or 400 Supporting Business Analytics Course [*]	3
300 or 400 Supporting Business Analytics Course [*]	3 Elective or General Education Course	3
General Education Course	3	
Elective or General Education Course	3	
	16	15

Total Credits 122**University Requirements and General Education Notes:**

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

Financial Services: Business, B.S. at Lehigh Valley Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) ^{††}	3 CAS 100A [‡]	3
ECON 102 (GS) [†]	3 ECON 104	3
MATH 110 (GQ) ^{‡##}	4 MIS 204	3
General Education Course/ First-Year Seminar	3 General Education Course	3
General Education Course	3 General Education Course	3
	16	15

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 ENGL 202D [‡]	3
MGMT 301 [*]	3 STAT 200 (GQ) [‡]	4
MKTG 301W [*]	3 BA 243 (US Cultures)	4
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
	14.5	15.5

Third Year

Fall	Credits Spring	Credits
BA 321 [*]	3 ACCTG 405 [*]	3
FIN 301 [*]	3 BA 322 [*]	3
SCM 301 [*]	3 IB 303 (IL) [*]	3
General Education Course	3 300-Level or 400-Level ACCTG, FIN, or FINSV [*]	3
General Education Course	3 Elective or General Education Course	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
BA 420 [*]	1 ACCTG 495	6
BA 421 [*]	3 BA 422W [*]	3
FIN 420 [*]	3 400-Level ACCTG, FIN, FINSV, or ECON [*]	3
400-Level ACCTG, FIN, FINSV, or ECON [*]	3 General Education Course/ Elective	3
400-Level ACCTG, FIN, FINSV, or ECON [*]	3	
General Education Course/ Elective	3	
	16	15

Total Credits 122

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

Health Services Option: Business, B.S. at Lehigh Valley Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If report**). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) ^{††}	3 CAS 100A [‡]	3
ECON 102 (GS) [†]	3 ECON 104	3
MATH 110 or 140 (GQ) ^{‡##}	4 MIS 204	3
General Education Course/ First-Year Seminar	3 General Education Course	3
General Education Course	3 General Education Course	3
	16	15

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 ENGL 202D [‡]	3
MGMT 301 [*]	3 STAT 200 (GQ) [‡]	4
MKTG 301W [*]	3 BA 243 (US Cultures)	4
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
	14.5	15.5

Third Year

Fall	Credits Spring	Credits
BA 321 [*]	3 BA 322 [*]	3
FIN 301 [*]	3 HPA 332 [*]	3
HPA 101 [*]	3 SCM 301 [*]	3
IB 303 (IL)	3 General Education Course	3
General Education Course	3 Elective or General Education Course	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
BA 420 [*]	1 BA 422W [*]	3
BA 421 [*]	3 BA 495A [*]	6
300- or 400-Level HPA [*]	3 Option Supporting Course [*]	3
Option Supporting Course [*]	3 General Education Course/ Elective	3
Option Supporting Course [*]	3	
General Education Course/ Elective	3	
	16	15

Total Credits 122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Management and Marketing Option: Business, B.S. at Lehigh Valley Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [‡]	3 CAS 100A [‡]	3
ECON 102	3 ECON 104	3
MATH 110 [‡]	4 MIS 204	3
General Education Course/ First-Year Seminar	3 General Education Course	3
General Education Course	3 General Education Course	3
	16	15

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 ENGL 202D [‡]	3
MGMT 301 [*]	3 STAT 200 [‡]	4
MKTG 301W [*]	3 BA 243 (US Cultures)	4
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
	14.5	15.5

Third Year

Fall	Credits Spring	Credits
BA 321 [*]	3 BA 322 [*]	3
FIN 301 [*]	3 IB 303 (IL) [*]	3
General Education Course	3 SCM 301 [*]	3
General Education Course	3 Option 400-level Course [*]	3
Option 300-level Course [*]	3 Elective or General Education Course	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
BA 420 [*]	1 BA 422W [*]	3
BA 421 [*]	3 BA 495A or 495B [*]	6
Option 300-level Course [*]	3 Option 400-level Course [*]	3
Option 300-level Course [*]	3 Option 400-level Course [*]	3
Option 300-level Course [*]	3 Elective or General Education Course	3
Elective or General Education Course	3	
	16	18

Total Credits 125

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Individualized Option: Business, B.S. at Lehigh Valley Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [‡]	3 CAS 100A [‡]	3
PSU 8 (or General Education Course)	3 ECON 102	3
General Education Course	3 MATH 110 [‡]	4
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
15		16

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 ENGL 202D [‡]	3
BA 243	4 STAT 200 [‡]	4
ECON 104	3 MIS 204	3
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
15.5		14.5

Third Year

Fall	Credits Spring	Credits
BA 321 [*]	3 BA 322 [*]	3
FIN 301 [*]	3 IB 303 [*]	3
MGMT 301 [*]	3 SCM 301 [*]	3
MKTG 301W [*]	3 Elective or General Education Course	3
Option 300-level Course [*]	3 Elective or US Cultures Course	3
15		15

Fourth Year

Fall	Credits Spring	Credits
BA 420 [*]	1 BA 422W [*]	3
BA 421 [*]	3 BA 495A or 495B [*]	6
Option 300-level Course [*]	3 Option 400-level Course [*]	3
Option 300-level Course [*]	3 Option 400-level Course [*]	3
Option 300-level Course [*]	3	
Elective	3	
16		15

Total Credits 122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

University Requirements and General Education Notes:

Mont Alto Campus

Management and Marketing Option: Business, B.S. at Mont Alto Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 (GWS) [‡]	3 CAS 100A (GWS) [‡]	3
MATH 110 (GQ) ^{‡†}	4 MIS 204	3
ECON 102 or 104 (GS) [†]	3 STAT 200 ^{††}	4
General Education Course	3 ECON 102 or 104 (GS) [†]	3
General Education Course (GHW)	1.5 General Education Course	3
PSU 8	1	
	15.5	16

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 BA 243	4
MKTG 301 [*]	3 FIN 301 [*]	3
General Education Course	3 ENGL 202D (GWS) [‡]	3
General Education Course	3 MGMT 301 [*]	3
General Education Course	3 General Education Course	3
	16	16

Third Year

Fall	Credits Spring	Credits
BA 321 [*]	3 SCM 301 [*]	3
BA 322 [*]	3 300/400 Level MGMT Course ^{*1}	3
IB 303 (IL) [*]	3 Option Course ^{*1}	3
300/400 Level MKTG Option Course ^{*1}	3 Option Course ^{*1}	3
General Education Course	3 General Education Course (GHW)	1.5
	Elective	3
	15	16.5

Fourth Year

Fall	Credits Spring	Credits
BA 420 [*]	1 BA 422W [*]	3
BA 421 [*]	3 BA 495A or 495B ^{*2}	3-6
MKTG/MGMT 400-Level Option Course ^{*1}	3 Elective	3
Option Course ^{*1}	3	
Elective	3	
	13	9-12

Total Credits 117-120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Students must take 0-6 credits in Business and Communication classes. Choose from the following list:

- BA 250
- ENGL 419
- MKTG 220
- CAS 250, 252, 352 or 404 (only one course may be taken from this list)

Students will also take 12-18 credits (*depending on selections above*) in 300/400 level MKTG/MGMT classes. Choose from the following list:

These selections must include at least three credits of 400-level courses in one of the next three areas. Each area below must be met as part of the 12-18 credit requirement.

- MGMT 321
- MGMT 326
- MGMT 331
- MGMT 341
- MGMT 424
- MGMT 451
- MKTG 310
- MKTG 327
- MKTG 330
- MKTG 342
- MKTG 422
- MKTG 450

² BA 495A (Internship) and BA 495B (Research) must be approved in advance. If the student only takes 3 credits in BA 495A/B, then they must take 3 credits of a 400-level option course from ACCTG, BA, ECON, ENTR, FIN, FINSV, HPA, IB, MGMT, MIS, MKTG, RM, or SCM

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- For the B.S. degree in Business, a minimum of 120 credits is required; 15 of which must be at the 400-level.
- 18 credits minimum are required for the Marketing and Management Option.

Individualized Option: Business, B.S. at Mont Alto Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If report**). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 (GWS) [‡]	3 ECON 102 (GS)	3
MATH 110 or 140 ^{††}	4 CAS 100A (GWS) [‡]	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course	3 Elective	3
16		15

Second Year

Fall	Credits Spring	Credits
STAT 200 [‡]	4 BA 243	4
ACCTG 211	4 MIS 204	3
General Education Course	3 ECON 104 (GS) [†]	3
General Education Course (GHW)	3 ENGL 202D (GWS) [‡]	3
	General Education Course	3
14		16

Third Year

Fall	Credits Spring	Credits
BA 321 [*]	3 MGMT 301 [*]	3
BA 322 [*]	3 SCM 301 [*]	3
IB 303 (IL) [*]	3 FIN 301 [*]	3
Individualized Option Course ^{*1}	3 Individualized Option Course ^{*1}	3
MKTG 301 [*]	3 Elective	3
15		15

Fourth Year

Fall	Credits Spring	Credits
BA 420 [*]	1 BA 422W [*]	3
BA 421 [*]	3 BA 495A or 495B [*]	3-6
Individualized Option Course ^{*1}	3 Individualized Option Course ^{*1}	3
Individualized Option Course ^{*1}	3 Individualized Option Course ^{*1}	3
Elective	3	
13		12-15

Total Credits 116-119

- * Course requires a grade of C or better for the major
 ‡ Course requires a grade of C or better for General Education
 # Course is an Entrance to Major requirement
 † Course satisfies General Education and degree requirement

takes 3 credits of BA 495, then they must take 3 credits of a 400-level option course from the following: ACCTG, BA, ECON, ENTR, FIN, FINSV, HPA, IB, MGMT, MIS, MKTG, RM, or SCM

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Minimum 120 credits required for graduation, 15 of which must be at the 400-level
- MATH 110 or 140 required for graduation requirement
- Maximum number of 100-level coursework to be accepted - 0 credits
- Maximum number of 200-level coursework to be accepted - 6 credits
- Maximum number of transfer credits - no limit
- Maximum coursework in disciplines other than the following: ACCTG, ECON, ENTR, FIN, FINSV, HPA, IB, MGMT, MKTG, SCM, STAT - 9 credits
- Maximum number of independent study/special topics coursework - 3 credits; must be at the 400-level
- Minimum number of 400-level credits completed in the following courses: ACCTG, ECON, ENTR, FIN, FINSV, HPA, IB, MGMT, MKTG, SCM, STAT - 3 credits

¹ Student must obtain approval for this course. Consult your adviser.

² BA 495A (Internship) and BA 495B (Research) and 400-level option supporting courses must be approved in advance. If the student only

New Kensington Campus

Accounting Option: Business, B.S. at New Kensington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100A (GWS) [*]	3
MATH 21, 22, or 26 (GQ) [‡]	3 ECON 102 (GS)	3
General Education Course	3 MIS 204 (GQ) [*]	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course (GHW)	1.5
	15	13.5

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 ENGL 202D (GWS) [‡]	3
ECON 104 (GS)	3 BA 243 or 241 <i>and</i> 242	4
STAT 200 (GQ) ^{*‡}	4 MIS 301 [*]	3
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course	3
	15.5	16

Third Year

Fall	Credits Spring	Credits
ACCTG 471 [*]	3 ACCTG 472 [*]	3
MKTG 301 [*]	3 SCM 301 [*]	3
MGMT 301 [*]	3 BA 420 [*]	1
IB 303 [*]	3 BA 421 [*]	3
BA 321 [*]	3 BA 322 [*]	3
	FIN 301 [*]	3
	15	16

Fourth Year

Fall	Credits Spring	Credits
ACCTG 404 [*]	3 ACCTG 403 [*]	3
BA 495A or 495B [*]	6 ACCTG 405 [*]	3
400-Level Option Course [*]	3 BA 422W [*]	3
Elective	3 Elective	3
	Elective	3
	15	15

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

University Requirements and General Education Notes:

Business Analytics Option: Business, B.S. at New Kensington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 ECON 102 or 104 (GS)	3
MATH 110 or 140 (GQ) [‡]	4 MIS 204 (GQ) [*]	3
General Education Course	3 CAS 100 (GWS) [*]	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
16		15

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 BA 243	4
STAT 200 (GQ) ^{*‡}	4 ENGL 202D (GWS) [‡]	3
ECON 102 or 104 (GS)	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
15.5		14.5

Third Year

Fall	Credits Spring	Credits
MKTG 301 [*]	3 SCM 301 [*]	3
MGMT 301 [*]	3 BA 322 [*]	3
MIS 301 [*]	3 MIS 431 [*]	3
BA 321 [*]	3 BA 420 [*]	1
IB 303 [*]	3 BA 421 [*]	3
	FIN 301 [*]	3
15		16

Fourth Year

Fall	Credits Spring	Credits
BA 495A or 495B [*]	6 BA 422W [*]	3
MIS 345 [*]	3 Supporting Course (300/400 Level) [*]	3
Elective	3 Supporting Course (300/400 Level) [*]	3
Supporting Course (300/400 Level) [*]	3 Elective	3
	Elective	3
15		15

Total Credits 122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Individualized Business Option and Management and Marketing Option: Business, B.S. at New Kensington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 ECON 102 (GS)	3
MATH 110 or 140 (GQ) [‡]	4 MIS 204 (GQ) [*]	3
General Education Course	3 CAS 100 (GWS) ^{*‡}	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course (GHW)	1.5
	16	13.5

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 BA 243 or 241 <i>and</i> 242	4
STAT 200 (GQ) [‡]	4 ENGL 202D (GWS) [‡]	3
ECON 104 (GS)	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course	3
	15.5	16

Third Year

Fall	Credits Spring	Credits
MKTG 301W [*]	3 BA 322 [*]	3
MGMT 301 [*]	3 BA 420 [*]	1
BA 321 [*]	3 BA 421 [*]	3
IB 303 [*]	3 FIN 301 [*]	3
MGMT/MKTG Option Course [*]	3 SCM 301 [*]	3
	MGMT/MKTG Option Course [*]	3
	15	16

Fourth Year

Fall	Credits Spring	Credits
BA 495A or 495B [*]	6 BA 422W [*]	3
MGMT/MKTG Option Course [*]	3 MGMT/MKTG Option Course [*]	3
MGMT/MKTG Option Course [*]	3 Elective	3
MGMT/MKTG Option Course [*]	3 Elective	3
400-Level Option Course [*]	3 General Education Course	3
	18	15

Total Credits 125

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Schuylkill Campus

Accounting Option: Business, B.S. at Schuylkill Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [‡]	3 ECON 104	3
ECON 102	3 CAS 100A [‡]	3
MATH 110 or 140 [‡]	4 MKTG 301 [*]	3
General Education Course	3 General Education Course	3
PSU 8	2 General Education Course	3
	15	15

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 ENGL 202D [‡]	3
BA 243	4 FIN 301 [*]	3
MIS 204	3 General Education Course	3
STAT 200 [‡]	4 General Education Course	3
General Education Course (GHW)	1.5 General Education Course	3
	16.5	15

Third Year

Fall	Credits Spring	Credits
ACCTG 471 (Option Course) [*]	3 ACCTG 403 [*]	3
BA 321 [*]	3 ACCTG 472 (Option Course) [*]	3
BA 322 [*]	3 BA 420 [*]	1
MGMT 301 [*]	3 IB 303 [*]	3
ACCTG 404 [*]	3 SCM 301 [*]	3
	Elective	3
	15	16

Fourth Year

Fall	Credits Spring	Credits
BA 421 [*]	3 BA 422W [*]	3
ACCTG 405 [*]	3 BA 495A or ACCTG 495 [*]	6
Option Requirement Course ^{*1}	3 Elective	3
General Education Course	3 General Education Course (GHW)	1.5
Elective	3	
	15	13.5

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Choose 400-level courses from: ACCTG, B A, B LAW, E B F, ECON, ENTR, FIN, H P A, I B, MGMT, MIS, MKTG, R M, STAT or SCM

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Business Analytics: Business, B.S. at Schuylkill Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If report**). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [†]	3 ECON 104 [†]	3
ECON 102 [†]	3 CAS 100A [‡]	3
MATH 110 or 140 [†]	4 MKTG 301 [*]	3
General Education Course	3 General Education Course	3
General Education Course	3 STAT 200 [‡]	4
PSU 8	2	
	18	16

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 FIN 301 [*]	3
MGMT 301 [*]	3 ENGL 202D [‡]	3
MIS 204 [*]	3 General Education Course	3
General Education Course	3 General Education Course	3
Elective	3 General Education Course	3
	16	15

Third Year

Fall	Credits Spring	Credits
BA 321 [*]	3 BA 421 [*]	3
BA 322 [*]	3 IB 303 [*]	3
MIS 301 [*]	3 MIS 345 [*]	3
General Education Course (GHW)	1.5 MIS 431 [*]	3
Elective	3 SCM 301 [*]	3
	13.5	15

Fourth Year

Fall	Credits Spring	Credits
BA 420 [*]	1 BA 422W [*]	3
Supporting Business Analytics Course elective (300 or 400 level with proper prerequisites) [*]	3 BA 495A [*]	6
Supporting Business Analytics Course elective (300 or 400 level with proper prerequisites) [*]	3 Supporting Business Analytics Course elective (300 or 400 level with proper prerequisites) [*]	3
Elective	3	
General Education Course (GHW)	1.5	
BA 243	4	
	15.5	12

Total Credits 121

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Health Services Option: Business, B.S. at Schuylkill Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year		
Fall	Credits Spring	Credits
ENGL 15 or 30H [†]	3 ECON 104 [†]	3
ECON 102 [†]	3 CAS 100A [‡]	3
MATH 110 or 140 ^{††}	4 MKTG 301 [*]	3
General Education Course	3 STAT 200 ^{††}	4
PSU 8	2 General Education Course	3
	15	16

Second Year		
Fall	Credits Spring	Credits
ACCTG 211	4 FIN 301 ^{††}	3
MGMT 301 [*]	3 ENGL 202D	3
MIS 204	3 General Education Course	3
General Education Course	3 General Education Course	3
Elective	3 General Education Course	3
	16	15

Third Year		
Fall	Credits Spring	Credits
HPA 101 [*]	3 IB 303 [*]	3
BA 321 [*]	3 BA 421 [*]	3
BA 243	4 HPA 332 [*]	3
BA 322 [*]	3 SCM 301 [*]	3
Elective	3 Health Services Option Course [*]	3
	General Education Course	1.5
	16	16.5

Fourth Year		
Fall	Credits Spring	Credits
BA 420 [*]	1 BA 422W [*]	3
General Education Course	3 BA 495 [*]	6
300 or 400 level HPA course	3 Elective	3
Health Services Option Course [*]	3 General Education Course	1.5
Health Services Option Course [*]	3	
	13	13.5

Total Credits 121

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

University Requirements and General Education Notes:

Management and Marketing Option: Business, B.S. at Schuylkill Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [‡]	3 ECON 104	3
ECON 102	3 CAS 100A [‡]	3
MATH 110 or 140 [‡]	4 MKTG 301 [*]	3
General Education Course	3 General Education Course	3
General Education Course	3 STAT 200 [‡]	4
PSU 8	2	
	18	16

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 FIN 301 [*]	3
MGMT 301 [*]	3 ENGL 202D [‡]	3
MIS 204	3 General Education Course	3
General Education Course	3 General Education Course	3
Elective	3 General Education Course	3
	16	15

Third Year

Fall	Credits Spring	Credits
BA 321 [*]	3 BA 421 [*]	3
BA 322 [*]	3 IB 303 [*]	3
BA 243	4 SCM 301 [*]	3
General Education Course (GHW)	1.5 Marketing and Management Options Course [*]	3
Marketing and Management Options Course [*]	3 Marketing and Management Options Course [*]	3
	14.5	15

Fourth Year

Fall	Credits Spring	Credits
BA 420 [*]	1 BA 422W [*]	3
Marketing and Management Option Course [*]	3 BA 495A [*]	6
Marketing and Management Option Course [*]	3 Elective	3
Marketing and Management Option Course [*]	3	
General Education Course (GHW)	1.5	
Elective	3	
	14.5	12

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Note:

MKTG 342 is a prerequisite for many upper-level MKTG courses.

Scranton Campus

Accounting Option: Business, B.S. at Scranton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ECON 102 or 104 (GS) [†]	3 ECON 104 or 102 (GS) [†]	3
ENGL 15 or 30H (GWS)	3 MIS 204	3
MATH 110 or 140 (GQ) [†]	4 CAS 100A (GWS)	3
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course / US Culture	3
PSU 8	1	
	15.5	15

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 MGMT 301 [*]	3
General Education Course	3 BA 243 (US)	4
MKTG 301 [*]	3 General Education Course	3
STAT 200 or SCM 200 (GQ) [†]	4 General Education Course	3
General Education Course (GHW)	1.5 Elective	3
	15.5	16

Third Year

Fall	Credits Spring	Credits
BA 321 [*]	3 BA 322 [*]	3
FIN 301 [*]	3 BA 420 [*]	1
ACCTG 471 [*]	3 SCM 301 [*]	3
General Education Course	3 ENGL 202D (GWS)	3
Elective	3 ACCTG 472 [*]	3
	Elective	3
	15	16

Fourth Year

Fall	Credits Spring	Credits
BA 421 [*]	3 ACCTG 403W [*]	3
IB 303 (IL) [*]	3 BA 422W [*]	3
ACCTG 404 [*]	3 BA 495A [*]	6
ACCTG 405 [*]	3 400-Level Business Course [*]	3
Elective	2-3	
	14-15	15

Total Credits 122-123

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

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W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- Available options of the BSBUC program at Penn State Scranton are Accounting, Business Analytics, Financial Services, Management & Marketing, and Individualized. A minimum of 120 credits is required for graduation.
- Note for the Accounting Option: Students wishing to complete Pennsylvania State Board of Accountancy Requirements for CPA certification are recommended to use elective credits to meet the additional 30 hours of academic credit by taking the following courses: ACCTG 431, ACCTG 432, ACCTG 461, ACCTG 473, ACCTG 483, ACCTG 497.

Academic Advising Notes:

- FIN 301: Smeal-bound students must take FIN 301 no later than semester 4 to satisfy entrance-to-major requirements in time for their application to the Smeal College.
- STAT 200: Student must not delay taking STAT 200 past semester 4, as it is a prerequisite for FIN 301 and SCM 301.
- A student's career/graduate school plans should be considered in developing an individualized academic plan. Be sure to consult an adviser in this department and your Degree Audit when scheduling courses. The Degree Audit on LionPATH is your official check of graduation requirements.

University Requirements and General Education Notes:

Business Analytics Option: Business, B.S. at Scranton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) ^{††}	3 CAS 100 (GWS) [‡]	3
MATH Requirement (GQ) ^{‡#}	3-4 MATH Requirement (GQ) ^{‡#}	3-4
ECON 102 or 104 (GS) [†]	3 ECON 102 or 104 (GS) [†]	3
General Education Course	3 MIS 204	3
General Education Course	3 General Education Course	3
PSU 8	1	
	16-17	15-16

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 BA 321 or 322 [*]	3
MATH Requirement (GQ) ^{‡#}	3-4 SCM 200 or STAT 200 [‡]	4
BA 243 (US)	4 MKTG 301 [*]	3
General Education Course	3 MGMT 301 [*]	3
	General Education Course	3
	14-15	16

Third Year

Fall	Credits Spring	Credits
BA 321 or 322 [*]	3 ENGL 202D (GWS) [‡]	3
FIN 301 [*]	3 BA 421 [*]	3
MIS 301 [*]	3 MIS 345 [*]	3
SCM 301 [*]	3 MIS 431 [*]	3
General Education Course	3 General Education Course	3
	BA 420 [*]	1
	15	16

Fourth Year

Fall	Credits Spring	Credits
IB 303 [*]	3 BA 422W [*]	3
Supporting Business Analytics Course Elective (300 or 400 level with proper prerequisites) [*]	3 BA 495A or 495B [*]	6
Supporting Business Analytics Course Elective (300 or 400 level with proper prerequisites) [*]	3 Supporting Business Analytics Course Elective (300 or 400 level with proper prerequisites) [*]	3
General Education Course (GHW)	3 Elective	3
Elective	3	
	15	15

Total Credits 122-125

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

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W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- Available options of the BSBUC program at Penn State Scranton are Accounting, Business Analytics, Financial Services, Management & Marketing, and Individualized. A minimum of 120 credits is required for graduation.
- Supporting Courses and Related Areas
 - Select 9 credits from the following (grade of C or better required): (COMM 310/IST 310¹, ECON 481, MIS 336, MIS 404, MIS 415, MIS 441, MIS 445, MKTG 342¹, MKTG 343) or (MKTG 473, MKTG 474, MKTG 480², SCM 340)
 - ¹ Course offered online (from World Campus)
 - ² Course offered online (from World Campus, BSBIC_BS)

Financial Services Option: Business, B.S. at Scranton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ECON 102 or 104 (GS) [†]	3 ECON 104 or 102 (GS) [†]	3
ENGL 15 or 30H (GWS)	3 MIS 204	3
MATH 110 or 140 (GQ) [†]	4 CAS 100A (GWS)	3
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course / US Culture	3
PSU 8	1	
	15.5	15

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 MKTG 301 [*]	3
MGMT 301 [*]	3 BA 243 (US)	4
STAT 200 or SCM 200 (GQ) [†]	4 FIN 301 [*]	3
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course	3
	15.5	16

Third Year

Fall	Credits Spring	Credits
BA 321 [*]	3 BA 322 [*]	3
SCM 301 [*]	3 BA 420 [*]	1
300/400-Level Course in ACCTG, FIN, FINSV or RM [*]	3 ENGL 202D (GWS)	3
General Education Course	3 FIN 420 [*]	3
Elective	3 300/400-Level Course in ACCTG, FIN, FINSV or RM [*]	3
	Elective	3
	15	16

Fourth Year

Fall	Credits Spring	Credits
BA 421 [*]	3 BA 422W [*]	3
IB 303 (IL) [*]	3 BA 495A [*]	6
ACCTG 405 [*]	3 300/400-Level Course in ACCTG, FIN, FINSV or RM [*]	3
400-Level Course in ACCTG, FIN, FINSV or RM [*]	3 Elective	1
Elective [*]	3	
	15	13

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

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W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- Available options of the BSBC program at Penn State Scranton are Accounting, Business Analytics, Financial Services, Management & Marketing, and Individualized. A minimum of 120 credits is required for graduation.

Academic Advising Notes:

- FIN 301: Smeal-bound students must take FIN 301 no later than semester 4 to satisfy entrance-to-major requirements in time for their application to the Smeal College.
- STAT 200: Student must not delay taking STAT 200 past semester 4, as it is a prerequisite for FIN 301 and SCM 301.
- A student's career/graduate school plans should be considered in developing an individualized academic plan. Be sure to consult an adviser in this department and your Degree Audit when scheduling courses. The Degree Audit on LionPATH is your official check of graduation requirements.

Management and Marketing Option: Business, B.S. at Scranton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ECON 102 or 104 (GS) [†]	3 ECON 104 or 102 (GS) [†]	3
ENGL 15 or 30H (GWS)	3 MIS 204	3
MATH 110 or 140 (GQ) [†]	4 CAS 100A (GWS)	3
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course / US Culture	3
PSU 8	1	
	15.5	15

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 MKTG 301 [*]	3
MGMT 301 [*]	3 300/400-Level Management or Marketing Course [*]	3
STAT 200 or SCM 200 (GQ) [†]	4 BA 243 (US)	4
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course	3
	15.5	16

Third Year

Fall	Credits Spring	Credits
BA 321 [*]	3 BA 322 [*]	3
FIN 301 [*]	3 BA 420 [*]	1
SCM 301 [*]	3 ENGL 202D (GWS)	3
300/400-Level Management Course [*]	3 General Education Course	3
Elective	3 300/400-Level Marketing Course [*]	3
	Elective	3
	15	16

Fourth Year

Fall	Credits Spring	Credits
BA 421 [*]	3 BA 422W [*]	3
IB 303 (IL) [*]	3 BA 495A [*]	6
300/400-Level Management or Marketing Course [*]	3 300/400-Level Management or Marketing Course [*]	3
400-Level Management or Marketing Course [*]	3 Elective	3
Elective	3	
	15	15

Total Credits 123

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- Available options of the BSBUC program at Penn State Scranton are Accounting, Business Analytics, Financial Services, Management & Marketing, and Individualized. A minimum of 120 credits is required for graduation.

Academic Advising Notes:

- FIN 301: Smeal-bound students must take FIN 301 no later than semester 4 to satisfy entrance-to-major requirements in time for their application to the Smeal College.
- STAT 200: Student must not delay taking STAT 200 past semester 4, as it is a prerequisite for FIN 301 and SCM 301.
- Instead of 300/400-level Management or Marketing, TWO of the option courses (6 credits) may also be specific Business or Business Communication courses listed in the PSU Bulletin (the two most often offered on this campus are BA 250 and MKTG 220).
- A student's career/graduate school plans should be considered in developing an individualized academic plan. Be sure to consult an adviser in this department and your Degree Audit when scheduling courses. The Degree Audit on LionPATH is your official check of graduation requirements.

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Individualized Option: Business, B.S. at Scranton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ECON 102 or 104 (GS) [†]	3 ECON 104 or 102 (GS) [†]	3
ENGL 15 or 30H (GWS)	3 MIS 204	3
MATH 110 or 140 (GQ) [†]	4 CAS 100A (GWS)	3
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course / US Culture	3
PSU 8	1	
	15.5	15

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 MGMT 301 [*]	3
MKTG 301 [*]	3 Option Course [*]	3
STAT 200 or SCM 200 (GQ) [†]	4 BA 243 (US)	4
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course	3
	15.5	16

Third Year

Fall	Credits Spring	Credits
BA 321 [*]	3 BA 322 [*]	3
FIN 301 [*]	3 BA 420 [*]	1
General Education Course	3 SCM 301 [*]	3
Option Course [*]	3 ENGL 202D (GWS)	3
Option Course [*]	3 Option Course [*]	3
	Elective	3
	15	16

Fourth Year

Fall	Credits Spring	Credits
BA 421 [*]	3 BA 422W [*]	3
IB 303 (IL) [*]	3 BA 495A [*]	6
400-Level Option Course [*]	3 Elective	4
Option Course [*]	3	
Elective	3	
	15	13

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- Available options of the BSBUC program at Penn State Scranton are Accounting, Business Analytics, Financial Services, Management & Marketing, and Individualized. A minimum of 120 credits is required for graduation.

Academic Advising Notes:

- FIN 301: Smeal-bound students must take FIN 301 no later than semester 4 to satisfy entrance-to-major requirements in time for their application to the Smeal College.
- STAT 200: Student must not delay taking STAT 200 past semester 4, as it is a prerequisite for FIN 301 and SCM 301.
- A student's career/graduate school plans should be considered in developing an individualized academic plan. Be sure to consult an adviser in this department and your Degree Audit when scheduling courses. The Degree Audit on LionPATH is your official check of graduation requirements.

University Requirements and General Education Notes:

Shenango Campus

Accounting Option: Business, B.S. at Shenango Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H ^{‡#}	3 CAS 100A or 100B [‡]	3
ECON 104	3 BA 243	4
General Education Course	3 ECON 102 [#]	3
General Education Course	3 MATH 110 (GQ) ^{*#†}	4
PSU 8	1 General Education Course	3
	13	17

Second Year

Fall	Credits Spring	Credits
ACCTG 211 ^{*#}	4 SCM 200	4
MKTG 301 [#]	3 ENGL 202D [‡]	3
MGMT 301 [#]	3 MIS 204	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course (GHW)	3
	16	16

Third Year

Fall	Credits Spring	Credits
ACCTG 471 [*]	3 ACCTG 472 [*]	3
BA 321 [*]	3 BA 421	3
BA 322 [*]	3 FIN 301	3
SCM 301 [*]	3 400-Level Business Elective	3
General Education Course	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
ACCTG 403 [*]	3 BA 364Y	3
ACCTG 404	3 ACCTG 405 [*]	3
IB 303	3 BA 495	6
Elective	3	
Elective	3	
BA 420 [*]	1	
	16	12

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- 30 credits of GA, GH, GN, GHW, GS to include 6 Integrative Studies Credits
- 15 credits of GQ and GWS require a grade of "C" or better

Management and Marketing Option: Business, B.S. at Shenango Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100A or 100B [‡]	3
ECON 104 [†]	3 ECON 102 or 104 [†]	3
General Education Course	3 MATH 110 ^{††}	4
General Education Course	3 BA 243	4
First Year Seminar	1 General Education Course	3
	13	17

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 ENGL 202D (GWS) [‡]	3
MGMT 301 [*]	3 MIS 204	3
MKTG 301W [*]	3 SCM 200 ^{††}	4
General Education Course	3 300/400 Level Option Course [*]	3
General Education Course	3 General Education Course	3
	16	16

Third Year

Fall	Credits Spring	Credits
BA 321 [*]	3 BA 421 [*]	3
BA 322 [*]	3 FIN 301 [*]	3
SCM 301 [*]	3 300/400 Level Option Course [*]	3
General Education Course	3 Elective	3
General Education Course	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
ENGL 419 [*]	3 BA 422W [*]	3
IB 303 [*]	3 BA 495A [*]	6
BA 420 [*]	1 400-Level Option Course [*]	3
300/400 Level Option Course [*]	3	
400-Level Option Course [*]	3	
Elective	3	
	16	12

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

University Requirements and General Education Notes:

Individualized Option: Business, B.S. at Shenango Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100A or 100B (GWS) [‡]	3
ECON 104 [†]	3 ECON 102 or 104 [†]	3
General Education Course	3 MATH 110 ^{††}	4
General Education Course	3 General Education Course	3
First Year Seminar	1 BA 243	4
	13	17

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 ENGL 202D (GWS) [‡]	3
MGMT 301 [*]	3 SCM 200 (GQ) ^{††}	4
MKTG 301W [*]	3 MIS 204	3
General Education Course	3 Approved Individualized Option [*]	3
General Education Course	3 General Education Course	3
	16	16

Third Year

Fall	Credits Spring	Credits
BA 321 [*]	3 BA 421 [*]	3
BA 322 [*]	3 FIN 301 [*]	3
SCM 301 [*]	3 Elective	3
General Education Course	3 Approved Individualized Option Course [*]	3
General Education Course	3	
	15	12

Fourth Year

Fall	Credits Spring	Credits
IB 303 [*]	3 BA 422W [*]	3
BA 420 [*]	1 BA 495A [*]	6
Approved Individualized Option Course [*]	3 Approved Individualized Option Course [*]	3
Approved Individualized Option Course [*]	3 General Education Course	3
Approved 400-Level Individualized Option Course [*]	3	
Elective	3	
	16	15

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Wilkes-Barre Campus

Accounting Option: Business, B.S. at Wilkes-Barre Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [‡]	3 CAS 100 [‡]	3
MATH 110 or 140 [‡]	4 ECON 102 or 104	3
ECON 102 or 104	3 MIS 204	3
PSU 8	1 General Education Course	3
General Education Course	3 General Education Course	3
	14	15

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 ENGL 202D [‡]	3
STAT 200 or SCM 200 [‡]	4 BA 243	4
MKTG 301 [*]	3 FIN 301 [*]	3
MGMT 301 [*]	3 SCM 301 [*]	3
General Education Course	3 General Education Course	3
	17	16

Third Year

Fall	Credits Spring	Credits
ACCTG 471 [*]	3 ACCTG 403 [*]	3
BA 321 [*]	3 ACCTG 472 [*]	3
ACCTG 404 [*]	3 BA 322 [*]	3
IB 303 [*]	3 General Education Course	3
General Education Course	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
BA 420 [*]	1 BA 422W [*]	3
BA 421 [*]	3 BA 495A or 495B [*]	6
ACCTG 405 [*]	3 Option Requirement ^{*1}	3
General Education Course	3 Elective	3
Elective	3	
	13	15

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ Choose a 400-level course from:

ACCTG, B A, B LAW, E B F, ECON, ENTR, FIN, H P A, I B, MGMT, MIS, MKTG, R M, STAT or SCM

Business Analytics Option: Business, B.S. at Wilkes-Barre Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H ^{††}	3 CAS 100 [‡]	3
MATH 110 or 140 ^{††}	4 ECON 102 or 104	3
ECON 102 or 104 [†]	3 MIS 204	3
PSU 8	1 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course	3	
	17	15

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 ENGL 202D [‡]	3
STAT 200 or SCM 200 ^{††}	4 BA 243	4
MGMT 301 [*]	3 FIN 301 [*]	3
MKTG 301W [*]	3 SCM 301 [*]	3
General Education Course	3 General Education Course	3
	17	16

Third Year

Fall	Credits Spring	Credits
BA 321 [*]	3 BA 322 [*]	3
IB 303 [*]	3 MIS 345 [*]	3
MIS 301 [*]	3 MIS 431 [*]	3
General Education Course	3 General Education Course	3
Elective	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
BA 420 [*]	1 BA 422W [*]	3
BA 421 [*]	3 BA 495A or 495B [*]	6
Supporting Business Analytics Course elective (300 or 400 level with proper prerequisites) [*]	3 Supporting Business Analytics Course elective (300 or 400 level with proper prerequisites) [*]	3
Supporting Business Analytics Course elective (300 or 400 level with proper prerequisites) [*]	3	
Elective	3	
	13	12

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Management and Marketing Option: Business, B.S. at Wilkes-Barre Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [‡]	3 CAS 100 [‡]	3
MATH 110 or 140 [‡]	4 MIS 204	3
ECON 102 or 104	3 ECON 102 or 104	3
PSU 8	1 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course	3	3
	17	15

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 ENGL 202D [‡]	3
STAT 200 [‡]	4 FIN 301 [*]	3
MGMT 301 [*]	3 SCM 301 [*]	3
MKTG 301W [*]	3 BA 243	4
General Education Course	3 General Education Course (GHW)	1.5
	17	14.5

Third Year

Fall	Credits Spring	Credits
BA 321 [*]	3 BA 322 [*]	3
IB 303 [*]	3 MKTG/MGMT Option Course ^{*1}	3
Communication Option Course ^{*2}	3 Elective	3
General Education Course	3 General Education Course	3
MKTG/MGMT Option Course ^{*1}	3 General Education Course (GHW)	1.5
	15	13.5

Fourth Year

Fall	Credits Spring	Credits
BA 420 [*]	1 BA 422W [*]	3
BA 421 [*]	3 BA 495A or 495B [*]	6
MKTG/MGMT 400-level Option Course ^{*1}	3 Elective	3
MKTG/MGMT Option Course ^{*1}	3 Elective	3
MKTG/MGMT Option Course ^{*1}	3	3
Elective	3	3
	16	15

Total Credits 123

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ Marketing/Management Option Course List

Select 15 credits from the following (to include at least 3 credits in MGMT and 3 credits in MKTG and at least 3 credits at the 400 level):

- B A 250 (3): Small Business Management
- MGMT 321 (3): Leadership and Motivation
- MGMT 326 (3): Organizational Behavior and Design
- MGMT 331 (3): Management and Organization
- MGMT 341 (3): Human Resource Management
- MGMT 424 (3): Interpersonal Relationships in Organizations
- MGMT 451W (3): Business, Ethics, and Society
- MKTG 220 (3): Introduction to Selling Techniques
- MKTG 310 (3): Public Relations and Marketing
- MKTG 327 (3): Retailing
- MKTG 330 (3): Consumer Behavior
- MKTG 342 (3): Marketing Research
- MKTG 422 (3): Advertising and Sales Promotion Management
- MKTG 450W (3): Marketing Strategy

² COMMUNICATIONS OPTIONS COURSE

Select 3 credits from

- CAS 250 (3): Small Group Communication
- CAS 252 (3): Business and Professional Communication
- CAS 352 (3): Organizational Communication
- CAS 404 (3): Conflict Resolution and Negotiation
- ENGL 419 (3): Advanced Business Writing

³ Students may opt to take an additional MGMT/MKTG 300-400 level course in lieu of Communications Course for a total of 18 credits MGMT/MKTG.

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

York Campus

Accounting Option: Business, B.S. at York Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 ECON 102 or 104 (GS)	3
MATH 110 or 140 (GQ) [‡]	4 CAS 100A, 100B, or 100C (GWS) [‡]	3
General Education Course (GN)	3 MATH 110 or 140 (GQ) [‡]	4
General Education Course (GA)	3 General Education Course (GN)	3
General Education Course (GH)	3 General Education Course (GA)	3
	16	16

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 ENGL 202D (GWS) [‡]	3
ECON 102 or 104 (GS)	3 BA 243	4
MIS 204	3 MGMT 301 [*]	3
General Education Course (GH)	3 SCM 200 or STAT 200 (GQ) [‡]	4
General Education Course (GHW)	1-3 General Education Course (GN)	3
	14-16	17

Third Year

Fall	Credits Spring	Credits
BA 321 [*]	3 BA 322 [*]	3
ACCTG 471 [*]	3 IB 303 [*]	3
FIN 301 [*]	3 SCM 301 [*]	3
ACCTG 405 [*]	3 ACCTG 472 [*]	3
MKTG 301W [*]	3 ACCTG 404 [*]	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
BA 420 [*]	1 BA 422W [*]	3
BA 421 [*]	3 Elective	3
Elective	3 General Education Course (GHW)	1-3
ACCTG 403 [*]	3 ACCTG 495 [*]	3-6
400-Level Business Course [*]	3	
	13	10-15

Total Credits 116-123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

This option prepares students for careers in the accounting field. When the students complete the prescribed courses of the BSB degree with Accounting Option, they will meet the academic requirements to sit for the Certified Public Accountant (CPA) examination. Graduates of the BSB degree with Accounting Option may be able to pursue other professional certifications, such as Certified Management Accountant (CMA) and Certified Internal Auditor (CIA).

Business Analytics Option: Business, B.S. at York Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [†]	3 ECON 104 (GS)	3
ECON 102 (GS) [†]	3 CAS 100A, 100B, or 100C (GWS) [‡]	3
General Education Course (GA)	3 General Education Course (GA)	3
General Education Course (GH)	3 General Education Course (GH)	3
General Education Course (GN)	3 MATH 110 (GQ) [‡]	4
General Education Course (GHW)	1-3 General Education Course (GHW)	1-3
	16-18	17-19

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 ENGL 202D (GWS) [‡]	3
General Education Course (GN)	3 BA 243	4
Elective	3 MIS 204	3
MGMT 301 [*]	3 STAT 200 (GQ) [‡]	4
General Education Course (GHW)	1-3 General Education Course (GN)	3
	14-16	17

Third Year

Fall	Credits Spring	Credits
BA 321 [*]	3 BA 322 [*]	3
SCM 301 [*]	3 IB 303 [*]	3
FIN 301 [*]	3 Elective	3
MIS 301 [*]	3 MIS 345 [*]	3
MKTG 301W [*]	3 MIS 431 [*]	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
BA 420 [*]	1 400-Level Business Elective	0-3
BA 421 [*]	3 BA 422W [*]	3
Elective	3 Supporting Business Analytics Course Elective (300 or 400 level with proper prerequisites) [*]	3
Supporting Business Analytics Course Elective (300 or 400 level with proper prerequisites) [*]	3 Elective	3

Supporting Business Analytics Course Elective (300 or 400 level with proper prerequisites) [*]	3 BA 495A or 495B [*]	3-6
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13**12****Total Credits 119-125**

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- Supporting Courses and Related Areas
 - Select 9 credits from the following (grade of C or better required): (ECON 481, MIS 336, MIS 404, MIS 415, MIS 441, MIS 445, MKTG 342¹, MKTG 343) or (MKTG 473, MKTG 474, MKTG 480², SCM 340)
 - ¹ Course offered online (from World Campus)
 - ² Course offered online (from World Campus, BSBIC_BS)

Individualized Business Option: Business, B.S. at York Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [‡]	3 ECON 102 or 104 (GS)	3
MATH 110 or 140 ^{††}	4 CAS 100A, 100B, or 100C (GWS) [‡]	3
General Education Course (GN)	3 MATH 110 or 140 ^{††}	4
General Education Course (GA)	3 General Education Course (GN)	3
General Education Course (GH)	3 General Education Course (GA)	3
	16	16

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 ENGL 202D [‡]	3
ECON 102 or 104 (GS)	3 BA 243	4
General Education Course (GH)	3 SCM 200 or STAT 200 [†]	4
General Education Course (GHW)	3 General Education Course	3
MIS 204	3 MKTG 301 [*]	3
	16	17

Third Year

Fall	Credits Spring	Credits
BA 321 [*]	3 BA 322 [*]	3
FIN 301 [*]	3 IB 303 (IL) [*]	3
SCM 301 [*]	3 Elective	3
MGMT 301 [*]	3 Individualized Option Course ^{*1}	3
Individualized Option Course ^{*1}	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
BA 420 [*]	1 BA 422W [*]	3
BA 421 [*]	3 BA 495A or 495B [*]	6
Elective	3 Individualized Option Course ^{*1}	3
Individualized Option Course ^{*1}	3 Individualized Option Course ^{*1}	3
Individualized Option Course ^{*1}	3	
	13	15

Total Credits 123

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Student must obtain approval for this course. Consult your adviser.**University Requirements and General Education Notes:**

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Minimum 120 credits required for graduation, 15 of which must be at the 400-level
- MATH 110 or 140 required for graduation requirement
- Maximum number of 100-level coursework to be accepted - 0 credits
- Maximum number of 200-level coursework to be accepted - 6 credits
- Maximum number of transfer credits - no limit
- Maximum coursework in disciplines other than the following: ACCTG, ECON, ENTR, FIN, FINSV, HPA, IB, MGMT, MKTG, SCM, STAT - 9 credits
- Maximum number of independent study/special topics coursework - 3 credits; must be at the 400-level
- Minimum number of 400-level credits completed in the following courses: ACCTG, ECON, ENTR, FIN, FINSV, HPA, IB, MGMT, MKTG, SCM, STAT - 3 credits

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Management and Marketing Option: Business, B.S. at York Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [‡]	3 ECON 102 or 104 (GS)	3
MATH 110 or 140 (GQ) [‡]	4 CAS 100A, 100B, or 100C (GWS) [‡]	3
General Education Course (GN)	3 MATH 110 or 140 (GQ) [‡]	4
General Education Course (GA)	3 General Education Course (GN)	3
General Education Course (GH)	3 General Education Course (GA)	3
	16	16

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 ENGL 202D [‡]	3
General Education Course (GH)	3 BA 243	4
ECON 102 or 104	3 SCM 200 or STAT 200 [‡]	4
MIS 204	3 MGMT 301 [*]	3
General Education Course (GHW)	1-3 MKTG 301 [*]	3
	14-16	17

Third Year

Fall	Credits Spring	Credits
BA 321 [*]	3 BA 322 [*]	3
MGMT/MKTG 300-400 Level Course [*]	3 IB 303 [*]	3
FIN 301 [*]	3 MGMT/MKTG 300-400 Level Course [*]	3
MGMT/MKTG 300-400 Level Course [*]	3 MGMT/MKTG 300-400 Level Course [*]	3
SCM 301 [*]	3 MGMT/MKTG 300-400 Level Course [*]	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
BA 420 [*]	1 BA 422W	3
BA 421 [*]	3 BA 495A or 495B [*]	3-6
Elective	3 Elective	3
MGMT/MKTG 300-400 Level Course [*]	3 General Education Course (GHW)	1-3
General Education Course (GN)	3	
	13	10-15

Total Credits 116-123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

In today's economic environment, the Bachelor of Science in Business allows companies to hire individuals who have a broad knowledge of all aspects of business. This broad knowledge give you the opportunity to be effective within many different types of organizations. You will also be well-positioned to pursue admission to graduate programs.

Careers

With a degree in business, you may specialize through options that may vary by campus. With an accounting option, you can work in the areas of financial and managerial accounting, systems and controls, taxation, and auditing. The entrepreneurship option provides the skills for you to start your own business or to work as an entrepreneur within a company. Health services provides the financial and administrative skills and knowledge necessary for you to become a health services managers. With an option in financial services you might pursue positions in wealth and risk management, estate planning or financial and retirement planning. With the management and marketing option you will be prepared for a career in retail management, small business management or in marketing, advertising and promotion. Finally, with an individualized option, you have flexibility to build specialized skills for your personal business career goals.

Opportunities for Graduate Studies

A baccalaureate degree in Business can lead to a Master's degree in Business (MBA) or other business-related masters degrees. MBA programs are offered at Penn State Great Valley, Penn State Erie, Penn State Harrisburg, Penn State Berks, Smeal College of Business and through the World Campus.

Contact**Beaver**

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-business-bachelor-of-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-business-bachelor-of-science-degree/>)

Business, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Business minor is a strong complement to virtually any major. Courses prescribed for the minor are taught by Penn State faculty providing courses to the B.S. in Business and the A.S. in Business Administration. It provides students with the opportunity to develop and apply skills appropriate to the business contexts of their chosen majors. Students pursuing the Business minor must complete 13 credits of prescribed coursework and six credits of additional coursework.

A grade of C or better is required for all courses in the minor. The prescribed thirteen credits of coursework presents students with a critical foundation of core business disciplines: accounting, management, marketing, and either macro- or micro-economics. The six credits of additional coursework must be taken at the 400-level.

The additional coursework enables students to expand on the core foundation in one of two ways. They may choose to solidify their business knowledge base by exploring six credits of 400-level business courses in the following disciplines:

- Accounting
- Business Administration
- Business Law
- Energy Business and Finance
- Economics
- Entrepreneurship
- Finance
- Financial Services
- Health Policy and Administration
- International Business
- Labor Studies and Employment Relations
- Management Information Systems
- Management
- Marketing
- Risk Management
- Supply Chain Management
- Statistics

Alternately, students can augment three credits of 400-level coursework in one of the above listed business disciplines with three credits of 400-level work from an approved list of specific business-related course in disciplines such as:

- Communication Arts and Sciences
- Corporate Communication
- Communications
- Criminal Justice
- Engineering
- English
- Human Development and Family Studies
- History
- Hospitality Management
- Information Sciences and Technology
- Kinesiology
- Philosophy
- Political Science
- Psychology
- Recreation, Park and Tourism Management
- Sociology

What is Business?

Business is a professionally-oriented program providing a broad education and solid grounding of business knowledge. The Business minor complements any major and provides a broad education and

introduction to business knowledge. With opportunities to learn about business disciplines, including accounting, management, marketing, and economics, students will gain skills and the tools to apply in any setting.

You Might Like This Program If...

You want to add business skills to strengthen your career options. You are not a business major, but are interested in working in a business setting. You enjoy courses in economics, accounting or other business disciplines. You are a collaborator, analytical thinker and effective communicator.

Program Requirements

Requirement	Credits
Requirements for the Minor	19

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
MGMT 301	Basic Management Concepts	3
MKTG 301	Principles of Marketing	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
ECON 102 or ECON 104	Introductory Microeconomic Analysis and Policy Introductory Macroeconomic Analysis and Policy	3
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 3-6 credits at the 400 level from ACCTG, BA, BLAW, EBF, ECON, ENTR, FIN, FINSV, HPA, IB, LER, MIS, MGMT, MKTG, RM, SCM, or STAT		
Select 0-3 credits at the 400-level from the following: 0-3		
CAS 404	Conflict Resolution and Negotiation	
CAS 452	Organizational Communication Theory and Research	
CAS 483	Communication and Information Technology II	
CC 401	Internal Communication	
CC 490W	Seminar in Corporate Communication	
COMM 421W	Advertising Creative Strategies	
COMM 427	Client/Agency Relations	
COMM 471	Public Relations Media and Methods	
CRIMJ 408	Police Administration	
CRIMJ/SOC 467	Law and Society	
ENGL 419	Advanced Business Writing	
ENGL 420	Writing for the Web	
ENGR 425	New Venture Creation	
HDFS 401	Project Planning, Implementation, and Evaluation in the Human Services	
HDFS 424	Family Development in an Economic Context	

HDFS 425	
HDFS 455	Development and Administration of Human Services Programs
HIST 458Y	History of Work in America
HM 435	Hospitality Corporate Finance
HM 471	
HM 484	Hospitality Entrepreneurship and Innovation
IST 402	Emerging Issues and Technologies
IST 420	Fundamentals of Systems and Enterprise Integration
IST 425	New Venture Creation
IST 431	The Information Environment
IST 432	Legal and Regulatory Environment of Information Science and Technology
IST 461	Database Management and Administration
KINES 438	
KINES 492W	Programming for Business and Agencies
PHIL 406	
PLSC 440	Globalization and Its Implications
PSYCH 404	Principles of Measurement
PSYCH 408	Program Evaluation
PSYCH 423	Social Psychology of Interpersonal/Intergroup Relationships
PSYCH 482	Selection and Assessment in Organizations
PSYCH 484	Work Attitudes and Motivation
PSYCH 485	Leadership in Work Settings
RPTM 410	Marketing of Recreation Services
RPTM 415	Commercial Recreation Management
RPTM 470	Recreation and Park Management
SOC 455	Work and Occupations
SOC 456	Gender, Occupations, and Professions

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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World Campus

Undergraduate Academic Advising

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advising@worldcampus.psu.edu

Career Paths

Adding valuable business skill will strengthen your academic program and assist you in meeting admissions requirements for masters in business programs.

Careers

A minor in business will complement your major and provide a well-rounded skill set that can be applied in business, education, industry, health care or non-profit settings.

Opportunities for Graduate Studies

Upon completion of minor in business, you will have completed business disciplinary courses that can assist you in transitioning to master's of business (MBA) programs.

Contact

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Communication Arts and Sciences, B.A. (University College)

Begin Campus: Any Penn State Campus

End Campus: Brandywine

Program Description

This major helps students better understand and analyze how people communicate in order to influence others and impact the world around them. The ability to communicate effectively in personal, social, professional, and multicultural situations is an essential skill in modern society. Discovering how to improve practices of communication in any of those situations—whether from a humanistic or scientific perspective—is equally vital. Students of Communication Arts and Sciences will therefore learn to argue persuasively, think critically, solve problems collaboratively, understand and manage conflict, influence people ethically, form and keep relationships, and participate constructively in civic life. The flexibility of this program offers preparation for a variety of careers, which include administration, business, health, higher education, human resources, law, public service, social or political advocacy, and more. Such flexibility is illustrated in the fact that this degree offers two different options for completion based on varying instructional and student needs (the Communication Studies option and the Foundations, Scholarship, and Practice option). For these reasons, majoring in Communication Arts and Sciences also offers an excellent concurrent degree program: a substantive understanding of human communication—which is valuable in numerous forms of personal, social, or professional life—can significantly enhance students' preparation in many fields of study.

Two degree options are available for the Communication Arts and Sciences B.A. in order to provide flexibility based on student and faculty needs at different campuses where the degree is offered:

Communication Studies Option

Available at the following campuses: Berks, Brandywine

The B.A. in Communication Arts and Sciences (Communication Studies) provides increased knowledge and skill concerning the practice of human communication across an array of interpersonal, organizational, social, and cultural contexts. Students pursuing the B.A. in this degree option will learn to argue persuasively, think critically, solve problems

collaboratively, understand and manage conflict, influence people ethically, form and keep relationships, and participate constructively in civic life. The flexibility of this program offers preparation for a variety of careers, which include administration, business, health, higher education, human resources, law, public service, social or political advocacy, and more. The B.A. in Communication Arts and Sciences (Communication Studies) also offers an excellent concurrent degree program: a substantive understanding of human communication—which is valuable in numerous forms of personal, social, and professional life—can significantly enhance students' preparation in many fields of study.

Foundations, Scholarship, and Practice Option

Available at the following campuses: University Park

The B.A. in Communication Arts and Sciences (Foundations, Scholarship, and Practice) promotes an understanding of fundamental facets of human communication, knowledge of theories and research that illuminate communication processes, and expertise in practical applications of communication research to civic, cultural, family, health, interpersonal, organizational, and social contexts. Students pursuing the B.A. in this degree option will learn to argue persuasively, think critically, solve problems collaboratively, understand and manage conflict, influence people ethically, form and keep relationships, and participate constructively in civic life. The flexibility of this program offers preparation for a variety of careers, which include administration, business, health, higher education, human resources, law, public service, social or political advocacy, and more. The B.A. in Communication Arts and Sciences (Foundations, Scholarship, and Practice) also offers an excellent concurrent degree program: A substantive understanding of human communication—which is valuable in numerous forms of personal, social, or professional life—can significantly enhance students' preparation in many fields of study.

What is Communication Arts and Sciences?

Communication Arts and Sciences (CAS) privileges the study and practice of communication in interpersonal, organizational, public, and intercultural contexts. Using methods and theories that span the humanities and social sciences, faculty and students create knowledge about the history, present state, and prospects of the fact that we can and do influence one another. This major inspires students to be more effective and ethical in the personal, professional, and public roles their futures have in store for them.

You Might Like This Program If...

- You want to learn about the history and theory of communication from both humanistic and social scientific perspectives.
- You are curious about relationships, group dynamics, power, and conflict.
- You want to learn to craft powerful, ethical messages that make a difference.
- You want to develop analytical and critical thinking skills to understand how messages influence people and shape situations and institutions.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and

2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Communication Arts and Sciences, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	12-15
Bachelor of Arts Degree Requirements	24
Requirements for the Major	36-39

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CAS 301	Rhetorical Theory	3
CAS 303	Communication Theory	3
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 15 credits of other CAS courses; at least 12 credits must be at the 400 level. A maximum of 3 credits from CAS 494, CAS 495, CAS 496, and CAS 499 may satisfy this requirement. CAS 126 and CAS 195 may not be counted as part of the major.		15
Requirements for the Option		
<i>Requirements for the Option: Require a grade of C or better</i>		
Select an option		15-18

Requirements for the Option

Communication Studies Option (15 Credits)

Available at the following campuses: Berks, Brandywine

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		

CAS 204	Communication Research Methods	3
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Additional Courses

Additional Courses: Require a grade of C or better

Select 3 credits from the following list: 3

CAS 203	Interpersonal Communication	
CAS 213	Persuasive Speaking	
CAS 214W	Speech Writing	
CAS 216	Practical Parliamentary Procedure	
CAS 250	Small Group Communication	
CAS 252	Business and Professional Communication	
CAS 271N	Intercultural Communication	
CAS 280W	Storytelling and Speaking	
CAS 283	Communication and Information Technology I	

Select 3 credits from the following list: 3

CAS 302	Social Influence	
CAS 311	Methods of Rhetorical Criticism	
CAS 321	Rhetoric and Law	
CAS 352	Organizational Communication	
CAS 373	The Rhetorics of War and Peace	
CAS 375	Rhetoric and Public Controversy	
CAS 383N	Culture and Technology	
CAS 398	Special Topics	
CAS 399	Foreign Studies	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 6 credits from CAS courses, 3 credits maximum from: 6

CAS 494	Research Topics	
CAS 495	Internship	
CAS 496	Independent Studies	
CAS 499	Foreign Studies	

Foundations, Scholarship, and Practice Option (18 Credits)

Available at the following campuses: University Park

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CAS 101N	Introduction to Human Communication	3
CAS 304	Quantitative Methods for Communication Research	3
CAS 311	Methods of Rhetorical Criticism	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 9 credits from the following list:		9
CAS 203	Interpersonal Communication	
CAS 210	Landmark Speeches on Democracy and Dissent	
CAS 215	Argumentation	
CAS 220	Persuasion	

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing

intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- **Analyze Current Events:** Graduates will be able to analyze current events using theories and methods from the discipline.
- **Analyze Scholarship:** Graduates will be able to analyze scholarships and discuss limitations of research.
- **Communication:** Graduates will be able to effectively receive, process, and relay information through speaking, writing, and listening.
- **Critical Thinking:** Graduates will be able to argue both sides of differing ideas and conclusion through dispassionate analysis.
- **Cross Cultural Competence:** Graduates will be able to compare and contrast cultural norms as well as discuss how communication differs, and therefore, creates different norms across cultures.
- **Knowledge of Field:** Graduates will be able to summarize scholars and scholarship within the discipline.
- **Organize Research:** Graduates will be able to organize research and arguments within the discipline via papers and presentations.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The

advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Brandywine

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University Park

Liberal Arts Academic Advising

814-865-2545

Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Communication Arts and Sciences, B.A. at Brandywine Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [‡]	3 CAS 100 [‡]	3
World Language course	4 World Language course	4
General Education course (GHW)	1.5 General Education course	6
General Education course	6 General Education course (GHW)	1.5
	14.5	14.5

Second Year

Fall	Credits Spring	Credits
CAS 301 [*]	3 ENGL 202 [‡]	3
General Education course	9 CAS Selection (200 Level Skills Course) [*]	3
General Education course or World Language course	3-4 CAS 204	3
	CAS 303	3
	BA Requirement	3
	General Education course	3
	15-16	18

Third Year

Fall	Credits Spring	Credits
CAS 204 [*]	3 CAS Selection (300 level) [*]	3
CAS Selection (400 Level) [*]	3 CAS Selection (400 level) [*]	3
CAS Selection (200, 300, or 400 Level) [*]	3 BA Requirement	6
Elective [*]	3 General Education course	3
General Education course	3	
	15	15

Fourth Year

Fall	Credits Spring	Credits
CAS Selection (400 level) [*]	3 CAS Selection (400 level) [*]	3
Elective [*]	9 Elective [*]	12
World Cultures	3	
	15	15

Total Credits 122-123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may

not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Career Paths

CAS graduates are analysts, strategists, persuaders, facilitators, negotiators, collaborators, connectors, and leaders. The CAS B.A. equips students for success in the workforce, graduate and law school, and civic life.

Careers

The CAS B.A. prepares students for success in careers that value a rigorous and diverse understanding of communication practices. Graduates thrive in careers in business, government, law, public relations, public policy, sales, and more.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE COMMUNICATION ARTS AND SCIENCES PROGRAM (<https://cas.la.psu.edu/undergraduate/careers-in-cas/>)

Opportunities for Graduate Studies

The CAS B.A. provides excellent preparation for graduate study in rhetoric, as well as fields such as business, human resources and employment relations, law, and public policy. CAS at University Park has three integrated undergraduate-graduate degrees through which approved CAS majors can earn an undergraduate and graduate degree in five years instead of six: Public Policy, Media Studies, and Human Resources and Employment Relations.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://cas.la.psu.edu/undergraduate/integrated-undergraduate-graduate-programs/>)

Professional Resources

- National Communication Association (<https://www.natcom.org/>)
- International Communication Association (<https://www.icaahdq.org>)
- Rhetoric Society of America (<https://rhetoricsociety.org>)
- International Society for the History of Rhetoric (https://ishr-web.org/aw/ISHR/pt/sp/home_page/)
- Lambda Pi Eta (<https://www.natcom.org/lambda-pi-eta/>)

Contact

Brandywine

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jdp5595@psu.edu

<https://www.brandywine.psu.edu/academics/bachelors-degrees/communication-arts-and-sciences> (<https://www.brandywine.psu.edu/academics/bachelors-degrees/communication-arts-and-sciences/>)

Berks

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Franco Building
Reading, PA 19610
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<https://berks.psu.edu/academics/ba-communication-arts-sciences>
(<https://berks.psu.edu/academics/ba-communication-arts-sciences/>)

University Park

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234 Sparks Building
University Park, PA 16802
sas519@psu.edu and cas@psu.edu

<https://cas.la.psu.edu/>

Communications, B.A. (University College)

Begin Campus: Any Penn State Campus

End Campus: Brandywine, New Kensington

Program Description

With the rapid development of digital technologies over the last decade, the field of communications has seen unprecedented growth and convergence of medium in media both technologically and structurally. The communications degree program addresses strongly articulated employer requirements for the workplace through an integrated program model. The degree provides the basic theoretical foundations of the discipline, allows for appropriate branching outside the traditional curriculum, and permits a drawing from appropriate courses in the disciplines of information sciences and technology, communications, arts and sciences, English, and business.

The degree in communications provides two options for students who wish to develop their written and verbal skills in an effort to gain professional employment in fields such as public relations, publishing, speech writing, video and multimedia, production, and/or journalism.

Corporate Communications Option

Available at the following campuses: Brandywine, New Kensington

In extending traditional organizational communication, strategic communication, and public relations to the digital age, this option prepares students to compete in a global society. The program is also effective as preparation for e-commerce.

Digital Journalism Option

Available at the following campuses: New Kensington

In today's workplace, journalism graduates are required to regularly engage rapidly converging media in their work. This option offers graduates a competitive advantage by complementing traditional options (newspaper, magazine, radio, TV) with convergent course work designed to prepare students for professional journalism in the digital age.

What is Communications?

Communications is an academic discipline that deals with the creation and distribution of mass communication messages through media such as books, newspapers, television, radio, film, video games, and the Internet. Mass communications use writing, speech, photographs, video, and interactive content to give information or influence the audience. Communications also concerns the study of how we communicate in

different ways with diverse audiences through marketing, advertising, public relations, corporate communications, digital journalism, film and other media.

You Might Like This Program If...

You are a strong writer, critical thinker, and creative person. This is a dynamic field that has an impact on the world.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Communications, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	0-11
Bachelor of Arts Degree Requirements	24
Requirements for the Major	55-56

3-16 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 0-6 credits of GS; 0-6 credits of GH; 0-4 credits GQ courses.

0-12 credits for the Bachelor of Arts Degree Requirements are included in Electives if world language proficiency is demonstrated by examination.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
COMM 160	Basic News Writing Skills	1
COMM 270	Introduction to Multimedia Production	3
COMM 494	Research Project Courses	3
COMM 495	Internship	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits from Foundations of Mass Media and Society.		3
COMM 100N/ AMST 106N	The Mass Media and Society	
COMM 110	Media and Democracy	

Select 3 credits from Foundations in Media Writing (May double count for writing across the curriculum requirement):

COMM 230W Writing for Media

COMM 260W News Writing and Reporting

Select 3 credits from Foundations in Communication Theory (May double count with general education credits):

CAS 301 Rhetorical Theory

CAS 303 Communication Theory

Select 3 credits from the following in Communications Research Methods/Theory (May not double count with option additional courses requirement):

CAS 204 Communication Research Methods

CAS 471 Intercultural Communication Theory and Research

COMM 304 Mass Communication Research

COMM 428D Research & Analytics

Select 3 credits from Mass Communications Ethics and Public Policy:

COMM 403 Law of Mass Communications

COMM 430 Mass Media and Politics

COMM 458 Media Law and Ethics

Requirements for the Option

Requirements for the Option: Require a grade of C or better

Select an option 30-31

Requirements for the Option

Corporate Communications Option (30-31 credits)

Available at the following campuses: Brandywine, New Kensington

Code	Title	Credits
Prescribed Courses		

Prescribed Courses: Require a grade of C or better

CAS 252 Business and Professional Communication 3

Additional Courses ¹

Additional Courses: Require a grade of C or better

Select one of the following tracks: 12-13

PR/Marketing Track

COMM 370 Public Relations

COMM 471 Public Relations Media and Methods

ECON 102 Introductory Microeconomic Analysis and Policy
or ECON 104 Introductory Macroeconomic Analysis and Policy

CC 200 Introduction to Corporate Communication

or MKTG 220 Introduction to Selling Techniques

or MKTG 301 Principles of Marketing

Strategic Communication Track

COMM 428A Principles of Strategic Communications

COMM 428C Strategic Communications in a Global Environment

COMM 428E Social Media Strategies

STAT 200 Elementary Statistics

Select 15 credits of the following (at least 3 credits must be at the 400 level):

CAS 203 Interpersonal Communication

CAS 206 Mediation and Communication

CAS 222N/
AYFCE 211N/
CIVCM 211N

CAS 271N	Intercultural Communication
CAS 301	Rhetorical Theory
CAS 303	Communication Theory
CAS 352	Organizational Communication
CAS 404	Conflict Resolution and Negotiation
CAS 426W	Communication Ethics
CC 200	Introduction to Corporate Communication
CC 401	Internal Communication
CC 402	External Communication
CC 404	Risk and Crisis in Corporate Communication
CC 405	Strategic Speaking
CC 406	Social Media in Corporate Communication
COMM 1	Newspaper Practicum ²
COMM 2	Newspaper Editorial Staff ²
COMM 3	Radio Studio ²
COMM 118	Introduction to Media Effects
COMM/ WMNST 205	Gender, Diversity and the Media
COMM 215	Basic Photography for Communications
COMM 222N	Social Justice and the Image
COMM 241	Graphic Design for Communications
COMM 251	The Nature of Media
COMM 282	Television Field Production
COMM/SOC 290N	Cinema and Globalization
COMM 292	Introduction to Media & Politics
COMM 297	Special Topics ³
COMM 299	Foreign Studies ⁴
COMM 305	Introduction to Critical Studies of Media
COMM 320	Introduction to Advertising
COMM 370	Public Relations
COMM 407A	Media and Government
COMM 407B	Perspectives on American Journalism
COMM 407C	
COMM/STS 408	Cultural Foundations of Communications
COMM 409	News Media Ethics
COMM 410	International Mass Communications
COMM 411	Cultural Aspects of the Mass Media
COMM 412	Sports, Media and Society
COMM 413W	The Mass Media and the Public
COMM 428A	Principles of Strategic Communications
COMM 428C	Strategic Communications in a Global Environment
COMM 428D	Research & Analytics
COMM 428E	Social Media Strategies
COMM 462	Feature Writing
COMM 468	Graphic Applications in Print Communications
COMM 471	Public Relations Media and Methods
COMM 473	Public Relations Campaigns
COMM 476	Sports Writing
COMM 478	Sports Information
COMM 495A	Internship ⁵

COMM 496	Independent Studies
ENGL 420	Writing for the Web
MKTG 301	Principles of Marketing

¹ Some courses in this category have prerequisites that are not required in the program. Credits applied may not double count with any other major or option requirements. Courses from selected tracks (PR/MARKETING TRACK OR STRATEGIC COMMUNICATION TRACK) may not double count in this category. Courses may double count toward IL and US requirements.

² Only 3 credits combined maximum or COMM 1, COMM 2, COMM 3 may apply.

³ Only 3 credits maximum of COMM 297 may apply.

⁴ Only 3 additional credits maximum of COMM 299 may apply.

⁵ Only 3 additional credits of COMM 495A may apply.

Digital Journalism Option (30 credits)

Available at the following campuses: New Kensington

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
COMM 460W	Reporting Methods	3
Additional Courses¹		
<i>Additional Courses: Require a grade of C or better</i>		
Select 9 credits in Professional Practices (May not double count with any other major or option requirements.):		9
COMM 215	Basic Photography for Communications	
COMM 241	Graphic Design for Communications	
COMM 269	Photojournalism	
COMM 282	Television Field Production	
COMM 297	Special Topics	
COMM 462	Feature Writing	
COMM 468	Graphic Applications in Print Communications	
COMM 470A	Convergent Media News Service: Newspaper Production	
ENGL 420	Writing for the Web	
Select 18 credits from the following (at least 3 credits must be at the 400 level):		18
CAS 203	Interpersonal Communication	
CAS 222N/ AYFCE 211N/ CIVCM 211N	Foundations: Civic and Community Engagement	
CAS 271N	Intercultural Communication	
CAS 301	Rhetorical Theory	
CAS 303	Communication Theory	
CAS 404	Conflict Resolution and Negotiation	
COMM 1	Newspaper Practicum ²	
COMM 2	Newspaper Editorial Staff ²	
COMM 3	Radio Studio ²	
COMM 118	Introduction to Media Effects	
COMM/ WMNST 205	Gender, Diversity and the Media	
COMM 215	Basic Photography for Communications	
COMM 222N	Social Justice and the Image	
COMM 241	Graphic Design for Communications	

COMM 251	The Nature of Media
COMM 269	Photojournalism
COMM 282	Television Field Production
COMM 292	Introduction to Media & Politics
COMM 297	Special Topics ³
COMM 299	Foreign Studies ⁴
COMM 305	Introduction to Critical Studies of Media
COMM 370	Public Relations
COMM/STS 408	Cultural Foundations of Communications
COMM 409	News Media Ethics
COMM 410	International Mass Communications
COMM 411	Cultural Aspects of the Mass Media
COMM 412	Sports, Media and Society
COMM 413W	The Mass Media and the Public
COMM 428A	Principles of Strategic Communications
COMM 428C	Strategic Communications in a Global Environment
COMM 428D	Research & Analytics
COMM 428E	Social Media Strategies
COMM 462	Feature Writing
COMM 464W	Editorial, Opinion and Commentary Writing
COMM 467	News Editing and Evaluation
COMM 468	Graphic Applications in Print Communications
COMM 470A	Convergent Media News Service: Newspaper Production
COMM 470B	Convergent Media News Service: TV
COMM 470C	Convergent Media News Service: Radio and Online Publications
COMM 471	Public Relations Media and Methods
COMM 476	Sports Writing
COMM 478	Sports Information
COMM 495A	Internship ⁴
COMM 496	Independent Studies
ENGL 420	Writing for the Web

¹ Some courses in this category have prerequisites that are not required in the program. Credits applied may not double count with any other major or option requirements. Courses may double count toward IL and US requirements.

² Only 6 credits combined maximum or COMM 1, COMM 2, COMM 3 may apply.

³ Only 6 credits maximum of COMM 297 may apply.

⁴ Only 3 credits maximum of COMM 299 or COMM 495A may apply.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education

Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

Brandywine Campus

- **Speech:** Students will be able to write and deliver an effective speech.
- **Press Release:** Students will be able to write an effective press release.
- **Visual Communication:** Students will be able to create an effective visual communication (website, photography, graphics).
- **Professionalism:** Students will be able to create effective materials as part of their internships, consistent with professional standards and practices
- **Communication Theory:** Students will demonstrate understanding of communication theory by writing an in depth paper on a selected theory.
- **Research:** Students will be able to design and execute an original research project.
- **Intercultural Communication:** Students will demonstrate understanding of intercultural communication by writing a paper on an assigned topic.
- **Teamwork:** Students will work effectively with diverse colleagues as part of their internship.

New Kensington Campus

- Effective oral, written, and visual communication skills.
- Knowledge of and facility with current professional standards and practices.
- Facility with communications theory and research methods as a foundation of critical thinking.

- Knowledge of the roles communications systems and professionals play in shaping local, national, and global communities.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Brandywine

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Brandywine Campus

Corporate Communication Option: Communications, B.A. at Brandywine Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
COMM 100N**†	3 COMM 160*	1
ENGL 15 or 30H†	3 CAS 100A*†	3

PSYCH 100 (or Social and Behavioral Sciences) ^{*†}	3 AMST 105 (or General Education Course) ^{*†}	3
World Language - Elementary	6 World Language - Intermediate	6
General Education Course	3 General Education Course (GHW)	1.5
	General Education Course (GQ) [‡]	3
	18	17.5

Second Year

Fall	Credits Spring	Credits
COMM 270 [*]	3 CAS 252 [*]	3
General Education Course (GQ) [‡]	3 COMM 282 or 292 (or Corporate Communications Option Additional Major Course) [*]	3
COMM 260W [*]	3 COMM 1	1
CAS 301 ^{*†}	3 PHIL 103 (or General Education Course) ^{*†}	3
STAT 200 (or General Education Course (GQ)) ^{††}	3-4 ENGL 202 (A or B recommended)	3
	General Education Course (GHW)	1.5
	15-16	14.5

Third Year

Fall	Credits Spring	Credits
CC 200 or MKTG 301W [*]	3 COMM 471 or 292 (or Corporate Communications Option Additional Majors Course) [*]	3
COMM 370 [*]	3 BA World Cultures	3
COMM 2 [*]	2 General Education Course	3
COMM 205 or ENGL 420 (or Corporate Communications Option Additional Majors Course) [*]	3 CAS 204 [*]	3
General Education Course	3 COMM 409 or 292 (or Corporate Communications Option Additional Majors Course) [*]	3
	14	15

Fourth Year

Fall	Credits Spring	Credits
COMM 494 [*]	3 COMM 495 [*]	3-6
CAS 404 (or Corporate Communications Option Additional Majors Course) [*]	3 Corporate Communications Option Additional Majors Course (if needed) or General Education Course or Free Elective [*]	3
General Education Course	3 BA Requirement	3
BA Requirement	3 BA Requirement	3
ECON 102 or 104 (or Any Social or Behavioral Science (GS)) ^{*†}	3 Free Elective	3

CNED 280	1
	16
	15-18

Total Credits 125-129

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ **MATH 21** or higher or satisfactory score on the mathematics placement examination is a prerequisite for MKTG 301, a course required for the major and in the Academic Plan in a later semester.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

New Kensington Campus

Digital Journalism Option: Communications, B.A. at New Kensington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
COMM 100N*	3 COMM 160*	1
ENGL 15 or 30H*	3 CAS 100A‡	3
PSYCH 100 (or General Education Course)*†	3 General Education Course	3
World Language level 1	4 World Language Course level 2	4
General Education Course	3 General Education Course (GQ)‡	3
	16	14

Second Year

Fall	Credits Spring	Credits
COMM 270*	3 COMM 260W*	3
World Language level 3	4 COMM 282 or 292 (or Journalism Option Additional Major Course)*	3
General Education Course	3 COMM 1*	1
CAS 303*†	3 STAT 200 (or General Education (GQ))‡	4
BA World Cultures	3 ENGL 202A, 202B, 202C, or 202D	3
	General Education Course (GHW)	1.5
	16	15.5

Third Year

Fall	Credits Spring	Credits
CAS 204*	3 COMM 409*	3
ENGL 420 (or Journalism Option Additional Major Course)*	3 COMM 470A*	3
COMM 403*	3 COMM 460W	3
COMM 2*	2 General Education Course	3
COMM 205 (or Journalism Option Additional Majors Course)*	3 General Education Course	3
	14	15

Fourth Year

Fall	Credits Spring	Credits
COMM 494*	3 COMM 495	3
General Education Course	3 Journalism Option Additional Major Course or General Education Course or Free Elective	3
CC 406*	3 BA Requirement	3

BA Requirement	3 BA Requirement	3
General Education Course	3 Free Elective	3
	15	15

Total Credits 120.5

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Corporate Communications Option: Communications, B.A. at New Kensington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
COMM 100N ^{**†}	3	COMM 160 [*]	1
ENGL 15 or 30H [‡]	3	CAS 100A ^{**†}	3
PSYCH 100 (or Social and Behavioral Sciences) ^{**†}	3	World Language level 2	4
World Language level 1	4	General Education Course	3
General Education Course	3	General Education Course (GHW)	1.5
		General Education Course (GQ) [‡]	3
	16		15.5

Second Year

Fall	Credits	Spring	Credits
COMM 270 [*]	3	ENGL 202A, 202B, 202C, or 202D	3
ECON 102 ^{**†}	3	COMM 260W [*]	3
World Language level 3	4	COMM 282 or 292 (or Corporate Communications Option Additional Major Course) [*]	3
General Education Course	3	COMM 1	1
CAS 303 ^{**†}	3	STAT 200 (or General Education Course (GQ)) ^{‡†}	4
		CC 200	3
	16		17

Third Year

Fall	Credits	Spring	Credits
CAS 204 [*]	3	CAS 252 [*]	3
COMM 2 [*]	2	COMM 471 or CC 402 [*]	3
COMM 403 [*]	3	Corporate Communications Option Additional Majors Course [*]	3
COMM 370 or CC 401 [*]	3	BA World Cultures	3
BA Requirement	3	General Education Course	3
General Education Course (GHW) [*]	3		
	17		15

Fourth Year

Fall	Credits	Spring	Credits
COMM 494 [*]	3	COMM 495 [*]	3
COMM 205 (or Corporate Communications Option Additional Majors Course) [*]	3	Corporate Communications Option Additional Majors Course (if needed) or General Education Course or Free Elective [*]	3

CC 406	3 BA Requirement	3
General Education Course	3 BA Requirement	3
General Education Course	3 Free Elective	3
	15	15

Total Credits 126.5

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Career Paths

With the rapid development of digital technologies over the last decade, the field of communications has seen unprecedented growth and convergence in media, both technologically and structurally. The degree in communications provides two options for you to develop written, verbal, and visual skills in an effort to gain professional employment in fields such as social media, public relations, corporate communications, publishing, video and multimedia production, and/or digital journalism.

Careers

- **Corporate Communications Option:** In extending traditional organizational communication, strategic communication, and public relations to the digital age, this option prepares you to compete in a global society. Graduates work in corporate communications, social media, public relations/marketing, sales, non-profit development, and human resources, among other fields.
- **Digital Journalism Option:** In today's workplace, journalism graduates are required to regularly engage rapidly converging media in their work. This option offers graduates a competitive advantage by complementing traditional options (newspaper, magazine, radio, TV)

with convergent course work designed to prepare you for professional journalism in the digital age.

Opportunities for Graduate Studies

Communications students may pursue graduate studies in communications, journalism, media writing, social media, public administration, and business. Related fields include law, integrated marketing, and health communications.

Internships

All Communications majors are required to complete an internship as part of their degree requirements. Students are encouraged to seek internship experiences that will help them pursue their professional and personal goals. Our students have completed internships at hundreds of different sites across Pennsylvania and the region, ranging from local television and radio stations to the corporate offices of Disney, Aflac, Hasbro, UPMC, and Comcast, to name just a few.

Professional Resources

- Penn State Beaver Student Newspaper (The Roar) (<https://beaver.psu.edu/student-life/activities/clubs/the-roar/>)
- Penn State Greater Allegheny Student Radio (WMKP Radio) (<https://sites.psu.edu/wmkp/>)
- Penn State Greater Allegheny Student Newspaper (The GA-ZETTE) (<https://sites.psu.edu/gazette/>)
- Penn State New Kensington Student Newspaper (The Nittany Pride) (<https://nittanypride.wordpress.com>)

Contact

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<https://www.brandywine.psu.edu/academics/bachelors-degrees/communications> (<https://www.brandywine.psu.edu/academics/bachelors-degrees/communications/>)

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<https://newkensington.psu.edu/academics/4-year-communications> (<https://newkensington.psu.edu/academics/4-year-communications/>)

Corporate Communication, B.A. (University College)

Begin Campus: Any Penn State Campus

End Campus: Fayette, Hazleton, Lehigh Valley, Schuylkill, Scranton, Shenango, Wilkes-Barre, York

Program Description

The Penn State Corporate Communication Bachelor of Arts (CCBA) program prepares students for various strategic communication roles

inside and outside organizations. Graduates of the program hold titles such as public relations professional, social media strategist, speech and copywriter, political aide, marketing communication manager, organizational learning and development specialist, corporate recruiter, and event planner. Graduates have earned advanced degrees in areas such as Business, Law, and Corporate Communication.

The CCBA program is interdisciplinary. While providing depth of study in Corporate Communication, it also includes mandatory Business courses and courses focusing on web based competencies such as writing for the web and digital design. With its overall emphasis on the human and design aspects of contemporary organizations, the program is particularly well-suited to individuals seeking to develop and apply their analytical, verbal, and creative talents. Such talents foster aptitudes in strategic counseling and integrative praxis that, in part, make a Corporate Communication degree unique and highly sought after in the marketplace.

What is Corporate Communication?

Corporate Communication encompasses all aspects of strategic communication in for-profit and not-for-profit organizations, from internal communication between senior leaders and frontline professionals to communication with external clients. Corporate communicators are highly skilled professionals in the art of planning, problem solving, and persuading with a sharp understanding of their audience's needs, tastes, and interests.

You Might Like This Program If...

- You know you are creative with strong writing and speaking skills.
- You desire to be an ethical communicator who creates meaningful connections with your audience.
- You possess an international, multicultural mindset.
- You want to pursue a career in social media, public relations, or marketing.

MORE INFORMATION ABOUT CORPORATE COMMUNICATION (<https://www.abington.psu.edu/academics/majors-at-abington/corporate-communication/>)

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Corporate Communication, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	2-9

Bachelor of Arts Degree Requirements	24
Requirements for the Major	51-52

3-9 of the 45 credits for General Education are included in Requirements for the Major. This includes: 3-6 credits of GS courses; 0-3 credits of GH courses.

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CAS 204	Communication Research Methods	3
CC 200	Introduction to Corporate Communication	3
CC 401	Internal Communication	3
CC 402	External Communication	3
CC 490W	Seminar in Corporate Communication	3
CC 495A	Internship in Corporate Communication	3
COMM 100		3
MGMT 301	Basic Management Concepts	3
MKTG 301	Principles of Marketing	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
ECON 102	Introductory Microeconomic Analysis and Policy	3
or ECON 104	Introductory Macroeconomic Analysis and Policy	
Select one of the following:		3-4
BA 243	Social, Legal, and Ethical Environment of Business	
PHIL 103	Ethics	
PHIL 106	Business Ethics	
PHIL 123	Media Ethics	
Select one of the following:		3
ART 201		
COMM 241	Graphic Design for Communications	
IST 110	Information, People and Technology	
Select one of the following:		3
CAS 250	Small Group Communication	
CAS 252	Business and Professional Communication	
CAS 352	Organizational Communication	
ENGL 211	Introduction to Writing Studies	
Select one of the following:		3
CC 406	Social Media in Corporate Communication	
ENGL 420	Writing for the Web	
ENGL 480	Communication Design for Writers	
Select two of the following:		6

CAS 403	Interpersonal Communication Theory and Research	
CAS 404	Conflict Resolution and Negotiation	
CAS/WMNST 455	Topics in Gender and Communication	
CAS 471	Intercultural Communication Theory and Research	
MGMT 433	Leadership and Team Building	
MKTG 310	Public Relations and Marketing	
Select one of the following:		3
CC 404	Risk and Crisis in Corporate Communication	
CC 405	Strategic Speaking	
COMM 472	Public Relations Event Planning	

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

Fayette, Hazleton, Lehigh Valley, Schuylkill, Scranton, and Wilkes-Barre Campuses

- Describe the Corporate Communication field and its central questions:

- Explain the origins of the Corporate Communication field.
- Summarize the broad nature of the Corporate Communication field.
- Categorize the various career pathways for students of Communication.
- Articulate the importance of Corporate Communication expertise in career development and civic engagement.
- Examine contemporary debates within the field.
- Distinguish the Corporate Communication field from related areas of study.
- Identify with intellectual specialization(s) in the Corporate Communication field.
- **Employ Corporate Communication Theories, Perspectives, Principles, and Concepts:**
 - Explain Corporate Communication perspectives, theories, principles, and concepts.
 - Synthesize Corporate Communication perspectives, theories, principles, and concepts.
 - Apply Corporate Communication perspectives, theories, principles, and concepts.
 - Critique Corporate Communication perspectives, theories, principles, and concepts.
- **Engage in Corporate Communication Inquiry:**
 - Interpret Corporate Communication scholarship.
 - Evaluate Corporate Communication scholarship.
 - Formulate questions appropriate for Corporate Communication scholarship.
 - Engage in Corporate Communication scholarship using the research traditions of the field.
 - Differentiate among various approaches to the study of Corporate Communication.
 - Contribute to the scholarly conversations appropriate to the purpose of inquiry.
- **Create Messages Appropriate to the Audience, Purpose, and Context:**
 - Locate and use information relevant to goals, audiences, purposes, and contexts.
 - Select creative and appropriate modalities and technologies to accomplish Corporate Communication goals.
 - Adapt messages to the diverse needs of individuals, groups, and contexts.
 - Present messages in multiple communication modalities and contexts.
 - Adjust messages while in the process of communicating.
 - Critically reflect on one's own messages after the communication event.
- **Critically Analyze Messages:**
 - Identify meanings embedded in messages.
 - Articulate characteristics of mediated and non-mediated messages.
 - Recognize the influence of messages.
 - Engage in active listening.
 - Enact mindful responding to messages.
- **Demonstrate the Ability to Accomplish Communicative Goals (Self-Efficacy):**
 - Identify contexts, situations, and barriers that impede communication self-efficacy.

- Perform verbal and nonverbal communication behaviors that illustrate self-efficacy.
- Articulate personal beliefs about abilities to accomplish communication goals.
- Evaluate personal communication strengths and weaknesses.
- **Apply Ethical Corporate Communication Principles and Practices:**
 - Identify ethical perspectives.
 - Explain the relevance of various ethical perspectives.
 - Articulate the ethical dimensions of a Corporate Communication situation.
 - Propose solutions for an (un)ethical Corporate Communication situation.
 - Evaluate the ethical elements of a Corporate Communication situation.
- **Utilize Corporate Communication to Embrace Difference:**
 - Articulate the connection between Corporate Communication and culture.
 - Recognize individual and cultural similarities and differences.
 - Appreciate individual and cultural similarities and differences.
 - Respect diverse perspectives and the ways they influence communication.
 - Articulate one's own cultural standpoint and how it affects communication and world view.
 - Demonstrate the ability to be culturally self-aware.
 - Adapt one's communication in diverse cultural contexts.
- **Influence for Greater Good:**
 - Explain the importance of Corporate Communication for civic life from the local to global levels.
 - Identify the challenges facing communities and the role of Corporate Communication in resolving those challenges.
 - Frame local, national, and/or global issues from a Corporate Communication point of view.
 - Evaluate local, national, and/or global issues from a Corporate Communication point of view.
 - Use Corporate Communication to respond to issues at the local, national, and/or global level.
 - Advocate a course of action to address local, national, and/or global issues from a Corporate Communication point of view.
 - Use Corporate Communication to empower individuals in terms of human rights, human dignity, and human freedom.
- Identify meanings embedded in messages.
- Articulate characteristics of mediated and non-mediated messages.
- Recognize the influence of messages.
- Engage in active listening.
- Enact mindful responding to messages.
- **Employ Corporate Communication Theories, Perspectives, Principles, and Concepts:**
 - Explain the origins of the Corporate Communication field.
 - Summarize the broad nature of the Corporate Communication field.
 - Categorize the various career pathways for students of Corporate Communication.
 - Articulate the importance of Corporate Communication expertise in career development and civic engagement.
 - Examine contemporary debates within the field.
 - Distinguish the Corporate Communication field from related areas of study.
 - Identify with intellectual specialization(s) in the Corporate Communication field.
- **Influence for Greater Good:**
 - Explain the importance of Corporate Communication for civic life from the local to global levels.
 - Identify the challenges facing communities and the role of Corporate Communication in resolving those challenges.
 - Frame local, national, and/or global issues from a Corporate Communication point of view.
 - Evaluate local, national, and/or global issues from a Corporate Communication point of view.
 - Use Corporate Communication to respond to issues at the local, national, and/or global level.
 - Advocate a course of action to address local, national, and/or global issues from a Corporate Communication point of view.
 - Use Corporate Communication to empower individuals in terms of human rights, human dignity, and human freedom.
- **Utilize Corporate Communication to Embrace Difference:**
 - Articulate the connection between Corporate Communication and culture.
 - Recognize individual and cultural similarities and differences.
 - Appreciate individual and cultural similarities and differences.
 - Respect diverse perspectives and the ways they influence communication.
 - Articulate one's own cultural standpoint and how it affects communication and world view.
 - Demonstrate the ability to be culturally self-aware.
 - Adapt one's communication in diverse cultural contexts.

Shenango Campus

- **Create Messages Appropriate to the Audience, Purpose, and Context:**
 - Locate and use information relevant to goals, audiences, purposes, and contexts.
 - Select creative and appropriate modalities and technologies to accomplish Corporate Communication goals.
 - Adapt messages to the diverse needs of individuals, groups, and contexts.
 - Present messages in multiple communication modalities and contexts.
 - Adjust messages while in the process of communicating.
 - Critically reflect on one's own messages after the communication event.
- **Critically Analyze Messages:**

York Campus

- Advocate a course of action to address local, national, and/or global issues from a Corporate Communications point of view.
- Apply Corporate Communication perspectives, theories, principles, and concepts.
- Describe the Corporate Communication field and its central questions.
- Engage in Corporate Communication scholarship using the research traditions of the field.

- Articulate the ethical dimensions of a Corporate Communications situation.
- Select creative and appropriate modalities and technologies to accomplish Corporate Communication goals.
- Ability to understand, apply, critique, and extend communication concepts, theories, and perspectives.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Corporate Communication, B.A. at Fayette Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [†]	3 ECON 102 or 104 [*]	3
MATH 21 (GQ) [‡]	3 CAS 100 [‡]	3
COMM 100 [*]	3 World Language (level 2)	4
PSU 8	1 General Education Course	3
World Language (level 1)	4 General Education Course	3

General Education Course	3	
	17	16

not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Second Year

Fall	Credits Spring	Credits
IST 110*	3 CAS 352*	3
MGMT 301*	3 CAS 204*	3
CC 200*	3 MKTG 301*	3
World Language (level 3)	4 General Education Course	3
General Education Quantification Course [‡]	3 General Education Course	3
	16	15

Bachelor of Arts students must take 3 credits in World Cultures.

See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Third Year

Fall	Credits Spring	Credits
ENGL 202D [‡]	3 CC 402*	3
CC 401*	3 ENGL 420, 480, or CC 406*	3
BA 243*	4 MKTG 310*	3
B.A. Requirement	3 B.A. Requirement	3
General Education Course	3 World Cultures or Elective	3
	16	15

Fourth Year

Fall	Credits Spring	Credits
CC 495A*	3 MGMT 433*	3
CC 404, 405, or COMM 472*	3 CC 490W*	3
Elective	3 B.A. Requirement	3
General Education	3 Elective	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
	13.5	13.5

Total Credits 122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may

Corporate Communication, B.A. at Hazleton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 ECON 102 or 104 [*]	3
MATH 21 (GQ) [‡]	3 CAS 100A, 100B, or 100C [‡]	3
COMM 100N [*]	3 World Language (level 1)	4
CC 200 [*]	3 General Education Course	3
PSU 8	1 General Education Course	3
General Education Course	3	
	16	16

Second Year

Fall	Credits Spring	Credits
CAS 352 or 252 [*]	3 MKTG 301 [*]	3
CAS 204 [*]	3 IST 110 [*]	3
MGMT 301 [*]	3 ENGL 202D [‡]	3
World Language (level 2)	4 World Language (level 3)	4
General Education Course	3 General Education Quantification Course [‡]	3
	16	16

Third Year

Fall	Credits Spring	Credits
CC 401 [*]	3 CC 406 [*]	3
BA: World Cultures	3 BA 241 & BA 242	4
BA Requirement	3 MKTG 310 [*]	3
General Education Course	3 BA Requirement	3
Elective	1 General Education Course or Elective	3
	13	16

Fourth Year

Fall	Credits Spring	Credits
CC 404 or 405 [*]	3 CC 402 [*]	3
CC 495A [*]	3 CC 490W [*]	3
General Education Course	3 MGMT 433, CAS 403, or CAS 455 [*]	3
BA Requirement	3 General Education Course (GHW)	1.5
General Education Course (GHW)	1.5 Elective	3
	13.5	13.5

Total Credits 120

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Corporate Communication, B.A. at Lehigh Valley Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 ECON 102 [*]	3
MATH 21 (GQ) [‡]	3 CAS 100A [‡]	3
COMM 100N [*]	3 World Language (level 1)	4
CC 200 [*]	3 General Education Course (Inter-Domain)	3
General Education Course/ First-Year Seminar	3 General Education Course	3
	15	16

Second Year

Fall	Credits Spring	Credits
CAS 352 [*]	3 MGMT 301	3
CAS 204 [*]	3 COMM 241 [*]	3
MKTG 301W [*]	3 BA Requirement	3
World Language (level 2)	4 BA World Cultures	3
General Education Course (Inter-Domain)	3 World Language (level 3)	4
	16	16

Third Year

Fall	Credits Spring	Credits
ENGL 202A, 202B, 202C, or 202D [‡]	3 CC 402 [*]	3
CC 401 [*]	3 CC 404 [*]	3
MKTG 310 [*]	3 BA Requirement	3
PHIL 123 [*]	3 Elective or CAS 471 [*]	3
General Education Course	3 General Education Course (GQ) [‡]	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
CC 495A [*]	3 CC 490W [*]	3
CC 406 [*]	3 MGMT 433	3
General Education Course	3 BA Requirement	3
General Education Course	3 General Education Course/ Elective	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
	13.5	13.5

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

¹ Other GQ if MATH 21 met through placement testing

² Students must complete the 12th credit level in a second language. Credits vary based on skill level.

Corporate Communication, B.A. at Schuylkill Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CC 200 [*]	3
MATH 21 (GQ) [‡]	3 ECON 102 or 104 [*]	3
COMM 100N [*]	3 CAS 100A [‡]	3
PSU 8	2 World Language (level 1)	4
General Education Course	3 General Education Course (GQ)	3
	14	16

Second Year

Fall	Credits Spring	Credits
BA 243 [*]	4 CAS 252	3
IST 110 or COMM 241	3 MKTG 301W [*]	3
MGMT 301 [*]	3 ENGL 202A, 202B, 202C, or 202D [‡]	3
World Language (level 2)	4 World Language (level 3)	4
General Education Course	3 General Education Course	3
	17	16

Third Year

Fall	Credits Spring	Credits
CAS 204 [*]	3 CC 401	3
CC 402	3 BA Requirement	3
MKTG 310, CAS 404, CAS 403, CAS 455, or MGMT 433 [*]	3 World Cultures	3
BA Requirement	3 General Education Course	3
General Education Course	3 Elective	3
	Elective	3
	15	18

Fourth Year

Fall	Credits Spring	Credits
CC 404 or 405 [*]	3 CC 490W [*]	3
MKTG 310, CAS 404, CAS 403, CAS 455, or MGMT 433 [*]	3 CC 495A [*]	3
General Education Course	3 General Education Course	3
BA Requirement	3 CC 406	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
	13.5	13.5

Total Credits 123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Integrative Studies (either Inter-domain or Linked Courses)

Integrative Studies may be completed within the 30 Knowledge Domain credits and must be completed with either Inter-domain or Linked courses, not a combination of both. For Inter-domain courses, credit may apply to both Knowledge Domain designations but does not reduce the total number of credits within the Knowledge Domains and at least 3 credits of single-domain coursework are required in each of the 5 Knowledge Domains. Linked courses used for the Integrative Studies requirement must represent two different Knowledge Domains.

Corporate Communication, B.A. at Scranton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100A (GWS) [‡]	3
MATH 21 (GQ) [‡]	3 CC 200 [*]	3
COMM 100N [*]	3 CAS 204 [*]	3
PSU 8	1 ECON 102 or 104 (GS)	3
World Language (level 1)	4 World Language (level 2)	4
General Education Course (GHW)	1.5	
	15.5	16

Second Year

Fall	Credits Spring	Credits
CAS 252 [*]	3 CAS 404 [*]	3
IST 110 (GS) [*]	3 MGMT 301 [*]	3
MKTG 301 [*]	3 General Education Course	3
World Language (level 3)	4 General Education Course	3
General Education Course (GHW)	1.5 General Education Course	3
	14.5	15

Third Year

Fall	Credits Spring	Credits
CAS 471 (US/IL) [*]	3 CC 404 or 405 [*]	3
CC 401 [*]	3 BA Fields	3
CC 402 [*]	3 BA World Cultures	3
ENGL 202D or 202C (GWS)	3 General Education Course	3
PHIL 103 or BA 243 (PHIL 103 counts as GH) [*]	3-4 General Education Course	3
	15-16	15

Fourth Year

Fall	Credits Spring	Credits
CC 406, ENGL 420, or ENGL 480 [*]	3 CC 495A [*]	3
CC 490W [*]	3 General Education Course	3
General Education Course	3 BA Fields	3
General Education Course	3 Elective	3
BA Fields	3	
	15	12

Total Credits 118-119

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Additional Notes:

This suggested academic plan recommends the most frequently offered courses in fields where students have the choice of taking one of several classes. The plan also notes prerequisites for selected courses to emphasize the importance of adhering to the course sequence.

University Requirements and General Education Notes:

Corporate Communication, B.A. at Shenango Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100A [‡]	3
MATH 21 (GQ) [‡]	3 World Language (Level 2)	4
COMM 100 [*]	3 General Education Course	3
World Language (Level 1)	4 General Education Course	3
ECON 102 or 104 [*]	3 General Education Course	3
PSU 8	1	
	17	16

Second Year

Fall	Credits Spring	Credits
COMM 241 [*]	3 CAS 252 or ENGL 211W [*]	3
MGMT 301 [*]	3 CAS 204 [*]	3
MKTG 301W [*]	3 ENGL 202D (GWS) [‡]	3
CC 200 [*]	3 General Education Course	3
World Language (Level 3)	4 General Education Course	3
	16	15

Third Year

Fall	Credits Spring	Credits
CC 401 [*]	3 BA 243 or PHIL 103 [*]	4
MGMT 433 [*]	3 CC 402 [*]	3
BA Requirement	3 CC 406 [*]	3
BA Requirement	3 MKTG 310 [*]	3
World Cultures or Elective	3 General Education Course	3
	15	16

Fourth Year

Fall	Credits Spring	Credits
CC 404 [*]	3 CC 490W [*]	3
Elective	3 CC 495A [*]	3
General Education Course	3 Elective	3
General Education Course	3 General Education Course (GHW)	3
BA Requirement	3	
	15	12

Total Credits 122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

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W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

University Requirements and General Education Notes:

Corporate Communication, B.A. at Wilkes-Barre Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 ECON 102 or 104 [*]	3
MATH 21 (GQ) [‡]	3 CAS 100A [‡]	3
COMM 100 [*]	3 World Language (level 1)	4
CC 200 [*]	3 General Education Course	3
PSU 8	1 General Education Course	3
General Education Course	3	
	16	16

Second Year

Fall	Credits Spring	Credits
CAS 204 [*]	3 BA 243 [*]	4
MGMT 301 [*]	3 ENGL 202A, 202B, 202C, or 202D [‡]	3
MKTG 301	3 General Education Course or Elective	3
World Language (level 2)	4 World Language (level 3)	4
IST 110 or COMM 241 [*]	3 General Education Quantification Course [‡]	3
	16	17

Third Year

Fall	Credits Spring	Credits
CC 401 [*]	3 CC 406 [*]	3
MKTG 310	3 CAS 252 or 352 [*]	3
BA Requirement	3 BA Requirement	3
General Education Course	3 World Cultures or Elective	3
	General Education Course	3
	12	15

Fourth Year

Fall	Credits Spring	Credits
MGMT 433, CAS 403, CAS 404, or MKTG 310 [*]	3 CC 490W [*]	3
CC 404 [*]	3 CC 495A [*]	3
General Education Course	3 CC 402 [*]	3
BA Requirement	3 Elective	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
	13.5	13.5

Total Credits 119

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

¹ Other GQ if MATH 21 met through placement testing

² Students must complete the 12th credit level in a second language. Credits vary based on skill level.

Corporate Communication, B.A. at York Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [‡]	3 ECON 102 [*]	3
MATH 21 [‡]	3 CC 200 [*]	3
COMM 100 [*]	3 World Language (level 1)	4
CAS 100A [‡]	3 General Education Course	3
General Education Course	3 General Education Course	3
15		16

Second Year

Fall	Credits Spring	Credits
CAS 252 [*]	3 MGMT 301	3
CAS 204 [*]	3 COMM 241 [*]	3
World Language (level 2)	4 CAS 455 [*]	3
MKTG 301W [*]	3 World Language (level 3)	4
General Education Course	3 Elective	3
16		16

Third Year

Fall	Credits Spring	Credits
ENGL 202A, 202B, 202C, or 202D [‡]	3 BA 243 [*]	4
CC 401 [*]	3 CC 402 [*]	3
BA Requirement	3 CC 404 [*]	3
General Education Course	3 BA Requirement	3
General Education Quantification Course [‡]	3 World Cultures or Elective	3
15		16

Fourth Year

Fall	Credits Spring	Credits
CC 495A [*]	3 CC 490W [*]	3
CC 406 [*]	3 MGMT 433	3
General Education Course	3 BA Requirement	3
General Education Course	3 Elective	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
13.5		13.5

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Career Paths

Corporate Communication is a challenging and exciting career field. Corporate communicators manage the dissemination of information to key constituencies, the execution of corporate strategy, and the development of messages for a variety of purposes inside and outside the organization. Corporate communicators usually oversee media relations, crisis communications, internal communications, reputation management, corporate responsibility, investor relations, government affairs, and sometimes marketing communication. The Penn State Abington Center for Career & Professional Development supports and serves students in all areas related to career development and preparation including career counseling and coaching, internships, resume creation, interview training, and job search strategies.

Careers

A Corporate Communication degree can lead to a career in for-profit businesses or in not-for-profit areas such as charitable, political, health care, and educational organizations. You'll be prepared to work as a professional in a wide range of fields including event planning, human resources, marketing, public relations/public information, and social media relations.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE CORPORATE COMMUNICATION PROGRAM (<https://www.abington.psu.edu/academics/majors-at-abington/corporate-communication/>)

Opportunities for Graduate Studies

A baccalaureate degree in Corporate Communication prepares students to pursue master's degrees in programs such as strategic communication and obtain admission to MBA programs and law schools, among other post-graduate opportunities.

Professional Resources

- Public Relations Society of America (PRSA) (<https://www.prsa.org/home/>)
- Philadelphia Public Relations Association (PPRA) (<https://ppra.net/>)
- National Communication Association (NCA) (<https://www.natcom.org/>)
- International Communication Association (ICA) (<https://www.icahdq.org/>)
- American Marketing Association (AMA) (<https://www.ama.org/>)
- International Association of Business (IABC) (<https://www.iabc.com/>)
- The Association for Women in Communications (AWC) (<https://womcom.org/contact-us/>)
- Eastern Communication Association (ECA) (https://www.ecasite.org/aws/ECA/pt/sp/home_page/)
- International Advertising Association (IAA) (<https://www.iaaglobal.org/>)
- Society for Health Communication (<https://www.societyforhealthcommunication.org/>)

Contact

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Schuylkill

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<https://www.york.psu.edu/academics/baccalaureate/corporate-communication> (<https://www.york.psu.edu/academics/baccalaureate/corporate-communication/>)

Abington

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1600 Woodland Road
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mxg1058@psu.edu

<https://www.abington.psu.edu/academics/majors-at-abington/corporate-communication> (<https://www.abington.psu.edu/academics/majors-at-abington/corporate-communication/>)

Corporate Communication, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The minor in Corporate Communication (CC-UMNR) introduces students to strategic communication for organizations or brands, including for-profit business, non-profit organizations, and government entities. The minor will prepare students to support organizations or brands with their communication goals and stakeholder relationship management. Students will be introduced to foundational concepts of corporate communication. Additionally, students will engage in studying internal or external communication practices that contribute to organizational brand and reputation. Students will also have an opportunity to pursue special interests in corporate communication, such as social and digital media, risk and crisis communications, writing for the web, marketing, and management strategies.

What is Corporate Communication?

Corporate Communication encompasses all aspects of strategic communication in for-profit and not-for-profit organizations, from internal communication between employees, senior leaders, and frontline professionals to communication with external stakeholders such as customers, media organizations, and regulatory organizations. Corporate communicators are highly skilled professionals in the art of planning, problem solving, and persuading with a sharp understanding of their audiences' needs, expectations, and interests.

You Might Like This Program If...

- You know you are creative with strong writing and speaking skills.
- You desire to be an ethical communicator who creates meaningful connections with your audience.
- You possess an international, multicultural mindset.
- You want to pursue a career in social media, public relations, or marketing.

Program Requirements

Requirement	Credits
Requirements for the Minor	18-19

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CC 200	Introduction to Corporate Communication	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3-7 credits from:		3-7
ART 201		
BA 243	Social, Legal, and Ethical Environment of Business	
CAS 204	Communication Research Methods	
CAS 250	Small Group Communication	
CAS 252	Business and Professional Communication	
CAS 271N	Intercultural Communication	
CAS 352	Organizational Communication	

COMM 100N	The Mass Media and Society	
COMM 241	Graphic Design for Communications	
COMM 370	Public Relations	
ENGL 211	Introduction to Writing Studies	
IST 110	Information, People and Technology	
MGMT 301	Basic Management Concepts	
MKTG 301	Principles of Marketing	
MKTG 310	Public Relations and Marketing	
PHIL 103	Ethics	
PHIL 106	Business Ethics	
PHIL 123	Media Ethics	
Select 3-6 credits from:		3-6
CC 401	Internal Communication	
CC 402	External Communication	
Select 6 credits from:		6
CAS 403	Interpersonal Communication Theory and Research	
CAS 404	Conflict Resolution and Negotiation	
CAS 405	Family Communication Theory and Research	
CAS 455	Topics in Gender and Communication	
CAS 471	Intercultural Communication Theory and Research	
CC 404	Risk and Crisis in Corporate Communication	
CC 405	Strategic Speaking	
CC 406	Social Media in Corporate Communication	
COMM 472	Public Relations Event Planning	
ENGL 420	Writing for the Web	
ENGL 480	Communication Design for Writers	
MGMT 433	Leadership and Team Building	

Academic Advising

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

Schuylkill

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Abington

Melvin Gupton, Ph.D.
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Career Paths

A Corporate Communication minor can complement any major leading to jobs in for-profit businesses or in not-for-profit areas such as charitable, political, health care, and educational organizations.

Contact

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Criminal Justice, A.S. (University College)

Begin Campus: Greater Allegheny

End Campus: Greater Allegheny

Program Description

Students receiving an associate degree in criminal justice should understand each of the three main components of the criminal justice system and their interrelationships. This program includes study in law enforcement, courts, and corrections individually and as components of a system, plus work in theories of crime causation, and crime control policy. Students should expect reading, writing, and critical thinking skills to be rigorously applied and developed throughout the degree program. The Associate in Science degree in Criminal Justice prepares students for entry-level positions in criminal justice or for study at the baccalaureate level.

What is Criminal Justice?

Criminal justice is the study of the adult and juvenile justice systems, including law enforcement, the courts, and corrections. It is interdisciplinary and includes understanding the intersections of law, public policy, and behavioral science, in an effort to understand crime as a social problem and improve these systems for the good of society.

You Might Like This Program If...

You have an interest in working in corrections, courts, court administration, law enforcement, or probation and parole. Students completing this course of study are prepared for entry level positions in the criminal justice system or to complete the baccalaureate level.

MORE INFORMATION ABOUT CRIMINAL JUSTICE (<https://altoona.psu.edu/academics/bachelors-degrees/criminal-justice/>)

Entrance to Major

Students must have a minimum 2.0 GPA to change to this Associate degree after admission to the University.

Degree Requirements

For the Associate in Science in Criminal Justice, a minimum of 64 credits is required:

Requirement	Credits
General Education	21
Electives	26
Requirements for the Major	29

12 of the 21 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GH courses; 3 credits of GQ courses; 6 credits of GS courses.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each

course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CRIMJ 100	Introduction to Criminal Justice	3
CRIMJ 210	Policing in America	3
CRIMJ 220	Courts and the Prosecution Process	3
CRIMJ 230	Corrections in America	3
PHIL 103	Ethics	3
SOC 12	Criminology	3
SOC 119N	Race, Ethnicity and Culture	4
STAT 200	Elementary Statistics	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
CRIMJ 250		3
or SOC 207	Research Methods in Sociology	

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all associate degree students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 3 credits
- **Writing and Speaking (GWS):** 3 credits

Knowledge Domains

- **Arts (GA):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Note: Up to six credits of Inter-Domain courses may be used for any Knowledge Domain requirement, but when a course may be used to satisfy more than one requirement, the credits from the course can be counted only once.

Exploration

- **Any General Education course (including GHW and Inter-Domain):** 3 credits

University Degree Requirements

Cultures Requirement

3 credits of United States (US) or International (IL) cultures coursework are required and may satisfy other requirements

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 60 degree credits must be earned for an associates degree. The requirements for some programs may exceed 60 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Communicate:** Demonstrate ability to effectively communicate practical and theoretical criminal justice issues through papers, posters, and oral presentations
- **Do Research:** Demonstrate ability to formulate research questions, implement basic quantitative and qualitative research methods, and collect and analyze limited data
- **Know Context:** Demonstrate understanding around the relationship between culture, social class, race and ethnicity and criminal justice involvement
- **Know Structure:** Demonstrate understanding around the history, structure and function of the three branches of criminal justice (Courts, Law Enforcement, Corrections)
- **Know Theory:** Demonstrate understanding of core theories in criminology and the sociology of deviance and their relevance to different types of offenses and offenders
- **Think Critically:** Demonstrate ability to solve criminal justice problems through an understanding of context, the identification of appropriate evidence, and appreciation of potential barriers and limitations

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary

academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Greater Allegheny

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Altoona

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World Campus

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Criminal Justice, A.S. at Greater Allegheny Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or ESL 15 ¹	3 SOC 119N ^{*†}	4
CRIMJ 100 [*]	3 SOC 12 ^{*†}	3
General Education Course	3 CAS 100A, 100B, or 100C [†]	3
Elective	3 General Education Course	3

Elective	3 Elective	3
	15	16

Second Year

Fall	Credits Spring	Credits
STAT 200 ^{*††}	4 CRIMJ 250W or SOC 207 [*]	3
PHIL 103 ^{*†}	3 CRIMJ 230 [*]	3
CRIMJ 210 [*]	3 CRIMJ 220 [*]	3
Elective	3 ENGL 202A or 202D ¹	3
Elective	3 Elective	3
	Elective	3
	16	18

Total Credits 65

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Suggested Electives for students moving into a Baccalaureate (Bachelor of Art or Science in Administration of Justice) degree program are ENGL 15 and ENGL 202 or other General Education or major requirements in consultation with an academic adviser.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Contact

Greater Allegheny

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Altoona

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<https://altoona.psu.edu/academics/bachelors-degrees/criminal-justice>
(<https://altoona.psu.edu/academics/bachelors-degrees/criminal-justice/>)

Harrisburg

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<https://harrisburg.psu.edu/public-affairs/criminal-justice-as> (<https://harrisburg.psu.edu/public-affairs/criminal-justice-as/>)

World Campus

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Olmsted Building, W160
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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-criminal-justice-associate-in-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-criminal-justice-associate-in-science-degree/>)

Criminal Justice, B.A. (University College)

Begin Campus: Any Penn State Campus

End Campus: Beaver, DuBois, Fayette, Greater Allegheny, Hazleton, Lehigh Valley, New Kensington, Schuylkill, Shenango, Wilkes-Barre

Program Description

Students receiving a baccalaureate degree in criminal justice should understand each of the three main components of the criminal justice system and their interrelationships, be able to evaluate critically both current and future crime control policy proposals and criminal justice research, and understand the complexity of the crime phenomenon and its relationship to individual, social, and cultural factors. This major includes study in law enforcement, courts and corrections individually and as components of a system, plus work in theories of crime causation, and crime control policy. Students should expect reading, writing, and critical thinking skills to be rigorously applied and developed throughout the degree program. The Bachelor of Arts degree in Criminal Justice provides a broadly based liberal arts background for the study of crime, justice and the criminal justice system. The Bachelor of Science degree offers an opportunity for educational enrichment in fields not traditionally considered part of the liberal arts. Either degree is excellent preparation for a career in criminal justice, graduate, or professional study, or informed citizenship.

What is Criminal Justice?

Criminal justice is the study of the adult and juvenile justice systems, including law enforcement, the courts, and corrections. It is interdisciplinary and includes understanding the intersections of law, public policy, and behavioral science, in an effort to understand crime as a social problem and improve these systems for the good of society.

You Might Like This Program If...

You have an interest in working in corrections, courts, court administration, law enforcement, and probation and parole. Students completing this course of study are prepared to enter law school and graduate degree programs in more specialized areas. Every student in this degree will participate in an internship at a host agency located in a local, state or federal agency of their choice.

MORE INFORMATION ABOUT CRIMINAL JUSTICE (<https://altoona.psu.edu/academics/bachelors-degrees/criminal-justice/>)

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Criminal Justice, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	6-10
Bachelor of Arts Degree Requirements	24
Requirements for the Major	48-49

4-7 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 0-3 credits of GH courses; 4 credits of GQ courses.

3 of the 24 credits for General Education are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CRIMJ 100	Introduction to Criminal Justice	3
CRIMJ 210	Policing in America	3
CRIMJ 220	Courts and the Prosecution Process	3
CRIMJ 230	Corrections in America	3
CRIMJ 290	Introduction to Internship Experience	2
CRIMJ 441	The Juvenile Justice System	3

CRIMJ 450W	Senior Seminar	3
CRIMJ 495	Internship in Criminal Justice	3
SOC 12	Criminology	3
SOC 119N	Race, Ethnicity and Culture	3-4
STAT 200	Elementary Statistics	4

Additional Courses

Additional Courses: Require a grade of C or better

CRIMJ 250W	Research Methods in Criminal Justice	3
or SOC 207	Research Methods in Sociology	
PHIL 103	Ethics	3
or CRIMJ 465	Ethics in Criminal Justice	

Select 9 credits from any 400-level CRIMJ course that does not already fulfill another requirement in the major 9

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

Beaver, New Kensington, and Shenango Campuses

- Students will be able to have a basic understanding of the nature of the three branches of the Criminal Justice System (Legal, Law Enforcement, Corrections).

- Students will be able to apply analysis and evaluation strategies specific to criminal justice/criminology to formulate solutions to criminological problems.
- The students will have developed a core of criminological knowledge and concepts which will help them understand the functioning of and issues relevant to the criminal justice system.
- Students will be able to understand and apply theories of criminal and deviant behavior, and the behavior of law.
- Students will be able to read and correctly interpret Criminal Justice research and data.
- Students will be able to understand the relationship between culture, social class and criminal justice.
- Students will be able to communicate criminological issues effectively and deliver written and/or oral presentations.
- Students will be able to demonstrate knowledge and application skills regarding the fact that the criminal justice professional must operate in a climate of tolerance and respect where opposing viewpoints can be exchanged openly.
- Students will be able to show professionalism, interact appropriately with colleagues, uphold professional ethical principal, and work ethically, as part of their internships, consistent with professional standards and practices.

DuBois and Greater Allegheny Campuses

- **Know Structure:** Demonstrate understanding around the history, structure, and function of the three branches of criminal justice (Courts, Law Enforcement, Corrections).
- **Know Context:** Demonstrate understanding around the relationship between culture, social class, race and ethnicity, gender and sexuality and criminal justice involvement.
- **Know and Use Theory:** Demonstrate understanding of core theories in criminology and the sociology of deviance along with their relevance to different types of offenses and offenders.
- **Think Critically:** Demonstrate ability to solve criminal justice problems through an understanding of context, the identification of appropriate evidence, and appreciation of potential barriers and limitations.
- **Research:** Demonstrate ability to formulate research questions, implement basic quantitative and qualitative research methods, collect and analyze limited data.
- **Communicate:** Demonstrate ability to effectively communicate practical and theoretical criminal justice issues through papers, visual media, and oral presentations.

Fayette Campus

- **Application of research methods:** Students will create a plan to answer a specific research question related to crime and criminal justice.
- **Evaluation of strategies to reduce crime:** Students will evaluate the effectiveness of prominent crime control policies and strategies.
- **Identification of power structures:** Students will enumerate the motives and forces that determine the shape and scope of criminal law.
- **Identify Alternatives:** Students will identify alternatives to the formal criminal justice systems as a means of facilitating pro-social, non-criminal behaviors.
- **Knowledge of American Criminal Justice System:** Students will identify and describe the components of the American criminal justice system and the processing of cases.

- **Knowledge of crime theories:** Students will identify the elements that comprise the major biological, psychological, and sociological perspectives that attempt to explain the causes of crime.

Hazleton and Wilkes-Barre Campuses

- **Knowledge Base in Criminal Justice:** Students will develop knowledge and understanding of the major components of the criminal justice system and juvenile justice system as well as how these components interact. Student understanding of the criminal justice process will be enhanced through targeted courses in courts, corrections, and policing that highlight the unique needs, challenges, and operation of these components. Across the curriculum, students will be exposed to criminological theories that help to explain the role of gender, race/ ethnicity, and other background characteristics on offending, victimization, and criminal justice processing.
 - Describe key concepts, principles, and overarching themes in criminal justice
 - Develop a working knowledge of criminal justice content domains
 - Describe applications of criminological theory
- **Research Methods:** Students will understand the importance and practical use of social science research methods and the role these play in criminal justice policy.
 - Use scientific reasoning to interpret criminal justice policy
 - Demonstrate criminal justice information literacy
 - Engage in innovative and integrative thinking and problem solving
 - Interpret, design, and conduct basic criminological research
- **Professional Writing and Critical Thinking:** Students will practice writing and critical thinking skills through writing assignments across the curriculum and the completion of at least one writing intensive course.
 - Demonstrate effective writing for different purposes
 - Exhibit effective presentation skills for different purposes
 - Interact effectively with others
 - Demonstrate critical thinking skills concerning issues in criminal justice
- **Ethics:** Students will understand the role of ethics in criminal justice.
 - Apply ethical standards to evaluate criminal justice research and policy
 - Build and enhance interpersonal relationships
 - Adopt values that build community at local, national, and global levels
- **Placement:** Students will be prepared for placement in the criminal justice field through an internship experience.
 - Apply criminal justice content and skills to career goals
 - Exhibit self-efficacy and self-regulation
 - Refine project and time-management skills
 - Enhance teamwork capacity
 - Develop meaningful professional direction for life after graduation

Schuylkill Campus

- Students will be able to have a basic understanding of the nature of the three branches of Criminal Justice System (Legal, Law Enforcement, Corrections)
- Students will be able to have developed critical thinking skills to understand and to formulate solutions to problems relating to criminological issues.

- Students will be able to read and correctly interpret Criminal Justice research and data. Data will be collected from CRIMJ 494 the capstone course for the program.
- Students will be able to demonstrate knowledge and application skills regarding the fact that the criminal justice professional must operate in a climate of tolerance and respect where opposing viewpoints can be exchanged openly.
- Analyze the nature of crime and criminal behavior and their impact on policy related to crime and public safety.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Criminal Justice, B.A. at Beaver Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CRIMJ 100*	3 CRIMJ/SOC 12*	3
ENGL 15 or 30H [‡]	3 CAS 100A [‡]	3
World Language Level 1	4 World Language Level 2	4
General Education Course	3 General Education Course	3
General Education Quantification (GQ) [‡]	3 General Education Course	3
PSU 8 (if recommended or required)	0-1	
	16-17	16

Second Year

Fall	Credits Spring	Credits
CRIMJ 220*	3 CRIMJ 210*	3
SOC 119N*	4 CRIMJ 230*	3

World Language Level 3	4 STAT 200 ^{*††}	4
General Education Course	3 ENGL 202A, 202B, 202C, or 202D (A/D preferred) [‡]	3
	General Education Course	3
	14	16

Third Year

Fall	Credits Spring	Credits
CRIMJ 441*	3 CRIMJ - 400 Level*	3
CRIMJ - 400 Level*	3 General Education Course	3
PHIL 103 ^{*†}	3 General Education Course	3
General Education Course	3 BA World Cultures Course	3
General Education Course	3 BA Fields Course	3
General Education Health & Wellness (GHW)	1.5	
	16.5	15

Fourth Year

Fall	Credits Spring	Credits
CRIMJ 250W*	3 CRIMJ 450W*	3
CRIMJ 290*	2 CRIMJ 495*	3
CRIMJ - 400 Level*	3 BA Fields Course	3
General Education Health & Wellness (GHW)	1.5 Elective	3
BA Fields Course	3	
Elective	3	
	15.5	12

Total Credits 121-122

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures.

See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Criminal Justice, B.A. at DuBois Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CRIMJ 100*	3 CRIMJ 12*	3
ENGL 15‡	3 CAS 100A‡	3
World Language Level 1	4 General Education Course (GQ)†	3
General Education Course	3 General Education Course	3
General Education Course	3 World Language Level 2	4
PSU 8 (FYS)	1	
	17	16

Second Year

Fall	Credits Spring	Credits
CRIMJ 210*	3 CRIMJ 230*	3
General Education Course	3 SOC 119N*	4
STAT 200*‡	4 ENGL 202A, 202B, 202C, or 202D†	3
World Language Level 3	4 CRIMJ 220*	3
	General Education Course	3
	14	16

Third Year

Fall	Credits Spring	Credits
CRIMJ 441*	3 CRIMJ 400 Level*	3
CRIMJ 400 Level*	3 General Education Course	3
CRIMJ 465*	3 General Education Course	3
General Education Course	3 BA World Cultures	3
General Education Course	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
CRIMJ 250W*	3 CRIMJ 450W*	3
CRIMJ 290*	2 CRIMJ 495*	3
CRIMJ 400 Level*	3 Elective	3
General Education Course	3 Elective	3
Elective	3 General Education Course	3
	14	15

Total Credits 122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

University Requirements and General Education Notes:

Criminal Justice, B.A. at Fayette Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [‡]	3 CAS 100A [‡]	3
World Language Level 1	4 World Language Level 2	4
General Education Course	3 General Education Course	3
General Education Quantification (GQ) [‡]	3 General Education Course	3
PSU 8	1 CRIMJ 12 ^{*†}	3
CRIMJ 100 [*]	3	
	17	16

Second Year

Fall	Credits Spring	Credits
CRIMJ 210 [*]	3 CRIMJ 230 [*]	3
CRIMJ 220 [*]	3 ENGL 202A [‡]	3
STAT 200 ^{*††}	4 General Education Course	3
World Language Level 3	4 General Education Course	3
CRIMJ 250W [*]	3 General Education Course	3
	17	15

Third Year

Fall	Credits Spring	Credits
CRIMJ 441 [*]	3 CRIMJ - 400 Level [*]	3
CRIMJ - 400 Level [*]	3 BA World Cultures Course	3
CRIMJ 465 ^{*†}	3 General Education Course	3
SOC 119N ^{*†}	4 Elective	3
General Education Course	3	
	16	12

Fourth Year

Fall	Credits Spring	Credits
CRIMJ 290 [*]	2 CRIMJ 450W [*]	3
CRIMJ - 400 Level [*]	3 CRIMJ 495 [*]	3
General Education Course	3 Elective	3
Elective	3 Elective	3
Elective	3 General Education Health & Wellness (GHW)	3
	14	15

Total Credits 122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

University Requirements and General Education Notes:

Criminal Justice, B.A. at Greater Allegheny Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or ESL 15 [‡]	3 CRIMJ 12*	3
CRIMJ 100*	3 CAS 100A, 100B, or 100C [‡]	3
World Language Level 1	4 World Language Level 2	4
PSU 8	1 General Education Course	3
General Education Course	3 General Education Course (GQ) [‡]	3
General Education Course	3	
17		16

Second Year

Fall	Credits Spring	Credits
BA 243 or PHIL 103*	3-4 ENGL 202A, 202B, 202C, or 202D [‡]	3
CRIMJ 210*	3 STAT 200* ^{††}	4
World Language Level 3	3 BA Fields Course	4
General Education Course	3 SOC 119N* [†]	3
	CRIMJ 220*	3
12-13		17

Third Year

Fall	Credits Spring	Credits
CRIMJ 290*	3 General Education Course	3
CRIMJ 451 (or other 400-level CRIMJ course)*	3 CRIMJ 230*	3
CRIMJ 413 (or other 400-level CRIMJ course)*	3 CRIMJ Additional Course - 400-Level*	3
General Education Course	3 CRIMJ 250W*	3
General Education Course	3 BA World Cultures Course	3
15		15

Fourth Year

Fall	Credits Spring	Credits
CRIMJ 453 (or other 400-level CRIMJ course)*	3 CRIMJ 441*	3
CRIMJ 450W*	3 CRIMJ 495*	3
General Education Course	3 BA Fields Course	3
BA Fields Course	3 CRIMJ 424W (or other 400-level CRIMJ course)*	3
Elective	3 Elective	3
15		15

Total Credits 122-123

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Criminal Justice, B.A. at Hazleton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CRIMJ 12 ^{*†}	3 CRIMJ 100 [*]	3
ENGL 15 or 30H [‡]	3 CAS 100A [‡]	3
World Language Level 1	4 World Language Level 2	4
General Education Course	3 General Education Course	3
General Education Quantification (GQ) [‡]	3 General Education Course	3
PSU 8	1	
	17	16

Second Year

Fall	Credits Spring	Credits
CRIMJ 210 [*]	3 CRIMJ 230 [*]	3
CRIMJ 220 [*]	3 CRIMJ 250W [*]	3
STAT 200 ^{*††}	4 ENGL 202A [‡]	3
World Language Level 3	4 General Education Course	3
General Education Course	3 General Education Course	3
	17	15

Third Year

Fall	Credits Spring	Credits
CRIMJ 441 [*]	3 CRIMJ - 400 Level [*]	3
CRIMJ - 400 Level [*]	3 BA World Cultures Course	3
PHIL 103 ^{*†}	3 General Education Course	3
SOC 119N ^{*†}	4 Elective	3
General Education Course	3	
	16	12

Fourth Year

Fall	Credits Spring	Credits
CRIMJ 290 [*]	2 CRIMJ 450W [*]	3
CRIMJ - 400 Level [*]	3 CRIMJ 495 [*]	3
General Education Course	3 Elective	3
Elective	3 Elective	3
Elective	3 General Education Health & Wellness (GHW)	3
	14	15

Total Credits 122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

University Requirements and General Education Notes:

Criminal Justice, B.A. at Lehigh Valley Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CRIMJ 100*	3 CAS 100A‡	3
ENGL 15 or 30H‡	3 CRIMJ/SOC 12†	3
General Education Course	3 General Education Quantification (GQ)‡	3
First Year Seminar	3 General Education Course	3
World Language Course Level 1	4 World Language Course Level 2	4
	16	16

Second Year

Fall	Credits Spring	Credits
CRIMJ 210	3 CRIMJ 220*	3
CRIMJ 230	3 STAT 200 (GQ)‡	4
General Education Course	3 ENGL 202A or 202B‡	3
General Education Course	3 General Education Course	3
World Language Course Level 3	4 General Education Course	3
	16	16

Third Year

Fall	Credits Spring	Credits
SOC 119N†	4 CRIMJ 441*	3
CRIMJ 290*	3 400 Level CRIMJ Selection*	3
CRIMJ 250W**	3 Elective	3
PHIL 103†	3 BA Fields Course	3
BA Fields Course	3 B.A. World Cultures Course	3
	General Education Course (GHW)	1.5
	16	16.5

Fourth Year

Fall	Credits Spring	Credits
CRIMJ 495*	3-6 CRIMJ 450W**	3
400 Level CRIMJ Selection*	3 400 Level CRIMJ Selection*	3
BA Fields Course	3 Elective	3
General Education Course (GHW)	1.5 Elective	1
General Education Course	3 General Education Course	3
	13.5-16.5	13

Total Credits 123-126

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Criminal Justice, B.A. at New Kensington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CRIMJ 100*	3 CRIMJ/SOC 12*	3
ENGL 15 or 30H [‡]	3 CAS 100A [‡]	3
World Language Level 1	4 World Language Level 2	4
General Education Course	3 General Education Course	3
General Education Quantification (GQ) [‡]	3 General Education Course	3
PSU 8 (if recommended or required)	0-1	
	16-17	16

Second Year

Fall	Credits Spring	Credits
CRIMJ 220*	3 CRIMJ 210*	3
SOC 119N*	4 CRIMJ 230*	3
World Language Level 3	4 STAT 200 ^{**††}	4
General Education Course	3 ENGL 202A, 202B, 202C, or 202D (A/D Preferred) [‡]	3
	General Education Course	3
	14	16

Third Year

Fall	Credits Spring	Credits
CRIMJ 441*	3 CRIMJ - 400 Level*	3
CRIMJ - 400 Level*	3 General Education Course	3
PHIL 103 ^{**††}	3 General Education Course	3
General Education Course	3 BA World Cultures Course	3
General Education Course	3 BA Fields Course	3
General Education Health & Wellness (GHW)	1.5	
	16.5	15

Fourth Year

Fall	Credits Spring	Credits
CRIMJ 250W*	3 CRIMJ 450W*	3
CRIMJ 290*	2 CRIMJ 495*	3
CRIMJ - 400 Level*	3 BA Fields Course	3
General Education Health & Wellness (GHW)	1.5 Elective	3
BA Fields Course	3	
Elective	3	
	15.5	12

Total Credits 121-122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Criminal Justice, B.A. at Schuylkill Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CRIMJ 100 ^{*†}	3 CRIMJ 12 ^{*†}	3
ENGL 15 or 30H [‡]	3 CAS 100A [‡]	3
General Education Course	3 World Language Level 1	4
General Education Course	3 General Education Course	3
General Education Course (Quantification) [‡]	3 General Education Course	3
PSU 8	2	
	17	16

Second Year

Fall	Credits Spring	Credits
CRIMJ 210 [*]	3 CRIMJ 230 [*]	3
CRIMJ 220 [*]	3 STAT 200 or CRIMJ 260 ^{*††}	3-4
SOC 119N [*]	4 ENGL 202A [‡]	3
World Language Level 2	4 World Language Level 3	4
	General Education Course	3
	14	16-17

Third Year

Fall	Credits Spring	Credits
CRIMJ 250W [*]	3 CRIMJ 465 [*]	3
CRIMJ - 400 Level [*]	3 CRIMJ 441 [*]	3
General Education Course	3 CRIMJ - 400 Level [*]	3
General Education Course	3 BA World Cultures Course	3
General Education Course	3 General Education Course	3
General Education Health & Wellness (GHW)	1.5	
	16.5	15

Fourth Year

Fall	Credits Spring	Credits
CRIMJ 290 [*]	2 CRIMJ 450W [*]	3
CRIMJ - 400 Level [*]	3 CRIMJ 495 [*]	3
General Education Health & Wellness (GHW)	1.5 Elective	3
Elective	3 Elective	3
Elective	3	
Elective	3	
	15.5	12

Total Credits 122-123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Criminal Justice, B.A. at Shenango Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CRIMJ 100*	3 CRIMJ 12**	3
ENGL 15 or 30H‡	3 CAS 100A‡	3
World Language Level 1	4 World Language Level 2	4
General Education Course	3 General Education Course	3
General Education Quantification (GQ)‡	3 General Education Course	3
PSU 8 (if recommended or required)	0-1	
	16-17	16

Second Year

Fall	Credits Spring	Credits
CRIMJ 220*	3 CRIMJ 210*	3
SOC 119N**	4 CRIMJ 230*	3
World Language Level 3	4 STAT 200**††	4
General Education Course	3 General Education Course	3
	General Education Course	3
	14	16

Third Year

Fall	Credits Spring	Credits
CRIMJ 441*	3 PHIL 103**	3
CRIMJ - 400 Level*	3 CRIMJ - 400 Level*	3
ENGL 202A, 202B, 202C, or 202D‡	3 BA World Cultures Course	3
General Education Course	3 General Education Course	3
General Education Course	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
CRIMJ 250W*	3 CRIMJ 450W*	3
CRIMJ 290*	2 CRIMJ 495*	3
CRIMJ - 400 Level*	3 Elective	3
General Education Health & Wellness (GHW)	3 Elective	3
Elective	3	
Elective	3	
	17	12

Total Credits 121-122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Criminal Justice, B.A. at Wilkes-Barre Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CRIMJ 100*	3 SOC 12 [†]	3
ENGL 15 or 30H [‡]	3 CAS 100A [‡]	3
Elective	3 SOC 119N [†]	4
General Education Course	3 World Language Level 1	4
General Education Course	3 General Education Course	3
PSU 8	1	
	16	17

Second Year

Fall	Credits Spring	Credits
CRIMJ 210*	3 CRIMJ 230*	3
CRIMJ 220*	3 STAT 200 [‡]	4
World Language Level 2	4 ENGL 202A, 202B, 202C, or 202D [‡]	3
General Education Course	3 World Language Level 3	4
General Education Course	3 General Education Course	3
	16	17

Third Year

Fall	Credits Spring	Credits
CRIMJ 290*	2 CRIMJ 441W*	3
CRIMJ 250W*	3 General Education Course	3
CRIMJ 465*	3 General Education Course	3
CRIMJ 400 Level*	3 BA World Cultures Course	3
CRIMJ 400 Level*	3 BA Fields Course	3
General Education Course	3	
	17	15

Fourth Year

Fall	Credits Spring	Credits
CRIMJ 400 Level*	3 CRIMJ 450W ^{**†}	3
General Education Course	3 CRIMJ 495*	3
BA Fields Course	3 BA Fields Course	3
Elective	3 Elective	3
	12	12

Total Credits 122

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Career Paths

Graduates of the Criminal Justice program are prepared to enter the workforce or can continue their graduate education in Master's and Ph.D. programs, as well as law school. Penn State Altoona Career Services supports and serves students in all areas related to career development and preparation including: Major and Career Exploration Career Decision-Making Preparation of Employment Documents Internship and Job Search Strategies Interview Preparation Preparing for Graduate School Developing your Professional Online Brand Presentations and Workshops.

Contact

Beaver

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213 Ross Administration Building
Monaca, PA 15061
724-773-3549
mbp16@psu.edu

<https://beaver.psu.edu/academics/majors/crimj> (<https://beaver.psu.edu/academics/majors/crimj/>)

DuBois

1 College Place
DuBois, PA 15801
814-375-4703
lvn5194@psu.edu

<https://dubois.psu.edu/academics/degrees/crimj> (<https://dubois.psu.edu/academics/degrees/crimj/>)

Fayette

2201 University Drive
Lemont Furnace, PA 15456

724-430-4240
lwm13@psu.edu

<https://fayette.psu.edu/academics/baccalaureate/criminal-justice>
(<https://fayette.psu.edu/academics/baccalaureate/criminal-justice/>)

Greater Allegheny

109C Main Building
4000 University Drive
McKeesport, PA 15132
kjm47@psu.edu

<https://greaterallegheny.psu.edu/academics/degree-programs/criminal-justice> (<https://greaterallegheny.psu.edu/academics/degree-programs/criminal-justice/>)

Hazleton

Memorial 105
Hazleton, PA 18202
570-450-3548
pup1@psu.edu

<https://hazleton.psu.edu/criminal-justice> (<https://hazleton.psu.edu/criminal-justice/>)

Lehigh Valley

ACADEMIC AFFAIRS
2809 Saucon Valley Road
Center Valley, PA 18034
610-285-5000
dad68@psu.edu

<https://lehighvalley.psu.edu/criminal-justice-babs> (<https://lehighvalley.psu.edu/criminal-justice-babs/>)

New Kensington

3550 7th Street Road
New Kensington, PA 15068
724-334-6761
rwentling@psu.edu

<https://newkensington.psu.edu/academics/criminal-justice-ba-or-bs>
(<https://newkensington.psu.edu/academics/criminal-justice-ba-or-bs/>)

Schuylkill

200 University Drive
Schuylkill Haven, PA 17972
570-385-6075
rap179@psu.edu

<https://schuylkill.psu.edu/academics/bacc-degrees/criminal-justice>
(<https://schuylkill.psu.edu/academics/bacc-degrees/criminal-justice/>)

Shenango

CRIMINAL JUSTICE
147 Shenango Avenue
Sharon, PA 16146
724-983-2954
twm5527@psu.edu

<https://shenango.psu.edu/academics/degrees/criminal-justice> (<https://shenango.psu.edu/academics/degrees/criminal-justice/>)

Wilkes-Barre

44 University Drive
Dallas, PA 18612
570-675-9216
rss5718@psu.edu

<https://wilkesbarre.psu.edu/academics/criminal-justice> (<https://wilkesbarre.psu.edu/academics/criminal-justice/>)

Abington

DIVISION OF SOCIAL SCIENCES
1600 Woodland Road
Abington, PA 19001
215-881-7397
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<https://www.abington.psu.edu/academics/majors-at-abington/criminal-justice> (<https://www.abington.psu.edu/academics/majors-at-abington/criminal-justice/>)

Altoona

DIVISION OF EDUCATION, HUMAN DEVELOPMENT, AND SOCIAL SCIENCES
Elm Building 103
3000 Ivyside Park
Altoona, PA 16601
814-949-5756
alg177@psu.edu

<https://altoona.psu.edu/academics/bachelors-degrees/criminal-justice>
(<https://altoona.psu.edu/academics/bachelors-degrees/criminal-justice/>)

Berks

DIVISION OF HUMANITIES, ARTS AND SOCIAL SCIENCES
Gaige Building
Reading, PA 19610
610-396-6214
BKCrImJust@psu.edu

<https://berks.psu.edu/academics/babs-criminal-justice> (<https://berks.psu.edu/academics/babs-criminal-justice/>)

Criminal Justice, B.S. (University College)

Begin Campus: Any Penn State Campus

End Campus: Beaver, DuBois, Fayette, Greater Allegheny, Hazleton, Lehigh Valley, New Kensington, Schuylkill, Shenango, Wilkes-Barre

Program Description

Students receiving a baccalaureate degree in criminal justice should understand each of the three main components of the criminal justice system and their interrelationships, be able to evaluate critically both current and future crime control policy proposals and criminal justice research, and understand the complexity of the crime phenomenon and its relationship to individual, social, and cultural factors. This major includes study in law enforcement, courts and corrections individually and as components of a system, plus work in theories of crime causation, and crime control policy. Students should expect reading, writing, and

critical thinking skills to be rigorously applied and developed throughout the degree program. The Bachelor of Arts degree in Criminal Justice provides a broadly based liberal arts background for the study of crime, justice and the criminal justice system. The Bachelor of Science degree offers an opportunity for educational enrichment in fields not traditionally considered part of the liberal arts. Either degree is excellent preparation for a career in criminal justice, graduate, or professional study, or informed citizenship.

What is Criminal Justice?

Criminal justice is the study of the adult and juvenile justice systems, including law enforcement, the courts, and corrections. It is interdisciplinary and includes understanding the intersections of law, public policy, and behavioral science, in an effort to understand crime as a social problem and improve these systems for the good of society.

You Might Like This Program If...

You have an interest in working in corrections, courts, court administration, law enforcement, and probation and parole. Students completing this course of study are prepared to enter law school and graduate degree programs in more specialized areas. Every student in this degree will participate in an internship at a host agency located in a local, state or federal agency of their choice.

MORE INFORMATION ABOUT CRIMINAL JUSTICE (<https://altoona.psu.edu/academics/bachelors-degrees/criminal-justice/>)

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Criminal Justice, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	18-22
Requirements for the Major	60-61

4-7 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 0-3 credits of GH courses; 4 credits of GQ courses.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CRIMJ/CRIM 100	Introduction to Criminal Justice	3
CRIMJ 210	Policing in America	3
CRIMJ 220	Courts and the Prosecution Process	3
CRIMJ 230	Corrections in America	3
CRIMJ 290	Introduction to Internship Experience	2
CRIMJ/CRIM 441	The Juvenile Justice System	3
CRIMJ 450W	Senior Seminar	3
CRIMJ 495	Internship in Criminal Justice	3
SOC/CRIMJ/CRIM 12	Criminology	3
SOC 119N	Race, Ethnicity and Culture	3-4
STAT 200	Elementary Statistics	4

Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
CRIMJ 250W	Research Methods in Criminal Justice	3
or SOC 207	Research Methods in Sociology	
PHIL 103	Ethics	3
or CRIMJ 465	Ethics in Criminal Justice	
Select 9 credits from any 400-level CRIMJ course that does not already fulfill another requirement in the major		9

Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 12 credits, in consultation with the adviser, in one or two of the following skill enhancement areas: accounting, computers, composition and rhetoric, counseling, education, law and legal studies, world language, management, public speaking, research methods and statistics, science and engineering, biobehavioral health; or in the following topics: adolescence, deviant behavior, drugs, minorities		12

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits

- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives Beaver, New Kensington, and Shenango Campuses

- Students will be able to have a basic understanding of the nature of the three branches of the Criminal Justice System (Legal, Law Enforcement, Corrections).
- Students will be able to apply analysis and evaluation strategies specific to criminal justice/criminology to formulate solutions to criminological problems.
- The students will have developed a core of criminological knowledge and concepts which will help them understand the functioning of and issues relevant to the criminal justice system.
- Students will be able to understand and apply theories of criminal and deviant behavior, and the behavior of law.
- Students will be able to read and correctly interpret Criminal Justice research and data.
- Students will be able to understand the relationship between culture, social class and criminal justice.
- Students will be able to communicate criminological issues effectively and deliver written and/or oral presentations.
- Students will be able to demonstrate knowledge and application skills regarding the fact that the criminal justice professional must operate in a climate of tolerance and respect where opposing viewpoints can be exchanged openly.
- Students will be able to show professionalism, interact appropriately with colleagues, uphold professional ethical principal, and work ethically, as part of their internships, consistent with professional standards and practices.

DuBois and Greater Allegheny Campuses

- **Know Structure:** Demonstrate understanding around the history, structure, and function of the three branches of criminal justice (Courts, Law Enforcement, Corrections).
- **Know Context:** Demonstrate understanding around the relationship between culture, social class, race and ethnicity, gender and sexuality and criminal justice involvement.
- **Know and Use Theory:** Demonstrate understanding of core theories in criminology and the sociology of deviance along with their relevance to different types of offenses and offenders.
- **Think Critically:** Demonstrate ability to solve criminal justice problems through an understanding of context, the identification of appropriate evidence, and appreciation of potential barriers and limitations.
- **Research:** Demonstrate ability to formulate research questions, implement basic quantitative and qualitative research methods, collect and analyze limited data.
- **Communicate:** Demonstrate ability to effectively communicate practical and theoretical criminal justice issues through papers, visual media, and oral presentations.

Fayette Campus

- **Application of research methods:** Students will create a plan to answer a specific research question related to crime and criminal justice.
- **Evaluation of strategies to reduce crime:** Students will evaluate the effectiveness of prominent crime control policies and strategies.
- **Identification of power structures:** Students will enumerate the motives and forces that determine the shape and scope of criminal law.

- **Identify Alternatives:** Students will identify alternatives to the formal criminal justice systems as a means of facilitating pro-social, non-criminal behaviors.
- **Knowledge of American Criminal Justice System:** Students will identify and describe the components of the American criminal justice system and the processing of cases.
- **Knowledge of crime theories:** Students will identify the elements that comprise the major biological, psychological, and sociological perspectives that attempt to explain the causes of crime.

Hazleton and Wilkes-Barre Campuses

- **Knowledge Base in Criminal Justice:** Students will develop knowledge and understanding of the major components of the criminal justice system and juvenile justice system as well as how these components interact. Student understanding of the criminal justice process will be enhanced through targeted courses in courts, corrections, and policing that highlight the unique needs, challenges, and operation of these components. Across the curriculum, students will be exposed to criminological theories that help to explain the role of gender, race/ ethnicity, and other background characteristics on offending, victimization, and criminal justice processing.
 - Describe key concepts, principles, and overarching themes in criminal justice
 - Develop a working knowledge of criminal justice content domains
 - Describe applications of criminological theory
- **Research Methods:** Students will understand the importance and practical use of social science research methods and the role these play in criminal justice policy.
 - Use scientific reasoning to interpret criminal justice policy
 - Demonstrate criminal justice information literacy
 - Engage in innovative and integrative thinking and problem solving
 - Interpret, design, and conduct basic criminological research
- **Professional Writing and Critical Thinking:** Students will practice writing and critical thinking skills through writing assignments across the curriculum and the completion of at least one writing intensive course.
 - Demonstrate effective writing for different purposes
 - Exhibit effective presentation skills for different purposes
 - Interact effectively with others
 - Demonstrate critical thinking skills concerning issues in criminal justice
- **Ethics:** Students will understand the role of ethics in criminal justice.
 - Apply ethical standards to evaluate criminal justice research and policy
 - Build and enhance interpersonal relationships
 - Adopt values that build community at local, national, and global levels
- **Placement:** Students will be prepared for placement in the criminal justice field through an internship experience.
 - Apply criminal justice content and skills to career goals
 - Exhibit self-efficacy and self-regulation
 - Refine project and time-management skills
 - Enhance teamwork capacity
 - Develop meaningful professional direction for life after graduation

Schuylkill Campus

- Students will be able to have a basic understanding of the nature of the three branches of Criminal Justice System (Legal, Law Enforcement, Corrections)
- Students will be able to have developed critical thinking skills to understand and to formulate solutions to problems relating to criminological issues.
- Students will be able to read and correctly interpret Criminal Justice research and data. Data will be collected from CRIMJ 494 the capstone course for the program.
- Students will be able to demonstrate knowledge and application skills regarding the fact that the criminal justice professional must operate in a climate of tolerance and respect where opposing viewpoints can be exchanged openly.
- Analyze the nature of crime and criminal behavior and their impact on policy related to crime and public safety.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Criminal Justice, B.S. at Beaver Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CRIMJ 100*	3 CRIMJ 12*	3
ENGL 15 or 30H [†]	3 CAS 100A [‡]	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Quantification (GQ) [‡]	3 General Education Health & Wellness (GHW)	1.5

PSU 8 (if recommended or required)	0-1 Elective	3
15-16		16.5

Second Year

Fall	Credits Spring	Credits
CRIMJ 220*	3 CRIMJ 210*	3
SOC 119N*	4 CRIMJ 230*	3
General Education Course	3 STAT 200*††	4
General Education Course	3 ENGL 202A, 202B, 202C, or 202D (A/D preferred)‡	3
General Education Course	3 General Education Course	3
16		16

Third Year

Fall	Credits Spring	Credits
CRIMJ 441*	3 CRIMJ - 400 Level*	3
CRIMJ - 400 Level*	3 Skills Enhancement Course*	3
PHIL 103*†	3 Skills Enhancement Course*	3
Skills Enhancement Course*	3 General Education Course	3
Elective	3 Elective	3
General Education Health & Wellness (GHW)	1.5	
16.5		15

Fourth Year

Fall	Credits Spring	Credits
CRIMJ 250W*	3 CRIMJ 450W*	3
CRIMJ 290*	2 CRIMJ 495*	3
CRIMJ - 400 Level*	3 Elective	3
Skills Enhancement Course*	3 Elective	3
Elective	3	
14		12

Total Credits 121-122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Criminal Justice, B.S. at DuBois Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CRIMJ 100*	3 CRIMJ 12*	3
ENGL 15 or 30H [‡]	3 CAS 100A [‡]	3
General Education Course	3 General Education Course (GQ) [‡]	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
PSU 8 (FYS)	1	
	16	15

Second Year

Fall	Credits Spring	Credits
CRIMJ 210*	3 CRIMJ 230*	3
General Education Course	3 SOC 119N*	4
STAT 200 [‡]	4 ENGL 202A, 202B, 202C, or 202D [‡]	3
General Education Course	3 CRIMJ 220*	3
General Education Course	3 General Education Course	3
	16	16

Third Year

Fall	Credits Spring	Credits
CRIMJ 441*	3 CRIMJ 400 Level	3
CRIMJ 400 Level	3 Skills Enhancement Course*	3
CRIMJ 465*	3 Skills Enhancement Course*	3
Skills Enhancement Course*	3 General Education Course	3
Elective	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
CRIMJ 250W*	3 CRIMJ 450W*	3
CRIMJ 290*	2 CRIMJ 495*	3
CRIMJ 400 Level	3 Elective	3
Skills Enhancement Course*	3 Elective	3
Elective	3 General Education Course	3
	14	15

Total Credits 122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

University Requirements and General Education Notes:

Criminal Justice, B.S. at Fayette Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CRIMJ 100*	3 CAS 100A‡	3
ENGL 15 or 30H‡	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course	3 Elective	3
General Education Quantification (GQ)‡	3 CRIMJ 12**†	3
PSU 8	1	
	16	15

Second Year

Fall	Credits Spring	Credits
CRIMJ 210*	3 CRIMJ 230*	3
CRIMJ 220*	3 ENGL 202A‡	3
SOC 119N**†	4 General Education Course	3
STAT 200**††	4 CRIMJ 250W*	3
CRIMJ 250W*	3 General Education Course	3
	17	15

Third Year

Fall	Credits Spring	Credits
CRIMJ 441*	3 CRIMJ - 400 Level*	3
CRIMJ - 400 Level*	3 Skills Enhancement Course*	3
CRIMJ 465**†	3 General Education Course	3
Skills Enhancement Course*	3 General Education Course	3
Elective	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
CRIMJ 290*	2 CRIMJ 450W*	3
CRIMJ - 400 Level*	3 CRIMJ 495*	3
Skills Enhancement Course*	3 Elective	3
Skills Enhancement Course*	3 Elective	3
Elective	3 General Education Health & Wellness (GHW)	1.5
	General Education Health & Wellness (GHW)	1.5
	14	15

Total Credits 122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

University Requirements and General Education Notes:

Criminal Justice, B.S. at Greater Allegheny Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSU 8	1 CRIMJ 12*	3
ENGL 15, 30H, or ESL 15 (GWS) [‡]	3 BA 243 or PHIL 103*	3
CRIMJ 100*	3 General Education Course	3
General Education Course	3 General Education Course (GQ) [‡]	3
General Education Course	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C [‡]	3
General Education Course	3	
	16	15

Second Year

Fall	Credits Spring	Credits
CRIMJ 210*	3 ENGL 202A, 202B, 202C, or 202D [‡]	3
General Education Course	3 SOC 119N ^{*†}	4
General Education Course	3 STAT 200 ^{*††}	4
General Education Course	3 General Education Course	3
	CRIMJ 220*	3
	12	17

Third Year

Fall	Credits Spring	Credits
CRIMJ 290*	3 CRIMJ 250W*	3
CRIMJ 451 (or other 400-level CRIMJ course)*	3 CRIMJ 230*	3
CRIMJ 413 (or other 400-level CRIMJ course)*	3 Elective	3
Major Supporting Course*	3 Major Supporting Course*	3
General Education Course	3 General Education Course	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
CRIMJ 453 (or other 400-level CRIMJ course)*	3 CRIMJ 441*	3
Major Supporting Course*	3 CRIMJ 495*	3
General Education Course	3 CRIMJ 424W (or other 400-level CRIMJ course)*	3
CRIMJ 450W*	3 Elective	3
Elective	3 Elective	3
	15	15

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- Additional CRIMJ 400-level courses: Select at least 9 credits at the 400-level.
- Major Supporting Courses: Select 12 credits, in consultation with adviser. Recommended options include psychology courses (e.g., abnormal, forensic), BBH courses (e.g., Drugs, Behavior and Health), ECON 104 or ECON 102, HDFS courses (e.g., courses on developmental or family problems), or IST or SRA security courses.

Criminal Justice, B.S. at hazleton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CRIMJ 12 ^{*†}	3 CRIMJ 100 [*]	3
ENGL 15 or 30H [‡]	3 CAS 100A [‡]	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Quantification (GQ) [‡]	3 Elective	3
PSU 8	1	
	16	15

Second Year

Fall	Credits Spring	Credits
CRIMJ 210 [*]	3 CRIMJ 230 [*]	3
CRIMJ 220 [*]	3 CRIMJ 250W [*]	3
SOC 119N ^{*†}	4 ENGL 202A [‡]	3
STAT 200 ^{*††}	4 General Education Course	3
General Education Course	3 General Education Course	3
	17	15

Third Year

Fall	Credits Spring	Credits
CRIMJ 441 [*]	3 CRIMJ - 400 Level [*]	3
CRIMJ - 400 Level [*]	3 Skills Enhancement Course [*]	3
PHIL 103 ^{*†}	3 General Education Course	3
Skills Enhancement Course [*]	3 General Education Course	3
Elective	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
CRIMJ 290 [*]	2 CRIMJ 450W [*]	3
CRIMJ - 400 Level [*]	3 CRIMJ 495 [*]	3
Skills Enhancement Course [*]	3 Elective	3
Skills Enhancement Course [*]	3 Elective	3
Elective	3 General Education Health & Wellness (GHW)	1.5
	General Education Health & Wellness (GHW)	1.5
	14	15

Total Credits 122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

University Requirements and General Education Notes:

Criminal Justice, B.S. at Lehigh Valley Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [‡]	3 CAS 100A [‡]	3
CRIMJ 100*	3 CRIMJ/SOC 12 [†]	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Quantification (GQ) [‡]	3
First Year Seminar	3 General Education Course	3
	15	15

Second Year

Fall	Credits Spring	Credits
CRIMJ 210	3 ENGL 202A or 202B [‡]	3
CRIMJ 230	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course	3 CRIMJ 220*	3
Elective	3 STAT 200 (GQ) [‡]	4
	15	16

Third Year

Fall	Credits Spring	Credits
PHIL 103 [†]	3 CRIMJ 441	3
SOC 119N [†]	4 Elective	3
CRIMJ 250W ^{**†}	3 400 Level CRIMJ Selection*	3
CRIMJ 290*	3 Skills Enhancement Selection*	3
Skills Enhancement Selection	3 General Education Course (GHW)	1.5
	Elective	3
	16	16.5

Fourth Year

Fall	Credits Spring	Credits
CRIMJ 495*	3-6 CRIMJ 450W ^{**†}	3
400 Level CRIMJ Selection*	3 400 Level CRIMJ Selection*	3
Skills Enhancement Selection*	3 Skills Enhancement Selection	3
Elective	3 Elective	3
General Education Course (GHW)	1.5 General Education Course	3
	13.5-16.5	15

Total Credits 122-125

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Criminal Justice, B.S. at New Kensington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CRIMJ 100*	3 CRIMJ/SOC 12*	3
ENGL 15 or 30H‡	3 CAS 100A‡	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Quantification (GQ)‡	3 General Education Health & Wellness (GHW)	1.5
PSU 8	1 Elective	3
	16	16.5

Second Year

Fall	Credits Spring	Credits
CRIMJ 220*	3 CRIMJ 210*	3
SOC 119N*	4 CRIMJ 230*	3
General Education Course	3 STAT 200*††	4
General Education Course	3 ENGL 202A, 202B, 202C, or 202D (A/D Preferred)‡	3
General Education Course	3 General Education Course	3
	16	16

Third Year

Fall	Credits Spring	Credits
CRIMJ 441*	3 CRIMJ - 400 Level*	3
CRIMJ - 400 Level*	3 Skills Enhancement Course*	3
PHIL 103*†	3 Skills Enhancement Course*	3
Skills Enhancement Course*	3 General Education Course	3
Elective	3 Elective	3
General Education Health & Wellness (GHW)	1.5	
	16.5	15

Fourth Year

Fall	Credits Spring	Credits
CRIMJ 250W*	3 CRIMJ 450W*	3
CRIMJ 290*	2 CRIMJ 495*	3
CRIMJ - 400 Level*	3 Elective	3
Skills Enhancement Course*	3 Elective	3
Elective	3	
	14	12

Total Credits 122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

University Requirements and General Education Notes:

Criminal Justice, B.S. at Schuylkill Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CRIMJ 100 ^{*†}	3 CRIMJ 12 ^{*†}	3
ENGL 15 or 30H [‡]	3 CAS 100A [‡]	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education (Quantification) [‡]	3 Elective	3
PSU 8	2 General Education Health & Wellness (GHW)	1.5
	17	16.5

Second Year

Fall	Credits Spring	Credits
CRIMJ 210 [*]	3 CRIMJ 230 [*]	3
CRIMJ 220 [*]	3 ENGL 202A [‡]	3
SOC 119N [*]	4 STAT 200 or CRIMJ 260 ^{**†}	3-4
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
	16	15-16

Third Year

Fall	Credits Spring	Credits
CRIMJ 250W [*]	3 CRIMJ 441 [*]	3
CRIMJ - 400 Level [*]	3 CRIMJ 465 [*]	3
Skills Enhancement Course [*]	3 CRIMJ - 400 Level [*]	3
Skills Enhancement Course [*]	3 Skills Enhancement Course [*]	3
General Education Health & Wellness (GHW)	1.5 General Education Course	3
Elective	3	
	16.5	15

Fourth Year

Fall	Credits Spring	Credits
CRIMJ 290 [*]	2 CRIMJ 450W [*]	3
CRIMJ - 400 Level [*]	3 CRIMJ 495 [*]	3
Skills Enhancement Course [*]	3 Elective	3
Elective	3 Elective	3
Elective	3	
	14	12

Total Credits 122-123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

University Requirements and General Education Notes:

Criminal Justice, B.S. at Shenango Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CRIMJ 100*	3 CRIMJ 12**	3
ENGL 15 or 30H‡	3 CAS 100A‡	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Quantification (GQ)‡	3 General Education Health & Wellness (GHW)	3
PSU 8 (if recommended or required)	0-1	
	15-16	15

Second Year

Fall	Credits Spring	Credits
CRIMJ 220*	3 CRIMJ 210*	3
SOC 119N**	4 CRIMJ 230*	3
General Education Course	3 STAT 200**††	4
General Education Course	3 General Education Course	3
General Education Course	3 Elective	3
	16	16

Third Year

Fall	Credits Spring	Credits
CRIMJ 441*	3 PHIL 103**	3
CRIMJ - 400 Level*	3 CRIMJ - 400 Level*	3
ENGL 202A, 202B, 202C, or 202C‡	3 Skills Enhancement Course*	3
Skills Enhancement Course*	3 General Education Course	3
Skills Enhancement Course*	3 General Education Course	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
CRIMJ 250W*	3 CRIMJ 450W*	3
CRIMJ 290*	2 CRIMJ 495*	3
CRIMJ - 400 Level*	3 Elective	3
Skills Enhancement Course*	3 Elective	3
Elective	3 Elective	3
	14	15

Total Credits 121-122

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

University Requirements and General Education Notes:

Criminal Justice, B.S. at Wilkes-Barre Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CRIMJ 100*	3 CAS 100A‡	3
ENGL 15 or 30H‡	3 SOC 12†	3
Elective	3 SOC 119N†	4
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
PSU 8	1	
	16	16

Second Year

Fall	Credits Spring	Credits
CRIMJ 210*	3 CRIMJ 230*	3
CRIMJ 220*	3 STAT 200*††	4
General Education Course	3 ENGL 202A, 202B, 202C, or 202D‡	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
	15	16

Third Year

Fall	Credits Spring	Credits
CRIMJ 290*	2 CRIMJ 441W*	3
CRIMJ 250W*	3 Skills Enhancement Course	3
CRIMJ 465*	3 Skills Enhancement Course	3
CRIMJ 400 Level*	3 Elective	3
CRIMJ 400 Level*	3 Elective	3
General Education Course	3	
	17	15

Fourth Year

Fall	Credits Spring	Credits
CRIMJ 400 Level*	3 CRIMJ 450W*†	3
Skills Enhancement Course	3 CRIMJ 495*	3
Elective	3 Skills Enhancement Course	3
Elective	3 Elective	3
Elective	3	
	15	12

Total Credits 122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

Graduates of the Criminal Justice program are prepared to enter the workforce or can continue their graduate education in Master's and PhD programs, as well as law school. Penn State Altoona Career Services supports and serves students in all areas related to career development and preparation including: Major and Career Exploration Career Decision-Making Preparation of Employment Documents Internship and Job Search Strategies Interview Preparation Preparing for Graduate School Developing your Professional Online Brand Presentations and Workshops.

Contact

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<https://beaver.psu.edu/academics/majors/crimj> (<https://beaver.psu.edu/academics/majors/crimj/>)

DuBois

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DuBois, PA 15801
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lvn5194@psu.edu

<https://dubois.psu.edu/academics/degrees/crimj> (<https://dubois.psu.edu/academics/degrees/crimj/>)

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<https://fayette.psu.edu/academics/baccalaureate/criminal-justice> (<https://fayette.psu.edu/academics/baccalaureate/criminal-justice/>)

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<https://greaterallegheny.psu.edu/academics/degree-programs/criminal-justice> (<https://greaterallegheny.psu.edu/academics/degree-programs/criminal-justice/>)

Hazleton

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570-450-3548
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<https://lehighvalley.psu.edu/criminal-justice-babs> (<https://lehighvalley.psu.edu/criminal-justice-babs/>)

New Kensington

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<https://newkensington.psu.edu/academics/criminal-justice-ba-or-bs> (<https://newkensington.psu.edu/academics/criminal-justice-ba-or-bs/>)

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<https://schuylkill.psu.edu/academics/bacc-degrees/criminal-justice> (<https://schuylkill.psu.edu/academics/bacc-degrees/criminal-justice/>)

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<https://shenango.psu.edu/academics/degrees/criminal-justice> (<https://shenango.psu.edu/academics/degrees/criminal-justice/>)

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<https://wilkesbarre.psu.edu/academics/criminal-justice> (<https://wilkesbarre.psu.edu/academics/criminal-justice/>)

Abington

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Abington, PA 19001
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<https://www.abington.psu.edu/academics/majors-at-abington/criminal-justice> (<https://www.abington.psu.edu/academics/majors-at-abington/criminal-justice/>)

Altoona

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alg177@psu.edu

<https://altoona.psu.edu/academics/bachelors-degrees/criminal-justice> (<https://altoona.psu.edu/academics/bachelors-degrees/criminal-justice/>)

Berks

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<https://berks.psu.edu/academics/babs-criminal-justice> (<https://berks.psu.edu/academics/babs-criminal-justice/>)

Cybersecurity Analytics and Operations, B.S. (University College)

Begin Campus: Any Penn State Campus

End Campus: Beaver, Brandywine, Greater Allegheny, Lehigh Valley, Schuylkill, York

Program Description

The Bachelor of Science in Cybersecurity Analytics and Operations in the College of Information Sciences and Technology (IST) is an interdisciplinary program that prepares students for careers as cybersecurity professionals. It educates students on the essential concepts of cyber-defense and the analytical fundamentals of cybersecurity, with a focus on the analytical and risk management underpinnings and associated cyber-defense techniques and strategies for ensuring the safety of online information stored in large and heterogeneous networks that are embedded within and across the complex socio-technical infrastructures that are pervasive in today's business, government and military organizations. Students will acquire the knowledge and skills needed to critically assess and respond to modern information security threats, using approaches that are grounded in a holistic understanding of adversarial strategies and effective responses. More specifically, it will offer an in-depth and domain-independent approach to the development of skills in cyberdefense technologies, tools and processes; cybersecurity analytics and visualization; and cybersecurity risk analysis and management. The major draws from concepts and skills associated with a number of disciplines, including information science, management science, statistics and data science, human behavior, and law/policy. Graduates

will be prepared to join the rapidly growing cybersecurity workforce deployed across organizations of diverse sizes and missions.

What is Cybersecurity Analytics and Operations?

Cybersecurity is a field that deals with the protection of computer systems, networks, programs, and data from attacks and unauthorized access. This includes the development of cyber defense tools to protect critical infrastructure as well as the analysis and mitigation of cyber threats.

Cybersecurity is a very broad field. This program focuses students beyond the information technology field and instead focuses on the analysis of cybersecurity data, identification of cyber incidents, understanding the actions of malware, communication of concerns to business stakeholders and the general public. High performing cyber analysts have a strong mathematical and computational background. They often employ computer programming and scripting to solve problems and integrate existing tools. They analyze the data they are presented with from intrusion detection sensors, firewalls, and anti-malware tools.

Cybersecurity professionals apply their skills for organizations to prevent cyber criminals, hackers, and persistent nation-state actors. They protect organizations, companies, healthcare institutions, and government agencies from the loss of confidential data. They keep abreast of new developments technically, as well as those in the work domain of the organization and events that occur in the world at large.

MORE INFORMATION ABOUT CYBERSECURITY ANALYTICS AND OPERATIONS (<https://ist.psu.edu/prospective/undergraduate/academics/cybersecurity/>)

You Might Like This Program If...

- You enjoy working with and on computers as well as their operating systems and applications.
- You have an interest in business and organizations and securing
- You want to protect digital information, data stores, and computer networks from threats.
- You want to learn the cyber defense strategies used to anticipate, recognize, and defend against computer attacks.
- You're passionate about how we can keep sensitive information out of the hands of hackers, cybercriminals, and terrorist organizations.
- You enjoy working on a team to solve technical problems for organizations.
- You are interested in computer programming and mathematics.

MORE INFORMATION ABOUT WHY STUDENTS CHOOSE TO STUDY CYBERSECURITY ANALYTICS AND OPERATIONS (<https://ist.psu.edu/prospective/undergraduate/academics/cybersecurity/>)

Entrance to Major

To be eligible for the Cybersecurity Analytics and Operations major, students must:

1. Have completed the following entrance-to-major requirements with a grade of C or better in each: CYBER 100 or CYBER 100S, IST 210, IST 220, IST 242 or CMPSC 122 or CMPSC 132, and STAT 200 or SCM 200.

2. Have achieved a minimum cumulative grade point average of 2.00 prior to and through the end of the semester during which the entrance to major is requested.

Degree Requirements

For the B.S. degree in Cybersecurity Analytics and Operations, a minimum of 123 credits is required:

Requirement	Credits
General Education	45
Electives	3
Requirements for the Major	87

12 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GQ courses, 3 credits of GS courses, 3 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CYBER 262	Cyber-Defense Studio	3
CYBER 342W	Cyber Incident Handling and Response	3
CYBER 362	Cybersecurity Analytics Studio	3
CYBER 366	Malware Analytics	3
CYBER 440	Cybersecurity Capstone	3
IST 210	Organization of Data	3
IST 220	Networking and Telecommunications	3
IST 230	Language, Logic, and Discrete Mathematics	3
IST 432	Legal and Regulatory Environment of Information Science and Technology	3
IST 451	Network Security	3
IST 454	Computer and Cyber Forensics	3
IST 456	Information Security Management	3
IST 495	Internship	1
SRA 111	Introduction to Security and Risk Analysis	3
SRA 211	Threat of Terrorism and Crime	3
SRA 221	Overview of Information Security	3
SRA 231	Decision Theory and Analysis	3
SRA 311	Risk Analysis in a Security Context	3
SRA 365	Statistics for Security and Risk Analysis	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
CYBER 100 or CYBER 100S	Computer Systems Literacy	3
ENGL 202C or ENGL 202D	Effective Writing: Technical Writing	3
MATH 110 or MATH 140	Techniques of Calculus I	4
STAT 200	Elementary Statistics	4

or SCM 200	Introduction to Statistics for Business	
Select one of the following:		3
CMPSC 121	Introduction to Programming Techniques	
CMPSC 131	Programming and Computation I: Fundamentals	
IST 140	Introduction to Application Development	
Select one of the following:		3
CMPSC 122	Intermediate Programming	
CMPSC 132	Programming and Computation II: Data Structures	
IST 242	Intermediate & Object-Oriented Application Development	
Select one of the following:		3
IST 256	Programming for the Web	
IST 261	Application Development Design Studio I	
IST 361	Application Development Design Studio II	

Supporting Courses and Related Areas

Select 9 credits from one of the Application Focus course lists. At least 3 credits must be at the 400-level. Students may also complete a custom Application Focus sequence with approval from an academic adviser and a CYBER undergraduate program coordinator. 9

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Knowledge/Application:** Understand and apply the interdisciplinary knowledge of information sciences in a security context to recognize, analyze, defend against, and manage cyber risks.
 - Understand the components and interoperability of computer hardware, operating systems, networks and databases.
 - Demonstrate proficiency in programming and scripting to perform Cybersecurity automation and analysis.
 - Understand Cyber threats and appropriate defensive designs and tools to mitigate the risk of attack.
 - Understand the procedures for Cybersecurity Incident Handling and Response.
 - Understand the static and dynamic analysis of malware.
- **Problem-Solving:** Understand, apply and adapt various problem solving strategies, using appropriate technology and methods.
 - Identify Cybersecurity threats and implement complementary defensive measures to mitigate risk.

- Apply data analytics in a security context to analyze, predict and prevent cyberattacks.
- Perform malware analysis and forensics to understand the nature and origin of attacks.
- Evaluate several Cybersecurity frameworks and provide analysis that culminates in a high level executive briefing exercise.
- **Evaluation and Communication (Individual and Team):** Communicate and work effectively (both individually and in teams) with a range of perspectives and audiences through a variety of media.
 - Synthesize data from multiple sources to help make informed decisions.
 - Communicate effectively to a variety of audiences through writing and the spoken word.
- **Professional Responsibilities:** Understand professional responsibilities in terms of the ethical, legal and security policy aspects of information assurance and security.
 - Understand the rules, regulations and issues related to compliance with applicable laws and regulations related to Information Security and Privacy.
 - Understand the legal and ethical ramifications of violating the trust that organizations will place in you as a Cybersecurity professional.
- **Lifelong Learning:** Commit to the continuous acquisition of relevant knowledge for professional development by self-teaching and/or on-going education and certification.
 - Employ information-seeking strategies and self-directed learning in pursuit of current knowledge.
 - Enroll in professional development and pursue industry certifications to enhance your career and the profession.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Beaver

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World Campus

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Cybersecurity Analytics and Operations, B.S. at Beaver Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
IST 140 (*# or CMPSC 121 (GQ)#‡ or CMPSC 131*#) ^{1,2}	3 IST 220 *#	3
Application Focus Selection 1 (GS) (IST 110)	3 IST 242 *# ¹	3
ENGL 15 or 30H (GWS)	3 Application Focus Selection 1 (GS) ^{4,5}	3
MATH 110 or 140 (GQ) ^{*‡2,3}	4 General Education Course (GN) ⁶	3
First Year Seminar (IST 111S)	1 CAS 100 (GWS) [‡]	3

SRA 111*	3 CYBER 100*#	3
17		18

Second Year

Fall	Credits Spring	Credits
IST 210*#	3 STAT 200 (‡ (GQ) or SCM 200‡ (GQ) or DS 200*)	4
IST 230*	3 SRA 211*	3
Application Focus Selection 2 (IST 331)	3 General Education Selection (GA/ GH) ⁴	3
CYBER 262*	3 General Education Course (GN) ⁶	3
SRA 211*	3 IST 256 ENGL 202C or 202D (GWS)	3
15		19

Third Year

Fall	Credits Spring	Credits Summer	Credits
General Education Selection (GA/ GH)	3 SRA 365*	3 IST 495 ⁷	1-3
SRA 231*	3 IST 454*	3	
IST 451*	3 Application Focus Selection 4 (IST 411)	3	
SRA 211*	3 IST 390	1	
Application Focus Selection 3 (IST 311) ⁵	3 CYBER 362*	3	
Health and Wellness (GHW)	1.5 CYBER 366*	3	
16.5		16	1-3

Fourth Year

Fall	Credits Spring	Credits
General Education Selection (GA/ GH)	3 CYBER 440 (GWS)*	3
General Education Course (GA/GH)	3 Application Focus Selection 5 (IST 413)	3
General Education Course (GN)	3 IST 456*	3
Health and Wellness (GHW)	1.5 Natural Sciences (GN)	3
IST 495*	1 CYBER 342W*	3
IST 432*	3 SRA 311*	3

Elective	3	
	17.5	18

Total Credits 138-140

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ Since IST 240 will not be offered at this campus, these courses are required courses for ISTBS or ISSCC at Brandywine.

² Course substitutions required for Computer Science minor.

³ MATH 110 or MATH 140 required for graduation requirements. HS Trigonometry or MATH 22 required for admission.

⁴ Students must complete three (3) credits of United States Cultures (US) and three (3) credits of International Cultures (IL) as part of General Education, choice of course may vary.

⁵ Application Focus Selection: Consider courses toward a minor like Business, Peace and Conflict Studies, or Computer Science.

⁶ Recommend one (1) GN selection be FRNSC 100 Intro to Forensic Science before taking IST 454 Cyber Forensics.

⁷ One internship for credit is required to complete degree requirements, a maximum of three internships for credit are allowed.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Students should consult with an adviser when scheduling courses.
- See Adviser for Internship Preparation (CNED 280) – recommended elective; offered every semester.

Cybersecurity Analytics and Operations, B.S. at Brandywine Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits Summer	Credits
CYBER 100 ^{*#}	3 IST 220 ^{*#}	3 IST 495 ^B	1
IST 111S (FYE)	1 IST 242 ^{*#1}	3	
IST 140 ^{*#1,2}	3 SRA 221 [*]	3	
ENGL 15 or 30H (GWS)	3 General Education Course ^{4,5}	3	
MATH 110 (GQ) ^{*2,3}	4 Natural Sciences (GN) ⁶	3	
SRA 111 [*]	3		
	17	15	1

Second Year

Fall	Credits Spring	Credits Summer	Credits
IST 230 ^{*2}	3 IST 256 or 210 ^{*#}	3 IST 495 ^B	1
IST 210 or 261 [*]	3 STAT 200 (GQ) ^{*#}	4	
CYBER 262 [*]	3 SRA 211 [*]	3	
Application Focus Selection 1 ⁵	3 General Education Course ⁴	3	
CAS 100A (GWS)	3 General Education Course (GN) ⁶	3	
	15	16	1

Third Year

Fall	Credits Spring	Credits Summer	Credits
ENGL 202C or 202D (GWS)	3 IST 454 [*]	3 IST 495 ^B	1
SRA 231 [*]	3 CYBER 362 [*]	3	
SRA 365 [*]	3 CYBER 366 [*]	3	
IST 451 [*]	3 SRA 311 [*]	3	
Application Focus Selection 2 ⁵	3 General Education Course ⁴	3	
General Education Course (GHW)	1.5		
	16.5	15	1

Fourth Year

Fall	Credits Spring	Credits
IST 456 [*]	3 CYBER 440 [*]	3
CYBER 342W [*]	3 IST 432 (or Elective) [*]	3

General Education Course ⁴	3 Elective	3
General Education Course (GHW)	1.5 General Education Course ⁴	3
Application Focus Selection 3 ⁵	3 General Education Course (GN)	3
	13.5	15

Total Credits 126

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

- ¹ IST 240 will not be offered at this campus.
- ² Course substitutions required for Computer Science minor.
- ³ MATH 110 or MATH 140 required for graduation requirements. HS Trigonometry or MATH 22 required for admission.
- ⁴ Students must complete three (3) credits of United States Cultures (US) and three (3) credits of International Cultures (IL) as part of General Education, choice of course may vary.
- ⁵ Consider courses that are prerequisites for an application focus. You may consider courses toward a minor like Business, Peace and Conflict Studies, Computer Science or other.
- ⁶ Recommend one (1) GN selection be FRNSC 100 Intro to Forensic Science before taking IST 454 Cyber Forensics.
- ⁷ See Adviser for Internship Preparation (CNED 280) – recommended elective; offered every semester.
- ⁸ One internship for credit is required to complete degree requirements, a maximum of three internships for credit are allowed.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Students should consult with an adviser when scheduling courses.

Application Focus Lists

Students may select from the Application Focus Lists found on the College of IST Suggested Academic Plan for CYAOP BS degree (p. 1044), or create a custom 3-course application from the lists below, in consultation with their academic adviser. Note that not all courses are available at the Brandywine campus.

Students are required to pick one track to fulfill the degree requirements. Students must pick three (3) credits at the 400 level. All nine (9) credits must be in the same application focus area. It is recommended that students use the application focus area list to select a course that meets a General Education requirement (GS/GHW) and serves as a prerequisite for more advanced coursework within the application focus. This course does not count as part of the 9 credits of application focus sequence.

Business (Minor)

Code	Title	Credits
ECON 102 or ECON 104	Introductory Microeconomic Analysis and Policy Introductory Macroeconomic Analysis and Policy	3
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
MGMT 301	Basic Management Concepts	3
MKTG 301	Principles of Marketing	3
IST 432	Legal and Regulatory Environment of Information Science and Technology (Required for CYAOP major)	3
One (1) three credit 400-level business course from the following disciplines: ¹		3
Accounting		
Business Administration		
Business Law		
Energy Business and Finance		
Economics		
Entrepreneurship		
Finance		
Financial Services		
Health Policy and Administration		
International Business		
Management Information Systems		
Management		
Risk Management		
Supply Chain Management		
Statistics		

¹ Each 400-level business course will have different prerequisites; make sure to confirm meeting prerequisites before scheduling

Computer Science (Minor)

Requires planning and decision during NSO to schedule CMPSC required courses.

Code	Title	Credits
MATH 140	Calculus With Analytic Geometry I (Course Substitute for MATH 110) ¹	4
CMPSC 121	Introduction to Programming Techniques (Course Substitute for IST 140) ²	3
CMPSC 122	Intermediate Programming	3
CMPSC 221	Object Oriented Programming with Web-Based Applications	3
CMPSC 360	Discrete Mathematics for Computer Science	3
CMPSC 462 or CMPSC 465	Data Structures Data Structures and Algorithms	3

Two (2) additional CMPSC courses for six more credits of 400-level work in computer science 6

¹ Prerequisite: ALEKS score > 75 or MATH 22 and MATH 26

² Prerequisite: ALEKS score > 45

Peace and Conflict (Minor)

Code	Title	Credits
PLSC 14	International Relations	3
PLSC 291	Introduction to Peace and Conflict Studies	3
PLSC 491	Peace and Conflict Studies Seminar	3
SRA 211	Threat of Terrorism and Crime (Required for CYAOP Major)	3
Two (2) additional 400-level courses from approved list (e.g., CAS 404; COMM 458)		6

Health Policy and Administration (via DLC from consortium)

Code	Title	Credits
HPA 101	Introduction to Health Services Organization	3
HPA 332	Health Systems Management	3
HPA 470	Health Care Information Management	3
BBH 440	Principles of Epidemiology	3

Custom

Custom 4-course application focus provides coherent sequence in Cybersecurity context for student in terms of three credits of GS coursework and must contain six credits of 400-level coursework.

Examples are student taking courses to receive Homeland Security minor, Criminal Justice minor, Cybersecurity Computational Foundations minor (variant of Computer Science minor), or Crime, Law, and Psychology minor.

Requires completion and submission of Custom 4-Course Focus Approval Form.

Cybersecurity Analytics and Operations, B.S. at Greater Allegheny Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CYBER 100S (FYS) ^{*#}	3 IST 220 ^{*#}	3
IST 140 ^{*#}	3 IST 242 ^{*#}	3
ENGL 15 or 30H (GWS) [‡]	3 SRA 221 [*]	3
MATH 110 ^{*‡}	4 Application Focus Selection 1 (GS/GHW)	3
SRA 111 ^{*†}	3 General Education Course	3
	16	15

Second Year

Fall	Credits Spring	Credits
IST 230 [*]	3 IST 210 ^{*#}	3
IST 261 [*]	3 SRA 211 [*]	3
CYBER 262 [*]	3 STAT 200 ^{*‡#}	4
CAS 100A (GWS) [‡]	3 ENGL 202C or 202D [‡]	3
General Education Course	3 General Education Course	3
	15	16

Third Year

Fall	Credits Spring	Credits
General Education Course	3 CYBER 342W [*]	3
CYBER 362 [*]	3 CYBER 366 [*]	3
SRA 231 [*]	3 SRA 311 [*]	3
SRA 365 [*]	3 Application Focus Selection 3	3
Application Focus Selection 2	3 General Education Course	3
General Education Course	1.5	
	16.5	15

Fourth Year

Fall	Credits Spring	Credits
IST 456 [*]	3 CYBER 440 [*]	3
SRA 472 [*]	3 IST 432 [*]	3
IST 451 [*]	3 IST 454 [*]	3
General Education Course	3 Application Focus Selection 4	3
General Education Course	1.5 Elective	2
Elective	3 IST 495 [*]	1
	16.5	15

Total Credits 125

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- CYBER, IST, and SRA courses have enforced prerequisites
- 1 credit of IST 495 IST Internship is required

Application Focus Lists:

- Business:
 - Students should choose 2 courses from the following: ACCTG 211, MGMT 301, or MKTG 301.
 - Select 3 credits at the 400-level from: ACCTG, BA, BLAW, EBF, ECON, ENTR, FIN, FINSV, HPA, IB, LER, MIS, MGMT, MKTG, RM, SCM, or STAT.
 - Note: MGMT 301 and MKTG 301 both require ECON 102 or ECON 104 as prerequisites, so students should take ECON 102/ECON 104 as their GS selection.
 - Note: IST 432 counts toward the business minor.
- Custom:
 - Custom 3 credit application focus provides coherent sequence in Cybersecurity context for student in terms of three credits of GS coursework and must contain 3 credits of 400-level courses.
 - Examples are student taking courses to receive Homeland Security minor, Criminal Justice minor, Cybersecurity Computational Foundations minor (variant of Computer Science minor), or Crime, Law, and Psychology minor.
 - Requires completion and submission of Custom 4-Course Focus Approval Form.

Cybersecurity Analytics and Operations, B.S. at Lehigh Valley Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
IST 140 ^{*#}	3 SRA 221 [*]	3
SRA 111 [†]	3 IST 220 ^{*#}	3
CYBER 100S ^{*#}	3 Application Focus Selection 1	3
MATH 110 ^{††}	4 General Education Selection	3
ENGL 15 or 30H (GWS) ^{††}	3 IST 242 ^{*#}	3
	16	15

Second Year

Fall	Credits Spring	Credits
IST 230 [*]	3 IST 210 ^{*#}	3
IST 261 [*]	3 SRA 211 [*]	3
CYBER 262 [*]	3 STAT 200 ^{†#†}	4
CAS 100A ^{††}	3 ENGL 202C or 202D ^{††}	3
General Education Selection	3 General Education Selection	3
	15	16

Third Year

Fall	Credits Spring	Credits
CYBER 362 [*]	3 CYBER 342W [*]	3
SRA 231 [*]	3 CYBER 366 [*]	3
SRA 365 [*]	3 SRA 311 [*]	3
General Education Selection	3 Application Focus Selection 3	3
General Education Selection	1.5 General Education Selection	3
Application Focus Selection 2	3	
	16.5	15

Fourth Year

Fall	Credits Spring	Credits
IST 456 [*]	3 CYBER 440 [*]	3
SRA 472 [*]	3 IST 432 [*]	3
IST 451 [*]	3 IST 454 [*]	3
General Education Selection	3 Application Focus Selection 4	3
General Education Selection	1.5 Elective	2
Elective	3 IST 495	1
	16.5	15

Total Credits 125

* Course requires a grade of C or better for the major

† Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Cybersecurity Analytics and Operations, B.S. at Schuylkill Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CYBER 100 ^{*#1}	3 IST 220 ^{*#}	3
IST 140 ^{*#}	3 IST 242 ^{*#2}	3
ENGL 15 or 30H [‡]	3 MATH 110 or 140 ^{*‡3}	4
SRA 111 (GS) ^{**†}	3 SRA 221 [*]	3
PSU 8 (FYS)	2 General Education Course	3
General Education Course	3	
	17	16

Second Year

Fall	Credits Spring	Credits
IST 230 [*]	3 IST 210 ^{*#}	3
IST 261 ^{*4}	3 SRA 211 [*]	3
CYBER 262 [*]	3 STAT 200 (GQ) ^{*‡#5}	4
CAS 100A [‡]	3 ENGL 202C or 202D [‡]	3
Application Focus Selection ¹⁶	3 General Education Course	3
	15	16

Third Year

Fall	Credits Spring	Credits
General Education Course	3 CYBER 342W [*]	3
CYBER 362 [*]	3 CYBER 366 [*]	3
SRA 231 [*]	3 SRA 311 [*]	3
SRA 365 [*]	3 General Education Course	3
Application Focus Selection ²⁶	3 General Education Course	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
IST 456 [*]	3 CYBER 440 [*]	3
IST 451 [*]	3 IST 432 [*]	3
Application Focus Selection ³⁶	3 IST 454 [*]	3
General Education Course	3 General Education Course or Elective	3
Elective	3 Elective	3
	IST 495 ^{*7}	1
	15	16

Total Credits 125

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Students enrolled at Schuylkill campus must take CYBER 100 and schedule the PSU 8 First-Year Seminar (FYS) course. If you have taken CYBER 100S elsewhere, it may be accepted as an alternative to CYBER 100 to satisfy the Entrance-to-Major requirement.

² CMPSC 122 or CMPSC 132 may be substituted as an alternative to IST 242 to satisfy the Entrance-to-Major requirement.

³ MATH 140 may be substituted as an alternative to MATH 110.

⁴ IST 256 or IST 361 may be substituted as an alternative to IST 261.

⁵ SCM 200 may be substituted as an alternative to STAT 200 to satisfy the Entrance-to-Major requirement.

⁶ Students satisfy the Application Focus Area requirement by taking 9 credits of coursework in an approved application track or custom focus area, including a minimum of 3 credits of 400-level coursework in the area. Students may optionally take a 4th course in an approved Application Focus Area track or choose a related elective in their senior year.

⁷ 1 credit of IST 495 is required. A grade of C or better must be earned in this course. This requirement can be completed at any time before graduation. Up to 3 internship credits may be earned during your degree work.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Cybersecurity Analytics and Operations, B.S. at York Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CYBER 100 or 100S (FYS) ^{*#}	3 IST 210 ^{*#}	3
IST 140 ^{*#}	3 IST 220 ^{*#}	3
ENGL 15 or 30H (GWS) [‡]	3 IST 242 ^{*#}	3
SRA 111 (GS) ^{*†}	3 General Education Course	3
General Education Course	3 General Education Course	3
	15	15

Second Year

Fall	Credits Spring	Credits
SRA 221 [*]	3 IST 230 [*]	3
CYBER 262 [*]	3 IST 256 [*]	3
MATH 110 (GQ) ^{*‡}	4 SRA 211 [*]	3
CAS 100A (GWS) [‡]	3 STAT 200 (GQ) ^{*‡#}	4
General Education Course	3 Application Focus Selection 1 (GS/GHW)	3
	16	16

Third Year

Fall	Credits Spring	Credits
IST 451 [*]	3 CYBER 366 [*]	3
SRA 231 [*]	3 IST 432 [*]	3
ENGL 202C or 202D (GWS) [‡]	3 SRA 311 [*]	3
Application Focus Selection 2	3 SRA 365 [*]	3
General Education Course	3 General Education Course	3
General Education Course	1.5	
	16.5	15

Fourth Year

Fall	Credits Spring	Credits
CYBER 362 [*]	3 CYBER 440 ^{*1}	3
CYBER 342W [*]	3 IST 454 [*]	3
IST 456 [*]	3 General Education Course	3
Application Focus Selection 3	3 Elective	3
General Education Course	3 IST 495 [*]	1
General Education Course	1.5	
	16.5	13

Total Credits 123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Cross-list with IST 440W Information Sciences and Technology Integration and Problem Solving

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Application Focus Lists:
 - Business:
 - Students should choose 2 courses from the following: ACCTG 211, MGMT 301, or MKTG 301.
 - Select 3 credits at the 400-level from: ACCTG, BA, BLAW,EBF, ECON, ENTR, FIN, FINSV, HPA, IB, LER, MIS, MGMT, MKTG, RM, SCM, or STAT.
 - Note: MGMT 301 and MKTG 301 both require ECON 102 or ECON 104 as prerequisites, so students should take ECON 102/ECON 104 as their GS selection.
 - Note: IST 432 counts toward the business minor.
 - Custom:
 - Custom 3 credit application focus provides coherent sequence in Cybersecurity context for student in terms of three credits of GS coursework and must contain 3 credits of 400-level courses.
 - Examples are student taking courses to receive Homeland Security minor, Criminal Justice minor, Cybersecurity Computational Foundations minor (variant of Computer Science minor), or Crime, Law, and Psychology minor.
 - Requires completion and submission of Custom 4-Course Focus Approval Form.

Career Paths

Cybersecurity blends the technical expertise needed to analyze security issues and create cyberdefense strategies with the interpersonal skills needed to communicate threats to a variety of audiences. The program prepares students to meet the growing need for professionals who can defend against threats to digital information and assets. IST's Office of Career Solutions helps students navigate their internship and career development in the field through coaching, workshops, interview preparation, resume reviews, career fairs, job postings, and networking opportunities.

Careers

Because our courses blend technical knowledge with skills in communication and business, a Cybersecurity Analytics and Operations degree allows students to pursue opportunities as cybersecurity analysts,

cyberthreat advisers, penetration testers, and a number of other unique careers in fields such as defense, government, and business.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE CYBERSECURITY ANALYTICS AND OPERATIONS PROGRAM (<https://www.ist.psu.edu/current/careers/development/process/path/>)

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<https://altoona.psu.edu/academics/bachelors-degrees/cybersecurity-analytics-operations> (<https://altoona.psu.edu/academics/bachelors-degrees/cybersecurity-analytics-operations/>)

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<https://berks.psu.edu/academics/bs-cybersecurity-analytics-and-operation> (<https://berks.psu.edu/academics/bs-cybersecurity-analytics-and-operation/>)

Harrisburg

SCHOOL OF BUSINESS ADMINISTRATION
Olmsted Building, E355
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<https://harrisburg.psu.edu/business-administration/cybersecurity-analytics-bs> (<https://harrisburg.psu.edu/business-administration/cybersecurity-analytics-bs/>)

University Park

COLLEGE OF INFORMATION SCIENCES AND TECHNOLOGY
411 Eric J. Barron Innovation Hub Building
State College, PA 16801
814-865-3528

World Campus

COLLEGE OF INFORMATION SCIENCES AND TECHNOLOGY
411 Eric J. Barron Innovation Hub Building
State College, PA 16801
814-865-3528

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-cybersecurity-analytics-and-operations-bachelor-of-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-cybersecurity-analytics-and-operations-bachelor-of-science-degree/>)

Diversity Studies, Certificate (University College)

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

This certificate is designed to provide students with an overview of issues concerning diversity. Students will take one foundational class and additional courses examining women, gender, sexuality, race, ethnicity, and religion.

What is Diversity Studies?

Diversity Studies is an interdisciplinary academic field that is interested in examining social differences defined by culturally constructed categories of race, class, gender, religion, ethnicity, age, diversity, and other markers of identity. Diversity Studies however tends to focus on our own lived experiences, and how our perception of these markers influences personal and cultural interactions – especially our own! It investigates systems of power that organize our schools, workplaces, healthcare systems, criminal justice system, and media, many of them invisible to us. Around the globe those systems of power are organized very differently, sometimes in fundamental ways. Diversity Studies approaches differences intersectionally to expose, critique, and confront historical and contemporary sources of social and cultural conflict. This does not mean “looking past” differences; rather, looking straight at them to find the common ground and empathy that can make us better citizens.

You Might Like This Program If...

- You want to better understand people from different backgrounds.
- You are interested in impacting social problems.
- You want to stretch your own perspectives and actions.

Program Requirements

To earn an undergraduate certificate in Diversity Studies, a minimum of 12 credits is required, three of which must be at the 400-level.

A course grade of C or higher is required.

Code	Title	Credits
Foundation Courses		
<i>Foundation Courses: Require a grade of C or better</i>		
Select 3 credits from the following:		3
AMST 105	American Popular Culture and Folklife	
PSYCH 232	Cross-Cultural Psychology	
SOC 5	Social Problems	
WMNST 1	Introduction to Women's Studies	
WMNST 106N	Representing Women and Gender in Literature, Art and Popular Cultures	

Select 9 credits chosen from Lists II and III; at least 3 credits must be at the 400 level; students must take at least 3 credits from each list:

List II: Courses on Women, Gender, and Sexuality

CRIMJ 453	Women and the Criminal Justice System
ENGL 194	Women Writers
HDFS 405	Gender and Social Development
HIST 117	Women in United States History
NURS 452	Women's Health Issues
PSYCH 231	Introduction to the Psychology of Gender
PSYCH 422	Human Sexuality
SOC 456	Gender, Occupations, and Professions
THEA 207	Gender and Theatre
THEA 407W	Women and Theatre

List III: Courses on Race, Ethnicity, and Religion

CRIMJ 451	Race, Crime, and Justice
ENGL 135	Alternative Voices in American Literature
ENGL 139	African American Literature
HIST 152	African American History
HIST 153Y	The Indian in North America
PHIL 9	Race, Racism, and Diversity
RLST 1	Introduction to World Religions

No Prerequisites Required.

Certificate Learning Objectives

- Increase awareness and content knowledge of diversity issues and challenges related to gender, gender identity, sexuality, race, ethnicity, and/or religion in a complex society.
- Explore the characteristics of and barriers to attaining a socially just society that embraces complex perspectives and promotes equity.
- Recognize and analyze cultural differences, cultural rules, and cultural biases of non-dominant or marginalized groups within the United States.
- Describe the perceptions, viewpoints, or life experiences of people in a society or culture outside the United States or in a marginalized or nondominant group within the United States.
- Relate and explore, through course writing assignments and discussion questions, culturally sensitive strategies and techniques that produce culturally relevant services, policies and practices to advance traditionally underserved communities.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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English, B.A. (University College)

Begin Campus: Any Penn State Campus

End Campus: Brandywine, Scranton, York

Program Description

Majors explore the imaginative and practical uses of English through courses in literature, writing, rhetoric, and language. They develop perspectives on human nature and cultural values through American, British, and other English literatures; they learn how to gather, analyze, synthesize, and communicate information; they gain mastery over their language. These skills help English majors find careers in such fields as publishing, business, industry, government, and teaching. English majors often go on to postgraduate study not only in English but in such areas as law, business, education, or other liberal disciplines.

Majors can emphasize writing, literature, or rhetoric, or a mix of literature, writing, and rhetoric. All provide a liberal education and all develop analytic and writing skills. Qualified students may participate in the career internship and in the English honors program.

Students interested in earning certification in secondary education should contact the College of Education, Department of Curriculum and Instruction. (See also Teacher Education Programs (<https://ed.psu.edu/academics/teacher-testing-certification/>)).

Traditions of Innovation Option

Available at the following campuses: Brandywine, Scranton, University Park

This option allows students to explore the imaginative and practical uses of English language through a variety of courses in literature, writing, and rhetoric across historical periods. The flexibility of the English curriculum allows students to focus in literary and cultural studies, creative writing, professional and media writing, and/or rhetoric, according to individual interests and goals. In the process, students learn to gather, analyze, synthesize, and communicate information as they improve their language skills across diverse creative and critical scenarios. These skills prepare students for careers in a wide range of professional fields.

Writing and Literature in Context Option

Available at the following campuses: Abington, Altoona, Brandywine, Scranton, York

This option focuses on English as a foundation for strong critical thinking and distinctive communication skills, imaginative approaches to problem solving, and collaboration with aligned fields. The flexibility of the major allows students to study literature, creative writing, theatre, media studies, professional writing, and/or other disciplines, according to their individual interests and goals. These foundations prepare English majors for careers in a wide range of professional fields.

What is English?

English refers to a broad field of study related to literature, professional writing, creative writing, and rhetoric. Majors develop critical thinking skills and produce influential academic, creative, professional, and digital texts. They learn to analyze genres, texts, and contexts that involve, for instance, race, class, gender, sexuality, and nationality. They also learn how various texts communicate value, meaning, and social and cultural critique.

You Might Like This Program If...

- You enjoy writing in different genres, styles, and media, e.g. videos, print or web magazine articles, critical essays, reviews, short stories, poems, etc.
- You enjoy addressing social justice issues that give context to texts.
- You want to use communication to help solve problems involving science, technology, medicine, law, business, or society.
- You enjoy making connections between historical eras and current realities.
- You want to a career in law, non-profit work, medicine, education, or writing/editing.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in English, a minimum of 123 credits is required:

Requirement	Credits
General Education	45
Electives	18
Bachelor of Arts Degree Requirements	24
Requirements for the Major	36

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and

0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Additional Courses		

Additional Courses: Require a grade of C or better

ENGL 200	Introduction to Critical Reading	3
or ENGL 201	What is Literature	
ENGL 494H	Senior Thesis in English	3
or ENGL 487W	Senior Seminar	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

In consultation with adviser, select 18 credits in literature, writing, or rhetoric. At least 9 credits must be at the 300/400 level. At least 3 of the 300/400 level credits must fulfill a departmental diversity requirement for a course related to race, gender, sexuality, disability, ethnicity, and/or postcolonial issues.	18
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Requirements for the Option

Requirements for the Option: Require a grade of C or better

Select an option	12
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Requirements for the Option

Traditions of Innovation Option (12 Credits)

Available at the following campuses: Brandywine, Scranton, University Park

Code	Title	Credits
Additional Courses		

Additional Courses: Require a grade of C or better

Select 3 credits of 300/400 level course in each of the following areas:	12
Medieval through Sixteenth Century	
Sixteenth Century through Eighteenth Century	
The Nineteenth Century	
Twentieth Century to the Present	

Writing and Literature in Context Option (12 Credits)

Available at the following campuses: Abington, Altoona, Brandywine, Scranton, York

Code	Title	Credits
Additional Courses		

Additional Courses: Require a grade of C or better

Select 3 credits of 400-level pre-1800 courses	3
Select 3 credits of 400-level post-1800 courses	3

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 6 credits of English courses at any level

6

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

- Apply critical, theoretical, and/or disciplinary approaches to the reading and analysis of texts in multiple genres and/or media.
- Analyze the aesthetic and/or cultural significance of the ideas, values, conventions, forms, and genres associated with texts.
- Gather, evaluate, and employ an array of research materials in support of critical studies, and/or creative activity, in ways consistent with standards of academic integrity.
- Demonstrate writing and rhetorical skills appropriate to critical and/or creative tasks in a variety of media and genres.
- Analyze representative literary, theoretical, and cultural texts within significant historical, geographical, and cultural contexts.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of

both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Liberal Arts Academic Advising

814-865-2545
Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic->

advisers/) to see the contact information for the specific adviser(s) of this program

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Brandywine Campus

English, B.A. at Brandywine Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or ESL 15 [†]	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C [‡]	0-3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course (GHW)	1.5
World Language Level 1	4-6 World Language Level 2	4-6
	16-18	11.5-16.5

Second Year

Fall	Credits Spring	Credits
ENGL 221 [*]	3 ENGL 201 ^{**†}	3
General Education Course	3 ENGL 222, 231, or 232 [*]	3
General Education Course	3 ENGL 202B [‡]	3
General Education Course (GHW)	1.5 General Education Course	3
World Language Level 3 or General Education Course	3-4 General Education Course	3
Elective	3	
	16.5-17.5	15

Third Year

Fall	Credits Spring	Credits
ENGL 200 [*]	3 ENGL Course Any-level [*]	3
ENGL Course 400-level/ Pre-1800 Literature [*]	3 ENGL Course 400-level [*]	3
BA Fields Course	3 BA Fields Course	3
BA World Cultures Course	3 General Education Course	3
General Education Courses	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
ENGL Course 400-level [*]	3 ENGL 487W or 310H [*]	3

ENGL Course 400-level/ Post-1800: Race, Gender, Ethnic, Minority, Postcolonial Lit [*]	3 ENGL Course 400-level [*]	3
ENGL Course Any-level [*]	3 BA Fields Course	3
Elective	3 Elective	3
Elective	3 Elective	3
	15	15

Total Credits 119-127

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Scranton Campus

Traditions of Innovation Option: English, B.A. at Scranton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 (or honors equivalent (GWS)) [‡]	3 CAS 100 (or honors equivalent (GWS)) [‡]	3
ENGL 111 (or BA requirement) [†]	3 Concentration Course [*]	3
Quantification (GQ) [‡]	3 General Education Course [†]	3
First-Year Seminar or General Education Course [†]	3 General Education Course [†]	3
World Language I	4 World Language II	4
	16	16

Second Year

Fall	Credits Spring	Credits
ENGL 200 or 201 [*]	3 Concentration Course [*]	3
Quantification (GQ) [‡]	3 Elective	3
ENGL 111 (or BA requirement) [†]	3 General Education Course [†]	3
Concentration Course [*]	3 General Education Course [†]	3
World Language III	4 BA Requirement	3
	16	15

Third Year

Fall	Credits Spring	Credits
Concentration Course [*]	3 English 4XX [*]	3
English 4XX [*]	3 Concentration Course [*]	3
General Education Course	3 ENGL 202A, 202B, 202C, or 202D [‡]	3
BA Requirement	3 General Education Course	3
Elective	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
English 4XX [*]	3 ENGL 4XX [*]	3
Concentration Course [*]	3 ENGL 487W [*]	3
BA World Cultures	3 General Education Health and Wellness	1.5
BA Requirement	3 Elective	3
General Education Health and Wellness	1.5 Elective	3
Elective	3	
	16.5	13.5

Total Credits 123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Program Notes:

- General Education courses are interchangeable; students may choose the General Education courses they wish to take in any given semester based on preference, availability, and academic goals.
- Scheduling patterns vary according to course offerings.
- Both US (United States Cultures) and IL (International Cultures) courses must be completed within the degree requirements; these courses may not be used to fulfill the World Cultures requirements.

Writing and Literature in Context Option: English, B.A. at Scranton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS)	3 ENGL literature, writing, or rhetoric*	3
General Education Course	3 CAS 100 ^{#†}	3
General Education Course [†]	3 General Education Course [†]	3
World Language (level 001)	4 World Language (level 002)	4
Quantification (GQ) [†]	3 General Education Course [†]	3
PSU 8	1	
	17	16

Second Year

Fall	Credits Spring	Credits
General Education Course [†]	3 ENGL literature, writing, or rhetoric*	3
ENGL 200 or 201*	3 Elective	3
ENGL literature, writing, or rhetoric*	3 General Education Course [†]	3
World Language (level 003)	4 BA Requirement: Arts, Humanities, Social and Behavioral Science, Quantification or World Language	3
Quantification (GQ) [†]	3 General Education Course [†]	3
	16	15

Third Year

Fall	Credits Spring	Credits
ENGL literature, writing, or rhetoric*	3 400-level ENGL from period selection*	3
400-level ENGL from period selection*	3 ENGL literature, writing, or rhetoric*	3
General Education Course [†]	3 ENGL 202 (GWS)	3
BA Requirement: Arts, Humanities, Social and Behavioral Sciences, Quantification, or World Language	3 General Education Course [†]	3
Elective	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
400-level ENGL from period selection*	3 400-level ENGL from period selection*	3
ENGL literature, writing, or rhetoric*	3 ENGL 487W*	3
World Cultures	3 General Education Course (GHW)	1.5

BA Requirement: Arts, Humanities, Social and Behavioral Sciences, Quantification or World Language	3 Elective	3
General Education Course (GHW)	1.5 Elective	3
Elective	3	
	16.5	13.5

Total Credits 124

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Advising Notes:

- This document is only for planning purposes and cannot replace working with an academic adviser. Each student pursues their own path and campuses differ in their ENGL offerings. Most students are "off the plan" after one semester.
- One 400-level course must meet the diversity requirement for the major.
- Two general education courses (GQ, GN, GA, GH, GS) must be integrative studies courses - Interdomain or linked.
- Depending on placement and proficiency, world language courses may need to be replaced with elective credits.
- Students are required to take one Writing across the Curriculum course.

- "World Cultures" courses may overlap with a general education requirement.

Program Notes:

- General Education courses are interchangeable; students may choose the General Education courses they wish to take in any given semester based on preference, availability, and academic goals.
- Scheduling patterns vary according to course offerings.
- Both US (United States Cultures) and IL (International Cultures) courses must be completed within the degree requirements; these courses may not be used to fulfill the World Cultures requirements.

York Campus

Writing and Literature in Context Option: English, B.A. at York Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 (or honors equivalent (GWS)) [‡]	3 CAS 100A, 100B, or 100C (or honors equivalent (GWS)) [‡]	3
General Education Course or BA Requirement	3 English Elective (100-200 level) [*]	3
Quantification (GQ) [‡]	3 General Education Course	3
First-Year Seminar or General Education Course	3 Natural Sciences (GN)	3
World Language I	4 World Language II	4
	16	16

Second Year

Fall	Credits Spring	Credits
Quantification (GQ) [‡]	3 ENGL 200, 200W, or 201 [*]	3
General Education Course or BA Requirement	3 ENGL 202A, 202B, 202C, or 202D [‡]	3
BA Fields	3 Natural Sciences (GN)	3
World Language III	4 General Education Course	3
	English Elective (100-200 level) [*]	3
	Health and Wellness	3
	13	18

Third Year

Fall	Credits Spring	Credits
ENGL 400-level course (work with adviser)	3 ENGL 400-level course (work with adviser)	3
English Elective/ Concentration Course (any level)	3 English Elective/ Concentration Course (any level)	3
General Education Course/ BA Requirement/Elective	3 BA Fields	3
Arts (GA)	3 General Education Course	3
English Supporting Course	3 English Supporting Course	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
ENGL 487W [*]	3 ENGL 400-level course (work with adviser) [*]	3
ENGL 400-level course (work with adviser) [*]	3 ENGL 400-level course (work with adviser) [*]	3
English Elective/ Concentration Course (any level) [*]	3 General Education Course	3
BA World Cultures	3 English Supporting Course	3

English Supporting Course	3 English Supporting Course	3
	15	15

Total Credits 123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Advising Notes:

- This document is only for planning purposes and cannot replace working with an academic adviser. Each student pursues their own path and campuses differ in their ENGL offerings. Most students are "off the plan" after one semester.
- One 400-level course must meet the diversity requirement for the major.
- Two general education courses (GQ, GN, GA, GH, GS) must be integrative studies courses - Interdomain or linked.
- Depending on placement and proficiency, world language courses may need to be replaced with elective credits.
- Students are required to take one Writing across the Curriculum course.
- "World Cultures" courses may overlap with a general education requirement.

Program Notes:

- General Education courses are interchangeable; students may choose the General Education courses they wish to take in any given semester based on preference, availability, and academic goals.
- Scheduling patterns vary according to course offerings.

- Both US (United States Cultures) and IL (International Cultures) courses must be completed within the degree requirements; these courses may not be used to fulfill the World Cultures requirements.

Career Paths

Careers

Our graduates use their training in careers as attorneys, publishers, professional writers, editors, public relations directors, non-profit professionals, foreign service specialists, entrepreneurs, teachers, and education professionals.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE ENGLISH PROGRAM (<https://english.la.psu.edu/undergraduate/career-enrichment-network/>)

Opportunities for Graduate Studies

English majors often go on to postgraduate study not only in English but in areas such as law, medicine, business, education, or liberal arts disciplines.

More information about opportunities for graduate studies can be found through the following websites:

- Association of Departments of English (<https://www.maps.mla.org/About-MAPS/ADE/>)
- Law School Admissions Council (<https://www.lsac.org/>)
- Association of American Medical Colleges (<https://www.aamc.org/>)
- AWP Guide to Writing Programs (https://www.awpwriter.org/guide/guide_writing_programs/)

Professional Resources

- Department Website with information on Major, Minor, concentrations, and other opportunities (<https://english.la.psu.edu/undergraduate/majors/>)
- Kalliope, Penn State's undergraduate literary magazine (<https://kalliope.psu.edu/>)
- Creative Writing Club, A community for improving and sharing creative writing (<https://sites.psu.edu/creativewritingclub/>)
- W.O.R.D.S., Writers Organized to Represent Diverse Stories (<https://sites.psu.edu/wordspennstate/>)
- Career Enrichment Network, resource for career-related, international, and professional development (<https://la.psu.edu/current-students/career-enrichment-network/>)
- Modern Language Association, Guide for Undergraduate Research (<https://www.mla.org>)
- Conference on College Composition and Communication (<https://cccc.ncte.org/>)
- National Council of Teachers of English (<https://ncte.org/>)
- American Bar Association (<https://www.americanbar.org/>)
- AWP
- American Society of Journalists and Authors (<https://www.asja.org/>)
- National Association of Science Writers (<https://www.nasw.org/>)
- Society for Technical Communication (<https://www.stc.org/>)
- Society of Professional Journalists (<https://www.spj.org/>)
- Association of Writers and Writing Programs (<https://www.awpwriter.org/>)
- American Grant Writers' Association (<http://www.agwa.us/>)

- International Writing Centers Association (<https://writingcenters.org/>)
- TESOL International Association (<https://www.tesol.org/>)

Contact

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Vairo Library, 123
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Media, PA 19063
610-892-1439
mdf6@psu.edu

<https://www.brandywine.psu.edu/academics/bachelors-degrees/english>
(<https://www.brandywine.psu.edu/academics/bachelors-degrees/english/>)

Scranton

13 Library Building
Dunmore, PA 18512
570-963-2660
pjp3@psu.edu

<https://scranton.psu.edu/academics/degrees/bachelors/english-degree>
(<https://scranton.psu.edu/academics/degrees/bachelors/english-degree/>)

York

Grumbacher Information Sciences and Technology Center, Room 224
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<https://www.york.psu.edu/academics/baccalaureate/english> (<https://www.york.psu.edu/academics/baccalaureate/english/>)

Abington

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mon4@psu.edu

<https://www.abington.psu.edu/academics/majors-at-abington/english>
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Foundations of Business, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

Introduction to core business concepts. Students develop communication, technical, and analytical skills needed for the contemporary business environment.

What is Foundations of Business?

The Foundations of Business Certificate is offered by the University College. Regardless of your field of study and career goals, you are very likely to utilize foundational business knowledge in your future career. If you are in a non-business major, this certificate will broaden your fundamental business knowledge and help you develop the basic skills that will be useful in your chosen career path.

You can complete this 13-credit certificate program within a year. The certificate provides foundational knowledge in communication, ethics and social responsibility, and contemporary information technology as tools to accomplish professional tasks effectively.

You Might Like This Program If...

- You desire to add business skills to your degree program.
- You want to gain exposure to business concepts to enhance your employment opportunities.
- You want to earn a business certificate as a stepping stone to enrolling in an associate or baccalaureate degree program.

Program Requirements

To earn an undergraduate certificate in Foundations of Business, a minimum of 13 credits is required.

Code	Title	Credits
Required Courses		
BA 243 or BA 241 & BA 242	Social, Legal, and Ethical Environment of Business Legal Environment of Business and Social and Ethical Environment of Business	4
ECON 102 or ECON 104	Introductory Microeconomic Analysis and Policy Introductory Macroeconomic Analysis and Policy	3
ENGL 15 & MIS 204	Rhetoric and Composition and Introduction to Management Information Systems	6

Certificate Learning Objectives

- **Communication:** Graduates will develop basic written and oral communication skills
- **Ethics:** Graduates will develop an understanding of ethical issues, social responsibilities and resolutions to conflicts in a business environment
- **Technology:** Graduates will be able to use contemporary information technology as tools to accomplish professional tasks effectively

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Schuylkill

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York

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axk19@psu.edu

<https://www.york.psu.edu/academics/certificates/business> (<https://www.york.psu.edu/academics/certificates/business/>)

Health Policy and Administration, B.S. (University College)

Begin Campus: Any Penn State Campus

End Campus: Beaver, Hazleton, Lehigh Valley, Mont Alto, Shenango

PROGRAM CURRENTLY ON HOLD AND NOT ACCEPTING NEW STUDENTS AT SCHUYLKILL CAMPUS.

Begin Date of Enrollment Hold: May 5, 2023

PROGRAM AVAILABLE AT ALL OTHER LISTED CAMPUSES.

Program Description

This major helps prepare students for management and policy positions or graduate study in the field of health care. Students in the major develop the skills and knowledge needed to understand the complex societal problem of providing access to quality health care at reasonable cost. All Health Policy and Administration students complete an internship in a health-care-related setting, giving them valuable experience and contacts in the industry. HPA students study a multidisciplinary curriculum that prepares them to work as health services managers or health analysts. Health services managers, also called health care executives or health care administrators, plan, direct, and coordinate medical, health, and/or long-term care services. They might manage an entire facility or specialize in managing a specific clinical area or department, administrate a program or manage a practice for a group of providers. Health analysts are employed throughout the health care industry gathering, compiling, modeling, validating, and analyzing data needed by different organizations of providers, payers, and policy makers. Analysts help these organizations understand the current trends in the health care system and to make well-informed decisions. Both health services managers and analysts must be able to adapt to changes in health care laws, regulations, and technology. HPA students have also used the degree to prepare for graduate study in business, law, medicine or allied health fields, health administration, health services research or policy, and public health.

What is Health Policy and Administration?

Health Policy and Administration (HPA) is a multidisciplinary course of study with courses in the liberal arts, business administration, and health sciences. In general, HPA students are prepared to work in six types of health care organizations including:

1. Health care providers (hospitals, physician practices, nursing facilities, home health agencies, etc.)
2. Health insurers (nonprofit and commercial insurers, health maintenance organizations, etc.)
3. Health care consulting firms

4. Health care supply companies (pharmaceutical companies, medical device manufacturers, etc.)
5. Health services research and policy organizations (health policy research groups, industry trade groups, etc.);
6. Local, state, and federal health agencies and public health organizations (local public health departments, state Department of Health, federal Department of Health and Human Services, etc.).

MORE INFORMATION ABOUT HEALTH POLICY AND ADMINISTRATION (<https://hhd.psu.edu/hpa/>)

You Might Like This Program If...

- You are interested in business administration or management and want to focus primarily in the healthcare industry.
- You are interested in influencing health policy and public health by working in government at the state or federal level or nonprofit organizations
- You are interested in improving access to health care for underserved populations
- You are interested in reducing health care costs or improving health care quality through policy reform or business leadership.

MORE INFORMATION ABOUT WHY STUDENTS CHOOSE TO STUDY HEALTH POLICY AND ADMINISTRATION (<https://hhd.psu.edu/hpa/bachelor-science-bs-health-policy-and-administration/>)

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Health Policy and Administration, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	4-6
Requirements for the Major	81-83

12 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GQ courses; 6 credits of GS courses.

The requirements for the major are outlined below. Students may select courses in the Supporting Courses and Related Areas category to fulfill requirements for a minor, to develop a specialization, or to complete courses required for admission to medical, dental, law, or other graduate schools.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. H P A requires students to complete 24 credits for the major

through courses taken at University Park. Courses taken at other Penn State campuses may not be counted toward this 24 credit minimum. For more information, check the Suggested Academic Plan for this major.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ECON 102	Introductory Microeconomic Analysis and Policy	3
HPA 101	Introduction to Health Services Organization	3
HPA 210	Health Care Payment	3
HPA 211	Financial Decisions in Health Care Organizations	3
HPA 301	Health Services Policy Issues	3
HPA 310	Health Care and Medical Needs	3
HPA 311	Population Health and Healthcare	3
HPA 332	Health Systems Management	3
HPA 390	Professional Development in Health Policy & Administration	3
HPA 395	Field Experience in Health Policy and Administration	3
HPA 455	Strategic Planning and Marketing for Health Services	3
PLSC 1	American Politics: Principles, Processes and Powers	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
CMPSC 101	Introduction to Programming	3-4
	or CMPSC 203 Introduction to Spreadsheets and Databases	
	or MIS 204 Introduction to Management Information Systems	
STAT 200	Elementary Statistics	3-4
	or STAT 250 Introduction to Biostatistics	
Select 9 credits from the following:		9
HPA 401	Comparative Health Systems	
HPA 410	Principles of Public Health Administration	
HPA 420	Principles of Managed Care	
HPA 430	Health Care Leadership	
HPA 433	Administration of Hospital and Health Service Systems	
HPA 435	Safety Net Health Care	
HPA 438	Culturally Competent Health Services for Diverse Populations	
HPA 440	Principles of Epidemiology	
HPA 442	Long-Term Care Management	
HPA 443	Nursing Home Administration	
HPA 444	Aging Policy in the United States	
HPA 445	Health Economics	
HPA 446	Economics and Health In Low- and Middle-Income Countries	
HPA 447	Financing Health Care	

HPA 450	Healthcare Policies and Politics
HPA 454	Health Care Professional Communication
HPA 460	Human Resource Management in Health Care Organizations
HPA 470	Health Care Information Management
HPA 475	Health Care Quality
HPA 490	Physician Practice Management
HPA 497	Special Topics

Supporting Courses and Related Areas

Select 30 credits from University-wide offerings on department list in 30 consultation with adviser ¹

¹ Must include at least 9 credits at the 400 level.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Know Health Organizations:** HPA graduates will possess in depth understanding of health and health care, including the structures, policies, processes and institutions that make up the U.S. health care system.
- **Organize and Direct Resources:** HPA graduates will possess the knowledge and skills necessary for organizing and directing resources towards the achievement of organizational objectives.
- **Policy Analysis:** HPA graduates will possess the knowledge and skills necessary to analyze, synthesize, and evaluate public policy.
- **Emotional Intelligence:** HPA graduates will possess an awareness of and the ability to manage one's own emotions in a way that enables positive interpersonal interactions and the building of productive relationships.
- **Diversity Adeptness:** HPA graduates will recognize the value of diversity and possess sensitivity to underrepresented and underserved groups in health care.
- **Critical Thinking:** HPA graduates will be able to interpret, analyze, and evaluate information to identify, examine, and solve problems that occur in the health care system.
- **Communication:** HPA graduates will be able to effectively receive, process, and relay information through speaking, writing, and listening.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Health Policy and Administration, B.S. at Beaver Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
HPA 101*	3 PLSC 1 (GS)**	3
ECON 102 (GS)**	3 Supporting Course	3
Elective	3 General Education Course (GN)	3
PSU 8	1 STAT 200 or 250 (GQ)**†	3-4
General Education Course (Inter-Domain)	CAS 100A (GWS)‡	3
ENGL 15 or 30H (GWS)‡	3	
	13	15-16

Second Year

Fall	Credits Spring	Credits
HPA 210*	3 HPA 211*	3
BIOL 161 or BISC 4	3 Supporting Course	3
Supporting Course	3 Supporting Course	3
MIS 204 (GQ)**†	3 General Education Course (GH)	3
General Education Course (GA)	3 General Education Course (Inter-Domain)	3
	15	15

Third Year

Fall	Credits Spring	Credits
HPA 301W*	3 HPA 311*	3
HPA 310*	3 HPA 332*	3
Supporting Course	3 HPA 390W*	3
Supporting Course	3 Supporting Course	3
ENGL 202A or 202D (GWS)‡	3 General Health and Wellness (GHW)	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
HPA 400 Level*	3 HPA 400 Level*	3
HPA 395 (recommend 6 credits)*	1-13 HPA 400 Level*	3
Supporting Course ¹	3 HPA 455	3
Supporting Course ¹	3 Supporting Course ¹	3
	General Education Course (GN)	3
	15	15

Total Credits 118-119

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ The Supporting Course List can be found at: <https://hhd.psu.edu/hpa/undergraduate/supporting-courses> (<https://hhd.psu.edu/hpa/supporting-courses/>).

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Health Policy and Administration, B.S. at Hazleton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [‡]	3 PLSC 1 ^{*†}	3
ECON 102 [†]	3 CAS 100A [‡]	3
General Education Selection	3 STAT 200 [‡]	4
PSU 8	1 General Education Selection	3
General Education Selection	6 Supporting Course ¹	3
16		16

Second Year

Fall	Credits Spring	Credits
HPA 101 [*]	3 HPA 210 [*]	3
General Education Selection	3 ENGL 202A or 202D [‡]	3
General Education Selection	3 CMPSC 101, 203, or MIS 204 (MIS 204 can be used for GQ) ^{††}	3
Supporting Course ¹	3 Supporting Course ¹	3
General Education Selection	3 Supporting Course ¹	3
15		15

Third Year

Fall	Credits Spring	Credits
HPA 211 [*]	3 HPA 301 [*]	3
HPA 310 [*]	3 HPA 332 [*]	3
Supporting Course ¹	3 HPA 390W ^{*2}	3
Supporting Course ¹	3 Supporting Course ¹	3
4xx Level Supporting Course ¹	3 General Education Selection	1.5
General Education Selection	1.5	
16.5		13.5

Fourth Year

Fall	Credits Spring	Credits
HPA 311 [*]	3 HPA 455	3
HPA 395 [*]	3 HPA 4xx Level Course [*]	3
HPA 4xx Level Course [*]	3 4xx Level Supporting Course ¹	3
HPA 4xx Level Course [*]	3 Electives	4
4xx Level Supporting Course ¹	3	
15		13

Total Credits 120

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ The Supporting Course List can be found at: <https://hhd.psu.edu/hpa/undergraduate/supporting-courses> (<https://hhd.psu.edu/hpa/supporting-courses/>).

² HPA 390W is a Writing Across the Curriculum course

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Health Policy and Administration, B.S. at Lehigh Valley Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [†]	3 PLSC 1 ^{**†}	3
ECON 102 [†]	3 CAS 100A [‡]	3
HPA 101 [*]	3 HPA 210	3
BISC 4, BIOL 141, BIOL 161, or BBH 101	3 General Education Course	3
PSU First-Year Seminar	1 Supporting Course ¹	3
General Education Selection	3	
	16	15

Second Year

Fall	Credits Spring	Credits
HPA 211 [*]	3 HPA 311 [*]	3
HPA 301W [*]	3 HPA 332 [*]	3
STAT 200 or 250 ^{**†}	4 CMPSC 101, 102, or 203 ^{††}	3
General Education Course	3 General Education Course	3
	Supporting Course ¹	2
	13	14

Third Year

Fall	Credits Spring	Credits Summer	Credits
HPA 310 [*]	3 HPA 390W [*]	3 HPA 395 (*)	3
Supporting Course	3 HPA 400 level course (see degree audit) [*]	3	
Supporting Course ¹	3 4XX Level Supporting Course	3	
Supporting Course ¹	3 Supporting Course ¹	3	
General Education Course	3 General Education Course	3	
	15	15	3

Fourth Year

Fall	Credits Spring	Credits
ENGL 202A, 202B, 202C, or 202D (202A or 202D preferred) [†]	3 HPA 455 [*]	3
HPA 4xx level Course [*]	3 HPA 4xx level Course [*]	3
Elective	3 4xx level Supporting Course	3
4xx level Supporting Course	3 Supporting Course	3
General Education Course	3	
	15	12

Total Credits 118

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ The Supporting Course List can be found here: <https://hhd.psu.edu/hpa/undergraduate/supporting-courses> (<https://hhd.psu.edu/hpa/supporting-courses/>).

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Health Policy and Administration, B.S. at Mont Alto Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
HPA 101*	3 HPA 210*	3
Natural Science (GN; prefer BI SC 004 or BIOL 141)‡	3 PLSC 1 (GS)**†	3
ECON 102**†	3 CAS 100A (GWS)‡	3
ENGL 15 or 30H‡	3 General Education Course	3
General Education Course	3 Supporting Course	3
PSU 8	1	
	16	15

Second Year

Fall	Credits Spring	Credits
HPA 211*	3 HPA 310*	3
HPA 301W*	3 HPA 332*	3
STAT 200 (GQ)**††	4 CMPSC 101 or 203 (GQ)**††	3-4
ENGL 202A or 202D‡	3 Supporting Course	3
	General Education Course	3
	13	15-16

Third Year

Fall	Credits Spring	Credits
HPA 311*	3 HPA 390W*	3
Supporting Course	3 HPA 400-level Course*	3
Supporting Course	3 400-level Supporting Course	3
Supporting Course	3 Supporting Course	3
General Education Course	3 General Education Course	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
HPA 400-level Course*	3 HPA 395*	3
400-level Supporting Course	3 HPA 455*	3
Supporting Course	3 HPA 400-level Course*	3
General Education Course	3 400-level Supporting Course	3
Elective Course	3 General Education Course (GHW; prefer BBH 101)	3
	15	15

Total Credits 119-120

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

University Requirements and General Education Notes:

Health Policy and Administration, B.S. at Schuylkill Campus

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [‡]	3 CAS 100A [‡]	3
ECON 102 [‡]	3 STAT 200 or 250 [‡]	3-4
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course	3 Supporting Course ¹	3
PSU 8	2	
	17	15-16

Second Year

Fall	Credits Spring	Credits
HPA 101 [*]	3 HPA 210 [*]	3
MIS 204 or CMPSC 101 [‡]	3 ENGL 202A or 202D (preferred) [‡]	3
BISC 4 (or see Audit)	3 General Education Course	3
PLSC 1 ^{**}	3 Supporting Course ¹	3
Supporting Course ¹	3 Supporting Course ¹	3
	15	15

Third Year

Fall	Credits Spring	Credits
HPA 211 [*]	3 HPA 301W [*]	3
HPA 310 [*]	3 HPA 332 [*]	3
General Education Course	3 HPA 390W ^{*2}	3
Supporting Course ¹	3 Supporting Course ¹	3
Supporting Course ¹	3 4xx Level Supporting Course ¹	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
HPA 311 [*]	3 HPA 455	3
HPA 395 [*]	3 HPA 4xx Level Course [*]	3
HPA 4xx Level Course [*]	3 4xx Level Supporting Course ¹	3
HPA 4xx Level Course [*]	3 Electives	4
4xx Level Supporting Course ¹	3	
	15	13

Total Credits 120-121

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ The Supporting Course List can be found at: <https://hhd.psu.edu/hpa/undergraduate/supporting-courses> (<https://hhd.psu.edu/hpa/supporting-courses/>).

² HPA 390W is a Writing Across the Curriculum course.

³ Take one based on First Semester enrollment. See Academic Requirements in LionPATH for clarification.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes

Minimum credits required for graduation is 120.

LIMITATIONS ON SOURCE AND TIME FOR CREDIT ACQUISITION: Per Senate policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Most majors in Health and Human Development require students to complete up to 24 credits for the major through courses taken at University Park. Courses taken at other Penn State campuses may not be counted toward this 24 credit minimum.

Within the 30 credits of required General Education Domain courses, students must take 6 credits of **Integrative Studies courses** (Inter-Domain or Linked courses). If you need additional clarification, consult with your academic adviser.

Health Policy and Administration, B.S. at Shenango Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [‡]	3 PLSC 1 (GS) ^{**}	3
ECON 102 [†]	3 CAS 100A (GWS) [‡]	3
PSU 8	1 HPA 210 [*]	3
General Education Course	3 BISC 4 (GN)	3
General Education Course	3 Supporting Course ¹	3
HPA 101 [*]	3	
	16	15

Second Year

Fall	Credits Spring	Credits
General Education Course	3 HPA 332 [*]	3
Supporting Course ¹	3 Supporting Course ¹	3
HPA 211 [*]	3 HPA 311 [*]	3
HPA 301W [*]	3 MIS 204 (GQ) ^{††}	3
STAT 200 or 250 (GQ) [‡]	3-4 General Education Course	3
	15-16	15

Third Year

Fall	Credits Spring	Credits
ENGL 202A (GWS) [‡]	3 Supporting Course - 400 Level	3
HPA 310 [*]	3 HPA 400 Level Course [*]	3
General Education Course	3 HPA 390W ^{*2}	3
Elective ¹	3 Supporting Course ¹	3
Supporting Course ¹	3 General Education Course	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
HPA 400-Level Course [*]	3 HPA 455	3
HPA 395 (recommended 6 credits) ^{*3}	3-4 HPA 400-Level Course [*]	3
400-Level Supporting Course ¹	3 400-Level Supporting Course ¹	3
Supporting Course	3 General Education Course	3
Supporting Course	3	
	15-16	12

Total Credits 118-120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ The Supporting Course List can be found at: <https://hhd.psu.edu/hpa/undergraduate/supporting-courses> (<https://hhd.psu.edu/hpa/supporting-courses/>).

² HPA 390W is a Writing Across the Curriculum course.

³ HPA 395 can be taken anytime during fourth year OR Summer but must be completed before or during the 8th semester. See your adviser for more guidance.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

The mission of the Bachelor of Science Program (B.S.) in HPA is to develop graduates with the knowledge, skills, and values appropriate to work in entry-level management or policy-related positions or for the pursuit of graduate education in health administration, health policy, health law, health services research, public health, and other health related fields. HPA students develop the skills and knowledge needed to understand the complex societal problem of providing access to quality health care at reasonable cost.

Careers

The HPA curriculum prepares students to work as health services managers or health policy analysts. Health services managers plan, direct, and coordinate medical, behavioral, and/or long-term care services. These individuals might oversee matters of personnel, budgeting, billing, equipment outlays, information systems, planning and more. Health policy analysts are responsible for analyzing, compiling, and validating information needed by different organizations of providers, payers, and policy makers. Analysts help these organizations understand the current trends in the health care system and to make well-informed business and policy decisions. Employment of health policy and administration graduates is projected to grow 28 percent from 2022 to 2032, much faster than all other occupations.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE HEALTH POLICY AND ADMINISTRATION PROGRAM (<https://hhd.psu.edu/hpa/undergraduate/career-opportunities/career-outlook-health-care-professionals/>)

Opportunities for Graduate Studies

HPA's blend of courses in liberal arts, business administration, and the health sciences, is designed to prepare students for careers or further study in health care. HPA students have used the degree to prepare for graduate study in business, law, medicine or allied health fields, health administration, health services research or policy, and public health.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://hhd.psu.edu/hpa/undergraduate/integrated-undergraduate/graduate-programs/>)

Professional Resources

- Association of University Programs in Health Administration (<https://www.aupha.org/resourcecenter/futurestudents/>)
- American College of Health Care Administrators (<https://www.achca.org/student-societies/>)
- American College of Healthcare Executives (<https://www.ache.org>)
- National Association of Health Services Executives (NAHSE) (<https://www.nahse.org>), a non-profit association of Black health care executives
- National Association of Latino Healthcare Executives (<https://www.nalhe.org>)
- Academy Health (<https://academyhealth.org>), the professional home and leading national organization for health services researchers, policymakers, and health care practitioners and stakeholders

Accreditation

HPA is a fully certified member of the Association of University Programs in Health Administration (AUPHA). As such it has been recognized for having withstood the rigors of peer review wherein curricula, faculty, and educational outcomes have been critically examined by external peer review. In a process comparable to other specialty program accreditations, programs seeking AUPHA certification must submit an extensive self-study detailing the program's structure, educational processes, and assessment mechanisms in response to national criteria established by AUPHA.

MORE INFORMATION ABOUT ACCREDITATION BY THE ASSOCIATION OF UNIVERSITY PROGRAMS IN HEALTH ADMINISTRATION (<https://www.aupha.org/main-site/certification/certification/>)

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

Beaver

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nzk26@psu.edu or khodakarami@psu.edu

<https://beaver.psu.edu/academics/majors/hpa> (<https://beaver.psu.edu/academics/majors/hpa/>)

Hazleton

ACADEMIC AFFAIRS
Schiavo Hall, 109
76 University Drive
Hazleton, PA 18202
570-450-3138
bag5413@psu.edu

<https://hazleton.psu.edu/health-policy-and-administration> (<https://hazleton.psu.edu/health-policy-and-administration/>)
<https://hazleton.psu.edu/person/beth-greenberg> (<https://hazleton.psu.edu/person/beth-greenberg/>)

Lehigh Valley

2809 Saucon Valley Road
Center Valley, PA 18034
610-285-5107
auy10@psu.edu

<https://lehighvalley.psu.edu/academics/degrees/health-policy-and-administration> (<https://lehighvalley.psu.edu/academics/degrees/health-policy-and-administration/>)

Mont Alto

112 General Studies
1 Campus Drive
Mont Alto, PA 17237
717-749-6124
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<https://montalto.psu.edu/academics/bachelors/health-policy-and-administration-degree> (<https://montalto.psu.edu/academics/bachelors/health-policy-and-administration-degree/>)

Schuylkill

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200 University Drive
Schuylkill Haven, PA 17972
570-385-6070
lam330@psu.edu

Shenango

147 Shenango Avenue
Sharon, PA 16146
724-983-2977
ixs5254@psu.edu

<https://shenango.psu.edu/academics/degrees/health-policy-administration> (<https://shenango.psu.edu/academics/degrees/health-policy-administration/>)

Harrisburg

SCHOOL OF PUBLIC AFFAIRS
Olmsted Building W160
Middletown, PA 17057
717-948-6779
aqk5884@psu.edu

<https://harrisburg.psu.edu/public-affairs/health-policy-administration-bs> (<https://harrisburg.psu.edu/public-affairs/health-policy-administration-bs/>)

University Park

DEPARTMENT OF HEALTH POLICY AND ADMINISTRATION
604 Ford Building
University Park, PA 16802
814-863-2900
pennstatehpa@psu.edu

<https://hhd.psu.edu/hpa> (<https://hhd.psu.edu/hpa/>)

World Campus

DEPARTMENT OF HEALTH POLICY AND ADMINISTRATION
604 Ford Building
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814-863-2900
jll95@psu.edu

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-health-policy-and-administration-bachelor-of-science-degree>
(<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-health-policy-and-administration-bachelor-of-science-degree/>)

Healthcare Informatics, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

The healthcare industry is moving towards the widespread use of digital records and electronic information transfer. This is resulting in a need for healthcare professionals to be knowledgeable in information technology and for information technology professionals at healthcare facilities to be more knowledgeable of the healthcare industry. Professionals in these two areas both need to understand the complexities of medical information being digitally stored and transferred. This 18 credit certificate program provides students with insight into both professional areas. Students may receive credit for previous coursework (up to 3 courses) upon academic review.

What is Healthcare Informatics?

Healthcare informatics enables healthcare professionals to be knowledgeable in information technology and for information technology professionals at healthcare facilities to be more knowledgeable of the healthcare industry.

You Might Like This Program If...

You have aspirations to work in a healthcare setting You like to learn new technologies.

Program Requirements

To earn an undergraduate certificate in Healthcare Informatics, a minimum of 18 credits is required.

Code	Title	Credits
Prescribed Courses		
HPA 101	Introduction to Health Services Organization	3
HPA 332	Health Systems Management	3
HPA 470	Health Care Information Management	3
IST 110	Information, People and Technology	3
IST 210	Organization of Data	3
IST 220	Networking and Telecommunications	3

No Prerequisites Required.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of

both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Mont Alto

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Schuylkill

Academic Advising Office
Academic Affairs
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Contact

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Schuylkill

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Human Development and Family Studies, A.S. (University College)

Begin Campus: Brandywine, DuBois, Fayette, Mont Alto, Shenango, Scranton, York, Schuylkill

End Campus: Brandywine, DuBois, Fayette, Mont Alto, Schuylkill, Scranton, Shenango, York

Program Description

This major integrates practical and academic experiences to provide the student with entry-level professional competence in the human service field. The objective of the major is to offer a general education background, a knowledge base in life span and family development, and

a core of professional skills that may be applied in program planning and service delivery activities. The major is offered part-time, in the evening, and through independent learning.

Adult Development and Aging Services Option

Available at the following campuses: Altoona, Brandywine, DuBois, Fayette, Mont Alto, Schuylkill, Scranton, Shenango, World Campus, York

This option is designed to prepare students for a wide variety of service roles in mental health facilities, nursing homes and other institutions for the aged, area agencies on aging, public welfare and family service agencies, women's resource centers, human relations programs, employee assistance programs and customer services and consumer relations programs in business and industry. An approved field experience in any of a wide variety of settings that serve adults, the aged, and their families, is required for this option.

Children, Youth, and Family Services Option

Available at the following campuses: Altoona, Brandywine, DuBois, Fayette, Mont Alto, Schuylkill, Scranton, Shenango, World Campus, York

This option is designed to prepare students for service roles in preschools; day care centers; hospitals; institutional and community programs for emotionally disturbed, abused, or neglected children and adolescents; as well as a variety of public welfare and family service agencies. An approved field experience in a children, youth, or family services setting is required for this option.

Early Childhood Care and Education Option

Available at the following campuses: DuBois, Fayette, Shenango, York

This option is designed to increase professional capabilities in child care training in regard to issues of quality, affordability, and accessibility of programming. The primary foci are on language, literacy, and science reasoning. In the coursework, there is a blending of theory and practice that requires experience in a group setting with young children. Courses concentrate on infants and toddlers as well as older preschoolers. Each course has a strong parent/family communications component and stresses observation techniques appropriate for assessing and evaluating the development of young children.

What is Human Development and Family Studies?

Penn State's Human Development and Family Studies (HDFS) program prepares students for careers across a wide range of human service, healthcare, and helping professions. The HDFS degree is grounded in research-based knowledge on the psychological, biological, social, cultural, and economic influences that impact the well-being of individuals, families, and communities across the lifespan. HDFS coursework guides students to develop skills for working with and caring for diverse individuals and groups through emphasizing mindfulness, compassion, diversity, equity, advocacy and inclusion. Students take courses on infancy, childhood, and adolescent development, transitioning and thriving in adulthood, and healthy aging. Classroom experiences are supplemented by a range of engaged learning opportunities, including internships, research participation, and community partnerships through which HDFS students acquire skills preparing them for impactful careers. The program's flexible curriculum allows academic pathways and engagement experiences to be customized to align with students' career goals.

You Might Like This Program If...

- You are passionate about pursuing work focused on improving the lives and wellness of individuals, families, and communities.
- You are interested to learn about individual, family, community, and social factors influencing development as well as evidence-based practices that promote the cognitive, social, physical, and emotional well-being of children, adults, families, organizations, and communities.
- You are enthusiastic to use flexible degree requirements and integrated opportunities to pursue career exploration, experiential and engaged learning, and skill development specialized to your specific career goals.

Entrance to Major

Students must have a minimum 2.0 GPA to change to this Associate degree after admission to the University.

Degree Requirements

For the Associate in Science degree in Human Development and Family Studies, a minimum of 60 credits is required:

Requirement	Credits
General Education	21
Electives	0-3
Requirements for the Major	51-55

15 of the 21 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GWS courses; 3 credits of GS courses; 3 credits of GN courses; and 3 credits of GQ courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
CAS 100	Effective Speech	3
ENGL 15	Rhetoric and Composition	3
HDFS 395	Internship	6
PSYCH 100	Introductory Psychology	3
<i>Prescribed Courses: Require a grade of C or better</i>		
HDFS 129	Introduction to Human Development and Family Studies	3
HDFS 301	Values and Ethics in Health and Human Development Professions	3
Additional Courses		
Select one of the following:		3
BIOL 141	Introduction to Human Physiology	
BIOL 155	Introduction to the Biology of Aging	
BISC 4	Human Body: Form and Function	
<i>Additional Courses: Require a grade of C or better</i>		

SOC 30	Sociology of the Family (SOC 30 does not require a grade of C or better)	3	HDFS 311	Human Development and Family Studies Interventions	3
or HDFS 315	Family Development		HDFS 330	Observation or Experience with Children, Youth, and Families	3
Select one of the following:			3-4		
EDPSY 101	Analysis and Interpretation of Statistical Data in Education				
STAT 100	Statistical Concepts and Reasoning				
STAT 200	Elementary Statistics				

Requirements for the Option

Select an option 21-24

Requirements for the Option**Adult Development and Aging Services Option (21 credits)***Available at the following campuses: Altoona, Brandywine, DuBois, Fayette, Mont Alto, Schuylkill, Scranton, Shenango, World Campus, York*

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
HDFS 249N	Adult Development and Aging	3
HDFS 311	Human Development and Family Studies Interventions	3

Supporting Courses and Related Areas

Select 15 credits in consultation with the adviser from University-wide offerings that enhance competence in the option 15

Children, Youth, and Family Services Option (24 credits)*Available at the following campuses: Altoona, Brandywine, DuBois, Fayette, Mont Alto, Schuylkill, Scranton, Shenango, World Campus, York*

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
HDFS 229	Infant and Child Development	3
HDFS 239	Adolescent Development	3
HDFS 311	Human Development and Family Studies Interventions	3

Supporting Courses and Related Areas

Select 15 credits in consultation with the adviser from University-wide offerings that enhance competence in the option 15

Early Childhood Care and Education Option (24 credits)*Available at the following campuses: DuBois, Fayette, Shenango, York*

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
HDFS 229	Infant and Child Development	3
HDFS 230	Overview of Curricular Practices in Early Childhood Care and Education	3
HDFS 231	Guidance in Early Childhood Care and Education	3
HDFS 232	Creativity and Play in Early Childhood Care and Education	3
HDFS 233	Emergent Language and Literacy: Development and Practice in Early Childhood Care and Educat	3
HDFS 234	Mathematics and Science Reasoning: Development and Practice in Early Childhood Care and Educat	3

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all associate degree students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 3 credits
- **Writing and Speaking (GWS):** 3 credits

Knowledge Domains

- **Arts (GA):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Note: Up to six credits of Inter-Domain courses may be used for any Knowledge Domain requirement, but when a course may be used to satisfy more than one requirement, the credits from the course can be counted only once.

Exploration

- **Any General Education course (including GHW and Inter-Domain):** 3 credits

University Degree Requirements**Cultures Requirement**

3 credits of United States (US) or International (IL) cultures coursework are required and may satisfy other requirements

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 60 degree credits must be earned for an associates degree. The requirements for some programs may exceed 60 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

DuBois Campus

- Understand the complexity of individual and family development across the lifespan.
- Evaluate and apply research and theory to practice and policy.
- Understand the processes, policies and contextual factors that affect the delivery of human services.
- Understand the professional, ethical, and culturally sensitive standards of conduct.
- Demonstrate knowledge and competence in helping, leadership and administrative skills.
- Writing in APA Style.

Fayette and York Campuses

- **Understanding of the complexity of individual and family development across the lifespan in diverse contexts and changing environments:**
 - Summarize and apply theories and concepts related to individual and family development from a multi-disciplinary, life-cycle perspective;
 - Articulate how biology, psychology, and history influence diversity in individual and family structures and functions.
- **Ability to apply theory and research to practice and policy:**
 - Demonstrate an understanding of the contribution of original research in human development;
 - Discuss the findings of empirical research within a theoretical framework to human development; and
 - Demonstrate a beginning understanding of the process of planning and conducting research.
- **Ability to analyze processes and contextual factors that affect the delivery of human services to individuals and families:**
 - Demonstrate knowledge of history and policies for ethical conduct in the delivery of human services;
 - Examine environmental factors shaping individual and family interventions (such as political, social, economic, cultural, and technological);
 - Understand and articulate individual and family needs; and
 - Demonstrate knowledge of HIPAA regulations.
- **Professional ethical and culturally sensitive standards of conduct:**
 - Articulate understanding of theories, skills, and competencies of an effective helper;
 - Demonstrate knowledge of the main ethical, legal, clinical, professional and personal issues and challenges involved in the helping professions;
 - Demonstrate knowledge of informed consent for working with diverse groups of clients;
 - Understand and apply ethical decision making models.
- **Knowledge and competence in helping, leadership, and administrative human service skills:**

- Demonstrate professional written, oral, and technology assisted communication skills;
- Demonstrate clinical, interactional, and practical skills used in human service profession.

Mont Alto Campus

- HDFS student will be able to demonstrate an understanding of the complexity of individual and family development across the life span in diverse contexts and changing environments.
- HDFS student will be able to demonstrate the ability to evaluate and apply theory and research to practice and policy.
- HDFS students will demonstrate the ability to analyze processes, policies, and contextual factors that affect the delivery of human services to individuals and families.
- HDFS students will demonstrate professional ethical and culturally sensitive standards of conduct.
- HDFS students will demonstrate knowledge and competence in helping, leadership, and administrative human service skills.
- HDFS students will demonstrate professional written communication skills through their mastery of APA format.

Schuylkill Campus

- Demonstrate an understanding of the complexity of individual and family development across the life span in diverse contexts and changing environments.
- Demonstrate an ability to evaluate and apply research and theory to practice.
- Demonstrate professional, ethical, and culturally sensitive standards of conduct.

Scranton Campus

- Demonstrate an understanding of the complexity of individual and family development across the life span in diverse contexts and changing environments
- Demonstrate knowledge and competence in helping, leadership, and administrative skills for human services
- Analyze processes, policies, and contextual factors that affect the delivery of human services to individuals and families.

Shenango Campus

- **Application:** Ability to apply theory and research to practice and policy.
 - Demonstrate an understanding of the contribution of original research in human development;
 - Discuss the findings of empirical research within a theoretical framework to human development; and
 - Demonstrate a beginning understanding of the process of planning and conducting research.
- **Contextual Factors:** Ability to analyze processes and contextual factors that affect the delivery of human services to individuals and families.
 - Demonstrate knowledge of history and policies for ethical conduct in the delivery of human services;
 - Examine environmental factors shaping individual and family interventions (such as political, social, economic, cultural, and technological);
 - Understand and articulate individual and family needs; and
 - Demonstrate knowledge of HIPAA regulations.

- **Understanding:** Understanding of the complexity of individual and family development across the lifespan in diverse contexts and changing environments.
 - Summarize and apply theories and concepts related to individual and family development from a multi-disciplinary, life-cycle perspective;
 - Articulate how biology, psychology, and history influence diversity in individual and family structures and functions.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

DuBois Campus

Human Development and Family Studies, A.S. at DuBois Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If**

report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
HDFS 129	3 CAS 100A	3
HDFS 239	3 BISC 4 or BIOL 155	3
ENGL 15	3 EDPSY 101	3
PSYCH 100	3 HDFS 229 or 249N	3
General Education Course- Humanities or Arts	3 Supporting Course	3
	15	15

Second Year

Fall	Credits Spring	Credits
HDFS 311	3 HDFS 301	3
HDFS 315Y	3 HDFS 395	6
Supporting Course	3 Supporting Course	3
Supporting Course	3 Supporting Course	3
General Education Course- Humanities or Arts	3	
	15	15

Total Credits 60

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- If a student wishes to enter the HDFS Baccalaureate Degree program after completing the Associate Degree, any math deficiency should be eliminated before graduating. See your adviser.
- If a student is planning on enrolling into the Baccalaureate Degree program, supporting courses should be chosen carefully, and in consultation with an adviser to maximize efficiency in completing the four year degree.
- Students are required to take one US or IL course. HDFS 315Y will satisfy this requirement for the Associate Degree program.
- Students must earn a grade of C or better in any HDFS course that is used as a supporting course.

Fayette Campus

Children, Youth and Family Services Option: Human Development and Family Studies, A.S. at Fayette Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
HDFS 129 or 239 (GS) ^{†*}	3 HDFS 129 or 229 (GS) ^{†*}	3
ENGL 15 or 30H [‡]	3 STAT 200 ^{†*}	4
PSYCH 100 [†]	3 CAS 100 [‡]	3
Consultation with Adviser-Option Selection	3 Consultation with Adviser-Option Selection	3
General Education Course	3 Consultation with Adviser-Option Selection	3
PSU 8	1	
	16	16

Second Year

Fall	Credits Spring	Credits
HDFS 129 or 239 (GS) [*]	3 BISC 4 ^{*†}	3
HDFS 301 [*]	3 HDFS 311 [*]	3
HDFS 315Y [*]	3 HDFS 395	6
Consultation with Adviser-Option Selection	3 Consultation with Adviser-Option Selection	3
Consultation with Adviser-Option Selection	3	
General Education Course	3	
	18	15

Total Credits 65

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Adult Development and Aging Services Option: Human Development and Family Studies, A.S. at Fayette Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
HDFS 129 ^{†*}	3 HDFS 249N [*]	3
ENGL 15 or 30H [‡]	3 CAS 100 [‡]	3
PSU 8	1 PSYCH 100 [†]	3
Consultation with Adviser- Option Selection	3 STAT 200 ^{†*}	4
General Education Course	3 Consultation with Adviser- Option Selection	3
General Education Course	3	
	16	16

Second Year

Fall	Credits Spring	Credits
HDFS 301 [*]	3 HDFS 311 [*]	3
HDFS 315Y [*]	3 HDFS 395	6
BIOL 155 or BISC 4 ^{†*}	3 Consultation with Adviser- Option Selection	3
Consultation with Adviser- Option Selection	3 Elective	3
Consultation with Adviser- Option Selection	3	
	15	15

Total Credits 62

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Mont Alto Campus

Children, Youth and Family Services Option: Human Development and Family Studies, A.S. at Mont Alto Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

First Year

Fall	Credits Spring	Credits
HDFS 129 (GS) [*]	3 HDFS 239 (GS) ^{*3}	3
HDFS 311 ^{*2}	3 HDFS 216 (Supporting Course)	3
ENGL 15 or 30H [†]	3 CAS 100A (GWS) [‡]	3
PSYCH 100 (GS) [†]	3 General Education Course (GH)	3
BISC 4 or BIOL 155 (GN) [†]	3 EDPSY 101, STAT 100, or STAT 200 (GQ) ^{*†}	3
PSU 8	1	
	16	15

Second Year

Fall	Credits Spring	Credits
HDFS 229 ^{*2}	3 HDFS 315 (Y) ^{*3,4}	3
HDFS 301 ^{*2}	3 HDFS 395 [*]	4
HDFS 395 [*]	2 Supporting Course ¹	3
Supporting Course ¹	3 Supporting Course ¹	3
Supporting Course ¹	3 General Education Course (GA)	3
	14	16

Total Credits 61

¹ Supporting Courses recommendations: HDFS 312W, SOC 1, SOC 5, PSYCH courses, MATH 34, BBH 101, BBH 143, NUTR 251, WMNST courses, KINES courses, SPAN courses

² Offered only Fall semester.

³ Offered only Spring semester.

⁴ Y course is writing-intensive and US Cultures course.

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

Adult Development and Aging Services Option: Human Development and Family Studies, A.S. at Mont Alto Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
HDFS 129 (GS)	3 CAS 100A [‡]	3
HDFS 311 ^{*2}	3 EDPSY 101, STAT 100, or STAT 200 (GQ) ^{**†}	3
ENGL 15 ^{*†}	3 HDFS 216 (Supporting Course)	3
PSYCH 100 (GS) ^{*†}	3 General Education Course (GH)	3
BISC 4 or BIOL 155 (GN) [†]	3 Supporting Course ¹	3
PSU 8	1	
	16	15

Second Year

Fall	Credits Spring	Credits
HDFS 249N (GS) ^{*5}	3 HDFS 315 (Y) ^{*3 4}	3
HDFS 301 ^{*2}	3 HDFS 395 [*]	4
HDFS 395 [*]	2 Supporting Course ¹	3
Supporting Course ¹	3 Supporting Course ¹	3
Supporting Course ¹	3 General Education Course (GA)	3
	14	16

Total Credits 61

¹ Supporting Courses recommendations: HDFS 312W, SOC 1, SOC 5, PSYCH courses, MATH 34, BBH 101, BBH 143, NUTR 251, WMNST courses, KINES courses, SPAN courses

² Offered only Fall semester.

³ Offered only Spring semester.

⁴ Y course is writing-intensive and US cultures course.

⁵ Offered alternate odd years in the fall.

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Schuylkill Campus

Adult Development and Aging Services Option: Human Development and Family Studies, A.S. at Schuylkill Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H ^{†‡}	3 CAS 100A ^{†‡}	3
HDFS 129 [*]	3 Consultation with Adviser Selection	3
BISC 4, BIOL 141, or BIOL 155 [†]	3 Consultation with Adviser Selection	3
Humanities (GH)	3 HDFS 249N [*]	3
Arts (GA)	3 PSYCH 100 [†]	3
	15	15

Second Year

Fall	Credits Spring	Credits
HDFS 315Y [*]	3 HDFS 301 [*]	3
EDPSY 101 or STAT 200 ^{**†}	3-4 HDFS 311 [*]	3
Consultation with Adviser Selection	3 HDFS 395 [*]	6
Consultation with Adviser Selection	3 Consultation with Adviser Selection	3
Elective	3	
	15-16	15

Total Credits 60-61

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Children, Youth and Family Services Option: Human Development and Family Studies, A.S. at Schuylkill Campus

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H ^{† ‡}	3 CAS 100A ^{† ‡}	3
HDFS 129 [*]	3 HDFS 229 [*]	3
BISC 4, BIOL 141, or BIOL 155 [†]	3 PSYCH 100 [†]	3
Humanities (GH)	3 Consultation with Adviser Selection	3
Arts (GA)	3 Consultation with Adviser Selection	3
15		15

Second Year

Fall	Credits Spring	Credits
HDFS 315Y [*]	3 HDFS 301 [*]	3
HDFS 239 [*]	3 HDFS 311 [*]	3
EDPSY 101 or STAT 200 ^{† ‡}	3-4 HDFS 395 [*]	6
Consultation with Adviser Selection	3 Consultation with Adviser Selection	3
Consultation with Adviser Selection	3	
15-16		15

Total Credits 60-61

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Scranton Campus

Adult Development and Aging Option: Human Development and Family Studies, A.S. at Scranton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 [†]	3 CAS 100A [†]	3
HDFS 129 [*]	3 EDPSY 101 or STAT 200 ^{**†}	3-4
PSYCH 100 [†]	3 Supporting Course	3
BISC 4 [†]	3 Supporting Course	3
Supporting Course	3 General Education	3
	General Education (US/IL)	3
	15	18-19

Second Year

Fall	Credits Spring	Credits
HDFS 249N [*]	3 HDFS 311 [*]	3
HDFS 301 [*]	3 HDFS 312W	3
HDFS 315 [*]	3 HDFS 395	6
Supporting Course	3 Any General Education Elective	3
Supporting Course	3	
	15	15

Total Credits 63-64

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Courses required for the 2FSCC degree apply to the HDFS baccalaureate degree program.
- Students selecting a GH course or supporting course are encouraged to schedule a course with the US or IL designation.
- Students selecting a GQ course are encouraged to check with an adviser for appropriate math entrance requirements.

- Students are strongly encouraged to take HDFS 312W, but if not taken it needs to be replaced with another writing across the curriculum course and another supporting course must be taken.
- Students should consult with their advisers concerning appropriate supporting courses.
- This is a recommended plan and is not meant to substitute for students meeting with their academic advisers. Any deviations from this plan should be discussed with students' academic advisers.

Children, Youth and Family Services Option: Human Development and Family Studies, A.S. at Scranton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 [†]	3 CAS 100A [†]	3
HDFS 129 [*]	3 EDPSY 101 or STAT 200 ^{**†}	3-4
PSYCH 100 [†]	3 HDFS 239 [*]	3
BISC 4 [†]	3 Supporting Course	3
Supporting Course	3 General Education	3
	15	15-16

Second Year

Fall	Credits Spring	Credits
HDFS 229 [*]	3 HDFS 311 [*]	3
HDFS 301 [*]	3 HDFS 312W	3
HDFS 315 [*]	3 HDFS 395	6
Supporting Course	3 Supporting Course	3
Supporting Course	3 Any General Education Elective	3
General Education (US/IL)	3	
	18	18

Total Credits 66-67

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Courses required for the 2FSCC degree apply to the HDFS baccalaureate degree program.
- Students selecting a GH course or supporting course are encouraged to schedule a course with the US or IL designation.
- Students selecting a GQ course are encouraged to check with an adviser for appropriate math entrance requirements.

- Students are strongly encouraged to take HDFS 312W, but if not taken it needs to be replaced with another writing across the curriculum course and another supporting course must be taken.
- Students should consult with their advisers concerning appropriate supporting courses.
- This is a recommended plan and is not meant to substitute for students meeting with their academic advisers. Any deviations from this plan should be discussed with students' academic advisers.

Shenango Campus

Adult Development and Aging Services Option: Human Development and Family Studies, A.S. at Shenango Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 ^{†‡}	3 Art Elective (GA)	3
HDFS 129 [*]	3 Consult with an Adviser	3
Humanities Elective (GH)	3 Consult with an Adviser	3
Consult with an Adviser	3 HDFS 249N [*]	3
Consult with an Adviser	3 PSYCH 100 [†]	3
	15	15

Second Year

Fall	Credits Spring	Credits
CAS 100A [†]	3 BISC 4 or BIOL 155 [†]	3
HDFS 301 [*]	3 HDFS 395	6
HDFS 311 [*]	3 Consult with an Adviser	3
HDFS 315Y [*]	3 STAT 200 [‡]	4
Consult with an Adviser	3	
	15	16

Total Credits 61

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes

Students must complete a 3-credit course in "United States Cultures (US)" or a 3-credit course in "International Cultures (IL)."

Children, Youth and Family Services Option: Human Development and Family Studies, A.S. at Shenango Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 ^{‡†}	3 Art Elective (GA)	3
HDFS 129 [*]	3 Consult with an Adviser [*]	3
Humanities Elective (GH)	3 HDFS 301 [*]	3
Consult with an Adviser	3 HDFS 229 [*]	3
Consult with an Adviser	3 PSYCH 100 [†]	3
	15	15

Second Year

Fall	Credits Spring	Credits
CAS 100A [†]	3 BISC 4 or BIOL 155 [†]	3
HDFS 239 [*]	3 HDFS 395	6
HDFS 311 [*]	3 Consult with an Adviser	3
HDFS 315Y [*]	3 STAT 200 ^{*‡}	4
Consult with an Adviser	3	
	15	16

Total Credits 61

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes

Students must complete a 3-credit course in "United States Cultures (US)" or a 3-credit course in "International Cultures (IL)."

York Campus

Human Development and Family Studies, A.S. at York Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [†]	3 BISC 4 or BIOL 141	3
HDFS 129 [*]	3 CAS 100 [‡]	3
PSYCH 100	3 Option course [*]	6
Option course [*]	3 General Education course	3
General Education course	3	
15		15

Second Year

Fall	Credits Spring	Credits
HDFS 311 [*]	3 HDFS 301 [*]	3
STAT 100, 200, or EDPSY 101 [*]	3-4 HDFS 315Y [*]	3
Option course [*]	9 HDFS 395	6
	Option course [*]	3
15-16		15

Total Credits 60-61

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

The Associate's Degree in HDFS provides students with a valuable foundation of skills and knowledge for pursuing entry level positions in careers focused on helping promote health and wellness across the lifespan. Many graduates of the A.S. in HDFS program also continue to pursue their B.S. in HDFS. Our A.S. degree is designed to allow for a smooth transition into the B.S. degree, after which graduates are positioned for career advancement or to work in additional areas described in the B.S. degree. HDFS Students are encouraged to customize their degree to align with their career interests.

Careers

Students graduating with their A.S. degree in HDFS pursue a range of positions in areas that include:

- Health and Human Services (e.g. youth and family services, child advocacy, health education)
- Early Childhood Development (e.g. early childhood education, early intervention specialist)
- Child and Youth Services
- Foster Care and Adoption
- Services for Older Adults
- Services for Individuals with Disabilities

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE HUMAN DEVELOPMENT AND FAMILY STUDIES PROGRAM (<https://hhd.psu.edu/undergraduate/internships-and-career-opportunities/career-areas-major/careers-human-development-and/>)

Opportunities for Graduate Studies

After completing their associate's degree, many HDFS students go on to complete their Bachelor of Science degree in HDFS. This degree opens up opportunities for students to attend graduate research or professional programs in several fields, including:

- Counseling (e.g., addiction counseling, marriage and family therapy, mental health counseling, counseling psychology, educational and vocational counseling)
- Social Work and Public Health
- Clinical Health Professions (e.g. psychiatry, pediatrics, adolescent medicine, family medicine, obstetrics and gynecology, geriatrics, occupational therapy)
- Program Administration and Management
- Special Education
- Family Law
- Public Policy and Advocacy
- Research (e.g., on lifespan human development, psychology, sociology, prevention)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://hhd.psu.edu/hdfs/human-development-and-family-studies-graduate-program/>)

Professional Resources

- Diversity, Equity and Inclusion in HDFS (<https://hhd.psu.edu/hdfs/about/diversityandequity/initiatives/>)

Contact

DuBois

1 College Place
DuBois, PA 15801
814-375-4833
jlb5810@psu.edu

<https://dubois.psu.edu/academics/degrees/hdfs> (<https://dubois.psu.edu/academics/degrees/hdfs/>)

Fayette

2201 University Drive
Lemont Furnace, PA 15456

724-430-4284
esb12@psu.edu

<https://fayette.psu.edu/academics/associate/assoc-human-development-and-family-studies> (<https://fayette.psu.edu/academics/associate/assoc-human-development-and-family-studies/>)

Mont Alto

11 Bookstore Building
Mont Alto, PA 17237
717-749-6034
sen@psu.edu

<https://montalto.psu.edu/academics/associate/associate-human-development-family-studies-degree> (<https://montalto.psu.edu/academics/associate/associate-human-development-family-studies-degree/>)

Schuylkill

ACADEMIC AFFAIRS
A112 200 University Drive
Schuylkill Haven, PA 17972
570-385-6083
aem141@psu.edu

<https://schuylkill.psu.edu/academics/assoc-degrees/hdfs> (<https://schuylkill.psu.edu/academics/assoc-degrees/hdfs/>)

Scranton

111B Dawson Building
Dunmore, PA 18512
570-963-2674
jam81@psu.edu

<https://scranton.psu.edu/academics/degrees/associate/hdfs> (<https://scranton.psu.edu/academics/degrees/associate/hdfs/>)

Shenango

147 Shenango Avenue
102 McDowell Hall
Sharon, PA 16146
724-983-2953
rxa32@psu.edu

<https://shenango.psu.edu/academics/degrees/2-year-human-development-family-studies> (<https://shenango.psu.edu/academics/degrees/2-year-human-development-family-studies/>)

York

13 John J. Romano Administrative Building
York, PA 17403
717-771-4029
ajs49@psu.edu (jxs176@psu.edu)

<https://www.york.psu.edu/academics/associate/human-development-and-family-studies> (<https://www.york.psu.edu/academics/associate/human-development-and-family-studies/>)

Altoona

DIVISION OF EDUCATION, HUMAN DEVELOPMENT, AND SOCIAL SCIENCES
123 Hawthorn Building
3000 Ivyside Park

Altoona, PA 16601
814-949-5333
lpj100@psu.edu

<https://altoona.psu.edu/academics/associate-degrees/human-development-family-studies> (<https://altoona.psu.edu/academics/associate-degrees/human-development-family-studies/>)

University Park

DEPARTMENT OF HUMAN DEVELOPMENT AND FAMILY STUDIES
119 Health and Human Development Building
University Park, PA 16802
814-863-8000
HDFSinfo@psu.edu

<https://hhd.psu.edu/hdfs> (<https://hhd.psu.edu/hdfs/>)

World Campus

DEPARTMENT OF HUMAN DEVELOPMENT AND FAMILY STUDIES
119 Health and Human Development Building
University Park, PA 16802
814-863-8000
sac301@psu.edu

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-human-development-and-family-studies-associate-in-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-human-development-and-family-studies-associate-in-science-degree/>)

Human Development and Family Studies, B.S. (University College)

Begin Campus: Any Penn State Campus

End Campus: Brandywine, DuBois, Fayette, Mont Alto, Scranton, Shenango, York

Program Description

This major is a multidisciplinary program that examines the development of individuals and families across the life span. HDFS prepares graduates for professional, managerial, or scientific roles in health and human services professions, in public and nonprofit agencies, and in business and industry, as well as for advanced professional or graduate study. Students obtain a broad background in individual and family development across the life span. Courses emphasize biological, psychological, social/cultural, and economic aspects of development as well as applied skill development. We strive for our curriculum (and the experienced and opportunities we extend to students) to foster cultural humility and highlight diverse characteristics, contexts and considerations that impact individuals, families, and communities.

Two options are available within the major:

1. Human Development and Family Science Option
2. Developmental Science for Health Professions Option

All students pursuing the HDFS B.S. are guided to complete a capstone experience customized to their interests. Capstones may include approved field experiences (internships), guided research experiences/

projects, and advanced coursework selected to align with individual student interests.

Human Development and Family Science Option

Available at the following campuses: Altoona, Brandywine, DuBois, Fayette, Harrisburg, Mont Alto, Scranton, Shenango, University Park, World Campus, York

This option focuses on the acquisition and application of scientific knowledge about development and family functioning across the life span for the purposes of enhancing personal and family development. Courses emphasize:

1. understanding the biological, psychological, and social development across the life span, and the structuring and functioning of families;
2. understanding basic theoretical and methodological issues; and
3. the development of applied skills in intervention and evaluation, prevention, and in the formulation of social policy.

Students in this option often pursue internships in service settings that work with children, youth, and/or adults. Typical employment settings include preschools, daycare centers, hospital programs for children, youth, and families, institutional and community mental health programs for individuals and families, programs for abused or neglected children and adolescents, women's resource centers, human resources programs, employee assistance programs, nursing homes, area agencies on aging and other community settings for older adults, and public welfare and family service agencies. This option also provides preparation for advanced training in careers in developmental or family research, teaching at a college or university, or for professional careers that require graduate training. Typical postgraduate pursuits of students completing this option include graduate study in human development, family studies, psychology, or sociology, or advanced professional training in psychology, law, behavioral health, counseling or social work, or other programs related to services for individuals and families.

Developmental Science for Health Professions Option

Available at the following campuses: Altoona, Brandywine, DuBois, Fayette, Mont Alto, Scranton, Shenango, University Park, York

This option is designed for students interested in focusing on human development/developmental science as a foundation to pursue health-related post graduate studies or work careers. This option guides students to acquire and apply scientific knowledge about human development (and family functioning) across the life span; emphasizing understanding biological, psychological, and social development across the life span. Additional coursework focuses on health across contexts. Students also select science foundation courses to complement their study of development across the lifespan and align with their career/post-graduate study interests. Typical postgraduate pursuits of students completing this option include graduate or professional studies in health-related areas (e.g. pediatrics, adolescent medicine, geriatrics, family medicine, psychiatry).

What is Human Development and Family Studies?

Penn State's Human Development and Family Studies (HDFS) program prepares students for careers across a wide range of human service, healthcare, and helping professions. The HDFS degree is grounded in research-based knowledge on the psychological, biological, social, cultural, and economic influences that impact the well-being of

individuals, families, and communities across the lifespan. HDFS coursework guides students to develop skills for working with and caring for diverse individuals and groups through emphasizing mindfulness, compassion, diversity, equity, advocacy and inclusion. Students take courses on infancy, childhood, and adolescent development, transitioning and thriving in adulthood, and healthy aging. Classroom experiences are supplemented by a range of engaged learning opportunities, including internships, research participation, and community partnerships through which HDFS students acquire skills preparing them for impactful careers. The program's flexible curriculum allows academic pathways and engagement experiences to be customized to align with students' career goals.

You Might Like This Program If...

- You are passionate about pursuing work focused on improving the lives and wellness of individuals, families, and communities.
- You are interested to learn about individual, family, community, and social factors influencing development as well as evidence-based practices that promote the cognitive, social, physical, and emotional well-being of children, adults, families, organizations, and communities.
- You are enthusiastic to use flexible degree requirements and integrated opportunities to pursue career exploration, experiential and engaged learning, and skill development specialized to your specific career goals.

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Human Development and Family Studies, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	12-18
Requirements for the Major	60-67

3-4 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 3-4 credits of GQ courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified

by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
HDFS 216	Thoughtful Communication for Navigating Human Interactions and Relationships	3
HDFS 301	Values and Ethics in Health and Human Development Professions	3
HDFS 311	Human Development and Family Studies Interventions	3
HDFS 312W	Empirical Inquiry in Human Development	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits from the following courses in Introduction to Human Development and Family Science: 3		
HDFS 129	Introduction to Human Development and Family Studies	
HDFS 101N	¿Helping People:¿ Introduction to Understanding Social Problems & How to Help	
Select 6 credits from the following courses in Foundations of Lifespan Human Development: 6		
HDFS 229	Infant and Child Development	
HDFS 239	Adolescent Development	
HDFS 249N	Adult Development and Aging	
Select 3 credits from the following courses in Family Foundations: 3		
HDFS 315	Family Development	
HDFS 315Y	Family Development	
SOC 30	Sociology of the Family	
Select at least 3 credits from the following courses in Statistics/Quantitative Skills: 3-4		
EDPSY 101	Analysis and Interpretation of Statistical Data in Education	
HDFS 200	Quantitative Skills for Human Services	
STAT 200	Elementary Statistics	
For the Career Development and Experiential Learning Capstone, select 15 credits from one of the following pathways: 15		
<i>Traditional Capstone Internship</i>		
HDFS 490	Professional Development and Preparation for Internship Experience	
HDFS 495A	Internship: Advanced Experience (9 credits)	
HDFS 495B	Internship: Advanced Project	
<i>Modified Internship (Option only available with department approval)</i>		
HDFS 490	Professional Development and Preparation for Internship Experience	
HDFS 495B	Internship: Advanced Project	
HDFS 495C	Professional Practicum in Human Services (3 credits)	
6 Additional Credits with Department Approval		
<i>Experiential Mix</i>		
HDFS 490	Professional Development and Preparation for Internship Experience	
HDFS 495A	Internship: Advanced Experience (3-6 credits)	

HDFS 495B	Internship: Advanced Project	
3-6 Credits of 300-/400-Level Career-Related Course Work (with Department Approval)		
<i>Research Emphasis</i>		
HDFS 494	Research Project (6 credits)	
	or HDFS 494 Senior Honors Thesis	
	or HDFS 496 Independent Studies	
3 Credits of 400-Level HDFS		
6 Additional Credits of 300-/400-Level Research Credits (e.g. HDFS 300H, HDFS 310M, HDFS 494, HDFS 494H, HDFS 496) or 300-/400-Level Career-Related Course Work (with Department Approval)		
Requirements for the Option		
<i>Requirements for the Option: Require a grade of C or better</i>		
Select an option		18-24

Requirements for the Option

Human Development and Family Science Option (18 credits)

Available at the following campuses: Altoona, Brandywine, DuBois, Fayette, Harrisburg, Mont Alto, Scranton, Shenango, University Park, World Campus, York

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits from the following courses in Advanced Development: 3		
HDFS 405	Gender and Social Development	
HDFS 413	Developmental Problems in Adulthood	
HDFS 428	Infant Development	
HDFS 429	Advanced Child Development	
HDFS 432	Developmental Problems in Childhood and Adolescence	
HDFS 433	Developmental Transition to Adulthood	
HDFS 434	Perspectives on Aging	
HDFS 445	Development Throughout Adulthood	
HDFS 447	Issues in Gerontology	
Select 3 credits from the following courses in Advanced Family Topics: 3		
HDFS 412	Adult-Child Relationships	
HDFS 415	Program Development in Family Relationships	
HDFS 416/ SOC 411	Racial and Ethnic Diversity and the American Family	
HDFS 417	Biocultural Studies of Family Organization	
HDFS 418	Family Relationships	
HDFS 424	Family Development in an Economic Context	
HDFS 431	Family Disorganization: Stress Points in the Contemporary Family	
HDFS 469U	Family Change in the Global Economy	
HDFS 477	Analysis of Family Problems	
SOC 430	Family in Cross-Cultural Perspective	
Select 6 credits from the following courses in Professional Skills for HDFS Careers: 6		
HDFS 410	Communities and Families	
HDFS 411	The Helping Relationship	

HDFS 414	Resolving Human Development and Family Problems
HDFS 430	Experience in Preschool Groups
HDFS 440	Family Policy
HDFS 455	Development and Administration of Human Services Programs
HDFS/CMAS 465	Child Maltreatment: Prevention and Treatment

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Diversity and Development: Select 6 credits from HDFS at any level or choose from approved list of University-wide offerings 6

Developmental Science for Health Professions Option (24 credits)

Available at the following campuses: Altoona, Brandywine, DuBois, Fayette, Harrisburg, Mont Alto, Scranton, Shenango, University Park, York

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3 credits from the following courses in Health and Society:		3
BBH 407	Global Health Equity	
SOC 451	Health, Disease & Society	
Select 6 credits from the following courses in Advanced Development:		6
HDFS 405	Gender and Social Development	
HDFS 413	Developmental Problems in Adulthood	
HDFS 428	Infant Development	
HDFS 429	Advanced Child Development	
HDFS 432	Developmental Problems in Childhood and Adolescence	
HDFS 433	Developmental Transition to Adulthood	
HDFS 434	Perspectives on Aging	
HDFS 445	Development Throughout Adulthood	
HDFS 447	Issues in Gerontology	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Diversity and Development: Select 3 credits from HDFS at any level or choose from approved list of University-wide offerings 3

Science and Health Foundations: Select 12 credits from approved list of University-wide offerings 12

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or

within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

Brandywine Campus

- HDFS students will be able to demonstrate an understanding of the complexity of individual and family development across the life span in diverse contexts and changing environments.
 - Summarize, critique, and apply theories and concepts related to individual and family development from a multi-disciplinary, life-cycle perspective.
 - Articulate how biology, psychology, and history influence diversity in individual and family structures and functions in a social/cultural context.
- HDFS students will be able to demonstrate the ability to evaluate and apply theory and research to practice and policy.
 - Demonstrate an understanding of the contribution of original research in human development.
 - Integrate and apply the findings of empirical research within a theoretical framework to human development.
 - Explain the strengths and weaknesses of various research methods in assessing human behavior.
 - Apply research skills in order to better understand in the use of research in agency practice.
 - Explain the process of planning and conducting research, including the role of the IRB.
 - Demonstrate skills to analyze and interpret data.
 - Apply theories to identify and resolve problems.
- HDFS students will demonstrate the ability to analyze processes, policies, and contextual factors that affect the delivery of human services to individuals and families.
 - Demonstrate knowledge of history and policies for ethical conduct in the delivery of human services.
 - Examine environmental factors shaping individual and family interventions (such as political, social, economic, cultural, and technological).
 - Demonstrate an understanding of community-based programs and services.
 - Understand and articulate individual and family needs and roles of human service organizations in fulfilling those needs.
 - Demonstrate knowledge of HIPAA regulations.
 - Develop a working knowledge of and ability to evaluate community-based programs and services.
- HDFS students will demonstrate professional ethical and culturally sensitive standards of conduct.
 - Articulate understanding of theories, skills, and competencies of an effective helper.
 - Demonstrate knowledge of the main ethical, legal, clinical, professional and personal issues and challenges involved in the helping professions.
 - Demonstrate knowledge of informed consent for working with diverse groups of clients.
 - Understand and apply ethical decision making models.
 - Understanding how personal values and experiences influence one's ability to make professional decisions.

- Recognize stereotypical and prejudicial language and attitudes and their impact on the helping relationship.
- HDFS students will demonstrate knowledge and competence in helping, leadership, and administrative human service skills.
 - Demonstrate knowledge of management in human services and how to apply appropriate practices.
 - Demonstrate professional written, oral and technology assisted communication skills.
 - Demonstrate clinical, interactional, and practical skills used in human service professions.
 - Identify the different organizational needs of public, private-for-profits, and private-not-for-profit agencies.

DuBois and York Campuses

- Understand the complexity of individual and family development across the lifespan.
- Evaluate and apply research and theory to practice and policy.
- Understand the processes, policies and contextual factors that affect the delivery of human services.
- Understand the professional, ethical, and culturally sensitive standards of conduct.
- Demonstrate knowledge and competence in helping, leadership and administrative skills.

Fayette Campus

- Understanding of the complexity of individual and family development across the lifespan in diverse contexts and changing environments.
 - Summarize, critique, and apply theories and concepts related to individual and family development from a multi-disciplinary, life-cycle perspective;
 - Articulate how biology, psychology, and history influence diversity in individual and family structures and functions in a social/cultural context.
- Ability to evaluate and apply theory and research to practice and policy.
 - Demonstrate an understanding of the contribution of original research in human development;
 - Integrate and apply the findings of empirical research within a theoretical framework to human development;
 - Explain the strengths and weaknesses of various research methods in assessing human behavior;
 - Apply research skills in order to better understand in the use of research in agency practice;
 - Explain the process of planning and conducting research, including the role of the IRB;
 - Demonstrate skills to analyze and interpret data;
 - Apply theories to identify and resolve problems.
- Ability to analyze processes, policies, and contextual factors that affect the delivery of human services to individuals and families.
 - Demonstrate knowledge of history and policies for ethical conduct in the delivery of human services;
 - Examine environmental factors shaping individual and family interventions (such as political, social, economic, cultural, and technological);
 - Demonstrate an understanding of community-based programs and services;

- Understand and articulate individual and family needs and roles of human service organizations in fulfilling those needs;
- Demonstrate knowledge of HIPAA regulations;
- Develop a working knowledge of and ability to evaluate community-based programs and services.
- Professional ethical and culturally sensitive standards of conduct.
 - Articulate understanding of theories, skills, and competencies of an effective helper;
 - Demonstrate knowledge of the main ethical, legal, clinical, professional and personal issues and challenges involved in the helping professions;
 - Demonstrate knowledge of informed consent for working with diverse groups of clients;
 - Understand and apply ethical decision making models;
 - Understanding how personal values and experiences influence one's ability to make professional decisions;
 - Recognize stereotypical and prejudicial language and attitudes and their impact on the helping relationship.
- Demonstrate a strong work ethic in their courses and in the field.
- Communicate, verbally and in writing, in a professional manner at all times.
- Take responsibility for and accept the consequences for their actions.
- Demonstrate the ability to work collaboratively in teams or groups.

Mont Alto and Scranton Campuses

- Demonstrate an understanding of the complexity of individual and family development across the life span in diverse contexts and changing environments
- Demonstrate an ability to evaluate and apply research and theory to practice and policy.
- Analyze processes, policies, and contextual factors that affect the delivery of human services to individuals and families.
- Demonstrate professional, ethical, and culturally sensitive standards of conduct.
- Demonstrate knowledge and competence in helping, leadership, and administrative skills for human services.

Shenango Campus

- Graduates can apply theories and principles of human services to clinical and /or practice and research.
 - Explain and cite appropriate theories that can be applied to a given scenario.
 - Compare and contrast, and can explain the pros and cons of major theories in human services.
 - Construct appropriate treatment plans and/or make appropriate referrals.
 - Develop a coherent research question and construct an appropriate research design and methodology to investigate the question.
 - Interpret and critique research findings.
 - Apply research/research findings to inform practice.
- Graduates will demonstrate professional and ethical accountability in dealing with clients and coworkers.
 - Interact respectfully with people of diverse populations at all times.
 - Define diversity and the benefits of diversity as it relates to the human services fields.
 - Conduct themselves successfully in interview settings whether as the interviewer or interviewee.
 - Demonstrate knowledge of laws concerning confidentiality, professional boundaries, and sexual harassment within the human services field, especially laws related to HIPAA, licensure regulations, and FERPA.

- Graduates can identify, access and utilize resources to better serve individuals, families, and communities at the micro and macro level.
 - Locate potential opportunities and develop high quality proposals to obtain funding from external sources.
 - Identify, locate, and access regional, national, and global resources for information, referrals, and assistance in performing their professional duties.
 - Locate policies, rules, regulations, and laws that impact their professional duties.
 - Explain the differences among profit, non-profit, and faith-based agencies and evaluate the relative credibility of those agencies.
- Graduates can use technologies necessary to perform professional duties efficiently and effectively.
 - Students will demonstrate a level of proficiency in email, web searches, presentation software, databases, publication software, library databases, statistical software, and word processing.
 - Students will recognize and effectively use appropriate software programs to more efficiently complete projects and assignments.
- Graduates will demonstrate strong verbal and written communication skills.
 - Students will demonstrate active listening skills and can construct effective questions to further explore issues and concerns.
 - Students will be proficient in APA style writing.
 - Students will be able to use proper grammar, sentence structure, accurate spelling, formal language, correct punctuation, coherent paragraphs, ... to write well organized and effective documents and professional communications.
 - Students will make effective presentations.
 - Students will construct effective arguments from multiple perspectives.
- Graduates will demonstrate personal and professional growth that leads to the ability to build and enhance skill sets.
 - Students will participate in professional development activities.
 - Students will demonstrate effective time management by completing all assignments and coursework by the assigned deadlines and attending class regularly.
 - Students will learn to recognize and deal with their personal issues and persist in their education and professional growth.
 - Students will identify their scope of practice based on their clinical limitations.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged

in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Brandywine Campus

Human Development and Family Science Option: Human Development and Family Studies, B.S. at Brandywine Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
HDFS 129*	3 HDFS 229, 239, or 249N*	3
ENGL 15, 30H, or ESL 15 [†]	3 HDFS 315*	3

General Education Course	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C [‡]	0-3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
	15	12-15

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Second Year

Fall	Credits Spring	Credits
HDFS 229, 239, or 249N*	3 HDFS 312W*	3
HDFS 301*	3 ENGL 202A, 202B, 202C, or 202D [‡]	3
HDFS 311*	3 General Education Course (GHW)	1.5
EDPSY 101 or STAT 200 ^{**1}	3-4 General Education Course	3
General Education Course	3 Supporting Course	3
	Supporting Course	3
	15-16	16.5

Third Year

Fall	Credits Spring	Credits
HDFS 411*	3 HDFS 428, 429, 433, or 445*	3
HDFS 414*	3 HDFS 455	3
HDFS 418*	3 HDFS 300/400-level*	3
General Education Course	3 General Education Course	3
Supporting Course 400-level	3 General Education Course	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
HDFS 490*	2 HDFS 495A*	9
General Education Course	3 HDFS 495B*	3
HDFS 300/400-level	3	
HDFS 300/400-level	3	
General Education Course (GHW)	1.5	
Supporting Course 400-level	3	
	15.5	12

Total Credits 116-120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Student who choose to take EDPSY 101 will need to complete at least 1 cr in elective coursework to reach the minimum of 120 crs for graduation.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

Developmental Science for Health Professions Option: Human Development and Family Studies, B.S. at Brandywine Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
HDFS 129*	3 HDFS 229, 239, or 249N*	3
ENGL 15‡	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
15		15

Second Year

Fall	Credits Spring	Credits
HDFS 229, 239, or 249N*	3 HDFS 312W*	3
HDFS 311*	3 ENGL 202A, 202B, 202C, or 202D‡	3
HDFS 315*	3 US Cultures	3
CAS 100, CAS 100A, CAS 100B, or CAS 100C‡	0-3 General Education Course	3
EDPSY 101 or STAT 200**	3-4 General Education Course (GHW)	1.5
	Supporting Course	3
12-16		16.5

Third Year

Fall	Credits Spring	Credits
HDFS 301*	3 HDFS 428, 429, 433, or 445*	3
HDFS 418*	3 HDFS Selections*	3
HDFS 428, 429, 433, or 445*	3 Supporting Course 400-level	3
HDFS Selections*	3 Supporting Course	3
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5	
16.5		15

Fourth Year

Fall	Credits Spring	Credits
HDFS 494 or 494H*	3 HDFS 494 or 494H*	3
HDFS Course 400-level*	3 HDFS Course 400-level*	3
HDFS Course 400-level*	3 Supporting Course 400-level	3
HDFS Course 300/400-level*	3 Supporting Course	3
Supporting Course 400-level	3	
15		12

Total Credits 117-121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes

Major requires departmental approval. In consultation with an adviser and Program Coordinator, students must submit an application for the Life Span Developmental Science option during their 5th or 6th semester.

DuBois Campus

Human Development and Family Science Option with a Focus on Children, Youth & Families: Human Development and Family Studies, B.S. at DuBois Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
HDFS 129	3 CAS 100A	3
HDFS 239 or 249N (every even fall, if gerontology minor)	3 General Education Course	3
ENGL 15	3 General Education Course - Quantitative (EDPSY 101)	3
General Education Course	3 HDFS 229	3
General Education Course	3 General Education Course (BBH 143 if CSPCC or BIOL 155 if Geron.)	3
First Year Seminar	0-1	
15-16		15

Second Year

Fall	Credits Spring	Credits
HDFS 311	3 HDFS 301	3
HDFS 315Y	3 HDFS 312W (Writing across the curriculum)	3
Supporting Course (CNED 401 if CDPCC)	3 HDFS 314	1
ENGL 202A	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course	3-4 HDFS (300-400 level) (HDFS 416 or HDFS 405 or HDFS 413 if Geron)	3
18-19		16

Third Year

Fall	Credits Spring	Credits
HDFS 411	3 HDFS 414	3
General Education Course	3 Advanced Development (HDFS 433)	3
General Education Course	3 Supporting Course (EDTHP 115 or ASB)	3
Supporting Course (HDFS 108N, SOC 1, or CNED 401)*	3 HDFS 300/400 Supporting Course - HDFS 302A	3
Advanced Development (HDFS 429 or HDFS 445 if Geron.)	3 Supporting Course (400 Level) (CNED 420 every odd spring or CNED 416 every even spring)	3

Supporting Course (400 level) (CNED 401 or CNED 404 every even fall, or CNED 421 every odd fall) If Geron. DLC class	3 General Education Course	3
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18

18

Fourth Year

Fall	Credits Spring	Credits
HDFS 401 (490)	3 HDFS 495C (495A)	6-8
HDFS 418	3 HDFS 496 (if Geron.)	3
HDFS 455	3 Internship	3
General Education Course	3	
General Education Course	3	
15		12-14

Total Credits 127-131

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- CDPCC if as student is pursuing the Chemical Dependency Prevention Certificate
- Gerontology designation if a student is pursuing the Gerontology minor

HDFS Course Options:

- Advanced Development Selections: (Need one, but could take a second one as 300/400 level support): HDFS 429, HDFS 433 or HDFS 445
- HDFS 300/400 Level Support: (Select at least two; can do more if using for 400 level support, supporting courses or electives): HDFS 395, HDFS 302A, HDFS 413, HDFS 447, HDFS 405, HDFS 416, HDFS 448
- 400 Level Support: (Select two of these; can also be used for elective or supporting courses): CNED 401*, CNED 404*, CNED 421*, CNED 416*, CNED 420*
- Supporting Courses: (Select three to five): CRIMJ courses, BBH 143*, BBH 146, EDTHP 115 US, HDFS 108N, PSYCH 100, PSYCH 212, SOC 1

** Options for the Chemical Dependency Prevention Certificate*

Fayette Campus

Human Development and Family Science Option: Human Development and Family Studies, B.S. at Fayette Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
HDFS 129 or 239 (GS)*	3 STAT 200 ^{†*}	4
ENGL 15 or 30H [‡]	3 HDFS 129 or 229 (GS)*	3
PSU 8	1 CAS 100 [‡]	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
Quantification (GQ) [‡]	3	
	16	16

Second Year

Fall	Credits Spring	Credits
HDFS 129 or 239 (GS)*	3 HDFS 311*	3
HDFS 301*	3 HDFS 312W	3
HDFS 315Y*	3 Supporting 400-Level Course- Other Selections*	3
General Education Course	3 United States Cultures- Additional Requirement for HDFS*	3
General Education Course	3 Supporting Course-Consult with an Adviser*	3
	15	15

Third Year

Fall	Credits Spring	Credits
HDFS 411*	3 HDFS 412, 429, 433, 440, or 445 (or see adviser) ^{*1}	3
HDFS 412, 429, 433, 440, or 445 (or see adviser) ^{*1}	3 HDFS 418*	3
General Education Course	3 HDFS 414*	3
ENGL 202A [‡]	3 Supporting Course in Other Selections- Consult with an Adviser*	3
HDFS 300/400-Level Other Selection*	3 General Education Course	3
General Education Course (GHW)	1.5	
	16.5	15

Fourth Year

Fall	Credits Spring	Credits
HDFS 412, 429, 433, 440, or 445 (or see adviser) ^{*1}	3 HDFS 495A*	9
HDFS 490*	2 HDFS 495B*	3
HDFS 455*	3	
General Education Course	3	
Elective	3	

General Education Course (GHW)	1.5	
	15.5	12

Total Credits 121

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ Course selection based on semester availability. HDFS 412, 429, 433, 440, 445, Students should work with their adviser.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Note:

- Students should work with their adviser to address any deficiencies in MATH or World Languages in their first year.
- This HDFS program is offering a CFLE Certificate (Certified Family Life Educator). SELECT COURSES REQUIRED for CFLE provisional certification when choosing supporting courses in the HDFS major. Please consult with Dr. Ittig.
- Entrance to Major: Degree seeking students (DUS) must complete **18 credits AND have a 2.0 CGPA** before one can declare this major. Degree seeking students are limited to 36 credits at Penn State in this status, at which point they must seek enrollment in a degree program to continue.

Mont Alto Campus

Human Development and Family Science Option: Human Development and Family Studies, B.S. at Mont Alto Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
HDFS 129*	3 HDFS 229, 239, or 249N*	3
ENGL 15 or 30H (GWS)†	3 CAS 100A (GWS)	3
General Education Course (GQ) or MATH 4 (if needed)	3 General Education Course (GN)†	3
General Education Course (GS)	3 General Education Course (Inter-Domain)	3
General Education Course (GH)	3 Elective	3
PSU 8	1	
	16	15

Second Year

Fall	Credits Spring	Credits
HDFS 229, 239, or 249N*	3 HDFS 315Y (US)*	3
HDFS 301 or 311*	3 ENGL 202A*†	3
HDFS at Any Level (Diversity and Development)	3 HDFS 216	3
General Education Course (GN)	3 General Education Course (GA)	3
EDPSY 101 or STAT 200 (GQ)*††	3-4 Elective	3
	15-16	15

Third Year

Fall	Credits Spring	Credits
HDFS Skills (400-Level) #1	3 HDFS Skills (400-Level) #2	3
HDFS 301 or 311*	3 HDFS 429, 433, or 445 (Advanced Development Course)*	3
HDFS 312W*	3 General Education Course (Exploration)	3
General Education Course (GHW)	3 Elective	3
General Education Course (Inter-Domain)	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
HDFS 490 (Internship Preparation)	2 HDFS 495A	9
HDFS 418*	3 HDFS 495B	3
HDFS at Any Level (Diversity and Development)	3 Elective	3
Elective	3	

General Education Course (Exploration) 3

14

15

Total Credits 120-121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Human Development and Family Science Option with Certification Family Life Education (CFLE): Human Development and Family Studies, B.S. at Mont Alto Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
HDFS 129 ^{*1}	3 HDFS 229, 239, or 249N [*]	3
ENGL 15 or 30H (GWS) [‡]	3 CAS 100A (GWS)	3
General Education Course (GQ) or MATH 4 (if needed)	3 General Education Course (GN) [‡]	3
General Education Course (GS) (PSYCH 100) ¹	3 General Education Course (Inter-Domain)	3
General Education Course (GH)	3 Elective (HDFS 411) ¹	3
PSU 8	1	
	16	15

Second Year

Fall	Credits Spring	Credits
HDFS 229, 239, or 249N [*]	3 HDFS 315 (Y) (US) ^{*1}	3
HDFS 301 or 311 ^{*1}	3 ENGL 202A ^{*‡}	3
HDFS at Any Level (Diversity and Development) (HDFS 424) ¹	3 HDFS 216	3
General Education Course (GN) (Single or Inter-Domain)	3 General Education Course (GA)	3
EDPSY 101 or STAT 200 (GQ) ^{*‡†}	3-4 Elective (HDFS 414) ¹	3
	15-16	15

Third Year

Fall	Credits Spring	Credits
HDFS Skills (400-Level) #1 (HDFS 440) ¹	3 HDFS Skills (400-Level) #2 (HDFS 455) ¹	3
HDFS 301 or 311 ^{*1}	3 HDFS 429, 433, or 445 [*]	3
HDFS 312W [*]	3 General Education Course (Exploration)	3
General Education Course (GHW)	3 Elective (PSYCH 422) ¹	3
General Education Course (Inter-Domain)	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
HDFS 490	2 HDFS 495A ¹	9
Advanced Family Topics (HDFS 418) ^{*1}	3 HDFS 495B	3
HDFS at Any Level (Diversity and Development) (HDFS 412) ¹	3 Elective	3

General Education Course (Exploration)	3
Elective	3
	14
	15

Total Credits 120-121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Requirement (or prerequisite) for Family Life Education certification.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Developmental Science for Health Professions Option: Human Development and Family Studies, B.S. at Mont Alto Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
HDFS 129*	3 HDFS 229, 239, or 249N*	3
ENGL 15 or 30H (GWS) [†]	3 CAS 100A (GWS)	3
General Education Course (GQ) or MATH 4 (if needed)	3 General Education Course (GN)	3
General Education Course (GS)	3 General Education Course (Inter-Domain)	3
General Education Course (GH)	3 Elective	3
PSU 8	1	
	16	15

Second Year

Fall	Credits Spring	Credits
HDFS 229, 239, or 249N*	3 HDFS 315Y (US)	3
HDFS 301 or 311*	3 ENGL 202A* [‡]	3
HDFS at Any Level (Diversity and Development)	3 HDFS 216	3
General Education Course (GN or Inter-Domain)	3 General Education Course (GA)	3
EDPSY 101 or STAT 200 (GQ) ^{*††}	3-4 Elective	3
	15-16	15

Third Year

Fall	Credits Spring	Credits
HDFS (Science and Health Foundations) #1 (e.g., BIOL, CHEM, OTA, PTA)	3 Health & Society (see adviser for approved list)	3
HDFS (Science and Health Foundations) #2 (e.g., BIOL, CHEM, OTA, PTA)	3 HDFS (Science and Health Foundations) #3 (e.g., BIOL, CHEM, OTA, PTA)	3
HDFS 312W*	3 HDFS 429 (Advanced Development Course)*	3
General Education Course (GHW)	3 General Education Course (Exploration)	3
General Education Course (Inter-Domain)	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
HDFS 490 (Internship Preparation)	2 HDFS 495A	9
HDFS (Science and Health Foundations) #4 (e.g., BIOL, CHEM, OTA, PTA)	3 HDFS 495B	3

HDFS 429, 433, or 445 (Advanced Development Course)*	3 Elective	3
Elective	3	
General Education Course (Exploration)	3	
	14	15

Total Credits 120-121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Scranton Campus

Developmental Science for Health Professions Option: Human Development and Family Studies, B.S. at Scranton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSU 8	1 General Education Course (GWS) (recommend CAS 100A) [‡]	3
HDFS 129 or 101N [*]	3 EDPSY 101, STAT 200, or HDFS 200 (GQ) ^{*††}	3-4
Quantification (GQ)	3 General Education Course	3
General Education Course (GWS) (recommend ENGL 15 or ENGL 30H) [‡]	3 Lifespan Development #1 (HDFS 229, HDFS 239, or HDFS 249N) [*]	3
General Education Course	3 General Education Course	3
General Education Course	3	
	16	15-16

Second Year

Fall	Credits Spring	Credits
HDFS 301 [*]	3 HDFS 311 [*]	3
HDFS 312W [*]	3 Skills and Ethics (HDFS 216) [*]	3
HDFS 315 [*]	3 General Education Course	3
Lifespan Development #2 (HDFS 229, HDFS 239, or HDFS 249N) [*]	3 General Education Course	3
HDFS Diversity and Development #1	3 Elective	3
General Education Course	3	
	18	15

Third Year

Fall	Credits Spring	Credits
Professional Skills (HDFS 411) [*]	3 HDFS 414 [*]	3
HDFS Diversity and Development #2	3 HDFS 431 [*]	3
General Education Course	3 Advanced Development (HDFS 428, HDFS 429, or HDFS 433) [*]	3
General Education Course	3 General Education Course (GWS) (recommend ENGL 202A) [‡]	3
Elective	3 General Education Course	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
HDFS 490 [*]	2 HDFS 495A [*]	9
General Education Course	3 HDFS 495B [*]	3

Elective	3	
Elective	3	
Elective	3	
	14	12

Total Credits 120-121

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes

- Students are encouraged to take HDFS 312W in semester 3, if possible.
- In consultation with an adviser, students will find a faculty member during their 5th or 6th semester to serve as the supervisor for HDFS 494, research project. This is a two-semester senior-year project culminating in semester 8 research paper.

Advising Notes

- **Fourth Year, Spring Semester:**
 - Career Development & Experiential Learning Capstone (15 credits):
 - Choose 15 credits from one of the following options:
 - Traditional Capstone Internship: HDFS 490, HDFS 495A (9 credits), and HDFS 495B (~480 hours)
 - Modified Internship (*only with departmental approval): HDFS 490, HDFS 495C (3 credits FTE), and HDFS 495B (3) (~480 hours), plus 6 additional credits with departmental approval
 - Experiential Mix: HDFS 490, HDFS 495A (3-6 credits), and HDFS 495B (~160–320 hours), plus 3-6 additional credits of career related coursework (with departmental approval)
 - Research Emphasis: 6 credits of HDFS 494, HDFS 494H, or HDFS 496, plus 3 additional credits of HDFS 400-level, plus 6 additional credits of 300/400-level research credits (e.g., HDFS 300H, HDFS 310M, HDFS 494, HDFS 494H, HDFS 496) or career related coursework (with departmental approval)
 - Math 21 is considered the standard 1st semester GQ. Students are encouraged to check with their adviser on the appropriate math sequencing if not placed in MATH 21 first semester.

- It is recommended that General Education Arts (GA) and Humanities (GH) be taken in junior and senior year if student plans to study abroad.
- HDFS 315 satisfies the University Requirement for US cultures.
- IL may be combined with GA, GH, or GS.
- Credit adjustments should be made if free elective credits are needed for a total of 120 credits minimum (which includes semester 8).

Human Development and Family Science Option: Human Development and Family Studies, B.S. at Scranton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSU 8	1 EDPSY 101, STAT 200, or HDFS 200 (GQ) ^{*††}	3-4
HDFS 129 or 101N [*]	3 Lifespan Development #1 (HDFS 229, HDFS 239, or HDFS 249N) [*]	3
Quantification (GQ)	3 General Education Course (GWS) (recommend CAS 100A) [‡]	3
General Education Course (GWS) (recommend ENGL 15 or ENGL 30H) [‡]	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course	3	
	16	15-16

Second Year

Fall	Credits Spring	Credits
HDFS 301 [*]	3 HDFS 311 [*]	3
HDFS 312W [*]	3 Skills and Ethics (HDFS 216) [*]	3
HDFS 315 [*]	3 General Education Course	3
Lifespan Development #1 (HDFS 229, HDFS 239, or HDFS 249N) [*]	3 General Education Course	3
HDFS Diversity and Development #1	3 Elective	3
General Education Course	3	
	18	15

Third Year

Fall	Credits Spring	Credits
Professional Skills (HDFS 411) [*]	3 HDFS 414 [*]	3
HDFS Diversity and Development #2	3 HDFS 455 [*]	3
General Education Course	3 HDFS 431 [*]	3
General Education Course	3 Advanced Development (HDFS 428, HDFS 429, or HDFS 433) [*]	3
Elective	3 General Education (GWS) (recommend ENGL 202A) [‡]	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
HDFS 490 [*]	2 HDFS 495B [*]	3
General Education Course	3 HDFS 495A [*]	9

Elective	3
Elective	3
Elective	3
	14
	12

Total Credits 120-121

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes

- Students are encouraged to take HDFS 312W in semester 3, if possible.
- International cultures (IL) may be combined with GA, GH, or GS.
- HDFS 315 satisfies the University Requirement for US cultures.

Advising Notes

- **Fourth Year, Spring Semester:**
 - Career Development & Experiential Learning Capstone (15 credits):
 - Choose 15 credits from one of the following options:
 - Traditional Capstone Internship: HDFS 490, HDFS 495A (9 credits), and HDFS 495B (~480 hours)
 - Modified Internship (*only with departmental approval): HDFS 490, HDFS 495C (3 credits FTE), and HDFS 495B (3) (~480 hours), plus 6 additional credits with departmental approval
 - Experiential Mix: HDFS 490, HDFS 495A (3-6 credits), and HDFS 495B (~160-320 hours), plus 3-6 additional credits of career related coursework (with departmental approval)
 - Research Emphasis: 6 credits of HDFS 494, HDFS 494H, or HDFS 496, plus 3 additional credits of HDFS 400-level, plus 6 additional credits of 300/400-level research credits (e.g., HDFS 300H, HDFS 310M, HDFS 494, HDFS 494H, HDFS 496) or career related coursework (with departmental approval)
- MATH 21 is considered the standard 1st semester GQ. Students are encouraged to check with their adviser on the appropriate math sequencing if not placed in MATH 21 first semester.
- Students should consult with their advisers concerning appropriate supporting courses.

- This is a recommended plan and is not meant to substitute for students meeting with their academic advisers. Any deviations from this plan should be discussed with students' academic advisers.

Shenango Campus

Human Development and Family Science Option: Human Development and Family Studies, B.S. at Shenango Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 [‡]	3 Art Elective (GA)	3
HDFS 129*	3 CAS 100A [‡]	3
PSU 8	1 Quantification Elective (GQ) [‡]	3
Humanities Elective (GH) (IL)	3 HDFS 239 or 249N*	3
Natural Science Elective (GN)	3 US Cultures Course (US)*	3
Social and Behavioral Science Elective (GS)	3	
	16	15

Second Year

Fall	Credits Spring	Credits
Health and Physical Activity Elective (GHA)	3 Supporting Course- Consult with an Adviser*	3
HDFS 229*	3 HDFS 301*	3
HDFS 311*	3 Natural Science Elective (GN)	3
HDFS 315Y*	3 Social and Behavioral Science Elective (GS)	3
STAT 200 ^{**‡}	4 Art Elective (GA)	3
	HDFS 312W*	3
	16	18

Third Year

Fall	Credits Spring	Credits
Supporting Course - 400 Level*	3 ENGL 202A or 202D [‡]	3
Natural Science Elective (GN)	3 Supporting Course - 300/400 Level HDFS*	3
Supporting Course - 300/400 Level HDFS*	3 HDFS 411*	3
Elective	3 HDFS 445*	3
Supporting Course - Consult with an Adviser*	3 HDFS 455*	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
HDFS 401*	3 HDFS 402*	4
HDFS 414*	3 HDFS 495C*	6-8
HDFS 418*	3	
Supporting Course - 400 Level	3	

Humanities Elective (GH) (US)	3	
	15	10-12

Total Credits 120-122

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes

Students must complete a 3-credit course in "United States Cultures (US)" and a 3-credit course in "International Cultures (IL)."

Human Development and Family Science Option with Certification Family Life Education (CFLE): Human Development and Family Studies, B.S. at Shenango Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 [‡]	3 Art Elective (GA)	3
HDFS 129 [*]	3 CAS 100A [‡]	3
PSU 8	1 Quantification Elective (GQ) [‡]	3
Humanities Elective (GH) (IL)	3 HDFS 239 or 249N [*]	3
Natural Science Elective (GN)	3 US Cultures Course (US) [*]	3
PSYCH 100	3	
	16	15

Second Year

Fall	Credits Spring	Credits
Health and Physical Activity Elective (GHA)	3 HDFS 249N [*]	3
HDFS 229 (Course is a prerequisite to HDFS 412) [*]	3 HDFS 301 [*]	3
HDFS 311 [*]	3 Natural Science Elective (GN)	3
HDFS 315Y [*]	3 Social and Behavioral Science Elective (GS)	3
STAT 200 ^{**‡}	4 Art Elective (GA)	3
	HDFS 312W [*]	3
	16	18

Third Year

Fall	Credits Spring	Credits
Natural Science Elective (GN)	3 ENGL 202A or 202D [‡]	3
HDFS 440 [*]	3 HDFS 412 [*]	3
PSYCH 422 [*]	3 HDFS 411 [*]	3
Supporting Course - Consult with Adviser	3 HDFS 445 [*]	3
Elective	3 HDFS 455 [*]	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
HDFS 401 [*]	3 HDFS 402 [*]	4
HDFS 414 [*]	3 HDFS 495C [*]	6-8
HDFS 418 [*]	3	
HDFS 424 [*]	3	
Humanities Elective (GH) (US)	3	
	15	10-12

Total Credits 120-122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Students can choose either HDFS 429 or HDFS 433. Only one of the two courses is needed to fulfill the requirement. HDFS 429 is only offered during the fall semester. If students do not take HDFS 429 in the fall semester, they should take HDFS 433 during the spring semester.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes

Students must complete a 3-credit course in "United States Cultures (US)" and a 3-credit course in "International Cultures (IL)."

York Campus

Human Development and Family Science Option: Human Development and Family Studies, B.S. at York Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [‡]	3 HDFS 200 [*]	3
HDFS 129 [*]	3 HDFS 239 or 216 [*]	3
HDFS 216 [*]	3 CAS 100A, 100B, or 100C [‡]	3
General Education Course	6 General Education Course	6
	15	15

Second Year

Fall	Credits Spring	Credits
HDFS 229 or 249N [*]	3 ENGL 202A [‡]	3
HDFS 311 [*]	3 General Education Course	3
HDFS 312W [*]	3 HDFS 301 [*]	3
General Education Course	3 HDFS 315 [*]	3
HDFS Diversity (any level) [*]	3 HDFS Diversity (any level) [*]	3
	15	15

Third Year

Fall	Credits Spring	Credits
HDFS Development (400 level)	3 HDFS Skills (400 level)	3
HDFS Skills (400 level)	3 General Education Course	6
General Education Course	6 Elective	6
Elective	3	
	15	15

Fourth Year

Fall	Credits Spring	Credits
HDFS 490 [*]	2 HDFS 495A [*]	9
Elective	3 HDFS 495B [*]	3
Elective	9	
	14	12

Total Credits 116

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Developmental Science for Health Professions Option: Human Development and Family Studies, B.S. at York Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [‡]	3 HDFS 200 [*]	3
HDFS 129 [*]	3 HDFS 239 or 216 [*]	3
HDFS 216 [*]	3 CAS 100A, 100B, or 100C [‡]	3
General Education Course	6 General Education Course	6
	15	15

Second Year

Fall	Credits Spring	Credits
HDFS 229 or 249N [*]	3 ENGL 202A [‡]	3
HDFS 311 [*]	3 General Education Course	3
HDFS 312W [*]	3 HDFS 301 [*]	3
General Education Course	3 HDFS 315 [*]	3
HDFS Diversity (any level) [*]	3 HDFS Diversity (any level) [*]	3
	15	15

Third Year

Fall	Credits Spring	Credits
HDFS Development (400 level)	3 HDFS 480 [*]	3
Approved Health Course [*]	6 HDFS Development (400 level)	3
General Education Course	6 Approved Health Course [*]	3
	General Education Course	6
	15	15

Fourth Year

Fall	Credits Spring	Credits
HDFS 490 [*]	2 HDFS 495A [*]	9
Approved Health Course [*]	3 HDFS 495B [*]	3
Elective	12	
	17	12

Total Credits 119

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

Demand for HDFS graduates is strong because the major provides students with a valuable foundation for understanding important social trends and guides students to develop the knowledge and skills to positively impact individuals, families, and communities. HDFS Students can customize their degree to align with career interests. HDFS students specialize through minors, certificates and credit-based hands-on learning opportunities.

HDFS students complete a capstone experience customized to their interests and designed to enhance their qualifications. Capstones include approved internships, guided research experiences, or advanced courses. The HDFS department capstone program provides:

- A capstone preparation class to help students explore interests, identify opportunities, and submit professional applications - and -
- Experienced capstone coordinators to help students get the most out of the capstone experience

Careers

Many HDFS graduates go directly to the workplace based on their understanding of people, their knowledge of group dynamics, and their skills in training and in program development and evaluation. HDFS students pursue positions right out of college in:

- Health and Human Services Professions (e.g. youth and family services, child advocacy, health education)
- Early Childhood Development (e.g. early childhood education, early intervention specialists, applied behavioral analysis)
- Child and Youth Services
- Foster Care and Adoption
- Family Education and Intervention
- Services for Older Adults
- Services for Individuals with Disabilities
- Program Administration and Advocacy (e.g. volunteer coordination, program management and evaluation, human resources)

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE HUMAN DEVELOPMENT AND FAMILY STUDIES PROGRAM (<https://hhd.psu.edu/undergraduate/internships-and-career-opportunities/career-areas-major/careers-human-development-and/>)

Opportunities for Graduate Studies

A degree in HDFS is also a great foundation for individuals who are interested in pursuing advanced professional training/graduate study in:

- Counseling (e.g., addiction counseling, marriage and family therapy, mental health counseling, counseling psychology, educational and vocational counseling)
- Social Work and Public Health
- Clinical Health Professions (e.g. psychiatry, pediatrics, adolescent medicine, family medicine, obstetrics and gynecology, geriatrics, occupational therapy)
- Program Administration and Management
- Special Education
- Family Law
- Public Policy and Advocacy
- Research (e.g., on lifespan human development, psychology, sociology, prevention)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://hhd.psu.edu/hdfs/human-development-and-family-studies-graduate-program/>)

Professional Resources

- Diversity, Equity and Inclusion in HDFS (<https://hhd.psu.edu/hdfs/about/diversityandequity/initiatives/>)

Contact

Brandywine

25 Yearsley Mill Road
Media, PA 19063
610-892-1438
jmz15@psu.edu

<https://www.brandywine.psu.edu/academics/bachelors-degrees/human-development-and-family-studies> (<https://www.brandywine.psu.edu/academics/bachelors-degrees/human-development-and-family-studies/>)

DuBois

1 College Place
DuBois, PA 15801
814-375-4833
jlb5810@psu.edu

<https://dubois.psu.edu/academics/degrees/hdfs/bachelor> (<https://dubois.psu.edu/academics/degrees/hdfs/bachelor/>)

Fayette

2201 University Drive
Lemont Furnace, PA 15456
724-430-4284
esb12@psu.edu

<https://fayette.psu.edu/academics/baccalaureate/human-development-and-family-studies-bs> (<https://fayette.psu.edu/academics/baccalaureate/human-development-and-family-studies-bs/>)

Mont Alto

112 Wiestling Hall
Mont Alto, PA 17237
717-749-6210
r2y@psu.edu

<https://montalto.psu.edu/academics/hdfs> (<https://montalto.psu.edu/academics/hdfs/>)

Scranton

111B Dawson Building
Dunmore, PA 18512
570-963-2674
jam81@psu.edu

<https://scranton.psu.edu/academics/degrees/bachelors/hdfs> (<https://scranton.psu.edu/academics/degrees/bachelors/hdfs/>)

Shenango

147 Shenango Avenue
102 McDowell Hall
Sharon, PA 16146
724-983-2953
rxa32@psu.edu

<https://shenango.psu.edu/academics/degrees/human-development-family-studies> (<https://shenango.psu.edu/academics/degrees/human-development-family-studies/>)

York

13 John J. Romano Administrative Building
York, PA 17403
717-771-4029
ajs49@psu.edu

<https://www.york.psu.edu/academics/baccalaureate/human-development-and-family-studies> (<https://www.york.psu.edu/academics/baccalaureate/human-development-and-family-studies/>)

Altoona

DIVISION OF EDUCATION, HUMAN DEVELOPMENT, AND SOCIAL SCIENCES
123 Hawthorn Building
3000 Ivyside Park
Altoona, PA 16601
914-949-5333
lpj100@psu.edu

<https://altoona.psu.edu/academics/bachelors-degrees/human-development-family-studies> (<https://altoona.psu.edu/academics/bachelors-degrees/human-development-family-studies/>)

Harrisburg

SCHOOL OF BEHAVIORAL SCIENCES AND EDUCATION
Olmsted Building, W314
717-948-6227
aia240@psu.edu (aia240@psu.edu)

<https://harrisburg.psu.edu/behavioral-sciences-education/human-development-family-studies-bs> (<https://harrisburg.psu.edu/behavioral-sciences-education/human-development-family-studies-bs/>)

University Park

DEPARTMENT OF HUMAN DEVELOPMENT AND FAMILY STUDIES
119 Health and Human Development Building
University Park, PA 16802
814-863-8000
mup874@psu.edu

<https://hhd.psu.edu/hdfs> (<https://hhd.psu.edu/hdfs/>)

World Campus

DEPARTMENT OF HUMAN DEVELOPMENT AND FAMILY STUDIES
119 Health and Human Development Building
University Park, PA 16802
814-863-8000
sac301@psu.edu

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-human-development-and-family-studies-bachelor-of-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-human-development-and-family-studies-bachelor-of-science-degree/>)

Humanities, B.A. (University College)

Begin Campus: Any Penn State Campus

End Campus: Fayette

Program Description

This major helps students appreciate, understand, and interpret relationships among the arts, ideas, media, and values that have shaped Western and world cultures. Students are taught to become active learners who can synthesize, interpret, and communicate knowledge and experience through writing, speaking, and creative expression in a variety of media. The School helps students meet these goals by offering a range of interdisciplinary and discipline-based courses in the arts, art history, communication studies, English, history, literature, music, philosophy, theatre, and writing. The course of study includes interdisciplinary courses which examine topics and time periods from the perspectives of multiple Humanities disciplines. These courses engage students in cross-disciplinary critical thinking and analysis and prepare them for work in an increasingly interdisciplinary world. Students also choose two Humanities subfields to investigate in greater depth, choosing from history and global cultures; the visual and performing arts; philosophy and religious studies; and literature and writing. Students are also encouraged to combine this major with a minor in such fields as business administration, writing, and communications. The Humanities major prepares students for careers in the arts, arts administration, business, corporate communications, government, teaching, museum work, and law, as well as providing a foundation for graduate study in a liberal arts field.

What is Humanities?

Humanities is an area of study that focuses on combined studies and research in the humanities subjects as distinguished from the social and physical sciences, emphasizing languages, literatures, art, music, philosophy, religion, creative and professional writing, theater, history, and global cultures.

You Might Like This Program If...

- You are interested in critical thinking and interdisciplinary analysis.
- You are drawn to literature and the arts.
- You want to prepare for a professional field such as medicine or law.
- You want a career in the arts, teaching, communications, business, government, or museum work.

Entrance to Major

Entry to the Humanities major requires the completion of 27.1 or more credits and a 2.00 or higher cumulative grade-point average.

Degree Requirements

For the Bachelor of Arts degree in Humanities, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	0-15
Bachelor of Arts Degree Requirements	24
Requirements for the Major	51

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Requirements for the Major

At least 36 of the last 60 credits must be earned at Penn State, according to University Policy 83-80.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
HUM 100N	Foundations in the Humanities: Understanding the Human Experience	3
HUM 200N	Explorations in the Humanities: The Quest	3
HUM 300N	Interpretations in the Humanities	3
HUM 400N	Expressions in the Humanities	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select two Humanities (HUM) courses of the following:		6
HUM 150N	World Mythologies in the Arts	
HUM 311N		
HUM 410	Religion and Culture	
HUM 430	Philosophy and Literature	
HUM 453	Texts and Culture	
HUM 460	Thematic Studies	
HUM 461	Selected Periods in the Humanities	
HUM 491	Seminar in Interdisciplinary Humanities	
HUM 494	Research Project	
HUM 495	Internship	
HUM 496	Independent Studies	
HUM 497	Special Topics	
HUM 499	Foreign Studies	

Supporting Courses and Related Areas ¹

Select 12 credits in one of the four following areas and 9 credits in a second area:

History and Global Cultures

HIST, CMLIT, and SPAN courses

CAS 271N Intercultural Communication

ENGL 486 The World Novel in English

ENGL 488

INTST 100 Introduction to International Studies

Performing and Visual Arts and Art History

ART, ARTH, INART, MUSIC, AND THEA courses

COMM 215 Basic Photography for Communications

COMM 241 Graphic Design for Communications

COMM 242 Basic Video/Filmmaking

COMM 250 Film History and Theory

Philosophy and Religious Studies

PHIL and RLST courses

Literature and Writing

ENGL and CMLIT courses

COMM 230W Writing for Media

COMM 260W News Writing and Reporting

COMM 332 Reporting

COMM 346 Writing for the Screen I

COMM 474 Depth Reporting

Select 12 credits from AMST, ART, ARTH, CAS, CHNS, CMLIT, COMM, ENGL, FR, HIST, HUM, INART, MUSIC, PHIL, RLST, SPAN, or THEA and/or 12 credits that can be used toward a minor in an area of the student's interests

¹ At least 15 credits of supporting courses must be at the 400 level.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits

- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Humanities, B.A. at Fayette Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [‡]	3 CAS 100 [‡]	3
General Education Course (GQ)	3-4 General Education Course	3
HUM 100N*	3 General Education Course	3
World Language level 1	3-4 World Language level 2	3-4
General Education Course	3 HUM 150N (or Select HUM course (3)) [*]	3
15-17		15-16

Second Year

Fall	Credits Spring	Credits
General Education Course	3 General Education Course (GQ)	3-4
World Language level 3	3-4 General Education Course	3
General Education Course	3 ENGL 202A, 202B, or 202D [‡]	3
Select course in first subfield (1)	3 General Education Course	3
General Education Course	3 HUM 200N*	3
15-16		15-16

Third Year

Fall	Credits Spring	Credits
HUM 300N*	3 General Education Course	3
Select course in first subfield (1)	3 Select course in first subfield (1)	3
Select course in second subfield (2)	3 Select course in second subfield (2)	3
General Education Course	3 BA Degree required course	3
BA Degree required course	3 Select additional course in specific area or in support of a minor	3
15		15

Fourth Year

Fall	Credits Spring	Credits
HUM 400N*	3 HUM 495 or 494 (or 400-level Select HUM course (3)) [*]	3-6
Select course in first subfield (1)	3 Select course in second subfield (2)	3
Select additional course in specific area or in support of a minor	3 BA Degree required course	3
Select additional course in specific area or in support of a minor	3 Select additional course in specific area or in support of a minor	3
BA Degree required course	3 Elective	3
15		15-18

Total Credits 120-128

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Select course in first subfield, (1) for the subfield of history and global cultures, select from HIST, CMLIT, SPAN (all courses with those prefixes), CAS 271, COMM 350, ENGL 486, ENGL 488, INTST 100; for the subfield of performing and visual arts and art history, select from ART, ARTH, INART, MUSIC, THEA (all courses with those prefixes), COMM 215, COMM 241, COMM 242, COMM 250; for the subfield of philosophy and religious studies: select from PHIL, RLST (all courses with those prefixes) for the subfield of literature and writing, select from ENGL, CMLIT (all courses with those prefixes), COMM 230W, COMM 260W, COMM 332, COMM 346, COMM 474.

² Select course in second subfield (2), for the subfield of history and global cultures, select from HIST, CMLIT, SPAN (all courses with those prefixes), CAS 271, COMM 350, ENGL 486, ENGL 488, INTST 100; for the subfield of performing and visual arts and art history, select from ART, ARTH, INART, MUSIC THEA (all courses with those prefixes), COMM 215, COMM 241, COMM 242, COMM 250; for the subfield of philosophy and religious studies: select from PHIL, RLST (all courses with those prefixes) for the subfield of literature and writing, select from ENGL, CMLIT (all courses with those prefixes), COMM 230W, COMM 260W, COMM 332, COMM 346, COMM 474.

³ Select HUM required course (3), select from HUM 150, HUM 311, HUM 410, HUM 430, HUM 453, HUM 460, HUM 461, HUM 491, HUM 494, HUM 495, HUM 496, HUM 497 or HUM 499.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Career Paths

The Humanities major prepares students for careers in the arts, arts administration, business, corporate communications, government, teaching, museum work, and law. Penn State Harrisburg's Career Services office provides numerous resources for students, including: assistance with resumes and interview preparation online resources for finding full or part time, and co-op/intern positions strategies and information on

attending and getting the most out of job/intern fairs information and guidance in preparing for graduate study at Penn State or elsewhere.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE HUMANITIES PROGRAM (<https://harrisburg.psu.edu/humanities/humanities-ba/>)

Opportunities for Graduate Studies

The Humanities major also provides a foundation for graduate study in a liberal arts field, including Penn State's Master of Arts in Humanities program.

Contact

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<https://harrisburg.psu.edu/humanities/humanities-ba> (<https://harrisburg.psu.edu/humanities/humanities-ba/>)

Information Sciences and Technology, A.S. (University College)

Begin Campus: DuBois, Greater Allegheny, Hazleton, Mont Alto, Wilkes-Barre, Scranton, York

End Campus: DuBois, Greater Allegheny, Hazleton, Mont Alto, Scranton, Wilkes-Barre, York

Program Description

This associate degree major is structured to prepare graduates for immediate and continuing employment opportunities in the broad disciplines of information science and technology. This includes positions such as application programmers, associate systems designers, network managers, web designers and administrators, or information systems support specialists. Specifically, the major is designed to ensure a thorough knowledge of information systems and includes extensive practice using contemporary technologies in the creation, organization, storage, analysis, evaluation, communication, and transmission of information. The major fosters communications, interpersonal, and group interaction skills through appropriate collaborative and active learning projects and experiences. Technical material covers the structure of database systems, web and multimedia systems, and considerations in the design of information systems. Team projects in most courses, a required internship, and a second-year capstone experience provide additional, focused venues for involving students in the cutting-edge issues and technologies in the field.

The Associate of Science in IST degree will be offered at multiple campuses within the Penn State system of colleges and campuses. Note that not all options will be available at all locations.

Application Development Option

Available at the following campuses: Berks, Greater Allegheny, Hazleton, Mont Alto, Scranton, World Campus, York

The Application Development option prepares students for entry level position in applications development and/or web development. It also prepares students for IST related baccalaureate degrees such as HCDD, IT, ETI, and CYBER. Students take courses such as web development and advanced java programming as well as usability.

Custom Option

Available at the following campuses: Berks, DuBois, Greater Allegheny, Hazleton, Mont Alto, Scranton, Wilkes-Barre, World Campus, York

The Custom option enables students to work closely with an adviser to develop a plan of study that meets the dual objectives of allowing a flexible academic program and a specific theme related to technology. Some examples of themes are web development, psychology, and usability.

Cybersecurity Option

Available at the following campuses: Berks, Greater Allegheny, Mont Alto, World Campus, York

The Cybersecurity option prepares students for an entry level position in the cyber security field. It also prepares students for IST related baccalaureate degrees such as Cybersecurity Analytics and Operations and SRA. Students take introductory courses in CYBER and SRA as well as advanced hand-on courses in these areas.

Generalized Business Option

Available at the following campuses: Berks, DuBois, Greater Allegheny, Mont Alto, Scranton, World Campus, York

The Generalized Business option enables students to specialize in the general business areas of accounting, marketing, and management, and is closely aligned with the requirements of the ETI major.

Networking Option

Available at the following campuses: DuBois, Mont Alto, World Campus

The Networking option prepares graduates for positions as entry-level computer network administrators. Students take courses in personal computer hardware, networking essentials, and network administration.

What is Information Sciences and Technology?

Information Sciences and Technology is a discipline that explores how we can strengthen the power of information and technology, and use it to increase human potential. This includes focusing on creating innovative systems and technological solutions that benefit businesses, organizations, and individuals, and understanding the role of technology in how we live our lives.

Entrance to Major

Students must have a minimum 2.0 GPA to change to this Associate degree after admission to the University.

Degree Requirements

For the Associate in Science degree in Information Sciences and Technology, a minimum of 60 credits is required:

Requirement	Credits
General Education	21
Electives	0-5
Requirements for the Major	43-47

6-9 of the 21 credits for General Education are included in the Requirements for the Major. For all options, this includes: 3 credits of GQ courses; 3 credits of GWS courses; 0-3 credits of GS courses. (3 credits of GQ courses in Additional Courses includes MATH 21, MATH 22, MATH 110, SCM 200 or STAT 200) and 3 credits of GWS courses including ENGL 15 or CAS 100 which are Prescribed Courses. Students may also overlap 3 credits of GS if they select SRA 111 in Additional Courses for the Major or if they select ECON 102/ECON 104 in the Generalized Business Option Additional Courses.)

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CAS 100	Effective Speech	3
ENGL 15	Rhetoric and Composition	3
IST 140	Introduction to Application Development	3
IST 210	Organization of Data	3
IST 220	Networking and Telecommunications	3
IST 260W	Introduction to Systems Analysis and Design	3
Additional Courses		
ENGL 202C	Effective Writing: Technical Writing	3
or ENGL 202D	Effective Writing: Business Writing	
<i>Additional Courses: Require a grade of C or better</i>		
IST 250	Introduction to Web Design and Development	3
or IST 256	Programming for the Web	
Select 3 credits from the following: ¹		3
CYBER 100	Computer Systems Literacy	
CYBER 100S	Computer Systems Literacy	
HCDD 113	Foundations of Human-Centered Design and Development	
HCDD 113S	Foundations of Human-Centered Design and Development FYS	
IST 110	Information, People and Technology	
SRA 111	Introduction to Security and Risk Analysis	
Select 1 credit from the following:		1

IST 295A	Distributed Team Project	
IST 295B	IST Internship	
IST 495	Internship	
Select 3-4 credits from the following:		3-4
MATH 21	College Algebra with Analytic Geometry with Applications I	
MATH 22	College Algebra With Analytic Geometry and Applications II	
MATH 26	Plane Trigonometry and Applications of Trigonometry	
MATH 110	Techniques of Calculus I	
MATH 140	Calculus With Analytic Geometry I	
SCM 200	Introduction to Statistics for Business	
STAT 200	Elementary Statistics	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Any first-year seminar course. Students who complete CYBER 100S or HCDD 113S as additional courses do not have to schedule an additional first-year seminar.

Requirements for the Option

Requirements for the Option: Require a grade of C or better

Select an option 12-14

¹ Students planning to complete the Cybersecurity option must select CYBER 100/CYBER 100S. Courses may not double count with option requirements.

Requirements for the Option

Application Development Option (12 credits)

Available at the following campuses: Berks, Greater Allegheny, Hazleton, Mont Alto, Scranton, World Campus, York

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 12 credits from the following:		12
IST 242	Intermediate & Object-Oriented Application Development	
IST 256	Programming for the Web ¹	
IST 261	Application Development Design Studio I	
IST 311	Object-Oriented Design and Software Applications	
HCDD 264	Design Practice in Human-Centered Design and Development	
or IST 331	Foundations of Human-Centered Design	

¹ IST 256 may count in the major requirements or the option, but may not double count toward both requirements.

Custom Option (12 credits)

Available at the following campuses: Berks, DuBois, Greater Allegheny, Hazleton, Mont Alto, Scranton, Wilkes-Barre, World Campus, York

Code	Title	Credits
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		

Select 12 credits in consultation with an adviser. All courses are C- required. Examples of specific themes include: Web Development, Psychology, Usability. 12

Cybersecurity Option (12 credits)

Available at the following campuses: Berks, Greater Allegheny, Mont Alto, World Campus, York

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 12 credits from the following: ¹		12
CYBER 262	Cyber-Defense Studio	
IST 242	Intermediate & Object-Oriented Application Development	
SRA 111	Introduction to Security and Risk Analysis	
SRA 211	Threat of Terrorism and Crime	
SRA 221	Overview of Information Security	

¹ Courses may not double count with the major requirements.

Generalized Business Option (12-14 credits)

Available at the following campuses: Berks, DuBois, Greater Allegheny, Mont Alto, Scranton, World Campus, York

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 12-14 credits from the following:		12-14
ACCTG 211	Financial and Managerial Accounting for Decision Making	
BA 243	Social, Legal, and Ethical Environment of Business	
	or BLAW 243 Legal Environment of Business	
	or BA 241 Legal Environment of Business	
	& BA 242 and Social and Ethical Environment of Business	
BA 301	Finance	
	or FIN 301 Corporation Finance	
BA 302	Supply Chains	
	or SCM 301 Supply Chain Management	
BA 303	Marketing	
	or MKTG 301 Principles of Marketing	
BA 304	Management and Organization	
	or MGMT 301 Basic Management Concepts	
ECON 102	Introductory Microeconomic Analysis and Policy	
	or ECON 104 Introductory Macroeconomic Analysis and Policy	

Networking Option (12 credits)

Available at the following campuses: DuBois, Mont Alto, World Campus

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
IST 225	PC Hardware Basics	3
IST 226	Networking Essentials	3
IST 227	Network Administration	3
IST 228	Advanced Network Administration	3

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all associate degree students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 3 credits
- **Writing and Speaking (GWS):** 3 credits

Knowledge Domains

- **Arts (GA):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Note: Up to six credits of Inter-Domain courses may be used for any Knowledge Domain requirement, but when a course may be used to satisfy more than one requirement, the credits from the course can be counted only once.

Exploration

- **Any General Education course (including GHW and Inter-Domain):** 3 credits

University Degree Requirements

Cultures Requirement

3 credits of United States (US) or International (IL) cultures coursework are required and may satisfy other requirements

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 60 degree credits must be earned for an associate degree. The requirements for some programs may exceed 60 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more

information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

DuBois Campus

- **Know the System Development Lifecycle (SDLC):** Demonstrate knowledge of the SDLC by applying its methods to information systems projects and lab exercises.
- **Know Information Systems and Industry Methods:** Demonstrate ability to apply various industry standards in system development, system maintenance, and ISO/IEC/IEEE standards.
- **Use Information Sciences Theory/Practice:** Use management theory and information technology processes in managing information systems, which include best practices for system design, development, and implementation.
- **Manage Information Systems:** Demonstrate knowledge and execution of designing and managing various information systems.
- **Know Security Risk Factors:** Demonstrate knowledge of security risk factors impacting on various system components; understand the impact of those risk factors on the larger information system; and demonstrate the ability to design, develop, and implement secure information systems, using the latest industry standards and best practices, (i.e., securing hardware, software compliance, etc.).
- **Use Communication Skills:** Apply written, oral, and graphic communication effectively in both technical and nontechnical environments, and use appropriate technical literature.
- **Use Team Membership Skills:** Function effectively as a member of a technical team.

Greater Allegheny Campus

- **Design and Manage Network- and Information-based systems:** Demonstrate knowledge and execution of designing and managing various information systems.

Hazleton and York Campuses

- **Knowledge/Application:** Understand and apply the interdisciplinary, theoretical knowledge of the information sciences or security science
 - Define and explain the core concepts, principles, processes, and theories within the academic majors of IST and/or SRA
 - Apply the core concepts of the academic majors of IST and/or SRA to real-world problems
- **Problem-Solving:** Understand, apply and adapt various problem solving strategies, using appropriate technology and methods
 - Identify information problems and/or opportunities in terms of the human, informational and technology dimensions
 - Analyze issues surrounding the problem and/or opportunity in terms of the human, informational, and technology dimensions; and determine the requirements appropriate to understanding the situation
 - Design systems, architectures, processes, components, or programs to meet desired needs of the human context at varying levels of analysis (e.g., individual, group, organization, society, and/or world)
 - Deploy up-to-date and appropriate techniques, methodologies, and/or tools necessary for understanding opportunities and constraints and/or the optimal design, implementation and continuance of an information based solution

- Evaluate the success of systems, architecture, processes, components, or programs intended to meet desired needs of the human context at varying levels of analysis (e.g., individual, group, organization, society, and/or world)
- **Communication (Individual and Team):** Communicate and work effectively (both individually and in teams) with a range of perspectives and audiences through a variety of media
 - Participate effectively on teams in order to accomplish a common goal
 - Communicate effectively with a range of audiences, formally or informally, through writing and the spoken word
 - Seek out, analyze, and incorporate diverse ideas and broader perspectives represented in the diversity of people
 - Make respectful and inclusive choices in interacting with customers, peers, supervisors, and/or subordinates with a diversity of identity characteristics (e.g., age, ancestry, color, disability or handicap, national origin, race, religious creed, sex, sexual orientation, gender identify, or veteran status)
- **Professional Responsibilities:** Understand professional responsibilities in terms of the ethical, legal, security and social aspects of any given problem and its solution
 - Demonstrate an understanding of the cognitive, social, legal, ethical, diversity, and security perspectives surrounding a given problem
 - Assess the impact of information, computing and technology on individuals, groups, organizations, society, and the world for the purpose of making informed decisions from a sociological, governmental, legal, and/or security perspective.
- **Lifelong Learning:** Commit to the continuous acquisition of relevant knowledge for professional development by self-teaching and/or on-going education and learning
 - Employ information-seeking strategies and self-directed learning in pursuit of current knowledge
 - Enroll in professional development and tutoring opportunities

Mont Alto Campus

- **Knowledge/Application:** Understand and apply the interdisciplinary, theoretical knowledge of the information sciences or security sciences
 - Define and explain the core concepts, principles, processes, and theories within the academic majors of IST and/or SRA
 - Apply the core concepts of the academic majors of IST and/or SRA to real-world problems
- **Problem-Solving:** Understand, apply and adapt various problem solving strategies, using appropriate technology and methods
 - Identify information problems and/or opportunities in terms of the human, informational and technology dimensions
 - Analyze issues surrounding the problem and/or opportunity in terms of the human, informational, and technology dimensions; and determine the requirements appropriate to understanding the situation
- **Communication (Individual and Team):** Communicate and work effectively (both individually and in teams) with a range of perspectives and audiences through a variety of media
 - Participate effectively on teams in order to accomplish a common goal
 - Communicate effectively with a range of audiences, formally or informally, through writing and the spoken word

- Seek out, analyze, and incorporate diverse ideas and broader perspectives represented in the diversity of people
- Make respectful and inclusive choices in interacting with customers, peers, supervisors, and/or subordinates with a diversity of identity characteristics (e.g., age, ancestry, color, disability or handicap, national origin, race, religious creed, sex, sexual orientation, gender identify, or veteran status)
- **Professional Responsibilities:** Understand professional responsibilities in terms of the ethical, legal, security and social aspects of any given problem and its solution
 - Demonstrate an understanding of the cognitive, social, legal, ethical, diversity, and security perspectives surrounding a given problem
 - Assess the impact of information, computing and technology on individuals, groups, organizations, society, and the world for the purpose of making informed decisions from a sociological, governmental, legal, and/or security perspective.
- **Lifelong Learning:** Commit to the continuous acquisition of relevant knowledge for professional development by self-teaching and/or on-going education and learning
 - Employ information-seeking strategies and self-directed learning in pursuit of current knowledge
 - Enroll in professional development and tutoring opportunities

Scranton Campus

- **Communication:** Communicate and work effectively (both individually and in teams) with a range of perspectives and audiences through a variety of media.
- **Knowledge/Application:** Understand and apply the interdisciplinary, theoretical knowledge of the information sciences or security sciences
- **Lifelong Learning:** Commit to the continuous acquisition of relevant knowledge for professional development by self-teaching and/or on-going education and learning.
- **Problem-solving:** Understand, apply and adapt various problem solving strategies, using appropriate technology and methods.
- **Professional Responsibilities:** Understand professional responsibilities in terms of the ethical, legal, security and social aspects of any given problem and its solution.

Wilkes-Barre Campus

- Design systems, architectures, processes, components, or programs to meet desired needs of the human context at varying levels of analysis (e.g., individual, group, organization, society, and/or world).

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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University Park

Undergraduate Academic Advising Center

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World Campus

Undergraduate Academic Advising

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

DuBois Campus

Custom Option: Information Sciences and Technology, A.S. at DuBois Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CYBER 100 or IST 110 ^{*#}	3 IST 210 ^{*#}	3
PSU 8	1 IST 220 ^{*#}	3
IST 140 ^{*#}	3 Elective	3
General Education Course (GS) (Recommend SRA 111) ^{*†}	3 Elective (Recommend IST 242) [*]	3
ENGL 15 or 30H (GWS) [‡]	3 General Education Course (GH)	3
MATH 21, 22, 26, 110, or 140 (GQ) [‡]	3	
	16	15

Second Year

Fall	Credits Spring	Credits
Custom Choice 1 [*]	3 Custom Choice 3 [*]	3
Custom Choice 2 [*]	3 Custom Choice 4 [*]	3
IST 260W [*]	3 General Education Course (GA)	3
IST 256 [*]	3 General Education Course (GN)	3
CAS 100A (GWS) [‡]	3 ENGL 202C or 202D (GWS) ^{††}	3
	IST 495 (Taken Any Time)	1
	15	16

Total Credits 62

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- As long as two Arts (GA) and two Humanities (GH) are taken across the eight semesters, the particular order in which these courses are taken is not relevant. The course series listed above is only one of many possible ways to move through the IST curriculum.

Advising Notes:

- A student's career/graduate school plans should be considered in developing an individual academic plan. Be sure to consult an adviser in this department when scheduling courses.

Generalized Business Option: Information Sciences and Technology, A.S. at DuBois Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CYBER 100 or IST 110 ^{*#}	3 IST 210 ^{*#}	3
PSU 8	1 IST 220 ^{*#}	3
IST 140 ^{*#}	3 Elective	3
General Education Course (GS) (Recommend SRA 111) ^{*†}	3 Elective (Recommend IST 242) [*]	3
ENGL 15 or 30H (GWS) [‡]	3 General Education Course (GH)	3
MATH 21, 22, 26, 110, or 140 (GQ) [‡]	3	
	16	15

Second Year

Fall	Credits Spring	Credits
Business Choice 1 [*]	3 Business Choice 3 [*]	3
Business Choice 2 [*]	3 Business Choice 4 [*]	3
IST 260W [*]	3 General Education Course (GA)	3
IST 256 [*]	3 General Education Course (GN)	3
CAS 100A (GWS) [‡]	3 ENGL 202C or 202D (GWS) ^{††}	3
	IST 495 (Taken Any Time)	1
	15	16

Total Credits 62

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- As long as two Arts (GA) and two Humanities (GH) are taken across the eight semesters, the particular order in which these courses are

taken is not relevant. The course series listed above is only one of many possible ways to move through the IST curriculum.

Advising Notes:

- A student's career/graduate school plans should be considered in developing an individual academic plan. Be sure to consult an adviser in this department when scheduling courses.
- Business Choices:
 - ACCTG 211
 - ECON 102 or ECON 104
 - SCM 301
 - BA 243
 - FIN 301
 - MKTG 301
 - MGMT 301
 - IB 303

Networking Option: Information Sciences and Technology, A.S. at DuBois Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CYBER 100 or IST 110 ^{*#}	3 IST 210 ^{*#}	3
PSU 8	1 IST 220 ^{*#}	3
IST 140 ^{*#}	3 Elective	3
General Education Course (GS) (Recommend SRA 111) ^{*†}	3 Elective (Recommend IST 242) [*]	3
ENGL 15 or 30H (GWS) [‡]	3 General Education Course (GH)	3
MATH 21, 22, 26, 110, or 140 (GQ) [‡]	3	
	16	15

Second Year

Fall	Credits Spring	Credits
IST 225 [*]	3 IST 227 [*]	3
IST 226 [*]	3 IST 228 [*]	3
IST 260W [*]	3 General Education Course (GA)	3
IST 256 [*]	3 General Education Course (GN)	3
CAS 100A (GWS) [‡]	3 ENGL 202C or 202D (GWS) ^{††}	3
	IST 495 (Taken Any Time)	1
	15	16

Total Credits 62

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- As long as two Arts (GA) and two Humanities (GH) are taken across the eight semesters, the particular order in which these courses are

taken is not relevant. The course series listed above is only one of many possible ways to move through the IST curriculum.

Advising Notes:

A student's career/graduate school plans should be considered in developing an individual academic plan. Be sure to consult an adviser in this department when scheduling courses.

Greater Allegheny Campus

All Options: Information Sciences and Technology, A.S. at Greater Allegheny Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 [‡]	3 CAS 100 [‡]	3
IST 140 [*]	3 IST 220 [*]	3
First-Year Seminar (IST 111S, CYBER 100S) [*]	1 STAT 200, SCM 200, DS 200, MATH 21, MATH 22, MATH 26, MATH 110, or MATH 140 [‡]	3-4
SRA 111, CYBER 100, CYBER 100S, IST 110, or HCDD 113S [*]	3 Application Focus Selection 2 [*]	3
Application Focus Selection 1 [*]	3 General Education Course	3
General Education Course	3	
	16	15-16

Second Year

Fall	Credits Spring	Credits
IST 210 [*]	3 IST 260W [*]	3
IST 250 or 256 [*]	3 IST 295A, 295B, or 495 [*]	1
Application Focus Selection 3 [*]	3 ENGL 202C or 202D [‡]	3
Application Focus Selection 4 [*]	3 Elective (General Education Course, US/IL Course)	3
General Education Course	3 General Education Course	3
	15	13

Total Credits 59-60

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Application Focus Areas (12 credits from each area):
 - Application Development: IST 242, IST 256, IST 261, IST 311, IST 331
 - Business: ACCTG 211, BA 242/BA 243/BA 301/BA 302/BA 303, BLAW 243, FIN 301, ECON 102/ECON 104, MKTG 301, MGMT 301, SCM 301
 - Cybersecurity: SRA 211, CYBER 262, IST 242, SRA 111, SRA 221
 - Custom: A coherent sequence of courses that provides context for the student in terms of IT content.

Hazleton Campus

Application Development Option: Information Sciences and Technology, A.S. at Hazleton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
IST 110 or SRA 111 [*]	3 IST 210 [*]	3
IST 140 [*]	3 IST 220 [*]	3
ENGL 15 or 30H ^{††}	3 CAS 100 ^{††}	3
General Education Course (GQ) [†]	3 IST 242	3
General Education Course [†]	3 General Education Course	3
PSU 8	1	
	16	15

Second Year

Fall	Credits Spring	Credits
IST 250 [*]	3 IST 261	3
IST 311	3 IST 331	3
IST 260W [*]	3 IST 295A or 295B [*]	1
General Education Course [†]	3 ENGL 202C or 202D ^{††}	3
General Education Course [†]	3 IST 256	3
	Elective	1
	15	14

Total Credits 60

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Custom Option: Information Sciences and Technology, A.S. at Hazleton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
IST 110*	3 IST 210*	3
IST 140*	3 IST 220*	3
ENGL 15 or 30H ^{††}	3 CAS 100 ^{††}	3
General Education Course (GQ) [†]	3 Approved Supporting Course ¹	3
PSU 8	1 General Education Course	3
	13	15

Second Year

Fall	Credits Spring	Credits Summer	Credits
Approved Supporting Course ¹	3 Approved Supporting Course ¹	3 IST 295A or 295B*	1
Approved Supporting Course ¹	3 ENGL 202C or 202D ^{††}	3	
IST 260W*	3 General Education Course	3	
IST 250*	3 General Education Course	3	
General Education Course [†]	3 Elective	4	
	15	16	1

Total Credits 60

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Consult IST Program Coordinator for a list of course selections.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Mont Alto Campus

Application Development Option: Information Sciences and Technology, A.S. at Mont Alto Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CYBER 100 ^{*1}	3 IST 210 ^{*2}	3
IST 111S ¹	1 IST 220 ^{*2}	3
IST 140 ^{*1}	3 IST 242 ^{*2,3}	3
ENGL 15 (GWS) ^{*††}	3 General Education Course (GA) [#]	3
MATH 21, 22, 110, or STAT 200 (GQ) ^{*††}	3 General Education Course (GH) [#]	3
General Education Course (GS) [#] (SRA 111) ^{†1,5}	3	
	16	15

Second Year

Fall	Credits Spring	Credits Summer	Credits
IST 260W ^{*1}	3 IST 331 ^{*2,3}	3 IST 295B or 495 (Take Any Time) [*]	1
IST 256 ^{*1}	3 IST 311 ^{*3,4}	3	
IST 261 ^{*3,4}	3 ENGL 202C or 202D (GWS) ^{*††}	3	
CAS 100A (GWS) ^{*††}	3 General Education Course (GN) [#]	3	
Elective	3 Elective	3	
	15	15	1

Total Credits 62

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ Fall only course

² Spring only course

³ Choose from: IST 242, IST 256, IST 261, IST 311, IST 331

⁴ DLC course

⁵ Recommended Course

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- The course series listed above is only one of many possible ways to move through the IST curriculum.

Advising Notes:

- A student's post-graduation plans should be considered in developing an individual academic plan. Be sure to consult an adviser in this department when scheduling courses.

Custom Option: Information Sciences and Technology, A.S. at Mont Alto Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CYBER 100 ^{*1}	3 IST 210 ^{*2}	3
IST 111S ¹	1 IST 220 ^{*2}	3
IST 140 ^{*1}	3 General Education Course (GA) [#]	3
ENGL 15 (GWS) ^{*††}	3 General Education Course (GH) [#]	3
MATH 21, 22, 110, or STAT 200 (GQ) ^{*††}	3 Elective (IST 242) ^{2,4}	3
General Education Course (GS) [#] (SRA 111 or ECON 102/ ECON 104) ^{*†4}	3	
	16	15

Second Year

Fall	Credits Spring	Credits Summer	Credits
Option Course ^{*3}	3 Option Course ^{*3}	3 IST 295B or 495 (Take Any Time) [*]	1
Option Course ^{*3}	3 Option Course ^{*3}	3	
IST 260W ^{*1}	3 ENGL 202C or 202D (GWS) ^{*††}	3	
CAS 100A (GWS) ^{*††}	3 General Education Course (GN) [#]	3	
IST 256 ^{*1}	3 Elective	3	
	15	15	1

Total Credits 62

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

- ¹ Fall only course
- ² Spring only course
- ³ Consult with adviser
- ⁴ Recommended course

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- The course series listed above is only one of many possible ways to move through the IST curriculum.

Advising Notes:

- A student's post-graduation plans should be considered in developing an individual academic plan. Be sure to consult an adviser in this department when scheduling courses.

Cybersecurity Option: Information Sciences and Technology, A.S. at Mont Alto Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CYBER 100 ^{*1}	3 IST 210 ^{*2}	3
IST 111S ¹	1 IST 220 ^{*2}	3
IST 140 ^{*1}	3 IST 242 ^{*2,5}	3
ENGL 15 (GWS) ^{*††}	3 SRA 111 ^{*2,3}	3
MATH 21, 22, 110, or STAT 200 (GQ) ^{*††}	3 Elective	3
General Education Course (GS) [#] (ECON 102/ ECON 104) ^{*†5}	3	
	16	15

Second Year

Fall	Credits Spring	Credits Summer	Credits
IST 260W ^{*1}	3 SRA 221 ^{*2,3}	3 IST 295B or 495 (Take Any Time) [*]	1
CYBER 262 or SRA 211 ^{*3,4}	3 ENGL 202C or 202D (GWS) ^{*††}	3	
CAS 100A (GWS) ^{*††}	3 General Education Course (GA) [#]	3	
IST 256 ^{*1}	3 General Education Course (GN) [#]	3	
General Education Course (GH) [#]	3 Elective	3	
	15	15	1

Total Credits 62

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ Fall only course

² Spring only course

³ Choose from: CYBER 262, IST 242, SRA 111, SRA 211, SRA 221

⁴ DLC course

⁵ Recommended course

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- The course series listed above is only one of many possible ways to move through the IST curriculum.

Advising Notes:

- A student's post-graduation plans should be considered in developing an individual academic plan. Be sure to consult an adviser in this department when scheduling courses.

Generalized Business Option: Information Sciences and Technology, A.S. at Mont Alto Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CYBER 100 ^{*1}	3 IST 210 ^{*2}	3
IST 111S ¹	1 IST 220 ^{*2}	3
IST 140 ^{*1}	3 General Education Course (GA) [#]	3
ENGL 15 (GWS) ^{*††}	3 General Education Course (GH) [#]	3
MATH 21, 22, 110, or STAT 200 (GQ) ^{*††}	3 Elective (IST 242) ^{2,4}	3
General Education Course (GS) [#] (SRA 111 or ECON 102/ ECON 104) ^{*†4}	3	
	16	15

Second Year

Fall	Credits Spring	Credits Summer	Credits
Option Course ^{*3}	3 Option Course ^{*3}	3 IST 295B or 495 (Take Any Time) [*]	1
Option Course ^{*3}	3 Option Course ^{*3}	3	
IST 260W ^{*1}	3 ENGL 202C or 202D (GWS) ^{*††}	3	
CAS 100A (GWS) ^{*††}	3 General Education Course (GN) [#]	3	
IST 256 ^{*1}	3 Elective	3	
	15	15	1

Total Credits 62

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ Fall only course
² Spring only course
³ Choose from: ACCTG 211, BA 243, ECON 102 or ECON 104, FIN 301, MGMT 301, MKTG 301, SCM 301
⁴ Recommended course

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- The course series listed above is only one of many possible ways to move through the IST curriculum.

Advising Notes:

- A student's post-graduation plans should be considered in developing an individual academic plan. Be sure to consult an adviser in this department when scheduling courses.

Networking Option: Information Sciences and Technology, A.S. at Mont Alto Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
CYBER 100 ^{*1}	3 IST 210 ^{*2}	3
IST 111S ¹	1 IST 220 ^{*2}	3
IST 140 ^{*1}	3 General Education Course (GA) [#]	3
ENGL 15 (GWS) ^{*††}	3 General Education Course (GH) [#]	3
MATH 21, 22, 110, or STAT 200 (GQ) ^{*††}	3 Elective (IST 242) ^{2,3}	3
General Education Course (GS) [#] (SRA 111) ^{†1,3}	3	
	16	15

Second Year

Fall	Credits Spring	Credits Summer	Credits
IST 225 ^{*1}	3 IST 227 ^{*2}	3 IST 295B or 495 (Take Any Time) [*]	1
IST 226 ^{*1}	3 IST 228 ^{*2}	3	
IST 260W ^{*1}	3 ENGL 202C or 202D (GWS) ^{*††}	3	
CAS 100A (GWS) ^{*††}	3 General Education Course (GN) [#]	3	
IST 256 ^{*1}	3 Elective	3	
	15	15	1

Total Credits 62

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Fall only course

² Spring only course

³ Recommended course

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- The course series listed above is only one of many possible ways to move through the IST curriculum.

Advising Notes:

- A student's post-graduation plans should be considered in developing an individual academic plan. Be sure to consult an adviser in this department when scheduling courses.

Scranton Campus

All Options: Information Sciences and Technology, A.S. at Scranton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H	3 IST 210 [*]	3
IST 140 [*]	3 IST 220 [*]	3
CYBER 100, HCDD 113, IST 110, or SRA 111 [*]	3 General Education Course	3
IST 111S [*]	1 General Education Course	3
MATH 21, 22, 26, 110, 140, SCM 200, or STAT 200 (based on MATH placement)	3-4 Option Selection 1 [*]	3
13-14		15

Second Year

Fall	Credits Spring	Credits
CAS 100A, 100B, or 100C (GWS) [‡]	3 IST 260W [*]	3
Option Selection 2 [*]	3 IST 256 [*]	3
Option Selection 3 [*]	3-4 ENGL 202C or 202D	3
General Education Course	3 Option Selection 4 [*]	3
General Education Course	3 Elective	2-4
	IST 495, 295A, or 295B [*]	1
15-16		15-17

Total Credits 58-62

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Application Development Option:
 - Take IST 110 or SRA 111 in Semester 1
 - Take IST 242 in Semester 2

- Take IST 311 and IST 331 in Semester 3
- Take IST 261 in Semester 4
- Custom Option:
 - Select 12 credits in consultation with an adviser
- Generalized Business Option:
 - Take ECON 102 or ECON 104 in Semester 2
 - Take ACCTG 211 and MGMT 301 in Semester 3
 - Take and MKTG 301 in Semester 4

Wilkes-Barre Campus

Custom Option: Information Sciences and Technology, A.S. at Wilkes-Barre Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
IST 110, CYBER 100, or SRA 111 [*]	3 IST 210 [*]	3
IST 140 ^{**†}	3 CAS 100A [†]	3
IST 220 [*]	3 MATH 21, 22, 110, STAT 200, or SCM 200 [†]	3-4
ENGL 15 [‡]	3 General Education Course	3
PSU 8	1 Approved Supporting Course	3
	13	15-16

Second Year

Fall	Credits Spring	Credits Summer	Credits
Approved Supporting Course	3 IST 256 [*]	3 IST 295A or 295B	1-3
Approved Supporting Course	3 IST 260W [*]	3	
Approved Supporting Course	3 Approved Supporting Course	3	
General Education Course	3 ENGL 202C or 202D [†]	3	
General Education Course	3 General Education Course	3	
	15	15	1-3

Total Credits 59-62

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

York Campus

Information Sciences and Technology, A.S. at York Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [†]	3 IST 210 [*]	3
IST 140 [*]	3 IST 220 [*]	3
CYBER 100, IST 110, HCDD 113, or SRA 111	3 General Education course	6
IST 111S [*]	1 Option Selection 1	3
MATH 21, 22, or 110 (based on math placement)	3	
	13	15

Second Year

Fall	Credits Spring	Credits
IST 260W [*]	3 ENGL 202C or 202D [‡]	3
CAS 100A, 100B, or 100C (GWS) [‡]	3 IST 256	3
Option Selection 2	3 IST 495 or 295B	1
General Education Course (or Option Selection 3)	3-4 Option Selection 3 or General Education Selection	3
General Education Course	3 Option Selection 4	3
	Elective	3-4
	15-16	16-17

Total Credits 59-61

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- Application Development Option:
 - Take IST 110 or SRA 111 in Semester 1
 - Take IST 242 in Semester 2
 - Take IST 311 in Semester 3

- Take IST 261 or IST 331 in Semester 4
- Custom Option:
 - Select 12 credits in consultation with your adviser
- Cybersecurity Option:
 - Take CYBER 100 or SRA 111 in Semester 1
 - Take IST 242 in Semester 2
 - Take SRA 111 or CYBER 100 in Semester 3 (whichever course was not taken in Semester 1)
 - Take CYBER 262 or SRA 221 in Semester 3
 - If CYBER 100 was taken in Semester 1, then take CYBER 262 here
 - If SRA 111 was taken in Semester 1, then take SRA 221 here
 - Take SRA 211 in Semester 4
- Generalized Business Option:
 - Take ECON 102 or ECON 104 in Semester 2
 - Take ACCTG 211 in Semester 3
 - Take MGMT 301 and MKTG 301 in Semester 4

Contact

DuBois

1 College Place
DuBois, PA 16823
814-372-3000
jel115@psu.edu

<https://dubois.psu.edu/academics/degrees/IT> (<https://dubois.psu.edu/academics/degrees/IT/>)

Hazleton

Kostos 117
Hazleton, PA 18202
570-450-3089
bxb30@psu.edu

<https://hazleton.psu.edu/associate-science-information-sciences-technology> (<https://hazleton.psu.edu/associate-science-information-sciences-technology/>)

Mont Alto

006 Bookstore
1 Campus Drive
Mont Alto, PA 17237
717-749-6048
ebd5343@psu.edu

<https://montalto.psu.edu/academics/associate/associate-information-sciences-and-technology-degree> (<https://montalto.psu.edu/academics/associate/associate-information-sciences-and-technology-degree/>)

Scranton

120 Ridge View Drive
Dunmore, PA 18512
570-963-2593
dls102@psu.edu

<https://scranton.psu.edu/academics/degrees/associate/ist> (<https://scranton.psu.edu/academics/degrees/associate/ist/>)

Wilkes-Barre

44 University Drive

Dallas, PA 18612
570-675-9142
weifan@psu.edu

<https://wilkesbarre.psu.edu/academics/ist/associate-degrees> (<https://wilkesbarre.psu.edu/academics/ist/associate-degrees/>)

York

1031 Edgecomb Ave.
York, PA 17403
717-771-4143
wpc2@psu.edu

<https://www.york.psu.edu/academics/associate/information-sciences-and-technology> (<https://www.york.psu.edu/academics/associate/information-sciences-and-technology/>)

Berks

EBC DIVISION
Gaige Building
Reading, PA 19610
610-396-6349
BKInfoTech@psu.edu

<https://berks.psu.edu/academics/associate-information-sciences-technology> (<https://berks.psu.edu/academics/associate-information-sciences-technology/>)

University Park

COLLEGE OF INFORMATION SCIENCES AND TECHNOLOGY
411 Eric J. Barron Innovation Hub Building
State College, PA 16801
814-865-3528

World Campus

COLLEGE OF INFORMATION SCIENCES AND TECHNOLOGY
411 Eric J. Barron Innovation Hub Building
State College, PA 16801
814-865-3528

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-information-sciences-and-technology-associate-in-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-information-sciences-and-technology-associate-in-science-degree/>)

Information Technology, B.S. (University College)

Begin Campus: Any Penn State Campus

End Campus: Beaver, Brandywine, DuBois, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Schuylkill, Scranton, Wilkes-Barre, York

Program Description

This degree is a new broad based technical and theoretical degree that will prepare students to implement and use information technology to realize a variety of goals within and between all types of organizations and businesses (e.g., reliability, accessibility, efficiency, cost reduction, and revenue enhancement). The emphasis is on providing the student with the theoretical frameworks needed to use information technology

to solve problems while also providing a set of applied, real-world experiences. Students will acquire a broad set of skills across many areas of information technology, including programming and systems development, networking, databases, project management, and information security. Students will consider how the implementation of information technology in organizations affects social change and the delivery of information to the consumer. Upper-level course selections allow for specific advanced options including but not limited to application development, networking, cybersecurity, and business. Project-oriented, team-based projects that include significant writing and presentation components will be integrated throughout the curriculum.

Application Development Option

Available at the following campuses: *Abington, Altoona, Beaver, Berks, Brandywine, Lehigh Valley, Schuylkill, Scranton, York*

This option prepares students for the design and development of complex object-oriented programming and technical skills to succeed in a fast-paced development and operations environment.

Business Applications Option

Available at the following campuses: *Abington, Altoona, Beaver, Berks, Brandywine, DuBois, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Schuylkill, Scranton, York*

This option prepares students to pursue careers in Information technology solving business organizational problems with an emphasis on the systems processes and business operations integration.

Custom Information Technology Option

Available at the following campuses: *Altoona, Berks, Brandywine, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Schuylkill, Scranton, Wilkes-Barre, York*

This option provides the opportunity for students to pursue an approved information technology interdisciplinary or exploratory program of study.

Cybersecurity Option

Available at the following campuses: *Altoona, Beaver, Berks, Brandywine, Lehigh Valley, Mont Alto, New Kensington, Schuylkill, Scranton, York*

This option will provide students with the knowledge and cyber defense skills needed to critically assess and respond to modern information security threats. They will be prepared to protect information infrastructure and data from attacks and unauthorized access.

Networking Option

Available at the following campuses: *Abington, DuBois, Mont Alto*

This option prepares students to pursue careers in the design, development, and support of complex networks and networking infrastructure.

Security and Risk Analysis Option

Available at the following campuses: *Altoona, Berks, Brandywine, Lehigh Valley, Schuylkill*

This option prepares students to address the current and emerging security and risk challenges that face individuals, organizations and our nation, over a variety of domains including national/homeland security, emergency and disaster management, law and crime, and enterprise risk management.

What is Information Technology?

Information Technology offers both broad organizational problem-solving skills and in-depth knowledge in current in-demand technical skills. Using technology to leverage organizational resources and address organizational challenges are at the forefront of the B.S. degree in Information Technology. The program includes required and optional courses in cybersecurity, databases, computer programming, project management, security and risk analysis, networking, web design and development, application development, and systems analysis. This broad base of skills is ideally suited for entry-level positions in all the above content areas.

You Might Like This Program If...

- You enjoy technology and working with others to build solutions.
- You want to create high-tech solutions to organizational and societal challenges.
- You are interested in application development and programming.
- You are interested in improving computer systems and enhancing their safety for individuals and corporations.
- You want to leverage current and emerging technologies to improve business processes.

Entrance to Major

To be eligible for entrance to the B.S. in Information Technology major, students must:

- achieve a minimum cumulative grade point average of 2.00
- complete the following entrance-to-major courses with grades of C or better:
 - IST 110 or CYBER 100 or CYBER 100S
 - IST 140 or CMPSC 121 or CMPSC 131
 - IST 210
 - IST 220

Degree Requirements

For the Bachelor of Science degree in Information Technology, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	7-9
Requirements for the Major	87-89

21 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GWS courses; 6 credits of GQ courses; and 6 credits of GS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		

ETI 461	Database Management and Administration	3
IST 210	Organization of Data	3
IST 220	Networking and Telecommunications	3
IST 230	Language, Logic, and Discrete Mathematics	3
IST 242	Intermediate & Object-Oriented Application Development	3
IST 256	Programming for the Web	3
IST 260W	Introduction to Systems Analysis and Design	3
IST 302	IT Project Management	3
IST 331	Foundations of Human-Centered Design	3
IST 440W	Information Sciences and Technology Integration and Problem Solving	3
IST 495	Internship	1
SRA 111	Introduction to Security and Risk Analysis	3
SRA 221	Overview of Information Security	3

Additional Courses

Select one of the following:		3
ECON 102	Introductory Microeconomic Analysis and Policy	
ECON 104	Introductory Macroeconomic Analysis and Policy	
PLSC 1	American Politics: Principles, Processes and Powers	
PLSC 14	International Relations	
PSYCH 100	Introductory Psychology	
SOC 5	Social Problems	

Additional Courses: Require a grade of C or better

ENGL 15	Rhetoric and Composition	3
or ENGL 30H	Honors Rhetoric and Composition	
ENGL 202C	Effective Writing: Technical Writing	3
or ENGL 202D	Effective Writing: Business Writing	
MATH 110	Techniques of Calculus I	4
or MATH 140	Calculus With Analytic Geometry I	
Select one of the following:		3
CAS 100A	Effective Speech	
CAS 100B	Effective Speech	
CAS 100C	Effective Speech	

Select one of the following:		3
CMPSC 121	Introduction to Programming Techniques	
CMPSC 131	Programming and Computation I: Fundamentals	
IST 140	Introduction to Application Development	

Select one of the following:		3
CYBER 100	Computer Systems Literacy	
CYBER 100S	Computer Systems Literacy	
IST 110	Information, People and Technology	

Select one of the following:		4
DS 200	Introduction to Data Sciences	
STAT 200	Elementary Statistics	
SCM 200	Introduction to Statistics for Business	

Select one of the following: ¹		3-4
ACCTG 211	Financial and Managerial Accounting for Decision Making	
BA 100	Introduction to Business	
ECON 102	Introductory Microeconomic Analysis and Policy ²	
ECON 104	Introductory Macroeconomic Analysis and Policy ²	

MGMT 301	Basic Management Concepts	
MKTG 301	Principles of Marketing ²	
Select one of the following: ¹		3
CYBER 262	Cyber-Defense Studio	
IST 226	Networking Essentials	
IST 451	Network Security	
IST 454	Computer and Cyber Forensics	
Requirements for the Option		
Select an option		18-19

¹ These courses may not double count with other additional or option requirements.

² Course does not require a grade of C or better.

Requirements for the Option

Application Development Option (18 credits)

Available at the following campuses: Abington, Altoona, Beaver, Berks, Brandywine, Lehigh Valley, Schuylkill, Scranton, York

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 12 credits, with at least 3 credits at the 400 level, from the following:		12
IST 261	Application Development Design Studio I	
IST 311	Object-Oriented Design and Software Applications	
IST 361	Application Development Design Studio II	
IST 411	Distributed-Object Computing	
IST 412	The Engineering of Complex Software Systems	
IST 413	Usability Engineering	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 6 credits at the 300 or 400 level in Advanced IT courses from College approved list. 6

Business Applications Option (19 credits)

Available at the following campuses: Abington, Altoona, Beaver, Berks, Brandywine, DuBois, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Schuylkill, Scranton, York

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4

Additional Courses

Additional Courses: Require a grade of C or better

Select one of the following: ¹		3
FIN 301	Corporation Finance	
MGMT 301	Basic Management Concepts	
MKTG 301	Principles of Marketing	
SCM 301	Supply Chain Management	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 6 credits from ACCTG, BA, BLAW, EBF, ECON, ENTR, FIN, FINSV, HPA, IB, LER, MIS, MGMT, MKTG, RM, SCM, or STAT, including 3 credits at the 400-level. 6

Select 3 credits at the 300 or 400 level in Advanced IT Business courses from College-approved list. 3

Select 3 credits at the 300 or 400 level in Advanced IT courses from College-approved list. 3

¹ Option courses may not double count with other requirements.

Custom Information Technology Option (18 credits)

Available at the following campuses: Altoona, Berks, Brandywine, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Schuylkill, Scranton, Wilkes-Barre, York

Code	Title	Credits
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 12 credits, with at least 3 credits at the 400 level, in consultation with an adviser that follow a coherent theme in information technology.		12
Select 6 credits at the 300 or 400 level in Advanced IT courses from College-approved list.		6

Cybersecurity Option (18 credits)

Available at the following campuses: Altoona, Beaver, Berks, Brandywine, Lehigh Valley, Mont Alto, New Kensington, Schuylkill, Scranton, York

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 12 credits, with at least 3 credits at the 400 level, from the following:		12
CYBER 262	Cyber-Defense Studio	
IST 451	Network Security	
IST 454	Computer and Cyber Forensics	
IST 456	Information Security Management	
SRA 472	Integration of Privacy and Security	
Any 300 or 400 Level CYBER Course		

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 6 credits at the 300 or 400 level in Advanced IT courses from College-approved list. 6

Networking Option (18 credits)

Available at the following campuses: Abington, DuBois, Mont Alto

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 12 credits, with at least 3 credits at the 400 level, from the following:		12
CYBER 262	Cyber-Defense Studio	
IST 225	PC Hardware Basics	
IST 226	Networking Essentials	
IST 227	Network Administration	
IST 228	Advanced Network Administration	

IST 451	Network Security
IST 454	Computer and Cyber Forensics

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 6 credits at the 300 or 400 level in Advanced IT courses from College-approved list. 6

Security and Risk Analysis Option (18 credits)

Available at the following campuses: Altoona, Berks, Brandywine, Lehigh Valley, Schuylkill

Code	Title	Credits
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Additional Courses

Additional Courses: Require a grade of C or better

Select 12 credits, with at least 3 credits at the 400 level, from the following: 12

IST 432	Legal and Regulatory Environment of Information Science and Technology
IST 452	Legal and Regulatory Environment of Privacy and Security
IST 456	Information Security Management
SRA 211	Threat of Terrorism and Crime
SRA 231	Decision Theory and Analysis
SRA 311	Risk Analysis in a Security Context
SRA 365	Statistics for Security and Risk Analysis

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 6 credits at the 300 or 400 level in Advanced IT courses from College-approved list. 6

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Advanced IT Selection – All Options

As noted in each Suggested Academic Plan below, all options of the Information Technology, B.S. major require students to select 300 or 400 level Advanced IT courses from a College-approved list. Students in the Business Application option must select 3 credits of these Advanced IT courses. Students in all other options must select 6 credits of these Advanced IT courses. The list of Advanced IT courses that all students may choose from includes the following:

Code	Title	Credits
IST 402	Emerging Issues and Technologies	3
IST 413	Usability Engineering	3
IST 425	New Venture Creation	3
IST 431	The Information Environment	3
IST 446	An Introduction to Building Computer/Video Games	3
IST 454	Computer and Cyber Forensics	3
IST 456	Information Security Management	3
MIS 390	Foundations of Information Systems	3
MIS 404	Introduction to ERP and Business Processes	3
IST 301	Information and Organizations	3
IST 420	Fundamentals of Systems and Enterprise Integration	3
IST 421	Advanced Enterprise Integration: Technologies and Applications	3
IST 432	Legal and Regulatory Environment of Information Science and Technology	3
IST 452	Legal and Regulatory Environment of Privacy and Security	3

Beaver Campus

Application Development Option: Information Technology, B.S. at Beaver Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit

(accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100 (GWS) [‡]	3
IST 110 or CYBER 100 ^{*#}	3 IST 220 ^{*#}	3
IST 140 ^{*#} or CMPSC 121 (GQ) ^{#‡} or CMPSC 131 ^{*#}	3 General Education Course (GN or GA or GH) or Elective	3
SRA 111 (GS) ^{*†}	3 IST 242 [*]	3
First-Year Seminar (IST 111S)	1 General Education Course (GN or GA or GH)	3
MATH 110 or 140 (GQ) [‡]	4	
	17	15

Second Year

Fall	Credits Spring	Credits
IST 210 ^{*#}	3 IST 256 [*]	3
IST 230 [*]	3 STAT 200 [‡] (GQ) or SCM 200 [‡] (GQ) or DS 200 [*]	3
ECON 102/ECON 104 or PSYCH 100/SOC 5 or PLSC 1/PLSC 14 (GS) [†]	3 Business Selection [*]	3
SRA 211 [*]	3 ENGL 202C or 202D (GWS) [‡]	3
Elective or General Education Course (GN/GA/GH)	3 General Education Course (GN or GA or GH)	3
	15	15

Third Year

Fall	Credits Spring	Credits
IST 302 [*]	3 IST 261 (Option 2) [*]	3
IST 311 (Option 1) [*]	3 IST 411 (Option 3) [*]	3
IST 331 [*]	3 Networking Selection (IST 454) [*] or General Education (GA or GN or GH)	3
General Education Course (GN or GA or GH) or Networking Selection (IST 451 or CYBER 262)	3 General Education Course (GN or GA or GH)	3
IST 260W [*]	3 IST 390	1
	15	13

Fourth Year

Fall	Credits Spring	Credits
IST 495 [*]	1 IST 440W [*]	3
ETI 461 [*]	3 IST 413 (Option 4) [*]	3
General Education Course (GHW)	3 Advanced IT Selection 1 [*]	3
General Education Course (GN or GA or GH)	3 Advanced IT Selection 2 [*]	3
Elective	3 General Education Course (GN or GA or GH)	3
	Elective	2
	13	17

Total Credits 120

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Business Selection Courses (cannot double count with other Additional or Option requirements):
 - ACCTG 211
 - BA 100
 - ECON 102
 - ECON 104
 - MGMT 301
 - MKTG 301
- Networking Selection Courses (cannot double count with other Additional or Option requirements):
 - CYBER 262
 - IST 226
 - IST 451
 - IST 454
- Option Courses:
 - Application Development:
 - Select 12 credits, with at least 3 credits at the 400 level from: IST 261, IST 311, IST 361, IST 411, IST 412, IST 413
 - Business Applications:
 - ACCTG 211
 - Select 3 credits from: FIN 301, MGMT 301, MKTG 301, SCM 301
 - Select 6 credits, with at least 3 credits at the 400 level from: ACCTG, BA, BLAW, EBF, ECON, ENTR, FIN, FINSV, HPA, IB, LER, MIS, MGMT, MKTG, RM, SCM, or STAT
 - Cybersecurity:
 - Select 12 credits, with at least 3 credits at the 400 level from: CYBER 262, IST 451, IST 454, IST 456, SRA 472, or any 300 or 400 level CYBER course
 - Security and Risk Analysis:
 - Select 12 credits, with at least 3 credits at the 400 level from: SRA 211, SRA 231, SRA 311, SRA 365, IST 432, IST 452, IST 456

Business Applications Option: Information Technology, B.S. at Beaver Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [†]	3 CAS 100 (GWS) [†]	3
IST 110*# or CYBER 100*#	3 MATH 110 or 140 (GQ) [†]	4
IST 140*# or CMPSC 121 (GQ) ^{#†} or CMPSC 131 ^{**}	3 IST 220 ^{*#}	3
SRA 111 (GS) ^{*†}	3 IST 242 [*]	3
First-Year Seminar (IST 111S)	1 General Education Course (GN or GA or GH)	3
General Education Course (GN or GA or GH) or Elective	3	
	16	16

Second Year

Fall	Credits Spring	Credits
IST 210 ^{*#}	3 IST 256 [*]	3
IST 230 [*]	3 STAT 200 [†] (GQ) or SCM 200 [†] (GQ) or DS 200 [*]	3
ACCTG 211 (Option 1) [*]	4 Elective or General Education Course (GN/GA/GH)	3
ECON 102/ECON 104 or PSYCH 100/SOC 5 or PLSC 1/PLSC 14 (GS) [†]	3 ENGL 202C or 202D (GWS) [†]	3
SRA 221 [*]	3 General Education Course (GN or GA or GH)	3
	16	15

Third Year

Fall	Credits Spring	Credits
IST 302 [*]	3 Option 2 (MKTG 301) [*]	3
IST 331 [*]	3 Advanced IT Selection - Business Option (MIS 301) [*]	3
Business Selection (MGMT 301) [*]	4 Networking Selection (IST 451) [*]	3
General Education Course (GN or GA or GH) or Networking Selection (CYBER 262 or IST 451)	3 General Education Course (GN or GA or GH)	3
IST 260W [*]	3 General Education Course (GN or GA or GH)	3
	IST 390	1
	16	16

Fourth Year

Fall	Credits Spring	Credits
IST 495 [*]	1 IST 440W [*]	3
ETI 461 [*]	3 Option 4 (SCM 460 or MIS 431) [*]	3

Option 3 (SCM 301) [*]	3 Advanced IT Selection (IST 456 or SCM 340 or MIS 345 or MIS 390) [*]	3
General Education Course (GHW)	3 General Education Course (GN or GA or GH)	3
Elective	3 Elective	1
	13	13

Total Credits 121

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Business Selection Courses (cannot double count with other Additional or Option requirements):
 - ACCTG 211
 - BA 100
 - ECON 102
 - ECON 104
 - MGMT 301
 - MKTG 301
- Networking Selection Courses (cannot double count with other Additional or Option requirements):
 - CYBER 262
 - IST 226
 - IST 451
 - IST 454
- Option Courses:
 - Application Development:
 - Select 12 credits, with at least 3 credits at the 400 level from: IST 261, IST 311, IST 361, IST 411, IST 412, IST 413
 - Business Applications:
 - ACCTG 211
 - Select 3 credits from: FIN 301, MGMT 301, MKTG 301, SCM 301
 - Select 6 credits, with at least 3 credits at the 400 level from: ACCTG, BA, BLAW, EBF, ECON, ENTR, FIN, FINSV, HPA, IB, LER, MIS, MGMT, MKTG, RM, SCM, or STAT
 - Cybersecurity:

- Select 12 credits, with at least 3 credits at the 400 level from:
CYBER 262, IST 451, IST 454, IST 456, SRA 472, or any 300 or
400 level CYBER course
- Security and Risk Analysis:
 - Select 12 credits, with at least 3 credits at the 400 level from:
SRA 211, SRA 231, SRA 311, SRA 365, IST 432, IST 452,
IST 456

CyberSecurity Option: Information Technology, B.S. at Beaver Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 (GWS) [‡]	3 CAS 100 (GWS) [‡]	3
IST 110 or CYBER 100 ^{*#}	3 IST 220 ^{*#}	3
IST 140 ^{*#} or CMPSC 121 (GQ) ^{#‡} or CMPSC 131 ^{*#}	3 IST 242 [*]	3
SRA 111 ^{*†}	3 General Education Course (GN or GA or GH)	3
First-Year Seminar (IST 111S)	1 General Education Course (GN or GA or GH) or Elective	3
MATH 110 or 140 (GQ) [‡]	4	
	17	15

Second Year

Fall	Credits Spring	Credits
IST 210 ^{*#}	3 IST 256 [*]	3
IST 230 [*]	3 STAT 200 [‡] (GQ) or SCM 200 [‡] (GQ) or DS 200 [*]	4
CYBER 262 (Option 1) [*]	3 ENGL 202C or 202D (GWS) [‡]	3
ECON 102/ECON 104 or PSYCH 100/SOC 5 or PLSC 1/PLSC 14 (GS) [†]	3 General Education Course (GN or GA or GH)	3
SRA 221 [*]	3 General Education Course (GN or GA or GH) or Elective	3
	15	16

Third Year

Fall	Credits Spring	Credits
IST 302 [*]	3 IST 260W [*]	3
IST 331 [*]	3 Advanced IT Selection 1 (MIS 301) [*]	3
Option 2 (IST 423) [*]	3 General Education Course (GN or GA or GH)	3
IST 260W	3 IST 390	1
Networking Selection (IST 451) [*]	3 General Education Course (GN or GA or GH)	3
	General Education Course (GN or GA or GH)	3
	15	16

Fourth Year

Fall	Credits Spring	Credits
IST 495 [*]	1 IST 440W	3
ETI 461 [*]	3 Advanced IT Selection 2 (IST 413) [*]	3
General Education Course (GHW)	3 Option 3 (IST 456) [*]	3
General Education Course (GN or GA or GH)	3 Option 4 (IST 454) [*]	3

Elective	3 General Education Course (GN or GA or GH)	3
	Elective	3
	13	18

Total Credits 125

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Business Selection Courses (cannot double count with other Additional or Option requirements):
 - ACCTG 211
 - BA 100
 - ECON 102
 - ECON 104
 - MGMT 301
 - MKTG 301
- Networking Selection Courses (cannot double count with other Additional or Option requirements):
 - CYBER 262
 - IST 226
 - IST 451
 - IST 454
- Option Courses:
 - Application Development:
 - Select 12 credits, with at least 3 credits at the 400 level from: IST 261, IST 311, IST 361, IST 411, IST 412, IST 413
 - Business Applications:
 - ACCTG 211
 - Select 3 credits from: FIN 301, MGMT 301, MKTG 301, SCM 301
 - Select 6 credits, with at least 3 credits at the 400 level from: ACCTG, BA, BLAW, EBF, ECON, ENTR, FIN, FINSV, HPA, IB, LER, MIS, MGMT, MKTG, RM, SCM, or STAT
 - Security and Risk Analysis:
 - Select 12 credits, with at least 3 credits at the 400 level from: SRA 211, SRA 231, SRA 311, SRA 365, IST 432, IST 452, IST 456

Brandywine Campus

Application Development Option: Information Technology, B.S. at Brandywine Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100 (GWS) [‡]	3
IST 110 or CYBER 100 ^{*#}	3 MATH 110 or 140 (GQ) [‡]	4
IST 140 ^{*#} or CMPSC 121 (GQ) ^{#‡} or CMPSC 131 ^{*#}	3 IST 220 ^{*#}	3
SRA 111 (GS) ^{*†}	3 IST 242 [*]	3
First-Year Seminar (IST 111S)	1 General Education Course (GN or GA or GH)	3
General Education Course (GN or GA or GH) or Elective	3	
	16	16

Second Year

Fall	Credits Spring	Credits
IST 210 ^{*#}	3 IST 256 [*]	3
IST 230 [*]	3 SRA 221 [*]	3
IST 261 (Option 1) [*]	3 Business Selection [*]	3
STAT 200 [‡] (GQ) or SCM 200 [‡] (GQ) or DS 200 [*]	4 ENGL 202C or 202D (GWS) [‡]	3
ECON 102/ECON 104 or PSYCH 100/SOC 5 or PLSC 1/PLSC 14 (GS) [†]	3 General Education Course (GN or GA or GH)	3
	16	15

Third Year

Fall	Credits Spring	Credits
IST 302 [*]	3 IST 260W [*]	3
IST 311 (Option 2) [*]	3 IST 331 [*]	3
Networking Selection [*]	3 IST 411 (Option 3) [*]	3
Elective or General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH) [*]	3
General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
IST 495 [*]	1 IST 440W [*]	3
ETI 461 [*]	3 Advanced IT Selection 2 [*]	3
IST 412 (Option 4) [*]	3 General Education Course (GHW)	3
Advanced IT Selection 1 [*]	3 General Education Course (GN or GA or GH)	3

Elective	3 Elective	2
	13	14

Total Credits 120

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Business Selection Courses (cannot double count with other Additional or Option requirements):
 - ACCTG 211
 - BA 100
 - ECON 102
 - ECON 104
 - MGMT 301
 - MKTG 301
- Networking Selection Courses (cannot double count with other Additional or Option requirements):
 - CYBER 262
 - IST 226
 - IST 451
 - IST 454
- Option Courses:
 - Application Development:
 - Select 12 credits, with at least 3 credits at the 400 level from: IST 261, IST 311, IST 361, IST 411, IST 412, IST 413
 - Business Applications:
 - ACCTG 211
 - Select 3 credits from: FIN 301, MGMT 301, MKTG 301, SCM 301
 - Select 6 credits, with at least 3 credits at the 400 level from: ACCTG, BA, BLAW, EBF, ECON, ENTR, FIN, FINSV, HPA, IB, LER, MIS, MGMT, MKTG, RM, SCM, or STAT
 - Cybersecurity:
 - Select 12 credits, with at least 3 credits at the 400 level from: CYBER 262, IST 451, IST 454, IST 456, SRA 472, or any 300 or 400 level CYBER course
 - Security and Risk Analysis:

- Select 12 credits, with at least 3 credits at the 400 level from:
SRA 211, SRA 231, SRA 311, SRA 365, IST 432, IST 452,
IST 456

Business Applications Option: Information Technology, B.S. at Brandywine Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [†]	3 CAS 100 (GWS) [‡]	3
IST 110 or CYBER 100 ^{*#}	3 MATH 110 or 140 (GQ) [‡]	4
IST 140* [#] or CMPSC 121 (GQ) ^{#‡} or CMPSC 131 ^{*#}	3 IST 220 ^{*#}	3
SRA 111 (GS) ^{*†}	3 IST 242 [*]	3
First-Year Seminar (IST 111S)	1 General Education Course (GN or GA or GH)	3
General Education Course (GN or GA or GH) or Elective	3	
	16	16

Second Year

Fall	Credits Spring	Credits
IST 210 ^{*#}	3 IST 256 [*]	3
IST 230 [*]	3 SRA 221 [*]	3
STAT 200 [‡] (GQ) or SCM 200 [‡] (GQ) or DS 200 [*]	4 ACCTG 211 (Option 1) [*]	4
ECON 102/ECON 104 or PSYCH 100/SOC 5 or PLSC 1/PLSC 14 (GS) [†]	3 ENGL 202C or 202D (GWS) [‡]	3
Elective or General Education Course (GN/GA/GH)	3 General Education Course (GN or GA or GH)	3
	16	16

Third Year

Fall	Credits Spring	Credits
IST 302 [*]	3 IST 260W [*]	3
Option 2 [*]	3 IST 331 [*]	3
Business Selection [*]	4 Advanced IT Selection - Business Option [*]	3
Networking Selection [*]	3 General Education Course (GN or GA or GH)	3
General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3
	16	15

Fourth Year

Fall	Credits Spring	Credits
IST 495 [*]	1 IST 440W [*]	3
ETI 461 [*]	3 Option 4 [*]	3
Option 3 [*]	3 Advanced IT Selection [*]	3
General Education Course (GHW)	3 General Education Course (GN or GA or GH)	3

Elective	3 Elective	1
	13	13

Total Credits 121

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Business Selection Courses (cannot double count with other Additional or Option requirements):
 - ACCTG 211
 - BA 100
 - ECON 102
 - ECON 104
 - MGMT 301
 - MKTG 301
- Networking Selection Courses (cannot double count with other Additional or Option requirements):
 - CYBER 262
 - IST 226
 - IST 451
 - IST 454
- Option Courses:
 - Application Development:
 - Select 12 credits, with at least 3 credits at the 400 level from: IST 261, IST 311, IST 361, IST 411, IST 412, IST 413
 - Business Applications:
 - ACCTG 211
 - Select 3 credits from: FIN 301, MGMT 301, MKTG 301, SCM 301
 - Select 6 credits, with at least 3 credits at the 400 level from: ACCTG, BA, BLAW, EBF, ECON, ENTR, FIN, FINSV, HPA, IB, LER, MIS, MGMT, MKTG, RM, SCM, or STAT
 - Cybersecurity:
 - Select 12 credits, with at least 3 credits at the 400 level from: CYBER 262, IST 451, IST 454, IST 456, SRA 472, or any 300 or 400 level CYBER course
 - Security and Risk Analysis:

- Select 12 credits, with at least 3 credits at the 400 level from:
SRA 211, SRA 231, SRA 311, SRA 365, IST 432, IST 452,
IST 456

Custom Information Technology Option: Information Technology, B.S. at Brandywine Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100 (GWS) [‡]	3
IST 110 or CYBER 100 ^{*#}	3 MATH 110 or 140 (GQ) [‡]	4
IST 140* [#] or CMPSC 121 (GQ) ^{#‡} or CMPSC 131 ^{*#}	3 IST 220 ^{*#}	3
SRA 111 (GS) ^{*†}	3 IST 242 [*]	3
First-Year Seminar (IST 111S)	1 General Education Course (GN or GA or GH)	3
General Education Course (GN or GA or GH) or Elective	3	
	16	16

Second Year

Fall	Credits Spring	Credits
IST 210 ^{*#}	3 IST 256 [*]	3
IST 230 [*]	3 SRA 221 [*]	3
STAT 200 [‡] (GQ) or SCM 200 [‡] (GQ) or DS 200 [*]	4 Business Selection [*]	3
ECON 102/ECON 104 or PSYCH 100/SOC 5 or PLSC 1/PLSC 14 (GS) [†]	3 ENGL 202C or 202D (GWS) [‡]	3
Elective or General Education Course (GN/GA/GH)	3 General Education Course (GN or GA or GH)	3
	16	15

Third Year

Fall	Credits Spring	Credits
IST 302 [*]	3 IST 260W [*]	3
Networking Selection [*]	3 IST 331 [*]	3
Option 1 [*]	3 Option 2 [*]	3
General Education Course (GN or GA or GH)	3 Advanced IT Selection 1 [*]	3
General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
IST 495 [*]	1 IST 440W [*]	3
ETI 461 [*]	3 Option 4 [*]	3
Option 3 [*]	3 Advanced IT Selection 2 [*]	3
General Education Course (GHW)	3 General Education Course (GN or GA or GH)	3
Elective	3 Elective	2
	13	14

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Business Selection Courses (cannot double count with other Additional or Option requirements):
 - ACCTG 211
 - BA 100
 - ECON 102
 - ECON 104
 - MGMT 301
 - MKTG 301
- Networking Selection Courses (cannot double count with other Additional or Option requirements):
 - CYBER 262
 - IST 226
 - IST 451
 - IST 454
- Option Courses:
 - Application Development:
 - Select 12 credits, with at least 3 credits at the 400 level from: IST 261, IST 311, IST 361, IST 411, IST 412, IST 413
 - Business Applications:
 - ACCTG 211
 - Select 3 credits from: FIN 301, MGMT 301, MKTG 301, SCM 301
 - Select 6 credits, with at least 3 credits at the 400 level from: ACCTG, BA, BLAW, EBF, ECON, ENTR, FIN, FINSV, HPA, IB, LER, MIS, MGMT, MKTG, RM, SCM, or STAT
 - Cybersecurity:
 - Select 12 credits, with at least 3 credits at the 400 level from: CYBER 262, IST 451, IST 454, IST 456, SRA 472, or any 300 or 400 level CYBER course
 - Security and Risk Analysis:
 - Select 12 credits, with at least 3 credits at the 400 level from: SRA 211, SRA 231, SRA 311, SRA 365, IST 432, IST 452, IST 456

CyberSecurity Option: Information Technology, B.S. at Brandywine Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100 (GWS) [‡]	3
CYBER 100 ^{*#}	3 MATH 110 or 140 (GQ) [‡]	4
IST 140 ^{*#} or CMPSC 121 (GQ) ^{#‡} or CMPSC 131 ^{*#}	3 IST 220 ^{*#}	3
SRA 111 (GS) ^{*†}	3 IST 242 [*]	3
First-Year Seminar (IST 111S)	1 General Education Course (GN or GA or GH)	3
General Education Course (GN or GA or GH) or Elective	3	
	16	16

Second Year

Fall	Credits Spring	Credits
IST 210 ^{*#}	3 IST 256 [*]	3
IST 230 [*]	3 SRA 221 [*]	3
STAT 200 [‡] (GQ) or SCM 200 [‡] (GQ) or DS 200 [*]	4 Business Selection [*]	3
ECON 102/ECON 104 or PSYCH 100/SOC 5 or PLSC 1/PLSC 14 (GS) [†]	3 ENGL 202C or 202D (GWS) [‡]	3
Elective or General Education Course (GN/GA/GH)	3 General Education Course (GN or GA or GH)	3
	16	15

Third Year

Fall	Credits Spring	Credits
IST 302 [*]	3 IST 260W [*]	3
CYBER 262 (Option 1) [*]	3 IST 331 [*]	3
IST 451 (Networking Selection) [*]	3 CYBER 366 (Option 2) [*]	3
General Education Course (GN or GA or GH)	3 Advanced IT Selection 1 [*]	3
General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
IST 495 [*]	1 IST 440W [*]	3
ETI 461 [*]	3 IST 454 (Option 4) [*]	3
IST 456 (Option 3) [*]	3 Advanced IT Selection 2 [*]	3
General Education Course (GHW)	3 General Education Course (GN or GA or GH)	3

Elective	3 Elective	2
	13	14

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Business Selection Courses (cannot double count with other Additional or Option requirements):
 - ACCTG 211
 - BA 100
 - ECON 102
 - ECON 104
 - MGMT 301
 - MKTG 301
- Networking Selection Courses (cannot double count with other Additional or Option requirements):
 - CYBER 262
 - IST 226
 - IST 451
 - IST 454
- Option Courses:
 - Application Development:
 - Select 12 credits, with at least 3 credits at the 400 level from: IST 261, IST 311, IST 361, IST 411, IST 412, IST 413
 - Business Applications:
 - ACCTG 211
 - Select 3 credits from: FIN 301, MGMT 301, MKTG 301, SCM 301
 - Select 6 credits, with at least 3 credits at the 400 level from: ACCTG, BA, BLAW, EBF, ECON, ENTR, FIN, FINSV, HPA, IB, LER, MIS, MGMT, MKTG, RM, SCM, or STAT
 - Cybersecurity:
 - Select 12 credits, with at least 3 credits at the 400 level from: CYBER 262, IST 451, IST 454, IST 456, SRA 472, or any 300 or 400 level CYBER course
 - Security and Risk Analysis:

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- Select 12 credits, with at least 3 credits at the 400 level from:
SRA 211, SRA 231, SRA 311, SRA 365, IST 432, IST 452,
IST 456

Security and Risk Analysis Option: Information Technology, B.S. at Brandywine Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [†]	3 CAS 100 (GWS) [‡]	3
IST 110 or CYBER 100 ^{*#}	3 MATH 110 or 140 (GQ) [‡]	4
IST 140* [#] or CMPSC 121 (GQ) ^{#‡} or CMPSC 131 ^{*#}	3 IST 220 ^{*#}	3
SRA 111 (GS) ^{*†}	3 IST 242 [*]	3
First-Year Seminar (IST 111S)	1 General Education Course (GN or GA or GH)	3
General Education Course (GN or GA or GH) or Elective	3	
	16	16

Second Year

Fall	Credits Spring	Credits
IST 210 ^{*#}	3 IST 256 [*]	3
IST 230 [*]	3 SRA 221 [*]	3
STAT 200 [‡] (GQ) or SCM 200 [‡] (GQ) or DS 200 [*]	4 SRA 211 (Option 1)	3
ECON 102/ECON 104 or PSYCH 100/SOC 5 or PLSC 1/PLSC 14 (GS) [†]	3 ENGL 202C or 202D (GWS) [‡]	3
Elective or General Education Course (GN/GA/GH)	3 General Education Course (GN or GA or GH)	3
	16	15

Third Year

Fall	Credits Spring	Credits
IST 302 [*]	3 IST 260W [*]	3
SRA 231 (Option 2) [*]	3 IST 331 [*]	3
Networking Selection [*]	3 Business Selection [*]	3
General Education Course (GN or GA or GH)	3 Advanced IT Selection 1 [*]	3
General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
IST 495 [*]	1 IST 440W [*]	3
ETI 461 [*]	3 IST 432 (Option 4) [*]	3
IST 456 (Option 3) [*]	3 Advanced IT Selection 2 [*]	3
General Education Course (GHW)	3 General Education Course (GN or GA or GH)	3
Elective	3 Elective	2
	13	14

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Business Selection Courses (cannot double count with other Additional or Option requirements):
 - ACCTG 211
 - BA 100
 - ECON 102
 - ECON 104
 - MGMT 301
 - MKTG 301
- Networking Selection Courses (cannot double count with other Additional or Option requirements):
 - CYBER 262
 - IST 226
 - IST 451
 - IST 454
- Option Courses:
 - Application Development:
 - Select 12 credits, with at least 3 credits at the 400 level from: IST 261, IST 311, IST 361, IST 411, IST 412, IST 413
 - Business Applications:
 - ACCTG 211
 - Select 3 credits from: FIN 301, MGMT 301, MKTG 301, SCM 301
 - Select 6 credits, with at least 3 credits at the 400 level from: ACCTG, BA, BLAW, EBF, ECON, ENTR, FIN, FINSV, HPA, IB, LER, MIS, MGMT, MKTG, RM, SCM, or STAT
 - Cybersecurity:
 - Select 12 credits, with at least 3 credits at the 400 level from: CYBER 262, IST 451, IST 454, IST 456, SRA 472, or any 300 or 400 level CYBER course
 - Security and Risk Analysis:
 - Select 12 credits, with at least 3 credits at the 400 level from: SRA 211, SRA 231, SRA 311, SRA 365, IST 432, IST 452, IST 456

DuBois Campus

Business Applications Option: Information Technology, B.S. at DuBois Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
IST 110*#	3	IST 210*#	3
PSU 8	1	IST 220*#	3
IST 140*#	3	MATH 22 (GQ (Elective 2))	3
SRA 111 (GS)*†	3	IST 242*	3
ENGL 15 or 30H (GWS)‡	3	General Education Course (GH)	3
MATH 21 (GQ (Elective 1))	3		
	16		15

Second Year

Fall	Credits	Spring	Credits
MATH 110 or 140 (GQ)††	4	Business Choice 1	3
IST 226 (Networking Selection)*	3	SRA 221	3
IST 260W*	3	General Education Course (GA)	3
IST 256*	3	General Education Course (GN)	3
CAS 100A (GWS)‡	3	ENGL 202C or 202D (GWS)††	3
	16		15

Third Year

Fall	Credits	Spring	Credits	Summer	Credits
ETI 461	3	Business Choice 3	3	IST 495 (Taken Any Time)	1
IST 302	3	Elective	3		
Business Choice 2	3	General Education Course (GH)	3		
IST 230*	3	IST 331*	3		
General Education Course (GN)	3	STAT 200, SCM 200, or DS 200 (GQ)*††	4		
	15		16		1

Fourth Year

Fall	Credits	Spring	Credits
ECON 14, 102, or 104 (GS)	3	General Education Course (GN)	3
IST 440W	3	Business Choice	3
Advanced IT Selection 1 (IST 454)	3	Business Choice 4	3
General Education Course (GA)	3	Advanced IT Selection 2 (IST 456)	3
General Education Course (GHW)	3		
	15		12

Total Credits 121

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- As long as two Arts (GA) and two Humanities (GH) are taken across the eight semesters, the particular order in which these courses are taken is not relevant. The course series listed above is only one of many possible ways to move through the IST curriculum.

Advising Notes:

- A student's career/graduate school plans should be considered in developing an individual academic plan. Be sure to consult an adviser in this department when scheduling courses.
- Business Choice:
 - ACCTG 211
 - ECON 102 or ECON 104
 - SCM 301
 - BA 243
 - FIN 301
 - MKTG 301

- MGMT 301
- IB 303
- Advanced IT Selection 1:
 - IST 402
 - IST 413
 - IST 425
 - IST 431
 - IST 446
 - IST 454
 - IST 456
 - MIS 390
 - MIS 404

Networking Option: Information Technology, B.S. at DuBois Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
IST 110 ^{*#}	3 IST 210 ^{*#}	3
PSU 8	1 IST 220 ^{*#}	3
IST 140 ^{*#}	3 MATH 22 (GQ) Elective 2	3
SRA 111 (GS) ⁺⁺	3 IST 242 [*]	3
ENGL 15 or 30H (GWS) [†]	3 General Education Course (GH)	3
MATH 21 (GQ) Elective 1	3	
	16	15

Second Year

Fall	Credits Spring	Credits
IST 225 (Application Focus 1)	3 IST 227 (Application Focus 2)	3
IST 226 (Networking Selection) [*]	3 IST 228 (Application Focus 3)	3
IST 260W [*]	3 General Education Course (GA)	3
IST 256 [*]	3 General Education Course (GN)	3
CAS 100A (GWS) [†]	3 ENGL 202C or 202D (GWS) ^{††}	3
	15	15

Third Year

Fall	Credits Spring	Credits Summer	Credits
ETI 461	3 SRA 221	3 IST 495 (Taken any Time)	1
IST 302	3 Elective 3	3	
MATH 110 or 140 (GQ) ^{††}	4 General Education Course (GH)	3	
IST 230 [*]	3 STAT 200, SCM 200, or DS 200 (GQ) ^{*††}	4	
General Education Course (GN)	3 IST 331 [*]	3	
	16	16	1

Fourth Year

Fall	Credits Spring	Credits
General Education Course (GHW)	3 IST 451 (Application Focus 4)	3
IST 440W	3 General Education Course (GN)	3
ECON 14, 102, or 104 (GS)	3 Business Choice	3
Advanced IT #1 (IST 454)	3 Advanced IT Selection 2 (IST 456)	3
General Education Course (GA)	3	
	15	12

Total Credits 121

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- As long as two Arts (GA) and two Humanities (GH) are taken across the eight semesters, the particular order in which these courses are taken is not relevant. The course series listed above is only one of many possible ways to move through the IST curriculum.

Advising Notes:

- A student's career/graduate school plans should be considered in developing an individual academic plan. Be sure to consult an adviser in this department when scheduling courses.
- Business Choice:
 - ACCTG 211
 - ECON 102 or ECON 104
 - SCM 301
 - BA 243
 - FIN 301
 - MKTG 301

- MGMT 301
- IB 303
- Advanced IT Selection 1:
 - IST 402
 - IST 413
 - IST 425
 - IST 431
 - IST 446
 - IST 454
 - IST 456
 - MIS 390
 - MIS 404

Greater Allegheny Campus

Business Applications Option: Information Technology, B.S. at Greater Allegheny Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits	Total
ENGL 15 or 30H (GWS) [†]	3	CAS 100 (GWS) [†]	3	6
IST 110 or CYBER 100 ^{*#}	3	MATH 110 or 140 (GQ) [†]	4	7
IST 140 ^{*#} or CMPSC 121 (GQ) ^{#‡} or CMPSC 131 ^{*#}	3	IST 220 ^{*#}	3	10
SRA 111 (GS) ^{*†}	3	IST 242 [*]	3	13
First-Year Seminar (IST 111S)	1	General Education Course (GN or GA or GH)	3	16
General Education Course (GN or GA or GH) or Elective	3			16
	16		16	

Second Year

Fall	Credits	Spring	Credits	Total
IST 210 ^{*#}	3	IST 256 [*]	3	6
IST 230 [*]	3	SRA 221 [*]	3	9
STAT 200 [†] (GQ) or SCM 200 [†] (GQ) or DS 200 [*]	4	ACCTG 211 (Option 1) [*]	4	13
ECON 102/ECON 104 or PSYCH 100/SOC 5 or PLSC 1/PLSC 14 (GS) [†]	3	ENGL 202C or 202D (GWS) [‡]	3	16
Elective or General Education Course (GN/GA/GH)	3	General Education Course (GN or GA or GH)	3	19
	16		16	

Third Year

Fall	Credits	Spring	Credits	Total
IST 302 [*]	3	IST 260W [*]	3	6
IST 331 [*]	3	Option 2 [*]	3	9
Business Selection [*]	4	Advanced IT Selection - Business Option [*]	3	13
General Education Course (GN or GA or GH)	3	Networking Selection [*]	3	16
General Education Course (GN or GA or GH)	3	General Education Course (GN or GA or GH)	3	19
	16		15	

Fourth Year

Fall	Credits	Spring	Credits	Total
IST 495 [*]	1	IST 440W [*]	3	4
ETI 461 [*]	3	Option 4 [*]	3	7
Option 3 [*]	3	Advanced IT Selection [*]	3	10
General Education Course (GHW)	3	General Education Course (GN or GA or GH)	3	13

Elective	3 Elective	1
	13	13

Total Credits 121

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Business Selection Courses (cannot double count with other Additional or Option requirements):
 - ACCTG 211
 - BA 100
 - ECON 102
 - ECON 104
 - MGMT 301
 - MKTG 301
- Networking Selection Courses (cannot double count with other Additional or Option requirements):
 - CYBER 262
 - IST 226
 - IST 451
 - IST 454
- Option Courses:
 - Application Development:
 - Select 12 credits, with at least 3 credits at the 400 level from: IST 261, IST 311, IST 361, IST 411, IST 412, IST 413
 - Business Applications:
 - ACCTG 211
 - Select 3 credits from: FIN 301, MGMT 301, MKTG 301, SCM 301
 - Select 6 credits, with at least 3 credits at the 400 level from: ACCTG, BA, BLAW, EBF, ECON, ENTR, FIN, FINSV, HPA, IB, LER, MIS, MGMT, MKTG, RM, SCM, or STAT
 - Cybersecurity:
 - Select 12 credits, with at least 3 credits at the 400 level from: CYBER 262, IST 451, IST 454, IST 456, SRA 472, or any 300 or 400 level CYBER course
 - Security and Risk Analysis:

- Select 12 credits, with at least 3 credits at the 400 level from:
SRA 211, SRA 231, SRA 311, SRA 365, IST 432, IST 452,
IST 456

Custom Information Technology Option: Information Technology, B.S. at Greater Allegheny Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100A (GWS) [‡]	3
CYBER 100 ^{*#}	3 IST 230	3
IST 140 ^{*#} or CMPSC 121 (GQ) ^{#‡} or CMPSC 131 ^{*#}	3 IST 220 ^{*#}	3
SRA 111 (GS) ^{*†}	3 IST 242 [*]	3
MATH 110 or 140 (GQ) [‡]	4 General Education Course (GN or GA or GH)	3
16		15

Second Year

Fall	Credits Spring	Credits
IST 210 ^{*#}	3 IST 256 [*]	3
General Education Course (GN or GA or GH) or Elective	3 SRA 221	3
STAT 200 [‡] (GQ) or SCM 200 [‡] (GQ) or DS 200 [*]	4 Business Selection [*]	4
ECON 102/ ECON 104 or PSYCH 100/ SOC 5 or PLSC 1/PLSC 14 (GS) [†]	3 ENGL 202C or 202D (GWS) [‡]	3
Elective or General Education Course (GN/GA/ GH)	3 General Education Course (GN or GA or GH)	3
16		16

Third Year

Fall	Credits Spring	Credits Summer	Credits
General Education Course (GN or GA or GH)	3 IST 260W [*]	3 IST 495 [*]	1
IST 302 [*]	3 Option 2 [*]	3	
Networking Selection: IST 226 or IST 454	3 Advanced IT Selection [*]	3	

Option 1 [*]	3 General Education Course (GN or GA or GH) [*]	3
General Education Course (GN or GA or GH)	3 General Education Course (GHW) [*]	3
15		15
1		
Fourth Year		
Fall	Credits Spring	Credits
IST 331	3 ETI 461 [*]	3
Advanced IT Selection 2 [*]	3 IST 440W [*]	3
Option 3 [*]	3 Option 4 [*]	3
Elective	3 General Education Course (GN or GA or GH)	3
	Elective	2
12		14

Total Credits 120

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Supporting Courses and Related Areas: Require a Grade of C or Better
 - Select 12 credits, with at least 3 credits at the 400 level, in consultation with an adviser that follow a coherent theme in information technology.
 - Select 6 credits at the 300 or 400 level in Advanced IT courses from College-approved list.

Hazleton Campus

Business Applications Option: Information Technology, B.S. at Hazleton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [†]	3 CAS 100A (GWS) [†]	3
IST 110 or CYBER 100 ^{*#}	3 MATH 110 or 140 (GQ) [†]	4
IST 140* [#] or CMPSC 121 (GQ) ^{#‡} or CMPSC 131 ^{*#}	3 IST 220 ^{*#}	3
SRA 111 (GS) ^{*†}	3 IST 242 [*]	3
First-Year Seminar (IST 111S)	1 General Education Course (GN or GA or GH)	3
General Education Course (GN or GA or GH) or Elective	3	
	16	16

Second Year

Fall	Credits Spring	Credits
IST 210 ^{*#}	3 IST 256 [*]	3
IST 230 [*]	3 CYBER 221 [*]	3
STAT 200 [†] (GQ) or SCM 200 [†] (GQ) or DS 200 [*]	4 ACCTG 211 (Option 1) [*]	4
ECON 102/ECON 104 or PSYCH 100/SOC 5 or PLSC 1/PLSC 14 (GS) [†]	3 ENGL 202C or 202D (GWS) [†]	3
Elective or General Education Course (GN/GA/GH)	3 General Education Course (GN or GA or GH)	3
	16	16

Third Year

Fall	Credits Spring	Credits
ETI 302 [*]	3 IST 260W [*]	3
IST 331 [*]	3 Option 2 [*]	3
Business Selection [*]	4 Advanced IT Selection - Business Option [*]	3
General Education Course (GN or GA or GH)	3 Networking Selection [*]	3
General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3
	16	15

Fourth Year

Fall	Credits Spring	Credits
IST 495 [*]	1 IST 440W [*]	3
ETI 461 [*]	3 Option 4 [*]	3
Option 3 [*]	3 Advanced IT Selection [*]	3
General Education Course (GHW)	3 General Education Course (GN or GA or GH)	3

Elective	3 Elective	1
	13	13

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Business Selection Courses (cannot double count with other Additional or Option requirements):
 - ACCTG 211
 - BA 100
 - ECON 102
 - ECON 104
 - MGMT 301
 - MKTG 301
- Networking Selection Courses (cannot double count with other Additional or Option requirements):
 - CYBER 262
 - CYBER 451
 - CYBER 454
 - IST 226
- Option Courses:
 - Application Development:
 - Select 12 credits, with at least 3 credits at the 400 level from: HCDD 311, HCDD 361, HCDD 411, HCDD 412, IST 261, IST 413
 - Business Applications:
 - ACCTG 211
 - Select 3 credits from: FIN 301, MGMT 301, MKTG 301, SCM 301
 - Select 6 credits, with at least 3 credits at the 400 level from: ACCTG, BA, BLAW, EBF, ECON, ENTR, FIN, FINSV, HPA, IB, LER, MIS, MGMT, MKTG, RM, SCM, or STAT
 - Cybersecurity:
 - Select 12 credits, with at least 3 credits at the 400 level from: CYBER 262, CYBER 451, CYBER 454, CYBER 456, SRA 472, or any 300 or 400 level CYBER course
 - Security and Risk Analysis:

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- Select 12 credits, with at least 3 credits at the 400 level from:
SRA 211, SRA 231, SRA 311, SRA 365, IST 432, IST 452,
CYBER 456

Custom Information Technology Option: Information Technology, B.S. at Hazleton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100A (GWS) [‡]	3
IST 110 or CYBER 100 ^{*#}	3 MATH 110 or 140 (GQ) [‡]	4
IST 140* [#] or CMPSC 121 (GQ) ^{#‡} or CMPSC 131 ^{*#}	3 IST 220 ^{*#}	3
SRA 111 (GS) ^{*†}	3 IST 242 [*]	3
First-Year Seminar (IST 111S)	1 General Education Course (GN or GA or GH)	3
General Education Course (GN or GA or GH) or Elective	3	
	16	16

Second Year

Fall	Credits Spring	Credits
IST 210 ^{*#}	3 IST 256 [*]	3
IST 230 [*]	3 CYBER 221 [*]	3
STAT 200 [‡] (GQ) or SCM 200 [‡] (GQ) or DS 200 [*]	4 Business Selection [*]	3
ECON 102/ECON 104 or PSYCH 100/SOC 5 or PLSC 1/PLSC 14 (GS) [†]	3 ENGL 202C or 202D (GWS) [‡]	3
Elective or General Education Course (GN/GA/GH)	3 General Education Course (GN or GA or GH)	3
	16	15

Third Year

Fall	Credits Spring	Credits
ETI 302 [*]	3 IST 260W [*]	3
IST 331 [*]	3 Option 2 [*]	3
Option 1 [*]	3 Networking Selection [*]	3
General Education Course (GN or GA or GH)	3 Advanced IT Selection 1 [*]	3
General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
IST 495 [*]	1 IST 440W [*]	3
ETI 461 [*]	3 Option 4 [*]	3
Option 3 [*]	3 Advanced IT Selection 2 [*]	3
General Education Course (GHW)	3 General Education Course (GN or GA or GH)	3
Elective	3 Elective	2
	13	14

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Business Selection Courses (cannot double count with other Additional or Option requirements):
 - ACCTG 211
 - BA 100
 - ECON 102
 - ECON 104
 - MGMT 301
 - MKTG 301
- Networking Selection Courses (cannot double count with other Additional or Option requirements):
 - CYBER 262
 - CYBER 451
 - CYBER 454
 - IST 226
- Option Courses:
 - Application Development:
 - Select 12 credits, with at least 3 credits at the 400 level from: HCDD 311, HCDD 361, HCDD 411, HCDD 412, IST 261, IST 413
 - Business Applications:
 - ACCTG 211
 - Select 3 credits from: FIN 301, MGMT 301, MKTG 301, SCM 301
 - Select 6 credits, with at least 3 credits at the 400 level from: ACCTG, BA, BLAW, EBF, ECON, ENTR, FIN, FINSV, HPA, IB, LER, MIS, MGMT, MKTG, RM, SCM, or STAT
 - Cybersecurity:
 - Select 12 credits, with at least 3 credits at the 400 level from: CYBER 262, CYBER 451, CYBER 454, CYBER 456, SRA 472, or any 300 or 400 level CYBER course
 - Security and Risk Analysis:
 - Select 12 credits, with at least 3 credits at the 400 level from: SRA 211, SRA 231, SRA 311, SRA 365, IST 432, IST 452, CYBER 456

Lehigh Valley Campus

Application Development Option: Information Technology, B.S. at Lehigh Valley Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100A (GWS) [‡]	3
IST 110 or CYBER 100 ^{*#}	3 MATH 110 or 140 (GQ) [‡]	4
IST 140 ^{*#}	3 IST 220 ^{*#}	3
SRA 111 (GS) ^{*†}	3 IST 242 [*]	3
General Education Course/ First-Year Seminar Course	3 General Education Course (GN or GA or GH)	3
	15	16

Second Year

Fall	Credits Spring	Credits
IST 210 ^{*#}	3 IST 256 [*]	3
IST 230 [*]	3 SRA 221 [*]	3
STAT 200 (GQ) [‡]	4 Business Selection [*]	3
ECON 102/ECON 104 or PSYCH 100/SOC 5 or PLSC 1/PLSC 14 (GS) [†]	3 ENGL 202C or 202D (GWS) [‡]	3
Elective or General Education Course (GN/GA/ GH)	3 General Education Course (GN or GA or GH)	3
	16	15

Third Year

Fall	Credits Spring	Credits
IST 302 [*]	3 IST 260W [*]	3
IST 311 (Option 1) [*]	3 IST 261 (Option 2) [*]	3
IST 331 [*]	3 IST 411 (Option 3) [*]	3
IST 495 ^{*1}	1 Networking Selection [*]	3
General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3
General Education Course (GN or GA or GH)	3	
	16	15

Fourth Year

Fall	Credits Spring	Credits
IST 495 [*]	1 IST 440W [*]	3
ETI 461 [*]	3 IST 413 (Option 4) [*]	3
Advanced IT Selection 1 [*]	3 Advanced IT Selection 2 [*]	3
General Education Course (GHW)	3 General Education Course (GN or GA or GH)	3
Elective	3 Elective	2
	13	14

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ One internship (IST 495) course is needed for graduation, but others are encouraged and can be taken at different semesters.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Business Selection Courses (cannot double count with other Additional or Option requirements):
 - ACCTG 211
 - BA 100
 - ECON 102
 - ECON 104
 - MGMT 301
 - MKTG 301
- Networking Selection Courses (cannot double count with other Additional or Option requirements):
 - CYBER 262
 - IST 226
 - IST 451
 - IST 454
- Option Courses:
 - Application Development:
 - Select 12 credits, with at least 3 credits at the 400 level from: IST 261, IST 311, IST 361, IST 411, IST 412, IST 413
 - Business Applications:
 - ACCTG 211
 - Select 3 credits from: FIN 301, MGMT 301, MKTG 301, SCM 301
 - Select 6 credits, with at least 3 credits at the 400 level from: ACCTG, BA, BLAW, EBF, ECON, ENTR, FIN, FINSV, HPA, IB, LER, MIS, MGMT, MKTG, RM, SCM, or STAT
 - Cybersecurity:
 - Select 12 credits, with at least 3 credits at the 400 level from: CYBER 262, IST 451, IST 454, IST 456, SRA 472, or any 300 or 400 level CYBER course
 - Security and Risk Analysis:
 - Select 12 credits, with at least 3 credits at the 400 level from: SRA 211, SRA 231, SRA 311, SRA 365, IST 432, IST 452, IST 456

Business Applications Option: Information Technology, B.S. at Lehigh Valley Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100A (GWS) [‡]	3
IST 110 or CYBER 100 ^{*#}	3 MATH 110 or 140 (GQ) [‡]	4
IST 140 ^{*#}	3 IST 220 ^{*#}	3
SRA 111 (GS) ^{*†}	3 IST 242 [*]	3
General Education Course/ First-Year Seminar Course	3 General Education Course (GN or GA or GH)	3
	15	16

Second Year

Fall	Credits Spring	Credits
IST 210 ^{*#}	3 IST 256 [*]	3
IST 230 [*]	3 SRA 221 [*]	3
STAT 200 [‡]	4 ACCTG 211 (Option 1) [*]	4
ECON 102 or 104 (GS) [†]	3 ENGL 202C or 202D (GWS) [‡]	3
Elective or General Education Course (GN/GA/ GH)	3 General Education Course (GN or GA or GH)	3
	16	16

Third Year

Fall	Credits Spring	Credits
IST 302 [*]	3 IST 260W [*]	3
IST 331 [*]	3 Option 2 [*]	3
IST 495 ^{*1}	1 Advanced IT Selection - Business Option [*]	3
Business Selection [*]	4 Networking Selection [*]	3
General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3
General Education Course (GN or GA or GH)	3	
	17	15

Fourth Year

Fall	Credits Spring	Credits
IST 495 [*]	1 IST 440W [*]	3
ETI 461 [*]	3 Option 4 [*]	3
Option 3 [*]	3 Advanced IT Selection [*]	3
General Education Course (GHW)	3 General Education Course (GN or GA or GH)	3
Elective	3 Elective	1
	13	13

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ One internship (IST 495) course is needed for graduation, but others are encouraged and can be taken at different semesters.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Business Selection Courses (cannot double count with other Additional or Option requirements):
 - ACCTG 211
 - BA 100
 - ECON 102
 - ECON 104
 - MGMT 301
 - MKTG 301
- Networking Selection Courses (cannot double count with other Additional or Option requirements):
 - CYBER 262
 - IST 226
 - IST 451
 - IST 454
- Option Courses:
 - Application Development:
 - Select 12 credits, with at least 3 credits at the 400 level from: IST 261, IST 311, IST 361, IST 411, IST 412, IST 413
 - Business Applications:
 - ACCTG 211
 - Select 3 credits from: FIN 301, MGMT 301, MKTG 301, SCM 301
 - Select 6 credits, with at least 3 credits at the 400 level from: ACCTG, BA, BLAW, EBF, ECON, ENTR, FIN, FINSV, HPA, IB, LER, MIS, MGMT, MKTG, RM, SCM, or STAT
 - Cybersecurity:
 - Select 12 credits, with at least 3 credits at the 400 level from: CYBER 262, IST 451, IST 454, IST 456, SRA 472, or any 300 or 400 level CYBER course
 - Security and Risk Analysis:
 - Select 12 credits, with at least 3 credits at the 400 level from: SRA 211, SRA 231, SRA 311, SRA 365, IST 432, IST 452, IST 456

Custom Information Technology Option: Information Technology, B.S. at Lehigh Valley Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100A (GWS) [‡]	3
IST 110 or CYBER 100 ^{*#}	3 MATH 110 or 140 (GQ) [‡]	4
IST 140 ^{*#}	3 IST 220 ^{*#}	3
SRA 111 (GS) ^{*†}	3 IST 242 [*]	3
General Education Course/ First-Year Seminar	3 General Education Course (GN or GA or GH)	3
	15	16

Second Year

Fall	Credits Spring	Credits
IST 210 ^{*#}	3 IST 256 [*]	3
IST 230 [*]	3 SRA 221 [*]	3
STAT 200 (GQ) [‡]	4 Business Selection [*]	3
ECON 102/ECON 104 or PSYCH 100/SOC 5 or PLSC 1/PLSC 14 (GS) [†]	3 ENGL 202C or 202D (GWS) [‡]	3
Elective or General Education Course (GN/GA/ GH)	3 General Education Course (GN or GA or GH)	3
	16	15

Third Year

Fall	Credits Spring	Credits
IST 302 [*]	3 IST 260W [*]	3
IST 331 [*]	3 Option 2 [*]	3
IST 495 ^{*1}	1 Networking Selection [*]	3
Option 1 [*]	3 Advanced IT Selection 1 [*]	3
General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3
General Education Course (GN or GA or GH)	3	
	16	15

Fourth Year

Fall	Credits Spring	Credits
IST 495 [*]	1 IST 440W [*]	3
ETI 461 [*]	3 Option 4 [*]	3
Option 3 [*]	3 Advanced IT Selection 2 [*]	3
General Education Course (GHW)	3 General Education Course (GN or GA or GH)	3
Elective	3 Elective	2
	13	14

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ One internship (IST 495) course is needed for graduation, but others are encouraged and can be taken at different semesters.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Business Selection Courses (cannot double count with other Additional or Option requirements):
 - ACCTG 211
 - BA 100
 - ECON 102
 - ECON 104
 - MGMT 301
 - MKTG 301
- Networking Selection Courses (cannot double count with other Additional or Option requirements):
 - CYBER 262
 - IST 226
 - IST 451
 - IST 454
- Option Courses:
 - Application Development:
 - Select 12 credits, with at least 3 credits at the 400 level from: IST 261, IST 311, IST 361, IST 411, IST 412, IST 413
 - Business Applications:
 - ACCTG 211
 - Select 3 credits from: FIN 301, MGMT 301, MKTG 301, SCM 301
 - Select 6 credits, with at least 3 credits at the 400 level from: ACCTG, BA, BLAW, EBF, ECON, ENTR, FIN, FINSV, HPA, IB, LER, MIS, MGMT, MKTG, RM, SCM, or STAT
 - Cybersecurity:
 - Select 12 credits, with at least 3 credits at the 400 level from: CYBER 262, IST 451, IST 454, IST 456, SRA 472, or any 300 or 400 level CYBER course
 - Security and Risk Analysis:
 - Select 12 credits, with at least 3 credits at the 400 level from: SRA 211, SRA 231, SRA 311, SRA 365, IST 432, IST 452, IST 456

CyberSecurity Option: Information Technology, B.S. at Lehigh Valley Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100A (GWS) [‡]	3
CYBER 100 ^{*#}	3 MATH 110 or 140 (GQ) [‡]	4
IST 140 ^{*#}	3 IST 220 ^{*#}	3
SRA 111 (GS) ^{**†}	3 IST 242 [*]	3
General Education Course/ First-Year Seminar (GN or GA or GH) or Elective	3 General Education Course (GN or GA or GH)	3
	15	16

Second Year

Fall	Credits Spring	Credits
IST 210 ^{*#}	3 IST 256 [*]	3
IST 230 [*]	3 SRA 221 [*]	3
STAT 200 (GQ) [‡]	4 CYBER 262 (Option 1) [*]	3
ECON 102/ECON 104 or PSYCH 100/SOC 5 or PLSC 1/PLSC 14 (GS) [†]	3 ENGL 202C or 202D (GWS) [‡]	3
Elective or General Education Course (GN/GA/ GH)	3 General Education Course (GN or GA or GH)	3
	16	15

Third Year

Fall	Credits Spring	Credits
IST 302 [*]	3 IST 260W [*]	3
IST 331 [*]	3 Option 2 [*]	3
IST 495 ^{*1}	1 Networking Selection [*]	3
Business Selection [*]	3 Advanced IT Selection 1 [*]	3
General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3
General Education Course (GN or GA or GH)	3	
	16	15

Fourth Year

Fall	Credits Spring	Credits
IST 495 [*]	1 IST 440W [*]	3
ETI 461 [*]	3 Option 4 [*]	3
Option 3 [*]	3 Advanced IT Selection 2 [*]	3
General Education Course (GHW)	3 General Education Course (GN or GA or GH)	3
Elective	3 Elective	2
	13	14

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ One internship (IST 495) course is needed for graduation, but others are encouraged and can be taken at different semesters.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Business Selection Courses (cannot double count with other Additional or Option requirements):
 - ACCTG 211
 - BA 100
 - ECON 102
 - ECON 104
 - MGMT 301
 - MKTG 301
- Networking Selection Courses (cannot double count with other Additional or Option requirements):
 - CYBER 262
 - IST 226
 - IST 451
 - IST 454
- Option Courses:
 - Application Development:
 - Select 12 credits, with at least 3 credits at the 400 level from: IST 261, IST 311, IST 361, IST 411, IST 412, IST 413
 - Business Applications:
 - ACCTG 211
 - Select 3 credits from: FIN 301, MGMT 301, MKTG 301, SCM 301
 - Select 6 credits, with at least 3 credits at the 400 level from: ACCTG, BA, BLAW, EBF, ECON, ENTR, FIN, FINSV, HPA, IB, LER, MIS, MGMT, MKTG, RM, SCM, or STAT
 - Cybersecurity:
 - Select 12 credits, with at least 3 credits at the 400 level from: CYBER 262, IST 451, IST 454, IST 456, SRA 472, or any 300 or 400 level CYBER course
 - Security and Risk Analysis:
 - Select 12 credits, with at least 3 credits at the 400 level from: SRA 211, SRA 231, SRA 311, SRA 365, IST 432, IST 452, IST 456

Security and Risk Analysis Option: Information Technology, B.S. at Lehigh Valley Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100A (GWS) [‡]	3
IST 110 or CYBER 100 ^{*#}	3 MATH 110 or 140 (GQ) [‡]	4
IST 140 ^{*#}	3 IST 220 ^{*#}	3
SRA 111 (GS) ^{*†}	3 IST 242 [*]	3
General Education Course/ First-Year Seminar	3 General Education Course (GN or GA or GH)	3
	15	16

Second Year

Fall	Credits Spring	Credits
IST 210 ^{*#}	3 IST 256 [*]	3
IST 230 [*]	3 SRA 221 [*]	3
STAT 200 (GQ) [‡]	4 Business Selection [*]	3
ECON 102/ECON 104 or PSYCH 100/SOC 5 or PLSC 1/PLSC 14 (GS) [†]	3 ENGL 202C or 202D (GWS) [‡]	3
Elective or General Education Course (GN/GA/ GH)	3 General Education Course (GN or GA or GH)	3
	16	15

Third Year

Fall	Credits Spring	Credits
IST 302 [*]	3 IST 260W [*]	3
IST 331 [*]	3 SRA 231 (Option 2) [*]	3
IST 495 ^{*1}	1 Networking Selection [*]	3
SRA 211 (Option 1) [*]	3 Advanced IT Selection 1 [*]	3
General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3
General Education Course (GN or GA or GH)	3	
	16	15

Fourth Year

Fall	Credits Spring	Credits
IST 495 [*]	1 IST 440W [*]	3
ETI 461 [*]	3 Option 4 [*]	3
Option 3 [*]	3 Advanced IT Selection 2 [*]	3
General Education Course (GHW)	3 General Education Course (GN or GA or GH)	3
Elective	3 Elective	2
	13	14

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ One internship (IST 495) course is needed for graduation, but others are encouraged and can be taken at different semesters.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Business Selection Courses (cannot double count with other Additional or Option requirements):
 - ACCTG 211
 - BA 100
 - ECON 102
 - ECON 104
 - MGMT 301
 - MKTG 301
- Networking Selection Courses (cannot double count with other Additional or Option requirements):
 - CYBER 262
 - IST 226
 - IST 451
 - IST 454
- Option Courses:
 - Application Development:
 - Select 12 credits, with at least 3 credits at the 400 level from: IST 261, IST 311, IST 361, IST 411, IST 412, IST 413
 - Business Applications:
 - ACCTG 211
 - Select 3 credits from: FIN 301, MGMT 301, MKTG 301, SCM 301
 - Select 6 credits, with at least 3 credits at the 400 level from: ACCTG, BA, BLAW, EBF, ECON, ENTR, FIN, FINSV, HPA, IB, LER, MIS, MGMT, MKTG, RM, SCM, or STAT
 - Cybersecurity:
 - Select 12 credits, with at least 3 credits at the 400 level from: CYBER 262, IST 451, IST 454, IST 456, SRA 472, or any 300 or 400 level CYBER course
 - Security and Risk Analysis:
 - Select 12 credits, with at least 3 credits at the 400 level from: SRA 211, SRA 231, SRA 311, SRA 365, IST 432, IST 452, IST 456

Mont Alto Campus

Business Applications Option: Information Technology, B.S. at Mont Alto Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100A (GWS) ^{**†}	3
CYBER 100 ^{*#}	3 IST 220 ^{*#}	3
IST 140 ^{*#}	3 IST 242 [*]	3
General Education Course or Elective	3 SRA 111 (GS) ^{**†}	3
IST 111S (First-Year Seminar)	1 IST 210 ^{*#}	3
MATH 110 or 140 (GQ) [‡]	4	
	17	15

Second Year

Fall	Credits Spring	Credits
IST 230 [*]	3 SRA 221 [*]	3
STAT 200 (GQ) [‡]	4 ACCTG 211 (Option 1) [*]	4
ECON 102/ ECON 104 or PSYCH 100/ SOC 5 or PLSC 1/PLSC 14 (GS) [†]	3 ENGL 202C or 202D (GWS) [‡]	3
General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3
Networking Selection (IST 226) [*]	3 Elective ¹	3
	16	16

Third Year

Fall	Credits Spring	Credits Summer	Credits
IST 256 [*]	3 IST 331 [*]	3 IST 495 [*]	1
IST 260W [*]	3 Option 2 [*]	3	
IST 302 [*]	3 Advanced IT Selection - Business Option [*]	3	
Business Selection [*]	4 General Education Course (GN or GA or GH) [*]	3	

General Education Course	3 General Education Course (GN or GA or GH)	3	
	16	15	1
Fourth Year			
Fall	Credits Spring	Credits	
ETI 461 [*]	3 IST 440W [*]	3	
Option 3 [*]	3 Option 4 [*]	3	
Advanced IT Selection [*]	3 General Education Course (GN or GA or GH) [*]	3	
General Education Course	3 General Education Course (GN or GA or GH)	3	
	Elective	1	
	12	13	

Total Credits 121

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ IST 250 is a recommended elective course

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Business Selection Courses (cannot double count with other Additional or Option requirements):
 - ACCTG 211
 - BA 100
 - ECON 102
 - ECON 104
 - MGMT 301
 - MKTG 301
- Networking Selection Courses (cannot double count with other Additional or Option requirements):
 - CYBER 262
 - IST 226

- IST 451
- IST 454
- Option Courses:
 - Business Applications:
 - ACCTG 211
 - Select 3 credits from: FIN 301, MGMT 301, MKTG 301, SCM 301
 - Select 6 credits, with at least 3 credits at the 400 level from: ACCTG, BA, BLAW, EBF, ECON, ENTR, FIN, FINSV, HPA, IB, LER, MIS, MGMT, MKTG, RM, SCM, or STAT

Custom Information Technology Option: Information Technology, B.S. at Mont Alto Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100A (GWS) ^{**††}	3
CYBER 100 ^{*#}	3 IST 220 ^{*#}	3
IST 140 ^{*#}	3 IST 242 [*]	3
General Education Course or Elective	3 SRA 111 (GS) ^{**†}	3
IST 111S (First-Year Seminar)	1 IST 210 ^{**}	3
MATH 110 or 140 (GQ) [‡]	4	
	17	15

Second Year

Fall	Credits Spring	Credits
IST 230 [*]	3 SRA 221 [*]	3
STAT 200 (GQ) [‡]	4 Business Selection [*]	3
ECON 102/ ECON 104 or PSYCH 100/ SOC 5 or PLSC 1/PLSC 14 (GS) [†]	3 ENGL 202C or 202D (GWS) [‡]	3
General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3
Networking Selection (IST 226) [*]	3 Elective ¹	3
	16	15

Third Year

Fall	Credits Spring	Credits Summer	Credits
IST 256 [*]	3 Option 2 [*]	3 IST 495 [*]	1
IST 302 [*]	3 Advanced IT Selection 1 [*]	3	
Option 1 [*]	3 General Education Course (GN or GA or GH)	3	
General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3	

IST 260W [*]	3 IST 331 [*]	3	
	15	15	1
Fourth Year			
Fall	Credits Spring	Credits	
ETI 461 [*]	3 IST 440W [*]	3	
Option 3 [*]	3 Option 4 [*]	3	
Advanced IT Selection 2 [*]	3 General Education Course (GN or GA or GH) [*]	3	
General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3	
	Elective	2	
	12	14	

Total Credits 120

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ IST 250 is a recommended elective course

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Business Selection Courses (cannot double count with other Additional or Option requirements):
 - ACCTG 211
 - BA 100
 - ECON 102
 - ECON 104
 - MGMT 301
 - MKTG 301
- Networking Selection Courses (cannot double count with other Additional or Option requirements):
 - CYBER 262
 - IST 226
 - IST 451
 - IST 454

- Option Courses:
 - Custom Information Technology:
 - Select 12 credits, with at least three (3) credits at the 400 level, in consultation with an adviser that follow a coherent theme in information technology

CyberSecurity Option: Information Technology, B.S. at Mont Alto Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100A (GWS) ^{*††}	3
CYBER 100 ^{*#}	3 IST 220 ^{*#}	3
IST 140 ^{*#}	3 IST 242 [*]	3
General Education Course or Elective ¹	3 SRA 111 ^{*†}	3
IST 111S (First-Year Seminar)	1 IST 210 ^{*#}	3
MATH 110 or 140 (GQ) [‡]	4	
	17	15

Second Year

Fall	Credits Spring	Credits
IST 230 [*]	3 SRA 221 [*]	3
STAT 200 (GQ) [‡]	4 Option 1 (CYBER 262)	3
ECON 102/ ECON 104 or PSYCH 100/ SOC 5 or PLSC 1/PLSC 14 (GS) [†]	3 ENGL 202C or 202D (GWS) [‡]	3
General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3
Networking Selection (IST 226) [*]	3 Elective ¹	3
	16	15

Third Year

Fall	Credits Spring	Credits Summer	Credits
IST 256 [*]	3 Option 2 [*]	3 IST 495 [*]	1
IST 302 [*]	3 Advanced IT Selection 1 [*]	3	
Business Selection [*]	3 General Education Course (GN or GA or GH)	3	
General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3	

IST 260W [*]	3 IST 331 [*]	3
	15	15
Fourth Year		
Fall	Credits Spring	Credits
ETI 461 [*]	3 IST 440W [*]	3
Option 3 [*]	3 Option 4 [*]	3
Advanced IT Selection 2 [*]	3 General Education Course (GN or GA or GH)	3
General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3
	Elective	2
	12	14

Total Credits 120

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ IST 250 or IST 261 is a recommended elective course (discuss with adviser)

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Business Selection Courses (cannot double count with other Additional or Option requirements):
 - ACCTG 211
 - BA 100
 - ECON 102
 - ECON 104
 - MGMT 301
 - MKTG 301
- Networking Selection Courses (cannot double count with other Additional or Option requirements):
 - CYBER 262
 - IST 226

- IST 451
- IST 454
- Option Courses:
 - Cybersecurity:
 - Select 12 credits, with at least 3 credits at the 400 level from: CYBER 262, IST 451, IST 454, IST 456, SRA 472, or any 300 or 400 level CYBER course

Networking Option: Information Technology, B.S. at Mont Alto Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100A (GWS) ^{**†}	3
CYBER 100 ^{*#}	3 IST 220 ^{*#}	3
IST 140 ^{*#}	3 IST 242 [*]	3
General Education Course or Elective	3 SRA 111 (GS) ^{**†}	3
IST 111S (First-Year Seminar)	1 IST 210 ^{*#}	3
MATH 110 or 140 (GQ) [‡]	4	
	17	15

Second Year

Fall	Credits Spring	Credits
IST 230 [*]	3 SRA 221 [*]	3
STAT 200 (GQ) [‡]	4 Business Selection [*]	3
ECON 102/ ECON 104 or PSYCH 100/ SOC 5 or PLSC 1/PLSC 14 (GS) [†]	3 ENGL 202C or 202D (GWS) [‡]	3
General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3
Networking Selection (IST 226) [*]	3 Elective ¹	3
	16	15

Third Year

Fall	Credits Spring	Credits Summer	Credits
IST 225 (Option 1) [*]	3 IST 227 (Option 2) [*]	3 IST 495 [*]	1
IST 256 [*]	3 IST 228 (Option 3) [*]	3	
IST 260W [*]	3 Advanced IT Selection 1 [*]	3	
IST 302 [*]	3 General Education Course (GN or GA or GH)	3	

General Education Course (GN or GA or GH)	3 IST 331 [*]	3	
	15	15	1
Fourth Year			
Fall	Credits Spring	Credits	
ETI 461 [*]	3 IST 440W [*]	3	
Advanced IT Selection 2 [*]	3 Option 4 [*]	3	
General Education Course (GHW)	3 General Education Course (GN or GA or GH)	3	
General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3	
	Elective	2	
	12	14	

Total Credits 120

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ IST 250 is a recommended elective course

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Business Selection Courses (cannot double count with other Additional or Option requirements):
 - ACCTG 211
 - BA 100
 - ECON 102
 - ECON 104
 - MGMT 301
 - MKTG 301
- Networking Selection Courses (cannot double count with other Additional or Option requirements):

- CYBER 262
- IST 226
- IST 451
- IST 454
- Option Courses:
 - Networking:
 - Select 12 credits, with at least 3 credits at the 400 level
from: CYBER 262, IST 225, IST 226, IST 227, IST 228, IST 451,
IST 454

New Kensington Campus

Business Applications Option: Information Technology, B.S. at New Kensington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100 (GWS) [‡]	3
CYBER 100 ^{*#}	3 IST 220 ^{*#}	3
IST 140 ^{*#} or CMPSC 121 (GQ) ^{#‡} or CMPSC 131 ^{*#}	3 IST 230 [*]	3
MATH 110 or 140 (GQ) [‡]	4 IST 242 [*]	3
SRA 111 (GS) [†]	3 General Education Course (GN or GA or GH)	3
	General Education Course (GN or GA or GH) or Elective	3
	16	18

Second Year

Fall	Credits Spring	Credits
IST 210 ^{*#}	3 IST 256 [*]	3
STAT 200 [‡] (GQ) or SCM 200 [‡] (GQ) or DS 200 [*]	4 SRA 221 [*]	3
ECON 102/ ECON 104 or PSYCH 100/ SOC 5 or PLSC 1/PLSC 14 (GS) [†]	3 ACCTG 211 (Option 1) [*]	4
Elective or General Education Course (GN/GA/GH)	3 ENGL 202C or 202D (GWS) [‡]	3
General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3
	16	16

Third Year

Fall	Credits Spring	Credits Summer	Credits
IST 302 [*]	3 IST 260W [*]	3 IST 495 [*]	1

Networking Selection (IST 226 or IST 454) [*]	3 Option 2 [*]	3
Business Selection (ECON 102 or ECON 104 or MGMT 301 or MKTG 301) [*]	3 Advanced IT Selection 1 [*]	3
General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3
	General Education Course (GHW)	3
	12	15
		1

Fourth Year

Fall	Credits Spring	Credits
IST 331	3 ETI 461 [*]	3
Advanced IT Selection 2 [*]	3 IST 440W [*]	3
Option 3 [*]	3 Option 4 [*]	3
Elective	3 Elective	3
	Elective	2
	12	14

Total Credits 120

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Business Selection Courses (cannot double count with other Additional or Option requirements):
 - ACCTG 211
 - BA 100
 - ECON 102
 - ECON 104

- MGMT 301
- MKTG 301
- Networking Selection Courses (cannot double count with other Additional or Option requirements):
 - CYBER 262
 - IST 226
 - IST 451
 - IST 454
- Option Courses:
 - Application Development:
 - Select 12 credits, with at least 3 credits at the 400 level from: IST 261, IST 311, IST 361, IST 411, IST 412, IST 413
 - Business Applications:
 - ACCTG 211
 - Select 3 credits from: FIN 301, MGMT 301, MKTG 301, SCM 301
 - Select 6 credits, with at least 3 credits at the 400 level from: ACCTG, BA, BLAW, EBF, ECON, ENTR, FIN, FINSV, HPA, IB, LER, MIS, MGMT, MKTG, RM, SCM, or STAT
 - Cybersecurity:
 - Select 12 credits, with at least 3 credits at the 400 level from: CYBER 262, IST 451, IST 454, IST 456, SRA 472, or any 300 or 400 level CYBER course
 - Security and Risk Analysis:
 - Select 12 credits, with at least 3 credits at the 400 level from: SRA 211, SRA 231, SRA 311, SRA 365, IST 432, IST 452, IST 456

Custom Information Technology Option: Information Technology, B.S. at New Kensington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100 (GWS) [‡]	3
CYBER 100 ^{*#}	3 IST 230	3
IST 140 ^{*#} or CMPSC 121 (GQ) ^{#‡} or CMPSC 131 ^{*#}	3 IST 220 ^{*#}	3
SRA 111 (GS) ^{*†}	3 IST 242 [*]	3
MATH 110 or 140 (GQ) [‡]	4 General Education Course (GN or GA or GH)	3
	16	15

Second Year

Fall	Credits Spring	Credits
IST 210 ^{*#}	3 IST 256 [*]	3
General Education Course (GN or GA or GH) or Elective	3 SRA 221	3
STAT 200 [‡] (GQ) or SCM 200 [‡] (GQ) or DS 200 [*]	4 Business Selection [*]	4
ECON 102/ ECON 104 or PSYCH 100/ SOC 5 or PLSC 1/PLSC 14 (GS) [†]	3 ENGL 202C or 202D (GWS) [‡]	3
Elective or General Education Course (GN/GA/ GH)	3 General Education Course (GN or GA or GH)	3
	16	16

Third Year

Fall	Credits Spring	Credits Summer	Credits
General Education Course (GN or GA or GH)	3 IST 260W [*]	3 IST 495 [*]	1
IST 302 [*]	3 Option 2 [*]	3	
Networking Selection: IST 226 or IST 454	3 Advanced IT Selection [*]	3	

Option 1 [*]	3 General Education Course (GN or GA or GH) [*]	3
General Education Course (GN or GA or GH)	3 General Education Course (GHW) [*]	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
IST 331	3 ETI 461 [*]	3
Advanced IT Selection 2 [*]	3 IST 440W [*]	3
Option 3 [*]	3 Option 4 [*]	3
Elective	3 General Education Course (GN or GA or GH)	3
	Elective	2
	12	14

Total Credits 120

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Business Selection Courses (cannot double count with other Additional or Option requirements):
 - ACCTG 211
 - BA 100
 - ECON 102
 - ECON 104
 - MGMT 301
 - MKTG 301
- Networking Selection Courses (cannot double count with other Additional or Option requirements):
 - CYBER 262
 - IST 226

- IST 451
- IST 454
- Option Courses:
 - Application Development:
 - Select 12 credits, with at least 3 credits at the 400 level from:
IST 261, IST 311, IST 361, IST 411, IST 412, IST 413
 - Business Applications:
 - ACCTG 211
 - Select 3 credits from: FIN 301, MGMT 301, MKTG 301, SCM 301
 - Select 6 credits, with at least 3 credits at the 400 level from:
ACCTG, BA, BLAW, EBF, ECON, ENTR, FIN, FINSV, HPA, IB, LER, MIS, MGMT, MKTG, RM, SCM, or STAT
 - Cybersecurity:
 - Select 12 credits, with at least 3 credits at the 400 level from:
CYBER 262, IST 451, IST 454, IST 456, SRA 472, or any 300 or 400 level CYBER course
 - Security and Risk Analysis:
 - Select 12 credits, with at least 3 credits at the 400 level from:
SRA 211, SRA 231, SRA 311, SRA 365, IST 432, IST 452, IST 456

Cybersecurity Option: Information Technology, B.S. at New Kensington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 IST 220 ^{*#}	3
CYBER 100 ^{*#}	3 IST 230 [*]	3
IST 140 ^{*#} or CMPSC 121 (GQ) ^{#‡} or CMPSC 131 ^{*#}	3 IST 242 [*]	3
MATH 110 or 140 (GQ) [‡]	4 General Education Course (GN or GA or GH)	3
SRA 111 (GS) ^{+†}	3 General Education Course (GN or GA or GH) or Elective	3
16		15

Second Year

Fall	Credits Spring	Credits
IST 210 ^{*#}	3 IST 256 [*]	3
CAS 100 (GWS) [‡]	3 ENGL 202C or 202D (GWS) [‡]	3
ECON 102/ ECON 104 or PSYCH 100/ SOC 5 or PLSC 1/PLSC 14 (GS) [†]	3 SRA 221	3
STAT 200 [‡] (GQ) or SCM 200 [‡] (GQ) or DS 200 [*]	4 General Education Course (GN or GA or GH)	3
Elective or General Education Course (GN/GA/GH)	3	
16		12

Third Year

Fall	Credits Spring	Credits Summer	Credits
IST 302 [*]	3 IST 260W [*]	3 IST 495 [*]	1
IST 331 [*]	3 Advanced IT Selection 1 [*]	3	
Networking Selection (IST 226 or IST 454) [*]	3 Option 2 [*]	3	

Business Selection [*]	3 General Education Course (GN or GA or GH)	3
Option 1 [*]	3 General Education Course (GN or GA or GH)	3
	General Education Course (GN or GA or GH) [*]	3
15		18
		1

Fourth Year

Fall	Credits Spring	Credits
General Education Course (GHW)	3 ETI 461 [*]	3
Option 3 [*]	3 IST 440W [*]	3
Advanced IT Selection 2 [*]	3 IST 452 (Option 4) [*]	3
Elective	3 General Education Course (GN or GA or GH)	3
	Elective	3
12		15

Total Credits 120

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Business Selection Courses (cannot double count with other Additional or Option requirements):
 - ACCTG 211
 - BA 100
 - ECON 102
 - ECON 104

- MGMT 301
- MKTG 301
- Networking Selection Courses (cannot double count with other Additional or Option requirements):
 - CYBER 262
 - IST 226
 - IST 451
 - IST 454
- Option Courses:
 - Application Development:
 - Select 12 credits, with at least 3 credits at the 400 level from: IST 261, IST 311, IST 361, IST 411, IST 412, IST 413
 - Business Applications:
 - ACCTG 211
 - Select 3 credits from: FIN 301, MGMT 301, MKTG 301, SCM 301
 - Select 6 credits, with at least 3 credits at the 400 level from: ACCTG, BA, BLAW, EBF, ECON, ENTR, FIN, FINSV, HPA, IB, LER, MIS, MGMT, MKTG, RM, SCM, or STAT
 - Cybersecurity:
 - Select 12 credits, with at least 3 credits at the 400 level from: CYBER 262, IST 451, IST 454, IST 456, SRA 472, or any 300 or 400 level CYBER course
 - Security and Risk Analysis:
 - Select 12 credits, with at least 3 credits at the 400 level from: SRA 211, SRA 231, SRA 311, SRA 365, IST 432, IST 452, IST 456

Schuylkill Campus

Application Development Option: Information Technology, B.S. at Schuylkill Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [†]	3 CAS 100 (GWS) [†]	3
IST 110 or CYBER 100 ^{*#}	3 MATH 110 or 140 (GQ) [†]	4
IST 140* [#] or CMPSC 121 (GQ) ^{#‡} or CMPSC 131 ^{*#}	3 IST 220 ^{*#}	3
SRA 111 (GS) ^{*†}	3 IST 242 [*]	3
First-Year Seminar (IST 111S)	1 General Education Course (GN or GA or GH)	3
General Education Course (GN or GA or GH) or Elective	3	
	16	16

Second Year

Fall	Credits Spring	Credits
IST 230 [*]	3 IST 210 ^{*#}	3
IST 261 (Option 2) [*]	3 IST 256 [*]	3
SRA 221 [*]	3 Business Selection [*]	3
STAT 200 [†] (GQ) or SCM 200 [†] (GQ) or DS 200 [*]	4 ENGL 202C or 202D (GWS) [†]	3
ECON 102/ECON 104 or PSYCH 100/SOC 5 or PLSC 1/PLSC 14 (GS) [†]	3 General Education Course (GN or GA or GH)	3
	16	15

Third Year

Fall	Credits Spring	Credits
IST 302 [*]	3 IST 260W [*]	3
IST 311 (Option 1) [*]	3 IST 411 (Option 3) [*]	3
IST 331 [*]	3 Networking Selection [*]	3
General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3
General Education Course (GN or GA or GH)	3 Elective or General Education Course (GN/GA/GH)	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
IST 495 [*]	1 IST 440W [*]	3
ETI 461 [*]	3 IST 413 (Option 4) [*]	3
Advanced IT Selection 1 [*]	3 Advanced IT Selection 2 [*]	3
General Education Course (GHW)	3 General Education Course (GN or GA or GH)	3

Elective	3 Elective	2
	13	14

Total Credits 120

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Business Selection Courses (cannot double count with other Additional or Option requirements):
 - ACCTG 211
 - BA 100
 - ECON 102
 - ECON 104
 - MGMT 301
 - MKTG 301
- Networking Selection Courses (cannot double count with other Additional or Option requirements):
 - CYBER 262
 - IST 226
 - IST 451
 - IST 454
- Option Courses:
 - Application Development:
 - Select 12 credits, with at least 3 credits at the 400 level from: IST 261, IST 311, IST 361, IST 411, IST 412, IST 413
 - Business Applications:
 - ACCTG 211
 - Select 3 credits from: FIN 301, MGMT 301, MKTG 301, SCM 301
 - Select 6 credits, with at least 3 credits at the 400 level from: ACCTG, BA, BLAW, EBF, ECON, ENTR, FIN, FINSV, HPA, IB, LER, MIS, MGMT, MKTG, RM, SCM, or STAT
 - Cybersecurity:
 - Select 12 credits, with at least 3 credits at the 400 level from: CYBER 262, IST 451, IST 454, IST 456, SRA 472, or any 300 or 400 level CYBER course
 - Security and Risk Analysis:

- Select 12 credits, with at least 3 credits at the 400 level from:
SRA 211, SRA 231, SRA 311, SRA 365, IST 432, IST 452,
IST 456

Business Applications Option: Information Technology, B.S. at Schuylkill Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [†]	3 CAS 100 (GWS) [‡]	3
IST 110 or CYBER 100 ^{*#}	3 MATH 110 or 140 (GQ) [‡]	4
IST 140* [#] or CMPSC 121 (GQ) ^{#‡} or CMPSC 131 ^{*#}	3 IST 220 ^{*#}	3
SRA 111 (GS) ^{*†}	3 IST 242 [*]	3
First-Year Seminar (IST 111S)	1 General Education Course (GN or GA or GH)	3
General Education Course (GN or GA or GH) or Elective	3	
	16	16

Second Year

Fall	Credits Spring	Credits
IST 230 [*]	3 IST 210 ^{*#}	3
SRA 221 [*]	3 IST 256 [*]	3
STAT 200 [‡] (GQ) or SCM 200 [‡] (GQ) or DS 200 [*]	4 ACCTG 211 (Option 1) [*]	4
ECON 102/ECON 104 or PSYCH 100/SOC 5 or PLSC 1/PLSC 14 (GS) [†]	3 ENGL 202C or 202D (GWS) [‡]	3
Elective or General Education Course (GN/GA/GH)	3 General Education Course (GN or GA or GH)	3
	16	16

Third Year

Fall	Credits Spring	Credits
IST 302 [*]	3 IST 260W [*]	3
IST 331 [*]	3 Option 2 [*]	3
Business Selection [*]	4 Advanced IT Selection - Business Option [*]	3
General Education Course (GN or GA or GH)	3 Networking Selection [*]	3
General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3
	16	15

Fourth Year

Fall	Credits Spring	Credits
IST 495 [*]	1 IST 440W [*]	3
ETI 461 [*]	3 Option 4 [*]	3
Option 3 [*]	3 Advanced IT Selection [*]	3
General Education Course (GHW)	3 General Education Course (GN or GA or GH)	3

Elective	3 Elective	1
	13	13

Total Credits 121

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Business Selection Courses (cannot double count with other Additional or Option requirements):
 - ACCTG 211
 - BA 100
 - ECON 102
 - ECON 104
 - MGMT 301
 - MKTG 301
- Networking Selection Courses (cannot double count with other Additional or Option requirements):
 - CYBER 262
 - IST 226
 - IST 451
 - IST 454
- Option Courses:
 - Application Development:
 - Select 12 credits, with at least 3 credits at the 400 level from: IST 261, IST 311, IST 361, IST 411, IST 412, IST 413
 - Business Applications:
 - ACCTG 211
 - Select 3 credits from: FIN 301, MGMT 301, MKTG 301, SCM 301
 - Select 6 credits, with at least 3 credits at the 400 level from: ACCTG, BA, BLAW, EBF, ECON, ENTR, FIN, FINSV, HPA, IB, LER, MIS, MGMT, MKTG, RM, SCM, or STAT
 - Cybersecurity:
 - Select 12 credits, with at least 3 credits at the 400 level from: CYBER 262, IST 451, IST 454, IST 456, SRA 472, or any 300 or 400 level CYBER course
 - Security and Risk Analysis:

- Select 12 credits, with at least 3 credits at the 400 level from:
SRA 211, SRA 231, SRA 311, SRA 365, IST 432, IST 452,
IST 456

Custom Information Technology Option: Information Technology, B.S. at Schuylkill Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100 (GWS) [‡]	3
IST 110 or CYBER 100 ^{*#}	3 MATH 110 or 140 (GQ) [‡]	4
IST 140* [#] or CMPSC 121 (GQ) ^{#‡} or CMPSC 131 ^{*#}	3 IST 220 ^{*#}	3
SRA 111 (GS) ^{*†}	3 IST 242 [*]	3
First-Year Seminar (IST 111S)	1 General Education Course (GN or GA or GH)	3
General Education Course (GN or GA or GH) or Elective	3	
	16	16

Second Year

Fall	Credits Spring	Credits
IST 230 [*]	3 IST 210 ^{*#}	3
SRA 221 [*]	3 IST 256 [*]	3
STAT 200 [‡] (GQ) or SCM 200 [‡] (GQ) or DS 200 [*]	4 Business Selection [*]	3
ECON 102/ECON 104 or PSYCH 100/SOC 5 or PLSC 1/PLSC 14 (GS) [†]	3 ENGL 202C or 202D (GWS) [‡]	3
Elective or General Education Course (GN/GA/GH)	3 General Education Course (GN or GA or GH)	3
	16	15

Third Year

Fall	Credits Spring	Credits
IST 302 [*]	3 IST 260W [*]	3
IST 331 [*]	3 Option 2 [*]	3
Option 1 [*]	3 Networking Selection [*]	3
General Education Course (GN or GA or GH)	3 Advanced IT Selection 1 [*]	3
General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
IST 495 [*]	1 IST 440W [*]	3
ETI 461 [*]	3 Option 4 [*]	3
Option 3 [*]	3 Advanced IT Selection 2 [*]	3
General Education Course (GHW)	3 General Education Course (GN or GA or GH)	3
Elective	3 Elective	2
	13	14

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Business Selection Courses (cannot double count with other Additional or Option requirements):
 - ACCTG 211
 - BA 100
 - ECON 102
 - ECON 104
 - MGMT 301
 - MKTG 301
- Networking Selection Courses (cannot double count with other Additional or Option requirements):
 - CYBER 262
 - IST 226
 - IST 451
 - IST 454
- Option Courses:
 - Application Development:
 - Select 12 credits, with at least 3 credits at the 400 level from: IST 261, IST 311, IST 361, IST 411, IST 412, IST 413
 - Business Applications:
 - ACCTG 211
 - Select 3 credits from: FIN 301, MGMT 301, MKTG 301, SCM 301
 - Select 6 credits, with at least 3 credits at the 400 level from: ACCTG, BA, BLAW, EBF, ECON, ENTR, FIN, FINSV, HPA, IB, LER, MIS, MGMT, MKTG, RM, SCM, or STAT
 - Cybersecurity:
 - Select 12 credits, with at least 3 credits at the 400 level from: CYBER 262, IST 451, IST 454, IST 456, SRA 472, or any 300 or 400 level CYBER course
 - Security and Risk Analysis:
 - Select 12 credits, with at least 3 credits at the 400 level from: SRA 211, SRA 231, SRA 311, SRA 365, IST 432, IST 452, IST 456

CyberSecurity Option: Information Technology, B.S. at Schuylkill Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [†]	3 CAS 100 (GWS) [†]	3
IST 110 or CYBER 100 ^{*#}	3 MATH 110 or 140 (GQ) [†]	4
IST 140 ^{*#} or CMPSC 121 (GQ) ^{#†} or CMPSC 131 ^{*#}	3 IST 220 ^{*#}	3
SRA 111 (GS) ^{*†}	3 IST 242 [*]	3
First-Year Seminar (IST 111S)	1 General Education Course (GN or GA or GH)	3
General Education Course (GN or GA or GH) or Elective	3	
	16	16

Second Year

Fall	Credits Spring	Credits
IST 230 [*]	3 IST 210 ^{*#}	3
CYBER 262 (Option 1) [*]	3 IST 256 [*]	3
SRA 221 [*]	3 ENGL 202C or 202D (GWS) [†]	3
STAT 200 [†] (GQ) or SCM 200 [†] (GQ) or DS 200 [*]	4 General Education Course (GN or GA or GH)	3
ECON 102/ECON 104 or PSYCH 100/SOC 5 or PLSC 1/PLSC 14 (GS) [†]	3 Elective or General Education Course (GN/GA/GH)	3
	16	15

Third Year

Fall	Credits Spring	Credits
IST 302 [*]	3 IST 260W [*]	3
IST 331 [*]	3 Option 2 [*]	3
Business Selection [*]	3 Networking Selection [*]	3
General Education Course (GN or GA or GH)	3 Advanced IT Selection 1 [*]	3
General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
IST 495 [*]	1 IST 440W [*]	3
ETI 461 [*]	3 Option 4 [*]	3
Option 3 [*]	3 Advanced IT Selection 2 [*]	3
General Education Course (GHW)	3 General Education Course (GN or GA or GH)	3
Elective	3 Elective	2
	13	14

Total Credits 120

* Course requires a grade of C or better for the major

† Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Business Selection Courses (cannot double count with other Additional or Option requirements):
 - ACCTG 211
 - BA 100
 - ECON 102
 - ECON 104
 - MGMT 301
 - MKTG 301
- Networking Selection Courses (cannot double count with other Additional or Option requirements):
 - CYBER 262
 - IST 226
 - IST 451
 - IST 454
- Option Courses:
 - Application Development:
 - Select 12 credits, with at least 3 credits at the 400 level from: IST 261, IST 311, IST 361, IST 411, IST 412, IST 413
 - Business Applications:
 - ACCTG 211
 - Select 3 credits from: FIN 301, MGMT 301, MKTG 301, SCM 301
 - Select 6 credits, with at least 3 credits at the 400 level from: ACCTG, BA, BLAW, EBF, ECON, ENTR, FIN, FINSV, HPA, IB, LER, MIS, MGMT, MKTG, RM, SCM, or STAT
 - Cybersecurity:
 - Select 12 credits, with at least 3 credits at the 400 level from: CYBER 262, IST 451, IST 454, IST 456, SRA 472, or any 300 or 400 level CYBER course
 - Security and Risk Analysis:
 - Select 12 credits, with at least 3 credits at the 400 level from: SRA 211, SRA 231, SRA 311, SRA 365, IST 432, IST 452, IST 456

Security and Risk Analysis Option: Information Technology, B.S. at Schuylkill Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100 (GWS) [‡]	3
IST 110 or CYBER 100 ^{*#}	3 MATH 110 or 140 (GQ) [‡]	4
IST 140* [#] or CMPSC 121 (GQ) ^{#‡} or CMPSC 131 ^{*#}	3 IST 220 ^{*#}	3
SRA 111 (GS) ^{*†}	3 IST 242 [*]	3
First-Year Seminar (IST 111S)	1 General Education Course (GN or GA or GH)	3
General Education Course (GN or GA or GH) or Elective	3	
	16	16

Second Year

Fall	Credits Spring	Credits
IST 230 [*]	3 IST 210 ^{*#}	3
SRA 221 [*]	3 IST 256 [*]	3
STAT 200 [‡] (GQ) or SCM 200 [‡] (GQ) or DS 200 [*]	4 SRA 211 (Option 1) [*]	3
ECON 102/ECON 104 or PSYCH 100/SOC 5 or PLSC 1/PLSC 14 (GS) [†]	3 ENGL 202C or 202D (GWS) [‡]	3
Elective or General Education Course (GN/GA/GH)	3 General Education Course (GN or GA or GH)	3
	16	15

Third Year

Fall	Credits Spring	Credits
IST 302 [*]	3 IST 260W [*]	3
IST 331 [*]	3 SRA 231 (Option 2) [*]	3
Business Selection [*]	3 Networking Selection [*]	3
General Education Course (GN or GA or GH)	3 Advanced IT Selection 1 [*]	3
General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
IST 495 [*]	1 IST 440W [*]	3
ETI 461 [*]	3 Option 4 [*]	3
Option 3 [*]	3 Advanced IT Selection 2 [*]	3
General Education Course (GHW)	3 General Education Course (GN or GA or GH)	3
Elective	3 Elective	2
	13	14

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Business Selection Courses (cannot double count with other Additional or Option requirements):
 - ACCTG 211
 - BA 100
 - ECON 102
 - ECON 104
 - MGMT 301
 - MKTG 301
- Networking Selection Courses (cannot double count with other Additional or Option requirements):
 - CYBER 262
 - IST 226
 - IST 451
 - IST 454
- Option Courses:
 - Application Development:
 - Select 12 credits, with at least 3 credits at the 400 level from: IST 261, IST 311, IST 361, IST 411, IST 412, IST 413
 - Business Applications:
 - ACCTG 211
 - Select 3 credits from: FIN 301, MGMT 301, MKTG 301, SCM 301
 - Select 6 credits, with at least 3 credits at the 400 level from: ACCTG, BA, BLAW, EBF, ECON, ENTR, FIN, FINSV, HPA, IB, LER, MIS, MGMT, MKTG, RM, SCM, or STAT
 - Cybersecurity:
 - Select 12 credits, with at least 3 credits at the 400 level from: CYBER 262, IST 451, IST 454, IST 456, SRA 472, or any 300 or 400 level CYBER course
 - Security and Risk Analysis:
 - Select 12 credits, with at least 3 credits at the 400 level from: SRA 211, SRA 231, SRA 311, SRA 365, IST 432, IST 452, IST 456

Scranton Campus

Application Development Option: Information Technology, B.S. at Scranton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [†]	3 MATH 110 or 140 (GQ) [†]	4
IST 110 or CYBER 100 ^{*#}	3 IST 210 ^{*#}	3
IST 140 ^{*#} or CMPSC 121 (GQ) ^{#‡} or CMPSC 131 ^{*#}	3 IST 220 ^{*#}	3
SRA 111 (GS) ^{*†}	3 IST 242 [*]	3
First-Year Seminar (IST 111S)	1 General Education Course (GN or GA or GH)	3
General Education Course (GN or GA or GH) or Elective	3	
	16	16

Second Year

Fall	Credits Spring	Credits
CAS 100A, 100B, or 100C (GWS) [†]	3 IST 256 [*]	3
IST 230 [*]	3 IST 261 (Option 1) [*]	3
STAT 200 [‡] (GQ) or SCM 200 [‡] (GQ) or DS 200 [*]	4 SRA 221 [*]	3
ECON 102/ECON 104 or PSYCH 100/SOC 5 or PLSC 1/PLSC 14 (GS) [†]	3 ENGL 202C or 202D (GWS) [‡]	3
Elective or General Education Course (GN/GA/GH)	3 General Education Course (GN or GA or GH)	3
	16	15

Third Year

Fall	Credits Spring	Credits
IST 331 [*]	3 IST 260W [*]	3
IST 311 (Option 2) [*]	3 IST 411 (Option 3) [*]	3
Networking Selection [*]	3 Business Selection [*]	3
Advanced IT Selection 1 [*]	3 General Education Course (GHW)	3
General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
IST 302 [*]	3 IST 440W [*]	3
IST 412 (Option 4) [*]	3 ETI 461 [*]	3
IST 495 [*]	1 General Education Course (GN or GA or GH)	3
Advanced IT Selection 2 [*]	3 Elective	3

General Education Course (GN or GA or GH)	3 Elective	2
	13	14

Total Credits 120

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Business Selection Courses (cannot double count with other Additional or Option requirements):
 - ACCTG 211
 - BA 100
 - ECON 102
 - ECON 104
 - MGMT 301
 - MKTG 301
- Networking Selection Courses (cannot double count with other Additional or Option requirements):
 - CYBER 262
 - IST 226
 - IST 451
 - IST 454
- Option Courses:
 - Application Development:
 - Select 12 credits, with at least 3 credits at the 400 level from: IST 261, IST 311, IST 361, IST 411, IST 412, IST 413
 - Business Applications:
 - ACCTG 211
 - Select 3 credits from: FIN 301, MGMT 301, MKTG 301, SCM 301
 - Select 6 credits, with at least 3 credits at the 400 level from: ACCTG, BA, BLAW, EBF, ECON, ENTR, FIN, FINSV, HPA, IB, LER, MIS, MGMT, MKTG, RM, SCM, or STAT
 - Cybersecurity:
 - Select 12 credits, with at least 3 credits at the 400 level from: CYBER 262, IST 451, IST 454, IST 456, SRA 472, or any 300 or 400 level CYBER course
 - Security and Risk Analysis:

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- Select 12 credits, with at least 3 credits at the 400 level from:
SRA 211, SRA 231, SRA 311, SRA 365, IST 432, IST 452,
IST 456

Business Applications Option: Information Technology, B.S. at Scranton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [†]	3 MATH 110 or 140 (GQ) [‡]	4
IST 110 or CYBER 100 ^{*#}	3 IST 210 ^{*#}	3
IST 140 ^{*#} or CMPSC 121 (GQ) ^{#‡} or CMPSC 131 ^{*#}	3 IST 220 ^{*#}	3
SRA 111 (GS) ^{*†}	3 IST 242 [*]	3
First-Year Seminar (IST 111S)	1 General Education Course (GN or GA or GH)	3
General Education Course (GN or GA or GH) or Elective	3	
	16	16

Second Year

Fall	Credits Spring	Credits
CAS 100A, 100B, or 100C (GWS) [‡]	3 IST 256 [*]	3
IST 230 [*]	3 SRA 221 [*]	3
STAT 200 [‡] (GQ) or SCM 200 [‡] (GQ) or DS 200 [*]	4 ACCTG 211 (Option 1) [*]	4
ECON 102/ECON 104 or PSYCH 100/SOC 5 or PLSC 1/PLSC 14 (GS) [†]	3 ENGL 202C or 202D (GWS) [‡]	3
Elective or General Education Course (GN/GA/GH)	3 General Education Course (GN or GA or GH)	3
	16	16

Third Year

Fall	Credits Spring	Credits
IST 302 [*]	3 IST 260W [*]	3
IST 331 [*]	3 Option 2 [*]	3
Business Selection [*]	4 Advanced IT Selection - Business Option [*]	3
Networking Selection [*]	3 General Education Course (GN or GA or GH) [*]	3
General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3
	16	15

Fourth Year

Fall	Credits Spring	Credits
IST 495 [*]	1 IST 440W [*]	3
Option 3 [*]	3 Option 4 [*]	3
Advanced IT Selection [*]	3 ETI 461 [*]	3
General Education Course (GHW)	3 General Education Course (GN or GA or GH)	3

Elective	3 Elective	1
	13	13

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Business Selection Courses (cannot double count with other Additional or Option requirements):
 - ACCTG 211
 - BA 100
 - ECON 102
 - ECON 104
 - MGMT 301
 - MKTG 301
- Networking Selection Courses (cannot double count with other Additional or Option requirements):
 - CYBER 262
 - IST 226
 - IST 451
 - IST 454
- Option Courses:
 - Application Development:
 - Select 12 credits, with at least 3 credits at the 400 level from: IST 261, IST 311, IST 361, IST 411, IST 412, IST 413
 - Business Applications:
 - ACCTG 211
 - Select 3 credits from: FIN 301, MGMT 301, MKTG 301, SCM 301
 - Select 6 credits, with at least 3 credits at the 400 level from: ACCTG, BA, BLAW, EBF, ECON, ENTR, FIN, FINSV, HPA, IB, LER, MIS, MGMT, MKTG, RM, SCM, or STAT
 - Cybersecurity:
 - Select 12 credits, with at least 3 credits at the 400 level from: CYBER 262, IST 451, IST 454, IST 456, SRA 472, or any 300 or 400 level CYBER course
 - Security and Risk Analysis:

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- Select 12 credits, with at least 3 credits at the 400 level from:
SRA 211, SRA 231, SRA 311, SRA 365, IST 432, IST 452,
IST 456

Custom Information Technology Option: Information Technology, B.S. at Scranton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [†]	3 MATH 110 or 140 (GQ) [†]	4
IST 110 or CYBER 100 ^{*#}	3 IST 210 ^{*#}	3
IST 140 ^{*#} or CMPSC 121 (GQ) ^{#†} or CMPSC 131 ^{*#}	3 IST 220 ^{*#}	3
SRA 111 (GS) ^{*†}	3 IST 242 [*]	3
First-Year Seminar (IST 111S)	1 General Education Course (GN or GA or GH)	3
General Education Course (GN or GA or GH) or Elective	3	
	16	16

Second Year

Fall	Credits Spring	Credits
CAS 100A, 100B, or 100C (GWS) [†]	3 IST 256 [*]	3
IST 230 [*]	3 SRA 221 [*]	3
STAT 200 [†] (GQ) or SCM 200 [†] (GQ) or DS 200 [*]	4 Business Selection [*]	3
ECON 102/ECON 104 or PSYCH 100/SOC 5 or PLSC 1/PLSC 14 (GS) [†]	3 ENGL 202C or 202D (GWS) [†]	3
Elective or General Education Course (GN/GA/GH)	3 General Education Course (GN or GA or GH)	3
	16	15

Third Year

Fall	Credits Spring	Credits
IST 302 [*]	3 IST 260W [*]	3
IST 331 [*]	3 Option 2 [*]	3
Option 1 [*]	3 General Education Course (GN or GA or GH)	3
Networking Selection [*]	3 General Education Course (GN or GA or GH)	3
General Education Course (GN or GA or GH)	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
IST 495 [*]	1 IST 440W [*]	3
Option 3 [*]	3 ETI 461 [*]	3
Advanced IT Selection 1 [*]	3 Option 4 [*]	3
Advanced IT Selection 2 [*]	3 General Education Course (GN or GA or GH)	3

General Education Course (GHW)	3 Elective	2
	13	14

Total Credits 120

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Business Selection Courses (cannot double count with other Additional or Option requirements):
 - ACCTG 211
 - BA 100
 - ECON 102
 - ECON 104
 - MGMT 301
 - MKTG 301
- Networking Selection Courses (cannot double count with other Additional or Option requirements):
 - CYBER 262
 - IST 226
 - IST 451
 - IST 454
- Option Courses:
 - Application Development:
 - Select 12 credits, with at least 3 credits at the 400 level from: IST 261, IST 311, IST 361, IST 411, IST 412, IST 413
 - Business Applications:
 - ACCTG 211
 - Select 3 credits from: FIN 301, MGMT 301, MKTG 301, SCM 301
 - Select 6 credits, with at least 3 credits at the 400 level from: ACCTG, BA, BLAW, EBF, ECON, ENTR, FIN, FINSV, HPA, IB, LER, MIS, MGMT, MKTG, RM, SCM, or STAT
 - Cybersecurity:
 - Select 12 credits, with at least 3 credits at the 400 level from: CYBER 262, IST 451, IST 454, IST 456, SRA 472, or any 300 or 400 level CYBER course
 - Security and Risk Analysis:

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- Select 12 credits, with at least 3 credits at the 400 level from:
SRA 211, SRA 231, SRA 311, SRA 365, IST 432, IST 452,
IST 456

CyberSecurity Option: Information Technology, B.S. at Scranton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [†]	3 MATH 110 or 140 (GQ) [‡]	4
CYBER 100 ^{*#}	3 IST 210 ^{*#}	3
IST 140 ^{*#} or CMPSC 121 (GQ) ^{#‡} or CMPSC 131 ^{*#}	3 IST 220 ^{*#}	3
SRA 111 (GS) ^{*†}	3 IST 242 [*]	3
First-Year Seminar (IST 111S)	1 General Education Course (GN or GA or GH)	3
General Education Course (GN or GA or GH) or Elective	3	
	16	16

Second Year

Fall	Credits Spring	Credits
CAS 100A, 100B, or 100C (GWS) [‡]	3 IST 256 [*]	3
IST 230 [*]	3 SRA 221 [*]	3
STAT 200 [‡] (GQ) or SCM 200 [‡] (GQ) or DS 200 [*]	4 CYBER 262 (Option 1) [*]	3
ECON 102/ECON 104 or PSYCH 100/SOC 5 or PLSC 1/PLSC 14 (GS) [†]	3 ENGL 202C or 202D (GWS) [‡]	3
Elective or General Education Course (GN/GA/GH)	3 General Education Course (GN or GA or GH)	3
	16	15

Third Year

Fall	Credits Spring	Credits
IST 302 [*]	3 IST 260W [*]	3
IST 331 [*]	3 Option 3 [*]	3
Option 2 [*]	3 Business Selection [*]	3
Networking Selection [*]	3 General Education Course (GN or GA or GH)	3
General Education Course (GN or GA or GH)	3 General Education Course (GHW)	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
IST 495 [*]	1 IST 440W [*]	3
Option 4 [*]	3 ETI 461 [*]	3
Advanced IT Selection 1 [*]	3 General Education Course (GN or GA or GH)	3
Advanced IT Selection 2 [*]	3 General Education Course (GN or GA or GH)	3

Elective	3 Elective	2
	13	14

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Business Selection Courses (cannot double count with other Additional or Option requirements):
 - ACCTG 211
 - BA 100
 - ECON 102
 - ECON 104
 - MGMT 301
 - MKTG 301
- Networking Selection Courses (cannot double count with other Additional or Option requirements):
 - CYBER 262
 - IST 226
 - IST 451
 - IST 454
- Option Courses:
 - Application Development:
 - Select 12 credits, with at least 3 credits at the 400 level from: IST 261, IST 311, IST 361, IST 411, IST 412, IST 413
 - Business Applications:
 - ACCTG 211
 - Select 3 credits from: FIN 301, MGMT 301, MKTG 301, SCM 301
 - Select 6 credits, with at least 3 credits at the 400 level from: ACCTG, BA, BLAW, EBF, ECON, ENTR, FIN, FINSV, HPA, IB, LER, MIS, MGMT, MKTG, RM, SCM, or STAT
 - Cybersecurity:
 - Select 12 credits, with at least 3 credits at the 400 level from: CYBER 262, IST 451, IST 454, IST 456, SRA 472, or any 300 or 400 level CYBER course
 - Security and Risk Analysis:

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- Select 12 credits, with at least 3 credits at the 400 level from:
SRA 211, SRA 231, SRA 311, SRA 365, IST 432, IST 452,
IST 456

Wilkes-Barre Campus

Custom Information Technology Option: Information Technology, B.S. at Wilkes-Barre Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [†]	3 CAS 100 (GWS) [†]	3
IST 110 or CYBER 100 ^{*#}	3 MATH 110 or 140 (GQ) [‡]	4
IST 140 ^{*#}	3 IST 242 [*]	3
First-Year Seminar (PSU 8)	1 SRA 111 (GS) ^{*†}	3
General Education Course (GN or GA or GH) or Elective	3 General Education Course (GN or GA or GH)	3
Elective or General Education Course (GN/GA/GH)	3	
	16	16

Second Year

Fall	Credits Spring	Credits
STAT 200 [‡] (GQ) or SCM 200 [‡] (GQ) or DS 200 [*]	4 IST 210 ^{*#}	3
ECON 102/ECON 104 or PSYCH 100/SOC 5 or PLSC 1/PLSC 14 (GS) [†]	3 IST 230 [*]	3
Business Selection [*]	3 IST 256 [*]	3
General Education Course (GN or GA or GH)	3 SRA 221 [*]	3
IST 220 ^{*#}	3 ENGL 202C or 202D (GWS) [‡]	3
	16	15

Third Year

Fall	Credits Spring	Credits
IST 302 [*]	3 IST 260W [*]	3
IST 331 [*]	3 IST 331 (Option 1) [*]	3
Networking Selection [*]	3 Option 2 [*]	3
General Education Course (GN or GA or GH)	3 Advanced IT Selection 1 [*]	3
General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
IST 440W [*]	3 ETI 461 [*]	3
IST 495 [*]	1 Option 4 [*]	3
Advanced IT Selection 2 [*]	3 General Education Course (GN or GA or GH)	3
Option 3 [*]	3 Elective	2
General Education Course (GHW)	3	

Elective	3	
	16	11

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Business Selection Courses (cannot double count with other Additional or Option requirements):
 - ACCTG 211
 - BA 100
 - ECON 102
 - ECON 104
 - MGMT 301
 - MKTG 301
- Networking Selection Courses (cannot double count with other Additional or Option requirements):
 - CYBER 262
 - IST 226
 - IST 451
 - IST 454
- Option Courses:
 - Application Development:
 - Select 12 credits, with at least 3 credits at the 400 level from: IST 261, IST 311, IST 361, IST 411, IST 412, IST 413
 - Business Applications:
 - ACCTG 211
 - Select 3 credits from: FIN 301, MGMT 301, MKTG 301, SCM 301
 - Select 6 credits, with at least 3 credits at the 400 level from: ACCTG, BA, BLAW, EBF, ECON, ENTR, FIN, FINSV, HPA, IB, LER, MIS, MGMT, MKTG, RM, SCM, or STAT
 - Cybersecurity:
 - Select 12 credits, with at least 3 credits at the 400 level from: CYBER 262, IST 451, IST 454, IST 456, SRA 472, or any 300 or 400 level CYBER course
 - Security and Risk Analysis:

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- Select 12 credits, with at least 3 credits at the 400 level from:
SRA 211, SRA 231, SRA 311, SRA 365, IST 432, IST 452,
IST 456

York Campus

Application Development Option: Information Technology, B.S. at York Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [†]	3 CAS 100A, 100B, or 100C (GWS) [†]	3
IST 110 or CYBER 100 ^{*#}	3 IST 210 ^{*#}	3
IST 140 ^{*#}	3 IST 220 ^{*#}	3
SRA 111 (GS) ^{*†}	3 IST 242 [*]	3
First-Year Seminar (IST 111S)	1 ECON 102 (GS) [†]	3
General Education Course (GN or GA or GH) or Elective	3	
	16	15

Second Year

Fall	Credits Spring	Credits
MATH 110 or 140 (GQ) [‡]	4 IST 256 [*]	3
General Education Course (GN or GA or GH)	3 IST 230 [*]	3
STAT 200 [‡] (GQ) or SCM 200 [‡] (GQ) or DS 200 [*]	4 MGMT 301 [*]	3
IST 260W [*]	3 ENGL 202C or 202D (GWS) [‡]	3
SRA 221 [*]	3 General Education Course (GN or GA or GH)	3
	17	15

Third Year

Fall	Credits Spring	Credits
IST 302 [*]	3 Elective or General Education Course (GN/GA/GH)	3
IST 311 (Option 1) [*]	3 IST 331 [*]	3
Networking Selection [*]	3 MKTG 301 [*]	3
General Education Course (GN or GA or GH)	3 Business Course [*]	3
General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
IST 495 [*]	1 IST 440W [*]	3
ETI 461 [*]	3 Elective	3
Advanced IT Selection: IST 402 [*]	3 Advanced IT Selection: MIS 404 [*]	3
General Education Course (GHW)	3 General Education Course (GN or GA or GH)	3

IST 413 (Option 4) [*]	3 Elective	2
	13	14

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Business Selection Courses (cannot double count with other Additional or Option requirements):
 - ACCTG 211
 - BA 100
 - ECON 102
 - ECON 104
 - MGMT 301
 - MKTG 301
- Networking Selection Courses (cannot double count with other Additional or Option requirements):
 - CYBER 262
 - IST 226
 - IST 451
 - IST 454
- Option Courses:
 - Application Development:
 - Select 12 credits, with at least 3 credits at the 400 level from: IST 261, IST 311, IST 361, IST 411, IST 412, IST 413
 - Business Applications:
 - ACCTG 211
 - Select 3 credits from: FIN 301, MGMT 301, MKTG 301, SCM 301
 - Select 6 credits, with at least 3 credits at the 400 level from: ACCTG, BA, BLAW, EBF, ECON, ENTR, FIN, FINSV, HPA, IB, LER, MIS, MGMT, MKTG, RM, SCM, or STAT
 - Cybersecurity:
 - Select 12 credits, with at least 3 credits at the 400 level from: CYBER 262, IST 451, IST 454, IST 456, SRA 472, or any 300 or 400 level CYBER course
 - Security and Risk Analysis:

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- Select 12 credits, with at least 3 credits at the 400 level from:
SRA 211, SRA 231, SRA 311, SRA 365, IST 432, IST 452,
IST 456

Business Applications Option: Information Technology, B.S. at York Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100A, 100B, or 100C (GWS) [‡]	3
IST 110 or CYBER 100 ^{*#}	3 IST 210 ^{*#}	3
IST 140 ^{*#}	3 IST 220 ^{*#}	3
SRA 111 (GS) ^{*†}	3 IST 242 [*]	3
First-Year Seminar (IST 111S)	1 ECON 102 (GS) [†]	3
General Education Course (GN or GA or GH) or Elective	3	
	16	15

Second Year

Fall	Credits Spring	Credits
MATH 110 or 140 (GQ) [‡]	4 IST 256 [*]	3
SRA 221 [*]	3 IST 230 [*]	3
STAT 200 [‡] (GQ) or SCM 200 [‡] (GQ) or DS 200 [*]	4 MGMT 301 [*]	3
General Education Course (GN or GA or GH)	3 ENGL 202C or 202D (GWS) [‡]	3
IST 260W [*]	3 General Education Course (GN or GA or GH)	3
	17	15

Third Year

Fall	Credits Spring	Credits
IST 302 [*]	3 Elective or General Education Course (GN/GA/GH) [*]	3
Networking Selection [*]	3 MKTG 301 [*]	3
ACCTG 211 (Option 1) [*]	4 Business Course [*]	3
General Education Course (GN or GA or GH)	3 IST 331 [*]	3
General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3
	16	15

Fourth Year

Fall	Credits Spring	Credits
IST 495 [*]	1 IST 440W [*]	3
ETI 461 [*]	3 Elective	3
Advanced IT Selection: IST 402 [*]	3 Advanced IT Selection: MIS 404 [*]	3
General Education Course (GHW)	3 General Education Course (GN or GA or GH)	3

Option 4 [*]	3 Elective	1
	13	13

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Business Selection Courses (cannot double count with other Additional or Option requirements):
 - ACCTG 211
 - BA 100
 - ECON 102
 - ECON 104
 - MGMT 301
 - MKTG 301
- Networking Selection Courses (cannot double count with other Additional or Option requirements):
 - CYBER 262
 - IST 226
 - IST 451
 - IST 454
- Option Courses:
 - Application Development:
 - Select 12 credits, with at least 3 credits at the 400 level from: IST 261, IST 311, IST 361, IST 411, IST 412, IST 413
 - Business Applications:
 - ACCTG 211
 - Select 3 credits from: FIN 301, MGMT 301, MKTG 301, SCM 301
 - Select 6 credits, with at least 3 credits at the 400 level from: ACCTG, BA, BLAW, EBF, ECON, ENTR, FIN, FINSV, HPA, IB, LER, MIS, MGMT, MKTG, RM, SCM, or STAT
 - Cybersecurity:
 - Select 12 credits, with at least 3 credits at the 400 level from: CYBER 262, IST 451, IST 454, IST 456, SRA 472, or any 300 or 400 level CYBER course
 - Security and Risk Analysis:

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- Select 12 credits, with at least 3 credits at the 400 level from:
SRA 211, SRA 231, SRA 311, SRA 365, IST 432, IST 452,
IST 456

Custom Information Technology Option: Information Technology, B.S. at York Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 CAS 100A, 100B, or 100C (GWS) [‡]	3
IST 110 or CYBER 100 ^{*#}	3 IST 210 ^{*#}	3
IST 140 ^{*#}	3 IST 220 ^{*#}	3
SRA 111 (GS) ^{*†}	3 IST 242 [*]	3
First-Year Seminar (IST 111S)	1 ECON 102 (GS) [†]	3
General Education Course (GN or GA or GH) or Elective	3	
	16	15

Second Year

Fall	Credits Spring	Credits
MATH 110 or 140 (GQ) [‡]	4 IST 256 [*]	3
SRA 221 [*]	3 IST 230 [*]	3
STAT 200 [‡] (GQ) or SCM 200 [‡] (GQ) or DS 200 [*]	4 MGMT 301 [*]	3
Elective or General Education Course (GN/GA/GH)	3 ENGL 202C or 202D (GWS) [‡]	3
IST 260W [*]	3 General Education Course (GN or GA or GH)	3
	17	15

Third Year

Fall	Credits Spring	Credits
IST 302 [*]	3 General Education Course (GN or GA or GH) [*]	3
Networking Selection [*]	3 MKTG 301 [*]	3
Option 1 [*]	3 Business Course [*]	3
General Education Course (GN or GA or GH)	3 IST 331 [*]	3
General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
IST 495 [*]	1 IST 440W [*]	3
ETI 461 [*]	3 Elective	3
Advanced IT Selection: IST 402 [*]	3 Advanced IT Selection: MIS 404 [*]	3
General Education Course (GHW)	3 General Education Course (GN or GA or GH)	3

Option 4 [*]	3 Elective	2
	13	14

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Business Selection Courses (cannot double count with other Additional or Option requirements):
 - ACCTG 211
 - BA 100
 - ECON 102
 - ECON 104
 - MGMT 301
 - MKTG 301
- Networking Selection Courses (cannot double count with other Additional or Option requirements):
 - CYBER 262
 - IST 226
 - IST 451
 - IST 454
- Option Courses:
 - Application Development:
 - Select 12 credits, with at least 3 credits at the 400 level from: IST 261, IST 311, IST 361, IST 411, IST 412, IST 413
 - Business Applications:
 - ACCTG 211
 - Select 3 credits from: FIN 301, MGMT 301, MKTG 301, SCM 301
 - Select 6 credits, with at least 3 credits at the 400 level from: ACCTG, BA, BLAW, EBF, ECON, ENTR, FIN, FINSV, HPA, IB, LER, MIS, MGMT, MKTG, RM, SCM, or STAT
 - Cybersecurity:
 - Select 12 credits, with at least 3 credits at the 400 level from: CYBER 262, IST 451, IST 454, IST 456, SRA 472, or any 300 or 400 level CYBER course
 - Security and Risk Analysis:

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- Select 12 credits, with at least 3 credits at the 400 level from:
SRA 211, SRA 231, SRA 311, SRA 365, IST 432, IST 452,
IST 456

CyberSecurity Option: Information Technology, B.S. at York Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [†]	3 CAS 100A, 100B, or 100C (GWS) [‡]	3
CYBER 100 ^{*#}	3 IST 210 ^{*#}	3
IST 140 ^{*#}	3 IST 220 ^{*#}	3
SRA 111 (GS) ^{**†}	3 IST 242 [*]	3
First-Year Seminar (IST 111S)	1 ECON 102 (GS) [†]	3
General Education Course (GN or GA or GH) or Elective	3	
	16	15

Second Year

Fall	Credits Spring	Credits
MATH 110 or 140 (GQ) [‡]	4 IST 256 [*]	3
SRA 221 [*]	3 IST 230 [*]	3
STAT 200 [‡] (GQ) or SCM 200 [‡] (GQ) or DS 200 [*]	4 MGMT 301 [*]	3
IST 260W [*]	3 ENGL 202C or 202D (GWS) [‡]	3
Elective or General Education Course (GN/GA/GH)	3 General Education Course (GN or GA or GH)	3
	17	15

Third Year

Fall	Credits Spring	Credits
IST 302 [*]	3 General Education Course (GN or GA or GH) [*]	3
CYBER 262 (Option 1) [*]	3 MKTG 301 [*]	3
Networking Selection [*]	3 Business Course [*]	3
General Education Course (GN or GA or GH)	3 IST 331 [*]	3
General Education Course (GN or GA or GH)	3 General Education Course (GN or GA or GH)	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
IST 495 [*]	1 IST 440W [*]	3
ETI 461 [*]	3 Elective	3
Advanced IT Selection: IST 402 [*]	3 Advanced IT Selection: MIS 404 [*]	3
General Education Course (GHW)	3 General Education Course (GN or GA or GH)	3
Option 4 [*]	3 Elective	2
	13	14

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- Business Selection Courses (cannot double count with other Additional or Option requirements):
 - ACCTG 211
 - BA 100
 - ECON 102
 - ECON 104
 - MGMT 301
 - MKTG 301
- Networking Selection Courses (cannot double count with other Additional or Option requirements):
 - CYBER 262
 - IST 226
 - IST 451
 - IST 454
- Option Courses:
 - Application Development:
 - Select 12 credits, with at least 3 credits at the 400 level from: IST 261, IST 311, IST 361, IST 411, IST 412, IST 413
 - Business Applications:
 - ACCTG 211
 - Select 3 credits from: FIN 301, MGMT 301, MKTG 301, SCM 301
 - Select 6 credits, with at least 3 credits at the 400 level from: ACCTG, BA, BLAW, EBF, ECON, ENTR, FIN, FINSV, HPA, IB, LER, MIS, MGMT, MKTG, RM, SCM, or STAT
 - Cybersecurity:
 - Select 12 credits, with at least 3 credits at the 400 level from: CYBER 262, IST 451, IST 454, IST 456, SRA 472, or any 300 or 400 level CYBER course
 - Security and Risk Analysis:
 - Select 12 credits, with at least 3 credits at the 400 level from: SRA 211, SRA 231, SRA 311, SRA 365, IST 432, IST 452, IST 456

Career Paths

With a B.S. degree in Information Technology (IT), students will develop an understanding of core information technologies and prepare for the practical application of IT. The combination of a strong technical foundation, well-developed communication and collaborative skills, business core competencies, and specialization in an area of choice produces graduates who are well-qualified to enter the IT workforce in a position that meets their interests and abilities as well as the needs of employers in industries including consulting, business, government, defense, entertainment, and medicine.

Additional information about IT careers can be found at:

- Computer and Information Technology Occupations: Occupational Outlook Handbook:: U.S. Bureau of Labor Statistics (bls.gov) (<https://www.bls.gov/ooh/computer-and-information-technology/home.htm>)
- IS Job Index – AIS – Temple University Information Systems Job Index (<https://isjobindex.com/>)

Opportunities for Graduate Studies

A baccalaureate degree in Information Technology prepares students to pursue master's degrees in programs such as information systems or information technology and obtain admission to MBA programs and law schools, among other post-graduate opportunities.

Penn State offers graduate programs related to information technology:

- Master of Science in Information Systems at Penn State Harrisburg (<https://harrisburg.psu.edu/business-administration/information-systems-ms/>)
- Graduate Education Opportunities at College of Information Sciences and Technology (<https://ist.psu.edu/prospective/graduate/>)

Contact

Beaver

100 University Dr.
Monaca, PA 15061
724-773-3814
rkl5137@psu.edu

<https://beaver.psu.edu/academics/majors/it> (<https://beaver.psu.edu/academics/majors/it/>)

Brandywine

25 Yearsley Mill Road
Media, PA 19063
610-892-1343
nxd13@psu.edu

<https://www.brandywine.psu.edu/academics/bachelors-degrees/information-technology> (<https://www.brandywine.psu.edu/academics/bachelors-degrees/information-technology/>)

DuBois

1 College Place
DuBois, PA 16823
814-372-3000
jel115@psu.edu

<https://dubois.psu.edu/academics/degrees/IT/bachelor> (<https://dubois.psu.edu/academics/degrees/IT/bachelor/>)

Greater Allegheny

Frable Building, 201D
4000 University Drive
McKeesport, PA 15132
412-675-9482
Imd347@psu.edu

<https://greaterallegheny.psu.edu/academics/degree-programs/information-technology> (<https://greaterallegheny.psu.edu/academics/degree-programs/information-technology/>)

Hazleton

204 Butler
Hazleton, PA 18202
570-450-3194
HNAdvising@psu.edu

<https://hazleton.psu.edu/information-technology> (<https://hazleton.psu.edu/information-technology/>)

Lehigh Valley

2809 Saucon Valley Road
Center Valley, PA 18034
610-285-5071
kmb6846@psu.edu

<https://lehighvalley.psu.edu/academics/degrees/information-sciences-and-technology> (<https://lehighvalley.psu.edu/academics/degrees/information-sciences-and-technology/>)

Mont Alto

006 Bookstore
1 Campus Drive
Mont Alto, PA 17237
717-749-6048
ebd5343@psu.edu

<https://montalto.psu.edu/academics/bachelors/information-technology> (<https://montalto.psu.edu/academics/bachelors/information-technology/>)

New Kensington

036 Theater & IST Building
3550 Seventh Street Road
New Kensington, PA 15068
724-334-6089
hhs10@psu.edu

<https://newkensington.psu.edu/4-year-information-technology> (<https://newkensington.psu.edu/4-year-information-technology/>)

Schuylkill

200 University Drive
Schuylkill Haven, PA 17972
570-385-6076
bkg113@psu.edu

<https://schuylkill.psu.edu/academics/bacc-degrees/information-technology> (<https://schuylkill.psu.edu/academics/bacc-degrees/information-technology/>)

Scranton

114B Dawson
120 Ridge View Drive
Dunmore, PA 18512
570-963-2593
dls102@psu.edu

<https://scranton.psu.edu/academics/degrees/bachelors/information-sciences-technology-degree> (<https://scranton.psu.edu/academics/degrees/bachelors/information-sciences-technology-degree/>)

Wilkes-Barre

44 University Drive
Dallas, PA 18612
570-675-9142
weifan@psu.edu

<https://wilkesbarre.psu.edu/academics/it> (<https://wilkesbarre.psu.edu/academics/it/>)

York

1031 Edgecomb Ave.
York, PA 17403
717-771-4143
wpc2@psu.edu

<https://www.york.psu.edu/academics/baccalaureate/information-technology> (<https://www.york.psu.edu/academics/baccalaureate/information-technology/>)

Abington

DIVISION OF SCIENCE AND ENGINEERING
1600 Woodland Road
Abington, PA 19001
jul62@psu.edu

<https://www.abington.psu.edu/academics/majors-at-abington/information-technology> (<https://www.abington.psu.edu/academics/majors-at-abington/information-technology/>)

Altoona

DIVISION OF BUSINESS, ENGINEERING, AND INFORMATION SCIENCES & TECHNOLOGY
Penn Building, 212C
Altoona, PA 16601
814-949-5275
drb21@psu.edu

<https://altoona.psu.edu/academics/bachelors-degrees/information-technology> (<https://altoona.psu.edu/academics/bachelors-degrees/information-technology/>)

Berks

EBC DIVISION
Gaige Building
Reading, PA 19610
610-396-6349
tkc3@psu.edu

<https://berks.psu.edu/academics/baccalaureate-degrees/information-technology> (<https://berks.psu.edu/academics/baccalaureate-degrees/information-technology/>)

Integrative Science, B.S. (University College)

Begin Campus: Any Penn State Campus

End Campus: Scranton, York

Program Description

The Integrative Science major is an interdisciplinary degree that aims to provide a broad, general education in science. The Bachelor of Science (B.S.) curriculum is designed specifically for students who have education goals relating to scientific theory and practice across disciplinary areas, and who seek a high degree of flexibility to obtain their educational objectives. After completing foundation courses in biology, calculus, chemistry, physics, and statistics, students select additional science courses from designated areas to customize the curriculum to their own interests. A large number of supporting credits enable students to incorporate significant breadth or specialization into their academic training, such as through courses in business, computer and information science, health science, social science, and other fields.

This major helps prepare students for careers in many different job sectors including agriculture, biotechnology, chemistry, education, government, industry, medicine, pharmaceutical, research & development, sustainability, and more. Graduates of this major pursue diverse career paths and hold a variety of roles such as research scientist, data analyst, technician, program coordinator, project manager, consultant, and laboratory associate. The degree can also be tailored to meet specific requirements of professional programs such as medical, dental, physician assistant, pharmacy, or law school, as well as graduate school.

General Science Option

Available at the following campuses: *Abington, Berks, Harrisburg, Scranton, University Park, York*

The General Science option of the B.S. Integrative Science degree allows for the most flexibility.

Achievement in a more specialized set of goals can be met by selecting one of the other B.S. options offered:

Biological Sciences and Health Professions Option

Available at the following campuses: *University Park*

Legal Studies, Government Service, Public Policy Option

Available at the following campuses: *University Park*

Life Sciences Option

Available at the following campuses: *Abington, Berks, Harrisburg, Scranton, York*

Mathematical Sciences Option

Available at the following campuses: *Abington*

Secondary Education Option

Available at the following campuses: *Harrisburg*

Not all of these options are available at all locations. See the Science program director at your College for details regarding program curriculum at your location.

What is Integrative Science?

The Integrative Science major provides a broad and interdisciplinary foundation in the natural sciences. The Integrative Science BS program uses the principles of chemistry, physics, and life sciences to understand how these integrate over general areas including biological sciences and health professions, public policy, and science research and development.

You Might Like This Program If...

- You like learning by doing hands-on experiments.
- You are curious about the natural world and how science disciplines come together to explore and understand it.
- You are intrigued by science and desire a career in current and emerging interdisciplinary science disciplines, health professions, or melding science with law, policy or business.

Entrance to Major

In order to be eligible for entrance to the Integrative Science major, a student at any location must have:

1. attained at least a 2.00 cumulative grade-point average;
2. completed MATH 140 with a grade of C or better;
3. completed at least two of the following courses, BIOL 110; CHEM 110; PHYS 211 or PHYS 250, with a grade of C or better.

Entrance to the Integrative Science Secondary Education option requires the following additional requirements:

1. completed at least one of the following courses, BIOL 220W or BIOL 230W or BIOL 240W; PHYS 250, with a grade of C or better;
2. attained at least a 3.00 cumulative grade-point average;
3. completed ENGL 15 or ENGL 30H;
4. completed 3 credits of literature from a department-approved list with a grade of C or better;
5. completed 6 credits of college-level mathematics (GQ MATH or STAT prefixes) with a grade of C or better;
6. satisfy any entrance testing requirements set out by the Pennsylvania Department of Education in effect at the time of application for the major;
7. submission to the Teacher Education Office of current and clear background checks as required by the Pennsylvania Department of Education;
8. submission of documentation of 20 pre-major fieldwork hours.

Degree Requirements

For the Bachelor of Science degree in Integrative Science with an option in General Science; Biological Sciences and Health Professions; Legal Studies, Government Service, Public Policy; Life Science; and Mathematical Science, a minimum of 120 credits is required, with at least 15 credits at the 400 level. For the Bachelor of Science degree in Integrative Science with an option in Secondary Education, a minimum of 125 credits is required, with at least 15 credits at the 400 level.

Requirement	Credits
General Education	45
Requirements for the Major	90-110

13-30 of the 45 credits for General Education are included in the Requirements for the Major. For the General Science Option; Biological Sciences and Health Professions Option; Legal Studies, Government

Service, Public Policy Option; Life Science Option this includes: 9 credits of GN courses and 4-6 credits of GQ courses. For the Mathematical Science Option this includes: 9 credits of GN courses and 6 credits of GQ courses. For the Secondary Education Option this includes: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GWS courses (ENGL 202C); 3 credits of GH courses (literature department list); 6 credits of GS courses (EDPSY 14 and HDFS 239); 3 credits of Integrative Studies courses (EDUC 466N).

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
CHEM 113	Experimental Chemistry II	1

Prescribed Courses: Require a grade of C or better

BIOL 110	Biology: Basic Concepts and Biodiversity	4
CHEM 110	Chemical Principles I	3
MATH 140	Calculus With Analytic Geometry I	4

Requirements for the Option

Select an option	74-94
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Requirements for the Option

General Science Option (74 credits)

Available at the following campuses: Abington, Berks, Harrisburg, Scranton, University Park, York

Code	Title	Credits
Additional Courses		
STAT 200 or STAT 250	Elementary Statistics Introduction to Biostatistics	3-4
Select 4 credits from the following:		4

BIOL 161 & BIOL 162	Human Anatomy and Physiology I - Lecture and Human Anatomy and Physiology I - Laboratory	
BIOL 220W	Biology: Populations and Communities	
BIOL 230W	Biology: Molecules and Cells	
BIOL 240W	Biology: Function and Development of Organisms	
Select 8-12 credits from the following:		8-12
PHYS 211 & PHYS 212 & PHYS 213 & PHYS 214	General Physics: Mechanics and General Physics: Electricity and Magnetism and General Physics: Fluids and Thermal Physics and General Physics: Wave Motion and Quantum Physics ¹	
PHYS 250 & PHYS 251	Introductory Physics I and Introductory Physics II ¹	

Supporting Courses and Related Areas

Select 3 credits in Global, Social, and Personal Awareness from department approved course list in consultation with adviser	3
Select 3 credits in Teamwork and Interpersonal Communication from department approved course list in consultation with adviser	3

Select 3 credits in Integrative and Applied Sciences from department approved course list in consultation with adviser	3
Select 6 credits of 400-level courses	6
Select 21-26 credits from program list ^{2,3}	21-26
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>	
Select 18 credits in life, mathematical, or physical sciences, with at least 9 credits at the 400 level ^{4,5}	18

¹ PHYS 211 and PHYS 250 require a grade of C or better.

² A maximum of 12 credits of Independent Study (296, 496) may be applied toward credits for graduation.

³ Students may apply ROTC credits toward the Program List.

⁴ Only the 9 credits at the 400 level require a grade of C or better.

⁵ Life sciences include BIOL, BIOTC, BMB, FRNSC, MICRB. Mathematical sciences include CMPSC, DS, MATH, STAT. Physical sciences include ASTRO, CHEM, PHYS.

Biological Sciences and Health Professions Option (74 credits)

Available at the following campuses: University Park

Code	Title	Credits
Prescribed Courses		
HPA 101	Introduction to Health Services Organization	3
Additional Courses		
STAT 200 or STAT 250	Elementary Statistics Introduction to Biostatistics	3-4
Select 4 credits from the following:		4
BIOL 161 & BIOL 162	Human Anatomy and Physiology I - Lecture and Human Anatomy and Physiology I - Laboratory	
BIOL 220W	Biology: Populations and Communities	
BIOL 230W	Biology: Molecules and Cells	
BIOL 240W	Biology: Function and Development of Organisms	
Select 3-4 credits from the following:		3-4
BIOL 222	Genetics	
BIOL 230W	Biology: Molecules and Cells	
BIOL 322	Genetic Analysis	
BMB 211	Elementary Biochemistry	
BMB/MICRB 251	Molecular and Cell Biology I	
MICRB 201	Introductory Microbiology	
Select 6-8 credits from the following:		6-8
CHEM 202 & CHEM 203	Fundamentals of Organic Chemistry I and Fundamentals of Organic Chemistry II	
CHEM 210 & CHEM 212 & CHEM 213W	Organic Chemistry I and Organic Chemistry II and Laboratory in Organic Chemistry - Writing Intensive	
Select 8-12 credits from the following:		8-12
PHYS 211 & PHYS 212 & PHYS 213 & PHYS 214	General Physics: Mechanics and General Physics: Electricity and Magnetism and General Physics: Fluids and Thermal Physics and General Physics: Wave Motion and Quantum Physics ¹	
PHYS 250 & PHYS 251	Introductory Physics I and Introductory Physics II ¹	

Supporting Courses and Related Areas

Select 3 credits in Global, Social, and Personal Awareness from department approved course list in consultation with adviser	3
Select 3 credits in Teamwork and Interpersonal Communication from department approved course list in consultation with adviser	3
Select 15 credits in Healthcare/Medicine/Ethical Competencies from department approved course list in consultation with adviser ²	15
Select 9-17 credits from program list ^{3,4}	9-17
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>	
Select 9 credits of 400-level BMB, BIOL, BIOTC, or MICRB courses	9

¹ PHYS 211 and PHYS 250 require a grade of C or better.

² 6 credits must be at the 400-level.

³ A maximum of 12 credits of Independent Studies (296, 496) may be applied toward credits for graduation.

⁴ Students may apply ROTC credits toward the Program List.

Legal Studies, Government Service, Public Policy Option (74 credits)

Available at the following campuses: University Park

Code	Title	Credits
Additional Courses		
STAT 200 or STAT 250	Elementary Statistics Introduction to Biostatistics	3-4
Select 4 credits from the following:		4
BIOL 161 & BIOL 162	Human Anatomy and Physiology I - Lecture and Human Anatomy and Physiology I - Laboratory	
BIOL 220W	Biology: Populations and Communities	
BIOL 230W	Biology: Molecules and Cells	
BIOL 240W	Biology: Function and Development of Organisms	
Select 8-12 credits from the following:		8-12
PHYS 211 & PHYS 212 & PHYS 213 & PHYS 214	General Physics: Mechanics and General Physics: Electricity and Magnetism and General Physics: Fluids and Thermal Physics and General Physics: Wave Motion and Quantum Physics ¹	
PHYS 250 & PHYS 251	Introductory Physics I and Introductory Physics II ¹	

Supporting Courses and Related Areas

Select 3 credits in Global, Social, and Personal Awareness from department approved course list in consultation with adviser	3
Select 3 credits in Teamwork and Interpersonal Communication from department approved course list in consultation with adviser	3
Select 18 credits in Legal Studies, Government Service, Public Policy from department approved course list in consultation with adviser ²	18
Select 12-17 credits from program list ^{3,4}	12-17
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>	
Select 18 credits in life, mathematical, or physical sciences, with at least 9 credits at the 400 level ^{5,6}	18

¹ PHYS 211 and PHYS 250 require a grade of C or better.

² 6 credits must be at the 400-level.

³ A maximum of 12 credits of Independent Study (296, 496) may be applied toward credits for graduation.

⁴ Students may apply ROTC credits toward the Program List.

⁵ Only the 9 credits at the 400 level require a grade of C or better.

⁶ Life sciences include BIOL, BIOTC, BMB, FRNSC, MICRB. Mathematical sciences include CMPSC, DS, MATH, STAT. Physical sciences include ASTRO, CHEM, PHYS.

Life Science Option (74 credits)

Available at the following campuses: Abington, Berks, Harrisburg, Scranton, York

Code	Title	Credits
Additional Courses		
STAT 200 or STAT 250	Elementary Statistics Introduction to Biostatistics	3-4
Select 4 credits from the following:		4
BIOL 220W	Biology: Populations and Communities	
BIOL 230W	Biology: Molecules and Cells	
BIOL 240W	Biology: Function and Development of Organisms	
Select 3-4 credits from the following:		3-4
BIOL 222	Genetics	
BIOL 230W	Biology: Molecules and Cells	
BIOL 322	Genetic Analysis	
BMB 211	Elementary Biochemistry	
BMB/MICRB 251	Molecular and Cell Biology I	
MICRB 201	Introductory Microbiology	
Select 6-8 credits from the following:		6-8
CHEM 202 & CHEM 203	Fundamentals of Organic Chemistry I and Fundamentals of Organic Chemistry II	
CHEM 210 & CHEM 212 & CHEM 213	Organic Chemistry I and Organic Chemistry II and Laboratory in Organic Chemistry	
Select 8-12 credits from the following:		8-12
PHYS 211 & PHYS 212 & PHYS 213 & PHYS 214	General Physics: Mechanics and General Physics: Electricity and Magnetism and General Physics: Fluids and Thermal Physics and General Physics: Wave Motion and Quantum Physics ¹	
PHYS 250 & PHYS 251	Introductory Physics I and Introductory Physics II ¹	

Supporting Courses and Related Areas

Select 3 credits in Global, Social, and Personal Awareness from department approved course list in consultation with adviser	3
Select 3 credits in Teamwork and Interpersonal Communication from department approved course list in consultation with adviser	3
Select 6 credits of 400-level courses	6
Select 21-29 credits from program list ^{2,3}	21-29
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>	
Select 9 credits of 400-level BMB, BIOL, BIOTC, or MICRB courses	9

¹ PHYS 211 and PHYS 250 require a grade of C or better.
² A maximum of 12 credits of Independent Study (296, 496) may be applied toward credits for graduation.
³ Students may apply ROTC credits toward the Program List.

Mathematical Science Option (74 credits)

Available at the following campuses: Abington

Code	Title	Credits
Prescribed Courses		
MATH 220	Matrices	2-3
<i>Prescribed Courses: Require a grade of C or better</i>		
MATH 141	Calculus with Analytic Geometry II	4
Additional Courses		
CMPSC 122 or CMPSC 132	Intermediate Programming Programming and Computation II: Data Structures	3
CMPSC 360 or MATH 311W	Discrete Mathematics for Computer Science Concepts of Discrete Mathematics	3-4
MATH 230 or MATH 251	Calculus and Vector Analysis Ordinary and Partial Differential Equations	4
Select 3 credits from the following:		3
CMPSC 121	Introduction to Programming Techniques	
CMPSC 131	Programming and Computation I: Fundamentals	
CMPSC 201	Programming for Engineers with C++	
Select 3-4 credits from the following:		3-4
STAT 200	Elementary Statistics	
STAT 250	Introduction to Biostatistics	
STAT 318	Elementary Probability	
Select 3-4 credits from the following:		3-4
BIOL 222	Genetics	
BIOL 230W	Biology: Molecules and Cells	
BIOL 322	Genetic Analysis	
BMB 211	Elementary Biochemistry	
BMB/MICRB 251	Molecular and Cell Biology I	
MICRB 201	Introductory Microbiology	
Select 8-12 credits from the following:		8-12
PHYS 211 & PHYS 212 & PHYS 213 & PHYS 214	General Physics: Mechanics and General Physics: Electricity and Magnetism and General Physics: Fluids and Thermal Physics and General Physics: Wave Motion and Quantum Physics ¹	
PHYS 250 & PHYS 251	Introductory Physics I and Introductory Physics II ¹	

Supporting Courses and Related Areas

Select 3 credits in Global, Social, and Personal Awareness from department approved course list in consultation with adviser	3
Select 3 credits in Teamwork and Interpersonal Communication from department approved course list in consultation with adviser	3
Select 6 credits of 400-level courses	6
Select 13-20 credits from program list ^{2,3}	13-20
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>	
Select 9 credits of 400-level CMPSC, MATH, or STAT courses	9

¹ PHYS 211 and PHYS 250 require a grade of C or better.
² A maximum of 12 credits of Independent Study (296, 496) may be applied toward credits for graduation.
³ Students may apply ROTC credits toward the Program List.

SECONDARY EDUCATION OPTION (94 credits)

Available at the following campuses: Harrisburg

Code	Title	Credits
Prescribed Courses		
STAT 200	Elementary Statistics	4
<i>Prescribed Courses: Require a grade of C or better for teacher certification</i>		
EDUC 313	Secondary Education Field Experience	2
EDUC 314	Learning Theory and Instructional Procedures	3
EDUC 315Y	Social and Cultural Factors in Education	3
EDUC 385	Professional Development in Teaching	3
EDUC 400	Diversity and Cultural Awareness Practices in the K-12 Classroom	3
EDUC 414	Teaching Secondary Science	3
EDUC 458	Behavior Management Strategies for Inclusive Classrooms	3
EDUC 459	Strategies for Effective Teaching in Inclusive Classrooms	3
EDUC 490	Student Teaching	9
<i>Prescribed Courses: Require a Grade of C or Better</i>		
EDPSY 14	Learning and Instruction	3
EDUC 466N	Foundations of Teaching English as a Second Language	3
ENGL 202C	Effective Writing: Technical Writing	3
HDFS 239	Adolescent Development	3
MATH 141	Calculus with Analytic Geometry II	4
PHYS 250	Introductory Physics I	4
PHYS 251	Introductory Physics II	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 4 credits from the following:		4
BIOL 220W	Biology: Populations and Communities	
BIOL 230W	Biology: Molecules and Cells	
BIOL 240W	Biology: Function and Development of Organisms	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a Grade of C or Better</i>		
Select 3 credits of GH literature from department list		3
Select a 3 credit EARTH course		3
Select a 3 credit ASTRO course		3
Select 9 credits of 400-level earth or physical science courses		9
Select 12 credits of science or education elective courses		12

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or

within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Process of Science:** Apply the elements of the process of science such as posing questions, generating novel hypotheses based on the scientific literature; developing appropriate technical skills for research; designing/conducting experiments to test hypotheses in laboratory and/or field settings; summarizing/interpreting data; integrating/evaluating findings in the broader scientific field to construct new knowledge; and/or participating in the peer review/revision process.
- **Quantitative Reasoning and Data Science:** Apply basic quantitative competencies such as algebra, probability, statistics, unit conversions, and fundamental principles; organize, summarize, and interpret quantitative data; use modeling/simulation to approach problems from across various scales; and/or find and analyze large databases using statistical methods and/or other approaches.
- **Interdisciplinary Thinking:** Integrate knowledge among science subfields and between science and other disciplines.
- **Collaboration and Communications:** Engage with diverse communities and leverage the skills in the community to pose and solve scientific questions; demonstrate the ability to work in teams to solve problems; and/or communicate in a variety of formal and informal ways in the discussion of scientific research.
- **Science and Society:** Explore the impacts of scientific research on society and the environment and how society influences/relies on research to inform decision-making; evaluate the ethical implications of scientific research; recognize ethical issues in a variety of settings; and/or describe how different perspectives and the resulting alternative approaches might be evaluated using ethical principles to identify a solution to an issue.
- **Professional Experiences:** Communicate in a professional manner and learn/use professional behaviors in all aspects of college and career building activities, including participation in opportunities such as research, internships, cooperative education, teaching and tutoring, study abroad, and/or volunteer work.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Scranton Campus

General Science Option: Integrative Science, B.S. at Scranton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If**

report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 [‡]	3 BIOL 230W or 240W	4
BIOL 110 ^{*#†}	4 CAS 100A [‡]	3
CHEM 110 & CHEM 111 ^{*#†}	4 CHEM 112 & CHEM 113	4
MATH 140 ^{*†#†}	4 General Education Course	3
PSU 8	1 General Education Course (GHW)	1.5
	16	15.5

Second Year

Fall	Credits Spring	Credits
BIOL 220W	4 Global Social and Personal Awareness Course	3
PHYS 250 ^{*#†}	4 Integrative and Applied Sciences Course	3
STAT 200 or 250 ^{††}	3-4 BIOL 230W or 240W	4
General Education Course	3 PHYS 251	4
	General Education Course	3
	14-15	17

Third Year

Fall	Credits Spring	Credits
ENGL 202C [‡]	3 400 Level Selection - Life/ Mathematical/Physical Science [*]	3
400 Level Option - Life/ Mathematical/Physical Science [*]	3 Option Selection - Life/ Mathematical/Physical Science	3
Teamwork, Interpersonal Communication Course	3 Option Selection	3
Option Selection	3 General Education Course	3
General Education Course	3 General Education Course	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
400 Level Selection - Life/ Mathematical/Physical Science [*]	3 400 Level Selection	3
400 Level Selection	3 Option Selection	3
Option Selection	3 Option Selection	3
Option Selection	3 Option Selection	3
General Education Course (GHW)	1.5 Option Selection	3
	13.5	15

Total Credits 121-122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- Students may take PHYS 211, PHYS 212, PHYS 213, & PHYS 214 in place of PHYS 250 & PHYS 251.

University Requirements and General Education Notes:

Life Science Option: Integrative Science, B.S. at Scranton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If report**). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 [‡]	3 BIOL 230W or 240W	4
BIOL 110 ^{*#†}	4 CAS 100A [‡]	3
CHEM 110 & CHEM 111 ^{*#†}	4 CHEM 112 & CHEM 113	4
MATH 140 ^{*†#†}	4 General Education Course	3
PSU 8	1 General Education Course (GHW)	1.5
	16	15.5

Second Year

Fall	Credits Spring	Credits
BIOL 220W	4 CHEM 212 & CHEM 213	5
PHYS 250 ^{*#†}	4 BIOL 230W or 240W	4
CHEM 210	3 PHYS 251	4
General Education Course	3 STAT 200 or 250 ^{††}	4
	14	17

Third Year

Fall	Credits Spring	Credits
ENGL 202C [‡]	3 Global, Social, and Personal Awareness Course	3
400 Level Selection - Life Science [*]	3 400 Level Selection - Life Science [*]	3
Teamwork, Interpersonal Communication Course	3 Option Selection	3
General Education Course	3 Option Selection	3
General Education Course (GHW)	1.5 General Education Course	3
	13.5	15

Fourth Year

Fall	Credits Spring	Credits
400 Level Selection - Life Science [*]	3 400 Level Selection	3
400 Level Selection	3 Option Selection	3
Option Selection	3 Option Selection	3
Option Selection	3 Option Selection	3
General Education Course	3 General Education Course	3
	15	15

Total Credits 121

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- Students may take PHYS 211, PHYS 212, PHYS 213, & PHYS 214 in place of PHYS 250 & PHYS 251. See adviser.

York Campus

General Science Option: Integrative Science, B.S. at York Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110 (GN) ^{*##†}	4 CHEM 112	3
CHEM 110 (GN) ^{*##†}	3 CHEM 113	1
CHEM 111 (GN)	1 Global, Social, and Personal Awareness Course (from Department List)	3
CAS 100A, 100B, or 100C (GWS) [‡]	3 MATH 140 or 140B (GQ) ^{*‡##†}	4
ENGL 15, 30H, or ESL 15 (GWS) [‡]	3 Supporting Course (consult with academic adviser for options)	3
First-Year Seminar	1 Supporting Course (consult with academic adviser for options)	3
	15	17

Second Year

Fall	Credits Spring	Credits
4-credit BIOL course or General Education Course (GS)	3-4 4-credit BIOL course or General Education Course (GS)	3-4
Life, Mathematical, or Physical Science Course	3 Life, Mathematical, or Physical Science Course	3
Teamwork and Interpersonal Communication Course (from Department List)	3 General Education Course (GA)	3
Supporting Course (consult with academic adviser for options)	3 PHYS 250 or 211 (GN) ^{*##}	4
Supporting Course (consult with academic adviser for options)	3	
	15-16	13-14

Third Year

Fall	Credits Spring	Credits
PHYS 251 or 212	4 PHYS 213 (or Supporting Course)	2
STAT 250 or 200 (GQ) [‡]	3-4 PHYS 214 (or Supporting Course)	2
Life, Mathematical, or Physical Science Course	3 400-Level Life, Mathematical, or Physical Science Course [*]	3
General Education Course (Integrative Studies)	3 General Education Course (GH)	3
Supporting Course (consult with academic adviser for options)	3 Supporting Course (consult with academic adviser for options)	3

	General Education Course (Exploration)	3
	16-17	16
Fourth Year		
Fall	Credits Spring	Credits
ENGL 202C, 202A, 202B, or 202D (GWS) [‡]	3 400-Level Life, Mathematical, or Physical Science Course [*]	3
Integrative and Applied Science Course (from Department list)	3 400-Level Supporting Course	3
400-Level Life, Mathematical, or Physical Science Course [*]	3 General Education Course (GHW)	3
400-Level Supporting Course	3 General Education Course (Exploration)	3
General Education Course (Integrative Studies)	3 Supporting Course (consult with academic adviser for options)	3
	15	15

Total Credits 122-125

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Life Science Option: Integrative Science, B.S. at York Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 110 (GN) ^{*#†}	4 CHEM 112	3
CHEM 110 (GN) ^{*#†}	3 BIOL 220W or 240W	4
CHEM 111 (GN)	1 CHEM 113	1
CAS 100A, 100B, or 100C (GWS) [‡]	3 Global, Social, and Personal Awareness Course (from Department List)	3
ENGL 15, 30H, or ESL 15 (GWS) [‡]	3 MATH 140 or 140B (GQ) ^{*†#}	4
First-Year Seminar	1	
	15	15

Second Year

Fall	Credits Spring	Credits
BIOL 230W or MICRB 201	3-4 CHEM 212	3
CHEM 210	3 CHEM 213	2
General Education Course (GS)	3 PHYS 250 or 211 (GN) ^{*#}	4
Teamwork and Interpersonal Communication Course (from Department List)	3 Supporting Course (consult with academic adviser for options)	3
Supporting Course (consult with academic adviser for options)	3 General Education Course (GA) [*]	3
	15-16	15

Third Year

Fall	Credits Spring	Credits
PHYS 251 or 212	4 PHYS 213 (or Supporting Course)	2
STAT 250 or 200 (GQ) [‡]	3-4 PHYS 214 (or Supporting Course)	2
400-Level Life Science Course [*]	3 400-Level Supporting Course [*]	3
General Education Course (Integrative Studies)	3 General Education Course (GH)	3
Supporting Course (consult with academic adviser for options)	3 Supporting Course (consult with academic adviser for options)	3
	General Education Course (Exploration)	3
	16-17	16

Fourth Year

Fall	Credits Spring	Credits
ENGL 202C, 202A, 202B, or 202D (GWS) [‡]	3 400-Level Life Science Course [*]	3
General Education Course (Exploration)	3 400-Level Supporting Course	3

Supporting Course (consult with academic adviser for options)	3 General Education Course (GHW)	3
400-Level Life Science Course [*]	3 Supporting Course (consult with academic adviser for options)	3
General Education Course (Integrative Studies)	3 Supporting Course (consult with academic adviser for options)	3
	15	15

Total Credits 122-124

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

Penn State students with a BS in Integrative Science are prepared for a broad range of careers and graduate programs. The solid foundation of science and math prepares students to think critically and scientifically in a range of industries and professions.

Careers

This program often leads to careers in all healthcare professions, including physicians and physician assistants, dentists, optometrists, and podiatrists; laboratory research associates; scientific product representatives and science-based consulting.

Opportunities for Graduate Studies

Many graduates of the Integrative Science B.S. program choose to pursue graduate studies (MS and PhD) in the natural sciences. Most often, students gravitate to medically-related fields and life science sub-disciplines for focused graduate training. Students in the legal studies and public policy options may choose law school or master's in public policy programs.

Professional Resources

- Association of American Medical Colleges (<https://www.aamc.org>)
- American Association of Colleges of Osteopathic Medicine (<https://www.aacom.org>)
- American Dental Education Association (<https://www.adea.org>)

- Association of Schools and Colleges of Optometry (<https://optometriceducation.org>)
- American Association of Colleges of Podiatric Medicine (<https://aacpm.org>)
- American Academy of Physician Assistants (AAPA) (<https://www.aapa.org>) Physician Assistant Education Association (<https://paeonline.org>)

Contact

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<https://scranton.psu.edu/academics/degrees/bachelors/science>
(<https://scranton.psu.edu/academics/degrees/bachelors/science/>)

York

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<https://www.york.psu.edu/academics/baccalaureate/science> (<https://www.york.psu.edu/academics/baccalaureate/science/>)

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<https://science.psu.edu/interdisciplinary-programs/science-major>
(<https://science.psu.edu/interdisciplinary-programs/science-major/>)

International Studies, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

Today's students, whatever their career path, will enter a workforce that's increasingly diverse. We need to prepare our students to respect non-American cultures and people so they gain an international outlook. The Certificate in IS is intended to provide students with a broad and deep understanding of this diverse world far beyond the General Education requirements. Students will be better suited to face the challenges and enjoy the opportunities presented by others, both in and outside the United States, who come from a variety of nations and cultures.

What is International Studies?

International Studies is a broad field that engages with various issues related to global history, culture, politics, and arts. It is an interdisciplinary field that allows students to look at specific academic fields from a multinational perspective.

You Might Like This Program If...

You are interested in learning more about a variety of cultures, increasing your cultural literacy, applying your global competencies to your career plans, academic major, or current workplace experiences.

Program Requirements

To earn an undergraduate certificate in International Studies, a minimum of 12 credits is required.

Code	Title	Credits
Required Courses		
Select 3 credits from the following:		3
GLIS 101N	Globalization	
GLIS 102N	Global Pathways	
HIST 11	World History since 1500	
INTST 100	Introduction to International Studies	
Select 6 credits from the following list:		6
AA 100	Introduction to International Arts	
ANTH 8	Aztec, Inca, Maya	
ANTH 45N	Cultural Diversity: A Global Perspective	
APLNG 220N	Multilingual Lives: Stories of Language and Culture Learning	
ARTH 100	Introduction to Art	
BBH 305	Introduction to Global Health Issues	
BIOL 120N		
CMLIT 108	Myths and Mythologies	
CMLIT 184	The Short Story	
ENGL 194	Women Writers	
GEOG 30N	Environment and Society in a Changing World	
HIST 1	Western Civilization I	
HIST 2	Western Civilization II	

HIST 10	World History to 1500
HIST 117	Women in United States History
HIST 121	History of the Holocaust 1933-1945
HIST 144	The World at War: 1939-1945
HIST 173	Vietnam in War and Peace
IB 303	International Business Operations
LING 1	Language, Life and Society
MUSIC 9	Introduction to World Musics
PLSC 3	Comparing Politics around the Globe
PLSC 14	International Relations
PSYCH 232	Cross-Cultural Psychology
RLST 1	Introduction to World Religions
RLST 4	Jewish and Christian Foundations
RLST 101	Comparative Religion
SPAN 131	Ibero-American Civilization
SPAN 131Y	Ibero-American Civilization
Select 3 credits of 400-level courses from the following list: 3	
BBH 407	Global Health Equity
HIST 452	History of U.S. Foreign Relations
HIST 488	American Diplomacy Since 1914
GLIS 497	Special Topics
MGMT 461	International Management
MKTG 445	Global Marketing
NURS 401	Concepts of Health
NURS 464	Dying and Death
THEA 401	Theatre History I: Ancient to 1700

No Prerequisites Required.

Certificate Learning Objectives

- **Awareness:** Increase awareness and content knowledge of global issues.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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<https://shenango.psu.edu/academics/degrees/multidisciplinary-studies>
(<https://shenango.psu.edu/academics/degrees/multidisciplinary-studies/>)

Introduction to Business Management, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

The introduction to business management certificate provides a strong foundation in core business areas (management, accounting, communications and technology).

What is Introduction to Business Management?

Business Management includes the performance or management of business operations and decision making, as well as the efficient organization of people and other resources.

You Might Like This Program If...

- You desire to add business skills to your major program of study.
- You are looking for a well-rounded introduction to basic business concepts.

Program Requirements

To earn an undergraduate certificate in Introduction to Business Management, a minimum of 15 credits is required.

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
ACCTG 211	Financial and Managerial Accounting for Decision Making	3-4
or FIN 100	Introduction to Finance	
CAS 100	Effective Speech	3
ENGL 15	Rhetoric and Composition	3
MGMT 100	Survey of Management	3
MIS 103	Microcomputer Applications in Business	3
or MIS 204	Introduction to Management Information Systems	

No Prerequisites Required.

Certificate Learning Objectives

- Develop Oral Communication skills in Business.
- Develop written communication skills in Business.
- Use contemporary information technology tools to accomplish professional tasks effectively.
- Develop a basic foundation of management theory.
- Develop strong math business principles.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

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<https://wilkesbarre.psu.edu/ce/working-professionals/credit-certificates/introduction-business-management> (<https://wilkesbarre.psu.edu/ce/working-professionals/credit-certificates/introduction-business-management/>)

Introduction to Corporate Communication, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

The Introduction to Corporate Communication certificate program is designed for those considering a degree in the field. It is also applicable for those currently employed in the field without a formal credential. The certificate includes courses intended to develop understanding of the oral and written communication strategies that result in effective communication in a professional environment.

What is Introduction to Corporate Communication?

Corporate Communication encompasses all aspects of strategic communication in for-profit and not-for-profit organizations, from internal communication between senior leaders and front line professionals to communication with external clients. Corporate communicators are highly skilled professionals in the art of planning, problem solving, and persuading with a sharp understanding of their audience's needs, tastes, and interests.

You Might Like This Program If...

- You are creative.
- You want to enhance your degree program but building strong skills in writing and speaking.

Program Requirements

To earn an undergraduate certificate in Introduction to Corporate Communication, a minimum of 15 credits is required.

Code	Title	Credits
Prescribed Courses		
CAS 100	Effective Speech	3
or CAS 100A	Effective Speech	
or CAS 100B	Effective Speech	
or CAS 100C	Effective Speech	
or CAS 100C	Effective Speech	

CAS 352	Organizational Communication	3
COMM 100		3
ENGL 15	Rhetoric and Composition	3
MIS 204	Introduction to Management Information Systems	3

No Prerequisites Required.

Certificate Learning Objectives

- Students will be able to describe the Corporate Communication field and its central questions
- Students will be able to employ Corporate Communication theories, principles and concepts
- Students will be able to create messages appropriate to audience, purpose and context
- Students will be able to critically analyze messages
- Students will demonstrate the ability to accomplish corporate communication goals
- Students will be able to apply ethical concepts to corporate communication principles and practices

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Schuylkill

Academic Advising Office

Academic Affairs

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<https://wilkesbarre.psu.edu/ce/working-professionals/credit-certificates/introduction-corporate-communication> (<https://wilkesbarre.psu.edu/ce/working-professionals/credit-certificates/introduction-corporate-communication/>)

Management, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

Every organization depends on individuals who can effectively lead the people and processes that help the organization reach its goals. A minor in management offers students of any discipline the tools to lead and motivate people, develop effective organizational structures and processes, apply legal and appropriate human resources principles, and sustain ethical and inclusive goals.

If you see yourself running your own medical practice, landscaping operation, veterinary office, financial advising firm, or any other professional business, this minor can provide you with valuable insights into achieving your organizational goals.

What is Management?

Organizations need managers and leaders: people who can effectively lead organizations and manage the people in them, as well as develop and implement strategies that will lead to success. Management majors gain the knowledge and skills that will enable them to deal with the contemporary challenges facing organizations including leading and motivating people, working effectively in teams, developing effective organizational cultures, thinking ethically, inclusively, strategically, and sustainably, balancing the interests of multiple stakeholders in complex, legal, political, and ethical environments, and leading change.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		

MGMT 301	Basic Management Concepts ¹	3
MGMT 341	Human Resource Management	3

Additional Courses

Additional Courses: Require a grade of C or better

MGMT 321	Leadership and Motivation	3
or MGMT 355	Leadership and Change in Organizations	
or MGMT 433	Leadership and Team Building	
MGMT 326	Organizational Behavior and Design	3
or MGMT 331	Management and Organization	
or MGMT 400	Organization Development	

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 3-6 credits of MGMT courses	3-6
Select 0-3 credits from an approved list of management-related courses	0-3

- ¹ Students must complete the following prerequisites for MGMT 301:
- ENGL 15 or ENGL 30H or ENGL 137H or ESL 15 or CAS 137H; and
 - ECON 102 or ECON 104; and
 - MATH 21 or higher Math.

Medical Laboratory Technology, A.S.

Begin Campus: Hazleton, Schuylkill

End Campus: Hazleton

Program Description

This two-calendar-year Medical Laboratory Technology major (four semesters, two summer sessions) is designed to provide the necessary general and technical training for hospital personnel between the level of the medical laboratory technician (certificate program) and the medical technologist (baccalaureate program). The course of study includes one year of intensive clinical experience at an affiliated hospital and the theoretical background necessary for the clinical procedures performed by the certified medical laboratory technician (associate degree program). Upon completion of program requirements, the student receives the associate degree and is eligible to sit for examinations leading to certification and registry as a medical laboratory technician.

The Medical Laboratory Technology Program at Penn State Hazleton is fully accredited by the National Accrediting Agency for Clinical Laboratory Sciences

NAACLS,
5600 N. River Rd, Suite 720,
Rosemont, IL 60018-5119,
Phone 773-714-8880
Website: <https://www.naacls.org>

Graduates of this accredited MLT program are eligible to take national certification examinations such as the American Society of Clinical Pathology (ASCP) Board of Certification exam, to become certified as an MLT (ASCP).

What is Medical Laboratory Technology?

A Medical Laboratory Technician (MLT) works with a team of pathologists, technologists, and technicians to analyze patient samples

to provide information to the patient's physician to detect illness, enable treatment, and ensure that the treatment will benefit the patient. The MLT works in all areas of the medical laboratory such as microbiology, chemistry, hematology, and transfusion services. MLTs are qualified to perform routine tests as well as more complex procedures including analyzing blood for chemical components, typing blood to ensure safe transfusion, and identifying bacteria and other microorganisms. MLTs also prepare specimens for examination, count cells, and look for abnormal cells in blood and body fluids. They use microscopes and sophisticated laboratory analyzers to test specimens. After testing and verifying the results, they relay the results to physicians.

MORE INFORMATION ABOUT MEDICAL LABORATORY TECHNOLOGY (<https://hazleton.psu.edu/associate-science-medical-laboratory-technology/>)

You Might Like This Program If...

You might like this major if you are interested in science and enjoy working in a laboratory setting. MLTs are problem solvers and are accurate and reliable. They want to help patients in a medical setting but prefer not to have direct patient contact. They enjoy working with their hands and using technical instruments. Their work is interesting, challenging, and requires a love of life-long learning.

MORE INFORMATION ABOUT WHY STUDENTS CHOOSE TO STUDY MEDICAL LABORATORY TECHNOLOGY (<https://www.ascp.org/content/careers/>)

Entrance to Major

Students must request a Dean's review to change to this Associate degree after admission to the University.

Additional Information

Before beginning the clinical experience rotations at hospitals, students must meet the requirements listed at: <https://hazleton.psu.edu/program-clinical-prerequisites> (<https://hazleton.psu.edu/program-clinical-prerequisites/>).

Degree Requirements

For the Associate in Science degree in Medical Laboratory Technology, a minimum of 72 credits is required:

Requirement	Credits
General Education	21
Requirements for the Major	63-65

12 of the 21 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GWS courses; 6 credits of GN courses; 3 credits of GQ courses.

Scheduling of courses in summer session depends on campus location.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
CHEM 202	Fundamentals of Organic Chemistry I	3
KINES 203	Medical Terminology for Allied Health Professionals	3
MICRB 201	Introductory Microbiology	3
MICRB 202	Introductory Microbiology Laboratory	2
<i>Prescribed Courses: Require a grade of C or better</i>		
CAS 100	Effective Speech	3
ENGL 15	Rhetoric and Composition	3
MICRB 150	Introductory Medical Laboratory Technology	4
MICRB 151A	Clinical Chemistry for Medical Laboratory Technicians	5
MICRB 151B	Hematology for Medical Laboratory Technicians	5
MICRB 151C	Immunohematology and Serology for Medical Laboratory Technicians	4
MICRB 151D	Clinical Chemistry Practicum	2
MICRB 151E	Hematology Practicum	2
MICRB 151F	Immunohematology Practicum	2
MICRB 151G	Clinical Microbiology and Body Fluids Practicum	2
MICRB 151W	Clinical Microbiology and Body Fluid Analysis for Medical Laboratory Technicians	5
Additional Courses		
Select 8 credits from the following:		8
BIOL 110 & BIOL 240W	Biology: Basic Concepts and Biodiversity and Biology: Function and Development of Organisms	
BIOL 161 & BIOL 162 & BIOL 163 & BIOL 164	Human Anatomy and Physiology I - Lecture and Human Anatomy and Physiology I - Laboratory and Human Anatomy and Physiology II - Lecture and Human Anatomy and Physiology II - Laboratory	
<i>Additional Courses: Require a grade of C or better</i>		
Select 3-5 credits from the following:		3-5
MATH 21	College Algebra with Analytic Geometry with Applications I	
MATH 22	College Algebra With Analytic Geometry and Applications II	
MATH 26	Plane Trigonometry and Applications of Trigonometry	
MATH 40	Algebra, Trigonometry, and Analytic Geometry	
MATH 81	Technical Mathematics I	
MATH 110	Techniques of Calculus I	
MATH 140	Calculus With Analytic Geometry I	
STAT 200	Elementary Statistics	
STAT 250	Introduction to Biostatistics	

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing

intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all associate degree students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 3 credits
- **Writing and Speaking (GWS):** 3 credits

Knowledge Domains

- **Arts (GA):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Note: Up to six credits of Inter-Domain courses may be used for any Knowledge Domain requirement, but when a course may be used to satisfy more than one requirement, the credits from the course can be counted only once.

Exploration

- **Any General Education course (including GHW and Inter-Domain):** 3 credits

University Degree Requirements

Cultures Requirement

3 credits of United States (US) or International (IL) cultures coursework are required and may satisfy other requirements

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 60 degree credits must be earned for an associates degree. The requirements for some programs may exceed 60 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

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both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

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Hazleton

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Medical Laboratory Technology, A.S. at Hazleton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits Summer	Credits
ENGL 15 or 30H ^{††}	3 MICRB 201	3 CHEM 202 ³	3
CHEM 110 [†]	3 MICRB 202	2 CAS 100 ^{3 †}	3
BIOL 161 ¹	3 BIOL 163 ¹	3 MICRB 150 ^{2, 3}	4
BIOL 162 ¹	1 BIOL 164 ¹	1	
CHEM 108 (optional)	1 CHEM 111	1	
General Education Course (GQ) ^{††}	3-4 MIS 103	3	
PSU 8	1 General Education Course	3	
	15-16	16	10

Second Year

Fall	Credits Spring	Credits Summer	Credits
MICRB 151A ^{2*}	5 MICRB 151C ^{2*}	4 General Education Course ⁴	3
MICRB 151B ^{2*}	5 MICRB 151F ^{2*}	2 General Education Course ⁴	3
MICRB 151D ^{2*}	2 MICRB 151G ^{2*}	2	
MICRB 151E ^{2*}	2 MICRB 151W ^{2*}	5	
	14	13	6

Total Credits 74-75

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ BIOL 110 and BIOL 240 may be taken in place of BIOL 161, BIOL 162, BIOL 163, BIOL 164.

² MICRB 150, MICRB 151 courses include clinical experience at affiliated sites. Must earn C or better for graduation.

³ These courses should be taken in summer session 1.

⁴ These courses should be taken in summer session 2.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

A minimum of 72 credits is required for graduation.

Math (Quantification): If Placement Profile indicates MATH 4 – schedule before first Fall semester (during Summer). Then take MATH 21.

Other qualifying math courses: MATH 22, 26, 40, 81, 110, 111, 140, STAT 200, 250.

CHEM 108 (Problem Solving in Chemistry) is optional, but recommended.

PSU 8 required of all first-year students in the first semester

Career Paths

The two-year MLT program includes a two-semester clinical practicum experience in affiliated hospital laboratories. The MLT learns the most current laboratory techniques in a real laboratory setting.

Careers

You can find a career in a hospital laboratory, food processing industry, veterinary lab, state police or federal forensics lab, public health lab,

cancer clinic, chemical company, pharmaceutical company, and more. You can choose to work in a medical lab or non-medical setting.

MORE INFORMATION ABOUT CAREERS (<https://www.ascp.org/content/careers/learn-about-careers/>)

Opportunities for Graduate Studies

If an MLT graduate chooses to continue his/her education, the first year's courses will transfer to a major in Microbiology, Medical Laboratory Science, Biology or related disciplines. Once an MLT graduate passes a national certification exam and is certified as MLT, earns a BS or BA in any major, and works in a hospital laboratory for at least two years, they can qualify to take a Medical Laboratory Scientist (MLS) certification exam. Bachelor's degrees earned prior to MLT certification count toward the MLS qualification. This opens the door to careers as an educator, laboratory manager and specialist positions.

Professional Resources

- American Society for Clinical Laboratory Science (<https://ascls.org>)
- American Society for Clinical Pathology (<https://www.ascp.org/content/>)
- Association for Diagnostics & Laboratory Medicine (<https://www.myadlm.org>)
- American Society of Hematology (<https://www.hematology.org/>)
- American Association of Blood Banks (<https://www.aabb.org>)
- National Accrediting Agency for Clinical Laboratory Sciences (<https://www.naacls.org>)
- American Society for Microbiology (<https://asm.org/>)
- Centers for Disease Control and Prevention (<https://www.cdc.gov/>)

Accreditation

The Medical Laboratory Technology Program at Penn State Hazleton is fully accredited by: National Accrediting Agency for Clinical Laboratory Sciences (NAACLS) 5600 N. River Rd., Suite 720 Rosemont, IL 60018-5119 or 773-714-8880. Graduates of this accredited MLT program are eligible to take national certification examinations, such as the American Society of Clinical Pathology (ASCP) Board of Certification exam, to become certified as an MLT (ASCP).

Penn State Hazleton program outcome measures are available at <https://hazleton.psu.edu/program-outcome-measures> (<https://hazleton.psu.edu/program-outcome-measures/>)

MORE INFORMATION ABOUT THE NATIONAL ACCREDITING AGENCY FOR CLINICAL LABORATORY SCIENCES (<https://www.naacls.org>)

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

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Mining Technology, A.S.

Begin Campus: Fayette

End Campus: Fayette

Program Note: Only courses in the Maintenance Emphasis are available at Penn State Fayette for the Mining Technology, A.S. degree program.

Program Description

The Associate of Science degree in Mining Technology blends basic sciences, mathematics, principles and practices of management, and applied courses in Mining Technology to prepare students for supervisory roles in the Mining industry. This major helps prepare students for either a production-oriented or a maintenance-oriented position in the mining industry. Graduates of this major, after serving the required apprenticeship, should be qualified to become certified managers in their field. All students complete a common core of classes, but must also choose to enroll in one of two emphases, Maintenance or Production.

Maintenance Emphasis

The maintenance emphasis prepares students to become maintenance supervisors. Initially, graduates may work as apprentice electricians or mechanics to gain experience in repairs and planned maintenance. After certification is obtained, they may become involved with maintenance planning, working as or with the chief mine mechanic or chief mine electrician.

Production Emphasis

The production emphasis helps prepare students to become mine supervisors or engineering aides. Initially, some of the duties are to run transit and act as survey party chief, keep mine maps up to date and make projections, take samples and run analyses, make time studies, and assist with materials handling layouts.

What is Mining Technology?

The Mining Technology program prepares students for either a production-oriented or a maintenance-oriented position in the mining industry. Graduates of the major, after serving the required apprenticeship, can be qualified to become certified managers in their field.

You Might Like This Program If...

- You have a strong interest in science, especially geology.
- You like to study mathematics and solve problems.
- You are hardworking and enjoy collaboration with others.
- Hands-on coursework is of interest to you.
- You are interested in the mining industry.
- You care about the environment.
- You are interested in employee safety and the laws and regulations that impact safety.

Program Note: Only courses in the Maintenance Emphasis are available at Penn State Fayette for the Mining Technology, A.S. degree program.

Entrance to Major

Students must have a minimum 2.0 GPA to change to this Associate degree after admission to the University.

Program Note: Only courses in the Maintenance Emphasis are available at Penn State Fayette for the Mining Technology, A.S. degree program.

Degree Requirements

For the Associate of Science degree in Mining Technology, a minimum of 67 credits is required:

Requirement	Credits
General Education	21
Requirements for the Major	58-59

12 of the 21 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GWS courses; 3 credits of GN courses; 3 credits of GQ courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
CAS 100	Effective Speech	3
CMPSC 100	Computer Fundamentals and Applications	3
EDSGN 100	Cornerstone Engineering Design	3
ENGL 15	Rhetoric and Composition	3
GEOSC 20	Planet Earth	3
MATH 81	Technical Mathematics I	3
MATH 82	Technical Mathematics II	3
MNG 223	Mineral Land and Mine Surveying	2
MNGT 30		2
MNGT 110	Mining Administration and Law	3
MNGT 205W	Mining Systems Technology	3
MNGT 210	Mine Machine Dynamics	3
MNGT 211	Practicum in Mining Technology	3
MNGT 214	Mining Management I	3
PHYS 150	Technical Physics I	3

Prescribed Courses: Require a grade of C or better

MNGT 100	Mining Technology Orientation	1
MNGT 204	Mine Plant Technology	3
MNGT 216	Mine Regulations and Laws	3

Additional Courses

Select 8-9 credits from one of the following emphases: 8-9

Maintenance Emphasis:

MNGT 207	Electric Mine Machine Circuits
MNGT 208	Mine Power Distribution
MNGT 209	Mine Machinery Control Methods

Production Emphasis:

MNGT 202	Mining Ventilation
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MNGT 213 Strata Control Methods

MNGT 215 Mining Management II

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all associate degree students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 3 credits
- **Writing and Speaking (GWS):** 3 credits

Knowledge Domains

- **Arts (GA):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Note: Up to six credits of Inter-Domain courses may be used for any Knowledge Domain requirement, but when a course may be used to satisfy more than one requirement, the credits from the course can be counted only once.

Exploration

- **Any General Education course (including GHW and Inter-Domain):** 3 credits

University Degree Requirements

Cultures Requirement

3 credits of United States (US) or International (IL) cultures coursework are required and may satisfy other requirements

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 60 degree credits must be earned for an associates degree. The requirements for some programs may exceed 60 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate->

students/82-00-and-83-00-degree-requirements/#83-80)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Fayette

Karen Prettyman

Campus Registrar

2201 University Drive

Lemont Furnace, PA 15456

724-430-4148

kmp30@psu.edu

Career Paths

Graduates of the major, after serving the required apprenticeship, should be qualified to become certified managers in mining technology.

Careers

Students completing the maintenance emphasis of the Mining Technology program are prepared to become maintenance supervisors. Initially, graduates may work as apprentice electricians or mechanics to gain experience in repairs and planned maintenance. After certification is obtained, they may become involved with maintenance planning, working as or with the chief mine mechanic or chief mine electrician. Students completing the production emphasis of the Mining Technology program are prepared to become mine supervisors or engineering aides. Initially, some of the duties are to run transit and act as survey party chief, keep mine maps up to date and make projections, take samples and run analyses, make time studies, and assist with materials handling layouts. Job titles include: Supervisor Trainee Mine Superintendent Service Engineer Mechanic Electrician Engineering Technician with a consulting firm or government mining research agency State or Federal Inspector.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE MINING TECHNOLOGY PROGRAM (<https://fayette.psu.edu/mining-technology/>)

Accreditation

This program is accredited by the Engineering Technology Accreditation Commission of ABET.

MORE INFORMATION ABOUT ABET ACCREDITATION (<https://www.abet.org>)

Contact

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Multidisciplinary Studies, A.A. (University College)

Begin Campus: Brandywine, DuBois, Fayette, Hazleton, Mont Alto, New Kensington, Shenango, Schuylkill, Wilkes-Barre, Scranton

End Campus: Brandywine, DuBois, Fayette, Hazleton, Mont Alto, New Kensington, Schuylkill, Scranton, Shenango, Wilkes-Barre

Program Description

The objectives of the Multidisciplinary Studies major are to broaden the student's understanding, interests, and skills; to help the student become a more responsible, productive member of the family and community; and to offer a degree program with sufficient electives to permit some specialization according to the student's interests or career plans. Multidisciplinary Studies is a complete two-year degree major. However, graduates who later seek admission to baccalaureate degree majors may apply baccalaureate credits toward the new degree.

In addition to a wide variety of baccalaureate majors offered at University Park campus, graduates of the Multidisciplinary Studies major may qualify for admission to the baccalaureate degree majors in Behavioral Sciences, Elementary Education, Humanities, or Public Policy offered at Penn State Harrisburg. Or they may qualify for any of a large number of baccalaureate degree majors offered by Penn State Erie, The Behrend College, in business, the liberal arts, and sciences.

Entrance to Major

Students must have a minimum 2.0 GPA to change to this Associate degree after admission to the University.

Degree Requirements

For the Associate in Arts degree in Multidisciplinary Studies, a minimum of 60 credits is required:

Requirement	Credits
General Education	21
Electives	15
Requirements for the Major	30

6 of the 21 credits for General Education are included in the Requirements for the Major. This includes 6 credits of General Education GWS courses.

Requirements for the Major

The required credits of General Education and Requirements for the Major must be baccalaureate-level courses. For students intending to seek admission to a baccalaureate program upon graduation, it is recommended that most, if not all, of the courses be at the baccalaureate level. For those students who will seek a bachelor of arts degree upon graduation from Multidisciplinary Studies, it is strongly recommended that a world language be taken since admission to a bachelor of arts

program in the College of the Liberal Arts requires one college-level course, or the equivalent, in a world language.

Courses that will satisfy the arts, humanities, social and behavioral sciences, natural sciences, and quantification requirements are defined on the Multidisciplinary Studies checksheet, which may be obtained from the College of the Liberal Arts associate dean for undergraduate studies at the University Park campus or from any Multidisciplinary Studies representative at other locations.

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CAS 100	Effective Speech	3
ENGL 15	Rhetoric and Composition	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select one of the following:		3
ENGL 202A	Effective Writing: Writing in the Social Sciences	
ENGL 202B	Effective Writing: Writing in the Humanities	
ENGL 202C	Effective Writing: Technical Writing	
ENGL 202D	Effective Writing: Business Writing	
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 3 credits in any course designated as arts		3
Select 3 credits in any course designated as humanities		3
Select 3 credits in any course designated as social and behavioral sciences		3
Select 3 credits in any course designated as physical, biological, or earth sciences		3
Select 9 credits in any one of the following areas: arts, humanities, social and behavioral sciences, natural sciences and quantification, and world language skills ¹		9

¹ If world language courses are chosen, it is recommended that these courses be in one world language sequence.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all associate degree students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 3 credits
- **Writing and Speaking (GWS):** 3 credits

Knowledge Domains

- **Arts (GA):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Note: Up to six credits of Inter-Domain courses may be used for any Knowledge Domain requirement, but when a course may be used to satisfy more than one requirement, the credits from the course can be counted only once.

Exploration

- **Any General Education course (including GHW and Inter-Domain):** 3 credits

University Degree Requirements

Cultures Requirement

3 credits of United States (US) or International (IL) cultures coursework are required and may satisfy other requirements

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 60 degree credits must be earned for an associate degree. The requirements for some programs may exceed 60 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

Brandywine Campus

- **Communicating Across Perspectives:** Students will be able to communicate and engage meaningfully and respectfully with others who have different perspectives or world views.
- **Knowledge:** Students will demonstrate proficient academic knowledge of key theories and approaches in more than one academic or professional discipline.

DuBois Campus

- Students will be able to communicate clearly and persuasively the integration of their learning of multiple disciplines in a degree program that reflects their theme.

- Students will be able to apply empirical or creative process specific to their fields of specialization.
- Students will be able to synthesize multiple disciplinary perspectives into an intellectual or professional identity.
- Students will be able to engage meaningfully and respectfully with others who have different perspectives or world views.

Fayette, Scranton, Shenango Campuses

- **Liberal Arts:** Students will be able to achieve the basis for a liberal arts education.
- **Communication:** Students will be able to achieve communication skills to pursue study in a variety of disciplines.
- **Career:** Students will be able to identify a variety of courses that will bring familiarity with and facilitate pursuit of their career and educational goals.

Hazleton Campus

- **Liberal Arts Education:** Students will be able to achieve the basis for a liberal arts education.
- **Communication:** Students will be able to achieve communication skills to pursue study in a variety of disciplines.
- **Professional:** Students will be able to identify a variety of courses to help select later career and educational goals.

Mont Alto Campus

- **Liberal Arts:** Students will be able to achieve the basis for a liberal arts education.
- **Communication:** Students will be able to achieve communication skills to pursue study in a variety of disciplines.
- **Career:** Students will be able to identify a variety of courses that will bring familiarity with and facilitate pursuit of their career and educational goals.

New Kensington Campus

- **Communication:** Students will be able to effectively communicate in written, oral, visual and/or multimedia formats.
- **Problem Solving:** Students will be able to apply logical reasoning and critical thinking skills to deliberative problem solving scenarios.
- **Synthesis:** Students will be able to apply a foundation in Liberal Arts education toward to the articulation of an intellectual or professional pathway.

Schuylkill Campuses

- **Critical Thinking:** Students will demonstrate critical thinking skills
- **Ethical:** Students work toward becoming responsible citizens who lead rich, ethical, and self-examined lives
- **Research:** Students will be able to apply research methodologies specific to their fields of specialization
- **Theme:** Students will develop and follow a program focusing on a theme that has personal and/or professional application
- **Written and Oral Communication:** Students will be able to employ clear and persuasive written and oral communication in a course, learning fair, scholarly project, or other academic/professional venue

Wilkes-Barre Campus

- Research proficiency focused on writer's purpose and audience's needs

- Critical thinking, sound reasoning, and astute analysis of written documents, situations, and people, leading to logical conclusions
- Application of theory to create a persuasive point of view
- Communication skills to clearly convey argued points to a target audience
- Technological literacy that enables the effective creation and delivery of documents via various electronic media, with attention to message content, page layout, and graphical elements

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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University Park

Liberal Arts Academic Advising

814-865-2545
Use the Liberal Arts Meet the Academic Advisers web page (<https://la.psu.edu/student-services/academic-advising/meet-the-academic-advisers/>) to see the contact information for the specific adviser(s) of this program

World Campus

Undergraduate Academic Advising

301 Outreach Building
University Park, PA 16802
814-863-3283
advising@outreach.psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Multidisciplinary Studies, A.A. at Brandywine Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or ESL 15 ^{*††}	3 CAS 100A, 100B, or 100C ^{*††}	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
Supporting Course [*]	3 General Education Course	3
Elective	3 Supporting Course [*]	3
	15	15

Second Year

Fall	Credits Spring	Credits
Supporting Course [*]	3 ENGL 202A, 202B, 202C, or 202D [*]	3
Supporting Course [*]	3 Related Area Course [*]	3
Related Area Course [*]	3 Related Area Course [*]	3
US or International Cultures Course or Elective	3 Writing Across the Curriculum or Elective	3
Elective	3 Elective	3
	15	15

Total Credits 60

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Multidisciplinary Studies, A.A. at DuBois Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15	3 CAS 100A	3
General Education Course (Arts)	3 General Education Course (Quantitative)	3
General Education Course (Humanities)	3 General Education elective (Humanities, Social Sciences, Natural Sci, or Quantitative)	3
General Education Course (Social Science)	3 General Education Course (Arts)	3
General Education Course (Natural Science)	3 1st Arts or 1st Humanities or 1st Science or Any Foreign Language	3-4
	15	15-16

Second Year

Fall	Credits Spring	Credits
ENGL 202 (A,B,C or D)	3 3rd Arts, Humanities, Social Science or Natural Science/ Quantitative or Any Foreign Language	3-4
General Education Course- Social Sciences	3 Any Arts, Humanities, Soc Science, Natural Science or Quantitative with an IL designation	3
General Education Course- Natural Science	3 Elective within any General Education area	3
General Education Course- Humanities	3 Any Arts, Humanities, Soc Science, Natural Science or Quantitative with a US designation	3
2nd Arts, or 2nd Social Science or 2nd Nat Science/ Quantitative or Any Foreign Language	3-4 Any General Education with a W suffix	3
	15-16	15-16

Total Credits 60-63

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Multidisciplinary Studies, A.A. at Fayette Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 100 ^{††}	3 ENGL 15 or 100 ^{††}	3
Quantification (GQ) [*]	3-4 General Education Course (GA, GH, GS, or GN)	3
Arts- Major Selection [*]	3 General Education Course (GA, GH, GS, or GN)	3
Humanities- Major Selection [*]	3 Physical, Biological, or Earth Science- Major Selection (GN) [*]	3
General Education Course (GA, GH, GS, or GN)	3 Major Emphasis Selection (GA, GH, GS, GN, or WL) [*]	3
PSU 8	1	
	16-17	15

Second Year

Fall	Credits Spring	Credits
Major Emphasis Selection (GA, GH, GS, GN, or WL) [*]	3 ENGL 202- Effective Writing (A, B, D, or C) [‡]	3
Social Sciences- Major Selection [*]	3 Major Emphasis Selection (GA, GH, GS, GN, or WL) [*]	3
Writing Across the Curriculum (W)	3 General Education Course (GA, GH, GS, or GN)	3
US or IL Cultures	3 Elective	3
Elective	3 Elective	3
	15	15

Total Credits 61-62

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Multidisciplinary Studies, A.A. at Hazleton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H ^{*†}	3 CAS 100 ^{*†}	3
General Education Course [*]	3 General Education Course	3
General Education Course [*]	3 General Education Course	3
General Education Course [*]	3 General Education Course	3
General Education Course [*]	3 General Education Course	3
PSU 8	1	
	16	15

Second Year

Fall	Credits Spring	Credits
General Education Course	3 ENGL 202A, 202B, 202C, or 202D ^{*1}	3
Related Area Course ^{*1}	3 Writing Intensive Course ¹	3
Related Area Course ^{*1}	3 Supporting Course ¹	3
Related Area Course ^{*1}	3 Supporting Course ¹	3
Supporting Course ¹	3 Supporting Course ¹	3
	15	15

Total Credits 61

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ Consultation with adviser is recommended for proper course selection

Multidisciplinary Studies, A.A. at Mont Alto Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 (GWS) [‡]	3 CAS 100A (GWS) [‡]	3
PSU 8	1 General Education Course [†]	3
General Education Course (GQ) [‡]	3 Major Requirements (Social Sciences) [*]	3
General Education Course [†]	3 Major Requirements (Humanities) [*]	3
General Education Course [†]	3 Elective	3
General Education Course [†]	3	3
	16	15

Second Year

Fall	Credits Spring	Credits
Major Requirements (Natural Sciences) [*]	3 ENGL 202A, 202B, 202C, or 202D (GWS) [‡]	3
Major Requirement (Arts) [*]	3 Related Area Course [*]	3
Related Area Course [*]	3 Related Area Course [*]	3
Elective	3 Elective	3
Elective	3 Elective	3
	15	15

Total Credits 61

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- The associate degree in Letters, Arts, and Sciences (2LAUC_AA) is a degree which allows learners to experience a variety of academic disciplines as well as prepare for continued studies in a bachelor degree program.
- Please consult your adviser if you have a particular bachelor degree in mind.

- Your adviser can help build a plan to help you meet any admission or course prerequisite requirements for the bachelor degree.

Multidisciplinary Studies, A.A. at New Kensington

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H	3 CAS 100A, 100B, or 100C	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
15		15

Second Year

Fall	Credits Spring	Credits
General Education Course	3 ENGL 202A, 202B, 202C, or 202D	3
Related Area Course	3 Writing Intensive Course	3
Related Area Course	3 Supporting Course	3
Related Area Course	3 Supporting Course	3
Supporting Course	3 Supporting Course	3
15		15

Total Credits 60

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Multidisciplinary Studies, A.A. at Schuylkill Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 15E, or 30H ^{*††}	3 CAS 100A ^{*††}	3
General Education Course (GQ) [‡]	3 9 Credit Area (GA, GH, GS, GN, GQ, FL) [*]	3
General Education Course (GA, GH, GS)	3 Physical, Biological, or Earth Science [*]	3
General Education Course (GA, GH, GS)	3 General Education Course (GH) [*]	3
General Education Course (GN)	3 General Education Course (GA) [*]	3
PSU 8	2	
	17	15

Second Year

Fall	Credits Spring	Credits
9 credit area (GA, GH, GS, GN, GQ, FL) [*]	3 ENGL 202A, 202B, 202C, or 202D (GWS) [*]	3
General Education Course (GA, GH, GS)	3 General Education Course (GS) [*]	3
Writing Across the Curriculum (W)	3 Elective	3
US or IL Cultures	3 Elective	1
Elective	3 9 Credit Area (GA, GH, GS, GN, GQ, FL) [*]	3
	15	13

Total Credits 60

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Integrative Studies (either Inter-domain or Linked Courses)

Integrative Studies may be completed within the 30 Knowledge Domain credits and must be completed with either Inter-domain or Linked

courses, not a combination of both. For Inter-domain courses, credit may apply to both Knowledge Domain designations but does not reduce the total number of credits within the Knowledge Domains and at least 3 credits of single-domain coursework are required in each of the 5 Knowledge Domains. Linked courses used for the Integrative Studies requirement must represent two different Knowledge Domains.

Multidisciplinary Studies, A.A. at Scranton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [†]	3 CAS 100A (GWS) ^{*†}	3
General Education Course [*]	3 General Education Course	3
General Education Course [*]	3 9 credit area (GA, GH, GS, GN, WL) [*]	3
Quantification (GQ)	3 General Education Course	3
Physical, Biological or Earth Science (GN) [*]	3 General Education Course	3
PSU 8 (Recommended)	0-1	
	15-16	15

Second Year

Fall	Credits Spring	Credits
9 credit area (GA, GH, GS, GN, WL) [*]	3 ENGL 202A, 202B, 202C, or 202D (GWS) [*]	3
General Education Course [*]	3 9 credit area (GA, GH, GS, GN, WL) [*]	3
Writing Across the Curriculum (W)	3 General Education Course	3
US or IL Cultures	3 Elective	3
Elective	3 Elective	3
	15	15

Total Credits 60-61

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

- As long as one GA, GH, and GS are taken, the order in which they are completed is not important.
- A student's career and graduate school plans should be considered when developing an individual academic plan.

- Be sure to consult an adviser in this department when scheduling courses.

Multidisciplinary Studies, A.A. at Shenango Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
Art Elective (GA)	3 Art Elective for Major (GA)	3
ENGL 15 ^{‡†}	3 CAS 100A [†]	3
Humanities Elective (GH)	3 Elective - General Elective Course	3
Natural Science Elective (GN)	3 Quantification Elective (GQ) [‡]	3
Social Science Elective (GS)	3 Social Science Elective for Major (GS)	3
	15	15

Second Year

Fall	Credits Spring	Credits
Elective - Concentration Area Elective	3 Elective - Concentration Area Elective	3
Elective - Concentration Area Elective	3 Elective - General Elective Course	3
Elective - General Elective Course	3 Elective - General Elective Course	3
Elective - General Elective Course	3 ENGL 202A, 202B, 202C, or 202D	3
Humanities Elective for Major - W or Y (US), (USI), or (IL)	3 Natural Science Elective for Major (GN)	3
	15	15

Total Credits 60

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes

Students must complete a 3-credit course in "United States Cultures (US)" or a 3-credit course in "International Cultures (IL)."

Multidisciplinary Studies, A.A. at Wilkes-Barre Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 ^{*††}	3 CAS 100 ^{*††}	3
General Education Course(GQ) ^{*††}	3 General Education Course	3
General Education Course [*]	3 General Education Course	3
General Education Course [*]	3 General Education Course	3
General Education Course [*]	3 General Education Course	3
PSU 8	1	
	16	15

Second Year

Fall	Credits Spring	Credits
General Education Course	3 ENGL 202A, 202B, 202C, or 202D ^{*††1}	3
Related Area Course ^{*1}	3 Writing Intensive Course ¹	3
Related Area Course ^{*1}	3 Supporting Course ¹	3
Related Area Course ^{*1}	3 Supporting Course ¹	3
Supporting Course ¹	3 Supporting Course ¹	3
	15	15

Total Credits 61

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ Consultation with adviser is recommended for proper course selection.

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World Campus

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Multidisciplinary Studies, B.A. (University College)

Begin Campus: Any Penn State Campus

End Campus: Brandywine, DuBois, Greater Allegheny, Hazleton, Mont Alto, Scranton, Shenango

Program Description

Multidisciplinary Studies is a multi-disciplinary, theme-oriented, and student-designed major leading to a bachelor of arts degree. The major consists of 36 credits, divided into two sections. The core (12 credits) consists of 3 credits each in the following: research methods/projects; communication skills; theory/application; and critical analysis. The additional courses (24 credits) consist of courses directed toward the student's theme, 15 credits of which must be at the 400 level.

Early Admission Program for Professional Schools

If a student is accepted and enrolled as a degree candidate in a professional postgraduate degree program requiring three years or more to complete (such as medical school, dental school, law school, theological seminary, etc.) and if that student completes 94

undergraduate credits at Penn State including General Education, B.A. requirements, and the Multidisciplinary Studies 12-credit core requirements, that student may use up to 30 credits from the professional school to complete the B.A. Multidisciplinary Studies.

It must be emphasized that only top students are accepted into professional school programs on such an early admission basis and that not every professional school has such a policy. Students must have enrolled in Multidisciplinary Studies prior to attending the professional school to request graduation in Multidisciplinary Studies.

What is Multidisciplinary Studies?

You can customize a Bachelor's Degree in Multidisciplinary Studies to fit your area of interest. The 120-credit program allows you to focus on developing your skills in communication and analysis along with your leadership abilities. You will work closely with your adviser to design a program that creates intellectual depth in an area of study that is unique to your interests, but also aligns with the theoretical foundation of a liberal arts degree. The goal of the Bachelor's degree in Multidisciplinary Studies is to provide a broad education that introduces methods of analysis used in the liberal arts disciplines. In addition, it can also prepare you to address the complex social, cultural, ethical, and organizational issues you may face in leadership positions.

You Might Like This Program If...

You have not earned an undergraduate degree, you wish to complete a degree or you wish to customize a degree to fit your career goals.

Entrance To Major

In order to be eligible for entrance to the major, the student must submit a proposal. In consultation with a Multidisciplinary Studies adviser, the student formulates a proposal designing a program that investigates a theme from the viewpoint of at least three different subject areas. Students may not duplicate existing majors from any academic area. An important standard for entrance to the Multidisciplinary Studies major is the student's ability to design a program with academic integrity worthy of a bachelor of arts degree.

Degree Requirements

For the Bachelor of Arts degree in Multidisciplinary Studies, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	15
Bachelor of Arts Degree Requirements	24
Requirements for the Major	36

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

Courses must be selected in consultation with an adviser.

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 24 credits from University-wide offerings to include:		24
12 credits at the 400 level representing at least three different subject areas		
3 credit 400-level capstone course		
A minimum 9 credits from the humanities and social sciences		
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 3 credits in research methods/projects from courses that involve research methodology or that focus on a research project		3
Select 3 credits in communication skills from courses that focus on expression including those in verbal, symbolic, and written skills		3
Select 3 credits in theory/application from courses that focus on theory, principle, central concepts, or fundamental issues		3
Select 3 credits in critical analysis from courses that focus on evaluation, synthesis, and analysis		3

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses**. This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or

beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

Brandywine Campus

- **Communicating Across Perspectives:** Students will be able to communicate and engage meaningfully and respectfully with others who have different perspectives or world views.
- **Integration:** Students will be able to integrate multiple disciplines of their chosen theme in a major course project, or in the articulation of a coherent multidisciplinary academic program in the Multidisciplinary Studies Proposal.
- **Knowledge:** Students will demonstrate proficient academic knowledge of key theories and approaches in more than one academic or professional discipline.
- **Method or Process:** Students will be able to apply rigorous empirical or creative methods and processes to research specific to their multiple disciplinary specializations.

DuBois, Greater Allegheny, Hazleton, Mont Alto, Scranton, Shenango Campuses

- **Application:** Students will be able to apply empirical or creative processes specific to their fields of specialization.
- **Communication:** Students will be able to communicate clearly and persuasively the integration of their learning of multiple disciplines in a degree program that reflects their theme.
- **Engagement:** Students will be able to engage meaningfully and respectfully with others who have different perspectives or world views.
- **Synthesis:** Students will be able to synthesize multiple disciplinary perspectives into an intellectual or professional identity.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Brandywine

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World Campus

Undergraduate Academic Advising

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Multidisciplinary Studies, B.A. at Brandywine Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or ESL 15 [‡]	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C [‡]	0-3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
World Language Level 1	4-6 General Education Course (GHW)	1.5
	World Language Level 2	4-6
13-15		11.5-16.5

Second Year

Fall	Credits Spring	Credits
Option Area Selection *	3 ENGL 202A or 202B [‡]	3
BA World Cultures Course	3 Option Area Selection 400-level*	3
General Education Course	3 BA Field Course	3
General Education Course (GHW)	1.5 General Education Course	3
World Language Level 3 or General Education Course	3-4 General Education Course	3
13.5-14.5		15

Third Year

Fall	Credits Spring	Credits
Theory/Application Course *	3 Research Methods/Projects Course *	3
Critical Analysis Course *	3 Communications/Skills Course *	3
General Education Course	3 BA Fields Course	3
General Education Course	3 Elective	3
Writing Across the Curriculum Course *	3 Elective	3
15		15

Fourth Year

Fall	Credits Spring	Credits
Option Area Selection 400-level*	3 Option Area Selection 400-level*	3
Option Area Selection 400-level*	3 Option Area Selection 400-level*	3
Option Area Selection *	3 BA Fields Course	3
Elective	3 Elective	3
Elective	3 Elective	3
15		15

Total Credits 113-121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Multidisciplinary Studies, B.A. at DuBois Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15	3 CAS 100A	3
General Education Course: Natural Science	3 Any World Language	4
Any World Language	4 General Education Course: Quantitative	3
General Education Course: Arts	3 General Education Course: Social Sciences	3
First Year Seminar	1 General Education Course: Humanities	3
	14	16

Second Year

Fall	Credits Spring	Credits
ENGL 202 (A,B,C or D)	3 Any World Language	4
General Education Course: Quantification	3 General Education Course: Natural Science	3-4
World Cultures	3 General Education Course: Arts	3
General Education: Social Sciences	3 General Education Course: Humanities	3
General Education: Natural Science	3 400 level course: 1st discipline	3
	15	16-17

Third Year

Fall	Credits Spring	Credits
400 level course: 2nd discipline	3 Critical Analysis Core Requirement	3
General Education elective: GN/GS/GH/GA	3 Communication Skills Core	3
Supporting course - US Cultures designation	3 Supporting Course - IL Cultures designation	3
Research Core Requirement	3 400 level course: 3rd discipline	3
Theory/Application Core Requirement	3 General Education: Health and Wellness	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
400 level Course- Any of the first 3 disciplines, or a 4th discipline	3 Capstone Experience	3
General Education: GN/GA/GS/GH with a W component	3 Option Requirement Supporting Course	3
General Education Elective: GN/GS/GA/GH	3 Option Requirement Course	3

Option Requirement Supporting	3 General Education Elective: GH/GS/GN/GA	3
General Education Elective: GN/GH/GS/GA	3 General Education B.A. elective: GN/GA/GH/GS	3
	15	15

Total Credits 121-122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Multidisciplinary Studies, B.A. at Greater Allegheny Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or ESL 15 [‡]	3 CAS 100A, 100B, or 100C [‡]	3
World Language level 1	4 World Language level 2	4
PSU 8	1 General Education Course (GQ) [‡]	3
General Education Course (GQ) [‡]	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course	3
General Education Course	3	
	15.5	16

Second Year

Fall	Credits Spring	Credits
World Language level 3	4 ENGL 202A, 202B, 202C, or 202D [‡]	3
Major Supporting Course (Communication Skills) [*]	3 Major Supporting Course (Critical Analysis) [*]	3
Major Additional Course - any level [*]	3 BA Fields Course	3
General Education Course (GHW)	1.5 General Education Course	3
Elective	3 General Education Course	3
	14.5	15

Third Year

Fall	Credits Spring	Credits
Major Supporting Course (Theory) [*]	3 Major Supporting Course (Research Methods) [*]	3
Major Additional Course - 400-level [*]	3 Major Additional Course - any level [*]	3
General Education Course (GN - with lab)	3-4 Major Additional Course - 400-level [*]	3
General Education Course	3 BA Fields Course	3
General Education Course	3 BA World Cultures Course	3
	15-16	15

Fourth Year

Fall	Credits Spring	Credits
Major Additional Course - 400-level [*]	3 Major Additional Course - 400-level [*]	3
Major Additional Course - any level [*]	3 Capstone Course - 400-level [*]	3
BA Fields Course	3 Elective	3
General Education Course	3 Elective	3

Elective	3 Elective	3
	15	15

Total Credits 121-122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Multidisciplinary Studies, B.A. at Hazleton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [‡]	3 CAS 100 [‡]	3
World Language Level 1	4 World Language Level 2	4
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course	3
PSU 8	1	
	15.5	16

Second Year

Fall	Credits Spring	Credits
World Language Level 3	4 ENGL 202A, 202B, 202C, or 202D [‡]	3
BA Requirement	3 BA Requirement	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
	General Education Course (GHW)	1.5
	16	16.5

Third Year

Fall	Credits Spring	Credits
LAS Course: Theory/ Application ^{*1}	3 LAS Course: Research ^{*1}	3-4
LAS Course ^{*1}	3 LAS Course: Critical Analysis ^{*1}	3
BA Requirement (World Cultures)	3 Elective	3
Elective	3 Elective	3
Elective	3 Elective	3
	15	15-16

Fourth Year

Fall	Credits Spring	Credits
LAS Course: Communication ^{*1}	3 ENGL 421 (Capstone) ^{*1}	3
LAS Course ^{*1}	3 LAS Course ^{*1}	3
400-Level LAS Course ^{*1}	3 400-Level LAS Course ^{*1}	3
400-Level LAS Course ^{*1}	3 400-Level LAS Course ^{*1}	3
400-Level LAS Course ^{*1}	3 BA Requirement	3
	15	15

Total Credits 124-125

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

¹ Refer to student's approved LAS proposal

Program Notes:

- As long as two Arts (GA), two Humanities (GH), two Social and Behavioral Sciences (GS), and three Natural Sciences (GN) courses are taken across the eight semesters, the particular order in which these courses are taken is not relevant.
- The courses series listed above is only one of many possible ways to move through the LAS curriculum. A student's career/graduate school plans should be considered in developing an individual academic plan. Be sure to consult an adviser in the LAS department when scheduling courses.
- LAS majors must take 3 credits in each of the following areas: Research Methods/Projects, Communication Skills, Theory/Application, Critical Analysis. See adviser for course recommendations.
- At least three (3) different disciplinary areas must be included in the 24 credit option area. Fifteen (15) credits must be at the 400 level including the 400-level capstone course. In addition, at least 9 credits must be from the humanities and/or social & behavioral sciences. See adviser for course recommendations.
- After completing the 4th semester, students intending to major in LAS must write a proposal outlining the selection of courses they plan to take, demonstrating how those courses work together to prepare them for their intended career choice. This proposal must be approved by LAS Program Coordinator at the Campus.

Multidisciplinary Studies, B.A. at Mont Alto Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [‡]	3 World Language Level 1 ²	4
PSU 8 (FYS)	1 Foundations CAS 100A, CAS 100B, or CAS 100C (GWS) [‡]	3
Foundations (GQ) [‡]	3 Foundations (GQ) [‡]	3
Breadth (GA) [†]	3 Breadth (GH) [†]	3
Breadth (GN) [†]	4 Breadth (GS) [†]	3
Breadth (GHW) [†]	1.5	
	15.5	16

Second Year

Fall	Credits Spring	Credits
World Language Level 2 ²	4 Foundations ENGL 202A, 202B, 202C, or 202D (GWS) [‡]	3
B.A. Fields Course Selection ⁵	3 B.A. World Cultures Course Requirement ⁴	3
Exploration [†]	3 World Language Level 3 ²	3
Exploration [†]	3 B.A. Fields Course Selection ⁵	3
Inter-Domain [†]	3 Exploration [†]	3
	16	15

Third Year

Fall	Credits Spring	Credits
Core: Research ^{*6}	3 Core: Critical Analysis ^{*8}	3
Core: Theory/Application ^{*7}	3 Core: Communication Skills ^{*9}	3
400-level course from the first discipline [*]	3 B.A. Fields Course Selection ⁵	3
Inter-Domain [†]	3 400-level course from the second discipline [*]	3
Breadth (GHW) [†]	1.5 Elective	3
	13.5	15

Fourth Year

Fall	Credits Spring	Credits
B.A. Fields Course Selection ⁵	3 Supporting Course [*]	3
Writing Across the Curriculum (W) Course ¹⁰	3 Supporting Course [*]	3
Supporting Course [*]	3 400-level capstone course [*]	3
400-level course from the third discipline [*]	3 Elective	3

400-level course from any of the first three or a fourth discipline [*]	3 Elective	3
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15

15

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

- The First-Year Seminar requirement may be met via PSU 8 (1 credit) or with some designated courses.
- World Language (0-12 credits) - Student must attain 12th credit level of proficiency in one world language. Penn State Mont Alto typically offers Spanish. If a student does not need to take the first and/or second semester(s) of a language, these credits will need to be replaced with electives.
- ENGL 202 - Students should consult with their adviser to select any one of ENGL 202A or ENGL 202B or ENGL 202C or ENGL 202D.
- World Cultures - Selected courses meet this "world cultures" requirement. Students also must take one international (IL) and one United States (US) cultures course. Courses with cultures attributes also can count toward general education or BA fields.
- B.A. Fields - Selected courses are designated as meeting the Bachelor of Arts requirement. The student should work with the adviser to make this selection.
- Core: Research - In consultation with adviser, select 3 credits in research methods/projects from courses that involve research methodology or that focus on a research project.
- Core: Theory/Application - In consultation with adviser, select 3 credits in theory/application from courses that focus on theory, principle, central concepts, or fundamental issues.
- Core: Critical Analysis - In consultation with adviser, select 3 credits in critical analysis from courses that focus on evaluation, synthesis, and analysis.
- Core: Communication Skills - In consultation with adviser, select 3 credits in communication skills from courses that focus on expression including those in verbal, symbolic, and written skills.
- Writing Across the Curriculum (W) - Some general edition courses also satisfy the "W" requirement. If a student has completed 3 credits of "W" course previously, this would be an elective. Work with the adviser to select an appropriate "W" course.

University Requirements and General Education Notes:

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General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Advising Notes:

- ‡ General Education - Foundations: 9 credits GWS, 6 credits GQ; courses require grades of C or better for General Education
- † General Education - Breadth: 3 credits each of GA, GH, GS, GN, GHW single-domain classes; classes may be taken in varied order
- Integrative Studies: 6 credits inter-domain classes (N suffix); may not count toward major, but may count toward minor
- Exploration: 9 credits of additional GA, GH, GN, GS, and inter-domain classes; must include 3 credits of GN which may be Inter-Domain
- Students must work with program coordinator for this major to develop and submit an academic plan for this degree before completing 90 credits. Entrance to this major requires an approved proposal, a cumulative GPA of 2.0 or higher, and a minimum of 27.5 credits. Students who have completed 91 credits may not enter this major. The five 400-level courses required for this major must be in a minimum of three different disciplines. Nine of the credits for the major must be from the humanities and social sciences.
- A student enrolled in an associate degree should contact the program coordinator to develop and submit the academic plan before completing the associate degree. This major can serve as a complement to the associate degree or as bridge from the associate degree to graduate studies (in physical therapy, occupational therapy, physician assistant, and more).
- With careful planning, students can complete a minor (examples: BIOL, BUS, CRIMJ, HDFS, or PSYCH). Minors require 6 credits unique from the courses required by the major, increasing the total degree credits from 120 to 126.
- This major was previously called the BA in Letters, Arts, and Sciences (LASUC_BA). It was renamed effective in summer 2022.

Multidisciplinary Studies, B.A. at Scranton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) [†]	3 World Language (level 2)	4
World Language (level 1)	4 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
PSU 8	1	
	15.5	14.5

Second Year

Fall	Credits Spring	Credits
Communication Skills [*]	3 Critical Analysis Skills [*]	3
World Language (level 3)	4 Theory/Application Skills [*]	3
General Education Course	3 CAS 100A (GWS)	3
General Education Course	3 General Education Course	3
General Education Course	3 Elective	3
	16	15

Third Year

Fall	Credits Spring	Credits
Additional Selection in the Major Requirement [*]	3 ENGL 202A, 202B, 202C, or 202D (GWS)	3
Additional Selection in the Major Requirement [*]	3 400-Level Selection in Major Requirements [*]	3
BA Requirement	3 400-Level Selection in Major Requirements [*]	3
General Education Course	3 BA Requirement	3
Elective	3 General Education Course	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
Research Methods/Projects [*]	3 400-Level Selection in Major Requirements (Capstone Course) [*]	3
Additional Selection in Major Requirements [*]	3 400-Level Selection in Major Requirements [*]	3
400-Level Selection in Major Requirements [*]	3 Elective	3
BA Requirement	3 Elective	3
World Cultures	3 Elective	3
	Elective	3
	15	18

Total Credits 124

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

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General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Advising Notes:

- LAS majors must take 3 credits in each of the following areas: Research Methods/Projects, Communication Skills, Theory/Application, Critical Analysis. See adviser for course recommendations.
- At least 3 different disciplinary areas must be included in the 24 credit option area. Fifteen (15) credits must be at the 400-level including the 400-level capstone course. In addition, at least 9 credits must be from the humanities and/or social and behavioral sciences. See adviser for course recommendations.
- After completing the 4th semester, students intending to major in LAS must write a proposal outlining the selection of courses they plan to take, demonstrating how those courses work together to prepare them for their intended career choice. This proposal must be approved by LAS Program Coordinator at Scranton.
- At least 3 credits must be taken in US cultures; at least 3 credits must be taken in IL cultures; at least 3 credits must be taken in World Cultures.
- At least one lab course is required in General Education Natural Sciences (GN)
- At least 3 credits must be taken in Writing Across the Curriculum ("W" suffix course).
- A total of 123 credits is required for graduation.

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Multidisciplinary Studies, B.A. at Shenango Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 [‡]	3 World Language 2	4
PSU 8	1 General Education Course	3
World Language 1	4 General Education Course	3
General Education Course	3 Quantification (GQ) [‡]	3
General Education Course	3 Social and Behavioral Science Elective	3
	14	16

Second Year

Fall	Credits Spring	Credits
Bachelor of Arts Requirement - See Adviser	3 Bachelor of Arts Requirement - See Adviser	3
CAS 100A or 100B [‡]	3 General Education Course	3
World Language 3	4 ENGL 202D or 202C [‡]	3
Social and Behavioral Science Elective (GS)	3 Quantification (GQ) [‡]	3
General Education Course	3 General Education Course	
	16	12

Third Year

Fall	Credits Spring	Credits
Bachelor of Arts Requirement - See Adviser	3 Communication Skills Course [*]	3
Critical Analysis Course [*]	3 General Elective Course	3
General Education Course (GHW)	Option Area Selection - See Advser [*]	3
Option Area Election - See Adviser [*]	3 Option Area Selection - See Adviser [*]	3
World Cultures Course	3 Research Methods Course [*]	3
Writing Across the Curriculum (W)	3	
	15	15

Fourth Year

Fall	Credits Spring	Credits
General Elective Course	3 General Elective Course	3
General Elective Course	3 General Elective Course	3
Option Area Selection - 400 level - See Adviser [*]	3 Option Area Selection - 400 level - See Adviser [*]	3
Option Area Selection - 400 level - See Adviser [*]	3 Option Area Selection - 400 level - See Adviser [*]	3
Theory/Application Course [*]	3 Option Area Selection - 400 level - See Adviser [*]	3
	15	15

Total Credits 118

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Career Paths

- Government agencies
- For-profit organizations
- Non-profit organizations
- Education
- Health care
- Business
- Human resources

Contact

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610-892-1442
lxe9@psu.edu

<https://www.brandywine.psu.edu/academics/bachelors-degrees/multidisciplinary-studies> (<https://www.brandywine.psu.edu/academics/bachelors-degrees/multidisciplinary-studies/>)

DuBois

1 College Place
DuBois, PA 15801
814-375-4815 or 814-375-4814
jka1@psu.edu or ajv2@psu.edu

<https://dubois.psu.edu/academics/degrees/mds> (<https://dubois.psu.edu/academics/degrees/mds/>)

Greater Allegheny

4000 University Drive
McKeesport, PA 15132
412-675-9053 or 412-675-9461
mpv2@psu.edu or mxh68@psu.edu

<https://greaterallegheny.psu.edu/academics/degree-programs/multidisciplinary-studies> (<https://greaterallegheny.psu.edu/academics/degree-programs/multidisciplinary-studies/>)

Hazleton

Butler 203
76 University Drive
Hazleton, PA 18202
570-450-3558
cxd35@psu.edu

<https://hazleton.psu.edu/multidisciplinary-studies> (<https://hazleton.psu.edu/multidisciplinary-studies/>)

Mont Alto

208 Sci-Tech
Mont Alto, PA 17237
717-749-6237
lkh1@psu.edu

<https://montalto.psu.edu/academics/bachelors/letters-arts-sciences-degree> (<https://montalto.psu.edu/academics/bachelors/letters-arts-sciences-degree/>)

Scranton

12 Library Building
Dunmore, PA 18512
570-963-2660
pjp3@psu.edu

<https://scranton.psu.edu/academics/degrees/bachelors/multidisciplinary-studies> (<https://scranton.psu.edu/academics/degrees/bachelors/multidisciplinary-studies/>)

Shenango

147 Shenango Avenue
310C Sharon Hall
Sharon, PA 16146
724-983-2978
pxn4@psu.edu

<https://shenango.psu.edu/academics/degrees/multidisciplinary-studies> (<https://shenango.psu.edu/academics/degrees/multidisciplinary-studies/>)

Abington

DIVISION OF ARTS AND HUMANITIES
1600 Woodland Road
Abington, PA 19001
215-881-7826
salguero@psu.edu

<https://www.abington.psu.edu/academics/majors-at-abington/multidisciplinary-studies> (<https://www.abington.psu.edu/academics/majors-at-abington/multidisciplinary-studies/>)

Altoona

DIVISION OF ARTS AND HUMANITIES
Misciagna Family Center for Performing Arts 129
3000 Ivyside Park
Altoona, PA 16601
814-949-5365
shp2@psu.edu

<https://altoona.psu.edu/academics/bachelors-degrees/multidisciplinary-studies> (<https://altoona.psu.edu/academics/bachelors-degrees/multidisciplinary-studies/>)

University Park

LIBERAL ARTS UNDERGRADUATE STUDIES
118 Sparks Building
University Park, PA 16802
814-865-1438
laadvising@psu.edu

<https://la.psu.edu/future-students/academics/degrees/multidisciplinary-studies/>

World Campus

FILIPPELLI INSTITUTE FOR E-EDUCATION AND OUTREACH
8 Thomas Building
University Park, PA 16802
814-863-5965
blm26@psu.edu

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-multidisciplinary-studies-bachelor-of-arts-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-multidisciplinary-studies-bachelor-of-arts-degree/>)

Natural Resources, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Natural Resources minor can complement majors in the earth sciences and life sciences, and provides an introduction to field techniques and technical writing. Areas of specialized study can include, but are not limited to, environmental assessment, forest and wetland evaluation and management, and wildlife management. Professional opportunities include work in environmental monitoring, such as endangered species and wetland delineation, restoration of disturbed land, and management of forested lands and wildlife areas.

What is Natural Resources?

The Natural Resources minor is designed for students studying Earth Sciences and includes topics related to wildlife and forest technology.

You Might Like This Program If...

- You are interested in forests and wildlife topics.
- You enjoy watching Planet Earth.
- You prefer to be outside.
- You care about the environment and desire to preserve it.
- You prefer to study science and have strong analytical skills.
- You want to complement your program of study with a unique focus.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Supporting Courses and Related Areas		
<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
In consultation with a natural resources adviser:		
	Select 3 credits in 100-level forest technology	3
	Select 3 credits in 100-level wildlife technology	3
	Select 6 credits of 200-level forest technology or wildlife technology	6
	Select 6 credits of 400-level geography or geosciences courses	6

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

DuBois

Heather Parizek

Associate Teaching Professor
179 Smeal Building
1 College Place
DuBois, PA 15801
814-375-4826
hlh105@psu.edu

Career Paths

The Natural Resources minor, added to your major of Earth Sciences will help to prepare you for a career or graduate study.

Careers

There are a variety of career options available to individuals interested in natural resources, including resource planning, restoration of disturbed lands, management of forested lands and wildlife areas, conservation and education within the field of natural resources.

Opportunities for Graduate Studies

You have many opportunities for graduate study including Natural Resource Management, Environmental Studies, Forest Ecology or Wildlife Science.

Contact

DuBois

179 Smeal Building
1 College Place
DuBois, PA 15801
814-375-4826
hlh105@psu.edu

<https://dubois.psu.edu/academics> (<https://dubois.psu.edu/academics/>)

Occupational Science, B.S.

Begin Campus: Any Penn State Campus

End Campus: Mont Alto

Program Description

Occupational Science is an interdisciplinary holistic study of how engagement in life and daily occupations define and shape humans' routines, roles, and habits across the lifespan within wide-ranging environments. Occupational science courses provide the foundation of study along with supporting courses in social and behavioral sciences.

The learned outcome of study in occupational science is for the student to have the knowledge and skills to understand how people develop, recover, manage and improve daily living patterns of health and well-being that shape their lives.

Occupational Science prepares occupational therapy assistant (OTA) or physical therapist assistant (PTA) graduates for graduate education at the professional entry-level for occupational therapy. The degree also prepares students for careers in community health and education systems, as well as businesses focused on health and well-being.

Between the junior and senior years, students with good academic standing are eligible to apply for admittance to the Entry-Level Master of Occupational Therapy Program.

You Might Like This Program If...

You are an occupational therapy or physical therapist associate graduate who wants to further explore the science of everyday living. The focus of the major is to engage the student in an active and informed understanding of the therapeutic value of engaging in meaningful occupation. Students will develop occupation-focused critical and justice

informed reasoning related to meeting societal needs of individuals, groups, and communities.

Entrance to Major

To be eligible for admission to the B.S. in Occupational Science, applicants must have completed an associate degree in either Physical Therapist Assistant or Occupational Therapy from an accredited institution. First-time, first-year students are not eligible for admission.

Although the minimum GPA required for admission or reenrollment is a 2.0 (on a 4.0 scale), this does not guarantee admission or reenrollment into the program. The program is competitive; therefore, applicants who submit their application to Penn State or their request for reenrollment by December 31 for fall, by November 1 for spring and by April 1 for summer will be reviewed on a space available basis.

While students can be admitted in the fall, spring or summer semesters, The five Occupational Science courses will be offered in sequence in the fall and spring semesters only.

Associate-level OT and PTA courses from accredited institutions apply toward the "portfolio" section of the degree requirements, for up to 45 credits of OT or PTA coursework.

Applicable transfer credits may be applied to general education or elective credits. The Undergraduate Admissions Office determines whether Penn State credit will be awarded after reviewing official transcripts. Once admitted to the program, students are assigned to an academic or faculty adviser, who will provide an evaluation of remaining requirements.

Regardless of the number of required credits needed, Faculty Senate Policy 83-80 states that all students must complete 36 of their last 60 credits of coursework at Penn State to earn a Penn State bachelor's degree.

Degree Requirements

For the Bachelor of Science degree in Occupational Science, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	9-10
Requirements for the Major	85-86

20 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 8 credits of GN courses; 6 credits of GS courses; 3 credits of GQ courses; 3 credits of GWS courses.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
BIOL 161	Human Anatomy and Physiology I - Lecture	3
BIOL 162	Human Anatomy and Physiology I - Laboratory	1

BIOL 163	Human Anatomy and Physiology II - Lecture	3
BIOL 164	Human Anatomy and Physiology II - Laboratory	1
OS 410	Foundations of Occupational Science and Therapy	4
OS 420	Occupational Constructs: Habits, Routines, Roles & Rituals	3
OS 430	Perspectives of Culture, Equity & Spirituality	3
OS 440	Human Behavior: Creativity and Flow	3
OS 450	Applied Occupational Science Capstone	5
PSYCH 100	Introductory Psychology	3
STAT 100	Statistical Concepts and Reasoning	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
ENGL 15	Rhetoric and Composition	3
or ENGL 30H	Honors Rhetoric and Composition	
HDFS 129	Introduction to Human Development and Family Studies	3
or PSYCH 212	Introduction to Developmental Psychology	
Select either the OT or PT track:		44-45
<i>Occupational Therapy Track (45 credits)</i>		
OT 100	Structural Foundations of Occupational Therapy	
OT 101	Conceptual Foundations of Occupational Therapy Practice	
OT 103	Occupational Performance Across the Life Span	
OT 195E	Fieldwork Level I Experience in Occupational Therapy	
OT 205	Group Process Across The Lifespan	
OT 207	Assistive Technologies and Methods of Adaptation	
OT 209	Management, Leadership and Ethics in Occupational Therapy	
OT 210W	Clinical Reasoning and Documentation in Occupational Therapy	
OT 212	Occupational Therapy for Child & Adolescent Health	
OT 214	Occupational Therapy for Psychosocial and Behavioral Health	
OT 216	Occupational Therapy for Physical Health and Rehabilitation	
OT 295E	Fieldwork Level I Experience in Occupational Therapy	
OT 395A	Fieldwork Level II Experience in Occupational Therapy	
OT 395B	Fieldwork Level II Experience in Occupational Therapy	
<i>Physical Therapist Assistant Track (44 credits)</i>		
PT 100	Physical Therapist Assistant-Introduction	
or PT 100S	Physical Therapist Assistant-Introduction	
PT 120	Human Musculature and Functional Anatomy	
PT 150	Physical Therapist Assistant Procedures I	
PT 160	Therapeutic Exercise I	
PT 250	Physical Therapist Assistant-Procedures II	
PT 260	Therapeutic Exercise-II	
PT 285	Clinical Reasoning for the PTA	
PT 290	Professional Issues in Clinical Practice	
PT 384	Applied Kinesiology	

PT 395E	Physical Therapist Assistant--Practicum I
PT 395G	Physical Therapist Assistant--Practicum III
Select 5 credits from the following:	
PT 270	Pathophysiology
PT 270W	Pathophysiology
PT 271 & PT 272	Pathophysiology I and Pathophysiology II
PT 271W & PT 272	Pathophysiology I and Pathophysiology II
Select 5 credits from the following:	
PT 280	Rehabilitation
PT 280W	Rehabilitation
PT 281 & PT 282	Rehabilitation-1 and Rehabilitation-2
PT 281 & PT 282W	Rehabilitation-1 and Rehabilitation-2W
Select 4 credits from the following:	
PT 395F	Physical Therapist Assistant--Practicum II
PT 395H & PT 395I	Physical Therapist Assistant--Practicum II Part 1 and Physical Therapist Assistant--Practicum II Part 2

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select a 3-credit Anthropology or Sociology course 3

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The

advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Mont Alto

Angela Hissong

Professor-in-Charge, Occupational Therapy & Science, University College
1 Campus Drive
Mont Alto, PA 17237
717-749-6165
anh1@psu.edu

Career Paths

Allows an opportunity for students who hold an associate degree in occupational therapy or physical therapy, to advance their practice-based skills and knowledge at the bachelor's level and/or as a pathway to graduate studies.

Careers

Provides advanced practice recognition for occupational therapy assistants and physical therapist assistants at the bachelor's level, as well as, offering occupational therapy and physical therapist assistant associate degree students a pathway to graduate studies in occupational therapy, physical therapy, health sciences, management, and/or education.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE OCCUPATIONAL SCIENCE PROGRAM (<https://www.aota.org/career/career-center/>)

Opportunities for Graduate Studies

Provides a pathway to graduate studies in occupational therapy, physical therapy, health sciences, management, and/or education. Approximately 90% of students who earn a bachelor's degree in Occupational Science at Penn State choose to pursue graduate work in occupational therapy.

Related graduate studies opportunities are as follows:

- Occupational Therapy
- Anthropology
- Business Administration (MBA)
- Curriculum and Instruction
- Educational Leadership
- Health Administration
- Health Policy and Administration
- Higher Education
- Kinesiology
- Learning, Design, and Technology
- Lifelong Learning and Adult Education
- Management and Organizational Leadership
- Organization Development and Change
- Philosophy
- Political Science
- Project Management
- Psychology
- Psychology of Leadership

- Public Administration
- Public Health
- Public Policy
- Rural Sociology
- Sociology
- Special Education
- Teaching and Curriculum
- Transdisciplinary Research on Environment and Society
- Women's, Gender, and Sexuality Studies

LISTING OF ALL GRADUATE AND PROFESSIONAL STUDIES PROGRAMS AVAILABLE AT PENN STATE (<https://bulletins.psu.edu/graduate-professional-programs/>)

LISTING OF MASTER'S DEGREES AVAILABLE ONLINE THROUGH PENN STATE WORLD CAMPUS (<https://www.worldcampus.psu.edu/degrees-and-certificates/masters-degrees/>)

Professional Resources

- Society for the Study of Occupation: USA (<https://www.sso-usa.net/>)
- American Occupational Therapy Association (<https://www.aota.org>)
- International Society of Occupational Science (ASOS) (<https://www.international-society-for-occupational-science.org>)

Contact

Mont Alto

OCCUPATIONAL THERAPY & SCIENCE
1 Campus Drive
Mont Alto, PA 17237
717-749-6165
anh1@psu.edu

Occupational Therapy, A.S. (University College)

Begin Campus: DuBois, Mont Alto, Shenango

End Campus: DuBois, Mont Alto, Shenango

Program Description

The Associate in Science in Occupational Therapy Assistant Program prepares students to work in numerous practice settings, guided by the supervision of occupational therapists. Across the lifespan, individuals engage in meaningful occupations. Learning, playing, working, resting, and caring for self and others are among the occupations of life. A physical or psychological challenge may hinder an individual, group, and/or community from participating fully in meaningful occupations. Occupational therapy makes it possible for people to maintain or reclaim independence; thereby positively engaging in Living Life to its Fullest™. Upon successful graduation from the program, students must sit for and successfully pass the National Board for Certification in Occupational Therapy (NBCOT) national certification examination to practice. Most states also require licensure as a condition for employment. A felony conviction may affect a graduate's ability to sit for the NBCOT certification examination and obtain licensure. NBCOT may be contacted at:

NBCOT

One Bank Street
Suite 300
Gaithersburg, MD 20878
301-990-7979
www.NBCOT.org (<http://www.NBCOT.org>)

To enter this major, students must have a high school diploma or its equivalent. To be admitted to degree candidacy, the applicant must have completed educational background requirements called Carnegie Units or Secondary School Units. Students are responsible for proof of liability insurance and other requirements specified by the facility providing supervised field experience.

The size of each entering class is limited so that optimal clinical experiences and practical application situations can be maintained. Students are expected to progress through the program in the prescribed manner. Fieldwork affiliations are maintained within a specified geographical area. Students may be required to make special housing and transportation arrangements during the fieldwork phase. Students must complete all Level II fieldwork within eighteen months of successful completion of OTA didactic course work. The 2OTCC and 2OTBL curricula are delivered in five semesters.

What is Occupational Therapy?

Occupational therapy is a practice informed by physical, psychological, and occupational science. It is with these skills and knowledge; occupational therapy assistants employ intervention plans that engage people in maintaining or reclaiming independence. A physical or psychological challenge may hinder an individual, group, and/or community from participating fully in meaningful occupations. When this occurs an occupational therapy assistant works with the client(s) to design a plan to Live Life to its Fullest™. As a certified occupational therapy assistant, you will work in numerous practice settings, guided by the supervision of occupational therapists. Most importantly, by choosing a career in occupational therapy, you will be at the forefront in making a difference in people's lives by way of therapeutic use of self and an intentional relationship.

You Might Like This Program If...

You want to work with individuals and groups across the lifespan. Occupational Therapy Assistants work in rehabilitation and acute care hospitals, skilled nursing facilities, schools, community health centers, mental health facilities, pediatric specialty settings, and higher education, and can also create their own niches in a variety of settings. If you appreciate helping to solve problems and empower people, being an occupational therapy assistant may be the right fit for you!

Entrance to Major

The Occupational Therapy Assistant program admits students to begin in the fall semester.

Incoming first-year and transfer students who meet the program and campus admission requirements are admitted directly into the major. For more information about the admission process for this major, please send a request to the campus undergraduate admission office or to the program contact (listed in the Contact tab of the Bulletin).

First year students include those who have graduated from high school and have attempted fewer than 18 semester hours of college coursework at another college or university after high school graduation.

The minimum high school units required for admission to the Occupational Therapy Assistant program include four secondary units of English, two units of mathematics (including one unit of algebra), two units of science (one unit must be biology), and five units of arts, humanities, social studies, and/or foreign languages.

Although the minimum high school GPA required for admission is a 2.0 (on a 4.0 scale), this does not guarantee admissions into the program. The program is competitive; therefore, applicants who submit their application to Penn State by December 31 will be reviewed on a space available basis.

Transfer Applicants

In addition to a cumulative grade-point average, it is recommended that a transfer applicant should have demonstrated successful completion of at least three (3) credits of natural science with a lab and one (1) social science related course from another institution. These types of courses may include (but are not limited to) mammalian anatomy, physiology, chemistry, psychology, sociology, and other core biological, chemical, and social sciences. The admissions selection committee strives to select students who have demonstrated the potential to succeed in a rigorous, science-oriented program of study.

- * OT does not offer an advanced placement option for coursework for credit for experiential learning in the OTA program.
- * OT does not require prerequisite education or work-related experience for admission to the OTA program.

Change of Major

Requests will be considered for entrance into the OTP Program based on academic performance and space available in the OTA Program.

Students who wish to change their major must have a cumulative collegiate grade-point average of 2.0 on a 4.0 scale as the minimum University requirement for change of major consideration. In general, change of major to the Occupational Therapy Assistant program requires a substantially higher cumulative grade-point average. The number of qualified applicants typically exceeds the number of available program spaces; therefore, satisfaction of the minimum requirements does not guarantee approval for entrance to major.

In addition to a cumulative grade-point average, it is recommended that all change of major applicants should have demonstrated successful completion of at least one (1) laboratory based biological and one (1) social science related course prior to the January review:

Biological and Life Sciences (one lecture and one lab)

- BIOL 161/BIOL 162: Anatomy & Physiology I
- BIOL 163/BIOL 164: Anatomy & Physiology II

Social and Behavioral Sciences (choose at least one)

- PSYCH 100: General Psychology
- HDFS 129: Introduction to Human Development and Family Studies or PSYCH 212

Additional Information

Students are responsible for proof of liability insurance and other requirements, including criminal background checks and health information specified by the facility providing supervised field experience.

A felony conviction on record may impact a student's ability to sit for the certification examination administered by NBCOT after graduation; this can subsequently impact a graduate's ability to attain state licensure. Before applying to the OTA program, students can contact NBCOT for information on their early determination program to assess examination eligibility. Contact NBCOT at <https://www.nbcot.org/> for more information.

Retention Requirements

OTA Student Academic Success

Students in the Associate in Science in Occupational Therapy Program must earn a grade of C or better in: BIOL 161, BIOL 162, BIOL 163, BIOL 164, PSYCH 100, HDFS 129 or PSYCH 212, OT 100, OT 101, OT 103, OT 205, OT 207, OT 209, OT 210W, OT 212, OT 214, and OT 216.

As outlined in the course syllabi and the Associate Degree Programs Bulletin, students must earn passing grades in prerequisite occupational therapy courses to enroll in subsequent occupational therapy courses. Students will take the OT didactic courses offered in each semester, concurrently and in the prescribed sequence, since the curriculum is a progressive learning model. Level II fieldwork is completed only after the OT didactic courses and all general education requirements are successfully completed. Level II fieldwork must be completed within 18 months after completion of didactic coursework.

Ongoing Progression in the OTA Program

As per ACOTE Standard 3.4 Criteria for Successful Completion and A.3.5 Evaluation with Student on a Regular Basis, the faculty and administration will provide students regular feedback about their academic standing. Regarding successful completion of the OTA program there are instances where progression in the program is non-negotiable as follows:

1. A student who earns a D or F in any two OT didactic and/or fieldwork courses will not be allowed to continue in the program. Examples include but are not limited to: Failure of (OT 103 and OT 295E) or (OT 195E and OT 395A) or (OT 101 and OT 210W).
2. A student may be disenrolled from the program for a violation of the Occupational Therapy Code of Ethics and/or Penn State Academic Integrity Policy G-9 .
3. A student may not progress to the 3rd semester of the curriculum until BIOL 161, BIOL 162, BIOL 163, and BIOL 164 have been successfully completed with a C or better. If BIOL courses are not successfully passed by 3rd semester, the student may withdraw from the University or remain active and return to 3rd semester of prescribed OT courses the following year with the approval of Program Director.
4. Students must maintain a minimum grade point of 2.0 to be eligible to engage in Fieldwork Level I & II (OT 195E, OT 295E, OT 395A and OT 395B).

Degree Requirements

For the Associate in Science degree in Occupational Therapy, a minimum of 71 credits is required:

Requirement	Credits
General Education	21
Requirements for the Major	62

12 of the 21 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GWS courses; 6 credits of GS courses; 3 credits of GN courses.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
BIOL 161	Human Anatomy and Physiology I - Lecture	3
BIOL 162	Human Anatomy and Physiology I - Laboratory	1
BIOL 163	Human Anatomy and Physiology II - Lecture	3
BIOL 164	Human Anatomy and Physiology II - Laboratory	1
ENGL 15	Rhetoric and Composition	3
OT 100	Structural Foundations of Occupational Therapy	1
OT 101	Conceptual Foundations of Occupational Therapy Practice	2
OT 103	Occupational Performance Across the Life Span	3
OT 195E	Fieldwork Level I Experience in Occupational Therapy	1
OT 205	Group Process Across The Lifespan	3
OT 207	Assistive Technologies and Methods of Adaptation	3
OT 209	Management, Leadership and Ethics in Occupational Therapy	3
OT 210W	Clinical Reasoning and Documentation in Occupational Therapy	3
OT 212	Occupational Therapy for Child & Adolescent Health	4
OT 214	Occupational Therapy for Psychosocial and Behavioral Health	4
OT 216	Occupational Therapy for Physical Health and Rehabilitation	4
OT 295E	Fieldwork Level I Experience in Occupational Therapy	2
OT 395A	Fieldwork Level II Experience in Occupational Therapy	6
OT 395B	Fieldwork Level II Experience in Occupational Therapy	6
PSYCH 100	Introductory Psychology	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
HDFS 129	Introduction to Human Development and Family Studies	3
	or PSYCH 212 Introduction to Developmental Psychology	

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all associate degree

students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 3 credits
- **Writing and Speaking (GWS):** 3 credits

Knowledge Domains

- **Arts (GA):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Note: Up to six credits of Inter-Domain courses may be used for any Knowledge Domain requirement, but when a course may be used to satisfy more than one requirement, the credits from the course can be counted only once.

Exploration

- **Any General Education course (including GHW and Inter-Domain):** 3 credits

University Degree Requirements

Cultures Requirement

3 credits of United States (US) or International (IL) cultures coursework are required and may satisfy other requirements

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 60 degree credits must be earned for an associates degree. The requirements for some programs may exceed 60 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of

both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Occupational Therapy, A.S. at DuBois Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
OT 100*	1 OT 103* ²	3
OT 101*	2 HDFS 129 or PSYCH 212 [†]	3
BIOL 161* [†]	3 BIOL 163* [†]	3
BIOL 162* [†]	1 BIOL 164* [†]	1
ENGL 15 [‡]	3 General Education Course (GA)	3
PSYCH 100 ^{†1}	3	
	13	13

Second Year

Fall	Credits Spring	Credits Summer	Credits
OT 205*	3 OT 210W*	3 OT 395A* ⁴	6
OT 207*	3 OT 212*	4 OT 395B* ⁴	6
OT 209*	3 OT 214*	4	
OT 195E* ³	1 OT 216*	4	
General Education Course (GH)	3 OT 295E*	2	
General Education Course (GQ) [‡]	3		
	16	17	12

Total Credits 71

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ PSYCH 100 is a prerequisite for PSYCH 212.

² OT 103 meets the intercultural requirement and is designated US.

³ OT 195E may be taken in semester 2 or 3, depending on availability of fieldwork sites.

⁴ FW Level II is two 8-week full-time placements.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

As per ACOTE Standard A.4.6 (2018) Notice to Applicants related to Criteria for Successful progression, retention, graduation, certification, and credentialing requirements of the Associate in Science in Occupational Therapy Degree.

Successful completion of each segment of the OTA Program requires the following:

- Student must earn a C or better in the OTA major coursework:
 - Each OT Course, BIOL 161, BIOL 162, BIOL 163, BIOL 164, HDFS 129 or PSYCH 212, PSYCH 100
- As per Penn State policy, student must earn C or better in Foundation Courses: ENGL 15(GWS) & MATH (GQ).
- OT course must be taken in the semester designated on this Suggested Academic Plan for OTA.
- Student must pass BIOL 161, BIOL 162, BIOL 163 & BIOL 164 prior to entering 3rd semester.
- Student must pass ENGL 15, PSYCH 100, and HDFS 129 or PSYCH 212 prior to entering the 3rd semester.
- When a student fails an OT course, they may not progress to next semester. Student will need to meet with adviser to discuss options of progression in the program.
- Student must maintain 2.0 GPA, to engage in OT 195E or OT 295E: Level I Fieldwork Experience.
- GQ, GH & GA can be moved around with the curriculum; however, must be completed by end of 3rd semester.
- All didactic degree requirements must be completed with a 2.0 GPA or better prior to enrolling in OT 395A/OT 395B.
- OT 195E, OT 295E, OT 395A, and OT 395B date & site of experience will be scheduled by the Academic Fieldwork Coordinator.

To graduate with an Associate in Science in Occupational Therapy degree:

- Student must maintain a 2.0 GPA per Academic Progress Policy 54-00, "To graduate, a degree candidate must complete the requirements for the candidate's major and earn at least a C (2.00) average for all courses taken at this University as stated in 82-40, subject to the conditions of 51-00."
- Student must complete OT 395A & OT 395B within 18 months of completing the didactic requirements.
- A felony conviction on your record, may affect your ability to sit for the certification examination administered by NBCOT® after you graduate; this can subsequently affect your ability to attain state licensure. Before applying for the OTA program, you can contact NBCOT® for information on their early determination program to assess examination eligibility. Go to NBCOT and read the "Early Review" section for details (<https://www.nbcot.org/exam/edr/>).

Occupational Therapy, A.S. at Mont Alto Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
OT 100*	1 OT 103* ²	3
OT 101*	2 HDFS 129 or PSYCH 212 [†]	3
BIOL 161* [†]	3 BIOL 163* [†]	3
BIOL 162* [†]	1 BIOL 164* [†]	1
ENGL 15 [‡]	3 General Education Course (GA)	3
PSYCH 100 ^{†1}	3	
	13	13

Second Year

Fall	Credits Spring	Credits Summer	Credits
OT 205*	3 OT 210W*	3 OT 395A* ⁴	6
OT 207*	3 OT 212*	4 OT 395B* ⁴	6
OT 209*	3 OT 214*	4	
OT 195E* ³	1 OT 216*	4	
General Education Course (GH)	3 OT 295E*	2	
General Education Course (GQ) [‡]	3		
	16	17	12

Total Credits 71

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ PSYCH 100 is a prerequisite for PSYCH 212.

² OT 103 meets the intercultural requirement and is designated US.

³ OT 195E may be taken in semester 2 or 3, depending on availability of fieldwork sites.

⁴ FW Level II is two 8-week full-time placements.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

As per ACOTE Standard A.4.6 (2018) Notice to Applicants related to Criteria for Successful progression, retention, graduation, certification, and credentialing requirements of the Associate in Science in Occupational Therapy Degree.

Successful completion of each segment of the OTA Program requires the following:

- Student must earn a C or better in the OTA major coursework:
 - Each OT Course, BIOL 161, BIOL 162, BIOL 163, BIOL 164, HDFS 129 or PSYCH 212, PSYCH 100
- As per Penn State policy, student must earn C or better in Foundation Courses: ENGL 15(GWS) & MATH (GQ).
- OT course must be taken in the semester designated on this Suggested Academic Plan for OTA.
- Student must pass BIOL 161, BIOL 162, BIOL 163 & BIOL 164 prior to entering 3rd semester.
- Student must pass ENGL 15, PSYCH 100, and HDFS 129 or PSYCH 212 prior to entering the 3rd semester.
- When a student fails an OT course, they may not progress to next semester. Student will need to meet with adviser to discuss options of progression in the program.
- Student must maintain 2.0 GPA, to engage in OT 195E or OT 295E: Level I Fieldwork Experience.
- GQ, GH & GA can be moved around with the curriculum; however, must be completed by end of 3rd semester.
- All didactic degree requirements must be completed with a 2.0 GPA or better prior to enrolling in OT 395A/OT 395B.
- OT 195E, OT 295E, OT 395A, and OT 395B date & site of experience will be scheduled by the Academic Fieldwork Coordinator.

To graduate with an Associate in Science in Occupational Therapy degree:

- Student must maintain a 2.0 GPA per Academic Progress Policy 54-00, "To graduate, a degree candidate must complete the requirements for the candidate's major and earn at least a C (2.00) average for all courses taken at this University as stated in 82-40, subject to the conditions of 51-00."
- Student must complete OT 395A & OT 395B within 18 months of completing the didactic requirements.
- A felony conviction on your record, may affect your ability to sit for the certification examination administered by NBCOT® after you graduate; this can subsequently affect your ability to attain state licensure. Before applying for the OTA program, you can contact NBCOT® for information on their early determination program to assess examination eligibility. Go to NBCOT and read the "Early Review" section for details (<https://www.nbcot.org/exam/edr/>).

Occupational Therapy, A.S. at Shenango Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
OT 100*	1 OT 103* ²	3
OT 101*	2 HDFS 129 or PSYCH 212 [†]	3
BIOL 161* [†]	3 BIOL 163* [†]	3
BIOL 162* [†]	1 BIOL 164* [†]	1
ENGL 15 [‡]	3 General Education Course (GA)	3
PSYCH 100* ^{†1}	3	
	13	13

Second Year

Fall	Credits Spring	Credits
OT 205*	3 OT 210W*	3
OT 207*	3 OT 212*	4
OT 209*	3 OT 214*	4
OT 195E* ³	1 OT 216*	4
General Education Course (GH)	3 OT 295E*	2
General Education Course (GQ) [‡]	3	
	16	17

Third Year

Fall	Credits
OT 395A* ⁴	6
OT 395B* ⁴	6
	12

Total Credits 71

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

As per ACOTE Standard A.4.6 (2018) Notice to Applicants related to Criteria for Successful progression, retention, graduation, certification, and credentialing requirements of the Associate in Science in Occupational Therapy Degree.

Successful completion of each segment of the OTA Program requires the following:

- Student must earn a C or better in the OTA major coursework:
 - Each OT Course, BIOL 161, BIOL 162, BIOL 163, BIOL 164, HDFS 129 or PSYCH 212, PSYCH 100
- As per Penn State policy, student must earn C or better in Foundation Courses: ENGL 15(GWS) & MATH (GQ).
- OT course must be taken in the semester designated on this Suggested Academic Plan for OTA.
- Student must pass BIOL 161, BIOL 162, BIOL 163 & BIOL 164 prior to entering 3rd semester.
- Student must pass ENGL 15, PSYCH 100, and HDFS 129 or PSYCH 212 prior to entering the 3rd semester.
- When a student fails an OT course, they may not progress to next semester. Student will need to meet with adviser to discuss options of progression in the program.
- Student must maintain 2.0 GPA, to engage in OT 195E or OT 295E: Level I Fieldwork Experience.
- GQ, GH & GA can be moved around with the curriculum; however, must be completed by end of 3rd semester.
- All didactic degree requirements must be completed with a 2.0 GPA or better prior to enrolling in OT 395A/OT 395B.
- OT 195E, OT 295E, OT 395A, and OT 395B date & site of experience will be scheduled by the Academic Fieldwork Coordinator.

To graduate with an Associate in Science in Occupational Therapy degree:

- Student must maintain a 2.0 GPA per Academic Progress Policy 54-00, "To graduate, a degree candidate must complete the requirements for the candidate's major and earn at least a C (2.00) average for all courses taken at this University as stated in 82-40, subject to the conditions of 51-00."
- Student must complete OT 395A & OT 395B within 18 months of completing the didactic requirements.
- A felony conviction on your record, may affect your ability to sit for the certification examination administered by NBCOT® after you graduate; this can subsequently affect your ability to attain state licensure. Before applying for the OTA program, you can contact NBCOT® for information on their early determination program to assess examination eligibility. Go to NBCOT and read the "Early Review" section for details (<https://www.nbcot.org/exam/edr/>).

Career Paths

Certified Occupational Therapy Assistants (COTA's) work in numerous practice settings. Across the lifespan, individuals engage in meaningful occupations. Learning, playing, working, resting, and caring for self and others are among the occupations of life. A physical or psychological challenge may hinder an individual, group, and/or community from participating fully in meaningful occupations. Occupational therapy makes it possible for people to maintain or reclaim independence. Following graduation from the nationally accredited program, students are eligible to take the National Board for Certification in Occupational Therapy (NBCOT) exam.

Careers

A Certified Occupational Therapy Assistant (COTA) supports individuals of all ages develop, recover, improve, or maintain the skills necessary for daily living, leisure, play, and work. COTA's work in public and private schools, early intervention programs, general, psychiatric, and pediatric hospitals, day treatment centers, hospices and home health agencies, rehabilitation hospitals and centers, skilled and intermediate care facilities, community living programs, community wellness centers, and/or hand therapy clinics.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE OCCUPATIONAL THERAPY PROGRAM (<https://www.bls.gov/ooh/healthcare/occupational-therapy-assistants-and-aides.htm>)

Opportunities for Graduate Studies

Once a Certified Occupational Therapy Assistant (COTA) has completed the associate in science in occupational therapy degree, they may decide to further studies by obtaining a baccalaureate degree. Common degrees include biology, psychology, occupational science, biobehavioral health, integrated social sciences, and other health related degrees.

Many COTA's decide to complete a baccalaureate degree secondary to the benefits of advancing their education as applied to occupational therapy and/or as part of positive progression of employment. Additionally, some COTA's complete a baccalaureate degree to prepare for graduate studies at the master's or doctoral degree entry-level to become occupational therapists.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.aota.org/education/find-a-school/>)

Professional Resources

- American Occupational Therapy Association, Inc. (AOTA) (<https://www.aota.org>)
- Accreditation Council for Occupational Therapy Education (ACOTE) (<https://acoteonline.org>)
- National Board for the Certification of Occupational Therapy, Inc. (NBCOT) (<https://www.nbcot.org>)

Accreditation

The Penn State Occupational Therapy Assistant programs are fully accredited by ACOTE, which can be reached at:

Accreditation Council for Occupational Therapy Education (ACOTE)
7501 Wisconsin Avenue
Suite 510E
Bethesda, MD 20814
301-652-6611 ext. 1184
email: accred@aota.org
[www.acoteonline.org](https://acoteonline.org) (<https://acoteonline.org>)

The Accreditation Council for Occupational Therapy Education (ACOTE®) is an Associated Advisory Council of the Executive Board of the American Occupational Therapy Association (AOTA®). ACOTE® is recognized as the accrediting agency for occupational therapy education by both the United States Department of Education (USDE (https://www2.ed.gov/admins/finaid/accred/accreditation_pg7.html#health)) and the Council for Higher Education Accreditation (CHEA (<https://www.chea.org/>)).

Program Accreditation Status by Campus

- **DuBois:** 2033-2034
- **Mont Alto:** 2023-2024
- **Shenango:** 2030-2031

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

DuBois

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<https://dubois.psu.edu/academics/degrees/ota> (<https://dubois.psu.edu/academics/degrees/ota/>)

Mont Alto

1 Campus Drive
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<https://montalto.psu.edu/academics/associate/occupational-therapy-assistant-degree> (<https://montalto.psu.edu/academics/associate/occupational-therapy-assistant-degree/>)

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<https://shenango.psu.edu/academics/degrees/2-year-occupational-therapy-assistant> (<https://shenango.psu.edu/academics/degrees/2-year-occupational-therapy-assistant/>)

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<https://berks.psu.edu/academics/occupational-therapy> (<https://berks.psu.edu/academics/occupational-therapy/>)

Peace and Conflict Studies, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change

from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

This minor may be pursued by students in any major. It is designed to help students take a coherent set of courses organized around the study of the sources of international conflict, peace movements, and peace building. The minor requires 18 credits, of which at least nine must be upper division, including six credits at the 400 level. Students will be required to take two prescribed courses, one introductory and one capstone. They also will take three credits of additional courses with an international focus and nine credits from a list of supporting courses, which includes the study of conflict in race relations, family, community, and the development of personal peace as a precursor to peace building. The full requirements with the lists of additional and supporting courses are available in the Peace and Conflict Studies program office. Substitutions for requirements require the permission of the Peace and Conflict Studies minor adviser at Penn State Brandywine.

See this minor list for Brandywine at [http://www.brandywine.psu.edu/Academics/](http://www.brandywine.psu.edu/Academics) for additional information.

What is Peace and Conflict Studies?

Peace and Conflict Studies examines how human beings get into and out of violent conflicts. The field sizes up the costs of war, examines the processes and challenges of peace, reflects on the characteristics of human conflicts at all levels. The field is interdisciplinary, drawing together elements of political science, international studies, cultural anthropology, psychology, sociology, economics, military history, war game theory, and studies of literature and expressive culture. Topics include diplomacy, nonviolence, failed states, ethnic struggle, gender mainstreaming, economics of war and peace, and cyber warfare.

You Might Like This Program If...

You want to add a background in international conflict, conflict escalation, peace movements, and peace-building to your four-year degrees. The program is a perfect match for students who plan to work in government, technology, international studies, cybersecurity, and other related fields.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
PLSC 91		3
PLSC 491	Peace and Conflict Studies Seminar	3
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		

INTU 200	(both cannot be taken for credit)	3
or PLSC 14	International Relations	

Supporting Courses and Related Areas

<i>Supporting Courses and Related Areas: Require a grade of C or better</i>		
Select 3 credits from the additional course list in the Peace and Conflict Studies program office		3
Select 6 credits from the supporting course list in the Peace and Conflict Studies program office		6

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Brandywine

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Career Paths

Careers

The Peace and Conflict Studies Minor helps to prepare students for careers in international law, international commerce, government, diplomacy, development, and cybersecurity.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN PEACE AND CONFLICT STUDIES (<https://www.brandywine.psu.edu/academics/minors/peace-and-conflict-studies/>)

Opportunities for Graduate Studies

The minor helps to prepare students for graduate studies in law, political science, international studies, and development studies.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.brandywine.psu.edu/academics/minors/peace-and-conflict-studies/>)

Contact

Brandywine

PEACE AND CONFLICT STUDIES
25 Yearsley Mill Road
Media, PA 19063
610-892-1474, 610-892-1465
pdg4@psu.edu, pjd15@psu.edu

<https://www.brandywine.psu.edu/academics/minors/peace-and-conflict-studies/> (<https://www.brandywine.psu.edu/academics/minors/peace-and-conflict-studies/>)

Physical Therapist Assistant, A.S.

Begin Campus: Fayette, Hazleton, Mont Alto, Shenango

End Campus: Fayette, Hazleton, Mont Alto, Shenango

Program Description

This major helps prepare individuals to provide physical therapy services under the direction and supervision of a physical therapist in an ethical, safe, and effective manner. Students develop knowledge and skills in data collection and the appropriate use of equipment and exercise associated with various physical therapy treatment modalities. To accomplish these tasks, the major utilizes a combination of basic science and non-science course work coupled with courses specifically designed for the physical therapist assistant student. Students must progress through the program as prescribed by the suggested academic plan for their campus of admission. The program culminates with a full semester of clinical experience.

The size of each entering class is limited so that optimal clinical experiences and practical application situations can be maintained. Clinical affiliations are maintained over a wide geographical area, and students may be required to make special housing and transportation arrangements for the clinical phase. Prior to the beginning of the clinical experiences, PTA students are required to complete clinical requirements that may include, but are not limited to: health examination, immunizations, FBI fingerprint check, child abuse clearance, state background check and drug screening. Students will be responsible for completion and purchase of the necessary checks/clearances through a University approved vendor and providing results to the clinical sites.

In addition to a PTA certification/licensure, many state licensing boards and clinical facilities require a criminal background check, child abuse clearance, and a drug screening. Students with criminal records should contact the physical therapy licensing board in the state they plan to practice prior to applying for admission to the PTA Program to inquire about potential restrictions for licensure.

What is a Physical Therapist Assistant?

Physical Therapist Assistants (PTAs) work as part of a team providing physical therapy services under the direction and supervision of a licensed physical therapist. PTAs implement interventions outlined in the physical therapist's plan of care, collect data related to interventions, and modify selected interventions to progress patients towards their individual goals. These goals are designed to reduce pain, restore

function, improve mobility and prevent disability. An Associate in Science Degree in Physical Therapist Assistant requires 5-semesters of study, including three full-time clinical practicums. The PTA Program prepares graduates to take the national examination for certification/licensure as a PTA.

You Might Like This Program If...

You are interested in working with people of all ages who have health-related conditions that cause pain or limit their ability to move or perform functional activities in their daily lives. PTAs work under the direction and supervision of a licensed physical therapist to provide meaningful interventions, such as exercise, training for walking and other activities, manual therapy and interventions, and the use of physical agents and electrotherapy.

Entrance to Major

Incoming first-year students who meet the program and campus admission requirements are admitted directly into the major. For more information about the admission process for this major, please send a request to the campus undergraduate admissions office or to the program contact (listed in the Contact tab).

Change of Major and Change of Locations requests are submitted via LionPATH Update Academics and require Dean's review. Requests will be considered for entrance into the PTA Program based on academic performance and space available in the PTA Program.

Students who wish to change their major must have a cumulative collegiate grade-point average of 2.0 on a 4.0 scale as the minimum University requirement for change of major consideration. In general, change of major to the Physical Therapy Assistant program requires a substantially higher cumulative grade-point average. The number of qualified applicants typically exceeds the number of available program spaces; therefore, satisfaction of the minimum requirements does not guarantee approval for entrance to major.

Additional Information

In addition to a PTA certification/licensure, many state licensing boards and clinical facilities require a criminal background check, child abuse clearance, and a drug screening. PTA students are required to complete clinical requirements that may include FBI fingerprint check, child abuse clearance, state background check and drug screening prior to the beginning of the clinical practicum. Students will be responsible for completion and purchase of the necessary checks/clearances through a University approved vendor and providing results to the clinical sites. Students with criminal records should contact the physical therapy licensing board in the state they plan to practice prior to applying for admission to the PTA Program to inquire about potential restrictions for licensure.

Retention Requirements

The PTA curriculum is designed to move the student from a fundamental understanding of basic concepts to complex critical thinking and application in clinical settings. Academic progression is designed to support educational success, licensure, and transition to practice.

This policy delineates the academic standards required of students admitted to the Physical Therapist Assistant (PTA) Program.

A course attempted in one PTA program applies to all campus locations. Academic Renewal does not negate previously attempted PTA courses.

In a situation where the student withdraws from the University (Policy 56-30), courses will be counted as one of the two attempts for the PTA program.

Academic Requirements

- Successful completion of required PTA courses, including clinical education courses as defined as a "C" or better.
- Successful completion of BIOL 161, BIOL 162, BIOL 163, and BIOL 164 as defined as "C" or better.
- A student who fails to achieve a "C" or higher in the same required Biology or PTA course, including clinical education courses for a second time will be dismissed from the PTA major. Academic advising relative to other majors/options will be provided.
- A student who fails to achieve a "C" or higher in two different required Biology or PTA courses, including clinical education courses will be dismissed from the PTA major. Academic advising relative to other majors/options will be provided.
- A student failing to achieve a grade of "C" or better in any required PT course, including clinical education courses or Biology courses will be required to repeat the course. A PTA student may repeat only one course, one time. A late drop (LD) or withdraw (W) in any required PTA or Biology course will be considered failing to achieve a "C" grade.
- If a failing grade ("D," "F," "LD," or "W") in a PT course, including clinical education courses was the result of a violation of the Standards of Ethical Conduct for the Physical Therapist Assistant or Pennsylvania State University Policy and Rules, or the student has a "D" or "F" at the time they drop the course, they may be denied the opportunity to retake the course.
- A student who earns a "D," "F," "LD," or "W" in any two required PTA courses, including clinical courses or Biology courses or in the same required core course for a second time will be disenrolled from the PTA major and advised relative to other majors/options.
- Special provisions will not be made by the University in scheduling PTA courses, including clinical or Biology courses for the purpose of re-taking a course. Students re-taking a course may lose up to one year since certain courses are offered only once per academic year. During the interim, the student may withdraw from the University or remain actively enrolled.
- When reinitiating PTA coursework, including clinical education courses the student will re-enter under the current curricular requirements.
- The student is responsible for demonstrating current competency in previously completed courses, including clinical education courses. The measure of competence will be determined by the Program Coordinator and faculty teaching the content area.
- A student who wishes to return to the University after a leave of absence or re-enroll after withdrawing from the University will follow the Re-enrollment/Re-entry policy of the University. See University Policy: Policy 58-00.

Degree Requirements

For the Associate in Science degree in Physical Therapist Assistant, a minimum of 70 credits is required:

Requirement	Credits
General Education	21
Requirements for the Major	61-62

12 of the 21 credits for General Education are included in the Requirements for the Major. This includes: 0-3 credits of GH courses; 3 credits of GN courses; 3-6 credits of GS courses; 3-6 credits of GWS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
BIOL 161	Human Anatomy and Physiology I - Lecture	3
BIOL 162	Human Anatomy and Physiology I - Laboratory	1
BIOL 163	Human Anatomy and Physiology II - Lecture	3
BIOL 164	Human Anatomy and Physiology II - Laboratory	1
ENGL 15	Rhetoric and Composition	3
PSYCH 100	Introductory Psychology	3
PT 120	Human Musculature and Functional Anatomy	2
PT 150	Physical Therapist Assistant Procedures I	2
PT 160	Therapeutic Exercise I	3
PT 250	Physical Therapist Assistant-Procedures II	3
PT 260	Therapeutic Exercise-II	3
PT 285	Clinical Reasoning for the PTA	2
PT 384	Applied Kinesiology	3
PT 395E	Physical Therapist Assistant-Practicum I ¹	3
PT 395G	Physical Therapist Assistant-Practicum III ¹	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
PT 100 or PT 100S	Physical Therapist Assistant-Introduction	3
PT 290 or PT 290W	Professional Issues in Clinical Practice	2-3
Select 5 credits from the following:		5
PT 270	Pathophysiology	
PT 270W	Pathophysiology	
PT 271 & PT 272	Pathophysiology I and Pathophysiology II	
PT 271W & PT 272	Pathophysiology I and Pathophysiology II	
Select 5 credits from the following:		5
PT 280	Rehabilitation	
PT 280W	Rehabilitation	
PT 281 & PT 282	Rehabilitation-1 and Rehabilitation-2	
PT 281 & PT 282W	Rehabilitation-1 and Rehabilitation-2W	
Select 4 credits from the following:		4
PT 395F	Physical Therapist Assistant-Practicum II	
PT 395H & PT 395I	Physical Therapist Assistant-Practicum II Part 1 and Physical Therapist Assistant-Practicum II Part 2	

Supporting Courses and Related Areas

Select 3 credits of any GH, GS, or GWS course 3

¹ Courses that include clinical education experiences may require the student to travel long distances or obtain housing near the assigned clinic. Housing and transportation arrangements are the responsibility of the student.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all associate degree students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 3 credits
- **Writing and Speaking (GWS):** 3 credits

Knowledge Domains

- **Arts (GA):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Note: Up to six credits of Inter-Domain courses may be used for any Knowledge Domain requirement, but when a course may be used to satisfy more than one requirement, the credits from the course can be counted only once.

Exploration

- **Any General Education course (including GHW and Inter-Domain):** 3 credits

University Degree Requirements

Cultures Requirement

3 credits of United States (US) or International (IL) cultures coursework are required and may satisfy other requirements

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 60 degree credits must be earned for an associate's degree. The requirements for some programs may exceed 60 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- Students will be able to utilize evidence-based clinical problem-solving to provide entry level physical therapy services under the direction and supervision of the physical therapist.
- Students will be able to communicate verbally, nonverbally, and in written form in an effective, respectful, and timely manner in ways that are congruent with situational needs.
- Students will be able to identify, respect, and act with consideration for patients/clients differences, values, preferences, and expressed needs in all work related activities.
- Students will be able to competently demonstrate effective data collection techniques under the direction and supervision of the physical therapist.
- Students will observe ethical and legal standards of practice while performing physical therapy interventions.
- Students will participate in ongoing self-assessment to improve knowledge, skill and behaviors that facilitate career development.
- Students will participate in activities that afford opportunities for growth in social responsibility.
- Students will be able to demonstrate the ability to collaborate with members of the health care team and provide inter-professional and intra-professional care.
- Students will be able to administer safe evidence-based treatment interventions under the direction and supervision of the physical therapist.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Physical Therapist Assistant, A.S. at Fayette Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 161 (GN)*	3 BIOL 163 (GN)*	3
BIOL 162 (GN)*	1 BIOL 164 (GN)*	1
PSYCH 100 (GS) [†]	3 PT 384*	3
PT 100*	3 Quantification (GQ) (MATH 35 or MATH 37 suggested) [†]	3
PT 120*	2 General Education Course (GH or GA)	3

ENGL 15 (GWS) [‡]	3 General Education Course (GH or GA); US/IL Recommended	3		
PSU 8	1			
	16		16	
Second Year				
Fall	Credits Spring	Credits Summer	Credits	
PT 150*	2 PT 201 (suggested elective course but not required)	1 PT 395F*	4	
PT 160*	3 PT 260*	3 PT 395G*	4	
PT 250*	3 PT 272*	2		
PT 271*	3 PT 282*	3		
PT 281*	2 PT 285*	2		
PT 290W*	3 PT 395E*	3		
	General Education Course (GH, GS, GWS)	3		
	16	17	8	

Total Credits 73

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Academic Advising Notes:

A student's career/graduate school plans should be considered in developing an individual academic plan. Be sure to consult an adviser in this department when scheduling courses.

Physical Therapist Assistant, A.S. at Hazleton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
BIOL 161 ^{*†}	3 BIOL 163 [*]	3
BIOL 162 ^{*†}	1 BIOL 164 [*]	1
ENGL 15 or 30H [‡]	3 KINES 13	1.5
PSYCH 100 [†]	3 PT 120 [*]	2
PT 100 [*]	3 General Education Course (GA or GA IL/US)	3
General Education Course (GQ) [‡]	3 General Education Course (GH or GH IL/US)	3
First-Year Engagement (FYE)	1	
	17	13.5

Second Year

Fall	Credits Spring	Credits Summer	Credits
PT 150 [*]	2 PT 250 [*]	3 PT 395F ^{*3}	4
PT 160 [*]	3 PT 260 [*]	3 PT 395G ^{*3}	4
PT 271 [*]	3 PT 272 [*]	2	
PT 290W [*]	3 PT 280 [*]	5	
PT 384 [*]	3 PT 285 [*]	2	
PT 395E [*]	3 General Education Course	3	
	17	18	8

Total Credits 73.5

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ This course satisfies the University United States/International Cultures requirement.

² This course satisfies the University Writing Across the Curriculum requirement. The clinical practicum component of this course is a three week full-time experience in a physical therapy practice setting.

³ This is a six week clinical practicum that is a full-time experience in a physical therapy practice setting.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

Students are required to take a total of 3 credits in ARTS and 3 credits in HUM during the first 2 semesters.

KINES 13 is optional, student must be certified in Professional Rescuer, CPR, and First Aid.

Students are allowed to attend graduation ceremonies, but officially do not receive diploma until August, upon successful completion of their summer practicums.

A student's career/graduate school plans should be considered in developing an individual academic plan. Be sure to consult an adviser in this department when scheduling courses.

Physical Therapist Assistant, A.S. at Mont Alto Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PT 100*	3 PT 120*	2
BIOL 161 (GN) ^{*†}	3 PT 384*	3
BIOL 162 (GN) ^{*†}	1 BIOL 163 (GN)*	3
ENGL 15 or 30H (GWS) [‡]	3 BIOL 164 (GN)*	1
PSYCH 100 (GS) [†]	3 General Education Course (GQ) [‡]	3
PSU 8	1 General Education Course (GH or GA); US/IL recommended	3
General Education Course (GH or GA); US/IL recommended	3	

17

15

Second Year

Fall	Credits Spring	Credits Summer	Credits
PT 150*	2 PT 250*	3 PT 395F ^{*4}	4
PT 160*	3 PT 260*	3 PT 395G ^{*5}	4
PT 271 ^{*1}	3 PT 272*	2	
PT 281*	2 PT 282*	3	
PT 290W*	3 PT 285*	2	
PT 395E ^{*2}	3 General Education Course (GH, GS, GWS)	3	
	16	16	8

Total Credits 72

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ PT 271W - This course satisfies the University Writing Across the Curriculum requirement.

² PT 395E - This is a three-week clinical practicum in that is a full-time experience in a physical therapy practice setting.

³ ENGL 202C, PSYCH 212, HDFS 129, HDFS 229, PSYCH 270 - Students will select ONE of the following: ENGL 202C - Technical Writing (requires 4th semester standing), Psychology 212 Introduction to Developmental Psychology, HDFS 129 Introduction to Human

Development and Family Studies, HDFS 229 - Infant and Child Development, or PSYCH 270 - Introduction to Abnormal Psychology. Not all of these courses are offered each semester at the Mont Alto campus.

⁴ PT 395F - This is a six-week clinical practicum that is a full-time experience in a physical therapy practice setting.

⁵ PT 395G - This is a six-week clinical practicum that is a full-time experience in a physical therapy practice setting.

⁶ Either GA or GH must satisfy US/IL requirements.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

All students are required to be currently certified in CPR for participation in PT 395E, PT 395F, and PT 395G. Students may attain the certification through KINES 13, which can be taken any semester.

Physical Therapist Assistant, A.S. at Shenango Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
General Education Course (GA)	3 BIOL 163*	3
BIOL 161*	3 BIOL 164*	1
BIOL 162*	1 General Education Course (GH)	3
ENGL 15 (GWS)**†	3 PT 120*	2
PSYCH 100 (GS)†	3 PT 384*	3
PT 100*	3 General Education Course (GQ)**†	3
	16	15

Second Year

Fall	Credits Spring	Credits
PT 150*	2 PT 260*	3
PT 160*	3 PT 272*	2
PT 250*	3 PT 280*	5
PT 271W*	3 PT 285*	2
PT 290*	2 PT 395E*	3
General Education Course (GH, GS, GWS)	3	
	16	15

Third Year

Fall	Credits
PT 201	1
PT 395F*	4
PT 395G*	4
	9

Total Credits 71

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

Students must complete a 3-credit course in "United States Cultures (US)" or a 3-credit course in "International Cultures (IL)."

Healthcare Providers CPR is required for clinical rotations.

Career Paths

The Physical Therapist Assistant program prepares its graduates for positions in many traditional and non-traditional career settings and for opportunities to further their educations in a variety of fields.

Careers

Physical Therapist Assistants provide services to patients of all ages and health conditions many settings, including outpatient clinics, hospitals, inpatient rehabilitation facilities, extended care or sub-acute facilities, home, education or research centers, schools, occupational environments, fitness centers and sports training facilities. All states in the US require PTAs to have graduated from a CAPTE-accredited program and have obtained state licensure. Students seeking licensure as a PTA must apply to the licensing authority of the jurisdiction (state) in which the graduate is seeking licensure and then register for the National Physical Therapy Examination for PTAs administered by the Federation of State Boards of Physical Therapy.

MORE INFORMATION ABOUT PT/PTA CAREERS (<https://www.apta.org/your-career/careers-in-physical-therapy/becoming-a-pta/>)

BUREAU OF LABOR STATISTICS OCCUPATIONAL OUTLOOK HANDBOOK IN HEALTHCARE (<https://www.bls.gov/ooh/healthcare/physical-therapist-assistants-and-aides.htm>)

Opportunities for Graduate Studies

Many students choose to continue their education at Penn State after completing their AS degree in PTA by completing and complete bachelor's degrees in a variety of disciplines, including: Rehabilitation and Human Services; Multidisciplinary Studies; Human Development and Family Studies; Health Policy Administration; Psychology; Biobehavioral Health; or other related field of study. Advisers assist interested students in completing bachelor's degrees and meeting prerequisite qualifications to apply for doctoral degrees in physical therapy (DPT) or other field of graduate study.

Professional Resources

- American Physical Therapy Association (<https://www.apta.org>)
- American Physical Therapy Association – Pennsylvania (APTA-PA) (<https://www.aptapa.org>)
- Federation of State Boards of Physical Therapy (<https://www.fsbpt.org>)
- Commission on Accreditation in Physical Therapy Education (<https://www.captionline.org>)

Accreditation

The Associate of Science degree in Physical Therapist Assistant at Penn State is accredited by the:

Commission on Accreditation in Physical Therapy Education (CAPTE)
American Physical Therapy Association
3030 Potomac Ave.,
Suite 100
Alexandria, VA 22305-3085

Telephone: 800-999-2782
Email: accreditation@apta.org
Website: <https://www.capteonline.org> (<https://www.capteonline.org/>)

Graduation from a physical therapist assistant education program accredited by CAPTE is necessary for eligibility to sit for the licensure examination, which is required in all states.

Accreditation by Campus

Penn State Fayette

The Physical Therapist Assistant Program at Penn State Fayette, The Eberly Campus is accredited by the Commission on Accreditation in Physical Therapy Education (CAPTE), 3030 Potomac Ave., Suite 100, Alexandria, VA 22305-3085, 703-706-3245, accreditation@apta.org.

Penn State Hazleton

The Physical Therapist Assistant Program at Penn State Hazleton is accredited by the Commission on Accreditation in Physical Therapy Education (CAPTE), 3030 Potomac Ave., Suite 100, Alexandria, VA 22305-3085, 703-706-3245, accreditation@apta.org.

Penn State Mont Alto

The Physical Therapist Assistant Program at the Penn State Mont Alto is accredited by the Commission on Accreditation in Physical Therapy Education (CAPTE), 3030 Potomac Ave., Suite 100, Alexandria, VA 22305-3085, 703-706-3245, accreditation@apta.org. (accreditation@apta.org)

Penn State Shenango

The Physical Therapist Assistant Program at Penn State Shenango is accredited by the Commission on Accreditation in Physical Therapy Education (CAPTE), 3030 Potomac Ave., Suite 100, Alexandria, VA 22305-3085, 703-706-3245, accreditation@apta.org.

MORE INFORMATION ABOUT THE COMMISSION ON ACCREDITATION IN PHYSICAL THERAPY EDUCATION (<https://www.capteonline.org/>)

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

Fayette

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2201 University Drive
Lemont Furnace, PA 15456
724-430-4105
sas85@psu.edu

<https://fayette.psu.edu/academics/associate/physical-therapist-assistant/> (<https://fayette.psu.edu/academics/associate/physical-therapist-assistant/>)

Hazleton

PTA
7 Physical Education Building
Hazleton, PA 18202
570-450-4043

gmt12@psu.edu

<https://hazleton.psu.edu/associate-science-physical-therapist-assistant/> (<https://hazleton.psu.edu/associate-science-physical-therapist-assistant/>)

Mont Alto

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310 Allied Health Building
1 Campus Drive
Mont Alto, PA 17237
717-749-6020
rlb18@psu.edu

<https://montalto.psu.edu/academics/associate/physical-therapist-assistant-degree/> (<https://montalto.psu.edu/academics/associate/physical-therapist-assistant-degree/>)

Shenango

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147 Shenango Avenue
204B Forker Lab
724-983-2867
gad12@psu.edu

<https://shenango.psu.edu/academics/degrees/2-year-physical-therapist-assistant/> (<https://shenango.psu.edu/academics/degrees/2-year-physical-therapist-assistant/>)

Project and Supply Chain Management, B.S. (University College)

Begin Campus: Any Penn State Campus

End Campus: Beaver, Brandywine, Fayette, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Scranton, York

Program Description

The Project and Supply Chain Management major concentrates on developing knowledge, skills, and abilities in both project and supply chain management, dynamic and important disciplines in modern corporations. Project management skills include the development of new projects, and coordinating procurement and project delivery systems. Supply chain management emphasizes the integration of manufacturing and service operations, logistics, purchasing, and distribution that enable organizations to develop value-creating supply chain networks. The major provides students with an opportunity to develop the quantitative and people skills necessary to design and operate today's complex management systems. Students learn how to manage critical components in organizational supply chains, and apply business analytic methods for organizing and fully integrating supply chain practices throughout the organization.

Graduates are uniquely well-prepared for careers in some of the highest in-demand professions in the modern business and government environments, managing the supply chain and project initiatives in world-class business firms, public sector organizations, construction, IT organizations, third-party logistics providers, and goods and services distribution operations.

What is Project and Supply Chain Management?

It has been estimated that well over half of all activities in modern corporations are project-based. From developing a new product to constructing a new building, the list of efforts that organizations must plan, manage, and deliver (ideally on time and under budget) is nearly endless. At the same time, globalization creates a growing need for professionals who can effectively manage complex supply chains. The study of project and supply chain management emphasizes the integration of manufacturing and service operations, logistics, purchasing, and distribution—the functions that enable organizations to cultivate value-creating supply chain networks.

You Might Like This Program If...

- You're not intimidated by large projects, or ones that have many moving parts.
- You are detail oriented.
- You are looking for a versatile, in-demand business degree.
- You are interested in pursuing a concurrent certificate in Enterprise Resource Planning (ERP) with SAP (available at Erie, the Behrend College and University College campuses, Beaver, Brandywine, Fayette, Greater Allegheny, Lehigh Valley, New Kensington, Schuylkill, Shenango, Wilkes-Barre and Scranton).

Entrance to Major

Entry to the Project and Supply Chain Management major requires the successful completion of 5 entry-to-major courses: ACCTG 211, ECON 102, ENGL 15 or ENGL 30H, MATH 110 or MATH 140, STAT 200 or SCM 200. Each course requires a C or better grade for successful completion.

Degree Requirements

For the Bachelor of Science degree in Project and Supply Chain Management, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	96

21 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GQ courses; 6 credits of GS courses; 9 credits of GWS courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned.

Requirements for the Major

Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
PSU 7	First-Year Seminar Behrend	1
<i>Prescribed Courses: Require a grade of C or better</i>		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
CAS 100	Effective Speech	3
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
ENGL 202D	Effective Writing: Business Writing	3
FIN 301	Corporation Finance	3
MGMT 301	Basic Management Concepts	3
MGMT 341	Human Resource Management	3
MGMT 418	Project Planning and Resource Management	3
MIS 204	Introduction to Management Information Systems	3
MKTG 301	Principles of Marketing	3
SCM 301	Supply Chain Management	3
SCM 445	Operations Planning and Control	3
SCM 460	Purchasing and Materials Management	3
Additional Courses		
BA 241	Legal Environment of Business	4
& BA 242	and Social and Ethical Environment of Business	
or BA 243	Social, Legal, and Ethical Environment of Business	
<i>Additional Courses: Require a grade of C or better</i>		
ENGL 15	Rhetoric and Composition	3
or ENGL 30H	Honors Rhetoric and Composition	
MATH 110	Techniques of Calculus I	4
or MATH 140	Calculus With Analytic Geometry I	
SCM 200	Introduction to Statistics for Business	4
or STAT 200	Elementary Statistics	
MGMT 410	Project Management	3
or BA 421	Project Management	
MGMT 415	Project Portfolio Management and Organizations	3
or SCM 416	Warehousing and Terminal Management	
SCM 320	Transport Systems	3
or SCM 455	Logistics Systems Analysis and Design	
Select 3 credits from the following:		3
BA 364Y	International Business and Society	
ECON 470	International Trade and Finance	
FIN 471	International Finance	
IB 303	International Business Operations	
MGMT 461	International Management	
MKTG 445	Global Marketing	
Other 300- or 400-level international business courses		
Select 6 credits of 300- or 400-level courses such as MIS 404 and MGMT 430		6
Select 3 credits from the following:		3
ECON 481	Business Forecasting Techniques	
MIS 336	Database Management Systems	
MIS 301	Business Analytics	
SCM 340	Introduction to Supply Chain Analytics	
Select 3 credits from:		3
BA 422W	Strategic Business Planning	

BA 462 Business Strategy

MGMT 471W Strategic Management and Business Policy

Supporting Courses and Related Areas

Select 13 credits from any business major field or any non-business major field, except for all KINES (GHW) courses, any ENGL course below ENGL 15, and any MATH course below MATH 110. Exceptions may be petitioned through the applicable department chair. 13

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- Develop business skills and abilities to communicate effectively in both speech and writing.
- Demonstrate strong leadership and teamwork skills necessary for managing modern businesses.
- Demonstrate the ability to think critically and solve problems in the business environment.
- Demonstrate an awareness of ethical issues, social responsibilities, sustainability, and conflict resolution.
- Demonstrate the knowledge and skills necessary for managing modern businesses with the focus of designing and managing modern supply chain networks, including integrated operations, manufacturing, logistics, purchasing and distribution for value-creating, ERP-supported networks.
- Demonstrate the knowledge, skills, and abilities of organizing and managing projects in modern organizations. These project management skills include project portfolio management, scheduling and coordinating resources, planning and controlling projects, and risk and change management.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the

habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Project and Supply Chain Management, B.S. at Beaver Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or ESL 15 [†]	3 CAS 100A, 100B, or 100C [‡]	3
MATH 110 or 140 [†]	4 ECON 102 [†]	3
PSU 8	1 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5	
	15.5	15

Second Year

Fall	Credits Spring	Credits
ACCTG 211 [†]	4 MIS 204	3
ECON 104	3 ENGL 202D	3
STAT 200 or SCM 200 [†]	4 BA 243 [†]	4
Supporting or Related Course	3 FIN 301 [*]	3
General Education Course	3 General Education Course (GHW)	1.5
	17	14.5

Third Year

Fall	Credits Spring	Credits
MKTG 301 [*]	3 BA 322 [*]	3
SCM 301 [*]	3 MKTG 445 or IB 303 [*]	3
MGMT 301 [*]	3 Supporting or Related Course	3
BA 321 [*]	3 SCM 460 [*]	3
General Education Course	3 SCM 445 [*]	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
BA 421 [*]	3 BA 422W [*]	3
MGMT 341 [*]	3 MGMT 415	3
SCM 455 [*]	3 MGMT 418 [*]	3
MIS 404 [*]	3 Supporting or Related Course	3

ECON 481 [*]	3 Elective	3
	15	15

Total Credits 122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Project and Supply Chain Management, B.S. at Brandywine Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H (GWS) ^{*††1}	3 CAS 100A (GWS) ^{*††}	3
MATH 110 (GQ) ^{*†#††1}	4 STAT 200 or SCM 200 (GQ) ^{*††1}	4
ECON 102 (GS) ^{#†1}	3 General Education Course (US) ²	3
General Education Course	3 General Education Course	3
PSU 1 or 8	1 General Education Course	3
	14	16

Second Year

Fall	Credits Spring	Credits
ACCTG 211 ^{#1}	4 ENGL 202D (GWS) ^{*††}	3
General Education Course	3 FIN 301 [*]	3
MIS 204 [*]	3 BA 243	4
ECON 104 (GS) [†]	3 MKTG 301 [*]	3
MGMT 301 [*]	3 SCM 301 [*]	3
	16	16

Third Year

Fall	Credits Spring	Credits
BA 321 ^{*3}	3 BA 322 ^{*3}	3
General Education Course	3 IB 303 (UL) ² , MGMT 461, or MKTG 445	3
SCM 445 [*]	3 MGMT 341 [*]	3
Supporting Course ⁴	3 MIS 301 or SCM 340 [*]	3
MIS 404 (or Supporting Course)	3 BA 421 [*]	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
MGMT 415 [*]	3 BA 422W	3
SCM 460 [*]	3 MGMT 418 [*]	3
Supporting Course ⁴	3 SCM 455 [*]	3
Supporting Course ⁴	3 General Education Course	3
General Education Course	3 Supporting Course ⁴	1-3
	15	13-15

Total Credits 120-122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ ETMs include ACCTG 211, ECON 102, ENGL 15 or ENGL 30H, MATH 110 or MATH 140, STAT 200 or SCM 200, GPA 2.0 or higher

² Students must complete 3 credits of U.S. cultures (US) and 3 credits of international cultures (IL)

³ BA 321 and BA 322 qualify for 6 credits towards the Business Supporting Area for the degree. They are offered regularly and fulfill the prerequisite requirements for BA 421 and BA 422W.

⁴ 13 credits of approved supporting courses include courses in these areas: Management, Accounting, Marketing, and Finance. It's recommended that students include MIS 404 in this category, as this course fulfills the requirements for the ERP certificate with SAP. Any course at the 300-400 level in this category requires a grade of C or higher. The following courses do not meet this supporting courses requirement: KINES, ENGL 1-15, MATH 1-140, ACCTG 151, 152, ECON 14, FIN 100, 108, MGMT 100, MIS 103. Please consult with your adviser to discuss the regularly offered courses which meet this requirement.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes

Suggested Academic Plans do not replace the official university degree audit in LionPATH. A minimum of 120 credits are required for graduation. Consult with your adviser when scheduling courses.

Project and Supply Chain Management, B.S. at Fayette Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H ^{‡#}	3 MATH 110 (GQ) ^{‡#}	4
CAS 100 [‡]	3 General Education Course	3
PSU 8	1 ECON 102 ^{#†} or ECON 104 ^{*†} (GS)	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5	
	14.5	16

Second Year

Fall	Credits Spring	Credits
ACCTG 211 [#]	4 ENGL 202D [‡]	3
MIS 204 [*]	3 MKTG 301W ^{#**}	3
STAT 200 (GQ) ^{#†}	4 FIN 301 [*]	3
ECON 104 ^{*†} or ECON 102 ^{#†} (GS)	3 SCM 301 [*]	3
General Education Course (GHW)	1.5 General Education Course	3
	15.5	15

Third Year

Fall	Credits Spring	Credits
BA 243	4 BA 322 [*]	3
MGMT 301 [*]	3 CAS 250 [*]	3
BA 321	3 SCM 445 [*]	3
General Education Course	3 SCM 460 [*]	3
Elective	3 MKTG 445 or IB 303 (IL) [*]	3
	16	15

Fourth Year

Fall	Credits Spring	Credits
MGMT 410 or BA 421 [*]	3 MGMT 471W or BA 422W [*]	3
ECON 481 [*]	3 MGMT 418 [*]	3
SCM 455 [*]	3 MGMT 415 [*]	3
MIS 404 or SCM 465 [*]	3 Elective	3
MGMT 341 [*]	3 Supporting or Related Course- Consult with Adviser	3
	15	15

Total Credits 122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Project and Supply Chain Management, B.S. at Greater Allegheny Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or ESL 15 ^{‡#}	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C [‡]	3
MATH 110 or 140 ^{‡#†}	4 ECON 102 ^{#†}	3
PSU 8	1 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course	3	
	17	15

Second Year

Fall	Credits Spring	Credits
BA 241	2 ENGL 202D [‡]	3
BA 242	2 ECON 104 [†]	3
ACCTG 211 [#]	4 MIS 204	3
General Education Course	3 STAT 200 or SCM 200 ^{#†}	4
General Education Course	3 Business Supporting or Approved Elective Course ^{*1}	3
	14	16

Third Year

Fall	Credits Spring	Credits
MKTG 301 [*]	3 MGMT 341 [*]	3
SCM 301 [*]	3 SCM 445 [*]	3
BA 321 ^{*1}	3 SCM 460 [*]	3
MGMT 301 [*]	3 BA 322 ^{*1}	3
MIS 404 ^{*1}	3 FIN 301 [*]	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
BA 421 or MGMT 410 [*]	3 BA 422W or MGMT 471 [*]	3
SCM 320 or 455 [*]	3 MGMT 415 [*]	3
ECON 481 or MIS 336 [*]	3 MGMT 418 [*]	3
IB 303 [*]	3 Business Supporting or Approved Elective Course [*]	3
Business Supporting or Approved Elective Course ^{*1}	3 Elective	2
	15	14

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ BA 321 and BA 322 qualify for 6 credits towards the Business Supporting Area for the degree. MIS 404 also fulfills the requirements for the Business Supporting Courses or Approved Electives and students take this course for the ERP certificate with SAP. Students will need 9 more credits of Approved Elective Courses (consult with an adviser); any course at the 300-400- level requires a grade of C or higher.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Project and Supply Chain Management, B.S. at Hazleton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ECON 102 ^{#†}	3 STAT 200 ^{‡##}	4
ENGL 15 or 30H ^{‡#}	3 CAS 100A [‡]	3
MATH 110 or 140 ^{#†}	4 ACCTG 211 [#]	4
General Education Course	3 ECON 104 [†]	3
General Education Course	3	
PSU 8	1	
	17	14

Second Year

Fall	Credits Spring	Credits
MGMT 301 [*]	3 FIN 301 [*]	3
MIS 204	3 ENGL 202D [‡]	3
SCM 301 [*]	3 MKTG 301W [*]	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
	15	15

Third Year

Fall	Credits Spring	Credits
IB 303 [*]	3 SCM 445 [*]	3
BA 322 [*]	3 BA 420 [*]	1
MGMT 341 [*]	3 BA 321 [*]	3
MIS 404 [*]	3 BA 243 or 241 <i>and</i> 242	4
ECON 481 [*]	3 General Education Course	3
	General Education Course (GHW)	1.5
	15	15.5

Fourth Year

Fall	Credits Spring	Credits
BA 421 [*]	3 BA 422W [*]	3
Supporting Course	3 BA 495 [*]	6
SCM 460 [*]	3 MGMT 418 [*]	3
SCM 455 [*]	3 MGMT 415 [*]	3
General Education Course (GHW)	1.5	
	13.5	15

Total Credits 120

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- **STAT 200:** Students must not delay taking STAT 200 past semester 4, as it is a prerequisite for FIN 301 and SCM 301. It is also part of the criteria for entrance into the PSCM major.
- BA 321 and BA 322 count as this degree's 6 credits in a business-supporting area. This degree's 12 credits of supporting courses/related areas (sometimes called PSCM electives) reside in MIS 404 (3 credits), BA 495A (6 credits), and one other course (3 credits) of the student's choosing in coordination with adviser.
- A student's career/graduate school plans should be considered in developing an individualized academic plan. Be sure to consult an adviser in this department and your Degree Audit when scheduling courses. The Degree Audit in LionPATH is your official check of graduation requirements.

University Requirements and General Education Notes:

Project and Supply Chain Management, B.S. at Lehigh Valley Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H ^{‡#}	3 CAS 100A [‡]	3
ECON 102 ^{#†}	3 MGMT 301 [*]	3
General Education Course/ First-Year Seminar	3 MATH 110 ^{††}	4
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
	15	16

Second Year

Fall	Credits Spring	Credits
ECON 104 [†]	3 ENGL 202D [‡]	3
BA 243	4 STAT 200 ^{††}	4
ACCTG 211 ^{#†}	4 MIS 204	3
General Education Course	3 FIN 301 [*]	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
	15.5	14.5

Third Year

Fall	Credits Spring	Credits
BA 321	3 BA 322 [*]	3
MKTG 301 [*]	3 ECON 481 or MIS 301 [*]	3
MIS 404 [*]	3 IB 303 [*]	3
SCM 301 [*]	3 MGMT 341 [*]	3
General Education Course	3 General Education Course/ Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
BA 420 (Recommended)	1 BA 422W [*]	3
BA 421 [*]	3 MGMT 415 [*]	3
SCM 445 [*]	3 MGMT 418 [*]	3
SCM 455 [*]	3 SCM 460 [*]	3
Elective	3 Elective	3
	13	15

Total Credits 119

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

University Requirements and General Education Notes:

Project and Supply Chain Management, B.S. at Mont Alto Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H ^{‡#†}	3 CAS 100A ^{††}	3
MATH 110 or 140 ^{‡#†}	4 ECON 102 (GS) ^{‡#†}	3
MIS 204	3 SCM 200 or STAT 200 ^{‡#†}	4
General Education Course ¹	3 General Education Course ¹	3
General Education Course (GHW) ¹	1.5 General Education Course ¹	3
First-Year Seminar	1	
	15.5	16

Second Year

Fall	Credits Spring	Credits
ACCTG 211 [#]	4 BA 241 or 243	2
ECON 104 (GS) [†]	3 BA 242 or 243	2
MKTG 301 [*]	3 FIN 301 [*]	3
General Education Course (GHW) ¹	1.5 ENGL 202D ^{††}	3
General Education Course ¹	3 MGMT 301 [*]	3
	SCM 301 [*]	3
	14.5	16

Third Year

Fall	Credits Spring	Credits
BA 321 [*]	3 ECON 481 [*]	3
BA 322 [*]	3 MGMT 341 [*]	3
SCM 445 [*]	3 SCM 460 [*]	3
IB 303 (IL) [*]	3 General Education Course ¹	3
General Education Course ¹	3 Approved Elective ²	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
BA 420 [*]	1 BA 422W [*]	3
BA 421 [*]	3 BA 495A [*]	3-6
MIS 404 [*]	3 MGMT 415 [*]	3
SCM 455 [*]	3 MGMT 418 [*]	3
General Education Course ¹	3 Approved Elective ²	3
	13	15-18

Total Credits 120-123

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

- ¹ All students are required to fulfill 45 credits of General Education courses. They include 9 credits of Natural Science (GN), 6 credits of Arts (GA), 6 credits of Humanities (GH), 6 credits of Social Science (GS) and 3 credits of Health and Wellness (GHW). Two (2) classes must be Inter-domain (N) or Linked (Z) courses. One (1) course must be designated an United States culture (US) and one (1) course must be designated an International culture (IL).
- ² In order for a course to be eligible for an Approved Elective, the course can not be a lower level ENGL (1-6) or MATH (2-41) OR a GHW designated course. Please see your academic adviser if you have a question on a specific course.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes

Please see your academic adviser for approval before scheduling your course.

Any 3 credits may be substituted for a different designation (GN, GA, GH, GS, or GHW) once 3 credits in each designation area have been successfully completed.

Project and Supply Chain Management, B.S. at New Kensington Campus

Project and Supply Chain Management, B.S. at New Kensington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H ^{*†#}	3 CAS 100A [‡]	3
MATH 110 or 140 ^{*†#}	4 ECON 102 ^{#†}	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course	3
	14.5	15

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 BA 243 [*]	4
General Education Course	3 MIS 204	3
ECON 104	3 ENGL 202D [†]	3
STAT 200 or SCM 200 ^{#†}	4 FIN 301 [*]	3
Supporting or Related Course	3 General Education Course (GHW)	1.5
	17	14.5

Third Year

Fall	Credits Spring	Credits
MKTG 301 [*]	3 MGMT 410 or BA 421 [*]	3
SCM 301 [*]	3 SCM 445 [*]	3
MGMT 301 [*]	3 SCM 460 [*]	3
BA 321	3 BA 322	3
General Education	3 International Business Course	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
ECON 481, MIS 336, or MIS 390 [*]	3 MGMT 471/BA 462/422W [*]	3
SCM 320 [*]	3 MGMT 418 [*]	3
MGMT 341 [*]	3 MGMT 415 or SCM 416 [*]	3
Supporting or Related Course	3 Elective	2
Supporting or Related Course	3 Supporting or Related Course	3
	15	14

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Project and Supply Chain Management with SAP Certificate: Project and Supply Chain Management, B.S. at New Kensington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H ^{*‡#}	3 CAS 100A [‡]	3
MATH 110 or 140 ^{*‡#}	4 ECON 102 ^{# †}	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course	3
	14.5	15

Second Year

Fall	Credits Spring	Credits
ACCTG 211	4 BA 243 [*]	4
General Education Course	3 MIS 204	3
ECON 104	3 ENGL 202D [†]	3
STAT 200 or SCM 200 ^{# †}	4 FIN 301 [*]	3
Supporting or Related Course	3 General Education Course (GHW)	1.5
	17	14.5

Third Year

Fall	Credits Spring	Credits
MKTG 301 [*]	3 MGMT 410 or BA 421 [*]	3
SCM 301 [*]	3 SCM 445 [*]	3
MGMT 301 [*]	3 SCM 460 [*]	3
BA 321	3 BA 322	3
General Education	3 International Business Course	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
ECON 481, MIS 336, or MIS 390 [*]	3 MGMT 471/BA 462/422W [*]	3
SCM 320 [*]	3 MGMT 418 [*]	3
MGMT 341 [*]	3 MGMT 415 or SCM 416 [*]	3
Supporting or Related Course	3 Elective	2
MIS 404 [*]	3 Supporting or Related Course	3
	15	14

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Project and Supply Chain Management, B.S. at Scranton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ECON 102 (GS) ^{#†}	3 ECON 104 (GS) [†]	3
ENGL 15 (GWS) [#]	3 MIS 204	3
MATH 110 or 140 (GQ) ^{#†}	4 CAS 100A (GWS)	3
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course/ US Culture	3
PSU 8	1	
	15.5	15

Second Year

Fall	Credits Spring	Credits
ACCTG 211 [#]	4 MKTG 301 [*]	3
STAT 200 or SCM 200 (GQ) ^{#†}	4 BA 243 (US)	4
MGMT 301 [*]	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course	3
	15.5	16

Third Year

Fall	Credits Spring	Credits
BA 321 [*]	3 BA 322 [*]	3
FIN 301 [*]	3 BA 420 [*]	1
SCM 301 [*]	3 ECON 481 [*]	3
ENGL 202D (GWS)	3 MIS 404 [*]	3
IB 303 (IL)	3 Supporting or related course	3
	Elective	2
	15	15

Fourth Year

Fall	Credits Spring	Credits
BA 421 (Substitute for MGMT 410) [*]	3 BA 422W [*]	3
MGMT 341 [*]	3 BA 495A [*]	6
SCM 455 [*]	3 MGMT 418 [*]	3
SCM 445 [*]	3 MGMT 415 [*]	3
SCM 460 [*]	3	
	15	15

Total Credits 122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Academic Advising Notes:

- A minimum of 120 credits is required for graduation. Three PSCM courses (MIS 404, SCM 445, SCM 460) also satisfy requirements to earn the ERP with SAP Certificate.
- STAT 200: Students must not delay taking STAT 200 past semester 4, as it is a prerequisite for FIN 301 and SCM 301. It is also part of the criteria for entrance into the PSCM major.
- BA 321 and BA 322 count as this degree's 6 credits in a business-supporting area. This degree's 12 credits of supporting courses/related areas (sometimes called PSCM electives) reside in MIS 404 (3 credits), BA 495A (6 credits), and one other course (3 credits) of the student's choosing in coordination with adviser.
- A student's career/graduate school plans should be considered in developing an individualized academic plan. Be sure to consult an adviser in this department and your Degree Audit when scheduling courses. The Degree Audit in LionPATH is your official check of graduation requirements.

Project and Supply Chain Management, B.S. at York Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H ^{‡#†}	3 CAS 100 ^{††}	3
MATH 110 or 140 ^{‡#†}	4 ECON 102 ^{#†}	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course	3
14.5		15

Second Year

Fall	Credits Spring	Credits
ACCTG 211 [#]	4 MIS 204	3
ECON 104 [†]	3 ENGL 202D ^{††}	3
SCM 200 or STAT 200 ^{‡#†}	4 BA 243	4
Supporting or Related Course	3 FIN 301 [*]	3
General Education Course	3 General Education Course (GHW)	1.5
17		14.5

Third Year

Fall	Credits Spring	Credits
MKTG 301 [*]	3 BA 322 ^{*2}	3
SCM 301 [*]	3 MKTG 445 or IB 303 [*]	3
MGMT 301 [*]	3 SCM 445 [*]	3
BA 321 ^{*1}	3 SCM 460 ^{*3}	3
General Education Course	3 Supported or Related Course	3
15		15

Fourth Year

Fall	Credits Spring	Credits
BA 421 [*]	3 BA 422W [*]	3
ECON 481 [*]	3 MGMT 415 [*]	3
MGMT 341 [*]	3 MGMT 418 [*]	3
SCM 320 or 455 [*]	3 BA 495A	3-6
MIS 404 [*]	3 Elective	3
15		15-18

Total Credits 121-124

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ BA 321 qualifies for Business Supporting Course.

² BA 322 qualifies for Business Supporting Course.

³ SCM 460 is a web course.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

The B.S. in Project and Supply Chain Management is one of only a handful of undergraduate degree programs in this field. Graduates are uniquely prepared to work in project-intensive industries such as construction, insurance, information services and information technology, manufacturing, utilities, pharmaceuticals, third-party logistics, and goods and services distribution operations.

Careers

Employers of recent B.S. in Project and Supply Chain Management graduates include Logistics Plus, Parker Hannifin, Bechtel Plant Machinery, American Eagle, Frito Lay, FairPoint Communications, Pitney Bowes, Spynce, General Electric, Wabtec Railway Electronics, Business Resource Group, Modern Industries, Eddie Bauer, Ferguson Enterprises, Unisys, Eastman Kodak, Tyco Electronics, and IBM.

Opportunities for Graduate Studies

The B.S. in Project and Supply Chain Management can be a starting point for master's- and doctoral-level study of supply chain management, project management, management science, law, organizational behavior, corporate strategy, enterprise architecture, information technology, or another specialized discipline.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES

Professional Resources

- Project Management Institute (<https://www.pmi.org>)

Contact

Beaver

100 University Drive
Monaca, PA 15061
724-773-3591
aks6310@psu.edu

<https://beaver.psu.edu/academics/majors/pscm> (<https://beaver.psu.edu/academics/majors/pscm/>)

Brandywine

25 Yearsley Mill Road
Media, PA 19063
610-892-1451

cmo16@psu.edu

<https://www.brandywine.psu.edu/academics/bachelors-degrees/project-and-supply-chain-management> (<https://www.brandywine.psu.edu/academics/bachelors-degrees/project-and-supply-chain-management/>)

Fayette

2201 University Drive
Lemont Furnace, PA 15456
724-430-4245
wsg3@psu.edu

<https://fayette.psu.edu/academics/baccalaureate/project-and-supply-chain-management> (<https://fayette.psu.edu/academics/baccalaureate/project-and-supply-chain-management/>)

Greater Allegheny

4000 University Drive
McKeesport, PA 15132
412-675-9055
yzb1@psu.edu

<https://greaterallegheny.psu.edu/academics/degree-programs/project-supply-chain-management> (<https://greaterallegheny.psu.edu/academics/degree-programs/project-supply-chain-management/>)

Hazleton

Schiavo Hall 208
76 University Drive
Hazleton, PA 18202
570-450-3096
zxl23@psu.edu

<https://hazleton.psu.edu/project-supply-chain-management> (<https://hazleton.psu.edu/project-supply-chain-management/>)

Lehigh Valley

2809 Saucon Valley Road
Center Valley, PA 18034
610-285-5117
maungkmin@psu.edu

<https://lehighvalley.psu.edu/academics/degrees/project-supply-chain-management> (<https://lehighvalley.psu.edu/academics/degrees/project-supply-chain-management/>)

Mont Alto

1 Campus Drive
Mont Alto, PA 17237
717-749-6050
mad10@psu.edu

<https://montalto.psu.edu/academics/bachelors/project-supply-chain-management-degree> (<https://montalto.psu.edu/academics/bachelors/project-supply-chain-management-degree/>)

New Kensington

3550 Seventh Street Rd
New Kensington, PA 15068
724-334-6158
act29@psu.edu

<https://newkensington.psu.edu/academics/4-year-project-supply-chain-management-sap-certificate> (<https://newkensington.psu.edu/academics/4-year-project-supply-chain-management-sap-certificate/>)

Scranton

Business Building 117
Dunmore, PA 18512
570-963-2643
jmw831@psu.edu

<https://scranton.psu.edu/academics/degrees/bachelors/project-supply-chain-management> (<https://scranton.psu.edu/academics/degrees/bachelors/project-supply-chain-management/>)

York

221 Grumbacher Building (GISTC)
York, PA 17403
717-771-4115
dxl31@psu.edu

<https://www.york.psu.edu/academics/baccalaureate/project-and-supply-chain-management> (<https://www.york.psu.edu/academics/baccalaureate/project-and-supply-chain-management/>)

Abington

DIVISION OF SOCIAL SCIENCES, BUSINESS, AND EDUCATION
1600 Woodland Rd.
Abington, PA 19001
215-421-0030
twsl6@psu.edu

<https://www.abington.psu.edu/academics/majors-at-abington/penn-state-abington-means-business> (<https://www.abington.psu.edu/academics/majors-at-abington/penn-state-abington-means-business/>)

Erie

BLACK SCHOOL OF BUSINESS
281 Jack Burke Research and Economic Development Center
Erie, PA 16563
814-898-6107
behrend-business@psu.edu

<https://behrend.psu.edu/school-of-business> (<https://behrend.psu.edu/school-of-business/>)

Harrisburg

SCHOOL OF BUSINESS ADMINISTRATION
Olmsted Building, E355
Middletown, PA 17057
717-948-6139
cxs879@psu.edu

<https://harrisburg.psu.edu/business-administration/supply-chain-management-bs> (<https://harrisburg.psu.edu/business-administration/supply-chain-management-bs/>)

World Campus

UNDERGRADUATE ACADEMIC ADVISING
225 Outreach Building
University Park, PA 16802
814-863-3283
advising@worldcampus.psu.edu

<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-project-and-supply-chain-management-bachelor-of-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-project-and-supply-chain-management-bachelor-of-science-degree/>)

Psychology, B.A. (University College)

Begin Campus: Any Penn State Campus

End Campus: Beaver, Brandywine, Fayette, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Schuylkill, Scranton, York

Program Description

The Psychology major will combine the knowledge, skills, and values of psychology with a liberal arts foundation. Students should:

- develop a knowledge base consisting of concepts, theory, empirical findings, and trends within psychology;
- understand and apply basic research methods in psychology;
- use critical thinking and the scientific approach to solve problems related to behavior and mental processes;
- apply psychological principles to personal and social issues;
- and be able to understand the gender, sexual orientation, race, ethnicity, culture, and class issues in psychological theory, research, and practice.

Students should also develop information and computer competence, communication skills, and develop realistic ideas about how to implement their psychology education in occupational pursuits in a variety of settings. The major may lead to either a Bachelor of Arts or a Bachelor of Science degree. The B.A. degree incorporates a broad exposure to the many facets of the field of psychology, in addition to the B.A. requirements. The B.S. degree provides the same exposure to the field of psychology and adds options in Science and Business to prepare students for more specific career directions. Students in both degree programs may also prepare for graduate school; research experience with faculty members is encouraged for such students.

What is Psychology?

Psychology is the scientific study of thought, behavior, and experience. Many people associate psychology with psychological therapy and the practice of clinical psychology. There are also many other important areas of scientific psychology, such as cognitive, developmental, industrial/organizational, and social psychology. What these subfields of psychology have in common is the use of the scientific method to understand human behavior and apply that understanding to the development of theory and practice. Psychologists are increasingly making use of neuroscience methods and theories to understand psychological phenomena. As a profession, psychology is related to fields such as health, education, marketing, human resources, social work, and more. The principles of psychology are relevant to almost all areas of human endeavor, and the career paths of psychology students reflect this wealth of possibilities.

You Might Like This Program If...

You are interested in people and in learning to use science to better understand them. As a major, you'll have opportunities to do research with faculty and to work in career-relevant settings.

MORE INFORMATION ABOUT PSYCHOLOGY (<https://altoona.psu.edu/academics/bachelors-degrees/psychology/>)

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Arts degree in Psychology, a minimum of 124 credits is required:

Requirement	Credits
General Education	45
Electives	14-18
Bachelor of Arts Degree Requirements	24
Requirements for the Major	41

0-4 of the 45 credits for General Education are included in the Requirements for the Major. This includes 0-4 credits of General Education GQ courses.

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if world language proficiency is demonstrated by examination.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
PSYCH 100	Introductory Psychology	3
PSYCH 301W	Basic Research Methods in Psychology	4
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
PSYCH 200	Elementary Statistics in Psychology	4
or STAT 200	Elementary Statistics	
Select 18 credits of the following, with a minimum of 3 credits from each of the following six categories: ¹		18
<i>Learning and Cognition</i>		
PSYCH 256	Introduction to Cognitive Psychology	
PSYCH 261	Introduction to Psychology of Learning	
PSYCH 268	Animal Minds	
PSYCH 426	Language and Thought	

PSYCH 427	Language Acquisition
PSYCH 452	Learning and Memory
PSYCH 456	Advanced Cognitive Psychology
PSYCH 457	Psychology of Language
PSYCH 458	Visual Cognition
PSYCH 459	
PSYCH 461	Advanced Conditioning and Learning
<i>Social and Personality Psychology</i>	
PSYCH 221	Introduction to Social Psychology
PSYCH 231	Introduction to the Psychology of Gender
PSYCH 232	Cross-Cultural Psychology
PSYCH 238	Introduction to Personality Psychology
PSYCH 419	Psychology and a Sustainable World
PSYCH 420	Advanced Social Psychology
PSYCH 421	Self and Social Judgment
PSYCH 423	Social Psychology of Interpersonal/Intergroup Relationships
PSYCH 424	Applied Social Psychology
PSYCH 432	Multicultural Psychology in America
PSYCH 438	Personality Theory
PSYCH 479	The Psychology of Gender
<i>Biological Bases of Behavior</i>	
PSYCH 253	Introduction to Psychology of Perception
PSYCH 260	Neurological Bases of Human Behavior
PSYCH 269	Evolutionary Psychology
PSYCH 441	Health Psychology
PSYCH 460	Comparative Psychology
PSYCH 462	Physiological Psychology
PSYCH 464	Behavior Genetics
PSYCH 475	Psychology of Fear and Stress
PSYCH 478	Clinical Neuropsychology
<i>Developmental Psychology</i>	
PSYCH 212	Introduction to Developmental Psychology
PSYCH 410	Child Development
PSYCH 412	Adolescence
PSYCH 413	Cognitive Development
PSYCH 414	Social and Personality Development
PSYCH 415	Topics in Developmental Psychology
PSYCH 416/ HDFS 445	Development Throughout Adulthood
PSYCH 474	Psychological Intervention in Childhood
<i>Applied and Clinical Psychology</i>	
PSYCH 243	Introduction to Well-being and Positive Psychology
PSYCH 244	Introduction to the Psychology of Human Factors Engineering
PSYCH 270	Introduction to Abnormal Psychology
PSYCH 281	Introduction to Industrial-Organizational Psychology
PSYCH 370	Psychology of the Differently-Abled
PSYCH 404	Principles of Measurement
PSYCH 408	Program Evaluation
PSYCH 443	Treatment and Education in Developmental Disabilities

PSYCH 444	Engineering Psychology
PSYCH 445	Forensic Psychology
PSYCH 470	Abnormal Psychology
PSYCH 471	Psychology of Adjustment and Social Relationships
PSYCH 473	Behavior Modification
PSYCH 476	Child Psychopathology
PSYCH 477	Mental Health Practicum with Children
PSYCH 481	Introduction to Clinical Psychology
PSYCH 482	Selection and Assessment in Organizations
PSYCH 484	Work Attitudes and Motivation
PSYCH 485	Leadership in Work Settings
<i>Capstone Experience</i>	
PSYCH 439	History and Systems of Psychology
PSYCH 490	Senior Seminar in Psychology
PSYCH 493	Senior Thesis
PSYCH 494	Research Projects
PSYCH 495	Internship
PSYCH 496	Independent Studies

Select 12 credits of additional Psychology courses from any offered for a total of 30 credits of Psychology courses beyond PSYCH 100 and PSYCH 301W ¹

¹ At least 15 of these 30 Additional Courses credits must be at the 400-level.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

World Language (0-12 credits): Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or

beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Program Learning Objectives

Beaver and Scranton Campuses

- **Foundational Knowledge:** Students will demonstrate knowledge of major psychological concepts, theories, and empirical findings.
- **Application:** Students will demonstrate the ability to apply psychological concepts and theories to research and real-life situations.
- **Critical and Creative Thinking:** Students will use critical and creative thinking, skeptical inquiry, and the scientific approach to solve problems related to behavior and mental processes.
- **Scientific Literature:** Students will demonstrate critical thinking in the analysis, evaluation, and interpretation of information in the scientific literature to distinguish the scientific literature from other sources.
- **Communication:** Students will communicate effectively (in writing and/or orally) the results of a project or internship.
- **Research Writing:** Students will demonstrate the ability to effectively extract central points and summarize psychological research literature and to write in the format of psychological research.
- **Research Methods:** Students will differentiate among the research methods used in psychology and apply the designs in evaluation or development of a research study.
- **Analysis:** Students will demonstrate the ability to analyze and interpret quantitative psychological data using statistics, graphs, and data tables.
- **Culture Diversity:** Students will show evidence of knowledge and appreciation for cultural diversity and relativity in human experience and for the complexity of human behavior and interactions.
- **Ethics:** Students will demonstrate knowledge, and the application of, basic principles of scientific and professional ethics.
- **Professionalism:** Students will demonstrate sensitivity to ethical concerns and professionalism (including cultural considerations) in settings where applications of psychology and/or psychological research occur.
- **Professional Options:** Students will demonstrate knowledge of professional options and required training for careers in the major subfields of psychology.
- **Career Options:** Students will demonstrate the ability to identify personally-relevant career options to implement their psychological knowledge, skills, and values in occupational pursuits in a variety of settings.

Brandywine Campus

- **Communication:**
 - Students will demonstrate effective writing for different purposes.
 - Students will exhibit effective presentation skills for different purposes.
 - Students will interact effectively with others.
- **Ethical & Social Responsibility in a Diverse World:**
 - Students will apply ethical standards to evaluate psychological science and practice.

- Students will build and enhance interpersonal relationships.
- Students will adopt values that build community at local, national, and global levels.
- **Knowledge Base:**
 - Students will describe key concepts, principles, and overarching themes in psychology.
 - Students will develop a working knowledge of psychology's content domains.
 - Students will describe applications of psychology.
- **Professional Development:**
 - Students will apply psychological content and skills to career goals.
 - Students will exhibit self-efficacy and self-regulation.
 - Students will refine project-management skills.
 - Students will enhance teamwork capacity.
 - Students will develop meaningful professional direction for life after graduation.
- **Research Skills:**
 - Students will differentiate among the research methods used in psychology and apply the designs in evaluation or development of a research study.
 - Students will demonstrate the ability to analyze and interpret quantitative psychological data using statistics, graphs, and data tables.
- **Scientific Inquiry & Critical Thinking:**
 - Students will use scientific reasoning to interpret psychological phenomena.
 - Students will demonstrate psychology information literacy.
 - Students will engage in innovative and integrative thinking and problem solving.
 - Students will interpret, design, and conduct basic psychological research.
 - Students will incorporate sociocultural factors in scientific inquiry.

Fayette Campus

- **Human Behavior:** Students will connect specific human behaviors to the many broad areas of psychology.
- **Professional:** Students will relate applications of psychology to specific professions associated with psychology.
- **Research:** Students will describe and apply the steps of the scientific method.
- **Theory:** Students will summarize the scientific principles of psychology, including its history and major theoretical principles.

Greater Allegheny and Hazleton Campuses

- **Career-Related Skills:**
 - Students will demonstrate knowledge of professional options and required training for careers in the major subfields of psychology
 - Students will demonstrate the ability to identify personally-relevant career options to implement their psychological knowledge, skills, and values in occupational pursuits in a variety of settings.
- **Communication Skills:**
 - Students will communicate effectively (in writing and/or orally) the results of a project or internship.

- Students will demonstrate the ability to effectively extract central points and summarize psychological research literature and to write in the format of psychological research.

- **Content Knowledge:**
 - Students will demonstrate knowledge of major psychological concepts, theories, and empirical findings.
 - Students will demonstrate the ability to apply psychological concepts and theories to research and real life situations.
- **Diversity and Ethical Considerations:**
 - Students will show evidence of knowledge and appreciation for cultural diversity and relativity in human experience and for the complexity of human behavior and interactions.
 - Students will demonstrate knowledge, and the application of, basic principles of scientific and professional ethics.
 - Students will demonstrate sensitivity to ethical concerns and professionalism (including cultural considerations) in settings where applications of psychology and/or psychological research occur.
- **Research Skills:**
 - Students will differentiate among the research methods used in psychology and apply the designs in evaluation or development of a research study.
 - Students will demonstrate the ability to analyze and interpret quantitative psychological data using statistics, graphs, and data tables.
- **Thinking Skills:**
 - Students will use critical and creative thinking, skeptical inquiry, and the scientific approach to solve problems related to behavior and mental processes.
 - Students will demonstrate critical thinking in the analysis, evaluation, and interpretation of information in the scientific literature to distinguish the scientific literature from other sources.

Lehigh Valley Campus

- **Communication:** Communicate effectively in writing using APA style correctly.
- **Critical Thinking:** All students will demonstrate critical thinking in the analysis, evaluation, and interpretation of information in the scientific literature and to distinguish the scientific literature from other sources.
- **Cultural Diversity:** All students will show evidence of knowledge and appreciation for cultural diversity and relativity in human experience and for the complexity of human behavior and interactions.
- **Data Analysis:** All students will demonstrate an ability to analyze and interpret quantitative psychological data using statistics, graphs, and data tables in Psych 301W.
- **Knowledge:** All students will demonstrate knowledge of major psychological concepts, theories, and empirical findings.

Mont Alto Campus

- **Empathy Skills:** Psychology majors will demonstrate a sense of empathy, the ability to understand someone else's experience.
- **Interpersonal Relationships:** Psychology majors will build and enhance interpersonal relationships and adopt values that build community at local, national, and global levels by understanding that other sides of an argument.

- **Preparation for Working with Diverse Experiences:** Students will be prepared to work with individuals and families with different experiences from their own.
- **Preparation for Working with Underrepresented Groups:** Student will demonstrate a sense of preparation for working with underrepresented groups.

New Kensington Campus

- **Career-Related Skills:** Preparing students for careers upon graduation.
- **Critical Thinking:** Use critical thinking to solve problems & distinguish scientific from non-scientific.
- **Data Analysis and Problem Solving:** Demonstrate the ability to analyze and interpret quantitative and qualitative data.
- **Effective Communication:** Demonstrate competence in comprehending, reading, writing, and orally communicating research.
- **Ethical Awareness:** Demonstrate knowledge and the application of professional ethics.
- **Experience Other Cultures:** Students immerse themselves into another culture by attending an event (e.g., religious service) outside their own ethnic/religious/sexual orientation/SES group.
- **Knowledge/Application:** Demonstrate knowledge and application of major concepts and theories.
- **Research Competence:** Differentiate among the research methods.

Schuylkill Campus

- **Ability to prepare presentations in APA style:**
 - Ability to prepare papers that review past research on behavioral topics
 - Ability to prepare research reports in APA style
 - Ability to prepare conference presentations
- **Understanding ethics and application in psychology:**
 - Understanding of ethical guidelines for research and applied psychologists
 - Ability to apply psychological theories in community organizations
- **Understanding of basic behavioral research methods:**
 - Understanding basic research methods for psychology and their limitations
 - Ability to design basic research projects to study predictors of behavior
 - Understanding basic statistics to analyze behavioral data
 - Ability to search Library databases for research on behavioral topics
- **Understanding of the variety of behavior problems and treatment options:**
 - Understanding of DSM diagnostic terminology for behavior problems
 - Understanding of variety of treatment approaches for behavior problems
- **Understanding of the variety of theories to explain human behavior:**
 - Understanding of variety of psychological theories to explain behavior
 - Understanding of the impact of diversity on human behavior

York Campus

- **Critical Thinking:** Use critical thinking to solve problems & distinguish scientific from non-scientific.

- **Data Analysis and Problem Solving:** Demonstrate the ability to analyze and interpret quantitative and qualitative data.
- **Effective Communication:** Demonstrate competence in comprehending, reading, writing, and orally communicating research.
- **Ethical Awareness:** Demonstrate knowledge and the application of professional ethics.
- **Knowledge/Application:** Demonstrate knowledge and application of major concepts and theories.
- **Research Competence:** Differentiate among the research methods.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Psychology, B.A. at Beaver Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSYCH 100*	3 PSYCH 200 Level*	3
ENGL 15, 30H, or ESL 15 [‡]	3 General Education Course	3
PSU 8	1 General Education Course	3
World Language level 1	4 General Education Course	3
General Education Course	3 World Language Level 2	4
General Education Course (GHW)	1.5	
	15.5	16

Second Year

Fall	Credits Spring	Credits
PSYCH 200 or STAT 200	4 PSYCH 301W*	4
PSYCH 200 Level*	3 CAS 100	3
General Education Course	3 CAS 100A, 100B, or 100C [‡]	3
General Education Course (GHW)	1.5 General Education Course	3
World Language Level 3	4 General Education Course	3
	General Education Course	3
	15.5	19

Third Year

Fall	Credits Spring	Credits
PSYCH 200 Level or PSYCH 400 Level [†]	3 PSYCH 200 Level or PSYCH 400 Level [†]	3
ENGL 202A	3 PSYCH 400 Level*	3
General Education Course	3 BA Required Course	3

General Education Course	3	
	12	9
Fourth Year		
Fall	Credits Spring	Credits
PSYCH 400 Level*	3 PSYCH 400 Level Capstone*	3
PSYCH 400 Level*	3 PSYCH 400 Level Capstone*	3
BA Required Course	3 Elective	3
BA Required Course	3 Elective	3
Elective	3	
	15	12

Total Credits 114

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Psychology, B.A. at Brandywine Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSYCH 100*	3 PSYCH Course 200-level*	3
ENGL 15, 30H, or ESL 15‡	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C‡	0-3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
World Language Level 1	4-6 World Language Level 2	4-6
16-18		13-18

Second Year

Fall	Credits Spring	Credits
PSYCH 200*†1	4 ENGL 202A‡	3
PSYCH Course 200-level*	3 BA Fields Course	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
World Language Level 3 or General Education Course	3-4 General Education Course	3
16-17		15

Third Year

Fall	Credits Spring	Credits
PSYCH 301W*	4 PSYCH Course 200/400-level*	3
PSYCH Course 200/400-level*	3 PSYCH Course 400-level*	3
PSYCH Course 200/400-level*	3 BA Fields Course	3
BA Fields Course	3 BA World Cultures Course	3
General Education Course	3 Elective	3
16		15

Fourth Year

Fall	Credits Spring	Credits
PSYCH Capstone Course 400-level*	3 PSYCH Course 400-level*	3
PSYCH Course 400-level*	3 PSYCH Course 400-level*	3
General Education Course	3 Elective	3
Elective	3 Elective	3
Elective	3 Elective	3
15		15

Total Credits 121-129

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

¹ PSYCH 200 recommended but STAT 200 will fulfill this requirement if PSYCH 200 is not available.

Psychology, B.A. at Fayette Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSYCH 100*	3 CAS 100A‡	3
ENGL 15 or 30H‡	3 PSYCH 200-Level- Category Selection*	3
PSU 8	1 General Education Course	3
General Education Course	3 World Language Level 2	4
General Education Course	3 Quantification (GQ)‡	3
World Language Level 1	4	
	17	16

Second Year

Fall	Credits Spring	Credits
PSYCH 200-Level- Category Selection*	3 PSYCH 301W	4
STAT 200‡	4 PSYCH 200-Level or 400-Level- Category Selection	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
World Language Level 3	4 BA Fields Selection	3
	17	16

Third Year

Fall	Credits Spring	Credits
PSYCH 200-Level or 400-Level- Category Selection	3 PSYCH 200-Level- Category Selection	3
ENGL 202A‡	3 PSYCH 400-Level- Category Selection*	3
BA Fields Selection	3 BA Fields Selection	3
General Education Course	3 BA World Cultures Selection	3
General Education Course	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
PSYCH 400-Level- Capstone selection*	3 PSYCH 400-Level Course	3
PSYCH 400-Level Course	3 PSYCH 400-Level Course	3
General Education Course	3 Elective	3
Elective	3 Elective	3
Elective	3 Elective	3
	15	15

Total Credits 126

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Psychology, B.A. at Greater Allegheny Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or ESL 15 [‡]	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C [‡]	3
PSYCH 100 ^{*†}	3 PSYCH 200-level Course [*]	3
World Language level 1	4 World Language level 2	4
PSU 8	1 General Education Course (GQ) [‡]	3
General Education Course	3 General Education Course	3
General Education Course	3	
	17	16

Second Year

Fall	Credits Spring	Credits
PSYCH 200-level Course [*]	3 ENGL 202A, 202B, 202C, or 202D [‡]	3
World Language level 3	4 PSYCH 200 or 400-level Course [*]	3
STAT 200 ^{*††}	4 BA Fields Course	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
	17	15

Third Year

Fall	Credits Spring	Credits
PSYCH 200 or 400-level Course [*]	3 PSYCH 301W [*]	4
BA Fields Course	PSYCH 200-level Course [*]	3
General Education Course	3 PSYCH 400-level Course [*]	3
General Education Course	3 BA World Cultures Course	3
General Education Course	3 Elective	3
	12	16

Fourth Year

Fall	Credits Spring	Credits
PSYCH 400-level Course [*]	3 PSYCH 400-level Capstone Course [*]	3
PSYCH 400-level Course [*]	3 PSYCH 400-level Course [*]	3
BA Fields Course	3 Elective	3
Elective	3 Elective	3
Elective	3 Elective	3
	15	15

Total Credits 123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Psychology, B.A. at Hazleton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSYCH 100*	3 PSYCH 200 level course ^{2*}	3
ENGL 15 or 30H [‡]	3 World Language level 2 ¹	4
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
World Language level 1 ¹	4 CAS 100A or 100B [‡]	3
PSU 8	1	
	17	16

Second Year

Fall	Credits Spring	Credits
STAT 200 [‡]	4 PSYCH 200 level course ^{2*}	3
PSYCH 200 level course ^{2*}	3 ENGL 202A [‡]	3
General Education	3 BA Requirement: Knowledge Domain	3
World Language level 3 ¹	4 General Education Course	3
General Education Course (GHW)	1.5 General Education Course	3
General Education Course (GHW)	1.5	
	17	15

Third Year

Fall	Credits Spring	Credits
PSYCH 200 or 400 level course ^{2*}	3 PSYCH 301W ⁴	4
PSYCH 200 or 400 level course ^{2*}	3 PSYCH 400 level course ^{2*}	3
General Education Course	3 BA Requirement: Knowledge Domain	3
General Education Course	3 BA Requirement: World Cultures	3
BA Requirement: Knowledge Domain	3 Elective	3
	15	16

Fourth Year

Fall	Credits Spring	Credits
PSYCH 400 level course ^{2,3*}	3 PSYCH 400 level course ^{2,3*}	3
PSYCH 400 level course ^{2,3*}	3 PSYCH 400 level course ^{2,3*}	3
General Education Course	3 Elective	3
Elective	3 Elective	3
Elective	3 Elective	3
	15	15

Total Credits 126

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

¹ Students must demonstrate or complete the third level of proficiency in one world language. Scheduling of world language course work follows the World Language Placement Policy.

² Students must take 30 credits in PSYCH. Among these, students must take at least 15 credits at the 400-level and at least 3 credits in each of six categories: Learning and Cognition; Social and Personality Psychology; Biological Bases of Behavior; Developmental Psychology; Applied and Clinical Psychology; Capstone Experience.

Consult the Psychology Program Coordinator for specific course options.

³ During the fourth year, students must choose one capstone course from 5 options: PSYCH 490 Senior Seminar in Psychology, PSYCH 493 Senior Thesis, PSYCH 494 Research Projects, PSYCH 495 Internship, or PSYCH 496 Independent Studies. Students must consult the Psychology Program Coordinator about prerequisites and requirements for these courses before registering. PSYCH 495 Internship requires planning one semester in advance of starting the internship.

⁴ PSYCH 301W satisfies the Writing Across the Curriculum requirement

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Psychology, B.A. at Lehigh Valley Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [‡]	3 PSYCH Additional Required Category Course ^{*1}	3
MATH 21 (or General Education Course GQ) [‡]	3 General Education Course (US or IL)	3
PSYCH 100 [*]	3 General Education Course	3
PSU 8 (or General Education Course)	3 General Education Course	3
World Language level 1 ³	4 World Language level 2 ³	4
	16	16

Second Year

Fall	Credits Spring	Credits
CAS 100A [‡]	3 ENGL 202A or 202B [‡]	3
PSYCH Additional Required Category Course ^{*1}	3 PSYCH 200 or STAT 200 ^{*‡}	4
PSYCH Additional Required Category Course ^{*1}	3 PSYCH Additional Required Category Course ^{*1}	3
World Language level 3 ³	4 General Education Course (US or IL)	3
General Education (GHW)	1.5 Elective	3
	14.5	16

Third Year

Fall	Credits Spring	Credits
PSYCH 301W [*]	4 PSYCH 495A ^{*1}	
PSYCH Additional Required Category Course ^{*1}	3 General Education Course	3
General Education Course	3 Bachelor of Arts Requirement: Knowledge Domain ²	3
General Education Course	3 Elective or General Education Course	3
Bachelor of Arts Requirement: Knowledge Domain ²	3 Elective	3
	16	12

Fourth Year

Fall	Credits Spring	Credits
PSYCH 495B ^{*1}	3 PSYCH 490 ^{*1}	3
PSYCH Additional Required Category Course ^{*1}	3 PSYCH Elective [*]	3
Bachelor of Arts Requirement: World Cultures ²	3 PSYCH Additional Required Category Course ^{*1}	3
General Education Course	3 Bachelor of Arts Requirement: Knowledge Domain ²	3

Elective	3 Elective	3
General Education Course (GHW)	1.5	
	16.5	15

Total Credits 122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures.

See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

¹ Students must take 30 credits in PSYCH beyond PSYCH 100 and PSYCH 301W. Among these, students must take at least 15 credits at the 400-level and at least 3 credits in each of six categories: Learning and Cognition; Social and Personality Psychology; Biological Bases of Behavior; Developmental Psychology; Applied and Clinical Psychology; Capstone Experience. Consult the Psychology Program Coordinator for specific course options.

² For BA fields courses, see department list or consult adviser. BA students must take 9 credits in "BA fields" courses (Humanities, Social and Behavioral Sciences [except psychology], Arts, World Languages [2nd language or beyond the 12th credit level of proficiency in the first], Natural Sciences, Quantification). See your adviser

³ Students must demonstrate or complete the third level of proficiency in one world language.

Psychology, B.A. at Mont Alto Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSYCH 100 (GS)*	3 PSYCH 200-level Course* ¹	3
ENGL 15 or 30H [‡]	3 CAS 100A [‡]	3
World Language Level 1 ³	4 World Language Level 2 ⁴	4
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
PSU 8	1	
	17	16

Second Year

Fall	Credits Spring	Credits
PSYCH 200-level course*	3 PSYCH 200- or 400-level Course* ¹	3
STAT 200 (GQ)* [‡]	4 ENGL 202A [‡]	3
World Language Level 3 ⁴	4 BA Fields Course ²	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
	17	15

Third Year

Fall	Credits Spring	Credits
PSYCH 301W*	4 PSYCH 200- or 400-level Course* ¹	3
PSYCH 200- or 400-level Course* ¹	3 General Education Course	3
PSYCH 200- or 400-level Course* ¹	3 BA Fields Course ²	3
BA Fields Course ²	3 BA World Cultures Course ⁴	3
General Education Course	3 Elective	3
	16	15

Fourth Year

Fall	Credits Spring	Credits
PSYCH 400-level Course* ¹	3 PSYCH 400-level Capstone* ⁵	3
PSYCH 400-level Course* ¹	3 PSYCH 400-level Course* ¹	3
General Education Course	3 Elective	3
Elective	3 Elective	3
Elective	3 Elective	3
	15	15

Total Credits 126

¹ Students must take 30 credits in PSYCH beyond PSYCH 100 and PSYCH 301W. Among these, students must take at least 15 credits at the 400-level and at least 3 credits in each of six categories: Learning and Cognition; Social and Personality Psychology; Biological Bases of Behavior; Developmental Psychology; Applied and Clinical Psychology;

Capstone Experience. Consult the Psychology Program Coordinator for specific course options.

- ² For BA fields courses, see department list or consult adviser. BA students must take 9 credits in "BA fields" courses (Humanities, Social and Behavioral Sciences [except psychology], Arts, World Languages [2nd language or beyond the 12th credit level of proficiency in the first], Natural Sciences, Quantification). See your adviser
- ³ Students must demonstrate or complete the third level of proficiency in one world language.
- ⁴ BA students must take 3 credits in world cultures courses. See your adviser
- ⁵ During the fourth year, students must choose one capstone course from 5 options: PSYCH 490 Senior Seminar, PSYCH 493 Senior Thesis, PSYCH 494 Research Project, PSYCH 495 Psychology Practicum (internship), or PSYCH 496 Independent Studies Students must consult the Psychology Program Coordinator about prerequisites and requirements for these courses before registering. PSYCH 495 Psychology Practicum requires planning one semester in advance of starting the internship.

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Psychology, B.A. at New Kensington Campus with Behavioral Health and Counseling Psychology Certificate

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSYCH 100*	3 PSYCH 105*	3
ENGL 15 or 30H [‡]	3 PSYCH 238 or 243*	3
PSU 8	1 MATH 21 (or GQ) [‡]	3
World Language 1	4 CAS 100 [‡]	3
General Education Course	3 World Language 2	4
General Health and Wellness	1.5	
	15.5	16

Second Year

Fall	Credits Spring	Credits
STAT 200* [†]	4 PSYCH 301W*	4
General Education Course	3 BA Requirement	3
PSYCH 238 or 243*	3 General Education Course	3
World Language 3	4 General Education Course	3
General Health and Wellness	1.5 General Education Course	3
	15.5	16

Third Year

Fall	Credits Spring	Credits
ENGL 202A [‡]	3 PSYCH 200 or 400 - Level*	3
PSYCH 270*	3 PSYCH 400 - Level*	3
PSYCH 200 or 400 - Level*	3 BA Requirement	3
General Education Course	3 General Education Course	3
General Education Course	3 Elective	3
Elective	3	
	18	15

Fourth Year

Fall	Credits Spring	Credits
PSYCH 470*	3 PSYCH 481*	3
PSYCH 400 - Level*	3 PSYCH 495*	3
BA Requirement	3 BA Requirement	3
General Education Course	3 Elective	3
Elective	3 Elective	3
	15	15

Total Credits 126

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

University Requirements and General Education Notes:

Psychology, B.A. at Schuylkill Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSYCH 100*	3 PSYCH 200 level course*	3
ENGL 15 or 30H [‡]	3 World Language Level 1	4
Quantification (GQ) [‡]	3 CAS 100A [‡]	3
General Education Course (GA, GH, GS)	3 General Education Course	3
PSU 008 First Year Seminar	2 General Education Course	3
General Education Course	3	
	17	16

Second Year

Fall	Credits Spring	Credits
PSYCH 200 level course*	3 PSYCH 301W*	4
World Language Level 2	4 ENGL 202 (A, B, C, D): Effective Writing (GWS) [‡]	3
STAT 200 or PSYCH 200* ^{†‡}	4 Bachelor of Arts Requirement Knowledge Domain	3
General Education Course	3 World Language Level 3	4
Health and Wellness Course (GHW)	1.5 General Education Course	3
	15.5	17

Third Year

Fall	Credits Spring	Credits
PSYCH 200 or 400 level course*	3 PSYCH 400 level course*	3
PSYCH 200 or 400 level course*	3 PSYCH 200 or 400 level course*	3
Bachelor of Arts Requirement Knowledge Domain	3 Bachelor of Arts Requirement Knowledge Domain	3
General Education Course	3 Bachelor of Arts Requirement World Cultures	3
General Education Course	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
PSYCH 400 level capstone course*	3 PSYCH 400 level*	3
PSYCH 400 level course*	3 PSYCH 400 level*	3
General Education Course	3 Elective	3
General Education Course	3 Elective	3

Elective	3 Health and Wellness course (GHW)	1.5
	15	13.5

Total Credits 124

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Integrative Studies (either Inter-domain or Linked Courses)

Integrative Studies may be completed within the 30 Knowledge Domain credits and must be completed with either Inter-domain or Linked courses, not a combination of both. For Inter-domain courses, credit may apply to both Knowledge Domain designations but does not reduce the total number of credits within the Knowledge Domains and at least 3 credits of single-domain coursework are required in each of the 5 Knowledge Domains. Linked courses used for the Integrative Studies requirement must represent two different Knowledge Domains.

Psychology, B.A. at Scranton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H	3 PSYCH 200-Level Course*	3
PSYCH 100*	3 CAS 100	3
World Language I	4 World Language II	4
General Education Course	3 General Education Course	3
General Education Course	3 Quantification (GQ)	3
PSU 8	1	
	17	16

Second Year

Fall	Credits Spring	Credits
PSYCH 200 ^{††}	4 PSYCH 301W*	4
PSYCH 200-Level Course*	3 PSYCH 200-Level Course or PYSCH 400 Level Course*	3
World Languages III	4 BA Fields Course	3
General Education Course	3 General Education Course	3
General Education Course (GHW)	3 General Education Course	3
	17	16

Third Year

Fall	Credits Spring	Credits
PSYCH 200-Level or PSYCH 400-Level Course*	3 PSYCH 400-Level Course*	3
PSYCH 200-Level or PSYCH 400-Level Course*	3 ENGL 202A	3
BA Fields Course	3 BA Fields Course	3
General Education Course	3 BA Other Fields Course	3
General Education Course	3 Elective	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
PSYCH 400-Level Course*	3 PSYCH 400-Level Capstone*	3
PSYCH 400-Level Course*	3 PSYCH 400-Level Course*	3
General Education Course	3 Elective	3
Elective	3 Elective	3
Elective	3 Elective	3
	15	15

Total Credits 126

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

Program Notes:

The 12th credit level is required for the World Language. The amount of world language you completed in high school, results of advanced placement exams, and the results of optional proficiency exams determine what level of language you will take. See your academic adviser for details.

University Requirements and General Education Notes:

Psychology, B.A. at York Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSYCH 100*	3 PSYCH (200 Level course) ^{*2}	3
World Language course (Level 1) ¹	4 World Language course (Level 2) ¹	4
ENGL 15 or 30H [‡]	3 Elective	3
General Education course (GHW)	1.5 General Education course	3
General Education course	3 CAS 100A, 100B, or 100C (GWS) [‡]	3
14.5		16

Second Year

Fall	Credits Spring	Credits
PSYCH (200 Level course) ^{*2}	3 PSYCH 301W*	4
PSYCH 200 or STAT 200 (PSYCH 200 Strongly Recommended)*	4 ENGL 202A [‡]	3
World Language course (Level 3) or Elective ¹	4 BA requirement course ³	3
General Education course (GHW)	1.5 General Education course	9
General Education course	3	
15.5		19

Third Year

Fall	Credits Spring	Credits
PSYCH (200 or 400 level) ^{*2}	3 PSYCH (200 or 400 level) ^{*2}	3
PSYCH (200 or 400 level) ^{*2}	3 PSYCH (200 or 400 level) ^{*2}	3
Elective	3 BA requirement course ³	3
General Education course	6 Elective	3
	General Education course	3
15		15

Fourth Year

Fall	Credits Spring	Credits
PSYCH (400 level capstone course) ^{*2,5}	3-6 PSYCH (400 level course) ^{*2,5}	3
PSYCH (400 level if capstone is 3 cr)*	3 PSYCH (400 level course) ^{*2,5}	3
BA world cultures course ⁴	3 BA requirement course ³	3
Elective	3 Elective	6
General Education course	3	
15-18		15

Total Credits 125-128

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Bachelor of Arts Requirements:

Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student's primary major. See your adviser and the Degree Requirements section (p. 3153) of this Bulletin.

Bachelor of Arts students must take 3 credits in World Cultures. See your adviser and the full list of courses approved as World Cultures courses (p. 3220).

¹ Students must demonstrate or complete the third level of proficiency in one world language. Scheduling of world language course work follows the World Language Policy: <http://www.psu.edu/dus/handbook/lang.html#policy>

² Students must take 30 credits in PSYCH beyond PSYCH 100 and PSYCH 301W. Among these, students must take at least 15 credits at the 400-level and at least 3 credits in each of six categories: Learning and Cognition; Social and Personality Psychology; Biological Bases of Behavior; Developmental Psychology; Applied and Clinical Psychology; Clapstone Experience. Consult the Psychology Program Coordinator for specific course options.

³ BA students must take 9 credits in "BA requirement courses (Humanities, Social and Behavior Sciences [except psychology], Arts, World Languages, [2nd language or beyond the 12th credit level of proficiency in the first], Natural Sciences, Quantification). See your adviser.

⁴ BA students must take 3 credits in world cultures courses. See your adviser.

⁵ During the fourth year, students must choose one capstone course from 5 options: PSYCH 490 Senior Seminar, PSYCH 493 Senior Thesis, PSYCH 494 Research project, PSYCH 495 Psychology Practicum (internship), or PSYCH 496 Independent Studies. Students must consult the Psychology Program Coordinator about prerequisites and requirements for these courses before registering. PSYCH 495 Psychology Practicum requires planning one semester in advance of starting the internship.

Career Paths

Graduates of our program enter the workforce or pursue additional education in a variety of programs, including both Master's and Ph.D. programs in experimental, counseling, school, and clinical psychology.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE PSYCHOLOGY PROGRAM (<https://altoona.psu.edu/academics/bachelors-degrees/psychology/handbook/>)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://altoona.psu.edu/academics/bachelors-degrees/psychology/handbook/>)

Professional Resources

- American Psychology Association (<https://www.apa.org>)
- Association for Psychological Science (<https://www.psychologicalscience.org>)
- Psi Chi (<https://www.psichi.org>)

Contact

Beaver

100 University Drive
Monaca, PA 15061
724-773-3904
klb48@psu.edu

<https://beaver.psu.edu/academics/majors/psychology> (<https://beaver.psu.edu/academics/majors/psychology/>)

Brandywine

25 Yearsley Mill Road
Media, PA 19063
610-892-1409
jdm53@psu.edu

<https://www.brandywine.psu.edu/academics/bachelors-degrees/psychology> (<https://www.brandywine.psu.edu/academics/bachelors-degrees/psychology/>)

Fayette

2201 University Drive
Lemont Furnace, PA 15456
724-430-4284
esb12@psu.edu

<https://fayette.psu.edu/academics/baccalaureate/psychology> (<https://fayette.psu.edu/academics/baccalaureate/psychology/>)

Greater Allegheny

101 Frable Building
4000 University Drive
McKeesport, PA 15132
412-675-9140
GA-Academics@lists.psu.edu

<https://greaterallegheny.psu.edu/academics/degree-programs/psychology> (<https://greaterallegheny.psu.edu/academics/degree-programs/psychology/>)

Hazleton

Graham Building, 111

Hazleton, PA 18202
570-450-3023
lms42@psu.edu

<https://hazleton.psu.edu/psychology-degrees> (<https://hazleton.psu.edu/psychology-degrees/>)

Lehigh Valley

2809 Saucon Valley Road
Center Valley, PA 18034
610-285-5062
kjk13@psu.edu

<https://lehighvalley.psu.edu/academics/degrees/psychology> (<https://lehighvalley.psu.edu/academics/degrees/psychology/>)

Mont Alto

112 Wiestling Hall
Mont Alto, PA 17237
717-749-6210
r2y@psu.edu

<https://montalto.psu.edu/academics/bachelors/psychology-degree> (<https://montalto.psu.edu/academics/bachelors/psychology-degree/>)

New Kensington

3550 Seventh Street Rd.
New Kensington, PA 15068
724-334-6735
rjh27@psu.edu

<https://newkensington.psu.edu/academics/4-year-psychology/ba-degree-information> (<https://newkensington.psu.edu/academics/4-year-psychology/ba-degree-information/>)

Schuylkill

ACADEMIC AFFAIRS
A201C 200 University Drive
Schuylkill Haven, PA 17972
570-385-6066
crs15@psu.edu

<https://schuylkill.psu.edu/academics/bacc-degrees/psychology> (<https://schuylkill.psu.edu/academics/bacc-degrees/psychology/>)

Scranton

113 Dawson Building
Dunmore, PA 18512
570-963-2715
trw115@psu.edu

<https://scranton.psu.edu/academics/degrees/bachelors/psychology-degree> (<https://scranton.psu.edu/academics/degrees/bachelors/psychology-degree/>)

York

210 Grumbacher Building (GISTC)
York, PA 17403
717-771-4028
mac13@psu.edu

<https://www.york.psu.edu/academics/baccalaureate/psychology>
(<https://www.york.psu.edu/academics/baccalaureate/psychology/>)

Altoona

DIVISION OF EDUCATION, HUMAN DEVELOPMENT, AND SOCIAL SCIENCES

Elm Building 103
3000 Ivyside Park
Altoona, PA 16601
818-949-5756
alg177@psu.edu

<https://altoona.psu.edu/academics/bachelors-degrees/psychology>
(<https://altoona.psu.edu/academics/bachelors-degrees/psychology/>)

Berks

DIVISION OF HUMANITIES, ARTS AND SOCIAL SCIENCES

Franco Building
Reading PA 19610
610-396-6143
BKPsychology@psu.edu

<https://berks.psu.edu/academics/babs-psychology> (<https://berks.psu.edu/academics/babs-psychology/>)

Psychology, B.S. (University College)

Begin Campus: Any Penn State Campus

End Campus: Beaver, Brandywine, Fayette, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Schuylkill, Scranton, York

Program Description

The Psychology major will combine the knowledge, skills, and values of psychology with a liberal arts foundation. Students should:

- develop a knowledge base consisting of concepts, theory, empirical findings, and trends within psychology;
- understand and apply basic research methods in psychology;
- use critical thinking and the scientific approach to solve problems related to behavior and mental processes;
- apply psychological principles to personal and social issues;
- and be able to understand the gender, sexual orientation, race, ethnicity, culture, and class issues in psychological theory, research, and practice.

Students should also develop information and computer competence, communication skills, and develop realistic ideas about how to implement their psychology education in occupational pursuits in a variety of settings. The major may lead to either a Bachelor of Arts or a Bachelor of Science degree. The B.A. degree incorporates a broad exposure to the many facets of the field of psychology, in addition to the B.A. requirements. The B.S. degree provides the same exposure to the field of psychology and adds options in Science and Business to prepare students for more specific career directions. Students in both degree programs may also prepare for graduate school; research experience with faculty members is encouraged for such students.

What is Psychology?

Psychology is the scientific study of thought, behavior, and experience. Many people associate psychology with psychological therapy and the

practice of clinical psychology. There are also many other important areas of scientific psychology, such as cognitive, developmental, industrial/organizational, and social psychology. What these subfields of psychology have in common is the use of the scientific method to understand human behavior and apply that understanding to the development of theory and practice. Psychologists are increasingly making use of neuroscience methods and theories to understand psychological phenomena. As a profession, psychology is related to fields such as health, education, marketing, human resources, social work, and more. The principles of psychology are relevant to almost all areas of human endeavor, and the career paths of psychology students reflect this wealth of possibilities.

You Might Like This Program If...

You are interested in people and in learning to use science to better understand them. As a major, you'll have opportunities to do research with faculty and to work in career-relevant settings.

MORE INFORMATION ABOUT PSYCHOLOGY (<https://altoona.psu.edu/academics/bachelors-degrees/psychology/>)

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

Degree Requirements

For the Bachelor of Science degree in Psychology, a minimum of 124 credits is required:

Requirement	Credits
General Education	45
Electives	14-18
Requirements for the Major	65

0-4 of the 45 credits for General Education are included in the Requirements for the Major. This includes 0-4 credits of General Education GQ courses.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
PSYCH 100	Introductory Psychology	3
PSYCH 301W	Basic Research Methods in Psychology	4
Additional Courses ¹		

Additional Courses: Require a grade of C or better

PSYCH 200	Elementary Statistics in Psychology	4
or STAT 200	Elementary Statistics	

Select 18 credits of the following, with a minimum of 3 credits from each of the following six categories: 18

Learning and Cognition

PSYCH 256	Introduction to Cognitive Psychology
PSYCH 261	Introduction to Psychology of Learning
PSYCH 268	Animal Minds
PSYCH 426	Language and Thought
PSYCH 427	Language Acquisition
PSYCH 452	Learning and Memory
PSYCH 456	Advanced Cognitive Psychology
PSYCH 457	Psychology of Language
PSYCH 458	Visual Cognition
PSYCH 459	
PSYCH 461	Advanced Conditioning and Learning

Social and Personality Psychology

PSYCH 221	Introduction to Social Psychology
PSYCH 231	Introduction to the Psychology of Gender
PSYCH 232	Cross-Cultural Psychology
PSYCH 238	Introduction to Personality Psychology
PSYCH 419	Psychology and a Sustainable World
PSYCH 420	Advanced Social Psychology
PSYCH 421	Self and Social Judgment
PSYCH 423	Social Psychology of Interpersonal/Intergroup Relationships
PSYCH 424	Applied Social Psychology
PSYCH 432	Multicultural Psychology in America
PSYCH 438	Personality Theory
PSYCH 479	The Psychology of Gender

Biological Bases of Behavior

PSYCH 253	Introduction to Psychology of Perception
PSYCH 260	Neurological Bases of Human Behavior
PSYCH 269	Evolutionary Psychology
PSYCH 441	Health Psychology
PSYCH 460	Comparative Psychology
PSYCH 462	Physiological Psychology
PSYCH 464	Behavior Genetics
PSYCH 475	Psychology of Fear and Stress
PSYCH 478	Clinical Neuropsychology

Developmental Psychology

PSYCH 212	Introduction to Developmental Psychology
PSYCH 410	Child Development
PSYCH 412	Adolescence
PSYCH 413	Cognitive Development
PSYCH 414	Social and Personality Development
PSYCH 415	Topics in Developmental Psychology
PSYCH 416/ HDFS 445	Development Throughout Adulthood
PSYCH 474	Psychological Intervention in Childhood

Applied and Clinical Psychology

PSYCH 243	Introduction to Well-being and Positive Psychology
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PSYCH 244	Introduction to the Psychology of Human Factors Engineering
PSYCH 270	Introduction to Abnormal Psychology
PSYCH 281	Introduction to Industrial-Organizational Psychology
PSYCH 370	Psychology of the Differently-Abled
PSYCH 404	Principles of Measurement
PSYCH 408	Program Evaluation
PSYCH 443	Treatment and Education in Developmental Disabilities
PSYCH 444	Engineering Psychology
PSYCH 445	Forensic Psychology
PSYCH 470	Abnormal Psychology
PSYCH 471	Psychology of Adjustment and Social Relationships
PSYCH 473	Behavior Modification
PSYCH 476	Child Psychopathology
PSYCH 477	Mental Health Practicum with Children
PSYCH 481	Introduction to Clinical Psychology
PSYCH 482	Selection and Assessment in Organizations
PSYCH 484	Work Attitudes and Motivation
PSYCH 485	Leadership in Work Settings
<i>Capstone Experience</i>	
PSYCH 439	History and Systems of Psychology
PSYCH 490	Senior Seminar in Psychology
PSYCH 493	Senior Thesis
PSYCH 494	Research Projects
PSYCH 495	Internship
PSYCH 496	Independent Studies

Select 12 credits of additional Psychology courses from any offered for a total of 30 credits of Psychology courses beyond PSYCH 100 and PSYCH 301W 12

Requirements for the Option

Requirements for the Option: Require a grade of C or better

Select an option 24

¹ Must select at least 15 credits at the 400-level.

Requirements for the Option**Science Option (24 credits)**

Available at the following campuses: Altoona, Beaver, Berks, Brandywine, Fayette, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Schuylkill, Scranton, York

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 15 credits of the following:		15
ANTH 21	Introductory Biological Anthropology	
ANTH 22	Humans as Primates	
BBH 101	Introduction to Biobehavioral Health	
	Any BIOL course	
	Any CHEM course	
	Any MICRB course	
	Any PHYS course	

Supporting Courses*Supporting Courses: Require a grade of C or better*

Select 6 credits in natural sciences/quantification from department list 6

Select 3 credits in social and behavioral sciences from department list 3

Business Option (24 credits)*Available at the following campuses: Altoona, Beaver, Berks, Brandywine, Fayette, Greater Allegheny, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Schuylkill, Scranton, York*

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 15 credits of the following:		15
Any ACCTG course		
BA 100	Introduction to Business	
BA 241 & BA 242	Legal Environment of Business and Social and Ethical Environment of Business	
or BA 243	Social, Legal, and Ethical Environment of Business	
Any ECON course		
Any FIN course		
Any HPA course		
Any IB course		
Any MGMT course		
Any MKTG course		
Any SCM course except SCM 200		
Supporting Courses		
<i>Supporting Courses: Require a grade of C or better</i>		
Select 6 credits in natural sciences/quantification from department list ¹		6
Select 3 credits in social and behavioral sciences from department list		3

Additional Courses*Additional Courses: Require a grade of C or better*

Select 15 credits of the following: 15

Any ACCTG course

BA 100 Introduction to Business

BA 241 & BA 242 Legal Environment of Business and Social and Ethical Environment of Business

or BA 243 Social, Legal, and Ethical Environment of Business

Any ECON course

Any FIN course

Any HPA course

Any IB course

Any MGMT course

Any MKTG course

Any SCM course except SCM 200

Supporting Courses*Supporting Courses: Require a grade of C or better*Select 6 credits in natural sciences/quantification from department list ¹ 6

Select 3 credits in social and behavioral sciences from department list 3

¹ MATH 22 or MATH 110 recommended.**General Education**

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

Beaver and Scranton Campuses

- **Foundational Knowledge:** Students will demonstrate knowledge of major psychological concepts, theories, and empirical findings.
- **Application:** Students will demonstrate the ability to apply psychological concepts and theories to research and real-life situations.
- **Critical and Creative Thinking:** Students will use critical and creative thinking, skeptical inquiry, and the scientific approach to solve problems related to behavior and mental processes.
- **Scientific Literature:** Students will demonstrate critical thinking in the analysis, evaluation, and interpretation of information in the scientific literature to distinguish the scientific literature from other sources.
- **Communication:** Students will communicate effectively (in writing and/or orally) the results of a project or internship.
- **Research Writing:** Students will demonstrate the ability to effectively extract central points and summarize psychological research literature and to write in the format of psychological research.
- **Research Methods:** Students will differentiate among the research methods used in psychology and apply the designs in evaluation or development of a research study.
- **Analysis:** Students will demonstrate the ability to analyze and interpret quantitative psychological data using statistics, graphs, and data tables.
- **Culture Diversity:** Students will show evidence of knowledge and appreciation for cultural diversity and relativity in human experience and for the complexity of human behavior and interactions.
- **Ethics:** Students will demonstrate knowledge, and the application of, basic principles of scientific and professional ethics.
- **Professionalism:** Students will demonstrate sensitivity to ethical concerns and professionalism (including cultural considerations) in settings where applications of psychology and/or psychological research occur.
- **Professional Options:** Students will demonstrate knowledge of professional options and required training for careers in the major subfields of psychology.
- **Career Options:** Students will demonstrate the ability to identify personally-relevant career options to implement their psychological knowledge, skills, and values in occupational pursuits in a variety of settings.

Brandywine Campus

- **Communication:**
 - Students will demonstrate effective writing for different purposes.
 - Students will exhibit effective presentation skills for different purposes.
 - Students will interact effectively with others.
- **Ethical & Social Responsibility in a Diverse World:**
 - Students will apply ethical standards to evaluate psychological science and practice.
 - Students will build and enhance interpersonal relationships.
 - Students will adopt values that build community at local, national, and global levels.
- **Knowledge Base:**
 - Students will describe key concepts, principles, and overarching themes in psychology.

- Students will develop a working knowledge of psychology's content domains.
- Students will describe applications of psychology.
- **Professional Development:**
 - Students will apply psychological content and skills to career goals.
 - Students will exhibit self-efficacy and self-regulation.
 - Students will refine project-management skills.
 - Students will enhance teamwork capacity.
 - Students will develop meaningful professional direction for life after graduation.
- **Research Skills:**
 - Students will differentiate among the research methods used in psychology and apply the designs in evaluation or development of a research study.
 - Students will demonstrate the ability to analyze and interpret quantitative psychological data using statistics, graphs, and data tables.
- **Scientific Inquiry & Critical Thinking:**
 - Students will use scientific reasoning to interpret psychological phenomena.
 - Students will demonstrate psychology information literacy.
 - Students will engage in innovative and integrative thinking and problem solving.
 - Students will interpret, design, and conduct basic psychological research.
 - Students will incorporate sociocultural factors in scientific inquiry.

Fayette Campus

- **Human Behavior:** Students will connect specific human behaviors to the many broad areas of psychology.
- **Professional:** Students will relate applications of psychology to specific professions associated with psychology.
- **Research:** Students will describe and apply the steps of the scientific method.
- **Theory:** Students will summarize the scientific principles of psychology, including its history and major theoretical principles.

Greater Allegheny and Hazleton Campuses

- **Career-Related Skills:**
 - Students will demonstrate knowledge of professional options and required training for careers in the major subfields of psychology
 - Students will demonstrate the ability to identify personally-relevant career options to implement their psychological knowledge, skills, and values in occupational pursuits in a variety of settings.
- **Communication Skills:**
 - Students will communicate effectively (in writing and/or orally) the results of a project or internship.
 - Students will demonstrate the ability to effectively extract central points and summarize psychological research literature and to write in the format of psychological research.
- **Content Knowledge:**
 - Students will demonstrate knowledge of major psychological concepts, theories, and empirical findings.
 - Students will demonstrate the ability to apply psychological concepts and theories to research and real life situations.

- **Diversity and Ethical Considerations:**
 - Students will show evidence of knowledge and appreciation for cultural diversity and relativity in human experience and for the complexity of human behavior and interactions.
 - Students will demonstrate knowledge, and the application of, basic principles of scientific and professional ethics.
 - Students will demonstrate sensitivity to ethical concerns and professionalism (including cultural considerations) in settings where applications of psychology and/or psychological research occur.
- **Research Skills:**
 - Students will differentiate among the research methods used in psychology and apply the designs in evaluation or development of a research study.
 - Students will demonstrate the ability to analyze and interpret quantitative psychological data using statistics, graphs, and data tables.
- **Thinking Skills:**
 - Students will use critical and creative thinking, skeptical inquiry, and the scientific approach to solve problems related to behavior and mental processes.
 - Students will demonstrate critical thinking in the analysis, evaluation, and interpretation of information in the scientific literature to distinguish the scientific literature from other sources.

Lehigh Valley Campus

- **Communication:** Communicate effectively in writing using APA style correctly.
- **Critical Thinking:** All students will demonstrate critical thinking in the analysis, evaluation, and interpretation of information in the scientific literature and to distinguish the scientific literature from other sources.
- **Cultural Diversity:** All students will show evidence of knowledge and appreciation for cultural diversity and relativity in human experience and for the complexity of human behavior and interactions.
- **Data Analysis:** All students will demonstrate an ability to analyze and interpret quantitative psychological data using statistics, graphs, and data tables in Psych 301W.
- **Knowledge:** All students will demonstrate knowledge of major psychological concepts, theories, and empirical findings.

Mont Alto Campus

- **Empathy Skills:** Psychology majors will demonstrate a sense of empathy, the ability to understand someone else's experience.
- **Interpersonal Relationships:** Psychology majors will build and enhance interpersonal relationships and adopt values that build community at local, national, and global levels by understanding that other sides of an argument.
- **Preparation for Working with Diverse Experiences:** Students will be prepared to work with individuals and families with different experiences from their own.
- **Preparation for Working with Underrepresented Groups:** Student will demonstrate a sense of preparation for working with underrepresented groups.

New Kensington Campus

- **Career-Related Skills:** Preparing students for careers upon graduation.

- **Critical Thinking:** Use critical thinking to solve problems & distinguish scientific from non-scientific.
- **Data Analysis and Problem Solving:** Demonstrate the ability to analyze and interpret quantitative and qualitative data.
- **Effective Communication:** Demonstrate competence in comprehending, reading, writing, and orally communicating research.
- **Ethical Awareness:** Demonstrate knowledge and the application of professional ethics.
- **Experience Other Cultures:** Students immerse themselves into another culture by attending an event (e.g., religious service) outside their own ethnic/religious/sexual orientation/SES group.
- **Knowledge/Application:** Demonstrate knowledge and application of major concepts and theories.
- **Research Competence:** Differentiate among the research methods.

Schuylkill Campus

- **Ability to prepare presentations in APA style:**
 - Ability to prepare papers that review past research on behavioral topics
 - Ability to prepare research reports in APA style
 - Ability to prepare conference presentations
- **Understanding ethics and application in psychology:**
 - Understanding of ethical guidelines for research and applied psychologists
 - Ability to apply psychological theories in community organizations
- **Understanding of basic behavioral research methods:**
 - Understanding basic research methods for psychology and their limitations
 - Ability to design basic research projects to study predictors of behavior
 - Understanding basic statistics to analyze behavioral data
 - Ability to search Library databases for research on behavioral topics
- **Understanding of the variety of behavior problems and treatment options:**
 - Understanding of DSM diagnostic terminology for behavior problems
 - Understanding of variety of treatment approaches for behavior problems
- **Understanding of the variety of theories to explain human behavior:**
 - Understanding of variety of psychological theories to explain behavior
 - Understanding of the impact of diversity on human behavior

York Campus

- **Critical Thinking:** Use critical thinking to solve problems & distinguish scientific from non-scientific.
- **Data Analysis and Problem Solving:** Demonstrate the ability to analyze and interpret quantitative and qualitative data.
- **Effective Communication:** Demonstrate competence in comprehending, reading, writing, and orally communicating research.
- **Ethical Awareness:** Demonstrate knowledge and the application of professional ethics.
- **Knowledge/Application:** Demonstrate knowledge and application of major concepts and theories.
- **Research Competence:** Differentiate among the research methods.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Berks

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Beaver Campus

Business Option: Psychology, B.S. at Beaver Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSYCH 100*	3 PSYCH 200 Level*	3
General Education Course (GHW)	1.5 Business Option Course*	3
General Education Course	3 General Education Course	3
ENGL 15 or 30H	3 General Education Course	3
General Education Course	3 General Education Course	3
13.5		15

Second Year

Fall	Credits Spring	Credits
PSYCH 200 Level*	3 PSYCH 301W*	4
PSYCH 200 or STAT 200*	4 CAS 100	3
Business Option Course*	3 Business Option Course	3
General Education Course (GHW)	1.5 General Education Course	3
General Education Course	3 General Education Course	3
14.5		16

Third Year

Fall	Credits Spring	Credits
PSYCH 200 or 400 Level*	3 PSYCH 200 or 400 Level*	3
ENGL 202A	3 PSYCH 200 or 400 Level*	3
Business Option Course*	3 Business Option Course*	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
15		15

Fourth Year

Fall	Credits Spring	Credits
PSYCH 400 Level*	3 PSYCH 400 Level*	3
PSYCH 400 Level*	3 PSYCH 400 Level Capstone*	3-6
Business Option Course*	3 Business Option Course*	3
General Education Course	3 General Education Course	3

Elective	3	
	15	12-15

Total Credits 116-119

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Science Option: Psychology, B.S. at Beaver Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSYCH 100*	3 PSYCH 200 Level*	3
General Education Course (GHW)	1.5 Natural Science Option*	3
General Education Course	3 General Education Course	3
ENGL 15 or 30H	3 General Education Course	3
General Education Course	3 General Education Course	3
13.5		15

Second Year

Fall	Credits Spring	Credits
PSYCH 200 Level*	3 PSYCH 301W*	4
PSYCH 200 or STAT 200*	4 CAS 100	3
Natural Science Option*	3 Natural Science Option*	3
General Education Course (GHW)	1.5 General Education Course	3
General Education Course	3 General Education Course	3
14.5		16

Third Year

Fall	Credits Spring	Credits
PSYCH 200 or 400 Level*	3 PSYCH 200 or 400 Level*	3
ENGL 202A	3 PSYCH 400 Level*	3
General Education Course	3 Natural Science Option*	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
15		15

Fourth Year

Fall	Credits Spring	Credits
PSYCH 400 Level*	3 PSYCH 400 Level*	3
PSYCH 400 Level*	3 Elective	3
Natural Science Option*	3 Elective	3
General Education Course	3 PSYCH 400 Level*	3-6
Elective	3	
15		12-15

Total Credits 116-119

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Brandywine Campus

Business Option: Psychology, B.S. at Brandywine Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSYCH 100*	3 PSYCH Course 200-level*	3
ENGL 15, 30H, or ESL 15‡	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C†	0-3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
15		12-15

Second Year

Fall	Credits Spring	Credits
PSYCH 200*†1	4 ENGL 202A‡	3
PSYCH Course 200-level*	3 Business Option Course	3
Business Option Course	3 Business Option Course	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
16		15

Third Year

Fall	Credits Spring	Credits
PSYCH 301W*‡	4 PSYCH Course 200/400-level*	3
PSYCH Course 200/400-level*	3 PSYCH Course 400-level*	3
PSYCH Course 200/400-level*	3 Business Option Course	3
Business Option Course	3 Business Option Course	3
Business Option Course	3 Elective	3
	Elective	3
16		18

Fourth Year

Fall	Credits Spring	Credits
PSYCH Capstone 400-level*	3 PSYCH Course 400-level*	3
PSYCH Course 400-level*	3 PSYCH Course 400-level*	3
General Education Course	3 Business Option Course	3
Elective	3 Elective	3
Elective	3 Elective	3
15		15

Total Credits 122-125

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ PSYCH 200 recommended but STAT 200 will fulfill this requirement if PSYCH 200 is not available.

Science Option: Psychology, B.S. at Brandywine Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSYCH 100*	3 PSYCH Course 200-level*	3
ENGL 15, 30H, or ESL 15 [‡]	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C [‡]	0-3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
	15	12-15

Second Year

Fall	Credits Spring	Credits
PSYCH 200 ^{*†1}	4 ENGL 202A [‡]	3
PSYCH Course 200-level*	3 Science Option Course	3
Science Option Course	3 Science Option Course	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
	16	15

Third Year

Fall	Credits Spring	Credits
PSYCH 301W*	4 PSYCH Course 200/400-level*	3
PSYCH Course 200/400-level*	3 PSYCH Course 400-level*	3
PSYCH Course 200/400-level*	3 Science Option Course	3
Science Option Course	3 Science Option Course	3
Science Option Course	3 Elective	3
	Elective	3
	16	18

Fourth Year

Fall	Credits Spring	Credits
PSYCH Capstone 400-level*	3 PSYCH Course 400-level*	3
PSYCH Course 400-level*	3 PSYCH Course 400-level*	3
General Education Course	3 Science Option Course	3
Elective	3 Elective	3
Elective	3 Elective	3
	15	15

Total Credits 122-125

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ PSYCH 200 recommended but STAT 200 will fulfill this requirement if PSYCH 200 is not available.

Advising Notes

Students interested in completing this program with the intention of preparing for medical school are encouraged to complete the following General Education Natural Science and Science Option selections: BIOL 110, BIOL 141/142, BIOL 230, CHEM 110/111, CHEM 112/113, CHEM 210, PHYS 250, PHYS 251, BMB 401, BMB 402. These courses have specific prerequisites that must be completed prior to enrollment. Students should consult with their adviser to discuss appropriate course sequencing.

University Requirements and General Education Notes:

Fayette Campus

Business Option: Psychology, B.S. at Fayette Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSYCH 100 (GS) ^{†*}	3 PSYCH 200-Level- Category Selection ^{*2}	3
ENGL 15 or 30H [‡]	3 General Education Course	3
PSU 8	1 General Education Course	3
General Education Course	3 Quantification (GQ) [‡]	3
General Education Course	3 CAS 100A [‡]	3
General Education Course	3	3
	16	15

Second Year

Fall	Credits Spring	Credits
PSYCH 200-Level- Category Selection ^{*2}	3 PSYCH 301W [*]	4
STAT 200 (GQ) [‡]	4 Business Option Selection ^{*1}	3
Business Option Selection ^{*1}	3 Business Option Selection ^{*1}	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
	16	16

Third Year

Fall	Credits Spring	Credits
ENGL 202A [‡]	3 PSYCH 200-Level or 400-Level- Category Selection ^{*2}	3
PSYCH 200-Level or 400-Level- Category Selection ^{*2}	3 PSYCH 400-Level- Category Selection ^{*2}	3
PSYCH 200-Level or 400-Level- Category Selection ^{*2}	3 Business Option Selection ^{*1}	3
Business Option Selection ^{*1}	3 Business Option Selection ^{*1}	3
Business Option Selection ^{*1}	3 Elective	3
	Elective	3
	15	18

Fourth Year

Fall	Credits Spring	Credits
PSYCH 400-Level- Capstone [*]	3 PSYCH 400-Level Course [*]	3
PSYCH 400-Level Course [*]	3 PSYCH 400-Level Course [*]	3
General Education Course	3 Business Option Selection ^{*1}	3
Elective	3 Elective	3
Elective	3 Elective	3
	15	15

Total Credits 126

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ BS Business Option students must take 24 credits in business option courses. **Consult Psychology Program Coordinator for a list of course selections.**

² Students must take 30 credits in PSYCH. Among these, students must take at least 15 credits at the 400-level and at least 3 credits in each of six categories: Learning and Cognition; Social and Personality Psychology; Biological Bases of Behavior; Developmental Psychology; Applied and Clinical Psychology; Capstone Experience.

Consult the Psychology Program Coordinator for specific course options.

Science Option: Psychology, B.S. at Fayette Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSYCH 100 ^{†*}	3 PSYCH 200-Level- Category Selection ^{*2}	3
ENGL 15 or 30H [‡]	3 CAS 100A [‡]	3
General Education Course	3 Science Option Selection (CHEM 1)	3
General Education Course	3 General Education Course (GHW)	1.5
General Education Course	3 Quantification (GQ) [‡]	3
PSU 8	1 Elective	3
	16	16.5

Second Year

Fall	Credits Spring	Credits
PSYCH 200-Level- Category Selection ^{*2}	3 PSYCH 301W [*]	4
STAT 200 (GQ) [‡]	4 Science Option Selection (BISC 4)	3
Science Option Selection (BISC 3)	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
	16	16

Third Year

Fall	Credits Spring	Credits
PSYCH 200-Level or 400-Level- Category Selection ^{*2}	3 PSYCH 400-Level- Category Selection ^{*2}	3
PSYCH 200-Level or 400-Level- Category Selection ^{*2}	3 PSYCH 200-Level or 400-Level- Category Selection ^{*2}	3
ENGL 202A [‡]	3 Science Option Selection (BBH 101)	3
Science Option Selection (BBH 143)	3 Science Option Selection ^{*1}	3
Science Option Selection ^{*1}	3 Elective	3
	General Education Course (GHW)	1.5
	15	16.5

Fourth Year

Fall	Credits Spring	Credits
PSYC 400-Level – Capstone (PSYC 490) [*]	3 PSYCH 400-Level Course ^{*2}	3
PSYCH 400-Level Course ^{*2}	3 PSYCH 400-Level Course ^{*2}	3
General Education Course	3 Science Option Selection ^{*1}	3
Elective	3 Elective	3

Elective	3 Elective	3
	15	15

Total Credits 126

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ BS Science Option students must take 24 credits in science option courses. **Consult Psychology Program Coordinator for a list of course selections.**

² Students must take 30 credits in PSYCH. Among these, students must take at least 15 credits at the 400-level and at least 3 credits in each of six categories: Learning and Cognition; Social and Personality Psychology; Biological Bases of Behavior; Developmental Psychology; Applied and Clinical Psychology; Capstone Experience. **Consult the Psychology Program Coordinator for specific course options.**

Greater Allegheny Campus

Business Option: Psychology, B.S. at Greater Allegheny Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or ESL 15 [‡]	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C [‡]	3
PSYCH 100*	3 PSYCH 200-level Course*	3
PSU 8	1 General Education Course (GQ) [‡]	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course	3	
	16	15

Second Year

Fall	Credits Spring	Credits
STAT 200 ^{*††}	4 ENGL 202A, 202B, 202C, or 202D [‡]	3
PSYCH 200-level Course*	3 PSYCH 200- or 400-level Course*	3
Business Option Course*	3 Business Option Course*	3
General Education Course	3 Business Option Course*	3
General Education Course	3 General Education Course	3
	16	15

Third Year

Fall	Credits Spring	Credits
Supporting Course - GN or GQ*	3 PSYCH 301W*	4
PSYCH 200- or 400-level Course*	3 PSYCH 200-level Course*	3
Business Option Course*	3 PSYCH 400-level Course*	3
General Education Course	3 Business Option Course*	3
General Education Course	3 Elective	3
	15	16

Fourth Year

Fall	Credits Spring	Credits
Supporting Course - GS*	3 PSYCH 400-level Course*	3
PSYCH 400-level Course*	3 PSYCH 400-level Course*	3
Supporting Course - GN or GQ*	3 PSYCH 400-level Capstone Course*	3
Elective	3 Elective	3
Elective	3-4 Elective	4
	15-16	16

Total Credits 124-125

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Students must take 30 credits in PSYCH beyond PSYCH 100 and PSYCH 301W and at least 15 credits at the 400-level with at least 3 credits in each of 6 categories: Learning and Cognition; Social and Personality Psychology; Biological Bases of Behavior; Developmental Psychology; Applied and Clinical Psychology; Capstone Experience.

Science Option: Psychology, B.S. at Greater Allegheny Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or ESL 15 [‡]	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C [‡]	3
PSYCH 100 [*]	3 PSYCH 200-level Course [*]	3
PSU 8	1 General Education Course (GQ) [‡]	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course	3	
	16	15

Second Year

Fall	Credits Spring	Credits
STAT 200 ^{**†}	4 ENGL 202A, 202B, 202C, or 202D [‡]	3
PSYCH 200-level Course [*]	3 PSYCH 200- or 400-level Course [*]	3
Science Option Course [*]	3 Science Option Course [*]	3
General Education Course	3 Science Option Course [*]	3
General Education Course	3 General Education Course	3
	16	15

Third Year

Fall	Credits Spring	Credits
Supporting Course - GN or GQ [*]	3 PSYCH 301W [*]	4
PSYCH 200- or 400-level Course [*]	3 PSYCH 200-level Course [*]	3
Science Option Course [*]	3 PSYCH 400-level Course [*]	3
General Education Course	3 Science Option Course [*]	3
General Education Course	3 Supporting Course - GN or GQ [*]	3
	Elective	3
	15	19

Fourth Year

Fall	Credits Spring	Credits
Supporting Course - GS [*]	3 PSYCH 400-level Course [*]	3
PSYCH 400-level Course [*]	3 PSYCH 400-level Course [*]	3
Supporting Course - GN or GQ [*]	3 PSYCH 400-level Capstone Course [*]	3
Elective	3 Elective	3
Elective	3-4 Elective	4
	15-16	16

Total Credits 127-128

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Students must take 30 credits in PSYCH beyond PSYCH 100 and PSYCH 301W and at least 15 credits at the 400-level with at least 3 credits in each of 6 categories: Learning and Cognition; Social and Personality Psychology; Biological Bases of Behavior; Developmental Psychology; Applied and Clinical Psychology; Capstone Experience.

Hazleton Campus

Business Option: Psychology, B.S. at Hazleton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSYCH 100*	3 PSYCH 200 level course ^{1*}	3
ENGL 15 or 30H [‡]	3 Business Option Course ^{2*}	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course (GHW)	1.5
PSU 8	1 CAS 100A or 100B [‡]	3
	16	16.5

Second Year

Fall	Credits Spring	Credits
STAT 200 [‡]	4 PSYCH 200 level course ^{1*}	3
PSYCH 200 Level Course ^{1*}	3 ENGL 202A or 202D (GWS) [‡]	3
Business Option Course ^{2*}	3 Business Option Course ^{2*}	3
Business Option Course ^{2*}	3 General Education Course	3
Elective	3 General Education Course	3
	16	15

Third Year

Fall	Credits Spring	Credits
PSYCH 200 or 400 level course ^{1*}	3 PSYCH 301W*	4
PSYCH 200 or 400 level course ^{1*}	3 PSYCH 400 level course ^{1*}	3
Business Option Course ^{2*}	3-4 Business Option Course ^{2*}	3
General Education Course	3 Business Option Course ^{2*}	3
General Education Course	3 Elective	3
	General Education Course (GHW)	1.5
	15-16	17.5

Fourth Year

Fall	Credits Spring	Credits
PSYCH 400 level course ^{1,3*}	3 PSYCH 400 level course ^{1,3*}	3
PSYCH 400 level course ^{1,3*}	3 PSYCH 400 level course ^{1,3*}	3
General Education Course	3 Business Option Course ^{2*}	3
Elective	3 Elective	3
Elective	3 Elective	3
	15	15

Total Credits 126-127

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ Students must take 30 credits in PSYCH. Among these, students must take at least 15 credits at the 400-level and at least 3 credits in each of six categories: Learning and Cognition; Social and Personality Psychology; Biological Bases of Behavior; Developmental Psychology; Applied and Clinical Psychology; Capstone Experience.

Consult the Psychology Program Coordinator for specific course options.

² BS Business Option students must take 24 credits in business option courses. **Consult Psychology Program Coordinator for a list of course selections.**

³ During the fourth year, students must choose one capstone course from 5 options: PSYCH 490 Senior Seminar, PSYCH 493 Senior Thesis, PSYCH 494 Research Project, PSYCH 495 Psychology Practicum (internship), or PSYCH 496 Independent Studies. Students must consult the Psychology Program Coordinator about prerequisites and requirements for these courses before registering. PSYCH 495 Psychology Practicum requires planning one semester in advance of starting the internship.

⁴ PSYCH 301W satisfies the Writing Across the Curriculum requirement

Science Option: Psychology, B.S. at Hazleton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSYCH 100 [*]	3 PSYCH 200 level course ^{1*}	3
ENGL 15 or 30H [‡]	3 Science Option Course ^{2*}	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course (GHW)	1.5
PSU 8	1 CAS 100A or 100B [‡]	3
	16	16.5

Second Year

Fall	Credits Spring	Credits
STAT 200 [‡]	4 PSYCH 200 level course ^{1*}	3
PSYCH 200 level course ^{1*}	3 ENGL 202A [‡]	3
Science Option Course ^{2*}	3 Science Option Course ^{2*}	3
Science Option Course ^{2*}	3 General Education Course	3
Elective	3 General Education Course	3
	16	15

Third Year

Fall	Credits Spring	Credits
PSYCH 200 or 400 level course ^{1*}	3 PSYCH 301W [*]	4
PSYCH 200 or 400 level course ^{1*}	3 PSYCH 400 level course ^{1*}	3
Science Option Course ^{2*}	3-4 Science Option Course ^{2*}	3
General Education Course	3 Science Option Course ^{2*}	3
General Education Course	3 Elective	3
	General Education Course (GHW)	1.5
	15-16	17.5

Fourth Year

Fall	Credits Spring	Credits
PSYCH 400 level course ^{1,3*}	3 PSYCH 400 level course ^{1,3*}	3
PSYCH 400 level course ^{1,3*}	3 PSYCH 400 level course ^{1,3*}	3
General Education Course	3 Science Option Course ^{2*}	3
Elective	3 Elective	3
Elective	3 Elective	3
	15	15

Total Credits 126-127

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ Students must take 30 credits in PSYCH. Among these, students must take at least 15 credits at the 400-level and at least 3 credits in each of six categories: Learning and Cognition; Social and Personality Psychology; Biological Bases of Behavior; Developmental Psychology; Applied and Clinical Psychology; Capstone Experience.

Consult the Psychology Program Coordinator for specific course options.

² BS Science Option students must take 24 credits in science option courses. **Consult Psychology Program Coordinator for a list of course selections.**

³ During the fourth year, students must choose one capstone course from 5 options: PSYCH 490 Senior Seminar, PSYCH 493 Senior Thesis, PSYCH 494 Research Project, PSYCH 495 Psychology Practicum (internship), or PSYCH 496 Independent Studies. Students must consult the Psychology Program Coordinator about prerequisites and requirements for these courses before registering. PSYCH 495 Psychology Practicum requires planning one semester in advance of starting the internship.

⁴ PSYCH 301W satisfies the Writing Across the Curriculum requirement

Lehigh Valley Campus

Business Option: Psychology, B.S. at Lehigh Valley Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 [‡]	3 PSYCH Additional Required Category Course [*]	3
MATH 21	3 Additional Business Option Course ²	3-4
PSYCH 100 [*]	3 General Education Course (US or IL)	3
General Education Course	3 General Education Course	3
PSU 8 (or General Education Course)	3 General Education Course	3
	15	15-16

Second Year

Fall	Credits Spring	Credits
CAS 100A [‡]	3 ENGL 202A or 202B [‡]	3
PSYCH Additional Required Category Course ^{*1}	3 PSYCH 200 or STAT 200 ^{*††}	4
PSYCH Additional Required Category Course ^{*1}	3 Supporting Option Course (GS) ²	3
General Education Course	3 General Education Course (US or IL)	3
Elective	3 General Education Course	3
	15	16

Third Year

Fall	Credits Spring	Credits
PSYCH 301W [*]	4 PSYCH 495A ^{*1}	3
Additional Business Option Course ²	3 Additional Business Option Course ²	3
Additional Business Option Course ²	3 Additional Business Option Course ²	3
General Education Course	3 Supporting Option Course (GN or GQ)	3
Elective or General Education Course	3 Supporting Option Course (GN or GQ)	3
	16	15

Fourth Year

Fall	Credits Spring	Credits
PSYCH 495B ^{*1}	3 PSYCH 490 ^{*1}	3
PSYCH Additional Required Course ^{*1}	3 PSYCH Elective ^{*1}	3
PSYCH Additional Required Course ^{*1}	3 PSYCH Additional Required Course ^{*1}	3
General Education Course	3 Elective	3
Elective	3 Elective	3

General Education (GHW)	1.5 General Education Course (GHW)	1.5
	16.5	16.5

Total Credits 125-126

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ Students must take 30 credits in PSYCH beyond PSYCH 100 and PSYCH 301W. Among these, students must take at least 15 credits at the 400-level and at least 3 credits in each of six categories: Learning and Cognition; Individual Differences, Personality, and Social Processes; Biological Bases of Behavior and Mental Processes; Development Changes in Behavior and Mental Processes Across the Life Span; History of Psychology, Socio-cultural Contexts, and Diversity Issues; Capstone Experience. Consult the psychology Program Coordinator for specific course selection.

² BS Business Option students must take 24 credits of option-specific courses. Consult Psychology Program Coordinator for a list of course selections.

Science Option: Psychology, B.S. at Lehigh Valley Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 [‡]	3 PSYCH Additional Required Category Course ^{*1}	3
MATH 21	3 Additional Science Option Course ²	3-4
PSYCH 100 [*]	3 General Education Course (US or IL)	3
PSU 8 (or General Education Course)	3 General Education Course	3
General Education Course	3 General Education Course	3
	15	15-16

Second Year

Fall	Credits Spring	Credits
CAS 100A [‡]	3 ENGL 202A or 202B [‡]	3
PSYCH Additional Required Category Course ^{*1}	3 PSYCH 200 or STAT 200 ^{**†}	4
PSYCH Additional Required Category Course ^{*1}	3 Supporting Course Option (GS)	3
General Education Course	3 General Education Course (US or IL)	3
Elective	3 General Education Course	3
	15	16

Third Year

Fall	Credits Spring	Credits
PSYCH 301W [*]	4 PSYCH 495A ^{*1}	3
Additional Science Option Course ²	3-4 Additional Science Option Course ²	3-4
Additional Science Option Course ²	3-4 Additional Science Option Course	3-4
General Education Course	3 Supporting Option Course (GN or GQ)	3
Elective or General Education Course	3 Supporting Option Course (GN or GQ)	3
	16-18	15-17

Fourth Year

Fall	Credits Spring	Credits
PSYCH 495B ^{*1}	3 PSYCH 490 ^{*1}	3
PSYCH Additional Required Category Course ^{*1}	3 PSYCH Elective [*]	3
PSYCH Additional Required Category Course ^{*1}	3 PSYCH Additional Required Course ^{*1}	3
General Education Course	3 Elective	3
Elective	3 Elective	3

General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
	16.5	16.5

Total Credits 125-130

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ Students must take 30 credits in PSYCH beyond PSYCH 100 and PSYCH 301W. Among these, students must take at least 15 credits at the 400-level and at least 3 credits in each of six categories: Learning and Cognition; Individual Differences, Personality, and Social Processes; Biological Bases of Behavior and Mental Processes; Development Changes in Behavior and Mental Processes Across the Life Span; History of Psychology, Socio-cultural Contexts, and Diversity Issues; Capstone Experience. Consult the psychology Program Coordinator for specific course selection.

² BS Science Option students must take 24 credits of option-specific courses. Consult Psychology Program Coordinator for a list of course selections.

Mont Alto Campus

Business Option: Psychology, B.S. at Mont Alto Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSYCH 100 (GS) [*]	3 PSYCH 200-level Course ^{*1}	3
ENGL 15 or 30H ^{*†}	3 CAS 100A ^{*†}	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
PSU 8	1	
	16	15

Second Year

Fall	Credits Spring	Credits
PSYCH 200-level Course ^{*1}	3 PSYCH 200- or 400-level Course ^{*1}	3
STAT 200 (GQ) [‡]	4 Business option course (GN/GQ Supporting Course) ²	3
Business Option Course ²	3 Business Option Course ²	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
	16	15

Third Year

Fall	Credits Spring	Credits
PSYCH 200- or 400-level Course ^{*1}	3 ENGL 202A ^{*†}	3
PSYCH 200- or 400-level Course ^{*1}	3 PSYCH 400-level Course ^{*1}	3
PSYCH 301W ^{*1}	4 Business Option Course ²	3
Business Option Course (GN/GQ Supporting Course) ²	3 Business Option Course ²	3
Business Option Course ²	3 Elective	3
	Elective	3
	16	18

Fourth Year

Fall	Credits Spring	Credits
PSYCH 400-level Course ^{*1}	3 PSYCH 400-level Capstone ^{*1,3}	3
PSYCH 400-level Course ^{*1}	3 PSYCH 400-level Course ^{*1}	3
General Education Course	3 Business Option (GS Supporting Course) ²	3
Elective	3 Elective	3
Elective	3 Elective	3
	15	15

Total Credits 126

the 400-level and at least 3 credits in each of six categories: Learning and Cognition; Social and Personality Psychology, Biological Bases of Behavior; Development Psychology; Applied and Clinical Psychology; Capstone Experience. Consult the psychology Program Coordinator for specific course selection.

² BS Business Option students must take 24 credits of option-specific courses. Consult Psychology Program Coordinator for a list of course selections.

³ During the fourth year, students must choose one capstone course from 5 options: PSYCH 490 Senior Seminar, PSYCH 493 Senior Thesis, PSYCH 494 Research Project, PSYCH 495 Psychology Practicum internship), or PSYCH 496 Independent Studies, Students must consult the Psychology Program Coordinator about prerequisites and requirements for these courses before registering. PSYCH 495 Psychology Practicum requires planning one semester in advance of starting internship.

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ Students must take 30 credits in PSYCH beyond PSYCH 100 and PSYCH 301W. Among these, students must take at least 15 credits at

Science Option: Psychology, B.S. at Mont Alto Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSYCH 100 (GS) [*]	3 PSYCH 200-level Course ^{* 1}	3
General Education Course	3 CAS 100A ^{* †}	3
General Education Course	3 General Education Course	3
General education Course	3 General Education Course	3
ENGL 15 or 30H ^{* †}	3 General Education Course	3
PSU 8	1	
	16	15

Second Year

Fall	Credits Spring	Credits
PSYCH 200-level Course ^{* 1}	3 PSYCH 200- or 400-level Course ^{* 1}	3
STAT 200 (GQ) [‡]	4 ENGL 202A ^{* †}	3
Science Option Course ^{1,2}	3 Science Option Course ²	3
General Education Course	3 Science Option Course ²	3
General Education Course	3 General Education Course	3
	16	15

Third Year

Fall	Credits Spring	Credits
PSYCH 200- or 400-level Course ^{* 1}	3 PSYCH 400-level Course ^{* 1,3}	3
PSYCH 200- or 400-level Course ^{* 1}	3 Science Option Course (GN or GQ supporting) ²	3
PSYCH 301W [*]	4 General Education Course	3
Science Option (GN or GQ supporting) ²	3 Elective	3
Science Option Course ²	3 Elective	3
	Science Option Course ²	3
	16	18

Fourth Year

Fall	Credits Spring	Credits
PSYCH 400-level Course ^{* 1,3}	3 PSYCH 400-level Capstone ^{* 1,3}	3
PSYCH 400-level Course ^{* 1,3}	3 PSYCH 400-level Course ^{* 1,3}	3
General Education Course	3 Science Option Course (GS supporting) ²	3
Elective	3 Elective	3
Elective	3 Elective	3
	15	15

Total Credits 126

Behavior; Development Psychology; Applied and Clinical Psychology; Capstone Experience. Consult the psychology Program Coordinator for specific course selection.

² BS Science Option students must take 24 credits of option-specific courses. Consult Psychology Program Coordinator for a list of course selections.

³ During the fourth year, students must choose one capstone course from 5 options: PSYCH 490 Senior Seminar, PSYCH 493 Senior Thesis, PSYCH 494 Research Project, PSYCH 495 Psychology Practicum internship), or PSYCH 496 Independent Studies. Students must consult the Psychology Program Coordinator about prerequisites and requirements for these courses before registering. PSYCH 495 Psychology Practicum requires planning one semester in advance of starting internship.

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ Students must take 30 credits in PSYCH beyond PSYCH 100 and PSYCH 301W. Among these, students must take at least 15 credits at the 400-level and at least 3 credits in each of six categories: Learning and Cognition; Social and Personality Psychology, Biological Bases of

New Kensington Campus

Psychology, B.S. at New Kensington Campus with Behavioral Health and Counseling Psychology Certificate

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSYCH 100*	3 PSYCH 105*	3
ENGL 15 or 30H [‡]	3 Business/Science Option*	3
PSU 8	1 PSYCH 238 or 243*	3
General Education Course	3 CAS 100 [‡]	3
General Education Course	3 MATH 21 (or GQ)	3
General Health and Wellness	1.5	
	14.5	15

Second Year

Fall	Credits Spring	Credits
STAT 200 [‡]	4 PSYCH 301W*	4
PSYCH 238 or 243*	3 PSYCH 200 - Level*	3-6
Business/Science Option*	3 BS Option Course (Natural Science or Quantification)	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	
	16	13-16

Third Year

Fall	Credits Spring	Credits
PSYCH 200 or 400 - Level*	3 PSYCH 200 or 400 - Level*	3
PSYCH 270*	3 PSYCH 200 or 400 - Level*	3
ENGL 202A [‡]	3 PSYCH 200 or 400 - Level*	3
General Education Course	3 Business/Science Option*	3
General Education Course	3 General Education Course	3
General Health and Wellness	1.5	
	16.5	15

Fourth Year

Fall	Credits Spring	Credits
PSYCH 470*	3 Business/Science Option*	3
Business/Science Option*	3 PSYCH 481*	3
BS Option (Natural Science or Quantification)*	3-4 PSYCH 495*	3
BS Option (Social Science)	3 Elective	3
Elective	3 Elective	3
	15-16	15

Total Credits 120-124

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Schuylkill Campus

Business Option: Psychology, B.S. at Schuylkill Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSYCH 100*	3 PSYCH 200 level course*	3
ENGL 15 or 30H [‡]	3 Business Option Course*	3
PSU 8	2 General Education Course	3
Quantification (GQ) [‡]	3 General Education Course	3
General Education Course	3 CAS 100A [‡]	3
Health and Wellness Course (GHW)	3	
	17	15

Second Year

Fall	Credits Spring	Credits
PSYCH 200 level course*	3 PSYCH 301W*	4
Business Option Course*	3 ENGL 202 (A, B, C, or D): Effective Writing (GWS) [‡]	3
Business Option Course*	3 Business Option Course*	3
General Education Course	3 General Education Course	3
STAT 200 or PSYCH 200* ^{†‡}	4 General Education Course	3
	16	16

Third Year

Fall	Credits Spring	Credits
PSYCH 200 or 400 level*	3 PSYCH 400 level course*	3
PSYCH 200 or 400 level*	3 PSYCH 200 or 400 level*	3
Business Option Course*	3-4 Business Option Course*	3
Elective	3 Business Option Course*	3
General Education Course	3 Elective	3
	15-16	15

Fourth Year

Fall	Credits Spring	Credits
PSYCH 400 level capstone course*	3 PSYCH 400 level course*	3
PSYCH 400 level course*	3 PSYCH 400 level course*	3
General Education Course	3 Business Option Course*	3
General Education Course	3 Elective	3
Elective	3 Elective	3
	15	15

Total Credits 124-125

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Integrative Studies (either Inter-domain or Linked Courses)

Integrative Studies may be completed within the 30 Knowledge Domain credits and must be completed with either Inter-domain or Linked courses, not a combination of both. For Inter-domain courses, credit may apply to both Knowledge Domain designations but does not reduce the total number of credits within the Knowledge Domains and at least 3 credits of single-domain coursework are required in each of the 5 Knowledge Domains. Linked courses used for the Integrative Studies requirement must represent two different Knowledge Domains.

University Requirements and General Education Notes:

Science Option: Psychology, B.S. at Schuylkill Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSYCH 100*	3 PSYCH 200 level course*	3
ENGL 15‡	3 Science Option Course*	3
PSU 8	2 Science Option Course*	3
Quantification (GQ)‡	3 General Education Course	3
General Education Course	3 CAS 100A‡	3
Health and Wellness Course (GHW)	3	
	17	15

Second Year

Fall	Credits Spring	Credits
PSYCH 200 level course*	3 PSYCH 301W*	4
Science Option Course*	3 ENGL 202 (A, B, C, or D): Effective Writing (GWS)‡	3
General Education Course	3 Science Option Course	3
General Education Course	3 General Education Course	3
STAT 200 or PSYCH 200*†‡	4 General Education Course	3
	16	16

Third Year

Fall	Credits Spring	Credits
PSYCH 200 or 400 level*	3 PSYCH 400 level course*	3
PSYCH 200 or 400 level*	3 PSYCH 200 or 400 level course*	3
Science Option Course*	3-4 Science Option Course*	3
General Education Course	3 Science Option Course*	3
Elective	3 Elective	3
	15-16	15

Fourth Year

Fall	Credits Spring	Credits
PSYCH 400 level capstone course*	3 PSYCH 400 level course*	3
PSYCH 400 level course*	3 PSYCH 400 level course*	3
General Education Course	3 Science Option Course*	3
General Education Course	3 Elective	3
Elective	3 Elective	3
	15	15

Total Credits 124-125

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Integrative Studies (either Inter-domain or Linked Courses)

Integrative Studies may be completed within the 30 Knowledge Domain credits and must be completed with either Inter-domain or Linked courses, not a combination of both. For Inter-domain courses, credit may apply to both Knowledge Domain designations but does not reduce the total number of credits within the Knowledge Domains and at least 3 credits of single-domain coursework are required in each of the 5 Knowledge Domains. Linked courses used for the Integrative Studies requirement must represent two different Knowledge Domains.

University Requirements and General Education Notes:

Scranton Campus

Business Option: Psychology, B.S. at Scranton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H	3 PSYCH 200-Level Course*	3
PSYCH 100*	3 CAS 100	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
PSU 8	1 Quantification (GQ)	3
General Education Course	3	
	16	15

Second Year

Fall	Credits Spring	Credits
PSYCH 200*†	4 PSYCH 301W*	4
PSYCH 200-Level Course*	3 PSYCH 200-Level Course or PYSCH 400 Level Course*	3
Business Option Course	3 Business Option Course	3
Business Option Course	3 General Education Course	3
General Education Course (GHW)	3 General Education Course	3
	16	16

Third Year

Fall	Credits Spring	Credits
PSYCH 200-Level or PSYCH 400-Level Course*	3 PSYCH 400-Level Course*	3
PSYCH 200-Level or PSYCH 400-Level Course*	3 ENGL 202A	3
Business Option Course	3 Business Option Course	3
Business Option Course	3 Business Option Course	3
General Education Course	3 Elective	3
	Elective	3
	15	18

Fourth Year

Fall	Credits Spring	Credits
PSYCH 400-Level Course*	3 PSYCH 400-Level Capstone*	3
PSYCH 400-Level Course*	3 PSYCH 400-Level Course*	3
General Education Course	3 Business Option Course	3
Elective	3 Elective	3
Elective	3 Elective	3
	15	15

Total Credits 126

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Science Option: Psychology, B.S. at Scranton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H	3 PSYCH 200-Level Course [*]	3
PSYCH 100 [*]	3 CAS 100	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course	3
PSU 8	1 Quantification (GQ)	3
General Education Course	3	
	16	15

Second Year

Fall	Credits Spring	Credits
PSYCH 200 ^{**†}	4 PSYCH 301W [*]	4
PSYCH 200-Level Course [*]	3 PSYCH 200-Level Course or PYSCH 400 Level Course [*]	3
Science Option Course	3 Science Option Course	3
Science Option Course	3 General Education Course	3
General Education Course (GHW)	3 General Education Course	3
	16	16

Third Year

Fall	Credits Spring	Credits
PSYCH 200-Level or PSYCH 400-Level Course [*]	3 PSYCH 400-Level Course [*]	3
PSYCH 200-Level or PSYCH 400-Level Course [*]	3 ENGL 202A	3
Science Option Course	3 Science Option Course	3
Science Option Course	3 Science Option Course	3
General Education Course	3 Elective	3
	Elective	3
	15	18

Fourth Year

Fall	Credits Spring	Credits
PSYCH 400-Level Course [*]	3 PSYCH 400-Level Capstone [*]	3
PSYCH 400-Level Course [*]	3 PSYCH 400-Level Course [*]	3
General Education Course	3 Science Option Course	3
Elective	3 Elective	3
Elective	3 Elective	3
	15	15

Total Credits 126

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

York Campus*

Psychology, B.S. at York Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSYCH 100*	3 PSYCH (200 level course) ^{*1}	3
ENGL 15 or 30H [‡]	3 Business/Science Option ^{*2}	3
Business/Science option selection ^{*2}	3 CAS 100A, 100B, or 100C (GWS) [‡]	3
General Education course (GHW)	1.5 Elective	3
General Education course	6 General Education course	3
16.5		15

Second Year

Fall	Credits Spring	Credits
PSYCH (200 level course) ^{*1}	3 PSYCH (200 level course) ^{*1}	3
PSYCH 200 or STAT 200 (PSYCH 200 Strongly Recommended) [*]	4 PSYCH 301W	4
Business/Science Option ^{*2}	3 ENGL 202A [‡]	3
General Education course	6 BS Option	3
	General Education course	6
16		19

Third Year

Fall	Credits Spring	Credits
PSYCH (200 or 400 level course) ^{*1}	6 PSYCH (200 or 400 level course) ^{*1}	9
General Education course (GHW)	1.5 General Education course	3
General Education course	6 Business/Science option selection ^{*2}	3
13.5		15

Fourth Year

Fall	Credits Spring	Credits
PSYCH (400 level capstone course) ^{*1,3}	3-6 PSYCH (400 level course) ^{*1,3}	3
PSYCH (400 level, if capstone is 3 cr) [*]	3 Business/Science option selection ^{*2}	3
Business/Science option selection ^{*2}	3 BS Option [*]	3
BS Option	3 Elective	6
Elective	3	
15-18		15

Total Credits 125-128

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

¹ Students must take 30 credits in PSYCH beyond PSYCH 100 and PSYCH 301W. Among these, students must take at least 15 credits at the 400-level and at least 3 credits in each of six categories: Learning and Cognition; Social and Personality Psychology; Biological Bases of Behavior; Developmental Psychology; Applied and Clinical Psychology; Clapstone Experience. Consult the Psychology Program Coordinator for specific course options.

² BS Business Option students must take 24 credits of option-specific courses. Consult Psychology Program Coordinator for a list of course selections.

³ During the fourth year, students must choose one capstone course from 5 options: PSYCH 490 Senior Seminar, PSYCH 493 Senior Thesis, PSYCH 494 Research project, PSYCH 495 Psychology Practicum (internship), or PSYCH 496 Independent Studies. Students must consult the Psychology Program Coordinator about prerequisites and requirements for these courses before registering. PSYCH 495 Psychology Practicum requires planning one semester in advance of starting the internship. During the fourth year, students must choose one capstone course from 5 options: PSYCH 490 Senior Seminar, PSYCH 493 Senior Thesis, PSYCH 494 Research project, PSYCH 495 Psychology Practicum (internship), or PSYCH 496 Independent Studies. Students must consult the Psychology Program Coordinator about prerequisites and requirements for these courses before registering. PSYCH 495 Psychology Practicum requires planning one semester in advance of starting the internship.

Career Paths

Graduates of our program enter the workforce or pursue additional education in a variety of programs, including both Master's and PhD programs in experimental, counseling, school, and clinical psychology.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE PSYCHOLOGY PROGRAM (<https://altoona.psu.edu/academics/bachelors-degrees/psychology/handbook/>)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://altoona.psu.edu/academics/bachelors-degrees/psychology/handbook/>)

Professional Resources

- American Psychology Association (<https://www.apa.org>)
- Association for Psychological Science (<https://www.psychologicalscience.org>)
- Psi Chi (<https://www.psichi.org>)

Contact

Beaver

100 University Drive
Monaca, PA 15061
724-773-3904
klb48@psu.edu

<https://beaver.psu.edu/academics/majors/psychology> (<https://beaver.psu.edu/academics/majors/psychology/>)

Brandywine

25 Yearsley Mill Road
Media, PA 19063
610-892-1409
jdm53@psu.edu

<https://www.brandywine.psu.edu/academics/bachelors-degrees/psychology> (<https://www.brandywine.psu.edu/academics/bachelors-degrees/psychology/>)

Fayette

2201 University Drive
Lemont Furnace, PA 15456
724-430-4284
esb12@psu.edu

<https://fayette.psu.edu/academics/baccalaureate/psychology> (<https://fayette.psu.edu/academics/baccalaureate/psychology/>)

Greater Allegheny

104 Main Building
4000 University Drive
McKeesport, PA 15132
412-675-9186
exm32@psu.edu

<https://greaterallegheny.psu.edu/academics/degree-programs/psychology> (<https://greaterallegheny.psu.edu/academics/degree-programs/psychology/>)

Hazleton

Graham Building, 111
Hazleton, PA 18202
570-450-3023
lms42@psu.edu

<https://hazleton.psu.edu/psychology-degrees> (<https://hazleton.psu.edu/psychology-degrees/>)

Lehigh Valley

2809 Saucon Valley Road
Center Valley, PA 18034
610-285-5062
kjk13@psu.edu

<https://lehighvalley.psu.edu/academics/degrees/psychology> (<https://lehighvalley.psu.edu/academics/degrees/psychology/>)

Mont Alto

112 Wiestling Hall
Mont Alto, PA 17237
717-749-6210
r2y@psu.edu

<https://montalto.psu.edu/academics/bachelors/psychology-degree> (<https://montalto.psu.edu/academics/bachelors/psychology-degree/>)

New Kensington

3550 Seventh Street Rd.
New Kensington, PA 15068
724-334-6735
rjh27@psu.edu

<https://newkensington.psu.edu/academics/4-year-psychology/4-year-psychologygree-information> (<https://newkensington.psu.edu/academics/4-year-psychology/4-year-psychologygree-information/>)

Schuylkill

ACADEMIC AFFAIRS
A201C 200 University Drive
Schuylkill Haven, PA 17972
570-385-6066
crs15@psu.edu

<https://schuylkill.psu.edu/academics/bacc-degrees/psychology> (<https://schuylkill.psu.edu/academics/bacc-degrees/psychology/>)

Scranton

113 Dawson Building
Dunmore, PA 18512
570-963-2715
trw115@psu.edu

<https://scranton.psu.edu/academics/degrees/bachelors/psychology-degree> (<https://scranton.psu.edu/academics/degrees/bachelors/psychology-degree/>)

York

210 Grumbacher Building (GISTC)
York, PA 17403
717-771-4028
mac13@psu.edu

<https://www.york.psu.edu/academics/baccalaureate/psychology> (<https://www.york.psu.edu/academics/baccalaureate/psychology/>)

Altoona

DIVISION OF EDUCATION, HUMAN DEVELOPMENT, AND SOCIAL SCIENCES
Elm Building 103
3000 Ivyside Park
Altoona, PA 16601
818-949-5756
alg177@psu.edu

<https://altoona.psu.edu/academics/bachelors-degrees/psychology> (<https://altoona.psu.edu/academics/bachelors-degrees/psychology/>)

Berks

DIVISION OF HUMANITIES, ARTS AND SOCIAL SCIENCES

Franco Building
Reading PA 19610
610-396-6143

BKPsychology@psu.edu

<https://berks.psu.edu/academics/babs-psychology> (<https://berks.psu.edu/academics/babs-psychology/>)

Radiological Sciences, A.S.

Begin Campus: New Kensington, Schuylkill

End Campus: New Kensington, Schuylkill

Program Description

For students interested in pursuing an education in the paramedical field of radiography (radiologic technology), the radiological sciences major meets the educational and clinical requirements for the graduate to function as an entry-level radiographer. Required course work is divided into three interrelated areas including general education, radiography specific, and clinical education components. During the clinical education component, students perform radiographic exams under the directed supervision of certified radiographers at multiple area clinical education settings. The clinical component emphasizes the concepts of team practice and patient-centered care. Both the radiography-specific course work and the clinical component are structured sequentially over six consecutive semesters, commencing each fall semester. Upon successful completion of the associate degree, the graduate will be eligible to attempt the American Registry of Radiologic Technologists (ARRT) examination for certification.

What is Radiological Sciences?

Radiography is a science combining medical imaging technology with empathetic patient care. Radiologic technologists, often referred to as radiographers, apply their knowledge of physics, human anatomy and physiology to create permanent radiographic images that assist in the examination, diagnosis and treatment of medical conditions in the body. These imaging professionals provide a wide range of services using technology founded on theoretical knowledge and scientific concepts. As a part of the healthcare team, the radiographers provide patient care using safe radiation practices; operate sophisticated technical equipment; exercise independent judgment; and make informed decisions daily. All program graduates are prepared, both academically and clinically, to join a healthcare team.

You Might Like This Program If...

- You have a desire to help people and a passion for patient care.
- You want to pursue a career that includes math and sciences.
- You want to be a part of diagnosis and treatment of patients.
- You want to pursue a rewarding career in healthcare.
- You thrive in a field where technology is ever evolving.
- You have a passion for lifelong learning.

Entrance to Major

Incoming first-year students who meet the program and campus admission requirements are admitted directly into the major. For more information about the admission process for this major, please send

a request to the campus undergraduate admissions office or to the program contact (listed in the Contact tab).

Change of Major and Change of Location requests are submitted via LionPATH Update Academics and require Dean's review. Requests will be considered for entrance into the Radiological Sciences program based on academic performance and space available.

Additional Information

Radiologic Science students are required to submit criminal background records, must have a complete physical, including documentation of required immunizations, Hepatitis B vaccine, current Tuberculosis (TB) screening test, routine drug testing, COVID -19 (FULLY VACCINATED) and other medical tests as required by clinical facilities. Students are required to purchase liability insurance.

Retention Requirements

This policy delineates the academic standards students admitted to the undergraduate Radiological Sciences Program. The following requirements are necessary for progression in the RADSC program.

Overall Criteria:

1. Required RADSC courses may only be repeated once.
2. Successful completion of required RADSC courses is defined as a "C" or better according to the Radiological Sciences grading scale.
3. All RADSC courses are sequential in nature and must be completed with a "C" or better to progress with the program. Students who do not maintain a "C" or better will be on an automatic academic stop-out according to RADSC policy and procedure. Students requesting a stop-out procedure must follow the RADSC policy and procedure.
4. A student who earns a "D" or "F" in the required RADSC course for a second time will be dismissed from the RADSC major and counseling relative to other majors/options will be provided.
5. Late course drop, with the designation of withdraw failing (WF), from a required RADSC course is considered a failure.
6. Students who wish to return to the RADSC program after a stop-out will re-enter under the current curricular requirements. Clinical assignments will depend on availability of clinical space.

Degree Requirements

For the Associate in Science degree in Radiological Sciences, a minimum of 67 credits is required:

Requirement	Credits
General Education	21
Requirements for the Major	61

15 of the 21 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GH courses; 6 credits of GN courses; 3 credits of GS; 3 credits of GWS courses.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
BIOL 161	Human Anatomy and Physiology I - Lecture	3
BIOL 162	Human Anatomy and Physiology I - Laboratory	1
BIOL 163	Human Anatomy and Physiology II - Lecture	3
BIOL 164	Human Anatomy and Physiology II - Laboratory	1
ENGL 15	Rhetoric and Composition	3
IST 110	Information, People and Technology	3
PHIL 103	Ethics	3
RADSC 101	Radiographic Introduction and Procedures/Lab I	4
RADSC 102	Radiographic Procedures/Lab II	4
RADSC 103	Radiographic Procedures/Lab III	3
RADSC 110	Patient Care in Radiologic Sciences	3
RADSC 204	Radiographic Exposure I	3
RADSC 205	Radiographic Exposure II	3
RADSC 206	Advanced Radiographic Procedures	3
RADSC 207	Registry Review	4
RADSC 210W	Radiographic Pathology	3
RADSC 220	Radiation Biology and Protection	3
RADSC 230	Radiographic Physics	3

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Take 8 credits from:		8
RADSC 295A	Radiologic Science Clinical Internship I	
RADSC 295B	Radiological Sciences Clinical Internship II	
RADSC 295C	Radiological Sciences Clinical Internship III	
RADSC 295D	Radiologic Science Clinical Internship IV	
RADSC 295E	Radiologic Science Clinical Internship V	
RADSC 295F	Radiologic Science Clinical Internship VI	

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all associate degree students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 3 credits
- **Writing and Speaking (GWS):** 3 credits

Knowledge Domains

- **Arts (GA):** 3 credits
- **Humanities (GH):** 3 credits

- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Note: Up to six credits of Inter-Domain courses may be used for any Knowledge Domain requirement, but when a course may be used to satisfy more than one requirement, the credits from the course can be counted only once.

Exploration

- **Any General Education course (including GHW and Inter-Domain):** 3 credits

University Degree Requirements**Cultures Requirement**

3 credits of United States (US) or International (IL) cultures coursework are required and may satisfy other requirements

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 60 degree credits must be earned for an associates degree. The requirements for some programs may exceed 60 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives**New Kensington Campus****Practice as Entry Level Technologists**

1. The student will provide proper radiation protection.
2. The student will demonstrate proper positioning skills.
3. The student will evaluate diagnostic images.

Effectively Communicate in the Healthcare Environment

1. The student will demonstrate effective written communication skills.
2. The student will provide effective oral communication skills.
3. The student will treat patients with compassion.

Think Critically and Apply Problem Solving Skills in the Healthcare Environment

1. The student will manipulate technical factors to produce diagnostic images.
2. The student will modify procedures to meet patient needs.

Understand and Promote the Importance of Professional Growth and Development

1. The student will demonstrate professional behavior and participate in professional organizations.
2. The student will develop a career portfolio and plan for compliance within the profession.

Schuylkill Campus

Students will communicate effectively in the clinical setting

1. Students will use effective oral communication skills
2. Students will practice written communication skills

Students will demonstrate clinical competence consistent with an entry level radiographer

1. Students will apply radiographic positioning skills
2. Students will select appropriate technical factors
3. Students will demonstrate radiation protection

Students will gain an awareness of the importance of professional growth and development

1. Students will demonstrate knowledge of professional societies.
2. Students will research and present advancements in medical imaging.

Students will demonstrate critical thinking and problem-solving skills

1. Students will adequately provide age appropriate patient care
2. Students will exercise independent judgment and discretion in the technical performance of medical imaging procedures
3. Students will successfully complete trauma and multi-case competencies

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

New Kensington

Marcia Curler

Program Coordinator and Assistant Teaching Professor
3550 Seventh Street Road
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724-334-6722
mac51@psu.edu

Schuylkill

Hilary Yotko

Program Coordinator
Office C-106
200 University Drive
Schuylkill Haven, PA 17972
570-385-6106
hhb102@psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Radiological Sciences, A.S. at New Kensington Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits Summer	Credits
RADSC 101*	4 BIOL 163**	3 RADSC 103*	3
RADSC 110*	3 BIOL 164*	1 RADSC 295C*	1.5
RADSC 295A*	1.5 RADSC 102*	4 RADSC 210W*	3
BIOL 161**	3 RADSC 204*	3	
BIOL 162*	1 RADSC 295B*	1	
ENGL 15**	3 MATH (GQ)**	3	
	15.5	15	7.5

Second Year

Fall	Credits Spring	Credits Summer	Credits
RADSC 220*	3 RADSC 205*	3 RADSC 207*	2
RADSC 230*	3 RADSC 206*	3 RADSC 295F*	1.5
RADSC 295D*	1 RADSC 207*	2	
IST 110†	3 RADSC 295E*	1.5	
PHIL 103**	3 AAP 100 preferred (GA) (IL,US)†	3	
	13	12.5	3.5

Total Credits 67

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Radiological Sciences, A.S. at Schuylkill Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits Summer	Credits
RADSC 101*	4 BIOL 163**	3 RADSC 103*	3
RADSC 110*	3 BIOL 164*	1 RADSC 295C*	1.5
RADSC 295A*	1.5 RADSC 102*	4 RADSC 204*	3
BIOL 161**†	3 RADSC 230*	3	
BIOL 162*	1 RADSC 295B*	1	
	MATH (GQ)**††	3	
	12.5	15	7.5

Second Year

Fall	Credits Spring	Credits Summer	Credits
RADSC 220*	3 RADSC 205*	3 RADSC 207*	4
RADSC 295D*	1 RADSC 210W*	3 RADSC 295F*	1.5
ENGL 15†‡	3 RADSC 295E*	1.5	
IST 110†	3 Arts (GA)†	3	
PHIL 103†	3 RADSC 206*	3	
	13	13.5	5.5

Total Credits 67

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS) requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

Students graduating from this program may apply their credits earned toward a Bachelor of Science degree in Applied Health Studies at the Pennsylvania College of Technology, which will help further their careers in management or education.

Penn State also offers degree opportunities for students wishing to complete a baccalaureate degree including Health Policy and Administration.

Upon program completion, graduates meeting all eligibility and ethics requirements will be eligible to take the American Registry of Radiologic

Technologists certification examination in radiography. Registered radiologic technologists may pursue various career options or complete advanced training to perform radiography, and advanced modalities including MRI, CT, Mammography, Interventional Radiography, and Cardiac Catheterization.

Careers

Radiologic technologists are needed in a variety of professional settings, including hospitals, healthcare facilities, physician offices, and research centers. Radiologic technologists may also pursue career opportunities in equipment sales and education. Careers in radiography offer flexible work schedules that accommodate various lifestyles and employment needs. Opportunities exist to pursue advanced degrees. Program coordinators often assist students in their quest to identify potential schools and programs to continue their studies and further their professional development.

Opportunities for Graduate Studies

Students graduating from this program may apply their credits earned toward a bachelor's of science degree in Applied Health Studies at the Pennsylvania College of Technology, which will help further their careers in management or education.

Professional Resources

- Pennsylvania Society of Radiologic Technologists (PSRT) (<https://psrtonline.org>)
- American Society of Radiologic Technologists (ASRT) (<https://www.asrt.org/>)
- American Registry of Radiologic Technologists (ARRT) (<https://www.arrt.org>)
- The Joint Review Committee on Education in Radiologic Technology (JRCERT) (<https://www.jrcert.org>)

Accreditation

Penn State recognizes the need for continuous program assessment. The Radiologic Sciences program at both New Kensington and Schuylkill are fully accredited by the Joint Review Committee on Education in Radiologic Technology (JRCERT). The JRCERT provides programmatic accreditation and ensures the Radiological Sciences Program follows established standards. The JRCERT is the only agency recognized by the United States Department of Education (USDE) and the Council for Higher Education Accreditation (CHEA), for the accreditation of traditional and distance delivery educational programs in radiography, radiation therapy, magnetic resonance, and medical dosimetry.

The JRCERT can be contacted at:

The Joint Review Committee on Education in Radiologic Technology
20 N. Wacker Drive, Suite 2850 Chicago, IL 60606-3182, Phone:
312-704-5300, www.jrcert.org (<https://www.jrcert.org/>).

MORE INFORMATION ABOUT THE JOINT REVIEW COMMITTEE ON EDUCATION IN RADIOLOGIC TECHNOLOGY (<https://www.jrcert.org/>)

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

New Kensington

RADIOLOGICAL SCIENCES
3550 Seventh Street Road
New Kensington, PA 15068
724-334-6722
mac51@psu.edu

<https://newkensington.psu.edu/academics/2-year-radiological-sciences>
(<https://newkensington.psu.edu/academics/2-year-radiological-sciences/>)

Schuylkill

RADIOLOGICAL SCIENCES
200 University Drive
Schuylkill Haven, PA 17972
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<https://schuylkill.psu.edu/academics/assoc-degrees/radsc> (<https://schuylkill.psu.edu/academics/assoc-degrees/radsc/>)

Recreation, Park, and Tourism Management, B.S. (University College)

Begin Campus: Any Penn State Campus

End Campus: Greater Allegheny

Program Description

The program prepares students for supervisory and administrative positions with park systems, environmental centers, commercial recreation and tourism agencies, golf courses, hospitals and assisted living facilities, private voluntary agencies, schools and colleges, and other commercial, nonprofit, and public organizations that provide recreation and leisure services. The program combines a broad educational foundation with specific courses designed to accommodate career interests in recreation, park, and tourism management. The program helps students gain the theoretical, managerial, technical, and experiential skills they need to become the next generation of leaders in the field. Additionally, students obtain real-world experience through our internship experiences.

Four (4) options are offered:

Commercial Recreation and Tourism Management Option

Available at the following campuses: Abington, Greater Allegheny, University Park, World Campus

This option focuses on management in the private/commercial, non-profit, and public sectors of recreation/leisure services. The private/commercial focus will be of interest to students seeking careers in a variety of commercial settings such as resorts; theme parks, convention centers; sports and fitness facilities, including arenas and stadiums; tourism promotion/planning agencies; and employee recreation departments within corporations. This focus will also appeal to students wishing to become entrepreneurs.

Community Recreation Management Option

Available at the following campuses: Abington, Greater Allegheny, University Park, World Campus

For those interested in the community, public, or non-profit sectors for positions within municipal, state, and federal government agencies; recreation divisions of the armed services; YMCA agencies; United Way agencies; scouting organizations; university-affiliated units such as student unions, intramural and alumni services; and other non-profit organizations.

Professional Golf Management Option

Available at the following campuses: University Park

Accredited by the Professional Golfers' Association of America, the Professional Golf Management Option prepares students for careers in the golf industry. Students will be prepared to assess leadership and management principles including customer service, interpersonal skills, business communication, conflict resolution, time management, negotiating, project management, marketing, and community relations. In addition to the core curriculum, the program has a strong business focus and is drawn from several nationally recognized academic disciplines on campus.

Outdoor Recreation Management Option

Available at the following campuses: University Park

This option prepare students for careers in Park Management and Environmental Interpretation (PMEI), Adventure Recreation, or in both fields. The Adventure Recreation pathway emphasizes outdoor experiential leadership, including wilderness experiences and personal development. The PMEI pathway focuses on natural and cultural history environmental interpretation and education and the social science of conservation. The third pathway provides a flexible route for students to combine parts of the Adventure Recreation and PMEI pathways to create a meaningful personalized set of courses that could include study abroad experiences and prepare students for international contexts of recreation management. The Outdoor Recreation Management option is of interest to students seeking employment in a variety of outdoor recreation and park settings (local, state, and national from urban to wilderness) offering outdoor activities and personal development to the public.

What is Recreation, Park and Tourism Management?

Recreation, Park and Tourism Management students learn how to manage and lead in a variety of organizations to help humans derive benefits from leisure activities. Students learn about a disciplinary and interdisciplinary perspectives to better understand the natural, psychological, social, economic, political and cultural systems that influence human behavior in the context of recreation, park and tourism. Core business and management skills are applied to the types of organizations in the recreation, park and tourism sectors. This approach enables students to address issues of human well-being and sustainable development in leading and managing these organizations. Our mission is to transform human health and well-being through engaging people in recreation, park, tourism and leisure activities.

MORE INFORMATION ABOUT RECREATION, PARK, AND TOURISM MANAGEMENT (<https://hhd.psu.edu/rptm/>)

You Might Like This Program If...

- You like working with people in a hands-on learning environment that involves recreation, parks, sustainability and leisure.
- You enjoy business, management or entrepreneurship and a career setting focused on the outdoors, entertainment, sports, fitness, or events.
- You like building community through organizing recreation programs for young people, families, those in the military or older persons.
- You enjoy tourism, visiting new places, meeting new people, and helping others travel and learn about other cultures.

Entrance to Major

Students who have completed 29.1 credits with a 2.00 cumulative grade-point average are eligible for entrance into the major, except for the Professional Golf Management option.

First-year students are admitted directly into the Golf Management option at the University Park campus only. In addition to the University's academic requirements, each student admitted to the Golf Management option must have a playing proficiency represented by a minimum golf handicap of 12 or lower. This must be certified in writing by a Professional Golf Association member or golf coach.

Degree Requirements

For the Bachelor of Science degree in Recreation, Park, and Tourism Management, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	4-14
Requirements for the Major	64-71

3-4 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 0-3 credits of GS courses; 0-4 credits of GQ courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. RPTM requires students to complete 24 credits for the major through courses taken at University Park. Courses taken at other Penn State campuses may not be counted toward this 24 credit minimum. For more information, check the Suggested Academic Plan for this major.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
RPTM 120	Leisure and Human Behavior	3
RPTM 220	Sustainability, Society, and Well-being	3
RPTM 236	Leadership and Group Dynamics in Recreation Services	3

RPTM 277	Inclusive Leisure Services	3
RPTM 390	Political and Legal Aspects of Recreation Services	3
RPTM 410	Marketing of Recreation Services	3
RPTM 433W	Program Evaluation and Research in Recreation Services	3
RPTM 456	Programming in Recreation Services	3

Requirements for the Option

Select an option	40-47
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Requirements for the Option

Commercial Recreation and Tourism Management Option (46-47 credits)

Available at the following campuses: Abington, Greater Allegheny, University Park, World Campus

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
RPTM 101	Introduction to Recreation Services	3
RPTM 210	Introduction to Commercial Recreation and Tourism	3
RPTM 300Y	Tourism and Leisure Behavior	3
RPTM 394	Orientation to Internship	1
RPTM 415	Commercial Recreation Management	3
RPTM 495A	Internship in Recreation Services	12

Additional Courses

CAS 283	Communication and Information Technology I	3-4
or CMPSC 203	Introduction to Spreadsheets and Databases	
RPTM 370	Introduction to Arena Management	3
or RPTM 435	Recreation Facilities Planning and Management	
Select 6 credits from the following:		6

ACCTG 211	Financial and Managerial Accounting for Decision Making	
BA 100	Introduction to Business	
BA 242	Social and Ethical Environment of Business	
BA 250	Small Business Management	
BA 301	Finance	
BA 303	Marketing	
BA 304	Management and Organization	
FIN 100	Introduction to Finance	
HM 201	Introduction to Management in the Hospitality Industry	
LHR 100	Exploring Work and Employment	
LHR/AFAM/WMNST 136	Race, Gender, and Employment	
MGMT 100	Survey of Management	
MGMT 301	Basic Management Concepts	
MKTG 221		
MKTG 301	Principles of Marketing	
RPTM 336	Accounting in Recreation, Park, and Tourism Management	

Supporting Courses and Related Areas

Consult with an adviser to review course recommendations, Minors, and Certificate Programs.	9
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Community Recreation Management Option (43-44 credits)

Available at the following campuses: Abington, Greater Allegheny, University Park, World Campus

Code	Title	Credits
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Prescribed Courses

Prescribed Courses: Require a grade of C or better

RPTM 101	Introduction to Recreation Services	3
RPTM 201	Introduction to Community Recreation	3
RPTM 334	Non-profit Recreation Agency Operations	3
RPTM 394	Orientation to Internship	1
RPTM 495A	Internship in Recreation Services	12

Additional Courses

CAS 283	Communication and Information Technology I	3-4
or CMPSC 203	Introduction to Spreadsheets and Databases	
RPTM 370	Introduction to Arena Management	3
or RPTM 435	Recreation Facilities Planning and Management	

Supporting Courses and Related Areas

Consult with an adviser to review course recommendations, Minors, and Certificate Programs. 15

Outdoor Recreation Management Option (40-41 credits)

Available at the following campuses: University Park

Code	Title	Credits
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Prescribed Courses

Prescribed Courses: Require a grade of C or better

RPTM 101	Introduction to Recreation Services	3
RPTM 320	Recreation Resource Planning and Management	3
RPTM 394	Orientation to Internship	1
RPTM 435	Recreation Facilities Planning and Management	3
RPTM 495A	Internship in Recreation Services	12

Additional Courses

CAS 283	Communication and Information Technology I	3-4
or CMPSC 203	Introduction to Spreadsheets and Databases	

Supporting Courses and Related Areas

Select 15 credits in an Outdoor Recreation Management Pathway. Consult with an adviser to review course recommendations, Minors and Certificate Programs. 15

Professional Golf Management Option (47 credits)

Available at the following campuses: University Park

Code	Title	Credits
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Prescribed Courses

RPTM 100S	Introduction to Golf Management	2
RPTM 250	PGA Facility Management 1	2
RPTM 254	PGA Teaching and Coaching 2	2
RPTM 295A	Introduction to Golf Management	3
RPTM 350	PGA Facility Management Level 3	2
RPTM 360	Golf Operations Management	3
RPTM 395B	Participation in Golf Management	3
RPTM 495B	Internship in Golf Management	3

Additional Courses

Select 12 credits from the following: 12

BA 303	Marketing	
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BA 304	Management and Organization
HM 466	Human Resource Management in the Hospitality Industry
RPTM 336	Accounting in Recreation, Park, and Tourism Management
RPTM 415	Commercial Recreation Management

Supporting Courses and Related Areas

Please consult with your academic adviser to review course recommendation, Minors and Certificate Programs. 15

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements**First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Commercial Recreation and Tourism Option: Recreation, Park, and Tourism Management, B.S. at Greater Allegheny Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30H, or ESL 15 [†]	3 ECON 102	3
RPTM 101 [*]	3 RPTM 210 [*]	3
RPTM 120 [*]	3 General Education Course (GA)	3
General Education Course (GH)	3 General Education Course (GN)	3
General Education Course (GN)	3 CMPSC 203 (or General Education Course - GQ) ^{*††}	4

PSU First Year Seminar	1 General Education Course (GHW)	1.5
	16	17.5

¹ Supporting Course List (<https://hhd.psu.edu/rptm/undergraduate/supporting-courses/>)

Second Year

Fall	Credits Spring	Credits
CAS 100, CAS 100A, CAS 100B, or CAS 100C [‡]	3 General Education Course (GHW)	1.5
CAS 283 (or Elective if CMPSC 203 taken as GQ) [‡]	3 General Education Course (GA)	3
General Education Course (GH)	3 General Education Course (GH)	3
General Education Course (GS)	3 RPTM 220 [*]	3
RPTM 236 [*]	3 RPTM 390 [*]	3
	RPTM 300Y [*]	3
	15	16.5

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Third Year

Fall	Credits Spring	Credits
ENGL 202D, 202A, 202B, or 202C (202D Preferred) [‡]	3 RPTM 394 [*]	1
RPTM 456 [*]	3 RPTM 410 [*]	3
RPTM 370 or 435 [*]	3 Supporting Course in Consultation with Academic Adviser ¹	3
Supporting Course in Consultation with Academic Adviser ¹	3 Elective	1
General Education Course (GN)	3 Supporting Course in Consultation with Academic Adviser ¹	3
	Supporting Course in Consultation with Academic Adviser ¹	3
	15	14

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

Within the 30 credits of required General Education Domain courses, students must take 6 credits of **Integrative Studies courses** (Inter-domain or Linked courses). If you need additional clarification, consult with your academic adviser.

Fourth Year

Fall	Credits Spring	Credits
RPTM 415 [*]	3 RPTM 495A [*]	12
RPTM 433W [*]	3	
Supporting Course in Consultation with Academic Adviser ¹	3	
Supporting Course in Consultation with Academic Adviser ¹	3	
Elective	3	
	15	12

Total Credits 121

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

Community Recreation Management Option: Recreation, Park, and Tourism Management, B.S. at Greater Allegheny Campus

First Year		
Fall	Credits Spring	Credits
ENGL 15, 30H, or ESL 15 [‡]	3 General Education Course (GS)	3
RPTM 101 [*]	3 RPTM 201 [*]	3
RPTM 120 [*]	3 General Education Course (GA)	3
General Education Course (GH)	3 General Education Course (GN)	3
General Education Course (GN)	3 General Education Course (GQ) ^{*†}	3
PSU First Year Seminar	1 General Education Course (GHW)	1.5
	16	16.5
Second Year		
Fall	Credits Spring	Credits
CMPSC 203 (or other General Education Course GQ) ^{*†}	4 RPTM 220 [*]	3
RPTM 236 [*]	3 RPTM 390 [*]	3
RPTM 277 [*]	3 RPTM 334 [*]	3
General Education Course (GH)	3 General Education Course (GA)	3
General Education Course (GS)	3 General Education Course (GN)	3
	General Education Course (GHW)	1.5
	16	16.5
Third Year		
Fall	Credits Spring	Credits
CAS 100, CAS 100A, CAS 100B, or CAS 100C	3 RPTM 394 [*]	1
RPTM 456 [*]	3 RPTM 410 [*]	3
RPTM 370 or 435 [*]	3 Supporting Course in Consultation with Academic Adviser ¹	3
Supporting Course in Consultation with Academic Adviser ¹	3 Supporting Course in Consultation with Academic Adviser ¹	3
Elective	3 Elective	3
	15	13
Fourth Year		
Fall	Credits Spring	Credits
ENGL 202D, 202A, 202B, or 202C (202D Preferred) [‡]	3 RPTM 495A [*]	12
RPTM 433W [*]	3	
Supporting Course in Consultation with Academic Adviser ¹	3	
Supporting Course in Consultation with Academic Adviser ¹	3	

Supporting Course in Consultation with Academic Adviser¹

3

15

12

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Supporting Course List (<https://hhd.psu.edu/rptm/undergraduate/supporting-courses/>)

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Advising Notes:

Within the 30 credits of required General Education Domain courses, students must take 6 credits of **Integrative Studies courses** (Inter-domain or Linked courses). If you need additional clarification, consult with your academic adviser.

Career Paths

Careers in Recreation, Park and Tourism Management (RPTM) include management positions in commercial resorts, event management businesses, golf courses and golf industry businesses, national and local park systems, environmental centers, outdoor adventure businesses and sports, fitness and recreation facilities in communities, universities, workplaces, military settings, and other locations. Graduate programs in RPTM educate students about research, theory and practice related to leisure and recreation of individuals and groups, including societal and cross-cultural dimensions. RPTM students can also use their degree to prepare for additional graduate training in public health, public administration, public policy, health administration, business or law.

Careers

Careers for RPTM graduates typically fit with the options within the degree program, including positions in:

- Commercial Recreation, Event and Tourism Management positions such as resort and cruise recreation director, travel and tourism management, corporate recreation and events planning, and sport and fitness venue management, including our Professional Golf Management option.

- Community and Nonprofit Recreation Management positions, including roles in community recreation centers, military recreation leadership, youth camp or senior center management and related positions.
- Outdoor Adventure and Natural Resource Management positions, such as park ranger, environmental or outdoor educator, wilderness program supervisor and outdoor recreation planner, among others.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE RECREATION, PARK, AND TOURISM MANAGEMENT PROGRAM (<https://hhd.psu.edu/rptm/undergraduate/career-opportunities/>)

Opportunities for Graduate Studies

Whether you are looking for a master's degree or your doctorate in RPTM, our multi-disciplinary graduate program is designed to educate students about research, theory and practice related to recreation, parks, tourism and leisure. Both the master of science (M.S.) and the doctor of philosophy (Ph.D.) programs help you develop an understanding of the social, environmental, psychological and economic aspects of human behavior in relation to the experience and delivery of recreation, park, tourism and leisure activities.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://hhd.psu.edu/rptm/graduate/rptm-graduate-career-opportunities/>)

Professional Resources

- Professional Golfers' Association of America (<https://www.pga.org>)
- Kurt Hahn Consortium for Values and Experiential Learning (<https://hhd.psu.edu/rptm/research/research-labs-and-initiatives/kurt-hahn-consortium-values-and-experiential-learning-1/>)
- Denali National Park and Preserve (<https://hhd.psu.edu/rptm/research/research-labs-and-initiatives/outdoor-recreation-protected-area-and-environmental-education-research-group/>)
- Shaver's Creek Environmental Center (<https://www.shaverscreek.org>)
- National Park and Recreation Association (<https://www.nrpa.org>)
- Pennsylvania Recreation and Park Society (<https://prps.org>)
- Equity in Parks and Recreation (<https://www.nrpa.org/our-work/Three-Pillars/equity/>)
- PGA of America Diversity, Equity & Inclusion (<https://www.pga.com/pga-of-america/pga-of-america-diversity-equity-and-inclusion/>)

Contact

Greater Allegheny

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<https://greaterallegheny.psu.edu/academics/degree-programs/recreation-park-tourism-management> (<https://greaterallegheny.psu.edu/academics/degree-programs/recreation-park-tourism-management/>)

Abington

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<https://www.abington.psu.edu/academics/majors-at-abington/recreation-park-and-tourism-management> (<https://www.abington.psu.edu/academics/majors-at-abington/recreation-park-and-tourism-management/>)

University Park

DEPARTMENT OF RECREATION, PARK, AND TOURISM MANAGEMENT/
PGA PROFESSIONAL GOLF MANAGEMENT
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<https://hhd.psu.edu/rptm/contact/faculty-staff> (<https://hhd.psu.edu/rptm/contact/faculty-staff/>)

World Campus

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<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-recreation-park-and-tourism-management-bachelor-of-science-degree> (<https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-recreation-park-and-tourism-management-bachelor-of-science-degree/>)

Rehabilitation and Human Services, B.S. (University College)

Begin Campus: Any Penn State Campus

End Campus: Hazleton, Lehigh Valley, Wilkes-Barre

Program Description

This RHS major helps prepare students for entry-level positions in a variety of human service settings, particularly settings that provide services to persons with physical, emotional, and/or mental disabilities. Graduates pursue employment in a variety of settings including rehabilitation hospitals, drug and alcohol programs, geriatric service centers, community mental health programs, programs for people with intellectual disabilities, justice system, and schools. Increasing opportunities are available in private for-profit insurance programs for the industrially injured, and in employee assistance programs within business and industry. Well-planned use of electives and internships allows for specialization. The internship is provided under the supervision of professionals in human service agencies. These intensive "hands-on" experiences are frequently avenues for employment since the internship is completed during the senior year. Students may not go on internship until they have successfully completed all other course work. Students are encouraged to participate in volunteer experiences that provide opportunities to work with people with disabilities. Students are encouraged to declare a minor in a related area and should be discussed with the student's adviser. The major also helps prepare students for graduate study in many human service professional disciplines such

as rehabilitation counseling, school counseling, occupational therapy, physical therapy, and social work.

You Might Like This Program If...

You enjoy learning about human development, diversity, health and disability, treatment interventions, advocating and working directly with people, and solving individual problems using applied interpersonal skills.

Entrance to Major

Baccalaureate degree candidates must have a minimum 2.0 GPA to be admitted to the Rehabilitation and Human Services (RHS) major; thereafter, students must earn a C or better in all RHS required courses.

Degree Requirements

For the Bachelor of Science degree in Rehabilitation and Human Services, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	17
Requirements for the Major	70-72

12-14 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GS courses; 3-4 credits of GQ courses; 3-4 credits of GN courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
PSYCH 100	Introductory Psychology	3
PSYCH 270	Introduction to Abnormal Psychology	3
SOC 119N	Race, Ethnicity and Culture	4
<i>Prescribed Courses: Require a grade of C or better</i>		
RHS 100	Introduction to Disability Culture	3
RHS 300	Introduction to Rehabilitation and Human Services	3
RHS 301	Introduction to Counseling as a Profession	3
RHS 302	Client Assessment in Rehabilitation and Human Services	3
RHS 303	Group Work in Rehabilitation Practice and Human Services	3
RHS 400W	Case Management and Communication Skills	3
RHS 401	Community Mental Health Practice and Services	3
RHS 402	Children and Families in Rehabilitation Settings and Human Services	3
RHS 403	Medical Aspects of Disability	3
RHS 493	Professional Development and Internship Preparation in RHS	3
RHS 495A	Rehabilitation and Human Services Internship	12
Additional Courses		
CI 185 or SOC 1	Principles of Social Justice in Education Introductory Sociology	3

Select one of the following: 3

EDPSY 10	Individual Differences and Education
HDFS 239	Adolescent Development
PSYCH 212	Introduction to Developmental Psychology

Select 3-4 credits from the following: 3-4

ANTH 21	Introductory Biological Anthropology
BIOL 110	Biology: Basic Concepts and Biodiversity
BIOL 133	Genetics and Evolution of the Human Species
BIOL 141	Introduction to Human Physiology
BISC 1	Structure and Function of Organisms
BISC 2	Genetics, Ecology, and Evolution
BISC 3	Environmental Science
BISC 4	Human Body: Form and Function

Additional Courses: Require a grade of C or better

Select one of the following: 3-4

EDPSY 101	Analysis and Interpretation of Statistical Data in Education
STAT 100	Statistical Concepts and Reasoning
STAT 200	Elementary Statistics

Supporting Courses and Related Areas

Select 6 credits from the approved courses in this list: 6

CNED 401	Foundations of Chemical Dependency Counseling
CNED 416	Interpersonal Relationships and Alcohol and Other Drugs (AOD) Dependency
CNED 421	Counseling Strategies for Preventing Chemical Dependency
CNED 422	Foundations of Addictions Counseling
RHS 226	College Student Mental Health and Wellness
RHS 410	Employment Strategies for People with Disabilities
RHS 428	Rehabilitation in the Justice System
RHS 433	Trauma-informed care for school & human service professionals
SPLED 400	Inclusive Special Ed Foundations: Legal, Characteristics, Collaboration, Assessment, and Management
SPLED 461	Introduction to Autism Spectrum Disorders: Issues and Concerns

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or

within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Assessment & Empowerment:** Students will appropriately, systematically, and accurately assess clients for a range of strengths and needs and make recommendations for services to address those needs and increase client self-sufficiency and empowerment.
- **Communication & Professionalism:** Students will communicate effectively in a professional manner by producing articulate and well-researched documents and delivering effective presentations.
- **Disability:** Students will demonstrate knowledge of theoretical models of disability, definitions of disability, barriers that exist for people with disabilities (including employment barriers), systemic challenges and economic disadvantages caused by disability.
- **Discrimination & Advocacy:** Students will demonstrate knowledge of discrimination against individuals with disabilities, legislative efforts to curtail such discrimination and advocacy resources.
- **Legal & Ethical Issues:** Students will demonstrate knowledge of ethical codes and professional conduct, and the applicable federal and state regulations.
- **Professional Conduct:** Students will interact productively and professionally with a team of stakeholders as both a leader and a member.
- **Professional Ethics:** Students will practice professional, ethical, and social behaviors, which demonstrate nondiscrimination, empathy, and respect for diversity and knowledge of contemporary professional and societal issues.
- **Relationship Building Skills:** Students will develop a facilitative relationship with clients and their families through individual and group sessions.
- **Services & Resources:** Students will demonstrate working knowledge and locate appropriate resources for individuals and families with a variety of needs (e.g., vocational rehabilitation systems, centers for independent living, transition programs substance abuse and addiction treatment programs and other community-based support programs to address client needs).
- **Treatment Plans/ Integration:** Students will develop and monitor treatment plans by applying principles for community inclusion and integration including, but not limited to, rehabilitation and recovery philosophy, client exploration of resources, and collaboration with agencies and related professionals.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Rehabilitation and Human Services, B.S. at Hazleton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [†]	3 CAS 100A [‡]	3
MATH 34 or 21 ^{‡1}	3 PSYCH 100 [†]	3
SOC 1 [†]	3 RHS 300 ^{*1}	3
RHS 100 ^{*†}	3 General Education Course (GN)	3
General Education Course (GA)	3 General Education Course (GHW)	1.5
PSU 8	1 Elective/Minor	3
	16	16.5

Second Year

Fall	Credits Spring	Credits
ANTH 21, BIOL 133, BIOL 110, BIOL 141, BISC 1, BISC 2, BISC 3, or BISC 4 (GN) [†]	3 ENGL 202A or 202B [‡]	3
RHS 301 ^{*2}	3 RHS 302 ^{*1}	3
STAT 200 ^{††}	4 RHS 303 ^{*1}	3
General Education Course (Exploration)	3 General Education Course (GH)	
Elective/Minor	3 General Education Course (Inter-Domain)	3
	General Education Course (GHW)	1.5
	16	13.5

Third Year

Fall	Credits Spring	Credits
RHS 400W ^{*2}	3 PSYCH 212 or HDFS 239 [†]	3
SOC 119N [†]	4 RHS 403 ^{*1}	3
PSYCH 270	3 Supporting Course ³	3
Elective/Minor	3 General Education Course (Inter-Domain)	3
Elective/Minor	3 Elective/Minor	3
	16	15

Fourth Year

Fall	Credits Spring	Credits
RHS 401 ^{*2}	3 RHS 495A [*]	12
RHS 402 ^{*2}	3	
RHS 493 ^{*2}	3	
Supporting Course ³	3	
Elective/Minor	3	
	15	12

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Courses offered Spring only: MATH 34, RHS 300, RHS 302, RHS 303, RHS 403

² Courses offered Fall only: RHS 301, RHS 400W, RHS 401, RHS 402, RHS 493

³ Supporting Course List: CNED 401, CNED 416, CNED 421, CNED 422, LHR 410, RHS 226, RHS 410, RHS 428, RHS 433, SPLED 400

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Rehabilitation and Human Services, B.S. at Lehigh Valley Campus

Rehabilitation and Human Services, B.S. at Lehigh Valley Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [‡]	3 RHS 100 [*]	3
SOC 1 [†]	3 PSYCH 212 [†]	3
PSYCH 100 [†]	3 General Education Course	3
First Year Seminar (General Educaiton Course)	3 General Education Course	3
General Education Course (GQ) [‡]	3 Supporting Course ¹	3
	15	15

Second Year

Fall	Credits Spring	Credits
BISC 1, 2, 3, 4, BIOL 110, or BIOL 141 [†]	3-4 ENGL 202A or 202B [‡]	3
RHS 300 [*]	3 RHS 302 [*]	3
CAS 100A [‡]	3 RHS 303 [*]	3
RHS 301 [*]	3 General Education Course	3
STAT 100, 200, or PSYCH 200 ^{††}	3-4 Elective Course	3
	General Education Course (GHW)	1.5
	15-17	16.5

Third Year

Fall	Credits Spring	Credits
RHS 400W [*]	3 RHS 402 [*]	3
SOC 119N	4 RHS 403 [*]	3
General Education Course	3 PSYCH 270	3
Elective or General Education Course	3 Elective	3
General Education Course	3 Supporting Course ¹	3
	General Education Course (GHW)	1.5
	16	16.5

Fourth Year

Fall	Credits Spring	Credits
RHS 401 [*]	3 RHS 495A [*]	12
RHS 493 [*]	3	
Elective	3	
Elective	3	
General Education Course	3	
	15	12

Total Credits 121-123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Criminal Justice or Biobehavioral Health or HDFS or Psychology or Sociology or Kinesiology.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Rehabilitation and Human Services, B.S. with Psychology Minor at Lehigh Valley Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 or 30H [‡]	3 RHS 100 [*]	3
SOC 1 [†]	3 PSYCH 212	3
PSYCH 100 [†]	3 General Education Course	3
MATH 21 [†]	3 General Education Course	3
First Year Seminar (General Education Course)	3 Elective	3
	15	15

Second Year

Fall	Credits Spring	Credits
SOC 119N	4 RHS 301 [*]	3
CAS 100A [‡]	3 PSYCH 270	3
RHS 300 [*]	3 ENGL 202A or 202B [‡]	3
BISC 1, 2, 3, 4, BIOL 110, or BIOL 141 [†]	3 General Education Course	3
General Education Course	3 Elective	3
	General Education Course (GHW)	1.5
	16	16.5

Third Year

Fall	Credits Spring	Credits
STAT 200 or PSYCH 200 ^{††}	4 RHS 302 [*]	3
PSYCH 301W	4 RHS 303 [*]	3
PSYCH 4XX	3 RHS 403 [*]	3
Elective or General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5 Elective	3
	15.5	15

Fourth Year

Fall	Credits Spring	Credits
RHS 400W [*]	3 RHS 495A [*]	12
RHS 401 [*]	3	
RHS 402 [*]	3	
PSYCH 4XX	3	
Elective	3	
	15	12

Total Credits 120

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Rehabilitation and Human Services, B.S. at Wilkes-Barre Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15 [‡]	3 General Education Course	3
General Education (GQ) Course [‡]	3 General Education Course	3
General Education Course	3 Elective	3
PSU 8	1 Elective	3
RHS 100 ^{*†}	3 PSYCH 100 [†]	3
SOC 1 [†]	3	
	16	15

Second Year

Fall	Credits Spring	Credits
CAS 100A [‡]	3 RHS 300 [*]	3
PSYCH 270	3 BISC 1, 2, 3, 4, or BIOL 110 [†]	3-4
STAT 200 or 100 ^{‡†}	4-3 ENGL 202A or 202B [‡]	3
General Education Course	3 General Education Course (GHW)	1.5
General Education Course	3 PSYCH 212 [†]	3
	SOC 119N [†]	4
	16-15	17.5-18.5

Third Year

Fall	Credits Spring	Credits
RHS 301 [*]	3 Supporting Course	3
Elective	3 Elective	3
Elective	3 RHS 302 [*]	3
General Education Course	3 RHS 303 [*]	3
General Education Course (GHW)	1.5 RHS 403 [*]	3
Supporting Course	3	
	16.5	15

Fourth Year

Fall	Credits Spring	Credits
Elective	3 RHS 495A [*]	12
RHS 400W [*]	3	
RHS 401 [*]	3	
RHS 402 [*]	3	
RHS 493 [*]	3	
	15	12

Total Credits 123

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

The RHS major provides excellent preparation specifically for graduate programs leading to professions such as occupational therapy, counseling, social work, and physical therapy. Advising of courses outside the major for electives are provided in order to enhance competitiveness of graduate school applications.

MORE INFORMATION ABOUT RHS SPECIAL INTEREST AREAS (<https://ed.psu.edu/rehabilitation-human-services-bs/>)

Careers

RHS allows students to pursue a variety of employment options as case workers and direct service providers in alcohol and other drug treatment centers, correctional facilities, mental health agencies, private non-profit rehabilitation centers, private-for-profit rehabilitation agencies, human resources, programs for children and youth, programs for older adults, public welfare agencies, rehabilitation hospitals, schools, social service agencies, and vocational rehabilitation programs.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE REHABILITATION AND HUMAN SERVICES PROGRAM (<https://ed.psu.edu/rehabilitation-human-services-bs/>)

Opportunities for Graduate Studies

To prepare students for graduate studies, students can work with faculty on independent studies and can petition to take graduate courses within the department. For qualified students, we also offer the Schreyer Honors Program (<https://www.shc.psu.edu/>).

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://ed.psu.edu/rehabilitation-human-services-bs/>)

Accreditation

The College of Education educator preparation programs are fully accredited at the Initial and Advanced levels by the Council for the Accreditation of Educator Preparation (CAEP). The next CAEP program review will be Fall 2026. CAEP advances excellence in educator preparation through evidence-based accreditation that assures quality and supports continuous improvement to strengthen P-12 student learning.

MORE INFORMATION ABOUT ACCREDITATION OF THE REHABILITATION AND HUMAN SERVICES PROGRAM (<https://ed.psu.edu/about/accreditations/>)

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Social Work, B.S.W.

Begin Campus: Any Penn State Campus

End Campus: Greater Allegheny

Program Description

The Bachelor of Social Work major provides broad-based educational experiences for undergraduate students interested in working in the private and public sector to provide social services for diverse people and communities. Students will learn to critically engage in social problems by understanding the cultural, economic, environmental, and historical conditions individuals and groups face, and they will be prepared to promote individual, family, and community well-being. Students will be engaged in the scholarly study of social issues, and they will have clinical experiences in community-based organizations, foundations, and government offices.

What is Social Work?

The primary mission of the social work profession is to enhance human well-being and help meet the basic human needs of all people, with particular attention to the needs and empowerment of people who are vulnerable, oppressed, and living in poverty. A historic and defining feature of social work is the profession's dual focus on individual well-being in a social context and the well-being of society. Fundamental to social work is attention to the environmental forces that create, contribute to, and address problems in living. Social workers promote social justice and social change with and on behalf of clients. Social workers are sensitive to cultural and ethnic diversity and strive to end discrimination, oppression, poverty, and other forms of social injustice.

(National Association of Social Workers, 2022)

You Might Like This Program If...

- You have a desire to promote social justice and social change in society
- You enjoy engaging with diverse individuals, families, groups, organizations, and communities
- You are enthusiastic about helping others cope effectively during challenging times
- You are passionate about alleviating poverty and improving living conditions
- You are interested in helping people manage acute medical conditions, chronic stress, and illnesses
- You are fascinated about providing mental health and substance use treatment services

Entrance to Major

Entry to the Social Work major requires:

- the completion of the following four entry-to-major courses with a C or higher grade: SOCW 195, SOCW 205, SOCW 215, SOCW 290
- a cumulative grade point average of 2.0 or higher
- a minimum of 29.1 credits

Degree Requirements

For the Bachelor of Social Work degree in Social Work, a minimum of 122 credits is required:

Requirement	Credits
General Education	45
Electives	7
Requirements for the Major	92

22 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GWS courses; 4 credits of GQ courses; 3 credits of GHW courses; 6 credits of GS courses.

REQUIREMENTS FOR THE MAJOR

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
BBH 143	Drugs, Behavior, and Health	3
HDFS 301	Values and Ethics in Health and Human Development Professions	3
PSU 8	First-Year Seminar University College	1
PSYCH 100	Introductory Psychology	3
PSYCH 270	Introduction to Abnormal Psychology	3
SOC/HDFS/CMAS 258N	Introduction to Child Maltreatment and Advocacy Studies	3
<i>Prescribed Courses: Require a grade of C or better</i>		
CAS 100	Effective Speech	3
ENGL 15	Rhetoric and Composition	3
ENGL 202A	Effective Writing: Writing in the Social Sciences	3
PUBPL 304W	Public Policy Analysis	3
SOCW 195	Introduction to Social Work with Field Hours	3
SOCW 205	Diversity, Equity, Inclusion, and Justice	3
SOCW 215	Introduction to Social Welfare History, Policy, Programs, and Services	3
SOCW 290	Human Behavior and the Social Environment	3
SOCW 300	Social Work Methods - Individuals	3
SOCW 301	Social Work Methods - Groups	3
SOCW 302	Social Work Methods - Families	3
SOCW 303	Methods - Communities & Organizations	3
SOCW 315	Assessment, Documentation, and Effective Interviewing Skills in Social Work	3
SOCW 407	Research Methods in Social Work	3
SOCW 495A	Social Work - Internship	3
SOCW 495B	Social Work - Internship	9
STAT 200	Elementary Statistics	4
Additional Courses		
ECON 102	Introductory Microeconomic Analysis and Policy	3
or ECON 104	Introductory Macroeconomic Analysis and Policy	
RHS 433	Trauma-informed care for school & human service professionals	3
or PSYCH 442	Trauma and Resiliency	
Supporting Courses and Related Areas		
Select 3 credit Sociology Courses (SOC)		3
Select a 3 credit Political Science Course (PLSC)		3

Supporting Courses and Related Areas: Require a grade of C or better

Select 6 credits of Social Work 400-level courses 6

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (p. 3184) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Demonstrate Ethical and Professional Behavior:** Social workers understand the value base of the profession and its ethical standards, as well as relevant laws and regulations that may impact practice at the micro, mezzo, and macro levels. Social workers understand frameworks of ethical decision-making and how to apply principles of critical thinking to those frameworks in practice, research, and policy arenas. Social workers recognize personal values and the distinction between personal and professional values. They also understand how their personal experiences and affective reactions influence their professional judgment and behavior. Social workers understand the profession's history, its mission, and the roles and responsibilities of the profession. Social Workers also understand the role of other professions when engaged in inter-professional teams. Social workers recognize the importance of life-long learning and are committed to continually updating their skills to ensure they are relevant and effective. Social workers also understand emerging forms of technology and the ethical use of technology in social work practice.
 - Social workers:
 - make ethical decisions by applying the standards of the NASW Code of Ethics, relevant laws and regulations, models for ethical decision-making, ethical conduct of research, and additional codes of ethics as appropriate to context;
 - use reflection and self-regulation to manage personal values and maintain professionalism in practice situations;
 - demonstrate professional demeanor in behavior; appearance; and oral, written, and electronic communication;
 - use technology ethically and appropriately to facilitate practice outcomes; and
 - use supervision and consultation to guide professional judgment and behavior.
- **Engage Diversity and Difference in Practice:** Social workers understand how diversity and difference characterize and shape the human experience and are critical to the formation of identity. The dimensions of diversity are understood as the intersectionality of multiple factors including but not limited to age, class, color, culture, disability and ability, ethnicity, gender, gender identity and expression, immigration status, marital status, political ideology, race, religion/spirituality, sex, sexual orientation, and tribal sovereign status. Social workers understand that, as a consequence of difference, a person's life experiences may include oppression, poverty, marginalization, and alienation as well as privilege, power, and acclaim. Social workers also understand the forms and mechanisms of oppression and discrimination and recognize the extent to which a culture's structures and values, including social, economic, political, and cultural exclusions, may oppress, marginalize, alienate, or create privilege and power.
 - Social workers:
 - apply and communicate understanding of the importance of diversity and difference in shaping life experiences in practice at the micro, mezzo, and macro levels;
 - present themselves as learners and engage clients and constituencies as experts of their own experiences; and
 - apply self-awareness and self-regulation to manage the influence of personal biases and values in working with diverse clients and constituencies.
- **Advance Human Rights and Social, Economic, and Environmental Justice:** Social workers understand that every person regardless of position in society has fundamental human rights such as freedom, safety, privacy, an adequate standard of living, health care, and education. Social workers understand the global interconnections of oppression and human rights violations, and are knowledgeable about theories of human need and social justice and strategies to promote social and economic justice and human rights. Social workers understand strategies designed to eliminate oppressive structural barriers to ensure that social goods, rights, and responsibilities are distributed equitably and that civil, political, environmental, economic, social, and cultural human rights are protected.
 - Social workers:
 - apply their understanding of social, economic, and environmental justice to advocate for human rights at the individual and system levels; and
 - engage in practices that advance social, economic, and environmental justice.
- **Engage In Practice-informed Research and Research-informed Practice:** Social workers understand quantitative and qualitative research methods and their respective roles in advancing a science of social work and in evaluating their practice. Social workers know the principles of logic, scientific inquiry, and culturally informed and ethical approaches to building knowledge. Social workers understand that evidence that informs practice derives from multi-disciplinary sources and multiple ways of knowing. They also understand the processes for translating research findings into effective practice.
 - Social workers:
 - use practice experience and theory to inform scientific inquiry and research;
 - apply critical thinking to engage in analysis of quantitative and qualitative research methods and research findings; and
 - use and translate research evidence to inform and improve practice, policy, and service delivery.
- **Engage in Policy Practice:** Social workers understand that human rights and social justice, as well as social welfare and services, are mediated by policy and its implementation at the federal, state, and local levels. Social workers understand the history and current

structures of social policies and services, the role of policy in service delivery, and the role of practice in policy development. Social workers understand their role in policy development and implementation within their practice settings at the micro, mezzo, and macro levels and they actively engage in policy practice to effect change within those settings. Social workers recognize and understand the historical, social, cultural, economic, organizational, environmental, and global influences that affect social policy. They are also knowledgeable about policy formulation, analysis, implementation, and evaluation.

- Social workers:
 - Identify social policy at the local, state, and federal level that impacts well-being, service delivery, and access to social services;
 - assess how social welfare and economic policies impact the delivery of and access to social services;
 - apply critical thinking to analyze, formulate, and advocate for policies that advance human rights and social, economic, and environmental justice.
- **Engage with Individuals, Families, Groups, Organizations, and Communities:** Social workers understand that engagement is an ongoing component of the dynamic and interactive process of social work practice with, and on behalf of, diverse individuals, families, groups, organizations, and communities. Social workers value the importance of human relationships. Social workers understand theories of human behavior and the social environment, and critically evaluate and apply this knowledge to facilitate engagement with clients and constituencies, including individuals, families, groups, organizations, and communities. Social workers understand strategies to engage diverse clients and constituencies to advance practice effectiveness. Social workers understand how their personal experiences and affective reactions may impact their ability to effectively engage with diverse clients and constituencies. Social workers value principles of relationship-building and inter-professional collaboration to facilitate engagement with clients, constituencies, and other professionals as appropriate.
 - Social workers:
 - apply knowledge of human behavior and the social environment, person-in-environment, and other multidisciplinary theoretical frameworks to engage with clients and constituencies; and
 - use empathy, reflection, and interpersonal skills to effectively engage diverse clients and constituencies.
- **Assess Individuals, Families, Groups, Organizations, and Communities:** Social workers understand that assessment is an ongoing component of the dynamic and interactive process of social work practice with, and on behalf of, diverse individuals, families, groups, organizations, and communities. Social workers understand theories of human behavior and the social environment, and critically evaluate and apply this knowledge in the assessment of diverse clients and constituencies, including individuals, families, groups, organizations, and communities. Social workers understand methods of assessment with diverse clients and constituencies to advance practice effectiveness. Social workers recognize the implications of the larger practice context in the assessment process and value the importance of inter-professional collaboration in this process. Social workers understand how their personal experiences and affective reactions may affect their assessment and decision-making.
 - Social workers:
 - collect and organize data, and apply critical thinking to interpret information from clients and constituencies;
- apply knowledge of human behavior and the social environment, person-in-environment, and other multidisciplinary theoretical frameworks in the analysis of assessment data from clients and constituencies;
- develop mutually agreed-on intervention goals and objectives based on the critical assessment of strengths, needs, and challenges within clients and constituencies; and
- select appropriate intervention strategies based on the assessment, research knowledge, and values and preferences of clients and constituencies.
- **Intervene with Individuals, Families, Groups, Organizations, and Communities:** Social workers understand that intervention is an ongoing component of the dynamic and interactive process of social work practice with, and on behalf of, diverse individuals, families, groups, organizations, and communities. Social workers are knowledgeable about evidence-informed interventions to achieve the goals of clients and constituencies, including individuals, families, groups, organizations, and communities. Social workers understand theories of human behavior and the social environment, and critically evaluate and apply this knowledge to effectively intervene with clients and constituencies. Social workers understand methods of identifying, analyzing and implementing evidence-informed interventions to achieve client and constituency goals. Social workers value the importance of inter-professional teamwork and communication in interventions, recognizing that beneficial outcomes may require interdisciplinary, inter-professional, and inter-organizational collaboration.
 - Social workers:
 - critically choose and implement interventions to achieve practice goals and enhance capacities of clients and constituencies;
 - apply knowledge of human behavior and the social environment, person-in-environment, and other multidisciplinary theoretical frameworks in interventions with clients and constituencies;
 - use inter-professional collaboration as appropriate to achieve beneficial practice outcomes;
 - negotiate, mediate, and advocate with and on behalf of diverse clients and constituencies; and
 - facilitate effective transitions and endings that advance mutually agreed-on goals.
- **Evaluate Practice with Individuals, Families, Groups, Organizations, and Communities:** Social workers understand that evaluation is an ongoing component of the dynamic and interactive process of social work practice with, and on behalf of, diverse individuals, families, groups, organizations and communities. Social workers recognize the importance of evaluating processes and outcomes to advance practice, policy, and service delivery effectiveness. Social workers understand theories of human behavior and the social environment, and critically evaluate and apply this knowledge in evaluating outcomes. Social workers understand qualitative and quantitative methods for evaluating outcomes and practice effectiveness.
 - Social workers:
 - select and use appropriate methods for evaluation of outcomes;
 - apply knowledge of human behavior and the social environment, person-in-environment, and other multidisciplinary theoretical frameworks in the evaluation of outcomes;

- critically analyze, monitor, and evaluate intervention and program processes and outcomes; and
- apply evaluation findings to improve practice effectiveness at the micro, mezzo, and macro levels.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Greater Allegheny

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition.

Social Work, B.S.W. at Greater Allegheny Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSU 8	1 SOCW 205 (GS) (US/IL) ^{*#}	3
SOCW 195 (GS) ^{*#}	3 ECON 102 or 104 (GS) [†]	3
ENGL 15 (GWS) ^{††}	3 CAS 100 (GWS) ^{††}	3
General Education Course (Sociology)	3 General Education Course (GN)	3
General Education Course (GA)	3 General Education Course (GA)	3
Elective	3	
	16	15

Second Year

Fall	Credits Spring	Credits
SOCW 215 (GS) (US) ^{*#}	3 SOCW 290 (GS) ^{*#}	3
PSYCH 100 (GS) [†]	3 BBH 143 (GHW) [†]	3
Political Science Course (US)	3 ENGL 202A (GWS) ^{*††}	3
General Education Course (GN)	3 General Education Course (GQ)	3
General Education Course (GH)	3 General Education Course (GN)	3
	15	15

Third Year

Fall	Credits Spring	Credits
SOCW 300 [*]	3 SOCW 302 [*]	3
SOCW 301 [*]	3 SOCW 303 [*]	3
PSYCH 270 (GS)	3 SOCW 315 [*]	3
SOC 258N (GS) (GHW)	3 HDFS 301	3
STAT 200 (GQ) ^{*††}	4 General Education Course (GH)	3
	16	15

Fourth Year

Fall	Credits Spring	Credits
SOCW 495A [*]	3 SOCW 495B [*]	9
SOCW 407 [*]	3 400-Level Social Work Supportive Course	3
RHS 433 or PSYCH 442	3 Elective	3
PUBPL 304W [*]	3	
400-Level Social Work Supportive Course	3	
	15	15

Total Credits 122

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- Students must have a minimum 2.00 cumulative GPA and complete and earn a C or higher grade in SOCW 195, SOCW 205, SOCW 215 and SOCW 290 for Entrance to Major.

Social Work, B.S.W. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
PSU 8	1 General Education Course (GH)	3
ENGL 15 (GWS) ^{††}	3 ECON 102 or 104 (GS)	3
General Education Course (Sociology)	3 CAS 100 (GWS) ^{††}	3
General Education Course (GA)	3 PSYCH 100 (GS) [†]	3
General Education Course (GN)	3 General Education Course (GA)	3
Elective	3	
	16	15

Second Year

Fall	Credits Spring	Credits
General Education Course (GH)	3 General Education Course (GN)	3
General Education Course (GN)	3 BBH 143 (GHW) [†]	3
Political Science Course (US)	3 ENGL 202A (GWS) ^{††}	3
General Education Course (GQ)	3 SOC/HDFS 258N (GS) (GHW)	3
PSYCH 270 (GS)	3 STAT 200 (GQ) ^{††}	4
	15	16

Third Year

Fall	Credits Spring	Credits
SOCW 195 (GS) ^{*#}	3 SOCW 302 [*]	3
SOCW 215 (GS) (US) ^{*#}	3 SOCW 303 [*]	3
SOCW 205 (GS) (US/IL) ^{*#}	3 SOCW 300 [*]	3
SOCW 290 ^{*#}	3 HDFS 301	3
SOCW 315 [*]	3 SOCW 301 [*]	3
	15	15

Fourth Year

Fall	Credits Spring	Credits
SOCW 495A [*]	3 SOCW 495B [*]	9
SOCW 407 [*]	3 400-Level Social Work Supportive Course	3
PUBPL 304W [*]	3 Elective	3
RHS 433 or PSYCH 442	3	
400-Level Social Work Supportive Course	3	
	15	15

Total Credits 122

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

Students must have a minimum 2.00 cumulative GPA and complete and earn a C or higher grade in SOCW 195, SOCW 205, SOCW 215 and SOCW 290 for Entrance to Major.

Career Paths

Social workers work in a variety of settings, including mental health clinics, schools, child welfare, human service agencies, hospitals, group homes, community development corporations, and private practices. Advocacy is an important aspect of the social work profession. Social workers advocate or raise awareness with and on behalf of their clients and the profession on local, state, and national levels. Overall employment of social workers in the United States is projected to grow 12 percent from 2020 to 2030, faster than the average for all occupations. Nearly 78,300 openings for social workers are projected each year, on average, over the next 10 years.

(U.S. Bureau of Labor Statistics, 2021)

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE SOCIAL WORK PROGRAM (<https://www.bls.gov/ooh/community-and-social-service/social-workers.htm>)

Opportunities for Graduate Studies

Social work students who earn a BSW degree from accredited Council on Social Work Education programs may be eligible for advanced standing in MSW degree programs. With advanced standing, graduate social work students can earn an MSW degree in less than one year in select programs.

Professional Resources

- National Association of Social Workers (<https://www.socialworkers.org/>)
- National Association of Social Workers - Pennsylvania Chapter (<https://www.nasw-pa.org>)
- Association of Social Work Boards (<https://www.aswb.org/>)
- Society for Social Work and Research (<https://secure.sswr.org/>)
- Pennsylvania State Board of Social Workers
- Licensed Bachelor Social Worker (LBSW)

- State Board of Social Workers, Marriage and Family Therapists and Professional Counselors Navigator (pa.gov) (<https://www.dos.pa.gov/ProfessionalLicensing/BoardsCommissions/SocialWorkersMarriageandFamilyTherapistsandProfessionalCounselors/Pages/Social-Workers-Guide.aspx>)

Accreditation

The Pennsylvania State University is currently seeking accreditation for the Bachelor of Social Work Program by the Council on Social Work Education (CSWE).

CSWE is a nonprofit national association in the United States representing more than 2,500 individual members, as well as graduate and undergraduate programs of professional social work education. Founded in 1952, this partnership of educational and professional institutions, social welfare agencies, and private citizens is recognized by the Council for Higher Education Accreditation as the sole accrediting agency for social work education in the United States.

MORE INFORMATION ABOUT THE COUNCIL ON SOCIAL WORK EDUCATION (<https://www.cswe.org>)

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<https://greaterallegheny.psu.edu/academics/degree-programs/social-work> (<https://greaterallegheny.psu.edu/academics/degree-programs/social-work/>)

Spatial Analysis and Engineering Design Principles, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

This certificate provides innovative instruction about the application of new design methods and processes in a variety of engineering disciplines. The certificate emphasizes how to use computer-aided design (CAD) software to create concise drawings to develop an effective design system to provide solutions for specific products, systems, components, or services. The certificate further investigates the significance of industry standards and the practices of spatial analysis and tolerance requirements in design. Contact Douglas Miller at Penn State DuBois, 814-375-4731 or djm290@psu.edu.

What is Spatial Analysis and Engineering Design Principles?

Spatial analysis and design combines both technical and design skills to aid in the development methods for solving engineering problems. Starting with the basic methods and ethics of engineering design and developing computer-aided design (CAD) skills, this program is intended to help develop drafting, design, and CAD skills.

You Might Like This Program If...

You are good with technology, enjoy investigating the design behind parts and components, have every disassembled machines or appliances to see how they work, or have an interest in computer-aided design (CAD) software.

Employment opportunities upon completion of the certificate program have included employers seeking draftsmen, designers, and assistant entry-level engineering and engineering technology level opportunities.

Program Requirements

To earn an undergraduate certificate in Spatial Analysis and Engineering Design Principles, a minimum of 7 credits is required.

Code	Title	Credits
Prescribed Courses		
EDSGN 100	Cornerstone Engineering Design	3
EDSGN 110	Spatial Analysis in Engineering Design	2
EDSGN 210	Tolerancing and Spatial Models	2

No Prerequisites Required.

Certificate Learning Objectives

- An ability to understand and apply the knowledge, techniques, skills, and modern tools of the engineering design processes.
- An understanding of spatial analysis techniques using advanced computer-aided design (CAD).
- An understanding of measurement techniques and importance of tolerances.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Contact

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<https://dubois.psu.edu/academics/degrees/engineering/supplement>
(<https://dubois.psu.edu/academics/degrees/engineering/supplement/>)

Supply Chain Management, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

The certificate program in logistics and supply chain management introduces you to key concepts in the field, such as systems analysis, trade-off analysis, transport systems, procurement, inventory management, and supply chain integration and strategy. The program provides an overview of logistics and supply chain management and addresses the needs of manufacturers, wholesalers, retailers, merchandisers, transportation and warehousing firms, and government agencies. The implications of e-commerce in relation to supply chain management are also explored.

What is Supply Chain Management?

Supply chain management pertains to the flow of goods and services. It includes the movement and storage of raw materials, work-in-process inventory, and finished goods from point of origin to point of consumption.

You Might Like This Program If...

- You enjoy thinking about process and organization within business.
- You want an introduction to supply chain management that you can earn in a short time.
- You want to add supply chain skills to your major program of study.

Program Requirements

To earn an undergraduate certificate in Supply Chain Management, a minimum of 12 credits is required.

Code	Title	Credits
Prescribed Courses		
SCM 301	Supply Chain Management	3
SCM 320	Transport Systems	3
SCM 416	Warehousing and Terminal Management	3
SCM 460	Purchasing and Materials Management	3

Prerequisites Required.

Certificate Learning Objectives

- **Facility Planning and Warehouse Management:** Students will be able to identify and develop a model for an efficient warehouse layout with regards to flow, relationships and space utilization.
- **Inventory Management:** Students will be able to demonstrate knowledge of theories used to maintain a balance between demand and supply for an organization.

- **Logistic Networks:** Students will be able to understand transportation and the transportation environment, as well as, the strategic role transportation systems play in the supply chain.
- **Planning and Control:** Students will be able to demonstrate knowledge of the processes used in demand management, sales and operations planning plus master scheduling to control the actions that a business follows to meet their strategic objectives.
- **Purchasing:** Students study the role procurement has in managing suppliers and can describe the impact that sourcing decisions have on the continued effectiveness of supply chain relationships.
- **Supply Chain Management:** Students will be able to identify concepts, principles and methodologies used in managing supply chain relationships.
- **Technology:** Students will be introduced to applications that support various areas of managing a supply chain and can demonstrate knowledge of how these applications function.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

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Scranton

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<https://scranton.psu.edu/business-development-community-outreach>
(<https://scranton.psu.edu/business-development-community-outreach/>)

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<https://wilkesbarre.psu.edu/ce/working-professionals/credit-certificates/supply-chain-management>
(<https://wilkesbarre.psu.edu/ce/working-professionals/credit-certificates/supply-chain-management/>)

Youth Development and Social Justice, Certificate

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

Program Description

The 12-credit certificate program was designed to help understand the unique challenges facing adolescents and young adults. Intended for counselors, educators, family therapists, social workers and other professionals dedicated to serving the developmental needs of youth in contemporary society, the program provides an overview of the major issues that impact youth development from a social justice perspective.

What is Youth Development and Social Justice?

The Youth Development and Social Justice (YDSJ) program focuses on the promotion of positive youth development within the context of social justice. The YDSJ framework views young people as assets and active change agents with the capacity to transform their lives and the world toward equity and justice.

The program provides an overview of the interconnectedness between youth development and youth resistance to social injustice. Students in the YDSJ minor will: 1) analyze issues of equity and oppression in relation to youth development, 2) work directly with youth in the community, and 3) apply theory to practice to build on the strengths of communities and youth. The program is experiential in nature and students learn by doing in trainings, workshops, and community settings.

You Might Like This Program If...

- You are interested in youth empowerment and social change.
- You want to study big questions, such as such as: 'what does equitable education look like?' and 'how does youth organizing translate to social policy?'
- You want to make a difference in the lives of youth and communities.
- You want to learn about the impacts of discrimination and oppression on youth development.
- You want to pursue a career in behavioral health, social work, education, advocacy, nonprofit administration, community development, public policy, community organizing, or criminal justice.

Program Requirements

To earn an undergraduate certificate in Youth Development and Social Justice, a minimum of 12 credits is required.

Code	Title	Credits
Required Courses		
HDFS 345	CONTEMPORARY URBAN ISSUES AND SOCIAL JUSTICE FRAMEWORKS	3
Select two of the following:		6
HDFS 175N	Introduction to Youth Development and Arts-based Social Justice	
HDFS 239	Adolescent Development	
HDFS 433	Developmental Transition to Adulthood	
PSYCH 412	Adolescence	
Select one of the following:		3
CAS 471	Intercultural Communication Theory and Research	
COMM 222N	Social Justice and the Image	
CRIM 441	The Juvenile Justice System	
EARTH 111		
ERM 210	Environmental Factors and Their Effect on Your Food Supply	
HDFS 239	Adolescent Development	
HDFS 301	Values and Ethics in Health and Human Development Professions	
HDFS 400	Youth Development and Social Justice Capstone Seminar	
HDFS 410	Communities and Families	
HDFS 411	The Helping Relationship	

HDFS 432	Developmental Problems in Childhood and Adolescence
PLSC 1	American Politics: Principles, Processes and Powers
PLSC 291	Introduction to Peace and Conflict Studies
PLSC 491	Peace and Conflict Studies Seminar
PSYCH 231	Introduction to the Psychology of Gender
PSYCH 424	Applied Social Psychology
PSYCH 432	Multicultural Psychology in America
PSYCH 441	Health Psychology
PSYCH 479	The Psychology of Gender
SOC 5	Social Problems

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Brandywine

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Mont Alto

Helen McGarry

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Career Paths

The Youth Development and Social Justice certificate will support a multitude of careers in youth development, including adolescent behavioral health, education, and corrections.

Contact

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<https://montalto.psu.edu/ce> (<https://montalto.psu.edu/ce/>)

Youth Development and Social Justice, Minor

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The 19-credit minor was designated to help you understand the unique challenges facing adolescents and youth in our rapidly changing world. The Youth Development and Social Justice program offers an interdisciplinary minor open to all PSU BW students. Students enter our program with the desire to support adolescents, youth, and their communities; they graduate with the skills, experience, and knowledge to do so effectively. Students will acquire tools to work with individuals of diverse backgrounds and perspectives, teamwork, and flexibility, as well as greater persistence and communications abilities - valuable assets that employers seek.

The Youth Development and Social Justice minor is offered for students who wish to add sociopolitical analysis skill and practical experience working with diverse youth to their undergraduate major.

The minor is flexible so that students can tailor their course choices to accommodate individual interests and match the resources at each campus. Students should seek the advice of the minor adviser for course selection. The provided supporting course list is a list of possibilities that each campus can adapt to best fit their unique context.

What is Youth Development and Social Justice?

The Youth Development and Social Justice program focuses on the promotion of positive youth development within the context of social justice. The YDSJ framework views young people as assets and active change agents with the capacity to transform their communities for the better.

The program provides an overview of the interconnectedness between youth development and youth resistance to social injustice. Students in the YDSJ minor will: 1) analyze issues of equity and oppression in relation to youth development, 2) work directly with youth in the community, and 3) apply theory to practice to build on the strengths of communities and youth.

The program is experiential in nature and students learn by doing in youth-led workshops and community settings. Students will acquire tools to work with individuals of diverse backgrounds and perspectives, develop creative mindsets, as well as greater persistence and communication skills – valuable assets that employers seek.

You Might Like This Program If...

- You are interested in youth empowerment and social change
- You want to study big questions, such as: 'what does equitable education look like?' and 'how does youth organizing translate to social policy?'
- You want to make a difference in the lives of youth and communities
- You want to learn about the impact of discrimination and oppression on youth development
- You want to pursue a career in behavioral health, social work, education, advocacy, nonprofit administration, community development, public policy, community organizing, or criminal justice.

Program Requirements

Requirement	Credits
Requirements for the Minor	19

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Some prerequisites may be required to meet the requirements for this minor.

Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
HDFS 175N	Introduction to Youth Development and Arts-based Social Justice	3
HDFS 400	Youth Development and Social Justice Capstone Seminar	4
HDFS 239	Adolescent Development	3
HDFS 345	CONTEMPORARY URBAN ISSUES AND SOCIAL JUSTICE FRAMEWORKS	3
Supporting Courses		
<i>Supporting Courses: Require a grade of C or better</i>		
Select 6 credits from the following courses (One of the supporting courses must be 400-level):		6
CAS 471	Intercultural Communication Theory and Research	
CRIMJ 13	Juvenile Delinquency	
CRIMJ 389	Gangs and Gang Behavior	
CRIMJ 441	The Juvenile Justice System	
EARTH 111		
ERM 210	Environmental Factors and Their Effect on Your Food Supply	
HDFS 301	Values and Ethics in Health and Human Development Professions	
HDFS 410	Communities and Families	
HDFS 411	The Helping Relationship	
HDFS 414	Resolving Human Development and Family Problems	
HDFS 432	Developmental Problems in Childhood and Adolescence	
HDFS 433	Developmental Transition to Adulthood	

HDFS 468	
PLSC 91	
PLSC 491	Peace and Conflict Studies Seminar
PSYCH 231	Introduction to the Psychology of Gender
PSYCH 412	Adolescence
PSYCH 424	Applied Social Psychology
PSYCH 432	Multicultural Psychology in America
PSYCH 441	Health Psychology
PSYCH 479	The Psychology of Gender
SOC 5	Social Problems

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

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READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Please note, the University also offers an undergraduate certificate in Youth Development and Social Justice (p. 3115).

Brandywine

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Career Paths

The Youth Development and Social Justice certificate will support a multitude of careers in youth development and justice work, including adolescent behavioral health, education, and corrections. Additional career examples include the following: Advocate, Certified Health Education Specialist (CHES), Community Health Worker, Community Specialist, Government Programs Employee, Specialist, Mental Health Counselor, Political Analyst, Social Services Director, Social Worker, Community Organizer, Youth Corrections, and Restorative Justice Programmer.

Contact

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<https://www.brandywine.psu.edu/academics/minors/youth-development-and-social-justice-minor> (<https://www.brandywine.psu.edu/academics/minors/youth-development-and-social-justice-minor/>)

General Information

Using this Bulletin

The six General Information sections in the Undergraduate Bulletin are designed to help you understand Penn State academic requirements and policies, as well as how to discover opportunities, as you pursue your academic goals. Information about the University structure and leadership, as well as tuition and financial aid information, will assist you in making informed decisions during your time at Penn State.

Select the topics of interest below or the menu to the right to explore different information areas. In addition, General Information sections can be accessed from any page in the Bulletin from the navigation bar.

Using this Bulletin (p. 3118)

Academic Information (p. 3153)

General Education (p. 3183)

About Penn State (p. 3275)

Admissions (p. 3278)

Tuition and Financial Aid (p. 3282)

Using this Bulletin

Introduction

The Undergraduate Bulletin is Penn State's comprehensive source for undergraduate academic information and program requirements.

Use this section and navigation tools throughout the site to become familiar with general Bulletin information and discover new ways to explore academic opportunities across Pennsylvania and the world.

Students should follow the edition of the Bulletin that is active on their first day of class at the University. Past versions can be found on the Archive (p. 15) page.

New Features

Program Page Layout

- Consistent layout of program information organized within the following tabs:
 - Overview
 - How to Get In
 - Program Requirements (University Degree, Bachelor of Arts Degree, General Education, and Major requirements)
 - Integrated Undergrad-Grad Program
 - Learning Outcomes
 - Academic Advising
 - Suggested Academic Plan
 - Career Paths
 - Contact

Begin and End Campus

At the top each program page, you will find a box that indicates where you can begin and end a program. Programs may have different begin

and end campuses, so it is important to use this information to determine program availability at each campus.

How to Get In

This section describes requirements on how to enter your major. Common examples include, but are not limited to, minimum GPA and/or successful completion of a skills test, coursework, or preparation programs.

Suggested Academic Plan

The course series provided in the Suggested Academic Plan provides only one of many possible ways to move through the curriculum. To create a personalized academic plan, begin by taking the following steps:

- Consult with a Penn State academic adviser on a regular basis to develop and refine your academic plan.
- Use the Suggested Academic Plan in conjunction with your degree audit (accessible in LionPATH as either an *Academic Requirements* or *What If* report).
- Familiarize yourself with information available in this Bulletin to learn about academic opportunities.
- Explore resources available on your college and campus websites.

Please note that the University may make changes in policies, procedures, educational offerings, and requirements.

Changes Page

- Real-time amendments to information in the Bulletin will be tracked on the Changes (p. 3123) page.
- Currently or previously enrolled students should consult the Bulletin Archive (p. 15), their adviser, and degree audit reports for specific requirements.

Course Bubble

When a course link is clicked, a course bubble will appear with important course information including, but not limited to:

- course title, description, and credits;
- prerequisites;
- course attributes and General Education learning objectives;
- if the course is repeatable;
- if the course is cross-listed;
- if the course can be counted towards General Education requirements.

Nondiscrimination Statement

The University is committed to equal access to programs, facilities, admission and employment for all persons. It is the policy of the University to maintain an environment free of harassment and free of discrimination against any person because of age, race, color, ancestry, national origin, religion, creed, service in the uniformed services (as defined in state and federal law), veteran status, sex, sexual orientation, marital or family status, pregnancy, pregnancy-related conditions, physical or mental disability, gender, perceived gender, gender identity, genetic information or political ideas. Discriminatory conduct and harassment, as well as sexual misconduct and relationship violence, violates the dignity of individuals, impedes the realization of the University's educational mission, and will not be tolerated. Direct all inquiries regarding the nondiscrimination policy to the Affirmative Action Office, The Pennsylvania State University, 328 Boucke Building, University Park, PA 16802-5901, Email: aao@psu.edu, Tel (814) 863-0471.

Start Exploring

The Undergraduate Bulletin is Penn State's comprehensive source for undergraduate academic information and program requirements. Using the search features, explore options to design your own, unique academic path at one of the world's leading research institutions. Discover new opportunities as you pursue your academic passion. Search boxes are located on the Undergraduate Bulletin landing page and throughout the website.

Narrow your search by using the following fields:

Degree Type

Choose the degree type to begin your search. Information on the following degrees are included in the Undergraduate Bulletin:

Associate Degree

Two-year majors that, with few exceptions, provide concentrated instruction to prepare graduates for specialized occupational assignments.

Baccalaureate Degree

Baccalaureate programs of study consist of no less than 120 credits and typically take four years to complete.

Minor

An academic program of at least 18 credits that supplements a major. A minor program may consist of course work in a single area or from several disciplines.

Undergraduate Certificate

Undergraduate certificates can reflect emerging academic areas, necessary professional development requirements, or groups of courses that do not constitute a degree program.

Learn more in the Definitions and Abbreviations (p. 3119) section.

Campus

Penn State has over 20 campuses across Pennsylvania. Visit the Campus (p. 15) page to see the full listing and a brief description of each campus.

Interest

Search broad topics to discover programs associated with your interests. From helping people, to science, or business, select an area to help narrow down your academic choices.

College

Academic colleges at Penn State grant degrees and are generally organized around a subject matter. All Penn State majors are divided among academic colleges, which are the units from which students receive their degrees. Visit the College (p. 17) page to see the full listing.

Academic Authority

The University Faculty Senate has responsibility for, and authority over, all academic information contained in the Undergraduate Bulletin.

Each step of the educational process, from admission through graduation, requires continual review and approval by University officials. The University, therefore, reserves the right to change the requirements and regulations contained in this Bulletin and to determine whether a student has satisfactorily met its requirements for admission or graduation, and to reject any applicant for any reason the University

determines to be material to the applicant's qualifications to pursue higher education.

MORE INFORMATION ABOUT ACADEMIC AUTHORITY (<https://undergrad.psu.edu/aappm/P-8-program-descriptions-catalog.html>)

Understanding Course Description Information

The course description data that appears in the University Bulletins is directly imported from LionPATH, the student information system. At several times within an academic year, new or updated course description information is approved by the Faculty Senate and entered into LionPATH. This updated information subsequently appears in the University Bulletins on the date(s) it takes effect.

What course description data is currently showing in the University Bulletins?

There are three course effective dates within an academic year. These effective dates correspond to the first day of the summer, fall, and spring semesters. The University Bulletins shows course description data that is active as of the current semester. On the date a new semester begins, the course description information is updated on the same day to match that course data.

Course Description Update Calendar

May 6, 2024: University Bulletins begins showing course description information that is active for the Summer 2024 semester

August 12, 2024: University Bulletins begins showing course description information that is active for the Fall 2024 semester

December 23, 2024: University Bulletins begins showing course description information that is active for the Spring 2025 semester

Previous Versions of Course Description Information

If a course description is updated after the beginning of an academic year, the previous course description information for that course can be found on the Changes to the UG Bulletin page (p. 3123). Course description information from past years can be found in the appropriate archived Bulletin edition (p. 15).

Definitions and Abbreviations

Described below are definitions referring to degrees, majors, options, minors, concurrent or sequential majors programs, and integrated undergraduate-graduate degree programs:

Associate Degree

Two-year majors that, with few exceptions, provide concentrated instruction to prepare graduates for specialized occupational assignments.

Baccalaureate Degree

Penn State offers more than 160 majors with four-year baccalaureate degrees. A baccalaureate program of study shall consist of no less than 120 credits. Students may elect to take courses beyond the minimum requirements of a degree program. Particular types of baccalaureate degrees identify educational programs having common objectives and requirements. Degree programs may provide academic, pre-professional, or professional experiences and preparation. Majors lead to a baccalaureate degree. Each student must select a major within a baccalaureate degree type. If options are offered within a major, a student selects one. The student may also elect to enroll in a minor to

supplement the major. Alternatively, the student may seek to enroll in multiple majors within the same type of baccalaureate degree or to enroll in a simultaneous degree program.

Undergraduate majors offered at Penn State lead to one or more of the following baccalaureate degrees: Bachelor of Arts, Bachelor of Science, Bachelor of Architectural Engineering (five-year program), Bachelor of Architecture (five-year program), Bachelor of Design, Bachelor of Fine Arts, Bachelor of Humanities, Bachelor of Landscape Architecture (five-year program), Bachelor of Music, Bachelor of Musical Arts, and Bachelor of Philosophy.

Not all degrees are offered at every location. Baccalaureate degrees offered at Penn State include both those that are designed to provide an academic (including pre-professional) experience and those that are specifically designed to provide professional preparation.

To ensure excellence, all professionally oriented degree majors provide a strong academic base. The Bachelor of Arts degree (with a given major) is an academic degree; the Bachelor of Science degree (with a given major) and the bachelor's degree in any subject area (e.g., Bachelor of Architecture) are professional degrees. The Bachelor of Philosophy degree, described in the Intercollege Undergraduate Programs section of this Bulletin, is planned individually and may be designed to serve either academic or professional purposes.

Major

A major is a plan of study in a field of concentration within a type of baccalaureate degree. Colleges and other degree-granting units may have common requirements for all of their majors. Each major may have requirements identified in prescribed, additional, and supporting courses and related areas categories. Elective credits are not considered part of the major.

MORE INFORMATION ABOUT MAJORS (<https://senate.psu.edu/curriculum/guide-to-curricular-procedures/baccalaureate-degree-curriculum/>)

Option

An option is a specialization within a major that should involve at least one-third of the course work credits required for the major, but need not be more than 18 credits. All options within a major must have in common at least one-fourth of the required course work credits in the major. A student can only be enrolled in an option within their own major.

Minor

A minor is defined as an academic program of at least 18 credits that supplements a major. A minor program may consist of course work in a single area or from several disciplines, with at least 6 but ordinarily not more than half of the credits at the 400-course level. Total requirements are to be specified and generally limited to 18 to 21 credits. Entrance to some minors may require the completion of a number of prerequisites, including courses, portfolios, auditions, or other forms of documentation that are not included in the total requirements for the minor. All courses for a minor require a grade of C or above.

Concurrent and Sequential Majors Programs

At the baccalaureate or associate degree level, students may be approved for admission to more than one major under the Concurrent Majors Program. A Concurrent Majors Program is one in which students take courses to concurrently meet the requirements of at least two majors, with graduation for all majors in the program occurring during the

same semester. Concurrent majors must all be at the baccalaureate or associate degree level. Under the Sequential Majors Program, upon graduation from an associate or baccalaureate degree program, a student may apply for re-enrollment in another undergraduate degree program.

Integrated Undergraduate-Graduate (IUG) Degree Program

An Integrated Undergraduate-Graduate (IUG) degree program combines a Penn State baccalaureate degree with a master's degree as a continuous program of study. An IUG program allows qualifying students to:

- create a cohesive plan for baccalaureate and master's degree studies, with advising informed by requirements for both degree programs;
- complete the combined degree program in less time than it would take to complete each program separately;
- become familiar with the expectations of graduate studies in their programs;
- access the resources of the Graduate School;
- learn from current graduate students who share academic interests.

Abbreviations, Acronyms, and Codes

Described below are common codes, abbreviations, acronyms, and other types of academic shorthand used at Penn State, along with a brief explanation of each.

Code	Explanation
A	Special topics (course suffix; indicates different versions of the same course, e.g., CAS 100A, CAS 100B, CAS 100C)
A & A	Arts and Architecture (college abbreviation)
AA	Arts and Architecture (college code)
AAPPM	Academic Administrative Policies and Procedures Manual
AB	Abington (campus code)
AB	Abington (college code)
ACUE	Administrative Council on Undergraduate Education
AG	Agricultural Sciences (college code)
AL	Altoona (campus code)
AL	Altoona (college code)
AP	Advanced Placement Program
APPL	Course requires an application with the School of Music (course characteristic)
APPT	By appointment (class meeting time)
AU	Audit, attended regularly (grade reporting symbol)
AUDN	Course requires an audition (course characteristic)
AUU	Audit, did not attend regularly (grade reporting symbol)
B	Special topics (course suffix; indicates different versions of the same course, e.g., CAS 100A, CAS 100B, CAS 100C)

BA	Business, Smeal College of (college code)	E	Special topics (course suffix; indicates different versions of the same course, e.g., HIST 297D, HIST 297E)
BC	Behrend (college code)	ECoS	Eberly College of Science
BK	Berks (campus code)	ED	Education (college code)
BK	Berks (college code)	EM	Earth and Mineral Sciences (college code)
BR	Beaver (campus code)	EM SC	Earth and Mineral Sciences (college abbreviation)
BW	Brandywine (campus code)	EN	Engineering (college code)
C	Special topics (course suffix; indicates different versions of the same course, e.g., CAS 100A, CAS 100B, CAS 100C)	ENGR	Engineering (college abbreviation)
CA	Capital (college code)	EOP	Educational Opportunity Program
CALC	Course requires a calculator (course characteristic)	EPR	Early Progress Report
CAMP	College Assistance Migrant Program	EPS	Educational Planning Survey
CAT	Online catalog, University Libraries	ER	Behrend (campus code)
CC	Commonwealth Campuses	ESL	English as a Second Language
CCP	College Contact Person	EVEX	Course has evening exams (course characteristic)
CCRR	College Contact and Referral Representative	F	Special topics (course suffix; indicates different versions of the same course, e.g., HIST 297F, HIST 297G)
CCSG	Council of Commonwealth Student Governments	FE	Fayette (campus code)
CE	Continuing Education	FINL	Course has a final exam (course characteristic)
CGPA	Cumulative grade-point average	FL	Failure under pass/fail option (grade reporting symbol)
CIC	Committee on Institutional Cooperation	FYS	First-Year Seminar
CLEP	College-Level Examination Program	G	Special topics (course suffix; indicates different versions of the same course, e.g., HIST 297F, HIST 297G)
CM	Communications (college code)	GA	Arts (General Education code)
CNCR	Course is scheduled concurrently with another course (course characteristic)	GA	Greater Allegheny (campus code)
CNTL	Course is controlled (course characteristic)	GH	Humanities (General Education code)
COMM	Communications (college abbreviation)	GHW	Health and Wellness (General Education code)
CORD	Course is coordinated with other course(s) (course characteristic)	GN	Graduate non-degree (college code)
COST	Course requires an additional fee (course characteristic)	GN	Natural Sciences (General Education code)
D	Special topics (course suffix; indicates different versions of the same course, e.g., HIST 297D, HIST 297E)	GPA	Grade-point average
DAA	Dean/Director of Academic Affairs	GQ	Quantification (General Education code)
DF	Deferred grade (grade reporting symbol)	GR	Graduate (level code)
DN	Dickinson School of Law (campus code)	GR ND	Graduate non-degree (college code)
DS	DuBois (campus code)	GS	Social and Behavioral Sciences (General Education code)
DU	Division of Undergraduate Studies (college code)	GV	Great Valley (campus code)
D U S	Division of Undergraduate Studies (college abbreviation)	GV	Great Valley (college code)
		GWS	Writing/Speaking (General Education code)
		H	Honors course or section (course suffix)

HB	Harrisburg (campus code)	MEP	Multicultural Engineering Program
H H D	Health and Human Development (college abbreviation)	MRC	Multicultural Resource Center
HH	Health and Human Development (college code)	MS	Military Science (ROTC) (college code)
HN	Hazleton (campus code)	NACADA	National Academic Advising Association
HY	Hershey Medical Center (campus code)	NC	Non-credit (level code)
I	Incomplete (grade reporting symbol)	NDEGR/C/H	Nondegree Regular/Conditional/High School (Classification of Undergraduate Students)
I	Special topics (course suffix; indicates different versions of the same course, e.g., HIST 297I, HIST 297K)	NG	No grade (grade reporting symbol)
I COL	Intercollege programs (college abbreviation)	NK	New Kensington (campus code)
IB	International Baccalaureate Program	NR	Nursing (college code)
IC	Intercollege programs (college code)	NSO	New Student Orientation
IL	International Cultures (General Education code)	OCLC	Course meets at an off-campus location (course characteristic)
INCP	Incomplete (grade reporting symbol)	ODS	Office for Disability Services
INTG	Course is integrated with other courses (course characteristic)	OSA	Office of Student Aid
IS	Information Sciences and Technology (college code)	OUR	Office of the University Registrar
IST	Information Sciences and Technology (college abbreviation)	P	Pass (noncredit course) (grade reporting symbol)
ITS	Information Technology Services	P	Practicum (or laboratory) section (course suffix)
IUG	Integrated undergraduate/graduate degree programs	PC	Penn College (Pennsylvania College of Technology; campus code)
IVID	Course uses interactive video (course characteristic)	PREQ	Course has prerequisites (course characteristic)
J	Individualized instruction (course suffix)	PS	Pass (pass/fail option) (grade reporting symbol)
K	Special topics (course suffix; indicates different versions of the same course, e.g., HIST 297I, HIST 297K)	PSU	Pennsylvania State University
L	Lecture section (course suffix)	R	Recitation section (course suffix)
LA	Liberal Arts (college code)	R	Research (grade reporting symbol)
LEAP	Learning Edge Academic Program	RAP	Recommended Academic Plan
LIAB	Course has liability attendance policy (course characteristic)	RI	Resident Instruction
LV	Lehigh Valley (campus code)	ROTC	Reserve Officers' Training Corps
LW	Law (level code)	S	First-Year Seminar (course suffix)
M	Writing Across the Curriculum and Honors (course suffix)	SA	Satisfactory achievement (grade reporting symbol)
MA	Mont Alto (campus code)	SATL	Course is offered at multiple locations via satellite uplink (course characteristic)
MAC	Morgan Academic Center (for Student-Athletes)	SC	Science, Eberly College of (college code)
MD	Medical (level code)	SCIEN	Science, Eberly College of (college abbreviation)
MD	Medicine (college code)	SEGM	Course is segmented (course characteristic)
MED	Medicine (college abbreviation)	SGPA	Semester grade-point average
		SH	Shenango (campus code)
		SI	Supplemental Instruction
		SITE	Schreyer Institute for Teaching Excellence
		SL	Schuylkill (campus code)
		SLO	Special Living Options

SOTP	Student Orientation and Transition Programs
SRTE	Student Ratings of Teacher Effectiveness
SSSP	Student Support Services Program
T	First-Year Seminar and Honors (course suffix)
TMDT	Course has additional meeting times/dates (course characteristic)
U	United States Cultures/International Cultures and Honors (course suffix)
UAO	Undergraduate Admissions Office
UC	University College (college code)
UE	Undergraduate Education
UFO	University Fellowships Office
UG	Undergraduate (level code)
UG ND	Undergraduate non-degree (college code)
UN	Undergraduate nondegree (college code)
UN	Unsatisfactory achievement (grade reporting symbol)
UP	University Park (campus code)
UPUA	University Park Undergraduate Association
US	United States Cultures (General Education code)
W	Official withdrawal (grade reporting symbol)
W	Writing Across the Curriculum (course suffix)
WB	Wilkes-Barre (campus code)
WC	World Campus
WEB	Web course; offered entirely through the Internet (course characteristic)
WEP	Women in Engineering Program
WF	Withdrew failing (grade reporting symbol)
WISE	Women in the Sciences and Engineering
WN	Withdrew no grade (grade reporting symbol)
WP	Withdrew passing (grade reporting symbol)
WS	Worthington Scranton (campus code)
X	Writing Across the Curriculum and First-Year Seminar (course suffix)
XC	State College Continuing Education (campus code)
XF	Failure, academic dishonesty (course grade)
XS	Foreign studies program (campus code)

Y	Writing Across the Curriculum course and United States Cultures/International Cultures (course suffix)
YK	York (campus code)

Common abbreviations for course attributes and suffixes can be found in the University Course Descriptions (p. 3293) section.

Changes to the Undergraduate Bulletin

Changes to the Undergraduate Bulletin will be tracked in real-time and listed below. At the end of every semester, these updates are incorporated into the Bulletin.

Courses Added: Effective Summer 2024

- AA 113N: Sustainable Arts and Design
- ACCTG 201: Introduction to Financial Accounting
- ACCTG 202: Introduction to Managerial Accounting
- AE 449: Ultra-High Performance Buildings: Passive House Principles & Design
- AE 477: Material Science for Architectural Engineers
- AERSP 403A: Autonomous Aerospace Vehicle Design - Preliminary
- AERSP 403B: Autonomous Aerospace Vehicle Design - Detailed
- AERSP 462: Aerospace Autonomy
- APLNG 290N: Critical Approaches to Applied Linguistics
- APLNG 320N: Language, Ideology, and Propaganda
- APLNG 450: Conducting Research in Applied Linguistics
- ASTRO 416: Data Science Applications to Astronomy
- ASTRO 442: Astrophysical Fluid Dynamics
- CE 403: Energy Use, Climate Change, and Our Engineered Infrastructure
- CE 455: Construction Cost Estimating
- CE 457: Construction Equipment and Methods
- CED 102Q: Wicked Problems Like Inequality, Sustainability & Climate Change: What's the Right Thing to Do?
- CHEM 491: Instructional Practice
- CMLIT 147N: Displacement and Migration
- CNED 393: Peer Support Counseling
- EBF 404W: The Great Energy Transition: Law, Economics, and New Frontiers
- EMSC 125: Plastics in the Environment
- FOR 370: Watershed Ecohydrology
- FOR 431: Conservation Genetics
- FOR 442: Forest Conservation: Principles and Practices
- FOR 445: Wildlife Habitat Management
- FOR 477: Field Methods in Watershed Ecohydrology
- GEOG 413: Cryosphere and Climate Systems
- GEOG 448: Neighborhoods and Health Equity
- GEOSC 401: Geosciences Entrepreneurship: Embrace Change
- HDFS 109: Community, Connection, and Contemplation
- HHUM 495: Internship
- HIST 493: History of Death and Mourning
- HM 322: Introduction to Brewed Alcoholic Beverages (Beer, Cider, and Mead)
- HRM 494: Research Topics in HRM

- IE 304: Introduction to Service Systems Engineering
- IE 427: Human Systems Networks
- IE 432: Introduction to Healthcare Systems Modeling
- IE 435: Pricing and Demand Management
- IE 475: Modeling and Optimization of Stochastic Service Systems
- ITECH 495: Internship
- LDT 495: Internship in Learning, Design, and Technology
- MATSE 449: Fundamentals of Composite Materials Science and Engineering
- MGMT 345: Cultural Intelligence in Leadership and Management
- MUSIC 188: Chamber Music for Mixed Ensemble
- NUTR 291N: Drugs and Nutrition: Social and Scientific Interactions
- NUTR 409: Addressing and intervening on social determinants of nutrition inequity
- NUTR 495B: Advanced Field Experience in Nutrition
- PT 290W: Professional Issues in Clinical Practice
- PUBPL 471: Economic Inequality and Public Policy
- RLST 109H: What is The Self?
- SC 496: Independent Studies
- STRNG 134: Guitar: Performance I
- STS 313: Global Engineering Fellows Seminar
- SUR 373W: Cadastral and Legal Aspects of Surveying
- TURF 495A: Internship
- VBSC 280N: Current Topics in Veterinary Medicine
- VBSC 415: Research Practice in Veterinary and Biomedical Sciences
- WFS 465: Restoration Ecology

Courses Added: Effective Fall 2024

- ASTRO 237W: Astronomy Communications

Courses Dropped: Effective Summer 2024

- CMLIT 197Z: Special Topics - Linked
- DANCE 270Z: Introduction to Bartenieff Fundamentals
- DANCE 370Z: Anatomy and Physiology for Performers
- PHIL 490: Dewey
- SOC 97Z: Special Topics - Linked

Courses Dropped: Effective Fall 2024

- AG 160S: Introduction to Ethics and Issues in Agriculture
- BMB 1Z: The Science of Sickness - Linked
- VBSC 280: Current Issues in Veterinary Medicine

Course Changes: Effective Summer 2024

AGBM 408: Financial Decision Making for Agribusiness (3 Credits) Old Listing Effective Through Spring 2024:

Develop financial management and business analysis skills, integrating previous course work and finance training; principles of financial management, planning, control.

Prerequisite: AGBM 308, FIN 301

Changes Effective Summer 2024:

- Changed Prerequisites

ANSC 488: Biology of germ cells and assisted reproductive technologies (3 Credits)

Old Listing Effective Through Spring 2024:

Germ cells are highly specialized cells that give rise to the next generation. The life history of germ cells from formation of primordial germ cells in the early embryo to formation of mature gametes will be traced in several mammalian species. Gamete maturation, fertilization and early embryo development will be covered in detail to highlight the unique features of these processes and the close relationship between germ cells, early embryonic cells and pluripotent stem cells. Special emphasis will be placed on the processes of meiosis and epigenetic reprogramming that occurs in both germ cells and early embryos. The effect of environmental factors such as diet, stress, endocrine disruptors on germ cell and early embryo reprogramming will be discussed. In the second half of the course, we will discuss how knowledge of germ cell physiology has led to the widespread use of assisted reproductive technologies (ART) which have fundamentally changed the way fertility is managed in animals and humans. ART topics covered include artificial insemination, gamete manipulation, in vitro embryo production, preimplantation genetic testing and control of ovulation. We will discuss how these technologies are used to treat infertility in both men and women. We will also cover the potential benefits and challenges of recent efforts to develop male and female non-hormonal contraceptive methods. Finally, the ethical and societal implications of advanced reproductive technologies will be discussed.

Prerequisites: ANSC 300 or ANSC 431 or BIOL 141 or BIOL 161 or BIOL 177 or BIOL 240M or BIOL 240W or BIOL 431

Changes Effective Summer 2024:

- Changed Prerequisites

ANTH 445W: Ethnographic Film (3 Credits) [WAC]

Old Listing Effective Through Spring 2024:

Comparisons of written and visual ethnography; critical assessment of ethnographic film; cross-cultural variation. ANTH 445W Ethnographic Film (3) Students will be presented with both written and filmed ethnographic material dealing with a number of cultural subsystems (e.g., kinship and family relations, religion, political systems) and with a number of different world cultures. The aim of the course is three-fold: 1) to convey through visual anthropology the complexity and inter-relationships of cultural subsystems, which is often difficult to do in written sources; 2) to develop the skills of critical viewing of ethnographic film; and 3) to provide students with critiques of their written work that will enable them to learn and practice the skills of clear, organized and convincing writing. Towards these ends, students will be expected to read and view weekly assignments for selected topics, to write twelve critical essays that compare the written and filmed sources, and to evaluate the aims, effectiveness, and methods of the films. Essays will be graded for both content and form and will provide a basis for class discussion. Students will also be required to write a term paper focused on a particular ethnographic film of their choice (one not shown in class) supplemented by additional research. As an aid in the writing of the paper, at least one class period will be devoted to learning how to do library research in Anthropology. This course will complement other courses in Anthropology such as ANTH 045 and ANTH 001. The course can be used to fulfill a requirement in both the major and minor in Anthropology, and will fulfill both a Writing Intensive requirement and a Bachelor of Arts social/behavioral science requirement. It will also provide students in other

departments with the opportunity to study aspects of diverse, non-western cultures.

Changes Effective Summer 2024:

- Added Prerequisites
- Changed Course Description

ASM 309: Measurement & Monitoring of Hydrologic Systems (3 Credits)

Old Listing Effective Through Spring 2024:

This course is an introduction to measurement and monitoring equipment/techniques commonly used in analyses and design of hydrologic systems and will provide students the opportunity to learn and apply basic measurement techniques that serve as critical tools in professional practice in water resources. During the first part of the course, the instruments and techniques commonly used in water resources assessment, including rainfall monitoring, flow monitoring, and interest as part of the Sustainability Institute's Sustainable Communities Collaborative. Data generated over the course of the semester are used to develop a report that is shared, along with the data with a community partner. In the second part of the course, mapping development is explored, which serves as a critical aspect of water resources engineering and planning. ArcGIS serves as a primary software tool used in engineering design and water resources planning, and students will learn to develop maps to present and process various watershed - data including land use data, soils data, and hydrography data. Various aspects of the course will coalesce around the concept of the watershed being the basic unit of water resources analyses and design, and students will experience how various measurement techniques and approaches are necessary tools for practicing professionals. This course will be useful to any undergraduates seeking degrees in a major related to water resources planning, engineering, or technology.

Enforced Prerequisite at Enrollment: CHEM 110. Enforced Concurrent at Enrollment: PHYS 211 or PHYS 250

Cross-listed Courses: ERM 309

Changes Effective Summer 2024:

- Changed Course Abbreviation to ABSM

ASM 309H: Measurement & Monitoring of Hydrologic Systems (3 Credits)

Old Listing Effective Through Spring 2024:

Introduction to measurement and monitoring equipment/techniques commonly used in analyses and design of hydrologic systems.

Changes Effective Summer 2024:

- Changed Course Abbreviation to ABSM

ASM 310: Power Transmission in Agriculture (3 Credits)

Old Listing Effective Through Spring 2024:

Selection and maintenance of mechanical, hydraulic, and pneumatic power transmission components and systems. Electric motor principles and controls. ASM 310 Power Transmission in Agriculture (3) After successful completion of ASM 310, students will apply the physical principles, of mechanical power transmission system components such as shafts, belts and sheaves, chains and sprockets, gears, torque limiters, clutches, and universal joints by selecting suitable mechanical drives

and specifying proper maintenance procedures. Students will be able to read hydraulic and pneumatic schematics, size fluid power components such as pumps, lines, valves, cylinders, and troubleshoot hydraulic and pneumatic systems. Students will also be able to explain the electrical and physical principles of AC and DC electric motor operation. They will be able to identify torque, speed, voltage, and current operating characteristics and will be able to select controls and circuit protection devices necessary to achieve proper performance. As a required course in the Agricultural Systems Management major, ASM 310 is a prerequisite for other courses.

Enforced Concurrent at Enrollment: BRS 221

Changes Effective Summer 2024:

- Changed Course Abbreviation to ABSM
- Changed Prerequisites
- Changed Course Description

ASM 320: Combustion Engines for Mobile Equipment (3 Credits)

Old Listing Effective Through Spring 2024:

After successful completion of ASM 320, students will explain and evaluate the theoretical and practical aspects of internal combustion engines. Students will evaluate and compare alternative engine thermodynamic cycles, alternative fuels (gasoline, diesel, biodiesel, compressed natural gas), performance enhancing attachments (turbochargers, intercoolers), and supporting systems (fuel injection, lubrication, starting, cooling, emissions cleansing). Students will be able to properly select engines and related systems for mobile applications. Students will employ important maintenance procedures required for economical useful life and proper operation. Students will be able to troubleshoot engine systems.

Enforced Prerequisite at Enrollment: ASM 310 or BE 306 or ME 360

Changes Effective Summer 2024:

- Changed Course Abbreviation to ABSM
- Changed Prerequisites
- Changed Course Description

ASM 327: Soil and Water Resource Management (3 Credits)

Old Listing Effective Through Spring 2024:

This course equips students with the ability to understand land measurements, mapping, soils, hydrology, channel flow, erosion control techniques with emphasis on RUSLE2, subsurface drainage techniques, and water impoundments for use in storing water, managing stormwater, and capturing suspended sediment. The class concludes with a 3-week section on irrigation, which teaches water needs and pipe flow. Basic hydrology is presented using both the Soil-Cover-Complex and Rational Methods. Manning's equation is developed and discussed for use in understanding flow in open channels. The various components of the RUSLE2 soil erosion model are presented with emphasis in agricultural erosion. Irrigation is taught from both a supplemental agricultural and environmental perspective.

Enforced Concurrent at Enrollment: PHYS 250 or PHYS 211

Changes Effective Summer 2024:

- Changed Course Abbreviation to ABSM

ASM 420: Principles of Off-Road Machines (3 Credits)**Old Listing Effective Through Spring 2024:**

ASM 420 covers the technical aspects of off-road power machinery, such as tractors, self-propelled harvesters, and military, logging and construction equipment. Upon successful completion, students will understand the many facets of design and management of such vehicles (such as mechanical power generation, power allocation, power transmission, traction, operator enclosures, and electrical and electronic systems). Laboratory exercises will involve full-scale equipment with instrumentation used to measure performance. While ASM 420 is not a prerequisite for any other course, it complements engineering and technology courses related to machinery. This course is a technical selection in the Biological Engineering and BioRenewable Systems majors and is required for the Off-Road Equipment minor. It complements other courses for anyone interested in the off-road machinery industries. ASM 420 covers several aspects of function and design related to off-road machinery.

Enforced Prerequisite at Enrollment: BE 306 or ASM 310 or ME 360

Changes Effective Summer 2024:

- Changed Course Abbreviation to ABSM
- Changed Prerequisites
- Changed Course Description

ASM 424: Precision Agriculture Technology (3 Credits)**Old Listing Effective Through Spring 2024:**

Precision agriculture is a data-based approach to optimize crop production and reduce environmental footprint. This course provides an overview of major concepts in precision agriculture (such as GPS, GIS, remote sensing, and spatial variability) and case studies illustrating decisions and management. In this course, computer processing, data analysis and management, robotics, and other related advancements in technologies will be emphasized to provide necessary technical skills in precision agriculture to students. The first part of the course will cover agricultural machinery combined with GPS such as planters, combines, fertilizer application equipment, and sprayer. Students will learn how to manage these tools efficiently. The second part of the course will emphasize how to manage and analyze field variability data including yield data, soil properties with real-time sensors and create prescriptions based on actual data. The last part of the course will emphasize on how precision agriculture technology can benefit a farm's financial sustainability.

Enforced Prerequisite at Enrollment: BE 301 or ME 330 or STAT 240 or STAT 200 or STAT 250

Changes Effective Summer 2024:

- Changed Course Abbreviation to ABSM
- Changed Course Description

Old Listing Effective Through Spring 2024:**BRS 221: Engineering Principles of Biorenewable Systems (3 Credits)****Old Listing Effective Through Spring 2024:**

This course provides an overview of engineering principles to students in non-engineering majors, but who are likely to encounter challenges that require quantitative solutions. Problem solving skills are extremely

important to technology. At the end of the course, students will be able to: solve problems related to biorenewable systems using a structured, logical method combining concepts from physics and math; recognize and apply unit factoring and dimensional analysis to problem solving; quantify physical relationships and apply engineering principles to evaluate basic engineering technology problems involving electrical systems, structural members, fluid mechanics, heat transfer, and psychrometrics. Hands-on examples are used throughout the course to tie the course material to applications in agricultural and biorenewable industries. Examples include residential wiring; sizing structural members made of wood, steel, and other materials; non-moving and flowing fluids in bioproduct and agricultural processing; heat transfer through wall, windows, and other materials likely to be found in construction and processing facilities; psychrometrics in environmental growth and drying facilities. This course provides the groundwork for topics explored in more detail later in the BioRenewable Systems curriculum.

Enforced Prerequisite at Enrollment: (MATH 110 or MATH 140) and (PHYS 250 or PHYS 211)

Changes Effective Summer 2024:

- Changed Course Abbreviation to ABSM
- Changed Course Number to 301
- Changed Course Title
- Changed Abbreviated Title
- Changed Course Description

BRS 300: Introduction to Biorenewable Products (3 Credits)**Old Listing Effective Through Spring 2024:**

Overview of bioproducts and their related industry sectors, including forest products, biocomposites, biofuels, bioenergy, bio-based adhesives, biochemicals, and bioplastics. BRS 300 Introduction to Biorenewable Products (3) This course provides an overview of the nature and utilization of bioproducts, which are defined as products created from biologically derived, renewable industrial feedstocks. These materials are renewable and can be sustainably produced; as such, they will be increasingly utilized as society recognizes the opportunity cost of mining and using other non-renewable industrial feedstocks. The class focuses on overviewing the relevant industry sectors.

Enforced Concurrent at Enrollment: CHEM 110

Changes Effective Summer 2024:

- Changed Course Abbreviation to ABSM
- Changed Course Title
- Changed Abbreviated Title
- Changed Course Description

BRS 350: Introduction to Life Cycle Assessment (3 Credits)**Old Listing Effective Through Spring 2024:**

Life cycle assessment (LCA) is a quantitative approach to assessing the environmental, economic, and/or social impacts associated with the entire supply chain of a product, process, or service. LCA is a systematic and holistic approach that enables designers and planners to identify the most impactful stages of a supply chain so that we might strategically intervene to improve the system. In this course students will learn about the LCA standards developed by the International Organisation for Standardisation (ISO). Students will also develop estimation, data verification skills, how to consider uncertainty in analysis, and learn how

materials and energy flows lead to impacts to ecological and human systems. Over the course of the semester students will build their own LCA project by finding appropriate data, developing a life cycle inventory, entering data into LCA software, completing an impact assessment, and finally analysis and interpretation of the results generated. LCA is a flexible methodology and students will be encouraged to focus their project on a topic relevant to their broader learning and career objectives. Learning to complete an LCA also develops critical thinking skills, or life cycle thinking, which enables people to develop the skillset to pay attention to the larger system in which they are working in order to develop the human, materials and energy transactions that can lead to more renewable and sustainable systems. Class projects will allow the students to apply LCA to biorenewable systems, including agricultural and biological processes and product development.

Enforced Prerequisite at Enrollment: 5th Semester standing and (MATH 110 or MATH 140)

Changes Effective Summer 2024:

- Changed Course Abbreviation to ABSM
- Changed Course Description

BRS 391: Communication Skills for BE and BRS Students (2 Credits) [GWS]

Old Listing Effective Through Spring 2024:

BE/BRS 391 is one part of a two-semester experience in discipline-specific communication and leadership skills training. A key facet of this training is contextual approach. To meet the needs of BE and BRS students, the course emphasizes communication skills that are critical for their professional development, appreciating the technical content of students' work and the industries within which the students will ultimately work. The primary focus for BE/BRS 391 is communication skills (oral and written) with a secondary focus on leadership and career skills. Students will be evaluated through various methods, such as writing and speaking projects, professional presentations, written homework and worksheets in class and out, creation of portfolios and reports, and in-class group and individual exercises. BE/BRS 391 provides a foundation in General Education, Writing and Speaking (GWS) for students in the Biological Engineering (BE and BioRenewable Systems (BRS) majors.

Enforced Prerequisite at Enrollment: Fifth semester standing or higher

Cross-listed Courses: BE 391

Changes Effective Summer 2024:

- Changed Course Abbreviation to ABSM
- Changed Course Title
- Changed Course Description

BRS 392: Leadership Skills for BE and BRS Students (2 Credits) [GWS]

Old Listing Effective Through Spring 2024:

BE/BRS 392 is one part of a two-semester experience in discipline-specific communication and leadership skills training. A key facet of this training is the contextual approach. To meet the needs of BE and BRS students, the course emphasizes leadership skills that are critical for their professional development, appreciating the technical content of students' work and of the industries within which the students will ultimately work. The primary focus for BE/BRS 392 is leadership skills,

supported by training in communication, ethical decision-making, and management. Students will be evaluated through various methods, such as writing and speaking projects, professional presentations, written homework and worksheets in class and out, creation of portfolios and reports, and in-class group and individual exercises. BE/BRS 392 provides a foundation in General Education, Writing and Speaking (GWS) for students in the Biological Engineering (BE) and BioRenewable Systems (BRS) majors.

Enforced Prerequisite at Enrollment: Fifth semester standing or higher

Cross-listed Courses: BE 392

Changes Effective Summer 2024:

- Changed Course Abbreviation to ABSM
- Changed Course Title
- Changed Abbreviated Title
- Changed Course Description

BRS 399: Foreign Studies (1-12 Credits: Maximum of 12 Credits) [IL]

Old Listing Effective Through Spring 2024:

Courses offered in foreign countries by individual or group instruction.

Changes Effective Summer 2024:

- Changed Course Abbreviation to ABSM

BRS 402: Foundations of Sustainable Business (3 Credits)

Old Listing Effective Through Spring 2024:

Emphasis on understanding business strategies for enhancing sustainable operations, including issues related to the natural environment and corporate social responsibility. ERM 402 / BRS 402 Foundations of Sustainable Business (3) This course will provide students with an understanding of how environmental and sustainability issues are impacting business strategies and ultimately profits. We will also examine the external stakeholders, such as environmental groups, policy-makers, and "green" consumers, that impact business management. Business students will benefit by a better understanding of environmental/sustainability issues that impact their operations and strategies. Non-business students will benefit by understanding how business decisions can impact the natural environment. An emphasis will be on a thorough understanding of making a business case for sustainability. We will also discuss the triple bottom line and its use. Some Specific Issues to Cover: 1. How are organizations shifting business models to work with sustainability trends? 2. How can we make a business case (justification) for being "green"? 3. Can firms differentiate themselves by being responsible/sustainable? Do consumers and other stakeholders care? 4. Thorough understanding of stakeholders and how they impact operations. 5. How can the "business" side of the world work with the "environmental" side? 6. Use of packaging as an example of where parts of the supply chain are working together to be more sustainable. 7. How "waste" in its many forms can be seen as a surrogate for unsustainable practices. 8. Pros and cons of metrics used to measure sustainability. 9. Impacts of business operations on the environment.

Enforced Prerequisite at Enrollment: (AGBM 101 or ECON 102 or ECON 104) and 7th semester standing

Cross-listed Courses: ERM 402

Changes Effective Summer 2024:

- Changed Course Abbreviation to ABSM
- Changed Course Description

BRS 411: Bioproducts Science and Technology (3 Credits)
Old Listing Effective Through Spring 2024:

This course investigates fundamental aspects of biorenewable polymers (bioproducts) and ties their underlying chemical structure to macroscale properties. These bioproducts are created from biologically derived, renewable industrial feedstocks such as wood, cotton, grasses, and bast fibers (e.g. jute, hemp, kenaf, sisal, etc.). The course begins with an overview of descriptive organic chemistry that is relevant to biorenewable polymers. Students will build on this knowledge to identify, compare, and contrast various industrially relevant plastics. Material science of polymers, including determining molecular weights and measuring mechanical properties of bioproducts is then investigated. These properties are relevant to compare the performance of existing plastics with emerging bioproducts. A survey of the several classes of synthetic and natural polymers, fibers, and composites is the focus of the third unit in the class. Final course subjects include manufacture of soft materials and their decomposition to form recalcitrant waste and microplastics. These will be discussed in the context of 21st-century western culture predicated on the existence of cheap and disposable plastic products, and how design and deployment of new bioproducts could eliminate plastic waste, reduce the environmental impact of plastics, and enhance the economics of industrial biorefining.

Enforced Prerequisite at Enrollment: CHEM 110 and BRS 350

Changes Effective Summer 2024:

- Changed Course Abbreviation to ABSM
- Changed Prerequisites

BRS 417: Processing and Manufacturing Systems for Bioproducts (3 Credits)
Old Listing Effective Through Spring 2024:

Overview of systems and processes used in the manufacture of bioproducts. This course reviews major bioproducts and details how they are manufactured industrially. A fundamental understanding of petrochemical refining, pulp and papermaking, and sawmill operations is the foundation of the beginning of the course, since the majority of existing and emerging bioproducts are manufactured using these processes or new hybrids of these. Next, thermochemical conversion of biomass is covered, including existing technologies such as torrefaction and barrel production, and emerging technologies such as catalytic fast pyrolysis and biomass gasification. Students will then prepare and deliver presentations on traditional and emerging wood and paper products. The final portion of the course will include biomass fractionation technologies that provide cellulose, hemicellulose, and lignin to produce fuels and chemicals in a manner analogous to petrochemical refining.

Enforced Prerequisite at Enrollment: BRS 221 and BRS 300

Changes Effective Summer 2024:

- Changed Course Abbreviation to ABSM
- Changed Prerequisites

BRS 422: Energy Analysis in Biorenewable Systems (3 Credits)
Old Listing Effective Through Spring 2024:

Energy management, energy conversions, renewable energy alternatives, engineering economic analyses, national and international perspectives on energy resources. BRS 422 Energy Analysis in Biorenewable Systems (3) This course focuses upon first understanding the various forms of energy in common use today and then analyzing the energy equivalents of various forms of energy. Forms of energy to be studied most extensively include electricity, fossil fuels, and renewable energy sources. Principles and applications of engineering economic analyses will be emphasized because these principles are needed to evaluate the feasibility of converting from one energy form to another. Specific application areas of emphasis include buildings, motors, and lights. For each application area, there will be discussion of the alternatives available for using energy in a more efficient and economical manner. The infrastructure systems needed for providing electricity and natural gas to a specific location will be described as well as typical rate structures for the energy provided. Alternatives to the conventional energy systems will be identified and the course will conclude with discussion of energy strategies throughout the 21st century. Local, national, and international perspectives on energy resources will be infused throughout this course.

Enforced Prerequisite at Enrollment: BRS 221

Changes Effective Summer 2024:

- Changed Course Abbreviation to ABSM
- Changed Course Title
- Changed Abbreviated Title
- Changed Prerequisites
- Changed Course Description

BRS 423: Deterioration and Protection of Bioproducts (3 Credits)
Old Listing Effective Through Spring 2024:

Timber, wood, and bioproduct deterioration from fungi, insects, fire; treatment of bioproducts for in-service protection.

Enforced Prerequisite at Enrollment: BRS 300 Enforced Concurrent at Enrollment: BRS 411

Changes Effective Summer 2024:

- Changed Course Abbreviation to ABSM
- Changed Prerequisites

BRS 426: Safety and Health in Agriculture and Biorenewable Industries (3 Credits)
Old Listing Effective Through Spring 2024:

BRS 426 explores management aspects of occupational safety and health specifically as it pertains to both the agricultural and biorenewable systems industry sectors. Employers are increasingly demanding students have training in safety and health. Topics to be covered include principles of safety and health, hazard analysis, hazard prevention and control, human behavior and safety, training and education, safety and health regulations, agricultural emergencies and developing a written safety program.

Enforced Concurrent at Enrollment: 5th Semester standing or higher

Changes Effective Summer 2024:

- Changed Course Abbreviation to ABSM

BRS 428: Electric Power and Instrumentation (3 Credits)**Old Listing Effective Through Spring 2024:**

Principles and application of electric circuits for power distribution, motors, automatic controls, and instrumentation used in agricultural and biorenewable industries. BRS 428 Electric Power and Instrumentation (3) Nearly every facet of our modern society relies on electricity and electronics. Whether engaged in product development, manufacturing, production, testing, or management, graduates of technical programs benefit from a fundamental understanding of electrical/electronic systems. This course prepares students to analyze electrical/electronic systems applicable to agricultural and biorenewable industries. Upon completion of this course, the student will be able to: demonstrate correct use of common electronic measurement tools including multimeters, oscilloscopes and others; demonstrate sound electrical construction techniques including cable preparation, soldering, circuit board construction, and others; demonstrate sound troubleshooting skills for electrical and electronic systems; understand common elements of power distribution systems; understand simple measurement and control circuits represented by schematics or ladder diagrams; understand and apply various sensors to measure temperature, pressure, strain, force, proximity, speed etc.; understand the application of dataloggers, programmable logic controllers, and computer software to collect data and/or control simple processes; understand the function of common circuit components such as resistors, capacitors, inductors, diodes, op-amps, transistors, and transformers in simple circuits; understand basic maintenance and safety requirements for facility electrical systems.

Enforced Prerequisite at Enrollment: BRS 221

Changes Effective Summer 2024:

- Changed Course Abbreviation to ABSM
- Changed Prerequisites
- Changed Course Description

BRS 429W: Biorenewable Systems Analysis and Management (3 Credits) [WAC]**Old Listing Effective Through Spring 2024:**

BRS 429W covers systems analysis and optimization techniques including an introduction to systems theory, qualitative and quantitative analysis, linear programming, waiting line models, PERT/CPM, minimal spanning tree, calculus methods, simulation modeling for decision making, inventory, and energy audits. All topics are presented in the form of case studies that require the students to solve problems in realistic production and processing scenarios. The course also provides a writing-intensive structure. The course targets BRS students in their last semester because it integrates knowledge and experiences acquired in prior BRS, business, and agricultural science courses.

Enforced Concurrent at Enrollment: 7th Semester standing or higher

Changes Effective Summer 2024:

- Changed Course Abbreviation to ABSM
- Changed Course Number to 429
- Changed Course Title
- Changed Abbreviated Title
- Changed Course Description
- Removed Writing Across the Curriculum (WAC) Attribute

BRS 430W: Biorenewable Systems Capstone 1 (1 Credit) [WAC]**Old Listing Effective Through Spring 2024:**

Students in Biorenewable Systems learn to apply technology, business, and science to sustainable agricultural and biologically-based product systems development and management. The capstone experience is a two semester, senior year sequence required of all BRS students. This course is the Fall component of the sequence and introduces the student to concepts critical for analyzing real-world biorenewable systems. This includes selecting a capstone topic, technical writing review, team building, systems analysis tool application, project proposal development, and proposal presentations. The course also provides iterative writing experiences to enhance the student's ability to create technically sound and grammatically correct reports. At the end of this course, the student will be able to: Write a technically sound biorenewable systems project proposal; be able to function in teams to address a biorenewable systems problem; be able to assess a system and apply appropriate analysis and/or business tools.

Enforced Prerequisite at Enrollment: BRS 391 and BRS 392 Enforced Concurrent at Enrollment: BRS 429W

Changes Effective Summer 2024:

- Changed Course Abbreviation to ABSM
- Changed Course Title
- Changed Abbreviated Title
- Changed Prerequisites
- Changed Course Description

BRS 431W: BioRenewable Sys Capstone 2 (2 Credits) [WAC]**Old Listing Effective Through Spring 2024:**

Students in Biorenewable Systems learn to apply technology, business, and science to sustainable agricultural and biologically-based product systems development and management. The capstone experience is a two semester, senior year sequence required of all BRS students. This course is the Spring component of the sequence. The students apply quantitative systems and business tools to analyze real-world biorenewable systems, interpret the results, and provide recommendations for management decision making. The course also provides iterative writing experiences to enhance the student's ability to create technically sound and grammatically correct reports. At the end of this course, the student will be able to: Effectively work as a team to manage the time and resources of a biorenewable systems analysis project; execute a systems analysis of a real-world problem; interpret results to provide a management recommendation; effectively present results and recommendations in a technical report.

Enforced Prerequisite at Enrollment: BRS 430W

Changes Effective Summer 2024:

- Changed Course Abbreviation to ABSM
- Changed Course Title
- Changed Abbreviated Title
- Changed Prerequisites
- Changed Course Description

BRS 490: BioRenewable Systems Colloquium (1-2 Credits: Maximum of 2 Credits)**Old Listing Effective Through Spring 2024:**

This course introduces students to various aspects of the biorenewable systems industries with an emphasis on professional career information and insights. Outside speakers will provide perspectives on current challenges, opportunities, and future trends in bioproduct and related industries.

Enforced Concurrent at Enrollment: 5th Semester standing or higher

Changes Effective Summer 2024:

- Changed Course Abbreviation to ABSM
- Changed Course Title
- Changed Abbreviated Title
- Changed Course Description

BRS 494: Undergraduate Research (1-12 Credits: Maximum of 12) Old Listing Effective Through Spring 2024:

Supervised student activities on research projects identified on an individual or small group basis.

Changes Effective Summer 2024:

- Changed Course Abbreviation to ABSM

BRS 494H: Honors Thesis (1-6 Credits: Maximum of 6 Credits) [H] Old Listing Effective Through Spring 2024:

Independent study directed by a faculty supervisor that culminates in the production of a BioRenewable Systems honors thesis.

Enforced Prerequisite at Enrollment: Junior or senior standing in the Schreyer Honors College and permission of a BioRenewable Systems honors advisor

Changes Effective Summer 2024:

- Changed Course Abbreviation to ABSM

BRS 495: Internship (1-18 Credits: Maximum of 18 Credits) Old Listing Effective Through Spring 2024:

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Changes Effective Summer 2024:

- Changed Course Abbreviation to ABSM

BRS 496: Independent Studies (1-18 Credits: Maximum of 18 Credits) Old Listing Effective Through Spring 2024:

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Changes Effective Summer 2024:

- Changed Course Abbreviation to ABSM

BRS 497: Special Topics (1-9 Credits: Maximum of 9 Credits) Old Listing Effective Through Spring 2024:

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Changes Effective Summer 2024:

- Changed Course Abbreviation to ABSM

BRS 499: Foreign Studies (1-12 Credits: Maximum of 12 Credits) [IL]

Old Listing Effective Through Spring 2024:

Courses offered in foreign countries by individual or group instruction.

Changes Effective Summer 2024:

- Changed Course Abbreviation to ABSM

ENGL 428: Asian American Literatures (3 Credits: Maximum of 6 Credits) [BA] [US]

Old Listing Effective Through Spring 2024:

A seminar on the literatures and cultures of Asian America, with attention to forms of geographic, historical, and ethnic diversity.

Cross-listed Courses: AAS 428

Changes Effective Summer 2024:

- Changed Cross-Listed Course Abbreviation to ASIA
- Changed Course Description

ERM 448: Rural Road Ecology and Maintenance (3 Credits) Old Listing Effective Through Spring 2024:

Roads are ubiquitous throughout the landscape and this course is intended for students who anticipate working in natural resource management fields. This course provides students with the fundamental understanding of the interaction of natural systems with unpaved and low volume paved roads in order to economically maintain roadways with minimum impact on the environment. The major focus area will be the road/stream interface, including the fundamentals of hydrology, geology, soils, and erosion processes as they pertain to roads and streams. It is expected that the student will gain a practical understanding of rural road maintenance in order to provide a foundation for real-world application. Emphasis is placed on Environmentally Sensitive Maintenance (ESM) practices for rural roads that are used throughout Pennsylvania. The goal of ESM practices is to minimize the environmental impact of the existing road network by maintaining proper road drainage in order to keep road materials out of the adjacent streams and surrounding landscape. Upon completion the student will be ESM certified under Pennsylvania's Dirt, Gravel and Low Volume Road Maintenance Program.

Prerequisites: MATH 22 AND MATH 26; OR MATH 41; OR MATH 110 OR MATH 140 Concurrent Courses: ASM 327 OR BE 307 OR CE 335 OR CE 370 OR FOR 308 OR FOR 470

Changes Effective Summer 2024:

- Changed Prerequisites

FOR 201: Global Change and Ecosystems (3 Credits) Old Listing Effective Through Spring 2024:

This course will provide students with an understanding of the climate system, ecosystems, and feedbacks between the two. FOR 201 Global Change and Ecosystems (3) (GN) Ecosystems across the planet are facing unprecedented pressures and changes as society seeks to support continued population growth and increasing standards of living. Understanding how ecosystems in Earth's biosphere interact with the climate system and how feedbacks alter the services that ecosystems provide is necessary to meet society's demands. Global

Change and Ecosystems is designed to provide students with a general understanding of the climate system, ecosystems, and feedbacks between the two. The goal of this course is to develop critical thinking skills related to understanding the many relationships between society and natural systems. In this course students are encouraged to think critically about these relationships and the information used to develop assessments. This course broadly covers: 1) global change factors, including climate change, land-use change, and pollution, 2) life on land, where we will explore the diversity of Earth's ecosystems, 3) global change impacts, where we will identify how global change factors are impacting our ecosystems, and 4) ecosystem services, where we will examine the coupling of human and natural systems. Students will complete this class with the ability to: 1) interpret scientific figures, 2) critically evaluate information about global change and ecosystems, 3) define what constitutes an ecosystem and the controlling factors, 4) describe Earth's biomes and major ecosystems, and 5) describe the impacts of global change factors on ecosystems.

PreRequisite: 3 credits of science

Changes Effective Summer 2024:

- Changed Course Number to 201N
- Changed Abbreviated Title
- Removed Prerequisites
- Added Recommended Preparation
- Changed Course Description
- Added General Education Inter-Domain, Natural Sciences (GN), and Social & Behavioral Sciences (GS) Attributes

FORT 170: Forest Harvesting and Operations (3 Credits)

Old Listing Effective Through Spring 2024:

Forest harvesting and intermediate operations: forest worker safety, hand and power tools, harvest planning, and best management practices. FORT 170 Forest Harvesting and Operations (3 Credits) FORT 170 is a three-credit, applied field-oriented course in the Forest Technology curriculum. The course is offered in the four-week summer intersession following completion of the second semester. Students will be introduced to woods safety and the identification of hazards; the safety and use of hand and power tools used in forest harvesting and intermediate operations; and logging equipment safety, maintenance, and operation. Axes, crosscut saws, chain saws, heavy logging equipment including logging skidder, bulldozer, and woods tractor will be used. Students will work in crews to complete a forest harvest or thinning operation from beginning to end including: forest inventory and stand analysis; the use of best management practices; the development of an erosion and sedimentation plan; harvest planning and layout; forest stand marking; and the harvest of the marked forest stand. Daily performance is evaluated based upon safety, effort, and motivation, skill improvement, cooperation, and attendance. Course grades will be based on quizzes, assignments, and daily performance.

PreRequisite: FORT 110 , FORT 160 , American Red Cross Standard First Aid and CPR

Changes Effective Summer 2024:

- Removed Prerequisites
- Added Concurrents
- Changed Course Description

HM 407: The Sustainable Fork: Food Systems Decisions for Away-From-Home Eating (3 Credits)

Old Listing Effective Through Spring 2024:

The course will incorporate economic and managerial dimensions to the discussion of food decisions in foodservice away-from-home eating contexts, particularly emphasizing the behavioral aspect of decisions - how individuals (consumers, providers, managers) make choices in the food system, and what might be the consequences of these choices. The course will use evidence from multiple farm-to-fork perspectives to allow students to analyze food systems problems and solutions. It will also require students to engage directly with the local food service system through course projects and tours. The major topics of discussion will be organized under each of the value chain components of the farm-to-fork continuum: production, distribution, purchasing, preparation, and consumption. Specific topics under each of these value chain components will include: nutrition, food safety, food waste, sustainable practices, social justice, consumer utility, economic profits, ethics, government policy, and decision-making. In particular, the course will be motivated by economic theories such as: agency relationship, information asymmetry, transaction cost economics, and behavioral economics topics such as self-rationing, and time discounting.

Enforced Prerequisite at Enrollment: A grade of C or better in HM 201 or AGBM 170 or AGBM 170Z

Cross-listed Courses: FDSYS 407

Changes Effective Summer 2024:

- Changed Prerequisites

IT 20: Intensive Intermediate Italian (6 Credits) [BA]

Old Listing Effective Through Spring 2024:

Continuation of Intensive Elementary Italian, building on grammar and communication skills (reading, writing, listening, and speaking). IT 020 Intensive Intermediate Italian (6)(BA) This course meets the Bachelor of Arts degree requirements. This course is for students who have successfully completed IT 010 Intensive Elementary Italian, and who seek an Intensive learning environment of Italian grammar (all aspects: reading, writing, listening, and speaking). Students learn intermediate Italian in an intensive language-learning environment. Extensive reinforcement of elementary Italian grammar (reading, writing, speaking, listening) and introduction to intermediate Italian grammar, speech, and culture through a variety of written and oral exercises. All work is done in Italian. Homework in the accompanying workbooks is assigned each week. Pronunciation practice in the language lab is also required weekly. There are also supplementary grammatical and cultural activities on the course web page. Equivalent to last half of IT 002 and all of IT 003.

PreRequisite: IT 010

Changes Effective Summer 2024:

- Changed Abbreviated Title
- Changed Course Description

LING 404: Phonology I (3 Credits) [BA]

Old Listing Effective Through Spring 2024:

The analysis of the sound systems of human languages; focus on common phonological processes across languages and on phonetics-phonology interface. LING 404 Phonology I (3)(BA) This course meets

the Bachelor of Arts degree requirements. This course is about sound patterning in language. In particular, we will learn how human speech sounds are produced and how they function together as a system. We will learn the International Phonetic Alphabet applied to English. We will discuss phonological data from many different languages to seek common phonological processes that occur despite the apparent surface diversity of languages. We will do extensive work on phonological problems in order to master basic phonological analysis.

Changes Effective Summer 2024:

- Added Prerequisites
- Changed Course Description

LING 449: Semantics I (3 Credits) [BA]

Old Listing Effective Through Spring 2024:

The study of meaning in human language; methods of analysis; study of sense, reference, compositionality, quantification, presupposition, and sentence-level meaning. LING 449 Semantics I (3)(BA) This course meets the Bachelor of Arts degree requirements. This course examines our best understanding of how humans produce and understand utterances to have particular meanings. This course examines lexical semantics, which is concerned with word meaning, phrasal semantics, which examines phrase meanings and with pragmatics, the study of meaning in contexts. Because meanings cannot always be built up or deduced from the combined meaning of smaller elements, students will attempt to divulge the semantic principles at work in human language through a wide variety of problems and activities.

Changes Effective Summer 2024:

- Added Prerequisites
- Changed Course Description

LING 493: Field Methods (3 Credits) [BA]

Old Listing Effective Through Spring 2024:

Primary linguistic investigation of a language different from English; field work with a native speaker; data gathering; linguistic analysis. LING 493 Field Methods (3)(BA) This course meets the Bachelor of Arts degree requirements. In this course, students work directly (in groups) with a native speaker of a foreign language with which no one in the class has any prior familiarity. The students will work to uncover the set of sounds relevant to the language in question by winnowing down possible sound contrasts made in human languages. They will begin to construct a lexicon (vocabulary) built with a phonetic alphabet to discover how words are formed in the language. They will refine their techniques of questioning their research participant based on principles of linguistic field work. Finally, groups will present their findings for discussion and revision.

Changes Effective Summer 2024:

- Added Prerequisites
- Added Concurrents
- Added Recommended Preparation
- Changed Course Description

PLSC 114Z: Winning Political Support (3 Credits)

Old Listing Effective Through Spring 2024:

The purposes of this course are to introduce students to the comparative study of political systems, some of their parts, and the functioning of

those parts, and to develop a capacity for effective, ethical citizenship. Real-world attempts to convince various audiences will be analyzed with respect to their appeals to the emotions of their respective audiences, often through framing the candidacy or policy under consideration in ways intended to stimulate fear, hope, or anxiety in order to command the attention of audiences. The use of words, other symbols, and non-verbal stimuli with strong emotional and normative content will be highlighted. The class will also evaluate efforts to establish credibility with audiences through references to endorsements, demonstrations or claims of expertise, goodwill, and good sense. Lastly, the logical validity of inferences and deductions made in the attempts to convince will be considered so that flattery, manipulation, bargaining, deception, and intimidation can be distinguished from genuine persuasion. Materials presented in Philosophy 10 (GH), "Critical Thinking," to which PLSC 114 is linked, will provide students with the tools to do this.

So that students might see how characterizations of attempts to convince might be placed into a provisional context, the study is comparative. It will look at attempts in the U.S. as well as some other country. In general, so that the attempts at winning over audiences might be as comparable and as comprehensible as possible, the issue should be as similar as possible and the other country should be Anglophone. Although systems of elections and governance and controversial issues inevitably vary within and between countries, it is possible to find elections and policy controversies with sufficient similarities to make cross-national comparisons of attempts at convincing their respective audiences a fruitful exercise. For example, one might build the course around the televised debates and campaign ads for the mayoral elections in Vancouver and Seattle and the efforts to generate support and opposition to oil pipelines in the two countries. By looking at the different strategies used in attempts to convince elites, the citizenry and parts of the citizenry in the two countries, it is possible to raise questions about the workings of the political systems in the two countries. Specifically, students can examine some of the ways that historical geopolitical, constitutional, economic, and demographic differences between and within the two countries are manifested in the political processes of the two countries. By leading students to consider such questions, this course can induce them to undertake further study that will equip them with the methodological tools to investigate these issues in greater depth. Moreover, by providing students with the basic outlines of well-supported valid inference and challenging them to detect of the most common informal fallacies in efforts to convince and create an outline for their own attempt at political persuasion, PLSC 114 (GS) will help build capabilities that are necessary for responsible and effective and ethical citizenship.

Changes Effective Summer 2024:

- Changed Course Number to 114
- Changed Abbreviated Title
- Changed Course Description
- Removed General Education Linked Attributes

RPTM 494: Senior Honors Thesis (1-6 Credits: Maximum of 6 Credits) [H]

Old Listing Effective Through Spring 2024:

Senior Honors Thesis

Changes Effective Summer 2024:

- Changed Course Title
- Changed Abbreviated Title
- Changed Course Description

SOC 5: Social Problems (3 Credits) [GS] [BA]
Old Listing Effective Through Spring 2024:

Current social problems such as economic, racial, and gender inequalities; social deviance and crime; population, environmental, energy, and health problems. SOC 5 Social Problems (3) (GS)(BA) This course meets the Bachelor of Arts degree requirements. This course is designed to introduce students to the main societal issues facing humanity at the present time and in the foreseeable future. Although the course examines a number of social issues in the United States (such as crime and poverty), the course generally takes an international and intercultural perspective. The primary social issues that affect individuals and their children today are global, rather than national, in scope. For this reason, globalization is a recurring theme in the course. Discussion and questions are encouraged in all sections. This course meets a General Education requirement in the Social and Behavioral Sciences.

Changes Effective Summer 2024:

- Changed Course Description

SOC 19: Sociology of Popular Culture (3 Credits) [GS] [BA]
Old Listing Effective Through Spring 2024:

In this course students will be introduced to the theories, concepts, and research techniques sociologists use by applying them to study popular culture. Popular culture is pervasive in modern societies and comes in many forms both in and out of the mainstream from pop songs, TV series, and fashion trends to Manga, Burning Man, and Furries. Thanks to social media and the Internet pop culture morphs and spreads rapidly from person to person, across time and space, making it a global culture. As a scientific approach to studying the moving parts that make societies tick, sociology is well suited to helping us make sense of a topic this diverse and complex. To make the topic of pop culture more manageable for a single course, students will explore how popular culture is shaped by the social dividing lines commonly found in modern societies and in turn helps to shape how factors such as race, social class, gender, sexuality, and nationality affect people's lives. The course is organized to meet two instructional goals. First, to demonstrate to students how questions about pop culture stemming from varied sociological perspectives can be answered using different research methods. Second, to help students think sociologically about pop culture by helping them to conduct their own investigations of types and aspects of pop culture that they are curious about. Along the way the class will discuss such issues as creativity and innovation in culture production; the commercialization of popular culture; cultural capital and social distinctions; popular culture as an identity resource; the political uses of pop culture; subcultural deviance; music scenes; cultural colonialism and hybridization; YouTube stars, "binge-watching," and the latest pop culture trends and developments. The hope is that by studying popular culture as part of social processes and human relationships students become more sociologically savvy observers of their cultural environment and gain a richer awareness of the significance of popular culture in their own lives. Practically speaking, the course offers students a foundation for further study in sociology and related social sciences, as well as academic and applied disciplines that focus on popular culture and other types of art and culture.

Changes Effective Summer 2024:

- Changed Course Description

SOC 409: Racial and Ethnic Inequality in America (3 Credits)
Old Listing Effective Through Spring 2024:

The impact of inequality and discrimination on individual and group identity among various racial and ethnic groups.

SOC 409 / AFAM 409 Racial and Ethnic Inequality in America (3) (US) (BA) This course meets the Bachelor of Arts degree requirements. This course explores the impact of inequality and discrimination on individual and group identity for a wide range of social groups with special focus on racial and ethnic majorities and minorities. Using an extensive list of readings, writing assignments, small group activities, and journals (for personal reflection and scholarly critique) the students join the instructor in exploring the effects of inequality and discrimination. While emphasis is given to the inequality and discrimination experienced by local and national populations, a significant portion of the class will address issues rooted in international structures and institutions. Students are evaluated on quizzes, reaction papers, and analysis journals. AFAM 409 / SOC 409 is not a required course in Sociology; it is, however, an optional 400-level course for all majors and minors that fulfills one of their upper-level course requirements. AFAM 409 / SOC 409 is not required for the major or minor, but it is one of several optional courses from which they can choose to fulfill major and minor requirements.

Enforced Prerequisite at Enrollment: 3 credits in SOC

Cross-listed Courses: AFAM 409

Changes Effective Summer 2024:

- Changed Course Description

SOC 470: Intermediate Social Statistics (4 Credits) [BA]
Old Listing Effective Through Spring 2024:

Descriptive and inferential statistics in social research: central tendency and variation, normal distribution, measures of association, confidence intervals, hypothesis testing.

Enforced Prerequisite at Enrollment: SOC 207

Changes Effective Summer 2024:

- Changed Course Description

SUR 241: Surveying Measurement Analysis (3 Credits)
Old Listing Effective Through Spring 2024:

Statistical error analysis of surveying measurements; propagation of random errors; confidence intervals and statistical testing. Lab. SUR 241 Surveying Measurement Analysis (3) Surveying Measurement Analysis explores the fundamental concepts of statistical error analysis with applications to surveying measurements. It covers the normal distribution function and theories describing the fundamental procedures in data including measures of central tendency and measures of data variation. It then explores sampling distribution theory and develops statistical confidence intervals and testing using the χ^2 , students t, and F distributions. Fundamental concepts in the propagation of variance are developed and applied to the traditional surveying observations of angles, distances, azimuths, elevation differences. These error propagation techniques are further used to explore the propagation of variance in traditional traverse computations. The accompanying lab exercises help reinforce and validate the theoretical foundations of this class.

Enforced Prerequisite at Enrollment: SUR 111 Enforced Concurrent at Enrollment: MATH 83 or MATH 140

Changes Effective Summer 2024:

- Changed Abbreviated Title
- Changed Prerequisites
- Changed Course Description

SUR 313: Integrated Surveying (3 Credits)

Old Listing Effective Through Spring 2024:

Control, boundary, mapping and construction surveys; survey planning, coordinating; report and record map preparation. SUR 313 Integrated Surveying (3) SUR 313 is intended for SRT and SUR E students in their last year in the programs. Objectives of SUR 313 are directed toward providing instruction and practical experience in activities common in surveying practice, experience requiring the integration of virtually all abilities gained in previous surveying courses. The class is organized as a student surveying company with the instructor as general supervisor. Objective 1 of the student surveying company is to analyze a letter from a client (the instructor) requesting a survey. The letter will request a survey (typically ALTA boundary or construction). The client letter will specify standards (ALTA and other) the survey is to meet, standards commonly required in survey practice. The client letter will specify products to be delivered, typically a report of record of survey maps and analyses showing the degree to which required survey standards have been met. In addressing objective 1, students determine exactly what work needs to be done to satisfy client requirements. Typically these include several sub-surveys: (1) a relatively long-range satellite (GNSS) survey to bring control into the project area, (2) a traditional local control survey to create a control network to control subordinate surveys and the surveys producing what the client has requested, typically boundary retracement and mapping surveys. The result of work on objective 1 is the organization of the class into coordinating groups, one per sub-survey plus two additional groups for report compilation and editing and map production and editing. Objective 2 of the student surveying company is to develop detailed work plans for sub-surveys, report preparation and map production. The result of work on objective 2 is the set of work plans. A written contract (as a letter of understanding) between the student surveying company and the client is prepared. Objective 3 is to perform that record search, field work, data analysis, mapping and preliminary report writing for the sub-surveys necessary to meet client requirements. Objective 4 is to compile the final report of survey.

Enforced Prerequisite at Enrollment: SUR 162 Enforced Concurrent at Enrollment: SUR 212 and SUR 272

Changes Effective Summer 2024:

- Changed Abbreviated Title
- Changed Prerequisites
- Changed Course Description

SUR 341: Adjustment Computations (3 Credits)

Old Listing Effective Through Spring 2024:

Matrix methods in least squares; random error propagation; observation equation model; conditions between parameters; basic post-adjustment statistical analysis. SUR 341 - Adjustment Computations (3) Adjustment computations covers the basic theory and mechanics of a least squares adjustment using the traditional surveying observations of distances, angles, azimuths, and elevation differences. It explores the theory of error

propagation, and uses this theory to determine the precision of indirectly measured quantities. It explores post-adjustment analysis through the use of various statistical tests, and error ellipse computation and analysis. This course primarily focuses on the least squares adjustment and analysis of differential leveling, triangulation, trilateration, traverse and network observations.

Enforced Prerequisite at Enrollment: SUR 262 Enforced Concurrent at Enrollment: CMPSC 201 and STAT 200 and SUR 241

Changes Effective Summer 2024:

- Changed Abbreviated Title
- Changed Prerequisites
- Changed Course Description

SUR 362: Introduction to Geospatial Information Engineering (3 Credits)

Old Listing Effective Through Spring 2024:

Basic concepts in geographic information engineering; spatial reference frame-works; map and text data; digital environments; software and hardware plat-forms. SUR 362 Introduction to Geospatial Information Engineering (3) Land has varied meaning and value to different cultures and generations. There is a need to manage land and its resources in order to sustain life and meet the demands of competing interests. Geospatial information technology provides a means through which data about land can be analyzed to obtain information that may be used to support land management decisions. The geospatial information engineering course is the foundation course in the surveying engineering program that introduces students to the technology. The objective of this course is course is to teach students to collect and process spatial data, analyze and make decisions, and to communicate the results using maps and other information delivery formats. This course begins with the introduction of geospatial technology and its application in decision making, resource allocation and management, a socio-economic development. Students learn the different types of data that are used in geospatial information technology. They learn about graphical data structures as well as descriptive databases and how to build them. Three spatial data models are discussed together with their advantages and drawbacks, as well as descriptive databases. Students capture various datasets from the field, convert them into usable formats, and process them using the models that have been discussed so as to reinforce the knowledge. Spatial reference systems and map projections are discussed. Procedures for performing geospatial analyses and querying databases are discussed and students conduct laboratory exercises using the field data that they captured. Map making techniques are discussed and students learn to communicate the results of analysis through maps.

Enforced Prerequisite at Enrollment: SUR 162 and SUR 272 Enforced Concurrent at Enrollment: (MATH 110 or MATH 140) and SUR 222

Changes Effective Summer 2024:

- Changed Abbreviated Title
- Changed Prerequisites
- Changed Course Description

SUR 381: Stormwater Hydraulics and Hydrology (4 Credits)

Old Listing Effective Through Spring 2024:

Hydraulics: statics, continuity, energy, friction; hydrology: rainfall, abstractions, travel time, runoff; stormwater design: sewers, culverts,

basins, erosion; municipal regulations. SUR 381 Stormwater Hydraulics and Hydrology (4) Stormwater Management Hydraulics and Hydrology is an elementary treatment of common design practices used to create stormwater management plans for small to medium sized land development projects. Erosion and sedimentation design is also addressed within the context of a stormwater management plan. The course is intended for engineering students who are not required to take formal fluid mechanics or hydrology courses, yet have a need to understand or complete the design aspects of stormwater management as it relates to their professional practice. Some state professional registration laws refer to this type of engineering design as "minor engineering" which is engineering design as it relates to land surveys connected to land development activities. Other types of "minor engineering" include street alignment, sanitary sewers, water lines, utilities and site grading. The course contains three segments. The first segment covers the elementary hydraulics necessary to design drainage structures and storm water detention facilities. These topics include fluid statics, continuity, conservation of mass, conservation of energy, friction losses, minor losses, energy grade line, open channel flow, weirs and orifices. The second segment covers elementary hydrology methods used to analyze runoff from land development sites and small to medium watersheds. The hydrology topics include watershed characteristics, rainfall, abstractions, runoff, time of concentration, peak flow methods, hydrograph methods, basic channel routing and detention basin routing. The third segment covers government regulations and common design methods used to design storm sewers, detention basins and erosion control plans. A project includes the design of a multiple-element storm sewer system, a stable open channel, a detention facility with a multiple outlet structure, and some erosion control measures.

Enforced Prerequisite at Enrollment: MATH 141 and Sixth Semester standing

Changes Effective Summer 2024:

- Changed Abbreviated Title
- Changed Course Description

SUR 455: Precise Positioning Systems (3 Credits)
Old Listing Effective Through Spring 2024:

Stellar coordinate systems; geodetic reference coordinate systems; satellite orbital theory; global positioning systems; pseudo-ranging; GPS vector adjustments.

Enforced Prerequisite at Enrollment: SUR 351 Enforced Concurrent at Enrollment: SUR 441

Changes Effective Summer 2024:

- Changed Abbreviated Title
- Changed Prerequisites
- Changed Course Description

SUR 482: Land Development Design (3 Credits)
Old Listing Effective Through Spring 2024:

The land development process; geometric, environmental, aesthetic aspects of development; local regulatory requirements; preparation of final plat and report. SUR 482 Land Development Design (3) Land development design is designed for seniors in Surveying Engineering and covers the basic principles of residential design and development. The objective of the course is to provide students with exposure to elements of the land development process from an engineering perspective. Topics

covered include land development regulations, site analysis of soils, site evaluation in terms of opportunities and constraints, sketch design, site layout, preliminary design, street layout including horizontal and vertical design, grading plan, drainage design, stormwater management, sewer and water, and erosion and sedimentation controls. Students work in teams of two or three on a design project for a local property. Students will utilize AutoCAD Civil 3D (or similar software) and the Virginia Tech/Penn State Urban Hydrology Model (VTPSUHM) (or similar) in the project design. A site visit to the design property is included in the course. At the end of the course, student teams will exchange their project designs and critique each other's work from the view point of a township engineer. Designs are evaluated for adherence to a pre-selected municipal subdivision and land development ordinance (SALDO). Students are required to present their final designs to the class. They must be prepared to explain their work and defend any design elements that are questioned during the presentation. After completion of this course, students will be able to: 1) evaluate a site for land development potential, 2) prepare sketch designs for a proposed land development site, incorporating opportunities and constraints, 3) prepare a preliminary design including street alignment for a residential subdivision, sanitary sewer for a residential subdivision, storm sewer with inlets and inverts and a grading plan; and 4) prepare a mock final plan for public review and presentation.

Enforced Prerequisite at Enrollment: SUR 212 and SUR 372W Enforced Concurrent at Enrollment: SUR 381

Changes Effective Summer 2024:

- Changed Abbreviated Title
- Changed Prerequisites
- Changed Course Description

WILDL 208W: Terrestrial Wildlife Management (3 Credits) [WAC]
Old Listing Effective Through Spring 2024:

This course provides an overview of ecological characteristics of terrestrial habitats and the influence of those characteristics on wildlife populations. Course goals include (1) acquisition of knowledge related to how wildlife (at the individual and population level) interact with and are influenced by changes in their environment, (2) application of management and survey techniques (emphasized in the laboratory component of course), (3 Credits) understanding the application of techniques and principles learned in this class and others to wildlife management scenarios at the local, state, federal, and international level, (4) acquisition of critical thinking, reading, writing, and research skills, and (5) collecting and organizing data and presenting it in a professional format. Writing, editing, and peer review are emphasized.

PreRequisite: FORT 150 , FORT 160 , WILDL101 , WILDL103 , WILDL106 , WILDL204

Changes Effective Summer 2024:

- Changed Prerequisites
- Added Recommended Preparation

WILDL 213: Wetlands and Fisheries Management (4 Credits)
Old Listing Effective Through Spring 2024:

Introduction to basic limnology. Ecology and management of swamp, marsh, pond, and stream habitats and their animal populations.

PREREQUISITES: WILDL 101, WILDL 103, WILDL 106S, WILDL 204

Changes Effective Summer 2024:

- Removed Prerequisites
- Added Recommended Preparation

Course Changes: Effective Fall 2024

AE 483: Comprehensive Architectural Engineering Senior Project II - IUG (1 Credit)

Old Listing Effective Through Summer 2024:

Continuation of A.E. 482. Design of engineering systems of building; comparative analysis of systems. Formal project presentation and critique.

Changes Effective Fall 2024:

- Changed Course Title
- Changed Abbreviated Title
- Changed Credits
- Added Prerequisites
- Added Corequisites
- Changed Course Description

AEE 400: Global Agriculture Education (3 Credits)

Old Listing Effective Through Summer 2024:

Development and implementation of educational programs in agriculture in developing countries. AEE 400 Educational Programs in Agriculture for Developing Countries (3) The purpose of the this course is to develop the global competency of future change agents in agricultural education so that they, in turn, can guide future learners to gain knowledge, develop skills, and acquire dispositions for living in a globally interdependent and culturally diverse world. The course is designed for all learners who wish further their ability to engage in formal and non-formal systems of agricultural education in all settings. As the enduring understandings of this course, students will develop 1) a knowledge of global agricultural education programs, 2) critical and comparative thinking skills, including the ability to think creatively and integrate knowledge, rather than unquestioning acceptance of knowledge, and 3) an ongoing willingness to seek out international or intercultural opportunities. The course is organized around five essential themes: 1) education as innovation, 2) access to education and employment, 3) program planning and evaluation, 4) types of agricultural education and 5) spaces of innovation. Learners in the course will be encouraged to develop their 21st century learning skills of communication collaboration, critical thinking, and creativity through authentic, experiential assessments curated around dynamic world issues in education related to agriculture, food, fiber and natural resources.

PreRequisite: INTAG100 or INTAG481

Changes Effective Fall 2024:

- Changed Prerequisites
- Changed Course Description

ANSC 300: Integrated Animal Biology (3 Credits) [BA]

Old Listing Effective Through Summer 2024:

An integrated study of the biology of domestic animal growth and the underlying cellular, endocrine and immune systems involved.

Enforced Concurrent at Enrollment: (BIOL 11 and BIOL 12) or BIOL 110 or at least third-semester standing

Changes Effective Fall 2024:

- Changed Course Title
- Changed Abbreviated Title
- Changed Course Description
- Removed Bachelor of Arts: Natural Sciences Attribute

ANTH 414: Microbial Anthropology: A microbial lens on the human experience (3 Credits)

Old Listing Effective Through Summer 2024:

The human body contains more microorganisms than it does its own cells, yet these complex communities of microorganisms are largely absent from Anthropology textbooks. This course investigates the interplay between microbiology and anthropology, exploring the roles that microbes play in human evolution, adaptation, health, and culture. We will first review basic concepts in microbiology (what are microbes?) and microbiome science (how is DNA useful?) and apply this understanding to core concepts in anthropology, including those that guide our understanding of living, ancient, and extinct humans. For example, what human activities or practices influenced the origins of disease, both infectious and non-infectious? How are microbes shared or transmitted during human interactions? Can microbes provide information about past human behavior or culture? How do microbes help or hinder human adaptation to new environments? This examination will be done through lectures and in-class discussions based on primary literature from different scientific fields of study. This understanding will be used to apply new interdisciplinary research approaches and see anthropology in a new light.

Recommended Preparation: ANTH 21 and ANTH 461

Changes Effective Fall 2024:

- Changed Course Title
- Changed Abbreviated Title

ART 144Z: Climate Change: Arts, Agency and Activism (3 Credits) [GA]

Old Listing Effective Through Summer 2024:

This course introduces students to contemporary art activism and environmental and humanitarian issues through research presentations, discussions and the production of artwork. It encourages students to imagine the effects of climate change and investigate how art can bring new ways of thinking about and bring a greater awareness to global issues. Media will vary depending on student ideas, it may include drawing, painting, video, sculpture, photography or installation art. Coursework integrates written, oral and visual communication. As an introductory course, assessment will be based equally on class discussion, research presentations, the content of art works produced and student's ability to articulate the synthesis of their work within the theme of climate change. ART 144Z fulfills 3 credits of the GA Domain General Education requirements. ART 144Z may also be used in combination with either BIOL 144Z or PSYCH 144Z as linked courses to fulfill 6-credits of Integrative Studies.

Changes Effective Fall 2024:

- Changed Course Number to 144
- Changed Course Description
- Removed General Education Linked Attribute

BBH 368: Neuroanatomy, Behavior, and Health (3 Credits)

Old Listing Effective Through Summer 2024:

The neuroanatomical bases of behavior, health, and disease. BB H 368 Neuroanatomy, Behavior, and Health (3) BBH 368 will examine, in detail and in depth, the relationships between the multitudinous structures of the human nervous system and their roles in monitoring and controlling all functions of the body, in behavior and in health and disease. Because of the complexity of the anatomy of the nervous system, of necessity there will be an emphasis on each student developing a three-dimensional understanding of the brain's structures and their geographic relationships to each other. For students majoring in BBH, this course provides a foundation and preparation for BBH 469 & 470, the two semester Neurobiology/Integrative Neuroscience course sequence, which assumes that the student has a basic, but detailed knowledge of the nervous system. This course will count toward fulfilling the BBH major requirement, "Take 15 credits in Biobehavioral Health." It will also count toward fulfilling the requirement of 9 credits of additional courses in the Neuroscience Minor. Upon successful completion of the course, the student should be able to: a) Identify on gross specimens and in slides of sections of the human nervous system the important nuclei, tracts and supporting structures. b) Describe the important pathways and circuits between the different components and nuclei of the human nervous system. c) Describe the role of each nucleus, tract, and circuit in controlling functions and behavior. d) Describe the expected deficits in function and behavior resulting from injury or disruption of each nucleus and tract.

Enforced Prerequisite at Enrollment: BBH 101 and (BISC 4 or BIOL 141 or PSYCH 260)

Changes Effective Fall 2024:

- Changed Prerequisites
- Changed Course Description

CE 342: Design of Steel Structures (3 Credits)

Old Listing Effective Through Summer 2024:

Design of steel tension members, beams, columns, beam-columns, and connections; elastic and plastic methods; design applications. C E 342 Design of Steel Structures (3) This is a first course in design of steel structures intended to develop a fundamental ability to evaluate and design steel tension members, beams, columns, beam-columns, composite beams, and connections. Discussion of design requirements focuses on failure mechanisms and behavior, evaluation of existing components, and the process to develop economical steel member designs. All discussions are based on the current American Institute of Steel Construction steel design specifications with an overview of historical requirements as appropriate. Students complete a design project of a multi-story, steel, commercial building that is intended to synthesize the course material and create a realistic context for the course. Weekly assignments are typically derived from the course project. Computer applications are an important component of these assignments.

Enforced Prerequisite at Enrollment: CE 336 and CE 340

Changes Effective Fall 2024:

- Changed Abbreviated Title
- Changed Prerequisites
- Added Concurrents
- Changed Course Description

CE 448W: Structural Design Capstone (3 Credits) [WAC]

Old Listing Effective Through Summer 2024:

Wind, snow, seismic, bridge loads; building design using steel, concrete, and prestressed concrete; advanced steel connections; capstone project; computer applications. C E 448W C E 448W Advanced Structural Design (3) The objectives of the course are to develop an understanding of advanced structural engineering design issues in a capstone context that will merge knowledge gained in prerequisite structural design and analysis courses. Building on concepts introduced in introductory steel building, concrete building, and foundation design, students will gain proficiency in structural conceptualization, environmental and induced load determination, modeling and analysis, detailed design of steel and concrete structures, and graphical communication.

Enforced Prerequisite At Enrollment: CE 341 and CE 342

Changes Effective Fall 2024:

- Changed Abbreviated Title
- Changed Prerequisites
- Added Concurrents
- Changed Course Description

CED 409: Land Use Planning and Procedure (3 Credits)

Old Listing Effective Through Summer 2024:

This course provides students with an understanding of the legal and procedural aspects of land use planning as found in the United States. The emphasis of the course is to explain the sources of land use planning authority, the processes by which it is applied and the potential conflicts that arise in the application of this authority. As a result of taking this course, students will be expected to learn and explain a) the objectives of land use planning systems and a comparative analysis of these systems; b) the bases on which land use planning law and procedure is applied across the U.S.; c) policies, strategies and principles that can be applied to land use planning decisions; d) several land use planning models currently applied in American jurisdictions, including the structure of each land use planning system; e) the procedural steps used to engage the land use planning system by property owners and government officials; f) typical conflicts that arise in creating, changing or enforcing land use planning measures; g) how land use planning conflict is resolved in various systems. Student performance will be measured in two midterm exams and a final exam. The instructor reserves the right to give additional exams to aid in measuring student knowledge and understanding of course material. Each test will primarily be short essays questions that ask for an explanation, discussion, comparison or application of specific concepts and principles. Case studies also will be used to present students with situations to hone their analytical, organizational and problem solving skills on specific problem situations. This will ask students to analyze a given set of facts, assess the issues raised by the facts from the perspectives of individuals who are described in the situation and form and present a response that addresses a specific question posed to the student.

Prerequisite: 6 credits of CED

Changes Effective Fall 2024:

- Changed Prerequisites
- Changed Course Description

**CEDEV 430: Principles of Local Economic Development (3 Credits)
Old Listing Effective Through Summer 2024:**

Concepts, strategies, and techniques of local economic analysis, planning, and development; case studies and decision-making exercises. CEDEV 430 CEDEV (AG EC) 430 Principles of Economic Development Planning (3) This course is designed to introduce the issues giving rise to concern for rural and regional economies, and the theories, concepts and tools of rural and regional economic development. The goal is to integrate theory and practice and apply them to economic development problems. Tools are presented in a "how to" manner. Topics include current issues in rural economies, the economic view of rural development; business retention, expansion and location; entrepreneurship and its role in the economy; understanding the local economic structure and the forces of change; introduction to economic growth theories; export base theory and economic base analysis; the role of labor and capital in development; techniques of market area, central place, shift-share and input-output analysis; policies of local economic development and growth.

PreRequisite: introductory course in economics

Changes Effective Fall 2024:

- Changed Prerequisites
- Changed Course Description

**COMM 118H: Introduction to Media Effects (3 Credits: Maximum of 3 Credits) [GS] [H]
Old Listing Effective Through Summer 2024:**

Examination of individuals' selection, uses and perceptions of media and the effects of media on individuals' attitudes, beliefs, and behaviors.

Changes Effective Fall 2024:

- Changed Course Description

**COMM 292: Introduction to Media & Politics (3 Credits)
Old Listing Effective Through Summer 2024:**

This course explores the intersection of media and politics, introducing students to the critical analysis of mediated political discourse. COMM 292 Introduction to Media & Politics (3) (GH) COMM 292 examines how mass media and political institutions interact to shape public thinking and debates around social goals, priorities, and policies. The course explores how media structures, routines, and practices shape political decision making; how political forces influence mass media institutions; and how public opinion and media audiences are formed. Students will gain an understanding of these issues through in-depth case studies, class discussions, and written assignments, helping students to develop their own informed views and to learn to express them constructively. The course is designed for both Communications majors and other students with an interest in media and politics.

Changes Effective Fall 2024:

- Added General Education: Humanities (GH) Attribute

DS 340W: Applied Data Sciences (3 Credits: Maximum of 3 Credits) [WAC]**Old Listing Effective Through Summer 2024:**

This course builds up the students' understanding of data sciences by discussing the fundamental principles in the context of real-world examples, and then shows specifically how the principles can provide understanding of many of the most common methods and techniques covered in previous data science courses. The course features three individual projects as well as a team project spanning the entire course. After taking this course, the students should be able to cover the entire pipeline of a data science project, from problem formulation to data science solutions. That is, start from a data driven problem, identify pertinent datasets to the problem and collect data, reason about the best techniques that should be used to solve the problem, implement algorithms and models, assess performance, and communicate actionable insights through both written reports and oral presentations. As one example, a fundamental principle of data science is that solutions for extracting useful knowledge from data must carefully consider the problem in the real world scenarios. This may sound obvious at first, but the notion underlies many choices that must be made in the process of data analytics, including problem formulation, method choice, solution evaluation, and general strategy formulation. Another fundamental principle is that predictive modeling can both inform and be informed by relevant knowledge (including theories, models, frameworks) of the relevant domains. This principle manifests itself throughout data science: in the specific design of many particular data sciences applications, and more generally as the basis for all intelligent solutions. In this course, this principle will be highlighted by case studies from multiple domains so that students can be inspired to apply this principle to their term projects. Lastly, as most data science projects are delivered as solutions as opposed to software deliverables, the ability for data scientists to communicate their results through concise and actionable insights plays a critical role in a data science project. This course places a particular focus on developing student writing abilities, through formal project reports and presentations. The individual projects will offer an interactive experience for students through feedbacks on their reports provided by the instructor. The term-long project will also train students in writing in a collaborative environment.

Enforced Prerequisite at Enrollment: DS 300 and (DS 310 or CMPSC 448). Recommended Preparation: DS 330.

Changes Effective Fall 2024:

- Changed Prerequisites

**EMET 326: Mechanical Drives (3 Credits)
Old Listing Effective Through Summer 2024:**

Transmission of force and motion using linkages, cams, gears, belts, and hydraulic and pneumatic drives. EMET 326 Mechanical Drives (3) EMET 326 is designed to provide the students with the knowledge of various mechanical drives used in engineering. The course introduces the concepts displacement, velocity and acceleration analysis of linkages, cams, gears and belts. Instructor may employ purely geometric methods or combine it with vector approaches. Differential and integral calculus for some of the topics and may considering using techniques of optimizations for mechanism synthesis. Static and dynamic force analysis of linkages is studied.

Enforced Prerequisite at Enrollment: EMET 222

Changes Effective Fall 2024:

- Changed Prerequisites

**EMET 403: Electromechanical Design Project Preparation (1 Credit)
Old Listing Effective Through Summer 2024:**

This course involves the planning and preliminary design activities for the capstone electro-mechanical design project. EMET 403 Electromechanical Design Project Preparation (1) EMET 403, Electromechanical Design Project Preparation, involves the planning and development of a design plan for a project to be completed in the capstone electro-mechanical project design course, EMET 440, which is required for all Electro-Mechanical Engineering Technology baccalaureate degree students. Both EMET 403 and EMET 440 require formal report writing, project documentation, and group presentations. In EMET 403, students will present design plans to a faculty panel for review and approval. In this planning and design development process, students will be required to follow a rigorous design methodology. To support the process, EMET 403 will include instruction in the use of project management software, and students will undergo the typical process of periodic design reviews and critiques as their plans evolve. Finally, EMET 403 is a team-based course. All project designs will be prepared by teams of two or more students. Generally, these same teams will be maintained through actual completion of the project in the following project design course, EMET 440. Because of this linkage of EMET 403 and EMET 440, both in design plans and team structure, it is essential that students schedule EMET 403 in the semester immediately prior to the semester in which they will register for EMET 440.

Enforced Prerequisite at Enrollment: Seventh semester standing

Changes Effective Fall 2024:

- Changed Prerequisites
- Added Concurrents

**EMET 440: Electro-Mechanical Project Design (3 Credits)
Old Listing Effective Through Summer 2024:**

Planning, development, and implementation of electro-mechanical design project; includes formal report writing, project documentation, group presentations, project demonstrations. EMET 440 Electro-Mechanical Project Design (3) Electro-Mechanical Project Design is to provide students with theoretical and practical experience associated with the integration of the various disciplines within the field of electromechanical engineering technology. Students working in teams will employ previously developed and approved design plans to construct, demonstrate, and document an integrated, electromechanical system. Plans for designs will come from the results of the project design preparation course, EMET 403, conducted in the immediately preceding semester. Thus students in EMET 440 are expected to have participated in the design development process that occurred in that same offering of EMET 403. Projects will be required to use a variety of electromechanical equipment, including such items as robots, machine vision systems, programmable logic controllers, personal computers, electric motors, CNC equipment, etc. Appropriate project documentation exercises, project presentations, progress reporting, budgeting and scheduling, system performance to specifications, and development of final design reports will be required elements of the course.

Enforced Prerequisites at Enrollment: EMET 325 and EMET 326 and EMET 410 and EMET 403

Changes Effective Fall 2024:

- Changed Prerequisites

**ENGL 282: TV Script Writing 2 (3 Credits)
Old Listing Effective Through Summer 2024:**

This creative writing course will further explore the specialized techniques and requirements of television script writing. Students will complete a first draft of a pilot episode (begun in ENGL281) and then revise the draft, focusing especially on the main character's story arc, plot structure, adding multiple narrative lines, scene and dialogue revision, and developing larger narrative lines for future episodes. Through script readings, discussions, writing exercises, and workshopping, students will come to understand the revision process and develop skills that can be applied to future scriptwriting.

Changes Effective Fall 2024:

- Changed Course Number to 410
- Changed Course Title
- Changed Abbreviated Title
- Added Prerequisites
- Changed Course Description

**ENGL 452: The Victorians (3 Credits) [BA]
Old Listing Effective Through Summer 2024:**

Poets such as Tennyson, Browning, Arnold, and Hopkins; also prose by writers such as Carlyle, Mill, Ruskin, and Arnold.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Changes Effective Fall 2024:

- Changed Course Description

**ERM 450: Wetland Conservation (3 Credits)
Old Listing Effective Through Summer 2024:**

Wetland types, classification, functions and values; hydrology, soils, and plants; introduction to wetland identification and delineation; wetland regulations. E R M (W F S) 450 Wetland Conservation (3) Wetlands are unique ecosystems, differing in many ways from both terrestrial and aquatic environments. They provide recognized values and functions to society, although these values and functions remain difficult to quantify. The study of wetlands is interdisciplinary, requiring background knowledge in science, management and policy disciplines. This course will explore the variety of wetland types and functions, and emphasize the diverse hydrological, biological, chemical, and physical interactions that occur within wetlands. Because wetlands are recognized as valuable assets in the landscape, issues surrounding wetland management and regulation have taken on increased importance; we will address these issues as well. Topics will also include the restoration of degraded wetlands and wetland creation, along with the construction of wetlands for pollution abatement. Students will become familiar with different wetland types and how they are classified, and will develop skills in understanding the interactions between wetland hydrology, hydric soils and hydrophytic vegetation. They will also develop an understanding of important national and state policies and regulations pertaining to wetlands and their protection and delineation. Classroom assessment will be based on three cumulative exams, homework assignments, and

a final project. The course will fulfill 3 credits of electives or technical selections in the Wildlife and Fisheries Science major. Other students university-wide may be interested in the course, and the intention is to develop a course that is accessible to a wide variety of traditional and non-traditional students. For proper instruction, a technology classroom with computer projection equipment will be required. E R M 450 will be offered each fall semester. Enrollment will be limited to 60-80 students.

Enforced Prerequisite at Enrollment: ERM 300 or WFS 209

Cross-listed Courses: WFS 450

Changes Effective Fall 2024:

- Changed Course Title
- Changed Abbreviated Title
- Changed Prerequisites
- Changed Course Description

HDFS 490: Introduction to Internship Experience (2 Credits)

Old Listing Effective Through Summer 2024:

Planning and preparation for field experience in human service setting. Analysis of human service system and arrangement of site.

Enforced Prerequisite at Enrollment: HDFS 312W and approval by internship coordinator. Prerequisite or concurrent: HDFS 411

Changes Effective Fall 2024:

- Changed Course Title
- Changed Credits
- Changed Prerequisites
- Added Recommended Preparation
- Changed Course Description

HM 304: Institutional Food Service Management (3 Credits)

Old Listing Effective Through Summer 2024:

Institutional food service management systems in the hospitality field. HM 304 Institutional Food Service Management (3) Institutional and contract food service management is in the growth stage of the hospitality industry life cycle. The objective of this course is to provide an overview of the various segments of institutional food service, including health care, life care, education, business, transportation (i.e., airlines, cruise ships), correctional and recreational services. Main topics typically include: historical overview of institutional/non-commercial food service management, exploring key markets where institutional food service management exists, key systems used in the fundamental areas of quantity food production, current and future trends effecting institutional food service management, career opportunities in the institutional food service management sector, and managed services and multi-department management. This course is an elective in the Hospitality Management program.

Enforced Prerequisite at Enrollment: a grade of C or better required in HM 201

Changes Effective Fall 2024:

- Changed Prerequisites

KINES 465: Neurobiology of Sensorimotor Stroke Rehabilitation (3 Credits)

Old Listing Effective Through Summer 2024:

This course is designed to expose students to the recent topics in motor stroke rehabilitation research through literature. KINES 465 Neurobiology of Sensorimotor Stroke Rehabilitation (3) This 3-credit course is designed to expose students to the most recent topics in motor stroke rehabilitation research through reading of current literature. The course addresses the neurobiological foundations of motor deficits in stroke, including contralesional and ipsilesional effects, current research on mechanisms of motor recovery, and the most current research on intervention strategies, such as constraint induced therapy, robot aided rehabilitation, virtual reality therapy, and sensory motor interventions. The purpose of the course is to provide an understanding of the neurophysiological and biomechanical foundations of motor deficits that occur with stroke, and of current treatment approaches. Stroke presents a significant social problem that is emphasized in current statistics reported by the American Heart Association indicating that each year, about 780,000 people in the United States experience a new or recurrent stroke. While stroke can produce deficits in perceptual, cognitive, and motor processes, this course is focused on sensorimotor deficits and associated rehabilitation interventions that tend to be employed by physical and occupational therapists in the rehabilitation environment. Sensory-motor strokes often result in weakness and deficits in voluntary movement of the limbs on the opposite side of the body as the damaged hemisphere (Contralesional). These motor deficits currently receive primary focus in occupational and physical therapy treatment for stroke. However, regardless of improvements in contralesional arm function, most patients also show deficits in coordination of the ipsilesional arm that is on the same side of the body as the damaged hemisphere. For many hemiparetic patients, functional recovery relies heavily on this arm. This class will focus on understanding both ipsilesional and contralesional motor deficits in stroke. Physiological and biomechanical mechanisms of dysfunction will be emphasized. Recovery of function will be addressed through analysis of physiological and biomechanical measures that are used to track changes in neural function. In addition, current research that is focused on developing rehabilitation intervention protocols that systematically address remediation of dysfunction, and facilitation of recovery will be discussed. Students will be guided in reading, critiquing, and presenting primary scientific manuscripts and review articles. Active discussions of presented material are encouraged, and grades are based on presentations, quizzes, and participation in class.

Enforced Prerequisite at Enrollment: KINES 360 and KINES 384

Changes Effective Fall 2024:

- Changed Prerequisites

KINES 495C: Exercise Science Practicum (3-6 Credits: Maximum of 6 Credits)

Old Listing Effective Through Summer 2024:

This course places students in the work place with the expectation that the experience will allow them the opportunity to apply and integrate content from all the courses in the program. They will be placed at professional fitness centers, rehab facilities, senior centers, and wellness centers. They will learn the day-to-day requirements of being "on the job" such as time management, record keeping, client interactions, feedback delivery, fitness program establishment and implementations, business and management practices as well as ethical considerations.

Their field experience will be focused on four in-class days during which students will collectively explore work place issues. Practicum work will be evaluated on an ongoing basis with the student intern, work place supervisor, and faculty member involved in the process. The course will take place off campus as work sites and no special on-campus facilities are required. It will be offered annually as the last course in the major.

Enforced Prerequisite at Enrollment: KINES 100 and KINES 101 and KINES 200 and KINES 202 and fifth semester standing

Changes Effective Fall 2024:

- Changed Credits

LHR 304: Labor and Employment Relations Fundamentals (3 Credits)

Old Listing Effective Through Summer 2024:

The course surveys the main elements of modern labor and employment relations systems in the U.S. and beyond. The course encourages students to use a framework for evaluating workplace outcomes according to three yardsticks: efficiency; equity; and voice. Focusing primarily on employee voice, the course introduces students to a variety of mechanisms that bring democracy, worker engagement, and worker influence to the workplace. Among these mechanisms are U.S.-style collective bargaining, non-union systems of worker involvement, European works councils, and a new variety of "alt-labor" initiatives from around the world. In its single largest unit, the course focuses on U.S. workplaces, beginning with the historical and legal foundations of the modern U.S. labor relation system. This includes units examining union organizing campaigns, collective bargaining, and dispute resolution systems. Concluding weeks of the course look at issues surrounding the push for workplace flexibility, a comparative labor relations look at other country practices (include European works councils), emerging issues in global supply chains, "alt-labor" institutions and practices, the role of gender, race, and diversity initiatives at work, and the impact of automation and artificial intelligence on the future of work.

Prerequisite: LHR 100

Changes Effective Fall 2024:

- Removed Prerequisites
- Added Bachelor of Arts: Social and Behavioral Sciences Attribute
- Added General Education Social & Behavioral Sciences (GS) Attribute

LHR 472: Work-Life Practices and Policies (3 Credits) [BA]

Old Listing Effective Through Summer 2024:

Explore the causes and consequences of conflicts between work, family, and other life commitments, and how these may be resolved. LER 472 Work-Life Practices and Policies (3)(BA) This course meets the Bachelor of Arts degree requirements. The interdisciplinary field of work-family and work-life developed as a result of middle-class women's entry into the labor force, a movement that generated conflict between family and paid work commitments. Overall, the course addresses the reasons the field developed, relevant theoretical perspectives regarding the issues, and related problems as well as proposed solutions at both the public and private sector levels. The overarching objectives of the course are to expand students' understanding of conflicts between work and family commitments, and how these might be resolved through private and public sector initiatives. Specifically, the course concerns how individuals, families, and organizations interact to help hinder the achievement of balance between work and life commitments, and relevant effects on

those involved. The changing demographics of the family, laws and trends around working time, father and mother time with children, the expanded need for elder care, work-life programs such as flextime, concierge services, paid parental leave, part-time careers, paid time-off banks, and the role of unions, corporations and government legislation are covered. The course attempts to link the likely future needs of students to broader trends in society and how balance could be achieved at the level of individuals, families, other stakeholders in the community, and for society as well. Fields of research relevant to the course include labor studies, women's studies, Industrial/Organizational psychology, the sociology of work and of family, and child development. Students will be evaluated on the basis of class participation, through two in-class examinations, and through a final written or oral project providing a chronology and analysis of an adult's work-family history.

Enforced Prerequisite at Enrollment: 3 credits in LER or LHR

Cross-listed Courses: SOC 472, WMNST 472

Changes Effective Fall 2024:

- Changed Prerequisites

LHR 475H: Labor in the Global Economy (3 Credits: Maximum of 3 Credits) [H]

Old Listing Effective Through Summer 2024:

This course focuses on how the nature of work is changing in the global economy, and the implications for economic opportunity and inequality in both . LER 475H Labor in the Global Economy (3) This seminar focuses on how the nature of work is changing in the "new economy" and the implications for economic opportunity and inequality. Sections of the course examine: theoretical approaches to understanding contemporary process of labor restructuring, including globalization, rise of multinational corporations, and growth in global supply chains; case studies of restructuring processes; and innovative labor organizing initiatives at a local, regional and global scale. This course aims to develop a framework for understanding the nature of contemporary processes of economic restructuring and its impact on the world of work. Case studies will provide a deeper understanding of how broad macro-level changes in the nature of contemporary capitalism are mediated by a variety of technological, political, and socio-economic factors in particular industries and geographic contexts. The case studies section of the course will also examine business ethics and corporate social responsibility initiatives. Finally, an in-depth look at workers' responses to these changes at different scales (local, regional, global) will help deepen our understanding of the contested nature of workplace restructuring while exploring promising strategies for improving working conditions. This is a reading-intensive course dealing with the theoretical literature on rapid economic restructuring and how this is shaping work and employment.

Prerequisite: 6.0 credits of LHR and 6th Semester standing

Changes Effective Fall 2024:

- Changed Prerequisites
- Changed Course Description

LHR 480: Current Issues in Human Resources (3 Credits)

Old Listing Effective Through Summer 2024:

Identity and race, gender and heritage, centrality and marginality, self and other, as expressed in literary works from around the world. Students will study current trends that are shaping human resources management.

These trends include information technology, internationalization, new organizational forms, changing demographics, and competitive landscape. Examples of topics include use of social media in human resource management, virtual work, managing an aging workforce and working across international boundaries. The course is case based and as such explores experiences of actual companies. Students will study and discuss the strategies, successes and failures of companies and how these issues and challenges relate to the human resources function. Timely readings that expose students to theoretical structures underlying these changes will be part of this course. In addition, because this is a current issues class, students will be expected to actively follow trending news in the business world through news media and critically examine how it is shaping the human resource management practices. This course will serve as a complement to MGMT 100, 341, 441 and LER 100, 201, 401 and 434.

Prerequisite: LHR 305

Changes Effective Fall 2024:

- Changed Prerequisites

LLED 402: Teaching Children's Literature (3 Credits)

Old Listing Effective Through Summer 2024:

The purpose of LLED 402 is to familiarize teacher candidates with different theories and practices of teaching literature. Candidates are immersed in the study and experiences of literature and strategic models of literature instruction. Understanding that belief systems inadvertently determine the models of literature instruction educators adopt. LLED 402 asks candidates to be mindful of the diverse nature of our communities, and encourages them to strive to create literary communities that respect, value, and encourage multiple modes of expressions. The basic course goals are to help candidates to understand the importance of story in all human lives; to exhibit a wide repertoire of flexible strategies for interpreting literature; to understand socio-cultural influences upon writing and literature; to know and be able to use basic reference tools and selection guides for research; to become familiar with different genres, diverse texts, and styles; to read for sequence and for secrets; to articulate responses to literature across a variety of media; to weave into the exploration of each of these goals a struggle to understand and to accept human difference; and to understand the role that literature plays in the school curriculum. The course presents theories of teaching literature and models of literature instruction that place at the center socio-cultural practices typical of democratic literary communities. This requires knowledge of how literature and texts work in real life and in a variety of social and cultural contexts. Informed by research, standards and current practices, LLED 402 exhibits the power of literature, the complexities of students' learning and experiences with texts, and the problem solving character of teaching.

Prerequisite: 4th Semester Standing

Changes Effective Fall 2024:

- Changed Course Number to 302
- Removed Prerequisites
- Changed Course Description

MUSIC 40: First-Year Seminar in Music Education (1 Credit) [BA] [FYS]

Old Listing Effective Through Summer 2024:

Introduction to the University, the School of Music, the music education degree program, and the music teaching profession. MUSIC 040S First-Year Seminar in Music Education (1)(BA) This course meets the Bachelor of Arts degree requirements. This course is offered to music majors during their first semester who are intending to apply to the Teacher Certification Degree Program in Music Education. It provides prospective music teachers with an opportunity to: - learn about aspects of and opportunities available at the University in general. - learn about aspects of and opportunities available specifically at the PSU School of Music. - learn about the PSU music education curriculum and program. - gain a general understanding of the music teaching profession. - begin and develop a professional relationship with his/her advisor.

Changes Effective Fall 2024:

- Changed Course Title
- Changed Abbreviated Title
- Changed Course Description

MUSIC 458: Electronic Music Composition I (3 Credits) [BA]

Old Listing Effective Through Summer 2024:

An introduction to the art of composition in the electronic audio medium. MUSIC 458 Electronic Music Composition (3)(BA) This course meets the Bachelor of Arts degree requirements. Music 458 will focus on the creative craft of musical composition in the medium of electronic audio. Topics covered will include but not be limited to: recording, MIDI and digital audio techniques, study of literature and the investigation of the creative process in musical composition. Students are expected to enter the class with strong fundamentals in both music theory and MIDI and digital audio. The student will be expected to complete several projects that demonstrate both their creativity and their technical competence in the medium.

Enforced Prerequisite at Enrollment: INART 258A

Changes Effective Fall 2024:

- Changed Prerequisites

SOC 1: Introductory Sociology (3 Credits) [GS] [BA]

Old Listing Effective Through Summer 2024:

The nature and characteristics of human societies and social life. SOC 1 Introductory Sociology (3) (GS)(BA) This course meets the Bachelor of Arts degree requirements. Introductory Sociology provides perspectives and information useful in understanding all societies. The major theories (functionalism, conflict, and symbolic interactionism) and concepts provide the foundation upon which the remaining material rests. Learning how sociologists do research provides the tools for understanding the production of knowledge and for evaluating the validity of sociological assertions. Familiarity with systematic theorizing and conceptual development, along with some comprehension of the nature of the scientific method as it is applied in sociology, enhances critical reasoning. To promote a more complete understanding of human social life, both in its inherent constraints and in the opportunities it provides; the nature and reality of culture and social structure are explored. The study of socialization provides perspectives on how one becomes a member of society. Exploring social interaction adds insight into the formation of the social self and the salience of group identities and norms. Ending this first section with a discussion of social control highlights the forces of stability and change in society. The course then progresses to considerations of social stratification and inequality. The nature of privilege and oppression are discussed and considered in the

specific contexts of race, ethnicity, gender, and age. The focus then shifts to social institutions. The essential work of society is accomplished via its major institutions: family, education, health care, economy and work, religion, and politics. Applying theoretical perspectives to the form and function of these institutions enhances an understanding of how different social structures provide varying constraints and opportunities to their inhabitants. Finally, considering large-scale forces for change provides a platform to comprehend where human societies have been, are now, and might be headed. Throughout the course, the lectures as well as the textbook draw amply on cross-cultural and cross-national material. In addition, the course emphasizes the complexity of human social life and describes the many variables (social structural, cultural, interpersonal, and psychological) that influence behavior. A special component of the course deals with topics pertinent to the social behavior and norms of students of the ages typically taking this course. Depending on the faculty member, these topics could include sexual behavior, alcohol use, and problems in interpersonal relationships. Discussion and questions are encouraged in all sections. Sections of this course may include group research projects, debates, and library or internet-based research. Along with personal contact, students have the opportunity to communicate with teaching assistants and faculty members via e-mail. Writing assignments, along with in-class examinations, are required in all sections. This course meets a general education requirement in the social and behavioral sciences.

Changes Effective Fall 2024:

- Changed Course Description
- General Education Recertification

SOC 1W: Introductory Sociology (3 Credits) [GS] [BA] [WAC]
Old Listing Effective Through Summer 2024:

The nature and characteristics of human societies and social life. SOC 1W Introductory Sociology (3) (GS)(BA) This course meets the Bachelor of Arts degree requirements. Introductory Sociology provides perspectives and information useful in understanding all societies. The major theories (functionalism, conflict, and symbolic interactionism) and concepts provide the foundation upon which the remaining material rests. Learning how sociologists do research provides the tools for understanding the production of knowledge and for evaluating the validity of sociological assertions. Familiarity with systematic theorizing and conceptual development, along with some comprehension of the nature of the scientific method as it is applied in sociology, enhances critical reasoning. To promote a more complete understanding of human social life, both in its inherent constraints and in the opportunities it provides; the nature and reality of culture and social structure are explored. The study of socialization provides perspectives on how one becomes a member of society. Exploring social interaction adds insight into the formation of the social self and the salience of group identities and norms. Ending this first section with a discussion of social control highlights the forces of stability and change in society. The course then progresses to considerations of social stratification and inequality. The nature of privilege and oppression are discussed and considered in the specific contexts of race, ethnicity, gender, and age. The focus then shifts to social institutions. The essential work of society is accomplished via its major institutions: family, education, health care, economy and work, religion, and politics. Applying theoretical perspectives to the form and function of these institutions enhances an understanding of how different social structures provide varying constraints and opportunities to their inhabitants. Finally, considering large-scale forces for change provides a platform to comprehend where human societies have been, are now, and might be headed. Throughout the course, the lectures as well as

the textbook draw amply on cross-cultural and cross-national material. In addition, the course emphasizes the complexity of human social life and describes the many variables (social structural, cultural, interpersonal, and psychological) that influence behavior. A special component of the course deals with topics pertinent to the social behavior and norms of students of the ages typically taking this course. Depending on the faculty member, these topics could include sexual behavior, alcohol use, and problems in interpersonal relationships. Discussion and questions are encouraged in all sections. Sections of this course may include group research projects, debates, and library or internet-based research. Along with personal contact, students have the opportunity to communicate with teaching assistants and faculty members via e-mail. Writing assignments, along with in-class examinations, are required in all sections. This course meets a general education requirement in the social and behavioral sciences.

Changes Effective Fall 2024:

- Changed Course Description
- General Education Recertification

SOC 13: Juvenile Delinquency (3 Credits) [GS]
Old Listing Effective Through Summer 2024:

Juvenile conduct, causes of delinquency, current methods of treatment; organization and function of agencies concerned with delinquency.

Cross-listed Courses: CRIMJ 13

Changes Effective Fall 2024:

- Changed Course Description

SOILS 102: Introductory Soil Science Laboratory (1 Credits)
Old Listing Effective Through Summer 2024:

Laboratory exercise and field trips designed to develop student competency in soil description, analysis, and assessment. SOILS 102 Introductory Soil Science Laboratory (1) This laboratory course is designed for students who plan to work directly with soils, make land use and management decisions, or to be involved in projects requiring practical application of soil science principals. By conducting weekly laboratory and field exercises and writing reports on their work, students will deepen their understanding of, and learn to apply, the fundamental soil properties and processes introduced in SOILS 101. This laboratory course, in conjunction with the SOILS 101 lecture course, will provide foundational learning in soil science and prepare students for upper level soil science courses. This laboratory course is also designed to provide students with hands on experience in analytical procedures for soil assessment, testing, and interpretation, as well as field experience in observing, characterizing and describing soils.

Enforced Prerequisite at Enrollment: SOILS 101

Changes Effective Fall 2024:

- Removed Prerequisites
- Added Concurrents

SPAN 215: Introduction to Spanish Linguistics (3 Credits)
Old Listing Effective Through Summer 2024:

Introduction to the fundamental components of linguistics using data from the Spanish language. SPAN 215 Introduction to Spanish Linguistics (3) Spanish 215 will introduce students to the fundamental components

of linguistics (phonology, morphology, syntax, lexicon, and semantics) using data from the Spanish language. The course requires no previous knowledge of linguistics, but presupposes familiarity with Spanish at the 15 credit level or higher. The underlying purpose is to awaken students' interest in Spanish linguistics; to provide them with a foundation in the terminology and concepts necessary for studying higher level courses that are part of Spanish major and minor curricula; and to help them to decide which of the upper level classes they would be most interested in taking. Student performance in the course will be evaluated by (a) exams designed to verify their familiarity and understanding of linguistic terminology and concepts, their skill in doing phonetic transcription, and their ability to solve problems in phonology, morphology, syntax, and semantics, and (b) their preparedness and participation in classroom activities.

PreRequisite: SPAN 100

Changes Effective Fall 2024:

- Changed Number to 215Q
- Changed Course Title
- Changed Abbreviated Title
- Changed Prerequisites
- Changed Course Description
- Added Honors Attribute
- Added Bachelor of Arts: World Language (All), Bachelor of Arts: Humanities, Bachelor of Arts: World Cultures, Bachelor of Arts: Social and Behavioral Sciences Attributes
- Added General Education Inter-Domain, Humanities (GH), and Social & Behavioral Sciences (GS) Attributes

SUR 222: Photogrammetry (3 Credits)

Old Listing Effective Through Summer 2024:

Basic principles of metric photogrammetry with single and stereopair photos; coordinate transformations; map production with stereo imagery; flight planning. Lab. SUR 222 - Photogrammetry (3) Photogrammetry covers the basic principles of aerial photography and the geometry of the optics in relation to aerial cameras. Mathematical theories for refining and processing measurements from single aerial photographs are developed. Such measurements are transformed to obtain real world coordinates of features on the surface of the earth. Two-dimensional conformal, affine, and projective coordinate transformation equations and the three-dimensional conformal coordinate transformation equations are developed and applied to the measurements on the photographs. In addition, the theory underlying the geometry of stereopairs of photographs are developed and used to determine elevations of features on the photograph. Stereographic equipment and software are used to produce accurate topographic maps of the overlap areas between stereopairs. The course also covers procedures and considerations for planning an aerial photography mission which include flight planning, cost analysis, equipment selection, placement of photo controls, and overall project management.

Enforced Concurrent at Enrollment: SUR 162

Changes Effective Fall 2024:

- Added Prerequisites
- Changed Concurrents
- Changed Course Description

SUR 441: Data Analysis and Project Design (3 Credits)

Old Listing Effective Through Summer 2024:

Post least squares adjustment analysis of control networks, statistical testing, blunder detection, network design considerations, and computer optimization techniques.

Enforced Prerequisite at Enrollment: STAT 200 and SUR 341

Changes Effective Fall 2024:

- Changed Abbreviated Title
- Changed Prerequisites
- Changed Course Description

SUST 150N: The Science of Sustainable Development (3 Credits) [GN] [GS]

Old Listing Effective Through Summer 2024:

This course will focus on how human society depends on the environment for its continued existence. It will examine several major topics relating to environmental and social sustainability including ecosystem conservation, sustainability of food systems with special reference to the water-food-energy nexus, and current and future trends in urbanization. Within each of these topics, students will learn fundamental scientific principles and use this information to gain a better understanding of what human behaviors have led to our current resource production and consumption crisis. This class will explore ways people can modify behavior to relieve poverty in developing nations and meeting basic human needs while still affording economic growth, environmental protection, and social equality to all peoples around the world.

Changes Effective Fall 2024:

- Added SC 150N as Cross-Listed Course

Program Changes

Agricultural Science, B.S. (AGSC_BS)

Effective Summer 2024:

- Added C or better requirement to ENGL 15 and CAS 100 in Prescribed Courses for the Major
- Added CHEM 130 to Additional Courses for the Major
- Added C or better requirement to ENGL 202C and ENGL 202D in Additional Courses for the Major

Animal Science, B.S. (ANSC_BS)

Effective Summer 2024:

- Revised Program Description
- Changed total requirements for degree completion from 124 credits to 120 credits
- Changed General Education credits included in Requirements for the Major from 18-24 credits to 9-12 credits
- Changed Electives from 0-13 credits to 0-6 credits
- Changed Prescribed Courses for the Major from 24 credits to 27 credits
- Added ANSC 331 to Prescribed Courses for the Major
- Added C or better requirement to ANSC 100 and ANSC 290 in Prescribed Courses for the Major
- Changed Additional Courses for the Major from 21-25 credits to 18-21 credits

- Added CHEM 101, CHEM 110, CHEM 130, MICRB 106, MICRB 201, MICRB 107, MICRB 202 to Additional Courses for the Major
- Removed MATH 21, MATH 22, MATH 26, MATH 41, MATH 110, MATH 140, CMPSC 101, CMPSC 203, MATH 111, MATH 141, STAT 200, STAT 250
- Changed Supporting Courses and Related Areas for the Major from 3-5 credits to 36 credits
- Removed Business and Management Option
- Removed Science Option

Archaeological Science, B.S. (ARSCI_BS)

Effective Summer 2024:

- Program phased out

Biological Anthropology, B.S. (BANTH_BS)

Effective Summer 2024:

- Program phased out

Biological Engineering, B.S. (BE_BS)

Effective Summer 2024:

- Revised Program Description
- Changed General Education credits included in Requirements for the Major from 27 credits to 24 credits
- Changed Requirements for the Major from 110-111 credits to 107-108 credits
- Changed Common Requirements for the Major from 77 credits to 74 credits
- Added BE 404 to Prescribed Courses for the Major
- Removed BE 304 from Prescribed Courses for the Major
- Removed C or better requirement from PHYS 212 in Prescribed Courses for the Major
- Changed Additional Courses for the Major from 16 credits to 13 credits
- Removed AGBM 101, ECON 102, ECON 104 from Additional Courses for the Major

Biology, B.S. (University College) (BIOUC_BS)

Effective Fall 2024:

- Program added to Lehigh Valley campus

BioRenewable Systems, B.S. (BRS_BS)

Effective Summer 2024:

- Changed name to Agricultural and Biorenewable Systems Management
- Revised Program Description
- Changed Requirements for the Major from 106-109 credits to 106-108 credits
- Changed Prescribed Courses for the Major from 43 credits to 46 credits
- Added ABSM 300 to Prescribed Courses for the Major
- Added Supporting Courses and Related Areas for the Major
- Removed Agricultural Systems Management Option
- Removed Bioproducts Option

Cybersecurity Analytics and Operations, B.S. (CAOUC_BS)

Effective Summer 2024:

- Program phased out at Shenango campus

Electro-Mechanical Engineering Technology, B.S. (Engineering, Altoona, Berks) (EMET_BS, EMTAL_BS, EMTBK_BS)

Effective Summer 2024:

- Revised Program Description
- Changed Requirements for the Major from 110-116 credits to 109-116 credits
- Changed Prescribed Courses for the Major from 73 credits to 69 credits
- Added STS 233/PHIL 233 to Prescribed Courses for the Major
- Removed EMET 440 from Prescribed Courses for the Major
- Changed Additional Courses for the Major from 28-33 credits to 31-37 credits
- Added EMET 350, EMET 351, EMET 403, EMET 440, EMET 441, EMET 442 to Additional Courses for the Major
- Removed ENGR 320Y, STS 200, STS 233Z/PHIL 233Z, STS 245Z from Additional Courses for the Major

Energy Engineering, B.S. (ENENG_BS)

Effective Summer 2024:

- Revised Entrance to Major Requirements
- Added ESL 15, ENGL 137H to Additional Courses for the Major

English, B.A. (Abington) (ENGAB_BA)

Effective Summer 2024:

- Traditions of Innovation Option phased out at Penn State Abington, the Abington College

Entrepreneurship and Innovation, Minor (ENTI_UMNR)

Effective Fall 2024:

- Removed Arts Cluster
- Added AEE 360, ANSC 346, FORT 250, AEE 460, FDSC 450 to the Food and Bio-Innovation Cluster
- Removed AEE 311 from the Food and Bio-Innovation Cluster
- Made HM 484 a Required Course in the Hospitality Management Cluster
- Added HM 382, HM 407, HM 435, HM 485, HM 488 to the Hospitality Management Cluster
- Removed HM 413, HM 432, HM 483, HM 496 from the Hospitality Management Cluster
- Added COMM 384, COMM 462, COMM 483 to the New Media Cluster
- Removed COMM 461, COMM 484A from the New Media Cluster
- Renamed Technology Based Entrepreneurship Cluster to Product Innovation Cluster
- Added EDSGN 367, EDSGN 467, ENGR 408 to the Product Innovation Cluster

Forensic Science, B.S. (FRNSC_BS)

Effective Summer 2024:

- Revised Entrance to Major Requirements

Gerontology, Minor (GERON_UMNR)

Effective Summer 2024:

- Changed name to Longevity, Aging and Generational Studies
- Changed Program Description

- Changed Prescribed Courses from 3 credits to 6 credits
- Added HDFS 445 to Prescribed Courses
- Removed Additional Courses
- Changed Supporting Courses and Related Areas from 9 credits to 12 credits
- Added BBH 368, BBH 416, BBH 417, BBH 420, BBH 468, BBH 469, BIOL 409, CAS 162N, CAS 253, CAS 453, ENGR 310, FIN 330, FIN 450, HDFS 210Z, HDFS 434, HDFS 448, HHD 100H, HHD 245N, HM 413, HM 483, HM 484, HPA 301, HPA 443, HPA 444, KINES 350, KINES 360, KINES 384, MGMT 215, PSYCH 244, PSYCH 260, RM 302, RM 320W, SOC 162N to Supporting Courses and Related Areas
- Removed HPA 101 from Supporting Courses and Related Areas

Human Development and Family Studies, B.S. (Health and Human Development, Altoona, Capital, University College) (HDFS_BS, HFSAL_BS, HFSCA_BS, HFSUC_BS)

Effective Fall 2024:

- Revised Program Description
- Changed Electives from 3-5 credits to 12-18 credits
- Changed Common Requirements for the Major from 30-31 credits to 42-43 credits
- Changed Prescribed Courses for the Major from 18 credits to 12 credits
- Added HDFS 216 to Prescribed Courses for the Major
- Removed HDFS 129, HDFS 315, HDFS 418 from Prescribed Courses for the Major
- Changed Additional Courses for the Major from 12-13 credits to 30-31 credits
- Added HDFS 101N, HDFS 315Y, SOC 30, HDFS 200 to Additional Courses for the Major
- Added 15-credit Career Development and Experiential Learning Capstone requirement to Additional Courses for the Major
- Removed 3 credits of United States Cultures requirement from Additional Courses for the Major
- Renamed Life Span Human Services Option to Human Development and Family Science Option
- Changed Human Development and Family Science Option from 43-45 credits to 18 credits
- Removed Prescribed Courses for the Human Development and Family Science Option
- Changed Additional Courses for the Human Development and Family Science Option from 22-24 credits to 12 credits
- Added HDFS 405, HDFS 413, HDFS 432, HDFS 434, HDFS 447, HDFS 412, HDFS 415, HDFS 416/SOC 411, HDFS 417, HDFS 418, HDFS 424, HDFS 431, HDFS 469U, HDFS 477, SOC 430, HDFS 410, HDFS 430, HDFS 440, HDFS 465/CMAS 465 to Additional Courses for the Human Development and Family Science Option
- Removed HDFS 490, HDFS 495A, HDFS 495B, HDFS 401, HDFS 402, HDFS 495C from Additional Courses for the Human Development and Family Science Option
- Changed Supporting Courses and Related Areas for the Human Development and Family Science Option from 12 credits to 6 credits
- Renamed Life Span Developmental Science Option to Developmental Science for Health Professions Option
- Changed Developmental Science for Health Professions Option from 45 credits to 24 credits

- Removed Prescribed Courses for the Developmental Science for Health Professions Option
- Changed Additional Courses for the Developmental Science for Health Professions Option from 21 credits to 9 credits
- Added BBH 407, SOC 451, HDFS 405, HDFS 413, HDFS 432, HDFS 434, HDFS 447 to Additional Courses for the Developmental Science for Health Professions Option
- Changed Supporting Courses and Related Areas for the Developmental Science for Health Professions Option from 18 credits to 15 credits

Human Resource Management, Minor (HRMGT_UMNR)

Effective Fall 2024:

- Revised Program Description
- Changed Prescribed Courses from 9 credits to 6 credits
- Removed MGMT 440 from Prescribed Courses
- Changed Additional Courses from 2-4 credits to 3-12 credits
- Added MGMT 440, MGMT 441, MGMT 443, MGMT 445 to Additional Courses
- Removed BA 241, BA 243, BLAW 243, BLAW 341, LER 201 from Additional Courses
- Changed Supporting Courses and Related Areas from 9 credits to 0-9 credits
- Added ECON 315, ECON 410, HRM 495, PSYCH 484, MGMT 326, MGMT 331, MGMT 400, CAS 404, MGMT 433, MGMT 461 to Supporting Courses and Related Areas
- Removed LER 424, LER 425, MGMT 400, MGMT 441, MGMT 443, MGMT 445 from Supporting Courses and Related Areas

Kinesiology, Minor (KINES_UMNR)

Effective Summer 2024:

- Changed Requirements for the Minor from 18-19 credits to 18 credits
- Changed Additional Courses from 6-7 credits to 6 credits
- Added KINES 160N, KINES 303 to Supporting Courses and Related Areas
- Removed KINES 405N, KINES 410, KINES 411, KINES 419, KINES 420, KINES 421, KINES 422, KINES 423, KINES 424, KINES 425W, KINES 426, KINES 427, KINES 428, KINES 429, KINES 430W, KINES 431, KINES 439W, KINES 440, KINES 441/AMST 441, KINES 442/CAMS 442, KINES 445, KINES 446, KINES 447W, KINES 449, KINES 452, KINES 453, KINES 454, KINES 455, KINES 456, KINES 457, KINES 458, KINES 459, KINES 460, KINES 463, KINES 465, KINES 467, KINES 470, KINES 471, KINES 481W, KINES 483, KINES 484, KINES 485, KINES 488, KINES 492W, KINES 493, KINES 493W, KINES 495E, KINES 499 from Supporting Courses and Related Areas

Law and Society, B.A. (LAWSC_BA)

Effective Summer 2024:

- Revised Program Description
- Changed total requirements for degree completion from 123 credits to 120 credits
- Changed General Education credits included in Requirements for the Major from 12-15 credits to 9-15 credits
- Changed Electives from 30-36 credits to 24-30 credits
- Changed Prescribed Courses for the Major from 18 credits to 15 credits
- Added LA 201W to Prescribed Courses for the Major

- Removed LA 100, PLSC 110 from Prescribed Courses for the Major
- Changed Additional Courses for the Major from 3-6 credits to 6 credits
- Added CAS 215, CAS 390, PLSC 10, PLSC 309, SOC 207, Courses from department list to Additional Courses for the Major
- Changed Supporting Courses and Related Areas for the Major from 12-15 credits to 15 credits
- Added CAS 252, CAS 426W, CAS 475, CRIM 12/CRIMJ 12, CRIMJ 100, CRIMJ 200, CRIMJ 420, LA 402, LA 404, LHR 458Y, PHIL 102, PHIL 119, PLSC 210N, PLSC 473, Courses from department list to Supporting Courses and Related Areas for the Major

Management, B.S. (Capital) (MNGMT_BS)

Effective Summer 2024:

- Revised Program Description
- Revised Entrance to Major Requirements
- Changed General Education credits included in Requirements for the Major from 12 credits to 18 credits
- Changed Electives from 8 credits to 5 credits
- Changed Requirements for the Major from 79 credits to 85 credits
- Changed Prescribed Courses for the Major from 46 credits to 43 credits
- Added MGMT 400 to Prescribed Courses for the Major
- Removed MIS 204, MGMT 341 from Prescribed Courses for the Major
- Changed Additional Courses for the Major from 21 credits to 30 credits
- Added MIS 204, MIS 250 CAS 100A, CAS 100B, CAS 100C, CAS 100S, ENGL 15, ENGL 30T, ENGL 30H, ESL 15, MGMT 326, MGMT 341, MGMT 355, MGMT 365, MGMT 431, MGMT 445, MGMT 453, MGMT 461, MGMT 466 to Additional Courses for the Major
- Removed all concentrations from Additional Courses for the Major

Management, Minor (MGMT_UMNR)

Effective Summer 2024:

- New minor added

Mathematical Sciences, B.S. (MASC_BS)

Effective Summer 2024:

- Revised Program Description
- Changed Requirements for the Major from 84-99 credits to 84-97 credits
- Added EDUC 385 to Prescribed Courses for the Secondary Education in Mathematical Sciences Option
- Changed required credits of EDUC 490 from 12 credits to 9 credits in Prescribed Courses for the Secondary Education in Mathematical Sciences Option

Mathematics, B.A. (MTHBA_BA)

Effective Summer 2024:

- Changed Electives from 0-1 credits to 0-4 credits
- Changed Common Requirements for the Major from 56 credits to 53-59 credits
- Added C or better requirement to STAT 200 in Prescribed Courses for the Major
- Added CMPSC 131 to Additional Courses

- Added C or better requirement to CMPSC 101, CMPSC 121, CMPSC 201 in Additional Courses for the Major

Mathematics, B.S. (Science) (MTHBS_BS)

Effective Summer 2024:

- Changed Requirements for the Major from 80-83 credits to 80-84 credits
- Changed Common Requirements for the Major from 30-32 credits to 30-33 credits
- Changed Prescribed Courses for the Major from 24-25 credits to 24-26 credits
- Changed MATH 220 from 2 credits to 2-3 credits in Prescribed Courses for the Major
- Added CMPSC 131, CMPSC 200 to Additional Courses for the Major
- Added RM 421 to Prescribed Courses for the Actuarial Mathematics Option
- Added RM 422, STAT 380 to Additional Courses for the Actuarial Mathematics Option
- Removed MATH 461 from Additional Courses for the Applied and Industrial Mathematics Option
- Added C or better requirement to CMPSC 465 in Prescribed Courses for the Computational Mathematics Option
- Removed CMPSC 122, MATH 467, MATH 484 from Prescribed Courses for the Computational Mathematics Option
- Added CMPSC 132, MATH 467, MATH 465, CMPSC 442, MATH 452, MATH 457, MATH 484 to Additional Courses for the Computational Mathematics Option
- Added MATH 412, MATH 448 to Additional Courses for the Systems Analysis Option

Medical Laboratory Technology, A.S. (2MLT_AS)

Effective Summer 2024:

- Changed Prescribed Courses for the Major from 49 credits to 52 credits
- Added KINES 203 to Prescribed Courses for the Major
- Changed Additional Courses for the Major from 14-16 credits to 11-13 credits
- Removed CMPSC 100 and MIS 103 from Additional Courses for the Major

Materials Science and Engineering, B.S. (MATSE_BS)

Effective Summer 2024:

- Revised Entrance to Major Requirements
- Changed Prescribed Courses for the Major from 79 credits to 76 credits
- Changed Additional Courses for the Major from 19 credits to 22 credits
- Added MATSE 471, MATSE 474, MATSE 112, CHEM 112 to Additional Courses for the Major
- Removed MATSE 444, MATSE 448, MATSE 472, MATSE 474 from Additional Courses for the Major

Mechanical Engineering, B.S. (Behrend, Berks, Capital) (MEBC_BS, MEBK_BS, MECA_BS)

Effective Fall 2024:

- Added new Integrated B.S. in Mechanical Engineering and M.S. in Mechanical Engineering at Harrisburg campus

Microbiology, B.S. (MICRB_BS)

Effective Summer 2024:

- Revised Program Description
- Changed total requirements for degree completion from 125 credits to 121 credits
- Changed General Education credits included in Requirements for the Major from 15 credits to 15-18 credits
- Changed Requirements for the Major from 95 credits to 94-98 credits
- Changed Common Requirements for the Major from 95 credits to 76-77 credits
- Changed Prescribed Courses for the Major from 64 credits to 46 credits
- Added MICRB 401, MICRB 450, PPEM 456 to Prescribed Courses for the Major
- Removed BIOL 322, BMB 428, MATH 141, MICRB 202, MICRB 251, MICRB 252, PHYS 250, PHYS 251 from Prescribed Courses for the Major
- Changed Additional Courses for the Major from 21-23 credits to 13-14 credits
- Added MICRB 203, PHYS 250, PHYS 211, PHYS 251, PHYS 212, MATH 141, STAT 200, STAT 240, STAT 250 to Additional Courses for the Major
- Removed MICRB 401, MICRB 410, MICRB 412, MICRB 415, MICRB 450, BMB 445W, BMB 448, MICRB 422, MICRB 447, BMB 408, BMB 488, BMB 496, FDSC 408, Any other MICRB 400-level course from Additional Courses for the Major
- Changed Supporting Courses and Related Areas for the Major from 8-10 credits to 17 credits
- Added General Microbiology Option
- Added Medical Microbiology Option

Music, B.M. (MUSBM_BM)

Effective Summer 2024:

- Changed total requirements for degree completion of the Composition Option from 134 credits to 133 credits
- Removed General Education credits included in Requirements for the Major
- Changed Requirements for the Major from 81-91 credits to 80-90 credits
- Added MUSIC 40, MUSIC 270 to Prescribed Courses for the Major
- Removed MUSIC 331 from Prescribed Courses for the Major
- Changed Composition Option from 55-57 credits to 54-56 credits
- Changed Prescribed Courses for the Composition Option from 42-44 credits to 41-43 credits
- Removed MUSIC 120 from Prescribed Courses for the Composition Option
- Changed Keyboard Instruments Option from 48-53 credits to 47-50 credits
- Changed Prescribed Courses for the Keyboard Instruments Option from 6 credits to 3 credits
- Removed MUSIC 129S from Prescribed Courses for the Keyboard Instruments Option

- Changed Additional Courses for the Keyboard Instruments Option from 3-6 credits to 2-3 credits
- Removed INART 258A, INART 258B from Additional Courses for the Keyboard Instruments Option
- Changed Supporting Courses and Related Areas for the Keyboard Instruments Option from 39-43 credits to 42-46 credits
- Changed Strings, Winds, Brass and Percussion Instruments Option from 47-52 credits to 46-49 credits
- Removed Prescribed Courses from the Strings, Winds, Brass and Percussion Instruments Option
- Changed Additional Courses for the Strings, Winds, Brass and Percussion Instruments Option from 9-12 credits to 8-9 credits
- Removed INART 258A, INART 258B from Additional Courses for the Strings, Winds, Brass and Percussion Instruments Option
- Changed Supporting Courses and Related Areas for the Strings, Winds, Brass and Percussion Instruments Option from 35-37 credits to 38-40 credits
- Changed Voice Option from 53-56 credits to 52-53 credits
- Changed Prescribed Courses for the Voice Option from 8 credits to 5 credits
- Removed MUSIC 129S from Prescribed Courses for the Voice Option
- Changed Additional Courses for the Voice Option from 3-6 credits to 2-3 credits
- Removed INART 258A, INART 258B from Additional Courses for the Voice Option
- Changed Supporting Courses and Related Areas for the Voice Option from 42 credits to 45 credits

Music Studies, Minor (MUSST_UMNR)

Effective Summer 2024:

- Revised Program Description
- Added MUSIC 332, MUSIC 4 to Additional Courses
- Removed MUSIC 332 from Additional Courses

Musical Arts, B.M.A. (MUBMA_BMA)

Effective Summer 2024:

- Revised Entrance to Major Requirements
- Changed General Education credits included in Requirements for the Major from 1-15 credits to 0-12 credits
- Changed Requirements for the Major from 88-90 credits to 87 credits
- Changed Prescribed Courses for the Major from 27 credits to 24 credits
- Added MUSIC 40, MUSIC 270 to Prescribed Courses for the Major
- Removed MUSIC 129S, MUSIC 331 from Prescribed Courses for the Major
- Changed Additional Courses for the Major from 4-6 credits to 3 credits
- Removed INART 258A, INART 258B from Additional Courses for the Major
- Changed Supporting Courses and Related Courses for the Major from 57 credits to 60 credits
- Changed Applied Music Requirement in Supporting Courses and Related Courses for the Major from 21 credits to 24 credits

Music Technology, Minor (MUTEC_UMNR)

Effective Summer 2024:

- Revised Program Description
- Revised Entrance to Minor Requirements
- Changed total requirements for minor completion from 21 credits to 18 credits
- Changed Prescribed Courses from 15 credits to 12 credits
- Removed MUSIC 8 from Prescribed Courses

Nursing, B.S.N. (NURS_BSN)

Effective Fall 2024:

- RN to BSN Option phased out at Schuylkill campus

Occupational Science, B.S. (OCCSC_BS)

Effective Fall 2024:

- New program added

Organizational Leadership, B.A. (OLBA_BA)

Effective Summer 2024:

- Added program to University Park campus
- Changed total requirements for degree completion from 123 credits to 120 credits
- Changed Electives from 23-30 credits to 24-30 credits
- Changed Requirements for the Major from 36-37 credits to 33 credits
- Removed Supporting Courses and Related Areas section

Organizational Leadership, B.S. (OLBS_BS)

Effective Summer 2024:

- Added program to University Park campus
- Changed total requirements for degree completion from 123 credits to 120 credits
- Changed Requirements for the Major from 61-62 credits to 58-59 credits
- Changed Supporting Courses and Related Areas from 18-19 credits to 15-16 credits

Petroleum and Natural Gas Engineering, B.S. (PNGE_BS)

Effective Summer 2024:

- Revised Entrance to Major Requirements
- Changed Prescribed Courses for the Major from 99 credits to 102 credits
- Added CMPSC 201 to Prescribed Courses for the Major
- Changed required credits of PNG 490 from 1 credit to 3 credits in Prescribed Courses for the Major
- Added C or better requirement to EMSC 100S in Prescribed Courses for the Major
- Removed PNG 491, PNG 492 from Prescribed Courses for the Major
- Changed Additional Courses for the Major from 9 credits to 6 credits
- Added ESL 15 to Additional Courses for the Major
- Removed CMPSC 201, CMPSC 202 from Additional Courses for the Major

Physical Therapist Assistant, A.S. (2PTA_AS)

Effective Summer 2024:

- Revised Retention Requirements
- Changed General Education credits included in Requirements for the Major from 9-12 credits to 12 credits

- Changed Requirements for the Major from 61 credits to 61-62 credits
- Changed Prescribed Courses for the Major from 41 credits to 39 credits
- Added C or better requirement to PSYCH 100 in Prescribed Courses for the Major
- Removed PT 290 from Prescribed Courses for the Major
- Changed Additional Courses for the Major from 20 credits to 19-20 credits
- Added PT 290, PT 290W to Additional Courses for the Major
- Removed CAS 203, ENGL 202C, HDFS 129, HDFS 229, PSYCH 212, PSYCH 270 from Additional Courses for the Major
- Added Supporting Courses and Related Areas for the Major section

Physics, B.S. (Science) (PHYS_BS)

Effective Summer 2024:

- Changed General Education credits included in Requirements for the Major from 18-19 credits to 16-18 credits
- Changed Electives from 0 credits to 0-3 credits
- Changed Requirements for the Major from 93-96 credits to 90-97 credits
- Changed Common Requirements for the Major from 69 credits to 66-70 credits
- Changed Prescribed Courses for the Major from 59 credits to 52-56 credits
- Removed CHEM 113, MATH 251 from Prescribed Courses for the Major
- Changed MATH 220 from 2 credits to 2-3 credits in Prescribed Courses for the Major
- Changed PHYS 237 from 3 credits to 3-4 credits
- Changed PHYS 400 from 4 credits to 3-4 credits
- Changed PHYS 410 from 4 credits to 3-4 credits
- Changed Additional Courses for the Major from 7 credits to 11 credits
- Added CMPSC 204, MATH 251, MATH 250, MATH 252 to Additional Courses for the Major
- Changed Supporting Courses and Related Areas for the Computation Option
- Changed Supporting Courses and Related Areas for the Electronics Option
- Added PHYS 337, PHYS 437, PHYS 465 to Additional Courses for the General Physics Option
- Removed PHYS 413, PHYS 461 from Additional Courses for the General Physics Option
- Changed Supporting Courses and Related Areas for the General Physics Option
- Changed Medical Physics Option from 24-25 credits to 24-26 credits
- Changed Additional Courses for the Medical Physics Option from 15-16 credits to 15-17 credits
- Added CHEM 113 to Additional Courses for the Medical Physics Option
- Changed Supporting Courses and Related Areas for the Nanotechnology/Material Science Option

Premedical-Medical, B.S. (PMM_BS)

Effective Summer 2024:

- Added Retention Requirements
- Changed Electives from 0-1 credits to 0 credits

- Changed Requirements for the Major from 64-66 credits to 66 credits
- Added C or better requirement to CHEM 210, CHEM 212, CHEM 213, PHYS 211, PHYS 212, PHYS 213, PHYS 214 in Prescribed Courses for the Major
- Added Additional Courses for the Major section
- Changed Supporting Courses and Related Areas for the Major from 18-20 credits to 7-9 credits
- Changed program list requirement from 3-11 credits to 3-6 credits in Supporting Courses and Related Areas for the Major
- Removed life science with lab requirement and foreign language requirement from Supporting Courses and Related Areas for the Major

Premedicine, B.S. (PM_BS)

Effective Summer 2024:

- Changed total requirements for degree completion from 126 credits to 120 credits
- Revised Entrance to Major Requirements
- Changed Requirements for the Major from 105 credits to 99 credits
- Changed Prescribed Courses for the Major from 59 credits to 44 credits
- Removed PHIL 432, PHYS 211, PHYS 212, PHYS 213, PHYS 214 from Prescribed Courses for the Major
- Changed Additional Courses for the Major from 16-20 credits to 28-36 credits
- Added SC 294, SC 494, CAS 453, NURS 464, PHYS 211, PHYS 212, PHYS 213, PHYS 214, PHYS 250, PHYS 251 to Additional Courses for the Major
- Changed Supporting Courses and Related Areas for the Major from 26-30 credits to 19-27 credits
- Added Area of Concentration requirement to Supporting Courses and Related Areas for the Major
- Removed foreign language requirement from Supporting Courses and Related Areas for the Major

Project and Supply Chain Management, B.S. (University College) (PSMUC_BS)

Effective Summer 2024:

- Program phased out at Schuylkill, Shenango, and Wilkes-Barre campuses

Psychology, B.A. (Behrend) (PSHBA_BA)

Effective Summer 2024:

- Revised Program Description
- Changed General Education credits included in Requirements for the Major from 0-4 credits to 13 credits
- Changed Requirements for the Major from 43 credits to 52 credits
- Changed Additional Courses for the Major from 19 credits to 25 credits
- Added ENGL 15, ENGL 30H, CAS 100A, CAS 100B, CAS 100C, ENGL 202A, ENGL 202B, ENGL 202C, ENGL 202D to Additional Courses for the Major
- Removed PSYCH 261, PSYCH 425, PSYCH 439, PSYCH 441, PSYCH 460, PSYCH 461, PSYCH 462, PSYCH 464, PSYCH 475, PSYCH 478 from Biological Bases of Behavior category in Additional Courses for the Major

- Added HDFS 129, HDFS 229 to Social/Developmental category in Additional Courses for the Major
- Removed PSYCH 412, PSYCH 413, PSYCH 414, PSYCH 415, PSYCH 416, PSYCH 420, PSYCH 421, PSYCH 423, PSYCH 424 from Social/Developmental category in Additional Courses for the Major
- Added PSYCH 263N to Cognitive/Learning category in Additional Courses for the Major
- Removed PSYCH 253, PSYCH 413, PSYCH 426, PSYCH 427, PSYCH 439, PSYCH 452, PSYCH 456, PSYCH 461 from Cognitive/Learning category in Additional Courses for the Major
- Added PSYCH 217N to Clinical/Applied category in Additional Courses for the Major
- Removed HDFS 311, HDFS 315, PSYCH 370, PSYCH 404, PSYCH 408, PSYCH 414, PSYCH 419, PSYCH 438, PSYCH 444, PSYCH 445, PSYCH 452, PSYCH 456, PSYCH 470, PSYCH 471, PSYCH 473, PSYCH 474, PSYCH 476, PSYCH 477, PSYCH 481, PSYCH 482, PSYCH 484, PSYCH 485 from Clinical/Applied category in Additional Courses for the Major
- Removed PSYCH 422, PSYCH 432, PSYCH 479/WMNST 471 from Diversity category in Additional Courses for the Major
- Changed Supporting Courses and Related Areas for the Major from 12 credits to 15 credits
- Added requirement for 3 additional PSYCH credits at the 200-300- or 400-level to Supporting Courses and Related Areas for the Major

Psychology, B.S. (Behrend) (PSHBS_BS)

Effective Summer 2024:

- Revised Program Description
- Changed General Education credits included in Requirements for the Major from 4 credits to 13 credits
- Changed Requirements for the Major from 64 credits to 73 credits
- Changed Common Requirements for the Major from 46 credits to 55 credits
- Changed Additional Courses for the Major from 19 credits to 25 credits
- Added ENGL 15, ENGL 30H, CAS 100A, CAS 100B, CAS 100C, ENGL 202A, ENGL 202B, ENGL 202C, ENGL 202D to Additional Courses for the Major
- Removed PSYCH 425, PSYCH 439, PSYCH 441, PSYCH 460, PSYCH 461, PSYCH 462, PSYCH 464, PSYCH 475, PSYCH 478 from Biological Bases of Behavior category in Additional Courses for the Major
- Added HDFS 129, HDFS 229 to Social/Developmental category in Additional Courses for the Major
- Removed PSYCH 412, PSYCH 413, PSYCH 414, PSYCH 415, PSYCH 416, PSYCH 420, PSYCH 421, PSYCH 423, PSYCH 424 from Social/Developmental category in Additional Courses for the Major
- Removed PSYCH 253, PSYCH 413, PSYCH 426, PSYCH 427, PSYCH 439, PSYCH 452, PSYCH 456, PSYCH 461 from Cognitive/Learning category in Additional Courses for the Major
- Added PSYCH 217N to Clinical/Applied category in Additional Courses for the Major
- Removed HDFS 311, HDFS 315, PSYCH 370, PSYCH 404, PSYCH 408, PSYCH 414, PSYCH 419, PSYCH 438, PSYCH 443, PSYCH 444, PSYCH 445, PSYCH 452, PSYCH 456, PSYCH 470, PSYCH 471, PSYCH 473, PSYCH 474, PSYCH 476, PSYCH 477, PSYCH 481, PSYCH 482, PSYCH 484, PSYCH 485 from Clinical/Applied category in Additional Courses for the Major

- Removed PSYCH 422, PSYCH 432, PSYCH 479/WMNST 471 from Diversity category in Additional Courses for the Major
- Changed Supporting Courses and Related Areas for the Major from 15 credits to 18 credits
- Added requirement for 3 additional PSYCH credits at the 200- 300- or 400-level to Supporting Courses and Related Areas for the Major
- Added new Data Analytics Option
- Added PSYCH 260A to Additional Courses for the Human Factors and Design Option
- Added Additional Courses section to Psychology in the Workplace Option
- Changed Supporting Courses and Related Areas for the Psychology in the Workplace Option from 15 credits to 12 credits
- Added PSYCH 256 to Additional Courses for the Science Option

Psychology, B.S. (Capital) (PSYC_BS)

Effective Summer 2024:

- Changed Supporting Courses and Related Areas to one 18-credit requirement from department approved list

Public Policy and Leadership Across Sectors, Minor (PBPLD_UMNR)

Effective Summer 2024:

- New minor added

Sales, Minor (SALES_UMNR)

Effective Fall 2024:

- Changed Prescribed Courses from 9 credits to 12 credits
- Added MKTG 476 to Prescribed Courses
- Changed Supporting Courses and Related Areas from 9 credits to 6 credits
- Removed MKTG 476 from Supporting Courses and Related Areas
- Added MKTG 422, MKTG 443 to Supporting Courses and Related Areas

Science, B.S. (Science, Abington, Berks, Capital, University College) (SCBS_BS, SCIAB_BS, SCIBK_BS, SCICA_BS, SCIUC_BS)

Effective Summer 2024:

- Changed name to Integrative Science
- Revised Program Description
- Revised Entrance to Major Requirements
- Changed total requirements for degree completion for the options in General Science; Biological Sciences and Health Professions; Legal Studies, Government Service, Public Policy; Life Science; and Mathematical Science from 124 credits to 120 credits
- Changed General Education credits included in Requirements for the Major from 15 credits to 13-30 credits
- Changed Requirements for the Major from 94 credits to 90-110 credits
- Changed Common Requirements for the Major from 20 credits to 16 credits
- Changed Prescribed Courses for the Major from 20 credits to 16 credits
- Removed MATH 141 from Prescribed Courses for the Major
- Added BIOL 161, BIOL 162 to Additional Courses for the General Science Option

- Removed BIOL 129, BIOL 141, BIOL 142, STAT 301, STAT 401 from Additional Courses for the General Science Option
- Changed Supporting Courses and Related Areas for the General Science Option
- Changed Additional Courses for the Biological Sciences and Health Professions Option from 24-31 credits to 24-32 credits
- Added BIOL 161, BIOL 162 to Additional Courses for the Biological Sciences and Health Professions Option
- Changed CHEM 213 to CHEM 213W in Additional Courses for the Biological Sciences and Health Professions Option
- Removed BIOL 129, BIOL 141, BIOL 142, STAT 250, STAT 301, STAT 401 from Additional Courses for the Biological Sciences and Health Professions Option
- Changed Supporting Courses and Related Areas for the Biological Sciences and Health Professions Option from 40-47 credits to 39-47 credits
- Changed Supporting Courses and Related Areas for the Biological Sciences and Health Professions Option
- Added BIOL 161, BIOL 162 to Additional Courses for the Legal Studies, Government Service, Public Policy Option
- Removed BIOL 129, BIOL 141, BIOL 142, STAT 250, STAT 301, STAT 401 from Additional Courses for the Legal Studies, Government Service, Public Policy Option
- Changed Supporting Courses and Related Areas for the Legal Studies, Government Service, Public Policy Option
- Changed Additional Courses for the Life Science Option from 24-30 credits to 24-32 credits
- Added BIOL 222, BIOL 322, STAT 200 to Additional Courses for the Life Science Option
- Removed CMPSC 101, MATH 250 from Additional Courses for the Life Science Option
- Changed Supporting Courses and Related Areas for the Life Science Option from 44-50 credits to 42-50 credits
- Changed Supporting Courses and Related Areas for the Life Science Option
- Changed Prescribed Courses for the Mathematical Science Option from 5-6 credits to 6-7 credits
- Added MATH 141 to Prescribed Courses for the Mathematical Science Option
- Removed CMPSC 122 from Prescribed Courses for the Mathematical Science Option
- Changed Additional Courses for the Mathematical Science Option from 24-29 credits to 27-34 credits
- Added CMPSC 122, CMPSC 132, CMPSC 131, STAT 200, STAT 250, STAT 318, BIOL 222, BIOL 230W, BIOL 322 to Additional Courses for the Mathematical Science Option
- Removed STAT 301, CMPSC 202 from Additional Courses for the Mathematical Science Option
- Changed Supporting Courses and Related Areas for the Mathematical Science Option from 39-45 credits to 34-41 credits
- Changed Supporting Courses and Related Areas for the Mathematical Science Option
- Added Secondary Education Option
- Removed Physical Science Option

Sociology, B.S. (Liberal Arts) (SOCBS_BS)

Effective Summer 2024:

- Revised Program Description
- Changed total requirements for degree completion from 123 credits to 120 credits
- Changed General Education credits included in Requirements for the Major from 6 credits to 6-9 credits
- Changed Electives from 21-23 credits to 22-25 credits
- Changed Requirements for the Major from 61-63 credits to 59 credits
- Changed Prescribed Courses for the Major from 17 credits to 22 credits
- Added SOC 470, STAT 184 to Prescribed Courses for the Major
- Removed STAT 480 from Prescribed Courses for the Major
- Changed Additional Courses for the Major from 5-7 credits to 22 credits
- Added CMPSC 101, CMPSC 121, CAMPS 131, MATH 110, MATH 140, 15 credits in sociology to Additional Courses for the Major
- Removed CAS 283, MATH 441, 2-4 credits of GQ courses excluding STAT 301 from Additional Courses for the Major
- Changed Supporting Courses and Related Areas for the Major from 39 credits to 15 credits
- Replaced 18 credits in sociology and 18 credits in social sciences with Pathways in Supporting Courses and Related Areas for the Major

Sports Administration, Certificate (SPTADM_UCT)

Effective Summer 2024:

- Added MGMT 495 to requirements
- Removed Lists A, B, C from requirements
- Added tracks in Sports Business and Data Analytics, Sports Event Planning and Promotion, Sports Marketing, Sports Health and Wellness Management

Surveying Engineering, B.S. (SURE_BS)

Effective Summer 2024:

- Revised Program Description
- Changed total requirements for degree completion from 132 credits to 127-128 credits
- Changed Electives from 3-4 credits to 0-1 credits
- Changed Requirements for the Major from 110-111 credits to 108-110 credits
- Changed Prescribed Courses for the Major from 89-90 credits to 81-82 credits
- Added SUR 132, SUR 213, SUR 352, SUR 361, SUR 421, SUR 121, SUR 122, SUR 221, SUR 373W to Prescribed Courses for the Major
- Removed SUR 212, SUR 262, SUR 351, SUR 362, SUR 462, SUR 490, STAT 200, SUR 111, SUR 162, SUR 272, SUR 372W from Prescribed Courses for the Major
- Changed Additional Courses for the Major from 15 credits to 21-22 credits
- Added CMPSC 200, STAT 401, STAT 200 to Additional Courses for the Major
- Added IE 302, SUR 362, SUR 424, SUR 432 to Supporting Courses and Related Areas for the Major
- Removed SUR 422 from Supporting Courses and Related Areas for the Major

Veterinary and Biomedical Sciences, B.S. (VBSC_BS)

Effective Summer 2024:

- Revised Program Description
- Changed total requirements for degree completion from 124 credits to 123 credits
- Changed Electives from 7-10 credits to 6-10 credits
- Changed Requirements for the Major from 87-90 credits to 86-90 credits
- Changed Prescribed Courses for the Major from 53 credits to 32 credits
- Removed MATH 140, MATH 141, MICRB 201, BIOL 110, BIOL 222, VBSC 403 from Prescribed Courses for the Major
- Changed Additional Courses for the Major from 25-28 credits to 45-49 credits
- Added MICRB 201, MICRB 201H, BA 100, ECON 14, BIOL 110, BIOL 110H, BIOL 222, BIOL 322, MATH 140, MATH 140B, MATH 141, MATH 141B, VBSC 403, VBSC 403H to Additional Courses for the Major

FAQs

1. Where can I find a list of General Education courses and information about requirements?
 - For information about General Education requirements, please see the General Education (p. 3183) section in this Bulletin.
2. The General Education requirements have changed. Do the new requirements apply to me?
 - The new General Education requirements apply to students who start at Penn State in Summer 2018 and later. Requirements have not changed for students who began at Penn State before this semester. The older set of requirements can be found in the Archives page. Additional information is available on the Office of General Education website (<https://gened.psu.edu>).
3. What does the blue keystone symbol mean?
 - The keystone indicates that the course is designated as a General Education course. See the degree requirements for your program to identify the General Education courses that are required. Not all courses marked with the keystone count as meeting General Education requirements when required within your program. See the program requirements and speak to an adviser regarding General Education courses that count or do not count toward the General Education requirements.
4. Where can I find bachelor of arts degree requirements?
 - Bachelor of arts degree requirements are included in the program requirements section for B.A. programs. You may also see the B.A. requirements in the Academic Information (p. 3153) section.
5. Where can I find a list of courses and course descriptions?
 - You may find courses and descriptions several different ways within the Bulletin. You may navigate to the full listing of courses and descriptions from the Courses (p. 3293) link in the top navigation menu. You may also scroll over any course number within the Bulletin to see the course description in a course bubble. Search for specific courses through the search option on the homepage or in the search functions throughout the Bulletin.
6. Which Undergraduate Bulletin should I use?
 - Your official record of general education requirements, University degree requirements, and program requirements is found in the Bulletin that matches the semester in which you enrolled at Penn State. See the Archive (p. 15) page to find past Bulletins.
7. Where can I find past Bulletins?
 - Past Bulletins can be found on the Archive (p. 15) page, which can be accessed from any page in the Bulletin's top navigation menu.

8. When will the Undergraduate Bulletin be updated?
 - The Bulletin will be updated at the beginning of each semester (fall, spring, and summer). Changes that occur between updates are identified on the Changes (p. 3123) page.
9. What course description information is currently showing in the Bulletin?
 - The University Bulletins shows course description data that is active as of the most recently released Schedule of Courses. When an upcoming semester's Schedule of Courses is released, the course description information is updated on the same day to match that course data. Please visit the Understanding Course Description Information (p. 3119) page to view the course description update calendar.
10. Why are there are some courses listed in the Bulletin that I can't schedule?
 - The Bulletin Course Description section displays all courses that are currently active at Penn State. Not all of these courses are taught every academic semester or year. To view courses that are available for enrollment by semester, please view the LionPATH Class Search (https://www.lionpath.psu.edu/psc/CSPRD/EMPLOYEE/HRMS/c/SA_LEARNER_SERVICES.CLASS_SEARCH.GBL?Page=SSR_CLSRCH_ENTRY&Action=U).
11. How can I do a wild card search in the search box?
 - Use an asterisk (*) in the search box as a wild card. For example, MATH* will find everything that starts with "MATH", *MATH everything that ends with "MATH", and *MATH* everything that contains "MATH".
12. Where can I find the Graduate Bulletin?
 - The Graduate Bulletin is located at: <https://bulletins.psu.edu/graduate/> (<https://bulletins.psu.edu/graduate/>).

Have a question we didn't include? Please let us know by emailing bulletins@psu.edu.

Academic Information

Administrative Enrollment Controls

Administrative Enrollment Controls are initiated when limitations of space, faculty, or other resources in a major prevent accommodating all students who request them. Learn which majors currently have administrative enrollment controls (p. 3153).

Direct Admit Majors

For a limited number of majors at Penn State, incoming first-year students who meet program admission requirements are admitted directly into the major. Learn which majors currently allow direct admission by first-year students (p. 3159).

Undergraduate Degrees and Requirements

The undergraduate degree programs of the University provide students with opportunities to increase their knowledge and understanding of the world and to grow in their individual skills and capabilities for learning, analyzing, creating, communicating, and forming good judgments. Learn more about undergraduate degrees at Penn State, including policies related to academic progress, classification of undergraduate students,

degree and program types, degree requirements, entrance-to-major, graduation, and special academic programs (p. 3160).

Registration and Academic Records

Academic policies and procedures related to registration and academic records are developed by the University Faculty Senate to uphold the educational standards of the University for all students. These academic policies and procedures apply to all undergraduate students enrolled in or seeking admission to credit courses. Learn more about registration and academic records at Penn State, including policies and procedures related to courses and credits, distinction and honors, exams, grading, prior learning assessment, re-enrollment, transcripts, and withdrawals. (p. 3167)

Advising and Planning a Degree Program

To plan a program of study that will best meet individual goals and interests, students must know the requirements and restrictions of the department, college or other degree-granting unit, and the University; know the sources of academic information, especially the Undergraduate Bulletin; and work consistently with an academic adviser in examining programs and course requirements and alternatives. Learn more about available resources for planning a degree program (p. 3177).

Student Rights and Responsibilities

All students are expected to be knowledgeable of and adhere to all University academic policies and procedures. Students also are expected to both maintain Academic Integrity and follow the Student Code of Conduct. As a student at Penn State, you will develop an official educational record, which will be maintained by the University under the guidelines of the Federal Family Educational Rights and Privacy Act. Learn more about academic integrity, the Student Code of Conduct, and confidentiality of student records (p. 3181).

Administrative Enrollment Controls

Administrative Enrollment Controls are initiated when limitations of space, faculty, or other resources in a major prevent accommodating all students who request them. Students must follow the administrative enrollment controls that are in effect for the semester that they enter the university.

Below are the Administrative Enrollment Controls for first-year students entering Summer 2024, Fall 2024, and Spring 2025. Students who entered the University from Summer 2018 through Spring 2024 should view the administrative enrollment controls in the appropriate Undergraduate Bulletin archive (<https://bulletins.psu.edu/undergraduate/archive/>). Students who entered the University prior to the summer 2018 semester should consult with their academic adviser about the administrative enrollment controls in effect for the semester they entered the university.

In addition to satisfying the requirements listed below, a degree candidate must be enrolled in either the college housing the major or the Division of Undergraduate Studies for entrance to a major with administrative enrollment controls.

Smeal College of Business

Major	Minimum Cumulative GPA	Credit Window	Courses
Accounting, B.S. (ACCTG_BS)	3.20	36-59 graded Penn State credits (excludes transfer and AP credits)	<p>Courses required with a grade of C or better:</p> <p>English - ENGL 15 or ENGL 30H or ESL 15 or ENGL 137H or CAS 137H</p> <p>Mathematics - MATH 110 or MATH 140 or MATH 140B</p> <p>Statistics - SCM 200 or SCM 200H or STAT 200</p> <p>Accounting* - ACCTG 211 or ACCTG 211H</p> <p>Management* - MGMT 301 or MGMT 301H or MGMT 301M or MGMT 301W</p> <p>Marketing* - MKTG 301 or MKTG 301H or MKTG 301W</p> <p>Finance* - FIN 301 or FIN 301H</p> <p>Courses required, not 'C' or better:</p> <p>Economics - ECON 102 or ECON 102H</p>

Actuarial Science, B.S. (ACTSC_BS)	3.20	36-59 graded Penn State credits (excludes transfer and AP credits)	<p>Courses required with a grade of C or better:</p> <p>English - ENGL 15 or ENGL 30H or ESL 15 or ENGL 137H or CAS 137H</p> <p>Mathematics - (MATH 140 or MATH 140B) and MATH 141</p> <p>Statistics - SCM 200 or SCM 200H or STAT 200</p> <p>Accounting* - ACCTG 211 or ACCTG 211H</p> <p>Management* - MGMT 301 or MGMT 301H or MGMT 301M or MGMT 301W</p> <p>Marketing* - MKTG 301 or MKTG 301H or MKTG 301W</p> <p>Finance* - FIN 301 or FIN 301H</p> <p>Courses required, not 'C' or better:</p> <p>Economics - ECON 102 or ECON 102H</p>
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Corporate Innovation and Entrepreneurship, B.S. (CIENT_BS)	3.20	36-59 graded Penn State credits (excludes transfer and AP credits)	<p>Courses required with a grade of C or better:</p> <p>English - ENGL 15 or ENGL 30H or ESL 15 or ENGL 137H or CAS 137H</p> <p>Mathematics - MATH 110 or MATH 140 or MATH 140B</p> <p>Statistics - SCM 200 or SCM 200H or STAT 200</p> <p>Accounting* - ACCTG 211 or ACCTG 211H</p> <p>Management* - MGMT 301 or MGMT 301H or MGMT 301M or MGMT 301W</p> <p>Marketing* - MKTG 301 or MKTG 301H or MKTG 301W</p> <p>Finance* - FIN 301 or FIN 301H</p>	<p>Accounting* - ACCTG 211 or ACCTG 211H</p> <p>Management* - MGMT 301 or MGMT 301H or MGMT 301M or MGMT 301W</p> <p>Marketing* - MKTG 301 or MKTG 301H or MKTG 301W</p> <p>Finance* - FIN 301 or FIN 301H</p>
			<p>Courses required, not 'C' or better:</p>	<p>Courses required, not 'C' or better.</p>
			<p>Economics - ECON 102 or ECON 102H</p>	<p>Economics - ECON 102 or ECON 102H</p>
Finance, B.S. (FIN_BS)	3.50	36-59 graded Penn State credits (excludes transfer and AP credits)	<p>Courses required with a grade of C or better:</p> <p>English - ENGL 15 or ENGL 30H or ESL 15 or ENGL 137H or CAS 137H</p> <p>Mathematics - MATH 110 or MATH 140 or MATH 140B</p> <p>Statistics - SCM 200 or SCM 200H or STAT 200</p>	

Management, 3.20
 B.S. (MGMT_BS)

36-59 graded Penn State credits (excludes transfer and AP credits)

Courses required with a grade of C or better:

English - ENGL 15 or ENGL 30H or ESL 15 or ENGL 137H or CAS 137H
 Mathematics - MATH 110 or MATH 140 or MATH 140B
 Statistics - SCM 200 or SCM 200H or STAT 200
 Accounting* - ACCTG 211 or ACCTG 211H
 Management* - MGMT 301 or MGMT 301H or MGMT 301M or MGMT 301W
 Marketing* - MKTG 301 or MKTG 301H or MKTG 301W
 Finance* - FIN 301 or FIN 301H

Courses required, not 'C' or better:

Economics - ECON 102 or ECON 102H

Accounting* - ACCTG 211 or ACCTG 211H
 Management* - MGMT 301 or MGMT 301H or MGMT 301M or MGMT 301W
 Marketing* - MKTG 301 or MKTG 301H or MKTG 301W
 Finance* - FIN 301 or FIN 301H

Courses required, not 'C' or better:

Economics - ECON 102 or ECON 102H

Management Information Systems, B.S. (MIS_BS) 3.00

36-59 graded Penn State credits (excludes transfer and AP credits)

Courses required with a grade of C or better:

English - ENGL 15 or ENGL 30H or ESL 15 or ENGL 137H or CAS 137H
 Mathematics - MATH 110 or MATH 140 or MATH 140B
 Statistics - SCM 200 or SCM 200H or STAT 200

Marketing, B.S. (MKTG_BS)	3.25	36-59 graded Penn State credits (excludes transfer and AP credits)	Courses required with a grade of C or better:	<p>Accounting* - ACCTG 211 or ACCTG 211H Management* - MGMT 301 or MGMT 301H or MGMT 301M or MGMT 301W Marketing* - MKTG 301 or MKTG 301H or MKTG 301W Finance* - FIN 301 or FIN 301H</p> <p>Courses required, not 'C' or better.</p> <p>Economics - ECON 102 or ECON 102H</p>
Real Estate, B.S. (REST_BS)	3.20	36-59 graded Penn State credits (excludes transfer and AP credits)	Courses required, not 'C' or better:	<p>Economics - ECON 102 or ECON 102H</p> <p>Courses required, not 'C' or better:</p> <p>Economics - ECON 102 or ECON 102H</p>
			<p>English - ENGL 15 or ENGL 30H or ESL 15 or ENGL 137H or CAS 137H Mathematics - MATH 110 or MATH 140 or MATH 140B Statistics - SCM 200 or SCM 200H or STAT 200</p>	

Risk Management, B.S. (RM_BS)	3.20	36-59 graded Penn State credits (excludes transfer and AP credits)	<p>Courses required with a grade of C or better:</p> <p>English - ENGL 15 or ENGL 30H or ESL 15 or ENGL 137H or CAS 137H</p> <p>Mathematics - MATH 110 or MATH 140 or MATH 140B</p> <p>Statistics - SCM 200 or SCM 200H or STAT 200</p> <p>Accounting* - ACCTG 211 or ACCTG 211H</p> <p>Management* - MGMT 301 or MGMT 301H or MGMT 301M or MGMT 301W</p> <p>Marketing* - MKTG 301 or MKTG 301H or MKTG 301W</p> <p>Finance* - FIN 301 or FIN 301H</p> <p>Courses required, not 'C' or better:</p> <p>Economics - ECON 102 or ECON 102H</p>
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Supply Chain and Information Systems, B.S. (SCIS_BS)	3.00	36-59 graded Penn State credits (excludes transfer and AP credits)	<p>Courses required with a grade of C or better:</p> <p>English - ENGL 15 or ENGL 30H or ESL 15 or ENGL 137H or CAS 137H</p> <p>Mathematics - MATH 110 or MATH 140 or MATH 140B</p> <p>Statistics - SCM 200 or SCM 200H or STAT 200</p>
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			<p>Accounting* - ACCTG 211 or ACCTG 211H</p> <p>Management* - MGMT 301 or MGMT 301H or MGMT 301M or MGMT 301W</p> <p>Marketing* - MKTG 301 or MKTG 301H or MKTG 301W</p> <p>Finance* - FIN 301 or FIN 301H</p> <p>Courses required, not 'C' or better:</p> <p>Economics - ECON 102 or ECON 102H</p>
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* Must be completed at Penn State (no substitutions or transfers), in addition with a quality grade of "C" or better and no alternative or Pass/Fail (PS) grading

Donald P. Bellisario College of Communications

Major	Minimum Cumulative GPA	Credit Window	Courses
Advertising/ Public Relations, B.A. (ADPR_BA)	3.20	40-68 graded Penn State credits (excludes transfer and AP credits)	Courses required with a grade of C or better: ENGL 15 (or a University equivalent), ECON 102

College of Engineering

Major	Minimum Cumulative GPA	Credit Window	Courses
Aerospace Engineering, B.S. (AERSP_BS)	2.90	29-55 graded Penn State credits (excludes transfer and AP credits)	Courses required with a grade of C or better: CHEM 110, EDSE 100, MATH 140, MATH 141, PHYS 211
Computer Engineering, B.S. (CMPEN_BS)	3.20	29-55 graded Penn State credits (excludes transfer and AP credits)	Courses required with a grade of C or better: CHEM 110, CMPSC 121 or CMPSC 131, MATH 140, MATH 141, PHYS 211

Computer Science, B.S. (CMPSC_BS)	3.20	29-55 graded Penn State credits (excludes transfer and AP credits)	Courses required with a grade of C or better: CMPSC 121 or CMPSC 131, CMPSC 122 or CMPSC 132, MATH 140, MATH 141, PHYS 211
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Mechanical Engineering, B.S. (ME_BS)	3.00	29-55 graded Penn State credits (excludes transfer and AP credits)	Courses required with a grade of C or better: CHEM 110, EDSGN 100, MATH 140, MATH 141, PHYS 211
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Security and Risk Analysis, B.S. (SRA_BS)	2.70	40-70 graded Penn State credits (excludes transfer and AP credits)	Courses required with a grade of C or better: IST 140 or CMPSC 101 or CMPSC 121, IST 210, SRA 111, SRA 211
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College of Information Sciences and Technology

Major	Minimum Cumulative GPA	Credit Window	Courses
Cybersecurity Analytics and Operations, B.S. (CYAOP_BS)	2.90	40-70 graded Penn State credits (excludes transfer and AP credits)	Courses required with a grade of C or better: CYBER 100/ CYBER 100S, IST 210, IST 220, IST 242 or CMPSC 122 or CMPSC 132, STAT 200 or SCM 200
Human-Centered Design and Development, B.S. (HCDD_BS)	2.70	40-70 graded Penn State credits (excludes transfer and AP credits)	Courses required with a grade of C or better: HCDD 113 or HCDD 113S, IST 140 or CMPSC 121 or CMPSC 131, or CMPSC 101 and IST 240, IST 242 or CMPSC 122 and CMPSC 221, or CMPSC 132 and CMPSC 221, IST 210, IST 220, STAT 200
Information Sciences and Technology, B.S. (ISTBS_BS)	2.70	40-70 graded Penn State credits (excludes transfer and AP credits)	Courses required with a grade of C or better: IST 110, IST 140 or CMPSC 101 or CMPSC 121, IST 210, IST 220

Direct Admit Majors

For a limited number of majors at Penn State, incoming first-year students who meet program admission requirements are admitted directly into the major. These majors do not follow the usual entrance-to-major process that sees first-year students admitted to a Penn State college or Division of Undergraduate Studies in pre-major status before matriculating to enrollment in a major once additional program entrance requirements are completed. Instead, first-year students are admitted directly into the major at the time of admission to Penn State, provided all program requirements are met. For this reason, admission restrictions may apply for transfer and/or change-of-major students.

The list of Direct Admission majors can be found below. For more information about the admission process for a specific major, please send a request to the appropriate college, campus, or program contact (listed in the Contact tab on the program page in the Undergraduate Bulletin).

Direct Admit Majors

- Acting, B.F.A. (p. 184)
- Agribusiness Management, B.S. (p. 20) (World Campus only)
- Architecture, B.Arch. (p. 190)
- Criminal Justice, B.S. (p. 2342) (World Campus only)
- Digital Journalism and Media, B.A. (p. 309)
- Digital Multimedia Design, B.Des. (p. 222)
- Electrical Engineering Technology, B.S. (p. 854) (Engineering)
- Electro-Mechanical Engineering Technology, B.S. (p. 1756) (Altoona)
- Electro-Mechanical Engineering Technology, B.S. (p. 1913) (Berks)
- Electro-Mechanical Engineering Technology, B.S. (p. 863) (Fayette, New Kensington, York)
- Graphic Design, B.Des. (p. 226)
- History, B.A. (p. 1293) (World Campus only)
- Integrated Social Sciences, B.S. (p. 1301)
- International Politics, B.A. (p. 1304) (World Campus only)
- Labor and Human Resources, B.A. (p. 1340) (World Campus only)
- Labor and Human Resources, B.S. (p. 1346) (World Campus only)
- Landscape Architecture, B.L.A. (p. 236)
- Law and Society, B.A. (p. 1363)
- Multidisciplinary Studies, B.A. (p. 1388) (World Campus only)
- Musical Theatre, B.F.A. (p. 272)
- Nursing, B.S.N. (p. 1518)
- Organizational and Professional Communication, B.A. (p. 1394)
- Organizational and Professional Communication, B.S. (p. 1397)
- Organizational Leadership, B.A. (p. 1401)
- Organizational Leadership, B.S. (p. 1404)
- Political Science, B.A. (p. 1423) (World Campus only)
- Premedical-Medical, B.S. (p. 648)

- Recreation, Park, and Tourism Management, B.S. (p. 1020) – Professional Golf Management Option
- Surveying Engineering, B.S. (p. 929)
- Strategic Communications, B.A. (p. 339)
- Theatre, B.F.A. (p. 286) – Design and Technology Option
- Theatre, B.A. (p. 280) - Theatre Studies Option
- Turfgrass Science and Management, A.S. (p. 155)
- Turfgrass Science, B.S. (p. 157) (World Campus only)
- Workforce Education and Development, B.S. (p. 749)

Undergraduate Degrees and Requirements

The undergraduate degree programs of the University provide students with opportunities to increase their knowledge and understanding of the world and to grow in their individual skills and capabilities for learning, analyzing, creating, communicating, and forming good judgments. All undergraduate degree programs and courses offered by the colleges and other degree-granting units of the University are under the academic sponsorship of a faculty committed to scholarship and are implemented under the academic policies and student rules established by the University Faculty Senate. They are intended to be flexible in accommodating students interested in learning, whether through traditional or nontraditional offerings, while enrolled on either a part-time or a full-time basis. The degree programs and courses of the colleges and other degree-granting units are offered through resident or distance education. Credit courses are available to degree candidates on University campuses as well as through off-campus credit-granting activities such as internships, practicums, field trips, and foreign studies, as well as via continuing and distance education mechanisms, such as the World Campus. Students not formally admitted to degree candidacy (including nondegree students) may participate in resident offerings as time and space permit, as well as in continuing and distance education.

Select the topics of interest below or the menu to the right to explore different information areas.

Degree and Program Types (p. 3160)

Entrance to Major (p. 3161)

Degree Requirements (p. 3162)

Academic Progress (p. 3163)

Graduation (p. 3164)

Classification of Undergraduate Students (p. 3165)

Special Academic Programs (p. 3166)

Degree and Program Types

Baccalaureate Degrees

An award signifying a rank or level of educational attainment. Particular types of baccalaureate degrees identify educational programs having common objectives and requirements. Degree programs may provide academic, preprofessional, or professional experiences and preparation. Majors lead to a baccalaureate degree. Each student must select a major within a baccalaureate degree type. If options are offered within a major, a student selects one. The student may also elect to enroll in a minor to supplement the major. Alternatively, the student may seek to enroll in multiple majors within the same type of baccalaureate degree or to enroll in a simultaneous degree program. A baccalaureate program of

study shall consist of no less than 120 credits. Students may elect to take courses beyond the minimum requirements of a degree program.

Major

A plan of study in a field of concentration within a type of baccalaureate degree. Colleges and other degree-granting units may have common requirements for all of their majors. Each major may have requirements identified in Prescribed, Additional, and Supporting Courses and Related Areas categories. Elective credits are not considered part of the major.

Option

A specialization within a major that should involve at least one-third of the course work credits required for the major, but need not be more than 18 credits. All options within a major must have in common at least one-fourth of the required course work credits in the major. A student can only be enrolled in an option within his/her own major.

Minor

A minor is defined as an academic program of at least 18 credits that supplements a major. A minor program may consist of course work in a single area or from several disciplines, with at least 6 but ordinarily not more than half of the credits at the 400 course level. Total requirements are to be specified and generally limited to 18 to 21 credits. Entrance to some minors may require the completion of a number of prerequisites, including courses, portfolios, auditions, or other forms of documentation that are not included in the total requirements for the minor. All courses for a minor require a grade of C or above.

When a student graduates, completion of a minor is recorded on his/her transcript by the Registrar, and the student receives an official certificate certifying completion of the minor. (The certificate is given with the diploma.)

Concurrent Majors/Sequential Majors

At the baccalaureate or associate degree level, students may be approved for admission to more than one major under the Concurrent Majors program. A Concurrent Majors program is one in which students take courses to concurrently meet the requirements of at least two majors, with graduation for all majors in the program occurring during the same semester. Concurrent majors must all be at the baccalaureate or associate degree level. Under the Sequential Majors program, upon graduation from an associate or baccalaureate degree program, a student may apply for re-enrollment in another undergraduate degree program.

Any student requesting more than one major program shall, for each major, meet the same acceptance standards and graduation requirements as met by all other students. Colleges and departments may identify and should publish any combinations of majors that would not be approved for more than one major program. In general, an undergraduate student may not combine a general major with a departmental major within the same college.

READ SENATE POLICY 60-00: Completing More Than One Undergraduate Major Program (Concurrent Majors and Sequential Majors) (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/60-00-completing-more-than-one-undergraduate-program/#60-00>)

READ SENATE POLICY 60-10: Concurrent Majors Program (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/60-00-completing-more-than-one-undergraduate-program/#60-10>)

READ SENATE POLICY 60-20: Sequential Majors Program (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/60-00-completing-more-than-one-undergraduate-program/#60-20>)

Associate Degrees

Majors that lead to two-year associate degrees are available at most of Penn State's undergraduate locations. These majors provide concentrated instruction to prepare graduates for specialized occupational assignments, except for the Letters, Arts, and Sciences major, which provides graduates with a general education and some specialization in their fields of interest.

More than twenty associate degree majors lead to either the Associate in Arts degree, the Associate in Engineering Technology degree, or the Associate in Science degree. Credits received for Penn State associate degree program courses may be applicable to a particular baccalaureate degree program at the discretion of the appropriate college and department. World Campus also offers two-year degrees.

Certificates

Undergraduate certificates, formal awards showing the satisfactory completion of a postsecondary educational curriculum, are designed primarily for students who are beyond the compulsory age for high school. Penn State offers credit or noncredit certificates, which are awarded in academic, vocational, and continuing professional education. Certificates often reflect emerging academic areas, necessary professional development requirements, or requirements that do not constitute degree programs. They may be supplements or enhancements to existing degree programs or may be stand-alone. For-credit certificates often provide "step-up" opportunities to degree programs allowing for milestones of progress. Certificates are not certifications, which are awarded by governmental and professional agencies.

A certificate consists of a group of courses, typically 9-15 credits, developed, supervised, and evaluated by the offering academic unit(s). Students must earn at least two-thirds (2/3) of the credits used to complete a certificate at Penn State. All credit courses for a certificate require a grade of 'C' or higher. For students enrolled in degree programs, at least six (6) credits of the certificate must be unique from the Prescribed Courses required in the major. Noncredit courses require satisfactory completion as defined by the unit offering the certificate. Requirements for a certificate may be completed at any campus location offering the specified courses for the certificate.

All students enrolling in certificates must be defined as Penn State students. New students enrolling in undergraduate credit certificates must enroll as non-degree regular students.

For certificates earned in conjunction with a major, students must declare the intent to earn the certificate prior to being awarded their associate or baccalaureate degrees. Students completing independent certificates should declare their intent to earn the certificate during the final semester of course work. Certificates cannot be awarded retroactively.

READ POLICY M-12: GUIDELINES FOR UNDERGRADUATE CREDIT CERTIFICATES (<https://undergrad.psu.edu/aappm/M-12-guidelines-undergraduate-credit-certificates.html>)

Entrance to Major

When first-semester baccalaureate degree students are admitted to the University, most are enrolled in either a specific college that offers majors

of interest or in the Division of Undergraduate Studies. Typically, students do not enter a specific major within the college until sometime between their third and fifth semesters.

Minimum Academic Requirements

All Penn State majors have entrance requirements. Students are eligible to enter a major once they have satisfied the following minimum academic requirements:

1. Meet the admissions entrance requirements of the college the student wishes to enter.
2. Demonstrate at least a C (2.00) cumulative average for all courses taken at the University subject to the conditions of Senate Policy 51-50 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/51-00-grade-point-average/#51-50>).
3. Have third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).
4. Satisfy any additional academic requirements that have been proposed by the college or the major and approved by the dean of the college and the University Faculty Senate Committee on Undergraduate Education and/or the Central Enrollment Management Group.
5. Apply no more than 91 credits of previous work toward a degree in the new college.

Please note, some majors have more restrictive academic requirements and/or administrative enrollment controls (p.). The criteria students must meet for entry to all majors are available on the "How to Get In" tab of each program in the Undergraduate Bulletin.

Students who meet the entry-to-major criteria for their choice of major can apply for entrance to that major by using LionPATH (<https://lionpath.psu.edu/>) "Update Academics."

MORE INFORMATION ABOUT ENTRANCE TO MAJOR (<https://www.registrar.psu.edu/degree-planning/entrance-major.cfm>)

Criteria

Entrance-to-Major Criteria are determined for every entering class within an academic year (summer, fall, and spring). Students who meet a major's entry criteria are guaranteed entry to the major. The criteria students must meet for entry to all majors are available at Entrance to Major Requirements on each program page. When deemed academically appropriate, the dean of the college may approve exceptions for individual students. For additional information, contact the appropriate advising center (<https://dus.psu.edu/advising-centers/>).

Procedures

Students who meet entry-to-major criteria may apply using LionPATH's "Update Academics" function. A student who wishes to enter a major with Administrative Enrollment Controls (p.) will use LionPATH's "Update Academics" to request entrance to the major. To participate in this process, students will actively request entrance to administratively controlled majors when they are within an established credit window, have completed specified courses, and have earned the stated grade-point average.

Students with questions about entering a major should contact the appropriate advising center (<https://dus.psu.edu/advising-centers/>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/#37-30>)

READ SENATE POLICY 54-56: DROPS BY COLLEGE (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-56>)

Administrative Enrollment Controls

Administrative Enrollment Controls are initiated when limitations of space, faculty, or other resources in a major prevent accommodating all students who request them. Due to changing resources and demands, administrative enrollment controls (p.) are approved annually by the Office of Undergraduate Education. Examples include Accounting and Advertising/Public Relations. Entrance-to-Major Criteria must be met and Entrance-to-Major Procedures must be followed, as described in the following two paragraphs.

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/#37-30>)

Entrance to Majors with Administrative Controls Course Work

Certain courses may be required for entry to a major with administrative controls. A specific grade-point average may be required in some or all of these courses. Generally, students must complete specified courses by the end of their fourth semester of enrollment.

Performance

Applicants are considered for entrance to a controlled major on the basis of their cumulative Penn State grade-point average (GPA) at the end of the fall semester prior to their pool semester (typically the spring semester of their sophomore year). Generally, students who have a cumulative grade-point average of 3.00 or higher cannot be denied entry to the major provided that all of the other requirements for entrance have been met. However, certain controlled majors have approval for higher GPA guarantees. After all of these students have been accommodated, if there is still space, selections are made from the remaining students in the pool of applicants, starting with the highest GPA, until the approved maximum number of students to enter the major is reached. No student with less than a 2.00 cumulative GPA is accepted.

College of Enrollment

Students who apply for entrance to a controlled major must be enrolled in the college offering that major or in the Division of Undergraduate Studies (DUS). Students who want to be considered for controlled majors in more than one college should enroll in DUS to be eligible for consideration.

Exceptions

Exceptions may be considered based on the individual student's situation. Students who have concerns about entry to a major should speak to an adviser in the appropriate college or campus academic advising and information center.

Enrollment Process

If accepted for a major, the student is enrolled in that major; no additional processing is required. If rejected from all the choices that were listed on the application to major form, the student must explore other alternatives. For assistance in this process, the student may confer with advisers in appropriate academic advising centers (<https://dus.psu.edu/>

[advising-centers/](https://dus.psu.edu/)) or the Division of Undergraduate Studies. (<https://dus.psu.edu/>)

Degree Requirements

All programs have specific requirements described on the program page. Some common requirements that apply broadly across the university are described here.

General Education

General Education is the heart of the undergraduate experience. From the sciences to the arts and humanities, General Education at Penn State prepares students to thrive personally and professionally in our diverse global society. Through General Education, students acquire skills, knowledge, and experiences for living in interconnected contexts, making life better for themselves, others, and the larger world. As professions become more dynamic and career paths less predictable, the ability to place information into context through critical thinking and the ability to develop solutions to complex problems and make ethical decisions become essential skills for a resilient workforce. Creative and analytical practice prepares students of all disciplines to be resourceful in the application of their knowledge towards complex problem solving, and to communicate that knowledge in a variety of forms.

MORE INFORMATION ABOUT GENERAL EDUCATION (p. 3183)

Bachelor of Arts Degree Requirements (9-24 credits)

Courses with a Bachelor of Arts attribute satisfy these requirements.

World Language (0-12 credits)

Student must attain 12th credit level of proficiency in one world language in addition to English. This proficiency must be demonstrated by either examination or course work. See the Placement Policy for Penn State World Language Courses (p. 3180).

B.A. Fields (9 credits)

Humanities, Social and Behavioral Sciences, Arts, World Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; world language credits in this category must be in a second world language in addition to English or beyond the 12th credit level of proficiency in the first language). Credits must be selected from the list of approved courses.

World Cultures (0-3 credits)

Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the University Cultural Diversity (US/IL) requirement.

Other University Requirements

The First Year Engagement, Cultural Diversity and Writing Across the Curriculum requirements can be found on the Other University Requirements page.

MORE INFORMATION ABOUT OTHER UNIVERSITY REQUIREMENTS (p. 3188)

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

READ SENATE POLICY 82-20: GENERAL REQUIREMENTS (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-20>)

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

READ SENATE POLICY 82-40: CUMULATIVE GRADE-POINT AVERAGE REQUIREMENTS (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-40>)

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints. For more information, check the Suggested Academic Plan for your intended program.

READ SENATE POLICY 83-80: LIMITATIONS ON SOURCE AND TIME FOR CREDIT ACQUISITION (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80a>)

Bachelor of Humanities

Bachelor of Humanities degree majors are required to take 18 credits (referenced below). In addition, students are expected to complete credits required by their college and major.

Code	Title	Credits
Prescribed Courses		
HUM 300N	Interpretations in the Humanities	3
HUM 400N	Expressions in the Humanities	3
Supporting Courses and Related Areas		
Select 1 course each from four different major/program offerings:		12
AA, AMST, ART, ARTH, CAMS, COMM, CMLIT, ENGL, HIST, INART, MUSIC, PHIL, RLST, THEA, or courses from the School of Humanities (Penn State Harrisburg, the Capital College) approved list		
<i>Total Credits</i>		18

Bachelor of Philosophy

The Bachelor of Philosophy degree is the only one not offered through any college or school but rather on a University-wide basis. This degree allows students to plan their own programs, in conjunction with a faculty preceptor, within the framework of the academic program of the University. A description of this degree is found in the Intercollege-Undergraduate Programs section of this bulletin.

Academic Progress

To graduate, a degree candidate must complete the requirements for the candidate's major and earn at least a C (2.00) average for all courses taken at this University as stated in 82-40 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-40>), subject to the conditions of 51-00 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/51-00-grade-point-average/>). When a student fails to make adequate progress towards meeting and maintaining this 2.00 grade-point average, various academic progress statuses are used to serve as notification of such failure and to assist the student in correcting his/her academic difficulties. These statuses include academic warning (54-20 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-20>)) and academic suspension (54-40 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-40>)).

READ SENATE POLICY 54-00: ACADEMIC PROGRESS (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/>)

Good Standing

A student must have a cumulative grade-point average of 2.00 or higher to be considered in good standing to declare a major and to graduate from the University. A student will receive notification at the end of each semester when his/her semester grade-point average drops below a 2.00.

READ SENATE POLICY 54-10: GOOD STANDING (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-10>)

Academic Warning

Academic warning serves as official notification that the student has failed to earn a 2.00 cumulative grade-point average. A student placed on academic warning will have a hold placed on registration and will be required to meet with an academic adviser in order for this registration hold to be removed.

A student in academic warning status may continue to enroll for classes as long as the semester grade-point average continues at a 2.00 or higher. To remove academic warning, the cumulative grade-point average must be 2.00 or higher. A student in academic warning who fails to maintain a semester grade-point average of 2.00 or higher will be academically suspended (54-40).

READ SENATE POLICY 54-20: ACADEMIC WARNING (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-20>)

Academic Suspension

Academic suspension is an official notification that a student has earned a semester grade-point average of less than 2.00 while on academic warning. A student who has been academically suspended may not enroll at the University or attend classes for two consecutive semesters (Note: Summer session is equal to one semester and includes all courses offered after Spring semester and before Fall semester).

Students with 15 or fewer recovery points may petition the Faculty Senate for a reduction in or stay of the suspension. Petitions will not be granted automatically.

A student returning from academic suspension must apply for re-enrollment as defined in policy 58-00 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/58-00-re-enrollment-as-a-degree-candidate/>) and returns to the University in warning status, with the former cumulative grade-point average, and with a hold placed on the registration. The student must follow the requirements and procedures of the college for which re-enrollment as a degree candidate is sought.

READ SENATE POLICY 54-40: ACADEMIC SUSPENSION (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-40>)

Academic Dismissal

A student who has been placed on academic suspension and fails to achieve at least a 2.00 semester GPA is subject to academic dismissal and is no longer permitted to take courses at the University. After a period of four calendar years, a student who has been academically dismissed from the University may seek re-enrollment to the University by requesting academic renewal (54-90).

READ SENATE POLICY 54-50: ACADEMIC DISMISSAL (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-50>)

Drops by Colleges

1. The dean of the college, subject to the review of the faculty of the college, may require that a candidate be disenrolled from a major in the college or from the college for failure to meet academic retention standards of the major or the college. Academic retention standards applicable to any student shall be those in effect at the time of the student's most recent admission to the major or college. A student required to disenroll from a major may transfer directly to another major subject to Section 37-00 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>) or may be admitted to the Division of Undergraduate Studies subject to Section 39-00 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/39-00-division-of-undergraduate-studies/>), expecting transfer to another major later. If not accepted for enrollment in another major or in the Division of Undergraduate Studies, the candidate will be dropped from degree status. A candidate who is disenrolled from a major and who previously has completed the allowed enrollment time limit of the Division of Undergraduate Studies, as specified in Section 39-50 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/39-00-division-of-undergraduate-studies/#39-50>), may be allowed one additional semester of enrollment in that division. Failure to relocate into another major in the specified time will cause the candidate to be dropped from degree candidacy under Section 39-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/39-00-division-of-undergraduate-studies/#39-80>) unless Section 54-52 applies.
2. The dean of the college, subject to the review of the faculty of the college, may at any time recommend to the President that a candidate enrolled in that college be dropped as a degree candidate at the University if the candidate is, in the opinion of the faculty, not adaptive to the work of the college.

READ SENATE POLICY 54-56: DROPS BY COLLEGE (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-56>)

Academic Renewal

Students, including those who have been academically warned, suspended, or dismissed, may request approval for Academic Renewal and Re-enrollment if:

- They have a cumulative grade-point average less than 2.00 and
- They have been absent from Penn State for at least four calendar years during which they have not been enrolled in any Penn State credit courses. Students may petition the Faculty Senate for early consideration of academic renewal.

If Academic Renewal is granted:

- The student's cumulative average will start over at 0.00 in academic good standing.
- All prior courses and grades remain unchanged on the student's academic record.
- The notation of Academic Renewal will be recorded on the student's transcript.
- Courses passed with a grade of "C" or better during the earlier enrollment and approved by the dean of the college may be used to fulfill graduation requirements.
- Courses taken prior to Academic Renewal will not count towards the repeated courses limit as specified in Policy 47-80.

READ SENATE POLICY 54-90: ACADEMIC RENEWAL (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-90>)

Graduation

Declare Intent to Graduate

To graduate, you must satisfy all the University, college, and major requirements that were in effect at the time of your most recent admission, or re-enrollment, as a degree candidate to the University.

Process

1. It is your responsibility to notify the University of your intent to graduate.
2. Confirm the activation period on the Academic Calendar (<https://www.registrar.psu.edu/academic-calendars/>) for the dates when you can activate your intent to graduate.
3. Using the "Apply for Graduation" link within the My Academics page in the LionPATH Student Center (<https://lionpath.psu.edu/>), you can set your intent to graduate.
 - a. View LionPATH Video Tutorial on How to Apply for Graduation (https://tutorials.lionpath.psu.edu/public/S_ApplyGrad/).
 - b. Download LionPATH Tutorial in Microsoft Word on How to Apply for Graduation (https://tutorials.lionpath.psu.edu/public/Docs/S_ApplyGraduation.docx).
4. After the activation period expires you must contact the appropriate college office to activate or remove your intent to graduate.

Unofficial programs are distributed at the commencement ceremony. If your intent to graduate is activated after the student information has been sent to the publisher, your name will not appear in the program. For fall and spring ceremonies the data is sent during the tenth week of the semester. For the summer ceremony the data is sent during the fifth week.

READ SENATE POLICY 86-00: CANDIDATE RESPONSIBILITIES AND OPTIONS (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/86-00-candidate-responsibilities-and-options/>)

Graduation Requirements

At the start of the semester in which a student expects to complete the degree requirements listed below, they should follow graduation procedures.

1. A student must satisfy all University degree requirements (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/>) that were in effect when the student first scheduled a class after their admission or most recent re-entry as a degree candidate. Both University degree requirements (including General Education) and requirements for a program (such as major, minor, option, honors) are those in effect at the time of a student's first scheduled class meeting following the most recent admission as a degree candidate. The degree audit provides students with a summary of progress toward meeting the requirements of their degree program. The audit indicates the graduation requirements that have been completed as well as those requirements that still must be satisfied.
2. Every candidate for a degree must earn a specified number of credits as a degree candidate in courses offered by the University or in approved cooperative programs established by the University Faculty Senate. For a baccalaureate degree, the minimum is 36 of a student's last 60 credits; for an associate degree, the minimum is 18 of a student's last 30 credits.
3. The last 60 credits required for a candidate's first baccalaureate degree must be earned within five calendar years. An extension of time is granted for intervening military service.
4. If a student takes course(s) at another institution prior to graduating, an official transcript listing the grades and credits earned must be received by Undergraduate Admissions, 201 Shields Building, University Park, PA 16802-1294, before commencement.
5. Cumulative grade-point average must be at least a C (2.00) or better.
6. Students must complete their courses; students with Deferred Grades (DF) or No Grades (NG) will not be allowed to graduate.
7. A student must earn at least a C grade in each course designated as a C-required course in their major.

READ SENATE POLICY 82-00 AND 83-00: DEGREE REQUIREMENTS (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/>)

Course Substitution

A student is expected to satisfy all University degree requirements (such as General Education (p. 3183), First-Year Seminar and Engagement (p. 3188), United States Cultures and International Cultures (p. 3188), Writing Across the Curriculum (p. 3188)) that were in effect when the student first scheduled a class after their admission or most recent re-enrollment as a degree candidate. Requirements for a program (such as major, minor, option, honors) are those in effect at the time of the student's admission or most recent re-enrollment into that program.

A student wishing permission to deviate in any way from program requirements must have permission from the appropriate college dean.

Guidelines for Considering Course Substitution Requests

1. The course to be substituted should be in the same area as the required course or in a closely related area.
2. Substitution of a course for a previously failed required course is seldom granted.
3. Failure to schedule a required course is not sufficient reason for granting permission for a course substitution.

Student Action

1. When working on your academic plans, discuss the possibility of a substitution with an adviser. Ideally, permission for a substitution should be obtained before you enroll in the course you wish to substitute.
2. Schedule the course to be substituted. After scheduling it, obtain pertinent forms and directions in the appropriate college dean's office to request the substitution. A course must be scheduled or completed before the substitution can be officially approved and entered on your degree audit.
3. When a substitution is approved, check your audit to verify that the substitution has been made.

Classification of Undergraduate Students

Degree Students

A degree candidate must hold a high school diploma or its equivalent. A degree candidate may be admitted as either a baccalaureate degree candidate or an associate degree candidate if the requirements specified in Senate Policies 05-00 and 06-00: Degree Candidates (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/05-00-and-06-00-degree-candidates/>) are met.

Nondegree Students

A person enrolled in a course who is not a degree candidate or degree-seeking student conditionally enrolled in DUS is classified as a nondegree student. A nondegree student must either hold a high school diploma or its equivalent to take undergraduate courses. Exceptions may be made by the Undergraduate Admissions Office for students currently enrolled in high school (dual-enrollment students).

A nondegree student who has not been academically suspended or dismissed may enroll in any number of credits, not to exceed the typical semester credit load of a full-time student if criteria 1, 2, and 3 are met. Nondegree students who change from degree candidates to nondegree or who intend to become degree candidates must also meet criterion 4.

1. The student has completed the prerequisites for the courses to be scheduled or has obtained permission from the instructor to schedule the course.
2. Space is available after degree candidates have been accommodated.
3. The student has not been dismissed or suspended for nonacademic reasons from any college or university. An applicant not in good standing at another accredited college or university for disciplinary reasons must consult with the director of the Office of Student Conduct for admissions clearance.

4. The student has obtained academic advising/counseling from an adviser/counselor designated by the academic unit to which admission, or reinstatement and re-enrollment, is desired.

Note: A student must be admitted, or reinstated and re-enrolled, as a degree candidate to apply the credits earned as a nondegree student toward fulfilling the requirements for a degree. The dean of the college of enrollment shall decide which credits may be used to fulfill the degree requirements.

Limitations to Enrollment as a Nondegree Student

A student in nondegree status may remain in that status for a maximum of 30 credits, at which time the student must be accepted into a degree program to continue taking credit courses at Penn State. If a student in nondegree status is not eligible for a degree program after completing 30 credits in that status, s/he may continue to take credit courses at Penn State only as long as a semester grade point average of more than 2.00 continues to be earned and the student has the written support of the major s/he intends to enter or re-enter. In this situation, the student must enter a degree program immediately upon reaching eligibility. Nondegree students whose cumulative grade point average is below 2.00, who have reached the 30-credit limit, are not eligible for a degree program and will be dismissed from the University at the end of the semester and may only re-enter the University through academic renewal (as defined by Senate Policy 54-90: Academic Renewal (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-90>)). Nondegree students who have reached the 30-credit limit, are in good academic standing (defined as at least a 2.00 cumulative grade point average), and do not intend to earn a degree may self-identify and continue taking credit courses at Penn State as an "enrichment course taker" for as long as a cumulative grade point average of at least 2.00 is maintained.

Obtaining an Application

A nondegree application can be obtained from the Office of the University Registrar (<https://www.registrar.psu.edu/>) or by contacting the Registrar's office at any University location.

Admission of Nondegree Student as a Degree Candidate

A nondegree student may apply for admission as a baccalaureate degree candidate with advanced standing to a college or school of the University, or to the Division of Undergraduate Studies, upon completion of at least 18 credits earned at this University with at least a 2.00 cumulative grade-point average. An applicant who has completed at least the equivalent of two years of baccalaureate degree work before applying for admission as a baccalaureate degree candidate must have the approval of either the dean of the college or school in which enrollment is desired or of the director of the Division of Undergraduate Studies if the student wants to enroll in that division. To be eligible for degree admission, the nondegree student must meet the academic requirements of the University and the college or school in effect at the time of application.

Degree-Seeking Student Conditionally Enrolled in Division of Undergraduate Studies

An applicant seeking to pursue a degree program and holding a high school diploma or its equivalent may be admitted to enroll in credit courses at the University as a degree-seeking student conditionally enrolled in the Division of Undergraduate Studies (DUS). A degree-seeking student in DUS with conditions is considered a regular student for

registration and academic advising and is entitled to all services provided to all students of the University. A degree-seeking student conditionally enrolled in DUS who is admissible to the University may enroll in credit courses if the following criteria are met:

1. The applicant provides evidence of academic success based on credentials submitted with the application; however, does not meet all criteria specified in Senate Policies 05-00 and 06-00: Degree Candidates (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/05-00-and-06-00-degree-candidates/>).
2. The applicant has not been dismissed for unsatisfactory scholarship from any other college or university previously attended.
3. The applicant has not been dismissed or suspended for nonacademic reasons from any college or university.
 - a. An applicant who has any criminal or disciplinary issues and is not in good standing at another accredited college or university must have received clearance from the Office of Student Conduct.

Special Academic Programs Environmental Emphasis Programs

The University offers a wide range of opportunities in undergraduate programs with an environmental emphasis. Programs with an emphasis on the natural world include:

- Agriculture (various fields)
- Biology (various fields)
- Earth Sciences
- Environmental Engineering
- Environmental Systems Engineering
- Geography
- Geosciences
- Meteorology

Programs stressing human use of and impact on the natural world are offered individually or jointly by various colleges. Descriptions of individual programs and related courses emphasizing study in environmental areas can be found under these listings:

College of Agricultural Sciences

- Agricultural and Extension Education, Environmental Science option
- Agroecosystems Science
- Environmental and Renewable Resource Economics
- Environmental Resource Management
- Environmental Soil Science
- Forest Science
- Landscape Contracting
- Wildlife and Fisheries Science

Penn State Altoona

- Environmental Studies

College of Arts and Architecture

School of Architecture and Landscape Architecture:

- Architecture
- Landscape Architecture

College of Earth and Mineral Sciences

- Climatology
- Earth Sciences
- Earth Systems
- Energy, Environmental, and Mineral Economics
- Environmental Systems Engineering
- Geography
- Geosciences
- Industrial Health and Safety
- Materials Science and Engineering
- Mining Engineering
- Petroleum and Natural Gas Engineering
- Watersheds and Water Resources

College of Education

- Environmental Education Teacher Certificate (contact 228 Chambers Building, University Park campus)

College of Engineering

- Aerospace Engineering
- Agricultural and Biological Engineering
- Architectural Engineering—Environmental Option
- Chemical Engineering
- Civil and Environmental Engineering
- Electrical Engineering
- Engineering Science
- Industrial and Manufacturing Engineering
- Mechanical and Nuclear Engineering
- Science, Technology, and Society

College of Health and Human Development

- Recreation and Park Management

Intercollege Undergraduate Programs

- Environmental Inquiry
- Marine Sciences

International Programs

More information at Global Penn State (<https://global.psu.edu/>).

Teacher Education Programs

More information about teacher certification for teacher education programs at College of Education (<https://ed.psu.edu/academics/teacher-testing-certification/>).

Washington Program

More information at Donald P. Bellisario College of Communications (<https://www.bellisario.psu.edu/current/washington-program/>).

Reserve Officers' Training Corps (ROTC)

The ROTC Programs were established to develop cadets and midshipmen mentally, morally, and physically and to imbue them with the highest ideals of duty and loyalty, in order to commission college graduates as officers of character who possess a basic professional background and are motivated toward careers in military service.

MORE INFORMATION ABOUT ROTC (p. 3284)

READ SENATE POLICY 82-40: ROTC CREDIT (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-40>)

Registration and Academic Records

Academic policies and procedures related to registration and academic records are developed by the University Faculty Senate to uphold the educational standards of the University for all students. These academic policies and procedures apply to all undergraduate students enrolled in or seeking admission to credit courses.

Select the topics of interest below or the menu to the right to explore different information areas.

Classification of Students by Semester (p. 3167)

Registration Process (p. 3168)

Courses (p. 3169)

Credits (p. 3171)

Grading System (p. 3171)

Distinction and Honors (p. 3173)

Examinations (p. 3173)

Prior Learning Assessment, Opportunities for Earning Penn State Credit (p. 3173)

Re-Enrollment (p. 3175)

Withdrawal (p. 3176)

Transcripts (p. 3177)

Classification of Students by Semester

Semester classification (i.e., semester standing) is determined by a student's total credits earned. It is used by the University to establish how early a student may register, assign classes with a prerequisite semester classification, determine eligibility for change of campus, calculate tuition, and eligibility for parking on campus.

A degree candidate's semester classification is based upon the following table of total credits earned:

Total Credits Earned	Semester Classification	Status
14.0 or fewer	1	First-Year Student
14.1 to 29	2	
29.1 to 44	3	Sophomore
44.1 to 59	4	
59.1 to 74	5	Junior
74.1 to 89	6	
89.1 to 104	7	Senior
104.1 to 119	8	
119.1 to 134	9	
134.1 to 149	10	
149.1 or more	11	

READ SENATE POLICY 37-70: ENTRANCE TO AND CHANGES IN MAJOR PROGRAM OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/#37-70>)

Cumulative Credits/Total Credits

Total credits earned are used to determine a student's semester classification. Cumulative credits are used to calculate a student's grade points when grade-point average is determined. Total credits and cumulative credits are calculated every semester and reported on the student's grade report and transcript. Academic renewal requires a student's total credits and cumulative credits to be recalculated.

Total Credits

Total credits earned include Penn State credits successfully completed and indicated on the student's record by letter grades A, A-, B+, B, B-, C+, C, or D; as well as courses satisfactorily completed under the satisfactory/unsatisfactory grading system, credits earned by examination, and research credits. Total credits also include credits accepted at Penn State that have been earned in other ways, for example, credits transferred to Penn State from another institution and credits earned through the Advanced Placement Program of the College Board.

Total credits exclude courses in which a grade of F was earned and audited courses.

Cumulative Credits

Cumulative credits include the number of credits taken at Penn State and retained on the student's schedule for a letter grade, even if a grade of F was earned.

Cumulative credits exclude credits earned by other means, for example, courses that were scheduled for satisfactory/unsatisfactory grading, credits earned by examination, credits earned with a research grade, credits earned at any other institution and transferred to Penn State, credits earned through the Advanced Placement Program of the College Board, and audited courses.

READ SENATE POLICY 37-70: ACADEMIC CLASSIFICATION OF STUDENTS BY SEMESTER (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/#37-70>)

READ SENATE POLICY 51-00: GRADE-POINT AVERAGE (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/51-00-grade-point-average/>)

Registration Process

Registration Timetable

The Registration Timetable provides a schedule of when students can begin registering for classes for a specific semester. The timetable provides a chart with the minimum credits and the corresponding first date to register for each student level (e.g., undergraduate, graduate, law, nondegree). Students can determine their "minimum credits to register" by adding their total credits earned to the number of credits for which they are currently enrolled. Enrollment appointments are set in LionPATH when shopping carts open for a given semester and are not adjusted after that date.

MORE INFORMATION ABOUT THE REGISTRATION TIMETABLE (<https://www.registrar.psu.edu/registration/registration-timetable.cfm>)

Academic Registration Holds

When other means of communication with a student have failed, an academic registration hold may be activated to ensure the student is in communication with the appropriate person/office regarding his/her academic decisions. A hold can be placed when a student is violating a University or college policy or if the student's academic decisions appear to be counterproductive to his/her academic success. In addition, a hold can be used to support the operation and well-being of the academic community as a whole.

Along with not allowing students to use the registration system, an academic hold also prevents any requests for an official transcript to be processed by the Office of the University Registrar.

Types of Holds

- **Academic** (College, enrollment unit, or campus designate) to help students fully understand the implications of their academic decisions and help them resolve outstanding academic issues. (Academic registration holds are activated as soon as a student is in academic warning or suspension.)
- **Conduct** (Office of Student Conduct) as a consequence of a disciplinary proceeding and failure on the student's part to follow through with required actions for resolving an incident.
- **Financial** (Office of the Bursar, Housing) as a result of outstanding financial obligations with the university.
- **Global Programs** (International Students and Study Abroad) for an international student to ensure that proper immigration documents are completed and filed with the office as required by Department of Homeland Security regulations.
- **Medical** (University Health Services) due to health-related issues including insurance.

READ SENATE POLICY 34-30: ACADEMIC REGISTRATION HOLD (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/34-00-course-scheduling/#34-30>)

Schedule of Courses

Registration is a continuous process at Penn State, beginning with the student's first day to register and continuing until the first day of classes for the semester. Prior to the beginning of a new registration period, the University will release the Schedule of Courses for the upcoming semester. Students can view course offerings using the LionPATH Class Search. (https://public.lionpath.psu.edu/psp/CSPRD/EMPLOYEE/SA/h/?tab=PE_PT_NVT_PUBLIC_HOME)

MORE INFORMATION ABOUT THE SCHEDULE OF COURSES (<https://www.registrar.psu.edu/registration/>)

Registering for Courses

Prior to the beginning of each semester's registration period, students are required to complete the Pre-Registration Activity Guide in the LionPATH Student Center in order to be able to register for courses. The Activity Guide includes verification of emergency contact information as well as the Financial Responsibility Agreement (FRA), which confirms the student's commitment and understanding to pay all tuition charges and fees associated with registering for courses. An FRA hold will remain on a student's account and prevent him/her from registering for classes until he/she completes the Pre-Registration Activity Guide.

Once the Schedule of Courses for the upcoming semester is released, students can begin viewing the available courses using the LionPATH Class Search (https://public.lionpath.psu.edu/psp/CSPRD/EMPLOYEE/SA/h/?tab=PE_PT_NVT_PUBLIC_HOME). Students can find their first day to register for a given semester by using the Registration Timetable (<https://www.registrar.psu.edu/registration/registration-timetable.cfm>) or viewing their Enrollment Appointment Date in the LionPATH Student Center. Before registering for courses in LionPATH, students are encouraged to meet with their academic adviser to review their plan of study and progress toward fulfilling all graduation requirements.

Courses

Course-Numbering System

These course descriptions are arranged alphabetically. If any course cannot be located readily, refer to the index. Courses are numbered as follows:

Undergraduate Courses (1 to 399): General courses accepted in fulfillment of requirements for the bachelor's degrees. These courses are described in the Undergraduate Courses section (p. 3297).

Advanced Undergraduate Courses (400 to 499): Courses open to graduate students and to juniors and seniors and, with the special written permission of the head of the department or the chair of the program sponsoring the course, to qualified students in earlier semesters. These courses are described in the Undergraduate Courses section (p. 3297).

Graduate Courses (500 to 699; 800 to 899): Courses restricted to students registered in the Graduate School, seniors with an average of at least 3.50 (500- and 800-level only; excludes 600-level), and other students who have been granted permission to enroll by the dean of the Graduate School. These courses are described in the Graduate Courses section (<https://bulletins.psu.edu/university-course-descriptions/graduate/>). Undergraduate students who wish to enroll in 500- or 800-level courses should review the policy and follow the necessary procedures outlined in GCAC-507 Undergraduate Students Taking Graduate Courses (<https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-500/gcac-507-undergraduate-students-taking-graduate-courses/>).

Medical Courses (700-799): Courses restricted to students registered in the College of Medicine. These courses are described in the College of Medicine Courses section (<https://bulletins.psu.edu/university-course-descriptions/medicine/>).

Law Courses (900-999): Courses restricted to students registered in Penn State Law and Dickinson Law. These courses are described in the Penn State Law Courses section (<https://bulletins.psu.edu/university-course-descriptions/pennstatelaw/>) and Dickinson Law Courses section (<https://bulletins.psu.edu/university-course-descriptions/dickinsonlaw/>).

Common Course Numbers

The following course numbers for which students may register have been set up for common use by major programs, with University Senate approval, to encourage innovation and provide flexibility in designing programs, but in no case may a course be scheduled for 0 credits.

First-Year Seminar 187. Listed under some liberal art-related academic headings, this course has prerequisites of first-semester standing and enrollment in the College of the Liberal Arts.

Research Project Courses 294, 494. 1-12 credits. Supervised student activities on research projects identified on an individual or small-group basis. A specific title may be used in each instance and will be entered on the student's transcript.

Internship 295, 395, 495. 1-18 credits. Supervised off-campus, non-group instruction including field experiences, practica, or internships. Written and oral critique of activity required. A specific title may be used in each instance and will be entered on the student's transcript.

Independent Studies 296, 496. 1-18 credits. Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses. A specific title may be used in each instance and will be entered on the student's transcript.

Special Topics 97, 197, 297, 397, 497; 98, 198, 298, 398, 498. 1-9 credits. Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest. Several different topics may be taught in one year or semester. A specific title may be used in each instance and will be entered on the student's transcript.

Foreign Studies 99, 199, 299, 399, 499. 1-12 credits. Courses offered in foreign countries by individual or group instruction. A specific title may be used in each instance and will be entered on the student's transcript. These courses typically carry the International Cultures (IL) attribute.

Course Attributes and Suffixes

Attributes and attribute values are course designations that are used to define specific characteristics for courses. The search for specific types of courses uses attributes and attributes are the most important notation for a course to satisfy a given requirement.

Suffixes are letters that follow a course number and allow for easier identification of a course's characteristics. Not all attributes and characteristics are captured in available suffixes and suffixes are not the feature used to determine if a course satisfies a requirement. The degree audit and what-if reports use attributes, not suffixes, to determine applicability of a course to a requirement.

Bachelor of Arts

Attributes

- BA: Arts
- BA: Humanities
- BA: Natural Science
- BA: Quantification
- BA: Social and Behavioral Sci
- BA: World Cultures
- World Lang (12th unit)
- World Language (all)
- Exceeds 12th Unit

Cultural Diversity

Attributes

- International Cultures (IL)
- United States Cultures (US)

Suffixes

- U: United States Cultures and/or International Cultures and Honors
- Y: United States Cultures and/or International Cultures and Writing Across the Curriculum

General Education

Attributes

- GenEd: Writing/Speaking (GWS)
- GenEd: Quantification (GQ)
- GenEd: Arts (GA)
- GenEd: Health Wellness (GHW)
- GenEd: Humanities (GH)
- GenEd: Natural Sciences (GN)
- GenEd: Social & Beh Sci (GS)
- GenEd Integrative: Interdomain

Suffixes

- N: Inter-Domain
- Q: Inter-Domain and Honors

First-Year Engagement Program

Attribute

- First Year Seminar

Course Subject

- PSU: First-Year Seminar

Suffixes

- S: First-Year Seminar
- T: First-Year Seminar and Honors
- X: First-Year Seminar and Writing Across the Curriculum

Writing Across the Curriculum

Attribute

- Writing Across the Curriculum

Suffixes

- M: Writing Across the Curriculum and Honors
- W: Writing Across the Curriculum
- X: Writing Across the Curriculum and First-Year Seminar
- Y: Writing Across the Curriculum and United States Cultures and/or International Cultures

Honors Courses

Attribute

- Honors

Suffixes

- H: Honors
- M: Writing Across the Curriculum and Honors
- Q: Inter-Domain and Honors
- T: First-Year Seminar and Honors
- U: United States Cultures and/or International Cultures and Honors

Repeatable and Variable Credit Courses

If a course may be repeated, the words "per semester" follow the number of credits—for example (3 credits per semester). These courses may be repeated indefinitely unless the credits are followed by the maximum number of credits allowed, such as (3 per semester, maximum of 12).

Courses may have variable credits, such as (1-3), (2-6), or (3-10). Here, the larger number signifies the total credits that can be accumulated for the course over an indefinite number of semesters, unless otherwise specified. For example, a course listed with (1-6) could be taken six

semesters for 1 credit each semester, or two semesters for 3 credits each semester, or once for 6 credits, etc.

In some courses with variable credits, students may be permitted to accumulate more than the larger number shown. Such courses will be listed as, for example, (1-3 per semester, maximum of 12).

Prerequisites, Concurrent Courses, Co-Requisite Courses, and Recommended Preparation

Prerequisites, concurrent courses, and co-requisite courses approximate the necessary specific coursework or general academic knowledge, background, or semester classification required to succeed academically in a given course.

- Prerequisites are courses or other requirements that must be completed prior to the start of a given course.
- Concurrent Courses are similar to prerequisites except that they may be taken prior to, or in the same semester as, the given course.
- Co-requisite Courses are pairs of courses required to be taken together in the same semester.

Registration in a given course is limited to students who have satisfied the stated prerequisite, concurrent, or co-requisite requirements. The course instructor has the right to permit students to take the course without having the stated prerequisite, concurrent, or co-requisite requirements if the student demonstrates mastery of the material through some other means.

Recommended Preparation relates to preparatory skills or companion courses deemed useful, but not necessary, for successful completion of a course. Recommended preparation has no bearing on registration in a given course.

READ SENATE POLICY 34-60: PREREQUISITES, CONCURRENT COURSES, CO-REQUISITE COURSES, AND RECOMMENDED PREPARATION (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/34-00-course-scheduling/#34-60>)

Combined Section Classes

Multiple departments sometimes offer the same course; in LionPATH this is called a combined section class. These classes appear with the following note in the LionPATH Class Search: "This is a combined section class" and are listed with all of the departments offering the class. When a student is fulfilling the requirements of a major or a minor, a course that is cross-listed with a course required for the academic program will satisfy the requirement. A student majoring in an area of Natural Sciences, Arts, Humanities, or Social and Behavioral Sciences may not use a course in these areas that is combined with a course offered by his/her major department to satisfy a General Education requirement. A student earning a Bachelor of Arts degree may not use a course that is combined with a course offered by the department of his/her major to satisfy a B.A. requirement.

Auditing and Visiting Courses

Auditing

If a student wishes to audit a course officially and to have this fact appear on the academic record, that course must be entered on the student's schedule with the symbol AU shown under "credits." When a student audits a course, the credits become part of that semester's credit

load but are not used in the determination of full-time status (section 34-52). In addition, tuition must be paid for the audit. Audits are not considered in the determination of the credit standard for financial aid. No course may be added for audit if dropped for credit, or vice versa, after the add period. A student enrolled for official audit may be required to participate in class discussion, do practicum work, submit written work, and take examinations. See also Section 48-80, symbols for Course Audit.

MORE INFORMATION ABOUT AUDITING COURSES (<https://www.registrar.psu.edu/registration/adding-dropping-auditing-courses.cfm>)

Visiting

Students who wish to visit a course may do so, even though they are not officially enrolled for credit or for audit in that course. To visit a course, currently registered full-time students must obtain permission in advance from the course instructor. No tuition is paid for a visit. Course credits do not become part of the semester's credit load and are not entered on the student's academic record. Paragraph 1 relating to official audit is not applicable to the student who visits a course.

READ SENATE POLICY 34-68: AUDITING AND VISITING COURSES (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/34-00-course-scheduling/#34-68>)

Credits

For the typical student, a total of forty-five (45) hours of work is required to earn one credit. Course credits are earned in a variety of educational experiences. Course credit by instruction may be achieved by a variety of educational experiences that allow the student to work toward mastery of the course objectives. The Federal definition of a credit hour (used for awarding Federal student aid) provides minimum requirements that should be consistent for all credit earned by instruction regardless of delivery method. More than the minimum may be required for mastery of course objectives.

The distribution of time between class activities and outside preparation varies from course to course regardless of the type of instruction (in person, electronic, pre-recorded content delivered through resident, online, or hybrid).

READ SENATE POLICY 42-23: CREDIT REQUIREMENTS BY TYPES OF INSTRUCTION (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/42-00-acquisition-of-credit/#42-23>)

Credit Load

Enrollment Status (Semester Credit Load)

A student's credit load is one factor that determines his/her tuition costs. The Tuition and College Cost Estimator (<https://cce.ais.psu.edu/tuition-calculator-ui/#/>) can be used to determine tuition based on a student's credit load (as well as other factors: residency, semester/session, campus, college, major, and credits achieved).

Definition of Full-Time Credit Load

The University considers a student full-time if he/she schedules a total of 12 or more credits, excluding course audits (<https://www.registrar.psu.edu/registration/adding-dropping-auditing-courses.cfm>), from any combination of credit courses through resident instruction, Continuing Education, or World Campus. However, different programs and agencies may have different definitions of full-time status.

Students should check with the appropriate office(s) for information on their policies.

Definition and Implications of a Part-Time Credit Load

A student is considered part-time if he/she schedules less than 12 credits per semester. When considering part-time enrollment, students should be aware that a full-time credit load may be required by certain programs and agencies. Before scheduling less than 12 credits, students should check with the appropriate office(s) (e.g., Student Aid, Intercollegiate Athletics, International Students, Schreyer Honors College, etc.), for information on their policies.

Maintaining a Certain Credit Load (Courses with Alternative Time Frames)

Part-Semester Courses: Scheduling a part-semester course that begins after the start of the semester may allow a student to maintain full-time status.

Individualized Experiences for Credit: A student may arrange an experience such as an independent study, internship, or research project. To discuss this alternative, the student should contact a faculty member with whom he/she would like to work.

Credit Overload, more than 19 Credits

To schedule more than 19 credits, a student must add the overload (<https://www.registrar.psu.edu/registration/adding-dropping-auditing-courses.cfm>) credits during the drop/add period (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/34-00-course-scheduling/#34-89>). A tuition surcharge will be applied for each credit above 19. When determining an overload, the Office of the University Registrar counts audit credits (<https://www.registrar.psu.edu/registration/adding-dropping-auditing-courses.cfm>) as part of a semester credit load.

Grading System

Grades for undergraduate and graduate students are reported by the following letters: A, A-, B+, B, B-, C+, C, D, or F. In addition, the symbols of SA (Satisfactory) and UN (Unsatisfactory) may be recorded on a student's transcript in accordance with Senate Policy 49-60 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/47-00-48-00-and-49-00-grades/#47-60>). Courses that do not carry credit shall be graded NCP if passed and NCF if failed. The symbols of W, LD (Late Drop), R (Research) (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/47-00-48-00-and-49-00-grades/#49-40>), DF (Deferred Grade) (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/47-00-48-00-and-49-00-grades/#48-40>), AUS (Audited, Regular/Satisfactory Attendance) (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/47-00-48-00-and-49-00-grades/#48-80>), AUU (Audited, Unsatisfactory Attendance) (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/47-00-48-00-and-49-00-grades/#48-80>), and CRX (Credit by Examination) (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/42-00-acquisition-of-credit/#42-50>) also may be recorded in place of grades. Note that CRX does not apply to graduate students.

READ SENATE POLICY 47-40: GRADING SYSTEM (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/47-00-48-00-and-49-00-grades/#47-40>)

Grades and Grade Points

Grades are assigned to individual students on the basis of the instructor's professional judgment of the student's scholastic achievement.

Instructors should provide written (paper or electronic form) notification of the basis for grades to students on or before the first class meeting.

Grade	Grade-Point Equivalent
A	4.00
A-	3.67
B+	3.33
B	3.00
B-	2.67
C+	2.33
C	2.00
D	1.00
F	0

MORE INFORMATION ABOUT GRADES (<https://www.registrar.psu.edu/grades/grading-system.cfm>)

READ SENATE POLICIES 47-00, 48-00, AND 49-00: GRADES (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/47-00-48-00-and-49-00-grades/>)

GPA

The number of grade points obtained by a student in any course is computed by multiplying the number of credits in the course by the grade-point equivalent of the grade received in the course. Courses taken under the satisfactory/unsatisfactory grading system are not used in computing grade points.

READ SENATE POLICY 51-30: METHOD OF CALCULATION OF GRADE POINTS (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/51-00-grade-point-average/#51-30>)

Semester GPA

Semester GPA applies to courses completed in a specific semester.

Cumulative GPA

A student's cumulative grade-point average is the weighted mean value of all grade points earned either by enrollment or examinations in courses at the University. The cumulative GPA for a student who is completing more than one undergraduate major program, either a sequential or concurrent degree, will be computed using the grades earned in all courses taken at the University, except for the following: (Note: the words student and undergraduate student are used to designate a baccalaureate or associate degree candidate, or a nondegree student.)

1. a student who has been approved for academic renewal—cumulative grade-point average will be computed in accordance with Senate Policy 54-90 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-90>).
2. A student repeating a course, in accordance with Senate Policy 47-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#47-80>).

READ SENATE POLICY 51-50: CUMULATIVE GRADE-POINT AVERAGE (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/51-00-grade-point-average/#51-50>)

Deferred Grades

If, for reasons beyond the the student's control, a student is prevented from completing a course within the prescribed amount of time, it is possible to have the grade for that course deferred for completion at a later date. In order to receive a deferred grade: 1) permission must be requested by the student and granted by the instructor before the beginning of the final exam period of the semester in which the course is taken; and 2) approval must be given by the instructor of the course. In an emergency situation in which the instructor is not available, a student may obtain authorization for a deferred grade from the dean of the college in which the student is enrolled.

If permission for a deferred grade is granted, the symbol DF will appear on the student's transcript until the course has been completed. Courses with a deferred grade will not be included in the grade-point average calculations.

MORE INFORMATION ABOUT DEFERRED GRADES (<https://www.registrar.psu.edu/grades/deferred-grades.cfm>)

No Grade

If an instructor does not submit a grade for a student by the grade-reporting deadline and a deferred grade was not requested and approved, the symbol NG (no grade) appears on the student's transcript until a grade is submitted. If a student receives an "NG" in place of a permanent grade, the grade-point average is calculated and appears with the letter "I" (incomplete) printed next to the course on the grade report and transcript. Students should contact their instructor (or the department offering the course) as soon as possible to determine what needs to be done so that a grade can be assigned.

The NG must be reconciled within five weeks following the grade reporting deadline. If a grade is not forthcoming by that deadline, the Office of the University Registrar will automatically change the NG to an F.

A NG grade that is automatically converted to an F can later be corrected in accordance with Senate Policy 48-30 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/47-00-48-00-and-49-00-grades/#48-30>). Students with NG on their transcripts will not be allowed to graduate.

MORE INFORMATION ABOUT NO GRADE REPORTED (<https://www.registrar.psu.edu/grades/no-grade-reported.cfm>)

READ SENATE POLICY 48-50: NO GRADE (NG) (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/47-00-48-00-and-49-00-grades/#48-50>)

Satisfactory/Unsatisfactory Grades

Students who do not want to receive a letter grade for a credit course may choose the satisfactory/unsatisfactory "SA/UN" grading system subject to the regulations of the University (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/47-00-48-00-and-49-00-grades/#49-60>) and the students' degree programs. Baccalaureate degree candidates are allowed a total of twelve "SA/UN" credits per college career. Associate degree candidates are allowed a total of six "SA/UN" credits per college career. Students cannot enroll for more than two satisfactory/unsatisfactory grade option courses per semester. Students should consult with their adviser prior to processing since some

colleges have restrictions on this grading option. It is important to note that General Education courses cannot be taken under this option.

Courses taken through the satisfactory/unsatisfactory grading option are considered part of a student's credit load when qualifying for financial aid. Satisfactory/unsatisfactory courses are not used in computing grade-point average.

MORE INFORMATION ABOUT SATISFACTORY/UNSATISFACTORY GRADES (<https://www.registrar.psu.edu/grades/satisfactory-unsatisfactory-grades.cfm>)

READ SENATE POLICY 49-60: SATISFACTORY/UNSATISFACTORY–BACCALAUREATE AND ASSOCIATE DEGREE CANDIDATES (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/47-00-48-00-and-49-00-grades/#49-60>)

Distinction and Honors

Distinction at graduation is awarded to baccalaureate degree candidates who are in the top 12 percent of their college's graduating class, have achieved a minimum cumulative grade-point average of 3.50, and have earned at least 60 credits at the University.

Distinction at graduation is awarded to associate degree candidates who are in the top 12 percent of their college's graduating class, have achieved a minimum cumulative grade-point average of 3.50, and have earned at least 30 credits at the University.

The 12 percent should be divided into 2 percent Summa cum Laude, 4 percent Magna cum Laude, and 6 percent Cum Laude.

The distinction table is created each September for the coming fall/spring semesters and summer session, based on the grade-point average information of previous graduates.

VIEW THE CURRENT DISTINCTION TABLE (<https://www.registrar.psu.edu/graduation/distinction.cfm>)

READ SENATE POLICY 88-00: DISTINCTION AND HONORS (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/88-00-distinction-and-honors/>)

Examinations

General Examination Policy

Periodic examination of student accomplishments is essential for both teaching/learning and evaluation purposes. Examinations may include traditional written examinations, whether in-class or take-home; oral examinations; term papers; laboratory or project reports; or studio projects. The faculty teaching and coordinating a course are responsible for both the method and substance of examinations used in each course, including the final examination or other integrating evaluative instrument.

READ SENATE POLICY 44-00: EXAMINATIONS (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/44-00-examinations/>)

Final Examination Policy

Final examinations fulfill two important academic objectives; student integration of instructional material and end-of-semester evaluation of student achievement. However, valid means other than the final examination exist for accomplishing these objectives (e.g., term paper, final project report, take-home examinations, etc.). Course instructors

determine which of these methods is most appropriate and effective in each undergraduate credit course taught.

MORE INFORMATION ABOUT THE FINAL EXAMINATION POLICY (<https://www.registrar.psu.edu/exams/final-exams.cfm>)

Prior Learning Assessment, Opportunities for Earning Penn State Credit

In addition to taking Penn State course work, students with prior college-level learning—at another college or university, in the military, in the workplace, through self-study, or in high school—may earn credits that may be applicable to their degree requirements.

Credits are awarded on the semester-hour basis. The distribution of time between class activities and outside preparation varies from course to course; for the average student, however, at least 45 hours of work per semester planned and arranged by the University faculty are required to gain 1 credit.

The Faculty Senate's Policies and Rules for Undergraduate Students (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/>) explains the various ways students may earn course credits. Those methods are as follows:

- Instruction, as defined in Policy 42-23 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/42-00-acquisition-of-credit/#42-23>)
- Examination, as defined in Policy 42-50 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/42-00-acquisition-of-credit/#42-50>) and discussed below
- Portfolio Assessment, as defined in Policy 42-97 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/42-00-acquisition-of-credit/#42-97>) and discussed below
- Transfer from other regionally accredited colleges and universities as defined in Policy 42-82 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/42-00-acquisition-of-credit/#42-82>) and as discussed under the heading Admission with Advanced Standing
- Transfer from colleges and universities outside the United States as defined in Policy 42-84 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/42-00-acquisition-of-credit/#42-84>)
- Validation from colleges and universities that are not regionally accredited but award associate degrees or higher as defined in Policy 42-86 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/42-00-acquisition-of-credit/#42-86>)
- Educational experiences in the Armed Services as defined in Policy 42-98 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/42-00-acquisition-of-credit/#42-98>)
- Educational credit for Training Programs in Non-collegiate Organizations as defined in Policy 42-99 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/42-00-acquisition-of-credit/#42-99>)

Additional information about earning credit can be obtained at Undergraduate Admissions Office (<https://admissions.psu.edu/>) or Prior Learning Assessment (<https://priorlearning.psu.edu/>).

Credit by Examination

If students have acquired substantial knowledge in a specific subject area, in some circumstances credits may be earned through successful completion of comprehensive examinations made available by the Penn State academic units that offer particular courses.

When such an examination serves as a substitute for completing all the usual requirements of a Penn State course, the credits received are described as "Credit by Examination" and are accepted as fulfilling degree requirements. Students may initiate a request for Credit by Examination for a course, although the academic department or program offering the course determines whether it will make Credit by Examination available. A grade of "C" or higher must be earned in the examination for such credit to be awarded and to appear on the student's transcript. Credit by Examination does not result in a quality grade (A, A-, etc.) and is not included in the calculation of the student's grade point average. Any credits earned in this manner will appear on the student transcript with the notation CRX and without a reported grade. A fee may be assessed to cover the costs of the procedure.

Current information about credit by examination credit awarded by Penn State can be obtained at earning test credit (<https://priorlearning.psu.edu/earn-credit/testing/>).

Credit by Portfolio Assessment

A currently enrolled student who can document college-level learning acquired in a non-collegiate setting may be able to petition for undergraduate credit through portfolio assessment. Not all academic units offer portfolio assessment for credit. Students interested in determining whether to pursue credit by portfolio assessment opportunities should contact the academic department responsible for the relevant course.

Criteria for earning credit via portfolio include the following:

1. Credit is granted for the demonstration of college-level learning obtained during work or other experience, but not for the experience itself. Learning must be documented and must represent college-level achievement. Advisers will provide guidance on the steps necessary to construct a portfolio providing evidence of prior learning that meets academic quality expectations.
2. Credit by portfolio assessment does not carry a grade.
3. Credit by portfolio assessment may be awarded to enrolled students at the undergraduate level only.
4. Credit may not duplicate other course work that the student has already completed. A student may not enroll in and earn credit for a course for which credit already has been granted via portfolio assessment.
5. Credit may be awarded following an evaluation of the portfolio by an individual faculty member or committee who represent the academic unit in which the subject matter is to be evaluated.
6. Credit earned via portfolio is designated on the transcript in the same manner as transfer credit.
7. Credit(s) will be posted to the student's record but will not appear on the student's official transcript until the student has completed a credit-bearing course at Penn State.
8. A fee is assessed to recover portfolio evaluation costs.
9. A maximum of 6 credits may be earned for a single portfolio (course). Associate degree candidates may be awarded a maximum of 16

credits. Baccalaureate degree candidates are limited to a maximum of 30 credits earned by portfolio assessment.

Current information about credit by examination credit awarded by Penn State can be obtained at earning portfolio credit (<https://priorlearning.psu.edu/earn-credit/portfolio/>).

READ SENATE POLICY 42-00: ACQUISITION OF CREDIT (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/42-00-acquisition-of-credit/>)

Advanced Placement Program of the College Entrance Examination Board

A student who does advanced work in a secondary school may take Advanced Placement Examinations, which are based on college-level studies. Penn State cooperates with the College Board in this program.

Credit may be awarded for Advanced Placement Examinations depending upon the grades earned on the examination. For some examinations, the amount of credit awarded varies with an earned grade of three, four, or five. The schedule of credit awarded for Advanced Placement Examinations may be revised annually upon review by the faculty.

Limitations on credits earned through the Advanced Placement Examinations are as follows:

1. The Student's academic program determines how credits earned apply to degree requirements.
2. A student who has earned credit for a particular course through AP examinations may elect to take the same course at Penn State (unless restricted by placement policies of the unit offering the course), but the duplicate credit cannot be used to meet any additional degree requirements. However, the grade earned in the Penn State course will count towards the student's grade point average.

General credits may be awarded for an AP Exam that covers material that is not the substantial equivalent of material covered in a specific University course. General credits may be used to fulfill degree requirements in any area; such use is not necessarily limited to General Education or elective requirements. General credits are applied to a student's program of study in accordance with the procedures established by the college of enrollment. Information on the use of general credits or specific course credits earned by AP Exams in individual programs of study may be obtained from a student's academic adviser or from the office of the dean of a student's college.

Undergraduate students interested in receiving credit for AP Exams should arrange for their official grade reports to be sent directly from the College Board (<https://apstudents.collegeboard.org/sending-scores/>) to the Undergraduate Admissions office. If credit is awarded, a student's University record will carry notation of credit, but no grade will be recorded. Credit awarded will not affect a student's grade-point average at Penn State.

The evaluation of the credits awarded for Advanced Placement Exams is subject to change and may be reviewed and revised periodically by Penn State faculty.

Current information about AP credit awarded by Penn State can be obtained from the Undergraduate Admissions office (<https://admissions.psu.edu/>), advanced placement opportunities (<https://>

admissions.psu.edu/academics/credit/ap/), and test credit for prior learning (<https://priorlearning.psu.edu/first-year-students/>).

The College-Level Examination Program of the College Board

A student, before or after admission to degree candidacy, may participate in the College-Level Examination Program (CLEP). Penn State cooperates with the College Board in this program.

Credit may be awarded for the CLEP Examinations depending upon the score earned on the examination. A student who has earned a score equivalent to the fiftieth percentile or higher for performance on the CLEP Examination may receive credit as indicated in the schedule of credits. The schedule of credit awarded for CLEP Examinations may be revised annually upon review by the faculty.

Limitations on credits earned through the CLEP Examinations are as follows:

1. The student's academic program determines how credits earned apply to degree requirements.
2. A student who has earned credit for a particular course through CLEP examinations may elect to take the same course at Penn State (unless restricted by placement policies of the unit offering the course), but the duplicate credit cannot be used to meet any additional degree requirements. However, the grade earned in the Penn State course will count towards the student's grade point average.
3. Students must meet residency requirements as outlined in Senate Policy 83-80.

General credits may be awarded for a CLEP exam that covers material that is not the substantial equivalent of material covered in a specific University course. General credits may be used to fulfill degree requirements in any area; such use is not necessarily limited to General Education or elective requirements. General credits are applied to a student's program of study in accordance with the procedures established by the college of enrollment. Information on the use of general credits or specific course credits earned by CLEP exams in individual programs of study may be obtained from a student's academic adviser or from the office of the dean of a student's college.

Undergraduate students interested in receiving credit for CLEP exams should arrange to have their official grade reports sent to Undergraduate Admissions office directly from CLEP (<https://clep.collegeboard.org/for-colleges/clep-scores/>). If credit is awarded, a student's University record will carry notation of credit, but no grade will be recorded. Credit awarded will not affect a student's grade-point average at Penn State.

The evaluation of the credits awarded for College-Level Examination Program examinations is subject to change and may be reviewed and revised periodically by Penn State faculty.

Current information about CLEP credit awarded by Penn State can be obtained from the Undergraduate Admissions Office (<https://admissions.psu.edu/>). The schedule of credit awarded for CLEP examinations also can be obtained from College-Level Examination Placement (<https://admissions.psu.edu/academics/credit/clep/>) and test credit for prior learning (<https://priorlearning.psu.edu/earn-credit/testing/>).

International Secondary Schooling and International Baccalaureate Program

A student who has enrolled in foreign secondary schools or in the International Baccalaureate Program and who has taken course work that is equivalent to college-level studies may receive credit for such work if they meet the following criteria:

1. **Foreign Secondary Schooling.** A person who does advanced work in a secondary school in another country may receive consideration for transfer credit when the examinations taken are based on college-level studies. Credit may be awarded for advanced work in foreign secondary schools. The number of credits awarded will reflect the introductory sequence in that subject at Penn State. The schedule of credit awarded for examinations may be revised annually upon review by the faculty.
2. **International Baccalaureate.** A person who does work based on college-level studies in an International Baccalaureate (IB) program in a secondary school may take the higher level examinations. Credit may be awarded for higher level examinations of the international baccalaureate depending upon the grades earned on the examination. Subjects examined at the higher level with an earned grade of 5 or higher will be considered for transfer credit. The number of credits awarded will reflect the introductory sequence in that subject at Penn State. The schedule of credit awarded for IB Examinations may be revised annually upon review by the faculty.

Limitations on credits earned through advanced-level foreign secondary schooling and the International Baccalaureate examinations are as follows:

1. The student's academic program determines how credits earned apply to degree requirements.
2. A student who has earned credit for a particular course through IB examinations or advanced-level foreign secondary schooling may elect to take the same course at Penn State (unless restricted by placement policies of the unit offering the course), but the duplicate credit cannot be used to meet any additional degree requirements. However, the grade earned in the Penn State course will count towards the student's grade point average.

A student interested in receiving credit for the Higher Level examinations of the International Baccalaureate program should arrange for an official grade report to be sent directly from the secondary school to the Undergraduate Admissions office. The Undergraduate Admissions office is responsible for evaluating such reports and awarding credit.

Current information about Advanced-Level exam credit or International Baccalaureate credit awarded by Penn State can be obtained from the Undergraduate Admissions Office (<https://admissions.psu.edu/>), credit awarded by A-Level exam (<https://admissions.psu.edu/academics/credit/a-levels/>), credit awarded by IB exam (<https://admissions.psu.edu/academics/credit/ib/>), and test credit for prior learning (<https://priorlearning.psu.edu/first-year-students/>).

Re-Enrollment

The University recognizes that a student's progress toward an undergraduate degree may be interrupted for a variety of reasons. Re-enrollment allows a former degree candidate (policy 58-00 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/58-00-re-enrollment-as-a-degree-candidate/>)) to resume a degree program.

Re-enrollment is appropriate for students who:

- Withdrew from the University
- Interrupted continuous degree enrollment during fall/spring semester
- Were dismissed or suspended for nonacademic reasons
- Invalidated a leave of absence
- Plan to return for a second associate or baccalaureate degree
- Plan to return for graduation
- Voluntarily changed your enrollment status to nondegree

Re-Enrollment Application Deadline

Student should submit a completed application (<https://www.registrar.psu.edu/enrollment/returning/reenrollment/>) as early as possible, and no later than two weeks prior to the start of classes in which the student wants to enroll. Some units may require longer lead times. Students should check with their enrollment unit/campus to make sure they can meet all requirements. Exceptions after this deadline are at the discretion of the unit of enrollment. The deadline to submit a re-enrollment application is 5:00 p.m. on the Friday before the first day of classes of that semester.

To apply for re-enrollment, students should visit the Office of the University Registrar website to complete and submit the Undergraduate Re-Enrollment Form (<https://www.registrar.psu.edu/enrollment/returning/reenrollment/>).

MORE INFORMATION ABOUT RE-ENROLLMENT (<https://www.registrar.psu.edu/enrollment/returning/reenrollment/>)

Re-enrollment from Good Standing

Students who left the University in good standing, with a cumulative grade point average of 2.0 or higher, may request re-enrollment to the University. Students who left in good standing and who are re-enrolling in their previous major (providing the major is not controlled) will be approved to re-enroll. Every re-enrollment request will be reviewed and a decision letter will be sent to the student. If a student is not approved to re-enroll into the requested program, the student may apply for re-enrollment into a different program.

READ SENATE POLICY 58-00: RE-ENROLLMENT FROM GOOD STANDING (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/58-00-re-enrollment-as-a-degree-candidate/#58-50>)

Re-enrollment from Warning, Suspension, and Dismissal

Students who withdrew or left the University who were not in good standing, as a result of either academic or nonacademic warning, suspension, or dismissal, may request re-enrollment to the University. Action for approval or denial of a request for re-enrollment is covered under one of the following cases:

1. If the student is requesting re-enrollment when last enrolled the student's cumulative grade point average was less than 2.00 or higher, depending on program requirements*, then to be considered for re-enrollment, students must submit an academic recovery plan and a statement from an academic adviser.
 - a. If re-enrollment is approved, the student will remain in academic warning status. Colleges may request the Registrar's Office to place a registration hold after the re-enrollment request has been approved to ensure that proper advising occurs. A registration

hold will prevent the student from registering for courses but will not impede the re-enrollment process.

- b. If a student is not approved to re-enroll into the requested program, the student may apply for re-enrollment into a different program.
2. If the student is requesting re-enrollment following dismissal or suspension from the University for nonacademic reasons, the student must cleared for re-enrollment by the director of the Office of Student Conduct.

READ SENATE POLICY 58-80:RE-ENROLLMENT FROM WARNING, SUSPENSION, AND DISMISSAL (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/58-00-re-enrollment-as-a-degree-candidate/#58-80>)

Withdrawal

A student who is unable to complete a schedule of courses for a given semester may withdraw from enrollment in all courses at the University. Students may withdraw any time up to and including the last day of classes, before the final examination period begins. Withdrawal will terminate enrollment in credit courses for current and future semesters except in the use of summer-only withdrawal. Withdrawal results in the symbol W being recorded as the course grade on a student's official transcript.

If a student is a degree candidate, then at the time of withdrawal from enrollment in courses the student also withdraws from the university as a degree candidate. Thus, to enroll in courses at a later time as a degree candidate, a request for re-enrollment as a degree candidate must be made in accordance with the policies and procedures for re-enrollment (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/58-00-re-enrollment-as-a-degree-candidate/>). If the person is a nondegree student who wishes to enroll in courses at a later time, the policies and procedures given in Senate Policy 14-00 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/14-00-non-degree-students/>) must be followed. It is important to note that withdrawals will delay normal degree progress and may have financial implications. Students are encouraged to contact their academic adviser to discuss alternatives.

To initiate a withdrawal, students should visit the Office of the University Registrar website, and complete and submit the Withdrawal Form (<https://www.registrar.psu.edu/enrollment/leaving/withdrawal.cfm>).

READ SENATE POLICY 56-30: WITHDRAWAL (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/56-00-withdrawal-and-leave-of-absence/#56-30>)

Summer-Only Withdrawal

If a student wants to withdraw from summer classes but retain his/her fall class schedule, then the student should enter "Summer Only" as the effective semester on the Withdrawal Form. Re-enrollment is not required following a summer-only withdrawal. Please note, a summer-only withdrawal is not available for newly admitted undergraduate students during their summer of admission. New summer admits must process a regular withdrawal as outlined above.

MORE INFORMATION ABOUT SUMMER-ONLY WITHDRAWAL (<https://www.registrar.psu.edu/enrollment/leaving/withdrawal.cfm>)

Military Withdrawal

Military withdrawal only is available to students who:

1. are actively serving members (Active Duty and Reserve Duty Components) of the U.S. armed services (not a contractor or civilian working for the military), and
2. are ordered to relocate and, as a result, are unable to meet class attendance and other participation requirements, including web-based activities.

Students called to active duty during a semester or session should initiate a military withdrawal. Students should contact the campus Registrar and present a copy of the military orders with formal correspondence on unit letterhead signed by the commander requesting military withdrawal from Penn State due to orders. The formal correspondence must include the Unit commander contact information and verification of the duration and location of the pending assignment.

Students who process a military withdrawal:

- will not be charged tuition for the semester of withdrawal.
- will be charged a housing assessment to cover expenses already incurred in university housing.
- will have unused meal plan points refunded.
- are eligible for "military re-enrollment" to the University, assuring the student access to the same major and location as was assigned at the time of withdrawal.
- will have the re-enrollment fee waived if they are an undergraduate student. There is no re-enrollment fee for graduate students.
- will have a notation placed in the Special Actions and Notes section of their transcript indicating a "military" withdrawal.

MORE INFORMATION ABOUT MILITARY WITHDRAWAL (<https://www.registrar.psu.edu/enrollment/leaving/withdrawal.cfm>)

Transcripts

Official Transcripts

Issued by the Office of the University Registrar, an official transcript is the University's certified statement of a student's academic record. The official paper transcript is printed on security sensitive paper and contains the University seal and signature of the University Registrar. The official electronic transcript is a PDF secured by a digital certificate which is displayed at the top of the transcript along with a blue ribbon. The University Registrar will not release an official transcript without the student's signature.

Transcripts can be ordered online through LionPATH or in-person at 112 Shields Building on the University Park campus.

MORE INFORMATION ABOUT OFFICIAL TRANSCRIPTS (<https://www.registrar.psu.edu/transcripts/official-transcripts.cfm>)

Academic Advising Transcripts

Currently enrolled students may print academic advising transcripts directly from LionPATH for the purpose of on-campus academic advising. Academic advising transcripts are not certified by the University Registrar as a complete and accurate record of the University and will not be mailed by the Office of the University Registrar to any third party regardless of permission from a student.

MORE INFORMATION ABOUT ACADEMIC ADVISING TRANSCRIPTS (<https://www.registrar.psu.edu/transcripts/academic-advising-transcripts.cfm>)

Advising and Planning a Degree Program

Though Penn State has a vested interest in student success and takes active steps to build a positive learning environment, the primary responsibility for successful completion of a degree program lies with the student. The key to meeting this responsibility is personal involvement in academic planning. To plan a program of study that will best meet individual goals and interests, students must know the requirements and restrictions of the department, college or other degree-granting unit, and the University; know the sources of academic information, especially the Undergraduate Bulletin; and work consistently with an academic adviser in examining programs and course requirements and alternatives.

For most degree programs at Penn State, a student may begin their studies at any campus. More than 160 baccalaureate majors, more than 25 associate degree majors, and more than 7,000 undergraduate courses are offered by the University. Though each campus cannot offer every academic program or every course, academic advisers can help students to understand their options for completing degree programs across the University. In some instances, admission to some academic programs is restricted, and students must meet specific requirements once at Penn State to gain entrance. In other cases, admission to certain academic programs must be approved when a first-year student first enters the University; transfer into these programs at a later point in a student's career is not possible. For these reasons, it is imperative that a student understands both program and course limitations at the campus of enrollment.

Though many programs at Penn State allow varying degrees of flexibility, it is important for students to engage academic advising on a regular basis to discuss their academic plan. An early decision to pursue a highly structured program enables the student to complete the program in the optimum length of time by taking the required courses in a sequence that allows the smoothest progression from one level to the next. Even the most regulated programs, however, allow choices within given boundaries. Other programs allow a considerable range of choices in the completion of the requirements. Students should be aware of possible difficulties in transferring from a flexible program to a more highly structured program. Whether a program is highly structured or quite flexible, it is extremely important that the student understand program requirements when enrolling in the University.

Select the topics of interest below or the menu to the right to explore different information areas.

Academic Advising (p. 3177)

Course Placements (p. 3178)

Degree Audit (p. 3178)

First-Year Seminars and Engagement Plans (p. 3180)

New Student Orientation (p. 3181)

Academic Advising

An integral part of student success, academic advising is provided to all undergraduate students. The intention of academic advising is to engage students in meaningful conversations about learning,

academic opportunities, and the ways that all aspects of the University curriculum serve to shape a meaningful education for students at Penn State. Academic advisers also are uniquely positioned to help students understand the policies and procedures that govern undergraduate degree completion and to refer students to other appropriate resources across Penn State that are intended to promote student learning and success. While academic advisers are available to help a student schedule each semester's courses, their primary role is to discuss with the student the broad meaning of their University education and to collaboratively plan for reaching the student's academic goals. Each student is assigned a primary academic adviser in their college, school, or the Division of Undergraduate Studies. Students can find their adviser's name and contact information using Starfish (<https://sites.psu.edu/starfishinfo/>).

Degree Audit

A degree audit is an analysis that enables the student and their adviser to assess the student's academic progress and unfulfilled baccalaureate, associate degree, or minor requirements. The audit is a valuable tool for academic planning and course selection because it matches the courses that the student has taken with the requirements of their degree program or anticipated program.

Course Placements

During New Student Orientation (NSO), academic advisers assist new students in evaluating their educational plans by providing them, prior to initial registration, with a review of placement test results along with individualized educational planning and academic advising. The testing component of NSO, if required, is used for educational planning and academic advising purposes to determine a student's appropriate starting levels in mathematics and chemistry course sequences. English composition course placement is based on prior experience in English courses and the appropriate SAT or ACT score if available. Course selections are guided by a student's academic goals, their prior academic experiences, SAT/ACT scores (if available) and highest ALEKS Math Assessment score (for students who did not successfully complete high school calculus).

In addition, World Language course placement is determined by the level of previous study and/or time that has elapsed between a student's previous world language study and admission to Penn State. Placement also may be determined by non-course work knowledge of world languages.

Select the appropriate placement policy below or the menu to the right to explore different information areas.

Chemistry Placement (p. 3178)

English Placement (p. 3178)

Mathematics Placement (p. 3179)

Placement Policy for World Language Courses (p. 3180)

Chemistry Placement

Placement into introductory or general chemistry courses is based on a student's prior background in chemistry, their intended major, and the results of the mathematics placement test, as indicated by their ALEKS score.

Most science and engineering programs require CHEM 110 and/or CHEM 112. CHEM 110 is the first semester of a two-semester, comprehensive general chemistry sequence. It builds on student's prior background in chemistry and involves significant mathematical manipulation and requires algebra proficiency. Students who feel their chemistry preparation is weak should consider scheduling CHEM 110 and CHEM 108 concurrently. The enforced prerequisite for CHEM 110 is completion of, or placement beyond MATH 22.

Some programs in the Colleges of Nursing, Health and Human Development, and Agriculture Sciences require CHEM 130, a one-semester college-level introductory chemistry course covering the fundamentals of general, organic, and biochemistry. CHEM 130 emphasizes chemistry concepts in environmental and health-related contexts, and it requires less mathematical preparation than CHEM 110. The enforced prerequisite for CHEM 130 is completion of, or placement beyond MATH 21.

Students may only receive credit for either CHEM 110 or CHEM 130. Please consult the academic plan for your intended major carefully before scheduling one of these courses. Additional evaluation may be done during the beginning of the semester.

What Courses Might You Take?

ALEKS score	No high school chemistry, or chemistry more than two years ago	Chemistry in 11th or 12th grade, or honors or AP chemistry
45% or less	MATH 21 then CHEM 130 or MATH 21, then MATH 22 (or MATH 26), then CHEM 110 + CHEM 108	MATH 21 then CHEM 130 or MATH 21, then MATH 22 (or MATH 26), then CHEM 110 + CHEM 108
46% to 60%	CHEM 130, or MATH 22, then CHEM 110 + CHEM 108	CHEM 130, or MATH 22, then CHEM 110
61% or more*	CHEM 130 or CHEM 110 + CHEM 108	CHEM 130 or CHEM 110

* or successful completion of a high school calculus course.

English Placement

All majors require Writing and Speaking (GWS) courses. Most typically ENGL 15 (Rhetoric and Composition), ESL 15 (Composition for American Academic Communication II), ENGL 30H (Honors Rhetoric and Composition), or ENGL 137H/CAS 137H (Rhetoric and Civic Life I) are taken in the first year to meet part of this requirement.

Initial English composition placement is based on past writing experiences by the student. While some students have SAT or ACT scores to assist in the placement process, many will not. The self-guided assessment in the chart below will be the primary tool for placement in most cases. Final placement may be adjusted after a conversation with

an academic adviser. Most students will take ENGL 15. Students with strong writing preparation may choose an honors composition course (ENGL 15 or ENGL 137H/CAS 137H). Students whose experiences and previous course work suggest gaps may need some extra support to be successful in ENGL 15.

Guide to Course Selection to help students choose the most appropriate English composition course

Questions for Students	ENGL 4, ENGL 15E, or Campus-Specific Options	ENGL 15	ENGL 30H
	Credits and approaches vary by campus. Some carry *credit toward graduation and others do not—Speak with an adviser	(GWS) Rhetoric and Composition (3 credits)	(GWS) Honors Composition (3 credits)
1. What English courses did you take in your junior and senior years of high school?	Fewer than two years of AP or college preparatory English	Two years of AP or college preparatory English	Two years of advanced or AP English
2. What type of writing did you do in your high school English classes?	Infrequently wrote essays of more than one paragraph with little feedback from the teacher	Frequently wrote essays of more than one paragraph in length with feedback from the teacher	Frequently wrote essays that required substantial amounts of writing with feedback from the teacher
3. What were your grades in English in your junior and senior years of high school?	Mostly C or lower	Mostly between C+ and B-	Mostly B or higher
4. To what extent are you familiar with basic writing tasks such as planning, editing, composing, and revising?	I am unfamiliar or not confident with these tasks	I can perform these tasks with a fair degree of competence	I possess the skills needed to perform these tasks with competence
5. If you had a job that required writing, how successful were your writing efforts?	Need substantial improvements	Moderately successful to successful	Highly successful
6. Do you consider yourself a confident and competent writer?	No	Yes	Very much so

* ENGL 15E meets the composition requirement and carries credit toward graduation. Supplementary courses or preparatory courses may not carry credit toward graduation.

Placement Recommendations

New SAT-READ Score (2016 or later)	SAT-WR Score (2015 or earlier)	ACT Score	Placement Recommendations
680-800	620-800*	26 or more	Schedule ENGL 15 or ENGL 30H. Use the guide above and consult with an adviser.
520-679	460-619*	18-25	Schedule ENGL 15.
420-519	380-459*	14-17	Schedule ENGL 15, ENGL 15E, or ENGL 4 **. Use the guide above and consult with an adviser.
200-419	200-379*	13 and fewer	Schedule ENGL 4 ** or schedule ENGL 15E before scheduling ENGL 15.
None	None	None	Use the guide above and consult with an adviser.

**ENGL 4 is not available at all campuses. In place of ENGL 4, University Park students should schedule ENGL 15E (with a mandatory ENGL 5 requirement) or may consider scheduling ENGL 15 and ENGL 5. Students at other campuses should consult with advisers regarding writing options at their campus.

Mathematics Placement

As part of General Education, all Penn State baccalaureate degree programs require a minimum of six credits in quantification; associate degree programs require a minimum of three credits. General Education quantification courses have the suffix "GQ." GQ courses are available in mathematics, statistics, computer science, and philosophy.

When choosing GQ courses, students should consider their interests, background in mathematics, the focus of majors being considered, and the results of mathematics assessment. Most science/engineering programs require MATH 140, while some liberal arts/professional programs (particularly business-focused programs) require MATH 110.

All new first-year students who have not successfully completed a high school calculus course are required to take a web-based mathematics assessment called ALEKS as part of their preparation for NSO. If a student has not yet earned college credit for the prerequisite course, the ALEKS score is used to determine placement in mathematics courses. Students who wish to improve their placement can use ALEKS prior to

the start of their first semester to complete online learning modules and re-test. Students are not permitted to take a course that is above their demonstrated readiness level.

Students who have successfully completed a high school calculus course will automatically be eligible to enroll in MATH 110 or MATH 140 (placement determined by "76-100 Score" column in table below). However, students concerned that they may not be prepared for success in the more advanced courses or who have not taken a math course recently are encouraged to take the ALEKS placement and discuss the results with their academic adviser as part of their NSO process.

The chart below shows the required ALEKS placement for GQ courses. Decisions about appropriate quantification (GQ) courses should be discussed with an academic adviser.

Required GQ Course for Your Intended Major	0-13 Score	14-29 Score	30-45 Score	46-60 Score	61-75 Score	76-100 Score
STAT 200	MATH 3* #	MATH 4 #	STAT 200			
MATH 22	MATH 3* #	MATH 4 #	MATH 21 #	MATH 22		
MATH 26	MATH 3* #	MATH 4 #	MATH 21 #	MATH 26		
MATH 110	MATH 3* #	MATH 4 #	MATH 21 #	MATH 22 #	MATH 110	
MATH 140 (ALEKS 0-60)	MATH 3* #	MATH 4 #	MATH 21 #	MATH 22 # & MATH 26 #		MATH 140
MATH 140 (ALEKS > 60)	MATH 3* #	MATH 4 #	MATH 21 #	#	MATH 26 or MATH 40* or MATH 41 #	MATH 140

* Course not offered at all Penn State campuses.

For courses not listed above, choose any appropriate GQ course for your intended major and for which you have met the prerequisite.

Placement Policy for World Language Courses

Placement Policy

Students who have studied a world language within four years immediately before admission to Penn State may enroll in that language for credit based on the number of Carnegie units prior to admission. (A Carnegie "unit" refers to one course level of a world language — French 1, French 2, French 3, etc. — equivalent to one year of study and accredited as such by the school.) If a period of four or more years has elapsed between a student's graduation from high school and admission to college, he/she may be eligible to enroll in level 1 of the language studied in high school. Students who have studied American Sign Language

should refer to the information that can be found on the College of Health and Human Development website. (<https://hhd.psu.edu/csd/asl/>)

Penn State	Units of Study Prior to Admission to Register in Penn State Language Level
Fewer than two	Course Level 001 (4 cr.) ¹
Two or three	Course Level 002 (4 cr.) ²
Four or more	Course Level 003 (4 cr.) ³

¹ Course Level 101 for Latin placement

² Course Level 101 or 102 for Latin placement

³ Course Level 102 or 203 for Latin placement

Students may choose to take a lower-level course for credit with the approval of the appropriate language program at the student's campus of enrollment. Students who feel they are qualified for a more advanced course, or students seeking proficiency certification or credit by examination, if available, should contact the appropriate language department for details. For more information, see College of the Liberal Arts policies (<https://sgllc.la.psu.edu/language-portal/>).

Non-Course Work Knowledge of World Languages

Students who have acquired a knowledge of a world language by means other than course work (e.g., family background, travel or study in a foreign country, participation in noncredit summer language programs, etc.) may enroll in elementary and intermediate courses in that language only with permission of the course coordinator or department head. Once students have been placed in a skills course, they may not receive credit for a lower-level skills course.

Students whose native language is not English may not receive credit (through course work or examination) for elementary and intermediate courses in their native language. Enrollment in skills courses beyond intermediate level (e.g., conversation, composition) must be approved by the department head.

Accelerated and Intensive Courses

Students may choose to enroll in accelerated courses such as French 111 and 112, German 11 and 12, or in Penn State's Summer Intensive Language Institute courses. Because the objectives of these courses are somewhat different, students may schedule them for full credit even if they have studied the language previously.

Credit by examination (fee charged), when available, is offered to the extent allowed by the placement policy. For example, a student who has two units of secondary school world language and chooses to begin study of that language at the third level instead of the second (Course Level 003, 4 cr.), may receive credits for the second level (Course Level 002, 4 cr.), but not for the first level (Course Level 001, 4 cr.). See the appropriate department for details.

Questions

Questions should be addressed to the course coordinator or department head of the particular language department concerned.

First-Year Seminars and Engagement Plans

A student's campus of enrollment determines whether or not he/she is required to complete a first-year seminar (FYS). Campuses that do not

require an FYS provide students with a first-year engagement experience. If a student changes their campus location, the student's degree audit will be changed to indicate whether the student needs to fulfill this requirement based on established criteria.

Selecting a First-Year Seminar (FYS)

Students generally select an FYS in their college or major. An FYS is portable, meaning the requirement is satisfied by completing any first-year seminar. However, students should be cautious when selecting a seminar, because for some majors, a seminar has been incorporated into a required course. Depending on a student's college, participation in LEAP (<https://summersession.psu.edu/first-year-students/leap-program-university-park/>) may satisfy the FYS requirement.

Completing a first-year seminar may also fulfill other requirements in the student's program, such as General Education, major, minor, or elective. For example, if a student completed PHIL 83 (GH), it would satisfy 3 credits of the General Education humanities requirement and the first-year seminar requirement.

First-year seminar content varies. Course numbers and, in some cases, section numbers indicate different content. To select an appropriate seminar, read the course description by selecting the Class or Section link in the class search results. For additional information about a college's first-year seminar offerings contact the advising center (<https://dus.psu.edu/advising-centers/>).

Identifying an FYS

In LionPATH (<https://www.lionpath.psu.edu/>), use the Search for Classes (tutorial: [Searching for Classes \(https://tutorials.lionpath.psu.edu/public/Docs/S_SearchClasses.docx\)](https://tutorials.lionpath.psu.edu/public/Docs/S_SearchClasses.docx)) to find seminars offered in a semester or session at a specified campus and location. Select Additional Search Criteria, then choose First-Year Engagement Program as the Course Attribute.

In Schedule Builder, advisers and students can find an FYS by choosing Add Course, selecting Search by Course Attribute, choosing First-Year Seminar as the Search Attribute, and then selecting the Subject and Course of interest. It is possible to find a FYS that meets other requirements by selecting additional Attributes.

Enrolling in an FYS

Some first-year seminars have departmental controls. If a student seeks enrollment in one of these courses, the appropriate college advising center (<https://dus.psu.edu/advising-centers/>) or the appropriate department (<https://www.registrar.psu.edu/registration/department-contacts-course-controls.cfm>) should be contacted for enrollment information. A student in the Division of Undergraduate Studies (<https://dus.psu.edu>) (DUS) can take a first-year seminar in any college.

Tracking Completion of the Requirement

A student's degree audit tracks the completion of the FYS requirement.

VIEW APPROVED FIRST-YEAR AND CAMPUS ENGAGEMENT PLANS (<https://senate.psu.edu/faculty/approved-first-year-engagement-plans/>)

New Student Orientation

Penn State provides all new students the opportunity to attend a comprehensive orientation program, which is organized by the Office for Student Orientation and Transition Programs (SOTP). SOTP partners

with the Division of Undergraduate Studies and other units to offer new students a thorough introduction to life on campus, an overview of General Education requirements, and the opportunity to actively discuss individual academic plans with an academic adviser. In addition to providing students an opportunity to register for appropriate classes, the overall objective of New Student Orientation (<https://orientation.psu.edu/>) is to establish the academic expectations and community standards that shape and inform the learning environment at Penn State.

Information for New Students

The Office for Student Orientation and Transition Programs provides first-year students, advanced standing, and change-of-campus students at the University Park campus with comprehensive information regarding the essential academic and student development opportunities of the campus and the University in general beginning with a new student's acceptance to a campus and continuing through completion of their first semester.

Through programs offered in cooperation with the colleges' academic units and various student service operations, new students are introduced to the intellectual and scholarly expectations of the University, to the skills needed for advanced study and lifelong learning, and to the student development opportunities with academic merit. In addition, this office helps inform students of the required procedures for matriculation and offers a perspective on college life, including practical information about important dates, times, and locations (e.g., arrival day, first day of classes, course drop/add).

During Welcome Week each semester, new students receive instruction and advice about their courses of study, including help with registration and class schedule adjustments, and they participate in special activities.

Student Rights and Responsibilities

All students are expected to be knowledgeable of and adhere to all University academic policies and procedures. Students also are expected to both maintain Academic Integrity and follow the Student Code of Conduct. As a student at Penn State, you will develop an official educational record, which will be maintained by the University under the guidelines of the Federal Family Educational Rights and Privacy Act.

Select the topics of interest below or the menu to the right to explore different information areas.

Confidentiality of Student Records (p. 3181)

Academic Integrity (p. 3182)

Code of Conduct (p. 3183)

Confidentiality of Student Records

The Federal Family Educational Rights and Privacy Act (FERPA (<https://www2.ed.gov/policy/gen/guid/fpco/ferpa/>)) is a federal regulation enacted in 1974 that protects the privacy and confidentiality of student education records. Under FERPA, institutions may not release a student's education record without prior consent of the student, except in limited circumstances. FERPA applies to all schools that receive funds under an applicable program of the U.S. Department of Education.

At Penn State, educational records are kept by University offices to facilitate the educational development of students. Faculty and staff

members may also keep informal records relating to their functional responsibilities with individual students.

Student Rights under FERPA

FERPA (<https://www2.ed.gov/policy/gen/guid/fpco/ferpa/>) affords students certain rights with respect to their educational records (<https://policy.psu.edu/policies/AD11/#C>). These rights include:

- The right to inspect and review the student's educational records. A student should submit to the University Registrar a written request that identifies the record(s) the student wishes to inspect. The University Registrar will make arrangements for access and notify the student of the time and place where the records may be inspected.

If the records are not maintained by the University Registrar, the University Registrar will advise the student of the correct official to whom the request should be addressed.

- The right to request the amendment of the student's educational records that the student believes are inaccurate, misleading, or otherwise in violation of the student's privacy rights under FERPA.

A student who wishes to ask the University to amend a record should write the University official responsible for the record, clearly identify the part of the record the student wants to be changed, and specify why it should be changed.

If the University decides not to amend the record as requested, the University will notify the student in writing of the decision and advise the student of his or her right to a hearing regarding the request for amendment. Additional information regarding the hearing procedures will be provided to the student when notified of the right to a hearing.

- The right to provide written consent before the University discloses personally identifiable information from the student's educational records, except to the extent that FERPA authorizes disclosure without consent.

One exception which permits disclosure without consent, is the disclosure to University officials with legitimate educational interests. University officials (<https://policy.psu.edu/policies/AD11/#B>) are University employees with general or specific responsibility for promoting the educational objectives of the University or third parties under contract with the University to provide professional, business and similar administrative services related to the University's educational mission. Legitimate educational interests (<https://policy.psu.edu/policies/AD11/#B>) are defined as interests that are essential to the general process of higher education prescribed by the body of policy adopted by the governing board.

OTHER EXCEPTIONS (<https://www.registrar.psu.edu/confidentiality/other-exceptions-prior-written-consent.cfm>)

The right to file a complaint with the U.S. Department of Education concerning alleged failures by the University to comply with the requirements of FERPA. The name and address of the Office that administers FERPA is:

Family Policy Compliance Office
U.S. Department of Education
400 Maryland Avenue, SW

Washington, DC 20202-5901

Parents Rights Relating to Educational Records

When a student reaches the age of 18 or begins attending a postsecondary institution, regardless of age, FERPA (<https://www2.ed.gov/policy/gen/guid/fpco/ferpa/>) rights transfer from the parent to the student. This means that parents may not obtain any of their student's education records without the written consent of the student.

Since student grades are part of the education record, they are protected under FERPA (<https://www2.ed.gov/policy/gen/guid/fpco/ferpa/>) and, therefore, may not be released to parents. Students may provide consent for their parent to view grades and other portions of their education record by setting up LionPATH Delegated Access (<https://www.registrar.psu.edu/confidentiality/parent-rights.cfm>).

It is important to note that Penn State does not have a means for students to unilaterally waive their FERPA rights. Penn State's procedure requires each release of any portion of the student's education record to a person or entity outside of the University to be individually approved by the student by working with the releasing department.

MORE INFORMATION ABOUT CONFIDENTIALITY FROM THE OFFICE OF THE UNIVERSITY REGISTRAR (<https://www.registrar.psu.edu/confidentiality/>)

READ POLICY AD 11: UNIVERSITY POLICY ON CONFIDENTIALITY OF STUDENT RECORDS (<https://policy.psu.edu/policies/ad11/>)

Academic Integrity

Academic integrity is the pursuit of scholarly activity in an open, honest and responsible manner. Academic integrity is a basic guiding principle for all academic activity at The Pennsylvania State University, and all members of the University community are expected to act in accordance with this principle. Consistent with this expectation, the University's Code of Conduct states that all students should act with personal integrity, respect other students' dignity, rights and property, and help create and maintain an environment in which all can succeed through the fruits of their efforts.

Academic integrity includes a commitment by all members of the University community not to engage in or tolerate acts of falsification, misrepresentation or deception. Such acts of dishonesty violate the fundamental ethical principles of the University community and compromise the worth of work completed by others.

To protect the rights and maintain the trust of honest students and support appropriate behavior, faculty and administrators should regularly communicate high standards of integrity and reinforce them by taking reasonable steps to anticipate and deter acts of dishonesty in all assignments. At the beginning of each course, it is the responsibility of the instructor to provide students with a statement clarifying the application of University and College academic integrity policies to that course.

READ SENATE POLICY 49-20: ACADEMIC INTEGRITY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/47-00-48-00-and-49-00-grades/#49-20>)

Code of Conduct

The Code of Conduct outlines the standard procedures and practices of the University conduct process. To be fully aware of their individual and organizational rights and responsibilities in this process, individuals and student organizations are encouraged to review the Student Code of Conduct (<https://studentaffairs.psu.edu/student-accountability/code-procedures/student-code-conduct/>).

General Education

General Education is the heart of the undergraduate experience. From the sciences to the arts and humanities, General Education at Penn State prepares students to thrive personally and professionally in our diverse global society. Through General Education, students acquire skills, knowledge, and experiences for living in interconnected contexts, making life better for themselves, others, and the world. As professions become more dynamic and career paths less predictable, the ability to place information into context through critical thinking, develop solutions to complex problems, and make ethical decisions become essential skills for a resilient workforce. Creative and analytical practice prepares students of all disciplines to be resourceful in the application of their knowledge towards complex problem solving and to communicate that knowledge in a variety of forms.

MORE INFORMATION ABOUT GENERAL EDUCATION (<https://gened.psu.edu>)

We invite students to challenge themselves in General Education and encourage them to make intentional course decisions that create:

Strong Foundations

Build a basis of effective communication and quantitative literacy.

Transformative Exploration

Follow intellectual curiosity to deepen or widen your learning.

Integrative Learning

Practice synthesizing knowledge from different perspectives.

General Education Learning Objectives

The General Education curriculum will enable students to acquire skills, knowledge, and experiences for living in interconnected contexts, so they can contribute to making life better for others, themselves, and the world. General Education encompasses the breadth of knowledge involving the major intellectual and aesthetic skills and achievements of humanity. This must include understanding and appreciation of the pluralistic nature of knowledge epitomized by the natural sciences, quantitative skills, social and behavioral sciences, humanities, and arts. To achieve and share such an understanding and appreciation, skills in self-expression, quantitative analysis, information literacy, and collaborative interaction are necessary. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. General Education, in essence, aims to cultivate a knowledgeable, informed, literate human being.

An effective General Education curriculum shall facilitate teaching and learning through seven key objectives:

Effective Communication

The ability to exchange information and ideas in oral, written, and visual form in ways that allow for informed and persuasive discourse that builds trust and respect among those engaged in that exchange, and helps create environments where creative ideas and problem-solving flourish.

Key Literacies

The ability to identify, interpret, create, communicate, and compute using materials in a variety of media and contexts. Literacy acquired in multiple areas, such as textual, quantitative, information/technology, health, intercultural, historical, aesthetic, linguistic (world languages), and scientific, enables individuals to achieve their goals, to develop their knowledge and potential, to lead healthy and productive lives, and to participate fully in their community and wider society.

Critical and Analytical Thinking

The habit of mind characterized by comprehensive exploration of issues, ideas, artifacts, and events before accepting or formulating a conclusion. It is the intellectually disciplined process of conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action.

Integrative Thinking

The ability to synthesize knowledge across multiple domains, modes of inquiry, historical periods, and perspectives, as well as the ability to identify linkages between existing knowledge and new information. Individuals who engage in integrative thinking are able to transfer knowledge within and beyond their current contexts.

Creative Thinking

The capacity to synthesize existing ideas, images, or expertise in original ways and the experience of performing, making, thinking, or acting in an imaginative way that may be characterized by innovation, divergent thinking, and intellectual risk taking.

Global Learning

The intellectually disciplined abilities to analyze similarities and differences among cultures; evaluate natural, physical, social, cultural, historical, and economic legacies and hierarchies; and engage as community members and leaders who will continue to deal with the intricacies of an ever-changing world. Individuals should acquire the ability to analyze power; identify and critique interdependent global, regional, and local cultures and systems; and evaluate the implications for people's lives.

Social Responsibility and Ethical Reasoning

The ability to assess one's own values within the social context of problems, recognize ethical issues in a variety of settings, describe how different perspectives might be applied to ethical dilemmas, and consider the ramifications of alternative actions. Individuals should acquire the self-knowledge and leadership skills needed to play a role in creating and maintaining healthy, civil, safe, and thriving communities.

Associate Degree General Education Requirements

The associate degree General Education program consists of 21 credits that are distributed among three General Education components:

- Foundations courses in writing, speaking, and quantification (6 credits).
- Knowledge Domains in the Arts, Humanities, Natural Sciences, and Social and Behavioral Sciences (12 credits).
- Exploration within General Education (3 credits).

A summary of the applicable attributes to determine if a course satisfies a requirement is available on the University Course Description (p. 3293) page. The keystone symbol appears by the title of any course that is designated as a General Education course. Program requirements that may also satisfy General Education requirements vary for each program and are detailed on each degree requirements page.

In order to ensure that students participate in the full breadth of General Education, students may not select a course in their academic major to satisfy one of the Knowledge Domains area requirements. For example, a CRIMJ major may not use a CRIMJ course (or cross-listed course) to fulfill a General Education requirement.

The General Education requirements for students who enrolled at Penn State prior to Summer 2023 can be found in the Archive (p. 15).

MORE INFORMATION ABOUT ASSOCIATE DEGREE GENERAL EDUCATION REQUIREMENTS (<https://gened.psu.edu>)

Associate Degree Requirements

Foundations

Total 6 credits

Requirement	Credits
Writing/Speaking (GWS) *	3
Quantification (GQ) *	3

* Requires a grade of C or better

Knowledge Domains

Total 12 credits

Requirement	Credits
Natural Sciences (GN)	3
Arts (GA)	3
Humanities (GH)	3
Social and Behavioral Sciences (GS)	3

Note: Up to six credits of Inter-domain courses may be used for any Knowledge Domain requirement, but when a course may be used to satisfy more than one requirement, the credits from the course can be counted only once.

Exploration

Total 3 credits

Requirement	Credits
Any General Education course (including GHW and Inter-Domain courses)	3

Flexibility of the Associate Degree Requirements

The General Education program extends the concept of flexibility to all aspects of the degree program. Penn State wants students to use General Education as an opportunity to experiment and explore, to take academic risks, to discover things they did not know before, and to learn to do things they have not done before.

To these ends, students may, with the permission of their adviser and dean's representative, substitute a 200- to 499-level course for an Arts, Humanities, Natural Sciences, or Social and Behavioral Sciences course found on the General Education list. For example, a student may take a 400-level course in history and use it to meet the General Education requirement satisfied by a comparable lower-level history course.

Additional University Requirements

These requirements may be completed by designated courses that also complete other degree or General Education requirements.

Total 6 credits

Requirement	Credits
United States Cultures (US) or International Cultures (IL) or combined designation (US;IL) ‡	3
Writing Across the Curriculum	3

‡ Students may, with the permission of their adviser and dean's representative, meet the United States Cultures (US) and International Cultures (IL) requirement through completion of an experiential learning program or practicum (one-semester or year long) approved by their college dean's office. Approved Penn State Education Abroad Programs may be used to satisfy the International Cultures (IL) requirement.

Baccalaureate Degree General Education Requirements

The baccalaureate degree General Education program consists of 45 credits that are distributed among four General Education components:

- Foundations courses in writing, speaking and quantification (15 credits)
- Knowledge Domain breadth in the Arts, Humanities, Natural Sciences, Social and Behavioral Sciences, and Health and Wellness (15 credits)
- Integrative Studies bridging commonality and intersections in learning (6 credits)
- Exploration within General Education (9 credits)

A summary of the applicable attributes to determine if a course satisfies a requirement is available on the University Course Description (p. 3293) page. The keystone symbol appears by the title of any course that is designated as a General Education course. Program requirements that may also satisfy General Education requirements vary for each program and is detailed on each degree requirements page.

All General Education courses are to help students explore and integrate information beyond the special focuses of their majors. Students may not meet the General Education Breadth in Knowledge Domains and Exploration components by taking courses in the department or program identical to that of the academic major. For example, an Economics major may not use an ECON course or a course cross-listed with ECON to fulfill a General Education requirement. The Integrative Studies requirement is not subject to this policy.

The General Education requirements for students who enrolled at Penn State prior to Summer 2023 can be found in the Archive (p. 15).

MORE INFORMATION ABOUT BACCALAUREATE DEGREE GENERAL EDUCATION REQUIREMENTS (<https://gened.psu.edu>)

Baccalaureate Degree Requirements Foundations

Total 15 credits

Requirement	Credits
Writing/Speaking (GWS) *§	9
Quantification (GQ) **§	6

* Requires a grade of C or better.

§ Inter-Domain courses may not be used for this requirement.

† 3-6 credits are selected from mathematics, applied mathematics, and statistics; 3 credits may be selected from computer science or symbolic logic.

Knowledge Domains

Total 15 credits

Requirement	Credits
Health and Wellness (GHW) §	3
Natural Sciences (GN) §	3
Arts (GA) §	3
Humanities (GH) §	3
Social and Behavioral Sciences (GS) §	3

§ Inter-Domain courses may not be used for this requirement.

Integrative Studies

Total 6 credits

Requirement	Credits
Inter-Domain course work	6

Exploration

Total 9 credits

Requirement	Credits
Natural Sciences (GN) (may be Inter-Domain)	3

GA, GH, GN, GS, and Inter-Domain courses. May include 3 credits of World Language course work beyond the requirements of the student's degree program or at the 12th credit level, whichever is higher.

Flexibility of the Baccalaureate Degree Requirements

The General Education program extends the concept of flexibility to all aspects of the degree program. Penn State wants students to use General Education as an opportunity to experiment and explore, to take academic risks, to discover, and to learn. A student may:

1. Substitute a 200- to 499-level course in an area of General Education for a course found on the General Education list. For example, course in history and use it to meet the General Education requirement satisfied by a comparable lower-level history course.
2. Substitute 3 units of a World Language course at the 12th credit level of proficiency or higher that exceed the student's minimum degree requirements in either of the Foundation areas (GWS or GQ) of General Education.

Additional University Requirements

These requirements may be completed by designated courses that also complete other degree or General Education requirements.

Total 9-12 credits

Requirement	Credits
First-Year Engagement Program †	0-3
United States Cultures ‡	3
International Cultures ‡	3
Writing Across the Curriculum	3

± May include a First-Year Seminar; a student's campus of enrollment determines whether or not a First-Year Seminar is required. Students at the University Park campus are required to complete at least 1 credit of first-year seminar and meet any other first-year requirements specified by their home college. Students at the Commonwealth campuses are required to complete the first-year experiences specified by their campus. First-year baccalaureate students entering Penn State should consult their enrollment home for these requirements.

‡ Students may, with the permission of their adviser and dean's representative, meet the United States Cultures (US) and International Cultures (IL) requirement through completion of an experiential learning program or practicum (one-semester or year long) approved by their College Dean's Office. Approved Penn State Education Abroad Programs may be used to satisfy the International Cultures (IL) requirement.

Foundations and Knowledge Domains

Descriptions and learning criteria for each of the Foundation and Knowledge Domain areas within General Education are listed here.

Foundations

Writing and Speaking (GWS)

In Writing and Speaking (GWS) courses, students do more than improve their abilities to communicate information clearly. They learn to set forth arguments persuasively and well, both orally and in writing. Students should emerge from their GWS courses as more accomplished writers and speakers, competent in a wide variety of settings.

To help students achieve GWS goals, the University provides GWS courses and an appropriate learning environment that will:

- provide opportunities for students to become increasingly effective communicators as they enter new contexts and address new audiences;
- provide opportunities for students to become increasingly accomplished in written, oral, digital, and visual communication.

GWS Student Learning Criteria

Upon successful completion of the General Education Writing and Speaking requirements, students will have increased their abilities to:

- demonstrate rhetorical and analytical skills as they explore, compose, interpret, and present a variety of texts;
- communicate effectively and persuasively to a range of audiences;
- demonstrate capacities for critical thinking, listening, and generating ideas;
- demonstrate proficiency in composing processes;
- employ the conventions of both spoken and written communication with sensitivity to context and venue.

Quantification (GQ)

In Quantification (GQ) fields, students practice and master basic mathematical and statistical skills of lifelong value in solving real-world problems. Students should learn to apply mathematical skills appropriate to solve such problems.

To help students achieve GQ goals and master foundational quantification skills, the university provides GQ coursework and an appropriate learning environment that will:

- provide experience in assessing and interpreting quantitative data and information;
- guide students to recognize patterns, establish relations, exercise conceptual thinking, develop problem-solving skills, and think logically and critically;
- support students in their efforts to draw accurate and useful conclusions; make informed decisions based on quantitative analysis; and use basic mathematical and statistical skills to solve conceptual problems.

GQ Student Learning Criteria

Upon successful completion of the General Education Quantification (GQ) requirement, students should have increased their abilities to:

- use mathematical, statistical, or computational models, principles, and processes to integrate, synthesize, generalize, or make judgments about real-world problems;
- recognize patterns, establish mathematical relations, apply problem-solving skills, and think logically and critically;
- develop, explore, analyze, and reason about multi-variable relationships using quantitative tools;

- use probability to reason and make judgments based on data that exhibit variability;
- communicate and explain mathematical and statistical ideas.

Knowledge Domains

Arts (GA)

In Arts fields (GA), students focus on exploring or creating works of art. Students should become familiar with the importance of significant creative works, the traditions and history associated with those works, and the important role that the arts play as expressions of the cultural values of society and the human condition.

To help students achieve GA goals, the University provides GA courses and an appropriate learning environment with purposeful engagement with the arts and creative works for students to:

- encounter and become conversant with the terminologies, techniques, practices, knowledge, and skills employed by the arts;
- gain a comprehension of the role that the arts play as expressions of the cultural values of society and the human condition;
- expand their knowledge of the variety of expressions and experiences that are provided through the arts;
- develop competencies in interpreting and critically evaluating diverse expressions in the arts.

GA Student Learning Criteria

Upon successful completion of the General Education Arts (GA) requirement, students should be able to:

- explain the methods of inquiry in arts fields and describe how the contributions of these fields complement inquiry in other areas;
- demonstrate expanded knowledge and comprehension of the role that the arts play in various aspects of human endeavor;
- demonstrate competence in the creation of works of art and design;
- demonstrate competence in analysis, critical thinking and interpretive reasoning through the exploration of creative works;
- identify and explain the aesthetic, historical, social, and cultural significance of important works of art and critically assess creative works, their own or others', through evaluative processes of analysis and interpretation.

Humanities (GH)

In Humanities (GH) fields, students focus on exploring important works of literature, history, religion, philosophy, and other closely related forms of cultural expression, thereby broadening their understanding of diverse ways of seeing, thinking about, and experiencing the self and society. Students will enlarge their intellectual horizons and knowledge of the world through encountering humanistic representations of both lived experiences and imaginative or speculative constructions, past or present. Students thus become increasingly prepared to live as thoughtfully engaged members of multiple communities, whether local, regional, or global.

To help students achieve GH goals, the University provides GH courses and an appropriate learning environment for students to:

- engage in the qualitative study of the humanities;
- expand their knowledge of the variety of human experiences;
- gain access to various intellectual traditions and their changes through time;

- probe the foundations of communication and thought and become aware of the scope and limitations of human communication;
- encounter concepts and traditions that attempt to bring sense to human existence;
- develop their competency in interpreting and critically evaluating diverse ways of life, traditions, and shared or individual values, including their own.

GH Student Learning Criteria

Upon successful completion of the General Education Humanities (GH) requirement, students should have increased their abilities to:

- explain the methods of inquiry in humanities fields and describe how the contributions of these fields complement inquiry in other areas;
- demonstrate competence in critical thinking about topics and texts in the humanities through clear and well-reasoned responses;
- critically evaluate texts in the humanities – whether verbal, visual, or digital – and identify and explain moral or ethical dimensions within the disciplines of the humanities;
- demonstrate knowledge of major cultural currents, issues, and developments through time, including evidence of exposure to unfamiliar material that challenges their curiosity and stretches their intellectual range;
- become familiar with groups, individuals, ideas, or events that have influenced the experiences and values of different communities.

Health and Wellness (GHW)

In Health and Wellness (GHW) fields, students focus on the physical and psychosocial well-being of individuals and communities. They expand their theoretical and practical knowledge about health and wellness – concepts that are multidimensional and culturally defined. The University provides opportunities for students to study such diverse topics as nutrition, physical activity, stress, sleep, healthy leisure, alcohol, tobacco, and other substance use, sexual health, and safety – all useful in maintaining lifelong health and wellness and in creating healthy work and community environments.

To help students achieve GHW goals, the University provides GHW courses and an appropriate learning environment for students to:

- Identify and practice skills, attitudes, and behaviors that should enable them to better maintain health and wellness across their lifespans
- Identify wellness as a positive state of well-being, not merely the absence of disease or illness
- Recognize the importance of social, emotional, and physical health and wellness for communities as well as for individuals.

GHW Student Learning Criteria

Upon successful completion of the General Education Health and Wellness (GHW) requirement, students should have increased their abilities to:

- explain the methods of inquiry in Health and Wellness fields and describe how the contributions of these fields complement inquiry in other areas;
- describe multiple perceptions and dimensions of health and wellness (emotional, spiritual, environmental, physical, social, intellectual, and occupational);
- identify and explain ways individuals and/or communities can achieve and maintain health and wellness;

- describe health-related risk factors and explain changes in knowledge, attitudes, behaviors, activities or skills that have the potential of improving health and wellness;
- disseminate knowledge about health and wellness and demonstrate behavioral practices needed to engage in healthy living across the lifespan.

Natural Sciences (GN)

In Natural Science (GN) fields, students develop the skills necessary to make informed judgments about scientific information and arguments. Along with building knowledge of foundational scientific principles, students expand their understanding of how and why science works, why it is an effective tool for knowledge generation, and how it can address contemporary questions and challenges.

To help students achieve GN goals and develop this scientific literacy, the University provides GN courses and an appropriate learning environment for students to:

- encounter the order, diversity, and beauty of nature;
- sample some of the ways which science offers additional lens through which to view the human condition;
- engage with scientific material through discussion, exploration, data analysis, and experimentation;
- gain practice in recognizing the nature of scientific process and discovery, in identifying what science can and cannot achieve, and analyzing why scientific arguments may lead to different conclusions than other forms of intellectual discourse.

GN Student Learning Criteria

Upon successful completion of the General Education (GN) requirement, students should have increased their abilities to:

- explain the methods of inquiry in the natural science fields and describe how the contributions of these fields complement inquiry in other areas;
- construct evidence-based explanations of natural phenomena;
- demonstrate informed understandings of scientific claims and their applications;
- evaluate the quality of the data, methods, and inferences used to generate scientific knowledge;
- identify societal or philosophical implications of discoveries in the natural sciences, as well as their potential to address contemporary problems.

Social and Behavioral Sciences (GS)

In Social and Behavioral Science (GS) fields, students focus on analyzing the forces that influence behaviors, values, habits, attitudes, and institutions. GS courses allow students to explore the multiple perspectives and methodologies useful in analyzing and addressing complex social issues.

To help students achieve GS goals, the university provides GS courses and an appropriate learning environment for students to:

- explore the interrelationships of the many factors that shape behavior;
- be introduced to methodological analyses of the forms, practices, and theories of politics, economics, and social institutions;
- develop comprehensive, integrated, reasoned, and theoretical views of their contemporary and emerging social worlds;

- expand their understanding of how social, political, and economic influences and trends affect individual, group, organizational, local, national, and global contexts.

GS Student Learning Criteria

Upon successful completion of the General Education Social and Behavioral Sciences (GS) requirement, students should have increased their abilities to:

- explain the various methods of inquiry used in the social and behavioral sciences and describe how the contributions of these fields complement inquiry in other areas;
- identify and explain major foundational theories and bodies of work in a particular area of social and behavioral sciences;
- describe the ways in which many different factors may interact to influence behaviors and/or institutions in historical or contemporary settings;
- explain how social and behavioral science researchers use concepts, theoretical models, and data to better understand and address world problems;
- recognize social, cultural, political and/or ethical implications of work in the social and behavioral sciences.

Integrative Studies

Integrative Studies courses have a distinctive intellectual dimension; these courses ask the student to consider a topic from the perspective of two different General Education areas. These courses aim to advance the student's ability to comprehend things from multiple perspectives, to see connections, and to grasp the concept that one must employ different modes of thinking, different epistemologies to understand more adequately the nature of things; one domain is not fully equal to the task of understanding the world around us.

Inter-Domain Courses

Inter-Domain courses each demonstrate how two ways of understanding the world speak to one another and how knowledge in one area relates to knowledge in another. Inter-Domain courses are each approved for two General Education areas and demonstrate consistently how knowledge is integrated across these two areas.

Students must complete 6 credits of Inter-Domain coursework to fulfill the Integrative Studies requirement.

Other University Requirements

There are several university-level requirements that are designed to help students succeed both academically and professionally. These requirements may be completed by designated courses that also complete other degree or General Education requirements (e.g. a single course may satisfy a cultural diversity requirement as well as a General Education requirement).

First-Year Engagement Program

The First-Year Engagement Programs are designed to actively involve students in learning, acquaint them with the learning tools and resources available at Penn State and orient them to the scholarly community from the outset of their undergraduate studies in a way that will bridge to later experiences in their chosen majors. In addition, the First-Year Engagement Programs facilitate students' adjustment to the high expectations, demanding workload, increased academic liberties, and

other aspects of the transition to college life and introduce them to their responsibilities as members of the University community.

All incoming first-year baccalaureate students are required to complete a First-Year Engagement Program, with a student's campus of enrollment determining whether or not this includes a First-Year Seminar (FYS). All students enrolled in a University Park college, the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan. Other campuses may require the First-Year Seminar; campuses that no longer require a First-Year Seminar provide students with a first-year engagement experience. First-year baccalaureate students entering Penn State should consult their enrollment home for these requirements.

Courses that have the First Year Seminar attribute satisfy this requirement. Some courses may also have an identifying suffix (S or T) after the course number. The degree audit and what-if reports in LionPATH use attributes, not suffixes, to determine the applicability of a course to a requirement.

Cultural Diversity

Baccalaureate students are required to complete 3 credits each in United States and International Cultures.

Associate degree students are required to complete 3 credits in United States or International Cultures

United States Cultures

A course that fulfills the United States Cultures requirement must strive to increase students' understanding of contemporary United States society. Such a course need not focus exclusively on the present and may concern a historical subject.

Courses with the United States Cultures designation will include two or more of the following components and will include those components in the graded evaluation of student performance:

1. cultivate student knowledge of issues of social identity such as ethnicity, race, class, religion, gender, physical/mental disability, age, or sexual orientation;
2. convey to students knowledge of different United States values, traditions, beliefs, and customs;
3. increase student knowledge of the range of United States cultural achievements and human conditions through time;
4. increase student knowledge of United States social identities not in isolation, but in relation to one another (for example, the interaction of race or gender with socioeconomic status);
5. introduce students to interpersonal communication and interaction issues among United States cultures;
6. increase student understanding of the nature of societal justice, and equity in the United States at the societal, institutional, and individual levels.

Courses with the United States Cultures attribute satisfy this requirement. It is also common to abbreviate this course designation as U.S.

International Cultures

A course that fulfills the International Cultures requirement must strive to increase student knowledge of the variety of international societies and

may deal to some extent with U.S. culture in its international connections. It need not focus exclusively on the present and may, indeed, be a historical subject. Courses with the International Cultures designation will do two or more of the following:

1. cultivate student knowledge of the similarities and differences among international cultures;
2. convey to students knowledge of other nations' cultural values, traditions, beliefs, and customs;
3. increase students' knowledge of the range of international cultural achievements and human conditions through time;
4. increase students' knowledge of nations and cultures not in isolation, but in relation to one another;
5. introduce students to interpersonal communication and interaction issues among international cultures.
6. increase student understanding of the nature of societal justice, and equity in international nations at the societal, institutional, and individual levels.

Courses with the International Cultures attribute satisfy this requirement. It is also common to abbreviate this course designation as IL.

Writing Across the Curriculum

Developing the skill to communicate by means of the written word is extremely important. Courses other than General Education English Composition courses emphasize the ability of students to write. Colleges and/or departments have established Writing Across the Curriculum courses in specific programs. Students are required to complete at least 3 credits of writing-intensive courses offered within their major or college of enrollment.

Typically, Writing Across the Curriculum courses include writing assignments that relate clearly to the course objectives and serve as effective instruments for learning the subject matter of the course. In writing-intensive courses, assignments are designed to help students investigate the course subject matter, gain experience in interpreting data or the results of research, shape writing for a particular audience, or practice the type of writing associated with a given profession or discipline.

Opportunities for students to receive written feedback from the instructor and to apply the instructor's feedback to their future writing are built into the writing courses. A writing-intensive course may also include peer review of written work, tutorial assistance, instructor conferences, group writing projects, the use of writing or learning centers, teaching assistant feedback, and classroom discussions of assigned readings about writing.

Courses with the Writing Across the Curriculum attribute satisfy this requirement. Some courses may also have an identifying suffix (W, M, X, or Y) after the course number. The degree audit and what-if reports in LionPATH use attributes, not suffixes, to determine the applicability of a course to a requirement. Both baccalaureate and associate degree students complete 3 credits in this area.

Course Lists

General Education

Foundations and Knowledge Domains

- Arts Courses (p. 3189)
- Health and Wellness Courses (p. 3227)

- Humanities Courses (p. 3228)
- Natural Sciences Courses (p. 3256)
- Quantification Courses (p. 3258)
- Social and Behavioral Sciences Courses (p. 3259)
- Writing and Speaking Courses (p. 3274)

Integrative Studies

- Inter-Domain Courses (p. 3237)

Bachelor of Arts

- Arts Courses (p. 3193)
- Humanities Courses (p. 3199)
- Natural Sciences Courses (p. 3211)
- Quantification Courses (p. 3212)
- World Cultures Courses (p. 3220)
- Social and Behavioral Sciences Courses (p. 3214)
- World Language (12th Unit) Courses (p. 3223)
- World Language (All) Courses (p. 3224)
- Exceeds 12th Unit of World Language Courses (p. 3198)

Other University Requirements

- First-Year Seminar (p. 3226)
- International Cultures (IL) (p. 3241)
- United States Cultures (US) (p. 3264)
- Writing Across the Curriculum (p. 3270)

Arts Courses

These courses have been approved as General Education Arts courses. This course list is updated periodically. Descriptions and learning criteria for General Education Arts courses can be found in the Foundation and Knowledge Domains section (p. 3185).

Code	Title	Credits
AA 100	Introduction to International Arts	3
AA 103	Introduction to Interior Design	3
AA 113N	Sustainable Arts and Design	3
AA 120N	Introduction to Art Therapy	3
AA 121	Design Thinking and Creativity	3
AA 122	Introduction to Graphic Storytelling	3
AA 130N	Creative Arts Therapy Applications	3
AA 160N	The Virtual Transformational Leadership Development Experience	3
AA 193N	The Craft of Comics	3
AA 230N	Arts & Wellness in Communities	3
AED 62	Contemporary African and African American Arts and Culture	3
AED 211W	Interpreting Art Experience: Social-cultural Perspectives	3
AED 225	Diversity, Pedagogy, and Visual Culture	3
AED 233N	Learning in Maker Cultures	1-3
AED 355Q	Show Me Where it Hurts: Healthcare and Creative Inquiry	3
AFAM 126N	The Popular Arts in America: The History of Hip-Hop	3

AFAM 141N	African American Read-In Engaged Learning Experience	1-3	ARTH 207	The Eternal City: Rome from Antiquity to the Present	3
AFAM 207N	Jazz and the African American Experience	3	ARTH 215	Architecture and Art of South and Southeast Asia	3
AFAM 226N	Critical Approaches to Hip-Hop	3	ARTH 220	Chinese Art	3
AFR 335	African Art	3	ARTH 222N	Intersections between Art History and the History of Psychology	3
AMST 150N	Western Pennsylvania Art, Literature, and Culture	3	ARTH 222Q	Intersections between Art History and the History of Psychology	3
AMST 226N	Critical Approaches to Hip-Hop	3	ARTH 224N	Authors and Artists	3
AMST 307N	American Art and Society	3	ARTH 225N	Sexuality and Modern Visual Culture	3
AMST 308N	American Architecture	3	ARTH 280	The Secret Lives of Things: Design and Decorative Arts since the 18th Century	3
AMST 309N	American Material Culture	3	ARTH 292N	Witches and Witchcraft from the Middle Ages to the Present	3
ARCH 100	Architecture and Ideas	3	ARTH 301	Egyptian and Mesopotamian Art	3
ARCH 170N	Introduction to Sustainable Architecture	3	ARTH 302	Early Medieval Art	3
ARCH 210	Ideas Across Time in Architecture and Urbanism	3	ARTH 303	Italian Renaissance Art	3
ARCH 316	Analysis of Human Settlements: Cities	3	ARTH 305	Romanticism and Revolution	3
ART 1	Introduction to the Visual Arts	3	ARTH 306	Color across Cultures: A Global History of Pigments, Dyes, Metals and Other Colorants in Art	3
ART 2	Interactive Learning and Web-Design	3	ARTH 307N	American Art and Society	3
ART 3	Visual Images on the Web	3	ARTH 308N	American Architecture	3
ART 10	Introduction to Visual Studies	3	ARTH 311	Greek and Roman Art	3
ART 17	Introduction to Metal Arts	3	ARTH 312	Romanesque and Gothic Art	3
ART 20	Introduction to Drawing	3	ARTH 325	Impressionism to Surrealism	3
ART 30	Introduction to Sculpture	3	ARTH 326	Art Since 1940	3
ART 40	Introduction to Printmaking	3	ARTH 335	African Art	3
ART 50	Introduction to Painting	3	ASIA 107N	Bollywood: Seeing South Asia Through Cinema	3
ART 51N	Meteorology and Visual Arts: To Know is to See	3	ASIA 215	Architecture and Art of South and Southeast Asia	3
ART 80	Introduction to Ceramics	3	ASTRO 7N	The Artistic Universe	3
ART 102	Beginning Computer Aided Design for Artists	3	ASTRO 141N	Film and Extraterrestrial Life: Science Fact or Fiction?	3
ART 144Z	Climate Change: Arts, Agency and Activism	3	BBH 201N	Health and the Media	3
ART 160N	STEAM: Connecting Art to Science, Technology, Engineering and Mathematics	3	BRASS 100	Trumpet: Secondary	1
ART 165	Artistic Concepts of Space	3	BRASS 101	French Horn: Secondary	1
ART 166	Artistic Concepts of Form	3	BRASS 102	Trombone: Secondary	1
ART 168	The Digital Medium	3	BRASS 103	Euphonium: Secondary	1
ART 170N	Plant and Microbial Art	3	BRASS 104	Tuba: Secondary	1
ART 175N	Intersections Between Art and Psychology	3	BRASS 110	Trumpet: Secondary	2
ART 207N	LGBTQ+ Identity, Culture and The Arts	3	BRASS 111	French Horn: Secondary	2
ARTH 1S	First-Year Seminar in Art History	3	BRASS 112	Trombone: Secondary	2
ARTH 100	Introduction to Art	3	BRASS 113	Euphonium: Secondary	2
ARTH 101N	Introduction to Global Art History	3	BRASS 114	Tuba: Secondary	2
ARTH 105N	Pictures and Power	3	CHNS 121N	Chinese Film and New Media	3
ARTH 107N	Rocks, Minerals, and the History of Art	3	CI 105N	Improv Theater, Curriculum & Instruction	3
ARTH 111	Ancient to Medieval Art	3	CMLIT 112N	Introduction to Global Drama, Theatre, and Performance	3
ARTH 111U	Ancient to Medieval Art	3	CMLIT 128N	The Holocaust in Film and Literature	3
ARTH 112	Renaissance to Modern Art	3	CMLIT 191N	Introduction to Video Game Culture	3
ARTH 112U	Renaissance to Modern Art	3	CMLIT 240Q	Artistic Patronage in Europe	3
ARTH 115N	Arts of Love	3	COMM 20N	Critical Media Literacy	3
ARTH 120	Asian Art and Architecture	3	COMM 101N	Understanding and Enhancing Creativity	3
ARTH 125	Islamic Architecture and Art	3	COMM 150N	The Art of the Cinema	3
ARTH 130	Art of Africa, Oceania, and the Americas	3			
ARTH 140	Introduction to the Art and Architecture of the Mayas, Aztecs, and Incas	3			
ARTH 201	Ancient to Medieval Architecture	3			
ARTH 202N	Renaissance to Modern Architecture	3			
ARTH 204	The Art of Marvel: Italy and Spain 1600 - 1750	3			

COMM 150Q	The Art of the Cinema	3	HDFS 175N	Introduction to Youth Development and Arts-based Social Justice	3
COMM 151N	Film and Extraterrestrial Life: Science Fact or Fiction?	3	HIST 131N	Slavery, the Civil War, and Cinema	3
COMM 175N	Mental Illness and the Movies	3	HIST 240Q	Artistic Patronage in Europe	3
COMM 208N	Visual Representations of the Middle East in the US and Middle East	3	HIST 255N	History of the Book	3
COMM 222N	Social Justice and the Image	3	HIST 292N	Witches and Witchcraft from the Middle Ages to the Present	3
COMM 250	Film History and Theory	3	HORT 169N	Fundamentals of Home Landscaping: An Introduction to Design, Construction, and Maintenance	3
COMM 290N	Cinema and Globalization	3	HUM 100N	Foundations in the Humanities: Understanding the Human Experience	3
COMM 335N	Media, Social Justice, and the Public Humanities	3	HUM 150N	World Mythologies in the Arts	3
DANCE 100	Dance Appreciation	3	HUM 200N	Explorations in the Humanities: The Quest	3
DANCE 225	Introduction to Hip Hop	1.5	HUM 300N	Interpretations in the Humanities	3
DANCE 230	Ballet	1.5	HUM 400N	Expressions in the Humanities	3
DANCE 240	Jazz Dance	1.5	INART 1	The Arts	3
DANCE 250	Tap Dance	1.5	INART 5	Performing Arts	3
DANCE 260	Introduction to Modern Dance	1.5	INART 10	The Popular Arts in America: Mass Media Arts	3
DANCE 261	Beginning Modern Dance I	1.5	INART 55N	History of Electronic Music	3
DANCE 361	Intermediate Modern Dance I	1.5	INART 100	Seminar in Integrative Arts	3
DANCE 362	Intermediate Modern Dance II	1.5	INART 110	The Dramatic Arts in the Mass Media	3
DART 102N	Introduction to 2d Digital Art and Technology	3	INART 115	The Popular Arts in America: Popular Music	3
ENGL 50	Introduction to Creative Writing	3	INART 116	The Popular Arts in America: The History of Rock and Roll-The 1950s	3
ENGL 50H	Introduction to Creative Writing	3	INART 126N	The Popular Arts in America: The History of Hip-Hop	3
ENGL 115N	Arts of Love	3	INART 141N	African American Read-In Engaged Learning Experience	1-3
ENGL 128N	The Holocaust in Film and Literature	3	INART 203Q	Medievalism	3
ENGL 141N	African American Read-In Engaged Learning Experience	1-3	INART 205	Introducing the Beatles	3
ENGL 190Q	Medievalism	3	INART 210	Integrative Approaches to Computer-Aided Music Composition	3
ENGL 193N	The Craft of Comics	3	INART 220	Stand-Up Comedy: A Cultural History	3
ENGL 208N	The Music of the Beatles and American Popular Culture	3	INART 226N	Critical Approaches to Hip-Hop	3
ENGL 212	Introduction to Fiction Writing	3	INART 258A	Fundamentals of Digital Audio	3
ENGL 213	Introduction to Poetry Writing	3	INART 258B	Fundamentals of Digital Audio	1
ENGL 214	Introduction to Creative Nonfiction Writing	3	IST 130	Emerging Technologies in Popular Culture	3
ENGL 223N	Shakespeare: Page, Stage, and Screen	3	IT 240Q	Artistic Patronage in Europe	3
ENGL 224N	Authors and Artists	3	JAPNS 121N	Japanese Film and New Media	3
ENGL 225N	Sexuality and Modern Visual Culture	3	JAPNS 121Q	Japanese Film and New Media	3
ENGL 237N	Reading and Writing Documentary Poetry	3	JST 128N	The Holocaust in Film and Literature	3
ENGL 260	Theory & Practice of Screenwriting	3	KEYBD 100	Piano: Secondary	1
ENGR 120N	Design Thinking and 3D Printing in Engineering and Healthcare	3	KEYBD 110	Piano: Secondary	2
FR 138N	French Culture Through Film	3	KINES 405N	Bicycling Culture and Urban Design	3
FRNAR 100	Introduction to Forensic Photography	3	LA 335N	Media, Social Justice, and the Public Humanities	3
GAME 160N	Introduction to Video Game Culture	3	LARCH 60	Cultural History of Designed Places	3
GAME 180N	The Art and Science of Virtual Worlds	3	LARCH 65	Built Environment and Culture: Examining the Modern City	3
GAME 220	Introduction to Game Design	3	LARCH 405N	Bicycling Culture and Urban Design	3
GD 100	Introduction to Graphic Design	3	LDT 110N	Making with Art and Learning Technologies	3
GD 110	User Experience Design: Concepts and Principles	3	LHR 160N	The Virtual Transformational Leadership Development Experience	3
GD 115N	Visualizing Information	3	LLED 215N	Children's Picture Books as Multimodal Texts	3
GD 210	User Interface Design and Prototyping	3			
GEOSC 107N	Rocks, Minerals, and the History of Art	3			
GER 128N	The Holocaust in Film and Literature	3			
GER 189N	German Film	3			

METEO 51N	Meteorology and Visual Arts: To Know is to See	3	PSYCH 246N	Human Factors in Design & Art	3
MUSIC 4	Film Music	3	RUS 101N	Russian Cinema	3
MUSIC 5	An Introduction to Western Music	3	SC 60N	Art in the Natural World	3
MUSIC 7	Evolution of Jazz	3	SC 103N	When Data Meets Design	3
MUSIC 8	Rudiments of Music	3	SC 145N	The Visual Body	3
MUSIC 9	Introduction to World Musics	3	SOC 20N	Critical Media Literacy	3
MUSIC 11	Under the Hood: How Classical Music Works	3	SOC 208N	Visual Representations of the Middle East in the US and Middle East	3
MUSIC 50	Beginning Piano: Non-Music Major	1	SOC 290N	Cinema and Globalization	3
MUSIC 51	Intermediate Class Piano: Non-Music Major	1	SPAN 269N	Theater and Performance	3
MUSIC 52	Voice Class: Non-Music Major	1	STRNG 100	Violin: Secondary	1
MUSIC 53	Class Voice Practicum	1	STRNG 101	Viola: Secondary	1
MUSIC 54	Beginning Class Guitar: Non-Music Major	1	STRNG 102	Violoncello: Secondary	1
MUSIC 77	Philharmonic Orchestra	1	STRNG 103	Double Bass: Secondary	1
MUSIC 78	Symphonic Wind Ensemble	1	STRNG 104	Guitar: Secondary	1
MUSIC 79	Pep Band	1	STRNG 105	Harp: Secondary	1
MUSIC 80	Symphonic Band	1	STRNG 110	Violin: Secondary	2
MUSIC 81	Marching Blue Band	1	STRNG 111	Viola: Secondary	2
MUSIC 82	Concert Band	1	STRNG 112	Violoncello: Secondary	2
MUSIC 83	Campus Band	1	STRNG 113	Double Bass: Secondary	2
MUSIC 84	Jazz Ensemble	1	STRNG 114	Guitar: Secondary	2
MUSIC 86	Percussion Ensemble	1	STRNG 115	Harp: Secondary	2
MUSIC 88	Campus Choir	1	THEA 100	The Art of the Theatre	3
MUSIC 88H	Campus Choir	1	THEA 101N	Performance and Society	3
MUSIC 89	University Choir	1	THEA 102	Fundamentals of Acting	3
MUSIC 90	Glee Club	1	THEA 105	Introduction to Theatre	3
MUSIC 91	Oriana Singers	1	THEA 111	The Fundamentals of Singing and Vocal Production	3
MUSIC 92	Chamber Music for Voices	1	THEA 112	Introduction to Musical Theatre	3
MUSIC 93	Essence of Joy	1	THEA 189	Principles of Stagecraft, A Look Behind the Curtain	1.5
MUSIC 103	Concert Choir	1	THEA 207	Gender and Theatre	3
MUSIC 104	Chamber Singers	1	THEA 282	Production Practicum	3-6
MUSIC 109	The Music of the Beatles	3	THEA 403	20th Century Theatre History	3
MUSIC 189	Studio Ensemble	1	THEA 404	Twenty-first Century Theatre and Drama	3
MUSIC 190	Chamber Music for Strings	1	VOICE 100	Voice: Secondary	1
MUSIC 191	Chamber Music for Woodwinds	1	VOICE 110	Voice: Secondary	2
MUSIC 192	Chamber Music for Brass	1	WMNST 106N	Representing Women and Gender in Literature, Art and Popular Cultures	3
MUSIC 207N	Jazz and the African American Experience	3	WMNST 106Q	Representing Women and Gender in Literature, Art and Popular Cultures	3
MUSIC 209N	The Music of the Beatles and American Popular Culture	3	WMNST 175N	Fashion, Gender, and Identity	3
MUSIC 215	The Craft of Singing	3	WMNST 207N	LGBTQ+ Identity, Culture and The Arts	3
MUSIC 261	Survey of Music History I	3	WMNST 225N	Sexuality and Modern Visual Culture	3
MUSIC 262	Survey of Music History II	3	WMNST 240Q	Artistic Patronage in Europe	3
PERCN 100	Percussion: Secondary	1	WWNDS 100	Flute: Secondary	1
PERCN 110	Percussion: Secondary	2	WWNDS 101	Oboe: Secondary	1
PHIL 136N	Art and Philosophy in Ancient Greece	3	WWNDS 102	Clarinet: Secondary	1
PHOTO 100	Introduction to Photography	3	WWNDS 103	Bassoon: Secondary	1
PHOTO 101	Culture of Photography	3	WWNDS 104	Saxophone: Secondary	1
PHOTO 202	Fundamentals of Professional Photography	3	WWNDS 110	Flute: Secondary	2
PHOTO 321N	Flow Visualization: The Art and Physics of Fluid Motion	3	WWNDS 111	Oboe: Secondary	2
PPEM 170N	Plant and Microbial Art	3	WWNDS 112	Clarinet: Secondary	2
PSYCH 109N	The Psychology of Artistic Creativity	3			
PSYCH 175N	Mental Illness and the Movies	3			

WWNDS 113	Bassoon: Secondary	2
WWNDS 114	Saxophone: Secondary	2

B.A. Degree Requirements: Arts Courses

These courses have been approved as Bachelor of Arts Degree Requirements courses. This course list is updated periodically. More information about the Bachelor of Arts Degree Requirements can be found in the Academic Information section.

Code	Title	Credits
AA 100	Introduction to International Arts	3
AA 121	Design Thinking and Creativity	3
AA 122	Introduction to Graphic Storytelling	3
AA 160N	The Virtual Transformational Leadership Development Experience	3
AA 322	Arts Marketing	3
AA 401	International Arts Minor Final Project	1-3
AED 62	Contemporary African and African American Arts and Culture	3
AED 211W	Interpreting Art Experience: Social-cultural Perspectives	3
AED 225	Diversity, Pedagogy, and Visual Culture	3
AFAM 207N	Jazz and the African American Experience	3
AFAM 208	Workshop: Theatre in Diverse Cultures	3
AFAM 412	African American Theatre	3
AFR 335	African Art	3
AFR 446	Topics in African Art	3
AFR 447	Topics in the Art of the African Diaspora	3
AMST 307N	American Art and Society	3
AMST 308N	American Architecture	3
AMST 309N	American Material Culture	3
APLNG 402	Language, Culture and Cognition in East Asian Context	3
ARAB 401	Advanced Language & Cultures I	3
ARAB 402	Advanced Language & Cultures II	3
ARCH 170N	Introduction to Sustainable Architecture	3
ARCH 210	Ideas Across Time in Architecture and Urbanism	3
ARCH 316	Analysis of Human Settlements: Cities	3
ART 1	Introduction to the Visual Arts	3
ART 2	Interactive Learning and Web-Design	3
ART 3	Visual Images on the Web	3
ART 10	Introduction to Visual Studies	3
ART 17	Introduction to Metal Arts	3
ART 20	Introduction to Drawing	3
ART 30	Introduction to Sculpture	3
ART 40	Introduction to Printmaking	3
ART 50	Introduction to Painting	3
ART 80	Introduction to Ceramics	3
ART 98	Special Topics	1-9
ART 100	Concepts and Creation in the Visual Arts	3
ART 101	Introduction to Web Design	3
ART 111	Ideas as Objects	3

ART 122Y	Commentary on Art	3
ART 165	Artistic Concepts of Space	3
ART 166	Artistic Concepts of Form	3
ART 168	The Digital Medium	3
ART 198	Special Topics	1-9
ART 199	Foreign Studies--Art	1-12
ART 207N	LGBTQ+ Identity, Culture and The Arts	3
ART 211	Introduction to Digital Art and Design Criticism	3
ART 211Y	Introduction to Digital Art and Design Criticism	3
ART 220	Figure Drawing	3
ART 223	Drawing: Techniques, Materials, and Tools	3
ART 230	Beginning Sculpture	3
ART 240	Beginning Printmaking	3
ART 250	Beginning Oil Painting	3
ART 280	Beginning Ceramics	3
ART 290	Beginning Photography	3
ART 296	Independent Studies	1-18
ART 297	Special Topics	1-9
ART 299	Foreign Study--Art	1-12
ART 320	Advanced Drawing	4
ART 330	Intermediate Sculpture: Metal Fabrication and Mixed-media	4
ART 331	Intermediate Sculpture: Metal Casting and Mold-Making	4
ART 340	Printmaking	4
ART 341	Intermediate Printmaking: Intaglio/Relief	4
ART 342	Intermediate Printmaking: Lithography/Serigraphy	4
ART 343	New Media Printmaking	4
ART 350	Intermediate Painting	4
ART 380	Intermediate Throwing	4
ART 381	Intermediate Handbuilding	4
ART 390	Introduction to Photochemical Photography	4
ART 397	Special Topics	1-9
ART 399	Foreign Study--Art	1-12
ART 409	Museum Studies	3
ART 411	Seminar in Contemporary Art	3
ART 413	Performance Art	3
ART 421	Drawing	4
ART 422	Advanced Figure Drawing	4
ART 430	Advanced Sculpture	4
ART 431	Installation Art	4
ART 438	The Body: Issues and Objects	4
ART 440	Advanced Printmaking	4
ART 446	Artists Books	4
ART 450	Advanced Painting	4
ART 455	Advanced Painting Critique	4
ART 466W	Individual Approaches II	3
ART 476	History and Theory of Digital Art	3
ART 480	Advanced Ceramic Arts	4
ART 490	View Camera Photography	4
ART 495	Internship	1-18
ART 496	Independent Studies	1-18

ART 496H	Independent Studies	1-18	ARTH 410	Taste and Criticism in Art	3
ART 497	Special Topics	1-9	ARTH 411	Roman Art	3
ART 499	Foreign Studies--Art	1-12	ARTH 412	The Gothic Cathedral	3
ARTH 1S	First-Year Seminar in Art History	3	ARTH 415	The Skyscraper	3
ARTH 100	Introduction to Art	3	ARTH 416	Studies in American Art	3
ARTH 101N	Introduction to Global Art History	3	ARTH 420	Russian Architecture	3
ARTH 105N	Pictures and Power	3	ARTH 422	Studies in Medieval Sculpture	3
ARTH 111	Ancient to Medieval Art	3	ARTH 423	Studies in Italian Renaissance Art	3
ARTH 111U	Ancient to Medieval Art	3	ARTH 426	Iconoclasm: Powerful Images and their Destruction	3
ARTH 112	Renaissance to Modern Art	3	ARTH 430	British Art in Context	3
ARTH 112U	Renaissance to Modern Art	3	ARTH 435	Studies in Modern Art	3
ARTH 120	Asian Art and Architecture	3	ARTH 440	Monuments of Asia	3-9
ARTH 125	Islamic Architecture and Art	3	ARTH 442	Late Antique and Early Christian Art	3
ARTH 130	Art of Africa, Oceania, and the Americas	3	ARTH 445	Oceanic Art	3
ARTH 140	Introduction to the Art and Architecture of the Mayas, Aztecs, and Incas	3	ARTH 446	Topics in African Art	3
ARTH 197	Special Topics	1-9	ARTH 447	Topics in the Art of the African Diaspora	3
ARTH 199	Foreign Study--Art History	1-12	ARTH 450	The History of Photography	3
ARTH 201	Ancient to Medieval Architecture	3	ARTH 452	Byzantine Art	3
ARTH 202N	Renaissance to Modern Architecture	3	ARTH 456	Renaissance and Baroque Palaces	3
ARTH 204	The Art of Marvel: Italy and Spain 1600 - 1750	3	ARTH 460	Art and Empire: Aztec, Inca and Spanish	3
ARTH 207	The Eternal City: Rome from Antiquity to the Present	3	ARTH 462	Studies in Latin American Art	3
ARTH 215	Architecture and Art of South and Southeast Asia	3	ARTH 464	French Art and Architecture, 1589	3
ARTH 220	Chinese Art	3	ARTH 470	Contemporary Art	3
ARTH 226	The Comic Book: A History of Sequential Art	3	ARTH 475	Contemporary Women Artists	3
ARTH 280	The Secret Lives of Things: Design and Decorative Arts since the 18th Century	3	ARTH 476	History and Theory of Digital Art	3
ARTH 296	Independent Studies	1-18	ARTH 496	Independent Studies	1-18
ARTH 297	Special Topics	1-9	ARTH 496H	Independent Studies - Honors	1-18
ARTH 299	Foreign Study--Art History	1-12	ARTH 497	Special Topics	1-9
ARTH 301	Egyptian and Mesopotamian Art	3	ARTH 499	Foreign Study--Art History	1-12
ARTH 302	Early Medieval Art	3	ASIA 107N	Bollywood: Seeing South Asia Through Cinema	3
ARTH 303	Italian Renaissance Art	3	ASIA 215	Architecture and Art of South and Southeast Asia	3
ARTH 305	Romanticism and Revolution	3	ASIA 402	Language, Culture and Cognition in East Asian Context	3
ARTH 306	Color across Cultures: A Global History of Pigments, Dyes, Metals and Other Colorants in Art	3	ASIA 440	Monuments of Asia	3-9
ARTH 307N	American Art and Society	3	BRASS 100	Trumpet: Secondary	1
ARTH 308N	American Architecture	3	BRASS 101	French Horn: Secondary	1
ARTH 311	Greek and Roman Art	3	BRASS 102	Trombone: Secondary	1
ARTH 312	Romanesque and Gothic Art	3	BRASS 103	Euphonium: Secondary	1
ARTH 313	Northern Renaissance Art	3	BRASS 104	Tuba: Secondary	1
ARTH 314	Art in the Age of Rembrandt	3	BRASS 110	Trumpet: Secondary	2
ARTH 325	Impressionism to Surrealism	3	BRASS 111	French Horn: Secondary	2
ARTH 326	Art Since 1940	3	BRASS 112	Trombone: Secondary	2
ARTH 335	African Art	3	BRASS 113	Euphonium: Secondary	2
ARTH 350W	Undergraduate Seminar in the History of Art	3	BRASS 114	Tuba: Secondary	2
ARTH 397	Special Topics	1-9	CMLIT 128N	The Holocaust in Film and Literature	3
ARTH 399	Foreign Study--Art History	1-12	CMLIT 191N	Introduction to Video Game Culture	3
ARTH 401	Greek Art and Architecture	3-9	COMM 150N	The Art of the Cinema	3
ARTH 402	The Illuminated Manuscript	3	COMM 150Q	The Art of the Cinema	3
ARTH 405	Pioneers of Modern Architecture	3	COMM 250	Film History and Theory	3
ARTH 409	Museum Studies	3	COMM 431	Topics in Television Culture and Communication	3
			DANCE 100	Dance Appreciation	3

DANCE 225	Introduction to Hip Hop	1.5	INART 258A	Fundamentals of Digital Audio	3
DANCE 230	Ballet	1.5	INART 258B	Fundamentals of Digital Audio	1
DANCE 240	Jazz Dance	1.5	INART 410	Early Pennsylvania Decorative Arts and Furniture	3
DANCE 250	Tap Dance	1.5	INART 415	Nineteenth Century Pennsylvania Architecture and Restoration	3
DANCE 260	Introduction to Modern Dance	1.5	JAPNS 121N	Japanese Film and New Media	3
DANCE 261	Beginning Modern Dance I	1.5	JAPNS 121Q	Japanese Film and New Media	3
DANCE 361	Intermediate Modern Dance I	1.5	JST 128N	The Holocaust in Film and Literature	3
DANCE 362	Intermediate Modern Dance II	1.5	KEYBD 100	Piano: Secondary	1
DANCE 383	Performance Devising	3	KEYBD 101	Organ: Secondary	1
DART 102N	Introduction to 2d Digital Art and Technology	3	KEYBD 110	Piano: Secondary	2
DART 203	3D Digital Art & Design Fundamentals	3	KEYBD 111	Organ: Secondary	2
DART 205	Creative Coding: Scripting for Art and Design	3	LARCH 60	Cultural History of Designed Places	3
DART 303	3D Studio	4	LARCH 65	Built Environment and Culture: Examining the Modern City	3
DART 314	Video Art and Time-Based Media	4	LHR 160N	The Virtual Transformational Leadership Development Experience	3
DART 406	Advanced Web and Multimedia Publishing Studio	4	MUSIC 4	Film Music	3
DART 410	Integrating Media: Convergence in Practice	4	MUSIC 5	An Introduction to Western Music	3
ENGL 50	Introduction to Creative Writing	3	MUSIC 7	Evolution of Jazz	3
ENGL 50H	Introduction to Creative Writing	3	MUSIC 8	Rudiments of Music	3
ENGL 128N	The Holocaust in Film and Literature	3	MUSIC 8H	Rudiments of Music	3
ENGL 214	Introduction to Creative Nonfiction Writing	3	MUSIC 9	Introduction to World Musics	3
ENGL 260	Theory & Practice of Screenwriting	3	MUSIC 11	Under the Hood: How Classical Music Works	3
FR 138N	French Culture Through Film	3	MUSIC 40	First-Year Seminar in Music Education	1
GAME 160N	Introduction to Video Game Culture	3	MUSIC 50	Beginning Piano: Non-Music Major	1
GD 300	Design Photography	4	MUSIC 51	Intermediate Class Piano: Non-Music Major	1
GD 302	Applied Communication	4	MUSIC 52	Voice Class: Non-Music Major	1
GD 304	Practical Communications	3	MUSIC 53	Class Voice Practicum	1
GD 310	Studio Apprenticeship	3-6	MUSIC 54	Beginning Class Guitar: Non-Music Major	1
GD 400	Time and Sequence	4	MUSIC 76	Chamber Orchestra	1
GD 401	Package Design	3	MUSIC 77	Philharmonic Orchestra	1
GD 402	Senior Problems	4	MUSIC 78	Symphonic Wind Ensemble	1
GER 128N	The Holocaust in Film and Literature	3	MUSIC 79	Pep Band	1
HIST 131N	Slavery, the Civil War, and Cinema	3	MUSIC 80	Symphonic Band	1
HIST 255N	History of the Book	3	MUSIC 81	Marching Blue Band	1
HIST 470	Modern Bondage: Slavery in the Americas, 1492-1888	3	MUSIC 82	Concert Band	1
INART 1	The Arts	3	MUSIC 83	Campus Band	1
INART 3	Reception of the Arts	3	MUSIC 84	Jazz Ensemble	1
INART 5	Performing Arts	3	MUSIC 86	Percussion Ensemble	1
INART 10	The Popular Arts in America: Mass Media Arts	3	MUSIC 87	Mallet Ensemble	1
INART 15	The Popular Arts in America: Performing Arts	3	MUSIC 88	Campus Choir	1
INART 55N	History of Electronic Music	3	MUSIC 88H	Campus Choir	1
INART 100	Seminar in Integrative Arts	3	MUSIC 89	University Choir	1
INART 100W	Seminar in Integrative Arts	3	MUSIC 90	Glee Club	1
INART 110	The Dramatic Arts in the Mass Media	3	MUSIC 91	Oriana Singers	1
INART 115	The Popular Arts in America: Popular Music	3	MUSIC 92	Chamber Music for Voices	1
INART 116	The Popular Arts in America: The History of Rock and Roll-The 1950s	3	MUSIC 93	Essence of Joy	1
INART 125	The Popular Arts in America: The History of Rock and Roll - Punk Rock	3	MUSIC 94	Women's Chorale	1
INART 200	The Popular Arts in America: Elvis Presley - The King of Rock and Roll	3	MUSIC 100	Campus Orchestra	1
INART 210	Integrative Approaches to Computer-Aided Music Composition	3	MUSIC 101	Music Common Hour	1
			MUSIC 103	Concert Choir	1
			MUSIC 104	Chamber Singers	1

MUSIC 106	Early Music Ensemble	1	MUSIC 366	Intermediate Conducting	1
MUSIC 109	The Music of the Beatles	3	MUSIC 373	Composition V	3
MUSIC 110	Keyboard Skills I: Music Major	1	MUSIC 374	Composition VI	3
MUSIC 112	Guitar Techniques I	0.5	MUSIC 387	Language Diction for Singers: Italian and English	1
MUSIC 113	Music Theatre—Class Voice I	1	MUSIC 388	Language Diction for Singers: French	1
MUSIC 114	Music Theatre—Class Voice II	1	MUSIC 389	Language Diction for Singers: German	1
MUSIC 115	Beginning Voice Class	1	MUSIC 395	**SPECIAL TOPICS**	0.5-1
MUSIC 116	Intermediate Voice Class	1	MUSIC 395A	Cohort Practicum I	1
MUSIC 119	First-Year Music Seminar	2	MUSIC 395B	Cohort Practicum II	1
MUSIC 121	Basic Musicianship I	1	MUSIC 395C	Practicum in Music Teaching	1-5
MUSIC 122	Basic Musicianship II	1	MUSIC 400	Solo Recital	1
MUSIC 129S	First-Year Performance Seminar	3	MUSIC 412	Jazz Pedagogy	2
MUSIC 131	Music Theory I	2	MUSIC 414	String Pedagogy	1-2
MUSIC 132	Music Theory II	2	MUSIC 415	Woodwind Pedagogy	1-2
MUSIC 151	Brass Techniques I	1	MUSIC 416	Brass Pedagogy	1-2
MUSIC 152	Percussion Techniques I	1	MUSIC 417	Percussion Pedagogy	1-2
MUSIC 153	String Techniques I	1	MUSIC 418	Voice Pedagogy	2
MUSIC 154	Woodwind Techniques I	1	MUSIC 419	Piano Pedagogy I	2
MUSIC 170	Keyboard Skills II: Music Major	1	MUSIC 421	Jazz Combo Class	1
MUSIC 173	First-Year Composition Seminar	2	MUSIC 422	Jazz Harmony and Arranging	3
MUSIC 174	Composition II	2	MUSIC 424	Piano Pedagogy II	2
MUSIC 181	Jazz Improvisation I	2	MUSIC 425	Advanced Voice Pedagogy	2
MUSIC 182	Jazz Improvisation II	2	MUSIC 429	Aural Review for Graduate Students	1
MUSIC 188	Chamber Music for Mixed Ensemble	1	MUSIC 431	Advanced Tonal Analysis	2-3
MUSIC 189	Studio Ensemble	1	MUSIC 432	Graduate Review of Twentieth-Century Analysis	2-3
MUSIC 190	Chamber Music for Strings	1	MUSIC 433	Advanced Analysis of Twentieth-Century Music	2-3
MUSIC 191	Chamber Music for Woodwinds	1	MUSIC 435	Score Reading	1
MUSIC 192	Chamber Music for Brass	1	MUSIC 442W	Emphasis in Secondary General Music	3
MUSIC 193	Sonata Duos	1	MUSIC 450	Teaching Marching Band	2
MUSIC 194	Studio and Recital Accompanying	1	MUSIC 452	Computer Music Synthesis	3
MUSIC 207N	Jazz and the African American Experience	3	MUSIC 453	Recording Studio Training	1
MUSIC 210	Keyboard Skills III: Music Major	1	MUSIC 455	Technology in Music	1-3
MUSIC 215	The Craft of Singing	3	MUSIC 458	Electronic Music Composition I	3
MUSIC 221	Basic Musicianship III	1	MUSIC 461W	Studies in Music History: Antiquity to 1600	3
MUSIC 222	Basic Musicianship IV	1	MUSIC 462W	Studies in Music History: 1550-1750	3
MUSIC 231	Music Theory III	2	MUSIC 463W	Studies in Music History: 1700-1900	3
MUSIC 231H	Music Theory III	2	MUSIC 464W	Studies in Music History: 1850-Present	3
MUSIC 240	Introduction to Music Education	2	MUSIC 465	Advanced Conducting I	2
MUSIC 241	Music for Classroom Teachers	3	MUSIC 466	Advanced Conducting II	2
MUSIC 261	Survey of Music History I	3	MUSIC 467	Opera Workshop	1-3
MUSIC 262	Survey of Music History II	3	MUSIC 471	Structural and Sixteenth-Century Counterpoint	2
MUSIC 266	Basic Conducting	1	MUSIC 472	Eighteenth-Century Counterpoint	2
MUSIC 267	Techniques of Composition	2	MUSIC 473	Composition VII	3
MUSIC 270	Keyboard Skills IV: Music Major	1	MUSIC 474	Composition VIII	3
MUSIC 273	Composition III	2	MUSIC 476W	B.A. Senior Project	3
MUSIC 274	Composition IV	2	MUSIC 478	Vocal Literature	3
MUSIC 295A	Early Field Experience in Music Education	1	MUSIC 480	Opera Literature	3
MUSIC 296	Independent Studies	1-18	MUSIC 481	Keyboard Literature	3
MUSIC 297	Special Topics	1-9	MUSIC 483	Seminar in Voice Pedagogy	2
MUSIC 331	Tonal Analysis	2	MUSIC 485	Chamber Music Literature	3
MUSIC 332	Analysis of Twentieth Century Music	2	MUSIC 487	Orchestral Literature	3
MUSIC 336	Orchestration	2	MUSIC 489	Studio and Recital Accompaniment	1

MUSIC 493	Sonata Duos	1	THEA 207	Gender and Theatre	3
MUSIC 494	Research Topics	1-3	THEA 208	Workshop: Theatre in Diverse Cultures	3
MUSIC 494H	Research Topics	1-3	THEA 211	Dramaturgy	3
MUSIC 495	Internship	1-18	THEA 212	Musical Theatre Theory III	2
MUSIC 495A	Student Teaching: General Music	5-7	THEA 214	Musical Theatre Theory IV	2
MUSIC 495B	Student Teaching: Choral Music	5-7	THEA 220	Acting II	3
MUSIC 495C	Student Teaching: Instrumental Music	5-7	THEA 221	Acting III	3
MUSIC 496	Independent Studies	1-18	THEA 222	Acting Laboratory	2
MUSIC 496H	Independent Studies - Honors	1-18	THEA 223	Musical Theatre Performance I	2
MUSIC 497	Special Topics	1-9	THEA 224	Musical Theatre Performance II	2
PERCN 100	Percussion: Secondary	1	THEA 251	Theatre Drafting Techniques	2
PERCN 110	Percussion: Secondary	2	THEA 252	Design Presentation Techniques	1
PHOTO 100	Introduction to Photography	3	THEA 253	Scene Painting	1
PHOTO 202	Fundamentals of Professional Photography	3	THEA 260	Introduction to Costume Design	3
PHOTO 400	Digital Photography in the Studio	4	THEA 270	Introduction to Lighting Design	3
PHOTO 402	Photographic Narratives	4	THEA 282	Production Practicum	3-6
PHOTO 402H	Photographic Narratives	4	THEA 289	Theatre Production Practicum	1
PHOTO 405	Creative Projects in Photography	4	THEA 296	Independent Studies	1-18
PLSC 267N	Government and Politics of the Middle East	3	THEA 297	Special Topics	1-9
RUS 101N	Russian Cinema	3	THEA 298	Special Topics	1-9
SPAN 269N	Theater and Performance	3	THEA 322	Voice and Speech I	2
STRNG 100	Violin: Secondary	1	THEA 324	Movement for Actors I	2
STRNG 101	Viola: Secondary	1	THEA 325	Movement for Actors II	2
STRNG 102	Violoncello: Secondary	1	THEA 326	Music Theatre Performance Workshop	1
STRNG 103	Double Bass: Secondary	1	THEA 327	Musical Theatre Auditions	2
STRNG 104	Guitar: Secondary	1	THEA 400	Advanced Theatre Projects	1-6
STRNG 105	Harp: Secondary	1	THEA 401	Theatre History I: Ancient to 1700	3
STRNG 110	Violin: Secondary	2	THEA 402	Theatre History II: From 1700 to Present	3
STRNG 111	Viola: Secondary	2	THEA 405W	Theatre History: American Theatre	3
STRNG 112	Violoncello: Secondary	2	THEA 407W	Women and Theatre	3
STRNG 113	Double Bass: Secondary	2	THEA 408W	History of American Musical Theatre	3
STRNG 114	Guitar: Secondary	2	THEA 410	Play Analysis	3
STRNG 115	Harp: Secondary	2	THEA 412	African American Theatre	3
THEA 1S	First-Year Seminar: Theatre Production Practices	1	THEA 420	Scene Study I	3
THEA 80	Pit Orchestra	1-3	THEA 423	Musical Theatre Performance III	2
THEA 100	The Art of the Theatre	3	THEA 424	Musical Theatre Performance IV	2
THEA 101N	Performance and Society	3	THEA 429	Theatre Performance Practicum	1-3
THEA 102	Fundamentals of Acting	3	THEA 434	Introduction to Directing	3
THEA 103	Fundamentals of Directing	3	THEA 434H	Introduction to Directing	3
THEA 104	Fundamentals of Theatre Production	3	THEA 436	Directorial Processes	3
THEA 105	Introduction to Theatre	3	THEA 437	Artistic Staff for Production	1-6
THEA 105H	Introduction to Theatre	3	THEA 440	Principles of Playwriting	3
THEA 106	Theatre Foundations	3	THEA 450	Advanced Topics in Scene Design	3
THEA 112	Introduction to Musical Theatre	3	THEA 451	Drafting, Drawing, and Painting for the Theatre	1
THEA 113	Musical Theatre Theory I	2	THEA 453	Advanced Scene Painting	1-3
THEA 114	Music Theatre: Form and Analysis	3	THEA 454	Period Research for the Theatre	3
THEA 120	Acting I	3	THEA 459	Theatre Portfolio & Business Practices II	1
THEA 146	Basic Theatrical Makeup	2	THEA 460	Advanced Topics in Costume Design	3
THEA 150	Fundamentals of Design for the Theatre	3	THEA 461	Advanced Topics in Costume Construction and Technology	3
THEA 189	Principles of Stagecraft, A Look Behind the Curtain	1.5	THEA 464	History of Fashion	3
THEA 199	Foreign Studies--Theatre Arts	1-12	THEA 465	History of Fashion II	3
THEA 206	Critical Theory for Performance	3			

THEA 470	Advanced Topics in Lighting Design	3	FR 402Y	Advanced Grammar and Writing	3
THEA 477	Lighting Design for Production	1	FR 410	French Press	3
THEA 480B	Technical Production IV	3	GER 199	Foreign Study--German	3-6
THEA 481	Stage and Production Management	3	GER 201	Conversation and Composition	4
THEA 482	Technical Production - Rigging	3	GER 301	Intermediate Speaking and Listening	3
THEA 486	Stage Management for Production	1-9	GER 302W	Intermediate Composition and Grammar	3
THEA 489	Theatre Production Practicum	1	GER 344	Intermediate German Culture	3
THEA 495	Internship Practicum	1-6	GREEK 420	Greek Prose Authors	3-12
THEA 496	Independent Studies	1-18	GREEK 425	Greek Historians	3-6
THEA 496H	Independent Studies - Honors	1-18	GREEK 430	Greek Poetry	3-6
THEA 497	Special Topics	1-9	GREEK 440	Greek Drama	3-6
THEA 498	Special Topics	1-9	HEBR 401	Advanced Hebrew--Conversation Emphasis	3-6
VOICE 100	Voice: Secondary	1	HEBR 402	Advanced Hebrew--Reading Emphasis	3-6
VOICE 110	Voice: Secondary	2	IT 301	Advancing Italian in Context	3
WMNST 106Q	Representing Women and Gender in Literature, Art and Popular Cultures	3	IT 415	Dante	3
WMNST 207N	LGBTQ+ Identity, Culture and The Arts	3	IT 422	Topics in the Italian Renaissance	3
WMNST 407W	Women and Theatre	3	IT 450	Nineteenth-Century Italian Literature	3
WWNDS 100	Flute: Secondary	1	IT 460	Twentieth-Century Italian Literature	3
WWNDS 101	Oboe: Secondary	1	JAPNS 110	Level Two Japanese B	4
WWNDS 102	Clarinet: Secondary	1	JAPNS 401	Level Three Japanese A	4
WWNDS 103	Bassoon: Secondary	1	JAPNS 402	Level Three Japanese B	4
WWNDS 104	Saxophone: Secondary	1	JAPNS 452	Contemporary Japan: Cultures, Lifestyles, Trends	3
WWNDS 110	Flute: Secondary	2	JAPNS 453	Japanese Film	3
WWNDS 111	Oboe: Secondary	2	JAPNS 454	Japanese Literature	3
WWNDS 112	Clarinet: Secondary	2	KOR 403Y	Level 4 Korean A	4
WWNDS 113	Bassoon: Secondary	2	KOR 404	Level 4 Korean B	4
WWNDS 114	Saxophone: Secondary	2	KOR 450	Korean Cultures in Global Contexts	3
			KOR 451	Food and Foodways in Korea	3
			KOR 452	Korean Language and Culture	3
			LATIN 402	Republican Literature	3-12
			LATIN 403	Augustan Age Literature	3-12
			LATIN 404	Silver Age Literature	3-12
			PORT 123	Portuguese for Romance-language Speakers	2-3
			PORT 200	Advanced Portuguese via the Arts	3
			PORT 365	Imagining Brazilian Cities	3
			PORT 405	Advanced Composition and Conversation	3
			RUS 214	Intermediate Russian III	4
			RUS 304	Readings in Russian III	3
			RUS 305	Advanced Russian Conversation	3
			RUS 401	Advanced Russian I	4
			RUS 410	Heritage Russian	4
			RUS 412	Russian Translation	3
			SPAN 100	Intermediate Grammar and Composition	3
			SPAN 100H	Intermediate Grammar and Composition	3
			SPAN 110	Intermediate Conversation	3
			SPAN 200	Intensive Grammar and Composition	3
			SPAN 200A	Intensive Grammar and Composition for Spanish Bilinguals	3
			SPAN 210	Readings in Iberian Civilization	3
			SPAN 220	Readings in Ibero-American Civilization	3
			SPAN 269N	Theater and Performance	3
ARAB 110	Arab Language, Cultures, and Current Topics	3			
CHNS 110	Level Two Chinese B	4			
CHNS 401	Level Three Chinese A	4			
CHNS 402	Level Three Chinese B	4			
CHNS 454	Introduction to Classical Chinese	3			
CHNS 455	Masterpieces of Traditional Chinese Literature	3			
FR 111	Elementary French	6			
FR 112	Intermediate French	6			
FR 199	Foreign Study--French	1-12			
FR 201	Oral Communication and Reading Comprehension	3			
FR 202	Grammar and Composition	3			
FR 299	Foreign Study--French	1-12			
FR 351	French and Francophone Literature I	3			
FR 352	French and Francophone Literature II	3			
FR 401	Advanced Oral Communication	3			

B.A. Degree Requirements: Exceeds 12th Unit of World Language

These courses have been approved as Bachelor of Arts Degree Requirements courses. This course list is updated periodically. More information about the Bachelor of Arts Degree Requirements can be found in the Academic Information section.

SPAN 300	Advanced Grammar and Composition Through Reading	3
SPAN 353	Topics in the Cultures of Spain	3
SPAN 355	Topics in the Cultures of Latin America	3
SPAN 356	Topics in the Cultures of the Americas	3
SPAN 410	Advanced Oral Expression and Communication	3
SPAN 411	The ABCs of Bilingualism: Acquisition, Brain, and Community	3
SPAN 439	Don Quijote	3
SPAN 472	The Contemporary Spanish American Novel	3
SPAN 476	Masterpieces of Spanish American Literature	3
SPAN 490	Masterpieces of Spanish Prose	3
SPAN 491	Masterpieces of Spanish Drama and Poetry	3

B.A. Degree Requirements: Humanities Courses

These courses have been approved as Bachelor of Arts Degree Requirements courses. This course list is updated periodically. More information about the Bachelor of Arts Degree Requirements can be found in the Academic Information section.

Code	Title	Credits
AAS 100N	Introduction to Asian American Studies	3
AFAM 83	First-Year Seminar in African American Studies	3
AFAM 101N	African American Women	3
AFAM 102	Women of the African Diaspora	3
AFAM 105N	Afro-Latin America: Race and Revolution	3
AFAM 114N	Race, Gender and Sport	3
AFAM 132	Afro-Hispanic Civilization	3
AFAM 139	African American Literature	3
AFAM 145	African Diaspora Religions and Spiritualities	3
AFAM 146	The Life and Thought of Martin Luther King, Jr.	3
AFAM 147	The Life and Thought of Malcolm X	3
AFAM 152	African American History	3
AFAM 164	The History of Brazil	3
AFAM 210	Freedom's First Generation: African American Life and Work, from the Civil War to World War II	3
AFAM 211	Slavery and Freedom in the Black Atlantic	3
AFAM 213Y	African American Women's History	3
AFAM 235	From Folk Shouts and Songs to Hip Hop Poetry	3
AFAM 250	Introduction to the Caribbean	3
AFAM 422	Contemporary African American Communication	3
AFAM 431	Black Liberation and American Foreign Policy	3
AFAM 432	Between Nation and Empire: The Caribbean in the 20th Century	3
AFAM 463	African American Autobiography	3
AFAM 465	The Post-World War II Civil Rights Movement	3
AFAM 466	African American Novel I	3
AFAM 467	African American Novel II	3
AFAM 468	African American Poetry	3
AFAM 469	Slavery and the Literary Imagination	3
AFR 132	Afro-Hispanic Civilization	3
AFR 191	Early African History	3

AFR 192	Modern African History	3
AFR 192H	Modern African History	3
AFR 202N	Women, Gender, and Feminisms in Africa	3
AFR 234	Environment, Climate Change and Resilience in Africa	3
AFR 479	History of Imperialism and Nationalism in Africa	3
AMST 3	The American Nation: Historical Perspectives	3
AMST 83	First-Year Seminar in American Studies	3
AMST 100	Introduction to American Studies	3
AMST 100Y	Introduction to American Studies	3
AMST 104	Women and the American Experience	3
AMST 105	American Popular Culture and Folklife	3
AMST 106N	The Mass Media and Society	3
AMST 127	Introduction to U.S. Latina/o History	3
AMST 134	American Comedy	3
AMST 135	Alternative Voices in American Literature	3
AMST 140Y	Religion in American Life and Thought	3
AMST 150	America in the 1960s: An Introduction	3
AMST 160N	Introduction to Asian American Studies	3
AMST 161	The Battle of Gettysburg in American Historical Memory	3
AMST 161N	Chinese in America, Americans in China	3
AMST 170N	Introduction to American Folklore	3
AMST 199	Foreign Studies	1-12
AMST 294	Research Project	1-12
AMST 295	Internship	1-18
AMST 296	Independent Studies	1-18
AMST 297	Special Topics	1-9
AMST 299	Foreign Studies	1-12
AMST 309N	American Material Culture	3
AMST 399	Foreign Studies	1-12
AMST 422	Religion and American Culture	3
AMST 432	Ethnicity and the American Experience	3
AMST 439	American Regional Cultures	3-6
AMST 447	Recent American History	3
AMST 470	The American Renaissance	3
AMST 472	Topics in American Literature	3
AMST 475	Black American Writers	3
AMST 476	American Women Writers	3
AMST 491W	American Studies Perspectives	3-6
AMST 493	The Folktale in American Literature	3
AMST 494	Research Project	1-12
AMST 494H	Research Project	1-12
AMST 496	Independent Studies	1-18
AMST 497	Special Topics	1-9
AMST 499	Foreign Studies	1-12
ANTH 2N	World Archaeology	3
ANTH 9N	Rise of Civilization in the Old World	3
ANTH 45Q	Cultural Diversity: A Global Perspective	3
ANTH 129N	Chocolate Worlds	3
ANTH 220	Anthropology and Art/ifacts	3
ANTH 221N	Ancient Maya: Sacred Blood & Conjured Serpent	3

ANTH 439W	Studies in Classical and Ancient Mediterranean Archaeology	3-6	ASIA 484Y	History of Chinese Thought	3
ANTH 479	Tradition, Modernity, and Cultural Change in South Asian Societies	3	ASIA 485Y	China's Last Empire: The Qing Dynasty, 1644-1911	3
APLNG 280N	Conducting International Comparative Research	3	ASIA 486	China in Revolution	3
APLNG 402	Language, Culture and Cognition in East Asian Context	3	ASIA 487	Zen Buddhism	3
ARAB 110	Arab Language, Cultures, and Current Topics	3	ASTRO 19N	Being in the Universe	3
ARAB 165	Islamic States, Societies and Cultures c. 600-1500	3	BIOET 100	Bioethics	3
ARTH 101N	Introduction to Global Art History	3	BIOET 432	Medical and Health Care Ethics	3
ASIA 3	Introduction to the Religions of the East	3	CAMS 1	Greek and Roman Literature	3
ASIA 4	Introduction to Asian Literatures	3	CAMS 4	Jewish and Christian Foundations	3
ASIA 83S	Asian Studies First Year Seminar	3	CAMS 10	Mesopotamian Civilization	3
ASIA 100	What is Asia?	3	CAMS 12N	Lands of the Bible	3
ASIA 102	Asian Popular Culture	3	CAMS 15	Wonders of the Ancient World	3
ASIA 103	Introduction to Hinduism	3	CAMS 16	How to Live	3
ASIA 104	Introduction to Buddhism	3	CAMS 20	Egyptian Civilization	3
ASIA 106N	Asian Traditions of Health, Medicine, and the Body	3	CAMS 25	Greek Civilization	3
ASIA 107N	Bollywood: Seeing South Asia Through Cinema	3	CAMS 25U	Greek Civilization - Honors	3
ASIA 109H	What is The Self?	3	CAMS 33	Roman Civilization	3
ASIA 120Y	South Asia: A Literary History	3	CAMS 44	Ancient Near Eastern and Egyptian Mythology	3
ASIA 172	Introduction to Japanese Civilization	3	CAMS 45	Classical Mythology	3
ASIA 174	East Asia to 1800	3	CAMS 45H	Classical Mythology	3
ASIA 175	East Asia since 1800	3	CAMS 50	Words: Classical Sources of English Vocabulary	3
ASIA 176	Survey of Indian History	3	CAMS 83Y	First-Year Seminar in Classics and Ancient Mediterranean Studies	3
ASIA 177	Rise of Modern Southeast Asia	3	CAMS 90	Jerusalem: Past, Present, and Future	3
ASIA 181	Introduction to the Religions of China and Japan	3	CAMS 99	Foreign Studies	1-12
ASIA 182	Asian Trade: Economy, Industrialization and Capitalism in Asia	3	CAMS 100	Ancient Greece	3
ASIA 183	Gender, Family, and Society in East Asia	3	CAMS 101	The Roman Republic and Empire	3
ASIA 186	The Silk Roads	3	CAMS 102	Canaan and Israel in Antiquity	3
ASIA 200	What Are Asian Languages?	3	CAMS 104	Ancient Egypt	3
ASIA 402	Language, Culture and Cognition in East Asian Context	3	CAMS 105	History of the Ancient Near East	3
ASIA 403	Food Cultures of Asia	3	CAMS 109Y	Writing Systems of the World	3
ASIA 404H	Topics in Asian Literature	3	CAMS 110	Introduction to the Bible: Old Testament	3
ASIA 404Y	Topics in Asian Literature	3	CAMS 111	Early Judaism	3
ASIA 405	Seminar in Asian Studies	3-6	CAMS 113	Jewish Myths and Legends	3
ASIA 405Y	Seminar in Asian Studies	3	CAMS 115	Literature of the Ancient Near East	3
ASIA 406	Issues and Practices in Teaching Asian Languages	3	CAMS 120	New Testament	3
ASIA 414	Chinese Language, Culture and Society	3	CAMS 121	Jesus the Jew	3
ASIA 418	Confucius and the Great Books of China	3	CAMS 122	Apocalypse and Beyond	3
ASIA 419	The Chinese Rhetorical Tradition	3	CAMS 123	History of God: Origins of Monotheism	3
ASIA 424	Transnational Korean Literature	3	CAMS 124	Early and Medieval Christianity	3
ASIA 425	Global Korean Cinema	3	CAMS 130	The Ancient World in Film	3
ASIA 428	Asian American Literatures	3	CAMS 140	Classical Archaeology--Ancient Greece	3
ASIA 432	War and the Warrior in Japan	3	CAMS 142	Sport and Spectacle in the Ancient Mediterranean World	3
ASIA 472	Tradition, Modernity, and Cultural Change in South Asian Societies	3	CAMS 150	Classical Archaeology--Ancient Rome	3
ASIA 475Y	The Making and Emergence of Modern India	3	CAMS 152	Intermediate Biblical Hebrew	3
ASIA 480	Japan in the Age of Warriors	3	CAMS 153	Dead Sea Scrolls	3
ASIA 481	Modern Japan Since 1800	3	CAMS 160	Sacrifice in the Ancient World	3
ASIA 483	Middle China	3	CAMS 180	Ancient Warfare	3
			CAMS 194	Jerusalem: Sacred and Profane	3
			CAMS 197	Special Topics	1-9
			CAMS 199	Foreign Studies	1-12

CAMS 200	Ancient Philosophy	3	CMLIT 4	Introduction to Asian Literatures	3
CAMS 250	Honors Classics in Literature and Film	3	CMLIT 5	Introduction to Literatures of the Americas	3
CAMS 294	Research Project	1-12	CMLIT 6	Literature and Philosophy	3
CAMS 296	Independent Studies	1-18	CMLIT 7	Introduction to Middle Eastern Literatures	3
CAMS 297	Special Topics	1-9	CMLIT 10	World Literatures	3
CAMS 299	Foreign Studies	1-12	CMLIT 10U	The Forms of World Literature: A Global Perspective	3
CAMS 397	Special Topics	1-9	CMLIT 11	The Hero in World Literature	3
CAMS 399	Foreign Studies	1-12	CMLIT 12	Introduction to World Drama and Performance	3
CAMS 400W	Comparative Study of the Ancient Mediterranean World	3	CMLIT 13	Virtual Worlds: Antiquity to the Present	3
CAMS 405	Law & Economy in the Ancient Near East	3	CMLIT 19N	Being in the Universe	3
CAMS 410	Classical Epic	3	CMLIT 83S	First-Year Seminar in Comparative Literature	3
CAMS 411W	Classical Drama	3	CMLIT 97	Special Topics	1-9
CAMS 432W	Gender and Sexuality in the Bible	3	CMLIT 99	Foreign Studies	1-12
CAMS 440W	Studies in Classical and Ancient Mediterranean Archaeology	3-6	CMLIT 100	Reading Across Cultures	3
CAMS 453	Seminar in Ancient Philosophy	3	CMLIT 101	Race, Gender, and Identity in World Literature	3
CAMS 461	Plato	3	CMLIT 105	The Development of Literary Humor	3
CAMS 471	Sumerian	3	CMLIT 106	The Arthurian Legend	3
CAMS 472	Akkadian	3	CMLIT 107	Exploration, Travel, Migration, and Exile	3
CAMS 480	Greeks and Persians	3	CMLIT 108	Myths and Mythologies	3
CAMS 490	Ancient Mediterranean Languages	3-6	CMLIT 109	Native American Myths, Legends, and Literatures	3
CAMS 492	Intermediate Field Methods	3-6	CMLIT 110	Jewish Literature: An International Perspective	3
CAMS 493	Intermediate Field Analysis	3-6	CMLIT 111	Introduction to Literatures of India	3
CAMS 494	Research Project	1-12	CMLIT 113	Jewish Myths and Legends	3
CAMS 494H	Research Project	1-12	CMLIT 116	Jewish Great Books	3
CAMS 495	Internship	1-18	CMLIT 120	The Literature of the Occult	3
CAMS 496	Independent Studies	1-18	CMLIT 122	Global Science Fictions	3
CAMS 497	Special Topics	1-9	CMLIT 128N	The Holocaust in Film and Literature	3
CAMS 499	Foreign Studies	1-12	CMLIT 132	Nobel Prize Literature	3
CAS 84	First-Year Seminar in Communication Arts and Sciences	3	CMLIT 133N	Global Satire and Modern Politics	3
CAS 170N	What is Information?	3	CMLIT 140	Literature and the Other Arts: International and Comparative Perspectives	3
CAS 175N	Persuasion and Propaganda	3	CMLIT 141	Religion and Literature	3
CAS 182N	Communication and Sport	3	CMLIT 142	The Psychology of World Literature	3
CAS 301	Rhetorical Theory	3	CMLIT 143	Human Rights and World Literature	3
CAS 411	Rhetorical Criticism	3	CMLIT 153	International Cultures: Film and Literature	3
CAS 415	Rhetoric of Film and Television	3	CMLIT 184	The Short Story	3
CAS 420	Rhetorical Theory	3	CMLIT 185	World Novel	3
CAS 422	Contemporary African American Communication	3	CMLIT 191N	Introduction to Video Game Culture	3
CAS 426W	Communication Ethics	3	CMLIT 197	Special Topics	1-9
CAS 475	Studies in Public Address	3	CMLIT 199	Foreign Study--Comparative Literature	3-6
CHEM 233N	Chemistry and Literature	3	CMLIT 295	Internship	1-18
CHNS 120	Introduction to Chinese Literature and Culture	3	CMLIT 296	Independent Studies	1-18
CHNS 121N	Chinese Film and New Media	3	CMLIT 297	Special Topics	1-9
CHNS 402	Level Three Chinese B	4	CMLIT 300	Honors Thesis	3
CHNS 410	Chinese Through Film	3	CMLIT 399	Foreign Study--Comparative Literature	3-6
CHNS 414	Chinese Language, Culture and Society	3	CMLIT 400Y	Senior Seminar in Literary Criticism and Theory	3
CHNS 418	Confucius and the Great Books of China	3	CMLIT 403	Latina/o Literature and Culture	3
CHNS 419	The Chinese Rhetorical Tradition	3	CMLIT 404Y	Topics in Asian Literature	3
CMLIT 1	Introduction to Western Literatures Through the Renaissance	3	CMLIT 405	Inter-American Literature	3
CMLIT 3	Introduction to African Literatures	3	CMLIT 406	Women and World Literature	3
			CMLIT 408	Heroic Literature	3

CMLIT 410	Literary Translation: Theory and Practice	3	ENGL 139	African American Literature	3
CMLIT 415	World Graphic Novels	3	ENGL 140	Contemporary Literature	3
CMLIT 422	African Drama	3	ENGL 145	Modern Irish Literature	3
CMLIT 423	African Novel	3	ENGL 161N	The Pursuit of Happiness in American Life: Historical Literature and Modern Practice	3
CMLIT 424	Transnational Korean Literature	3	ENGL 170N	Introduction to American Folklore	3
CMLIT 425	Global Korean Cinema	3	ENGL 180	Literature and the Natural World	3
CMLIT 429	New Media and Literature	3	ENGL 181A	Adventure Literature: Exploring the Chesapeake Bay	4.5
CMLIT 446	Postcolonial Literature and Culture	3	ENGL 181B	Adventure Literature: Exploring Cape Cod	4.5
CMLIT 449	Literary Cultures of Islam	3	ENGL 181C	The Beach: Exploring the Literature of the Atlantic Shore	4.5
CMLIT 453	Narrative Theory: Film and Literature	3	ENGL 181D	Adventure Literature: Exploring the Literature of American Wilderness	3
CMLIT 470	The Modern Novel	3	ENGL 182	Literature and Empire	3
CMLIT 480	The International Folktale	3	ENGL 182A	Literature and Empire	3
CMLIT 486	Tragedy	3	ENGL 182C	Literature and Empire	3
CMLIT 487	Comedy	3	ENGL 183N	The Cold War in Literature, Politics, and History	3
CMLIT 490	Video Game Lit Studies	3	ENGL 184	The Short Story	3
CMLIT 491	Literary Adaptation: International and Comparative Perspectives	3	ENGL 185	World Novel	3
CMLIT 494	Research Project	1-12	ENGL 191	Science Fiction	3
CMLIT 494H	Research Project	1-12	ENGL 192	The Literature of Fantasy	3
CMLIT 496	Independent Studies	1-18	ENGL 194	Women Writers	3
CMLIT 497	Special Topics	1-9	ENGL 194H	Women Writers - Honors	3
CMLIT 499	Foreign Study--Comparative Literature	3-6	ENGL 194S	Women Writers	3
COMM 100N	The Mass Media and Society	3	ENGL 197	Special Topics	1-9
COMM 110	Media and Democracy	3	ENGL 198	Special Topics	1-9
COMM 150Q	The Art of the Cinema	3	ENGL 199	Foreign Study--English	3-6
COMM 453	Narrative Theory: Film and Literature	3	ENGL 200	Introduction to Critical Reading	3
CRIMJ 159	History of the FBI	3	ENGL 200W	Introduction to Critical Reading	3
CRIMJ 469	Drugs and Drug Policy in the United States	3	ENGL 201	What is Literature	3
EMSC 240N	Energy and Sustainability in Contemporary Culture	3	ENGL 201H	What is Literature	3
ENGL 2	The Great Traditions in English Literature	3	ENGL 209	Journal or Magazine Practicum	1-6
ENGL 6	Creative Writing Common Time	1-8	ENGL 210	The Process of Writing	3
ENGL 83S	First-Year Seminar in English	3	ENGL 212	Introduction to Fiction Writing	3
ENGL 88	Australian/New Zealand Cultural Perspectives	3	ENGL 213	Introduction to Poetry Writing	3
ENGL 97	Special Topics	1-9	ENGL 215	Introduction to General Nonfiction Writing	3
ENGL 98	Special Topics	1-9	ENGL 221	British Literature to 1798	3
ENGL 100	English Language Analysis	3	ENGL 221W	British Literature to 1798	3
ENGL 101	Introduction to Literature	3	ENGL 222	British Literature from 1798	3
ENGL 103	The Great Traditions in American Literature	3	ENGL 222W	British Literature from 1798	3
ENGL 104	The Bible as Literature	3	ENGL 226	Latina and Latino Border Theories	3
ENGL 105	American Popular Culture and Folklife	3	ENGL 231	American Literature to 1865	3
ENGL 108N	Buddhism and US Society	3	ENGL 231Y	American Literature to 1865	3
ENGL 110	Newswriting Practicum	2	ENGL 232	American Literature from 1865	3
ENGL 128N	The Holocaust in Film and Literature	3	ENGL 232Y	American Literature from 1865	3
ENGL 129	Shakespeare	3	ENGL 233N	Chemistry and Literature	3
ENGL 129H	Shakespeare	3	ENGL 235	From Folk Shouts and Songs to Hip Hop Poetry	3
ENGL 130	Reading Popular Texts	3	ENGL 240	Exploring Literary Traditions	3
ENGL 131	Weird Tales: Literature of Horror and the Supernatural	3	ENGL 250	Peer Tutoring in Writing	3
ENGL 133	Modern American Literature to World War II	3	ENGL 261	Exploring Literary Forms	3
ENGL 134	American Comedy	3	ENGL 262	Reading Fiction	3
ENGL 135	Alternative Voices in American Literature	3	ENGL 263	Reading Poetry	3
ENGL 136	The Graphic Novel	3			

ENGL 265	Reading Nonfiction	3	ENGL 442	Medieval English Literature	3
ENGL 268	Reading Drama	3	ENGL 443	The English Renaissance	3
ENGL 281	Television Script Writing	3	ENGL 444	Shakespeare	3
ENGL 294	Research Topics	1-12	ENGL 445	Shakespeare's Contemporaries	3
ENGL 296	Independent Studies	1-18	ENGL 446	Milton	3
ENGL 297	Special Topics	1-9	ENGL 447	The Restoration and the Eighteenth Century	3
ENGL 299	Foreign Studies	1-12	ENGL 448	The English Novel to Jane Austen	3
ENGL 310H	Honors Thesis in English	3	ENGL 449M	Honors Seminar in English: Pre-1800s literature	3-12
ENGL 312	Globality and Literature	3	ENGL 450	The Romantics	3
ENGL 395	Internship	1-18	ENGL 451	Literary Modernism in English	3
ENGL 397	Special Topics	1-9	ENGL 452	The Victorians	3
ENGL 399	Foreign Study--English	3-6	ENGL 453	Victorian Novel	3
ENGL 400	Authors, Texts, Contexts	3	ENGL 454	Modern British and Irish Drama	3
ENGL 401	Studies in Genre	3	ENGL 455	Topics in British Literature	3
ENGL 401W	Creative Writing Theory	3	ENGL 456	British Fiction, 1900-1945	3
ENGL 402	Literature and Society	3	ENGL 457	British Fiction Since 1945	3
ENGL 403	Literature and Culture	3	ENGL 458	Twentieth-Century Poetry	3
ENGL 404	Mapping Identity, Difference, and Place	3	ENGL 459	Writing Palestine-Israel	3
ENGL 405	Taking Shakespeare From Page to Stage	3	ENGL 462	Reading Black, Reading Feminist	3
ENGL 406M	Honors Course in English: General Topic in Recent Literature	3-12	ENGL 463	African American Autobiography	3
ENGL 407	History of the English Language	3	ENGL 464M	Honors Seminar in English: Multicultural	3-12
ENGL 408M	Honors Seminar in English: General Topic in Post-1800 Literature	3-12	ENGL 466	African American Novel I	3
ENGL 409	Composition Theory and Practice for Teachers	3	ENGL 467	African American Novel II	3
ENGL 411M	Honors Seminar in English: Creative Writing	3-12	ENGL 468	African American Poetry	3
ENGL 412	Advanced Fiction Writing	3	ENGL 469	Slavery and the Literary Imagination	3
ENGL 413	Advanced Poetry Writing	3	ENGL 470	Rhetorical Theory and Practice	3
ENGL 414	Biographical Writing	3	ENGL 471	Rhetorical Traditions	3
ENGL 415	Advanced Nonfiction Writing	3	ENGL 472	Current Theories of Writing and Reading	3
ENGL 416	Science Writing	3	ENGL 473	Rhetorical Approaches to Discourse	3
ENGL 417	The Editorial Process	3	ENGL 474	Issues in Rhetoric and Composition	3
ENGL 418	Advanced Technical Writing and Editing	3	ENGL 475	Comics Studies	3
ENGL 419	Advanced Business Writing	3	ENGL 480	Communication Design for Writers	3
ENGL 420	Writing for the Web	3	ENGL 481	Literary Theory: Historical Perspectives	3
ENGL 421	Advanced Expository Writing	3	ENGL 482	Contemporary Literary Theory and Practice	3
ENGL 422	Fiction Workshop	3	ENGL 482W	Contemporary Literary and Cultural Theory	3
ENGL 423	Poetry Writing Workshop	3	ENGL 483	Problems in Critical Theory and Practice	3
ENGL 426	Chicana and Chicano Cultural Production: Literature, Film, Music	3	ENGL 485	Australian and New Zealand Literature and Culture	3
ENGL 428	Asian American Literatures	3	ENGL 486	The World Novel in English	3
ENGL 429	New Media and Literature	3	ENGL 487W	Senior Seminar	3
ENGL 430	The American Renaissance	3	ENGL 489	British Women Writers	3
ENGL 431	Black American Writers	3	ENGL 490	Women Writers and Their Worlds	3
ENGL 432	The American Novel to 1900	3	ENGL 491	The Capstone Course in Professional Writing	3
ENGL 433	The American Novel: 1900-1945	3	ENGL 492	American Women Writers	3
ENGL 434	Topics in American Literature	3	ENGL 494	Senior Thesis in English	1-6
ENGL 435	The American Short Story	3	ENGL 494H	Senior Thesis in English	1-6
ENGL 436	American Fiction Since 1945	3	ENGL 495	Internship	3-12
ENGL 437	The Poet in America	3	ENGL 496	Independent Studies	1-18
ENGL 438	American Drama	3	ENGL 497	Special Topics	1-9
ENGL 439	American Nonfiction Prose	3	ENGL 498	Special Topics	1-9
ENGL 440	Studies in Shakespeare	3	ENGL 499	Foreign Study--English	3-6
			ENVST 100N	Visions of Nature	3
			FDSC 134	Food, Values, and Health	3

FR 83	First-Year Seminar in French	3	GER 128N	The Holocaust in Film and Literature	3
FR 111	Elementary French	6	GER 143	The Culture of Stalinism and Nazism	3
FR 121G	Fundamentals of Reading French	3	GER 157N	The Amish	3
FR 122G	Practice in Reading French	3	GER 166	Marx, Nietzsche, Freud	3
FR 137	Paris: Anatomy of a Global City	3	GER 175	Germanic Heroic and Medieval Literature in English Translation	3
FR 138N	French Culture Through Film	3	GER 190	Twentieth-Century German Literature in English Translation	3
FR 139	France and the French-speaking World	3	GER 197	Special Topics	1-9
FR 142	French Fiction, Drama, and Film (In English)	3	GER 200N	Contemporary German Culture	3
FR 197	Special Topics	1-9	GER 245	The Vikings	3
FR 199	Foreign Study--French	1-12	GER 296	Independent Studies	1-18
FR 202	Grammar and Composition	3	GER 297	Special Topics	1-9
FR 270	Race and Gender in Literature Translated from French	3	GER 302W	Intermediate Composition and Grammar	3
FR 296	Independent Studies	1-18	GER 310	Introduction to the Study of German Literature	3
FR 297	Special Topics	1-9	GER 344	Intermediate German Culture	3
FR 331	French and Francophone Culture I	3	GER 399	Foreign Study--German	3-12
FR 332	French and Francophone Culture II	3	GER 412	Contrastive Analysis of Modern German and English	3
FR 351	French and Francophone Literature I	3	GER 420	Genre	3-9
FR 352	French and Francophone Literature II	3	GER 430	History of the German Language	3
FR 399	Foreign Study--French	1-12	GER 431	History of German Literature and Culture I	3
FR 402Y	Advanced Grammar and Writing	3	GER 432	History of German Literature and Culture II	3
FR 409	French for Professional Purposes	3	GER 440	Seminar in German Culture	3-6
FR 410	French Press	3	GER 472	Romanticism	3
FR 417	French Phonology	3	GER 494	Research Project	1-12
FR 418	French Syntax	3	GER 494H	Research Project	1-12
FR 430	Contemporary France	3	GER 495	Internship	3-9
FR 436	French and Francophone Theater	3	GER 496	Independent Studies	1-18
FR 440	Teaching of Romance Languages	3	GER 497	Special Topics	1-9
FR 445Y	Self and Society in Eighteenth-Century France	3	GER 499	Foreign Study--German	3-12
FR 452Y	Nineteenth-Century French Literature	3	GLIS 101N	Globalization	3
FR 453Y	La Belle Epoque: Politics, Society, and Culture in France, 1880-1914	3	GLIS 102N	Global Pathways	3
FR 458	African Literature of French Expression	3	GREEK 99	Foreign Studies	1-12
FR 460	Contemporary French Literature	3	GREEK 101	Introductory Ancient Greek	4
FR 470	Race and Gender Issues in Literatures in French	3	GREEK 102	Intermediate Ancient Greek	4
FR 471	Francophone Women in Literature and Culture	3	GREEK 203	Greek Reading and Composition	4
FR 487	Topics in French Film History and Theory I: 1895-1945	3	GREEK 420	Greek Prose Authors	3-12
FR 488	Topics in French Film History and Theory II: 1945-2002	3	GREEK 425	Greek Historians	3-6
FR 494	Research Project	1-12	GREEK 430	Greek Poetry	3-6
FR 494H	Research Project	1-12	GREEK 440	Greek Drama	3-6
FR 495	Internship	1-18	GREEK 494	Research Project	1-12
FR 496	Independent Studies	1-18	GREEK 494H	Research Project	1-12
FR 497	Special Topics	1-9	GREEK 496	Independent Studies	1-18
FR 499	Foreign Study--French	1-12	GREEK 499	Foreign Studies	1-12
GAME 160N	Introduction to Video Game Culture	3	HEBR 10	Jewish Civilization	3
GAME 460	Video Game Lit Studies	3	HEBR 97	Special Topics	1-9
GER 83	First-Year Seminar in German	3	HEBR 99	Foreign Studies	1-12
GER 99	Foreign Study--German	1-12	HEBR 152	Intermediate Biblical Hebrew	3
GER 100	German Culture and Civilization	3	HEBR 197	Special Topics	1-9
GER 123	Genocide in Global perspectives: Twentieth Century and beyond	3	HEBR 199	Foreign Study--Basic Hebrew	1-12
			HEBR 296	Independent Studies	1-18
			HEBR 297	Special Topics	1-9

HEBR 299	Foreign Studies	1-12	HIST 134	Great Britain and Ireland in the Early Modern World	3
HEBR 397	Special Topics	1-9	HIST 140	The History of the Israel-Palestine Conflict (1917-Present)	3
HEBR 399	Foreign Study--Intermediate Hebrew	1-12	HIST 141	Medieval and Modern Russia	3
HEBR 401	Advanced Hebrew--Conversation Emphasis	3-6	HIST 143N	History of Fascism and Nazism	3
HEBR 402	Advanced Hebrew--Reading Emphasis	3-6	HIST 144	The World at War: 1939-1945	3
HEBR 494	Research Project	1-12	HIST 145N	The Holocaust and Human Rights	3
HEBR 494H	Research Project	1-12	HIST 148	History of Pennsylvania State University	3
HEBR 496	Independent Studies	1-18	HIST 150	America in the 1960s: An Introduction	3
HEBR 497	Special Topics	1-9	HIST 152	African American History	3
HEBR 499	Foreign Study--Advanced Hebrew	1-12	HIST 153	Native American History	3
HIST 1	Western Civilization I	3	HIST 153Y	The Indian in North America	3
HIST 2	Western Civilization II	3	HIST 154	History of Welfare and Poverty in the United States	3
HIST 2H	Western Civilization II	3	HIST 158	History of American Immigration	3
HIST 3	The American Nation: Historical Perspectives	3	HIST 159	History of the FBI	3
HIST 10	World History to 1500	3	HIST 160	American Naval History	3
HIST 11	World History since 1500	3	HIST 161	The Battle of Gettysburg in American Historical Memory	3
HIST 12	History of Pennsylvania	3	HIST 162N	The Pursuit of Happiness in American Life: Historical Literature and Modern Practice	3
HIST 20	American Civilization to 1877	3	HIST 164	The History of Brazil	3
HIST 20Y	American Civ to 1877Y	3	HIST 165	Islamic States, Societies and Cultures c. 600-1500	3
HIST 21	American Civilization Since 1877	3	HIST 169	The Indian Ocean World	3
HIST 66	Survey of British History	3	HIST 170	South Asia to 1500	3
HIST 83	First-Year Seminar in History	3	HIST 172	Introduction to Japanese Civilization	3
HIST 100	Ancient Greece	3	HIST 174	East Asia to 1800	3
HIST 101	The Roman Republic and Empire	3	HIST 175	East Asia since 1800	3
HIST 102	Canaan and Israel in Antiquity	3	HIST 176	Survey of Indian History	3
HIST 103	The History of Madness, Mental Illness, and Psychiatry	3	HIST 177	Rise of Modern Southeast Asia	3
HIST 104	Ancient Egypt	3	HIST 178	Latin-American History to 1820	3
HIST 105	The Byzantine Empire	3	HIST 179	Latin-American History Since 1820	3
HIST 106	Early Modern Empires of Islam: The Ottomans, Safavids, and Mughals	3	HIST 180	Ancient Warfare	3
HIST 107	Medieval Europe	3	HIST 181	Introduction to the Middle East	3
HIST 108	Crusades: Holy War in the Middle Ages	3	HIST 182	Asian Trade: Economy, Industrialization and Capitalism in Asia	3
HIST 109	Introduction to U.S. Environmental History	3	HIST 183	Gender, Family, and Society in East Asia	3
HIST 110	Introduction to Global Environmental History	3	HIST 184	Society and Culture in the Pacific War	3
HIST 111	Introduction to U.S. Food History	3	HIST 186	The Silk Roads	3
HIST 112	Introduction to Public History	3	HIST 190	The Middle East Today	3
HIST 113	Baseball in Comparative History	3	HIST 191	Early African History	3
HIST 115	The American Jewish Experience	3	HIST 192	Modern African History	3
HIST 117	Women in United States History	3	HIST 192H	Modern African History	3
HIST 118	Modern Jewish History	3	HIST 193	Modern Iran	3
HIST 119	Gender and History	3	HIST 194	Jerusalem: Sacred and Profane	3
HIST 121	History of the Holocaust 1933-1945	3	HIST 195	Genocide in Global perspectives: Twentieth Century and beyond	3
HIST 122	History of Science I	3	HIST 197	Special Topics	1-9
HIST 123	History of Science II	3	HIST 199	Foreign Studies	1-12
HIST 124	History of Western Medicine	3	HIST 200	American Local History	3
HIST 127	Introduction to U.S. Latina/o History	3	HIST 203N	History of Monsters, Aliens & the Supernatural	3
HIST 129N	Chocolate Worlds	3	HIST 210	Freedom's First Generation: African American Life and Work, from the Civil War to World War II	3
HIST 130	Introduction to the Civil War Era, 1848 through 1877	3	HIST 211	Slavery and Freedom in the Black Atlantic	3
HIST 130H	Introduction to the Civil War Era, 1848-1877 Honors	3			
HIST 131N	Slavery, the Civil War, and Cinema	3			

HIST 213Y	African American Women's History	3	HIST 444	The United States in Civil War and Reconstruction--1850-1877	3
HIST 238N	Society and Culture in Palestine/Israel	3	HIST 444W	The United States in Civil War and Reconstruction--1850-1877	3
HIST 245	Middle Eastern Cities	3	HIST 445	The Emergence of Modern America	3
HIST 250	Introduction to the Caribbean	3	HIST 446	America Between the Wars	3
HIST 255N	History of the Book	3	HIST 447	Recent American History	3
HIST 260	The Middle East in Film	3	HIST 448	America in the 1960s	3
HIST 266Y	Sexuality and Violence in Nineteenth-Century America	3	HIST 449	Constitutional History of the United States to 1877	3
HIST 294	Research Project	1-12	HIST 450	Constitutional History of the United States Since 1877	3
HIST 296	Independent Studies	1-18	HIST 451	The Consumer Revolution	3
HIST 296A	**SPECIAL TOPICS**	1-6	HIST 452	History of U.S. Foreign Relations	3
HIST 297	Special Topics	1-9	HIST 453	American Environmental History	3
HIST 299	Foreign Studies	1-12	HIST 454	American Military History	3
HIST 302W	Undergraduate Seminar	3	HIST 455	The History of Epidemics	3
HIST 305Y	Middle East Studies Research Workshop	3	HIST 459Y	Social and Cultural History of the United States Since 1783	3
HIST 395	Internship	1-18	HIST 461	The Emergence of the American City: 1100-1880	3
HIST 399	Foreign Study--History	1-12	HIST 462	The Twentieth Century City	3
HIST 400	Global History of Food and Famine	3	HIST 465	The Post-World War II Civil Rights Movement	3
HIST 403	Alexander the Great and the Hellenistic World	3	HIST 467	Latin America and the United States	3
HIST 405Y	The Roman Empire	3	HIST 468	Mexico and the Caribbean Nations in the Twentieth Century	3
HIST 407	Early Medieval Society	3	HIST 469	Drugs and Drug Policy in the United States	3
HIST 408	Church and State in the High Middle Ages	3	HIST 471Y	Classical Islamic Civilization, 600-1258	3
HIST 409Y	Antisemitisms	3	HIST 472	The Ottoman Empire	3
HIST 410	Jews in the Medieval World	3	HIST 473	The Contemporary Middle East	3
HIST 411	Medieval Britain	3	HIST 475Y	The Making and Emergence of Modern India	3
HIST 412	Intellectual History of the Middle Ages	3	HIST 479	History of Imperialism and Nationalism in Africa	3
HIST 413	Medieval Celtic Studies	3	HIST 480	Japan in the Age of Warriors	3
HIST 414	Renaissance and Reformation	3	HIST 481	Modern Japan Since 1800	3
HIST 416	Zionism	3	HIST 482	Confucius and the Great Books of China	3
HIST 417	The Age of Absolutism	3	HIST 483	Middle China	3
HIST 418	The French Revolution and the Napoleonic Era	3	HIST 484Y	History of Chinese Thought	3
HIST 420	Recent European History	3	HIST 485Y	China's Last Empire: The Qing Dynasty, 1644-1911	3
HIST 421	The History of European Women	3	HIST 486	China in Revolution	3
HIST 423	Orthodox Christianity: History and Interpretations	3	HIST 490	Archival Management	1-3
HIST 424	Comparative History of Sports and Politics	3	HIST 493	History of Death and Mourning	3
HIST 425	History of the Incas	3	HIST 494	Research Project	1-12
HIST 426	Holocaust	3	HIST 494H	Research Project	1-12
HIST 427	Germany Since 1860	3	HIST 495	Internship	1-18
HIST 428	The Darwinian Revolution	3	HIST 496	Independent Studies	1-18
HIST 430	Eastern Europe in Modern Times	3	HIST 496A	**SPECIAL TOPICS**	1-18
HIST 431	Black Liberation and American Foreign Policy	3	HIST 496H	Independent Studies	1
HIST 432	Between Nation and Empire: The Caribbean in the 20th Century	3	HIST 497	Special Topics	1-9
HIST 433	Imperial Russia, 1700-1917	3	HIST 499	Foreign Study--History	1-6
HIST 434	History of the Soviet Union	3	INART 55N	History of Electronic Music	3
HIST 436	Great Britain Under the Tudors and Stuarts, 1485-1688	3	IST 170N	What is Information?	3
HIST 437	Great Britain 1688-1867	3	IT 3	Intermediate Italian	4
HIST 438	Great Britain 1867-Present	3	IT 20	Intensive Intermediate Italian	6
HIST 440	Colonial America to 1753	3	IT 50	Italian Conversation Tutorial	1-3
HIST 441	Revolutionary America, 1753-1783	3			
HIST 442	The Early American Republic, 1783-1850	3			

IT 83	First-Year Seminar in Italian Literature, Film, and Culture	3	JST 123	History of God: Origins of Monotheism	3
IT 99	Foreign Studies	1-12	JST 124	Early and Medieval Christianity	3
IT 130	Italian Culture and Civilization	3	JST 128N	The Holocaust in Film and Literature	3
IT 131	Introduction to Italian American Culture	3	JST 131	Jewish Literature: An International Perspective	3
IT 197	Special Topics	1-9	JST 135	Ethics in Jewish Tradition and Thought	3
IT 199	Foreign Studies	1-12	JST 140	The History of the Israel-Palestine Conflict (1917-Present)	3
IT 210N	Multilingual and Intercultural Communication	3	JST 143N	History of Fascism and Nazism	3
IT 296	Independent Studies	1-18	JST 152	Intermediate Biblical Hebrew	3
IT 297	Special Topics	1-9	JST 153	Dead Sea Scrolls	3
IT 299	Foreign Studies	1-12	JST 160	Sacrifice in the Ancient World	3
IT 320	Global Italy: An Introduction to Italian Culture	3	JST 181	Introduction to the Middle East	3
IT 325	Italy's Inspiration for Your Life	3	JST 186	The Silk Roads	3
IT 395	Internship	1-18	JST 190	The Middle East Today	3
IT 412	Theory and Practice of Translation	3	JST 193	Modern Iran	3
IT 415	Dante	3	JST 194	Jerusalem: Sacred and Profane	3
IT 422	Topics in the Italian Renaissance	3	JST 195	Genocide in Global perspectives: Twentieth Century and beyond	3
IT 450	Nineteenth-Century Italian Literature	3	JST 235	The Church and the Jews	3
IT 460	Twentieth-Century Italian Literature	3	JST 260	The Middle East in Film	3
IT 475	Modern Italian Literature and Cinema	3	JST 305Y	Middle East Studies Research Workshop	3
IT 485	Italian American Cultural Studies	3	JST 401	Ancient Technologies and Socio-cultural History in the Ancient Levant	3
IT 490	Dante in Translation	3	JST 409Y	Antisemitisms	3
IT 494	Research Project	1-12	JST 410	Jews in the Medieval World	3
IT 494H	Research Project	1-12	JST 411	Jewish Studies	3
IT 496	Independent Studies	1-18	JST 416	Zionism	3
IT 497	Special Topics	1-9	JST 426	Holocaust	3
JAPNS 120	Japanese Literature in Its Cultural Context	3	JST 432W	Gender and Sexuality in the Bible	3
JAPNS 121N	Japanese Film and New Media	3	JST 459	Writing Palestine-Israel	3
JAPNS 121Q	Japanese Film and New Media	3	JST 473	The Contemporary Middle East	3
JAPNS 122	Gods to Godzilla: A Survey of Japanese Culture	3	JST 478	Ethics After the Holocaust	3
JAPNS 172	Introduction to Japanese Civilization	3	JST 480	Greeks and Persians	3
JAPNS 402	Level Three Japanese B	4	KOR 120	Introduction to Korean Culture	3
JAPNS 432	War and the Warrior in Japan	3	KOR 121	Korean Popular Culture	3
JST 4	Jewish and Christian Foundations	3	KOR 403Y	Level 4 Korean A	4
JST 10	Jewish Civilization	3	KOR 404	Level 4 Korean B	4
JST 12N	Lands of the Bible	3	KOR 422	Introduction to Korean Linguistics	3
JST 83	First-Year Seminar in Jewish Studies	3	KOR 423	Korean Media and Communication	3
JST 90	Jerusalem: Past, Present, and Future	3	KOR 424	Transnational Korean Literature	3
JST 102	Canaan and Israel in Antiquity	3	KOR 425	Global Korean Cinema	3
JST 104	The Bible as Literature	3	KOR 450	Korean Cultures in Global Contexts	3
JST 106	Mysticism and Kabbalah	3	KOR 451	Food and Foodways in Korea	3
JST 110	Introduction to the Bible: Old Testament	3	KOR 452	Korean Language and Culture	3
JST 111	Early Judaism	3	LATIN 296	Independent Studies	1-18
JST 112	Jesus the Jew	3	LATIN 402	Republican Literature	3-12
JST 113	Jewish Myths and Legends	3	LATIN 403	Augustan Age Literature	3-12
JST 114	Modern Judaism	3	LATIN 404	Silver Age Literature	3-12
JST 115	The American Jewish Experience	3	LATIN 450W	History of Latin	3
JST 116	Jewish Great Books	3	LATIN 494	Research Project	1-12
JST 118	Modern Jewish History	3	LATIN 496	Independent Studies	1-18
JST 120	New Testament	3	LATIN 497	Special Topics	1-9
JST 121	History of the Holocaust 1933-1945	3	LHR 403	International Human Resource Studies	3
JST 122	Apocalypse and Beyond	3			

LHR 466	Labor Union Structure, Administration and Governance	3	PHIL 105H	Honors Philosophy of Law	3
LING 405	Introduction to Historical Linguistics	3	PHIL 106	Business Ethics	3
LST 490	Archival Management	1-3	PHIL 107	Philosophy of Technology	3
LTNST 100	Introduction to Latina/o Studies	3	PHIL 108	Social and Political Philosophy	3
LTNST 127	Introduction to U.S. Latina/o History	3	PHIL 108H	Honors Social and Political Philosophy	3
LTNST 139	Latino/a Philosophy	3	PHIL 108W	Social and Political Philosophy	3
LTNST 226	Latina and Latino Border Theories	3	PHIL 109	Aesthetics	3
LTNST 300	Latinx Gender and Sexuality Studies	3	PHIL 110	Philosophy of Science	3
LTNST 403	Latina/o Literature and Culture	3	PHIL 113	Philosophy of Literature	3
LTNST 426	Chicana and Chicano Cultural Production: Literature, Film, Music	3	PHIL 114	Feminist Philosophy	3
LTNST 467	Latin America and the United States	3	PHIL 115	Philosophy and Education	3
MEDVL 107	Medieval Europe	3	PHIL 118	Environmental Philosophy	3
MEDVL 108	Medieval Civilization	3	PHIL 119	Ethical Leadership	3
MEDVL 197	Special Topics	1-9	PHIL 120N	Knowing Right from Wrong	3
MEDVL 199	Foreign Studies	1-12	PHIL 122	Philosophy of History	3
MEDVL 294	Research Project	1-12	PHIL 123	Media Ethics	3
MEDVL 299	Foreign Studies	1-12	PHIL 124	Philosophy of Religion	3
MEDVL 395	Internship	1-18	PHIL 125	Theories of Knowledge	3
MEDVL 399	Foreign Studies	1-12	PHIL 125W	Theories of Knowledge	3
MEDVL 411	Medieval Britain	3	PHIL 126	Metaphysics	3
MEDVL 413	Medieval Celtic Studies	3	PHIL 126W	Metaphysics	3
MEDVL 494	Research Project	1-12	PHIL 127	Philosophy of Mind	3
MEDVL 494H	Research Project	1-12	PHIL 129	Philosophy of Language	3
MEDVL 495	Internship	1-18	PHIL 131N	BS: Identifying Bias and Falsehood	3
MEDVL 496	Independent Studies	1-18	PHIL 132	Bioethics	3
MEDVL 497	Special Topics	1-9	PHIL 134	Food, Values, and Health	3
MEDVL 499	Foreign Studies	1-12	PHIL 135	Ethics in Jewish Tradition and Thought	3
OLEAD 100	Introduction to Leadership	3	PHIL 139	Latino/a Philosophy	3
PHIL 1	The Big Questions	3	PHIL 197	Special topics	1-9
PHIL 2	Individuals in Society	3	PHIL 198	Special topics	1-9
PHIL 3	Ethical Life	3	PHIL 199	Foreign Study--Philosophy	1-12
PHIL 4	The Human Condition	3	PHIL 200	Ancient Philosophy	3
PHIL 5	Film and Philosophy	3	PHIL 201	Medieval Philosophy	3
PHIL 6	Literature and Philosophy	3	PHIL 202	Modern Philosophy: 1600-1800	3
PHIL 7	Asian Philosophy	3	PHIL 203	Nineteenth Century Philosophy	3
PHIL 8	Gender Matters	3	PHIL 204	Twentieth Century Philosophy	3
PHIL 9	Race, Racism, and Diversity	3	PHIL 205	American Philosophy: 1840-Present	3
PHIL 10	Critical Thinking	3	PHIL 208	Contemporary Philosophy	3
PHIL 11	Science and Truth	3	PHIL 233	Ethics and the Design of Technology	3
PHIL 13	Nature and Environment	3	PHIL 242N	Happiness and Well-Being	3
PHIL 14	Love and Sex	3	PHIL 296	Independent Studies	1-18
PHIL 15	How to Live	3	PHIL 297	Special Topics	1-9
PHIL 60N	Philosophy and 1960s Counterculture	3	PHIL 299	Foreign Studies	1-12
PHIL 83	First-Year Seminar in Philosophy	3	PHIL 401	American Philosophy	3
PHIL 98	Special topics	1-9	PHIL 402	Seminar in European Philosophy	3
PHIL 102	Existentialism	3	PHIL 403	Seminar in Environmental Ethics	3
PHIL 103	Ethics	3	PHIL 405	Seminar in Philosophy of Law	3
PHIL 103H	Honors Ethics	3	PHIL 407	Seminar in Philosophy of Technology	3
PHIL 103W	Ethics	3	PHIL 408W	Seminar in Social and Political Philosophy	3
PHIL 105	Philosophy of Law	3	PHIL 409	Seminar in Aesthetics	3
			PHIL 410	Seminar in Philosophy of Science	3
			PHIL 413	Seminar in Philosophy of Literature	3

PHIL 416	Philosophy of Social Science	3	PORT 405	Advanced Composition and Conversation	3
PHIL 418	Seminar in Ethical Theory	3	PORT 473	Luso-Brazilian Cinema	3
PHIL 418W	Seminar in Ethical Theory	3	PORT 494	Research Project	1-12
PHIL 424	Seminar in Philosophy of Religion	3	PORT 494H	Research Project	1-12
PHIL 425W	Seminar in Epistemology	3	PORT 496	Independent Studies	1-18
PHIL 426W	Seminar in Metaphysics	3	PORT 496A	**SPECIAL TOPICS**	3-4
PHIL 427	Seminar in Philosophy of Mind	3	PORT 497	Special Topics	1-9
PHIL 432	Medical and Health Care Ethics	3	PSYCH 120N	Knowing Right from Wrong	3
PHIL 433	Ethics in Science and Engineering	3	RLST 1	Introduction to World Religions	3
PHIL 435	Science and Religion	3	RLST 3	Introduction to the Religions of the East	3
PHIL 437	World Philosophies	3	RLST 4	Jewish and Christian Foundations	3
PHIL 438	Seminar in Feminist Philosophy	3	RLST 12N	Lands of the Bible	3
PHIL 453	Seminar in Ancient Philosophy	3	RLST 44	Ancient Near Eastern and Egyptian Mythology	3
PHIL 455	Seminar in Modern Philosophy	3	RLST 90	Jerusalem: Past, Present, and Future	3
PHIL 456	Seminar in Nineteenth Century Philosophy	3	RLST 101	Comparative Religion	3
PHIL 457	Seminar in Twentieth Century Philosophy	3	RLST 102	Canaan and Israel in Antiquity	3
PHIL 458	Seminar in Contemporary Philosophy	3	RLST 103	Introduction to Hinduism	3
PHIL 461	Plato	3	RLST 104	Introduction to Buddhism	3
PHIL 468	Jewish Philosophy	3	RLST 105N	Buddhism and US Society	3
PHIL 472	Islamic Philosophy	3	RLST 106	Mysticism and Kabbalah	3
PHIL 473	German Idealism	3	RLST 107	Introduction to Islam	3
PHIL 474	Kant	3-6	RLST 108	Myths and Mythologies	3
PHIL 476	Hegel	3-6	RLST 109H	What is The Self?	3
PHIL 478	Ethics After the Holocaust	3	RLST 110	Introduction to the Bible: Old Testament	3
PHIL 479	Critical Theory	3	RLST 111	Early Judaism	3
PHIL 485	Heidegger	3	RLST 113	Jewish Myths and Legends	3
PHIL 486	Wittgenstein	3-6	RLST 114	Modern Judaism	3
PHIL 494	Research Project	1-12	RLST 115	The American Jewish Experience	3
PHIL 494H	Research Project	1-12	RLST 120	New Testament	3
PHIL 496	Independent Studies	1-18	RLST 121	Jesus the Jew	3
PHIL 497	Special Topics	1-9	RLST 122	Apocalypse and Beyond	3
PHIL 499	Foreign Study--Philosophy	1-12	RLST 123	History of God: Origins of Monotheism	3
PLANT 129N	Chocolate Worlds	3	RLST 124	Early and Medieval Christianity	3
PLSC 7N	Contemporary Political Ideologies	3	RLST 125W	Modern Christianity	3
PLSC 17N	Introduction to Political Theory	3	RLST 129	Philosophy of Religion	3
PLSC 17W	Introduction to Political Theory	3	RLST 135	Ethics in Jewish Tradition and Thought	3
PLSC 111	Debating the Purpose of Government	3	RLST 137	Gender, Sexuality, and Religion	3
PLSC 112N	Ethics in Citizenship, Politics, and Government	3	RLST 140Y	Religion in American Life and Thought	3
PLSC 177N	Politics and Government in Washington DC	1-3	RLST 145	African Diaspora Religions and Spiritualities	3
PLSC 183N	The Cold War in Literature, Politics, and History	3	RLST 146	The Life and Thought of Martin Luther King, Jr.	3
PLSC 200N	Government and Politics of Europe	3	RLST 147	The Life and Thought of Malcolm X	3
PLSC 201N	Politics & Religion: Controversies Around the World	3	RLST 153	Dead Sea Scrolls	3
PLSC 210N	Rights in America	3	RLST 160	Sacrifice in the Ancient World	3
PLSC 223N	Ethnic and Racial Politics	3	RLST 165	Islamic States, Societies and Cultures c. 600-1500	3
PLSC 290N	Comparative Violence: Political and Criminological Perspectives	3	RLST 181	Introduction to the Religions of China and Japan	3
PORT 197	Special topics	1-9	RLST 194	Jerusalem: Sacred and Profane	3
PORT 199	Foreign Studies	1-12	RLST 197	Special Topics	1-9
PORT 210N	Multilingual and Intercultural Communication	3	RLST 235	The Church and the Jews	3
PORT 299	Foreign Studies	1-12	RLST 280	Gendering the Divine in Indian and South Asian Religions	3
PORT 365	Imagining Brazilian Cities	3	RLST 294	Research Project	1-12
PORT 399	Foreign Studies	1-12	RLST 297	Special Topics	1-9

RLST 400	Theories of Religion	3	RUS 494H	Research Project	1-12
RLST 400	Theories of Religion	3	RUS 496	Independent Studies	1-18
RLST 407Y	Antisemitisms	3	RUS 497	Special Topics	1-9
RLST 409Y	Antisemitisms	3	RUS 499	Foreign Studies	1-12
RLST 410	Jews in the Medieval World	3	SC 120N	Plants, Places, and People	3
RLST 411	Jewish Studies	3	SC 205N	BS: Identifying Bias and Falsehood	3
RLST 420	Major Christian Thinkers	3	SOC 120N	Knowing Right from Wrong	3
RLST 422	Religion and American Culture	3	SOC 130N	Buddhism and US Society	3
RLST 423	Orthodox Christianity: History and Interpretations	3	SOC 145N	The Holocaust and Human Rights	3
RLST 432W	Gender and Sexuality in the Bible	3	SPAN 83	First-Year Seminar in Hispanic Literatures and Cultures	3
RLST 440Y	The Orthodox Christian Tradition	3	SPAN 99	Foreign Studies	1-12
RLST 471Y	Classical Islamic Civilization, 600-1258	3	SPAN 100A	Intermediate Grammar and Composition for Spanish Bilinguals	3
RLST 472	Islamic Philosophy	3	SPAN 105	Elementary Spanish I for Students in the Agricultural Sciences	4
RLST 478	Ethics After the Holocaust	3	SPAN 130	Iberian Civilization	3
RLST 483	Zen Buddhism	3	SPAN 131	Ibero-American Civilization	3
RLST 494	Research Project	1-12	SPAN 131Y	Ibero-American Civilization	3
RLST 494H	Research Project	1-12	SPAN 132	Afro-Hispanic Civilization	3
RLST 495	Internship	1-18	SPAN 197	Special Topics	1-9
RLST 496	Independent Studies	1-18	SPAN 200A	Intensive Grammar and Composition for Spanish Bilinguals	3
RLST 497	Special Topics	1-9	SPAN 210	Readings in Iberian Civilization	3
RLST 499	Foreign Study--Religious Studies	1-12	SPAN 210N	Multilingual and Intercultural Communication	3
RUS 83	First-Year Seminar in Russian	3	SPAN 220	Readings in Ibero-American Civilization	3
RUS 99	Foreign Studies	1-12	SPAN 253W	Introduction to Hispanic Literature	3
RUS 100	Russian Culture and Civilization	3	SPAN 269N	Theater and Performance	3
RUS 101N	Russian Cinema	3	SPAN 296	Independent Studies	1-18
RUS 110	Russian Folklore	3	SPAN 297	Special Topics	1-9
RUS 141Y	Russian Literature in English Translation: 1800-1870	3	SPAN 299	Foreign Study--Intermediate Conversational Spanish	3
RUS 142Y	Russian Literature in English Translation: 1870 to Present	3	SPAN 300	Advanced Grammar and Composition Through Reading	3
RUS 143	The Culture of Stalinism and Nazism	3	SPAN 353	Topics in the Cultures of Spain	3
RUS 144	Multicultural Russia: Narratives of Race and Ethnicity in Russian Literature and Culture	3	SPAN 354	Topics in Border Studies	3
RUS 145	Putin's Russia and Its Protest Culture	3	SPAN 355	Topics in the Cultures of Latin America	3
RUS 196	Independent Studies	1-18	SPAN 356	Topics in the Cultures of the Americas	3
RUS 197	Special Topics	1-9	SPAN 395	Internship	1-18
RUS 199	Foreign Studies	1-12	SPAN 397	Special Topics	1-9
RUS 214	Intermediate Russian III	4	SPAN 420	Spanish for Business and International Trade	3
RUS 296	Independent Studies	1-18	SPAN 423	Spanish in Contact with Other Languages	3
RUS 297	Special Topics	1-9	SPAN 424	Facts and Myths about Learning Spanish	3
RUS 299	Foreign Studies	1-12	SPAN 425	The Spanish Your Teachers Never Taught You	3
RUS 304	Readings in Russian III	3	SPAN 439	Don Quijote	3
RUS 395	Internship	1-18	SPAN 472	The Contemporary Spanish American Novel	3
RUS 399	Foreign Studies	1-12	SPAN 476	Masterpieces of Spanish American Literature	3
RUS 401	Advanced Russian I	4	SPAN 490	Masterpieces of Spanish Prose	3
RUS 402	Advanced Russian II	3	SPAN 491	Masterpieces of Spanish Drama and Poetry	3
RUS 403	Advanced Russian Conversation and Composition	3	SPAN 494	Research Project	1-12
RUS 410	Heritage Russian	4	SPAN 496	Independent Studies	1-18
RUS 412	Russian Translation	3	SPAN 496H	Independent Studies	3
RUS 414	Advanced Grammar and Linguistic Analysis of Contemporary Russian	3	SPAN 497	Special Topics	1-9
RUS 420	Senior Seminar in Russian Culture	3			
RUS 494	Research Project	1-12			

SPAN 499	Foreign Study--Spanish	1-12
STS 100	Science, Technology, and Culture	3
STS 100H	The Ascent of Humanity	3
STS 101	Modern Science, Technology, and Human values	3
STS 124	History of Western Medicine	3
STS 233	Ethics and the Design of Technology	3
STS 428	The Darwinian Revolution	3
STS 433	Ethics in Science and Engineering	3
WGSS 432W	Gender and Sexuality in the Bible	3
WMNST 8	Gender Matters	3
WMNST 83N	First-Year Seminar in Women's Studies	3
WMNST 101N	African American Women	3
WMNST 102	Women of the African Diaspora	3
WMNST 104	Women and the American Experience	3
WMNST 105N	Living in a Diverse World	3
WMNST 106N	Representing Women and Gender in Literature, Art and Popular Cultures	3
WMNST 106Q	Representing Women and Gender in Literature, Art and Popular Cultures	3
WMNST 117	Women in United States History	3
WMNST 137	Gender, Sexuality, and Religion	3
WMNST 194	Women Writers	3
WMNST 202N	Women, Gender, and Feminisms in Africa	3
WMNST 213Y	African American Women's History	3
WMNST 266Y	Sexuality and Violence in Nineteenth-Century America	3
WMNST 270	Race and Gender in Literature Translated from French	3
WMNST 280	Gendering the Divine in Indian and South Asian Religions	3
WMNST 300	Latinx Gender and Sexuality Studies	3
WMNST 400N	Debates in Contemporary Feminism	3
WMNST 438	Seminar in Feminist Philosophy	3
WMNST 440W	Women in Global Cities	3
WMNST 462	Reading Black, Reading Feminist	3
WMNST 489	British Women Writers	3
WMNST 490	Women Writers and Their Worlds	3
WMNST 491	American Women Writers	3

B.A. Degree Requirements: Natural Sciences Courses

These courses have been approved as Bachelor of Arts Degree Requirements courses. This course list is updated periodically. More information about the Bachelor of Arts Degree Requirements can be found in the Academic Information section.

Code	Title	Credits
AERSP 55	Space Science and Technology	3
AFR 105	African Biodiversity and Conservation	3
AFR 234	Environment, Climate Change and Resilience in Africa	3
AGECO 121	Plant Stress: It's Not Easy Being Green	3
ANSC 300	Integrated Animal Biology	3

ANTH 21	Introductory Biological Anthropology	3
ANTH 40Q	Biocultural Evolution	3
ANTH 100N	Anthropology of Race and Racism	3
ANTH 129N	Chocolate Worlds	3
ANTH 150N	Human Nature: The Science of Extreme Altruism and Violence	3
ANTH 150Q	Human Nature: The Science of Extreme Altruism and Violence	3
ANTH 222	Archaeology of Domesticated Animals	3
ARCH 170N	Introduction to Sustainable Architecture	3
ASTRO 1	Astronomical Universe	3
ASTRO 5	The Sky and Planets	3
ASTRO 6	Stars, Galaxies, and the Universe	3
ASTRO 10	Elementary Astronomy	2
ASTRO 11	Elementary Astronomy Laboratory	1
ASTRO 19N	Being in the Universe	3
ASTRO 120	The Big Bang Universe	3
ASTRO 130	Black Holes in the Universe	3
ASTRO 140	Life in the Universe	3
ASTRO 291	Astronomical Methods and the Solar System	3
ASTRO 292	Astronomy of the Distant Universe	3
BIOL 11	Introductory Biology I	3
BIOL 12	Introductory Biology II	1
BIOL 110	Biology: Basic Concepts and Biodiversity	4
BIOL 110H	Honors Biology: Basic Concepts and Biodiversity	4
BIOL 110S	Biology: Basic Concepts and Biodiversity	4
BIOL 127	Introduction to Plant Biology	3
BIOL 129	Mammalian Anatomy	4
BIOL 133	Genetics and Evolution of the Human Species	3
BIOL 141	Introduction to Human Physiology	3
BIOL 155	Introduction to the Biology of Aging	3
BIOL 160N	Fitness with Exercise Physiology	3
BIOL 220M	Honors Biology: Populations and Communities	4
BIOL 220W	Biology: Populations and Communities	4
BIOL 230M	Honors Biology: Molecules and Cells	4
BIOL 230W	Biology: Molecules and Cells	4
BIOL 240W	Biology: Function and Development of Organisms	4
BISC 1	Structure and Function of Organisms	3
BISC 2	Genetics, Ecology, and Evolution	3
BISC 3	Environmental Science	3
BISC 4	Human Body: Form and Function	3
BMB 1	The Science of Sickness	3
BMB 1Z	The Science of Sickness - Linked	3
CHEM 1	Molecular Science	3
CHEM 3	Molecular Science With Laboratory	3
CHEM 5	Kitchen Chemistry	3
CHEM 106	Introductory and General Chemistry	5
CHEM 110	Chemical Principles I	3
CHEM 110H	Chemical Principles I - Honors	3
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
CHEM 112H	Chemical Principles II - Honors	3

CHEM 113	Experimental Chemistry II	1	METEO 101	Understanding Weather Forecasting	3
CMLIT 19N	Being in the Universe	3	MICRB 106	Elementary Microbiology	3
EARTH 2	The Earth System and Global Change	3	MICRB 107	Elementary Microbiology Laboratory	1
EARTH 100	Environment Earth	3	PHIL 131N	BS: Identifying Bias and Falsehood	3
EARTH 101	Natural Disasters: Hollywood vs. Reality	3	PHYS 1	The Science of Physics	3
EARTH 103N	Earth in the Future: Predicting Climate Change and Its Impacts Over the Next Century	3	PHYS 150	Technical Physics I	3
EARTH 105N	Environments of Africa: Geology and Climate Change	3	PHYS 151	Technical Physics II	3
EARTH 150	Dinosaur Extinctions and Other Controversies	3	PHYS 211	General Physics: Mechanics	4
EGEE 101	Energy and the Environment	3	PHYS 211H	General Physics: Mechanics	4
EGEE 101A	Energy and the Environment	3	PHYS 212	General Physics: Electricity and Magnetism	4
EGEE 101H	Energy and the Environment	3	PHYS 212H	General Physics: Electricity and Magnetism	4
EGEE 102	Energy Conservation for Environmental Protection	3	PHYS 213	General Physics: Fluids and Thermal Physics	2
EGEE 102H	Energy Conservation for Environmental Protection	3	PHYS 214	General Physics: Wave Motion and Quantum Physics	2
EMSC 121	Minerals and Modern Society	3	PHYS 250	Introductory Physics I	4
EMSC 125	Plastics in the Environment	3	PHYS 251	Introductory Physics II	4
EMSC 240N	Energy and Sustainability in Contemporary Culture	3	PLANT 129N	Chocolate Worlds	3
ENT 202N	Insect Connections: Insects, Globalization and Sustainability	3	PSYCH 150N	Human Nature: The Science of Extreme Altruism and Violence	3
ENVST 100N	Visions of Nature	3	PSYCH 150Q	Human Nature: The Science of Extreme Altruism and Violence	3
ENVST 428	Environmental Economics and Policy	3	SC 120N	Plants, Places, and People	3
ERM 210	Environmental Factors and Their Effect on Your Food Supply	3	SC 205N	BS: Identifying Bias and Falsehood	3
GEOG 1N	Global Parks and Sustainability	3	SOILS 101	Introductory Soil Science	3
GEOG 3N	Food and the Future Environment	3	STS 55	Space Science and Technology	3
GEOG 4	Earth and Environmental Systems Geography	3	STS 201	Climate Change, Energy, and Biodiversity	3
GEOG 6N	Maps and the Geospatial Revolution	3	VBSC 211	The Immune System and Disease	3
GEOG 10	Physical Geography: An Introduction	3	WFS 209N	Wildlife and Fisheries Conservation	3
GEOG 10H	Physical Geography: An Introduction	3			
GEOG 110	Climates of the World	3			
GEOG 115	Landforms of the World	3			
GEOG 210	Geographic Perspectives on Environmental Systems Science	3			
GEOG 315	Landforms and Geomorphic Systems in the Anthropocene	3			
GEOG 330N	Political Ecology	3			
GEOSC 2	Historical Geology	3			
GEOSC 10	Geology of the National Parks	3			
GEOSC 20	Planet Earth	3			
GEOSC 21	Earth and Life: Origin and Evolution	3			
GEOSC 40	The Sea Around Us	3			
GEOSC 50	Planetary Geology	3			
GEOSC 109H	Earthquakes and Society	3			
GEOSC 110H	The Science of Gemstones	3			
HIST 129N	Chocolate Worlds	3			
HORT 101	Horticultural Science	3			
INART 50	The Science of Music	3			
KINES 160N	Fitness with Exercise Physiology	3			
MATSE 81	Materials in Today's World	3			
MATSE 101	Energy and the Environment	3			
MATSE 101A	Energy and the Environment	3			
METEO 3	Weather Revealed: Introductory Meteorology	3			

B.A. Degree Requirements: Quantification Courses

These courses have been approved as Bachelor of Arts Degree Requirements courses. This course list is updated periodically. More information about the Bachelor of Arts Degree Requirements can be found in the Academic Information section.

Code	Title	Credits
CMPSC 101	Introduction to Programming	3
CMPSC 121	Introduction to Programming Techniques	3
CMPSC 200	Programming for Engineers with MATLAB	3
CMPSC 201	Programming for Engineers with C++	3
CMPSC 203	Introduction to Spreadsheets and Databases	4
CMPSC 208	Technical Game Development	3
CMPSC 451	Numerical Computations	3
CMPSC 455	Introduction to Numerical Analysis I	3
CMPSC 456	Introduction to Numerical Analysis II	3
CMPSC 467	Factorization and Primality Testing	3
EDPSY 101	Analysis and Interpretation of Statistical Data in Education	3
GAME 250	Technical Game Development	3
GAME 251	2D Game Programming	3
MATH 21	College Algebra with Analytic Geometry with Applications I	3

MATH 22	College Algebra With Analytic Geometry and Applications II	3	MATH 312	Concepts of Real Analysis	3
MATH 26	Plane Trigonometry and Applications of Trigonometry	3	MATH 312H	Honors Concepts of Real Analysis	3
MATH 30	Problem Solving	3	MATH 318	Elementary Probability	3
MATH 33	Mathematics for Sustainability	3	MATH 319	Elementary Mathematical Statistics	3
MATH 34	The Mathematics of Money	3	MATH 397	Special Topics	1-9
MATH 35	General View of Mathematics	3	MATH 399	Foreign Studies	1-12
MATH 36	Insights Into Mathematics	3	MATH 401	Introduction to Analysis I	3
MATH 37	Finite Mathematics	3	MATH 403	Classical Analysis I	3
MATH 38	Elementary Linear Algebra	3	MATH 403H	Honors Classical Analysis I	3
MATH 40	Algebra, Trigonometry, and Analytic Geometry	5	MATH 404	Classical Analysis II	3
MATH 41	Trigonometry and Analytic Geometry	4	MATH 405	Advanced Calculus for Engineers and Scientists I	3
MATH 81	Technical Mathematics I	3	MATH 406	Advanced Calculus for Engineers and Scientists II	3
MATH 82	Technical Mathematics II	3	MATH 411	Ordinary Differential Equations	3
MATH 83	Technical Calculus	4	MATH 412	Fourier Series and Partial Differential Equations	3
MATH 110	Techniques of Calculus I	4	MATH 417	Qualitative Theory of Differential Equations	3
MATH 111	Techniques of Calculus II	2	MATH 421	Complex Analysis	3
MATH 140	Calculus With Analytic Geometry I	4	MATH 422	Wavelets and Fourier Analysis: Theory and Applications	3
MATH 140B	Calculus and Biology I	4	MATH 425	Introduction to Operations Research	3
MATH 140E	Calculus with Engineering Applications I	4	MATH 426	Introduction to Modern Geometry	3
MATH 140G	Calculus with Earth and Mineral Sciences Applications I	4	MATH 427	Foundations of Geometry	3
MATH 140H	Honors Calculus with Analytic Geometry I	4	MATH 428	Geometry for Teachers	1
MATH 141	Calculus with Analytic Geometry II	4	MATH 429	Introduction to Topology	3
MATH 141B	Calculus and Biology II	4	MATH 430	Linear Algebra and Discrete Models I	3
MATH 141E	Calculus with Engineering Applications II	4	MATH 435	Basic Abstract Algebra	3
MATH 141G	Calculus with Earth and Mineral Sciences Applications II	4	MATH 436	Linear Algebra	3
MATH 141H	Honors Calculus with Analytic Geometry II	4	MATH 437	Algebraic Geometry	3
MATH 197	Special Topics	1-9	MATH 441	Matrix Algebra	3
MATH 199	Foreign Studies	1-12	MATH 449	Applied Ordinary Differential Equations	3
MATH 200	Problem Solving in Mathematics	3	MATH 450	Mathematical Modeling	3
MATH 210	Calculus with Engineering Technology Applications	3	MATH 451	Numerical Computations	3
MATH 211	Intermediate Calculus and Differential Equations with Applications	3	MATH 455	Introduction to Numerical Analysis I	3
MATH 220	Matrices	2-3	MATH 456	Introduction to Numerical Analysis II	3
MATH 220H	Honors Matrices	2-3	MATH 457	Introduction to Mathematical Logic	3
MATH 230	Calculus and Vector Analysis	4	MATH 465	Number Theory	3
MATH 230H	Honors Calculus and Vector Analysis	4	MATH 467	Factorization and Primality Testing	3
MATH 231	Calculus of Several Variables	2	MATH 468	Mathematical Coding Theory	3
MATH 231H	Honors Calculus of Several Variables	2	MATH 470	Algebra for Teachers	3
MATH 232	Integral Vector Calculus	2	MATH 471	Geometry for Teachers	4
MATH 250	Ordinary Differential Equations	3	MATH 475Y	History of Mathematics	3
MATH 251	Ordinary and Partial Differential Equations	4	MATH 479	Special and General Relativity	3
MATH 251H	Honors Ordinary and Partial Differential Equations	4	MATH 482	Mathematical Methods of Operations Research	3
MATH 296	Independent Studies	1-18	MATH 484	Linear Programs and Related Problems	3
MATH 297	Special Topics	1-9	MATH 485	Graph Theory	3
MATH 310	Elementary Combinatorics	3	MATH 486	Mathematical Theory of Games	3
MATH 310H	Honors Concepts of Combinatorics	3	MATH 494	Research Project	1-12
MATH 311M	Honors Concepts of Discrete Mathematics	3	MATH 494H	Thesis Project	3
MATH 311W	Concepts of Discrete Mathematics	3-4	MATH 495	Internship	1-18
			MATH 496	Independent Studies	1-18
			MATH 496A	**SPECIAL TOPICS**	1-6
			MATH 497	Special Topics	1-9
			MATH 499	Foreign Studies	1-12

PHIL 12	Symbolic Logic	3
PHYS 479	Special and General Relativity	3
STAT 100	Statistical Concepts and Reasoning	3
STAT 200	Elementary Statistics	4
STAT 240	Introduction to Biometry	3
STAT 250	Introduction to Biostatistics	3
STAT 318	Elementary Probability	3
STAT 319	Elementary Mathematical Statistics	3

B.A. Degree Requirements: Social and Behavioral Sciences Courses

These courses have been approved as Bachelor of Arts Degree Requirements courses. This course list is updated periodically. More information about the Bachelor of Arts Degree Requirements can be found in the Academic Information section.

Code	Title	Credits
AA 160N	The Virtual Transformational Leadership Development Experience	3
AERSP 55	Space Science and Technology	3
AFAM 100N	Black Freedom Struggles	3
AFAM 101N	African American Women	3
AFAM 103	Racism and Sexism	3
AFAM 105N	Afro-Latin America: Race and Revolution	3
AFAM 114N	Race, Gender and Sport	3
AFAM 136	Race, Gender, and Employment	3
AFAM 136Y	Race, Gender, and Employment	3
AFAM 409	Racial and Ethnic Inequality in America	3
AFAM 445Y	Politics of Affirmative Action	3
AFR 110N	Introduction to Contemporary Africa	3
AFR 202N	Women, Gender, and Feminisms in Africa	3
AFR 205	Development and Sustainability in Africa	3
AFR 234	Environment, Climate Change and Resilience in Africa	3
AFR 434	War and Development in Africa	3
AFR 440	Globalization and Its Implications	3
AFR 443	Ethnic Conflict in Africa	3
AFR 444	African Resources and Development	3
AFR 454	Government and Politics of Africa	3
AGBM 101	Economic Principles of Agribusiness Decision Making	3
AMST 106N	The Mass Media and Society	3
AMST 151N	Technology and Society in American History	3
AMST 155	American Business History	3
ANTH 1	Understanding Humans	3
ANTH 2N	World Archaeology	3
ANTH 8	Aztec, Inca, Maya	3
ANTH 9N	Rise of Civilization in the Old World	3
ANTH 11	North American Archaeology	3
ANTH 40	Biocultural Evolution	3
ANTH 40Q	Biocultural Evolution	3
ANTH 45N	Cultural Diversity: A Global Perspective	3
ANTH 45Q	Cultural Diversity: A Global Perspective	3

ANTH 83S	First-Year Seminar in Anthropology	3
ANTH 100N	Anthropology of Race and Racism	3
ANTH 120	First Farmers	3
ANTH 140	Anthropology of Alcohol	3
ANTH 146	Indigenous North America	3
ANTH 150N	Human Nature: The Science of Extreme Altruism and Violence	3
ANTH 150Q	Human Nature: The Science of Extreme Altruism and Violence	3
ANTH 152	Hunters and Gatherers	3
ANTH 221N	Ancient Maya: Sacred Blood & Conjured Serpent	3
ANTH 222	Archaeology of Domesticated Animals	3
ANTH 408	Anthropological Demography	3
ANTH 420	Archaeology of the Near East	3
ANTH 422	Meso-American Archaeology and Ethnography	3
ANTH 423	The Evolution of American Indian Culture	3
ANTH 424	Andean Ethnology and Archaeology	3
ANTH 435	Ancient Economy	3
ANTH 453	Anthropology of Religion	3
ANTH 458	Ethnographic Field Methods	3
APLNG 83	First-Year Seminar in Applied Linguistics: Language as Social Practice	3
APLNG 280N	Conducting International Comparative Research	3
APLNG 410	Teaching American English Pronunciation	3
ART 207N	LGBTQ+ Identity, Culture and The Arts	3
CAMS 12N	Lands of the Bible	3
CAMS 430	Archaeology of the Near East	3
CAS 83	First-Year Seminar in Communication Arts and Sciences	3
CAS 101N	Introduction to Human Communication	3
CAS 170N	What is Information?	3
CAS 182N	Communication and Sport	3
CAS 220	Persuasion	3
CAS 303	Communication Theory	3
CAS 450W	Group Communication Theory and Research	3
CAS 475	Studies in Public Address	3
CC 200	Introduction to Corporate Communication	3
CED 155	Science, Technology and Public Policy	3
COMM 100N	The Mass Media and Society	3
COMM 180	Survey of Electronic Media and Telecommunications	3
COMM 205	Gender, Diversity and the Media	3
COMM 401	Mass Media in History	3
COMM 403	Law of Mass Communications	3
COMM 405	Political Economy of Communications	3
COMM 408	Cultural Foundations of Communications	3
COMM 409	News Media Ethics	3
COMM 410	International Mass Communications	3
COMM 411	Cultural Aspects of the Mass Media	3
COMM 413W	The Mass Media and the Public	3
COMM 417	Ethics and Regulation in Advertising and Public Relations	3
COMM 419	World Media Systems	3

COMM 419H	World Media Systems	3	ECON 444	Economics of the Corporation	3
CRIM 12	Criminology	3	ECON 445	Health Economics	3
CRIM 100	Introduction to Criminal Justice	3	ECON 451	Monetary Theory and Policy	3
CRIM 406	Sociology of Deviance	3	ECON 471	Growth and Development	3
CRIM 451	Race, Crime, and Justice	3	ECON 472N	Russian Economic History	3
CRIM 467	Law and Society	3	ECON 480	Mathematical Economics	3
CRIMJ 12	Criminology	3	ECON 489M	Honors Thesis	1-6
CRIMJ 100	Introduction to Criminal Justice	3	ECON 494	Research Project	1-12
CRIMJ 406	Sociology of Deviance	3	ECON 494A	Research Project	1-12
CRIMJ 414	Criminal Careers and the Organization of Crime	3	ECON 494H	Research Project	1-12
CRIMJ 439	The Politics of Terrorism	3	ECON 495	Internship	1-18
CRIMJ 451	Race, Crime, and Justice	3	ECON 496	Independent Studies	1-18
CRIMJ 460	History and Function of Criminal Justice Components	3	ECON 497	Special Topics	1-9
CRIMJ 462	Comparative Criminal Justice Systems	3	ECON 499	Foreign Study--Economics	2-6
CRIMJ 467	Law and Society	3	EDPSY 10	Individual Differences and Education	3
EBF 200	Introduction to Energy and Earth Sciences Economics	3	EDPSY 14	Learning and Instruction	3
ECON 14	Principles of Economics	3	EDPSY 450	Principles of Measurement	3
ECON 102	Introductory Microeconomic Analysis and Policy	3	EDTHP 115A	Competing Rights: Issues in American Education	3
ECON 102H	Introductory Microeconomic Analysis and Policy (Honors)	3	EDTHP 115S	Competing Rights: Issues in American Education	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3	EDTHP 416	Sociology of Education	3
ECON 104H	Introductory Macroeconomic Analysis and Policy (Honors)	3	EMSC 420	Energy and Modern Society	3
ECON 106	Statistical Foundations for Econometrics	3	ENGL 108N	Buddhism and US Society	3
ECON 197	Special topics	1-9	ENGL 183N	The Cold War in Literature, Politics, and History	3
ECON 199	Foreign Studies	1-12	FDSC 105	Food Facts and Fads	3
ECON 297	Special Topics	1-9	GEOG 1N	Global Parks and Sustainability	3
ECON 299	Foreign Studies	1-12	GEOG 3N	Food and the Future Environment	3
ECON 302	Intermediate Microeconomic Analysis	3	GEOG 6N	Maps and the Geospatial Revolution	3
ECON 302H	Intermediate Microeconomic Analysis (Honors)	3	GEOG 20	Human Geography: An Introduction	3
ECON 304	Intermediate Macroeconomic Analysis	3	GEOG 20U	Human Geography: An Introduction	3
ECON 304H	Intermediate Macroeconomic Analysis (Honors)	3	GEOG 30N	Environment and Society in a Changing World	3
ECON 315	Labor Economics	3	GEOG 40	World Regional Geography	3
ECON 323	Public Finance	3	GEOG 123	Geography of Developing World	3
ECON 333	International Economics	3	GEOG 124	Elements of Cultural Geography	3
ECON 342	Industrial Organization	3	GEOG 126	Economic Geography	3
ECON 351	Money and Banking	3	GEOG 128	Geography of International Affairs	3
ECON 395	Internship	1-18	GEOG 160	Mapping Our Changing World	3
ECON 399	Foreign Studies	1-12	GEOG 220	Perspectives on Human Geography	3
ECON 400M	Honors Seminar in Economics	3-12	GEOG 260	Geographic Information in a Changing World: Introduction to GIScience	3
ECON 402	Decision Making and Strategy in Economics	3	GEOG 297	Special Topics	1-9
ECON 412	Labor Economics and Labor Markets: Theory, Evidence, and Policy	3	GEOG 298	Special Topics	1-9
ECON 425	Economics of Public Expenditures	3	GEOG 313	Introduction to Field Geography	3
ECON 428	Environmental Economics	3	GEOG 314	Biogeography and Global Ecology	3
ECON 429	Public Finance and Fiscal Policy	3	GEOG 320	Urban Geography: A Global Perspective	3
ECON 432	Urban Economics	3	GEOG 324	Place, Space and Culture	3
ECON 433	Advanced International Trade Theory and Policy	3	GEOG 326	Geographic Perspectives on Economic Systems	3
ECON 434	International Finance and Open Economy Macroeconomics	3	GEOG 330N	Political Ecology	3
ECON 443	Economics of Law and Regulation	3	GEOG 333	Human Dimensions of Natural Hazards	3
			GEOG 361	Cartography--Maps and Map Construction	3
			GEOG 362	Image Analysis	3
			GEOG 364	Spatial Analysis	3
			GEOG 411	Forest Geography	3

GEOG 411W	Forest Geography	3	HIST 119	Gender and History	3
GEOG 412W	Climatic Change and Variability	3	HIST 120N	History of Modern Europe since 1789	3
GEOG 417	Satellite Climatology	3	HIST 142N	History of Communism	3
GEOG 420Y	Comparative Urbanism	3	HIST 145N	The Holocaust and Human Rights	3
GEOG 422W	Globalization, Migration, and Displacement	3	HIST 151N	Technology and Society in American History	3
GEOG 424	Geography of the Global Economy	3	HIST 155	American Business History	3
GEOG 425	Geography of Race, Class, and Poverty in America	3	HIST 156	History of the American Worker	3
GEOG 426W	Gendered Worlds	3	HIST 173	Vietnam in War and Peace	3
GEOG 427	Urban Historical Geography	3	HIST 238N	Society and Culture in Palestine/Israel	3
GEOG 428W	Political Geography	3	HIST 402N	Russian Economic History	3
GEOG 429	Geographic Perspectives on Global Urbanization	3	HIST 453	American Environmental History	3
GEOG 430	Human Use of Environment	3	HIST 458Y	History of Work in America	3
GEOG 431	Geography of Water Resources	3	HPA 445	Health Economics	3
GEOG 431H	Geography of Water Resources	3	IB 440	Globalization and Its Implications	3
GEOG 437W	Energy Geographies and Policy	3	INTAG 100N	Everyone Eats: Hunger, Food Security & Global Agriculture	3
GEOG 438W	Human Dimensions of Global Warming	3	INTST 100	Introduction to International Studies	3
GEOG 444	African Resources and Development	3	IST 170N	What is Information?	3
GEOG 461W	Dynamic Cartographic Representation	3	IT 210N	Multilingual and Intercultural Communication	3
GEOG 463	Geospatial Information Management	3	JST 12N	Lands of the Bible	3
GEOG 464	Advanced Spatial Analysis	3	JST 420	Archaeology of the Near East	3
GEOG 467	Applied Cartographic Design	3	LER 199	Foreign Studies	1-12
GEOG 468	Geographic Information Systems Design and Evaluation	3	LER 297	Special Topics	1-9
GEOG 481	Topographic Mapping with Lidar	3	LER 299	Foreign Studies	1-12
GEOG 483	Problem-Solving with GIS	3	LER 399	Foreign Studies	1-12
GEOG 484	GIS Database Development	3	LER 424	Employment Compensation	3
GEOG 485	GIS Programming and Software Development	3	LER 445Y	Politics of Affirmative Action	3
GEOG 486	Cartography and Visualization	3	LHR 83S	First-Year Seminar in Labor and Human Resources	3
GEOG 495	Internship	1-13	LHR 100	Exploring Work and Employment	3
GEOG 495B	Geography Teaching Internship	1-10	LHR 136	Race, Gender, and Employment	3
GEOG 495C	Internship Supervision and Mentoring	1	LHR 136Y	Race, Gender, and Employment	3
GEOG 495G	Giscience Internship	1-10	LHR 160N	The Virtual Transformational Leadership Development Experience	3
GEOG 496	Independent Studies	1-18	LHR 201	Employment Relationship: Law and Policy	3
GEOG 497	Special Topics	1-9	LHR 202	Understanding Employee Behavior	3
GEOG 498	Special Topics	1-9	LHR 305	Human Resources Fundamentals	3
GEOG 498A	**SPECIAL TOPICS**	1-3	LHR 312	Research Methods in Labor and Employment Relations	3
GEOG 498B	**SPECIAL TOPICS**	2-3	LHR 400	Comparative Employment Relations Systems	3
GLIS 101N	Globalization	3	LHR 401	The Law of Labor-Management Relations	3
GLIS 102N	Global Pathways	3	LHR 403	International Human Resource Studies	3
HDFS 129	Introduction to Human Development and Family Studies	3	LHR 409	Leadership Development: A Life-Long Learning Perspective	3
HDFS 129S	Introduction to Human Development and Family Studies	3	LHR 426	Staffing and Training Strategies in Organizations	3
HDFS 229	Infant and Child Development	3	LHR 434	Advanced Collective Bargaining and Contract Administration	3
HDFS 239	Adolescent Development	3	LHR 435	Labor Relations in the Public Sector	3
HDFS 249N	Adult Development and Aging	3	LHR 437	Workplace Dispute Resolution	3
HDFS 431	Family Disorganization: Stress Points in the Contemporary Family	3	LHR 444	Workplace Safety and Health: Principles and Practices	3
HDFS 434	Perspectives on Aging	3	LHR 452	Human Resources and Employment Relations in Tech	3
HDFS 440	Family Policy	3	LHR 458Y	History of Work in America	3
HDFS 445	Development Throughout Adulthood	3			
HIST 116H	Family and Sex Roles in Modern History	3			
HIST 116N	Family and Gender Roles in Modern History	3			

LHR 459	Collective Bargaining in Professional Sports	3	PLSC 1	American Politics: Principles, Processes and Powers	3
LHR 464	Communication Skills for Leaders in Groups and Organizations	3	PLSC 1H	American Politics: Principles, Processes and Powers	3
LHR 465	Collective Decision Making	3	PLSC 1S	American Politics: Principles, Processes and Powers	3
LHR 471	Comparative Human Resource and Employment Relations Practices: Virtual Travel to Three Continents	3	PLSC 3	Comparing Politics around the Globe	3
LHR 472	Work-Life Practices and Policies	3	PLSC 3H	Comparing Politics around the Globe	3
LHR 494	Research Project	1-12	PLSC 7N	Contemporary Political Ideologies	3
LHR 494H	Research Project	1-12	PLSC 10	Scientific Study of Politics	3
LHR 495	Labor Studies Internship	1-12	PLSC 14	International Relations	3
LHR 496	Independent Studies	1-18	PLSC 14H	International Relations Honors	3
LHR 497	Special Topics	1-9	PLSC 17N	Introduction to Political Theory	3
LHR 499	Foreign Studies	1-12	PLSC 17W	Introduction to Political Theory	3
LING 1	Language, Life and Society	3	PLSC 83S	First-Year Seminar in Political Science	3
LING 97	Special Topics	1-9	PLSC 112N	Ethics in Citizenship, Politics, and Government	3
LING 98	Special Topics	1-9	PLSC 120N	State, Society, and Public Policy	3
LING 100	Foundations of Linguistics	3	PLSC 125	Pennsylvania Government and Politics	3
LING 197	Special Topics	1-9	PLSC 132	The Politics of International Intolerance	3
LING 199	Foreign Studies	1-12	PLSC 155	Understanding Tyranny	3
LING 294	Research Project	1-12	PLSC 177N	Politics and Government in Washington DC	1-3
LING 297	Special Topics	1-9	PLSC 183N	The Cold War in Literature, Politics, and History	3
LING 299	Foreign Studies	1-12	PLSC 197	Special topics	1-9
LING 395	Internship	1-18	PLSC 199	Foreign Studies	1-12
LING 397	Special Topics	1-9	PLSC 200N	Government and Politics of Europe	3
LING 399	Foreign Studies	1-12	PLSC 201N	Politics & Religion: Controversies Around the World	3
LING 402	Syntax I	3	PLSC 202	American Public Policy	3
LING 404	Phonology I	3	PLSC 210N	Rights in America	3
LING 429	Language and Thought	3	PLSC 220	Politics of the Developing World	3
LING 446	L1 Acquisition	3	PLSC 223N	Ethnic and Racial Politics	3
LING 447	Bilingualism	3	PLSC 230	American Political Campaigns and Elections	3
LING 448	Sociolinguistics	3	PLSC 235	Environmental Politics	3
LING 449	Semantics I	3	PLSC 290N	Comparative Violence: Political and Criminological Perspectives	3
LING 457	Psychology of Language	3	PLSC 291	Introduction to Peace and Conflict Studies	3
LING 493	Field Methods	3	PLSC 296	Independent Studies	1-18
LING 494	Research Project	1-12	PLSC 297	Special Topics	1-9
LING 494H	Research Project	1-12	PLSC 299	Foreign Studies	1-12
LING 496	Independent Studies	1-18	PLSC 300	Introduction to Independent Thesis Research	1-3
LING 497	Special Topics	1-9	PLSC 306	Senior Thesis Writing Workshop	1-3
LING 499	Foreign Studies	1-12	PLSC 309	Quantitative Political Analysis	3
OLEAD 100	Introduction to Leadership	3	PLSC 309H	Quantitative Political Analysis	3
OLEAD 409	Leadership Development: A Life-Long Learning Perspective	3	PLSC 395	Internship	1-18
OLEAD 409	Leadership Development: A Life-Long Learning Perspective	3	PLSC 397	Special Topics	1-9
OLEAD 464	Communication Skills for Leaders in Groups and Organizations	3	PLSC 399	Foreign Studies	1-12
OLEAD 465	Collective Decision Making	3	PLSC 403	The Legislative Process	3
PHIL 60N	Philosophy and 1960s Counterculture	3	PLSC 404	Analyzing Public Policy in the American States	3
PHIL 120N	Knowing Right from Wrong	3	PLSC 405	The American Presidency	3
PHIL 242N	Happiness and Well-Being	3	PLSC 410	Strategy and Politics	3
PHIL 433	Ethics in Science and Engineering	3	PLSC 412	International Political Economy	3
			PLSC 413	The Rise and Fall of the Soviet Union	3
			PLSC 414	Dictators and Their Demise	3
			PLSC 418	International Relations Theory	3

PLSC 418H	International Relations Theory	3	PLSC 489	Public Administration	3
PLSC 418W	International Relations Theory	3	PLSC 490	Policy Making and Evaluation	3
PLSC 419	The Bureaucratic State	3	PLSC 491	Peace and Conflict Studies Seminar	3
PLSC 422	Comparative Urban Politics	3	PLSC 494	Research Project	1-12
PLSC 423	Post-Soviet Politics	3	PLSC 494H	Research Project	1-12
PLSC 424	Topics in Comparative Government and Institutions	3	PLSC 495	Political Science Internship	1-6
PLSC 425	Government and Politics of the American States	3	PLSC 496	Independent Studies	1-18
PLSC 426	Political Parties and Interest Groups	3	PLSC 497	Special Topics	1-9
PLSC 427	Political Opinion	3	PLSC 499	Foreign Study--Government	1-12
PLSC 428	Gender and Politics	3	PORT 210N	Multilingual and Intercultural Communication	3
PLSC 429	Analysis of Electoral Politics	3	PSYCH 83S	First-Year Seminar in Psychology	3
PLSC 430	Selected Works in the History of Political Theory	3	PSYCH 100	Introductory Psychology	3
PLSC 430W	Selected Works in the History of Political Theory	3	PSYCH 100S	Introductory Psychology	3
PLSC 431	Ancient, Medieval, and Renaissance Political Theories	3	PSYCH 105	Psychology as a Science and Profession	3
PLSC 432	Modern and Contemporary Political Theories	3	PSYCH 120N	Knowing Right from Wrong	3
PLSC 434	War and Development in Africa	3	PSYCH 150N	Human Nature: The Science of Extreme Altruism and Violence	3
PLSC 435	Foundations of American Political Theory	3	PSYCH 150Q	Human Nature: The Science of Extreme Altruism and Violence	3
PLSC 437	War in World Politics	3	PSYCH 199	Foreign Studies	1-12
PLSC 438	National Security Policies	3	PSYCH 212	Introduction to Developmental Psychology	3
PLSC 439	The Politics of Terrorism	3	PSYCH 221	Introduction to Social Psychology	3
PLSC 440	Globalization and Its Implications	3	PSYCH 230	Introduction to Psychologies of Religion	3
PLSC 442	American Foreign Policy	3	PSYCH 231	Introduction to the Psychology of Gender	3
PLSC 443	Ethnic Conflict in Africa	3	PSYCH 232	Cross-Cultural Psychology	3
PLSC 444	Government and the Economy	3	PSYCH 238	Introduction to Personality Psychology	3
PLSC 445Y	Politics of Affirmative Action	3	PSYCH 243	Introduction to Well-being and Positive Psychology	3
PLSC 451	The Politics of Human Rights	3	PSYCH 253	Introduction to Psychology of Perception	3
PLSC 452	Government and Politics of Central Europe	3	PSYCH 256	Introduction to Cognitive Psychology	3
PLSC 453	Political Processes in Underdeveloped Systems	3	PSYCH 260A	Neurological Bases of Human Behavior	3
PLSC 454	Government and Politics of Africa	3	PSYCH 261	Introduction to Psychology of Learning	3
PLSC 455	Governments and Politics of Western Europe	3	PSYCH 269	Evolutionary Psychology	3
PLSC 456	Politics and Institutions of Latin-American Nations	3	PSYCH 270	Introduction to Abnormal Psychology	3
PLSC 458	Government and Politics of East Asia	3	PSYCH 281	Introduction to Industrial-Organizational Psychology	3
PLSC 459	Culture and World Politics	3	PSYCH 294	Research Project	1-12
PLSC 460	Science, Technology, and Public Policy	3	PSYCH 295	Internship	1-18
PLSC 462	Marxist and Socialist Political Theory	3	PSYCH 297	Special Topics	1-9
PLSC 466	Political Psychology	3	PSYCH 299	Foreign Studies	1-12
PLSC 467	International Relations of the Middle East	3	PSYCH 300	Honors Course in Psychology	1-6
PLSC 468	Politics and the Media	3	PSYCH 301W	Basic Research Methods in Psychology	4
PLSC 471	American Constitutional Law	3	PSYCH 399	Foreign Studies	1-12
PLSC 471H	American Constitutional Law	3	PSYCH 404	Principles of Measurement	3
PLSC 472	The American Legal Process	3	PSYCH 407	Advanced Research Methods in Psychology	3
PLSC 473	American Judicial Behavior	3	PSYCH 415	Topics in Developmental Psychology	3
PLSC 474	Civil Liberties and Due Process	3	PSYCH 416	Development Throughout Adulthood	3
PLSC 479	Nuclear Weapons in International Relations	3	PSYCH 421	Self and Social Judgment	3
PLSC 480W	Congress and the Presidency	3	PSYCH 423	Social Psychology of Interpersonal/Intergroup Relationships	3
PLSC 481	Global Political Economy	3	PSYCH 424	Applied Social Psychology	3
PLSC 482	American State and Urban Politics	3	PSYCH 425	Psychology of Human Emotion	3
PLSC 484W	The Foreign Policy of Soviet Successor States	3	PSYCH 426	Language and Thought	3
PLSC 487	International Law and Organizations	3	PSYCH 427	L1 Acquisition	3
PLSC 488	Comparative Public Policy	3			

PSYCH 432	Multicultural Psychology in America	3	SOC 294	Research Project	1-12
PSYCH 436	Humanistic, Existential, and Religious Approaches to Psychology	3	SOC 296	Independent Studies	1-18
PSYCH 441	Health Psychology	3	SOC 297	Special Topics	1-9
PSYCH 444	Engineering Psychology	3	SOC 300	Preceptorship in Sociology	1-4
PSYCH 445	Forensic Psychology	3	SOC 309	Sociology of Health	3
PSYCH 457	Psychology of Language	3	SOC 369	Foundational Theory and Practice in Small Group Facilitation	3-4
PSYCH 458	Visual Cognition	3	SOC 381	Junior Honors Seminar in Sociology	1
PSYCH 460	Comparative Psychology	3	SOC 381H	Junior Honors Seminar in Sociology	1
PSYCH 464	Behavior Genetics	3	SOC 400W	Senior Research Seminar	3
PSYCH 474	Psychological Intervention in Childhood	3	SOC 403	Advanced Social Psychology	3
PSYCH 475	Psychology of Fear and Stress	3	SOC 404	Social Influence and Small Groups	3
PSYCH 476	Child Psychopathology	3	SOC 405	Sociological Theory	3
PSYCH 477	Mental Health Practicum with Children	3	SOC 406	Sociology of Deviance	3
PSYCH 478	Clinical Neuropsychology	3	SOC 406H	Sociology of Deviance	3
PSYCH 482	Selection and Assessment in Organizations	3	SOC 408	Urban Ecology	3
PSYCH 484	Work Attitudes and Motivation	3	SOC 409	Racial and Ethnic Inequality in America	3
PSYCH 485	Leadership in Work Settings	3	SOC 412	Crime, Social Control, and the Legal System	3
PSYCH 490	Senior Seminar in Psychology	3	SOC 414	Criminal Careers and the Organization of Crime	3
PSYCH 493	Senior Thesis	3-6	SOC 416	Sociology of Education	3
PSYCH 494	Research Projects	1-12	SOC 419	Race and Public Policy	3
PSYCH 494H	Research Projects	1-12	SOC 422	World Population Diversity	3
PSYCH 499	Foreign Studies	1-12	SOC 423	Social Demography	3
PUBPL 120N	State, Society, and Public Policy	3	SOC 424	Social Change	3
PUBPL 419	Race and Public Policy	3	SOC 428	Homelessness in America	3
RLST 12N	Lands of the Bible	3	SOC 429	Social Stratification	3
RLST 105N	Buddhism and US Society	3	SOC 430	Family in Cross-Cultural Perspective	3
RLST 461	Sociology of Religion	3	SOC 431	Family Disorganization: Stress Points in the Contemporary Family	3
RSOC 11	Intro Rural Sociology	3	SOC 432	Social Movements	3
SOC 1	Introductory Sociology	3	SOC 435	Perspectives on Aging	3
SOC 1W	Introductory Sociology	3	SOC 440	Family Policy	3
SOC 3	Introductory Social Psychology	3	SOC 446	Political Sociology	3
SOC 5	Social Problems	3	SOC 454	The City in Postindustrial Society	3
SOC 12	Criminology	3	SOC 455	Work and Occupations	3
SOC 15	Urban Sociology	3	SOC 456	Gender, Occupations, and Professions	3
SOC 19	Sociology of Popular Culture	3	SOC 461	Sociology of Religion	3
SOC 23	Population and Policy Issues	3	SOC 467	Law and Society	3
SOC 23H	Population and Policy Issues	3	SOC 469	Advanced Theory and Practice in Small Group Facilitation	3-4
SOC 30	Sociology of the Family	3	SOC 470	Intermediate Social Statistics	4
SOC 35	Sociology of Aging	3	SOC 471	Qualitative Research Methods in Sociology	3
SOC 83	First-Year Seminar in Sociology	3	SOC 472	Work-Life Practices and Policies	3
SOC 103	Racism and Sexism	3	SOC 494	Research Project	1-12
SOC 109	Sociological Perspectives	3	SOC 494H	Research Project	1-12
SOC 110	Sociology of Gender	3	SOC 495	Internship	1-18
SOC 119N	Race, Ethnicity and Culture	3-4	SOC 496	Independent Studies	1-18
SOC 120N	Knowing Right from Wrong	3	SOC 496H	Independent Studies	3
SOC 130N	Buddhism and US Society	3	SOC 497	Special Topics	1-9
SOC 145N	The Holocaust and Human Rights	3	SOC 499	Foreign Study--Sociology	2-6
SOC 180N	State, Society, and Public Policy	3	SPAN 210N	Multilingual and Intercultural Communication	3
SOC 197	Special Topics	1-9	SPAN 423	Spanish in Contact with Other Languages	3
SOC 207	Research Methods in Sociology	3	SPAN 424	Facts and Myths about Learning Spanish	3
SOC 269	Intercultural Dialogue Concepts and Practice	1-4			

SPAN 425	The Spanish Your Teachers Never Taught You	3	AFAM 116	Muslims in America	3
STS 47	Wilderness, Technology, and Society	3	AFAM 164	The History of Brazil	3
STS 55	Space Science and Technology	3	AFAM 211	Slavery and Freedom in the Black Atlantic	3
STS 105	Food Facts and Fads	3	AFR 110N	Introduction to Contemporary Africa	3
STS 151N	Technology and Society in American History	3	AFR 191	Early African History	3
STS 197	Special Topics	1-9	AFR 192H	Modern African History	3
STS 200	Critical Issues in Science, Technology, and Society	3	AFR 202N	Women, Gender, and Feminisms in Africa	3
STS 201	Climate Change, Energy, and Biodiversity	3	AFR 205	Development and Sustainability in Africa	3
STS 299	Foreign Studies	1-12	AFR 335	African Art	3
STS 408	Cultural Foundations of Communications	3	AFR 382	Language and Culture in Africa	3
STS 420	Energy and Modern Society	3	AFR 443	Ethnic Conflict in Africa	3
STS 433	Ethics in Science and Engineering	3	AFR 444	African Resources and Development	3
STS 460	Science, Technology, and Public Policy	3	AFR 446	Topics in African Art	3
STS 470	Technology Assessment and Transfer	3	AFR 447	Topics in the Art of the African Diaspora	3
STS 499	Foreign Studies	1-12	AFR 454	Government and Politics of Africa	3
WMNST 1	Introduction to Women's Studies	3	AFR 479	History of Imperialism and Nationalism in Africa	3
WMNST 83N	First-Year Seminar in Women's Studies	3	ANTH 1	Understanding Humans	3
WMNST 100	Introduction to Women's and Gender Studies	3	ANTH 2N	World Archaeology	3
WMNST 100U	Introduction to Women's and Gender Studies	3	ANTH 8	Aztec, Inca, Maya	3
WMNST 101N	African American Women	3	ANTH 9N	Rise of Civilization in the Old World	3
WMNST 103	Racism and Sexism	3	ANTH 11	North American Archaeology	3
WMNST 105N	Living in a Diverse World	3	ANTH 45N	Cultural Diversity: A Global Perspective	3
WMNST 110	Sociology of Gender	3	ANTH 45Q	Cultural Diversity: A Global Perspective	3
WMNST 116N	Family and Gender Roles in Modern History	3	ANTH 120	First Farmers	3
WMNST 120	Sex, Gender, and the Body	3	ANTH 129N	Chocolate Worlds	3
WMNST 136	Race, Gender, and Employment	3	ANTH 146	Indigenous North America	3
WMNST 136Y	Race, Gender, and Employment	3	ANTH 152	Hunters and Gatherers	3
WMNST 200	Global Feminisms	3	ANTH 220	Anthropology and Art/ifacts	3
WMNST 202N	Women, Gender, and Feminisms in Africa	3	ANTH 221N	Ancient Maya: Sacred Blood & Conjured Serpent	3
WMNST 205	Gender, Diversity and the Media	3	ANTH 420	Archaeology of the Near East	3
WMNST 207N	LGBTQ+ Identity, Culture and The Arts	3	ANTH 422	Meso-American Archaeology and Ethnography	3
WMNST 220	Beyond Birth Control: Feminist Perspectives on Women's Sexualities	3	ANTH 423	The Evolution of American Indian Culture	3
WMNST 400N	Debates in Contemporary Feminism	3	ANTH 424	Andean Ethnology and Archaeology	3
WMNST 426W	Gendered Worlds	3	ANTH 435	Ancient Economy	3
WMNST 428	Gender and Politics	3	ANTH 453	Anthropology of Religion	3
WMNST 440W	Women in Global Cities	3	ANTH 479	Tradition, Modernity, and Cultural Change in South Asian Societies	3
WMNST 456	Gender, Occupations, and Professions	3	APLNG 402	Language, Culture and Cognition in East Asian Context	3
WMNST 472	Work-Life Practices and Policies	3	ARAB 110	Arab Language, Cultures, and Current Topics	3

B.A. Degree Requirements: World Cultures Courses

These courses have been approved as Bachelor of Arts Degree Requirements courses. This course list is updated periodically. More information about the Bachelor of Arts Degree Requirements can be found in the Academic Information section.

Code	Title	Credits			
AA 100	Introduction to International Arts	3	ARTH 215	Architecture and Art of South and Southeast Asia	3
AED 62	Contemporary African and African American Arts and Culture	3	ARTH 220	Chinese Art	3
AFAM 105N	Afro-Latin America: Race and Revolution	3	ARTH 301	Egyptian and Mesopotamian Art	3
			ARTH 335	African Art	3
			ARTH 440	Monuments of Asia	3-9
			ARTH 445	Oceanic Art	3

ARTH 446	Topics in African Art	3	ASIA 487	Zen Buddhism	3
ARTH 447	Topics in the Art of the African Diaspora	3	CAMS 4	Jewish and Christian Foundations	3
ARTH 460	Art and Empire: Aztec, Inca and Spanish	3	CAMS 10	Mesopotamian Civilization	3
ARTH 462	Studies in Latin American Art	3	CAMS 12N	Lands of the Bible	3
ASIA 3	Introduction to the Religions of the East	3	CAMS 20	Egyptian Civilization	3
ASIA 4	Introduction to Asian Literatures	3	CAMS 104	Ancient Egypt	3
ASIA 100	What is Asia?	3	CAMS 105	History of the Ancient Near East	3
ASIA 101N	Sports in Asia	3	CAMS 109Y	Writing Systems of the World	3
ASIA 103	Introduction to Hinduism	3	CAMS 111	Early Judaism	3
ASIA 104	Introduction to Buddhism	3	CAMS 113	Jewish Myths and Legends	3
ASIA 105	War and Memory in Asia: Twentieth Century and beyond	3	CAMS 115	Literature of the Ancient Near East	3
ASIA 106N	Asian Traditions of Health, Medicine, and the Body	3	CAMS 121	Jesus the Jew	3
ASIA 107N	Bollywood: Seeing South Asia Through Cinema	3	CAMS 122	Apocalypse and Beyond	3
ASIA 120Y	South Asia: A Literary History	3	CAMS 123	History of God: Origins of Monotheism	3
ASIA 172	Introduction to Japanese Civilization	3	CAMS 153	Dead Sea Scrolls	3
ASIA 174	East Asia to 1800	3	CAMS 160	Sacrifice in the Ancient World	3
ASIA 175	East Asia since 1800	3	CAMS 194	Jerusalem: Sacred and Profane	3
ASIA 177	Rise of Modern Southeast Asia	3	CAMS 250	Honors Classics in Literature and Film	3
ASIA 181	Introduction to the Religions of China and Japan	3	CAMS 405	Law & Economy in the Ancient Near East	3
ASIA 183	Gender, Family, and Society in East Asia	3	CAMS 430	Archaeology of the Near East	3
ASIA 186	The Silk Roads	3	CAMS 471	Sumerian	3
ASIA 200	What Are Asian Languages?	3	CAMS 472	Akkadian	3
ASIA 215	Architecture and Art of South and Southeast Asia	3	CAMS 481	Introduction to Middle Egyptian & Hieroglyphics	3
ASIA 400	International Culture in East Asia	3	CHNS 120	Introduction to Chinese Literature and Culture	3
ASIA 401	Technology & Society in Modern Asia	3	CHNS 121N	Chinese Film and New Media	3
ASIA 402	Language, Culture and Cognition in East Asian Context	3	CHNS 402	Level Three Chinese B	4
ASIA 403	Food Cultures of Asia	3	CHNS 414	Chinese Language, Culture and Society	3
ASIA 404H	Topics in Asian Literature	3	CHNS 415	China Beyond China	3
ASIA 404Y	Topics in Asian Literature	3	CHNS 416	Gender and Sexuality in China	3
ASIA 405	Seminar in Asian Studies	3-6	CHNS 417	The Warrior, the Courtesan and the Ghost in Classical Chinese Novels	3
ASIA 405Y	Seminar in Asian Studies	3	CHNS 418	Confucius and the Great Books of China	3
ASIA 406	Issues and Practices in Teaching Asian Languages	3	CHNS 419	The Chinese Rhetorical Tradition	3
ASIA 414	Chinese Language, Culture and Society	3	CHNS 452	Contemporary China: Culture and Trends	3
ASIA 415	China Beyond China	3	CHNS 453	Chinese Film	3
ASIA 416	Gender and Sexuality in China	3	CHNS 454	Introduction to Classical Chinese	3
ASIA 417	The Warrior, the Courtesan and the Ghost in Classical Chinese Novels	3	CHNS 455	Masterpieces of Traditional Chinese Literature	3
ASIA 418	Confucius and the Great Books of China	3	CMLIT 3	Introduction to African Literatures	3
ASIA 419	The Chinese Rhetorical Tradition	3	CMLIT 4	Introduction to Asian Literatures	3
ASIA 424	Transnational Korean Literature	3	CMLIT 7	Introduction to Middle Eastern Literatures	3
ASIA 425	Global Korean Cinema	3	CMLIT 10	World Literatures	3
ASIA 430	Japan in the World	3	CMLIT 10U	The Forms of World Literature: A Global Perspective	3
ASIA 431	Courtly Japan	3	CMLIT 108	Myths and Mythologies	3
ASIA 432	War and the Warrior in Japan	3	CMLIT 109	Native American Myths, Legends, and Literatures	3
ASIA 434	Beyond Anime	3	CMLIT 111	Introduction to Literatures of India	3
ASIA 440	Monuments of Asia	3-9	CMLIT 113	Jewish Myths and Legends	3
ASIA 472	Tradition, Modernity, and Cultural Change in South Asian Societies	3	CMLIT 116	Jewish Great Books	3
ASIA 483	Middle China	3	CMLIT 143	Human Rights and World Literature	3
ASIA 485Y	China's Last Empire: The Qing Dynasty, 1644-1911	3	CMLIT 404Y	Topics in Asian Literature	3
ASIA 486	China in Revolution	3	CMLIT 422	African Drama	3
			CMLIT 423	African Novel	3

CMLIT 424	Transnational Korean Literature	3	HIST 252	Revolutions in the Middle East	3
CMLIT 425	Global Korean Cinema	3	HIST 255N	History of the Book	3
CMLIT 446	Postcolonial Literature and Culture	3	HIST 260	The Middle East in Film	3
CMLIT 449	Literary Cultures of Islam	3	HIST 305Y	Middle East Studies Research Workshop	3
ENGL 459	Writing Palestine-Israel	3	HIST 400	Global History of Food and Famine	3
FR 458	African Literature of French Expression	3	HIST 424	Comparative History of Sports and Politics	3
GEOG 40	World Regional Geography	3	HIST 425	History of the Incas	3
GEOG 123	Geography of Developing World	3	HIST 471Y	Classical Islamic Civilization, 600-1258	3
GEOG 124	Elements of Cultural Geography	3	HIST 472	The Ottoman Empire	3
GEOG 444	African Resources and Development	3	HIST 473	The Contemporary Middle East	3
GLIS 101N	Globalization	3	HIST 479	History of Imperialism and Nationalism in Africa	3
GLIS 102N	Global Pathways	3	HIST 482	Confucius and the Great Books of China	3
GLIS 400Y	Seminar in Global and International Studies	3	HIST 483	Middle China	3
HIST 2	Western Civilization II	3	HIST 485Y	China's Last Empire: The Qing Dynasty, 1644-1911	3
HIST 2H	Western Civilization II	3	HIST 486	China in Revolution	3
HIST 10	World History to 1500	3	IT 210N	Multilingual and Intercultural Communication	3
HIST 11	World History since 1500	3	JAPNS 120	Japanese Literature in Its Cultural Context	3
HIST 66	Survey of British History	3	JAPNS 120W	Japanese Literature in its Cultural Context	3
HIST 104	Ancient Egypt	3	JAPNS 121N	Japanese Film and New Media	3
HIST 105	The Byzantine Empire	3	JAPNS 121Q	Japanese Film and New Media	3
HIST 106	Early Modern Empires of Islam: The Ottomans, Safavids, and Mughals	3	JAPNS 122	Gods to Godzilla: A Survey of Japanese Culture	3
HIST 108	Crusades: Holy War in the Middle Ages	3	JAPNS 172	Introduction to Japanese Civilization	3
HIST 113	Baseball in Comparative History	3	JAPNS 210	Extensive Reading in Japanese	1.5
HIST 119	Gender and History	3	JAPNS 402	Level Three Japanese B	4
HIST 129N	Chocolate Worlds	3	JAPNS 410	Japanese Through Manga	3
HIST 134	Great Britain and Ireland in the Early Modern World	3	JAPNS 430	Japan in the World	3
HIST 140	The History of the Israel-Palestine Conflict (1917-Present)	3	JAPNS 431	Courtly Japan	3
HIST 141	Medieval and Modern Russia	3	JAPNS 432	War and the Warrior in Japan	3
HIST 142N	History of Communism	3	JAPNS 434	Beyond Anime	3
HIST 164	The History of Brazil	3	JST 4	Jewish and Christian Foundations	3
HIST 165	Islamic States, Societies and Cultures c. 600-1500	3	JST 12N	Lands of the Bible	3
HIST 172	Introduction to Japanese Civilization	3	JST 106	Mysticism and Kabbalah	3
HIST 173	Vietnam in War and Peace	3	JST 111	Early Judaism	3
HIST 174	East Asia to 1800	3	JST 112	Jesus the Jew	3
HIST 175	East Asia since 1800	3	JST 113	Jewish Myths and Legends	3
HIST 177	Rise of Modern Southeast Asia	3	JST 116	Jewish Great Books	3
HIST 178	Latin-American History to 1820	3	JST 122	Apocalypse and Beyond	3
HIST 179	Latin-American History Since 1820	3	JST 123	History of God: Origins of Monotheism	3
HIST 181	Introduction to the Middle East	3	JST 140	The History of the Israel-Palestine Conflict (1917-Present)	3
HIST 183	Gender, Family, and Society in East Asia	3	JST 153	Dead Sea Scrolls	3
HIST 184	Society and Culture in the Pacific War	3	JST 160	Sacrifice in the Ancient World	3
HIST 186	The Silk Roads	3	JST 181	Introduction to the Middle East	3
HIST 190	The Middle East Today	3	JST 186	The Silk Roads	3
HIST 191	Early African History	3	JST 190	The Middle East Today	3
HIST 192H	Modern African History	3	JST 193	Modern Iran	3
HIST 193	Modern Iran	3	JST 194	Jerusalem: Sacred and Profane	3
HIST 194	Jerusalem: Sacred and Profane	3	JST 260	The Middle East in Film	3
HIST 211	Slavery and Freedom in the Black Atlantic	3	JST 305Y	Middle East Studies Research Workshop	3
HIST 238N	Society and Culture in Palestine/Israel	3	JST 420	Archaeology of the Near East	3
HIST 245	Middle Eastern Cities	3	JST 459	Writing Palestine-Israel	3
			JST 473	The Contemporary Middle East	3

KOR 120	Introduction to Korean Culture	3
KOR 121	Korean Popular Culture	3
KOR 403Y	Level 4 Korean A	4
KOR 404	Level 4 Korean B	4
KOR 422	Introduction to Korean Linguistics	3
KOR 423	Korean Media and Communication	3
KOR 424	Transnational Korean Literature	3
KOR 425	Global Korean Cinema	3
KOR 450	Korean Cultures in Global Contexts	3
KOR 451	Food and Foodways in Korea	3
KOR 452	Korean Language and Culture	3
LING 382	Language and Culture in Africa	3
MEDVL 108	Medieval Civilization	3
OLEAD 410	Leadership in a Global Context	3
PHIL 7	Asian Philosophy	3
PHIL 472	Islamic Philosophy	3
PLANT 129N	Chocolate Worlds	3
PLSC 132	The Politics of International Intolerance	3
PLSC 201N	Politics & Religion: Controversies Around the World	3
PLSC 220	Politics of the Developing World	3
PLSC 443	Ethnic Conflict in Africa	3
PLSC 454	Government and Politics of Africa	3
PLSC 458	Government and Politics of East Asia	3
PLSC 468	Politics and the Media	3
PLSC 486	International Culture in East Asia	3
PORT 210N	Multilingual and Intercultural Communication	3
PORT 473	Luso-Brazilian Cinema	3
PSYCH 232	Cross-Cultural Psychology	3
RLST 1	Introduction to World Religions	3
RLST 3	Introduction to the Religions of the East	3
RLST 4	Jewish and Christian Foundations	3
RLST 12N	Lands of the Bible	3
RLST 101	Comparative Religion	3
RLST 103	Introduction to Hinduism	3
RLST 104	Introduction to Buddhism	3
RLST 106	Mysticism and Kabbalah	3
RLST 107	Introduction to Islam	3
RLST 108	Myths and Mythologies	3
RLST 111	Early Judaism	3
RLST 113	Jewish Myths and Legends	3
RLST 116	Muslims in America	3
RLST 121	Jesus the Jew	3
RLST 122	Apocalypse and Beyond	3
RLST 123	History of God: Origins of Monotheism	3
RLST 153	Dead Sea Scrolls	3
RLST 160	Sacrifice in the Ancient World	3
RLST 165	Islamic States, Societies and Cultures c. 600-1500	3
RLST 181	Introduction to the Religions of China and Japan	3
RLST 194	Jerusalem: Sacred and Profane	3
RLST 471Y	Classical Islamic Civilization, 600-1258	3
RLST 472	Islamic Philosophy	3
RLST 483	Zen Buddhism	3

SOC 269	Intercultural Dialogue Concepts and Practice	1-4
SPAN 131	Ibero-American Civilization	3
SPAN 131Y	Ibero-American Civilization	3
SPAN 210N	Multilingual and Intercultural Communication	3
SPAN 269N	Theater and Performance	3
SPAN 423	Spanish in Contact with Other Languages	3
SPAN 476	Masterpieces of Spanish American Literature	3
WMNST 200	Global Feminisms	3
WMNST 202N	Women, Gender, and Feminisms in Africa	3
WMNST 440W	Women in Global Cities	3

B.A. Degree Requirements: World Language (12th Unit)

These courses have been approved as Bachelor of Arts Degree Requirements courses. This course list is updated periodically. More information about the Bachelor of Arts Degree Requirements can be found in the Academic Information section.

Code	Title	Credits
ARAB 3	Intermediate Modern Standard Arabic	4
ARAB 110	Arab Language, Cultures, and Current Topics	3
CHNS 3	Level Two Chinese A	4
CHNS 110	Level Two Chinese B	4
CHNS 401	Level Three Chinese A	4
CHNS 402	Level Three Chinese B	4
CHNS 454	Introduction to Classical Chinese	3
CHNS 455	Masterpieces of Traditional Chinese Literature	3
CSD 428	American Sign Language IV	3
FR 3	Intermediate French	4
FR 111	Elementary French	6
FR 112	Intermediate French	6
FR 199	Foreign Study--French	1-12
FR 201	Oral Communication and Reading Comprehension	3
FR 202	Grammar and Composition	3
FR 299	Foreign Study--French	1-12
FR 351	French and Francophone Literature I	3
FR 352	French and Francophone Literature II	3
FR 401	Advanced Oral Communication	3
FR 402Y	Advanced Grammar and Writing	3
FR 410	French Press	3
GER 3	Intermediate German	4
GER 12	Intensive Intermediate German	6
GER 199	Foreign Study--German	3-6
GER 201	Conversation and Composition	4
GER 301	Intermediate Speaking and Listening	3
GER 302W	Intermediate Composition and Grammar	3
GER 344	Intermediate German Culture	3
GREEK 420	Greek Prose Authors	3-12
GREEK 425	Greek Historians	3-6
GREEK 430	Greek Poetry	3-6
GREEK 440	Greek Drama	3-6
HEBR 3	Intermediate Modern Hebrew	4

HEBR 401	Advanced Hebrew--Conversation Emphasis	3-6	SPAN 269N	Theater and Performance	3
HEBR 402	Advanced Hebrew--Reading Emphasis	3-6	SPAN 300	Advanced Grammar and Composition Through Reading	3
HINDI 3	Level Two Hindi A	4	SPAN 353	Topics in the Cultures of Spain	3
IT 3	Intermediate Italian	4	SPAN 355	Topics in the Cultures of Latin America	3
IT 20	Intensive Intermediate Italian	6	SPAN 356	Topics in the Cultures of the Americas	3
IT 301	Advancing Italian in Context	3	SPAN 410	Advanced Oral Expression and Communication	3
IT 310	Advancing Conversation	3	SPAN 411	The ABCs of Bilingualism: Acquisition, Brain, and Community	3
IT 325	Italy's Inspiration for Your Life	3	SPAN 423	Spanish in Contact with Other Languages	3
IT 415	Dante	3	SPAN 425	The Spanish Your Teachers Never Taught You	3
IT 422	Topics in the Italian Renaissance	3	SPAN 439	Don Quijote	3
IT 450	Nineteenth-Century Italian Literature	3	SPAN 472	The Contemporary Spanish American Novel	3
IT 460	Twentieth-Century Italian Literature	3	SPAN 476	Masterpieces of Spanish American Literature	3
JAPNS 3	Level Two Japanese A	4	SPAN 490	Masterpieces of Spanish Prose	3
JAPNS 110	Level Two Japanese B	4	SPAN 491	Masterpieces of Spanish Drama and Poetry	3
JAPNS 401	Level Three Japanese A	4	SWA 3	Intermediate Swahili	4
JAPNS 402	Level Three Japanese B	4	UKR 3	Intermediate Ukrainian	4
JAPNS 452	Contemporary Japan: Cultures, Lifestyles, Trends	3			
JAPNS 453	Japanese Film	3			
JAPNS 454	Japanese Literature	3			
KOR 3	Level Two Korean A	4			
KOR 403Y	Level 4 Korean A	4			
KOR 404	Level 4 Korean B	4			
KOR 450	Korean Cultures in Global Contexts	3			
KOR 451	Food and Foodways in Korea	3			
KOR 452	Korean Language and Culture	3			
LATIN 3	Intermediate Latin	4			
LATIN 402	Republican Literature	3-12			
LATIN 403	Augustan Age Literature	3-12			
LATIN 404	Silver Age Literature	3-12			
POL 3	Level Two Polish A	4			
PORT 3	Intermediate Portuguese	4			
PORT 123	Portuguese for Romance-language Speakers	2-3			
PORT 200	Advanced Portuguese via the Arts	3			
PORT 365	Imagining Brazilian Cities	3			
PORT 405	Advanced Composition and Conversation	3			
RUS 3	Intermediate Russian I	4			
RUS 214	Intermediate Russian III	4			
RUS 304	Readings in Russian III	3			
RUS 305	Advanced Russian Conversation	3			
RUS 401	Advanced Russian I	4			
RUS 410	Heritage Russian	4			
RUS 412	Russian Translation	3			
SPAN 3	Intermediate Spanish	4			
SPAN 20	Intensive Spanish	6			
SPAN 100	Intermediate Grammar and Composition	3			
SPAN 100H	Intermediate Grammar and Composition	3			
SPAN 110	Intermediate Conversation	3			
SPAN 200	Intensive Grammar and Composition	3			
SPAN 200A	Intensive Grammar and Composition for Spanish Bilinguals	3			
SPAN 210	Readings in Iberian Civilization	3			
SPAN 220	Readings in Ibero-American Civilization	3			

B.A. Degree Requirements: World Language (All)

These courses have been approved as Bachelor of Arts Degree Requirements courses. This course list is updated periodically. More information about the Bachelor of Arts Degree Requirements can be found in the Academic Information section.

Code	Title	Credits
ARAB 1	Elementary Modern Standard Arabic I	4
ARAB 2	Elementary Modern Standard Arabic II	4
ARAB 3	Intermediate Modern Standard Arabic	4
ARAB 110	Arab Language, Cultures, and Current Topics	3
ASIA 406	Issues and Practices in Teaching Asian Languages	3
CHNS 1	Level One Chinese A	4
CHNS 2	Level One Chinese B	4
CHNS 3	Level Two Chinese A	4
CHNS 110	Level Two Chinese B	4
CHNS 401	Level Three Chinese A	4
CHNS 402	Level Three Chinese B	4
CHNS 454	Introduction to Classical Chinese	3
CHNS 455	Masterpieces of Traditional Chinese Literature	3
CSD 218	American Sign Language I	3
CSD 318	American Sign Language II	3
CSD 418	American Sign Language III	3
CSD 428	American Sign Language IV	3
FR 1	Elementary French I	4
FR 2	Elementary French II	4
FR 3	Intermediate French	4
FR 111	Elementary French	6
FR 112	Intermediate French	6
FR 199	Foreign Study--French	1-12
FR 201	Oral Communication and Reading Comprehension	3
FR 202	Grammar and Composition	3

FR 299	Foreign Study--French	1-12	KOR 1	Level One Korean A	4
FR 351	French and Francophone Literature I	3	KOR 2	Level One Korean B	4
FR 352	French and Francophone Literature II	3	KOR 3	Level Two Korean A	4
FR 401	Advanced Oral Communication	3	KOR 403Y	Level 4 Korean A	4
FR 402Y	Advanced Grammar and Writing	3	KOR 404	Level 4 Korean B	4
FR 410	French Press	3	KOR 450	Korean Cultures in Global Contexts	3
GER 1	Elementary German I	4	KOR 451	Food and Foodways in Korea	3
GER 2	Elementary German II	4	KOR 452	Korean Language and Culture	3
GER 3	Intermediate German	4	LATIN 1	Elementary Latin	4
GER 11	Intensive Basic German	6	LATIN 2	Elementary Latin	4
GER 12	Intensive Intermediate German	6	LATIN 3	Intermediate Latin	4
GER 199	Foreign Study--German	3-6	LATIN 402	Republican Literature	3-12
GER 201	Conversation and Composition	4	LATIN 403	Augustan Age Literature	3-12
GER 301	Intermediate Speaking and Listening	3	LATIN 404	Silver Age Literature	3-12
GER 302W	Intermediate Composition and Grammar	3	POL 1	Level One Polish A	4
GER 344	Intermediate German Culture	3	POL 2	Level One Polish B	4
GREEK 101	Introductory Ancient Greek	4	POL 3	Level Two Polish A	4
GREEK 102	Intermediate Ancient Greek	4	PORT 1	Elementary Portuguese I	4
GREEK 203	Greek Reading and Composition	4	PORT 2	Elementary Portuguese II	4
GREEK 420	Greek Prose Authors	3-12	PORT 3	Intermediate Portuguese	4
GREEK 425	Greek Historians	3-6	PORT 123	Portuguese for Romance-language Speakers	2-3
GREEK 430	Greek Poetry	3-6	PORT 200	Advanced Portuguese via the Arts	3
GREEK 440	Greek Drama	3-6	PORT 365	Imagining Brazilian Cities	3
HEBR 1	Basic Modern Hebrew I	4	PORT 405	Advanced Composition and Conversation	3
HEBR 2	Basic Modern Hebrew II	4	RUS 1	Elementary Russian I	4
HEBR 3	Intermediate Modern Hebrew	4	RUS 2	Elementary Russian II	4
HEBR 401	Advanced Hebrew--Conversation Emphasis	3-6	RUS 3	Intermediate Russian I	4
HEBR 402	Advanced Hebrew--Reading Emphasis	3-6	RUS 214	Intermediate Russian III	4
HINDI 1	Level One Hindi A	4	RUS 304	Readings in Russian III	3
HINDI 2	Level One Hindi B	4	RUS 305	Advanced Russian Conversation	3
HINDI 3	Level Two Hindi A	4	RUS 401	Advanced Russian I	4
IT 1	Elementary Italian 1	4	RUS 410	Heritage Russian	4
IT 2	Elementary Italian 2	4	RUS 412	Russian Translation	3
IT 3	Intermediate Italian	4	SPAN 1	Elementary Spanish I	4
IT 10	Intensive Elementary Italian	6	SPAN 2	Elementary Spanish II	4
IT 20	Intensive Intermediate Italian	6	SPAN 3	Intermediate Spanish	4
IT 301	Advancing Italian in Context	3	SPAN 10	Intensive Spanish	6
IT 310	Advancing Conversation	3	SPAN 20	Intensive Spanish	6
IT 325	Italy's Inspiration for Your Life	3	SPAN 100	Intermediate Grammar and Composition	3
IT 415	Dante	3	SPAN 100H	Intermediate Grammar and Composition	3
IT 422	Topics in the Italian Renaissance	3	SPAN 110	Intermediate Conversation	3
IT 450	Nineteenth-Century Italian Literature	3	SPAN 200	Intensive Grammar and Composition	3
IT 460	Twentieth-Century Italian Literature	3	SPAN 200A	Intensive Grammar and Composition for Spanish Bilinguals	3
JAPNS 1	Level One Japanese A	4	SPAN 210	Readings in Iberian Civilization	3
JAPNS 2	Level One Japanese B	4	SPAN 220	Readings in Ibero-American Civilization	3
JAPNS 3	Level Two Japanese A	4	SPAN 269N	Theater and Performance	3
JAPNS 110	Level Two Japanese B	4	SPAN 300	Advanced Grammar and Composition Through Reading	3
JAPNS 401	Level Three Japanese A	4	SPAN 353	Topics in the Cultures of Spain	3
JAPNS 402	Level Three Japanese B	4	SPAN 354	Topics in Border Studies	3
JAPNS 452	Contemporary Japan: Cultures, Lifestyles, Trends	3	SPAN 355	Topics in the Cultures of Latin America	3
JAPNS 453	Japanese Film	3			
JAPNS 454	Japanese Literature	3			

SPAN 356	Topics in the Cultures of the Americas	3	BME 100	Biomedical Engineering Seminar	1
SPAN 410	Advanced Oral Expression and Communication	3	CAMS 83Y	First-Year Seminar in Classics and Ancient Mediterranean Studies	3
SPAN 411	The ABCs of Bilingualism: Acquisition, Brain, and Community	3	CAP 100	Orientation to the Undergraduate Experience	1
SPAN 423	Spanish in Contact with Other Languages	3	CAS 83	First-Year Seminar in Communication Arts and Sciences	3
SPAN 424	Facts and Myths about Learning Spanish	3	CAS 84	First-Year Seminar in Communication Arts and Sciences	3
SPAN 425	The Spanish Your Teachers Never Taught You	3	CAS 100S	Effective Speech	3
SPAN 439	Don Quijote	3	CAS 138T	Rhetoric and Civic Life II	3
SPAN 472	The Contemporary Spanish American Novel	3	CE 100S	Topics and Contemporary Issues in Civil and Environmental Engineering: First-Year Seminar	1
SPAN 476	Masterpieces of Spanish American Literature	3	CHE 100	Exploring Chemical Engineering First-Year Seminar	1
SPAN 490	Masterpieces of Spanish Prose	3	CMLIT 83S	First-Year Seminar in Comparative Literature	3
SPAN 491	Masterpieces of Spanish Drama and Poetry	3	CMPEN 111	Computers and Computer Hardware	1
SWA 1	Elementary Swahili I	4	CMPSC 111	Logic for Computer Science	1
SWA 2	Elementary Swahili II	4	CYBER 100S	Computer Systems Literacy	3
SWA 3	Intermediate Swahili	4	EDSGN 11	Explorations in Design First-Year Seminar	1
UKR 1	Elementary Ukrainian I	4	EDSGN 13	Ethics of Star Trek First-Year Seminar	1
UKR 2	Elementary Ukrainian II	4	EDSGN 100S	Introduction to Engineering Design	3
UKR 3	Intermediate Ukrainian	4	EDTHP 115S	Competing Rights: Issues in American Education	3

First-Year Seminar Courses

These courses have been approved to fulfill University Degree Requirements. This course list is updated periodically. More information about the University Degree Requirements can be found in the Academic Information section.

Code	Title	Credits	Code	Title	Credits
AE 124	Architectural Engineering Orientation	1	EMSC 100S	Earth and Mineral Sciences First-Year Seminar	3
AED 101S	Introduction to Art Education	3	ENGL 15S	Rhetoric and Composition	3
AERSP 1	Aerospace Explorer--First-Year Seminar	1	ENGL 30T	Honors Freshman Composition First-Year Seminar	3
AFAM 83	First-Year Seminar in African American Studies	3	ENGL 83S	First-Year Seminar in English	3
AG 150	Be a Master Student!	2	ENGL 138T	Rhetoric and Civic Life II	3
AGSC 100	AESE First Year Seminar	1	ENGL 194S	Women Writers	3
AMST 83	First-Year Seminar in American Studies	3	ENGR 100	Introduction to Engineering	1
ANSC 110	Contemporary Issues in Animal Biotechnology and Society	1	ENGR 192	Millennium Scholars First-Year Seminar	1
ANSC 150S	Animal Science Freshman Seminar	2	ERM 150S	ERM First Year Engagement	1
ANTH 83S	First-Year Seminar in Anthropology	3	ESC 120	Design for Failure--First-Year Seminar	1
APLNG 83	First-Year Seminar in Applied Linguistics: Language as Social Practice	3	ESC 121	Science/Engineering Fiction and the Engineering Sciences--First-Year Seminar	1
ARCH 131	Basic Design Studio I	4	ESC 122	Weird, Wild, and Wonderful Materials and Devices--First-Year Seminar	1
ART 11	First-Year Seminar- School of Visual Arts	1	FDSC 150S	Food Science First Year Engagement	2
ARTH 1S	First-Year Seminar in Art History	3	FOR 150S	First-Year Seminar	2
ASIA 83S	Asian Studies First Year Seminar	3	FORT 100	Introduction to Forestry	1
ASTRO 20	First-Year Astronomy Seminar	2	FR 83	First-Year Seminar in French	3
BA 100S	Introduction to Business	3	GD 1S	First-Year Seminar in Graphic Design	1
BBH 102S	Values, Health, & Academic Success	3	GER 83	First-Year Seminar in German	3
BBH 123S	First-Year Seminar in Biobehavioral Health	1	HCDD 113S	Foundations of Human-Centered Design and Development FYS	3
BBH 148	Coping with College: A First Year Transition Seminar	2	HDFS 129S	Introduction to Human Development and Family Studies	3
BE 1	Growing Your Future--First-Year Seminar	1	HIST 83	First-Year Seminar in History	3
BIOL 110S	Biology: Basic Concepts and Biodiversity	4	HM 100S	Hospitality Management First Year Seminar	1
BMB 205S	Course-Based Research Experience in Biochemistry and Molecular Biology FYS	3	HPA 123S	Exploring Health Policy and Administration	1
			IE 100	Discover Industrial Engineering: First-Year Seminar	1

INTST 100	Introduction to International Studies	3
IST 111S	Seminar in Information Sciences and Technology	1
IT 83	First-Year Seminar in Italian Literature, Film, and Culture	3
JST 83	First-Year Seminar in Jewish Studies	3
KINES 61S	Fitness Theory and Practice	3
KINES 123S	Thinking Critically about Key Questions in Kinesiology	1
LA 83	First Year Seminar in the Liberal Arts	1
LARCH 125	Landscape Architecture Orientation Seminar	1
LHR 83S	First-Year Seminar in Labor and Human Resources	3
LST 83	The Twenty-First Century Researcher	1
ME 101	Toy Fundamentals: First-Year Seminar	1
ME 102	Smart Lego Robots & Design	1
ME 103	HYBRID ELECTRIC VEHICLES	1
ME 109S	Explore Mechanical Engineering Research	1
ME 190	Special Topics in Mechanical Engineering: First-Year Seminar	1
MUSIC 40	First-Year Seminar in Music Education	1
MUSIC 119	First-Year Music Seminar	2
MUSIC 129S	First-Year Performance Seminar	3
MUSIC 173	First-Year Composition Seminar	2
NURS 100	First Year Seminar in Nursing	1
NUTR 123S	First Year Seminar in Nutritional Sciences	1
OT 100	Structural Foundations of Occupational Therapy	1
PHIL 83	First-Year Seminar in Philosophy	3
PLANT 150S	Plant Science First Year Seminar	2
PLSC 1S	American Politics: Principles, Processes and Powers	3
PLSC 83S	First-Year Seminar in Political Science	3
PSU 1	First-Year Seminar Abington	1
PSU 3	First-Year Seminar Altoona	1
PSU 5	First-Year Seminar Berks	1
PSU 6	First-Year Seminar Business	1-3
PSU 6T	First-Year Seminar Business	1-3
PSU 7	First-Year Seminar Behrend	1
PSU 8	First-Year Seminar University College	1-3
PSU 8T	First-Year Seminar University College	1-3
PSU 9	First-Year Seminar Communications	1
PSU 12	First-Year Seminar Engineering	1
PSU 14	First-Year Seminar Health and Human Development	1
PSU 15	First-Year Seminar Liberal Arts	1
PSU 16	First-Year Seminar Science	1
PSU 17	First-Year Seminar College of Information Sciences and Technology	1
PSU 18	PSU 18 First-Year Seminar Interdisciplinary and Exploratory	1
PSU 97	Special Topics	1-3
PSYCH 83S	First-Year Seminar in Psychology	3
PSYCH 100S	Introductory Psychology	3
PT 100S	Physical Therapist Assistant-Introduction	3
PT 101	Introduction to Computer Skills for the PTA	1

RPTM 100S	Introduction to Golf Management	2
RPTM 120S	Leisure and Human Behavior	3
RUS 83	First-Year Seminar in Russian	3
SOC 83	First-Year Seminar in Sociology	3
SPAN 83	First-Year Seminar in Hispanic Literatures and Cultures	3
THEA 1S	First-Year Seminar: Theatre Production Practices	1
VBSC 50	Mechanisms of Disease	3
WFS 150S	First-Year Seminar	2
WILDL 106	Wildlife Management Techniques	4
WILDL 106T	Wildlife Management Techniques (Honors)	4
WMNST 1	Introduction to Women's Studies	3
WMNST 83N	First-Year Seminar in Women's Studies	3

Health and Wellness Courses

These courses have been approved as General Education Health and Wellness courses, previously known as Health and Physical Activity (GHA). This course list is updated periodically. Descriptions and learning criteria for General Education Health and Wellness courses can be found in the Foundation and Knowledge Domains section (p. 3185).

Code	Title	Credits
AA 130N	Creative Arts Therapy Applications	3
AA 230N	Arts & Wellness in Communities	3
ASIA 106N	Asian Traditions of Health, Medicine, and the Body	3
BBH 101	Introduction to Biobehavioral Health	3
BBH 101H	Introduction to Biobehavioral Health	3
BBH 102S	Values, Health, & Academic Success	3
BBH 119	Behavior, Health, and Disease	3
BBH 130	Strategies for Addressing the Obesity and Diabetes Epidemics	3
BBH 143	Drugs, Behavior, and Health	3
BBH 146	Introduction to Health and Human Sexuality	3
BBH 150N	Safe and Sound: The Intersection of Criminal Justice and Public Health	3
BBH 452	Women's Health Issues	3
BBH 458	Critical Feminist Issues in Reproduction	3
BIOL 160N	Fitness with Exercise Physiology	3
CI 105N	Improv Theater, Curriculum & Instruction	3
CMAS 258N	Introduction to Child Maltreatment and Advocacy Studies	3
CRIMJ 150N	Safe and Sound: The Intersection of Criminal Justice and Public Health	3
CSD 100	Preventing Vocal Abuse, Misuse, and Disorders	3
DANCE 170	Dance Conditioning	1.5
DANCE 270	Introduction to Bartenieff Fundamentals	3
DANCE 405	Conditioning, Self-Defense, and Combat for Theatre	3
ENGL 161N	The Pursuit of Happiness in American Life: Historical Literature and Modern Practice	3
FDSC 105	Food Facts and Fads	3
HDFS 101N	Helping People: Introduction to Understanding Social Problems & How to Help	3
HDFS 108N	Art and Science of Human Flourishing	3

HDFS 109	Community, Connection, and Contemplation	1.5	KINES 83	Exercise for Stress Management	1.5
HDFS 210	Ethnicity, Health and Aging	3	KINES 84	Fitness for Life	1.5-3
HDFS 215N	Global health and families	3	KINES 88	Varsity Sport Experience	1.5-3
HDFS 249N	Adult Development and Aging	3	KINES 89	Wilderness Experience	3
HDFS 258N	Introduction to Child Maltreatment and Advocacy Studies	3	KINES 90	Indoor Team Sports	3
HIST 162N	The Pursuit of Happiness in American Life: Historical Literature and Modern Practice	3	KINES 90A	Introduction to Team Sports/Indoor - Volleyball	1.5
HM 208	Social, Cultural, and Health Influences of Alcohol	1.5	KINES 90B	Introduction to Team Sports/Indoor - Basketball	1.5
HM 209	Alcohol & Cuisine: Culture & Responsible Service	1.5	KINES 91A	Introduction to Outdoor Team Sports-Soccer	1.5
HPA 57	Consumer Choices in Health Care	3	KINES 91D	Introduction to Outdoor Team Sports - Ultimate	1.5
KINES 1	Introduction to Outdoor Pursuits	1.5-3	KINES 92	Personal Fitness and Wellness	0.5-3
KINES 4	Principles of Fly Tying and Fly Fishing for Trout	1.5	KINES 93	Enhancing Mastery in Physical Activity	1.5-3
KINES 6	Cycle Conditioning	1.5-3	KINES 160N	Fitness with Exercise Physiology	3
KINES 10	Techniques in Rock Climbing	1.5	KINES 222N	Science and Politics of the Female Athlete	3
KINES 10A	Lead Rock Climbing	1.5	KINES 303	Emergency Recognition and Care with BLS CPR	3
KINES 11	Snowsports: Downhill Skiing	1.5	KINES 405N	Bicycling Culture and Urban Design	3
KINES 12	Snowsports: Snowboarding	1.5	LARCH 405N	Bicycling Culture and Urban Design	3
KINES 13	First Aid & Safety, CPR/AED	1.5	NURS 203	First Aid and CPR	3
KINES 17	Ballroom Dance	1.5	NURS 325N	Health and Environmental Sustainability	3
KINES 20	Modern Dance	1.5	NURS 407	Drugs of Abuse and Mental Health Issues	3
KINES 24	Lifetime Sports	3	NURS 452	Women's Health Issues	3
KINES 25	Introduction to Court Sports	1.5	NURS 464	Dying and Death	3
KINES 27	Badminton	1.5	NUTR 100	Nutrition Applications for a Healthy Lifestyle	3
KINES 29	Golf I	1-1.5	NUTR 144	Our Plates: Exploring Food and Healthy Eating Patterns Through Cooking	3
KINES 29B	Total Golf	1.5-3	NUTR 175N	Healthy Food for All: Factors that Influence What we Eat in the US	3
KINES 29C	Total Golf in Pennsylvania	3	NUTR 251	Introductory Principles of Nutrition	3
KINES 42	Ice Skating	1.5	NUTR 251H	Introd Prin Nutrition (honors)	3
KINES 44	Racquetball I	1.5	PHIL 137N	Introduction to Philosophy through Health and Sport	3
KINES 45	NAUI Basic SCUBA	1.5	PLSC 222N	Science and Politics of the Female Athlete	3
KINES 46	Squash I	1-1.5	PUBPL 222N	Science and Politics of the Female Athlete	3
KINES 47A	Beginning Swimming	1.5	RHS 226	College Student Mental Health and Wellness	3
KINES 47B	Intermediate Swimming	1.5	RPTM 1	Introduction to Outdoor Pursuits	1.5-3
KINES 48	Tennis I	1.5	RPTM 140	Outdoor School Field Experience	2
KINES 50	Lifeguarding	3	RPTM 280	Wilderness First Aid	1
KINES 53N	History and Practice of Martial Arts	3	SCIED 140	Outdoor School Field Experience	2
KINES 56	Introduction to Martial Arts	1.5	SOC 150N	Healthy People, Healthy Society	3
KINES 57	Personal Defense	1.5	SOC 210N	Social Determinants of Health	3
KINES 61	Fitness Theory and Practice	3	SOC 258N	Introduction to Child Maltreatment and Advocacy Studies	3
KINES 61S	Fitness Theory and Practice	3	STS 105	Food Facts and Fads	3
KINES 62	Introduction to Cardiovascular Activities	1.5	SUST 325N	Health and Environmental Sustainability	3
KINES 63	Aerobic Dance	1.5	VBSC 130	Understanding Human Disease	3
KINES 65	Lifetime Jogging	1.5	WMNST 458	Critical Feminist Issues in Reproduction	3
KINES 67	Physical Conditioning	1.5			
KINES 68	Resistance Training	1.5			
KINES 70	Swim Conditioning	1.5			
KINES 72	Walking for Fitness	1.5			
KINES 76	Introduction to Tai Chi Ch'uan	1.5			
KINES 77	Yoga for a Lifetime	1.5			
KINES 77A	Advanced Yoga Practice	1.5			
KINES 81	Wellness Theory	3			
KINES 82	Action Methods for Stress Management	3			

Humanities Courses

These courses have been approved as General Education Humanities courses. This course list is updated periodically. Descriptions and learning criteria for General Education Humanities courses can be found in the Foundation and Knowledge Domains section (p. 3185).

Code	Title	Credits	Code	Title	Credits
AA 193N	The Craft of Comics	3	AMST 134	American Comedy	3
AAS 100N	Introduction to Asian American Studies	3	AMST 135	Alternative Voices in American Literature	3
AFAM 83	First-Year Seminar in African American Studies	3	AMST 140Y	Religion in American Life and Thought	3
AFAM 100N	Black Freedom Struggles	3	AMST 150	America in the 1960s: An Introduction	3
AFAM 101N	African American Women	3	AMST 150N	Western Pennsylvania Art, Literature, and Culture	3
AFAM 102	Women of the African Diaspora	3	AMST 151N	Technology and Society in American History	3
AFAM 103	Racism and Sexism	3	AMST 155	American Business History	3
AFAM 105N	Afro-Latin America: Race and Revolution	3	AMST 160N	Introduction to Asian American Studies	3
AFAM 110N	Introduction to African American Studies	3	AMST 161	The Battle of Gettysburg in American Historical Memory	3
AFAM 111N	Introduction to Anti-Black racism in the United States: The African American Experience	3	AMST 161N	Chinese in America, Americans in China	3
AFAM 114N	Race, Gender and Sport	3	AMST 170N	Introduction to American Folklore	3
AFAM 116	Muslims in America	3	AMST 226N	Critical Approaches to Hip-Hop	3
AFAM 126N	The Popular Arts in America: The History of Hip-Hop	3	AMST 307N	American Art and Society	3
AFAM 132	Afro-Hispanic Civilization	3	AMST 308N	American Architecture	3
AFAM 139	African American Literature	3	AMST 309N	American Material Culture	3
AFAM 141N	African American Read-In Engaged Learning Experience	1-3	ANTH 2N	World Archaeology	3
AFAM 145	African Diaspora Religions and Spiritualities	3	ANTH 9N	Rise of Civilization in the Old World	3
AFAM 146	The Life and Thought of Martin Luther King, Jr.	3	ANTH 45N	Cultural Diversity: A Global Perspective	3
AFAM 147	The Life and Thought of Malcolm X	3	ANTH 45Q	Cultural Diversity: A Global Perspective	3
AFAM 152	African American History	3	ANTH 60N	Society and Cultures in Modern Israel	3
AFAM 164	The History of Brazil	3	ANTH 129N	Chocolate Worlds	3
AFAM 210	Freedom's First Generation: African American Life and Work, from the Civil War to World War II	3	ANTH 221N	Ancient Maya: Sacred Blood & Conjured Serpent	3
AFAM 211	Slavery and Freedom in the Black Atlantic	3	ANTH 434N	Black Ecologies	3
AFAM 213Y	African American Women's History	3	ANTH 479	Tradition, Modernity, and Cultural Change in South Asian Societies	3
AFAM 226N	Critical Approaches to Hip-Hop	3	APLNG 200	Introduction to Language, Culture, and Social Interaction	3
AFAM 250	Introduction to the Caribbean	3	APLNG 210	Global English	3
AFAM 364N	Black & White Sexuality	3	APLNG 220N	Multilingual Lives: Stories of Language and Culture Learning	3
AFAM 435N	Black Ecologies	3	APLNG 230N	Language and Social Justice	3
AFR 110N	Introduction to Contemporary Africa	3	APLNG 260	LANGUAGE AND TECHNOLOGY	3
AFR 132	Afro-Hispanic Civilization	3	APLNG 280N	Conducting International Comparative Research	3
AFR 150	Africa in Cinema	3	APLNG 290N	Critical Approaches to Applied Linguistics	3
AFR 191	Early African History	3	APLNG 320N	Language, Ideology, and Propaganda	3
AFR 192	Modern African History	3	ARAB 110	Arab Language, Cultures, and Current Topics	3
AFR 192H	Modern African History	3	ARAB 164	Introduction to the Qur'an	3
AFR 202N	Women, Gender, and Feminisms in Africa	3	ARAB 165	Islamic States, Societies and Cultures c. 600-1500	3
AFR 230N	Language and Social Justice	3	ARTH 101N	Introduction to Global Art History	3
AFR 435N	Black Ecologies	3	ARTH 115N	Arts of Love	3
AFR 449	Sport in African History	3	ARTH 202N	Renaissance to Modern Architecture	3
AG 160	Introduction into Ethics and Issues in Agriculture	3	ARTH 224N	Authors and Artists	3
AG 180N	Contemporary Issues in Food, Ag, Natural Resources, and Human Sciences	3	ARTH 225N	Sexuality and Modern Visual Culture	3
AMST 3	The American Nation: Historical Perspectives	3	ARTH 292N	Witches and Witchcraft from the Middle Ages to the Present	3
AMST 100	Introduction to American Studies	3	ARTH 307N	American Art and Society	3
AMST 103	American Masculinities	3	ARTH 308N	American Architecture	3
AMST 104	Women and the American Experience	3	ASIA 3	Introduction to the Religions of the East	3
AMST 105	American Popular Culture and Folklife	3	ASIA 4	Introduction to Asian Literatures	3
AMST 106N	The Mass Media and Society	3	ASIA 83S	Asian Studies First Year Seminar	3
AMST 127	Introduction to U.S. Latina/o History	3	ASIA 100	What is Asia?	3
			ASIA 101N	Sports in Asia	3

ASIA 102	Asian Popular Culture	3	CAMS 105	History of the Ancient Near East	3
ASIA 103	Introduction to Hinduism	3	CAMS 109Y	Writing Systems of the World	3
ASIA 104	Introduction to Buddhism	3	CAMS 110	Introduction to the Bible: Old Testament	3
ASIA 105	War and Memory in Asia: Twentieth Century and beyond	3	CAMS 111	Early Judaism	3
ASIA 106N	Asian Traditions of Health, Medicine, and the Body	3	CAMS 113	Jewish Myths and Legends	3
ASIA 107N	Bollywood: Seeing South Asia Through Cinema	3	CAMS 115	Literature of the Ancient Near East	3
ASIA 109H	What is The Self?	3	CAMS 120	New Testament	3
ASIA 120Y	South Asia: A Literary History	3	CAMS 121	Jesus the Jew	3
ASIA 172	Introduction to Japanese Civilization	3	CAMS 122	Apocalypse and Beyond	3
ASIA 174	East Asia to 1800	3	CAMS 123	History of God: Origins of Monotheism	3
ASIA 175	East Asia since 1800	3	CAMS 124	Early and Medieval Christianity	3
ASIA 176	Survey of Indian History	3	CAMS 130	The Ancient World in Film	3
ASIA 177	Rise of Modern Southeast Asia	3	CAMS 140	Classical Archaeology--Ancient Greece	3
ASIA 181	Introduction to the Religions of China and Japan	3	CAMS 142	Sport and Spectacle in the Ancient Mediterranean World	3
ASIA 182	Asian Trade: Economy, Industrialization and Capitalism in Asia	3	CAMS 150	Classical Archaeology--Ancient Rome	3
ASIA 183	Gender, Family, and Society in East Asia	3	CAMS 153	Dead Sea Scrolls	3
ASIA 186	The Silk Roads	3	CAMS 160	Sacrifice in the Ancient World	3
ASIA 188	Tibet: People, Places and Spaces	3	CAMS 180	Ancient Warfare	3
ASIA 200	What Are Asian Languages?	3	CAMS 194	Jerusalem: Sacred and Profane	3
ASIA 472	Tradition, Modernity, and Cultural Change in South Asian Societies	3	CAMS 200	Ancient Philosophy	3
ASTRO 19N	Being in the Universe	3	CAS 84	First-Year Seminar in Communication Arts and Sciences	3
AYFCE 211N	Foundations: Civic and Community Engagement	3	CAS 101N	Introduction to Human Communication	3
BIOET 100	Bioethics	3	CAS 162N	Communicating Care	3
BIOET 110N	Health, Illness, and the Human Condition	3	CAS 170N	What is Information?	3
BIOET 220N	Ethics, Society, and Science Fiction	3	CAS 175N	Persuasion and Propaganda	3
BIOET 401Q	Science, Ethics, Policy, and Law	3	CAS 182N	Communication and Sport	3
CAMS 1	Greek and Roman Literature	3	CAS 208N	Introduction to Managing Conflict and Bargaining	3
CAMS 4	Jewish and Christian Foundations	3	CAS 210	Landmark Speeches on Democracy and Dissent	3
CAMS 5	Ancient Mediterranean Civilizations	3	CAS 214W	Speech Writing	3
CAMS 10	Mesopotamian Civilization	3	CAS 215	Argumentation	3
CAMS 10U	MESOPOTAMIAN CIVILIZATION	3	CAS 222N	Foundations: Civic and Community Engagement	3
CAMS 12N	Lands of the Bible	3	CAS 232N	Identity, Citizenship, and the Rhetoric of American Horror Film	3
CAMS 15	Wonders of the Ancient World	3	CAS 255	Communicating Gender	3
CAMS 16	How to Live	3	CAS 271N	Intercultural Communication	3
CAMS 20	Egyptian Civilization	3	CAS 272N	Political Communication and Technology	3
CAMS 25	Greek Civilization	3	CAS 297G	Special Topics - GenEd	1-9
CAMS 25U	Greek Civilization - Honors	3	CAS 301	Rhetorical Theory	3
CAMS 33	Roman Civilization	3	CAS 311	Methods of Rhetorical Criticism	3
CAMS 44	Ancient Near Eastern and Egyptian Mythology	3	CAS 315	Debate and Civic Life	3
CAMS 45	Classical Mythology	3	CAS 321	Rhetoric and Law	3
CAMS 45H	Classical Mythology	3	CAS 352	Organizational Communication	3
CAMS 50	Words: Classical Sources of English Vocabulary	3	CAS 373	The Rhetorics of War and Peace	3
CAMS 70	Prophecy in the Bible and the Ancient Near East	3	CAS 375	Rhetoric and Public Controversy	3
CAMS 83Y	First-Year Seminar in Classics and Ancient Mediterranean Studies	3	CAS 383N	Culture and Technology	3
CAMS 90	Jerusalem: Past, Present, and Future	3	CAS 478	Contemporary U.S. Political Rhetoric	3
CAMS 100	Ancient Greece	3	CED 102N	Wicked Problems Like Inequality, Sustainability & Climate Change: What's the Right Thing to Do?	3
CAMS 101	The Roman Republic and Empire	3	CED 102Q	Wicked Problems Like Inequality, Sustainability & Climate Change: What's the Right Thing to Do?	3
CAMS 102	Canaan and Israel in Antiquity	3	CED 109N	Gentrification in Everyday Life	3
CAMS 104	Ancient Egypt	3			

CED 160	Introduction into Ethics and Issues in Agriculture	3	CMLIT 147N	Displacement and Migration	3
CED 400N	Exploring Indigenous Ways of Knowing in Great Lakes Region: Lecture	3	CMLIT 153	International Cultures: Film and Literature	3
CHEM 233N	Chemistry and Literature	3	CMLIT 183Q	From Beast Books to Resurrecting Dinosaurs	3
CHNS 120	Introduction to Chinese Literature and Culture	3	CMLIT 184	The Short Story	3
CHNS 121N	Chinese Film and New Media	3	CMLIT 185	World Novel	3
CI 280	Introduction to Teaching English Language Learners	3	CMLIT 191N	Introduction to Video Game Culture	3
CI 304N	Food, Farms & Justice: What's Education Got To Do With Them?	3	CMLIT 240Q	Artistic Patronage in Europe	3
CI 497N	Special Topics - Inter Domain	1-9	CMLIT 415	World Graphic Novels	3
CIVCM 211N	Foundations: Civic and Community Engagement	3	COMM 100N	The Mass Media and Society	3
CMLIT 1	Introduction to Western Literatures Through the Renaissance	3	COMM 110	Media and Democracy	3
CMLIT 3	Introduction to African Literatures	3	COMM 150N	The Art of the Cinema	3
CMLIT 4	Introduction to Asian Literatures	3	COMM 150Q	The Art of the Cinema	3
CMLIT 5	Introduction to Literatures of the Americas	3	COMM 168	American Journalism: Values, Traditions, and Practices	3
CMLIT 6	Literature and Philosophy	3	COMM 222N	Social Justice and the Image	3
CMLIT 7	Introduction to Middle Eastern Literatures	3	COMM 234N	Digital Cultures	3
CMLIT 10	World Literatures	3	COMM 335N	Media, Social Justice, and the Public Humanities	3
CMLIT 10U	The Forms of World Literature: A Global Perspective	3	CRIM 225N	Organized Crime in Film and Society	3
CMLIT 11	The Hero in World Literature	3	CRIMJ 159	History of the FBI	3
CMLIT 12	Introduction to World Drama and Performance	3	CRIMJ 205N	Critical Race Theory in the Humanities and Social Sciences	3
CMLIT 13	Virtual Worlds: Antiquity to the Present	3	DART 102N	Introduction to 2d Digital Art and Technology	3
CMLIT 19N	Being in the Universe	3	DIGIT 100	Introduction to Digital Humanities	3
CMLIT 83S	First-Year Seminar in Comparative Literature	3	EARTH 155N	Scientific Controversies and Public Debate	3
CMLIT 100	Reading Across Cultures	3	ECON 472N	Russian Economic History	3
CMLIT 101	Race, Gender, and Identity in World Literature	3	EDUC 205N	Critical Race Theory in the Humanities and Social Sciences	3
CMLIT 105	The Development of Literary Humor	3	EDUC 466N	Foundations of Teaching English as a Second Language	3
CMLIT 106	The Arthurian Legend	3	EMSC 240N	Energy and Sustainability in Contemporary Culture	3
CMLIT 107	Exploration, Travel, Migration, and Exile	3	ENGL 2	The Great Traditions in English Literature	3
CMLIT 108	Myths and Mythologies	3	ENGL 83S	First-Year Seminar in English	3
CMLIT 109	Native American Myths, Legends, and Literatures	3	ENGL 88	Australian/New Zealand Cultural Perspectives	3
CMLIT 110	Jewish Literature: An International Perspective	3	ENGL 101	Introduction to Literature	3
CMLIT 111	Introduction to Literatures of India	3	ENGL 103	The Great Traditions in American Literature	3
CMLIT 112N	Introduction to Global Drama, Theatre, and Performance	3	ENGL 104	The Bible as Literature	3
CMLIT 113	Jewish Myths and Legends	3	ENGL 105	American Popular Culture and Folklife	3
CMLIT 116	Jewish Great Books	3	ENGL 108N	Buddhism and US Society	3
CMLIT 120	The Literature of the Occult	3	ENGL 112	Pennsylvania Literature	3
CMLIT 122	Global Science Fictions	3	ENGL 114	Modern Pagan Traditions and Texts	3
CMLIT 128N	The Holocaust in Film and Literature	3	ENGL 115N	Arts of Love	3
CMLIT 130	Banned Books: International and Comparative Perspectives	3	ENGL 118	Music and Literature	3
CMLIT 131	Crime and Detection in World Literature	3	ENGL 120	Difference in Early Literature	3
CMLIT 132	Nobel Prize Literature	3	ENGL 124	Legal Fictions: Law, Justice, Literature	3
CMLIT 133N	Global Satire and Modern Politics	3	ENGL 125	On the Farm: Agriculture and Literature	3
CMLIT 140	Literature and the Other Arts: International and Comparative Perspectives	3	ENGL 126	Bad Literature	3
CMLIT 141	Religion and Literature	3	ENGL 128N	The Holocaust in Film and Literature	3
CMLIT 142	The Psychology of World Literature	3	ENGL 129	Shakespeare	3
CMLIT 143	Human Rights and World Literature	3	ENGL 129H	Shakespeare	3
			ENGL 130	Reading Popular Texts	3
			ENGL 131	Weird Tales: Literature of Horror and the Supernatural	3
			ENGL 132	Jewish American Literature	3

ENGL 133	Modern American Literature to World War II	3	ENGL 225N	Sexuality and Modern Visual Culture	3
ENGL 134	American Comedy	3	ENGL 226	Latina and Latino Border Theories	3
ENGL 135	Alternative Voices in American Literature	3	ENGL 227	Introduction to Queer Theory	3
ENGL 136	The Graphic Novel	3	ENGL 228	Introduction to Disability Studies in the Humanities	3
ENGL 139	African American Literature	3	ENGL 229	Digital Studies	3
ENGL 140	Contemporary Literature	3	ENGL 231	American Literature to 1865	3
ENGL 140H	Contemporary Literature - Honors	3	ENGL 231Y	American Literature to 1865	3
ENGL 141N	African American Read-In Engaged Learning Experience	1-3	ENGL 232	American Literature from 1865	3
ENGL 142N	Science in Literature	3	ENGL 232Y	American Literature from 1865	3
ENGL 144	Everyday Rhetoric	3	ENGL 233N	Chemistry and Literature	3
ENGL 145	Modern Irish Literature	3	ENGL 234	Sports, Ethics, and Literature	3
ENGL 161N	The Pursuit of Happiness in American Life: Historical Literature and Modern Practice	3	ENGL 236N	Inequality: Economics, Philosophy, Literature	3
ENGL 162N	Communicating Care	3	ENGL 237N	Reading and Writing Documentary Poetry	3
ENGL 163N	Defining the Animal	3	ENGL 240	Exploring Literary Traditions	3
ENGL 165N	Work and Literature	3	ENGL 245	Introduction to LGBTQ Studies	3
ENGL 170N	Introduction to American Folklore	3	ENGL 261	Exploring Literary Forms	3
ENGL 179	Exploring the Literature of Food: Current Trends in American Food Writing and Environmentalism	3	ENGL 262	Reading Fiction	3
ENGL 180	Literature and the Natural World	3	ENGL 263	Reading Poetry	3
ENGL 181A	Adventure Literature: Exploring the Chesapeake Bay	4.5	ENGL 265	Reading Nonfiction	3
ENGL 181B	Adventure Literature: Exploring Cape Cod	4.5	ENGL 268	Reading Drama	3
ENGL 181C	The Beach: Exploring the Literature of the Atlantic Shore	4.5	ENGL 459	Writing Palestine-Israel	3
ENGL 181D	Adventure Literature: Exploring the Literature of American Wilderness	3	ENGR 115N	Science, Humanity and Catastrophe: Scientific Discovery in Germany	3
ENGL 182A	Literature and Empire	3	ENGR 467Q	Robots and Their Role in Society	3
ENGL 182C	Literature and Empire	3	ENT 216N	Plagues Through the Ages	3
ENGL 183	Adventure Literature	3-4.5	ENVST 100N	Visions of Nature	3
ENGL 183N	The Cold War in Literature, Politics, and History	3	ESC 220N	Ethics, Society, and Science Fiction	3
ENGL 184	The Short Story	3	FDSC 134	Food, Values, and Health	3
ENGL 185	World Novel	3	FR 137	Paris: Anatomy of a Global City	3
ENGL 190Q	Medievalism	3	FR 138N	French Culture Through Film	3
ENGL 191	Science Fiction	3	FR 139	France and the French-speaking World	3
ENGL 192	The Literature of Fantasy	3	GAME 160N	Introduction to Video Game Culture	3
ENGL 193N	The Craft of Comics	3	GD 115N	Visualizing Information	3
ENGL 194	Women Writers	3	GEOG 2N	Apocalyptic Geographies: How can we prevent the end of the world?	3
ENGL 194H	Women Writers - Honors	3	GEOSC 212N	Earthquakes and Human History	3
ENGL 194S	Women Writers	3	GER 83	First-Year Seminar in German	3
ENGL 201	What is Literature	3	GER 100	German Culture and Civilization	3
ENGL 201H	What is Literature	3	GER 115N	Science, Humanity and Catastrophe: Scientific Discovery in Germany	3
ENGL 205	Children's Literature	3	GER 123	Genocide in Global perspectives: Twentieth Century and beyond	3
ENGL 206	Business and Literature	3	GER 128N	The Holocaust in Film and Literature	3
ENGL 208N	The Music of the Beatles and American Popular Culture	3	GER 143	The Culture of Stalinism and Nazism	3
ENGL 221	British Literature to 1798	3	GER 157N	The Amish	3
ENGL 221W	British Literature to 1798	3	GER 166	Marx, Nietzsche, Freud	3
ENGL 222	British Literature from 1798	3	GER 175	Germanic Heroic and Medieval Literature in English Translation	3
ENGL 222W	British Literature from 1798	3	GER 189N	German Film	3
ENGL 223N	Shakespeare: Page, Stage, and Screen	3	GER 190	Twentieth-Century German Literature in English Translation	3
ENGL 224N	Authors and Artists	3	GER 197E	Special Topics GN/GH	3
			GER 200N	Contemporary German Culture	3

GER 245	The Vikings	3	HIST 127	Introduction to U.S. Latina/o History	3
GLIS 101N	Globalization	3	HIST 128N	Cultural Perspectives on Mathematics	3
GLIS 102N	Global Pathways	3	HIST 129N	Chocolate Worlds	3
HDFS 254N	Reading Our Lives: Understanding Diversity and Human Development through Memoirs	3	HIST 130	Introduction to the Civil War Era, 1848 through 1877	3
HEBR 10	Jewish Civilization	3	HIST 130H	Introduction to the Civil War Era, 1848-1877 Honors	3
HHD 245N	Health, humanity, and longevity: Conversations with elders	3	HIST 131N	Slavery, the Civil War, and Cinema	3
HHD 497I	Intergenerational Communication	3	HIST 134	Great Britain and Ireland in the Early Modern World	3
HHUM 220N	Ethics, Society, and Science Fiction	3	HIST 140	The History of the Israel-Palestine Conflict (1917-Present)	3
HIST 1	Western Civilization I	3	HIST 141	Medieval and Modern Russia	3
HIST 2	Western Civilization II	3	HIST 142N	History of Communism	3
HIST 2H	Western Civilization II	3	HIST 143N	History of Fascism and Nazism	3
HIST 3	The American Nation: Historical Perspectives	3	HIST 144	The World at War: 1939-1945	3
HIST 5	Ancient Mediterranean Civilizations	3	HIST 145N	The Holocaust and Human Rights	3
HIST 6N	History and Weather: How Weather Played an Instrumental Role in Great World Events	3	HIST 148	History of Pennsylvania State University	3
HIST 10	World History to 1500	3	HIST 150	America in the 1960s: An Introduction	3
HIST 11	World History since 1500	3	HIST 151N	Technology and Society in American History	3
HIST 12	History of Pennsylvania	3	HIST 152	African American History	3
HIST 20	American Civilization to 1877	3	HIST 153	Native American History	3
HIST 20Y	American Civ to 1877Y	3	HIST 154	History of Welfare and Poverty in the United States	3
HIST 21	American Civilization Since 1877	3	HIST 155	American Business History	3
HIST 66	Survey of British History	3	HIST 157	Railroads and American Society	3
HIST 83	First-Year Seminar in History	3	HIST 158	History of American Immigration	3
HIST 100	Ancient Greece	3	HIST 159	History of the FBI	3
HIST 101	The Roman Republic and Empire	3	HIST 161	The Battle of Gettysburg in American Historical Memory	3
HIST 102	Canaan and Israel in Antiquity	3	HIST 162N	The Pursuit of Happiness in American Life: Historical Literature and Modern Practice	3
HIST 103	The History of Madness, Mental Illness, and Psychiatry	3	HIST 164	The History of Brazil	3
HIST 104	Ancient Egypt	3	HIST 165	Islamic States, Societies and Cultures c. 600-1500	3
HIST 105	The Byzantine Empire	3	HIST 166	History of Sexuality	3
HIST 106	Early Modern Empires of Islam: The Ottomans, Safavids, and Mughals	3	HIST 169	The Indian Ocean World	3
HIST 107	Medieval Europe	3	HIST 170	South Asia to 1500	3
HIST 108	Crusades: Holy War in the Middle Ages	3	HIST 172	Introduction to Japanese Civilization	3
HIST 109	Introduction to U.S. Environmental History	3	HIST 173	Vietnam in War and Peace	3
HIST 110	Introduction to Global Environmental History	3	HIST 174	East Asia to 1800	3
HIST 111	Introduction to U.S. Food History	3	HIST 175	East Asia since 1800	3
HIST 112	Introduction to Public History	3	HIST 176	Survey of Indian History	3
HIST 113	Baseball in Comparative History	3	HIST 177	Rise of Modern Southeast Asia	3
HIST 114N	Historical Perspectives on HealthCare Innovations	3	HIST 178	Latin-American History to 1820	3
HIST 115	The American Jewish Experience	3	HIST 179	Latin-American History Since 1820	3
HIST 116N	Family and Gender Roles in Modern History	3	HIST 180	Ancient Warfare	3
HIST 117	Women in United States History	3	HIST 181	Introduction to the Middle East	3
HIST 118	Modern Jewish History	3	HIST 182	Asian Trade: Economy, Industrialization and Capitalism in Asia	3
HIST 119	Gender and History	3	HIST 183	Gender, Family, and Society in East Asia	3
HIST 120N	History of Modern Europe since 1789	3	HIST 184	Society and Culture in the Pacific War	3
HIST 121	History of the Holocaust 1933-1945	3	HIST 186	The Silk Roads	3
HIST 122	History of Science I	3	HIST 188	Tibet: People, Places and Spaces	3
HIST 123	History of Science II	3	HIST 190	The Middle East Today	3
HIST 124	History of Western Medicine	3	HIST 191	Early African History	3
HIST 125N	History of Infectious Disease and Epidemiology	3			

HIST 192	Modern African History	3	IT 175	Italian Language and Culture for Embedded Experiences Abroad	3
HIST 192H	Modern African History	3	IT 210N	Multilingual and Intercultural Communication	3
HIST 193	Modern Iran	3	IT 225N	Organized Crime in Film and Society	3
HIST 194	Jerusalem: Sacred and Profane	3	IT 240Q	Artistic Patronage in Europe	3
HIST 195	Genocide in Global perspectives: Twentieth Century and beyond	3	IT 325	Italy's Inspiration for Your Life	3
HIST 197G	Special Topics	1-9	JAPNS 120	Japanese Literature in Its Cultural Context	3
HIST 203N	History of Monsters, Aliens & the Supernatural	3	JAPNS 120W	Japanese Literature in its Cultural Context	3
HIST 210	Freedom's First Generation: African American Life and Work, from the Civil War to World War II	3	JAPNS 121N	Japanese Film and New Media	3
HIST 211	Slavery and Freedom in the Black Atlantic	3	JAPNS 121Q	Japanese Film and New Media	3
HIST 212N	Earthquakes and Human History	3	JAPNS 122	Gods to Godzilla: A Survey of Japanese Culture	3
HIST 213Y	African American Women's History	3	JAPNS 172	Introduction to Japanese Civilization	3
HIST 238N	Society and Culture in Palestine/Israel	3	JST 4	Jewish and Christian Foundations	3
HIST 240Q	Artistic Patronage in Europe	3	JST 10	Jewish Civilization	3
HIST 245	Middle Eastern Cities	3	JST 12N	Lands of the Bible	3
HIST 250	Introduction to the Caribbean	3	JST 60N	Society and Cultures in Modern Israel	3
HIST 252	Revolutions in the Middle East	3	JST 70	Prophecy in the Bible and the Ancient Near East	3
HIST 255N	History of the Book	3	JST 83	First-Year Seminar in Jewish Studies	3
HIST 260	The Middle East in Film	3	JST 90	Jerusalem: Past, Present, and Future	3
HIST 266Y	Sexuality and Violence in Nineteenth-Century America	3	JST 102	Canaan and Israel in Antiquity	3
HIST 292N	Witches and Witchcraft from the Middle Ages to the Present	3	JST 104	The Bible as Literature	3
HIST 402N	Russian Economic History	3	JST 106	Mysticism and Kabbalah	3
HIST 423	Orthodox Christianity: History and Interpretations	3	JST 110	Introduction to the Bible: Old Testament	3
HM 210N	The Impact of Culture and Customs in Global Hospitality Environments	3	JST 111	Early Judaism	3
HUM 100N	Foundations in the Humanities: Understanding the Human Experience	3	JST 112	Jesus the Jew	3
HUM 101	Transformative Texts Part 1: Foundational Knowledge	3	JST 113	Jewish Myths and Legends	3
HUM 102	Transformative Texts Part 2: Contemporary Issues & Practical Perspectives	3	JST 114	Modern Judaism	3
HUM 150N	World Mythologies in the Arts	3	JST 115	The American Jewish Experience	3
HUM 200N	Explorations in the Humanities: The Quest	3	JST 116	Jewish Great Books	3
HUM 300N	Interpretations in the Humanities	3	JST 118	Modern Jewish History	3
HUM 400N	Expressions in the Humanities	3	JST 120	New Testament	3
INART 55N	History of Electronic Music	3	JST 121	History of the Holocaust 1933-1945	3
INART 126N	The Popular Arts in America: The History of Hip-Hop	3	JST 122	Apocalypse and Beyond	3
INART 141N	African American Read-In Engaged Learning Experience	1-3	JST 123	History of God: Origins of Monotheism	3
INART 203Q	Medievalism	3	JST 124	Early and Medieval Christianity	3
INART 226N	Critical Approaches to Hip-Hop	3	JST 128N	The Holocaust in Film and Literature	3
IST 144N	Invasion of Technology from a 21st Century Perspective	3	JST 131	Jewish Literature: An International Perspective	3
IST 170N	What is Information?	3	JST 132	Jewish American Literature	3
IST 234N	Digital Cultures	3	JST 135	Ethics in Jewish Tradition and Thought	3
IT 83	First-Year Seminar in Italian Literature, Film, and Culture	3	JST 140	The History of the Israel-Palestine Conflict (1917-Present)	3
IT 130	Italian Culture and Civilization	3	JST 143N	History of Fascism and Nazism	3
IT 131	Introduction to Italian American Culture	3	JST 153	Dead Sea Scrolls	3
IT 140	Italian Language & Culture for Study Abroad	3	JST 160	Sacrifice in the Ancient World	3
			JST 181	Introduction to the Middle East	3
			JST 186	The Silk Roads	3
			JST 190	The Middle East Today	3
			JST 193	Modern Iran	3
			JST 194	Jerusalem: Sacred and Profane	3
			JST 195	Genocide in Global perspectives: Twentieth Century and beyond	3
			JST 260	The Middle East in Film	3
			JST 320N	Language, Ideology, and Propaganda	3

JST 459	Writing Palestine-Israel	3	PHIL 108	Social and Political Philosophy	3
KINES 53N	History and Practice of Martial Arts	3	PHIL 108H	Honors Social and Political Philosophy	3
KINES 419	Disability Sport and Recreation	3	PHIL 108W	Social and Political Philosophy	3
KINES 449	Sport in African History	3	PHIL 109	Aesthetics	3
KOR 120	Introduction to Korean Culture	3	PHIL 110	Philosophy of Science	3
KOR 121	Korean Popular Culture	3	PHIL 113	Philosophy of Literature	3
LA 135N	College, Work, and Citizenship in the 21st Century	3	PHIL 114	Feminist Philosophy	3
LA 335N	Media, Social Justice, and the Public Humanities	3	PHIL 115	Philosophy and Education	3
LHR 165N	Work and Literature	3	PHIL 118	Environmental Philosophy	3
LLED 215N	Children's Picture Books as Multimodal Texts	3	PHIL 119	Ethical Leadership	3
LLED 227	Understanding Childhood through Children's Literature: Books, Media, Toys	3	PHIL 120N	Knowing Right from Wrong	3
LLED 235	Chinese Culture in Child Lit	3	PHIL 122	Philosophy of History	3
LTNST 100	Introduction to Latina/o Studies	3	PHIL 123	Media Ethics	3
LTNST 127	Introduction to U.S. Latina/o History	3	PHIL 124	Philosophy of Religion	3
LTNST 139	Latino/a Philosophy	3	PHIL 125	Theories of Knowledge	3
LTNST 226	Latina and Latino Border Theories	3	PHIL 125W	Theories of Knowledge	3
LTNST 300	Latinx Gender and Sexuality Studies	3	PHIL 126	Metaphysics	3
LTNST 315N	Spanish and Spanish-speakers in the U.S.	3	PHIL 126W	Metaphysics	3
LTNST 326	Reading the BorderLands: Geography and Identity Along the U.S.-Mexico Border	3	PHIL 127	Philosophy of Mind	3
LTNST 479	U.S. Latina/o Culture en Espanol	3	PHIL 129	Philosophy of Language	3
MEDVL 107	Medieval Europe	3	PHIL 131N	BS: Identifying Bias and Falsehood	3
MEDVL 108	Medieval Civilization	3	PHIL 132	Bioethics	3
METEO 6N	History and Weather: How Weather Played an Instrumental Role in Great World Events	3	PHIL 133N	Ethics of Climate Change	3
METEO 133N	Ethics of Climate Change	3	PHIL 134	Food, Values, and Health	3
MUSIC 209N	The Music of the Beatles and American Popular Culture	3	PHIL 135	Ethics in Jewish Tradition and Thought	3
PHIL 1	The Big Questions	3	PHIL 136N	Art and Philosophy in Ancient Greece	3
PHIL 2	Individuals in Society	3	PHIL 137N	Introduction to Philosophy through Health and Sport	3
PHIL 3	Ethical Life	3	PHIL 139	Latino/a Philosophy	3
PHIL 4	The Human Condition	3	PHIL 200	Ancient Philosophy	3
PHIL 5	Film and Philosophy	3	PHIL 201	Medieval Philosophy	3
PHIL 6	Literature and Philosophy	3	PHIL 202	Modern Philosophy: 1600-1800	3
PHIL 7	Asian Philosophy	3	PHIL 203	Nineteenth Century Philosophy	3
PHIL 8	Gender Matters	3	PHIL 204	Twentieth Century Philosophy	3
PHIL 9	Race, Racism, and Diversity	3	PHIL 205	American Philosophy: 1840-Present	3
PHIL 10	Critical Thinking	3	PHIL 208	Contemporary Philosophy	3
PHIL 11	Science and Truth	3	PHIL 233	Ethics and the Design of Technology	3
PHIL 13	Nature and Environment	3	PHIL 242N	Happiness and Well-Being	3
PHIL 14	Love and Sex	3	PLANT 129N	Chocolate Worlds	3
PHIL 15	How to Live	3	PLSC 7N	Contemporary Political Ideologies	3
PHIL 60N	Philosophy and 1960s Counterculture	3	PLSC 17N	Introduction to Political Theory	3
PHIL 83	First-Year Seminar in Philosophy	3	PLSC 17W	Introduction to Political Theory	3
PHIL 102	Existentialism	3	PLSC 60N	Society and Cultures in Modern Israel	3
PHIL 103	Ethics	3	PLSC 111	Debating the Purpose of Government	3
PHIL 103H	Honors Ethics	3	PLSC 112N	Ethics in Citizenship, Politics, and Government	3
PHIL 103W	Ethics	3	PLSC 120N	State, Society, and Public Policy	3
PHIL 105	Philosophy of Law	3	PLSC 177N	Politics and Government in Washington DC	1-3
PHIL 105H	Honors Philosophy of Law	3	PLSC 183N	The Cold War in Literature, Politics, and History	3
PHIL 106	Business Ethics	3	PLSC 200N	Government and Politics of Europe	3
PHIL 107	Philosophy of Technology	3	PLSC 201N	Politics & Religion: Controversies Around the World	3
			PLSC 210N	Rights in America	3
			PLSC 223N	Ethnic and Racial Politics	3

PLSC 267N	Government and Politics of the Middle East	3	RUS 101N	Russian Cinema	3
PLSC 290N	Comparative Violence: Political and Criminological Perspectives	3	RUS 110	Russian Folklore	3
PORT 210N	Multilingual and Intercultural Communication	3	RUS 143	The Culture of Stalinism and Nazism	3
PSYCH 120N	Knowing Right from Wrong	3	RUS 144	Multicultural Russia: Narratives of Race and Ethnicity in Russian Literature and Culture	3
PUBPL 120N	State, Society, and Public Policy	3	RUS 145	Putin's Russia and Its Protest Culture	3
RLST 1	Introduction to World Religions	3	SC 120N	Plants, Places, and People	3
RLST 3	Introduction to the Religions of the East	3	SC 125N	History of Infectious Disease and Epidemiology	3
RLST 4	Jewish and Christian Foundations	3	SC 142N	Science in Literature	3
RLST 12N	Lands of the Bible	3	SC 183Q	From Beast Books to Resurrecting Dinosaurs	3
RLST 44	Ancient Near Eastern and Egyptian Mythology	3	SC 205N	BS: Identifying Bias and Falsehood	3
RLST 70	Prophecy in the Bible and the Ancient Near East	3	SC 475N	Anatomy in Italy: Cadavers, Culture, and Science	3
RLST 90	Jerusalem: Past, Present, and Future	3	SOC 60N	Society and Cultures in Modern Israel	3
RLST 102	Canaan and Israel in Antiquity	3	SOC 103	Racism and Sexism	3
RLST 103	Introduction to Hinduism	3	SOC 119N	Race, Ethnicity and Culture	3-4
RLST 104	Introduction to Buddhism	3	SOC 120N	Knowing Right from Wrong	3
RLST 105N	Buddhism and US Society	3	SOC 130N	Buddhism and US Society	3
RLST 106	Mysticism and Kabbalah	3	SOC 145N	The Holocaust and Human Rights	3
RLST 107	Introduction to Islam	3	SOC 162N	Communicating Care	3
RLST 108	Myths and Mythologies	3	SOC 180N	State, Society, and Public Policy	3
RLST 109H	What is The Self?	3	SOC 205N	Critical Race Theory in the Humanities and Social Sciences	3
RLST 110	Introduction to the Bible: Old Testament	3	SOC 245N	Globalization, Technology, and Ethics	3
RLST 111	Early Judaism	3	SOC 369	Foundational Theory and Practice in Small Group Facilitation	3-4
RLST 113	Jewish Myths and Legends	3	SPAN 130	Iberian Civilization	3
RLST 114	Modern Judaism	3	SPAN 131	Ibero-American Civilization	3
RLST 115	The American Jewish Experience	3	SPAN 131Y	Ibero-American Civilization	3
RLST 116	Muslims in America	3	SPAN 132	Afro-Hispanic Civilization	3
RLST 120	New Testament	3	SPAN 210N	Multilingual and Intercultural Communication	3
RLST 121	Jesus the Jew	3	SPAN 253W	Introduction to Hispanic Literature	3
RLST 122	Apocalypse and Beyond	3	SPAN 269N	Theater and Performance	3
RLST 123	History of God: Origins of Monotheism	3	SPAN 315N	Spanish and Spanish-speakers in the U.S.	3
RLST 124	Early and Medieval Christianity	3	SPAN 326	Reading the BorderLands: Geography and Identity Along the U.S.-Mexico Border	3
RLST 129	Philosophy of Religion	3	SPAN 479	U.S. Latina/o Culture en Espanol	3
RLST 133N	Ethics of Climate Change	3	SSED 100N	Foundations of History and Social Studies Concepts for K-8 Teachers	3
RLST 135	Ethics in Jewish Tradition and Thought	3	STS 110N	Chemistry in World Wars I and II	3
RLST 137	Gender, Sexuality, and Religion	3	STS 124	History of Western Medicine	3
RLST 140Y	Religion in American Life and Thought	3	STS 151N	Technology and Society in American History	3
RLST 145	African Diaspora Religions and Spiritualities	3	STS 233	Ethics and the Design of Technology	3
RLST 146	The Life and Thought of Martin Luther King, Jr.	3	STS 235	Science and Religion	3
RLST 147	The Life and Thought of Malcolm X	3	STS 245N	Globalization, Technology, and Ethics	3
RLST 153	Dead Sea Scrolls	3	SUST 242N	Issues in Sustainability	3
RLST 160	Sacrifice in the Ancient World	3	THEA 206	Critical Theory for Performance	3
RLST 164	Introduction to the Qur'an	3	UKR 100	Ukrainian Culture and Civilization	3
RLST 165	Islamic States, Societies and Cultures c. 600-1500	3	VBSC 280N	Current Topics in Veterinary Medicine	3
RLST 181	Introduction to the Religions of China and Japan	3	WMNST 8	Gender Matters	3
RLST 194	Jerusalem: Sacred and Profane	3	WMNST 83N	First-Year Seminar in Women's Studies	3
RLST 280	Gendering the Divine in Indian and South Asian Religions	3	WMNST 101N	African American Women	3
RLST 423	Orthodox Christianity: History and Interpretations	3	WMNST 102	Women of the African Diaspora	3
RSOC 400N	Exploring Indigenous Ways of Knowing in Great Lakes Region: Lecture	3	WMNST 103	Racism and Sexism	3
RUS 83	First-Year Seminar in Russian	3			
RUS 100	Russian Culture and Civilization	3			

WMNST 104	Women and the American Experience	3	AFAM 110N	Introduction to African American Studies	3
WMNST 105N	Living in a Diverse World	3	AFAM 111N	Introduction to Anti-Black racism in the United States: The African American Experience	3
WMNST 106N	Representing Women and Gender in Literature, Art and Popular Cultures	3	AFAM 114N	Race, Gender and Sport	3
WMNST 106Q	Representing Women and Gender in Literature, Art and Popular Cultures	3	AFAM 126N	The Popular Arts in America: The History of Hip-Hop	3
WMNST 116N	Family and Gender Roles in Modern History	3	AFAM 141N	African American Read-In Engaged Learning Experience	1-3
WMNST 117	Women in United States History	3	AFAM 207N	Jazz and the African American Experience	3
WMNST 117H	Women in Modern History	3	AFAM 226N	Critical Approaches to Hip-Hop	3
WMNST 137	Gender, Sexuality, and Religion	3	AFAM 364N	Black & White Sexuality	3
WMNST 166	History of Sexuality	3	AFAM 435N	Black Ecologies	3
WMNST 175N	Fashion, Gender, and Identity	3	AFR 110N	Introduction to Contemporary Africa	3
WMNST 194	Women Writers	3	AFR 202N	Women, Gender, and Feminisms in Africa	3
WMNST 202N	Women, Gender, and Feminisms in Africa	3	AFR 230N	Language and Social Justice	3
WMNST 213Y	African American Women's History	3	AFR 435N	Black Ecologies	3
WMNST 225N	Sexuality and Modern Visual Culture	3	AG 180N	Contemporary Issues in Food, Ag, Natural Resources, and Human Sciences	3
WMNST 227	Introduction to Queer Theory	3	AGBM 170N	Investigating the U.S. Food System: How food moves from field to table	3
WMNST 230N	Dangerous Bodies	3	AGECO 134N	Sustainable Agriculture Science and Policy	3
WMNST 240Q	Artistic Patronage in Europe	3	AMST 106N	The Mass Media and Society	3
WMNST 245	Introduction to LGBTQ Studies	3	AMST 150N	Western Pennsylvania Art, Literature, and Culture	3
WMNST 266Y	Sexuality and Violence in Nineteenth-Century America	3	AMST 151N	Technology and Society in American History	3
WMNST 280	Gendering the Divine in Indian and South Asian Religions	3	AMST 160N	Introduction to Asian American Studies	3
WMNST 300	Latinx Gender and Sexuality Studies	3	AMST 161N	Chinese in America, Americans in China	3
WMNST 301N	Sexualities, Gender and Power: Feminist Thought and Politics	3	AMST 170N	Introduction to American Folklore	3
WMNST 364N	Black & White Sexuality	3	AMST 226N	Critical Approaches to Hip-Hop	3
WMNST 400N	Debates in Contemporary Feminism	3	AMST 307N	American Art and Society	3
			AMST 308N	American Architecture	3
			AMST 309N	American Material Culture	3
			ANSC 332N	Science and policy of global greenhouse gas emissions and management	3
			ANTH 2N	World Archaeology	3
			ANTH 9N	Rise of Civilization in the Old World	3
			ANTH 40Q	Biocultural Evolution	3
			ANTH 45N	Cultural Diversity: A Global Perspective	3
			ANTH 45Q	Cultural Diversity: A Global Perspective	3
			ANTH 60N	Society and Cultures in Modern Israel	3
			ANTH 100N	Anthropology of Race and Racism	3
			ANTH 129N	Chocolate Worlds	3
			ANTH 150N	Human Nature: The Science of Extreme Altruism and Violence	3
			ANTH 150Q	Human Nature: The Science of Extreme Altruism and Violence	3
			ANTH 210N	Anthropology, Ancestry, and You	3
			ANTH 216N	Sex and Evolution	3
			ANTH 219N	Spillover: The Anthropology of Emerging Infectious Diseases	3
			ANTH 221N	Ancient Maya: Sacred Blood & Conjured Serpent	3
			ANTH 240N	Livelihoods and Ecosystems: Anthropological Approaches to Human-Environment Interaction	3
			ANTH 375Q	Anthropology of Food Honors	3
			ANTH 434N	Black Ecologies	3

Integrative Studies: Inter-Domain Courses

These courses have been approved as General Education Inter-Domain courses. This course list is updated periodically. Information about Inter-Domain courses can be found in the Integrative Studies section (p. 3188).

Code	Title	Credits
AA 113N	Sustainable Arts and Design	3
AA 120N	Introduction to Art Therapy	3
AA 130N	Creative Arts Therapy Applications	3
AA 160N	The Virtual Transformational Leadership Development Experience	3
AA 193N	The Craft of Comics	3
AA 230N	Arts & Wellness in Communities	3
AAS 100N	Introduction to Asian American Studies	3
AED 233N	Learning in Maker Cultures	1-3
AED 355Q	Show Me Where it Hurts: Healthcare and Creative Inquiry	3
AEE 204N	Science Literacy and Policy in the 21st Century	3
AFAM 100N	Black Freedom Struggles	3
AFAM 101N	African American Women	3
AFAM 105N	Afro-Latin America: Race and Revolution	3

APLNG 220N	Multilingual Lives: Stories of Language and Culture Learning	3	CAS 232N	Identity, Citizenship, and the Rhetoric of American Horror Film	3
APLNG 230N	Language and Social Justice	3	CAS 271N	Intercultural Communication	3
APLNG 260	LANGUAGE AND TECHNOLOGY	3	CAS 272N	Political Communication and Technology	3
APLNG 280N	Conducting International Comparative Research	3	CAS 383N	Culture and Technology	3
APLNG 290N	Critical Approaches to Applied Linguistics	3	CED 102N	Wicked Problems Like Inequality, Sustainability & Climate Change: What's the Right Thing to Do?	3
APLNG 320N	Language, Ideology, and Propaganda	3	CED 102Q	Wicked Problems Like Inequality, Sustainability & Climate Change: What's the Right Thing to Do?	3
ARCH 170N	Introduction to Sustainable Architecture	3	CED 109N	Gentrification in Everyday Life	3
ART 51N	Meteorology and Visual Arts: To Know is to See	3	CED 400N	Exploring Indigenous Ways of Knowing in Great Lakes Region: Lecture	3
ART 160N	STEAM: Connecting Art to Science, Technology, Engineering and Mathematics	3	CHEM 233N	Chemistry and Literature	3
ART 170N	Plant and Microbial Art	3	CHNS 121N	Chinese Film and New Media	3
ART 175N	Intersections Between Art and Psychology	3	CI 105N	Improv Theater, Curriculum & Instruction	3
ART 207N	LGBTQ+ Identity, Culture and The Arts	3	CI 304N	Food, Farms & Justice: What's Education Got To Do With Them?	3
ARTH 101N	Introduction to Global Art History	3	CI 497N	Special Topics - Inter Domain	1-9
ARTH 105N	Pictures and Power	3	CIVCM 211N	Foundations: Civic and Community Engagement	3
ARTH 107N	Rocks, Minerals, and the History of Art	3	CMAS 258N	Introduction to Child Maltreatment and Advocacy Studies	3
ARTH 115N	Arts of Love	3	CMLIT 19N	Being in the Universe	3
ARTH 202N	Renaissance to Modern Architecture	3	CMLIT 112N	Introduction to Global Drama, Theatre, and Performance	3
ARTH 222N	Intersections between Art History and the History of Psychology	3	CMLIT 128N	The Holocaust in Film and Literature	3
ARTH 222Q	Intersections between Art History and the History of Psychology	3	CMLIT 133N	Global Satire and Modern Politics	3
ARTH 224N	Authors and Artists	3	CMLIT 147N	Displacement and Migration	3
ARTH 225N	Sexuality and Modern Visual Culture	3	CMLIT 183Q	From Beast Books to Resurrecting Dinosaurs	3
ARTH 292N	Witches and Witchcraft from the Middle Ages to the Present	3	CMLIT 191N	Introduction to Video Game Culture	3
ARTH 307N	American Art and Society	3	CMLIT 240Q	Artistic Patronage in Europe	3
ARTH 308N	American Architecture	3	COMM 20N	Critical Media Literacy	3
ASIA 101N	Sports in Asia	3	COMM 100N	The Mass Media and Society	3
ASIA 106N	Asian Traditions of Health, Medicine, and the Body	3	COMM 101N	Understanding and Enhancing Creativity	3
ASIA 107N	Bollywood: Seeing South Asia Through Cinema	3	COMM 150N	The Art of the Cinema	3
ASTRO 7N	The Artistic Universe	3	COMM 150Q	The Art of the Cinema	3
ASTRO 19N	Being in the Universe	3	COMM 151N	Film and Extraterrestrial Life: Science Fact or Fiction?	3
ASTRO 141N	Film and Extraterrestrial Life: Science Fact or Fiction?	3	COMM 175N	Mental Illness and the Movies	3
AYFCE 211N	Foundations: Civic and Community Engagement	3	COMM 208N	Visual Representations of the Middle East in the US and Middle East	3
BBH 150N	Safe and Sound: The Intersection of Criminal Justice and Public Health	3	COMM 222N	Social Justice and the Image	3
BBH 201N	Health and the Media	3	COMM 234N	Digital Cultures	3
BIOET 110N	Health, Illness, and the Human Condition	3	COMM 290N	Cinema and Globalization	3
BIOET 220N	Ethics, Society, and Science Fiction	3	COMM 335N	Media, Social Justice, and the Public Humanities	3
BIOET 401Q	Science, Ethics, Policy, and Law	3	CRIM 225N	Organized Crime in Film and Society	3
BIOL 160N	Fitness with Exercise Physiology	3	CRIMJ 150N	Safe and Sound: The Intersection of Criminal Justice and Public Health	3
BIOL 169N	What it means to be human	3	CRIMJ 205N	Critical Race Theory in the Humanities and Social Sciences	3
CAMS 12N	Lands of the Bible	3	DART 102N	Introduction to 2d Digital Art and Technology	3
CAS 101N	Introduction to Human Communication	3	EARTH 103N	Earth in the Future: Predicting Climate Change and Its Impacts Over the Next Century	3
CAS 162N	Communicating Care	3	EARTH 104N	Climate, Energy and Our Future	3
CAS 170N	What is Information?	3			
CAS 175N	Persuasion and Propaganda	3			
CAS 182N	Communication and Sport	3			
CAS 208N	Introduction to Managing Conflict and Bargaining	3			
CAS 222N	Foundations: Civic and Community Engagement	3			

EARTH 105N	Environments of Africa: Geology and Climate Change	3	GEOG 2N	Apocalyptic Geographies: How can we prevent the end of the world?	3
EARTH 107N	Coastal Processes, Hazards and Society	3	GEOG 3N	Food and the Future Environment	3
EARTH 111N	Water: Science and Society	3	GEOG 6N	Maps and the Geospatial Revolution	3
EARTH 155N	Scientific Controversies and Public Debate	3	GEOG 30N	Environment and Society in a Changing World	3
EARTH 200N	Earth Systems Through a Soc & Envir Justice Lens	3	GEOG 107N	Immersive Technologies - Transforming Society Through Digital Innovation	3
ECON 472N	Russian Economic History	3	GEOG 330N	Political Ecology	3
EDUC 205N	Critical Race Theory in the Humanities and Social Sciences	3	GEOG 332N	Science and policy of global greenhouse gas emissions and management	3
EDUC 466N	Foundations of Teaching English as a Second Language	3	GEOSC 107N	Rocks, Minerals, and the History of Art	3
EGEE 110N	Environmental Health and Safety Science	3	GEOSC 212N	Earthquakes and Human History	3
EMSC 240N	Energy and Sustainability in Contemporary Culture	3	GER 115N	Science, Humanity and Catastrophe: Scientific Discovery in Germany	3
ENGL 108N	Buddhism and US Society	3	GER 128N	The Holocaust in Film and Literature	3
ENGL 115N	Arts of Love	3	GER 157N	The Amish	3
ENGL 128N	The Holocaust in Film and Literature	3	GER 189N	German Film	3
ENGL 141N	African American Read-In Engaged Learning Experience	1-3	GER 197E	Special Topics GN/GH	3
ENGL 142N	Science in Literature	3	GER 200N	Contemporary German Culture	3
ENGL 161N	The Pursuit of Happiness in American Life: Historical Literature and Modern Practice	3	GLIS 101N	Globalization	3
ENGL 162N	Communicating Care	3	GLIS 102N	Global Pathways	3
ENGL 163N	Defining the Animal	3	HDFS 101N	Helping People: Introduction to Understanding Social Problems & How to Help	3
ENGL 165N	Work and Literature	3	HDFS 108N	Art and Science of Human Flourishing	3
ENGL 170N	Introduction to American Folklore	3	HDFS 175N	Introduction to Youth Development and Arts-based Social Justice	3
ENGL 183N	The Cold War in Literature, Politics, and History	3	HDFS 215N	Global health and families	3
ENGL 190Q	Medievalism	3	HDFS 249N	Adult Development and Aging	3
ENGL 193N	The Craft of Comics	3	HDFS 254N	Reading Our Lives: Understanding Diversity and Human Development through Memoirs	3
ENGL 208N	The Music of the Beatles and American Popular Culture	3	HDFS 258N	Introduction to Child Maltreatment and Advocacy Studies	3
ENGL 223N	Shakespeare: Page, Stage, and Screen	3	HHD 200N	Addiction Science to Society	3
ENGL 224N	Authors and Artists	3	HHD 245N	Health, humanity, and longevity: Conversations with elders	3
ENGL 225N	Sexuality and Modern Visual Culture	3	HHD 497I	Intergenerational Communication	3
ENGL 233N	Chemistry and Literature	3	HHUM 220N	Ethics, Society, and Science Fiction	3
ENGL 236N	Inequality: Economics, Philosophy, Literature	3	HIST 6N	History and Weather: How Weather Played an Instrumental Role in Great World Events	3
ENGL 237N	Reading and Writing Documentary Poetry	3	HIST 114N	Historical Perspectives on HealthCare Innovations	3
ENGR 115N	Science, Humanity and Catastrophe: Scientific Discovery in Germany	3	HIST 116N	Family and Gender Roles in Modern History	3
ENGR 120N	Design Thinking and 3D Printing in Engineering and Healthcare	3	HIST 120N	History of Modern Europe since 1789	3
ENGR 467Q	Robots and Their Role in Society	3	HIST 125N	History of Infectious Disease and Epidemiology	3
ENT 202N	Insect Connections: Insects, Globalization and Sustainability	3	HIST 128N	Cultural Perspectives on Mathematics	3
ENT 216N	Plagues Through the Ages	3	HIST 129N	Chocolate Worlds	3
ENT 222N	Honey Bees and Humans	3	HIST 131N	Slavery, the Civil War, and Cinema	3
ENVST 100N	Visions of Nature	3	HIST 142N	History of Communism	3
ESC 220N	Ethics, Society, and Science Fiction	3	HIST 143N	History of Fascism and Nazism	3
FOR 201N	Global Change and Ecosystems	3	HIST 145N	The Holocaust and Human Rights	3
FR 138N	French Culture Through Film	3	HIST 151N	Technology and Society in American History	3
GAME 160N	Introduction to Video Game Culture	3	HIST 162N	The Pursuit of Happiness in American Life: Historical Literature and Modern Practice	3
GAME 180N	The Art and Science of Virtual Worlds	3	HIST 203N	History of Monsters, Aliens & the Supernatural	3
GD 115N	Visualizing Information	3	HIST 212N	Earthquakes and Human History	3
GEOG 1N	Global Parks and Sustainability	3			

HIST 238N	Society and Culture in Palestine/Israel	3	METEO 6N	History and Weather: How Weather Played an Instrumental Role in Great World Events	3
HIST 240Q	Artistic Patronage in Europe	3	METEO 51N	Meteorology and Visual Arts: To Know is to See	3
HIST 255N	History of the Book	3	METEO 133N	Ethics of Climate Change	3
HIST 292N	Witches and Witchcraft from the Middle Ages to the Present	3	METEO 332N	Science and policy of global greenhouse gas emissions and management	3
HIST 402N	Russian Economic History	3	MUSIC 207N	Jazz and the African American Experience	3
HM 210N	The Impact of Culture and Customs in Global Hospitality Environments	3	MUSIC 209N	The Music of the Beatles and American Popular Culture	3
HORT 150N	Plants in the Human Context	3	NURS 325N	Health and Environmental Sustainability	3
HORT 169N	Fundamentals of Home Landscaping: An Introduction to Design, Construction, and Maintenance	3	NUTR 175N	Healthy Food for All: Factors that Influence What we Eat in the US	3
HUM 100N	Foundations in the Humanities: Understanding the Human Experience	3	NUTR 291N	Drugs and Nutrition: Social and Scientific Interactions	3
HUM 150N	World Mythologies in the Arts	3	PHIL 60N	Philosophy and 1960s Counterculture	3
HUM 200N	Explorations in the Humanities: The Quest	3	PHIL 120N	Knowing Right from Wrong	3
HUM 300N	Interpretations in the Humanities	3	PHIL 131N	BS: Identifying Bias and Falsehood	3
HUM 400N	Expressions in the Humanities	3	PHIL 133N	Ethics of Climate Change	3
INART 55N	History of Electronic Music	3	PHIL 136N	Art and Philosophy in Ancient Greece	3
INART 126N	The Popular Arts in America: The History of Hip-Hop	3	PHIL 137N	Introduction to Philosophy through Health and Sport	3
INART 141N	African American Read-In Engaged Learning Experience	1-3	PHIL 242N	Happiness and Well-Being	3
INART 203Q	Medievalism	3	PHOTO 321N	Flow Visualization: The Art and Physics of Fluid Motion	3
INART 226N	Critical Approaches to Hip-Hop	3	PLANT 129N	Chocolate Worlds	3
INTAG 100N	Everyone Eats: Hunger, Food Security & Global Agriculture	3	PLSC 7N	Contemporary Political Ideologies	3
IST 144N	Invasion of Technology from a 21st Century Perspective	3	PLSC 17N	Introduction to Political Theory	3
IST 170N	What is Information?	3	PLSC 17W	Introduction to Political Theory	3
IST 234N	Digital Cultures	3	PLSC 60N	Society and Cultures in Modern Israel	3
IT 210N	Multilingual and Intercultural Communication	3	PLSC 112N	Ethics in Citizenship, Politics, and Government	3
IT 225N	Organized Crime in Film and Society	3	PLSC 120N	State, Society, and Public Policy	3
IT 240Q	Artistic Patronage in Europe	3	PLSC 177N	Politics and Government in Washington DC	1-3
JAPNS 121N	Japanese Film and New Media	3	PLSC 183N	The Cold War in Literature, Politics, and History	3
JAPNS 121Q	Japanese Film and New Media	3	PLSC 200N	Government and Politics of Europe	3
JST 12N	Lands of the Bible	3	PLSC 201N	Politics & Religion: Controversies Around the World	3
JST 60N	Society and Cultures in Modern Israel	3	PLSC 210N	Rights in America	3
JST 128N	The Holocaust in Film and Literature	3	PLSC 222N	Science and Politics of the Female Athlete	3
JST 143N	History of Fascism and Nazism	3	PLSC 223N	Ethnic and Racial Politics	3
JST 320N	Language, Ideology, and Propaganda	3	PLSC 267N	Government and Politics of the Middle East	3
KINES 53N	History and Practice of Martial Arts	3	PLSC 290N	Comparative Violence: Political and Criminological Perspectives	3
KINES 160N	Fitness with Exercise Physiology	3	PORT 210N	Multilingual and Intercultural Communication	3
KINES 222N	Science and Politics of the Female Athlete	3	PPEM 170N	Plant and Microbial Art	3
KINES 405N	Bicycling Culture and Urban Design	3	PSYCH 109N	The Psychology of Artistic Creativity	3
LA 135N	College, Work, and Citizenship in the 21st Century	3	PSYCH 120N	Knowing Right from Wrong	3
LA 335N	Media, Social Justice, and the Public Humanities	3	PSYCH 150N	Human Nature: The Science of Extreme Altruism and Violence	3
LARCH 405N	Bicycling Culture and Urban Design	3	PSYCH 150Q	Human Nature: The Science of Extreme Altruism and Violence	3
LDT 110N	Making with Art and Learning Technologies	3	PSYCH 169N	What it means to be human	3
LHR 160N	The Virtual Transformational Leadership Development Experience	3	PSYCH 175N	Mental Illness and the Movies	3
LHR 165N	Work and Literature	3	PSYCH 217N	The Science of Human Resilience	3
LLED 215N	Children's Picture Books as Multimodal Texts	3	PSYCH 246N	Human Factors in Design & Art	3
LTNST 315N	Spanish and Spanish-speakers in the U.S.	3	PSYCH 263N	Science of Learning	3

PUBPL 120N	State, Society, and Public Policy	3
PUBPL 222N	Science and Politics of the Female Athlete	3
RLST 12N	Lands of the Bible	3
RLST 105N	Buddhism and US Society	3
RLST 133N	Ethics of Climate Change	3
RSOC 400N	Exploring Indigenous Ways of Knowing in Great Lakes Region: Lecture	3
RUS 101N	Russian Cinema	3
SC 60N	Art in the Natural World	3
SC 103N	When Data Meets Design	3
SC 120N	Plants, Places, and People	3
SC 125N	History of Infectious Disease and Epidemiology	3
SC 135N	Society and Disease Management	3
SC 142N	Science in Literature	3
SC 145N	The Visual Body	3
SC 183Q	From Beast Books to Resurrecting Dinosaurs	3
SC 205N	BS: Identifying Bias and Falsehood	3
SC 475N	Anatomy in Italy: Cadavers, Culture, and Science	3
SOC 20N	Critical Media Literacy	3
SOC 60N	Society and Cultures in Modern Israel	3
SOC 119N	Race, Ethnicity and Culture	3-4
SOC 120N	Knowing Right from Wrong	3
SOC 130N	Buddhism and US Society	3
SOC 145N	The Holocaust and Human Rights	3
SOC 150N	Healthy People, Healthy Society	3
SOC 162N	Communicating Care	3
SOC 180N	State, Society, and Public Policy	3
SOC 205N	Critical Race Theory in the Humanities and Social Sciences	3
SOC 208N	Visual Representations of the Middle East in the US and Middle East	3
SOC 210N	Social Determinants of Health	3
SOC 245N	Globalization, Technology, and Ethics	3
SOC 258N	Introduction to Child Maltreatment and Advocacy Studies	3
SOC 290N	Cinema and Globalization	3
SPAN 210N	Multilingual and Intercultural Communication	3
SPAN 269N	Theater and Performance	3
SPAN 315N	Spanish and Spanish-speakers in the U.S.	3
SSED 100N	Foundations of History and Social Studies Concepts for K-8 Teachers	3
STS 110N	Chemistry in World Wars I and II	3
STS 151N	Technology and Society in American History	3
STS 245N	Globalization, Technology, and Ethics	3
SUST 150N	The Science of Sustainable Development	3
SUST 242N	Issues in Sustainability	3
SUST 325N	Health and Environmental Sustainability	3
THEA 101N	Performance and Society	3
VBSC 280N	Current Topics in Veterinary Medicine	3
WFS 209N	Wildlife and Fisheries Conservation	3
WMNST 83N	First-Year Seminar in Women's Studies	3
WMNST 101N	African American Women	3
WMNST 105N	Living in a Diverse World	3

WMNST 106N	Representing Women and Gender in Literature, Art and Popular Cultures	3
WMNST 106Q	Representing Women and Gender in Literature, Art and Popular Cultures	3
WMNST 116N	Family and Gender Roles in Modern History	3
WMNST 175N	Fashion, Gender, and Identity	3
WMNST 202N	Women, Gender, and Feminisms in Africa	3
WMNST 207N	LGBTQ+ Identity, Culture and The Arts	3
WMNST 225N	Sexuality and Modern Visual Culture	3
WMNST 230N	Dangerous Bodies	3
WMNST 240Q	Artistic Patronage in Europe	3
WMNST 301N	Sexualities, Gender and Power: Feminist Thought and Politics	3
WMNST 364N	Black & White Sexuality	3
WMNST 400N	Debates in Contemporary Feminism	3

International Cultures (IL) Courses

These courses have been approved to fulfill University Degree Requirements. This course list is updated periodically. More information about the University Degree Requirements can be found in the Academic Information section.

Code	Title	Credits
AA 99	Foreign Studies	1-12
AA 100	Introduction to International Arts	3
AA 199	Foreign Studies	1-12
AA 299	Foreign Studies	1-12
AA 399	Foreign Studies	1-12
AA 499	Foreign Studies	1-12
ABE 499	Foreign Studies	1-12
ABSM 399	Foreign Studies	1-12
ABSM 499	Foreign Studies	1-12
ACCTG 199	Foreign Studies	1-12
ACCTG 299	Foreign Studies	1-12
ACCTG 399	Foreign Studies	1-12
ACCTG 461	International Accounting	3
ACCTG 499	Foreign Studies	1-12
ADTED 300	Social Movements and Education: Global Perspectives	3
AED 62	Contemporary African and African American Arts and Culture	3
AED 99	Foreign Studies	1-12
AED 199	Foreign Studies	1-12
AED 299	Foreign Studies	1-12
AED 322	Media Arts Pedagogies, Transcultural Dialogues, & Bioethics	3
AED 399	Foreign Studies	1-12
AED 499	Foreign Studies	1-12
AEE 299	Foreign Studies	1-12
AEE 499	Foreign Studies	1-12
AERSP 199	Foreign Studies	1-12
AERSP 299	Foreign Studies	1-12
AERSP 399	Foreign Studies	1-12
AERSP 499	Foreign Studies	1-12

AFAM 83	First-Year Seminar in African American Studies	3	AGECO 499	Foreign Studies	1-2
AFAM 100N	Black Freedom Struggles	3	AGSC 299	Foreign Studies	1-12
AFAM 102	Women of the African Diaspora	3	AGSC 499	Foreign Studies	1-12
AFAM 105N	Afro-Latin America: Race and Revolution	3	AMST 199	Foreign Studies	1-12
AFAM 132	Afro-Hispanic Civilization	3	AMST 299	Foreign Studies	1-12
AFAM 145	African Diaspora Religions and Spiritualities	3	AMST 309N	American Material Culture	3
AFAM 164	The History of Brazil	3	AMST 399	Foreign Studies	1-12
AFAM 208	Workshop: Theatre in Diverse Cultures	3	AMST 499	Foreign Studies	1-12
AFAM 211	Slavery and Freedom in the Black Atlantic	3	ANSC 299	Foreign Studies	1-12
AFAM 250	Introduction to the Caribbean	3	ANSC 399	Foreign Studies	1-12
AFAM 303	Race and Gender in the Americas: Latin American and Caribbean Cultures	3	ANSC 499	Foreign Studies	1-12
AFAM 412	African American Theatre	3	ANTH 1	Understanding Humans	3
AFAM 416	Race, Gender and Science	3	ANTH 2N	World Archaeology	3
AFAM 431	Black Liberation and American Foreign Policy	3	ANTH 8	Aztec, Inca, Maya	3
AFAM 432	Between Nation and Empire: The Caribbean in the 20th Century	3	ANTH 9N	Rise of Civilization in the Old World	3
AFAM 435N	Black Ecologies	3	ANTH 11	North American Archaeology	3
AFAM 460	African American Philosophy	3	ANTH 45N	Cultural Diversity: A Global Perspective	3
AFR 105	African Biodiversity and Conservation	3	ANTH 45Q	Cultural Diversity: A Global Perspective	3
AFR 110N	Introduction to Contemporary Africa	3	ANTH 60N	Society and Cultures in Modern Israel	3
AFR 132	Afro-Hispanic Civilization	3	ANTH 100N	Anthropology of Race and Racism	3
AFR 150	Africa in Cinema	3	ANTH 120	First Farmers	3
AFR 191	Early African History	3	ANTH 140	Anthropology of Alcohol	3
AFR 192	Modern African History	3	ANTH 146	Indigenous North America	3
AFR 192H	Modern African History	3	ANTH 199	Foreign Studies	1-12
AFR 199	Foreign Studies	1-12	ANTH 220	Anthropology and Art/ifacts	3
AFR 202N	Women, Gender, and Feminisms in Africa	3	ANTH 221N	Ancient Maya: Sacred Blood & Conjured Serpent	3
AFR 205	Development and Sustainability in Africa	3	ANTH 222	Archaeology of Domesticated Animals	3
AFR 209	Poverty in Africa	3	ANTH 299	Foreign Studies	1-12
AFR 230N	Language and Social Justice	3	ANTH 303	Race and Gender in the Americas: Latin American and Caribbean Cultures	3
AFR 299	Foreign Studies	1-12	ANTH 399	Foreign Studies	1-12
AFR 305	Introduction to Global Health Issues	3	ANTH 430	Ancient Brews	3
AFR 310	Language Rights, Policy, and Planning	3	ANTH 434N	Black Ecologies	3
AFR 335	African Art	3	ANTH 435	Ancient Economy	3
AFR 399	Foreign Studies	1-12	ANTH 457	Jewish Communities: Identity, Survival, and Transformation in Unexpected Places	3
AFR 434	War and Development in Africa	3	ANTH 479	Tradition, Modernity, and Cultural Change in South Asian Societies	3
AFR 435N	Black Ecologies	3	ANTH 499	Foreign Studies	1-12
AFR 440	Globalization and Its Implications	3	APLNG 83	First-Year Seminar in Applied Linguistics: Language as Social Practice	3
AFR 443	Ethnic Conflict in Africa	3	APLNG 200	Introduction to Language, Culture, and Social Interaction	3
AFR 446	Topics in African Art	3	APLNG 210	Global English	3
AFR 447	Topics in the Art of the African Diaspora	3	APLNG 220N	Multilingual Lives: Stories of Language and Culture Learning	3
AFR 449	Sport in African History	3	APLNG 230N	Language and Social Justice	3
AFR 454	Government and Politics of Africa	3	APLNG 280N	Conducting International Comparative Research	3
AFR 464	Extractive Industries in Africa	3	APLNG 310	Language Rights, Policy, and Planning	3
AFR 479	History of Imperialism and Nationalism in Africa	3	APLNG 402	Language, Culture and Cognition in East Asian Context	3
AFR 499	Foreign Studies	1-12	APLNG 482Y	Introduction to Applied Linguistics	3
AGBM 199	Foreign Studies - Agribusiness Management	1-12	APLNG 493	Teaching English as a Second Language	3
AGBM 299	Foreign Studies - Agribusiness Management	1-12			
AGBM 338	Agribusiness in the Global Economy	3			
AGBM 399	Foreign Studies - Agribusiness Management	1-12			
AGBM 499	Foreign Studies - Agribusiness Management	1-12			

ARAB 99	Foreign Studies	1-12	ARTH 302	Early Medieval Art	3
ARAB 110	Arab Language, Cultures, and Current Topics	3	ARTH 303	Italian Renaissance Art	3
ARAB 164	Introduction to the Qur'an	3	ARTH 305	Romanticism and Revolution	3
ARAB 165	Islamic States, Societies and Cultures c. 600-1500	3	ARTH 306	Color across Cultures: A Global History of Pigments, Dyes, Metals and Other Colorants in Art	3
ARAB 199	Foreign Studies	1-12	ARTH 311	Greek and Roman Art	3
ARAB 299	Foreign Studies	1-12	ARTH 312	Romanesque and Gothic Art	3
ARAB 399	Foreign Studies	1-12	ARTH 313	Northern Renaissance Art	3
ARAB 401	Advanced Language & Cultures I	3	ARTH 314	Art in the Age of Rembrandt	3
ARAB 402	Advanced Language & Cultures II	3	ARTH 325	Impressionism to Surrealism	3
ARAB 499	Foreign Studies	1-12	ARTH 326	Art Since 1940	3
ARCH 99	Foreign Studies--Architecture	1-15	ARTH 335	African Art	3
ARCH 199	Foreign Studies--Architecture	1-15	ARTH 399	Foreign Study--Art History	1-12
ARCH 299	Foreign Studies--Architecture	1-15	ARTH 401	Greek Art and Architecture	3-9
ARCH 316	Analysis of Human Settlements: Cities	3	ARTH 402	The Illuminated Manuscript	3
ARCH 399	Foreign Studies	1-12	ARTH 405	Pioneers of Modern Architecture	3
ARCH 499	Foreign Studies	1-12	ARTH 411	Roman Art	3
ARCH 499A	Rome Study-Architectural Design	6	ARTH 412	The Gothic Cathedral	3
ARCH 499B	Architectural Analysis	3	ARTH 420	Russian Architecture	3
ARCH 499C	Urban Studies	3	ARTH 422	Studies in Medieval Sculpture	3
ARCH 499F	Architectural Design Foreign Study	3-6	ARTH 423	Studies in Italian Renaissance Art	3
ART 199	Foreign Studies--Art	1-12	ARTH 426	Iconoclasm: Powerful Images and their Destruction	3
ART 207N	LGBTQ+ Identity, Culture and The Arts	3	ARTH 427	Topics in Global Artistic Communication	3
ART 299	Foreign Study--Art	1-12	ARTH 429	Studies in Baroque Art	3
ART 399	Foreign Study--Art	1-12	ARTH 435	Studies in Modern Art	3
ART 499	Foreign Studies--Art	1-12	ARTH 440	Monuments of Asia	3-9
ARTH 100	Introduction to Art	3	ARTH 442	Late Antique and Early Christian Art	3
ARTH 111	Ancient to Medieval Art	3	ARTH 445	Oceanic Art	3
ARTH 111U	Ancient to Medieval Art	3	ARTH 446	Topics in African Art	3
ARTH 112	Renaissance to Modern Art	3	ARTH 447	Topics in the Art of the African Diaspora	3
ARTH 112U	Renaissance to Modern Art	3	ARTH 450	The History of Photography	3
ARTH 120	Asian Art and Architecture	3	ARTH 452	Byzantine Art	3
ARTH 125	Islamic Architecture and Art	3	ARTH 456	Renaissance and Baroque Palaces	3
ARTH 130	Art of Africa, Oceania, and the Americas	3	ARTH 458	The City 1600-1800	3
ARTH 140	Introduction to the Art and Architecture of the Mayas, Aztecs, and Incas	3	ARTH 460	Art and Empire: Aztec, Inca and Spanish	3
ARTH 199	Foreign Study--Art History	1-12	ARTH 462	Studies in Latin American Art	3
ARTH 201	Ancient to Medieval Architecture	3	ARTH 464	French Art and Architecture, 1589	3
ARTH 202N	Renaissance to Modern Architecture	3	ARTH 499	Foreign Study--Art History	1-12
ARTH 204	The Art of Marvel: Italy and Spain 1600 - 1750	3	ASIA 3	Introduction to the Religions of the East	3
ARTH 207	The Eternal City: Rome from Antiquity to the Present	3	ASIA 4	Introduction to Asian Literatures	3
ARTH 215	Architecture and Art of South and Southeast Asia	3	ASIA 83S	Asian Studies First Year Seminar	3
ARTH 220	Chinese Art	3	ASIA 100	What is Asia?	3
ARTH 222N	Intersections between Art History and the History of Psychology	3	ASIA 101N	Sports in Asia	3
ARTH 222Q	Intersections between Art History and the History of Psychology	3	ASIA 102	Asian Popular Culture	3
ARTH 280	The Secret Lives of Things: Design and Decorative Arts since the 18th Century	3	ASIA 103	Introduction to Hinduism	3
ARTH 292N	Witches and Witchcraft from the Middle Ages to the Present	3	ASIA 104	Introduction to Buddhism	3
ARTH 299	Foreign Study--Art History	1-12	ASIA 105	War and Memory in Asia: Twentieth Century and beyond	3
ARTH 301	Egyptian and Mesopotamian Art	3	ASIA 106N	Asian Traditions of Health, Medicine, and the Body	3
			ASIA 107N	Bollywood: Seeing South Asia Through Cinema	3
			ASIA 109H	What is The Self?	3
			ASIA 120Y	South Asia: A Literary History	3

ASIA 172	Introduction to Japanese Civilization	3	ASIA 499	Foreign Studies	1-12
ASIA 174	East Asia to 1800	3	ASTRO 199	Foreign Studies	1-12
ASIA 175	East Asia since 1800	3	ASTRO 499	Foreign Studies	1-12
ASIA 176	Survey of Indian History	3	AYFCE 211N	Foundations: Civic and Community Engagement	3
ASIA 177	Rise of Modern Southeast Asia	3	AYFCE 499	Foreign Studies	1-12
ASIA 181	Introduction to the Religions of China and Japan	3	BA 199	Foreign Studies	1-12
ASIA 182	Asian Trade: Economy, Industrialization and Capitalism in Asia	3	BA 299	Foreign Studies	1-12
ASIA 183	Gender, Family, and Society in East Asia	3	BA 364Y	International Business and Society	3
ASIA 186	The Silk Roads	3	BA 399	Foreign Studies	1-12
ASIA 187	Global Taiwan	3	BA 499	Foreign Study--Business Administration	1-18
ASIA 188	Tibet: People, Places and Spaces	3	BA 599	Foreign Study--Business Administration	1-12
ASIA 199	Foreign Studies	1-12	BBH 199	Foreign Studies	1-12
ASIA 200	What Are Asian Languages?	3	BBH 299	Foreign Studies	1-12
ASIA 215	Architecture and Art of South and Southeast Asia	3	BBH 305	Introduction to Global Health Issues	3
ASIA 299	Foreign Studies	1-12	BBH 399	Foreign Studies	1-12
ASIA 399	Foreign Studies	1-12	BBH 402	African Health & Development	3
ASIA 400	International Culture in East Asia	3	BBH 407	Global Health Equity	3
ASIA 401	Technology & Society in Modern Asia	3	BBH 440	Principles of Epidemiology	3
ASIA 402	Language, Culture and Cognition in East Asian Context	3	BBH 499	Foreign Studies	1-12
ASIA 403	Food Cultures of Asia	3	BE 299	Foreign Studies	1-12
ASIA 404H	Topics in Asian Literature	3	BE 399	Foreign Studies	1-12
ASIA 404Y	Topics in Asian Literature	3	BE 499	Foreign Studies	1-12
ASIA 405Y	Seminar in Asian Studies	3	BIOET 322	Media Arts Pedagogies, Transcultural Dialogues, & Bioethics	3
ASIA 414	Chinese Language, Culture and Society	3	BIOL 199	Foreign Studies	1-12
ASIA 415	China Beyond China	3	BIOL 399	Foreign Studies	1-12
ASIA 416	Gender and Sexuality in China	3	BIOL 483	Coastal Biology Travel Experience	2
ASIA 417	The Warrior, the Courtesan and the Ghost in Classical Chinese Novels	3	BIOL 489	Biology of Ecohealth in Tanzania	3
ASIA 418	Confucius and the Great Books of China	3	BIOL 499	Foreign Studies	1-12
ASIA 419	The Chinese Rhetorical Tradition	3	BIOL 499A	Tropical Field Ecology	3
ASIA 424	Transnational Korean Literature	3	BLAW 199	Foreign Studies	1-12
ASIA 425	Global Korean Cinema	3	BLAW 299	Foreign Studies	1-12
ASIA 430	Japan in the World	3	BLAW 399	Foreign Studies	1-12
ASIA 431	Courtly Japan	3	BLAW 499	Foreign Studies	1-12
ASIA 432	War and the Warrior in Japan	3	BMB 199	Foreign Studies	1-12
ASIA 434	Beyond Anime	3	BMB 399	Foreign Studies	1-12
ASIA 440	Monuments of Asia	3-9	BMB 499	Foreign Studies	1-12
ASIA 457	Hiroshima & the Holocaust in History and Memory	3	BME 444	Surfaces and the Biological Response to Materials	3
ASIA 465Y	Democratization in Asia	3	BRS 299	Foreign Studies	1-12
ASIA 469	Government and Politics of South Asia	3	CAMS 4	Jewish and Christian Foundations	3
ASIA 472	Tradition, Modernity, and Cultural Change in South Asian Societies	3	CAMS 5	Ancient Mediterranean Civilizations	3
ASIA 475Y	The Making and Emergence of Modern India	3	CAMS 10	Mesopotamian Civilization	3
ASIA 478	China and the World	3	CAMS 10U	MESOPOTAMIAN CIVILIZATION	3
ASIA 480	Japan in the Age of Warriors	3	CAMS 12N	Lands of the Bible	3
ASIA 481	Modern Japan Since 1800	3	CAMS 16	How to Live	3
ASIA 483	Middle China	3	CAMS 20	Egyptian Civilization	3
ASIA 484Y	History of Chinese Thought	3	CAMS 25	Greek Civilization	3
ASIA 485Y	China's Last Empire: The Qing Dynasty, 1644-1911	3	CAMS 25U	Greek Civilization - Honors	3
ASIA 486	China in Revolution	3	CAMS 33	Roman Civilization	3
ASIA 487	Zen Buddhism	3	CAMS 44	Ancient Near Eastern and Egyptian Mythology	3
			CAMS 45	Classical Mythology	3
			CAMS 45H	Classical Mythology	3

CAMS 70	Prophecy in the Bible and the Ancient Near East	3	CED 420W	Gender and International Development	3
CAMS 83Y	First-Year Seminar in Classics and Ancient Mediterranean Studies	3	CED 450	International Development, Renewable Resources, and the Environment	3
CAMS 90	Jerusalem: Past, Present, and Future	3	CED 499	Foreign Studies	1-12
CAMS 99	Foreign Studies	1-12	CHE 199	Foreign Studies	1-12
CAMS 100	Ancient Greece	3	CHE 299	Foreign Studies	1-12
CAMS 101	The Roman Republic and Empire	3	CHE 399	Foreign Studies	1-12
CAMS 102	Canaan and Israel in Antiquity	3	CHE 499	Foreign Studies	1-12
CAMS 104	Ancient Egypt	3	CHEM 199	Foreign Studies	1-12
CAMS 105	History of the Ancient Near East	3	CHEM 399	Foreign Studies	1-12
CAMS 109Y	Writing Systems of the World	3	CHEM 499	Foreign Studies	1-12
CAMS 110	Introduction to the Bible: Old Testament	3	CHNS 99	Foreign Studies	1-12
CAMS 111	Early Judaism	3	CHNS 110	Level Two Chinese B	4
CAMS 113	Jewish Myths and Legends	3	CHNS 120	Introduction to Chinese Literature and Culture	3
CAMS 115	Literature of the Ancient Near East	3	CHNS 121N	Chinese Film and New Media	3
CAMS 121	Jesus the Jew	3	CHNS 199	Foreign Studies	1-12
CAMS 122	Apocalypse and Beyond	3	CHNS 299	Foreign Studies	1-12
CAMS 123	History of God: Origins of Monotheism	3	CHNS 399	Foreign Studies	1-12
CAMS 124	Early and Medieval Christianity	3	CHNS 401	Level Three Chinese A	4
CAMS 140	Classical Archaeology--Ancient Greece	3	CHNS 402	Level Three Chinese B	4
CAMS 142	Sport and Spectacle in the Ancient Mediterranean World	3	CHNS 410	Chinese Through Film	3
CAMS 150	Classical Archaeology--Ancient Rome	3	CHNS 411	Chinese Written Characters	3
CAMS 153	Dead Sea Scrolls	3	CHNS 414	Chinese Language, Culture and Society	3
CAMS 160	Sacrifice in the Ancient World	3	CHNS 415	China Beyond China	3
CAMS 180	Ancient Warfare	3	CHNS 416	Gender and Sexuality in China	3
CAMS 194	Jerusalem: Sacred and Profane	3	CHNS 417	The Warrior, the Courtesan and the Ghost in Classical Chinese Novels	3
CAMS 199	Foreign Studies	1-12	CHNS 418	Confucius and the Great Books of China	3
CAMS 250	Honors Classics in Literature and Film	3	CHNS 419	The Chinese Rhetorical Tradition	3
CAMS 299	Foreign Studies	1-12	CHNS 452	Contemporary China: Culture and Trends	3
CAMS 399	Foreign Studies	1-12	CHNS 453	Chinese Film	3
CAMS 405	Law & Economy in the Ancient Near East	3	CHNS 454	Introduction to Classical Chinese	3
CAMS 450Y	Gender and Sexuality in Ancient Greece and Rome	3	CHNS 455	Masterpieces of Traditional Chinese Literature	3
CAMS 453	Seminar in Ancient Philosophy	3	CHNS 499	Foreign Studies	1-12
CAMS 470	Languages and Cultures of the Ancient Near East	3	CIED 401	Introduction to Comparative Education	3
CAMS 481	Introduction to Middle Egyptian & Hieroglyphics	3	CIVCM 211N	Foundations: Civic and Community Engagement	3
CAMS 499	Foreign Studies	1-12	CMLIT 1	Introduction to Western Literatures Through the Renaissance	3
CAS 199	Foreign Studies	1-12	CMLIT 3	Introduction to African Literatures	3
CAS 200	Language, Culture, and Communication	3	CMLIT 4	Introduction to Asian Literatures	3
CAS 222N	Foundations: Civic and Community Engagement	3	CMLIT 5	Introduction to Literatures of the Americas	3
CAS 271N	Intercultural Communication	3	CMLIT 6	Literature and Philosophy	3
CAS 299	Foreign Studies	1-12	CMLIT 7	Introduction to Middle Eastern Literatures	3
CAS 399	Foreign Studies	1-12	CMLIT 10	World Literatures	3
CAS 471	Intercultural Communication Theory and Research	3	CMLIT 10U	The Forms of World Literature: A Global Perspective	3
CAS 499	Foreign Studies	1-9	CMLIT 11	The Hero in World Literature	3
CE 199	Foreign Studies	1-12	CMLIT 12	Introduction to World Drama and Performance	3
CE 299	Foreign Studies	1-12	CMLIT 13	Virtual Worlds: Antiquity to the Present	3
CE 399	Foreign Studies	1-12	CMLIT 83S	First-Year Seminar in Comparative Literature	3
CE 499	Foreign Studies	1-12	CMLIT 99	Foreign Studies	1-12
CED 199	Foreign Studies	1-12	CMLIT 100	Reading Across Cultures	3
CED 299	Foreign Studies	1-12	CMLIT 101	Race, Gender, and Identity in World Literature	3
CED 399	Foreign Studies	1-12			

CMLIT 105	The Development of Literary Humor	3	CMLIT 471	Poetry and Poetics	3
CMLIT 106	The Arthurian Legend	3	CMLIT 480	The International Folktale	3
CMLIT 107	Exploration, Travel, Migration, and Exile	3	CMLIT 486	Tragedy	3
CMLIT 108	Myths and Mythologies	3	CMLIT 487	Comedy	3
CMLIT 109	Native American Myths, Legends, and Literatures	3	CMLIT 489	Contemporary World Fiction	3
CMLIT 110	Jewish Literature: An International Perspective	3	CMLIT 491	Literary Adaptation: International and Comparative Perspectives	3
CMLIT 111	Introduction to Literatures of India	3	CMLIT 499	Foreign Study--Comparative Literature	3-6
CMLIT 112N	Introduction to Global Drama, Theatre, and Performance	3	CMPEN 299	Foreign Studies	1-12
CMLIT 113	Jewish Myths and Legends	3	CMPEN 399	Foreign Studies	1-12
CMLIT 116	Jewish Great Books	3	CMPEN 499	Foreign Studies	1-12
CMLIT 120	The Literature of the Occult	3	CMPSC 199	Foreign Studies	1-12
CMLIT 122	Global Science Fictions	3	CMPSC 299	Foreign Studies	1-12
CMLIT 128N	The Holocaust in Film and Literature	3	CMPSC 399	Foreign Studies	1-12
CMLIT 130	Banned Books: International and Comparative Perspectives	3	CMPSC 499	Foreign Studies	1-12
CMLIT 131	Crime and Detection in World Literature	3	COMM 199	Foreign Studies	1-12
CMLIT 132	Nobel Prize Literature	3	COMM 290N	Cinema and Globalization	3
CMLIT 133N	Global Satire and Modern Politics	3	COMM 299	Foreign Studies	1-12
CMLIT 140	Literature and the Other Arts: International and Comparative Perspectives	3	COMM 399	Foreign Studies	1-12
CMLIT 141	Religion and Literature	3	COMM 410	International Mass Communications	3
CMLIT 142	The Psychology of World Literature	3	COMM 419	World Media Systems	3
CMLIT 143	Human Rights and World Literature	3	COMM 419H	World Media Systems	3
CMLIT 147N	Displacement and Migration	3	COMM 453	Narrative Theory: Film and Literature	3
CMLIT 153	International Cultures: Film and Literature	3	COMM 499	Foreign Study--Mass Communications	1-12
CMLIT 184	The Short Story	3	CRIM 499	Foreign Studies	1-12
CMLIT 185	World Novel	3	CRIMJ 416	The Death Penalty	3
CMLIT 199	Foreign Study--Comparative Literature	3-6	CRIMJ 499	Foreign Studies	6
CMLIT 240Q	Artistic Patronage in Europe	3	CSD 146	Introduction to Communication Sciences and Disorders	3
CMLIT 299	Foreign Studies	1-12	CSD 269	Deaf Culture	3
CMLIT 399	Foreign Study--Comparative Literature	3-6	CSD 300	Developmental Considerations in the Assessment and Treatment of Language Disorders	3
CMLIT 400Y	Senior Seminar in Literary Criticism and Theory	3	CSD 462	Clinical Bases of Language Disorders	3
CMLIT 404Y	Topics in Asian Literature	3	CYBER 99	Foreign Studies	1-12
CMLIT 405	Inter-American Literature	3	CYBER 199	Foreign Studies	1-12
CMLIT 406	Women and World Literature	3	CYBER 299	Foreign Studies	1-12
CMLIT 408	Heroic Literature	3	CYBER 399	Foreign Studies	1-12
CMLIT 410	Literary Translation: Theory and Practice	3	CYBER 499	Foreign Studies	1-12
CMLIT 415	World Graphic Novels	3	DANCE 100	Dance Appreciation	3
CMLIT 422	African Drama	3	DANCE 199	Dance Foreign Study	1-12
CMLIT 423	African Novel	3	DANCE 399	Dance Foreign Study	1-12
CMLIT 424	Transnational Korean Literature	3	DANCE 410	Dance History	3
CMLIT 425	Global Korean Cinema	3	DANCE 499	Dance Foreign Study	1-12
CMLIT 435	Cultures of Globalization	3	DIGIT 499	Foreign Study	3-6
CMLIT 438	Fantastic Worlds: International and Comparative Perspectives	3	DS 99	Foreign Studies	1-12
CMLIT 440	War Stories: The Literature of War	3	DS 299	Foreign Studies	1-12
CMLIT 446	Postcolonial Literature and Culture	3	DS 399	Foreign Studies	1-12
CMLIT 448	Literary Cultures of Buddhism	3	DS 499	Foreign Studies	1-12
CMLIT 449	Literary Cultures of Islam	3	EARTH 105N	Environments of Africa: Geology and Climate Change	3
CMLIT 453	Narrative Theory: Film and Literature	3	EBF 499	Foreign Study	1-15
CMLIT 455	Ethics, Justice, and Rights in World Literature	3	ECON 199	Foreign Studies	1-12
CMLIT 470	The Modern Novel	3	ECON 299	Foreign Studies	1-12

ECON 399	Foreign Studies	1-12	ENGL 194	Women Writers	3
ECON 470	International Trade and Finance	3	ENGL 194H	Women Writers - Honors	3
ECON 472N	Russian Economic History	3	ENGL 194S	Women Writers	3
ECON 499	Foreign Study--Economics	2-6	ENGL 199	Foreign Study--English	3-6
EDPSY 99	Foreign Studies	1-12	ENGL 221	British Literature to 1798	3
EDPSY 199	Foreign Studies	1-12	ENGL 221W	British Literature to 1798	3
EDPSY 299	Foreign Studies	1-12	ENGL 222	British Literature from 1798	3
EDPSY 399	Foreign Studies	1-12	ENGL 222W	British Literature from 1798	3
EDSGN 199	Foreign Studies	1-12	ENGL 223N	Shakespeare: Page, Stage, and Screen	3
EDSGN 270	Summers by Design: An International Engineering Design Experience	3	ENGL 226	Latina and Latino Border Theories	3
EDSGN 299	Foreign Studies	1-12	ENGL 299	Foreign Studies	1-12
EDSGN 399	Foreign Studies	1-12	ENGL 312	Globality and Literature	3
EDSGN 499	Foreign Studies	1-12	ENGL 399	Foreign Study--English	3-6
EDSGN 599	Foreign Studies	1-2	ENGL 407	History of the English Language	3
EDTHP 99	Foreign Studies	1-12	ENGL 441	Chaucer	3
EDTHP 199	Foreign Studies	1-12	ENGL 450	The Romantics	3
EDTHP 299	Foreign Studies	1-12	ENGL 459	Writing Palestine-Israel	3
EDTHP 399	Foreign Studies	1-12	ENGL 471	Rhetorical Traditions	3
EDTHP 401	Introduction to Comparative Education	3	ENGL 486	The World Novel in English	3
EDUC 99	Foreign Studies	1-12	ENGL 490	Women Writers and Their Worlds	3
EDUC 199	Foreign Studies	1-12	ENGL 499	Foreign Study--English	3-6
EDUC 299	Foreign Studies	1-12	ENGR 99	Foreign Studies	1-12
EDUC 399	Foreign Studies	1-12	ENGR 111	Introduction to Cross-Cultural Communication for Engineers	1
EDUC 499	Foreign Studies	1-12	ENGR 118	Impact of Culture on Engineering in China	3
EE 199	Foreign Studies	1-12	ENGR 195I	Engineering International Internship	0.5-1
EE 299	Foreign Studies	1-12	ENGR 199	Foreign Studies	1-12
EE 399	Foreign Studies	1-12	ENGR 295I	Engineering International Cooperative Education	1
EE 499	Foreign Studies	1-12	ENGR 299	Foreign Studies	1-12
EGEE 101A	Energy and the Environment	3	ENGR 320Y	Design for Global Society	3
EGEE 120	Oil: International Evolution	3	ENGR 395I	Engineering International Cooperative Education	1-2
EGEE 199	Foreign Studies	1-12	ENGR 399	Foreign Studies	1-12
EGEE 299	Foreign Studies	1-12	ENGR 422	Leadership of International Virtual Engineering Teams	3
EGEE 399	Foreign Studies	1-12	ENGR 495I	Engineering International Cooperative Education	1-3
EGEE 499	Foreign Studies	1-12	ENGR 499	Foreign Studies	1-12
EMSC 101	Resource Wars	3	ENT 499	Foreign Studies	1-12
ENGL 2	The Great Traditions in English Literature	3	ENVST 299	Foreign Studies in Environmental Studies	1-12
ENGL 88	Australian/New Zealand Cultural Perspectives	3	ENVST 499	Foreign Studies in Environmental Studies	1-12
ENGL 104	The Bible as Literature	3	ERM 199	Foreign Studies	1-12
ENGL 108N	Buddhism and US Society	3	ERM 299	Foreign Studies	1-12
ENGL 120	Difference in Early Literature	3	ERM 399	Foreign Studies	1-12
ENGL 128N	The Holocaust in Film and Literature	3	ERM 499	Foreign Studies	1-12
ENGL 129	Shakespeare	3	ETI 99	Foreign Studies	1-12
ENGL 129H	Shakespeare	3	ETI 199	Foreign Studies	1-12
ENGL 145	Modern Irish Literature	3	ETI 299	Foreign Studies	1-12
ENGL 182	Literature and Empire	3	ETI 399	Foreign Studies	1-12
ENGL 182A	Literature and Empire	3	ETI 499	Foreign Studies	1-12
ENGL 182C	Literature and Empire	3	FDSC 299	Foreign Studies	1-12
ENGL 183N	The Cold War in Literature, Politics, and History	3	FDSC 460	International Food Production	1
ENGL 184	The Short Story	3	FDSC 499	Foreign Studies	1-12
ENGL 185	World Novel	3	FIN 199	Foreign Studies	1-12
ENGL 192	The Literature of Fantasy	3			

FIN 299	Foreign Studies	1-12	GEOG 30N	Environment and Society in a Changing World	3
FIN 399	Foreign Studies	1-12	GEOG 40	World Regional Geography	3
FIN 456	International Capital Markets	3	GEOG 123	Geography of Developing World	3
FIN 499	Foreign Studies	1-12	GEOG 124	Elements of Cultural Geography	3
FIN 599	Foreign Study--Finance	1-12	GEOG 126	Economic Geography	3
FOR 299	Foreign Studies	1-12	GEOG 128	Geography of International Affairs	3
FOR 418	Agroforestry: Science, Design, and Practice	3	GEOG 199	Foreign Studies	1-12
FOR 488Y	Global Forest Conservation	3	GEOG 220	Perspectives on Human Geography	3
FOR 499	Foreign Studies	1-12	GEOG 299	Foreign Studies	1-12
FORT 299	Foreign Studies	1-12	GEOG 320	Urban Geography: A Global Perspective	3
FR 83	First-Year Seminar in French	3	GEOG 324	Place, Space and Culture	3
FR 137	Paris: Anatomy of a Global City	3	GEOG 399	Foreign Studies	1-12
FR 139	France and the French-speaking World	3	GEOG 420Y	Comparative Urbanism	3
FR 142	French Fiction, Drama, and Film (In English)	3	GEOG 424	Geography of the Global Economy	3
FR 199	Foreign Study--French	1-12	GEOG 426W	Gendered Worlds	3
FR 201	Oral Communication and Reading Comprehension	3	GEOG 427	Urban Historical Geography	3
FR 202	Grammar and Composition	3	GEOG 428W	Political Geography	3
FR 299	Foreign Study--French	1-12	GEOG 429	Geographic Perspectives on Global Urbanization	3
FR 331	French and Francophone Culture I	3	GEOG 499	Foreign Studies	1-12
FR 332	French and Francophone Culture II	3	GEOSC 402Y	Natural Disasters	3
FR 351	French and Francophone Literature I	3	GEOSC 499	Foreign Studies	1-12
FR 352	French and Francophone Literature II	3	GER 83	First-Year Seminar in German	3
FR 399	Foreign Study--French	1-12	GER 99	Foreign Study--German	1-12
FR 401	Advanced Oral Communication	3	GER 100	German Culture and Civilization	3
FR 402Y	Advanced Grammar and Writing	3	GER 123	Genocide in Global perspectives: Twentieth Century and beyond	3
FR 408	French-American Business Translation	3	GER 128N	The Holocaust in Film and Literature	3
FR 409	French for Professional Purposes	3	GER 143	The Culture of Stalinism and Nazism	3
FR 410	French Press	3	GER 166	Marx, Nietzsche, Freud	3
FR 417	French Phonology	3	GER 175	Germanic Heroic and Medieval Literature in English Translation	3
FR 418	French Syntax	3	GER 189N	German Film	3
FR 430	Contemporary France	3	GER 190	Twentieth-Century German Literature in English Translation	3
FR 436	French and Francophone Theater	3	GER 199	Foreign Study--German	3-6
FR 440	Teaching of Romance Languages	3	GER 200N	Contemporary German Culture	3
FR 445Y	Self and Society in Eighteenth-Century France	3	GER 201	Conversation and Composition	4
FR 452Y	Nineteenth-Century French Literature	3	GER 245	The Vikings	3
FR 453Y	La Belle Epoque: Politics, Society, and Culture in France, 1880-1914	3	GER 299	Foreign Study--German	3-6
FR 458	African Literature of French Expression	3	GER 301	Intermediate Speaking and Listening	3
FR 460	Contemporary French Literature	3	GER 308Y	German Business Communication	3
FR 470	Race and Gender Issues in Literatures in French	3	GER 310	Introduction to the Study of German Literature	3
FR 471	Francophone Women in Literature and Culture	3	GER 344	Intermediate German Culture	3
FR 487	Topics in French Film History and Theory I: 1895-1945	3	GER 399	Foreign Study--German	3-12
FR 488	Topics in French Film History and Theory II: 1945-2002	3	GER 401Y	Advanced Composition	3
FR 499	Foreign Study--French	1-12	GER 408	Advanced German Business Communications	3
GD 299	Foreign Studies	1-12	GER 412	Contrastive Analysis of Modern German and English	3
GD 499	Foreign Studies	1-12	GER 420	Genre	3-9
GEOG 1N	Global Parks and Sustainability	3	GER 430	History of the German Language	3
GEOG 2N	Apocalyptic Geographies: How can we prevent the end of the world?	3	GER 431	History of German Literature and Culture I	3
GEOG 20	Human Geography: An Introduction	3	GER 432	History of German Literature and Culture II	3
GEOG 20U	Human Geography: An Introduction	3	GER 440	Seminar in German Culture	3-6

GER 472	Romanticism	3	HIST 118	Modern Jewish History	3
GER 499	Foreign Study--German	3-12	HIST 119	Gender and History	3
GLIS 101N	Globalization	3	HIST 120N	History of Modern Europe since 1789	3
GLIS 102N	Global Pathways	3	HIST 121	History of the Holocaust 1933-1945	3
GLIS 310	Language Rights, Policy, and Planning	3	HIST 124	History of Western Medicine	3
GLIS 400Y	Seminar in Global and International Studies	3	HIST 128N	Cultural Perspectives on Mathematics	3
GLIS 478	China and the World	3	HIST 134	Great Britain and Ireland in the Early Modern World	3
GREEK 99	Foreign Studies	1-12	HIST 140	The History of the Israel-Palestine Conflict (1917-Present)	3
GREEK 199	Foreign Studies	1-12	HIST 141	Medieval and Modern Russia	3
GREEK 499	Foreign Studies	1-12	HIST 142N	History of Communism	3
HCDD 99	Foreign Studies	1-12	HIST 143N	History of Fascism and Nazism	3
HCDD 199	Foreign Studies	1-12	HIST 144	The World at War: 1939-1945	3
HCDD 299	Foreign Studies	1-12	HIST 145N	The Holocaust and Human Rights	3
HCDD 399	Foreign Studies	1-12	HIST 158	History of American Immigration	3
HCDD 499	Foreign Studies	1-12	HIST 164	The History of Brazil	3
HDFS 215N	Global health and families	3	HIST 165	Islamic States, Societies and Cultures c. 600-1500	3
HDFS 417	Biocultural Studies of Family Organization	3	HIST 169	The Indian Ocean World	3
HDFS 469U	Family Change in the Global Economy	3	HIST 170	South Asia to 1500	3
HDFS 499	Foreign Studies	1-12	HIST 172	Introduction to Japanese Civilization	3
HDFS 499A	**SPECIAL TOPICS**	3	HIST 173	Vietnam in War and Peace	3
HDFS 499B	**SPECIAL TOPICS**	3	HIST 174	East Asia to 1800	3
HDFS 499C	**SPECIAL TOPICS**	3	HIST 175	East Asia since 1800	3
HEBR 10	Jewish Civilization	3	HIST 176	Survey of Indian History	3
HEBR 99	Foreign Studies	1-12	HIST 177	Rise of Modern Southeast Asia	3
HEBR 199	Foreign Study--Basic Hebrew	1-12	HIST 178	Latin-American History to 1820	3
HEBR 299	Foreign Studies	1-12	HIST 179	Latin-American History Since 1820	3
HEBR 399	Foreign Study--Intermediate Hebrew	1-12	HIST 180	Ancient Warfare	3
HEBR 499	Foreign Study--Advanced Hebrew	1-12	HIST 181	Introduction to the Middle East	3
HHD 499	Foreign Studies	1-12	HIST 182	Asian Trade: Economy, Industrialization and Capitalism in Asia	3
HHD 499H	Foreign Studies	1-12	HIST 183	Gender, Family, and Society in East Asia	3
HIST 1	Western Civilization I	3	HIST 184	Society and Culture in the Pacific War	3
HIST 2	Western Civilization II	3	HIST 186	The Silk Roads	3
HIST 2H	Western Civilization II	3	HIST 187	Global Taiwan	3
HIST 5	Ancient Mediterranean Civilizations	3	HIST 188	Tibet: People, Places and Spaces	3
HIST 6N	History and Weather: How Weather Played an Instrumental Role in Great World Events	3	HIST 190	The Middle East Today	3
HIST 10	World History to 1500	3	HIST 191	Early African History	3
HIST 11	World History since 1500	3	HIST 192	Modern African History	3
HIST 66	Survey of British History	3	HIST 192H	Modern African History	3
HIST 100	Ancient Greece	3	HIST 193	Modern Iran	3
HIST 101	The Roman Republic and Empire	3	HIST 194	Jerusalem: Sacred and Profane	3
HIST 102	Canaan and Israel in Antiquity	3	HIST 195	Genocide in Global perspectives: Twentieth Century and beyond	3
HIST 103	The History of Madness, Mental Illness, and Psychiatry	3	HIST 199	Foreign Studies	1-12
HIST 104	Ancient Egypt	3	HIST 203N	History of Monsters, Aliens & the Supernatural	3
HIST 105	The Byzantine Empire	3	HIST 211	Slavery and Freedom in the Black Atlantic	3
HIST 106	Early Modern Empires of Islam: The Ottomans, Safavids, and Mughals	3	HIST 238N	Society and Culture in Palestine/Israel	3
HIST 107	Medieval Europe	3	HIST 240Q	Artistic Patronage in Europe	3
HIST 108	Crusades: Holy War in the Middle Ages	3	HIST 245	Middle Eastern Cities	3
HIST 110	Introduction to Global Environmental History	3	HIST 250	Introduction to the Caribbean	3
HIST 113	Baseball in Comparative History	3	HIST 252	Revolutions in the Middle East	3
HIST 116N	Family and Gender Roles in Modern History	3	HIST 255N	History of the Book	3

HIST 292N	Witches and Witchcraft from the Middle Ages to the Present	3	HIST 482	Confucius and the Great Books of China	3
HIST 299	Foreign Studies	1-12	HIST 483	Middle China	3
HIST 305Y	Middle East Studies Research Workshop	3	HIST 484Y	History of Chinese Thought	3
HIST 399	Foreign Study--History	1-12	HIST 485Y	China's Last Empire: The Qing Dynasty, 1644-1911	3
HIST 400	Global History of Food and Famine	3	HIST 486	China in Revolution	3
HIST 402N	Russian Economic History	3	HIST 491	British Civil Wars and Revolutions, 1639-1651	3
HIST 403	Alexander the Great and the Hellenistic World	3	HIST 492	Witchcraft in Early Modern Europe	3
HIST 405Y	The Roman Empire	3	HIST 493	History of Death and Mourning	3
HIST 407	Early Medieval Society	3	HIST 499	Foreign Study--History	1-6
HIST 408	Church and State in the High Middle Ages	3	HM 99	Foreign Studies	1-12
HIST 409Y	Antisemitisms	3	HM 199	Foreign Studies	1-12
HIST 410	Jews in the Medieval World	3	HM 210N	The Impact of Culture and Customs in Global Hospitality Environments	3
HIST 411	Medieval Britain	3	HM 299	Foreign Studies	1-12
HIST 412	Intellectual History of the Middle Ages	3	HM 399	Foreign Studies	1-12
HIST 413	Medieval Celtic Studies	3	HM 499	Foreign Studies	1-12
HIST 414	Renaissance and Reformation	3	HONOR 499	Foreign Studies	1-12
HIST 417	The Age of Absolutism	3	HORT 299	Foreign Studies	1-12
HIST 418	The French Revolution and the Napoleonic Era	3	HORT 499	Foreign Studies	1-12
HIST 420	Recent European History	3	HORT 499F	Special Topics	1-9
HIST 421	The History of European Women	3	HPA 401	Comparative Health Systems	3
HIST 423	Orthodox Christianity: History and Interpretations	3	HPA 440	Principles of Epidemiology	3
HIST 424	Comparative History of Sports and Politics	3	HRER 599	Foreign Studies	1-12
HIST 425	History of the Incas	3	HUM 101	Transformative Texts Part 1: Foundational Knowledge	3
HIST 426	Holocaust	3	HUM 150N	World Mythologies in the Arts	3
HIST 427	Germany Since 1860	3	HUM 410	Religion and Culture	3
HIST 428	The Darwinian Revolution	3	HUM 461	Selected Periods in the Humanities	3
HIST 430	Eastern Europe in Modern Times	3	HUM 499	Foreign Studies	1-12
HIST 431	Black Liberation and American Foreign Policy	3	IB 199	Foreign Studies	1-12
HIST 432	Between Nation and Empire: The Caribbean in the 20th Century	3	IB 299	Foreign Studies	1-12
HIST 433	Imperial Russia, 1700-1917	3	IB 303	International Business Operations	3
HIST 434	History of the Soviet Union	3	IB 399	Foreign Studies	1-12
HIST 436	Great Britain Under the Tudors and Stuarts, 1485-1688	3	IB 440	Globalization and Its Implications	3
HIST 437	Great Britain 1688-1867	3	IB 499	Foreign Studies	1-12
HIST 438	Great Britain 1867-Present	3	IE 399	Foreign Studies--Industrial Engineering	1-12
HIST 452	History of U.S. Foreign Relations	3	IE 499	Foreign Studies--Industrial Engineering	1-12
HIST 455	The History of Epidemics	3	INART 55N	History of Electronic Music	3
HIST 457	Hiroshima & the Holocaust in History and Memory	3	INART 125	The Popular Arts in America: The History of Rock and Roll - Punk Rock	3
HIST 461	The Emergence of the American City: 1100-1880	3	INART 199	Foreign Studies	1-12
HIST 462	The Twentieth Century City	3	INART 299	Foreign Studies	1-12
HIST 466	Lesbian and Gay History	3	INART 399	Foreign Studies	1-12
HIST 467	Latin America and the United States	3	INART 499	Foreign Studies	1-12
HIST 468	Mexico and the Caribbean Nations in the Twentieth Century	3	INTAG 100N	Everyone Eats: Hunger, Food Security & Global Agriculture	3
HIST 471Y	Classical Islamic Civilization, 600-1258	3	INTAG 199	Foreign Studies	1-12
HIST 472	The Ottoman Empire	3	INTAG 299	Foreign Studies	1-12
HIST 473	The Contemporary Middle East	3	INTAG 300	Tropical Agriculture and Food Systems	3
HIST 475Y	The Making and Emergence of Modern India	3	INTAG 399	Foreign Studies	1-12
HIST 479	History of Imperialism and Nationalism in Africa	3	INTAG 460	International Food Production	1
HIST 480	Japan in the Age of Warriors	3	INTAG 499	Foreign Studies	1-12
HIST 481	Modern Japan Since 1800	3	INTST 100	Introduction to International Studies	3

INTST 400	Seminar in International Studies	3	JST 106	Mysticism and Kabbalah	3
IST 99	Foreign Studies	1-12	JST 110	Introduction to the Bible: Old Testament	3
IST 199	Foreign Studies	1-12	JST 111	Early Judaism	3
IST 299	Foreign Studies	1-12	JST 112	Jesus the Jew	3
IST 399	Foreign Studies	1-12	JST 113	Jewish Myths and Legends	3
IST 442	Information Technology in an International Context	3	JST 114	Modern Judaism	3
IT 83	First-Year Seminar in Italian Literature, Film, and Culture	3	JST 116	Jewish Great Books	3
IT 99	Foreign Studies	1-12	JST 118	Modern Jewish History	3
IT 130	Italian Culture and Civilization	3	JST 121	History of the Holocaust 1933-1945	3
IT 140	Italian Language & Culture for Study Abroad	3	JST 122	Apocalypse and Beyond	3
IT 175	Italian Language and Culture for Embedded Experiences Abroad	3	JST 123	History of God: Origins of Monotheism	3
IT 199	Foreign Studies	1-12	JST 124	Early and Medieval Christianity	3
IT 210N	Multilingual and Intercultural Communication	3	JST 128N	The Holocaust in Film and Literature	3
IT 240Q	Artistic Patronage in Europe	3	JST 131	Jewish Literature: An International Perspective	3
IT 299	Foreign Studies	1-12	JST 135	Ethics in Jewish Tradition and Thought	3
IT 399	Foreign Study--Italian	1-12	JST 140	The History of the Israel-Palestine Conflict (1917-Present)	3
JAPNS 99	Foreign Study	1-12	JST 143N	History of Fascism and Nazism	3
JAPNS 110	Level Two Japanese B	4	JST 153	Dead Sea Scrolls	3
JAPNS 120	Japanese Literature in Its Cultural Context	3	JST 160	Sacrifice in the Ancient World	3
JAPNS 120W	Japanese Literature in its Cultural Context	3	JST 181	Introduction to the Middle East	3
JAPNS 121N	Japanese Film and New Media	3	JST 186	The Silk Roads	3
JAPNS 121Q	Japanese Film and New Media	3	JST 190	The Middle East Today	3
JAPNS 122	Gods to Godzilla: A Survey of Japanese Culture	3	JST 193	Modern Iran	3
JAPNS 172	Introduction to Japanese Civilization	3	JST 194	Jerusalem: Sacred and Profane	3
JAPNS 199	Foreign Study--Basic Japanese	1-8	JST 195	Genocide in Global perspectives: Twentieth Century and beyond	3
JAPNS 210	Extensive Reading in Japanese	1.5	JST 199	Foreign Studies	1-12
JAPNS 299	Foreign Study--Intermediate Japanese	1-12	JST 235	The Church and the Jews	3
JAPNS 399	Foreign Study	1-12	JST 299	Foreign Studies	1-12
JAPNS 401	Level Three Japanese A	4	JST 305Y	Middle East Studies Research Workshop	3
JAPNS 402	Level Three Japanese B	4	JST 399	Foreign Studies	1-12
JAPNS 403Y	Level Four Japanese A	4	JST 401	Ancient Technologies and Socio-cultural History in the Ancient Levant	3
JAPNS 404	Level Four Japanese B	4	JST 409Y	Antisemitisms	3
JAPNS 410	Japanese Through Manga	3	JST 410	Jews in the Medieval World	3
JAPNS 430	Japan in the World	3	JST 411	Jewish Studies	3
JAPNS 431	Courtly Japan	3	JST 426	Holocaust	3
JAPNS 432	War and the Warrior in Japan	3	JST 457	Jewish Communities: Identity, Survival, and Transformation in Unexpected Places	3
JAPNS 434	Beyond Anime	3	JST 459	Writing Palestine-Israel	3
JAPNS 452	Contemporary Japan: Cultures, Lifestyles, Trends	3	JST 473	The Contemporary Middle East	3
JAPNS 453	Japanese Film	3	JST 474	Hiroshima & the Holocaust in History and Memory	3
JAPNS 454	Japanese Literature	3	JST 499	Foreign Studies	1-12
JAPNS 499	Foreign Study--Advanced Japanese	1-15	KINES 199	Foreign Studies	1-12
JST 4	Jewish and Christian Foundations	3	KINES 299	Foreign Studies	1-12
JST 10	Jewish Civilization	3	KINES 341	The Historical, Cultural, and Social Dynamics of Sport	3
JST 12N	Lands of the Bible	3	KINES 399	Foreign Studies	1-12
JST 60N	Society and Cultures in Modern Israel	3	KINES 405N	Bicycling Culture and Urban Design	3
JST 70	Prophecy in the Bible and the Ancient Near East	3	KINES 446	History of Sport in the Modern World	3
JST 83	First-Year Seminar in Jewish Studies	3	KINES 449	Sport in African History	3
JST 90	Jerusalem: Past, Present, and Future	3	KINES 499	Foreign Studies	1-12
JST 102	Canaan and Israel in Antiquity	3			
JST 104	The Bible as Literature	3			

KOR 99	Foreign Studies	1-12	LING 1	Language, Life and Society	3
KOR 120	Introduction to Korean Culture	3	LING 100	Foundations of Linguistics	3
KOR 121	Korean Popular Culture	3	LING 199	Foreign Studies	1-12
KOR 199	Foreign Studies	1-12	LING 299	Foreign Studies	1-12
KOR 299	Foreign Studies	1-12	LING 399	Foreign Studies	1-12
KOR 399	Foreign Studies	1-12	LING 499	Foreign Studies	1-12
KOR 401	Level 3 Korean A	4	LLED 235	Chinese Culture in Child Lit	3
KOR 402	Level 3 Korean B	4	LTNST 139	Latino/a Philosophy	3
KOR 403Y	Level 4 Korean A	4	LTNST 226	Latina and Latino Border Theories	3
KOR 404	Level 4 Korean B	4	LTNST 467	Latin America and the United States	3
KOR 422	Introduction to Korean Linguistics	3	MATH 199	Foreign Studies	1-12
KOR 423	Korean Media and Communication	3	MATH 399	Foreign Studies	1-12
KOR 424	Transnational Korean Literature	3	MATH 475Y	History of Mathematics	3
KOR 425	Global Korean Cinema	3	MATH 499	Foreign Studies	1-12
KOR 450	Korean Cultures in Global Contexts	3	MATSE 101A	Energy and the Environment	3
KOR 451	Food and Foodways in Korea	3	MATSE 404	Surfaces and the Biological Response to Materials	3
KOR 452	Korean Language and Culture	3	ME 299	Foreign Studies	1-12
KOR 499	Foreign Studies	1-12	ME 399	Foreign Studies	1-12
LA 199	Foreign Study--Liberal Arts	1-9	ME 499	Foreign Studies	1-12
LA 299	Foreign Studies	1-12	MEDVL 107	Medieval Europe	3
LA 399	Foreign Studies	1-12	MEDVL 108	Medieval Civilization	3
LA 499	Foreign Study--Liberal Arts	1-9	MEDVL 199	Foreign Studies	1-12
LANG 99	Foreign Studies	1-12	MEDVL 299	Foreign Studies	1-12
LANG 199	Foreign Studies	1-12	MEDVL 399	Foreign Studies	1-12
LANG 299	Foreign Studies	1-12	MEDVL 411	Medieval Britain	3
LANG 399	Foreign Studies	1-12	MEDVL 413	Medieval Celtic Studies	3
LANG 499	Foreign Studies	1-12	MEDVL 499	Foreign Studies	1-12
LARCH 60	Cultural History of Designed Places	3	METEO 6N	History and Weather: How Weather Played an Instrumental Role in Great World Events	3
LARCH 65	Built Environment and Culture: Examining the Modern City	3	MGMT 199	Foreign Studies	1-12
LARCH 199	Foreign Studies	1-12	MGMT 299	Foreign Studies	1-12
LARCH 299	Foreign Studies	1-12	MGMT 345	Cultural Intelligence in Leadership and Management	3
LARCH 399	Foreign Studies	1-12	MGMT 399	Foreign Studies	1-12
LARCH 405N	Bicycling Culture and Urban Design	3	MGMT 461	International Management	3
LARCH 499	Foreign Studies	1-12	MGMT 499	Foreign Studies	1-12
LARCH 499A	Design Theory Seminar	1	MGMT 599	Foreign Study--Management	1-12
LARCH 499B	Design and Theory VI: Contemporary/International Landscape Architectural Design Issues	5	MICRB 199	Foreign Studies	1-12
LARCH 499D	Contemporary/International Special Topics	3	MICRB 399	Foreign Studies	1-12
LDT 99	Foreign Studies	1-12	MICRB 499	Foreign Studies	1-12
LDT 100	World Technologies and Learning	3	MIS 199	Foreign Studies	1-12
LDT 199	Foreign Studies	1-12	MIS 299	Foreign Studies	1-12
LDT 299	Foreign Studies	1-12	MIS 399	Foreign Studies	1-12
LDT 399	Foreign Studies	1-12	MIS 499	Foreign Studies	1-12
LER 199	Foreign Studies	1-12	MKTG 199	Foreign Studies	1-12
LER 299	Foreign Studies	1-12	MKTG 299	Foreign Studies	1-12
LER 399	Foreign Studies	1-12	MKTG 399	Foreign Studies	1-12
LHR 400	Comparative Employment Relations Systems	3	MKTG 445	Global Marketing	3
LHR 403	International Human Resource Studies	3	MKTG 499	Foreign Studies	1-12
LHR 471	Comparative Human Resource and Employment Relations Practices: Virtual Travel to Three Continents	3	MKTG 599	Foreign Study--Marketing	1-12
LHR 499	Foreign Studies	1-12	MUSIC 9	Introduction to World Musics	3
			MUSIC 93	Essence of Joy	1

MUSIC 199	Foreign Studies	1-12	PLSC 183N	The Cold War in Literature, Politics, and History	3
MUSIC 261	Survey of Music History I	3	PLSC 199	Foreign Studies	1-12
MUSIC 262	Survey of Music History II	3	PLSC 200N	Government and Politics of Europe	3
MUSIC 299	Foreign Studies	1-12	PLSC 201N	Politics & Religion: Controversies Around the World	3
MUSIC 399	Foreign Studies	1-12	PLSC 220	Politics of the Developing World	3
MUSIC 499	Foreign Studies	1-12	PLSC 223N	Ethnic and Racial Politics	3
NUCE 299	Foreign Studies	1-12	PLSC 267N	Government and Politics of the Middle East	3
NUCE 399	Foreign Studies	1-12	PLSC 290N	Comparative Violence: Political and Criminological Perspectives	3
NUCE 499	Foreign Studies	1-12	PLSC 299	Foreign Studies	1-12
NURS 401	Concepts of Health	3	PLSC 399	Foreign Studies	1-12
NURS 402	Holistic Health	3	PLSC 428	Gender and Politics	3
NURS 415	Community and Family Health Nursing	4	PLSC 434	War and Development in Africa	3
NURS 417	Family and Community Health Concepts	4	PLSC 440	Globalization and Its Implications	3
NURS 464	Dying and Death	3	PLSC 443	Ethnic Conflict in Africa	3
NURS 499	Foreign Study--Nursing	1-9	PLSC 453	Political Processes in Underdeveloped Systems	3
NUTR 199	Foreign Studies	1-12	PLSC 454	Government and Politics of Africa	3
NUTR 299	Foreign Studies	1-12	PLSC 459	Culture and World Politics	3
NUTR 399	Foreign Studies	1-12	PLSC 461	Politics of the European Union	3
NUTR 421	Biocultural Perspectives on Public Health Nutrition	3	PLSC 464	Extractive Industries in Africa	3
NUTR 425	Global Nutrition Problems: Health, Science, and Ethics	3	PLSC 465Y	Democratization in Asia	3
NUTR 499	Foreign Studies	1-12	PLSC 469	Government and Politics of South Asia	3
OLEAD 410	Leadership in a Global Context	3	PLSC 478	China and the World	3
PHIL 6	Literature and Philosophy	3	PLSC 486	International Culture in East Asia	3
PHIL 7	Asian Philosophy	3	PLSC 499	Foreign Study--Government	1-12
PHIL 15	How to Live	3	POL 199	Foreign Studies	1-12
PHIL 135	Ethics in Jewish Tradition and Thought	3	POL 299	Foreign Studies	1-12
PHIL 139	Latino/a Philosophy	3	PORT 199	Foreign Studies	1-12
PHIL 199	Foreign Study--Philosophy	1-12	PORT 210N	Multilingual and Intercultural Communication	3
PHIL 299	Foreign Studies	1-12	PORT 299	Foreign Studies	1-12
PHIL 437	World Philosophies	3	PORT 399	Foreign Studies	1-12
PHIL 439	Seminar in Asian Philosophy	3	PORT 473	Luso-Brazilian Cinema	3
PHIL 453	Seminar in Ancient Philosophy	3	PSYCH 199	Foreign Studies	1-12
PHIL 460	African American Philosophy	3	PSYCH 232	Cross-Cultural Psychology	3
PHIL 468	Jewish Philosophy	3	PSYCH 299	Foreign Studies	1-12
PHIL 472	Islamic Philosophy	3	PSYCH 399	Foreign Studies	1-12
PHIL 499	Foreign Study--Philosophy	1-12	PSYCH 472	Human Development, Health, & Education From A Global Perspective	3
PHOTO 99	Foreign Studies--Photo	1-12	PSYCH 499	Foreign Studies	1-12
PHOTO 199	Foreign Studies--Photo	1-12	RHS 99	Foreign Studies	1-12
PHOTO 299	Foreign Studies--Photo	1-12	RHS 100	Introduction to Disability Culture	3
PHOTO 399	Foreign Studies--Photo	1-12	RHS 299	Foreign Studies	1-12
PHOTO 499	Foreign Studies--Photo	1-12	RHS 399	Foreign Studies	1-12
PHYS 199	Foreign Studies	1-12	RHS 420	Culture & Disability: Study Abroad in Ireland	6
PHYS 299	Foreign Studies	1-12	RLST 1	Introduction to World Religions	3
PHYS 499	Foreign Studies	1-12	RLST 3	Introduction to the Religions of the East	3
PLET 499	Foreign Studies	1-12	RLST 4	Jewish and Christian Foundations	3
PLSC 3	Comparing Politics around the Globe	3	RLST 12N	Lands of the Bible	3
PLSC 3H	Comparing Politics around the Globe	3	RLST 44	Ancient Near Eastern and Egyptian Mythology	3
PLSC 14	International Relations	3	RLST 70	Prophecy in the Bible and the Ancient Near East	3
PLSC 14H	International Relations Honors	3	RLST 90	Jerusalem: Past, Present, and Future	3
PLSC 60N	Society and Cultures in Modern Israel	3	RLST 101	Comparative Religion	3
PLSC 132	The Politics of International Intolerance	3			

RLST 102	Canaan and Israel in Antiquity	3	RUS 99	Foreign Studies	1-12
RLST 103	Introduction to Hinduism	3	RUS 100	Russian Culture and Civilization	3
RLST 104	Introduction to Buddhism	3	RUS 101N	Russian Cinema	3
RLST 105N	Buddhism and US Society	3	RUS 110	Russian Folklore	3
RLST 106	Mysticism and Kabbalah	3	RUS 141Y	Russian Literature in English Translation: 1800-1870	3
RLST 107	Introduction to Islam	3	RUS 142Y	Russian Literature in English Translation: 1870 to Present	3
RLST 108	Myths and Mythologies	3	RUS 143	The Culture of Stalinism and Nazism	3
RLST 109H	What is The Self?	3	RUS 144	Multicultural Russia: Narratives of Race and Ethnicity in Russian Literature and Culture	3
RLST 110	Introduction to the Bible: Old Testament	3	RUS 145	Putin's Russia and Its Protest Culture	3
RLST 111	Early Judaism	3	RUS 199	Foreign Studies	1-12
RLST 113	Jewish Myths and Legends	3	RUS 200	Intermediate Russian II	4
RLST 114	Modern Judaism	3	RUS 214	Intermediate Russian III	4
RLST 121	Jesus the Jew	3	RUS 299	Foreign Studies	1-12
RLST 122	Apocalypse and Beyond	3	RUS 304	Readings in Russian III	3
RLST 123	History of God: Origins of Monotheism	3	RUS 305	Advanced Russian Conversation	3
RLST 124	Early and Medieval Christianity	3	RUS 399	Foreign Studies	1-12
RLST 135	Ethics in Jewish Tradition and Thought	3	RUS 401	Advanced Russian I	4
RLST 137	Gender, Sexuality, and Religion	3	RUS 403	Advanced Russian Conversation and Composition	3
RLST 145	African Diaspora Religions and Spiritualities	3	RUS 405	Seminar in Russian Literature	3-6
RLST 153	Dead Sea Scrolls	3	RUS 406	Russian Film	3
RLST 160	Sacrifice in the Ancient World	3	RUS 410	Heritage Russian	4
RLST 164	Introduction to the Qur'an	3	RUS 412	Russian Translation	3
RLST 165	Islamic States, Societies and Cultures c. 600-1500	3	RUS 414	Advanced Grammar and Linguistic Analysis of Contemporary Russian	3
RLST 181	Introduction to the Religions of China and Japan	3	RUS 420	Senior Seminar in Russian Culture	3
RLST 194	Jerusalem: Sacred and Profane	3	RUS 499	Foreign Studies	1-12
RLST 235	The Church and the Jews	3	SC 120N	Plants, Places, and People	3
RLST 280	Gendering the Divine in Indian and South Asian Religions	3	SC 290	Renewable Energy in Costa Rica	3
RLST 407Y	Antisemitisms	3	SCM 199	Foreign Studies	1-12
RLST 409Y	Antisemitisms	3	SCM 299	Foreign Studies	1-12
RLST 410	Jews in the Medieval World	3	SCM 399	Foreign Studies	1-12
RLST 411	Jewish Studies	3	SCM 499	Foreign Studies	1-12
RLST 423	Orthodox Christianity: History and Interpretations	3	SLAV 99	Foreign Studies	1-12
RLST 440Y	The Orthodox Christian Tradition	3	SLAV 199	Foreign Studies	1-12
RLST 461	Sociology of Religion	3	SLAV 299	Foreign Studies	1-12
RLST 471Y	Classical Islamic Civilization, 600-1258	3	SLAV 399	Foreign Studies	1-12
RLST 472	Islamic Philosophy	3	SLAV 499	Foreign Studies	1-12
RLST 483	Zen Buddhism	3	SOC 60N	Society and Cultures in Modern Israel	3
RLST 499	Foreign Study--Religious Studies	1-12	SOC 119N	Race, Ethnicity and Culture	3-4
RM 299	Foreign Studies	1-12	SOC 130N	Buddhism and US Society	3
RM 399	Foreign Studies	1-12	SOC 145N	The Holocaust and Human Rights	3
RM 499	Foreign Studies	1-12	SOC 199	Foreign Studies	1-12
RPTM 120	Leisure and Human Behavior	3	SOC 209	Poverty in Africa	3
RPTM 120S	Leisure and Human Behavior	3	SOC 245N	Globalization, Technology, and Ethics	3
RPTM 199	Foreign Studies	1-12	SOC 269	Intercultural Dialogue Concepts and Practice	1-4
RPTM 220	Sustainability, Society, and Well-being	3	SOC 290N	Cinema and Globalization	3
RPTM 299	Foreign Studies	1-12	SOC 299	Foreign Studies	1-12
RPTM 300Y	Tourism and Leisure Behavior	3	SOC 369	Foundational Theory and Practice in Small Group Facilitation	3-4
RPTM 399	Foreign Studies	1-12			
RPTM 499	Foreign Studies	1-12			
RSOC 499	Foreign Study--Rural Sociology	1-12			
RUS 83	First-Year Seminar in Russian	3			

SOC 457	Jewish Communities: Identity, Survival, and Transformation in Unexpected Places	3	STS 499	Foreign Studies	1-12
SOC 461	Sociology of Religion	3	SWA 99	Foreign Studies	1-12
SOC 469	Advanced Theory and Practice in Small Group Facilitation	3-4	SWA 199	Foreign Studies	1-12
SOC 499	Foreign Study--Sociology	2-6	SWA 299	Foreign Studies	1-12
SOILS 299	Foreign Studies	1-12	SWA 399	Foreign Studies	1-12
SOILS 499	Foreign Studies	1-12	SWA 499	Foreign Studies	1-12
SPAN 83	First-Year Seminar in Hispanic Literatures and Cultures	3	SWENG 399	Foreign Studies	1-12
SPAN 99	Foreign Studies	1-12	SWENG 499	Foreign Studies	1-12
SPAN 130	Iberian Civilization	3	THEA 100	The Art of the Theatre	3
SPAN 131	Ibero-American Civilization	3	THEA 199	Foreign Studies--Theatre Arts	1-12
SPAN 131Y	Ibero-American Civilization	3	THEA 208	Workshop: Theatre in Diverse Cultures	3
SPAN 132	Afro-Hispanic Civilization	3	THEA 299	Foreign Studies--Theatre Arts	1-12
SPAN 199	Foreign Study--Beginning Conversational Spanish	3	THEA 399	Foreign Studies--Theatre Arts	1-12
SPAN 210N	Multilingual and Intercultural Communication	3	THEA 401	Theatre History I: Ancient to 1700	3
SPAN 253W	Introduction to Hispanic Literature	3	THEA 412	African American Theatre	3
SPAN 269N	Theater and Performance	3	THEA 499	Foreign Studies--Theatre Arts	1-12
SPAN 299	Foreign Study--Intermediate Conversational Spanish	3	TURF 499	Foreign Studies	1-8
SPAN 399	Foreign Study--Spanish	1-12	TURF 499B	Foreign Studies	1-8
SPAN 423	Spanish in Contact with Other Languages	3	UKR 99	Foreign Studies	1-12
SPAN 424	Facts and Myths about Learning Spanish	3	UKR 100	Ukrainian Culture and Civilization	3
SPAN 425	The Spanish Your Teachers Never Taught You	3	UKR 199	Foreign Studies	1-12
SPAN 499	Foreign Study--Spanish	1-12	UKR 299	Foreign Studies	1-12
SPLD 99	Foreign Studies	1-12	UKR 399	Foreign Studies	1-12
SPLD 199	Foreign Studies	1-12	UKR 499	Foreign Studies	1-12
SPLD 299	Foreign Studies	1-12	WFED 99	Foreign Studies	1-12
SPLD 399	Foreign Studies	1-12	WFED 199	Foreign Studies	1-12
SPLD 420	Culture & Disability: Study Abroad in Ireland	6	WFED 299	Foreign Studies	1-12
SPSY 472	Human Development, Health, & Education From A Global Perspective	3	WFED 399	Foreign Studies	1-12
SPSY 472H	Human Development, Health, & Education From A Global Perspective	3	WFED 450	Cultural Diversity in the Workplace	3
SRA 99	Foreign Studies	1-12	WFED 499	Foreign Studies	1-12
SRA 199	Foreign Studies	1-12	WFS 299	Foreign Studies	1-12
SRA 299	Foreign Studies	1-12	WFS 499	Foreign Studies	1-12
SRA 399	Foreign Studies	1-12	WMNST 1	Introduction to Women's Studies	3
SRA 499	Foreign Studies	1-12	WMNST 100	Introduction to Women's and Gender Studies	3
SSED 100N	Foundations of History and Social Studies Concepts for K-8 Teachers	3	WMNST 100U	Introduction to Women's and Gender Studies	3
STAT 199	Foreign Studies	1-12	WMNST 102	Women of the African Diaspora	3
STAT 399	Foreign Studies	1-12	WMNST 106N	Representing Women and Gender in Literature, Art and Popular Cultures	3
STAT 499	Foreign Studies	1-12	WMNST 106Q	Representing Women and Gender in Literature, Art and Popular Cultures	3
STS 110N	Chemistry in World Wars I and II	3	WMNST 116N	Family and Gender Roles in Modern History	3
STS 115	Pre-departure Intercultural Learning	1-3	WMNST 137	Gender, Sexuality, and Religion	3
STS 124	History of Western Medicine	3	WMNST 194	Women Writers	3
STS 245N	Globalization, Technology, and Ethics	3	WMNST 199	Foreign Studies	1-12
STS 299	Foreign Studies	1-12	WMNST 200	Global Feminisms	3
STS 313	Global Engineering Fellows Seminar	1	WMNST 202N	Women, Gender, and Feminisms in Africa	3
STS 416	Race, Gender and Science	3	WMNST 207N	LGBTQ+ Identity, Culture and The Arts	3
STS 428	The Darwinian Revolution	3	WMNST 240Q	Artistic Patronage in Europe	3
			WMNST 280	Gendering the Divine in Indian and South Asian Religions	3
			WMNST 299	Foreign Studies	1-12
			WMNST 301N	Sexualities, Gender and Power: Feminist Thought and Politics	3

WMNST 303	Race and Gender in the Americas: Latin American and Caribbean Cultures	3
WMNST 350	Gender, War, and Militarism	3
WMNST 399	Foreign Studies	1-12
WMNST 420W	Gender and International Development	3
WMNST 426W	Gendered Worlds	3
WMNST 428	Gender and Politics	3
WMNST 440W	Women in Global Cities	3
WMNST 450Y	Gender and Sexuality in Ancient Greece and Rome	3
WMNST 466	Lesbian and Gay History	3
WMNST 490	Women Writers and Their Worlds	3
WMNST 499	Foreign Studies	1-12
WP 499	Foreign Studies	1-12

Natural Sciences Courses

These courses have been approved as General Education Natural Sciences courses. This course list is updated periodically. Descriptions and learning criteria for General Education Natural Sciences courses can be found in the Foundation and Knowledge Domains section (p. 3185).

Code	Title	Credits
AEE 204N	Science Literacy and Policy in the 21st Century	3
AFR 105	African Biodiversity and Conservation	3
AG 180N	Contemporary Issues in Food, Ag, Natural Resources, and Human Sciences	3
AGBM 170N	Investigating the U.S. Food System: How food moves from field to table	3
AGECO 121	Plant Stress: It's Not Easy Being Green	3
AGECO 122	Atmospheric Environment: Growing in the Wind	3
AGECO 134N	Sustainable Agriculture Science and Policy	3
AGECO 144	Principles and Practices of Organic Agriculture	3
ANSC 100	Introduction to Animal Industries	3
ANSC 107	Introduction to Equine Science and the Equine Industry	3
ANSC 332N	Science and policy of global greenhouse gas emissions and management	3
ANSC 447	Equine Exercise Physiology	3
ANTH 21	Introductory Biological Anthropology	3
ANTH 22	Humans as Primates	3
ANTH 40Q	Biocultural Evolution	3
ANTH 100N	Anthropology of Race and Racism	3
ANTH 129N	Chocolate Worlds	3
ANTH 150N	Human Nature: The Science of Extreme Altruism and Violence	3
ANTH 150Q	Human Nature: The Science of Extreme Altruism and Violence	3
ANTH 210N	Anthropology, Ancestry, and You	3
ANTH 216N	Sex and Evolution	3
ANTH 219N	Spillover: The Anthropology of Emerging Infectious Diseases	3
ANTH 240N	Livelihoods and Ecosystems: Anthropological Approaches to Human-Environment Interaction	3
ANTH 375Q	Anthropology of Food Honors	3
ARCH 170N	Introduction to Sustainable Architecture	3

ART 51N	Meteorology and Visual Arts: To Know is to See	3
ART 160N	STEAM: Connecting Art to Science, Technology, Engineering and Mathematics	3
ART 170N	Plant and Microbial Art	3
ARTH 107N	Rocks, Minerals, and the History of Art	3
ASTRO 1	Astronomical Universe	3
ASTRO 5	The Sky and Planets	3
ASTRO 6	Stars, Galaxies, and the Universe	3
ASTRO 7N	The Artistic Universe	3
ASTRO 10	Elementary Astronomy	2
ASTRO 11	Elementary Astronomy Laboratory	1
ASTRO 19N	Being in the Universe	3
ASTRO 120	The Big Bang Universe	3
ASTRO 130	Black Holes in the Universe	3
ASTRO 140	Life in the Universe	3
ASTRO 141N	Film and Extraterrestrial Life: Science Fact or Fiction?	3
ASTRO 291	Astronomical Methods and the Solar System	3
ASTRO 320	Observational Astronomy Laboratory	3
BIOL 11	Introductory Biology I	3
BIOL 12	Introductory Biology II	1
BIOL 110	Biology: Basic Concepts and Biodiversity	4
BIOL 110H	Honors Biology: Basic Concepts and Biodiversity	4
BIOL 127	Introduction to Plant Biology	3
BIOL 133	Genetics and Evolution of the Human Species	3
BIOL 141	Introduction to Human Physiology	3
BIOL 144	Climate Change: Biological Impacts	3
BIOL 155	Introduction to the Biology of Aging	3
BIOL 160N	Fitness with Exercise Physiology	3
BIOL 161	Human Anatomy and Physiology I - Lecture	3
BIOL 162	Human Anatomy and Physiology I - Laboratory	1
BIOL 163	Human Anatomy and Physiology II - Lecture	3
BIOL 164	Human Anatomy and Physiology II - Laboratory	1
BIOL 169N	What it means to be human	3
BIOL 177	Biology of Sex	3
BISC 2	Genetics, Ecology, and Evolution	3
BISC 3	Environmental Science	3
BISC 4	Human Body: Form and Function	3
BMB 1	The Science of Sickness	3
BMB 1Z	The Science of Sickness - Linked	3
CHEM 1	Molecular Science	3
CHEM 3	Molecular Science With Laboratory	3
CHEM 5	Kitchen Chemistry	3
CHEM 101	Introductory Chemistry	2-3
CHEM 106	Introductory and General Chemistry	5
CHEM 110	Chemical Principles I	3
CHEM 110H	Chemical Principles I - Honors	3
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
CHEM 112H	Chemical Principles II - Honors	3
CHEM 113	Experimental Chemistry II	1
CHEM 113B	Experimental Chemistry II-Bioscience	1

CHEM 130	Introduction to General, Organic, and Biochemistry	3	GEOG 115	Landforms of the World	3
CHEM 233N	Chemistry and Literature	3	GEOG 210	Geographic Perspectives on Environmental Systems Science	3
CMLIT 19N	Being in the Universe	3	GEOG 315	Landforms and Geomorphic Systems in the Anthropocene	3
CMLIT 183Q	From Beast Books to Resurrecting Dinosaurs	3	GEOG 330N	Political Ecology	3
COMM 151N	Film and Extraterrestrial Life: Science Fact or Fiction?	3	GEOG 332N	Science and policy of global greenhouse gas emissions and management	3
DANCE 370	Anatomy and Physiology for Performers	3	GEOSC 10	Geology of the National Parks	3
EARTH 2	The Earth System and Global Change	3	GEOSC 20	Planet Earth	3
EARTH 10	Energy and Earth's Climate	1	GEOSC 30	Volcanoes	3
EARTH 100	Environment Earth	3	GEOSC 40	The Sea Around Us	3
EARTH 101	Natural Disasters: Hollywood vs. Reality	3	GEOSC 50	Planetary Geology	3
EARTH 103N	Earth in the Future: Predicting Climate Change and Its Impacts Over the Next Century	3	GEOSC 107N	Rocks, Minerals, and the History of Art	3
EARTH 104N	Climate, Energy and Our Future	3	GEOSC 110H	The Science of Gemstones	3
EARTH 105N	Environments of Africa: Geology and Climate Change	3	GEOSC 212N	Earthquakes and Human History	3
EARTH 107N	Coastal Processes, Hazards and Society	3	GER 115N	Science, Humanity and Catastrophe: Scientific Discovery in Germany	3
EARTH 109	The Fundamentals of Shale Energy Development	3	GER 197E	Special Topics GN/GH	3
EARTH 111N	Water: Science and Society	3	HHD 200N	Addiction Science to Society	3
EARTH 150	Dinosaur Extinctions and Other Controversies	3	HIST 6N	History and Weather: How Weather Played an Instrumental Role in Great World Events	3
EARTH 155N	Scientific Controversies and Public Debate	3	HIST 125N	History of Infectious Disease and Epidemiology	3
EARTH 200N	Earth Systems Through a Soc & Envir Justice Lens	3	HIST 128N	Cultural Perspectives on Mathematics	3
EGEE 101	Energy and the Environment	3	HIST 129N	Chocolate Worlds	3
EGEE 101H	Energy and the Environment	3	HIST 212N	Earthquakes and Human History	3
EGEE 102	Energy Conservation for Environmental Protection	3	HORT 101	Horticultural Science	3
EGEE 110N	Environmental Health and Safety Science	3	HORT 150N	Plants in the Human Context	3
EMSC 125	Plastics in the Environment	3	HORT 169N	Fundamentals of Home Landscaping: An Introduction to Design, Construction, and Maintenance	3
EMSC 240N	Energy and Sustainability in Contemporary Culture	3	INART 50	The Science of Music	3
ENGL 142N	Science in Literature	3	INTAG 100N	Everyone Eats: Hunger, Food Security & Global Agriculture	3
ENGL 163N	Defining the Animal	3	KINES 160N	Fitness with Exercise Physiology	3
ENGL 233N	Chemistry and Literature	3	MATSE 81	Materials in Today's World	3
ENGR 115N	Science, Humanity and Catastrophe: Scientific Discovery in Germany	3	MATSE 101	Energy and the Environment	3
ENGR 120N	Design Thinking and 3D Printing in Engineering and Healthcare	3	MATSE 112	Applied Materials Chemistry for Engineers	3
ENT 202N	Insect Connections: Insects, Globalization and Sustainability	3	METEO 3	Weather Revealed: Introductory Meteorology	3
ENT 216N	Plagues Through the Ages	3	METEO 4	Weather and Risk	3
ENT 222N	Honey Bees and Humans	3	METEO 5	Severe and Unusual Weather	3
ENVST 100N	Visions of Nature	3	METEO 6N	History and Weather: How Weather Played an Instrumental Role in Great World Events	3
FDSC 223	Understanding Science Through Wine Beer and Bread	3	METEO 7	An Introduction to Climate Sciences: Climate change, Variability, and Society	3
FOR 201N	Global Change and Ecosystems	3	METEO 51N	Meteorology and Visual Arts: To Know is to See	3
FRNSC 100	Introduction to Forensic Science	3	METEO 122	Atmospheric Environment: Growing in the Wind	3
FRNSC 200	Introduction to Crime Scene Investigation	3	METEO 133N	Ethics of Climate Change	3
GAME 180N	The Art and Science of Virtual Worlds	3	METEO 332N	Science and policy of global greenhouse gas emissions and management	3
GEOG 1N	Global Parks and Sustainability	3	MICRB 106	Elementary Microbiology	3
GEOG 3N	Food and the Future Environment	3	MICRB 107	Elementary Microbiology Laboratory	1
GEOG 4	Earth and Environmental Systems Geography	3	NURS 325N	Health and Environmental Sustainability	3
GEOG 6N	Maps and the Geospatial Revolution	3			
GEOG 30N	Environment and Society in a Changing World	3			
GEOG 107N	Immersive Technologies - Transforming Society Through Digital Innovation	3			

NUTR 291N	Drugs and Nutrition: Social and Scientific Interactions	3
PHIL 131N	BS: Identifying Bias and Falsehood	3
PHIL 133N	Ethics of Climate Change	3
PHOTO 321N	Flow Visualization: The Art and Physics of Fluid Motion	3
PHYS 1	The Science of Physics	3
PHYS 10	Physics Behind the Headlines	3
PHYS 150	Technical Physics I	3
PHYS 151	Technical Physics II	3
PHYS 211	General Physics: Mechanics	4
PHYS 211H	General Physics: Mechanics	4
PHYS 212	General Physics: Electricity and Magnetism	4
PHYS 212H	General Physics: Electricity and Magnetism	4
PHYS 213	General Physics: Fluids and Thermal Physics	2
PHYS 214	General Physics: Wave Motion and Quantum Physics	2
PHYS 250	Introductory Physics I	4
PHYS 251	Introductory Physics II	4
PLANT 129N	Chocolate Worlds	3
PLANT 200	Introduction to Agricultural Crop Growth, Form, and Function	3
PLANT 220	Gardening for Fun and Profit	3
PLANT 240	Fundamentals of Cannabis: An Introduction to the Botany, Cultivation, and Harvesting of Hemp	3
PPEM 120	The Fungal Jungle: A Mycological Safari From Truffles to Slime Molds	3
PPEM 170N	Plant and Microbial Art	3
PPEM 300	Horticultural Crop Diseases	3
PSYCH 150N	Human Nature: The Science of Extreme Altruism and Violence	3
PSYCH 150Q	Human Nature: The Science of Extreme Altruism and Violence	3
PSYCH 169N	What it means to be human	3
PSYCH 217N	The Science of Human Resilience	3
PSYCH 263N	Science of Learning	3
RLST 133N	Ethics of Climate Change	3
SC 60N	Art in the Natural World	3
SC 103N	When Data Meets Design	3
SC 120N	Plants, Places, and People	3
SC 125N	History of Infectious Disease and Epidemiology	3
SC 135N	Society and Disease Management	3
SC 142N	Science in Literature	3
SC 145N	The Visual Body	3
SC 183Q	From Beast Books to Resurrecting Dinosaurs	3
SC 200	Science in Our World: Certainty and Controversy	3
SC 205N	BS: Identifying Bias and Falsehood	3
SC 290	Renewable Energy in Costa Rica	3
SC 475N	Anatomy in Italy: Cadavers, Culture, and Science	3
SOILS 71	Environmental Sustainability	3
SOILS 101	Introductory Soil Science	3
STS 110N	Chemistry in World Wars I and II	3
SUST 150N	The Science of Sustainable Development	3

SUST 325N	Health and Environmental Sustainability	3
VBSC 280N	Current Topics in Veterinary Medicine	3
WFS 209N	Wildlife and Fisheries Conservation	3

Quantification Courses

These courses have been approved as General Education Quantification courses. This course list is updated periodically. Descriptions and learning criteria for General Education Quantification courses can be found in the Foundation and Knowledge Domains section (p. 3185).

Code	Title	Credits
AGBM 106	Agribusiness Problem Solving	3
CMPSC 101	Introduction to Programming	3
CMPSC 200	Programming for Engineers with MATLAB	3
CMPSC 201	Programming for Engineers with C++	3
CMPSC 203	Introduction to Spreadsheets and Databases	4
CMPSC 208	Technical Game Development	3
CRIMJ 260	Statistical Analysis for the Social Sciences	3
DA 101	Introduction to Data Analytics	3
EDPSY 101	Analysis and Interpretation of Statistical Data in Education	3
EME 210	Data Analytics for Energy Systems	3
GAME 250	Technical Game Development	3
GAME 251	2D Game Programming	3
GEOSC 210	Geoscience Data Analytics	3
HDFS 200	Quantitative Skills for Human Services	3
HM 350	Hospitality Revenue and Profit Optimization	3
KINES 384	Biomechanics	3
MATH 21	College Algebra with Analytic Geometry with Applications I	3
MATH 22	College Algebra With Analytic Geometry and Applications II	3
MATH 26	Plane Trigonometry and Applications of Trigonometry	3
MATH 26H	Plane Trigonometry	3
MATH 32	Math for Allied Health Professions	3
MATH 33	Mathematics for Sustainability	3
MATH 34	The Mathematics of Money	3
MATH 35	General View of Mathematics	3
MATH 36	Insights Into Mathematics	3
MATH 37	Finite Mathematics	3
MATH 38	Elementary Linear Algebra	3
MATH 40	Algebra, Trigonometry, and Analytic Geometry	5
MATH 41	Trigonometry and Analytic Geometry	4
MATH 81	Technical Mathematics I	3
MATH 82	Technical Mathematics II	3
MATH 83	Technical Calculus	4
MATH 110	Techniques of Calculus I	4
MATH 111	Techniques of Calculus II	2
MATH 140	Calculus With Analytic Geometry I	4
MATH 140B	Calculus and Biology I	4
MATH 140E	Calculus with Engineering Applications I	4

MATH 140G	Calculus with Earth and Mineral Sciences Applications I	4
MATH 140H	Honors Calculus with Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
MATH 141B	Calculus and Biology II	4
MATH 141E	Calculus with Engineering Applications II	4
MATH 141G	Calculus with Earth and Mineral Sciences Applications II	4
MATH 141H	Honors Calculus with Analytic Geometry II	4
MATH 200	Problem Solving in Mathematics	3
MATH 201	Problem Solving in Mathematics II	3
MATH 210	Calculus with Engineering Technology Applications	3
MATH 211	Intermediate Calculus and Differential Equations with Applications	3
MATH 220	Matrices	2-3
MATH 220H	Honors Matrices	2-3
MIS 204	Introduction to Management Information Systems	3
PHIL 12	Symbolic Logic	3
PSYCH 200	Elementary Statistics in Psychology	4
SCM 200	Introduction to Statistics for Business	4
SCM 200H	Honors Introduction to Statistics for Business	4
STAT 100	Statistical Concepts and Reasoning	3
STAT 200	Elementary Statistics	4
STAT 240	Introduction to Biometry	3
STAT 250	Introduction to Biostatistics	3

Social and Behavioral Sciences Courses

These courses have been approved as General Education Social and Behavioral Sciences courses. This course list is updated periodically. Descriptions and learning criteria for General Education Social and Behavioral Sciences courses can be found in the Foundation and Knowledge Domains section (p. 3185).

Code	Title	Credits
AA 113N	Sustainable Arts and Design	3
AA 120N	Introduction to Art Therapy	3
AA 160N	The Virtual Transformational Leadership Development Experience	3
AAS 100N	Introduction to Asian American Studies	3
ADTED 300	Social Movements and Education: Global Perspectives	3
AED 233N	Learning in Maker Cultures	1-3
AED 355Q	Show Me Where it Hurts: Healthcare and Creative Inquiry	3
AEE 201	Interpersonal Skills for Tomorrow's Leaders	3
AEE 204N	Science Literacy and Policy in the 21st Century	3
AFAM 100N	Black Freedom Struggles	3
AFAM 101N	African American Women	3
AFAM 105N	Afro-Latin America: Race and Revolution	3
AFAM 110N	Introduction to African American Studies	3
AFAM 111N	Introduction to Anti-Black racism in the United States: The African American Experience	3

AFAM 114N	Race, Gender and Sport	3
AFAM 136	Race, Gender, and Employment	3
AFAM 136Y	Race, Gender, and Employment	3
AFAM 207N	Jazz and the African American Experience	3
AFAM 364N	Black & White Sexuality	3
AFAM 435N	Black Ecologies	3
AFR 110N	Introduction to Contemporary Africa	3
AFR 202N	Women, Gender, and Feminisms in Africa	3
AFR 205	Development and Sustainability in Africa	3
AFR 209	Poverty in Africa	3
AFR 230N	Language and Social Justice	3
AFR 234	Environment, Climate Change and Resilience in Africa	3
AFR 435N	Black Ecologies	3
AGBM 101	Economic Principles of Agribusiness Decision Making	3
AGBM 170	Investigating the U.S. Food System: How food moves from field to table	3
AGBM 170N	Investigating the U.S. Food System: How food moves from field to table	3
AGECO 134N	Sustainable Agriculture Science and Policy	3
AIR 252	The Evolution of USAF Air and Space Power II	2
AIR 451	National Security, Leadership Responsibilities, and Commissioning Preparation I	3
AMST 106N	The Mass Media and Society	3
AMST 151N	Technology and Society in American History	3
AMST 160N	Introduction to Asian American Studies	3
AMST 161N	Chinese in America, Americans in China	3
AMST 170N	Introduction to American Folklore	3
ANSC 215	Pets in Society	3
ANSC 332N	Science and policy of global greenhouse gas emissions and management	3
ANTH 1	Understanding Humans	3
ANTH 2N	World Archaeology	3
ANTH 8	Aztec, Inca, Maya	3
ANTH 9N	Rise of Civilization in the Old World	3
ANTH 11	North American Archaeology	3
ANTH 40Q	Biocultural Evolution	3
ANTH 45N	Cultural Diversity: A Global Perspective	3
ANTH 45Q	Cultural Diversity: A Global Perspective	3
ANTH 60N	Society and Cultures in Modern Israel	3
ANTH 83S	First-Year Seminar in Anthropology	3
ANTH 100N	Anthropology of Race and Racism	3
ANTH 120	First Farmers	3
ANTH 140	Anthropology of Alcohol	3
ANTH 146	Indigenous North America	3
ANTH 150N	Human Nature: The Science of Extreme Altruism and Violence	3
ANTH 150Q	Human Nature: The Science of Extreme Altruism and Violence	3
ANTH 210N	Anthropology, Ancestry, and You	3
ANTH 216N	Sex and Evolution	3
ANTH 219N	Spillover: The Anthropology of Emerging Infectious Diseases	3

ANTH 221N	Ancient Maya: Sacred Blood & Conjured Serpent	3	CAS 272N	Political Communication and Technology	3
ANTH 222	Archaeology of Domesticated Animals	3	CAS 283	Communication and Information Technology I	3
ANTH 240N	Livelihoods and Ecosystems: Anthropological Approaches to Human-Environment Interaction	3	CAS 303	Communication Theory	3
ANTH 375Q	Anthropology of Food Honors	3	CAS 303H	Introduction to Communication Theory- Honors	3
ANTH 430	Ancient Brews	3	CAS 304	Quantitative Methods for Communication Research	3
ANTH 434N	Black Ecologies	3	CAS 383N	Culture and Technology	3
APLNG 83	First-Year Seminar in Applied Linguistics: Language as Social Practice	3	CAS 390	Qualitative Research Methods	3
APLNG 220N	Multilingual Lives: Stories of Language and Culture Learning	3	CAS 403	Interpersonal Communication Theory and Research	3
APLNG 230N	Language and Social Justice	3	CAS 404	Conflict Resolution and Negotiation	3
APLNG 260	LANGUAGE AND TECHNOLOGY	3	CAS 452	Organizational Communication Theory and Research	3
APLNG 280N	Conducting International Comparative Research	3	CAS 452W	Organizational Communication Theory and Research	3
APLNG 290N	Critical Approaches to Applied Linguistics	3	CC 200	Introduction to Corporate Communication	3
APLNG 320N	Language, Ideology, and Propaganda	3	CED 102N	Wicked Problems Like Inequality, Sustainability & Climate Change: What's the Right Thing to Do?	3
ART 175N	Intersections Between Art and Psychology	3	CED 102Q	Wicked Problems Like Inequality, Sustainability & Climate Change: What's the Right Thing to Do?	3
ART 207N	LGBTQ+ Identity, Culture and The Arts	3	CED 109N	Gentrification in Everyday Life	3
ARTH 105N	Pictures and Power	3	CED 152	Community Development Concepts and Practice	3
ARTH 222N	Intersections between Art History and the History of Psychology	3	CED 155	Science, Technology and Public Policy	3
ARTH 222Q	Intersections between Art History and the History of Psychology	3	CED 400N	Exploring Indigenous Ways of Knowing in Great Lakes Region: Lecture	3
ASIA 101N	Sports in Asia	3	CI 185	Principles of Social Justice in Education	3
AYFCE 211N	Foundations: Civic and Community Engagement	3	CI 304N	Food, Farms & Justice: What's Education Got To Do With Them?	3
AYFCE 270	Consumer and Financial Skills	3	CI 497N	Special Topics - Inter Domain	1-9
BA 100	Introduction to Business	3	CIED 410	The Global Impact of Education	3
BA 100S	Introduction to Business	3	CIVCM 211N	Foundations: Civic and Community Engagement	3
BBH 150N	Safe and Sound: The Intersection of Criminal Justice and Public Health	3	CMAS 258N	Introduction to Child Maltreatment and Advocacy Studies	3
BBH 201N	Health and the Media	3	CMLIT 133N	Global Satire and Modern Politics	3
BIOET 110N	Health, Illness, and the Human Condition	3	CMLIT 147N	Displacement and Migration	3
BIOET 220N	Ethics, Society, and Science Fiction	3	COMM 20N	Critical Media Literacy	3
BIOET 401Q	Science, Ethics, Policy, and Law	3	COMM 100N	The Mass Media and Society	3
BIOL 169N	What it means to be human	3	COMM 101N	Understanding and Enhancing Creativity	3
CAMS 12N	Lands of the Bible	3	COMM 118	Introduction to Media Effects	3
CAS 83	First-Year Seminar in Communication Arts and Sciences	3	COMM 175N	Mental Illness and the Movies	3
CAS 101N	Introduction to Human Communication	3	COMM 180	Survey of Electronic Media and Telecommunications	3
CAS 162N	Communicating Care	3	COMM 190	Gaming and Interactive Media	3
CAS 170N	What is Information?	3	COMM 205	Gender, Diversity and the Media	3
CAS 175N	Persuasion and Propaganda	3	COMM 208N	Visual Representations of the Middle East in the US and Middle East	3
CAS 182N	Communication and Sport	3	COMM 234N	Digital Cultures	3
CAS 203	Interpersonal Communication	3	COMM 290N	Cinema and Globalization	3
CAS 208N	Introduction to Managing Conflict and Bargaining	3	CRIM 12	Criminology	3
CAS 220	Persuasion	3	CRIM 12H	Honors Criminology	3
CAS 222N	Foundations: Civic and Community Engagement	3	CRIM 100	Introduction to Criminal Justice	3
CAS 232N	Identity, Citizenship, and the Rhetoric of American Horror Film	3	CRIM 201	Presumed Innocent? Social Science of Wrongful Conviction	3
CAS 250	Small Group Communication	3	CRIM 225N	Organized Crime in Film and Society	3
CAS 252	Business and Professional Communication	3			
CAS 253	Health Communication	3			
CAS 271N	Intercultural Communication	3			

CRIMJ 12	Criminology	3	ENGL 108N	Buddhism and US Society	3
CRIMJ 12H	Honors Criminology	3	ENGL 162N	Communicating Care	3
CRIMJ 13	Juvenile Delinquency	3	ENGL 165N	Work and Literature	3
CRIMJ 100	Introduction to Criminal Justice	3	ENGL 170N	Introduction to American Folklore	3
CRIMJ 150N	Safe and Sound: The Intersection of Criminal Justice and Public Health	3	ENGL 183N	The Cold War in Literature, Politics, and History	3
CRIMJ 205N	Critical Race Theory in the Humanities and Social Sciences	3	ENGL 236N	Inequality: Economics, Philosophy, Literature	3
CSD 240	Supporting Communication Through The Performing Arts	3	ENGR 320Y	Design for Global Society	3
CSD 269	Deaf Culture	3	ENGR 467Q	Robots and Their Role in Society	3
EARTH 103N	Earth in the Future: Predicting Climate Change and Its Impacts Over the Next Century	3	ENT 202N	Insect Connections: Insects, Globalization and Sustainability	3
EARTH 104N	Climate, Energy and Our Future	3	ENT 222N	Honey Bees and Humans	3
EARTH 105N	Environments of Africa: Geology and Climate Change	3	ESC 220N	Ethics, Society, and Science Fiction	3
EARTH 107N	Coastal Processes, Hazards and Society	3	FOR 201N	Global Change and Ecosystems	3
EARTH 111N	Water: Science and Society	3	GAME 140	Gaming and Interactive Media	3
EARTH 200N	Earth Systems Through a Soc & Envir Justice Lens	3	GEOG 1N	Global Parks and Sustainability	3
EBF 200	Introduction to Energy and Earth Sciences Economics	3	GEOG 2N	Apocalyptic Geographies: How can we prevent the end of the world?	3
ECON 14	Principles of Economics	3	GEOG 3N	Food and the Future Environment	3
ECON 102	Introductory Microeconomic Analysis and Policy	3	GEOG 6N	Maps and the Geospatial Revolution	3
ECON 102H	Introductory Microeconomic Analysis and Policy (Honors)	3	GEOG 30N	Environment and Society in a Changing World	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3	GEOG 40	World Regional Geography	3
ECON 104H	Introductory Macroeconomic Analysis and Policy (Honors)	3	GEOG 107N	Immersive Technologies - Transforming Society Through Digital Innovation	3
ECON 302	Intermediate Microeconomic Analysis	3	GEOG 126	Economic Geography	3
ECON 302H	Intermediate Microeconomic Analysis (Honors)	3	GEOG 128	Geography of International Affairs	3
ECON 304	Intermediate Macroeconomic Analysis	3	GEOG 160	Mapping Our Changing World	3
ECON 304H	Intermediate Macroeconomic Analysis (Honors)	3	GEOG 220	Perspectives on Human Geography	3
ECON 315	Labor Economics	3	GEOG 260	Geographic Information in a Changing World: Introduction to GIScience	3
ECON 323	Public Finance	3	GEOG 324	Place, Space and Culture	3
ECON 333	International Economics	3	GEOG 326	Geographic Perspectives on Economic Systems	3
ECON 342	Industrial Organization	3	GEOG 330N	Political Ecology	3
ECON 472N	Russian Economic History	3	GEOG 332N	Science and policy of global greenhouse gas emissions and management	3
EDPSY 10	Individual Differences and Education	3	GER 157N	The Amish	3
EDPSY 11	Educational Implications of Individual Differences in Childhood	3	GER 200N	Contemporary German Culture	3
EDPSY 14	Learning and Instruction	3	GLIS 101N	Globalization	3
EDTHP 115	Education in American Society	3	GLIS 102N	Global Pathways	3
EDTHP 115A	Competing Rights: Issues in American Education	3	GLIS 410	The Global Impact of Education	3
EDTHP 115S	Competing Rights: Issues in American Education	3	HDFS 101N	Helping People: Introduction to Understanding Social Problems & How to Help	3
EDTHP 200	Educational Reform and Public Policy	3	HDFS 108N	Art and Science of Human Flourishing	3
EDTHP 220	Children, Parents and Schools	3	HDFS 129	Introduction to Human Development and Family Studies	3
EDTHP 410	The Global Impact of Education	3	HDFS 175N	Introduction to Youth Development and Arts-based Social Justice	3
EDTHP 426	Economic Foundations of Education Policy	3	HDFS 215N	Global health and families	3
EDUC 205N	Critical Race Theory in the Humanities and Social Sciences	3	HDFS 229	Infant and Child Development	3
EDUC 466N	Foundations of Teaching English as a Second Language	3	HDFS 239	Adolescent Development	3
EGEE 110N	Environmental Health and Safety Science	3	HDFS 249N	Adult Development and Aging	3
EGEE 120	Oil: International Evolution	3	HDFS 254N	Reading Our Lives: Understanding Diversity and Human Development through Memoirs	3
			HDFS 258N	Introduction to Child Maltreatment and Advocacy Studies	3

HDFS 345	CONTEMPORARY URBAN ISSUES AND SOCIAL JUSTICE FRAMEWORKS	3	LING 100	Foundations of Linguistics	3
HHD 200N	Addiction Science to Society	3	LTNST 315N	Spanish and Spanish-speakers in the U.S.	3
HHD 245N	Health, humanity, and longevity: Conversations with elders	3	METEO 332N	Science and policy of global greenhouse gas emissions and management	3
HHD 497I	Intergenerational Communication	3	MUSIC 207N	Jazz and the African American Experience	3
HHUM 220N	Ethics, Society, and Science Fiction	3	NURS 245	Violence and the Impact on Society	3
HIST 114N	Historical Perspectives on HealthCare Innovations	3	NUTR 175N	Healthy Food for All: Factors that Influence What we Eat in the US	3
HIST 116N	Family and Gender Roles in Modern History	3	NUTR 291N	Drugs and Nutrition: Social and Scientific Interactions	3
HIST 120N	History of Modern Europe since 1789	3	OLEAD 100	Introduction to Leadership	3
HIST 142N	History of Communism	3	OLEAD 201	Organizational Theory and Functions for Leaders	3
HIST 143N	History of Fascism and Nazism	3	OLEAD 210	Evidence-Based Leadership	3
HIST 145N	The Holocaust and Human Rights	3	OLEAD 220	Emotional, Social, and Cultural Intelligences and the Implications for Leadership	3
HIST 151N	Technology and Society in American History	3	PHIL 60N	Philosophy and 1960s Counterculture	3
HIST 203N	History of Monsters, Aliens & the Supernatural	3	PHIL 120N	Knowing Right from Wrong	3
HIST 238N	Society and Culture in Palestine/Israel	3	PHIL 242N	Happiness and Well-Being	3
HIST 402N	Russian Economic History	3	PLSC 1	American Politics: Principles, Processes and Powers	3
HM 101	Exploring the Global Hospitality Industry	3	PLSC 1H	American Politics: Principles, Processes and Powers	3
HM 210N	The Impact of Culture and Customs in Global Hospitality Environments	3	PLSC 1S	American Politics: Principles, Processes and Powers	3
HM 265W	Teams and Leadership in the Hospitality Industry	3	PLSC 3	Comparing Politics around the Globe	3
HORT 150N	Plants in the Human Context	3	PLSC 3H	Comparing Politics around the Globe	3
INTAG 100N	Everyone Eats: Hunger, Food Security & Global Agriculture	3	PLSC 7N	Contemporary Political Ideologies	3
INTST 100	Introduction to International Studies	3	PLSC 10	Scientific Study of Politics	3
IST 110	Information, People and Technology	3	PLSC 14	International Relations	3
IST 144N	Invasion of Technology from a 21st Century Perspective	3	PLSC 14H	International Relations Honors	3
IST 170N	What is Information?	3	PLSC 17N	Introduction to Political Theory	3
IST 222H	Community Informatics	3	PLSC 17W	Introduction to Political Theory	3
IST 234N	Digital Cultures	3	PLSC 60N	Society and Cultures in Modern Israel	3
IT 210N	Multilingual and Intercultural Communication	3	PLSC 83S	First-Year Seminar in Political Science	3
IT 225N	Organized Crime in Film and Society	3	PLSC 90	Introduction to Security	3
JST 12N	Lands of the Bible	3	PLSC 112N	Ethics in Citizenship, Politics, and Government	3
JST 60N	Society and Cultures in Modern Israel	3	PLSC 114	Winning Political Support Through Persuasion	3
JST 143N	History of Fascism and Nazism	3	PLSC 120N	State, Society, and Public Policy	3
JST 320N	Language, Ideology, and Propaganda	3	PLSC 132	The Politics of International Intolerance	3
KINES 222N	Science and Politics of the Female Athlete	3	PLSC 140	Contemporary Controversies in International Relations	3
LA 135N	College, Work, and Citizenship in the 21st Century	3	PLSC 177N	Politics and Government in Washington DC	1-3
LDT 100	World Technologies and Learning	3	PLSC 183N	The Cold War in Literature, Politics, and History	3
LDT 110N	Making with Art and Learning Technologies	3	PLSC 200N	Government and Politics of Europe	3
LDT 215	Creating Designs for Learning	3	PLSC 201N	Politics & Religion: Controversies Around the World	3
LHR 83S	First-Year Seminar in Labor and Human Resources	3	PLSC 202	American Public Policy	3
LHR 100	Exploring Work and Employment	3	PLSC 210N	Rights in America	3
LHR 136	Race, Gender, and Employment	3	PLSC 220	Politics of the Developing World	3
LHR 136Y	Race, Gender, and Employment	3	PLSC 222N	Science and Politics of the Female Athlete	3
LHR 160N	The Virtual Transformational Leadership Development Experience	3	PLSC 223N	Ethnic and Racial Politics	3
LHR 165N	Work and Literature	3	PLSC 230	American Political Campaigns and Elections	3
LHR 201	Employment Relationship: Law and Policy	3	PLSC 235	Environmental Politics	3
LHR 202	Understanding Employee Behavior	3	PLSC 267N	Government and Politics of the Middle East	3
LHR 305	Human Resources Fundamentals	3			
LING 1	Language, Life and Society	3			

PLSC 290N	Comparative Violence: Political and Criminological Perspectives	3	SOC 12	Criminology	3
PLSC 291	Introduction to Peace and Conflict Studies	3	SOC 12H	Honors Criminology	3
PORT 210N	Multilingual and Intercultural Communication	3	SOC 13	Juvenile Delinquency	3
PSYCH 83S	First-Year Seminar in Psychology	3	SOC 15	Urban Sociology	3
PSYCH 100	Introductory Psychology	3	SOC 19	Sociology of Popular Culture	3
PSYCH 100H	Honors Introductory Psychology	3	SOC 20N	Critical Media Literacy	3
PSYCH 100S	Introductory Psychology	3	SOC 23	Population and Policy Issues	3
PSYCH 109N	The Psychology of Artistic Creativity	3	SOC 30	Sociology of the Family	3
PSYCH 120N	Knowing Right from Wrong	3	SOC 30H	Sociology of Family - Honors	3
PSYCH 144	Climate Change: Individual Behaviors and Group Attitudes	3	SOC 60N	Society and Cultures in Modern Israel	3
PSYCH 150N	Human Nature: The Science of Extreme Altruism and Violence	3	SOC 83	First-Year Seminar in Sociology	3
PSYCH 150Q	Human Nature: The Science of Extreme Altruism and Violence	3	SOC 110	Sociology of Gender	3
PSYCH 169N	What it means to be human	3	SOC 119N	Race, Ethnicity and Culture	3-4
PSYCH 175N	Mental Illness and the Movies	3	SOC 120N	Knowing Right from Wrong	3
PSYCH 212	Introduction to Developmental Psychology	3	SOC 130N	Buddhism and US Society	3
PSYCH 217N	The Science of Human Resilience	3	SOC 145N	The Holocaust and Human Rights	3
PSYCH 221	Introduction to Social Psychology	3	SOC 150N	Healthy People, Healthy Society	3
PSYCH 230	Introduction to Psychologies of Religion	3	SOC 162N	Communicating Care	3
PSYCH 231	Introduction to the Psychology of Gender	3	SOC 180N	State, Society, and Public Policy	3
PSYCH 232	Cross-Cultural Psychology	3	SOC 201	Presumed Innocent? Social Science of Wrongful Conviction	3
PSYCH 238	Introduction to Personality Psychology	3	SOC 205N	Critical Race Theory in the Humanities and Social Sciences	3
PSYCH 243	Introduction to Well-being and Positive Psychology	3	SOC 208N	Visual Representations of the Middle East in the US and Middle East	3
PSYCH 244	Introduction to the Psychology of Human Factors Engineering	3	SOC 209	Poverty in Africa	3
PSYCH 246N	Human Factors in Design & Art	3	SOC 210N	Social Determinants of Health	3
PSYCH 253	Introduction to Psychology of Perception	3	SOC 211	Health Inequality: Understanding the Geographies of Life and Death	3
PSYCH 256	Introduction to Cognitive Psychology	3	SOC 245N	Globalization, Technology, and Ethics	3
PSYCH 260A	Neurological Bases of Human Behavior	3	SOC 258N	Introduction to Child Maltreatment and Advocacy Studies	3
PSYCH 261	Introduction to Psychology of Learning	3	SOC 269	Intercultural Dialogue Concepts and Practice	1-4
PSYCH 263N	Science of Learning	3	SOC 290N	Cinema and Globalization	3
PSYCH 281	Introduction to Industrial-Organizational Psychology	3	SOC 410	The Global Impact of Education	3
PUBPL 120N	State, Society, and Public Policy	3	SOC 451	Health, Disease & Society	3
PUBPL 222N	Science and Politics of the Female Athlete	3	SOC 469	Advanced Theory and Practice in Small Group Facilitation	3-4
RHS 100	Introduction to Disability Culture	3	SOCW 195	Introduction to Social Work with Field Hours	3
RLST 12N	Lands of the Bible	3	SOCW 205	Diversity, Equity, Inclusion, and Justice	3
RLST 105N	Buddhism and US Society	3	SOCW 215	Introduction to Social Welfare History, Policy, Programs, and Services	3
RPTM 120	Leisure and Human Behavior	3	SOCW 290	Human Behavior and the Social Environment	3
RPTM 120S	Leisure and Human Behavior	3	SPAN 210N	Multilingual and Intercultural Communication	3
RPTM 220	Sustainability, Society, and Well-being	3	SPAN 315N	Spanish and Spanish-speakers in the U.S.	3
RPTM 277	Inclusive Leisure Services	3	SRA 111	Introduction to Security and Risk Analysis	3
RSOC 11	Intro Rural Sociology	3	SSED 100N	Foundations of History and Social Studies Concepts for K-8 Teachers	3
RSOC 400N	Exploring Indigenous Ways of Knowing in Great Lakes Region: Lecture	3	STS 151N	Technology and Society in American History	3
SC 135N	Society and Disease Management	3	STS 200	Critical Issues in Science, Technology, and Society	3
SOC 1	Introductory Sociology	3	STS 245N	Globalization, Technology, and Ethics	3
SOC 1W	Introductory Sociology	3	SUST 150N	The Science of Sustainable Development	3
SOC 3	Introductory Social Psychology	3	SUST 200	Foundations of Leadership in Sustainability	3
SOC 5	Social Problems	3			

SUST 242N	Issues in Sustainability	3	AFAM 139	African American Literature	3
THEA 101N	Performance and Society	3	AFAM 141N	African American Read-In Engaged Learning Experience	1-3
WFS 209N	Wildlife and Fisheries Conservation	3	AFAM 145	African Diaspora Religions and Spiritualities	3
WMNST 83N	First-Year Seminar in Women's Studies	3	AFAM 146	The Life and Thought of Martin Luther King, Jr.	3
WMNST 100	Introduction to Women's and Gender Studies	3	AFAM 147	The Life and Thought of Malcolm X	3
WMNST 100U	Introduction to Women's and Gender Studies	3	AFAM 152	African American History	3
WMNST 101N	African American Women	3	AFAM 207N	Jazz and the African American Experience	3
WMNST 105N	Living in a Diverse World	3	AFAM 208	Workshop: Theatre in Diverse Cultures	3
WMNST 110	Sociology of Gender	3	AFAM 210	Freedom's First Generation: African American Life and Work, from the Civil War to World War II	3
WMNST 116N	Family and Gender Roles in Modern History	3	AFAM 211	Slavery and Freedom in the Black Atlantic	3
WMNST 120	Sex, Gender, and the Body	3	AFAM 212	African Americans in the New Jim Crow Era, 1968-present	3
WMNST 136	Race, Gender, and Employment	3	AFAM 213Y	African American Women's History	3
WMNST 136Y	Race, Gender, and Employment	3	AFAM 235	From Folk Shouts and Songs to Hip Hop Poetry	3
WMNST 200	Global Feminisms	3	AFAM 280	Historical Ethnography of Freedom	3
WMNST 202N	Women, Gender, and Feminisms in Africa	3	AFAM 302	Diversity and Health	3
WMNST 205	Gender, Diversity and the Media	3	AFAM 364N	Black & White Sexuality	3
WMNST 207N	LGBTQ+ Identity, Culture and The Arts	3	AFAM 409	Racial and Ethnic Inequality in America	3
WMNST 220	Beyond Birth Control: Feminist Perspectives on Women's Sexualities	3	AFAM 412	African American Theatre	3
WMNST 230N	Dangerous Bodies	3	AFAM 416	Race, Gender and Science	3
WMNST 301N	Sexualities, Gender and Power: Feminist Thought and Politics	3	AFAM 422	Contemporary African American Communication	3
WMNST 364N	Black & White Sexuality	3	AFAM 431	Black Liberation and American Foreign Policy	3
WMNST 400N	Debates in Contemporary Feminism	3	AFAM 435N	Black Ecologies	3
WMNST 440W	Women in Global Cities	3	AFAM 445Y	Politics of Affirmative Action	3

United States (US) Cultures Courses

These courses have been approved to fulfill University Degree Requirements. This course list is updated periodically. More information about the University Degree Requirements can be found in the Academic Information section.

Code	Title	Credits			
AA 160N	The Virtual Transformational Leadership Development Experience	3	AFAM 460	African American Philosophy	3
AAS 100N	Introduction to Asian American Studies	3	AFAM 463	African American Autobiography	3
ADTED 300	Social Movements and Education: Global Perspectives	3	AFAM 465	The Post-World War II Civil Rights Movement	3
AED 62	Contemporary African and African American Arts and Culture	3	AFAM 466	African American Novel I	3
AED 225	Diversity, Pedagogy, and Visual Culture	3	AFAM 467	African American Novel II	3
AFAM 83	First-Year Seminar in African American Studies	3	AFAM 468	African American Poetry	3
AFAM 100N	Black Freedom Struggles	3	AFAM 469	Slavery and the Literary Imagination	3
AFAM 101N	African American Women	3	AFR 435N	Black Ecologies	3
AFAM 103	Racism and Sexism	3	AFR 440	Globalization and Its Implications	3
AFAM 110N	Introduction to African American Studies	3	AGBM 170	Investigating the U.S. Food System: How food moves from field to table	3
AFAM 111N	Introduction to Anti-Black racism in the United States: The African American Experience	3	AGBM 170N	Investigating the U.S. Food System: How food moves from field to table	3
AFAM 114N	Race, Gender and Sport	3	AMST 3	The American Nation: Historical Perspectives	3
AFAM 116	Muslims in America	3	AMST 100	Introduction to American Studies	3
AFAM 126N	The Popular Arts in America: The History of Hip-Hop	3	AMST 100Y	Introduction to American Studies	3
AFAM 136	Race, Gender, and Employment	3	AMST 103	American Masculinities	3
AFAM 136Y	Race, Gender, and Employment	3	AMST 104	Women and the American Experience	3
			AMST 105	American Popular Culture and Folklife	3
			AMST 106N	The Mass Media and Society	3
			AMST 127	Introduction to U.S. Latina/o History	3
			AMST 134	American Comedy	3
			AMST 135	Alternative Voices in American Literature	3
			AMST 140Y	Religion in American Life and Thought	3
			AMST 150	America in the 1960s: An Introduction	3
			AMST 150N	Western Pennsylvania Art, Literature, and Culture	3
			AMST 151N	Technology and Society in American History	3

AMST 155	American Business History	3	BBH 452	Women's Health Issues	3
AMST 160N	Introduction to Asian American Studies	3	BESC 464	Feminine/Masculine	3
AMST 161	The Battle of Gettysburg in American Historical Memory	3	CAMS 4	Jewish and Christian Foundations	3
AMST 161N	Chinese in America, Americans in China	3	CAS 200	Language, Culture, and Communication	3
AMST 170N	Introduction to American Folklore	3	CAS 222N	Foundations: Civic and Community Engagement	3
AMST 307N	American Art and Society	3	CAS 232N	Identity, Citizenship, and the Rhetoric of American Horror Film	3
AMST 308N	American Architecture	3	CAS 271N	Intercultural Communication	3
AMST 441	History of Sport in American Society	3	CAS 422	Contemporary African American Communication	3
AMST 447	Recent American History	3	CAS 455	Gender Roles in Communication	3
AMST 475	Black American Writers	3	CAS 471	Intercultural Communication Theory and Research	3
ANTH 11	North American Archaeology	3	CAS 478	Contemporary U.S. Political Rhetoric	3
ANTH 45N	Cultural Diversity: A Global Perspective	3	CE 254	Personal & Occupational Safety	3
ANTH 45Q	Cultural Diversity: A Global Perspective	3	CED 400N	Exploring Indigenous Ways of Knowing in Great Lakes Region: Lecture	3
ANTH 100N	Anthropology of Race and Racism	3	CED 401	Exploring Indigenous Ways of Knowing Among the Ojibwe	0.5
ANTH 140	Anthropology of Alcohol	3	CIVCM 211N	Foundations: Civic and Community Engagement	3
ANTH 146	Indigenous North America	3	CMLIT 5	Introduction to Literatures of the Americas	3
ANTH 430	Ancient Brews	3	CMLIT 101	Race, Gender, and Identity in World Literature	3
ANTH 434N	Black Ecologies	3	CMLIT 109	Native American Myths, Legends, and Literatures	3
ANTH 457	Jewish Communities: Identity, Survival, and Transformation in Unexpected Places	3	CMLIT 110	Jewish Literature: An International Perspective	3
APLNG 83	First-Year Seminar in Applied Linguistics: Language as Social Practice	3	CMLIT 112N	Introduction to Global Drama, Theatre, and Performance	3
ARCH 316	Analysis of Human Settlements: Cities	3	CMLIT 122	Global Science Fictions	3
ART 122Y	Commentary on Art	3	CMLIT 128N	The Holocaust in Film and Literature	3
ART 207N	LGBTQ+ Identity, Culture and The Arts	3	CMLIT 141	Religion and Literature	3
ART 211	Introduction to Digital Art and Design Criticism	3	CMLIT 143	Human Rights and World Literature	3
ART 211Y	Introduction to Digital Art and Design Criticism	3	CMLIT 191N	Introduction to Video Game Culture	3
ART 411	Seminar in Contemporary Art	3	CMLIT 400Y	Senior Seminar in Literary Criticism and Theory	3
ARTH 130	Art of Africa, Oceania, and the Americas	3	CMLIT 403	Latina/o Literature and Culture	3
ARTH 292N	Witches and Witchcraft from the Middle Ages to the Present	3	CMLIT 405	Inter-American Literature	3
ARTH 307N	American Art and Society	3	CMLIT 415	World Graphic Novels	3
ARTH 308N	American Architecture	3	CMLIT 440	War Stories: The Literature of War	3
ARTH 326	Art Since 1940	3	COMM 100N	The Mass Media and Society	3
ARTH 405	Pioneers of Modern Architecture	3	COMM 205	Gender, Diversity and the Media	3
ARTH 415	The Skyscraper	3	COMM 419	World Media Systems	3
ARTH 416	Studies in American Art	3	COMM 419H	World Media Systems	3
ARTH 426	Iconoclasm: Powerful Images and their Destruction	3	CRIM 113	Introduction to Law	3
ARTH 450	The History of Photography	3	CRIM 423	Sexual and Domestic Violence	3
ARTH 475	Contemporary Women Artists	3	CRIM 441	The Juvenile Justice System	3
ASIA 104	Introduction to Buddhism	3	CRIM 451	Race, Crime, and Justice	3
ASIA 428	Asian American Literatures	3	CRIM 453	Women and the Criminal Justice System	3
AYFCE 211N	Foundations: Civic and Community Engagement	3	CRIMJ 113	Introduction to Law	3
AYFCE 438	Living in an Increasingly Diverse Society	1-3	CRIMJ 159	History of the FBI	3
BA 243	Social, Legal, and Ethical Environment of Business	4	CRIMJ 407	Victimology	3
BA 364Y	International Business and Society	3	CRIMJ 416	The Death Penalty	3
BBH 251	Straight Talks I: Advanced Sexual Orientation/Gender Identity Peer Education	3	CRIMJ 423	Sexual and Domestic Violence	3
BBH 302	Diversity and Health	3	CRIMJ 441	The Juvenile Justice System	3
BBH 315	Gender and Biobehavioral Health	3	CRIMJ 451	Race, Crime, and Justice	3
BBH 440	Principles of Epidemiology	3	CRIMJ 453	Women and the Criminal Justice System	3
			CSD 100	Preventing Vocal Abuse, Misuse, and Disorders	3

CSD 146	Introduction to Communication Sciences and Disorders	3	ENGL 227	Introduction to Queer Theory	3
CSD 269	Deaf Culture	3	ENGL 228	Introduction to Disability Studies in the Humanities	3
CSD 300	Developmental Considerations in the Assessment and Treatment of Language Disorders	3	ENGL 231	American Literature to 1865	3
CSD 462	Clinical Bases of Language Disorders	3	ENGL 231Y	American Literature to 1865	3
DANCE 100	Dance Appreciation	3	ENGL 232	American Literature from 1865	3
DANCE 410	Dance History	3	ENGL 232Y	American Literature from 1865	3
EARTH 101	Natural Disasters: Hollywood vs. Reality	3	ENGL 235	From Folk Shouts and Songs to Hip Hop Poetry	3
EARTH 111N	Water: Science and Society	3	ENGL 237N	Reading and Writing Documentary Poetry	3
EDTHP 115	Education in American Society	3	ENGL 245	Introduction to LGBTQ Studies	3
EDTHP 115A	Competing Rights: Issues in American Education	3	ENGL 426	Chicana and Chicano Cultural Production: Literature, Film, Music	3
EDTHP 115S	Competing Rights: Issues in American Education	3	ENGL 428	Asian American Literatures	3
EDTHP 200	Educational Reform and Public Policy	3	ENGL 431	Black American Writers	3
EDTHP 416	Sociology of Education	3	ENGL 462	Reading Black, Reading Feminist	3
EDTHP 447	Ethnic Minorities and Schools in the United States	3	ENGL 463	African American Autobiography	3
EDUC 315Y	Social and Cultural Factors in Education	3	ENGL 466	African American Novel I	3
EGEE 120	Oil: International Evolution	3	ENGL 467	African American Novel II	3
EMSC 101	Resource Wars	3	ENGL 468	African American Poetry	3
ENGL 15A	Rhetoric and Composition	3	ENGL 469	Slavery and the Literary Imagination	3
ENGL 103	The Great Traditions in American Literature	3	ENGL 490	Women Writers and Their Worlds	3
ENGL 105	American Popular Culture and Folklife	3	ENGR 320Y	Design for Global Society	3
ENGL 108N	Buddhism and US Society	3	ENGR 408	Leadership Principles	3
ENGL 112	Pennsylvania Literature	3	ENGR 409	Leadership in Organizations	3
ENGL 124	Legal Fictions: Law, Justice, Literature	3	FOR 418	Agroforestry: Science, Design, and Practice	3
ENGL 125	On the Farm: Agriculture and Literature	3	GAME 160N	Introduction to Video Game Culture	3
ENGL 128N	The Holocaust in Film and Literature	3	GEOG 1N	Global Parks and Sustainability	3
ENGL 132	Jewish American Literature	3	GEOG 2N	Apocalyptic Geographies: How can we prevent the end of the world?	3
ENGL 133	Modern American Literature to World War II	3	GEOG 20	Human Geography: An Introduction	3
ENGL 134	American Comedy	3	GEOG 20U	Human Geography: An Introduction	3
ENGL 135	Alternative Voices in American Literature	3	GEOG 30N	Environment and Society in a Changing World	3
ENGL 139	African American Literature	3	GEOG 126	Economic Geography	3
ENGL 141N	African American Read-In Engaged Learning Experience	1-3	GEOG 220	Perspectives on Human Geography	3
ENGL 161N	The Pursuit of Happiness in American Life: Historical Literature and Modern Practice	3	GEOG 320	Urban Geography: A Global Perspective	3
ENGL 170N	Introduction to American Folklore	3	GEOG 324	Place, Space and Culture	3
ENGL 179	Exploring the Literature of Food: Current Trends in American Food Writing and Environmentalism	3	GEOG 420Y	Comparative Urbanism	3
ENGL 181A	Adventure Literature: Exploring the Chesapeake Bay	4.5	GEOG 424	Geography of the Global Economy	3
ENGL 181B	Adventure Literature: Exploring Cape Cod	4.5	GEOG 425	Geography of Race, Class, and Poverty in America	3
ENGL 181C	The Beach: Exploring the Literature of the Atlantic Shore	4.5	GEOG 426W	Gendered Worlds	3
ENGL 181D	Adventure Literature: Exploring the Literature of American Wilderness	3	GEOG 427	Urban Historical Geography	3
ENGL 182A	Literature and Empire	3	GEOG 428W	Political Geography	3
ENGL 183	Adventure Literature	3-4.5	GEOG 429	Geographic Perspectives on Global Urbanization	3
ENGL 194	Women Writers	3	GEOG 448	Neighborhoods and Health Equity	3
ENGL 194H	Women Writers - Honors	3	GER 83	First-Year Seminar in German	3
ENGL 194S	Women Writers	3	GER 128N	The Holocaust in Film and Literature	3
ENGL 208N	The Music of the Beatles and American Popular Culture	3	GER 157N	The Amish	3
ENGL 226	Latina and Latino Border Theories	3	HDFS 101N	Helping People: Introduction to Understanding Social Problems & How to Help	3
			HDFS 109	Community, Connection, and Contemplation	1.5
			HDFS 250	Sexual Identity over the Life Span	3
			HDFS 254N	Reading Our Lives: Understanding Diversity and Human Development through Memoirs	3
			HDFS 287Y	Intercultural Community-Building	3

HDFS 315	Family Development	3	HIST 210	Freedom's First Generation: African American Life and Work, from the Civil War to World War II	3
HDFS 315Y	Family Development	3	HIST 211	Slavery and Freedom in the Black Atlantic	3
HDFS 345	CONTEMPORARY URBAN ISSUES AND SOCIAL JUSTICE FRAMEWORKS	3	HIST 213Y	African American Women's History	3
HDFS 405	Gender and Social Development	3	HIST 266Y	Sexuality and Violence in Nineteenth-Century America	3
HDFS 416	Racial and Ethnic Diversity and the American Family	3	HIST 292N	Witches and Witchcraft from the Middle Ages to the Present	3
HDFS 417	Biocultural Studies of Family Organization	3	HIST 404	Advanced Public History	3
HDFS 424	Family Development in an Economic Context	3	HIST 410	Jews in the Medieval World	3
HDFS 451	Adoption: Policy, Practice, and Experience	3	HIST 431	Black Liberation and American Foreign Policy	3
HIST 3	The American Nation: Historical Perspectives	3	HIST 440	Colonial America to 1753	3
HIST 6N	History and Weather: How Weather Played an Instrumental Role in Great World Events	3	HIST 441	Revolutionary America, 1753-1783	3
HIST 12	History of Pennsylvania	3	HIST 442	The Early American Republic, 1783-1850	3
HIST 20	American Civilization to 1877	3	HIST 444	The United States in Civil War and Reconstruction--1850-1877	3
HIST 20Y	American Civ to 1877Y	3	HIST 444W	The United States in Civil War and Reconstruction--1850-1877	3
HIST 21	American Civilization Since 1877	3	HIST 445	The Emergence of Modern America	3
HIST 83	First-Year Seminar in History	3	HIST 446	America Between the Wars	3
HIST 109	Introduction to U.S. Environmental History	3	HIST 447	Recent American History	3
HIST 111	Introduction to U.S. Food History	3	HIST 448	America in the 1960s	3
HIST 112	Introduction to Public History	3	HIST 449	Constitutional History of the United States to 1877	3
HIST 113	Baseball in Comparative History	3	HIST 450	Constitutional History of the United States Since 1877	3
HIST 114N	Historical Perspectives on HealthCare Innovations	3	HIST 451	The Consumer Revolution	3
HIST 115	The American Jewish Experience	3	HIST 452	History of U.S. Foreign Relations	3
HIST 116N	Family and Gender Roles in Modern History	3	HIST 454	American Military History	3
HIST 117	Women in United States History	3	HIST 458Y	History of Work in America	3
HIST 127	Introduction to U.S. Latina/o History	3	HIST 459Y	Social and Cultural History of the United States Since 1783	3
HIST 130	Introduction to the Civil War Era, 1848 through 1877	3	HIST 461	The Emergence of the American City: 1100-1880	3
HIST 130H	Introduction to the Civil War Era, 1848-1877 Honors	3	HIST 462	The Twentieth Century City	3
HIST 131N	Slavery, the Civil War, and Cinema	3	HIST 465	The Post-World War II Civil Rights Movement	3
HIST 144	The World at War: 1939-1945	3	HIST 466	Lesbian and Gay History	3
HIST 148	History of Pennsylvania State University	3	HIST 467	Latin America and the United States	3
HIST 150	America in the 1960s: An Introduction	3	HIST 493	History of Death and Mourning	3
HIST 151N	Technology and Society in American History	3	HPA 438	Culturally Competent Health Services for Diverse Populations	3
HIST 152	African American History	3	HPA 440	Principles of Epidemiology	3
HIST 153	Native American History	3	HUM 102	Transformative Texts Part 2: Contemporary Issues & Practical Perspectives	3
HIST 153Y	The Indian in North America	3	IB 440	Globalization and Its Implications	3
HIST 154	History of Welfare and Poverty in the United States	3	INART 115	The Popular Arts in America: Popular Music	3
HIST 155	American Business History	3	INART 116	The Popular Arts in America: The History of Rock and Roll-The 1950s	3
HIST 156	History of the American Worker	3	INART 125	The Popular Arts in America: The History of Rock and Roll - Punk Rock	3
HIST 157	Railroads and American Society	3	INART 126N	The Popular Arts in America: The History of Hip-Hop	3
HIST 158	History of American Immigration	3	INART 141N	African American Read-In Engaged Learning Experience	1-3
HIST 159	History of the FBI	3	INART 220	Stand-Up Comedy: A Cultural History	3
HIST 160	American Naval History	3			
HIST 161	The Battle of Gettysburg in American Historical Memory	3			
HIST 162N	The Pursuit of Happiness in American Life: Historical Literature and Modern Practice	3			
HIST 166	History of Sexuality	3			
HIST 200	American Local History	3			
HIST 203N	History of Monsters, Aliens & the Supernatural	3			

IST 235	Gender and the Global Information Technology Sector	3	MUSIC 209N	The Music of the Beatles and American Popular Culture	3
IT 131	Introduction to Italian American Culture	3	NURS 250	Professional Role Dev I: Intro to Professional Issues in Nursing Practice and Nursing Informatics	2
IT 210N	Multilingual and Intercultural Communication	3	NURS 390	Transition and the Professional Nursing Role	3
JST 4	Jewish and Christian Foundations	3	NURS 402	Holistic Health	3
JST 114	Modern Judaism	3	NURS 415	Community and Family Health Nursing	4
JST 115	The American Jewish Experience	3	NURS 417	Family and Community Health Concepts	4
JST 128N	The Holocaust in Film and Literature	3	NURS 452	Women's Health Issues	3
JST 131	Jewish Literature: An International Perspective	3	NURS 464	Dying and Death	3
JST 132	Jewish American Literature	3	NUTR 175N	Healthy Food for All: Factors that Influence What we Eat in the US	3
JST 235	The Church and the Jews	3	NUTR 361	Community and Public Health Nutrition	3
JST 410	Jews in the Medieval World	3	OT 103	Occupational Performance Across the Life Span	3
JST 411	Jewish Studies	3	PHIL 9	Race, Racism, and Diversity	3
JST 457	Jewish Communities: Identity, Survival, and Transformation in Unexpected Places	3	PHIL 14	Love and Sex	3
KINES 341	The Historical, Cultural, and Social Dynamics of Sport	3	PHIL 139	Latino/a Philosophy	3
KINES 419	Disability Sport and Recreation	3	PHIL 460	African American Philosophy	3
KINES 424	Women and Sport	3	PLSC 1	American Politics: Principles, Processes and Powers	3
KINES 425W	Physical Activity in Diverse Populations	3	PLSC 1H	American Politics: Principles, Processes and Powers	3
KINES 441	History of Sport in American Society	3	PLSC 1S	American Politics: Principles, Processes and Powers	3
LARCH 60	Cultural History of Designed Places	3	PLSC 177N	Politics and Government in Washington DC	1-3
LARCH 65	Built Environment and Culture: Examining the Modern City	3	PLSC 202	American Public Policy	3
LER 445Y	Politics of Affirmative Action	3	PLSC 210N	Rights in America	3
LHR 136	Race, Gender, and Employment	3	PLSC 223N	Ethnic and Racial Politics	3
LHR 136Y	Race, Gender, and Employment	3	PLSC 230	American Political Campaigns and Elections	3
LHR 160N	The Virtual Transformational Leadership Development Experience	3	PLSC 290N	Comparative Violence: Political and Criminological Perspectives	3
LHR 458Y	History of Work in America	3	PLSC 428	Gender and Politics	3
LHR 466	Labor Union Structure, Administration and Governance	3	PLSC 440	Globalization and Its Implications	3
LING 1	Language, Life and Society	3	PLSC 445Y	Politics of Affirmative Action	3
LING 100	Foundations of Linguistics	3	PLSC 477	Sex, Race, & Justice: The U.S. Supreme Court and Equality	3
LTNST 100	Introduction to Latina/o Studies	3	PORT 210N	Multilingual and Intercultural Communication	3
LTNST 127	Introduction to U.S. Latina/o History	3	PSYCH 231	Introduction to the Psychology of Gender	3
LTNST 139	Latino/a Philosophy	3	PSYCH 232	Cross-Cultural Psychology	3
LTNST 226	Latina and Latino Border Theories	3	PSYCH 370	Psychology of the Differently-Abled	3
LTNST 300	Latinx Gender and Sexuality Studies	3	PSYCH 432	Multicultural Psychology in America	3
LTNST 315N	Spanish and Spanish-speakers in the U.S.	3	PSYCH 479	The Psychology of Gender	3
LTNST 326	Reading the BorderLands: Geography and Identity Along the U.S.-Mexico Border	3	PUBPL 419	Race and Public Policy	3
LTNST 403	Latina/o Literature and Culture	3	RHS 100	Introduction to Disability Culture	3
LTNST 426	Chicana and Chicano Cultural Production: Literature, Film, Music	3	RHS 420	Culture & Disability: Study Abroad in Ireland	6
LTNST 467	Latin America and the United States	3	RLST 1	Introduction to World Religions	3
LTNST 479	U.S. Latina/o Culture en Espanol	3	RLST 4	Jewish and Christian Foundations	3
MATH 475Y	History of Mathematics	3	RLST 104	Introduction to Buddhism	3
METEO 6N	History and Weather: How Weather Played an Instrumental Role in Great World Events	3	RLST 105N	Buddhism and US Society	3
MGMT 445	Managing a Diverse Workforce	3	RLST 107	Introduction to Islam	3
MUSIC 7	Evolution of Jazz	3	RLST 114	Modern Judaism	3
MUSIC 93	Essence of Joy	1	RLST 115	The American Jewish Experience	3
MUSIC 207N	Jazz and the African American Experience	3	RLST 116	Muslims in America	3

RLST 137	Gender, Sexuality, and Religion	3	STS 416	Race, Gender and Science	3
RLST 140Y	Religion in American Life and Thought	3	THEA 100	The Art of the Theatre	3
RLST 145	African Diaspora Religions and Spiritualities	3	THEA 106	Theatre Foundations	3
RLST 146	The Life and Thought of Martin Luther King, Jr.	3	THEA 207	Gender and Theatre	3
RLST 147	The Life and Thought of Malcolm X	3	THEA 208	Workshop: Theatre in Diverse Cultures	3
RLST 235	The Church and the Jews	3	THEA 405W	Theatre History: American Theatre	3
RLST 410	Jews in the Medieval World	3	THEA 407W	Women and Theatre	3
RLST 411	Jewish Studies	3	THEA 408W	History of American Musical Theatre	3
RLST 440Y	The Orthodox Christian Tradition	3	THEA 412	African American Theatre	3
RLST 461	Sociology of Religion	3	WFED 450	Cultural Diversity in the Workplace	3
RPTM 120	Leisure and Human Behavior	3	WMNST 1	Introduction to Women's Studies	3
RPTM 120S	Leisure and Human Behavior	3	WMNST 83N	First-Year Seminar in Women's Studies	3
RPTM 220	Sustainability, Society, and Well-being	3	WMNST 100	Introduction to Women's and Gender Studies	3
RPTM 277	Inclusive Leisure Services	3	WMNST 100U	Introduction to Women's and Gender Studies	3
RSOC 11	Intro Rural Sociology	3	WMNST 101N	African American Women	3
RSOC 400N	Exploring Indigenous Ways of Knowing in Great Lakes Region: Lecture	3	WMNST 103	Racism and Sexism	3
SC 120N	Plants, Places, and People	3	WMNST 104	Women and the American Experience	3
SOC 103	Racism and Sexism	3	WMNST 105N	Living in a Diverse World	3
SOC 110	Sociology of Gender	3	WMNST 106N	Representing Women and Gender in Literature, Art and Popular Cultures	3
SOC 119N	Race, Ethnicity and Culture	3-4	WMNST 106Q	Representing Women and Gender in Literature, Art and Popular Cultures	3
SOC 130N	Buddhism and US Society	3	WMNST 110	Sociology of Gender	3
SOC 269	Intercultural Dialogue Concepts and Practice	1-4	WMNST 116N	Family and Gender Roles in Modern History	3
SOC 369	Foundational Theory and Practice in Small Group Facilitation	3-4	WMNST 117	Women in United States History	3
SOC 409	Racial and Ethnic Inequality in America	3	WMNST 120	Sex, Gender, and the Body	3
SOC 411	Racial and Ethnic Diversity and the American Family	3	WMNST 136	Race, Gender, and Employment	3
SOC 416	Sociology of Education	3	WMNST 136Y	Race, Gender, and Employment	3
SOC 419	Race and Public Policy	3	WMNST 137	Gender, Sexuality, and Religion	3
SOC 447	Ethnic Minorities and Schools in the United States	3	WMNST 166	History of Sexuality	3
SOC 454	The City in Postindustrial Society	3	WMNST 194	Women Writers	3
SOC 457	Jewish Communities: Identity, Survival, and Transformation in Unexpected Places	3	WMNST 205	Gender, Diversity and the Media	3
SOC 461	Sociology of Religion	3	WMNST 207N	LGBTQ+ Identity, Culture and The Arts	3
SOC 469	Advanced Theory and Practice in Small Group Facilitation	3-4	WMNST 213Y	African American Women's History	3
SOCW 205	Diversity, Equity, Inclusion, and Justice	3	WMNST 220	Beyond Birth Control: Feminist Perspectives on Women's Sexualities	3
SOCW 215	Introduction to Social Welfare History, Policy, Programs, and Services	3	WMNST 227	Introduction to Queer Theory	3
SPAN 131	Ibero-American Civilization	3	WMNST 235	Gender and the Global Information Technology Sector	3
SPAN 131Y	Ibero-American Civilization	3	WMNST 245	Introduction to LGBTQ Studies	3
SPAN 210N	Multilingual and Intercultural Communication	3	WMNST 250	Sexual Identity over the Life Span	3
SPAN 315N	Spanish and Spanish-speakers in the U.S.	3	WMNST 266Y	Sexuality and Violence in Nineteenth-Century America	3
SPAN 326	Reading the BorderLands: Geography and Identity Along the U.S.-Mexico Border	3	WMNST 300	Latinx Gender and Sexuality Studies	3
SPAN 425	The Spanish Your Teachers Never Taught You	3	WMNST 301N	Sexualities, Gender and Power: Feminist Thought and Politics	3
SPAN 479	U.S. Latina/o Culture en Espanol	3	WMNST 350	Gender, War, and Militarism	3
SPLD 420	Culture & Disability: Study Abroad in Ireland	6	WMNST 364N	Black & White Sexuality	3
SSED 100N	Foundations of History and Social Studies Concepts for K-8 Teachers	3	WMNST 400N	Debates in Contemporary Feminism	3
SSED 200	American Heritage	3	WMNST 407W	Women and Theatre	3
STS 151N	Technology and Society in American History	3	WMNST 423	Sexual and Domestic Violence	3
			WMNST 424	Women and Sport	3
			WMNST 426W	Gendered Worlds	3

WMNST 428	Gender and Politics	3	ANTH 445W	Ethnographic Film	3
WMNST 430	Women in American Society	3	ANTH 476W	Anthropology of Gender	3
WMNST 430	Women in American Society	3	APLNG 482Y	Introduction to Applied Linguistics	3
WMNST 453	Women and the Criminal Justice System	3	ARCH 311W	Architectural and Planning Theories	3
WMNST 455	Gender Roles in Communication	3	ART 122Y	Commentary on Art	3
WMNST 462	Reading Black, Reading Feminist	3	ART 211Y	Introduction to Digital Art and Design Criticism	3
WMNST 464	Feminine/Masculine	3	ART 466W	Individual Approaches II	3
WMNST 466	Lesbian and Gay History	3	ARTH 350W	Undergraduate Seminar in the History of Art	3
WMNST 471	The Psychology of Gender	3	ARTSA 402W	Strategic Management and Planning for the Arts	3
WMNST 490	Women Writers and Their Worlds	3	ASIA 120Y	South Asia: A Literary History	3

Writing Across the Curriculum Courses

These courses have been approved to fulfill University Degree Requirements. This course list is updated periodically. More information about the University Degree Requirements can be found in the Academic Information section.

Code	Title	Credits			
ABSM 430W	Agricultural and Biorenewable Systems Management Capstone 1	1	ASTRO 237W	Astronomy Communications	3
ABSM 431W	Agricultural and Biorenewable Systems Management Capstone 2	2	ASTRO 402W	Astronomical Telescopes, Techniques, and Data Analysis	3
ACCTG 403W	Auditing	3	ASTRO 420W	Planets and Planetary System Formation	3
AE 481W	Comprehensive Architectural Engineering Senior Project I	4	ASTRO 475W	Stars and Galaxies	3
AE 494M	Senior Honors Thesis	4	ATHTR 438W	Administrative and Professional Aspects of Sports Health Care	3
AED 201W	History and Philosophy of Art Education in Schools and Cultural Institutions	3	BA 364Y	International Business and Society	3
AED 211W	Interpreting Art Experience: Social-cultural Perspectives	3	BA 422W	Strategic Business Planning	3
AEE 330W	Communication in Agricultural and Natural Resource Careers	3	BBH 301W	Values and Ethics in Biobehavioral Health Research and Practice	3
AERSP 305W	Aerospace Technology Laboratory	3	BBH 411W	Research and Applications in Biobehavioral Health	3
AFAM 136Y	Race, Gender, and Employment	3	BE 460W	Biological Engineering Design I	2
AFAM 207W	Methods in African American Studies	3	BE 466W	Biological Engineering Design II	2
AFAM 213Y	African American Women's History	3	BE_T 204W	Medical Equipment and Systems II	5
AFAM 445Y	Politics of Affirmative Action	3	BIOL 220M	Honors Biology: Populations and Communities	4
AGBM 308W	Strategic Decision Making in Agribusiness	3	BIOL 220W	Biology: Populations and Communities	4
AGCOM 462W	Advanced Agricultural Writing	3	BIOL 230M	Honors Biology: Molecules and Cells	4
AGRO 410W	Physiology of Agricultural Crops	4	BIOL 230W	Biology: Molecules and Cells	4
AMST 100Y	Introduction to American Studies	3	BIOL 240M	Honors Biology: Function and Development of Organisms	4
AMST 140Y	Religion in American Life and Thought	3	BIOL 240W	Biology: Function and Development of Organisms	4
AMST 491W	American Studies Perspectives	3-6	BIOL 402W	Biological Experimental Design	3
ANSC 202W	Contemporary Issues in Animal Agriculture	3	BIOL 450W	Experimental Field Biology	3-5
ANSC 419W	Applied Animal Welfare	3	BMB 443W	Laboratory in Protein Purification and Enzymology	3
ANSC 422W	Dairy Cattle Evaluation and Selection	3	BMB 445W	Laboratory in Molecular Genetics I	2
ANSC 467W	Equine Nutrition and Feeding	3	BME 450W	Biomedical Senior Design	3
ANTH 321W	Intellectual Background of Archaeology	3	CAMS 109Y	Writing Systems of the World	3
ANTH 426W	Archaeological Laboratory Analysis	3	CAMS 400W	Comparative Study of the Ancient Mediterranean World	3
ANTH 427W	Forensic Archaeology	3	CAMS 411W	Classical Drama	3
ANTH 439W	Studies in Classical and Ancient Mediterranean Archaeology	3-6	CAMS 425W	Books of the Bible: Readings and Interpretation	3
			CAMS 432W	Gender and Sexuality in the Bible	3
			CAMS 440W	Studies in Classical and Ancient Mediterranean Archaeology	3-6
			CAMS 450Y	Gender and Sexuality in Ancient Greece and Rome	3
			CAS 214W	Speech Writing	3

CAS 280W	Storytelling and Speaking	3	CRIMJ 424W	Drugs and Crime	3
CAS 426W	Communication Ethics	3	CRIMJ 441W	The Juvenile Justice System	3
CAS 450W	Group Communication Theory and Research	3	CRIMJ 450W	Senior Seminar	3
CAS 452W	Organizational Communication Theory and Research	3	CRIMJ 489W	Victimology: Predatory Crime	3
CC 490W	Seminar in Corporate Communication	3	CSD 459W	Principles of Clinical Management in Communication Disorders	3
CE 333W	Construction Management I	3	CYBER 342W	Cyber Incident Handling and Response	3
CE 421W	Transportation Design	3	DA 201W	Descriptive Analytics	4
CE 438W	Construction Engineering Capstone Design	3	DA 302W	Predictive Analytics	4
CE 439W	Geotechnical and Materials Engineering Design Capstone	3	DA 401W	Prescriptive Analytics	4
CE 448W	Structural Design Capstone	3	DS 340W	Applied Data Sciences	3
CE 465W	Water Resources Capstone Course	3	DS 440W	Data Science Capstone	3
CE 472W	Environmental Engineering Capstone Design	3	EBF 304W	Global Management for the Earth, Energy, and Materials Industries	3
CED 420W	Gender and International Development	3	EBF 404W	The Great Energy Transition: Law, Economics, and New Frontiers	3
CED 430W	Principles of Community Economic Development	3	ECON 400M	Honors Seminar in Economics	3-12
CED 431W	Economic Analysis of Environmental and Resource Policies	3	ECON 489M	Honors Thesis	1-6
CED 460W	Policy, Politics and Perspectives on Social & Environmental Responsibility	3	EDSGN 460W	Multidisciplinary Capstone Design Project	3
CHE 480M	Chemical Engineering Laboratory (Honors)	3	EDUC 315Y	Social and Cultural Factors in Education	3
CHE 480W	Chemical Engineering Laboratory	3	EDUC 470W	Higher-Order Thinking for Educators	3
CHEM 213M	Laboratory in Organic Chemistry - Honors, Writing Intensive	2	EE 300W	Design Process	3
CHEM 213W	Laboratory in Organic Chemistry - Writing Intensive	2	EE 313W	Electronic Circuit Design II	4
CHEM 423W	Chemical Spectroscopy	4	EE 403W	Capstone Design	3
CHEM 425W	Chromatography and Electrochemistry	4	EE 406W	Electrical Engineering Capstone Design	3
CHEM 431W	Organic and Inorganic Preparations	4	EET 212W	Op Amp and Integrated Circuit Electronics	4
CHEM 459W	Advanced Experimental Physical Chemistry	4	EET 213W	Fundamentals of Electrical Machines Using Writing Skills	5
CHNS 403M	Level Four Chinese A	4	EET 420W	Electrical Design Project	3
CHNS 403W	Level Four Chinese A	4	EET 490W	Electrical/Computer Senior Design Project	3
CMLIT 400Y	Senior Seminar in Literary Criticism and Theory	3	EGEE 411W	Energy Science and Engineering Lab	3
CMLIT 404Y	Topics in Asian Literature	3	EGEE 464W	Energy Design Project	3
CMPEN 352W	Embedded Systems Design	3	ELEDM 395W	**SPECIAL TOPICS**	2
CMPEN 482W	Computer Engineering Project Design	3	EMSC 470W	Undergraduate Collaborative Research in Earth and Materials Sciences	1-6
CMPSC 431W	Database Management Systems	3	ENGL 200W	Introduction to Critical Reading	3
CMPSC 483W	Software Design Methods	3	ENGL 211W	Introduction to Writing Studies	3
CMPSC 485W	Computer Science Senior Project II	3	ENGL 221W	British Literature to 1798	3
CMPSC 487W	Software Engineering and Design	3	ENGL 222W	British Literature from 1798	3
COMM 230W	Writing for Media	3	ENGL 231Y	American Literature to 1865	3
COMM 260W	News Writing and Reporting	3	ENGL 232Y	American Literature from 1865	3
COMM 342W	Idea Development and Media Writing	3	ENGL 237N	Reading and Writing Documentary Poetry	3
COMM 413W	The Mass Media and the Public	3	ENGL 401W	Creative Writing Theory	3
COMM 421W	Advertising Creative Strategies	3	ENGL 406M	Honors Course in English: General Topic in Recent Literature	3-12
COMM 460W	Reporting Methods	3	ENGL 408M	Honors Seminar in English: General Topic in Post-1800 Literature	3-12
COMM 464W	Editorial, Opinion and Commentary Writing	3	ENGL 411M	Honors Seminar in English: Creative Writing	3-12
COMM 486W	Telecommunications Ethics	3	ENGL 449M	Honors Seminar in English: Pre-1800s literature	3-12
COMM 487W	Advanced Telecommunications Management and Leadership	3	ENGL 464M	Honors Seminar in English: Multicultural	3-12
COMM 489W	Advanced Telecommunications Topics	3	ENGL 482W	Contemporary Literary and Cultural Theory	3
CRIM 250W	Research Methods in Criminology	3	ENGL 487W	Senior Seminar	3
CRIMJ 240W	Field Research in the Criminal Justice	4	ENGR 320Y	Design for Global Society	3
CRIMJ 250W	Research Methods in Criminal Justice	3			

ENGR 490W	Senior Design I	1	GER 308Y	German Business Communication	3
ENGR 491W	Senior Design II	3	GER 401Y	Advanced Composition	3
ENT 402W	Biology of Animal Parasites	3	GLIS 400Y	Seminar in Global and International Studies	3
ENT 419W	Pesticide Science	3	HCDD 364W	Methods for Studying Users	3
ENVSC 400W	Case Studies in Environmental Analysis and Problem-Solving	3	HDFS 287Y	Intercultural Community-Building	3
ENVSE 404W	Surface and Interfacial Phenomena in Environmental Systems	3	HDFS 310M	Seminar in Honors--Research Methods	4
ENVST 400W	Senior Seminar in Environmental Studies	3	HDFS 312W	Empirical Inquiry in Human Development	3
ENVST 425	Environmental Communication	3	HDFS 315Y	Family Development	3
ERM 413W	Case Studies in Ecosystem Management	3	HIST 20Y	American Civ to 1877Y	3
ESC 261M	Computational Methods in Engineering	3	HIST 153Y	The Indian in North America	3
ESC 414M	Elements of Material Engineering	3	HIST 213Y	African American Women's History	3
ESC 460M	Multidisciplinary Design Project	3	HIST 266Y	Sexuality and Violence in Nineteenth-Century America	3
ESC 460W	Multidisciplinary Design Project	3	HIST 301W	Scope and Methods of History	3
ETI 300W	Development and Documentation of Enterprise Web	3	HIST 302M	Undergraduate Seminar	3
FDSC 406W	Physiology of Nutrition	3	HIST 302W	Undergraduate Seminar	3
FIN 305M	Financial Management of the Business Enterprise (Honors)	3	HIST 305Y	Middle East Studies Research Workshop	3
FIN 305W	Financial Management of the Business Enterprise	3	HIST 320W	Contemporary World History and Issues	3
FIN 306W	Investment Valuation	3	HIST 405Y	The Roman Empire	3
FOR 450W	Human Dimensions of Natural Resources	3	HIST 406W	Research in Medieval Sources	3
FOR 466W	Forest Management and Planning	3	HIST 409Y	Antisemitisms	3
FOR 488Y	Global Forest Conservation	3	HIST 444W	The United States in Civil War and Reconstruction--1850-1877	3
FR 402Y	Advanced Grammar and Writing	3	HIST 458Y	History of Work in America	3
FR 445Y	Self and Society in Eighteenth-Century France	3	HIST 459Y	Social and Cultural History of the United States Since 1783	3
FR 452Y	Nineteenth-Century French Literature	3	HIST 471Y	Classical Islamic Civilization, 600-1258	3
FR 453Y	La Belle Epoque: Politics, Society, and Culture in France, 1880-1914	3	HIST 475Y	The Making and Emergence of Modern India	3
FRNSC 415W	Laboratory in Crime Scene Investigation	2	HIST 484Y	History of Chinese Thought	3
FRNSC 421W	Forensic Molecular Biology	4	HIST 485Y	China's Last Empire: The Qing Dynasty, 1644-1911	3
FRNSC 427W	Forensic Chemistry	4	HM 265W	Teams and Leadership in the Hospitality Industry	3
FRNSC 485W	Coalescence of Forensic Science Concepts.	4	HM 290W	Hospitality Managerial Communication	3
GD 202W	The History of Graphic Design	3	HM 490W	Strategic Hospitality Management	3
GEOG 310W	Introduction to Global Climatic Systems	3	HONOR 494M	**SPECIAL TOPICS**	1-2
GEOG 411W	Forest Geography	3	HORT 402W	Plant Nutrition	3
GEOG 412W	Climatic Change and Variability	3	HORT 410W	Issues in Landscape Contracting	3
GEOG 420Y	Comparative Urbanism	3	HORT 412W	Post-Harvest Physiology	3
GEOG 422W	Globalization, Migration, and Displacement	3	HPA 301W	Health Services Policy Issues	3
GEOG 424W	Geography of the Global Economy	3	HPA 390W	Professional Development in Health Policy & Administration	3
GEOG 426W	Gendered Worlds	3	HUM 300N	Interpretations in the Humanities	3
GEOG 428W	Political Geography	3	IE 480W	Capstone Design Project	3
GEOG 437W	Energy Geographies and Policy	3	INART 100W	Seminar in Integrative Arts	3
GEOG 438W	Human Dimensions of Global Warming	3	INART 420W	Portfolio Matters: Integrative Arts Capstone	3
GEOG 461W	Dynamic Cartographic Representation	3	ISB 475W	Strategic Integration of Science & Business	3
GEOSC 402Y	Natural Disasters	3	IST 260W	Introduction to Systems Analysis and Design	3
GEOSC 409W	Geomicrobiology	3	IST 260W	Introduction to Systems Analysis and Design	3
GEOSC 413W	Techniques in Environmental Geochemistry	3	IST 440W	Information Sciences and Technology Integration and Problem Solving	3
GEOSC 470W	Introduction to Field Geology	3	IT 330W	Greatest Books of Italian Literature	3
GEOSC 494M	Thesis Research	1-6	JAPNS 120W	Japanese Literature in its Cultural Context	3
GEOSC 494W	Senior Thesis	1-4	JAPNS 403Y	Level Four Japanese A	4
GER 302W	Intermediate Composition and Grammar	3	JST 305Y	Middle East Studies Research Workshop	3

JST 409Y	Antisemitisms	3	MICRB 151W	Clinical Microbiology and Body Fluid Analysis for Medical Laboratory Technicians	5
JST 425W	Books of the Bible: Readings and Interpretation	3	MICRB 421M	Laboratory of General and Applied Microbiology	3
JST 432W	Gender and Sexuality in the Bible	3	MICRB 421W	Laboratory of General and Applied Microbiology	3
KINES 413W	Movement Science and Pseudoscience	3	MIS 479W	Enterprise Information Systems	3
KINES 425W	Physical Activity in Diverse Populations	3	MKTG 221W	Contemporary American Marketing	3
KINES 430W	Groups in Physical Activity	3	MKTG 301W	Principles of Marketing	3
KINES 447W	Representing Sport in Popular Film	3	MKTG 450W	Marketing Strategy	3
KINES 461W	Preparation for Research Project	2	MNG 451W	Mining Engineering Project	1-5
KINES 462W	Research Project	2	MNGT 205W	Mining Systems Technology	3
KINES 468W	Health Instruction in the School--Content and Method	3	MTHED 412W	Teaching Secondary Mathematics II	3
KINES 481W	Scientific Basis of Exercise for Older Adults	3	MUSIC 441W	Emphasis in Elementary General Music	3
KINES 491W	Research Proposal	3	MUSIC 442W	Emphasis in Secondary General Music	3
KINES 492W	Programming for Business and Agencies	3	MUSIC 443W	Choral Emphasis in Secondary Music Education	3
KINES 493W	Principles and Ethics of Coaching	3	MUSIC 444W	Emphasis in Elementary and Intermediate Band	3
KOR 403Y	Level 4 Korean A	4	MUSIC 445W	Emphasis in High School Band	3
LA 201W	Experiential Learning Portfolio	3	MUSIC 446W	Emphasis in Strings and Orchestra	3
LARCH 365W	Contemporary Trends in Landscape Architecture	3	MUSIC 461W	Studies in Music History: Antiquity to 1600	3
LATIN 450W	History of Latin	3	MUSIC 462W	Studies in Music History: 1550-1750	3
LER 445Y	Politics of Affirmative Action	3	MUSIC 463W	Studies in Music History: 1700-1900	3
LHR 136Y	Race, Gender, and Employment	3	MUSIC 464W	Studies in Music History: 1850-Present	3
LHR 458Y	History of Work in America	3	MUSIC 476W	B.A. Senior Project	3
LLED 412W	Teaching Language Arts in Secondary Schools II	3	NUCE 310W	Issues in Nuclear Engineering	2
MATH 311M	Honors Concepts of Discrete Mathematics	3	NUCE 431W	Nuclear Reactor Core Design Synthesis	4
MATH 311W	Concepts of Discrete Mathematics	3-4	NURS 200M	Principles of Nursing Research and Evidence-Based Practice-Honors	3
MATH 475Y	History of Mathematics	3	NURS 200W	Principles of Nursing Research and Evidence-Based Practice	3
MATSE 492W	Materials Engineering Methodology and Design	3	NUTR 490W	Nutrition Seminar	3
MATSE 493W	Materials Science and Engineering Multidisciplinary Capstone Design Project	3	OT 210W	Clinical Reasoning and Documentation in Occupational Therapy	3
MATSE 494M	Research and Design Senior Project	1-3	PES 446W	Senior Project 1	1
MATSE 494W	Research and Design Senior Project	1-3	PES 447W	Senior Project 2	1
ME 345W	Instrumentation, Measurements, and Statistics	4	PES 448W	Senior Project 3	1
ME 440W	Mechanical Systems Design Project	3	PHIL 103W	Ethics	3
ME 441W	Thermal Systems Design Project	3	PHIL 108W	Social and Political Philosophy	3
ME 442W	Advanced Vehicle Design I	2	PHIL 125W	Theories of Knowledge	3
ME 443W	Advanced Vehicle Design II	1	PHIL 126W	Metaphysics	3
MET 210W	Machine Design	3	PHIL 408W	Seminar in Social and Political Philosophy	3
MET 331W	Heat Transfer	4	PHIL 418W	Seminar in Ethical Theory	3
METEO 440W	Principles of Atmospheric Measurements	3	PHIL 425W	Seminar in Epistemology	3
METEO 471W	Atmospheric Optics	3	PHIL 426W	Seminar in Metaphysics	3
METEO 480M	Undergraduate Research	3	PHYS 421W	Research Methods in Physics	3
METEO 480W	Undergraduate Research	3	PHYS 457W	Experimental Physics	3
METEO 494M	Thesis Research	3	PLET 206M	Plastic Materials and Properties	3
MGMT 100W	Survey of Management	3	PLET 206W	Plastic Materials and Properties	3
MGMT 301M	Basic Management Concepts	3	PLSC 17W	Introduction to Political Theory	3
MGMT 301W	Basic Management Concepts	3	PLSC 418W	International Relations Theory	3
MGMT 427W	Managing an Entrepreneurial Start-up	3	PLSC 430W	Selected Works in the History of Political Theory	3
MGMT 451W	Business, Ethics, and Society	3	PLSC 445Y	Politics of Affirmative Action	3
MGMT 457W	Strategic Management of Innovation and Technologies	3	PLSC 465Y	Democratization in Asia	3
MGMT 471W	Strategic Management and Business Policy	3	PLSC 480W	Congress and the Presidency	3
MGMT 475W	Strategic Product Development	3	PLSC 484W	The Foreign Policy of Soviet Successor States	3

PNG 440W	Formation Evaluation	3	THEA 408W	History of American Musical Theatre	3
PPEM 417W	Mechanisms of Bacterial Pathogenesis in Plants	3	TURF 436W	Case Studies in Turfgrass Management	3
PSYCH 301M	Honors Research Methods in Psychology	4	VBSC 280N	Current Topics in Veterinary Medicine	3
PSYCH 301W	Basic Research Methods in Psychology	4	VBSC 402W	Biology of Animal Parasites	3
PSYCH 406W	Advanced Research Projects in Psychology	4	VBSC 423W	Pathology of Nutritional and Metabolic Diseases	3
PT 270W	Pathophysiology	5	VBSC 448W	Current Topics in Immunology	3
PT 271W	Pathophysiology I	3	WFED 207W	Assessment Techniques	3
PT 280W	Rehabilitation	5	WFS 447M	Wildlife Management	3
PT 282W	Rehabilitation-2W	3	WFS 447W	Wildlife Management	3
PT 290W	Professional Issues in Clinical Practice	3	WFS 463W	Fishery Management	3
PUBPL 304W	Public Policy Analysis	3	WGSS 432W	Gender and Sexuality in the Bible	3
RADSC 210W	Radiographic Pathology	3	WILDL 208M	Terrestrial Wildlife Management (Honors)	3
RHS 400W	Case Management and Communication Skills	3	WILDL 208W	Terrestrial Wildlife Management	3
RLST 125W	Modern Christianity	3	WLED 412M	Methods of Teaching World Languages in Grades 6-12	3
RLST 140Y	Religion in American Life and Thought	3	WLED 412W	Methods of Teaching World Languages in Grades 6-12	3
RLST 407Y	Antisemitisms	3	WMNST 136Y	Race, Gender, and Employment	3
RLST 409Y	Antisemitisms	3	WMNST 213Y	African American Women's History	3
RLST 425W	Books of the Bible: Readings and Interpretation	3	WMNST 230N	Dangerous Bodies	3
RLST 432W	Gender and Sexuality in the Bible	3	WMNST 266Y	Sexuality and Violence in Nineteenth-Century America	3
RLST 440Y	The Orthodox Christian Tradition	3	WMNST 407W	Women and Theatre	3
RLST 471Y	Classical Islamic Civilization, 600-1258	3	WMNST 420W	Gender and International Development	3
RM 320W	Risk Management and Insurance	3	WMNST 426W	Gendered Worlds	3
RM 330W	Real Estate Risk Analysis	3	WMNST 440W	Women in Global Cities	3
RPTM 300Y	Tourism and Leisure Behavior	3	WMNST 450Y	Gender and Sexuality in Ancient Greece and Rome	3
RPTM 433W	Program Evaluation and Research in Recreation Services	3	WMNST 476W	Anthropology of Gender	3
RUS 141Y	Russian Literature in English Translation: 1800-1870	3	WMNST 492W	Contemporary Feminist Analysis: The Capstone Senior Seminar	3
RUS 142Y	Russian Literature in English Translation: 1870 to Present	3			
SC 306W	BS MBA Undergraduate Seminar	2			
SCIED 411W	Teaching Secondary Science I	3			
SCM 450W	Strategic Design and Management of Supply Chains	3			
SOC 1W	Introductory Sociology	3			
SOC 400W	Senior Research Seminar	3			
SOILS 412W	Soil Ecology	3			
SPAN 131Y	Ibero-American Civilization	3			
SPAN 253W	Introduction to Hispanic Literature	3			
SPLED 395W	Observing Special Education Settings Spanning Across School Transitions	3			
SRA 311W	Risk Analysis in a Security Context	3			
SRA 440W	Security and Risk Analysis Capstone Course	3			
SSED 412W	Teaching Secondary Social Studies II	3			
SSED 430W	Teaching Social Studies in the Elementary Grades	3			
STAT 470W	Problem Solving and Communication in Applied Statistics	3			
SUR 372W	Legal Aspects of Land Surveying	3			
SUR 373W	Cadastral and Legal Aspects of Surveying	4			
SWENG 452W	Embedded Real Time Systems	3			
THEA 201W	Script Analysis	3			
THEA 405W	Theatre History: American Theatre	3			
THEA 407W	Women and Theatre	3			

Writing/Speaking Courses

These courses have been approved as General Education Writing and Speaking courses. This course list is updated periodically. Descriptions and learning criteria for General Education Writing and Speaking courses can be found in the Foundation and Knowledge Domains section (p. 3185).

Code	Title	Credits
ABSM 391	Communication Skills for BE and ABSM Students	2
ABSM 392	Leadership and Ethics for BE and ABSM Students	2
ADTED 100	Adult Learners in the University	3
AIR 352	Leading People and Effective Communication II	3
BE 391	Communication Skills for BE and ABSM Students	2
BE 392	Leadership and Ethics for BE and ABSM Students	2
BIOL 403	Biological Writing and Communication for Research	3
BMB 491	Undergraduate Research in Cellular Dynamics II: Communicating Scientific Findings	3
CAS 100A	Effective Speech	3
CAS 100B	Effective Speech	3
CAS 100C	Effective Speech	3
CAS 100S	Effective Speech	3
CAS 137H	Rhetoric and Civic Life I	3

CAS 138T	Rhetoric and Civic Life II	3
EMSC 100S	Earth and Mineral Sciences First-Year Seminar	3
ENGL 15	Rhetoric and Composition	3
ENGL 15A	Rhetoric and Composition	3
ENGL 15E	Rhetoric and Composition Enhanced	3
ENGL 15S	Rhetoric and Composition	3
ENGL 30H	Honors Rhetoric and Composition	3
ENGL 30T	Honors Freshman Composition First-Year Seminar	3
ENGL 137H	Rhetoric and Civic Life I	3
ENGL 138T	Rhetoric and Civic Life II	3
ENGL 202A	Effective Writing: Writing in the Social Sciences	3
ENGL 202B	Effective Writing: Writing in the Humanities	3
ENGL 202C	Effective Writing: Technical Writing	3
ENGL 202D	Effective Writing: Business Writing	3
ENGL 202H	Effective Writing: Honors	3
ESL 15	ESL Composition for American Academic Communication II	3
GEOSC 435	GEOSCHOLARSHIP	3
MATSE 203	Technical Communications	3

About Penn State

This is Penn State

Penn State is in the top 1 percent of universities worldwide and has the largest alumni network in the nation. Founded in 1855, the University combines academic rigor with a vibrant campus life as it carries out its mission of teaching, research, and service with pride and focuses on the future throughout Pennsylvania and the world. Granted the highest rating for research universities by the Carnegie Foundation, Penn State teaches students to be leaders with a global perspective.

Our leadership in administration, faculty, and staff make our mission come alive every day. The Board of Trustees reviews and approves the budget of the University and guides general goals, policies, and procedures from a big-picture perspective. The President's office ensures that all aspects of the University are running smoothly and promotes overall principles that students, faculty, and staff abide by for the long term. The University Faculty Senate represents the Penn State faculty with legislative authority on all matters regarding the University's educational interests.

Penn State strives to celebrate diversity in all aspects of its educational and operational activities and the University's strategic plans are designed to result in ongoing improvements that help prepare future generations of leaders.

Board of Trustees

The Board of Trustees of The Pennsylvania State University is the corporate body established by the charter with complete responsibility for the government and welfare of the University and all the interests pertaining thereto including students, faculty, staff, and alumni.

In the exercise of this responsibility, the Board is guided by the following policies:

1. The authority for day-to-day management and control of the University, and the establishment of policies and procedures for the educational program and other operations of the University, shall be

delegated to the President, and by him/her, either by delegation to or consultation with the faculty and the student body in accordance with a general directive of the Board.

This delegation of authority requires that the Board rely on the judgment and decisions of those who operate under its authority. However, this reliance of the Board must be based upon its continuing awareness of the operations of the University. Therefore, the Board shall receive and consider thorough and forthright reports on the affairs of the University by the President or those designated by the President. It has a continuing obligation to require information or answers on any University matter with which it is concerned.

Finally, upon request, the Board shall advise the President on any University matter of concern to him/her.

2. The Board of Trustees shall carry out certain responsibilities as a Board, without delegation. These responsibilities are:
 - a. The selection of the President of the University
 - b. The determination of the major goals of the University and the approval of the policies and procedures for implementation of such goals.
 - c. The review and approval of the operating and capital budget of the University.
 - d. Such other responsibilities as law, governmental directives, or custom require the Board to act upon.
3. The Board of Trustees shall inform the citizens of the Commonwealth of Pennsylvania of the University's performance of its role in the education of the youth of Pennsylvania.
4. The Board of Trustees shall assist the President in the development of effective relationships between the University and the various agencies of the Commonwealth of Pennsylvania and the United States of America which provide to the University assistance and direction.

MORE INFORMATION ABOUT THE BOARD OF TRUSTEES (<https://trustees.psu.edu/>)

President's Council

- Neeli Bendapudi, President (<https://www.psu.edu/president/>)
- Tracy Langkilde, Interim Executive Vice President and Provost (<https://provost.psu.edu/>)
- Jeff Adams, Interim Vice Provost and Dean for Undergraduate Education (<https://undergrad.psu.edu/>)
- Kathleen Bieschke, Vice Provost for Faculty Affairs (<https://vpfa.psu.edu/>)
- Margo E. DelliCarpini, Vice President for Commonwealth Campuses and Executive Chancellor (<https://www.campuses.psu.edu/>)
- Andrea Dowhower, Interim Vice President for Student Affairs (<https://studentaffairs.psu.edu/>)
- Shannon S. Harvey, Assistant Vice President and Secretary to the Board of Trustees (<https://trustees.psu.edu/>)
- Karen Kim, Dean, College of Medicine (<https://med.psu.edu/>)
- Patrick Kraft, Vice President for Intercollegiate Athletics (<https://gopsusports.com>)
- David Lieb, Interim Vice President for Development (<https://raise.psu.edu/>) and Alumni Relations (<https://www.alumni.psu.edu/>)

- Chris Lucas, Acting Interim Vice President for Information Technology/Chief Information Officer (<https://www.it.psu.edu/>)
- Stephen M. Massini, Chief Executive Officer, Penn State Health (<https://www.pennstatehealth.org/locations/milton-s-hershey-medical-center/>)
- Matt Melvin, Vice President for Enrollment Management (<https://em.psu.edu/>)
- Tabitha R. Oman, Vice President and General Counsel (<https://www.ogc.psu.edu/>)
- Rachel A. Pell, Vice President for Strategic Communications (<https://strategiccommunications.psu.edu/>)
- Andrew Read, Senior Vice President for Research (<https://www.research.psu.edu/>)
- William Sitzabee, Vice President for Facilities Management and Planning (<https://www.opp.psu.edu/>)
- Michael Wade Smith, Senior Vice President and Chief of Staff (<https://chiefofstaff.psu.edu/>)
- Allan G. Sonstebly, Executive Director of the Applied Research Laboratory (<https://www.arl.psu.edu/>)
- Michael D. Stefan, Vice President for Government and Community Relations (<https://www.govt.psu.edu/>)
- Larry D. Terry II, Vice President for Outreach (<https://www.outreach.psu.edu/>)
- Sara Thorndike, Senior Vice President for Finance and Business/Treasurer (<https://fandb.psu.edu/>)
- Marcus A. Whitehurst, Vice Provost for Educational Equity (<http://equity.psu.edu>)
- Jennifer R. Wilkes, Vice President for Human Resources (<https://hr.psu.edu/>) and Chief Human Resources Officer

MORE INFORMATION ABOUT UNIVERSITY LEADERSHIP (<https://www.psu.edu/this-is-penn-state/leadership/>)

Mission

The Pennsylvania State University is a multi-campus, land-grant, public research University that educates students from around the world, and supports individuals and communities through integrated programs of teaching, research, and service.

Our instructional mission includes undergraduate, graduate, professional, continuing, and extension education, offered through both resident instruction and distance learning. Our educational programs are enriched by the talent, knowledge, diversity, creativity, and teaching and research acumen of our faculty, students, and staff.

Our discovery-oriented, collaborative, and interdisciplinary research and scholarship promote human and economic development, global understanding, and advancement in professional practice through the expansion of knowledge and its applications in the natural and applied sciences, social and behavioral sciences, engineering, technology, arts and humanities, and myriad professions.

As Pennsylvania's land-grant university, we provide unparalleled access to education and public service to support the citizens of the Commonwealth and beyond. We engage in collaborative activities with private sector, educational, and governmental partners worldwide to generate, integrate, apply, and disseminate knowledge that is valuable to society.

History

As Pennsylvania's only land-grant university, Penn State has a broad mission of teaching, research, and public service. But that mission was not so grandly conceived in 1855, when the Commonwealth chartered it as one of the nation's first colleges of agricultural science, with a goal to apply scientific principles to farming.

Centre County became the site of the new college in response to a gift of 200 acres from gentleman farmer and ironmaster James Irvin of Bellefonte. Founding President Evan Pugh drew on the scientific education he had received in Europe to plan a curriculum that combined theoretical studies with practical applications.

Pugh and similar visionaries in other states championed Congressional passage of the Morrill Land-Grant Act in 1862. The act enabled states to sell federal land, invest the proceeds, and use the income to support colleges "where the leading object shall be, without excluding scientific and classical studies ... to teach agriculture and the mechanic arts [engineering] ... in order to promote the liberal and practical education of the industrial classes in all the pursuits and professions of life." The state legislature designated Penn State the land-grant institution of Pennsylvania.

But not until the 1880s, under the leadership of President George W. Atherton, did the college expand its curriculum to match the Land-Grant Act's broad mandate. From that time onward, curricula in engineering, the sciences, the liberal arts, and more began to flourish. In the early 1900s, Penn State introduced cooperative extension and additional outreach programming, extending the reach of its academic mission.

An even greater segment of the Commonwealth's population had opportunities for engagement in the 1930s when Penn State established a series of undergraduate branch campuses, primarily to meet the needs of students who were location-bound during the Great Depression. Those campuses were predecessors of today's system of 24 Penn State campuses located throughout the Commonwealth.

Penn State began offering systematic advanced-degree work in 1922 with the formation of the Graduate School. Graduate education and research evolved hand in hand. By 1950 the University had won international distinction for investigations in dairy science, building insulation, diesel engines, and acoustics, and other specialized fields.

A college of medicine and teaching hospital were established in 1967 with a \$50 million gift from the charitable trusts of renowned chocolate magnate Milton S. Hershey. In 1989 the Pennsylvania College of Technology in Williamsport became an affiliate of the University. Penn State's online World Campus graduated its first students in 2000 and now enrolls more than 12,000. Also in 2000, Penn State and the Dickinson School of Law merged. In 2015, two Penn State law schools, Dickinson Law (in Carlisle, Pennsylvania) and Penn State Law (on University Park campus) were established.

MORE INFORMATION ABOUT UNIVERSITY HISTORY (<https://www.psu.edu/this-is-penn-state/history/>)

Accreditation Notice

The Pennsylvania State University is accredited by the Middle States Commission on Higher Education (<https://www.msche.org>), 3624 Market Street, Philadelphia, PA 19104 (267-284-5000). The Middle States Commission on Higher Education (MSCHE) is an institutional accrediting

agency recognized by the U.S. Secretary of Education and the Council for Higher Education Accreditation.

The Pennsylvania State University was first accredited in 1921 and accreditation was reaffirmed in June 2015.

Annual Institutional Updates are submitted each spring-summer. The last Midpoint Peer Review occurs every four years and last occurred in 2020. The next Self-Study evaluation is scheduled for 2023-2024.

According to MSCHE's policy statement, Accreditation Review Cycle and Monitoring, "The Commission's eight-year cycle of review of accredited institutions begins with an in-depth institutional self-study that is reviewed by peer evaluators during an on-site evaluation visit. The self-study and on-site review are used to assess the institution's compliance with Commission standards and requirements of affiliation, verify compliance with accreditation-relevant federal regulations, and identify areas needing improvement. The review process results in an accreditation decision in accordance with the Commission Policy Accreditation actions. Institutions submit annually an update of institutional data and other information requested by the Commission. In the fourth year following the self-study visit, the Commission conducts an off-site mid-point peer review based on the cumulative information provided by the institution. Institutions are provided a report on the institution's performance with respect to student achievement and financial sustainability."

MORE INFORMATION ABOUT THE ACCREDITATION REVIEW CYCLE (<https://msche.my.salesforce.com/sfc/p/>)

MORE INFORMATION ABOUT ACCREDITATION BY THE MIDDLE STATES COMMISSION ON HIGHER EDUCATION (<https://opair.psu.edu/accreditation/>)

Research

The Office of the Vice President for Research is responsible for facilitating the \$863-million-per-year research enterprise at Penn State by working with a broad range of units across the University.

The mission of the Office of the Vice President for Research is to support a rigorous program of faculty and student research and creative accomplishment by enhancing the environment for scholarly and artistic endeavors, encouraging the highest standards of quality, and fostering ethical conduct in research.

The office is responsible for:

- the effective administration of sponsored programs which provide the financial support for a substantial share of the research activity at the University;
- serving as the University's advocate and spokesperson on research issues, and as a representative in activities that may produce major new programs and facilities for research;
- facilitating strong programs for interdisciplinary research.

MORE INFORMATION ABOUT RESEARCH AT PENN STATE (<https://www.research.psu.edu/>)

University Structure

Undergraduate Campuses

Penn State has more than twenty campuses across Pennsylvania that serve undergraduate students and communities through teaching,

research, and service. Through its network of undergraduate campuses and World Campus, Penn State provides students the opportunity to begin and complete a Penn State degree at one campus, transition to complete a degree at another campus or complete a program completely online—this is the hallmark of Penn State's unique one University concept.

The University Park campus, the administrative and research hub of the University is the largest of Penn State's campuses. Across Pennsylvania, Penn State campuses play a critical role in the land-grant mission of the University, by providing access and opportunity—a commitment that remains at the core of each campus's mission. In addition to providing the first two years of more than 160 Penn State majors, campuses confer nearly 5,000 Penn State degrees annually to students who complete their academic programs at a Penn State campus.

MORE INFORMATION ABOUT UNDERGRADUATE CAMPUSES (p. 15)

Graduate and Professional Campuses

Penn State's wide range of graduate programs includes traditional residential Ph.D. research programs through part-time degree programs aimed at working professionals. Penn State offers graduate programs at six campuses: Penn State Erie, Penn State Great Valley, Penn State Harrisburg, Penn State College of Medicine, Penn State University Park, and Penn State World Campus. Penn State College of Medicine in Hershey, PA offers a complete medical education program leading to the Doctor of Medicine (M.D.) degree. Penn State has two separately accredited Law Schools: Dickinson Law in Carlisle, PA and Penn State Law at University Park.

MORE INFORMATION ABOUT GRADUATE AND PROFESSIONAL CAMPUSES (<https://bulletins.psu.edu/graduate/campuses/>)

Colleges

Penn State's undergraduate majors are divided among academic colleges, which are the units from which students receive their degrees. Examples of colleges are Arts and Architecture, Eberly College of Science, and Education, among others. Academic colleges offer graduate programs as well; however, graduate degrees are awarded by the Graduate School. In addition to the 12 academic colleges at the University Park campus, Penn State has six academic colleges across Pennsylvania that allow students to finish their undergraduate degrees at a campus other than University Park.

With the exception of a few specialized programs, undergraduate students interested in majors offered by the above academic colleges can start their education at any Penn State campus and then transition to University Park following their second year to complete their degree as part of the 2+2 Plan.

In addition, the Pennsylvania College of Technology in Williamsport offers undergraduate enrollments in selected degree programs.

For a list of academic colleges, enrollment units, and special academic programs visit the Undergraduate Bulletin Colleges (p. 17) page.

Academic Colleges at Campuses

Six Penn State colleges, located throughout the state, offer undergraduate majors that are typically completed at campuses other than University Park. These colleges are:

- Abington College, at the Penn State Abington campus
- Altoona College, at the Penn State Altoona campus

- Behrend College, at the Penn State Erie campus
- Berks College, at the Penn State Berks campus
- Capital College, at the Penn State Harrisburg campus
- University College, is comprised of the following 14 campuses:
 - Penn State Beaver
 - Penn State Brandywine
 - Penn State DuBois
 - Penn State Fayette, The Eberly Campus
 - Penn State Greater Allegheny
 - Penn State Hazleton
 - Penn State Lehigh Valley
 - Penn State Mont Alto
 - Penn State New Kensington
 - Penn State Schuylkill
 - Penn State Shenango
 - Penn State Wilkes-Barre
 - Penn State Scranton
 - Penn State York

Students interested in undergraduate majors offered by these colleges can typically start at one campus and finish at another through the 2+2 plan, or they can choose to stay at one campus for all four years if their campus of choice offers the major they want. To see the specific undergraduate majors available at each campus, search majors by campus in the Undergraduate Bulletin (p. 15).

Student Services and Programs

Penn State offers thousands of resources to support students, faculty, staff, and alumni both locally and around the world. This partial list of centers, offices, and programs was developed based on past inquiries from Bulletins users.

To discover additional services explore Penn State's home page (<https://www.psu.edu/>), the Office of Student Affairs (<https://studentaffairs.psu.edu/>), and the Office of Undergraduate Education (<https://undergrad.psu.edu/>), and The Graduate School (<https://gradschool.psu.edu/>).

- Affirmative Action Office (<https://affirmativeaction.psu.edu/>)
- Adult Learner Programs & Services (<https://studentaffairs.psu.edu/adults/>)
- Campus Recreation (<https://studentaffairs.psu.edu/campusrec/>)
- Career Services (<https://studentaffairs.psu.edu/career/>)
- Child Care Resources (<https://hr.psu.edu/employee-and-family-resources/your-family/child-care-resources/>)
- Counseling and Psychological Services (<https://studentaffairs.psu.edu/counseling/>)
- Disability Services Resources (<http://equity.psu.edu/student-disability-resources/>)
- Spiritual and Ethical Development, Center for (<https://studentaffairs.psu.edu/spiritual/>)
- Financial Literacy and Wellness Center (<https://financialliteracy.psu.edu/>)
- Fraternity and Sorority Life (<https://studentaffairs.psu.edu/greeks/>)
- Gender Equity Center (<https://studentaffairs.psu.edu/genderequity/>)
- Global Programs, Office of (<https://global.psu.edu/>)

- Graduate Educational Equity Programs, Office of (<https://gradschool.psu.edu/diversity/>)
- Graduate Writing Center (<https://gwc.psu.edu/>)
- Health Services (<https://studentaffairs.psu.edu/health/>)
- Information Technology at Penn State (<https://www.it.psu.edu/>)
- Multicultural Resource Center (<http://equity.psu.edu/mrc/>)
- Off-Campus Student Support (<https://studentaffairs.psu.edu/offcampus/>)
- Outreach and Online Education (<https://www.outreach.psu.edu/>)
- Paul Robeson Cultural Center (<https://studentaffairs.psu.edu/cultural/>)
- Penn State Learning (<https://pennstatelearning.psu.edu/>)
- Residence Life (<https://studentaffairs.psu.edu/reslife/>)
- Sexual and Gender Diversity, Center for (<https://studentaffairs.psu.edu/csgd/>)
- Student Affairs, Office of (<https://studentaffairs.psu.edu/>)
- Student Care & Advocacy (<https://studentaffairs.psu.edu/studentcare/>)
- Undergraduate Research and Fellowships Mentoring (<https://urfm.psu.edu/>)
- Student Accountability and Conflict Response, Office of (<https://studentaffairs.psu.edu/student-accountability/>)
- Student Organization Directory (<https://studentaffairs.psu.edu/get-involved/student-organizations/>)
- Summer Session (<https://summersession.psu.edu/>)
- Veterans Programs, Office of (<http://equity.psu.edu/veterans/>)
- University Libraries (<https://libraries.psu.edu/>)

Admissions

Admission to Penn State

Penn State's tradition of academic excellence, investment in student success, and commitment to providing unrivaled opportunities make the University a great place to study, but it is the dedication of our students, faculty, and staff that make it truly exceptional.

We are looking for students that want to share in the passions and talents of our Penn State community. Discover how your Penn State years will not only shape your academic and career pursuits, but will broaden your perspective, establish life-long connections, and set the stage for your future.

Find your place at Penn State.

Steps to Apply

Learn the first steps to apply to Penn State and more about the University on the Undergraduate Admissions website (<https://admissions.psu.edu/>).

Statement of Basic Academic Admission Policies

Admission to credit courses or degree candidacy at Penn State is governed by policies established by the University Faculty Senate. Although specific applications of these policies may vary from year to year, from location to location, and from program to program, all University admissions are governed by the following general policies:

1. As an institution of higher education, Penn State is committed to making post-high school education available to all who possess a high school diploma or its equivalent without regard to personal characteristics not related to ability, performance, or qualifications. Penn State does not discriminate against any person because of age, ancestry, color, disability, national origin, race, religious creed, sex, sexual orientation, or veteran status.
2. The primary responsibility of the University is to residents of the Commonwealth of Pennsylvania. Consequently, within limits expressed from time to time by the Board of Trustees of the University, preference shall be given to Pennsylvania residents in the various admissions processes.
3. In order to meet the variety of goals and objectives of the population, the spectrum of offerings is designed to enable persons with a variety of objectives—both degree and non-degree—to receive a higher education. Although access to educational opportunities of the University is open to all, courses offered for credit are available to those holding a high school diploma or its equivalent. Policies governing admission to degree candidacy are established by the University Faculty Senate (with a delegation of policies governing admissions to graduate programs to the Graduate Faculty of the University) under a general policy of offering admission to those whose past academic performance indicates a reasonable probability of success.
4. Undergraduate students are admitted to either baccalaureate degree candidacy or associate degree candidacy. To be admitted to degree candidacy, the individual must present an academic performance record that indicates a reasonable probability of their success in their chosen program. In the case of first-year student admission to undergraduate degree candidacy, performance is measured through a holistic assessment. In the case of advanced standing admission, performance is measured either through success in non-degree programs and courses of the University or by success at some other institution of higher education.
5. Within the space available in particular programs and at particular locations, admission shall be offered preferentially to those whose performance record indicates the highest probability of success in the chosen program—with this process continuing until all available spaces are filled. Although exceptions to this policy may be made from time to time (for example, recipients of scholarships with restricting qualifications), these exceptions may be made only for applicants who meet at least the minimum admission and entrance requirements.
6. If a college or school requires restrictions on its baccalaureate admissions, the priorities or targets established must include provisions to consider qualified students in each of these groups:
 - Admissions Group I - **First-year Admissions:** Applicants who hold a high school diploma or equivalent, who present fewer than 18-semester credits of baccalaureate work (from Penn State or another regionally accredited institution), who meet minimum college or school entrance requirements, and who meet minimum college or school admission standards.
 - Admissions Group II - **Penn State Advanced Standing Admissions:** Applicants who (1) request baccalaureate degree re-enrollment, presenting 18 or more semester credits; (2) request a change from Penn State associate degree to baccalaureate degree status, presenting 18 or more applicable semester credits; (3) request a change from Penn State provisional degree to baccalaureate degree status, presenting 18 or more applicable semester credits; or (4) request a change from Penn State non-degree to baccalaureate degree status, presenting 18 or more applicable semester credits. In all advanced standing admissions at Penn State, the student must have a grade-point average of at least 2.00 and must meet the minimum entrance and advanced standing requirements of the college or school. However, a Penn State student who has had an interruption in enrollment of no fewer than four calendar years and whose cumulative grade-point average is less than 2.00 may petition for re-enrollment with academic renewal in accordance with Senate Policy 57-00.
- Admissions Group III - **Other Advanced Standing Admissions:** Applicants who have not been students at Penn State and request baccalaureate degree status at Penn State, presenting 18 or more applicable semester credits from a regionally accredited institution. In all advanced standing admissions, it is understood that the applicant must have a cumulative grade-point average of 2.00 as computed at Penn State and meet the minimum entrance and advanced standing requirements of the college or school. However, a student who has not met the entrance requirements or achieved a cumulative grade-point average of 2.00 (on a 4.00 scale) for all graded courses taken at all institutions previously attended, and who has had a four-calendar-year absence from the institution(s), may apply to enroll in credit courses as a provisional student in accordance with Senate Policy 10-00. An applicant who has had an absence from the institution(s) of fewer than four calendar years, and who has not met the entrance requirements or has achieved a cumulative grade-point average of less than 2.00, may apply to enroll in credit courses as a non-degree student in accordance with Senate Policy 14-00.
- Within these three groups, no special consideration will be given to any group; applicants will be admitted to the college or school on the basis of academic competition (e.g., SAT I scores, grade-point averages, grades in required courses in the college or other degree-granting units, and other evidence predictive of baccalaureate degree performance where available, valid, and reliable).
7. To ensure a proper educational mix of students and to further broaden the educational opportunities offered by the University, the University Faculty Senate and the University administration from time to time may authorize various specialized programs. These programs may permit applicants who do not meet the basic qualifications for admission to degree candidacy to be admitted to such candidacy. These programs may also permit, in selected situations, exceptional students who have not earned a high school diploma or its equivalent to enroll in University credit courses. Such specialized programs may include up to 10 percent of the total admissions group for the University in any one year and up to the maximum of 15 percent of the admissions to any geographic location of the University.
8. Within this general policy, the colleges and school of the University, with the concurrence of the University Faculty Senate, may impose certain educational background requirements (Carnegie Units) that must be completed by an individual before being admitted to degree candidacy.

Admission Requirements

Minimum Requirements for Admission to Degree Candidacy

To be eligible for admission consideration to the University as a degree candidate, either as a beginning student or as a student with advanced standing, an applicant must meet the following minimum requirements:

1. Graduation from an accredited secondary school. Penn State requires proof of graduation or a GED for admission to four-year degree programs.
2. Completion of the required units of preparatory work as indicated under the heading Minimum Carnegie Units.

A secondary school diploma issued by the Pennsylvania Department of Education, or appropriate authority in another state, may be accepted as equivalent to graduation from an accredited secondary school and as equivalent to the minimum secondary school units required for admission, as indicated under the Minimum Carnegie Units heading, with the exception of math and world language.

The University accepts the definition of a secondary school unit as established by the Carnegie Foundation. A unit represents a year of work in a subject in a preparatory school or secondary school, provided that the work done in that subject is approximately one-fourth of the total amount of work regularly required in a year in the school.

The University reserves the right to deny admission to any applicant for admission for any reason the University determines to be material to the applicant's qualifications to pursue higher education.

Admission to degree candidacy is specified in terms of enrollment in a college or school of the University or in the Division of Undergraduate Studies. Entrance to a baccalaureate major is a subsequent step that normally occurs near the end of the second year of study. Both for admission to a college or school and for entrance to a major, a student must satisfy the requirements of the University, of the particular college or school, and of the major area. In special circumstances, the University may need to further restrict admissions to a college or school and entrance to majors because of space limitations.

Baccalaureate and Associate Degree Programs

Review the basic requirements for two-year and four-year degrees, as well as the additional requirements for special programs.

See the minimum number of secondary school units required for admission consideration to a baccalaureate degree program on the Admission Requirements page (<https://admissions.psu.edu/apply/requirements/4year/>).

See the minimum number of secondary school units required for admission consideration to an associate degree program on the Admission Requirements page (<https://admissions.psu.edu/apply/requirements/2year/>).

First-Year Admission

An applicant for admission as a beginning student in the first-year class must meet the minimum requirements for admission to degree candidacy prior to the time of matriculation. All offers of admission are conditional until these requirements have been met.

Each applicant is evaluated on the basis of a holistic assessment. Admission decisions are made on the basis of this holistic assessment in relation to the requested area of enrollment (academic program), space availability, the quality of the credentials presented by other applicants, and such other academically relevant information deemed appropriate by the Undergraduate Admissions Office and approved by the Senate Committee on Admission, Records, Scheduling, and Student Aid.

When openings at the requested location or in the requested program of the University are filled, qualified applicants will be offered admission

to their alternate choice of program or location or notified of campuses where openings still exist.

College Entrance Tests

Applicants for first-year admission to the University are required to submit scores of the Scholastic Assessment Test (SAT) of the College Entrance Examination Board or the American College Test (ACT). SAT or ACT results of the junior-year testing periods are recommended. Exceptions to the requirement for scholastic assessment test scores will be granted to adult learners who have been out of high school for five or more years or are veterans with four or more years of service. Exceptions to the required courses completed also may be granted. Adults may be requested to submit a statement of personal goals or to participate in an interview.

Selection of the Area of Enrollment

It is necessary for an applicant to indicate one of the academic units of the University in which they want to study. If an applicant is undecided about the choice of an academic unit, they may seek enrollment in the Division of Undergraduate Studies.

Changing the Area of Enrollment

An applicant who has been admitted to an academic college or unit of the University may not change to another without satisfying entrance requirements of the college or other academic unit of the University.

Previous Attendance at Another College

An applicant must state on their application whether they have ever attended any other college or university. Failure to indicate, at the time of application, previous registration at another college or university may result in refusal or cancellation of admission. An applicant who has attempted fewer than 18 semester credits at another regionally accredited college or university will be considered as a first-year applicant. An applicant who has attempted 18 or more semester credits at another regionally accredited college or university subsequent to high school graduation will be evaluated as an advanced standing applicant.

MORE INFORMATION ABOUT APPLYING FOR ADMISSION TO PENN STATE (<https://admissions.psu.edu/apply/>)

Advanced Standing (Transfer) Admission

An applicant who has attended any regionally accredited college or institution on the college level and attempted 18 or more semester credits subsequent to high school graduation may be considered for admission with advanced standing. Attendance at any and all other institutions must be reported at the time of application. Failure to indicate, at the time of application, previous registration at another college or university can result in refusal or cancellation of admission.

An applicant for admission with advanced standing must meet the minimum secondary school requirements for admission to degree candidacy prior to the time of matriculation. Advanced standing applicants are considered for admission on the basis of the applicant's requested academic program, space availability, and the academic quality of their work at the previously attended institution(s). A minimum cumulative grade-point average of at least 2.00 (C) out of 4.00, as computed for Penn State students, is required, although certain areas of study may have additional requirements. In addition, an applicant must be in good academic and nonacademic standing. An applicant whose overall grade-point average is less than 2.00 (on a 4.00 scale) but has a grade-point average of at least 2.00 (on a 4.00 scale) at all

institutions attended in the four years prior to the requested enrollment semester may apply for admission as an advanced standing student with forgiveness. An applicant who has not attempted any collegiate level course work four years prior to the requested enrollment semester may also apply for advanced standing with forgiveness. An applicant who does not meet the minimum requirement of a grade-point average of at least 2.00 and does not meet the criteria for advanced standing with forgiveness may enroll in credit courses as a non-degree student in accordance with applicable policies and procedures.

Advanced standing credits may be awarded for college-level work taken at regionally accredited institutions provided Penn State offers a similar class and the course grade earned is equivalent to a grade of A, B, or C at this University. The credits also must be useful to the student's program of study. An academic adviser determines which of the transferable credits are applicable to the program of study at Penn State. Credits are transferred, but grades and grade-point average are not. Advanced standing students enter the University without an average and their average begins with the completion of their first semester of study at Penn State.

Under certain circumstances, the University may need to restrict advanced standing admissions to a particular college or school because of space limitations.

Entrance to a major is an additional step beyond admission to a college or school. It involves additional academic requirements and may be subject to additional restrictions because of space limitations.

Application Procedure

In all cases where work has been taken at other institutions, an official transcript from each place of attendance must be submitted directly to the Undergraduate Admissions Office by the registrar of the institution attended. An applicant currently attending another institution also must provide a schedule of courses in progress or to be completed before enrollment at Penn State, including course name, number, description, and number of credits. The applicant's secondary school record must be submitted directly to the Undergraduate Admissions Office by the secondary school. The Undergraduate Admissions Office may require the applicant to send a description of the courses that they have taken at the college previously attended. All credentials become part of the permanent records of the University.

Entrance to a Major

An advanced standing degree candidate may be admitted to a college or school of the University. To be eligible for entrance to a major, a student must meet the entrance-to-major requirements of the University, of the college or school, and of the program area. Under certain circumstances, further restrictions or exceptions on entrance to majors may be required because of space limitations. Students are expected to work with advisers and to utilize current information about entrance requirements and restrictions when exploring academic program alternatives and making program and course selections.

Changing the Area of Enrollment

An applicant who has been admitted to an academic college, school, or major of the University may not change to another without satisfying entrance requirements of the college/school and major to which they want to transfer.

Degree-Seeking Student Conditionally Enrolled in Division of Undergraduate Studies

An applicant seeking to pursue a degree program and holding a high school diploma or its equivalent may be admitted to enroll in credit courses at the University as a degree-seeking student conditionally enrolled in the Division of Undergraduate Studies (DUS). A degree-seeking student in DUS with conditions is considered a regular student for registration and academic advising and is entitled to all services provided to all students of the University. A degree-seeking student conditionally enrolled in DUS who is admissible to the University may enroll in credit courses if the following criteria are met:

1. The applicant provides evidence of academic success based on credentials submitted with the application; however, does not meet all criteria specified in Senate Policies 05-00 and 06-00: Degree Candidates (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/05-00-and-06-00-degree-candidates/>).
2. The applicant has not been dismissed for unsatisfactory scholarship from any other college or university previously attended.
3. The applicant has not been dismissed or suspended for nonacademic reasons from any college or university.
 - a. An applicant who has any criminal or disciplinary issues and is not in good standing at another accredited college or university must have received clearance from the Office of Student Conduct.

Nondegree Students

A person enrolled in a course who is not a degree candidate or degree-seeking student conditionally enrolled in DUS is classified as a nondegree student. A nondegree student must either hold a high school diploma or its equivalent to take undergraduate courses. Exceptions may be made by the Undergraduate Admissions Office for students currently enrolled in high school (dual-enrollment students).

A nondegree student who has not been academically suspended or dismissed may enroll in any number of credits, not to exceed the typical semester credit load of a full-time student if criteria 1, 2, and 3 are met. Nondegree students who change from degree candidates to nondegree or who intend to become degree candidates must also meet criterion 4.

1. The student has completed the prerequisites for the courses to be scheduled or has obtained permission from the instructor to schedule the course.
2. Space is available after degree candidates have been accommodated.
3. The student has not been dismissed or suspended for nonacademic reasons from any college or university. An applicant not in good standing at another accredited college or university for disciplinary reasons must consult with the director of the Office of Student Conduct for admissions clearance.
4. The student has obtained academic advising/counseling from an adviser/counselor designated by the academic unit to which admission, or reinstatement and re-enrollment, is desired.

Note: A student must be admitted, or reinstated and re-enrolled, as a degree candidate to apply the credits earned as a nondegree student toward fulfilling the requirements for a degree. The dean of the college of enrollment shall decide which credits may be used to fulfill the degree requirements.

Limitations to Enrollment as a Nondegree Student

A student in nondegree status may remain in that status for a maximum of 30 credits, at which time the student must be accepted into a degree program to continue taking credit courses at Penn State. If a student in nondegree status is not eligible for a degree program after completing 30 credits in that status, s/he may continue to take credit courses at Penn State only as long as a semester grade point average of more than 2.00 continues to be earned and the student has the written support of the major s/he intends to enter or re-enter. In this situation, the student must enter a degree program immediately upon reaching eligibility. Nondegree students whose cumulative grade point average is below 2.00, who have reached the 30-credit limit, are not eligible for a degree program and will be dismissed from the University at the end of the semester and may only re-enter the University through academic renewal (as defined by Senate Policy 54-90: Academic Renewal (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-90>)). Nondegree students who have reached the 30-credit limit, are in good academic standing (defined as at least a 2.00 cumulative grade point average), and do not intend to earn a degree may self-identify and continue taking credit courses at Penn State as an "enrichment course taker" for as long as a cumulative grade point average of at least 2.00 is maintained.

A student must be admitted or re-enrolled as a degree candidate to apply the credits earned as a nondegree student toward fulfilling the requirements for a degree. The dean of the college or school of enrollment shall decide which credits may be used to fulfill the degree requirements.

A nondegree application can be obtained on the Office of the University Registrar website (<https://registrar.psu.edu>).

Admission of Nondegree Student as a Degree Candidate

A nondegree student may apply for admission as a baccalaureate degree candidate with advanced standing to a college or school of the University, or to the Division of Undergraduate Studies, upon completion of at least 18 credits earned at this University with at least a 2.00 cumulative grade-point average. An applicant who has completed at least the equivalent of two years of baccalaureate degree work before applying for admission as a baccalaureate degree candidate must have the approval of either the dean of the college or school in which enrollment is desired or of the director of the Division of Undergraduate Studies if the student wants to enroll in that division. To be eligible for degree admission, the nondegree student must meet the academic requirements of the University and the college or school in effect at the time of application.

Tuition and Financial Aid

Penn State participates in the major federal and state grant, loan and work-study programs. These funding sources make up the majority of all student aid funding with education loans the largest program. Eligibility is determined based on information on the Free Application for Federal Student Aid (FAFSA) (<https://studentaid.gov/h/apply-for-aid/fafsa/>). Student aid funds are awarded based on each applicant's relative financial need until all funds are exhausted. Program regulations limit the University's ability to make exceptions to the eligibility criteria.

Student Aid and Scholarships Policy

As a public university, Penn State receives limited support from the state.

Undergraduate enrollment across all Penn State campuses exceeds 90,000 a year. An outstanding academic experience for our students comes at a cost, and the University recognizes that Penn State may not be affordable to all who wish to enroll.

While Penn State continues to build its scholarship endowment, available funds do not yet reach all deserving students. Student aid, including education loans, can help defray some costs, but students and parents have the primary responsibility of paying educational expenses. Students and their families are encouraged to devise a financial plan for this important investment and to determine the level of education loan debt that both student and families are willing to incur.

Tuition and Costs

To view the most current costs for attending Penn State, including tuition and associated expenses, visit the Office of Student Aid website (<https://studentaid.psu.edu/>).

MORE INFORMATION ABOUT TUITION AND COSTS (<https://studentaid.psu.edu/tuition-costs/>)

Residency Classification for Tuition Purposes

Effective January 1, 2020

Pennsylvania Classification

A student shall be classified as a Pennsylvania resident for tuition purposes if that student has a Pennsylvania domicile **and** that student's presence in Pennsylvania is not primarily for educational purposes. Domicile is a person's existing and intended fixed, permanent, and principal place of residence. A student whose presence in Pennsylvania is primarily for educational purposes shall be presumed to be a non-Pennsylvania resident for tuition purposes. Thus, most students who come to Pennsylvania for the primary purpose of attending the University will ordinarily continue to be classified as non-residents for purposes of tuition throughout their attendance at the University. The following are considerations that may be used by the University in determining whether a student is a Pennsylvania resident for tuition purposes:

1. An undergraduate student under the age of 24 is presumed to have the domicile of their parent(s) or legal guardian(s). An undergraduate student may rebut this presumption with clear and convincing evidence that they are financially emancipated from their parent(s) or legal guardian(s). If the parent(s) of an undergraduate student under the age of 24 are domiciled in Pennsylvania, the student is presumed to be domiciled in Pennsylvania.
2. A student who has continuously resided in Pennsylvania for purposes other than education for at least 12 consecutive months immediately preceding their initial enrollment at the University or an institution of higher education is presumed to have a Pennsylvania domicile for purposes of tuition. A student who has not continuously resided in Pennsylvania for at least 12 consecutive months immediately preceding their initial enrollment at the University or another institution of higher education is presumed not to be a resident of Pennsylvania for purposes of tuition but may rebut this presumption by clear and convincing evidence.
3. A United States government employee or member of the armed forces who was domiciled in Pennsylvania immediately preceding their entry into government service and who has continuously

maintained Pennsylvania as their legal residence will be presumed to have a Pennsylvania domicile.

4. Military personnel and their dependents who are assigned to an active duty station in Pennsylvania and who reside in Pennsylvania shall be deemed Pennsylvania residents for purposes of tuition.
5. Veterans and their dependents may be eligible for in-state tuition regardless of residency status. The Office of Veterans Programs (<http://equity.psu.edu/veterans/>) should be contacted regarding eligibility.
6. Students who are not United States citizens, and have visas (excluding F and J) or lack visas, are presumed to be domiciled in Pennsylvania if they:
 - a. Undergraduate students: attended an accredited Pennsylvania high school for at least four years and thereafter (a) graduated from an accredited Pennsylvania high school or (b) received a Pennsylvania General Educational Development High School Equivalency Certificate (GED) and,
 - i. Meet items 1 and 2 above; or,
 - ii. Meet items 3, 4, or 5 above.
 - b. Graduate student: attended and earned a baccalaureate degree from a U.S. regionally accredited Pennsylvania institution and,
 - i. Meet items 2, 3, 4, or 5 above.
7. A student receiving a scholarship, guaranteed loan, grant, or other form of financial assistance dependent upon maintaining domicile in a state other than Pennsylvania is presumed not to be a Pennsylvania resident for tuition purposes.

Reclassification as Pennsylvania Resident

A student requesting reclassification as a Pennsylvania resident for tuition purposes must demonstrate by clear and convincing evidence that his/her domicile is in Pennsylvania, and that his/her presence in Pennsylvania is not primarily for educational purposes. Each request shall be decided individually on the basis of all facts submitted by the petitioner. Accordingly, it is not possible to list a specific combination of factors or set of circumstances which, if met, would ensure reclassification for tuition purposes.

Residency Reclassification Procedure

Review of Classification

A student may request a review of their residency classification by submitting a written request, including all necessary documentation to support classification as a Pennsylvania resident for purposes of tuition. Each case will be decided on the basis of an evaluation of all relevant facts and documentation submitted. Although not conclusive, the factors listed below may be given weight that the University may assign to them under the circumstances of each case. The University will consider the quality of evidence, rather than merely the quantity. A student is not required to establish a specific number of factors or a specific combination of factors for Pennsylvania domicile. Further, providing some or all of the documentation suggested or requested by the University will not necessarily result in being classified as a resident.

The following factors may be considered by the University in determining whether a student is domiciled in Pennsylvania:

1. Lease or purchase of a permanent, independent residence in Pennsylvania;
 - Note: A copy of the real estate listing or sales agreement to the previous domicile in the previous state of residence should also be sent, if applicable.

2. Payment of applicable state and local taxes and the filing of appropriate returns for such taxes;
 - Note: Returns should demonstrate an adequate level of income to support an independent domicile in the Commonwealth of PA.
3. Transfer of bank accounts, stock(s), automobile(s) and other registered property to Pennsylvania;
4. Pennsylvania driver's license;
5. Registration to vote in Pennsylvania;
6. Acceptance of an offer of permanent full-time employment in Pennsylvania, as well as evidence that job has been started, documented through the employer (generally applicable for adult students);
7. Continuous presence in Pennsylvania during significant periods while not enrolled as a student;
8. Membership in Pennsylvania social, athletic, civic, political and/or religious organizations which require residency as a membership requirement; and
9. For undergraduate students under age 24 claiming independence, evidence that the student is not a dependent. Such evidence may include copies of the tax returns of the student and/or his/her parent(s) or legal guardian(s) or sworn statements from the parent(s) or legal guardian(s) setting forth facts which establish the student's financial independence and separate residence.
10. If you (or your parent, if a dependent) are presently in the military and stationed in Pennsylvania, submit your Active Duty Military Orders. If you (or your parent, if a dependent), are stationed outside of Pennsylvania, but have maintained Pennsylvania residency, submit your current Leave and Earnings Statement (LES). If you (or your parent, if a dependent) have been discharged from the military, submit your DD-214.
11. Effective summer 2015, all eligible veterans regardless of benefit use, and military/veteran dependents actively using Chapter 33, Chapter 35 or Fry Scholarship benefits, will be eligible for in-state tuition regardless of residency. If you are a veteran and you are not using VA education benefits, please contact your campus Certifying Official to determine requirements to establish eligibility for the in-state rate.

Requests for review must be submitted by the student (requests from parents will not be considered) and no review will be entertained unless provided in writing.

Students requesting a review of their residency classification prior to the first day of the student's first semester at the University need to submit the written request to the following office:

- **Undergraduate Students:**

Undergraduate Admissions Office
The Pennsylvania State University
201 Shields Building
University Park, PA 16802

ATTN: Residency Review Officer for Undergraduate Admissions

- **Graduate Students:**

Office of the Bursar
The Pennsylvania State University
103 Shields Building
University Park, PA 16802

ATTN: Residency Review Officer for the Bursar's Office

Students requesting a review of their residency classification after the first day of the student's first semester at the University must submit the written request to:

- **Undergraduate and Graduate Students:**

Office of the Bursar
The Pennsylvania State University
103 Shields Building
University Park, PA 16802
ATTN: Residency Review Officer for the Bursar's Office

The review will be conducted based on the documentation submitted by the student to support reclassification. All review of classification decisions will be made in writing addressed to the student. Students may only request a review of the initial classification if they believe it was wrongly determined, or if during the course of their enrollment, their circumstances change and the student can present information demonstrating residency in Pennsylvania for purposes other than education.

Appeal of Classification

A student may challenge the review of classification decision by filing a written appeal to the University Appeals Committee on Residency Classification. Appeals must be submitted to the Committee within 30 days of the date of the written decision issued by the reviewing office. Contact information for the University Appeals Committee on Residency Classification will be included in the review of classification decision.

Appeals must set forth an explanation for why the student believes the reviewing officer's decision is incorrect and should include documentation supporting their claims. All materials relating to a student's appeal must be submitted at the time they submit the request for appeal. Materials submitted as part of the initial review will be provided to the Committee by the reviewing officer. Upon review of the appeal, if the Committee determines it needs additional information, the student will be notified.

While supporting letters from parents or guardians can be included in the appeal for the Committee's review, absent extraordinary circumstances, the student must be the individual to submit the request for appeal. The University will not entertain appeals submitted by a parent or legal guardian.

The student will be notified in writing of the Committee's decision and the Committee's decision is considered final.

Effective Date for Reclassification

It is each student's responsibility to request reviews and any related appeals in a timely manner. Any reclassification of a student's residency resulting from a student's request for review or appeal shall be effective as of the first day of the semester or session during which the request for review was received by the University or the first day of the following semester or session. The decision as to which semester or session becomes the effective date shall rest with the unit rendering the decision on reclassification.

Where it is deemed appropriate based upon the circumstances, the University, within its sole discretion, may reclassify a student's residency classification prior to the date in which the student submitted their request for review, but under no circumstances will reclassification occur more than one year prior to the semester in which the request for review was originally received.

TIME LIMIT: A request for review for reclassification will not be considered if submitted after the student has graduated from the University.

Notifications and Adjustments

1. The University reserves the right to require transcripts of tax filings from the Internal Revenue Service or Commonwealth of Pennsylvania rather than taxpayers' copies of those returns.
2. A student who changes his/her domicile from Pennsylvania to another state is required to give prompt written notice of this change to the Residency Review Officer in the Bursar's Office. The student shall be reclassified as of the date of such change. Students must also inform the Residency Review Officer in the Bursar's Office of any changes in the student's circumstances which might affect his/her residency status to determine whether reclassification of residency is necessary.
3. A dependent undergraduate student whose parent(s) or legal guardian(s) move outside of Pennsylvania may remain a Pennsylvania resident for tuition purposes if he/she maintains a separate domicile within Pennsylvania and remains continuously enrolled at the University.
4. The University reserves the right to conduct audits regarding Pennsylvania resident classification and make any appropriate adjustments in the residency classifications of all students.

False Statements

Any student who provides false or misleading information or deliberately conceals or omits relevant facts in connection with a residency application or appeal will be subject to disciplinary action. In addition, such students will be subject to retroactive reclassification as a non-resident and will be responsible for the payment of non-resident tuition and fees for the period during which he/she was classified as a resident.

PLEASE NOTE: A page of frequently asked questions concerning residency classification for tuition purposes can be found at <https://www.bursar.psu.edu/faq> (<https://www.bursar.psu.edu/faq/>).

How to Apply for Financial Aid

Submission of the Free Application for Federal Student Aid (FAFSA) (<https://studentaid.gov/h/apply-for-aid/fafsa/>) is the only action required to apply for most financial aid at Penn State, however, some private scholarships and Penn State scholarships require separate applications.

Special Academic Programs

- Joint Service ROTC
- Schreyer Honors College

Joint Service ROTC

About Joint Service ROTC

Michael Majewski, Joint Service Coordinator, ROTC

The ROTC Programs were established to develop cadets and midshipmen mentally, morally, and physically and to imbue them with the highest ideals of duty and loyalty, in order to commission college graduates as officers of character who possess a basic professional background and are motivated toward careers in military service.

ROTC Programs

- Air Force ROTC
- Army ROTC
- Naval Science/Naval Reserve Officer Training Corps (NROTC)

- Naval (Special Warfare, Surface Warfare, Nuclear, Aviation, Nursing)
- Marine Corps (Ground, Aviation)

MORE INFORMATION ABOUT NAVAL ROTC SCHOLARSHIPS (<http://www.nrotc.navy.mil>)

Resources

Air Force ROTC Scholarship Details

- Type 1 Scholarship – 100% Tuition & Fees
- Type 2 Scholarship - \$18,000/year
- Type 7 Scholarship – In-state tuition
- \$900 for books/year
- Monthly stipend for contracted cadets, based off Aerospace Science year (\$300, \$350, \$400, \$450)
- Different types of scholarships
 - National High School Scholarship
 - Science, Technology, Engineering, and Math (STEM)
 - Nursing
 - Foreign Language
 - Commander's Scholarship

* Students cannot utilize scholarship funding for summer semesters

MORE INFORMATION ABOUT AIR FORCE ROTC SCHOLARSHIPS (<https://www.afrotc.com/>)

Army ROTC Scholarship Details

- Full tuition and fees
- \$1200 for books/year
- Monthly Stipend – \$420 for contracted Cadets
- Scholarship Types
 - National High School Scholarship
 - Campus Based Scholarships
 - Science, Technology, Engineering and Math (STEM)
 - Guaranteed Reserve Forces Duty (GRFD)
 - Nursing
- Commissioning Options
 - Components – Active Duty, USAR, ARNG
 - Educational delay for certain professional degrees (MD, JD, PA, PT, etc.)

MORE INFORMATION ABOUT ARMY ROTC SCHOLARSHIPS (<https://www.goarmy.com/rotc.html>)

Naval ROTC Scholarship Details

- Full tuition and fees
- \$750 for books/year
- Monthly stipend, based off Naval Science level (\$250, \$300, \$350, \$400)
- Different types of scholarships
 - National 4-Year Scholarship
 - 3-Year Sideload Scholarship
 - 2-Year Sideload Scholarship
 - Advanced standing (non-scholarship)
- Commissioning Options

Project GO!

The Project Global Officers' (Project GO!) goal is to develop future military officers within all of the U.S. Armed Forces with the necessary linguistic and cross-cultural communication skills required for effective leadership in the 21st century operational environment. Any member, scholarship/contracted or not, can apply to attend.

MORE INFORMATION ABOUT PROJECT GO! (<http://www.rotcprojectgo.org/>)

Military Studies Minor

This interdisciplinary minor (p. 1129) is designed for all students with special interests in military and national security affairs. Military emphasis is provided in one of three areas: Aerospace Studies, Military Science, or Naval Science. American military forces have played an important role in our domestic and international history and will continue to have significant involvement in policy arenas relating to national security and international relations. Students elect one military service branch for their prescribed courses and select two additional courses from appropriate history and political science courses emphasizing national security policy. At least 6 credits must be taken at the 400 level.

Military Honor Cords

Undergraduate and graduate students who have honorably served, are serving, or are commissioned to serve in the U.S. military will be awarded an honor cord to wear at their commencement ceremony in recognition of their duty and sacrifice. The red, white and blue cords will be given to eligible graduating students, including associate degree recipients, in the following groups: active duty, reserve and National Guard service members; veterans; and graduates receiving a commission through Reserve Officers' Training Corps (ROTC) and official U.S. Armed Forces recruiting programs. Penn State faculty members who meet the eligibility criteria also may receive a military honor cord.

Contact

AIR FORCE ROTC
109 Wagner Building
University Park, PA 16802
814-865-5453

<http://airforce.psu.edu>

ARMY ROTC
212 Wagner Building
University Park, PA 16802
814-863-0368

<http://army.psu.edu>

NAVAL ROTC
315 Wagner Building
University Park, PA 16802
814-865-6289

<http://nrotc.psu.edu>

Air Force ROTC

Program Description

The Air Force ROTC program trains qualified young men and women for service as commissioned officers in the United States Air Force and United States Space Force.

The program is offered at the University Park campus and by special arrangement as follows:

- students attending **Penn State Altoona** may complete freshman and sophomore requirements at the University Park campus
- students attending **Penn State Scranton**, **Penn State Hazleton**, or **Penn State Wilkes-Barre** may complete freshman and sophomore requirements at **Wilkes College**, Wilkes-Barre, PA
- students attending **Penn State Abington** or **Penn State Brandywine** may complete freshman and sophomore requirements at **St. Joseph's University**, Philadelphia, PA
- students attending **Penn State Greater Allegheny** or **Penn State New Kensington** may complete freshman and sophomore requirements at **The University of Pittsburgh**, Pittsburgh, PA

The junior and senior requirements may then be completed upon relocation to University Park campus.

Four-year (High School Scholarship Program (<https://www.afrotc.com/scholarships/>)), three-year, and two-year, In College scholarships are available to selected applicants. These scholarships provide tuition and fees benefits, a monthly stipend, and textbook allowance.

Also, all cadets in the junior and senior courses not already on scholarship are paid at the rate of \$400 to \$500 per month (tax free), respectively, and are eligible to receive the Charles McGee Leadership Award a tuition or housing assistance scholarship. Uniforms and ROTC textbooks are provided for free by the Air Force.

What is the Air Force ROTC?

Air Force ROTC is a 4-year program that inspires, develops, and trains future officers of the United States Air Force and the United States Space Force. AFROTC is a pathway to grow mentally and physically as you acquire leadership skills. The opportunity to pay for school is available through scholarships. Plus, you'll have a position waiting for you after graduation at one of the world's top high-tech organizations- the under the Department of the U.S. Air Force.

MORE INFORMATION ABOUT THE AIR FORCE ROTC (<https://www.airforce.psu.edu/>)

You Might Like This Program If...

- You are of good moral character.
- You are an undergraduate student with three or more years remaining of college.
- You are physically fit or willing to be.
- You are in good academic standing.
- You are ready for a challenge.

MORE INFORMATION ABOUT WHY STUDENTS CHOOSE THE AIR FORCE ROTC (<https://www.youtube.com/watch?v=wowxq4a-IE8>)

Program Requirements

The instruction consists of a General Military Course (freshmen and sophomores) and a Professional Officer Course (juniors and seniors) of four semesters each. Subjects and credits appear under course descriptions (ROTC) in this bulletin. Students have an opportunity to visit Air Force bases throughout the school year and summer months, where they may receive instruction on parachuting, flying gliders, and other Air Force and Space Force-related activities.

Completion of eight semesters, completion of one two-week summer training period and medical qualification confers eligibility for a commission in the Air Force Reserve and assignment to active duty in the USAF or USSF with the rank of second lieutenant.

Registering for Courses

Air Force ROTC students attending Penn State Altoona should visit the Air Force ROTC website (<https://www.airforce.psu.edu/new-site-g-registration/>) for instructions on registering for AFROTC courses.

Academic Advising University Park

Beth Neumann
Air Force ROTC Administrative Assistant
109 Wagner Building
University Park, PA 16802
814-865-5453
airforce@psu.edu

Career Paths

AFROTC commissions Penn State graduates as Second Lieutenants for every Air Force and Space Force officer career field in every part of the world.

Careers

- Aircraft: pilot, navigator, maintenance
- Space and Missiles: operations, maintenance, ground support
- Intelligence: Office of Special Investigations, Foreign Area Officer
- Engineering: research, development or technical management in virtually all fields of engineering
- Scientific: mathematics, nuclear physics, meteorology, chemistry
- Computer Science: cyberwarfare operations, development, programming systems analysis
- Management: personnel, intelligence, communications and electronics, public relations, logistics, finance, security forces, information, munitions, air traffic control

Opportunities for Graduate Studies

If you already have your bachelor's degree and are interested in participating in the AFROTC program, you are welcome to apply. To join, you must have six semesters* as a full-time student (9 credits hours of combined master and AFROTC courses), a 2.0 cumulative GPA, passing fitness and medical standards, and good character.

* *Summer semesters do not count.*

Contact

University Park and Altoona

AIR FORCE ROTC
109 Wagner Building
University Park, PA 16802
814-865-5453
airforce@psu.edu

<https://www.airforce.psu.edu/>

Hazleton, Wilkes-Barre, and Scranton

AIR FORCE ROTC Detachment 752 (<https://www.wilkes.edu/academics/colleges/science-and-engineering/aerospace-studies/detachment-752.aspx>)

Brandywine and Abington

AIR FORCE ROTC Detachment 750 (<https://sites.sju.edu/afrotc/>)

New Kensington and Greater Allegheny

AIR FORCE ROTC Detachment 730 (<https://www.afrotc.pitt.edu/>)

Army ROTC

Program Description

The Army Reserve Officers' Training Corps (Army ROTC) offers qualified students the opportunity to Commission as a US Army Second Lieutenant (2LT), while earning a college degree. After graduation/commissioning, 2LTs fulfill their service obligation in the Active Duty (full-time), National Guard or Army Reserve components, while maintaining a civilian career.

Over the course of your four years in the program, nearly all Cadets earn a scholarship through the national high school or campus-based programs, after enrolling. Scholarship benefits include: **100% tuition** (Resident or Non-Resident), **\$600 semesterly book allotment** and a **\$420 monthly stipend**. The stipend and other potential bonuses are available to non-scholarship Cadets.

The traditional four-year program requires one class and a weekly leadership lab, totaling 24x academic credits. Army ROTC Course credits replace electives for all Penn State Majors, though the exact number varies by Academic College (6-18x). Course subjects and credits appear under ARMY course descriptions in this Bulletin.

The program is comprised of two successive phases: the Basic Course and Advanced Course. While the Advanced Course cannot be altered, there are two and three-year paths that allow students to complete the program, regardless of their start point in the Basic Course. Interested students should contact the NLB Enrollment Officer (<https://forms.office.com/r/CaUAm8VAjJ/>), to determine the most appropriate path to commissioning.

What is the Army ROTC?

The Penn State Army ROTC – Nittany Lion Battalion (NLB) is located entirely at the University Park campus. It is the country's largest traditional ROTC Program and one of the most successful. It is the **only Army ROTC Host Program located on any Penn State Commonwealth Campus**. Several other Penn State campuses offer Army ROTC through cross-enrollment agreements with other universities.

Penn State Commonwealth Campuses with Army ROTC (Host Universities in parentheses:

- Abington (Widener University)
- Berks (Lehigh University)
- Brandywine (Widener University)
- Erie (Gannon University)
- Harrisburg (Dickinson College)
- Lehigh Valley (Lehigh University)
- Mont Alto (Shippensburg University)
- Penn Tech (Lock Haven University)
- Wilkes-Barre (Scranton University)
- Scranton (Scranton University)

Points of Contact for these programs can be found on the Contact tab or at the NLB website (<https://army.psu.edu/campuses/>).

Interested Penn State 2+2 students, transitioning from ANY Commonwealth Campus, MUST verify eligibility with the NLB Enrollment Officer (<https://forms.office.com/r/CaUAm8VAjJ/>), no later than the semester preceding their transition. Summer training may be required to satisfy Basic Course requirements.

For additional information on Penn State Army ROTC, connect with the Scholarship and Enrollment Officer at 207 Wagner Building on the University Park campus or call 814-865-7255 or visit our the Nittany Lion Battalion website (<https://army.psu.edu>).

MORE INFORMATION ABOUT THE ARMY ROTC - NITTANY LION BATTALION (<http://army.psu.edu>)

You Might Like This Program If...

- You want professional flexibility and proven leadership skills that every industry desperately seeks.
- You value the comradery and relationships built when teams strive for a common goal.
- You're seeking to become the best version of yourself.
- You want to join an organization, seeking to build and maintain members' holistic health and fitness.
- You're seeking the fulfillment that only comes from serving something greater than yourself.

MORE INFORMATION ABOUT WHY STUDENTS CHOOSE THE ARMY ROTC FROM THE US ARMY CADET COMMAND - NATIONAL ARMY ROTC HEADQUARTERS WEBSITE (<https://www.goarmy.com/rotc/>)

VIEW THE ARMY ROTC - HIGH SCHOOL SCHOLARSHIP APPLICATION (<https://hs.usarmyrotc.com/my.policy/>)

Program Requirements

Overall Requirements

Cadets must complete both Basic and Advanced Course requirements.

- Basic Course – There are several ways to meet Basic Course eligibility requirements.
 - Progression – Complete Army ROTC Classes 101, 102, 201 and 202 in succession, during a student's freshmen-sophomore years.
 - Compression – Complete the above-listed Army ROTC classes in one year, with simultaneous enrollment in Army 101/201 and Army 102/202.

- Basic Camp (<https://armyrotc.army.mil/basic-camp/>) – Inability to complete the four ROTC classes requires attendance at the 32-day Army ROTC Basic Camp, designed to introduce Cadets to the Army.
- Basic Combat Training – Prior service soldiers, sailors or airmen qualify for the Advanced Course, based on their completion of Basic Combat Training.
- Advanced Course – The Advanced Course is very rigid, with programs only able to shift Camp attendance from one summer to another, if necessary.
 - Classes – Complete Army ROTC Classes 301, 302, 401 and 402 in succession, during a student's junior-senior years.
 - Advanced Camp – Cadets complete Army ROTC Advanced Camp between their junior and senior years (exceptions considered for injury or academic conflicts).

Campus Requirements

These are the requirements Cadets must complete throughout the school year.

Army ROTC Cadets commit about eight hours to weekly Army ROTC requirements:

- Two Army ROTC Classes on Tuesdays/Thursdays (3 hours)
- Three Physical Fitness Sessions (3 hours)
- One Military Studies Lab (2 hours)

Additionally, there is one field training exercise (FTX) and one formal event, per semester.

Training Requirements

- Advanced Camp is the only required summer training event; traditionally occurring between a Cadet's junior and senior years.
- Advanced Camp (<https://armyrotc.army.mil/advanced-camp/>) is the capstone leader development opportunity for all Cadets between their junior and senior years in ROTC.
- Advanced Camp is 35-days long and held at Fort Knox, Kentucky.

Cadet Professional Development Training (CPDT)

Though optional, there are many training opportunities available to Cadets (<https://armyrotc.army.mil/cadet-leader-training/>) that can enhance their experience, while in Army ROTC.

- Cadet Troop Leader Training (CTLT) – CTLT provides Cadets an opportunity to develop leadership skills in a training environment as they shadow and learn from platoon leaders.
- Cadet Advanced Individual Training (CAIT) – CAIT provides Cadets an opportunity to attend a variety of specialized training courses, including Airborne, Air Assault, Combat Diver Qualification Course, Basic Military Mountaineer Course, Jungle Operations and more.
- Nurse Summer Training Program (NSTP) – NSTP provides opportunities to practice and develop leadership skills in a clinical environment. Cadets work side-by-side with an Army Nurse Corps Officer in this 4-week long program.
- Cadet Internships – Provides additional training opportunities for Cadets in specialized areas, technical fields, and research. Some examples of available internships, include: U.S. Army Cyber (ARCYBER), MIT Lincoln Lab Internship (MITLL), National Security Agency (NSA), Nuclear Science & Engineering Research Center (NSERC), JAG Corps (JAG) and the Army Medical Department (AMEDD) as well as opportunities at West Point and the FBI.

- Project Global Officer (GO) (<https://www.rotcprojectgo.org/>) – Project GO is a nationwide program open to all qualified ROTC students offering fully-funded opportunities in critical language education, overseas study, and cross-cultural experience.

Entrance to Army ROTC

There are many paths to join Army ROTC and the Nittany Lion Battalion. Reach out and discover the one that's best for you!

- ARMY ROTC – HIGH SCHOOL SCHOLARSHIP APPLICATION (<https://hs.usarmyrotc.com/my.policy/>)
- Penn State Army ROTC Interest Form (<https://forms.office.com/r/CaUAm8VAJj/>)

Academic Advising

All Campuses

David Rizzo

Scholarship and Enrollment Officer

207 Wagner Building

University Park, PA

814-865-7255

army.rotc@psu.edu (army.nlb@psu.edu)

Career Paths

Commissioned Officers are the managers, problem solvers, key influencers and planners who lead Enlisted Soldiers in all situations.

Officer Branches / Career Fields

- **Adjutants General Officer:** An Adjutant General Officer is responsible for helping Soldiers with the tasks that affect their overall welfare and well being, while assisting commanders by keeping Soldiers combat-ready. In many cases, the duties of an Adjutant General Officer are very similar to the function of a high-level human resources executive in the civilian world. Officers are leaders, and being a leader in the Army requires certain qualities such as self-discipline, initiative, confidence and intelligence.
- **Air Defense Artillery Officer:** The role of an Air Defense Artillery Officer is to be a leader in operations specific to the Air Defense Artillery Branch and to be an expert in the tactics, techniques and procedures for the employment of air defense systems.
- **Armor Officer:** Armor Officers are responsible for tank and cavalry/forward reconnaissance operations on the battlefield. The role of an Armor Officer is to be a leader in operations specific to the Armor Branch and to lead others in many areas of combat operations.
- **Aviation Officer:** An Officer within the Aviation Branch is first an expert aviator but is also responsible for the coordination of Aviation operations from maintenance to control tower operations to tactical field missions. From providing quick-strike and long-range target engagement during combat operations to hauling troops and supplies, Army helicopter units play a critical role in getting the job done in many situations.
- **Chemical, Biological, Radiological and Nuclear (CBRN) Officer:** The Chemical, Biological, Radiological and Nuclear (CBRN) Officer advises the commander on issues regarding nuclear, biological and radiological warfare, defense and homeland protection. Chemical Officers also employ Chemical units in combat support with chemical, smoke and flame weapons, technology and management. Officers are leaders, and being a leader in the Army requires certain qualities such as self-discipline, initiative, confidence and intelligence.

- **Engineer Officer:** An Officer in the Army Corps of Engineers is responsible for providing support in a full spectrum of engineering duties. Engineer Officers help the Army and the Nation in building structures, developing civil works programs, working with natural resources as well as providing combat support on the battlefield.
- **Field Artillery Officer:** The Army's Field Artillery Branch is responsible for neutralizing or suppressing the enemy by cannon, rocket and missile fire and to help integrate all fire support assets into combined arms operations. The role of a Field Artillery Officer is to be a leader in operations specific to the Field Artillery Branch and to be an expert in the tactics, techniques and procedures for the employment of fire support systems.
- **Finance Officer:** Finance Officers direct and coordinate finance and accounting functions and serves as the advisor to the Commander on all financial matters and matters pertaining to Finance Corps personnel and units. They also establish, control and audit all finance and accounting systems. Finance Officers also prepare and distribute reports and financial statements to provide the commander and staff with adequate information for management, status of funds and budget purposes.
- **Infantry Officer:** An Infantry Officer is responsible for leading and controlling the Infantry and combined armed forces during land combat. They are also involved in coordinating employment of Infantry Soldiers at all levels of command, from platoon to battalion and higher, in U.S. and multi-national operations. Officers are leaders and being a leader in the Army requires certain qualities such as self-discipline, initiative, confidence and intelligence.
- **Medical Service Corps Officer:** Medical Service Corps Officers are essential in treating and helping the overall health of Soldiers and their families. They are also responsible for much of the medical research that takes place in the Army. From medical fields such as optometry and podiatry to laboratory sciences to behavioral sciences, the Army Medical Service Corps includes many areas of specialty.
- **Military Intelligence Officer:** Military Intelligence (MI) Officers are always out front, providing essential intelligence and in many cases saving Soldiers who are fighting on the front lines. MI Officers assess risks associated with friendly and enemy courses of action and act to counter or neutralize identified intelligence threats. The MI Officer also uses intelligence systems and data to reduce uncertainty of enemy, terrain and weather conditions for a commander.
- **Military Police Officer:** Military Police Officers are utilized in direct combat and during peacetime to lead other Military Police Soldiers while they serve five main functions:
 - Maneuver and mobility support operations,
 - Area security operations,
 - Law and order operations,
 - Internment and resettlement operations and
 - Police intelligence operations.
- **Nurse Corps Officer:** Army Nurse Corps Officers lead diverse nursing teams in a variety of settings and provide holistic multi-disciplinary care for Soldiers and their families. Officers are leaders. All Army leaders require self-discipline, initiative, confidence, the ability to problem solve and make timely decisions.
- **Ordnance Officer:** Ordnance Officers are responsible for ensuring that weapons systems, vehicles and equipment are ready and available - and in perfect working order - at all times. Thus, Ordnance Officers and the Soldiers they lead are a critical component in the Army's success. Ordnance Officers also oversee the developing, testing, fielding, handling, storage and disposal of ammunitions.
- **Quartermaster Officer:** Quartermaster Officers are responsible for making sure equipment, materials and systems are available and functioning for missions. More specifically, the Quartermaster Officer provides supply support for Soldiers and units in field services, aerial delivery and material and distribution management. Officers are leaders, and being a leader in the Army requires certain qualities such as self-discipline, initiative, confidence and intelligence.
- **Signal Corps Officer:** A Signal Corps Officer must be an expert in planning, installing, integrating, operating and maintaining the Army's voice, data and information systems, services and resources. Signal Officers must be highly intelligent, forward-thinking and have a complete knowledge of communications and data management technologies.
- **Transportation Officer:** Transportation Officers are experts in the systems, vehicles and procedures in moving troops and supplies in the Army. Transportation Officers are responsible for commanding and controlling Transportation operations and combined armed forces during land combat. Officers are leaders, and being a leader in the Army requires certain qualities such as self-discipline, initiative, confidence and intelligence.

US Army Components

- **Active Duty Component** (<https://www.goarmy.com/careers-and-jobs/become-an-officer.html>) (Full-Time): The Army counts on active duty Soldiers for day-to-day operations. Each Soldier has his or her own specialized training and serves a critical function within his or her unit. Active duty Soldiers serve in the Army 24 hours a day, seven days a week for the duration of their service commitment. Think of it as working a **full-time** job. Active duty Officers will live on or near a military installation that serves as your unit's base of operations, will be paid a full salary, and have access to all of the benefits of a full-time Soldier. Benefits include medical and dental health coverage for the service member and their dependents (if applicable) and basic housing allowance.
- **US Army Reserve** (<https://www.goarmy.com/reserve.html>) (Part-Time): The Army Reserve the Army's pool of extra resources and personnel. Reserve Soldiers perform critical Army jobs on a **part-time** basis and are a Federal entity. Unlike active duty, Army Reserve Soldiers serve part time, allowing them to earn an extra paycheck, go to school, or work a civilian job while still maintaining many of the benefits of military service. As a Reserve Officer, you will spend one weekend a month on duty and two weeks a year in training. Soldiers in the Army Reserve may be called to active duty to provide their expertise.
 - Unlike serving on Active Duty, you will be able to live anywhere in the United States. If you are planning on attending college or advancing within your civilian career, Army Reserve service will provide you with the flexibility to live where you choose. Part of the benefit of becoming a Soldier in the Army Reserve is the free time you will have to accomplish your personal goals.
 - Career fields in the US Army Reserve do not include Combat Arms branches (Infantry, Air Defense Artillery, Armor, Field Artillery).
- **Army National Guard** (<https://www.nationalguard.com/>) (Part-Time): The Army National Guard offers you the chance to be part of a team your community and nation can count on. The Army National Guard is a state funded entity and is a unique and essential element of the U.S. military. Founded in 1636 as a citizen force organized to protect families and towns from hostile attacks, today's National Guard Soldiers hold civilian jobs or attend school while maintaining their military training part-time, always ready to defend the American way of life in the event of an emergency.

- The Army National Guard has a unique dual mission. Domestically, the Army National Guard operates under the direction of state governors and is tasked with protecting communities here at home. The Guard's federal mission puts it under the control of the president, which allows Guard units to support active duty military forces in responding to threats abroad and humanitarian disasters.
- The Army National Guard serves in more than 2,000 communities across all 50 states, the District of Columbia, Guam, Puerto Rico, and the U.S. Virgin Islands. Each state and territory has its own Army National Guard, which means you can serve close to where you work or attend school. Typically, Guard Soldiers live with their families in communities of their choosing, rather than on a military base. Service in the Army National Guard is part-time, which allows Guard Soldiers to pursue their educational and civilian career goals on a full-time basis. At a minimum, Guard Soldiers train one weekend a month and two weeks a year, although additional training may be required of certain units and in support of specific missions.
- Army National Guard Soldiers can choose from more than 150 military jobs, including public affairs, transportation, law enforcement, healthcare, and STEM (science, technology, engineering and mathematics) fields. Soldiers can serve in positions that complement their civilian careers, or in a military job completely unrelated to their education and civilian experience. No matter which Guard job a Soldier chooses, the Soldier will receive fully paid Army training to provide them with the skills and knowledge needed to succeed in their military position. Career opportunities in the Army National Guard are subject to the availability of jobs in the state a Cadet will want to serve in.

Contact

University Park and 2+2 STUDENTS

ARMY ROTC
207 Wagner Building
University Park, PA
814-865-7255
army.rotc@psu.edu (army.nlb@psu.edu)

Abington and Brandywine

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Keith Karbel (Contact)
610-490-7035
krkarbel@widener.edu

Berks and Lehigh Valley

LEHIGH UNIVERSITY (HOST)
Jajuan Broussard (Contact)
610-758-3274
jabe21@lehigh.edu

Erie

GANNON UNIVERSITY (HOST)
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Pennsylvania College of Technology

LOCK HAVEN UNIVERSITY (HOST)
Briton Orndorf (Contact)
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bdo324@lockhaven.edu

Scranton and Wilkes-Barre

UNIVERSITY OF SCRANTON (HOST)
Bill Ramsey (Contact)
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herbert.ramsey@scranton.edu

Naval Science/Naval Reserve Officer Training Corps (NROTC)

Program Description

The Naval Reserve Officer Training Corps (NROTC) trains qualified young men and women at the University Park campus for service as commissioned officers in the Navy, the Navy Nurse Corps, or the Marine Corps.

Entering freshmen may be accepted into Penn State NROTC either by receiving the NROTC National Scholarship (Scholarship Program (<https://www.netc.navy.mil/commands/naval-service-training-command/nrotc/apply/>)) or applying directly through Penn State NROTC to participate as a College Program student. These College Program freshmen, who do not receive scholarship monies, may be eligible to compete for the Scholarship Program based upon their performance in the Unit. Qualified sophomores, either in attendance or planning to commence studies at University Park Campus during their junior year, may compete for the special Two-Year College Program Advanced Standing or Two-Year Scholarship Programs. Navy, Nurse, and Marine Corps scholarships provide full tuition, book allotment, laboratory and instructional fees, and a \$250-\$400 per month subsistence allowance. In addition, Nurse scholarship students are issued special equipment required by the BSN curriculum.

Students who receive their baccalaureate degree and complete the NROTC program receive commissions as either Navy Ensigns or Marine Corps Second Lieutenants. After commissioning, these individuals are obligated to serve a minimum of four years on active duty, though these service obligations may vary dependent upon which warfare community the officer enters.

What is Naval Science?

Naval Science is a field of study that offers university students an introduction to the operations, technology and culture of the United States Navy and Marine Corps. Naval Science courses are available for all university students but are designed to operate in conjunction with the Pennsylvania State University NROTC program to provide

professional development and service knowledge to perspective officers. Naval Science courses can also be utilized to fulfill prescribed course requirements for the Military Studies minor.

You Might Like This Program If...

- You are enrolled in the NROTC program at Penn State (Required).
- You are enrolled or considering enrolling in the Military Studies minor at Penn State.
- You are interested in learning about Naval operations, technology and culture.

MORE INFORMATION ABOUT THE NAVAL ROTC (<http://nrotc.psu.edu/>)

Program Requirements

All students must complete at least 18 credits of Naval Science (NAVSC) courses; subjects and credits appear under course descriptions (ROTC/NAVSC) later in this bulletin. College Program students must participate in one active duty training period (cruise) during the summer between junior and senior years. Scholarship students are required to participate in either two (Nurse) or three (Navy and Marine Corps) summer cruises prior to commissioning.

In addition, all Navy scholarship students must complete University courses in calculus, physics, national security policy, and American military affairs. Requirements for Nurse and Marine Corps scholarship students are somewhat less. College Program students must complete University courses in national security policy and American military affairs.

Career Paths

Students who receive their baccalaureate degree and complete the NROTC Program are commissioned as either Navy Ensigns or Marine Corps Second Lieutenants. Post-commission career paths for Navy option students include Surface Warfare Officer, Submarine Warfare Officer, Naval Aviator, Naval Flight Officer, or Special Operations Warfare Officer. Marine Corps option students can serve as either Ground or Aviation Marine Corps Officers. All students are obligated to serve a minimum of four years of active duty, though select career paths may require a greater minimum service time.

MORE INFORMATION FROM THE NAVAL RESERVES OFFICER TRAINING CORPS WEBSITE (<http://www.nrotc.navy.mil/>)

MORE INFORMATION FROM THE DEPARTMENT OF THE NAVY WEBSITE (<http://www.navy.mil/>)

MORE INFORMATION FROM THE UNITED STATES MARINE CORPS WEBSITE (<http://www.marines.mil/>)

Contact

University Park

NAVAL ROTC
315 Wagner Building
University Park, PA 16802
814-865-6289

<http://nrotc.psu.edu/>

Schreyer Honors College

About the College

Patrick Mather, Dean, Schreyer Honors College

The Schreyer Honors College, regarded as one of the nation's top programs of its kind, promotes achieving academic excellence with integrity, building a global perspective, and creating opportunities for leadership and civic engagement. Schreyer Scholars, including Scholars admitted after their first or second year of enrollment, are a diverse and motivated group of approximately 2,000 students at University Park and 20 Commonwealth campuses. The College strives to educate students who will have an important and ethical influence in the world, to improve educational practice, and to continue to be recognized as a leading force in honors education nationwide.

MORE INFORMATION ABOUT THE COLLEGE (<https://www.shc.psu.edu>)

College Procedures

Academic Warning

Failure to attain a GPA of at least 3.40 in one full-time semester places a student in warning status for the following semester and removes them from good academic standing in the College. Students on Academic Warning will continue to receive honors scholarships but will not be eligible for grants.

MORE INFORMATION ABOUT ACADEMIC WARNING (<https://www.shc.psu.edu/academics/handbook/#status>)

Change of Campus

Schreyer Scholars may start at any of Penn State's undergraduate campuses but must complete their junior and senior years at Abington, Altoona, Behrend, Berks, Brandywine, Harrisburg, or University Park. Current Penn State students may be admitted into the Schreyer Honors College through the current student admission process.

MORE INFORMATION ABOUT CHANGE OF CAMPUS (<https://www.shc.psu.edu/academic/resources/handbook/>)

Honors Courses

First-year and sophomore students should expect to fulfill most or all of their honors requirements via honors courses, with limited exceptions by major and campus. A grade of C or higher is required for an honors course to meet honors credit requirements. With approval of the instructor and their honors adviser, students may take honors option courses that are typically not honors courses. A list of honors courses can be found via LionPATH (<https://lionpath.psu.edu>).

Resources

Academic

The College's Academic Team supports Scholars through their academic journey. They maintain the requirements and the academic deadline calendar, provide thesis support, and coordinate resources for research, advising, and more. Scholars can also schedule one-on-one appointments with the College's academic staff.

MORE INFORMATION ABOUT ACADEMIC RESOURCES (<https://www.shc.psu.edu/academics/>)

Study Abroad

Schreyer Honors College offers signature travel programs, including semester, summer, and short-term opportunities. The College can also help Scholars identify international service learning opportunities. Travel grants are available to Scholars in good standing for travel programs, international research, and internships.

MORE INFORMATION ABOUT STUDY ABROAD OPPORTUNITIES (<https://www.shc.psu.edu/academics/global/>)

Honors Advising

Honors advisers serve as principal resources for students for helping them choose majors, which enrichment and professional development opportunities should be pursued in addition to their coursework, and thesis preparation. Advisers can be faculty members or full-time academic advisers, depending on the academic college.

MORE INFORMATION ABOUT HONORS ADVISING (<https://www.shc.psu.edu/academics/advising/>)

Career Services

Scholars can schedule individual appointments with Schreyer's director of career development, attend career events, join alumni mentoring programs, and travel to cities like New York and Washington, D.C., to meet with Scholar alumni. The College's signature Connect Networking and Career Day event brings together Scholars and Scholar alumni.

MORE INFORMATION ABOUT CAREER SERVICES (<https://www.shc.psu.edu/life/career/>)

Student Aid

Scholars in Schreyer Honors College can meet with our student aid counselor to explore financial support, including Schreyer-specific need-based scholarships, emergency funding, and grants.

MORE INFORMATION ABOUT STUDENT AID (<https://www.shc.psu.edu/admissions/cost-aid/>)

Contact

SCHREYER HONORS COLLEGE
10 Schreyer Honors College
University Park, PA 16802
814-865-2365
scholars@psu.edu

<http://www.shc.psu.edu>

UNIVERSITY COURSE DESCRIPTIONS

The University Course Descriptions section lists all currently active courses at Penn State. Please note that not all courses are offered in any given academic semester. To find class offerings for a specific semester, please view the LionPATH Schedule of Classes (https://public.lionpath.psu.edu/psp/CSPRD/EMPLOYEE/HRMS/c/COMMUNITY_ACCESS.CLASS_SEARCH.GBL?psInkid=PE_S201801181044562576711220).

Below are definitions for the various components of a course description.

Course-Numbering System

These course descriptions are arranged alphabetically. If any course cannot be located readily, refer to the index. Courses are numbered as follows:

Undergraduate Courses (1 to 399): General courses accepted in fulfillment of requirements for the bachelor's degrees. These courses are described in the Undergraduate Courses section (p. 3297).

Advanced Undergraduate Courses (400 to 499): Courses open to graduate students and to juniors and seniors and, with the special written permission of the head of the department or the chair of the program sponsoring the course, to qualified students in earlier semesters. These courses are described in the Undergraduate Courses section (p. 3297).

Graduate Courses (500 to 699; 800 to 899): Courses restricted to students registered in the Graduate School, seniors with an average of at least 3.50 (500- and 800-level only; excludes 600-level), and other students who have been granted permission to enroll by the dean of the Graduate School. These courses are described in the Graduate Courses section (<https://bulletins.psu.edu/university-course-descriptions/graduate/>). Undergraduate students who wish to enroll in 500- or 800-level courses should review the policy and follow the necessary procedures outlined in GCAC-507 Undergraduate Students Taking Graduate Courses (<http://gradschool.psu.edu/graduate-education-policies/gcac/gcac-500/gcac-507-undergraduate-students-taking-graduate-courses/>).

Medical Courses (700-799): Courses restricted to students registered in the College of Medicine. These courses are described in the College of Medicine Courses section (<https://bulletins.psu.edu/university-course-descriptions/medicine/>).

Law Courses (900-999): Courses restricted to students registered in Penn State Law and Dickinson Law. These courses are described in the Penn State Law Courses section (<https://bulletins.psu.edu/university-course-descriptions/pennstatelaw/>) and Dickinson Law Courses section (<https://bulletins.psu.edu/university-course-descriptions/dickinsonlaw/>).

Common Course Numbers

The following course numbers for which students may register have been set up for common use by major programs, with University Senate approval, to encourage innovation and provide flexibility in designing programs, but in no case may a course be scheduled for 0 credits.

First-Year Seminar 187. Listed under some liberal art-related academic headings, this course has prerequisites of first-semester standing and enrollment in the College of the Liberal Arts.

Research Project Courses 294, 494. 1-12 credits. Supervised student activities on research projects identified on an individual or small-group basis. A specific title may be used in each instance and will be entered on the student's transcript.

Internship 295, 395, 495. 1-18 credits. Supervised off-campus, non-group instruction including field experiences, practica, or internships. Written and oral critique of activity required. A specific title may be used in each instance and will be entered on the student's transcript.

Independent Studies 296, 496. 1-18 credits. Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses. A specific title may be used in each instance and will be entered on the student's transcript.

Special Topics 97, 197, 297, 397, 497; 98, 198, 298, 398, 498. 1-9 credits. Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest. Several different topics may be taught in one year or semester. A specific title may be used in each instance and will be entered on the student's transcript.

Foreign Studies 99, 199, 299, 399, 499. 1-12 credits. Courses offered in foreign countries by individual or group instruction. A specific title may be used in each instance and will be entered on the student's transcript. These courses typically carry the International Cultures (IL) attribute.

Graduate Common Courses

Colloquium 590. Continuing seminars that consist of a series of individual lectures by faculty, students, or outside speakers.

Research Topics 594. Supervised student activities on research projects identified on an individual or small-group basis.

Internship 595. Supervised, research-oriented, off-campus, nongroup instruction, including field experiences, practicums, or internships. Written and oral critique of activity required.

Individual Studies 596. Creative projects, including nonthesis research, that are supervised on an individual basis and which fall outside the scope of formal courses.

Special Topics 597, 598. Formal courses given on a topical or special interest subject which may be offered infrequently; several different topics may be taught in one year or semester.

Foreign Studies 599. Courses offered in foreign countries by individual or group instruction.

Thesis Research 600, 610. In registering for thesis research, a student uses the appropriate number (600, 610) preceded by the abbreviation designating the major field. The numbers 600 (on campus) and 610 (off campus) are available for credit in thesis research in all graduate major programs. The bursar assesses charges for these courses at the current rate of tuition, according to the student's status at the time of registration.

Ph.D. Dissertation 601, 611. The numbers 601 and 611, with associated special fees, are available to Ph.D. degree candidates who have passed the comprehensive examination and met the two-semester residence requirement. They may be used for dissertation preparation work during its later stages, when the academic activity of the candidate consists

partly (611) or solely (601) of work on the completion of research and writing of the dissertation.

SUBJ 601 and SUBJ 611 do not carry academic credit. They are entered on the academic transcript to indicate the registration and the nature of the candidate's academic activity. A candidate registered for SUBJ 601 is classified as a full-time student, while one registered for SUBJ 611 is classified as a part-time student.

The numbers 600, 601, 610, and 611 may not appear in the Schedule of Courses for each semester.

Supervised Experience in College Teaching 602. May be offered by any graduate program in a department that also offers undergraduate courses. A graduate program with no counterpart undergraduate program may offer SUBJ 602 when cooperative arrangements are made with an administrative unit that does not offer graduate degrees but that uses graduate assistants in its teaching. SUBJ 602 may be offered in any semester and is subject to the following restrictions:

1. SUBJ 602 will not be counted in fulfilling any specific credit requirement for an advanced degree.
2. SUBJ 602 will be graded (A, B, C, D, F). The grade will appear on the student's transcript.
3. SUBJ 602 will not be used in calculating grade-point averages.
4. SUBJ 602 shall be offered only in those graduate programs that want to provide opportunity for supervised and graded teaching experience. Enrollment will be restricted to students for whom the major program is prepared to provide such experience.
5. SUBJ 602 will be counted as a part of the student's credit load unless the program specifies otherwise.

Foreign Academic Experience SUBJ 603. Foreign study and/or research approved by the graduate program for students enrolled in a foreign university constituting progress toward the degree.

Colloquium 890. Continuing, professionally oriented seminars that consist of a series of individual lectures by faculty, students, or outside speakers.

Capstone Experience 894. Supervised, professionally oriented student activities that constitute the culminating experience for the program.

Internship 895. Supervised, professionally oriented, off-campus, nongroup instruction, including field experiences, practicums, or internships. Written and oral critique of activity required.

Individual Studies 896. Creative projects with a professional orientation, including nonthesis research, that are supervised on an individual basis and which fall outside the scope of formal courses.

Special Topics 897, 898. Formal courses given on a topical or special interest subject with a professional orientation that may be offered infrequently; several different topics may be taught in one year or semester. A specific title may be used in each instance and will be entered on the student's transcript. Multiple offerings may be accommodated by the use of suffixes A, B, etc.

Foreign Studies 899. Courses with a professional orientation offered in foreign countries by individual or group instruction.

Course Attributes and Suffixes

Attributes and attribute values are course designations that are used to define specific characteristics for courses. The search for specific types of courses uses attributes and attributes are the most important notation for a course to satisfy a given requirement.

Suffixes are letters that follow a course number and allow for easier identification of a course's characteristics. Not all attributes and characteristics are captured in available suffixes and suffixes are not the feature used to determine if a course satisfies a requirement. The degree audit and what-if reports use attributes, not suffixes, to determine applicability of a course to a requirement.

Bachelor of Arts

Attributes

- BA: Arts
- BA: Humanities
- BA: Natural Science
- BA: World Cultures
- BA: Quantification
- BA: Social and Behavioral Sci
- World Lang (12th Unit)
- World Language (All)
- Exceeds 12th Unit

Cultural Diversity

Attributes

- International Cultures (IL)
- United States Cultures (US)

Suffixes

- U: United States Cultures and/or International Cultures and Honors
- Y: United States Cultures and/or International Cultures and Writing Across the Curriculum

General Education

Attributes

- GenEd: Writing/Speaking (GWS)
- GenEd: Quantification (GQ)
- GenEd: Arts (GA)
- GenEd: Health Wellness (GHW)
- GenEd: Humanities (GH)
- GenEd: Natural Sciences (GN)
- GenEd: Social & Beh Sci (GS)
- GenEd Integrative: Interdomain

Suffixes

- N: Inter-Domain
- Q: Inter-Domain and Honors

First-Year Engagement Program

Attribute

- First-Year Seminar

Course Subject

- PSU: First-Year Seminar

Suffixes

- S: First-Year Seminar
- T: First-Year Seminar and Honors
- X: First-Year Seminar and Writing Across the Curriculum

Writing Across the Curriculum**Attribute**

- Writing Across the Curriculum

Suffixes

- M: Writing Across the Curriculum and Honors
- W: Writing Across the Curriculum
- X: Writing Across the Curriculum and First-Year Seminar
- Y: Writing Across the Curriculum and United States Cultures and/or International Cultures

Honors Courses**Attribute**

- Honors

Suffixes

- H: Honors
- M: Writing Across the Curriculum and Honors
- Q: Inter-Domain and Honors
- T: First-Year Seminar and Honors
- U: United States Cultures and/or International Cultures and Honors

Undergraduate Course Lists

Below are links to course lists that contain courses that are approved to satisfy either General Education, Bachelor of Arts, or other University Degree Requirements (e.g., Writing Across the Curriculum, First-Year Seminar, etc.). These lists updated periodically throughout the academic year.

General Education Requirements

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Course Credits

In accordance with Senate Policy 42-23 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/42-00-acquisition-of-credit/#42-20>), for the typical student, a total of forty-five (45) hours of work planned and arranged by the University faculty is required to gain 1 credit. While the distribution of time varies from course to course, generally one-third of the time is devoted to formal instruction and two-thirds of the time to outside preparation. Course credit by instruction may be achieved by a variety of educational experiences that allow the student to work toward mastery of the course objectives. With the acknowledged goal of educational excellence, more than the minimum established here may be required for mastery of course objectives.

The number of credits for each course is indicated in parentheses and can be earned with classroom, practicum, or laboratory work as designated in LionPATH.

A department may schedule an entire section in an undergraduate course for fewer credits than the maximum authorized. In 400-level courses, a department may schedule an individual student for fewer credits than the maximum authorized. In no case, however, may the course be scheduled for 0 credit, or may the total credits scheduled for any student exceed the maximum number authorized for the course.

Repeatable and Variable Credit Courses

Some courses are designated as repeatable; they may be taken more than once for credit. These courses may be repeated indefinitely unless the department stipulates a maximum number of credits allowed. These courses appear with the maximum number of credits allowed following the number of credits for the course—for example (1.5 credits/maximum of 3).

Courses may have variable credits, such as (1-3), (2-6), or (3-10). Here, the larger number signifies the total credits that can be accumulated for the course over an indefinite number of semesters, unless otherwise specified. For example, a course listed with (1-6) could be taken six semesters for 1 credit each semester, or two semesters for 3 credits each semester, or once for 6 credits, etc.

In some courses with variable credits, students may be permitted to accumulate more than the larger number shown. Such courses will be listed as, for example, (1-3 per semester, maximum of 12).

Any special departmental limitations are indicated by footnotes.

Prerequisites, Concurrent Courses, Co-requisite Courses, and Recommended Preparation

See also: Senate Policy 34-60 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/34-00-course-scheduling/#34-60>).

Prerequisites, concurrent courses, and co-requisite courses approximate the necessary specific coursework or general academic knowledge,

background, or semester classification required to succeed academically in a given course.

- Prerequisites are courses or other requirements that must be completed prior to the start of a given course.
- Concurrent Courses are similar to prerequisites except that they may be taken prior to, or in the same semester as, the given course.
- Co-requisite Courses are pairs of courses required to be taken together in the same semester.

Registration in a given course is limited to students who have satisfied the stated prerequisite, concurrent, or co-requisite requirements. The course instructor has the right to permit students to take the course without having the stated prerequisite, concurrent, or co-requisite requirements, if the student demonstrates mastery of the material through some other means.

Recommended Preparation relates to preparatory skills or companion courses deemed useful, but not necessary, for successful completion of a course. Recommended preparation has no bearing on registration in a given course.

UNDERGRADUATE COURSES

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Accounting (ACCTG)

ACCTG 151: Introductory Financial Accounting I

3 Credits

Basic concepts, principles, and practices for the recording, summarizing, and interpreting of accounting data.

ACCTG 152: Introductory Financial Accounting II

3 Credits

Accounting for partnerships, corporations, cash flows, certain liabilities and assets, and the analysis of financial statements.

Enforced Prerequisite at Enrollment: ACCTG 151

ACCTG 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

ACCTG 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

ACCTG 201: Introduction to Financial Accounting

3 Credits

This course is an introduction to the basic concepts of financial accounting including the collection, recording, summarization, and interpretation of accounting data. Emphasis in the course is placed on using financial accounting information for external decision making. Accounting theory of commonly used accounts such as cash, investments, receivables, inventory, fixed assets, payables, bonds, and stocks are studied. Students who successfully complete ACCTG 211 may not schedule ACCTG 201

Enforced Prerequisite at Enrollment: MATH 21 or a higher math course or a satisfactory score on the mathematics placement examination

ACCTG 202: Introduction to Managerial Accounting

3 Credits

This course is a continuation of ACCTG 201 (Introduction to Financial Accounting) with an in-depth analysis and explanation of the statement of cash flows and how understanding cash flows is important for all users (internal versus external). Then, the course emphasizes the use of accounting information for internal purposes (managerial accounting). The course teaches the vocabulary and method of accumulating and allocating costs in a manufacturing company as well as the understanding of budgets and how they can be used to motivate personnel. Among the topics covered are cost behavior, cost-volume analysis, relevant costs, variance analysis, and the use of cost information for decision making (i.e. capital investment, product pricing, etc.). Current issues, careers, and topics for managerial accounting will also be addressed. Students who pass ACCTG 211 may not schedule ACCTG 202.

Enforced Prerequisite at Enrollment: ACCTG 201

ACCTG 211: Financial and Managerial Accounting for Decision Making

4 Credits

Introduction to the role of accounting numbers in the process of managing a business and in investor decision making. ACCTG 211

Financial and Managerial Accounting for Decision Making (4)The objective of this course is to introduce students to the discipline of accounting through an introduction to two of accounting's sub-disciplines, financial and managerial accounting. The more specific purpose is to provide students a basic understanding of the role of financial and managerial accounting information in the decisions of capital market participants external to a business enterprise (e.g., stockholders, banks, financial analysts, prospective stockholders), and in the decisions of those who manage business enterprises. Accounting information has an important role in the resource allocation process in our socio-economic system as a whole, as well as in each individual business enterprise. This course provides students an understanding of (1) the nature of the accounting function, and (2) how the information in accounting reports are used by various decision makers in their resource allocation decisions. In this course students will develop an understanding of (a) the five activity dimensions of accounting (the collection, recording, analysis, interpretation and reporting of information to decision makers for (mainly) their investment decisions), (b) the issues surrounding the five activity dimensions, (c) the environment in which accounting is practiced, and (d) what information is used in a number of specific decision situations, and how such information is used in such decision situations. The analysis, interpretation and decision-making orientation of this course includes a study of the procedural (mechanical and processing) aspects of the recording activity dimension which is an important means to the end --where the end is the analysis and interpretation of the information, and the reports produced by the recording/processing part of accounting. Through this focus on the recording activity dimension, students will obtain an understanding of (a) the nature and quality (strengths and weaknesses) of accounting information, (b) how to proceed in analyzing and interpreting accounting information, and (c) numerous other aspects of financial and managerial accounting. This course is an important background course for all business majors, as well as for numerous non-business majors.

Enforced Prerequisite at Enrollment: MATH 21 or a higher math course or a satisfactory score on the mathematics placement examination

ACCTG 211H: Financial and Managerial Accounting for Decision Making

4 Credits

The objective of this course is to introduce students to the discipline of accounting through an introduction to two of accounting's sub-disciplines, financial and managerial accounting. The more specific purpose is to provide students a basic understanding of the role of financial and managerial accounting information in the decisions of capital market participants external to a business enterprise (e.g., stockholders, banks, financial analysts, prospective stockholders), and in the decisions of those who manage business enterprises. Accounting information has an important role in the resource allocation process in our socio-economic system as a whole, as well as in each individual business enterprise. This course provides students an understanding of (1) the nature of the accounting function, and (2) how the information in accounting reports are used by various decision makers in their resource allocation decisions. In this course students will develop an understanding of (a) the five activity dimensions of accounting (the collection, recording, analysis, interpretation and reporting of information to decision makers for (mainly) their investment decisions), (b) the issues surrounding the five activity dimensions, (c) the environment in which accounting is practiced, and (d) what information is used in a number of specific decision situations, and how such information is used in such decision situations. The analysis, interpretation and decision-making orientation of this course includes a study of the procedural

(mechanical and processing) aspects of the recording activity dimension which is an important means to the end –where the end is the analysis and interpretation of the information, and the reports produced by the recording/processing part of accounting. Through this focus on the recording activity dimension, students will obtain an understanding of (a) the nature and quality (strengths and weaknesses) of accounting information, (b) how to proceed in analyzing and interpreting accounting information, and (c) numerous other aspects of financial and managerial accounting. This course is an important background course for all business majors, as well as for numerous non-business majors.

Enforced Prerequisite at Enrollment: MATH 21 or a higher math course or a satisfactory score on the mathematics placement examination Honors

ACCTG 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

ACCTG 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

ACCTG 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

ACCTG 305: Financial Statements and Management Decisions

4 Credits

Impact of management's financing, investing, and operating decisions on GAAP-based financial statements. This course is a one-semester condensed version of the traditional two-semester intermediate accounting sequence (ACCTG 371 or 471; and 472) intended for the non-accounting major. Students who have passed ACCTG 371 or 471; and 472 may not take this course for credit. It is a required course for the Finance major. Students will gain a fundamental understanding of the information conveyed in the financial statements and, as a result, develop an appreciation for its usefulness and limitations in decision making. They will also develop the prerequisite knowledge base necessary to conduct financial statement analysis as required in Level I of the Chartered Financial Analyst (CFA) exam. A financial statement user decision-making perspective, rather than the accountant/preparer approach found in the traditional intermediate accounting sequence, is emphasized. Student success in meeting the learning objectives will be assessed through a combination of exams, quizzes, assigned homework problems, and participation. The comprehensive final exam will test the student's comprehension of the relevant material.

Enforced Prerequisite at Enrollment: ACCTG 211 and FIN 301

ACCTG 310: Federal Taxation I

3 Credits

Study of income determination concepts for individuals and corporations, impact of taxation on decisions, elementary research techniques, and ethical standards. ACCTG 310 Principles of Taxation (3) This course is directed to the study of concepts relative to: (a) the determination of taxable income and tax liability, (b) the influence of tax considerations on the decisions of taxpayers, and (c) elementary tax research techniques. Primary emphasis is given to concepts that are fundamental to the federal taxation of income with respect to business entities. Also, basic aspects of the taxation of individuals are introduced. The objectives of this course are to enable students to do the following: 1) apply basic tax rules and regulations to compute the taxable income and federal income tax liability for corporate and individual taxpayers, 2) incorporate tax costs and tax benefits into calculations of the net present value of cash inflows and outflows from taxable activities, 3) recognize tax planning opportunities or problems inherent in common transactions, and 4) appreciate the impact of the basis of accounting on both tax and financial reporting. Typical topics include sources of authority, structure of an income tax, property transactions, choice of entity, distribution of income, selection of jurisdiction, means of financing, and taxation of individuals. Students should be familiar with basic accounting concepts, should understand the nature of financial instruments, and should be able to apply the concept of present value and future value in estimating cash inflows and outflows. This is a required course for accounting majors and, for many of them, the only tax course that they take. Other students who meet the prerequisite requirements may take this course as an elective. Also, this principles course in taxation is a prerequisite requirement for an advanced course in taxation. Evaluation is based primarily on periodic examinations. No special facilities are required. However, students have on-line access to tax laws and regulations, tax cases, and administrative guidance. This course is generally offered every semester with enrollments of twenty to thirty students per section.

Enforced Prerequisite at Enrollment: ACCTG 211 or FIN 301

ACCTG 311: Accounting Systems and Control

3 Credits

Introduction to accounting procedures to gather, to aggregate, and to report accounting data to managers and to external readers. ACCTG 311 Accounting Information Systems (3) This course pertains to the study of accounting information systems as an important part of a firm's total information systems. The accounting cycle, as the key process providing financial information to management, is thoroughly reviewed and documented. Emphasis is given to the importance of computer-based accounting information systems in supporting internal controls and improving financial reporting, asset security and efficiency and effectiveness of performance. Course objectives: 1.) to understand the accounting model and specifically, the accounting cycle within a business entity; 2.) to process business and accounting transactions and complete the accounting cycle within a computer-based accounting information system; 3.) to analyze accounting information and related internal controls within a computer-based accounting information system; 4.) to examine relevant ethical issues; 5.) to gain an appreciation for evolving technology advancements, such as ERP's and e-commerce, and their impact on the accounting cycle and internal controls. This is a prescribed course for majors in Accounting and it serves as a foundation and prerequisite for most 300-level and 400-level accounting courses. Students will be evaluated based on performance on exams, computer-

based accounting system project, and periodic homework assignments. Typically, 50% or more of student's grade is based on performance on exams. Course will be taught in either a technology classroom with computers for all students or periodic sessions in the computer lab. [Students will require consistent access to a computer to complete computer-based accounting system project].

Enforced Prerequisite at Enrollment: ACCTG 211

ACCTG 312: Accounting Technology Lab

3 Credits

Hands-on course to teach accounting software, applications of spreadsheets and databases in accounting, and surveying of underlying database theory. ACCTG 312 Accounting Technology Lab (3) This is a hands-on course to teach accounting software, applications of spreadsheets and databases in accounting, and surveying of underlying database theory .

Enforced Prerequisite at Enrollment: ACCTG 305 or ACCTG 371

ACCTG 340: Cost Accounting

3 Credits

Accounting for manufacturing concerns; actual and standard cost systems, and managerial uses of cost data.

Enforced Prerequisite at Enrollment: ACCTG 211 or ACCTG 311

ACCTG 371: Intermediate Accounting I

4 Credits

Financial accounting methods, theory and concepts; analysis of problems in applying concepts to financial statements and asset accounts.

Enforced Prerequisite at Enrollment: ACCTG 211

ACCTG 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

ACCTG 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

ACCTG 403: Auditing

3 Credits

Financial compliance, internal, and operational audits; standards and procedures; sampling; EDP auditing; professional issues; application of concepts through written responses. ACCTG 403 Auditing (3) Financial statement, regulatory and contract compliance, internal and operational audits, professional standards and ethical conduct; statistical and judgmental sampling; the audit-impact of information technology; audit

risk and internal control structure evaluation; application of procedures in transaction cycles; audit reporting; professional issues.

Enforced Prerequisite at Enrollment: ACCTG 371 or ACCTG 471

ACCTG 403W: Auditing

3 Credits

Financial, compliance, internal, and operational audits; standards and procedures; sampling; EDP auditing; professional issues; application of concepts through written responses. ACCTG 403W Auditing (3) Financial statement, regulatory and contract compliance, internal and operational audits, professional standards and ethical conduct; statistical and judgmental sampling; the audit-impact of information technology; audit risk and internal control structure evaluation; application of procedures in transaction cycles; audit reporting; professional issues.

Enforced Prerequisite at Enrollment: ACCTG 371 or ACCTG 471

Writing Across the Curriculum

ACCTG 404: Managerial Accounting: Economic Perspective

3 Credits

Accounting techniques as planning, control, and motivating devices in business and other organizations; accounting data for decision making and performance evaluation. ACCTG 404 Managerial Accounting (3) This course emphasizes the use of accounting information for internal purposes as opposed to the external disclosure focus of the financial accounting course. The cost covers the vocabulary and mechanics of cost accounting and the design of management accounting systems for planning and controlling operations, and for motivating personnel. The course integrates accounting with ideas from data analysis, decision analysis, finance, microeconomics, and operations management. The themes stressed throughout the course will be the notion that information is costly; the circumstances that necessitate cost allocation, the idea that different costs and different allocation schemes apply for different purposes; and fundamentals of incentive and compensation plans. Among the topics covered are cost behavior, cost-volume analysis, relevant costs, and the use of cost information for decision making. The course will rely on lectures and discussion of case studies.

Enforced Prerequisite at Enrollment: ACCTG 211 and (SCM 200 or STAT 200) and ECON 102

ACCTG 405: Principles of Taxation I

3 Credits

Elements of tax policy and tax-planning concepts for personal and business decision making; with emphasis on taxation of individuals. ACCTG 405 Principles of Taxation (3) Introduction to Taxation, is the first course that undergraduate accounting majors take that is devoted entirely to taxation. Although the course is intended for accounting majors, the content is relevant to finance majors seeking elective courses. The objective of the course is to provide students with a basic understanding of the concepts, terminology, and decision-making skills specific to the discipline of taxation that are germane to the professional development of those preparing for a career in accounting. Although the course surveys the many forms of taxation that are found in industrialized societies, and the comparisons thereof, the main focus is on the federal income taxation of individuals. However, coverage is provided regarding the manner in which the taxation of individuals relates to corporate and partnership entities. ACCTG 405 is related to

other accounting courses through its coverage of income concepts, and micro-economic principles. The former compares differences in the measurement of financial accounting income with the manner in which income is determined according to the tax laws. The latter emphasizes business decision-making principles that are important in the managerial portion of the accounting program. The course covers topics that illustrate fundamental tax strategies and how such enable taxpayers to achieve business and personal economic objectives. The assessment process in ACCTG 405 incorporates examinations, homework assignments, and individual and group projects. The exams are combinations of objective questions and open-ended problems. Exams are often given in the evening. Course learning aids include a text book, on-line tax research services, spreadsheet software, and a packet of handouts prepared by instructors to keep the classes updated on the many changes in the tax laws that occur each year.

Enforced Prerequisite at Enrollment: ACCTG 211 and (BA 301 or FIN 301)

ACCTG 406: Principles of Taxation II

3 Credits

Impact of federal tax structure on business decisions, research methodology, tax planning; ethical considerations of tax practice.

Enforced Prerequisite at Enrollment: ACCTG 405

ACCTG 410: Federal Taxation II

3 Credits

An examination of the rules and forms used to compute the federal tax liability of corporations and partners.

Enforced Prerequisite at Enrollment: ACCTG 310

ACCTG 411: Accounting Practicum: VITA

3 Credits

Introduces students to practical aspects of tax preparation through the IRS' VITA program and completion of a tax research project.

Enforced Prerequisite at Enrollment: ACCTG 310

ACCTG 417: Corporate and Managerial Communication

2-3 Credits

Developing student's expertise in interpreting and communicating accounting and financial information to business professionals. ACCTG 417 Corporate and Managerial Communication (2-3) This course provides an opportunity for business students to develop oral, graphic, and written communication skills essential to success in a corporate environment, with emphasis on corporate accounting, finance, and/or consulting contexts. The course provides a framework for understanding the characteristics of effective business communication. It further provides guidelines for the successful development and delivery of professional messages. This course employs individual and team activities designed to strengthen skills in the development and delivery of corporate messages. Participants will gain experience analyzing and discussing financial and accounting data, evaluate and prepare professional responses to corporate problems/opportunities, and develop strategies for conversing with multiple business audiences. Specific

selection of topics will evolve to reflect current issues in business, finance, and accounting.

Enforced Prerequisite at Enrollment: CAS 100 and ACCTG 211

ACCTG 422: Accounting Systems

3 Credits

Understanding flow and documentation of accounting information and internal controls in the context of accounting cycles. ACCTG 422 Accounting Systems (3) This course primarily investigates accounting transactions cycles-processes and procedures by which an organization's financial information is recorded, processed, reported, and disposed of. The processes covered in this course range from manual to fully automated and Web-enabled systems. The documentation and analysis of the accounting cycles for the revenue, expenditure, conversion, and managerial reporting areas are explored via flowcharts and narrative descriptions. The concepts of files, transaction updates, editing, and reporting in the automated accounting systems are explored. The course also covers internal controls in the manual and automated systems. Additional topics may include fraud examination, applicable laws and regulations, and computerized auditing.

Enforced Prerequisite at Enrollment: ACCTG 312

ACCTG 423: Accounting Data Analytics

3 Credits

This course focuses on helping students develop data analytic skills using accounting data. Data has proliferated in business and managers and accountants need to understand the implications for decision-making and tap into the data to provide better insights into a firm/client/customer/supplier. This course is intended to provide students with an understanding of data analytic thinking and terminology as well as hands-on experience with data analytics tools and techniques. It is designed to help accounting students develop an analytical mindset and link data analytics to four major subdomains of accounting (i.e., financial, managerial, audit, and tax). It will cover how to use programming software to automate data analytic tasks. Students will learn how to analyze large amounts of data to find actionable insights. The first half of the course introduces the accounting data analytics framework. Under this framework, students will learn the importance of assembling accounting data, the desirable characteristics of data for effective calculations and visualization, and analysis and interpretation of fundamental data analytic tools, such as regressions. The second half of the course focuses on how to apply data analytic skills to the four major subdomains of accounting: financial, managerial, audit, and tax. Respective hands-on examples will be used for demonstration. Students should leave this course with the skills necessary to translate accounting and business problems into actionable proposals that they can competently present to managers and data scientists.

Enforced Prerequisite at Enrollment: ACCTG 471 and ACCTG 310 and ACCTG 340 and Enforced Concurrent at Enrollment: ACCTG 403

ACCTG 426: Financial Statement Analysis

3 Credits

The exploration of conventional and advanced methods of analyzing financial statements, including the assessment of earnings quality. ACCTG 426 Financial Statement Analysis (3) The objective of this course is to explore conventional and advanced analytical methods of analyzing

financial statements. Expanding on the material covered in the principles of accounting and principles of finance courses and using actual financial statements, students: review and apply the traditional methods for analyzing financial statements, such as ratio analysis, trend analysis, and common-size analysis, apply advanced tools for analyzing financial statements, such as financial distress prediction models and earning manipulation prediction models, and evaluate accounting policies and disclosures and their impact on the financial statements through the assessment of earnings quality.

Enforced Prerequisite at Enrollment: FIN 301

ACCTG 431: Advanced Auditing

3 Credits

Examination of legal liability, EDP, statistical sampling, SEC reporting, internal control, and financial reporting in specialized industries.

Enforced Prerequisite at Enrollment: ACCTG 403 or ACCTG 403W

ACCTG 432: Accounting Information Systems

3 Credits

Accounting data are utilized as information in making decisions and as a control mechanism. The focus of this course, however, will be upon the actual production of accounting data. The purpose of the course is to learn how accountants collect relevant data and transform them into reports appropriate for managers and external readers. Procedural details will focus first on the traditional accounting cycle and the journal entries for business transactions and events. Then we shall examine in detail the principle accounting cycles: sales cycle, cash receipts cycle, purchases cycle, cash disbursements cycle, payroll cycle, facilities cycle, general ledger cycle, production cycle. For each cycle, you should be able to explain the relation of the accounting process to the business enterprise, the basic journal entries, the basic internal control features, and the document flow.

Enforced Prerequisite at Enrollment: (ACCTG 371 or ACCTG 471) and (MIS 204 or MIS 250)

ACCTG 440: Advanced Management Accounting

3 Credits

Management accounting topics such as decision models, quantitative techniques, variance analysis, and their use in accounting. ACCTG 440 Advanced Management Accounting (3) An in-depth examination of accounting techniques used within modern organizations. The course is designed for students interested in pursuing careers in corporate accounting or financial management. The portfolio of managerial accounting procedures, including cost measurement and allocation, budgeting practices, transfer pricing, and variance analyses appropriate to an organization's unique circumstances are derived. The student will learn to apply psychological and sociological theories of behavior to practical problems of control and to apply quantitative methods and models to managerial decision-making. Other topics covered by the course may include, financial management of working capital, long-term assets and liabilities; techniques for managing inventory; and strategic cost management including inter-organizational cost management.

Enforced Prerequisite at Enrollment: ACCTG 340 or ACCTG 404

ACCTG 450: Advanced Accounting

3 Credits

Accounting theory and practice for business combinations, branches, international operations, partnerships, consolidated financial statements, corporate liquidations, nonprofit organizations, estates, and trusts.

Enforced Prerequisite at Enrollment: ACCTG 472

ACCTG 461: International Accounting

3 Credits

Study of international accounting issues with emphasis on need, use, and interpretation of financial accounting required in global business environment.

Enforced Prerequisite at Enrollment: ACCTG 471 and ACCTG 472 International Cultures (IL)

ACCTG 462: Governmental and Not-for-Profit Accounting

3 Credits

Provides an understanding of governmental and not-for-profit accounting theory, procedures, and financial statements.

Enforced Prerequisite at Enrollment: ACCTG 311 or ACCTG 471

ACCTG 471: Intermediate Financial Accounting I

3 Credits

Theory and practice issues in income concepts and value measurement; GAAP; revenues, costs, assets, liabilities, and equities. ACCTG 471 Intermediate Accounting I (3) This course provides students with an understanding of generally accepted accounting principles and procedures so that they properly account for and present information in financial statements prepared for external users. The student should acquire a complete understanding of the accounting issues relating to cash, receivables, inventory, plant assets, natural resources, and intangibles. The student should be able to evaluate alternative accounting methods and choose the methods which will best convey the financial information related to the above areas. The student should be able to apply appropriate generally accepted accounting principles and procedures to account for transactions related to the above asset areas. The student should be able to demonstrate an understanding of the transaction analysis, recording, classification, summarization, and reporting procedures in the accounting cycle, and an understanding of the information contained in the financial statements. Finally, student should be able to demonstrate written communication skills required of accountants.

Enforced Prerequisite at Enrollment: ACCTG 211 or ACCTG 311

ACCTG 472: Intermediate Financial Accounting II

3 Credits

Off-balance-sheet financing; special issues in cost capitalization, liabilities, and equities; matching; funds flow statements; statement analysis; inflation accounting.

Enforced Prerequisite at Enrollment: ACCTG 371 or ACCTG 471

ACCTG 473: Advanced Financial Accounting

3 Credits

Reporting for multi-corporate enterprises, business combinations, quasi-reorganizations, and selected contemporary reporting problems. ACCTG 473 Advanced Financial Accounting (3) This course explores four major topics: accounting for business combinations, introduction to derivatives and special purpose entities, accounting for foreign currency transactions and consolidating foreign subsidiaries, and ethics and policy issues for the profession.

Enforced Prerequisite at Enrollment: ACCTG 472**ACCTG 481: Financial Statement Analysis: Accounting Based Evaluation and Decision Making**

3 Credits

An accounting based evaluation and decision making approach to analyzing financial statements by studying business and firm valuation. ACCTG 481 Financial Statement Analysis (3) The proposed course in financial statement analysis is structured to improve the student's ability to extract and interpret information from actual financial statements and to expose the student to how financial statement information is integrated into equity valuation and credit analysis. The course would not only rely upon textbook-based and lecture-based learning, but also emphasize case-based learning. The course will consist of two main sections. The first will deal with accounting and business analysis. This part will explore the types of financial information data typically available for publicly traded companies and introduce a model of the economic drivers of company performance. It would incorporate some technical accounting as well as some standards business economics/strategy concepts. Students will be forced to recast financial statements that they believe do not reflect the underlying economic state of the company. Financial reporting issues relating to revenue and expense recognition, leases and consolidations will be discussed. The other section of the course will deal with firm valuation. Students would be exposed to some standard approaches to equity valuation and the analysis activities underlying these approaches. Aspects of valuation that would be covered in this section of the course are financial ratio analysis, forecasting, pro-forma statements, cost of capital and valuation methods. The course will rely on lectures and extensive use of case studies.

Enforced Prerequisite or Concurrent at Enrollment: ACCTG 472**ACCTG 483: Forensic Accounting**

3 Credits

Study of investigative accounting, consulting and litigation support activities undertaken in forensic accounting engagements. ACCTG 483 Forensic Accounting (3) ACCTG 483 is the exploration of the broad discipline known as "forensic accounting" which includes a variety of investigative accounting, valuation, damage assessment and litigation support services. Forensic accounting is an evolving discipline which is distinguished from assurance services in that it does not involve reporting on the fairness of financial statements. It generally involves the investigation and analysis of financial data for some specific purpose - obtaining an in-depth understanding of information that enables the forensic accountant to prove, disprove or at least confidently speculate about allegations related to the information and to report those findings objectively. Forensic accountants are involved in presenting analyses that might be valuable for such things

as settling legal disputes, calculating economic damages, valuing intellectual property, determining the extent of damage or loss due to fraud, or tracing elusive assets or revenue sources. A forensic accountant might also participate in pro-active engagements such as the development of systems and procedures to prevent fraud. The first part of the course deals with the technical and ethical framework of forensic accounting and focuses on the understanding of forensic and investigative accounting including investigation methodology, the nature of fraud, fraud risk factors, financial statement fraud, litigation support and dispute resolution services and development of the skills needed in those professional activities. These skills include the ability to integrate knowledge of accounting, finance, economics, business law and other business disciplines in gathering, analyzing and evaluating evidence and drawing conclusions. The second part of the course focuses on forensic accounting investigation and analysis of financial information in connection with litigation, dispute resolution, estimation of economic damages, or other specific objectives, and the preparation of comprehensive, objective reports of findings and conclusions.

Enforced Prerequisite or Concurrent at Enrollment: ACCTG 472 and (ACCTG 403 or ACCTG 403W)**ACCTG 494: Research Project**

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

ACCTG 494H: Research Project

1-6 Credits/Maximum of 6

Supervised student activities on research projects identified on an individual or small-group basis. ACCTG 494H Research Project (1-6) ACCTG 494H, Senior Honors Thesis in Accounting - Investigation of an original problem area associated with accounting, including literature review. A thesis topic must be approved and a thesis supervisor must be identified before the course may be scheduled. Students sign up for three credits in each of their last two semesters for a total of six credits.

Honors

ACCTG 495: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: prior approval of proposed assignment by instructor
Full-Time Equivalent Course**ACCTG 496: Independent Studies**

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

ACCTG 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

ACCTG 498: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest. .

ACCTG 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Adult Education (ADTED)

ADTED 100: Adult Learners in the University

3 Credits

ADTED 100 is an opportunity for adult learners to develop effective learning and writing strategies. This course is designed for the adult learner who is entering the university for the first time, or who is returning after an absence from studies. In this course we will help you: develop or renew effective academic writing, study skills, learning strategies, and time management tools that will help you succeed at Penn State and in your career. In the course, we will identify useful university resources and you will learn effective writing skills and hone critical reading abilities to meet the requirements of academic coursework. We will also practice public speaking skills so you will feel more confident and articulate in your classes and your career after graduation.

General Education: Writing/Speaking (GWS)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Key Literacies

ADTED 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given on a topical or special interest subject which may be offered infrequently.

ADTED 300: Social Movements and Education: Global Perspectives

3 Credits

Social Movements are some of the most important contemporary actors influencing both societies and individuals. Social movements are also educational, transforming participants' worldviews and developing innovative pedagogical practices for both non-formal contexts and formal schooling systems. This course examines the role education plays in social movement struggles in the United States and globally. In the first part of the course, we analyze the informal, non-formal, and formal educational initiatives that were part of the U.S. Civil Rights Movement. Then, in the second part of the course, we read the Brazilian educator Paulo Freire's *Pedagogy of the Oppressed* and examine how popular

education - a pedagogy created by and for social movements - has been integrated into a diversity of grassroots struggles in Latin America. In the third part of the course, we go beyond the Americas and explore social movement-led educational practices in Africa, Asia, and the Middle East. Finally, in the fourth student-led part of the course we return to the United States and learn about education in a diversity of contemporary U.S. social movements. During these final weeks, students will lead a class discussion based on their secondary and primary research on one social movement. This course will introduce students to a diversity of social movements in unique geographical and social contexts and show how these movements have incorporated education into their broader fights for economic, racial, gender, environmental, and social justice.

International Cultures (IL)

United States Cultures (US)

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

ADTED 456: Introduction to Family Literacy

3 Credits

Introduces family literacy concepts, models, and components supporting families; adult, child, and parent education, interactive literacy activities, and case management. ADTED 456 Introduction to Family Literacy (3) This 3-credit course examines the concept of family literacy and different models and services that support families. Students will review the main parts of family literacy services and programs that support vulnerable families: adult education, early childhood education, parent education, interactive literacy activities, case management, and collaboration with partners who provide services to families (such as libraries, community centers, school districts, one-stop services, Head Start.) The course attends to issues such as racial/ethnic, cultural, and linguistic diversity among families, continuous program improvement, and professional development.

Prerequisites: 5th Semester standing or Graduate Status or Non-Degree GRAD status

ADTED 457: Adult Literacy

3 Credits

Surveys adult basic and literacy education research, theory, programming, and instruction; highlights learners' roles as parents, workers, and community members. ADTED 457 Adult Literacy (3) This 3-credit course explores adult literacy research, theory, programming, and instructional practices in the context of family literacy. The course examines the role of adult education as it pertains to adult learners' needs and their roles as parents, workers, and community members. The course addresses a broad range of topics, including adult learning theories, considerations for English language learners, reading and numeracy, health literacy, workforce and corrections education, and transitioning adults to postsecondary education or training. Readings and activities will draw on theoretical and practical aspects of adult education and family literacy literature.

Prerequisites: 5th Semester standing or Graduate Status or Non-Degree GRAD status

ADTED 458: Early Literacy Development

3 Credits

Focuses on young children's language and literacy development, including parental and staff support, grounded in scientifically based reading research. ADEED 458 Early Literacy Development (3) This is a three-credit, post-baccalaureate course that focuses on young children's language and literacy development. This course examines research related to how children acquire language, reading, and writing skills, as well as how family partnerships between the home and school can further support language and literacy development and children's academic success. This course will cover a wide array of topics related to language and literacy development, including the influence of play and technology, the impact of read-alouds on literacy development, and the role of racial/ethnic and cultural diversity in learning. Students will examine early literacy development through a series of activities and readings.

Prerequisites: 5th Semester standing or Graduate Status or Non-Degree GRAD status

ADTED 459: Interactive Literacy and Parental Involvement: Supporting Academic Success

3 Credits

Explores parental involvement in education and parent-child literacy activities that support children's language and literacy development, especially among diverse families. ADEED 459 Interactive Literacy: Parents and Children (3) Interactive Literacy: Parents and Children is one of five 3-credit courses in the 15-credit Certificate in Family Literacy developed by the Goodling Institute for Research in Family Literacy in the College of Education in partnership with the National Center for Family Literacy (Louisville, KY). It is offered during the summer and fall semesters to about 20 students per class. The course is 15 weeks in length, entirely online, and cohort-based. Study materials are both web- and print-based. Students work in teams for most of their assignments although they are also expected to produce a portfolio of individual application activities. An Associate's Degree or 60 baccalaureate credits at an accredited institution are required to enter the course. Technological requirements, registration, and other support are provided. The course focuses on the component of family literacy in which the low-literate parents engage in language and literacy development activities with their young children (birth to age 8). During interactive literacy the teachers both model and supervise the literacy interactions. Students learn to use planned and intentional activities that are developmentally appropriate for the children. They also learn how to teach the parent the necessary interaction skills as well as how to debrief the parents afterwards. They also learn how to assess the literacy interactions between parents and their children.

Prerequisites: 5th Semester standing or Graduate Status or Non-Degree GRAD status

ADTED 460: Introduction to Lifelong Learning and Adult Education

3 Credits/Maximum of 3

History, methods, agencies, program areas, and problems of lifelong learning and adult education in the United States.

Prerequisites: 5th Semester standing or graduate status or non-degree GRAD status

ADTED 470: Introduction to Distance Education

3 Credits

An introduction to the history, philosophy, organizations, learning theories, and instructional procedures used in American and foreign distance education.

Cross-listed with: CIED 470

ADTED 480: Teaching Math and Numeracy to Adults

3 Credits

ADTED 480 examines issues of learning math as an adult and explores effective strategies for teaching math and numeracy to adults. ADEED 480 Teaching Math and Numeracy to Adults (3) Many international assessments show that the numeracy skills of U.S. adults are lower than those of adults in many other countries and that their numeracy skills are even weaker than their literacy skills. This online course is designed for teachers, administrators, and others concerned with helping adults develop the math skills and abilities they need to function successfully in workplace, educational, and community settings. This course will focus on (1) how adults develop math skills in informal and work contexts and in classes or programs for students who wish to obtain a high school credential; (2) considerations for teaching math to immigrant adults and those with learning disabilities; and (3) the identification and implementation of instructional strategies for helping adults acquire the numeracy skills they need. Using current research from the U.S. and other countries, course participants will consider the benefits and limitations of various instructional and programmatic approaches to helping adults learn. Through this course, students will (1) identify the implications of adult learners'; prior experiences with math and numeracy for their reengagement with math in a non-formal learning setting; (2) differentiate between numeracy and math and consider the relevance of the distinction to teaching adult learners; (3) identify adult processes for learning math and compare and contrast them with those of children; (4) gain current knowledge about math standards that guide instruction and policy for adults; and (5) develop and evaluate instructional strategies and initiatives to teach math to adults, including accommodating immigrant learners and those with learning disabilities. Further, students will consider the knowledge and skills needed to help adults acquire functional numeracy skills.

Prerequisite: Associate degree or 60 undergraduate credits

ADTED 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given on a topical or special interest subject which may be offered infrequently.

Aerospace Engineering (AERSP)

AERSP 1: Aerospace Explorer--First-Year Seminar

1 Credits

First-Year Seminar explores aerodynamics, structural mechanics, flight mechanics, rotorcraft systems, high performance computers, air/space propulsion, and space systems. AERSP 1 Aerospace Explorer--First-Year Seminar (1) (FYS) Aerospace Engineering deals with vehicles that fly -- airplanes, sailplanes, jets, helicopters, rockets, satellites, the space shuttle, space stations, etc. Students with an interest in these

subjects can learn more about the variety of challenges and opportunities in the aerospace field through the small-class environment of the Aerospace Explorer First-Year Seminar. An introduction to both the academic major and career paths in Aerospace Engineering, this seminar deals with the design, analysis and operation of aircraft and space vehicles. Students will learn about aerodynamics, structural mechanics, flight mechanics, rotorcraft systems, high performance computers, air-breathing propulsion, space propulsion, and space systems. The classes will include presentations by the Aerospace Engineering faculty, tours of the Aerospace Engineering laboratories, and presentations by student officers in the Penn State chapters of the American Institute of Aeronautics and Astronautics (AIAA) and the American Helicopter Society (AHS), as well as introductions to the use of scientific plotting, graphing, and analysis software.

First-Year Seminar

AERSP 55: Space Science and Technology

3 Credits

The science and technology of space exploration and exploitation; physical principles; research and development; history, space policy, and social implications.

Cross-listed with: STS 55

Bachelor of Arts: Natural Sciences

Bachelor of Arts: Social and Behavioral Sciences

AERSP 97: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

AERSP 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

AERSP 204: Flight Vehicle Design and Fabrication I

2 Credits/Maximum of 8

Integrated project management, design, fabrication, testing, and flight evaluation of an advanced composite flight vehicle.

Honors

AERSP 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

AERSP 301: Aerospace Structures

3 Credits

Aerospace structural design concepts, flight safety. Stiffness, strength, stability of thin-walled structures under combined loads. Energy methods, finite element analysis. AERSP 301 Aerospace Structures (3) AERSP 301

covers essential topics in aerospace structures. The objectives of the course are to help students: 1) appreciate the roles that structures and structural materials play in aerospace vehicles; 2) understand general design concepts for aerospace structures: vehicles, components, and materials; 3) develop the analysis tools and skills needed to analyze the performance of aerospace structures; and 4) gain experience identifying, formulating, and solving aerospace structural engineering problems. AERSP 301 builds on structural mechanics topics from required foundational courses in mechanics, statics, dynamics and strength of materials. It prepares students for study of advanced topics such as plates and shells, composites, structural stability, finite element analysis, structural dynamics, and aeroelasticity. It also provides students with the basic background needed to contribute effectively to multidisciplinary trade studies in vehicle design activities. AERSP 301 begins with an overview of the general features of flight vehicle structures, with emphasis on thin-walled members and advanced materials. Then, the implications of assured safety of flight for structural design are explored, leading to coverage of: load cases, flight envelopes, load factors, factors of safety, kinds of structural failures, and margins of safety. Topics in structural analysis proceed from an initial review of topics in elasticity, structural materials, and beam bending. Then, the deflection and stress responses of thin-walled beams under transverse shear and torsional loading are addressed. More than a third of the course is devoted to energy principles and the development of the finite element method of structural analysis. The course finishes with a treatment of the structural stability of beams and panels, a key topic with respect to the behavior of thin-walled aerospace structures.

Enforced Prerequisite at Enrollment: (EMCH 210 or EMCH 213) and MATH 220 and [MATH 230 or (MATH 231 and MATH 232)] and (MATH 250 or MATH 251)

AERSP 304: Dynamics and Control of Aerospace Systems

3 Credits

Vibrations of single, multiple, and infinite degree-of-freedom systems; operational methods applied to aerospace vehicles; design of controllers.

Enforced Prerequisite at Enrollment: AERSP 313 and EMCH 212

AERSP 305W: Aerospace Technology Laboratory

3 Credits

Experiments in measurement systems, aerodynamics, aerospace structures, dynamics and control, and propulsion, technical report writing and presentations. AERSP 305 Aerospace Technology Laboratory (3) AERSP 305 is a junior-level experimental laboratory course in Aerospace Engineering. The purpose of this course is to expose students to the key principles and methods of experimentation as related to the field of aerospace engineering. Students learn the fundamentals of measurement techniques to determine quantities such as temperature, force, pressure, displacement, velocity, acceleration and strain in various laboratory situations. The course employs weekly "set-up" experiments that provide an opportunity for students to familiarize themselves with modern measurement techniques and gain valuable experience regarding the calibration and use of aerospace engineering research equipment. Students are expected to apply their knowledge of mathematics, science, and engineering in order to complete successfully the experiments encountered in the laboratory. The subsequent interpretation and analysis of the laboratory data requires the use of standard engineering tools and practices. Students work in lab groups to process data and then identify, formulate, and solve engineering questions associated

with the experimental results. Throughout the semester, students communicate their knowledge and understanding of the course material through a series of class assignments, written technical reports, and one final exam. Because writing and revising laboratory reports significantly enhances the understanding and interpretation of the research data, this course is "writing-intensive." As such, students are expected to improve their writing skills as they gain experience writing abstracts, informal reports and formal reports. Peer review of reports helps students to recognize good writing, and to learn how to provide constructive criticism. The course instructor provides written feedback for revised formal reports, and the quality of writing is a factor in determining final grades.

Enforced Concurrent at Enrollment: AERSP 301 and AERSP 311 and ENGL 202C

Writing Across the Curriculum

AERSP 306: Aeronautics

3 Credits

Lift and drag characteristics of aircraft; propulsion systems; airplane performance; introduction to stability and control.

Enforced Prerequisite at Enrollment: AERSP 311 and AERSP 313

AERSP 308: Mechanics of Fluids

3 Credits

Kinetics and dynamics of fluids; perfect fluid theory using complex variables; introduction to viscous flow theory; fundamentals of compressible flow.

Enforced Prerequisite at Enrollment: (EMCH 212 or EMCH 212H) and MATH 251

AERSP 309: Astronautics

3 Credits

Introduction to space and space flight; laws of particle mechanics; orbits and trajectories; space vehicles and propulsion. AERSP 309 Astronautics (3) This course, required for aerospace engineering majors, focuses primarily on the dynamics of spaceflight, including both orbital and attitude (orientation) motion of spacecraft. Topics include: three-dimensional rotational kinematics (direction cosine matrices, vector components in different coordinate systems, Euler angles, the angular velocity vector, and velocity and acceleration in different reference frames), three-dimensional particle dynamics (Newton's laws of particle motion, energy, angular momentum, and systems of particles), two-body orbital mechanics (Newton's law of universal gravitation, the orbit equation, conic sections and orbit terminology, Kepler's equation, classical orbital elements, and representations of satellite position and velocity), orbital maneuvers and transfers (impulsive maneuvers, Hohmann transfers, simple inclination changes, and relative motion between spacecraft), rigid-body dynamics (angular momentum and energy, the inertia matrix, principal-axis system, Euler's equations of rigid-body motion, torque-free motion, and effects of external torques), rocket performance (the rocket equation, specific impulse, estimating propellant requirements for a mission, and a survey of propulsion technology), and the space environment (standard atmosphere, simple radiative heat-transfer analysis, the Van Allen radiation belts, meteors and debris hazards). The course relies upon a sound understanding of mechanics,

matrix algebra and vector calculus. Assignments include analytical and numerical problems, some of which require computer programming.

Enforced Prerequisite at Enrollment: EMCH 212 and MATH 220 and [MATH 230 or (MATH 231 and MATH 232)] and (MATH 250 or MATH 251) and (CMPSC 121 or CMPSC 131 or CMPSC 200 or CMPSC 201)

AERSP 311: Aerodynamics I

3 Credits

Fluid statics and kinematics; fluid dynamics of inviscid and viscous flows; Navier-Stokes equations; introduction to boundary layers. AERSP 311 Aerodynamics I (3) This is a first course in incompressible inviscid and viscous flows. It includes an introduction to fluids, fluid statics and hydrostatics. Fluid kinematics, including Eulerian versus Lagrangian viewpoint, steady versus unsteady flows, volume and mass flow rates, vorticity and circulation, and streamlines are described. Derivation of the governing equations for the conservation of mass, momentum and energy is presented. Dimensional analysis is covered. Potential flow with and without the effects of viscosity is analyzed. A derivation and exact solutions of the Navier-Stokes equations are given and boundary layers are introduced. This is the first of a two course sequence in aerodynamics, where both courses are required for senior-year propulsion and design courses. Evaluation of student performance will be by two midterm exams worth approximately 25% each, a final exam worth approximately 35% and weekly homework assignments worth approximately 15%.

Enforced Prerequisite at Enrollment: EMCH 212 and MATH 220 and [MATH 230 or (MATH 231 and MATH 232)] and (MATH 250 or MATH 251) and (CMPSC 121 or CMPSC 131 or CMPSC 200 or CMPSC 201)

AERSP 312: Aerodynamics II

3 Credits

Fluid mechanics of viscous and compressible flows, laminar boundary layers, turbulent flows, isentropic flows, shock waves, supersonic lift and drag. AERSP 312 Aerodynamics II (3) Exact solutions of the Navier-Stokes equations for unsteady flow. Boundary layers solved by the methods of Blasius, Falkner-Skan and Thwaites. Boundary layer stability and transition to turbulence. Turbulent flow and solution methods. Fluid flow measurement techniques and numerical methods. Derivation of the governing equations for the conservation of mass, momentum and energy for compressible flow. Steady one-dimensional isentropic flow. Normal, traveling and oblique shock waves. Compressible flow with area change and converging-diverging nozzle flows. Prandtl-Meyer expansions and supersonic lift and drag. One-dimensional flow with friction or heat transfer. Unsteady and linearized compressible flow. Introduction to the method of characteristics. This is the second of a two course sequence in aerodynamics and is a prerequisite for senior level courses in propulsion and design. Evaluation of student performance will be by two midterm exams worth approximately 25% each, a final exam worth approximately 35% and weekly homework assignments worth approximately 15%.

Enforced Prerequisite at Enrollment: AERSP 311 and AERSP 313 and (ME 201 or ME 300)

AERSP 313: Aerospace Analysis

3 Credits

Mathematical methods applied to aerospace engineering: Fourier series, ordinary and partial differential equations, complex variables, numerical methods, data analysis. AERSP 313 Aerospace Analysis (3) This course is designed to reinforce the mathematical concepts learned in the prerequisite mathematics and computer science courses and to present new mathematical material that is necessary for aeronautics, astronautics, dynamics and control, and fluid dynamics analysis. In practice, analytical and numerical approaches to problems solving are complementary, hence, this course will emphasize a combined analytical and numerical treatment.

Enforced Prerequisite at Enrollment: MATH 220 and [MATH 230 or (MATH 231 and MATH 232)] and (MATH 250 or MATH 251) and (CMPSC 121 or CMPSC 131 or CMPSC 200 or CMPSC 201)

AERSP 397: Special Topics

1-18 Credits/Maximum of 18

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

AERSP 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

AERSP 401A: Spacecraft Design–Preliminary

3 Credits

Conceptual and preliminary design of a spacecraft, its constituent subsystems, and related systems, to satisfy a given set of specifications. AERSP 401A Spacecraft Design - Preliminary (3) AERSP 401A is the first of a two-semester sequence of senior capstone design courses. In this course, students will begin to learn the design process, complete a conceptual design, and to begin a preliminary design of a spacecraft, working in teams. This process is inherently multidisciplinary, requiring the use of engineering practices in such subjects as structures, dynamics, electrical and thermal systems, propulsion, controls, and information systems. In addition to the technical design content, this course seeks to enhance students' skills in verbal and written communications, ethical thinking, and the team approach to design, which is widely used in industry and government. Classes (115 minutes each, twice weekly) include lecture and time for team meetings. Students are evaluated on the technical merit of the designs (presented in written and oral reports), as well as their ability to function on a team.

Enforced Prerequisite at Enrollment: AERSP 309 . Enforced Concurrent at Enrollment: AERSP 450

AERSP 401B: Spacecraft Design–Detailed

2 Credits

Detailed design of the constituent subsystems and related support systems for a spacecraft. AERSP 401B Spacecraft Design – Detailed (2) AERSP 401B is the second of a two-semester sequence of senior capstone design courses. In this course, students work in teams,

continuing the design process begun in AERSP 401A. This process is inherently multidisciplinary, requiring the use of engineering practices in such subjects as structures, dynamics, electrical and thermal systems, propulsion, controls, and information systems. In addition to the technical design content, this course seeks to enhance students' skills in verbal and written communications, and the team approach to design, which is widely used in industry and government. Classes (115 minutes each, twice weekly) include lecture and time for team meetings.

Enforced Prerequisite at Enrollment: AERSP 301 and AERSP 401A

AERSP 402A: Aircraft Design–Preliminary

3 Credits

Conceptual and preliminary design of an aircraft, its constituent subsystems, and related systems, to satisfy a given set of specifications. AERSP 402A Aircraft Design – Preliminary (3) AERSP 402A is the first of a two-semester sequence of senior capstone design courses. In this course, students will complete the preliminary design for an aircraft such that it satisfies the assigned specifications. Students completing this course will have the ability to design a system, component, or process to meet desired needs in aircraft systems; they will have the ability to function on multi-disciplinary teams; and they will have the ability to identify, formulate, and solve engineering problems. In addition, students will have the background to help determine what the ethical responsibilities are to themselves, to employers, and to society. Classes (115 minutes each, twice weekly) include lecture and time for team meetings.

Enforced Prerequisite at Enrollment: AERSP 306 . Enforced Concurrent at Enrollment: AERSP 413

AERSP 402B: Aircraft Design–Detailed

2 Credits

Detailed design of the constituent subsystems and related support systems for an aircraft. AERSP 402B Aircraft Design - Detailed (2) AERSP 402B is the second of a two-semester sequence of senior capstone design courses. In this course, students will complete the detailed design for an aircraft, and all of its constituent and related support systems, such that it satisfies the assigned specifications. Students completing this course will have the ability to design a system, component, or process to meet desired needs in aircraft systems; they will have the ability to function on multi-disciplinary teams; and they will have the ability to identify, formulate, and solve the associated engineering problems. Classes (115 minutes each, twice weekly) include lecture and time for team meetings.

Enforced Prerequisite at Enrollment: AERSP 301 and AERSP 402A

AERSP 403A: Autonomous Aerospace Vehicle Design - Preliminary

3 Credits

The Autonomous Aerospace Vehicle Capstone concentrates on automation and autonomy concepts for vehicles in flight, including complex avionics for manned aircraft; unmanned aircraft systems and launch vehicles; and complex autonomous spacecraft, such as planetary rovers. Student teams will not only learn and exercise the design process by generating a hardware architecture, design, and performance simulation, but they will also build, integrate, and test their design during a live demo event. AERSP403A is the first course in a two-

semester sequence beginning with preliminary design and continuing with detailed design (AERSP403B) in the second semester.

Enforced Concurrent at Enrollment: (AERSP 413 or AERSP 450) and AERSP 462 Recommended Preparations: Although not required, successful completion of, or registration in, AERSP424 will assist students in coding skills necessary for this class.

AERSP 403B: Autonomous Aerospace Vehicle Design - Detailed

2 Credits

The Autonomy Aerospace Vehicle Capstone concentrates on automation and autonomy concepts for vehicles, including complex avionics for manned aircraft; unmanned aircraft systems and launch vehicles; and complex autonomous spacecraft, such as planetary rovers. Student teams will not only learn and exercise the design process by generating a hardware architecture, design, and performance simulation, but they will also build, integrate, and test their design during a live demo event. AERSP403B is the second in a two-semester sequence beginning with preliminary design (AERSP403A) in the first semester and continuing with detailed design (AERSP403B) in the second semester.

Enforced Prerequisite at Enrollment: AERSP 403A Recommended Preparations: Although not required, successful completion of, or registration in, AERSP424 will assist students in coding skills necessary for this class.

AERSP 404: Flight Vehicle Design and Fabrication II

3 Credits/Maximum of 12

Project management, design, fabrication, aerodynamic and structural testing, and flight evaluation of an advanced composite flight vehicle.

Enforced Prerequisite at Enrollment: AERSP 204 Honors

AERSP 405: Experimental Methods and Projects

3 Credits

Experimental methods involving a variety of aerospace engineering topics; teams of students focus on advanced measurement techniques and project engineering. AERSP 405 Experimental Methods and Projects (3) This is a senior-level elective laboratory course that builds on AERSP 305 "Aerospace Technology Laboratory." The first part of AERSP 405 addresses the engineering of typical data acquisition systems through a series of lectures and laboratory experiments. Data acquisition and processing are covered as they relate to a broad range of engineering experiments. Several sessions in the laboratory provide students with hands-on experience with data acquisition, followed by computer program exercises to complete the assignments. Initially the lectures are twice a week (75 minutes each). This activity comprises approximately 20 % of the total course. The major portion of the course introduces students to "real-world" projects in engineering and laboratory research. Students work in teams to identify, formulate, plan and solve engineering problems associated with a design or system, the completion of an experiment, or an extensive computational simulation requiring a team of students. Teams of 2 to 4 students are assigned, following student input on preferences from a list of proposed projects. Students learn, through practice, the methodology of team project engineering. The teams each develop goals for the semester's project, performed following a careful work breakdown analysis with realistic time estimations and scheduling. Many of the projects involve the design and completion of an experiment.

As part of the project, students will assemble, analyze and interpret relevant data, and prepare progress and final reports (written and oral). The reports should contain graphs that go with the text to provide the necessary data interpretation. The topics in the projects have application to a variety of research programs currently underway at Penn State. At the initiation of the project activity, lectures on principles of project planning including Gantt chart preparation, work breakdown structures and critical path considerations are presented. Common best practices for the preparation of project proposals, reports, presentations and general record keeping are discussed. Overall meetings with the course instructor become bi-weekly once the projects are underway. Many of the projects also have knowledgeable graduate student or faculty consultants to assist with project planning and implementation. Project consultants conduct occasional individual review meetings with each team. Much of the project coordination work is undertaken within the regularly scheduled hours for the course. The class meetings include a combination of informal presentations by the students and, occasionally, the instructor on important technical issues. Considerable class time is spent discussing the goals and progress of individual tasks, and each student gives several brief oral presentations.

Enforced Prerequisite at Enrollment: AERSP 305W

AERSP 407: Aerodynamics of V/STOL Aircraft

3 Credits

Rotary wing aircraft; VTOL and STOL performance; propeller-wing combinations; jet flap; high lift devices.

Enforced Prerequisite at Enrollment: AERSP 312

AERSP 410: Aerospace Propulsion

3 Credits

Analysis and performance characteristics of reciprocating engine, turbo-jet, turbo-prop, turbo-fan, ram-jets, and chemical rockets. Aerothermodynamics of inlets, combustors, and turbomachinery.

Enforced Prerequisite at Enrollment: AERSP 312

AERSP 412: Turbulent Flow

3 Credits

Homogeneous turbulence; spectral transfer of energy, viscous dissipation; turbulent shear flow: mixing-length theory, eddy viscosity, scaling laws, energy budget.

Prerequisite: one course in fluid mechanics

AERSP 413: Stability and Control of Aircraft

3 Credits

Static and dynamic stability and control of aircraft; open and closed loop systems.

Enforced Prerequisite at Enrollment: AERSP 304 and AERSP 306

AERSP 415: Spacecraft/Environment Interactions

3 Credits

This course examines the effects on spacecraft design and operation, both short and long term, by the four aspects of the space environment:

the neutral environment, the plasma environment, the radiation environment, and the micrometeoroid and orbital debris environment, both in near-Earth as well as interplanetary space. The neutral space environment includes the three regimes of rarefied gas dynamics; slip, transition, and free molecular flow, as determined by the Knudsen number; spacecraft surface degradation due to physical, chemical, and mechanical processes, and an introduction to the Direct Simulation Monte Carlo (DSMC) computational method for calculating rarefied flows. The calculation of spacecraft drag, lift, and pitching moments in free molecular flow is detailed. The plasma space environment in space is examined and the confinement of plasma via magnetic fields is derived. Spacecraft charging of both spacecraft bodies and solar cell arrays due to the plasma environment with the resultant damage due to arcing is analyzed. The effect of spacecraft grounding scheme, positive, negative, or floating, on spacecraft charging is examined. The sources of space radiation; trapped radiation belts (Van Allen belts), galactic cosmic rays (GCR), and solar proton events (SPE) and coronal mass ejections (CME); are quantified and the various types of radiation, high energy photons or particles, are covered. The effects of radiation on spacecraft materials, in particular solar cells and electronic components, and biological occupants such as humans, along with means of shielding against them are quantitatively examined. The space micrometeoroid and orbital debris environments are examined with a particular emphasis on the increasing population of orbital debris. Impact dynamics to calculate cratering and penetration distances and current methods such as the Whipple shield for protecting spacecraft from micrometeoroids and orbital debris are covered. Methods to prevent the formation of orbital debris as accepted by the international community are discussed.

Enforced Prerequisite at Enrollment: AERSP 308 or AERSP 312 or ME 420

AERSP 420: Principles of Flight Testing

3 Credits

In-flight and analytical studies of airplane performance, stability, and control; reduction of data; instrumentation; flight test techniques.

Enforced Prerequisite at Enrollment: AERSP 306

AERSP 423: Introduction to Numerical Methods in Fluid Dynamics

3 Credits

This course provides an introduction to the important and growing field of Computational Fluid Dynamics (CFD). The student will become familiar with a short history and relevance of CFD, the basic differential models of fluid dynamics, discretization and linearization practices, and solution strategies of CFD. Fundamentals of algorithm classification, error and stability analysis will be covered. Also, several advanced topics of relevance to modern CFD analysis will be covered. A term project will involve coding a CFD model of one of several choices including: 2D shallow wave equations for application to a tsunami, unsteady conjugate flow+heat transfer analysis of a pin array, and others per the instructor's discretion.

Enforced Prerequisite at Enrollment: (AERSP 312 or ME 320) and (MATH 250 or MATH 251) and (CMPSC 200 or CMPSC 201)
Cross-listed with: ME 423

AERSP 424: Advanced Computer Programming

3 Credits

Engineering and scientific programming topics: object oriented programming, parallel programming, and various modern languages (e.g. C++, Java, and Ada). AERSP 424 Advanced Computer Programming (3) This course presents an advanced view of computer programming, mainly using Java, C++, and Ada95. The use of current operating systems (e.g. Linux and Unix) and compilers (e.g. gcc) will also be presented. Object Oriented Programming will also be discussed in detail. Object Oriented Programming is quite different than functional or procedural programming, and it is difficult to learn on your own. The differences and similarities between Java and C++ and Ada95 will also be discussed. Hands-on programming will be a key part of the course. This course is one of the Core Courses for the Graduate Minor in High Performance Computing, and will also be a technical elective in Aerospace Engineering.

Enforced Prerequisite at Enrollment: (CMPSC 121 or CMPSC 131 or CMPSC 200 or CMPSC 201) and MATH 220

AERSP 425: Theory of Flight

3 Credits

Advanced wing and airfoil theory, conformal mapping, slender body theory.

Enforced Prerequisite at Enrollment: AERSP 306

AERSP 430: Space Propulsion and Power Systems

3 Credits

Analysis and performance of chemical and nuclear rockets, electric propulsion systems. Introduction to solar, chemical, thermoelectric, and nuclear power sources.

Enforced Prerequisite at Enrollment: AERSP 410 or ME 432

AERSP 440: Introduction to Software Engineering for Aerospace Engineers

3 Credits

Software engineering for safety- and mission-critical systems, including requirements, management, processes, designs, programming, validation/ verification, and other aspects of software development. AERSP 440 Introduction to Software Engineering for Aerospace Engineers (3) This course is an introduction to software engineering. Software engineering includes all aspects of professional software production, and is especially important for safety-critical and mission-critical software. It includes documentation, management, processes, requirements, design models, computer programs, validation, verification, and other aspects of the development process. Aerospace systems, including aircraft, spacecraft, onboard avionics, ground-based systems, flight simulators, and air transportation systems, rely heavily on software. Software is a major cost of all aerospace systems. For example, the Boeing 777 has more than 1000 onboard processors and more than 4 million lines of software which is primarily written in Ada. The F/A-22 fighter has more than 2 million lines of software onboard, and much of this is Ada also. Aerospace systems also demand a level of reliability far beyond that of most other systems, which means the software must be designed using rigorous mission-critical and safety-critical procedures, which makes the software quite unique compared

to most other software. The FAA and DOD are both involved in certifying aircraft software, for example, through the DO-178B and DOD-2168 standards. This course is required option in Aerospace Engineering (take one of AERSP 440, EE 305, or EE 210). If not taken to satisfy that requirement, it can be used as a technical elective. This course is a required option in Aerospace Engineering (take one of AERSP 440, EE 305, or EE 210). If not taken to satisfy that requirement, it can be used as a technical elective.

Enforced Prerequisite at Enrollment: CMPSC 201

AERSP 450: Orbit and Attitude Control of Spacecraft

3 Credits

Principles of mechanics and vector analysis applied to basic concepts of satellite motion and control, rocket ballistics, and gyroscopic instruments.

Enforced Prerequisite at Enrollment: AERSP 304 and AERSP 309

AERSP 458: Advanced Orbital Mechanics

3 Credits

This course is an introduction to the mathematics and practices in orbital mechanics as applied to spacecraft mission design and operation. The major topics are: the n-body problem, the two-body problem, Keplerian orbits, the Kepler problem (position as a function of time), three-dimensional specifications of Keplerian orbits (classical orbital elements and modified equinoctial elements), Lambert's problem (determining a conic section that joins two specified points for a given time of flight), impulsive transfers, the Hohmann transfer and its extension to other problems, spherical trigonometry and its use in plane-change maneuvers and in gravitational modelling, the sphere of influence, the patched-conic approximation, the circular restricted three-body problem, linear orbit theory (relative motion between vehicles in neighboring orbits), gravitational modelling via spherical harmonics, perturbation methods (Encke's method and variation of elements), orbit determination, tracking kinematics, and time systems.

Enforced Prerequisite at Enrollment: AERSP 450 or EMCH 409 or PHYS 419

AERSP 460: Aerospace Control Systems

3 Credits

Design and analysis of feedback control systems for aerospace applications; stability, root locus, time- and frequency-domain, state-space methods. AERSP 460 Aerospace Control Systems (3) This course is an introduction to the design and analysis of feedback control systems as applied to aerospace systems. The course covers control theory that is commonly used in the aerospace industry and presents practical applications of this theory to aerospace systems. The course does not emphasize rigorous mathematical derivation, but instead emphasizes the application of control theory. It provides a comprehensive overview of classical control theory and single-input/single-output (SISO) design methods. The course also presents an introduction to modern control theory and multi-input/multi-output (MIMO) design methods. Aerospace examples and applications are emphasized throughout the course. The course builds upon a required junior-level course in system dynamics and controls (AERSP 304), which provides students with basic dynamic system theory and a brief introduction to feedback control. The course also supplements required senior-level courses in either aircraft or

spacecraft dynamics (AERSP 413 and 450) which provides background on vehicle dynamics. AERSP 460 provides an additional level of depth in dynamics and control theory, and prepares students for entry-level work or graduate studies involving the design of automatic control systems for aircraft and spacecraft.

Enforced Prerequisite at Enrollment: AERSP 304

AERSP 462: Aerospace Autonomy

3 Credits

Aerospace autonomy is the blending of aerospace engineering and computer science - an interdisciplinary topic that will boost your skills in both domains. From advanced decision-making algorithms to sensing and state estimation to advances in machine learning applications, aerospace autonomy covers a lot of territory. In this class we introduce some of the techniques and challenges so that the vehicle will "fly itself" while maintaining awareness of sensors, safety, and software along the way through homework and coding assignments.

Enforced Prerequisite at Enrollment: MATH 220 and (CMPSC 121 or CMPSC 131 or CMPSC 200 or CMPSC 201 or AERSP 424)

AERSP 470: Advanced Aerospace Structures

3 Credits

Design and analysis of aerospace structures. Plates and sandwich panels; composite materials; structural dynamics; aeroelasticity; damage tolerance. AERSP 470 Advanced Aerospace Structures (3) AERSP 470 covers important topics in aerospace structures beyond basic stress and deflection analysis of thin-walled beams. The objectives of the course are to help students: 1) appreciate the roles that structures and structural materials play in aerospace vehicles; 2) understand general design concepts for aerospace structures: vehicles, components, and materials; 3) develop the analysis tools and skills needed to analyze the static and dynamic performance of aerospace structures; and 4) gain experience identifying, formulating, and solving aerospace structural engineering problems. AERSP 470 builds on structural, dynamics, and aerodynamics topics covered in PHYS 211, EMCH 11 & EMCH 13 (or EMCH 210), EMCH 215 & EMCH 216, AERSP 301, AERSP 306, and AERSP 304. It prepares students for entry-level work or graduate study in the analysis and design of aerospace structures. It also provides students with the strong background needed to contribute effectively to multidisciplinary trade studies in vehicle design activities. AERSP 417 begins with a review of the general features of flight vehicle structures and aerospace structural design concepts. Then, the deflection and stress responses of flat plates and sandwich panels under lateral and in-plane loading are addressed. About a third of the course is devoted to the behavior of advanced composite panels, and another third to structural dynamics and aeroelasticity. The course finishes with treatments of joining and damage tolerance, both key topics with respect to the design of aerospace structures.

Enforced Prerequisite at Enrollment: AERSP 301. Enforced Concurrent at Enrollment: AERSP 304 and EMCH 315

AERSP 473: Composites Processing

3 Credits

An introduction to the principles of mechanics governing manufacturing, computer-aided design, and testing of composite materials and structures.

Enforced Prerequisite at Enrollment: EMCH 471

Cross-listed with: EMCH 473

AERSP 490: Introduction to Plasmas

3 Credits

This course provides the education on models that are used for description of plasma phenomena as applicable to plasma confinement, plasma assisted materials processing, astrophysical plasmas and plasmas in the near Earth's space environment. It provides practical training in solution of problems involving collisional and collisionless plasmas. In particular, it investigates dynamics of charged particles in specified uniform, non-uniform and time varying electric and magnetic fields. It explores collective behavior of plasmas, including various electrostatic and electromagnetic waves that can be excited and propagate in plasmas parallel and perpendicular to the externally applied magnetic field. The course considers non-linear effects in plasmas, as typically occurring in the sheath regions near the plasma confining walls. It discusses concepts of equilibrium and stability of plasmas, and various models of unstable plasma motions, especially in relation to plasma confinement.

Enforced Prerequisite at Enrollment: (C or better in EE 330) or PHYS 400

Cross-listed with: EE 471, NUCE 490

AERSP 492: Space Astronomy and Introduction to Space Science

3 Credits

The physical nature of the objects in the solar system; the earth's atmosphere, ionosphere, radiation belts, magnetosphere, and orbital mechanics.

Enforced Prerequisite at Enrollment: (C or better in EE 330) or PHYS 400 or (METEO 421 and METEO 431)

Cross-listed with: EE 472

AERSP 494: Aerospace Undergraduate Thesis

1-12 Credits/Maximum of 12

Individual problem investigations reported in written thesis and seminar lectures. Cooperative research with faculty guidance on topics of current interest.

Enforced Prerequisite at Enrollment: Seventh-semester standing

AERSP 494H: Aerospace Undergraduate Thesis

1-3 Credits/Maximum of 6

Individual problem investigations reported in written thesis and seminar lectures. Cooperative research with faculty guidance on topics of current interest.

Enforced Prerequisite at Enrollment: Seventh-semester standing
Honors

AERSP 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

AERSP 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

AERSP 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

African American Studies (AFAM)

AFAM 3: Scholarship and Community

1 Credits

Introduction to college life for new students in a designated residential community to help them optimize their Penn State experience.

Prerequisite: students must be participating in the Pennpacker Experience to take this course

AFAM 4: Educational Equity Scholarship and Community II

1 Credits

The purpose of the second-semester seminar is to support scholars' success through demonstration of engaged scholarship through course curriculum and co-curricular program opportunities at University Park. This course is taught by the Office of Scholars Program staff as a living-learning program, with monthly seminar meetings and required programs through the Educational Equity Scholars Special Living Option (SLO). This unique structure provides an experiential education experience, which supports students' transition to college through campus engagement, encouraging a sense of belonging, and the development of self-awareness and self-advocacy skills. The course will also allow scholars to continue opportunities to develop relationships with key leaders, multicultural leadership, and resources across the University Park campus that will lead to their continued growth and strengthen emerging academic skills. AFAM 4 further challenge students to think more deeply and critically about the concepts of goal setting, reflection, responsibility, critical thinking, engagement, community, and ethical decision-making that were introduced in AFAM 3.

Prerequisites: AFAM 3

AFAM 83: First-Year Seminar in African American Studies

3 Credits

AFAM 83 has two primary purposes. First, it is designed to introduce students to college life and help them identify the resources and opportunities that will be most helpful to their future personal and professional path. Secondly, this seminar will introduce students to

the interdisciplinary field of African American and Diaspora Studies. They will learn about major themes and topics in the field and meet faculty from various disciplines (History, English, Anthropology, Religion, Communication) who are researching those topics. Both aspects of the course will give students a clearer sense of the academic and personal opportunities available at Penn State and in African American Studies.

Bachelor of Arts: Humanities
International Cultures (IL)
United States Cultures (US)
First-Year Seminar
General Education: Humanities (GH)
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Key Literacies

AFAM 100N: Black Freedom Struggles

3 Credits

This course focuses on Black freedom struggles in the United States and selected examples from other countries in Latin America and the Caribbean. Themes addressed may include enslaved Africans' resistance to capture and enslavement as well as post-Emancipation attempts to combat white supremacy, racial and gender inequality, labor and sexual exploitation, and political disenfranchisement. Resistance strategies include but are not limited to forging of prophetic religious tradition, marching, boycotting, forming strong families and communities, collective organizing, making art, and serving in the military in the late 19th through 21st centuries. This course will address key moments, movements, and texts in the history of Black struggles for freedom in various realms including the legal, political, religious, literary, and educational. It will also cover major (as well as lesser-known) artists, activists, writers, orators, scholars, community organizers and teachers involved in Black struggles for freedom. Students will acquire a strong basic knowledge of freedom struggles in the United State, the Caribbean, and Latin America. They will also begin to understand the relationship of black resistance to broader anti-racist, anti-colonial and anti-imperialist struggles. Assigned readings, films, and lectures will foster critical thinking, speaking, and writing skills.

Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)
United States Cultures (US)
General Education: Humanities (GH)
General Education: Social and Behavioral Scien (GS)
General Education - Integrative: Interdomain
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Integrative Thinking

AFAM 101N: African American Women

3 Credits

This course offers an introduction to the sociological, historical, and political experiences of African American women, their roles and contributions to society. Through an interdisciplinary approach, we will pay particular attention to historical and contemporary responses to intersectional challenges African American women face. Drawing from the 19th, 20th, and 21st centuries, through the use of print and digital texts, oral histories, film, music, poetry, and local events, we will investigate various forms of social and political activism including

work in labor, civil rights, black power, feminist, womanist, and other movements, the impact of popular culture on what it means to be an African American woman, as well as the implications of claiming such an identity. By focusing on key moments, institutions, and figures in history, the course demonstrates African American women's central roles in the development of American institutions as we know them today, and challenges students to engage critically with questions of race, gender, class, and sexuality, as they wrestle with theories of Black Feminist Thought and Womanism.

Cross-listed with: WMNST 101N
Bachelor of Arts: Humanities
Bachelor of Arts: Social and Behavioral Sciences
United States Cultures (US)
General Education: Humanities (GH)
General Education: Social and Behavioral Scien (GS)
General Education - Integrative: Interdomain
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Soc Resp and Ethic Reason

AFAM 102: Women of the African Diaspora

3 Credits

Women of the African Diaspora is an introduction to studying the lives of African Diaspora women and the systems of power that shape them across cultures and geographies. The course centers on the politics of race and gender, on notions of origins and belonging and the meaning of resistance as a cultural and political tool. We will engage with patriarchy as a system of power implicated in identity formation and social relations. We will pay particular attention to the ways colonial histories and racial legacies have shaped the experiences of women in Diaspora. To this end, students will explore the complex and contested ways in which multiple economic, political, and cultural institutions affect the lives of women in the diaspora and examine a variety of issues including economy and labor, mobility and Activism, creativity and literary production and spirituality and social change. Rooted in a diasporic and transnational feminist framework, the course addresses issues of power, culture, racial formation, and citizenship and explores spatiality, movement and border crossings. It follows an intersectional approach to the politics of race and gender and engages diaspora as a historical and contemporary condition that addresses the realities of women in African descent as shaped by the legacy of slavery and the contemporary racial and social pattern of globalization. Students will explore broad patterns, changes, and continuities between diasporic communities globally and the way they shaped women's experiences through an analysis of the history of colonization, slavery, independence struggles, nation-building, imperialism, neo-colonialism, revolution, violence and social movements. The course will provide an interdisciplinary perspective to develop a nuanced understanding of the histories and the lived experiences of women of African descent both globally and in the context of their local geographies. To this end, the course explores both similarities and differences of diasporic experiences. It examines the complex and contested ways in which multiple economic, political, and cultural institutions affect lives of women of African Descent both in the US and globally and by addressing the relationship between economy and labor, mobility and Activism, creativity and literary production, spirituality and social change. It challenges universal and homogenous notions of blackness and engages feminist politics of solidarity as a site of both difference and commonality. The course incorporates interdisciplinary approaches and materials such as films, music, novels, short stories to

examine how racial, gender, sexual, and class identities are constructed in the context of the diaspora.

Cross-listed with: WMNST 102

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

AFAM 103: Racism and Sexism

3 Credits

This survey course examines racism and sexism as cultural, political and economic processes that shape contemporary social life in the United States. It provides an historical overview of the roots of modern racism and sexism and will explore these structural inequalities continue to matter in a "post-racial" and "post-feminist" era. Students will engage a broad range of texts that discuss these forms of inequality as intersecting, mutually constituted forms of marginalization. Students will develop a deeper understanding of how race, gender, sexuality, and class conditions identity formation; racism as a structural process that shapes and limits the life chances of non-white communities; and the long tradition of resistance that women and communities of color have developed to combat these social inequalities. The course is divided into two sections. The first introduces a range of terms: race, gender, class, sexual politics, intersectionality and neoliberalism. The second half considers various case studies: mass incarceration, toxic waste, (un)natural disasters, reproductive justice, and Islamophobia in the war on terror. Students will leave with both an understanding of key theoretical terms in the study of racism and sexism and be able to apply these concepts to contemporary social issues.

Cross-listed with: SOC 103, WMNST 103

Bachelor of Arts: Social and Behavioral Sciences

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Soc Resp and Ethic Reason

AFAM 105N: Afro-Latin America: Race and Revolution

3 Credits

Too often the history of race in the Americas is overly defined by concepts of racial identity and race relations in the United States. When examined quantitatively, fewer than five percent of the approximately 10 million slaves who survived the Middle Passage arrived in what we know as the United States of America. This course will examine the impact of slavery throughout the Americas, from the establishment of the plantation in Brazil through the impact of Black migration throughout the Americas today. Through lecture and discussion, we will identify patterns of racial identity and participation in the formation of the Latin American nation state that will give us a more nuanced understanding of both race and nation in the Americas. We will examine the development of the modern plantation from the sixteenth to the nineteenth century as well as the role of urban slavery in this era throughout Latin America. We will study the various paths to abolition with a particular focus on the Haitian Revolution and the common practice of military service among slave populations during the early nineteenth century struggles for Latin

American independence. Additionally, we will look at the comparative abolition of slavery in the United States and Latin America, the role of slaves and free blacks in Central America, as well the role of race in the tensions between Haitians and Dominicans on the island of Hispaniola. The second half of the course will move to an examination of contemporary black politics, patterns of anti-black racism and state violence, and the emergence of new social movements for racial, gender, and economic justice in the Americas. This course meets the criteria for General Education designation in the B.A. fields of Humanities (GH), Social and Behavioral Sciences (GS), and International Cultures (IL).

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

AFAM 110N: Introduction to African American Studies

3 Credits

This course is an introduction to African American Studies as both a political and intellectual project. We will look at the discipline's history, its most prominent thinkers and institutional locations, as well as the influence of African American Studies both inside and outside of the academy. We will consider how student protests, political and cultural movements, important thinkers, and critical debates have shaped the field and how it has changed over time in response to new political and demographic realities. Beginning with the field's origins in 1960s-era student protests, this course considers the major concepts and methodological approaches - sociological, anthropological, historical, literary - that have shaped the field since its inception in 1968. We will consider the major themes and debates that have dominated African American Studies and how they have changed over time. Focusing on critical texts including W.E.B. DuBois' *The Souls of Black Folks*, Angela Y. Davis' *Woman, Race and Class* and Michael Gomez' *Reversing Sail* we will follow the field's evolution from one focused on the U.S. to one that encompasses African Diasporic populations around the globe. We will assess the impact of African American Studies in colleges and universities as well as in grassroots communities. Some topics we will examine include: the difference between African American Studies as an intellectual project and African American Studies as a political project; how theories about gender inequality have shaped the field; how theories about class inequality have shaped the field; how the diasporic turn has shaped the field; what U.S. demographic trends may mean for the future of African American Studies.

United States Cultures (US)

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

AFAM 111N: Introduction to Anti-Black racism in the United States: The African American Experience

3 Credits

This interdisciplinary course for undergraduate students on anti-racism will examine the historical, sociological, representational, and psychological effects of racism on the experiences of African Americans. In 2020, three significant events: the killings of Ahmaud Arbery, George Floyd, Breonna Taylor, and many others, the COVID-19 pandemic, and benchmark studies on economic inequalities created a national and global demand for anti-Black racism education. An intersectional lens will guide the course to examine the core modules and recent events, providing a holistic racial, gender, and class analysis. Experiential activities and journal reflections will allow students to evaluate their personal beliefs about race, cultural identity, privilege, and social advocacy. The course concludes with students creating and presenting campus or community-based anti-racism projects. Faculty may include field trips to regional and/or national African American historical sites and guest speakers throughout the course in order to provide expert scholarship, insights, and experiences.

United States Cultures (US)

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

AFAM 114N: Race, Gender and Sport

3 Credits

In 1969, sociologist Harry Edwards declared that a surge of protest among African American athletes marked "the newest phase of the black liberation movement in America." Nearly five decades later, athletes such as Richard Sherman, Serena Williams, and Michael Sam proved that the relationship between race, gender, and sport remains complicated, and that athletes continue to offer meaningful contributions to a variety of struggles for liberation. This course addresses the race, gender and sport relationship from two complementary angles. First, we will examine the ways that sport gives meaning to racial and gender identity. As concepts that shift over time, race and gender derive their influence from prevailing forms of scientific reason, social attitudes, and cultural mythologies. From Jack Johnson to Serena Williams, sport has found and intervened itself in each of these contexts, particularly as society and culture produce marginal or subordinate identities. We will consider, for example, how and why sport posits the differences between men and women according to assumptions about physical strength, and how and why sport reinforces dubious assumptions regarding the physical superiority and cognitive inferiority of black athletes. Second, we will examine the ways that sport works as a setting in which political struggles around race and gender are imagined and expressed. From the 1968 stand by black track and field Olympians, to Billie Jean King's 1973 famous "Battle of the Sexes," to tennis player Venus Williams' achievement of gender pay equity in 2007, to sports figures protesting on behalf of the Movement for Black Lives in 2016, athletes have long placed their social identities at the center of political speech. Finally, we will consider the historical trajectory of a narrative about the "activist athlete," which once held that athletes had abdicated political obligations in pursuit of wealth, but

which now seems to herald athletes' return to the nation's political scene in examples like LeBron James and Colin Kaepernick. This course will address sport's potential to rethink, resist, or challenge race and gender relations and other social hierarchies.

Bachelor of Arts: Humanities

Bachelor of Arts: Social and Behavioral Sciences

United States Cultures (US)

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

AFAM 116: Muslims in America

3 Credits

This course is a study of Muslims in North America, primarily the United States. It examines the multiple racial, cultural, and national groups that comprise this diverse community, starting with the historical record of the Muslims that came to the Americas as African slaves. Next, we examine African American Islam in its myriad formations. The influx of immigrants in the 1960s from the Middle East, Africa and Asia, dramatically shifted demographics in U.S. Muslim communities. Finally, we consider the post-9/11 period, which has put Islam and Muslims at the center of U.S. political and cultural discourse.

Cross-listed with: RLST 116

Bachelor of Arts: World Cultures

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

AFAM 126N: The Popular Arts in America: The History of Hip-Hop

3 Credits

Hip-hop is an important and historically significant genre in popular music that initially began in the South Bronx in the early 1970s and has grown to become one of the most influential, controversial, and important genres to emerge in the last quarter of the 20th century. Beyond music, hip-hop has also been defined as a commercial enterprise, a lifestyle, and a sociocultural movement. This course explores the various meanings and manifestations of hip-hop throughout its evolution from the early 1970s to the present day. Students will examine the cultural, economic, social, and political implications of hip-hop nationally and globally. Drawing on frameworks like critical race theory and Black feminist/womanist theory, students will engage enduring debates at the heart of hip-hop-debates about art, race, class, gender, citizenship, power, and the body. Topics to be covered include: four foundational elements of hip-hop (rap, DJ arts, graffiti & visual arts, dance); the cultural, economic, political, and social conditions under which hip-hop emerged and developed; impact of hip-hop on the culture industries and the commercialization of the genre; stylistic principles that constitute the hip-hop aesthetic; racial parameters of hip-hop and notions of authenticity; gender and hip-hop's framing of black femininity and masculinity; and global circulation of hip-hop culture. Throughout the course students will explore the following questions: Under what social, political, and economic conditions did hip-hop emerge? Who were the key producers,

fans, and detractors of hip-hop in its earliest years? Whose voices are privileged (and marginalized) within hip-hop studies as an academic project? How has hip-hop been framed within and/or transcended traditional notions of art and beauty? In what ways has hip-hop style been criminalized and degraded as low culture? In what ways has hip-hop style been (mis)appropriated? What is authentic hip-hop and how is it measured? To what extent do hip-hop artists pander to stereotypes? What is the relationship between hip-hop and capitalism? What are the benefits and limitations of the commercialization of hip-hop? How do fans and producers impact the genre in the contemporary digital era? What are the primary impediments to rappers who are neither black, nor male achieving the level of popularity and respect that hip-hop's biggest stars have attained? To what extent does the music industry use talent and marketability as a stand in for racial identity? How has hip-hop been taken up by marginalized groups in countries such as Brazil, Cambodia, and South Africa?

Cross-listed with: INART 126N
 United States Cultures (US)
 General Education: Arts (GA)
 General Education: Humanities (GH)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Crit and Analytical Think

AFAM 132: Afro-Hispanic Civilization

3 Credits

A general introduction to human and cultural elements of African origin in Spanish- and Portuguese-speaking countries of Latin America. SPAN 132 / AFR 132 / AFAM 132 Afro-Hispanic Civilization (3) (IL) (BA) This course meets the Bachelor of Arts degree requirements. The nations and peoples of Latin America have a unique, interesting history and cultural heritage that are rooted in the traditions, beliefs, experiences, values, and struggles of Native American, European, African and other populations. This course focuses on the presence and participation of African peoples and their descendants in the formation and development of societies and cultures in representative areas of the Caribbean, South America, and Central America and on the evolution, diversity, and richness of the African heritage therein. Course content includes the African background, the experience and impact of slavery, the social, cultural, and economic heritage of slavery, the role of race in Latin America, and Afro-Hispanic intellectual, literary, and artistic developments (e.g., aspects of folklore, music). The course aims to provide students with a general introduction to human and cultural elements of African origin within the Spanish- and Portuguese-speaking nations of the Americas so that they may be more knowledgeable of the meaning, significance and widespread influence of the African diaspora. It proposes to provide the student with a better understanding of Africa's contribution to Latin American identity, diversity, culture, and development; to promote appreciation for the values and practices of other cultures, and greater awareness of the relations between the nations of the region and the United States.

Cross-listed with: AFR 132, SPAN 132
 Bachelor of Arts: Humanities
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking

AFAM 136: Race, Gender, and Employment

3 Credits

This course will ask how race and gender affect work in the contemporary United States. We will consider how race and gender shape people's work opportunities, their wages at work, and whether they participate in paid or unpaid labor (or both). We will begin with an overview of work and the changes in the workforce over time; we will move to investigate how workplace structures reproduce gender and race inequalities; will ask how race and gender inequalities are informally maintained through education systems and social networks; will consider differing dimensions of inequality across poverty, immigration, and sexuality; and will consider how studying unpaid labor helps us better understand the formal paid economy. This course meets the Bachelor of Arts degree requirements.

Cross-listed with: LHR 136, WMNST 136
 Bachelor of Arts: Social and Behavioral Sciences
 United States Cultures (US)
 General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Soc Resp and Ethic Reason

AFAM 136Y: Race, Gender, and Employment

3 Credits

This course will ask how race and gender affect work in the contemporary United States. We will consider how race and gender shape people's work opportunities, their wages at work, and whether they participate in paid or unpaid labor (or both). We will begin with an overview of work and the changes in the workforce over time; we will move to investigate how workplace structures reproduce gender and race inequalities; will ask how race and gender inequalities are informally maintained through education systems and social networks; will consider differing dimensions of inequality across poverty, immigration, and sexuality; and will consider how studying unpaid labor helps us better understand the formal paid economy. The course emphasizes writing in the form of short assignments and longer papers as a means to develop comprehension of these ideas. This course is a writing intensive course designed to develop formal writing appropriate for a business context. We will use an active and engaged writing process using the course topics of diversity and employment inequality to strengthen writing skills.

Cross-listed with: LHR 136Y, WMNST 136Y
 Bachelor of Arts: Social and Behavioral Sciences
 United States Cultures (US)
 General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Soc Resp and Ethic Reason
 Writing Across the Curriculum

AFAM 139: African American Literature

3 Credits

This course offers an introduction to African American literature from the early writings of slavery and freedom to the works of present-day African American authors. We will explore the major themes, literary traditions and narrative strategies that merge and shape this body of literature,

considering, for example, the influence of double-consciousness, questions of authenticity and performance, representations of blackness and whiteness, the significance of place, and the persistent presence of folklore and vernacular traditions. Our analyses of texts will be attentive to the intersections of race, class, gender, and sexuality, and by the end of the course you will be able to discuss fluently several literary techniques and strategies including irony, satire, narration, voice, characterization, imagery, style and setting. We will situate texts in their various historical and cultural contexts, and you will be introduced to key literary concepts and terms that should inform your reading and writing about these texts. You will learn how to analyze literature, do close and careful readings of texts and write persuasively about literary works. Students will engage in thoughtful, creative and open-minded class discussions, analyze literature and do close and careful readings of texts.

Cross-listed with: ENGL 139

Bachelor of Arts: Humanities

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

AFAM 141N: African American Read-In Engaged Learning Experience

1-3 Credits/Maximum of 6

This course will allow students to study African American literature, culture, history, and arts in connection with an annual public event, the African American Read-In (AARI). The AARI, promoting literacy and appreciation of African American literature, is a national event established in 1990 under the auspices of the National Council of Teachers of English. It has become a regular feature of Black History Month celebrated by community, neighborhood, and church groups as well as schools and institutions of higher education throughout the United States and elsewhere on a given Sunday and Monday in February attracting more than a million participants annually. This course offers students an engaged learning experience in which they will produce original intellectual and artistic content to be presented publicly at an AARI event on campus. Students will study texts from a range of historical periods and/or genres, and thus gain a solid introduction to the African American literary tradition. At the same time, the primary organizing principle of the course will be a particular theme that both allows a broad and coherent overview of a significant cultural or historical topic and engages issues of cultural diversity in the United States. The specific theme, thus, will bring the study of African American literature into a broader interdisciplinary context that intersects with African American culture, history, identity, and the struggle for equality. Students will study texts that relate to this annual theme and participate in a relevant field trip (museum, theater, cultural site, library, etc.) to deepen their understanding of the significance and contexts, social, historical, cultural, artistic of these materials and this theme. They will then develop this knowledge through creative and critical engagements into exhibitions, presentations, or performances to communicate their insights about a particular author, text, or topic in the African American literary tradition. As shapers of the AARI program on their campus, class members will also have a voice in designing and planning the AARI as well as a stake in its overall success. As this course necessarily spans semesters, students who enroll in the Fall course will be expected to enroll in the Spring course in order to present their projects at the AARI in February. Only students who were enrolled in the Fall course will be

permitted to enroll in the Spring, as it is the culmination of the same course.

Cross-listed with: ENGL 141N, INART 141N

United States Cultures (US)

General Education: Arts (GA)

General Education: Humanities (GH)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

AFAM 145: African Diaspora Religions and Spiritualities

3 Credits

This course is an introduction to religions and spiritual traditions of the African Americas including the United States, the Caribbean and Latin America, emphasizing present institutions and practices, their relationship to Africa and African spirituality, their shape and function during slavery, and their development from Emancipation to the present. Through various examples and case studies, we will trace the relationship between religion and resistance, race politics, gender and sexuality, religion and social change. The course addresses core ideas of the disciplines of religious studies and African Diaspora theory. The category of religion is explored through a diasporic framework that considers the legacy of slavery and contemporary racial and social hierarchies. The course approaches religions of the African Americas as epistemologies of resistance to white oppression introducing students to the diaspora condition as marked by historical violence and the dialectics of loss and displacement. Central to the course are concepts of religious orthodoxy and authenticity, cultural retentions and transformations and the dynamics of religious power and authority. The course follows a comparative framework in investigating religious life, introducing students to diaspora theory as a discourse of difference that engages critically with the particularities of the religious traditions of the African Americas without collapsing their differences. By addressing identity formations, the course focuses on religion as a discourse of power and one that articulates religious life as shaped by gender and race politics and by economics and social realities. To this end, the course follows an interdisciplinary approach and engages a variety of material including literary and historical texts, visual arts and music and dance makes it possible for students to understand the complexity of religious life in the African Americas.

Cross-listed with: RLST 145

Bachelor of Arts: Humanities

International Cultures (IL)

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

AFAM 146: The Life and Thought of Martin Luther King, Jr.

3 Credits

A survey of the civil rights leader including his religious beliefs, intellectual development, and philosophy for social change.

Cross-listed with: RLST 146

Bachelor of Arts: Humanities
 United States Cultures (US)
 General Education: Humanities (GH)

AFAM 147: The Life and Thought of Malcolm X

3 Credits

The life of Malcolm X/El Hajj Malik El Shabazz (1925-1965) and his social, political, economic, and moral thought. AFAM 147 / RLST 147 The Life and Thought of Malcolm X (3) (GH;US)(BA) This course meets the Bachelor of Arts degree requirements. This course will examine in-depth the life, speeches, and thoughts of Malcolm X/El Hajj Malik El Shabazz. While the Autobiography will be a major source, we will also use other sources to develop an understanding of the philosophy and thought of Malcolm X. We will explore the social, economic, political, cultural, religious, moral, and spiritual context of America in general and of African Americans in particular. We will examine Malcolm X's influence on the period in which he lived and since his assassination. We will compare and contrast his view on issues of race, culture, politics, education, crime, human rights, civil rights, morality, and economics with those of other African American leaders and with the prevailing views of most Americans on those subjects. We will devote a large portion of the course to the examination of the social movements that impacted on Malcolm and those that he influenced. The speeches of Malcolm X and the writings about Malcolm X are instructive and will be utilized along with other documents. Videotapes and audiotapes will also be employed as instructional materials. Students are expected to be ACTIVE participants in the learning/teaching experience. Students are required to participate in class discussions centered on the readings and related topics. There will be a written mid-term examination and a written final examination. Students are expected to complete an individual research project related to the course and write a paper on that research as well as to participate in a collaborative group project of their choosing on a subject related to the class. This course will count in the supporting courses category of the major and minors in African/African American studies. It also will fulfill credits in the Religious Studies Program. It may also be used to fill GH and US requirements.

Cross-listed with: RLST 147
 Bachelor of Arts: Humanities
 United States Cultures (US)
 General Education: Humanities (GH)

AFAM 152: African American History

3 Credits

Chronological and topical survey of the history of African Americans from the colonial period to the early twenty-first century. This course covers major themes in African American history including the societies and cultures of Africa, the Middle Passage, the Colonial experience, slavery, abolition, and the quest for freedom, Civil War and emancipation, Reconstruction, Jim Crow, the Great Migration, African American cultural expressions, WWII and the seeds of Civil Rights, the Freedom Movement, Black politics and White backlash. While "knowing the facts" is obviously important to historical understanding, this course helps students develop critical thinking skills. These skills include: close and thoughtful reading and analysis of primary and secondary sources; looking for a broader coherence or "order" to the material; independent analysis and effective articulation (both in writing and in class discussion) of well-reasoned, well-crafted conclusions and interpretations and arguments

(conclusions/interpretations/arguments which are supported by specific factual evidence derived from a variety of sources). The three specific course objectives underscore its scholarly dimensions: (1) Students will gain a knowledge and understanding of the relationship between the experiences of African Americans and United States history as a whole. (2) Students will gain an understanding and knowledge of the political, economic, and social processes that shaped African American history. (3) Students will learn how to "think historically" by placing documents written in the past in their historical contexts, and to consider the relationship of the past to the present. By the end of the course students will: Demonstrate an understanding of the chronology of African American history. Demonstrate an understanding of the diverse experiences of different groups of Americans. Demonstrate an understanding of the social, political, and ideological structures that shaped African American history and continue to shape the modern United States.

Cross-listed with: HIST 152
 Bachelor of Arts: Humanities
 United States Cultures (US)
 General Education: Humanities (GH)
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

AFAM 164: The History of Brazil

3 Credits

This course will study the history of Brazil, the only Portuguese-speaking nation in Latin America, from the colonial to the present period. We will examine Brazil's transformation from Portuguese colony to the seat of a nineteenth century transcontinental empire ruled by the only European monarch to rule from the Americas, and discuss developments such as plantation slavery and industrialization that transformed Brazil into an international powerhouse. We will examine political, economic, cultural and racial movements and institutions that defined Brazilian history during the empire, the first republic, the Vargas era, and the military dictatorship. We will conclude with a look at Brazil's struggles with democracy from the 1980s to the present as well as the rise of contemporary populist leaders, Brazil's struggles surrounding policing, political corruption, affirmative action, and its hosting international sporting events in the twenty-first century. This course is designed to introduce students to the making of the modern Brazilian state focusing on the period from the rise of the Brazilian Empire in 1808 through the modern day. We will survey major historical trends in Brazilian society, from its roots as a Portuguese colony and its role at the center of slavery and the slave trade in the Americas to its distinctive patterns of independence and nationhood. Brazil's experience as an independent nation during the nineteenth century (it became the only long-term monarchy in the Americas) offers an interesting point of comparison to the history of republican nationhood elsewhere in North and South America. We will also examine the challenges of state and nation building during the nineteenth and early twentieth century as well as the challenges associated with late industrialization and state-sponsored development.

Cross-listed with: HIST 164
 Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Global Learning

AFAM 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

AFAM 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

AFAM 207N: Jazz and the African American Experience

3 Credits

The history and evolution of jazz is a significant cultural manifestation of the African American experience. The music and its artists provide a lens through which to examine questions surrounding the African American experience and what it means to be Black in America, engaging with questions about identity, authenticity, freedom, activism, gender, and sexuality, as well as the role of music in African American life. Drawing upon curricular elements from MUSIC 7, Evolution of Jazz, and AFAM 100, Living While Black: Themes in African American Thought and Experience, this course traces the history of jazz through an examination of the lives and art of thirty great jazz artists, juxtaposed with an examination of seminal writings of twenty African American poets, playwrights, novelists, critics, activists, philosophers, and scholars. Preliminary objectives will include basic musical information associated with tonality and with jazz. The main objectives of the course are: to explore the antecedents of jazz and the social-historical contexts in which they developed; to explore the pioneering artistry of selected twentieth-century jazz musicians, tracing the evolution of jazz styles in the process; to delve into the lives of these jazz artists and the social-historical contexts in which they lived; to explore the writings of historically contemporary African Americans, which articulate many of the major issues that have shaped black life in America; to enhance appreciation for the art of jazz and for the musical and literary contributions of African Americans; to encourage reflection, empathy, and a greater understanding of the cultural-historical circumstances that have informed the lives and art of African Americans. The narrowing of scope allows for a more detailed examination of the selected jazz artists, their music, and their lives. Similarly, the selected writings will allow students to reflect on the relationships and connections between these writings and the artistry and life experiences of the selected jazz artists. These objectives will be met by utilizing an interactive, multimedia online curriculum, including demonstration videos, a virtual keyboard, music notation files (e.g., Sibelius), audio recordings, audio-video recordings, selected readings, open forums, and discussion boards. Evaluation methods will include quizzes, tests, open forums, discussion boards, and reflection papers. Students will receive GA and GS credit for this course, as well as US designation. The course will not satisfy any requirements for the major or minor in music. All pieces, excerpts, examples, videos, and texts will be made available to students online.

Cross-listed with: MUSIC 207N

Bachelor of Arts: Arts

United States Cultures (US)

General Education: Arts (GA)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Soc Resp and Ethic Reason

AFAM 207W: Methods in African American Studies

3 Credits

Methods in African American Studies offers an introduction to the interdisciplinary methods employed in African American Studies. This writing intensive, required course for the major in African American Studies exposes students to a wide range of scholarly method used in allied academic disciplines. Students will be given the opportunity to identify a research question in African American Studies that interests them, and then to use various methods to develop a research topic. Every couple of weeks students will be required to write response papers in which they analyze and identify AFAM methods as they are used in various disciplines. Toward the end of the course, students will write a research prospectus that will serve as the basis for their capstone seminar research paper and will undergo a process peer review to developed a final draft. The research prospectus will be presented in the final class in a student colloquium.

Prerequisites: AFAM 100; AFAM 110; AFAM 152

Writing Across the Curriculum

AFAM 208: Workshop: Theatre in Diverse Cultures

3 Credits

A performance-oriented class which explores the historic and contemporary theatrical works of various culturally diverse peoples. THEA 208 / AFAM 208 Theatre Workshop in Diverse Cultures (3) (GA;US;IL) (BA) This course meets the Bachelor of Arts degree requirements. Theatre Workshop in Diverse Cultures is a performance-oriented class that aims to introduce students to the broad cultural diversity that exists in artistic expression. The class will focus on several plays throughout the semester that will represent cultural, ethnic, and gender diversity as well as different literary styles. Students will be exposed to various cultures by working on plays created by artists from those cultures. The course will concentrate on a specific playwright, culture, or region, such as plays from the Caribbean. Students will be required to read, study, analyze, and perform plays from the genre. For example, the class may focus on the works, life, and philosophy of August Wilson and read Joe Turner's Come and Gone, Seven Guitars, Piano Lesson, and Fences. The class may explore Asian styles such as Noh Theatre and Asian American works by D. H. Hwang or work by Nigerian playwright and Nobel Prize winner Wole Soyinka. The presentation of these plays will be a principle part of the class, but the reading and discussion of the material will be as important. Students will participate in some capacity with the production of these plays in areas such as stage management, dramaturgy, sets and props, lights, sound, costumes, house management, publicity, and acting. These pieces will be performed in class, in workshop, and occasionally for the general public. Students will work as an ensemble and become acquainted with basic acting and theatre techniques. The course objectives are: 1) to develop and enhance students' appreciation for the discipline and commitment required for multicultural theatrical presentations 2) to help to sensitize all students to the broad cultural diversity in artistic expression 3) to provide students with an introductory engagement with drama. THEA 208 / AFAM 208 serves as a primary selection for students pursuing the Theatre minor.

Cross-listed with: THEA 208
 Bachelor of Arts: Arts
 International Cultures (IL)
 United States Cultures (US)

AFAM 210: Freedom's First Generation: African American Life and Work, from the Civil War to World War II

3 Credits

HIST/AFAM 210 explores the context and events that shaped African American life during the post-abolition period from the U.S. Civil War until WW II. The course begins with a comparative examination of the decline of African slavery and of emancipation throughout the Americas, and then focuses on Black lives in the United States. The course explores a wide range of topics, including: Black identity in the U.S., the criminalization and disposability of Black bodies, Reconstruction, Jim Crow Laws, lynching, forced labor, the rise of African American leadership, gender and reproduction under slavery and in freedom, the development of protest strategies, the impact of industrialization and urbanization, and the significance of African American culture and art.

Cross-listed with: HIST 210
 Bachelor of Arts: Humanities
 United States Cultures (US)
 General Education: Humanities (GH)
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

AFAM 211: Slavery and Freedom in the Black Atlantic

3 Credits

This course examines the history of African and Afro-descended people throughout the Atlantic world from the 15th through the 21st centuries. Historical topics include African societies before and after the advent of European trade systems, the Atlantic Slave Trade, the role of enslaved Africans in the conquest, establishment, and independence of the Americas, and the role of free and freed Afro-descended people in resistance, in service, and as citizens of American colonies and nations. This course compares and contrasts the systems of slavery that appeared throughout the Americas, the resistance that developed against these systems, and the nations that developed out of these institutions.

Cross-listed with: HIST 211
 Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 United States Cultures (US)
 General Education: Humanities (GH)
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Key Literacies

AFAM 212: African Americans in the New Jim Crow Era, 1968-present

3 Credits

An examination of Black political, economic, social, and cultural life in America from the era of colonization to 1905. AFAM 212 African Americans in the New Jim Crow Era, 1968-present (3) (US) This course covers the Black experience after the 1960s and the post-World War II Civil Rights Movement ended in the late 1960s. It begins with a brief overview of the major events and achievements of the Civil Rights

Movement and its waning that followed in the wake of the Vietnam War and the social upheaval of the late 1960s. The course focuses on the the Black experience during the rightward shift in American politics, culture, and society in the last one third of the 20th century and the beginning decades of the 21st century. We look at the disintegration of the Democratic Party that grew out of the party's support of the Civil Rights Movement, the War on Poverty, and the Vietnam War. We discuss the recreation of the Republican Party that followed a southern strategy to rebuild the party on the racism and discontent of white people in the southern rim and in white suburbia throughout the nation. The new Republican Party pursued a new state's rights philosophy that fused with a growing libertarianism that rejected a strong federal government and was hostile to any efforts to address social justice issues in American society. We discuss the efforts of the New Right Republicans and the newly formed Democratic Leadership Conference of the Democratic Party to dismantle many of the achievements of the Civil Rights Movement, focusing on welfare reform, new sentencing laws, the privatization of the prison system and public education, all changes that forged a New Jim Crow society. We look at the role of black elected officials in this process, discussing the various differences between black members of the Democratic Leadership Conference, and those of the Progressive Black political groups. There were major political achievements in terms of more black elected officials, the Jesse Jackson Presidential Campaign, and the election of Barack Obama. However, the late 20th and early 21st Centuries were marked by growing class and racial inequality, perhaps made most visible by Hurricane Katrina when the entire world saw the consequences of decades of conservative policies that favored the rich over the poor. We discuss the popular notion of a post-racial and color blind society and the contradictions it embodies. The course ends with a discussion of newly emerging grassroots efforts to address issues such as environmental racism, school inequality and the schoolhouse to jailhouse track, police brutality, and the prison industrial complex. We discuss how African Americans today may build on the struggles and insights from the past to forge a stronger and more just future.

United States Cultures (US)

AFAM 213Y: African American Women's History

3 Credits

This course examines the social, political, and economic history of African American women in the United States from slavery to the present. Using secondary and primary sources along with film and discussion, we will explore the varied lived experiences of African American women paying special attention to the themes of family, sexuality, labor, politics, and religion. We will examine how the simultaneity of racial and sexual oppression influence African American women's actions. Additionally, we will consider dominant images of African American women in a historical context. While the course is primarily discussion in format, the professor will lecture when necessary. As the course is writing-intensive, papers of various lengths constitute the bulk of student assessment.

Cross-listed with: HIST 213Y, WMNST 213Y
 Bachelor of Arts: Humanities
 United States Cultures (US)
 General Education: Humanities (GH)
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies
 Writing Across the Curriculum

AFAM 226N: Critical Approaches to Hip-Hop

3 Credits

This course will examine the politics of hip-hop art and culture. To do so, we will place hip-hop in broad historical context and trace its aesthetic and cultural roots from Africa to Jamaica to 1970s New York City and then forward to 1980s gangsta rap and former President Barack Obama's iPod. We will think through the implications of hip-hop's addiction to Italian-American mobsters, bling, and all-things keepin' it real. We will also search for hip-hop's political foundations in funk records, 1960s community organizing, and poetry of the Harlem Renaissance. All the while, we will analyze the varieties of hip-hop politics by paying close attention to how hip-hoppers vie for authenticity, recognition, and power through cultural practices—b-boying/girling, graffiti art, emceeing, djing, e.g.—at odds with the State, inequality, and injustice. We will also situate hip-hop politics within the ongoing history of American social movements. To avoid over-romanticizing, we will equally examine hip-hop's appetite for conspicuous consumption, misogyny, homophobia, trappin', and criminality. A deep understanding of hip-hop politics, then, requires examining its contradictions as well as the ways race, class, gender, sexuality, and geography shape hip-hop—and therefore American culture, art, and identity. To get at these and other ideas, we will read, listen, and think broadly about why a full understanding of hip-hop truly matters.

Recommended Preparations: AMST 100 or AFAM 126 or INART 126

Cross-listed with: AMST 226N, INART 226N

General Education: Arts (GA)

General Education: Humanities (GH)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

AFAM 235: From Folk Shouts and Songs to Hip Hop Poetry

3 Credits

The origins, forms, and function of the oral folk tradition of African Americans. ENGL 235 / AFAM 235 From Folk Shouts and Songs to Hip Hop Poetry (3) (US)(BA) This course meets the Bachelor of Arts degree requirements. This course contemplates connections between African oral traditions and contemporary trends in Black poetry including hip-hop and spoken word poetry. The central objective of the course is to examine the degree to which the most contemporary forms of African American poetry continue to function as folk expression; it provides an opportunity for students to examine the oral roots of African American literature in general and contemporary hip-hop and spoken word poetry, in particular. Music, particularly the Blues and Jazz, will be a prominent feature of this class as we try to discover the peculiarities of Black poetry. Students will begin by comparing African and African American folk forms such as proverbs and epic poetry, continue with early African American poets such as Phyllis Wheatley, George Moses Horton, Frances Ellen Watkins Harper, and Paul Laurence Dunbar, and continue through the 20th century with the poetry of the Harlem Renaissance and Black Arts Movement to contemporary Hip-Hop and Spoken Word, including Def Poetry Jam recordings. Background readings will include important essays (such as James Weldon Johnson's "Preface to the Book of Negro Poetry" and Langston Hughes's "The Negro Artist and the Racial Mountain") that reveal the kinds of aesthetic issues African American artists faced in crafting their art in the face of a dominant culture that consistently questioned their capacity for artistic production. Students will listen as

Margaret Walker reads her famous poem, "For My People," and they will consider the importance of the Black Arts Movement, its poets and critics to the development of contemporary hip-hop and spoken word poetry. Other course materials will include videotaped interviews and poetry readings. Readings would come from an appropriate anthology and/or a combination of other appropriate texts selected by the instructor.

Cross-listed with: ENGL 235

Bachelor of Arts: Humanities

United States Cultures (US)

AFAM 250: Introduction to the Caribbean

3 Credits

A survey course exploring the emergence and historical evolution of the modern Caribbean. This course will explore the evolution of the Caribbean region from the eve of the arrival of Columbus to the 21st century. It will explore Indigenous societies prior to the arrival of Columbus and the interactions that lead to their destruction and the consolidation of European colonial empires. We will explore the coercive labor systems that emerged in the region including indentureship, Indigenous enslavement, transportation of Europeans, the establishment of African slavery, and the establishment of the plantation system that defined the region until the 20th century using both free and unfree labor to maintain its dominance in these island societies. Themes examined will include revolutions in Haiti and Cuba, the struggle for independence, slavery and racial hierarchy, the rise of U.S. neo-colonialism and hegemonic control in the region, nationalism, tourism, and the economic underdevelopment that defines the Caribbean until today.

Cross-listed with: HIST 250

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

AFAM 280: Historical Ethnography of Freedom

3 Credits

Studies the Underground Railroad movement to guide slaves to freedom, and public heritage surrounding this institution. Students use ethnographic approaches. AFAM 280 Historical Ethnography of Freedom (3) (GH;US) The course will introduce students to the origins, impact, and changing public interpretations of Underground Railroad. The Underground Railroad was a movement to secretly rescue slaves and send them to places of freedom in the northern states and territories, and Canada. Students will learn about the origins, leaders, and locales of this multi-racial movement. The course assignments will include scholarly readings, as well as research locating historic materials that shed light on the Underground Railroad. Course text and research materials will include historical studies, as well as newspapers, census materials, church records, and rare books that shed facts on the Underground Railroad. Students will be challenged to weigh stereotypical views about the Underground Railroad in scholarship and public life against the literature, historical documents, and places they discover that were actually associated with local and national Underground Railroad activities.

United States Cultures (US)

AFAM 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

AFAM 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

AFAM 302: Diversity and Health

3 Credits

Examines the relationship diverse personal and sociocultural factors (e.g., socioeconomic class, race-ethnicity, gender, age, and sexual orientation) have with health. BBH 302 / AFAM 302 Diversity and Health (3) (US) is an introduction to the interdisciplinary study of the impact of diversity on health in America. The course is designed to provide an understanding of the complex interaction between concepts of diversity, including but not limited to race, ethnicity, culture, gender, age, socioeconomic status, and sexual orientation. The course will also consider and critique the methods used in the study of these concepts and issues related to the measurement of health among diverse groups. The ultimate goal of this examination is to assist students in developing an appreciation of diversity and the impact diversity has on assessments and study of health, health status, and health promotion in America. The course is also designed to integrate different sources of information about diversity by utilizing critical thinking skills for the consumption of health information. The educational objectives will be to enable students to: 1) Consider the implications of race, ethnicity, gender, age, socioeconomic status and sexual orientation on health/social policies in light of research findings, 2) Understand the legacies and historical events that have impacted our view, status, and treatment of diverse populations, 3) Appreciate the importance of understanding the origins of different health behaviors that impact biological processes, as well as the impact of biological processes in the context of social, environmental, and cultural influences when examining health issues.

Enforced Prerequisite at Enrollment: PSYCH 100 or SOC 1

Cross-listed with: BBH 302

United States Cultures (US)

AFAM 303: Race and Gender in the Americas: Latin American and Caribbean Cultures

3 Credits

Utilizing a theoretical framework of intersectionality, this course examines historical and cultural constructions of race and gender in Latin America and the Caribbean. AFAM 303 / ANTH 303 / WMNST 303 Race and Gender in the Americas: Latin American and Caribbean Cultures (3) (GS;IL) Utilizing a theoretical framework of intersectionality this course examines how racial, gender, sexual, and class identities are constructed in Latin American/Caribbean societies. The course applies an anthropological perspective to a wide range of countries in the region to reflect on how historical events such as the conquest, colonization, slavery, and independence movements are relevant to understanding the region today, as well as how race, gender, and sexuality inform contemporary themes of empire, nation-building, imperialism, neo-colonialism, revolution, violence, militarization, social movements, religion, neoliberalism, U.S. involvement/relations, and

popular culture. The course addresses issues of power, culture, racial formation, and citizenship by incorporating interdisciplinary material beyond ethnography such as newspapers, grassroots media, biographies, films, music, novels, personal testimonies, etc. Rooted in feminist anthropological scholarship, this course emphasizes how power (from above and below) and culture mediate relationships between individual/community agency and institutions/structures. As an effort to encourage students to think about Anthropology and culture beyond superficial or romanticizing celebrations of multiculturalism, food, and music, the course stresses the theoretical importance of situating power and privilege amidst difference. We conceptualize culture not only as socially transmitted patterns of behavior and ideas/meanings, but as a complex and dynamic process/medium grounded in unequal relations in which power is constituted and resisted. The ethnographic emphasis of the course centers on the complex lived realities and voices of people, encouraging students to learn, understand, and respect cultural difference. The course offers students a broad sense of how power is central in the production of knowledge (particularly within the disciplines of Anthropology and History). Students will critically engage an array of topical issues in Latin America beyond dichotomous thinking. Discussion of course material includes contemplating issues of ethics, subjectivity, bias, and privilege. Conversations regarding processes of "Othering" and traditional "us vs. them" debates that often occur when discussing developing countries will prompt students to situate their own power/privilege and challenge our assumptions and preconceived notions of Latin America. Moreover, this course teaches Latin American Cultures within a global context of racialization. As such it also stresses the historical and contemporary social, economic, cultural and political significance of the U.S. in Latin America, to demonstrate how we are connected and responsible to what happens "over there."; In order to promote service learning, a core tenant of feminist pedagogy, this course also offers students the opportunity to participate in an optional embedded program entitled "Cuba: Identity, Diversity and Popular Culture". This two week course in Havana, Cuba promotes interactive learning in and outside the classroom with international study. This course component successfully combines academic classes, hands-on activities, and service learning.

Cross-listed with: ANTH 303, WMNST 303
International Cultures (IL)

AFAM 364N: Black & White Sexuality

3 Credits

This course explains how narrow, "black and white," ways of thinking limit our understanding of the diverse expressions of human sexuality. The course title's double meaning also references the various ways that sexuality is socially constructed in relation to race. For example, we will explore how stereotypical beliefs about the sexuality of people of African descent persist in the United States and have been legitimized historically by various cultural discourses, social institutions, and academic fields. Course assignments will require us to rethink and challenge what we understand as "sexuality" and consider its many influences like race, gender, class that shape our emotions, needs, desires, relationships, representations, practices, and public policies. An aim of this course is to begin to make sense of the long, entangled, and inextricable relationship between race and sexuality in the United States.

Cross-listed with: WMNST 364N
United States Cultures (US)
General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think

AFAM 395: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships.

AFAM 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

AFAM 401: Afro-American Studies Seminar

3 Credits

A seminar examining theoretical and methodological issues in Afro-American Studies.

Prerequisite: AF AM100 , AF AM101

AFAM 409: Racial and Ethnic Inequality in America

3 Credits

The impact of inequality and discrimination on individual and group identity among various racial and ethnic groups. SOC 409 / AFAM 409 Racial and Ethnic Inequality in America (3) (US) (BA) This course meets the Bachelor of Arts degree requirements. This course explores the impact of inequality and discrimination on individual and group identity for a wide range of social groups with special focus on racial and ethnic majorities and minorities. Using an extensive list of readings, writing assignments, small group activities, and journals (for personal reflection and scholarly critique) the students join the instructor in exploring the effects of inequality and discrimination. While emphasis is given to the inequality and discrimination experienced by local and national populations, a significant portion of the class will address issues rooted in international structures and institutions. Students are evaluated on quizzes, reaction papers, and analysis journals. AFAM 409 / SOC 409 is not a required course in Sociology; it is, however, an optional 400-level course for all majors and minors that fulfills one of their upper-level course requirements. AFAM 409 / SOC 409 is not required for the major or minor, but it is one of several optional courses from which they can choose to fulfill major and minor requirements.

Enforced Prerequisite at Enrollment: 3 credits in SOC

Cross-listed with: SOC 409

Bachelor of Arts: Social and Behavioral Sciences
 United States Cultures (US)

AFAM 410: Spirit, Space, Survival: Contemporary Black Women

3 Credits

How recent Black women have used spirit and space to survive.

Prerequisite: AF AM101

AFAM 412: African American Theatre

3 Credits

Exploration of the development of African American theatre from its roots in Africa through the diaspora, to the present time. THEA 412 / AFAM 412 African American Theatre (3) (US;IL) (BA) This course meets the Bachelor of Arts degree requirements. In this course, we will explore the development of African American theatre from its roots in Africa and Europe, through the diaspora, to the present time. We will learn something of the rich diversity of African American people and their contribution to the world's creative mainstream. We will become acquainted with both historical and contemporary artists who created and continue to create this unique American art form. The goals of the course are: 1) to develop familiarity with African American theatre and the socio-historic context in which it was created 2) to develop an understanding of the relationship of African American theatre to mainstream American theatre 3) to acquire an appreciation of the schools, styles, and techniques of African American theatre We will do this by reading and engaging plays in the context of the period in which they were created, viewing films of plays, and attending relevant productions where possible.

Enforced Prerequisite at Enrollment: THEA 100 or THEA 105 or THEA 106 or DANCE 100

Cross-listed with: THEA 412

Bachelor of Arts: Arts

International Cultures (IL)

United States Cultures (US)

AFAM 416: Race, Gender and Science

3 Credits

The class will focus on race and gender as products of science, and how societal values shape scientific activity.

Cross-listed with: STS 416

International Cultures (IL)

United States Cultures (US)

AFAM 422: Contemporary African American Communication

3 Credits

A focused study on the continuities between African and African American culture and communication. CAS 422 / AFAM 422 Contemporary African American Communication (3) (US)(BA) This course meets the Bachelor of Arts degree requirements. At least once a year, this multidisciplinary course is designed to serve both Speech Communication and African and African American Studies. It is concerned with the relationship between a people's culture and world view and their systems of rhetoric/communication. It also provides a focus on the continuities between African and African American culture and communication. Specifically, it offers an approach to ascertaining the salient features of African and African American communication for community development. Special emphasis is given to the development and rhetoric of the Civil Rights Movement. The course utilizes videos, guest lectures, tapes of speeches, etc. to clarify objectives and stimulate classroom discussion. Students will be evaluated on two exams, one oral report, a final paper and class participation. Even though students need 400-level courses for their major and minor, this course is not required for Speech Communication majors. However, it does meet the Intercultural and International Competency requirement because it focuses on the

communication of African Americans and how that communication has affected all Americans. The course will accommodate ten students in Speech Communication and ten students in African and African American Studies to ensure active discussion of issues.

Enforced Prerequisite at Enrollment: 3rd Semester Standing

Cross-listed with: CAS 422
Bachelor of Arts: Humanities
United States Cultures (US)

AFAM 431: Black Liberation and American Foreign Policy

3 Credits

This course deals with American foreign policy and Black liberation in Africa since 1945. AFAM 431 / HIST 431 Black Liberation and American Foreign Policy (3) (US;IL)(BA) This course meets the Bachelor of Arts degree requirements. Black Liberation and American Foreign Policy in Africa since 1945 presents an interdisciplinary approach to the study of American foreign policy in Africa. Course readings will consist of both secondary and primary sources to explore the evolution of American policy toward the continent over the last half-century, and the meaning of the American engagement with Africa for American politics and society. The course will also examine the reasons that Africa has served as a focus of concern among African Americans both prior to, and, over the period 1945 to the present. Of particular concern will be the ways in which American policy has reflected pressures from African Americans as a constituency in foreign policy. The focus of the course will be student-centered written research and discussion. Students will be required to select topics from the course outline for presentation in class with the instructor serving as the moderator of discussion and guide to relevant research materials. Students will be encouraged to use both primary and secondary sources for their research. Students will be expected to prepare two individual written presentations which will serve as the basis for class discussion (30% of the grade), a book review (10% of the grade), and a research paper of 15 pages (40% of the grade) on a topic drawn from the areas identified in the course outline. The final 20% of the grade will be awarded for participation in class discussion.

Prerequisite: 3 credits in African history; 3 credits in African political science; or 3 credits in American political science

Cross-listed with: HIST 431
Bachelor of Arts: Humanities
International Cultures (IL)
United States Cultures (US)

AFAM 432: Between Nation and Empire: The Caribbean in the 20th Century

3 Credits

An exploration of the political evolution of the Caribbean Region over the course of the 20th Century. HIST 432 / AFAM 432 Between Nation and Empire: The Caribbean in the 20th Century (3) (IL)(BA) This course meets the Bachelor of Arts degree requirements. This course will explore the political evolution of the Caribbean Region over the course of the 20th century. Its focus will be the ways in which imperial rule and the search for national identity have been the parameters that have shaped Caribbean political history over that period. Students will explore, in written assignments and class presentations, the ways in which the region which has historically been a theatre of confrontation among the major powers in the international system continued to serve that role over the course of the 20th century. The costs that have been borne by the people of the region from these conflicts have been enormous

and crippling for several societies, especially Haiti, Cuba, Jamaica, and the Dominican Republic. Among those costs have also been the continued dependence of these societies upon human migration, limited economic strategies of transformation, increasing levels of poverty, and the emergence of a wide variety of political systems that reflect different historical experiences, demographic diversity, varying levels of political autonomy, and a remarkable level of cultural similarities. Evaluation will be based upon two class presentations; one research paper and class participation. The course will be required for students pursuing the African Diaspora minor and for those seeking to broaden their diversity requirements. It can be used to meet non-Western history requirements in the History major.

Prerequisite: HIST 250

Cross-listed with: HIST 432
Bachelor of Arts: Humanities
International Cultures (IL)

AFAM 435N: Black Ecologies

3 Credits

African and African Diasporic peoples have been central to the creation and transformation of global ecologies and landscapes. As the birthplace of humankind, the African continent features the longest archaeological record in the world, with abundant, yet often underrepresented, material and historical evidence for remarkable Indigenous African innovations in the areas of technology, food production, and resource and land use. This course specifically examines Black ecologies preceding and then radically transformed by the Trans-Atlantic Slave Trade. Beginning in the late fifteenth century, the enslavement of millions of Africans and their forced translocation to the Americas and Caribbean precipitated ecological transformations on all sides of the Atlantic, as African peoples, knowledge, resources and ecological inheritances were appropriated by the European mercantile system. Enslaved Africans transformed American landscapes via extractive industries of plantations and mines and suffered the emergence of toxic landscapes and disease alongside Native American communities. Africans also recreated African ecologies as they created livelihoods and landscapes of resistance and freedom in the Americas. The legacies of the Atlantic Era maintain a persistent dynamic in which African and African Diasporic communities experience disproportionate burdens of environmental injustice today. The concept of Black ecologies reflects the marginality, systemic racism and dispossession experienced by Black peoples and their landscapes. Black ecologies also allow us to understand African and African Diasporic ecological innovations, resistance and resilience, and the pathways to future sustainability and justice they promise.

Prerequisite: 3 credits of ANTH

Cross-listed with: AFR 435N, ANTH 434N
International Cultures (IL)
United States Cultures (US)
General Education: Humanities (GH)
General Education: Social and Behavioral Scien (GS)
General Education - Integrative: Interdomain
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Soc Resp and Ethic Reason

AFAM 445Y: Politics of Affirmative Action

3 Credits

Examines history, politics, and economics of the use of special programs to advance racial interests in the U.S. PLSC 445Y / AFAM 445Y / LER 445Y Politics of Affirmative Action (3) (US)(BA) This course meets the Bachelor of Arts degree requirements. The objectives of this course are to introduce students to the relationship between affirmative action and other policies purportedly designed to end racial inequality in the U.S. This course approaches the study of affirmative action in the context of the historic racial discrimination and inequality that Black Americans have faced since the founding of the Nation. The purpose of this course is to help students think about how contemporary and historic affirmative action policies relate to race, concepts racial inequality, the historic and continuing causes for racial inequality, public opinion, American politics and economic thought. The course materials will lead students through scholarly and popular articles, books and video presentations on the topic. It is hoped that students will become familiar with the history of affirmative action from its conception. Students will gain an intimate understanding of affirmative action economic and social outcomes on various racial groups. No prior knowledge is assumed, however a knowledge of civil rights history, quantitative methods, and constitutional law will be useful. The Politics of Affirmative Action satisfies the requirements for major and minor electives for the African American Studies, and major and minor electives for Political Science, and Labor Studies and Industrial Relations. Students are evaluated on the basis of an examination, term paper, class participation and class presentations of papers.

Prerequisite: AAA S 100 level course and PL SC001 or PL SC007

Cross-listed with: LER 445Y, PLSC 445Y

Bachelor of Arts: Social and Behavioral Sciences

United States Cultures (US)

Writing Across the Curriculum

AFAM 460: African American Philosophy

3 Credits

This course will explore central questions and themes guiding the evolution of African American philosophy in the 19th and 20th centuries. Our course will study three different movements from the era. We begin with slavery and questions of reason, civility, and nationality. We move on to philosophies of value and culture in the early twentieth century, with the focus on secularization and the historical nature of philosophical truth. Finally, we will read the work of black political philosophers, and the turn to Marxism and Hegelianism. Issues to be discussed include the foundation and source of race as knowledge of the world, the nature of blackness and identity, the nation as a locus of consciousness and action, God's role in the universe, and the possibility of an Afro-Pessimism about these things.

Prerequisites: AFAM 100 or PHIL 009 and 5th semester standing

Cross-listed with: PHIL 460

International Cultures (IL)

United States Cultures (US)

AFAM 463: African American Autobiography

3 Credits

The African American literary quest for identity and its adaptation to Euro-American culture and autobiographies. ENGL 463 African American

Autobiography (3) (US)(BA) This course meets the Bachelor of Arts degree requirements. Starting with the slave narratives which initiate the literary quest of African Americans for identity, this upper-division course will examine the trope of writing (the "talking" book) as the (w)rite of passage into the dominant Euro-American culture. The course will identify, describe, and analyze how the major elements of the "quest" found in the slave autobiographies have been adapted as textual strategies by many contemporary African American writers of autobiography, semi-autobiography, and fictional autobiography. Authors under consideration will vary from class to class, but may include writers such as Frederick Douglass, Harriet Jacobs, W. E. B. Du Bois, Ida B. Wells, Richard Wright, Zora Neale Hurston, Maya Angelou, Martin Luther King, Alex Haley, Harriet E. Wilson, James Weldon Johnson, and Ernest Gaines. Topics explored will vary from class to class, but will likely consider slave narratives, the role of autobiography in the fashioning of identity and self, gender issues, genre questions, and the historical development of the genre and its shifting preoccupation from slave times through the early twentieth-century, the pre-Civil Rights era, the Civil Rights Movement, the Black Power Movement, and the present. The course will prepare students for other courses that engage in the verbal and written analysis of complex written texts, and will also prepare students to consider the social and cultural issues involved in the role of race in American history. Students will be evaluated by means of essays written out of class, essay and short answer exams, a term-long reading journal reflecting upon issues of the student's own "autobiography"; an oral class presentation, and class participation. The course may be used as English Major elective credit or as credit towards the English Minor and will be offered once a year, with 40 seats per offering.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Cross-listed with: ENGL 463

Bachelor of Arts: Humanities

United States Cultures (US)

AFAM 465: The Post-World War II Civil Rights Movement

3 Credits

The civil rights struggle and its impact upon American politics. AFAM 465 / HIST 465 The Post-World War II Civil Rights Movement (3) (US) This course focuses on the post-World War II Civil Rights Movement. It begins with a discussion of the "Long Civil Rights Movement," briefly looking at the roots of the movement in the labor movement and social struggles of the Great Depression and World War II. We then turn to the impact of World War II on African Americans, the growing militancy during the war, the struggles over segregation in the military, the growing role of blacks in the labor movement, and the growing link between African Americans and the rising anti-imperial movements that accelerated after the war. We discuss the role of African Americans in the Cold War and the struggles over the role of Communism and Socialism in the emerging Civil Rights Movement. The course is broken down into key topics of the movement years: the rise of localized grassroots movements all over the United States that were led by local people who sought to challenge school segregation, political disfranchisement, poor housing conditions, police brutality, and job discrimination. While legal disfranchisement and segregation existed solely in the southern states, the entire country practiced both and black people suffered the consequences universally. Much time is spent on the more famous southern civil rights movement, with discussions of the Emmett Till Murder of 1955; the Montgomery Bus Boycott and the rise of Martin Luther King, Jr. and the Southern Christian Leadership Conference;

and the Little Rock Crisis of 1957. The beginning of the 1960s saw the creation of the Student Non-Violent Coordinating Committee and the emergence of key women leaders in the struggle such as Mrs. Ella Baker, Mrs. Fannie Lou Hamer, Mrs. Rosa Parks, and Mrs. Septima Clark, to name only a few. We discuss key moments in the 1960s, beginning with SNCC and CORE and the Freedom Rides, the SCLC in Birmingham and Albany; the March on Washington, the 1964 Mississippi Freedom Summer and the murders of Chaney, Goodman, Schwerner, and Medgar Evers; the 1965 Selma to Montgomery March, and the final passage of the 1964 Civil Rights Act and the 1965 Voting Rights Act. The emphasis on the southern struggle is on the local, ordinary people who achieved extraordinary things.

Prerequisite: AF AM100 , HIST 021 , HIST 152 , PL SC001 , or PL SC002

Cross-listed with: HIST 465
Bachelor of Arts: Humanities
United States Cultures (US)

AFAM 466: African American Novel I

3 Credits

This course examines the origins of the African American novel and follows the genre's evolution into the early twentieth century, outlining the relationships among the texts that form the body of African American narrative as well as the relationships of those texts to the constantly shifting cultural and political realities surrounding their writing. From the earliest novels, written during the period of slavery, through the Reconstruction era, the nadir of Black Codes and Jim Crow Supreme Court decisions, and into the Renaissance heralded by Alain Locke and others, course readings encompass a broad range of styles and genres, from early proto-documentary modes, through the realism and naturalism of a later time. The course takes up Robert S. Levine's claim that "the history of the early African American novel is not fixed or stable" by mapping the genre's early history and by developing an understanding of the novel as genre according to both early African American authors and later scholars. It addresses the fact that this history continues to be updated and that some texts whether in part or in whole remain lost. Authors covered in the course might include William Wells Brown, Frederick Douglass, Frank J. Webb, Julia C. Collins, Hannah Crafts, Martin Delany, Frances Ellen Watkins Harper, Charles Chesnut, Pauline Hopkins, Paul Laurence Dunbar, Sutton Griggs, James Weldon Johnson, Oscar Micheaux, Nella Larsen, Jessie Fauset, and others. Scholarly readings accompany primary texts in order to give students a sense of the critical work that has gone into and continues to go on in the study of African American literature. Course topics may include the issue of firsts; the challenges of publication and the attendant realities of early African American print cultures; questions of tradition and influence; and the political, social, religious, and philosophical aims of early African American novels. Readings and discussions also attend to questions of form, specifically regarding intertextuality and generic blurring and hybridity. The study of early African American novels necessarily includes attention to issues of race, identity, nation, diaspora, and the question of authenticity, and each is taken up in turn. Course assignments and discussions engage students in critical work that demands careful attention to both content and context in order that all students might strengthen their close reading capabilities and engage with course figures and materials within their historical milieus.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Cross-listed with: ENGL 466

Bachelor of Arts: Humanities
United States Cultures (US)

AFAM 467: African American Novel II

3 Credits

This course examines the African American novel, its forms, and its traditions starting during the Harlem Renaissance. It follows the genre's evolution into the twenty-first century, outlining the relationships among the texts that form the body of African American narrative as well as the relationships of those texts to the constantly shifting cultural and political realities surrounding their writing. From the Renaissance heralded by Alain Locke, through the Civil Rights and Black Power Movements -and their attendant Black Arts Movement- and into the era of the Movement for Black Lives, course readings encompass a broad range of styles and genres, from realism, naturalism, and naturalist primitivism, through the experimental forms, magical realism, and "postrace aesthetics" of later times. The course invites students to think critically about the African American novel as a socially and politically engaged form, and to identify and analyze the long tradition of resistance that variously informs its development. Authors covered in the course might include major figures such as Claude McKay, Zora Neale Hurston, Nella Larsen, Wallace Thurman, Richard Wright, Ralph Ellison, Ann Petry, James Baldwin, Ishmael Reed, Earnest Gaines, Alice Walker, Toni Morrison, Toni Cade Bambara, Octavia Butler, Gayle Jones, Samuel Delany, Charles Johnson, John Edgar Wideman, Colson Whitehead, and others. Still, the course gives due attention to lesser known/studied materials from the period, including graphic novels, satire, speculative fiction, performance novels, and various other experimental forms. Course readings and instruction give particular attention to how African American novels of the twentieth and twenty-first centuries variously engage social identity categories, like race, gender, class, and sexuality, and how they engage and resist various literary conventions associated with naturalism, modernism, and postmodernism. The course also traces the development of new thematic and aesthetic interests in a generation of writers whose fiction has been influenced by the explosion of interest in the graphic novel, the popularity of cultural forms such as hip hop, and the ascendancy of the digital age. Scholarly readings accompany primary texts to give students a sense of the critical work that has gone into and continues to go on in the study of African American literature. In this course, students learn how to analyze literature, do close and careful readings of texts, conduct related research, and write persuasively about literary works. Assignments and discussions are designed such that students may engage with course figures and materials within their historical milieus.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Cross-listed with: ENGL 467
Bachelor of Arts: Humanities
United States Cultures (US)

AFAM 468: African American Poetry

3 Credits

Meta duEwa Jones argues, "We cannot afford to continue to treat black poetry and poetics as loose change among the more highly valued paper currency of fiction and nonfiction prose. . . . The myriad aesthetic forms and concomitant political functions of black poetry and poetics should be seriously considered as grounds for broader and more nuanced theoretical and sociocultural claims." This course takes as its subject

matter these aesthetic forms and political functions of the poetry of black America. It surveys the broad history of African American poetry and poetics, tracing the evolution of formal structures and aesthetics, but also taking a critical view of the reception of African American verse. Whether reading Phillis Wheatley or the contemporary poet Ed Roberson, all the poets included in this course have contended within the writing itself with the racially striated nature of the literary spaces they occupy. Course readings may come from poets including Wheatley, Frances Ellen Watkins Harper, Paul Laurence Dunbar, Alice Dunbar Nelson, Claude McKay, Langston Hughes, Robert Hayden, Melvin Tolson, Gwendolyn Brooks, Amiri Baraka, John Coltrane, Ishmael Reed, Nathaniel Mackey, Rita Dove, Maya Angelou, Audre Lorde, Natasha Trethewey, Sonia Sanchez, Nikki Giovanni, Nikky Finney, Roberson, Claudia Rankine, and others. The course addresses works by many of the key figures of this American literary tradition so that students may develop an understanding of the various contributions and legacies formal, musical, cultural, critical, political of African American poetry from the eighteenth century to today. Scholarly readings accompany primary texts to give students a sense of the critical work that has gone into and continues to go on in the study of African American poetry and poetics. The course surveys early African American poetry through works from the Harlem Renaissance and the Black Arts Movement, and through contemporary movements and formations. Topics will cover a range of thematic and formal issues relevant to individual poets, to major movements and periods, to regions, and to various smaller organizations and collectives. Course assignments, lectures, and discussions engage students in critical work that requires careful attention to form, content, and context such that all students might strengthen their explicatory skills and approach course figures and texts from an informed, analytical perspective.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Cross-listed with: ENGL 468
Bachelor of Arts: Humanities
United States Cultures (US)

AFAM 469: Slavery and the Literary Imagination

3 Credits

The impact of slavery on the petitions, poetry, slave narratives, autobiographies, and novels of African Americans. ENGL 469 / AFAM 469 Slavery and the Literary Imagination (3) (US)(BA) This course meets the Bachelor of Arts degree requirements. ENGL 469 /AFAM 469 provides an opportunity for undergraduate students to examine African American petitions, poetry, slave narratives, autobiographies, and novels as literary reconstructions of the economics, politics, ethics, and poetics of slavery. Authors under consideration will vary from class to class, but may include writers such as Paul Laurence Dunbar, Phillis Wheatley, F. Harper, James Weldon Johnson, Langston Hughes, Claude McKay, Sterling Brown, Booker T. Washington, Harriet Jacobs, W. W. Brown, Harriet Wilson, Margaret Walker, Arna Bontemps, D. Bradley, S. A. Williams, Toni Morrison, Ishmael Reed, and Charles Johnson. The course will focus on the complex relationship of slavery to the literary imagination of Americans of African descent as they increasingly discovered the limitations and possibilities of reading and writing themselves into freedom, literacy, and wholeness as human beings and American citizens. Topics covered will vary, but will include issues of the legacy of slavery in the west; the political aims and rhetorical conventions of African-American autobiography; the myths and realities of slavery; economic, political, ethical, and aesthetic issues of the representation of slavery;

understandings of black consciousness and black culture on the road from slavery to freedom; the rise of African American realism as a response to the legacy of slavery; Black Feminism and issues of slavery; the role of history and memory in the construction of slavery; post-modern configurations of slavery; and the like. This class will prepare students for advanced courses in African American literature, as well as other academic courses that engage in the verbal and written analysis of complex written forms.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Cross-listed with: ENGL 469
Bachelor of Arts: Humanities
United States Cultures (US)

AFAM 492: Identities, Power and Perceptual Pedagogies in Teaching and Learning

3 Credits

Students will perform inquires into the intersections of identities, power, and pedagogical formations in relation to urban teaching/ learning contexts. AFAM 492 / CI 492 / EDTHP 492 Identities, Power and Perceptual Pedagogies in Teaching and Learning (3) In this course, students will take part in inquiries into the intersections of identities, power, and perceptual pedagogies, particularly as these phenomena pertain to methods of teaching and learning in urban contexts. To develop new knowledge and analytic skills, students will be introduced to perceptual and conceptual frameworks that assist deep engagements with youth- and teacher-centered case studies. These cases will depict actual lived experiences among racially and economically diverse students and teachers in urban contexts.

Prerequisite: 5th semester standing
Cross-listed with: CI 492, EDTHP 492

AFAM 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

AFAM 494H: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Honors

AFAM 495: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships.

AFAM 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

AFAM 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

AFAM 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

African Studies (AFR)

AFR 105: African Biodiversity and Conservation

3 Credits

AFR 105 African Biodiversity and Conservation introduces the topic of Biodiversity in Africa, with a focus on how natural features, flora and fauna, and human livelihood systems interact. Additionally, the course will examine forces driving change Biodiversity Loss and Environmental Change in Africa and how humans are contributing to and adapting to these changes. The course uses an integrated approach to study how humans interact with their environments across different environments and scales. We will look at traditional human livelihood systems will include hunting and gathering, agriculture, and pastoralism. Drivers of environmental change and approaches to conservation will be critically compared, as well as how these impact human well-being. Concepts that will be covered include paired social-ecological systems, habitat and ecology, ecological change and thresholds, sustainable resource use, forces of change (including climate change) and impact of environmental change and uncertainty on human well-being and conservation.

Bachelor of Arts: Natural Sciences

International Cultures (IL)

General Education: Natural Sciences (GN)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

AFR 110N: Introduction to Contemporary Africa

3 Credits

Consideration of influences and forces shaping modern African society; analysis of current local and global problems and issues facing Africa are the central focus of the course. "Introduction to Contemporary Africa" offers students a view of contemporary Africa as a complex, significant, and richly diverse continent which has been heavily impacted by its colonial history. The course presents an introduction to African history, politics and cultures by drawing on intellectual resources from the continent combined with those from the rest of the world. The course aims to expand students' knowledge of intersecting cultures, histories, policies, and economics in a globalized world. The course provides students with an opportunity to deconstruct some of the influences and forces that have shaped and continue to shape modern Africa and thus providing students with an opportunity to investigate, explore and analyze the current local and global issues facing Africa. In this course the student will engage with some of the literature about contemporary Africa and develop skills at reading, analyzing, and writing within the interdisciplinary approach of African Studies. The overarching goal of this course is to help students understand contemporary African

societies and their socioeconomic characteristics. The course provides students the opportunity to investigate Africa's multifaceted realities, explore: (1) The continent and its history; (2) Africa's dichotomous political, economic and institutional systems and their impacts and implications for governance and development; (3) The continent's social and environmental conditions and their impacts and implications on issues, such as demography, urbanization, gender relations public and social services and lastly; and (4) Characteristics of African culture whereby we explore African literature, theater, cinema, the arts, and belief systems.

Bachelor of Arts: World Cultures

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

AFR 132: Afro-Hispanic Civilization

3 Credits

A general introduction to human and cultural elements of African origin in Spanish- and Portuguese-speaking countries of Latin America. SPAN 132 / AFR 132 / AFAM 132 Afro-Hispanic Civilization (3) (IL) (BA) This course meets the Bachelor of Arts degree requirements. The nations and peoples of Latin America have a unique, interesting history and cultural heritage that are rooted in the traditions, beliefs, experiences, values, and struggles of Native American, European, African and other populations. This course focuses on the presence and participation of African peoples and their descendants in the formation and development of societies and cultures in representative areas of the Caribbean, South America, and Central America and on the evolution, diversity, and richness of the African heritage therein. Course content includes the African background, the experience and impact of slavery, the social, cultural, and economic heritage of slavery, the role of race in Latin America, and Afro-Hispanic intellectual, literary, and artistic developments (e.g., aspects of folklore, music). The course aims to provide students with a general introduction to human and cultural elements of African origin within the Spanish- and Portuguese-speaking nations of the Americas so that they may be more knowledgeable of the meaning, significance and widespread influence of the African diaspora. It proposes to provide the student with a better understanding of Africa's contribution to Latin American identity, diversity, culture, and development; to promote appreciation for the values and practices of other cultures, and greater awareness of the relations between the nations of the region and the United States.

Cross-listed with: AFAM 132, SPAN 132

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

AFR 150: Africa in Cinema

3 Credits

The study of the image of Africa as seen in fiction and non-fictional feature length films, ethnographic and documentary films.

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

AFR 191: Early African History

3 Credits

The course is an introduction to the history of Africa south of the Sahara from the origins of humankind to roughly 1750 with a focus on common themes in the cultural and historical development of African societies.

Themes include (but are not limited to): Ancient Egypt, Africa's place in the Greco-Roman world, Early African Christianity, Islam in Africa, European contact, and the Atlantic Slave Trade

Cross-listed with: HIST 191

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

AFR 192: Modern African History

3 Credits

This course offers an overview of the history of Africa from 1750 to the present. The course introduces students to the diversity of Africa's geography, demography, and history and investigates the experience of modern history through specific, regionally distinct, examples. Students will learn about structures of power, society, and economy in the colonial and post-colonial era in comparative terms, and about a variety of cultural forms and expressions.

Cross-listed with: HIST 192

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

AFR 192H: Modern African History

3 Credits

This Honors course offers an overview of the history of Africa from 1750 to the present. The course introduces students to the diversity of Africa's geography, demography, and history and investigates the experience of modern history through specific, regionally distinct, examples. Students will learn about structures of power, society, and economy in the colonial and post-colonial era in comparative terms, and about a variety of cultural forms and expressions. The honors course takes time to go into

greater depth in a few selected topics, with attention to primary sources, historical method, and historiographic trends.

Cross-listed with: HIST 192H

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

Honors

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

AFR 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

AFR 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

AFR 202N: Women, Gender, and Feminisms in Africa

3 Credits

This introductory course provides students with a broad interdisciplinary overview of scholarly research and theory related to women and gender studies in Africa, using both historical and contemporary examples from across the continent. We will explore the complex, and oftentimes contradictory, meanings attached to gender and sexuality in various African contexts. For example, what does it mean to be a "good" woman in Uganda today? How does this definition change (or not) if she comes out as a lesbian? What if s/he identifies as a transgender man or rejects gender binaries altogether? What if gender did not matter, or even, did not exist? In addition to exploring these types of questions, we will also examine African feminist thought, paying close attention to the ways in which African feminisms are similar to and/or different from other forms of feminism worldwide. We will also consider what these movements looked like in practice. What strategies did African feminists utilize to promote social change? What challenges did they face? What victories resulted from their efforts? Although topics may vary from semester to semester, key themes include environmental activism, anti-war/peace activism, political activism, sex worker rights activism, activism to support peoples living with HIV/AIDS, and activism against harmful traditional practices. Finally, we will examine the ways in which African feminists have contributed to global debates and initiatives on women's rights and gender equity. Students in this course can expect to engage with diverse texts from the humanities (esp. history, literature, film studies, and philosophy), as well as from the social and behavioral sciences (esp. anthropology, geography, sociology, and political science).

Cross-listed with: WMNST 202N

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning

AFR 205: Development and Sustainability in Africa

3 Credits

AFR 205 Development and Sustainability in Africa introduces the development and sustainability strategies and theories in Africa, with a focus on how. This course will trace the history of change across the continent and critique the narratives about development in Africa, relative to colonial legacies and African peoples' hopes for autonomy. We will cover the concepts of development and sustainability at different scales, from local to international. Students will become familiar with Theories of Development and how they have impacted social, political and economic pathways in Africa. Students will be exposed to an array of development strategies (including agriculture, resource extraction, education and health) and will be asked to interrogate and critically analyze examples of development and sustainability policies and projects: those that have worked and those that have not. Students will learn to assess which future pathways are sustainable and ethically sound. Finally, the course will provide students with the opportunity to practice some participatory development methods used to build consensus and make decisions with communities.

Prerequisite: AFR 105 and AFR 110N

Bachelor of Arts: World Cultures
 Bachelor of Arts: Social and Behavioral Sciences
 International Cultures (IL)
 General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning

AFR 209: Poverty in Africa

3 Credits

African countries are generally considered to be among the poorest countries on the planet. On average, their incomes are low as are their levels of education. Poor African countries also have a range of peculiar characteristics that negatively affect their living standards. As these standards decline, western audiences have increasingly been targeted by aid organizations seeking donations to help the African cause. Despite growing awareness of African poverty, however, few attempts have been made to locate discourses on African poverty within historical, theoretical, and contemporary contexts. This course provides an overview of the key issues foundational for understanding the dynamics of poverty and human development in African societies. It examines various academic conceptualizations of poverty, the dimensions of poverty in African countries, as well as poverty's various causes and consequences. The course also intends to highlight the complex nature of the social, political, and economic causes of African poverty and their implications. Furthermore, it will identify the important challenges to poverty alleviation in African societies, the effectiveness of foreign aid, and alternative strategies to poverty alleviation. The course will also provide unique opportunities for students to develop a focused understanding of specific issues that affect Africa's socioeconomically vulnerable groups as well as related issues relevant for understanding the dynamics of poverty in specific areas on the continent.

Cross-listed with: SOC 209
 International Cultures (IL)
 General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Integrative Thinking

AFR 230N: Language and Social Justice

3 Credits

This course examines the contribution of language to a variety of social justice agendas by exploring how language is used to form and support unjust social structures. The course has two main aims. First, drawing from sociolinguistic theories of linguistic ideologies, the course aims to show the significance of language in how the hierarchization and ranking of languages in a society are produced, maintained, and reinforced. The second aim is to demonstrate the effects of such a hierarchization and ranking of languages on (in)equality in educational institutions and before the law. The topics covered in this course include the role of language in structuring individual identity and human relations and how this process characterizes the nature of social institutions in producing social inequality. As the course touches on issues pertinent to our daily lives, students' questions, comments, and relevant personal experiences and observations will play an important role in our exploration of how the language we use can affect opportunities and privileges in society.

Cross-listed with: APLNG 230N
 International Cultures (IL)
 General Education: Humanities (GH)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking

AFR 234: Environment, Climate Change and Resilience in Africa

3 Credits

This course provides an overview of the relationship between environment, climate change and livelihood resilience in Africa. The AFR 234: Environment, Climate Change and Resilience (3 credits) course uses an interdisciplinary approach and a combination of conventional scientific and indigenous knowledge about environmental change, to enable students to develop a critical understanding of the concepts of environment, climate change, and sustainability and resilience in the face of environmental degradation in Africa. Topics to be covered in the course will include environmental change and extreme climatic conditions such as hurricanes, droughts, floods and winds in Africa; climate change and agriculture, natural resource conservation and conflicts, population growth and climate change, environmental sustainability, and indigenous resilience strategies to combat climate change and its sundry impacts on the continent and its peoples. Various ongoing resilient ecological management strategies, including indigenous knowledge, expertise of locally trained environmentalists, along with regional and global institutional perspectives of climate change, will be identified and discussed using case studies to provide a more comprehensive understanding of environmentally, friendly and climate change management policy debates in Africa. The course will be taught through class lectures, seminars, workshops, and scheduled

field coursework in specific regions in Africa as a summer study abroad component of the course.

Bachelor of Arts: Humanities

Bachelor of Arts: Natural Sciences

Bachelor of Arts: Social and Behavioral Sciences

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

AFR 294: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

AFR 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

AFR 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

AFR 305: Introduction to Global Health Issues

3 Credits

Course will develop awareness of contemporary issues in global health. BB H 305 Introduction to Global Health Issues (3) This course is an introduction to health and related issues in the global context. It is intended to be an overview of fundamental perspectives about the historical, current, and future public health challenges facing developing and industrialized countries. The course will explore the interrelationships among social structure, culture, demography, health promotion/disease prevention, biology, ecology and health policy of various countries and international health organizations. This course will 1. present key issues related to the history, conceptual frameworks, economic conditions, and policy affecting public health in the global context, 2. examine reports and studies pertaining to major global health issues and comparative research, 3. discuss the role of social structure, culture, gender roles, government policies, and the increasing numbers of the elderly in preventive health behaviors and health promotion in the global context, and 4. critique theories and models used to inform health and development programs in non-Western nations.

Enforced Prerequisite at Enrollment: BBH 101

Cross-listed with: BBH 305

International Cultures (IL)

AFR 310: Language Rights, Policy, and Planning

3 Credits

This is a course on language rights, policy, and planning from individual, group, inter-ethnic, and national perspectives. Linguistic minorities are a consequence of colonization by European powers in different regions of the globe. Other effects of colonization and political conflicts include mass movement, migration, and the emergence of nationalism. In such

contexts, minorities have made demands for language rights and used language policy and planning as strategies to realize demands for social justice. This course will examine how linguistic minorities secure opportunities to use their own languages and have them accommodated in official legislation as mother tongue, second, or foreign languages. The course will adopt a global perspective and analyze language rights as well as language policy and planning in diverse regions of the globe, including but not restricted to, Africa, Asia, and South America. Analysis will primarily focus on how language policies can be carried out from different perspectives (e.g., literary, linguistic, and political) in different geographical regions. After examining how language policies operate in and influence society, the course will use sociopolitical ideologies to explore the nature of the relationship between language policies and language rights and the ways this relationship enables one to achieve an expanded understanding of the impact of language policies and language rights on local language practices.

Cross-listed with: APLNG 310, GLIS 310

International Cultures (IL)

AFR 335: African Art

3 Credits

Introduction to the visual arts of Africa, including contemporary African art and the influence of African art outside Africa. ARTH 335 / AFR 335 African Art (3)(GA;IL)(BA) This course meets the Bachelor of Arts degree requirements. The course will examine the arts of various African peoples in historical, religious, sociological and geographic contexts, providing an introduction to the many visual art forms of Africa including masquerade, costume, and indigenous architecture. While many of the arts in this field of study are from west and central Africa, the course will also include materials from southern and eastern Africa. Contemporary African art, African Diaspora arts, and the influence of African art on European art are important topics that may be included. In addition to the traditional format of a geographic organization of the material, students will explore thematic approaches. Each of the assignments requires completion of essays which draw upon the multiple course texts and readings. Exams include image identification and short essays.

Cross-listed with: ARTH 335

Bachelor of Arts: Arts

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Arts (GA)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

AFR 382: Language and Culture in Africa

3 Credits

This course will provide an introduction to language in Africa from linguistic and cultural perspectives. Course topics include: the study of African language families and what they teach us about the history of the continent, the analysis of unusual linguistic structures found in indigenous African languages, multilingualism in Africa and the interaction between colonial and indigenous languages, linguistic traditions such as storytelling, ceremonies, ethnobotany, etc., and language development, including literacy practices and language and technology. The course will explore these topics in-depth through case studies focusing on four diverse geographical areas in West, North, East

and Southern Africa. The capstone of the course will be a two-week trip for interested students to study linguistic practices in Benin, West Africa in both urban and rural settings.

Prerequisite: LING 100 or AFR 110

Cross-listed with: LING 382

Bachelor of Arts: World Cultures

AFR 395: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Prerequisite: prior approval of proposed assignment by instructor

AFR 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

AFR 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

AFR 403: South Africa Today

3 Credits

A course examining the South African government's policy of apartheid: its history, why it exists, how it works, and the prospects for change.

Prerequisite: AAA S110

AFR 405: African Studies Methodologies

3 Credits

Multidisciplinary research techniques for studying in and about Africa.

AFR 434: War and Development in Africa

3 Credits

This course will examine the relationship between war and development in sub-Saharan Africa in the post colonial era. PLSC 434 / AFR 434 War and Development in Africa (3) (IL) This course will examine the relationship between development and war in sub-Saharan Africa in the modern era. Specifically, it will analyze the extent to which the processes of state building, nation building, and international intervention have contributed to the incidence of both civil war and international conflict in Africa. We will begin with a review of several theoretical arguments on the causes of warfare in Africa and then turn to a discussion of theses on African political development. This course complements present offerings in international relations and comparative politics in the PLSC department and can serve as an advanced undergraduate offering in the African Studies concentration in AFR. The course directly complements our present offerings in international conflict given that we don't have a regularly offered course that focuses on conflict in a specific region. In addition, it will augment our comparative politics offerings with an examination of prominent issues in comparative politics such as political

development, democracy, and modernization. The course will fulfill the IL requirement and encourage students understanding of the historical background as well as the political, economic, and cultural factors that influence African politics. African conflicts are often viewed as "ethnic conflicts" and in this class students have an opportunity to assess the extent to which ethnic, linguistic, or religious factors influence the likelihood of conflict and contribute to development in African states. Students will also be required to write essays evaluating the contribution of a range of theoretical arguments on Africa's conflicts in order to assess the degree to which cultural more than political or economic factors contribute to their onset. Students will then have the opportunity to conduct more extensive research on a specific African case to develop their analyses further. These exercises will often require that students reevaluate their beliefs about social identities such as race (e.g. in Rwanda the difference between Tutsi and Hutu is often viewed as a "racial" difference between black Africans, which is at odds with most Western conceptions of race). They also require students to challenge stereotypes regarding the subordination of African values in conflicts to a simple concern with "tribe". Students will gain a broader knowledge and appreciation of the different values, traditions, and cultures evident in Africa and understand how these can both exacerbate and mitigate conflict. Evaluation in the course will consist largely of examination of the students' brief expository essays and larger case studies for which students will be encouraged to conduct original research. The course should be offered biannually with a class limit of about 40 students.

Prerequisite: PL SC014 , PL SC003 , AFR 110

Cross-listed with: PLSC 434

Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)

AFR 435N: Black Ecologies

3 Credits

African and African Diasporic peoples have been central to the creation and transformation of global ecologies and landscapes. As the birthplace of humankind, the African continent features the longest archaeological record in the world, with abundant, yet often underrepresented, material and historical evidence for remarkable Indigenous African innovations in the areas of technology, food production, and resource and land use. This course specifically examines Black ecologies preceding and then radically transformed by the Trans-Atlantic Slave Trade. Beginning in the late fifteenth century, the enslavement of millions of Africans and their forced translocation to the Americas and Caribbean precipitated ecological transformations on all sides of the Atlantic, as African peoples, knowledge, resources and ecological inheritances were appropriated by the European mercantile system. Enslaved Africans transformed American landscapes via extractive industries of plantations and mines and suffered the emergence of toxic landscapes and disease alongside Native American communities. Africans also recreated African ecologies as they created livelihoods and landscapes of resistance and freedom in the Americas. The legacies of the Atlantic Era maintain a persistent dynamic in which African and African Diasporic communities experience disproportionate burdens of environmental injustice today. The concept of Black ecologies reflects the marginality, systemic racism and dispossession experienced by Black peoples and their landscapes. Black ecologies also allow us to understand African and African Diasporic ecological innovations, resistance and resilience, and the pathways to future sustainability and justice they promise.

Prerequisite: 3 credits of ANTH

Cross-listed with: AFAM 435N, ANTH 434N
 International Cultures (IL)
 United States Cultures (US)
 General Education: Humanities (GH)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Soc Resp and Ethic Reason

AFR 440: Globalization and Its Implications

3 Credits

This course explores the socioeconomic implications of globalization.

Enforced Prerequisite at Enrollment: AFAM 100N or AFR 110 or PLSC 3 or PLSC 14 or PLSC 200N or PLSC 220

Cross-listed with: IB 440, PLSC 440

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

United States Cultures (US)

AFR 443: Ethnic Conflict in Africa

3 Credits

This course explores the various causes and impacts of ethnic conflicts in the African context.

Prerequisite: AFR 110N; PLSC 1; PLSC 3; PLSC 7N; PLSC 14; PLSC 17N; PLSC 20

Cross-listed with: PLSC 443

Bachelor of Arts: World Cultures

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

AFR 444: African Resources and Development

3 Credits

Ecological and cultural factors in the geography of Africa; natural resources and development. GEOG 444 / AFR 444 African Resources and Development (3) (BA) This course meets the Bachelor of Arts degree requirements. This course is designed to analyze the ecological, economic, political and cultural factors, which influence development in sub-Saharan Africa. The traditional system, colonialism, modernization, post-colonial philosophies are four conceptual artifacts used to address some of these issues. Within these broad frameworks, the course focuses on existing debates surrounding key development ideologies and narratives in the region, including, poverty, conservation, population, debt, food security, land reform, foreign intervention and global politics. The topics and texts for the course are chosen carefully to provide general factual material as well as exposure to the major discourses surrounding the region's development. The views of many Americans concerning Africa are often both unitary (Africa is a country) and unidimensional (Africa is a place of conflict, poverty, corruption and crisis). Assuming that a number of students are likely to join the class with this general background, the main objectives of the course will be : (i) to provide a broad geographic and historical tutorial to dispel myths and stereotypes about the region; (ii) to explore the literature, which analyzes the historical, geographic and political factors that underlie the region's present status in the global economy; and (iii) to gain insights into the intellectual and ideological dimensions of the "raging" debates surrounding issues like environment, conservation, population, corruption,

and poverty in the region. By the end of the semester, students should have acquired the skills to accomplish the following goals: *develop a "mental map" of the broad physiographic, ecological, economic and political zones (blocs) in the region; *be able to discriminate between stereotype and reality on information pertaining to the region; *be able to interpret and analyze the internal (national, regional) dynamics of the region's development; *be able to interpret and analyze the global factors, which influence the environment, economy, and politics of the region; *develop an informed background on the ideological narratives that guide policy in the region, for example, population, sustainable development, post-colonialism, "empire" (whether, American, European, Indian, Chinese, South African?).

Prerequisite: GEOG 010 or GEOG 020 or GEOG 030 or GEOG 123 or GEOG 124 or GEOG 130 or EARTH105 or AFR 105 or AFR 110

Cross-listed with: GEOG 444

Bachelor of Arts: World Cultures

Bachelor of Arts: Social and Behavioral Sciences

AFR 446: Topics in African Art

3 Credits/Maximum of 9

Topics vary from "Arts of Eastern and Southern Africa" to "Art of West Africa."

Enforced Prerequisite at Enrollment: 3 credits of ARTH

Cross-listed with: ARTH 446

Bachelor of Arts: Arts

Bachelor of Arts: World Cultures

International Cultures (IL)

AFR 447: Topics in the Art of the African Diaspora

3 Credits/Maximum of 6

Selected topics in arts of the African Diaspora (South America, Caribbean, USA) including masquerades, textiles, architecture and other art forms.

Enforced Prerequisite at Enrollment: 3 credits of ARTH

Cross-listed with: ARTH 447

Bachelor of Arts: Arts

Bachelor of Arts: World Cultures

International Cultures (IL)

AFR 449: Sport in African History

3 Credits

Recent events in sporting history have precipitated changes in perception for many in Africa relative to the historic legacies of racism and colonial rule. These events lead to pivotal questions -What are the broader social and political meanings of sport in African society? And what does the study of sport in Africa tell us about Africa's place in world history? This course uses the lens of sport to examine the social and political histories of Africa and the wider diaspora in historical perspective. From the racial and gendered hierarchies of colonialism to the use of sport to protest against social injustices, students are challenged to analyze the interdisciplinary significance of sport far beyond the playing field. One of the main intellectual goals of this course is to use sport to deepen our understanding of specific outcomes in African sport (e.g. South Africa's remarkable transformation from pariah of international sport to host of global events like the 2010 World Cup, and Kenyan running successes) from a variety of perspectives. We also consider how Americans travelled

to and engaged with African societies as athletes, ambassadors, and activists. Broadly, this course explores sport and social change in Africa from the late nineteenth century to the present. It examines the sporting lives of African athletes, fans, reporters, coaches, and organizers and then connects them to shifting racial identities and power relationships on the continent as well as elsewhere around the world. These histories shed light on the pivotal role of sport in the everyday lives of people across the continent. In the process, we pay attention to primary sources, analyzing the ways in which Africans thought, talked, and represented themes discussed in assigned readings. Ultimately, this course will strengthen student skills of critical thinking, oral communication, collaboration, research, and writing.

Enforced Prerequisite at Enrollment: KINES 100 or 3 credits of AFR or 3 credits of HIST

Cross-listed with: KINES 449

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

AFR 454: Government and Politics of Africa

3 Credits

Contemporary African politics, institutions, and ideologies; patterns of change, social forces, and nation building in selected African states. PLSC 454 / AFR 454 Government and Politics of Africa (3) (IL)(BA) This course meets the Bachelor of Arts degree requirements. In this course, we will discuss the current democratization trend in Africa by focusing on the experiences of African countries. The course is divided into three sections. Part One considers a range of factors that affect politics in Africa. We will discuss in depth the following factors: colonialism, nationalism, the relationship between state and society, ruler-ship, the military, political parties, and economic development. Then, we will consider the experiences of our four cases, to gain a historical background. In part two, we will focus on democratic transitions. We will discuss the factors that enable transitions to occur, as well as the process that transitions follow. Then, we will consider four transitions: two that resulted in the installation of a democratic government (Nigeria in 1979, Sudan in 1986) and two that ended in continued authoritarianism (Angola in 1992, Kenya in 1978). Part three considers the prospects of democracy. We will discuss the probability of a democratic transition occurring in the near future. The goals of this class are four fold. First, students will gain detailed knowledge about four African countries. Second, we will learn how to compare countries. Third, students will have a better understanding of the democratization process in general, and will be able to explain or predict democratization beyond the four cases discussed in this class. Finally, the experiences of these four countries offer a deeper understanding of what democracy is and provide students with greater flexibility to fulfill requirements in either the African and African American Studies major or the Political Science/International Politics major. PLSC 454 / AFR 454 will be offered once per year with 35-50 seats per offering.

Prerequisite: 3 credits from: AFR 110 , PL SC003 , PL SC020 , or PL SC022

Cross-listed with: PLSC 454

Bachelor of Arts: World Cultures

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

AFR 464: Extractive Industries in Africa

3 Credits

Socioeconomic and environmental impacts of extractive industries in Africa.

Prerequisite: AFR 110 or at least one of the following: PL SC003 or PL SC014 or PL SC022

Cross-listed with: PLSC 464

International Cultures (IL)

AFR 479: History of Imperialism and Nationalism in Africa

3 Credits

A selective overview of the history of imperialism and nationalism in Africa. HIST/AFR 479 History of Imperialism and Nationalism in Africa. This course meets the Bachelor of Arts degree requirements. History/African Studies 479 will provide a selective introduction to major developments and issues concerning Africa's colonial and postcolonial history. The beginning of this course will concentrate on the meanings of imperialism and nationalism and the fact that there is no "single" African experience with either of them. This will be followed by a discussion of 19th and 20th century political history in specific contexts in North, East, West, and Southern Africa. The course concludes with a review of African decolonization and the most notable manifestations of recent nationalism on the continent. Special attention will be given to the methods of colonial takeover, methods of African resistance, the West's role in Africa, and Africa's formative role on the West. Religion, the military, and racial/ethnic identity politics will be recurring themes in the course. The actual time devoted to each topic and the sequence of topics will vary from instructor to instructor. The objective of the course is to introduce to the causes, nature, and consequences of modern imperialism in Africa. In doing so, students will receive a comprehensive history about a region of the world that is often misunderstood and misrepresented. Also, the course emphasizes critical thinking and analytical writing. The course will consist of polls, practice discussions, quizzes, response papers, and a final project. As a general education course, this class will provide an introduction to African political history for students of any major. Students majoring or minoring in History, African Studies, International Relations, or Political Science will learn vocabulary and information that is basic to the field and broaden their knowledge of History.

Prerequisite: 3 credits in HIST

Cross-listed with: HIST 479

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

AFR 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Honors

AFR 495: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Prerequisite: prior approval of proposed assignment by instructor

AFR 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

AFR 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

AFR 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Agribusiness Management (AGBM)

AGBM 101: Economic Principles of Agribusiness Decision Making

3 Credits

This course introduces students to microeconomic principles in the context of food and agriculture. More specifically, the course examines market supply and market demand in various food and agricultural products, then examines how consumers make decisions about food to maximize their utility subject to a budget constraint, then examines profit-maximizing decisions by farms and food industry firms, and finally looks at special topics related to food and agriculture. By the end of the course, students will have key literacies on economic modeling and decision making as well as the food and agricultural sectors of the U.S. economy.

Bachelor of Arts: Social and Behavioral Sciences
General Education: Social and Behavioral Scien (GS)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

AGBM 102: Economics of the Food System

3 Credits

Introduction to topics designed to develop an understanding of how the food production, processing, and marketing system works and evolves.

AGBM 106: Agribusiness Problem Solving

3 Credits

Development of quantitative problem-solving skills applied to specific examples of agribusiness management problems, using EXCEL spreadsheets. AGBM 106 Agribusiness Problem Solving (3) The goal of

this course is to develop agribusiness problem solving skills. These skills include optimization, marginal analysis, time discounting, and measuring efficiency. Examples will be implemented using Microsoft EXCEL spreadsheets rather than algebra, calculus and abstract mathematics. This course, then, plays an important role by building skills for use in later agribusiness management courses as well as teaching important problem-solving skills to non-majors who want to learn quantitative economics problem-solving skills in the context of agribusiness management. Material will be organized according to the course topics areas: optimization, marginal analysis, time discounting, and efficiently measurement. Each topic area presentation will rely on specific examples of agribusiness management problems. The first lecture of each week will be a standard lecture emphasizing concepts, presented in a passive learning format. The second lecture of each week will be presented in a technology classroom with spreadsheet examples being worked out by the professor in front of the class, who will guide the students. The third lecture of each week will be taught in a computer laboratory, with students solving the problems actively, but with supervision. Problem solving skills will be reinforced by assigning problem sets for students to do on their own after the computer laboratory experience. It is permitted for students to submit identical lab answers but problem sets should not be identical.

Enforced Prerequisite at Enrollment: AGBM 101 or ECON 102 or STAT 200 or STAT 240 or STAT 250 or SCM 200

General Education: Quantification (GQ)
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Creative Thinking
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

AGBM 170: Investigating the U.S. Food System: How food moves from field to table

3 Credits

Our food system is a product of complex interaction of three systems: the natural ecosystem, the managed agricultural system, and the socio-economic system. Farming, food processing, food distribution, and consumption decisions are all governed by the interaction of these systems. Consequences of these decisions, along with the interactions themselves, have generated a number of overarching scientific and social "hot-button" topics that affect or are affected by the food system such as genetically modified organisms (GMOs), organic crops and food, agricultural and food policy, environmental implications from agriculture food safety, food safety, diet and health, agricultural trade and international development, and food insecurity and food access.

United States Cultures (US)

General Education: Social and Behavioral Scien (GS)
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Integrative Thinking

AGBM 170N: Investigating the U.S. Food System: How food moves from field to table

3 Credits

The American food system is a product of complex interaction of three systems: the natural ecosystem, the managed agricultural system, and the socio-economic system. Farming, food processing, food distribution,

and consumption decisions are all governed by the interaction of these systems. Consequences of these decisions, along with the interactions themselves, have generated a number of overarching scientific and social "hot-button" topics that affect or are affected by the food system such as genetically modified organisms (GMOs), organic crops and food, agricultural and food policy, environmental implications from agriculture, food labeling, food safety, diet and health, agricultural trade and international development, household food insecurity and food access, and food waste. Students in this course will investigate and discuss all of these topics by reading both popular press accounts and peer-reviewed academic research, and by hearing guest speakers from a variety of fields and academic disciplines. However, to provide additional relevance, the course will use specific foods or crops to provide a more concrete examination of these topics. For a wide range of foods and crops grown in or imported to the U.S, students will learn the following:

1. Where many of our crops are grown and why.
2. How labor intensive, chemical intensive, biotechnology intensive, equipment intensive, and land intensive many of our crops are.
3. What U.S. policies affect production, distribution, and consumption of many crops and food.
4. How large agribusiness companies may influence our crops' production, distribution, and consumption.
5. How consumer groups may influence our crops' production, distribution, and consumption. And,
6. Whether or not alternative production and marketing systems exist for many crops.

In general, most of these questions will be answered in a social science framework that includes business, economics, and sociology, but also from a natural science framework that includes agronomy, plant science, environmental science, and climate science. The following individual foods or crops examined within both the social science and natural science contexts will be featured as case studies: tomatoes, bananas, lettuce, corn, apples, chicken, and beef. Finally, when attempting to answer the above six main questions for each of the individual foods and crops, the class will explore the context of current U.S. cultural attitudes and beliefs, and when possible, a cultural history.

United States Cultures (US)

General Education: Natural Sciences (GN)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

AGBM 199: Foreign Studies - Agribusiness Management

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction

International Cultures (IL)

AGBM 200: Introduction to Agricultural Business Management

3 Credits

Application of management principles and processes to agricultural business firms in their planning and operating in domestic and international markets. AGBM 200 Introduction to Agricultural Business Management (3) AGBM 200 is the course for people who wish to combine a technical major with an interest in the business management of agricultural and food based businesses. This is the combination of skills that employers most desire when they look for potential employees. Examples from a variety of industries in agribusiness are used to present the principles of business management. In addition, emphasis is also given to exploring the institutions, and issues such

as food safety and biotechnology that are unique to managers in the agribusiness sector. The presentation of the material in an agricultural and food context enhances your chances for learning so you can become more "employer ready." Regardless of your major, most people will find themselves as business managers some time during their careers because they will have to manage time, money and people. The material you will learn in this class focuses on the principles of agribusiness management. Principles endure and are always applicable regardless of when and where you apply them. When you have completed AGBM 200 successfully you will have a firm grasp of the critical agribusiness management skills you will need to successfully handle just about any management situation you might face. **NO PRIOR BUSINESS EXPERIENCE IS REQUIRED OR EXPECTED OF THOSE TAKING THIS COURSE.** AGBM 200 deals primarily with the principles of agribusiness management. I will not be teaching you the material in the book. Classroom time will be spent discussing and applying the reading material and decision cases that were assigned for that day. This approach will allow us to cover more material in greater depth. It should enhance your learning because it will engage your higher level thinking skills.

AGBM 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

AGBM 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

AGBM 297G: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

AGBM 299: Foreign Studies - Agribusiness Management

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

AGBM 302: Food Product Marketing

3 Credits

Analysis of economic and psychological determinants of the demand for food; marketing decisions in an increasingly consumer-driven food system.

Enforced Prerequisite at Enrollment: (AGBM 101 or ECON 102) and AGBM 102 and AGBM 106

AGBM 308W: Strategic Decision Making in Agribusiness

3 Credits

This course is designed to analyze strategic decision making among agribusiness firms and other economic agents in a market environment

characterized by imperfect information and market power. The course draws upon game theory and other strategic decision tools to analyze four broad types of strategic decisions, each of which corresponds with the four main parts of the course: 1) Strategic Decisions Between Rival Firms : Focusing on firm decisions made between rivals with full information, part one includes the following topics and strategies: limit pricing, entry deterrence, predatory pricing, excess capacity, wars of attrition, strategic commitment, tit-for-tat pricing, and retaliation. 2) Strategic Firm Decisions in an Uncertain World : Focusing on firm decisions made with incomplete information, part two, includes topics on probabilities, expected value and expected utility, learning curves, investment decisions, flexibility, and option value. 3) Strategic Decisions Between Unequal Partners: Focusing on firm decisions made between unequal partners with asymmetric information, part three includes topics on vertical coordination, incentive compensation, franchising, and auctions. 4) Cooperation and Strategic Alliances: Part four investigates how firms can overcome informational problems described above through the use of strategic partnerships. This writing, intensive course will rely on both class lectures and a substantial amount of class discussion. The course content will feature eight to ten industry applications and case studies of individual companies to reinforce economic theory. Learning Objectives- Students will: Classify practical agribusiness problems by the type of available information - full, incomplete, or imperfect and by the nature of market power in an industry. Construct and analyze game trees and other representative models of strategic decisions facing businesses and employees. Solve strategic business problems using economic models based on game theory and other economic principles. Write business-style memos and reports that summarize a business decision, plan, or solution that is supported by economic analysis.

Enforced Prerequisite at Enrollment: (AGBM 101 or ECON 102) and AGBM 102 and AGBM 106
Writing Across the Curriculum

AGBM 320: Markets and Prices: Analysis and Forecasting

3 Credits

Students learn how prices are determined and learn how to analyze and forecast how prices change as the underlying conditions change. This involves learning those tools that are used to analyze and understand how commodity markets work and how prices are determined. The class mixes theory with practical knowledge and examples, and aims to create a balanced representation of the tools used in market analysis. The students learn how to find data, manipulate it and analyze and apply these skills to test the validity of simple economic models, to forecast commodity prices, to understand market trends and learn the use of derivative instruments to manage price risk. One objective of this class is to improve the understanding of economic modeling and to increase the familiarity of students when applying statistical functions and regression analysis to solve applied problems. These core competencies rely on previous knowledge of basic statistic tools and data manipulation. In the process, students will learn to analyze market fundamentals and better understand those forces that affect prices. This will also help them better understand supply and demand and the ability of market participants to adjust to changing conditions.

Enforced Prerequisite at Enrollment: (AGBM 101 or ECON 102) and AGBM 102 and AGBM 106 and (SCM 200 or STAT 200)

AGBM 338: Agribusiness in the Global Economy

3 Credits

Managing agribusinesses in the global food industry, international food product marketing, key public institution and policies affecting food trade.

Enforced Prerequisite at Enrollment: (AGBM 101 or ECON 102) and AGBM 102 and AGBM 106
International Cultures (IL)

AGBM 399: Foreign Studies - Agribusiness Management

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

AGBM 407: Farm Planning and Financial Management

3 Credits

Economic principles applied to the management of farms, with particular emphasis on the financial aspects of management.

Enforced Prerequisite at Enrollment: (AGBM 101 or ECON 102) and AGBM 106

AGBM 408: Financial Decision Making for Agribusiness

3 Credits

Develop financial management and business analysis skills, integrating previous course work and finance training; principles of financial management, planning, control.

Enforced Prerequisite at Enrollment: AGBM 106 and (BA 301 or FIN 301)

AGBM 420: Agribusiness Markets & Prices

3 Credits

Understand and forecast price level and volatility for commodities, differentiated products, services. Why markets work and why they may not.

Enforced Prerequisite at Enrollment: AGBM 320

AGBM 430: U.S. Food and Agricultural Policy

3 Credits

This course introduces students to the broad array of food and agricultural policies in the United States. Food and agricultural policies encompass laws, regulations, decisions, and actions by governments, industry, and other institutions that influence food production, distribution and consumption. Real-world controversies and debates motivate the course's attention to economic principles, research tools, policy analysis, and contemporary data sources. The course assumes that society is concerned not just about the economic interests of farmers, but also about nutrition, food security, the environment, and welfare of all participants in the food system. Topics covered may include crop subsidies, crop insurance, agro-environmental policies, farm labor and immigration policies, USDA national organic standards, tariffs and other trade policies, food-safety and food-labeling policies, and food-assistance and food-access policies. For a wide range of specific policies,

students will study and discuss policy mechanics, the underlying issues that created a need for the policies, the institutional settings of the policies, and the policies' effectiveness.

Enforced Prerequisite at Enrollment: AGBM 338

AGBM 440: Food Product Innovation Management

3 Credits

A problem-based course designed to enhance decision-making skills in the context of industry's approach to developing new food products.

Enforced Prerequisite at Enrollment: AGBM 302 or junior/senior standing in Food Science

AGBM 445: AgTech Entrepreneurship

3 Credits/Maximum of 6

Recommended Preparations: Completion of AGBM 308 or Completion of MGMT 215 or ENGR 310 New firm creation and venture funding within food, agriculture and biorenewables (AgTech) is occurring at a record pace. Venture capitalists have invested billions of dollars in business start-ups that address pressing needs in food, agriculture and bio-renewables. New firm formation and venture funding are expected to significantly increase over the coming decades. Numerous stakeholders recognize the transformative power of entrepreneurship and innovation in agriculture. AgTech entrepreneurs are viewed as powerful change agents for our next innovative age in agriculture as we seek to provide for humanity and our ecosystem while addressing the constraints of population growth and resource scarcity. The proposed course will provide students with an introductory overview of entrepreneurship opportunities in AgTech, basic understanding of entrepreneurial concepts and address whether an entrepreneurial career suits their interests. Students will be guided through several self-evaluation exercises to identify their professional strengths, weaknesses and interests. In addition students will develop their business research, evaluation, writing, presentation and critical thinking skills. In order to simulate a realistic preview of entrepreneurship this course will allow students to practice self-organization skills for opportunity effectuation where few guidelines are provided. Several core entrepreneurial concepts will be reviewed in this course and contextualized within AgTech when possible. Topics are founder/team dynamics, value proposition, business models, market research, financial analysis, funding sources/considerations, business ethics and intellectual property. Each topic will be presented in a summative format with access to additional resources for better in-depth understanding. After completing the course students will have improved general business knowledge that is contextualized for new firm creation. The course utilizes a blend of lecture content, student discussion, interaction and hands on exercises that help build student comfort with ambiguity, uncertainty and complex problem solving. Students will also be required to work on projects in teams. Student teams will conduct a start-up due diligence project and lead one class discussion on an AgTech subsector topic of their interest. Students will also be required to prepare a formal eight-minute business idea pitch with accompanying investor prospectus brief.

Enforced Prerequisite at Enrollment: AGBM 308 or MGMT 215 or ENGR 310

AGBM 455: Retail Horticulture Business Management

3 Credits

The nature, operation, and management of retail garden centers, winery tasting rooms, and independent food retailers. Overview of retail marketing principles and practices as they pertain to horticultural retail businesses. Lectures, discussions, and projects focus on: selecting and pricing goods and services; how independent retailers effectively use traditional promotion avenues and social media networks to connect with customers; and how to develop a relevant brand, cause marketing effort, and loyalty program. Students will also learn: about retail layout and display strategies; that each consumer segment has different wants, interests, and abilities to obtain goods and services, and about effective employee management.

Enforced Prerequisite at Enrollment: AGBM 101 or ECON 102

Cross-listed with: HORT 455

AGBM 460: Managing the Food System

3 Credits

Firm management in the food system; coordination with suppliers and customers, including supply chain management, strategic thinking, risk management.

Enforced Prerequisite at Enrollment: AGBM 320 and AGBM 338

AGBM 470A: Comparing Agricultural and Food Systems in the US and France: Lecture

2.5 Credits

This course is designed to explore key similarities and differences in the food and agricultural systems of the United States and France. It introduces students to a number of overarching food and agricultural topics that pertain to both countries, and students explore and analyze these key issues from both countries perspective. These overarching topics include the structure of agricultural and environmental policies, the use agricultural land for biofuel production, organic agriculture, food safety, attitudes and policies surrounding the use of genetically modified crops, the role of large agribusiness firms, attitudes towards diet and health, and several others important topics. Students conduct background reading on these topics, hear lectures – sometimes from guest presenters – that frame the topics from both the U.S. and France's perspective, and write reports on specific crops or foods that expose key similarities and differences between the two food systems. Finally, students pick one crop or food for an oral presentation that contains background information on how that crop fits into the two food systems, U.S. and France, and analyzes the key issues that relate to the overarching topics already identified. This course has two components that must be taken in partnership: 470A (FOOD SYS US/FRANCE I) and 470B (FOOD SYS US/FRANCE II). The first is a classroom - based course, and meets regularly during the semester. The second is a two - week component that takes place after the end of the semester. In this second component, after traveling to France, students hear presentations from the French perspective on the overarching topics identified earlier and also explore the topics first hand via field trips to farms, wholesale markets, retail markets, and other places relevant to the French food system. This component is organized by a host university, AgroParisTech. For these two weeks, students live in dorms within the city of Paris. Knowledge of French is not required.

Enforced Prerequisite at Enrollment: INTAG 100 or AGBM 101 or ECON 102

Cross-listed with: INTAG 470A

AGBM 470B: Comparing Agricultural and Food Systems in the United States and France: Travel

0.5 Credits

Explore key differences and similarities in the food and agricultural systems of the United States and France. INTAG 470B / AGBM 470B Comparing Agricultural and Food Systems in the US and France: Travel (0.5) This course is designed to explore key similarities and differences in the food and agricultural systems of the United States and France. It introduces students to a number of overarching food and agricultural topics that pertain to both countries, and students explore and analyze these key issues from both countries perspective. These overarching topics include the structure of agricultural and environmental policies, the use agricultural land for biofuel production, organic agriculture, food safety, attitudes and policies surrounding the use of genetically modified crops, the role of large agribusiness firms, attitudes towards diet and health, and several others important topics. Students conduct background reading on these topics, hear lectures – sometimes from guest presenters – that frame the topics from both the U.S. and France's perspective, and write reports on specific crops or foods that expose key similarities and differences between the two food systems. Finally, students pick one crop or food for an oral presentation that contains background information on how that crop fits into the two food systems, U.S. and France, and analyzes the key issues that relate to the overarching topics already identified. This course has two components that must be taken in partnership: 470A (FOOD SYS US/FRANCE I) and 470B (FOOD SYS US/FRANCE II). The first is a classroom - based course, and meets regularly during the semester. The second is a two - week component that takes place after the end of the semester. In this second component, after traveling to France, students hear presentations from the French perspective on the overarching topics identified earlier and also explore the topics first hand via field trips to farms, wholesale markets, retail markets, and other places relevant to the French food system. This component is organized by a host university, AgroParisTech. For these two weeks, students live in dorms within the city of Paris. Knowledge of French is not required.

Enforced Prerequisite at Enrollment: INTAG 470A or AGBM 470A
Cross-listed with: INTAG 470B

AGBM 494: Undergraduate Research

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small group basis.

AGBM 494H: Honors Thesis

1-6 Credits/Maximum of 6

Independent study directed by a faculty supervisor that culminates in the production of Agribusiness Management honors thesis.

Enforced Prerequisite at Enrollment: Junior or senior standing in the Schreyer Honors College and permission of the Agribusiness Management honors advisor
Honors

AGBM 495A: Internship in Agribusiness and Rural Development

1-6 Credits/Maximum of 6

Supervised field experience in an agribusiness or rural development setting.

Enforced Prerequisite at Enrollment: Prior approval by department
Full-Time Equivalent Course

AGBM 495B: Internship in International Agribusiness

6 Credits/Maximum of 6

Supervised field experience related to student's major, minor, or option.

Enforced Prerequisite at Enrollment: Prior approval by department
Full-Time Equivalent Course

AGBM 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

AGBM 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

AGBM 499: Foreign Studies - Agribusiness Management

1-12 Credits/Maximum of 12

Study in selected countries of agricultural economic institutions and current agricultural economic problems.

International Cultures (IL)

Agricultural and Biorenewable Systems Management (ABSM)

ABSM 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

ABSM 300: Introduction to Agricultural and Biorenewable Products

3 Credits

This course provides an overview of the production, nature, and use of bioproducts, which are defined as products created from biologically derived, renewable industrial feedstocks. These materials are renewable and can be sustainably produced; as such, they will be increasingly used as society recognizes the opportunity cost of mining and using other non-renewable industrial feedstocks. The class focuses on evaluating biorenewable systems in the context of environmental impact, economics, and policy, as well as understanding where biorenewable resources come from and how they are produced. Students will engage with primary source material related to developing a circular economy in

the US, including academic R&D reports and program plans from federal agencies such as EPA, USDA, and DOE.

Enforced Concurrent at Enrollment CHEM 110

ABSM 301: Engineering Principles of Agricultural and Biorenewable Systems

3 Credits

This course provides an overview of engineering principles to students in the non-engineering Agricultural and Biorenewable Systems Management major, but who are likely to encounter challenges that require quantitative solutions. Problem solving skills are extremely important to technology. At the end of the course, students will be able to: solve problems related to agricultural and biorenewable systems using a structured, logical method combining concepts from physics and math; recognize and apply unit factoring and dimensional analysis to problem solving; quantify physical relationships and apply engineering principles to evaluate basic engineering technology problems. Hands-on examples are used throughout the course to tie the course material to applications in agricultural and biorenewable industries. This course provides the groundwork for topics explored in more detail later in the Agricultural and BioRenewable Systems Management curriculum.

Enforced Prerequisite at Enrollment: (MATH 110 or MATH 140) and (PHYS 250 or PHYS 211)

ABSM 309: Measurement & Monitoring of Hydrologic Systems

3 Credits

This course is an introduction to measurement and monitoring equipment/techniques commonly used in analyses and design of hydrologic systems and will provide students the opportunity to learn and apply basic measurement techniques that serve as critical tools in professional practice in water resources. During the first part of the course, the instruments and techniques commonly used in water resources assessment, including rainfall monitoring, flow monitoring, and interest as part of the Sustainability Institute's Sustainable Communities Collaborative. Data generated over the course of the semester are used to develop a report that is shared, along with the data with a community partner. In the second part of the course, mapping development is explored, which serves as a critical aspect of water resources engineering and planning. ArcGIS serves as a primary software tool used in engineering design and water resources planning, and students will learn to develop maps to present and process various watershed - data including land use data, soils data, and hydrography data. Various aspects of the course will coalesce around the concept of the watershed being the basic unit of water resources analyses and design, and students will experience how various measurement techniques and approaches are necessary tools for practicing professionals. This course will be useful to any undergraduates seeking degrees in a major related to water resources planning, engineering, or technology.

Enforced Prerequisite at Enrollment: CHEM 110. Enforced Concurrent at Enrollment: PHYS 211 or PHYS 250

Cross-listed with: ERM 309

ABSM 309H: Measurement & Monitoring of Hydrologic Systems

3 Credits

Introduction to measurement and monitoring equipment/techniques commonly used in analyses and design of hydrologic systems.

Cross-Listed

ABSM 310: Power Transmission in Agriculture

3 Credits

After successful completion of ABSM 310, students will apply the physical principles of mechanical power transmission system components such as shafts, belts, chains, gears, and clutches by selecting suitable mechanical drives and specifying proper maintenance procedures. Students will be able to read hydraulic and pneumatic schematics, size fluid power components such as pumps, valves, cylinders, and troubleshoot hydraulic and pneumatic systems. Students will also be able to explain the electrical and physical principles of AC and DC electric motor operation. They will be able to identify torque, speed, voltage, and current operating characteristics and will be able to select controls and circuit protection devices necessary to achieve proper performance.

Enforced Concurrent at Enrollment: ABSM 301

ABSM 320: Combustion Engines for Mobile Equipment

3 Credits

After successful completion of ABSM 320, students will explain and evaluate the theoretical and practical aspects of internal combustion engines. Students will evaluate and compare alternative engine thermodynamic cycles, alternative fuels (gasoline, diesel, biodiesel, compressed natural gas), performance enhancing attachments (turbochargers, intercoolers), and supporting systems (fuel injection, lubrication, starting, cooling, emissions cleansing). Students will be able to properly select engines and related systems for mobile applications. Students will employ important maintenance procedures required for economical useful life and proper operation. Students will be able to troubleshoot engine systems.

Enforced Prerequisite at Enrollment: ME 300 or ABSM 301

ABSM 327: Soil and Water Resource Management

3 Credits

This course equips students with the ability to understand land measurements, mapping, soils, hydrology, channel flow, erosion control techniques with emphasis on RUSLE2, subsurface drainage techniques, and water impoundments for use in storing water, managing stormwater, and capturing suspended sediment. The class concludes with a 3-week section on irrigation, which teaches water needs and pipe flow. Basic hydrology is presented using both the Soil-Cover-Complex and Rational Methods. Manning's equation is developed and discussed for use in understanding flow in open channels. The various components of the RUSLE2 soil erosion model are presented with emphasis in agricultural erosion. Irrigation is taught from both a supplemental agricultural and environmental perspective.

Enforced Concurrent at Enrollment: PHYS 250 or PHYS 211

ABSM 350: Introduction to Life Cycle Assessment

3 Credits

Life cycle assessment (LCA) is a quantitative approach to assessing the environmental, economic, and/or social impacts associated with the entire supply chain of a product, process, or service. LCA is a systematic and holistic approach that enables designers and planners to identify the most impactful stages of a supply chain so that we might strategically intervene to improve the system. In this course students will learn about the LCA standards developed by the International Organization for Standardization (ISO). Students will also develop estimation, data verification skills, how to consider uncertainty in analysis, and learn how materials and energy flows lead to impacts to ecological and human systems. Over the course of the semester students will build their own LCA project by finding appropriate data, developing a life cycle inventory, entering data into LCA software, completing an impact assessment, and finally analysis and interpretation of the results generated. LCA is a flexible methodology and students will be encouraged to focus their project on a topic relevant to their broader learning and career objectives. Learning to complete an LCA also develops critical thinking skills, or life cycle thinking, which enables people to develop the skillset to pay attention to the larger system in which they are working in order to develop the human, materials and energy transactions that can lead to more renewable and sustainable systems. Class projects will allow the students to apply LCA to biorenewable systems, including agricultural and biological processes and product development.

Enforced Prerequisite at Enrollment: 5th Semester standing and (MATH 110 or MATH 140)

ABSM 391: Communication Skills for BE and ABSM Students

2 Credits

This course is one part of a two-semester experience in discipline-specific communication and leadership skills training. A key facet of this training is contextual approach. To meet the needs of BE and ABSM students, the course emphasizes communication skills that are critical for their professional development, appreciating the technical content of students' work and the industries within which the students will ultimately work. The primary focus for this course is communication skills (oral and written) with a secondary focus on leadership and career skills. Students will be evaluated through various methods, such as writing and speaking projects, professional presentations, written homework and worksheets in class and out, creation of portfolios and reports, and in-class group and individual exercises. This course provides a foundation in General Education, Writing and Speaking (GWS) for students in the Biological Engineering (BE) and Agricultural and Biorenewable Systems Management (ABSM) majors.

Enforced Prerequisite at Enrollment: Fifth semester standing or higher
Cross-listed with: BE 391

General Education: Writing/Speaking (GWS)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

ABSM 392: Leadership and Ethics for BE and ABSM Students

2 Credits

This course is the second half of a two-semester experience in leadership, ethics, and communication skills training, following ABSM/BE 391. Course modules focus on leadership and communication needs of industry within its corresponding technical content thereby representing a complete contextual approach. The primary focus of this course is on leadership, with communication, ethics, sustainability, and professional development issues presented in the context of how they relate to leadership. Topics developed for this course include personal development, ethical decision-making, corporate social responsibility, strategic group management, facilitation, and diversity.

Enforced Prerequisite at Enrollment: Fifth semester standing or higher
Cross-listed with: BE 392

General Education: Writing/Speaking (GWS)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Soc Resp and Ethic Reason

ABSM 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

ABSM 402: Foundations of Sustainable Business

3 Credits

This course will provide students with an understanding of how environmental and sustainability issues are impacting business strategies and ultimately profits. We will also examine the external stakeholders, such as environmental groups, policy-makers, and "green" consumers, that impact business management. Business students will benefit by a better understanding of environmental/sustainability issues that impact their operations and strategies. Non-business students will benefit by understanding how business decisions can impact the natural environment. An emphasis will be on a thorough understanding of making a business case for sustainability. We will also discuss the triple bottom line and its use. Some Specific Issues to Cover: 1. How are organizations shifting business models to work with sustainability trends? 2. How can we make a business case (justification) for being "green"? 3. Can firms differentiate themselves by being responsible/sustainable? Do consumers and other stakeholders care? 4. Thorough understanding of stakeholders and how they impact operations. 5. How can the "business" side of the world work with the "environmental" side? 6. Use of packaging as an example of where parts of the supply chain are working together to be more sustainable. 7. How "waste" in its many forms can be seen as a surrogate for unsustainable practices. 8. Pros and cons of metrics used to measure sustainability. 9. Impacts of business operations on the environment.

Enforced Prerequisite at Enrollment: (AGBM 101 or ECON 102 or ECON 104) and 7th semester standing

Cross-listed with: ERM 402

ABSM 411: Bioproducts Science and Technology

3 Credits

This course investigates fundamental aspects of biorenewable polymers (bioproducts) and ties their underlying chemical structure to macroscale properties. These bioproducts are created from biologically derived, renewable industrial feedstocks such as wood, cotton, grasses, and bast fibers (e.g. jute, hemp, kenaf, sisal, etc.). The course begins with an overview of descriptive organic chemistry that is relevant to biorenewable polymers. Students will build on this knowledge to identify, compare, and contrast various industrially relevant plastics. Material science of polymers, including determining molecular weights and measuring mechanical properties of bioproducts is then investigated. These properties are relevant to compare the performance of existing plastics with emerging bioproducts. A survey of the several classes of synthetic and natural polymers, fibers, and composites is the focus of the third unit in the class. Final course subjects include manufacture of soft materials and their decomposition to form recalcitrant waste and microplastics. These will be discussed in the context of 21st-century western culture predicated on the existence of cheap and disposable plastic products, and how design and deployment of new bioproducts could eliminate plastic waste, reduce the environmental impact of plastics, and enhance the economics of industrial biorefining.

Enforced Prerequisite at Enrollment: CHEM 110 and ABSM 350

ABSM 417: Processing and Manufacturing Systems for Bioproducts

3 Credits

Overview of systems and processes used in the manufacture of bioproducts. This course reviews major bioproducts and details how they are manufactured industrially. A fundamental understanding of petrochemical refining, pulp and papermaking, and sawmill operations is the foundation of the beginning of the course, since the majority of existing and emerging bioproducts are manufactured using these processes or new hybrids of these. Next, thermochemical conversion of biomass is covered, including existing technologies such as torrefaction and barrel production, and emerging technologies such as catalytic fast pyrolysis and biomass gasification. Students will then prepare and deliver presentations on traditional and emerging wood and paper products. The final portion of the course will include biomass fractionation technologies that provide cellulose, hemicellulose, and lignin to produce fuels and chemicals in a manner analogous to petrochemical refining.

Enforced Prerequisite at Enrollment: ABSM 300 and ABSM 301

ABSM 420: Principles of Off-Road Machines

3 Credits

ABSM 420 covers the technical aspects of off-road power machinery, such as tractors, self-propelled harvesters, and military, logging and construction equipment. Upon successful completion, students will understand the many facets of design and management of such vehicles (such as mechanical power generation, power allocation, power transmission, traction, operator enclosures, and electrical and electronic systems). Laboratory exercises will involve full-scale equipment with instrumentation used to measure performance. While ABSM 420 is not a prerequisite for any other course, it complements engineering and technology courses related to machinery. This course is a technical selection in the Biological Engineering and Agricultural and Biorenewable Systems Management majors and is required for the Off-Road Equipment

minor. It complements other courses for anyone interested in the off-road machinery industries. ABSM 420 covers several aspects of function and design related to off-road machinery.

Enforced Prerequisite at Enrollment: BE 306 or ABSM 310 or ME 360

ABSM 422: Energy Analysis in Agricultural and Biorenewable Systems

3 Credits

This course focuses upon first understanding the various forms of energy in common use today and then analyzing the energy equivalents of various forms of energy. Forms of energy to be studied most extensively include electricity, fossil fuels, and renewable energy sources. Principles and applications of engineering economic analyses will be emphasized because these principles are needed to evaluate the feasibility of converting from one energy form to another. Applications will focus on the biorenewable systems chain, from field and forest production through green product development and distribution. For each application area, there will be discussion of the alternatives available for using energy in a more efficient and economical manner. The infrastructure systems needed for providing energy to a specific location will be described as well as typical rate structures for the energy provided. Alternatives to the conventional energy systems will be identified and the course will conclude with discussion of energy strategies throughout the 21st century. Local, national, and international perspectives on energy resources will be infused throughout this course.

Enforced Prerequisite at Enrollment: ABSM 301

ABSM 423: Deterioration and Protection of Bioproducts

3 Credits

Timber, wood, and bioproduct deterioration from fungi, insects, fire; treatment of bioproducts for in-service protection.

Enforced Prerequisite at Enrollment: ABSM 300 Enforced Concurrent at Enrollment: ABSM 411

ABSM 424: Precision Agriculture Technology

3 Credits

Precision agriculture is a data-based approach to optimize crop production and reduce environmental footprint. This course provides an overview of major concepts in precision agriculture (such as GPS, GIS, remote sensing, and spatial variability) and case studies illustrating decisions and management. In this course, computer processing, data analysis and management, robotics, and other related advancements in technologies will be emphasized to provide necessary technical skills in precision agriculture to students. The first part of the course will cover agricultural machinery combined with GPS such as planters, combines, fertilizer application equipment, and sprayers. Students will learn how to manage these tools efficiently. The second part of the course will emphasize how to manage and analyze field variability data including yield data, soil properties with real-time sensors and create prescriptions based on actual data. The last part of the course will emphasize how precision agriculture technology can benefit a farm's financial sustainability.

Enforced Prerequisite at Enrollment: BE 301 or ME 330 or STAT 240 or STAT 200 or STAT 250

ABSM 426: Safety and Health in Agriculture and Biorenewable Industries

3 Credits

BRS 426 explores management aspects of occupational safety and health specifically as it pertains to both the agricultural and biorenewable systems industry sectors. Employers are increasingly demanding students have training in safety and health. Topics to be covered include principles of safety and health, hazard analysis, hazard prevention and control, human behavior and safety, training and education, safety and health regulations, agricultural emergencies and developing a written safety program.

Enforced Concurrent at Enrollment: 5th Semester standing or higher

ABSM 428: Electric Power and Instrumentation

3 Credits

Nearly every facet of our modern society relies on electricity and electronics. Whether engaged in product development, manufacturing, production, testing, or management, graduates of technical programs benefit from a fundamental understanding of electrical/electronic systems. This course prepares students to analyze electrical/electronic systems applicable to agricultural and biorenewable industries. Upon completion of this course, the student will be able to: demonstrate correct use of common electronic measurement tools including multimeters, oscilloscopes and others; demonstrate sound electrical construction techniques including cable preparation, soldering, circuit board construction, and others; demonstrate sound troubleshooting skills for electrical and electronic systems; understand common elements of power distribution systems; understand simple measurement and control circuits represented by schematics or ladder diagrams; understand and apply various sensors to measure temperature, pressure, strain, force, proximity, speed etc.; understand the application of dataloggers, programmable logic controllers, and computer software to collect data and/or control simple processes; understand the function of common circuit components such as resistors, capacitors, inductors, diodes, op-amps, transistors, and transformers in simple circuits; understand basic maintenance and safety requirements for facility electrical systems.

Enforced Prerequisite at Enrollment: ABSM 301

ABSM 429: Agricultural and Biorenewable Systems Analysis and Management

3 Credits

ABSM 429 covers systems analysis and optimization techniques including an introduction to systems theory, qualitative and quantitative analysis, and management science for constrained decision-making. It includes concepts of linear programming, network models, integer and binary programming, and waiting line models. All topics are presented in the form of case studies that require the students to solve problems in realistic production and processing scenarios. ABSM students should take this course in the 7th semester (or the Fall semester of their 4th year) because it integrates knowledge and experiences acquired in prior ABSM, business, and agricultural science courses, and is critical for the capstone courses, ABSM 430W and 431W.

Enforced Concurrent at Enrollment: 7th Semester standing or higher

ABSM 430W: Agricultural and Biorenewable Systems Management Capstone 1

1 Credits

Students in Agricultural and Biorenewable Systems Management learn to apply technology, business, and science to sustainable agricultural and biologically-based product systems development and management. The capstone experience is a two semester, 4th year sequence required of all ABSM students. This course is the Fall component of the sequence and introduces the student to concepts critical for analyzing real-world biorenewable systems. This includes selecting a capstone topic, technical writing review, team building, systems analysis tool application, project proposal development, and proposal presentations. The course also provides iterative writing experiences to enhance the student's ability to create technically sound and grammatically correct reports. At the end of this course, the student will be able to: Write a technically sound ABSM project proposal; be able to function in teams to address a project within the ABSM domain; be able to assess a system and apply appropriate analysis and/or business tools.

Enforced Prerequisite at Enrollment: ABSM 391 and ABSM 392 Enforced Concurrent at Enrollment ABSM 429 Writing Across the Curriculum

ABSM 431W: Agricultural and Biorenewable Systems Management Capstone 2

2 Credits

Students in Agricultural and Biorenewable Systems Management learn to apply technology, business, and science to sustainable agricultural and biologically-based product systems development and management. The capstone experience is a two semester, senior year sequence required of all ABSM students. This course is the Spring component of the sequence. The students apply quantitative systems and business tools to analyze real-world biorenewable systems, interpret the results, and provide recommendations for management decision making. The course also provides iterative writing experiences to enhance the student's ability to create technically sound and grammatically correct reports.

Enforced Prerequisite at Enrollment: ABSM 430W Writing Across the Curriculum

ABSM 490: Agricultural and Biorenewable Systems Management Colloquium

1-2 Credits/Maximum of 2

This course introduces students to various aspects of the agricultural and biorenewable systems industries with an emphasis on professional career information and insights. Outside speakers will provide perspectives on current challenges, opportunities, and future trends in agricultural, bioproduct, and related industries.

Enforced Concurrent at Enrollment: 5th Semester standing or higher

ABSM 494: Undergraduate Research

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small group basis.

ABSM 494H: Honors Thesis

1-6 Credits/Maximum of 6

Independent study directed by a faculty supervisor that culminates in the production of a BioRenewable Systems honors thesis.

Enforced Prerequisite at Enrollment: Junior or senior standing in the Schreyer Honors College and permission of a BioRenewable Systems honors advisor
Honors

ABSM 495: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

ABSM 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

ABSM 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

ABSM 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Agricultural and Extension Education (AEE)

AEE 100: Agricultural Education Orientation

3 Credits

Examination of agricultural and extension education; exploration of aptitude and interest in teaching, including early clinical practicum. AEE 100 Agricultural Education Orientation (3) The purpose of the course is to allow students to explore the profession of teaching in both formal and non-formal settings. Students are provided opportunities, through class activities, projects, and on-site observation of teaching and learning situations, to explore the various aspects of teaching and learning. Through individual and group-work techniques students are provided the opportunity to investigate their potential interest in becoming a future educator of agriculture. Students study the history and philosophies associated with agricultural education within the state and nation. A cornerstone of the course includes instruction that allows students to understand the requirements to become certified in the state of Pennsylvania to teach Agriculture in the public school system. Along with certification requirements for teaching, students investigate what it means to join the professional ranks of teachers, and the responsibilities associated with educating today's youth. Students also learn the

many techniques for teaching in, and about, agriculture in today's society through actual teaching scenarios with their peers. Students plan and implement lessons related to the many areas of agriculture including, but not limited to horticulture, agricultural mechanics, animal science, plant science, forestry, wildlife, and biotechnology. During the course of the semester, students visit various agricultural education settings for observational purposes. The students investigate what is happening in the local agricultural education program related to the three major components of an agricultural education program; Classroom/laboratory instruction, FFA, and Supervised Agricultural Experience. These observation hours may be counted towards the Entrance to Major requirements for the Agricultural and Extension Education major certification requirements.

AEE 201: Interpersonal Skills for Tomorrow's Leaders

3 Credits

Study of concepts of self identity, values and interpersonal relations as related to professional and personal life. The purpose of the course is to aid students in becoming competent in conducting interpersonal relationships in their daily life, and to help students acquire skills basic to becoming a leader in their personal life. The following topics will be addressed. A framework for interpersonal skill development sets the stage for improving one's interpersonal skill. Understanding individual differences addresses information that is the foundation of effective interpersonal relations. Interpersonal communications deals with skills in sending and receiving messages. Developing teamwork skills sensitizes the student to a vital set of skills in the workplace as well as organizations. Group problem-solving and decision making provides additional skill in collaborative efforts. Cross-cultural relations and diversity develops cross-cultural skills in the classroom, community organizations and the work place. Resolving conflicts develops skills in finding constructive solutions to differences of opinion and disputes with others. Becoming an effective leader addresses: 1) exercising effective leadership in clubs, organizations and the workplace, 2) motivating and helping others to develop and grow through coaching, counseling and teaching, 3) using power and influence for constructive purposes, and 4) translating ethical behaviors into usable skills. Each class meeting will focus on one or more concepts related to leadership and interpersonal skill development. Students will be provided a number of experiential activities that help them practice a particular set of skills. In addition, students will be required to complete a service learning project applying their leadership and interpersonal skills with individuals in the community who are in need of their help.

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

AEE 204N: Science Literacy and Policy in the 21st Century

3 Credits

The objective of this course is to explore the nexus of scientific discovery and societal understanding. Specifically, to review the consensus of expert scientists in regard to common controversial issues and outline how public perception shapes the agricultural industry. Although many scholars have put forth definitions for what it means to be scientifically literate, most agree it involves not only technical subject matter, but the ability to evaluate and interpret scientific evidence, and developing the

capacity to engage civically in science matters. Accordingly, this course is designed to provide the foundational content knowledge necessary to understand scientific principles, as well as the experiences and discussion necessary to elicit the skills of a critical thinker and informed consumer. Scientific (e.g. genetic engineering, evolution, pesticides, climate change) and social science (e.g. human psychology, persuasion, critical thinking, policy making) subject matter will be explored through a variety of methods such as lecture, case study, discussion, and scholarly and popular press readings. In order to exercise skills in science literacy, students will engage in a variety of applied activities which include: conducting a critical analysis of a food advertising campaign, developing a policy recommendation concerning an agricultural issue, and interviewing the public on controversial agricultural topics. Students will come away from this course with an understanding of agricultural issues and honed critical thinking skills which will enable them to make better consumer decisions about food, fiber, and natural resources.

General Education: Natural Sciences (GN)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

AEE 216: Practical Parliamentary Procedure

3 Credits

Practice in presiding over and participating in meetings conducted under rules of order.

Cross-listed with: CAS 216

AEE 295: Observation of Teaching in Agriculture and Environmental Science

1-3 Credits/Maximum of 3

Supervised observation of teacher and student activities in a selected high school; appraisal of related responsibilities of teachers of agriculture.

AEE 296: Independent Studies

1-12 Credits/Maximum of 12

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

AEE 297: Special Topics

0.5-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

AEE 299: Foreign Studies

1-12 Credits/Maximum of 24

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

AEE 311: Developing Youth Leadership through Organization and Program Structure

3 Credits

An orientation on how adolescents develop and emerge as leaders in their families, schools, organizations, and communities. AEE 311 Developing Youth Leadership through Organization and Program Structure (3) An orientation on how adolescents develop and emerge as leaders in their families, schools, organizations, and communities. Content will focus on the FFA organization and supervised agricultural experiences as well as 4-H & other non-formal youth organizations. While the course will be grounded in traditional and contemporary youth leadership philosophies and practices it will emphasize youth leadership development in the food, agriculture, and natural resource sciences.

AEE 313: School-Based Program Planning and Instructional Development

2 Credits

Planning and developing courses of study, summer programs, advisory committees, and facilities for vocational agriculture.

Enforced Prerequisite at Enrollment: AEE 100 and AEE 295 and AEE 311

AEE 330W: Communication in Agricultural and Natural Resource Careers

3 Credits

The course explores the conventions of writing and speaking found in agricultural professions through the use of case studies.

Enforced Prerequisite at Enrollment: ENGL 15

Writing Across the Curriculum

AEE 349: Shop Processes for Agricultural Educators

3 Credits

Instruction in agricultural mechanics processes for teacher preparation in high school settings. AEE 349 Shop Processes for Agricultural Educators (3) This course is designed for teacher candidates who want to learn more about agriculture mechanics through an experiential learning opportunity. The teacher candidates will learn in a setting similar to those that the students will be expected to teach in during their student teaching experience, and potentially their future career. Students will be provided hands-on, constructivist learning approaches to agriculture mechanics. Students will be evaluated on various agriculture mechanics techniques. These techniques are related to small gasoline engines, concrete/masonry, electrical wiring, welding, and land measurement/building layout. In each unit students will complete projects that will allow them to practice introductory mechanics skills such as; tool selection, assembly/disassembly of engines, pouring concrete, building layout/wall construction, basic welding procedures, and electrical wiring basics. Students will also learn techniques in project development, implementation, and assessment. Each student will have opportunities to build projects for future application in their own teaching experiences.

AEE 350: Teaching Methods for Agricultural and Environmental Laboratories

3 Credits

An introductory course that prepares students to instruct and manage students in laboratory settings.

AEE 360: Leadership Development for Small Groups

3 Credits

Students will learn about leadership dynamics in small groups and how to be more influential in work settings. AEE 360 Leadership Development for Small Groups (3) This course is designed to teach students the dynamics of leadership in small groups. Specifically, students will learn to identify characteristics of leaders and understand their own personal leadership style. In addition, students will participate in team building activities and understand small group and motivational factors. Evaluation will be via a series of four examinations and two papers reflecting on impact and shadowing exercises. This course will be part of a series on leadership development offered through the Department of Agricultural and Extension Education.

AEE 395: Internship

1-13 Credits/Maximum of 13

Supervised off-campus, non-group instruction including individual field experiences, practicums or internships. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: Prior approval of proposed assignment by instructor.

AEE 400: Global Agriculture Education

3 Credits

Development and implementation of educational programs in agriculture in developing countries. AEE 400 Educational Programs in Agriculture for Developing Countries (3) The purpose of this course is to develop the global competency of future change agents in agricultural education so that they, in turn, can guide future learners to gain knowledge, develop skills, and acquire dispositions for living in a globally interdependent and culturally diverse world. The course is designed for all learners who wish further their ability to engage in formal and non-formal systems of agricultural education in all settings. As the enduring understandings of this course, students will develop 1) a knowledge of global agricultural education programs, 2) critical and comparative thinking skills, including the ability to think creatively and integrate knowledge, rather than unquestioning acceptance of knowledge, and 3) an ongoing willingness to seek out international or intercultural opportunities. The course is organized around five essential themes: 1) education as innovation, 2) access to education and employment, 3) program planning and evaluation, 4) types of agricultural education and 5) spaces of innovation. Learners in the course will be encouraged to develop their 21st century learning skills of communication collaboration, critical thinking, and creativity through authentic, experiential assessments curated around dynamic world issues in education related to agriculture, food, fiber and natural resources.

Prerequisite: INTAG100 or INTAG481

AEE 412: Methods of Teaching Agriculture and Environmental Science

4 Credits

Instructional strategies and media; directing individual and group learning activities; assessing student performance and quality of instruction in vocational agriculture. AEE 412 Methods of Teaching Agriculture and Environmental Science (4) This course is designed to utilize various instructional strategies and media, which inform students in the directing

of individual and group learning activities. Students also learn methods in which to assess student performance and quality of instruction in school-based agricultural education. The course allows students to analyze, and implement, how they best can design instruction to maximize student learning. A range of teaching methods are utilized throughout the course including, but not limited to; lectures, discussions, demonstrations, supervised study, and cooperative learning. The course prepares students to successfully develop engaging lessons and units of instruction in agricultural education. Additionally, students will learn how to modify instruction to allow each learner the opportunity to achieve total student success. A laboratory enables student to refine their skills in a peer setting, prior to the student teaching internship experience. The combination of lecture and laboratory allow students to become reflective practitioners that are capable of planning, organizing, and implementing effective teaching practices and learning experiences for their students. Also, this course will provide students the opportunity to develop the capacity to evaluate student learning utilizing both formative and summative evaluation techniques.

Enforced Prerequisite at Enrollment: AEE 100 and AEE 295 and AEE 311

AEE 413: Program Planning and Instructional Development

3-4 Credits/Maximum of 4

A course in planning, developing, and organizing school-based curriculum, summer programs, advisory councils, and facilities for environmental/ agricultural education. AEE 413 Program Planning and Instructional Development (3-4) Organization and administration of secondary programs of education in and about agricultural/environmental sciences, including Ag In The Classroom (Elementary School Agriculture), marketing, summer programs, and state vocational finances. Topics will include discussion of instructional techniques for secondary educators in agriculture, with emphasis on classroom management, discipline and motivation, and teacher evaluation. The course is arranged in 10 units (for students who have completed AEE 100 as an undergraduate certification requirement) or 15 units (for returning adult students seeking certification who have already completed an Agricultural/Environmental Science undergraduate degree). Thus, this is a variable credit offering designed to meet the needs of these two groups of students. In each unit there are objectives that need to be met by the students. The students "click" on the objective to open the lessons. Within the lessons are research materials, articles, textbook references (all copyright permission), additional WWW links, and other supporting resources. At the end of the article is an opportunity for students to enter the Penn State Coursetalk electronic "chat" room to engage in discussions.

AEE 437: Equine Facilitated Therapy

3 Credits

Equine Facilitated Therapy uses equine-related activities to contribute positively to the well-being of people with disabilities. AEE 437 / ANSC 437 Equine Facilitated Therapy (3) The primary goal of this course is to acquaint the participant to equine facilitated therapy (therapeutic riding) and to introduce them to individuals who benefit/participate in such programs through lecture, audio-visual media, discussions, program visitation, independent research and via a practicum at a therapeutic riding program. Additionally, this course is designed to introduce the participant to various exceptional characteristics and conditions which may benefit from exposure/participation in equine facilitated therapy and other animal related therapy programs.

Enforced Prerequisite at Enrollment: ANSC 327

Cross-listed with: ANSC 437

AEE 440: Communication Methods and Media

3 Credits

Mass media techniques for reporting and promoting extension and related programs, including message preparation, presentation, and strategy development.

Enforced Prerequisite at Enrollment: 3 credits in COMM

AEE 460: Foundations in Leadership Development

3 Credits

This course explores historical and contemporary leadership theories, models and perspectives within social, cross-cultural, and political contexts. AEE 460 Foundations of Leadership Development (3) This course is designed to provide students with a philosophical and theoretical framework of leadership by examining historical and contemporary theories, models and leadership styles within a social, political and global context. Students will explore leadership effectiveness and its relationship to issues of power, influence, persuasion, motivation and ethical decision-making. The overall objective of this course is to help students learn specific leadership competencies that will make them a more effective leader when addressing problems and seeking solutions in public and private domains. Evaluation will be based upon quizzes, written projects, leader interview and a final paper in which students will be expected to demonstrate an integrated application of causes, barriers and key ingredients of successful leadership practices. This course will be part of a series on leadership development offered through the Department of Agricultural and Extension Education.

Enforced Prerequisite at Enrollment: AEE 360

AEE 465: Leadership Practices: Power, Influences, and Impact

3 Credits

Explores the leader role as it relates to issues of purpose, social responsibility, political influences, and legal constraints. AEE 465 Leadership Practices: Power, Influences, and Impact (3) In this course, students will explore leadership roles as they relate to issues of purpose, social responsibility, political influences and legal constraints. It is designed to help students develop greater sensitivity to the variety of factors and forces impacting leadership processes and to acquire an increased understanding of key elements of successful leadership practices. The overall objective of this course is to help students learn specific leadership competencies that will make them a more effective leader when addressing problems and seeking solutions in public and/or private domains. Evaluation will be based upon unannounced quizzes, several short written projects, and a final paper in which students will be expected to demonstrate an integrated application of causes, barriers and key ingredients of a leader they consider to be successful. This course will be part of a series on leadership development offered through the Department of Agricultural and Extension Education.

AEE 494: Undergraduate Research

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small group basis.

AEE 494H: Honors Thesis

1-6 Credits/Maximum of 6

Independent study directed by a faculty supervisor that culminates in the production of Agricultural Extension Education honors thesis.

Enforced Prerequisite at Enrollment: Junior or senior status in the Schreyer Honors College and permission of the Agricultural and Extension Education honors advisor.

Honors

AEE 495: Internship

1-15 Credits/Maximum of 15

Enforced Prerequisite at Enrollment: AEE 412 and AEE 413

AEE 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

AEE 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given on topical or special interest subjects which may be offered infrequently.

AEE 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (1L)

Agricultural Communications (AGCOM)

AGCOM 462W: Advanced Agricultural Writing

3 Credits

Practice in journalistic writing strategies to report scientific and technical information in the agricultural/environmental sciences to general audiences. AGCOM 462W Advanced Agricultural Writing (3) Advanced Agricultural Writing focuses on scientific and technical topics in the agricultural/environmental sciences and public policy issues related to such subjects for the print media. Instructional objectives include: To learn and practice diverse forms of writing for general audiences, including brief news articles and feature formats, such as process, human interest, policy, and news reporting in the agricultural/environmental sciences. To recognize and use standard journalistic conventions, including grammar, mechanics, usage, and style. To develop an understanding of a writer's responsibilities and obligations within the context of journalistic ethical standards. To analyze and evaluate situations that require writing in order to respond appropriately to the needs and interests of general as well as specialized audiences. To develop feature writing skills through extensive writing and revising exercises. Student evaluation is based on writing assignments and class participation, particularly contributions to the peer review process. Every writing assignment (with the exception of short in-class exercises) is

critiqued in peer response groups in class. Before the first draft of a feature article or query letter is due, the class develops a criteria sheet that is specific to the diverse forms of writing students are doing. The day the first draft is due, the class divides into peer response groups and, using the criteria sheet, provide feedback for each writer. The instructor also offers feedback on drafts of each article. Only final drafts are evaluated and graded by the instructor.

Enforced Prerequisite at Enrollment: Grade of C or better in COMM 260W or equivalent coursework
Writing Across the Curriculum

AGCOM 495: Internship

1-3 Credits/Maximum of 3

Supervised field experiences related to student's professional interest in agricultural communications; limited to minors in agricultural communications.

Enforced Prerequisite at Enrollment: Grade of C or better in COMM 260W and prior approval of the professor-in-charge of Minor.

Agricultural Science (AGSC)

AGSC 100: AESE First Year Seminar

1 Credits

The purpose of this course is to provide a reflective experience as students begin their academic careers at the Pennsylvania State University. It will primarily be taught via guest lecturers and small group discussion. Both the instructor and students within the course will create and maintain a shared learning environment centered on the critical reflection of the first-year college experience. Students will also explore the four undergraduate majors within the Department of Agricultural Economics, Sociology, and Education (AESE) and learn career development basics. The course involves some group discussions, guest presenters, short writing assignments and other homework assignments, both during and outside of class.

First-Year Seminar

AGSC 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

AGSC 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

AGSC 299: Foreign Studies

1-12 Credits/Maximum of 24

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

AGSC 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

AGSC 494: Undergraduate Research

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small group basis.

AGSC 494H: Honors Thesis

1-6 Credits/Maximum of 6

Independent study directed by a faculty supervisor that culminates in the production of Agricultural Science honors thesis.

Enforced Prerequisite at Enrollment: Junior or senior status in the Schreyer Honors College and permission of the Agricultural Science honors advisor.

Honors

AGSC 495: Internship

1-10 Credits/Maximum of 10

Independent study and supervised field experience related to the student's professional interest. Intended for Agricultural Science majors.

Enforced Prerequisite at Enrollment: Fifth-semester standing in the Agricultural Science major with a G.P.A. of 2.00 or greater and prior approval of proposed plan before registration.

AGSC 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

AGSC 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

AGSC 499: Foreign Studies

1-12 Credits/Maximum of 24

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Agriculture (AG)

AG 100: Job Placement Skills and Strategies

1 Credits

Strategies and skills designed to identify career/life goals and implement career decisions.

Cross-listed with: SC 101

AG 113: Exploring Careers in Agriculture

1 Credits

Examination of career opportunities in agriculture with an exploration of the relationship between student interest and career decisions.

AG 150: Be a Master Student!

2 Credits

Students explore agricultural issues and research methodologies through literature review, library searches, field studies, and critical thinking.

Enforced Prerequisite at Enrollment: First or second-semester standing First-Year Seminar

AG 160: Introduction into Ethics and Issues in Agriculture

3 Credits

This course covers ethics and the social contract to include substantive ethical theories focusing on rights-based ethical theories (libertarianism and egalitarian theories) and consequentialist theories (utilitarianism and axiology). These theories assist in conceptually defining levels of participation and consent in democracy. This course explores the circumstances in which rational persons and political groups historically agree to be bound in collective decision making. The primary focus by examines four separate ethical themes illustrating why and how individuals accept a variety of terms. The course highlights philosophical/ethical decisions related to agriculture issues during the history of the United States. Issues range from non-interference rights to opportunity rights dealing with food, fiber, natural resource and environmental issues. Procedural theory emphasizes the formation of legitimate and defensible rules rather than ethics. Policy choices are assumed to be legitimate and defensible as long as individuals follow the rules/procedures for decision making. The content of this course meshes the procedural and the substance theories found throughout historical debates in agriculture communities. The course identifies traditional agrarian problem identification, policy formation, policy adoption and funding, program implementation and program evaluation. How ethics figures historically in agriculture policy processes is applied in a variety of case studies and debates as well as selected readings. The course includes an examination of the ethics of when, how and where the policy process historically influenced agriculture public policies. The course emphasizes the need to critically think about various points of view expressed by various conflicting authors.

Cross-listed with: CED 160

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Soc Resp and Ethic Reason

AG 160S: Introduction to Ethics and Issues in Agriculture

3 Credits

Introduce students to the University and College of Ag Sciences preparing them to succeed. Review ethical theories and issues in American agriculture. AG 160S Introduction to Ethics and Issues in Agriculture (3) This course introduces students to contemporary issues, ethical theories and principles, and the application of critical thinking and communication skills related to topics in agriculture, renewable natural

resources, and the environment. Additional emphasis will be placed on developing the skills that help achieve academic success at Penn State through these speakers and activities. Course content will include analyzing moral positions based on three ethical theories: normative ethics, descriptive ethics, and metaethics; and four ethical principles: beneficence, nonmaleficence, respect for autonomy, and justice. Guest speakers, field trips and interactive activities, which feature disciplines in the College of Agricultural Sciences, will supplement the course materials and enrich the educational experience. In addition, various career and networking opportunities with internationally acclaimed faculty and staff, current students, and alumni will be featured.

Prerequisites: first or second semester standing

AG 180N: Contemporary Issues in Food, Ag, Natural Resources, and Human Sciences

3 Credits

This course addresses how past and present impacts of food, agriculture, and natural resources have played a role in human, community, and land development in Pennsylvania and the United States within the context of the global community. With a focus on contemporary issues, ethical theories and principles, and the application of critical thinking and communication skills related to topics in agriculture, renewable natural resources, and the environment. Students will analyze moral positions based on ethical theories, principles, and ethical values. This will be accomplished through interactions with College of Agricultural Science faculty/staff, guest speakers, student investigation on various topics, exposure to the mission and role of a land grant university, introduction to issues, challenges, and discoveries in the food and fiber production and processing disciplines.

General Education: Humanities (GH)

General Education: Natural Sciences (GN)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

AG 294: Research Project Courses

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

AG 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

AG 400: Biometry/Statistics in the Life Sciences

4 Credits

Application of statistical techniques to experimental and survey research in the life sciences.

Prerequisite: 6 credits in the natural sciences

AG 422: Communicating Research in Agricultural Sciences

1 Credits

This course provides opportunities to develop effective communication skills within the context of scientific research. Students participating in independent studies with faculty mentors will use their independent research projects as the subject of a series of exercises that will enhance their abilities to share scientific ideals and findings with a variety of audiences including grant writing, poster presentations, and both technical and non-technical oral presentations about research topics. This course will prepare students for graduate school and, importantly, provide students with a set of skills that would be applicable to any career.

Cross-listed with: FDSC 422

AG 494: Research Project Courses

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

AG 494H: Research Project Courses

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Honors

AG 495: Internship

1-18 Credits/Maximum of 18

Independent study and supervised field experience related to the student's major. Written and oral critique of activity required.

Prerequisite: approval of proposed assignment by instructor prior to advance registration deadline in semester preceding that semester in which the assignment is to be carried out

Full-Time Equivalent Course

AG 495A: **SPECIAL TOPICS**

1-3 Credits

AG 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Agroecology (AGECO)

AGECO 121: Plant Stress: It's Not Easy Being Green

3 Credits

This course is an introduction to plant biology with a strong emphasis on plant "stress" biology - how plants deal with the many hazards that they face, including diseases, insects, the weather, and animals. The course covers major aspects of plant biology and physiology, including photosynthesis, light perception, sense of touch, hormones, secondary

metabolism, growth, development, and structure. The course also covers how plants obtain food and water, see their neighbors, communicate with each other, reproduce, compete with each other, consume insects, and even move around - all without muscles, eyes, or brains. The course relates all of these topics to plant stress coping mechanisms and to human needs and desires. Course activities include lectures, class discussions, in-class written assignments, guest lectures, an outdoor walk to observe plants on campus, and movies. This General Education (GN) course is designed to be accessible to non-science majors.

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

AGECO 122: Atmospheric Environment: Growing in the Wind

3 Credits

Atmospheric Environment: Growing in the Wind is for students who are interested in learning about the dynamic effects of weather on plants and animals. It is about how processes at the ground surface and in the air govern weather conditions on Earth. Growing in the Wind focuses on five major weather elements: energy, temperature, moisture, pressure and wind and how these factors influence ecosystems and habitation of our planet. Emphasis is also given to human impacts on weather and climate, and current environmental issues involving the atmosphere. The lectures are organized around the central theme that the unequal distribution of incoming solar energy (both spatially and temporally) produce temperature and pressure contrasts at the Earth's surface and in the atmosphere that in turn cause storms and control the weather and climate.

Cross-listed with: METEO 122

General Education: Natural Sciences (GN)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Soc Resp and Ethic Reason

AGECO 134N: Sustainable Agriculture Science and Policy

3 Credits

This inter-domain (GN/GS) general education course addresses the science, socio-economics, and politics of managing food and fiber production systems; and the sustainability implications of current practices and future options. The course will teach students about the soil, plant, animal, and ecological sciences; technologies, socio-economic implications, and policies of our agroecosystems in an integrated manner. We will examine agricultural scientific, agricultural policy, and economic opportunities to enhance the sustainability of agriculture for food and fiber production. Students will have many opportunities to examine and critically analyze scientific knowledge and policies during discussions, writing exercises, and role playing to develop analytical and communication skills. There are no prerequisites for this course. This course can link with other courses that address how research and efforts in agricultural sciences, ecology, policy, economics, philosophy, education, and communication influence sustainable management of natural resources for the present and the future.

General Education: Natural Sciences (GN)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

AGECO 144: Principles and Practices of Organic Agriculture

3 Credits

An introduction to the science, principles and practices of organic agricultural systems for food production. This natural sciences general education (GN) 3 credit course will teach students about the science of agroecology, with a focus on organic agriculture. We will examine the science, history and development of organic agriculture and its principles and practices. Students will learn about the scientific basis and implementation of fundamental organic farming principles and practices including soil health, diversified cropping systems, organic pest management, and a system perspective. We will also discuss certified organic regulations and policies, organic farming business management and marketing. Learning activities include: i) reading and discussing agricultural scientific articles, ii) listening to guest speakers and videos, iii) hands-on laboratory and greenhouse activities, iv) field trips and group projects. The only prerequisite for this course is a high school level biology or ecology course. This course can link with other courses that address the agricultural sciences, food systems, environmental resource management and policy, land use management and design, and natural resources.

General Education: Natural Sciences (GN)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

AGECO 154: Principles of Agronomic Field Operations

2 Credits

Introduction to the cultural methods and equipment used in agronomic crop production.

AGECO 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

AGECO 201: Introductory Agroecology

3 Credits

Introduction to the processes and considerations that lead to the development of integrated solutions to crop production problem solving.

AGECO 295: Agroecology Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

AGECO 418: Nutrient Management in Agricultural Systems

3 Credits

AGECO 418 / ANSC 418 / SOILS 418 Nutrient Management in Agricultural Systems is a senior-level course that applies the fundamentals of animal, plant and soil sciences to the issues and solutions in the area where livestock production intersects with water and air quality. Modern regionalization and concentration of animal production systems comes with environmental implications due to a net influx of nutrients to livestock farms. While some nutrients leave the farm in the form of animal products, 60 to 70% of the nutrients are excreted and applied to nearby crop land. If not properly managed these nutrients represent a risk to environmental quality. Students in this cross-listed course gain both scientific and practical understanding of sound nutrient management principals and strategies. The course considers big picture concepts such as nutrient cycling as well as farm-level implementations such as Nutrient Management Planning.

Enforced Prerequisite at Enrollment: (BIOL 11 and BIOL 12) or BIOL 110 or BIOL 127 or BISC 3

Cross-listed with: ANSC 418, SOILS 418

AGECO 429: Crop Scouting

2 Credits

This course will teach proper crop scouting techniques and provide reference material to aid in identification of crop pests and determination of pest economic threshold levels. AGECO 429 Crop Scouting (2) This course will introduce and provide experiential learning opportunities to students in crop scouting. Students will be taught principles and technique associated with proper crop scouting. This will include but is not limited to: identifying crop development problems, pests or damage symptoms, pest biology and economic thresholds associated with various pest control options. Students will learn: how abiotic stresses may alter crop development; pest identification; when (spring, summer, fall, wet conditions, dry conditions etc.) different pests are likely to appear; scouting techniques to properly quantify pest infestation; how to read and interpret internet sources that help forecast pest activity; and how to use Infestation/Economic Threshold Charts.

Enforced Prerequisite at Enrollment: AGRO 28 or HORT 101

AGECO 438: Principles of Weed Management

4 Credits

The study of weeds and their management is a challenging and demanding task that requires diverse abilities. The term weed is an anthropocentric construct meaning it is a human colored definition. We will study the biology and ecology of weedy plants drawing on examples from a wide range of plant systems; those systems include agricultural fields (agronomic and horticultural crops) and forests. Of course our knowledge of the biology and ecology of weedy plant populations will then be used to underpin and assess control tactics and their integration. The discipline has a history of equating management with herbicidal control and in fact some 80% of the pesticides used in U.S. agriculture are herbicides. However through novel farmer designed management systems, through a research community focused on alternative methods of management and through increased focus on invasive species, exciting breakthroughs are occurring in alternative methods of management and prevention. This course seeks to introduce you to the breadth of management approaches in use and under study.

The specific objectives are for students to describe and identify: 1) the local weed flora, 2) the fundamental aspects of weed biology and ecology relevant to managed landscapes, 3) the control methods used in managing weed populations, 4) how control measures can be integrated to accomplish acceptable levels of pest suppression, 5) operationalizing a weed management plan, 6) how herbicides enter and move to their site of action in plants, 7) classifying herbicides by their site of action, and 8) the distinction between herbicide concentration in soils and plant available herbicide concentration.

Enforced Prerequisite at Enrollment: AGRO 28 or HORT 101

Recommended Preparation: SOILS 101

Cross-listed with: AGRO 438

AGECO 457: Principles of Integrated Pest Management

3 Credits

Integrated study of pest complexes and their management, emphasizing ecological principles drawing on examples from a range of agricultural, forestry and urban systems. This course is designed for sixth, seventh, and eighth semester students and graduate students. AGECO 457 / ENT 457 Principles of Integrated Pest Management (3) The goal of this course is to introduce upper level undergraduates and graduate students to the principles and practices of integrated pest management (IPM). This course addresses IPM issues concerning insects, plant diseases, and weeds in agriculture, natural systems and urban environments. Rooted in ecology, IPM also addresses the influence of human social, economic and regulatory systems in pest management. Emphasis is placed on the basic tactics and tools of IPM including biological, cultural, legal, mechanical and chemical controls, host plant resistance, pest monitoring and decision making. The overarching goals of environmental protection, economic viability and social welfare are considered throughout the course. In addition, students will learn about IPM program implementation both domestically and internationally, including pest population modeling and the use of internet resources to inform decision makers. Several projects will provide real-world examples. These may include field trips and a semester-long project where students research and solve an actual pest management problem.

Enforced Prerequisite at Enrollment: Must take two or more of the following - ENT 313 or PPEM 405 or PPEM 318 or HORT 238

Cross-listed with: ENT 457

AGECO 495: Agroecology Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

AGECO 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

AGECO 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

AGECO 499: Foreign Studies

1-2 Credits/Maximum of 4

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Agronomy (AGRO)

AGRO 28: Principles of Crop Management

3 Credits

Biological and agronomic principles applied to production and management of major feed and forage crops of the northeastern United States. This includes an overview of agronomy in the world and the United States with emphasis in the Northeast region of the country, and downscales to practical aspects such as crop identification, crop physiology, soil water management, tillage and all the interactions that make farming such a complex enterprise for farm operators and society at large. The course spans over many subjects: crop, soil, nutrient, pathogen, insect, and weed management, and emphasizes managing both profitability and environmental integrity.

AGRO 410W: Physiology of Agricultural Crops

4 Credits

Study of the relation of plants to their environment and the physiology of crop plant growth. AGRO 410 Physiology of Agricultural Crops (4) AGRO 410 is a course in plant physiology that presents fundamental aspects of plant metabolism and demonstrates how they are affected by environmental conditions such as light, water availability, temperature, and mineral nutrition. It describes how plants use photosynthesis to accumulate and partition biomass and how this contributes to crop productivity. The roles of abiotic stress such as drought and temperature extremes on crop productivity also are discussed. The course objectives are to 1] learn how plants "work" at the molecular, cellular, whole plant and population levels; 2] develop critical thinking skills by planning and conducting experiments related to the course topics and reviewing journal articles; and 3] develop and enhance communication skills through a variety of writing assignments. This course is appropriate for upper level undergraduates or beginning graduate students with interest in plant and agricultural science disciplines including, horticulture, agroecology, plant pathology, ecology, meteorology and entomology; and meshes with courses in these areas. Students will be evaluated by examinations/quizzes, writing assignments and class participation. The course is offered annually and the optimal enrollment is 20 students.

Enforced Prerequisite at Enrollment: AGRO 28
Writing Across the Curriculum

AGRO 423: Forage Crop Management

3 Credits

Application of agronomic, ecological, and physiological principles to the production and management of pasture and forage crops.

Enforced Prerequisite at Enrollment: AGRO 28

AGRO 425: Field Crop Management

3 Credits

Application of agronomic, ecological, and physiological principles to management systems for the efficient production of the major field crops.

Enforced Prerequisite at Enrollment: AGRO 28**AGRO 438: Principles of Weed Management**

4 Credits

The study of weeds and their management is a challenging and demanding task that requires diverse abilities. The term weed is an anthropocentric construct meaning it is a human colored definition. We will study the biology and ecology of weedy plants drawing on examples from a wide range of plant systems; those systems include agricultural fields (agronomic and horticultural crops) and forests. Of course our knowledge of the biology and ecology of weedy plant populations will then be used to underpin and assess control tactics and their integration. The discipline has a history of equating management with herbicidal control and in fact some 80% of the pesticides used in U.S. agriculture are herbicides. However through novel farmer designed management systems, through a research community focused on alternative methods of management and through increased focus on invasive species, exciting breakthroughs are occurring in alternative methods of management and prevention. This course seeks to introduce you to the breadth of management approaches in use and under study. The specific objectives are for students to describe and identify: 1) the local weed flora, 2) the fundamental aspects of weed biology and ecology relevant to managed landscapes, 3) the control methods used in managing weed populations, 4) how control measures can be integrated to accomplish acceptable levels of pest suppression, 5) operationalizing a weed management plan, 6) how herbicides enter and move to their site of action in plants, 7) classifying herbicides by their site of action, and 8) the distinction between herbicide concentration in soils and plant available herbicide concentration.

Enforced Prerequisite at Enrollment: AGRO 28 or HORT 101

Recommended Preparation: SOILS 101

Cross-listed with: AGECO 438

AGRO 460: Advances and Applications of Plant Biotechnology

3 Credits

This course provides a comprehensive overview and current status of plant biotech research. The course provides knowledge of plant systems that fall in the category of GMOs. BIOTC 460 / AGRO 460 Advances and Applications of Plant Biotechnology (3) This course will provide a comprehensive overview and status of current plant biotech research. The focus is on providing knowledge of the biology of plant systems. Consequences of development of a transgenic plant either for food (crops) or as a tool to understand molecular, genetic, and inheritance mechanisms of a trait will be discussed in detail. The course will deliver the current literature and understanding of mechanisms involved in herbicide resistance in transgenic plants. Specific topics that will be of interest to students from various disciplines include disease and insect resistance, quality traits, and secondary metabolites. Molecular biology of different pollination systems will be examined so that students will understand the concept of gene flow from transgenic to non-transgenic crops. Examples from recent developments on the

beneficial use of transgenic plants as producers of modified compounds, starches, antibodies and their use in phytoremediation of toxic and organic pollutants will be discussed from the perspective of genetic and molecular plant systems. Gene expression of transgenic plant traits and the stability of an engineered crop will be discussed. Specific emphasis will be on different modes of inheritance that a transgenic plant can follow after its development and release into the environment. The course also prepares students for understanding the regulatory processes that are required for testing, moving, and environment release of transgenic crops. The laboratory component of the course will introduce students to the common technique of molecular biology that are used to detect expression in transgenic plants. Transgenic maize plants will be grown in a greenhouse and analyzed for expression of introduced genes.

Enforced Prerequisite at Enrollment: BMB 251 or MICRB 251 or BIOL 230W or BMB 251H or BIOL 230M

Cross-listed with: BIOTC 460

AGRO 495: Internship

1-5 Credits/Maximum of 5

Supervised field experience related to the student's major.

Enforced Prerequisite at Enrollment: Approval of proposed assignment by instructor prior to registration.**AGRO 496: Independent Studies**

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

AGRO 496A: **SPECIAL TOPICS**

3-4 Credits

AGRO 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Air Force (AIR)

AIR 151: Heritage and Values of the United States Air Force I

2 Credits

"Heritage and Values of the United States Air Force," is a survey course designed to introduce students to the United States Air Force and provides an overview of the basic characteristics, missions, and organization of the Air Force

AIR 152: Heritage and Values of the United States Air Force II

2 Credits

"Heritage and Values of the United States Air Force II," is a survey course designed to introduce students to the United States Air Force and provides an overview of the basic characteristics, missions, and organization of the Air Force.

AIR 251: Team and Leadership Fundamentals I

2 Credits/Maximum of 2

This course is designed to provide a fundamental understanding of both leadership and team building. It is imperative that students are taught from the beginning that there are many layers to leadership, including aspects that are not immediately obvious. Such things include listening, understanding themselves, being a good follower, and efficient problem solving. The students will apply these leadership perspectives when completing team building activities and discussing topics such as conflict management. Students will demonstrate basic verbal and written communication skills. The purpose of communication studies curriculum is to develop leaders with effective thinking, writing, and speaking skills. The course will begin to build on that foundation by providing opportunities to complete both briefing and writing assignments in accordance with Air Force requirements and will prepare students for the more rigorous assignments in future courses. As students mature and become more comfortable with the increasing requirements, the demands to write and speak increase as well.

AIR 252: The Evolution of USAF Air and Space Power II

2 Credits/Maximum of 2

Continued examination of air and space power from the Cold War era to the Persian Gulf War and beyond.

Prerequisite: AIR 251

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Integrative Thinking

AIR 351: Leading People and Effective Communication I

3 Credits/Maximum of 3

This course will provide students with the opportunity to utilize their communication skills as they begin more of a leadership role within an organization. The goal is for students to have a more in-depth understanding of how to effectively lead people and provide them with the tools to use throughout their leadership roles. Additionally, students will enhance their writing and briefing skills. Many of the students will be uncomfortable with public speaking, and this semester is designed to increase exposure to briefing while increasing confidence. The course continues into advanced skills and ethics training that will prepare them for becoming an officer and/or a supervisor.

AIR 352: Leading People and Effective Communication II

3 Credits

This course will provide students the opportunity to utilize their communication skills as they begin more of a leadership role within an organization. The goal is for students to have a more in-depth understanding of how to effectively lead people and provide them with the tools to use throughout their leadership roles. Additionally, students will enhance their writing and briefing skills. Many of the students will be uncomfortable with public speaking, and this semester is designed to increase exposure to briefing while increasing confidence. The course continues into advanced skills and ethics training that will prepare them for becoming an officer and/or a supervisor. The communication and public speaking requirements of the course are a culmination of five previous semesters of learning communication and speech theories and

practical application. Initial communication and speech requirements start in AIR 151 and go through AIR 351, the immediate prerequisite for AIR 351. A student cannot enroll into AIR 352 without the successful completion of AIR 151, AIR 152, AIR 251, AIR 252, and AIR 351 which all establish the initial foundation for communication and speech theory and application.

Prerequisites: AIR 351

General Education: Writing/Speaking (GWS)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

AIR 451: National Security, Leadership Responsibilities, and Commissioning Preparation I

3 Credits/Maximum of 3

This course will provide a student the comprehension of the basic elements of national security policy and process. The student will understand the air and space power operations as well as grasp selected roles of the military in society, and current domestic and international issues affecting the military profession. Students will learn the responsibility, authority, and functions of an Air Force commander and selected provisions of the military justice system. The purpose of communication studies curriculum is to develop officers with effective thinking, writing, and speaking skills. The course encompasses advanced forms of communication by utilizing the skills previously learned and applying them to a written bullet exercise, individual current events briefing, space/cyberspace paper, and a group space/cyberspace briefing. These exercises are designed to provide an additional opportunity for students to refine their written and verbal communication skills and to reinforce the relevance of the ROTC curriculum by having students analyze the relationship of academic lessons and current world events.

Prerequisite: AIR 352

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Soc Resp and Ethic Reason

AIR 452: National Security, Leadership Responsibilities, and Commissioning Preparation I

3 Credits/Maximum of 3

This course will provide a student the comprehension of the basic elements of national security policy and process. The student will understand the air and space power operations as well as grasp selected roles of the military in society, and current domestic and international issues affecting the military profession. Students will earn the responsibility, authority, and functions of an Air Force commander and selected provisions of the military justice system. The course is designed to prepare a student for life as a junior officer in the Air Force. The purpose of communication studies curriculum is to develop officers with effective thinking, writing, and speaking skills. The course encompasses advanced forms of communication by utilizing the skills previously learned and applying them to a written bullet exercise, individual current events briefing, space/cyberspace paper, and a group space/cyberspace briefing. These exercises are designed to provide an additional opportunity for students to refine their written and verbal communication skills and to reinforce the relevance of the ROTC curriculum by having students analyze the relationship of academic lessons and current world events.

Prerequisite: AIR 451

American Studies (AMST)

AMST 3: The American Nation: Historical Perspectives

3 Credits

HIST/AMST 3 allows for faculty and students to work in a small setting in order to explore the history of the United States through a detailed interdisciplinary examination of a particular theme, institution, or person in American history. Faculty can structure their particular theme for this course, allowing for the incorporation of a wide range of materials, out of class field trips, examination of popular culture, primary source documents, and/or seminar-style discussions. For example, in recent years this course has been structured around the themes of "Utopianism in America" and "The Life, Times, and Legacies of Abraham Lincoln". In-depth examinations of such themes in American history offer students the opportunity to work closely with faculty in their area of interest, and to gain an understanding of American historiography and the historical profession.

Cross-listed with: HIST 3

Bachelor of Arts: Humanities

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

AMST 83: First-Year Seminar in American Studies

3 Credits

Critical approaches to the interdisciplinary study of American culture. AMST 83 First-Year Seminar in American Studies (3) (GH;FYS) (BA) This course meets the Bachelor of Arts degree requirements. This course will be an open topic course in American Studies, limited to 20 students, and taught by an experienced professor. The course will be designed to provide a small, interactive learning environment for first-year students. Each section of 83 will address a large theme or number of themes that encourage students to examine a range of assigned texts in the context of broad questions of ethical and social value. Each section of the course will focus on a well-defined body of scholarship that is topical in the discipline, such as 'Civil Disobedience,' "Utopian Communities, and Blacks and Jews: A Multi-Cultural Perspective." In addition to the academic topic and issues of this course, students can expect to gain a general introduction to the University as an academic community and have the opportunity to explore their responsibilities as members of that community. Students will develop an understanding of the learning tools and resources available to them, including the opportunity to develop relationships with faculty and other students who share their academic interests. Each section of the course will require active class participation from all students and a minimum of three substantial written assignments. Each of these written assignments will take one of the following forms: essay, essay exam, or a semester-long reading journal. The course fulfills a General Education humanities requirement or a Bachelor of Arts humanities requirement.

Bachelor of Arts: Humanities

First-Year Seminar

AMST 100: Introduction to American Studies

3 Credits

AMST 100 offers a broad-ranging introduction to American cultural history and the discipline of American Studies. The course examines what "America" means and what it means to be "American" within the context of specific topics that may include Social Class and American Dream, Nature and Wilderness, Consumer Culture, Holidays and Festivals, Childhood and Education, Youth Culture, Popular Amusements, Racial Identity, and the Immigrant Experience. All iterations of the course employ the interdisciplinary method of American Studies to explore the chosen topic in a holistic way. Students study not only history but also art, literature, politics, folklife, and film. American Studies 100 is a requirement for the American Studies major and minor, and offers students valuable experience in critical thinking and writing. Non-American Studies majors and minors may use this course to fulfill General Education or Bachelor of Arts requirements. The course also serves as preparation for more advanced courses in American Studies, American Literature, and American History.

Bachelor of Arts: Humanities

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Integrative Thinking

AMST 100Y: Introduction to American Studies

3 Credits

A study of selected attempts to identify and interpret movements and patterns in American culture. AMST100Y Introduction to American Studies (3) (GH)(BA) This course meets the Bachelor of Arts degree requirements. AMST 100 is a broad-ranging introduction to American culture. While specific topics may vary from class to class, the course examines what "America" means and what it means to be "American." These issues will be examined from a variety of perspectives: literature, history, politics, film, race, gender, and geography. The course is often broken down into discussion sections to facilitate student discussion of the material and the lecture. Requirements generally include community service projects, and students will be evaluated on essay tests, papers, journal entries and attendance. AMST 100 (or AMST 105) is a requirement for the American Studies major and minor, and offers students valuable experience in critical thinking, analysis, and writing. Non-American Studies majors and minors may use this course to fulfill a general education or Bachelor of Arts-Humanities credits. The course offers students a broad introduction to American culture, also serves as preparation for more advanced courses in American studies, American literature, and American history, in particular.

Prerequisite: third-semester standing

Bachelor of Arts: Humanities

United States Cultures (US)

Writing Across the Curriculum

AMST 103: American Masculinities

3 Credits

Introduction to aspects of masculinities and manhood in America. This course examines aspects of masculinities and manhood in America from a variety of perspectives. It views American manhood through the lens

of gender, and presents ideas on the ways that issues of masculinity and sexuality enter, or have entered, discourses of politics, literature, and medicine, among others. It takes up discussion of the varieties of masculinities in American experience across historical periods, regions, racial groups, and ethnicities. Students will view these forms of masculinities in different media, including film, art, folklore, media, advertising, and literature.

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

AMST 104: Women and the American Experience

3 Credits

Selected aspects of the role of women in United States history and culture from colonial to modern times. AMST 104 / WMNST 104 Women and the American Experience (3) (GH;US)(BA) This course meets the Bachelor of Arts degree requirements. AMST 104 / WMNST 104 is a broad-ranging introduction to women in American history and culture from colonial to modern times. While specific topics may vary from class to class, this survey course examines the history of American women, paying particular attention to issues of race and diversity and examining how American women's cultural, political, and economic roles have changed over time. Major themes and topics might include: work and the sexual division of labor; civic activities and the political dimensions of women's historical experience; political power and processes in American history; the role of family and personal life; women as active makers of history in the full range of national experience; the influences of art, literature, popular culture, technology, geography, regionalism, religion, immigration, and other sociological and cultural factors. This course offers students valuable experience in critical thinking, analysis, and writing and a broad introduction to American women's issues, and so serves as preparation for more advanced courses in American studies, American literature, American women's history, and women's and gender studies. AMST 104 / WMNST 104 counts towards the American Studies major and minor and the Women's Studies major and minor.

Cross-listed with: WMNST 104

Bachelor of Arts: Humanities

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

AMST 105: American Popular Culture and Folklife

3 Credits

AMST 105 / ENGL 105 offers a survey of popular culture and folklife in America's past and present. The course synthesizes a broad scope of materials from areas such as literature, movies, television, sports, amusement parks, music, media, and advertising. While selected topics for readings, lectures, and discussion vary from class to class, all courses focus on a critical examination of a variety of popular and folk cultures in order to produce an enriched understanding of America, its past, its diverse cultures, its evolving values and traditions, and its inhabitants. To meet this goal, popular and folk cultures will be examined from a variety of perspectives, including race, gender, and class. AMST 105

may be taken by students pursuing the American Studies major; for them, the course provides preparation for more advanced courses in American folklore, American literature, and American cultural history. Non-American Studies students may use this course to fulfill the general education requirement (GH). Students will receive the US designation for this course, and it meets the Bachelor of Arts degree requirements.

Cross-listed with: ENGL 105

Bachelor of Arts: Humanities

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

AMST 106N: The Mass Media and Society

3 Credits

Mass communications in the United States: organization, role, content, and effects of newspapers, magazines, television, radio, books, and films. The Mass Media and Society is an overview of the interaction between mass media and society. By drawing from selected topics, the course pays particular attention to the social influences (e.g., economics, politics, technology, law and culture) that shape media messages. Among others, the course examines the nature of media controllers as well as the character of users and consumers of media products. By so doing, students are informed about the overall structure and scope of the mass media and led to understand the power and influences associated with media messages and practices. By the end of the semester, each student should have a better understanding of the dynamic nature of the mass media in an information society.

Cross-listed with: COMM 100N

Bachelor of Arts: Humanities

Bachelor of Arts: Social and Behavioral Sciences

United States Cultures (US)

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

AMST 127: Introduction to U.S. Latina/o History

3 Credits

This course provides an interdisciplinary introduction to the study of Latinas and Latinos in the United States. The course includes a historical overview of the major events in the U.S. Southwest, Mexico, the Caribbean, and Central and South America that led to the creation of Latina/o communities in this country. Students will examine the formation of racial and class hierarchies within U.S. Latina/o communities; the processes of (international and regional) migration; gendered hierarchies and responses to sexism; and the complexities of U.S. Latina/o identity.

Cross-listed with: HIST 127, LTNST 127

Bachelor of Arts: Humanities

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

AMST 134: American Comedy

3 Credits

ENGL 134 serves as a survey of and introduction to strands of American comedy and satire from its eighteenth- and nineteenth-century roots through its many directions in the twentieth century. Students will read works from multiple literary genres-poetry, novel, short story, drama, and essay, for instance. The course will help students to understand how both formal and contextual considerations shape American comedy through the centuries. Authors under consideration will vary from class to class, but selected texts will represent many variations of comedy embodied in American literature and present across an evolving media landscape. ENGL 134 is a General Education course in the General Humanities domain. ENGL 134 can also be used as a requirement for the English major and minor.

Cross-listed with: ENGL 134

Bachelor of Arts: Humanities

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Key Literacies

AMST 135: Alternative Voices in American Literature

3 Credits

English 135 considers literature from diverse backgrounds (for example, Latinato, African-American, Asian-American, Native-American, Jewish, Muslim, working-class, lesbian, gay, or women's literature, or any other configuration that expresses an alternative literary heritage to traditionally canonized texts). Course content will subsequently vary.

Cross-listed with: ENGL 135

Bachelor of Arts: Humanities

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

AMST 140Y: Religion in American Life and Thought

3 Credits

The course aims to cast light on contemporary religious life in the United States by looking at the history of American religion. The course will provide students with a broad overview of American religious life from the colonial era to the present, focusing on the diversity and vitality of American religious traditions, as well as areas of intersection and conflict around race, ethnicity, gender, class, and sexuality. The course will also ask students to consider how aspects of these histories continue to shape religious belief, practice, and public discourse in contemporary life. Students will consider important religious and philosophical writings, as well as a popular/mass cultural, ethnographic, or other documentary sources that shed light on both the intellectual and lived history of religious life and thought in the United States.

Cross-listed with: RLST 140Y

Bachelor of Arts: Humanities

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

Writing Across the Curriculum

AMST 150: America in the 1960s: An Introduction

3 Credits

This course offers an introduction to the history of the United States in the 1960s. The dual goals of this course are to instill a particular body of knowledge - in this case, America in the 1960s, and to provide students with tools that will help formulate interpretations of this crucial period in U.S. history. Topics covered will include the leadership of John Kennedy, Lyndon Johnson, and Richard Nixon; the struggle for civil rights for people of color; the emergence of student movements across the country; the steady escalation of US involvement in Vietnam; shifting relations across gender lines, and particularly the rise of the modern feminist movement; and, finally, the growing influence of popular culture, such as music, literature, and film.

Cross-listed with: HIST 150

Bachelor of Arts: Humanities

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

AMST 150N: Western Pennsylvania Art, Literature, and Culture

3 Credits

AMST 150N: Western Pennsylvania Art, Literature, and Culture (GA/GH) will survey western Pennsylvania's rich artistic, literary, and cultural heritage from pre-history to the present day. Beginning with the region's indigenous cultures and earliest settlements, the course will examine the important artists, individuals, and organizations that figured in the development of western Pennsylvania's literary and artistic culture, the important role philanthropy and industry played in that development, and how these artists, organizations, and individuals relate to historical movements across the United States. The course will be divided into six units, and each unit will explore a variety of artists and genres, including architecture, literature, music, painting, photography, and sculpture. Individuals and their works to be discussed may include but are not limited to, among others, architects Frederick J. Osterling, Henry Hobson Richardson, and Frank Lloyd Wright, authors Hugh Henry Breckenridge, Rachel Carson, Willa Cather, Annie Dillard, John Edgar Wideman, and August Wilson, musicians Art Blakey, Billy Eckstine, and Stephen Foster, painters John White Alexander, Mary Cassatt, H.O. Tanner, and Andy Warhol, photographers Charles "Teenie" Harris and W. Eugene Smith, and sculptors Glenn Kaino and Thaddeaus Mosley. During the last unit, particular attention all be paid to western Pennsylvania's dynamic contemporary art and literary scenes. The course will also discuss numerous individuals, groups, locations, and organizations that figured prominently in the region's cultural heritage. Topics to be discussed may include, among others, Andrew Carnegie, Martin Delaney, Henry Clay Frick, H. J. Heinz, Andrew Mellon, Henry Phipps, and Jane Grey Swisshelm, the Carnegie Music Hall, Library, and Art Gallery, Pittsburgh's Exposition Hall, the Scalp Level School of painters, the Carnegie International Art Show and directors John Beatty and Homer Saint-Gaudens, the Associated Artists of Pittsburgh, newspapers "The

Mystery" and "The Pittsburgh Courier," and the Crawford Grill. Depending upon the individual instructor, students may visit at several regional sites, including but not limited to the Andy Warhol Museum, the Carnegie Art Gallery, the Carrie Furnace, the Frick Museum, the Heinz History Center, the Rachel Carson Homestead, the Mattress Factory, and the Silver Eye Center for Photography. The class is a General Education Interdomain course for GH/GA and United States Cultures (US) course.

Recommended Preparations: ENGL 15
 United States Cultures (US)
 General Education: Arts (GA)
 General Education: Humanities (GH)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking

AMST 151N: Technology and Society in American History

3 Credits

This course examines the development of technology in the United States from the colonial period to the present, and places into a historical context the reception and influence of these technological developments on the social, economic, and political life of the United States. The technologies serving American society—past and present—range widely and include, for example, new harvesting techniques, railroads and motor vehicles, assembly-line mass production, and electricity and its multiple dependent technologies. Technologies have always influenced, and been influenced by, human societies; this course examines how technologies and Americans have interacted and influenced each other.

Cross-listed with: HIST 151N, STS 151N
 Bachelor of Arts: Social and Behavioral Sciences
 United States Cultures (US)
 General Education: Humanities (GH)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

AMST 155: American Business History

3 Credits

This course examines major developments in the history of modern American business and industry from the colonial period to the present. History 155 introduces students to a number of the main themes, concepts, and events comprising American business history. Although the course has a pronounced big business/large corporation focus, it nonetheless provides a broader perspective than simply one of selected corporate histories. Indeed, the course treats the conduct of business as an integral element of American society and culture. Topics to be discussed include the colonial commitment to commerce, the effects of new technologies, the emergence of modern large-scale industrial production and the changes it brought to business management, and the importance of world events and American businesses.

Cross-listed with: HIST 155
 Bachelor of Arts: Social and Behavioral Sciences
 United States Cultures (US)
 General Education: Humanities (GH)
 GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

AMST 160N: Introduction to Asian American Studies

3 Credits

This course offers an introduction to the history, literature, culture, and social conditions of Asian Americans. It begins with Chinese immigration to the United States in the nineteenth century and proceeds to cover the histories of other groups: Japanese, Korean, Filipino, and Indian Americans. In addition to history, students explore some of the literature of Asian Americans and examine the legal and sociological aspects of the Asian American experience. The course also addresses several central questions: How much have Asian American groups held in common, culturally and historically, with one another? What role did prejudice play in the attempted citizenship and acculturation of different Asian American groups? How did Asian values and traditions shape families and communities over time? How did the experiences of Asian American women differ from those of men? What contributions to American life - food, literature, politics, education, business, science, and physical culture - have Asian Americans made? AM ST 160/AAS 100 is an interdisciplinary course that introduces students the history, society, and cultural achievements of Asian Americans.

Cross-listed with: AAS 100N
 Bachelor of Arts: Humanities
 United States Cultures (US)
 General Education: Humanities (GH)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking

AMST 161: The Battle of Gettysburg in American Historical Memory

3 Credits

HIST/AMST 161 examines the history of the Battle of Gettysburg, as well as the political and social factors that have shaped perceptions of the Battle of Gettysburg as one of the Civil War's decisive battle and as a national symbol that has transformed over time. The variety of historical sources used in this course will aid students in learning how to understand and interpret history and in encouraging them to develop a critical method by which to evaluate primary and secondary historical sources.

Cross-listed with: HIST 161
 Bachelor of Arts: Humanities
 United States Cultures (US)
 General Education: Humanities (GH)
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

AMST 161N: Chinese in America, Americans in China

3 Credits

This course examines the history of Americans in China, the experiences of Chinese in America, and 200 years of Sino-American Relations. Starting in the 1840s, dreams of economic opportunity inspired Chinese immigrants as they came to America to prospect for gold, build railroads, or start their own businesses. In the opposite direction, American dreamers have been lured to China for two centuries: from businessmen

enchanted by the prospect of millions of customers; to missionaries trying to save souls; to educators, doctors, and engineers hoping to validate American ideas and technology by changing China in their own image. In both cases, the dreamers faced resistance. Chinese immigrants encountered strong racial prejudice in the United States, and American expatriates confronted a China that was sometimes indifferent to their goals. These frustrations notwithstanding, the trans-Pacific exchange of people, goods, ideas, knowledge, and technology vastly impacted both countries in significant ways that continue to resonate in the present day. AM ST 161 examines the history of Americans in China, the experiences of Chinese in America, and 200 years of Sino-American Relations. Starting in the 1840s, dreams of economic opportunity inspired Chinese immigrants as they came to America to prospect for gold, build railroads, or start their own businesses. In the opposite direction, American dreamers have been lured to China for two centuries: from businessmen enchanted by the prospect of millions of customers; to missionaries trying to save souls; to educators, doctors, and engineers hoping to validate American ideas and technology by changing China in their own image. In both cases, the dreamers faced resistance. Chinese immigrants encountered strong racial prejudice in the United States, and American expatriates confronted a China that was sometimes indifferent to their goals. These frustrations notwithstanding, the trans-Pacific exchange of people, goods, ideas, knowledge, and technology vastly impacted both countries in significant ways that continue to resonate in the present day. The course also addresses several central questions. What contributions to American life - food, literature, politics, education, business, science, and physical culture - have Chinese Americans made? What kind of influence did overseas Americans have over Chinese society, education, medicine, public health, sports, and religion? What role did prejudice play in the attempted citizenship and acculturation of Chinese Americans? How did the experiences of Chinese American women differ from those of men? How is American business and commerce affecting China today? AM ST 161 is an interdisciplinary and cross-cultural course that uses methods from both Humanities and the Social Sciences to introduce students to the 200-year-old story of Sino-American cultural, economic, and political interaction and exchange.

Bachelor of Arts: Humanities
 United States Cultures (US)
 General Education: Humanities (GH)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking

AMST 170N: Introduction to American Folklore

3 Credits

This course introduces the verbal and nonverbal genres of folklore that have influenced literature, economics, politics and culture in North America. Approaching folklore as traditional patterns, practices, and performances, the course explains folklore to be fundamental to human cultural life, and therefore an intimate part of the identities and values that Americans express in contemporary society. It will explore these identities and values on various levels: the individual, the family, the community, the region, the nation, and the world. Folklore, you will discover, is not something confined to the past, but all around us in the present, and is continually emerging anew. Students will read and discuss a number of folk genres, including folk speech, narratives, beliefs and religious experiences, use of space, and material culture. Students will learn strategies for researching, "reading," and understanding the

verbal and nonverbal folklore of diverse communities. The class may include readings on cultural traditions drawn from Native American, Latinx, African American, and immigrant cultures, as well as other folk groups defined by social identities such as age, occupation, gender, sexuality, or religion. By the end of the course, students will be able to recognize the cultural, political, and historical implications of such traditions. Assignments will include a fieldwork project; involving first-hand interviews, site observations, and archival research; to document, annotate, and analyze oral traditions. Students will be evaluated on the basis of class discussion, oral presentation and group exercises, in-class examinations, and the fieldwork portfolio.

Cross-listed with: ENGL 170N
 Bachelor of Arts: Humanities
 United States Cultures (US)
 General Education: Humanities (GH)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Soc Resp and Ethic Reason

AMST 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

AMST 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Humanities
 International Cultures (IL)

AMST 226N: Critical Approaches to Hip-Hop

3 Credits

This course will examine the politics of hip-hop art and culture. To do so, we will place hip-hop in broad historical context and trace its aesthetic and cultural roots from Africa to Jamaica to 1970s New York City and then forward to 1980s gangsta rap and former President Barack Obama's iPod. We will think through the implications of hip-hop's addiction to Italian-American mobsters, bling, and all-things keepin' it real. We will also search for hip-hop's political foundations in funk records, 1960s community organizing, and poetry of the Harlem Renaissance. All the while, we will analyze the varieties of hip-hop politics by paying close attention to how hip-hoppers vie for authenticity, recognition, and power through cultural practices—b-boying/girling, graffiti art, emceeing, djing, e.g.-at odds with the State, inequality, and injustice. We will also situate hip-hop politics within the ongoing history of American social movements. To avoid over-romanticizing, we will equally examine hip-hop's appetite for conspicuous consumption, misogyny, homophobia, trappin', and criminality. A deep understanding of hip-hop politics, then, requires examining its contradictions as well as the ways race, class, gender, sexuality, and geography shape hip-hop—and therefore American-culture, art, and identity. To get at these and other ideas, we will read, listen, and think broadly about why a full understanding of hip-hop truly matters.

Recommended Preparations: AMST 100 or AFAM 126 or INART 126

Cross-listed with: AFAM 226N, INART 226N

General Education: Arts (GA)

General Education: Humanities (GH)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

AMST 294: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Humanities

AMST 295: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Prerequisite: prior approval of proposed assignment by instructor

Bachelor of Arts: Humanities

AMST 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Bachelor of Arts: Humanities

AMST 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Humanities

AMST 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Humanities

International Cultures (IL)

AMST 307N: American Art and Society

3 Credits

History of art in the English colonies and the United States from the seventeenth century to the present. AMST 307N / ARTH 307N American Art (3) (GA;US)(GH)(BA) This course meets the Bachelor of Arts degree requirements. American art, from the colonial period to the present, is examined through paintings, sculpture, buildings, prints and photographs, as well as exhibitions and national/world fairs. The class places special emphasis upon the predicament of national identity by examining the ways in which the very notion of the "American" has

historically been highly contested. Special points of emphasis include: negotiations between indigenous, colonial and European artistic styles, representations of and by displaced populations (colonial subjects, Native Americans, African Americans), myths of the American landscape, the cult of domesticity and the gendering of American citizenry, later transatlantic experiences of expatriate artists, conflicts between urban and rural conceptualizations of the "typical" American experience, the role of the American avant-garde after World War II, and debates over federal funding for the arts. The course is designed to meet two principal goals. The first is to increase students' powers of visual analysis and help them build a critical vocabulary for discussing an art object's medium, composition, style, and iconography. The second is to foster an understanding of the deep implication of the visual arts in their social and cultural contexts. The course therefore involves significant material relating to political, economic and religious issues. It investigates problems in patronage, function, reception and censorship. It considers such intra- and cross-cultural issues as representations of gender, race, and ethnicity. Requirements include essay exams and at least one paper. As a general education course in the arts, this course provides an introduction to American art to a student of any major. This course has no prerequisite and presumes no prior exposure to fine art. Students will learn both the common vocabulary of art history and method of critical analysis in the field.

Cross-listed with: ARTH 307N

Bachelor of Arts: Arts

United States Cultures (US)

General Education: Arts (GA)

General Education: Humanities (GH)

General Education - Integrative: Interdomain

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

AMST 308N: American Architecture

3 Credits

History of the architecture of the United States, as well as its Native American and colonial antecedents. AMST / ARTH 308N American Architecture (3) (GA;GH;US)(BA) This course meets the Bachelor of Arts degree requirements. This Art History course (cross-listed with American Studies) will cover the history of American architecture and its historical contexts, from its Native American roots and colonial antecedents, through the formation of the United States, to the present. A sample of the topics that will be covered are the architecture of: Native Americans, Spanish Colonial missions, 17th-century Virginia, Puritan New England, Georgian America, Southern Plantations and Slave Cabins, Thomas Jefferson, the new federal city of Washington, D.C., the Greek Revival, the industrial revolution, utopian religious communities such as the Shakers, Gothic Revival cottages and villas, Victorian Philadelphia, Henry Hobson Richardson, the birth of the skyscraper in New York and Chicago, the City Beautiful Movement, Frank Lloyd Wright, Arts & Crafts California, Henry Ford's Michigan, Art Deco New York, Mies van der Rohe and the glass box, Levittown, Disneyland, Louis I. Kahn, Post-Modernism, Frank Gehry, and Green Buildings. Selected major buildings, architects, ideas, and urban developments will be emphasized. Architecture will be considered within the contexts of religion, politics, philosophy, culture, economics, gender, race, society, technology, engineering, landscape architecture, urban planning and interior design. This introductory survey has no prerequisite and is intended for both students of architecture/art and students unfamiliar with the field. This is an Inter-Domain General Education

course exploring American architecture from both the perspectives of the Arts (GA) and Humanities (GH). An exploration of the art, aesthetics and styles of American Architecture will be balanced with using architecture as a vehicle for understanding American history, culture, religion, society, and government.

Cross-listed with: ARTH 308N

Bachelor of Arts: Arts

United States Cultures (US)

General Education: Arts (GA)

General Education: Humanities (GH)

General Education - Integrative: Interdomain

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

AMST 309N: American Material Culture

3 Credits

This course covers American material culture defined as the interconnection of tangible, human-made forms in contexts representing cultural ideas and practices. It investigates the links of genres such as architecture, art, craft, dress, and food to one another in natural and social contexts such as landscapes, communities, and oceans. The spaces examined can be small, such as a desk, and analyzed ethnographically and historically. They can also be larger such as the built environment of suburbia and its symbolic meaning between city and country. Students identify aspects of form, construction, and use in such spaces and the patterns they express, including regional, ethnic, gender, religious, and class associations. The spaces can be "real" such as the house and body, and virtual, such a representation of environments that users build or that appear in video games. The course has a goal of analyzing cultural meanings and influences of material environments people create on human selves and their society.

Bachelor of Arts: Arts

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Arts (GA)

General Education: Humanities (GH)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

AMST 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Humanities

International Cultures (IL)

AMST 400: Early America to 1765

3 Credits

American society and culture in the colonial period. AMST 400 Early America to 1765 (3) A study of early American history and culture from the Columbian encounter to the end of the colonial period in America. The course covers the results of contact between Native American civilizations and Europeans, forms of government and community that emerged in America, the formation of an American identity, and the

creation of a distinctive, expanding American cultural landscape. The course satisfies the "area" requirement in history for undergraduate majors in American Studies, and is open to all majors.

Prerequisite: 6 credits in American Studies or History

AMST 401: Revolution and Early Republic, 1765-1815

3 Credits

American society and culture during the period of the Revolution and the Early Republic. AMST 401 Revolution and Early Republic 1765-1815 (3) American society and culture during the period of the Revolution and Early Republic. The course satisfies the "area" requirement in history for undergraduate majors in American Studies, and is open to all majors. An objective of the course is for students to understand the significance of this formative period on the emergence of the United States as a nation. Students will examine the mythology of the Revolution as well as its historical record. They will consider the development of social and political institutions in the early years of the new nation, including the creation of pivotal texts of the Declaration of Independence and Constitution.

Prerequisite: 6 credits of American Studies or History or 5th semester standing

AMST 402: Antebellum and Civil War Era, 1815-1876

3 Credits

Social and cultural conditions, sectional rivalry, political crises, warfare, and Reconstruction from 1815 to 1876.

Prerequisite: 6 credits in American Studies or History

AMST 404: Industrial America

3 Credits

An analysis of American politics, literature, society, and economics from the 1870s to World War II.

Prerequisite: 6 credits of American Studies or History

AMST 405: Cold War

3 Credits

Examination of social and cultural currents in American life from World War II to 1990. AMST 405 Cold War America (3) Examination of social and cultural currents in American life after World War II to 1990. The course satisfies the "area" requirement in history for undergraduate majors in American Studies, and is open to all majors. Students will analyze the way that the confrontation between communist superpowers and the United States shaped politics, culture, and society. Among the events discussed are the nuclear bomb, space and arms race, Kennedy assassination, Watergate scandal, and Korean and Vietnam wars. The cultural expression of the period in film, television, literature, music, and art will be analyzed.

Prerequisite: 6 credits of American Studies or History

AMST 412: American Eras

3 Credits/Maximum of 99

Examination in depth of various and distinctive American time periods; subtitle expresses specific content. (May be repeated for credit.)
 AMST 412 American Eras (3) Examination in depth of various and distinctive American time periods. The subtitle expresses specific content. May be repeated for credit. The course satisfies the "area" requirement in history for undergraduate majors in American Studies and is open to all majors. The course covers periods or eras in American history that are not covered or emphasized in other courses. Some eras to be studied are the Great Depression, World War II, and 1960s. In addition to analyzing major events of the period, students will consider social and cultural developments.

Prerequisite: 6 credits of American Studies or History

AMST 417: American Beliefs and Myths

3 Credits/Maximum of 99

A study of symbols, beliefs, and myths in the American experience; subtitles express specific content. (May be repeated for credit.)

Prerequisite: 6 credits of American Studies

AMST 422: Religion and American Culture

3 Credits/Maximum of 6

Selected topics, problems, or historical movements in American religion; relation between religion and American culture.

Cross-listed with: RLST 422
 Bachelor of Arts: Humanities

AMST 423: Folk Groups and Genres

3 Credits

We live surrounded by folklore. From the jokes and stories we tell, to the ways we cook and eat, work and dress, even how we interact using digital media, much of what we do in our lives involves tradition. This course will provide students with detailed study of American folklore through an in-depth focus on a specific social group or creative genre. Topics covered may include group-based material such as ethnic folklore; the folklore of age groups; folklore, gender and sexuality; and occupational folklore; as well as units on genre categories such as folk narrative (folktale, legend, myth), verbal genres (proverbs, rhymes, jokes), customary forms (parades, festivals, dancing, games), material culture (dress, folk art, foodways), and musical forms (folk song, folk music). At the conclusion of this course, students will be able to explain key concepts in the study of folklore such as tradition, folk group, genre, performance, and practice, as well as how these concepts can be applied in the analysis and interpretation of culture. Students will also develop practical skills in ethnography, including participant observation, interviewing, audio and video recording, field note taking, fieldwork ethics, and folklore archiving. As part of this course, students will undertake a significant ethnographic research project, culminating in a comprehensive portfolio of field materials and an analytical or interpretive paper.

Prerequisite: (AMST 105; or ENGL 105) and (AMST 196; or ENGL 196)

AMST 432: Ethnicity and the American Experience

3 Credits

Theoretical and conceptual framework of ethnic studies: examination of specific issues related to major American ethnic and racial groups.

Bachelor of Arts: Humanities

AMST 435: Americans at Work

3 Credits

A study of occupational and organizational cultures in America.
 AMST 435 Americans at Work (3) A study of occupational and organizational cultures in America. The course examines historical and social changes in primary occupations of Americans, including agriculture, crafts and trades, mining and trapping, maritime, manufacturing, corporate, and service and information work. The role of unionism, individualism, and mobility in shaping attitudes toward work will be examined. Students will learn techniques of ethnography and historical analysis to interpret images of work in American society. Evaluation includes application of historical analysis and ethnographic observation of Americans at work in written essays, and two examinations.

Prerequisite: 6 credits in American Studies or Labor and Industrial Relations, or Sociology

AMST 439: American Regional Cultures

3-6 Credits/Maximum of 6

An interdisciplinary study of the culture of a region of the United States, such as the south or the west.

Prerequisite: seventh-semester standing
 Bachelor of Arts: Humanities

AMST 441: History of Sport in American Society

3 Credits

AMST 441 / KINES 441 History of Sport in American Society study of the background, establishment, and growth of sport in America from colonial times to the present, and the role of American sports in American culture and society. The course will examine the ways that sports have operated in the United States as the country has developed into a modern, mass society. Issues of national identity, commercialism, race, ethnicity, class, and gender will be discussed in relation to the popularity of sports. Another set of issues will center on language and media; students will employ methods of analysis such as ethnography and rhetorical criticism that emphasize the multiple layers of meaning inherent in sports culture.

Enforced Prerequisite at Enrollment: KINES 100 or KINES 341 or COMM 170 or RPTM 120 or HIST 113 or ENGL 234 or AFAM 114 or ASIA 101N or CAMS 142 or 6 credits of AMST or 6 credits of HIST or (3 credits in AMST and CAMS 142)
 Cross-listed with: KINES 441
 United States Cultures (US)

AMST 447: Recent American History

3 Credits/Maximum of 3

Contemporary economic, social, and political aspects of the United States and its role as a world power since 1945. AMST 447 / HIST 447

Recent American History (3) This course covers the history of the United States from the end of World War II to the present. Topics include but are not limited to the Marshall Plan, the Cold War, the Korean War, the rise of television, atomic power, the Eisenhower presidency, the Civil Rights and Women's Movements, the Vietnam War and protests, the space race, Watergate, the Reagan presidency, the two Iraq Wars, the Dot-com revolution, 9-11 and the War on Terror, and the Obama presidency. While addressing major historical movements, the course will also explore the culture of the period - art, literature, music, sports, television, religion, and film. Even though the course covers a relatively short span of years, students will see that American society has undergone dramatic changes in this period as the result of social movements, immigration, wars, political scandal, and technological innovation. The course will close by speculating on the current direction of the United States in light of the serious challenges the nation faces.

Prerequisite: HIST 021 , 3 additional credits in history, economics, or political science

Cross-listed with: HIST 447
Bachelor of Arts: Humanities
United States Cultures (US)

AMST 448: Ethnography of the United States

3 Credits

Ethnographic descriptions of various dimensions of life in the United States. ANTH 448 / AMST 448 Ethnography of the United States (3) Ethnographic descriptions of various dimensions of life in the United States. The course covers uses of ethnography in American Studies toward an understanding of social and cultural communication and performance. The application of ethnography and concepts of cultural anthropology to complex societies such as the United States is discussed. The course teaches students to use ethnographic methods for research of American society and culture. Attention is given to the ethics and issues of ethnographic fieldwork. The course satisfies the "area" requirement in "society" for American Studies majors.

Prerequisites: 3 credits of ANTH
Cross-listed with: ANTH 448

AMST 451: Topics in American Film

3 Credits/Maximum of 6

Critical and historical studies of American films. Analysis of directing, cinematography, editing, screenwriting, and acting.

Enforced Prerequisite at Enrollment: COMM 250
Cross-listed with: COMM 451

AMST 470: The American Renaissance

3 Credits

Studies in the works and the interrelationships of writers such as Emerson, Hawthorne, Poe, Thoreau, Whitman, Melville, and Dickinson. The course will cover Transcendentalism and the authors who contributed to this movement, many of whom lived in Concord, MA. Though the class will feature the works of Emerson, Hawthorne, and Thoreau, it can also branch out to address other authors such as Margaret Fuller, Jones Very, and Elizabeth Peabody. Departing from Concord, the course will explore Walt Whitman and Emily Dickinson, both of whom read and were inspired by Emerson. Finally, the course will include works by Herman Melville, who formed a friendship with Hawthorne prior to writing

Moby-Dick. Though literature constitutes the center piece of this course, iterations of the course may bring in other parts of the cultural, social, and political landscape: slavery, abolitionism, Jacksonian Democracy, western settlement, art, science, and technology.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Cross-listed with: ENGL 430
Bachelor of Arts: Humanities

AMST 472: Topics in American Literature

3 Credits/Maximum of 99

Focused study of a particular genre, theme, or problem in American literature. (May be repeated for credit.) ENGL 434 / AMST 472 Topics in American Literature (3) This course will allow faculty and students to focus a semester's study on a particular genre, theme, or problem in American literature. The flexibility of a topics course will allow faculty a forum in which to share current scholarship or to relate issues in American literature to larger school-wide themes in a classroom environment. Because of the potential variety of topics and faculty members, specific evaluation methods will be determined by the instructor and specified in the syllabus. The course will be offered once every two years with an expected enrollment of 25 students. The course satisfies the "area" requirement in culture for American Studies majors.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Cross-listed with: ENGL 434
Bachelor of Arts: Humanities

AMST 475: Black American Writers

3 Credits/Maximum of 6

A particular genre or historical period in the development of Black American literature. ENGL 431 / AMST 475 Black American Writers (3) (US) A study of a particular genre or historical period in the development of Black American literature. This course will allow faculty and students to focus a semester's study on a particular genre, theme, or problem in African-American literature. The flexibility of the course will allow faculty a forum in which to share current scholarship or to relate issues in African-American literature to larger school-wide themes in a classroom environment. Because of the potential variety of topics and faculty members, specific evaluation methods will be determined by the instructor and specified in the syllabus. The course will be offered once every two years with an expected enrollment of 25 students. The course satisfies the "area" requirement in culture for American Studies majors.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Cross-listed with: ENGL 431
Bachelor of Arts: Humanities
United States Cultures (US)

AMST 476: American Women Writers

3 Credits

A study of selected American women writers. ENGL 492 / AMST 476 / WMNST 491 American Women Writers (3) A study of selected women

writers, this course provides the opportunity to study writing by American women from an historical perspective and to explore the views these women have of themselves as artists. The course will concentrate on a careful reading of works by a variety of authors. It will raise the question of the role that gender—as well as other differences such as race, class, and ethnicity—play in the selection of literary forms and the development of character, theme, symbol, and rhetorical strategy. It will also explore the dimensions American women have brought to the American literary tradition. The course satisfies the area requirement in culture for American Studies majors and is open to all majors meeting the prerequisite requirements. The course will be offered once every two years and enrollment is 25.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Cross-listed with: ENGL 492, WMNST 491
Bachelor of Arts: Humanities

AMST 479: American Expressive Forms

3 Credits/Maximum of 99

Examination in depth of various and distinctive American expressive forms; subtitle expresses specific content. (May be repeated for credit.) AMST 479 American Expressive Forms (3) Examination in depth of various and distinctive American expressive forms. The subtitle expresses specific content. May be repeated for credit. The course satisfies the "area" requirement in culture for undergraduate majors in American Studies, and is open to all majors. The course covers periods or eras in American history that are not covered or emphasized in other courses. Some expressive forms to be studied are American essays, American humor, and American films. In addition to analyzing the traditions and patterns of these forms, students will consider the historical, social, and cultural context of these forms in the American experience.

Prerequisite: 6 credits in American Studies

AMST 480: Museum Studies

3 Credits

An introduction to the basic purposes, philosophies, and functions of a museum, with emphasis on the problems of museum administration. (May be repeated for credit.) AMST 480 Museum Studies (3) An introduction to the basic purposes, philosophies, and functions of a museum, with emphasis on the problems of museum administration. The course examines applications of American Studies to mechanics of operation and development of core services including exhibits, structured educational programs, and special events. The course places these functions within the philosophy of the "experience economy," whereby museums and historical organizations are challenged to meet expectations of an increasingly sophisticated audience.

Prerequisite: 6 credits in American Studies

AMST 481: Historic Preservation

3 Credits

A study of preservation practices and programs in America. AMST 481 Historic Preservation (3) A study of historic preservation practices and programs in America. This seminar will examine the historic preservation movement in the United States, including its history, function, and

practice. Its role in government, economic development, and community and regional planning will be discussed. The ways that American studies scholarship has influenced historic preservation will be considered.

Prerequisite: 6 credits in American Studies

AMST 482: Public Heritage Practices

3 Credits/Maximum of 99

A study of public heritage practices and programs in America. (May be repeated for credit.) AMST 482 Public Heritage (3) A study of public heritage practices and programs, which encompasses interpretation and education projects in American history and culture, disseminated through institutions to the general public. The areas under public heritage include the practices and programs of museums, expositions and fairs, archives, historical and cultural agencies, government bureaus, foundations, community organizations, magazines, films, festivals, and computer sites. The course traces the changes that have occurred in the public heritage movement, especially the ways that American Studies scholarship has been distilled through various public institutions and programs.

Prerequisite: 6 credits in American Studies

AMST 491W: American Studies Perspectives

3-6 Credits/Maximum of 6

This writing-intensive course covers perspectives and approaches of American Studies scholarship regarding themes, issues, and problems in American culture and their applications in society. It serves as a capstone course for American Studies majors who are required to take two sections on different themes, issues, and problems. It is open to other majors seeking exposure to the interdisciplinary methods and concepts of American Studies in addition to interpretative explorations of American society and culture. Examples of themes, issues, and problems that are covered in the course and represent key concepts in American Studies include "The American Dream," "Nature and Wilderness in American Culture," "The American Way of War," and "American Borders and Frontiers in the American Imagination." Methods that are typically covered include rhetorical/symbolic analysis, ethnography of cultural scenes, and comparative analysis of a cultural collection. Concepts include American exceptionalism, colonialism, materialism, individualism, and consumerism in a global context. A variety of evidence is typically used in the course including historical documents, literature, artifacts, oral expressions, photographs and graphics, and popular film and television. The course includes exposure to applications of American Studies knowledge in various institutions and careers such as museums and heritage organizations, government, communications, and education.

Prerequisite: seventh-semester standing

Bachelor of Arts: Humanities
Writing Across the Curriculum

AMST 493: The Folktale in American Literature

3 Credits

A survey of the literary uses of the folktale and legendary materials, with particular concentration on the literature of America.

Prerequisite: ENGL 015 or ENGL 030H

Cross-listed with: ENGL 493
Bachelor of Arts: Humanities

AMST 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Humanities

AMST 494H: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Humanities
Honors**AMST 495: Internship**

1-6 Credits/Maximum of 6

Supervised internship for undergraduate or graduate American Studies majors at a museum or another cultural, historical, or arts agency.

Prerequisite: senior-level status for undergraduate students; 18 credits of course work in major for graduate students; approval of program required

AMST 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Bachelor of Arts: Humanities

AMST 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Humanities

AMST 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Humanities
International Cultures (IL)

Animal Science (ANSC)

ANSC 97: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

ANSC 100: Introduction to Animal Industries

3 Credits

This course will introduce students to the breadth and scope of animal agriculture in North America with emphasis on food producing animals. Additionally, fiber producing animals, pets, pleasure animals, and alternative livestock will also be studied. Students will be exposed to biological concepts and their relationship to contemporary production systems, economics, terminology and industry issues to enhance understanding of and appreciation for various uses of animals in North America. The course is available in a web-based format with extensive use of video tours of animal housing facilities, expert interviews, and explanations of the biology behind common production and food safety practices.

General Education: Natural Sciences (GN)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

ANSC 107: Introduction to Equine Science and the Equine Industry

3 Credits

This web based course provides students with basic knowledge about equine science and its application to the industry to prepare them to be more effective communicators with industry personnel. Inductive and deductive reasoning are introduced as a part of the scientific method and its application in critically evaluating products and concepts important to equine science and the industry. Equine science topics include basics of equine evolution, genetics and breeds, anatomy, physiology, reproduction, and nutrition. While these topics focus on the horse as a target, each topic also allows for comparisons to other mammalian species. Equine industry topics include history of use, disciplines, organization of the industry, components and careers; and prepare students to proceed into further studies in equine science. The course features presentations and interaction with industry professionals and instructors of higher level equine science courses at Penn State. In addition to the academic topics addressed, the course introduces students to using the university course management system, and the utilization of web based communication tools as individuals and as a team.

General Education: Natural Sciences (GN)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

ANSC 110: Contemporary Issues in Animal Biotechnology and Society

1 Credits

An introductory survey of animal biotechnology in society, the role for biotechnology and how it will benefit society. ANSC 110 Contemporary Issues in Animal Biotechnology and Society (1) This First-Year Seminar is designed to provide an introduction to the field of animal biotechnology. Emphasis will be placed on providing the student a perspective of the history of biotechnological innovation in animal agriculture and an overview of the scientific bases for animal biotechnology. The history, need for and development of food biotechnologies will be discussed. A major component of the course will focus on the regulatory processes in place in the U.S. for approving animal biotechnologies and the benefit/risk evaluation process used to assess safety and efficacy of new

animal biotechnologies. Social and economic implications of animal biotechnology will be discussed as well as overview about how to effectively communicate the benefits of the new food biotechnologies to policymakers and the public.

First-Year Seminar

ANSC 117: Equine Marketing

2 Credits

Principles of marketing and event planning including marketing systems, advertising, management systems, team building and other aspects of conducting a purebred livestock sale. Students learn through the planning and conducting of the annual Penn State Equine Science Showcase and Registered Quarter Horse Sale. ANSC 117 Equine Marketing (2) The Equine Marketing course is designed to allow students the opportunity to learn information related to the marketing of horses. Specific topics will include letters on marketing methods, event planning and management, advertising layout and design, the significance of pre-purchase exams to the marketing process, preparation and presentation of sale animals, and the role of the auctioneer. In addition to classroom lectures, students will have the opportunity to put the information gathered to use through the planning of Penn State's annual Equine Science Showcase and Registered Quarter Horse Sale. Students will be assigned to committees and will be responsible for all of the planning and implementation of the event. Specific tasks will include development of advertisements, public relations, development of press releases, development of an online and hard copy sale catalog, development of all office paperwork for the sale, interaction with industry leaders to gain industry buy in for the event, working with outside breeders who participate in the event, set up, clean up, and preparation and presentation of the horses being offered for sale. Through the process students will also learn many skills necessary to be successful in their future careers above and beyond those related to the marketing of horses. Some of these skills include working within a group, team building skills, communication with industry professionals, development of plans of work, and many more.

ANSC 150S: Animal Science Freshman Seminar

2 Credits

ANSC 150S is for first year University Park students intending an Animal Science major. Students will engage in college success strategies including time management, advising resources, University practices, policies and procedures, as well as campus resources and opportunities. Students will explore Penn State's animal facilities and interact with peers and faculty while building research, oral, and written communication skills.

First-Year Seminar

ANSC 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

ANSC 198: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

ANSC 201: Animal Science

4 Credits

Scope of animal and poultry science; genetic, physiological, nutritional, and health factors in food production. ANSC 201 Animal Science (4) This course examines the scope and diversity of disciplines comprising the animal and poultry sciences. The first portion of AN SC 201 focuses on animal products such as milk, meat, eggs, and wool. Students learn product compositions and their relevance to humans worldwide. Later lectures outline the roles that environmental, housing, nutrition, and health play in current animal production systems. A major focus of the course is digestive physiology. In-depth topics include nutrients, monogastric and ruminant digestion, and feed analysis methods. The final portions of the course focus on reproduction, lactation, behavior, genetics, and biotechnology. These areas are critical to successful animal production systems. Throughout the semester, current issues in animal sciences that are related to the course material are integrated into the lectures. The laboratories support the concepts presented in lecture related to animal products, nutrition, animal health, and reproduction.

ANSC 202W: Contemporary Issues in Animal Agriculture

3 Credits/Maximum of 3

ANSC 202W, Contemporary Issues in Animal Agriculture, is a 3 credit 200 level course, emphasizing the appropriate citation of sources and writing about contemporary issues facing the animal sciences field. Thus, writing assignments will center on new and emerging issues facing animal science students entering today's job market. Students completing this course will have produced a writing portfolio that includes a range of works appropriate for different audiences, as well as having participated in extensive self and peer evaluation of writing. Students scheduling the course should first complete ANSC 100, or have completed or be concurrently enrolled in ANSC 201. Course objectives are to teach written communication skills that will be valuable to those pursuing an education and career in animal science related fields. Upon completion of this course, students should be capable of developing a focused writing objective based on some knowledge of the designated audience, finding reliable sources of evidence, critically evaluating evidence and sources, correctly citing sources for various types of material, developing an effective outline, writing and revising drafts for a final piece of written communication, performing self and peer evaluations of writing, and producing a final piece of written communication that achieves the original objective and is valuable to the designated audience.

Enforced Prerequisite at Enrollment: ANSC 100 and Enforced Concurrent at Enrollment: ANSC 201
Writing Across the Curriculum

ANSC 207: Animal Products Technology

2 Credits

Composition, safety, palatability, preservation, and processing of foods from animals, impact of animal production and handling practices on product properties. FDSC 207 / ANSC 207 Animal Products Technology (2) This course is intended to give students

knowledge and understanding of production and processing of foods derived from animals (meat, milk, and eggs). Upon completion of this course students will be able to describe and explain the physical and biochemical characteristics of muscle foods, milk, and eggs. Students will be able to describe and compare harvesting, processing, and preservation procedures used in preparation of animal products for human consumption. Students will be prepared to predict the impact of variations in animal production, handling, harvesting, and product processing on meat, milk, and egg product characteristics. This is one of a group of courses dealing with foods from animals. Related courses offered in Animal Science covers animal growth and development and evaluation of animals and meat products. Related courses in Food Science cover food microbiology, food chemistry, and meat and dairy processing technology. The content of this course is intended to emphasize the connection between animal production and the resulting food products. FDSC 207 / ANSC 207 is intended to be of general interest to people who produce or eat animal products and thus is an integral part of the Animal Sciences major. This course will also be useful for strengthening meat industry knowledge for students in Food Science. FDSC 207 / ANSC 207 will be offered one semester per year. Student performance will be evaluated through written exams, quizzes, and written reports.

Cross-listed with: FDSC 207

ANSC 208: Animal Products Technology Laboratory

1 Credits

Harvesting and processing of foods from animals; hands-on and demonstration exercises; industry procedures for processing meat, milk, and egg products. FDSC 208 / ANSC 208 Animal Products Technology Laboratory (1) This laboratory is intended to be taken along with or following Animal Products Technology lecture. Providing students with an opportunity to experience the procedures involved in harvesting and processing foods from animals. Upon completion of this course students will be able to describe, demonstrate, and explain procedures commonly used in harvesting and processing of muscle food, milk, and egg products. Students will be able to recognize and predict the impact of incorrect procedures for harvesting and processing muscle food, milk, and egg products. The course includes hands-on exercises and demonstrations that allow students to experience the "look and feel" of industry procedures used in harvesting and processing meat, milk, and egg products for human consumption. Focus on issues related to food safety and food quality. Student performance is evaluated through weekly written reports, and a final lab exam.

Enforced Concurrent at Enrollment: ANSC 207

Cross-listed with: FDSC 208

ANSC 211: Introduction to Avian Biology

3 Credits

Introduces the biology of birds; lectures, laboratories on anatomy and function, incubation, breeding, disease control, management techniques, and student projects.

Enforced Prerequisite at Enrollment: BIOL 110

ANSC 213: Introduction to Animal Biotechnology

3 Credits

This course provides an early exposure to the emerging and diverse field of animal biotechnology. Basic principles underlying recombinant DNA technology, genetics, gene transfer technology, genomics and their technological applications will be discussed. This course is taught from the technological perspective that differs from the perspectives of basic science, or technique-oriented courses. The information provided in the required text-book, accompanying websites and current literature will be discussed extensively in the form of formal lectures, tutorials and review sessions.

Enforced Prerequisite at Enrollment: (CHEM 101 or CHEM 110 or CHEM 130) and BIOL 110

ANSC 215: Pets in Society

3 Credits

ANSC 215 Pets in Society (3) (GS) Companion animals have far-reaching influence on many aspects of human society. How humans relate to pets varies from individual to individual and is influenced by many factors. The field of human-animal interactions is quickly evolving and is supported by a variety of disciplines and empirical research. This course provides a broad introduction to the varied roles and influences of pets on human life and society. Topics of discussion include the historical, social, economic, scientific, and legal roles of pets in American society. The influence of companion animals on human development and mental health throughout the lifespan and in the case of disability is examined from a social science perspective. Genetics, breed, physical, and environmental influences play obvious and important roles in the development of canine and feline behavior and are used as examples of the multiple causes of behavioral development and expression. Learning theory and operant conditioning are discussed as they relate to dog and cat training. Newly discovered risks and benefits of animal ownership on human health are discussed, including the influence of pet ownership on cardiovascular disease and allergy development. Issues of responsible pet selection and ownership are discussed in relation to animal welfare and societal responsibility. Because of the emerging nature of human-animal interaction research, an important goal of the course is to instruct students on the scientific method and recognition of research methodologies. Critical evaluation of theoretical models and empirical research in class and small group discussions is used to show how these questions can be addressed scientifically. Throughout the course, students have the opportunity to gather information from various sources and make informed decisions on controversial topics and to understand the impact of individual actions and decisions on broader society.

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Soc Resp and Ethic Reason

ANSC 217: Introduction to Horse Judging

2 Credits

Introductory analysis of halter and performance classes of stock-type horses, with emphasis on conformation, gaits, patterns, and oral reasons. ANSC 217 Introduction to Horse Judging (2) encompasses the introductory information necessary for students to begin their

competency in horse evaluation. From external parts and critical evaluation of conformation of halter horses, to rail classes with gaits and transitions, to pattern classes with objective evaluation and scoring methods, to more specialized classes (trail, hunter hack, pleasure driving, etc.), students will expand their depth and breadth of knowledge for evaluating suitability to purpose of stock-type horses. Careful observation, critical thinking, decision-making and oral communication skills of students are repeatedly critiqued and enhanced in this course. Following successful completion of ANSC 217, students who elect to take ANSC 417 will be eligible to compete for a position on the Penn State Intercollegiate Horse Judging Team. Furthermore, this course serves as an elective for students outside of the Animal Sciences major and students throughout the University who simply have an equine interest; as well as a required course for students enrolled in the Equine Sciences minor offered by the Department of Dairy and Animal Science.

ANSC 225: Introduction to Dairy Judging

1 Credits

Training in the visual evaluation of dairy cattle and practice in defending decisions through oral reasons. ANSC 225 Introduction to Dairy Judging (1) Students will learn the basic concepts used in dairy cattle judging and evaluation. The Purebred Dairy Cattle Association Unified Scorecard will provide the framework for students to make decisions and enhance observation skills based on industry standards. Students will become familiar with terminology used to describe differences between cattle of the seven major dairy breeds as they judge classes of cows and heifers. They will develop communications skills by defending these evaluation decisions through oral reasons.

ANSC 290: Careers in Animal Agriculture

1 Credits

ANSC 290 is a required course for Animal Science majors and minors. Each week during class, students are exposed to varied potential career paths within the animal industries. Students will develop a resume and cover letter, and attend the College's career fair to interact with potential employers.

ANSC 291: Externship with Animal Science Business

1-2 Credits/Maximum of 4

Students will obtain a one-week on site work experience with an animal-related agribusiness. ANSC 291 Externship with Animal Science Business (1-2 per semester/maximum of 4) This course will provide an opportunity for students to acquire on-site skills and knowledge in a potential interest area of an animal-related agribusiness. Externship opportunities are provided during one week of winter break and one week of spring break and 1 credit is earned for each experience. Student responsibilities are to: prepare a cover letter and resume; participate in the interview process; maintain and submit a typed summary of a daily log of activities; prepare a final report to the instructors (copy sent to the agribusiness sponsor); present an oral presentation of the externship experience to their peers and a group of faculty; and complete a self evaluation of ANSC 291. Limited to Animal Sciences majors.

ANSC 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

ANSC 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

ANSC 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

ANSC 300: Integrated Animal Biology

3 Credits

An integrated study of the biology of domestic animal growth and the underlying cellular, endocrine and immune systems involved.

Enforced Concurrent at Enrollment: (BIOL 11 and BIOL 12) or BIOL 110 or at least third-semester standing
Bachelor of Arts: Natural Sciences

ANSC 301: Principles of Animal Nutrition

3 Credits

Nutrients and their metabolism; the nutritional requirements of livestock; the nutritional value of various feeds; principles of ration formulation.

Enforced Concurrent at Enrollment: CHEM 202 or CHEM 210

ANSC 305: Companion Animal Nutrition

3 Credits

Principles of care and nutrition and contemporary importance of companion animals with emphasis on canine and feline species. ANSC 305 Companion Animal Nutrition and Management (3) Students of the animal sciences must be equipped for a variety of career opportunities in the twenty-first century. It is apparent that most students will benefit from a balanced exposure to a variety of animal species. This is especially true for students who pursue a career in the many supportive agricultural industries such as the commercial feed industry, animal health, and research and development. This course is part of a series of courses related to the nutrition and management of animals. While the other courses will be related to farm animal species, this course will be the only one addressing companion animals. As such it should meet the demand of students without a strong farm background or interest; those planning to attend a veterinary or professional school; as well as a large group of students with a non-professional interest in companion animals. It is felt that the sophomore or junior level of the course is appropriate after students have completed Animal Science 201.

Enforced Prerequisite at Enrollment: ANSC 201

ANSC 306: Swine Production and Management

3 Credits

Students enrolled in ANSC 306 Swine Production and Management will study business and production-related concepts associated with modern swine production. The course will combine biology, nutrition, reproduction, health and welfare of pigs with business management, operations management, quality assurance, and marketing. Field Trips and hands-on labs at Penn State Swine Center expose students to hands-on application of classroom concepts.

Enforced Concurrent at Enrollment: ANSC 201**ANSC 308: Sheep and Goat Production and Management**

3 Credits

ANSC 308 Sheep and Goat Production and Management (3) encompasses the requisite information for students to manage any of the small ruminant livestock species including meat and wool sheep, hair sheep, and meat goats. Students will critically evaluate genetic, reproductive, nutritional, economic, and management criteria that influence profitability and sustainability of small ruminants as viable agricultural animal enterprises in Pennsylvania, the United States and the world. Hands-on learning to develop practical management skills will be provided via the laboratories held at the Penn State Sheep Barns.

Enforced Concurrent at Enrollment: ANSC 201**ANSC 309: Beef Cattle Production and Management**

4 Credits

Beef Production and Management will provide a comprehensive review of the business-related and production oriented concepts associated with modern beef production. This course will combine traditional disciplines of beef management with business management, operations management, quality control and marketing. Additional topics will include economics and factors affecting cost of production. As the course progresses, and following the exposure of students to the fundamentals of beef production, they will be given the opportunity to evaluate real production scenarios for development of business and management recommendations. In addition to the classroom, the Penn State Beef Center, College computer labs, and selected field trips will comprise the facilities used to teach the course. In addition, students will conduct problem solving exercises on beef enterprises throughout the state. Beef Production and Management will be included in the series of other production courses offered in this department. Having completed the course, students will be able to: 1. Describe the necessary management procedures in a beef enterprise that are vital for efficient and profitable production. 2. Describe and understand the fundamentals of the various segments of the cattle industry. 3. List the important components of a business management plan for a beef operation, including short and long-term capital requirements, and a projected budget. 4. Discuss the trends and important issues facing the beef industry in Pennsylvania, the nation and world. 5. Critically evaluate business and production scenarios to provide an in depth analysis and a recommended course of action for improving a beef enterprise.

Enforced Concurrent at Enrollment: ANSC 201**ANSC 310: Dairy Cattle Production and Management**

3 Credits

Principles of dairy management including the dairy industry and control points associated with nutrition, genetics, lactation, reproduction, and housing.

Enforced Prerequisite at Enrollment: ANSC 201**ANSC 311: Poultry Production and Management**

3 Credits

The application of fundamental concepts and preparation for careers in the economically integrated commercial poultry industry. ANSC 311 Poultry Production and Management (4) Poultry Production and Management will provide a comprehensive review of the business-related and production oriented concepts associated with modern commercial poultry production. The course will provide the student with an overview of poultry nutrition, physiology, genetics, health, welfare, and products and describe how these disciplines integrate with effective and efficient management, quality control, and marketing of poultry and poultry products. Additional emphasis will be given to the economics of poultry production, as well as current issues and challenges facing the industry. Throughout the course, students will be provided with experiential learning opportunities and will be required to use this knowledge to solve problems and to evaluate "real world" production scenarios in order to develop effective management and production skills. Having completed this course, students will be able to: 1. Describe and evaluate the key operational and management factors in a commercial broiler, egg-layer, and turkey operation. 2. Describe and understand the important business, environmental, food safety, and welfare issues and challenges facing the poultry meat, and egg industries in Pennsylvania, the nation, and the world. 3. Critically evaluate poultry business and production scenarios to provide a fact based analysis and recommended course of action for solving management or production problems.

Enforced Prerequisite at Enrollment: ANSC 100**ANSC 315: Small Animal Health and Disease**

3 Credits

Introduction to the principles of small animal health, including the recognition, prevention and control of common small animal diseases. ANSC 315 Small Animal Health and Disease (3) Small animals play increasingly important roles in human lives. In addition to their function as pets, they serve the disabled; protect human well-being through the police, military and border inspection services; and act as research subjects for the development of medical and technological advances. Control of disease and promotion of animal health is important in all small animal industries and uses. This course is designed to provide a basic background in the principles of health in small animal species (primarily dogs and cats). Emphasis will be on the maintenance of a healthy animal system, including the recognition, prevention and control of the most common small animal diseases. Because of the increasing amount of information available to all people through the internet and media, students will be given tools to understand basic medical terminology and will practice reading and interpreting scientific research. In addition, the importance of animal disease on public health will be addressed. Diagnosis and treatment of disease will only be covered in a general, illustrative fashion. This course is not intended to train students in the diagnosis and treatment of specific diseases, but rather to

recognize the conditions and factors which encourage disease, but rather to recognize the conditions and factors which encourage disease spread and to understand how to control and rectify those situations. Because of the varied situations in which small animals function, a primary objective will be to be able to apply the principles of animal health and disease prevention to varied facets of the small animal industry (e.g. private ownership, veterinary medicine, shelter work and management, service animal breeding/training, biomedical and nutritional research). This course is designed for students planning to work in or having a special interest in the small animal industry, including veterinary medicine, the pet food and pet products industry, the working dog industry, live animal sales, pharmaceutical sales, and research.

Enforced Prerequisite at Enrollment: MICRB 106 or MICRB 201 or permission of program

ANSC 317: Horse Handling and Training

3 Credits

Responses of horses to various stimuli during the training period. Laboratory exercises involve extensive practice with young horses.

Enforced Prerequisite at Enrollment: ANSC 327 and approved level of horsemanship

ANSC 322: Animal Genetics and Selection

3 Credits

Fundamental principles of genetics as applied to breeding farm animals. ANSC 322 Animal Genetics and Selection (3) This course teaches fundamental concepts related to genetic variation and how genetic change occurs in domestic animal populations. Students are introduced to the structure of animal genomes and molecular genetics. We discuss transcription, translation and factors that alter gene expression. Examples of mutations that underlie phenotypic variation are given and the contrast between traits influenced by single genes versus variation across the genome is emphasized. Students will learn how genetic material is passed from parent to offspring and how principles of inheritance are extended to populations. The concept of heritability for quantitative traits and factors that determine breeding values and the rate of genetic change for quantitative traits are considered. We discuss how biotechnologies can be used to alter genetic response in domestic animals, how genetic change for one trait can alter expression of correlated traits, and the animal welfare consequences that can arise due to genetic change. Genetic relationships among animals and inbreeding control strategies such as crossbreeding are considered. Students are also exposed to controversial issues relating to genetics and selection. Students participate in a breeding simulation and contrast population genetic change throughout semester to changes observed by their classmates.

Enforced Prerequisite at Enrollment: BIOL 110 or (BIOL 11 and BIOL 12)

ANSC 322H: Animal Genetics and Selection - Honors

3 Credits

Fundamental principles of genetics as applied to breeding farm animals. ANSC 322H Animal Genetics and Selection - Honors (3) This course teaches fundamental concepts related to genetic variation and how genetic change occurs in domestic animal populations. Students are introduced to the structure of animal genomes and molecular genetics. We discuss transcription, translation and factors that alter gene

expression. Examples of mutations that underlie phenotypic variation are given and the contrast between traits influenced by single genes versus variation across the genome is emphasized. Students will learn how genetic material is passed from parent to offspring and how principles of inheritance are extended to populations. The concept of heritability for quantitative traits and factors that determine breeding values and the rate of genetic change for quantitative traits are considered. We discuss how biotechnologies can be used to alter genetic response in domestic animals, how genetic change for one trait can alter expression of correlated traits, and the animal welfare consequences that can arise due to genetic change. Genetic relationships among animals and inbreeding control strategies such as crossbreeding are considered. Students are also exposed to controversial issues relating to genetics and selection. The course consists of textbook and online readings, classroom activities and a laboratory section dedicated to problem solving. Students participate in a breeding simulation and contrast population genetic change throughout semester to changes observed by their classmates. Honors students will research genetic selection or conservation programs for a species of their choice early in the semester. The student will submit a report that details the traits emphasized in the breeding program, how animals are evaluated for genetic merit, methods and cost of seedstock dissemination, and genetic trends for the species. This information will be used to guide selection decisions made during the breeding simulation. At the end of the breeding simulation, students will select an animal they developed during the semester and create a marketing report for the animal that details their genetic merit, pedigree, level of inbreeding, and performance of progeny.

Honors

ANSC 324: Value Determination of Meat Animals

3 Credits

Live animal and carcass evaluation of cattle, sheep, and swine to determine value of market animals and meat products.

ANSC 327: Horse Production and Management

4 Credits

ANSC 327, Horse Production and Management, is a 4 credit course for students pursuing careers that are directly or indirectly associated with the horse industry. This course is an in-depth examination of a broad range of topics that are fundamental to the care and welfare of all horses, as well as to managing a successful equine business. The course begins with an examination of equine behavior, with a focus on safe handling. Horse selection and judging are discussed and practiced. General health care, specific diseases, and parasitology are all covered. Significant time is spent on nutrition, reproduction, and exercise physiology. Finally, topics like facility design and management, coat color genetics, and emergency preparedness are discussed. Students completing this course should be able to: 1) Demonstrate and describe the production and management techniques necessary for the successful operation of the horse enterprise. 2) Describe the utilization of the horse's unique athletic ability in various disciplines. 3) Evaluate and apply the relationship of form to function in the use of horses for work and recreation. 4) Discuss and utilize the principles of selection, breeding, feeding, and management of horses in a range of scenarios. 5) Summarize the scope and diversity of the horse industry

Enforced Concurrent at Enrollment: ANSC 201

ANSC 331: Physiology of Animal Reproduction

3 Credits

ANSC 331 is a study of reproductive anatomy, endocrinology, physiology, behaviors, and management in animals. Students will gain an understanding of the development, organization, and functions of the reproductive system with a focus on domestic animals. This will include understanding endocrine regulation of reproductive processes and how hormones affect cellular function. Comparisons to primates, rodents, wild species, and non-mammalian species will also be made. Students will develop an understanding of factors that affect reproductive success and how this knowledge can be used to regulate/manage reproductive processes of domestic animals, wildlife, and humans.

Enforced Concurrent at Enrollment: ANSC 201**ANSC 332N: Science and policy of global greenhouse gas emissions and management**

3 Credits

This interdomain course introduces students to the science and policy of greenhouse gas emissions. The course focuses on emissions from natural sources, energy production and food production. Policy components will introduce students to the fundamentals of environmental policy and examine key policy options for mitigating and managing emissions. Global in scope, the course will also address how emissions and policy options differ in developed and developing countries. Topics will include overviews of the global carbon cycle, agriculture and land use change emissions, history of global energy use and production, overview of global climate change policy, frontiers in climate, energy and agriculture policy, amongst others.

Enforced Prerequisite at Enrollment: ENGL 15

Cross-listed with: GEOG 332N, METEO 332N

General Education: Natural Sciences (GN)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

ANSC 346: Animal Enterprise Analysis

3 Credits

Evaluating livestock operations within and across enterprises has become a vital skill to being profitable today. The nexus of financial performance and production management is the catalyst to profitable and sustainable operations. This requires the skillset and digital fluency to evaluate and interpret whole farm and enterprise analyses. Throughout the course students will investigate interactions of key livestock enterprise management practices with enterprise and whole farm finances; utilize the information provided in the laboratory sessions to interpret farm financial reports and develop well-written reports and to further understand information for a livestock farm operation; evaluate and assess financial data from various livestock enterprises and make sound recommendations for management practices improvements; develop digital fluency skills for understanding financial reports and their influence on management concepts for improving farm practices and profits.

Enforced Concurrent at Enrollment: ANSC 201**ANSC 350: Dairy Problem Solving**

2 Credits

Students will use dairy records to analyze herd performance in order to identify bottlenecks for higher productivity. ANSC 350 Dairy Problem Solving (2) This course will develop case based approaches to problem solving using dairy records. Students will learn to read and interpret dairy herd improvement herd summaries. Herd performance will be benchmarked against parameters from similar herds across the Northeast in order to identify production bottlenecks. Popular dairy herd management software will be used to analyze bottlenecks more completely. Additionally, the use of herd management software to record cow health events and set up management routines will be demonstrated. Classes will include in depth analysis of nutritional, reproductive, culling, genetic and milking management parameters as they relate to the dairy enterprise. In addition, economic and fiscal management will be presented as it relates to various aspects of the dairy industry.

Enforced Concurrent at Enrollment: ANSC 310**ANSC 357: Equine Broodmare and Foal Care**

3 Credits

ANSC 357, Equine Broodmare and Foal Care, is a 3 credit course for students pursuing careers that are directly or indirectly associated with the horse industry. This course is an in depth study of late gestation broodmares, fetal development, pre-foaling indicators of readiness for birth, and post-partum care and management of the mare and foal. Students completing this course should be well prepared to be employed on breeding farms as broodmare or foaling managers. Additionally, students completing this course should be able to: 1) Describe the basic endocrinology of gestation in the mare. 2) Summarize the development of the fetus during gestation. 3) Compare and contrast normal and the abnormal foaling process. 4) Recognize and understand the meaning of pre-foaling predictors. 5) Assist with the foaling process as needed.

Enforced Prerequisite at Enrollment: ANSC 327**ANSC 389: Supervised Experience in College Teaching**

1-3 Credits/Maximum of 4

The Supervised College Teaching course provides selected undergraduates with formal, supervised teaching experience in an Animal Science course. Faculty recruit students who excel in a particular course to serve as undergraduate teaching assistants for subsequent offerings of that course. Duties may include peer tutoring, teaching, or laboratory assistance, and developing and/or evaluating course activities and materials. Students participating in this course will develop a deeper understanding of the course material by actively teaching the material. The course is only available to students who are invited to serve as teaching assistants for an Animal Science course and enrollment is by permission of the instructor.

Enforced Prerequisite at Enrollment: Permission of program

ANSC 395: Animal Science Internship

1-12 Credits/Maximum of 12

Supervised field experience and study related to the student's major professional interest. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: Animal Sciences majors; 6 credits in major plus approval of proposed assignment by instructor prior to advance registration deadline in semester preceding the semester in which the assignment is to be completed
Full-Time Equivalent Course

ANSC 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

ANSC 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

ANSC 410: Advanced Dairy Herd Management

4 Credits

Application of dairy herd management principles using case studies and actual dairy farm situations.

Enforced Prerequisite at Enrollment: ANSC 310

ANSC 413: Transgenic Biology

3 Credits

The fundamental concepts, relevant technologies, and applications of genetically engineered animals, with an emphasis on livestock and poultry species, are discussed in the class. Topics will include the history and progression of the animal genetic engineering field, the development and applications of genome editing technologies (e.g., CRISPR/Cas), and discussions about the regulations and ethics of genetically engineered animals. Upon completion of this course, students will be able to: (1) Provide an overview of how the developments in the basic sciences such as Molecular biology, Cell biology, Developmental biology, and Genomics are being applied to generate Transgenic animals; (2) Discuss the history and current state of animal genetic engineering; (3) Design a transgenic animal using gene-editing technologies; (4) Skillfully elaborate on ethical and regulatory considerations regarding genetically engineered animals. Assessments include in-class quizzes, take-home exams, group presentations, and class participation. There is a greater emphasis on finding and interpreting information from available resources than on memorization of materials.

Enforced Prerequisite at Enrollment: ANSC 322 or BIOL 222

ANSC 415: Companion Animal Behavior

3 Credits

Detailed study of companion animal behavior; including individual, developmental, and environmental bases of behavior with applied demonstration and discussion.

Enforced Prerequisite at Enrollment: BIOL 110

ANSC 418: Nutrient Management in Agricultural Systems

3 Credits

AGECO 418 / ANSC 418 / SOILS 418 Nutrient Management in Agricultural Systems is a senior-level course that applies the fundamentals of animal, plant and soil sciences to the issues and solutions in the area where livestock production intersects with water and air quality. Modern regionalization and concentration of animal production systems comes with environmental implications due to a net influx of nutrients to livestock farms. While some nutrients leave the farm in the form of animal products, 60 to 70% of the nutrients are excreted and applied to nearby crop land. If not properly managed these nutrients represent a risk to environmental quality. Students in this cross-listed course gain both scientific and practical understanding of sound nutrient management principals and strategies. The course considers big picture concepts such as nutrient cycling as well as farm-level implementations such as Nutrient Management Planning.

Enforced Prerequisite at Enrollment: (BIOL 11 and BIOL 12) or BIOL 110 or BIOL 127 or BISC 3

Cross-listed with: AGECO 418, SOILS 418

ANSC 419W: Applied Animal Welfare

3 Credits

Assessment of management practices impacting animal welfare; devoted to livestock species, companion animals, captive exotic species, and animals in research.

Enforced Prerequisite at Enrollment: ANSC 201 or 6 credits of biology
Writing Across the Curriculum

ANSC 420: Animal Nutrition and Feed Technology

4 Credits

Feedstuff evaluation, quality control, handling, storage: life cycle feeding of beef cattle, dairy cattle, sheep, swine, horses, and poultry.

Enforced Prerequisite at Enrollment: ANSC 301

ANSC 421: Poultry Evaluation and Selection

3 Credits

Poultry Evaluation and Selection is a hands-on course that will provide the opportunity for students to apply the principles used and standards that directly relate to evaluate the evaluation and selection of Purebred and meat breeding birds, egg production traits, as well as the processing aspects of the poultry industry. In addition, the course will cover practical and safe handling techniques of live poultry and poultry products. This course is taught every spring semester.

Enforced Prerequisite at Enrollment: ANSC 100

ANSC 422W: Dairy Cattle Evaluation and Selection

3 Credits

The course will focus on understanding the role of records and available information in designing breeding programs. Students will gain an understanding of breeds, conformation and genetic evaluation methods throughout the world. Topics will include type appraisal and linear classification, reading information sources such as sire summaries and pedigrees, and evaluating and integrating data to make herd breeding program decisions and merchandising selections. Industry breeding programs and current issues will be emphasized. A major focus throughout the course will be information management to make informed breeding decisions to maximize genetic progress and herd improvement.

Enforced Prerequisite at Enrollment: ANSC 322 or BIOL 222
Writing Across the Curriculum

ANSC 423: Comparative Physiology of Domestic Animals

3 Credits

A comparative approach to understanding body function in domesticated avian and mammalian species.

Enforced Prerequisite at Enrollment: BIOL 110

ANSC 424: Livestock Breeding Evaluation and Selection

3 Credits

Evaluation and selection of beef cattle, sheep, swine, and horses; critical analysis of performance records and genetic evaluations.

Enforced Prerequisite at Enrollment: ANSC 324

ANSC 425: Principles of Avian Diseases

3 Credits

Principles of pathogenesis and control of diseases in poultry and other avian populations. Case material used where appropriate. ANSC 425 / VBSC 425 Principles of Avian Diseases (3) This course discusses the major diseases of domestic poultry, with etiology, prevention, and treatment reviewed on each disease. Since many of these diseases also affect wild birds and pet birds these are also reviewed. Lastly, avian disease with zoonotic (human public health) potential are also discussed in the course. This course is required by those seeking a poultry minor. Previous coursework in pathogenic microbiology is beneficial.

Enforced Prerequisite at Enrollment: (MICRB 106 and MICRB 107) or (MICRB 201 and MICRB 202) Enforced Concurrent at Enrollment: ANSC 211 and ANSC 311

Cross-listed with: VBSC 425

ANSC 426: Advanced Judging and Selection

2 Credits/Maximum of 4

ANSC 426 provides students with critical thinking and communication skills through evaluation and selection of animals. This course provides intensive training in evaluation and selection of dairy, poultry, horses or meat animal livestock using subjective and objective measurements as well as the use of oral reasons to explain and defend decisions.

Enrolled students may compete against students from other colleges and universities at regional and national contests.

Enforced Prerequisite at Enrollment: ANSC 225 or ANSC 217 or ANSC 421 or ANSC 424 Recommended Preparation: AED 322

ANSC 427: Milk Secretion

3 Credits

Development and physiology of the mammary gland and factors which affect the amount and composition of milk produced.

Enforced Prerequisite at Enrollment: ANSC 201

ANSC 429: Advanced Beef Cattle Production

3 Credits

Application of scientific and business principles to practical production and management issues using case studies or selected live settings. ANSC 429 Advanced Beef Cattle Production (3) This course was developed to train students to critically evaluate management, facility, and husbandry practices of working beef cattle operations. Students visit owner facilities where they gather necessary information by interacting with the owners and inquiring about the owner's practices. The students use knowledge gained through previous courses and material covered in class to make recommendations. The students work in teams to present to the owners possible solutions to their problems. Each team will present a 30 minute critical evaluation of each case study with the owners being present. Students interact and answer questions concerning their presentation from the owners, students, and faculty. Students are introduced to the NCBA and Cattle FAX which they can use to stay abreast of beef industry concerns after completion of the class. If available, a field trip to either national or Pennsylvania state agriculture offices will occur.

Enforced Prerequisite at Enrollment: ANSC 309

ANSC 431: Physiology of Animal Reproduction

4 Credits

This course is a detailed study of reproductive processes in animals. Students will gain a fundamental understanding of the development, organization and functions of the reproductive system with a focus on domestic animals. This will include understanding endocrine regulation of reproductive processes and how hormones affect cellular function. Comparisons to primates, rodents, wild species and non-mammalian species will also be made. Students will develop an understanding of factors that affect reproductive success and how this knowledge can be used to regulate/manage reproductive processes of domestic animals, wildlife and humans. Recommended Preparations: ANSC 300

Enforced Prerequisite at Enrollment: ANSC 201 and BIOL 110

ANSC 432: Techniques in Cattle Reproduction

1 Credits

Demonstration and practice in cattle artificial insemination technique and semen handling. Instruction in reproductive systems anatomy, estrous cycle and estrus synchronization programs. ANSC 432 Techniques in Cattle Reproduction (1) This course provides instruction in the technique of artificial insemination and the associated applications of this technology. A minimum level of expertise in this technique will

be achieved through an understanding of cattle reproductive system anatomy, the estrus cycle and estrus synchronization programs. There will be a significant amount of time spent practicing artificial insemination technique in cows. This will be accompanied by instruction in semen handling and the proper use of the equipment used to store semen and to inseminate a cow. Evaluation will be based on proficiency in artificial insemination technique and semen handling in addition to a written exam. This course is offered during the fall semester by appointment.

Enforced Prerequisite at Enrollment: ANSC 309 or ANSC 310

ANSC 437: Equine Facilitated Therapy

3 Credits

Equine Facilitated Therapy uses equine-related activities to contribute positively to the well-being of people with disabilities. AEE 437 / ANSC 437 Equine Facilitated Therapy (3) The primary goal of this course is to acquaint the participant to equine facilitated therapy (therapeutic riding) and to introduce them to individuals who benefit/participate in such programs through lecture, audio-visual media, discussions, program visitation, independent research and via a practicum at a therapeutic riding program. Additionally, this course is designed to introduce the participant to various exceptional characteristics and conditions which may benefit from exposure/participation in equine facilitated therapy and other animal related therapy programs.

Enforced Prerequisite at Enrollment: ANSC 327
Cross-listed with: AEE 437

ANSC 447: Equine Exercise Physiology

3 Credits

ANSC 447, Equine Exercise Physiology, is a 3 credit junior/senior-level course for students interested in the basic and applied aspects of exercise physiology of the horse. The course begins with discussion on the history of equine sport. Students then explore the biochemistry and energetics of exercise followed by the anatomy and physiology that make the horse a unique mammalian athlete. The course then moves to the more applied aspects of exercise and training responses and training regimes specific for different disciplines. Finally, student will explore important management practices associated with the care of the equine athlete. Upon completion of this course students should be able to: 1. Apply an understanding of form and function of the horse to the diverse and unique athletic capabilities of the horse. 2. Discuss physiologic responses of the muscular, skeletal, respiratory, and cardiovascular systems of the horse to various exercise and training regimes. 3. Prepare and/or evaluate appropriate training regimes for horses preparing for different disciplines. An important component of this will be the ability to use knowledge of the basic science to improve application. 4. Design and describe physical therapy strategies for horse recovering from exercise or training related injuries. 5. Communicate to clients, customers and peers important information about exercise physiology, training, and exercise related issues, enabling them to improve the health and performance of their horse

Enforced Prerequisite at Enrollment: BIOL 110 or ANSC 201 or ANSC 327
General Education: Natural Sciences (GN)
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Integrative Thinking

ANSC 450: Dairy Farm Management Systems

3 Credits

Capstone course emphasizing integration of dairy farm management principles into whole farm systems.

Enforced Prerequisite at Enrollment: ANSC 310 and ANSC 350 and ANSC 410 or permission of program

ANSC 451: Dairy Systems Analysis

1-2 Credits/Maximum of 2

Students will evaluate all systems of a working dairy farm business. ANSC 451 Dairy Systems Analysis (1-2 per semester/maximum of 2) This course will provide an overview of all areas of dairy business management. This course is designed to complement the dairy production courses and is meant to train students to organize material in a farm evaluation format. Various instructors (within their areas of expertise) as well as industry experts and dairy producers will be utilized to provide students with current concepts in dairy management. Requirements of the course include working in teams to visit, evaluate and make a presentation about a dairy farm business including an action plan for improving the business.

Enforced Prerequisite at Enrollment: ANSC 310 Enforced Concurrent at Enrollment: ANSC 410

ANSC 456: Animal Microbiomes

3 Credits

This course will be focused on three main aspects of the application of 'Omics' techniques in research to answer real-world problems. Students will be introduced to the concepts of multiple 'Omics' techniques, study designs, and data analysis methods. The roles played by the microbiome in different species will be discussed. Those concepts will then be put into practice through appraisal of primary literature. By the end of the semester, students will be able to apply the concepts learned to discuss scientific literature and be familiar with data analysis techniques.

Enforced Prerequisite at Enrollment: (MICRB 106 or MICRB 201)
Recommended Preparation: (STAT 200 or STAT 240 or STAT 250)

ANSC 457: Equine Reproduction and Breeding Farm Management

3 Credits

Equine Reproduction and Breeding Farm Management is intended to expand on the knowledge of equine reproduction and breeding farm management acquired in other classes. The students will get hands on experience in artificial insemination of mares and semen collection of stallions. Having completed the course, students will be able to: A. Collect semen from a stallion. B. Assess seminal characteristics and process the chilled semen to be sent to another farm. C. Artificially inseminate a mare. D. Apply scientific principles to make the decisions necessary to manage an equine breeding facility. The information covered will include but not be limited to reproductive management of the mare and stallion, foaling, and neonatology. Evaluation will typically be based on written tests, research and presentation of a selected topic, and laboratory attendance and participation.

Enforced Prerequisite at Enrollment: ANSC 327 and permission of program

ANSC 467W: Equine Nutrition and Feeding

3 Credits

Equine gastrointestinal anatomy and physiology; energy and nutrient requirements for body functions; applied interrelationships between nutrition, health, and performance. ANSC 467 Equine Nutrition and Feeding (3) is a 3 credit junior or senior-level course emphasizing the application of biological principles to the proper nutrition of horses. Students scheduling this course must first complete ANSC 301. Course objectives are that upon completion of the course, students should be able to a) Apply an understanding of form and function of the equine gastrointestinal tract to actual feeding management problems associated with athletic performance or health concerns; b) Describe the nutrient and energy requirements of horses in different physiologic states and apply these in diet evaluation and formulation; c) Communicate to clients, customers and peers important information about equine nutrition, enabling them to improve the health and performance of their horse without having to take a course on equine nutrition. Each student will complete a 3000 to 3500 word paper on how some aspect of nutrition might be applied to improve equine health or performance. The writing project will involve an oral presentation, multiple drafts and require students to review and provide feedback on each others' work. Students will be evaluated via a series of assigned homework, exams, class participation, and the overall writing project.

Enforced Prerequisite at Enrollment: ANSC 301
Writing Across the Curriculum

ANSC 477: Riding Instructor Training

1 Credits

Management of equestrian riding lessons, teaching techniques, lesson plans, program planning, time management, and handling of mounted groups. ANSC 477 Riding Instructor Training (1) The Equine Riding Instructor Training course relates to teaching, equestrian skills, developing lesson plans, program planning, events coordination, staff management, time management, and handling of mounted groups from beginners to more advanced level riders. There are many opportunities for riding instructors in the equine industry throughout the United States. Career areas include breed associations, cooperative extension, and equine facilities/stables. This course will help give students the tools to be safer and better-prepared equine riding instructors. Successful completion of the course implies students will be able to: Conduct horse riding lessons at all horsemanship skill levels, understand safe horsemanship; manage large mounted equestrian groups; and develop appropriate lesson plans.

Enforced Prerequisite at Enrollment: ANSC 327 or a demonstrable level of horsemanship

ANSC 480: Animal Growth and Development

3 Credits

Animal growth and development is the understanding of tissue interactions as they influence each other and whole animal complexity from conception to maturity. An understanding of growth and development in livestock species improves scientific advancements and improves efficiency in which animals reach growth or activity goals placed on them by producers, trainers, and caretakers. This course focuses on growth and development of meat animal species and its

influence on economically important tissues and final meat quality, however concepts are applicable across mammalian species.

Prerequisites: ANSC 201 Recommended Preparation: ANSC 300

ANSC 488: Biology of germ cells and assisted reproductive technologies

3 Credits

Germ cells are highly specialized cells that give rise to the next generation. The life history of germ cells from formation of primordial germ cells in the early embryo to formation of mature gametes will be traced in several mammalian species. Gamete maturation, fertilization and early embryo development will be covered in detail to highlight the unique features of these processes and the close relationship between germ cells, early embryonic cells and pluripotent stem cells. Special emphasis will be placed on the processes of meiosis and epigenetic reprogramming that occurs in both germ cells and early embryos. The effect of environmental factors such as diet, stress, endocrine disruptors on germ cell and early embryo reprogramming will be discussed. In the second half of the course, we will discuss how knowledge of germ cell physiology has led to the widespread use of assisted reproductive technologies (ART) which have fundamentally changed the way fertility is managed in animals and humans. ART topics covered include artificial insemination, gamete manipulation, in vitro embryo production, preimplantation genetic testing and control of ovulation. We will discuss how these technologies are used to treat infertility in both men and women. We will also cover the potential benefits and challenges of recent efforts to develop male and female non-hormonal contraceptive methods. Finally, the ethical and societal implications of advanced reproductive technologies will be discussed.

Enforced Prerequisite at Enrollment: BIOL110

ANSC 494: Undergraduate Research

1-6 Credits/Maximum of 6

Independent undergraduate research directed by an Animal Science faculty supervisor.

Enforced Prerequisite at Enrollment: Junior or senior status, approval of an Animal Science faculty supervisor, and approval of the Undergraduate Program Coordinator

ANSC 494H: Honors Thesis Research

1-6 Credits/Maximum of 6

Independent study directed by faculty supervisor culminating in an Animal Science honors thesis.

Enforced Prerequisite at Enrollment: Junior or senior status in the Schreyers Honors College and permission of an Animal Science honors advisor
Honors

ANSC 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

ANSC 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

ANSC 498: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

ANSC 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Anthropology (ANTH)

ANTH 1: Understanding Humans

3 Credits

ANTH 1 tells the story of humankind, how we as a species developed, and how modern Homo sapiens have developed more cultural complexity over time, moving, in the last 12,000 years, from a worldwide small population of hunter-foragers to a population so large that it strains the planet's resources, with nation-states competing for the loyalty of their citizens with powerful ethnic and religious enclaves and also with global corporations. All of these trends – biological, demographic, and cultural – are viewed from the perspective of evolution away from our earliest human patterns, toward the effects of demographic density and sociocultural complexity. The course takes a question-oriented approach to show the relevance of anthropology in today's world. Lectures are structured around what it means to be human – from a perspective of either biological anthropology, sociocultural anthropology, archaeology, or linguistics. Overall the course has three main goals: 1) provide an introduction to anthropology's subject matter, human cultural and physical characteristics, throughout our species' geographical and chronological range; 2) introduce students to some of the biological, ethnographic, archaeological, and linguistic methods that anthropologists rely on to reach their conclusions; and 3) impart a framework of knowledge that will facilitate understanding of one's own place in human history, in the larger culture, community, family, and household.

Bachelor of Arts: World Cultures

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

General Education: Social and Behavioral Science (GS)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

ANTH 2N: World Archaeology

3 Credits

ANTH 2N (World Archaeology) introduces students to the concepts and evidence used in understanding the development of cultural diversity on our planet. This course provides an interdisciplinary overview of the major developments in the early human past. Beginning with hominid tool-users, this course tracks the evolution and eventual spread of humans to all corners of the earth, Ice Age hunter-gatherers, the origins of art, the origins of agriculture and settled village life, and the rise and fall of complex urban civilizations. Through cross-cultural comparisons of indigenous cultures of the past and anthropological theory, students are exposed to topics such as the origins of gender differences in the division of labor, the role of ideology in cultural adaptation, differential access to technologies, economic production, artistic expression, the origins of social inequality, the ways that symbolic representation in the past shaped the nature of shared meaning and values, and the mechanisms of cultural change. ANTH 2N provides a unique perspective for understanding our increasingly complex and diverse contemporary world. Specifically, students will learn 1) archaeological approaches for identifying variability in the development of cultural systems; 2) anthropological concepts and archaeological evidence used to evaluate factors that shape the diversity of past cultural systems; and 3) the tools to explore the dynamic interaction between scientific process, reconstruction of past cultures, and current issues facing societies in an ever-changing world. The course also emphasizes ethical considerations within archaeology to illustrate the role of representations, values, norms, and traditions on reconstructions of past human societies. ANTH 2N fulfills 3 credits of the General Education Integrative Studies requirements by integrating two General Education Domain fields: the Social and Behavioral Sciences (GS) and the Humanities (GH). Students develop competency for combining knowledge across different domains and interpreting the past human experience in light of current issues and concerns. Students thus gain skills in evaluating their own values relative to the deep history of the human past and different ways for structuring and understanding the world. The course also fulfills an International Cultures (IL) requirement by providing an informed perspective on human cultural and behavioral diversity in the past. To achieve these educational objectives, ANTH 2N draws on multiple teaching formats and resources, including classroom lectures, hands-on labs, and readings from a textbook. Students are evaluated based on two exams and their participation and two quizzes in lab section. ANTH 2N is offered every semester.

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

General Education: Humanities (GH)

General Education: Social and Behavioral Science (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

ANTH 8: Aztec, Inca, Maya

3 Credits

ANTH 8 is a comparative survey of the development of the pre-Columbian Latin American civilizations. It is a general survey of three of the

great complex societies of the New World - the Aztec and the Maya of Mesoamerica (Southern Mexico and Northern Central America), and the Inca of the Central Andes of South America. Both the Aztec and the Inca empires were thriving in the 16th century when Europeans arrived, and are known almost completely from ethnographic information such as oral and written records. The Classic Maya were much earlier (AD 250-900), and are known primarily through archaeological research, but also through the lens of the New World's only sophisticated writing system. The course informs students about the methods of archaeology and places these cultures in a broader comparative perspective. By studying archaeological evidence from several sites we will address a few important theoretical issues in archaeology. These issues include: 1) the relationship between people, the environment, and social organization 2) the study of elites and commoners in archaeological cultures, and 3) the use of historical and archaeological data in reconstructing the past. Throughout the semester we will also examine varied lines of evidence, including archaeological artifacts, human remains, architecture, murals, sculpture, and historical texts (esp. codices and colonial accounts) to assess the role of evidence and theory in how we conceptualize the past. The information presented emphasizes the nature of these societies, analysis and interpretation of their basic institutions, religions, world views, as well as their culture histories. Central to the presentation is the degree to which modern Latin American cultures and populations have deep cultural and biological roots in the Pre-Columbian past, and many ethnographic models are discussed. Within the context of each segment, sociological concepts such as institutions, households, stratification, political economy, urbanization, and a host of others are used as organizing features. Issues of gender, ethnicity, and class structure are also discussed. Issues such as the peopling of the Americas, the origins of agriculture, and other Mesoamerican cultures are also reviewed.

Bachelor of Arts: World Cultures
 Bachelor of Arts: Social and Behavioral Sciences
 International Cultures (IL)
 General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking

ANTH 9N: Rise of Civilization in the Old World

3 Credits

ANTH 9N introduces students to the anthropology of early complex societies in the Old World, with an emphasis on the civilizations of Mesopotamia, Egypt, the Indus Valley and China. Course information emphasizes the nature of these societies, analysis and interpretation of their basic institutions, their religions and world views, and their culture histories. Within the context of each segment sociological concepts such as "institution", "household", "stratification", "political economy", "urbanization", and a host of others are used as organizing features. Issues of gender, ethnicity, and class structure are also discussed, and much information is presented in weeks 2 and 3 that is pertinent to an understanding of human biological variation and our cultural attitudes toward it, with obvious implications for issues of race. The course is much broader, however, in that it attempts to place the emergence of these ancient civilizations into the overall perspective of the larger evolutionary career of the human species in the Old World, including human biological and cultural evolution during the later stages of the Paleolithic, the origins and spread of early agriculture, etc. During the first part of the course there is also a series of introductory lectures designed to inform students about what archaeology is and how prehistoric archaeologists carry out scientific research to reconstruct and explain

what happened in the past. A great deal of emphasis is placed on ideas, concepts, and theories used by anthropological archaeologists to design and interpret their research and to explore not only what happened in the past, but to develop ideas about why things happened as well. Also included are lectures about archaeological finds or issues that have been particularly well publicized and about which students often express considerable curiosity. The main objectives are a) to expose students to a series of historically significant non-modern, non-Western societies and cultures using overtly evolutionary, behavioral, and sociological perspectives; b) to enlighten students concerning the kinds of extant information that are available for these societies, how research is designed to acquire new data, and how scholar's interpret these data, and c) to stress the nature of the agrarian human condition out of which modern societies so recently emerged, and under which people in many developing societies still live. Central to the latter are issues of subsistence agriculture and human demography. Central to ANTH 9 are comparisons among several great Old World civilizations, comparisons with other world civilizations and cultures, and comparisons with modern society.

Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 Bachelor of Arts: Social and Behavioral Sciences
 International Cultures (IL)
 General Education: Humanities (GH)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking

ANTH 11: North American Archaeology

3 Credits

The story of the indigenous peoples of North America and its parallels with developments elsewhere in the world have captured the imaginations of many people over the years. But it takes more than imagination to explore this saga -- it takes the careful application of archaeology. This course surveys the archaeology of North America, including Mexico. The archaeological history of North American Indians is traced from their origins in Eurasia over 14,000 years ago into the period of European colonization. An ecological approach is taken to the examination of all major regions of the continent. The Eastern Woodlands coverage will include the many burial mound and temple mound cultures of the region. The objectives of the course are to familiarize students with the wide range of human adaptations that prevailed over time and space, to link the evolution of those adaptations to the surviving descendant native cultures of North America, and to provide students with a framework for understanding the many archaeological sites that are open to the public across the United States, Canada, and Mexico. A secondary objective of the course is to familiarize students with the techniques and methods archaeologists use to test hypotheses using archaeological data. The course takes an explicitly scientific approach to the subject, one that is based upon well-established evolutionary and ecological theory and is also firmly grounded in the evidence. The course makes extensive use of images of sites and artifacts as well as other graphics that are necessary for a comprehensive understanding of the subject. ANTH 11 fulfills both US and IL requirements. The course is structured to cultivate students' understanding of the similarities and differences among past Native American cultures of North America. Additional international focus is provided through exploration of the

archaeological evidence for indigenous cultural traditions in locations within present-day Canada (Arctic, Iroquoians) and Mexico (Archaic, Classic, Post-Classic periods). The course fulfills the IL designation by introducing students to cultural and behavioral variation and cultural achievements of indigenous North Americans. In addition, the course fulfills the US designation by interweaving discussion of the significant influence and impact of Native American history/culture on the history and development of the United States. The ethics associated with North American archaeology and their impact on US culture and cultural perception are also explored.

Bachelor of Arts: World Cultures
 Bachelor of Arts: Social and Behavioral Sciences
 International Cultures (IL)
 United States Cultures (US)
 General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Integrative Thinking

ANTH 21: Introductory Biological Anthropology

3 Credits

ANTH 21 (Introductory Biological Anthropology) is designed to introduce students to the fundamental principles and findings of human evolutionary biology. This course provides an overview of current data and theory related to biological variability among living and past human populations and among the extensive fossils that document human evolution. Through comparisons between humans and other mammals, particularly the living nonhuman primates, this course provides an essential comparative zoological perspective with which we can understand the origins, evolution, and diversity of our species. The course is structured around the theory of evolution, the unifying concept of biological anthropology. Throughout the course, students will be introduced to evolutionary theory as well as to the mechanisms of evolution and their relevance for understanding variation in past and present human populations. The course covers current research and topics in human evolutionary biology including evolutionary theory, natural selection, molecular and population genetics, human variation, human biology, primate diversity and behavior, and the paleontological record of human evolution. This course not only introduces students to the core concepts within the field of Biological Anthropology, but also provides a rich foundation for understanding the human condition from a biological and anthropological perspective. By the end of the course, students will be able to 1) explain the theory of evolution and the mechanisms underlying this process; 2) discuss human variation and human biology within the context of primate diversity and adaptations; 3) describe the major behavioral and morphological trends over the course of human evolutionary history and how they relate to modern human diversity. ANTH 21 is one of three core courses required of majors and minors in the Department of Anthropology and can also be used to fulfill three credits of General Education in the Natural Sciences. The course consists of two lectures and one lab section per week. Lab exercises and hands-on demonstrations help students understand the principles and findings of biological anthropology. Brief written lab exercises foster interactive learning.

Bachelor of Arts: Natural Sciences
 General Education: Natural Sciences (GN)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking

ANTH 22: Humans as Primates

3 Credits

Humans as Primates is intended to introduce the student to the biological bases of human anatomy and behavior by drawing comparisons to the behavior and biology of our closest living relatives, the non-human primates. The principal goal of the course is to critically evaluate arguments concerning what uniquely makes us human and the role of genetics, environment, and evolutionary history on the development of human behavior and anatomy. The course will draw heavily on studies of living non-human primates as well as evolutionary theory, paleoanthropology, and evolutionary psychology to address issues such as human growth and development, dietary adaptations, human variation, human communication, intelligence, reproduction, violence and aggression, and culture. Humans as Primates is divided into four main thematic units each designed to present a set of related lessons exploring the role of biology in various aspects of human life. The first unit provides the foundation for the course by introducing the place of humans in the natural world. This unit presents a survey of living primates and their relationship to humans as well as an overview of evolutionary processes and human evolution. The other units present topics in human biology, communication, and social behavior focusing specifically on topics of importance to current events and aspects of popular culture and modern life. This course should be of significant interest to students in a diversity of disciplines including the biological and social sciences as well as anyone interested in human behavior. The course can be used to fulfill three credits of General Education in the Natural Sciences (GN). As such this course will help students understand how scientific information from a variety of disciplines can be used to investigate and understand human biology and behavior. The course will introduce the student to methods of data collection and analysis, foster critical thinking skills, and provide a rich background for understanding human diversity, human biology, and behavior. Students will have the opportunity to synthesize information from a broad range of disciplines to develop a fuller understanding of the biological basis of human behavior.

General Education: Natural Sciences (GN)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning

ANTH 40: Biocultural Evolution

3 Credits

Examination of evolutionary models of the development of the human capacity for culture, and of culture as an adaptive mechanism.

Bachelor of Arts: Social and Behavioral Sciences

ANTH 40Q: Biocultural Evolution

3 Credits

Are we "stuck" with prehistoric genes in a rapidly changing ecological and cultural environment? What does our evolutionary history really tell us about human nature, health, and well-being? To answer these questions, we must explore the complex interplay between human biology and culture in shaping the human species throughout our evolutionary history - our biocultural evolution. This course is about how we shape our biology, perhaps just as much as it shapes us. Each week, we will explore key

topics in human evolution from a biocultural perspective. Through this lens, we will learn how human evolutionary biology shapes our diet, physical activity, reproduction, diseases, and our capacity for culture. In turn, we also examine how our culture has shaped our biological capacities and limitations. Through these explorations, students will critically examine the processes and outcomes of biocultural evolution, including feedbacks between our biology and culture, and the timescales at which evolution occurs.

Bachelor of Arts: Natural Sciences

Bachelor of Arts: Social and Behavioral Sciences

General Education: Natural Sciences (GN)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

Honors

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Integrative Thinking

ANTH 45N: Cultural Diversity: A Global Perspective

3 Credits

ANTH 45N (Cultural Diversity: A Global Perspective) is designed to introduce students to the concepts and evidence used in understanding the cultural diversity of our planet. "Culture" can be defined as a socially transmitted system of shared conventions, beliefs, practices, and behavior. Cultural systems vary across time and space, and dynamic cultural processes are involved in how humans interact with each other, other organisms, and the environment. This class provides students with the tools to approach questions about the diversity of human cultures, how they vary across different societies, how different people experience and represent social worlds, why they change, and the importance of understanding such variability for the global challenges we face in an ever-changing world. Anthropology takes as its subject the entirety of the human experience, in all of its diversity through time and space. Anthropology thus provides a unique perspective for understanding our increasingly complex and diverse contemporary world. Specifically, ANTH 45N has three goals: 1) Introduce students to anthropological approaches for describing variability in systems of shared human thought, belief, and social practice. 2) Utilize anthropological concepts and evidence to evaluate factors that shape the diversity of cultural systems over time and space. 3) Provide students the opportunity to explore the dynamic interaction between contemporary cultural systems, histories of change, and the physical environment. ANTH 45N is designed to integrate two General Education Domain fields: the Social and Behavioral Sciences (GS) and the Humanities (GH). The course integrates different methods of inquiry and different forms of knowledge about the many factors that interact to influence patterns of convention, practice, and diverse ways of life. ANTH 45N enables students to develop competency for integrating knowledge across different domains and interpreting the human experience through multiple social, historical, and environmental perspectives. Students thus gain skills in evaluating their own values relative to the broad context of diverse ways for understanding the world. To achieve these educational objectives, ANTH 45N draws on multiple teaching formats and resources, including classroom lectures and discussions, readings from general textbooks and primary literature, critical analysis of ethnographic film, and online written materials and podcasts.

Bachelor of Arts: World Cultures

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

United States Cultures (US)

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

ANTH 45Q: Cultural Diversity: A Global Perspective

3 Credits

ANTH 45Q (Cultural Diversity: A Global Perspective) is designed to introduce students to the concepts and evidence used in understanding the cultural diversity of our planet. "Culture" can be defined as a socially transmitted system of shared conventions, beliefs, practices, and behavior. Cultural systems vary across time and space, and dynamic cultural processes are involved in how humans interact with each other, other organisms, and the environment. This class provides students with the tools to approach questions about the diversity of human cultures, how they vary across different societies, how different people experience and represent social worlds, why they change, and the importance of understanding such variability for the global challenges we face in an ever-changing world. Anthropology takes as its subject the entirety of the human experience, in all of its diversity through time and space. Anthropology thus provides a unique perspective for understanding our increasingly complex and diverse contemporary world. Specifically, ANTH 45Q has three goals: 1) Introduce students to anthropological approaches for describing variability in systems of shared human thought, belief, and social practice. 2) Utilize anthropological concepts and evidence to evaluate factors that shape the diversity of cultural systems over time and space. 3) Provide students the opportunity to explore the dynamic interaction between contemporary cultural systems, histories of change, and the physical environment. ANTH 45Q is designed to integrate two General Education Domain fields: the Social and Behavioral Sciences (GS) and the Humanities (GH). The course integrates different methods of inquiry and different forms of knowledge about the many factors that interact to influence patterns of convention, practice, and diverse ways of life. ANTH 45Q enables students to develop competency for integrating knowledge across different domains and interpreting the human experience through multiple social, historical, and environmental perspectives. Students thus gain skills in evaluating their own values relative to the broad context of diverse ways for understanding the world. To achieve these educational objectives, ANTH 45Q draws on multiple teaching formats and resources, including classroom lectures and discussions, readings from general textbooks and primary literature, critical analysis of ethnographic film, and online written materials and podcasts.

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

United States Cultures (US)

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

Honors

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

ANTH 60N: Society and Cultures in Modern Israel

3 Credits

Israel is often portrayed in media and popular society in incomplete or distorted terms. In some cases, it is presented as a troubled, violent, dangerous place, as a place permeated by long-standing hatred between Jews and Muslims, Israelis and Arabs, Israelis and Palestinians. In others, the focus is on the state's role as the center of Judaism—a home of the "chosen people" and the source of inspiration for one of the world's great monotheistic religions. Some present it as a model for how a democracy can succeed under trying demographic, historic, and geopolitical circumstances. Others frame Israel as a place of conflagration (armageddon) that will usher in a messianic period or as a nation-state with a discriminatory regime that privileges its majority population over its minority and administers oppressive policies over Palestinians in the occupied territories it captured in the 1967 War. While there are elements of truth in each of these presentations, the full picture of Israeli society is much richer and more complex. This course teaches students to cut through the mythology, and develop a more accurate understanding of what Israel is in the 21st century. Since Israel is a culturally, ethnically, and religiously diverse society, it is only possible to understand the true nature of modern Israel through exploring the many sub-groups that comprise the Israeli citizenry. The course looks at Ashkenazi and Mizrahi Jews (both religious and secular), Muslim and Christian Palestinian Arab citizens of Israel, Ethiopian-Israelis, Russian-Israelis, Bedouins, and Druze. For each group, it looks at demographics, background histories, migration patterns, institutions, cultural norms, values, and practices. We will look at what is important to each group, how they see and organize themselves, and how they understand and experience the world around them. The course aims to convey an understanding of the geographic, demographic, and social-historical context in which Israelis live as well as the diversity of Israeli culture. Students will be challenged to be critical readers of Israeli society and the way it is represented and to strive for measured, evidence-based analyses.

Cross-listed with: JST 60N, PLSC 60N, SOC 60N

International Cultures (IL)

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

ANTH 83S: First-Year Seminar in Anthropology

3 Credits

ANTH 83S First-Year Seminar in Anthropology meets the Bachelor of Arts degree requirements. This seminar introduces students to anthropology as a scientific discipline with ties to other social and natural sciences. Through active participation in the seminar, students will be exposed to an aspect of anthropology that corresponds to a faculty member's area of expertise. Because students are introduced to cutting edge research, the course content will vary from one semester to the next. Seminar topics highlight current debates in the discipline and the research process. Research design, analytical methods, and sampling issues are covered by having students read and discuss new and controversial developments in anthropology. Strong emphasis is placed on the broader societal significance of scholarly research related to the seminar's principal focus.

Student comprehension of topics raised in class will be assessed by classroom participation, exams, and papers. In addition to the academic topic and issues of this course, students can expect to gain a general introduction to the University as an academic community and have the opportunity to explore their responsibilities as members of that community. Students will develop an understanding of the learning tools and resources available to them, including the opportunity to develop relationships with faculty and other students who share their academic interests. This seminar fulfills both a first-year seminar requirement and a general education social science requirement for Bachelor of Arts.

Bachelor of Arts: Social and Behavioral Sciences

First-Year Seminar

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Soc Resp and Ethic Reason

ANTH 100N: Anthropology of Race and Racism

3 Credits

Is "race" real? This course examines the concepts of race and racism from the perspective of four-field anthropology. Relying on ethnographic, biological, linguistic, and archaeological data, the course will introduce students to what anthropologists know about human diversity, as well as how the concept of "race" was developed to classify that diversity and justify social inequality. The course introduces students to basic concepts of anthropology by highlighting the variability of the race concept across time and space. Students will learn to understand race as a biocultural concept - one that is socially constructed, but that has very real biological and material consequences. In the first section of the course, students will learn why the concept of race does not reflect a natural or biological reality. In the second section of the course, students will gain an understanding of the cultural and interpersonal processes shaping racism and race. The third section explores how and why race and racism are so durable and pernicious in reinforcing structural social inequality. Students will learn how the persistence of racism, racialized structure, and race-thinking affect human well-being, including significant disparities in economic and health outcomes.

Recommended Preparation: An introductory course in anthropology is recommended, but not required.

Bachelor of Arts: Natural Sciences

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

United States Cultures (US)

General Education: Natural Sciences (GN)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

ANTH 120: First Farmers

3 Credits

This class compares the archaeological record of the first farming societies around the world. Beginning ca. 11,000 years ago, people started experimenting with various wild plants and animals in their surroundings through selective propagation and harvesting. These

activities eventually resulted in genetically and morphologically distinctive species. Many human societies became dependent on these domesticates, and they still form the bulk of our subsistence today. These changes occurred independently in several regions under varying social, cultural, and environmental conditions. By looking at the archaeological record for the domestication and early farming societies in cross-cultural comparison, we can begin to understand the similarities and differences in the processes that resulted in the emergence and spread of food production. The course introduces students to archaeological and anthropological concepts by viewing cultural groups in ecological and social context, and highlighting the variability of human adaptations. To further illustrate the diversity of farming practices, examples from historic and contemporary ethnography will be studied. Students will gain an appreciation not only of the variety of subsistence adaptations involving domesticates, but also of the time, skill, knowledge, and labor required as a non-industrial food producer. Ethnographic examples also provide an avenue to address the cultural, ritual, and symbolic elements of food production and consumption that are often difficult to see in the archaeological record. Animal and plant husbandry are viewed as sources of food, raw materials, and wealth, and we will examine how farming practices help shape the economic, social, ecological and religious contexts of non-industrialized societies in the past and present. Finally, students will also explore the environmental impacts of different farming techniques and learn about the natural and cultural histories of the foods they eat. The earliest domesticates, such as wheat, rice, corn, potatoes, cows, pigs, chickens, sheep and goats, still provide the bulk of the world population's caloric consumption, and relatively few additional plant and animal species have been domesticated more recently. Industrial and globalized food production techniques have limited the genetic diversity of the modern food supply and created new environmental challenges in various parts of the world. This course provides students with an understanding of the origins of their daily foods as well as an appreciation for some of the contemporary challenges in food production.

Bachelor of Arts: World Cultures
 Bachelor of Arts: Social and Behavioral Sciences
 International Cultures (IL)
 General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Soc Resp and Ethic Reason

ANTH 129N: Chocolate Worlds

3 Credits

This course will examine the "world" of chocolate throughout human history. First cultivated by the ancient peoples of the Americas and then manufactured by Europeans and Pennsylvanians alike, chocolate has played a privileged role as a luxury good. An interdomain course, "Chocolate Worlds" is interdisciplinary, taught by faculty in the departments of Plant Science, Anthropology, and History. As a team we investigate the how diverse societies have differentially interacted with this crop. Rather than be organized chronologically, this course will be divided into course Units, such as the history of cocoa uses and cultivation, cocoa plant science and farming issues, chocolate making and markets, and the state of the global chocolate industry. The course's lectures and assigned readings work in concert equally directed by scientific inquiry and the queries of the social sciences and humanities. Assignments will address real world questions relating

to contemporary cocoa cultivation and production, and its role in international development and social justice. As a class we will take field trips to sites such as local chocolate manufacturing facilities and cocoa research sites and laboratories. The learning objectives of this course include students' broad knowledge of cacao production, its history, and ethnical issues surrounding its cultivation in today's global economy. Additionally, students will gain an historical appreciation for the role this crop has played in diverse human societies and a scientific understanding of its genetic structure.

Cross-listed with: HIST 129N, PLANT 129N
 Bachelor of Arts: Humanities
 Bachelor of Arts: Natural Sciences
 Bachelor of Arts: World Cultures
 General Education: Humanities (GH)
 General Education: Natural Sciences (GN)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking

ANTH 140: Anthropology of Alcohol

3 Credits

This class provides a lively tour around the world and through the millennia, telling the compelling story of humanity's quest for alcohol. Beginning about 10,000 years ago, humans in China and the Middle East became more sedentary and began to rely more on the food they grew than from hunting and gathering. The cereal grains these early societies relied upon, such as rice, wheat, and barley, soon formed the basis for the first alcoholic beverages. Relying on ethnographic, biological, linguistic, and archaeological data, the course will introduce students to what we now know about how humans created and currently use fermented beverages across cultures. The course introduces students to the basic concepts of anthropology by highlighting the variability of alcohol use through time and space. From the world's first beer in Henan, China in 7000 B.C. to modern breweries in Pennsylvania the class will explore the historical and societal impacts of alcohol production. From the ceremonial use of distilled sugarcane in southern Mexico to ritualized tailgating in the United States, students will be presented with the highly varied ways in which alcohol is consumed. Anthropology of Alcohol provides students with an understanding of the origins of one of the world's earliest and most utilized psychoactive drugs as well as an appreciation for some of the contemporary challenges of alcohol use on college campuses in the US.

Bachelor of Arts: Social and Behavioral Sciences
 International Cultures (IL)
 United States Cultures (US)
 General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Soc Resp and Ethic Reason

ANTH 146: Indigenous North America

3 Credits

This course is a review of the indigenous cultures of North America, located north of Mexico. It will cover the cultures that developed just prior to, during, and immediately after contact with non-indigenous explorers

and pioneers. The primary themes include (1) the astonishing diversity of ways of life that developed across the North American continent; (2) the exploration of this diversity from the perspective of cultural ecology; and (3) trends of cultural change and continuity that contribute to present-day Native American cultures. Students will also explore the stereotypes that plague a richer understanding of and respect for Native American communities. The course will introduce students to cultures that differ from their own. ANTH 146 meets both United States cultures and International Cultures objectives. Approximately 50% of the course focuses on the indigenous cultures of North America prior to European contact and the later founding of the United States. The course will introduce students to the diversity of cultures that have existed in North America prior the founding of the United States and Canada. Students will develop an understanding of similarities and differences among these non-US cultures and between these indigenous cultures and the culture of the US. Approximately 50% of the course will examine the impact these indigenous cultures have had on the historic and present-day United States culture - such as plant domestication, technological achievements, linguistic influence, and stereotypes.

Bachelor of Arts: World Cultures
 Bachelor of Arts: Social and Behavioral Sciences
 International Cultures (IL)
 United States Cultures (US)
 General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Soc Resp and Ethic Reason

ANTH 150N: Human Nature: The Science of Extreme Altruism and Violence

3 Credits

Why do humans so readily help strangers in some circumstances and not others? Why does our species have a tragic history of war, genocide, and violence? Just how flexible is our tendency for altruism and violence? Human Nature: The science of extreme altruism and violence surveys and synthesizes two of the most fascinating and unusual features of humans: our extremely high levels of altruism alongside our tragic propensity for violence. Treating humans as both biological and cultural creatures, we use the tools of anthropology, biology, and psychology to explore some of the most vexing questions in the social sciences and humanities. We will consider the role of the brain, hormones, genetics, social context, and evolution in producing the best and worst our species is capable of. While there are no prerequisites, you will gain a foundation in basic neurobiology and behavioral endocrinology alongside familiarity with leading theories of violence and altruism. We will use a combination of lectures, readings, and discussions to understand the science of altruism and violence. Throughout the course, we will use well-known current events and cross-culture case studies to anchor theory in real social contexts. By the end of this course, you will have the tools to evaluate behavior as the product of a complex interaction between biological, physiological, and social structures. You will never look at the world the same again!

Cross-listed with: PSYCH 150N
 Bachelor of Arts: Natural Sciences
 Bachelor of Arts: Social and Behavioral Sciences
 General Education: Natural Sciences (GN)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking

ANTH 150Q: Human Nature: The Science of Extreme Altruism and Violence

3 Credits

Why do humans so readily help strangers in some circumstances and not others? Why does our species have a tragic history of war, genocide, and violence? Just how flexible is our tendency for altruism and violence? Human Nature: The science of extreme altruism and violence surveys and synthesizes two of the most fascinating and unusual features of humans: our extremely high levels of altruism alongside our tragic propensity for violence. Treating humans as both biological and cultural creatures, we use the tools of anthropology, biology, and psychology to explore some of the most vexing questions in the social sciences and humanities. We will consider the role of the brain, hormones, genetics, social context, and evolution in producing the best and worst our species is capable of. While there are no prerequisites, you will gain a foundation in basic neurobiology and behavioral endocrinology alongside familiarity with leading theories of violence and altruism. We will use a combination of lectures, readings, and discussions to understand the science of altruism and violence. Throughout the course, we will use well-known current events and cross-culture case studies to anchor theory in real social contexts. By the end of this course, you will have the tools to evaluate behavior as the product of a complex interaction between biological, physiological, and social structures. You will never look at the world the same again!

Cross-listed with: PSYCH 150Q
 Bachelor of Arts: Natural Sciences
 Bachelor of Arts: Social and Behavioral Sciences
 General Education: Natural Sciences (GN)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 Honors
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking

ANTH 152: Hunters and Gatherers

3 Credits

A comparative study of hunter/gatherer societies using both archaeological and ethnographic evidence.

Bachelor of Arts: World Cultures
 Bachelor of Arts: Social and Behavioral Sciences

ANTH 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

ANTH 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

ANTH 210N: Anthropology, Ancestry, and You

3 Credits

Anthropology, Ancestry, and You will integrate anthropology and genetics through the exploration of the students' own genealogies and genomic ancestries. Engaging students in the investigation of their own origins will promote learning of science and social science. Instead of a textbook, students will have the opportunity to purchase a commercially available genetic ancestry test after receiving training on the potential risks and benefits of participating in personal genetic testing. This interdomain course will provide an opportunity for students from any major to explore topics including, ethical considerations of genetics research, human evolution and adaptation, DNA and inheritance, race, and identity.

General Education: Natural Sciences (GN)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

ANTH 215: Skin: Evolution, Biology and Culture

3 Credits

This course will explore the evolution and roles of skin and human life, including health, communication, and social wellbeing. ANTH 215 Skin: Evolution, Biology and Culture (3) (GN) Skin mediates the most important of transactions of human lives because it is our interface with the physical and social environments. Skin is constantly changing and reflects our age, ancestry, and health, while serving as our personal "billboard." In "Skin," students will explore the evolutionary and social histories of human skin, including the changes in structure and function it has undergone in the course of human evolution. Three unique attributes of human skin will be explored at length: 1) functional nakedness and sweatiness; 2) the range of skin's natural colors; and 3) skin as a surface for decoration. The course begins with an overview of the structure and function of human skin and proceeds to an exploration of the comparative biology and evolution of skin in vertebrates, especially nonhuman mammals. Special attention will be paid to the outermost layer of skin, the epidermis. This will lead to a discussion of human hairlessness and sweating, and the role of skin in temperature regulation. Detailed exploration of the evolution of human skin color follows. The key role played by melanin pigmentation in protecting skin from sunlight will be discussed as a prelude to review of the evolution of human pigmentation in human dispersals. Discussion of the role of skin color in human interactions through history follows, including an introduction to the development and manifestations of color-based racism. The importance of skin as the organ of touch and as a vehicle for communication will then be reviewed. This will introduce the subject of skin as a mirror of human emotions, as in anger and blushing. Because aging of skin is one of the most visible signs of aging and is one of the most significant of human preoccupations, this phenomenon will be discussed in detail, and some of the most common skin diseases and problems associated with "wear and tear" will be surveyed. Considerable time and discussion will be devoted to skin decoration, with particular attention paid to the use of cosmetics and paints in the establishment of identity and the advertisement of sexuality in individuals, and the importance of tattoos in expressing individuality and group identity. The course will conclude with a speculative investigation of the future of

human skin, including the prospects for artificial skin and robotic skin, and the expanding frontiers of skin decoration and communication via remote touch.

ANTH 216N: Sex and Evolution

3 Credits

This course introduces students to evolutionary theory and explores its relevance to the anthropological study of human sexuality and sex differences. In doing so, the course draws from and integrates findings from a wide array of disciplines, including evolutionary biology, genetics, neuroscience, endocrinology, behavioral ecology, anthropology, and psychology. After honing their evolutionary skills by investigating reproduction in other species, students will apply evolutionary principles to understanding human mating. Why do we prefer certain characteristics in a mate? How do these preferences differ between and within the sexes, and why? How do mating behaviors vary across cultures, and why are some behaviors more culturally variable than others? Other topics covered include infidelity, sexual jealousy, concealed ovulation, sexual conflict and rape, orgasm, parental care and abuse, and menopause. In understanding the evolutionary basis for a trait, it is helpful to understand its development. Thus, this course also covers the basics of sexual differentiation and investigates how variation in these processes might lead to variation in sexual orientation and gender identity. Students should take away not only a better understanding of human sexuality but also a way of thinking that helps them understand all living things.

General Education: Natural Sciences (GN)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

ANTH 219N: Spillover: The Anthropology of Emerging Infectious Diseases

3 Credits

We live in a world of increasing global awareness and public anxiety of emerging zoonotic diseases. Why do infections continue to spillover from wildlife to humans? What will the next outbreak be? Where will it emerge? Will it become a pandemic threat? Answering these questions requires exploring how our biology interacts with social, cultural, ecological, and climatic processes to influence the spillover of infections from animals to humans. This course begins with an introduction to human determinants of infectious disease that have persisted since the origins of agriculture, including: changing modes of subsistence and human settlement patterns, environmental transformation, and social inequalities. We will then explore how these processes shape contemporary pathways of zoonotic spillover and have led to the characterization and mapping of infectious disease "hotspots." The course will continue with an overview of emerging zoonoses of global health significance from a biocultural perspective. We will then narrow in on the most salient hosts and transmission pathways, focusing on evolutionary constraints and sociocultural risk factors that shape pathogen host switching. From these examples, we will look critically at the conceptual trends that have shaped our understanding of spillover events as a public health concern, with special attention to synergies and mismatches between locally and publicly perceived health risks. This course emphasizes the value of anthropological approaches in building more holistic and equitable

solutions to emerging human health threats, including opportunities for applied anthropology within human health.

General Education: Natural Sciences (GN)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

ANTH 220: Anthropology and Art/ifacts

3 Credits

This course examines anthropological approaches to the study of art works, their production, and function in diverse human societies, both past and present. ANTH 220 Anthropology and Art/ifacts (3) (IL)(BA) This course meets the Bachelor of Arts degree requirements. This course examines the ways in which the discipline of anthropology has used art and artistic production as an interpretive lens, as a means to understand past human action, cultural behaviors and ancient societies as a whole. To take up this topic, the course is divided into five distinct units allowing a thematic and comparative analysis of a variety of human societies. We will critique the conceptual divide between 'art' and 'artifact' focusing on long-standing assumptions about philosophies of aesthetics, derived primarily from early modern European (Renaissance) notions of 'art'. Geographically, the course content has a global reach, but primarily focuses on the artistic production of the Americas, Africa and Oceania, challenging the label of 'primitive' that has historically been applied by modern Western approaches. During the course of the term, we will conduct analyses aimed at elucidating how scholars have used the interpretation of art objects to better understand the complexity of human experience, specifically in regards to categories such as gender, kinship, social hierarchy and cosmology. Each class meeting will consist of a lecture and also a discussion component, primarily focusing on the assigned readings to ensure complete comprehension and relevancy. Students will be evaluated on essays and exams. This course will satisfy general education requirements and provide a base for other courses in anthropology, art history, museum studies and history.

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

ANTH 221N: Ancient Maya: Sacred Blood & Conjured Serpent

3 Credits

The Ancient Maya: Sacred Blood and Conjured Serpent. ANTH 221N Ancient Maya Civilization (3) (GS;GH;IL)(BA) This course meets the Bachelor of Arts degree requirements. Great civilizations emerged independently in several parts of the world beginning about 5500 years ago. Most students have had some exposure to the great Old World civilizations (Mesopotamia, Egypt, China), but know comparatively little about their counterparts in the New World. Among these, the Classic Maya (AD 250-900) are the most familiar, and are heavily featured in popular culture. Many students have (or will) visit Maya sites as tourists, and be impressed by the flamboyant archaeological remains of these ancient people. Despite their visibility, the Maya are widely misunderstood and heavily sensationalized. ANTH 221N traces the development of ancient Maya culture from about 10000 BC through its eventual conquest by the Spaniards in the 16th century. The primary focus will be on the Classic period, when Maya civilization achieved unparalleled heights

in architecture, art, astronomy, mathematics, and writing. The course content makes extensive use of images of sites, artifacts, and artwork to introduce and immerse students to the particularities of the Ancient Maya worldview. The Maya were participants in a much wider tradition of complex civilization in the region archaeologists call Mesoamerica, and several lectures will place them in this more general context. A good amount of content in this course will come from research done by members of the Penn State Anthropology Dept., which has a long tradition of Mesoamerican/Maya research since the early 1960s, and has heavily influenced both the study of Mesoamerican societies and complex cultures in general. Content and topics in the course will also situate Maya peoples, both ancient and modern, in relation to important topics in the contemporary world such as environmental sustainability and degradation, ethnic identity, and state formation. This course will fulfill basic BA and GenEd requirements (GS, GH, IL). It may also be used to fulfill an ANTH BA or ANTHS BS additional course requirement.

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

ANTH 222: Archaeology of Domesticated Animals

3 Credits

Biological, ecological and cultural history of animal domestication. ANTH 222 Archaeology of Domesticated Animals (3) (GS;IL)(BA) This course meets the Bachelor of Arts degree requirements. Animals were domesticated in a variety of places throughout the world beginning about 12,000 years ago, fundamentally shifting human-animal relationships. Most students have had some exposure to domesticated animals, particularly family pets such as dogs or cats, and some farm animals commonly found in the US. Yet few students know much about the biological, ecological, and cultural history of these animals, the contexts and timing of their domestication, the changing economic and cultural significance of individual species through time, nor economically and culturally important animals in other parts of the world. ANTH 222 will trace the history of domestication of key species: sheep, goat, cow, water buffalo, yak, pig, llama, alpaca, guinea pig, chicken, dog, cat, elephant, camel, horse, donkey, and mule. Emphasis is placed on the biology (genetics, morphology, wild progenitors, ecological niche, breeds) in concert with the cultural contexts in which domestication occurred. Furthermore, students will explore a range of human-animal relationships in regard to these domesticates with examples from archaeology, ethnography, modern US society, and history. This class discusses animals as food, raw materials, wealth, labor, and companions, as well as their economic, social, religious, and environmental impacts in different cultural and ecological settings.

Bachelor of Arts: Natural Sciences

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

General Education: Social and Behavioral Scien (GS)

ANTH 240N: Livelihoods and Ecosystems: Anthropological Approaches to Human-Environment Interaction

3 Credits

This course provides an anthropological understanding of the relationship between human subsistence and environment. The impacts of environmental change on human societies, and the roles those societies play in ecological modification, have deep roots in human evolution. This class focuses on providing students with tools to understand the foundations and cross-cultural expressions of resource use, environmental transformation, and their ecological interactions. The class has three goals: 1) introduce students to ways of thinking about ecological and social factors that shape variability in how humans define, use, and consume resources, 2) provide students the opportunity to explore archaeological, ethnographic, and ecological evidence of the interaction between human livelihoods and habitats across the entirety of the human experience, 3) utilize those concepts and evidence to investigate variability in contemporary livelihoods, socio-ecological systems, and the dilemmas we all face in natural resource use and sustainability. Regarding the first goal, students are introduced to the natural science of conservation biology and community ecology, along with influential concepts in the social science of decision-making and cultural institutions of resource management. We review key models of ecosystem dynamics and social interaction from evolutionary ecology, disturbance ecology, niche construction, common property theory, and political ecology to approach questions about consumption, complex socio-ecological systems, and the role of humans in food webs and trophic interactions. The course then investigates archaeological and paleo-ecological evidence concerning the evolution of human subsistence systems, global settlement, intensification, and their implications for understanding environmental change over the last two million years. We take the broadest possible anthropological approach: we explore the diversity of ways that humans have made a living in the past, and investigate a wide variety of contemporary systems of resource use. We begin with the emergence of subsistence regimes among the earliest members of our genus and variability in environmental conditions through the Pleistocene. We then discuss the spread of modern humans and arguments concerning the ecological impact of people in the New Worlds as humans first colonized Australia, the Americas, and islands of Pacific and Indian Oceans. Finally, students investigate contemporary Indigenous systems of resource use and food production, exploring interactions between people and culturally constructed environments, commensal relationships between humans and non-human plants and animals, processes of intensification, and ecosystem function. The course incorporates these concepts with studies of inequality into new ways of understanding global issues of conservation, economics, and policy impinging on environmental change.

General Education: Natural Sciences (GN)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

ANTH 294: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

ANTH 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

ANTH 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

ANTH 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

ANTH 303: Race and Gender in the Americas: Latin American and Caribbean Cultures

3 Credits

Utilizing a theoretical framework of intersectionality, this course examines historical and cultural constructions of race and gender in Latin America and the Caribbean. AFAM 303 / ANTH 303 / WMNST 303 Race and Gender in the Americas: Latin American and Caribbean Cultures (3) (GS;IL) Utilizing a theoretical framework of intersectionality this course examines how racial, gender, sexual, and class identities are constructed in Latin American/Caribbean societies. The course applies an anthropological perspective to a wide range of countries in the region to reflect on how historical events such as the conquest, colonization, slavery, and independence movements are relevant to understanding the region today, as well as how race, gender, and sexuality inform contemporary themes of empire, nation-building, imperialism, neo-colonialism, revolution, violence, militarization, social movements, religion, neoliberalism, U.S. involvement/relations, and popular culture. The course addresses issues of power, culture, racial formation, and citizenship by incorporating interdisciplinary material beyond ethnography such as newspapers, grassroots media, biographies, films, music, novels, personal testimonies, etc. Rooted in feminist anthropological scholarship, this course emphasizes how power (from above and below) and culture mediate relationships between individual/community agency and institutions/structures. As an effort to encourage students to think about Anthropology and culture beyond superficial or romanticizing celebrations of multiculturalism, food, and music, the course stresses the theoretical importance of situating power and privilege amidst difference. We conceptualize culture not only as socially transmitted patterns of behavior and ideas/meanings, but as a complex and dynamic process/medium grounded in unequal relations in which power is constituted and resisted. The ethnographic emphasis of the course centers on the complex lived realities and voices of people, encouraging students to learn, understand, and respect cultural difference. The course offers students a broad sense of how power is central in the production of knowledge (particularly within the disciplines of Anthropology and History). Students will critically engage an array of topical issues in Latin America beyond dichotomous thinking. Discussion of course material includes contemplating issues of ethics, subjectivity, bias, and privilege. Conversations regarding processes of "Othering" and traditional "us vs. them" debates that often occur when discussing developing countries will prompt students to

situate their own power/privilege and challenge our assumptions and preconceived notions of Latin America. Moreover, this course teaches Latin American Cultures within a global context of racialization. As such it also stresses the historical and contemporary social, economic, cultural and political significance of the U.S. in Latin America, to demonstrate how we are connected and responsible to what happens "over there." In order to promote service learning, a core tenant of feminist pedagogy, this course also offers students the opportunity to participate in an optional embedded program entitled "Cuba: Identity, Diversity and Popular Culture". This two week course in Havana, Cuba promotes interactive learning in and outside the classroom with international study. This course component successfully combines academic classes, hands-on activities, and service learning.

Cross-listed with: AFAM 303, WMNST 303
International Cultures (IL)

ANTH 321W: Intellectual Background of Archaeology

3 Credits

Introduction to primary sources on the development of archaeology as a scientific discipline.

Prerequisite: 3 credits of ANTH
Writing Across the Curriculum

ANTH 375Q: Anthropology of Food Honors

3 Credits

This course is an anthropological approach to understanding temporal and spatial variation in human food consumption and nutrition: why do we eat what we eat? To answer this question, we approach it from multiple perspectives: biological, evolutionary, ecological and social. In this course, students will investigate how food tastes, preferences, and diets of different individuals and societies both in the past and present are affected by genetic variation, by processes of individual and cultural learning, by evolutionary and ecological forces and histories of ecological and social interaction, by existing social contexts and structures, and by global political and economic forces. Topics include a broad survey of human and nonhuman primate diets and their physiological and behavioral correlates; theories of optimal diet breadth and prey choice; fossil and archaeological evidence for early human diets; genetic adaptations to diet; metabolic syndrome; food security; food taboos; the origins and cross cultural uses of spices; ecological impacts of hunting, gathering, and agropastoralism especially relative to food webs, biodiversity and sustainability; cultural diversity in the social uses and meanings of food and the sharing of food and how sociopolitical contexts have shaped the overexploitation of certain resources throughout history. Students will come away from this course with an understanding of the diversity of human foodways through time and space: how biology, culture, and ecology interact to shape the food we eat, and how the food we eat shapes us.

Prerequisite: 3 credits of ANTH
General Education: Natural Sciences (GN)
General Education: Social and Behavioral Scien (GS)
General Education - Integrative: Interdomain
Honors
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Integrative Thinking

ANTH 380: Anthropology Museum Studies

3 Credits

Introduction to the history, significance, and operation of anthropology museums. ANTH 380 Museum Studies (3) This course introduces students to the operation of anthropology museums and to the growing field of museum studies. The course explores the historical setting within which these institutions evolved and the role of museums in the development of anthropology. Students will learn about the primary functions of museums through individual and group projects. Other topics to be covered include museum organization and administration, collection management, curation and conservation, research and education, public relations and financing, and ethical and legal issues. Students will get hands-on experience with the planning and implementation of a display in the Matson Museum of Anthropology. In addition, students will learn about museum careers, museum developments in other countries, and contemporary controversies, such as repatriation and the shifting role of museums in contemporary society. The course will provide the student with an introduction not only to the behind-the-scenes nuts-and-bolts of daily museum operations but also to the institutional role of museums as the preservers, interpreters, and communicators of humanity's cultural heritage. Students are evaluated based on two papers, work on Matson Museum exhibits, and participation in class discussions. This course fulfills a 3-credit requirement for additional courses for the anthropology major. This course expands on the history of anthropology and professional employment in the field that is presented in introductory courses.

ANTH 395: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

ANTH 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

ANTH 401: Human Evolution: The Material Evidence

3 Credits

Human origins as seen in the fossil record and comparative biology of humans and their primate relatives.

Prerequisites: 3 credits of ANTH

ANTH 403: Evolution of Human Walking

3 Credits

An in depth analysis of the biology, biomechanics, evolutionary history of human walking and running.

Prerequisites: 3 credits of ANTH

ANTH 405: Primatology

3 Credits

Nonhuman primate origins, evolution, comparative physical and behavioral characteristics, ecological context, phylogeny and taxonomy; and their importance in anthropology.

Prerequisites: 3 credits of ANTH

ANTH 408: Anthropological Demography

3 Credits

Analysis of demographic studies in traditional and very small populations. ANTH 408 Anthropological Demography (3)(BA) This course meets the Bachelor of Arts degree requirements. This course examines population-related problems from an anthropological perspective. Special emphasis is placed on ecological and economic approaches to the study of population dynamics in small-scale, preindustrial societies. This is an advanced undergraduate course that builds upon introductory anthropology and leads the student into more difficult demographic problems that are linked with economics, politics, religion and other cultural factors that shape population and population change. While the course is designed to introduce any of the basic analytical methods of demography, attention is focused primarily on fundamental theoretical issues concerning population growth, resources, fertility, mortality, age structure, and household demography in traditional societies. Data is drawn from ethnographic studies of living populations, from historical demography, and from paleodemography (the reconstruction of population patterns from skeletal samples). There will be three take-home problem sets. These will be a mixture of short essay questions and simple numerical exercises that can be solved on a pocket calculator or a spreadsheet. This course fulfills a 3 credit 400-level requirement for the Anthropology major and minor.

Prerequisites: 3 credits of ANTH

Bachelor of Arts: Social and Behavioral Sciences

ANTH 410: Osteology

4 Credits

Introduction to the systematic study of the human skeleton from an evolutionary developmental biological perspective. ANTH 410 Osteology (4) This course introduces students to the aspects of the human skeleton and dentition that are of anatomical, archaeological, forensic, and developmental significance. Topics include the identification of skeletal and dental structures; the distinction between normal and pathological bone; the estimation of age, sex, and stature from skeletons; bone metabolism; growth and development; and the functional aspects of musculoskeletal and dental systems. Up to one-half of the course is spent on bone identification and skeletal anatomy. Lectures are supplemented by labs that provide practical experience in the identification of individual bones and anatomical structures, age and sex estimation, and the differentiation of abnormal from normal bony structures. It is absolutely essential for students to attend labs to familiarize themselves with bone specimens and casts. At the close of this course, students are expected to be able to recognize human bones and be familiar with anatomical terms, the bony landmarks that define their shape, and the relation of those bones with various soft-tissue structures. Students will have a basic grasp of bone growth and development, as well as how to identify an individual's general characteristics from the skeleton, such as age, sex, and prior life-

history events including disease and trauma. The course fulfills a 400-level elective for the Anthropology (BA) major and minor, as well as the Archaeological Science and Biological Anthropology (BS) degree programs.

Prerequisites: 5th Semester standing

ANTH 411: Skeletal Forensic Anthropology

3 Credits

An introduction to anthropological forensic science with an emphasis on what can be learned from human skeletons and archaeological recovery methods. ANTH 411 Skeletal Forensic Anthropology (3) This course is a survey of forensic anthropology focusing on human skeletal remains and archaeological recovery methods. Emphasis is placed on field methods used to collect human remains from surface and buried contexts; taphonomic processes; estimating age, sex, stature, and ancestry from human skeletons; recognizing signs of trauma and scavenger damage; and identifying individuals from skeletons. Lectures are accompanied by class discussions and complemented by practical lab sections closely tied to lecture materials. There will be two exams, a midterm and a final, and students are responsible for preparing a poster and presenting a semester-long research project. This course is related to existing ANTH 410, Human Osteology, and proposed course ANTH 413, Molecular Forensic Anthropology. It fulfills a 400-level requirement for the anthropology major or minor, as well as the university's Forensic Science major.

Prerequisites: 5th Semester standing

ANTH 412: Settlement Demography

3 Credits

Examination of the demography and ecology of human settlement systems in the preindustrial past. ANTH 412 Settlement Demography (3) This seminar will examine the population dynamics of human settlement systems in preindustrial societies, living, historic, and prehistoric. The focus will be on subsistence-level agrarian settlements, but some attention will also be paid to settlement patterns in hunter-gatherers, in market economics, and in complex societies. After reviewing basic assumptions and problems of working with spatial data, the course will examine processes determining settlement size, composition, and location on the micro-level (i.e. that of individual households, farmsteads, hamlets, and villages) and then pass on to regional patterns of transport, migration, and defense. The processes of site colonization, settlement expansion and contraction, site abandonment, and re-colonization will all be considered in detail. Since human settlements are always non-randomly distributed across spatially-heterogeneous landscapes, some basic landscape ecology will be presented in the course. Some fundamentals of geostatistical analysis will also be taught, although the course is not intended to be a survey of quantitative geography or spatial analysis. Rather, it is designed to be a more specialized follow-up to ANTH 408 (Anthropological Demography); the new course builds upon the basic explored in ANTH 408 by extending them into the spatial domain. During the last quarter of the semester, students will split into 2-3 teams, each of which will re-analyze settlement data from a region and time period of its choice for presentation to the rest of the class. The proposed course will provide 3 elective credits toward the undergraduate major and minor, and will be open to graduate students as well. The overall aim is to produce scholars who can think in creative ways about the dynamics of settlement systems in their own reading and research. The course should be of interest to archaeologists, anthropological

demographers, ethnologists, and other students interested in human population science, especially as it relates to preindustrial society.

Prerequisites: ANTH 21

ANTH 413: Molecular Forensic Anthropology

3 Credits

An introduction to the field of the application of DNA methods to estimating forensically useful phenotypes. ANTH 413 Molecular Forensic Anthropology (3) This course is a survey of forensic anthropology focusing on human genetic methods. Emphasis is placed on laboratory methods for analyzing DNA variation, the genomic and geographical distributions of genetic variation, estimating genetic ancestry, sex, pigmentation, facial features, and other traits. Lectures are accompanied by class discussions and complemented by practical lab sections closely tied to lecture materials. There will be three exams and students are responsible for preparing a poster and presenting a semester-long research project. This course is related to existing ANTH 411, Skeletal Forensic Anthropology. It fulfills a 400-level requirement for the anthropology major or minor, as well as the university's new Forensic Science major.

Prerequisites: 5th Semester standing

ANTH 414: Microbial Anthropology: A microbial lens on the human experience

3 Credits

The human body contains more microorganisms than it does its own cells, yet these complex communities of microorganisms are largely absent from Anthropology textbooks. This course investigates the interplay between microbiology and anthropology, exploring the roles that microbes play in human evolution, adaptation, health, and culture. We will first review basic concepts in microbiology (what are microbes?) and microbiome science (how is DNA useful?) and apply this understanding to core concepts in anthropology, including those that guide our understanding of living, ancient, and extinct humans. For example, what human activities or practices influenced the origins of disease, both infectious and non-infectious? How are microbes shared or transmitted during human interactions? Can microbes provide information about past human behavior or culture? How do microbes help or hinder human adaptation to new environments? This examination will be done through lectures and in-class discussions based on primary literature from different scientific fields of study. This understanding will be used to apply new interdisciplinary research approaches and see anthropology in a new light.

Recommended Preparation: ANTH 21 and ANTH 461

ANTH 416: The Evolution of Human Mating

3 Credits

The Evolution of Human Mating is a science course designed to familiarize students with the primary literature on the evolution and development of human mating behavior and sex differences.

Prerequisites: 3 credits of ANTH

ANTH 418: Medical Anthropology

3 Credits

This course provides an introduction to the field of medical anthropology from an ecological, biocultural, and economic perspective. Drawing on readings and ethnographic sources, students will examine how anthropology and the social sciences have addressed issues of health in a global context. Students will begin the semester with an introduction to the study of health in anthropology. After discussing the basic theoretical frameworks, students will consider topics of nutrition, the life cycle, reproduction, and infectious disease. In the final portion of the course, students will focus on the health consequences of stress and culture change. One of the primary aims of this course is to illustrate how medical anthropology can be applied in real world settings, including during outbreak investigations, and in understanding patterns in population health.

ANTH 419: Anthropology and One Health

3 Credits

Is there a true distinction between human health, the health of animals, and the health of the environments we share? Or is there only "one health"? This course examines the interconnectedness between human, animal and environmental health that have shaped our evolutionary history and modern-day health challenges. The course will start by exploring the ways by which human-animal-environment interactions have changed over evolutionary timescales, and in response climate, landscape, and population changes. The course will focus on how these changes manifest in modern environments to contribute to the transmission and spread of pre-existing and new zoonotic diseases between animals and humans. We will also explore interactions between infectious diseases and other One Health issues, including food security, livelihoods, and biodiversity conservation. Through this course, students will be introduced to relevant anthropological theories and methods within the One Health framework. Equipped with a strong theoretical background, students will critically examine the conceptual trends that have shaped anthropological contributions to One Health. Students will engage with primary literature to learn how anthropology and social science are applied to modern day issues in global settings. This course assumes that anthropological engagement within One Health and related fields is not yet fully realized, and in turn, encourages students to explore new connections. The course thereby provides a forum for students in anthropology and other One Health related fields (e.g. biology, ecology, public health, human and veterinary medicine, sociology, geography, nutrition, and others) to engage in interdisciplinary thinking within One Health.

Recommended Preparation: ANTH 219

ANTH 420: Archaeology of the Near East

3 Credits

Culture of the Near East and India from Paleolithic times through the Bronze Age.

Prerequisite: 3 credits in CAMS or 3 credits in ANTH or permission of instructor

Cross-listed with: CAMS 430, JST 420

Bachelor of Arts: World Cultures

Bachelor of Arts: Social and Behavioral Sciences

ANTH 422: Meso-American Archaeology and Ethnography

3 Credits

Survey of ethnohistorical and ethnographic patterns of Meso-American society; origin and development of ancient civilization in Mexico, Guatemala, and Honduras.

Prerequisites: 3 credits of ANTH

Bachelor of Arts: World Cultures

Bachelor of Arts: Social and Behavioral Sciences

ANTH 423: The Evolution of American Indian Culture

3 Credits

Historic and archaeological sources used to trace American Indian lifestyles from the first immigrants to the period of Euro-American contact.

Prerequisites: 3 credits of ANTH

Bachelor of Arts: World Cultures

Bachelor of Arts: Social and Behavioral Sciences

ANTH 424: Andean Ethnology and Archaeology

3 Credits

Cultures of the Andes from earliest settlements to Inka Empire; includes discussion of life in modern Andean communities. ANTH 424 Andean Ethnology and Archaeology (3)(BA) This course meets the Bachelor of Arts degree requirements. When the Spanish conquistadors arrived in the Andes in 1532, they were astonished by the complexity and grandeur of the Inca Empire, which stretched along western South America incorporating a multitude of different societies that occupied a seemingly inhospitable landscape with coastal deserts, rugged mountain chains, and dense jungles. This course traces out the history and development of Andean cultures from the earliest peopling of the continent to the rise and fall of the Inca Empire. Using archaeological, historical, and ethnographic sources, students will learn about the relationship between Andean societies and their environments and landscapes, as well as the economic, social, and political changes that transformed small egalitarian communities through time into large, stratified states. Through the course, students will not only gain a strong background in pre-Columbian Andean history but will also hone their skills in the use of different lines of evidence to reconstruct the past while learning to critically evaluate existing interpretations. All students are expected to participate actively in discussions. Lectures will be supplemented by illustrations (slides, handouts, videos), and students will learn how societal dynamics are expressed in material culture and in the organization of architecture and settlements. Grades will be based on the results of three exams, a short paper, and participation in discussions. The course complements existing courses at the same (400) level on the archaeology of Mesoamerica (ANTH 422) and North America (ANTH 423). It continues the discussion (at a higher level) of some of the themes covered in ANTH 008 (Incans, Aztecs, Mayas). It fulfills the archaeology credits requirement for the major and is one of the 400-level courses that can be used for the minor. For students outside the major, it may be used to meet the Other Cultures or the Social Sciences requirement in Bachelor of Arts programs.

Prerequisites: 3 credits of ANTH

Bachelor of Arts: World Cultures

Bachelor of Arts: Social and Behavioral Sciences

ANTH 425: Zooarchaeology

3 Credits

Introduction to the systematic study of animal skeletal remains from archaeological sites.

Prerequisites: 3 credits of ANTH**ANTH 426W: Archaeological Laboratory Analysis**

3 Credits

Scientific laboratory methods used in the analysis of ceramic and lithic artifacts. ANTH 426W Archaeological Laboratory Analysis (3) This course, Archaeological Laboratory Analysis, employs experiential learning to teach students how to ask and answer archaeological questions using real data. While students learn the fundamentals of interpretation in other courses using already processed computer (and internet) assembled data sets, this is not how archaeological data are analyzed. Archaeological data emerge from the ground covered with dirt and the analyst must learn how to identify and measure their important attributes, and interpret what they mean. This class will provide a hands-on learning experience where students learn how to examine and use physical remains to reconstruct and interpret human behavior. Students in the Anthropology program currently learn this critical step on an ad hoc basis by working with faculty on individual research projects. This approach, while effective, is neither systematic nor comprehensive. This is a course on analytical systematics. It provides students with an introduction to problem formulation, artifact processing, artifact cataloging, attribute identification, artifact classification, analysis, data illustration and photography. At the same time, students will be introduced to two separate and distinct approaches to interpretation: 1) morphological/diacritical analysis, and 2) direct experimentation and replication. Students will be graded on the completion of nine laboratory exercises. These exercises will require that students identify the research question being addressed, the theoretical assumptions used in the analysis, the data sample, the analytical method(s) employed, and the conclusions reached. The exercises will also request that students identify personal insights and difficulties encountered during the analysis. This course fills a vital position in training undergraduate majors by providing them with practical training in research design and data analysis. It also provides the logical link between our general courses in prehistory, our courses on archaeological theory, and our method courses on field methods of data recovery. All of these courses intersect in the archaeological laboratory where data interpretations are made and new information about the past takes shape. In addition to contributing to both the BA and BS undergraduate majors and minors, this course will also provide a framework for training graduate students who enter the program with minimal field and laboratory training in archaeology.

Prerequisites: 3 credits of ANTH

Writing Across the Curriculum

ANTH 427W: Forensic Archaeology

3 Credits

Application of archaeological techniques to crime scene investigations, with practical experience in field and laboratory contexts.

Prerequisite: ANTH 2N

Writing Across the Curriculum

ANTH 428: Archaeological Methods and Theory

3 Credits

Scientific methods as applied to archaeological data: evolution, ecology, diffusion, and cyclicalism theory.

Prerequisites: 3 credits of ANTH

ANTH 430: Ancient Brews

3 Credits

Understanding how past humans altered their environments is at the core of this Ancient Brews course. Through the domestication of plants and animals to the continuous modification of technologies, our ancestors have successfully produced a wide range of alcoholic beverages. In ANTH430, we will recreate several alcohols (e.g., beer, cider, and wine) using the most basic methods through a process of experimental archaeology. From harvesting corn, apples, and grapes from Penn State's agricultural fields, to crushing barley with grinding stones, to cooking the ingredients in clay pots, the students will get firsthand experience with several ancient methods of alcohol production. Most of the semester is seminar-style, where we discuss journal articles relating to specific anthropological approaches to the evolution of alcohol.

Prerequisite: ANTH 140 Permission of program & Student must be 21 years of age on or before the first day of fall classes.

International Cultures (IL)

United States Cultures (US)

General Education: Social and Behavioral Science (GS)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Soc Resp and Ethic Reason

ANTH 432: Environmental Archaeology

3 Credits

Introductory course in Environmental Archaeology, with emphasis on method and theory in the subfields archaeobotany, pediaeology, and zooarchaeology. ANTH 432 Environmental Archaeology (3) This class is a survey of the fast-developing field of environmental archaeology, or archaeobiology, which encompasses archaeology, the earth sciences, plant biology, and zoology. Environmental archaeologists apply techniques and insights obtained from these fields to questions concerning the relationships among humans, cultural systems, and the natural world, as reflected in the archaeological record. The general goal of the course is to promote understanding of the vital interplay between human societies, with their diverse systems of belief and cultural practices, and the natural environment, with emphasis on human interactions with biotic resources. Instruction is by lecture, supplemented by laboratory sessions emphasizing hands-on experience. Weekly topics are explored through selected readings and class discussions, augmented with laboratory assignments (practical exercises) variously focused on specific types or classes of archaeobiological materials. ANTH 432 will fulfill 3 credits of the additional courses in the Anthropology minor and major, as well as the Archaeological Science major. Anth 002 is a prerequisite.

Prerequisites: 3 credits of ANTH

ANTH 433: Archaeological Ethics and Law

3 Credits

Introductory course that examines prominent ethical and legal issues in archaeology integral to modern applied research and practice. ANTH 433 Archaeological Ethics and Law (3) This course explores the ethical, legal, and practical dimensions of modern archaeology through a consideration of the following topics: archaeology as a profession; archaeological ethics; the relationship between archaeology and others (the public, ethnic groups, avocationalists, collectors, etc.); international and national approaches to archaeological heritage management; the antiquities market; maritime law, underwater archaeology, and treasure hunting; cultural resource management in the United States; and archaeological outreach and education. Students are introduced to a variety of legal and ethical issues in archaeology that span local to international scales. Through lecture, discussion, and readings, students will consider the archaeology and ethics of ownership and stewardship, including issues centered on intellectual property rights, representation, repatriation, and reburial of cultural properties. They will be able to identify the various stakeholders in contemporary archaeology, and assess their values and interests in issues such as the treatment, ownership, and disposition of human remains, heritage sites, submerged cultural resources, and antiquities. They will consider growing problems with illicit collecting and excavation, illegal trade, and global concerns centered on the international trafficking of antiquities, and will be variously exposed to relevant national and international legislation involving cultural patrimony and management of antiquities, including international treaties such as the 1970 UNESCO Convention on Cultural Property, and related pieces of US federal legislation. The 1990 Native American Graves Protection and Repatriation Act (NAGPRA) and the Archaeological and Historic Preservation Act (ARPA) of 1974 figure prominently in the course. In general, upon completion of the course students will come to have a stronger appreciation of archaeological ethics and "archaeopolitics" they will have a good understanding of the U.S. Secretary of the Interior's standards (36CFR61) for professional archaeologists and will be able to assess and evaluate contemporary issues of archaeological ethics and law in the context of modern practice. ANTH 2 is a prerequisite of this course.

Prerequisites: 3 credits of ANTH

ANTH 434N: Black Ecologies

3 Credits

African and African Diasporic peoples have been central to the creation and transformation of global ecologies and landscapes. As the birthplace of humankind, the African continent features the longest archaeological record in the world, with abundant, yet often underrepresented, material and historical evidence for remarkable Indigenous African innovations in the areas of technology, food production, and resource and land use. This course specifically examines Black ecologies preceding and then radically transformed by the Trans-Atlantic Slave Trade. Beginning in the late fifteenth century, the enslavement of millions of Africans and their forced translocation to the Americas and Caribbean precipitated ecological transformations on all sides of the Atlantic, as African peoples, knowledge, resources and ecological inheritances were appropriated by the European mercantile system. Enslaved Africans transformed American landscapes via extractive industries of plantations and mines and suffered the emergence of toxic landscapes and disease alongside Native American communities. Africans also recreated African ecologies as they created livelihoods and landscapes of resistance and

freedom in the Americas. The legacies of the Atlantic Era maintain a persistent dynamic in which African and African Diasporic communities experience disproportionate burdens of environmental injustice today. The concept of Black ecologies reflects the marginality, systemic racism and dispossession experienced by Black peoples and their landscapes. Black ecologies also allow us to understand African and African Diasporic ecological innovations, resistance and resilience, and the pathways to future sustainability and justice they promise.

Prerequisite: 3 credits of ANTH

Cross-listed with: AFAM 435N, AFR 435N

International Cultures (IL)

United States Cultures (US)

General Education: Humanities (GH)

General Education: Social and Behavioral Sciences (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

ANTH 435: Ancient Economy

3 Credits

The course examines the comparative organization and development of ancient economies in both the Old and New Worlds. ANTH 435 Ancient Economy (3) (IL)(BA) This course meets the Bachelor of Arts degree requirements. This course examines the origin and development of ancient economy from its earliest beginnings to the advent of complex monetary economies that existed prior to the industrial revolution. It examines the common economic structures found in ancient foraging, pastoral, and agricultural societies and how those structures were modified and transformed as these societies were integrated into more complex monetary economies. The goal of the course is to develop a comprehensive understanding of ancient economies, the function and purpose of their economic structures, and how those structures of production and distribution were modified and retained within the modern economies that we live in today. While the economy is often approached as its own field of study, this course shows how and why the economy was embedded in social, political and religious institutions that were so prominent in the ancient past. The course will discuss the domestic and institutional economy, the origin and organization of ancient market systems, the development of urban centers and the economies that supported them, the role of merchants in ancient societies, and origins of many of our 21st century institutions including money, banking, insurance, and the organization of craft production before the industrial revolution. The class draws upon the rich literature in archaeology, history and ethnohistory that examines the structure of ancient societies. It employs a cross-cultural perspective to model ancient economies and to investigate how social forces influenced their development. A range of different historic and prehistoric societies are discussed each semester to illustrate the cross-cultural perspective. The societies discussed vary from semester to semester and include, but will not be limited to, the ancient Sumerian, Assyrian, Greek, Roman, Mongol, Aztec and Inka societies. Examples will be selected that include societies at different scales of complexity from simple hunting and gathering groups to pre-industrial states. The course fulfills the Social and Behavioral requirements in Liberal Arts. It also fulfills specific major and minor requirements for the BA in Anthropology, the BS in Archaeological Sciences, and the BS in Bioanthropology. The course is also relevant for students in CAMS, History, and Ancient History that are interested in a comparative study of New and Old World civilizations.

Bachelor of Arts: World Cultures

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

ANTH 439W: Studies in Classical and Ancient Mediterranean Archaeology

3-6 Credits/Maximum of 6

CAMS 440W Studies in Classical and Ancient Mediterranean Archaeology (3-6) (BA) This course meets the Bachelor of Arts degree requirements.

CAMS 440W is a writing-across-the-curriculum upper-level archaeology course on various topics in the broad field of Classical and Mediterranean archaeology. The selected topic will emphasize interdisciplinary themes, such as comparative state formation, societal collapse, gender in the ancient world or the socio-economic and cultural development of a society or region and its interaction with other Mediterranean, Near Eastern and North African cultures. Students will learn of major publications in the field of study, and how to conduct searches of the previous archaeological literature and the related literary record. As one requirement, students will complete a research paper on a topic related to the theme of the course that semester. The sequence of writing assignments is designed to allow students to develop a project, to search for related publications, to develop a proposal, and to revise drafts of the final paper. The course is also intended to provide students with a practical background in Classical and Mediterranean archaeology that will help prepare them for archaeological fieldwork, for the interpretation of archaeological publications, and, as relevant, for utilizing the literary and/or epigraphic record for interpreting archaeological evidence. Those considering enrolling in this course may obtain information about the specific topic by asking the faculty member listed as teaching the course or the Undergraduate Officer in the Department of Classics and Ancient Mediterranean Studies.

Prerequisite: 3 credits in CAMS or 3 credits in ANTH or permission of instructor

Cross-listed with: CAMS 440W

Bachelor of Arts: Humanities

Writing Across the Curriculum

ANTH 444: The Evolution of War

3 Credits

Critical overview of the ethnography and theory of primitive warfare. ANTH 444 Primitive Warfare (3) Anthropology 444 is concerned with the phenomenon of lethal group violence in tribal societies so called "primitive war". Through lectures, readings, and research projects, this course reviews anthropological approaches to the study of primitive war, focusing both on ethnographic examples and on theoretical approaches. The course covers topics such as explanations, traditional and modern, for the existence of warfare; the primate background to human warfare; and the social causes and individual motives leading to warfare in tribal societies; as well as its consequences for those societies. Students become familiar with both general and particular manifestations of primitive warfare, and are exposed to individual ethnographic cases of primitive warfare as they motivate a variety of theoretical paradigms. All students are expected to attend all lectures and to complete all weekly readings. At the last class meeting of each week, a rotation of students are assigned to organize and direct the class discussion of the week's readings in the light of the lectures earlier in the week. Performance in this activity constitutes 40% of the student's grade. Another 40% is earned in the research term paper each student must prepare. The final 20% of the grade is based on overall student contribution to class discussion, particularly during those weeks when the student is not a

discussion leader. There is no final examination. This course can be used to fulfill major and minor requirements in Anthropology. Because warfare was and often still is a major activity in most tribal societies, this course provides an important complement to area-focused ethnography and archaeology courses such as ANTH 241 (Peoples and Cultures of Highland New Guinea), ANTH 422 (Mesoamerica), ANTH 423 (North America), ANTH 425 (American Southwest), ANTH 440 (Lowland South America), and ANTH 447 (Africa). This course is also relevant to topically focused course such as ANTH 450 (Comparative Social Organization), ANTH 451 (Economic Anthropology), ANTH 454 (Political Anthropology), and ANTH 456 (Cultural Ecology). On the graduate level, this course addresses central topics covered in ANTH 522-523 (Ecological Theory in Anthropology), ANTH 556 (Social Organization of Traditional Societies), and ANTH 559 (Behavioral Anthropology).

Prerequisites: 3 credits of ANTH

ANTH 445W: Ethnographic Film

3 Credits

Comparisons of written and visual ethnography; critical assessment of ethnographic film; cross-cultural variation. ANTH 445W Ethnographic Film (3) Students will be presented with both written and filmed ethnographic material dealing with a number of cultural subsystems (e.g., kinship and family relations, religion, political systems) and with a number of different world cultures. The aim of the course is three-fold: 1) to convey through visual anthropology the complexity and inter-relations of cultural subsystems, which is often difficult to do in written sources; 2) to develop the skills of critical viewing of ethnographic film; and 3) to provide students with critiques of their written work that will enable them to learn and practice the skills of clear, organized and convincing writing. Towards these ends, students will be expected to read and view weekly assignments for selected topics, to write twelve critical essays that compare the written and filmed sources, and to evaluate the aims, effectiveness, and methods of the films. Essays will be graded for both content and form and will provide a basis for class discussion. Students will also be required to write a term paper focused on a particular ethnographic film of their choice (one not shown in class) supplemented by additional research. As an aid in the writing of the paper, at least one class period will be devoted to learning how to do library research in Anthropology. This course will complement other courses in Anthropology such as ANTH 045 and ANTH 001. The course can be used to fulfill a requirement in both the major and minor in Anthropology and will fulfill both a Writing Intensive requirement and a Bachelor of Arts social/behavioral science requirement. It will also provide students in other departments with the opportunity to study aspects of diverse, non-western cultures.

Prerequisite: ANTH 45
Writing Across the Curriculum

ANTH 446: Mating and Marriage

3 Credits

An examination of human mating mainly from the viewpoint of behavioral ecology, centering on the species-typical institution of marriage. ANTH 446 Mating and Marriage (3) This course is an examination of human mating and marriage mainly (although not exclusively) from the viewpoint of evolutionary behavioral ecology. Its central concern is the species-typical and uniquely human institution of marriage. Why do all human societies recognize this peculiar institution, whose social and biological functions, apparently obvious, become mysterious on

close examination? What, exactly, is marriage? What are its consistent characteristics and attributes—or does it have none? How are spouses chosen, and by whom? What does being married imply for the behavior of the spouses, and that of their children and other relatives? What are the evolutionary scenarios that might have led us to marriage? Although sexual behavior is clearly a key element in answering some of these questions, and receives considerable attention, this is not a course on human sexuality. Nor is it a course on kinship, even though kinship is also crucial to understanding marriage and also receives a good deal of attention. Rather, this course attempts to bring to bear on this central social institution bodies of knowledge from the biological and social sciences that may contribute to understanding how and why marriage arose as a universal feature of human societies, and how and why it is perpetuated in contemporary societies. We begin the semester with the posing of the central problem—what is marriage and why do we have it? For about half the course, we approach this question from an evolutionary, sociobiological point of view: We look into the biological background of human mating—its evolutionary history, its physiology, its behavioral ecology, etc. as we go through a semi-popular book on the subject by a biological anthropologist. Next we turn to more academic readings, old and new, that further elucidate the ecological constraints and fitness consequences of various behaviors relating to mating and mate choice, child rearing, etc., in terms of reproductive success, survivorship, etc. In the second half of the course, we take a more social anthropological point of view. We look at what anthropologists have written about marriage and marriage customs over the years. We try to relate the traditional social anthropology to more modern human behavioral ecology. Finally, in a research project report, each student examines some specifics of marriage as it is manifested in ethnographically known societies. In these reports we are particularly interested in how and by whom mates and spouses are chosen, and who contributes what to the raising of children.

Prerequisites: 3 credits of ANTH

ANTH 448: Ethnography of the United States

3 Credits

Ethnographic descriptions of various dimensions of life in the United States. ANTH 448 / AMST 448 Ethnography of the United States (3) Ethnographic descriptions of various dimensions of life in the United States. The course covers uses of ethnography in American Studies toward an understanding of social and cultural communication and performance. The application of ethnography and concepts of cultural anthropology to complex societies such as the United States is discussed. The course teaches students to use ethnographic methods for research of American society and culture. Attention is given to the ethics and issues of ethnographic fieldwork. The course satisfies the "area" requirement in "society" for American Studies majors.

Prerequisites: 3 credits of ANTH
Cross-listed with: AMST 448

ANTH 453: Anthropology of Religion

3 Credits

Traditional and modern religions and historical and contemporary religious movements from an anthropological perspective. ANTH 453 Anthropology of Religion (3)(BA) This course meets the Bachelor of Arts degree requirements. This course will examine the origin, evolution and social function of religion from a cultural materialist perspective. It will begin with a general discussion of an anthropological approach to

the study of religion, using numerous examples from different cultures for purposes of illustration. Following a discussion of several topics relevant to the anthropological study of religion—including magic, rituals, witchcraft and mythology—the course will focus on the relationship between politics and religion: first discussing the role of religion as a mechanism of social and political control, and then examining the role of religion as a vehicle of sociopolitical change in the form of what anthropologists call revitalization movements. This course links to courses on the sociology, history, and philosophy of religion, to courses on intellectual history, and history of social sciences. Course evaluation will be based on 3 take-home essay examinations. Students will give the instructor 3 questions at indicated times; the instructor will return one question; the student will write an essay on the indicated question. Attendance is mandatory. This course will fulfill a 3 credit 400 level requirement for the Anthropology major and minor.

Prerequisites: 3 credits of ANTH

Bachelor of Arts: World Cultures

Bachelor of Arts: Social and Behavioral Sciences

ANTH 457: Jewish Communities: Identity, Survival, and Transformation in Unexpected Places

3 Credits

Examines the global array of smaller Jewish communities that have flourished outside the main urban centers of Jewish settlement. JST 457 / ANTH 457 / SOC 457 Jewish Communities: Identity, Survival, and Transformation in Unexpected Places (3) (US;IL) This course addresses an understudied aspect of Jewish experience. It aims to expand our understanding of Jewish communities by focusing on those that are, alternatively, small, situated in out-of-the-way places, culturally outside the Jewish urban mainstream, or embedded in a larger society with markedly different values and traditions. These communities often constitute the points-of-contact between Jews and non-Jews, and in so doing sometimes transform Jews, non-Jews, and the relationships among them. Other such communities constitute experiments in Jewish lifeways and provide mainstream Jews with pilot projects for potential social and cultural change. This course will explore the significance of small, little-known, idiosyncratic, and anomalous Jewish communities on Jewish history and culture, and draw on them to instruct students on the social and cultural processes of small or unusual communities generally. The communities studied will be located both in the U.S. and elsewhere in which Jews have lived as a minority community during modern times. The course will look at the founding, growth, and decline of such communities and at their social processes and institutions. It will explore how to understand and analyze such communities, which vary from one part of the world to another. The social world of Jewish communities, large and small, is a core interest of Penn State's Jewish Studies Program. This course will complement the current offerings in Jewish Studies, strengthening the social, cultural, and contemporary perspectives available in the Program. It will provide students with an opportunity to explore individual experience and micro-level processes among Jews, and to study the dynamics of identity and survival. It will complement the current offerings in Sociology and Anthropology by affording an opportunity to focus on community-level social processes and by adding a course on contemporary Jewry. The course will integrate knowledge from a variety of sources and fields, promote intercultural understanding, and meet US and IL requirements. Materials will be interdisciplinary, and will include ethnographies, sociological studies, population studies, histories, and personal narratives. They will include primary texts, creative works, and scholarly analyses. The assignments will be structured to facilitate preliminary experience in independent

analysis, library research, or field research. The course will be offered approximately once a year. Enrollment will be limited to 30 students in order to promote active, engaged learning. Evaluations will be based on short papers and outlines that will prepare students for their final, term papers.

Enforced Prerequisite at Enrollment: Three credits in JST or ANTH or SOC

Cross-listed with: JST 457, SOC 457

International Cultures (IL)

United States Cultures (US)

ANTH 458: Ethnographic Field Methods

3 Credits

Course introduces students to ethnographic field methods, includes student projects and simple analyses that don't require statistical sophistication. ANTH 458 Ethnographic Field Methods (3)(BA) This course meets the Bachelor of Arts degree requirements. This course is designed to introduce you to some (not all) ethnographic field methods. It will include actual projects you will have to carry out and other material that will make you a better ethnographer, such as how to pose questions that can be answered, how to select an appropriate sample for a project, how to take and use field notes. Because the emphasis is on field methods, we will do only simple analyses that don't require any statistical sophistication (e.g., descriptive statistics, chi square tests)

Prerequisite: Three credits in ANTH

Bachelor of Arts: Social and Behavioral Sciences

ANTH 460: Human Genetics

3 Credits

This course will cover the nature and contents of the human genome and the basic principles of evolution. We will also explore the future implications of personal genomics and how this information is being used to reconstruct our evolutionary history and to advance human medicine. We will carefully consider the processes by which we can identify how information contained within our genomes may affect physical and behavioral phenotypes, and what other factors may be involved (e.g., the environment). The points will be illustrated by a variety of examples of human evolution and important biomedical issues

Enforced Prerequisite at Enrollment: ANTH 21 or BIOL 133 or BIOL 222 or BIOL 230W or BIOL 230M or BIOL 322 or BMB 251 or BMB 251H

Cross-listed with: BIOL 460

ANTH 460H: Honors Human Genetics

4 Credits

This course will cover the nature and contents of the human genome and the basic principles of evolution. We will also explore the future implications of personal genomics and how this information is being used to reconstruct our evolutionary history and to advance human medicine..We will carefully consider the processes by which we can identify how information contained within our genomes may affect physical and behavioral phenotypes, and what other factors may be involved (e.g., the environment). The points will be illustrated by a variety of examples of human evolution and important biomedical issues.

Enforced Prerequisite at Enrollment: ANTH 21 or BIOL 133 or BIOL 222 or BIOL 230W or BIOL 230M or BIOL 322 or BMB 251 or BMB 251H

Cross-listed with: BIOL 460H

Honors

ANTH 461: Molecular Anthropology

3 Credits

Provides framework to understand current issues in biology, genetics, and anthropology as they relate to the evolution of our species. ANTH 461 Molecular Anthropology (3) The aim of this course is to provide students with the framework to understand current issues in biology, genetics, and anthropology as they relate to the evolution of our species. Basic methods in molecular biology, structure of the genome, molecular evolution, and human population genetics will be covered in the first part of the course. Once these tools are in place we will examine both classical and contemporary research reports on a number of topics, including the place of humans among the apes; mitochondrial Eve, DNA in forensics; Neandertal DNA and other applications of ancient DNA; reconstructing recent human evolution; the biological meaning of race; disease gene mapping; recent technological advances in genomics; skin, hair, and eye color genes; and the genetic future of our species. There will be three exams that will each count for 25% of the grade. Attendance and participation are mandatory and will count for 25% of the final grade. A portion of this participation grade is earned by presenting 10 min. summaries of particular readings. Each student will be expected to summarize a scientific paper four times during the semester. These summaries are not expected to be exhaustive reports on the material, but should reflect an effort on the part of the student to understand and discuss the material and may require some background work.

Prerequisites: 3 credits of ANTH or 3 credits of BIOL

ANTH 466: The Skull

3 Credits

Survey of the mammalian skull from many perspectives including evolution, development, anatomy, function, and variability of the skull. ANTH 466 The Skull (3) This course will provide a survey of what is known about the Mammalian skull from many perspectives including evolution, development, anatomy, function, and variability of the skull. The course will consist of lectures and a laboratory component. Students will learn about the basic skull architecture and be introduced to various specializations of extinct and extant species. The section on evolution will cover the evolution of the skull from the earliest jawless vertebrates through human evolution. During the section on development, we will discuss the nature of the formation of bone embryologically. Other topics include the ways in which bone changes shape and size during prenatal and postnatal growth, how changes in growth can result in evolutionary change in morphology. The section on the function of bone will focus on biomechanical interpretations of the morphology of the skull. The lectures will focus on human anatomy but provide contrasts with other mammals (e.g., horse, dog, mouse). The last section on variability will survey the major groups of mammals highlighting similarities and differences in bony architecture and skull morphology. This portion of the course will be more laboratory-based with students examining specimens, taking measurements and leading discussions on hypotheses regarding why skull architecture is so different among mammals. The objective of this course is to provide the student with a broad survey of information relating to the mammalian skull. Through assigned readings and lectures the student will become familiar with salient anatomical and osteological features, obvious differences in skull architecture and the various biological processes responsible for these differences. During the final laboratory part of the course the students will bring their knowledge to an assigned problem and specimen in order to apply what they have

learned to a scientific question. Students will be required to attend all lectures and laboratories. Periodic quizzes will be administered as well as an exam at midterm. A paper that focuses on the student's laboratory experience will be required at the completion of the course.

Prerequisites: 3 credits of ANTH

ANTH 476W: Anthropology of Gender

3 Credits

Cross-cultural construction of gender and sex roles; theories of gender construction; case studies and practical effects. ANTH 476 / WMNST 476 Anthropology of Gender (3) Students will learn the current theoretical approaches in anthropology to the cultural construction of gender and sex roles. The first 2-3 weeks of the course will concentrate on exploring and understanding these theoretical approaches. The remaining weeks will focus on case studies of non-western gender systems, and on the practical effects of those systems, but students will also be encouraged to relate these systems to their own experience. Each meeting will be based on discussion of the readings assigned for that meeting and students will be expected to participate. During the period devoted to theoretical approaches, discussion will focus on the assumptions, advantages, and disadvantages of each approach. For the part of the course devoted to readings on individual societies, one reading each week will be the basis for a critical essay of approximately five pages. These essays will be expected to include: 1) an identification of the theoretical approach that informs the work, 2) a statement of the author's arguments or questions, 3) a discussion of the methods used to provide data in support of the arguments or to answer questions, 4) a critique of the adequacy of data, and 5) a statement suggesting which additional elements might make for a better study. These essays will be graded for both content and form and students will have the option of rewriting essays (and improving their grade) after they receive comments. These essays will provide 60% of the course grade, while participation in discussions will provide another 15%. A short research paper will also be required. The paper must focus on a question or hypothesis concerning gender, and a preliminary proposal that includes the focus of the paper, its relevance to the course, and a beginning bibliography is required. A first draft of the paper will be required two weeks before the end of the semester. The research paper will provide 25% of the course grade. The course complements other courses in Anthropology that deal with sex differences, but will provide a perspective on gender that is not available elsewhere in the curriculum. The course can be used to fulfill a Behavioral Anthropology requirement in both the major and minor in Anthropology and a writing across the curriculum requirement. It will also provide students in other departments with the opportunity to study aspects of diverse, non-western cultures. The course is currently identified as one that may be taken to fulfill the requirements of the Women's Studies minor.

Prerequisites: 3 credits of ANTH or 3 credits of WMNST
Cross-listed with: WMNST 476W
Writing Across the Curriculum

ANTH 479: Tradition, Modernity, and Cultural Change in South Asian Societies

3 Credits

India and its neighboring countries provide an interesting view of the ways cultural diversity functions in the world. The region contains one-sixth of humankind, and its people are differentiated not only by religion,

language, caste, and ethnicity, but also by ecology, technology, dress and cuisine. ASIA 472 examines how South Asia's history may have influenced the diverse behavioral, cultural, and social norms from the ancient to the modern times Beginning with a preliminary discussion of ancient medieval, and colonial Indian history, the course examines the institutions of caste, family and kinship, marriage, gender, and religious practices of the many different religious, and regional, and language communities of the sub-continent, and how they may have changed over the years. The course concludes with a review of how the different South Asian communities both within and outside the subcontinent have dealt with modernity in the realms of politics, religion, law, arts, cinema, and popular culture. This course will be cross listed with Anthropology and will be taught by both Asian Studies and Anthropology faculty. thereby making it useful to students of both Asian Studies and Anthropology. Furthermore, students in this course will be exposed to research methodologies used by scholars of history, literature, and anthropology.

Prerequisite: 5th semester standing Recommended Preparation: Introductory courses in Anthropology, Asian Studies, History, or Religions Studies would be useful background for this course.

Cross-listed with: ASIA 472

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

ANTH 492: Intermediate Field Methods

3-6 Credits/Maximum of 6

On-site experience in collecting archaeological, behavioral, or biological data.

Prerequisites: 3 credits of ANTH

ANTH 493: Field Techniques

3-6 Credits/Maximum of 6

Training in techniques involving analyses of archaeological, behavioral, or biological data.

Prerequisites: 3 credits of ANTH

ANTH 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

ANTH 494H: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Honors

ANTH 495: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

ANTH 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

ANTH 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

ANTH 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Applied Linguistics (APLNG)

APLNG 83: First-Year Seminar in Applied Linguistics: Language as Social Practice

3 Credits

This course introduces the idea of understanding language use as social practice. This means studying how language serves to represent and to constrain speakers in various social and cultural contexts. The activity of using language will be viewed through the lens of several research domains in the field of Applied Linguistics, a discipline that studies language in the way that real speakers and writers actually use it. The class will present readings taken from fields as varied as sociolinguistics (language as social performance); second language acquisition research (language as cognition, language as participation); language and identity; pragmatics (speech, act theory; conversational analysis); and language and power (language and power (language policy; gender and language). Whether being studied as a formal school subject or learned at a mother's knee, language is inextricably bound up with who we are and who we become. Theoretical terminology, research-based findings, and innovative ideas about what language 'really' is will be introduced and explored through accessible and engaging readings and activities. Students will learn to look at language use in social contexts from multiple perspectives, seeing how it both reflects, and shapes, identity in context (while at the same time allowing speakers to modify and shape those very contexts). Given that this is a first-year class for first-semester students, emphasis will be placed on how the understanding these basic ideas of Applied Linguistics can help us to pursue a satisfying and enriched sense of self, whether as a speaker of a specific language, or as a member of multiple discourse communities. Students will conduct an interview project to better understand the issues faced by language learners in the local community. International students are particularly invited to join this course.

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)
 United States Cultures (US)
 First-Year Seminar
 General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning

APLNG 200: Introduction to Language, Culture, and Social Interaction

3 Credits

This course is an introduction to the study of language as a communication system and to contemporary thought on the interrelationships among language, culture, and social interaction and their fundamental links to social identities and discourse communities in today's culturally diverse and technology driven environments. It investigates the fundamental links of language, culture, and social interaction to social identities, social role relationships, and discourse communities. Students will develop an awareness of their interpersonal and intercultural skills and who they are as communicators, an appreciation for variations and dialects of languages, and an understanding of issues related to bilingualism, language learning, and identity.

International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning

APLNG 210: Global English

3 Credits

Having developed since the fifth century in the British Isles, English has now become a global language used by millions of native and non-native speakers around the world. This course examines the historical roots of English and the factors that explain its spread as the lingua franca of globalization, adopting the metaphor of 'ecology' to illustrate how English has adapted INTERNALLY in response to, and in conjunction with, EXTERNAL circumstances. Readings and activities will explore how English language has been instrumental to globalization and how globalization has changed English. After studying the historical and geopolitical bases for the rise of English, we explore the implications of decolonization, diaspora communities, the Internet, and the new economy for diversifying the structure, norms, and usage of the English language. We will place particular emphasis on exploring new modes of literacy and discourse practices, the fluid relationships between English and other languages and cultures, and the continuing reconceptualization of language standards, linguistic identities, and literacy practices.

International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning

APLNG 220N: Multilingual Lives: Stories of Language and Culture Learning

3 Credits

This course will explore how research into language acquisition intersects with the lived experiences of multilingual speakers. Drawing upon both social sciences and the humanities, the course will give

students the opportunity to understand and appreciate multilingualism, and the complex relationships that language has with culture, education, family life, and the structures of power, gender, and class. In addition to reading formal studies of scholarly research into language acquisition, language education, motivation and identity, students will read excerpts from literary works that illuminate these topics through the lens of narrative, memoir, and fiction. The stories we read will help us find answers to questions such as these: How can we understand the processes of language learning and language loss? What are the documented cognitive benefits of bilingualism? What are the factors that influence language learning, including motivation, age, and social context? In addition to reading, analyzing, and discussing texts, students will conduct a community outreach project in which they collect and analyze stories from multilingual individuals in the local community, including members of their own family, recent immigrants, long-term residents, international students or scholars, retirees, heritage language learners or parents in a multilingual household.

International Cultures (IL)
 General Education: Humanities (GH)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking

APLNG 230N: Language and Social Justice

3 Credits

This course examines the contribution of language to a variety of social justice agendas by exploring how language is used to form and support unjust social structures. The course has two main aims. First, drawing from sociolinguistic theories of linguistic ideologies, the course aims to show the significance of language in how the hierarchization and ranking of languages in a society are produced, maintained, and reinforced. The second aim is to demonstrate the effects of such a hierarchization and ranking of languages on (in)equality in educational institutions and before the law. The topics covered in this course include the role of language in structuring individual identity and human relations and how this process characterizes the nature of social institutions in producing social inequality. As the course touches on issues pertinent to our daily lives, students' questions, comments, and relevant personal experiences and observations will play an important role in our exploration of how the language we use can affect opportunities and privileges in society.

Cross-listed with: AFR 230N
 International Cultures (IL)
 General Education: Humanities (GH)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking

APLNG 250: Peer Tutoring for Multilingual Writers

3 Credits/Maximum of 3

This class provides theoretical and practical training to prepare Writing Center Peer Tutors with specific expertise in tutoring international/multilingual students. This course provides a theoretically-grounded introduction to the principles and practices of peer tutoring with

multilingual writers (writers for whom English is not a first language). It is designed specifically for undergraduate students who wish to be employed as Peer Tutors with Penn State Learning at the Writing Center. Like ENGL 250, the class provides a basic orientation to the techniques of being an effective writing tutor, but offers a deeper understanding of the issues faced by writers whose first language is not English. The class may be of particular interest to students who study languages or education, who plan to work in academia, or who have a strong interest in cross-cultural communication or international education. However, undergraduate students of any major and of any language background are welcome to enroll in this course. Drawing upon research in second language acquisition, instructional theory, and composition pedagogy, the class examines the central roles of identity, belief, and cultural perspective in the development of tutoring expertise. Exploring the student's own development as a writer and learner, engaging in practical training activities, writing intensively, talking about writing, and engaging in reflective exercises comprise the first set of topics in the semester. In the second unit, through readings, interaction, observation and discussion, each tutor-in-training will explore the cultural and linguistic factors in the development and maintenance of second-language writing proficiency for international students in an American university context. There is a strong focus as well on tutoring pedagogy, and the class includes a 10-week structured practicum experience during which each student will tutor an ESL student from a first-year writing class (ESL 15). Students who want to work as Peer Tutors must have completed their own first-year writing requirement; it is recommended that they have completed ENGL 202 also.

Prerequisite: ENGL 015; ESL 015

APLNG 260: LANGUAGE AND TECHNOLOGY

3 Credits

Applied Linguistics is an interdisciplinary field that investigates and aims to study social issues through a linguistic lens. APLNG 260 - Language and Technology - is designed to introduce students to how technology helps shape language learning, education in general, and its impact on society. To develop students' skills in Social and Behavioral Science (GS), students are introduced to various learning theory-informed technological applications, such as natural language processing. These applications include virtual reality, gaming, speech recognition within deep learning, and virtual assistants. To develop students' skills in humanities (GH), students will develop critical and ethical awareness of applying technology use in education based on learners' needs. Theories of learning and methods will be introduced and applied to technological applications, such as learner-centered design, cloud computing, and open-source learning. The intersection of language learning and technology will be examined by understanding what is second language acquisition (SLA) and its technologies that support SLA, such as using a corpus and using mobile apps to aid in pronunciation production. Through critical reflections and designing instructional methods/materials integrating technology into various educational contexts, students will broaden their intellectual horizon regarding technological use in society, and more importantly, gain further understanding on the possible research directions linking technology, language learning within Applied Linguistics, and education.

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

APLNG 280N: Conducting International Comparative Research

3 Credits

APLNG 280N Conducting International Comparative Research. (3) (Gen Ed;IL; Integrative) (BA) This course meets the Bachelor of Arts degree requirements and may also serve as a methods course in the Global and International Studies (GLIS) major. The goal of this course is to equip students with effective methods for conducting international and cross-cultural research that addresses issues and problems occasioned by an increasingly globalized world. Students will acquire the background knowledge and skills necessary to analyze and evaluate existing international comparative literature and to design and propose new cross-national and cross-cultural research. The course focuses on projects in five key, contemporary domains of globalization: human rights, culture and identity, global conflict, wealth and inequality, and health and environment, and it draws on multidisciplinary methods from across the humanities and social sciences - including qualitative, quantitative, and mixed methods. Particular attention is paid to working with international datasets and the issue of translation and interpretation. As a result of the course, students will be able to: (1) locate and understand the structure and import of existing international databases, (2) design comparative, cross-national and cross-cultural research projects, (3) evaluate the validity, reliability, and significance of published international comparative research, (4) conduct basic comparative analyses of social, political, and cultural texts (documents) and oral interview data and other audio and visual data, (5) evaluate comparative quantitative data from cross-cultural surveys and other quantitative instruments, and (6) design reports and multimedia presentations of international comparative research.

Bachelor of Arts: Humanities

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

APLNG 290N: Critical Approaches to Applied Linguistics

3 Credits

APLNG290N is a critical, exploratory introduction to the discipline of applied linguistics designed primarily for undergraduate students who plan to enroll in the major; as such, the course is a required course for all students who plan to major in Applied Linguistics. It serves as the prerequisite course for APLNG 450W (Research Methods) and APLNG494 (Capstone), two higher-level required courses for the major. In addition, this course is open to all interested undergraduate students as a General Education course (GH & GS). To introduce the fundamental perspectives of theory and practice in the discipline, the course draws upon several foundations: sociology, psychology, education, and linguistics. To prepare students for future study and work within the discipline, the course will give students the opportunity to define and distinguish the basic approaches and principles of Applied Linguistics (language as social practice, language diversity as the human default, how language and

culture intersect); to complete hands-on work with data and research methods (ethnographic interviews; critical and conversation discourse analysis); to analyze and critique scholarly and popular readings in discussion with classmates and instructor; and to collaborate with each other in designing and producing project work, individually and in small groups, relating to linguistic needs, challenges, and advocacy issues in a variety of workplaces and contexts. Project work might include workplaces such as corporations, media companies, and technology companies, or contemporary innovations such as artificial intelligence, user experience research, computer-mediated education, and other settings where language and culture invite exploration and responsive discussion.

General Education: Humanities (GH)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

APLNG 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

APLNG 310: Language Rights, Policy, and Planning

3 Credits

This is a course on language rights, policy, and planning from individual, group, inter-ethnic, and national perspectives. Linguistic minorities are a consequence of colonization by European powers in different regions of the globe. Other effects of colonization and political conflicts include mass movement, migration, and the emergence of nationalism. In such contexts, minorities have made demands for language rights and used language policy and planning as strategies to realize demands for social justice. This course will examine how linguistic minorities secure opportunities to use their own languages and have them accommodated in official legislation as mother tongue, second, or foreign languages. The course will adopt a global perspective and analyze language rights as well as language policy and planning in diverse regions of the globe, including but not restricted to, Africa, Asia, and South America. Analysis will primarily focus on how language policies can be carried out from different perspectives (e.g., literary, linguistic, and political) in different geographical regions. After examining how language policies operate in and influence society, the course will use sociopolitical ideologies to explore the nature of the relationship between language policies and language rights and the ways this relationship enables one to achieve an expanded understanding of the impact of language policies and language rights on local language practices.

Cross-listed with: AFR 310, GLIS 310
 International Cultures (IL)

APLNG 320N: Language, Ideology, and Propaganda

3 Credits

The course gives students hands-on tools for investigating ideology and propaganda through the analysis of a variety of historical and contemporary texts. With the help of different theoretical perspectives, students learn how to analyze ideologies that can be found in texts, identify whose interests those ideologies serve, and discuss their

biases, with the goal of learning how these belief systems can be used to promote and circulate specific political views (i.e., propaganda). The course begins with a historical overview of the role played by language and other meaning-making resources in the production and circulation of ideology and propaganda across a variety of historical contexts. The course will then explore contemporary practices of disinformation, and investigate alternative strategies through which to counter disinformation.

Cross-listed with: JST 320N
 General Education: Humanities (GH)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies
 GenEd Learning Objective: Soc Resp and Ethic Reason

APLNG 402: Language, Culture and Cognition in East Asian Context

3 Credits

This course is a linguistic introduction to the relationship between language, culture, and cognition with a focus on Chinese, Japanese, and Korean. In this course, we study the cognitive linguistic view that human cognition is fundamentally embodied and shaped by various figurative processes such as metaphor and metonymy grounded in our bodily and cultural experiences, and that human thought and language are fundamentally metaphorical in nature. We examine how we think and speak figuratively and conceptualize our experience metaphorically in everyday life, and compare the languages in terms of cognitive universals and cultural variations. The objectives of this course are threefold: (1) to lead language students to a linguistic approach to language analysis so that they learn about how individual linguistic expressions fit into a coherent linguistic system; (2) to enable them to see how linguistic structures reflect underlying cognitive, conceptual structures which are derived from the interplay between human embodiment and cultural environment; and (3) to provide them with a broad perspective on similarities and differences among Chinese, Japanese, and Korean as components that form a coherent category known as "East Asian". Class work will include some lecture but will emphasize guided discussions, literature review writings, student presentations, and research papers. This interactive approach is intended to encourage students' participation, involvement, and cooperation in learning, to help them understand the relationship between language, culture, and cognition, and to assist them in developing both analytic and expressive abilities. This course is designed to count as a BA "Other Cultures" and International Culture. Students can take this course as long as they have an interest in the relationship between language, culture and cognition, especially in the context of East Asia.

Prerequisite: ASIA 100; ASIA 101; ASIA 102; ASIA 103; ASIA 104; 5th Semester standing
 Cross-listed with: ASIA 402
 Bachelor of Arts: Arts
 Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)

APLNG 410: Teaching American English Pronunciation

3 Credits

Study and application of principles of North American English phonetics and theories of teaching pronunciation. APLNG 410 Teaching American English Pronunciation (3)(BA) This course meets the Bachelor of Arts degree requirements This course, for teachers who deal with speakers of other languages, integrates research and theory on the acquisition and development of pronunciation, as well as current pedagogy, to enable them to construct their own principled theory of teaching pronunciation. Students are introduced to the characteristics of the consonant and vowel systems of English. In addition, students are introduced to variations in the production of consonants and vowels by speakers of languages other than English. Students are expected to understand and to be able to describe the stress rhythm, and intonation of English as well as the adjustments that are made in connected speech. Students will learn how grammar and orthography influence the pronunciation of phonemes. Students will learn how to diagnose an individual's difficulties in the production of North American English and will learn how to develop appropriate curriculum. By focusing on instructional strategies from fields as diverse as theater arts, psychology, and instructional technology, students will be able to individualize their instruction by providing alternative ways to better respond to second language speakers' learning styles and preferences. Moreover, this course requires students to develop and implement appropriate curriculum for both hypothetical, real tutorial, and whole class instruction. The objectives of this course are for teachers 1) to develop a satisfactory understanding of the phonetics of North American English, including consonants, vowels, rhythm, stress, intonation and prominence, 2) to develop an understanding of the relationship between listening and pronunciation, as well as orthography and pronunciation, 3) to develop an ability to explain these phonetic concepts appropriate to students with varying learning styles using a variety of techniques such as kinesthetic and tactile reinforcement, 4) to develop an ability to diagnose speakers' particular pronunciation difficulties and to create instructional materials in response, 5) to develop a coherent philosophy of the teaching of pronunciation, and 6) to develop an ability to evaluate pronunciation textbooks and materials and supplement them when necessary.

Bachelor of Arts: Social and Behavioral Sciences

APLNG 412: Teaching Second Language Writing

3 Credits

This course provides opportunities for exploring various perspectives on theory, research, and pedagogical applications in second language writing. APLNG 412 Teaching Second Language Writing (3) This course has been designed to provide opportunities to explore various perspectives on theory, research, and pedagogical applications in second language writing. Through readings, writing, class discussion, and development of practical applications, students may develop an understanding of how research and theory can inform their practice, as well as an awareness of how personal and professional factors come together to inform their own theory of second language writing. By engaging in instructional activities, such as evaluating writing, responding to writing, and developing materials, students may begin to develop an understanding of how to implement theory in practice aligned with understanding. The overriding objectives are for students to help develop self-awareness as a writer and a teacher of writing, develop their own philosophy of teaching composition in an additional language context and to develop curriculum that embodies this philosophy. Students will

be evaluated on reading journals, tutoring in the Writing Center, literature review, materials development project and developing of materials. APLNG 412 is an elective course in the M.A. TESL program and/or PhD option in Applied Linguistics.

APLNG 450: Conducting Research in Applied Linguistics

3 Credits

This course is a survey of state-of-the-art research methodologies in applied linguistics. The course covers both quantitative and qualitative methodologies including corpus linguistics, conversation analysis, ethnography, interviewing, critical discourse analysis, experimental designs, and surveys. Students will leave the course with a broad understanding of research methods in applied linguistics and the ability to conduct their own studies. All relevant coursework for APLNG450 must be completed within the fifteen weeks of the semester. This course is open to all majors at Penn State.

Prerequisite: C or better in APLNG 290

APLNG 482Y: Introduction to Applied Linguistics

3 Credits

Application of theories of language to psycholinguistics, philosophy of language, anthropological linguistics, sociolinguistics, bi/multilingualism, second language acquisition and teaching. APLNG 482 Introduction to Applied Linguistics (3) (IL) This is a survey course concerned with the application of theories of language to issues in the areas of psycholinguistics, philosophy of language, anthropological linguistics, sociolinguistics, bi/multilingualism, second language acquisition, and second language teaching. Specifically, the course focuses on: a) how language influences the way people think and bring meaning to what they do, b) how language users match their utterances to specific functional purposes within specific social contexts, c) how the language practices of a particular culture are closely tied to the beliefs and conceptual principles by which people in the culture live, d) how language is used by speakers of different races, genders, and ethnic backgrounds, and e) how language is acquired, used, and perceived within bi/multilingual societies. Through reading, writing, and discussing the major issues in each of these areas students will come to understand how theories of language have influenced the way we think and bring meaning to what we do, the ways we communicate within different cultures and societies, and the way languages are learned and used.

International Cultures (IL)
Writing Across the Curriculum

APLNG 484: Discourse-Functional Grammar

3 Credits

Develop a working knowledge of the structure of English and apply such knowledge to research and/or classroom situations. APLNG 484 Linguistic Structures for English as a Second Language (3) This course is designed to enable prospective and practicing ESL/EFL teachers to understand the linguistic structures of the English language. Through the use of transformation grammar, students will interpret and analyze the basic grammatical structures of the English language. Students will apply their developing skills of linguistic analysis to recognize, and analyze, and remediate both oral and written grammatical errors in ESL/EFL instructional contexts. Students will understand the current theoretical issues related to pedagogical grammars and develop an appreciation for

the practical and theoretical relevance of linguistics analysis for second language educators.

APLNG 491: Theory: Second Language Acquisition

3 Credits

An investigation into current issues in the theoretical bases of second language acquisition. APLNG 491 Theory: Second Language Acquisition (3) This course considers the relationship between second language acquisition (SLA) theory and language teaching. An examination of various aspects of first language (L1) and second language (L2) learning/acquisition processes provides a framework for consideration of basic questions in SLA research and interpretation of findings to date. Of particular interest is the relationship of this research to teaching materials and methods. The questions addressed include the following: What is SLA? What are the methods and aims of SLA Research? How are theories of SLA related to major theoretical models of human language and human learning? What have been or could be important interdisciplinary perspectives in SLA?

APLNG 493: Teaching English as a Second Language

3 Credits

Theory, research, and pedagogy that focus on the teaching of English to speakers of other languages in varied contexts. APLNG 493 Teaching English as a Second Language (3) (IL) This course focuses on the teaching of English to speakers of other languages. Specifically, the course explores the multidimensional nature of the teacher as a learner of teaching, the context of schools and schooling within which teaching occurs, and the activities and content of second language teaching and learning. Throughout the semester, students will engage in a range of theoretical, pedagogical, and reflective activities that will enable them to: 1) understand their own beliefs and knowledge about language learning and language teaching and become aware of the impact of such knowledge and beliefs on their classroom practices, 2) recognize the highly situated and interpretative processes involved in language teaching and be able to reflect on, critically analyze, and evaluate their own teaching practices, 3) become sensitive to the complex social, cultural, political, and institutional factors that affect language teaching and students' language learning, 4) come to recognize students' strengths and development as learners and language learners, 5) understand subject matter content from an instructional perspective and learn to anticipate areas that may require additional instructional support, 6) use their knowledge of theory to inform their instructional practices, 7) participate in professional collaborations with other teachers as they learn about language teachers, language teaching, and language learning.

International Cultures (IL)

APLNG 494: Capstone: Research and Practice in APLNG

3 Credits

This is a required course for all APLNG majors and only APLNG majors may take this course except with special permission from the instructor. As the culminating disciplinary experience for undergraduate APLNG majors, this course offers students a chance to engage with a personally relevant, semester-long project, involving either research or practice, in the field of Applied Linguistics. Students work with a project mentor and the course supervisor to develop one of the following options: a research project or a practice-oriented experience related to one of the teaching units in the Department of Applied Linguistics or in the community. All

options require a final reflective research paper of 20-25 pages. Students must have completed the portal course for the major, APLNG290N Critical Approaches to Applied Linguistics, prior to enrolling in this course.

Prerequisite: APLNG 290N Concurrent: APLNG 450W

APLNG 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

APLNG 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Applied Youth, Family and Community Education (AYFCE)

AYFCE 211N: Foundations: Civic and Community Engagement

3 Credits

Through readings, discussion, deliberation, listening, and individual as well as collaborative action, this course gives students the opportunity to learn about and practice theories and habits of civic and community engagement and public scholarship with the goal of helping to build democratic capacity and sustain participatory democracy. This course emphasizes concepts and case studies that focus on the people's role in shared governance. The course also provides a foundation for understanding how a wide range of other individual and collective practices have an equally important role to play in building and sustaining community. The course draws from studies in demography, political science, sociology, psychology of racial identity formation and education to help students communicate better about and in shared governance. Among the core concepts are the role of students and other citizens in sustaining and transforming their communities, the historical and contemporary mission of Land Grant universities, the centrality of rhetoric and communication to collaborative judgment, and the relationship among media, cultures, and politics as they affect civic and community engagement. Students also learn together about the range of ways that citizens do, can, and might participate in democratic decision-making and will observe and practice these forms in several communication media and across a range of differences. Finally, learn about models of and opportunities for engaging other citizens across and beyond Penn State, including in global environments.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 30H or CAS 137H or ENGL 137H or CAS 100

Cross-listed with: CAS 222N, CIVCM 211N

International Cultures (IL)

United States Cultures (US)

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

AYFCE 270: Consumer and Financial Skills

3 Credits

AYFCE 270 Consumer and Financial Skill (3) (GS) This course covers essential consumer and financial skills young adults need to successfully manage resources and personal finances. It is also designed to satisfy social and behavioral general education requirements. Major themes addressed include goals and decision-making, spending sensibly, borrowing wisely, maximizing earnings /income, protecting assets, making money work, and life events that have financial implications. Some of the information has immediate application, while the remainder will become applicable to all students after graduating and living independently. Regardless of students' major or profession, the course content applies to them and can play a critical role in their professional and personal success. Course topics are related to current economic events from an individual perspective, consumers' behavior in the market, and their impact on communities and society in general. Strategies are discussed which outlines how course topics can be extended to others. For instance, future formal educators (teachers) will learn strategies for incorporating consumer and financial skills into existing curricula regardless of the subject they teach. Students who plan to work in non-formal settings (e.g., human service agencies, community agencies, youth groups or organizations) will acquire useful tools and techniques that may be used to improve the life skills and financial security of their clients. Future parents will learn easy ways to incorporate desired financial skills and behaviors in their children using daily living. The course addresses critical consumer and financial topics from the individual or household level only and with emphasis on key decisions from a social and behavioral perspective.

Enforced Prerequisite at Enrollment: Semester standing of 3rd or higher General Education: Social and Behavioral Scien (GS)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies
GenEd Learning Objective: Soc Resp and Ethic Reason

AYFCE 295: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: Prior approval of proposed assignment by instructor

AYFCE 295B: Leadership Jazz

3 Credits/Maximum of 3

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

AYFCE 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

AYFCE 438: Living in an Increasingly Diverse Society

1-3 Credits/Maximum of 3

Students in this course will explore selected dimensions of diversity through lecture, discussion, speakers, active participation, and experiential learning.

United States Cultures (US)

AYFCE 495: Internship in Youth and Family Education Programs

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practicums, or internships.

Enforced Prerequisite at Enrollment: Prior approval of proposed assignment by instructor

AYFCE 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

AYFCE 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

AYFCE 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Arabic (ARAB)

ARAB 1: Elementary Modern Standard Arabic I

4 Credits

Introduction to reading, writing, pronunciation, and aural comprehension of modern standard Arabic; simple grammatical forms; basic vocabulary.

Bachelor of Arts: World Language (All)

ARAB 2: Elementary Modern Standard Arabic II

4 Credits

Continuation of ARAB 1 ; development of additional skills in conversation, reading, and writing; grammar and vocabulary building; cultural components. ARAB 2 Elementary Modern Standard Arabic II (4) (BA) This course meets the Bachelor of Arts degree requirements. This language and culture course, which counts towards the language requirement for B.A. (and some other) degrees, presents the second semester of the study of the Modern Standard Arabic language and an exploration of several aspects of Arab cultures. ARAB 2 is the continuation of ARAB 1 , an elementary course designed to introduce learners of Arabic as a second/foreign language to the basic structures of Arabic and to its uses in common situations of everyday communication. ARAB 2 begins with

a review of the basics learned in ARAB 1, and, as in some sections of ARAB 1, the course may follow the story of an Arab American family. ARAB 2 expands on vocabulary, goes into more complex grammar structures, and further introduces Arab culture. The "multiplicity" of the Arabic language and the coexistence of spoken (colloquial) and written standard forms of Arabic continue to be addressed in order to prepare the student for the complex reality of the language. This course underscores all four communication skills (reading, speaking, listening and writing) and uses audio and video material to take the learner to native speakers in their natural environment; introducing invaluable listening segments and various cultural aspects of the Arab world. The course may also have recourse to popular media such as films, comics, newspaper headlines, websites, music, and songs. Students are reminded through their oral presentations that Arabic is spoken as an official language in 22 countries with diverse and rich historical, political, economical, religious, artistic, and literary venues, and Arabic is also used in many additional parts of the world. Class activities and projects are designed to enable students to become active, creative participants, and transmitters of new knowledge to their peers. The course is designed for students who have completed Arabic 001 in Penn State's language sequence or have the equivalent level of language proficiency. In turn, this course serves as a prerequisite for AARAB 3. Placement within the Arabic language sequence follows the University's foreign language placement policy; for example, students whose native language is Arabic are not eligible to receive credit in this course.

Prerequisite: ARAB 001
Bachelor of Arts: World Language (All)

ARAB 3: Intermediate Modern Standard Arabic

4 Credits

More complex grammatical forms; vocabulary building principles; continued development of skills in conversation, reading, writing; culturally-oriented readings and films. ARAB 3 Intermediate Modern Standard Arabic (4) (BA) This course meets the Bachelor of Arts degree requirements. This language and culture course, which completes the 12th-credit-level language requirement for B.A. (and some other) degrees, presents the third semester of the study of the Modern Standard Arabic language and an exploration of several aspects of Arab cultures. ARAB 3 is an intermediate course designed as a continuation of ARAB 2 and a basis for further study of Arabic as a second or foreign language. The course intends to alert students to the wealth and intricacies involved in learning the Arabic language and its many cultures. In addition to being the official language of 22 countries, with great ancient civilizations, complex modern histories, and intense political situations, Arabic is also the language of the Islamic religion; the language of a booming music and film industry, and the language of a significant body of literature. The multiplicity of the Arabic language, as well as the coexistence of colloquial and modern standard Arabic, is addressed in this course. The course emphasizes all four communication skills (reading, speaking, listening and writing). Vocabulary and grammar are expanded. Students become involved in the Arabic language and its cultures through various activities, which may be designed around a serialized and audio-visually enhanced story set in an Arabic environment, as well as through an oral report presented in class. The course may use popular media such as films, comics, newspaper articles, music, websites, and songs. Themes relating to contemporary experience are treated, such as relationships with family members and friends, the decision to immigrate, daily life within a residence, how a child of an Arab immigrant feels, the cultural importance of hospitality, and the month of Ramadan. The course is designed for students who have completed ARAB 2 in Penn State's

language sequence or have the equivalent level of language proficiency. In turn, ARAB 3 course serves as a prerequisite for ARAB 110. Placement within the Arabic language sequence follows the University's foreign language placement policy; for example, students whose native language is Arabic are not eligible to receive credit in this course.

Prerequisite: ARAB 002
Bachelor of Arts: World Language (All)
Bachelor of Arts: World Lang (12th Unit)

ARAB 51: Elementary Intensive Arabic for Graduate Students I

3 Credits

Intensive introduction to Modern Standard or Colloquial Arabic: first half of graduate sequence in elementary reading, writing, listening, cultures. ARAB 51 Elementary Intensive Arabic for Graduate Students I (3) Students learn the Arabic alphabet. They learn to form the letters in all their different positions, they also learn to read them. Practice through dictation, listening and reading lists of words containing the different sounds and letters. Students learn how to greet one another. They also learn vocabulary words they can use in simple sentences. Lessons are taught in an authentic cultural context.

Prerequisite: graduate standing

ARAB 52: Elementary Intensive Arabic for Graduate Students II

3 Credits

Intensive introduction to Modern Standard or Colloquial Arabic: second half of graduate sequence in elementary reading, writing, speaking, listening, cultures. ARAB 52 Elementary Intensive Arabic for Graduate Students II (3) This is the second in a series of three courses designed to give students an intensive introduction to Arabic. This is the second half of graduate intensive sequence in elementary reading, writing, speaking, listening, and cultural contexts. Students will learn the Arabic vocabulary. Lessons are taught in an authentic cultural context.

Prerequisite: ARAB 051 and graduate standing

ARAB 97: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

ARAB 99: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

ARAB 110: Arab Language, Cultures, and Current Topics

3 Credits

ARAB 110 is a fourth-semester (upper intermediate) Arabic culture and language course, designed for students who have successfully completed Arabic 003, or those who demonstrate an equivalent competence in Modern Standard Arabic. The course focuses on selected aspects of the cultures to be found among Arabic-speaking communities and countries around the world, and it emphasizes the diversities within,

as well as between, these cultures. Learners of Arabic as a second/foreign language will improve their language skills, especially in written and spoken communication, and they will develop their intercultural competence. The material is always presented through culturally rich texts, as the course uses authentic texts in Arabic to expand the student's knowledge of both language and culture. Students have many opportunities to increase their knowledge and appreciation of the varieties of cultural production in the Arabic-speaking world. Along with continuation of language learning, students are exposed to resources such as short stories, travelers' tales, websites, film, music, graphic fiction (comics), etc. The multiplicity of colloquial versions of the Arabic language, and their coexistence with Modern Standard Arabic, are explained in order to prepare students for encountering the complex reality of the language and its many cultures. This course can be taken as a stand-alone, or used to fill a requirement for the Arabic Minor, and as a prerequisite for Penn State's 400-level courses in Arabic.

Prerequisite: ARAB 003 or permission of program
 Bachelor of Arts: World Language (All)
 Bachelor of Arts: World Lang (12th Unit)
 Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Global Learning
 Exceeds 12th Unit of World Language

ARAB 164: Introduction to the Qur'an

3 Credits

The Qur'an is the sacred text of Islam. Revered by over a billion Muslims today, it is little understood by non-Muslims. This course will introduce students to the literary and religious meanings of this important text, which is seen as both the very word of God as well as the premier example of Arabic style. Attention will be given to the many cultures which have been influenced by this text, especially the Middle Eastern world. All readings will be in English translation.

Cross-listed with: RLST 164
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

ARAB 165: Islamic States, Societies and Cultures c. 600-1500

3 Credits

This course introduces students to the history and culture(s) of the Islamic world from c. 600-1500. The course develops a historical framework for understanding developments in religious and legal thought and practice, science, medicine, and technology, philosophy, and the arts. Students will learn about culture through lecture and discussion and through examination and analysis of a variety of texts and examples of material culture from different periods and regions.

Cross-listed with: HIST 165, RLST 165
 Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)

General Education: Humanities (GH)
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Key Literacies

ARAB 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

ARAB 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

ARAB 295: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Prerequisite: prior approval of proposed assignment by instructor

ARAB 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

ARAB 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

ARAB 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

ARAB 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

ARAB 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

ARAB 401: Advanced Language & Cultures I

3 Credits

Fifth-semester Modern Standard Arabic: reading more complex texts, films, further development of conversation, composition skills, Arab cultures, current issues. ARAB 401 Advanced Language & Cultures I (3) (IL) (BA) This course meets the Bachelor of Arts degree requirement. This language and culture course, which fulfills International Cultures requirement or the Other Cultures requirement within the Bachelor of Arts degree, will offer a continuation of the study of the Modern Standard Arabic language and an exploration of several aspects of Arab cultures. Language skills (reading, writing, speaking, listening) are further developed through the exploration of several culturally important themes that illustrate a range of cultural situations and contexts. Among the themes that may be discussed are the following: new opportunities and also persistent problems facing Arab youth; social and economic conditions in which fundamentalist and other groups present their agendas; the condition of women and the pressures often exerted by society's norms and traditions to keep women out of the public scene; cultural, emotional, and literary reactions to the tragedy of displaced peoples; Islam and other religions among Arab cultures; love and the images and symbolism used to describe it; the writings of one or more well-known authors, including the evolution within the works of the author(s) and the influence of these writings on Arab thought; Arabic cultures in various parts of the world, including the U.S. All themes are presented in the target language and represent a wide range of Arabic culture and current issues. The course may also involve popular media such as comics, newspaper headlines, music and songs, and a visit to the library. Class activities and projects are designed to enable students to become active and creative participants and transmitters of new knowledge to their peers. Students will be asked to conduct research using authentic material, and to write a short paper in Arabic as a wrap up of their final presentation.

Prerequisite: ARAB 110 or approval of program
Bachelor of Arts: Arts
International Cultures (IL)

ARAB 402: Advanced Language & Cultures II

3 Credits

Sixth-semester Modern Standard Arabic: reading more complex texts, films, further development of conversation, composition skills, Arab cultures, current issues. ARAB 402 Advanced Language & Cultures II (3) (IL) (BA) This course meets the Bachelor of Arts degree requirements. This language and culture course, which fulfills the Humanities or the International Cultures requirement within General Education or the Other Cultures requirement within the Bachelor of Arts degree, will build upon previous courses in the Arabic curriculum and offer a continuation of the study of the Modern Standard Arabic language, an exploration of several aspects of Arab culture in a range of contexts, and the exploration of current issues and topics of interest in Middle Eastern media. Among the themes that may be discussed are the following: the achievements of Arab Nobel Prize winners, holiday traditions, colloquial Arabic, love, social and economic conditions of the poor and the middle-class, practical and psychological problems arising from belonging to a certain social class, ways in which the state (in different countries) relates to the needs of the people, Arab cultures in various parts of the world including the U.S., and a variety of the most recent social and political newspaper and magazine articles. All themes are presented in the target language and represent a wide range of

Arabic culture and current issues. The course may also involve popular media via the reading of comics, relevant headlines, music and songs, and computer practice for students to learn how to type in Arabic and benefit from available resources to equip students with this useful Arabic tool. Class activities and projects are designed to enable students to become active and creative participants and transmitters of new knowledge to their peers. Themes will often be examined comparatively and will draw on students' personal experience to connect with the material presented. The course is designed for students who have completed Arabic 401 in our language sequence or have the equivalent level of language proficiency. At University Park the course will be offered every semester or every other semester, according to enrollment patterns and the availability of staff. At other locations, course-offering patterns will be determined by their needs.

Prerequisite: ARAB 401 or approval of program
Bachelor of Arts: Arts
International Cultures (IL)

ARAB 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

ARAB 494H: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Honors

ARAB 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

ARAB 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

ARAB 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Architectural Engineering (AE)

AE 97: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

AE 124: Architectural Engineering Orientation

1 Credits

This course is a first-year seminar (FYS) designed for students interested in learning about architectural engineering as a major and careers in this field while also providing the skills for students to successfully navigate Penn State University. The course is broken into three major areas: (1) an overview of architectural engineering as a major and a profession; (2) professional and study skills for navigating a university environment; (3) resources available for coursework application across Penn State and within the College of Engineering; and (4) unique themed experiences related to architectural engineering topics. AE 124 introduces the field of architectural engineering and discusses the wide range of career paths that graduates can pursue. The course overviews the 5-year architectural engineering curriculum and presents the research, study-abroad, internship, and other extracurricular opportunities available for students in the major. Next, the course provides students with the necessary skills to be successful in their classes, including: how to schedule classes and plan out study habits while familiarizing themselves with campus and the resources available to engineering students. Students learn how to navigate professional settings such as the Architectural Engineering Career Fair and job interviews so they can maximize their opportunities for internships and fulltime careers in the building industry. Lastly, students take a deeper dive into a selected themed topic that explores innovative hands-on projects that reflect various aspects of the architectural engineering discipline. Themes for the hands-on projects may vary from section to section and year to year to remain relevant to the current needs of the profession. Students learn in an interactive environment that utilizes a combination of teaching styles including, but not limited to: construction site tours, behind the scenes campus building tours, field trips, active building and testing, individual and group projects, guest speakers, and more.

First-Year Seminar

AE 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

AE 202: Architectural Engineering Concepts

3 Credits

This course exposes students to (1) the interdependencies between various building systems (2) the interdisciplinary nature of the field of architectural engineering, and (3) the concept of professional practice in the building and construction industries. Students learn to integrate architectural design and detailing, the influence of thermal science, and building codes in the design of building systems. By the end of the course, students will be able to produce simple integrative building designs, attain fundamental knowledge of fire protection principles, design a roof storm water drainage system, have a fundamental knowledge of climate as a design driver, gain working knowledge of passive design strategies, attain a fundamental knowledge of psychrometrics, understand the principles defining thermal comfort, gain working knowledge of heat transfer through building envelope assemblies, calculate heat loss for a building, perform simple energy calculations and gain a fundamental knowledge of typical energy codes. The course also introduces the principles of social and environmental responsibility through discussion of sustainable design. The course

utilizes lectures, practicums, examinations, projects and presentations to deliver and reinforce the technical content. The course offers students the opportunity to work in team settings and to present their work orally to their peers. The projects present opportunities to engage students in the discussion and application of social and ethical responsibilities.

AE 210: Introduction to Architectural Structural Systems

3 Credits

Qualitative study of architectural structural systems; historical development of structures; insights of structural analysis and synthesis; comparative structural types. This course is intended for Architecture students. AE 210 Introduction to Architectural Structural Systems (3) is an introductory course in structural analysis and engineering mechanics (primarily statics) with an emphasis on buildings. This course was created specifically for Penn State architecture students. The course is designed to give students an understanding of the behavior of building structural and related architectural elements under a variety of loading conditions. AE 210 is designed to provide students with an understanding of the interpretation and application of structural aspects of building code requirements, particularly in the area of design loads. In addition, this course provides the necessary prerequisite knowledge for two additional structural design courses that are required for architecture students.

Prerequisite: algebra, trigonometry**AE 221: Building Materials, Methods and Modeling I**

3 Credits

This course covers the fundamentals of: (1) building materials to form building systems, (2) building construction methods to assemble building systems, and (3) computer modeling strategies to convey system designs. All three areas are concurrently taught to connect the lectures to a thematic area in building design. Thematic areas covered in AE 221 include: various architectural and structural materials; visual documentation of architectural designs and structural systems in 2D and 3D representations; industry accepted software tools to convey designs; and finally, building codes and their requirements. Students learn the course content in a variety of active strategies including: site tours, building construction demos and lab builds, utilizing campus buildings in assignments, guest speakers and more. By the end of the course, students will be able to comprehend trends in how materials are used to create buildings; identify and select current and emerging building materials for a variety of applications; apply technology to communicate designs to many different stakeholders; read, interpret and generate construction documents (e.g. 2D and 3D models); and connect building codes and standards requirements to building materials. AE 221 is a required course for all students in the Architectural Engineering undergraduate program.

AE 222: Building Materials, Methods and Modeling II

3 Credits

This course covers materials and methods of construction used in residences, and the preparation of working drawings for a small building. The course objective is for students to understand construction documents, to communicate construction information with sketches, and to create drawings and specifications. The course is organized around a series of modules related to working drawings. These modules consist of: 1) reading and interpreting construction documents, 2)

creating hand drawn sketches, from existing mock-ups, from existing drawings, from assigned details of existing campus buildings, from only given material and connection parameters, and 3) generating CAD drawings of plans, elevations, wall sections, building sections, details, schedules. The final partial construction documents will be in accordance with CAD standards and building various codes, including zoning. This course prepares students for further study in the advanced architectural engineering courses. Student evaluation and individual grades are based on a combination of homework, projects, in class assignments, exams, quizzes and attendance. In class assignments are generally short and given to demonstrate a concept or as practice. Special facilities consist of: 1) the drafting room, where various drawings and specifications are utilized and where students prepare sketches, 2) the computer lab, where students have access to computer aided design software, presentation software and communication software, 3) the material samples room, where actual material samples and fasteners are examined and understood and 4) the hands-on mock-up room, where true size mock-ups that represent the students' drawings are built by student groups.

Enforced Prerequisite at Enrollment: AE 221

AE 240: Programming and Data Science for Architectural Engineering

3 Credits

The goal of this course is to provide students with fundamental knowledge of programming and data science so that it can be applied to a broad set of problems in architectural engineering. The course introduces students to programming concepts in Python, such as object oriented and functional programming as well as data science concepts, including exploratory data analysis and data visualization libraries that can be applied in Python, as well as similar applications available in spreadsheet tools. Basic topics related to statistics and optimization in architectural engineering applications are also included. During the final part of the course students will synthesize the topics they learned and apply them to AE CAD software and other tasks. This course provides a foundation for architectural engineering students to apply programming and data science techniques not only to challenges that exist today, but also to new challenges that will emerge as this field changes with time.

Enforced Prerequisite at Enrollment: MATH 140

AE 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

AE 308: Introduction to Structural Analysis

4 Credits

Algebraic and graphical methods of analysis of determinate members, deflections; introduction to indeterminate analysis methods. Course includes practicums. AE 308 Introduction to Structural Analysis (4) In this introductory course, students develop skills to perform analysis of structures, with emphasis on buildings and their structural elements. The objectives of this course are as follows: 1) to determine loads that the buildings/structural elements are likely to be subjected to during the lifetime of the building; 2) to discuss procedures used to determine reactions and internal forces in trusses, beams, and frames; 3) to introduce methods that can be used to calculate deflections. These objectives can be seen as three general steps that define structural

analysis. Although the main emphasis in this course is the analysis of planar, statically determinate structures, an introduction to the analysis of indeterminate structures is also given. The course is required to be taken by all architectural engineering undergraduate students in the third year. A knowledge of statics and strength of materials is required and this course serves as prerequisite for steel and concrete design courses in the Architectural Engineering Program.

Enforced Prerequisite at Enrollment: (EMCH 211 and EMCH 213) or EMCH 210 or EMCH 210H

AE 309: Fundamentals of Architectural Acoustics

3 Credits

This course introduces students to the acoustical analysis and design of buildings by having a fundamental understanding of the physics of sound including frequency, wavelength, sound pressure, and the human auditory system. The course encompasses four distinct areas of study: (1) fundamentals of acoustics, (2) room acoustics, (3) sound isolation, and (4) human hearing. A key goal of the course is to equip students with the skills to provide building occupants with high-quality listening environments that minimize intrusion by offending noises. The course also overviews the acoustical performance of typical building materials. By manipulating architectural materials and geometric configurations, students learn to improve acoustical performance of a building, specifically reverberation time for interior room acoustics and sound transmission class for sound isolation. By the end of the course, students will be able to: perform calculations related to sound pressure level, sound power level, weighted average absorption coefficient, reverberation time, and sound transmission class; design rooms in terms of a suitable reverberation time; and design sound isolation between rooms in terms of a suitable partition selection. Through lectures, practicums, projects, and examinations, the concepts of acoustical design are delivered and reinforced. The course offers students the opportunity to work in a team setting.

Enforced Concurrent at Enrollment: AE 221

AE 310: Fundamentals of Heating, Ventilating, and Air Conditioning

3 Credits

This course explores a variety of HVAC systems and presents methods of analyzing air-conditioning processes. HVAC systems maintain not only an acceptable level of thermal comfort within conditioned spaces, but also a healthy indoor environment. Hence, the conditions for a comfortable and healthy indoor environment, such as physiological considerations, environmental indices, and control of indoor air quality are also presented. Successful design of an HVAC system requires an accurate estimate of the peak rate at which thermal energy must be added to (heating load) or removed from (cooling load) a space. Accordingly, the various types of heat transmission in buildings and methods for estimating them are discussed to prepare students to estimate a building's energy consumption and size HVAC systems properly. By the end of the course, students will have an understanding of elements that influence HVAC design (such as, climatic conditions, building enclosure and factors of integrative design); attain fundamental knowledge of cooling load estimating; be knowledgeable about typical building HVAC systems (such as, steam, hydronic, and air systems); understand the psychrometric processes involved in maintaining indoor conditions for comfort and health; and evaluate the processes needed to maintain acceptable indoor air quality.

Enforced Prerequisite at Enrollment: ME 201. Enforced Concurrent at Enrollment: AE 202

AE 311: Fundamentals of Electrical and Illumination Systems for Building
3 Credits

In Fundamentals of Electrical and Illumination Systems for Buildings (AE 311), students gain an understanding of the basic knowledge and methods for analyzing, designing, and specifying building lighting and electrical systems. Lighting content introduces vision and perception, color, photometric calculations, luminaire types and their application, lighting controls, architectural lighting design principles, and lighting design documents. By the end of the course, students will be able to analyze, design, and specify simple architectural lighting systems. More specifically, students will gain a working knowledge of the terminology and principles of architectural lighting design and the role of lighting designers within the building design process; learn to apply the Illuminating Engineering Society (IES) design guidelines, and applicable energy code requirements in various space types. They will also be able to recognize, select, configure, and specify architectural luminaires and related control systems; understand the basics of color theory and the psychological impacts of lighting; and create and validate simple computer models for the purpose of facilitating lighting design. Electrical content introduces fundamental electrical calculations, electrical design processes, power distribution layout and equipment selection; the National Electrical Code, including application of its overcurrent and grounding requirements; electrical construction documents; and utility coordination. By the end of the course, students will be able to analyze, design and document architectural electrical systems. Specifically, students will gain a working knowledge of the terminology and principles of architectural electrical systems and the role of electrical engineers within the building design process; size and specify conductors, conduit, and overcurrent protection devices according to the National Electrical Code, and coordinate and layout panelboards and switchboards; identify topics in electrical building system design that create safety issues; and understand electric utility services and rate structures as they apply to building design. Lecture material is reinforced with homework, hands-on practicums, and team projects. AE 311 is a required course for all students in the Architectural Engineering undergraduate program and typically taken in the third year. This course serves as a prerequisite for courses on building illumination and electrical systems in the Architectural Engineering undergraduate program.

Enforced Prerequisite at Enrollment: PHYS 212

AE 372: Introduction to the Building Construction Industry
3 Credits

In this course, students will gain an understanding of the basic knowledge and methods used to organize and manage the delivery of a construction project. Construction topics covered include an introduction to the construction industry; organizational and contractual arrangements for construction projects; construction cost estimating techniques; construction scheduling approaches; critical path method scheduling; construction risk management, including bonds and insurance; and project management related to safety, quality, cost, and schedule. By the end of the course, students will: understand core concepts associated with construction planning and management approaches for building projects; be able to define the goals and objectives of the various players on a construction project; select a delivery method for organizing and delivering a successful construction project; know the typical types of contracts, insurance, and bonds, along

with when they are appropriately used; create conceptual, square foot, assembly, and unit price construction cost estimates; develop a Critical Path Method (CPM) schedule for a construction project or group of activities; and define and apply the typical methods for managing and controlling a construction project. Lecture material is reinforced with hands-on practicums, team projects, and individual assignments. Upon successful completion of AE 372, students will understand core concepts associated with construction planning and management approaches for building projects.

Enforced Prerequisite at Enrollment: AE 221

AE 397: Special Topics

1-6 Credits/Maximum of 6

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

AE 401: Design of Steel and Wood Structures for Buildings
3 Credits

Design of Steel and Wood Structures for Buildings (AE 401) is a first course in structural steel and wood design that focuses on the application of principles of structural behavior and material properties to the layout, analysis, design, and detailing of structural elements in steel and wood buildings. This course will prepare students to: (1) analyze and design members in gravity systems (steel and wood) and (2) identify, interpret and apply the appropriate provisions (from the American Institute of Steel Construction and the American Wood Council) to evaluate limit states at a member level. The primary steel topics covered in AE 401 include: steel system configurations; tension and compression members; non-composite and composite beams; decking and joists; conceptual layout of steel gravity systems, and bolt and weld limit states. The primary wood topics covered in AE401 include: wood design philosophy, wood gravity systems, along with correlations between what is similar and unique between steel and wood structures.

Enforced Prerequisite at Enrollment: AE 221 and AE 222 and AE 308

AE 402: Design of Concrete Structures for Buildings
3 Credits

This course provides students in the Structural option with an ability to analyze and design reinforced concrete members along with an understanding of their theoretical behavior. The primary focus is on the analysis and design of one-way systems composed of slabs, beams, and columns. By the end of the course, students will understand how design decisions are made; understand the theoretical behavior of reinforced concrete members and the effect of various design parameters on capacity; analyze and design reinforced concrete beams for flexure and shear, including the case of compression reinforcement of a flange; analyze and design reinforced concrete columns under axial loads and a combination of moment and axial load; construct simplified axial/flexure interaction diagrams for columns; understand concrete strength and serviceability characteristics; and read, interpret and apply American Concrete Institute building code provisions. A prerequisite knowledge of structural analysis is necessary.

Enforced Prerequisite at Enrollment: AE 221 and AE 222 and AE 308

AE 403: Advanced Steel Design for Buildings

3 Credits

By the end of the course, students will be able to analyze and design multi-story steel framing systems by: understanding and applying the provisions of national standards and specifications for design loads and associated criteria; designing gravity and lateral elements in a comprehensive design project; applying state-of-the-art guidelines for serviceability; creating and validating computer models for the purpose of facilitating design; Students will also be able to identify topics in steel design that are beyond the scope of classroom instruction; identify and apply resources available from the American Institute of Steel Construction; and explain their ethical and professional responsibilities for designing safe, serviceable, and economical steel designs.

Enforced Prerequisite at Enrollment: AE 401 and AE 430

AE 404: Building Structural Systems in Steel and Concrete

3 Credits

In this course, students gain an ability to design simple building members in steel and concrete using current professional standards, specifications, and guidelines. Students will learn how to combine these members into simple structural systems and compare the performance and load carrying characteristics of these systems. The course also addresses general performance parameters of these materials, construction issues, and key systems integration issues for beams, columns, flooring and roofing systems, and lateral bracing systems constructed in steel and concrete. By the end of the course students will be able to: apply structural loads based on relevant codes and standards; understand the layout of various steel flooring and roof systems; select steel deck system based on design requirements; calculate the loads for different deck configurations and use them to assess the forces on floor members; design floor members including joists and standard steel W-shapes; calculate the loads on steel columns and design them; understand various lateral load resisting system in steel buildings and their efficient layout; understand various types of connections in steel buildings; understand various reinforced concrete floor systems and their applicability; calculate the loads and moments on beams, girders and one way-slabs; analyze beams for flexure and shear; design columns and two-way slabs using tables from the Concrete Reinforcing Steel Institute (CRSI). This course is considered to be the terminal course in structures for non-Structural option AE students, and is designed to provide a general understanding of design, construction, and integration issues that affect these structural systems. This course may not be taken by students in the Structural option in the Architectural Engineering undergraduate program or by students in the Architecture program.

Enforced Prerequisite at Enrollment: AE 221 and AE 222 and AE 308

AE 405: Geotechnical Engineering

4 Credits

This course prepares students in the analysis, evaluation, and design of the most commonly used foundation systems to support buildings with an emphasis on shallow foundations. Included is a discussion of how all structural loads on buildings, most notably gravity loads and wind/seismic lateral loads, are transferred to the soil supporting the building. The design of foundation systems is a function of soil material properties, foundation material, and the selected foundation system. Topics include the basics of soil mechanics for foundation design for both strength

(load capacity) and settlement (serviceability), and the design of the most commonly used types of foundation systems. This course provides students with the knowledge, tools, and understanding of material properties, analysis and design principles, and methods necessary for successful design and construction of common shallow foundation systems within the framework of quality control, code compliance, economic considerations and safety, while minimizing failure risks. Students are also provided with an overview of the most common forms of deep foundation systems including piles and drilled shafts.

Enforced Prerequisite at Enrollment: (AE 308 or CE 340) and (AE 402 or AE 404)

AE 421: Architectural Structural Systems I

3 Credits

Qualitative and quantitative analysis and design of architectural structures, force flow; structure configurations; measurement and experiments; design studio critique.

Enforced Prerequisite at Enrollment: AE 210 and 3 credits of MATH

AE 422: Architectural Structural Systems II

3 Credits

Continuation of A E 421, with emphasis on structural configuration and construction assemblies.

Enforced Prerequisite at Enrollment: AE 421

AE 430: Indeterminate Structures

3 Credits

Indeterminate Structures (AE 430) aims to help students develop their analytical understanding and skills related to multi-member determinate and indeterminate structures. A knowledge of statics, strength of materials, and basic structural analysis is required. Building on concepts from the introductory structural analysis class, this course expands on classical methods for the analysis for beams, columns, trusses, frames, as applied to buildings. Additionally, students will learn about gravity and environmental loads; load paths, load effects, methods of analysis, and problem-solving skills; building code provisions for wind and seismic conditions; and lateral loads. Lastly, this knowledge is synthesized for computational modeling of and validation for simple structures.

Enforced Prerequisite at Enrollment: AE 308

AE 431: Advanced Concrete Design for Buildings

3 Credits

Advanced Concrete Design for Buildings (AE 431) is the second course in reinforced concrete design that builds upon previously learned skills in reinforced concrete design and analysis of statically determinate and indeterminate systems. Successful students will gain a sufficient understanding of the theoretical basis of concrete design to be able to learn any further aspect of concrete design on their own, and a set of specific critical skills needed by a structural designer involved with reinforced concrete structures. By the end of the course, students will be able to: interpret the organization and meaning of the ACI 318; apply behavior knowledge to evaluate limit states to assess if concrete one and two way gravity and lateral systems are properly sized; execute appropriate methods for designing concrete members and systems

using the strength design approach; develop skills in layout, design and evaluation of conceptual concrete system designs for a building; analyze and design reinforced concrete structures by understanding that reinforced concrete analysis and design are inextricably linked; to interpret design issues, select and conduct the required analysis, and specify a design for a particular application.

Enforced Prerequisite at Enrollment: AE 402 and AE 430

AE 432: Design of Masonry Structures

3 Credits

Design of Masonry Structures (AE 432) prepares students to design load-bearing and non load-bearing masonry structures. Although the emphasis is on reinforced masonry, some topics in unreinforced masonry are also covered. The course begins with a discussion of the materials used in masonry construction: clay units, concrete units, mortars, grout, and reinforcement. Since masonry code covers both allowable and strength design methods, a discussion of both design philosophies is necessary. The primary focus is on the analysis and design of reinforced masonry lintels, columns, shear walls, as well as out of plane walls. Additional topics such as deep beams, deflection, anchorage, and development length are also covered. By the end of the course, students will be able to analyze and design lintels in flexure and shear; analyze and design concrete masonry columns and pilasters under restrained or unrestrained conditions; analyze distribution of lateral loads to shear walls with openings; analyze and design masonry wall (load bearing and non-load bearing) in flexure and shear for in-plane loads; analyze and design concrete masonry walls and out-of-plane loads; design deep beams; detail miscellaneous steel attachments to masonry.

Enforced Prerequisite at Enrollment: AE 402 or CE 341

AE 440: BIM Data Management and Analytics for Multi-disciplinary Integration

3 Credits

This course provides students with fundamental knowledge of Building Information Modeling (BIM) applications in a whole project lifecycle, BIM-based data analysis, data visualization, and multi-disciplinary coordination. The Architecture, Engineering, Construction, and Operation (AECO) industry generates a large amount of data every day, with BIM playing a critical role in the design, construction, and operation of buildings. This course addresses techniques and tools for extracting, revising, analyzing, and visualizing BIM data to support multi-disciplinary coordination and predict building design and construction performance based on BIM data. A team project enables students from various option areas to use BIM tools to visualize and predict design & construction performance based on their interests; for example, to predict construction cost and energy consumption, or to conduct a design constructability check. In addition, this course will provide students with an overview of the future applications of BIM.

Enforced Prerequisite at Enrollment: AE 240

AE 441: Engineering Lifecycle Economic Analysis for Buildings

1 Credits

This course will focus on understanding the economics of the building lifecycle and the analytical approaches to evaluate higher cost building systems that may reduce overall lifecycle costs. Buildings are typically prototype combinations of systems that have varying costs in terms of

utility rates and maintenance costs, system replacement, and challenging to quantify 'value' of the building operations. This course includes concepts from engineering economics to understanding and applying traditional engineering economics concepts to the lifespan of buildings and their systems. The majority of the course content will focus on understanding and applying methods and techniques for analyzing the initial and lifecycle costs associated with alternative building system decisions. In the final stages of the course, quantification of unique benefits will be considered along with how to consider these benefits in system decisions.

Enforced Prerequisite at Enrollment: AE 372

AE 445: Building Retuning

3 Credits

Building Retuning focuses on the identification and implementation of energy-efficient retuning measures for commercial buildings to detect energy savings opportunities and implement improvements. This class introduces the topics of energy efficiency management through no-cost and low-cost operational measures in the following major focus areas: lighting, building envelope, hot water/steam systems, HVAC, compressed air, indoor environmental quality, and plug loads. This course builds upon prerequisite knowledge in building energy systems and is intended to support careers in the energy services industry. Students will learn how data is acquired through several on-site building surveys and walkdowns, analyze them, convert them to graphical formats, and interpret them for operational diagnosis and write a report on their recommendations. Students will also gain experience to interact with building occupants and operators and practice how to effectively work as a team. By the end of the course, students will: understand the roles of various technologies, methods, and analytical tools designed to evaluate building energy systems, envelope, and occupancy; be proficient in the use of analytical tools used for energy modeling of existing buildings and the development of energy efficiency recommendations; be capable of synthesizing multiple sets of criteria in the design of energy efficiency measures and packages that are unique and responsive to situational conditions; and be experienced in communication with facility owners and managers in a manner that encourages actionable steps toward energy efficient systems.

Enforced Prerequisite at Enrollment: AE 424 or AE 476 or AE 454

AE 449: Ultra-High Performance Buildings: Passive House Principles & Design

3 Credits

This course covers the principles, methods, and verification processes behind passive building design, with a focus on building envelope and mechanical system design, while providing a foundation in fundamental building science principles. The course focuses on ultra-high performance design principles, including continuous insulation, strict air tightness limits, reduction of thermal bridging, and thermal comfort via balanced ventilation and heat recovery, resulting in buildings with significantly lower energy use and higher occupant comfort than conventional construction. These principles are applicable to all building types. Students will also learn how to analyze Passive House performance during the design stage using relevant software, and during construction using blower door tests and infrared camera measurements.

Enforced Prerequisite at Enrollment: AE 202 or AE 470 or ARCH 412

AE 453: Load and Energy Use Simulations for Buildings

3 Credits

This course provides students with fundamental knowledge and an understanding of the methods and computational tools used in predicting and determining energy use of whole buildings and important subsystems. Load and energy use simulation content includes: conduction, convection, and radiation heat transfer physics as applied to buildings; Heat-Balance Method for transient load and energy calculations; application of commercial modeling software; analysis, interpretation, and verification of model results; and an introduction to data-driven modeling approaches. Course material is introduced and reinforced through hands-on modeling assignments, and larger concepts are motivated through in-depth individual and team modeling projects. By the end of the course, students will be able to: quantitatively compare and contrast building designs through load and energy simulations; identify and mathematically delineate the principal conductive, radiative, and convective heat transfer processes in building heating and cooling load assessment; identify, collect, and organize all of the initial conditions data required for the mathematical simulation of the building operation demand loads and calculation of the energy required to operate the building systems; identify and quantify the internal and envelope related cooling and heating loads; determine the subsystem (lighting, heating, ventilation, cooling, occupant equipment) energy use components associated with internal and envelope related loads; and indicate the energy use measurements required to establish an inverse model of building load and energy utilization for forward model simulation reconciliation.

Enforced Prerequisite at Enrollment: AE 310

AE 454: Advanced Heating, Ventilating, and Air Conditioning

3 Credits

This course provides students with fundamental theories and advanced knowledge to design HVAC systems for energy-efficient, healthy, and sustainable buildings. Students learn approaches to analyzing complex and integrated building mechanical systems for improved energy and environmental quality performance. Using scientific theories and analysis techniques from thermodynamics, fluid mechanics, and heat transfer, students critically evaluate building environmental quality, heating and cooling loads, and energy and mass transfer in the HVAC system, building envelope, and occupied spaces. This course provides a foundation for engineering students who will design and/or operate building mechanical systems including air and water distribution systems that promote energy savings, occupant comfort, and health for commercial and residential buildings. Based on these foundations, students learn engineering design and performance analysis procedures for residential and commercial building mechanical systems. By the end of the course, students will be able to apply fundamental thermodynamics and heat transfer principles to HVAC design and analysis; interpret the role of the HVAC system in energy consumption, indoor air quality, and thermal comfort; design HVAC components for residential and commercial construction using appropriate references; calculate heating, ventilating, and air-conditioning loads for a variety of buildings; critique and evaluate energy efficiency and environmental quality associated with building environmental systems; evaluate thermal comfort, productivity, and environmental quality associated with building environmental systems; and identify building performance standards and guidelines.

Enforced Prerequisite at Enrollment: AE 310

AE 455: Advanced Heating, Ventilating, and Air Conditioning System Design

3 Credits

This focuses on the development of skills necessary to identify HVAC system types appropriate for a given building and to perform a system selection exercise to determine the best of several design alternatives based on criteria including indoor environmental quality, energy and water use, construction cost, operating and maintenance cost, and life-cycle cost. The first portion of the course is preparation for a team design project in which the team identifies alternatives for a projected building based on the owners' project requirements that comply with applicable standards for indoor environmental quality and energy efficiency. The project culminates in a report and oral presentation to a jury. By the end of the course, students will be able to recognize and distinguish among common types of HVAC systems; select system alternatives suitable for a given application; perform a budget-level mechanical system construction cost estimate; perform a life-cycle cost analysis including construction, operation, and maintenance costs; and perform and document a system selection process to recommend the best solution among several alternatives. Topics considered include schematic diagram development for HVAC systems, system selection procedures, HVAC system types, mechanical construction cost estimating, life-cycle cost analysis, and standards commonly used in the design of HVAC systems.

Enforced Prerequisite at Enrollment: AE 454

AE 457: HVAC Control Systems

3 Credits

In this course, students will gain an understanding of basic automatic control theory, control system components, and control system design for applications related to building heating, ventilation, and air conditioning systems. The course builds on knowledge of HVAC system function and design obtained in prior courses in the curriculum and prepares students for advanced design courses and the capstone project. The course begins with an introduction to concepts and terminology of automatic control, followed by detailed study of control system components: sensors, controlled devices, and controllers. Understanding of these fundamentals is then applied to the development and documentation of controls for common HVAC systems and the commissioning of control systems. Relevant standard and guideline documents are referenced as appropriate. Students gain skills to design, document, and analyze the performance of building control systems. By the end of the course, students will be able to describe the characteristics of dynamic control systems and illustrate typical responses; identify, explain, and select the components of a control system; select and explain appropriate control strategies and sequences of operation; design and specify complex building automation systems for a variety of building types; and assess and contrast HVAC control sequences.

Enforced Prerequisite at Enrollment: AE 454

AE 458: Advanced Architectural Acoustics and Noise Control

3 Credits

This course focuses on noise control and room acoustics in buildings with an emphasis on the control of HVAC system noise, sound isolation in buildings, speech privacy, and acoustic design variables in spaces for speech and music. By the end of the course, students will be able to

predict sound pressure levels (Lp) along ductwork due to sound power levels of a fan; design HVAC systems using noise control strategies to achieve suitable Lp; design noise barriers for outdoor HVAC equipment, e.g. cooling towers & rooftop units; design rooms for speech and /or music taking into account reverberation time, clarity index, room shape, materials and reflectors; specify appropriate sound transmission class (STC) of wall partitions and noise criteria (NC) for speech privacy; and design sound isolation for floor-ceiling assemblies in terms of impact insulation class (IIC).

Enforced Prerequisite at Enrollment: AE 309

AE 459: Measurement Science for High Performance Building Systems

3 Credits

This course provides students with hands-on experience in the measurement of building energy performance, thermal comfort, and indoor air quality. Students learn standardized test methods and instrumentation for field investigation of building system performance. Using the measurement data from real buildings (both commercial and residential), students will be able to critically evaluate performance of building HVAC systems, building envelopes, and environmental quality in occupied spaces. Students will also learn how to renovate building systems based on field monitoring data. By the end of the course, students will be able to apply fundamental building science principles to measure mass and energy flow in buildings; leverage instrumentation and standardized test methods for high performance buildings; assess measurement science, uncertainty, and quality control associated with field measurements; and critique energy performance and indoor environmental quality of a building using field measurements and data analysis. The topics in this course provide a foundation for engineering students on the design of net-zero energy and high-performance buildings that address energy savings, occupant comfort, productivity, and health.

Enforced Prerequisite at Enrollment: AE 310 and AE 454

AE 461: Architectural Illumination Systems & Design

3 Credits

This course enables students to design basic lighting systems by providing them with a working knowledge to (1) evaluate the applicability of different lamp, luminaire, and control types in a particular design situation; (2) establish fundamental design criteria for a variety of lighting applications; (3) conduct appropriate and accurate analyses of lighting systems to assess system performance and evaluate their ability to meet design criteria; and (4) implement a completed design by specifying all of the components of the system and providing an appropriate system layout. By the end of the course, students will be able to converse intelligently about the art and science of light; apply technical terminology utilized in the lighting industry; understand how to establish fundamental design criteria for a variety of lighting situations; apply a design process for selecting and evaluating lighting hardware including light sources and luminaires; create a lighting design, reflected ceiling plan, light fixture schedule, and be able to appropriately present design solutions; and recognize basic ethical issues and understand proper frameworks for evaluating situations. Topics covered include: lighting and color metrics; the lighting design process; psychological aspects of lighting; light sources, luminaires, lighting systems, and the layering of light; lighting system documentation; presentation skills; ethics, professional issues, and the business of lighting.

Enforced Prerequisite at Enrollment: AE 311

AE 462: Architectural Lighting Controls

3 Credits

AE 462 is designed for students who wish to gain a more thorough understanding of architectural lighting controls and integration of controls with other building systems. This course examines how sustainability, human needs, costs, psychology, codes, corporate branding, and more all overlap to drive design decisions. It builds upon a fundamental understanding of the architectural lighting design process to develop a student's awareness of control issues. Topics include control philosophy, control topologies, control componentry, design documentation, code evaluation, and advanced control logic. The course investigates the methodology and processes behind basic control systems to modern data driven IoT (Internet of Things) solutions at the cutting edge of technology.

Enforced Prerequisite at Enrollment: AE 461

AE 463: Daylight Analysis of Roman Architecture

3 Credits

Solar geometry, building orientation and form, daylight design methods, characterization of interior and exterior lighting conditions. Offered in Rome. Analysis of Roman architecture from the perspective of daylight. Topics include solar geometry; building orientation and form; daylight design methods including toplighting and sidelighting strategies; illuminance meters; characterization of interior and exterior lighting conditions; site visits. Course includes development of a software tool to compute solar geometry and daylight availability for any location on the globe and for clear, overcast, and cloudy sky conditions. The software tool will also run in reverse, providing time of day and year when the sun is in a desired position for any latitude and longitude. Offered on location in Rome.

Enforced Prerequisite at Enrollment: ARCH 130A and AE 202

AE 464: Advanced Architectural Illumination Systems & Design

3 Credits

The course focuses on advanced topics related to lighting design such as luminous flux transfer and its application to lighting analysis tools, advanced issues in photometry, advanced control systems, and the design and evaluation of daylighting systems. Course topics include: Codes and standards; photometry, lighting and daylighting system performance metrics; lighting calculations for point and area sources, methods for modeling interreflection; the Lumen Method; light loss factors; proper application of lighting system modeling software; the fundamentals of daylighting and daylight delivery systems; basic and automated lighting control systems and their application, plus their role in emergency lighting. By the end of the course, students will be able to: convey a thorough understanding of photometric data and its application, including the ability to derive photometric reports from luminous intensity data; apply engineering principles and software to evaluate lighting and daylighting system performance; recognize different daylight delivery systems and list design considerations and performance features for these systems; apply daylight performance metrics to the analysis of daylight delivery systems; apply a working knowledge on the wide range of lighting control systems available, and properly select an appropriate control system and equipment for a specific application. The course

includes hands-on practicum experiences, homework, analysis and design problems and exams.

Enforced Concurrent at Enrollment: AE 461

AE 466: Computer Aided Lighting Design

3 Credits

This course provides students with a thorough understanding of the steps involved in the lighting design process, including the design and analysis for outdoor area; floodlighting; and interior applications, including design criteria; economic analysis; modeling algorithms; and visualization. The goal of this course is to cultivate an understanding of good lighting design practice through a series of design and analysis problems. Students gain experience and skill in applying these steps to real design problems, as well as effectively communicating their designs. Topics include the design process; outdoor area and interior architectural lighting design considerations; design criteria; schematic level design; lighting system modeling, performance evaluation and visualization; equipment selection and layout; and graphic and oral communication of schematic and final lighting design solutions. By the end of the course, students will have a thorough understanding of and the ability to: establish and follow a design process from programming through construction documentation; apply nontechnical skills that are essential to success in the AE professions of lighting design and illuminating engineering, including time management, effective communication, collegiality, and initiative; analyze lighting system performance with lighting software that employs advanced modeling algorithms; present design concepts, design processes, and lighting design solutions with clarity and professionalism, both visually and orally.

Enforced Prerequisite at Enrollment: AE 461

AE 467: Advanced Building Electrical System Design

3 Credits

Advanced Building Electrical System Design (AE 467) offers an in-depth look at electrical power distribution system design for buildings. The course reviews electrical calculation fundamentals, power distribution layout and equipment selection, metering/monitoring concepts, simple power flow control concepts, the National Electrical Code, design analysis and construction documents for electrical systems, and utility coordination. Lecture material is reinforced with homework and a semester-long project completed by each student. By the end of the course, students will have mastered core concepts needed to complete assignments encountered in electrical design for buildings. Specifically, students will be able to: explain and apply the electrical design process for buildings; evaluate facility loads and select an appropriate electrical distribution system configuration for a facility that complies with owner requirements; layout basic normal and emergency power distribution systems; understand the concepts of power system redundancy; address coordination details for the utility serving a project and create a detail that explains the interface with the utility; understand power studies (fault, device coordination and arc flash energy) and how to apply the study information to project design; select normal and emergency power distribution equipment that meets owner and project requirements; design feeders, branch circuits, and motor circuits and select distribution equipment sizes based upon loads and NEC rules; know basic metering and monitoring concepts and how these are applied to project systems; understand control systems for power flow, lighting, and equipment in buildings, and how to apply simple control strategies using control switches, relays/contactors and time switches for lighting circuits and

transfer switches, as well as contactors and electrically-controlled breakers for power distribution systems; evaluate and compare power distribution system options utilizing cost data as well as an evaluation model; understand the concepts and NEC rules for residential/living unit electrical design; read and apply the National Electrical Code to normal and emergency power distribution equipment, conductors, raceways, overcurrent protection and grounding; demonstrate mastery of basic electrical calculations needed for the design of single- and three-phase systems; and understand how electrical design is presented in project contract documents.

Enforced Prerequisite at Enrollment: AE 311

AE 468: Advanced Building Electrical and Communication Systems

3 Credits

Special Building Electrical and Communication Systems is an elective course within the architectural engineering program. It addresses specialized components and analysis of building electrical systems, cost and availability of electrical energy, and power quality. Students will also develop an a more in-depth understanding of alternative electrical sources, the National Electric Code, advanced design issues of electrical systems, as well as other electrical and building communication issues. In addition, part of the course will focus on the fundamentals of special systems typically included within the electrical discipline scope of work such as fire alarm, access control, surveillance, voice, video and data systems. Upon completion of this course, students will be able to explain the fundamentals of special electrical and communication systems within a building.

Enforced Prerequisite at Enrollment: AE 467

AE 469: Photovoltaic Systems Design and Construction

3 Credits

This course offers in-depth study in the areas of solar energy sources, photovoltaic (PV) systems design, and their interface with building electrical systems. The course provides an overview of PV systems and common applications in residential and commercial buildings, including the availability, intensity, and utilization methods of solar irradiance and insolation based on latitude and climate as well as site survey and assessment methods for the positioning of PV systems. Technical topics include solar radiation modeling, calculations, and simulation, traditional and emerging photovoltaic technologies, DC-AC power inversion, energy storage systems, and system sizing and design. The integration of PV systems with the building electrical system, including discussions of the pertinent building codes, utility interconnection, and the economic analysis of PV systems, is also included in this course. By the end of the course, students will be able to calculate and account for the factors which affect the performance of PV systems in various climates and conditions; distinguish the features and performance variables of solar modules and inverters in the design of PV systems; calculate string sizing and inverter matching variables in the design of PV systems; communicate the critical design features of safe and efficient PV system integration with buildings and utilities; evaluate and quantify the factors affecting the successful installation and performance of PV systems in a variety of settings; and apply newly acquired inquiry skills to assess new products entering the solar energy marketplace. In addition to understanding the key issues with system design, students will be able to choose components properly and to design a basic grid-tied system for a chosen building. Students will also be able to conduct an economic analysis of PV systems in the context of residential and commercial

building construction. Lecture material is reinforced with homework, hands-on exercises, and a semester-long project completed by each student.

Enforced Prerequisite at Enrollment: AE 311 or EE 210 or EE 211 or EE 212

AE 470: Residential Building Design and Construction

3 Credits

Residential Building Design and Construction (AE 470) familiarizes students with the residential construction industry and allows students to apply principles studied in other coursework to residential buildings. The content of this course provides an understanding of the residential construction process and the overall design of the various structural and enclosure systems within residential buildings. This course also focuses on the role of building science and the building enclosure in the performance and efficiency of residential buildings. The scope of residential construction considered in this course is primarily focused on single-family and multi-family dwellings. Furthermore, most of the topics covered are applicable to new construction, remodeling, as well as repair projects. By the end of the course, students will be knowledgeable of the operation of the residential construction industry and its role in the local and national economy; understand the construction process and the overall design of various systems within residential dwellings; and have experience with the role that building physics and the building envelope play in the performance and efficiency of residential buildings.

Enforced Prerequisite at Enrollment: AE 372 or CE 332

AE 471: CONSTRUCTION MANAGEMENT OF RESIDENTIAL BUILDING PROJECTS

3 Credits/Maximum of 3

Understanding residential project planning, management, contracts, budget, administration, and execution; discussion of the life cycle of a residential construction business. AE 471 Construction management of Residential Building Projects (3) The course Construction Management of Residential Building Projects is designed to introduce the students to a general understanding of the construction industry, basic principles of project planning and management, contracts, budget and project administration and execution as applied to residential building construction. The content of the course is intended to provide the student with the knowledge, tools, and understanding of processes and tasks necessary to manage residential building projects to completion successfully and within the framework of quality control, code compliance, and safety, while minimizing risks. The scope of the residential construction considered in this course is primarily focused on single-family dwellings and multi-family dwellings. Furthermore, most of the topics covered can be applicable to new construction, remodeling, as well as repair projects.

Enforced Prerequisite at Enrollment: AE 372 or CE 332

AE 472: Building Construction Planning and Management

3 Credits

This course introduces students to the processes by which building construction contractors acquire building projects, and the range of services typically provided on these projects. This course offers a working understanding of the preconstruction process and methods of acquiring negotiated work in building construction; addresses cost

estimates, schedules, cash-flow curves, and site plans for building projects; and provides a working knowledge of competitive presentation strategies and helps students develop professional presentation skills. The content of the course centers upon the process by which companies plan for and acquire projects as construction managers and general contractors. Specific topics include schematic estimating and scheduling, design coordination of structural, architectural, and mechanical systems, value engineering processes, and site planning. The financial aspects of construction work are also presented, including project financing, cash flow, and accounting. A significant portion of the course is devoted to the development of strategic and competitive business presentation, including risk assessment, fee structure, team dynamics, and technical presentation skills. By the end of the course, students will understand and participate in the planning, development, and presentation of a Request for Proposal (RFP) for a construction effort. Specifically: understand the steps required to review and assemble a reply to a complex RFP; create a company organization chart, outline roles and responsibilities, company charter, and demonstrate an understanding of creating an interesting response; understand the roles of consultants and project staff; assemble schematic estimates, site logistics, project schedules, and research the project needs and drivers; apply technology to enhance their deliverables; create a safety analysis to reduce risk and learn ways to control costs, enhance fees, and communicate/document project issues; acquire presentation skills and understand ethical practices and network development. The class relies heavily upon the application of all content in the context of a team project. The project involves the distribution of a "Request for Proposal" for which students prepare a competitive proposal for an actual building construction project planned on the Penn State University Campus. Class activities include the presentation of key issues followed by in-class or independent exercises to reinforce themes and strategies to be applied in the project proposal.

Enforced Prerequisite at Enrollment: AE 475

AE 473: Building Construction Management and Control

3 Credits

In Building Construction Management and Control (AE 473), students will learn how to perform detailed construction planning, identify potential problems during construction, and manage changes throughout a construction project. Students gain an understanding of the role of the general contractor/construction manager in analyzing the construction aspects of a building project and designing the construction engineering and management systems to effectively execute the project. Additional course topics include the key decisions that construction executives make when managing a construction company and identifying potential projects to pursue; the management of changes which occur throughout a project and ethical standards for a professional engineer and their impact on decisions within the construction industry. By the end of the course, students will be able to: explain key decisions that construction executives make when managing a construction company; perform detailed planning for a construction project; implement a construction plan and monitor the progress of a project including cost, schedule, quality, and safety performance; manage changes which occur throughout the project and how to negotiate contract changes; follow ethical standards for a construction professional and explain how ethics impacts decisions within the construction industry. The course is taught via a combination of teaching methods that rely on problem-based learning through both in- and out-of-class activities; lectures by faculty

and industry experts; project case studies; student presentations; and team and individual assignments.

Enforced Prerequisite at Enrollment: AE 472

AE 475: Building Construction Engineering I

3 Credits

Building Construction Engineering I (AE 475) offers students core knowledge about the construction processes and methods of different construction systems. Key issues for the construction management of these systems are addressed. This course explores the main methods and procedures for constructing buildings, and focuses on the civil, structural, and envelope elements of buildings. Four main components of building construction engineering are investigated: preconstruction, civil systems, structural systems, and architectural systems. The objective of this course is to develop the students' fundamental understanding of the required steps to plan and construct a successful building project. By the end of the course, students will be able to: identify the construction methods for the building systems; describe the method; explain why the method is being used; provide alternatives for the design; provide a rationale to support or evaluate the choice of alternatives; use their knowledge of building materials and equipment, such as concrete, steel, and masonry, to support their decision-making on the related issues in different construction projects; describe different construction procedures and details and identify the best one for a construction project; create a reasonable project estimate and schedule using the tools for cost estimation and task scheduling; clearly identify project safety, productivity, and quality control concerns as they relate to the systems discussed in this course; show awareness of current design and construction industry trends, issues, and events; and understand team dynamics to strengthen communication and interpersonal skills for professional practice.

Enforced Prerequisite at Enrollment: AE 372

AE 476: Building Construction Engineering II

3 Credits

Construction of mechanical and electrical systems in major buildings; fire protection, sound control, elevating; trade coordination; manufacturers' developments; computer application.

Enforced Prerequisite at Enrollment: AE 475. Enforced Concurrent at Enrollment: AE 310

AE 477: Material Science for Architectural Engineers

3 Credits

This course offers an in-depth understanding of the structure-processing-properties relationship of common building and construction materials. The course provides a detailed understanding of the atomic-level composition, structures, and properties of the three most-prominent building material types: metals, ceramics, and polymers. The student will understand foundational topics in the structural make-up of building materials and their standardized determination of physical, chemical, and mechanical properties. With a combination of in-class activities and lab-based practicums, the students will be able to apply their theoretical knowledge to active experimentation of materials. By the end of this course, the student will be able to (1) identify the engineering application of building materials and explain their use to meet design criteria of structures; (2) apply process-structure-property relationships to explain

the characteristics of common building materials (metals, ceramics, polymers); and, (3) evaluate the mechanical and failure behavior of built structures due to in-service loads.

Enforced Prerequisite at Enrollment: AE 221 and EMCH 213

AE 481W: Comprehensive Architectural Engineering Senior Project I

4 Credits

Building project selection and preparation of overall plan; preliminary investigation of building design and construction issues; creation of individual Capstone Project Electronic Portfolio (CPEP) and project proposal required. AE 481 Comprehensive Architectural Engineering Senior Project I (4) The course sequence of AE 481 and AE 482 comprises the capstone engineering design program for Architectural Engineering students. AE 481 is taken by all undergraduate architectural engineering (A E) students and also serves as the writing intensive course requirement in A E. Based on an actual building project model, students will investigate the building, perform technical analysis, develop project criteria and prepare a written proposal for more detailed work to be accomplished in AE 482. Evaluation methods include but are not limited to written reports, verbal and written presentations, faculty consultations and development of a capstone project electronic portfolio (CPEP).

Enforced Prerequisite at Enrollment: (ARCH 441 or ARCH 442) and 8th semester standing or higher in AE_BAE Writing Across the Curriculum

AE 482: Comprehensive Architectural Engineering Senior Project II

4 Credits

Continuation of AE 481 Engineering analysis of building systems; emphasis on analysis and design of building structural, mechanical, lighting/electrical, and construction related systems. Final written report, web-based project portfolio and verbal presentation are required. AE 482 Comprehensive Architectural Engineering Senior Project II (4) AE 482 is the second half of the capstone engineering design project for Architectural Engineering students. The course is taken by all undergraduate architectural engineering and serves as a direct follow up to AE 481. Students perform detailed option specific work in conjunction with individual proposals written in AE 481. Students are also required to demonstrate work in the breadth areas of architectural engineering. Evaluation methods include but are not limited to written reports, verbal and written assignments, faculty consultations, maintaining their capstone project electronic portfolio, a final comprehensive written report and a verbal presentation to a faculty jury.

Enforced Prerequisite at Enrollment: AE 481W

AE 494H: Honors Thesis

1-6 Credits/Maximum of 12

This course provides students with research skills related to the following: problem formulation, literature review, research study design, data collection, and analysis of results. The student's research is directed by a faculty supervisor and culminates in the writing of an honors thesis in Architectural Engineering.

Recommended Preparations: Students must have approval of a thesis adviser before scheduling this course.
Honors

AE 494M: Senior Honors Thesis

4 Credits

Comprehensive Architectural Engineering Senior Project development and planning with an honors thesis focus. In this course, an honors student in architectural engineering will work on a real-world building project which the student has selected and for which the student has obtained drawings and specifications, as well as the owner's permission to use this project as their undergraduate thesis project. Students enrolling in this course are required to complete the following: - Develop and initiate a plan for their undergraduate senior project in Architectural Engineering which will also serve as their Schreyer Honors College thesis. Through this thesis, the student demonstrates a command of relevant scholastic work and a personal contribution to that scholarship. - Secure an honors thesis adviser and meet with that person to select an in-depth and/or integration focus for their Honors Thesis work. The student then develops a formal proposal describing the focus area for the undergraduate senior project and honors thesis, outlining the analyses, investigations, and design elements of this work and the tools that will be employed. - Summarize the existing conditions present in this building project as it relates to their AE option, systems integration, and the honors thesis topic. - Conduct a thorough review of the relevant literature that has been published in the area that is the focus of the honors thesis, including details on the relevant building, construction, and energy codes that govern this work. - Commence work on the investigation, analysis, and design portion of the thesis, together with the general activities required of all AE students in their undergraduate capstone projects.

Enforced Prerequisite at Enrollment: (ARCH 441 or ARCH 442) and 8th semester standing or higher in AE_BAE

Honors

Writing Across the Curriculum

AE 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

AE 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

AE 498: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

AE 498F: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

Architectural Engineering Technology (AET)

AET 101: Building Materials

3 Credits

Structural and architectural use of building materials and construction assemblies.

AET 102: Methods of Construction

3 Credits

Materials and methods of construction used in buildings, as expressed in drawings.

Prerequisite: AE T 101 , EG T 101 , EG T 102

AET 113: Site Planning

2 Credits

Energy conservation through optimum site utilization, contours, cut and fill calculations, storm drainage, spot grading, and finish grading.

AET 121: Introduction to Building Environmental Systems

2 Credits

Introduction to building environmental systems technology terminology, concepts, and the design process.

AET 206: Architectural Presentation

2 Credits

Visual communication through architectural presentation drawings. Line, value, color, and composition.

Prerequisite: E G 001 or E G 003

AET 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

AET 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Architecture (ARCH)

ARCH 97: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

ARCH 99: Foreign Studies--Architecture

1-15 Credits/Maximum of 15

Individual or group instruction conducted in a foreign country.

International Cultures (IL)

ARCH 100: Architecture and Ideas

3 Credits

General introduction to world architecture, emphasizing the relationship between concepts, philosophies, values and ideologies in shaping the built environment. ARCH 100 Architecture and Ideas (3) (GA)(BA) This course meets the Bachelor of Arts degree requirements. This course introduces architecture and urbanism for a general audience. It presents key concepts that have shaped the built environment, and provides an ongoing framework for evaluations of what makes a good building or city. The material discussed is taken from prehistory to the present, and encompasses both major works of architecture and consideration of common building types and contexts. Although monuments and philosophies from the Western tradition predominate, it brings in issues and examples of global scope as well. The course is structured around a set of themes. These include: how architecture embodies spiritual beliefs; affects private and community life; evolving definitions of the architect; and how ideas about aesthetics, technology, tradition, and other cultural forces shape buildings and influence diverse, often conflicting notions of what constitutes "good" architecture. The topics discussed will demonstrate multiple ways of understanding buildings and cities. Lectures and assigned readings explore significant illustrative structures, design theories, and the cultural and intellectual contexts in which they emerge. Through the lectures and readings students will become familiar with an extensive set of architectural works, as well as a wide range of influential architectural concepts, authors, and texts. ARCH 100 will ultimately help students analyze and judge buildings and the arguments about them critically, and better understand buildings and cities as ideologically charged artifacts that influentially structure human experience.

General Education: Arts (GA)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

ARCH 121: Visual Communications I

2 Credits

Development of two and three-dimensional graphic communications skills and techniques required for the practice of architecture. ARCH 121 Visual Communications I (2)The course is designed to introduce two and three-dimensional graphic communication skills. Assignments will develop the student's understanding and skills associated with the hand-drawing techniques used in the practice of architecture. Exercises provide exposure to the variety of representational techniques available to architects for the visual communication of design ideas and design documentation. Visual Communications I is organized as an interactive studio environment which combines lectures and demonstrations with individual instruction. The basic concepts and theories of documenting, representing, and presenting architecture will be introduced through a series of lectures, seminars, and examples. In studio, skills will be developed through project workshops. Instruction includes working

sessions, individual desk reviews, technique demonstrations and group discussions. Students will learn the fundamentals of architectural drawing by hand, introductory-level descriptive geometry, orthographic projection, paraline and perspective drawings. These skills and principles are imparted primarily through studio-based assigned projects.

Enforced Concurrent at Enrollment: ARCH 131

ARCH 122: Visual Communications II

2 Credits

Development of two-dimensional digital graphic communications skills and techniques required for the practice of architecture. ARCH 122 Visual Communications II (2)The course is designed to introduce students to two-dimensional digital tools used in the practice of architecture. Assignments will develop the student's understanding and skills associated with digital techniques and software. Exercises provide exposure to the digital tools available to architects for the visual communication of design ideas and design documentation. Skills developed in ARCH 121 (drawing and modeling techniques) will provide the foundation for work performed in this course. ARCH 122 is organized as an interactive studio environment combining lectures and demonstrations with individual instruction. The basic concepts and theory of documenting, representing, and presenting architecture will be introduced through a series of lectures, seminars, and examples. In studio, skills will be developed through project workshops. Instruction includes working sessions, individual desk reviews, software and hardware demonstrations, and group discussions.

Enforced Prerequisite at Enrollment: C or better in: ARCH 131 and ARCH 121 **Enforced Concurrent at Enrollment:** ARCH 132

ARCH 130A: Basic Design and Research I

3 Credits

This beginning design studio will prepare students to communicate design ideas through drawing and modeling, promoting analog/traditional techniques, in addition to digital media and processes in design and presentation of design. This course will introduce students to the iterative process of design, involving constructive & critical feedback from peers and instructors. Students will learn to present evidence of reasoned solutions to design problems and explanation and defense of design decisions in graphic form. They will learn to visually communicate ideas and thoughts. This course will include exercises in precedent research and analysis, site analysis, response to building program and the integration of research into design proposals. The students will design and represent their proposals at various scales in response to analysis and research. They will plan, draw, and model their proposals, and present their design(s) to their peers and faculty. This course will emphasize ABET (Accreditation Board for Engineering and Technology) outcomes: - "an ability to design and conduct experiments, as well as to analyze and interpret data," - "an ability to communicate effectively," (ABET/Criteria for ABET Programs, 2007, p. 2).

Enforced Prerequisite at Enrollment: Architectural Engineering majors only

ARCH 130B: Basic Design and Research II

3 Credits

This architectural design studio is organized around exercises in precedent research and analysis, site analysis, response to building

program and the integration of research into design proposals. Students will learn to present evidence of reasoned solutions to design problems and explain and defend their design decisions in a graphic form. The students will learn to visually communicate architectural ideas. The students will design, detail, and represent their building proposals at various scales in response to the analysis and research. They will plan, draw, and model their proposals, in their site context and present their design(s) to their peers and faculty for critical comments, discussion, and review. This course will emphasize ABET (Accreditation Board for Engineering and Technology) outcomes: - "an ability to design and conduct experiments, as well as to analyze and interpret data," - "an ability to communicate effectively," (ABET/Criteria for ABET Programs, 2007, p. 2).

Enforced Prerequisite at Enrollment: Architectural Engineering majors only and ARCH 130A

ARCH 131: Basic Design Studio I

4 Credits

An introduction to the basic concepts, methods, and skills of architectural design in a project-based, active learning, studio environment. ARCH 131 Basic Design Studio I (4) This course is an introduction to the basic concepts, methods, and skills of architectural design. As a "studio" it is a project-based, active learning course where the development and evaluation of the work is driven by a critical dialogue with the instructor and one's classmates. This course is the first in a series of design studios that serve as the central thread throughout the curricula of the Architecture program. In ARCH 131, students gain knowledge about the discipline of design, develop skills of design and communication, and foster a capacity for judgment - the ability to make appropriate choices and decisions regarding design questions. As a laboratory, the design studio provides the opportunity to apply and explore the knowledge and experience gained in other courses. ARCH 131 is an intensive course that encourages creativity and industry on the part of the students. Its design projects are open-ended; there are no single "right answers." It demands energy, creativity, the willingness to take risks, and introspection. Each student is expected to be open to a diverse range of ideas, values and solutions. The student is invited to view the studio experience as an opportunity to explore, discover, and invent. The studio is divided into separate sections, each led by one studio instructor. All sections are assigned a series of common projects and exercises; however, each section instructor will establish particular and unique assignments, and criteria for each project. This introduces students to the rich variety of possibilities in architectural communication and design. The primary form of evaluation and grading for this class is the "review and critique" during which students present their work to the class and then receive comments and recommendations for improvement. When assessing the student work, the instructors will consider the students performance in the following areas: 1. Conceptual Strength: The intentions and ideas that inspire the work. 2. Design Development: The energy, effort, and growth demonstrated throughout the course of the project. 3. Product: The tangible quality of the final product as a demonstration of the student's level of craftsmanship and mastery of the skills introduced in class. 4. Student Preparedness: At desk critiques, pin-ups, and reviews. 5. Student Participation: Students are expected to actively participate and be constructively engaged in class discussions, critiques, and reviews.

Enforced Concurrent at Enrollment: ARCH 121
First-Year Seminar

ARCH 132: Basic Design Studio II

4 Credits

Continuation of ARCH 131 which further explores basic concepts, methods, and skills of architectural design with an emphasis on craftsmanship. ARCH 132 Basic Design Studio II (4) This course is a continuation of ARCH 131 and shares the same goals, methods, and means of evaluation. However, it builds upon the foundation of fundamental knowledge and skills delivered in the previous course and demands that the students expand their ability to tackle more difficult and complex problems of architectural design. The focus of this course is on "craftsmanship" and the methods and techniques of "making and building." Students are expected to thoroughly consider the implications of materials, construction, and detailing as they relate to their overall design intentions. ARCH 132 is an intensive course that encourages creativity and industry on the part of the students. Its design projects are open-ended; there are no single "right answers." It demands energy, creativity, the willingness to take risks, and introspection. Each student is expected to be open to a diverse range of ideas, values and solutions. The student is invited to view the studio experience as an opportunity to explore, discover, and invent. The studio is divided into separate sections, each led by one studio instructor. Each section instructor will establish particular and unique assignments, and criteria for each project. This introduces students to the rich variety of possibilities in architectural communication and design. When assessing the student work, the instructors will consider the students performance in the following areas: 1. Conceptual Strength: The intentions and ideas that inspire the work. 2. Design Development: The energy, effort, and growth demonstrated throughout the course of the project. 3. Product: The tangible quality of the final product as a demonstration of the student's level of craftsmanship and mastery of the skills introduced in class. 4. Student Preparedness: At desk critiques, pin-ups, and review. 5. Student Participation: Students are expected to actively participate and be constructively engaged in class discussions, critiques, and reviews.

Enforced Prerequisite at Enrollment: C or better in ARCH 131 and ARCH 121
Enforced concurrent at Enrollment: ARCH 122

ARCH 170N: Introduction to Sustainable Architecture

3 Credits

US buildings account for almost 40% of national CO2 emissions, 39% of the US total energy consumption, and 60% of US electricity alone. Worldwide, buildings consume nearly 40% of the world's energy, 25% of its wood, and 15% of its water. Building construction and use contribute significantly to global climate change. The way we design our built environment has a significant impact on consumption statistics, which is why we must consider the global environmental and health effects of buildings during the planning, design, and construction process. This course provides a broad exploration of the art and science of sustainable architecture. Architecture produces cultural artifacts with meaning. Yet, inhabiting and using architecture has a distinct and measurable impact on both local and global environments. Scientifically, this course investigates passive and active energy systems for buildings, environmental components of material production and use, and site and building design effects on the water cycle, clean air, local ecosystems, and food production. Students will calculate energy consumption and generation scenarios, produce a life-cycle analysis of a familiar product, evaluate a building based on current green building certification strategies, and evaluate biological impacts over the local and regional scale. Aesthetically, this course investigates vernacular solutions to

physical human comfort, and demonstrates the artistic and cultural place of architecture in society. Part of the course will trace historical aesthetic trends to better understand how the existing unsustainable path began. Students will understand the roles of multiple stakeholders/ social actors in every building project—from owners, to global "neighbors". Together, the course highlights the intersection of building performance and aesthetics. There will be a focus on returning to traditional solutions, as well as capitalizing on new innovations to solve environmental challenges. The underlying theme will be flourishing—both reducing negative environmental impacts as well as celebrating the healthy human condition through artistic expression and aegis of architecture.

Bachelor of Arts: Arts

Bachelor of Arts: Natural Sciences

General Education: Arts (GA)

General Education: Natural Sciences (GN)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

ARCH 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

ARCH 199: Foreign Studies—Architecture

1-15 Credits/Maximum of 15

Individual or group instruction conducted in a foreign country.

International Cultures (IL)

ARCH 203: Materials and Building Construction I

3 Credits

Instruction in the design and construction of buildings utilizing wood and steel. ARCH 203 Materials and Building Construction I (3) This course serves as an introduction to common architectural building materials and associated methods of construction. It is the first part of a two-semester sequence to be followed by ARCH 204 in the spring semester. Lectures, readings, and in-class discussions introduce students to the historical development and conventional use of architectural materials and construction technologies, while select hands-on projects offer students experience in materials application and use. The class covers a wide variety of building methodologies that includes developed and developing cultures, building systems that are technologically sophisticated, as well as traditions considered primitive/vernacular. The primary objective of the course is to make BARCH students familiar with the materials and methods employed in making architecture, so that the results of that familiarity begin to inform the student's studio work/production. In addition to materials and construction methods, the course will also touch on issues related to craft/craftsmanship, sustainable practices and ethical use of resources, and the significant role that evolving technologies play in the process and economy of building-making.

Enforced Prerequisite at Enrollment: C or better in ARCH 132 and AE 210

Enforced Concurrent at Enrollment: ARCH 231 and AE 421

ARCH 204: Materials and Building Construction II

3 Credits

This course will continue the presentations of ARCH 203, with a focus on concrete and masonry materials. ARCH 204 Materials and Building Construction II (3) The course is the second part of a two-semester sequence, following ARCH 203. ARCH 204 is an introductory course in building materials and construction. It is intended for BARCH majors and is designed to prepare students for the professional practice of architecture. The learning objectives for the course can be divided into two categories: 1., developing a sense of materials and construction methods as the media for architecture, and then learning to use these media in creative and appropriate ways; 2. developing basic knowledge of the conventions of current building materials and construction techniques. Particular emphasis is placed on the use of drawings and models to accurately depict construction systems, assemblies and details. The course combines lectures and field trips with design projects, hands-on construction experiences, required readings, drawing and modeling.

Enforced Prerequisite at Enrollment: C or better in: ARCH 203 and AE 421

Enforced Concurrent at Enrollment: ARCH 232 and AE 422

ARCH 210: Ideas Across Time in Architecture and Urbanism

3 Credits

This course presents a transversal history of ideas, arguments, and visions that shape the built environment within their cultural, technological, and philosophical contexts. Buildings, landscapes, and cities embody ideas about society, culture, technology, and how we should live in the world. Some problems and questions are exemplary of their times; others seem eternal as we continue to grapple with them today. Changes in our ideas and ideals are made visible in our built environment, giving us a unique opportunity to trace their trajectories across time to see 'how we got to now.' The course introduces architectural and urban ideas by exploring and connecting key directions, works, and texts from the Western tradition. By casting a critical eye on where we've been, the course opens new perspectives on what might be next. The course covers a period ranging from ancient Greece and Rome to the present, with emphasis on how the foundations of Western architecture collided with modernity, and how we've dealt with the hereafters of modernity since the mid-20th century. Recurring themes will include the ways in which architectural theory has defined role of the architect, architecture's foundational principles, and the relationships between architectural and urban ideas, aesthetics, and the cultural contexts in which these ideas develop. Major topics will include ancient architectural theory, Renaissance classicism, tectonics and Gothic rationalism, the Beaux-Arts, Neoclassicism and typology, organicism and functionalism, the Modern avant-garde's radical new social and aesthetic visions, the International Style, countermodernisms, phenomenology, techno-utopianism, populism, gender, race, and international post-colonialism. This course meets the Bachelor of Arts degree requirements for Arts (GA) courses by: expanding knowledge and comprehension of the role of the arts, building competence in analysis, critical thinking and interpretive reasoning through the exploration of creative works; demonstrating the aesthetic, historic, social, and cultural significance of important works of design; and, critically assessing creative works through evaluative processes of analysis and interpretation.

Recommended Preparation: Survey course in architectural history

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

ARCH 231: Architectural Design I

6 Credits

Design of limited environments within defined constraints. ARCH 231 Architectural Design I (6) The second-year design curriculum introduces the student to the complexity of the architectural whole. The curriculum bridges the abstract design principles taught in the first year and the ability to put together a large building, the focus in the third-year. The objectives are to create an understanding of architectural elements and develop a sensitivity and awareness required for valid interpretations as well as to develop a reflective and critical design process with emphasis on the individual ability to articulate ideas. The major means of accomplishing development is through the design of smaller buildings/ environments. To introduce the pragmatic and expressive aspects of architectural design and integrate visual communication with the design process. The emphasis is on developing comprehensive architectural thought, on the foundations of skill and knowledge essential for designing more "complex" buildings in later years, and making the students aware of the multiplicity of factors involved in the design process and their civic responsibility in making informed choices. Thus, the pervasive issue of meaning in architecture is given a high priority and is interwoven in all stages of design exploration.

Enforced Prerequisite at Enrollment: C or better in: ARCH 132 and ARCH 122
Enforced Concurrent at Enrollment: ARCH 203 and AE 421

ARCH 232: Architectural Design II

6 Credits

Design of limited environments within defined constraints. ARCH 232 Architectural Design II (6) The second-year design curriculum emphasis is on introducing the student to the complexity of the architectural whole. The curriculum bridges the abstract design principles taught in the first year and the ability to put together a large building, the focus in the third-year. The objectives are to create an understanding of architectural elements and develop a sensitivity and awareness required for valid interpretations as well as to develop a reflective and critical design process with emphasis on the individual ability to articulate ideas. The major means of accomplishing the design process is through the design of smaller buildings/environments. To introduce the pragmatic and expressive aspects of architectural design and integrate visual communication with the design process. The emphasis is on developing comprehensive architectural thought, on the foundations of skill and knowledge essential for designing more "complex" buildings in later years, and on making the students aware of the multiplicity of factors involved in the design process and their civic responsibility in making informed choices. Thus, the pervasive issue of meaning in architecture is given a high priority and is interwoven in all stages of design exploration.

Enforced Prerequisite at Enrollment: C or better in: ARCH 231 and ARCH 203 and AE 421
Enforced Concurrent at Enrollment: ARCH 204 and AE 422

ARCH 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

ARCH 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

ARCH 299: Foreign Studies--Architecture

1-15 Credits/Maximum of 15

Individual or group instruction conducted in a foreign country.

International Cultures (IL)

ARCH 311W: Architectural and Planning Theories

3 Credits

Architectural theory course with a strong focus on the reading and writing of essays about architecture and related fields. ARCH 311 Architectural and Planning Theories (3) ARCH 311 is a required course in the BARCH curriculum. The central goal of this course is to foster critical-thinking skills, in conjunction with the ability to develop and articulate theoretical positions related to the design, practice, and historical evolution of architecture, both verbally and in writing. ARCH 311 is a writing intensive seminar course fulfilling the University's Writing Across the Curriculum (WAC) requirement. Students will be introduced to various topics pertaining to advanced architectural theory. Students will critically read, then discuss significant works with the instructor. Lectures by the instructor will also be presented, discussed and analyzed. Writing assignments are utilized as instruments for learning the subject matter, methods of inquiry, and the types of writing typical of the discipline of architecture. The course format will also involve lectures by the instructor as well as presentations by the students related to past, present, and speculative architectural theories of importance to the field. In addition, students will complete writing assignments that demonstrate the development of a critical stance or idea, proficiency in critical analysis, and the use of established research techniques, citation of sources, and writing formats.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 30H and C or better in ARCH 210 and ARTH201 and ARTH202
Writing Across the Curriculum

ARCH 312: Critical Postcolonial and Contemporary Perspectives in South Asian Architecture

3 Credits

This course will examine critical postcolonial and contemporary architectural issues in South Asia in the context of cultural globalization today. ARCH 312 Critical Postcolonial and Contemporary Perspectives in South Asian Architecture (3) This course will examine the evolution of the cultures and architectures of South Asia through their encounters with colonialism and the postcolonial analysis of architectural development in the region. It will provide an introduction to precolonial architecture and urbanism in South Asia using methodologies of cultural studies via an examination of Buddhist, Hindu, Islamic (Mughal), and Western

influences. The course will introduce students to the significant variety of South Asia's architectural accomplishments and encourage them to discuss broader theoretical issues in the context of cultural globalization and their implications for contemporary architectural thought and practice. References to indigenous architecture and techniques will be an integral part of the course, as will be examples of colonial architecture, especially the works of Edwin Lutyens. In the context of globalization during the post-colonial period, three important planning and building design projects undertaken by Western architects in South Asia will become the means to segue into contemporary architectural issues and the impact of Modernist thinking on South Asian architecture: Le Corbusier's master plan and building designs for Chandigarh - the Kahn's design for the monumental second capital complex in Dhaka, Bangladesh, and the master plan for Islamabad, the capital of Pakistan, by Constantinos Doxiades. In addition, the works of such South Asian architects such as Charles Correa, Balkrishna Doshi, Raj Rewal, Geoggy Bawa, Maxharul Islam, and Nyar Dada, will be included in the lectures and discussions. The overall methodology will not be strictly chronological; rather, broad themes will be addressed during the course of the semester. This approach will enable a clear and substantive illustration of relationships between theory and practice in South Asia. It will also help students recognize the inevitable partiality and incompleteness of such theoretical descriptions - compelling as they may be - with regard to actual historical phenomena.

ARCH 316: Analysis of Human Settlements: Cities

3 Credits

This course focuses on the design and analysis of cities from ancient to modern time periods in the U.S. and the world, taking into account the cultural and historical ways human settlements develop, how cities relate to one another, and the wide array of built forms and material culture that make up built urban environments over time - from arcades, squares, and streets to gardens, monuments, and more. If you have a genuine interest in learning more about how cities evolved and the historical and modern issues confronting the many diverse individuals and groups who thought about and influenced the planning of cities, this should be an interesting semester. One broad goal of this course is to enhance your urban literacy by developing the critical analytic skills needed to understand and appreciate cities in all of their complexity. These issues are not only pertinent to urban designers, architects, landscape architects and others who are directly involved in the planning of cities, but they are also vital to the diverse cultures and social groups who inhabit, experience, and also shape urban environments. The design and development of cities is a useful barometer for also understanding the political, economic, ethical, and other forces that guide and shape their development over time. This makes cities challenging to analyze because they are not static forms. They are ever changing and evolving.

Bachelor of Arts: Arts

International Cultures (IL)

United States Cultures (US)

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

ARCH 317: Theory of Modern Japanese Architecture

3 Credits

Introduction to the development of modern Japanese architecture from the Meiji Restoration of 1868 to the present day. ARCH 317 Theory of Modern Japanese Architecture (3) ARCH 317 outlines a lineage of ideology in Japanese architectural discourse in order to examine reciprocal interactions between Japan and the West in the development of modern Japanese architecture from the Meiji Period (1868-1912), through the Metabolism of the 60's, to the present day. The concept of "tradition" itself is an invention of the Meiji (modern) era. Through this notion, the course will introduce students to crucial moments in the development of Japanese architecture, while making parallel references to the key developments in the West. Inversely, examples of traditional Japanese architecture will be introduced as counterpoint for the modern. Several topics such as the evolution of Japanese symbolic and spatial traditions in art, architecture, and landscape architecture (gardens) will be discussed. While discussing the evolution of Japanese culture, aesthetics and religions, the influences of China and Korea will be introduced, thus increasing students' familiarity to the East. A brief examination of Western architects paralleling the course content will also be presented. The key figures to be discussed during the class include Kenzo Tange, Kisho Kurokawa, Arata Izozaki, Fumihiko Maki, Tadao Ando, Shin Takamatsu, Toyo Ito, Kazuyo Sejima and Shigeru Ban. Key Western architects, including Bruno Taut, Walter Gropius, Frank Lloyd Wright, and Le Corbusier, will also be discussed. In addition, several broad themes such as geography, climate culture, and symbolic and spatial traditions in art will be introduced. Eastern values and ethics very incongruent from those of the West and their impact on architecture will be presented and discussed. Specific globalization, the resultant reciprocal and transformative cross-cultural interactions in the development of modern Japanese architecture, and the unique process of "Japanization" in which ideas from the West are adapted, refined, and absorbed into Japanese architecture through specific buildings and architects. Students in this course will be expected to become more familiar with Eastern culture; comprehend basic principles behind Japanese architecture and gardens; understand relevant terminology associated with Japanese culture, art, gardens, and architecture; and become more aware of the reciprocal and transformative cross-cultural interactions in architecture.

ARCH 331: Architectural Design III

6 Credits

Development of the design process through organizational methodologies, based on physical, functional, and social-behavioral determinants. ARCH 331 Architectural Design II (6) Development of the design process through organizational methodologies, based on physical, functional, and social-behavioral determinants. Emphasis is placed on "The Building Thoroughly Considered." The third-year design studio course is a continuation of the rigorous development of the architectural process started in the second year studio. Students will strive to develop an architectural totality, search for thoughtful decisions and sound judgments. Students continue the process of integrating the abstraction of the basics with the pragmatics of the built world. The student at the completion of this year should understand what a building is and how it responds to human needs in terms of cultural meaning, physical reality, operational prerequisites and construction.

Enforced Prerequisite at Enrollment: C or better in ARCH 232 and ARCH 204 and AE 422. **Enforced Concurrent at Enrollment:** AE 211

ARCH 332: Architectural Design IV

6 Credits

Development of the design process through organizational methodologies, based on physical, functional, and social-behavioral determinants. ARCH 332 Architectural Design IV (6) Development of the design process through organizational methodologies, based on physical, functional, and social-behavioral determinants. Emphasis is placed on "The Building Thoroughly Considered." The second semester of the third-year design studio course is a continuation of the rigorous development of the architectural process started in the third year, first semester studio. ARCH 332 extends and deepens the understanding of the "thoroughly considered" building begun in ARCH 331. Students will strive to develop an architectural totality, search for thoughtful decisions and sound judgments. Students continue the process of integrating the abstraction of the basics with the pragmatics of the built world. The student at the completion of this year should understand what a building is and how it responds to human needs in terms of cultural meaning, physical reality, operational prerequisites and construction.

Enforced Prerequisite at Enrollment: C or better in ARCH 331 and AE 211. Enforced Concurrent at Enrollment: AE 424

ARCH 380: Building Environmental Systems I

3 Credits

ARCH 380 Building Environmental Systems I (3) introduces Architecture students to the topics of building thermal environment, and passive and mechanical heating/cooling systems. Thermal environment topics include thermal comfort, natural environmental impacts, heat transfer through the building envelope, heating and cooling design, mechanical systems, and building energy consumption. Building mechanical system topics include heating, ventilating, and airconditioning systems. Emphasis is placed on building design in response to the technical, environmental, and societal challenges, with a focus on sustainable design principles and guidelines applied to achieving thermal comfort in buildings. The course utilizes lectures, practicums, examinations, projects, and presentations to deliver and reinforce the technical content. The course offers students the opportunity to work in a team setting and to present their work orally to their peers. The broad coverage of the technical and social issues and professional skills challenges the architecture students to incorporate technical issues as an integral part of the overall building design. The course is required for students enrolled in the bachelor of architecture program.

ARCH 381: Building Environmental Systems II

3 Credits

ARCH 381 Building Environmental Systems II (3). This course is a complement to ARCH 380. All environmental control systems other than thermal environmental systems are covered in this course. ARCH 381 introduces architecture students to building illumination, acoustical, fire protection, electrical and plumbing design issues. Emphasis is placed on building design as a response to the technical, environmental, and societal challenges. The course utilizes lectures, practicums, examinations, projects, presentations, and field trips to deliver and reinforce the technical content. The course offers students the opportunity to work in team settings and to present their work orally to their peers. The broad coverage of the technical and social issues and professional skills intentionally involves students in discussion

and application of social and ethical responsibilities. ARCH 380 is a prerequisite for this course.

Enforced Prerequisite at Enrollment: ARCH 380 Enforced Concurrent at Enrollment: ARCH 480

ARCH 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

ARCH 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

ARCH 410: Building Material Reclamation & Reuse

3 Credits

This course is a very hands-on, project-based seminar focusing on the theory and practice of building material salvage and recycling. Through active and applied learning, students will gain experience in handling, preserving and adding value to salvaged building materials. The course will consist of a variety of small-scale design-build projects, where students will learn and practice the methods and techniques of reclamation and explore the design possibilities of reused material. In addition to being a practical hands-on seminar, this course is also intended to explore and examine the broader historical and theoretical context for the activity of building material reclamation and reuse. Since the literal fall of the Roman Empire, reclaimed building materials have been creatively used in the design and construction of new buildings, yet we lack a thoughtful theoretical (and poetic) construct that supports reclamation activity other than the simple and obvious ethics of sustainability. Themes to be explored: ruins, spoglia, palimpsests, weathering, memory and the mnemonic function of architecture.

Enforced Prerequisite at Enrollment: 5th Semester standing

ARCH 412: Integrative Energy and Environmental Design

3 Credits

Concepts and strategies for the environmentally conscious design of the built environment.

ARCH 419: Design Research and Architectural Programming

3 Credits

ARCH 419 prepares undergraduate Architecture students with the skills and tools to conduct research contributing to the pursuit of an architectural idea in a rigorous, in-depth manner, and then subsequently utilize the acquired knowledge in the development of the idea through the completion and presentation of a thoroughly considered architectural design project (building, component or system). This course will help students prepare for their independent or directed design research studio through the exploration of foundational approaches and methodologies in the field. It will foster in-depth design inquiry and research; build upon and reiterate design awareness, skills, and methods introduced in previous years; and introduce, discover and develop new ones. This course will help prepare students to identify significant design project

topics, select the proper methodology, and engage in independent or directed research.

Enforced Prerequisite at Enrollment: ARCH 332 and ARCH 311W

ARCH 441: Architectural Design Analysis

3 Credits

Studies in principles and elements of design; planning for human use; the relationship of space to physical and social environment. Architectural Engineering majors only. ARCH 441 Architectural Design Analysis (3) Studies in principles and elements of design; planning for human use; the relationship of space to physical and social environment. The objective of this course is to explore various approaches to architectural design and to reinforce the concept that there is no "right" or "wrong" answer to a design problem. "Design" is decision-making in itself – the key to a successful project lies not only in the final product, but in the process leading up to it as well. In order to be successful, design solutions must respond to both formal ideas as well as human, environmental and technical realities. Thus, the interaction between art and technology becomes imperative.

Enforced Prerequisite at Enrollment: ARCH 130A

ARCH 442: Architectural Design Analysis

3 Credits

Continuation of ARCH 441, with emphasis on functional relationship of space, form, structure, and building groups. Architectural Engineering majors only. ARCH 442 Architectural Design Analysis (3) Continuation of ARCH 441, with emphasis on functional relationship of space, form, structure, and building groups. The objective of this course is to explore various approaches to architectural design and to reinforce the concept that there is no "right" or "wrong" answer to a design problem. "Design" is decision-making in itself – the key to a successful project lies not only in the final product, but in the process leading up to it as well. In order to be successful, design solutions must respond to both formal ideas as well as human, environmental and technical realities. Thus, the interaction between art and technology becomes imperative.

Enforced Prerequisite at Enrollment: ARCH 441

ARCH 443: Architectural Design Analysis Inspection Trip

1 Credits

Faculty guided trip to metropolitan areas to investigate noteworthy architecture and building construction and to visit professional offices.

Enforced Prerequisite at Enrollment: 7th semester standing and architectural engineering majors

ARCH 451: Architectural Professional Practice

3 Credits

A study of architectural practice in today's society: education, registration, office practice, codes, standards, construction industry, contracts, and legal documents. ARCH 451 Architectural Professional Practice (3) ARCH 451 is a required course in the BARCH curriculum. It is intended to prepare students for the professional practice of architecture. The course explores the historical influences and current trends that shape the relationship between the architect, client and builder in contemporary society. This course provides an overview of the changing

roles of the architect through history as well as a detailed examination of the architectural profession in today's rapidly changing world. ARCH 451 reviews internship, architectural licensing procedures and requirements, professional development (life-long learning), architectural practice including office organizational structures, the architect's administrative role, construction cost control, professional organizations, the architect's professional, legal and ethical responsibilities (including life-safety and accessibility), leadership in the profession and the community as well as alternative architectural / design related careers.

Enforced Concurrents at Enrollment: ARCH 491 or ARCH 533

ARCH 480: Technical Systems Integration

3 Credits

Presentations of buildings' analyses from a multiplicity of viewpoints: architectural, spacial, environmental, mechanical, construction assembly. ARCH 480 Technical Systems Integration (3) This course is a synthesis of topics previously introduced in the AE sequence - such as structural, mechanical, electrical, and other systems related to a building's technical performance. Students will practice the purposeful integration of all technical aspects of a buildings design, providing them with a working knowledge of matters related to energy efficiency, sustainability, lighting, and acoustics. The focus of the course lies in questioning how technical requirements and design intentions should be integrated during the design process, so as to enhance the aesthetic and performance qualities of an architectural project. This course combines lectures, field trips, and technical assignments, along with analysis and implementation of energy, day lighting, electrical lighting, and acoustical concepts in the student's design efforts. In addition to the synthesis of building design and technical systems, this course will further develop the student's knowledge of active/passive techniques for sustainable architecture. A focus on the collaborative workings/environment of the architectural practice helps students to translate systems integration strategies into graphic/digital representation, and reinforces the interdisciplinary nature of designing and constructing successful works of architecture.

Enforced Corequisite at Enrollment ARCH 332

ARCH 481: Digital Design Media

3 Credits

Advanced course in digital modeling, rendering, animation and non-linear video for architectural investigations.

Enforced Prerequisite at Enrollment: Approval by instructor

ARCH 482: Foundations in Shape Grammars

3 Credits

Shape grammars are a powerful formalism for the generative description of designs and a key discourse in design computation. The formalism is distinctive for its interest in developing a mathematics of design through visual computations described directly with geometry. By foregrounding visual representations and visual processes, the formalism lays the foundation for shape computations that aid in explaining, understanding, and developing designs specified by rule-based, generative systems. These computations provide the basis for the generative description, interpretation, and evaluation of visual designs. This course provides a broad exploration of shape grammar theory, implementations, and applications in a variety of disciplines. More specifically, it investigates the theory of shapes, shape rules, parametric shape rules, rule schemata,

languages of designs, and more, providing students with a foundation in the rule-based analysis and specification of designs as well as a fundamental understanding on design computing. It considers the history and logic of spatial systems in the arts, architecture, and engineering to build an awareness of rule-based approaches in design, especially in relation to the theories underlying contemporary design software. Critical and creative applications in the arts, architecture, landscape, urbanism, product design, and engineering will be discussed to understand shape grammars as a visual approach to rule-based analysis and synthesis with broad potential for design and research. Building on these insights, students will learn to analyze designs with rules and use those rules to generate new design configurations. Students will also be challenged to develop their own rulebased interpretations of design processes to study how shape grammars can be understood as a generative design methodology.

ARCH 491: Architectural Design Research Studio - Directed

12-18 Credits/Maximum of 18

Problems in architectural planning and design; and/or programming, implementation methodologies and applications for various environmental design scales. ARCH 491 Architectural Design Research Studio (6) It is the goal of this program that, upon completion of ARCH 491, each student will have the ability to pursue an architectural idea in a rigorous, in-depth manner and be able to express the knowledge of and implication of that idea through the completion and presentation of a "thoroughly considered building design project." It is the intent of the Design Research Studio component of the Bachelor of Architecture program to foster the spirit of in-depth design inquiry and research, and to build upon and reiterate design awareness, skills, and methods introduced in previous years; and to introduce, discover and develop new ones. To these ends the primary educational vehicle is the use of a propositional thesis as a way of directing the study toward the linking of theory and building in a meaningful manner.

Enforced Prerequisite at Enrollment: Students must earn a C or better in ARCH 311W and ARCH 332

ARCH 492H: Architectural Design Studio

6 Credits

Continuation of select ARCH 491 sections with concentration and specialization options.

Enforced Prerequisite at Enrollment: C or better in ARCH 491
Enforced Concurrent at Enrollment: ARCH 480
Honors

ARCH 495: Advanced Architectural and Related Design/Construction Work Experience II

1-6 Credits/Maximum of 12

Supervised off-campus, nongroup instruction including field experiences, practica, or architectural and related design/construction work experience. A final presentation of activities will be evaluated by a faculty member in the Department of Architecture. Number of credits will be determined based on the total number of hours of approved work experience under the direct supervision of a registered architect or other approved professional.

Faculty approval of work experience proposal including employment agreement with an approved supervisor (e.g., registered architect or other approved professional).

ARCH 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

ARCH 496H: Independent Study - Honors

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Honors

ARCH 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

ARCH 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Enforced Prerequisite at Enrollment: Seventh-semester standing
International Cultures (IL)

ARCH 499A: Rome Study-Architectural Design

6 Credits/Maximum of 12

Individual or group instruction conducted in Rome, Italy. ARCH 499A Foreign Study - Architectural Design VI (6) The semester abroad design work will focus on the difficult problem of creating new construction in the presence of an historic structure. This is an inevitable problem in the city of Rome where one can hardly avoid confronting historic or monumental buildings. However, as every place is preceded by a history, either natural, political or material, these issues are important outside of this context, the course aims to help students define critical strategies that will serve them beyond their semester abroad. Fifteen weeks is a short time to experience a place as complex and interesting as Rome, Italy. For many students, it may be a chance of a lifetime to live in and study a place as challenging and full of opportunity as this. Students are expected to approach the semester with even more seriousness than they would a semester at home. A semester in this program is not a mere travel experience but an academic exploration of a foreign and historic environment. Every activity of this studio is designed to these ends. Therefore, we have selected a very direct and limited building program, a site in the historic center, and exercises that require students to spend time in the field as well as in the studio.

Enforced Prerequisite at Enrollment: C or better in ARCH 332 and ARCH 480
Enforced Concurrent at Enrollment: ARCH 499B and ARCH 499C
International Cultures (IL)

ARCH 499B: Architectural Analysis

3 Credits/Maximum of 12

ARCH 499B Architectural Analysis (3) (IL) Architecture is amplified and embodied in cities. Since most architecture is set in cities and the city is itself an architecture, it becomes necessary for us to evaluate the relationships that affect the making of buildings for cities and the organization of buildings into a meaningful whole. This course will explore the two meanings of the term "the architecture of cities". It will propose questions leading to an analytical de-composition of the situation of cities in general and Rome in particular. The course is loosely divided into three sections. The first, Historical Overview, presents the evolution of early settlements focusing on the significance of built form. The second, Revolutions and Modernity, demonstrates the qualitative shift in emphasis that settlements undergo from the Enlightenment, through the Industrial Revolution, to the Information Revolution. The third section, the Current Debate, will present some contemporary issues and techniques proposed for the resolution of apparent problems of city architecture. Since this course is given in a unique setting, it takes full advantage of Rome, its history and its problems, to highlight the universal design elements that are part of an analytical understanding, but also of a synthetic design understanding of cities. This course is theory based and, as such, will provoke thinking, a taking apart mentally, more than a making of architecture. The studio design problem, also set in this city, is the operative dimension of thoughts generated here. In this class, students are expected to articulate thought and some clear graphic analysis concerning architecture. These thoughts, if manipulated with discipline and commitment, will become a source of illumination for design activity. Learning Objectives: * To learn the meaning of cities in Western culture * To understand the significance of foundation and other rites concerning building the human environment. * To understand the meaning of urban architecture * To understand the reasons for the form of streets, buildings and open spaces in Western cities * To achieve the analytical skills necessary to take apart the component systems and material elements of architecture

Enforced Prerequisite at Enrollment: C or better in ARCH 332 and ARCH 480 Enforced Concurrent at Enrollment: ARCH 499A and ARCH 499C
International Cultures (IL)

ARCH 499C: Urban Studies

3 Credits/Maximum of 12

ARCH 499C Urban Special Topics (3) (IL) The course is a presentation of the history of Rome through the medium of its maps. The well documented cartographic history of the city is presented along with the morphological changes that are evident in the city today. The material of Rome's physical development is presented in two distinct ways. The first involves slide presentations of Roman maps and engraving images organized by specific routes (vie consolari and others) into and out of the city. The second is by on-site walks through the same routes with the instructor. The approximately twelve routes involve a lecture presentation usually given on Tuesdays, followed by an on-site walk usually given on Thursday. Students are then assigned their own route map of the same study area to generate over the weekend. These are graded and discussed in the following sessions. Framework: * Introduction: The definition of the Urbs through maps * 14th-15th century: Limbourg, Taddeo di Bartolo * 16th century: Bufalini, Duperac * Renaissance planning and the expanding city * 17th century: Maggi, Falda * 18th century: Nolli * 19th century: Catasto Piano * 20th century: Lanciani,

Sanjust Themes: * 14th-15th century: Derivation of the iconic map from Mappaemundi and city images in art * 16th century: Images of pre-Sistine in-city and extension planning vs. Sixtus V's city outside the city * 17th century: Illustrating the Baroque point developments: Urban theater * 18th century: The new orientation and precision measurement of the Age of Reason. Nolli and Piranesi: the contemporary vs. the archaeological city * 19th century: Stasis and expansion: Nolli retreats and the master Plans for the new Capital city * 20th century: Recapitulation and expansion: Lanciani's new Forma Urbis and images of the boundless city Learning Objectives: * To learn the history of the development of one of the most important cities in the world. * To learn the importance of mapping an way-finding in the understanding of architecture. * To learn the reading of traces of the past morphological development of a city. * To understand how cities are built, change, and grow over time.

Enforced Prerequisite at Enrollment: C or better in ARCH 332 and ARCH 480 Enforced Concurrent at Enrollment: ARCH 499B and ARCH 499A
International Cultures (IL)

ARCH 499F: Architectural Design Foreign Study

3-6 Credits/Maximum of 12

The abroad design studio serves students in their fifth year of the BARCH program, giving them the option of studying abroad for a semester additional to their required Rome semester. This studio will provide our students with a much needed global perspective into architecture and urbanity as practiced elsewhere in the world. The Architectural Design Studio will be embedded in an urban location abroad, introducing students to the socio-cultural and urban-architectural forces that shape our globe. It is increasingly important to recognize different models of architectural practice within different global contexts, and this studio will permit our students to engage in these issues first hand by being immersed within a particular culture and designing for it. A semester in an abroad studio is not merely a travel experience, but an academic exploration of a global environment. Students are expected to approach the work of the semester with even more rigor than they would a semester at home, while they follow a similar semester structure. The abroad studio will involve a site in the host city, programs and infrastructure appropriate for the exploration of the new context. The semester will include an initial urban/architectural analysis of the host city, leading to the identification of sites and design research topics. The studio will continue with the introduction of programs, and additional infrastructural requirements, and will culminate with a building proposal within the context of the host city. The abroad studio will have 150 contact hours, similar to architectural design studios at home

Enforced Prerequisite at Enrollment: C or better in: ARCH 431 and ARCH 480 and ARCH 499A and ARCH 311W
International Cultures (IL)

Army (ARMY)

ARMY 101: Introduction to the Army

3 Credits

Army 101 focuses on introduction to the Army and basic Soldier skills. It introduces Cadets to the Army and the Profession of Arms. Students will examine the Army Profession and what it means to be a professional in the U.S. Army. The overall focus is on developing basic knowledge and comprehension of the Army Leadership Requirements Model while gaining a complete understanding of the Reserve Officers' Training Corps

(ROTC) program, its purpose in the Army, and its advantages for the student. Cadets also begin learning map reading and land navigation. Students will have initial classes on fieldcraft, first aid, individual/team movement techniques that will include a weekly lab facilitated by Advanced Course Cadets and supervised by Army ROTC Instructors.

ARMY 102: Foundations of Leadership

3 Credits

Army 102 introduces Cadets to the personal challenges and competencies that are critical for effective leadership. Cadets learn how the personal development of life skills such as critical thinking, time management, goal setting, and communication. Cadets learn the basics of the communications process and the importance for leader's to develop the essential skills to effectively communicate in the Army. Cadets will begin learning the basics of squad level tactics that will be reinforced during a weekly lab facilitated by Advanced Course Cadets and supervised by Army ROTC Instructors

ARMY 103: Physical Training Laboratory

1 Credits/Maximum of 8

This course is designed to guide students through an intentional physical fitness program. The course follows the ARMY Physical Fitness Training Program, but is open to any student. The design consists of a systematic increase in the intensity or duration of physical activities. Proper progression allows the body to positively adapt to the stresses of training. When intensity or duration is increased too rapidly, the student cannot adapt to the demands of training, and is unable to recover, leading to overtraining and possible injury. The following are gradually increased to produce the desired physiological effect: - Intensity (resistance and pace). - Exercise volume (number of sets and repetitions). - Duration (time). In the toughening phase, the duration of the ability group runs (AGRs) progress from 10 minutes to 30 minutes gradually over the training cycle. The pace also gradually increases over time. For example, in the sustaining phase during the conduct of CLs and speed running, Soldiers progress from wearing the individual physical fitness uniform (IPFU) to Army combat uniforms (ACUs), boots, advanced combat helmet (ACH), and improved outer tactical vest (IOTV). Progression in strength is achieved by increasing one or more of the following for each exercise when using strength training equipment. - Resistance (weight). - Number of sets. - Number of repetitions. Adhering to the scheduled intensity and duration prevents the Soldier from progressing too fast. How fast the Soldier should progress also depends on how regularly he performs challenging activities and how much rest and recovery time he gets. PRT time is a valuable resource, especially during the toughening phase. Every PRT session develops strength, endurance, and mobility. To ensure improvement, PRT sessions in IMT occur 5 or 6 times a week and last 45 to 60 minutes. PRT sessions in the sustaining phase last 60 minutes or more and occur 4 to 5 times a week. If PRT cannot be conducted first thing in the morning, it should be conducted at some other time during the duty day. Training sessions should be sequenced to ensure adequate recovery.

ARMY 201: Leadership and Ethics

3 Credits

Army 201 focuses on leadership and ethics. The course adds depth to the Cadets knowledge of the different leadership styles. Cadets will conduct a leadership analysis of famous leaders and self-assessment of their own leadership style. The Army Profession is also stressed

through understanding values, ethics and how to apply both to different situations they may encounter as a leader. Army Values and Ethics and their relationship to the Law of Land Warfare and philosophy of military service are also stressed. Students are then required to apply their knowledge outside the classroom in a hands-on performance-oriented environment during a weekly lab facilitated by Advanced Course Cadets and supervised by Army ROTC Instructors.

ARMY 202: Army Doctrine and Decision Making

3 Credits

Army 202 focuses on Army doctrine and decision making. The course begins with analytical techniques, creative thinking skills and the Army problem solving process as related to situations faced by leaders when making decisions. TLPs and OPORD will lead Cadets to an understanding of Army Doctrine and Symbology. Squad tactics will be covered in classes on Unified Land Operations, Offensive Operations and Defensive Operations. Students are then required to apply their knowledge outside the classroom in a hands-on performance-oriented environment during a weekly lab facilitated by Advanced Course Cadets and supervised by Army ROTC Instructors.

ARMY 301: Training Management and the Warfighting Functions

3 Credits

Army 301 focuses on training management and the warfighting functions. It is an academically challenging course where you will study, practice, and apply the fundamentals of Training Management and how the Army operates through the Warfighting functions. At the conclusion of this course, you will be capable of planning, preparing, and executing training for a squad conducting small unit tactics. Includes a lab per week using peer facilitation by senior Cadets and supervised by Army ROTC Instructors.

ARMY 302: Applied Leadership in Small Unit Operations

3 Credits

Army 302 focuses on applied leadership in small unit operations. It is an academically challenging course where you will study, practice, and apply the fundamentals of direct level leadership and small unit tactics at the platoon level. At the conclusion of this course, you will be capable of planning, coordinating, navigating, motivating and leading a platoon in the execution of a mission. Includes a lab per week using peer facilitation by senior Cadets and supervised by Army ROTC Instructors. Successful completion of this course will help prepare you for the Cadet Summer Training Advanced Camp, which you will attend in the summer at Fort Knox, KY.

Prerequisite: ARMY 301

ARMY 401: The Army Officer

3 Credits

Army 401 focuses on development of the Army Officer. It is an academically challenging course where you will develop knowledge, skills, and abilities to plan, resource, and assess training at the small unit level. You will also learn about Army programs that support counseling subordinates and evaluating performance, values and ethics, career planning, and legal responsibilities. At the conclusion of this course, you will be familiar with how to plan, prepare, execute, and continuously assess the conduct of training at the company level. Includes a lab

per week overseeing lesson facilitation and supervised by Army ROTC Instructors.

Prerequisite: ARMY 302

ARMY 402: Company Grade Leadership

3 Credits

Army 402 is an academically challenging course where you will develop knowledge, skills, and abilities required of junior officers pertaining to the Army in Unified Land Operations and Company Grade Officer roles and responsibilities. This course includes reading assignments, homework assignments, small group assignments, briefings, case studies, practical exercises, a mid-term exam, and an Oral Practicum as the final exam. Successful completion of this course will assist in preparing you for your Basic Officer Leader Course and is a mandatory requirement for commissioning. Includes a lab per week overseeing lesson facilitation and supervised by Army ROTC Instructors.

Prerequisite: ARMY 302

ARMY 496: Independent Studies

1-9 Credits/Maximum of 9

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Art (ART)

ART 1: Introduction to the Visual Arts

3 Credits

ART 1 is a course on understanding and interpreting art and serves as an introduction to the visual arts. The material follows an interdisciplinary approach to the practice of the visual arts, examining the social, cultural, historical, and aesthetic implications of studio activity. This course is organized around six central topics: Art as Expression, Art as Cultural Narratives, Form and Content, Two-Dimensional Art, Three-Dimensional Art, and Writing About Art.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Key Literacies

ART 2: Interactive Learning and Web-Design

3 Credits

Introduce students to research on-line, preparing verbal, visual and other elements for presentation of outcomes and posting them to the Internet. ART 2 Interactive Learning and Web-Design (3) (GA)(BA) This course meets the Bachelor of Arts degree requirements. This course is constructed to introduce students to doing research on-line, preparing the verbal, visual and other elements for a presentation of their research and posting them to the Internet with special emphasis placed on the aesthetics of Web design and effective communication. Both individual and group projects are included. It is intended to provide the skills to work collaboratively using computers and the Internet effectively, efficiently and with an awareness of the aesthetic qualities of that work. This final emphasis is particularly important since the quality of presentation is

not included in most classes where Web sites are developed and they are crucial to the effective use of this medium. Aesthetic judgments by the students of their peers work is central to making comprehensive and complete evaluations of it. A central message of the course is that content and presentation cannot be separated and a primary skill to be learned is how to discover, create and refine images for use on the Web in conjunction with clear, well-organized and legible text. The student's work will be evaluated on the basis of how well they grasped the problem, worked with others to solve it, when required, and the effectiveness of the final result.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Key Literacies

ART 3: Visual Images on the Web

3 Credits

Introduce students to using visual images for communication on the World Wide Web. ART 3 Visual Images on the Web (3) (GA)(BA) This course meets the Bachelor of Arts degree requirements. This course is constructed to introduce students to doing art work on-line, preparing visual, verbal and other media for presentation on the Internet with special emphasis placed on the aesthetics of image making and good Web design. Working both individually and in groups is included. Each student is assigned to a working group, which makes collaboration and communication possible. All the projects emphasize art making of different kinds - still and animated, bit-map and vector - as well as different formats - HTML, Flash format and Portable Document format. The grasping of the different kinds of images each makes available, aesthetic qualities of each and they can be used in communication at the center of the course. The student's work will be evaluated on the basis of how well they grasped the problem, worked with others, when required, to solve it and the effectiveness of the final result. The students may do the work for the course on their personal computers or in the University labs on any of the available platforms - Windows, Mac or UNIX. The course will be offered in the spring and the fall and have an enrollment of 200 students.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Key Literacies

ART 10: Introduction to Visual Studies

3 Credits

ART 10 is an introductory art appreciation course created for students without any artistic background. This course introduces students to various art movements, cultural influences, artistic genres, artists, and their artwork. The main emphasis of the course is to teach students hands-on studio arts techniques as they conduct personal research and explore their own creativity. While utilizing art historical and contemporary art concepts, the course guides the students through different time periods. Examining and discussing artwork is a crucial part of this course that encourages the students to express their opinions about art in an intelligent and articulate manner. Visiting art galleries and museums allows the students to experience art in person and to convey constructive criticism through writing. By the conclusion of the course,

students compile a portfolio of narratives and artworks reflective of their research, understanding, creativity, and personal growth.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Key Literacies

ART 11: First-Year Seminar- School of Visual Arts

1 Credits/Maximum of 1

Facilitate adjustment to high expectations, demanding workload, increased academic liberties, and other aspects of college life in the arts. The First-Year Seminar will help facilitate students' adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life and introduce them to their responsibilities as members of both the School of Visual Arts (SoVA) and University community. In addition, the First-Year Seminar is designed to engage students, acquaint them with the learning tools and resources available at Penn State and orient them to the SoVA community from the outset of their undergraduate studies in a way that will bridge to later experiences in their chosen program of study. The first-year seminar will serve as a broad introduction to SoVA's programs of study in Studio Art, Art Education, and Interdisciplinary Digital Studio (IDS) as well to Penn State's academic policies and procedures. Topics to be covered: Introduction to SoVA's areas of study (Studio Art, Art Education, and Interdisciplinary Digital Studio) University wide Web based academic resources, academic policies and procedures Introduction to Penn State's Student Affairs Offices (e.g., Career Services, Center for Women Students, Multicultural Resource Center, and Student Activities)

First-Year Seminar

ART 17: Introduction to Metal Arts

3 Credits

Introduction for non-art majors to fundamental jewelry making and small-scale metalsmithing processes including fabrication, surface treatment, and finishing of metalwork. ART 17 Introduction to Metal Arts (3) (GA)(BA) This course meets the Bachelor of Arts degree requirements. ART 17 is intended as a general survey of metal arts for non-majors. As a studio offering, emphasis is placed on hands-on studio activities, which promote visual literacy and a sensitivity to the various metal arts conventions. Students are given the opportunity to briefly explore many of the traditional materials and processes of metalsmithing including those that are used in cold joining, surface texture, and fabrication. As well, slide presentations, studio visits and museum critiques will augment studio exercises to facilitate a greater awareness of the cultural context in which the metal arts function. As a general appreciation offering, emphasis is placed on active learning processes that involve students in basic studio materials and techniques. Since the School of Visual Arts now requires a portfolio review for visual arts majors to enroll in studio courses, ART 17 provides an opportunity for non-art majors to do studio work in conjunction with an exploration of art concepts.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

ART 20: Introduction to Drawing

3 Credits

ART 20 is intended as a general survey of the art of drawing for non-majors. As a studio offering, emphasis is placed on hands-on studio activities, which promote visual literacy and on the various conventions used in drawing. Students will be given the opportunity to briefly explore many of the traditional materials of drawing, including pencil, charcoal, conte, ink and ink wash, pastel, as well as experimental tools. Slide presentations, studio visits and museum critiques will augment studio exercises to facilitate a greater awareness of the cultural context in which drawing functions. As a general appreciation offering, emphasis is placed on active learning processes that involve students in basic studio materials and techniques. Since the School of Visual Arts now requires a portfolio review for Visual Arts majors to enroll in studio courses, ART 20 provides an opportunity for non-art majors to do studio work in conjunction with an exploration of art concepts.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

ART 30: Introduction to Sculpture

3 Credits

Introduction to sculpture for non-art majors consisting of lectures/basic studio work coordinated to cover broad range of processes. ART 30 Introduction to Sculpture (3) (GA)(BA) This course meets the Bachelor of Arts degree requirements. ART 30 is intended as a general survey of the art of sculpture for non-majors. As a studio offering, emphasis is placed on hands-on studio activities, which promote visual literacy and sensitivity to the various sculptural conventions. Students are given the opportunity to briefly explore many of the traditional materials of sculpture including those that are used in modeling and replication, subtractive processes, and fabrication. As well, slide presentations, studio visits and museum critiques will augment studio exercises to facilitate a greater awareness of the cultural context in which the art of sculpture functions. Students enrolled in this course will be required to participate in the following active learning components: 1. Studio Assignments: a) Modeling and Replication b) Subtractive Processes c) Fabrication Assignment 2. Creating a social and historical context for sculpture making through slide presentations, studio visits and museum critiques: a) Slide presentations: students will be asked to consider the concepts of their creative projects in relationship to the sculptural works of historical and contemporary artists in order to understand the ways in which the three dimensional aspects of sculpture convey meaning. b) Studio visits: Students will visit the personal studios of local artists to learn how professional artists develop best practices as related to the three basic approaches to rendering sculptural form outlined above. Additionally, they will explore and discuss with these artists the concepts expressed in their sculptural works. c) Museum critiques: Museum visits will enable students to learn how to engage and respond to actual works of art as compared with those that they experience as slide and printed representations. The role of museums and galleries in contemporary art practice will also be discussed. Grading and evaluation: Students' sculptural projects will be evaluated according to the following criteria: 1) the uniqueness of the visual concepts developed in their studio assignments; 2) the strength of their visual compositions-their ability to communicate concepts clearly; 3) the quality of their craftsmanship-an

effective use of materials and procedures and commitment to the studio assignments-the effort expended on each project; 4) Their willingness to participate in critique sessions-a thoughtful and informed interpretation of visual ideas in sculptural works produced by them in class as well as those discussed during slide presentations, studio visits, and museum critiques.

Bachelor of Arts: Arts
 General Education: Arts (GA)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Creative Thinking

ART 40: Introduction to Printmaking

3 Credits

Instruction and practice in elementary printmaking and papermaking processes. ART 40 Introduction to Printmaking (3) (GA)(BA) This course meets the Bachelor of Arts degree requirements. ART 40 is intended as a general survey of the art of printmaking for non-majors. As a studio offering, emphasis is placed on hands-on studio activities, which promote visual literacy and sensitivity to the various printmaking conventions. Students are given the opportunity to briefly explore the various approaches to printmaking, which may utilize some or all of the following: screenprinting, relief, intaglio, lithography, and others. As well, slide presentations, studio visits and museum critiques will augment studio exercises to facilitate a greater awareness of the cultural context in which the art of printmaking functions. Students enrolled in this course will be required to participate in the following active learning components: 1. Studio Printmaking Assignments: a) Screenprinting b) Relief c) Itaglio d) Lithography e) Others (collagraph, monotype, electrostatic, artists books) 2. Creating a social and historical context for printmaking through slide presentations, studio visits and museum critiques: a) Slide presentations: students will be asked to consider the concepts of their creative projects in relationship to prints of historical and contemporary artists in order to understand the ways in which the two-dimensional aspects and various processes of printmaking convey meaning. b) Studio visits: Students will visit the personal studios of local printmakers to learn how professional artists develop best practices as related to the basic approaches to printmaking outlined above. Additionally, they will explore and discuss with these artists the concepts expressed in their printed images. c) Museum critiques: Museum visits will enable students to learn how to engage and respond to actual prints as compared with those that they experience as slide and book/journal reproductions. The role of museums and galleries in exhibiting prints will also be discussed. Grading and evaluation: Students' printmaking projects will be evaluated according to the following criteria: 1) the uniqueness of the visual concepts developed in their studio assignments; 2) the strength of their visual compositions-their ability to communicate concepts clearly; 3) the quality of their craftsmanship-an effective use of materials and procedures and commitment to the studio assignments-the effort expended on each project; 4) Their willingness to participate in critique sessions-a thoughtful and informed interpretation of visual ideas in prints produced by them in class as well as those discussed during slide presentations, studio visits, and museum critiques.

Bachelor of Arts: Arts
 General Education: Arts (GA)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Creative Thinking

ART 50: Introduction to Painting

3 Credits

Introductory experience in making of art through painting media; designed for non-majors seeking a general overview of studio practice. ART 50 Introduction to Painting (3) (GA)(BA) This course meets the Bachelor of Arts degree requirements. ART 50 is intended as a general survey of the art of painting for non-majors. As a studio offering, emphasis is placed on hands-on studio activities, which promote visual literacy and sensitivity to the various conventions used in the discipline of painting. Students are given the opportunity to briefly explore the various approaches to creating visual images by applying various painting materials, techniques, and concepts. As well, slide presentations, studio visits and museum critiques will augment studio exercises to facilitate a greater awareness of the cultural context in which the art of painting functions. Students enrolled in this course will be required to participate in the following active learning components: 1. Studio Painting Assignments: a) Visual concept development: students will be introduced to the various ways that artists create meanings through painting. b) Materials development: through a process of exploration and experimentation, students will learn how to apply various painterly media and tools in creating visual images. c) Technique development: through a process of exploration, experimentation, and skill development students will learn how to render and model painterly images that range between abstract and realistic representations. 2. Creating a social and historical context for painting through slide presentations, studio visits and museum critiques: a) Slide presentations: students will be asked to consider the concepts of their creative projects in relationship to paintings by historical and contemporary artists in order to understand the ways in which the two-dimensional aspects and various processes of painting convey meaning. b) Studio visits: Students will visit the personal studios of local painters to learn how professional artists develop best practices as related to the basic approaches to painting outlined above. Additionally, they will explore and discuss with these artists the concepts expressed in their painted images. c) Museum critiques: Museum visits will enable students to learn how to engage and respond to actual paintings as compared with those that they experience as slide and book/journal reproductions. The role of museums and galleries in exhibiting paintings will also be discussed. Grading and evaluation: Students' painting projects will be evaluated according to the following criteria: 1) the uniqueness of the visual concepts developed in their studio assignments; 2) the strength of their visual compositions-their ability to communicate concepts clearly; 3) the quality of their craftsmanship-an effective use of materials and procedures and commitment to the studio assignments-the effort expended on each project; 4) Their willingness to participate in critique sessions-a thoughtful and informed interpretation of visual ideas in paintings produced by them in class as well as those discussed during slide presentations, studio visits, and museum critiques.

Bachelor of Arts: Arts
 General Education: Arts (GA)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Creative Thinking

ART 51N: Meteorology and Visual Arts: To Know is to See

3 Credits

This course examines the inter-relationship between what we know and what we see, through an introductory exploration of art and science.

Engaging students in the study of weather formation, mainly clouds, artistic depictions within the genre of landscape, and the expressed practice of painting; fosters the development of observational skills necessary for reading the landscape and interpreting collected data. What we know and what we see is an on-going evolution of development; syncing the old with the new. Therefore, observation and interpretation are essential to critical thinking, making the intersection between art and science a fertile ground for discovery and learning. The exciting part of the course is the large amount of overlap in the general ideas and thought processes used in meteorology and art, especially when using clouds as the connective tissue. Scientists and artists are both detail oriented and worry about the quality of their work. Both involve collecting data to find the best approaches to a problem, and reasoning through challenges that arise. Students will be challenged throughout the course to seek these connections and how perspectives from each discipline inform the other. Meteorology and art have long been aligned in a common quest to understand how the world works, each seeking interpretations and explanations using a range of complementary and contrasting practices and perspectives. Clouds come in a vast array of sizes and shapes, and are depicted in art using a variety of techniques, creating a shared focus for a deeper understanding of both areas of endeavor. Students will learn about the concept of mixing, which is important to cloud formation and to painting. Students will conduct experiments to learn about cloud processes, and will learn and practice artistic techniques to convey atmospheric conditions. Ideas from both perspectives will be integrated in analysis and discussion. Data from instruments and the individual artist will be collected, shared, and analyzed. Learning how clouds form will help with painting, and questions and perspectives that arise from painting will increase the understanding of cloud processes. The common threads in this approach are a curious mind, a strong detail-oriented focus, effective communication, and respect for the creative tension between ambiguity and assurance in the search for a better sense of causes, connections, and incessant changes.

Cross-listed with: METEO 51N

General Education: Arts (GA)

General Education: Natural Sciences (GN)

General Education - Integrative: Interdomain

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

ART 80: Introduction to Ceramics

3 Credits

Introduction to the concepts and techniques fundamental to the making of pottery and ceramic sculpture. ART 80 Introduction to Ceramics (3) (GA)(BA) This course meets the Bachelor of Arts degree requirements. ART 080 is intended as a general survey of the art of ceramics for non-majors. As a studio offering, emphasis is placed on hands-on activities, which promote visual literacy and sensitivity to the various conventions in ceramics. Students are given the opportunity to briefly explore many of the traditional approaches to ceramics including those that are used in hand building, wheel throwing, glazing, and kiln firing. As well, slide presentations, studio visits and museum critiques will augment studio exercises to facilitate a greater awareness of the cultural context in which the art of ceramics functions. As a general appreciation offering, emphasis is placed on active learning processes that involve students in basic studio materials and techniques. Since the School of Visual Arts now requires a portfolio review for visual arts majors to enroll in studio

courses, ART 80 provides an opportunity for non-art majors to do studio work in conjunction with an exploration of art concepts.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Key Literacies

ART 97: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

ART 98: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Bachelor of Arts: Arts

ART 100: Concepts and Creation in the Visual Arts

3 Credits

A study of the personal and cultural foundations of artistic creation and practice of creative production in the art studio. ART 100 Concepts and Creation in the Visual Arts (3) (BA) This course meets the Bachelor of Arts degree requirements. ART 100 is intended as an introduction to the concepts underpinning artistic creation. Through lectures and studio work, students will explore relationships between artistic processes and in daily life. The objective of the course is to develop in the student both an appreciation and understanding of contemporary art through an examination of art and contemporary social, cultural, and political issues surrounding artistic practice. Students will respond to the ideas presented in the lectures by completing a series of artworks intended to reflect the issues and concepts that have been presented. The intended, though not exclusive, audience for the course is non-art majors. While the focus of the course is a critical examination of both the artworks studied and the artworks created by the students, the critique will be derived from the various backgrounds and academic experiences of the students and not necessarily from their knowledge of art. In this manner, the course can become a relevant complement to all of their studies. In short, the goal of the course is to understand art as a means to critically engage and begin to understand our surroundings and not simply as an end product. Evaluation of student achievement will be done in both the classroom and studio portions of the course. Since it is not expected that students have a background in art, content knowledge assessment will primarily be based on the students' active participation in class discussions as well as objective tests in the form of written responses to the issues and concepts examined. In the studio, their work will be judged on how well students have responded to the concepts and issues explored as well as on their ability to articulate their own ideas in relation to those of other students and other aesthetic and cultural ideas to which they have been exposed. In the studio, this process will primarily be done in the form of individual conversation and group critique. Since the School of Visual Arts now requires a portfolio review for visual arts majors to enroll in studio courses, ART 50 provides an opportunity for non-art majors to do studio work in conjunction with an exploration of art concepts.

Bachelor of Arts: Arts

ART 101: Introduction to Web Design

3 Credits

A beginning level course in Web Design, with emphasis on designing with standards to assure accessibility and effective communication. ART 101 is a beginning level web design course that is concerned with the designing and creating of web sites using XHTML and recommended government standards. This emphasis is central so that the work the students do will reach the broadest audience, including people with disabilities, through the use of a broad range of software and hardware. This course will teach students how to meet the present government standards for accessibility by the disabled and the technical and accessibility standards recommended by the World Wide Web Consortium (W3C). This course will also place an emphasis on the uses of art-images to present information along with the presentation of text and typography for communication and how these elements can make projects on the web more effective. The course will introduce topics such as: clarity of art and design, ease of use (navigability), and in creating art and graphics for web delivery (optimization). There will also be discussion on the dynamics of networked communications, along with issues pertaining to the authoring and publishing of content and media on the internet.

Bachelor of Arts: Arts

ART 102: Beginning Computer Aided Design for Artists

3 Credits

ART 102 is an introduction to Computer Aided Design as an artistic media. Students will model objects in a virtual environment and then realize their objects tangibly through 3D printing and other digital output processes. ART 102 will consist of class lecture, demonstration, work periods, and critique. ART 102 is (an almost) paperless computer based class.

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Key Literacies

ART 110: Ideas as Visual Images

3 Credits

Introduction to the ideational relationships among subject, form, and content in visual images.

ART 111: Ideas as Objects

3 Credits/Maximum of 3

An introduction to the relationship between ideas and the creation of three-dimensional objects. In this course, students will learn concepts, methods, and vocabulary relative to the production of three-dimensional objects. Through slide lectures, discussions, critiques, and assigned projects, participants will investigate how to make, analyze, and critique sculptural objects within the context of contemporary art and visual culture. Students are expected to be inquisitive about the discipline and willing to immerse themselves in it. Students are expected to ask questions, explore new ideas, and engage in the course material.

Bachelor of Arts: Arts

ART 122Y: Commentary on Art

3 Credits

An introduction to verbal commentary, both oral and written, about art. The development of critical and expressive skills given emphasis.

Bachelor of Arts: Arts

United States Cultures (US)

Writing Across the Curriculum

ART 144Z: Climate Change: Arts, Agency and Activism

3 Credits

This course introduces students to contemporary art activism and environmental and humanitarian issues through research presentations, discussions and the production of artwork. It encourages students to imagine the effects of climate change and investigate how art can bring new ways of thinking about and bring a greater awareness to global issues. Media will vary depending on student ideas, it may include drawing, painting, video, sculpture, photography or installation art. Coursework integrates written, oral and visual communication. As an introductory course, assessment will be based equally on class discussion, research presentations, the content of art works produced and student's ability to articulate the synthesis of their work within the theme of climate change. ART 144Z fulfills 3 credits of the GA Domain General Education requirements. ART 144Z may also be used in combination with either BIOL 144Z or PSYCH 144Z as linked courses to fulfill 6-credits of Integrative Studies.

General Education: Arts (GA)

General Education - Integrative: Linked

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Integrative Thinking

ART 160N: STEAM: Connecting Art to Science, Technology, Engineering and Mathematics

3 Credits

Drawing from traditions of scientific illustration, fine art and literary interpretations of scientific concepts, and collaborations between scientists and artists, this course will establish the ways in which the arts and the creative process have informed the sciences, and have served as a source of inspiration, discovery, and dissemination of scientific thought. Building upon principles shared by the creative process, design-thinking, and the scientific method, the course modules investigate the relationship between form and function in art and each of the STEM disciplines, and explore how the creative process enhances sensory processing and perception of scientific concepts. Through hands-on activities, students will develop creative thinking skills and apply them to understanding and communicating fundamental STEM concepts. The course combines lectures, visual presentations, and problem-based learning activities to build knowledge of pivotal intersections between the arts and sciences, and to develop an appreciation of the interconnectedness of STEM (Science, Technology, Engineering, and Mathematics) and the Arts (STEAM). This course will examine art objects and processes that have facilitated understanding for scientists - as a process of discovery or record; and for audiences - as form of

communication or art. Fundamental questions will be: "Can art or the creative process facilitate discovery and understanding for the scientist? How?" "Can artistic interpretations of scientific concepts facilitate communication of science to different audiences?" "Can creative practice, ie drawing, enhance skills that serve scientific method, i.e., observation?" Finally, students will seek creative forms to convey scientific concepts in class projects, with the purpose of integrating these dualistic modes of inquiry to build upon their analytic and critical thinking skills holistically.

General Education: Arts (GA)

General Education: Natural Sciences (GN)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

ART 165: Artistic Concepts of Space

3 Credits

A studio course that utilizes lecture and varied media experiences to investigate space as artistic expression. ART 165 Artistic Concepts of Space (3) ART 165 Artistic Concepts of Space is a hands-on studio course supplemented by lecture. It utilizes various media experiences to investigate notions of space in artistic expression. Explorations will include traditional and contemporary ways of depicting and constructing space as well as contemporary approaches. Both 2-D and 3-D studio investigations will be employed. A lecture component will provide a historical and cultural backdrop upon which students may better understand the role of special depiction in artistic expression.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Key Literacies

ART 166: Artistic Concepts of Form

3 Credits

Modeling in light and dark - with particular attention to drawing. (Approximately 5 weeks) Cultural/historical variations of form - including, but not limited to: Egyptian, Medieval, Byzantine, and Modern, and Contemporary. (Approximately 2 weeks) Sculptural notions of form will be investigated by the actual creation of artistic objects, via exercises in modeling, construction, reduction, assemblage, and casting. (Approximately 8 weeks)

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Key Literacies

ART 168: The Digital Medium

3 Credits

ART 168 The Digital Medium (3) This course will provide a much needed introductory technological/digital component wherein computing will be discussed as a media, rather than a tool. Students will be engaged in the creation of artistic manifestations of individual interpretations surrounding themes and concepts introduced in class. Each unit of the

course will build upon the next resulting in a knowledge base of the possibilities of what the digital medium includes. Students will be asked to demonstrate their knowledge of the medium with a culminating final project that uses at least four of the techniques demonstrated in class. The final project will be determined by the student, manifestations may include a web site, short film, installation, projects, or performance.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Key Literacies

ART 170N: Plant and Microbial Art

3 Credits

This inter-domain general education course provides a cross-disciplinary platform for plant- and microbe-facilitated creative production and art-mediated scientific learning. The course balances studio art activities with lecture- and discussion-based learning about integrated science and art topics. Students use the media of plant and microbial pigments, growth, and biology in a hybrid studio-lab environment. The biology, chemistry, and physics of these living and life-derived media are expected to form integral parts of student presentations. Lectures will provide information about broad scientific principles and in-depth learning about specific phenomena underlying the biologically-based media as well as relevant bio-art issues and contexts in which work is produced. Student projects will represent an integration of natural science understanding with artistic expression. Students will be encouraged to go in various directions with their creative efforts, including visual mechanics (light, color, composition), mark making (painting, drawing), meaning making (metaphors, allegories, cultural appropriations), storytelling, sensing (ways of seeing, phenomenology), and new media issues (e.g., post-humanism). Some example types of bio-media and their scientific connections include: plant pigments, which facilitate discussion of light, photosynthesis, basic chemistry and chromatography; bacterial cultures, which facilitate discussion of microbiology, cell biology, and cellular movements; and fluorescent proteins, which facilitate discussion of DNA, RNA, protein structure, mutations, species concepts, and genetic engineering. Student projects integrate the scientific basis of the bio-art media used such that the media become part of the message of the art.

Cross-listed with: PPEM 170N

General Education: Arts (GA)

General Education: Natural Sciences (GN)

General Education - Integrative: Interdomain

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Integrative Thinking

ART 175N: Intersections Between Art and Psychology

3 Credits

This course investigates the historical and theoretical intersections between psychology and art. These intersections are organized upon three general domains of perception, cognition, and expression. Within these domain topics may include, but are not limited to: automatic drawing, art and the subconscious, surrealism, symbolism, expressionism, and models and techniques of art therapy. Theorists may include, but are not limited to (I.E. Aristotle, Lowenfeld, Freud, Jung, Moon, etc). Students will be expected to consider the psychological structure beneath creative thought and output. Students will also be

expected to reflect on their own experiences and processes throughout their studio work.

General Education: Arts (GA)
 General Education: Social and Behavioral Sciences (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Critical and Analytical Thinking
 GenEd Learning Objective: Integrative Thinking

ART 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

ART 198: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Bachelor of Arts: Arts

ART 199: Foreign Studies—Art

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Arts
 International Cultures (IL)

ART 207N: LGBTQ+ Identity, Culture and The Arts

3 Credits

WMNST 207N: LGBTQ+ Identity, Culture and the Arts will blend theories and methods in the Social and Behavioral Sciences (GS) with those of the Integrative Arts (GA). The course introduces key ideas, concepts and issues related to LGBTQ+ identity and culture, while highlighting aesthetic values of LGBTQ+ expression. The course broadly traces the historical, global, political and academic trajectories of LGBTQ+ studies and considers contemporary topics (for example, global-local influences, intersectionality, activism, and the media) as they relate to LGBTQ+ identity and the arts. The course is attentive to the ways that sexual identities intersect with other types of identities, such as age, gender, race/ethnicity, ability, religion. The course will also help students develop arts-related skills and teach students to recognize and value the arts as an integral part of LGBTQ+ cultural expression. Students will write critical papers, participate in discussions with artists and scholars, explore queer art and art spaces, as well as create a performance or installation art project. Incorporating seminar - and lecture-style instruction with constructivist-creative learning and experiential strategies, the course seeks to develop a learning community stimulated by discourse, collaboration, and creative/aesthetic exploration. This course is a General Education interdomain (N) course for General Education Social and Behavioral Sciences (GS) and General Education Arts (GA), with US Cultures (US), International Cultures (IL) designate. The course is cross listed in both Women's Studies and Arts.

Cross-listed with: WMNST 207N

Bachelor of Arts: Arts
 Bachelor of Arts: Social and Behavioral Sciences
 International Cultures (IL)
 United States Cultures (US)
 General Education: Arts (GA)
 General Education: Social and Behavioral Sciences (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

ART 211: Introduction to Digital Art and Design Criticism

3 Credits/Maximum of 3

An introduction to the language, aesthetics and cultural impacts of digital art and design in contemporary society. ART 211 Introduction to Digital Art and Design Criticism (3) (US)(BA) This course meets the Bachelor of Arts degree requirements. ART 211 examines 1) the conventions, language, practices, and aesthetics used by digital artists and designers and 2) the social and cultural implications that they and their works have for society with regard for the contexts of politics, philosophy, economics, race, gender, and technological development. Critical and creative thinking and expression are given primary emphasis in class activities and assignments. The course meets twice weekly and topics are explored through lectures, discussions, readings, presentations by visiting speakers, and out-of-class trips. Course assignments are writing and project based and require students to respond to ideas and concepts presented in class and to develop critiques of digital works through a variety of formats. Assignments include informal in-class projects, media reviews, a course journal, and a final project. Students build writing skills through analyzing assigned readings and developing research- and reflection-based projects about digital art and design. Speaking and listening skills are developed through discussions and collaborative activities. Course topics explore the: - social contexts of digital art/design; - significance of the computer interface to digital art and design; - practices used by digital artists and designers and their impact on audiences; and - professional issues, concerns, and controversies affecting digital art/design, artists/designers, and their audiences. Students are required to have access to the Internet and to their University e-mail account. ART 211 will enroll 25 students and will be offered spring semester.

Bachelor of Arts: Arts
 United States Cultures (US)

ART 211Y: Introduction to Digital Art and Design Criticism

3 Credits

An introduction to the language, aesthetics, and cultural impacts of digital art and design in contemporary society.

Bachelor of Arts: Arts
 United States Cultures (US)
 Writing Across the Curriculum

ART 220: Figure Drawing

3 Credits

Drawing from life. Emphasis on developing the ability to comprehend and record the human figure. ART 220 Figure Drawing (3) This course is intended to further investigate the art of figure drawing for art majors.

As a studio offering, emphasis is placed on hands-on studio activities, which promote visual literacy and sensitivity to the various conventions used in figure drawing. Students will be given the opportunity to explore many of the traditional materials of drawing, including pencil, charcoal, cont', ink and ink wash, pastel, as well as experimental tools. As well, slide presentations, studio visits and museum critiques will augment studio exercises to facilitate a greater awareness of the cultural context in which figure drawing functions. This labor-intensive studio relies upon cumulative learning experiences through increasingly demanding projects. Competency is expected in numerous new skills and techniques, and their application in creating visually compelling concepts is essential to the success of completed artworks.

Enforced Concurrent at Enrollment: ART 110 or ART 111

Bachelor of Arts: Arts

ART 223: Drawing: Techniques, Materials, and Tools

3 Credits

Drawing with an emphasis on organization and the development of drawing skills through a variety of techniques, materials, and tools. ART 223 Drawing: Techniques, Materials, and Tools (3) This course is intended to further investigate the art of drawing for art majors. As a studio offering, emphasis is placed on hands-on studio activities, which promote visual literacy and sensitivity to the various conventions used in drawing. Students will be given the opportunity to explore many of the traditional materials of drawing, including pencil, charcoal, cont', ink and ink wash, pastel, as well as experimental tools. As well, slide presentations, studio visits and museum critiques will augment studio exercises to facilitate a greater awareness of the cultural context in which drawing functions. This labor-intensive studio relies upon cumulative learning experiences through increasingly demanding projects. Competency is expected in numerous new skills and techniques, and their application in creating visually compelling concepts is essential to the success of completed artworks.

Enforced Concurrent at Enrollment: ART 110 or ART 111

Bachelor of Arts: Arts

ART 230: Beginning Sculpture

3 Credits

An introduction to sculpture consisting of lectures, demonstrations, and basic studio work coordinated to cover a broad range of processes. ART 230 Beginning Sculpture (3) This course is intended to investigate the art of sculpture for art majors. As a studio offering, emphasis is placed on hands-on studio activities, which promote visual literacy and sensitivity to the various conventions used in sculpture. Students will be given the opportunity to explore many of the traditional materials and processes of sculpture, including additive and subtractive processes, plaster-working, wood fabrication, metal fabrication, and mixed-media usage, as well as experimental tools and processes. Slide presentations, studio visits and museum critiques will augment studio exercises to facilitate a greater awareness of the cultural context in which sculpture functions. This labor-intensive studio relies upon cumulative learning experiences through increasingly demanding projects. Competency is expected in numerous new skills and techniques, and their application in creating visually compelling concepts is essential to the success of completed artworks.

Enforced Concurrent at Enrollment: ART 110 or ART 111

Bachelor of Arts: Arts

ART 240: Beginning Printmaking

3 Credits

An introduction to printmaking consisting of lectures, demonstrations, and studio work to cover a broad range of processes. ART 240 Beginning Printmaking (3) This course will consist of lectures, demonstrations, and studio practice in a broad range of printmaking processes. Critiques will be directed toward technical, aesthetic, and historical issues in black and white and color print. Various print collections within the University will be employed to acquaint the students with the work of the professional in the field. This labor-intensive studio relies upon cumulative learning experiences through increasingly demanding projects. Competency is expected in numerous new skills and techniques, and their application in creating visually compelling concepts is essential to the success of completed artworks.

Enforced Concurrent at Enrollment: ART 110 or ART 111

Bachelor of Arts: Arts

ART 250: Beginning Oil Painting

3 Credits

The materials and techniques of painting in oil and their uses in creative painting on panels and canvas. ART 250 Beginning Oil Painting (3) This course is designed to teach beginning students the basic fundamentals of painting and introduce them to the visual arts as a vehicle for personal expression. It is divided into technical categories for organizational purposes. The unique process of each discipline structures the course and allows for individual expression from a diversity of students with different skills and interests. The basic skills are introduced and studied through the creative process, from conception of an idea, preliminary sketches, variations, and final painting. Emphasis is placed on understanding the goals for each student and focusing on his or her shortcomings and strengths. While a basic mastery of mimetic painting is aimed at, a diverse range of aesthetic styles is presented. Thus the purpose of this course is to increase the appreciation of the visual arts through studio processes and the development of meaningful critical facility. We hope to educate students who will understand the fundamentals of painting and who will become part of an educated audience for the arts. Hopefully, they will be more imaginative and creative people. The studio emphasis on individual growth allows for flexibility in course structure to accommodate the general education objectives as well as for future painting majors. Creative and visual thinking are innately part of all students and these basic studio courses encourage and nurture them.

Enforced Concurrent at Enrollment: ART 110 or ART 111

Bachelor of Arts: Arts

ART 260: Water Media

3 Credits/Maximum of 6

This course develops artistic expression in water-based painting media while developing skills with watercolor, ink, acrylic, and natural pigments. ART 260 Water Media introduces techniques and concepts relevant to the creation of artworks using water based painting media, materials and techniques, including watercolor, ink, acrylic, and natural pigments, as well as different grounds and surfaces. Basic techniques are introduced and skills are developed while experimentation and innovation are encouraged. Water based painting media such as watercolor, ink,

acrylic, and natural pigments, are covered. Examples from historical and contemporary water media painting practice will be presented and discussed. Particular emphasis will be placed upon the development of individual expression and a critical awareness concerning processes, composition, and content. Students apply their emerging skills and expressive preferences in developing a concentrated body of work. A goal is that the work demonstrates technical competence and conceptual awareness through the pursuit and refinement of an evolving personal vision. Students are introduced to the process of critique, which is central to the critical learning skills that are core experiences to the studio experience. This course gives students the requisite technical and conceptual skills to take more advanced painting and drawing courses such as ART 320 ADVANCED DRAWING and ART 350 INTERMEDIATE PAINTING among others. ART 260 will be offered once a year in the Spring semester.

ART 265: Artistic Concepts of Color

3 Credits

A studio course that utilizes lecture and various media to investigate color as artistic expression. ART 265 Artistic Concepts of Color (3) ART 265 Artistic Concepts of Color is a hands-on studio course supplemented by lecture. It utilizes various media experiences to investigate notions of color in artistic expression. Explorations will include traditional ways of investigating and creating color as well as contemporary approaches. Both 2-D and 3-D studio investigations will be employed. A lecture component will provide a historical and cultural backdrop upon which students may better understand the role of special depiction in artistic expression.

Enforced Prerequisite at Enrollment: ART 165 and ART 166

ART 266: Artistic Concepts of Light

3 Credits

A studio course that utilizes lecture and varied media experiences to investigate light as artistic expression. ART 266 Artistic Concepts of Light (3) ART 266 Artistic Concepts of Light provides students with necessary concepts about light. Both 2-D and 3-D studio investigations will be employed. A lecture component will provide a historical and cultural backdrop upon which students may better understand the role of special depiction in artistic expression.

Enforced Prerequisite at Enrollment: ART 165 and ART 166

ART 269: Methods and Materials I

3 Credits/Maximum of 9

A studio course that focuses on specific media or techniques reflecting varied faculty expertise. ART 269 Methods and Materials I (3) This course provides students with the opportunity to experience particular areas of visual art in which

Enforced Prerequisite at Enrollment: ART 165 and ART 166

ART 280: Beginning Ceramics

3 Credits

The fundamentals of ceramics, throwing, hand-building, and glazing; acquainting the student with ceramic materials, techniques, and philosophy. ART 280 Beginning Ceramics (3) This course is intended to further investigate the art of ceramics for art majors. As a studio

offering, emphasis is placed on hands-on studio activities, which promote visual literacy and sensitivity to the various conventions used in ceramics. Students will be given the opportunity to explore many of the traditional materials of ceramics, including functional and nonfunctional applications, stoneware, and high fire glazes. As well, slide presentations, studio visits and museum critiques will augment studio exercises to facilitate a greater awareness of the cultural context in which the field of ceramics functions. This labor-intensive studio relies upon cumulative learning experiences through increasingly demanding projects. Competency is expected in numerous new skills and techniques, and their application in creating visually compelling concepts is essential to the success of completed artworks.

Enforced Prerequisite at Enrollment: ART 110 or ART 111 Enforced Concurrent at Enrollment: ART 110 or ART 111 Bachelor of Arts: Arts

ART 290: Beginning Photography

3 Credits

Fundamental techniques and approaches to the art of photography utilizing digital photographic technologies; digital camera required. ART 290. Beginning Photography (3)(BA) This course meets the Bachelor of Arts degree requirements. ART 290 is the first course for students who desire to pursue a concentration in photography. It will focus on the process of making photographs and the development of a critical understanding of photographic images and their evaluation. In ART 290 students will develop the habit of taking photographs on a regular basis. Each week, students will be expected to turn in 24 pictures on one of five assignments for review and critique by both instructors and members of the class. Each assignment will be covered over a three-week period. The topics of the five assignments will vary, but each will focus on important aspects of photography. They may include: portraits, self-portraits, nature photographs, travel photographs, documentary series, experimental images, action assignments, etc. The final assignment will be a self-defined topic that allows the student to explore and work in an area of personal interest. Each topic will be selected to acquaint the student with important aesthetic principals in photography and at the same time advance their technical skill in the process of making photographic images. As part of the five assignments in ART 290, students will also gain background on the history of photography and the critical evaluation of photographs. For each assignment there will be an accompanying gallery of work by other photographers (professionals, amateurs, and students) on the assigned topic area. Each photograph in the gallery will be accompanied by an "artist's statement" - a written critical statement where the photographer describes his or her work and methods. Students will be required to complete each of the five assigned topics by submitting a final "gallery" of four photographs with a written "artist's statement" that speaks to the intent, process, and result of their work. Final submissions will help students develop skills in not only making photographs but critically evaluating their own work and articulating their personal means, methods, and objectives as photographers. Grading will be based on (1) the completion of weekly submissions, (2) the quality of photographs in final submissions for each assignment, (3) attendance, and (4) participation in critiques. A digital camera is required. ART 290 will be offered fall and spring semesters.

Bachelor of Arts: Arts

ART 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Bachelor of Arts: Arts

ART 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Arts

ART 299: Foreign Study--Art

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Arts
International Cultures (IL)

ART 320: Advanced Drawing

4 Credits/Maximum of 8

Drawing for art majors; emphasis on sustained individual approaches based on figurative and nonfigurative sources. ART 320 Advanced Drawing (4 per semester/maximum of 8) This course is for students who have a firm commitment in the arts, who have adequate background in the use of techniques and materials, and who have experimented with a variety of approaches to subject matter. This course is designed to focus and develop personal approaches to subject matter and to encourage a sustained interest in work. Portfolios will be graded and midterm and at the end of the semester. In addition to the portfolio requirements, each student will give a presentation on a contemporary artist whose work has in some way influenced your own current body of work. Critiques will be regularly scheduled. This labor-intensive studio relies upon cumulative learning experiences through increasingly demanding projects. Competency is expected in numerous new skills and techniques, and their application in creating visually compelling concepts is essential to the success of completed artworks.

Enforced Prerequisite at Enrollment: ART 110

Bachelor of Arts: Arts

ART 330: Intermediate Sculpture: Metal Fabrication and Mixed-media

4 Credits/Maximum of 8

Development of technical and conceptual skills through metal fabrication, welding, and mixed-media processes. ART 330 Intermediate Sculpture: Metal Fabrication and Mixed-media (4 per semester/maximum of 8) This course is for students who have a firm commitment in the arts, who have adequate background in the use of techniques and materials, and who have experimented with a variety of approaches to subject matter. This course is designed to focus and develop personal approaches to subject matter and to encourage a sustained interest in work. Projects will be assigned throughout the semester and group critiques will be scheduled at regular intervals. This labor-intensive studio relies upon cumulative learning experiences through increasingly demanding projects. Competency is expected in numerous new skills and techniques,

and their application in creating visually compelling concepts is essential to the success of completed artworks.

Enforced Prerequisite at Enrollment: ART 230 or permission of program Bachelor of Arts: Arts

ART 331: Intermediate Sculpture: Metal Casting and Mold-Making

4 Credits/Maximum of 8

Development of technical and conceptual skills through metal casting and mold-making processes. ART 331 Intermediate Sculpture: Metal Casting and Mold-Making (4 per semester/maximum of 12) This course is for students who have a firm commitment in the arts, who have adequate background in the use of techniques and materials, and who have experimented with a variety of approaches to subject matter. This course is designed to focus and develop personal approaches to subject matter and to encourage a sustained interest in work through the development of technical and conceptual skills through metal casting and mold-making. Students will learn both traditional and non-traditional ways of making sculptural objects that use these skills as primary means of artistic communication. Readings, lectures, movies, and demonstrations will introduce students to the materials and techniques used in the various sculpture processes. Projects will be assigned throughout the semester and group critiques will be scheduled at regular intervals. This labor-intensive studio relies upon cumulative learning experiences through increasingly demanding projects. Competency is expected in numerous new skills and techniques, and their application in creating visually compelling concepts is essential to the success of completed artworks.

Enforced Prerequisite at Enrollment: ART 230 or permission of program Bachelor of Arts: Arts

ART 340: Printmaking

4 Credits/Maximum of 8

Development of technical and expressive skills through selected problems in one or more of the print processes. ART 340 Printmaking (4 per semester/maximum of 8) This course is for students who have a firm commitment in the arts, who have adequate background in the use of techniques and materials, and who have experimented with a variety of approaches to subject matter. This course is designed to focus and develop personal approaches to subject matter and to encourage a sustained interest in work. Readings, lectures, movies, and demonstrations will introduce students to the materials and techniques used in the various printmaking processes. Projects will be assigned throughout the semester and group critiques will be scheduled at regular intervals. This labor-intensive studio relies upon cumulative learning experiences through increasingly demanding projects. Competency is expected in numerous new skills and techniques, and their application in creating visually compelling concepts is essential to the success of completed artworks.

Enforced Prerequisite at Enrollment: ART 240

Bachelor of Arts: Arts

ART 341: Intermediate Printmaking: Intaglio/Relief

4 Credits

Instruction and practice in the fundamentals of intaglio and relief printmaking processes in their relation to the fine arts. ART 341 Intermediate Printmaking: Intaglio/Relief (4) This course is designed

for the student who is interested in expanding her/his image making vocabulary through intaglio and relief printmaking processes. It will expose students to the history and practice of these processes, and will prepare students to competently produce original works. Readings, lectures, and demonstrations will introduce students to the materials and techniques used in the various intaglio and relief processes. Projects will be assigned throughout the semester and group critiques will be scheduled at regular intervals. This labor-intensive studio relies upon cumulative learning experiences through increasingly demanding projects. Competency is expected in numerous new skills and techniques, and their application in creating visually compelling concepts is essential to the success of complete artworks.

Enforced Prerequisite at Enrollment: ART 240
Bachelor of Arts: Arts

ART 342: Intermediate Printmaking: Lithography/Serigraphy

4 Credits

Instruction and practice in the fundamentals of the lithographic and serigraphic processes and their relationship to the meaning of the print. ART 342 Intermediate Printmaking: Lithography/Serigraphy (4) This course is designed for the student who is interested in expanding her/his image making vocabulary through lithographic and serigraphic printmaking processes. It will expose students to the history and practice of these processes, and will prepare students to competently produce original works. Readings, lectures, and demonstrations will introduce students to the materials and techniques used in the various lithographic and serigraphic processes. Projects will be assigned throughout the semester and group critiques will be scheduled at regular intervals. This labor-intensive studio relies upon cumulative learning experiences through increasingly demanding projects. Competency is expected in numerous new skills and techniques, and their application in creating visually compelling concepts is essential to the success of completed artworks.

Enforced Prerequisite at Enrollment: ART 240 or permission of program
Bachelor of Arts: Arts

ART 343: New Media Printmaking

4 Credits/Maximum of 8

A studio course concentrating on the integration of new media and traditional printmaking processes. ART 343 New Media Printmaking (4 per semester/maximum of 8) ART 343 is a studio art class that focuses on creating and critically evaluating printed media. Problem solving with new and traditional print technologies will allow the student to use both the computer and the printing press as a means to a creative end. Students will acquire the skills to critically participate in our technology driven culture, while at the same time they will develop an appreciation for the aesthetics of the handmade. This course will explore the nature and potential of printed media through lectures, readings, demonstrations, studio practice, and critiques. Various conceptually driven assignments will cover a range of graphic computer programs (Adobe Photoshop and Adobe Illustrator) and specific print outputs (digital, photo litho, photo etching and serigraphy) These assignments will engage students in research methods to advance their skills in printed media and help them to develop an understanding of the critical evaluation and assessment of Art.

Enforced Prerequisite at Enrollment: ART 240 or permission of program

Bachelor of Arts: Arts

ART 350: Intermediate Painting

4 Credits/Maximum of 8

A variable offering in painting; course conditions defined on a rotating basis according to needs of individuals and groups. ART 350 Intermediate Painting (4 per semester/maximum of 8) This course is will further develop painting techniques, using the genres of landscape, still life, and painting from the model, collage, abstraction, and some digital applications. Examples from past and contemporary painting practice will be presented and discussed. Particular emphasis will be placed upon the development of a critical awareness concerning processes and content. Readings and discussions will focus on contemporary cultural and political issues. Projects will be assigned throughout the semester and group critiques will be scheduled at regular intervals. This labor-intensive studio relies upon cumulative learning experience through increasingly demanding projects. Competency is expected in numerous new skills and techniques, and their creative use and application is essential to the success of completed artworks.

Enforced Prerequisite at Enrollment: ART 250 or Permission of Program
Bachelor of Arts: Arts

ART 365: Themes and Issues I

3 Credits

An advanced studio course that emphasizes individual approach to theme oriented problem solving through traditional and non-traditional multi-media explorations. ART 365 Themes and Issues I (3) ART 365 contains a common course theme wherein students will be asked to build a series of three completed works in diverse materials and techniques. Students will work to build clear concepts that are communicated through objects and images. Beginning with a thorough investigation of how artists of all fields (music, architecture, design, writing, theatre etc.) have interpreted the theme students will be guided through research, brainstorming, and concept development activities. During this they will be asked to keep a journal which documents their process through written descriptions and comments but also image based resources, sketches, diagrams, and in progress photographs. Students will be urged to complete pieces that are conceptually linked so as to begin working in series. At the completion of each piece, students and faculty will conduct group critiques.

Enforced Prerequisite at Enrollment: ART 165 and ART 166 and ART 265 and ART 266

ART 366: Themes and Issues II

3 Credits

An advanced studio course that emphasizes individual approach to theme oriented problem solving through traditional and non-traditional multi-media explorations. ART 366 Themes and Issues II (3) ART 366 contains a common course theme wherein students will be asked to build a series of three completed works in diverse materials and techniques. Students will work to build clear concepts that are communicated through objects and images. Beginning with a thorough investigation of how artists of all fields (music, architecture, design, writing, theatre etc.) have interpreted the theme students will be guided through research, brainstorming, and concept development activities. During this they will be asked to keep a journal which documents their process through written descriptions and comments but also image based resources,

sketches, diagrams, and in progress photographs. Students will be urged to complete pieces that are conceptually linked so as to begin working in series. At the completion of each piece students and faculty will conduct group critiques and each student will mount a small-scale individual exhibition at one of the many available areas for exhibition on campus.

Enforced Prerequisite at Enrollment: ART 165 and ART 166 and ART 265 and ART 266 and ART 365

ART 380: Intermediate Throwing

4 Credits/Maximum of 12

Intermediate ceramics course with focus on using wheel and throwing skills leading to personal expression in form, glazing, and firing. ART 380 Intermediate Throwing (4 per semester/maximum of 12) The purpose of this course is to explore the use of the wheel. Various types of forms will be addressed such as bowls, covered jars, and vases. Technical skills will be learned with the goal to use them to create a personal means of expression via the wheel. Both traditional and nontraditional vessels will be created. Forming, trimming and glazing techniques will be covered. There will be both group and individual critiques along with slide presentations and demonstrations. This labor-intensive studio relies upon cumulative learning experiences through increasingly demanding projects. Competency is expected in numerous new skills and techniques, and their application in creating visually compelling concepts is essential to the success of completed artworks.

Enforced Prerequisite at Enrollment: ART 280 or permission of program
Bachelor of Arts: Arts

ART 381: Intermediate Handbuilding

4 Credits/Maximum of 12

An intermediate ceramics course with a focus on handbuilding techniques, leading to personal expression in forming, glazing, and firing. ART 381 Intermediate Handbuilding (4 per semester/maximum of 12) The purpose of this course is to explore different means of expression with the techniques of handbuilding. Clay is unlike any other material in that it can be transformed into virtually anything. Some of the forming methods which be addressed are coil, slab, carving, modeling and slump/press molds. The course will have assignments that are technically challenging, but will call on creative and artistic abilities. Slide presentations and group and individual critiques will be part of the curriculum. This labor-intensive studio relies upon cumulative learning experiences through increasingly demanding projects. Competency is expected in numerous new skills and techniques, and their application in creating visually compelling concepts is essential to the success of completed artworks.

Enforced Prerequisite at Enrollment: ART 280 or permission of program or permission of the instructor
Bachelor of Arts: Arts

ART 390: Introduction to Photochemical Photography

4 Credits

Introduction to the fundamentals of black and white photochemical photography. ART 390 Introduction to Photochemical Photography (4)(BA) This course meets the Bachelor of Arts degree requirements. ART 390 will explore the art and science of 35mm black and white photography. It will introduce students to chemically based photography as a process and continue to advance their skill and background as photographers. In the course, students will learn about film cameras

and their operation, basic film types, film developing and processing, and basic photochemical printing practices. Students will also develop skills through experience in making, developing, printing, and presenting photographs created through photochemical processes. Each student will be required to turn in 20 contact sheets (36 exposures each) during the semester on required weekly assignments and develop a final project containing 25 mounted 8 x 10 black and white prints. 40% of the semester grade will be based on the final project, 40% on weekly assignments, and 20% on quizzes. A 35mm film camera with adjustable shutter speeds and aperture settings and a light meter (hand-held or built into the camera) is required. In addition, materials (film, photo paper, developing tanks, photo thermometer, etc.) will cost around \$300 to \$350. ART 390 will be offered fall and spring semesters.

Enforced Prerequisite at Enrollment: ART 110S and ART 111 and ART 290 and successful portfolio review
Bachelor of Arts: Arts

ART 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Arts

ART 399: Foreign Study--Art

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Arts

International Cultures (IL)

ART 404: Art and Life: Where They Intersect

4 Credits

This course addresses where art and life meet; how life influences what artists make, and how art influences our lives. "Art and Life: Where They Intersect" focuses on interdisciplinary areas that address notions of creativity, critical thinking, and studio practice as well as how these perspectives can influence what an artist creates. The essence of the course examines how life influences what an artist makes, and conversely how what we create influences how we live. Themes and ideas draw from interdisciplinary perspectives such as contextual approaches to creativity that are linked to themes in sociology, material theories of art as related to distributed views of cognition, expressive aesthetics that are connected to introspective perspectives of psychoanalytic theories, and other forms of creative agency found in the human sciences. The content of the course includes both studio practice and critical studies. This combination of experiential learning and critical theory is designed to give students a greater understanding and comprehension of the creative process from the point of view of individual interests and a variety of cultural contexts. The course includes students writing autobiographies in relation to their artwork. This reflective analysis is referenced to seminal essays that focus on different disciplinary perspectives on creativity. Creative studio projects will be undertaken to complement textual analysis and seminar discussion. By integrating studio practices with critical studies the creative process is more fully understood. The course curriculum relies on active student participation in class discussions and a willingness to share and take risks in the spirit of contributing to a collaborative learning experience.

Art is by nature multidisciplinary and increasingly teaching art means teaching about life. The course is designed for students with a desire to acquire a deeper understanding of their creative research in the context of contemporary culture.

Enforced Prerequisite at Enrollment: Fifth semester standing or higher

ART 409: Museum Studies

3 Credits

An introduction to the professional activities that occur in art museums. ART 409 / ARTH 409 Museum Studies (3)(BA) This course meets the Bachelor of Arts degree requirements. This course introduces students to the broad field of art museum work, specifically museum administration, education, curatorial work, registration, and exhibition design. Readings by authors in each field provide current theoretical and philosophical frameworks for all areas, which are then followed by discussions and practical experiences with professional museum practitioners, including the staff of a museum, for example, the Palmer Museum of Art, and invited guests. Museum Studies is open to students who have complete six credits in art, art education, or art history. This course is especially beneficial for majors in art, art education, and art history who are considering a career in an art museum or who want to become more aware about how an art museum functions. In addition to providing an in-depth introduction to art museum work, the course encourages students to build the critical thinking and response skills that are crucial to success in the real-world environment of a museum. The readings provide a solid foundation for later reference or further study in the student's chosen field. Offered every spring, this course will have a maximum enrollment of 20 students. Grades are based on class participation, four out-of-class projects, and a final project. Extra credit is offered for an off-campus visit to a museum, among other options.

Cross-listed with: ARTH 409

Bachelor of Arts: Arts

ART 411: Seminar in Contemporary Art

3 Credits/Maximum of 6

Trends in contemporary art investigated within the framework of studio visitations, museum tours, and through other related avenues of encounter. ART 411 Seminar in Contemporary Art (3) This seminar on contemporary art exposes students to artistic practices and to the advanced-level critical discourses accompanying them. It is relevant to all students interested in expanding their knowledge of contemporary art and essential to BFA students who are encouraged to take the course more than once. The only prerequisite for this course is ART 122. The seminar's intimate format allows for discussions and a convivial examination of the pluralistic expressions of contemporary art while articulating it with theory and criticism. From an international perspective, this seminar focuses on art since the 1960s. Besides more traditional artistic expressions such as painting, sculpture, photography, installation, performance and video, the course examines networked collaborations before and after the Internet, art and social activism, and a range of new media and new genre artistic practices. The conceptual issues these works raise include among others the dematerialization of the art object, issues of site-specificity and public art, and institutional critique. The course approaches these developments through artists' writings and essays in contemporary theory and criticism. Works of art are presented through videos, power points, films, performances, gallery visits, field trips, and discussions of related essays. Critical "reading" includes an extensive introduction to the work's historical contexts,

readings from primary source materials, and the exploration of critical methods of analysis. From a cross-disciplinary perspective - including historical, esthetic and philosophical approaches - this course examines principles, assumptions, and tensions inherent in artist's works as well as in our responses to them. Student evaluation is based on short written papers such as an exhibition review or an interview, participation in class discussions, and a creative project (ranging from a web site to an installation, artist's book, or a performance), which must reflect a general understanding of the issues addressed in the course. The course is offered at least once a year with the enrollment of 15 students.

Enforced Prerequisite at Enrollment: ART 122Y or Permission of the Instructor

Bachelor of Arts: Arts

United States Cultures (US)

ART 413: Performance Art

3 Credits

The development, production, and presentation of performance art works, and the study of performance art theory and history. ART 413 Performance Art (3)(BA) This course meets the Bachelor of Arts degree requirements. This course will consist of lectures, readings, demonstrations, critiques, and studio practices in performance art. The course will begin with introductory exercises aimed toward the use and understanding of objects, images, materials, and actions of the body as performance elements. Performance assignments will range from autobiographical works to those which will address political issues effecting art and the body today such as sexuality, ethnicity, health, ecology, the art market, government intervention, and others. Reading and discussion assignments will cover the theory and history of performance art in the twentieth-century.

Bachelor of Arts: Arts

ART 421: Drawing

4 Credits/Maximum of 12

Drawing for advanced students, with total emphasis on sustained individual approaches.

Enforced Prerequisite at Enrollment: ART 320

Bachelor of Arts: Arts

ART 422: Advanced Figure Drawing

4 Credits/Maximum of 8

Concentrated work in recording and understanding the human figure.

Enforced Prerequisite at Enrollment: ART 220 or Permission of program

Bachelor of Arts: Arts

ART 430: Advanced Sculpture

4 Credits/Maximum of 12

Advanced work in sculpture, with an emphasis on professional practice and individual development.

Enforced Prerequisite at Enrollment: ART 230 or permission of program

Bachelor of Arts: Arts

ART 431: Installation Art

4 Credits

Study and production of original visual statements through installation work as an art form.

Bachelor of Arts: Arts

ART 432: Flexible Molds: Parting Seams and Sculptural Concepts

4 Credits/Maximum of 8

ART 432 FLEXIBLE MOLDS: PARTING SEAMS & SCULPTURAL CONCEPTS introduces the relevancy of producing material specific multiples in a contemporary sculptural practice. It will offer students a broad understanding of the conceptual ramifications of molding an object and referencing a "mass-produced" look versus casting in an organic "fused form" way. Technical information on how to make one, two and three (+) part flexible molds in urethane compounds to be cast in concept relevant materials is emphasized. While the technical mold making and casting applications learned will be consistent for all members of the class, the results of the skills learned are expected to fold into each individual's artistic strengths differently. These technical skills are folded into three projects. The intent of these is to refine the students' craftpersonship in relation to constructing a mold and see construction precision as a portal to an expansive approach to casting. These multiple types of casting processes are expected to fold into projects that incorporate multiple genres. The course prerequisites, ART 230 or ART 280 allow for beginning level students to take the course while its 400 level welcomes both undergraduate and graduate students. If a student may repeat the class, the content of the class customizes to match the students increased technical skill. With repeating students, a more advanced approach to realizing individually proposed project ideas is expected.

Enforced Prerequisite at Enrollment: ART 230 or ART 280 or permission of instructor

ART 433: Sustainable Studio

4 Credits/Maximum of 8

Sustainable Studio is designed to provide students the opportunity to form a community of makers interested in issues regarding sustainability as related to artistic practice. From rural Pennsylvania to megacities of China, people are leading the charge to take on the big challenges of sustainability. How do we reach across boundaries and disciplines, to farmers, architects, scientists, poets, writers and together aim towards a sustainable planet. We will reach out across disciplines at PSU, to Bioengineering, Geography, Agriculture, Philosophy, Women Studies (to name but a few) and seek out collaborative projects and intersectionality of ideas and production. This class will introduce you to concepts of sustainability and societal wellbeing through the language of creativity and the studio. We will address interconnected and evolving issues in food, water, biodiversity, energy, and climate, land use and examine how ethical and imaginative people can work together to deal with them. Both ancient and modern production methods using sustainable resources will be explored through hands-on workshops and investigative research. Traditional methods of making pigments and papers will be re-examined with contemporary considerations. We will also research non-toxic biodegradable art materials such as bioplastics, botanical dyes, bio-leathers and exploratory substructures and medias. This hands-on studio offering provides students the opportunity to create and exhibit artworks made from their hand-made materials: charcoal, pastels,

sketchbooks, paint, hand-made papers and surfaces from locally and globally sourced materials. Visiting artists and lecturers will facilitate awareness of cultural context and historical uses of art materials from around the world. Special studio sessions, labs and DIY workshops will provide students with an opportunity to make their own art materials expanding skill sets and knowledge of how art materials are made. Auxiliary activities such as working on location at the student farm and the Sustainability Experience Center, attending special community events, making documented presentations, and museum & library visits will serve to augment studio sessions, facilitating a greater awareness of the cultural context in which art contributes to the larger conversation of sustainability.

Enforced Prerequisite at Enrollment: (ART 110 and ART 111) or Permission of instructor

ART 438: The Body: Issues and Objects

4 Credits/Maximum of 8

Creating representations of the human body and related objects as a means of sculptural expression. ART 338 The Body: Issues and Objects (4 per semester/maximum of 8) This course is for students who have a firm commitment in the arts, who have adequate background in the use of techniques and materials, and who have experimented with a variety of approaches to subject matter. This course is designed to focus and develop personal approaches to subject matter and to encourage a sustained interest in work through the exploration of both historical and contemporary artmaking practice concerning the representation of the human body and objects related to identity. Students will learn both traditional and non-traditional ways of making sculptural objects that use the body as a primary means of artistic communication. Readings, lectures, movies, and demonstrations will introduce students to the materials and techniques used in the various sculpture processes. Projects will be assigned throughout the semester and group critiques will be scheduled at regular intervals. Competency is expected in numerous new skills and techniques, and their application in creating visually compelling concepts is essential to the success of completed artworks.

Enforced Prerequisite at Enrollment: ART 230 or permission of program Bachelor of Arts: Arts

ART 440: Advanced Printmaking

4 Credits/Maximum of 12

Individual projects in one or more of the printmaking processes. Emphasis is on developing a portfolio of prints.

Enforced Prerequisite at Enrollment: ART 240 or permission of program Bachelor of Arts: Arts

ART 446: Artists Books

4 Credits

Study and production of original visual statements through the book as an art form. ART 446 ART 446 Artists Books (4) This course will consist of lectures, demonstrations, and studio practice in production of artists books. Lectures and demonstrations will include hand papermaking, signature binding, book design, new and alternative book forms, and container construction. Each student will produce six either unique or editioned books during the semester; each book will have a mock up, title, colophon page, and will be signed. This labor-intensive studio relies

upon cumulative learning experiences through increasingly demanding projects. Competency is expected in numerous new skills and techniques, and their application in creating visually compelling concepts is essential to the success of completed artworks.

Enforced Prerequisite at Enrollment: ART 110 and ART 111 and ARTH 111 and ARTH 112 and enrollment in the ARTBA_BA, ARBFA_BFA, AED_BS, or INART_BA degree program.
Bachelor of Arts: Arts

ART 450: Advanced Painting

4 Credits/Maximum of 12

Development of the artist through a series of commitments; each semester serves as a contractual agreement along professional lines.

Enforced Prerequisite at Enrollment: ART 350
Bachelor of Arts: Arts

ART 455: Advanced Painting Critique

4 Credits/Maximum of 8

The painter in relation to his peers and his profession.

Enforced Prerequisite at Enrollment: ART 350 or Permission of Program
Bachelor of Arts: Arts

ART 465: Individual Approaches I

3 Credits

An advance studio where students are expected to explore personal themes and individual concepts in their art work. ART 465 ART 465 Individual Approaches I (3) ART 465 is an advanced studio course concentrating on creating art within a series. Students will be asked to complete 4-6 pieces that stem from an individual idea. Medium is open and can be traditional or non-traditional. Students will be required to document and maintain a journal outlining the steps needed to complete each piece. Weekly formal and/or informal critiques will allow students constant feedback of their progress.

Enforced Prerequisite at Enrollment: ART 165 and ART 166 and ART 265 and ART 266 and ART 365 and ART 366

ART 466W: Individual Approaches II

3 Credits

An advance studio/lecture addressing the preparation for potential employment and/or entrance into graduate studies. ART 466W ART 466W Individual Approaches II (3)(BA) This course meets the Bachelor of Arts degree requirements. ART 466W is the Visual Art Studies capstone experience where students are given the opportunity to experience the professional aspects of a practicing artist. In addition to completing the last 2-4 pieces toward their exit portfolio students will address vital activities surrounding applying for employment and graduate school. Students will create "packets" including resumes, cover letters, post cards, slides, and portfolio CDs that can be used directly out of school for various calls and job listings. In addition topics that will be addressed in depth are photo-documentation, and inventory of work through database maintenance. All of these issues will culminate with small group exhibitions which will be curated, installed, and promoted by the students.

Enforced Prerequisite at Enrollment: ART 240 or permission of program
Bachelor of Arts: Arts
Writing Across the Curriculum

ART 468: The Intermediate Digital Medium

3 Credits

An advanced studio course using the computer as an artistic media. ART 468 ART 468 The Intermediate Digital Medium (3) This course will provide the much needed advanced technological/digital component wherein computing will be discussed as a media, rather than a tool. Students will be engaged in the creation of graphic/moving/three-dimensional imagery and sound that explores themes and concepts introduced in class. While most of the course will center around the use of industry standard computers there will be some forays into hardware associated with production, sound, and projection of images.

Enforced Prerequisite at Enrollment: ART 165 and ART 166 and ART 168

ART 469: Methods and Materials II

3 Credits/Maximum of 9

A studio course that focuses on specific media or techniques reflecting varied faculty expertise. ART 469 ART 469 Methods and Materials II (3) This course provides students the opportunity to experience particular areas of visual art in which

Enforced Prerequisite at Enrollment: ART 165 and ART 166 and ART 265 and ART 269

ART 476: History and Theory of Digital Art

3 Credits

History and theories of contemporary digital art emphasizing humanistic approaches to technology. ART 476 / ARTH 476 History and Theory of Digital Art (3)(BA) This course meets the Bachelor of Arts degree requirements. Approaches to Digital Art is a survey class that will offer the web designer, cyberspace architect, MUD traffic controller or enthusiastic surfer an opportunity to examine the humanistic aspects of contemporary digital art. Through readings and direct interaction with digital media and digital artists, the class will develop an appreciation of the ways in which the interface between human beings and technology has been historically constructed and is subject to critical investigation. The goal of the class is to prepare each student so that she or he may engage with digital media in a way that is every more historically and socially self aware. Students will address the ways in which digital technologies transform artistic practices such as museum display, the writing of art criticism, the definition of works of art, changing role of the artist and the changing space of the art studio. More important, however, by engaging with digital works of art students will learn to think critically about technology and its engagement with culture at large. They will be encouraged to think about the political, economic and social impact of digital technologies. This humanistic approach to technology would make this course particularly useful to students of art history, philosophy, comparative literature, art education, and the visual/plastic arts. A significant portion of the course will be devoted to the ways in which art on the internet and digital art in general challenge the integrity of categories such as race and national identity. For example, students will have an opportunity to engage with African American artists such as Keith Obadike, whose on-line performances include an attempt to put his "blackness" up for sale on ebay.com in August of 2001. Students may also look at the ways in which net.art (Art made to be viewed on

the internet) can critique commercial cooptation of global culture: etoy.com, for example, is an international and collaborative artist's group that satirizes global capital by camouflaging itself as a multinational corporation. This class will depend largely upon written responses and class discussion, rather than upon tests. Thus, students will learn how to approach difficult theoretical sources that have been assigned to them, and they will learn how to ask the kinds of questions that will help them understand such sources. This course will emphasize critical thinking rather than memorization, so students will develop analytical skills that will be useful in many other contexts. Because students will be given weekly writing assignments, they will be able to improve their skills in composition.

Enforced Prerequisite at Enrollment: 3 credits of ARTH

Cross-listed with: ARTH 476

Bachelor of Arts: Arts

ART 477: Curator's Workshop

3 Credits

In Curator's Workshop, students will gain valuable experience in curatorial practices, exhibition design, and arts administration. Focus topics include how to generate an effective exhibition concept; liaising with artists, institutions, and other curators; curatorial research in support of an exhibition concept; questions and concerns in spatial design; and the writing of didactic materials such as labels, wall texts, press releases, checklists, and others. Students will engage in a final project requiring them to generate a complete exhibition proposal, inclusive of a budget, written and visual support and documentation, and a clearly defined concept. Through field trips, readings, guest lectures, and research, students will gain a fuller understanding of the role of the curator in today's art world, relating their work back to their individual fields of study.

Enforced Prerequisite at Enrollment: Fifth semester standing or above

ART 480: Advanced Ceramic Arts

4 Credits/Maximum of 12

Individual exploration of ceramic materials and construction leading to graduate study or career development as a professional potter.

Enforced Prerequisite at Enrollment: ART 280 or permission of program

Bachelor of Arts: Arts

ART 490: View Camera Photography

4 Credits

Experience with diverse camera formats and applications; particular emphasis on view camera. ART 490 ART 490 View Camera Photography (4)(BA) This course meets the Bachelor of Arts degree requirements. ART 490 will provide students with experience in diverse camera formats and application with particular emphasis on view camera and its creative applications. The course will give students background in the history of large format photography and understanding of its application in specialized fields such as architectural photography, portraiture, and landscape photography. Students will gain experience in view camera operation and the creation of large format photographs in a variety of different applications. Grading will be based on a minimum of five projects that will account for 80% of the semester grade. The remaining 20% of the semester grade will be based on participation in class critiques. The final course grade will be dropped one full grade for each

absence or late submission beginning with the second late submission or absence. ART 490 will be offered in the fall semester each year.

Enforced Prerequisite at Enrollment: ART 390

Bachelor of Arts: Arts

ART 494: Research Projects Courses

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Honors

ART 495: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: Permission of Program

Bachelor of Arts: Arts

ART 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Bachelor of Arts: Arts

ART 496H: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Bachelor of Arts: Arts

Honors

ART 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Arts

ART 499: Foreign Studies--Art

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Arts

International Cultures (IL)

Art Education (AED)

AED 62: Contemporary African and African American Arts and Culture

3 Credits

Contemporary African and African American Arts and Culture is a hybrid studio/web course in which students have first-hand experiences with African and African American artists, dancers, writers, and musicians to gain understandings of cultures different from their own. Interactive explorations of contemporary African and African American arts reveal multiple histories and perspectives. Transcultural exchanges in this course provide opportunities for self-reflection through the arts.

Bachelor of Arts: Arts

Bachelor of Arts: World Cultures

International Cultures (IL)

United States Cultures (US)

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Soc Resp and Ethic Reason

AED 99: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

AED 101S: Introduction to Art Education

3 Credits

This course introduces students to issues, concepts, and ideas in Art Education. A ED 101S Introduction to Art Education (3) The objective of the course is to introduce students to basic ideas, areas of inquiry, and experiences in art education. This will be a required course that serves as the first of a sequence of courses in the Art Education major and will provide a beginning point for the rest of the courses in the major. The Art Education Program has two emphases. The first leads to public school teacher certification and the second to an understanding of arts education in settings such as museums and community arts organizations. This introductory course will be broadly based and the content and will be applicable to students in both emphases. This course will be conducted in a seminar format. Evaluation methods for the course will include, for example, critical response papers to readings, observation reports of early field experiences, tests, and portfolio assessment.

First-Year Seminar

AED 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

AED 201W: History and Philosophy of Art Education in Schools and Cultural Institutions

3 Credits

Introduction to historical, philosophical, and sociological foundations art education in schools and cultural institutions, museums, and community organizations. A ED 201W A ED 201W History and Philosophy of Art Education in Schools and Cultural Institutions (3) Art education is not an isolated phenomenon; art teaching and learning has always occurred in the context of broader cultural changes and a range of social factors, including technological developments and population diversity. This course examines the historical, philosophical, and sociological foundations of art education in the United States. Art education can be found in a variety of formal and informal settings, including schools, community arts organizations and museums. Students will examine questions such as, what was the purpose of teaching art in the past? Was art study a means to improving social status, to attaining technical literacy, or to vocational training? Did education in art promote a democratic way of life? Or did it help reproduce existing divisions of race, gender, class, and ethnicity in American society? This course examines past and present developments in art education, paying special attention to the relation of art teaching and learning in contexts of art worlds, schooling, cultural institutions, and changing demographics. While the course will focus on art education in the United States, art education in a global context will be addressed as appropriate.

Writing Across the Curriculum

AED 211W: Interpreting Art Experience: Social-cultural Perspectives

3 Credits

A ED 211W Interpreting Art Experience: Social-Cultural Perspectives (3) (W)(GA)(BA) This course meets the Bachelor of Arts degree requirements and is a "writing across the curriculum" course. Through reflective and exploratory writing about art experiences, participants in the course explore how art can teach and be learned within specific cultures and subcultures. Students investigate how interpretations and valuations of images and objects respond to and influence social-cultural perspectives. Students develop critical consciousness of art experiences as transformative learning and as collective memory. Explorations are guided through an introduction to theories of ways of knowing through art experiences such as embodied, sensory, relational, entangled, intersectional, collaborative, community-based, and through affect and lived experiences, among other theories. Students draw upon their own personal and cultural histories and consult accounts written by others to explore the role of visual art in contemporary life. Students research art experiences as case studies to individually and collectively discern social-cultural perspectives.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

Writing Across the Curriculum

AED 212: Interpreting Art Experience: Educational Implications

1 Credits

In-depth study of the educational implications of the information on art making and response introduced in A ED 211. A ED 212 Interpreting Art

Experience: Educational Implications (1) A special discussion section attached to A ED 211 and required of students majoring in art education. A ED 212 focuses on the educational implications of the perspectives on art experience presented in A ED 211. This segment of the course will attend specifically to issues related to learners and learning in the visual arts, including characteristics of learners at various stages of development and the ways in which curriculum and instruction can and should be shaped by these considerations.

Enforced Corequisite at Enrollment: AED 211

AED 225: Diversity, Pedagogy, and Visual Culture

3 Credits

A ED 225 Diversity, Pedagogy, and Visual Culture (3) (GA;US)(BA) meets the Bachelor of Arts degree requirements. This course is an examination of diversity, pedagogy, and visual culture using interdisciplinary approaches and research drawn from various disciplines including art education, history, sociology, cultural studies, and gender studies to explore issues of diversity in various contexts: schools, social media, and cultural institutions such as museums and arts organizations. This course will be structured to accommodate the needs of diverse learners through collaborations, peer presentations, video presentations, discussions, critiques, and lectures. Audio visuals, videos, visual culture artifacts, film clips, slides, and other visual projections are integral to the course, and will be used to vividly illustrate the issues and topics addressed in the presentations and readings. These provide multiple perspectives from various sources. A primary goal of this course is to promote a critical understanding of oneself as a social being (i.e., identity formation) through reflection and the examination of one's immediate experiences, and by asking critical questions about existing social arrangements and relationships between diverse groups. By participating in the course, students will gain a greater understanding of self as having been socialized and acculturated in very particular ways, and how that affects the ways in which they think about themselves, their future careers, and relationships with other people and institutions within society. By the end of this course, students will have a greater understanding of diversity as broadly defined in relationship to visual culture. Students will also be able to critically explore issues of race, gender, class, ability, religion, and sexual identity, among others, and the pedagogical challenges and opportunities posed by such diversity.

Bachelor of Arts: Arts

United States Cultures (US)

General Education: Arts (GA)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Soc Resp and Ethic Reason

AED 233N: Learning in Maker Cultures

1-3 Credits

This course is an examination of the strategies, techniques, and theories of learning associated with participatory communities of art, design, and craft practice often found in makerspaces, as well as an introduction to case study methodology for studying these communities both online and in person. This broad range of materials, technologies, and processes emphasizes creativity, sharing knowledge, and do-it-yourself practices that are a part of maker culture. In this context, making may include advanced digital fabrication and traditional forms of craft. Coursework will involve students' hands-on creative production choosing from a

variety of maker practices. Additionally, readings and discussion will focus on social and cultural factors in community practices, iterative and creative processes of design, and collaborative learning in maker settings. To increase our understanding of makers and makerspaces, students will utilize case study as a social science methodology. Students will learn by making artifacts, doing case study research, and synthesizing theories and practices of learning in maker cultures.

General Education: Arts (GA)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

AED 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

AED 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

AED 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

AED 303: The Visual Arts in the Elementary School

3 Credits

Basic concepts of current art education theory and practice for the elementary teacher.

AED 322: Media Arts Pedagogies, Transcultural Dialogues, & Bioethics

3 Credits

The course explores how emerging technologies impact beliefs, practices, research, and communication regarding the nature of knowledge, learning, teaching, remix culture, visuality, materiality, self, and art. Engage with emerging technologies to learn about media arts and pedagogies that address bioethical issues of injustice, equity, diversity, and inclusion in which the borders of self are questioned. Course content considers the premise that humans are not discreet entities but connected through technologies in ways that are socio-cultural, geopolitical, and techno-biological. Through course experiential activities, gamification pedagogies, and a virtual fieldwork component in building and piloting ethical and accessible educational practices in online teaching, students explore identity formation encoded in social-technological practices. The Transcultural Dialogue project builds international relationships creating collaborative art and generating dialogue. The transcultural dialogue theme weaves, throughout the course, issues of contemporary visual culture, cultural practices in relation to particular places, and pedagogical approaches designed to erode assumptions, ignorance, and misunderstandings. Through media

arts pedagogies, the course raises bioethical concerns such as systemic injustice and approaches creativity as a social process in developing curriculum and teaching with emergent technologies.

Enforced Prerequisite at Enrollment: 5th semester-standing

Cross-listed with: BIOET 322

International Cultures (IL)

AED 323: Visual Culture and Art Education

3 Credits

The study and creation of contemporary art forms as visual culture critiques provide curricular and pedagogical approaches to art education. A ED 323 Visual Culture and Art Education (3) This course is for Art Education majors in the Schools option. Students will: * Read, critically examine, and discuss postmodern "texts" in relation to the ways in which the works and the critical writing that surrounds them participate in, among other issues, the construction of race and gender, and the creation of power and control. * Reflect critically on contemporary writings that address the nature of art, visual culture, artmaking, exhibition, and interpretation as pedagogical processes for making meaning through art. * Create installations, videos, and performances or any combination of the three forms, individually and/or in groups. The purpose of this course is: 1. To assist students to insightfully interpret and create artworks through both writing and artistic media. 2. To provide students with the bases for understanding, interpreting, and critically analyzing contemporary visual culture, which can provide the content of curriculum outlines and unit and lesson plans that students develop in the course for use during internships, student teaching, and as art educators. 3. To provide students with opportunities to develop connections between artworks and their own lives, the lives of their prospective students, and the societies in which they will live. 4. To encourage students to consider race, class, sexual identity, age, and gender issues in art, art education, cultural production, exhibition venues, and career opportunities. TEXTS include popular arts, film, television, video/computer games, music, theatre, fashion, museums, contemporary art, and newsmedia.

Enforced Prerequisite at Enrollment: AED_BS major

AED 355Q: Show Me Where it Hurts: Healthcare and Creative Inquiry

3 Credits

Show Me Where It Hurts: Healthcare and Creative Inquiry is an interdisciplinary exploration of the dynamics of healthcare using both storytelling and artmaking as research methods. Stories of healthcare professionals, caregivers, and self-care will be explored to understand the actions and emotions that constitute empathy as the ability to relate to another person's experiences. By the end of the course, students' deeper understanding for how sharing experiences through the arts can increase empathy in human relationships will augment perspectives on care within healthcare systems either as professionals or patients. The course investigates methods for developing empathy that employ narrative and arts-based inquiry while also exploring a range of resources unique to Penn State to increase understanding such as the Graphic Medicine Series and the Art and Design Research Incubator (ADRI). Students will develop multiple modes of communication appropriate to the social sciences and the arts to develop effective communication in writing, presenting, and artmaking in thematic projects. The course pursues three themes throughout the semester: Theme 1: Seeing, Knowing, and Understanding " Engaging with forms of narrative, art and performance to understand how artists and social scientists use observation, data, and

interpretation to inform their practices Theme 2: Developing Capacity for Empathy " Utilizing art studio explorations with materials and techniques combined with reflective writing practices, students engage in creative thinking skills to heighten empathic ways of knowing through the medium of art and narrative. Theme 3: Analyzing Perspectives in Art and Health " Analyze case studies focused on art and health to explore healthcare from three perspectives: healthcare professionals, caregivers, and self-care.

General Education: Arts (GA)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

Honors

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

AED 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

AED 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

AED 401: Curricula, Pedagogy, and Assessment in Art Education

3 Credits

Preparation of curricula, pedagogical, and assessment strategies for elementary/secondary school and museum art education programs.

Enforced Prerequisite at Enrollment: AED_BS Major or Permission of Instructor

AED 489: Advanced Practicum

4 Credits

This course provides a broad exploration of student teaching experience and professional practices at the preK, primary and secondary levels. In particular, it investigates areas of curriculum development and classroom management under supervision from a qualified instructor. It considers teacher preparation and builds an awareness of best practices for art educators, especially in relation to experiential learning. As this course serves as the final capstone course for the art education major, students will learn of the importance of professional standards and practices in art education and identify and apply contemporary approaches in art education to determine their own preferred methods of teaching. Teacher preparation and experiential learning are enhanced through reflection, refinement, and synthesis of coursework. Building on these insights, students conduct eight weeks of supervised student teaching and apply this practicum experience to create a comprehensive professional art teacher portfolio. Students will complete and publicly present, their teaching and learning portfolios that includes evidence of professional preparation, biographical information, samples of artwork and writings on

art, and reflective statements explaining the selection and significance of specific items.

Enforced Prerequisite at Enrollment: AED 401. Enforced Concurrent at Enrollment: AED 490

AED 490: Capstone Course in Art Education

3 Credits/Maximum of 3

Synthesis of preservice art education coursework; introduction to professional practices and standards; completion of teaching and learning portfolio. AED 490 Capstone Course in Art Education (2) The capstone course has four major objectives for student learning. Each student will synthesize the experiences and understandings developed through prior courses in the undergraduate art education program. - Students will become aware of emerging trends in art education and reflect on implications of those trends for their future teaching and learning. Each student will complete, and publicly present, a teaching and learning portfolio that includes evidence of professional preparation, biographical information, samples of artwork and writings on art/visual culture, and reflective statements explaining the selection and significance of specific items. Students will gain understanding of the importance of professional standards and practices in art education. Student learning will be evaluated through assessment of the preprofessional teaching portfolio, and through a combination of written assignments, individual and small group oral presentations, and active participation in class discussions. Students will collaborate on a final installation, performance or exhibition demonstrating their readiness for the final internship. Since this is the final course in the major prior to student teaching or the internship, attendance is very important and will count toward part of the final grade. Students need access to a computer lab. The capstone course in the art education major should be taken in the final semester before student teaching or a final internship. Since one goal of the course is helping students synthesize what they have learned in their prior courses, successful completion of all of the required courses in the major is prerequisite to enrollment in the capstone course. Students will have been introduced to the teaching and learning portfolio in their introductory art education course and should have developed pieces for their pre-professional teaching portfolios in most of their earlier art education courses. Much of the work of the capstone course will, therefore, focus on reflection, refinement, and synthesis.

Enforced Prerequisite at Enrollment: Admission to Teacher Preparation Program and successful completion of all required courses in the major except Student Teaching or final internship.

AED 494: Schools and Museums

3 Credits

Museum education: issues, theories of aesthetic education and practices in schools, museums, and community art centers.

AED 494H: Schools and Museums

3 Credits

Museum education: issues, theories of aesthetic education and practices in schools, museums, and community art centers.

Honors

AED 495: Internship in Art Experiences

15 Credits

Comprehensive instruction in craft, health, cultural, museum, studio, gallery or social agency. Students supervised by University personnel and arts personnel.

Enforced Prerequisite at Enrollment: AED_BS majors only or permission of instructor

AED 495A: Art Education Student Teaching Practicum

7 Credits

A ED 495A A ED 495A Art Education Student Teaching Practicum (7) The Pittsburgh-based elementary or middle-level field experience fulfills the student teaching requirement for Pennsylvania certification to teach art in elementary and secondary schools. It is offered each semester, and student teachers are placed through the School District University Collaborative in Pittsburgh Public Schools. An on-site Art Education faculty Supervisor supervises students. Assignments, required seminars, and professional development activities meet the teaching prerequisites outlined by NCATE (National Council for Accreditation of Teacher Education) and the Standards for Pre-Service Teachers in Urban Education. Experiences and assignments provide evidence in each of the four domains for teacher preparation: Domain A - Planning and Preparing for Student Learning, Domain B - Teaching, Domain C - Analyzing Student Learning and Inquiring into Teaching, and Domain D - Fulfilling Professional Responsibilities. The work completed in this course (a digital and/or paper-based portfolio, and documented performance-based assessment of teaching as assessed by the university supervisor and mentor teachers/clinical instructors) will demonstrate fulfillment of the teaching/domain standards. The outcome of this work is to produce multiple experiences that support professional and personal development while preparing students for upcoming positions teaching art in multiple public and private contexts at both elementary and secondary levels. At the culmination of the student teaching semester, students will have both practical and theoretical understandings in addition to materials for application within the classroom.

Enforced Prerequisite at Enrollment: AED 489 Enforced Corequisite at Enrollment: AED 495B

AED 495B: Art Education Student Teaching Practicum

8 Credits

A ED 495B A ED 495B Art Education Student Teaching Practicum (8) The Pittsburgh-based middle-level or secondary field experience fulfills the student teaching requirement for Pennsylvania certification to teach art in elementary and secondary schools. It is offered each semester, and student teachers are placed through the School District University Collaborative in Pittsburgh Public Schools. An on-site Art Education faculty Supervisor supervises students. Assignments, required seminars, and professional development activities meet the teaching prerequisites outlined by NCATE (National Council for Accreditation of Teacher Education) and the Standards for Pre-Service Teachers in Urban Education. Experiences and assignments provide evidence in each of the four domains for teacher preparation: Domain A - Planning and Preparation for Student Learning, Domain B - Teaching, Domain C - Analyzing Student Learning and Inquiring into Teaching, and Domain D - Fulfilling Professional Responsibilities. The work complete in this course (a digital and/or paper-based portfolio, and documented performance-

based assessment of teaching as assessed by the university supervisor and mentor teachers/clinical instructors) will demonstrate fulfillment of the teaching/domain standards. The outcome of this work is to produce multiple experiences that support professional and personal development while preparing students for upcoming positions teaching art in multiple public and private contexts at both elementary and secondary levels. At the culmination of the student teaching semester, students will have both practical and theoretical understandings in addition to materials for application within the classroom.

Enforced Prerequisite at Enrollment: AED 489 Enforced Corequisite at Enrollment: AED 495A

AED 495C: Art Education Student Teaching Practicum

7 Credits

A ED 495C A ED 495C Art Education Student Teaching Practicum (7) The Centre Region-based elementary or middle-level field experience fulfills the student teaching requirement for Pennsylvania certification to teach art in elementary and secondary schools. It is offered each semester, and student teachers are placed through the School of Visual Arts at Penn State in cooperation with public schools in the Centre Region. An Art Education faculty Supervisor supervises students. Assignment, required seminars, and professional development activities meet the teaching prerequisites outlined by NCATE (National Council for Accreditation of Teacher Education) and the Standards for Pre-Service Teachers in Urban Education. Experiences and assignments provide evidence in each of the four domains for teacher preparation: Domain A - Planning and Preparing for Student Learning, Domain B - Teaching, Domain C - Analyzing Student Learning and Inquiring into Teaching, and Domain D - Fulfilling Professional Responsibilities. The work completed in this course (a digital and/or paper-based portfolio, and documented performance-based assessment of teaching as assessed by the university supervisor and mentor teachers/clinical instructors) will demonstrate fulfillment of the teaching/domain standards. The outcome of this work is to produce multiple experiences that support professional and personal development while preparing students for upcoming positions teaching art in multiple public and private contexts at both elementary and secondary levels. At the culmination of the student teaching semester, students will have both practical and theoretical understandings in addition to materials for application within the classroom.

Enforced Prerequisite at Enrollment: AED 489 Enforced Concurrent at Enrollment: AED 495D

AED 495D: Art Education Student Teaching Practicum

8 Credits

A ED 495D A ED 495D Art Education Student Teaching Practicum (8) The Centre Region-based middle-level or secondary field experience fulfills the student teaching requirement for Pennsylvania certification to teach art in elementary and secondary schools. It is offered each semester, and student teachers are placed through the School of Visual Arts at Penn State in cooperation with public schools in the Centre Region. An on-site Art Education faculty Supervisor supervises students. Assignments, required seminars, and professional development activities meet the teaching prerequisites outlined by NCATE (National Council for Accreditation of Teacher Education) and the Standards for Pre-Service Teachers in Urban Education. Experiences and assignments provide evidence in each of the four domains for teacher preparation: Domain A - Planning and Preparing for Student Learning, Domain B - Teaching, Domain C - Analyzing Student Learning and Inquiring into

Teaching, and Domain D - Fulfilling Professional Responsibilities. The work complete in this course (a digital and/or paper-based portfolio, and documented performance-based assessment of teaching as assessed by the university supervisor and mentor teachers/clinical instructors) will demonstrate fulfillment of the teaching/domain standards. The outcome of this work is to produce multiple experiences that support professional and personal development while preparing students for upcoming positions teaching art in multiple public and private contexts at both elementary and secondary levels. At the culmination of the student teaching semester, students will have both practical and theoretical understandings in addition to materials for application within the classroom.

Enforced Prerequisite at Enrollment: AED 489 Enforced Concurrent at Enrollment: AED 495C

AED 495E: Internship in Museums and Cultural Institutions

15 Credits

S ED 495E A ED 495E Internship in Museums and Cultural Institutions (15) The internship at a museum or other cultural institution completes the requirements for the Museums and Cultural Institutions option for the BS in Art Education. It is generally scheduled full-time for a period of 12 consecutive weeks during a double summer session, although it may also be taken during the fall or spring semester. The internship enables interns to meet their own educational objectives through participation in a supervised experience that moves them out of the classroom into the workplace. Prospective interns are encouraged to select internship sites that offer educational experiences relevant to their professional goals and desired careers. The internship incorporates guidelines consistent with the Standards and Guidelines for Museum Internships prepared by the New England Museum Association and published by the American Association of Museums (1993, 2000). A formal written internship agreement signed by the intern supervisor at the sponsoring museum or cultural institution, and by the prospective intern and university supervisor outlines the objectives of the internship, the intern's duties and responsibilities, the responsibilities of the museum and university supervisors, and the means by which the intern's work will be evaluated. Interns are integrated into the ongoing work and education programs of the museum and treated as staff members. They assume professional responsibilities and are expected to complete a project or some discrete portion of a major project that is being undertaken by the education department of the museum. Interns become acquainted with functions, programs and departments of the museum in addition to those to which they have been assigned in order to understand the relationship of their educational work to that of the museum, to the community, and to the museum field in general. Interns may participate in any workshops, lectures, professional courses, and staff training seminars that may occur at the museum during period of internship. They are also encouraged to seek professional employment after completion of the internship, and reasonable accommodation is made to allow them time to look for positions, prepare application materials, and attend interviews. Interns submit a weekly journal of activities and reflections to the university supervisor, as well as a summary report at the end. The museum supervisor submits an evaluation documenting the intern's actual working/learning experiences and critically assessing these experiences. The final evaluation is based on this assessment, on the intern's weekly journal and final report, and on the university supervisors' onsite observations and interviews.

Enforced Prerequisite at Enrollment: AED 489

AED 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

AED 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

AED 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Art History (ARTH)

ARTH 1S: First-Year Seminar in Art History

3 Credits

An introduction to the field of art history, through an examination of a selected issue in a seminar setting. ARTH 1S First-Year Seminar (3) (GA) (BA) This course meets the Bachelor of Arts degree requirements. This First-Year Seminar is open to all majors and to those who have yet to decide upon a major. It is also a 3-credit General Education in the Arts course (GA). The course will introduce entering university students to the field of art history through a case study on a selected topic. Each semester the topic will be different, potentially covering such diverse subjects as the purpose and function of Ancient Egyptian architecture to the role of sculpture in Renaissance Florence to the development of abstract painting in the early 20th century. Some semesters, the seminar may also focus upon a single exhibition at the Palmer Museum of Art. Such a focus upon a single topic will allow the class to look at a particular issue in the field from many different perspectives. The course will not be a broad survey of the history of art, but it will introduce students to the breadth of methods and approaches of art history. The seminar approach of the course will emphasize how to tackle an issue in art history, how to critically read selected texts, how to discuss in a small group the various dimensions of a problem, how to do art historical research in the library and on the internet, and how to present your own research and perspectives through public speaking and writing.

Bachelor of Arts: Arts
First-Year Seminar

General Education: Arts (GA)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

ARTH 100: Introduction to Art

3 Credits

An approach to the understanding of art through a critical analysis of selected works of architecture, painting, and sculpture. ARTH 100 Introduction to Art (3) (GA;IL)(BA). This course meets the Bachelor of

Arts degree requirements. Art History 100 provides an introduction to the history of art from prehistory to the present, through selected topics, rather than a comprehensive survey. Areas covered usually include prehistoric art, art of the Near East and Egypt, ancient Greek and Roman art, medieval art culminating with the Gothic, Renaissance art both in Italy and northern Europe, Baroque and Rococo art, and modern developments often highlighting Romanticism, Impressionism, Cubism, Dada, Surrealism, Abstract Expressionism, Pop, Feminist, and contemporary art. The course also introduces selected artistic traditions in Africa, Asia and the Americas. The course is designed to meet two principal goals. The first is to increase students' powers of visual analysis and to help them build a critical vocabulary for discussing an art object's medium, composition, style, and iconography. The second is to foster an understanding of the deep implication of the visual arts in their social and cultural contexts, both historical and contemporary. The course therefore involves significant material relating to political, economic and religious issues. It investigates problems in patronage, function, reception and censorship. It considers such intra- and cross-cultural issues as representations of gender and the incorporation of non-European art forms into the Western tradition. Requirements typically include examinations combining short answer and essay questions, and one paper based library research or intensive examination of an actual work of art. As a general education course in the arts, this course provides an introduction to selected themes in the broad history of art for students in any major. It has no prerequisite and presumes no prior exposure to fine art. This course is not a requirement of Art History major or minors, and is therefore directed essentially to students outside the field. Students who have passed ARTH 110 may not schedule this course.

Bachelor of Arts: Arts

International Cultures (IL)

General Education: Arts (GA)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

ARTH 101N: Introduction to Global Art History

3 Credits

This course introduces students to the history of art as a global phenomenon, interconnected by millennia of cross-cultural encounters. Rather than seeking to provide an exhaustive history of world art and architecture, this course focuses on key concepts that operate across cultures, geographies and time periods. Students will learn the basic techniques of the art historian while being exposed to a variety of in-depth case studies of concepts like (but not limited to): Significant Materials and their Use, Mapping the Cosmos, Interacting with the Divine, Honoring the Dead, Representing the Natural World, Picturing Humanity, Power and Propaganda, Cross-Cultural Encounters, and Global Art in the Modern World. Depending on the instructor, other themes/concepts could be substituted or added. Each theme/concept will be treated as a module with introductory lessons and readings followed by case studies of a single work or group of related works.

Bachelor of Arts: Arts

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

General Education: Arts (GA)

General Education: Humanities (GH)

General Education - Integrative: Interdomain

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies
 GenEd Learning Objective: Soc Resp and Ethic Reason

ARTH 105N: Pictures and Power

3 Credits

ARTH 105N Pictures and Power (3) (GA) (GS) (BA) In an era in which information is increasingly visual, and in an age in which our environment is ever more packed with imagery, students need powerful tools with which to interpret, compare, use and challenge images. This class is about the ways in which popular imagery pleases, informs, persuades, and otherwise exerts power. The class will analytically explore popular imagery and the influence it has exerted historically and today. The class will also acquaint students with works of art that have informed, attempted to draw upon or even contested the power of popular imagery. Particular emphasis will be placed on the interrelatedness of imagery; just as religious paintings of the Renaissance often exerted their force their meaning by virtue of their companionship with architectural sites, music and ritual practices, contemporary popular imagery (from graffiti to broadsides to memes) depends upon the larger constellation of events and artifacts in which they are embedded. The class will equip students with interpretive techniques by which they can examine and think critically about the power worked by pictures, those that exerted influence in the past as well as those students are likely to encounter day-to-day, including selfies, fashion spreads, and corporate logos and product labels.

Bachelor of Arts: Arts
 General Education: Arts (GA)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

ARTH 107N: Rocks, Minerals, and the History of Art

3 Credits

This online course investigates select rocks and minerals used in the production of art between the Prehistoric Era and the Early Modern period. Topics covered include chemical and physical properties, occurrence in nature, the processes by which natural materials are acquired and worked, their symbolic and monetary value, and specific works of art in which they are found. Each material (ochre, garnet, lapis lazuli, rock crystal [quartz], igneous rocks [basalt, diorite and porphyry], alabaster and marble) is addressed in a 2-week unit. The seven units are split equally between scientific analysis of the materials and art historical case studies. A final project integrates Geosciences and Art History topics to investigate the use of a chosen natural material in a specific work of art. Each material addressed in the course plays a crucial role in the history of art, and each one was particularly prized for its physical and material properties (color, hardness, etc.). Ochre was the first known pigment, and was in use by early humans for bodily adornment and for drawing and painting in caves and shelters as early as 100,000 years ago for bodily adornment and 40,000 years ago in cave art. Its availability worldwide and in multiple strong colors made it a desirable choice. Lapis lazuli, by contrast, was difficult to obtain, and difficult to refine as a pigment. It was first used to make small sculptures

and cylinder seals in the Ancient world, and was prized for its brilliant blue color. The difficulty in grinding and purifying blue pigment from lapis lazuli made it one of the most expensive pigments in the Medieval and Renaissance world—it was worth its weight in silver! Pure blue lapis pigment, when found in a painting, is always a sign of great expense and importance. Rock crystal was valued for its clarity and purity, and its extreme brittleness meant that works made from it were valued for their intricacy and fragility. Nero reportedly destroyed two elaborate crystal goblets in a rage, and in so doing, deprived future generations of masterpieces of the sculptor's art. In the Ancient Near East and Ancient Egypt, rock crystal was frequently used for amulets and other magical objects, while in the Medieval world, its purity was seen as a metaphor for the Virgin Mary. Garnet had a similar symbolic value in the Middle Ages: its red color was related to the blood of Christ, and it was thus used frequently in liturgical vessels. In the Ancient world, the rich red tone of garnets was prized in jewelry and in small-scale relief carvings. Igneous stones like porphyry, basalt and diorite were particularly prized for their extreme hardness and permanence, and thus the Law Code of Hammurabi was inscribed on basalt to ensure its permanence. Other Ancient Near Eastern rulers had images of themselves made from basalt and diorite in order to ensure that those works would survive for centuries. Imperial porphyry, an igneous stone with a rich red-purple color, came from a single remote quarry in the Egyptian mountains. Its use was reserved just for the Imperial family in Rome, and it was used for carved sarcophagi, for columns, for colored veneers on floors and walls, etc., as a sign of Imperial authority. Marble is of course one of the most familiar of all art materials, used frequently for sculpture from the very beginnings of art production. The Greeks and Romans in particular took great pains to obtain different types of marbles with specific colors, veining patterns, etc., for use in both sculpture and architecture. Finally, alabaster is one of the easiest of all stones to work: it is so soft that one can make a mark simply with a fingernail! Its intricate banding and translucency made it a favorite material for thin-walled bowls and vases in the Ancient Near East, Ancient Egypt, and in the Classical world. Later, in Early Christian and Medieval Italy, it was used for windows instead of glass—sun shining through alabaster casts a golden glow into a church interior. By the Late Gothic period, alabaster was being exploited as an easily sculpted material throughout Europe, with major quarries and workshops in England (Nottingham), France, and Northern Spain.

Cross-listed with: GEOSC 107N
 General Education: Arts (GA)
 General Education: Natural Sciences (GN)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

ARTH 111: Ancient to Medieval Art

3 Credits

This course is an introduction to Western art before the Renaissance, to CE 1423. The topics covered in this course include prehistoric art in Europe; art of the Near East and Egypt; Aegean art; Greek and Roman art; Early Christian, Jewish, Islamic and Byzantine art; and Medieval art including Romanesque and Gothic developments. The course is designed to meet two principal goals. The first is to increase students' powers of visual analysis and to help them build a critical vocabulary for discussing an art object's medium, composition, style, and iconography. The second is to foster an understanding of the deep implication of the visual arts in their social and cultural contexts. The course therefore

involves significant material relating to political, economic and religious issues. It investigates problems in patronage, function, reception and censorship. It considers such intra- and cross-cultural issues as representations of gender and the incorporation of non-European art forms into the Western tradition. Typical requirements include exams and a paper. As a general education course in the arts, this course provides an introduction to Ancient through Medieval art to a student of any major. This course has no prerequisite and presumes no prior exposure to art history. As a course in the Art History major, it teaches students both the common vocabulary of the field and the outlines of the field that form the foundation for future study. ARTH 111 serves as a companion course to ARTH 112, which deals with art from the Renaissance to Modern Times. ARTH 111 also complements ARTH 201, "Ancient to Medieval Architecture."

Bachelor of Arts: Arts
International Cultures (IL)
General Education: Arts (GA)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Key Literacies

ARTH 111U: Ancient to Medieval Art

3 Credits

Survey of Ancient Egyptian, Greek, Roman, Byzantine, Early Medieval, Romanesque, and Gothic art, with an emphasis on sculpture and painting.

Bachelor of Arts: Arts
International Cultures (IL)
General Education: Arts (GA)
Honors
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Key Literacies

ARTH 112: Renaissance to Modern Art

3 Credits

This course is a broad survey of the most important artists and developments in Western art from the early 14th century to the present, including architecture, sculpture and painting. In addition to being a survey of major monuments in art, the course is also intended as an introduction to the field of art history: to its studies of artistic style, iconography (the study of subject matter and its meaning), patronage and contextual history. Art history not only studies the formal elements of art, like the use of color and line, but also analyzes the historical circumstances (social, political, economic) that surround the production of art, and it questions the meaning of works of art for viewers of the time and for later generations. Around 1310, an artist known as Giotto painted several major series of frescoes (mural painting done on wet plaster) in which we see the beginnings of a modern Western notion of composition, dramatic narrative, and the illusion of perspective. We will look at the refinements of these elements of art through the late nineteenth and early twentieth centuries, when artists we now call avant-garde-notably Cézanne but also predecessors such as Courbet and Manet, and successors such as Picasso and Matisse-presented serious challenges to these fundamental elements of painting. We will look at

the extraordinary art produced between the time of Giotto and Cézanne, as well as the consequences of the modernist challenge to art, including 20th-century abstract painting and conceptual art.

Bachelor of Arts: Arts
International Cultures (IL)
General Education: Arts (GA)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Key Literacies

ARTH 112U: Renaissance to Modern Art

3 Credits

Survey of Renaissance, Baroque, Rococo, Romantic, Modern, and Contemporary art, with an emphasis on painting, sculpture, and graphic arts.

Bachelor of Arts: Arts
International Cultures (IL)
General Education: Arts (GA)
Honors
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Key Literacies

ARTH 115N: Arts of Love

3 Credits

This course will familiarize students with expressions of love in Western arts and literature. Students will analyze the artistic, philosophical and literary representations of courtship, friendship, homoeroticism, sexuality, marriage, adultery, and familial bonds and explore how the preceding phenomena are inflected by gender roles, race and miscegenation, and class and religious differences. We will also trace the way particular narratives about love have been adapted by different artistic media. Love is a universal human experience and its study transcends disciplinary boundaries. It is a linchpin of human existence, uniting and enriching nearly any subject worthy of serious study.

Cross-listed with: ENGL 115N
General Education: Arts (GA)
General Education: Humanities (GH)
General Education - Integrative: Interdomain
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Soc Resp and Ethic Reason

ARTH 120: Asian Art and Architecture

3 Credits

This course surveys Asian art and architecture from the earliest civilizations to the present day, focusing more on the arts and monuments from China, Japan and India but also introducing those from Korea, Southeast and Central Asia. We will study how artistic traditions develop, transmit and become localized in those distinctive yet interconnected societies, and how those traditions interact with the political, religious, social and cultural contexts in which they grow. Issues investigated include (but are not limited to) the spread and metamorphosis of Buddhist, Hindu and Islamic art and architecture, the

production and consumption of art as related to political power (including colonialism, decolonization and nationalism), social hierarchies and market mechanisms, and various forms of modernity in Asian art and culture. In addition to regular class meetings, requirements include slide identification exams, essay exams and short papers. We will also have field trips to museums with collections of Asian art that are suitable for this course, and you will curate an online exhibition of artworks of your choice. As a general education course, this class provides an introduction to Asian art for students of any major. Art History majors will broaden their vocabulary, methodology and knowledge of the discipline.

Bachelor of Arts: Arts
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Arts (GA)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Key Literacies

ARTH 125: Islamic Architecture and Art

3 Credits

Survey of the art and architecture of Islamic lands from the late seventh century until the eighteenth century. ARTH 125 Islamic Architecture and Art (3) (GA;IL)(BA) This course meets the Bachelor of Arts degree requirements. Art History 125 provides an introduction to the arts of Islam from its birth and early formation in the seventh-eighth centuries to the eighteenth century through the examination of architecture, painting and calligraphy, and the decorative arts (metalworking, ceramics, glassware, ivory carving). The focus is on the traditional Islamic areas including Spain, North Africa, the Middle East, and South Asia, although the spread of Islam to other regions (e.g., Southeast Asia and especially Indonesia, the world's most populous Islamic country) may also be included. Each of the major traditions of Islamic art will be examined in a generally chronological sequence; these include the Abbasids, the Umayyads of Spain, the Fatimids of Egypt, the Seljuqs, the Ilkhanids (Mongols), the Timurids, the Mamluks of Egypt, the Safavids of Persia, the Ottoman Turks, and the Mughals of India. The course will conclude with a discussion of "Orientalism" and more recent developments in Islamic art and architecture. The course is designed to meet two principal goals. The first is to develop skills of visual analysis and a critical vocabulary for discussing the media, technologies, styles, and composition of Islamic art. The second is to foster an understanding of art—and visual culture in general—according to social, economic, political, and religious contexts. Key topics include: patronage, issues of reception and aesthetics, the important link between art and text in the Islamic tradition, the organization and use of sacred space, gender issues, relationships between the art of various regions and cultures, and the western interpretation of Islam as part of the discourse on "Orientalism." Requirements include essay exams and at least one paper. As a general education course, this class provides an introduction to Islamic art and architecture for students of any major. It has no prerequisites, and presumes no prior exposure to art history. Students majoring in Art History will learn vocabulary, methodology, and theory that is not only basic to the field, but which will also broaden their knowledge of the discipline as a whole.

Bachelor of Arts: Arts
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Arts (GA)

GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking

ARTH 130: Art of Africa, Oceania, and the Americas

3 Credits

A selective overview of the indigenous art of Africa, Oceania and the Americas. ARTH 130 African, Oceanic, and Native American Art (3) (GA;US;IL)(BA) This course meets the Bachelor of Arts degree requirements. ARTH 130 provides a selective introduction to major developments and issues in African and Oceanic art. The beginning of this course will concentrate upon the art and architecture of selected regions of Africa, during the pre-colonial, colonial, and post-colonial periods. This will be followed by a discussion of the traditional arts of Oceania in Polynesia, Micronesia, Melanesia, and Australia. The course will conclude with an introduction to the Pre-Columbian art and architecture of the Americas and art from the Eastern Woodlands, Great Plains, the Southwest and Pacific Northwest of North America. Art will be examined within its cultural and social contexts. Special attention will be given to the role that art serves in a culture's religion, rituals, ceremonies, political structure, gender roles, and ethnic identity. The impact of the West upon the art of these regions, both in colonial and post-colonial contexts, will be a reoccurring issue in this course. The actual time devoted to each topic and the sequence of topics will vary from instructor to instructor. The objective of the course is to introduce students to diversity in art. In so doing, negative stereotypes associated with traditional notions of the "primitive" will be challenged. Also, the course emphasizes visual analysis and critical thinking. The course requirements will consist of exams and a paper. As a general education course, this class provides an introduction to African and Oceanic art for students of any major. The course has no prerequisites, and presumes no prior exposure to art history. On the other hand, students majoring in Art History will learn vocabulary, methodology, and theory that is not only basic to the field, but which will also broaden their knowledge of the discipline as a whole.

Bachelor of Arts: Arts
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 United States Cultures (US)
 General Education: Arts (GA)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Key Literacies

ARTH 140: Introduction to the Art and Architecture of the Mayas, Aztecs, and Incas

3 Credits

This course examines the artistic and architectural production of Pre-Columbian Mesoamerica and the Andes. ARTH 140 Introduction to the Art and Architecture of the Mayas, Aztecs, and Incas (3)(BA) This course meets the Bachelor of Arts degree requirements. This course examines the art and architecture created by the Pre-Columbian indigenous cultures of Mesoamerica and South America, geographical regions today defined by the nations of Mexico, Guatemala, Belize, Honduras, Ecuador, Peru, Chile and Argentina. Its content spans a deep expanse of history, in Mesoamerica ranging from the Pre-Classic period (1200 BCE) through the Post-Classic period (CE 1521) and in South America, from

the Early Horizon (1200 BCE) through the Late Horizon (1532). Culturally, we will pay particular attention to the Maya, Aztecs and Inca, but the precursors of these societies, the Olmec, Teotihuacan, Chavin de Huantar, the Moche, will also be studied. This introductory course approaches the material both thematically and chronologically, addressing how different cultures of the Pre-Columbian world utilized art, architecture, and their production in the cultural arenas of urbanism, public ritual, politics, myth-history and intercultural exchange. In addition to lectures, the course's required reading and class discussion will aid students in acquiring a basic knowledge of Pre-Columbian cultural practices.

Bachelor of Arts: Arts
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Arts (GA)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Key Literacies

ARTH 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Arts
 ARTH 199: Foreign Study--Art History

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Arts
 International Cultures (IL)

ARTH 201: Ancient to Medieval Architecture

3 Credits

A survey of Prehistoric, Ancient Near Eastern Egyptian, Greek, Roman, Early Christian, Byzantine, Early Medieval, Romanesque, and Gothic architecture. ARTH 201 Ancient to Medieval Architecture (3) (GA;IL)(BA) This course meets the Bachelor of Arts degree requirements. This course is an introduction to architecture from the Prehistoric to the Gothic periods. Some of the topics covered in this course include prehistoric architecture in Europe and the Mediterranean, architecture of the ancient Near East, Egyptian architecture, Minoan and Mycenaean architecture, the classical architecture of ancient Greece, ancient Roman architecture throughout the empire, the Early Christian architecture of western Europe and Byzantium, early medieval architecture, Middle Byzantine architecture, Islamic architecture, and the Romanesque and Gothic architecture of Western Europe. Selected major individual buildings and architectural complexes will be emphasized and will include types of buildings/complexes such as the sanctuary, temple, tomb, forum, basilica, cathedral, monastery, and castle. Architecture will be analyzed with regard to materials' construction, engineering and design, and in the contexts of culture, society, and urban or rural setting. Political, economic, religious, ethnic and gender-related issues will be presented as they are part of the dynamics contributing to many of these structures. The course has no prerequisite and is intended for both students of architecture/art and students unfamiliar with the field. This course also serves as an introductory foundation course for students in the arts,

particularly architecture and landscape architecture. The companion course to ARTH 201 is ARTH 202, "Renaissance to Modern Architecture," which examines Western architecture after A.D. 1400. ARTH 201 is a required course for the Major in Art History and the Interdisciplinary Minor in Architectural History.

Bachelor of Arts: Arts
 International Cultures (IL)
 General Education: Arts (GA)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning

ARTH 202N: Renaissance to Modern Architecture

3 Credits

This course is an introduction to the history of architecture, primarily in Europe and North America, but also in Asia and South America, from approximately 1400 to the present. Selected architects, structural ideas, buildings, and urban developments will be emphasized. Architecture will be considered within the contexts of religion, politics, philosophy, economics, gender, society, technology, engineering, landscape architecture, urban planning and interior design. This course has no prerequisite and is intended for both students of architecture/art and students unfamiliar with the field.

Bachelor of Arts: Arts
 International Cultures (IL)
 General Education: Arts (GA)
 General Education: Humanities (GH)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking

ARTH 204: The Art of Marvel: Italy and Spain 1600 - 1750

3 Credits

This class is intended to provide a general introduction to the art and architecture of Italy and Spain from roughly 1590-1750. Discussion will concentrate on what constitutes the baroque and its interpretation in each geographic area as well as issues such as patronage, primary sources, iconography, and historical context. The goal is to increase your visual analysis skills and help build a critical vocabulary for discussing an art object's medium, composition, style, and iconography. The second goal is to foster an understanding of the deep implication of the visual arts in their social and cultural contexts.

Bachelor of Arts: Arts
 International Cultures (IL)
 General Education: Arts (GA)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning

ARTH 207: The Eternal City: Rome from Antiquity to the Present

3 Credits

This class provides an introduction to the architecture and urbanism of the city of Rome from its founding to the present. The class will examine the ways in which the city came into being and was shaped over time, thereby allowing students to come away with a profound understanding

of the different ways human societies have used the arts to both reflect and reinforce social and cultural traditions. Selected architects, structural ideas, buildings, and urban developments will be emphasized. In the ancient period, the class will look at the founding myths of Rome and buildings from the republican and imperial periods. With the fall of the Roman empire, the class will look at the city during the period it was controlled by the papacy, examining projects of various popes, ecclesiastical institutions, and secular patrons. The final portion of the course will look at how Rome was remade into the capital of modern Italy, and how the image of Rome was used in film. Throughout the course, buildings and urban spaces will be considered within the contexts of religion, politics, philosophy, economics, gender, and society. This course has no prerequisite and is intended for both students of architecture/art and students unfamiliar with the field.

Bachelor of Arts: Arts
 International Cultures (IL)
 General Education: Arts (GA)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

ARTH 215: Architecture and Art of South and Southeast Asia

3 Credits

Survey of the architecture/art of South/Southeast Asia (emphasis on India) from the Bronze Age to a globalizing present. ARTH 215 / ASIA 215 Architecture and Art of South and Southeast Asia (3) (GA;IL) (BA) This course meets the Bachelor of Arts degree requirements. This course has a focus on the architecture and art of South Asia (India, Pakistan, and Bangladesh) and Southeast Asia (particularly Thailand, Cambodia, and Indonesia). Topics will span a time period that begins with Bronze age urbanization in South Asia and concludes with the emergence of globalized architecture in the context of modern nation states. The course will be an opportunity for students to engage with artistic traditions and patronage systems that have adapted to cross-cultural currents, including the more recent forces of colonialism and globalization. Early Buddhist and Hindu architecture and sculpture, the medieval Hindu temple, the advent and adoption of Islam and its artistic forms, the emergence of an early modern empire under the Mughals and their patronage of architecture and painting, British colonial architecture and contemporary interpretations of Modernist architecture and art, are some of the topics that will be covered. Besides paying attention to the formal aspects of buildings, cities and objects, lectures will incorporate information on the emergence of Art History as a discipline in South and Southeast Asia. Lectures, exams and reading assignments will aid in providing students with an intensive introduction to the region's cultural and artistic diversity.

Cross-listed with: ASIA 215
 Bachelor of Arts: Arts
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Arts (GA)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking

ARTH 220: Chinese Art

3 Credits

A general survey of the great periods of Chinese art from the Shang dynasty until the modern period. ARTH 220 Chinese Art (3) (GA;IL)(BA) This course meets the Bachelor of Arts degree requirements. ARTH 220 provides an introduction to the art of China from the Neolithic period through the twentieth century. Emphasis will be placed on the major dynastic periods (Shang, Zhou, Qin, Han, Tang, Song, Ming, Yuan, and Qing); however, regional developments throughout China are examined as well. Students are introduced to a variety of artistic traditions and media, including jades, bronzes, ceramics, sculpture, painting, and architecture. The course is designed to meet two principal goals. The first is to develop skills of visual analysis and a critical vocabulary for discussing the media, technologies, styles, compositions and iconographies of Chinese art. The second is to foster an understanding of art—and visual culture in general—according to social, economic, political, and religious contexts. Key topics include: the ritual use of objects, patronage, issues of reception and aesthetics, Buddhist art, the organization and use of sacred space, depictions of gender, and regional developments/interactions. Requirements include essay exams and at least one paper. As a general education course, this class provides an introduction to Chinese art for students of any major. This course has no prerequisites and presumes no prior exposure to art history or the history of China. Students majoring in Art History will learn vocabulary, methodology, and theory that is not only basic to the field, but which will also broaden their knowledge of the discipline as a whole. Because China (currently the world's most populous nation) has one of the longest recorded and continuous artistic traditions, the course also contributes to a broader understanding of important global issues.

Bachelor of Arts: Arts
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Arts (GA)
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Key Literacies

ARTH 222N: Intersections between Art History and the History of Psychology

3 Credits

ARTH 222Q: Intersections between Art History and Psychology Why is there a cultural association between mental illness and artistic creation? What is the history of this association? Is there a psychological foundation for it or is it a cultural stereotype with no basis in reality? To address these questions this course will explore the integrated histories of modern psychology and avant-garde art from the late 19th century to the present, comparing the different approaches to the topic in the disciplines of art history and psychology. We will discuss the possible benefits and drawbacks of each approach. By celebrating genius, art history has often been complicit in perpetuating the stereotype of the "mad" artist, even romanticizing it and discounting the reality of disease; whereas psychologists often view images as symptoms, misinterpreting the art historical context in which artists work. Interestingly, avant-garde art has often been associated with "insanity" with both negative and positive connotations. As a history of art and psychology course, the syllabus is organized as a chronological survey focusing on points of intersection between avant-garde art and psychology. Many of these points will be the lives and works of individual artists who either suffered

mental illness, such as Vincent van Gogh, or engaged with psychology and mental illness as the subject of their art, as did Edvard Munch, the creator of the famous image, *The Scream*. In each case it is interesting to look at the reciprocity between the two disciplines: how the artists represented mental illness and transformed psychological theories into visual art and how psychologists and the medical establishment have responded to these artists, using them as diagnostic subjects. We will look specifically at bi-polar disorder and the psychological debates surrounding its relationship to artistic creativity. We will also look at larger avant-garde movements such as Expressionism and Surrealism, movements inspired by therapeutic practices, the art of mental patients, and psychoanalytic theory. We will look at the legacy of each of these movements in contemporary avant-garde art, including attitudes toward Outsider or Visionary artists and modern art therapy. Particular emphasis will be placed on psychoanalytic theory. Sigmund Freud's interest in art impacted his work and has rendered his writings conducive to artistic interpretation even today, although his theories have been rejected by many contemporary psychologists. We will look at artists who directly responded to Freud's writings such as Max Ernst and Salvador Dali, female surrealists such as Leonora Carrington, and issues surrounding "hysteria" as it was adopted by both male and female surrealists as a model for creative expression, and which continues to inform feminist art practices today. While contemporary avant-garde artists continue to respond to various psychological theories and practices, contemporary psychologists use formal analysis to understand the art of mental patients and employ artistic practices in the development of modern art therapy.

Enforced Prerequisite at Enrollment: ENGL 15

General Education: Arts (GA)

General Education: Social and Behavioral Scien (GS)

International Cultures (IL)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

ARTH 222Q: Intersections between Art History and the History of Psychology

3 Credits

ART H 222Q: Intersections between Art History and Psychology Why is there a cultural association between mental illness and artistic creation? What is the history of this association? Is there a psychological foundation for it or is it a cultural stereotype with no basis in reality? To address these questions this course will explore the integrated histories of modern psychology and avant-garde art from the late 19th century to the present, comparing the different approaches to the topic in the disciplines of art history and psychology. We will discuss the possible benefits and drawbacks of each approach. By celebrating genius, art history has often been complicit in perpetuating the stereotype of the "mad" artist, even romanticizing it and discounting the reality of disease; whereas psychologists often view images as symptoms, misinterpreting the art historical context in which artists work. Interestingly, avant-garde art has often been associated with "insanity" with both negative and positive connotations. As a history of art and psychology course, the syllabus is organized as a chronological survey focusing on points of intersection between avant-garde art and psychology. Many of these points will be the lives and works of individual artists who either suffered mental illness, such as Vincent van Gogh, or engaged with psychology and mental illness as the subject of their art, as did Edvard Munch, the

creator of the famous image, *The Scream*. In each case it is interesting to look at the reciprocity between the two disciplines: how the artists represented mental illness and transformed psychological theories into visual art and how psychologists and the medical establishment have responded to these artists, using them as diagnostic subjects. We will look specifically at bi-polar disorder and the psychological debates surrounding its relationship to artistic creativity. We will also look at larger avant-garde movements such as Expressionism and Surrealism, movements inspired by therapeutic practices, the art of mental patients, and psychoanalytic theory. We will look at the legacy of each of these movements in contemporary avant-garde art, including attitudes toward Outsider or Visionary artists and modern art therapy. Particular emphasis will be placed on psychoanalytic theory. Sigmund Freud's interest in art impacted his work and has rendered his writings conducive to artistic interpretation even today, although his theories have been rejected by many contemporary psychologists. We will look at artists who directly responded to Freud's writings such as Max Ernst and Salvador Dali, female surrealists such as Leonora Carrington, and issues surrounding "hysteria" as it was adopted by both male and female surrealists as a model for creative expression, and which continues to inform feminist art practices today. While contemporary avant-garde artists continue to respond to various psychological theories and practices, contemporary psychologists use formal analysis to understand the art of mental patients and employ artistic practices in the development of modern art therapy.

Enforced Prerequisite at Enrollment: ENGL 15

International Cultures (IL)

General Education: Arts (GA)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

Honors

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

ARTH 224N: Authors and Artists

3 Credits

This course explores the many links between modern art and literature, including fiction about artists, illustrations of fiction and poetry, efforts to write in the styles associated with modern art, and practices of ekphrasis (the evocation of visual art in language). These links between authors and artists have exerted a formative influence on the development of modern fiction and poetry as authors and artists in various avant-garde groupings collaborated and competed to generate modes of artistic expression appropriate to modernity. This course examines those interactions. Course objectives are to bring together for comparative examination: * Formal or generic relationships between texts and images at particular historical moments; under this rubric we will consider issues such as ekphrasis. * Creative collaboration and cross-pollination between writers and artists, which have been crucially important in the history of literature and poetry; examples include Pre-Raphaelite poetry and painting, Virginia Woolf and Post-Impressionism, Gertrude Stein and Cubism * Conceptions of creativity as these have been expressed by writers using the figure of the artist; texts in this category range from Balzac's *The Unknown Masterpiece*, through Hawthorne's *The Marble Faun*, to Paul Auster's appropriation from the performance artist Sophie Calle This course explores the ways knowledge of literature and skills in critical reading can be rewardingly brought to bear on the visual arts, and considers how

visual art can illuminate the workings of literature both for individual readers and in the classroom.

Cross-listed with: ENGL 224N
 General Education: Arts (GA)
 General Education: Humanities (GH)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

ARTH 225N: Sexuality and Modern Visual Culture

3 Credits

ENGL 225N / ARTH 225N / WMNST 225N Sexuality and Modern Visual Culture (3) (GA;GH) An examination of the visual expression of gender and sexual identities in English-speaking cultures since the late nineteenth century. The terms "feminist" and "homosexual" were invented by the Victorians and reflect profound shifts in conceptions of identity. Another invention of the nineteenth century was the idea of the literary and artistic "avant-garde" as a minority contingent with politically and/or aesthetically advanced views. These ideas of minority culture were deeply enmeshed with one another, and have exerted profound influence ever since. This course explores that history with the objectives of expanding students' knowledge of modern art and literature, and of fostering more sophisticated understandings of how evolving socio-political ideas affect our sense of who we are and how we relate to texts and images. The course is relevant to students of American and English studies, art, art history, and women's, gender and sexuality studies.

Cross-listed with: ENGL 225N, WMNST 225N
 General Education: Arts (GA)
 General Education: Humanities (GH)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Soc Resp and Ethic Reason

ARTH 226: The Comic Book: A History of Sequential Art

3 Credits

An overview and examination of the history of sequential art with a focus on comic books and graphic novels. ART H 226 The Comic Book: A History of Sequential Art (3) (GA)(BA) This course meets the Bachelor of Arts degree requirements. Art History 226 will lead students on a journey through one of the world's most interesting and yet most misunderstood art forms. In this class, students will familiarize themselves with various styles, terminology, and major examples of sequential art beginning with the cave paintings of Lascaux and ending with the more popular and critically acclaimed comic books of recent years. Students will not only learn a bout and appreciate sequential art, but they will also understand how deeply and significantly these works have melded into various aspects of our culture and society.

Bachelor of Arts: Arts

ARTH 250: A Chronological Survey of Photography

3 Credits

A survey of photography's place and influence in a social, cultural, and historical context. ART H 250 A Chronological Survey of Photography (3) This course explores the role played by photography over time in providing understanding and insight in a social, cultural, and historical context of the impact of the development of the photographic medium and its effect on social, political, cultural and technological events. Emphasis will be given to understanding the context that surrounds the scientific and aesthetic development of photography. This is a survey of the chronology of events in western culture that transpires from the inception of photography until the year 2000. It includes the influences and outcomes of photographers and those associated with the medium on our culture. Emphasis will be placed on the influence of photography on the world around it, and significant events and individuals in the development of the medium as a vital art form. The structure of the course will consist of research and discussion of events and individuals that characterized years selected for examination. Each week one or two decades of western culture will be highlighted. Although the thrust of research will relate to photographic subject matter, the events studied will span the culture. We will explore the development of art, literature, music, and photography, as well as, historic landmarks, and the events that have shaped present society. Each week a selection of visual material will be presented highlighting selected events, students will read literature from the period of discussion, significant pieces of music will be introduced, and accounts of periodic events will be surveyed. Each week, a group of students will be assigned to research at least one decade. Each student will gather information about a significant figure or event that occurred in the course of a given period. The student will be expected to prepare a short paper and give a five-minute oral presentation about his/her assigned year, historical figure or event. As each student presents, the chronology of events becomes clear and the multiple threads of history weaves a brilliant tapestry of our culture. For the final presentation the student will prepare a ten-page research paper about a historical figure or event. Students will be graded on the quality of the weekly oral presentations and the demonstrated level of commitment to research. Another significant part of their grade will be derived from the length of committed scholarship given to the ten-page term paper. Students must exhibit a level of originality, clarity, and insight. The student must demonstrate the capacity for the assimilation of facts and events relative to their subject and demonstrate how their subject relates to other events that occurred around the same time of their event. Toward this end students will be encouraged to work together to illustrate the interconnection of the chronology.

Cross-listed with: PHOTO 201

ARTH 260: Museum Marketing & Communications

1-3 Credits

This course provides a well-rounded introduction to strategic communications, marketing, and publicity in arts institutions. In this course, students will gain an understanding of marketing and communications theory while also acquiring the practical skills used by art-world professionals. The ever-changing world of digital marketing, content, and messaging are essential to the success of museums, galleries, auction houses, art fairs, publishers, and other arts institutions responsible for branding and promoting the arts. This course will serve art history majors and minors by giving them practical, career-oriented skills and knowledge; non-majors will likewise benefit from theoretical

and practical knowledge of strategic communications, publicity, and marketing as they are practiced in arts institutions.

ARTH 280: The Secret Lives of Things: Design and Decorative Arts since the 18th Century

3 Credits

This course will study the meanings of ordinary and extraordinary objects of daily life. Ranging from pre-Revolutionary France to the global present, we will look at furniture, interiors, graphics, appliances, ceramics, and other ornamental and useful goods in Europe and America within their aesthetic, historical, economic, social and political contexts. Among other issues, the course will consider the effects of technological change such as changing conditions of labor; industrialization and new means of production and distribution of objects; the advent of synthetic materials; and effects of production and consumption on the environment. We will discuss the relationship of objects to gender-how gender roles are encoded in, defined and redefined by objects-and patterns of domestic life. Another theme of the course will be habits of consumption, where goods are bought and sold, how meaning is attached to consumption and purchases become linked to the presentation of a social self. The course addresses the General Education objectives of Effective Communication, Key Literacies and Global Learning, and will fulfil the objectives of a GA course by demonstrating the essential methodologies of art history and visual culture, including formal analysis, formal comparison, cross-cultural comparison how historical evidence, especially primary source accounts of objects, enable us to understand a work in its original context. In familiarizing students with examples of styles, makers, and types of object, the course teaches students how works of visual and material culture embody and express cultural values and social categories and expand students' knowledge and comprehension of the role that the arts play in various aspects of human endeavor.

Bachelor of Arts: Arts

International Cultures (IL)

General Education: Arts (GA)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

ARTH 292N: Witches and Witchcraft from the Middle Ages to the Present

3 Credits

This course will explore the social and cultural history of witches and witchcraft from the late Middle ages in Europe and the U.S. to the present. The very nature and broad scope of the topic lends itself to an interdisciplinary approach that combines history, folklore, religious studies, criminology, women's studies, art history, English literature and popular culture. Historically, real individuals were accused of witchcraft and suffered persecution and punishment accordingly. Others proclaimed themselves to be witches and the practice continues to attract adherents today such as in the modern Wiccan movement. However, modern consensus views witches as fictions: figures of magical power in folklore, literature, visual art and popular culture. From Shakespeare's Macbeth to the characters in the popular Harry Potter books and films, fictional witches have haunted European and American culture for centuries. This course will explore the complex interplay of fact and fiction in the history of witches and witchcraft. In other words, how do fictions become powerful enough to inform history? The course will also focus on the historical status of witches as a source of power outside of, and

in opposition to, established political, religious and social structures. Since those accused of witchcraft were predominately women, how has witchcraft functioned as a means of empowerment for women as well as a tool for their persecution? And how has the representation of witches influenced attitudes towards women both historically and today? The course will begin with an historical inquiry into the belief in witchcraft during the late Middle Ages in Europe and the social and cultural role witches played in society. We will look at texts such as the Malleus Maleficarum (Hammer of Witches) published in 1486 as a guide for hunting and destroying witches, as well as studies on the more constructive role witchcraft may have offered women and communities. The course will be organized chronologically and move back and forth between history, such as the Salem witch trials, and the representations of that history in art, literature and film. Particular emphasis will be placed on the visual arts, from the engravings of German Renaissance artists such as Albrecht Durer and Hans Baldung Grien, the gothic paintings of Francisco Goya during the Romantic period, to contemporary artist Louise Bourgeois' monument to those executed as witches in Norway. The course will end with analysis of images of witches in popular culture, movies and television, and with a discussion of the modern representations of the domesticated witch and the femme fatale.

Cross-listed with: HIST 292N

International Cultures (IL)

United States Cultures (US)

General Education: Arts (GA)

General Education: Humanities (GH)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

ARTH 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Bachelor of Arts: Arts

ARTH 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Arts

ARTH 299: Foreign Study--Art History

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Arts

International Cultures (IL)

ARTH 301: Egyptian and Mesopotamian Art

3 Credits

ARTH 301 Egyptian and Mesopotamian Art (3) (GA;IL)(BA) This course meets the Bachelor of Arts degree requirements. Art history 301 provides

an introduction to the arts of the Ancient Near East including those of Egypt and Mesopotamia. The class is dealt with chronologically. Works studied in class include papyri, seals, fabric, codices as well as sculpture, architecture, and painting. Additional readings of primary sources focused on mythology, and religion will form a key element in the structure of the class. The course is designed to meet two principal goals. The first is to increase students' powers of visual analysis and help them build a critical vocabulary for discussing an art object's medium, composition, style, and iconography. The second is to foster an understanding of the deep implication of the visual arts in their social and cultural contexts. The course therefore involves significant material relating to political, economic and religious issues. It investigates problems in patronage, function, reception and censorship. It considers such intra- and cross-cultural issues as representations of gender. Requirements include essay exams and at least one paper. As a general education course in the arts, this course provides an introduction to Ancient Near Eastern and Egyptian art to a student of any major. This course has no prerequisite, and presumes no prior exposure to fine art. Students majoring in Art History will learn in it both the common vocabulary of the field and the outlines of the field that form the foundation for future study.

Bachelor of Arts: Arts
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Arts (GA)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Key Literacies

ARTH 302: Early Medieval Art

3 Credits

A survey of the art of Western Europe from the Early Christian era through the Ottonian Empire, c.300-1050 CE. ART H 302 Illuminating the Dark Ages (3) (GA;IL)(BA) This course meets the Bachelor of Arts degree requirements. Art History 302 concentrates on the art of northern Europe between 600 and 1050 CE, from the years which saw the art and culture of the migration period in Europe meet and merge with the Greco-Roman traditions of the Mediterranean, to the beginnings of Romanesque art. Arts of the Jewish and Islamic traditions will also be discussed. Works studied include architecture, manuscript painting, ivory carving and goldsmith work, most of which were produced by or for members of the clergy, royalty or the lay aristocracy. The basic structure of the course is chronological. The course is designed to meet two principal goals. The first is to increase students' powers of visual analysis and help them build a critical vocabulary for discussing an art object's medium, composition, style, and iconography. The second is to foster an understanding of the deep implication of the visual arts in their social and cultural contexts. The course therefore involves significant material relating to political, economic and religious issues. It investigates problems in patronage, function, reception and censorship. It considers such intra- and cross-cultural issues as representations of gender, sexuality, and race. Requirements include essay exams and at least one paper. As a general education course in the arts, this course provides an introduction to early Medieval art to a student of any major. This course has no prerequisite, and presumes no prior exposure to art. Students majoring in Art History will learn in it both the common vocabulary of the field and the outlines of the field that form the foundation for future study.

Bachelor of Arts: Arts

International Cultures (IL)
 General Education: Arts (GA)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning

ARTH 303: Italian Renaissance Art

3 Credits

The major arts in Italy from the thirteenth century CE through the Renaissance; emphasis on sculpture and painting. ARTH 303 Italian Renaissance Art (3) (GA;IL)(BA) This course meets the Bachelor of Arts degree requirements. Art History 303 provides an introduction to the art of the early and "high" Renaissance in Italy, conceived in chronological terms as the period from c. 1300 to c. 1530, and embracing developments from the emergence of the Mendicant orders on the later 13th century to the rise of Mannerism in the 16th century. Monuments form all parts of the Italian peninsula will be considered, with emphasis on the major centers of Florence, Siena, Venice, Rome, Milan, and Naples, as well as Mantua, Ferrara and Urbino. The basic structure of the course is chronological, and is divided into three sections corresponding to the three centuries defined by Giorgio Vasari in his Lives of the Artists. In each section, an attempt will be made to present the careers and major works of the most significant artists in relation to their historical and cultural context. The course is designed to meet two principal goals. The first is to increase students' powers of visual analysis and help them build a critical vocabulary for discussing an art object's medium, composition, style, and iconography. The second is to foster an understanding of the deep implication of the visual arts in their social and cultural contexts. The course therefore involves significant material relating to political, economic and religious issues. It investigates problems in patronage, function, reception and censorship. It considers such intra- and cross-cultural issues as representations of gender. Requirements include essay exams and at least one paper. As a general education course in the arts, this course provides an introduction to Italian Renaissance art to a student of any major. This course has no prerequisite, and presumes no prior exposure to art. Students majoring in Art History will learn in it both the common vocabulary of the field and the outlines of the field that form the foundation for future study.

Bachelor of Arts: Arts
 International Cultures (IL)
 General Education: Arts (GA)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning

ARTH 305: Romanticism and Revolution

3 Credits

A survey of painting and sculpture in Europe 1780-1860, from the origins of Neoclassicism through Romanticism and Realism. ARTH 305 European Art from 1780-1860 (3) (GA;IL)(BA) This course meets the Bachelor of Arts degree requirements. Art History 305 provides an introduction to the painting, sculpture, and graphic arts of Europe between ca. 1780 and 1860, with an emphasis on selected developments in France, Spain, England, and Germany. The course begins with the origins of Neoclassicism and the revolutionary art of Jacques Louis David. Art is examined within the context of the tumultuous history of this period, such as the decline of the French monarchy, the French Revolution

and the rise and fall of Napoleon. The course will examine the rise of Romanticism, as seen in such diverse expressions as Goya's horrific images of inhumanity, Fuseli's dreams, Turner's sublime landscapes, Friedrich's frozen visions of Gothic ruins, Delacroix's colorful battles of beasts. Realism emerges in the biting social commentaries of Daumier, the meticulous detailed paintings of the English Pre-Raphaelites, and the raw reality of Courbet's paintings. The course ends with the extraordinary art of Manet. The course is designed to meet two principal goals. The first is to increase students' powers of visual analysis and help them build a critical vocabulary for discussing an art object's medium, composition, style, and iconography. The second is to foster an understanding of the deep implication of the visual arts in their social and cultural contexts. The course therefore involves significant material relating to political, economic and religious issues. It investigates problems in patronage, function, reception and censorship. It considers such intra- and cross-cultural issues as representations of gender. As a general education course in the arts, this course provides an introduction to European art, 1780-1860, to a student of any major. This course has no prerequisite and presumes no prior exposure to fine art. Students majoring in Art History will learn both the common vocabulary of the field and the outlines of the field that form the foundation for future study.

Bachelor of Arts: Arts
International Cultures (IL)
General Education: Arts (GA)
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Integrative Thinking

ARTH 306: Color across Cultures: A Global History of Pigments, Dyes, Metals and Other Colorants in Art

3 Credits

Color across Cultures offers an introduction to color from the perspective of global art history. Through documents, art works and specimens of historic colorants, we will explore geological and mineral sources of mined pigments, as well as natural sources of historic dyes; students will learn techniques for identifying many such mineral and organic sources of color in works of art. We will browse a global variety of artists' recipe books for making pigments, and we will attempt to recreate a few of their colors. We will explore the ritual use of colorants, such as ochre (which, in early indigenous cultures of North America, was turned red with fire and then used to paint images of fire deities), "Maya blue" (which was used to paint both votive objects and victims of blood sacrifice), or vermilion (a red used to represent the transformative blood of Christ in medieval art because it was made through transformative alchemy). We will consider the economics of color: the capacity of purple dye to signify royalty in the pre-modern Mediterranean world, the global traffic of color-making technologies along the Silk Road, and the colonial exploitation of coloring resources (most notably in the case of enslaved populations forced to cultivate indigo for British trade in the 18th century). Students will gain an introduction to different color theories, from Sir Isaac Newton's light-refraction theory, to Goethe's emphasis on the instability of retinal color, to Thomas Young and Sir James Clerk Maxwell's RGB vision models; artistic uses and responses to such theories will be explored. We will also examine different color organization systems (the rainbow, the palette, color wheels, the Munsell system, Pantone, Hexcode numbers) from which artists have drawn their ideas about color. Among such color-organization systems, we will also explore the many, frequently problematic attempts to delineate biological species and races using color as a criterion.

Bachelor of Arts: Arts
International Cultures (IL)
General Education: Arts (GA)
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Key Literacies

ARTH 307N: American Art and Society

3 Credits

History of art in the English colonies and the United States from the seventeenth century to the present. AMST 307N / ARTH 307N American Art (3) (GA;US)(GH)(BA) This course meets the Bachelor of Arts degree requirements. American art, from the colonial period to the present, is examined through paintings, sculpture, buildings, prints and photographs, as well as exhibitions and national/world fairs. The class places special emphasis upon the predicament of national identity by examining the ways in which the very notion of the "American" has historically been highly contested. Special points of emphasis include: negotiations between indigenous, colonial and European artistic styles, representations of and by displaced populations (colonial subjects, Native Americans, African Americans), myths of the American landscape, the cult of domesticity and the gendering of American citizenry, later transatlantic experiences of expatriate artists, conflicts between urban and rural conceptualizations of the "typical" American experience, the role of the American avant-garde after World War II, and debates over federal funding for the arts. The course is designed to meet two principal goals. The first is to increase students' powers of visual analysis and help them build a critical vocabulary for discussing an art object's medium, composition, style, and iconography. The second is to foster an understanding of the deep implication of the visual arts in their social and cultural contexts. The course therefore involves significant material relating to political, economic and religious issues. It investigates problems in patronage, function, reception and censorship. It considers such intra- and cross-cultural issues as representations of gender, race, and ethnicity. Requirements include essay exams and at least one paper. As a general education course in the arts, this course provides an introduction to American art to a student of any major. This course has no prerequisite and presumes no prior exposure to fine art. Students will learn both the common vocabulary of art history and method of critical analysis in the field.

Cross-listed with: AMST 307N
Bachelor of Arts: Arts
United States Cultures (US)
General Education: Arts (GA)
General Education: Humanities (GH)
General Education - Integrative: Interdomain
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Key Literacies

ARTH 308N: American Architecture

3 Credits

History of the architecture of the United States, as well as its Native American and colonial antecedents. AMST / ARTH 308N American Architecture (3) (GA;GH;US)(BA) This course meets the Bachelor of Arts degree requirements. This Art History course (cross-listed with American Studies) will cover the history of American architecture and its historical

contexts, from its Native American roots and colonial antecedents, through the formation of the United States, to the present. A sample of the topics that will be covered are the architecture of: Native Americans, Spanish Colonial missions, 17th-century Virginia, Puritan New England, Georgian America, Southern Plantations and Slave Cabins, Thomas Jefferson, the new federal city of Washington, D.C., the Greek Revival, the industrial revolution, utopian religious communities such as the Shakers, Gothic Revival cottages and villas, Victorian Philadelphia, Henry Hobson Richardson, the birth of the skyscraper in New York and Chicago, the City Beautiful Movement, Frank Lloyd Wright, Arts & Crafts California, Henry Ford's Michigan, Art Deco New York, Mies van der Rohe and the glass box, Levittown, Disneyland, Louis I. Kahn, Post-Modernism, Frank Gehry, and Green Buildings. Selected major buildings, architects, ideas, and urban developments will be emphasized. Architecture will be considered within the contexts of religion, politics, philosophy, culture, economics, gender, race, society, technology, engineering, landscape architecture, urban planning and interior design. This introductory survey has no prerequisite and is intended for both students of architecture/art and students unfamiliar with the field. This is an Inter-Domain General Education course exploring American architecture from both the perspectives of the Arts (GA) and Humanities (GH). An exploration of the art, aesthetics and styles of American Architecture will be balanced with using architecture as a vehicle for understanding American history, culture, religion, society, and government.

Cross-listed with: AMST 308N

Bachelor of Arts: Arts

United States Cultures (US)

General Education: Arts (GA)

General Education: Humanities (GH)

General Education - Integrative: Interdomain

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

ARTH 311: Greek and Roman Art

3 Credits

ART H 311 Greek and Roman Art (3) (GA;IL)(BA) This course meets the Bachelor of Arts degree requirements. Art History 311 provides a survey of Greek and Roman art. Included are the Orientalizing, Archaic, Classical and Hellenistic periods of Greece and the Republican and Imperial Rome. Special attention is paid to politics, culture, and literature. The focus of this class is painting, sculpture and architecture; ceramics and other minor arts are also addressed. The course is designed to meet two principal goals. The first is to increase students' powers of visual analysis and help them build a critical vocabulary for discussing an art object's medium, composition, style, and iconography. The second is to foster an understanding of the deep implication of the visual arts in their social and cultural contexts. The course therefore involves significant material relating to political, economic and religious issues. It investigates problems in patronage, function, reception and censorship. It considers such intra- and cross-cultural issues as representations of gender. Requirements include essay exams and at least one paper. As a general education course in the arts, this course provides an introduction to Ancient Greek and Roman art to a student of any major. This course has no prerequisite, and presumes no prior exposure to fine art. Students majoring in Art History will learn in it both the common vocabulary of the field and the outlines of the field that form the foundation for future study.

Bachelor of Arts: Arts

International Cultures (IL)

General Education: Arts (GA)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

ARTH 312: Romanesque and Gothic Art

3 Credits

Survey of the architecture, sculpture, and painting of the Christian church in western Europe from 1000 to 1500. ARTH 312 Romanesque and Gothic Art (3) (GA;IL)(BA) This course meets the Bachelor of Arts degree requirements. Art History 312 concentrates on the art of northern Europe between A.D. 1000 and 1500, from Ottonian art to Romanesque art continuing to the beginnings of Gothic art. Works studied include architecture, manuscript painting, ivory carving and goldsmithwork, most of which were produced by or for members of the clergy, royalty or the lay aristocracy. The basic structure of the course is chronological. The course is designed to meet two principal goals. The first is to increase students' powers of visual analysis and help them build a critical vocabulary for discussing an art object's medium, composition, style, and iconography. The second is to foster an understanding of the deep implication of the visual arts in their social and cultural contexts. The course therefore involves significant material relating to political, economic and religious issues. It investigates problems in patronage, function, reception and censorship. It considers such intra- and cross-cultural issues as representations of gender. Requirements include essay exams and at least one paper. As a general education course in the arts, this course provides an introduction to Romanesque and Gothic art to a student of any major. This course has no prerequisite, and presumes no prior exposure to fine art. Students majoring in Art History will learn in it both the common vocabulary of the field and the outlines of the field that form the foundation for future study.

Bachelor of Arts: Arts

International Cultures (IL)

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

ARTH 313: Northern Renaissance Art

3 Credits

Art in northern Europe in the fifteenth and sixteenth centuries, emphasizing painters such as Van Eyck, Durer, and Bruegel. ART H 313ART H 313 Northern Renaissance Art (3) (GA;IL)(BA) This course meets the Bachelor of Arts degree requirements. Art History 313 explores the relationship of the visual arts to power structures, political events, and social and religious issues in the Netherlands and Germany, c. 1380-1585. Topics include the forms and functions of religious art, the place of visual representation in the governing strategies of the cra's rulers, the rising status of the artist, the new technology of printing, the complex role of visual culture in bringing about the Protestant Reformation, and the wave of destruction and censorship known as the Great Iconoclasm of 1566. Particular attention is paid to the works and careers of Jan van Eyck, Hieronymus Bosch, Albrecht Diirer and Pieter Bruegel. The course is designed to meet two principal goals. The first is to increase students' powers of visual analysis and help them build a critical vocabulary for discussing an art object's medium, composition, style, and iconography. The second is to foster an understanding of the

deep implication of the visual arts in their social and cultural contexts. The course therefore involves significant material relating to political, economic and religious issues. It investigates problems in patronage, function, reception and censorship. It considers such intra- and cross-cultural issues as representations of gender. Requirements include essay exams and at least one paper. As a general education course in the arts, this course provides an introduction to Northern Renaissance art to a student of any major. This course has no prerequisite, and presumes no prior exposure to fine art. Students majoring in Art History will learn in it both the common vocabulary of the field and the outlines of the field that form the foundation for future study.

Bachelor of Arts: Arts
International Cultures (IL)

ARTH 314: Art in the Age of Rembrandt

3 Credits

Dutch and Flemish painting in the seventeenth century. ART H 314ART H 314 Art in the Age of Rembrandt (3) (GA;IL)(BA) This course meets the Bachelor of Arts degree requirements. Art History 314 explores the relationship of the visual arts to power structures, political events, and social and religious issues in the Netherlands and Flanders, c. 1585-1672. Topics include the function of art in constructing national and urban identities, social distinctions and gender roles, the contrasting needs burgher and court patrons, the effect of the open market on both the production of and the look of artwork, the impact of foreign investment and exploration on visual imagery, and the processes of artistic collaboration and competition. Particular attention is paid to the works and careers of Hendrick Goltzius, Frans Hals, Clara Peeters, Hendrik Terbrugghen, Rembrandt van Rijn, Peter Rubens and Jan Vermeer. The course is designed to meet two principal goals. The first is to increase students' powers of visual analysis and help them build a critical vocabulary for discussing an art object's medium, composition, style, and iconography. The second is to foster an understanding of the deep implication of the visual arts in their social and cultural contexts. The course therefore involves significant material relating to political, economic and religious issues. It investigates problems in patronage, function, reception and censorship. It considers such intra- and cross-cultural issues as representations of gender. Requirements include essay exams and at least one paper. As a general education course in the arts, this course provides an introduction to the Age of Rembrandt to a student of any major. This course has no prerequisite, and presumes no prior exposure to fine art. Students majoring in Art History will learn in it both the common vocabulary of the field and the outlines of the field that form the foundation for future study.

Bachelor of Arts: Arts
International Cultures (IL)

ARTH 325: Impressionism to Surrealism

3 Credits

A survey of European painting, sculpture, and photography from ca. 1850 to ca. 1940. ARTH 325 Impressionism to Surrealism (3) (GA;IL)(BA) This course meets the Bachelor of Arts degree requirements. Art History 325 is a survey of European painting and sculpture from approximately 1860 to the Nazi occupation of Paris in 1940. This course will provide an introduction to Impressionism (Manet, Monet, Renoir, Morisot), Post-Impressionism (Seurat, Czanne, van Gogh, Gauguin), Symbolism, the Nabis, Edvard Munch, Rodin, Fauvism (Matisse),

Cubism (Braque, Picasso), Italian Futurism (Boccioni), Expressionism (Kirchner, Kandinsky), Dada (Duchamp), De Stijl (Mondrian), Suprematism (Malevich), Russian Constructivism (Tatlin), the Bauhaus, Paul Klee, Marc Chagall, and Surrealism (Ernst, Miro, Dali). The course will close with Surrealist work done prior to the onset of the Second World War. The course is designed to meet two principal goals. The first is to increase students' powers of visual analysis and help them build a critical vocabulary for discussing an art object's medium, composition, style, and iconography. The second is to foster an understanding of the deep implication of the visual arts in their social and cultural contexts. The course therefore involves significant material relating to political, economic and religious issues. It investigates problems in patronage, function, reception and censorship. It considers such intra- and cross-cultural issues as representations of gender. As a general education course in the arts, this course provides an introduction to European art to a student of any major. This course has no prerequisite, and presumes no prior exposure to fine art. Students majoring in Art History will learn in it both the common vocabulary of the field and the outlines of the field that form the foundation for future study.

Bachelor of Arts: Arts
International Cultures (IL)
General Education: Arts (GA)
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Integrative Thinking

ARTH 326: Art Since 1940

3 Credits

An international survey of painting, sculpture, photography and other media since 1940. ART H 326 Art Since 1940 (3) (GA;US;IL)(BA) This course meets the Bachelor of Arts degree requirements. This course offers a survey of art objects and practices after 1940. The class is international in scope, exploring the ways in which artists of different countries have responded to each other's work, and to international cultural and political events. Though the class will develop chronologically, lectures will be thematic in their emphasis. Topics to be covered include Abstract Expressionism, Pop Art and other forms of art relying upon methods of appropriation, Minimalism, Conceptualism, Fluxus and Performance Art, Land Art and Site-Specificity, and Art in protest movements (such as the Civil Rights movement). The course will also address such larger issues as: 1) the means by which art works engage in critiques of racial, sexual and national identity; 2) the political uses to which contemporary art has been put (often by figures other than the artists); 3) the dominant critical paradigms through which art has been filtered; 4) the relationship of art works to commodity culture and late capitalism; 5) and the ways in which contemporary art works challenge notions of exhibition, patronage, and ownership of art. This course should be of interest to students of Art History as well as to students interested in post-war history, literature and intellectual culture. It should also be of use to those enrolled in studio art, architecture and other practicum areas.

Bachelor of Arts: Arts
International Cultures (IL)
United States Cultures (US)
General Education: Arts (GA)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Integrative Thinking

ARTH 335: African Art

3 Credits

Introduction to the visual arts of Africa, including contemporary African art and the influence of African art outside Africa. ARTH 335 / AFR 335 African Art (3)(GA;IL)(BA) This course meets the Bachelor of Arts degree requirements. The course will examine the arts of various African peoples in historical, religious, sociological and geographic contexts, providing an introduction to the many visual art forms of Africa including masquerade, costume, and indigenous architecture. While many of the arts in this field of study are from west and central Africa, the course will also include materials from southern and eastern Africa. Contemporary African art, African Diaspora arts, and the influence of African art on European art are important topics that may be included. In addition to the traditional format of a geographic organization of the material, students will explore thematic approaches. Each of the assignments requires completion of essays which draw upon the multiple course texts and readings. Exams include image identification and short essays.

Cross-listed with: AFR 335

Bachelor of Arts: Arts

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Arts (GA)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

ARTH 350W: Undergraduate Seminar in the History of Art

3 Credits

An introduction to original research, methodology, analysis, and writing on a scholarly level.

Enforced Prerequisite at Enrollment: Fourth-semester standing and 6 credits of ARTH

Bachelor of Arts: Arts

Writing Across the Curriculum

ARTH 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Arts

ARTH 399: Foreign Study--Art History

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Arts

International Cultures (IL)

ARTH 401: Greek Art and Architecture

3-9 Credits/Maximum of 9

Developments in Greek art and architecture, tenth century B.C. to first century B.C.; emphasis on the importance of Greek sanctuaries.

Enforced Prerequisite at Enrollment: 3 credits of ARTH

Bachelor of Arts: Arts

International Cultures (IL)

ARTH 402: The Illuminated Manuscript

3 Credits

Specific stylistic periods in manuscript painting from A.D. 500-1500 in Western Europe and Byzantium.

Enforced Prerequisite at Enrollment: 3 credits of ARTH

Bachelor of Arts: Arts

International Cultures (IL)

ARTH 405: Pioneers of Modern Architecture

3 Credits/Maximum of 6

Selected period or theme in the development of modern architecture during the nineteenth and/or early twentieth centuries.

Enforced Prerequisite at Enrollment: 3 credits of ARTH

Bachelor of Arts: Arts

International Cultures (IL)

United States Cultures (US)

ARTH 409: Museum Studies

3 Credits

An introduction to the professional activities that occur in art museums. ART 409 / ARTH 409 Museum Studies (3)(BA) This course meets the Bachelor of Arts degree requirements. This course introduces students to the broad field of art museum work, specifically museum administration, education, curatorial work, registration, and exhibition design. Readings by authors in each field provide current theoretical and philosophical frameworks for all areas, which are then followed by discussions and practical experiences with professional museum practitioners, including the staff of a museum, for example, the Palmer Museum of Art, and invited guests. Museum Studies is open to students who have complete six credits in art, art education, or art history. This course is especially beneficial for majors in art, art education, and art history who are considering a career in an art museum or who want to become more aware about how an art museum functions. In addition to providing an in-depth introduction to art museum work, the course encourages students to build the critical thinking and response skills that are crucial to success in the real-world environment of a museum. The readings provide a solid foundation for later reference or further study in the student's chosen field. Offered every spring, this course will have a maximum enrollment of 20 students. Grades are based on class participation, four out-of-class projects, and a final project. Extra credit is offered for an off-campus visit to a museum, among other options.

Cross-listed with: ART 409

Bachelor of Arts: Arts

ARTH 410: Taste and Criticism in Art

3 Credits

History and literature of art criticism demonstrating the varied philosophic, cultural, iconographic, technical, and visual approaches.

Enforced Prerequisite at Enrollment: 3 credits of ARTH

Bachelor of Arts: Arts

ARTH 411: Roman Art

3 Credits

Roman sculpture and painting from Augustus to Constantine.

Enforced Prerequisite at Enrollment: 3 credits of ARTH

Bachelor of Arts: Arts

International Cultures (IL)

ARTH 412: The Gothic Cathedral

3 Credits

Specific aspects of Romanesque and Gothic church architecture of western Europe, especially France and England, between 1000-1500.

Enforced Prerequisite at Enrollment: 3 credits of ARTH

Bachelor of Arts: Arts

International Cultures (IL)

ARTH 413: Architecture of the Medieval Monastery

3 Credits

This course will examine design, construction, function and symbolism in the monastic architecture of Western Europe during the Middle Ages.

Enforced Prerequisite at Enrollment: 3 credits of ARTH

ARTH 415: The Skyscraper

3 Credits

Origin and evolution of the skyscraper as seen against the background of cultural conditions and technological factors.

Enforced Prerequisite at Enrollment: 3 credits of ARTH

Bachelor of Arts: Arts

United States Cultures (US)

ARTH 416: Studies in American Art

3 Credits/Maximum of 6

Selected time periods and/or issues in the art of the United States.

Enforced Prerequisite at Enrollment: 3 credits of ARTH

Bachelor of Arts: Arts

United States Cultures (US)

ARTH 420: Russian Architecture

3 Credits

Russian architecture from the first Orthodox churches of the late tenth century to the end of the Soviet Union.

Enforced Prerequisite at Enrollment: 3 credits of ARTH

Bachelor of Arts: Arts

International Cultures (IL)

ARTH 422: Studies in Medieval Sculpture

3 Credits/Maximum of 9

Specific studies of western European sculpture, 300-1500, with attention to sources, styles, type, and iconography.

Enforced Prerequisite at Enrollment: 3 credits of ARTH

Bachelor of Arts: Arts

International Cultures (IL)

ARTH 423: Studies in Italian Renaissance Art

3 Credits/Maximum of 9

Specific studies of Italian Renaissance art, including the work of artists such as Leonardo da Vinci, Michaelangelo, and Raphael.

Enforced Prerequisite at Enrollment: 3 credits of ARTH

Bachelor of Arts: Arts

International Cultures (IL)

ARTH 426: Iconoclasm: Powerful Images and their Destruction

3 Credits

Iconoclasm: exploring the political, religious, and social motivations behind the destruction of powerful imagery throughout history. ARTH 426 Iconoclasm: Powerful Images and their Destruction (3) (US;IL) (BA) This course meets the Bachelor of Arts degree requirements. Images have been granted extraordinary powers in many human societies, and their purposeful destruction has been a recurrent feature of political, religious and social strife around the world. This course explores how and why humans have granted such power to images, and the subsequent reactions that have resulted in periodic outbreaks of iconoclasm. Topics include the historical specificity of image destruction, the role of art and its detractors in precipitating the Protestant Reformation, and the manipulation of iconoclasm in modern mass media. Victimized images covered may include the bronze bust of Sargon (3rd millennium BCE) and early Renaissance altarpieces through the statues of Saddam Hussein and beyond. We will read primary and secondary materials ranging from Biblical texts to letters to the editor in the New York Times. Through careful consideration of iconoclasms' historical contexts, we will explore art's ability to function as a societal lightning rod. This course has two major objectives: to introduce students to a subject matter that holds great relevance for our time, and to train them in the methods and ethics of scholarly research. This course fulfills elective and 400-level requirements in Art History and General Education (US and IL), but it is intended also to complement concentrations in History, Visual Studies, Religion, and Communications. It would be offered every two to three years. Evaluative criteria include analytical reading and discussion, written components such as critical essays and a research projects, and analysis of relevant current events and their media coverage. Requires a classroom with digital audio-visual capability. Course may include museum visits or field trips where appropriate.

Enforced Prerequisite at Enrollment: 3 credits of ARTH

Bachelor of Arts: Arts

International Cultures (IL)

United States Cultures (US)

ARTH 427: Topics in Global Artistic Communication

3 Credits/Maximum of 6

Explores a specific time period in art history cross-culturally in Europe, Asia, Africa, and/or the Americas. ART H 427 Topics in Global Artistic Communication (3 per semester/maximum of 6) (IL) This course explores specific time periods and/or issues in global artistic exchange among several diverse cultures. The course may be taken up to two times, if the topics are different. One semester the topic might be "Ca. 1800: Arts and their Global Colonial Contexts." Another semester the topic might be "Global Modernisms ca. 1930," or "Ca. 1600: Global Artistic Exchange in an Era of Increased Contact." Each offering will include theoretical discussion of the goals and challenges of such intercultural study. It will then explore the artistic traditions and responses to foreign contact of diverse cultures. The course will consist of lectures, discussions, and, in many cases, visits to the Palmer Museum of Art for the study of objects in its collection. Through critical reading, listening and looking students will develop an appreciation for the range and diversity of cultural production, and the historical specificity of responses to contact with the unfamiliar. Themes touched upon may include ethnic or religious identity, gender, cultural resistance, rejection or embrace. Learning evaluation may depend upon a combination of class participation, analytical reading, essays or research papers, and examinations.

Enforced Prerequisite at Enrollment: 3 credits of ARTH International Cultures (IL)

ARTH 429: Studies in Baroque Art

3 Credits

Selected topics in the painting, sculpture, and architecture of seventeenth-century Italy, France, Flanders, Holland, and Spain. ART H 429 Studies in Baroque Art (3) (IL) This course addresses aspects of European art of the seventeenth century, a rich and complex period in which illusionism and powerful visual effects in the arts reached maturity. Baroque painters went beyond the realism of their Renaissance predecessors to explore both the sensuous aspects of the medium of oil painting and their own increasingly subjective vision. In all the visual arts Baroque masters explored space, mass, and form with a heretofore unheard of freedom and drama. Lectures and discussion in the course may focus on painting, sculpture and/or architecture, in Italy, Flanders, France, Holland, and/or Spain. The course may include selected artists such as Bernini, Borromini, Caravaggio, A. Gentileschi, Poussin, Rembrandt, Rubens, Velazquez, and/or Vermeer. The style and meaning of Baroque art may be studied within its political and cultural setting. For example, new approaches in the visual arts in Italy, and particularly in Rome, may be explored in relation to the rise of the counter reformation. The Spanish war in the Netherlands, and the Dutch struggle for freedom, may be connected with the art of Flanders and Holland. Attendant developments in other fields such as natural philosophy (science) and literature may be related to the visual arts. For example, the use of the camera obscura may be discussed with the art of Jan Vermeer and the poetry of Giambattista Marino may be related to the art of Nicolas Poussin. Aesthetic, critical, interpretive, and theoretical ideas of major artists and writers of the seventeenth century as well as of today's art and cultural historians may be considered. The emergence of new genres such as landscape and still-life may be examined, as well as the continuing themes of mythology, portraiture, and religion. Course objectives may include students' understanding of the national and regional development of styles and schools within seventeenth-century art, the particular approaches to style and meaning by major

artists of the period, the analysis of symbolism and meaning within art works of the period; the interrelationship between the art of the period and other disciplines such as natural philosophy and literature, and particular ways in which seventeenth-century art relates to the politics of particular countries, regions, and patrons. This course may serve as an elective for undergraduate students interested in the visual arts and art history, and for graduate students seeking a deeper exposure to art history. Evaluation may be accomplished through a combination of exams, quizzes, term papers, special projects, and participation in class discussion. Special facilities include a darkened room with dimmable spot lighting, computer, computer projector, and a large projection screen.

Enforced Prerequisite at Enrollment: 3 credits of ARTH International Cultures (IL)

ARTH 430: British Art in Context

3 Credits

This course examines the history of art in Britain, with particular attention to the 18th and 19th centuries (1707 to 1914). Works of visual art are considered in close relation to history, especially the history of the British imperialism and evolving notions of British culture and identity. Among the artists whose works are addressed in this course are William Hogarth, Angelica Kauffman, Joshua Reynolds, Mary Moser, J.M.W. Turner, William Blake, the Pre-Raphaelites, Julia Margaret Cameron, James McNeill Whistler, and Vanessa Bell. Along with contextualizing works of art in their socio-historical milieu, this course also attends to the historiography of British visual culture to show how art historical scholarship propels or disrupts prevailing beliefs regarding aesthetic value, nationalism, and cultural identity. Study of the visual arts will be further augmented by selected works of relevant literature by such authors as Henry Fielding, William Wordsworth, George Eliot, and Virginia Woolf.

Enforced Prerequisite at Enrollment: 3 credits ARTH Bachelor of Arts: Arts

ARTH 435: Studies in Modern Art

3 Credits/Maximum of 6

Lectures focusing on a selected movement of nineteenth- or twentieth-century art.

Enforced Prerequisite at Enrollment: 3 credits of ARTH Bachelor of Arts: Arts International Cultures (IL)

ARTH 440: Monuments of Asia

3-9 Credits/Maximum of 9

An exploration of major Asian sites and monuments through a focus on their historical and cultural significance. ART H (ASIA) 440 Monuments of Asia(IL)(BA) This course meets the Bachelor of Arts degree requirements. In this course, major Asian monuments are introduced in their physical, historical and cultural contexts. Students are also exposed to various theoretical approaches through which these monuments will be studied. Some of the themes around which the course is structured include patronage, religious practice, cultural meaning, political relevance and the shifting meanings of monuments over time. Students will learn to understand and discuss ways of defining monuments, their formal character and lineage, historical and cultural contexts and their representation across space and time. Each semester monumental sites will be organized around a common theme such as, Hindu and

Buddhist Sites across Asia: Historical Significance and Contemporary Relevance, Patronage and Religion, Islam across Asia: Global Ideas and Local Contexts, Political and Symbolic Centers in Asia: Between Early Modernity and the Nation State or Early Modern Asia: Empire and the Built Environment. Alternately, these topics will be incorporated within a multi-themed structure. The objective of the course is to expose students to the histories and cultures of Asia in a globalizing world. Another objective is to equip students with the methodological tools of art history as a discipline, even as they learn about specific monuments. The course will build on the foundation laid by survey courses in Art History, Architectural History and Asian Studies. Weekly readings will be assigned and discussed in class. The development of analytical and writing skills will be stressed, and grades will be based partly on essay exams and short response papers. In addition, students will write a research paper, to be completed by the end of semester.

Enforced Prerequisite at Enrollment: ARTH 100 or ARTH 120 or ARTH 315 or ARTH 320 or ARTH 330

Cross-listed with: ASIA 440

Bachelor of Arts: Arts

Bachelor of Arts: World Cultures

International Cultures (IL)

ARTH 442: Late Antique and Early Christian Art

3 Credits

Survey of the architecture and visual culture of Christian society from the beginning of the mid-sixth century.

Bachelor of Arts: Arts

International Cultures (IL)

ARTH 445: Oceanic Art

3 Credits

Survey of the arts of Oceania (Polynesia, Micronesia, Melanesia), including masks, sculpture, textiles, architecture and other art forms. ARTH 445 Oceanic Art (3) (IL)(BA) This course meets the Bachelor of Arts degree requirements. This course is a one-semester survey of the sculpture, masks, textiles, architecture and other traditional art forms of the Pacific Ocean area known as Oceania, which is usually divided into the sub-areas of Polynesia, Micronesia and Melanesia. The material examined during the semester is organized according to ethnic groups and culture areas. Objects are discussed on the basis of style, style relationships, iconography and the uses to which they were put in their traditional religious, political or social contexts. The time period covered is primarily from the period of European contact up to the present, with occasional references to archaeological findings such as the Lapita culture's (3,000 -4,000 years ago) tracing of the movement of peoples into Polynesia. Lectures, films, reading assignments, quizzes, writing requirements (term paper) and exams will aid in providing students with an extensive introduction to the region's cultural and artistic diversity.

Enforced Prerequisite at Enrollment: 3 credits of ARTH

Bachelor of Arts: Arts

Bachelor of Arts: World Cultures

International Cultures (IL)

ARTH 446: Topics in African Art

3 Credits/Maximum of 9

Topics vary from "Arts of Eastern and Southern Africa" to "Art of West Africa."

Enforced Prerequisite at Enrollment: 3 credits of ARTH

Cross-listed with: AFR 446

Bachelor of Arts: Arts

Bachelor of Arts: World Cultures

International Cultures (IL)

ARTH 447: Topics in the Art of the African Diaspora

3 Credits/Maximum of 6

Selected topics in arts of the African Diaspora (South America, Caribbean, USA) including masquerades, textiles, architecture and other art forms.

Enforced Prerequisite at Enrollment: 3 credits of ARTH

Cross-listed with: AFR 447

Bachelor of Arts: Arts

Bachelor of Arts: World Cultures

International Cultures (IL)

ARTH 450: The History of Photography

3 Credits

The history of photography from 1839, with particular emphasis on the relationship with the plastic arts.

Enforced Prerequisite at Enrollment: 3 credits of ARTH

Bachelor of Arts: Arts

International Cultures (IL)

United States Cultures (US)

ARTH 452: Byzantine Art

3 Credits

Monumental and minor arts of Byzantium and related areas from the reign of Justinian to the Turkish conquest of Constantinople.

Enforced Prerequisite at Enrollment: 3 credits of ARTH

Bachelor of Arts: Arts

International Cultures (IL)

ARTH 456: Renaissance and Baroque Palaces

3 Credits

This course examines palace architecture and decoration in Italy, France, England, and Germany from 1450-1700.

Enforced Prerequisite at Enrollment: 3 credits of ARTH

Bachelor of Arts: Arts

International Cultures (IL)

ARTH 458: The City 1600-1800

3 Credits

This course examines the architecture and urbanism of cities from 1600-1800. This course will examine what transformed the cities into centers of power, culture, and learning. We will look at new building types, the creation of civic institutions, and changes in the urban plan.

The course will therefore provide an overview of the architecture and urbanism of the period and also explore the political and social contexts that made them possible. Topics include capitals of great political importance such as Paris, Beijing, and London as well as smaller centers like Turin and Lisbon that underwent major urban and architectural transformations. The social function of buildings that mark these capitals, from poor houses to opera houses, will also be explored. Primary and secondary reading, ranging from Pepy's Diary to Habermas' examination of the public sphere will offer period accounts as well as conceptual frameworks for understanding the capital. The objective is to challenge students to think deeply about our urban environment and its debts to this earlier era. This course fulfills elective and 400-level requirements in Art History and General Education (IL), but it is also designed to complement concentrations in History, Music, and Architecture.

Enforced Prerequisite at Enrollment: 3 credits of ARTH International Cultures (IL)

ARTH 460: Art and Empire: Aztec, Inca and Spanish

3 Credits

This course is a comparative study of the artistic production used in Aztec, Inca and Spanish empires. ART H 460 Art and Empire: Aztec, Inca and Spanish (3) (IL)(BA) This course meets the Bachelor of Arts degree requirements. This course compares the diverse visual culture of the pre-Columbian world's two most powerful empires, the Aztec and Inca, to ascertain how art, architecture and public ritual functioned as tools of hegemony. In the aftermath of the Spanish physical and "spiritual" conquests of the sixteenth century, colonists continued to exploit the central role played by Aztec and Inca imagery as a means to assert and maintain colonial control, co-opting preexisting channels of training and also imposing foreign sign systems. This course queries, how did the visual arts effectively communicate competing imperial ideologies, how was art production appropriated as a site of indigenous resistance, and how do these artifacts continue to construct communal identities, both past and present?

Enforced Prerequisite at Enrollment: 3 credits of ARTH Bachelor of Arts: Arts
Bachelor of Arts: World Cultures
International Cultures (IL)

ARTH 462: Studies in Latin American Art

3 Credits/Maximum of 6

Specific studies of the visual and material culture created in Latin America from the colonial through the modern era. ART H 462 Studies in Latin American Art (3 per semester/maximum of 6) (IL)(BA) This course meets the Bachelor of Arts degree requirements. This course analyzes the art and architecture created in Latin America from the first moments of European contact (1492) until the modern era. Each time it is taught, the class will refine its focus to study the artistic production of a specific time period (such as the early colonial period, the nineteenth century, or the modern period), a specific geographic expanse (such as the modern nation state of Mexico), or perhaps a distinct cultural group (indigenous artists). Core to this course is the study of the interaction of seemingly divergent social groups and the ways in which artistic production both reflects and reinforces the resulting cultural systems.

Enforced Prerequisite at Enrollment: 3 credits of ARTH Bachelor of Arts: Arts

Bachelor of Arts: World Cultures
International Cultures (IL)

ARTH 464: French Art and Architecture, 1589

3 Credits

This course examines painting, sculpture, and architecture in France from the Wars of Religion through the French Revolution. Over the course of a dynamic two centuries architects and patrons shaped, refined, and innovated upon distinctly French classical styles. Through an examination of some of the leading figures, such as François Mansart and Jules Hardouin-Mansart, Claude Perrault, Claude-Nicolas Ledoux, and Étienne-Louis Boullée, the course will introduce not only a wide range of key buildings, but also a distinct idea about the status of the architect in French society. Classes will also be devoted to specific themes, such as the role of academies in standardizing training, and the influence of public opinion on specific works. We will also examine the urban transformation of Paris into the capital of a centralized French state. This course examines painting, sculpture, and architecture in France from the Wars of Religion through the French Revolution, from the close of the sixteenth century through the end of the eighteenth. In the seventeenth century with the art of Poussin, French painting can be seen to have come into its own, as Poussin broke with his contemporaries in establishing a particularly French mode of classicism in Rome. We see the efflorescence of classicism in history and landscape painting in the work of Poussin and Claude Lorrain, monumental realism in the work of the Le Nain brothers, and the development of complex allegories of power in the work of Peter Paul Rubens in France. We examine the Rococo style in terms of its eroticism, its artisanal ethic, and the new patterns of aristocratic patronage that emerge in the eighteenth century. We will also consider the rise of the public sphere and its impact on artists such as Jean-Baptiste Greuze, Jacques-Louis David, and David's pupils. With regard to sculpture, we will look at a range of styles from the baroque to the neoclassical.

Enforced Prerequisite at Enrollment: 3 credits of ARTH Bachelor of Arts: Arts
International Cultures (IL)

ARTH 470: Contemporary Art

3 Credits/Maximum of 9

A focused investigation of a special topic relating to art made after 1940.

Enforced Prerequisite at Enrollment: 3 credits of ARTH Bachelor of Arts: Arts

ARTH 475: Contemporary Women Artists

3 Credits

An interdisciplinary course that investigates women artists who were integral to the production of contemporary art primarily in the Americas, Europe, and Asia.

Enforced Prerequisite at Enrollment: 3 credits of ARTH Cross-Listed
Bachelor of Arts: Arts
United States Cultures (US)

ARTH 476: History and Theory of Digital Art

3 Credits

History and theories of contemporary digital art emphasizing humanistic approaches to technology. ART 476 / ARTH 476 History and Theory of Digital Art (3)(BA) This course meets the Bachelor of Arts degree requirements. Approaches to Digital Art is a survey class that will offer the web designer, cyberspace architect, MUD traffic controller or enthusiastic surfer an opportunity to examine the humanistic aspects of contemporary digital art. Through readings and direct interaction with digital media and digital artists, the class will develop an appreciation of the ways in which the interface between human beings and technology has been historically constructed and is subject to critical investigation. The goal of the class is to prepare each student so that she or he may engage with digital media in a way that is every more historically and socially self aware. Students will address the ways in which digital technologies transform artistic practices such as museum display, the writing of art criticism, the definition of works of art, changing role of the artist and the changing space of the art studio. More important, however, by engaging with digital works of art students will learn to think critically about technology and its engagement with culture at large. They will be encouraged to think about the political, economic and social impact of digital technologies. This humanistic approach to technology would make this course particularly useful to students of art history, philosophy, comparative literature, art education, and the visual/plastic arts. A significant portion of the course will be devoted to the ways in which art on the internet and digital art in general challenge the integrity of categories such as race and national identity. For example, students will have an opportunity to engage with African American artists such as Keith Obadike, whose on-line performances include an attempt to put his "blackness" up for sale on ebay.com in August of 2001. Students may also look at the ways in which net.art (Art made to be viewed on the internet) can critique commercial cooptation of global culture: etoy.com, for example, is an international and collaborative artist's group that satirizes global capital by camouflaging itself as a multinational corporation. This class will depend largely upon written responses and class discussion, rather than upon tests. Thus, students will learn how to approach difficult theoretical sources that have been assigned to them, and they will learn how to ask the kinds of questions that will help them understand such sources. This course will emphasize critical thinking rather than memorization, so students will develop analytical skills that will be useful in many other contexts. Because students will be given weekly writing assignments, they will be able to improve their skills in composition.

Enforced Prerequisite at Enrollment: 3 credits of ARTH

Cross-listed with: ART 476

Bachelor of Arts: Arts

ARTH 495: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written or oral critique of activity required.

ARTH 495H: Internship

1-18 Credits/Maximum of 999

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written or oral critique of activity required.

Honors

ARTH 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Bachelor of Arts: Arts

ARTH 496H: Independent Studies - Honors

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Bachelor of Arts: Arts

Honors

ARTH 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Arts

ARTH 499: Foreign Study--Art History

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Arts

International Cultures (IL)

Arts Administration (ARTSA)

ARTSA 301: Introduction to Arts Administration

3 Credits

This course provides students with a survey of the major concepts and practices of arts administration.

ARTSA 401: Arts Event Planning and Project Management

3 Credits

Planning and managing an event for an arts organization.

Prerequisite: ARTSA301 , ARTSA495A , MKTG 301

ARTSA 402W: Strategic Management and Planning for the Arts

3 Credits

Study of strategic planning for commercial and non-profit arts organizations.

Prerequisite: 7th semester standing and ARTSA301 , ARTSA401 , MKTG 301 , ACCTG211

Writing Across the Curriculum

ARTSA 403: Fundraising and Grant Writing

3 Credits

This course explores strategies to identify and secure financial support for arts organizations and not-for-profit institutions. ARTSA 403 Fundraising and Grant Writing (3) ARTSA 403, Fundraising and Grant Writing, is an upper level requirement for the Bachelor of Arts degree in Arts Administration. This course will provide students with an understanding of common institutional and leadership structures in the world of not-for-profit organizations. The course will explore proven strategies to create and maintain fiscal stability by generating revenue from a variety of potential financial sources. These include individuals and businesses, federal, state, and community resources, and charitable foundations. Students will also examine practical methods for development, including special events, long and short term campaigns, and the writing of proposals and grants. Upon completion of this course, ARTSA majors will be equipped with the skills necessary to plan and develop organizational solvency.

ARTSA 404: Event Planning Practicum

3 Credits

Students individually plan their own arts event in a workshop setting that guides them through organization and implementation. ARTSA 404, Event Planning Practicum, is an upper level requirement for the Bachelor of Arts degree in Arts Administration. The course will function as a workshop for the planning and execution of students' capstone projects, in which they organize and implement an arts event either on or off campus. Projects may take the form of an exhibition of visual art or a theatrical or musical performance. Although students will be working independently on their own projects in consultation with a faculty advisor, the course is structured so that they will progress through the stages of event planning as a class, regularly presenting and critiquing work in progress. Topics to be covered include budget preparation, grant writing and fundraising, marketing, and program evaluation. Significant class time will also be devoted to discussing the implementation of each student's project. On completion of this course, students will be able to manage all aspects of the planning and execution of an arts event.

Prerequisite: ARTSA 301, ARTSA 401, ARTSA 403 CONCURRENT: ARTSA 402W

ARTSA 495: **SPECIAL TOPICS**

3 Credits

ARTSA 495A: Arts Administration Off Campus Internship**SPECIAL TOPICS**

3 Credits/Maximum of 3

Arts Administration Off Campus Internship (3) A professional internship experience with an established arts agency or organization outside of the university.

Prerequisite: ARTSA301

ARTSA 495B: On Campus Internship in Arts Administration

3 Credits/Maximum of 3

On Campus Internship in Arts Administration (3) An internship with an on-campus arts organization or program.

Prerequisite: ARTSA301 , ARTSA401 , ARTSA495A

ARTSA 496: Independent Study

3-9 Credits/Maximum of 9

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Arts and Architecture (AA)

AA 99: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

AA 100: Introduction to International Arts

3 Credits

The arts of the world can be simultaneously universal and unique. By conveying qualities of the human condition (mortality, love, lust, virtues, vices, etc.) the arts can be universal. However, the arts communicating these qualities can be as unique as the cultures that produced them. Consequently, the arts are representative of the commonality and diversity of the peoples of the world. AA 100 will use the arts to consider similarities and differences among cultures. The primary objective of this course is to develop an appreciation of the arts from a variety of cultures. The scope of this course will be open to all arts from all cultures excluding the United States of America. Given how large a field of study this represents, the course will concentrate on but will not be limited to visual arts, architecture, designed environments, theatre, and music. It will not include all arts from all countries but rather, case studies will be used to provide an in-depth examination of specific examples. Individual case studies will be selected based on qualities indicative of the culture of origin. Care will be given to selecting case studies representative of a wide variety of cultures and time periods. Effort will be made to include examples from the Americas, Asia, Africa, Oceania, South America, and Europe. AA 100 satisfies Penn State's General Education Arts (GA) and International Cultures (IL) requirements and serves as the foundation course for the International Arts Minor in the College of Arts & Architecture.

Bachelor of Arts: Arts

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Arts (GA)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

AA 103: Introduction to Interior Design

3 Credits

We spend most of our time in interior space where we live, work, learn, and play, and the interior design of these spaces impacts human health and wellbeing. Individual interior spaces and the sequences of interior spaces enable us to make sense of the physical surroundings, enrich our experiences, and express particular personalities and identities. This course introduces the spectrum of interior design necessary to

meet physical, psychological, and social human needs for the quality of life. The elements and principles of design in interior space and Gestalt psychology will be explored, while space planning and environmental human behavior theory will be discussed. Considering sustainability, indoor environment quality, and interior materials and finishes will be discussed. Interior design for special needs such as universal design and design for special populations will be introduced. Ultimately, students will recognize interior design as a profession and identify the design process and communication employed by the interior design profession.

General Education: Arts (GA)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Soc Resp and Ethic Reason

AA 106: Interdisciplinary Digital Studio (IDS) Seminar II

3 Credits

This course will consist of 5 modules that will introduce students to emerging technologies that are applicable to interdisciplinary electronic design study. AA 106 Interdisciplinary Digital Studio (IDS) Seminar II (3) This second foundational course will consist of five three-week modules during which students will be introduced to further study in digital design process and applications that are necessary for IDS design research and creative production. What students learn in this first of two preliminary courses during the first of year in the IDS major will have direct application in digital design problems that will be introduced in the beginning, intermediate, and advanced courses in the IDS Program. Accomplished digital artists and designers consisting of faculty in the School of Visual Arts, the School of Music, the Department of Architecture, and the Department of Landscape Architecture will teach the modules. Content of the five modules will include two and three-dimensional modeling, animation; sound, and game design concepts and processes.

Enforced Prerequisite at Enrollment: DART 100 and AAART_PMAJ major

AA 113N: Sustainable Arts and Design

3 Credits

Climate change threatens human health and economic wellbeing and impacts our interactions with the built and natural environments. The adverse impacts of climate change are disproportionately borne by vulnerable communities. Socio-ecological decisions for a sustainable future can reduce the adverse impacts of climate change on human health and economic wellbeing, especially for vulnerable groups. This course explores sustainable arts and design, which plays a leading role in addressing climate change and climate justice. It also examines how artists and designers respond with consideration to environmental integrity, economic equity, and social action and the impact of their work that stimulates the imagination and urges participation. The course provides a broad overview of sustainable arts and design thinking and practices in visual arts, performing arts, and design, considering the impact on social action and behavioral change.

General Education: Arts (GA)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

AA 120N: Introduction to Art Therapy

3 Credits

Introduction to Art Therapy is designed to introduce undergraduates to the philosophical, pragmatic and historical bases of the human service field of art therapy, with emphasis on current applications in the field of art therapy. This course provides a brief introduction to art therapy globally, with emphasis on art therapy within the United States, and other expressive therapies and their application to the overall mental health and human service professions. Art experiences, class discussions, case studies and study of artistic productions will be utilized to explore the relationship between art and healing. Students will relate material learned in class to their community by producing a community art project that will address their local community social or cultural needs. The intellectual frameworks and methodologies of art and psychology will be explicitly outlined and drawn upon within the course lessons. Weekly discussions include prompts to stimulate integrative thinking and additionally, reflective visual journaling will be required. Drawing upon the curricular materials of both INART 1 and PSYCH 100 (though not prerequisite courses), assignments for each lesson will include both reading and written discussion about art therapy. While students will acquire knowledge of part of the practice of art therapy, they will not study to the extent of a graduate program in the field. The narrowing of scope allows for a more basic introduction to the field of art therapy, as well as providing a solid foundation for those interested in practicing to pursue a graduate degree. And while students will acquire considerable knowledge of the major approaches in the field, as articulated in selected readings, they will not complete the work necessary to become a practicing art therapist. Instead, the selected readings will allow students to reflect on the relationships and connections between case studies and their own life experiences. The main objectives of the course are to explore the scope and practice of art therapy as a human services profession, art and art making act as a non-verbal benefit to communication, how to become an art therapist, credentials and prerequisites, multiple forms of expressive therapies, and community needs that can be addressed through art making.

General Education: Arts (GA)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

AA 121: Design Thinking and Creativity

3 Credits

This course is an introductory, general education level course based on the premise that design is a fundamental human activity that everyone engages in one way or another. Design encompasses both the ability to imagine that which does not yet exist and to make it appear in concrete form. Design is a form of deliberate, considered action that seeks solutions to problems and creates useful and purposeful artifacts. Design is simultaneously used as a noun and a verb, and to describe a discipline and many fields of practice. Yet design remains essentially a black box to most people - its methods, processes, and components are mysterious, magical, and opaque. This course will turn the "black box" of design into a glass box. The course focuses on the relationship between ideas, tools,

and artifacts in order to connect theory, practice, and outcomes. Using theory, practice, and artifacts from a range of design fields (including architecture, landscape architecture, product design, engineering, graphic design, environmental design, and design theory itself), the course will empower students to understand design from the perspective most useful to them and their work - ideas, application, and the things they encounter in the world. The course focuses on the kinds of problems, situations, and processes of thinking that are critical for designers, business professionals, engineers, humanists, social scientists and natural scientists. The course is divided into five distinct units, allowing a thematic and comparative analysis of a breadth of design topics: About Design; Design Thinking; The Elements of Design; Design as a Game; and, a Step-by-Step Guide to Design in Action. By the end of the course, students will be equipped with the necessary knowledge and skills to understand and analyze the role of design in the world and to take action themselves, including: * the breadth of design in the world * the power and responsibility of design * a range of design artifacts * how designers think and work * what creativity is and what it entails * understandings of design, design thinking, and creativity across a breadth of disciplines * the parts of design problems * how the design process can be described * strategies and methods applicable to the stages of the design process There are no prerequisites for this course. The course will serve as an introduction to fundamental ideas of design and complement design-focused courses in other departments/programs across the university. The course satisfies general education requirements for Arts (GA) requirements.

Bachelor of Arts: Arts
 General Education: Arts (GA)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking

AA 122: Introduction to Graphic Storytelling

3 Credits

Introduction to Graphic Storytelling is a studio exploring the visual language of comics and graphic novels. Assignments will include writing and drawing exercises, and weekly comics projects. Subjects of study and discussion will include contemporary comics and graphic novels, visual communications, comprehensive critical response, creative ideation and development, and the history and theory of sequential art. Through exercises, projects, readings, discussion, and communal feedback, students will develop a personal process for producing graphic narratives.

Bachelor of Arts: Arts
 General Education: Arts (GA)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Integrative Thinking

AA 130N: Creative Arts Therapy Applications

3 Credits

Creative Arts Therapies are intermodal professions that combine the visual arts, movement, drama, music, writing and other creative processes to foster deep personal growth and community development. While AA 120N provides cursory knowledge with a brief introduction to expressive arts therapies, Creative Arts Therapy Applications is designed

to introduce undergraduates to the depth and practical application of the creative arts therapies, using a variety of approaches to wellness and healing with diverse populations. There is a need to acknowledge the rise in mental health diagnoses and recognize the need for growth and acceptance of helping professions locally, nationally and globally. Professional therapists will explain the needs of their clients, the goals of therapy with these populations, and demonstrate their approaches. Art experiences, class discussions, case studies and study of artistic productions will be utilized to explore the relationship between the arts and healing. Students will relate material learned in class to their self exploration and community by producing a reflective, interdisciplinary course project that will address social or cultural needs through art making. The intellectual frameworks and methodologies of art and human development will be explicitly outlined and drawn upon within the course lessons. The main objectives of the course are to explore the scope and practical applications of the creative arts therapies, the arts and art making of multiple modalities, credentials and prerequisites for how to become a creative arts therapist, and how health and wellness can be impacted by the creative arts at the local, national and global level.

General Education: Arts (GA)
 General Education: Health and Wellness (GHW)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Soc Resp and Ethic Reason

AA 160N: The Virtual Transformational Leadership Development Experience

3 Credits

The Virtual Transformational Leadership Development (VTLD) Experience is designed to help develop the next generation of leaders to serve as agents of change in pursuit of a more civil, equitable, and just workplace, society, and world. A guiding principle of The VTLD Experience is that diversity is a fact, inclusion is a choice, equity is an action, and belonging is an outcome. It leverages technology, including artificial intelligence, machine learning, interactive arts and and employs high impact teaching practices including micro-lessons, rapid learning, reflective exercises, online discussions, meditation and mindfulness practices, an online journal, and synchronous individual transformational leadership development coaching sessions conducted via Zoom. Students enroll in the VTLD Experience from the University Park and the Commonwealth Campuses and have an opportunity to engage with artists curated by the Center for the Performing Arts at Penn State. This involves viewing performances from a distance and digital programming. Fundamentally, the course is an anti-racist, anti-oppression leadership development experience and aligns with the following foundations and thematic priorities of the university's 2016 - 2025 strategic plan: Foundations - Engaging Our Students - Advancing Inclusion, Equity and Diversity - Enabling a Sustainable Future Thematic Priorities - Transforming Education - Empowering Through Digital Innovation - Advancing the Arts and Humanities - Stewarding our Planet's Resources

Cross-listed with: LHR 160N
 Bachelor of Arts: Arts
 Bachelor of Arts: Social and Behavioral Sciences
 United States Cultures (US)
 General Education: Arts (GA)

General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Soc Resp and Ethic Reason

AA 193N: The Craft of Comics

3 Credits

This course combines the literary analysis of comics and graphic novels with the creative practice of making comics. Students will learn through an integrated and ongoing process of interpreting select comics texts and also making their own work in that same medium. Students will gain a technical vocabulary for discussing and assessing comics, which they will then apply to formal analysis of compositional and narrative elements in select assigned texts. This analysis will occur first in class discussion, facilitated by the instructors, and then through a sequence of individual written assignments. At the same time, students will receive formal instruction in making comics as they create their own work over the course of the semester, workshoping with peers and instructors as a way of gaining further insight into the creative and technical processes of the studied texts. Formal analysis and creative work will be coordinated and progressive across the course of the semester. The culmination of this collaborative learning would be an integrated understanding and appreciation of comics art.

Cross-listed with: ENGL 193N

General Education: Arts (GA)
 General Education: Humanities (GH)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

AA 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

AA 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

AA 230N: Arts & Wellness in Communities

3 Credits

Arts and Wellness in Communities is designed to introduce undergraduates to ways they can use the arts for wellness for themselves and in their communities. This course is centered around art-making for personal well-being, which is different from therapy with a trained clinician. Art experiences, class discussions, examples of art in community and the study of practical ways to bring art-making into students' own lives and future professions will be utilized to explore the relationship between art and healing. Students will relate material

learned in class to their future careers and/or goals by proposing a mock art project that will address the needs of a community. The intellectual frameworks and methodologies of art therapy and other creative arts therapies will be explicitly outlined and drawn upon within the course lessons. Drawing upon the curricular materials of both AA 120N and AA 130N (though not prerequisite courses), assignments for each lesson will include reading, written discussion, and visual responses about art-making in communities and for personal wellness. Weekly discussions include prompts to stimulate integrative thinking. Students will respond to the prompts with written or oral responses as well as visual reflective journaling. This course will not train students to facilitate art therapy or any other creative arts therapies as professional clinicians but will instead dive into ways we can use art for healing on our own and in our communities and workplaces.

General Education: Arts (GA)
 General Education: Health and Wellness (GHW)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Soc Resp and Ethic Reason

AA 295: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internship. Written and oral critique of activity required.

AA 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

AA 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

AA 297G: Special Topics - GenEd

1-9 Credits/Maximum of 9

Formal course given on a topical or special interest subject offered infrequently; several different topics may be taught in one year or semester. This is a Special Topics GenEd course.

AA 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

AA 322: Arts Marketing

3 Credits

Topics include: arts markets, consumptions models, targeted development of aesthetic products, analysis of websites and other marketing materials that communicate artistic value. A&A 322 Arts

Marketing (3)(BA) This course meets the Bachelor of Arts degree requirements. This course will introduce and outline the role, purpose, and perception of "art" in various marketplaces and contexts for the emerging arts entrepreneur. Topics include: issues in marketing aesthetic products, consumer identification through art, models of consumer behavior, art and technology, targeted development of arts products/services, and the analysis of websites and other marketing materials that communicate artistic value to appropriate market(s).

Enforced Prerequisite at Enrollment: Third-semester standing Bachelor of Arts: Arts

AA 323: Arts Enterprise Development

3 Credits

Course outlines the cultural and economic environment of the arts in the United States. Topics include: feasibility study and start-up of for- and non-profit arts ventures, the role of geography, demand and infrastructure considerations in entrepreneurial decision-making. A&A 323 Arts Enterprise Development (3)(BA) This course meets the Bachelor of Arts degree requirements. This course will introduce and outline the cultural and economic environment of the arts in the United States. Topics include: feasibility study and start-up of for- and non-profit arts ventures, economic and social impact of art and artists in communities, public and private arts support, non-profit culture and basic grantsmanship, arts policy, creative economy efforts, the role of geography, demand and infrastructure considerations in entrepreneurial decision-making, and competition analysis.

Enforced Prerequisite at Enrollment: Third-semester standing

AA 324: Arts Entrepreneurship and the Law

1 Credits/Maximum of 1

Course surveys general legal considerations in the arts and pertinent issues for monetizing creative work. Course surveys general legal considerations in the arts and pertinent issues for monetizing creative work. Class meetings consist of arts and law faculty collaboratively leading discussions and/or workshops that identify and define areas of legal concern from the perspectives of artistic persons and art implicated organizations. Students will learn how to navigate the U.S. legal system and gain an understanding of intellectual property implications pertaining to the arts. Additionally, students will begin to think, speak, and act in an informed manner when dealing with legal matters, thus enabling them to better identify potential legal issues, recognize when to seek professional legal advice, and be successful artists operating within the domains of business and the law. Topics include: navigating the legal system, intellectual property, contracts, business organization and start-up, taxation, etc.

Enforced Prerequisite at Enrollment: 4th semester standing

AA 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

AA 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

AA 401: International Arts Minor Final Project

1-3 Credits

The final project required for the International Arts Minor. A&A 401A&A 401 International Arts Minor Final Project (1-3) The requirements for the International Arts Minor specify that the course applied toward the minor reflect a coherent course of study constructed around a geographic, chronological, or thematic concentration. Also required for the minor is a culminating project that relates to the chosen concentration. The final project is intended to capitalize on the knowledge and experience gained from the prerequisite components of the minor. The topic of the project will be chosen by the student in consultation with the person in charge of the minor. Work toward completion of the project will be overseen by the person in charge of the minor with advice or assistance from other member(s) of the faculty as appropriate. For the purpose of the minor, the arts are very broadly defined to include topics such as the visual arts, architecture, design environments, theatre, music, and literature so most any creative endeavor may be considered for the subject of the final project. The project may result in formats such as a written paper, a work of art, an exhibition, a recital, or a musical composition as long as it conforms to the intent of the requirement for the minor. It is anticipated that the subject of most projects will be cross-cultural or multicultural in nature. For example, a research paper might be thematic such as an intercultural comparison of adaptations of a Greek myth. A studio project might be technical, such as the wood firing techniques employed by Japanese ceramicists. The requirements for the International Arts Minor specifies a project of at least one (1) credit. A7A 401 International Arts Minor Final Project will be offered for one (1) to three (3) credits to accommodate students who may be more than one (1) credit to complete the minor and for those who may propose a project worth more than one (1) credit. A&A 401 may not be repeated.

Enforced Prerequisite at Enrollment: AA 100

Bachelor of Arts: Arts

AA 424: Arts Entrepreneurship Capstone Research Project

3 Credits

Mentored research on an arts venture idea equips students for immediate, informed, individually specific action upon completion of the program. A&A 424 Arts Entrepreneurship Capstone Research Project (3) This course functions as the impetus for students to bring their specific venture idea(s) into being, by researching the geographic region where they want to operate, using the actual infrastructure necessary to their specific project. By incorporating the acquired knowledge gleaned from previous courses as applied knowledge towards their chosen venture, the students will be operating literally as the CEO, while being mentored and guided through the process. This course is a mechanism for integrating and implementing the feasibility and marketing strategies developed in the previous courses, thus equipping the students for immediate, informed, individually specific action upon completion of the program.

Enforced Prerequisite at Enrollment: AA 323

AA 494: Research Project Courses

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

AA 494H: Research Project Courses

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Honors**AA 495: Internship**

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

AA 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

AA 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

AA 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Asian American Studies (AAS)

AAS 100N: Introduction to Asian American Studies

3 Credits

This course offers an introduction to the history, literature, culture, and social conditions of Asian Americans. It begins with Chinese immigration to the United States in the nineteenth century and proceeds to cover the histories of other groups: Japanese, Korean, Filipino, and Indian Americans. In addition to history, students explore some of the literature of Asian Americans and examine the legal and sociological aspects of the Asian American experience. The course also addresses several central questions: How much have Asian American groups held in common, culturally and historically, with one another? What role did prejudice play in the attempted citizenship and acculturation of different Asian American groups? How did Asian values and traditions shape families and communities over time? How did the experiences of Asian American women differ from those of men? What contributions to American life - food, literature, politics, education, business, science, and physical culture - have Asian Americans made? AM ST 160/AAS 100 is an

interdisciplinary course that introduces students the history, society, and cultural achievements of Asian Americans.

Cross-listed with: AMST 160N

Bachelor of Arts: Humanities

United States Cultures (US)

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

Asian Studies (ASIA)

ASIA 3: Introduction to the Religions of the East

3 Credits

Religious experience, thought, patterns of worship, morals, and institutions in relation to culture in Eastern religions. RLST 3 / ASIA 3 Introduction to the Religions of the East (3) (GH;IL)(BA) This course meets the Bachelor of Arts degree requirements. This course will explore the foundations, development, and diversity of religious traditions in Asia, focusing mostly on Hinduism, Buddhism, Confucianism, Daoism, and Shinto. It is organized according to two sections: Foundations and Developments. The Foundations section provides an introduction to the worldviews and practices of Eastern teachings. We will also discuss the structure of society, the social expectations on individuals based on gender and class, and rituals, which expose us to rich mythologies or intricate ceremonies. The second section, Developments, traces the evolution of religious doctrine and practice through history. Here, we learn to distinguish among large and small-scale movements and schools, and to familiarize ourselves with the geographical scope of each religion in South, Southeast, and East Asia. An abiding emphasis in this course will be on how to read and interpret the varied scriptures and primary texts of these religions.

Cross-listed with: RLST 3

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

ASIA 4: Introduction to Asian Literatures

3 Credits

Satisfies General Education (GH), International Cultures (IL), Other Cultures (BA) requirements. This course is designed to act as a gateway to Asian literatures and cultures - through English translation - of selected fictional and cinematic texts from Japanese, Chinese, Korean, and Asian diaspora literature (our main focus is on literature of modern Asia). Exploring the historical and cultural contexts of each work, we will pay attention to the ways in which each text depicts the diversities within geographical areas (for instance, "Japanese culture" is not monolithic than "U.S. Culture" is, and writers might see the same social reality in quite differently). The cross/inter-cultural approach used in this course invites students to acquire a global perspective on the rich traditions of Asian cultures and literatures. Students are expected to develop the

ability to comparatively analyze and express, in speech and writing, their views through the reading of literary texts and watching of films.

Cross-listed with: CMLIT 4
 Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Soc Resp and Ethic Reason

ASIA 83S: Asian Studies First Year Seminar

3 Credits

The meaning and advantages of a Liberal Arts education in context of a specific discipline. ASIA 083S Asian Studies First Year Seminar (3) (GH;IL)(BA) This course meets the Bachelor of Arts degree requirements. This course provides an introduction to the meaning and advantages of a liberal arts education in the context of Asian Studies. Through reading, discussion, research, and writing, students in this course will develop many of the basic skills central to a liberal arts education. The specific topic will vary by instructor, but will address one or more countries of Asia. Materials may include works of fiction and literary criticism, historical documents and analysis, or other scholarship and primary materials related to the specific discipline of the instructor. Through reading, discussing, and further exploring such materials, students will build their skills of critical analysis, research, and argumentation, as well as enhancing their intercultural and international perspectives. The course fulfills the first-year seminar requirement as well as a general education or a Bachelor of Arts humanities requirement.

Bachelor of Arts: Humanities
 International Cultures (IL)
 First-Year Seminar
 General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Global Learning

ASIA 100: What is Asia?

3 Credits

What are the factors that bind and define a region? What makes a geographical area, a set of cultures, or a certain group of people into a single entity? Who decides? Asian history provides a view of how a region is formed and reshaped over time. This course will address the question of what makes Asia a region by examining the shared experiences and interlocking histories and cultures of its people. This will entail study of art and architecture, literature, history, religion, philosophy, social structures, economics, and international relations, with particular attention to reading both visual and textual materials. The goals of this class are two-fold; we aim not only to learn something about times and places far removed from our own, but also to encourage thought about what we do when we study Asia. Students in this class will be expected to think critically about assigned texts and make their own interpretations of their meanings.

Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Humanities (GH)

GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Key Literacies

ASIA 101N: Sports in Asia

3 Credits

The history and contemporary practice of athletics in Asia shows that sports are much more than just games. Taking a multi-disciplinary approach to the study of sports in Asia, this course will examine what meanings have been attached to the participation in and planning of athletic events and institutions by Asian peoples and nations. The course will begin with a historical perspective, examining the place of traditional athletic practices, then tracing the introduction of Western-style athletics to various Asian countries in the 19th and 20th centuries and their incorporation into programs of national development. The second part of the course will focus on the international relations of sports mega-events like the Olympic Games and the FIFA World Cup. The third part will focus on the sociology of sports: what meanings do athletic activities and competitions hold in Asian societies, how does that shape people's behavior, and how does it compare to Western societies? Finally, the course will include an anthropological component that seeks to understand Asian societies in new ways by focusing on specific athletic activities, such as Japanese baseball and the Beijing Olympics, and by tracing the changing meanings of Asian sports like judo and karate as they spread to other parts of the world. The aim of this course is not only to build understanding of distant places and disparate peoples, but also to gain new perspectives on our own society through the shared activity of sports.

Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Humanities (GH)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking

ASIA 102: Asian Popular Culture

3 Credits

An exploration of popular culture in Asia. ASIA 102 Asian Popular Culture (3) (GH;IL)(BA) Asian popular culture encompasses a broad array of cultural practices and forms that shed light on the politics and societies of Asia. This course examines "low" or non-elite cultures that allow us insight into the day-to-day lives of the people who created or enjoyed them. Along the way, we will consider how popular culture intersects with issues such as politics, economy, and society, whether on a local, national, regional, or even global scale. Through examining the contested meanings and presentations of popular culture symbols and forms, students will be introduced to the diverse media through which popular culture has been disseminated and consumed. Themes and topics will vary depending on the instructor, but may include cities and urban culture, commercial cultures, television and theater dramas, film, anime, digital video, mass literature, comics, game shows, video games, youth cultures, gender and its representations, martial arts, popular religion, food, and net cultures and social media.

Bachelor of Arts: Humanities
 International Cultures (IL)
 General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

ASIA 103: Introduction to Hinduism

3 Credits

Historical overview of the development of ideas that forms the basis of the south Asian religious culture. ASIA 103 / RLST 103 Introduction to Hinduism (3) (GH;IL)(BA). This course meets the Bachelor of Arts degree requirements. We begin with a discussion of the pre-Vedic Indus Valley civilization reflecting upon its influence on later south Asian cultures. The course then traces how the Vedic ritual tradition, and the Vedantic philosophy gave rise to the concepts of Karma (individual action and its underlying motives), Samsara (the cyclical view of life), and the Atman (nature of the individual). Moreover, we pause here to explore the relationship between the emerging idea of civic responsibility (Dharma) and its relationship to the Vedic and Vedantic thought. Next we examine how the Vedantic philosophical tradition may have incorporated a diversity of philosophical views including both Brahmanical as well as non-Brahmanical traditions of Buddhism, Jainism, Lokayata, etc. The class will read excerpts from the religious literature of the era. The first part of the course concludes with selected readings from the Bhagavadgita, Mahabharata, as well as some Buddhist and Jaina texts. All of these readings will be in English. Class discussions focus on how the classical Hindu worldview may have emerged from the philosophical foundation of the Vedantas, and later built the groundwork for the Hindu Bhakti (devotion) movements. The second part of the course focuses on the various regional Bhakti traditions from the middle ages onwards, analyzing how the regional cultures may have related with the great classical Brahmanic tradition. The course concludes with a discussion of how Hinduism in the post 1800s responded to the forces of colonization, exploring how the different religious and cultural traditions of south Asia may have interacted with other religious cultures (both indigenous and foreign) like Buddhism, Jainism, Islam, and Christianity. We shall read excerpts from noteworthy thinkers and writers of nineteenth and twentieth century to understand the very interesting dynamics between religion and civil society of more recent times. This course concludes with a discussion of how Hinduism in the post 1800s responded to the forces of colonization, exploring how the different religious and cultural traditions of historical south Asia may have interacted with other religious cultures (both indigenous and foreign) like Buddhism, Jainism, Islam, and Christianity. We shall read excerpts from noteworthy thinkers and writers of nineteenth and twentieth century to understand the very interesting dynamics between religion and civil society of more recent times.

Cross-listed with: RLST 103

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

ASIA 104: Introduction to Buddhism

3 Credits

A general survey of the basic doctrine, practice, and historical development of Hinayana and Mahayana Buddhism. RLST 104 / ASIA 104 Introduction to Buddhism (3) (GH;IL)(BA) This course meets the Bachelor of Arts degree requirements. This course is a general survey of the historical development, basic doctrines, and practices of Hinayana, Mahayana, and Vajrayana Buddhism. The course is structured around the "Three Jewels" of Buddhism: Buddha, Dharma, and Sangha. That is to say, we will learn about the Buddha as a historical figure and spirit; we will come to understand the basic elements of his doctrinal teachings; and we will examine the community of followers who have practiced his teachings. Special attention will be paid to the various "geographies" of Buddhism as expressed through different cultures in ancient India, Southeast Asia, and East Asia. At the conclusion of the course, we will encounter Buddhism as a relatively new cultural force in America. The course revolves around the discussion of key issues in the philosophy, ethics, and theology of various forms of Buddhism.

Cross-listed with: RLST 104

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

ASIA 105: War and Memory in Asia: Twentieth Century and beyond

3 Credits

The history and memory of the Hiroshima and Nagasaki, Nanking massacre, the Cambodian genocide and other forms of mass violence are often taught separately in different disciplines within Asian Studies and beyond. This course will examine them together through the various ways different Asian societies dealt with, experienced and understood them. Using the extensive literature on the history of genocide, this course further suggests the mutual impact of these entangled tragic events. Specific content will vary according to individual instructor, but topics may include victim cultures, ethnic cleansing, trauma, human rights, dark tourism, memorials, and architecture, as well as the general impact of these tragedies on Asian and global politics.

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

ASIA 106N: Asian Traditions of Health, Medicine, and the Body

3 Credits

This course provides an introduction to historical and contemporary traditions of health, medicine, and the body from various parts of Asia. Potentially including such diverse topics as Ayurveda, yoga, acupuncture, taiji, qigong, Tibetan medicine, and other systems of practice, the course emphasizes comparative and multi-disciplinary frameworks. The

semester finishes with sections on the modernization and globalization of Asian traditions, including their practice in the US. Throughout, the class will approach all Asian ideas and practices on their own terms, encouraging comparison among the various traditions as well as with contemporary American ideas about health and wellness.

Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Humanities (GH)
 General Education: Health and Wellness (GHW)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking

ASIA 107N: Bollywood: Seeing South Asia Through Cinema

3 Credits

This course is an introductory survey of Hindi cinema that examines movies of post-independent India. It aims to provide students insight into the historical contexts in which Hindi cinema developed, exposing them to a handful of key themes related to Indian society and culture. Relevant themes include nation building, social class, family dynamics, caste, gender and sexuality, marriage customs, and the role of India and Indian diasporas in the world today. Students will examine both cinema and scholarly articles related to the themes of the course to better understand the lived experiences of people and deepen their understanding of the dynamic social and political cultures of modern India. The question of how certain cultural traits compare to the cinematic culture of Hollywood and the West, and why they might differ in such ways will serve as an abiding question throughout the course. Following a two-week segment, the course first raises the question as to what makes these films quintessentially "Bollywood" by introducing students to the history, traditions, and aesthetic traits of Hindi cinema. Over the semester, students will watch a minimum of six movies that deal with particular social and political themes; actively participate in discussions; and take a quiz on each movie. Students will give one presentation and write three response papers of 3 to 5 pages each instead of midterm and final exams. At the end of the semester, they will submit a creative project on a particular social theme that reflects their knowledge and critical thinking about both the Bollywood genre and the society it reflects. Background knowledge in South Asian cinema or Hindi is not a requirement to take this course as all films will have English subtitles.

Bachelor of Arts: Arts
 Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Arts (GA)
 General Education: Humanities (GH)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking

ASIA 109H: What is The Self?

3 Credits

What is the self? Are you your body? Your identities? Your consciousness? This course explores diverse views of "the self" from a

variety of different global religious and philosophical perspectives. Topics may include Asian traditions such as Buddhism, Hinduism, Taoism, and Confucianism; Abrahamic traditions such as Judaism, Christianity, and Islam; as well as indigenous traditions such as shamanism, Native American religions, and Shinto. The class may discuss, but will not prioritize, perspectives from psychology and other modern disciplines. Which specific religions are covered will depend on the instructor's fields of specialization, but the course will emphasize cross-cultural comparisons on a global scale.

Cross-listed with: RLST 109H
 Bachelor of Arts: Humanities
 International Cultures (IL)
 General Education: Humanities (GH)
 Honors
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking

ASIA 120Y: South Asia: A Literary History

3 Credits

The course traces the cultural history of South Asia by studying its literary tradition from ancient to modern times. ASIA 120Y South Asia: A Literary History (3) (GH;IL)(BA) This course meets the Bachelor of Arts degree requirements. Asian 120Y provides undergraduate students a taste of the inherent pluralism of South Asian culture and the readings emphasize the broad idea of plurality. The readings and discussions may include, but not necessarily remain confined to a) architectural b) literacy c) musical etc. traditions, depending on the research interests of the individual faculty members teaching the course. Asian Studies undergraduates should be able to recognize both the richness of diversity, as well as the nature of the continuity of the cultural tradition in South Asia that has fascinated outsiders for centuries

Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking
 Writing Across the Curriculum

ASIA 172: Introduction to Japanese Civilization

3 Credits

This course surveys the development of civilization in Japan from ancient times to the present. Among the key goals of this course is to discuss what is distinctive about "Japanese civilization." As a survey of Japan it includes topics such as external relations and cultural exchanges with Japan's neighbors and the world more broadly; the nature of indigenous beliefs, Shinto and Buddhism; the making of the Japanese bureaucratic state and gentry society; the rise of the commercialized economy; the growth of Japanese culture; Tokugawa Japan, It offers a basic knowledge of the cultural, political, economic, artistic and historical background of this vital region of the world.

Cross-listed with: HIST 172, JAPNS 172
 Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

ASIA 174: East Asia to 1800

3 Credits

This course provides students with an overview of the most important historical developments and external relations of China, Japan and Korea from ancient times to the end of the eighteenth century. As a comparative survey of China, Japan and Korea it includes topics such as external relations and cultural exchanges; early Chinese dynasties; Confucianism, Daoism, Shinto and Buddhism; the making of East Asian bureaucratic state and gentry society; the rise of Ming-Qing commercialized economy; the growth of Japanese culture; Tokugawa Japan, and the role of Korea in East Asia. It offers a basic knowledge of the cultural, political, economic, artistic and historical background of this vital region of the world.

Cross-listed with: HIST 174

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

ASIA 175: East Asia since 1800

3 Credits

This course is a comparative survey of the internal developments and external relations of China, Japan and Korea since the early 1800s. Topics include interaction with the West, internal rebellions and reforms, the importance of certain key figures, the changing roles of women, student protests, and current social problems. Considerable focus will be placed on the transition from imperial to constitutional governments, rise of nationalism, World War II in the East Asian context and the phenomenal role China, Japan and Korea have played in shaping the post-World War II world. It offers a basic knowledge of the cultural, political, economic, artistic and historical background of this vital region of the world.

Cross-listed with: HIST 175

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

ASIA 176: Survey of Indian History

3 Credits

Survey of cultural, institutional, and political history from ancient times to the present. HIST 176 Survey of Indian History (3) (GH;IL)(BA) This course meets the Bachelor of Arts degree requirements. This course surveys the history and civilization of India or South Asia from the earliest times to the modern period. The goal of the course is to enable students to form a comprehensive conception of the various facets of Indian or, South Asian civilization in a historical context. This course is an excellent foundation for the history of modern India and also complements a

variety of existing courses on the history of the non-western world. In addition to satisfying the GI requirement, HIST 175 satisfies the general credit requirements for the history major or minor, including the 'non-western' component of the major. Non-majors may use this course to satisfy a general education humanities selection. Typically, students will be evaluated on in-class quizzes, written exams, participation in class discussions of assigned readings and critical reviews of books. This course is offered once every year and has an enrollment of 50 students.

Cross-listed with: HIST 176

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

ASIA 177: Rise of Modern Southeast Asia

3 Credits

This course looks at Southeast Asia from the rise of early empires to the present. Beginning with the great empires of Southeast Asia this course surveys the rise of Southeast Asian politics, culture and society before examining the colonial period when the region was dominated by European imperial powers, and concluding with the formation of the modern-day nations of Burma (Myanmar), Cambodia, Laos, Thailand, Indonesia, Malaysia, Singapore, Vietnam, and the Philippines. As part of this discussion, issues of Indianization, colonization, life under Japanese during World War II, and the way in which Cold War politics shaped the region. By the end of the course, students should have a firm understanding of changes in Southeast Asia and be able to assess these historical factors that shaped the current societies.

Cross-listed with: HIST 177

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

ASIA 181: Introduction to the Religions of China and Japan

3 Credits

A survey of the history, philosophy, and cultural impact of the major Far Eastern religions: Confucianism, Taoism, Buddhism, and Shinto. ASIA 181 / RLST 181 Introduction to the Religions of China and Japan (3) (GH;IL)(BA) This course meets the Bachelor of Arts degree requirements. This is an introductory survey of the historical, philosophical, and cultural dimensions of the major religious traditions in China and Japan. The course delineates and highlights the organic view of the universe and the hierarchical ordering of society in East Asia. It traces the evolution of the major traditions (Confucianism, Daoism, Buddhism in China, as well as Shinto, Buddhism and Confucianism in Japan) by examining their ideas of humanity and nature, morality and society, and metaphysics and ethics. It also reveals the interaction and interrelation between ideology, politics and society, and their impact on the development of the major religious traditions in history. A major focus is the relation between the popular and folk practices and beliefs of esoteric Daoism, devotional Buddhism, and fertility-cult Shinto and the elite and literate doctrines and precepts of Confucianism, philosophical Daoism, and monastic Buddhism. The course also devotes some attention to the influence of religion on various facets of culture, such as medicine, science, literature,

art and food. The objectives of the course are first to acquaint students with the religious beliefs, values, and practices of China and Japan by looking at their historical formations and contemporary manifestations, and second, to locate them in a global and comparative context.

Cross-listed with: RLST 181

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Global Learning

ASIA 182: Asian Trade: Economy, Industrialization and Capitalism in Asia

3 Credits

An historical overview of economy, industrialization, globalization and capitalism in Asia from the 16th century to present. ASIA (HIST) 182 Asian Trade: Economy, Industrialization and Capitalism in Asia (3) (GH;IL) (BA) This course meets the Bachelor of Arts degree requirements. Asian economies have experienced spectacular growth in the second half of the 20th century. But this growth is part of a longer story of Asian commerce and trade and its relationship to and integration with (and, in some cases, isolation from) global patterns of exchange. Moreover, these exchanges are best understood alongside the politics, society, and culture--sometimes local, sometimes regional--that shaped trade and business in entrepôts, capitals, and hinterlands throughout Asia. This course begins with a historical exploration of the economic development and social change and ends by asking what lies in store for one of the world's fastest growing economic regions. By offering a historical frame for Asian economic experience, students will gain insight into the strengths and weaknesses of prevailing theories that tend to overstate centralized control, market mechanisms, and cultural determination. Asian economies and markets are quite diverse, consisting of emerging and mature markets, making it difficult to view them through a single lens. As a result this course seeks to introduce students to a variety of conceptual frameworks in these countries. Examinations of the major economic players China, India, and Japan form the backbone of the course, but the precise geographic emphasis will vary with instructor, and may also include discussions of Japan, Korea, Vietnam, Singapore, Indonesia, Taiwan, and other Asian states. Themes of the course will vary depending on instructor, but may include industrialization, sustainability and the environment, gender and labor, protest and political reform, and consumerism and advertising, among others. The course will also offer a general introduction to economic theories that underpin the concepts of globalization, capitalism, and socialism as they are understood in an Asian context. This course is intended as an introduction to Asia for those with particular interests in Business, Economics, Global Studies, Labor, and/or Government. Through weekly readings, films and class discussion students will be introduced to the development of Asian economies in the global context.

Cross-listed with: HIST 182

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

ASIA 183: Gender, Family, and Society in East Asia

3 Credits

This course tracks the changes in East Asian gender roles, relationships, and family life from 1800 to the present, placing private life at the center of the history of China, Japan, and Korea. Among the topics covered are the examination of gender and family life in early modern East Asia, considering topics such as marriage customs, the cult of female chastity, birthing practices, male-male sexuality as well as tracing the remarkable shifts in gender and private life in East Asia beginning in the nineteenth century and continuing to the present. The course will likely also cover issues such as women's liberation, changing expectations for courtship, marriage and sex, homosexuality, cross-dressing and androgyny, gender and revolution, and the state's role in regulating sex and procreation.

Cross-listed with: HIST 183

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

ASIA 186: The Silk Roads

3 Credits

Taking cross-cultural communication and connectivity as its central themes, this course explores the central role that the silk roads and Indian Ocean maritime routes have played throughout Eurasian history. The course provides a historical survey of the land and sea routes and networks connecting Europe and Asia, the peoples and cultures that flourished along these routes, and a variety of exchanges that took place by way of these routes. The course develops insight into trends and patterns over a long period of history, from ancient to modern times; the course also focuses on distinctive periods of history when patterns were disrupted and reformed, and when relationships changed among the peoples and states involved in the silk roads and maritime routes.

Cross-listed with: HIST 186, JST 186

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

ASIA 187: Global Taiwan

3 Credits/Maximum of 3

This course examines the historical, cultural, and ethnic dimensions of Taiwan over several centuries to the present day. Taiwan's rich history and important economic role in contemporary East Asia clashes with its exclusion from international organizations like the UN and WHO and resultant international isolation. This class will examine the history and culture of Taiwan to better understand how it got here and where it might go. Topics covered will include the Dutch incursions in "Formosa," Japanese colonization, years of military dictatorship and cross-straits tension, rebirth as one of the four "Asian Tiger" economies, and its current rowdy democracy and warming ties with the People's Republic of China.

We will also explore the literature, film, and culture of this multi-ethnic, multi-lingual, and multi-cultural island.

Cross-listed with: HIST 187
International Cultures (IL)

ASIA 188: Tibet: People, Places and Spaces

3 Credits

Few places generate as much curiosity, interest, or controversy, in the Western mind than Tibet. This course examines Tibet from a variety of perspectives from Tibet's political unification under a single ruler in the seventh century up to Tibet's incorporation into the People's Republic of China in the latter half of the twentieth century. Adopting a Tibet-centered focus, this course examines three core dimensions of Tibet namely its people, its religion and its strong sense of place to allow for a more nuanced and comprehensive understanding of Tibet to emerge. No background or specialized knowledge about Tibet is expected though a willingness to read primary documents on a variety of religious, ethnic and political themes will be quite useful. In this course students can expect to gain an appreciation for how religion, history and politics contribute to contemporary portrayals of Tibet, Tibetans and their society.

Cross-listed with: HIST 188
International Cultures (IL)

General Education: Humanities (GH)
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Key Literacies

ASIA 197: Special topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

ASIA 197G: Special Topics - GenEd

1-9 Credits/Maximum of 9

Formal courses given on a topical or special interest subject offered infrequently; several different topics may be taught in one year or semester. This Special Topics is a GenEd course.

ASIA 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

ASIA 200: What Are Asian Languages?

3 Credits

Introduction to the interrelated notions of language, interaction, and culture centering on regions and languages covered in Asian Studies. The purpose of the course is to introduce the interrelated concepts of language, interaction, communication, and culture. The focus is on Asian languages (Korean, Japanese, Chinese, Persian, Hindi, Punjabi, and Urdu) spanning the regions addressed by the Department of Asian Studies. Students explore which concepts in language and culture are universal (e.g., basic reference, time, space) and which are language-

culture specific. The course examines what constitutes human language and how human language differs from other forms of communication, e.g., animal communication, artificial languages, and computer-related languages. At issue is the concept of meaning, gradations of meaning, nuances of meaning, literal meaning, implied and inferred meaning, and so forth. The course provides an overview of the essential branches of linguistics (phonetics, phonology, morphology, semantics, syntax, and pragmatics) initially using English examples to illustrate these areas of linguistic focus. English is also used to illustrate the classical notions of parts of speech. The course provides an overview of the geographic regions in which each of the seven languages are spoken, as well as an overview of writing systems, the notions of standard languages, official languages, government oversight of language purity, and dialects. The course examines pragmatics, including basic theories of politeness. Students will gain an in-depth understanding of some of the socio-political underpinnings of the notions of "standard" language, deviant language, and dialects. Students will gain a basic understanding of the types of concepts in language and culture that are universal (e.g., basic reference, time, space) and those that are language-culture specific. Students will be expected to discern the multitudes of ways that meaning is created in language and interaction. This course is open to any students interested in learning about the language-culture interface as it applies to languages offered in Asian Studies (plus Persian). Students of any proficiency level of any of the target languages are welcome, from absolute beginners to heritage and/or native speakers.

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

ASIA 215: Architecture and Art of South and Southeast Asia

3 Credits

Survey of the architecture/art of South/Southeast Asia (emphasis on India) from the Bronze Age to a globalizing present. ARTH 215 / ASIA 215 Architecture and Art of South and Southeast Asia (3) (GA;IL) (BA) This course meets the Bachelor of Arts degree requirements. This course has a focus on the architecture and art of South Asia (India, Pakistan, and Bangladesh) and Southeast Asia (particularly Thailand, Cambodia, and Indonesia). Topics will span a time period that begins with Bronze age urbanization in South Asia and concludes with the emergence of globalized architecture in the context of modern nation states. The course will be an opportunity for students to engage with artistic traditions and patronage systems that have adapted to cross-cultural currents, including the more recent forces of colonialism and globalization. Early Buddhist and Hindu architecture and sculpture, the medieval Hindu temple, the advent and adoption of Islam and its artistic forms, the emergence of an early modern empire under the Mughals and their patronage of architecture and painting, British colonial architecture and contemporary interpretations of Modernist architecture and art, are some of the topics that will be covered. Besides paying attention to the formal aspects of buildings, cities and objects, lectures will incorporate information on the emergence of Art History as a discipline in South and Southeast Asia. Lectures, exams and reading assignments will aid in providing students with an intensive introduction to the region's cultural and artistic diversity.

Cross-listed with: ARTH 215

Bachelor of Arts: Arts

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Arts (GA)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

ASIA 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

ASIA 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

ASIA 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

ASIA 395: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Prerequisite: prior approval of proposed assignment by instructor

ASIA 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

ASIA 400: International Culture in East Asia

3 Credits

Study of the role of culture in East Asian regional and East-West international relations. ASIA 400 (PL SC 486/HIST 489) International Culture in East Asia (3) (IL)(BA) This course meets the Bachelor of Arts degree requirements. This course will examine the place of culture in international history through a comparative look at the role of cultural circulation and exchange in relations among China, Korea, and Japan (and between East Asia and the West) from the propagation of Buddhism in the first century A.D. to present-day circulation of popular music, movies, and comics. We will explore the international politics of culture and the politics of international culture, considering questions of what constitutes culture, whether it is ever entirely separate from politics, and how that separation has evolved over time. These larger themes of the course will be tackled by following the historical movement of concrete objects and people throughout the region. This is a course in international history, but it also seeks to explore aspects of international relations. The goals of the class are not only to gain an understanding of the uses and

impact of culture in international relations, but also to develop the skill of building such an understanding through primary and secondary sources, both written and visual. Students in this class will think critically about assigned texts to develop their own interpretations of their meanings. Through readings, discussions, presentations, and the final project, students will enhance their ability to think critically and to express their ideas clearly in both speech and writing. Class work includes some lecture but emphasizes guided discussions, group work, writing exercises, and some student presentations. This participatory approach is intended to deepen students' appreciation of the assigned readings, to help them understand value systems that may differ from those predominant in western cultures, and to assist students in developing both analytic and expressive abilities.

Prerequisite: ASIA 100; ASIA 101; ASIA 102; ASIA 103; ASIA 104; ASIA 172; ASIA 174; ASIA 175; ASIA 197; JAPNS 120; JAPNS 121; CHNS 120; CHNS 121; KOR 120; KOR 121

Cross-listed with: PLSC 486

Bachelor of Arts: World Cultures

International Cultures (IL)

ASIA 401: Technology & Society in Modern Asia

3 Credits

Role of technology in modernization, national identity, and foreign relations of one or more Asian countries from 19th century to present day. ASIA 401 Technology & Society in Modern Asia (3) (IL)(BA) This course meets the Bachelor of Arts degree requirements. The countries of Asia are often seen (or imagined) in the West today in terms of their technological capabilities. This course will examine the role of technology in the modernization, national identities, and foreign relations of one or more countries of East, South, or Southeast Asia from the mid-19th century to the present day. Specific content will vary according to individual instructor, but topics may include the relationship between technological development and international relations, national power, leisure, domestic political and aesthetic movements, war, empire, and trade, as well as the impact of technology on interconnected images of self and other on the part of the peoples of Western and Asian countries. The objectives of the course are not only to learn about the role of technology in modern East Asia, but also to encourage us to rethink the way we view other countries and the factors that go into those perceptions (as well as developing a new way of understanding of what contributes to the views other peoples hold of their own countries). Students will also consider the changing role that technology has played (and continues to play) in all modern societies.

Prerequisites: ASIA 100; ASIA 100Z; ASIA 101N; ASIA 102; ASIA 103; ASIA 104; ASIA 172; ASIA 174; ASIA 175; ASIA 183; ASIA 184; ASIA 186; ASIA 187

Cross-listed with: HIST 401

Bachelor of Arts: World Cultures

International Cultures (IL)

ASIA 402: Language, Culture and Cognition in East Asian Context

3 Credits

This course is a linguistic introduction to the relationship between language, culture, and cognition with a focus on Chinese, Japanese, and Korean. In this course, we study the cognitive linguistic view that human cognition is fundamentally embodied and shaped by various figurative processes such as metaphor and metonymy grounded in our bodily and cultural experiences, and that human thought and

language are fundamentally metaphorical in nature. We examine how we think and speak figuratively and conceptualize our experience metaphorically in everyday life, and compare the languages in terms of cognitive universals and cultural variations. The objectives of this course are threefold: (1) to lead language students to a linguistic approach to language analysis so that they learn about how individual linguistic expressions fit into a coherent linguistic system; (2) to enable them to see how linguistic structures reflect underlying cognitive, conceptual structures which are derived from the interplay between human embodiment and cultural environment; and (3) to provide them with a broad perspective on similarities and differences among Chinese, Japanese, and Korean as components that form a coherent category known as "East Asian". Class work will include some lecture but will emphasize guided discussions, literature review writings, student presentations, and research papers. This interactive approach is intended to encourage students' participation, involvement, and cooperation in learning, to help them understand the relationship between language, culture, and cognition, and to assist them in developing both analytic and expressive abilities. This course is designed to count as a BA "Other Cultures" and International Culture. Students can take this course as long as they have an interest in the relationship between language, culture and cognition, especially in the context of East Asia.

Prerequisite: ASIA 100; ASIA 101; ASIA 102; ASIA 103; ASIA 104; 5th Semester standing

Cross-listed with: APLNG 402

Bachelor of Arts: Arts

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

ASIA 403: Food Cultures of Asia

3 Credits

Food Cultures of Asia explores cuisine as a window to the region's geography, history, and culture. Tracing the specific histories of certain Asian dishes, spices, and grains, we will not only learn about Asian cultures, but also develop an understanding of how people around the world relate to food, both as consumers and producers. Because of the diversity of cultures within Asia, and the increasing interaction of cultures across the globe leading to the emergence of novel forms of fusion cuisine, this course is well situated to fulfill not only the international cultures requirement, but also address the broader need of a well rounded education expected from a Bachelor of Arts degree. Through a comparative approach, we will reflect on our own food choices and think deeply about food's relationship with culture and identity. With readings drawn from historical records, scholarly essays, food memoirs, and popular books and podcasts on the science and culture of food habits in various Asian cultures, the course will provide insight into specific Asian societies, as well as a general awareness of food's role in cultural identity.

Prerequisites: ASIA 003; ASIA 083S; ASIA 100; ASIA 100Z; ASIA 101N; ASIA 102; ASIA 103; ASIA 104; ASIA 105; ASIA 106; ASIA 120Y; ASIA 181; CMLIT 4; HIST 172; HIST 174; HIST 175; JAPNS 120; JAPNS 121N; JAPNS 122 CHNS 120Z; CHNS 121N; KOR 120; KOR 121; Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures
International Cultures (IL)

ASIA 404H: Topics in Asian Literature

3 Credits

Selected works from the major poetry, fiction, and drama of such countries as India, China, Japan.

Cross-Listed

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

Honors

ASIA 404Y: Topics in Asian Literature

3 Credits

Selected works from the major poetry, fiction, and drama of such countries as India, China, Japan. CMLIT 404 / ASIA 404 Topics in Asian Literature (3) (IL)(BA) This course meets the Bachelor of Arts degree requirements. This course focuses on Asian literature in a comparative and international frame. Different iterations of this course will have different topics as well as different historical or geographic foci, but may include literatures from the countries of East Asia (China, Japan, Korea), Southeast Asia (Thailand, Vietnam, Laos, Indonesia, Cambodia), or South Asia (Bangladesh, India, Pakistan). Because the course is comparative it will highlight relationships between and among literary traditions of Asia, or between Asia and the rest of the world, whether in the fields of poetry, drama, or fictional and non-fictional prose.

Prerequisite: 3 credits in literature or related field appropriate to this course

Cross-listed with: CMLIT 404Y

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

Writing Across the Curriculum

ASIA 405: Seminar in Asian Studies

3-6 Credits/Maximum of 6

Advanced seminar in Asian Studies ASIA 405 Seminar in Asian Studies (3-6 per semester/maximum of 6)(BA) This course meets the Bachelor of Arts degree requirements. This seminar focuses on advanced topics in the field of Asian Studies and is intended to function as a senior capstone course for majors, as well as an upper-level, research-intensive course for any student seeking to gain in-depth knowledge of a specific issue relevant to Asian culture. The course will have very different focuses in different semesters, depending on the research expertise of the instructing professor. (Potential topics might include, for instance, an examination of human rights policy in Asia, an exploration of maritime empires in the premodern period, an historical archeology of the Islamicization of western Asia, a literary investigation of vernacular literatures, or an art historical examination of urbanization and the built environment in major Asian cities.) Regardless of focus, extensive topic-specific readings will be required, and the goal of the course will be to help students develop and polish advanced research skills in Asian Studies.

Prerequisite: ASIA 100

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

ASIA 405Y: Seminar in Asian Studies

3 Credits/Maximum of 6

Seminar in Asian Studies (BA;IL) This course meets the Bachelor of Arts degree requirements. This seminar focuses on advanced topics in the field of Asian Studies and is intended to function as an upper-level, research-intensive course for any student seeking to gain in-depth knowledge of a specific issue relevant to Asian culture. The course will have very different focuses in different semesters, depending on the research expertise of the instructing professor. (Potential topics might include, for instance, an examination of human rights policy in Asia, an exploration of maritime empires in the premodern period, an investigation of popular cultures, or an art historical examination of urbanization and the built environment in major Asian cities.) Regardless of focus, extensive topic-specific readings will be required, and the goal of the course will be to help students develop and polish advanced research skills in Asian Studies.

Prerequisites: ASIA 3; ASIA 100; ASIA 100H; ASIA 101N; ASIA 102; ASIA 103; ASIA 104; ASIA 105; ASIA 106N

Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures
International Cultures (IL)
Writing Across the Curriculum

ASIA 406: Issues and Practices in Teaching Asian Languages

3 Credits

This course aims to provide basic pedagogical training for teaching Asian languages as second/foreign language. It involves critical reading and discussion of major pedagogical principles and issues in teaching Asian languages as second languages, with emphasis on topics such as current trends and issues in the field of language teaching (general and Asian-specific), foundation for classroom practices, teaching by principles, agency and motivation in language learning, teaching across proficiency levels, social-cultural and cognitive foundations of language acquisition, teaching language skills (listening, speaking, reading, and writing), teaching grammar and vocabulary, language assessment/measurement, and emerging trends in Asian language learning and teaching. Practical topics such as lesson planning, classroom observation, peer teaching, classroom activities, self- and peer evaluations, best practices in teaching Asian languages, and heritage language instruction are also discussed. This course is suitable for those who have completed an advanced level of Asian Languages and who wish to teach these languages in the future. The course is also suitable for those who wish to teach English in Asian countries.

Prerequisites: CHNS 402; JAPN 402; KOR 402

Bachelor of Arts: World Language (All)
Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures

ASIA 414: Chinese Language, Culture and Society

3 Credits/Maximum of 3

The study of Chinese language and culture and a perspective on the way of life in contemporary Chinese society. Through this course, the students are introduced to a cognitive approach to the study of Chinese language and culture and a broad perspective on the Chinese way of life in contemporary Chinese society. In particular, we will study how the interaction between Chinese language and culture frames the worldview

of Chinese speakers, how the usage of the Chinese language manifests the underlying conceptual structure, which in turn is shaped by the physical (including bodily) and cultural experience of its speakers, and how conventional usage of linguistic expressions of Chinese reflects, and possibly influences, the ways in which Chinese speakers see or conceptualize the world. We will focus on conventionalized expressions, which include compound words, idiomatic phrases, and proverbial sayings, in the Chinese language, and study the Chinese conventional ways of talking about reality, both external and internal, as windows into Chinese culture and cognition. More generally, we will try to understand the embodied nature of human cognition as we see how abstract thought is grounded in bodily experience in and with the physical and cultural world. We will also look at various domains of life in contemporary China in order to gain a better understanding of Chinese society. The objectives of this course are threefold: (1) to lead Chinese language students to a linguistic approach to language analysis so that they learn about how individual linguistic expressions fit into a coherent linguistic system; (2) to enable them to see how linguistic structures reflect underlying cognitive, conceptual structures which are derived from the interplay between human embodiment and cultural environment; and (3) to provide them with a broad perspective on contemporary Chinese society.

Prerequisites: ASIA 4; ASIA 100; ASIA 101; ASIA 102; ASIA 175; CMLIT 4; HIST 175; CHNS 120; CHNS 121; 5th Semester standing

Cross-listed with: CHNS 414
Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures
International Cultures (IL)

ASIA 415: China Beyond China

3 Credits

Study of modern and contemporary Chinese culture in its diversity and its intercultural contexts. CHNS 415 China Beyond China (3) (IL) In order to begin to understand Chinese culture, we cannot treat it as a monolithic, unified whole. This course will give an introduction to modern and contemporary Chinese culture (focusing on the 20th and 21st centuries) by paying special attention to China's inner diversity, as well as the continuous shaping of Chinese culture in contact, dialogue, and tension with other cultures. Through the study of literary texts, films, and other cultural material - as well as a small number of theoretical essays - this course will focus on: 1) Chinese culture in its variety by focusing on Chinese cultural spheres beyond the People's Republic (Taiwan, Hong Kong), the Chinese diaspora, as well as other ethnicities and cultures within Mainland China; and 2) the ways in which Chinese modernity was impacted by intercultural impulses, as well as the recent self-representation of China in the context of globalization. Course Objectives include: 1. Understand modern and contemporary China in its cultural diversity, as well as shaped by intercultural and global processes. 2. Critically analyze processes of cultural contact and the representations of cultural differences. 3. Think critically about globalization with its impact on such categories as the local and the national. 4. Question your assumptions about the world, re-examine your own points of view, and understand cultures and value systems that may differ from (or be shared with) your own.

Prerequisite: ASIA 4; ASIA 100; ASIA 101; ASIA 102; ASIA 175; CMLIT 4; HIST 175; CHNS 120; CHNS 121; 5th Semester standing

Cross-listed with: CHNS 415
Bachelor of Arts: World Cultures
International Cultures (IL)

ASIA 416: Gender and Sexuality in China

3 Credits

Study of gender roles and the imaginary of sexuality in the literary, filmic, and artistic production of modern China. CHNS 416 Gender and Sexuality in China (3) (IL) This course explores gender roles and the imaginary of sexuality in the literary, filmic, and artistic production of modern China (from the end of the 19th century up to today), paying attention also to developments in Chinese cultural spheres beyond the People's Republic, such as Taiwan, Hong Kong, and the Chinese diaspora. This course will use the representation of gender, sex, and sexuality as a lens through which modern and contemporary Chinese culture can be understood in its historical, social, and aesthetic changes. The analysis of representations of gender and sexuality throughout the class will focus on literary and filmic texts, as well as art, rather than on theoretical work on gender and sexuality (in China or in general). Course Objectives include: 1. Critically assess the complex construction of gender roles and sexuality in modern and contemporary Chinese literature and film. 2. Reflect critically on different ways of understanding and representing gender difference. 3. Critically assess the connections between gender and sexuality and changing political, historical, and cultural contexts. 4. Question your assumptions about gender and sexualities in the context of cultural difference, understand cultures and value systems that may be different from (or be shared with) your own.

Prerequisite: ASIA 4; ASIA 100; ASIA 101; ASIA 102; ASIA 175; ASIA 183; CMLIT 4; HIST 175; CHNS 120; CHNS 121; HIST 183; 5th Semester standing

Cross-listed with: CHNS 416

Bachelor of Arts: World Cultures

International Cultures (IL)

ASIA 417: The Warrior, the Courtesan and the Ghost in Classical Chinese Novels

3 Credits

This course provides an introduction to major classical Chinese novels by focusing on three character types: the warrior, the courtesan, and the ghost. CHNS 423 417 The Warrior, the Courtesan and the Ghost in Classical Chinese Novels (3) (IL) A narrowly defined notion of modern literature is a relatively recent phenomenon that dates back only to the early twentieth century in the Chinese context. There is, however, a long tradition of the vernacular novel that remains influential till today, in spite of its marginalization by the Western-influenced Chinese Enlightenment project. This course provides an introduction to major classical Chinese novels by focusing on three character types: the warrior, the courtesan, and the ghost. The warrior is commonly found in historical romances, tales about errant knights and assassins, and martial arts fiction. Although the typical setting for the courtesan is in novels about prostitution (Xia Xie Xiaoshuo), this course will relate this figure to other female types in various domestic space, thereby tracing the genealogical connections between the domestic fiction and the courtesan fiction. The ghost can be found in Accounts of the Strange (Zhi Guai) and Tales of the Miraculous (Chuan Qi). This course will relate this figure in these narrative genres with other types of the supernatural being, such as Gods and Demons. Most readings will be drawn from the Mind-Qing period (14th -20th c) but modern and contemporary literature as well as visual or media culture that consciously continue or rewrite these narrative traditions will be considered as well. All readings and class discussions will be in English. Knowledge of Chinese or Chinese literature is not assumed or required. From year to year the content we

cover might change, but this course will always explore: 1) Major classical Chinese narrative traditions that are radically different from the Western-influenced narrative modes of the twentieth century. 2) Pre-modern practices of literary reading and criticism and pre-modern notions of literacy, literature, and modes of circulation. Course Objectives include: 1. Critically analyze major texts and genres of the classical Chinese novel. 2. Understand pre-modern practices of story-telling, literary circulation, reading, and criticism. 3. Think critically about pre-modern societies and their connections with the contemporary world.

Prerequisite: ASIA 4; ASIA 100; ASIA 102; ASIA 175; CMLIT 4; HIST 175; CHNS 120; CHNS 121; 5th Semester standing

Cross-listed with: CHNS 417

Bachelor of Arts: World Cultures

International Cultures (IL)

ASIA 418: Confucius and the Great Books of China

3 Credits

This course familiarizes students with the critical texts and intellectual cultures of Warring States and early imperial China. CHNS 418 / ASIA 418 / HIST 482 Confucius and the Great Books of China (3) This course exposes students to the key texts, thinkers, and ideas that form the foundation of the Chinese classics and classical period, providing an integral foundation for the study of Chinese history, culture, or literature. While the emphasis is on the texts and their main themes, the course will encourage historical engagement with the texts by placing them into a context of competing cultural, social, political trends. Readings may be grouped around categories of teachings such as "(Confucian) ritualists," "statesmen," "military strategists," "rebels," "recluses," and "spiritual leaders." Students will learn how each of these types of teachings and thinkers related to each other, as well as how they responded to the emergent, centralized political order of the day. This will help students better understand many of the recurrent intellectual, political, and religious themes that arise in later Chinese history as well.

Prerequisite: ASIA 3; ASIA 100; ASIA 104; ASIA 175; ASIA 181; HIST 175; CHNS 120; CHNS 121; ENGL 15; RLST 3; RLST 181; 5th Semester standing

Cross-listed with: CHNS 418, HIST 482

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

ASIA 419: The Chinese Rhetorical Tradition

3 Credits/Maximum of 6

Study of the rhetorical works in ancient China as well as multiple facets of modern Chinese rhetoric. CHNS 419 The Chinese Rhetorical Tradition (3 per semester/maximum of 6) (IL)(BA) This course meets the Bachelor of Arts degree requirements. This course surveys the Chinese rhetorical tradition dating back two and a half millennia. Rhetoric is defined here as the study and practice of artful means of communication, including poetic, expository, and argumentative modes. The class will first delve into the works of competing intellectual schools in pre-imperial China (pre-221 BCE), which set a corner stone for thoughts and practice of communication in the imperial period (221 BCE - 1918). These schools, including the Daoist, the Confucian, and the Legalist, developed their rhetorical notions through engaging with the political, intellectual, and ethnic Other. From here the class will examine the multiple facets of modern Chinese rhetoric, which has undergone a continual contact and

conflation with other rhetorical traditions in the global contact zone. The class will focus on topics such as feminist discourse, Chinese-American rhetoric, and the teaching of writing, which bear direct implications on our contemporary social life.

Prerequisites: ENGL 15; ASIA 3; ASIA 100; ASIA 104; ASIA 175; ASIA 181; HIST 175; CHNS 120; CHNS 121; RLST 3; RLST 181; 5th Semester standing
Concurrent Courses: ENGL 471
Cross-listed with: CHNS 419
Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures
International Cultures (IL)

ASIA 424: Transnational Korean Literature

3 Credits

Exploration of seminal Korean texts, including poetry, fiction, autobiography, and criticism, from the early twentieth century to the contemporary era. This course provides a comprehensive overview of modern Korean literature within a transnational context. As we learn how to critically analyze seminal Korean texts, we will locate them in the social, political, economic, and cultural conditions under which they were produced and received. In grappling with some of the fundamental issues they raise, including colonialism, migration, national division, war, gender relations, developmentalism, urbanization, democratization, and contemporary consumer culture, we will also seek to situate these writings in the Korean vernacular within the larger context of global modernity. Rather than take Korean literature and global modernity as given or apart from each other, we will attend to their intersections by raising such questions as: How did modern experiences, constructed through the interface with unfamiliar Others, change preexisting ways of writing and reading? How did foreign occupations affect the formation of a national literature? In what ways do Korean writers' representations of the inter/national events and phenomena on and beyond the Korean peninsula at once enrich and complicate empirical investigations into modern histories of Korea, East Asia, and the world? In an increasingly borderless world, can we draw a boundary around what is called "Korean" literature? In parallel with these questions, we will further discuss why and how to engage in literary practices in the current age of digital reproduction. Instruction and all materials will be in English. No preliminary knowledge of Korean history or language is required for taking this course.

Prerequisite: KOR 120; KOR 121; ASIA 100; ASIA 102; ASIA 83; ASIA 4; CMLIT 4; 5th Semester standing
Cross-listed with: CMLIT 424, KOR 424
Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures
International Cultures (IL)

ASIA 425: Global Korean Cinema

3 Credits

Exploration of Korean cinema from the early twentieth century to the present, with an emphasis on its global/local dynamics. This course offers an introductory overview of Korean cinema. As we trace its history from the colonial period to the current "Korean wave," we will also engage with film criticism, the trans/national contexts of film productions, the particular aesthetics of selected auteurs/genres, and local/global receptions of Korean cinema. Our discussion of formal elements and key issues featured in these films; modernity, colonialism, division, nation, class, gender, identity, tradition, ideology, desire, violence, and migration,

among others; will be informed by readings of secondary sources and theoretical works, as well as literary materials produced during the same period. Throughout our analyses, we will seek to contextualize the cinematic texts within moments of major shifts not only in modern Korean history, but also in the transnational film industry and screen culture. In pursuing a broad and detailed perspective of Korean cinema, this course will ultimately enrich, and simultaneously complicate, our understanding of Korea, cinema, and the world. Instruction and all materials will be in English. No preliminary knowledge of Korean history or language is required for taking this course.

Prerequisite: KOR 120; KOR 121; ASIA 100; ASIA 102; ASIA 83; ASIA 4; CMLIT 4; 5th Semester standing
Cross-listed with: CMLIT 425, KOR 425
Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures
International Cultures (IL)

ASIA 428: Asian American Literatures

3 Credits/Maximum of 6

This course explores contemporary Asian American literary production by reading a wide variety of texts focused on the possibilities and limits of space and place. Our goal in this class is two-fold: to orient ourselves in relation to Asian American literatures and to orient Asian American literatures in relation to other geographical formations such as the nation, the hemisphere, the transpacific, and the world. To accomplish this, we will consider how physical and geographical spaces map on to psychic and historical ones, in the process focusing on a diverse set of locations-including ethnic enclaves, detention camps, islands, the transpacific, and the hemisphere. We will engage key concepts in Asian American literary studies such as transnationalism, globalization, racialization, imperialism, history, culture, and postracialism. Additionally, we will think about how issues of identity, belonging, contestation, aesthetics, diaspora, and genre are critical to Asian American literary production. Finally, we will interrogate the constructed, pan-ethnic nature of "Asian America" as itself an imagined nation. In the process, we will familiarize ourselves with the richness and diversity of Asian American literature by considering a variety of genres, including short stories, novels, drama, memoir, comics, and film. In encouraging students to develop understanding of the historical backgrounds, cultural and scientific contributions, economic, social, psychological, and political circumstances of Asian Americans, they will 1) Learn to see nations, cultures, and/or social identities not in isolation, but in relation to each other; 2) Gain increased knowledge of different cultural values, traditions, beliefs, and customs; 3) Appreciate the diversity that exists among persons who share a particular social identity; 4) Recognize and be sensitive to the different ways social identities have been valued; 5) Increase their understanding of stereotypes and biases; and 6) Increase their awareness of the nature of social justice and equity. These goals are supported by every aspect of the course: the reading list, the in-class conversation and lectures, the collaborative projects, the quizzes and exams, and the analytical essays. Students are not simply exposed to texts and topics but must demonstrate engagement with, understanding of, and critical analysis in relation to the course's focus.

Cross-listed with: ENGL 428
Bachelor of Arts: Humanities
United States Cultures (US)

ASIA 430: Japan in the World

3 Credits

Study of Japan's foreign relations and position in the international community from the early 19th century to the present. ASIA (JAPNS) 430 Japan in the World (3) (IL)(BA) This course meets the Bachelor of Arts degree requirements. This course will examine Japan's foreign relations and changing position in the international community, from the rethinking of relations with the Western world in the early nineteenth century to its emergence as a pop culture superpower in the present day. The course will explore the structures of international relations, such as imperialism and international organizations, with the Japanese experience providing a viewpoint that differs from the standard Western-centric narrative in important ways. We will also consider the development of alternative methods of diplomacy, including cultural exchange and economic and technical assistance.

Prerequisite: JAPNS 120; JAPNS 121; ASIA 100; ASIA 101; ASIA 102; ASIA 105; ASIA 172; ASIA 175; ASIA 185; HIST 172; HIST 175; HIST 185; 5th Semester standing

Cross-listed with: JAPNS 430
Bachelor of Arts: World Cultures
International Cultures (IL)

ASIA 431: Courtly Japan

3 Credits

Focused study of aristocratic society and culture of Heian period Japan. JAPNS 431 (ASIA 431) Courtly Japan (3) (IL)(BA) This course meets the Bachelor of Arts degree requirements. The Heian period of Japanese history saw the apex of a refined court culture. Through readings of primary and secondary sources, this seminar-style course will explore the activities, norms, and structures of courtly society in Japan, from the centralization of imperial power in the 8th century through the court's political marginalization in the late 12th century. We will pay particular attention to religion, the arts, politics and governances, gender, and the gradual rise of samurai power in the shadows of the court. This course is intended to provide an introduction to the political, social, economic, and cultural life of the Heian court of ancient Japan. The goals of the class are not only to gain an understanding of a time and place far removed from our own, but also to develop the skill of building such an understanding through primary and secondary sources, both written and visual. Students in this class will take on the role of historian or literary critic themselves, thinking critically about assigned texts and making their own interpretations of their meanings. Through reading, discussions, and writing, students will enhance their ability to think critically and to express their ideas clearly in both speech and writing. The course is intended to deepen student's appreciation of the cultural production of ancient Japan, to help them understand value systems that may differ from those predominant in western cultures, and to assist students in developing both analytic and expressive abilities. The course is designed to be suitable for all students generally interested in Japan or in various fields of humanistic study.

Cross-listed with: JAPNS 431
Bachelor of Arts: World Cultures
International Cultures (IL)

ASIA 432: War and the Warrior in Japan

3 Credits

Survey of the role of warfare and the warrior in Japan, with attention to changing cultural settings. Taught in English. JAPNS 432 (ASIA 432) War and the Warrior in Japan (3) (IL) This course is intended to provide an introduction to the social and historical roles of warfare, and the changing cultural figure of the warrior, in Japan. Some prior study of Japan (JAPNS 120 or JAPNS 121 or HIST 172) is required. All materials will be available in English. Students will learn about subjects like the causes of violence, culturally acceptable ways of resolving conflict, obligations of victor toward vanquished, expectations regarding the memory of the war dead, the ideal of the warrior as a cultural figure, and historical roles that Japanese warriors have played in ages of peace. Readings and screenings will cover several genres, such as film, historiography, history, documentary, classical epic, modern novel, and excerpts from Japanese history textbooks (in translation). The course, or individual units within the course, will be structured so that students develop an historical perspective, allowing them to understand the cultural contexts that have generated attitudes toward war and the warrior in Japan. In addition, students will learn to think critically about various media's techniques and aesthetics of representation, and will become more engaged, critical investigators of literature and related media. Readings and in-class discussion will focus on the image of the warrior as a cultural icon, exploring the many ways in which popular understandings of the warrior have changed over time, for instance, as popularized dramatics began to idealize warriors as moral exemplars in the late medieval period, and then as historical realities made the position of the warrior itself redundant in the early modern era. Class work includes some lecture but emphasizes guided discussions, group work, writing exercises, and some student presentations. This participatory approach is intended to deepen students' appreciation of the works, to help them understand value systems that may differ from those predominant in western cultures, and to assist students in developing both analytical and expressive abilities. Through critical reading, group discussion and interpretive writing, students will hone skills for evaluating modes of cultural production and consumption in premodern and modern Japan. Evaluation will be through means such as in-class presentations, short writing assignments, midterms or quizzes, one analytic paper (3-7 pages), and in-class/on-line participation and discussion. The course is designed to be suitable for all students generally interested in Japan, or interested in various fields of humanistic study.

Prerequisites: ASIA 4; ASIA 100; ASIA 101; ASIA 102; ASIA 104; ASIA 172; ASIA 174; ASIA 175; ASIA 185; CMLIT 4; HIST 172; HIST 174; HIST 175; HIST 185; JAPNS 120; JAPNS 121; RLST 104; 5th Semester standing

Cross-listed with: JAPNS 432
Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures
International Cultures (IL)

ASIA 434: Beyond Anime

3 Credits

The visual, tactile, and literary arts play key roles in how modern nation-states make sense of themselves and how they make sense of other nations. Japan provides one key example through which to observe the use and function of art to create not only the image and identity of a nation and national culture, but also the image and identity of other national cultures. In recent years, Japanese popular culture has been

reborn around the world. A global generation has grown up watching anime and reading manga in Spanish, Chinese, Russian, and English. Beyond Anime is designed to contextualize the recent appropriation and dissemination of Japanese popular culture through the cyclical history of such appropriations through the modern period. In this way, the course will explore the precursors, antecedents, and contexts to our present cultural moment. Through film, photography, posters, matchbook-labels, textiles, industrial design, novels, and myriad other popular media, this seminar-style study of Japanese popular visual culture will help students see Japanese visual arts in terms that are local to Japanese aesthetics and through those that transcend local cultures. Drawing on the long history of illustrated narrative from scrolls to chapbooks, through film and photo essay, this course confronts the exoticist notion that Japan's arts have always placed a disproportionately heavy emphasis on the visual. Through comparative readings of cultural and visual material from Japan, this course will raise questions of aesthetic, cultural, and national difference. Specific topics will vary with instructor, but may include: the rendering of three dimensional space through perspective, the use of pictures in the service of narrative versus the use of pictures as narrative, and how notions of negative space promise deep insight and risk cross stereotypes.

Prerequisite: ASIA 4; ASIA 100; ASIA 101; ASIA 102; ASIA 104; ASIA 172; ASIA 174; ASIA 175; CMLIT 4; HIST 172; HIST 174; HIST 175; JAPNS 120; JAPNS 121; RLST 104; 5th Semester standing
 Cross-listed with: JAPNS 434
 Bachelor of Arts: World Cultures
 International Cultures (IL)

ASIA 440: Monuments of Asia

3-9 Credits/Maximum of 9

An exploration of major Asian sites and monuments through a focus on their historical and cultural significance. ART H (ASIA) 440 Monuments of Asia(IL)(BA) This course meets the Bachelor of Arts degree requirements. In this course, major Asian monuments are introduced in their physical, historical and cultural contexts. Students are also exposed to various theoretical approaches through which these monuments will be studied. Some of the themes around which the course is structured include patronage, religious practice, cultural meaning, political relevance and the shifting meanings of monuments over time. Students will learn to understand and discuss ways of defining monuments, their formal character and lineage, historical and cultural contexts and their representation across space and time. Each semester monumental sites will be organized around a common theme such as, Hindu and Buddhist Sites across Asia: Historical Significance and Contemporary Relevance, Patronage and Religion, Islam across Asia: Global Ideas and Local Contexts, Political and Symbolic Centers in Asia: Between Early Modernity and the Nation State or Early Modern Asia: Empire and the Built Environment. Alternately, these topics will be incorporated within a multi-themed structure. The objective of the course is to expose students to the histories and cultures of Asia in a globalizing world. Another objective is to equip students with the methodological tools of art history as a discipline, even as they learn about specific monuments. The course will build on the foundation laid by survey courses in Art History, Architectural History and Asian Studies. Weekly readings will be assigned and discussed in class. The development of analytical and writing skills will be stressed, and grades will be based partly on essay exams and short response papers. In addition, students will write a research paper, to be completed by the end of semester.

Enforced Prerequisite at Enrollment: ARTH 100 or ARTH 120 or ARTH 315 or ARTH 320 or ARTH 330
 Cross-listed with: ARTH 440
 Bachelor of Arts: Arts
 Bachelor of Arts: World Cultures
 International Cultures (IL)

ASIA 457: Hiroshima & the Holocaust in History and Memory

3 Credits

The history and memory of the Holocaust and Hiroshima and Nagasaki are often taught separately in different disciplines. This course will examine them together through the various ways different societies remembered, understood and commemorated these. Using the extensive literature on the history of memory, this course further suggests ways in which these memories and histories affected and were entangled by each other. Specific content will vary according to individual instructor, but topics may include victim cultures, cold war nuclear history, trauma, human rights, dark tourism, memorials, architecture as well as the general impact of these tragedies on the fraught politics of memory in East Asia and the Middle East, or the way the memories of the tragedies were entangled with the civil rights and other struggles in American and global history.

Prerequisites: Three credits in JST, HIST, or ASIA
 Cross-listed with: HIST 457, JST 474
 International Cultures (IL)

ASIA 465Y: Democratization in Asia

3 Credits

A course which identifies components of democracy, such as definitions, measures, datasets, and the democratization process. PL SC (ASIA) 465Y Democratization in Asia (3) (IL) This class is an upper-level seminar on democratization in Asia. How do countries move from having an authoritarian regime to a democratic government? Why are some democratic governments stable while others are not? In this class, we will focus on democratization theory and how it applies to countries in Asia. This course is organized into two parts. In the first part of the course, we will discuss democracy and democratization theory. We will cover such components as: definitions, measures, datasets, and the different stages of the democratization process. In the second part of the course, we will apply these concepts and measures to specific Asian countries. Course topics will be explored through readings from textbooks, articles, datasets, and media sources. By the end of the course, students will have a deep knowledge about a wide range of Asian countries. Students will develop the skills to compare countries, will understand the democratization process within Asia, and will be able to generalize from their knowledge to evaluate democratization events around the world. Finally, students will gain a deeper understanding of what is democracy and how easy or difficult it is to install and maintain. This course fulfills the distribution requirement for comparative politics, as well as the advanced and related course requirements for Political Science majors. In addition, the course fulfills the supporting course requirement for International Politics majors and the related areas requirement for Asian Studies majors. Finally, the course fulfills the requirements for writing across the curriculum and other cultures.

Cross-listed with: PLSC 465Y
 International Cultures (IL)
 Writing Across the Curriculum

ASIA 469: Government and Politics of South Asia

3 Credits

This course offers an overview of the politics of modern South Asia with specific focus on Afghanistan, India and Pakistan. ASIA (PL SC) 469 Government and Politics of South Asia (3) (IL) This course provides an overview of the politics of modern South Asia with particular attention to the experiences of Afghanistan, India and Pakistan. It examines theories of political and economic development and ethnic politics, the impact of the British colonial experience on South Asia, the rise of nationalism, and the emergence of independent nation states in the region. Three important themes are explored throughout the course: (1) the state of economic development in the three countries; (2) the relationship between identity politics and violence; and (3) the international relations of these countries, with particular attention to terrorism and nuclear policy. Course topics will be explored through readings from textbooks and assigned articles, articles from current news sources and documentary films from the three countries. By the end of the course, students will have knowledge of the politics of Afghanistan, India and Pakistan and the political factors that have shaped their development over the past century. Students will acquire the tools necessary to evaluate critically the impact of war, the legacy of colonialism, and the challenge in building durable democratic institutions. This course fulfills the distribution requirement for comparative politics, as well as the advanced and related course requirements for Political Science majors. The course also fulfills the supporting course requirement for International Politics majors and the related areas requirement for Asian Studies majors.

Prerequisite: PL SC003 , PL SC014 , PL SC022 or ASIA 100

Cross-listed with: PLSC 469

International Cultures (IL)

ASIA 472: Tradition, Modernity, and Cultural Change in South Asian Societies

3 Credits

India and its neighboring countries provide an interesting view of the ways cultural diversity functions in the world. The region contains one-sixth of humankind, and its people are differentiated not only by religion, language, caste, and ethnicity, but also by ecology, technology, dress and cuisine. ASIA 472 examines how South Asia's history may have influenced the diverse behavioral, cultural, and social norms from the ancient to the modern times Beginning with a preliminary discussion of ancient medieval, and colonial Indian history, the course examines the institutions of caste, family and kinship, marriage, gender, and religious practices of the many different religious, and regional, and language communities of the sub-continent, and how they may have changed over the years. The course concludes with a review of how the different South Asian communities both within and outside the subcontinent have dealt with modernity in the realms of politics, religion, law, arts, cinema, and popular culture. This course will be cross listed with Anthropology and will be taught by both Asian Studies and Anthropology faculty. thereby making it useful to students of both Asian Studies and Anthropology. Furthermore, students in this course will be exposed to research methodologies used by scholars of history, literature, and anthropology.

Prerequisite: 5th semester standing Recommended Preparation: Introductory courses in Anthropology, Asian Studies, History, or Religions Studies would be useful background for this course.

Cross-listed with: ANTH 479

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

ASIA 474: Early Modern Japan

3 Credits

Japanese history from 1580-1880. ASIA 474 (HIST 474, JAPNS 426) Early Modern Japan (3) Japan's Tokugawa period can be difficult to grasp. It resembles a modern society in many respects but operated according to a logic of social organization different from that of most modern states. There was a collective sense of national identity, but its characteristics differed significantly from modern forms of Japanese identity. Moreover, modern ideologies have contributed to the characterization of early modern Japan as a rigid society and of the country as a whole having been isolated from the rest of the world. The main purpose of this course is to afford students the opportunity to study early modern Japan in detail and, insofar as possible, on its own terms. Through readings in primary and secondary sources, and through the evaluation of visual images, this seminar-style course will deepen students' knowledge of Japan and serve as basis for comparative study of other early modern societies. Although the course investigates classic areas of historical study such as institutional development and foreign relations, the emphasis is on social and environmental history. The course encourages students to think about a range of approaches to the past and to think about the ways our contemporary biases influence the ways we understand the past.

Prerequisite: HIST 172 , HIST 174 , JAPNS120 or JAPNS121

Cross-listed with: HIST 474, JAPNS 426

ASIA 475Y: The Making and Emergence of Modern India

3 Credits

India's transition to social, economic, and political modernity through the experience of British colonial rule and the nationalist struggle. ASIA (HIST) 475Y The Making and Emergence of Modern India (3) (IL) (BA) This course meets the Bachelor of Arts degree requirements. This course covers India's transition to social, economic, and political modernity through the experience of British colonial rule and the nationalist struggle. It begins during the early modern period, when European travelers encountered the flourishing Mughal Empire, and moves into the dynamic moment following, when the East India Company was one of various competing forces, both locally and globally. It then examines the rise of British power, and the various responses to it from collaboration to mutiny; the multiple development of nationalisms and anticolonialisms, including secular, socialist, Hindu and Muslim variations; the accompanying social reform visions, including caste abolition and feminism; the turbulent paths toward partition and independence, resulting in the postcolonial states of India, Pakistan, Bangladesh, Nepal, Sri Lanka, and Afghanistan. It then follows the continuing trajectories of these countries after independence, from the Nehruvian years to the neoliberal shift, with attention to emerging social movements and issues including caste and gender relations; religious and separatist politics; struggles around land and development; urbanization, and labor migration. This course raises important

questions about the nature of modernity and its relationship to global interconnectedness, the rise of capitalism and colonialism, industry and technology; while emphasizing South Asian social and cultural contributions and responses to these global shifts. By filling in the context of this part of the world to that global story, the course enables students to grapple with some of the major economic and geopolitical trends of the early 21st century.

Prerequisite: HIST 010 , HIST 011 , HIST 172 , HIST 175 , HIST 176 , HIST 181 , or HIST 191

Cross-listed with: HIST 475Y

Bachelor of Arts: Humanities

International Cultures (IL)

Writing Across the Curriculum

ASIA 478: China and the World

3 Credits

This course examines China's economic reform and development and its engagement with the world since 1978. It pays close attention to the interplay of politics and economics. The course first examines the initiation and process of China's economic reform. This part of course covers topics including state-owned enterprise reform, township and village enterprises, fiscal decentralization, and tax reform. Then the course explores China's interactions with the world, paying special attention to trade, foreign investment, and development aid. Finally, the course addresses the issues and challenges that China faces for sustainable development, including corruption, income inequality, and environmental deterioration. The goal of this course is to give students a comprehensive view of the political economy of contemporary China and its relationship with the world and to develop students' understanding of economic reform and development in the developing world.

Prerequisite: PLSC 3 or PLSC 14 or ASIA 100Z

Cross-listed with: GLIS 478, PLSC 478

International Cultures (IL)

ASIA 480: Japan in the Age of Warriors

3 Credits

An overview of Japan from the 10th to 17th century, a period of political decentralization, cultural efflorescence, and social change. ASIA (HIST) 480 Japan in the Age of Warriors (3) (IL)(BA) This course meets the Bachelor of Arts degree requirements. By the eighth century, Japan had become a centralized state centered on the reign of a sovereign, commonly known in English as an emperor. At the end of the ninth century, the emperor's court relocated to the city of Heian (Kyoto), and soon thereafter, an elegant court culture developed in the capital. The courtly culture was based on civilian values and civilian rule. In the countryside, however, Japan was gradually becoming militarized. Local warlords began rising to prominence and vying with each other for power. One of them, Taira-no-Masakado, rebelled against the central government during the years 939-940, declaring himself "emperor" of several provinces in eastern Japan centered on Hitachi. Although the central government in Kyoto enlisted other warrior groups to put down Taira-no-Masakado's rebellion, the process of militarization was underway. Buddhist temples also participated in this process, using their wealth and influence to assemble monastic armies on occasion. This course examines Japanese history beginning approximately in the 10th century, at time when civilian high culture in the capital was approaching the height of its development. At the same time, the process of militarization of the countryside was beginning to undermine that

civilian court culture. The course ends in approximately the seventeenth century with the establishment of a military government under the Tokugawa shoguns. This development was ostensibly the peak of warrior influence, with the samurai (=warrior) class entrenched by law as the elite group within society. However, just as the warriors began their rise to power in the tenth century, by the end of the seventeenth century they were rapidly losing influence and prestige to wealthy merchants as the forces of the market economy spread throughout Japanese society. HIST 480 is a course in medieval Japanese history, broadly defined. Different instructors will emphasize different aspects of Japanese history and culture during this era. Approaches to teaching will also vary depending on the instructor. Class sessions can take the form of lectures or discussions. Assessment methods and learning activities may include debates, discussions, exams, research papers, book review papers, and other similar academic activities.

Cross-listed with: HIST 480

Bachelor of Arts: Humanities

International Cultures (IL)

ASIA 481: Modern Japan Since 1800

3 Credits

The transformation of Japan from a relatively isolated, agricultural nation into a highly industrialized world power. ASIA (HIST) 481 Modern Japan Since 1800 (3) (IL)(BA) This course meets the Bachelor of Arts degree requirements. In the late 19th century, Japan emerged from relative seclusion and grew, within the period of a few decades, into one of the world's major powers. Japan's remarkable transformation into an imperialist power ended suddenly with defeat by the Allied powers in August 1945. But the history of prewar and wartime Japanese nation-building and economic growth set the stage for postwar rebuilding. This course examines Japan's development as a powerful modern state, imperialist aggressor, defeated nation, economic power-house, and pop culture super-power. Specific content will vary according to individual instructor, but may include the structures of state and society in the early 19th century, the creation of the Meiji state (1868-1912), the successes and costs of the Meiji government's program of rapid modernization and Westernization, imperialist expansion, the road to war and defeat in World War II, the postwar U.S. occupation of Japan (1945-1952), Japan's resurgence as a global power, and some of the major challenges facing the Japanese state and society today. The goals of the class are not only to gain an understanding of the history of another country, but also to develop the skill of building such an understanding through primary and secondary sources, both written and visual. Students in this class will take on the role of historian themselves, thinking critically about assigned texts and making their own interpretations of their meanings. Through readings, discussions, and written work, students will enhance their ability to think critically and to express their ideas clearly in both speech and writing.

Prerequisite: HIST 172 , HIST 174 , or HIST 175

Cross-listed with: HIST 481

Bachelor of Arts: Humanities

International Cultures (IL)

ASIA 483: Middle China

3 Credits

The social, political, and cultural issues and developments from the 8th to 16th century. ASIA (HIST) 483 Middle China (3) (IL)(BA) This course meets the Bachelor of Arts degree requirements. This advanced

discussion-based course covers the social, political, and cultural issues and developments in Chinese history from roughly the eighth century through the sixteenth century. Specific content will vary according to instructor. Students will gain a strong foundation in Chinese history and culture and experience analyzing historical texts.

Prerequisite: HIST 174

Cross-listed with: HIST 483

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

ASIA 484Y: History of Chinese Thought

3 Credits

A study of the dynamic historical development of Chinese thought with its diverse expressions from antiquity to the present. ASIA (HIST) 484Y History of Chinese Thought (3) (IL)(BA) This course meets the Bachelor of Arts degree requirements. This course examines the historical developments of Chinese thought and its multifarious expressions from ancient times to the eighteenth century. It explores the unique Chinese ways and means of making sense of the world and the human condition by probing China's philosophical and religious traditions. It reveals the conscious life of the Chinese in matters moral, ethical, aesthetic and metaphysical. Moreover, by showing the unity, diversity, continuity and discontinuity in Chinese thought throughout the ages, this course debunks the popular "Orientalist" myth that Chinese culture had been a hermetically sealed and stagnant monolith until the modern era when Western influences became dominant.

Prerequisite: HIST 174 or HIST 175

Cross-listed with: HIST 484Y

Bachelor of Arts: Humanities

International Cultures (IL)

Writing Across the Curriculum

ASIA 485Y: China's Last Empire: The Qing Dynasty, 1644-1911

3 Credits

China from 1644 founding of Qing dynasty to 1911 fall; Chinese society and institutions, imperialism and China's internal diversity. ASIA (HIST) 485Y China's Last Empire: The Qing Dynasty, 1644-1911 (3) (IL)(BA) This course meets the Bachelor of Arts degree requirements. This course will examine the Qing dynasty, the last imperial dynasty to rule China, from the seventeenth to early twentieth centuries. More than doubling the size of the previous Ming dynasty, the empire also included people such as Tibetans, Muslims and Mongols who had never before considered themselves as "Chinese" but were now Qing subjects. The course will examine how Manchu ruling family, a non-Chinese people, outnumbered by the Chinese by about three hundred and fifty to one managed to conquer and rule China for nearly three hundred years. Tracing the political, social and cultural development of China starting with the foundation and consolidation of the Qing in 1644 and concluding with the collapse of the dynastic system in 1911, this course examines the role of the imperial system, internal rebellions, and the impact of Western colonialism on China. Considerable time will also be focused on China's ethnic, religious and cultural differences in order to allow a deeper understanding of major issues and themes in late imperial Chinese history. Finally, the theme of China's international relations in Asia and the world and China's shifting place in the world will be a prominent thread of the course. Through a blend of primary and secondary sources, students in this class will need to think critically, read

broadly and express their ideas clearly regarding the evolving challenges facing China's last empire.

Prerequisite: HIST 175 or HIST 300H

Cross-listed with: HIST 485Y

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

Writing Across the Curriculum

ASIA 486: China in Revolution

3 Credits

China from 1900 to the present; nationalism, cultural change; development of communism. ASIA (HIST) 486 China in Revolution (3) (IL) (BA) This course meets the Bachelor of Arts degree requirements. This course examines the social and cultural history of modern China from 1900 to the present. Major topics may include the formation of a modern national state, relationships between society and government, economic development and environmental crises, changes in kinship and family life, and changing relationships between elite and popular culture. The course uses excerpts from primary documents, fiction, and film to help students understand the modern Chinese historical experience.

Prerequisite: HIST 175 or HIST 300H

Cross-listed with: HIST 486

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

ASIA 487: Zen Buddhism

3 Credits

The development and current state of Zen Buddhist thought and practice.

Cross-listed with: RLST 483

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

ASIA 494: Research Project

1-12 Credits/Maximum of 999

Supervised student activities on research projects identified on an individual or small-group basis.

Honors

ASIA 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

ASIA 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

ASIA 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Astronomy and Astrophysics (ASTRO)

ASTRO 1: Astronomical Universe

3 Credits

ASTRO 1 Astronomical Universe (3) (GN)(BA) This course meets the Bachelor of Arts degree requirements. Students who have passed ASTRO 5, ASTRO 6, ASTRO 7N or ASTRO 10 may not take this course for credit. Overview of modern understanding of the astronomical universe. ASTRO 1 is an introductory course for non-science majors. It provides a broad introduction to Astronomy with qualitative descriptions of the dazzling and varied contents of the universe including planets, the Sun and other stars, exoplanets, red giants, white dwarfs, neutron stars, black holes, supernovae, galaxies, dark matter, and more. The course will explore how these objects form and change and interact, how the whole universe formed and changes (cosmology), and where Earth fits in the vast scheme of things. Students will learn how our relative place, orientation, and motion in space dictate our changing view of the sky (daily and yearly sky motions, phases of the moon) and conditions on Earth (arctic, tropics, and seasonal changes). Descriptions will build upon the basic physics of gravity, light, and atoms, and will be discussed in the context of the process of science as a robust and self-correcting way of learning and knowing that relies on making and testing predictions by gathering evidence. The goal of this course is to cover most of the areas of modern astronomy at a level which requires only basic mathematics.

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

ASTRO 5: The Sky and Planets

3 Credits

The development of our modern understanding of the visible sky and planetary systems. Students who have passed ASTRO 1, ASTRO 7N, or ASTRO 10 may not take this course for credit. ASTRO 5 The Sky and Planets (3) (GN) will introduce students to the wonders of the universe and help them to understand how the universe works through the laws of physics. During the semester, they will learn about the different observed motions of objects in our sky, how astronomical objects influence our concepts of time, the nature of light and spectra, how planetary systems are formed and comparative details about our solar system and other planetary systems. Many colorful images and movies of the solar system have been collected by robotic satellite missions like Voyagers I & II, the Magellan mission to Venus, Mars rovers and orbiters, the Galileo and Juno missions to Jupiter, the Cassini and Huygens missions to Saturn, and the New Horizons mission to Pluto and the Kuiper Belt. These and other images will be used to convey the excitement of discovery and nature of astronomical study of the Solar System to our students.

Prerequisite: Students who have passed ASTRO 001 or ASTRO 010 may not take this course.

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

ASTRO 6: Stars, Galaxies, and the Universe

3 Credits

ASTRO 6 Astronomical Universe (3) (GN) This course meets the Bachelor of Arts degree requirements. Students who have passed ASTRO 1, ASTRO 7N, or ASTRO 10 may not take this course for credit. Overview of modern understanding of stars, galaxies, and cosmology. ASTRO 6 is an introductory course for non-science majors. It provides a broad introduction to many areas of Astronomy with qualitative descriptions of the dazzling and varied contents of the universe including the Sun and other stars, red giants, white dwarfs, neutron stars, black holes, supernovae, galaxies, dark matter, and more. The course will explore how these objects form and change and interact, how the whole universe formed and changes (cosmology), and where Earth fits in the vast scheme of things. Descriptions will build upon the basic physics of gravity, light, and atoms, and will be discussed in the context of the process of science as a robust and self-correcting way of learning and knowing that relies on making and testing predictions by gathering evidence. The goal of this course is to cover most of the areas of modern astronomy at a level which requires only basic mathematics.

Prerequisite: Students who have passed ASTRO 001 and ASTRO 010 may not take this course.

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

ASTRO 7N: The Artistic Universe

3 Credits

ASTRO 7N (GA/GN) is both an introductory course in astronomy for non-science majors and a creative space for those with science backgrounds interested in visual arts; it provides students the opportunity to demonstrate understanding and develop a personal connection to the subject by designing four art projects. Students will learn the broad concepts of astronomy by playing an immersive video game, which allows them to 1) explore seasons, phases of the Moon, light, gravity, and telescopes from a virtual colony on Mars; 2) fly from planet to planet in the Solar System and learn about their properties and formation; 3) visit the Sun and other stars, learn how they produce energy, and about their life cycles; 4) fly through the cosmos and construct their own universe, particle by particle. Students will also learn about the relationships and exchanges between arts and sciences, and explore inspiration and perspective on these topics by designing themed art projects using traditional and digital media. These projects include assembling a photo-journal of astronomically-relevant subjects, constructing their own video-game-like scene, interpreting data to inform a plausible depiction of an alien world, and producing three-color images using methods like those employed by astronomers to compose and display Hubble Space Telescope images. Students who have passed ASTRO 1, ASTRO 5, ASTRO 6 or ASTRO 10 may not take this course for credit.

General Education: Arts (GA)
 General Education: Natural Sciences (GN)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking

ASTRO 10: Elementary Astronomy

2 Credits

ASTRO 10 Elementary Astronomy) (GN) (BA) This course meets the Bachelor of Arts degree requirements. Students who have passed ASTRO 1, ASTRO 5, ASTRO 6, or ASTRO 7N may not take this course for credit. Students may not receive General Education credit for ASTRO 10 unless they also take ASTRO 11. Overview of modern understanding of the astronomical universe. ASTRO 10 is an introductory course for non-science majors. It provides a broad introduction to Astronomy with qualitative descriptions of the dazzling and varied contents of the universe including planets, the Sun and other stars, exoplanets, red giants, white dwarfs, neutron stars, black holes, supernovae, galaxies, dark matter, and more. The course will explore how these objects form and change and interact, how the whole whole universe formed and changes (cosmology), and where Earth fits in the vast scheme of things. Students will learn how our relative place, orientation, and motion in space dictate our changing view of the sky (daily and yearly sky motions, phases of the moon) and conditions on Earth (arctic, tropics, and seasonal changes). Descriptions will build upon the basic physics of gravity, light, and atoms, and will be discussed in the context of the process of science as a robust and self-correcting way of learning and knowing that relies on making and testing predictions by gathering evidence. The goal of this course is to cover most of the areas of modern astronomy at a level which requires only basic mathematics.

Bachelor of Arts: Natural Sciences
 General Education: Natural Sciences (GN)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

ASTRO 11: Elementary Astronomy Laboratory

1 Credits

Selected experiments and explorations to illustrate major astronomical principles and techniques. Telescopic observations of planets, stars and nebulae. ASTRO 11 Elementary Astronomy Laboratory (1) (GN)(BA) This course meets the Bachelor of Arts degree requirements. ASTRO 11 is the 1 credit laboratory component of this overview of astronomy and is intended to be taken in conjunction with ASTRO 10. It covers material similar to the lecture component in ASTRO 10, but the selected topics are covered in more depth and are focused on active learning components. Weekly two-hour labs may include investigating the habitable zone of a variety of stars, investigating the phases of the moon, analysis of the properties of stars in a color-magnitude diagram, analysis of the colorful spectra of different chemical elements, and exploration of one of the deepest images of space ever obtained. In addition, students will complete a semester nighttime observing project that typically involves learning some constellations, tracing phases of the moon, and sketching images seen through telescopes or binoculars at the student observatory.

Enforced Prerequisite at Enrollment: or concurrent: ASTRO 1 or ASTRO 10
 Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Crit and Analytical Think

ASTRO 19N: Being in the Universe

3 Credits

"Being in the Universe" considers three fundamental questions of human existence from both humanistic and scientific perspectives: (1) What is the nature of our universe, and to what extent are creatures like ourselves a predictable consequence of it? (2) What is the nature of time, and what does it mean to be a conscious being living our lives through time? (3) What would it mean for humans to be alone in the Galaxy or the universe, or alternatively, not alone? "Being in the Universe" is an integrative GH+GN GenEd course. The course's three major units cover the following topics: (1) We discuss cosmology and religion as human enterprises, as well as the history of science; (2) We study the basic scientific theory of the Big Bang universe, and consider its implications for human life; (3) We address contemporary theories of the multiverse from scientific, philosophical, and literary perspectives; (4) We consider the thermodynamic and relativistic theories of time, and the basic philosophical approaches to time, and discuss the implications of these for our ordinary human experience of the past, present, and future; (5) We discuss the history of life in the universe, the possibility of life on other planets, and the social, religious, and imaginative reactions to those possibilities in literature and film.

Cross-listed with: CMLIT 19N
 Bachelor of Arts: Humanities
 Bachelor of Arts: Natural Sciences
 General Education: Humanities (GH)
 General Education: Natural Sciences (GN)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

ASTRO 20: First-Year Astronomy Seminar

2 Credits

Introduction to the study of modern astronomy through discussions, activities, and writing.

First-Year Seminar

ASTRO 21: Introduction to Research in Astronomy

2 Credits

The course is designed to provide first year undergraduate students in both the ASTRO and PASTR majors with necessary tools and techniques to perform research. Students will practice a variety of techniques on authentic astronomical data, which might include light curves from the Kepler mission, galaxy and stellar spectra from the Sloan Digital Sky Survey, or pulsar data from the Green Bank or Arecibo telescopes. An emphasis will be placed on using common tools for observational astronomy, such as viewing astronomical FITS images in SAOimage. Students will be introduced to the common programming languages and environments used by astronomers at the time the course is offered, which currently includes Python and IDL. Students will be given experience in calculating statistical information about a set of astronomical data using the R programming language and its built-in

tools. Students will make plots to illustrate a pattern in their data using the tools in Python, IDL, or R, for example.

ASTRO 97: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

ASTRO 116: Introduction to Astronomy for Educators

3 Credits

This course is designed to engage students with the big ideas of astronomy in ways that will help them understand both the content of astronomy, as well as the practices of science as carried out by astronomers. The course is designed for prospective elementary and middle school teachers (PK-4 and 4-8 majors), although it is available to other non-science majors. Throughout the course, students engage in a series of investigations that lead towards the development of evidence-based explanations for patterns observed in the current Solar System. Investigations will include computer-based simulations, night-sky observations, and use of simple laboratory equipment. These investigations lead students towards an understanding of how observations of the current Solar System can be explained by the model of its formation. The course is designed to build from students' own personal observations of the day and night sky towards developing increasingly sophisticated explanations for those phenomena and beyond. Conducting these astronomy investigations will help students understand fundamental aspects of physics, thus broadly preparing them for future science teaching in these domains. The course models evidence-based pedagogy, thus helping to prepare students for future teaching careers as they learn effective strategies for teaching science.

Cross-listed with: SCIED 116

ASTRO 120: The Big Bang Universe

3 Credits

Exploration of Cosmology, Birth, and Ultimate Fate of the Universe; Origin of Galaxies, Quasars, and Dark Matter. For non-science majors ASTRO 120 The Big Bang Universe (3) (GN)(BA) This course meets the Bachelor of Arts degree requirements. Astronomical observations made during the last 70 years, combined with mathematical physical theory (Einstein's General Relativity), has led to a dramatic new view of the history of the Universe. Ten to twenty billion years ago, all the material that is now contained in stars, planets, and galaxies was then compressed into a region, smaller than a pinhead, and so hot that atoms could not survive. This fiery cauldron cooled and expanded, forming hydrogen and helium, and eventually all the materials and structures that we know today. This course will discuss the evidence, theories and controversies of this new scientific cosmology, commonly known as 'the Big Bang'. This class is designed for the non-science students who, after learning the fundamentals of astronomy in ASTRO 1(GN), ASTRO 5 (GN) or ASTRO 10 (GN), want to pursue further the questions of cosmology. The great success of the Big Bang theory in explaining the expansion of the Universe, the synthesis of the chemical elements, and the relic radiation leftover from the first moments are reviewed. Some of the questions discussed are still debated in the scientific community. For example: Why do some galaxies have stunning spiral structures, while others are relatively featureless ellipticals? What is the "dark matter" that may have emerged from the Big Bang, and seems to make a larger

contribution to the mass of the universe than all of the material we are familiar with? What can the most distant and oldest objects we know of, the quasars, tell us about how galaxies formed? In presenting the development of this subject, the empirical and conceptual methods of modern physical science are conveyed. Students are assigned problems that exercise the use of elementary mathematics and physics to address real issues, and will confront discussions of interpretation and meaning in essays. A final project allows them to explore individual interests.

Enforced Prerequisite at Enrollment: ASTRO 1 or ASTRO 6 or ASTRO 10

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

ASTRO 130: Black Holes in the Universe

3 Credits

The predicted properties of black holes and the astronomical evidence for their existence are investigated in the context of modern ideas about space, time, and gravity. ASTRO 130 Black Holes in the Universe (3) (GN) (BA) This course meets the Bachelor of Arts degree requirements. Black Holes in the Universe introduces students to the predicted properties of black holes and the astronomical evidence for their existence. Modern ideas about the nature of space, time, and gravity are also covered. The key topics discussed in the course include Newton's and Einstein's theories of gravity, predicted properties of black holes, stars and their fates, how to detect a black hole, gamma-ray bursts, supermassive black holes in galactic nuclei, active galaxies, black hole spin, gravitational waves, Hawking radiation, singularities, and black hole child universes. The course is intended to be an attractive choice for students who are interested in enriching and broadening their understanding of modern physical science. The course is intended for students who have completed and enjoyed the one-semester survey of modern astronomy, ASTRO 1, 6, or 10. It has an interdisciplinary flavor, combining basic physical concepts, astronomical observations, and philosophical ideas to present a complete picture of the current understanding of black holes. Time is also devoted to provide historical insight into the development of our ideas about gravity from Kepler and Newton through Einstein and modern ideas about quantum gravity. Students use mathematics at the level of high school algebra.

Enforced Prerequisite at Enrollment: ASTRO 1 or ASTRO 6 or ASTRO 10

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

ASTRO 140: Life in the Universe

3 Credits

The problem of the existence of life beyond Earth is investigated, drawing from recent research in astronomy and other fields. ASTRO 140 Life in the Universe (3) (GN)(BA) This course meets the Bachelor of Arts degree requirements. The possibility of life beyond Earth is one of the great unsolved puzzles of human thought and has been debated for millennia. An answer would fundamentally change the relationship between the human race to the rest of the Universe. Advances in modern physics and astrophysics have dramatically changed and enriched the understanding of our cosmic surroundings, but have not yet produced an unambiguous

evidence concerning the extraterrestrial life. Yet, significant progress has been made on certain aspects of the problem. Recent observations of protoplanetary disks around young stars, planets around solar-type stars and a rapidly spinning pulsar (a Penn State discovery), and pervasive organic molecules throughout the Galaxy give tantalizing, albeit indirect, hints in favor of the existence of nonterrestrial life. "Life in the Universe" is envisioned to be an attractive choice for students who are interested in enriching and broadening their understanding of modern science. The course is highly interdisciplinary, combining evidence from several fields of science to describe our chances to encounter life beyond Earth and the Solar System. Selecting this course would be a logical choice for students who completed and enjoyed ASTRO 1 (GN), ASTRO 5 (GN), or ASTRO 10 (GN). The students are expected to reach the following goals from this course: - learn to appreciate limitations of human experience and a role of the interdisciplinary approach in solving scientific problems - gain understanding of a relationship between the physical Earth, its biosphere, and the rest of the observable Universe - examine in some detail a contemporary problem of scientific investigation: the astrophysical evidence for planets around stars other than the Sun - assess the scientific significance of searches for extraterrestrial life including technological civilizations. Lectures systematically cover the topics listed in the course outline at a level appropriate for non-science students, although students from the Planetary Science & Astronomy major, as well as other science and engineering majors, can take the course. While general understanding of astronomy from the prerequisite course is expected, the necessary physical and astrophysical concepts are reintroduced to assure a logical and coherent flow of information throughout the course. Videos are used to illustrate a number of topics, such as the search for extraterrestrial intelligence, physical conditions on planets of the Solar System, the detection of planets around a neutron star, and to evaluate the scientific content of science fiction movies.

Enforced Prerequisite at Enrollment: ASTRO 1 or ASTRO 5 or ASTRO 10

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

ASTRO 141N: Film and Extraterrestrial Life: Science Fact or Fiction?

3 Credits

The search for life beyond planet Earth has been the subject of much interdisciplinary scientific search and has stimulated human imagination. Scientific discoveries of exoplanets (outside of our solar system), of extremophiles (life which can survive in extreme conditions) and the discoveries of conditions on other bodies in our solar system which might be able to support life, has provided progress in answering the question of the existence of extraterrestrial life. Not only have a plethora of fictional work appeared in the film media to depict scenarios of life beyond Earth, but there has also been an abundance of video media created to present the scientific ideas to the wider audience beyond the scientific community. This course intends a critical evaluation of both nonfiction and fictional media works in the educational dissemination of scientific ideas and the effective presentation of concepts. We will analyze techniques in photography, mise en scene, editing, sound, dramatization and writing as they are applied to topics in astrobiology.

Cross-listed with: COMM 151N

General Education: Arts (GA)

General Education: Natural Sciences (GN)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

ASTRO 197G: Special Topics - GenEd

1-9 Credits/Maximum of 9

Formal courses given on a topical or special interest subject offered infrequently; several different topics may be taught in one year or semester. This Special Topics is a GenEd course.

ASTRO 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

ASTRO 237W: Astronomy Communications

3 Credits

The class is designed to build skills in communication modes that are used every day in academic and non-academic astronomy, industry, and related natural sciences: technical writing and reading, presenting to different audiences, using professional authoring tools and software, designing posters and slides, and creating and maintaining a strong professional presence online. There will be a strong focus on improving technical writing skills, practiced by submitting small-but-regular assignments inside and outside of class. By the end of this course, students will have gained practical experience producing many professional writing products with extensive feedback and opportunities for growth as a scientific writer. This course will satisfy the "Writing Across the Curriculum" requirement.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Writing Across the Curriculum

ASTRO 291: Astronomical Methods and the Solar System

3 Credits

Physical processes and observational techniques in astronomical systems, characteristics of the sun, planets, and moons. ASTRO 291 Astronomical Methods and the Solar System (3) (GN)(BA) This course meets the Bachelor of Arts degree requirements. ASTRO 291 / ASTRO 292 is a two-semester overview of our current knowledge of astronomy. They are designed for students with a solid grounding in math and physics who wish to obtain a more quantitative understanding of the universe than that presented in ASTRO 1 or the 100-level ASTRO series. These courses are required for students majoring in astronomy, generally taken in the sophomore year. ASTRO 291 starts with the appearance of the sky to the naked eye and the historical development of astronomy. It then turns to an introduction to physical processes relevant to the interpretation of astronomical findings: Newtonian gravity and its applications in celestial mechanics, electromagnetic radiation, and a simplified understanding of atoms. The principal tools of astronomy, telescopes and their instrumentation are described. The course proceeds with the survey of astronomy with the constituents of the solar system: sun, planets, natural satellites, planetary rings, asteroids, and comets.

Physical processes are integrated with empirical findings to provide a profound and quantitative understanding of the phenomena; e.g. the role of angular momentum and tidal forces in establishing the orbits and spins of solar system bodies. After the development of these concepts, a survey of the properties of the constituents of the Solar System (planets, moons, rings, asteroids, comets, meteors, and the Sun) is conducted.

Enforced Prerequisite at Enrollment: PHYS 211

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

ASTRO 292: Astronomy of the Distant Universe

3 Credits

Observed properties and astrophysical understanding of stars, stellar evolution, galaxies, the large-scale universe, and cosmology. ASTRO 292 ASTRO 292 Astronomy of the Distant Universe (3) (GN)(BA) This course meets the Bachelor of Arts degree requirements. ASTRO 291/292 is a two-semester overview of our current knowledge of astronomy. They are designed for students with a solid grounding in math and physics who wish to obtain a more quantitative understanding of the universe than that presented in ASTRO 001 or the 100-level ASTRO series. These courses are required for students majoring in astronomy, generally taken in the sophomore year. ASTRO 292 continues the survey started in ASTRO 291. The first half of the course is devoted to stellar astronomy and astrophysics. The class follows the successful application of physics to astronomical data in the 19th -20th centuries to understand distances, masses and energy sources of stars. The formation, structure and evolution of stars is treated in the context of physical processes developed in ASTRO 291. The class studies the death of stars, including spectacular phenomena such as supernova explosions, pulsars and black holes, solutions to difficult problem of establishing distance scales (stellar, galactic, intergalactic) are presented. In the second half of the course, the students examine the Universe on progressive larger scales: our Milky Way galaxy, other galaxies, and massive black holes in galactic cores (e.g. quasars). Exotic phenomena such as gravitational lenses, gamma-ray bursts and cosmic rays are investigated. Finally, the class delves into the remarkable findings of modern cosmology: Hubble's discovery of the expansion of the Universe, the discovery of the cosmic microwave background and consequent dominance of Big Bang cosmology in the context of Newtonian and Einsteinian theories of gravity. Cosmological evolution is studied; e.g. formation of light elements during the first few minutes, and the growth of large-scale structure that continues to the present. Unsolved problems faced by today's scientists are emphasized.

Enforced Prerequisite at Enrollment: ASTRO 291

Bachelor of Arts: Natural Sciences

ASTRO 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

ASTRO 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

ASTRO 320: Observational Astronomy Laboratory

3 Credits

Basic observational astronomy techniques introduced through observational exercises, lab experiments, and lectures on relevant statistical techniques. ASTRO 320 Observational Astronomy Laboratory (3) (GN) ASTRO 320 will provide students with practical experience in basic observational and laboratory aspects of astronomical data collection and analysis, including an introduction to associated statistical concepts. Observational techniques will be introduced through an observing project using a telescope with a CCD imaging camera. Lectures will introduce fundamental principles including Poisson and Gaussian statistics, measurement precision, propagation of errors, and systematic uncertainties. These principles will be put into practice in the observing project and with laboratory experiments investigating the properties of light and cosmic rays. Experiments include: a cosmic ray telescope; a Michelson interferometer; a photodiode and monochromator; laser interference, diffraction and refraction; fluorescent gases; and a diffraction grating spectrometer.

Enforced Prerequisite at Enrollment: ASTRO 291

General Education: Natural Sciences (GN)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

ASTRO 401: Fundamentals of Planetary Science and Astronomy

4 Credits

Overview of the techniques used and results from studies of the Solar System, stars, and galaxies. ASTRO 401 Fundamentals of Planetary Science and Astronomy (3) This course will focus in core content areas in planetary science and astronomy. Students will explore the fundamentals in robotic exploration of the Solar System, how astronomers map and navigate the night sky, our understanding of the nature and evolution of stars, and the nature and evolution of galaxies. Students will engage with real data from Solar System missions as well as ground-based and space-based telescopes. Through the use of many databases and data archives from missions and observatories, the students will become familiar with the census of astronomical objects in various categories. A particular emphasis will be placed on examples of qualitative and quantitative problem solving in these content areas. In addition, students will explore how scientists communicate their results to the public, and they will get hands-on experience, such as planning and executing a planetarium show.

Enforced Prerequisite at Enrollment: (ASTRO 1 or ASTRO 5 or ASTRO 6 or ASTRO 10) and MATH 140.

ASTRO 402W: Astronomical Telescopes, Techniques, and Data Analysis

3 Credits

Properties and use of optical telescopes, imaging and spectroscopy, multi-wavelength techniques, data analysis and statistics, practical research methods. ASTRO 402 Astronomical Telescopes, Techniques,

and Data Analysis (3) This course will provide practical experience and understanding of the telescopes and techniques by which astronomers obtain data and conduct research. The study of telescopes will include optical, infrared, radio, ultraviolet, X-ray, and gamma ray observations, and students will learn to set up and use optical telescopes. In-depth coverage of the instruments used for imaging and spectroscopic observations of a variety of astronomical objects will be provided. Applications will include topics in planets, stars, galaxies, and cosmology. Detailed examples of data analysis will be given, including the relevant statistical techniques. Finally, the process by which research in astronomy is conducted will be reviewed, from proposing observations, to obtaining them, to analyzing and interpreting them, to writing up the results. This course is a requirement for students in the Planetary Science and Astronomy major and minor. It may be taken by any students with the needed pre-requisites, but cannot be counted towards the required 400 level courses for the Astronomy and Astrophysics major or minor.

Writing Across the Curriculum

ASTRO 410: Computational Astrophysics

3 Credits

Applications of numerical methods and computer programming to astrophysics, including stellar physics and cosmology.

Enforced Prerequisite at Enrollment: (CMPSC 201 or CMPSC 121) and PHYS 212 and PHYS 213 and PHYS 214

ASTRO 414: Stellar Structure and Evolution

3 Credits

Theory of Stellar structure and evolution including energy generation and transport and an examination of stellar models. ASTRO 414 Stellar Structure and Evolution (3) ASTRO 414 covers the theory of stellar structure and evolution at an introductory level. It includes the basic physical processes that influence the structure of a star, such as energy generation in stellar cores, the transport of energy to the surface via photon diffusion and convection, equilibrium conditions, etc. It examines realistic stellar models as they apply to stars of different masses, for example, polytropes and other approximations. The treatment of stellar evolution includes gravitational collapse, stable stellar configurations on the main sequence, and the fast-paced late stages of evolution, leading up to the formation of compact objects. Realistic stellar models will be employed to illustrate the structures of different types of stars and the influence of various physical processes on these models.

Enforced Prerequisite at Enrollment: ASTRO 292 and MATH 230 and PHYS 212 and PHYS 213 and PHYS 214 and PHYS 237

ASTRO 415: Introduction to Astrostatistics

3 Credits

Astronomical data are being produced at an unprecedented rate with large-scale telescopes, and thus data analytic skills to extract meaningful information from such massive astronomical datasets are important skills for astronomers. This course is designed to provide juniors or seniors in astronomy, who have no or little background in statistics, both theoretical background and practical experience on astronomical data analyses. For this purpose, the first half of the course will cover fundamental underpinnings of probability and statistical inference, and for the other half of the class, various statistical and machine learning

tools will be introduced with hands-on coding experiences using a modern programming language, such as R.

Enforced Prerequisite at Enrollment: MATH 230 and ASTRO 292
Recommended Preparation: (CMPSC 121 or CMPSC 131 or CMPSC 201 or STAT 184)

ASTRO 416: Data Science Applications to Astronomy

3 Credits

This course is designed to increase students' data acumen and experience in how building data science skills can benefit astronomy & astrophysics research. Students analyze data from astronomical surveys to detect and characterize astronomical objects and astronomical populations. Students will build practical data science skills (e.g., querying astronomical databases, efficient approaches for data storage and manipulation, exploratory and explanatory data analysis, Bayesian modeling workflows, effective data visualization, and reproducible research practices). Students will also gain a basic familiarity with core data science terms and concepts, so they can effectively communicate with data scientists, whether working in astronomy or in industry. Astro 478 is designed to be complementary to Astro 410, Astro 415, and Astro 451.

Enforced Prerequisite at Enrollment: (ASTRO 291 or (ASTRO 401 and ASTRO 402W)) and (ASTRO 21 or CMPSC 121 or CMPSC 131 or CMPSC 201) and (MATH 230 or MATH 231) and (PHYS 211)

ASTRO 420W: Planets and Planetary System Formation

3 Credits

Solar system properties, star formation, protoplanetary disks and planet formation, solar system model, extrasolar planets, and astrobiology. ASTRO 420W Planets and Planetary System Formation (3) The course explores the wide variety of physical and chemical processes that govern the motions and properties of planets. Observations of the planets, moons, asteroids, comets and planetary rings in our Solar System are described. The properties of extrasolar planets are also emphasized. The process of planetary formation is discussed in the context of the solar system and in the context of extrasolar planets. The prospects of life and the effect of life on such planets will also be discussed. It will be taken by roughly half of the juniors and seniors majoring in Astronomy and Astrophysics (about 10 people). The course will include writing papers on current issues of debate in the areas of solar system and extrasolar planets and will satisfy the "Writing Across the Curriculum" requirement.

Enforced Prerequisite at Enrollment: ASTRO 292

Writing Across the Curriculum

ASTRO 440: Introduction to Astrophysics

3 Credits

Theoretical investigation of physical processes in astronomical objects and systems; modern physical interpretation of astronomical phenomena.

Enforced Prerequisite at Enrollment: MATH 230 and PHYS 237

ASTRO 442: Astrophysical Fluid Dynamics

3 Credits

This course covers the equations of (magneto) hydrodynamics and applications to the modeling and interpretation of astronomical observations. Applications include star formation, stellar winds, waves in stratified and magnetized plasma, instabilities, shocks, blast waves, and accretion disks.

Enforced Prerequisite at Enrollment: PHYS 212 and PHYS 213 and PHYS 214 and (MATH 230 or MATH 231) and (MATH 250 or MATH 251) and (CMPSC 101 or CMPSC 121 or CMPSC 131 or CMPSC 200 or CMPSC 201)

ASTRO 451: Astronomical Techniques

3 Credits

Practical methods of modern observational astronomy, detectors, filters, instrumentation for both ground-based and space observations, and data analysis. ASTRO 451 Astronomical Techniques (3)ASTRO 451 will introduce students to the techniques and technologies for modern observational astronomy, emphasizing the development of practical skills as well as understanding through computer-based investigations integrated with traditional lecture content. Beginning with a summary of probability theory, the students will be introduced to standard techniques of statistical analysis including hypothesis testing and the characterization of uncertainties. Subsequent lectures and computer exercises will discuss the physics and design of astronomical detectors, the principles of telescope and spectroscope design, and the data analysis methods used in processing astronomical datasets. Significant emphasis will be placed on estimation of signal-to-noise ratios for various observing scenarios. The effects of the Earth's atmosphere, interstellar matter, and the expanding Universe on the propagation of astronomical signals will also be discussed.

Enforced Prerequisite at Enrollment: PHYS 212 and PHYS 213 and PHYS 214

ASTRO 475W: Stars and Galaxies

3 Credits

Astronomical studies concerning the distribution and evolution of stars and gas in our and other galaxies.

Enforced Prerequisite at Enrollment: ASTRO 292
Writing Across the Curriculum

ASTRO 476: The Search for Extraterrestrial Intelligence

3 Credits

The Search for Extraterrestrial Intelligence is the hunt for technosignatures: signs of non-human technology beyond Earth. The search has many forms, with its targets spanning scales from small objects in the Solar System to galaxy-spanning industry, and is conducted in many ways, from the use of radio telescopes searching for communicative signals to infrared space telescopes searching for Dyson spheres. This course will offer a survey of the field as a subfield of astrobiology, and as an interdisciplinary endeavor that includes biology, astrophysics, game theory, anthropology, law, and many other fields. It begins with a history of the field and its jargon, then continues with a study of the theory of the field, including the Drake Equation and Fermi Paradox, and then the practice of the field, including a survey of the kinds

of technosignatures we might search for. It concludes with a study of the social and ethical aspects of the field, and special topics that will vary by semester. The course includes a field trip to Green Bank Observatory to conduct real radio SETI observations and learn the history of SETI at NRAO.

Enforced Prerequisite at Enrollment: ASTRO 291 or ASTRO 401

ASTRO 480: Galaxies and Cosmology

3 Credits

Fundamental issues in extragalactic astronomy and modern cosmology, including the contents of the Universe, its origin and fate, and formation and evolution of cosmic structures. Topics covered include the basic properties of spiral, elliptical, and irregular galaxies and their quantitative classification, the extragalactic distance scale, the photometric and chemical evolution of galaxies, the physics and evolution of galaxy clusters, active galactic nuclei, the formation of large-scale structure, the physics of the early universe, and the basic equations of cosmology.

Enforced Prerequisite at Enrollment: ASTRO 292 and PHYS 212 and PHYS 213 and PHYS 214

ASTRO 485: Introduction to High-Energy Astronomy

3 Credits

The study of black holes, neutron stars, white dwarfs, supernova remnants, and extragalactic objects through x-ray and gamma ray observations.

Enforced Prerequisite at Enrollment: PHYS 237

ASTRO 494H: Honors Thesis

1-6 Credits/Maximum of 6

Investigation of an original research problem, including a literature search. Preparation of a formal thesis is optional

Honors

ASTRO 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

ASTRO 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

ASTRO 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Athletic Training (ATHTR)

ATHTR 135: Introduction to Athletic Training

3 Credits

Introduction to Athletic Training provides an overview of the field of athletic training exploring the breadth of athletic training terminology, issues, and injuries. After completing the course, the students will be able to describe the roles of the sports medicine team, understand the legal considerations for the athletic trainer as a health care provider, and identify the basics of physical conditioning and nutrition in reference to injury prevention. Students will be able to describe an emergency action plan for injuries, and environmental conditions. Students will be able to identify basic use of therapeutic modalities and principles of therapeutic exercise programs. Students will gain an understanding of acute vs. chronic injury conditions and be able to describe the related anatomy, etiologies, pathologies, signs and symptoms, and general treatment and management for injuries of the foot, ankle, lower leg, knee, hip/groin, shoulder, elbow, wrist, hand, cervical spine, and head. Rationale and demonstrations for a variety of taping techniques are included to address upper and lower extremity injuries. Students are also provided an overview of general medical conditions that may occur in the athletic arena.

Cross-listed with: KINES 135

ATHTR 202: Functional Human Anatomy

3 Credits

This course is designed to provide students a didactic and laboratory experience in functional human anatomy. Upon course completion, students should be able to comprehend and apply standard anatomical nomenclature pertaining to human movement science; comprehend structure and function of the musculoskeletal, systems pertaining to human movements science; comprehend the classification, structure and function of human anatomical articulations (joints) pertaining to human movement science; and comprehend the classification, structure, and function of human biological tissues (epithelium, connective, muscle and nervous) pertaining to human movement science. In the laboratory portion of the course students will learn to identify bone and capsuloligamentous tissues as well as their respective landmarks pertaining to human movement science; identify origins, insertions, actions and innervations of skeletal muscles pertaining to human movement science; and identify biomechanical characteristics and neuromuscular activity of human anatomy during the execution of active, passive as well as resistive movements. The laboratory portion of this course will use three-dimensional bone models, joint models, ligament models and cadaveric models to apply concepts covered in lecture.

Enforced Prerequisite at Enrollment: 2nd Semester Standing in HDD or KINES major or KINES minor or ATHTR major

Cross-listed with: KINES 202

ATHTR 231: Foundations of Clinical Practice I

3 Credits

This course is designed to introduce students to basic skills required for the clinical practice of athletic training. The course will teach introductory content and skills related to injury and illness prevention and management. Specific topics include preventing environmental injuries and illnesses, taping and wrapping techniques, protective equipment, pre-

participation physical examinations, preparing for emergencies in the athletic setting, and concepts of basic athletic injury management. The course requires both lecture and practical lab experiences each week. Demonstration of practical skills specific to the clinical proficiency are required to sit for the Board of Certification exam.

Enforced Prerequisite at Enrollment: Completion of the Athletic Training Pre-Professional Phase Application and Accompanying Observational Experience

ATHTR 233: Acute Care and Emergency Response

3 Credits

This course prepares students pursuing the athletic training major in the Department of Kinesiology with the knowledge and skills to respond to medical emergencies. Basic skills including rescue breathing, cardiopulmonary resuscitation for health care providers, and first aid management of injury and illness emergencies are developed. These skills are supplemented with content related to blood borne pathogens and OSHA regulations needed for personal safety and effective management of athletic training services, the causes and prevention of sudden cardiac death in athletics, and training in the use of automated external defibrillators. The second part of the course focuses on the secondary survey and evaluation and management of central nervous system, musculoskeletal injuries, and shock. The final part of the course addresses conditions of the thorax, abdomen, and musculoskeletal system, environmental hazards encountered in athletics; and drug and alcohol overdoses and poisoning. The course will include the opportunity for professional certification in first aid and cardiopulmonary resuscitation. The course includes both lab and lecture components each week. CPR certification (written and practical), blood borne pathogens certification (practical), and demonstration of practical skills specific to the clinical proficiency required to sit for the Board of Certification exam are required in this course.

Enforced Prerequisite at Enrollment: Completion of Pre-Professional Phase Application and Accompanying Observational Experience

ATHTR 235: Foundations of Clinical Practice II

3 Credits

Athletic Training Clinical Practice II provides instruction in supervised practice of the basic skills required in the practice of athletic training. Topics include documentation of medical records, postural screening, assessment and improvement of flexibility, assessment, and improvement of strength, use of functional rehabilitation protocols, use of common therapeutic modalities, and description of the use of medications in sports medicine. Students are introduced to the foundational components of evidence-based practice and methods for translation into clinical practice. Students practice skills specific to the clinical proficiencies required to sit for the Board of Certification exam. This course provides the student with the opportunity to learn and practice clinical athletic training skills before beginning practicum experiences.

Enforced Prerequisite at Enrollment: ATHTR 231 and ATHTR 233, Concurrent Courses: ATHTR 334

ATHTR 334: Examination of Injuries to the Lower Extremity, and Spine

3 Credits

This course will focus on: 1) the etiology of athletic injuries to the lower extremity and lumbosacral spine, and 2) evaluation techniques for assessing athletic injuries to the lower extremity and lumbosacral spine. The objectives of this course include: understanding the mechanisms of athletic injuries to the lower body; demonstrating proficiency in the objective and subjective assessment procedures of lower body athletic injuries; recognizing orthopedic, neurovascular, and medical emergencies associated with lower body athletic injuries; recognizing the normal and abnormal mechanics of the lumbosacral spine and lower extremity including the walking and running gait cycles; and integration of injury mechanisms into the treatment and rehabilitation plan of care for the injured physically-active person. This course includes lectures as well as hands-on laboratory sessions.

Enforced Prerequisite at Enrollment: ATHTR 231 and ATHTR 233,
Concurrent Courses: ATHTR 235

ATHTR 335: Examination of Injuries to the Head, Torso, and Upper Extremity

3 Credits

This course will focus on: 1) the etiology of athletic injuries to the upper extremity, head, cervical spine, thorax, and abdomen, 2) evaluation techniques for assessing athletic injuries to the upper extremity, head, cervical spine, thorax, and abdomen, and 3) the application of evidence-based practice principles to be able to answer focused clinical questions. The objectives of this course include: understanding the mechanisms of athletic injuries to the upper body; demonstrating proficiency in the objective and subjective assessment procedures of upper body athletic injuries; recognizing orthopedic, neurovascular, and medical emergencies associated with upper body athletic injuries; recognizing the normal and abnormal mechanics of the cervical spine and upper extremity including the overhand throwing motion; and integration of injury mechanisms into the treatment and rehabilitation plan of care for the injured physically-active person. This course includes lectures as well as hands-on laboratory sessions.

Enforced Prerequisite at Enrollment: ATHTR 235 and ATHTR 334

ATHTR 336: General Medical Principles of Clinical Practice

3 Credits

This course is designed to instruct students in general medicine content and skills related to the clinical practice of athletic training. Specific topics include pathology; pharmacology; physical examination of head, ears, eyes, nose, throat, pulmonary, cardiovascular, gastrointestinal, renal, genitourinary, and dermatological conditions commonly seen in physically-active populations; exertional heat illness; diabetes and exercise; female athlete triad; injuries in populations with physical disabilities; and psychosocial aspects of patient-provider relationships. Several lectures will be made by physicians who specialize in sports medicine. Lab activities will include the instruction, practice, and assessment of psychomotor skills related to the course content. The course will include a balance of both lecture and laboratory activities. The course includes a balance of lecture-based and laboratory activities. Students practice skills specific to the clinical proficiencies required to sit for the Board of Certification exam.

Enforced Prerequisite at Enrollment: ATHTR 335 and ATHTR 395A

ATHTR 395A: Clinical Internship I

3 Credits/Maximum of 3

This course is designed to give students practical experiences in a variety of clinical settings in which certified athletic trainers are commonly employed. Students will participate in clinical education experiences under the supervision of certified athletic trainers in a variety of clinical settings. These settings include but are not limited to: intramural sports, club sports, outpatient sports medicine clinics, high schools, and intercollegiate athletic training facilities. In addition to clinical experiences there is also a didactic portion of this course which emphasizes students gaining proficiency in important clinical skills. The objectives of this course include demonstrating proficiency in: the evaluation of a unconscious person; the recognition of cerebral concussion and closed head injury; the recognition of acute injury to the cervical spine; the recognition of fractures and dislocations; the assessment of neurovascular function; the recognition, treatment, and prevention of lower extremity injuries, heat illnesses including heat cramps, heat exhaustion, and heat stroke; the use of splints, stretchers and spine boards in the management of injured persons; the application of taping and wrapping techniques commonly used in the prevention and management of common athletic injuries; and in obtaining a medical history.

Enforced Prerequisite at Enrollment: ATHTR 235 and ATHTR 334

ATHTR 434: Rehabilitation of Injuries to the Lower Extremities, and Spine

3 Credits

Rehabilitation of Injuries to the Lower Extremities is a 3-credit course offered each fall semester with an enrollment limit of 40 students. The course provides students who have been accepted into the undergraduate athletic training option in the Department of Kinesiology with the theoretical foundation for application of manual therapy techniques and therapeutic exercises in the treatment of musculoskeletal injuries sustained by physically active individuals. Laboratory instruction and guided practice in performing manual therapy techniques and therapeutic exercises will also be provided. At the end of this course students: 1) can identify five components of a comprehensive plan of care for an injured physically-active person; 2) have a working knowledge of the effects of therapeutic exercise on tissue repair and return to activity; 3) have a working knowledge of the impact of pain on programs and therapeutic exercise; 4) are able to perform selected manual therapy techniques and integrate them into a comprehensive plan of care; 5) understand the psychological response to injury and therapeutic exercise; 6) can develop a plan of rehabilitation utilizing principles of tissue healing, therapeutic exercise and manual therapy; and 7) instruct patients in home programs of therapeutic exercise. This course will focus on the basic principles of therapeutic exercise and rehabilitation of injuries to the lower extremities.

Enforced Prerequisite at Enrollment: ATHTR 235 and ATHTR 334

ATHTR 435: Rehabilitation of Injuries to the Trunk and Upper Extremities

3 Credits

Rehabilitation of Injuries to the Trunk and Upper Extremities is a 3-credit course offered each fall semester with an enrollment limit of 40 students. The course provides students who have been accepted into the undergraduate athletic training option in the Department of Kinesiology

with the theoretical foundation for application of manual therapy techniques and therapeutic exercises in the treatment of musculoskeletal injuries sustained by physically active individuals. Laboratory instruction and guided practice in performing manual therapy techniques and therapeutic exercises will also be provided. At the end of this course students: 1) can identify five components of a comprehensive plan of care for an injured person; 2) have a working knowledge of the effects of therapeutic exercise on tissue repair and return to activity; 3) have a working knowledge of the impact of pain on programs of therapeutic exercise; 4) are able to perform selected manual therapy techniques and integrate them into a comprehensive plan of care; 5) understand the psychological response to injury and therapeutic exercise; 6) can develop a plan of rehabilitation utilizing principles of tissue healing, therapeutic exercise and manual therapy; and 7) instruct patients in home programs of therapeutic exercise. This course will focus on review of the basic principles of therapeutic exercise and rehabilitation on injuries to the trunk and upper extremities.

Enforced Prerequisite at Enrollment: ATHTR 335 and ATHTR 395A and ATHTR 434

ATHTR 436: Physical Agents in Rehabilitation

4 Credits

The course provides students with the theoretical foundation for the application of contemporary therapeutic modalities in the treatment of musculoskeletal injuries sustained by physically-active populations. At the end of this course students will: 1) have a working knowledge of the inflammatory response to tissue injury, pain perception and the body's analgesic mechanisms; 2) understand the physical principles of thermal, acoustic, electrical, light and mechanical modalities; 3) understand the physiological response to thermal, acoustic, electrical, light and mechanical modalities; 4) be able to search for and appraise clinically relevant trials involving modality application and; 5) apply these understandings and thermal, acoustic, electrical, light and mechanical modalities in the safe and effective manner.

Enforced Prerequisite at Enrollment: ATHTR 335 and ATHTR 395A and ATHTR 434

ATHTR 438W: Administrative and Professional Aspects of Sports Health Care

3 Credits

Theoretical and practical aspects for management of an Athletic Training professional practice and identifying contemporary issues related to the profession. ATHTR 438W Administration and Issues in Athletic Training (3) This course is designed to instruct students in the concepts and skills required for successful administration of an athletic training program and to understand and discuss contemporary professional issues attendant to the Athletic Training profession. General topics to be covered include theoretical basis of management, program management, human resource management, financial resource management, facility design and planning, information management, athletic injury insurance, legal aspects of sports medicine, ethical considerations in sports medicine, pre participation physical and drug-testing, professional preparation issues, professional practice issues, and clinical practice issues. Experts from the community are brought in to lecture on several of the topics. This is a writing intensive course. Writing will be used to facilitate critical thinking about course material. Written assignments are based on the technical writing requirements of an athletic training administrator.

Enforced Prerequisite at Enrollment: ATHTR 336 and ATHTR 495A and ATHTR 435 and ATHTR 436

Writing Across the Curriculum

ATHTR 495A: Clinical Internship II

3 Credits

This course is designed to provide students didactic and practical clinical experiences in a variety of practice settings in which certified athletic trainers are commonly employed. This is the second clinical assignment after a student is admitted to the Athletic Training option within the Kinesiology major. Students will complete clinical education experiences under the supervision of a certified athletic trainer in a variety of clinical settings. These settings include but are not limited to: intramural sports, club sports, outpatient sports medicine clinics, high schools, and intercollegiate athletic training facilities. The objectives of this course include demonstrating proficiency in: assisting lower level students in developing athletic training skills and mastering level-appropriate competencies; demonstrate proficiency in evaluation and documentation of common athletic injuries; assist in the development and documentation of a plan of care for common athletic injuries; demonstrate proficiency in the development and documentation of clinical progression through a plan of care; participate in the application of therapeutic modalities and therapeutic exercise under the supervision of a certified athletic trainer. In this practical experience, the student is required to demonstrate an understanding of the classroom experiences completed to date and as required by the program up to the current semester.

Enforced Prerequisite at Enrollment: ATHTR 335 and ATHTR 395A and ATHTR 434

ATHTR 495B: Clinical Internship III

3 Credits/Maximum of 3

This course is designed to provide students didactic and practical clinical experiences in a variety of practice settings in which certified athletic trainers are commonly employed. This is the third clinical assignment after a student is admitted to the Athletic Training major. Students will complete clinical education experiences under the supervision of a certified athletic trainer in a variety of clinical settings. These settings include but are not limited to: intramural sports, club sports, outpatient sports medicine clinics, high schools, and intercollegiate athletic training facilities. The objectives of this course include demonstrating proficiency in: assisting lower level students in developing athletic training skills and mastering level-appropriate competencies; demonstrate proficiency in evaluation and documentation of common athletic injuries; assist in the development and documentation of a plan of care for common athletic injuries; demonstrate proficiency in the development and documentation of clinical progression through a plan of care; participate in the application of therapeutic modalities and therapeutic exercise under the supervision of a certified athletic trainer. In this practical experience, the student is required to demonstrate an understanding of the classroom experiences completed to date and as required by the program up to the current semester.

Enforced Prerequisite at Enrollment: ATHTR 336 and ATHTR 495A and ATHTR 435 and ATHTR 436

ATHTR 495C: Clinical Internship IV

3 Credits

This course is designed to provide students didactic and practical clinical experiences in a variety of practice settings in which certified athletic trainers are commonly employed. Students will complete clinical education experiences under the supervision of a certified athletic trainer. These settings include but are not limited to: outpatient sports medicine clinics, interscholastic athletic settings, and intercollegiate athletic settings. The main objectives of this course include demonstrating proficiency in: head, ears, eyes, nose and throat assessment; peak flow and urinalysis assessment; auscultation and palpation of the chest and abdomen. The objectives also include understanding the psychosocial competencies related to athletic training (substance abuse, eating disorders, response to injury, mental health issues, catastrophic injuries, psychosocial trends in adolescent sports). In addition, students will work closely with their peers by assisting lower-level students in developing athletic training skills and mastering level-appropriate competencies; demonstrate proficiency in evaluation and documentation of common athletic injuries; assist in the development and documentation of a plan of care for common athletic injuries; demonstrate proficiency in the development and documentation of clinical progression through a plan of care; participate in the application of therapeutic modalities and therapeutic exercise under the supervision of a certified athletic trainer. In this practical experience, the student is required to demonstrate an understanding of the classroom experiences completed to date in preparation for the national Board of Certification exam. This course also offers a culminating experience for athletic training students in the form of a capstone project.

Enforced Prerequisite at Enrollment: ATHTR 438W and ATHTR 495B

Behavioral Sciences - CA (BESC)

BESC 395: Behavioral Science Internship

3-12 Credits/Maximum of 12

Internship in human service organizations providing for application of academic knowledge, reading, and discussion.

Prerequisite: 90 credits with at least 16 credits in the major

BESC 407: Small Groups Counseling

3 Credits

Intensive survey of research and theory on behavior in small groups, with emphasis on interdependence, cooperation, and attitude change.

Prerequisite: general psychology, general sociology, or general behavioral science

BESC 464: Feminine/Masculine

3 Credits

Study of sex role learning; investigating feminine/masculine labeling; implications for contemporary society. BE SC 464 BE SC (WMNST) 464 Feminine and Masculine (3) (US) This course provides a critical examination of the concepts of masculinity and femininity through a consideration of how these have shifted and changed historically and cross-culturally. It considers a variety of theories of gender difference. It investigates how gender is socially constructed and practiced. Thus,

it examines how gender is enacted in interpersonal relationships and defined, reinforced, and challenged through processes of socialization as well as through the various institutional spheres of social life. The course addresses the diversity of masculinities and femininities within a single society. Thus, attention is given to race and class-based differences as well as to trans-genderism and homosexuality.

Prerequisite: general psychology or general sociology

Cross-listed with: WMNST 464

United States Cultures (US)

BESC 494: Senior Thesis

3-9 Credits/Maximum of 9

Problem formulation, literature search, research design, data collection, analysis of results, and final write-up of a substantial research project.

Prerequisite: permission of program

BESC 494H: Senior Thesis

3-9 Credits/Maximum of 9

Problem formulation, literature search, research design, data collection, analysis of results, and final write-up of a substantial research project.

Prerequisite: permission of program

Honors

Biobehavioral Health (BBH)

BBH 48: Values and Health Behavior

1.5 Credits

Examination of issues that impact the social, emotional, and physical well-being of college students through a values and decision-making process. BB H 048 Values and Health Behavior (1) (GHA) This is a 1 credit course designed for non-BB H majors who want a greater understanding of concepts related to health and health promotion and who want to learn practical skills related to optimizing health and improving lifestyle behaviors. General health topics that are relevant to students as they adjust to the transition into--and through--college are introduced through a values and decision-making approach to learning. The course is designed to give students a broader understanding of both short-term and long-term wellness and how it is affected by behavior. Concepts regarding personal health and development are introduced using individual and group activities. To impact behavior, a model for decision-making that includes facts, risks, and consequences is utilized within an experiential learning approach. Students will work individually to perform self-assessment of health-related activities (e.g., nutrition, alcohol and drug-related knowledge and risk behaviors) and in small groups to further assess and describe the effects of health behaviors on short-term and long-term wellness. The course will be evaluated through completion of several short reaction papers to reading assignments and internet research, a group project on health promotion, completion of a health-related journal, and completion of a personal behavior change plan.

BBH 101: Introduction to Biobehavioral Health

3 Credits

BBH 101 is an interdisciplinary study of health that emphasizes: (1) Conceptualization of health as being influenced by a variety of factors

including biology, environment, psychology, and social influences; and (2) The concept of health as a state of physical, mental, and social well-being, and not just the absence of disease. The first section of the course is a study of the foundational principles of health including a basic overview of the nervous, endocrine, immune, cardiovascular, respiratory and digestive systems as well as basic principles of genetics and psychology. The second section of the course is focused on risk factors and health-related behaviors. The importance of nutrition, exercise, sleep, stress, and environmental risk factors are studied. The final component of the emphasizes population health by addressing relevant health conditions such as diabetes, substance abuse and addiction, cardiovascular disease, cancer, HIV/AIDS, Parkinson's disease, and Alzheimer's disease.

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

BBH 101H: Introduction to Biobehavioral Health

3 Credits

This is an honors course, designed to provide students with the opportunity to engage with the material at a greater depth. BBH 101H is an interdisciplinary study of health that emphasizes: (1) Conceptualization of health as being influenced by a variety of factors including biology, environment, psychology, and social influences; and (2) The concept of health as a state of physical, mental, and social well-being, and not just the absence of disease. The first section of the course is a study of the foundational principles of health including a basic overview of the nervous, endocrine, immune, cardiovascular, respiratory and digestive systems as well as basic principles of genetics and psychology. The second section of the course is focused on risk factors and health-related behaviors. The importance of nutrition, exercise, sleep, stress, and environmental risk factors are studied. The final component of the course emphasizes population health by addressing relevant health conditions such as diabetes, substance abuse and addiction, cardiovascular disease, cancer, HIV/AIDS, Parkinson's disease, and Alzheimer's disease.

General Education: Health and Wellness (GHW)

Honors

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

BBH 102S: Values, Health, & Academic Success

3 Credits

This course will simultaneously address concepts related to Health & Wellness as well as address areas of academic transition for first year students. Essentially this course was designed to address all areas of life that students will encounter during their first semester of school. This course will address several aspects of a first-year students' social wellness that includes healthy relationships, alcohol awareness, sexual ethics, sexual health, mental health, positive decision making, as well as bystander intervention. This course will also address the physical wellness of first year students by addressing alcohol consumption and the impact that it has on the body physically, healthy eating and food selection on a college campus, as well as learning how to be aware of

their unconscious biases and how to live in society with people different than themselves. Additionally, this course will address the intellectual needs for enrolled students within their first academic year by outlining the academic expectations outlined by Penn State University. Students will understand how essential organization and time management is within higher education, the benefits of getting to know their professors, planning their paths to graduation, goal setting, financial literacy, resume' development as well as an extensive review of institutional academic integrity policies and its implications of academic violations. The course hopes to become an initial spring board, where students can use the information presented to guide them throughout the next 3 years of their undergraduate careers.

First-Year Seminar

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Soc Resp and Ethic Reason

BBH 119: Behavior, Health, and Disease

3 Credits

This course is designed for non-BB H majors who want a fundamental understanding of disease processes, disease states, and principles of disease prevention and health promotion. This course should help students in the biological and behavioral sciences better understand practical applications of theoretical approaches to health issues. The course will provide a broad understanding of the major human diseases underlying morbidity and mortality in America. The course will cover most major diseases using a variety of organizational schema including: (1) diseases according to organ systems, (2) diseases according to developmental and age-related processes, and (3) diseases according to causal factors including behavioral (lifestyle), environmental, and genetic factors. The course content is organized to encourage promotion of a healthy lifestyle, prevention of disease and understanding the causes and management of acute and chronic illness. The course includes information and assignments to allow the student to appropriately assess one's own health, estimate health trajectories, access and use the health care systems on campus and in their home communities, and develop a long-term health promotion plan. The student will also learn specific skills to find and evaluate traditional and non-traditional treatment processes when they or family members become sick with an acute illness or chronic disease, and to better engage with health care professionals and the health care system for management of illnesses that they or their family may have or develop. Students will also learn practical skills in being able to access a variety of sources to update knowledge about disease causality and treatment and to critically appraise these sources.

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

BBH 123S: First-Year Seminar in Biobehavioral Health

1 Credits

This course gives an introduction to some of the major topics in the Department of Biobehavioral Health, with the aim to meet the Penn State first-year seminar goal of orienting students to the scholarly community from the outset of their undergraduate studies in a way that will bridge to later experiences in a chosen major. The class provides an overview

of Biobehavioral Health, then focuses on a more in-depth explanation of student curricular and extracurricular opportunities, themes of scholarship, and career pathways for students in the biobehavioral health major. The course aims to help students prepare to explore their academic interests in Biobehavioral Health as they begin their education at Penn State.

Enforced Corequisite at Enrollment: PSU 14
First-Year Seminar

BBH 130: Strategies for Addressing the Obesity and Diabetes Epidemics

3 Credits

The purpose of this course is to broadly survey information and issues surrounding the development of and individual and community responses to the paired epidemics of obesity and diabetes. Students in the course will examine the biological, behavioral, and environmental factors that underlie the development of obesity and diabetes, including community level factors such as physical environment. The health consequences of both obesity and diabetes will be covered and students will explore the current science of both prevention efforts and effective treatment options. This course is designed as a general education offering and is appropriate for students with little background in biology.

General Education: Health and Wellness (GHW)
GenEd Learning Objective: Key Literacies
GenEd Learning Objective: Soc Resp and Ethic Reason

BBH 143: Drugs, Behavior, and Health

3 Credits

The primary objective of this course is to review information related to the use of recreational and therapeutic drugs like alcohol, nicotine, opiates, caffeine, prescription drugs, etc. We will discuss the biological mechanisms of these substances and how the use of these substances impacts the health and well-being of the individual. We will explore how drug use affects society and will cover social norms related to drug use, laws pertaining to drug use, and the historic context of drug use. We will investigate underlying biological, psychological, and social reasons for drug use and misuse.

General Education: Health and Wellness (GHW)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

BBH 146: Introduction to Health and Human Sexuality

3 Credits

This course is designed to provide students with a solid introduction to human sexuality with an emphasis on sexual health issues. Through classroom lectures, as well as weekly smaller group meetings, students should gain both the knowledge and skills that will help to empower them to make better decisions about their sexual health practices and relationships. Fundamentals of human sexuality will be presented including: the myriad of influences that shape our sexuality, with particular emphasis on gender development, sexual orientation, health issues of the sexual female and male body, enhancements and inhibitors to sexual response, and enhancing sexual relationships. Specific sexual health issues will also be focused upon, including: unintended pregnancy, contraceptive methods, sexual assault, sexually transmitted infections,

HIV disease, and safer sex strategies. Facilitated small group work will allow students to practice critical thinking, communication, and decision making skills through structured interactive activities. We are committed to creating a vibrant learning environment in this class.

General Education: Health and Wellness (GHW)
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Key Literacies
GenEd Learning Objective: Soc Resp and Ethic Reason

BBH 148: Coping with College: A First Year Transition Seminar

2 Credits

Exploration of effective learning strategies, university resources, academic requirements and planning, career development issues in discussion-centered environment.

First-Year Seminar

BBH 150N: Safe and Sound: The Intersection of Criminal Justice and Public Health

3 Credits

This course will consider the overlapping responsibilities and epistemologies of criminal justice and public health. Both fields concerned with the promotion of population welfare, the public health and criminal justice systems nevertheless confront the same social problems from different ethical perspectives, research methodologies, and knowledge bases. Each may further mobilize different institutional actors driven by divergent political agendas. While we will discuss the productive collaboration between public health and public safety agencies, we will also consider ongoing ownership struggles over certain issues, behaviors, and even populations. Given its practical relevance to many ongoing social issues and controversies of general importance, this course is motivated by a commitment to community-engaged scholarship, and thus will include topics, readings, assignments, speakers, and field trips of local and state importance. At the same time, specific topics will be framed in terms of their national and international importance, and students will be encouraged to link micro-level problems to macro-level processes.

Cross-listed with: CRIMJ 150N
General Education: Health and Wellness (GHW)
General Education: Social and Behavioral Scien (GS)
General Education - Integrative: Interdomain
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Key Literacies

BBH 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

BBH 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

BBH 201N: Health and the Media

3 Credits

The main purpose of this course is to prepare students for critically interpreting representations of health in the media. The course integrates media, social and cultural studies perspectives with health communication approaches in health promotion. The course will educate students about population level determinants of health and health communication interventions for health promotion and disease prevention. At the same time, students will be introduced to socio-cultural critiques of the media and to elements of critical textual and discourse analysis, with an emphasis on visual analyses. Based on these two sets of disciplinary exposures, students will be equipped to contextualize health contents in the media and to critically analyze media representations of health. Examples of health communication campaigns and of commercial messages targeting health consumers will be amply discussed, and general media effects on health communication will be analyzed. The course is designed for undergraduate students interested in developing their health and media literacies. The course stresses both integrative and critical thinking dimensions, and encourages students to confront important conceptual and moral issues in today's society such as over-representing individual determinants of health and obscuring social determinants of health in health communication. Students with an interest in civic engagement and in issues of individual and collective freedom and agency will find the course particularly relevant. Students pursuing careers in bio-behavioral health, health promotion, health communication, public health, medicine, nursing, psychology or other human and social services will benefit from the integrative character of the course and will acquire an understanding of the mediated nature of health concerns in society. The course offers students the opportunity to develop research in health communication or to create health communication materials.

Enforced Prerequisite at Enrollment: ENGL 15

General Education: Arts (GA)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

BBH 203: Neurological Bases of Human Behavior

3 Credits

An introduction to biopsychology, emphasizing the structure and function of the human brain. BB H (PSYCH 260) 203 Neurological Bases of Human Behavior (3) The nervous system provides the biological underpinning of behavior, and several scientific fields are concerned with the relationship between the nervous system and behavior. The goal of this course is to introduce the principle methods, findings, and theories of these scientific fields. Topics include (a) the anatomy and physiology of the nervous system, (b) how the nervous system gives rise to perception, action, language, memory, emotion and reproductive behavior, and (c) how drugs and mental illnesses affect the nervous system and alter normal perceptual, cognitive, and emotional behavior. The course prepares students for a number of more advanced courses in Psychology and Biobehavioral Health that address specialized topics in neuroscience, and may satisfy a requirement of these majors.

Cross-listed with: PSYCH 260

BBH 204: Methods in Neuroscience Research

1 Credits

This course will consist of a variety of laboratory exercises and observations demonstrating the principles of neuroscience and different aspects of neuroscience research.

BBH 210: Biobehavioral Aspects of Genetics

3 Credits

An individual's DNA is a key biological process involved in behavior, health, and disease. The goal of this course is to introduce the foundational concepts of genetics in a Biobehavioral Health framework. This course will examine how genes are encoded by DNA, how DNA is transcribed into RNA, and how RNA is translated into protein. Additionally, this course will cover DNA at the global level of the chromosome. Finally, variation across levels will be explored. For example, variation at the level of an individual DNA base pair or through alterations in chromosome structure. Application of these concepts to human health and disease will be highlighted throughout the course. The course prepares students for a more advanced course in Biobehavioral Health that address specialized topics in health and developmental genetics.

Enforced Prerequisite at Enrollment: BIOL 110 or BIOL 161

BBH 251: Straight Talks I: Advanced Sexual Orientation/Gender Identity Peer Education

3 Credits

Exploration of social justice issues, diversity leadership, and group facilitation skills related to lesbian, gay, bisexual, transgender, and ally issues. BB H 251 Straight Talks I: Advanced Sexual Orientation/Gender Identity Peer Education (3) (US) Straight Talks I provides students an opportunity to explore various lesbian, gay, bisexual, transgender and allies (LGBTQA) issues from an educational perspective. Students will be exposed to theories, terminology, and various speakers who will approach topics such as LGBTQA history and multicultural issues. The course projects are designed to enhance both written and oral skills, and provide students an opportunity to work together. Finally, the course challenges students to think critically about the social, economic, and political cultures around them and how these cultures affect sexual and gender orientation issues. Course Objectives: Philosophical 1. To think critically about your spiritual, social, economic, political and cultural existences and their relationship to your understanding of sexual and gender orientation issues. 2. To develop a critical consciousness that will bring awareness of the ways custom, ritual and tradition helped shape and continue to shape our daily lives. 3. To develop a fuller understanding of the way gender and sexual orientation are conceived of by other people and the ways in which these conceptions link with other elements of identity including ethnicity, class, gender, ability etc. 4. To challenge you to consider the following questions: a) What does it mean to provide educational programming? b) What does it mean to be a peer educator? c) How do I influence others by my involvement in this program? d) How do I what to influence others by my involvement in this program? e) How do I change the world so that it is a better place when I leave it? Praxis 1. Develop facilitation and presentation skills 2. Obtain knowledge about LGBTQA history and current issues and concerns. 3. Conceive of and articulate what it means to 'come out'. 4. Acquire information on sexual

orientation, identity development and queer history. 5. Refine your ability to provide programming activities in the form of facilitation, discussion, skits, and exercises. 6. Develop a sense of community and rapport with other panelists through class discussions and projects.

United States Cultures (US)

BBH 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

BBH 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

BBH 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

BBH 301W: Values and Ethics in Biobehavioral Health Research and Practice

3 Credits/Maximum of 3

Examines bases for choices among values in personal and professional relations in human development processes and supporting services. This class is meant to give students both background knowledge of and practice in the process of ethical decision making. Students will learn the historical, philosophical, and psychological concepts underlying the study of morality and ethics. Course content will include the history and rationale for regulations regarding the ethical practice of research, medicine, and public health.

Enforced Prerequisite at Enrollment: BBH 101

Writing Across the Curriculum

BBH 302: Diversity and Health

3 Credits

Examines the relationship diverse personal and sociocultural factors (e.g., socioeconomic class, race-ethnicity, gender, age, and sexual orientation) have with health. BBH 302 / AFAM 302 Diversity and Health (3) (US) is an introduction to the interdisciplinary study of the impact of diversity on health in America. The course is designed to provide an understanding of the complex interaction between concepts of diversity, including but not limited to race, ethnicity, culture, gender, age, socioeconomic status, and sexual orientation. The course will also consider and critique the methods used in the study of these concepts and issues related to the measurement of health among diverse groups. The ultimate goal of this examination is to assist students in developing an appreciation of diversity and the impact diversity has on assessments and study of health, health status, and health promotion in America. The course is also designed to integrate different sources of information about diversity by utilizing critical thinking skills for the consumption of health information. The educational objectives will be to enable students to: 1) Consider the implications of race, ethnicity, gender, age,

socioeconomic status and sexual orientation on health/social policies in light of research findings, 2) Understand the legacies and historical events that have impacted our view, status, and treatment of diverse populations, 3) Appreciate the importance of understanding the origins of different health behaviors that impact biological processes, as well as the impact of biological processes in the context of social, environmental, and cultural influences when examining health issues.

Enforced Prerequisite at Enrollment: PSYCH 100 or SOC 1

Cross-listed with: AFAM 302

United States Cultures (US)

BBH 305: Introduction to Global Health Issues

3 Credits

Course will develop awareness of contemporary issues in global health. BB H 305 Introduction to Global Health Issues (3) This course is an introduction to health and related issues in the global context. It is intended to be an overview of fundamental perspectives about the historical, current, and future public health challenges facing developing and industrialized countries. The course will explore the interrelationships among social structure, culture, demography, health promotion/disease prevention, biology, ecology and health policy of various countries and international health organizations. This course will 1. present key issues related to the history, conceptual frameworks, economic conditions, and policy affecting public health in the global context, 2. examine reports and studies pertaining to major global health issues and comparative research, 3. discuss the role of social structure, culture, gender roles, government policies, and the increasing numbers of the elderly in preventive health behaviors and health promotion in the global context, and 4. critique theories and models used to inform health and development programs in non-Western nations.

Enforced Prerequisite at Enrollment: BBH 101

Cross-listed with: AFR 305

International Cultures (IL)

BBH 310: Research Strategies for Studying Biobehavioral Health

3 Credits

BBH 310 surveys the various research methodologies used in biomedical and behavioral research, including case, epidemiological, quasi-experimental and experimental approaches. The goals of this course are: (1) to provide students with a basic understanding in research methods; (2) to familiarize students with research strategies for studying Biobehavioral Health; (3) to develop critical thinkers and informed consumers of scientific research and health information; (4) to provide a basic understanding of the available approaches to research and interventions in order to address the complex set of determinants associated with public health problems that affect populations generally and those factors associated more specifically with racial and ethnic disparities in health. We will also talk about how research data are analyzed, interpreted, and translated into meaningful results in the form of a scientific paper, while addressing many of the important issues and concerns behind statistical assessments and outcomes. In addition, research ethics, responsibilities associated with conducting human research, and some of the perils of research, including issues associated with a study's method, design, and publication, will also be discussed.

Enforced Prerequisite at Enrollment: C or better in (STAT 200 or STAT 250) and BBH 101

BBH 310H: Research Strategies for Studying Biobehavioral Health

3 Credits

This course is designed for students working to earn honors in Biobehavioral Health to help them prepare for their thesis proposals. The course surveys the various research methodologies used in biomedical and behavioral research, including case, epidemiological, quasi approaches. The goals of this course are: (1) to provide students with a basic understanding in research methods; (2) to familiarize students with research strategies for studying Biobehavioral health; (3) to promote critical thinking of scientific research and health information; experimental and experimental (4) to develop a basic understanding of the available approaches to research and interventions that are needed in order to address the complex set of determinants associated with public health problems that affect populations; (5) to familiarize students with how research forms a critical component of BBH honors requirements.

Enforced Prerequisite at Enrollment: C or better in BBH 101 and (STAT 200 or STAT 250)

Honors

BBH 311: Interdisciplinary Integration in Biobehavioral Health

3 Credits

Interdisciplinary Integration in Biobehavioral Health explores the complex ways in which influences at different levels and across different domains come together to impact human health. The course will highlight the complex determinants of health by exploring diverse areas from a cellular to global level. Students will engage in a review of the literature relevant to the concepts and findings of different scientific domains as they apply to biobehavioral health. Accordingly, students will utilize literature from various domains, including human biology, sociology, psychology, and anthropology. This course will help students to synthesize and apply concepts learned in prerequisite courses in order to develop an in-depth understanding of fundamental topics in biobehavioral health.

Enforced Prerequisite at Enrollment: BBH 101 and BIOL 110 and PSYCH 100. Students are required to have a C or better in BBH 101 and PSYCH 100

BBH 315: Gender and Biobehavioral Health

3 Credits

Interdisciplinary study of gender, examining the interaction of biological, behavioral, and sociocultural factors on health differentials throughout the lifespan. BB H 315 Gender and Biobehavioral Health (3) (US) BB H 315 is an interdisciplinary study of the impact of gender differences (and similarities) in health in the United States and the world, examining the interaction of biological, behavioral, and sociocultural factors on health, morbidity, and mortality. The course will also consider and critique the methods used in the study of gender and concepts and issues related to the measurement of health in men and women. The ultimate goal of this course is to assist students in developing an appreciation of the diversity concept of gender, and the impact of this concept on assessments and study of health, health status, and health promotion in America and other nations. The course is also designed to integrate different sources of information about gender by utilizing critical thinking skills for the consumption of health information. The educational objectives will be to enable students to: 1) define the concepts of sex, gender, gender roles, and gender identity and how they contribute to differentials in morbidity and mortality at various life stages, based on epidemiological

data and other research, in the United States and other countries; 2) describe biological (e.g., genetic and hormonal) factors that contribute to gender differences and similarities in health at different life stages; 3) describe behavioral factors, such as acquired risks, self-protective behavior, and stress, that contribute to gender differences and similarities in health at various life stages; 4) describe sociocultural factors, such as gender roles, class, race/ethnicity, and educational level that contribute to gender differences and similarities in health at various life stages; 5) describe and design gender-sensitive strategies for health research and health promotion; 6) examine gender differences in a specific illness, disease, or health issue experienced by women and/or men in this country and others, and the contributing factors (e.g., sociocultural) to the differences that may exist; and 7) critique gender research on particular health issues. To achieve these objectives, the course will involve open class discussions, small break-out group discussions with written assignments, short quizzes, a paper requiring the acquisition, utilization, and critical analysis of information/research from library and internet resources, and a group presentation that requires collaborative work.

Enforced Prerequisite at Enrollment: BBH 101

United States Cultures (US)

BBH 316: Foundations and Principles of Health Promotion

3 Credits

Foundations of Health Promotion, is a 3-credit course required of all BBH majors and available to other students interested in developing a basic knowledge in health promotion interventions. The course is designed to provide students with the conceptual foundation necessary to develop health promotion programs and interventions. It will involve information on both theory and practice. The educational objectives are that students will be able to: 1) define the concepts and levels of health, health promotion, and prevention; 2) describe the variety of settings in which health promotion and preventive services exist 3) identify levels of intervention in planning health education and health promotion programs; 4) describe a rationale for health promotion programs; 5) address the role of culture, environment, and policy in health behavior; 6) explain why different levels of health promotion interventions should be planned using theoretical frameworks.

Enforced Prerequisite at Enrollment: C or better in either of the following BBH 101 or BBH 101H

BBH 324: HealthWorks Peer Education Training

3 Credits

Designed to train new HealthWorks peer educators, this course addresses behavior theories, promotion strategies, and college health issues. BB H 324 HealthWorks Peer Education Training (3)HealthWorks is a peer education/outreach group that aims to promote health among Penn State students. The mission of HealthWorks is to:-increase awareness and knowledge of health issues, such as sexual health, nutrition and fitness, wellness, alcohol, tobacco and other drugs, and body image and eating disorders,-promote healthy lifestyle choices,- provide health education programs, information, and materials to students, and-advocate for a healthy Penn State community. BB H 324 is designed to train students who have been accepted into University Health Services' HealthWorks program every fall semester. The course will address the topics of health behavior theories, health promotion strategies, and health issues relevant to college populations (i.e., alcohol, nutrition, physical activity, sexual health, sleep, stress, and tobacco). To

ensure that new HealthWorks members are trained to effectively promote health, students will gain both knowledge and practical experience in this course. Students will learn about health behavior theories, health promotion strategies, and health topics relevant to college students through formal classroom lectures and examinations. Classroom technology will be utilized to examine campus and national health campaigns and messages, illustrating the theories and strategies discussed in class. To garner practical experience and application-based learning, students will assist with current HealthWorks programming. Members of this class will additionally apply and integrate their new understanding of class topics through a semester project. The small-group project will ask students to propose a future HealthWorks program focused on one or more health topics that is built upon at least one health behavior theory and utilizes evidence-based strategies. By the conclusion of this course, HealthWorks members will possess the knowledge and skills to effectively provide health-related outreach, advocacy, community development, and education opportunities to students on the Penn State campus.

BBH 325: Health Promotion Services Training

3 Credits

This course will provide students with the knowledge and professional skills to deliver peer-based individual health promotion services for the college population. The course will cover a variety of health issues that are relevant to college students, including nutrition, physical activity, sexual health, sleep, and stress (including mindfulness and time management). Students will be taught about each of the health topics over the course of two class sessions. Students will be taught information about how each health topic specifically relates to the college population. Current data about each topic will be included. These issues will be discussed in the context of health promotion principles and applicable health promotion theories. The class will provide an overview of the ecological perspective, but the focus will be on intrapersonal and interpersonal level theories, such as the Stages of Change (Transtheoretical) and Health Belief Models, as well as Social Cognitive Theory. Students will be taught the constructs for each model/theory. Students will be taught about how the theories/models apply to delivering individual health promotion interventions. Students will receive extensive training in motivational interviewing, an evidence-based strategy for promoting health behavior change. The content is designed to help students develop an understanding of the core concepts of motivational interviewing. Students will practice motivational interviewing techniques during class time. The students will deliver individual interventions during class time. Additionally, students will be given course assignments that require them to practice delivering the interventions. Students will learn about professionalism and ethics within the context of delivering individual interventions to college students.

Enforced Prerequisite at Enrollment: PSYCH 100 or CAS 100

BBH 330: Clinic Intern Training

3 Credits/Maximum of 6

The University Health Services (UHS) clinic intern training program provides students with the opportunity to interact professionally with patients in the health service and to work closely with members of the clinical and nursing staff at UHS. The training program teaches students to conduct initial intake screenings at UHS. This includes assessing vital signs (temperature, respirations, pulse, and blood pressure), determining the reason for the visit, entering patient information into an electronic medical record, and performing simple procedures such as testing visual

acuity. Other topics covered include HIPAA training, common health concerns, patient confidentiality, and proper documentation. Enrollment in the course will involve an application and interview process; students must be willing to commit to two semesters of work to be enrolled.

BBH 368: Neuroanatomy, Behavior, and Health

3 Credits

The neuroanatomical bases of behavior, health, and disease. BB H 368 Neuroanatomy, Behavior, and Health (3) BBH 368 will examine, in detail and in depth, the relationships between the multitudinous structures of the human nervous system and their roles in monitoring and controlling all functions of the body, in behavior and in health and disease. Because of the complexity of the anatomy of the nervous system, of necessity there will be an emphasis on each student developing a three-dimensional understanding of the brain's structures and their geographic relationships to each other. For students majoring in BBH, this course provides a foundation and preparation for BBH 469 & 470, the two semester Neurobiology/Integrative Neuroscience course sequence, which assumes that the student has a basic, but detailed knowledge of the nervous system. This course will count toward fulfilling the BBH major requirement, "Take 15 credits in Biobehavioral Health." It will also count toward fulfilling the requirement of 9 credits of additional courses in the Neuroscience Minor. Upon successful completion of the course, the student should be able to: a) Identify on gross specimens and in slides of sections of the human nervous system the important nuclei, tracts and supporting structures. b) Describe the important pathways and circuits between the different components and nuclei of the human nervous system. c) Describe the role of each nucleus, tract, and circuit in controlling functions and behavior. d) Describe the expected deficits in function and behavior resulting from injury or disruption of each nucleus and tract.

Enforced Prerequisite at Enrollment: BBH 101 and (BISC 4 or BIOL 141 or PSYCH 260)

BBH 370: Environmental Health and Sustainability

3 Credits

This course explores the relationship of people to their environment; notably how the natural environment influences their physical, mental, and social well-being. This course also investigates the impact of environmental issues on community, regional and global health. Students will gain a basic understanding of how environmental factors impact the health of people and the community, and an overview of public health prevention efforts to minimize negative impacts.

Enforced Prerequisite at Enrollment: BBH 101 and BBH 316

BBH 390A: Preparation for Global Health Field Experience

3 Credits

Designed to help students prepare for the required field experience in the Global Health minor. BB H 390A Preparation for Global Health Field Experience (3) This purpose of this course is to train students admitted to the Global Health (GLBHL) minor to plan and prepare for the required field experience in a global health setting. Students in the minor must take both this course, BB H 390A, and the subsequent field experience course, BB H 390B. This course includes an examination of both practical and academic issues related to successfully completing an appropriate field placement. Focus is given to encouraging students to become reflective global health practitioners who are able to adapt to and work

through personally and professionally complex situations. Interactive class lectures, readings, case studies, discussions, assignments and projects/presentations will help students gain an awareness of the socio-cultural, economic, and political context of various kinds of global health professional settings, and to be sensitive to the constraints under which health professionals work in different parts of the world. To broaden their understanding of the realities of engaging in the field of global health, students will have opportunities to meet with individuals who have health work experience in a variety of low and middle-income settings.

Enforced Prerequisite at Enrollment: BBH 305 and (BBH 440 or HPA 440) and admission to the Global Health minor

BBH 390B: Global Health Field Experience

6 Credits

Field experience in a global health setting. BB H 390B Global Health Field Experience (6) The purpose of this course is to provide a supervised field experience in a global health setting for the students who have been admitted to the Global Health Minor (GLBHL). Students in this minor must take BBH 390A "Preparation for Global Health Field Experience" before scheduling this course. Students will spend 6 weeks in the summer working in one of several pre-approved international or domestic health care or public health settings under professional supervision.

Enforced Prerequisite at Enrollment: BBH 390A and admission to Global Health minor

BBH 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

BBH 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

BBH 402: African Health & Development

3 Credits

Course will address African health and development strategies in the context of health promotion programs. BB H 402 African Health & Development (3) (IL) This course is designed to address African health and development strategies in the context of health promotion programs. Students will analyze the cultural, educational, social, economic, political and environmental impact of health and development in Africa. Emphasis will be on development of health promotion strategies that locate program implementation and evaluation within their cultural contexts. The objectives are to prepare students to: 1. discuss and debate the roles of culture, social contexts, gender, and political economic impact on health behaviors in Africa; 2. critique some of the theory and models used to inform public health programs in Africa; 3. examine the role of historical, spiritual, linguistic, and political impacts on health projects in different countries in Africa; and 4. analyze health priorities in Africa and their impacts on such global initiatives as the Millennium Development Goals; 5. discuss issues related to human rights, population identities in the world and examine their impact on health in Africa. Attendance is required. Students will be expected to participate actively

by critically reviewing assigned readings, engaging in class discussions, and preparing and delivering in-class presentations. Grading is based on attendance, participation, presentations, exams and a final research paper.

Enforced Prerequisite at Enrollment: BBH 305 International Cultures (IL)

BBH 407: Global Health Equity

3 Credits

Health, social disparities, and equity in the global environment. BB H 407 Global Health Equity (3) (IL) This course focuses on issues related to health, social disparities, and equity in the global environment. It examines the theories of health disparities and equity from the vantage point of Western and non-Western countries. It explores epidemiologic data and the relationships between social structure, culture, demography, health promotion/disease prevention, and health policy of various countries and international health organizations. The course objectives are to: 1. discuss and critique the history, conceptual frameworks, and policy implications of global health disparities and equity; 2. examine epidemiologic data and studies pertaining to major global health issues and cross-national and comparative research; 3. discuss the role of social structure, culture, gender roles, and government policies in preventive health behaviors and health promotion in the global context; 4. critique theories and models used to inform health and development programs in non-Western nations.

Enforced Prerequisite at Enrollment: BBH 101 or 3 credits in SOC International Cultures (IL)

BBH 410: Developmental and Health Genetics

3 Credits

The focus of this course is on genetic influences on complex traits that are relevant to health and development. In the first part of the course, aspects of basic genetics are reviewed from the perspective of how genes work in the context of complex traits. This background information is complemented in the second part by an introduction to basic study designs and experimental approaches in genetic epidemiology, molecular genetics, and quantitative genetics. The third part of the class focuses on the application of these concepts and methods to the investigation of the genetics of health-related conditions. At the end of the course, students will have a fundamental understanding of how multiple genetic and environmental influences interplay to influence health, and the ability to evaluate critically claims of identification of genes that influence complex traits.

Enforced Prerequisite at Enrollment: (BBH 210 or BIOL 222) and (STAT 200 or STAT 250) Students are required to have a C or better in all prerequisite courses.

BBH 411W: Research and Applications in Biobehavioral Health

3 Credits

Research methods, multi-level analyses, and applications in biobehavioral health. BB H 411W Research and Applications in Biobehavioral Health (3) This is an upper-division course on research and applications in Biobehavioral Health and is the designated writing intensive (W) course for the major. The primary goals of this course are to provide the student the ability to effectively: 1) find, organize, integrate, and critique existing knowledge and research in biobehavioral health; 2) generate and analyze

new data related to a specific domain through the conduct of original research; 3) interpret, evaluate, and communicate—to both scientific and lay audiences—the results of the original research; and 4) integrate these findings—with due concern for strengths and limitations of the research—back into the body of knowledge on the biobehavioral health topic. In this course the instructor will first introduce the student into a body of knowledge related to a domain involving health and health-related behaviors. Example domains may include areas such as, stress and health, drug/alcohol addictions and health, hormonal impacts on health, smoking cessation programs, obesity and health, sexual behaviors and health, etc. Students will go through the steps involved in original research (e.g., Introduction, Methods and Procedures, Results, Discussion, Summary, Abstract, Bibliography) and written assignments will be involved for each step. Depending on the instructor, the original research may involve laboratory work, collection of survey data, analyses of publically available data, or existing data sets based on faculty's research program. Students will learn how to use available tools to descriptively summarize and analyze data using computer-assisted software. This is a required course in the Biobehavioral Health major. The course is designed to give skills to acquire, integrate, and critique health-related information and to communicate to professional and non-professional audiences. The course is appropriate for students intending to obtain positions in health promotion and disease prevention and to students seeking to advance to post-baccalaureate graduate and professional programs in medicine, public health, health policy and planning, and other health-related careers.

Enforced Prerequisite at Enrollment: C or better in BBH 101 and BBH 310 and (STAT 200 or STAT 250)
Writing Across the Curriculum

BBH 416: Health Promotion II: Planning, Implementation, and Evaluation

3 Credits

Planning, implementation, and evaluation of health promotion, prevention, and intervention programs; emphasizing evaluation.

Enforced Prerequisite at Enrollment: BBH 310 and BBH 316

BBH 417: Advanced Applications in Health Promotion

3 Credits

Advanced learning experience in health promotion applications in which students will actively participate in planning, implementing, evaluating health programs.

Enforced Prerequisite at Enrollment: BBH 416

BBH 420: Developing Stress Management Programs

3 Credits

Planning, developing, and implementing strategies for stress management programs for health education professionals in school, community, and corporate settings.

BBH 426: HealthWorks Peer Education Experience

1 Credits/Maximum of 5

BBH 426 is a one-credit course for students who have been trained to be peer educators in the HealthWorks program in Health Promotion and Wellness. Students will gain experience developing and implementing a range of college health promotion activities, including creating health

communication materials, conducting outreach events, delivering educational workshops and delivering one-on-one wellness services. The course includes a substantial amount of small group work. Students are expected to attend weekly meetings and engage in additional service work every week.

Enforced Prerequisite at Enrollment: BBH 324 or BBH 325

BBH 432: Biobehavioral Aspects of Stress

3 Credits

This course will cover the ways in which response to stress is related to human health. The course will explore the bidirectional relationship between dimensions of health and different types of stressors. Students will explore the effects of stress in different forms on physical, psychological, social, and cognitive outcomes. In addition, the course will examine how health status may change the way people respond to stressors. The course will cover the way stress response occurs in humans and how those responses can affect other aspects of physical, psychological, behavioral, and cognitive functioning.

Enforced Prerequisite at Enrollment: (BBH 101 or BBH 101H) and (BIOL 141 or BIOL 161)

BBH 440: Principles of Epidemiology

3 Credits

This course is designed to provide students with a basic understanding of the principles of Epidemiology and to familiarize students with the methods and applications of epidemiology to understanding the bases for heterogeneity of disease and health among populations. The goals of the course are: 1) recognize and use basic principles, concepts, terminology, and techniques in Epidemiology as applied to the study of infectious disease, chronic diseases, and other health-related problems; 2) examine and understand measures of risk and burden of illness on populations defined in terms of age, race, gender, class, time, and other relevant socio-cultural and demographic factors; 3) be able to interpret and critique epidemiological research reports on the identification of risk factors and casual factors for diseases in populations; 4) assess the health status and burden of diseases and health problems of populations at multiple levels of analysis for the purpose of planning health promotion activities and health care services; 5) have a basic understanding of the epidemiology tools for disease screening and other methods for primary and secondary prevention of disease and health problems; 6) examine the validity and applicability of various health interventions used to improve health status and the barriers for successful interventions; and 7) have a basic understanding of the epidemiology of the major causes of morbidity and mortality in the U.S. and for other selected regions and nations of the world. This is a required course in the Biobehavioral Health major and an elective course in the Health Policy and Administration major. The course is also appropriate for students intending to advance to post-baccalaureate graduate and professional programs in medicine, public health, health policy and planning, and other health-related careers. Students will be evaluated based on their performance on a combination of written assignments, a term paper or project, and exams.

Enforced Prerequisite at Enrollment: (BBH 310 or BIOL 230W or HPA 311) and (STAT 200 or STAT 250) Students are required to have a C or better in all prerequisite courses.

Cross-listed with: HPA 440
International Cultures (IL)

United States Cultures (US)

BBH 446: Human Sexuality as a Health Concern

3 Credits

Examination of human sexuality as a integral part of basic health education and health care for persons of all ages.

Enforced Prerequisite at Enrollment: BBH 101

BBH 451: Pharmacological Influences on Health

3 Credits

Biological and behavioral aspects of therapeutic and recreational drug use and misuse, and their relationships to health. BB H 451 Pharmacological Influences on Health (3) The primary theme of this course is to review and integrate information relevant to the actions, uses, and biobehavioral influences of psychoactive drugs. Concepts relevant to pharmacology, biobehavioral health, and drug use and abuse will be learned. The primary objectives of this course are:1. To provide an understanding of the concepts relevant to pharmacology, including: principles of drug action (pharmacokinetics, pharmacodynamics), drug safety, and drug effectiveness.2. To provide a descriptive representation of the breadth of topics relating to behavioral and biological influences of psychoactive (i.e., therapeutic, recreational) drugs on human health and disease.3. To provide exposure to and enhance critical thinking skills in current research related to the biobehavioral effects of psychoactive (i.e., therapeutic, recreational) drugs, including: psychoactive drug use and abuse, therapeutic drug use, and drug addiction treatments.

Enforced Prerequisite at Enrollment: BBH 101 and PSYCH 100 and (BIOL 141 or BIOL 161)

BBH 452: Women's Health Issues

3 Credits

The course provides the opportunity to explore priority health issues impacting the well being of women through a holistic lens including the physiologic, psychological, social, economic, political and cultural considerations. Issues affecting women in the United States and globally will be discussed. The lifespan from adolescence throughout later adulthood will be included. In depth exploration and critical analysis of key topics related to women's health will be incorporated into the course work and assignments. Students will be challenged to consider the health disparities influencing women and the impact these disparities have on the health of families and communities.

Recommended Preparation: BIOL 141 or PSYCH 100 or WMNST 100

Cross-listed with: NURS 452

United States Cultures (US)

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

BBH 458: Critical Feminist Issues in Reproduction

3 Credits

This course examines women's reproductive health issues from a feminist perspective. Reproduction has always been thought of as 'women's work,' yet decisions about reproduction are rarely made by

women. This course will focus on how various political institutions (e.g., religious, economic, governmental, legal, medical, etc.) influence all aspects of human reproduction, and how these influences affect women's reproductive health, both ideologically and practically, as well as how women's reproduction affects women's lives. This course will examine four aspects of reproduction from a feminist perspective: reproductive rights, including access to birth control and abortion along with the right to be free of forced sterilization; infertility and the new conceptive technologies; pregnancy, including screening, sex selection, maternal and 'fetal rights'; and childbirth options. Throughout the course, we will return to the question of the 'politics of reproduction' by asking ourselves which powerful institutions govern each particular aspect of reproduction and whether the decisions made are good for women. Using a feminist perspective, we'll focus on making women and their health needs the center of discussion and examining the relative lack of power held by women in decisions made about their reproductive health. In addition to class readings (which are both theoretical and applied in nature) students will learn through class discussions, films, and group projects.

Enforced Prerequisite at Enrollment: WMNST 100 or WMNST 100U or WMNST 105N or WMNST 106N or WMNST 106Q or WMNST 301 or PSYCH 100

Cross-listed with: WMNST 458

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Soc Resp and Ethic Reason

BBH 468: Neuroanatomical Bases for Disorders of Behavior and Health

3 Credits

An examination of the anatomical/cellular/molecular bases for human central nervous system disorders and their impacts on victims/families/caregivers. BB H 468 Neuroanatomical Bases for Disorders of Behavior and Health (3) This course will examine in detail and in depth the neuroanatomical and cellular/molecular/genetic bases for selected disorders of the human central nervous system (e.g. Parkinson's, Alzheimer's, stroke, etc.) and their impacts on the victim, his/her daily life and his/her family and care givers. Damage to, or malfunctions of, any part of the central nervous system causes specific and characteristic disruptions of normal processes, which manifest as abnormal and/or absent behaviors. Current research on the anatomical, cellular, molecular, and genetic bases for the disorders and the current/future trends in prevention/treatment of the disorders will be studied. Upon successful completion of the course, the student should be able to: a) describe the physical signs, symptoms, causes, effects on the patient and his/her family & care givers, prognoses, treatments, and support systems available to these patients, of the neurological disorders covered in this course; b) describe the neuroanatomical, cellular, and molecular bases for these conditions; c) describe the current research on these disorders and the new prevention/treatment approaches being developed. The evaluation of students' performances in the course will be typically based on multiple choice examinations and a library research paper. This course will count toward fulfilling the BB H major requirement, "Take 15 credits in Biobehavioral Health."

Enforced Prerequisite at Enrollment: BBH 368 and (BBH 469 or PSYCH 260)

BBH 469: Neurobiology

3 Credits

Students will acquire an understanding of basic neurobiology, the terminology of neuronal structures and functions, as well as experimental approaches designed to integrate the principles of neural cell biology, neurophysiology, neurochemistry, neuroendocrinology, neuropharmacology, genetics and molecular biology. The LEARNING OBJECTIVES of this course are to establish a working knowledge and understanding of: (I) the cellular structures, organelles and passive and active membrane properties important for neural function, (II) the neurotransmitters, receptors, ion channels and 2nd messenger systems underlying synaptic transmission and other forms of neural signaling, (III) the development of the nervous system including neurogenesis, neural maturation, apoptosis, synaptogenesis in both the developing and adult CNS, and (IV) the molecular mechanisms underlying synaptic plasticity and learning and memory. Lastly, (V) the course will demonstrate applications of above knowledge to select complex diseases of the central nervous system

Enforced Prerequisite at Enrollment: BIOL 230W or BIOL 230M or BMB 251 or BMB 251H or BIOL 240W or BIOL 240M
Cross-listed with: BIOL 469

BBH 470: Functional and Integrative Neuroscience

3 Credits

Neurobiological function in motivated behaviors, motor and sensory function, learning and memory, development, sexual differentiation, and pathology.

Enforced Prerequisite at Enrollment: BIOL 469
Cross-listed with: BIOL 470

BBH 471: Clinical Research Practice

3 Credits

As new molecules progress from the laboratory to the bedside, the clinical trials enterprise needs a fresh generation of professionals with knowledge of the application of research applied to human health and disease; professional skills in regulatory oversight, human subjects' protections, and research administration; and a willingness to share health interventions in communities. In this course students will develop a deeper understanding of clinical research practice including legal requirements and oversight, good clinical practice, essential elements of clinical practice/operations, data management, the financing/budgeting of clinical trials, and socio-political factors impacting trials; all of which will help prepare students for internships and jobs in clinical research organizations. The course is best suited to students with fifth semester standing or higher who are considering future careers and professional certification in clinical research specialties.

Enforced Prerequisite at Enrollment: (BIOL 161 or KINES 203) and (STAT 250 or STAT 200) Recommended Preparation: Fifth semester standing or higher. Knowledge of the health services enterprise.
Cross-listed with: HHD 410

BBH 475H: Honors Biobehavioral Analysis of Addiction

3 Credits

Addiction is a ubiquitous problem, yet understandings of addiction and opinions on the causes of addiction vary greatly. This course will

apply a biobehavioral approach to examine addiction from historical, societal, behavioral, neurobiological, and genetic contexts to identify causes, challenges, and comorbidities that associated with addiction that affect individuals and populations. Some of the course topics will include: theories of addiction, the impact of developmental exposure to substances of abuse, comorbidity of substance abuse with other mental disorders, the role of genetics in addiction, the neural substrates of addiction, and treatments for addiction. Questions that will be raised include: Can addiction be cured? Is addiction one disorder or an amalgam of disorders? What is the impact of addiction? Learning objectives include: students will be able to locate, critique, and synthesize empirical research on topics related to addiction; students will engage in discussion on topics and theories of addiction and relate research to real world situations; Students will effectively communicate on a specific addiction-related topic and include research evidence, theories, and implications.

Enforced Prerequisite at Enrollment: BBH 203 or PSYCH 260 or BIOL 469 or Permission of program or comparable course neurobiology Honors

BBH 490: Introduction to Internship Experience

3 Credits

Provide an integrative learning experience to develop professional skills encountered in an internship experience and future careers in biobehavioral health. BB H 490 Introduction to Internship Experience (3) This course is a prerequisite for BB H 495, Internship Experience in Biobehavioral Health. This course will provide students with the professional and academic skills necessary to develop an internship, be successful in an internship and equip students with the tools necessary to launch a career within the field of BBH or enable students to prepare more competitive applications for entry into post baccalaureate programs in medical fields or graduate school. The primary goal of the course is to provide integrative learning experiences preparing students to be successful in their internship endeavor, while learning practical skills necessary to flourish in future career choices. Course topics include: professional self-assessment and critical reflection, experiential learning, person/environment fit, resume creation and professional writing criteria, practical skills related to securing an internship consistent with professional goals, interviewing skills, professionalism and ethics within the BBH field, effective communication and internship agreement guidelines. Through this practical application, students will gain the necessary proficiencies and awareness of career settings, protocols and contexts under which BBH specialists work and/or prepare for future educational opportunities.

Enforced Prerequisite at Enrollment: A C or better in either of the following BBH 101H or BBH 101, Permission of program

BBH 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

BBH 494H: Senior Honors Thesis

1-6 Credits/Maximum of 6

Independent study related to a student's interests directed by a faculty supervisor and culminating in the production of a thesis.

Enforced Prerequisite at Enrollment: approval of honors thesis advisor
Honors

BBH 495: Internship Experience in Biobehavioral Health

6-12 Credits

This course provides experiential learning in the field. Internship supervision and support will be provided by site and university personnel.

Enforced Prerequisite at Enrollment: BBH 490

BBH 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

BBH 496H: Independent Honors Study in BB H

1-3 Credits/Maximum of 6

For non-thesis independent study/research by Schreyer Honors College scholars.

Honors

BBH 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

BBH 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Biochemistry and Molecular Biology (BMB)

BMB 1: The Science of Sickness

3 Credits

During this course, students will learn about the scientific process and how science has contributed to the knowledge used in the medical field to diagnose, treat, and prevent disease. The course will include a broad survey of the molecular and cellular factors that contribute to an understanding of select human diseases. By the end of the course, students will appreciate how various cellular, metabolic or genetic problems can give rise to a variety of diseases and disorders. The specific diseases covered each semester may vary based on student and instructor interest. Students will analyze the influence of molecular, genetic and environmental factors as well as lifestyle choices in regards to disease prevalence and severity. The knowledge gained about molecular processes will also be used in order for students to discuss the scientific basis of and ethical dilemmas related to controversial and cutting-edge diagnostic, treatment and prevention strategies such as drug development, clinical trials, genetic testing, genetic engineering or stem cell therapy. Lastly, students will gain knowledge necessary to

analyze statements made in the popular press about disease or disease treatments and determine if those statements are grounded in scientific research. As a course that meets general education (GN) requirements, students will increase their scientific literacy, their critical and analytical thinking, and ethical reasoning skills. Students will ultimately be able to use the knowledge gained in this course to better understand disease processes, and will be able to make better informed decisions regarding their health and well-being or that of a loved one.

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

BMB 1Z: The Science of Sickness - Linked

3 Credits

During this course, students will learn about the scientific process and how science has contributed to the knowledge used in the medical field to diagnose, treat, and prevent disease. The course will include a broad survey of the molecular and cellular factors that contribute to an understanding of select human diseases. By the end of the course, students will appreciate how various cellular, metabolic or genetic problems can give rise to a variety of diseases and disorders. The knowledge gained about molecular processes will also be used in order for students to discuss the scientific basis of and ethical dilemmas related to controversial and cutting-edge diagnostic, treatment and prevention strategies such as drug development, clinical trials, genetic testing, genetic engineering, and stem cell therapy. Lastly, students will gain knowledge necessary to analyze statements made in the popular press about disease or disease treatments and determine if those statements are grounded in scientific research. The specific diseases covered each semester may vary based on student and instructor interest, but will include a discussion of diseases that have a well understood scientific basis as well as a lifestyle component such as certain types of cancer, as well as diabetes/metabolic syndrome. Students will analyze the influence of molecular, genetic and environmental factors as well as lifestyle choices in regards to disease prevalence and severity. Diseases that have fitness related treatment options will also be discussed in order to provide further opportunities for students to integrate material with the linked course, KINES 84Z. As a course that meets general education (GN) requirements, students will increase their scientific literacy, their critical and analytical thinking, and ethical reasoning skills. As a linked course, BMB 1Z can satisfy the Integrative Studies requirement in General Education as long as students successfully complete both BMB 1Z and KINES 84Z. Students will ultimately be able to use the knowledge gained in this course to better understand disease processes, and will be able to make better informed decisions regarding their health and well-being or that of a loved one.

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

General Education - Integrative: Linked

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

BMB 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (1L)

BMB 205: Course-Based Research Experience in Biochemistry and Molecular Biology

2 Credits

In this research course, students will participate in a course-based undergraduate research experience while learning key foundational skills in the process, comprehension, and communication of science. Students will learn how to use critical thinking and metacognitive strategies to approach scientific problems, and will contribute to the scientific body of knowledge through the discoveries made in the research component.

BMB 205S: Course-Based Research Experience in Biochemistry and Molecular Biology FYS

3 Credits

In this integrated research and seminar course, students will participate in a course-based undergraduate research experience while learning key foundational skills in the process, comprehension, and communication of science. Students will learn how to use critical thinking and metacognitive strategies to approach scientific problems, and will contribute to the scientific body of knowledge through the discoveries made in the research component. This course will also contain a freshman seminar component that will help students adjust to the high expectations, academic rigors, and other aspects of the transition to college life.

First-Year Seminar

BMB 210: Phage Genomics

2 Credits

A course-based undergraduate research experience centered on analysis of bacteriophage (viruses that infect bacteria) genomics and writing a research proposal. Students will be introduced to various aspects of bacteriophage biology and various computational programs used to analyze bacteriophage genomic data. They will then use this knowledge to perform bacteriophage genomic analyses. Analyses conducted will be used to add to the current scientific knowledge through various routes, such as entries into scientific databases. Students will also learn to formulate a scientific question and write a hypothesis-based research proposal similar to those written for scientific funding agencies. In this way, students will be introduced to the process of scientific inquiry.

BMB 211: Elementary Biochemistry

3 Credits

An overview of biochemistry that includes properties of biomolecules, bioenergetics, metabolism, nutrition, genetics, and molecular biology. Elementary Biochemistry (3) BMB 211 is an overview of biochemistry that includes: basic properties and biosynthesis of proteins and nucleic acids, chemistry, and metabolism of major carbohydrate, lipid, and amino acid classes, energy production pathways including photosynthesis, biological transport, and principles of enzyme action. The course provides the student with a sufficient knowledge of biochemical processes, cellular

molecules and their metabolism to serve as a basis for advanced study of nutrition, genetics, biotechnology, agricultural sciences, or related biological areas that depend on a biochemical foundation. Achievement of course objectives is assessed through multiple written examinations designed to evaluate understanding of biochemical concepts and their applications to biological problems. BMB 211 is related to and a prerequisite for the companion laboratory course BMB 212 (1 credit).

Enforced Prerequisite at Enrollment: CHEM 202 or CHEM 202H or CHEM 210 or CHEM 210H

BMB 212: Elementary Biochemistry Laboratory

1 Credits/Maximum of 1

Selected experiments to illustrate major biochemical principles and techniques. B M B 212 B M B 212 Elementary Biochemistry Laboratory (1) B M B 212 exposes students to techniques typically used in industrial and academic laboratories to isolate proteins, perform enzyme kinetics, characterize carbohydrates and lipids, and study molecular biology. Data interpretation and conceptual understanding are emphasized. Specifically, students determine a weak acid's buffer range with a pH meter; quantify protein concentrations using a spectrophotometer; partially purify acid phosphatase from wheat germ, using ammonium sulfate precipitation, centrifugation and dialysis; characterize acid phosphatase kinetics; subject glycogen to acid and salivary amylase hydrolysis, then compare products using thin layer chromatography; isolate plasmid DNA from E.coli, then digest the plasmid DNA with restriction enzymes and analyze the products using agarose gel electrophoresis; make soap from commercial oils and fats; and lastly, identify fatty acids using a gas chromatograph. Students write laboratory reports to present their findings and correlate theory with actual experimental results. Written quizzes assess conceptual understanding of experiments. Teaching assistant evaluations judge the student's level of laboratory skill achievement, preparation, and ability to work with others in a professional manner. A solid chemistry knowledge base (CHEM 012 and either CHEM 034 or 038), previous laboratory experience, and the ability to work with mathematical word problems are expected of all students enrolled in the course. Biochemistry focuses on the chemistry of living organisms. This course provides basic biochemistry laboratory skills and exposure to widely-used methodology to develop a fundamental understanding of biochemistry needed for advanced courses in the student's major and compatible with the student's career interests. Outside resources for the student include reserved books and a course web site: www.bmb.psu.edu/courses/daniel/BMB212/default.htm.

Enforced Prerequisite at Enrollment or concurrent: BMB 211

BMB 221: Applied Biochemistry

2 Credits

Application and correlation of biochemical events to physiological-nutritional processes in specialized cells, fluids, and whole animals. Students may not receive credit for both B M B 221 and 401. B M B 221 B M B 221 Applied Biochemistry (2) In B M B 221, students will build on their knowledge from Elementary Biochemistry (B M B 211). Emphasis is on the application of biochemical principles to specific problems in medicine, agriculture, pharmaceuticals and biotechnology. Students review fundamental principles and learn how biochemical methods, techniques and theory are applied. Class presentations are computer based in some cases. The course may also include class discussions. Evaluation and grading varies with the instructor, but possible methods of evaluation include multiple choice examinations, essay-short answer

questions, and in-class contributions. Students will have completed at least three semesters of chemistry before B M B 221, because Elementary Biochemistry (B M B 211) is a prerequisite, and inorganic (CHEM 012) and organic chemistry (CHEM 034 or CHEM 038) are prerequisites for B M B 211. Knowledge of organic chemistry and basic biochemistry is essential so that the course can focus on applications rather than introductory material. B M B 221 is a requirement for those Biotechnology majors who choose not to take the 400-level series of introductory biochemistry courses. It is also required of students enrolled in the science option of the Dairy and Animal Science major. It serves as an elective for all other majors. It is not approved as a general education course.

Enforced Prerequisite at Enrollment: BMB 211

BMB 251: Molecular and Cell Biology I

3 Credits

BMB 251 Molecular and Cell Biology I (3) is an introduction to the fundamental principles of molecular and cellular biology, with a primary focus on eukaryotic cells. Topics covered will include elementary biochemistry; structure and function of biological macromolecules, the cell and its organelles; the role of biological membranes in bioenergetics and sub-cellular compartments. There will be a particular emphasis on the molecular mechanism of heredity; the organization and expression of genetic information; experimental methods used in the analysis of gene expression and the relationship between gene/protein structure and function.

Enforced Prerequisite at Enrollment: CHEM 112 or CHEM 112H

Recommended preparations MICRB 201 or MICRB 201H

Cross-listed with: MICRB 251

BMB 251H: Molecular and Cell Biology I

3 Credits

Biomolecules, genetic mechanisms, organization of cells and their organelles, DNA replication, protein synthesis, membranes, the cell nucleus, energy conversion. BMB 251H Molecular and Cell Biology I (3) This course is an introduction to the fundamental principles of molecular and cellular biology, with a primary focus on eukaryotic cells. Topics covered will include elementary biochemistry; structure and function of biological macromolecules, the cell and its organelles; the role of biological membranes in bioenergetics and sub-cellular compartments. There will be a particular emphasis on the molecular mechanism of heredity; the organization and expression of genetic information; experimental methods used in the analysis of gene expression and the relationship between gene/protein structure and function. A key feature of the Honors course is the use of review papers and peer-reviewed journal articles as integral components of the course. The objectives of this component of the Honors course are to: 1) introduce students to the scientific method (the formulation of hypotheses based on observation and the processes underpinning the rigorous test of such hypotheses); and 2) provide the intellectual framework for a critical evaluation of the literature. Students are expected to engage in classroom discussion and will be evaluated by a combination of classroom presentations, multiple choice and short essay exams. Students are expected to develop a "big picture" view of how the various cellular processes are related to each other and also attain a thorough understanding of the molecular details of the individual processes (e.g. the order and molecular details of events leading from transcription to protein localization within a cell).

Enforced Prerequisite at Enrollment: CHEM 112 or CHEM 112H Honors

BMB 252: Molecular and Cell Biology II

3 Credits

Continuation of BMB 251 / MICRB 251 ; cytoskeleton, cell growth, division, adhesion, signalling, germ cells, differentiation, immune system, nervous system, plant cells. BMB 252 / MICRB 252 Molecular and Cell Biology II (3) focuses on the internal organization on eukaryotic cells and their organization in multi-cellular organisms. Topics covered include cell communication, the cytoskeleton, cell cycle, fertilization and development of multi-cellular organisms, genesis of tissues, and the molecular mechanisms of cancer and immunity.

Enforced Prerequisite at Enrollment: BMB 251 or MICRB 251 or

BMB 251H or BIOL 230W or BIOL 230M

Cross-listed with: MICRB 252

BMB 252H: Molecular and Cell Biology II

3 Credits

Continuation of BMB 251H ; cytoskeleton, cell growth, division, adhesion, signaling, germ cells, differentiation, immune system, nervous system, plant cells. BMB 252H Molecular and Cell Biology II (3) This course is the second part of BMB 251H . This section focuses on the internal organization on eukaryotic cells and their organization in multi-cellular organisms. Topics covered include cell communication, the cytoskeleton, cell cycle, fertilization and development of multi-cellular organisms, genesis of tissues, and the molecular mechanisms of cancer and immunity. There will be a particular emphasis on how the basic principles and experimental approaches presented in BMB 251H are employed to address questions related to the topics that will be covered in BMB 252H . As in BMB 251H, a key feature of the Honors section will be the use of review papers and peer-reviewed journal articles as integral components of the course. The objectives of this component of the Honors section are to: 1) introduce students to the scientific method (the formulation of hypotheses based on observation and the processes underpinning the rigorous test of such hypotheses); and 2) provide the intellectual framework for a critical evaluation of the literature. Students are expected to engage in classroom discussion and will be evaluated by a combination of classroom presentations, multiple choice and short essay exams.

Enforced Prerequisite at Enrollment: BMB 251 or MICRB 251 or

BIOL 230W or BMB 251H or BIOL 230M Recommended preparations

BMB 251H or BIOL 230M

Honors

BMB 294: Research Projects

1-6 Credits/Maximum of 8

Supervised student activities on research projects identified on an individual or small-group basis.

BMB 297: Special Topics

1-9 Credits/Maximum of 9

N/A - just activating a common course number

BMB 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

BMB 398: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

BMB 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

BMB 400: Molecular Biology of the Gene

2-3 Credits

Biochemistry of genetic phenomena, including the structure, replication and dynamics of genes and chromosomes, their expression and regulation. BMB 400 Molecular Biology of the Gene (2-3) Molecular Biology of the Gene examines the flow of information in living things at the molecular level. Topics such as the following are included: 1) DNA replication, repair and recombination, 2) RNA transcription and modification, and 3) protein translation, folding and modification. This class is designed as a one-semester course having the objectives of understanding concepts in molecular biology and gene regulation, and exploring research materials and methods used in the laboratory. Course materials are prepared not only from the textbook but also from the primary literature. Therefore, students who want to take this course should have some familiarity with reading research articles. BMB 400 is for advanced undergraduates who have already taken introductory molecular biology and biochemistry. Knowledge of molecular biology is essential background for pursuit of a career in the life sciences, including academia, medicine, industry, forensic science and science policy.

Enforced Prerequisite at Enrollment: (BMB 251 or MICRB 251 or BIOL 230W or BMB 251H or BIOL 230M) and (CHEM 212 or CHEM 212H)

BMB 401: General Biochemistry

3 Credits

Principles of the structure and function of biological molecules, including carbohydrates, lipids, membranes, proteins, and enzymes. BMB 401 is the first course of the general biochemistry series, a sequence designed to prepare students for careers and graduate study in the life sciences. Overall, biochemistry describes, in chemical and molecular terms, the structures, mechanisms, and chemical processes at work in all living things, and abstracts organizing principles that underlie life in all its diverse forms. Building upon concepts introduced in molecular and cellular biology and in organic chemistry, students in BMB 401 synthesize and apply this knowledge toward understanding the structure and function of the major classes of cellular constituents: water, and the various macromolecules – amino acids and proteins, sugars, and polysaccharides, nucleotides and nucleic acids, fatty acids and lipids, and membranes and various membrane proteins. These molecules interact to comprise the next level of multi- and mixed molecular structures and organelles that enable a cell to carry out its many metabolic functions.

Students also learn about the technologies used to study cellular components and processes, and current advances in biotechnology that have accelerated the pace of discovery in the field. Having gained familiarity with the molecules found in a cell, students are well-equipped to take on more advanced topics in the exciting, rapidly-evolving fields of the life sciences. An overriding theme in biochemistry is that polymers of living systems, though structurally large and functionally complex, are highly ordered chemical entities, with specific sequences of monomeric subunits giving rise to discrete structures and functions. The course includes all of the following topics: 1) an introduction to protein structure function relationships, covering the structural basis of protein functions; 2) enzyme kinetics and mechanisms; 3) simple and complex carbohydrates and topics in glycobiology that include energy storage, framework skeleton, and specific molecular recognition; 4) various classes of lipids, including phospholipids, complex lipids, membrane biology and transport systems, and 5) an analysis of the biochemical basis of signal transduction describing how specific signals regulate biomolecular activity both within a cell and between cells to keep an organism in homeostasis. Lastly, as a transition to intermediary metabolism in BMB 402, an introduction to bioenergetic principles is included to provide a framework for understanding pathways of carbon and nitrogen metabolism, using glycolytic reactions as an example. Students may not receive credit for both BMB 401 and CHEM 476 or BMB 401 and BMB 221

Enforced Prerequisite at Enrollment: (CHEM 210 or CHEM 210H) and (BMB 251 or MICRB 251 or BIOL 230W or BMB 251H or BIOL 230M or BME 201) Recommended preparations CHEM 212 or CHEM 212H

BMB 401H: General Biochemistry

3 Credits

Principles of the structure and function of biological molecules, including carbohydrates, lipids, membranes, proteins, and enzymes. BMB 401H General Biochemistry (3) is the first course of the honors general biochemistry series, a sequence designed to prepare students for careers and graduate study in the life sciences. Overall, biochemistry describes, in chemical and molecular terms, the structures, mechanisms, and chemical processes at work in all living things, and abstracts organizing principles that underlie life in all its diverse forms. Building upon concepts introduced in molecular and cellular biology and in organic chemistry, students in BMB 401H synthesize and apply this knowledge toward understanding the structure and function of the major classes of cellular constituents: water, and the various macromolecules – amino acids and proteins, sugars, and polysaccharides, nucleotides and nucleic acids, fatty acids and lipids, and membranes and various membrane proteins. These molecules interact to comprise the next level of multi- and mixed molecular structures and organelles that enable a cell to carry out its many metabolic functions. Students also learn about the technologies used to study cellular components and processes, and current advances in biotechnology that have accelerated the pace of discovery in the field. Having gained familiarity with the molecules found in a cell, students are well-equipped to take on more advanced topics in the exciting, rapidly-evolving fields of the life sciences. An overriding theme in biochemistry is that polymers of living systems, though structurally large and functionally complex, are highly ordered chemical entities, with specific sequences of monomeric subunits giving rise to discrete structures and functions. The course begins with an introduction to proteins, covering the structural basis of protein functions and then moves on to enzyme kinetics and mechanisms. Next, students explore simple and complex carbohydrates and topics in glycobiology that include energy storage, framework skeleton, and specific molecular recognition. Various classes of lipids,

including phospholipids, complex lipids, membrane biology and transport systems, are covered next. Following is an analysis of the biochemical basis of signal transduction describing how specific signals regulate biomolecular activity-within a cell, and between cells-to keep an organism in homeostasis. Lastly, as a transition to intermediary metabolism in BMB 402H, an introduction to bioenergetic principles is included to provide a framework for understanding pathways of carbon and nitrogen metabolism, using glycolytic reactions as an example. Students may not receive credit for both CHEM 476 and BMB 401H.

Enforced Prerequisite at Enrollment: (CHEM 212 or CHEM 212H) and (BMB 251 or MICRB 251 or BIOL 230W or BMB 251H or BIOL 230M) Honors

BMB 402: General Biochemistry

3 Credits

BMB 402 General Biochemistry (3) is a comprehensive survey of the pathways and regulation of intermediary metabolism. Most, if not all, of the students taking BMB 402 intend to pursue a Ph.D., M.D. or M.D./Ph.D. degree after graduation. Since biochemistry is an important discipline for advanced studies in life and medical sciences, a major goal of BMB 402 is to prepare students well for their future challenges in graduate or medical school. The major topics covered include glycolysis, TCA cycle, metabolism of fatty acids, lipids (phospholipids, cholesterol and sphingolipids), amino acids and nucleotides, signal transduction, and human genetic diseases. Since biochemistry is a very rapidly progressing discipline, any new developments not covered by the textbook are introduced in the lectures or via discussion of current scientific papers at an appropriate level. In addition, students must be able to integrate information learned from different but related material.

Enforced Prerequisite at Enrollment: BMB 401 or BMB 401H or CHEM 476

BMB 402H: General Biochemistry

3 Credits

Comprehensive survey of the pathways and regulation of intermediary metabolism. BMB 402H General Biochemistry (3) provides a more intimate and interactive class environment than does BMB 402. Most, if not all, of the students taking BMB 402H intend to pursue a Ph.D., M.D. or M.D./Ph.D. degree after graduation. Since biochemistry is an important discipline for advanced studies in life and medical sciences, a major goal of BMB 402H is to prepare students well for their future challenges in graduate or medical school. The textbook used is more advanced than that used in BMB 402, and it is what is typically used in biochemistry courses taught at premier medical schools and graduate schools. The class is conducted at a challenging level to provide students with the opportunity to treat topics in greater depth and to explore current development more fully than is possible in BMB 402. The major topics covered include glycolysis, TCA cycle, metabolism of fatty acids, lipids (phospholipids, cholesterol and sphingolipids), amino acids and nucleotides, signal transduction, and human genetic diseases. Since biochemistry is a very rapidly progressing discipline, any new developments not covered by the textbook are introduced in the lectures or via discussion of current scientific papers at an appropriate level. BMB 402H exams require that students understand all aspects of a particular metabolic pathway under study, including the sequential steps of the pathway, chemical structures of all intermediates, the mechanisms of all key reactions, regulation of the pathway, and the relationships

with other pathways. In addition, students must be able to integrate information learned from different but related material.

Enforced Prerequisite at Enrollment: BMB 401 or BMB 401H Honors

BMB 403: Biochemistry Laboratory

1 Credits

An introduction to techniques of experimental biochemistry, illustrating principles covered in B M B 402.

Enforced PreRequisite or concurrent at Enrollment: BMB 402

BMB 406: Molecular Biology

3 Credits

A discussion of current aspects of cell molecular biology with a laboratory emphasizing current biotechnology techniques.

Enforced Prerequisite at Enrollment: (BIOL 222 or BIOL 322) and (BIOL 230W or BMB 251) and CHEM 212

BMB 408: Instructional Practice

1-2 Credits/Maximum of 2

Participation in the instruction of undergraduate laboratory and lecture courses, including classroom preparation; discussion of principles and objectives of each exercise. B M B 408 Instructional Practice (1-2) Students in this course will gain experience in science teaching by participating in either lecture courses (as Learning Assistants) or laboratory courses (as Teaching Assistants) with the goal of making students in this course more effective as teachers and communicators in their future careers in science. Participation in instruction of selected departmental lecture and laboratory courses will include preparation of class materials, and facilitating discussion and presentation of course principles and learning objectives of each topic or exercise.

Prerequisite: 10 credits in biochemistry and molecular biology and permission of the department

BMB 411: Survey of Biochemistry and Molecular Biology Literature

1 Credits

An introduction to readings and oral presentations in biochemistry and molecular biology.

Enforced Prerequisite at Enrollment: (BMB 401 or BMB 401H) and (BMB 400 or BMB 402 or BMB 402H)

BMB 428: Physical Chemistry with Biological Applications

3 Credits

This course uses the study of physical chemistry to develop quantitative and analytical skills in biological and chemical systems. The course covers thermodynamics, solution chemistry and kinetics. The study of thermodynamics includes the three laws of thermodynamics, and the concepts of energy, entropy and enthalpy. Solution chemistry includes the study of colligative properties, ligand binding and energetics in biological systems. Kinetics covers the study of both chemical and enzyme kinetics, as well as enzyme inhibition.

Enforced Prerequisite at Enrollment: (MATH 141 or MATH 141B or MATH 141H) and (PHYS 212 or PHYS 212H or PHYS 251) and (CHEM 202 or CHEM 202H or CHEM 210 or CHEM 210H)

BMB 428H: Physical Chemistry with Biological Applications

3 Credits

Chemical thermodynamics and kinetics with applications to biological problems.

Honors

BMB 430: Developmental Biology

3 Credits

Developmental Biology introduces students to one of the most complex and exciting areas of modern biology. This course will cover basic concepts using a comparative embryology approach and focus on molecular and genetic analysis of mechanisms involved in cell differentiation and organ development. Students will learn how studies of development in different model organisms including invertebrate and vertebrate species have identified a network of evolutionarily conserved genes and signaling pathways that regulate embryonic development and morphogenesis.

Enforced Prerequisite at Enrollment: BMB 252 or MICRB 252 or BMB 252H or BIOL 230W or BIOL 230M Recommended preparations BIOL 222 or BIOL 322
Cross-listed with: BIOL 430

BMB 432: Advanced Immunology: Signaling in the Immune System

3 Credits

The study of signaling pathways that regulate the immune response. BMB 432 / MICRB 432 / VBSC 432 Advanced Immunology: Signaling in the Immune System (3) This course will use the immune system as a model in which to study how cells communicate in order to coordinate an immune response. We will focus on signaling mechanisms that regulate such immune responses as T cell activation, Th1/Th2 differentiation, macrophage activation, and migration of immune cells to sites of inflammation. All lectures are based on recent reviews by key investigators in each field, as well as primary articles to present students with the most recent advances, techniques, and approaches used. The goal of the course will be to convey a basis understanding of intracellular signaling mechanisms that will pertain to all areas of biology, an appreciation for current questions and future directions in the field, and an in depth understanding of the signals that govern immune responses. The material presented will build on the basic concepts learned in BMB 400 and MICRB 410, and will lay the foundation for more advanced courses at the graduate level.

Enforced Prerequisite at Enrollment: (BMB 251 or MICRB 251 or BIOL 230W or BMB 251H or BIOL 230M) and (MICRB 410 or VBSC 410)
Cross-listed with: MICRB 432, VBSC 432

BMB 433: Molecular and Cellular Toxicology

3 Credits

In-depth coverage of processes by which drugs/chemicals interact with biological systems and the experimental approaches used to study these interactions.

Enforced Prerequisite at Enrollment: BMB 401 or BMB 401H or BMB 211
Cross-listed with: VBSC 433

BMB 435: Viral Pathogenesis

3 Credits

Viral Pathogenesis provides students with a general knowledge of medically relevant viruses, with a specific focus on important human viral pathogens. The course is meant to help students understand how viruses cause diseases in humans and animals. Lectures and in-class discussions will focus both on the fundamentals of viral infection and disease mechanisms, and on contemporary virology-related topics in the scientific literature. Topics discussed can be divided into two main areas: (1) general concepts related to viral pathogenesis and the control of viral infections; and (2) specific viruses that cause human disease including HIV-1, herpes viruses, papillomaviruses, influenza virus, West Nile virus, Ebola virus, and SARS virus. Although prior knowledge of virology is not required for taking this course, a working knowledge of molecular biology, cell biology, immunology, and some microbiology is helpful.

Enforced Prerequisite at Enrollment: (MICRB 201 or MICRB 201H) and (BMB 252 or MICRB 252 or BMB 252H) or (BIOL 230W or BIOL 230M)
Cross-listed with: MICRB 435, VBSC 435

BMB 442: Laboratory in Proteins, Nucleic Acids, and Molecular Cloning

3 Credits

Laboratory in enzyme purifications and assay techniques; nucleic acid isolation and characterization, including plasmid preparation. BMB 442 / MICRB 442 Laboratory in Proteins, Nucleic Acids, and Molecular Cloning (3) The DNA portion of B M B/MICRB 442 serves as an introduction to fundamental techniques of recombinant DNA technology and as a reinforcement of principles of Molecular Genetics from lecture courses. The central experiment entails all basic procedures necessary to clone a gene, i.e. to make a recombinant molecule comprised of DNA from two sources. Students use restriction enzymes to cut two distinct DNA molecules into smaller fragments. The fragments are mixed and treated with the enzyme Ligase, which randomly combines small fragments into large recombinant DNA molecules in new combinations different in composition from either original molecule. The recombinant molecules, which include genes that confer drug resistance, are transformed into *E. coli* cells that initially have no drug resistance. Cells that acquire recombinant DNA molecules are identified by selective plating on growth media containing drugs. From the transformed cells, recombinant DNA is isolated and analyzed by agarose gel electrophoresis, completing the array of basic gene cloning techniques. In addition to this central, multi-session experiment, students also do PCR and an investigation of the lac operon, a classic molecular genetic model system. The proteins portion of BMB 442 / MICRB 442 is designed to introduce students to protein biochemistry topics and laboratory techniques typically encountered in academic and commercial settings. Students will learn about buffers, spectroscopy, enzyme purification and characterization methods. Specifically, the experiments include preparation of buffers and performing kinetic studies to determine K_m and V_{max} values. Separation of a mixture of phycobiliproteins using ion-exchange column chromatography is a major experiment that the students will perform to learn protein purification methods. In this experiment they will learn how to pour a column, apply sample, elute it with salt gradient and collect fractions using automated fraction collector. Ammonium sulfate precipitation and dialysis will be part of protein purification procedures. Characterization of the separated proteins will be performed by determining the absorption spectra with spectrophotometer

and by determining the molecular weights of the subunits of the phycobiliproteins by SDS-polyacrylamide gel electrophoresis.

Enforced Prerequisite at Enrollment: (CHEM 202 or CHEM 202H or CHEM 210 or CHEM 210H) and (BMB 251 or MICRB 251 or BIOL 230W or BMB 251H or BIOL 230M) or (MICRB 201 or MICRB 201H) Concurrent Courses: BMB 211 or BMB 401 or BMB 401H

BMB 443W: Laboratory in Protein Purification and Enzymology

3 Credits

This course is intended to provide advanced Biochemistry & Molecular Biology students with in class instruction on various laboratory methods used to explore the physical & chemical properties of proteins and other topics relevant to enzymes such as protein purification techniques and enzyme kinetic assays. In addition students will have hands-on laboratory experience conducting experiments related to 1) enzyme kinetics and product inhibition pattern to determine the order of product release, 2) purification of proteins such as rabbit muscle aldolase using a variety of protein purification methods including salt precipitation, dialysis, and ion-exchange/affinity chromatography using phosphocellulose resin, 3) determination of specific activity and purity of a student purified protein, 4) determination of molecular weight of native enzymes using gel-filtration-HPLC and subunit molecular weight by SDS-PAGE, 5) determination of isoelectric point and identification of C-terminal amino acid of a purified protein, and 6) determination of optimal conditions for protein crystal growth. Student performance is evaluated through a variety of assessments, including lab reports organized in accordance to the biochemistry journal articles and through written examinations that assess the understanding of principles and methodology.

Enforced Prerequisite at Enrollment: BMB 442 and (BMB 401 or BMB 401H)

Writing Across the Curriculum

BMB 445W: Laboratory in Molecular Genetics I

2 Credits

Laboratory in molecular techniques in gene analysis and microbial genetics, emphasizing in vitro methodologies. BMB 445W Laboratory in Molecular Genetics I (2) The objectives of BMB 445W are to provide advanced Biochemistry and Microbiology students with instruction in (1) techniques commonly used in modern research and clinical laboratories in this field, (2) evaluation of the quality of experimental data, including appropriate analysis, and (3) presentation of results of laboratory work in written form. Experiments are focused on key techniques and procedures such as DNA isolation, polymerase chain reaction, Southern hybridization analysis, cloning, and DNA sequencing. Students are evaluated via written lab reports and written examinations that assess the understanding of principles and methodology. BMB 445W is an extension of the nucleic acid section of BMB 442, which is a prerequisite for BMB 445W.

Enforced Prerequisite at Enrollment: BMB 442 and (MICRB 201 or MICRB 201H) Recommended Preparations (MICRB 202 or MICRB 203) and BMB 400

Writing Across the Curriculum

BMB 448: Model Systems and Approaches in Cell Biology Inquiry

2 Credits

Advanced laboratory that uses inquiry-based approaches to analyze organelles, genetic mechanisms, and metabolic processes in eukaryotic organisms.

Enforced Prerequisite at Enrollment: (BMB 251 or MICRB 251 or BIOL 230W or BMB 251H or BIOL 230M) and (MICRB 202 or MICRB 203) Recommended Preparations: BMB 442

BMB 450: Bacterial Genetics

3 Credits

Emphasis will be on the role of mutations in the analysis of gene function; a detailed analysis of replication, transcription, translation, recombination and DNA repair. The course will also delve into the mechanisms involved in the regulation of gene expression both at the individual gene level as well as on a "global" scale. The course will examine the structure, replication and utilization of plasmids, transposons and bacteriophages, particularly focusing on their roles in the horizontal transfer of DNA between bacteria. The course will include both formal lecture presentations by the instructor as well as presentations of published research related to the field of bacterial genetics whenever possible.

Enforced Prerequisite At Enrollment: (BMB 251 or MICRB 251 or BMB 251H or BIOL 230W or BIOL 230M) and (MICRB 201 or MICRB 201H) Cross-listed with: MICRB 450

BMB 460: Cell Growth and Differentiation

3 Credits

Mechanisms and regulation of protein trafficking, organelle biosynthesis, cell development, signaling and cell cycle control. Emphasizes experimental design and analysis. BMB 460 / MICRB 460 Cell Growth and Differentiation (3) is a unique course that uses the primary literature to teach significant content in advanced cell biology while simultaneously exposing students to the scientific craft of experimental design and analysis. In addition to exploring historical and current cell biology research articles, students will develop two vital scientific skills; critical thinking as applied to experimental data and creative thinking about solving unresolved questions in cell biology. In this course students will read from journals to explore questions about cell biology and how cell biologists decipher cell functions. Instead of a general survey of cell biology, we delve into specific issues, often looking at "classic" papers describing how a specific phenomenon was first investigated to place current questions in context before progressing to the latest publications exploring how innovative techniques have been applied to deciphering cell function. The course is divided into units, each of which emphasizes content in a different area. Actual content may vary from year to year as the course is updated to reflect progress in a field of research. We have previously explored the general areas of cell membrane dynamics, intracellular protein trafficking, cell cycle regulation, cell signaling pathways and cancer cell biology. Finally, the course ends with a unit on stem cells and therapeutic cloning technology. A portion of the final unit is also devoted to discussing the ethical implications of stem cell research with an emphasis on how to make personal decisions about how our society should approach these issues. Reading guides are provided for each assignment to help students find and understand important points in reading assignments. Class periods are devoted to

explanations and instructor-led discussions about the readings with an emphasis on understanding the questions, the methods used to approach the questions, the experimental results and the interpretations of the results. Furthermore, periodic class periods are dedicated to experimental approach exercises where students work in groups to practice posing new questions as suggested by our readings and proposing experiments to answer these questions. These skills are vital part of what cell biologists do daily, and these exercises provide practice in thinking like a scientist. Students have previously reported that by taking this course they acquired the ability to read and understand the primary literature and have gained an in-depth understanding about how to use various experimental techniques.

Enforced Prerequisite at Enrollment: BMB 252 or MICRB 252 or BMB 252H or BIOL 230W or BIOL 230M
Cross-listed with: MICRB 460

BMB 464: Molecular Medicine

3 Credits

An exploration of the impact of advances in molecular biology on understanding disease mechanisms, medical diagnosis, and therapeutics.

Enforced Prerequisite at Enrollment: BMB 251 or MICRB 251 or BIOL 230W or BMB 251H or BIOL 230M

BMB 465: Protein Structure and Function

3 Credits

A study of the relationships among protein sequence, structure, and function. Course topics include description of protein structure, molecular viewing, forces that govern protein folding, macromolecular recognition, enzyme catalysis, experimental determination of protein structure, computational methods for structure prediction, and protein engineering and design.

Enforced Prerequisite at Enrollment: (BMB 251 or MICRB 251 or BIOL 230W or BMB 251H or BIOL 230M) and (CHEM 202 or CHEM 202H or CHEM 210 or CHEM 210H)

BMB 474: Analytical Biochemistry

3 Credits

Physical/chemical theory and techniques that emphasize purification and characterization of biological macromolecules, including proteins, lipids and nucleic acids. B M B 474 Analytical Biochemistry (3) This three-credit course deals with acquiring knowledge of laboratory skills required for success in experimental biochemistry and molecular biology. It is particularly suited for students intending a career as a research scientist in the areas of biochemistry, biotechnology, bioengineering, microbiology, or molecular biology. Course content focuses on the detection, purification and identification of biological macromolecules such as practice of separation science with emphasis on diffusion, gel permeation chromatography, ion-exchange chromatography, affinity chromatography, sedimentation velocity ultracentrifugation, sedimentation equilibrium ultracentrifugation, density gradient ultracentrifugation, agarose gel electrophoresis, SDS gel electrophoresis, isoelectrofocusing, membrane filtration and dialysis (including Donan equilibrium), ligand binding, high performance gas chromatography, high performance liquid chromatography, mass spectrometry, and immunological methods of macromolecules. The second unit includes

the theory and practice of biological spectroscopy with emphasis on visible, infrared, circular dichroism, optical rotary dispersion, Raman, resonance Raman, nuclear magnetic resonance, electron paramagnetic resonance, Mossbauer, surface plasmon resonance, electron-nuclear double resonance, and electron spin echo spectroscopy of macromolecules. The lectures are designed to introduce a particular topic, to derive relevant equations, to supplement reading material with practical examples, and to clarify points in assigned problem sets. Two guest lectures by experts in the field will provide up-to-date information on mass spectroscopy and Mossbauer spectroscopy, and two site-visits, one to the mass spectrometry core facility and the other to the magnetic resonance core facility, will provide hands-on experience. Problem sets are not collected or graded; rather, answers are handed out in the following class period. This method provides the ability to collaborate with others on solving problems and to self-check work.

Enforced Prerequisite or concurrent at Enrollment: BMB 428 or CHEM 450

BMB 480: Cancer Development and Progression

3 Credits

BMB 480 / MICRB 480 Cancer Development and Progression (3) explores how cancer initiates and progresses with a focus on the interactions between tumor cells and normal tissues in the body. The goal of the course is to build fundamental knowledge of the mechanisms that drive cancer, and the current advances and challenges in cancer treatment. Genetic, biochemical, mechanical, and metabolic aspects of cancer will all be discussed along with relevant experimental techniques. RNA and DNA viruses that cause cancer will be highlighted as agents leading to the discovery of oncogene and tumor suppressor signaling pathways, and as ongoing contributors to cancer-related death. Significant attention will be given to the role of the immune system in cancer development, prevention, and treatment. By understanding mechanisms leading to the disruption of signaling pathways in cancer, students will develop a framework of how hallmark features of cancer arise and what corresponding therapeutic strategies have been developed to target them. Students are expected to participate in lectures and take part in discussion and analysis of scientific literature. This course applies core concepts from genetics, biochemistry, and cell biology to the study of cancer and provides a useful foundation for students interested in pursuing related graduate research or medical studie

Enforced Prerequisite at Enrollment: (BMB 252 or MICRB 252 or BMB 252H or BIOL 230W or BIOL 230M) and (BIOL 222 or BIOL 322) RECOMMENDED PREPARATIONS MICRB 410 and BMB 460 and MICRB 415

Cross-listed with: MICRB 480

BMB 482: Introduction to Computational Biology

3 Credits

Modern DNA sequencing technologies have transformed molecular biology into a data science. Sequencing machines can now read hundreds of millions of DNA sequence fragments in a few hours and at low cost. These technologies not only enable affordable sequencing of individual genomes (human or any other species); they also allow us to investigate numerous ways in which the genome performs its biological functions in different cell types and how mutations in genomes give rise to various phenotypes. However, given the volume of data and the noisy nature of biological measurements and signals, we require intelligent and efficient computational algorithms to make sense of genomic datasets. The discipline of bioinformatics and computational biology aims to

meet this need. This course focuses on understanding and applying the computational methods and algorithms that are used to analyze genomic data, in particular the large datasets arising from high-throughput DNA sequencing technologies. During the course, we will focus on several application areas in genomics that require computational analyses. These topics will be organized around three main themes: - Genomes: comparing DNA and protein sequences; locating sequences on the genome; assembling genomes. - Evolution: reconstructing evolutionary relationships; personal genomics; detecting disease-associated genome variations. - Function: understanding biochemical activities using functional genomics; discovering functional elements in genome sequences; characterizing regulatory relationships between genes. For each of the genomics topics listed above, we will focus on understanding the computational algorithms that are used to analyze data. Such algorithms may include dynamic programming (sequence alignment), graph algorithms (assembly), clustering methods (phylogenetics & metagenomics), and machine-learning approaches such as Expectation Maximization, Gibbs sampling, and Hidden Markov Models (various applications in discovering functional genomic elements). Students will also develop practical bioinformatics analysis skills throughout the course. Each bioinformatics topic will be accompanied by practical exercises. Students will also work in teams to research and develop a project that applies computational methods to a genomics-related problem.

Enforced Prerequisite at Enrollment: BMB 251 or BMB 251H or MICRB 251 or BIOL 230W or BIOL 230M or CMPSC 465

BMB 484: Functional Genomics

3 Credits

Biochemical, genetic and evolutionary approaches to comprehensive discovery of functional DNA segments in genomes, including genes and regulatory sequences. BMB 484 Functional Genomics (3) What in your genomic DNA makes you different from chimpanzees, mice or flies? What sequences in your DNA make it more or less likely that you will develop diabetes or cancer? These are questions of widespread interest, answers to which could play major roles in personalized medicine and in understanding our place in the biosphere. Modern genomic analysis uses powerful technologies and generates massive amounts of data, which are yielding exciting insights into answering these questions. One hallmark of genomic research is that data are released rapidly along with tools for browsing and analyzing it. Thus not only can you learn the major results by reading papers, but you can examine the underlying data and do your own analyses. Discovery is no longer the exclusive domain of the data producers - you can join in! This course will introduce students to ongoing research aimed at identifying functional regions in genomes and encourage them to use web-based bioinformatics tools for exploring the genomic and epigenetic data. Students will develop creative projects that address issues in functional genomics of high interest to them. The course has two phases, the first on the basics of genomics (sequencing, alignment, assembly, resources), and the second on the search for functional elements in genomes. The course will explore ways to find: - Protein-coding genes within genomes- Transcribed regions: How much of the genome is transcribed? Which transcribed regions do not code for proteins? What roles do they play in the cell (regulatory and enzymatic)? - Evolutionary signatures of function: How can you use genome comparisons between species to estimate the amount of functional sequence - and to identify it? - Non-genic functional sequences: How do you map epigenetic features associated with gene regulation, such as histone modifications, DNase hypersensitive sites, and transcription factor occupancy? - Function by phenotype: Given the

ability of genetic association to find loci that contribute to complex traits, such as disease susceptibility, how does functional genomics aid in finding basis of these traits?

Enforced Prerequisite at Enrollment: (BMB 251 or MICRB 251 or BIOL 230W or BMB 251H or BIOL 230M) and (BIOL 222 or BIOL 322)

BMB 485: Human Genomics and Biomedical Informatics

3 Credits

The purpose of this course is to introduce students to the field of Human Genomics and Biomedical Informatics, in particular in the context of genetic architecture of complex human diseases and traits. The field of Human Genomics has experienced a massive explosion in data generation technologies, new discoveries, and increasing popularity in many scientific fields. This course will cover the molecular, statistical, population, and analytical aspects of modern human genomics and translational aspects of this field in biomedical informatics. Current methods to uncover the complex underpinnings of disease including methods to explore gene-gene and gene-environment interactions and data integration will also be covered.

Enforced Prerequisite at Enrollment: BIOL 322 and (STAT 200 or STAT 250 or STAT 301 or STAT 401)

Cross-listed with: VBSC 485

BMB 488: Communities of Practice in Biochemistry and Molecular Biology

2 Credits/Maximum of 16

The course combines laboratory research in a community of practice and a seminar on topics in science, ethics, and society.

Enforced Prerequisite at Enrollment: MICRB 202 RECOMMENDED PREPARATIONS MICRB 202 or MICRB 203

BMB 490: Undergraduate Research in Cellular Dynamics I

3 Credits

In BMB 490, students will form a collaborative team to explore a research topic in cell and molecular biology. Students will learn about experimental design, laboratory techniques, data analysis, and interpretation of data. By the end of the fall semester, students will have conducted and analyzed 2-3 experiments and gained background knowledge and hands-on experience in various techniques in cell and molecular biology. BMB 490 students may choose to continue their research in BMB 491, allowing students to complete a fast-tracked start-to-finish research project that goes from designing experiments all the way through to writing up and presenting findings.

Enforced Prerequisite at Enrollment: BMB 251 or MICRB 251 or BMB 251H or BIOL 230W or BIOL 230M

BMB 491: Undergraduate Research in Cellular Dynamics II: Communicating Scientific Findings

3 Credits

BMB 491 is designed to be a continuation of BMB 490. Through BMB 490/491, students will complete a fast-tracked start-to-finish research project and in doing so will learn to perform, explain, apply, and interpret good science. In BMB 491, students focus on effectively

communicating scientific findings and preparing their data for publication. Students will use a variety of media to communicate science across different audiences. They will prepare written, oral, and visual presentations while learning to adapt content and style for different contexts. Students will complete major projects in stages, guided by weekly exercises and lectures on content, structure, and formatting for different types of scientific writing. Students will also learn how to assemble figures and visual aids to communicate their approaches and findings. Readings and figures from the scientific literature will provide opportunities to evaluate methods of visual and written communication, while continuing to promote a deeper understanding of cell structure and function. Building expertise across BMB490/491 in an area of cell and molecular biology allows students to critically evaluate the content and style of published articles, and to build conclusions about their own research results. Students will also engage in extensive peer review and will be expected to incorporate feedback into improving their writing and presentation skills. Throughout this course, students will gain an appreciation for the importance of effective communication in science, and will build the skills necessary to logically, accurately, ethically, and persuasively communicate. These skills will be extremely valuable in research-related careers, but also apply to any position where students act as consumers, producers, advocates, or interpreters of science.

Enforced Prerequisite at Enrollment: BMB 490

General Education: Writing/Speaking (GWS)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

BMB 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

BMB 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

BMB 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Bioethics (BIOET)

BIOET 100: Bioethics

3 Credits

This course surveys core topics in recent bioethics - the study of ethical problems issuing from the use and treatment of human and non-human animals in the research and practice of medicine and biotechnology. It aims to help students think more critically and argue from specific moral theories when evaluating issues concerning human body and its enhancement, the value of life and death, abortion and euthanasia, the distinction between biological and moral conceptions of human, the nature of health, illness and disabilities, the allocation of resources for

health-care, doctor-patient relationships, and our moral conduct toward animals in medical and industrial contexts.

Cross-listed with: PHIL 132

Bachelor of Arts: Humanities

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Soc Resp and Ethic Reason

BIOET 110N: Health, Illness, and the Human Condition

3 Credits

This survey course explores the human experience of health and illness from a combined social/behavioral science and humanities perspective. Topics may include the following: the body in art, science, and history; models of normality and disease; family, patient, and practitioner stories; adaptation to illness; health care relationships; principles and psychology of health care ethics; cultural aspects of end-of-life; identity, meaning, and mental health in health care professionals. Reading, writing, and discussion will give students in all majors a set of skills and knowledge for understanding individuals and groups in the context of health and illness. Texts include fiction; poetry; graphic memoir; film; essays; and social science research and theory. Students will experiment with various writing genres to understand and challenge disciplinary boundaries, and creative projects will provide experience with diverse methods and types of knowledge. The arena of health and illness presents a valuable opportunity for integrating social/behavioral science and humanities in analyzing and solving real world problems. Despite technological advances, health care is essentially a human-to-human endeavor, so the humanities and social sciences are necessary to complement biomedical perspectives. This course provides transferable skills and a framework for addressing similar challenges and opportunities in a range of fields that students may encounter in the future. This is an Inter-Domain course containing two general education domains (GH/GS). Successful completion of the course fulfills 3 credits of Integrative Studies in General Education. Prerequisite: ENGL 15

Prerequisite: ENGL 015.

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

BIOET 220N: Ethics, Society, and Science Fiction

3 Credits

This inter-domain (GH and GS) course will introduce students to the application of technology-ethics and bioethics, as well as the humanities (especially health and medical humanities) and the social sciences, through the lens of science fiction and speculative fiction. As an inter-domain course, it will: (1) develop foundational knowledges across the disciplines of the humanities and the social and behavioral sciences; and (2) encourage an appreciation for the plethora of stakeholders and often-competing values and interests underlying bioethical/technology-ethics concerns. By applying ethics-based, analytical arguments and counterarguments, students will engage in civil, reasoned debate on highly charged, challenging topics using ethical frameworks. In addition,

given exposure to a wide range of non-canonical authors and other creators with varied intersectionalities, students will engage with the concepts of diversity, equity, and inclusion.

Cross-listed with: ESC 220N, HHUM 220N

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

BIOET 322: Media Arts Pedagogies, Transcultural Dialogues, & Bioethics

3 Credits

The course explores how emerging technologies impact beliefs, practices, research, and communication regarding the nature of knowledge, learning, teaching, remix culture, visibility, materiality, self, and art. Engage with emerging technologies to learn about media arts and pedagogies that address bioethical issues of injustice, equity, diversity, and inclusion in which the borders of self are questioned. Course content considers the premise that humans are not discreet entities but connected through technologies in ways that are socio-cultural, geopolitical, and techno-biological. Through course experiential activities, gamification pedagogies, and a virtual fieldwork component in building and piloting ethical and accessible educational practices in online teaching, students explore identity formation encoded in social-technological practices. The Transcultural Dialogue project builds international relationships creating collaborative art and generating dialogue. The transcultural dialogue theme weaves, throughout the course, issues of contemporary visual culture, cultural practices in relation to particular places, and pedagogical approaches designed to erode assumptions, ignorance, and misunderstandings. Through media arts pedagogies, the course raises bioethical concerns such as systemic injustice and approaches creativity as a social process in developing curriculum and teaching with emergent technologies.

Enforced Prerequisite at Enrollment: 5th semester-standing

Cross-listed with: AED 322

International Cultures (IL)

BIOET 401Q: Science, Ethics, Policy, and Law

3 Credits

This course explores the ethical, policy, and legal implications of science, and the implications of science for ethics, policy, and law. The course provides an introduction to scientific norms and practice; an introduction to the theories and methods employed in ethical analysis; an overview of ethics for scientists (including, but not limited, to falsification, fabrication, and plagiarism, and the protection of human and non-human animal participants); and an introduction to law and policy. In addition, the course will explore the use of science in the courts; the role of scientists in policy debates (whether they should be advocates or "honest brokers"); science education policy; science communication and scientific hype; the roles and responsibilities of professional scientists and citizen scientists; science in regulatory and policy processes; the assessment and management of risk; policymaking in the face of scientific uncertainty; and what ethics, policy, and law might learn from recent developments in social and behavioral science. In its examination of law and policy, the course will explore international and comparative

perspectives. The course will also explore a variety of special topics (that may vary according to the expertise of the instructor and the interests of the students). These topics may be drawn from a variety of spheres: medicine and public health, food and nutrition science, neuroscience, agricultural science, climate science, and the social sciences. Special topics may include the ethical and policy implications of "big data"; the ethics of science in war and as an instrument of harm; climate science, climate change denial, and ethical decision-making in the face of scientific uncertainty; the promises and perils of forensic science; the role of food science in nutrition policy; the regulation of environmental toxins; the use of behavioral science and "nudging" in public health policy; gun violence and gun control policy; contemporary challenges related to transparency, reproducibility and replication in science; the commercialization of science, and an ethical and policy assessment of the so-called "Triple Helix" of government-academy-industry relations; and the neuroscience of moral and criminal responsibility.

Prerequisites: 5th Semester standing

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

Honors

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

BIOET 432: Medical and Health Care Ethics

3 Credits

This course examines ethical, social, legal, and policy issues related to the research, implementation, and practice of medicine, medical technologies, and healthcare. It uses secular ethical theories, frameworks, and concepts, as well as health/medical humanities methodologies.

Enforced Prerequisite at Enrollment: fifth-semester standing

Cross-listed with: PHIL 432

Bachelor of Arts: Humanities

BIOET 496: Bioethics Independent Studies

1-9 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

BIOET 497: Special Topics in Bioethics

1-9 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Bioethics and Medical Humanities (BMH)

BMH 490: Bioethics and Medical Humanities Capstone Course

3 Credits

Students will integrate knowledge from their BMH minor through discussion and writing a paper on some aspect of medical humanities.

Prerequisite: PHIL 132

Biological Engineering (BE)

BE 1: Growing Your Future—First-Year Seminar

1 Credits

First-year seminar to introduce students to the breadth of the agricultural and biological engineering profession, including bioprocessing, machinery, and natural resources. B E 001S Growing Your Future—First-Year Seminar (1) This first-year seminar introduces students to the university in general and to the breadth of the agricultural and biological engineering profession. Students participate in hands-on lab activities in the focus areas of the profession, including machinery systems, food and biological processing, and natural resource engineering. Through these lab activities and a group project, students learn how the profession is critical to providing a growing world population with food, fiber, fuel, and water under increasing environmental constraints. In addition to being introduced to Penn State as an academic community, students also become familiar with the resources, tools, and opportunities available to them. Through the lab activities and in-class discussions on research, internship, and international opportunities, students meet and establish relationships with faculty, graduate students, and undergraduate students affiliated with the Biological Engineering and BioRenewable Systems programs.

First-Year Seminar

BE 97: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

BE 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

BE 299: Foreign Studies

1-12 Credits/Maximum of 12

Course offered in foreign countries by individual or group instruction

International Cultures (IL)

BE 301: Mathematical Modeling of Biological and Physical Systems

3 Credits

The ability to quantify relationships into mathematical models, and implement the models into the computer to find solutions, is essential for engineering analysis and design. This course provides the student with tools for modeling biological and physical systems. Upon completion of this course, the student will be able to: identify a process/system and represent that process/system mathematically; solve the mathematically-represented system using computer-based modeling tools, such as Excel and MATLAB; describe the emphasis areas offered in the Biological Engineering major; and be able to develop a systems model related to each area. The course includes engineering economics, matrix operations, curve fitting, numerical integration and differentiation, linear

and non-linear systems of equations, and applications of these methods to biological and agricultural systems.

Enforced Prerequisite at Enrollment: MATH 250 or MATH 251

BE 302: Heat and Mass Transfer in Biological Systems

4 Credits

This course applies the principles of heat and mass transfer to natural and engineered biological systems, ranging from soil/water ecosystems to animal, plant, and microbial production systems. Heat transfer mechanisms (conduction, convection, and radiation) are covered, as well as analysis techniques for steady state and transient cases. Mass transfer mechanisms (diffusion, dispersion, and convection) are also covered followed by simultaneous heat and mass transfer, including psychrometrics, ventilation, and drying. Applications of heat and mass transfer to agricultural and biological engineering are interwoven throughout the course. These applications may include heat exchangers for hydraulic systems, flow through porous media, soil freezing and thawing, bioreactor design, post-harvest product storage, animal housing, and greenhouses.

Enforced Prerequisite at Enrollment: BE 301 and [MATH 251 or (MATH 250 and MATH 252)] and (ME 300 or ME 201 or CHE 220 or EMCH 302H) Enforced Concurrent at Enrollment: CE 360 or ME 320

BE 303: Structural Systems in Agriculture

3 Credits

The objective of this course is to provide the student with the essential skills necessary to engage in practical agricultural structure analysis and design. Topics include a review of shear, moment and deflection concepts; loading in agricultural structures including earth loads, grain loads and livestock loads; methods for the analysis of determinate and indeterminate beams, trusses and frames; the material properties of wood including impact of species, grain orientation, degree of hydration, etc., on member adequacy. The nano and molecular structure of wood is also discussed and how it impacts material properties. The course is focused on the practical application of basic engineering principles with examples. The course contains a design analysis project where a student team analyzes an industrially designed structure (typically a post-frame building containing a truss roof system), which has been designed for a specific area. The team then redesigns the structure for a different location with different snow and wind loadings as well as intended usage, and optimizes the structure for efficient design of the structural members. The design and analysis may be completed using a common industrial software package. The course will serve as a prerequisite for senior-level structural design courses.

Enforced Prerequisite at Enrollment: EMCH 210 or EMCH 213

BE 305: Agricultural Measurements and Control Systems

3 Credits

Principles of measurements, instruments, controls, and data acquisition systems, with emphasis on agricultural applications. B E 305 Agricultural Measurements and Control Systems (3) Engineers and scientists are routinely required to measure or control parameters of physical systems. Frequently, these parameters are quantified electronically. This course prepares the student to solve fundamental engineering instrumentation and control problems with emphasis on agricultural and biological systems. Upon completion of this course, the student will be

able to: select and apply electronic devices to solve basic engineering measurement and control problems; apply interference (noise) reduction techniques using sound engineering principles; demonstrate correct use of common electronic measurement tools including multimeters, oscilloscopes and others; demonstrate electrical construction techniques including cable preparation, soldering, crimping, circuit board fabrication, and others; explain simple measurement and control circuits represented by schematics or ladder diagrams; demonstrate the application of dataloggers, microcontrollers, programmable logic controllers, and computer software to collect data and/or control basic processes; explain the function of common circuit components such as resistors, capacitors, inductors, diodes, transistors, op-amps, and transformers in simple circuits. Students are evaluated on homework and lab worksheets, quizzes, an oral presentation, and a final project.

Enforced Prerequisite at Enrollment: PHYS 212

BE 306: Machines for Agricultural and Biological Processing

3 Credits

This course is designed to provide a broad foundation for understanding machine system design for Biological Engineering students. In addition, this course serves as a foundation for those wishing to develop a more focused understanding of agricultural and general machine systems, and is a prerequisite for ASM and BE 400 level courses. Machine systems are an integral part of many agricultural operations from field production to post-harvest processing, storage, transportation, and bio-based processing. Biomass feedstock logistics and bioenergy production systems are heavily relying on machine systems. Biological Engineers will likely encounter a wide range of powered and automated equipment in their careers. This course consists of lectures, labs, and open-ended design projects. The lab activities will focus on testing and evaluating of machine performance using prototype machines and instruments. Lab activities and design projects will be completed in the format of small groups. This course equips the students to: (1) describe operating characteristics of engines and motors and properly select models for different applications: (2) design machine elements and mechanical power transmission systems to accomplish a machine task: (3) apply basic physics and engineering principles in a variety of machine-product interaction situations: and (4) practice technical report writing and oral presentation.

Enforced Prerequisite at Enrollment: EMCH 212 and (EMCH 210 or EMCH 213)

BE 307: Principles of Soil and Water Engineering

3 Credits

BE 307 focuses on utilization and engineering of soil-water resources, including rainfall-runoff, soil-water movement, erosion/sediment transport and flow processes. For each topic, the significance, underlying principles and equations will be covered, along with further exploration in a practical and experiential mode with class participants sharing in problem formulation, team problem solving, discussions, lab activities, and explanations/presentations. Students will be exposed to map use, representative soil profiles, cropping-management systems, and watershed-scale settings. Lab activities will sequentially build from one lab period to the next, showing how each stage of soil and water engineering is used to develop a more complete watershed-type project. As appropriate, field trips will be scheduled so as to show course participants the practical settings in which basic soil and water engineering principles can be applied. The course will serve as

preparation for the senior-level soil and water engineering design courses in the Natural Resources Engineering Option of the Biological Engineering (BE) major.

Enforced Concurrent at Enrollment: CE 360 or ME 320

BE 308: Engineering Elements of Biochemistry and Microbiology

3 Credits

Introduction to basic biochemistry and microbiology as well as industrial and environmental applications. B E 308 Engineering Elements of Biochemistry and Microbiology (3) B E 308 provides an introduction to microbiology, biochemistry, and major organic compounds found in living systems such as carbohydrates, lipids, proteins, and vitamins, as a package to engineering students. Energy calculations in microbial bioenergetics will be covered. Examples of industrial and environmental applications that build on the basic principles will be presented.

Enforced Prerequisite at Enrollment: CHEM 110

BE 391: Communication Skills for BE and ABSM Students

2 Credits

This course is one part of a two-semester experience in discipline-specific communication and leadership skills training. A key facet of this training is contextual approach. To meet the needs of BE and ABSM students, the course emphasizes communication skills that are critical for their professional development, appreciating the technical content of students' work and the industries within which the students will ultimately work. The primary focus for this course is communication skills (oral and written) with a secondary focus on leadership and career skills. Students will be evaluated through various methods, such as writing and speaking projects, professional presentations, written homework and worksheets in class and out, creation of portfolios and reports, and in-class group and individual exercises. This course provides a foundation in General Education, Writing and Speaking (GWS) for students in the Biological Engineering (BE) and Agricultural and Biorenewable Systems Management (ABSM) majors.

Enforced Prerequisite at Enrollment: Fifth semester standing or higher
Cross-listed with: ABSM 391

General Education: Writing/Speaking (GWS)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

BE 392: Leadership and Ethics for BE and ABSM Students

2 Credits

This course is the second half of a two-semester experience in leadership, ethics, and communication skills training, following ABSM/ BE 391. Course modules focus on leadership and communication needs of industry within its corresponding technical content thereby representing a complete contextual approach. The primary focus of this course is on leadership, with communication, ethics, sustainability, and professional development issues presented in the context of how they relate to leadership. Topics developed for this course include personal development, ethical decision-making, corporate social responsibility, strategic group management, facilitation, and diversity.

Enforced Prerequisite at Enrollment: Fifth semester standing or higher

Cross-listed with: ABSM 392

General Education: Writing/Speaking (GWS)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Soc Resp and Ethic Reason

BE 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

BE 404: Engineering Properties of Food and Biological Materials

3 Credits

Engineering properties play a crucial role during the analysis, design, and synthesis phases of problem solving. The accurate knowledge of properties is essential to the precise determination of the overall system and component responses. Due to the time-dependent and environmentally-sensitive nature of properties of the agricultural, food, and biological materials, the theory and measurement systems are different from those used for conventional engineering materials and their systems. Therefore, the focus of this course is to provide the students with sound bases of the theory and measurement methods that are used to quantify physical, mechanical, thermal, biological, and chemical properties of products and their systems. In addition, the significance and importance of the inherent variation in the property values of agricultural, food, and biological materials is emphasized.

Enforced prerequisites at Enrollment: BE 301 and (EMCH 210 or EMCH 213) **Enforced Concurrent at Enrollment:** (CE 360 or ME 320) and (MATH 251 or MATH 252) and (3 credits in STAT or IE 424)

BE 460W: Biological Engineering Design I

2 Credits

BE 460W is part one of a two course sequence that provides a culminating design experience for students in the Biological Engineering major. Students will develop skills and techniques for managing and executing engineering design projects in the following fields: agricultural engineering, food and biological processing engineering, and/or natural resource engineering. Projects are sponsored by faculty, industry, or community initiatives and are structured to span two semesters. In the Fall semester, the emphasis is on classroom lectures, preliminary analyses, and project proposal development. In the Spring semester, the emphasis is on hands-on laboratory activities, project execution, and report preparation. Project teams perform all facets of the design process. This includes problem identification, planning of the project, formulation of design specifications, development and evaluation of alternative conceptual designs, development of detailed designs, consideration of safety and design optimization, design implementation, design testing, and analysis and documentation of results. Students improve their writing skills through preparation and refinement of various documents including a design notebook, proposal, statement of work, design specification report, status reports, and a final report. Students also present their results in other formats, including poster and oral presentations for both technical and non-technical audiences.

Enforced Prerequisite at Enrollment: (BE 391 or BRS 391 or ENGL 202C) and (11 or more credits of BE) and (Seventh Semester standing or higher)

Writing Across the Curriculum

BE 461: Design of Fluid Power Systems

3 Credits

This course is designed to provide a solid foundation for understanding hydraulic and pneumatic systems for power transmission and motion control, including hydrostatic transmissions and electro-hydraulic systems. Applications include mobile and stationary equipment in agricultural production and processing systems. Biological Engineers (and other engineers as well) will likely encounter a wide range of powered and automated equipment in their careers. This course equips the students to: (1) understand the key operating characteristics of most fluid power system components including compressors, pumps, valves, cylinders, and motors, (2) design fluid power circuits, (3) mathematically model the steady state operation of fluid power systems, and (4) have sufficient knowledge to obtain the Hydraulic Specialist Certification offered by the Fluid Power Society. The course includes a hands-on laboratory offering the chance for students to construct circuits, see component cutaways, experience component and system performance demonstrations, and work with electronic control of hydraulic systems. Prerequisite knowledge includes fluid mechanics and familiarity with mechanical power transmission systems. Students may be evaluated based on homework assignments, laboratory reports, a design project, and exams.

Enforced Prerequisite at Enrollment: (BE 306 or ME 360) and (CE 360 or ME 320)

BE 462: Design of Wood Structures

3 Credits

BE 462 covers structural properties of wood, design of wood structural elements, design of wood structural systems, and design of post-frame buildings. The course begins by defining the structural loads applicable to wood framed building systems. Then, students are introduced to the unique physical and structural characteristics of solid lumber and other wood products, such as plywood and other panel products and structural composite lumber, including laminated veneer lumber, parallel strand lumber and composite wood I-joists. The engineering principles and specifications for designing wood structural members, including tension members, beams, columns, and beam-columns are presented in detail using the National Design Specification for Wood Design. Design specifications for designing wood structural connections using dowels, such as nails, bolts and lag-screws, are presented. Design procedures for designing selected wood-frame systems, such as floors, trusses, structural diaphragms and shear walls, are also presented. Students are introduced to a computer program which is an invaluable aid for analyzing and designing wood framed structural systems. At the conclusion of the course students will be able to specify structural loads for wood framing systems and analyze and design wood beams, columns, beam-columns, typical wood diaphragms and shear walls, simple wood structural systems, and a range of wood structural connections. The course builds on engineering students' prior knowledge from strength of materials and elementary structural analysis. Students may be evaluated based on homework assignments, exams and a semester project.

Enforced Prerequisite at Enrollment: BE 303 or AE 308 or CE 340

BE 463: Design Principles of Mechatronics for Biosystems

3 Credits

This course applies the basics of mechatronic systems such as controller, sensor, and actuator theory to agricultural and biological systems. Applications in agricultural and biological systems will be covered throughout the semester such as developing mini-scale peach tree detector, apple harvester, animal body temperature sensing unit, nursery plant identifier, light sensor application for apple maturity evaluation, or similar topics. Students will gain hands-on experience with agricultural robotics and micro-controller programming through design and implementation of an embedded system based on microcontroller.

Enforced Prerequisite at Enrollment: BE 305 or EE 210 or EE 211 or EE 212

BE 464: Bioenergy Systems Engineering

3 Credits

In the coming decades biomass will play an increasing role in satisfying society's energy and material needs, providing a renewable alternative to fossil fuels. This course will cover the fundamental theories and applied technologies used in production and conversion of biomass into transportation fuels, heat, power, electricity, chemicals and other value-added products. Production strategies focus on sustainable cropping systems, harvest, storage, and pretreatment for diverse biomass feedstocks. Conversion technologies covered include ethanol fermentation, biodiesel catalysis, combustion, pyrolysis, gasification, anaerobic digestion, and emerging processes. System analysis will address worker safety and health, environmental impacts, policy, and economics. The course is recommended for students in engineering and science majors with a background in thermodynamics, chemistry, and biochemistry or microbiology. Evaluation may be based on class participation, homework, quizzes, exams, and a team design project. Students may take only one course from BE 464 and ABE 884 for credit.

Enforced Prerequisite at Enrollment: EME 301 or ME 201 or ME 300 or CHE 220 **Enforced Concurrent at Enrollment:** BE 308 or CHE 340 or CE 479

BE 465: Food and Biological Process Engineering

3 Credits

Engineering principles of fluid flow, thermal processes and other topics will be applied to the design of systems for the food and biological process industry. Due to the focus on unit operations and material and energy balances, the examples used will be applicable to bioreactor production, food processing, pharmaceutical manufacture, etc. At the end of this course, students will be able to do the following: use and convert units and dimensions applicable to food processing; apply laws of conservation of mass and energy to unit operations; evaluate time and temperature profiles for food pasteurization and sterilization; design an aseptic processing system; describe operation of mechanical refrigeration systems; calculate freezing times; design a continuous air blast freezing system; compute the energy requirements in single and multiple effect evaporators; and use the psychrometric chart in relation to drying processes.

Enforced Prerequisite at Enrollment: BE 302

BE 466W: Biological Engineering Design II

2 Credits

BE 466 is part two of a two course sequence that provides a culminating design experience for students in the Biological Engineering major. Students will develop skills and techniques for managing and executing engineering design projects in the following fields: agricultural engineering, food and biological processing engineering, and/or natural resource engineering. Projects are sponsored by faculty, industry, or community initiatives and are structured to span two semesters. In the Fall semester, the emphasis is on classroom lectures, preliminary analyses, and project proposal development. In the Spring semester, the emphasis is on hands-on laboratory activities, project execution, and report preparation. Project teams perform all facets of the design process. This includes problem identification, planning of the project, formulation of design specifications, development and evaluation of alternative conceptual designs, development of detailed designs, consideration of safety and design optimization, design implementation, design testing, and analysis and documentation of results. Students improve their writing skills through preparation and refinement of various documents including a design notebook, proposal, statement of work, design specification report, status reports, and a final report. Students also present their results in other formats, including poster and oral presentations for both technical and non-technical audiences.

Enforced Prerequisite at Enrollment: BE 460W
Writing Across the Curriculum

BE 467: Design of Stormwater and Erosion Control Facilities

3 Credits

This course equips students with the ability to design sediment and stormwater impoundments and erosion control structures used in agriculture and the development of the agricultural-urban interface. Predictive hydrology is presented along with an introduction to a hydrology-based model used in the land-development industry. Basins are presented as fundamental structures used to attenuate stormwater peaks as well as holding ponds to facilitate gravitational sediment removal from stormwater runoff. Various sediment traps are also included. Flood routing is developed so students understand and can design for flood peak attenuation. Low Impact Development (LID) practices such as green roofs, bioretention areas and vegetated filter strips are presented as infiltration-based alternatives to traditional stormwater management. Open channel design procedures including maximum permissible velocity and tractive force are reviewed. The course includes two design projects. Students are assigned a land parcel and the proposed development. Students are expected to develop an Erosion and Sedimentation Control Plan and a Post-Construction Stormwater Management Plan. Both projects are expected to be developed in compliance with state regulatory standards and to include LID practices as appropriate. In addition to the design projects, students may be evaluated on lab reports, in-class activities, and a mid-term exam.

Enforced Prerequisite at Enrollment: BE 307 or CE 461

BE 468: Microbiological Engineering

3 Credits

Microbiological engineering is the application of basic engineering principles and designs in biochemical and biological processes. The purpose of this course is to provide an understanding of conversions

of raw agricultural materials into value-added products via microbial fermentation. This course presents all steps in this type of bioprocessing such as mutagenesis, genetic modification for microbial manipulation, enzyme and microbial kinetics, aeration, agitation for bioreactor design, and scale-up strategies, as well as various recovery methods for downstream processing.

Enforced Prerequisite at Enrollment: BE 308 or (MICRB 201 and BMB 211)
Enforced Concurrent at Enrollment: BE 302

BE 477: Land-Based Waste Disposal

3 Credits

The course focuses on exploration of the fundamental principles and processes that determine the fate of nutrients and pollutants in liquid and semi-solid wastes that are applied to the soil for recycling and disposal. These principles then serve as the basis for design of systems for application of livestock manures, biosolids, septage, wastewater effluents, and other residual materials. Relevant state and federal regulations will be covered to illustrate the impact of regulations and policies on engineering practice. The course culminates in a project for which students design a system to dispose of municipal, agricultural, or industrial byproduct or wastewater. Principles will be reinforced with several homework sets. Field trips will expose students to land-based waste disposal processes and systems. The course will serve as a senior-level engineering science/design course in Biological Engineering (BE).

Enforced Prerequisite at Enrollment: BE 307 or CE 370

BE 487: Simulation Modeling for Water Resources Management

3 Credits

This course will provide hands-on experience of several commonly available simulation models for natural resources engineers for investigating water resources related issues. The models will serve as a base from which students can investigate the effects of different management design scenarios on watershed system responses. The course introduces general modeling concepts of data processing, model development, model calibration/validation and uncertainty analysis. Model development concepts will be introduced with data driven regression models for rainfall-runoff simulation. Then, students will work with a range of simulation models commonly used by industry or government agencies. One model might be used as an initial exploration of modeling for an entire watershed and to show the hydrologic responses for various subwatersheds (agriculturally dominated vs. urban dominated). A second model might be used to explore more in-depth modeling for an urban watershed. A third model might be used to introduce modeling concepts of demand driven closed conduit water systems in drinking water distribution systems. Students will select one of the three models to study in detail for a project where they evaluate a water management structure design or investigate a water resources related issue.

Enforced Prerequisite at Enrollment: BE 307 or CE 461

BE 494: Senior Thesis

1-9 Credits/Maximum of 9

Students must have approval of a thesis adviser before scheduling this course.

BE 494H: Honors Thesis

1-6 Credits/Maximum of 6

Independent study directed by a faculty supervisor that culminates in the production of a Biological Engineering honors thesis

Enforced Prerequisite At Enrollment: 5th semester standing or higher in Schreyer Honors College and permission of BE honors advisor
 Honors

BE 495: Agricultural Engineering Internship

1-6 Credits/Maximum of 6

Independent study and supervised cooperative education experience related to the student's career objective.

BE 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

BE 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

BE 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Biological Science (BISC)

BISC 1: Structure and Function of Organisms

3 Credits

This course is an introduction into the cellular structures and processes that take place in living organisms, and how life displays unity even in its diversity. This course is a basic overview of several subdisciplines within biology, including biochemistry, cell biology, genetics, evolution, taxonomy, and ecology. Students will learn about basic biological chemistry and metabolism, cell organelles and their functions, and photosynthesis, and how these processes sustain life. Students will also learn about the cell cycle, basic genetics, and evolution, which are responsible for species diversity, and why genetic diversity is so important. We will also do a brief overview of taxonomy and phylogenetics, and a survey of some of the major groups of organisms found on Earth. Throughout the semester, we will discuss the ethical ramifications of medical research on humans, how informed consent has come about, and why informed consent is important in today's information-based society. Students who have passed BIOL 27, 110, or 141 may not schedule this course.

Bachelor of Arts: Natural Sciences

BISC 2: Genetics, Ecology, and Evolution

3 Credits

In BISC 2 (GN;3cr.), students will explore concepts, current issues, and the relationship between three core areas of biological sciences: Genetics, Ecology and Evolution. In studying genetics, students will discover how genetic information is inherited from one generation to the next and gain an appreciation for the potential impact of genetic mutations. In learning ecological concepts, students will explore interactions between organisms and the environment. By investigating the processes of evolution, students will learn how changes in an organism's genetics and environment can lead to changes in physical or behavioral traits of a species over time. By gaining a deeper understanding of these three, interrelated areas of science, students will construct evidence-based arguments regarding current global challenges or ethical dilemmas such as environmental issues, genetic engineering, and health and disease. Specific examples covered each semester may vary based on student and instructor interest. As a course that meets general education (GN) requirements, students will increase their scientific literacy, their integrative thinking, and societal responsibility and ethical reasoning skills. Students who have passed BIOL 110, 133, 220W, or 222 may not schedule this course.

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

BISC 3: Environmental Science

3 Credits

We are living in extraordinary times. Our numbers have now become so large, our power so great, and our consumption so rampant that we are despoiling our home. Indeed, over the past half-century environmental scientists have been calling attention to the deterioration of Earth's atmosphere, Earth's oceans, Earth's forests and Earth's soils, along with the loss of Earth's biodiversity, from the tropics to the poles. The evidence is unequivocal: Planet Earth is under duress. Though we need Earth for our survival, Earth does not need us! So, will Earth shake us into oblivion or will we wake up, before it is too late, and become respectful members of Earth's community of life? This is a critical question for humankind as a whole; and it is the reason that BISC 3 exists at Penn State. So it is that, in this course, we will explore the root causes of today's environmental crisis and, in so doing, consider scientific, technological, sociological, psychological and personal responses to what is, arguable, the most significant crisis in the history of our species. If you commit to fully engaging with this course, you can expect to: 1-Discover how questions can be powerful catalysts for learning; 2-Grow in your ability to see both yourself and Planet Earth from new and liberating perspectives; 3-Appreciate the power of critical thinking and personal reflection as a means to both personal and global transformation 4-Realize that you should you choose can play a significant role in the healing of our world.

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason**BISC 4: Human Body: Form and Function**

3 Credits

BISC 4 Human Body: Form and Function (3) (GN) (BA) This course introduces students to the biological principles fundamental to understanding human life. Cell structure, biochemistry and metabolism, and the structure and function of major organ systems are explored in the course. Special emphasis on the relationship of the functioning of the human body to human disease is also emphasized. Upon completion of the course, students will be able to describe the basic biochemical, structural and functional characteristics of cells. They will learn the roles of carbohydrates, lipids, proteins and nucleic acids in cells and in the body as a whole. They will understand how these molecules are used in building cell and body structures, in energy-releasing metabolism and in the copying and use of genetic information. Students will also be expected to explain how different organ systems enable the body to meet the need for support structures, oxygen, nutrients, waste elimination, internal communication, defense against infectious disease and cancer, coordination of internal activity, and reproduction. To provide context for the normal workings of the human body, students will also analyze human diseases and the current understanding of the underlying pathophysiology. As a course that meets general education (GN) requirements, students will increase their scientific literacy, their critical and analytical thinking, and ethical reasoning skills. Students will ultimately be able to use the knowledge gained in this course to better understand disease processes, and will be able to make better informed decisions regarding to their health and well-being. Students who have passed BIOL 129, 141, 161 and 163 may not schedule this course.

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

Biology (BIOL)

BIOL 1: Preparation Skills for Success in Biology and Life Sciences

1 Credits

A foundation course that emphasizes study skills and reviews basic biological, chemistry and mathematical principles. BIOL 1 Biology of Success (1) This course is designed to facilitate success in the required science courses for allied health majors. Many students are challenged by their lack of basic skills and knowledge in one or more of the following areas: biology, chemistry, mathematics, and study skills. Thus, this course addresses these issues and positions the student for success. During the semester equal time is given to the following topics: study skills, which includes learning styles, goals, test taking strategies and organizational skills; terminology, which includes practice with prefixes, roots, and suffixes; basic math skills, which includes the metric system and practice with work problems; chemistry, which covers atoms, ions, and basic anabolic and catabolic reactions; cell structure and functioning; and body basics, which is an overview of the anatomy and functioning of body systems. Students are given a diversity of assignments and projects relevant to the various topics that will allow them to review and develop a basic level of competency in these areas in preparation for required science courses.

BIOL 3: Peer Learning in Biology

1 Credits

Group and learning skills to facilitate the understanding of complex biological processes. BIOL 3 Peer Learning in Biology (1) The study of Biology is complicated by the myriad pathways and processes that must be mastered in a way that interrelationship become apparent. A major stumbling block in a student's progress is learning how best to organize one's study so that both the details of these processes can be learned, along with how these processes fit together (i.e. integration). The second hurdle is learning how to use this information in a way that can solve real life problems and to communicate this process to others. This course is designed for students who would like to improve their ability to organize their learning strategies in order to maximize their understanding of the complexities of life's process. The course will be organized using peer learning groups which are posited on the assertion that every student can improve their performance with the proper environment and direction. Group leaders (enrolled in BIOL 251) will play an integral role in the program in that they are the connection between participant and course instructors. The group leaders will learn how to pass their skills on to other students in such a way as to encourage ownership of their education. Through regular meetings, the students enrolled in BIOL 003 will learn about time management and study skills, test taking strategies, exam writing, working with others that have divergent learning styles, and how to be multiculturally competent such that they are able to work with a diverse population.

BIOL 11: Introductory Biology I

3 Credits

The twelve primary topic areas within BIOL 11 are: An introduction to major themes within the course, defining life, and how natural selection operates through differential reproduction. All organisms are composed of matter and must obey the laws of chemistry - a review of basic chemical principles, the study of water and carbon-based macromolecules, the building blocks of organisms. The cell is the fundamental unit of life - a detailed study of the structure and function of eukaryotic cells. Organisms require energy to maintain organization - an exploration of the processes of photosynthesis, the conversion of light energy into chemical bond energy, and cellular respiration, the production of ATP. All cells arise from previously existing cells - a discussion of mitosis and meiosis. Genes carry information between generations - an examination of the principles of Mendelian genetics and their application to human disorders. The structure of DNA, how it codes for information in proteins, and the effect of mutations are explored. This history of life on earth, a discussion of the role of natural selection in populations and speciation. Plants are the only multicellular eukaryotes that photosynthesize - an inquiry into their evolution, function, structure, reproduction and response to the environment. Animals are multicellular eukaryotes that must acquire their energy/nutrients from other organisms - an exploration of the basics of the animal body plan and two human organ systems. Organisms must interact with their environment - a discussion of energy flows and nutrient cycling in ecosystems, as well as ecosystem distributions. Interactions among communities of species can be complex and these relationships will be investigated. Humans have an increasing impact on the environment, affecting all aspects of the world in which we live - an examination of human activities and solutions to environmental damage we have caused.

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

BIOL 12: Introductory Biology II

1 Credits

Laboratory exercises demonstrating principles of biology.

Enforced Prerequisite at Enrollment or concurrent: BIOL 11

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

BIOL 110: Biology: Basic Concepts and Biodiversity

4 Credits

A study of the fundamental concepts of biology including the evolution of the major groups of organisms. BIOL 110 Biology: Basic Concepts and Biodiversity (GN)(BA) This course meets the Bachelor of Arts degree requirements. This is the first biology course taken by students who intend to major in biology. It provides a foundation in the basic concepts that govern life, including the evolutionary processes that have led to the biodiversity seen today. The course provides students with a fundamental understanding of: 1) the features of life from the cellular through organismal levels; 2) how cell division and genetic processes provide continuity between generations; 3) how genetic variation arises and leads to evolution ; 4) how organisms acquire and use energy; 5) how structure relates to function at all levels; 6) the evolution and diversity of life.

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

BIOL 110H: Honors Biology: Basic Concepts and Biodiversity

4 Credits

Honors study of the evolution of the major groups of organisms including the fundamental concepts of biology. BIOL 110H Honors Biology: Basic Concepts and Biodiversity (4) (GN)(BA) This course meets the Bachelor of Arts degree requirements. This is the first biology course taken by students who intend to major in biology. It provides a foundation for the basic concepts that govern life. In addition, these concepts are used to explain the processes of evolution that contribute to the biodiversity that we observe today. The course objectives seek to provide students with a fundamental understanding of: 1) features of life; 2) how basic genetic processes provide continuity between generations; 3) how genetic variation arises and contributes to evolutionary processes; 4) how structure relates to function; 5) how the diversity life is studied and explained by evolution.

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

Honors

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

BIOL 110S: Biology: Basic Concepts and Biodiversity

4 Credits

A study of the evolution of the major groups of organisms including the fundamental concepts of biology. This course also fulfills the First-Year Seminar requirements. BIOL 110S Biology: Basic Concepts and Biodiversity (3) (GN;FYS)(BA) This course meets the Bachelor of Arts degree requirements. This is the first biology course taken by students who intend to major in biology. It provides a foundation for the basic concepts that govern life. In addition, these concepts are used to explain the processes of evolution which contribute to the biodiversity that we observe today. The course objectives have remained unchanged and seek to provide students with a fundamental understanding of: 1) features of life; 2) how basic genetic processes provide continuity between generations; 3) how genetic variation arises and contributes to evolutionary processes; 4) how structure relates to function; 5) how the diversity life is studied and explained by evolution.

Bachelor of Arts: Natural Sciences
First-Year Seminar

BIOL 127: Introduction to Plant Biology

3 Credits

Cellular structure, organization, and metabolism; plant anatomy and physiological processes; plant reproduction and development; genetics and evolution; relationships and features of plant groups. Students who have passed BIOL 240W may not schedule this course.

Bachelor of Arts: Natural Sciences
General Education: Natural Sciences (GN)
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Creative Thinking
GenEd Learning Objective: Crit and Analytical Think

BIOL 128: Investigations in Anatomy with Cadavers

1 Credits

This course provides students with an introduction to the science of anatomy and uses human cadavers for some activities. No previous experience in anatomy is required. Classroom discussions include the fundamentals of embalming and the details of body donation as it currently exists in the state of Pennsylvania. A personal perspective on the impact of working with donated human bodies is also included. In the lab students engage in a series of investigatory activities that help to clarify the nature of anatomic inquiry. These activities begin with free-form and directed dissections/explorations of preserved and fresh non-human specimens. Selected explorations and assessments of dissected human donor bodies follow. Assigned activities allow students to sharpen their powers of observation, familiarize themselves with the basic mammalian body plan, and recognize the inter-relatedness between structure and function as a fundamental tenet in biological science.

BIOL 129: Mammalian Anatomy

4 Credits

Anatomy of a mammal, with special reference to that of man. Students who have passed BIOL 421 may not schedule this course. BIOL 129 Mammalian Anatomy (4) (GN)(BA) This course meets the Bachelor of

Arts degree requirements. Biology 129 is a 4 credit lecture and laboratory course specifically designed to cover the fundamentals of mammalian anatomy, with emphasis on human systems, for students in a variety of life science related majors including Nursing, Kinesiology, Athletic Training, and Science. Successful completion of this course will give the student working knowledge of mammalian anatomy body plan, systems, and nomenclature with the intent on applying this information to future clinical situations they may encounter in nursing, physical therapy, athletic training, dentistry, and medical settings. The course utilizes lecture descriptions and discussions, along with laboratory specimen dissection, identification and nomenclature to give a thorough overview of anatomy. Small group collaboration is emphasized in laboratory. Course Objectives: The principle objective of the course is for every student to obtain a working knowledge and understanding of basic mammalian anatomy, emphasizing a body system approach, and where possible, relate this to the human anatomical body plan. The lecture portion of the course will stress the construction, function, and relationships between anatomical systems. The laboratory portion of the course will emphasize structure identification and nomenclature of anatomical systems and will utilize human skeletal samples, cat specimen dissections, and anatomical models. Where possible, anatomical relationships that are important in clinical situations and common medical conditions will be emphasized. The end point of both objectives is to obtain a practical understanding of anatomy that demonstrates the relationships between anatomical form and function. Students will leave the course being able to relate this knowledge and nomenclature to future clinical or personal health situations. Relationship to Courses and Programs of Study: This majority of students enrolled in this course are from the College of Health and Human Development in Nursing, Biobehavioral Health, Kinesiology, and Nutrition majors, although some students are from other colleges including the Eberly College of Science, Liberal Arts, and Agriculture. Because the majority of these students will utilize course information in future clinical settings, anatomy and its nomenclature as it relates to humans is emphasized and important clinical considerations are discussed.

Bachelor of Arts: Natural Sciences

BIOL 133: Genetics and Evolution of the Human Species

3 Credits

Human heredity and evolution, individual and social implications. The course is for non-majors; students who have passed BIOL 222, 230W, B M B 251 or any upper-division biology course may not schedule this course. BIOL 133 BIOL 133 Genetics and Evolution of the Human Species (3) (GN) BIOL 133 is a 3 credit non-majors course designed as an overview of our current knowledge of human genetics and genetic issues, with special attention to issues that are relevant to non-scientists. We discuss background information that is necessary for understanding these issues, including the structure and function of DNA and chromosomes, Mendelian inheritance, gene expression, gene mutations and chromosomal aberrations, population genetics, evolution, cancer, and genetic and reproductive technologies. This course includes multimedia presentations, textbook readings, classroom activities and problem solving. The goal for this course is to provide students with sufficient scientific knowledge to make informed decisions about genetic issues and the ability to discuss these issues intelligently.

Bachelor of Arts: Natural Sciences
General Education: Natural Sciences (GN)
GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

BIOL 141: Introduction to Human Physiology

3 Credits

BIOL141 is a 3-credit course focused on the function of the human body. Students that complete this course will develop both a foundational understanding of key terms and processes related to physiology, as well as a deeper understanding of how the key terms relate to real-world situations. The major processes examined focus on homeostasis and the feedback loops used to maintain homeostasis in the body. Additional content examines how disruptions of homeostatic mechanisms result in disease states. Students will analyze different health-related scenarios to draw connections between vocabulary, processes and resultant diseases. Students will also practice discussing complex physiological processes with peers and interpreting figures used in the field to represent and communicate these concepts, providing skills needed to excel in a physiology-related field. This course utilizes both descriptive and problem-solving techniques and, as a result, may require some review of basic science and math principles developed in previous high school courses. This is a stand-alone physiology lecture course and is not part of the 100-level 8-credit Anatomy and Physiology sequence.

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

BIOL 142: Physiology Laboratory

1 Credits

Experiments demonstrating basic physiological principles, with special reference to man.

Enforced Prerequisite at Enrollment or concurrent: BIOL 141

BIOL 144: Climate Change: Biological Impacts

3 Credits

A study of the interactions of organisms with their environment through exploration of the biological impacts of climate change on individuals, populations, ecological communities, and ecosystems. Students will develop skills to make informed judgments about the implications of climate change using scientific information and expand their understanding of how and why science works to generate knowledge to address biological issues relative to climate change. Students will construct evidence-based explanations of the impacts of climate change on biological processes such as disease transmission, population dynamics, and ecosystem functioning. Because of duplication of subject matter a student may receive credit for only one of the following courses: BIOL 144, BIOL 144Z, BIOL 220W

General Education: Natural Sciences (GN)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

BIOL 155: Introduction to the Biology of Aging

3 Credits

Biology 155 is a 3 credit General Education Science course designed to give both science and non-science majors a basic understanding of the aging process, with special emphasis on aging as it relates to the human body and health. The course reviews the aging terminology, major theories of the aging process, demography of aging examining both US and World Populations, and the general aging of the major body systems. The course will emphasize common clinical ailments associated with aging including Alzheimer's disease, diabetes, atherosclerosis, osteoporosis, arthritis, and cancer.

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

BIOL 160N: Fitness with Exercise Physiology

3 Credits

Biology of Exercise is an integrative exercise physiology course that combines performing physical activity (Kinesiology) and applying biological principles (Biology). This course will explain the benefits, changes, and processes the body exhibits while exercising. Students will gain knowledge and comprehension through both a lecture (or online) setting (approximately half of the class meetings) as well as an activity component (approximately half of the class meetings) in which students will demonstrate their health related components of fitness. This includes, but is not limited to, muscular strength, muscular endurance, flexibility, power, cardiorespiratory endurance, and body composition. In the lecture component, students will describe biological principles including homeostasis, nutrition, the structure and function of musculoskeletal, cardiovascular, and respiratory systems. At the completion of this course, students will be able to argue for the lifelong significance of exercise including why it is important, benefits related to organ systems, and disease prevention.

Cross-listed with: KINES 160N

Bachelor of Arts: Natural Sciences

General Education: Health and Wellness (GHW)

General Education: Natural Sciences (GN)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

BIOL 161: Human Anatomy and Physiology I - Lecture

3 Credits

This is the first lecture course of a two semester sequence introducing human anatomy and physiology, which is the branch of biology that focuses on the structure and function of the human body. Lectures will take a "systemic" approach to anatomy and physiology, focusing on one body system at a time. Topics covered in the Human Anatomy & Physiology I Lecture include: basic anatomical and directional terminology; fundamental concepts and principles of cell biology;

histology; the integumentary, skeletal, muscular, and nervous systems; special senses, and the endocrine system. Each unit will build on previous knowledge to establish a cohesive picture of the human body. Throughout the course, students will build a strong foundation in the form and function of the human body from the cellular to the gross anatomical level. This knowledge will be contextualized by incorporating information about clinical cases, personal health and lifestyle choices, and human development.

General Education: Natural Sciences (GN)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Integrative Thinking

BIOL 162: Human Anatomy and Physiology I - Laboratory

1 Credits

This is the first laboratory course of a two-semester sequence introducing human anatomy and physiology. The A&P I laboratory complements the A&P I lecture by providing students with hands-on experiences such as examination of preserved specimens and anatomical models, and performing physiological experiments. Topics covered in the Human Anatomy & Physiology I Laboratory include: anatomic orientation and terminology; the anatomy and physiology of the nervous system; special senses; skeletal system and muscular system.

Enforced Concurrent at Enrollment: BIOL 161 or BIOL 141
General Education: Natural Sciences (GN)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

BIOL 163: Human Anatomy and Physiology II - Lecture

3 Credits

This is the second lecture course of a two semester sequence introducing human anatomy and physiology, which is the branch of biology that focuses on the structure and function of the human body. Lectures will take a "systemic" approach to anatomy and physiology, focusing on one body system at a time. Topics covered in the Human Anatomy & Physiology II Lecture include: the cardiovascular system, lymphatic and immune systems, respiratory system, digestive system, metabolism, urinary system, and reproductive system. Each unit will build on previous knowledge to establish a cohesive picture of the human body. Throughout the course, students will build a strong foundation in the form and function of the human body from the cellular to the gross anatomical level. This knowledge will be contextualized by incorporating information about clinical cases, personal health and lifestyle choices, and human development.

Enforced Prerequisite at Enrollment: BIOL 161
General Education: Natural Sciences (GN)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Integrative Thinking

BIOL 164: Human Anatomy and Physiology II - Laboratory

1 Credits

This is the second laboratory course of a two-semester sequence introducing human anatomy and physiology. The A&P II laboratory complements the A&P II lecture by providing students with hands-

on experiences such as examination of preserved specimens and anatomical models, and performing physiological experiments. Topics covered in the Human Anatomy & Physiology II Laboratory include: the anatomy and physiology of the cardiovascular system, respiratory system, digestive system, urinary system, and reproductive system.

Enforced Concurrent at Enrollment: BIOL 163 or BIOL 141
General Education: Natural Sciences (GN)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

BIOL 169N: What it means to be human

3 Credits

This course will investigate the distinctiveness of Homo sapiens, using fossil and non-human animal comparisons to highlight how modern humans are both similar to and different from other species. Basic elements from the fields of biology, genetics, anatomy, physiology, ecology, cognition, neuroscience, social psychology, and anthropology will be integrated for a complete and robust picture of humans and their place in the animal world. Furthermore, students will expand upon this integration of fields to make inferences about how an individual's or society's perspective on human uniqueness, or the lack thereof, impacts decisions and behaviors relevant to research ethics, environmental policy, educational policy, religion, and/or social issues.

Cross-listed with: PSYCH 169N
General Education: Natural Sciences (GN)
General Education: Social and Behavioral Scien (GS)
General Education - Integrative: Interdomain
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Soc Resp and Ethic Reason

BIOL 177: Biology of Sex

3 Credits

This course presents a thorough background on the basic structure and function of the human reproductive system, gender as it relates to biology across the lifespan, endocrine regulation of the reproductive system across the lifespan, and gestation/pregnancy. Students completing the course will have sufficient scientific knowledge to understand and discuss sex-related topics and clarify their understanding of the ways the human body functions in sexual development, behavior and reproduction. Class discussions, facilitated small group activities, and writing assignments will encourage students to think critically and practically about the application of biological knowledge, in health, society, and personal decision making. Importantly, students will examine the roles of reproductive physiology, sexuality, and gender in a historical, cultural and social context, with particular emphasis on sex differences in anatomical forms, sexual expression, and hormonal regulation. The course will present ongoing research on human sex and reproduction, and explore the biology behind current issues in gender and medicine.

General Education: Natural Sciences (GN)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Integrative Thinking

BIOL 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

BIOL 200: Introduction to Pharmacological Concepts

3 Credits

Presents basic concepts of pharmacology; includes major drug classifications, pharmaceutical preparations, and biological implications relevant to these therapeutic agents.

BIOL 220M: Honors Biology: Populations and Communities

4 Credits

Honors study of the major physical, chemical, and biological factors constituting environment and their dynamic interaction with organisms forming ecosystems. A study of the structures and functions of organismic interactions from simple populations to complex ecosystems. (BIOL 220W, BIOL 230W, and BIOL 240W each carry only 1 credit of "writing"; all three courses must be taken to meet the writing requirement.) BIOL 220M is an introductory course in ecology. It introduces students to the fundamental ecological principles, concepts, patterns, and processes regarding populations, communities, and ecosystems. This course provides students with a foundation of ecological science, as well demonstrating linkages between ecology, population genetics, and evolution. The course objectives are the same as those described in the original course proposal and are to provide students with a fundamental understanding of: 1) genetic processes within populations of living things, 2) evolutionary processes involved in speciation, 3) dynamic interactions of organisms within and among populations, especially pertaining to energy cycles, various biogeochemical cycles, predator-prey interactions, and the like, and 4) distribution patterns of living organisms and the need to conserve the resources of the earth.

Enforced Prerequisite at Enrollment: BIOL 110 or BIOL 110H

Bachelor of Arts: Natural Sciences

Honors

Writing Across the Curriculum

BIOL 220W: Biology: Populations and Communities

4 Credits

A study of the structures and functions of organismic interactions from simple populations to complex ecosystems. (BIOL 220W, BIOL 230W, and BIOL 240W each carry only 1 credit of "writing"; all three courses must be taken to meet the writing requirement.) BIOL 220W is an introductory course in ecology. It introduces students to the fundamental ecological principles, concepts, patterns, and processes regarding populations, communities, and ecosystems. This course provides students with a foundation of ecological science, as well demonstrating linkages between ecology, population genetics, and evolution. The course objectives are the same as those described in the original course proposal and are to provide students with a fundamental understanding of: 1) genetic processes within populations of living things, 2) evolutionary processes involved in speciation, 3) dynamic interactions of organisms within and among populations, especially pertaining to energy cycles, various biogeochemical cycles, predator-prey interactions, and the like, and 4)

distribution patterns of living organisms and the need to conserve the resources of the earth.

Enforced Prerequisite at Enrollment: BIOL 110 or BIOL 110H

Bachelor of Arts: Natural Sciences

Writing Across the Curriculum

BIOL 222: Genetics

3 Credits

Variation and heredity in bacteria, plants, and animals; relationships of genetic knowledge to evolution and breeding practices. This course is for students in life sciences majors that are not Biology, Genetics and Development and Biochemistry and Molecular Biology. Students should have at least 3 credits of biological sciences before scheduling this course. In this course, we will discuss chromosome structure; mitosis and meiosis, in particular their application of the transmission of DNA; principles of Mendelian inheritance; structure and function of DNA, RNA, and proteins; gene expression; DNA mutations and chromosome changes; genomics; population genetics and the intersection of genetics and society. The course will include multimedia presentations, textbook readings, problem-solving and homework, in-class activities and discussions of science and society.

Enforced Prerequisite at Enrollment: BIOL 110 or BIOL 110H or MICRB 201 or MICRB 201H or BIOL 141 or BIOL 133 or BMB 251 or BMB 251H

BIOL 230M: Honors Biology: Molecules and Cells

4 Credits

This four credit course with lecture and laboratory components provides an understanding of the major unifying principles of life as they apply to the study of the molecular mechanisms underpinning the function of living organisms. Through the lab, students are expected to become proficient in the interpretation and presentation of experimental results through written and oral reports. Taken together with the other honors core courses in the biology curriculum (BIOL 110H, BIOL 220M, BIOL 240M), BIOL 230M will help students to integrate concepts ranging from molecular and cellular events through principles governing entire populations and ecosystems. Further, BIOL 230M provides the foundation on which students further their study of molecular genetics - a discipline integral to a number of the biological sciences. Through this class, and the other core course, students will develop a number of the skills outlined in the General Education mission. BIOL 230M serves a number of majors and colleges. The laboratory portion of the course requires a fully equipped laboratory room, as well as a classroom for recitation meetings. The Honor's version of the course will differ in a number of ways from the parent BIOL 230W course. First, there are more opportunities to discuss current applications of the information. In addition, a unique project (either in lab and/or in lecture) will allow students to explore a specific area of the course in more detail (e.g., take a paper from the primary literature and present the data, and its significance, to the class). Where appropriate, students will be exposed to current research in specific areas. In addition, the laboratory component will have opportunities for students to do more in depth exercises where, to some degree, they could pose their own questions.

Enforced Prerequisite at Enrollment: BIOL 110H or BIOL 110

Bachelor of Arts: Natural Sciences

Honors

Writing Across the Curriculum

BIOL 230W: Biology: Molecules and Cells

4 Credits

BIOL 230W is a four credit course with lecture and laboratory components. (BIOL 220W, BIOL 230W, and BIOL 240W each carry only 1 credit of "writing"; all three courses must be taken to meet the writing requirement.) The goal of this course is to provide an understanding of the major unifying principles of life as they apply to the study of the molecular mechanisms underpinning the function of living organisms. Through the lab, students are expected to become proficient in the interpretation and presentation of experimental results through written and oral reports. Taken together with the other core courses in the biology curriculum (BIOL 110, BIOL 220W, BIOL 240W), BIOL 230W will help students to integrate concepts ranging from molecular and cellular events through principles governing entire populations and ecosystems. Further, BIOL 230W provides the foundation on which students further their study of molecular genetics - a discipline integral to a number of the biological sciences.

Enforced Prerequisite at Enrollment: BIOL 110 or BIOL 110H

Recommended preparations: CHEM 110

Bachelor of Arts: Natural Sciences

Writing Across the Curriculum

BIOL 240M: Honors Biology: Function and Development of Organisms

4 Credits

Honors study of development and physiological processes at the organismic level. (BIOL 220W, BIOL 230W, and BIOL 240W each carry only 1 credit of "writing"; all three courses must be taken to meet the writing requirement.) This course provides an understanding of the major unifying principles as they apply to the study of the development and physiological mechanisms utilized by organisms from both animals and plants. In lecture a comparative approach will be taken in the examination of reproduction, development, and physiology primarily at the organismal level. In laboratory, experimental investigations of both animal and plant systems will reinforce the concepts covered in lecture. Through the lab, students are expected to become proficient in the interpretation and presentation of experimental results through written and oral reports. Taken together with the other core courses in the biology curriculum (BIOL 110, BIOL 220, BIOL 230W), BIOL 240M will help students to integrate concepts ranging from molecular and cellular events through principles governing entire populations and ecosystems. Further, BIOL 240M provides the foundation on which students further their study of animal physiology and development - two of the largest options in the biology majors curriculum. Through this class, and the other core course, students will develop skills integral to the General Education mission. Evaluation methods in the lecture part of the course include two to three "mid-term" exams and a comprehensive final exam. Evaluation methods in the lab portion of the course include in-class quizzes, one or more formal lab reports on experiments or data analysis conducted in lab sessions, and short write-ups of existing data sets or relevant ecological issues. The Honor's version of the course will differ in a number of ways from the parent BIOL 240W course. First, there are more opportunities to discuss current applications of the information. In addition, a unique project (either in lab and/or in lecture) will allow students to explore a specific area of the course in more detail (e.g., students choose a topic in the current literature and present a paper along with its significance to the class). Where appropriate, students will be exposed to current research in specific areas. The evaluation for the

course will be modified from that of the parent course in accordance with the changes in assignments.

Enforced Prerequisites at Enrollment: BIOL 110H or BIOL 110

Honors

Writing Across the Curriculum

BIOL 240W: Biology: Function and Development of Organisms

4 Credits

A study of development and physiological processes at the organismic level. (BIOL 220W, BIOL 230W, and BIOL 240W each carry only 1 credit of "writing"; all three courses must be taken to meet the writing requirement.) This course provides an understanding of the major unifying principles as they apply to the study of the development and physiological mechanisms utilized by organisms from both animals and plants. In lecture a comparative approach will be taken in the examination of reproduction, development, and physiology primarily at the organismal level. In laboratory, experimental, investigations of both animal and plant systems will reinforce the concepts covered in lecture. Through the lab, students are expected to become proficient in the interpretation and presentation of experimental results through written and oral reports. Taken together with the other core courses in the biology curriculum (BIOL 110, BIOL 220W, BIOL 230W), BIOL 240W will help students to integrate concepts ranging from molecular and cellular events through principles governing entire populations and ecosystems. Further, BIOL 240W provides the foundation on which students further their study of animal physiology and development.

Enforced Prerequisite at Enrollment: (BIOL 110 or BIOL 110H) and (CHEM 110 or CHEM 110H)

Bachelor of Arts: Natural Sciences

Writing Across the Curriculum

BIOL 251: Peer Leadership in Biology

1 Credits

Leadership training in guiding others to learn, communicate, and apply biological principles. BIOL 251 Peer Leadership in Biology (1) The study of Biology is complicated by the myriad pathways and processes that must be mastered in a way that interrelationship become apparent. A major stumbling block in a student's progress is learning how best to organize one's study so that both the details of these processes can be learned, along with how these processes fit together (i.e. integration). The second hurdle is learning how to use this information in a way that can solve real life problems and to communicate this process to others. This course is designed for students who have already mastered basic concepts in biology and who want to learn how to communicate their understanding to others who are learning these first principles. This course is unusual in that it has divergent goals. The students enrolled in this course will be trained to be more effective communicators. In the 21st century, it is critical that we train our students to be better at relating to the general population by using effective communication skills. In addition, the course will train the students to act as effective group leaders in peer learning programs so they become competent, comfortable, and confident in working with students of diverse background, learning styles and skill levels. The philosophy behind peer learning programs is that every student can improve their performance and with the help of a group leader, this goal can be realized. The group leaders play an integral role in the program that in that they are the connection between participant and course instructors. The group leaders will learn how to pass their skills on to other students in such a way as to encourage ownership of their

education. Through workshops and biweekly meetings, the group leaders will learn about time management and study skills, test taking strategies, exam writing, working with students with divergent learning styles, and how to be multiculturally competent such that they are able to work with a diverse student population. They will facilitate learning through group activities and practice their leadership skills in a small group setting. Group leaders will be monitored through review of their weekly journals as well as observation of their groups by supervising faculty. The student developed exercises will be implemented and reviewed for effectiveness.

BIOL 261: Reading Seminar in the Health Professions

1 Credits/Maximum of 2

Students will read and discuss 3 to 4 books of creative nonfiction that address issues in the health professions. These may include collections of reflective essays from health professionals, historical narratives of diseases or conditions, biographies, collections of case studies, exposé, memoirs, or other formats. Topics may include disease transmission, ethics, patient care, health care, diseases, historical events, or other relevant topics. In addition, students will read and discuss primary scientific literature and news articles on topics related to their book readings. Students must attend and participate in weekly discussion and complete online writing assignments.

BIOL 294: Research Project

1-6 Credits/Maximum of 6

Supervised student activities on research projects identified on an individual or small-group basis.

BIOL 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

BIOL 296G: Special Topics

1 Credits

BIOL 296H: Independent Studies

1 Credits

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Honors

BIOL 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

BIOL 322: Genetic Analysis

3 Credits

This course describes the principles of Genetics at the level of molecules, genomes, cells, organisms, and populations. It emphasizes the structure and function of genes and genomes, the regulation of gene expression, the chromosomal basis of inheritance, biological variation resulting from

recombination, mutation, and natural selection and the use of genetic methods to address research questions related to these topics.

Enforced Prerequisite at Enrollment: BIOL 230W or BIOL 230M or MICRB 251 or BMB 251 or BMB 251H or BME 201

BIOL 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

BIOL 400: Teaching in Biology

1-6 Credits/Maximum of 6

This course will train biology teaching assistants to teach in the laboratory/ recitation setting with emphasis on critical thinking skills. BIOL 400 BIOL 400 Teaching in Biology (1-3) This course provides teaching assistants with the fundamentals they will need to be effective in the laboratory and/or recitation classroom. Students will learn the fundamental skills needed to; design lesson plans; facilitate class discussions; write effective quizzes; communicate learning expectations; grade fairly; and in the case of the laboratory setting, maintain a safe learning environment. Students enrolled in this course will also be serving as teaching assistants and consequently faculty who serve as course instructors and/or lab coordinators in the relevant course will provide the instruction. Through regular meetings the course instructors will help teaching assistants adjust to their duties and solve common problems that arise in the laboratory/recitation environment. Emphasis will be placed on how teaching assistants can facilitate active learning and help their students develop sound study skills. Students enrolled in this course will be evaluated on regular attendance, organization in and preparation for their teaching, and clarity in how they communicate with their students.

Enforced Prerequisite at Enrollment: 5th semester standing

BIOL 402W: Biological Experimental Design

3 Credits

Discussion of experimental design, analysis and presentation, with a practicum providing for student design, analysis and presentation of biological experiments. Students may not take this course if they have taken BIOBD 350W. BIOL 402W Biological Experimental Design (3) This course emphasizes written and oral communication of scientific ideas. Students discuss papers from the literature, preparing written critiques of two. Critiques are reviewed in writing by the instructor and peers and may be revised twice. Peer reviews are graded in writing and may be revised once. Written proposals for biological research are required. Students must build arguments for methodological rationales, justify statistical approaches, and place their proposed research into a larger societal context. Proposals are reviewed by the instructor and three peer reviewers. Peer reviewers must prepare written critiques and present proposals to the class during an "NSF"-style panel review. Prior to the presentation, the instructor provides written and oral feedback to the author and the peer reviewer in a meeting at which strategies for presenting the proposal are discussed. Subsequent to the presentation, peer reviewers write summaries of the discussion and provide explicit guidance to authors. Proposals may be revised twice. Peer reviews and summaries are graded in writing and may be revised once. Thus, each student writes 2 critiques, 1 proposal, 2 peer reviews of critiques, 1 peer

review of a proposal, and 1 summary of the panel discussion. Each assignment is graded in writing and is subject to revision. Students also are graded on their proposal presentations and on participation in panel discussions. These activities constitute 75% of the final grade. Students must demonstrate competence in the use of SAS, a statistics package. Students must choose and apply appropriate statistical techniques to biological data. In addition to the program and its output, students write interpretations of the results. This activity constitutes 25% of the final grade. Lectures are used to review statistics and "how tos" (e.g., proposal preparation). Case histories are used to address ethics, statistical decision-making, and design. Students are expected to challenge what they learn, and the notion that scientists must acknowledge and guard against bias in their work is emphasized. Intellectual honesty and the ability to give and receive constructive criticism are demanded. This course is required in two of the six options in biology (ecology and general), and it can be taken by students in the other options. The course is required of students who have not fulfilled the WAC requirement at the 200-level (transfer students).

Enforced Prerequisite at Enrollment: STAT 250 and at least two of the following three courses: BIOL 220W and BIOL 230W and BIOL 240W Writing Across the Curriculum

BIOL 403: Biological Writing and Communication for Research

3 Credits

Each student will pose and address their own research question with support from the scientific research literature. Each student will share their own research findings in written and oral formats, both for scientific and general public audiences. Data to address each student's research question can come from their own undergraduate research or from queries with publicly-available data sets. Students should expect to give and receive regular peer feedback on writing assignments relating to their research project and incorporate that feedback from peers and from their teacher in synthesis projects. Synthesis projects, where students are expected to integrate and make revisions to writing from the semester, include a short research manuscript, a research poster and oral presentation, and a blog post geared toward the general public. Weekly workshops paired with readings on scientific theory about writing and communication will help students practice technical science writing in general.

Enforced Prerequisite at Enrollment: (BIOL 110 or BIOL 110H or MICRB 201 or MICRB 201H or BMB 251 or BMB 251H or STAT 200 or STAT 250) and (ENGL 15 or ENGL 137H or CAS 137H or ENGL 30H)
General Education: Writing/Speaking (GWS)
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

BIOL 404: Cellular Mechanisms in Vertebrate Physiology

3 Credits

This course is focused on cellular and molecular mechanisms governing physiological aspects of vertebrate cell signaling, and will consider how these mechanisms are adapted to particular organismal functions. To illustrate general principles, specific examples from different organ systems are discussed. For each example, some background on the relevant organismal physiology is provided and thus no physiology course is required as a pre-requisite. The main course objective is to help students better understand the scientific basis of Biology through

consideration of experimental findings and student-led discussions of primary research in the field.

Enforced Prerequisite at Enrollment: BIOL 230W or BIOL 230M or BMB 251 or BMB 251H

BIOL 405: Molecular Evolution

3 Credits

This course is designed to introduce the concepts of evolution from a molecular point of view and the basic techniques of analysis of molecular sequence data. The class will include a mixture of lecture-based and student activity-based instruction that addresses various topics in molecular evolution, as well as in-class and extracurricular work on the computer to learn how to use online bioinformatics tools for sequence analysis. As a result of this course, students will be able to analyze DNA and protein data with a purpose of addressing specific scientific questions of interest. The course embraces applications of computing and statistics to the life sciences.)

Enforced Prerequisite at Enrollment: BIOL 220W or BIOL 220M and (BIOL 230W or BIOL 230M or BMB 251 or BMB 251H or BIOL 222 or BIOL 322) Recommended Preparations: Completion of a course in Statistics is strongly recommended

BIOL 406: Symbiosis

3 Credits

Mutualisms (interactions between two species that benefit both of them) occur in every habitat on Earth, and nearly every species on the planet is involved directly or indirectly in one or more of these interactions. The influence of mutualisms transcends levels of biological organization from cells to populations, communities and ecosystems. Mutualistic associations, such as our microbiome and agricultural symbioses, are critical for human health and welfare. Mutualistic symbioses played a fundamental role on the origin of the eukaryotic cells and the evolution of multicellularity. In addition to the key role played by mutualism in the evolution of complex lifeforms on earth, mutualistic association are instrumental to understand how some important ecosystems such coral reefs and hydrothermal vents function. Mutualistic symbioses are critical for nutrient cycling in the environment and the reproduction and dispersal of numerous plant and animal species. This course will focus on unifying concepts that cut across different forms of mutualism. We will explain and tests these concepts analyzing classic examples of mutualisms. We will define and categorize the diverse array of symbiosis occurring in nature. We will explore the evolutionary origins and implications of mutualistic symbiosis, investigate the population, community and ecosystem ecology of mutualisms and we will assess current anthropogenic threats to mutualisms, their potential for resilience and the role of mutualisms in conservation. Finally, we will explore in detail the metabolic linkages using selected nutritional symbiotic mutualisms examples. The course combines in-class and online teaching, as well as a weekly discussion session, in which the students are responsible for selecting one primary scientific article, prepare a brief presentation and lead a critical discussion session in front of the class. The course takes advantage of the technology-rich Bluebox experimental classroom. This learning space has been designed to support active, collaborative learning experiences increasing student engagement.

Enforced Prerequisite at Enrollment: BIOL 220W or BIOL 220M or BIOL 230W or BIOL 230M or BIOL 240W or BIOL 240M or BMB 251 or BMB 251H

BIOL 407: Plant Developmental Anatomy

3 Credits

The course will provide students with an understanding of the developmental anatomy of plant organs, tissues and cells throughout the plant life cycle. When appropriate, the course will discuss genes involved in the formation and function of these organs and how organ development is affected by environmental inputs. In laboratory sections, observational skills will be trained and knowledge gained in lectures will be applied to the analysis of plant anatomical structures. Plant developmental adjustments to environmental stresses will be studied using light microscopy and digital image acquisition. Primary scientific literature related to the lecture topics will be assigned as reading material to be discussed in class. Students will learn how to formulate research hypotheses and, in a written assignment, research a global challenge to food security and discuss strategies to improve agricultural productivity by manipulating the biology of plants.

Enforced Prerequisite at Enrollment: BIOL 240W or BIOL 240M or BIOL 127

BIOL 409: Biology of Aging

3 Credits

This course focuses on the molecular, cellular and physiological changes that are associated with the aging process. Diseases that are associated with aging will also be addressed. Continual emphasis will be placed on interventions that may prolong the "health span" of an organism. Original research articles will be the primary sources of information in this course. By the end of the semester, students will have a firm understanding of the theories of aging and the age-related changes that take place on several levels of inquiry. Additionally, students will develop their abilities to critically evaluate scientific literature.

Enforced Prerequisite at Enrollment: BIOL 230W or BIOL 240W or BIOL 141 or BMB 251

BIOL 411: Medical Embryology

3 Credits

This course offers an overview of Human Embryology, including reproductive physiology, infertility, the events and timeframes characterizing human embryological development, the structure and function of developing human body systems, and relevant clinical correlations associated with disease and congenital malformations. This course features discussions and explanations of topics in developmental biology that some students might view as controversial including comparative anatomy and evolution, contraception, assisted reproductive techniques, cloning, potential medical applications of stem cells, abortion with respect to developmental time frames, and gender development. The goal of such discussions will be to educate and give perspectives on these issues, but not to indoctrinate a particular viewpoint or philosophy.

Enforced Prerequisite at Enrollment: BIOL 230W or BIOL 230M or BIOL 240W or BIOL 240M or BIOL 141 or BMB 251 or BMB 251H

BIOL 412: Ecology of Infectious Diseases

3 Credits

This course will take an ecological approach to the study and control of infectious diseases. The course examines the dynamics of disease, how parasites (worms, bacteria and viruses) spread through a host population, the consequences for the hosts and the consequences for the parasite from both an ecological and evolutionary viewpoint. Ecological insights will be used to discuss and identify effective means of controlling the parasites. Students will learn how to develop basic mathematical models to describe the dynamics of a parasitic infection and discuss how these models can be applied to make predictions and optimize control-strategies for infections. This will be illustrated with numerous work examples of human, veterinary and wildlife diseases. Students will also examine the role of parasites in the ecosystem and how environmental changes affect parasite transmission. At the finer level the course will investigate how host-parasite interactions and multi-parasite species infections are modulated by host features (e.g. age, sex, immunity) and what may cause rapid changes in infectiousness and transmission. The course will touch on a range of current issues that include pandemic outbreaks, emerging infectious diseases and the role of parasites in ecosystem functioning. The ecological approach involves applying the principles of population biology to understand infectious diseases and develop new perspectives on epidemiology, thus the title "Ecology of Infectious Diseases". This course is designed for ecology, biology and animal science majors to obtain insights into the ecology of parasitism, and for pre-meds to provide biological foundation to the study of epidemiology.

Enforced Prerequisite at Enrollment: BIOL 220W or BIOL 220M or HPA 440

BIOL 413: Cell Signaling and Regulation

3 Credits

Introduction to the molecular mechanisms by which cells send, receive, regulate, and respond to signals. Through review of primary literature, students will explore the variety of mechanism by which endocrine, paracrine, and juxtacrine signal molecules exert their effects on target cells. Subject matter will include ligand/receptor families, second messenger systems, G-proteins, kinase cascades, and effector proteins that regulate cytoskeleton dynamics, metabolism, and gene expression.

Enforced Prerequisite at Enrollment: BIOL 230W or BIOL 230M or BMB 251 or BMB 251H

BIOL 414: Taxonomy of Seed Plants

3 Credits

This course provides an introduction to modern plant systematics as exemplified by the wide diversity of living plants growing in central PA. By the end of the course, students will be able to: 1) use the technical vocabulary that describes plant structures necessary for their identification, 2) characterize the major groups and families of flowering plants and gymnosperms, 3) recognize on sight 60 of the most important plant families in our region and be able to describe and contrast their major features, 4) use and write identification keys to identify and study living plants as represented in the local flora, and 5) discuss current concepts of plant systematics and phylogenetics and their applications to plant classification and the study of the evolution of and relationships among families of flowering plants.

Enforced Prerequisite at Enrollment: BIOL 240W or BIOL 240M or BIOL 127

BIOL 415: Ecotoxicology

3 Credits

Ecotoxicology is an interdisciplinary field that involves the study of chemicals and radiation on organisms and their environment. The goal of this course is to introduce the science of ecotoxicology, including a survey of classes of contaminants as well as the impacts of various toxins. The emphasis will be on organism and ecosystem effects of toxins, as well as some toxicity testing methods and pertinent government regulations. Additionally, we will undertake a research project as well as critical readings of current literature. One of the biggest challenges students face in this course is dealing with potentially conflicting data and applying scientific thinking in the process of making decisions about these controversies. These challenges will underscore the political, economic, and scientific constraints that U.S. regulatory agencies work under to protect public health. The goals of this course are to: - introduce the science and history of ecotoxicology - look at classes of contaminants and their modes of action - understand the impacts of various toxins on organisms and ecosystems - introduce some of the various U.S. agencies that evaluate and regulate contaminants in the environment - critically review scientific papers, data, and arguments - learn to communicate like a scientist with an emphasis on communicating complex topics to a lay audience - demonstrate understanding of the scientific method and apply that understanding to the development of a research project

Enforced Prerequisite at Enrollment: BIOL 220W or BIOL 220M or FOR 308 or WFS 209

BIOL 416: Biology of Cancer

3 Credits

Biology of Cancer introduces basic biological aspects of cancer development with an emphasis on molecular and cellular mechanisms of tumorigenesis. It discusses how molecular genetic approaches can be used to reveal fundamental processes of carcinogenesis. Through this course, students will learn genetic, cellular and biochemical basis of cancer development and understand how such information can be instrumental in devising strategies for prevention, detection, and treatment of cancer. As a 400 level class, students are expected to have a background in molecular biology and genetics.

Enforced Prerequisite at Enrollment: BIOL 230W or BIOL 230M or BMB 251 or BMB 251H or BIOL 222

BIOL 417: Invertebrate Zoology

4 Credits

Function and form of major invertebrate phyla.

Enforced Prerequisite at Enrollment: BIOL 110

BIOL 418: Biology of Human Infectious Diseases

3 Credits

In this class, students look carefully at diseases that impact human populations and the successes and failures in disease management. This class includes case studies of diseases and disease control in recent history as well as current outbreaks. Course materials will

highlight the integration of different aspects of biology and additional complexities that drive disease dynamics and determine the efficacy of disease management strategies. Students will read assigned primary literature paired with popular science texts and educational multimedia resources to learn about course topics, which will complement classroom discussions and lectures. Each student will conduct an independent research project on a relevant topic of their choice, which will require them to search and identify primary literature that is relevant to their topic and apply the broad concepts discussed in the class to their unique research project. Each student will produce a written paper and deliver a presentation to the class. Research topics are often, but not limited to, a case study of a disease that is not covered in class by the professor.

Enforced Prerequisite at Enrollment: BIOL 110 or BIOL 110H and BIOL 220W or BIOL 220M and BIOL 230W or BIOL 230M

BIOL 419: Ecological and Environmental Problem Solving

3 Credits

The course will provide a general overview of the process involved in studying a variety of ecological and environmental problems. It will provide a toolbox of techniques for understanding ecological and environmental problems, and discuss how they can be used to address questions and generate testable predictions. It will examine connections between individuals and populations and communities as well as between theory and data. The focus will be on theoretical and computer modeling approaches, while maintaining a strong link to data and real systems. After an introduction to modeling, students will learn to develop and use simple and stochastic optimization models for individual organisms, as well as applying basic game theory to interactions between individuals. They will explore a sequence of population demographic models of increasing complexity, ranging from unlimited, unstructured population growth to density-dependent, structured population growth, in non-spatial and spatial contexts, culminating in individual-based models for population dynamics. The students will then apply these models to interacting species, learning about mutualistic, competitive and host-natural enemy interactions. Finally, we will explore theory for communities of species in space and time. Applied problems will be drawn from all areas of conservation, harvesting, pest control and epidemiology throughout the semester. No modeling experience is necessary as the course will start from basic principles.

Enforced Prerequisite at Enrollment: BIOL 220W or BIOL 220M or MATH 140 or MATH 140B or MATH 140H

BIOL 419H: Ecological and Environmental Problem Solving

3 Credits

Overview of processes involved in solving environmental problems. Provides students with toolkit for understanding ecological and environmental problems. BIOL 419 Ecological and Environmental Problem Solving (3) The course will provide a general overview of the process involved in studying a variety of ecological and environmental problems. It will provide a toolbox of techniques for understanding ecological and environmental problems, and discuss how they can be used to address questions and generate testable predictions. It will examine connections between individuals and populations and communities as well as between theory and data. The focus will be on theoretical and computer modeling approaches, while maintaining a strong link to data and real systems. After an introduction to modeling, students will learn to develop and use simple and stochastic optimization models

for individual organisms, as well as applying basic game theory to interactions between individuals. Many of the class meetings will be held in computer laboratories where they will be actively engaged in working on applying these models. They will explore a sequence of population demographic models of increasing complexity, ranging from unlimited, unstructured population growth to density-dependent, structured population growth, in non-spatial and spatial contexts, culminating in individual-based models for population dynamics. The students will then apply these models to interacting species, learning about mutualistic, competitive and host-natural enemy interactions. Finally, we will explore theory for communities of species in space and time. Applied problems will be drawn from all areas of conservation, harvesting, pest control and epidemiology. This course will be one of several ecology courses that are available to students in the ecology and general option in the biology program along with the biology minor.

Honors

BIOL 420: Paleobotany

3 Credits

Classification, morphology, phylogeny, and stratigraphic occurrence of fossil plants; practicum includes field trips and study of paleobotanical techniques and specimens. GEOSC 420 BIOL (GEOSC) 420 Paleobotany (3) Land plants provide the oxygen, food, and forest structure that make our lives on land possible. They are sensitive indicators of global change in the past as well as today. This course will examine the history of green plants on the dynamic Earth from their beginnings in the Proterozoic oceans to today, with emphasis on central topics such as the colonization of land, the histories and relationships of major plant groups, the evolution of seeds and flowers, the evolution of plant-animal interactions, extinction and diversification, paleoclimates, and the origins of modern biomes such as rainforests and grasslands. This course is strongly recommended to graduate students and advanced undergraduates with interests in paleobiology and/or plant biology. Specimen observation and field trips will be important course components. Exams, assignments, and class participation will be the primary bases of evaluation.

Prerequisite: any 3 credit introductory course in historical geology or plant biology

Cross-listed with: GEOSC 420

BIOL 421: Comparative Anatomy of Vertebrates

4 Credits

BIOL 421 / VBSC 421 Comparative Anatomy of Vertebrates Students will study vertebrate anatomy from an evolutionary and developmental perspective. They will become familiar with important structures, terminology and function; a basic requirement of the biomedical sciences. Comparisons between representative vertebrate groups (including fish, amphibians, reptiles, birds and mammals) will be used to illustrate structural adaptations of each organ system from an evolutionary perspective. Specific examples comparing ancestral and descendant species will demonstrate the relationships between the lifestyle of an organism and the morphology of homologous structures. A study of early embryonic development, differentiation of primary germ layers and organ formation will provide a basis for understanding organ structure and function. Laboratory activities will involve work with preserved specimens and will focus heavily on anatomic structure identification and function. Topics include anatomic directional terminology, vertebrate classification systems, early

embryonic development and a detailed examination of the various organ systems. Specimens are selected to illustrate the anatomy of ancestral vertebrate species, the evolutionary changes observed in descendant species and the association of morphology with lifestyle. Although students will invest the majority of their time becoming familiar with the anatomy of a representative mammal (the cat), multiple species will be examined, and students will be expected to recognize selected anatomic structures in each species studied.

Enforced Prerequisite at Enrollment: BIOL 129 or BIOL 141 or BIOL 220W or BIOL 220M or BIOL 230W or BIOL 230M or BIOL 240W or BIOL 240M or BMB 251 or BMB 251H

Cross-listed with: VBSC 421

BIOL 422: Advanced Genetics

3 Credits

Now is an exciting time for evolutionary, quantitative, and disease genetics. Increasingly sophisticated technologies are making it possible to obtain dense genomic data from large numbers of individuals from a variety of taxa. Such data permits the evaluation of processes that have generated genetic variation, providing a rich resource to make inferences about natural selection and population history that have affected the current distribution of genetic diversity. In addition, when correlated with phenotypic traits, such data enables researchers to identify genomic regions underlying trait variation which is of particular importance for identifying genes involved in disease. By the end of the course, students will be able to understand how the genome is organized, learn how to find and assay genetic variation across the genome, and will know how such variation is inherited. They will learn how pedigree analysis, linkage mapping, and autozygosity mapping can be used to identify loci underlying Mendelian traits, and will be exposed to a number of examples from human disease. The students will also learn about the neutral and adaptive processes that shape genetic diversity within and across species, and will understand the basics of sequence alignment, phylogenetic reconstruction, and testing for natural selection from within and between species data. Moreover, students will acquire the fundamentals of quantitative genetics, will understand the essentials of polygenic adaptation, and will learn how to use genome-wide association studies to identify loci underlying complex traits. Finally, students will become familiar with recent advances in individual identification from genetic data, and its relationship to privacy.

Enforced Prerequisite at Enrollment: BIOL 222 or BIOL 322 or BIOL 230W or BIOL 230M or BMB 251 or BMB 251H

BIOL 424: Seeds of Change: The Uses of Plants

3 Credits

It is not possible to conceive of civilization, or life on earth for that matter, without plants. Through photosynthesis and oxygen production, plants are the major producers of biomass and constitute the base of the food pyramid. Plants also have evolved astounding diversity of forms, sizes, shapes, colors, smells and chemical compounds. This structural, nutritional and chemical flexibility has been put to innumerable uses by people, from hunter gatherers to the scientists in search of a cure for AIDS. Plants are at the core of our everyday necessities (food, clothing, shelter, medicines, beverages), simple pleasures (flower, fragrances) and pervasive problems (energy supply, drug addiction, famine). Plants have changed civilization in dramatic ways in the past. Witness, for example, the spectacular alterations in diet and the increased population growth catalyzed by the Columbian Exchange. In the future we expect

that plants will continue to affect people through an increasingly complex interplay between new technologies such as genetic engineering, the pressure on natural resources, and the search for new crops, medicines and biomaterials.

Enforced Prerequisite at Enrollment: BIOL 220W or BIOL 220M or BIOL 230W or BIOL 230M or BIOL 240W or BIOL 240M

BIOL 425: Biology of Fungi

4 Credits

BIOL 425 / PPEM 425 (4 cr.) is a lecture and laboratory survey of the diversity of Fungi, consisting of two 75-minute lecture and two 180-minute laboratory/field activity periods per week. The course moves from branch to branch in the Fungal tree of life, covering aspects of ecology, morphology, physiology and life history, as well as current and historical importance to human affairs in medicine, agriculture and industry. Topics covered as students move through the Fungal tree include: 1) Macrofungi seen in the field; 2) Fungal evolution; 3) Fungal reproduction and dispersal; 4) Fungal growth, development and structure; 5) Fungal genetics and genomics; 6) Fungi as mutualistic symbionts of plants, animals and other organisms; 7) Fungal diseases of plants, animals and humans; 8) Fungi as toxin producers; 9) Fungi as sources of food, pharmaceuticals and enzymes; and 10) Fungi as research organisms used to understand basic biological processes. Some laboratory sessions consist of field trips to local forests to observe and collect Fungi for observation in the laboratory.

Enforced Prerequisite at Enrollment: BIOL 110 and (AGECO 201 or BIOL 127 or BIOL 220W or BIOL 220M or BIOL 222 or BIOL 230W or BIOL 230M or BIOL 240W or BIOL 240M or MICRB 251 or HORT 232 or PPEM 120 or PPEM 225 or PPEM 405)

Cross-listed with: PPEM 425

BIOL 426: Developmental Neurobiology

3 Credits

This course will provide a general overview of developmental processes as they apply to the central nervous systems. From initial differentiation of neuronal tissue to the aging of human brain, this course will expose students to many hot topics in the current neuroscience research field, including synaptogenesis, axon guidance, neural stem cells, apoptosis, learning and memory, and Alzheimer's disease. Although one textbook will be assigned as the major reference book, many current research results will be integrated into the lectures so that students can grasp the most recent advancement related to each topic. The course will be divided into four parts. Part I introduces the induction of neural tissue, the polarity and regionalization of the neural tissue, and the generation and function of neural stem cells. Cutting-edge research on neural stem cells will be discussed. Part II deals with various interactions within neuronal system, including neuron-glia interaction, cell adhesion and migration, axon growth and guidance, and target selection. Part III teaches synapse formation and maturation, neurotrophic factors and their distinct functions, and neuronal cell death. Part IV talks about learning and memory from a developmental view, and also neurodegenerative diseases. Current disease research will be discussed. The lectures will be given in PowerPoint presentations. Classical models and front line research will be integrated to stimulate students' imaginative thinking. Students will be encouraged to read some current research paper and offer their own view on some particular subject, such as neural stem cells and learning and memory.

Enforced Prerequisite at Enrollment: BIOL 230W or BIOL 230M or BMB 251 or BMB 251H

BIOL 427: Evolution

3 Credits

This course will study the theory of evolution and the different levels at which biological evolution can be examined ranging from macroevolution and the fossil record to microevolutionary processes at the population level. It will look at how genomes evolve from bacteria to multicellular organisms as well as the evolution of body plans in plants and animals and the molecular underpinnings of these developmental transitions. These concepts will be used to understand human evolution and learn how the genome revolution has shed light on evolutionary medicine.

Enforced Prerequisite at Enrollment: (BIOL 220W or BIOL 220M and BIOL 230W or BIOL 230M or BMB 251 or BMB 251H) or (BIOL 220W or BIOL 220M and ENVST 200)

BIOL 428: Population Genetics

3 Credits

This is an exciting time for population genetics research. Increasingly sophisticated technologies are making it possible to obtain dense genomic data from large numbers of individuals. Further, advances in population genetics theory are improving our ability to make inferences about the evolutionary forces acting on populations. However, to effectively apply these new techniques to data being generated across populations, it is important to understand how evolutionary processes shape patterns of genetic variation. In this course, students will learn about the mathematical models employed in population genetics, and how these models can be used to make inferences from data. Specifically, this course emphasizes modern population genetic theory through the coalescent process, which provides a direct application to the analysis and understanding of empirical data.

Enforced Prerequisite at Enrollment: BIOL 220W and (STAT 200 or STAT 240 or STAT 250) and (MATH 111 or MATH 141 or MATH 141B or MATH 141H)

BIOL 429: Animal Behavior

3 Credits

Physiological mechanisms, ecological relevance, and adaptive significance of animal behavior.

Enforced Prerequisite at Enrollment: (BIOL 110 or BIOL 110H) and (BIOL 220W or BIOL 220M)

BIOL 430: Developmental Biology

3 Credits

Developmental Biology introduces students to one of the most complex and exciting areas of modern biology. This course will cover basic concepts using a comparative embryology approach and focus on molecular and genetic analysis of mechanisms involved in cell differentiation and organ development. Students will learn how studies of development in different model organisms including invertebrate and vertebrate species have identified a network of evolutionarily conserved genes and signaling pathways that regulate embryonic development and morphogenesis.

Enforced Prerequisite at Enrollment: BMB 252 or MICRB 252 or BMB 252H or BIOL 230W or BIOL 230M Recommended preparations BIOL 222 or BIOL 322

Cross-listed with: BMB 430

BIOL 431: Reproductive Biology

3 Credits

Reproductive Biology is an upper-level undergraduate course. The course will discuss topics in reproductive development and physiology, which can include development of gonads and the germline, sex determination, meiosis, development of gametes, plant reproductive development, effects of environmental factors on reproductive development, cloning and asexual reproduction, infertility and birth defects. In addition to morphological and cellular description of reproductive organs and tissues, there will also be discussion of genetic basis of diseases and molecular analysis of gene functions crucial for reproductive development in human and model organisms. Students will be asked to read original research articles on various aspects of reproductive biology, and work in two-person teams on a powerpoint presentation, which they use to report their understanding of a selected article in class to other students. The lectures and exams focus upon concepts integral to reproductive biology. Exams will be a combination of multiple choice, filling blanks, and true/false questions.

Enforced Prerequisite at Enrollment: BIOL 230W or BIOL 230M or BIOL 240W or BIOL 240M or BMB 251 or BMB 251H or MICRB 251

BIOL 432: Developmental Genetics

3 Credits

An advanced course in developmental biology, focusing on the use of genetics techniques to study fundamental questions of animal development. Topics taught in this course include an introduction of popular model organisms, various mutagenesis approaches, complex signaling mechanisms and cellular reprogramming. The goals for this course are 1. To acquire knowledge in advanced genetic tools commonly used to study animal development. 2. To acquire skills in reading and understanding scientific literature in the field of developmental genetics. 3. To acquire skills in applying knowledge and tools to solve basic problems in developmental genetics. 4. To gain an appreciation for the relevance of developmental genetics research to human health and other global issues.

Enforced Prerequisite at Enrollment: BIOL 230W or BIOL 230M or BMB 251 or BMB 251H

BIOL 433: Evolution of Vertebrates

3 Credits

This course focuses on the evolution of vertebrate animals, beginning with an overview of vertebrate classification and a consideration of early vertebrate evolution. Each group of vertebrates (fishes, amphibians, reptiles, birds and mammals) will be explored, with an emphasis on the history of each group, adaptations (physiological, morphological, behavioral) seen within the group, and relationships among members of the group, including insights from molecular data. Consideration of extant (living) vertebrates will be emphasized, specifically convergent adaptations across taxa (including flight, swimming, and specialization for similar environments, such as arctic or desert). The student will develop a perspective on vertebrate evolution, representative groups, vertebrate classification systems, and different vertebrate body plans

and special adaptations. Additionally, a course project will reinforce broader skills of scholarly paper writing, oral presentation techniques, and collaboration. There is a single short field trip associated with this course. Over one weekend, the students will be driven to one of several sites, typically a zoo and a natural history museum. This experience provides students with an opportunity to think deeply about how the principles presented in the class shape the diversity of past and current vertebrates. The biology major strives to develop an overall perspective on evolution for our undergraduates, and this course uses an important group, the vertebrates, to fully exemplify and develop that goal. Students in other majors outside our college, including Geology/Paleontology and Wildlife Science may also find interest in this course offering, and could graduate students.

Enforced Prerequisite at Enrollment: BIOL 220W or BIOL 220M and BIOL 240W or BIOL 240M

BIOL 434: Pathobiology of Emerging Infectious Disease

3 Credits

This course examines the biology of emerging and reemerging infectious diseases. The course includes viral, bacterial, and eukaryotic pathogens causing serious mortality and morbidity. Major course topics include a historical perspective on diseases; microbiology and immunology of each class of pathogen; processes of evolutionary change in pathogens; public health efforts to detect, monitor, respond to, and/or eliminate diseases from local to international scales; zoonotic disease and host jumps; and the One Health integration of human, animal and environmental health. Students will complete quizzes, discussions, and a research project based in primary literature reporting on a current or classical infectious disease. Case studies will include, but are not limited to, influenza, HIV/AIDS, smallpox, West Nile virus, polio, dengue, tuberculosis, and malaria. Depending on class size, students may complete additional research projects or scenarios. Students with interests in disease and health from majors in many colleges may wish to take this course.

Enforced Prerequisite at Enrollment: BIOL 110 or BIOL 110H or BIOL 230W or BIOL 230M or BMB 251 or BMB 251H or MICRB 251 or MICRB 201 or MICRB 201H

BIOL 435: Ecology of Lakes and Streams

3-4 Credits

Physical, chemical, and biological characteristics of freshwater environments, with special emphasis on factors regulating productivity in freshwater ecosystems.

Enforced Prerequisite at Enrollment: BIOL 220W

BIOL 436: Population Ecology and Global Climate Change

3 Credits

Ecological responses of individuals, populations, and communities to environmental variation, with emphasis on climate change. BIOL 436 BIOL 436 Population Ecology and Global Climate Change (3) In this course, students will be presented with a close look at the factors shaping the characteristics of populations and their dynamics in time and space, with emphasis on the responses of populations to climatic fluctuation and global climate change. The course begins with an introduction to the basic concepts necessary for understanding the responses of individuals, populations, and communities to climate change in the recent past (the past 2 centuries), present, and future.

These concepts include: the science of climate change, how temperature trends are estimated, the data used in assessment reports by the Intergovernmental Panel on Climate Change, large-scale climate systems such as the North Atlantic Oscillation and the El Niño Southern Oscillation, the basic characteristics of populations, how population densities are estimated, and the types of population data used in studies of population responses to climate change. In this first section of the course, students are also introduced to natural selection and the concepts of adaptation and vulnerability, which sets the stage for distinguishing between adaptive ecological responses to climate change vs. susceptibilities to climate change. After presenting these basic concepts, the course then moves on to examine single-species population dynamics. This section of the course teaches students about the different types of population growth, including unlimited growth, density-dependent population dynamics, and density-independent population dynamics. Here, we take a close look at case studies documenting population responses to large-scale climatic fluctuation, and case studies that demonstrate interactions between the opposing influences of density dependence and climate on population dynamics. This section of the course also introduces students to some of the analytical difficulties inherent in quantifying the contribution of climatic fluctuation to local population dynamics. This section finishes with lectures on the phenomenon of spatial synchrony in population dynamics and the implications of global climate change for widespread population decline and extinction risk. The final section of the course focuses on multi-species dynamics. Lectures in this section introduce students to inter-specific competition through examination of case studies involving desert rodents and ants; then move on to predation, with case studies of wolf predation illustrating the different types of functional and numerical responses, predator-prey cycles, and cascading effects of predators on population dynamics at lower trophic levels including herbivores and plants; and parasite-host dynamics, including discussion of the role of parasites as specialized predators in host population dynamics. This section also includes discBIOL 436 Population Ecology and Global Climate Change (3)

Enforced Prerequisite at Enrollment: BIOL 220W

BIOL 437: Histology

4 Credits

This course develops a visual, conceptual, and functional understanding of histology, the microanatomy of body cells, tissues, and organs. The lecture portion of this course will use diagrams, digital images, and didactic explanations to build a conceptual understanding of histology, stressing form, function, and clinical applications. The laboratory portion of the course emphasizes form, identification, and naming of cells, tissues, and organs at a microscopic level. As such, the lab will use microscopes and digital images to investigate actual histology slides of body tissue, with the goal of visual identification, classification, and naming of body tissues.

Enforced Prerequisite at Enrollment: BIOL 230W or BIOL 230M or BMB 251 or BMB 251H or BIOL 240W or BIOL 240M or BIOL 141

BIOL 438: Theoretical Population Ecology

3 Credits

This course a highly quantitative second ecology course. It emphasizes mathematical and theoretical approaches to ecological questions. The course builds on concepts from introductory ecology and requires students to use tools acquired in biostatistics and calculus to solve

ecological problems. It can act as an introduction to or as an extension of experimental design. Although it is not a writing-intensive course, students are required to use standard technical writing and public speaking skills throughout the course. The course covers topics that are relevant to, but not addressed in, evolution and evolutionary genetics. In addition, it offers an opportunity for mathematics students interested in application of mathematics to biological problems to apply models covered in mathematical modelling to real situations. Throughout the semester analytical and theoretical thinking will be emphasized, starting with simple descriptions of population phenomena and ending with development of mathematical models and the critical experiments needed to test those models. The emphasis lies on empirical tests of ecological theory and applications of ecological theory to real-world problems. Students will be evaluated by means of essay exams covering theory, mathematical models, and the design of hypothetical experiments, in-class presentations of the primary ecological literature and applications of ecological theory to current environmental problems.

Enforced Prerequisite at Enrollment: (BIOL 220W or BIOL 220M) and (MATH 140 or MATH 140B or MATH 140H) and (STAT 200 or STAT 240 or STAT 250)

BIOL 439: Practical Bioinformatics

3 Credits

Practical aspects of retrieving and analyzing biological information residing in common databases. BIOL 439 Practical Bioinformatics (3) This course focuses on practical aspects of biological databases and analyses of molecular data. Students will learn about vast resources available, how to access them, and retrieve only the desired information. Sequence comparison and alignment methods will be presented. We will discuss practical aspects of such algorithms as dot matrix plots, dynamic programming, BLAST, and FASTA. Different strategies of multiple alignments will be discussed as well. We will cover computational genomics and computational analysis of gene expression. Students will learn how to assemble short sequences into long contigs and how to infer biological information from raw sequence data. They will learn how to analyze protein sequences including secondary structure prediction, protein function prediction (based on motifs and functional domains), and structural modeling. The whole course will be well balanced between theoretical description of computational biology methods and practical aspects of bioinformatics (some sessions will meet in computer classrooms) Upon completion of this course, students will have sufficient knowledge to retrieve a desired information from biological databases based on both text and sequence data. They will learn what public resources are available in term of databases and a software. They will know how to interpret results in biological context and how to adjust different parameters in the software to get exact desired results. This course will be one of several courses that are available to students in the genetics and developmental biology and general options in the biology program along with the biology minor.

Enforced Prerequisite at Enrollment: BIOL 230W or BMB 251

BIOL 440: Evolution of Infectious Diseases

3 Credits

Infectious diseases have been adapting to humans for as long as we have been organized into communities - from small agricultural ones to the megacities of the twenty-first century. Malaria, tuberculosis, and plague shaped important aspects of human history. And modern emerging pathogens like Zika, Ebola, avian influenza, and coronaviruses

have shaped public health opinion and a new global response to the potential threat of deadly pandemics. This course will explore how infectious diseases adapt to and evolve in humans and human societies. Major topics covered will include how infectious diseases jump from animals to humans, how pathogens are forced into a race with the human immune system, why some diseases evolve to be benign and others deadly, and how pathogens evolve in response to human interventions like vaccination and drug treatment. Examples covered in this course will include influenza, malaria, HIV, dengue virus, and enteric infections. Students will learn the evolutionary principles underlying the constantly shifting relationship between these pathogens and their human hosts and will explore the basics of molecular evolution and phylogenetic tree interpretation. An understanding of basic concepts in evolution and population genetics is expected.

Enforced Prerequisite at Enrollment: BIOL 220W or BIOL 220M

BIOL 441: Plant Physiology

3 Credits

Classical and current concepts in plant constituents, mineral nutrition, water relations, respiration, photosynthesis, photoperiodism, plant growth regulators, growth and development, and responses to the environment. Using these concepts, students will be able to explain how specific processes in a plant integrate with other relevant processes to determine the overall response of the plant to a particular set of conditions; describe how multiple plant biochemical pathways intersect and influence each other; describe how energy affects processes at all levels of biological organization from the molecule and cell to organisms and ecosystems; and be able to explain how plants perceive and respond to their environment, including signal transduction, intercellular communication, and information processing. As part of their work in this course, students will demonstrate an ability to read and discuss the scientific literature on plants and critically analyze current issues in plant physiology including impacts on human health, agricultural biotechnology, and bioenergy.

Enforced Prerequisite at Enrollment: (BIOL 230W or BIOL 230M or BMB 251 or BMB 251H) and (BIOL 240W or BIOL 240M)

BIOL 442: Evolutionary Medicine

3 Credits

Evolutionary medicine is the application of evolutionary theory to the study of human health and disease. Health is affected by things like the aging process, the microbiome, cancer, infectious disease, and antibiotic resistance. Most medical research attempts to identify how factors such as these can be controlled. Evolutionary medicine attempts to explain why they exist in the first place. In this course, students will be exposed to a new perspective for understanding human health and disease. Students will think through the evolutionary causes of disease and the possible consequences (positive and negative) of medical and public health interventions. Students will also interpret arguments posed in the peer-reviewed scientific literature and critically evaluate those posed in the popular press.

Enforced Prerequisite at Enrollment: BIOL 220W or BIOL 220M

BIOL 443: Evo-devo: Evolution of Developmental Mechanisms

3 Credits

Evolutionary Developmental Biology (Evo-Devo) is an interdisciplinary field that combines developmental biology, comparative genetics, and

evolution to understand how organisms have attained their diversity in form. While the field of developmental biology aims to understand how a given organism develops, Evo-Devo focuses on how form evolves through alteration of these developmental mechanisms. Course instruction involves lectures, discussion, and student presentations/projects and features case studies from the scientific literature across the diversity of life, towards developing a predictive framework for the evolution of form.

Enforced Prerequisite at Enrollment: BIOL 240W or BIOL 240M

BIOL 444: Field Ecology

3 Credits/Maximum of 3

This field course will explore the flora and fauna of the mid-Atlantic area. BIOL 444 Field Ecology of the Central Appalachian Highlands (3) This course is designed to take advantage of the teaching opportunities presented by the West Virginia highlands. The main advantage of using this area as an outdoor classroom derives from the fact that there are large changes in elevation and soils, and a tremendous variety of community types located in a small geographic area. In this area, students can observe ecological communities ranging from river, bottom forests at 1500 to 2000 feet in elevation to dry ridge slope forests at 3000 feet to the unique acid soil heath barrens community of the Dolly Sods Wilderness at 4000 feet. Since almost all of this area was extensively logged in the past, students will have the opportunity to observe the results of succession, and how the process of succession is affected by variation in topography, soil type and local climate. There are also several types of aquatic communities available for study, including large rivers, small high elevation streams and acidic wetlands. The course will use an integrated natural history approach to study the various ecological communities. This will include discussion of the effects of human activity and the topography and geology of the area in addition to study of terrestrial and aquatic flora and fauna. At terrestrial site, we will, in part, follow the example of the US Forest Service's Forests of the Central Appalachians Projects (<http://www.spies.com/~gus/forests/>) which uses forest walk inventories to document biodiversity. Therefore, the course would have a significant plant identification and taxonomy component. Each community can be studied as a separate unit and then compared to the adjacent communities at different elevations. By the end of the course, students should understand the relationship of geology, topography and soil type to the distribution of plant communities. They should also understand the relationship of plant communities and water chemistry to the distribution of aquatic insect and vertebrate and be able to use aquatic insects as water quality indicators. This course will be one of several field courses that are available to students in the ecology and general option in the biology program along with the biology minor.

Enforced Prerequisite at Enrollment: BIOL 220W

BIOL 445: Molecular Ecology

3 Credits

Evolutionary and ecological processes can now be better understood through the application of molecular and genomic tools. The course will explore the history of the application of molecular tools as well as the contemporary application of methods with genomic data. The course involves a mix of lectures-outlining history and concepts-but a greater emphasis on bioinformatic analyses using real-world data. This will include conducting analyses on Penn State's "Roar supercomputer" and learning the statistical tools required to analyze these molecular data. The course also includes a synthetic final project, drawn from the primary

literature that includes reading and explaining the questions and tools involved in the field of Molecular Ecology.

Enforced Prerequisite at Enrollment: BIOL 220W or BIOL 220M or BIOL 230W or BIOL 230M or BMB 251 or BMB 251H or ENVST 200 or WFS 497 or WFS 430 or WFS 310

BIOL 446: Physiological Ecology

3 Credits

This course introduces students to the study of interactions between physiological capabilities of organisms, their ecology and, more broadly, their environment. This course looks at how organisms work and what it is about their environment that has led them to work that way. Both abiotic and biotic components of the environment are considered as sources of important variation to which organisms must adapt. Plants and microbes are covered to some extent, but the primary focus will be on animals (both vertebrates and invertebrates). The primary goal is to gain an appreciation for the flexibility of physiological systems and the powers of evolutionary processes to shape the physiology of an organism in response to its environment.

Enforced Prerequisite at Enrollment: (BIOL 220W or BIOL 220M) and (BIOL 222 or BIOL 230W or BIOL 230M or BMB 251 or BMB 251H or BIOL 240W or BIOL 240M)

BIOL 448: Ecology of Plant Reproduction

3 Credits

Analysis of the ecology, evolution, and natural history of plant reproduction. We focus on angiosperms (flowering plants) but also touch on the broader reproductive diversity in plants. Our topics include pollination, fruit-set, dispersal, and relevant plant-animal interactions. This course is highly integrative and draws on basic concepts in ecology, evolutionary biology, and genetics. We also pay especial attention to the implications of global environmental change on plant reproduction and plant diversity.

Enforced Prerequisite at Enrollment: BIOL 240W or BIOL 240M

BIOL 450W: Experimental Field Biology

3-5 Credits

This is a practical introduction to modern design of field studies and experiments in terrestrial and fresh water habitats. This is an outdoor course almost as much as a classroom one. Be prepared to go outside, develop the power of observation, and discover. Emphasis is given to learning scientific skills via active-learning methods. Students will learn to formulate research questions, and develop adequate hypotheses and study designs and experiments to test hypothesis using statistics. Students will be guided step-by-step to perform basic and advanced data analyses: from data tables and frames, to parametric, non-parametric, and multivariate statistical methods used in everyday biology and ecology research driven hypothesis-testing approaches. Each week the class meets in the classroom (Tuesdays) for discussion-format lectures, and on lab day (Thursdays) the class goes out into the field to collect data and perform experiments. Primary scientific literature will be read and discussed in the context of the lectures and field exercises. Specific Learning activities include the ecology of natural communities including terrestrial and aquatic, seed dispersal and seed ecology, predation, foraging ecology, pollination, fruit-eating mutualisms, and population census methods. Student evaluations are based on participation,

engagement, oral presentations, and written reports (no exams given in this class). At least one field trip involves staying overnight in a natural area. Specific topics covered in this class are: asking questions in science, designs of studies and experiments, ecological data collection techniques, data storing methods, statistical analyses (univariate to multivariate), graphical representation of results, oral presentation skills, research ethics, and writing and publication skills and techniques.

Enforced Prerequisite at Enrollment: (BIOL 220W or BIOL 220M and BIOL 240W or BIOL 240M) or (BIOL 220W or BIOL 220M and ENVST 200) Writing Across the Curriculum

BIOL 451: Biology of RNA

3 Credits

Ribonucleic acid (RNA) plays a central role in all organisms on earth, and was very likely the central molecule during the origin of terrestrial life. This course will explore the biological functions that RNA plays in diverse organisms, including transcription, translation, virology, and RNA-interference, and CRISPR-based genome editing. There will be a strong emphasis on the evolution of RNA functions and upon the relevance of RNA-based biological mechanisms to health, disease, and society. The course laboratory focuses on computational skills required for modern analysis of RNA, and emphasized genome-wide studies. This course requires knowledge on the basic mechanisms of molecular biology and genetics, and is designed for upper-level undergraduates and graduate students in the Biology or Biochemistry and Molecular Biology (BMB) departments. Reading materials will involve selections from textbooks, as well as from the scientific literature. Students will be evaluated on the basis of written examinations, homeworks, and a final laboratory project.

Enforced Prerequisite at Enrollment: BIOL 230W or BIOL 230M or BMB 251 or BMB 251H or MICRB 251

BIOL 455: Stem Cell Biology and Therapy

3 Credits

This course will give an overview of milestones in stem cell research and will expose students to current topics at the frontier of this field. It will introduce students to the different types of stem cells as well as factors and signals that are implicated in regulating stem cell fate. The course will highlight techniques for engineering of stem cells and their micro-environment. The course will also discuss gene editing and the application of gene editing in stem cell research. Furthermore, it will evaluate the use of stem cells for tissue engineering and therapies. Emphasis will be placed on discussions of current research areas and papers in this rapidly evolving field. The class is designed for upper undergraduates and graduate students with a strong interest in stem cell biology, and the desire to actively contribute to discussions in the class.

Enforced Prerequisite at Enrollment: BIOL 230W or BIOL 240W or BME 201 or BMB 251 or BIOL 240M or BIOL 230M or BMB 251H
Cross-listed with: BME 455

BIOL 459: Plant Tissue Culture and Biotechnology

3 Credits

The overall goal of this course is to provide a strong overview of the techniques used in plant biotechnology and the applications made possible by those techniques. The lecture topics will be used to introduce the principles of tissue culture and molecular biology, including how they are used to produce transgenic plants. Furthermore, the course

will give students a broader and deeper knowledge in the field of Plant Biotechnology and provide a foundation for understanding the field as it changes in the future. Topics include the safety, legal and ethical issues surrounding GMOs and the study of the anti-GMO arguments surrounding each issue. In the laboratory component of the course, students will be introduced to the underlying principles of molecular biology techniques and aseptic culture of plant cells as well as the tissues and organs used to produce transgenic plants. In summary, through this course students will be introduced to many of the most important tools of the biotechnologist.

Enforced Prerequisite at Enrollment: BMB 252 or BMB 252H or MICRB 252 or BIOL 230W or BIOL 230M
Cross-listed with: BIOTC 459, HORT 459

BIOL 460: Human Genetics

3 Credits

This course will cover the nature and contents of the human genome and the basic principles of evolution. We will also explore the future implications of personal genomics and how this information is being used to reconstruct our evolutionary history and to advance human medicine. We will carefully consider the processes by which we can identify how information contained within our genomes may affect physical and behavioral phenotypes, and what other factors may be involved (e.g., the environment). The points will be illustrated by a variety of examples of human evolution and important biomedical issues

Enforced Prerequisite at Enrollment: ANTH 21 or BIOL 133 or BIOL 222 or BIOL 230W or BIOL 230M or BIOL 322 or BMB 251 or BMB 251H
Cross-listed with: ANTH 460

BIOL 460H: Honors Human Genetics

4 Credits

This course will cover the nature and contents of the human genome and the basic principles of evolution. We will also explore the future implications of personal genomics and how this information is being used to reconstruct our evolutionary history and to advance human medicine. We will carefully consider the processes by which we can identify how information contained within our genomes may affect physical and behavioral phenotypes, and what other factors may be involved (e.g., the environment). The points will be illustrated by a variety of examples of human evolution and important biomedical issues.

Enforced Prerequisite at Enrollment: ANTH 21 or BIOL 133 or BIOL 222 or BIOL 230W or BIOL 230M or BIOL 322 or BMB 251 or BMB 251H
Cross-listed with: ANTH 460H
Honors

BIOL 461: Contemporary Issues in Science and Medicine

3 Credits/Maximum of 3

Current/classical issues relating to health, research, agriculture, environment, and biotechnology. Active exploration of the impact of science on society. BIOL 461 Contemporary Issues in Science and Medicine (3) The aim of this course is to provide students of the biological and biomedical sciences with a framework to recognize, examine, and resolve conflicts which may affect their professional conduct. Current and classical issues relating to human health, scientific and medical research, agriculture, the environment, and biotechnology will be explored. The history, controversies, and current issues related

to each topic will be presented by the instructor through lecture, guest presentations, and multimedia presentations. Each topic will be explored by students through a variety of activities, including role playing, case studies (real and hypothetical), mock trials, small- and large-group discussions, writing exercises, and student research projects presented in oral and poster format. Some activities and discussions will involve the entire class simultaneously, while other activities will be structured for very small groups (2-3 students), small groups (5-6 students), or large groups (10-15 students). This course is especially relevant to any student majoring in Biology, as it allows and encourages them to relate information they have learned in other Biology courses to their own professional conduct. Although the course was specifically designed to cover issues that are relevant to students majoring in each of the Biology concentration areas (Genetics and Developmental Biology, Ecology, Plant Biology, and Vertebrate Physiology), it is also relevant to students in colleges other than Science, who may be enrolled in majors with some biological content or applications. This course is designed to be rigorous and very interactive.

Enforced Prerequisite at Enrollment: BIOL 230W or BIOL 230M or BMB 251 or BMB 251H or BIOL 240W or BIOL 240M Recommended preparations: Successful completion of at least one 400-level Biology course

BIOL 462: History of Biology

3 Credits

History of Biology is an exploration of the history that led to our current biological knowledge. The course is organized chronologically from the Antiquity to the end of the 20th century, focusing on the development of ideas such as life, life functions (such as respiration), structure (animal and plant anatomy), diversity (species), generation (reproduction and inheritance), embryological development, and evolution. The course involves commenting on original writings by the most influential life scientists, such as Hippocrates, Aristotle, Galen, Vesalius, Harvey, Linnaeus, Lamarck, Darwin, Mendel, Morgan, and Watson & Crick, spanning more than 2,500 years. Students are required to read those original writings prior to every lecture. A special emphasis is laid on the development of theories which are the foundations of our current biological knowledge (such as macromolecules, the cell, and the evolutionary theory). The history of biology is placed within a broader historical and cultural context: a great deal of time is dedicated to explain what was happening in each historical period beyond life sciences (e.g., the rise of the first universities in the early 1200s in the Latin West, the impact of the scientific revolution in the early modern period, and the characteristics of the Enlightenment); scientists and institutions from many different periods and countries are studied. A first course objective is the review of the historical development of the most important foundations of biology, such as macromolecules, the cell, inheritance, evolution, metabolism, biodiversity, and ecosystems. This objective will directly help biology majors to gain a deeper appreciation for the history that led to our current knowledge. Starting with the Antiquity is essential because, up the 19th century, knowledge found in books was as important as knowledge obtained from actual observations, and thus many ideas have transcended the centuries. For instance, Harvey justifies his revolutionary discovery of blood circulation by the very old Aristotelian idea that a circular motion is perfect; hence the necessity of exploring in depth Aristotle's ideas; not to mention that Darwin (who had the deepest admiration for Aristotle) struggled for a long time with the notion of perfection in living organisms, and proposed an answer which is of the utmost importance to understand the depth of his evolutionary theory. A second objective is for students to understand the

interplay between observations, theories, experiments, and techniques. So, this objective will help students understand science as a process, how scientific knowledge is built: for instance, the development of the cell theory has been dependent on the emergence of new microscopic techniques, and the development of the evolutionary theory has been dependent on the slow accumulation of observations in comparative anatomy, geology, species classification, and geographical distribution; and, obviously, theories play an absolute key role because only theories help make sense of observations. A third objective in this course is to appreciate and understand past theories and ideas with a humble, non-judgmental, and unbiased approach, keeping in mind that past scholars were not necessarily "wrong." Indeed, it is more enriching to try to understand why scientists believed in one particular theory instead of others, why they thought it was correct even though it is not. Hence the necessity of doing the most difficult thing there is in the history of science, i.e., putting ourselves in the mind of scientists of the past. The course explores many examples of theories that were once believed to be correct by everyone, or nearly everyone, and later abandoned. Overall, this course will remind students of the importance to always remain open-minded and creative in the sciences, as history shows that only those who did not fear being "wrong" occasionally ended up getting things right.

Enforced Prerequisite at Enrollment: BIOL 110 and (BIOL 220W or BIOL 230W or BIOL 240W)

BIOL 463: General Ecology

3 Credits

Illustrates science of ecology, from individual, population, and community-level perspectives, discusses applications of this science to issues of conservation of biodiversity.

Enforced Prerequisite at Enrollment: BIOL 220W

BIOL 464: Sociobiology

3 Credits

Life is social. From quorum sensing bacteria blocking up urinary catheters to the seemingly poetic integration of millions of bodies during an army ant raid. And of course there are humans; that singularly unique species once described as the 'paragon of animals'. Whether the group is bacteria, worms, ants or humans selection has resulted in precise rules that govern interactions and maintain stability. Understanding these rules is the field of sociobiology and we can even see such rules at play among the inorganic realm as researchers select for social robots. In this course we explore sociobiology through stories of adaptation that will challenge you to pinpoint where and how selection is acting. We will deal with the well known topics of natural, sexual and artificial selection as well as less precisely understood topics of kin and group selection. Many of the stories in this course bring us to the exciting front line of research where acrimonious debates are waging. Because systems are often best understood when they are broken we will also tell stories of parasites and cheaters that destroy social cohesion. We will learn of such fascinating diseases as zombie ant fungi that manipulate ant behavior to the protozoans in your brain that affect your ability to drive. In societies the response to diseases is often collective and similar defenses can be seen across widely different groups so we will hear stories of how both social insects and humans have evolved adaptive architecture to reduce disease spread. We will also ask where we humans are going? To address this question the course will focus on our past and our many inventions from agriculture to cities. We will ask how our adaptations parallel those of other organisms and how they diverge. Finally, we will tie this back to

Penn State's mission as a Land Grant School and how social behavior is important in practical and applied science delivered to the masses.

Enforced Prerequisite at Enrollment: ANTH 21 or BIOL 220W or BIOL 220M

BIOL 464H: Animal Behavior–Sociobiology

3 Credits

Biological basis of social behavior. Comparative evaluation and adaptive value of social structures, mating systems, ecological correlates of social behavior.

Honors

BIOL 465: Network analysis of biological systems

3 Credits/Maximum of 3

The survival of a cell, organism or population in a variable environment depends on mounting specific responses to external stimuli. Each of these responses is governed by the coordinated action of multiple (potentially numerous) individual functional components. Understanding the collective behavior of such a complex interacting system is enabled by representing the system as a network, where we denote the components of the system with nodes and their interactions by edges. The properties of these interaction networks can then be analyzed by computational methods. This analysis can lead to important conclusions and predictions about the possible collective, dynamical behaviors of the system. The course will cover examples of network analysis and modeling in biology and medicine, focusing on systems at the molecular and cellular level. After taking this course students will be able to integrate information to construct a network model corresponding to a biological system, to use graph theoretical measures to describe this network, and to use mathematical or computational methods to model the dynamic processes that take place in this system. These skills are important for careers in life science and medical research, in bioengineering and biotechnology.

Enforced Prerequisite at Enrollment: MATH 140 or BIOL 230W or BMB 251 or BME 201. Recommended Preparation: MATH 140B or MATH 141B or MATH 297.

Cross-listed with: PHYS 465

BIOL 467: Molecular Basis of Neurological Diseases

3 Credits

This course provides up-to date knowledge of and insight into the molecular/cellular/genetic basis of the neurological diseases. The focus will be on neurodegenerative and cognitive disorders with a relative high prevalence as listed below: Neurodegenerative disorders: Alzheimer's disease, Parkinson's disease, Huntington's disease, Ataxia, ALS Cognitive and emotional disorder: Autism spectrum disorders, Mental Retardation, Depression, Bipolar disorder, Schizophrenia, Addiction, Posttraumatic disorder

Enforced Prerequisite at Enrollment: BIOL 230W or BIOL 230M or BMB 251 or BMB 251H or MICRB 251

BIOL 469: Neurobiology

3 Credits

Students will acquire an understanding of basic neurobiology, the terminology of neuronal structures and functions, as well as experimental approaches designed to integrate the principles of neural cell biology, neurophysiology, neurochemistry, neuroendocrinology, neuropharmacology, genetics and molecular biology. The LEARNING OBJECTIVES of this course are to establish a working knowledge and understanding of: (I) the cellular structures, organelles and passive and active membrane properties important for neural function, (II) the neurotransmitters, receptors, ion channels and 2nd messenger systems underlying synaptic transmission and other forms of neural signaling, (III) the development of the nervous system including neurogenesis, neural maturation, apoptosis, synaptogenesis in both the developing and adult CNS, and (IV) the molecular mechanisms underlying synaptic plasticity and learning and memory. Lastly, (V) the course will demonstrate applications of above knowledge to select complex diseases of the central nervous system

Enforced Prerequisite at Enrollment: BIOL 230W or BIOL 230M or BMB 251 or BMB 251H or BIOL 240W or BIOL 240M
Cross-listed with: BBH 469

BIOL 470: Functional and Integrative Neuroscience

3 Credits

Neurobiological function in motivated behaviors, motor and sensory function, learning and memory, development, sexual differentiation, and pathology.

Enforced Prerequisite at Enrollment: BIOL 469
Cross-listed with: BBH 470

BIOL 472: Human Physiology

3 Credits

Physiology is the science explaining body function at system, organ, cellular, and biochemical levels. This course explores the fundamentals of human physiology and its clinical applications. The target audience is advanced undergraduate and graduate students studying in the life sciences, many of whom plan to study clinical medicine disciplines in the future. Physiology is an integrative science discipline and thus will apply principles developed in previous biology, chemistry, mathematics, and physics courses to problem solving situations. Core elements of this course include integrating science knowledge and applying science principles to develop a broad understanding of physiology systems and solve physiology problems.

Enforced Prerequisite at Enrollment: BIOL 230W or BIOL 230M or BMB 251 or BMB 251H or BIOL 240W or BIOL 240M or BIOL 141 or (BIOL 161 and BIOL 163)

BIOL 473: Laboratory in Mammalian Physiology

2 Credits

Laboratory experiments demonstrating fundamentals in physiology.

Enforced Prerequisite or concurrent at Enrollment: BIOL 472

BIOL 474: Astrobiology

3 Credits

Astrobiology is the study of life in the universe. Astrobiology has become a major focus of scientific research in the United States and a topic often discussed in popular science literature. The recent interest in astrobiology has resulted in the formation of an Astrobiology Institute at Penn State University. This advanced undergraduate course in astrobiology will cover many topics in the field including, biochemical evolution, the origin and evolution of life on Earth, microbial diversity, protein evolution, and the distribution of life in the universe. This course is intended to provide students of the natural sciences with the opportunity to prepare for a research career in the rapidly expanding field of astrobiology. The course will also present astrobiology as a cross-disciplinary framework that ties together the diverse courses the students have already taken. The students will learn new concepts while having, to draw on their previous knowledge of chemistry, biology, and the geosciences. In summary, this course has the following objectives: (1) to develop the student's literacy in astrobiology so that they can critically evaluate claims that they encounter well after the course has ended; (2) to present a scientific question that requires the sum of the student's previous education to solve; (3) to provide a deep background to some of the astrobiological concepts that are often only briefly mentioned in other classes or in the media; (4) to develop research and communication skills required for a young scientist through a class term paper and short oral presentation; and (5) to prepare the students for graduate research in astrobiology by giving them a broad background of the field and by demonstrating many of the outstanding problems yet to be solved.

Enforced Prerequisite at Enrollment: (BIOL 110 or BIOL 110H) and (CHEM 110 or CHEM 110H)
Cross-listed with: GEOSC 474

BIOL 475: Human Pathophysiology

3 Credits

This course focuses on manifestations of human diseases and the changes that occur at the molecular, cellular, tissue, organ, and system levels to cause disease states. Topics covered include mechanisms of disease, inflammation and repair, features of selected diseases for each body system, diagnostic testing, and pharmacotherapy. The primary goal of the course is to reinforce student knowledge of normal human physiology by studying how it is altered by disease. The course will feature traditional didactics, case studies, group problem-based activities, and analysis of primary literature in pathophysiology.

Enforced Prerequisite at Enrollment: BIOL 141 or (BIOL 161 and BIOL 163) or BIOL 240W or BIOL 240M or BIOL 472

BIOL 476: Advanced Human Anatomy - cadaver based

3 Credits

Advanced Human Anatomy is an in-depth human anatomy course with both a lecture and lab component. Lecture meets twice per week for 50 minutes, and lab meets once per week for 2 hours in the cadaver lab. In lecture, there is a focus on understanding anatomy in the context of development, histology, evolution, and clinical scenarios. Lectures also include clinical correlations, where students will apply their anatomical knowledge to understand general and specific clinical cases. Learning how to identify structures in various imaging modalities (including X-ray, CT, and MRI) is an important component of this aspect of the course. A

typical lecture session often includes group-work on clinical application worksheets, completed with the help of the instructor and lecture assistants. Lab activities are conducted in the cadaver lab, and mostly focus on learning to identify structures on the cadavers. Students will also learn to identify anatomy on isolated skeletal elements, plastinated cross-sections and models, and occasionally on animal organs. In both lecture and lab, there will be an emphasis on understanding the 3-dimensional relationships between structures in the body. Examination of cadavers and real human cross-sections will greatly aid in this goal. Each week's lab activities are linked with that week's lecture topic. The course is organized regionally, meaning that each region of the body is studied in turn. This promotes a focus on understanding the interrelationships between body structures and systems. The course is divided into three blocks, each capped by an exam. The first block is Thorax, Abdomen, and Pelvis, the second block is Back and Limbs, and the third block is Head and Neck. Exams consist of written lecture exams and lab-practical examinations.

Enforced Prerequisite at Enrollment: BIOL 129 or BIOL 141 or (BIOL 161 and BIOL 162 and BIOL 163 and BIOL 164) or (BIOL 240M or BIOL 240W) or BIOL 472 or KINES 202

BIOL 477: Biology Cadaver Dissection

3 Credits

This course is an advanced exploration of human anatomy, based around cadaveric dissection. We will take a "regional" approach to learning anatomy, meaning that we will focus on each region of the body in turn. There will therefore be an emphasis on understanding the 3-D relationships between structures, and how all body systems are interrelated. Lab activities will center around the dissection of cadavers. You will work in groups to complete the dissections. Lecture activities will focus largely around small group work on hands-on activities and worksheets.

Enforced Prerequisite at Enrollment: (BIOL 161 and BIOL 162 and BIOL 163 and BIOL 164) or BIOL 476 or KINES 202 or KINES 202H or ANTH 410

BIOL 478: COMPARATIVE NEUROANATOMY

3 Credits

This course provides instruction on the functional and structural organization of the vertebrate nervous system. In addition to lectures, students attend laboratory sessions devoted to human brain dissections, histologic sections of various vertebrate brains, neuroanatomical methods for analyzing brain and spinal cord organization, and non-invasive magnetic resonance imaging. The structural organization of the brain is described at both the gross and microscopic levels. A major aim of the course is to instill students with an understanding of the three-dimensional structure of the brain. To achieve this goal, students are taught how to recognize specific structures in different planes of sections along the major axes of the brain. Structural-functional relationships in the nervous system are explained, and particular emphasis is placed on understanding the functional impact of brain trauma and a variety of neurological diseases. While the course emphasizes the mammalian nervous system, many aspects of brain organization in non-mammalian vertebrates are also presented. As part of this, a major section of the course is devoted to understanding neurocladistics and the biological principles that have guided brain evolution across different phylogenetic lineages.

BIOL 479: General Endocrinology

3 Credits

Endocrine mechanisms regulating the morphogenesis, homeostasis, and functional integration of animals.

Enforced Prerequisite at Enrollment: BIOL 141 or BIOL 472

BIOL 482: Coastal Biology

3 Credits

BIOL 482 is a lecture course designed to introduce participants to the Caribbean coral reef biome and other near-shore environments such as rocky shores, mangroves and seagrass beds. Students will learn through theoretical and practical exercises how environmental and biological factors interact to sustain near-shore ecosystems. We will discover and describe the amazing diversity of coral reef systems, explore the physiological and behavioral adaptations that enable organisms to live in this environment and deduct the basic ecological principles that underlie the function of near-shore ecosystems. We will be reading primary literature throughout the course. Students may choose to focus on current issues in marine conservation science as part of their class projects/proposal. Topics may include but are not limited to connectivity among marine populations, metapopulations-dynamics, adaptation to climate change, and conservation genetics. BIOL 482 counts towards the Marine Science Minor

Enforced Prerequisite at Enrollment: BIOL 110 or BIOL 110H.

Recommended Preparation: BIOL 220W or GEOSC 40

BIOL 483: Coastal Biology Travel Experience

2 Credits

BIOL 483 is the optional intensive field travel experience for BIOL 482: Coastal Biology to the beautiful island of Curacao, part of the Netherland Antilles in the southern Caribbean. The course reinforces content from BIOL 482, introducing students to the Caribbean coral reef biome and other near-shore environments such as rocky shores, mangroves, and seagrass beds. Students will learn through theoretical and practical exercises how environmental and biological factors interact to sustain near-shore ecosystems. We will discover and describe the amazing diversity of coral reef systems, explore the physiological and behavioral adaptations that enable organisms to live in this environment, and deduct the basic ecological principles that underlie the function of near-shore ecosystems. Topics may include but are not limited to connectivity among marine populations, metapopulations-dynamics, adaptation to climate change, and conservation genetics. While in Curacao, we will study these topics through snorkeling and other field experiences. The colonial past and economic realities in Curacao provide an instructive backdrop to understand the complexity of marine conservation issues today. Students will accordingly interact with local researchers as well as local residents throughout their time in Curacao, exploring the local populations' differing cultural backgrounds and current concerns. This course requires strong participation and thus is most suited for highly motivated students. All participants must pass a swimming test before leaving for Curacao. Participants will be charged a fee to cover the trip costs to Curacao and have to bring their own snorkel gear. Field trip limited to 10 students.

International Cultures (IL)

BIOL 484: Biodiversity of Pennsylvania

4 Credits

In this course, students will study the species diversity of Pennsylvania. To understand the biodiversity that we see in Pennsylvania today, we will discuss the evolutionary, ecological, environmental, and historical factors that have shaped it. The course will also present the ecosystems of Pennsylvania, the major threats to biodiversity as well as the laws and programs in place for its protection. Students will explore the interconnections of all human activities (urbanization, industry, natural resources, agriculture, etc.) and biodiversity. Most weeks incorporate a field trip to allow students to explore local natural areas, and to study some of the species of organisms mentioned in lectures. This course satisfies the Evolutionary Biology category in the Biology major or the Practicum requirement as the course will incorporate 9-13 field trips throughout the semester.

Enforced Prerequisite At Enrollment: BIOL 110 or BIOL 110H

BIOL 489: Biology of Ecohealth in Tanzania

3 Credits

EcoHealth is an emerging field that examines the complex relationships among humans, animals, plants, and the environment, and how these relationships affect overall health of ecosystems. The ecohealth approach has been applied in a variety of landscapes where humans, domestic animals, and wildlife coexist in close proximity with few boundaries. This course introduces students to dry savannah ecosystems in northern Tanzania and examines how ecohealth is used as a theoretical approach to understand complex systems where zoonotic and infectious diseases have emerged into human populations and been applied practically to design interventions and improve health outcomes. A major focus of the course is to understand how cultural differences among the different ethnic groups in Tanzania impact ecohealth and solutions. The course is approximately three-weeks long and taught entirely in Tanzania during the summer session at Penn State. Students examine topics related to disease dynamics, human and veterinary health, socio-ecological systems, wildlife behavior, and conservation of natural resources. They will also learn the basics of East Africa's socio-political and historical context. Content will be delivered via lectures, readings, and student-led discussions among others. Students are given class pack containing ~20 articles related to zoonotic and vector borne diseases and dry savannah ecology. Examples of zoonotic and vector borne diseases that are currently or previously important in Tanzania include bovine tuberculosis, rabies, brucellosis, anthrax, Rift Valley Fever, Z fever, East African Sleep Sickness, malaria, and rinderpest (an infectious disease of bovines). Daily discussions about these readings are lead by students and they are encouraged to integrate what they have observed with the readings. This exceptional opportunity allows students to design and implement a basic animal behavior field experiment as well as to participate in qualitative research via guided focus groups and interviews with both pastoral and hunter-gatherer communities in the Serengeti-Mara ecosystem. The course will include guest lectures by local experts in biology, conservation, and health as well as visits to a regional hospital and to the Nelson Mandela African Institute of Science and Technology in Arusha, where Penn State researchers are engaged in collaboration to study zoonotic diseases.

Enforced Prerequisite At Enrollment: BIOL 110 or BIOL 110H or BIOL 110S or BIOL 220M or BIOL 220W or other life science courses or Permission of program

International Cultures (IL)

BIOL 492: Senior Seminar in Biology

1 Credits

Discussion of selected topics from recent biological literature; reports on current research or internship experiences.

Enforced Prerequisite at Enrollment: 7th Semester standing

BIOL 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

BIOL 495: Internship in Biology

1-12 Credits/Maximum of 12

Practical off-campus experience in Biology under the supervision of a professional and a faculty member.

Full-Time Equivalent Course

BIOL 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

BIOL 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

BIOL 498: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

BIOL 498A: **SPECIAL TOPICS**

0.5-5 Credits

BIOL 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

BIOL 499A: Tropical Field Ecology

3 Credits/Maximum of 999

A research-intensive, active learning course taught entirely in Costa Rica during the winter break. Students depart from wherever they are and rendezvous in Costa Rica, with detailed plans and contingencies in the event of problems with flights. We work at rustic but comfortable (beds, meals, indoor plumbing) field stations where we have immediate access to pristine habitats where we perform faculty and student-designed

research projects. These research projects involve collaborative design, data collection of data to test specific hypotheses, data analyses, oral presentation, and writing formal journal-style reports. Faculty present evening lectures comprising background and examples that connect finished work to these nascent projects. Main field sites comprise a pre-montane moist forest on the Atlantic slope and a lowland rainforest on the Pacific coast of the Osa Peninsula. Course objectives are diverse, including i) provide an opportunity for students to gain confidence traveling to a non-english speaking country, independently of family but supported by faculty, peers, and our in-country partners; ii) learn how to perform research in a setting where learning methodology is deemphasized while intellectual engagement and ownership are maximized, iii) experience and learn about a broad sweep of natural history and ecology of the neotropics.

Recommended Preparation BIOL 220W or BIOL 220M
International Cultures (IL)

Biomedical Engineering (BME)

BME 100: Biomedical Engineering Seminar

1 Credits

First-year seminar to introduce the students to the field of biomedical engineering, and related opportunities in research, and industry. BME 100S Biomedical Engineering Seminar (1) A first-year seminar designed for students interested in pursuing a career in Biomedical Engineering. Through a series of lectures, demonstrations and problem solving sessions, the multifaceted world of biomedical engineering will be explored. Students will be: 1) introduced to Penn State as an academic community, including fields of study and research with an emphasis on Biomedical Engineering 2) acquainted with the learning tools and resources available at Penn State 3) given an opportunity to develop relationships with full-time faculty and other students interested in Biomedical Engineering 4) taught about their responsibilities as part of the University community 5) engaged in discussion about Biomedical Engineering and possible career paths that are available to Biomedical Engineering graduates.

First-Year Seminar

BME 201: Fundamentals of Cells and Molecules

3 Credits

Cell and molecular biology taught from an engineering perspective. Includes biochemistry, recombinant DNA, and cell structure/function. BME 201 Cell and Molecular Bioengineering (3) This course provides students foundational knowledge in cell and molecular biology. The first quarter of the course covers fundamentals of biochemistry including ligand-receptor interactions, protein structure, enzyme kinetics, and biochemical thermodynamics. The second quarter of the course covers molecular biology including DNA replication, transcription, translation, recombinant DNA tools, and applications to biotechnology and molecular medicine. The second half of the course covers selected topics in cell biology including cell adhesion, cell signaling, the cytoskeleton, cancer, and tissue engineering. Material is taught from a quantitative and engineering perspective and students are expected to have strong foundations in chemistry, physics and math. Recurring concepts in the class include chemical kinetics, consideration of the free energy of chemical reactions and the role of mechanics at the molecular and cellular level. Tools and applications discussed include recombinant protein expression, molecular mechanisms of pharmaceuticals, genetic

testing, and the use of analytical and computational modeling to understand cellular function in health and disease.

Enforced Prerequisite at Enrollment: BIOL 141 or BIOL 240W and CHEM 112 and MATH 141 Enforced Concurrent at Enrollment: PHYS 212 and CMPSC 200

BME 301: Analysis of Physiological Systems

4 Credits

Analysis of physiological signals and modeling of physiological systems by electrical and mechanical analogs in the context of continuous linear systems. BME 301 Analysis of Physiological Systems (3) Analysis of physiological signals and modeling of physiological systems in terms of electrical and mechanical analogs in the context of continuous linear systems. The course will cover an introduction to analysis of physiological systems using Matlab to perform numerical analysis and representation of biological signals with the techniques of Fourier frequency domain and linear time domain analyses. These topics will be followed by applications to describe control and function of physiological systems in the context of traditional systems analysis of continuous linear systems. Topics will focus on electrical and mechanical analogs of physiological systems and control of physiological parameters such as blood pressure, oxygen delivery to tissue, and blood glucose levels. The lab/recitation session may be used to review homework problems and implementation of solutions to computer programming assignments.

Enforced Prerequisite at Enrollment: (BIOL 141 or BIOL 240W) and PHYS 212 and (MATH 250 or MATH 251) and CMPSC 200

BME 303: Bio-continuum Mechanics

3 Credits

Mechanical properties of fluids and solids with applications to tissue mechanics and vascular system. BME 303 Bio-continuum Mechanics (3) The course serves as an introduction to continuum mechanics for students of biomedical engineering providing a foundation for studies in fluid and solid mechanics, material sciences, and other applications of science and engineering to the biomedical field. It will provide an introduction to concepts of solid and fluid mechanics, analysis in the context of mechanical properties of biological tissues, physiological models and measurement systems. For success in the course, students will draw from their prerequisite background in calculus, physics, statics, strength of materials, vector analysis, and elementary differential equations.

Enforced Prerequisite at Enrollment: (BIOL 141 or BIOL 240W) and [EMCH 210 or (EMCH 211 and EMCH 213)] and [MATH 230 or (MATH 231 and MATH 232)] and MATH 251

BME 313: Thermodynamics for Biomedical Engineering

3 Credits

Chemical processes, including material and energy balances and heat transfer with emphasis on biological and biomedical applications. BME 313 Thermodynamics for Biomedical Engineering (3) The course provides an introduction to thermodynamics, including the fundamentals of material and energy balances with specific emphasis placed on physiological and biomedical engineering applications. This course will cover equations of state, the first and second laws of thermodynamics in both open and closed systems, and Maxwell Relations. Examples of biological applications that can be considered

are the application of thermodynamic analyses to understanding thermoregulation, the cardiac cycle, respiratory gas exchange, cell potentials and to osmosis. This course also covers heat transfer including Fourier's law of conduction, convective and radiative heat transfer. Specific biological examples that may be discussed include applications to bioinstrumentation, thermoregulation and tissue heating by radiation for cancer therapy. A general knowledge of physiology and chemistry are prerequisites; the analytical approach of the course will also require an ability to work with basic differential and multivariable calculus.

Enforced Prerequisite at Enrollment: (BIOL 141 or BIOL 240W) and CHEM 112 and [MATH 230 or (MATH 231 and MATH 232)] and MATH 251

BME 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

BME 401: Numerical Simulations in Biomedical Engineering

3 Credits

Integration of design theory and finite element analyses for the development of solutions to problems in biomedical engineering. BME 401 Numerical Simulations in Biomedical Engineering (3) Biomedical engineers develop novel devices and models to facilitate patient-specific diagnosis and care. The main goal of this course, therefore, is to help students learn how to use computational modeling software as a means to apply theoretical engineering and biological principles to solve problems in medicine and biology. The course will also focus on integration of ethics and design by continually identifying where ethical decision making and health needs of global populations influence design decisions.

Enforced Prerequisite at Enrollment: BME 301 and BME 303 and BME 313
Enforced Concurrent at Enrollment: BME 201

BME 402: Biomedical Instrumentation and Measurements

3 Credits

Biomedical measurements, including consideration of techniques, equipment, and safety. BME 402 Biomedical Instrumentation and Measurements (3) This course is designed to introduce students to the principles, applications, and design of instruments used in biomedical research and applications. The emphasis is on engineering design and analysis with supplemental discussion of relevant physiological principles. Topics covered include: sensors, biopotential signal origin, amplifiers, filtering, electrodes and signal processing; pressure and flow measurement in the cardiovascular and respiratory systems, chemical biosensors, therapeutic devices, and medical imaging modalities. Students will learn to analyze and design instrumentation and measurement systems through a variety of techniques including in-class examples, homework problems, and active participation.

Enforced Prerequisite at Enrollment: (MATH 250 or MATH 251) and (BME 301 or EE 210 or EE 212 or PHYS 402)

BME 403: Biomedical Instrumentation Laboratory

1 Credits

Building basic biomedical signal processing circuits and biomedical measurement systems, experiments in medical imaging techniques, and

measurement of bio-potentials. BME 403 Biomedical Instrumentation Laboratory (1) Laboratory course to accompany BME 402, Medical Instrumentation. Biomedical measurements laboratory where students will build basic biomedical signal processing circuits, run experiments in medical imaging techniques, use transducers to build biomedical measurement systems, and measure bio-potentials. The class is comprised of studies in medical circuits and transducers for static and dynamic biological inputs, and includes measurement of actual biomedical signals. For preparation for industry or research, proper laboratory documentation techniques are taught along with basic skills for presenting experimental data.

Enforced Concurrent at Enrollment: BME 402

BME 406: Medical Imaging

3 Credits

Physical principles and clinical applications of medical imaging methods. BME 406 Medical Imaging (3) This course covers all four major diagnostic medical imaging modalities including x-ray, ultrasound, radioisotope imaging, and magnetic resonance imaging. Physical principles, instrumentation, and biomedical applications of these modalities, as well as the basics of imaging signals and image processing will be discussed. Success in this course will require background in physics and electrical circuits, and some experience with Matlab.

Enforced Prerequisite at Enrollment: PHYS 212 and (CMPSC 200 or CMPSC 201)

BME 408: Solid Mechanics of Biological Materials

3 Credits

This course presents advanced topics in solid mechanics that are important for understanding the behavior and function of biological materials, including cardiovascular tissues (e.g., blood vessels, myocardium, epicardium), musculoskeletal tissues (e.g., tendon, bone, articular cartilage), synthetic biomaterials (e.g., hydrogels, composites), and cells. The course will begin with a review of basic concepts in mechanics and mathematics, followed by a detailed discussion of the principles of stress and strain for infinitesimal deformations. Since most biological materials undergo large deformation, the limits of our definitions for stress and strain will be discussed along with alternative methods if these limits are violated. Constitutive equations for linear elastic homogenous isotropic, orthotropic, and transversely isotropic materials will be presented. These concepts will then be applied to various mechanics problems that are relevant to biology, physiology, and medicine. The second half of the course will cover fiber-reinforced composite materials, which are relevant for both engineering prostheses as well as understanding the behavior of numerous native biological materials (e.g., tendon, epicardium, intervertebral disc). The course will conclude with a brief introduction to poroelasticity and its role in the function of articular cartilage and hydrogels.

Enforced Prerequisite at Enrollment: MATH 230 and MATH 251 and CMPSC 200 and EMCH 210

BME 409: Biofluid Mechanics

3 Credits

The fundamental relations in fluid mechanics and their application to biofluids including steady/unsteady flows, diseased states, devices and

bio rheology. BME 409 Biofluid Mechanics (3) This course is a first course in fluid mechanics, with application to biomedical problems. This course incorporates understanding of fluid properties of biological materials and applies the fundamental laws (mass, momentum, and energy) that govern fluid mechanics to solve biofluid applications such as those in the cardiovascular system, including diseased states. The course will enable students to use approximation methods and constraints in fluid mechanics to help model and solve biofluid examples. Bio rheology and cardiovascular prosthetics in the context of fluid mechanics will be discussed. The students will be able to understand and apply problem solving techniques to steady and unsteady biological flows and be exposed to wave propagation theory and oscillatory flow. Students will be exposed to biofluid devices and flow measurement techniques used to assess these devices.

Enforced Prerequisite at Enrollment: MATH 230 and MATH 251 and (BIOL 141 or BIOL 240W)

BME 410: Biomedical Applications of Microfluidics

3 Credits

Study of fluid mechanics at small length scales including fabrication of microfluidic devices and microfluidic components, lab-on-chip concept and applications. BME 410 Biomedical Applications of Microfluidics (3) Microfluidics is the study of flow phenomena at small length scales with characteristic channel dimensions typically less than the diameter of human hair. Small length scale effects become important as surface forces such as viscous drag and surface tension govern flow behavior rather than body forces (inertia) as seen in macroscale fluid mechanics. Miniaturization of fluid handling systems also allows the development of micro Total Analysis Systems (microTAS) or so called "lab on a chip" which combines biological sample preparation, separation and analysis in a single device. Topics explored in this class include: silicon based microfabrication and non-conventional micro/nano fabrication techniques; flow phenomena at small length scales, including laminar flow and flow resistance, inertial flow, diffusion, capillary effect, electrokinetic flow like electroosmosis, electrophoresis, and dielectrophoresis (DEP); microfluidic components including valves, pumps, mixers, sensors, actuators; lab-on-chip system concept and applications; hands-on lab to make and test microfluidic device; finite element simulation lab to gain better understanding of microfluidic devices.

Enforced Prerequisite at Enrollment: CHEM 112 and PHYS 211 Enforced Concurrent at Enrollment: BME 303 or ME 320 or CHE 330 or AERSP 308 or PHYS 213

BME 413: Mass Transport in Biological Systems

3 Credits

An integrated study of the fundamentals of mass transport processes with emphasis on the analysis of physiological systems. BME 413 Mass Transport in Biological Systems (3) This course provides an introduction to mass transport phenomena in biological systems. The course builds upon thermodynamic concepts of phase and chemical equilibrium to analyze ion transport and cell membrane potentials including Nernst potentials, Gibbs-Donnan equilibrium and osmotic pressure. In particular, the course provides fundamental understanding of the diffusion of gases, electrolytes and non-electrolytes in biological applications. Furthermore, the principles of oxygen transport in tissues are specifically described and analyzed using the Krogh Cylinder Modes and hemoglobin-oxygen binding relationships. The transport of substances across biological

membranes is discussed and analyzed for various biological transport mechanisms including: passive diffusion, active transport and facilitated transport. Convective transport through porous media is introduced using Darcy's Law and the Brinkman Equation. Finally, fundamental concepts of pharmacokinetic modeling are introduced and utilized for the analysis of drug transport and distribution within tissues.

Enforced Prerequisite at Enrollment: (BME 313 or ME 300 or CHE 220 or PHYS 213) and (MATH 250 or MATH 251) and (BIOL 141 or BIOL 240W)

BME 419: Artificial Organs and Prosthetic Devices

3 Credits

Analysis of function and consideration of design concerns for biomedical implants, including prosthetic joints, electrical stimulators, and cardiovascular pumps. BME 419 Artificial Organs and Prosthetic Devices (3) This course provides an overview of artificial organs and medical devices (ranging from blood pumps, hemodialysis, BioMEMS, tissue engineered technology, orthopaedic devices, cardiovascular implants, pacemakers, etc.) and how engineers use a design methodology, need to understand the clinical need, and what FDA regulations must be considered to develop these technology. Guest speakers and experts provide lectures on the various technology and students are exposed to industry and academic device development. The basics of biomaterials and biocompatibility are discussed within the context of the technology.

Enforced Prerequisite at Enrollment: (BIOL 141 or BIOL 240W or BIOL 472) and (CMPSC 200 or CMPSC 201 or CMPSC 121)

BME 423: Reaction Kinetics of Biological Systems

3 Credits

Chemical kinetics and reaction equilibria with applications to the analysis of physiological function and the design of synthetic organs. BME 423 Reaction Kinetics of Biological Systems (3) Chemical reactions are the underlying mechanism for numerous biological processes such as energy metabolism, biosynthesis pathways, mass transport, and detoxification. This course will introduce the basic concepts in chemical equilibrium and reaction kinetics. The course will then apply these chemical kinetics and analytical approaches to understand the underlying mechanisms of selected biological and physiological processes, which will include metabolic engineering, catalysis, bioreactors, and drug discoveries.

Enforced Prerequisite at Enrollment: (BIOL 141 or BIOL 240W) and CHEM 112 and (MATH 250 or MATH 251) and (BME 313 or CHE 210 or ME 300) Enforced Concurrent at Enrollment: BME 413 or CHE 410 or BE 302

BME 429: Biomedical Mechanics and Techniques Laboratory

2 Credits

Experimental laboratory that includes hands-on measurement, computational simulations, and statistical analysis of biofluids, biosolids, and biomaterial phenomena. BME 429 Biomedical Mechanics and Techniques Laboratory (2) This course focuses on three five-week modules whereby students will conduct experiments on biomaterial interfaces, biofluid mechanics, and biosolid mechanics. These experiments will be complimented with computational simulations to enable discussion between the experimental and computational results and appropriate advanced statistics. Students will apply theoretical knowledge from previous core bioengineering/biomedical engineering courses. Examples of some experiments include blood separation,

quantifying the flow through a stenosis, and measuring the material properties of bone.

Enforced Prerequisite at Enrollment: BME 201 and BME 303 and BME 401

BME 429H: Biomedical Mechanics and Techniques Laboratory

2 Credits

Experimental laboratory that includes hands-on measurement, computational simulations, and statistical analysis of biofluids, biosolids, and biomaterial phenomena.

Honors

BME 433: Drug Delivery

3 Credits

Engineering and biological principles as applied to pharmaceutical transport and designing drug carriers. BME 433 Drug Delivery (3) The success of drug delivery depends on not only the understanding of chemical synthesis, polymer sciences, and cell biology, but also the fundamental understanding of drug transport that is affected by both drug's properties and physiological barriers, which are very critical but often overlooked in the design of drug delivery systems. Therefore, this course covers two main issues: 1) physiological barriers and drug transport; 2) design and characterization of drug delivery systems. The first section of this course introduces transport mechanisms of drug delivery at the levels of cell, tissue and wholebody from the engineering viewpoint. The second section describes the rational design of various drug delivery systems and emphasizes nanomedicines. Case studies of cancer therapy/tissue engineering are described to compare, contrast and analyze current drug delivery systems.

Enforced Prerequisite at Enrollment: CHEM 112 and (BME 201 or BIOL 230W or BMB 251) and (BME 413 or BE 302 or CHE 410)

BME 437: Biomedical Data Science for Bioengineers

3 Credits

This course is an introduction to the theory and practice of biomedical data science. We will focus on applications of data analysis to problems in the diagnosis and treatment of human disease. Applied biomedical data science requires strong computer programming skills and strong data analysis skills. Students will learn basic programming skills in an open source language, intermediate programming skills required to handle diverse medical, genomic, and clinical datasets (i.e. regular expressions, reproducible programming, file handling). We will cover the underlying principles and the practice of both supervised and unsupervised techniques in statistical learning by applying them to biomedical datasets. The emphasis will be on the practice of data analysis, and students will be required to undertake large scale analyses of real biomedical data.

BME 440: Biomedical Engineering Professional Seminar

1 Credits

Seminar giving students exposure to professionals who apply engineering and related fields to biology and medicine. BME 440 Biomedical Engineering Professional Seminar (1) A senior seminar introducing students to professionals in the field of biomedical engineering and disciplines that are critical to the field (e.g. ethics, regulatory affairs, entrepreneurship). This course is designed to prepare

students for the subsequent capstone design course and allow them to consider areas where innovation and design in biomedical engineering are needed. Discussion with presenters will allow students to explore the promises and limitations of the clinical applications of biomedical engineering and to explore possible career paths. Guest speakers may include representatives and alumni from the medical device industry, biomedical entrepreneurs, medical clinicians, professionals from relevant regulatory agencies, and professionals in bioethics.

Enforced Prerequisite at Enrollment: Seventh semester standing in BME_BS

BME 443: Biomedical Materials

3 Credits

Describe properties of materials and composites and their in vivo interactions. BME 443 (MATSE 403) Biomedical Materials (3) Metals, polymers, and ceramics, and their composites, which are capable of emulating the functions of hard and soft tissues, are the subjects of this course. The subject matter shall be confined to implanted materials; external appliances, such as casts, braces, etc are not considered. The topical content of this course will be grouped into four areas. A general introduction to selected aspects of physiology will be presented. This will provide the background necessary to appreciate the factors which govern the selection of biomedical materials. Specific emphases will be placed on polymerization of biopolymers (polypeptides and polysaccharides) and the general relationships between conformation and biological function, the biochemistry of blood and blood surface interactions, the formation of teeth and bone and the relationships between microstructure, composition and function, the immune responses to implanted materials, the resorption of bone (osteoporosis) and the development of caries. The perspective placed on these topics will be that of materials science. The selection of ceramics for hard tissue prosthesis will be discussed. Orthopaedic and dental applications for ceramics will be discussed. Specific ceramic materials to be treated include dental porcelain, alumina- and zirconia-based ceramics, and bioglasses and pyrolytic carbons. Various classes of inorganic cements, gypsum, zinc phosphates, zinc carboxylates, silicates, and glassionomer cements will also be considered as ceramics. Hydroxyapatite, Hap-based composites and Hap-metal interactions will be discussed in particular. Relationships among physical properties, mechanical properties, and chemical interactions with biological fluids will be described. Dental and orthopedic applications of metals will be described. The fracture toughness of metals, their electrochemical responses in vivo, and the nature of the interfacial interactions with hard tissues will be treated. Dental amalgams and the noble metals for dental applications will be considered. Metals and alloys, such as Ti, Co-Cr, and vitallium, used in prosthetic applications, will be described and their properties and limitations discussed. The phenomenon of stress shielding and the immune responses associated with the accumulation of metallic and polymeric particular debris in the vicinity of an implant will be discussed in particular. Polymeric materials are important in a broad range of biomedical applications. Among these are soft tissue prostheses, hemostatic agents, dental restoratives, bone replacement materials, and surgical adhesives. In some applications it is desirable that a polymeric material biodegrade while in others property retention is desirable.

Enforced Prerequisite at Enrollment: (MATSE 201 or CHEM 112) and (MATH 230 or MATH 231)

Cross-listed with: MATSE 403

BME 444: Surfaces and the Biological Response to Materials

3 Credits

Focus is on special properties of surface as an important causative and mediating agent in the biological response to materials.

Enforced Prerequisite at Enrollment: CHEM 112 or MATSE 112

Cross-listed with: MATSE 404

International Cultures (IL)

BME 445: Tissue Engineering: Concepts, Calculations and Applications

3 Credits

Introduction to interdisciplinary tissue engineering concepts, associated biochemical and biomechanical engineering calculations, and cardiovascular, musculoskeletal, and other tissue application examples. BME 445 Tissue Engineering: Concepts, Calculations and Applications (3) Tissue engineering is a field of research dedicated to the design and construction of living tissues for use in repairing or regenerating tissue structures and functions compromised by disease or trauma. This course provides an introduction to interdisciplinary tissue engineering concepts, associated biochemical and biomechanical engineering calculations, and cardiovascular, musculoskeletal, and other tissue application examples. Topics covered in this course will span the entire process of creating an engineered tissue, including, among other topics: biomaterials for tissue engineering, cell-material interaction, wound healing response; techniques for cell isolation, recovery, and expansion; biodegradable polymer synthesis and degradation; scaffold design, fabrication, and cell seeding; bioreactors; special topics such as tissue engineering of neural, bone, cardiovascular, cartilage, and other tissue.

Enforced Prerequisite at Enrollment: CHEM 112 and (BME 201 or BIOL 230W or BMB 251) and PHYS 211

BME 446: Polymers in Biomedical Engineering

3 Credits

Foundations in polymer chemistry and physics, polymer design, characterization, and processing with a focus on biomedical applications.

Enforced Prerequisite at Enrollment: CHEM 112 and CHEM 113 and (CHEM 202 or CHEM 210) and EMCH 210 or (EMCH 211 and EMCH 213)

BME 446H: Polymers in Biomedical Engineering

3 Credits

Foundations in polymer chemistry and physics, polymer design, characterization, and processing with a focus on biomedical applications.

BME 448: Regulatory Affairs

3 Credits

This course provides an overview of the FDA regulatory process for drug, biologics, and device development. Through course work and class based discussion, students will have an opportunity to develop the foundations necessary to build a strong understanding of regulatory affairs. Topics include the historical perspective the development of U.S. drug laws, law vs. regulation, FDA and industry functions, drug, biologics and device approvals, Good Laboratory/Manufacturing/Clinical Practice and global regulatory frameworks. The class utilizes collaborative group work and case study based learning exercises.

Enforced Prerequisite at Enrollment: (ENGL 202C or BE 391) and (ECON 102 or ECON 104)

BME 450W: Biomedical Senior Design

3 Credits

Team based capstone design course with open ended project for industry or clinical applications related to Biomedical Engineering. BME 450W Biomedical Senior Design (3) This course is a culminating design experience where students will be presented with open-ended industry and clinically sponsored design projects related to biomedical engineering. Students will work in multi-disciplinary teams to effectively design and prototype a solution for the sponsor. Students will be required to do needs assessment, project planning, budget planning, formulation of design specifications, analysis of the design, and documentation of results. Several design review reports and assessments will be used to monitor progress throughout the semester. Students will develop teamwork and communication skills and learn how to consider the ethical implications of their design, both in construction and use. Students meet with the instructor and sponsor on a regular basis for progress assessment. Notebooks are carefully maintained and critiqued. At the end of the semester, students will demonstrate their final design in a variety of formats that may include formal presentations, posters, websites, and written reports.

Writing Across the Curriculum

BME 455: Stem Cell Biology and Therapy

3 Credits

This course will give an overview of milestones in stem cell research and will expose students to current topics at the frontier of this field. It will introduce students to the different types of stem cells as well as factors and signals that are implicated in regulating stem cell fate. The course will highlight techniques for engineering of stem cells and their micro-environment. The course will also discuss gene editing and the application of gene editing in stem cell research. Furthermore, it will evaluate the use of stem cells for tissue engineering and therapies. Emphasis will be placed on discussions of current research areas and papers in this rapidly evolving field. The class is designed for upper undergraduates and graduate students with a strong interest in stem cell biology, and the desire to actively contribute to discussions in the class.

Enforced Prerequisite at Enrollment: BIOL 230W or BIOL 240W or BME 201 or BMB 251 or BIOL 240M or BIOL 230M or BMB 251H
Cross-listed with: BIOL 455

BME 494H: Honors Thesis

1-3 Credits/Maximum of 6

Independent study research and design, leading towards honors thesis.

Honors

BME 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

BME 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

BME 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Biomedical Engineering Technology (BE_T)

BE_T 101: Introduction to Medical Equipment Maintenance

1 Credits

Introduction to the field of clinical engineering and the management of medical equipment and systems. BE_T 101 Introduction to Medical Equipment Maintenance (1) BE_T 101 is an introductory course in medical equipment management. It is an entry level course intended to give students the big picture of the field of biomedical and clinical engineering. The course covers the background and history of the field, exploring how medical equipment technology has changed as well as the management of the service of the equipment. The focus of this class will be from the perspective of the biomedical equipment technician, what skills are necessary, education requirements, training opportunities, certification, job duties and descriptions, and career paths. The types of employers, their organization structures, required regulations, recommended standards and information about the work place will be presented. Business ethics of working with medical equipment, patients, clinical care givers and other health care providers will be discussed. Topics covered include: * Background and history of medical equipment management * Changes in medical equipment technology * Certification for biomedical equipment technicians * BET job duties, descriptions and requirements * BET continuing education needs * Ethical decisions in medical equipment management * Functions & Organization of clinical engineering departments * Employer types * Department organization charts * Reporting structures * Services provided by clinical engineering departments * Regulatory and standards requirements * Documentation systems

BE_T 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

BE_T 201: Medical Equipment & Systems I

5 Credits

Introduction to the field of biomedical engineering technology, electrical wiring devices, theories of measurement, cardiovascular systems and ECG monitor operation. BE T 201 Medical Equipment & Systems I (5) This course introduces the student to electrical safety standards and related wiring devices, methods and systems. Grounding and leakage current is studied so the student understands the causes of leakage current, safety limits, measurement and safe control of medical devices. Electrical wiring devices, over current protective devices, power quality devices and simplified hospital electrical distribution

systems are discussed in relation to the electrical power delivery and quality required for medical devices. The electro-physiological theories of measurement, sensors, electrodes and measurement errors are discussed to provide an understanding of how signals are detected on the human body. A variety of transducers will be studied that are used with medical devices, such as: pressure, temperature, audio, relays, solenoids, lighting, video displays, motors, printers and batteries. The blood, heart, and cardiovascular system is studied in detail, as well as the electro-physiological signals of the heart. The normal and many abnormal electrocardiograph signals are studied pursuant to a thorough understanding of the function and operation of the heart. The electrocardiograph (ECG) machine is studied from an electrical/electronic design perspective so the student has an understanding of the electronic circuits required to measure and display the human ECG signal. The controls, operation, electrical safety testing, performance testing and general design of an ECG monitor is studied so the student has a full understanding of its operation, usage and preventative maintenance testing. Topics covered include: - electrical safety - grounding, leakage current and protective systems - electrical wiring devices, over current protective devices, and isolated power - power quality, disturbances and corrective methods - simplified hospital electrical distribution system - theory of measurement: terms, factors, and errors - electrodes, sensors, and transducers devices and circuits - cardiovascular anatomy and physiology - bio-potentials: electro-conduction system of the heart - common ECG waveforms: normal and abnormal - ECG monitor application and connections to patient

Enforced Prerequisite at Enrollment: EET 105**BE_T 203: Biomedical Equipment Laboratory (Internship)**

4 Credits

Practical experience, within or related to the hospital environment, on a variety of biomedical instruments. BE T 203 Biomedical Equipment Laboratory (4) The final semester internship is a curriculum requirement for the Biomedical Engineering Technology (BET) Program. It allows eligible students to develop entry level skills in the biomedical field while gaining valuable work experience before graduation. The program consists of 400 hours of hands-on experience in an actual work environment on patient care and life support equipment. The student is expected to understand and perform basic fundamentals of the operation, minor corrective repairs and perform basic preventive maintenance and electrical safety tests to a wide variety of medical devices. During the internship, the student will be expected to participate in a wide variety of clinical procedures to learn the environment, application, problems, and the routine and abnormal situations that may occur in regards to the medical devices. Students will also be exposed to the organization and management of a clinical engineering department by attending various committees, investigating education and training for biomedical equipment technicians, investigating the risk based preventative maintenance system, investigating the clinical engineering department performance indicators, and investigating the required policy and procedures of a clinical engineering department. Students will be expected to use good communication and customer skills when working with co-workers, clinical personnel, patients, visitors and all others while conducting the internship. Students will be expected to document their activities as required by the course requirements as well as the requirements of the internship location. Students will be assigned an internship supervisor that they will take direction from on a daily basis. The student will be expected to work and follow the requirements of the internship site and follow all required policies and procedures. A biomedical engineering technology student manual will be provided to the

student detailing all of the requirements for the internship. This must be the last course taken for the degree.

Enforced Prerequisite at Enrollment: (BIOL 163 and BIOL 164 or BISC 4) BE_T 204W and BE_T 206

Full-Time Equivalent Course

BE_T 204W: Medical Equipment and Systems II

5 Credits

Principles of medical equipment: operation, application; circuit and block diagrams; preventive maintenance inspections; and troubleshooting with report writing and presentations. BE T 204W Medical Equipment and Systems II (5) This course introduces various types of medical instrumentation in preparation for the biomedical internship (BET 203). Equipment operation and application, circuit and block diagrams, preventive maintenance, inspections, performance testing, and troubleshooting are explained or reviewed. In addition, the student is required to demonstrate communication skills for the biomedical field in the form of technical reports, equipment reviews, and in-service presentations. In studying the various medical devices, the human cardiopulmonary system, basic anatomy and physiology structures will be reviewed as they apply to that medical device or measurement. Topics covered include: - electrical safety -ECG monitoring -blood pressure monitoring (invasive/non-invasive) -cardiac output measurement - defibrillators -pacemakers -pulse oximeter -surgical equipment & systems -sterilization systems & process -surgical fiber-optic scopes -anesthesia gas machines -electrosurgical units -infusion devices - dialysis equipment -ventilators & respiratory therapy equipment - clinical laboratory equipment -general medical devices -FDA (510K) & SMDA requirements -regulation & standard organization review - imaging systems overview & X-ray equipment & system review - report writing -technical presentations Lectures will be supported through laboratory exercises regarding medical devices (physiological ECG monitors, electrocardiographs, blood pressure monitors, noninvasive external pacemakers, defibrillators, pulse oximeters, infusion pumps, and electrosurgical units) and perform operational and preventative maintenance testing on those devices. Written laboratory reports outlining the laboratory activity are required. Reports are graded based upon technical quality, grammar and professionalism. Computers are used to simulate electrical circuits and systems and also produce high quality weekly medical device reports and laboratory reports.

Enforced Prerequisite at Enrollment: BE_T 201 and BE_T 205 Writing Across the Curriculum

BE_T 205: Medical Electronics

4 Credits

Solid state devices, diodes, power supplies, operational amplifiers, transistors, timing circuits, high power devices, circuits as applied to medical devices. BE T 205 Medical Electronics (4) BET 205 introduces solid state devices and circuits as they apply to medical devices. This course begins with the fundamentals of solid state devices, diode models and applications, then application of these fundamentals in linear power supply design. Students design a theoretical linear power supply as a term project, applying the fundamentals of diodes, transformers, filters and regulators. Operational amplifiers, transistor devices and circuits is presented along with the applications of amplifiers, switches, filters and other related circuits. Special solid state and high power devices will be discussed and their applications to medical device circuits. This course provides students with a broad exposure to a wide variety

of solid state devices and their application to medical devices. Topics covered include: -Fundamentals of solid state principles -P-N junction, forward and reverse biasing -diode models: ideal, practical and complete -specialty diodes: zener and LED -diode specifications and testing - transformers: step up, step down & isolation -rectifier circuits: half and full wave -linear power supply: rectification, filters & regulation designs - Switching Mode Power Supply (SMPS) fundamentals -linear power supply design project -operational amplifiers: amplifiers, comparators, filters and others -transistors: BJT, JFET, MOSFET -special power devices: photo detectors, optoisolators, TRIAC, DIAC and others -timing circuits -tuned amplifiers & band width Topics are supported by laboratory exercises where students learn about solid state devices and power supplies. Students are required to complete a theoretical design of a linear power supply with given specifications. Students are also required to prepare written laboratory reports outlining the laboratory activity and power supply design project. Reports are graded on technical quality, grammar, and professionalism. Students in BET 205 are required to use computers in to simulate electrical circuits and systems and also produce high quality laboratory reports.

Enforced Prerequisite at Enrollment: EET 105

BE_T 206: Medical Computers and Networks

4 Credits

Introduction to computer hardware, software and networks for medical equipment; PC and medical equipment hardware; networking fundamentals. BE T 206 Medical Computers and Networks (4) This course provides an introduction to computer hardware, software and networks used by medical equipment with an in-depth background of PC and medical equipment hardware and networking fundamentals. The topics covered include: Microsoft Office review and advanced applications; personal computer (PC) hardware fundamentals; formatting and sectoring hard drives; installing various Windows operating systems and other required software/drivers; networking hardware component fundamentals; administrator networking software settings and configurations; fundamentals of health level 7 (HL7) standards; fundamentals of digital imaging and communication in medicine (DICOM) standards; operation of DICOM viewer software for medical images; fundamentals of picture archive and communications systems (PACS) configurations for medical applications; fundamentals of The Health Insurance Portability and Accountability Act of 1996 (HIPAA) Privacy and Security Rules in regards to medical equipment maintenance; creation of a simple PC network with several PCs and basic networking hardware components; creation of a simple physiological computer based network with several physiological devices and basic networking components; creation and testing of network cables using applicable tools and test equipment; troubleshoot and correct technical problems of a basic PC and medical equipment networks using appropriate software, tools and equipment; and analyzing and generating a written reports. Lectures will be supported by laboratory exercises in which the student learns about PC hardware, PC software, network hardware, network configuration and troubleshooting these systems. Students will be required to prepare written laboratory reports outlining the laboratory activity. Reports will be graded based both on their technical quality and their grammatical and professionalism. Students in BET 206 will be required to use computers in both class and laboratory exercises to use software, create and configure networks for PCs and physiological monitors.

Enforced Prerequisite at Enrollment: BE_T 201 Enforced Concurrent at Enrollment: IST 220

BE_T 210: Troubleshooting Medical Equipment

3 Credits

Methods and strategies for troubleshooting medical equipment, systems and electronics components. BE T 210 Troubleshooting Medical Equipment (3) BE T 210 will provide students with methods and strategies for servicing medical equipment, systems and electronics components. Many different methods can be used to identify and solve problems that include using many different skill sets. This course introduced logical methods for troubleshooting medical devices including: equipment operation, application, normal and abnormal outcomes, tools, test equipment, simulators and analyzers. In addition to the technical skills of troubleshooting, the "soft" skills or "people" skills are investigated. How to communicate with others and the customer skills will be introduced. While working with medical equipment, individuals need to have an awareness of infection control and the steps that must be followed to protect them, the patients and co-workers. Cleaning, handling and general safety methods will be discussed. Topics covered include:- Safety procedures• Skill set requirements -Test equipment, simulators, analyzers and tools -Troubleshooting methods - Troubleshooting components -Troubleshooting systems -Troubleshooting medical equipment -Hands on troubleshooting skills -Customer skills - Infection Control

Enforced Prerequisite at Enrollment: BE_T 201**BE_T 296: Independent Studies**

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

BE_T 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Biorenewable Systems (BRS)**BRS 299: Foreign Studies**

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)**BRS 393: Industry Tour**

1-2 Credits/Maximum of 2

A week-long tour of bioproducts and agricultural systems industries. BRS 393 Bioresources Industry Tour (1) This is a week long course, in which students will travel to tour relevant manufacturing facilities. Roughly half of the time (2.5 days) will be dedicated to the bioproducts industry, and the remaining time will be focused on agricultural systems. Bioproducts and agricultural systems are the two key components of the BioRenewable Systems major.

Enforced Prerequisite at Enrollment: Junior standing in BRS_BS or BE_BS**BRS 437: Bioproduct Marketing and Sales**

4 Credits

Business-to-business bioproduct sales and marketing fundamentals and market overview of key forest industry sectors including biorefinery value chain outputs. BRS 437 Bioproduct Marketing and Sales (4) This course covers business-to-business (B2B) bioproduct marketing fundamentals and a market overview of key forest industry sectors (solid wood, composite panels, and engineered wood products) including biorefinery value chain outputs (environmental services, energy, fuels, and co-products) and personal selling of bioproducts. Students will apply B2B market principles and concepts toward an understanding of bioproducts industries and markets. Personal selling techniques will be developed and applied to enhance understanding of the industrial sales function within bioproduct firms. Marketing research for decision-makers will be examined.

Enforced Prerequisite at Enrollment: BRS 300 and (AGBM 101 or ECON 102)**Biotechnology (BIOTC)****BIOTC 197: Special Topics**

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

BIOTC 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

BIOTC 416: Microbial Biotechnology

3 Credits

The overall goal of Microbial Biotechnology (3 cr.) is to provide students with an opportunity to apply their knowledge of microbiology and biotechnology to the synthesis of biologically important and industrially useful products. The course will focus on the application of the tools of Microbiology, Molecular Biology, Biochemistry, Forensics, Environmental Biology and Bioinformatics to exploit microbes as "vessels" to create an array of products to benefit humans, animals and the environment. For example, discussions may address the use of microbes in the cleanup of polluted environments (bioremediation) as well as their role in producing drugs (vaccines, antibiotics, etc.), industrially important enzymes (rennet, meat tenderizers, indigo production etc.), and biodegradable plastics. Furthermore, ethics and regulations surrounding the production, marketing, and distribution of these biologics will be discussed. Students in the course will also participate in a project wherein they conceive of an idea for a value-added product, research steps necessary to bring said product to market, investigate aspects related to intellectual property, and develop a marketing plan. The student project will culminate in a class competition where students will choose to invest their "biotech bucks" in a fellow student's proposed company. Throughout the entirety of the course, the concepts of entrepreneurship and innovation will be at the forefront of class discussions.

Enforced Prerequisite at Enrollment: (BMB 442 or BIOTC 459 or HORT 459 or BIOL 459) and (MICRB 201 or MICRB 201H) and (MICRB 202 or MICRB 203)

Cross-listed with: MICRB 416

BIOTC 459: Plant Tissue Culture and Biotechnology

3 Credits

The overall goal of this course is to provide a strong overview of the techniques used in plant biotechnology and the applications made possible by those techniques. The lecture topics will be used to introduce the principles of tissue culture and molecular biology, including how they are used to produce transgenic plants. Furthermore, the course will give students a broader and deeper knowledge in the field of Plant Biotechnology and provide a foundation for understanding the field as it changes in the future. Topics include the safety, legal and ethical issues surrounding GMOs and the study of the anti-GMO arguments surrounding each issue. In the laboratory component of the course, students will be introduced to the underlying principles of molecular biology techniques and aseptic culture of plant cells as well as the tissues and organs used to produce transgenic plants. In summary, through this course students will be introduced to many of the most important tools of the biotechnologist.

Enforced Prerequisite at Enrollment: BMB 252 or BMB 252H or MICRB 252 or BIOL 230W or BIOL 230M

Cross-listed with: BIOL 459, HORT 459

BIOTC 460: Advances and Applications of Plant Biotechnology

3 Credits

This course provides a comprehensive overview and current status of plant biotech research. The course provides knowledge of plant systems that fall in the category of GMOs. BIOTC 460 / AGRO 460 Advances and Applications of Plant Biotechnology (3) This course will provide a comprehensive overview and status of current plant biotech research. The focus is on providing knowledge of the biology of plant systems. Consequences of development of a transgenic plant either for food (crops) or as a tool to understand molecular, genetic, and inheritance mechanisms of a trait will be discussed in detail. The course will deliver the current literature and understanding of mechanisms involved in herbicide resistance in transgenic plants. Specific topics that will be of interest to students from various disciplines include disease and insect resistance, quality traits, and secondary metabolites. Molecular biology of different pollination systems will be examined so that students will understand the concept of gene flow from transgenic to non-transgenic crops. Examples from recent developments on the beneficial use of transgenic plants as producers of modified compounds, starches, antibodies and their use in phytoremediation of toxic and organic pollutants will be discussed from the perspective of genetic and molecular plant systems. Gene expression of transgenic plant traits and the stability of an engineered crop will be discussed. Specific emphasis will be on different modes of inheritance that a transgenic plant can follow after its development and release into the environment. The course also prepares students for understanding the regulatory processes that are required for testing, moving, and environment release of transgenic crops. The laboratory component of the course will introduce students to the common technique of molecular biology that are used to detect expression in transgenic plants. Transgenic maize plants will be grown in a greenhouse and analyzed for expression of introduced genes.

Enforced Prerequisite at Enrollment: BMB 251 or MICRB 251 or BIOL 230W or BMB 251H or BIOL 230M

Cross-listed with: AGRO 460

BIOTC 479: Methods in Biofermentations

3 Credits

The overall goal of this course is to enable students to plan and execute fermentation processes approaching industrial scale. Students will get hands-on experience setting up and monitoring fermenters, as well as conducting practical experiments that include: 1) the effects of medium components on cell density, mixing, aeration and oxygen mass transfer in fermentation systems 2) analysis and control of key parameters for product optimization and 3) computer control of fermentation processes. In addition, the student will learn to prepare and complete documentation to support project goals that will meet GLP (good laboratory practice) standards, take proper laboratory notes on all procedures which are carried out in the laboratory, and present results to a group orally. The laboratory work will be supported by presentations and discussions on the fundamentals of microbial culture, aseptic techniques, kinetics of fermentation, recombinant microorganisms, scale-up strategies, downstream processing, economic considerations, regulatory aspects and cGMP (current good manufacturing practices).

Enforced Prerequisite at Enrollment: BMB 442 and (MICRB 201 or MICRB 201H) and (MICRB 202 or MICRB 203) and (BMB 252 or BMB 252H or MICRB 252 or BIOL 230W or BIOL 230M)

BIOTC 489: Animal Cell Culture Methods

3 Credits

The overall goal of this course is to introduce students to basic principles and techniques in animal cell culture. More specifically, the course outlines the importance of animal cell culture to the field of biotechnology as it applies to the pharmaceutical industry. Lecture discussions will be used to provide the necessary theoretical background in working with animal and insect cells, such as history of cell culture, media components, growth kinetics, principles of regulating biological products, cell line propagation, characterization, quality control and the complex issues of scale-up of cell culture from the research bench to larger reactors. Students will become familiar with the practical aspects of culturing and sub-culturing established cell lines and learn basic techniques such as creating a primary cell line, chromosome spreading and mycoplasma detection as well as maintaining insect cells. In addition to hands-on experiments, different methods and equipment employed in the scale-up of animal cell culture will be demonstrated and discussed in the laboratory.

Enforced Prerequisite at Enrollment: (MICRB 201 or MICRB 201H) and (MICRB 202 or MICRB 203) and (BMB 251 or BMB 251H or MICRB 251 or BIOL 230W or BIOL 230M)

BIOTC 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Business Administration (BA)

BA 100: Introduction to Business

3 Credits

A comprehensive view of the contemporary environment of business. This course provides a broad overview of the study of business and its environment, organization, operation, and interrelationships with government and society. Topic areas include; economic systems, forms of business ownership, information, accounting, finance, management, marketing and supply chain principles, legal and regulatory environments, business ethics and international business. A student majoring in business will develop a broad basis for further study in a specific area in business, while other majors will become familiar with the American enterprise system and the functions and issues facing business today.

General Education: Social and Behavioral Scien (GS)
GenEd Learning Objective: Creative Thinking
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

BA 100S: Introduction to Business

3 Credits

BA 100S is a broad overview of American business practices and policies. The course introduces the functions of business and how each interacts and shapes the legal, political, social, cultural and economic environments. Students who successfully complete this course will understand how a) the American free enterprise system operates b) businesses operate in our modern political, social, and economic environment c) how to analyze the methods and procedures used by people in business to arrive at effective decisions d) ethics and corporate social responsibility affect business decisions e) globalization has transformed American businesses.

First-Year Seminar
General Education: Social and Behavioral Scien (GS)
GenEd Learning Objective: Creative Thinking
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

BA 195: Cooperative Practicum with Business Offices

3-6 Credits/Maximum of 6

Cooperative practical work with business offices under the supervision of the instructor.

BA 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

BA 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

BA 241: Legal Environment of Business

2 Credits/Maximum of 2

Examines the legal system's role and impact regarding business transactions, liability issues, and ownership of intellectual property. Students earning credit for B A 241 may not earn credit toward Smeal College baccalaureate degree for B Law 243 and/or B A 243. B A 241 B A 241 Legal Environment of Business (2)As an integral part of planning and management responsibilities, a business decision-maker must be able to identify risks and opportunities from many sources. The legal environment represents a significant segment of the decision-maker's landscape. This survey course is designed to develop the student's awareness and recognition skills with respect to the major inputs in the increasingly complex commercial legal environment. Students in this course will examine the design and function of the U.S. legal system in its roles as protector of property interests and facilitator of business transactions. Alternatives to judicial resolution and enforcement will also be examined. In addition, students will learn about the legal issues affecting the formation and enforcement of business agreements. This will include studying the impact of our economy's continued shift to digital technology for communication and documentation. Finally, tort liability and intellectual property issues from a business perspective will be examined with a special emphasis upon issues created by the Internet's rapid growth. Students earning credit for B A 241 may not earn credit toward a Smeal College baccalaureate degree for B LAW 243 and/or B A 243.

BA 242: Social and Ethical Environment of Business

2 Credits

Explores the social and ethical environment of business and ethical decision making in a business context. B A 242 Social and Ethical Environment of Business (2) Modern businesses operate in an increasingly interdependent environment. The actions of businesses have major impacts on society. Conversely, society influences a wide range of corporate actions through laws and regulations as well as via public opinion and the media. With changes in information technology, corporate decisions that were once considered private are now subject to public scrutiny. Therefore, more than ever, these decisions must take into account the larger social environment. In this course, students will learn about a broad range of stakeholders and societal issues that affect corporate decision-making and they will consider the corporation's responsibility to society. They will also learn to apply ethical decision-making frameworks to a variety of ethical decisions faced by corporate managers. This course is taught in the sophomore year and therefore lays a broad foundation for other core business courses. For example, other courses tend to focus on a single stakeholder group such as customers (marketing), employees (management), or stockholders (finance). This course teaches students to think broadly about how a business fits into a more complex web of relationships within society.

BA 243: Social, Legal, and Ethical Environment of Business

4 Credits

Explores the ethical, political, social, legal and regulatory, technological, and demographic diversity environment of business. A student may not receive credit toward graduation for both B LAW 243 and B A 243.

United States Cultures (US)

BA 250: Small Business Management

3 Credits

Analysis of problems of the small firm, particularly for the student who wishes to venture into business.

Enforced Prerequisite at Enrollment: 3 credits in ECON

BA 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

BA 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

BA 299: Foreign Studies

1-12 Credits

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

BA 301: Finance

3 Credits

The goal of BA 301 is to provide insight into the thinking of both the financial manager and the functional manager that is needed to effectively lead and manage not only their business organization but also their personal financial lives. The course will enable the student to learn the key financial concepts, constructs, and models that are used by financial managers every day around the world. Understanding of the mathematics of finance, the use of financial calculators, and development of Excel financial model problem solving will be emphasized. Ethical financial decision-making will be a common theme that is integrated throughout the course. Using a survey overview approach, the first third of the course will cover concepts such as financial statements and analysis, financial ratios and analysis, long-term financial planning and budgeting, time value of money, discounted cash flow analysis, capital budgeting, break-even analysis, and systematic/unsystematic risk. The second third of the course will provide an overview of financial topics that are normally covered in detail in financial markets courses. These topics include financial systems, money markets, the Federal Reserve and monetary policy, derivatives and speculative markets, and legal and operational issues in financial markets. The final third of the course will cover general personal finance topics of interest such as money management strategies, insurance and risk management, consumer credit, tax strategies, investing in stocks, bonds, and Exchange-Traded Funds, and retirement and estate planning. A student may receive credit toward graduation for only one of the following; BA 301, FIN 100, or FIN 301.

Enforced Prerequisite at Enrollment: ECON 102 or ECON 104

BA 301H: Finance and Financial Services

3 Credits

Overview of financial manager's role within the organization; investment, financing, and restructuring activities.

Honors

BA 302: Supply Chains

3 Credits

BA 302 provides non-business students with an introduction to the issues and decisions routinely faced by supply chain managers and the impact of effective supply chains on today's business environment. Using the Supply Chain Operations Reference model as a framework, this course considers how successful firms plan, integrate and execute sourcing, manufacturing, customer fulfillment, reverse logistics and sustainment processes across a complex marketplace to provide value to the customer. The course looks at the interplay and coordination of product, financial and information flows through a supply chain resulting in value creation for the customer and competitive advantage for the firm. Students will consider the roles of drivers such as cost, quality, time, flexibility, innovation and information sharing in designing supply chain strategies in support of overarching business strategies. Through detailed exploration of models, case studies and real world events, coupled with the application of operations management tools and techniques, the course provides the opportunity to identify and dissect issues, and develop solutions to supply chain challenges not only faced by today's business managers, but also impact the customer. The course examines supply chain organization, implementation and management planning, the evaluation and control of manufacturing processes, and the execution of supplier and customer management activities. Students will use basic information technologies and programs to leverage tools like business process mapping, value indexing, and total cost analysis to aid in the identification and mitigation of supply chain issues in a global business environment. Students will also be exposed to current supply chain issues such as sustainability and the impact of boundary-spanning information technologies as relevant keys to competitive advantage. The course provides the basic supply chain knowledge and skills necessary for the non-business major to be an effective member of a cross functional team in a professional business environment while providing a level of understanding to benefit the student in navigating the complex customer fulfillment issues present as a consumer of goods and services in today's globally connected marketplace. A student may not receive credit towards graduation for both BA 302 and and SCM 301.

Enforced Prerequisite at Enrollment: (ECON 102 or ECON 104) and ACCTG 211 and (SCM 200 or STAT 200 or STAT 250 or ECON 306 or IE 424 or DS 200)

BA 303: Marketing

3 Credits

BA 303 provides broad-based exposure and understanding of marketing and its processes. The course is a stand-alone marketing course for those interested in the role of marketing within the business context. It covers a range of topics from the basic (what is marketing), to the processes (market segmentation, marketing strategy, development of product, price, place and promotion), to the broader societal questions (why marketing exists, ethics, the future of marketing). There is also the opportunity to examine marketing from the perspective of various

industries for non-business students. Assessment will test factual knowledge of marketing and the marketing process. Written assignments will ask students to work both individually and in teams to apply course concepts. These can include assignments developing one's skill set in consumer psychology, target market selection, writing a positioning statement, developing a marketing plan, new product development concepts, promotional campaign ideas, and ethical questions to discuss and debate. Students may also be asked to form small groups for discussion and/or make presentations to the class based on set marketing topics specific to one's area of interest. Students will also be expected to participate in class discussions. A student may not receive credit towards graduation for both B A 303 and MKTG 221 or MKTG 221W. Furthermore, a student may not receive credit towards graduation for both B A 303 and MKTG 301 or MKTG 301W.

Enforced Prerequisite at Enrollment: ECON 102 or ECON 104

BA 303H: Honors Core Marketing

2 Credits

Junior Core Marketing - Honors Section. B A 303H Honors Core Marketing (2) This course is an exploration of fundamental concepts and issues in marketing. In this course, we will discuss what marketing is and learn to analyze the marketing environment and our potential customers. Based on these insights, we will then discuss strategy alternatives and the key functions of marketing. A project is a major component of the course.

Honors

BA 304: Management and Organization

3 Credits

BA 304 is an overview of a body of knowledge that exists concerning the management of modern organizations. Management is critical to business success no matter the industry, the field or the arena. Eight key functions for any manager will be covered - organizational structure, operations, staffing, recruitment, leadership, culture and ethics, planning, and innovative and responsible practices. A key take away for BA 304 is the difference between leadership and management and what do these terms mean. In recent years the focus has been on leadership as the preferred ability to strive for with management skills losing favor. In general, it has been said that leaders focus on "doing the right things" and managers focus on "doing things right". This will be a theme for review and discussion throughout the course as each subject area is covered. A student may not receive credit towards graduation for both B A 304 and MGMT 100 or MGMT 100W. Furthermore, a student may not receive credit towards graduation for both B A 304 and MGMT 301 or MGMT 301W.

Enforced Prerequisite at Enrollment: ECON 102 or ECON 104

BA 321: Contemporary Skills for Business Professionals

3 Credits

Emphasizes the development of individual, group, critical thinking, and presentation skills, through the application of modern method and business technology. B A 321 B A 321 Contemporary Skills for Business Professionals (3) This course is designed to provide fundamental skills necessary for success in the business environment. BA 321 is one of a series of courses that collectively develop the skills and competencies required of a successful business administration student. As a foundational course in the degree program BA 321 emphasizes the

following: -An introduction to student-centered learning, especially with opportunities for active and collaborative learning utilizing state of the art elements of technological business environment. -An introduction to inquiry-based processes necessary for understanding and addressing issues and opportunities in current and emerging business environment relevant subsequent course work in the student's chosen option and professional practice. -Development of basic communications skills, including oral, written, and multimedia, relevant to individual and group effectiveness. -Team building and participation while completing projects that focus on understanding individual and cultural diversity and respecting the views of others. Additionally, students develop an understanding of and competence in the multiple roles that define successful teamwork. -Establishing and respecting the roles within a team. -Awareness of the importance of the needs and opportunities of the community with which the individual contributes as a business professional. -Application of the hardware and software skills necessary for transferring knowledge of business topics in both face-to-face and virtual settings academic and professional.

Enforced Prerequisite at Enrollment: ACCTG 211 and (ECON 102 or ECON 104) and ENGL 15 and Concurrent: (SCM 200 or STAT 200) and MIS 204

BA 322: Negotiation Skills for Business Professionals

3 Credits

Emphasizes the preparation and conduct of business negotiations in a range of situations. B A 322 Negotiation Skills for Business Professionals (3) This course integrates the experiential and intellectual components of negotiation. Course instruction and learning activities emphasize the preparation for and conduct of business negotiations in a range of situations. These situations include integrative and distributive scenarios, development of negotiation relationships, and negotiation in multi-organization, multi-industry, multi-cultural, and multi-national environments. Basic negotiation theories will be addressed and applied through the recognition and the resolution of conflict by applying various bargaining strategies. Students will learn how to prepare for a negotiation event. Students will learn to select the appropriate negotiation strategies in order to match the needs of the situation. Students will develop the negotiation skills needed to meet the challenges facing today's executives. Students will develop the sophistication to analyze bargaining and conflict relationships, and an awareness of their individual bargaining style. Students will apply various techniques in order to: understand the basic elements of negotiation; make informed decisions about continuing a negotiation or walking away; participate or lead in team-based negotiations; and effectively manage international negotiations. A primary component of this course is application of negotiation theories through exercises in which the student assumes various roles within a negotiation scenario. Through practice and role playing, students will develop effective personal and professional negotiation skills.

Enforced Prerequisite at Enrollment: ACCTG 211 and (ECON 102 or ECON 104) and ENGL 15 and Concurrent: (SCM 200 or STAT 200) and MIS 204

BA 342: Socially Responsible, Sustainable and Ethical Business Practice

3 Credits

Course examines actions taken by corporations that impact global citizenship, environmental sustainability, and the economic stability of international societies. It further looks at relationships, rights, and

responsibilities between businesses, business decision-makers and their stakeholders. B A 342 Socially Responsible, Sustainable and Ethical Business Practice (3) Businesses and other large organizations have come to influence nearly all aspects of life in contemporary industrialized societies. The actions taken by businesspeople have major impacts on individuals and on society as a whole. Conversely, the expectations of citizens and their representative bodies (e.g., governments, communities, unions, interest groups) influence a wide range of corporate actions. Students of B A 342 will examine these relationships, rights, and responsibilities between businesses, business decision-makers and their stakeholders. As students enter their field of study, this course will introduce them to current ethical, social responsibility and sustainability issues that face business practitioners within their field and across related disciplines. Each business function — accounting, finance, marketing, risk, supply chain, human resource policies, etc. — has relationships and responsibilities within the larger social environment. This course considers commonalities across the business functions and teaches students to think broadly about how a business fits into a more complex web of relationships within society. The course begins with an overview of the corporation's place and role in society as well as key concepts in understanding why knowledge related to corporate governance, ethics, sustainability and social responsibility issues is critical to professional managers' responsibility and long-term career success. The stakeholder model is reviewed along with the study and application of ethical decision-making frameworks to current ethical dilemmas. Sustainability and global responsibility are introduced within the context of government regulation versus responsible stewardship. The closing section of the course provides thought and discussion on issues facing business practitioners across key business functions.

Enforced Prerequisite at Enrollment: (MGMT 301 or MGMT 301W or BA 304) Concurrent: (FIN 301 or BA 301) and (MKTG 301 or BA 303) and (SCM 301 or BA 302)

BA 364Y: International Business and Society

3 Credits

Business organizations and the sociocultural environment; current issues; corporate responsibility; international and multinational business environments. B A 364Y B A 364Y International Business and Society (3) (US;IL) This writing-intensive course will provide an overview of the relationship between business organizations and the sociocultural environment. Current issues in the media and the scholarly literature will be used to discuss and analyze this relationship. Special attention will be given to the topics of business and government relationships, corporate responsibility, environmental issues, and topics related to international and multinational business environments.

Enforced Prerequisite at Enrollment: ENGL 202D and MGMT 301

International Cultures (IL)
United States Cultures (US)
Writing Across the Curriculum

BA 395: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: prior approval of proposed assignment by instructor.

BA 395A: Practicum in Business Administration

1 Credits/Maximum of 1

Professional and guided work experience in business administration with private or public organizations. May be taken only as an elective.

Enforced Prerequisite at Enrollment: fifth-semester standing
Full-Time Equivalent Course

BA 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

BA 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

BA 411: Analyzing Business and Industry

3 Credits

Prepares students to obtain an enterprise-wide view of business and industry by integrating operational and financial decisions in a team and learning environment. B A 411 B A 411 Analyzing Business and Industry (3) The course provides the students with a methodology for analyzing the business, introduces the students to sources of financial information available from private and public sources and trains the student to prepare and professionally present business analysis reports. The course, which adopts a user perspective, extends the students' basic knowledge of financial reporting and provides them with a broader context for understanding business that includes economic and social forces, the regulatory environment of businesses and their financial reporting, capital market operations and corporate governance. It applies concepts and decision tools that are studied throughout the curriculum such as present value, financial ratio analysis, break-even point analysis and statistical analysis.

Enforced Prerequisite at Enrollment: ACCTG 211 and (BA 301 or FIN 301) and (BA 302 or SCM 301) and (BA 303 or MKTG 301) and (BA 304 or MGMT 301)

BA 412H: Honors Integration and Research

2-3 Credits

The integration of the business core into a detailed financial, strategy and market analysis of actual companies selected by student teams. BA 412H Honors Integration and Research (2-3 credits) The purpose of this course is to assist students in developing their Schreyer Honors Thesis. It proceeds by exposing students to research conducted within the various business majors; the research conducted by prior honors students; and having student teams conduct research on contemporary businesses and industries. Typical readings include materials related to evaluating an actual company, prior Schreyer Honors theses, contemporary business articles, prior course projects and supporting academic literature. Written company analyses and oral presentations are made by the teams.

Enforced Prerequisite at Enrollment: ACCTG 211 and (BA 301 or FIN 301) and (BA 302 or SCM 301) and (BA 303 or MKTG 301) and (BA 304 or MGMT 301)

Honors

BA 420: Preparation for Career Management

1 Credits

This course emphasizes effective career planning by closely examining oneself, the business world, communication styles and strategies. BA 420 Preparation for Career Management (1) BA 420 develops students' career preparation and management skills through the close examination of self, the world of work and communication styles and strategies. This course is one of a series in the program which collectively develop the skills and competencies necessary for the business administration student. The course is designed on the belief that (1) career decision-making is greatly enhanced by considering personal traits such as one's interests, values, goals, and approach to making decisions; and (2) through the exploration of self and world through out-of-classroom learning experiences. The student becomes empowered to apply prior classroom learning outside of the academic environment. These skills are utilized throughout a person's career. Students who successfully complete the course will be able to: -Prepare resumes targeted to a range of industries and positions. -Write effectively to prospective employers. -Identify personal traits and qualities in the context of career management. -Demonstrate effective interview techniques.

Enforced Prerequisite at Enrollment: BA 321 or BA 322

BA 421: Project Management

3 Credits

Introduction to Project Management covering all phases of a project including proposal development, planning, execution, and closing. BA 421 Project Management (3) BA 421 is designed to provide the fundamental skills necessary for success in the business environment. BA 421 is one of a series of courses that collectively develop the skills and competencies necessary for business administration students. BA 421 is designed to provide students with the fundamental understanding of the Project Management Book of Knowledge that defines the standards of the Project Management Institute (PMI) which is the professional credentialing body of the discipline. This introductory course in project management covers all phases of a project, including; proposal development, planning, execution and closing. The course will also explore the application of the Theory of Constraints to project management, and will use project management software to demonstrate and reinforce class concepts. The software will also be instrumental in the execution of a business project. By the end of the proposed new course, students should be able to: • Identify the role of the project manager within organizations and projects. * Understand the Processes and Procedures needed to Plan and Control a Project. * Recognize the options available as well as the inherent strengths and weaknesses of different approaches. * Define the project scope and priorities. * Create Work Breakdown Structure (WBS) and integrate it with the organization. * Estimate and interpret project times and costs. * Construct project networks and find critical paths. * Understand and Implement Activity Precedence Logic * Identify, assess and respond to project risks. * Schedule project resources and evaluate resource constrained projects. * Differentiate between the options to accelerate project completion. * Use Microsoft Project Management Software as a skilled tool for Project Management.

Enforced Prerequisite at Enrollment: BA 321 or BA 322

BA 422W: Strategic Business Planning

3 Credits

Study of strategic planning and implementation in multi-industry, multi-cultural, and multi-national settings with emphasis on sustaining competitive advantages. BA 422W Strategic Business Planning is the capstone of the series of business administration courses in the BSB degree. These courses collectively develop the skills and competencies necessary for the business administration student. BA 422W is designed for students to examine the discipline of strategic management and to develop an appreciation of the criticality of strategic management in guiding a business entity through a changing and challenging environment. The course requires students to build upon their knowledge of business structure, internal and external environments, and functional design as each relates to strategy development and implementation. Students explore methods and techniques to identify strategies best suited to accomplish an entity's mission and its business objectives. As a writing intensive (W) course, there is a strong emphasis on development and reinforcement of effective writing skills. Students prepare well reasoned, organized, and constructed bodies of work. Upon successful completion of the course, students will be able to: 1. Identify environmental threats and opportunities impacting a firm. 2. Identify strengths, weaknesses and competencies of a firm. 3. Effectively apply critical thinking skills to design strategic alternatives and then the best Alternative. 4. Critique and evaluate strategic actions taken by firms. 5. Explain the profound effects that a strategic move (either at the corporate level or at the business level) can have on the entire organization. 6. Demonstrate exceptional skills in presenting complex business information and issues. 7. Efficiently research a firm or industry using a variety of sources. 8. Demonstrate proficiency in analyzing business cases and formulating well reasoned recommendations when no "right" answer exists. 9. Demonstrate effective leadership skills in a group environment.

Enforced Prerequisite at Enrollment: BA 321 and BA 322 and BA 421 and FIN 301 and MGMT 301 and MKTG 301 and SCM 301
Writing Across the Curriculum

BA 441: Strategies for Enterprise Sustainability

3 Credits

An understanding and analysis of how environmental and sustainability issues are impacting business strategies and ultimately profits. BA 441 Strategies for Enterprise Sustainability (3) Enterprise globalization warrants a greater level of awareness and responsibility in seeing that products and services maintain a high level of integrity, quality, and reliability; products need to be produced and moved throughout the supply chain in a manner that does not cause unacceptable environmental or social burdens, but that also allows for acceptable profits. We will examine both external and internal forces, such as environmental groups, policy-makers, and consumers that impact business strategies. This will be put into the context of the "triple bottom line" with an understanding of its challenges and opportunities. Business students will benefit by a better understanding of environmental/ sustainability issues that impact operations and strategies. Students will learn via analyses of cases studies and by working in teams to solve real-world problems faced by chosen organizations. Focus will include all key aspects of an enterprise, from procurement to product development, and from human resources to supply chain solutions.

Enforced Prerequisite at Enrollment: BA 342

BA 442: Sustainable Behavior of Consumers, Firms, and Societies

3 Credits

Sustainability is a broad domain concerning the extent to which environmental, economic, and social practices are viable for current and future generations. Consumer awareness of sustainability issues has evolved from an emerging social movement to mainstream values, but increasing sustainable behavior remains a challenge. This course is designed to provide students with the knowledge to enhance sustainable behaviors in firms, among consumers, and in society at large. In doing so, this course will include frameworks for understanding how to influence sustainable practices, consumer response to sustainability, and marketing communication issues as well as real-world examples of sustainable practices and issues, offering both a theoretical and applied approach. The course may also include a project which will entail student teams working on a real-world sustainable behavior problem in collaboration with a business or segment of the university campus when available or other course project addressing a relevant sustainability issue. Students should leave the course with an understanding of sustainability issues in the current marketplace and the knowledge and ability to influence sustainable behaviors. Students will enter their career with the knowledge and skills to be a sustainable business decision-maker and foster sustainable behavior.

Enforced Prerequisite at Enrollment: BA 342 or SUST 200 or CED 152
Cross-listed with: MKTG 442

BA 462: Business Strategy

3 Credits

Interpretation of business concept in the analysis of problems related to the successful management of a company, institution, or organization. Business Strategy is the study of managerial decisionmaking in a firm's competitive space. As such, the course focuses on the formulation and implementation of corporate strategy sets as if the student was on the top management team (TMT) inside a forprofit organization. The course covers topics such as decisionmaking under uncertainty, environmental scanning and sequential updating, industry structure, the firm's regulatory constraints, relative bargaining power, Porters Five Forces, industry barriers to entry, industry value chain analysis, firm-level resources and capabilities, competitive advantage, corporatelevel strategy, businesslevel strategy, and collaborative strategies such as franchising, licensing and joint ventures. The overarching goal of the strategic manager is to ensure that the firm survives and thrives and, with these goals in mind, Business Strategy addresses the actions and outcomes to corporate decisionmaking. The course has a number of objectives in addition to learning and retaining information on the aforementioned topics. These include (i) obtaining critical thinking skills necessary to function as a strategic manager or to perform the tasks comprising the strategic management process, (ii) integrate and apply the knowledge accumulated in various functional areas, such as marketing, human resource management, operations, accounting and finance, (iii) prepare you for management careers by providing inclass opportunities for you to enhance your ability to communicate orally and in written formats, (iv) to lead and to work with others in realistic work settings, (v) expose you to the ethical and societal issues raised in operating an enterprise, and (vi) to provide you with experience in dealing with real strategic decision issues facing managers in all types of organizations. This is accomplished through a number of pedagogical

mechanisms that include news articles, case studies, academic articles, documentaries, simulations and written assignments.

Enforced Prerequisite at Enrollment: FIN 301 and MGMT 301 and MKTG 301 and BA 364Y and seventh-semester standing or higher

BA 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

BA 494H: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Honors

BA 495: **SPECIAL TOPICS**

3-9 Credits/Maximum of 9

BA 495A: Business Internship

3-6 Credits/Maximum of 6

B A 495A Business Internship (3-6 per semester/maximum of 6) B A 495A facilitates the application of students' prior classroom learning in a field setting. This course is one of a series in the business program which collectively develop the skills and competencies necessary for success as a business administration student. The course is designed to provide students with a firsthand opportunity to experience the challenges and rewards of the business professional. Essentially, an internship bridges the gap between the academic environment and the professional environment. Internships provide an opportunity for students to link theory with practice in a nonacademic setting. Internships provide practical, real-world experiences which cannot be simulated in the classroom. Upon successful completion of an internship, students will: -Have a better understanding of employer expectations related to career advancement. -Have an enhanced strategic view of the industry/business segment in which they worked. -Have experience integrating and using their knowledge and skills from the classroom. -Have increased awareness of professional and technical areas of strengths and weakness.

Enforced Prerequisite at Enrollment: BA 321 and BA 322 and BA 420 and Permission of program.

BA 495B: Undergraduate Research in Business

3-6 Credits/Maximum of 6

B A 495B Undergraduate Research in Business (3-6 per semester/ maximum of 6) BA 495B provides students an opportunity to apply prior coursework to address a business problem or research question in far greater depth than a traditional research paper. This course is one of a series in the business program which collectively develop the skills and competencies necessary for success as a business administration student. The course provides the students with an opportunity to work intensively on a research project of extended duration and depth of analysis with a supervising faculty member. This course introduces the students to conducting business research on a more advanced level.

Students will have the opportunity to develop the research question(s), read extensively in the academic literature, gather and analyze data, and thereby extend learning from prior coursework in a research setting.

Enforced Prerequisite at Enrollment: BA 321 and BA 322 and BA 420 and Permission of program.

BA 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

BA 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

BA 499: Foreign Study--Business Administration

1-18 Credits/Maximum of 18

Study in selected countries of business institutions, functions, and current business problems.

Enforced Prerequisite at Enrollment: ACCTG 211 and (ECON 102 or ECON 104) and (SCM 200 or STAT 200)

International Cultures (IL)

Business Law (BLAW)

BLAW 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

BLAW 243: Legal Environment of Business

3 Credits

Social control through law: courts, basic policies underlying individual and contractual rights in everyday society. May not be used to satisfy Smeal College baccalaureate degree requirements. Not available to students who have taken B A 243.

Enforced Prerequisite at Enrollment: third-semester standing

BLAW 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

BLAW 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

BLAW 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

BLAW 341: Business Law I: Introduction to Contracts, Liability Issues, and Intellectual Property

3 Credits

An introduction to the business environment emphasizing business contracts, liability issues arising from business relations, including those in the internet realm and intellectual property issues. Alternative dispute resolution and global perspectives will be integrated throughout. B LAW 341 Business Law I: Introduction to Contracts, Liability Issues, and Intellectual Property (3) Business decisions have legal consequences. Such decisions can represent both legal risks and opportunities. It is important for one entering business to have a fundamental understanding of the governing legal principles. This course will provide an introduction to the U.S. legal system, coverage of the major components of contract law, and an examination of business liability issues under tort law. In addition, the intellectual property issues of trade secrets, trademarks, patents, and copyrights will be covered. The impact of digital technology and business globalization will be integrated into each topic discussed. The course will be taught in a lecture-discussion format to encourage interaction and exploration of difficult issues. The course text and materials will include key business legal cases.

Enforced Prerequisite at Enrollment: (MGMT 301 or MGMT 301W or BA 304) and Enforced Prerequisite or concurrent at Enrollment: (FIN 301 or BA 301) and (MKTG 301 or MKTG 301W or BA 303) and (SCM 301 or BA 302)

BLAW 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

BLAW 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

BLAW 424: Real Estate Law

3 Credits

Analyze contemporary law applicable to various types of ownership interests and rights, methods of transferring ownership, and use of real property. B LAW 424 B LAW (R M) 424 Real Estate Law (3) Analysis of contemporary law applicable to various types of ownership interests and rights, methods of transferring ownership, and use of real property. The objectives for this course are: (1) to provide students with an understanding of essential U.S. real estate property law, including the rights private property owners may obtain, how ownership and transfer are handled in view of present and future interests, constitutional issues that impact real estate ownership, and the legal aspects of modern real estate contractual transactions; (2) to teach students the ability to

spot the legal issues arising from the above as future business leaders and (3) to introduce students to the legal reasoning process necessary to address and avoid the legal dilemmas presented by such issues. Instructional methods for the course will include detailed lectures and classroom discussion of readings and other materials. Student progress and mastery of the material will be evaluated through periodic examinations.

Enforced Prerequisite at Enrollment: BLAW 341 or BLAW 243

Cross-listed with: RM 424

BLAW 441: Business Law II: Agency, Employment and Business Structure

3 Credits

An examination of the laws governing agency relationships, employment, and the various structures of commercial enterprises.

Enforced Prerequisite at Enrollment: BLAW 341 and (FIN 301 or BA 301)

BLAW 444: Advanced UCC and Commercial Transactions

3 Credits

All articles of the Uniform Commercial Code, banking relationships, debtor- creditor law, and bankruptcy law. B LAW 444B LAW 444 Advanced UCC and Commercial Transactions (3) This course is designed to: (1) provide the student with a systematic study of the laws governing sales transactions, the instruments for financing those transactions and rights and liabilities of debtors and creditors (the Uniform Commercial Code governs these issues); (2) to explore current trends in the law affecting commercial transactions; (3) to develop further the student's legal reasoning processes; (4) to enhance the student's ability to identify legal issues from the business decision maker's and financial auditor's perspectives. Instructional methods will include lectures, readings, multimedia content, and class discussions. Student progress and mastery of the material will be evaluated through periodic examinations. Some state C.P.A. Boards require completion of this course as a prerequisite to obtaining certification as a public accountant. Completion of the course will be credited toward fulfillment of the requirements for the Legal Environment of Business Minor.

Enforced Prerequisite at Enrollment: (BLAW 341 or BA 241 or BA 243) and ACCTG 211 and (FIN 301 or BA 301)

BLAW 445: Advanced Intellectual Property and Competition Law

3 Credits

Copyrights, trademarks, patents, and trade secrets followed by related topics in the regulation of competition. B LAW 445 Intellectual Property & Competition Law (3) The objectives for this course are to (1) provide students with an understanding of U.S. and international law that supports the creation of beneficial information via intellectual property rights, allows government to regulate information property through antitrust and privacy statutes, and promotes business development by encouraging competitive uses of information; (2) teach students the ability to spot the legal issues arising from the above as future business leaders and (3) introduce students to the legal reasoning process necessary to address and avoid the legal dilemmas presented by such issues. Instructional methods for the course will include detailed lectures and classroom discussion of readings and other materials. The course builds on the introductory business law curriculum by providing

an advanced and detailed study of specific areas of law that are highly valuable to modern, technology-driven businesses.

Enforced Prerequisite at Enrollment: BLAW 441

BLAW 446: Employment Law

3 Credits

Examines the legal and regulatory environment of employment relationships. Topics include anti-discrimination; worker health and safety; and labor relations laws. B LAW 446 Employment Law (3) The course is designed for business students seeking a solid understanding of labor relations and employment law. It is not a general overview or introduction to law course for those seeking to enter law school. Labor and employment law has developed and changed over the past seven decades, and continues to evolve as the economic model and means of productions changes globally. With the passing of the National Labor Relations Act and subsequent amendments thereto, including development in the ability of public employees to engage in concerted activity, the understanding of the modifications in the employer-employee relationships is necessary for successful business executives and front-line managers. While a thorough understanding of the underpinnings of these laws is necessary, this is only a portion of the issues at hand. The ability to apply these laws in current working environments along with interpreting and critiquing these laws will assist in the preparation of future corporate managers. The course goes into detailed discussion regarding the employment at will doctrine, wrongful discharge, workplace torts, and employee privacy and monitoring. With this foundation, the course then covers civil rights and discrimination based on race, color, religion, gender, sexual orientation, family obligation, disability, and national origin are covered using Supreme Court cases that have tested the validity and soundness of our federal legislation. The closing part of the course focuses on organized labor through the process of unionizing and union membership, negotiations and economic pressure used to obtain concessions in collective agreements. Additionally, fair labor laws and occupational health and safety requirements to diminish workplace accidents and improve productivity is discussed. For each of the topics presented, detailed analysis of prominent cases will be discussed with the expectation that students can apply these case decisions to current employer/employee situations. Exposure to differing opinions, reversed rulings, and detailed legal processes will provide students with a broad understanding of the complex nature of legal proceedings and how these processes impact labor and employment relations in the United States. Content synthesis and critical analysis are the learning goals of the course.

Enforced Prerequisite at Enrollment: BLAW 441

BLAW 447: Entertainment Law

3 Credits

This course covers legal issues that arise in various entertainment industries through discussion of contemporary issues along with personality rights and intellectual property rights associated with entertainment assets. Issues will be covered within the context of business models, pervasive pop-culture influences affecting entrepreneurial activities, business transactions and contractual provisions unique to creative industries, commercialization of celebrity image, rights of privacy of public figures, defamation, related advanced copyright and trademark issues, ethics and fiduciary responsibilities, and other emerging topics. Students will be introduced to the legal reasoning process necessary to analyze these issues in context and compose

creative solutions that both address and avoid the legal problems presented. Instructional methods for the course will include lecture and classroom discussion focused on readings and other materials. The course builds on the introductory business law curriculum by providing an advanced study of legal principles highly relevant to businesses that employ, promote, or monetize creative talent. Upon completion of the course, students should understand the legal concepts impacting the entertainment industry and the impact this has on talent, intellectual ownership, copyrights and trademarks.

Enforced Prerequisite at Enrollment: BLAW 341

BLAW 494: Research Project

1-12 Credits/Maximum of 999

Supervised student activities on research projects identified on an individual or small-group basis.

BLAW 494H: Research Project

1-12 Credits/Maximum of 999

Supervised student activities on research projects identified on an individual or small-group basis.

Honors

BLAW 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

BLAW 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

BLAW 498: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

BLAW 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Chemical Engineering (CHE)

CHE 97: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

CHE 99: Foreign Studies

1-3 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

CHE 100: Exploring Chemical Engineering First-Year Seminar

1 Credits

The exploration of Chemical Engineering and available career opportunities.

First-Year Seminar

CHE 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

CHE 210: Introduction to Material Balances

3 Credits

An integrated approach to the study of material balances and industrial chemical processes important in chemical engineering. The objective of this course is to present an introduction to chemical engineering calculations, establish mathematical methodologies for the computation of material balances and to present an overview of industrial chemical processes. It is the introductory course in the chemical engineering curriculum and is normally taken in the sophomore year. It is prerequisite for several junior-level courses in the curriculum, including courses in process fluid dynamics, heat transfer and phase equilibrium.

Enforced Prerequisite at Enrollment: MATH 141 and CHEM 112

CHE 210H: Introduction to Material Balances (Honors)

3 Credits

An integrated approach to the study of material balances and industrial chemical processes important in chemical engineering. The objective of this course is to present an introduction to chemical engineering calculations, establish mathematical methodologies for the computation of material balances and to present an overview of industrial chemical processes. It is the introductory course in the chemical engineering curriculum and is normally taken in the sophomore year. It is prerequisite for several junior-level courses in the curriculum, including courses in process fluid dynamics, heat transfer and phase equilibrium.

Enforced Prerequisite at Enrollment: MATH 141 and CHEM 112
Honors

CHE 220: Introduction to Chemical Engineering Thermodynamics

3 Credits

This is the introductory course in chemical engineering thermodynamics and is normally scheduled in the sophomore year. It places emphasis in the development of the theory of thermodynamics of pure fluids with applications to small- and large-scale processes with multiple streams and energy exchanges, computation heat and work loads, and assessment of efficiency with respect to energy utilization. Starting from small units, such as pumps, compressors, turbines, and heat exchangers,

examples grow to include large systems such as power plants and refrigeration cycle, that may involve many interconnected units and recycle streams. A parallel focus of the course is in the computation of thermodynamic properties through the use of charts, tables, and equations of state with emphasis on non-ideal systems.

Enforced Prerequisite at Enrollment: MATH 141 and CHEM 112

CHE 220H: Introduction to Chemical Engineering Thermodynamics (Honors)

3 Credits

This is the introductory course in chemical engineering thermodynamics and is normally scheduled in the sophomore year. It places emphasis in the development of the theory of thermodynamics of pure fluids with applications to small- and large-scale processes with multiple streams and energy exchanges, computation heat and work loads, and assessment of efficiency with respect to energy utilization. Starting from small units, such as pumps, compressors, turbines, and heat exchangers, examples grow to include large systems such as power plants and refrigeration cycle, that may involve many interconnected units and recycle streams. A parallel focus of the course is in the computation of thermodynamic properties through the use of charts, tables, and equations of state with emphasis on non-ideal systems.

Enforced Prerequisite at Enrollment: MATH 141 and CHEM 112 Honors

CHE 230: Computational Tools for Chemical Engineering

1 Credits

This 1-credit course will cover the key computational tools needed by Chemical Engineering students. CHE 230 Computational Tools for Chemical Engineering (1) This 1-credit course will cover the key computational tools needed by Chemical Engineering students. Specific topics of interest include: constructing high quality graphs, statistics and linear regression, solving coupled algebraic equations, solving ordinary and partial differential equations, and matrices.

Enforced Prerequisite at Enrollment: MATH 251

CHE 294: Research Project

1-12 Credits/Maximum of 12

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

CHE 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

CHE 296H: Individual Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Honors

CHE 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

CHE 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

CHE 300: Professional Development Seminar

1 Credits

Lectures and discussion by visiting engineers and faculty on chemical engineering, job selection, patents, licensing, ethics, and other professional problems. CHE 300 Professional Development Seminar (1) The course objective is to offer an orientation to the chemical engineering profession and to promote professional attributes such as professional ethics, lifelong learning, and awareness of environmental and societal factors and to highlight their importance in the career lives of chemical engineers. The course consists of a one-hour lecture each week by visiting speakers and Penn State faculty. For some lectures, reading material is distributed a week before the lecture and in some cases, the students must turn in the questionnaire in which they have to answer various questions related to the topic of that week. The topics vary from year to year, but several key topics are included each time the course is taught: ethics, environmental issues, process safety, patent law and intellectual property, graduate school, and job opportunities in various industries.

Enforced Prerequisite at Enrollment: Fifth semester standing

CHE 320: Phase and Chemical Equilibria

3 Credits

The course covers the fundamentals of phase and chemical equilibrium with emphasis on vapor/liquid systems and their applications to separation processes. It is the second course in chemical engineering thermodynamics and leads to the study of separations and reacting systems. Computational methodologies are presented for the calculation of the properties of mixtures and the construction of phase diagrams (P-x-y, T-x-y) using activity coefficients or equations of state. The theory is applied to the analysis of equilibrium stage separation such as distillation and extraction, including the construction of McCabe-Thiele diagrams. In the last portion of the course the principles of equilibrium are further applied to chemically reacting systems.

Enforced Prerequisite at Enrollment: C or better in CHE 210 and C or better in CHE 220 and MATH 231

CHE 330: Process Fluid Mechanics

3 Credits

This course introduces the principles of fluid mechanics that are of fundamental importance to chemical engineers. Students learn to perform scaling and dimensional analysis in physical systems. Student learn to apply microscopic and macroscopic mass, energy, and momentum balances in flowing systems, and apply them to determine

flow patterns for Newtonian fluids in simple geometries. These principles are applied to design flow equipment.

Enforced Prerequisite at Enrollment: MATH 251 and C or better in CHE 210

CHE 340: Introduction to Biomolecular Engineering

3 Credits

This course introduces students to the concepts and principles needed to apply chemical engineering principles to the design, modification, and analysis of biological systems for biotechnology applications. Students will learn to use appropriate search engines to find genes and proteins with desired regulatory or biocatalytic properties. The course will cover the similarities and differences between biological and chemical processes; statistical analyses of measurements and data; and estimation of enzymatic and growth kinetic parameters.

Enforced Prerequisite at Enrollment: BMB 251 and CHEM 212 and MATH 251 and C or better in CHE 210

CHE 350: Process Heat Transfer

3 Credits

The objective of the course is to introduce to students heat transfer mechanisms in solids and fluids and their chemical process applications. At the conclusion of the course, the student should possess the ability to model steady and unsteady heat transfer in simple systems, and design heat exchangers and heat exchanger networks. The development of the material of this course requires use of thermodynamics and fluid mechanics, and sets the basis for the design of reactors and separation processes.

Enforced Prerequisite at Enrollment: MATH 251 and CHE 230 and C or better in CHE 210

CHE 360: Mathematical Modeling in Chemical Engineering

3 Credits

Mathematical model formulation for chemical and physical processes, including applications of ordinary differential equations and numerical methods. CHE 360 Mathematical Modeling in Chemical Engineering (3) This course covers the applied mathematical techniques necessary for the simulation of physical and chemical processes such as mass transfer and reacting systems, and the analysis of process dynamics. In the former area, the formulation of ordinary differential equations for a variety of situations of interest to chemical engineers is considered. Numerical methods and mathematical packages that form the basis for computer simulations are emphasized. In the latter area, the notions of steady-state, stability and controllability are introduced. The tools discussed in this course are used in subsequent courses on the analysis and design of chemical reactors and mass transfer processes.

Enforced Prerequisite at Enrollment: MATH 230 and MATH 251 and C or better in CHE 210

CHE 396: Independent Studies

1-6 Credits/Maximum of 12

CHE 396 is for creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses. CHE 396 is an "Independent Studies" course.

CHE 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

CHE 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

CHE 410: Mass Transfer Operations

3 Credits

The objective of this course is to present the principles of mass transfer and their application to separation and purification processes. The course develops rate expressions for mass transfer in multiphase, multicomponent systems based on diffusion and convective processes. Starting with Fick's law and macroscopic balances the course moves to the design of large scale separation processes including equilibrium stage and continuous separations for the separation and purification of chemical compounds. Specific separation operations analyzed include distillation, absorption, extraction, membrane units, adsorption. The course also introduces the use of modern software tools in the design of such processes.

Enforced Prerequisite at Enrollment: CHE 230 and CHE 320 and (CHE 330 or CHE 350)

CHE 412: CHE and the Environment

3 Credits

In this course students will apply chemical engineering principles to important environmental problems. These chemical engineering principles include: Material balances, Thermodynamics, phase and chemical equilibrium, transport and chemical kinetics. These principles are critical to solve current environmental challenges such as access to safe drinking water, remediation of contaminated sites and sustainability of chemical processes in the field. In addition to the application of these principles, students will learn the history of the environmental field such as the first use of chlorine as a disinfection, the advent of an activated sludge tank and the development of the first environmental laws. Combining these will allow students to design solutions for current challenges such as emissions of carbon dioxide and excess waste.

Enforced Prerequisite at Enrollment: CHE 210 and CHE 220 and CHE 320 and CHE 330

CHE 423: Chemical Energy Technology

3 Credits

This course provides an overview of current and prospective chemical energy storage and conversion technologies. CHE 423 Chemical Energy Technology (3) This course provides an overview of chemical energy storage and conversion technologies. Current fossil fuel based conversion processes in power plants and transportation applications will be surveyed. The course will emphasize critical evaluation of alternative conversion technologies, with the goal of providing the skills for quantitative assessment of the potential of various storage and conversion technologies. Current conversion technologies surveyed will include coal power plants, petroleum refineries, and internal combustion engines. Alternative technologies will consider unconventional fossil fuel processing, electrochemical energy conversion, solar energy conversion, and agricultural/biological fuel conversion. A semester long student project will involve generation of a future energy scenario 25-50 years in the future. The class structure is interactive, with readings motivating class period discussions.

Enforced Prerequisite at Enrollment: C or better in CHE 210 Enforced Concurrent at Enrollment: CHE 320

CHE 430: Chemical Reaction Engineering

3 Credits

This course teaches the principles of reaction engineering and reactor design. It is one of the core subjects in the chemical engineering curriculum and it is normally scheduled in the senior year. Students learn how to apply stoichiometry in combination with a rate law to design a chemical reactor that produces the desired conversion of reactants and selectivity to products. Students will formulate rate laws from various sources, including experimental data and sequences of elementary reaction steps. The design of various types of chemical reactors is discussed at length, including continuous stirred-tank (CSTR), plug-flow (PFR), continuous-operation and batch-operation reactors, and isothermal vs non-isothermal reactors. Additional topics include heterogeneous reactors, catalytic systems, and the design and optimization of reactor networks. It leads to the capstone design course in which chemical reactors are integrated into a chemical plant.

Enforced Prerequisite at Enrollment: CHE 320

CHE 432: Petroleum Processing

3 Credits

Transportation of people and goods in many parts of the world depend almost completely on petroleum fuels, such as gasoline, jet fuel, diesel fuel, and marine fuel. Apart from the fuels, materials that are necessary for operating the combustion engines of cars, trucks, planes, and trains also come from petroleum. These materials include lubricating oils (motor oils), greases, tires on the wheels of the vehicles, and asphalt to pave the roads for smooth rides in transportation vehicles. All petroleum fuels and many materials are produced by processing of crude oil in petroleum refineries. Petroleum refineries also supply feedstock to the petrochemicals and chemical industry for producing all consumer goods from rubber and plastics (polymers) to cosmetics and medicine. This course explains how physical processes and chemical reactions that take place in separate petroleum refinery units are integrated to convert crude oil into desired fuels and materials. Refinery processes are divided into four types that include separation, conversion, finishing, and support.

The overall objective of petroleum refining is to convert crude oil into fuels and materials that comply with commercial specifications and environmental regulations. All refining processes and refinery operations are also subjected to the applicable environmental regulations. A historical evolution of process concepts is introduced to demonstrate how the refining efficiency has increased with significant reduction of pollutant emissions from individual refinery processes. The principal objectives of this course are to enable students to: 1. explain the market drivers for the refining industry (ABET student outcome 2). 2. indicate what crude oils consist of and how crude oils are characterized based on their physical properties (ABET 1, 2); 3. express the objectives of petroleum refining and classify the processes used in petroleum refining (ABET 1, 2, 7); 4. demonstrate how a petroleum refinery works and sketch a flow diagram that integrates all refining processes and the resulting refinery products (ABET 2); 5. examine how each refinery process works and how physical and chemical principles are applied to achieve the objectives of each refinery process (ABET 1, 2, 7); 6. assess implications of changing crude oil feedstocks on refinery configuration and propose strategies to resolve conflicts with degrading crude oil quality and increasingly stringent environmental regulations on petroleum fuels (ABET outcome 4, 7); 7. discuss different sources of natural gas and explain how natural gas is processed at well sites and in processing plants with application of selected refinery processes and other physical operations (ABET 1, 2).

Enforced Prerequisite at Enrollment: CHEM 202 or CHEM 210
Cross-listed with: FSC 432

CHE 438: Bioprocess Engineering

3 Credits

Introduction to the biotechnology field including consideration of upstream and downstream processing of biochemicals.

Enforced Prerequisite at Enrollment: CHEM 212

CHE 442: Polymer Processing Technology

3 Credits

Basic principles of polymer melt processing are reviewed and subsequently applied to the most important industrial processing operations. MATSE 448 (CH E 442) Polymer Processing Technology (3) MATSE 448 involves both lectures and laboratory experiments illustrating the interrelations between structure, processing conditions, and physical properties of industrial polymer products. Students apply engineering fundamentals and principles of polymer melt rheology to analyze industrial processing operations. Unlike typical polymer processing courses offered at most U.S. universities, MATSE 448 covers detailed analyses of individual processing operations, rather than dwelling on underlying polymer science fundamentals that are covered elsewhere in our curriculum. Students learn to optimize processing variables, given a particular set of materials and conditions, establishing how processing conditions impact the physical properties of finished polymer products. We explore the physics governing processing operations including extrusion, mixing, calendaring, blow molding, thermoforming fiber spinning compression molding, injection molding, and nanolithography.

Enforced Prerequisite at Enrollment: MATSE 447
Cross-listed with: MATSE 448

CHE 443: Introduction to Polymer Science

3 Credits

Introduction to synthesis, structure, characterization and processing of polymers. Single molecule properties, polymer solutions, glasses, crystals and blends. CHE 443 Introduction to Polymer Science (3) The objective of this course is to introduce students to the synthesis, structure, characterization and processing of polymers. Emphasis is placed on the molecular origins of polymer properties. The course will provide an overview of single molecule properties and polymeric solutions, glasses, crystals and mixtures from a Chemical Engineering perspective. The course builds on CHE 320, Chemical and Phase Equilibria, to develop a more in-depth description of the thermodynamics of polymers. This course will also build on CHEM 210, Organic Chemistry, to analyze more in-depth strategies for the synthesis of polymers. At the end of the course, the students will be able to evaluate the viability of synthetic pathways for various polymers, estimate the size of polymer chains in solution and in the melt, calculate thermodynamics phase diagrams of polymer blends and solutions, and compare and contrast different approaches to describe the physical properties of polymers.

Enforced Prerequisite at Enrollment: CHE 320 and CHEM 210

CHE 444: Chemical Game Theory

3 Credits

"Chemical Game Theory" (CGT), uses well-known, rigorous principles from Chemistry and Chemical Engineering to solve strategic decision problems that could be analyzed using Traditional Game Theory (TGT). In strategic decisions, players each can choose from among two or more alternative possibilities, and the outcome depends upon the collective choices from all players. In this course we will analyze some of the premises of TGT as compared with CGT. In CGT, the players' choices are treated as metaphorical molecules, and outcomes are calculated according to chemical reaction methods. The important concept of entropic choices is introduced, and pre-bias effects are included naturally as initial concentrations of reactants. CGT is not a generalization of TGT; rather, it represents contested decision problems differently, and gives different solutions. In this article we use the formalism of Chemistry to provide a "knowlecular approach" to analyzing contested decisions. This approach has a rich capacity to represent decision-making scenarios and serve as a decision-making algorithm for contested decisions, where leadership power plays an important role.

Enforced Prerequisite at Enrollment: CHE 210 and CHE 320

CHE 445: Bioremediation/Green Chemistry

3 Credits

Man has polluted his environment but biotechnology holds great promise for cleansing it and for synthesizing the chemicals that we all need in a modern society in a manner that limits generating new pollution. The course focuses on the application of biological and engineering principles toward the remediation of hazardous wastes and for the synthesis of chemicals in a sustainable manner; i.e., in a manner that limits the production of unwanted compounds. The tools that will be explained for accomplishing this are metabolic engineering, systems biology, and protein engineering. Students will also gain knowledge related to the design of biological contacting devices for waste remediation and green chemistry. Emphasis will also be placed on the evolution of bacterial pathways for accomplishing engineering goals. Discussion

will also ensue on societal issues such as the wisdom of the release of genetically-engineered microorganisms and the limitations of biotechnological approaches.

Enforced Prerequisite at Enrollment: CHE 340

CHE 446: Transport Phenomena

3 Credits

Fundamental treatment of mass, heat, and momentum transfer; emphasis on transport properties and mathematical models of chemical engineering transport processes. CHE 446 Transport Phenomena (3) This is an intermediate course in transport phenomena intended to expand on the materials introduced in the required undergraduate courses on momentum, heat and mass transfer. It builds on the prerequisite material with a rigorous formulation of transport problems using the conservation principles and flux expressions, and identifies the similarities and differences among the transport processes for momentum, heat, and mass. The main focus of the course is on microscopic treatment of transport problems, with particular emphasis on proper use of dimensional analysis and scaling arguments. Transport phenomena is a rather mathematical subject and the student is assumed to be familiar with ordinary and partial differential equations, elementary vector analysis, and elementary numerical techniques. This course is intended to prepare the student for a graduate-level course in transport phenomena.

Enforced Prerequisite At Enrollment: CHE 330 and CHE 350
Enforced Concurrent At Enrollment: CHE 410

CHE 449: Bioseparations

3 Credits

Analysis and design of separation processes for the purification of biological molecules. CHE 449 Bioseparations (3) This course introduces students to the principles and applications of separation processes used for the purification of biological molecules, including fine chemicals, pharmaceuticals, and therapeutic proteins. By the end of the course students will be able to perform preliminary design calculations and scale-up of specific separation systems including centrifugation, filtration, chromatography, and membrane processes. Students will also be able to develop outlines of overall separation schemes appropriate for the purification of different biological products. This course is required for the Bioprocessing and Biomolecular Engineering Option in Chemical Engineering.

Enforced Prerequisite at Enrollment: CHE 410

CHE 450: Process Dynamics and Control

3 Credits

Analysis of time-dependent variables in chemical process plants; reactor design and control; computer applications. CHE 450 Process Dynamics and Control (3) The course is an introduction to chemical process dynamics and control and is offered as a technical elective. The first part of the course is devoted on the dynamical behavior of systems and the mathematical tools (differential equations, Laplace transforms) used in their analysis. The second part of the course covers the design and operation of various types of controllers, including proportional, integral and differential and their combinations. The theoretical principles are

demonstrated with applications to chemical engineering processes such as storage tanks, chemical reactors and separation processes.

Enforced Prerequisite at Enrollment: MATH 251 and C or better in CHE 210

CHE 452: Chemical Process Safety

3 Credits

This course provides an overview of Process Safety in the Chemical Industry, focusing on the nature of chemical plant accidents. CHE 452 Chemical Process Safety (3) The course will provide an overview of Process Safety in the Chemical Industry, focusing on the nature of chemical plant accidents, their causes, and steps to eliminate them, with emphasis on inherently safe designs. Chemical Plant accidents deal most often with Flammability and Toxicity issues and these are dealt with in great detail. The role of Human Error in accidents is also examined. Actual case studies (including Bhopal, BP Texas City, Piper Alpha) will be examined to show the relevance in today's workplace. The course requires active student participation via discussions of system designs, their weakness and improvements. Guest lecturers will also be invited to supplement the material. This is offered as a senior elective in Chemical Engineering.

Enforced Prerequisite at Enrollment: CHE 320 Enforced Concurrent at Enrollment: CHE 330 and CHE 350

CHE 455: Drug Delivery, Pharmacokinetics, and Artificial Organs

3 Credits

CHE 455 is an elective course that examines the application of chemical engineering principles (thermodynamics, transport, and kinetics) to the analysis of a number of medically related phenomena and devices. Specific topics include drug delivery systems, pharmacokinetics, artificial organs, biological transport phenomena, and temperature regulation. One of the important goals of the course is to understand how chemical engineers go about developing appropriate physical models for complex biological systems. Emphasis will be placed on identifying the key physical / biological phenomena governing the system behavior. Where appropriate, the course will also examine some of the social, political, and economic implications of medical technology in our society, e.g., the artificial kidney program. Students do not need a background in biology or physiology – the key biological phenomena will be covered at appropriate places throughout the semester.

Enforced Prerequisite at Enrollment: CHE 350 or BME 409 or BME 413 or BE 302 Recommended Preparation: CHE 410

CHE 470: Design of Chemical Plants

3 Credits

The chemical engineering capstone design course introduces the principles of process design and economic evaluation utilizing various industry computer tools, with special emphasis on process simulators. The student will develop critical design logic to evaluate a process, starting with block flow diagrams and simple material balances utilizing practical heuristics and then build the process flowsheet through computer simulation, flowsheet optimization, and detailed equipment design.

Enforced Prerequisite at Enrollment: CHE 350 and CHE 410 and CHE 430

CHE 480M: Chemical Engineering Laboratory (Honors)

3 Credits

Data interpretation and analysis from student-operated experiments on pilot-plant equipment. Individual written and oral technical reports. CHE 480M CHE 480M Chemical Engineering Laboratory (Honors) (3) CHE 480M is the laboratory course in chemical engineering. The objectives of CHE 480M is to provide hands-on experience with chemical engineering equipment and consists of a series of experiments that cover the major subjects in chemical engineering, namely, fluid flow, heat transfer, separations and reactions. The subject matter on which these experiments are based is taught in various junior-senior-level classes. This course does not introduce new material but focuses instead on planning, execution and interpretation of experiments. The special aspect of the honors section is that students will be given an open-ended experimental research project.

Enforced Prerequisite at Enrollment: CHE 230 and CHE 320 and CHE 330 and CHE 350 Enforced Concurrent at Enrollment: CHE 410 Honors Writing Across the Curriculum

CHE 480W: Chemical Engineering Laboratory

3 Credits

Data interpretation and correlation from student-operated experiments on pilot-plant equipment. Individual written and oral technical reports. CHE 480W Chemical Engineering Laboratory (3) This is the laboratory course in Chemical Engineering. Its objective is to provide hands-on experience with chemical engineering equipment and consists of a series of experiments that cover the major subjects in chemical engineering, namely, fluid flow, heat transfer, separations and reactions. The subject matter on which these experiments are based is taught in various junior- and senior-level classes. CHE 480W does not introduce new material but focuses instead on planning, execution and interpretation of experiments. The course is team-based and includes laboratory sessions as well as lectures. Evaluation is based on the written and oral reports given based on experiments performed. These reports undergo several drafts, in which at different times students or faculty evaluate the report, suggesting corrections. Course evaluation may also include a "pre-exam" to assure that the students understand technical material coming into the course. Peers assess each others' performance (contributing to the grade), as does the faculty.

Enforced Prerequisite at Enrollment: CHE 230 and CHE 320 and CHE 330 and CHE 350 Enforced Concurrent at Enrollment: CHE 410 Writing Across the Curriculum

CHE 494: Research Projects in Chemical Engineering

1-6 Credits/Maximum of 6

An original problem, including a search of the literature, experimental investigation, and preparation in formal thesis form.

Enforced Prerequisite at Enrollment: Permission of program

CHE 494H: Research Projects in Chemical Engineering (Honors)

1-6 Credits/Maximum of 6

An original problem, including a search of the literature, experimental investigation, and preparation in formal thesis form. CHE 494H CHE 494H Research Projects in Chemical Engineering (1-6) Undergraduate

research projects for honors students leading to the generation of a thesis for the Schreyer Honors College. The content of this course typically falls within the research interests of the chemical engineering faculty. The work can be computational, theoretical or experimental in nature and culminates with the writing of an honors thesis. Students should select a thesis advisor prior to enrolling in this course and file an honors thesis proposal report form with the Schreyer honors College. A student outside of chemical engineering can take the course if they are working towards an honors thesis in chemical engineering. A student in chemical engineering can take this course with a co-advisor outside of chemical engineering; however, the CHE

Enforced Prerequisite at Enrollment: Permission of program Honors

CHE 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

CHE 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

CHE 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Chemistry (CHEM)

CHEM 1: Molecular Science

3 Credits

Selected concepts and topics designed to give non-science majors an appreciation for how chemistry impacts everyday life. Students who have received credit for CHEM 3, 101, 130, or 110 may not schedule this course. CHEM 1 is designed for students who want to gain a better appreciation of chemistry and how it applies to everyone's everyday life. You are expected to have an interest in understanding the nature of science, but not necessarily to have any formal training in the sciences. During the course, you will explore important societal issues that can be better understood knowing some concepts in chemistry. The course is largely descriptive, though occasionally a few simple calculations will be done to illuminate specific information. The course does rely on your ability to think systematically, and to relate things to each other. From year to year and instructor to instructor, the course may cover any number of a large variety of topics related to current events, including, but not limited to: air and water pollution, ozone depletion, global warming, acid rain, new and old methods of energy generation and energy use in modern society, examples of production and use of modern polymers, examples of production and use of modern drugs, examples of the chemistry of nutrition, examples of advances in biochemistry and how they affect us.

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

CHEM 3: Molecular Science With Laboratory

3 Credits

CHEM 3 is a course that includes both lecture and laboratory. It is designed for students who want to gain a better appreciation of chemistry and how it applies to everyone's everyday life. The student is expected to have an interest in understanding the nature of science, but not necessarily to have any formal training in the sciences. The course explores important societal issues that can be better understood knowing some concepts in chemistry. The course is largely descriptive, though occasionally a few simple calculations will be done to illuminate specific information. The course does rely on an ability to think systematically, and to relate things to each other. From year to year and instructor to instructor, the course may cover any number of a large variety of topics related to current events, including but not limited to: air and water pollution, ozone depletion, global warming, acid rain, new and old methods of energy generation and energy use in modern society, examples of production and use of modern polymers, examples of production and use of modern drugs, examples of the chemistry of nutrition, examples of advances in biochemistry and how they affect us. In the laboratory component, students will conduct experiments that are related to the lecture material being covered.

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

CHEM 5: Kitchen Chemistry

3 Credits

CHEM 5 Kitchen Chemistry (3) (GN)(BA) CHEM 5 focuses on an elementary discussion of the chemistry associated with foods and cooking. It incorporates lectures and videos, reading, problem-solving, and "edible"; home experiments to facilitate students' understanding of chemical concepts and scientific inquiry within the context of food and cooking. Please note that this is a chemistry class presented in a real world interactive way, not a cooking class! The course will start from a primer on food groups and cooking, proceed to the structures of foods, and end with studies of the physical and chemical changes observed in foods. Students will develop an enhanced understanding of the chemical principles involved in food products and common cooking techniques.

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

CHEM 20: Environmental Chemistry

3 Credits

Applications of chemistry to environmental problems, including air, water, thermal pollution; pesticides; drugs and birth control agents;

food additives; etc. For non-chemistry majors; chemistry majors will not receive credit. CHEM 020 Environmental Chemistry (3) Topics include the study of air, air quality, and the effects of various substances that create air pollution. Significant detail is given to ozone and its interactions in various layers of the atmosphere. The study of fossil fuels and hydrocarbon chemistry leads to an extensive discussion of global warming. Water contamination due to acid rain and acid mine drainage is studied in conjunction with acid-base chemistry. The concept of pH is discussed in detail. Newer sources of energy including fuel cells, photovoltaic cells, biomass fuels, and nuclear energy are investigated with much consideration given to the economics of fuels. These energy topics require a study of electrochemistry, nuclear chemistry, radioactivity and organic chemistry. Biological topics of drug design, toxic substances, pesticides, genetic engineering and food safety complete the course by covering numerous aspects of organic chemistry and biochemistry. Most topics also deal with the associated analytical chemistry of the substances discussed and the challenge of sample procurement, sample preparation, chemical analysis, and result interpretation considering analytical error. Methods of chemistry data presentation to the general public are investigated and criticized.

CHEM 21: Environmental Chemistry Laboratory

1 Credits

Introduction of basic laboratory techniques and data analysis used in environmental chemistry. CHEM 021 CHEM 021 Environmental Chemistry Laboratory (1) This course will provide an introduction of basic laboratory techniques and data analysis used in environmental chemistry. The suggested laboratory experiments will consist of a broad range of scientific inquiry that will enhance the lecture material covered in CHEM 020. The course will provide laboratory experience in the chemistry of air, water, and solids. Experiments have been chosen that have a strong biology component such as Stream Ecology, Toxicity, Testing, and Dissolved Oxygen experiments. These experiments should relate to the BIOL 110 and 220 courses. The Chi-Square and Probability experiments will relate to STAT 250 course. The course will be an integral part of the Environmental Studies major providing an experimental chemistry background and experience.

Enforced Concurrent at Enrollment: CHEM 20

CHEM 101: Introductory Chemistry

2-3 Credits

Selected principles and applications of chemistry. Prior study of chemistry is not assumed. Students may take only one course for General Education credit from CHEM 101 or CHEM 110. CHEM 101 CHEM 101 Introductory Chemistry (2-3) CHEM 101 is an introductory chemistry course designed to prepare students for college level chemistry courses, such as CHEM 110 or CHEM 202. Prior study of chemistry is not assumed, so the course introduces the vocabulary along with some basic principles of chemical problem solving. The course covers the following topics: matter and measurement, molecules and molecular compounds, ions and ionic compounds, chemical reaction types, stoichiometry, atomic and molecular weights, the mole, simple quantitative calculations with chemical reactions, the periodic table, nomenclature, electronic structure of atoms, simple periodic properties of the elements, chemical bonding, molecular geometry, and properties of various states of matter, acids and bases, and the basics of chemical equilibrium. There are 2 and

3 credit versions of this course offered at different locations. The 3-credit version usually involves a laboratory component.

Enforced Prerequisite at Enrollment: Completion or placement beyond MATH 21.

General Education: Natural Sciences (GN)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

CHEM 106: Introductory and General Chemistry

5 Credits

Introductory chemistry and chemical principles for students who are required to take additional chemistry, e.g., CHEM 112, but are unprepared for CHEM 110. CHEM 106 Introductory and General Chemistry (5) (GN) (BA) This course meets the Bachelor of Arts degree requirements. CHEM 106 is an extended version of the first-semester comprehensive general chemistry course. It includes more class time for preparing students so that they learn introductory chemistry and general college level chemistry in one semester. As in CHEM 110, CHEM 106 introduces students to the basic principles of chemistry with an emphasis on the relationships between the microscopic structure and macroscopic properties of matter. Principles are illustrated with a wide variety of examples from the sciences, from engineering and technology, and from everyday life. The course covers the following topics: matter and measurement, molecules and molecular compounds, ions and ionic compounds, chemical reaction types, atomic and molecular weights, the mole, quantitative calculations with chemical reactions, the periodic table, nomenclature, aqueous reactions and solution stoichiometry, thermochemistry, electronic structure of atoms, periodic properties of the elements, chemical bonding, molecular geometry, the gaseous, liquid, and solid states of matter, properties of solutions, some basic aspects of chemical equilibrium, and applications to the real world including environmental chemistry. GN credit for CHEM 106 requires that CHEM 111 also be completed.

Enforced Prerequisite at Enrollment: Completion or placement of MATH 22 or higher

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

CHEM 108: Problem Solving in Chemistry

1 Credits

Techniques, strategies, and skills for solving problems in general chemistry for students potentially at risk in CHEM 110. CHEM 108 CHEM 108 Problem Solving in Chemistry (1) The purpose of CHEM 108 is to facilitate success in the first semester general chemistry course (CHEM 110). Students who need extra help in CHEM 110 are strongly encouraged to take CHEM 108 with CHEM 110. The course covers the same topics in the same sequence as the concurrent CHEM 110 course. It provides an opportunity for students to develop stronger problem solving skills through active and collaborative learning activities and skill building. CHEM 108 does not satisfy the General Education requirement and will not count toward graduation in some majors.

Enforced Corequisite at Enrollment: CHEM 110

CHEM 109: A Research Experience in Chemistry

3 Credits

This introductory chemistry laboratory course is a research experience in chemistry. It is designed to ease students into the process and practice of chemical research. Students will be posed with a novel idea or known problem that requires investigation. This investigation begins with background reading and discussions of the chosen chemistry research project, which is taken from the labs of Penn State chemistry research faculty. Students review high school chemistry concepts in addition to learning new concepts required for the understanding of the project. Acting as their own principal investigators, students design and execute experiments while maintaining a proper scientific notebook. Once a procedure is complete, students analyze the data collected. Throughout the semester, students are required to summarize and communicate their findings through writing assignments. These assignments lead up to a formal final report assignment, formatted to mimic a research journal article. The semester ends with student groups presenting their semester's work by a formal presentation.

CHEM 110: Chemical Principles I

3 Credits

CHEM 110 is the first semester of a two-semester, comprehensive general chemistry course which introduces students to the basic principles of chemistry with an emphasis on the relationships between the microscopic structure and macroscopic properties of matter. Principles are illustrated with examples from the sciences, engineering and technology, and from everyday life. Topics covered are atomic structure and periodic properties, molecular compounds and chemical bonding, molecular structure, intermolecular forces, the properties of gases, liquids, and solutions, chemical reactions, stoichiometry and thermochemistry. Students may only receive credit for one of CHEM 110 or CHEM 106 (4 credits) or CHEM 130.

Enforced Prerequisite at Enrollment: Completion of or placement beyond MATH 22

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

CHEM 110H: Chemical Principles I - Honors

3 Credits

CHEM 110H is the first in a two-semester comprehensive course in general chemistry for majors in science, engineering, and related disciplines. Chemistry impacts virtually every area of our lives, from how our bodies work, to the environment, to new materials, to how we live and work. The goals of this course are to teach students to recognize that what happens at the molecular level directly shapes the macroscopic world. Students will gain an understanding of (1) how atoms combine to form molecules; (2) how molecules interact and react with each other; and (3) how molecular-level structure and interactions affects a material's macroscopic properties. Students will also learn the problem-solving skills necessary to apply and interpret simple mathematical models and graphical representations of chemical and physical phenomena. The honors version of CHEM 110 covers the same

topics as the regular offering but at a level appropriate for students with advanced backgrounds and talents.

Enforced Prerequisite at Enrollment: Completion of or placement beyond MATH 22

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

Honors

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

CHEM 111: Experimental Chemistry I

1 Credits

CHEM 111 is a one-credit introductory general chemistry laboratory course. It is designed to complement the lecture course CHEM 110. Students are introduced to laboratory safety and good experimental technique, how to keep a proper laboratory notebook, and interpret experimental data. The course introduces laboratory experimentation in the context of a variety of specific topics, such as reactions in solutions, spectroscopy, acids and bases, and the synthesis and analysis of chemical compounds.

Enforced Prerequisite or Concurrent at Enrollment: CHEM 110 or CHEM 106 or CHEM 130

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

CHEM 112: Chemical Principles II

3 Credits

CHEM 112 builds upon the subject matter of CHEM 110, covering the following topics: reaction rates and chemical kinetics, nuclear applications, catalysis, gas phase and aqueous equilibrium, chemical thermodynamics, entropy, free energy, acid-base equilibria, the pH scale, the common-ion effect, buffers, acid-base titrations, factors that affect aqueous solubility, electrochemistry, oxidation-reduction reactions, oxidation states, voltaic cells, batteries, corrosion, electrolysis, transition metals, crystal field theory, molecular orbital theory, bonding in solids, and properties of modern materials.

Enforced Prerequisite at Enrollment: CHEM 110 or CHEM 110H or CHEM 106

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

CHEM 112H: Chemical Principles II - Honors

3 Credits

CHEM 112H uses the same text as CHEM 110H and builds upon the subject matter of that course. The course covers the following topics:

introduction to organic reactions, polymers and their properties, chemical thermodynamics, entropy, free energy, reaction rates and chemical kinetics, catalysis, acid-base equilibria, the pH scale, the common-ion effect, buffers, acid-base titrations, factors that affect aqueous solubility, the role of the solvent in reaction chemistry, electrochemistry, oxidation-reduction reactions, oxidation states, voltaic cells, batteries, corrosion, electrolysis, transition metals, crystal field theory, molecular orbital theory, and properties of modern materials.

Enforced Prerequisite at Enrollment: CHEM 110 or CHEM 110H or CHEM 106

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

Honors

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

CHEM 113: Experimental Chemistry II

1 Credits

CHEM 113, Experimental Chemistry II, is the second introductory general chemistry laboratory course in the CHEM 111/113 sequence. CHEM 113 is meant to complement the lecture course, CHEM 112. The course builds on the material learned in CHEM 111, emphasizing quantitative and analytical procedures. Essential material covered includes proper use of a laboratory notebook, writing a formal laboratory report, use of the chemical literature, experimental design, laboratory safety, introduction into chemical instrumentation, and interpretation of data, including basic statistics.

Enforced Prerequisite at Enrollment: CHEM 111. Prerequisite or Concurrent: CHEM 112 or CHEM 112H

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

CHEM 113B: Experimental Chemistry II–Bioscience

1 Credits

CHEM 113B, Experimental Chemistry II, is the second introductory general chemistry laboratory course in the CHEM 111/113 sequence. CHEM 113B is meant to complement the lecture course, CHEM 112, but using experiments with biological relevance. The course builds on the material learned in CHEM 111, emphasizing quantitative and analytical procedures. Essential material covered includes proper use of a laboratory notebook, writing a formal laboratory report, use of the chemical literature, experimental design, laboratory safety, introduction into chemical instrumentation, and interpretation of data, including basic statistics.

Enforced Prerequisite at Enrollment: CHEM 111. Prerequisite or Concurrent: CHEM 112 or CHEM 112H

General Education: Natural Sciences (GN)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

CHEM 130: Introduction to General, Organic, and Biochemistry

3 Credits

This course is a one-semester, rigorous college level introductory Chemistry course covering the fundamental principles of general, organic, and biochemistry. One year of high school chemistry is strongly recommended, and students should have math placement beyond the level of Math 021. 3 Credits, fulfills the General Education requirements. Course topics include dimensional analysis, atomic structure and periodicity, chemical bonding, molecular structure, states of matter and intermolecular forces, basic gas laws, solutions and solubility, acids, bases and equilibria, reaction stoichiometry and thermodynamics. In addition, fundamentals of organic nomenclature, properties of main organic functional groups, structure and function of biological macromolecules, as well as metabolism will be discussed. The course will emphasize chemistry in environmental and health-related contexts. This course is primarily designed for students in a program that does not require the more theoretical and mathematically oriented general chemistry courses (CHEM 110/112), such as some majors in the colleges of Nursing, Agriculture Sciences, and Health & Human Development. It is a suitable prerequisite for the organic chemistry course sequence CHEM 202/203. This course is not appropriate for medical school preparation and will not serve as a prerequisite for the organic chemistry CHEM 210/212 course sequence. Students majoring in chemistry, other natural sciences, or engineering will normally register in the CHEM 110/112 sequence. Consult your advisor and the instructor if you have questions about CHEM 130 vs. CHEM 110/112.

Enforced Prerequisite at Enrollment: Completion or placement beyond MATH 21.

General Education: Natural Sciences (GN)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

CHEM 197: Special Topics

1-9 Credits

CHEM 197N: Special Topics - InterDomain

1-9 Credits/Maximum of 9

Formal courses given on a topical or special interest subject offered infrequently; several different topics may be taught in one year or semester. This Special Topics is a GenEd course.

CHEM 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

CHEM 202: Fundamentals of Organic Chemistry I

3 Credits

Introduction to organic chemistry, with emphasis on the properties of organic compounds of biochemical importance. Because of duplication of subject matter, students may not receive credit for both CHEM 202 and CHEM 210. CHEM 202 CHEM 202 Fundamentals of Organic Chemistry I (3) CHEM 202 is a one-semester, comprehensive course that introduces

the students to the fundamental principles of organic chemistry including relationships between the molecular structure of organic compounds and their macroscopic properties. Some of the principles are illustrated with a variety of examples from nature and everyday life. The course covers the following topics: alkanes; alkenes, including polymers; alkynes; benzene and aromaticity; alcohols and phenols; ethers; aldehydes; ketones; carboxylic acids and their acyl derivatives; amines; alkyl halides; nomenclature; stereochemistry, including conformational analysis and chirality. Chemical reactions of the functional groups will be discussed along with the mechanistic details, including stereospecificity, of some of these processes. Biological molecules such as carbohydrates, lipids, steroids, peptides/proteins and nucleic acids, along with their importance in living systems, will be surveyed.

Enforced Prerequisite at Enrollment: CHEM 101 or CHEM 106 or CHEM 110 or CHEM 110H or CHEM 130

CHEM 203: Fundamentals of Organic Chemistry II

3 Credits

Introduction to organic chemistry, with emphasis on the identification of organic compounds by characteristic chemical reactions and by spectroscopy. The course involves both lecture and laboratory. Because of duplication of subject matter, students may not receive credit for both CHEM 203 and CHEM 213. CHEM 203 CHEM 203 Fundamentals of Organic Chemistry II (3) CHEM 203 is a one-semester organic chemistry course that has both lecture and laboratory components. The lecture introduces students to the basic theory and application (structure determination) of different types of spectroscopy (nuclear magnetic resonance spectroscopy, infrared spectroscopy, and ultraviolet-visible spectroscopy) and mass spectrometry. Certain chemical reactions learned in CHEM 202 will be reviewed along with the mechanistic details of some of these processes. Special topics such as drug discovery, natural product isolation, and synthesis will be surveyed. The laboratory teaches students the fundamental techniques used by organic chemists such as recrystallization, melting point determination, distillation, extraction, thin-layer chromatography, and column chromatography. Mastery of these basic techniques lays the foundation for carrying out organic syntheses and/or natural product isolations. Students are given hands-on access to instrumentation for the characterization of synthetic products or organic unknowns using standard analysis methods such as IR, NMR, UV/V is spectroscopy, mass spectrometry, polarimetry, HPLC, GC and GC-MS. Students are responsible for writing laboratory reports for all experiments.

Enforced Prerequisite at Enrollment: CHEM 202

CHEM 210: Organic Chemistry I

3 Credits

Bonding theories for organic molecules; stereochemistry and conformational analysis; reactions (and mechanisms) of alkyl halides, alkenes, alkynes, aromatics, and alcohols. CHEM 210 Organic Chemistry I (3) Organic chemistry is an essential subject for many scientific disciplines, particularly those in the life, materials, and chemical sciences, as well as chemical engineering. The fundamentals of organic chemistry, as developed in CHEM 210, the first part of a two-semester organic chemistry sequence, are required for scientists to understand the electronic structure and reactivity of simple and complex molecules. Concepts taught in CHEM 210 include hierarchical bonding models (Lewis dot, valence bond, molecular orbital), Lewis acids and bases, conformational analysis and stereochemistry, functional groups and their

reactivity (alkenes, alkynes, alkyl halides, dienes, aromatics, alcohols, and ethers), organic reaction mechanisms focusing on electrophiles and nucleophiles, and aromaticity. Successful students will understand and be able to apply various structural and reactivity models to solving problems in organic chemistry.

Enforced Prerequisite at Enrollment: CHEM 112 or CHEM 112H

CHEM 210H: Organic Chemistry I - Honors

4 Credits

Principles and theories; nomenclature; chemistry of the functional groups; applications of spectroscopy. Because of duplication of material, students may not receive credit for both CHEM 210 and 202. CHEM 210H Organic Chemistry I - Honors (4) Chemistry 210H is the first semester of an in-depth two semester survey of organic chemistry. It should be followed by Chemistry 212H. The concentrated and fast-moving pace of this course is facilitated by four class periods/week, seven (biweekly) hour exams and an evening recitation dedicated to the informal discussion of the subject material covered in previous or pending hour exams. This course will emphasize the mechanistic underpinning of organic chemistry. That is, students will not only learn what happens in organic chemistry but also, and more importantly, why and how. It is hoped that students will develop an intuition for the structure, function and reactivity properties of organic compounds which is of fundamental importance for subsequent studies in the life, material and chemical sciences. The course begins with an introduction to the structural aspects of organic compounds and an appreciation of the three-dimensionality of the subject based upon the important concepts of molecular orbital theory, valence bond theory, hybridization and conformational analysis. Reaction mechanisms and organic synthesis, two important topics that are emphasized throughout the course, are introduced early in the context of addition reactions of alkenes and alkynes. Perhaps the most abstract/vexing topic in organic chemistry is next encountered, namely, stereochemistry. These fundamentals are then used to explore the reactivity properties of various classes of compounds including substitutions and eliminations of alkyl halides, free radical reactions of alkenes, isomerization and cycloadditions of conjugated pi systems, and electrophilic substitution reactions of aromatic compounds.

Enforced Prerequisite at Enrollment: CHEM 112 or CHEM 112H Honors

CHEM 212: Organic Chemistry II

3 Credits

Continuation of CHEM 210. Emphasis is placed on the role of organic reactions in biological chemistry. CHEM 212 CHEM 212 Organic Chemistry II (3) This course will continue to build upon the important concepts learned in the prerequisite course, CHEM 210, with an emphasis on reactions mechanisms and organic synthesis. The course will begin with conceptually new material that will be applied in the laboratory course, namely, the elucidation of the structures of organic compounds using mass spectrometry, infrared spectroscopy and nuclear magnetic resonance spectroscopy. The majority of the new material is concerned with the chemistry of carbonyl compounds and includes: 1) the nucleophilic addition reactions of ketones and aldehydes; 2) nucleophilic acyl substitution reactions of acid chlorides, anhydrides, esters and amides; 3) carbonyl alpha-substitution reactions and 4) carbonyl condensation reactions. The latter part of the course will be

concerned with biologically relevant compounds such as amines, amino acids/peptides/proteins and carbohydrates.

Enforced Prerequisite at Enrollment: CHEM 210 or CHEM 210H

CHEM 212H: Organic Chemistry II - Honors

3 Credits

Continuation of CHEM 210(H). Emphasis is on the chemistry of carbonyl compounds, spectroscopic analysis and pericyclic reactions. CHEM 212H Organic Chemistry II - Honors (3) CHEM 212H is the second semester of a comprehensive year-long treatment of introductory organic chemistry at an advanced level. CHEM 210H is recommended but not required. This honors course focuses more on depth than breadth, and will delve into some of the more modern approaches/theories to key topics. Most of the material derives from the chemistry of carbonyl compounds. The classic topics – carbonyls as electrophiles and as nucleophile (enolate) precursors – will be covered. In addition, discussions of stereochemical selectivity issues will provide the framework to introduce contemporary concepts of stereoelectronic and steric effects into these topics. For example, Cram, Felkin-Ahn and chelation-based models for stereoselective addition of nucleophiles to aldehydes/ketones will be developed, as will chiral auxiliary chemistry for stereoselective enolate addition reactions. In addition to carbonyl chemistry, an introduction to spectroscopic techniques for compound characterization will be included. These techniques include mass spectrometry, infrared spectroscopy, and nuclear magnetic resonance spectroscopy. Finally, a survey of pericyclic reactions, along with the molecular orbital (stereoelectronic) underpinnings of chemical selectivity observed in these processes, will be pursued. Class grades will be based on 5 exams, 5 (out of 6) homework assignments, and a final exam.

Enforced Prerequisite at Enrollment: CHEM 210 or CHEM 210H Honors

CHEM 213: Laboratory in Organic Chemistry

2 Credits/Maximum of 2

Basic laboratory operations; synthesis and chemical or instrumental analysis. Because of duplication of subject matter, students may not receive credit for both CHEM 203 and CHEM 213. CHEM 213 CHEM 213 Laboratory Organic Chemistry (1-2) A strong foundation in organic laboratory skills is provided by this laboratory course. Laboratory work includes learning the basic techniques and recrystallization/melting point determination, distillation, liquid/liquid extraction, thin layer, chromatography and column chromatography. Mastery of these basic techniques lays the foundation for carrying out a number of organic syntheses or natural product isolations. Students are often provided with hands-on access to instrumentation for the characterization of synthetic products or organic unknowns using standard analysis methods such as IR, NMR, UV/V is spectroscopy, mass spectrometry, polarimetry, HPLC, GC and GC-MS. Chemistry 210 is a prerequisite and CHEM 212 may be* a co-requisite for this course, because they provide the theoretical background for the reaction chemistry as well as the spectroscopic characterization of organic molecules.*Note: The number of credits and meeting times vary from location to location. Some locations offer CHEM 213 as two one-credit courses to be taken in sequential semesters, whereas other locations offer CHEM 213 as a single-semester two-credit course. Normally, the latter format involves two 3-hour labs per week in addition to extensive written work outside of the laboratory. The prerequisite /

concurrent requirement for CHEM 212 does not apply when CHEM 213 is taken as a 1 credit course.

Enforced Prerequisite at Enrollment: CHEM 210 or CHEM 210H and Prerequisite or Concurrent: CHEM 212 or CHEM 212H

CHEM 213M: Laboratory in Organic Chemistry - Honors, Writing Intensive

2 Credits

Basic laboratory techniques learned in context via theme-based modules, spectral analysis, multi-step synthesis, and professional scientific writing. Because of similarity of subject matter, students may not receive credit for both CHEM 203 and CHEM 213.

Enforced Prerequisite at Enrollment: CHEM 210 or CHEM 210H and Prerequisite or Concurrent: CHEM 212 or CHEM 212H Honors

Writing Across the Curriculum

CHEM 213W: Laboratory in Organic Chemistry - Writing Intensive

2 Credits

Basic laboratory techniques learned in context via theme-based modules, spectral analysis, multi-step synthesis, and professional scientific writing. Because of similarity of subject matter, students may not receive credit for both CHEM 203 and CHEM 213.

Enforced Prerequisite at Enrollment: CHEM 210 or CHEM 210H and Prerequisite or Concurrent: CHEM 212 or CHEM 212H Writing Across the Curriculum

CHEM 227: Analytical Chemistry

4 Credits

The purpose of this course is to provide students with a rigorous and comprehensive exposure to the techniques and methods used in biotech, environmental, forensic, and pharmaceutical industrial and research laboratories. The principles, methodology and practical aspects of both traditional and modern chemical analysis will be discussed. Laboratory and lecture are fully integrated, emphasizing the importance of the laboratory component to achieving mastery of overall course content. Concepts will include acid-base, precipitation, chelation, electrochemistry, UV/Vis spectroscopy, and introductory chromatography, as well as some more advanced topics at the instructor's discretion. Students will be expected to develop both their chemical problem solving and laboratory skills, and will be evaluated on their ability to speak and write clearly, solve context-based chemical problems, maintain a research style laboratory notebook, and carry out reliable chemical analysis individually as well as part of a team. This course is relevant to any student majoring or minoring in Chemistry or Forensic Science.

Enforced Prerequisite at Enrollment: C or better in CHEM 112 or CHEM 112H and C or better in CHEM 113 and C or better in MATH 140

CHEM 233N: Chemistry and Literature

3 Credits

This pedagogically innovative course will be team taught by an instructor from the English department and one from the Chemistry department. Both instructors will be present in the classroom throughout the semester, providing joint presentations and leading discussions. The

integration of humanities and natural sciences domain content will encourage students from humanities and natural science backgrounds, as well as other interested students, to take the course and learn how to integrate these two domains of knowledge in their education and their lives after leaving Penn State. This course teaches both basic concepts of chemistry and their cultural elaboration in literature, and it models a critical assessment of the implications of chemistry and literature emerging from a shared cultural field, rather than autonomously from two separate cultures. The course seeks to provide students with a nuanced understanding of how literature and science inform each other and negotiate cultural, religious, and political tensions. Understanding the origin and development of these ideas, perspectives, and discoveries is an essential component of science and scientific achievement, but too often our methods of teaching science focus almost exclusively on teaching facts and theories at the expense of the historical discovery, creation, and development of those facts and theories. This course teaches both the scientific facts and theories and the contexts of their production in order to sharpen students' abilities at critical evaluation of facts. The literary and scientific focus will vary from class to class, but may include writings by literary authors such as Mary Shelley, Edward Bulwer-Lytton, Bram Stoker, H. G. Wells, Garrett Serviss, Aldous Huxley, Roald Hoffmann, Carl Djerassi, Don DeLillo, William Butler Yeats, Arthur Machen, D.H. Lawrence, A. E. Waite, Aleister Crowley, Arthur Conan Doyle, Camille Flammarion, and Rachel Carson, and scientific texts by scientists such as T.H. Huxley, William Crookes, William Ramsay, Frederick Soddy, Ernest Rutherford, Wilhelm Conrad Roentgen, Henri Becquerel, J.J. Thomson, Niels Bohr, and Marie Curie. Key concepts of environmental chemistry. The specific focus of this class will vary from class to class, but all sections will spend approximately 40% of the class on units specifically devoted to key concepts in basic chemistry, 40% of the class on literary interpretations of and influences upon concepts in chemistry in specific historical periods, and 20% of the class on significant methods of theorizing the boundaries between and interrelationships of science and culture., and on the concept of the "culture of science." However, these subjects will be interwoven throughout the semester. Indeed, the pedagogy of the course depends upon the literature and the science not being neatly separated from each other. Instead, students will learn up-to-date science while exploring the origins, development, and cultural dimensions of that science, and will learn to integrate their understanding of the domains of science and the humanities through the course. The course will be offered once every year with approximately 20-35 seats per offering.

Cross-listed with: ENGL 233N

Bachelor of Arts: Humanities

General Education: Humanities (GH)

General Education: Natural Sciences (GN)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

CHEM 294: Special Problems and Research

1-4 Credits/Maximum of 12

Designed for freshman or sophomore students who are prepared to undertake special problems and research by arrangement with a faculty member.

CHEM 294H: Special Problems and Research - Honors

1-4 Credits/Maximum of 12

Designed for freshman or sophomore students who are prepared to undertake special problems and research by arrangement with a faculty member.

Enforced Prerequisite at Enrollment: Permission of instructor
Honors

CHEM 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

CHEM 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

CHEM 301: Environmental Chemistry and Analysis

3 Credits

Chemical principles, interpretation, and methods of analysis for groundwater, water supply, wastewater treatment, stream pollution. CHEM 301 CHEM 301 Environmental Chemistry and Analysis (3) The objective of the course is to introduce students to water quality chemistry and the associated laboratory analytical techniques commonly used in groundwater, water supply, wastewater treatment, stream pollution control. This course will be instructed with classroom lectures, laboratory exercises, and a project. These laboratory exercises include pH, solids, turbidity, alkalinity, acidity, dissolved oxygen, biochemical oxygen demand, chemical oxygen demand, total organic carbon, chlorine residual, chlorine demand, nitrogen, phosphorus, nitrate, sulfate, chloride, hardness, and metals. This course involves two lecture periods and one laboratory period each week. The students will be evaluated with quizzes, midterm examination, final examination, laboratory reports, and a project report. The course has a prerequisite of a two-semester General Chemistry course and the associated laboratory courses. This course is a prerequisite for Water Supply and Pollution Control which is one of core courses for Environmental Engineering Program.

Enforced Prerequisite at Enrollment: (CHEM 112 or CHEM 112H) and CHEM 113

CHEM 310: Introductory Inorganic Chemistry

3 Credits

Conceptual and descriptive aspects of inorganic chemistry, focusing on structures, bonding, and properties. CHEM 310 Introductory Inorganic Chemistry (3) CHEM 310 covers the structure, bonding, and properties of inorganic molecules and solids. Theories and models of chemical bonding, including valence bond theory, crystal field theory, and molecular orbital theory are applied to inorganic molecules, coordination compounds, and solids. Aspects of structural inorganic chemistry are presented, including molecular geometry and structures of metallic, ionic, and covalent solids. Transition metal chemistry is discussed, including key aspects of bonding, properties, and reactions. The course also covers acids and bases, oxidation and reduction, and coordination

chemistry. Special topics such as solid-state inorganic materials, inorganic nanoscience, and bioinorganic chemistry may also be included.

Enforced Prerequisite at Enrollment: CHEM 112 or CHEM 112H

CHEM 316: The Professional Chemist

1 Credits

Industrial employment opportunities and challenges; graduate and professional school opportunities; tailoring the chemistry curriculum to career goals. CHEM 316 CHEM 316 The Professional Chemist (1) This junior-level seminar course is designed to help prepare chemistry majors to take advantage of opportunities provided by the Department and community of professional chemists in choosing, attaining, and furthering their career goals. A number of guest lectures cover a variety of career-related topics. Careers in the pharmaceutical, chemical production, biotechnology, and analytical sectors and other specialty companies will be discussed. Also, various academic careers paths are presented and compared. Preparing for chemistry graduate school and other post graduate training will be an important element of this seminar. Most of the meetings of the course will be primarily informational. A graded short presentation on a chemistry related topic is also required.

Enforced Prerequisite at Enrollment: 4th semester standing or higher in Chemistry

CHEM 358: Literature, Conduct and Safety in the Chemical Sciences

3 Credits

CHEM 358 is designed to prepare a student majoring in chemistry to interact with the scientific community as a professional. The course will be divided into three major units. The first unit will focus on communicating scientific information and research results. This will include searching, reading and interpreting peer-reviewed scientific literature, preparation of formal reports suitable for publication, and presenting research orally. Students may be asked to attend public events related to science outside the normal meeting hours for the course. The second unit will focus on developing career skills needed to become a successful professional in the field. This will include examining various career paths related to chemistry, professional networking, resume and job seeking skills, and instruction on effective interview strategies. Outside speakers will be invited to help reinforce particular topics. Additionally, scientific integrity will be discussed. The third unit will focus on an introduction to chemical hygiene in order to promote advanced safety practices above what students have learned in previous laboratory courses. This will include complying with safety regulations, understanding when and how to use proper personal protective equipment, understanding the categories of hazards associated with chemicals and how to read chemical labels, and interpreting Safety Data Sheets (SDS).

Enforced Prerequisite at Enrollment: CHEM 213

CHEM 395: Chemistry Teacher Assistant Training

1-2 Credits/Maximum of 2

Instruction and practice in the role of the teaching assistant in the undergraduate chemistry laboratory.

CHEM 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

CHEM 400: Chemical Literature

1 Credits

Instruction in use of the library and of the literature of chemistry. CHEM 400 Chemical Literature (1) CHEM 400 covers an orientation to use the library; sources of organic and inorganic synthesis information; use of relevant indexing and abstracting services; spectral data sources; patent literature; sources related to general chemical information, and properties data. Additional topics may be included as time permits.

Enforced Prerequisite at Enrollment: (CHEM 210 or CHEM 210H) and Prerequisite or Concurrent: (CHEM 212 or CHEM 212H)

CHEM 402: Environment Chemistry: Atmosphere

3 Credits

Environmental Chemistry is an upper-level elective chemistry class focusing on environmental issues and their intersection with chemistry. Specifically, the course will focus on the ways in which environmental processes can be understood in terms of their underlying chemistry as well as the impact of chemicals on the environment. Topics include climate change, air pollution, and the ozone hole. Chem 402 is the first semester of a two semester sequence in environmental chemistry. Chem 402 focuses on the atmosphere and Chem 404 covers topics relevant to water and soil chemistry. These courses are independent of each other. Students can take one or both in any order.

Enforced Prerequisite at Enrollment: (CHEM 212 or CHEM 212H) and Prerequisite or Concurrent: CHEM 450 or CHE 320

CHEM 404: Environmental Chemistry: Water and Soil

3 Credits

Environmental Chemistry: Water and Soil is an upper-level elective chemistry class focusing on environmental issues and their intersection with chemistry. Specifically, the course will focus on the ways in which environmental processes can be understood in terms of their underlying chemistry as well as the impact of chemicals on the environment. Topics will include water and soil chemistry, water treatment, heavy metals, organic pollutants, and remediation strategies. Chem 404 is the second semester of a two semester sequence in environmental chemistry. Chem 402 focuses on the atmosphere and Chem 404 covers topics relevant to water and soil chemistry. These courses are independent of each other. Students can take one or both in any order.

Enforced Prerequisite at Enrollment: CHEM 212 Enforced Concurrent at Enrollment: CHEM 450 or CHE 320

CHEM 406: Nuclear and Radiochemistry

3 Credits

Theory of radioactive decay processes, nuclear properties and structure, nuclear reactions, interactions of radiation with matter, biological effects of radiation. CHEM 406 Nuclear and Radiochemistry (3) CHEM 406 provides a basic introduction to many of the important

physical phenomena in nuclear and radiochemistry and the theories that describe them. The exposition of both experimental phenomena and theory complements the content of other upper-level courses in physical chemistry such as CHEM 450 and 452. Specifically, the types of radioactive decay are described, and, using this information, the equations that relate the growth and decay, i. e., the kinetics, of radioactive nuclei are derived. In parallel, a variety of types of nuclear reactions, such as neutron capture are introduced and used to develop the equations that governing the kinetics of nuclear reactions, including the concept of cross section. To describe the nature of nuclear matter, the relationships between energy, binding energy, and mass, are developed and augmented with the introduction of related quantities including the nuclear magnetic-dipole moment, total angular momentum of the nucleus, and Fermi-Dirac and Bose-Einstein statistics. A basic introduction to quantum mechanics, including several problems of increasing complexity, namely, the one-dimensional particle-in-a-box, the three-dimensional particle-in-a-cubic-box, and the particle-in-a-spherical box is then provided. The latter problem forms the basis for developing the single-particle shell-model of the nucleus, which is compared to the single-particle shell-model of the atom, namely, the hydrogen-atom problem. The barrier-penetration theory of alpha-decay, Fermi's phase-space theory of beta-decay, and the selection rules for gamma-ray decay are then presented. Final topics include the interactions of radiation with matter and the biological effects of radiation.

Enforced Prerequisite at Enrollment: CHEM 452 or PHYS 237 or NUCE 301

Cross-listed with: NUCE 405

CHEM 408: Computational Chemistry

3 Credits

Introduction to numerical and nonnumerical computer uses in physical science. CHEM 408 CHEM 408 Computational Chemistry (3) CHEM 408 introduces some of the many ways in which computers are used in modern chemical research. The main emphasis is on "molecular modeling" including such topics as electronic structure calculation, molecular mechanics, molecular dynamics and Monte Carlo simulation methods. In lesser detail, chemical informatics will also be considered, time permitting. Discussion of the theoretical underpinnings of these various methods and their range of applicability will be combined with exercises illustrating the use of several current chemical software packages and with assignments based on critical reading of illustrative literature papers.

Enforced Prerequisite or Concurrent at Enrollment: CHEM 452

CHEM 410: Inorganic Chemistry

3 Credits

Conceptual and descriptive aspects of nontransition elements, covering structural, thermodynamic, and kinetic features. CHEM 410 Inorganic Chemistry (3) CHEM 410 covers structure and bonding in inorganic chemistry, including the chemistry of main group elements and selected topics in transition metal chemistry. Theories and models of chemical bonding (valence bond theory, crystal field theory, and molecular orbital theory) are applied to inorganic molecules, coordination compounds, and solids. The course also covers the following topics: periodic trends in the chemistry of the d- and p-block elements, structural solid state chemistry, magnetism of transition metal complexes and inorganic solids, ionic and covalent bonding in solids, electronic properties of metals, alloys,

superconductors, and semiconductors, synthesis of inorganic materials, and properties of nanoscale inorganic solids.

Enforced Prerequisite at Enrollment: (CHEM 112 or CHEM 112H) and (CHEM 202 or CHEM 210 or CHEM 210H) and Prerequisite or Concurrent: CHEM 450 or CHEM 452

CHEM 412: Transition Metal Chemistry

3 Credits

Structure and bonding of compounds containing transition metals. CHEM 412 Transition Metal Chemistry (3) CHEM 412 covers the chemistry of the transition metals, and in particular the d-block elements. Major areas of emphasis include coordination chemistry, organometallics, and the role(s) of transition metals in biology. The course covers the following topics: molecular symmetry with applications to bonding and vibrational spectroscopy, coordination chemistry, structural and optical isomers, crystal and ligand field theories, electronic structure and electronic transitions, spectroscopic methods for probing transition metal complexes, kinetics and thermodynamics of ligand substitution reactions, oxidation-reduction reactions, organometallic complexes and their basic reaction types, homogeneous and heterogeneous organometallic catalysts and their reaction cycles, the interactions of metal ions with biological molecules, the function of transition metal ions in metalloproteins, and medically-important transition metal complexes.

Enforced Prerequisite at Enrollment: (CHEM 202 or CHEM 210 or CHEM 210H) and CHEM 310 and Prerequisite or Concurrent: CHEM 450 or CHEM 452

CHEM 413: Chemistry of the Elements

4 Credits

Theoretical and descriptive chemistry of the elements; laboratory synthesis and measurements in inorganic, coordination, and transition metal chemistry.

Enforced Prerequisite at Enrollment: CHEM 213 or CHEM 213W or CHEM 213M

CHEM 423W: Chemical Spectroscopy

4 Credits

Modern methods and instruments of spectroscopy and their applications to problems of chemical structure and analysis. CHEM 423W Chemical Spectroscopy (4) This course reviews modern methods and instruments of spectroscopy and their applications to problems of chemical structure and analysis. Topics include electronics, optics, and atomic and molecular spectroscopy (UV-VIS, Fluorescence, FTIR, Raman, liquid- and solid-state NMR). The course thoroughly integrates lecture and laboratory activities. The laboratory component incorporates skill-building exercises with open-ended guided-inquiry laboratory exercises and a semester-long laboratory- and literature-based research project. Students work in small groups (2-3 students) to complete each assignment. Students are required to write research papers during the semester. The reports are linked to the core course topics and the fifth is associated with the semester-long research project. All reports require students to search for and read the relevant published literature. The course is designed to be rigorous and comprehensive in scope. The writing component for this course includes: maintaining a proper laboratory notebook; reports; and

an oral poster presentation. All writing elements are reviewed and graded by the instructor and teaching assistants.

Enforced Prerequisite at Enrollment: C or better in CHEM 227 and Prerequisite or Concurrent: CHEM 452
Writing Across the Curriculum

CHEM 425W: Chromatography and Electrochemistry

4 Credits

Gas, liquid, and other forms of chromatography; important techniques of electrochemistry.

Enforced Prerequisite at Enrollment: (CHEM 227 or CHEM 221) and CHEM 450
Writing Across the Curriculum

CHEM 430: Structural Analysis of Organic Compounds

3 Credits

Spectroscopic methods as tools in gross and detailed structural analysis and interpretation within the framework of modern theory. CHEM 430 CHEM 430 Structural Analysis of Organic Compounds (3) This course is designed to introduce students to the spectroscopic techniques that are used to elucidate the structures of organic molecules of various molecular weights. Some theoretical background will be provided and is necessary, but the emphasis is on solving problems. The course starts with fundamental concepts and techniques learned in sophomore organic chemistry and builds toward state-of-the-art methods used by modern organic and bioorganic chemists. Topics to be covered include: UV spectroscopy, 1D- 1H and 13C NMR, spin-spin (scalar) coupling and chemical shifts, IR spectroscopy, simple and advanced mass spectroscopic techniques, stereochemistry, advanced NMR topics including advanced 1D and 2D NMR and correlation spectroscopies. Some consideration will also be given to the challenges associated with structure determination in biomolecules.

Enforced Prerequisite at Enrollment: (CHEM 210 or CHEM 210H) and Prerequisite or Concurrent: (CHEM 213 or CHEM 213W or CHEM 213M)

CHEM 431W: Organic and Inorganic Preparations

4 Credits

Preparation, purification, and characterization of both organic and inorganic compounds by modern methods. CHEM 431W CHEM 431W Organic and Inorganic Preparations (3) CHEM 431W is a one-semester, writing-intensive advanced laboratory course that focuses on the preparation, isolation, purification, and characterization of organic, organometallic, and inorganic compounds. Students are expected to use the techniques learned in the introductory organic chemistry laboratory and will learn more advanced techniques such as the use of air-free and anhydrous reaction conditions, glove bags, vacuum manifolds, vacuum distillations, flash chromatography, solvent stills, and gas-tight syringes. Molecular modeling techniques are also introduced. Students are given hands-on access to instrumentation for the characterization of synthetic products or organic unknowns using standard analysis methods such as IR, NMR, UV/V is spectroscopy, mass spectrometry, polarimetry, HPLC, GC and GC-MS. Students are expected to search the chemical literature using databases and online journals and to write formal lab reports in ACS style. The lab assignments include syntheses, separating an

unknown mixture, and a team project, which includes a written proposal, synthetic work, a final report, and a poster presentation.

Enforced Prerequisite at Enrollment: CHEM 213 or CHEM 213W or CHEM 213M
Writing Across the Curriculum

CHEM 432: Organic Reaction Mechanisms

3 Credits

The study, evaluation, and discussion of the mechanisms of selected organic reactions.

Enforced Prerequisite at Enrollment: CHEM 212 or CHEM 212H

CHEM 433: Industrial Medicinal Chemistry Lab

3 Credits

This course is designed to build upon synthetic organic chemistry lab skills in the context of medicinal chemistry, specifically drug development. Students will learn how the pharmaceutical industry approaches the design, synthesis, and testing of drug targets. This knowledge will be applied as students propose and design novel drug targets. The syntheses of these drug targets will be carried out and optimized. The targets will be tested via the appropriate studies and assays to study the targets' properties and bioactivities. Students will have regular interactions with an industrial medicinal chemist to report on their work progress. An electronic notebook will allow for collaborative work and remote feedback from the industrial chemist. The semester culminates with a tour to a pharmaceutical company where students present their semester work in a poster session to scientists at the company.

Enforced Prerequisite at Enrollment: CHEM 431

CHEM 440: Instrumental Analysis

3 Credits

This course presents analytical methods used in chemistry in a way that extends and complements the treatment in CHEM 227. Preliminary discussions will entail sample preparation for organic and inorganic samples, quantitative and qualitative measurements, sensitivity and limit of detection. Techniques addressed will cover the areas of separation, optical spectroscopy, mass spectrometry, electroanalytical techniques and surface analysis. Students are expected to learn how instruments produce signals and how to choose the appropriate technique for a particular analysis.

Enforced Prerequisite at Enrollment: CHEM 227

CHEM 441: Instrumental Analysis Laboratory

1 Credits

This laboratory course presents analytical methods used in the chemistry field in a way that extends and compliments the treatment in CHEM 440. Techniques addressed will cover the areas of separation, optical spectroscopy, mass spectrometry, electroanalytical techniques and surface analysis. Students are expected to learn how instruments produce signals and how to choose the appropriate technique for a particular analysis.

Enforced Prerequisite at Enrollment: CHEM 227. Prerequisite or Concurrent: CHEM 440

CHEM 446: X-Ray Crystallography

3 Credits

Theoretical and practical aspects of structure determination using x-ray diffraction, from crystal growth to structure solution. CHEM 446 X-Ray Crystallography (3) CHEM 446 introduces the student to the basic principles of molecular structure determination through the diffraction of X-rays by single crystals. The emphasis is on small organic, coordination and organometallic compounds. However the principles can provide the basis for extensions into disciplines ranging across geology, materials, molecular biology, and nanoscience. The course is organized in the same way that an actual crystal structure determination might proceed, with theoretical considerations introduced as needed. Techniques of crystal growth and selection are summarized. X-ray sources and instrumentation are described briefly. Unit cells, Miller planes, unit cell geometry and Bragg's law give rationale to the diffraction experiment. Space group symmetry is connected with data collection and the contents of the unit cell. Practical considerations of data collection and instrumentation are covered next. The theoretical description of structure factors and Fourier synthesis leads to consideration of solutions to the phase problem. The remainder of the course illustrates the process of structure solution using real data and software readily available to the students. All the details of publication of a crystal structure; the CIF, ORTEP figures and the format of the experimental section of most journals is described using actual student selected publications. Related structural techniques such as protein crystallography and molecular modeling may be reviewed time permitting.

Enforced Prerequisite at Enrollment: CHEM 210 or CHEM 210H

CHEM 448: Surface Chemistry

3 Credits

Surface chemistry, emphasizing the physical and chemical aspects of surfaces important for applications in colloids, catalysis, microelectronics and biocompatibility. CHEM 448 Surface Chemistry (3) introduces the student to the basic principles of the chemical behavior of surfaces with an emphasis on the fundamental aspects, including surface structure, bonding, thermochemistry and dynamical behavior. The course is intended to provide the basis for extensions into disciplines ranging across geology, materials, environmental engineering, biology, agriculture, physics and nanoscience. Fundamental concepts and relationships of the chemical behavior of organic and inorganic substances that the student has already learned in previous courses will be assembled, correlated and directed towards understanding the behavior of the special case of the surfaces and interfaces of liquids and solids. Starting from the basic principles the student will be guided to evolve a fundamental understanding and predictive ability for important man made and natural applications and phenomena of practical interest, including colloids, surface coatings, lubrication, heterogeneous catalysis, weather, geology, chemical sensing, microelectronics and biocompatibility.

Enforced Prerequisite at Enrollment: CHEM 212 and (CHEM 450 or CHE 220)

CHEM 450: Physical Chemistry - Thermodynamics

3 Credits

Introduction to physical chemistry with primary emphasis on chemical thermodynamics and its molecular interpretation. (Graduate credit not allowed for students majoring in Biochemistry and Molecular Biology, Chemistry, or Chemical Engineering.) CHEM 450 Physical Chemistry - Thermodynamics is a physical chemistry course that introduces students to chemical properties of matter and the fundamentals of chemical thermodynamics. The theoretical foundations of thermodynamic principles are covered and illustrated with a wide variety of examples from the sciences, engineering and technology fields. The course covers the following topics: gas laws, equations of state, the First Law of Thermodynamics, work and heat, internal energy, enthalpy changes, heat capacity, the Second Law of Thermodynamics, entropy and entropy changes, the Third Law of Thermodynamics, Helmholtz and Gibbs energies, phase stability and phase boundaries, phase diagrams, phase equilibrium, surface tension, capillary action, partial molar quantities, thermodynamics of mixing, chemical potential, solvent and solute activities, colligative properties, the phase rule, thermodynamics of two-component systems, chemical equilibrium, spontaneity of chemical reactions, the response of equilibria to experimental conditions, and equilibrium electrochemistry. Note: Students cannot receive credit for both CHEM 450 and CHE 320.

Enforced Prerequisite at Enrollment: CHEM 112 or CHEM 112H and MATH 141 and (PHYS 211 or PHYS 212). Students cannot receive credit for both CHEM 450 and CHE 320.

CHEM 451: Experimental Physical Chemistry I

1 Credits

CHEM 451 is a laboratory course designed to illustrate several of the principles of chemical thermodynamics presented in CHEM 450 and to demonstrate proper treatment and presentation of quantitative data. The experimental topics for this course include heat capacity ratio of gases, diffusion of gases, Joule-Thomson coefficients for gases, enthalpies of combustion, freezing point depression, and vapor pressures of liquids. Students will learn how to write quantitative laboratory reports complete with analysis of the uncertainties of the measurements they make. They will also learn how these uncertainties are propagated through each calculation that make use of the initial measurements. Students will become more aware of the importance of experimental design, proper use of instrumentation, and careful data collection.

Enforced Prerequisite or Concurrent at Enrollment: CHEM 450

CHEM 452: Physical Chemistry - Quantum Chemistry

3 Credits

Introduction to physical chemistry with primary emphasis on molecular structure, spectroscopy, and chemical kinetics. (Graduate credit not allowed for students majoring in Biochemistry and Molecular Biology, Chemistry, or Chemical Engineering.) CHEM 452 Physical Chemistry - Quantum Chemistry (3) is an introductory physical chemistry course that covers quantum chemistry and atomic and molecular spectroscopy. If time permits other topics may include chemical kinetics, statistical thermodynamics, nuclear magnetic resonance, and electron spin resonance spectroscopy. Quantum chemistry topics covered are Schrodinger's equation, the particle in a box, in a ring, on a spherical surface, the free particle, barrier penetration, the harmonic oscillator,

the hydrogen atom, electron spin and multi-electron atoms, molecular structure and symmetry will be covered. Spectroscopy topics are atomic spectra, and the microwave, infrared, and visible spectra of molecules. Chemical kinetics may include rate laws, mechanisms, chain reactions, polymerization reactions, catalysis, molecular reaction dynamics (collision theory and activated complex theory), and nature of potential energy surfaces for reactions.

Enforced Prerequisite at Enrollment: CHEM 112 or CHEM 112H and (PHYS 211 or PHYS 212) and MATH 141. Recommended Preparation: MATH 231 or MATH 230

CHEM 453: Experimental Physical Chemistry II

1 Credits

CHEM 453 is a laboratory course designed to illustrate several of the principles of chemical kinetics and quantum mechanics presented in CHEM 452, and to demonstrate proper treatment and presentation of quantitative data. The experimental topics for this course include kinetics of decomposition and hydrolysis reactions, and different spectroscopic techniques such as ultra violet-visible, infrared, emission and nuclear magnetic resonance spectroscopies. Students will learn how to write quantitative laboratory reports complete with analysis of the uncertainties of the measurements they make. They will also learn how these uncertainties are propagated through each calculation that make use of the initial measurements. Students will become more aware of the importance of experimental design, proper use of instrumentation, and careful data collection.

Enforced Prerequisite or Concurrent at Enrollment: CHEM 452

CHEM 457: Experimental Physical Chemistry

1-2 Credits/Maximum of 2

Laboratory experiments designed to illustrate the principles of physical chemistry and teach techniques of error analysis and the presentation of quantitative data. (Graduate credit not allowed for students majoring in Biochemistry and Molecular Biology, Chemistry, or Chemical Engineering.) CHEM 457 CHEM 457 Experimental Physical Chemistry (2) CHEM 457 is a laboratory course designed to illustrate some of the principles of physical chemistry presented in CHEM 450 and 452 and to teach proper treatment and presentation of quantitative data. In this course, students will learn how to write quantitative laboratory reports complete with analysis of the uncertainties of the measurements they make. They will also learn how these uncertainties are propagated through each calculation that make use of the initial measurements. In doing so, students should become more aware of the importance of experimental design, proper use of instrumentation, and careful data collection.

Enforced Prerequisite or Concurrent at Enrollment: CHEM 450 or CHE 320

CHEM 459W: Advanced Experimental Physical Chemistry

4 Credits

Laboratory experiments and projects for students interested in advanced study in physical chemistry. CHEM 459W Advanced Experimental Physical Chemistry (4) CHEM 459W Advanced Experimental Physical Chemistry is a project-based course designed as a follow-up to CHEM 457. CHEM 459W provides students with further experience in laboratory techniques used for quantitative experimentation and with the processing and interpretation of quantitative data. Experiments and short research projects are designed to complement the theoretical knowledge

acquired in lecture courses so as to enhance students' competence in problem solving in a research environment. Particular attention will be devoted to written communication of experimental results in an effective and concise manner according to American Chemical Society journal standards.

Enforced Prerequisite at Enrollment: CHEM 450 and CHEM 457 and Prerequisite or Concurrent: CHEM 452 Writing Across the Curriculum

CHEM 464: Chemical Kinetics and Dynamics

3 Credits

Introduction to chemical kinetics and molecular dynamics. CHEM 464 CHEM 464 Chemical Kinetics and Dynamics (3) CHEM 464 is a one-semester course that introduces students to chemical kinetics and molecular dynamics, the branch of chemistry concerned with the rates of chemical reactions and the microscopic details of how reactions occur. The course covers old and new experimental, theoretical, and computational methods for kinetics and dynamics. Example systems are chosen from a variety of application including gas-phase reactions, reactions in solution, atmospheric chemistry, and reactions in biological systems. Topics covered are: basic concepts, phenomenological treatments, mechanisms, chain reactions, potential energy surfaces, collision theory, transition state theory, analysis, reactions of surfaces, photochemistry, molecular beams, Monte Carlo methods, molecular dynamics, energy requirements for reaction, and energy disposition.

Enforced Prerequisite at Enrollment: (CHEM 450 or CHE 220) and CHEM 452

CHEM 466: Molecular Thermodynamics

3 Credits

Introduction to physical chemistry with a primary emphasis on the statistical and molecular interpretation of thermodynamics. CHEM 466 CHEM 466 Molecular Thermodynamics (3) CHEM 466 is a physical chemistry course that emphasizes the statistical and molecular interpretation of thermodynamics. This focus enables the student to consider macroscopic properties based on the constituent molecular properties. After a very brief introduction to classical thermodynamics, the statistics of large systems is introduced, used to develop the Boltzmann distribution of energies and then combined with the quantum mechanical structure of energy levels to form a basis to predict and understand atomic and molecular properties such as heat capacity and chemical reaction equilibrium. Solution thermodynamics, interfacial phenomena and colligative properties are discussed in terms of lattice models. The course then turns to a molecular view of transport and chemical reaction rates. Molecular transport is described in terms of random molecular motion and intermolecular forces that tie together to give macroscopic behavior such as ionic conductivity and mass diffusion. Reaction rates are formulated in terms of the distributions of energies and statistical probabilities of the combined reactants in a transition state. Cooperativity in phase transitions is discussed, followed by adsorption and catalysis. Examples with proteins and other biomolecules, as well as polymers and various solutions, appear throughout the course.

Enforced Prerequisite at Enrollment: CHEM 450 or CHE 220

CHEM 468: Molecular Spectroscopy

3 Credits

It is said that there are more than nine million organic chemical compounds. If you add to this list, inorganic complexes, composite materials such as alloys, minerals, and intermediate species like radicals and transition states, the list becomes truly monstrous. Also, the number of properties that interest scientists and engineers is vast (although modest compared to the above). A fascinating aspect of science is that it reveals a small number of general principles that govern the huge number of substances and their reactivities and properties. One powerful tool in the chemist's toolbox is Spectroscopy, which allows us to identify and monitor molecules at stages prior, during, and post reaction. Spectroscopy has allowed chemists to generalize many aspects of molecular behavior in a wide assortment of environments, ranging from vacuum to physiological conditions. In this course, condensed-phase spectroscopy will be emphasized, and we will focus largely on how the tools of molecular spectroscopy can be used to describe interactions between molecules and their surroundings. These interactions can have broad chemical consequences, which include changing molecular polarizabilities and reaction energetics. Therefore, the outcomes of condensed-phase chemical processes are largely influenced by these molecule-surroundings interactions. In this context, we will address important questions of how solvents modify molecular spectroscopic signals, and how these changes can be used for understanding chemical processes. We will begin by describing the properties of electromagnetic radiation and the absorption and emission of light by molecules. In particular, we will introduce, discuss, and apply the concepts of eigenvalues, eigenfunctions, and superpositions of molecular electronic and vibrational states. We will demonstrate how these concepts can be used to predict spectra for isolated (i.e. gas-phase) molecules. We will then extend these concepts to understand how solvents and other environmental influences impact these spectra. Another focus of the course will include explanations of how specific experimental techniques, such as transient and photoluminescence spectroscopy, can be used to understand the efficiencies of specific chemical transformations (e.g. isomerization, electron and proton transfer, dissociation), which are central to reactions in chemical, biological, and materials environments. We will also discuss recent experimental advances that have expanded the spatial, temporal, and energy resolutions of spectroscopic measurements.

Enforced Prerequisite at Enrollment: CHEM 452

CHEM 472: General Biochemistry I

3 Credits

Basic structure and function of cellular components; principles of enzyme kinetics and regulation. CHEM 472 General Biochemistry I (3) CHEM 472 will serve as an introductory course in biochemistry. The course will begin with a review a number of chemical concepts applicable to biochemistry including molecular interactions, acid-base reactions, buffers, titrations and basic thermodynamic and kinetic concepts. The focus will then shift to a discussion of the structures of the biomolecules that make up living matter including carbohydrates, lipids, membranes, proteins, and enzymes, emphasizing the relationship between chemical structure and biological function.

Enforced Prerequisite at Enrollment: CHEM 212 or CHEM 212H

CHEM 476: Biological Chemistry

3 Credits

Fundamentals of Biochemistry for Chemists. Students cannot receive credit for both CHEM 476 and BMB 401. CHEM 476 Biological Chemistry (3) This course is designed to be an introduction to biological chemistry from a chemistry student's perspective. The course will cover the basics of protein, nucleic acid, lipid and carbohydrate structure. The three-dimensional structural aspects of these biological macromolecules will be emphasized, showing their structure-function relationships. The course will also cover some of the chemical logic in enzymatic reactions, drawing from advanced organic and inorganic chemistry concepts, and include a focus on physical processes such as reaction kinetics and binding equilibria. More advanced topics of interest to chemistry students will also be covered, including the biochemical aspects of drug design and discovery. Throughout, the approach will be to introduce the analytical tools that have led to major advances in biochemistry as well as the physical and chemical principles underlying each topic. The course will follow a textbook designed for chemistry students. It will also include reading assignments of several types, including historical papers and current scientific literature dealing with recent advances in the field. The course also includes assignments that require students to familiarize themselves with modern biochemical databases such as those from the National Center for Biotechnology Information.

Enforced Prerequisite at Enrollment: (CHEM 212 or CHEM 212H) and CHEM 450

CHEM 480: Chemistry and Properties of Polymers

3 Credits

This course will be an introduction to the chemistry and properties of polymers. Topics will include in-depth focus on polymerization mechanisms and kinetics (radical, anionic, cationic; ring opening polymerization, coordination polymerization; copolymerization), methods for polymer characterization, structure-property relationships in polymers (especially how the chemical structure affects mechanical and thermal properties), and overview of key chemical processing methods for polymers. Some special topics will also be included, such as conducting polymers for electronics, polymers for biomedical applications, the chemistry/processing of photo resists for photolithography and multiphoton lithography, and 3D printing.

Enforced Prerequisite at Enrollment: CHEM 210 or CHEM 210H

CHEM 491: Instructional Practice

1-2 Credits/Maximum of 3

CHEM 491 Instructional Practice (1-2). Students will participate on an instructional team in the teaching of an undergraduate chemistry laboratory or lecture course. Students in CHEM 491 will gain experience in science education and professional development by participating in either lecture or laboratory courses. The goal of this course is to make students more effective as facilitators, teachers, leaders, and communicators in their chosen careers. Participation in instruction will include working with a team, preparation and presentation of class materials, completion of an individual project, facilitation of student discussions, promotion of a motivating and inclusive course climate, and teaching of course principles and learning objectives.

Enforced Concurrent at Enrollment: SC 220

CHEM 494: Chemical Research

1-10 Credits/Maximum of 20

Experimental investigation of an original research problem. Preparation of a formal thesis is optional. (Credit not allowed for graduate students in Biochemistry, Chemistry or Chemical Engineering.)

CHEM 494H: Chemical Research

1-10 Credits/Maximum of 20

Experimental investigation of an original research problem. Preparation of a formal thesis is optional. (Credit not allowed for graduate students in Biochemistry, Chemistry or Chemical Engineering.)

Honors**CHEM 495: Internship**

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: Prior approval of proposed assignment by instructor

CHEM 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

CHEM 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

CHEM 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Child Maltreatment and Advocacy Studies (CMAS)

CMAS 258N: Introduction to Child Maltreatment and Advocacy Studies

3 Credits

Introduction to the multidisciplinary field of child maltreatment. CMAS (HD FS) 258 Introduction to Child Maltreatment and Advocacy Studies (3) This course will focus on the identification, investigation, service, advocacy, prosecution, and prevention of child maltreatment as well as the treatment of adverse health outcomes for children who have been maltreated. Specific topics include the causes, correlates, and consequences of child maltreatment, best practices for reporting and investigating an allegation of child maltreatment, evidence-based prevention and intervention programs, the Child Welfare System, and

relevant legal issues (e.g., termination of parental rights, children's testimony in court, etc.). By definition, this course will detail issues related to the abuse and neglect of children. This material can be difficult to hear, view, and discuss. This course is a required course, and a prerequisite for all advanced courses, for a Minor in Child Maltreatment and Advocacy Studies.

Cross-listed with: HDFS 258N, SOC 258N

General Education: Health and Wellness (GHW)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

CMAS 465: Child Maltreatment: Prevention and Treatment

3 Credits

Advanced examination in approaches for preventing child maltreatment and treating its consequences. HD FS (CMAS) 465 Child Maltreatment: Prevention and Treatment (3) Child maltreatment, including physical abuse, sexual abuse, emotional abuse, and neglect, is a highly prevalent condition affecting nearly one million children each year in the United States alone. This course will delineate the long-term health consequences affecting those who have experienced child maltreatment with an emphasis on those outcomes exerting the greatest impact on overall public health throughout the lifespan. Importantly, a focus on the etiology of such health consequences in the child maltreatment population will be made in order to understand the causal pathways leading to these health consequences. This focus on etiology will serve as a segue into the remaining sections of this course, specifically the prevention and treatment of child maltreatment and its consequences. Universal and targeted prevention programs, where the focus is to prevent an initial instance of child maltreatment from occurring, will be detailed, as will tertiary prevention programs, where the focus is on preventing a re-occurrence of child maltreatment. Similarly, prevention of adverse health outcomes for those affected by child maltreatment will also be covered. Finally, evidenced-based interventions applied with children who have been maltreated and are currently experiencing clinical levels of impairment (e.g. post-traumatic stress disorder) will be detailed. Identification and rehearsal of treatment components commonly used in prevention and clinical intervention programs will be emphasized. Students successfully completing this course will have direct knowledge of the consequences of child maltreatment and the established methods used in prevention and intervention programs applied with this population.

Enforced Prerequisite at Enrollment: CMAS 258N or HDFS 258N or SOC 258N

Cross-listed with: HDFS 465

CMAS 466: Systems and Community Responses

3 Credits

An exploration of the multidisciplinary response to child maltreatment. CMAS 466 / NURS 466 Systems and Community Responses (3) An exploration of the multidisciplinary response to child maltreatment. The roles, responsibilities, and interconnected relationships between the systems that interact when responding to child maltreatment issues will be analyzed. The forensic medical response, challenges, and multidisciplinary team best practices to child maltreatment case are examined. Students will explore responses and best practices within the

health care, judicial, child protection, social service, educational, mental health, human service, and community systems. This course provides students with the opportunity to work with a variety of majors and understand more clearly the interdisciplinary nature of child maltreatment prevention, advocacy, and response.

Recommended Preparation: CMAS 258

Cross-listed with: NURS 466

CMAS 493: Child Maltreatment and Advocacy Studies: Capstone Experience

1-3 Credits/Maximum of 3

This course serves as the capstone experience for students enrolled in the Child Maltreatment and Advocacy Studies minor.

Enforced Prerequisite at Enrollment: CMAS 258N or HDFS 258N or SOC 258N Enforced Concurrent at Enrollment: (CMAS 465 or HDFS 465) and (CMAS 466 or NURS 466)

Cross-listed with: EDPY 493

Chinese (CHNS)

CHNS 1: Level One Chinese A

4 Credits

Introductory study of Chinese language, with audio-lingual practice of Mandarin Chinese and attention to structure and the writing system.

Bachelor of Arts: World Language (All)

CHNS 2: Level One Chinese B

4 Credits

Continued audio-lingual practice of Mandarin Chinese, further study of structure, practice in reading and writing Chinese.

Prerequisite: CHNS 001

Bachelor of Arts: World Language (All)

CHNS 3: Level Two Chinese A

4 Credits

Continued audio-lingual practice of Mandarin Chinese, more extensive practice in reading and writing; study of Chinese culture.

Prerequisite: CHNS 002

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

CHNS 97: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

CHNS 99: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

CHNS 110: Level Two Chinese B

4 Credits

Readings in selected modern Chinese literature (short stories, plays, essays, poems) and other texts; practice in conversation and simple composition. CHNS 110 Conversation, Reading, and Composition (4) (IL) (BA) This course meets the Bachelor of Arts degree requirements. As the fourth course in the Chinese language series, CHNS 110 continues to focus on the four skills of listening, speaking, reading, and writing. It intends to introduce students to frequently-used grammatical constructions in the Chinese language and to give students an active vocabulary of about 800 words. Building on the skills students acquired in Chinese 001 to 003 (the prerequisites to Chinese 110), this course expands their knowledge of the language and cultures of the Chinese-speaking peoples in China, Hong Kong, Taiwan, and around the world. To that end, there are both language-learning objectives and socio-cultural ones in this course. About 85% of the class time will be spent in language learning and about 15% in cultural issues. Research indicates that the more knowledge students have about the context in which the target language is used, the higher their overall linguistic proficiency level will be. To facilitate students' learning of Chinese culture, CHNS 110 also incorporate into the curriculum a variety of culture-related activities, including interviewing native speakers, film screening, calligraphy workshops etc. Class activities include group discussion, mini-presentations, and in-class conversation practice. Evaluation will be through means such as vocabulary and sentence pattern quizzes, weekly journals and reaction papers, chapter exams, in-class oral presentations, writing assignments, and a final oral interview with instructor. Chinese 110 counts towards the Chinese minor and may also fulfill other requirements, such as providing credits towards the major in Comparative Literature or the major in Asian Studies- check with advisors in those majors.

Prerequisite: CHNS 003

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

International Cultures (IL)

Exceeds 12th Unit of World Language

CHNS 120: Introduction to Chinese Literature and Culture

3 Credits

This course provides an introduction to Chinese cultural production from ancient times to the postmodern era, with an emphasis on literature. In its more recent segments, the course will include film as well as considerations of Chinese cultures in the Chinese diaspora (such as the United States) and throughout the Chinese-speaking world. Students will learn about major eras of Chinese literature and the diversity of Chinese cultures in such locations as mainland China, Taiwan, Hong Kong, and the worldwide Chinese diaspora. Readings will represent several genres, such as poetry, folktale, short story, novel, prose fiction, drama, and historical annals. Through this course students can develop a historical and cultural perspective in order to understand the contexts and value systems that have inspired literary works. Students will investigate such topics as the relation between social institutions and the individual, the traditional patriarchal system, the changing roles of women, westernization, and post modern consumer culture, among others. Students will read literature and related materials from different periods, with examples from other media such as films where

appropriate. Class work may include lectures or presentations by the instructor and student participation through means such as guided discussions, group discussions, and students' presentations. This participatory approach is intended to deepen students' appreciation of the texts, to help them understand value systems that may differ from, or else be shared with, those predominant in modern Western cultures, and to assist students in developing analytical and expressive abilities. CHNS 120 is designed to be suitable for all students generally interested in China and the Chinese-speaking world, or interested in literature and other fields of humanistic study, whether or not they have previously studied Chinese culture. All materials will be available in English. Taught in English.

Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Key Literacies

CHNS 121N: Chinese Film and New Media

3 Credits

Survey of Chinese film and new media in the twentieth century and beyond, with attention to changing cultural settings. Taught in English. CHNS 121N Chinese Film and New Media (3) (GH;GA;IL) (BA) This course meets the Bachelor of Arts degree requirements. This is intended to provide an introduction to modern and cutting-edge forms of cultural production in the Chinese-speaking world from the twentieth century to the present day. Prior study of China is not required and materials will be available in English. Students will learn about major technologies and forms of media, including film, TV, and various forms of new media (cell-phone novels, blogs, MMOGs, IM, and Web 2.0 for instance). Readings and screenings will cover several artistic modes including formalism, historiography, documentary, period drama, and experimental works. The course, or individual units within the course, will be structured so that students develop an historical perspective, allowing them to understand the cultural contexts that have inspired the creative works under study. By examining Chinese-language film and new media with attention to changing cultural settings, students will investigate such topics as the relation between social institutions and the individual, the formation and expression of identity, changing gender roles and family structures, the impact of technological and economic trends on social structure, and changing climates of censorship and freedom of expression. In addition, students will learn to think critically about various media's techniques and aesthetics of representation, and will become more engaged, critical spectators of film and related media. Class work includes some lecture but emphasizes guided discussions, group work, writing exercises, and some student presentations. This participatory approach is intended to deepen students' appreciation of the works, to help them understand value systems that may differ from those predominant in western cultures, and to assist students in developing both analytical and expressive abilities. Through critical reading, group discussion and interpretive writing, students will hone skills for evaluating modes of cultural production and consumption in the Chinese-speaking world. The course is designed to be suitable for all students generally interested in China, or interested in various fields of humanistic study, whether or not they have previously studied Chinese culture. It is designed to count as General Education and as a B.A. "Other Cultures" course. This course will be taught in the active-learning mode, featuring a variety of instructional components such as lecture, discussion, oral presentations, web-based

activities, etc., to provide students abundant opportunity for expressing their opinions. As a general education course, all versions will include writing, speaking, self-expression; information gathering, synthesis, and analysis; and international/intercultural components.

Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Arts (GA)
 General Education: Humanities (GH)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Key Literacies

CHNS 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

CHNS 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

CHNS 295: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Prerequisite: prior approval of proposed assignment by instructor

CHNS 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

CHNS 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

CHNS 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

CHNS 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

CHNS 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

CHNS 401: Level Three Chinese A

4 Credits

Emphasis on oral proficiency through discussions of aspects of contemporary Chinese culture. CHNS 401 Advanced Conversation (4) (IL) (BA) This course meets the Bachelor of Arts degree requirements. This course aims to enhance students' abilities in speaking, listening, reading, and writing. The objectives in this course are: 1) to review, reinforce, and expand the basic grammar, 2) to expand knowledge of characters, vocabulary and idioms, 3) to be able to speak not only in single sentences, but in dialogues to perform basic communicative functions, 4) to be able to read and understand simple essays and stories, 5) to be able to write short compositions.

Prerequisite: CHNS 110

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

International Cultures (IL)

Exceeds 12th Unit of World Language

CHNS 402: Level Three Chinese B

4 Credits

Readings in representative works of traditional and modern literature; practice in composition; study of aspects of Chinese culture.

Prerequisite: CHNS 401 or EQUIVALENT

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

Exceeds 12th Unit of World Language

CHNS 403M: Level Four Chinese A

4 Credits

Continuation of CHNS 402. Aims to improve students' proficiency in all four language skills, with a special emphasis on writing. CHNS 403W Level Four Chinese A (4) This is a four credit course designed for those who have completed Level Three Chinese B or the equivalent. The course aims to further develop students' proficiency in all four language skills, with a special emphasis on writing. Students will study several topics on current social issues in modern Chinese society, such as education and housing issue, woman's status, through a selected textbook, news reading, and by interviewing native speaker of Chinese from different regions. Via all the debatable topics, students will be guided to explore and practice various writing styles, such as description, narration, argumentation, and expository writing throughout the semester. Comparison of rhetorical strategies between Chinese and English writing will also be introduced to help students think and write more like a native when using the target language. The majority of reading and writing assignments will be done outside of class, with some guidance from the instructor. Class time will be used mainly for discussions of content, feedback on writing. All class activities will be conducted in Chinese.

Writing exercises include short response papers on topics, summarizes of the readings, and short essays. Through the writing exercises, students will reflect more deeply on certain topics, synthesize information from course materials, provoke critical thinking and express their opinions and support ideas by referring to and citing from source texts. This will help students be prepared for a longer thesis in the next course in the sequence. This course will help students further advance their writing skills by continuously building their vocabulary, understanding the target culture, and its social issues through various sources of structured and authentic materials. Students will also write a resume and formal letter that help them start building their career in Chinese.

Honors

Writing Across the Curriculum

CHNS 403W: Level Four Chinese A

4 Credits

Continuation of CHNS 402. Aims to improve students' proficiency in all four language skills, with a special emphasis on writing. CHNS 403W Level Four Chinese A (4) This is a four credit course designed for those who have completed Level Three Chinese B or the equivalent. The course aims to further develop students' proficiency in all four language skills, with a special emphasis on writing. Students will study several topics on current social issues in modern Chinese society, such as education and housing issue, woman's status, through a selected textbook, news reading, and by interviewing native speaker of Chinese from different regions. Via all the debatable topics, students will be guided to explore and practice various writing styles, such as description, narration, argumentation, and expository writing throughout the semester. Comparison of rhetorical strategies between Chinese and English writing will also be introduced to help students think and write more like a native when using the target language. The majority of reading and writing assignments will be done outside of class, with some guidance from the instructor. Class time will be used mainly for discussions of content, feedback on writing. All class activities will be conducted in Chinese. Writing exercises include short response papers on topics, summarizes of the readings, and short essays. Through the writing exercises, students will reflect more deeply on certain topics, synthesize information from course materials, provoke critical thinking and express their opinions and support ideas by referring to and citing from source texts. This will help students be prepared for a longer thesis in the next course in the sequence. This course will help students further advance their writing skills by continuously building their vocabulary, understanding the target culture, and its social issues through various sources of structured and authentic materials. Students will also write a resume and formal letter that help them start building their career in Chinese.

Prerequisite: CHNS 402

Writing Across the Curriculum

CHNS 404: Level Four Chinese B

4 Credits

Continuation of CHNS 403W. Aims to improve students' proficiency in all four language skills through content-based language learning. CHNS 404 Level Four Chinese B (4) This is a four credit course designed for those who have completed Level Four Chinese A or the equivalent. The course aims to further develop students' proficiency in all four language skills. Students will study several topics on current social issues in contemporary Chinese society. For example, economic spurt in China, environmental protection, values conflict between traditional

Chinese culture and Western culture, etc. Students will learn those topics via a textbook, interviewing native speakers of Chinese from different regions, and variety of media, such as newspaper, TV news, and movie. The majority of reading and writing assignments will be done outside of class, with some guidance from the instructor. Students will be guided to use appropriate resources such as dictionaries, reference books, online dictionaries and other online resource to facilitate their learning. Class time will be used mainly for discussion of content, feedback on writing, and presentations by students. All class activities will be conducted in Chinese. Students will be mainly evaluated by writing exercises and presentations. Writing exercises include short response papers on topics, summaries of the readings, short essays and a final thesis. Through the writing exercises, students will reflect more deeply on certain topics, synthesize information from course materials, provoke critical thinking and express their opinions and support ideas by referring to and citing from source texts. Presentations include debates, individual and group presentation, which will help students advance their communication and presentational skills. E-portfolio will sample the work students have done in the course.

Prerequisite: CHNS 403W

CHNS 410: Chinese Through Film

3 Credits

This course is designed for students who finish Level Two Chinese or higher and aims to help them develop Chinese proficiency through movies. CHNS 410 Chinese Through Film (3) (IL)(BA) This course meets the Bachelor of Arts degree requirements. This course aims to provoke students' critical thinking on China-related issues and improve their Chinese language proficiency by encouraging them to reenact and remake selected scenes from the movies, investigate and discuss the social issues as shown from the movies. This is a three credit course designed to go beyond the day-to-day topics to further develop students' understanding of the social issues in contemporary China and thus enhance their Chinese language proficiency. Through watching movies in Chinese, students will listen to authentic Chinese and expose to broader aspects of Chinese people's lives and Chinese society. In addition, they will have opportunities to conduct culture comparisons between China and the U.S., East and West, which will enable them to make in-depth analysis when examining a complex social, political or economic issue in China. The follow-up class activities include both speaking and writing assignments. Depending on the topics, speaking assignments may include: reenactment or recreation of a selected scene from the movies, class or group discussions, debates and presentations. Writing assignments may include: writing a new story or different ending for the movies, and reflection essays.

Prerequisite: CHNS 110 or equivalent
Bachelor of Arts: Humanities
International Cultures (IL)

CHNS 411: Chinese Written Characters

3 Credits

This course aims to establish a solid foundation of students' Chinese orthography and prepare students for continuing study in subsequent Chinese courses. CHNS 411 Chinese Written Characters (3) (IL)(BA) This course meets the Bachelor of Arts degree requirements. This course aims to equip students' knowledge and skills of Chinese orthography through both cognitive and meta-cognitive approach of learning, where it is expected to lay a solid foundation for students' continuing study of

subsequent Chinese language courses. Students will learn and apply radical and component-building approach to synthesize their already-acquired characters, and further learn approximately 500 additional characters. Characters selected for study in this course are based upon the references of HSK (Hanyu Shuiping Kaoshi) Level V and TOP-Huayu (Test of Proficiency- Huayu) Intermediate level. Building upon these characters, students will further expand their vocabulary volume through character association strategy and extensive reading. Cooperative learning approach will be largely incorporated to promote in-class active learning, such as developing and sharing character learning strategies through keeping learning journal, group reading, discussing cultural connotations of selected amount of characters, etc. Students will also learn the origin, history and evolution of Chinese characters through textbook reading and multimedia materials learning, such as DVD and You Tube video clips that help visualize the evolution process of selected characters for demonstration. Instructional Objectives (what the student is expected to learn; what skills s/he will develop): 1. Understand the origin, history and evolution of Chinese characters 2. Develop and apply strategies on learning Chinese characters 3. Familiarize with available resources that assist Chinese characters learning and memorizing 4. Strengthen and synthesize students' existing knowledge of Chinese orthography 5. Learn approximately 500 new characters 6. Expand vocabulary volume derived from the acquired characters 7. Expand reading experience by reading semi-authentic and authentic articles that are constituted of the acquired characters 8. Strengthen listening and speaking skills of the target language through intensive in-class discussions and lectures

Prerequisite: CHNS 110 or the equivalent
International Cultures (IL)

CHNS 412: Business Chinese

3 Credits

This is a three-credit course designed for those who have completed Level Two Chinese or the equivalent. Business knowledge is presented as a means to facilitate language learning, while the content-based materials enhance cultural awareness. Emphasis will be given to helping students gain the linguistic skills that characterize advanced level second language learners, especially linguistic conventions essential to functioning in business environments. Real cases involving successful multinational Chinese and foreign companies and issues such as marketing, branding, mergers and acquisitions, OEM, and international expansion will be used as texts. The selected textbook is in Chinese with English explanations, but students will be guided through in-class discussions in Chinese. Approximately 80% of the instructional language will be conducted in Chinese. This course is designed to give students exposure to China's vibrant business scene and to enhance both their Chinese skills in the business context and their understanding of the social and cultural aspects of "doing business" in China and the impact of Chinese economy in the globalization era. Students will discuss real business cases from multinational companies that have successfully entered the Chinese market and from large Chinese corporations that have been successful in the global market, especially in the United States. By reading, discussing, and performing communicative tasks related to those cases, students will learn how to use Chinese as a "carrier of culture", thus acquiring a better understanding of China in economic and cultural terms. In addition to the business case analysis, supplementary reading, writing and listening exercises as well as media materials, such as clips of Chinese talk shows and television interviews, will also be provided. Highlights of these exercises are: listening comprehension of business news reports on current issues;

analysis of the Chinese financial market; discussion of Chinese business laws, translation of business terms and documents, and commercial language and word processing. Students are supported and guided through the course as they develop the skills they need to continue learning on their own. Students are encouraged to explore and keep up to date with new developments in China's economy through their own efforts, thus developing an independent learning style and connecting classroom learning to the real world.

Prerequisite: CHNS 110

CHNS 414: Chinese Language, Culture and Society

3 Credits/Maximum of 3

The study of Chinese language and culture and a perspective on the way of life in contemporary Chinese society. Through this course, the students are introduced to a cognitive approach to the study of Chinese language and culture and a broad perspective on the Chinese way of life in contemporary Chinese society. In particular, we will study how the interaction between Chinese language and culture frames the worldview of Chinese speakers, how the usage of the Chinese language manifests the underlying conceptual structure, which in turn is shaped by the physical (including bodily) and cultural experience of its speakers, and how conventional usage of linguistic expressions of Chinese reflects, and possibly influences, the ways in which Chinese speakers see or conceptualize the world. We will focus on conventionalized expressions, which include compound words, idiomatic phrases, and proverbial sayings, in the Chinese language, and study the Chinese conventional ways of talking about reality, both external and internal, as windows into Chinese culture and cognition. More generally, we will try to understand the embodied nature of human cognition as we see how abstract thought is grounded in bodily experience in and with the physical and cultural world. We will also look at various domains of life in contemporary China in order to gain a better understanding of Chinese society. The objectives of this course are threefold: (1) to lead Chinese language students to a linguistic approach to language analysis so that they learn about how individual linguistic expressions fit into a coherent linguistic system; (2) to enable them to see how linguistic structures reflect underlying cognitive, conceptual structures which are derived from the interplay between human embodiment and cultural environment; and (3) to provide them with a broad perspective on contemporary Chinese society.

Prerequisites: ASIA 4; ASIA 100; ASIA 101; ASIA 102; ASIA 175; CMLIT 4; HIST 175; CHNS 120; CHNS 121; 5th Semester standing
Cross-listed with: ASIA 414
Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures
International Cultures (IL)

CHNS 415: China Beyond China

3 Credits

Study of modern and contemporary Chinese culture in its diversity and its intercultural contexts. CHNS 415 China Beyond China (3) (IL) In order to begin to understand Chinese culture, we cannot treat it as a monolithic, unified whole. This course will give an introduction to modern and contemporary Chinese culture (focusing on the 20th and 21st centuries) by paying special attention to China's inner diversity, as well as the continuous shaping of Chinese culture in contact, dialogue, and tension with other cultures. Through the study of literary texts, films, and other cultural material - as well as a small number of theoretical essays - this course will focus on: 1) Chinese culture in its variety by

focusing on Chinese cultural spheres beyond the People's Republic (Taiwan, Hong Kong), the Chinese diaspora, as well as other ethnicities and cultures within Mainland China; and 2) the ways in which Chinese modernity was impacted by intercultural impulses, as well as the recent self-representation of China in the context of globalization. Course Objectives include: 1. Understand modern and contemporary China in its cultural diversity, as well as shaped by intercultural and global processes. 2. Critically analyze processes of cultural contact and the representations of cultural differences. 3. Think critically about globalization with its impact on such categories as the local and the national. 4. Question your assumptions about the world, re-examine your own points of view, and understand cultures and value systems that may differ from (or be shared with) your own.

Prerequisite: ASIA 4; ASIA 100; ASIA 101; ASIA 102; ASIA 175; CMLIT 4; HIST 175; CHNS 120; CHNS 121; 5th Semester standing
Cross-listed with: ASIA 415
Bachelor of Arts: World Cultures
International Cultures (IL)

CHNS 416: Gender and Sexuality in China

3 Credits

Study of gender roles and the imaginary of sexuality in the literary, filmic, and artistic production of modern China. CHNS 416 Gender and Sexuality in China (3) (IL) This course explores gender roles and the imaginary of sexuality in the literary, filmic, and artistic production of modern China (from the end of the 19th century up to today), paying attention also to developments in Chinese cultural spheres beyond the People's Republic, such as Taiwan, Hong Kong, and the Chinese diaspora. This course will use the representation of gender, sex, and sexuality as a lens through which modern and contemporary Chinese culture can be understood in its historical, social, and aesthetic changes. The analysis of representations of gender and sexuality throughout the class will focus on literary and filmic texts, as well as art, rather than on theoretical work on gender and sexuality (in China or in general). Course Objectives include: 1. Critically assess the complex construction of gender roles and sexuality in modern and contemporary Chinese literature and film. 2. Reflect critically on different ways of understanding and representing gender difference. 3. Critically assess the connections between gender and sexuality and changing political, historical, and cultural contexts. 4. Question your assumptions about gender and sexualities in the context of cultural difference, understand cultures and value systems that may be different from (or be shared with) your own.

Prerequisite: ASIA 4; ASIA 100; ASIA 101; ASIA 102; ASIA 175; ASIA 183; CMLIT 4; HIST 175; CHNS 120; CHNS 121; HIST 183; 5th Semester standing
Cross-listed with: ASIA 416
Bachelor of Arts: World Cultures
International Cultures (IL)

CHNS 417: The Warrior, the Courtesan and the Ghost in Classical Chinese Novels

3 Credits

This course provides an introduction to major classical Chinese novels by focusing on three character types: the warrior, the courtesan, and the ghost. CHNS 423 417 The Warrior, the Courtesan and the Ghost in Classical Chinese Novels (3) (IL) A narrowly defined notion of modern literature is a relatively recent phenomenon that dates back only to the early twentieth century in the Chinese context. There is, however,

a long tradition of the vernacular novel that remains influential till today, in spite of its marginalization by the Western-influenced Chinese Enlightenment project. This course provides an introduction to major classical Chinese novels by focusing on three character types: the warrior, the courtesan, and the ghost. The warrior is commonly found in historical romances, tales about errant knights and assassins, and martial arts fiction. Although the typical setting for the courtesan is in novels about prostitution (Xia Xie Xiaoshuo), this course will relate this figure to other female types in various domestic space, thereby tracing the genealogical connections between the domestic fiction and the courtesan fiction. The ghost can be found in Accounts of the Strange (Zhi Guai) and Tales of the Miraculous (Chuan Qi). This course will relate this figure in these narrative genres with other types of the supernatural being, such as Gods and Demons. Most readings will be drawn from the Mind-Qing period (14th -20th c) but modern and contemporary literature as well as visual or media culture that consciously continue or rewrite these narrative traditions will be considered as well. All readings and class discussions will be in English. Knowledge of Chinese or Chinese literature is not assumed or required. From year to year the content we cover might change, but this course will always explore: 1) Major classical Chinese narrative traditions that are radically different from the Western-influenced narrative modes of the twentieth century. 2) Pre-modern practices of literary reading and criticism and pre-modern notions of literacy, literature, and modes of circulation. Course Objectives include: 1. Critically analyze major texts and genres of the classical Chinese novel. 2. Understand pre-modern practices of story-telling, literary circulation, reading, and criticism. 3. Think critically about pre-modern societies and their connections with the contemporary world.

Prerequisite: ASIA 4; ASIA 100; ASIA 102; ASIA 175; CMLIT 4; HIST 175; CHNS 120; CHNS 121; 5th Semester standing
Cross-listed with: ASIA 417
Bachelor of Arts: World Cultures
International Cultures (IL)

CHNS 418: Confucius and the Great Books of China

3 Credits

This course familiarizes students with the critical texts and intellectual cultures of Warring States and early imperial China. CHNS 418 / ASIA 418 / HIST 482 Confucius and the Great Books of China (3) This course exposes students to the key texts, thinkers, and ideas that form the foundation of the Chinese classics and classical period, providing an integral foundation for the study of Chinese history, culture, or literature. While the emphasis is on the texts and their main themes, the course will encourage historical engagement with the texts by placing them into a context of competing cultural, social, political trends. Readings may be grouped around categories of teachings such as Confucianism, Buddhism, and Daoism, or around thinkers such as "(Confucian) ritualists," "statesmen," "military strategists," "rebels," "recluses," and "spiritual leaders." Students will learn how each of these types of teachings and thinkers related to each other, as well as how they responded to the emergent, centralized political order of the day. This will help students better understand many of the recurrent intellectual, political, and religious themes that arise in later Chinese history as well.

Prerequisite: ASIA 3; ASIA 100; ASIA 104; ASIA 175; ASIA 181; HIST 175; CHNS 120; CHNS 121; ENGL 15; RLST 3; RLST 181; 5th Semester standing
Cross-listed with: ASIA 418, HIST 482
Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures

International Cultures (IL)

CHNS 419: The Chinese Rhetorical Tradition

3 Credits/Maximum of 6

Study of the rhetorical works in ancient China as well as multiple facets of modern Chinese rhetoric. CHNS 419 The Chinese Rhetorical Tradition (3 per semester/maximum of 6) (IL)(BA) This course meets the Bachelor of Arts degree requirements. This course surveys the Chinese rhetorical tradition dating back two and a half millennia. Rhetoric is defined here as the study and practice of artful means of communication, including poetic, expository, and argumentative modes. The class will first delve into the works of competing intellectual schools in pre-imperial China (pre-221 BCE), which set a corner stone for thoughts and practice of communication in the imperial period (221 BCE - 1918). These schools, including the Daoist, the Confucian, and the Legalist, developed their rhetorical notions through engaging with the political, intellectual, and ethnic Other. From here the class will examine the multiple facets of modern Chinese rhetoric, which has undergone a continual contact and conflation with other rhetorical traditions in the global contact zone. The class will focus on topics such as feminist discourse, Chinese-American rhetoric, and the teaching of writing, which bear direct implications on our contemporary social life.

Prerequisites: ENGL 15; ASIA 3; ASIA 100; ASIA 104; ASIA 175; ASIA 181; HIST 175; CHNS 120; CHNS 121; RLST 3; RLST 181; 5th Semester standing
Concurrent Courses: ENGL 471
Cross-listed with: ASIA 419
Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures
International Cultures (IL)

CHNS 452: Contemporary China: Culture and Trends

3 Credits/Maximum of 6

Survey of aspects of the contemporary Chinese-speaking world. Includes readings from Chinese newspapers, magazines, and fiction. Topics may vary each semester. CHNS 452 Contemporary China: Culture and Trends (3) (IL) BA - This course meets the Bachelor of Arts degree requirements. This course surveys Chinese cultural production in the contemporary period, with an emphasis on literature. Taught in Chinese; readings and assignments in Chinese. The course will examine the diverse forms of cultural expression (literature, film, new media, theater, television) throughout the Chinese-speaking world. Students will learn about major cultural trends in such locations as mainland China, Taiwan, Hong Kong, and the worldwide Chinese diaspora. Readings will represent several genres, such as poetry, folktale, short story, novel, prose fiction, and drama. Through this course students can develop a historical and cultural perspective in order to understand the contexts and value systems that have inspired literary works in the contemporary period. Students will investigate such topics as the relation between social institutions and the individual, the traditional patriarchal system, the changing roles of women, westernization, and postmodern consumer culture, among others. Class work will include lectures or presentations by the instructor and student participation through means such as guided discussions, group discussions, and students' presentations. This participatory approach is intended to deepen students' appreciation of the texts, to help them understand value systems that may differ from, or else be shared with, those predominant in modern Western cultures, and to assist students in developing analytical and expressive abilities. Chinese 452 is designed to be suitable for students (Chinese majors) who have completed Chinese 401. The course is designed to count

as international cultures, and as a B.A. 'Other Cultures' course. This course will be taught in the active-learning mode, featuring a variety of instructional components such as lecture, discussion, oral presentations, web-based activities, etc., to provide students abundant opportunity for expressing their opinions. The course will include writing, speaking, self-expression; information gathering, synthesis, and analysis; and international/intercultural components.

Prerequisite: CHNS 401
Bachelor of Arts: World Cultures
International Cultures (IL)

CHNS 453: Chinese Film

3 Credits/Maximum of 6

Selected films and directors representing various aspects of Chinese culture and cinema. Topics may vary each semester. Taught in Chinese. CHNS 453 Chinese Film (3) (IL) BA - This course meets the Bachelor of Arts degree requirements. This course surveys Chinese film from the early twentieth century to the present time, with an emphasis on film and national history. Taught in Chinese; readings and assignments in Chinese. The course will examine the diverse forms of film language in the works of filmmakers from mainland China, Taiwan, and Hong Kong. Readings will include interviews, reviews, film criticism, and other relevant texts (such as a short story that inspired a film). Through this course students can develop a historical and cultural perspective in order to understand the contexts and value systems that have inspired Chinese-language films. Students will investigate such topics as the relation between social institutions and the individual, the traditional patriarchal system, the changing roles of women, westernization, and postmodern consumer culture, among others. Class work will include lectures or presentations by the instructor and student participation through means such as guided discussions, group discussions, and students' presentations. This participatory approach is intended to deepen students' appreciation of the texts, to help them understand value systems that may differ from, or else be shared with, those predominant in modern Western cultures, and to assist students in developing analytical and expressive abilities. Chinese 453 is designed to be suitable for students (Chinese majors) who have completed Chinese 401. This course will be taught in the active-learning mode, featuring a variety of instructional components such as lecture, discussion, oral presentations, web-based activities, etc., to provide students abundant opportunity for expressing their opinions. The course will include writing, speaking, self-expression; information gathering, synthesis, and analysis; and international/intercultural components.

Prerequisite: CHNS 401
Bachelor of Arts: World Cultures
International Cultures (IL)

CHNS 454: Introduction to Classical Chinese

3 Credits/Maximum of 6

Basic patterns and structures of Classical Chinese to the first millennium B.C. to the 19th century. CHNS 454 Introduction to Classical Chinese (3) (IL) BA - This course meets the Bachelor of Arts degree requirements. This course introduces students to the basic patterns and structures of Classical Chinese. Classical Chinese is a language shaped in the latter half of the first millennium B.C. that still persists as a living medium of expression today. Knowledge of Classical Chinese is important to help students read and understand sophisticated modern Chinese texts, which make frequent use of Classical allusions and constructs. In this

course, students will learn basic grammar, syntax, and commonly-used vocabulary. The cultural and literary implications of classical Chinese will be discussed throughout the course in order to provide the students not only with the linguistic knowledge of classical Chinese, but the rich historical backgrounds implied in this particular style of Chinese. The main goal of the course is for students to acquire skills in reading Classical Chinese and expand their knowledge and understanding of ancient Chinese culture, society and history in relation to modern and contemporary Chinese culture, such as Confucianism and family values. With this knowledge and training, not only will students be more comfortable reading the Chinese Classics, they will also thereby increase their proficiency in modern Chinese and their knowledge of Chinese culture. This course will fulfill the Intercultural Cultures and B.A. 'Other Cultures' and foreign language requirements.

Prerequisite: CHNS 401 or equivalent (such as study abroad credit)
Bachelor of Arts: World Language (All)
Bachelor of Arts: World Lang (12th Unit)
Bachelor of Arts: World Cultures
International Cultures (IL)
Exceeds 12th Unit of World Language

CHNS 455: Masterpieces of Traditional Chinese Literature

3 Credits

Survey of traditional Chinese literature, including poetry, historical narratives, philosophical texts, and drama and novel. CHNS 455 Masterpieces of Traditional Chinese Literature (3) (IL) BA - This course meets the Bachelor of Arts degree requirements. CHNS 455 Masterpieces of Traditional Chinese Literature presents an overview of China's literary tradition, focusing, in particular, on literary techniques used in a variety of text types such as poetry, essays, fiction and drama. This course aims to develop students' advanced knowledge of the features of traditional Chinese literature and its intellectual, cultural, and social background. Through close reading of selected major works, students will become familiar with the features of various genres. For example, students will study prose writings, the major poetic forms and some of the important poets from the Tang period, and aspects of literati culture through close reading of texts from the late imperial period. At the end of this course, a student will have read and discussed sample writings from philosophical and poetic traditions and well as sample writings on the cultural and scholastic activities of the literati. Students should also be able to deal with classical texts on a reasonable level, to identify problematic passages and to be able to clarify them with the help of secondary reference material. Students should also be able to appreciate some of the civilizing aspects of Chinese culture as well as literary and poetic devices such as tonal patterns, rhyme schemes, structure and writing techniques, and discussion of the poets and their work, and have an understanding of the main genres in classical Chinese literature and philosophy.

Prerequisite: CHNS 401 or equivalent
Bachelor of Arts: World Language (All)
Bachelor of Arts: World Lang (12th Unit)
Bachelor of Arts: World Cultures
International Cultures (IL)
Exceeds 12th Unit of World Language

CHNS 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

CHNS 494H: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Honors**CHNS 496: Independent Studies**

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

CHNS 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

CHNS 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Civic and Community Engagement (CIVCM)

CIVCM 211N: Foundations: Civic and Community Engagement

3 Credits

Through readings, discussion, deliberation, listening, and individual as well as collaborative action, this course gives students the opportunity to learn about and practice theories and habits of civic and community engagement and public scholarship with the goal of helping to build democratic capacity and sustain participatory democracy. This course emphasizes concepts and case studies that focus on the people's role in shared governance. The course also provides a foundation for understanding how a wide range of other individual and collective practices have an equally important role to play in building and sustaining community. The course draws from studies in demography, political science, sociology, psychology of racial identity formation and education to help students communicate better about and in shared governance. Among the core concepts are the role of students and other citizens in sustaining and transforming their communities, the historical and contemporary mission of Land Grant universities, the centrality of rhetoric and communication to collaborative judgment, and the relationship among media, cultures, and politics as they affect civic and community engagement. Students also learn together about the range of ways that citizens do, can, and might participate in democratic decision-making and will observe and practice these forms in several

communication media and across a range of differences. Finally, learn about models of and opportunities for engaging other citizens across and beyond Penn State, including in global environments.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 30H or CAS 137H or ENGL 137H or CAS 100

Cross-listed with: AYFCE 211N, CAS 222N

International Cultures (IL)

United States Cultures (US)

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

CIVCM 494: Research Topics

1-3 Credits/Maximum of 3

Supervised student activities on research projects identified on an individual basis.

Civil Engineering (CE)

CE 97: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

CE 100S: Topics and Contemporary Issues in Civil and Environmental Engineering: First-Year Seminar

1 Credits

First-Year Seminar exploring a specific topic or contemporary issue in civil and environmental engineering. CE 100S Topics and Contemporary Issues in Civil and Environmental Engineering: First-Year Seminar (1) (FYS)The first-year seminar in civil engineering will provide an opportunity for students to explore a specific topic or contemporary issue, which may fall within one of the Department of Civil and Environmental Engineering's technical emphasis areas, or include many of the facets of civil engineering. Civil engineers plan, design, construct, operate, and maintain the physical works and facilities essential to modern life: highways, streets, bridges, dams and levees, water distribution and wastewater collection, and treatment systems. Civil engineers work with architects and other engineers in the design and construction of buildings and industrial structures and facilities. They also have a major responsibility for identifying and remediating environmental hazards. The specific course topic, chosen by the course instructor, will vary by section and semester and will be indicated by the section subtitle. Examples of the topics that may form the core of a seminar section include droughts and floods, lessons from structural failures, engineers as environmental change agents, beneficial reuse of treated wastewater, highway accident reconstruction and engineering, and landmark civil engineering projects. Within the context of the specific seminar topic, each section will provide students with an introduction to the civil engineering field, exposure to some of the professional skills and competencies associated with academic study and the practice of engineering, and access to relevant student and professional societies. Each seminar section will include an active learning element that may include laboratory experiments, group projects, class discussions, and possible trips,

providing close interaction with the faculty member teaching the course. This seminar course will help incoming students become acclimated to University life and become aware of available resources and support services.

First-Year Seminar

CE 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

CE 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

CE 209: Fundamentals of Surveying

2 Credits

Fundamental surveying measurements, traverse computations, coordinate geometry, mapping, CAD applications. Intended for architectural engineering students. (The lecture will be taught concurrently with C E 211.)

Enforced Prerequisite at Enrollment: MATH 141

CE 254: Personal & Occupational Safety

3 Credits

Students will learn about principles of safety in work and personal settings. C E 254 Personal & Occupational Safety (3) (GHA; US) This is a 3 credit course designed for students who want an understanding of safety, practices related to the individual's wellness and developing knowledge, attitudes, habits and skills needed for a safe healthful lifestyle. General safety topics that are relevant to students as they adjust to the transition into and through college are introduced through a values and decision making approach to learning. The students will understand direct and indirect cost related to an accident; identifying the major occupational and general injuries and deaths and the role of workers compensation, and safe procedures. OSHA will be discussed including its structure & organization, citations & fines, inspections, various standard areas, and developing an effective safety program. The course content will also be related to principles of personal and general safety including, preventive and protective systems, highway/road safety, general child safety, emergency response, and how safety is integrated with their lifestyle and our society. The course is designed to give students a broader understanding of both short-term and long-term wellness and how it is affected by safety behavior.

United States Cultures (US)

CE 271: Water and Wastewater Transport Systems

3 Credits

Water, wastewater quantities; water storage; design of water distribution and sewerage systems; pumping stations; introduction to water-wastewater treatment processes.

CE 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

CE 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

CE 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

CE 310: Surveying

3 Credits

Fundamental surveying measurements, traverse computations, coordinate geometry, mapping, GPS and GIS, circular and parabolic curves, earthwork, boundary surveys, CAD applications. C E 310 Surveying (3) This is an introductory course in the fundamentals of surveying designed for Civil Engineering students. It includes basic measurement techniques of distance and angles, both horizontal and vertical. Traverse measurements analysis and mapping are discussed. Boundary surveys and legal descriptions are studied. Instruction includes the analysis of circular and parabolic curves, earthwork, and the use of coordinate geometry. Global positioning and graphic information systems are studied.

Enforced Prerequisite at Enrollment: EDSGN 100 and MATH 141

CE 321: Highway Engineering

3 Credits

Highway engineering principles, vehicle and driver characteristics; geometric and pavement design; highway drainage; traffic engineering, capacity analysis, and signal timing. C E 321 Highway Engineering (3) This course provides an introduction to highway engineering and is designed for civil engineering students. It includes topics such as vehicle motion, highway cross-sections, horizontal and vertical alignment, and sight distance. Other topics are pavement design, drainage analysis, traffic engineering and highway capacity. The students will also have a CAD lab where they design a highway using computer software. The semester project provides hands-on highway design experience. This course serves as a prerequisite for advanced highway engineering study.

Enforced Prerequisite at Enrollment: CE 310

CE 332: Professionalism, Economics & Construction Project Delivery

3 Credits

Introduction to engineering management process; economic analysis; pricing; contract documents; estimating; ethics; professional practice and engineering economy. C E 332 C E 332 Project Development (3) The first five weeks of the course introduces concepts relating to engineering ethics, professionalism including the importance of licensure, and

engineering economy. The remainder of the semester concentrates on project development and the design and construction of the delivery process. Topics include: scope of design services; conceptual cost estimates; the bidding process, estimating; and risk management.

CE 333W: Construction Management I

3 Credits

Components of a construction organization, managerial terminology and documents, labor laws and relations, insurance and safety. C E 333W C E 333W Construction Management I (3) The object of this course is to have a broad understanding of the business process in the construction industry. The construction industry offers a variety of organization with each having specialized needs and processes in operating an effective business. The professional constructor deals with a complex process of decisions and auctions that start from the time of projects conception until the project is completed. The course addresses issues involving legal and code requirements, necessary documents in selecting projects, developing estimates, determining delivery systems, planning and scheduling, and managing a construction project. Also covered are the liability issues that will be required, insurances or bond requirements, and the ethical role of the constructor. The managerial and safety role of the professional constructor is also introduced.

Writing Across the Curriculum

CE 335: Engineering Mechanics of Soils

3 Credits

Soil compositions, classification, subsurface exploration, ground water flow, stress analysis, compaction, soil behavior, bearing capacity, lateral earth pressure, slope stability. C E 335 C E 335 Engineering Mechanics of Soils (3) This course explores the engineering properties of soils, fundamental soil mechanics, and their applications of foundation design and analysis. Specific topics covered in this course include soil compositions, soil classification, subsurface exploration, ground water flow and seepage analysis, stress analysis, compaction, consolidation, strength behavior, bearing capacity, lateral earth pressure, and slope stability analysis.

Enforced Prerequisite at Enrollment: EMCH 210 or EMCH 213 Enforced Concurrent at Enrollment: GEOSC 1

CE 336: Materials Science for Civil Engineers

3 Credits

C E 336 Materials Science for Civil Engineers (3) This course introduces engineering students to the structure, properties and behavior of construction materials, providing the bridge between engineering mechanics and engineering design. The course is an engineering science course focused at providing the students with a working knowledge of the nature and engineering properties of construction materials to understand prediction models and statistical variations for quality control. The course provides an introduction to aggregates, concrete, asphalt, timber, steel, structural alloys, and polymers used in civil infrastructure and in building construction. Durability, life expectancy, recycling, and variability of materials will be examined in addition to their mechanical properties. The students will achieve these objectives through in-class practices or quizzes, homework exercises, reading assignments and exams.

Enforced Prerequisite at Enrollment: EMCH 210 or EMCH 213 Enforced Concurrent at Enrollment: IE 424 or STAT 401

CE 337: Civil Engineering Materials Laboratory

1 Credits

Laboratory investigating the physical and mechanical properties of civil engineering materials; soils, aggregates, concrete; steel; wood; and polymers. C E 337 C E 337 Civil Engineering Materials Laboratory (1) The understanding of the structure, physical and mechanical properties and behavior of engineering materials is at the very core of engineering design. A command of this knowledge is essential for all civil engineers. This 1-credit laboratory provides a hands-on experience with the testing and evaluation of civil engineering materials, including soils, aggregates, concrete, steel, wood and polymers. In addition, this lab builds on the topics of professional communication and engineering in groups that are present throughout the Civil Engineering curriculum. This course is required for all Civil Engineering majors and is a required laboratory component for ABET review. The course also may serve selected Architectural Engineering students that currently enroll in Material Science for Engineers. The laboratory will be taught every semester with an offering of 4-6 sections per semester. The Civil Engineering Materials Laboratory is directly tied to Engineering Mechanics of Soils and Material Science for Civil Engineers. It replaces the laboratory component of both of the existing courses to create a comprehensive materials laboratory experience. By creating a stand-alone course, students may schedule the laboratory separate from the lecture time, eliminating multiple course conflicts. The course meets 3 hours each week throughout the semester with an introductory lecture and training session on lab safety. Concurrent or previous enrollment in Engineering Mechanics of Soils or Material Science for Engineers ensures that the students have completed the Strength of Materials course and have a clear point of reference to the relevance of the material in the course. The Civil Engineering Materials Laboratory will incorporate the use of a variety of equipment, including universal testing machines, Charpy fracture toughness device, Rockwell Hardness device, soil compaction devices, sieves, plasticity index devices, concrete mixing equipment, electronic strain devices, direct/biaxial/triaxial shear devices and other similar equipment.

Enforced Concurrent at Enrollment: CE 335 or CE 336

CE 340: Structural Analysis

3 Credits

Analysis of statically determinate and indeterminate trusses, beams, and frames; reactions, axial forces, shears, moments, deflections. Introduction to influence lines. The course includes an introduction to structural systems and basic analysis methods for beams, frames, and trusses. Topics covered include the analysis of statically determinate and indeterminate structures, deflection calculations, influence lines, and an introduction to the stiffness method and a software package for structural analysis.

Enforced Prerequisite at Enrollment: EMCH 210 or EMCH 213

CE 341: Design of Concrete Structures

3 Credits

Design of reinforced concrete beams, slabs, and columns, with emphasis on ultimate-strength methods; prestressed concrete; building and bridge applications. C E 341 Design of Concrete Structures (3) This course provides students with an understanding of the structural design process,

the mechanics of reinforced concrete, and the ability to design and proportion structural concrete members including slabs, beams, and columns for strength, serviceability, and economy. Design procedures are based on the Building Code Requirements for Structural Concrete published by the American Concrete Institute. The mechanics underlying the code design equations are explained as well as their application to practical design problems. In addition to regular homework assignments the students complete a design project in which the design of specific components is integrated into the design of the structure as a whole.

Enforced Prerequisite at Enrollment: CE 340 Enforced Concurrent at Enrollment: CE 336

CE 342: Design of Steel Structures

3 Credits

Design of steel tension members, beams, columns, beam-columns, and connections; elastic and plastic methods; design applications. CE 342 Design of Steel Structures (3) This is a first course in design of steel structures intended to develop a fundamental ability to evaluate and design steel tension members, beams, columns, beam-columns, composite beams, and connections. Discussion of design requirements focuses on failure mechanisms and behavior, evaluation of existing components, and the process to develop economical steel member designs. All discussions are based on the current American Institute of Steel Construction steel design specifications with an overview of historical requirements as appropriate. Students complete a design project of a multi-story, steel, commercial building that is intended to synthesize the course material and create a realistic context for the course. Weekly assignments are typically derived from the course project. Computer applications are an important component of these assignments.

Enforced Prerequisite at Enrollment: CE 336 and CE 340

CE 360: Fluid Mechanics

3 Credits

Mechanics of fluids; flow in conduits and around bodies, friction and energy loss, fluid measurements. CE 360 Fluid Mechanics (3) The course objective is to provide students with the fundamental physical and analytical principles of fluid mechanics through the understanding of the conservation of mass, conservation of energy, and the conservation of momentum equations. The student will demonstrate the understanding of these fundamentals by solving problems dealing with: fluid properties, fluid statics, pressure on plane and curved surfaces, buoyancy and floatation, kinematics, systems, control volumes, conservation principles, ideal incompressible flow, impulse-momentum, and flow of a real fluid. Fluid mechanics is a prerequisite to all courses in hydrosystems and environmental engineering. It is typically offered fall and spring semesters and during summer session. A series of homework problems are assigned after each lecture and there are typically 3 examinations given during the semester and final examination during the final examination period.

Enforced Prerequisite at Enrollment: EMCH 212

CE 370: Introduction to Environmental Engineering

3 Credits

Nature and scope of environmental issues; air, water, land impacts; fundamentals and processes of pollution control. CE 370 Introduction

to Environmental Engineering (3) The objectives of this course are to introduce science and engineering principles for dealing with natural and engineered environmental systems; to provide quantitative tools to solve environmental engineering problems dealing with water and wastewater treatment, air pollution control, and management of solid and hazardous wastes; and to identify alternative ways to deal with pollution and to minimize pollution.

Enforced Prerequisite at Enrollment: CHEM 110 and (MATH 111 or MATH 141)

CE 371: Water and Wastewater Treatment

3 Credits

Water treatment; water storage; design of water distribution and wastewater systems; pumping stations. CE 371 Water and Wastewater Treatment (3) This course includes engineering design of water and wastewater treatment facilities, and it emphasizes quantitative problem solving. Numerous examples pertain to contemporary water and wastewater treatment facility designs. This course will nurture the ability to use the techniques, skills and state-of-the-art engineering tools so as to prepare students for water and wastewater treatment engineering practice. Water treatment-related topics include: water quality criteria for potable water, reactor characteristics, reaction rates in water and wastewater treatment, mixing and flocculation sedimentation, rapid sand filtration, chlorination and alternative disinfection. Wastewater pretreatment, biological principles for treatment of wastewater, suspended growth bio-systems, attached film bio-systems, nutrient removal processes, and de-watering and treatment processes for sludges is also included.

Enforced Prerequisite at Enrollment: CE 360 and CE 370

CE 396: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

CE 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

CE 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

CE 402: Computing Methods for Civil and Environmental Engineering

3 Credits

This course will cover essential computing methods, implementations, and applications in civil and environmental engineering. Computing is essential for the civil and environmental engineering profession. It is used in many aspects of civil and environmental engineering, for example analyzing data and making impressive visualizations, computing backwater curve in a river, solving species concentration in chemical reactors, finding deflection of a beam, or calculating seepage

and consolidation of soils. In engineering practice, computers are used to solve real world, complex problems beyond the capability of hand calculations. Major topics covered in this course include basic programming with Python, scientific and technical visualization, root finding, interpolation and curve fitting, direct and iterative solution of linear equation systems, numerical integration, numerical differentiation, and numerical solution of ordinary differential equations. Application examples of these computing techniques will be introduced and explained to help students understand the context. For example, root finding can be used to solve the nonlinear Manning's equation to design drainage channels, curve fitting and regression can be used to analyze measurement data, the solution of linear equation systems is at the core of many modern engineering software solving governing differential equations, numerical integration can be used to calculate wind load on buildings, numerical differentiation is essential for solving governing differential equations, the solution of ordinary differential equations can be used to model the dynamics of a structure or a reaction system. The objectives are for the students to have a fundamental understanding of algorithms and solution techniques for common computing problems in civil and environmental engineering, the ability to correctly implement computing algorithms with a programming language, and the ability to utilize existing numerical libraries and understand their strength and limitations. The course is structured to have two lectures and one computer lab session per week. Students will work on simple problems with manual calculations and more complex problems with computer codes which implement the covered computing methods. Homework and exams will draw on many application examples students may encounter in their coursework for the civil and environmental engineering major and in their future professional career.

Prerequisite: CMPSC 200; or CMPSC 201 or CMPSC 121; or CMPSC 131
Concurrent: MATH 251

CE 403: Energy Use, Climate Change, and Our Engineered Infrastructure
 3 Credits

Massive changes to our personal consumption patterns and civil infrastructure systems are needed to decrease CO₂ emissions and minimize the impacts of climate change. In this course we will quantify energy use; study how much energy, water, and food we use in our daily lives; and determine how much CO₂ gets emitted from these personal activities and by components of our public infrastructure (including buildings, electric power industries, food systems, and transportation). We will evaluate how design choices in our homes, buildings, agricultural systems, and transportation infrastructure can be modified to reduce energy consumption and carbon emissions. Greenhouse gases that cause climate change include more than just carbon from fossil fuels; we will therefore also discuss sources of other greenhouse gases and natural and engineered strategies to mitigate and reduce their emissions. Other topics include modeling rates of renewable energy growth, energy storage, climate science, infrastructure's role in environmental and climate justice, and the economic aspects of climate solutions.

Enforced Prerequisite at Enrollment: CHEM 110 and (MATH 111 or MATH 141) Recommended Preparations: CE 370: Introduction to Environmental Engineering is recommended, but not required.

CE 410: Sustainable Residential Subdivision Design
 3 Credits

CE 410 provides students with a working knowledge of the residential land development design process, including conservation and green

design approaches, site assessment, grading and earthwork, utility design and layout, and stormwater management. The course covers the subdivision and land development regulatory processes, zoning issues, and the elements of civil infrastructure design required in the residential land development process. Conservation design and sustainable development techniques are emphasized throughout the course. For effective residential subdivision design, students must be proficient in applying basic principles of mathematics, science, and economics included in accredited academic engineering programs. An understanding of design software and its application has also become an integral part of the land development design process. The course discusses the scope and nature of the residential land development process. Students will be expected to perform design and analysis necessary for appropriate subdivision layout and infrastructure design. Issues in engineering ethics and professional responsibility related to land development are interwoven into class discussions and assignments. The course is an elective for students in the Civil Engineering major and an elective in the Residential Construction Minor.

Enforced Prerequisite at Enrollment: CE 332 or AE 372 Enforced
Concurrent at Enrollment: 7th Semester standing in AE or CE major.

CE 411: Residential Construction Design Project

1 Credits

Interdisciplinary teams will develop a complete design and investment package for a real life new residential or real estate development.

Enforced Prerequisite at Enrollment: Fifth semester standing or higher

CE 421W: Transportation Design

3 Credits

Design of streets and highway facilities; emphasis on geometric elements, intersections and interchanges, roadway drainage, and pavement design. CE 421W CE 421W Transportation Design (3) This course provides advanced study in highway engineering and is designed for civil engineering students who are interested in Transportation Engineering careers. It includes topics such as functional classification, highway cross-sections, horizontal and vertical alignment and sight distance. Other topics are pavement design, drainage intersection and interchange design and highway signs. The students will also have a CAD lab where they design a complete highway system. The semester project provides hands-on highway design experience and includes the planning and operational aspects of a new highway design. This course serves as a capstone design course with writing projects. Students are expected to do in-class presentations of their projects.

Enforced Prerequisite at Enrollment: CE 321
 Writing Across the Curriculum

CE 422: Transportation Planning

3 Credits

CE 422 Transportation Planning (3) In this course, students acquire basic knowledge on the history and recent developments in transportation planning problems and quantitative methods. They will develop an understanding of transportation planning, transportation modeling, transportation system simulation, data collection techniques, and gain laboratory experience with each. Students will use mathematical/statistical models and GIS software to analyze, simulate, and forecast the

demand for transport services. They will gain familiarity with the software used in transportation planning practice.

Enforced Prerequisite at Enrollment: STAT 401 or IE 424

CE 423: Traffic Operations

3 Credits

The highway capacity manual, concepts and analyses, freeway operations, signalized and unsignalized intersections, signal coordination, traffic impact studies. This course focuses on the concepts and techniques essential for the practice of traffic engineering. The content includes topics such as use of traffic control devices, field studies for traffic data collection, traffic signal warrants, signal phasing and timing plans, and analysis of signalized intersection operation. The course also provides an introduction to several key texts and references, including the Manual on Uniform Traffic Control Devices, Highway Capacity Manual and ITE Trip Generation Handbook.

Enforced Prerequisite at Enrollment: CE 321

CE 424: Project Info. Modeling

3 Credits/Maximum of 3

Project Information Modeling is the process of constructing a 3D digital model of a project with attached information. Project Information Modeling (PIM) is an integrated process built on coordinated, reliable information about a project from design through construction and into operations. It is a new approach to project delivery in which a digital representation of the project process is used to facilitate the exchange and interoperability of information. Implementation of PIM generates significant benefits, including improved design quality, reduction in design errors, improved field productivity, reduction in conflicts and changes, and finally reduction in construction cost and time. In this course, students will learn applications of PIM used in the industry by different disciplines (e.g., architectural, engineering and construction), design model-based development and coordination (e.g., 3D, 4D, 5D, and XD), value engineering concepts, system clash prevention, and understand the benefits of various parametric modeling applications that can be used. Upon completion of this course, students will have full understanding of PIM concepts throughout the lifecycle of a building or an infrastructure project, from planning, design, pre-construction, construction and operations.

Enforced Prerequisite at Enrollment: EDSGN 100 and (CE 332 or CE 333W)

CE 432: Construction Project Management

3 Credits

Fundamentals of project management, construction scheduling using the CPM technique, construction project preplanning, and control of quality, safety, and costs. C E 432 C E 432 Construction Project Management (3) This course introduces students to the basic practical aspects of the construction process and the quantitative methods used to manage projects within budget, deadline, and prescribed quality. Students will understand the construction market and the inter-relationships among the various players involved. Focus in this course is on integrating the various facets of construction cost estimating, planning, scheduling, control, and overall project management.

Enforced Prerequisite at Enrollment: CE 332

CE 434: Geotechnical Engineering Design

3 Credits

This is an advanced design course in geotechnical engineering, offered to undergraduate senior and graduate students in civil engineering. This course covers fundamental engineering geology, subsurface exploration including geophysical techniques, principles of shallow and deep foundation designs, slope stability, geosynthetics design, groundwater and drainage, and geotechnical earthquake engineering. The course is typically delivered in lecture format and concentrates on practice-oriented design problems in geotechnical engineering.

Enforced Prerequisite at Enrollment: CE 335

CE 435: Foundation Engineering

3 Credits

C E 435 provides students with a working knowledge of the state-of-practice of foundation engineering, covering bearing capacity, settlement, and structural design of shallow foundations; lateral earth pressure; design of retaining and sheet-pile walls; and an introduction to deep foundations. The course is an elective for students in the civil engineering major and serves as an essential prerequisite for continued study in the areas of construction and structural engineering. The course concentrates on practice-oriented design problems in foundation engineering.

Enforced Prerequisite at Enrollment: CE 335

CE 436: Construction Engineering Materials

3 Credits

C E 436 Construction Engineering Materials (3) The course provides students with a working knowledge of the safe design, production and application of quality construction materials unique to civil engineering. The course builds upon the understanding of civil engineering materials gained in the introductory course. C E 436 focuses on the materials design and quality control of aggregates, steel, portland cement concrete, and asphalt concrete.

Enforced Prerequisite at Enrollment: CE 336 and (STAT 401 or IE 424)

CE 437: Engineering Materials for Sustainability

3 Credits

Environmental impact of materials; life-cycle assessment; material selection to optimize performance; design, evaluation, and production of green construction materials.

Enforced Prerequisite at Enrollment: CE 336

CE 438W: Construction Engineering Capstone Design

3 Credits

Construction project integrating geotechnical reports; materials specifications; quality control; equipment; estimation; scheduling; design details: excavations, foundations, retaining walls, formwork, pavements. C E 438W C E 438W Construction Engineering Capstone Design (3) This course is intended to establish the foundation for organizational and procedural understanding in construction engineering. The student will gain the knowledge necessary to apply engineering principles in analyzing economical approaches to construction problems. This course

will cover construction methods, equipments, and cost estimation of the construction materials, excavation, foundation, and other phases of civil engineering construction projects.

Enforced Prerequisite at Enrollment: CE 432 and (CE 435 or CE 436)
Writing Across the Curriculum

CE 439W: Geotechnical and Materials Engineering Design Capstone

3 Credits

Subsurface site evaluation; integrated design of retaining walls, foundations, pavements, and materials for airports, highways, dams, or other facilities.

Enforced Prerequisite at Enrollment: CE 435 and (CE 436 or CE 437)
Writing Across the Curriculum

CE 441: Structural Design of Foundations

3 Credits

Design of concentrically and eccentrically loaded square, rectangular, and combined footings; analysis and design of mat foundations; retaining walls; piles caps; flexible retaining design, and caissons. C E 441 Structural Design of Foundations (3) This course prepares the structural engineering student to analyze, proportion, size reinforcing, and select steel sections for structural foundations designs based on the state of practice presented in ACI 318, AISC, and available industry literature. Structural foundation analysis techniques for many foundation types are presented with extensive use of EXCEL in the design process. Analysis and design of foundation systems are developed for concrete shear walls, concentrically loaded square and rectangular footings, eccentrically loaded square and rectangular footings, and combined footings. Use of approximate and finite element analysis methods for analyzing mat foundations and grid foundations are presented. Working knowledge of retaining wall, pile cap, and flexible earth retaining structure design methods are also developed. This course is an elective for students in the civil engineering major and serves as an essential prerequisite for continued study in structural engineering and advancement to the structures capstone course. This course is delivered in lecture format and concentrates on practice-oriented structural foundation analysis and design problems.

Enforced Prerequisite at Enrollment: CE 341 Enforced Concurrent at Enrollment: CE 342

CE 445: Advanced Structural Analysis

3 Credits

Analysis of trusses and frame stiffness matrix method of analysis. Analysis of indeterminate beams, trusses, and frames using classical methods. C E 445 C E 445 Advanced Structural Analysis (3) The course is an advanced analysis which includes an analysis of structures using classical and matrix methods. Topics covered include the analysis of statically determinate and indeterminate beams; trusses and frames. An introduction to the stiffness method and a software package for structural analysis will also be covered.

Enforced Prerequisite at Enrollment: CE 340

CE 447: Structural Analysis by Matrix Methods

3 Credits

Analysis of truss and frame structures using flexibility and stiffness methods of matrix analysis. Computer applications.

Enforced Prerequisite at Enrollment: CE 340

CE 448W: Structural Design Capstone

3 Credits

Wind, snow, seismic, bridge loads; building design using steel, concrete, and prestressed concrete; advanced steel connections; capstone project; computer applications. C E 448W C E 448W Advanced Structural Design (3) The objectives of the course are to develop an understanding of advanced structural engineering design issues in a capstone context that will merge knowledge gained in prerequisite structural design and analysis courses. Building on concepts introduced in introductory steel building, concrete building, and foundation design, students will gain proficiency in structural conceptualization, environmental and induced load determination, modeling and analysis, detailed design of steel and concrete structures, and graphical communication.

Enforced Prerequisite At Enrollment: CE 341 and CE 342
Writing Across the Curriculum

CE 449: Advanced Structural Design

3 Credits

Special systems, frames and bracing in steel, wood and reinforced or precast concrete. Introduction to composite construction. C E 449 C E 449 Advanced Structural Design (3) This course provides students with an understanding of advanced structural design processes, the mechanics of special systems (such as prestressed concrete) as well as the ability to design and proportion structural connections and bracing members including reinforced concrete and steel. The course will also introduce the LRDF approach and composite construction in which the design of specific components is integrated into the design of the structure as a whole.

Enforced Prerequisite at Enrollment: CE 340 and CE 341 and CE 342

CE 454: Safety

3 Credits

This course will focus on safety issues as they relate to OSHA.

Enforced Prerequisite at Enrollment: Permission of program

CE 455: Construction Cost Estimating

3 Credits

This course focuses on introducing the fundamental principles of detailed cost estimating and bidding in civil infrastructure projects, including classifying work in accordance with specifications standards, extracting quantity take-offs from drawings, compiling and pricing estimates, finalizing bids, and the utilization of software and spreadsheets to automate estimating functions. The course also introduces estimating methods used for the preparation of conceptual and preliminary estimates.

Enforced Prerequisite at Enrollment: CE 332 or AE 372

CE 456: Planning and Scheduling

3 Credits

Theory and practice used in planning and scheduling projects; defining task and resources, creating logic diagrams, and monitoring the projects. C E 456 C E 456 Planning & Scheduling (3) "Planning and Scheduling" encompasses construction tenets and fundamentals including organizing, staffing, directing, and controlling representing concepts and principles integral to career applications in project and design management. Students who successfully complete this course will be able to: 1) understand and use planning, scheduling, and control techniques for managing construction projects 2) understand scheduling techniques and computer applications in critical path methods, PERT, and resource scheduling 3) understand construction financing and schedule / cost relations 4) understand the principles of project tracking, progress measurements, trend analysis, and forecasting

Enforced Prerequisite at Enrollment: CE 332 or CE 333W

CE 457: Construction Equipment and Methods

3 Credits

Introduction to major construction equipment along with selected construction methods for civil infrastructure projects. This includes understanding construction equipment economics, selection of appropriate equipment based on operational parameters, principles of equipment productivity analysis and measurement, methods for equipment productivity improvement, safe operation of construction equipment, techniques for optimizing equipment utilization, and technologies for enhancing equipment integration and automation.

Enforced Prerequisite at Enrollment: CE 332 or AE 372

CE 458: Construction Management II

3 Credits

Procedures in construction organization including procurement, ethics, field supervision, legal and managerial problems, personnel, cost accounting, and construction business practices. C E 458 C E 458 Construction Management II (3) This course presents policies, procedures, and applications in construction management and organization including procurement, ethics, field supervision, legal and managerial problems, personnel, cost accounting, and construction business practices. The course encompasses construction tenets and fundamentals including planning, organizing, staffing, directing, and controlling. Students who successfully complete this course will be able to: 1) understand organizational issues concerning development of a project delivery system 2) comprehend the roles and responsibility of the Resident Project Representative and members of the construction team and the respective utility of the resident inspection office responsibilities 3) know the various documentation construction records/reports normally 4) recognize the salient features of specifications and drawings and the fundamentals for using them in contract administration 5) become familiar with the prevailing construction laws, policies, and procedures dealing with labor and safety 6) understand the utility of meetings during construction and the principles and techniques of negotiation 7) apply risk management through contractual allocation of risk and liability 8) become well versed in planning/orchestrating during reconstruction operations 9) apply management principles of directing and controlling construction operations and resources including

CPM scheduling, inspections, tests, and contractor submittals 10) understand the concept of value engineering in construction operations 11) understand the critical control issues involved with measurement and payments, controlling construction materials and workmanship, and changes and extra work

Enforced Prerequisite at Enrollment: CE 333W and CE 456

CE 461: Water-resource Engineering

3 Credits

Qualitative and quantitative description of the hydrologic cycle, flood and drought frequency analysis, climate and land use change impacts, risk analysis and uncertainty, water resource management at regional, national and global scale.

Enforced Prerequisite at Enrollment: CE 360

CE 462: Open Channel Hydraulics

3 Credits

Free surface flow in rivers, canals, steep chutes, stilling basins, and transitions. C E 462 Open Channel Hydraulics (3) This is an advanced senior level course dealing with steady gradually varied flow. The laws of conservation of mass, energy and momentum are applied to gradually varied steady flow problems in rectangular and non-rectangular channels. Basic definitions and equations governing flow are developed for uniform and nonuniform flow conditions. The students will use their knowledge of fluid mechanics, calculus, numerical analysis and computer science to solve practical open channel flow problems.

Enforced Prerequisite at Enrollment: CE 360

CE 465W: Water Resources Capstone Course

3 Credits

Hydraulic design of river structures and open channels including supercritical and spatially varied flow; hydrologic/hydraulic computer modeling; design project. C E 465W C E 465W Water Resources Capstone Course (3) This course is designed to provide seniors in the water resources area with a major design project. In addition, the course has a writing component, which satisfies the University's writing across the curriculum requirement. Projects cover hydrologic and hydraulic design. Hydrologic analysis is performed to size the hydraulic structure systems that convey the design flows. The students utilize Geographic Information Systems data bases, utilize several state of the art computer models, and are required to write several computer programs.

Enforced Prerequisite at Enrollment: CE 461 Enforced concurrent at Enrollment: CE 462

Writing Across the Curriculum

CE 472W: Environmental Engineering Capstone Design

3 Credits

Principles and design of unit operations for water; domestic and industrial wastewater treatment; equipment selection and application. C E 471 C E 472W Environmental Engineering Capstone Design (3) This course will integrate engineering science and design skills through application to an open-ended environmental problem dealing with one or more of the following: industrial sustainability and pollution prevention; water transmission and treatment; wastewater collection and treatment;

solid waste collection, treatment, and disposal; remedial investigation and feasibility studies for a hazardous waste site.

Enforced Prerequisite At Enrollment: CE 370
Writing Across the Curriculum

CE 473: Ecological Design of Regenerative Aquatic Systems

3 Credits

This course begins with an introduction to natural wetlands, and then extends those fundamental ecological principles to the design of constructed wetlands for wastewater and mine water treatment. In the second half of the course, these ecological principles are applied to the design of a variety of aquaponics systems for fish and vegetable production. Throughout the semester, emphasis is given to how beneficial byproducts (food, energy, water) can be produced in ecological systems to support sustainable communities in both developed and developing countries. The course culminates with a final team project on the design of an ecological system for a real community.

Enforced Prerequisite at Enrollment: CE 370

CE 475: Water Quality Chemistry

4 Credits

CE 475 Water Quality Chemistry (4) Water Quality Chemistry is focused on both theoretical aspects of water chemistry and applied aspects of engineering practice. The course will cover a wide range of fundamental chemical principles that will be investigated further in the laboratory exercises and through an independent research project. The course covers reaction stoichiometry and reaction type with specific examples of processes typically encountered in water, wastewater and hazardous waste treatment situations. The course distinguishes between kinetic and equilibrium reactions and presents mathematical formulations for both types of reactions. The course reviews thermodynamics and electrochemistry and relates them to equilibrium constants and the spontaneity of reactions. The course covers redox reactions especially with respect to the corrosion of civil infrastructure, the generation of acid rock drainage, and biological wastewater treatment processes. The course covers acid/base reactions especially with respect to disinfection of drinking water and pH adjustments commonly used to enhance air stripping of pollutants. The course introduces the use of computer models for determining chemical speciation of acid/base constituents. The course covers alkalinity and the carbonate system especially with respect to the issues of acid rain, acidification of the Earth's oceans, and limestone buffering of surface waters in Pennsylvania. Computer models are used to calculate chemical speciation in carbonate-containing systems. The course covers pH-dependent solubility of common minerals - primarily carbonates, hydroxides and aluminosilicates. The course covers engineering applications related to metal solubility including water softening, coagulation for turbidity removal in water treatment plants, heavy metal generation from acid rock drainage, and heavy metal removal in hazardous waste treatment. The course covers complexation reactions especially with respect to effects on metal solubility and toxicity. Computer models are used to calculate chemical speciation in multi-complexant systems. The course covers analytical chemistry especially with respect to the most common parameters measured in water and wastewater treatment systems, and with respect to the principles of measurement (i.e. gravimetric, spectrometric, volumetric, potentiometric analyses). The course involves a research project on a local water quality problem of concern. In the past, this project has focused on the proposed "Beneficial Reuse" of wastewater in Centre

County, and on the impact of acid rock drainage from the construction of I-99 on Buffalo Run in Centre County.

Enforced Prerequisite at Enrollment: CE 370

CE 476: Solid and Hazardous Wastes

3 Credits

With industrialization, humans have produced a variety of solid and hazardous wastes that have negatively impacted ecosystems and human health around the world. This course covers three main topics: 1) municipal solid waste handling and disposal (including landfill-gas-to energy, direct waste-to-energy, and recycling options); 2) the fate and transport of hazardous wastes that have been released into the environment through air, soil, and water; and 3) the selection and design of appropriate remediation technologies for soil and groundwater contaminated with hazardous wastes.

Enforced Prerequisite At Enrollment: CE 370

CE 479: Environmental Microbiology for Engineers

3 Credits

Environmental Microbiology for Engineers is comprised of three main sections: (1) the fundamentals of microbial structure, function, nutrition, and growth for students with no prior formal instruction in microbiology; (2) microbial diversity and ecology; and (3) the application of these fundamental microbial principles to environmental systems. In the fundamentals section, the course covers microbial nomenclature, macromolecules, cell biology, energetics, growth, and genetic regulation. This is illustrated with calculations of thermodynamic constraints in microbially catalyzed reactions, the calculation of efficiencies based on energy conservation from common pathways, and the connection of these efficiencies to microbial growth in a chemostat. Building on these fundamental concepts of metabolic potential and conserving energy and acquiring reducing equivalents from redox reactions, the second section covers the reactions and energetics of the primary microbial functional diversity such as phototrophy, lithotrophy, autotrophy, anaerobic respirations, and fermentations. It also introduces modern molecular biology techniques for studying microbial systems, and pulls the concepts of functional diversity together by illustration with the major nutrient cycles, including discussions of environments in which each reaction might be encountered. Finally, the last section applies these ecological principles to several specific engineered environments of interest. Homework assignments throughout the semester involve questions about the methods, findings, or applications of recent articles that highlight the recently covered material, giving the students experience in the critical evaluation of primary literature and demonstrating the relevance of the material to environmental microbiology research and application. Complementing the progression of the lectures are eight instructional laboratories that provide hands-on application of diagnostic microbiological techniques to the characterization of environmental enrichment cultures and pure cultures. For example, a microscopy lab immediately follows the lecture material on cell biology, an enrichment experiment follows the material on nutrition, an enumeration experiment follows the section on microbial growth, etc. The final seven weeks of the laboratory period are devoted to group projects, in which students apply the techniques they have learned as appropriate to answer specific short-term research hypotheses. The final period is devoted to group presentations of their projects.

Enforced Prerequisite at Enrollment: CE 370

CE 488C: Capstone Project - Construction

4 Credits/Maximum of 4

This course consists of a project either selected by the students with approval or assigned by the instructor. C E 488C Capstone Project - Construction (4) This course integrates the structural design and construction skills through an application to a project focusing in the construction management area. The course is serves as the capstone of the senior student's education courses. The course C E 488C identifies the student selection of a construction capstone project. The student works on a team during the course project process. The team will be evaluated on different assignments during the project as well the final product. The team will submit a final written report as well make an oral presentation. The SDCET advisory board is invited to participate in the oral participations. The 4 credit hour course is separated into two parts which are taken in two consecutive semesters. The first course offering is for 1 credit to provide the students an overview of the course and an introduction to the project. The course is then repeated for 3 credits the following semester for the project. This is to allow the necessary time for students to complete the project.

Enforced Prerequisite at Enrollment: Eighth-semester Structural Design and Construction Engineering Technology (SDCET_BS) Enforced Concurrent at Enrollment: CET 430 and CET 431 and CET 432 and CET 435 and CE 456

CE 488D: Capstone Project - Structural Design

4 Credits/Maximum of 4

This course consists of a structural design project either selected by the students with approval or assigned by the instructor. C E 488D Capstone Project - Structural Design (4) This course integrates the structural design and construction skills through an application to a project focusing in the construction management area. The course is serves as the capstone of the senior student's education courses. The course C E 488D identifies the student selection of a structural design capstone project. The student works on a team during the course project process. The team will be evaluated on different assignments during the project as well the final product. The team will submit a final written report as well make an oral presentation. The SDCET advisory board is invited to participate in the oral participations. The 4 credit hour course is separated into two parts which are taken in two consecutive semesters. The first course offering is for 1 credit to provide the students an overview of the course and an introduction to the project. The course is then repeated for 3 credits the following semester for the project. This is to allow the necessary time for students to complete the project.

Enforced Prerequisite at Enrollment: Eighth-semester Structural Design and Construction Engineering Technology (SDCET_BS) Enforced Concurrent at Enrollment: CET 430 and CET 431 and CET 432 and CET 435

CE 494: Senior Thesis

1-9 Credits/Maximum of 9

Students must have approval of a thesis adviser before scheduling this course.

CE 494H: Honors Senior Thesis

1-6 Credits

Investigation of an original project in the area of Civil Engineering. C E 494H C E 494H Honors Senior Thesis (1-6) Investigation of an original project in the area of Civil Engineering. The thesis topic must be approved by the honors advisor and thesis advisor and submitted as a thesis proposal to the Schreyer Honors College prior to scheduling the course. Students may register for a total of 6.0 credits over their last two semesters.

Honors

CE 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

CE 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

CE 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Civil Engineering Technology (CET)

CET 308: Construction Methods and Materials

3 Credits

The study of the methods and materials used in the construction industry.

Prerequisite: MATH 022 , MATH 026 , EDSGN 100 or EGT 101 and EGT 102

CET 342: Civil Engineering Materials - Concrete and Bituminous

3 Credits

Properties and tests for aggregates, portland cement, fresh and hardened concrete, concrete mix designs. Bituminous Materials: properties, mixtures and tests.

Prerequisite: MATH 022 , MATH 026

CET 343: Soils Mechanics

3 Credits

This course presents the fundamentals of engineering soil mechanics related to civil engineering. CET 343 Soil Mechanics (3) This course presents the fundamentals of engineering soil mechanics related to civil engineering. The course provides the initial exposure to soil mechanics, presenting the fundamentals essential to further study in foundation engineering and other advanced courses. The course begins with

coverage of how soil properties influence the different types of structures or facilities built by structural and construction engineers. Students study the formation of natural soil deposits by the geological and biological events in the earth's history. The soil sampling procedures are briefly explained, and then various index properties of soils are determined, and utilized in engineering classifications of soils. Options available for compacting soils in the lab and field are studied. The laboratory tests for finding soil permeability are studied, followed by coverage of empirical equations for estimating the permeability. Simple cases of seepage are analyzed using graphical flow net method. Elastic half-space theories and approximate methods are used for estimating the stress distribution in soils. The concepts of pore water pressure and effective stress are introduced. The covered strength theories include the unconsolidated undrained shear strength parameters. Elastic compression and consolidation compression are covered in this course. The course ends with simple field soil investigation procedures.

Prerequisite: MATH 140 , Statics; Concurrent: ET 322 or EMCH 213 or MET 213

CET 361: Fluid Flow

3 Credits

Fluid flow theory; hydrostatics; dimensional analysis and similitude; pipe flow; flow measurement; open channels; flow forces; fluid machinery.

Prerequisite: MATH 140 , Statics, Dynamics

CET 430: Structural Analysis

3 Credits

Analysis of determinate structures; use of influence lines; deflection of structures; classical methods of analysis of statically indeterminate structures.

Prerequisite: Statics, Strength of Materials, MATH 140

CET 431: Structural Design-Steel

3 Credits

Design of steel beams, columns, truss members, decks, bar joists and selected connections.

Prerequisite: Statics, Strength of Materials, MATH 140; Concurrent: CET 430

CET 432: Structural Design-Reinforced Concrete

3 Credits

Design of reinforced concrete beams, columns, slabs, and selected framing systems for bending and shear. Introduction to formwork design.

Prerequisite: Statics, Strength of Materials, MATH 140; Concurrent: CET 430

CET 434: Foundations

3 Credits

Analysis and design of footings, piling, retaining walls; consideration of construction problems involving soils and foundations of structures.

Prerequisite: CET 343 , CET 430 , CET 432

CET 435: Construction Estimating

3 Credits

Methods and techniques used in estimating construction cost; practice in takeoffs, costing and final bid preparation; microcomputer applications/class projects.

Prerequisite: ED&G 100 , ET 200 , C E 333W

Classics and Ancient Mediterranean Studies (CAMS)

CAMS 1: Greek and Roman Literature

3 Credits

CAMS 1 Greek and Roman Literature (3) (GH)(BA) This course surveys the traditions of classical literature exemplified by the masterworks of Greek and Roman authors. The choice of readings (in English translation) may vary from semester to semester, but the curriculum typically covers mythological epic (Homer, Virgil, and Ovid); tragedy (Aeschylus, Sophocles, Euripides, and Seneca); and comedy (Aristophanes and Plautus). The course may also examine minor poetic genres such as lyric, elegy, and satire; or the development of prose genres such as historiography, philosophical dialogue, rhetoric and oratory, and biography. The principal objective of CAMS 1 is to acquire knowledge of the story world of Greek and Roman literature, whose characters include the gods, goddesses, heroes, and heroines of classical mythology. A second objective is to understand the rules that govern the genres of Greek and Roman literature. Third, students learn how to interpret classical literature within its social and historical context as well as through the application of both ancient and modern literary theory. CAMS 1 is an introductory course that may be credited toward every Classics and Ancient Mediterranean Studies major, option, and minor. CAMS 1 meets the Bachelor of Arts degree requirements and is a General Education course in the Humanities (GH).

Bachelor of Arts: Humanities

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

CAMS 4: Jewish and Christian Foundations

3 Credits

This course seeks to help students better understand the Bible and appreciate its role as an authoritative collection of sacred texts for Jews and Christians. The Bible is a difficult book, one that is demanding on many levels. In order to read the Bible intelligently, it is important to understand the historical and cultural backgrounds of the biblical writings. This course explores the history and geography of ancient Near Eastern civilizations that shaped the experience of ancient Israel and, later, the Greek and Roman imperial contexts that shaped Second Temple Judaism and early Christianity. The focus of the course, however, is on the biblical narrative itself and the particular ways that the story of Israel and its covenant with God was represented in scripture: in tales, poems, hymns, dialogues, and genealogies. A basic goal of the course, then, is to promote intelligent, well-informed reading of the Bible. Also important is the willingness to read the Bible closely and critically, with a view toward

larger questions raised by biblical texts: how is God to be known and understood? What is the purpose of human life in the world? What moral obligations ought to structure our common life? Does human history have direction and purpose? What is the good and how do we follow it? The Bible takes up these questions and many more. Though an ancient anthology shaped by the succession of Assyrian, Babylonian, Persian, Hellenistic, and Roman empires, the Bible is not merely a product of its original contexts. Millennia of transmission and interpretation have made it a product of history in a much more extended and dynamic sense. In this course, we will examine larger questions raised by the biblical writers and consider the ways that the Bible has shaped, informed, and guided Jewish and Christian ways of life.

Cross-listed with: JST 4, RLST 4
 Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 United States Cultures (US)
 General Education: Humanities (GH)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

CAMS 5: Ancient Mediterranean Civilizations

3 Credits

Survey of the history and cultures of ancient Mediterranean civilizations in Mesopotamia, Egypt, Syro-Levant, Anatolia, Greece, and Rome. CAMS (HIST) 5 Ancient Mediterranean Civilizations (3) (GH;IL) This course provides an introduction to the history and cultural traditions of the ancient civilizations of the Mediterranean. From the origins of cities and the invention of writing, it surveys the intellectual, artistic, and political traditions that laid the foundations for the later civilizations of Europe and western Asia. Students will acquire a basic historical framework for the ancient Mediterranean from the third millennium BCE through the end of antiquity in the first millennium CE. Within this framework cross-cultural relationships of time and ideas will be established among religious texts, epic literatures, and political and legal traditions. In the part of the world where the division between Asia and the East and Europe and the West was born, the course will examine the development of regional and ethnic identities along with the historical development of concepts of the universal nature of humanity. This course is designed to serve as the foundation course for all majors in the department of Classics and Ancient Mediterranean Studies (CAMS).

Cross-listed with: HIST 5
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

CAMS 10: Mesopotamian Civilization

3 Credits

This course will introduce students to the history of the civilization and the culture of Ancient Mesopotamia (Modern Iraq), which contributed to shape both the Western world and the modern Middle East. Ancient Mesopotamia was a land of contrasts between city and countryside,

between sedentary and nomadic populations, between official cult and popular religion, between royal ideology and political skepticism. This course will encompass the variegated nature of this civilization and all the cultures that determine the nature of the historical records (written texts and material culture), through which one can reconstruct the history of Mesopotamia, and, in general, the whole Syro-Mesopotamian region. Furthermore, the connections between this region and other areas of the Ancient near East (Iran, Anatolia, Syro-Palestine, and Egypt) will be explored.

Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Key Literacies

CAMS 10U: MESOPOTAMIAN CIVILIZATION

3 Credits/Maximum of 3

This course will introduce students to the history of the civilization and the culture of Ancient Mesopotamia (Modern Iraq), which contributed to shape both the Western world and the modern Middle East. Ancient Mesopotamia was a land of contrasts between city and countryside, between sedentary and nomadic populations, between official cult and popular religion, between royal ideology and political skepticism. This course will encompass the variegated nature of this civilization and all the cultures that determine the nature of the historical records (written texts and material culture), through which one can reconstruct the history of Mesopotamia, and, in general, the whole Syro-Mesopotamian region. Furthermore, the connections between this region and other areas of the Ancient near East (Iran, Anatolia, Syro-Palestine, and Egypt) will be explored.

International Cultures (IL)
 General Education: Humanities (GH)
 Honors
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Key Literacies

CAMS 12N: Lands of the Bible

3 Credits

Utilizing the textual and archaeological evidence, this course introduces students to the lands, cultures, and peoples associated with the Hebrew Bible, New Testament, and Qur'an. Geographically, the lands of the Bible encompass what is often referred to as the Cradle of Civilization or Fertile Crescent - an arc-shaped region defined by the Nile, Jordan, Tigris and Euphrates river valleys. Today this crescent includes the modern countries and regions of Egypt, Israel, the Palestinian territories, Jordan, Syria, southeastern Turkey, and Iraq. Spanning ten millennia of history (ca. 9000 BCE-750 CE), this course explores a series of landmarks in the history of human development, which are considered together with Jewish, Christian, and Islamic traditions. These include the birth of religion and the agricultural revolution (Garden of Eden), the first cities and the invention of writing (Tower of Babel; Patriarchal/Matriarch

traditions), Egyptian imperial rule in Canaan (Exodus), the collapse of the Bronze Age (Emergence of Israel), impact of empire (united and divided kingdoms of Israel and Judah), Alexander the Great and the Roman imperial expansion to the east (world of Jesus and development of rabbinic Judaism), Byzantine Palestine (expansion of Christianity), and the Islamic conquest of the Holy Land. Through an integration of numerous disciplines, including historical geography, archaeology, ancient history, biblical studies, epigraphy, and anthropology, students will investigate the interaction between the cultures of the ancient Near East and the religious traditions that developed in the lands associated with the Bible, a relationship that continues to shape the region and the world until today.

Cross-listed with: JST 12N, RLST 12N

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

CAMS 15: Wonders of the Ancient World

3 Credits

Overview of the ancient world by focusing on the famed "Seven Wonders" and similar achievements from 3000 B.C.E.-1st Century C.E. The core of this course is comprised of the Seven Wonders of the Ancient World: the Great Pyramid in Egypt, the Hanging Gardens of Babylon, the Temple of Artemis at Ephesos, the Statue of Zeus Olympios, the Mausoleum of Halikarnassos, the Colossus of Rhodes, and the Lighthouse of Alexandria. Throughout the semester other wondrous monuments and archaeological discoveries are covered as well. Depending on the expertise of the professor other archaeological sites and monuments may also include the Egyptian capital and reign of the Pharaoh Akhenaten and Nefertiti, the unlooted tomb of the Pharaoh Tutankamen, the Bronze Age Palaces of the Minoans of Crete and the Mycenaeans of mainland Greece, Troy, Shipwrecks of the Late Bronze Age, the mystery of the End of the Bronze Age, the Parthenon and Cult Statue of Athena on the Acropolis in Athens, the Temple of Zeus Olympios and athletic games at Olympia, Alexander the Great and his conquests in the East, the Royal Cemetery at Vergina and its unlooted tombs, and new explorations in Alexandria Egypt. If taught by an Egyptologist the course might include additional monuments and archaeological sites in Egypt, whereas if taught by a Near Eastern specialist the course might include additional monument and sites in the Near East.

Bachelor of Arts: Humanities

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

CAMS 16: How to Live

3 Credits

Philosophy considers how best to live. This is valuable, since there is a lot that is uncertain. Should one mostly eliminate superstition and fear and practice mental tranquility? Or control bodily desires and practice endurance? Or examine one's beliefs and practice modesty? Or think about your every action and practice justice? Or change how others think and practice institutional change? Different philosophical and reflective cultures have focused on one or another of these possibilities, or proposed yet others. This course studies a range of cultures that have formulated the question, "How should I/we live?" and have developed a set of candidate answers. Ancient or medieval cultures studied - for 1-3 weeks each - include those from ancient Greece, Rome, other areas around the Mediterranean, Indian, and Chinese. Modern cultures studied, as comparison cases, vary by instructor. Class-time focuses on historical context, literary content, and philosophical argument. Outside-of-class work includes reading, for instance Socratic dialogues, Stoic handbooks, meditation mantras, existential dramas, political manifestos, nature journals, or book reviews. It also includes, as the distinctive element of this course, a practical experience for each unit. Students track, process, and evaluate their experiences through journaling and discussion with other students. At the semester's end, students develop their own philosophical "best way of life," formulating and justifying rules, models, or virtues to live by, and engage in conversation with other students on this topic. Students should leave the class recognizing the diversity and challenge of a range of way-of-life ideals, their historical context and contemporary promise, how to decide on their appropriateness for themselves, and what it would mean to adopt, refine, and support their own "philosophy" of life.

Cross-listed with: PHIL 15

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

CAMS 20: Egyptian Civilization

3 Credits

This course will introduce the student to a number of basic problems inherent in the advent and nature of complex society which resonate in all world cultures, and for which Egypt can be used as the most revealing case study. The themes to be addressed include: the appearance of monarchy and civil service, the invention of writing and the needs it fulfilled, the concept of the nation state, the technological advancement of ancient river valley civilizations, civic religion, systems collapse, the concept of empire, and the relationship of Egypt to the surrounding Mediterranean world.

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

CAMS 25: Greek Civilization

3 Credits

This course explores the cultural, political, and historical identity of the ancient Greeks who they were, what they achieved, how they organized their society, and what they believed. This is not a history of ancient Greece, but an examination into the different facets of ancient Greek civilization, including the Trojan War myth, the ancient Olympics, the rise of democracy, slavery, the cultural and political contexts of artistic performance, and the sex-gender system. Students will pursue these topics and others using an interdisciplinary approach, consulting evidence from Greek literature, art, history, and philosophy. Ultimately, this course will provide students with a broad background in ancient Greek civilization and prepare them for more advanced work in the ancient Mediterranean world. As such, it fulfills both the GH and IL requirements.

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

CAMS 25U: Greek Civilization - Honors

3 Credits

This course explores the cultural, political, and historical identity of the ancient Greeks-who they were, what they achieved, how they organized their society, and what they believed. This is not a history of ancient Greece, but an examination into the different facets of ancient Greek civilization, including the Trojan War myth, the ancient Olympics, the rise of democracy, slavery, the cultural and political contexts of artistic performance, and the sex-gender system. Students will pursue these topics and others using an interdisciplinary approach, consulting evidence from Greek literature, art, history, and philosophy. Ultimately, this course will provide students with a broad background in ancient Greek civilization and prepare them for more advanced work in the ancient Mediterranean world. While this course covers much of the same material as CAMS 25, this is an honors course. Students will be asked to do additional readings and to complete a research project at its conclusion. In addition, it fulfills both the GH and IL requirements.

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

Honors

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

CAMS 33: Roman Civilization

3 Credits

CAMS 033 Roman Civilization (3) (GH;IL) (BA) This course meets the Bachelor of Arts degree requirements. Roman Civilization (CAMS 033) provides a comprehensive survey of an ancient society whose impact continues to be felt across a range of modern cultures in the twenty-first century. For more than a millennium, the Romans ruled an empire that eventually spanned three continents (Europe, North Africa, the Near and

Middle East). Studying their culture can inform our own understanding of modern life both nationally and internationally. Many ideas in such diverse areas as government, law, military organization and strategy, the calendar, social practices, urban life, literature, art, and architecture clearly derive from Roman practices. Furthermore, study of the Romans includes learning in detail about the geography and resources of a very large area of the world. Knowledge of the Romans and the similarities and important differences between their lives and ours also provide an opportunity to reflect on human values and contemporary culture. The course includes discussion of the origin of the Romans, how they saw it themselves, and the rather different picture painted by modern archaeology. How the Romans expanded and maintained their power with long periods of peace from what is now southern Scotland to North Africa, and from Gibraltar to the borders of India, and how their power waned in the later Roman period illustrates many aspects of political institutional design. Roman society included various social groups, from slaves to the wealthy members of the traditional nobility. The opportunity for movement from slave to freedman or freedwoman to full citizen helps explain why for generations Roman rule was widely accepted. Roman urban life, with its public meeting halls, baths, arenas, race courses, theaters, luxurious houses and apartment blocks spread across Europe, North Africa, and the Near East. The most influential works of Rome's poets, such as Vergil's "Aeneid" and Ovid's "Metamorphoses," remain rich sources for current writers, composers, and choreographers. Roman historians and thinkers also continue to inform and inspire. Religious beliefs and the causes for the growth of Christianity likewise remain relevant to the present.

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

CAMS 44: Ancient Near Eastern and Egyptian Mythology

3 Credits

This course provides a survey of all major Ancient Near Eastern mythological traditions in their cultural and historical context. The course also addresses the relation between myth and religion, as well as the relation between these mythological corpora and those of Ancient Greece and Rome and the tapestry of cultic traditions reflected in the Hebrew Bible.

Cross-listed with: RLST 44

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

CAMS 45: Classical Mythology

3 Credits

CAMS 45 Classical Mythology (3) (GH;IL)(BA) CAMS 45 introduces the myths of ancient Greece and Rome as they are represented in the canonical works of Greek and Latin literature and art. Students become

conversant in classical mythology by studying the stories of gods and goddesses and heroes and heroines. The course discusses the meaning and function of myths in their historical, religious, and literary contexts. It may also approach the interpretation of myth from different disciplinary perspectives (comparative mythology, critical theory, cultural anthropology, gender theory, history, philosophy, psychology, religion, or rhetoric). In addition, CAMS 45 gives students the opportunity to apply their knowledge and understanding of myth to the flourishing legacy of classical mythology in the literature, art, and culture of subsequent ages. CAMS 45 meets the Bachelor of Arts degree requirements. It also fulfills the General Education humanities requirement and the International Cultures requirement.

Bachelor of Arts: Humanities
International Cultures (IL)
General Education: Humanities (GH)
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Soc Resp and Ethic Reason

CAMS 45H: Classical Mythology

3 Credits

CAMS 45H Classical Mythology (3) (GH)(H)(IL)(BA) CAMS 45H introduces the myths of ancient Greece and Rome as they are represented in the canonical works of Greek and Latin literature and art. Students become conversant in classical mythology by studying the stories of gods and goddesses and heroes and heroines. The course discusses the meaning and function of myths in their historical, religious, and literary contexts. It may also approach the interpretation of myth from different disciplinary perspectives (comparative mythology, critical theory, cultural anthropology, gender theory, history, philosophy, psychology, religion, or rhetoric). In addition, CAMS 45H gives students the opportunity to apply their knowledge and understanding of myth to the flourishing legacy of classical mythology in the literature, art, and culture of subsequent ages.

Bachelor of Arts: Humanities
International Cultures (IL)
General Education: Humanities (GH)
Honors
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Key Literacies

CAMS 50: Words: Classical Sources of English Vocabulary

3 Credits

CAMS 50 Words: Classical Sources of English Vocabulary (3) (GH) (BA) offers an introduction to the history, structure, and meaning of modern English words that are formed from Latin and Greek elements. Many English language users are unacquainted with Latin and Greek or unaware that these languages are the etymological sources for at least 60 percent of English vocabulary. Consequently, it is common for students to have difficulty understanding or implementing English words derived from Latin and Greek. CAMS 50 leads students through a program that helps them to learn and analyze the form and meaning of the Latin and Greek roots and affixes that occur most frequently in English vocabulary. Class lectures, textbook readings, workbook exercises, and various kinds of classwork show students how to research and explain the etymologies of English words and in particular

how to use dictionaries and the explanatory methods of comparative historical linguistics. By understanding the relationship of English to other languages in the Indo-European family tree and by taking account of the historical events and social circumstances that gave rise to the borrowing of words from other languages, students will also come to understand when, how, and why modern English vocabulary has become so indebted to Latin and Greek. A secondary aim of the course is to explore specialized vocabularies in the humanities, medicine, law, science, and technology, whose word-stock is predominantly of Latin and Greek origin. Upon completion of the course, students will have increased their vocabulary and be able to recognize and analyze new words derived from Greek and Latin sources.

Bachelor of Arts: Humanities
General Education: Humanities (GH)
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Key Literacies

CAMS 70: Prophecy in the Bible and the Ancient Near East

3 Credits

This course will introduce students to the prophetic traditions of the Bible and the Ancient Near East. The course will explore the development of prophetic circles in the ancient Near East (including Egypt, Syria-Palestine, and Mesopotamia), and then focus on the major prophetic traditions of the Hebrew Bible (e.g., the books of Isaiah, Jeremiah, Ezekiel, Amos, Hosea, Micah, Haggai, Zechariah, and Daniel). It will also look at how these traditions were understood in early Judaism and nascent Christianity. Special attention will be paid to the roles of priests, kings, and prophets in ancient Israel to better understand Israelite and Judaeen prophetic traditions in ancient Israelite society. The course will then examine the rise of apocalypticism and its medieval and modern manifestations including a brief look at Islam. Additional emphasis will be placed on the religious and political interactions which manifest themselves in prophetic movements - then and now - including the rhetoric of ideology and propaganda. Important figures and events illustrate these cultural and political trends.

Cross-listed with: JST 70, RLST 70
International Cultures (IL)
General Education: Humanities (GH)
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Key Literacies

CAMS 83Y: First-Year Seminar in Classics and Ancient Mediterranean Studies

3 Credits

Critical approach to the study of ancient Mediterranean languages, literatures, histories, and material cultures. CAMS 83Y First-Year Seminar in Classics and Ancient Mediterranean Studies (3 credits) (GH;FYS;IL;Y) meets the (BA) Bachelor of Arts degree requirements and satisfies the (Y) Writing Across the Curriculum requirement in International Cultures. The first-year seminar in Classics and Ancient Mediterranean Studies (CAMS) is concerned with selected features of one or more of the cultures that surrounded the Mediterranean Sea in antiquity, from around 3,500 B.C. to 500 A.D. The topic of CAMS first-year seminars varies. In all offerings of this course students will be introduced to the civilizations

that surrounded the Mediterranean Sea in ancient times and why their great accomplishments, their struggles, and their failures remain important to us even today. Students will learn about ancient literature and physical remains that provide information about these cultures. Students will learn to assess theories about ancient societies, the types of evidence that exist for antiquity, and how to gain access to academic resources in the library and in electronic form. Some recent seminar topics include a critical study of widely believed "Ancient Mysteries," such as the continent of Atlantis and Pyramid Power; a seminar on "Greek Gods in Action," investigating how the Greeks believed that the gods influenced them and might even live among them; a seminar on the relationships among Christians, Jews, and Pagans in the later Roman period; and "Word Power," a course that gives students linguistic tools to understand the sources and nature of much of our modern English vocabulary. Students will read selections of ancient literature in English translation and examine the remains of the societies that produced them to ponder basic questions about the meaning and value of human life. Some knowledge of ancient Mediterranean cultures has always been indispensable to intelligent participation in contemporary society. By examining selected topics in a seminar format, students learn how scholarship advances in an academic environment while also learning how features of ancient languages, and religious, political, and social ideas formulated in antiquity give insights into our own culture and into the common humanity that all people share.

Bachelor of Arts: Humanities
International Cultures (IL)

First-Year Seminar

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

CAMS 90: Jerusalem: Past, Present, and Future

3 Credits

Jerusalem, a city sacred to Judaism, Christianity, and Islam, is often depicted as the spiritual and physical center of the world. Throughout its 5000-year history, Jerusalem has attracted diverse cultures, empires, and peoples who have vied for control of this holy city. Jerusalem: Past, Present, and Future surveys the cultural, religious, political, archaeological, and historical record of Jerusalem, beginning with its earliest settlement during the third millennium BCE; through its expansion as a second millennium Canaanite urban center; its role as the capital of Israel and Judah during the first millennium BCE biblical periods; the influence of the Egyptian, Assyrian, Babylonian, Persian, Hellenistic, Roman, Byzantine, Crusader, Mamluk, and Ottoman empires; and its development under Jewish, Christian, and Islamic control. The significance of Jerusalem's past, its impact on contemporary society and politics in the modern Middle East, and differing visions for this contested city's future are examined in light of various interpretations of the textual and archaeological evidence.

Cross-listed with: JST 90, RLST 90

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

CAMS 99: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Humanities

International Cultures (IL)

CAMS 100: Ancient Greece

3 Credits

The Greek world from the earliest Aegean cultures to the death of Alexander the Great and the beginnings of Hellenistic civilization. CAMS 100 / HIST 100 Ancient Greece (3) (GH;IL)(BA) This course meets the Bachelor of Arts degree requirements. The course presents a survey of ancient Greek history and culture beginning with the Bronze Age palace-states of Crete and Mycenae, examines the emergence of Greek city-states, notably Athens and Sparta, traces their transformation through conflicts among themselves and with the Persian empire, and describes their eventual eclipse by the kingdom of Macedon. Since this course treats the beginnings of historical writing among the Greeks, students learn to evaluate diverse historical texts and their relationship to legend, myth, and poetry. The nature of historical thought itself is emphasized throughout the course. Also emphasized is the debate between the egalitarian Justice of democracy, the sober wisdom of oligarchy, and the overwhelming power of monarchy, as experienced by the Greeks down to the end of the fourth century B.C.E.

Cross-listed with: HIST 100

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

CAMS 101: The Roman Republic and Empire

3 Credits

History of the Roman Republic and Empire from the origins of Rome to the disintegration of the Empire. CAMS 101 / HIST 101 The Roman Republic and Empire (3) (GH;IL)(BA) This course meets the Bachelor of Arts degree requirements and fulfills 3 credits of the General Education-Humanities (GH) requirement. The course provides an introduction to the ancient Roman empire: how that empire came into being, how it evolved, how it came to govern much of the Mediterranean and European world, and how that empire declined. The course demonstrates the social and legal structures employed by a past society to govern an ethnically and religiously diverse population. The course also introduces students to the sources of our knowledge of the past, and illustrates how these sources are to be critically evaluated. This course complements other courses on the ancient Mediterranean world (such as HIST 100 / CAMS 100) and is a prerequisite to more advanced (400-level) courses in ancient Mediterranean history.

Cross-listed with: HIST 101

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

CAMS 102: Canaan and Israel in Antiquity

3 Credits

This course is an overview of the ancient history and cultures of Canaan (the Mediterranean Levant of Syria-Palestine) and the emergence of Israel. It involves a critical view of biblical texts (especially the Hebrew Bible, aka Old Testament) in light of other ancient texts, archaeology, and historical methods, in order to explain the nature and the evolution of society, religion, and thought in the prebiblical and biblical era. We will be especially interested in the period from the end of the Late Bronze Age (c. 1200 BCE) to the Persian period (539-332 BCE), and will examine ongoing debates about the Bible and history, as well as the development of Israelite religion from polytheism toward monotheism and a distinctive worldview.

Cross-listed with: HIST 102, JST 102, RLST 102

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

CAMS 104: Ancient Egypt

3 Credits

This course will track the history of Egypt, the first nation state in the world, covering a time span of over 3,000 years. The investigation of the history will focus primarily on the major players (i.e. the pharaohs themselves) and the political events that shaped their reigns. Its history involves not only the Nile Valley, but also that of the entire northeast African continent and lands of Western Asia. The magnificent ruins and artifacts that have survived offer the student a visual examination of the ancients and will provide illustration to a great extent of the specific time periods and dramatic incidents. The student will also be confronted at every turn by textual sources (in translation) and the archaeological evidence. The latter will be addressed at length with introduction to archaeological expeditions. This will serve to teach the student the contribution of archaeological method and interpretation in the knowledge and understanding of the history of the Near East.

Cross-listed with: HIST 104

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

CAMS 105: History of the Ancient Near East

3 Credits

History of the Ancient Near East from the end of the Neolithic to the Hellenistic period. CAMS 105 History of the Ancient Near East (3) (GH;IL) (BA) This course meets the Bachelor of Arts degree requirements. The objective of this course is to introduce the student to the history of Ancient Near Eastern societies. The geographic areas to be covered include Mesopotamia, Iran, Anatolia, Syro-Palestine, and Egypt. This course will stress the variegated nature of civilizations in those geographic areas and focus on the written texts and material culture through which we can reconstruct the history of the Ancient Near East. This course complements similar introductory courses in ancient Mediterranean history and civilizations. This course satisfies major and minor requirements for programs of study in the Dept. of Classics and Ancient Mediterranean Studies. A special emphasis will be placed on those aspects that permit us to relate to the seemingly arcane mechanisms lying behind the social, religious, and political interactions which characterize the history of these civilizations, especially ideology, economy, and propaganda. Major figures and events will be presented as being as symptomatic of cultural or political trends.

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

CAMS 109Y: Writing Systems of the World

3 Credits

This course aims at providing students with a thorough understanding of the role played by writing systems in the development of civilizations and the articulation of polities. The emphasis will be placed on historical, cultural, economic & religious matters. In order to fully comprehend the nature of these issues, the lion's share of the course will focus on the functions & the development of early writing in Mesopotamia, Egypt, China, and the Americas. Additional attention will be given to the history of early writing systems. We will examine how the writing systems in the Near East and East Asia originated and developed orthographic strategies & conventions to record the linguistic realities for which they were designed; what processes & mechanisms facilitated the creation of the first alphabet in the Ancient Near East; how modern scholars have been able to decipher scripts lost long ago (such as Egyptian hieroglyphs & Mesopotamian cuneiform), and how some decipherment processes are advancing & improving our knowledge of other civilizations (such as Maya hieroglyphs). The study of the social & cultural aspects of writing will be grounded in a diachronic approach. In that regard, the course will engage with a variety of historical concerns: the possible reasons for which certain cultures may have started to use writing for bureaucratic & economic reasons, whereas others (such as early China) would seem to have started to use it for rather more symbolic realms of life; and the relation between writing, identity, and script in different areas.

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Key Literacies
 Writing Across the Curriculum

CAMS 110: Introduction to the Bible: Old Testament

3 Credits

The Old Testament (or, Hebrew Bible) is the record of the interaction between the people of ancient Israel and their God. As a religious text, the Bible is inextricably intertwined with the cultures of Israel's neighbors, including the Canaanites, Syrians, Greeks, Assyrians, Babylonians, Arabs, Egyptians, and the peoples of the eastern desert. To study the Hebrew Bible and its development during the first millennium BCE is to study the history, culture, and literature of the entire region. This course introduces students to the literature of ancient Israel, its rituals, the stories which established a people's identity, and which defined their moral behavior. Great figures of the texts, such as Moses, David, Solomon, Bathsheba, Ruth, Jeremiah, Daniel, and Ezra, teach us important lessons about life and how people of faith attempted to relate to one another, to God, and to people outside their ethnic group. Students will read from the biblical text, as well as from secondary source readings which contains scholarly opinion from a variety of sources. Recent archaeological and epigraphical studies will be incorporated into the course to enhance our work. The ultimate goal will be to assess the meaning of the texts in their ancient Near Eastern environment; to understand the development of Hebrew religion and the beginnings of Rabbinic Judaism; and to understand the connection between biblical studies and other fields of study, such as History, Religious Studies, Archeology, Linguistics, and Comparative Literature.

Cross-listed with: JST 110, RLST 110
 Bachelor of Arts: Humanities
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

CAMS 111: Early Judaism

3 Credits

Early Judaism will introduce students to the history of Judaism as reflected in Jewish literature from the period of the Babylonian exile (587/6 BCE) to the closure of the Babylonian Talmud (ca. 600 CE). This course will analyze the development of Judaism from its emergence out of the ancient Israelite religion through the formative period of rabbinic Judaism. Attention will be given to the diversity of ideas and practices that characterized early Judaism and the influence the larger Persian, Hellenistic, and Roman worlds had on Judaism's development. We will examine selections from the Hebrew Bible, and from other literature, including the Dead Sea Scrolls, the Apocrypha, the New Testament, the Mishnah, and the Talmudim.

Cross-listed with: JST 111, RLST 111
 Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)

General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

CAMS 113: Jewish Myths and Legends

3 Credits

Comparative study of diverse interpretations of stories from the Bible in Judaism and Christianity. CMLIT 113 / JST 113 / CAMS 113 / RLST 113 Myths and Legends of the Jews (3) (GH;IL) The impact of the Bible on Western Culture is immense. Beyond its religious importance, the motifs and images from its myths and stories permeate literature and art, providing a basic frame of reference that for much of history could be taken for granted. A degree of familiarity with these motifs so as to be truly fluent is no longer common, and so it requires special effort to discern allusions to biblical traditions. Moreover, these traditions are not static: religious communities continually re-interpret them and appropriate them in very different contexts. Many prominent traditions in Judaism, Christianity, and Islam do not appear explicitly anywhere in the Hebrew Bible, but are the product of imaginative and ingenious interpretation and re-tellings. Why, for example, is Noah an example of a righteous person in Christian tradition, but in rabbinic tradition is more often portrayed as a profane, earthly-minded man who was saved only because he was the least bad of an evil generation? Why is Moses commonly portrayed with horns in medieval art? Underlying such different traditions are centuries of debate and reflection on these texts as sacred scripture, and competing religious communities often authorized their distinctive beliefs and practices by reading them into scripture. The differences are often too subtle to discern apart from careful comparison. This course will explore the boundaries between Scripture and tradition by means of a close examination of the myths and stories in the Hebrew Bible and their subsequent interpretation and re-tellings in Judaism, Christianity, and Islam. Using methods from comparative mythology and folklore, as well as comparative midrash, our procedure will be to compare these traditions closely with the biblical text, asking: What are the main motifs in the mythology of Judaism? Does Judaism have a coherent mythology? How do their myths compare with the myths of their neighbors? Where did these myths come from? How do these traditions relate to the Bible? What was the function of these myths? Why are there competing myths? How is it possible that Judaism affirms belief in only one God, but has myths that include other divine beings? We will also compare with later interpretive traditions (Jewish, Christian, Islamic). Can we trace trajectories of interpretation? Can we discern particular interpretive methods in operation? We will seek to answer: what do these re-workings of the traditions tell us about the development and function of Scripture, and the social circumstances of the communities? Finally, we will seek to detect reflections of these interpretive traditions in literature and art from the medieval to the modern periods. The course is organized around major topics in the Jewish Scriptures: God, creation, heaven and hell, Torah, Sabbath, Abraham and other ancestors, Israel and holy land, exile, and Messiah. Throughout we will consider how sacred stories function to form ethical perspectives and values.

Cross-listed with: CMLIT 113, JST 113, RLST 113
 Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

CAMS 115: Literature of the Ancient Near East

3 Credits/Maximum of 3

Reading and study of literary works from the Ancient Near East, especially from Mesopotamia and Ancient Egypt. This course is designed to provide the student with both a basic knowledge of Ancient Near Eastern literature and the tools to appreciate it. It will present a wide sample of literary compositions from Ancient Mesopotamia and Ancient Egypt, along with some parallels from Ancient Anatolian and Syro-Palestinian traditions. Although mythology is not the main focus of the course, some mythological compositions will be read because of their literary fabric and epic structure. The course will be divided into two main sections: Mesopotamian and Egyptian literatures. Students will read some of the most famous literary compositions from the Ancient Near East (such as Gilgamesh and the Babylonian story of creation), as well as a representative sample of works from a wide variety of genres (love poetry, mythological narratives, laments, religious hymns, tales, wisdom literature). These compositions will be approached from a literary and aesthetic point of view, without neglecting the inherently problematic relation with their historical context (as in the case of compositions that mention actual historical characters, such as the legends of the Sargonic kings in Mesopotamia). Moreover, the works related to both official cult and popular religion (hymns, prayers, incantations, prophecies) will be read in their political, social, and religious context. In the limits between sacred and profane, our approach to love poetry will address some issues of ritual, gender, and sexuality. More strictly mundane genres (wisdom literature and humor) will show that some basic human concerns have remained unchanged. The course will provide students with a detailed overview of the main literary traditions and genres from the Ancient Near East, which played an essential role in the origins and shaping of the Bible as well as in some aspects of the Greek literary tradition. *i.e.*, the foundations of the Western understanding of literature and religious discourse.

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

CAMS 120: New Testament

3 Credits

CAMS 120 / JST 120 / RLST 120 New Testament (3) (GH)(BA) This course meets the Bachelor of Arts degree requirements. This course provides an introduction to the collection of early Christian writings that make up the New Testament. It begins with an examination of the first-century context in which these writings took shape—one overshadowed by the Roman empire, influenced by Hellenistic culture, and based, above all, on varieties of Judaism. From there, the course takes up a few guiding questions. How, in this ancient context, did the first Christians understand and portray the figure at the center of their communities, Jesus of Nazareth? What do the New Testament writings reveal about the beliefs and aspirations of these communities as they advanced a

movement that would, in time, become among the most consequential in world history? By the end of the course, students will have gained knowledge of the historical context of New Testament writings and an understanding of why the New Testament has been such an important and influential collection of writings.

Cross-listed with: JST 120, RLST 120

Bachelor of Arts: Humanities

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

CAMS 121: Jesus the Jew

3 Credits

Although Jesus of Nazareth is the object of Christian devotion, he was not a Christian himself, but a pious Jew. What can be known about the historical figure of Jesus the Palestinian Jew? How would his teachings and actions have fit in the context of Judaism of his day, in the Greco-Roman world? What did he mean when he proclaimed the coming kingdom of God? Because almost all of our source material espouses Jesus as the Christ of Christian faith, the first step is to understand the aims and perspectives of these Christian sources, including the canonical Gospels as well as non-canonical Gospels. Through careful examination of these sources in light of critical scholarship and the social and historical context of Judaism in the Greco-Roman world, we will consider how much the historian is able to reconstruct of Jesus using historical method, what the limits of this investigation are, and how relevant the task is. We will consider and evaluate a few of the different scholarly reconstructions of the historical Jesus. Major emphases will include the historical, social, religious, political, and cultural contexts of Jesus, including important precursors; the political, institutional, and cultural history of the teachings and actions of Jesus in their Jewish setting, and how these are reinterpreted by his followers after his death. Attention will be paid to the development of variant Christian traditions about Jesus including Jesus as Messiah, his death as a saving event, the resurrection as exaltation of Jesus as Lord, the memorialization of Jesus in Christian ritual practice, and the cultural and religious impact of Jesus throughout history. In addition to the early Christian sources on Jesus (especially the canonical Gospels, but also other New Testament texts and non-canonical writings), on each topic students will read selections from early Jewish writings in order to illuminate the cultural context. These include the Dead Sea Scrolls, Philo, Josephus, Jewish texts among the so-called Apocrypha and Pseudepigrapha, early rabbinic texts, and epigraphical writings. Relevant archeological evidence and Greco-Roman sources will also be considered. Broader issues of historical, cultural, linguistic, political and geographical context will be covered in lectures and secondary readings.

Cross-listed with: JST 112, RLST 121

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

CAMS 122: Apocalypse and Beyond

3 Credits

Apocalypse and Beyond is a topic (and title) meant to suggest that apocalyptic imagination about the end of the world, first begun in the Ancient Near East with certain Jewish and Christian writings, is constantly re-envisioned for each new age. Apocalyptic literature and world views are frequently produced by marginalized groups who perceive themselves to be persecuted, and who envision a violent (often divine) intervention, which alone will bring justice. In Part One of the course, we will examine the ancient literary genre of apocalypse, which was popular in the Ancient Near East from around 200 BCE to 200 CE, especially in Jewish and Christian writings both in the Bible (e.g., Daniel and Revelation) and outside of it (e.g., First Enoch, the Apocalypse of Peter, and the Apocalypse of Paul). The authors of these apocalypses expected the evil age in which they were living to dramatically end in their lifetimes; although that did not happen, apocalyptic thinking became foundational to the three world religions stemming from the Near East: Judaism, Christianity, and Islam to varying degrees. In Part Two, we will examine the ideology, sociological underpinnings and some historical examples of apocalyptic groups and movements in medieval to modern times, and look at the impact that apocalyptic world views have had on the secular world, including philosophy, political movements, and popular culture, such as movies.

Cross-listed with: JST 122, RLST 122

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

CAMS 123: History of God: Origins of Monotheism

3 Credits

This course examines the early history of God; that is, the concept of the divine as a single supreme being. In particular, it focuses on the origins of monotheism and the development of its three major traditions in the Near East: Judaism, Christianity, and Islam, from their respective beginnings to around 1000 C.E. The course will begin with an analysis of the polytheistic religious milieu of the Ancient Near East in the second and first millennia B.C.E., and will consider the question of how, when, and why belief in one God first appeared in ancient Israel. Various modern theories about the origins of Israel's national God (Hebrew Yhwh/Yahweh and Aramaic Yhw/Yaho) will be analyzed, with careful attention to the evidence of ancient texts and archaeology. Following a discussion of the nature of the religion(s) of early Israel, the course will then turn to the development of Judaism as the world's first monotheism. It will then examine the subsequent emergence of Christianity in Roman-era Palestine and Islam in Late Antique Arabia, with a brief glance at the Persian religion of Zoroastrianism, which shares some commonalities. Finally, the course will compare and contrast some of the major beliefs, practices, and significant historical trends and movements within the first centuries of the three major monotheisms.

Cross-listed with: JST 123, RLST 123

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

CAMS 124: Early and Medieval Christianity

3 Credits

This course provides an introduction to the history of Christianity. It traces, specifically, the development of the Christian movement from its beginnings as a small Jewish sect in Jerusalem to its unlikely emergence as the religion of the Roman Empire and, finally, its subsequent spread and development in Europe, Asia, and Africa. In form and structure, the course is historical, following figures and events in a more or less chronological sequence and taking up questions of causality, influence, and social identity. Yet the course is also concerned with the ideas, concepts, and philosophical viewpoints that have shaped Christianity and given it a certain intellectual coherence over time. The course begins with first-century constructions of messianic identity and also with the figure of Jesus, as he was portrayed in the New Testament gospels. It then follows the first generations of the Christian movement, considering it within the context of first-century Judaism and the early Roman empire. Topics include persecution, martyrdom, and the important contributions of Origen. The middle section of the course looks at the second, third, and fourth centuries through three lenses, as it were: the office of bishop, the rise of monasticism, and the realities of empire. Bishops, monks, and emperors all shaped Christianity in essential ways, creating a rich and complicated spiritual, moral, theological, intellectual, and geo-political legacy for generations to come. The final third of the course looks at the development of Christianity beyond the fourth century in geographical groupings including churches in Africa, Asia, the Middle East, western Europe, Byzantium, and the Slavic lands. It is hoped, in all of this, that students will gain an understanding not only of Christian history but also of what made - and what makes - Christianity a distinctive and influential religion.

Cross-listed with: JST 124, RLST 124

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

CAMS 130: The Ancient World in Film

3 Credits

CAMS 130 examines the ancient Mediterranean world as it is represented in the cinema. Students will view, interpret, and critically evaluate twelve popular and/or critically acclaimed films that illustrate the narratives and themes that have engaged the interest of filmmakers and audiences since the birth of motion pictures. The curriculum will naturally gravitate toward "epic" films that are rooted in the stories of the Bible, classical mythology, and the histories of the ancient Greeks and Romans; but some attention will be paid also to other kinds of film, such as adaptations of classical drama and literary works, or parodies of "epic" films. To pursue the critical analysis of each film, students are required to read

the ancient source materials on which it is based and to apply methods of interpretation that they will have learned from assigned readings about film studies. By researching a film's ancient historical and cultural backgrounds, students will advance their global learning. By applying the analytic frameworks of film studies to the interpretation of films, they will have the opportunity to engage in integrative thinking and to hone the skills of effective communication. CAMS 130 fulfills the Bachelor of Arts requirements in the field of Humanities (BA) and the General Education requirements in the Humanities (GH).

Bachelor of Arts: Humanities
 General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking

CAMS 140: Classical Archaeology--Ancient Greece

3 Credits

CAMS 140: Greek Archaeology (3) (GH;IL) This course meets the Bachelor of Arts degree requirements. CAMS 140 investigates the culture and society of the ancient Greeks based on the material remains from the Middle and Late Bronze Age (c. 1700-1100 BCE), through the Dark Age (c. 1000-800 BCE), and into the Geometric Period (8th century) and through the Classical Period (fifth and fourth centuries BCE) when the city of Athens was at its height of political and cultural influence and ends with the conquests and death (323 BCE) of Alexander the Great in the East and the aftermath of his death in Macedonia in Greece. Throughout the course, when relevant, ancient literary sources are also discussed. The course begins with a survey of geography, chronology, and scientific methods of dating. The course emphasizes the archaeological sites that illustrate each period, in the Bronze Age Knossos on Crete, the citadels and palaces at Mycenae and Pylos on the Greek peninsula, and at Troy in Anatolia. In the Archaic and Classical Periods the course covers Greek sites such as the Sanctuary to Zeus at Olympia, the Sanctuary to Apollo at Delphi, and the Sanctuary to Athena on the Acropolis of Athens as well as the Athenian Agora, the Civic Center and Market Place of Athens. The course ends with the conquests of Alexander the Great (323 BCE) and the immediate aftermath including an examination of the intact and unrobbed Royal Macedonian Tombs at Vergina. CAMS 140 is a counterpart to CAMS 150, an appropriate prerequisite for CAMS 440W, and an appropriate parallel to CAMS/HIST 100 or a successor to CAMS 25. CAMS 140 is recommended as preparation for students enrolling in the Penn State Education Abroad Program in Athens. CAMS 140 fulfills common requirements in the major under two categories: (1) for a 3 credit course concerned with Greek or Roman language, literature, civilization, or archaeology, and (2) 6 credits of study in the general field of Classics and Ancient Mediterranean Studies at any level. CAMS 140 may be used to fulfill the requirements for 12 credits of course work at any level toward a CAMS Minor. CAMS 140 is an approved General Education Humanities course that may fulfill three credits of the six-credit requirement. It may also be used to fulfill the three credit B.A. humanities requirement.

Bachelor of Arts: Humanities
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning

CAMS 142: Sport and Spectacle in the Ancient Mediterranean World

3 Credits

CAMS 142 Sport and Spectacle in the Ancient Mediterranean World (3) (GH;IL) (BA). This course presents a comparative social history of sport in the ancient Mediterranean world. Of central interest are the culturally distinctive practices of Greek athletics and Roman spectator sports. Other topics for study and discussion include the earlier history of sport in Bronze Age Mesopotamia, Egypt, and the Aegean. The course begins its survey with the origins and development of Greek athletics in the context of the Olympic Games. Students will familiarize themselves with the program of Olympic events from the stade race to the pankration. They will also learn about the athlete's career, social status, regimen of training, and what the prize of victory was. The second part of CAMS 142 explores the history of spectator sports in ancient Rome, including the chariot races in the circus and animal hunts and gladiatorial combat in the amphitheater. Students will compare Rome's public entertainments with Greek athletics and inquire why spectator sports evolved so differently in those two societies. CAMS 142 fulfills the Bachelor of Arts requirements in Humanities and in International Cultures.

Bachelor of Arts: Humanities
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Key Literacies

CAMS 150: Classical Archaeology--Ancient Rome

3 Credits

CAMS 150 Classical Archaeology-Ancient Rome (3) (GH;IL) (BA) surveys the development of Roman civilization in relation to the relevant archaeological discoveries and meets the Bachelor of Arts degree requirements. CAMS 150 is an introduction to the archaeological, architectural, and artistic remains of ancient Italy, Rome, and the Roman Empire from ca. 900 BCE to 330 CE through the literary and physical evidence for ancient Roman culture. Roman material culture from its early beginnings under Etruscan influence through the eras of the Roman Republic, the Imperial Period, the rise of Christianity, and the dissolution of the empire is covered. Architecture, sculpture, mosaics, coins, and pottery are examined in their political and social contexts with the goal of understanding Roman society and those under Roman rule. The city of Rome's monuments are a major focus, while the well-preserved Pompeii and Herculaneum covered by the eruption of Vesuvius in 79 AD give vivid views of daily life in two thriving Roman towns. Roman archaeology in Greece, Asia Minor, North Africa, and in the West is also considered. Students have an opportunity to study the geographically dispersed areas of Roman settlement across a long period of time, from Britain to Africa and Spain to Mesopotamia. Students to learn how the Romans were influenced by the non-Roman cultures of the Mediterranean region as they gained political and economic control over them, and how these regions were Romanized. The course considers archaeological methods and various scientific and comparative methods used to establish dating, and the connections among geography, environment, and human settlement patterns. The course briefly covers the losses caused to cultural heritage and scholarship by wars, looting, and the illegal antiquities trade. The difficulty in regulating the trade in antiquities through current ethics guidelines permits students to consider the difficult relationship between policy and enforcement, and ethical choices

more generally. CAMS 150 is an appropriate prerequisite for CAMS 440W: upper level archaeology course. It fulfills common requirements in the major: (1) for a 3 credit course concerned with Greek or Roman language, literature, civilization, or archaeology, and (2) 6 credits of study in the general field of Classics and Ancient Mediterranean Studies at any level. CAMS 150 fulfills the requirements for 12 credits of course work toward a CAMS Minor. CAMS 150 is a General Education course that fulfills three credits of the six credit Humanities requirement. It fulfills the three credit B.A. humanities requirement.

Bachelor of Arts: Humanities
International Cultures (IL)
General Education: Humanities (GH)
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Global Learning

CAMS 151: Introductory Biblical Hebrew

3 Credits

Fundamentals of Biblical Hebrew grammar, syntax, and vocabulary. J ST (CAMS/HEBR) 151 Introductory Biblical Hebrew (3) The aim of CAMS/J ST/HEBR 151 is to introduce students to the fundamentals of Biblical Hebrew as quickly and thoroughly as possible. Biblical Hebrew is the language in which the Old Testament was written, between the period of approximately 1200-200 B.C.E. This focuses primarily on the morphology and syntax of Biblical Hebrew. Drills on each point of grammar, as well as translation of sentences from Hebrew to English and English to Hebrew, and brief passages taken from the Bible are the basis of the student's homework throughout the semester. By the end of the semester, the students will be prepared to read short, unmodified passages of the Bible. The course will focus primarily on reading and writing, though students will read aloud in class regularly in order to ensure correct pronunciation and understanding. CAMS/J ST/HEBR 151 will prepare students to continue with CAMS/J ST/HEBR 152 and then 400-level courses. The course goals, in addition to providing the students with a firm grounding in Hebrew grammar and vocabulary, include giving the students a basic understanding of the history of the Biblical text. The primary focus will be on mastering paradigms and syntax, but the students will also be introduced to the Biblical texts themselves, which together form such an important piece of literature.

Cross-listed with: HEBR 151, JST 151

CAMS 152: Intermediate Biblical Hebrew

3 Credits

Intermediate study of Biblical Hebrew grammar, syntax, and vocabulary. CAMS (JST/HEBR) 152 Intermediate Biblical Hebrew (3)(BA) This course meets the Bachelor of Arts degree requirements. CAMS/JST/HEBR 152 continues from CAMS/J ST/HEBR 151, which is a prerequisite for enrollment. After a brief review of key grammar and morphology from the first semester, the course will complete the process of providing students with a sufficient grasp of Hebrew vocabulary, morphology, and syntax to enable them to read unadapted passages from Biblical Hebrew texts (with the aid of a lexicon) by the end of the course. Class sessions will focus on grammar drills, sentences, and similar exercises as homework to supplement class work. As the semester progresses, students will read more and more from actual Hebrew texts, rather than composed sentences by the textbook author, so that when the students enter more advanced classes, they will find the transition to reading Hebrew as smooth as possible. In tandem with the increasing

emphasis on Hebrew written by ancient Hebrews, the course will continue to focus on the linguistic and cultural background for the texts that the students read. Students will be evaluated on a combination of written work, including frequent quizzes, tests, homework completion, and course attendance and participation. CAMS/J ST/HEBR 152 will prepare students to continue with courses at the 400-level.

Cross-listed with: HEBR 152, JST 152
Bachelor of Arts: Humanities

CAMS 153: Dead Sea Scrolls

3 Credits

The discovery of the Dead Sea Scrolls was one of the most important archeological discoveries of the 20th century. This collection of over 900 scrolls found in caves by the Dead Sea includes the oldest manuscripts of the Hebrew Bible (Old Testament) and hundreds of other Jewish writings dating from the 2nd century BCE to the 1st century CE, many of which were previously unknown. In this course we will examine select examples of the Dead Sea Scrolls in order to understand how these writings have revolutionized our understanding of the formation of the Bible, Jewish groups in the Greco-Roman period, and the origins of Christianity and rabbinic Judaism, and why there is so much scholarly debate around them. We will consider such issues as Jewish law, biblical interpretation, messianism, apocalypticism, prayer and rituals. The course will include discussion of the archaeology of the Qumran settlement and caves, scribal practices and the production of scrolls, and scholarly methods in reconstructing and interpreting ancient texts. We will study this one sectarian movement as a microcosm of the issues related to Jewish identity in this critical period that birthed both rabbinic Judaism and Christianity. We will focus on the beliefs and practices by which this movement constructed their particular community identity and worked out their place in the world.

Cross-listed with: JST 153, RLST 153
Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures
International Cultures (IL)
General Education: Humanities (GH)
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Key Literacies

CAMS 160: Sacrifice in the Ancient World

3 Credits

Sacrifice (from Latin sacer "holy + facere "to make") is one of the most prevalent yet troubling aspects of religion. Its destruction and violence is often at odds with other rituals and core understandings within a religion, so why is it done and what good does it do? For the sacrificer, does it represent a gift to the gods, a renunciation, an exchange, a surrogate, or something else? This course will examine some competing definitions and theories of sacrifice, as well as its manifestations in the cultures and religions of the ancient Mediterranean world, especially those of Greece, Rome, Egypt, Mesopotamia, Hatti, Israel, and Phoenicia. A brief look at religious sacrifice elsewhere, such as ancient Mesoamerica and India, will conclude the course.

Cross-listed with: JST 160, RLST 160
Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

CAMS 180: Ancient Warfare

3 Credits

Historical survey of the evolution of warfare in the ancient Mediterranean region from prehistoric times to the Later Roman Empire. CAMS 180 CAMS (HIST) 180 Ancient Warfare (3) (GH;IL) Warfare has occupied a central place in the civilizations of the Mediterranean from the earliest times. The prehistoric origins of warfare is a hotly debated topic and constitutes the starting point for this course. Most scholars are agreed that military culture grew in step with sociopolitical development over the course of the third millennium BCE. In the following centuries, the Egyptians, and later the Assyrians and Persians, took great strides in developing sophisticated tactical systems, using infantry, chariotry, and cavalry. These matters occupy a little over the first third of the course. Across the Aegean Sea, Bronze Age (Mycenaean) Greece was ruled by elites occupying massively walled citadels, their leaders buried surrounded by their weapons. But how did these warriors fight? Do the epic poems of Homer memorialize Bronze Age combat? In the Archaic Period (700-500 BCE) infantry warfare in Greece was transformed by the appearance of the heavily-armored infantryman (the hoplite), deployed in a tight formation (the phalanx). The processes involved in the appearance of this kind of warfare, its nature, and its affects on Greek society and culture will be the focus of our attention for the second third of the course. On the periphery of the Mediterranean basin stood a variety of warrior cultures (the Scythians, Celts, or Germans). Numerous warrior-dominated polities vied with each other in Archaic Italy, but one of them, sitting on a ford of the river Tiber, ultimately rose to be the greatest military power produced by the ancient Mediterranean world: Rome. The Roman legions first won and then ensured the security of a Mediterranean-wide empire that stood for 700 years and evolved ultimately into world's first standing army of professional volunteers. The Roman military system holds our attention for the final third of the course. The course defines warfare broadly to include both tactical and strategic, as well as cultural and ideological, matters. Even this canvas is too vast to be surveyed in all its richness, so the major themes explored are: (i) what is war, where does it come from, and how did it change as civilization spread?; (ii) in what ways did warfare develop in the periods under study, in terms of strategy, tactics, and weapons technology?; (iii) how do different warfare practices reflect essential facets of the various cultures under consideration?

Cross-listed with: HIST 180

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

CAMS 194: Jerusalem: Sacred and Profane

3 Credits

Jerusalem, a city sacred to Judaism, Christianity, and Islam, is often depicted as the spiritual and physical center of the world. Throughout its 5000-year history, Jerusalem has attracted diverse cultures, empires, and peoples who have vied for control of this city that is both religiously significant and a very ordinary site of urban life. Jerusalem: Sacred and Profane surveys the archaeological, religious, cultural, political, social, and historical record of Jerusalem in the ancient, medieval, and modern periods. We will explore a series of themes in the city's history: the built urban environment, political power in and over the city, sacred sites and pilgrimage, the everyday experiences of Jerusalemites, the changing cultural meanings of the city across various religious and national traditions, and war, violence, and memory in the urban landscape. The significance of Jerusalem's past, its impact on contemporary society and politics in the modern Middle East, and differing visions for this contested city's future are examined in light of various interpretations of the historical evidence.

Cross-listed with: HIST 194, JST 194, RLST 194

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

CAMS 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Bachelor of Arts: Humanities

CAMS 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Humanities

International Cultures (IL)

CAMS 200: Ancient Philosophy

3 Credits

This course examines key themes, texts, and persons in ancient Greek philosophy, with the works of Plato and Aristotle at the core. We ask: What did Socrates mean when he said "the unexamined life is not livable by humans"? Or when Thales said "All begins in water"? Or when Epicurus said "Only pleasure is valuable"? Or when Parmenides said "You cannot speak of what is not"? To answer these questions, we examine the cultural background of philosophical thinking (Homer and Hesiod; Near Eastern traditions; trade and empire), and we survey views about, for example, the universe's structure and origin, the nature of reality and change, the status of knowledge and opinion, the best way of life for individuals and for societies, and the value of reason, persuasion, argument, and logic. We also give close attention to the formation,

meaning, and purpose of philosophy, wisdom, and sophistry. This includes analysis of the "myth reason" hypothesis, Milesian inquiry into basic principles (archai), physical vs. ethical inquiry, and the development of doctrine, discipline, and disagreement. In addition to the figures mentioned above, figures studied may come from the periods of the Presocratics (e.g., Pythagoras, Heraclitus, Xenophanes), Hellenism (Stoic, Epicurean, Cynic, and Skeptic), the Romans (e.g., Cicero, Seneca), and the Neoplatonists (e.g., Plotinus).

Cross-listed with: PHIL 200

Bachelor of Arts: Humanities

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

CAMS 250: Honors Classics in Literature and Film

3 Credits

This honors course explores the Classical Tradition as it thrives in the literature of later epochs and film. CAMS 250U Honors Classics in Literature and Film (3) (GH;IL)(BA) This course meets the Bachelor of Arts degree requirements. The Classics in Literature and Film has as its objective an exploration of the vital, continuing life of classical literature—its influence on the artistic production of later centuries and the ways in which ancient works re-emerge globally as modern literature and cinema whose verbal and visual rhetorical devices engage motifs and themes of recurring intercultural concern through the millennia. Readings include epic, drama and lyric poetry, all of which encompass global political, philosophical and artistic concerns. The demands of the course reading and film viewing require the strong engagement and critical acumen that should be a staple of students in the Honors College. CAMS 250U relates to programs of study in literature, film & classical studies.

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

Honors

CAMS 294: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Humanities

CAMS 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Bachelor of Arts: Humanities

CAMS 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Bachelor of Arts: Humanities

CAMS 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Humanities

International Cultures (IL)

CAMS 397: Special Topics

1-9 Credits

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Bachelor of Arts: Humanities

CAMS 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Humanities

International Cultures (IL)

CAMS 400W: Comparative Study of the Ancient Mediterranean World

3 Credits/Maximum of 12

Comparative study of ancient Mediterranean civilizations. CAMS 400W Comparative Study of the Ancient Mediterranean World (3)(BA) This course meets the Bachelor of Arts degree requirements. CAMS 400W provides students in the Classics and Ancient Mediterranean Studies (CAMS) Major, and other undergraduate and graduate students in allied fields, a capstone overview of research methodologies as they are applied to contemporary issues in ancient Mediterranean studies. The course is interdisciplinary in nature, and stresses the interactions among the ancient cultures of the Mediterranean region. The specific course content varies depending on the current research interests of the department faculty and the work undertaken by participating students. The course is organized as a seminar with participation by department faculty, and, when appropriate, visiting speakers. The topics concern issues of chronological, geographic, and cultural breadth. Students are expected to give an oral presentation of their research on a relevant topic during the last three weeks of the semester. This course requires a sequence of written assignments that constitute drafts in the process of writing an extended research paper. These consist of a statement of the problem, an annotated bibliography, a preliminary draft, and a final paper revised in light of the instructor's comments on the assignments. This paper and an oral presentation in class based upon it will constitute about half of the final grade. A quiz and essay final examination will constitute the remainder of the grade.

Prerequisite: 3 credits in Classics and Ancient Mediterranean Studies

Bachelor of Arts: Humanities

Writing Across the Curriculum

CAMS 405: Law & Economy in the Ancient Near East

3 Credits

This course is an overview of the legal and economic texts and institutions in the Ancient Near East. CAMS 405 Law & Economy in the Ancient Near East (3) (IL) (BA) This course meets the Bachelor of Arts degree requirements. This course will introduce the students to

the legal and economic institutions of the Ancient Near East, as well as to the many theoretical issues raised by their study, such as: the matter of land tenure; the role played by the temple and the palace in the economic structure; the nature of law within political theology and kingship; and the legal and economic status of specific social groups (women, the elderly, slaves, children). Since most of the topics to be examined are widely debated, the course will provide the students with a broad overview of scholarly theories and intellectual schools. In order to accomplish such an objective, the readings for the class will include both introductory works (taken, for instance, from Sasson, *Civilizations of the Ancient Near East*) and more advanced and specific articles and works (e.g., R. Westbrook, *A History of Ancient Near Eastern Law*). Students will be asked to prepare these readings, which will be available in the library or in electronic format, so they will be ready to take part in class discussions. The source book for the basic legal texts will be M.T. Roth's edition of law collections. Moreover, students will be expected to give a presentation based on some of the optional readings listed on the syllabus. Thus, every class will consist of lecture on the topic and a critical and open discussion of the assigned readings. Every lecture will take into account the assigned readings and will be accomplished by some handouts. Students will be evaluated on the basis of class participation (including a class presentation), as well as on writing assignments. The writing assignments will include take-home examinations. This course complements other existing courses in areas such as Ancient Near Eastern studies, biblical studies, Classics, Ancient History, and Linguistics. Moreover, this is one of the several history and culture courses in CAMS that provide detailed overviews of major civilizations of the Mediterranean and Near Eastern regions.

Prerequisite: 3 credits in CAMS
Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures
International Cultures (IL)

CAMS 410: Classical Epic

3 Credits

Homer, Hellenistic Epic, and Vergil; influences on later epic.

Bachelor of Arts: Humanities

CAMS 411W: Classical Drama

3 Credits

Masterpieces of Greek tragedy (Aeschylus, Sophocles, Euripides) and comedy (Aristophanes, Menander); their influence on Roman writers. CAMS 411WCAMS 411W Classical Drama (3)(BA) This course meets the Bachelor of Arts degree requirements. The aim of this course is to read, interpret, discuss, and write about the best known and most influential examples of classical drama (in English translation). Students will become conversant with the formal and thematic aspects of Greek tragedy and comedy. (The course could also include a module devoted to Roman adaptations of Greek drama.) The Greek playwrights to be read are Aeschylus, Sophocles, Euripides, and Menander. (Roman playwrights would include Plautus, Terence and Seneca.) The objectives of this course include learning how to read, analyze, and interpret tragedy and comedy within a literary, cultural, and historical framework that is fundamentally different from our own. At the same time as students come to grip with the cultural differences of Greek drama, they will be invited to ponder why these texts are still relevant to modern readers and audiences. The second objective of this course is to give students a forum in which they may reenact the critical debates and dramatic

conflicts that characterize the ancient Greek theater. Class time will be devoted to structured discussion on set topics. Toward the end of the semester students will give 15-minute presentations on different aspects of classical drama that illuminate the texts read in class: for example, the design of Greek theaters and ancient theatrical production, the religious and civic functions of tragedy, gender roles, tragic and comic heroism, myth, rhetoric, philosophy, and the legacy of Greek tragedy and comedy in the modern world. The third objective of the course is to focus on developing critical writing skills and communicating clearly with readers. Students will write six papers of varying length (three papers in two drafts) and two essay exams (mid-term and final). The process of writing will provide a vehicle for close-reading and critical interpretation of classical drama. Students will also learn in classroom discussion and in feedback from the instructor and other students that critical writing entails drafting ideas and revising them. Finally, participants will learn how to write properly documented and well-argued research papers.

Bachelor of Arts: Humanities
Writing Across the Curriculum

CAMS 420: Introductory Targumic Aramaic

3 Credits

Fundamentals of Aramaic grammar, syntax, and vocabulary. CAMS 420 Introductory Targumic Aramaic (3) The aim of CAMS 420 is to introduce students to the fundamentals of Targumic Aramaic as quickly and thoroughly as possible. Targumic Aramaic, is the dialect used by Jews in the last few centuries BCE in their translations of the Bible into Aramaic. Targumic Aramaic texts remain vital within Judaism and Biblical study. This course focuses primarily on the morphology and syntax of Aramaic. Drills on each point of grammar, as well as translation of sentences from Aramaic to English and English to Aramaic, and brief passages taken from the native texts are the basis of the student's homework throughout the semester. By the end of the semester, the students will be prepared to read short, unmodified passages of actual Aramaic. The course will focus primarily on reading and writing, though students will read aloud in class regularly in order to ensure correct pronunciation and understanding. CAMS will prepare students to work with Aramaic in related courses in CAMS, in particular those dealing with other Aramaic dialects, the Bible, and other related ancient languages. The course goals, in addition to providing the students a basic understanding of the history of the Aramaic literary tradition. The primary focus will be on mastering paradigms and syntax, but the students will also be introduced to real Targumic Aramaic texts, which are of great importance to understanding the history of Biblical textual transmission.

Cross-listed with: JST 421

CAMS 425W: Books of the Bible: Readings and Interpretation

3 Credits/Maximum of 12

Study of a biblical book/topic in terms of literary, historical, and cultural contexts, history of interpretation, and critical scholarship. CAMS (J ST/RL ST) 425W Books of the Bible: Readings and Interpretation (3 per semester/maximum of 12) The Bible is a diverse collection of writings sacred to Jews and Christians written over about 1000 years, in a variety of different genres and historical circumstances. This course allows students the opportunity to study in depth a particular book of the Bible, from either the Hebrew Bible/Old Testament or the New Testament. We will explore the literary, historical and cultural context of the book in question. A literary analysis of the book will include consideration of genre and literary devices, and a close reading of the text. A historical

analysis will consider the date of composition, its source materials, comparative traditions in other cultures, and relevant historical and cultural factors relevant to understanding the text. The course will introduce students to various other approaches to interpretation of the Bible in modern scholarship, including feminist and post-colonial critiques. We will also explore the varied interpretations and uses of the book in Judaism, Christianity, and Islam throughout history, and its influences in Western culture, including art and literature. The course will be offered once a year with varying content, and students may repeat it when taught with different content.

Prerequisite: 3 credits in CAMS or J ST or RL ST, recommended CAMS/J ST/RL ST 110 or 120; or ENGL 104.

Cross-listed with: JST 425W, RLST 425W
Writing Across the Curriculum

CAMS 430: Archaeology of the Near East

3 Credits

Culture of the Near East and India from Paleolithic times through the Bronze Age.

Prerequisite: 3 credits in CAMS or 3 credits in ANTH or permission of instructor

Cross-listed with: ANTH 420, JST 420

Bachelor of Arts: World Cultures

Bachelor of Arts: Social and Behavioral Sciences

CAMS 432W: Gender and Sexuality in the Bible

3 Credits

This writing intensive course will examine issues of gender and sexuality in the Bible, including the Hebrew Bible/Old Testament, the Deuterocanon, and the New Testament. It will introduce students to a variety of academic approaches to the Bible with respect to a broad range of topics. These topics include: gender identity, sexual orientation, sex, marriage and divorce, adultery, monogamy and polygyny, same-sex relations, chastity and celibacy, prostitution, gender violence, pornography, fertility, procreation, abortion, divine gender and sex, incest, and many others. In covering these themes, the course will deal with some of the most challenging and often disturbing stories and passages in the Bible, the ancient library of books that is sacred to Jews and Christians and which has otherwise greatly influenced civilization for more-or-less two thousand years. Alongside a close reading of the text (philology), this course will employ historical and literary criticism, investigations into ancient material culture (archaeology), modern theoretical interpretive approaches, reception theory, and other methodologies to examine not only the biblical writings in their ancient contexts, but their interpretation and use throughout history to construct social norms.

Prerequisite: 3 credits in CAMS, RLST, or JST.

Cross-listed with: JST 432W, RLST 432W, WGSS 432W

Bachelor of Arts: Humanities

Writing Across the Curriculum

CAMS 440W: Studies in Classical and Ancient Mediterranean Archaeology

3-6 Credits/Maximum of 6

CAMS 440W Studies in Classical and Ancient Mediterranean Archaeology (3-6) (BA) This course meets the Bachelor of Arts degree requirements. CAMS 440W is a writing-across-the-curriculum upper-level archaeology

course on various topics in the broad field of Classical and Mediterranean archaeology. The selected topic will emphasize interdisciplinary themes, such as comparative state formation, societal collapse, gender in the ancient world or the socio-economic and cultural development of a society or region and its interaction with other Mediterranean, Near Eastern and North African cultures. Students will learn of major publications in the field of study, and how to conduct searches of the previous archaeological literature and the related literary record. As one requirement, students will complete a research paper on a topic related to the theme of the course that semester. The sequence of writing assignments is designed to allow students to develop a project, to search for related publications, to develop a proposal, and to revise drafts of the final paper. The course is also intended to provide students with a practical background in Classical and Mediterranean archaeology that will help prepare them for archaeological fieldwork, for the interpretation of archaeological publications, and, as relevant, for utilizing the literary and/or epigraphic record for interpreting archaeological evidence. Those considering enrolling in this course may obtain information about the specific topic by asking the faculty member listed as teaching the course or the Undergraduate Officer in the Department of Classics and Ancient Mediterranean Studies.

Prerequisite: 3 credits in CAMS or 3 credits in ANTH or permission of instructor

Cross-listed with: ANTH 439W

Bachelor of Arts: Humanities

Writing Across the Curriculum

CAMS 450Y: Gender and Sexuality in Ancient Greece and Rome

3 Credits/Maximum of 3

An examination of gender, sexuality, and sexual desire in ancient Greece and Rome. This course examines issues of gender and sexuality in Greece and Rome. Through close analysis of ancient texts and artifacts, we will explore representations of gender in literature and art, medical theories of the male and female body, sexual norms and codes, and views on marriage, rape, adultery, and prostitution. In addition, we will consider how eroticism and gender both support and subvert political and social ideologies. The objective of this course is to enable students to analyze gender identities and conventions surrounding sexuality in the context of the Greek and Roman worlds. This course will also invite students to consider the influence of ancient conceptions of gender and sexuality on modern discussions and debates. Authors and texts may include Homer, Hesiod, Sappho, Sophocles, Aristophanes, Plato, Aristotle, the Hippocratic corpus, Catullus, Virgil, Ovid, and Augustine. These ancient readings will be supplemented with selections from modern feminist theorists and gender studies.

Prerequisite: 3 credits in CAMS

Cross-listed with: WMNST 450Y

International Cultures (IL)

Writing Across the Curriculum

CAMS 453: Seminar in Ancient Philosophy

3 Credits/Maximum of 6

This course allows intensive study of select authors, traditions, works, or questions from ancient Greek and Roman philosophy. Focal authors may include, for instance, the Presocratics, Socrates, Plato, Aristotle, Epicurus, Lucretius, Cicero, Seneca, Augustine, or Plotinus. Key traditions may include Stoicism, Hedonism, Platonism, Skepticism, Jewish, Roman, and Christian reception, or Neoplatonism and Neopythagoreanism.

Focal works may include Nicomachean Ethics, On the Nature of Things, Confessions, or Enneads. Focal themes may include ethics (e.g., virtue, human flourishing, and pleasure), psychology (e.g., emotion, character, immortality of the soul), epistemology (e.g., imagination, knowledge, wisdom), metaphysics (e.g., atomism, teleology, dualism), theology, logic, aesthetics, or history. This course may also include intellectual and cultural context for claims or trends in ancient philosophy. Students will develop in-depth experience with parts of ancient philosophy that go beyond what they receive in Philosophy/CAMS 200: Ancient Philosophy. They will also hone reading, interpretative, argumentative, and creative philosophical skills on the relevant texts, which are among the most fascinating, puzzling, and frequently referenced of the Western philosophical tradition.

Prerequisite: 9 credits of philosophy, including either PHIL 200 or 6 credits of philosophy at the 200 level; or 9 credits of any combination of CAMS/GREEK/LATIN (or 6 credits if three come from CAMS 200
Cross-listed with: PHIL 453
Bachelor of Arts: Humanities
International Cultures (IL)

CAMS 461: Plato

3 Credits/Maximum of 6

Plato has had, along with his student Aristotle, the greatest influence on the history of Western philosophy of any writer. He synthesized politics and ethics, pedagogy and dialectics, psychology and epistemology, metaphysics and ontology, and even cosmology and theology. He founded Europe's first research institute, which cultivated mathematicians, astronomers, psychologists, rhetoricians, literary scholars, and of course philosophers. He lived at a time of profound political upheaval, in a democratic Athens that had just lost a war of imperial expansion. He wrote dozens of dramatic dialogues, among the greatest works of prose ever, celebrating his teacher Socrates, stunning his readers into puzzlement, and posing problems of self-understanding that would set the philosophical agenda for centuries to come. His works have appealed to skeptics and mystics, formal theorists and creative writers, Jews, Christians, and Muslims, and philosophers of a wide range of sensibilities. This course studies a variable range of his dialogues, with the goal of getting a broad and deep understanding of this author, his intellectual context, and his philosophical reception. Students will also learn about the features of Plato's thought and world that remain culturally salient - the Academy, the Forms, Platonic love, Socratic ignorance, the dialogue form, Platonism and Neoplatonism, and the distinctiveness of Greek philosophy.

Prerequisite: 9 credits of philosophy, where 3 of those credits are PHIL 200 or 6 of those credits are PHIL 200-level courses or 9 credits of any combination of CAMS/GREEK/LATIN courses.
Cross-listed with: PHIL 461
Bachelor of Arts: Humanities

CAMS 470: Languages and Cultures of the Ancient Near East

3 Credits

This course is an overview of the languages and cultures that populated the Ancient Near East. CAMS 470 Languages and Cultures of the Ancient Near East (3) (IL) (BA) This course meets the Bachelor of Arts degree requirements. This course aims to provide students with a wide overview of the languages spoken in the Ancient Near East. The goal is to go beyond the merely linguistic sketches of the main grammatical features of these languages. In fact, the focus will be

placed on historical, literary, social, anthropological, and ethnic matters: language contact settings; relations between language and ethnicity; sociolinguistic aspects of language evolution, language variation, bilingualism, and diglossia; relations between historical and social patterns and the literary, bureaucratic, and popular uses of language; etc. In order to address this ample variety of issues, the students will be introduced first to the essential set of facts needed to comprehend the sociolinguistic history of each region, i.e., basic overviews of the languages in question, their linguistic affiliation, the main periods of their history as evolving linguistic realities, and their different writing systems. These overviews will immediately open the door to the discussion of a tapestry of topics concerning the realities behind these languages, especially their speakers and their ethnic, historical, and political identity. This inquiry into the facets of language as an inherently human reality will lead to a miscellaneous constellation of problems, such as, for instance, the construction of a national identity through the use, revival, or vindication of a concrete language or dialect. Students will be required to do a number of readings before each class. These readings will include basic historical sketches of the languages and linguistic traditions with which the course will deal. Moreover, students will be expected to give a presentation based on some of the optional readings listed on the syllabus. Thus, every class will consist of a lecture on the topic and a critical and open discussion of the assigned readings. Every lecture will take into account the assigned readings and will be accompanied by some handouts. Students will be evaluated on the basis of class participation (including a class presentation), as well as on writing assignments. The writing assignments will include take-home examinations. This course complements other existing courses in areas such as Ancient Near Eastern studies, biblical studies, Classics, Ancient History, and Linguistics. Moreover, this is one of the several history and culture courses in CAMS that provide overviews of major civilizations of the Mediterranean and Near Eastern regions.

Prerequisite: 3 credits in CAMS
International Cultures (IL)

CAMS 471: Sumerian

3 Credits

Introduction to the Sumerian language and the cuneiform writing system. CAMS 471 Sumerian (3)(BA) This course meets the Bachelor of Arts degree requirements. Sumerian was the language originally spoken in the south of Ancient Mesopotamia (modern Iraq) during the third millennium b.c.e. After it died out as a spoken language, Sumerian became the essential cultural vehicle for a wide variety of literary, scholarly, and religious genres, and it was preserved in writing until the practical disappearance of the Mesopotamian civilization by the second century of our era. This course aims to familiarize students with the basics of Sumerian grammar and enable them to read royal inscriptions from the Early Dynastic and Ur III periods (3rd millennium b.c.e.) as well as provide them with a preliminary introduction to some literary and non-literary texts. Students will be introduced to a variety of genres: royal inscriptions, administrative documents, letters, incantations, and literary texts. Because of the specific nature of the writing system and the fact that most Sumerian texts are available only in copies, students will also be introduced to the cuneiform script, its basic structure, and a basic repertoire of signs. Students will be required to do all the assigned exercises in advance, and participate in class. Special emphasis will be put on class participation: every student will be asked to read and translate in class. Furthermore, occasional quizzes are by no means a remote possibility. In addition, there will be a mid-term and a final examination. This course complements other existing courses in areas

such as Ancient Near Eastern studies, biblical studies, Classics, Ancient History, and Linguistics. Moreover, this is one of the courses in CAMS that provide an introduction to an essential language of the Mediterranean and Near Eastern regions.

Prerequisite: 3 credits in CAMS
Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures

CAMS 472: Akkadian

3 Credits

Introduction to the Akkadian language (Babylonian & Assyrian) and the cuneiform writing system. CAMS 472 Akkadian (3)(BA) This course meets the Bachelor of Arts degree requirements. Akkadian is the cover term for the East Semitic dialects spoken and written in Mesopotamia (modern Iraq) from the mid-third millennium b.c.e. to about the first century c.e. These dialects (Babylonian and Assyria) are all quite similar. As is customary, the course will focus on Old Babylonian, as this is the 'classical' variety of the language, and served as the basis for the dialect of the vast majority of later Akkadian texts (Standard Babylonian). This course aims to familiarize students with the basics of Akkadian grammar and enable them to read a wide variety of genres: legal texts, letters, omens, royal inscriptions, and literary compositions. Because of the specific nature of the writing system and the fact that many texts are available only in copies, students will also be introduced to the cuneiform script, its basic structure, and a basic repertoire of signs. Every meeting will follow a similar structure: the first part will be devoted to the exercises corresponding to the lesson in the textbook that was explained the previous day; and the second part will be an explanation of the next lesson, the exercises of which will have to be prepared for the next meeting. Students will be required to do all the assigned exercises in advance, and participate in class. Special emphasis will be put on class participation: every student will be asked to read and translate in class. Furthermore, occasional quizzes are by no means a remote possibility. In addition, there will be a mid-term and a final examination. This course complements other existing courses in areas such as Ancient Near Eastern studies, biblical studies. Classics, Ancient History, and Linguistics. Moreover, this is one of the courses in CAMS that provide an introduction to an essential language of the Mediterranean and Near Eastern regions.

Prerequisite: 3 credits in CAMS
Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures

CAMS 480: Greeks and Persians

3 Credits

Development and achievements of the Achaemenid kingdom; relationships between Persians and Greeks.

Prerequisite: 3 credits in CAMS
Cross-listed with: JST 480
Bachelor of Arts: Humanities

CAMS 481: Introduction to Middle Egyptian & Hieroglyphics

3 Credits

An introduction to the language and script of Ancient Egypt, familiarizing the student with grammar, syntax and lexicon. CAMS 481 Introduction to Middle Egyptian & Hieroglyphics (3) This course is offered as a basic

introduction to that stage in the evolution of the Egyptian language known as 'Middle Egyptian' (used as a vernacular c. 2300-1700BC, and as a 'literary' dialect c. 2200-1350BC). First encountered in caption texts and snippets of conversation of the workers and peasants in late Old Kingdom mastaba depictions, Middle Egyptian originally was the vernacular of the 'street' during the outgoing Old Kingdom. In the upheaval that swept away the monarchy and elite of the Old Kingdom the language which characterized the Pharaonic court (Old Egyptian) was swept away as well. In the subsequent First Intermediate Period, the language that everyone speaks is a lower class register. Middle Egyptian was given a fillip shortly after the turn of the millennium when the new regime of the 12th Dynasty (c. 1991-1786 BC) established a writing school and adopted this dialect as the accepted literary medium. The scribes of this institution produced a number of literary pieces, hymns and poetry which although created in writing, were intended for oral dissemination *parlando*. They rapidly became classics and were copied and learned by heart for centuries into the future. Middle Egyptian was used in every walk of life from monumental inscriptions, religious, and mortuary texts to letters, business documents and accounts, and the output from Dyn. 12 through 18 was prodigious. Even beyond the 14th Century BC learned scribes would continue to make the attempt at composing in Middle Egyptian, even though the language was no longer spoken, and as a quasi-ecclesiastical speech it continued down to Greco-Roman times. By that time its restriction to temple texts gave the false impression that both language and script had always had the purpose of conveying religious concepts, hence the Greek misnomer 'hieroglyphs', i.e. holy script.

Prerequisite: 3 Credits in CAMS Recommended Preparations: CAMS 20 and CAMS 104
Bachelor of Arts: World Cultures
International Cultures (IL)

CAMS 490: Ancient Mediterranean Languages

3-6 Credits/Maximum of 6

Variable topic study of an ancient language of the Mediterranean basin and related areas, other than Greek, Latin, or Hebrew. CAMS 490 Ancient Mediterranean Languages (3-6)(BA) This course meets the Bachelor of Arts degree requirements. CAMS 490 is a variable topic course in ancient languages, other than Greek, Latin, and Hebrew, that are offered by the Department of Classics and Ancient Mediterranean Studies. The course expands the range of ancient languages of areas in the Mediterranean region which students may study at Penn State. The course permits students of Latin, Greek, or Hebrew to learn the basics of other ancient Mediterranean languages, thereby extending their understanding of the structural similarities and differences of the region's writing systems. The languages taught at present include Egyptian and Sanskrit. Other languages, such as Akkadian, Hittite, Ugaritic, or Aramaic may be offered in future years. The course consists of three major components: The course begins with an overview of the language of study with respect to the language systems of the ancient Mediterranean world in a historical context. Next students learn the essential features of the language of study including its forms, grammar, and lexicon. In the second part of the semester, students read selected texts of various genres as appropriate, including literary and historical texts and inscriptions. The known features of the oral language will also be discussed. The course complements advanced courses such as LATIN 450W, The History of the Latin Language, and other advanced language offerings in Greek, Latin, and Hebrew. It also complements offerings in historical-comparative and Indo-European linguistics such as LING 102(GH).

Prerequisites: 3 credits in CAMS
Bachelor of Arts: Humanities

CAMS 492: Intermediate Field Methods

3-6 Credits/Maximum of 6

On-site experience in archaeological fieldwork in the ancient Mediterranean region. CAMS 492CAMS 492 Intermediate Field Methods (3-6)(BA) This course meets the Bachelor of Arts degree requirements. Students will have the opportunity to participate in a practicum in archaeological fieldwork at Mediterranean sites under the direction of an experienced research archaeologist. Activities will include surveying recognition and recording of stratigraphy and standing remains, recovery of artifacts and ecofacts, and on site conservation. Students will keep a journal and be graded on it as well as on their development of skills in excavation and interpretation. This course may be used to fulfill a requirement for the Classics and Ancient Mediterranean Studies option of the CAMS major and as a 400-level course for the CAMS Minor. The course will be available when CAMS faculty conduct archaeological fieldwork or students participate in projects approved by CAMS archaeology faculty. Estimated enrollment will vary depending on project, funding, etc.

Prerequisite: approval by field school director
Bachelor of Arts: Humanities

CAMS 493: Intermediate Field Analysis

3-6 Credits/Maximum of 6

On-site experience in archaeological analysis in the ancient Mediterranean region. CAMS 493 Intermediate Field Analysis (3-6)(BA) This course meets the Bachelor of Arts degree requirements. Students will have the opportunity to participate in archaeological fieldwork at Mediterranean sites under the direction of an experienced research archaeologist. Activities will include analysis of materials recovered in archaeological projects including maintaining an objects database, artifact sorting and reparation, recognition of pottery types, recording finds, proper handling and storing of finds, and understanding the role of artifacts in archaeological interpretation. Students will keep a journal and be graded on it as well as on their development of skills in recording and interpreting archaeological data. This course may be used to fulfill a requirement for the Classics and Ancient Mediterranean Studies option of the CAMS major and as a 400-level course for the CAMS Minor. The course will be available when CAMS faculty conduct archaeological fieldwork or students participate in projects approved by CAMS archaeology faculty.

Prerequisite: approval by field school director
Bachelor of Arts: Humanities

CAMS 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Humanities

CAMS 494H: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Humanities
Honors

CAMS 495: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Bachelor of Arts: Humanities

CAMS 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Bachelor of Arts: Humanities

CAMS 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Bachelor of Arts: Humanities

CAMS 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Humanities
International Cultures (IL)

Communication Arts and Sciences (CAS)

CAS 83: First-Year Seminar in Communication Arts and Sciences

3 Credits

This course offers a dynamic introduction to major theoretical, critical, research and pedagogical issues in human communication. Specifically, it will introduce students to essential aspects of the communication sciences as an academic discipline. The field of Communication Arts and Sciences involves a wide variety of approaches to the study of human communication, including within the communication sciences. For that reason, different versions of CAS 83 will vary depending on the expertise of the instructor. All versions of the course, however, will be designed according to common learning objectives and major topics in order to introduce first-year undergraduates to essential aspects of communication science. Previous versions of the course, for example, have focused on: communication about women's health issues; the dark side of interpersonal communication; and the effectiveness of

various persuasive campaigns. Whatever the specific focus of the course in a given semester, CAS 83 benefits students by introducing them to important dimensions of communication science during their first year at the University. Doing so allows potential majors or minors to our department to develop skills in studying communication science early in their undergraduate careers while gaining a functional knowledge of the field in general. Opportunities to plan a double major, a minor, and explore other miscellaneous forms of academic or professional training naturally follow from this early experience. ***CAS 83 fulfills both a first-year seminar and general education or Bachelor of Arts social/behavioral science requirements.***

Bachelor of Arts: Social and Behavioral Sciences
 First-Year Seminar
 General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

CAS 84: First-Year Seminar in Communication Arts and Sciences

3 Credits

This course offers a dynamic introduction to major theoretical, critical, research and pedagogical issues in human communication. Specifically, it will introduce students to essential aspects of the study of rhetoric. The field of Communication Arts and Sciences involves a wide variety of approaches to the study of human communication, including within the humanities-based area of rhetorical studies. For that reason, different versions of CAS 84 will vary depending on the expertise of the instructor. All versions of the course, however, will be designed according to common learning objectives and major topics in order to introduce first-year undergraduates to essential aspects of the humanistic study of communication using the tools of rhetorical studies. Previous versions of the course, for example, have focused on: the role of women's voices in modern social movements; rhetorical messages in popular music; and the rhetoric of environmentalism. Whatever the specific focus of the course in a given semester, CAS 84 benefits students by introducing them to important dimensions of rhetorical studies during their first year at the University. Doing so allows potential majors or minors to our department to develop skills in studying the humanistic study of communication early in their undergraduate careers while gaining a functional knowledge of the field in general. Opportunities to plan a double major, a minor, and explore other miscellaneous forms of academic or professional training naturally follow from this early experience.

Bachelor of Arts: Humanities
 First-Year Seminar
 General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

CAS 100A: Effective Speech

3 Credits

This general education course explores how people use techniques of oral communication to address practical, professional and civic problems. It is designed to introduce students to principles of effective public speaking, implemented through the design and presentation of individual speeches. Class size is limited to ensure that scheduled

meetings can support students in focusing on the development of public speaking skills through in-class activities, collaborative learning, peer critiques, and examinations of various communication practices. Drawing upon concepts from the study of both rhetoric and communication science, the course aims to foster habits of ethical self-reflection alongside practical speaking skills. To that end, course content centers on the diverse ways that students participate in practices of citizenship and civic engagement. Linking content to practice, students are expected to demonstrate course concepts through the situational, generic, and ethical choices they make in composing their major speech assignments. At least three individual graded speeches are required in this course. Additional presentations (graded or non-graded) may be required by some instructors. Following major speeches, students may compose reflective essays engaging in the critique and assessment of their own and others' work. Assessment may include evaluation by a combination of exams (although no final exam is given in the course) and/or occasional quizzes and other activities, all of which emphasize the mastery and application of the conceptual content of the course. Presentations are evaluated for content, organization, and presentation. Numerous sections of CAS 100A are offered throughout the university system in any given semester. For that reason, different versions of the course may vary slightly depending on the expertise or professional preferences of the instructor. ALL versions of the course, however, will be designed according to common learning objectives and major topics in order to introduce undergraduate students to essential aspects of effective oral communication.

General Education: Writing/Speaking (GWS)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think

CAS 100B: Effective Speech

3 Credits

This general education course introduces students to principles of effective communication with a specific focus on collaborative communication and group problem solving. The goal of CAS 100B is skill development in effective group communication, with less emphasis on formal public speaking and message evaluation compared to other versions of CAS 100. Toward that end, class size is limited and class meetings involve considerable attention to group dynamics, teamwork, and effective communication within groups. Through in-class activities, peer critiques, and analysis of both process and product, this course is designed to allow students to actively work in groups and engage in self-analysis of their own group processes. Structurally, this course begins with discussion of the principles of effective communication and public presentations. It then substantively addresses both the theory and practice of group communication and group process. This course enables students to work more effectively in groups and to make effective group and individual presentations. At least one speech, several group communication activities, and regular analytical writing are required. Evaluation methods include evaluation beyond formal exams. Public presentations are evaluated for content, organization, and presentation; group work is evaluated for process effectiveness and outcomes; critical evaluation of messages is assessed in individual analytical writing assignments; and all course content is covered on quizzes. Numerous sections of CAS 100B are offered throughout the university system in any given semester. For that reason, different versions of the course may vary slightly depending on the expertise or professional preferences of the instructor. All versions of the course, however, will be designed according to common learning objectives and major topics in order to

introduce undergraduate students to essential aspects of effective oral communication in group settings.

General Education: Writing/Speaking (GWS)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

CAS 100C: Effective Speech

3 Credits

This general education course introduces student to principles of effective communication with a specific focus on the analysis and evaluation of messages. It thus offers a specialized variant of the university's required course in effective public speaking skills. Through in-class activities, lectures, and group discussions, students develop skills in effective communication skills based on a combination of practice, theory, and analysis. Class size is limited to ensure that scheduled meetings can support students in focusing on the development of effective communication skills through in-class activities, collaborative learning, peer critiques, and the analysis of written and spoken discourse. In addition to developing presentational skills, students learn some essential components of rhetorical theory. Through analysis and evaluation afforded by those components, students will be able to listen more effectively to persuasive messages, draw on the content of persuasive messages as resources for their own civic engagement, and see how the persuasive messages of others can offer models for their own persuasive efforts. Students will deliver a minimum of two public speeches. Speeches will be evaluated for content, organization, and presentation. Graded preparation assignments will test students' ability to synthesize and apply course concepts from the textbook and lectures in the analysis and evaluation of messages. Student speeches will be prepared, by utilizing such resources, to present such analysis and evaluation. In sum, student will develop a deeper understanding of the persuasive messages they receive and an improved ability to persuasively communicate their own messages. Numerous sections of CAS 100C are offered throughout the university system in any given semester. For that reason, different versions of the course may vary slightly depending on the expertise or professional preferences of the instructor. All versions of the course, however, will be designed according to common learning objectives and major topics in order to introduce undergraduate students to essential aspects of effective oral communication.

General Education: Writing/Speaking (GWS)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

CAS 100S: Effective Speech

3 Credits

Principles of communication, implemented through presentation of speeches, in addition to the importance of analysis, group discussion and message evaluation.

First-Year Seminar

General Education: Writing/Speaking (GWS)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

CAS 101N: Introduction to Human Communication

3 Credits

CAS 101 introduces students to the field of communication studies and to the most important concepts, questions, and ideas that surround the study of communication today. This class is essential for any student who wishes to consider a major or minor in Communication Arts and Sciences. The course is also an important elective for students who want to understand processes of communication in a variety of social forms or settings, including: interpersonal, small group, organizational, intercultural, public, and technological. The main objectives of the course are: 1) to expose students to the concepts and best practices that cut across every aspect of modern communication, 2) to prepare students to excel in advanced classes within the Department of Communication Arts and Sciences, and 3) to help non-CAS majors incorporate essential communication principles into their own fields of study and future professions. Students from every major or college are welcome. Student grades may be determined by a variety of assignments, including quizzes, exams, in-class discussions, and major individual or group projects. This course invites students not only to learn about major concepts or ideas in the study of communication, but to explore their practical implications.

Bachelor of Arts: Social and Behavioral Sciences

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

CAS 126: Developmental Listening

3 Credits

Introduction to effective strategies of listening, with an emphasis on studying, note taking, test taking, and research paper writing. CAS 126CAS 126 Developmental Listening (3) This course designed to assist first year students in developing a comprehensive understanding of their role as students, the nature of the learning process and the role of communication in successful learning. A critical objective of the course is for students to understand the integral relationship of communication to academic success. Therefore, considerable attention is given to learning processes and the significant impact of communication on these processes and subsequent learning outcomes. Within this larger context students will be provided opportunities to engage in activities designed to enhance their skills in the following areas: listening, speaking and writing; self awareness and self monitoring; classroom management; time management; study management and learning strategies; exam management; resource management; and researching and developing a thesis in a research paper. Student achievement is evaluated through class participation, including working in groups; a research paper and oral presentation based on developing an effective argument; an academic planning project; reflection papers; quizzes; and two exams. CAS 126 is available only to students participating in the Comprehensive Studies Program, Penn State's Act 101 Program.

CAS 137H: Rhetoric and Civic Life I

3 Credits

Rhetoric and Civic Life (RCL) is a year-long honors course offering comprehensive training in oral, written, visual, and digital communication.

It unites these various modes under the flexible art of rhetoric and uses rhetoric both to strengthen communication skills and to sharpen awareness of the challenges and advantages presented by oral, written, visual, and digital modes. This portion of the course, CAS/ENGL 137 focuses particularly on two critical academic capacities: analyzing and contextualizing. In this semester, students learn to rigorously examine the rhetoric surrounding them, compellingly present their findings in various modes, and thoughtfully contextualize their research. In this course, students will: -Develop a rich understanding of rhetorical concepts - Practice application of concepts and terms in expressing understanding of effectiveness of rhetoric through analysis and contextualization of existing texts -Enhance communication skills by practicing and applying in a variety of communication modes (written, oral, digital)

Cross-listed with: ENGL 137H

General Education: Writing/Speaking (GWS)

Honors

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Integrative Thinking

CAS 138T: Rhetoric and Civic Life II

3 Credits

This course builds rhetorical skills in oral, written, visual, and digital contexts and introduces deliberation and advocacy in civic and disciplinary spheres. CAS (ENGL) 138T Rhetoric and Civic Life II (3) (GWS)ENGL/CAS 138T, Rhetoric and Civic Life II, expands knowledge and aptitudes built in ENGL/CAS 137H by asking students to use rhetorical skills and principles to develop strategies for persuasion and advocacy in the context of civic issues. The course continues the multimodal emphasis—the focus on oral, written, visual, and digital communication—used in 137H and adds new components as well. Students will develop a repertoire of communication skills through hands-on practice at composing and delivering speeches and essays, and they will work with digital media to create multimedia texts, podcasts, and websites. Students will reflect on these different modes as themselves rhetorical choices. The course's civic and ethical components take center stage as students learn how to deliberate important public issues thoughtfully and with civility and respect. They will learn the difference between persuasion and advocacy and develop strategies for both in the context of pertinent local, national, and global issues. They will participate in a public deliberation forum on topics they generate and vote on. The forum will be organized to allow small deliberative action groups as well as large forum-style meetings. The course focuses on ethics in many contexts, e.g., community action and public deliberation; ethics of persuasion; ethical controversies in the disciplines. Students will be encouraged to explore percolating disciplinary interests and to share knowledge in online disciplinary communities. Students will work throughout the semester to design and build a final electronic portfolio that represents their academic work with an eye to their imagined professional futures. The portfolio assignment offers students an opportunity to reflect on their work, assessing the merits and themes of inquiries, and to curate and present their work to both targeted and broad online audiences.

Enforced Prerequisite at Enrollment: ENGL 137H or CAS 137H

Cross-listed with: ENGL 138T

First-Year Seminar

General Education: Writing/Speaking (GWS)

Honors

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

CAS 162N: Communicating Care

3 Credits

Communicating Care ENGL 162N / SOC 162N / CAS 162N What do we talk about when we talk about health? Our states of well-being and illness are topics that, like the weather, drive our daily conversations, but we rarely have time to study and practice these vital exchanges. Spoken in emergency rooms or on long-distance calls, by medical professionals, family members, or strangers making small talk, the languages we use to share pain and recovery require our knowledge of long-established scripts and our willingness to improvise. By exploring how these encounters draw from and work as textual and dramatic performances, this course will guide students to achieve a new level of literacy in the most essential communicative art of caring. Students will analyze health conversations in literary texts, such as short stories, poems, memoirs, and graphic novels. They will explore real-life scenarios drawn from their own experiences, fieldwork, social science theories, and published case studies. Developing skills in the humanities (GH), they will see how subjective, often individual experience, historical perspectives, and creative expression help people to communicate about health and care. Developing their abilities in the social and behavioral sciences (GS), they will see how theory provides insights to predict and understand health and practices of care, investigate objective perspectives and recognize the contributions of fieldwork and data-driven studies to analyzing and improving communication when health is a main concern. They will integrate these methodologies especially to pursue these fields' common goals of making beneficial connections between individuals and groups, and managing private and public life.

Cross-listed with: ENGL 162N, SOC 162N

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

CAS 170N: What is Information?

3 Credits

"What is Information?" considers the material and social nature of information in historical and contemporary contexts. How has information been managed and valued? How have information infrastructures served as sites of social and political connection or antagonism? How have ideas about information changed over time and how have they remained the same? The course integrates perspectives from the social sciences and the humanities, and prepares students to think about (and act in) a world in which information (and its linked concepts, like data) play an increasingly important social and political role. The course addresses the history of information as both a concept and as a matter of social practice, and then focuses on three major topics: how information is presented, how information is organized, and how information is put to social and political use. Moving from the earliest periods of human history and their "information ages" (including the birth of writing and the dawn of printing and mass literacy), the

course leads students into our contemporary "information society," and the ways in which both the use and manipulation of information shape our lives.

Cross-listed with: IST 170N

Bachelor of Arts: Humanities

Bachelor of Arts: Social and Behavioral Sciences

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

CAS 175N: Persuasion and Propaganda

3 Credits

Propaganda, in common usage, is a deliberate, systematic attempt to manipulate beliefs and emotions, usually through methods considered deceitful and unethical. Persuasion, on the other hand, is an everyday activity in our personal, social, and civic lives. Persuasion is considered acceptable, even necessary in a free society. This course will explore the distinction historically and theoretically between propaganda and persuasion, with an emphasis on developing the critical skills necessary to distinguish between the two. There are many different definitions of propaganda, and the term often is used to label and discredit political opponents. This course allows students to develop a more precise understanding of propaganda and the techniques of the propagandist. In more practical terms, students will learn to recognize, describe, and evaluate propaganda in all of its various forms and contexts. Toward this end, it includes important cases from the history of propaganda as well as contemporary cases of public advocacy that raise questions about the distinction between persuasion and propaganda.

Bachelor of Arts: Humanities

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

CAS 182N: Communication and Sport

3 Credits

CAS 182N: Communication and Sport is an introduction to the unique relationship between communication and sport in our society at any level. This course allows students to understand how we play, watch, interpret and evaluate sport through communication. However, this course is also about the reciprocal relationship of how sport impacts our communication, especially as it relates to how we function and interact on a daily basis. Examples of topics that will be discussed include but are not limited to: the participants of a sports community, the role of the media in sport, fan dynamics and culture, gender roles in sport, race and ethnicity in sport, the use of sport in politics, communication between parent and child, teammates, player and coach, crisis communication in sport, and commodification of sport. Course objectives: - Describe and define the foundational relationships between communication and sport. - Identify and dissect the roles of the "players" who collectively constitute the community of sport - Explain the modern evolution of

sports media in the United States and hypothesize how new media and social media will further alter the sports landscape. - Synthesize the student's own fan experiences and rituals with the motivations and typology of fandom. - Examine the creation and function of mythology in sport - Explore and debate gender issues in sport through constructs such as hegemonic masculinity, current coverage and exposure afforded to men's and women's sport, gendered language differences in sports media, and current opportunities and struggles for women in modern sport society. - Recognize and articulate the impact of race and ethnicity on sports culture including discussion of "stacking" practices and media dialogues. - Discover the extent of the historical relationship between politics and sports - Analyze the relationship between sport and the body and interpret what the relationship communicates about performance expectations based on dimensions of identity, such as gender, sexuality, race and ethnicity and disability. - Demonstrate how the shifting of youth sports from game culture to sport culture has led to disturbing trends in parent-child interaction such as evolving participation models and sports rage. - Recognize different leadership behaviors used by coaches. - Judge the importance of group and team cohesion in sport success. - Determine whether commodification of sport outweighs and harmfully diminishes the other roles sports offers to society. - Distinguish, evaluate and apply crisis management skills specific to sport, particularly apologia and image repair. Instructional Methodology: This class is not simply about sport but an ongoing discussion on how to operate effectively in a world that is constantly impacted and influenced by sport. It is expected that students will participate and engage in discussion, activity and assignments relative to different sport contexts. Differences of opinion are encouraged and fans and critics of sports are equally welcome. We will spend time in class on a combination of lecture, case study, debate, student presentation and role play situations. Students who have received credit for COMM 412 may not schedule COMM 182N.

Bachelor of Arts: Humanities

Bachelor of Arts: Social and Behavioral Sciences

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

CAS 195: Careers in Communication

1 Credits

An introduction to a variety of careers in the field of communication arts and sciences.

CAS 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

CAS 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

CAS 200: Language, Culture, and Communication

3 Credits

Introduction to language, language development, cultural literacy, culture, and intercultural communication. CAS 200CAS 200 Language, Culture, and Communication (3) (US;IL) This course defines culture broadly, including how people conceptualize and enact reason, rationality, race/ethnicity, sex/gender, power, and age. Course content is organized into three large units: (1) how culture shapes language use; (2) how language use shapes culture; and (3) how culture and language (both verbal and nonverbal) operate together and influence each other, including how language is used to create, and negotiate understandings of culture. In the first unit, the class examines the effects of preconceived cultural beliefs on behavior; that is, how beliefs that a culture takes for granted as being true filter persons' perceptions of reality. This unit also covers the concepts of self-fulfilling prophecies, cultural stereotypes about age, the possibility of cross-cultural universals (e.g., politeness), and African-American culture. In the second unit, the class examines how the structure of different culture's languages (e.g., their vocabulary and grammar) shapes how persons experience the world and thus shapes their "reality." In the third unit, the class takes the position that various aspects of culture (e.g., race/ethnicity, sex/gender, power, and age) are constantly being constructed and re-constructed through language. This unit examines how persons accomplish being "a woman," "African American," "old," "polite," "powerful," etc. This class is interdisciplinary and incorporates materials from anthropology, applied linguistics, linguistic anthropology, communication studies, and sociology. Grades are based on three in-class exams (two midterms and a final), which are closed-book and involve short-answer and essay-type questions. Attendance is mandatory. This is one of the three core/required courses for the major. This course ties into another core course, Communication Theory, by discussing several key Communication Theories in different ways, such as the Sapir/Whorf hypothesis, Politeness Theory, and various theories of language. This course ties into those dealing with race and gender.

International Cultures (IL)

United States Cultures (US)

CAS 203: Interpersonal Communication

3 Credits

The phenomenon called interpersonal communication encompasses the complexities of interaction between people in any of a variety of situations. The expectations people form prior to a conversation, the messages that they produce using language and nonverbal cues, the ways in which they attach meaning to the behaviors of others, and the systemic qualities of the dyad are all part of interpersonal communication. And interpersonal communication occurs in contexts as varied as strangers sharing a seat on a bus, neighbors passing each other in the street, college roommates or married couples coordinating their lives, and co-workers negotiating office politics. In the home, at school, at work, and in public, interpersonal communication is an intricate process that weaves the fabric of our lives as social beings. This class is designed as an opportunity to explore the complexities of interpersonal communication and to develop a repertoire of interpersonal communication skills.

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

CAS 204: Communication Research Methods

3 Credits

Overview of the skills necessary to evaluate commonly reported communication research.

CAS 206: Mediation and Communication

3 Credits

Presentation of the history, theory, and practice of mediation as a means of resolving conflict through communication. CAS 206 CAS 206 Mediation and Communication (3) There are two overall objectives to this course. First, the course will acquaint students with conflict as a normal part of the human condition, and with the efforts of humans for thousands of years to resolve conflict in a peaceful way. The specific method of conflict resolution addressed by the course is mediation, which involves the intervention of a third party who is neutral in the conflict. Modern uses of mediation to resolve conflict extend from the playground to essential functions in society, for example, labor relations, legal systems, government operations, including international relations, and family disputes. While Western methods will be emphasized, mediation also plays an important role in non-Western cultures. For example, Hawaiian, Palestinian, Native American, and Chinese cultures rely on mediation to resolve conflict and rebuild relationships. In fact, mediation is the most popular means of conflict resolution in China, Taiwan, and Japan. Second, the course will acquaint students with the essential means by which mediation is accomplished, communication. The success of the mediation depends on the ability of the mediator to communicate well in specific ways when addressing the assembled parties, and when interacting with them individually. The course will also acquaint students with communication issues in mediation under study by both professional mediators and communication scholars. This course relates to lower-division Communication Arts and Sciences courses in rhetoric and interpersonal communication, in that it demonstrates how the different theories and practices they discuss can be integrated to produce important positive outcomes not only to individuals in conflict, but also to cultures. This course relates to upper-division Communication Arts and Sciences courses in rhetorical theory, interpersonal communication theory and research, conflict resolution and family communication theory and research, by providing an introduction to communication issues arising from an important context of communication, mediation, issues that can stimulate both further theory and research. This course relates to upper division courses in Labor Studies and Industrial Relations dealing with workplace dispute resolution and collective decision-making, and in Human Development and Family Studies dealing with interventions and resolving problems, to the extent that these courses discuss mediation. This course introduces the communication bedrock on which mediation rests.

CAS 208N: Introduction to Managing Conflict and Bargaining

3 Credits

CAS 208N introduces students to the nature of interpersonal conflict and emphasizes how this knowledge, in turn, helps students become more effective negotiators. Students apply both objectivist and interpretive theories to different communication contexts and across various communication channels (face-to-face and mediated). Students learn affective communication skills (e.g., how to be an empathetic

listener) and instrumental communication skills (e.g., how to manage interpersonal conflict). Much of the class focuses on relational power dynamics in interpersonal contexts. Thus, students learn the importance of empathetic listening, especially when another person disregards students' core concerns (ego, affiliation, appreciation, status, and role). Students will also learn distributive and integrative bargaining strategies, including how best to negotiate across cultures. The class integrates an array of theories where intellectual traditions from both the Humanities (GH) and the Social and Behavioral Sciences (GS) are covered equally.

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

CAS 209: Democratic Leadership

1 Credits

Penn State has a special opportunity to create new leaders who learn deliberative approaches to politics and public life. This one-credit course provides a background for this approach to democratic leadership, and it also prepares students for the Nevins Fellows paid internship program. Those who complete this course will have first priority when awarding these internships each year. The centerpiece of this course are day-long workshops that introduce students to effective civic leaders in government or the non-profit sector. Bracketing these workshops are a handful of seminars, which introduce ideas, discuss reading assignments, and reflect on the workshops. In addition to short reaction papers, students will produce a narrative essay at the end of the course that describes how they could see themselves advancing democracy in the United States (or elsewhere) and what kind of internship experience will help them prepare for such a career. For those who opt to seek an internship, this essay will supplement their formal application. Credit for the course requires attendance at every class meeting and workshop, or equivalent makeup assignments, if permitted.

Cross-listed with: PLSC 209

Honors

CAS 210: Landmark Speeches on Democracy and Dissent

3 Credits

Landmark Speeches on Democracy and Dissent offers a survey of key speeches, debates, and controversies making up the rich tradition of U.S. civic life. The course is designed to introduce students to the basic historical contexts within which these key events arise; engage them in close readings of speeches, tracts, and polemical writing; and develop skills in critical thinking and writing. Students will attend to a broad spectrum of voices, including those of historically under-represented peoples as well as canonical figures. Landmark Speeches on Democracy and Dissent thereby encourages students to develop a broad rhetorical literacy in the diverse democratic voices that have long contributed to essential U.S. arguments about nationhood, protest, war, race, gender, religion, and more. The course presupposes that students will be able to apply this rhetorical literacy to both participation within and critical thinking about contemporary forms of democracy and dissent.

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

CAS 212: Professional Public Speaking

3 Credits

Organizing, adapting and presenting ideas in public informative, persuasive, technical and ceremonial speeches.

Enforced Prerequisite at Enrollment: CAS 100

CAS 213: Persuasive Speaking

3 Credits

Planning, organizing, and adapting techniques of persuasion to achieve personal and public goals; engaging in critical assessment of persuasive messages.

Enforced Prerequisite at Enrollment: CAS 100

CAS 214W: Speech Writing

3 Credits

Due to time pressures, media scrutiny, and sadly under-developed rhetorical talents, powerful people in the public and private sectors need speechwriters. Because writing in the character of someone else and writing for the ear present the two biggest challenges for speechwriters, this course trains students in speech analysis and oral/aural composition. Throughout, students apply what they are learning, writing several genres of public speech in the voices of others and for various audiences and occasions. In accordance with the 'WAC' designation, students work through various drafts during structured and facilitated peer-review sessions. The majority of assessments is comprised of original, written work.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 30H or CAS 137H or ENGL 137H or CAS 100

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

Writing Across the Curriculum

CAS 215: Argumentation

3 Credits

This course provides an in-depth examination of argumentation in both public and private contexts. The course requires students to investigate the process of researching sound evidence, constructing legitimate argumentative claims, and participating in live debates. Fundamental to this endeavor is a strong attention to research, ethics, and strategy. Major topics may include essential components of effective arguments, in-depth examination of different types of evidence, introduction to forms of reasoning, negative and affirmative cases, and debate rules or strategies. Students may be evaluated with a range of assignments, from oral debates or presentations to written assignments, quizzes, and exams. This course thereby offers students opportunities to enhance their skills in effective inquiry and advocacy, useful for academic as well as professional success. Understanding the theoretical foundation of argumentation will enable students to accomplish four objectives: 1) to

understand the significant role argumentation plays in public and private discourse, 2) to research, gather and organize supporting material into argumentative discourse so as to become a skilled advocate, 3) to be familiar with the physical and virtual PSU libraries, and 4) to become an effective critic of argumentative discourse.

Recommended Preparations: PHIL 012

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

CAS 216: Practical Parliamentary Procedure

3 Credits

Practice in presiding over and participating in meetings conducted under rules of order.

Cross-listed with: AEE 216

CAS 220: Persuasion

3 Credits

The course aims to impart knowledge of scientific theories of persuasion by engaging students in the design and execution of a persuasion campaign. The applied component of the course involves (a) selecting a consequential issue, (b) evaluating the extent to which that issue might be amenable to solution via persuasion, (c) learning how members of the target audience view the issue via formative research, (d) designing theoretically-informed messages adapted to the target audience, (e) implementing a campaign that utilizes multiple messages in multiple modalities, and (f) evaluating the impact of the campaign. Classic and contemporary concepts of persuasion science are brought to bear on each stage of this sequence.

Bachelor of Arts: Social and Behavioral Sciences

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Soc Resp and Ethic Reason

CAS 222N: Foundations: Civic and Community Engagement

3 Credits

Through readings, discussion, deliberation, listening, and individual as well as collaborative action, this course gives students the opportunity to learn about and practice theories and habits of civic and community engagement and public scholarship with the goal of helping to build democratic capacity and sustain participatory democracy. This course emphasizes concepts and case studies that focus on the people's role in shared governance. The course also provides a foundation for understanding how a wide range of other individual and collective practices have an equally important role to play in building and sustaining community. The course draws from studies in demography, political science, sociology, psychology of racial identity formation and education to help students communicate better about and in shared governance. Among the core concepts are the role of students and other citizens in sustaining and transforming their communities, the historical and contemporary mission of Land Grant universities, the centrality of rhetoric and communication to collaborative judgment, and the relationship among media, cultures, and politics as they affect civic

and community engagement. Students also learn together about the range of ways that citizens do, can, and might participate in democratic decision-making and will observe and practice these forms in several communication media and across a range of differences. Finally, learn about models of and opportunities for engaging other citizens across and beyond Penn State, including in global environments.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 30H or CAS 137H or ENGL 137H or CAS 100

Cross-listed with: AYFCE 211N, CIVCM 211N

International Cultures (IL)

United States Cultures (US)

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

CAS 232N: Identity, Citizenship, and the Rhetoric of American Horror Film

3 Credits

Concentrated on American horror film from the 1930s to the present, the course will address the role of horror in the creation of stories told about the United States, its history, and its people. The course examines horror films rhetorically and social scientifically. Specifically, the course incorporates a rhetorical lens by exploring horror films as acts of constitutive rhetoric, that dramatize and interrogate the ways people use language and images to tell stories and foster identification within and between citizens and to constitute an "American identity." The course also incorporates a social scientific lens by examining horror films' association with identity/US identities using media effects theories, which include perspectives associated with audience use and reception. Both perspectives (rhetoric and media effects) are used to consider the roles of U.S. social, political, and economic contexts in the production/construction of horror films for the stories they tell and the characters they construct. For example, the course will examine the ways that American horror films respond to fear and anxiety in response to specific cultural contexts such as the emergence of science, xenophobia/marginalized populations, various social movements, economics, and war.

United States Cultures (US)

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

CAS 250: Small Group Communication

3 Credits

People learn the basic features of society, and social relationships, through interaction. Small groups are especially important because they are the smallest possible social unit in which bargaining, negotiation, and deliberation can occur. Every student has practical life experience in groups, and the course syllabus draws on those experiences to contextualize the material students learn. At the same time, without

a formal study of group communication, students lack the necessary perspective and training to work most effectively and ethically in groups. This course addresses that knowledge and skill deficit by walking students through the major concepts, theories, underlying research methods, and ethical dilemmas faced in small groups. Students come to understand how groups fit into larger organizations and society—often making up the building blocks of both small and vast social units. Students come to appreciate the dynamic quality of groups, which often develop in relation to group members' needs and external social forces. The course teaches students the importance of group cohesion, conflict, bonding, and group culture, as well as the hazards those can face when groups wish to engage in effective group problem analysis and decision making. Throughout, students are learning the ethical principles of democratic deliberation and leadership in groups—a subject that was at the center of communication pedagogy in the early twentieth century and that has become particularly important once again early in this century. Finally, students learn practical abilities, such as group agenda setting, discussion management, and presentation skills.

General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Soc Resp and Ethic Reason

CAS 251: Communication, Advocacy, and Entrepreneurship

3 Credits

Communication, Advocacy, and Entrepreneurship empowers students to utilize the process of entrepreneurship as a form of advocacy to enhance the human condition and improve public life. Students in this course learn the "Lean Startup" methodology of entrepreneurship through the simulated team-based activity of launching a startup to address an important societal exigence. Student startup teams will interrogate the rhetorical constructs that enable and constrain advocacy-based solutions to exigencies such as economic inequality, mental health, racism and sexism, and political disenfranchisement, and utilize qualitative research methods to develop key social venture hypotheses around their own simulated startups that will be tested through a minimum of 30 client discovery interviews and secondary research. This course offers a critique of the business paradigm of maximize shareholder value, which privileges rapid scalability and growth, maximized profit, and ROI (Return on Investment), and invites students to consider the impact this dominant view of business has on companies' commitment to environmental performance, social responsibility, employee well-being, and organizational mission. Students are encouraged to adopt the ethical business framework of nonprofits and emerging alternatives such as B Corporations and social enterprises, which provide assessments to help companies raise their standards for legal transparency, environmental responsibility, and worker and community well-being. Student simulated startups are designed to give voice to those disenfranchised by systems and discourses of power, and student teams are encouraged to see their solutions as offering services and/or interpretive frameworks that remedy inequity and promote healing, justice, and empowerment within the constraints of a specific moment in time. For example, students concerned about the impact of substance abuse on mental well-being and academic success could create a startup to help colleges/universities alter their messaging about alcohol use and/or implement sober living option best practices, or a student victimized by developmental sexual trauma could draw upon the latest research on healing and the body to propose a startup to raise awareness about natural treatments for posttraumatic stress disorder. Students who complete Communication, Advocacy,

and Entrepreneurship are encouraged to consider advancing their idea from simulated startup to real startup by participating in the vast array of educational and fundraising opportunities within Penn State's entrepreneurship ecosystem (e.g., Happy Valley Launchbox, Invent Penn State, Startup Week, Global Entrepreneurship Week).

CAS 252: Business and Professional Communication

3 Credits

Review and practice of various communication forms used in modern organizations. Topics include persuasive speaking, speech writing, multimedia presentations and business and report writing. Interviewing, briefing, conferring, and decision making; analyzing and evaluating formal and informal patterns of communication in organizations.

General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Soc Resp and Ethic Reason

CAS 253: Health Communication

3 Credits

CAS 253 introduces students to principles of health message design and the general theories and models used to guide these efforts. This course is designed to provide students with theoretical principles for practice in planning and evaluating health messages for dissemination by health organizations, policy makers, and other interested publics. CAS 253 emphasizes the potential positive and negative outcomes associated with specific messages designed to impact individuals' knowledge and behavior with health consequences. It emphasizes the importance of audience segmentation on goal selection in guiding health message design, as well as the effects and effectiveness of source and channel selection for reaching particular audiences. The CAS 253 Health Communication course is one of a series of electives for Communication Arts and Sciences majors or minors interested in pursuing careers in organizational communication, health communication, sales, and training and development in small groups. The course is possibly linked to those with interests in biobehavioral health.

General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

CAS 255: Communicating Gender

3 Credits

This course is designed to offer opportunities for exploring how gender is socially constructed partly through communication. The course offers a survey of concepts from rhetorical theory and gender theory that help explain how the norms for gender—including as it intersects with other categories such as sexuality and race—are communicated within multiple domains in a culture. Students develop skills for thinking critically about diverse perspectives on these norms. The course emphasizes the agency of students in developing their own ethical frameworks for how to enact gender performances in their communication, as well as how to respond through communication to the performances of others.

General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Soc Resp and Ethic Reason

CAS 271N: Intercultural Communication

3 Credits

Focus on topics such as language, identity, prejudice, and intergroup relations on a domestic/ international level. This course fulfills an intercultural and international competence (US/IL) requirement. CAS 271N is designed to give undergraduate students an introduction to the various issues, trends, and historical perspectives pertaining to communication within U.S. domestic and international cultures. It integrates social and behavioral sciences and humanities disciplines so that students can compare and contrast what different disciplines bring to a topic. CAS 271N is an introductory survey course that is highly recommended to students as a course preceding several other 300 and 400-level courses on interpersonal, group and intercultural communication, relationships, and processes.

International Cultures (IL)
 United States Cultures (US)
 General Education: Humanities (GH)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Key Literacies

CAS 272N: Political Communication and Technology

3 Credits

This course examines how interactive communication technologies reshape political rhetoric, discursive civic culture, deliberation in the online public sphere, and participatory democracy. It traces the evolution of the public sphere and explores theoretical and empirical issues related to online political discourse (blogs, political discussion fora, viral politics of social networking sites), cyberactivism, smart mobs, networked publics, and peer-to-peer production (You Tube, Wikis). CAS 272N concentrates on online rhetorical and discursive strategies of candidates for public office, and individuals and organizations campaigning on specific issues and causes. It emphasizes civic engagement and includes topical areas such as mechanisms of online public spheres, citizen generated discourse and content, viral politics, connections between social networking sites and political discourse, and behaviors such as networked activism. It examines how various interactive communication options have affected political discourse, campaign communications and public deliberation. It provides students with hands-on experiences in analyzing the rhetorical and persuasive strategies involved in creating video content, writing blogs, creating wikis and twitter messages. It teaches students how they could use these communication options in working for political campaigns, civic action groups and non-profit institutions. The goal of the course is to help students understand the opportunities and constraints involved in using interactive communication technologies for civic and political actions, and facilitate their development as informed citizens. Class activities focus on identification and critique of rhetorical strategies employed when using interactive communication technologies, and learning to create content such as weblogs, wikis, and mashups. Students will be graded on exams, participation in discussion groups, analyzing and connecting course

concepts to real world examples, creating content such as mashups, and analysis of rhetorical strategies of political candidates and activist groups. CAS 272N is highly recommended to students interested in examining the potential of interactive communication technologies for civic and political action.

General Education: Humanities (GH)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

CAS 280W: Storytelling and Speaking

3 Credits

Principles of oral performance from storytelling to the printed page; includes oral performance of stories, speeches, prose, drama, and poetry.

Writing Across the Curriculum

CAS 283: Communication and Information Technology I

3 Credits

This is an introductory course in the theory and application of technology for communication and self-presentation using the Internet. A major emphasis is placed on Computer-mediated Communication (CMC) & the study of the social effects of communication and information technology. Areas covered include factors that distinguish mediated from face-to-face interaction, theories of mediated interpersonal communication, self-presentation online, Internet-based relationships, and online communities. Upon completion of this course, the student should have knowledge of how the Internet influences communication and a better understanding of how to use CMC for self-presentation.

General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies
 GenEd Learning Objective: Soc Resp and Ethic Reason

CAS 295: Internship

1-16 Credits/Maximum of 16

Supervised nongroup instruction, including field experiences, practicums, or internships. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: prior approval of proposed assignment by instructor

CAS 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

CAS 296A: **SPECIAL TOPICS**

1-6 Credits

CAS 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

CAS 297G: Special Topics - GenEd

1-9 Credits/Maximum of 9

Formal course given on a topical or special interest subject offered infrequently; several different topics may be taught in one year or semester. This is a Special Topics GenEd course.

General Education: Humanities (GH)

CAS 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

CAS 301: Rhetorical Theory

3 Credits

History and theory of public advocacy and civic discourse.

Bachelor of Arts: Humanities

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

CAS 302: Social Influence

3 Credits

Explores how humans influence others through communication.

CAS 303: Communication Theory

3 Credits

This course is intended as a foundational course in communication theory for Communication Arts and Sciences majors and others interested in social science theory in general. It is designed to show how communication theory can be applied to understand and improve communication in your professional (and personal) life. The theories examined will span the range of communication contexts, including interpersonal, group, organizational, mediated, and cross-cultural interactions. At the conclusion of this semester, students should be able to demonstrate: - Knowledge of major ideas from a substantial number of communication theories - Ability to apply theories of human interaction to explaining and improving communication behavior, especially in professional contexts In addition, students should have: - Improved skills at both creative and analytic writing that includes practice in giving helpful feedback on others - writing, and facilitating discussion

Bachelor of Arts: Social and Behavioral Sciences

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

CAS 303H: Introduction to Communication Theory- Honors

3 Credits

This honors course provides an overview of conceptual perspectives and theories of human communication. Students will apply theories to analyze and solve problems in different applied contexts (e.g., interpersonal, political, and health, etc.). Students will learn to recognize and present clear descriptions of communication theories in both general instances and specific contexts. Students will learn to understand communication theories apply them to the analysis real-world problems. Students will learn to defend their analyses, justify their arguments, and prepare counter-arguments with articulate logic and appropriate empirical evidence. Additionally, students will learn to synthesize scholars' logically related, testable statements devised to explain the same group of facts or the same phenomena: their definitions, claims, assumptions, and rationale from published, empirical research. CAS 303H is designed to provide the opportunity to pursue this course more in depth and rigorous level.

General Education: Social and Behavioral Scien (GS)

Honors

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

CAS 304: Quantitative Methods for Communication Research

3 Credits

The purpose of this course is to instruct students on concepts and issues of quantitative research methods in Communication. Students will learn how Communication researchers conduct and evaluate research from using a variety of quantitative methodologies. By the end of the course, students will possess the knowledge necessary to understand and evaluate arguments utilizing research to persuade, as well as, to conduct sound research on their own. A primary goal of the course is to enable students to become a critical consumers and producers of information that defines the world around them. The course will educate on the proper terminology/concepts used in research methods. The end result of the course should be a fundamental understanding of how to critique and conduct research in the field of Communication.

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

CAS 311: Methods of Rhetorical Criticism

3 Credits

Rhetorical Criticism introduces students to the most common methods of rhetorical criticism within the field of communication. These methods are designed to help students analyze and evaluate commonplace forms of rhetoric. Examples include historical or contemporary speeches, debates, political campaigns, social movements, or mass mediated messages intended to influence the public at large. The course not only

provides a survey of essential methods of rhetorical criticism, but also requires students to produce works of rhetorical criticism themselves based on substantive research and written evaluation of a rhetorical artifact. Methods of rhetorical criticism are distinct from analytic methods used by other academic disciplines. Scholars of communication began to establish methods of rhetorical criticism in the early twentieth century in an effort to distinguish the aims of their scholarly pursuits from those of literary criticism or historical research. Rhetorical criticism evaluates the rhetoric of public communication (speeches, debates, or mediated messages intended to shape public understanding of real-world social, political, or moral issues). Such methods enable rhetorical critics to do so, moreover, not only by examining who said what at a given moment in history, but by closely analyzing how and why strategic uses of language or symbolic communication influenced public beliefs or behaviors. Rhetorical Criticism thus provides students with a variety of adaptable analytic tools that they may use to better understand and evaluate the nature as well as impact of rhetorical messages throughout history and in everyday life.

General Education: Humanities (GH)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies
 GenEd Learning Objective: Soc Resp and Ethic Reason

CAS 315: Debate and Civic Life

3 Credits

This course provides historical background on debate in politics and in civic life, examining both public and competitive debate practices. Debate has been a vital part of democratic engagement in the United States since the founding of the country. This course explores the role debate has played in the United States, focusing primarily on debate practices in the 20th and 21st century. This course provides historical background on debate in politics and in civic life, examining both public and competitive debate practices. Course material will expose students to theories and practices of debate including the history of important debate moments in the United States, analysis of contemporary political debates, and practical debate techniques inside the classroom and in a public setting.

General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking

CAS 321: Rhetoric and Law

3 Credits

A survey of the literature on the role of rhetoric in law, including trial advocacy, appellate argument, and judicial reasoning. Rhetoric and Law explains how knowledge of rhetorical principles enhances the understanding of legal documents, reasoning, and performance. This course surveys classical to contemporary rhetorical literature demonstrating its utility to the study of law. Students will examine the role rhetoric plays in jury deliberation, trial advocacy, appellate argument and judicial reasoning. Students will demonstrate their understanding of rhetorical theory by participating in a mock trial. In this exercise, students will deliver opening statements, closing arguments as well as conduct direct and cross-examination of witnesses. Finally, the class will examine United States Supreme Court majority and dissenting opinions as rhetorical documents.

General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think

CAS 340: Communication and Civility

3 Credits

Communication behaviors contributing to civil and uncivil discourse; their implications in business, public life, across cultures and in interpersonal relationships.

CAS 352: Organizational Communication

3 Credits

This course combines theory, research, and practical application to explore the role of communication in today's organizations. Students will learn communication skills applicable to modern work-related issues. Topics include organizational culture, problem solving in teams, organizational conflict, communication technology, social media, and ethical leadership.

General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking

CAS 360: Communication for Teachers

3 Credits

Analysis of dynamics of instructor-student communication implemented through structured exercises in instructor listening, verbal and nonverbal message-making.

Enforced Prerequisite at Enrollment: CAS 100

CAS 373: The Rhetorics of War and Peace

3 Credits

This course explores how war and peace are advocated. CAS 373 The Rhetorics of War and Peace (3) In *The Wealth of Nations* (1776), the first classic of capitalism, Adam Smith speaks of "the art of war," deploying a phrase from Sun-Tzu's *The Art of War* that would later appear in Baron von Clausewitz's *On War* and also in contemporary U.S. military handbooks. This course argues that war is indeed an art, and a thoroughly rhetorical one in which the political economy of persuasion is as important as high-tech weaponry and whiz-bang battle plans. By considering some of war's most thoughtful theorists, by discussing wars past and present, and by reading powerful defenses and trenchant critiques of war, this course will help students understand how wars are managed rhetorically. This course satisfies a grave need: for living in the post-9/11 world requires the critical rhetorical skills necessary to understand not just how war is waged or how it structures our lives but how war is advocated and defended. The trajectory of this course will thus make the full arc from war to peace. Perhaps most importantly in this time of grave post-modern warfare, this semester's readings and discussions will make us all better rhetorical scholars capable of imagining alternative futures. From the realities of war comes the possibility of peace.

General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Soc Resp and Ethic Reason

CAS 375: Rhetoric and Public Controversy

3 Credits

Debates, arguments, and other forms of communication in public life often address various kinds of ongoing controversies. Resolving those controversies often influences our collective social, political, and moral decision-making. This course provides students with concepts, vocabularies, and practices necessary to study historical and contemporary public controversies. Understanding how to use rhetoric collaboratively and constructively for the public good is therefore valuable in both evaluating and helping to resolve controversies. CAS 375 will allow students to learn about well-known and lesser-known controversies that affect social and political life in Pennsylvania, at Penn State, and throughout the nation. Students will do so by examining primary and secondary texts (or historical documents as well as academic research). The course requires students to collaboratively research controversial topics of their choice, thereby enabling them to practice both analytic and communicative skills that help to promote constructive public discourse. In these respects, the course offers students an academically rewarding and civically engaged experience. Different versions of CAS 375 will vary depending on the specialties of individual instructors within the broad and diverse scholarship on public controversies. All versions of the course, however, will be designed according to common learning objectives and major topics in order to provide students with substantive points of academic coherence and consistency across slightly differing iterations of the course.

General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Soc Resp and Ethic Reason

CAS 383N: Culture and Technology

3 Credits

The aim of this course is to examine the relationship between technology and culture in the broadest sense, from the role of tools used in society to the impact of high technology in post-industrial societies. The course begins with an overview of the theoretical approaches to the linkage between technology, culture and society. Students will examine the role of technology as a determinant of culture. Particular attention will be given to the diffusion and transfer of new technology and its impact on social and cultural issues. This course is designated as Integrated Domain because of the interdependence of humanities and social sciences as fundamental to understanding the role technology plays in the transformation of the nature and influence of cultural properties such as education, work and economics, politics, and human relationships. Using communication theories that focus on technology, students will grapple with ethical questions of power and justice and the way dominant cultural ideologies and technological developments shape norms that get solidified in attitudes, norms, and workplace and public policies.

General Education: Humanities (GH)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking

CAS 390: Qualitative Research Methods

3 Credits

An overview of Qualitative Research Methods, including how to conceive, design and execute a research study. CAS 390 Qualitative Research Methods (3) (GS) This course provides students with an understanding of both qualitative research methods and the theoretical frameworks that inform qualitative inquiry. Additionally, this course focuses on tools for data collection such as individual and focus-group interviewing and observing and recording interaction. This course provides practical experience for students in collecting and analyzing qualitative data with and without the use of technology and examines particular difficulties in the interpretation and reporting of qualitative findings. Qualitative Research Methods is course that bridges disciplinary boundaries and is useful to any student who will be investigating human interaction.

General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Key Literacies
 GenEd Learning Objective: Soc Resp and Ethic Reason

CAS 395: Forensics Practicum

1-2 Credits/Maximum of 16

Provides students in forensics the opportunity for supervised participation in the activity in class and in intercollegiate competition.

CAS 398: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

CAS 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

CAS 402: Speech and Human Behavior

3 Credits

General semantics, thought, and human behavior; not offered at University Park campus.

CAS 403: Interpersonal Communication Theory and Research

3 Credits

CAS 403 is an advanced introduction to social scientific theory and research on interpersonal communication. Course foci center on contemporary theory and research, interpersonal communication in personal and professional relationships, and a research practicum in which students conduct an original research study. The course is intended for juniors and seniors in Communication Arts and Sciences and other liberal arts majors who have a serious interest in interpersonal

communication processes. Assignments and readings address theory, research, and practical application.

Enforced Prerequisite at Enrollment: 3rd Semester Standing or 6 credits of CAS

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

CAS 404: Conflict Resolution and Negotiation

3 Credits

Conflict and its management are critical issues that pervade the fabric of our society. This class is designed as an opportunity to explore the complexities of conflict, to understand the forces that make conflict challenging, and to develop a repertoire of skills for thinking about and managing conflict more effectively. In this pursuit, we first examine the features that define and set the stage for conflicts. We then turn to the communication behaviors that people use to manage conflicts. Finally, we consider some of the dynamics that make constructive conflict management a challenge. The objective of this course is to expose students to the scholarly study of interpersonal communication in a way that both captures the vitality of the discipline and enhances interpersonal communication skills. As a General Education course contributing to the social and behavioral science requirement, this class is also expected to (a) survey existing knowledge in the subject domain, (b) promote an understanding of social scientific methods, (c) clarify the multiple nature of causality in social settings, (d) demonstrate the relationships between the study of interpersonal communication and other disciplines, and (e) encourage students to integrate empirical knowledge and theoretical views of the social world. The course content, assignments, and exams were developed to attend to these concerns. Recommended Preparation CAS 100

Enforced Prerequisite at Enrollment: 3rd Semester Standing or 6 credits of CAS

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Soc Resp and Ethic Reason

CAS 405: Family Communication Theory and Research

3 Credits

Family relationships are powerful. They represent our foundation, our growth, and our potential. Family relationships are complicated. They endure change, hardship, and adversity. And family relationships are ever changing. They shift with the diversity of family systems, they blend blood, legal ties, and social connections, and they move with the experiences of the individuals embedded in the family unit. In the midst of all that family is communication, functioning as the creator, the designer, the mediator. Without communication, the family unit would have no identity. This course centers on family communication as the means through which family identity is constructed. Family communication is the way in which families (re)define themselves, how they make sense of their experiences, and the way they adapt to changing circumstances. The course focuses on family communication as a vibrant and cross-disciplinary field, one that is dedicated to understanding the unique experiences and issues facing families. Theory and research are the foundation of the course with the goal of building

bridges between theoretical frames and praxis, identifying ways in which theory illuminates many of the challenges facing families, while exploring how research can help to resolve these problems. By the end of this course all students should be able to comfortably negotiate the tension between theory and practice.

Enforced Prerequisite at Enrollment: 3rd Semester Standing or 6 credits of CAS

CAS 406: Honors Course in Communication Arts and Sciences

3 Credits

Individual study and seminar in selected areas or issues of speech communication.

Enforced Prerequisite at Enrollment: 5th Semester standing Honors

CAS 408: Interpersonal Influence

3 Credits

Because humans live in groups, they must grapple with who is in charge and how to get along with each other. All social animals have devised various means of answering these basic questions, but humans have the added complexities associated with the use of language and argument. This course aims to show how basic problems of sociality play out in common contemporary interactions such as getting help from others, enforcing rules and obligations, providing advice, and changing opinions. It covers theories of message production and of message effects, all of which are evaluated from evolutionary, social, and cognitive meta-perspectives.

Enforced Prerequisite at Enrollment: 6 credits in CAS and 3rd semester standing

CAS 409: Democratic Deliberation

3 Credits

Explores the theory and practice of democratic deliberation in elections, town meetings, juries, legislatures, and other public institutions. CAS (PL SC) 409 Democratic Deliberation (3) Many modern democracies have made strides to become more deliberative in how they make decisions. This course looks closely at the most promising innovations in self-government while also reviewing the persistent anti-deliberative and undemocratic features of modern societies and governments. Topics covered in the course include deliberative democratic theory, political conversation, common forms of public meetings, mediated deliberation, campaigns and elections, the jury system, and deliberative democracy on larger social scales.

Enforced Prerequisite at Enrollment: PLSC 1 or PLSC 7 or CAS 101N or CAS 137H or ENGL 137H or CAS 215 or CAS 303

Cross-listed with: PLSC 409

CAS 411: Rhetorical Criticism

3 Credits

Principles of rhetorical criticism examined through analysis of selected texts and critics.

Enforced Prerequisite at Enrollment: 3rd Semester Standing or 6 credits of CAS

Bachelor of Arts: Humanities

CAS 415: Rhetoric of Film and Television

3 Credits

Rhetorical analysis of the artistic forms and cultural structures of film and television; intensive study of selected examples.

Enforced Prerequisite at Enrollment: 3rd Semester Standing or 6 credits of CAS

Bachelor of Arts: Humanities

CAS 420: Rhetorical Theory

3 Credits

Ancient, medieval, Renaissance, Enlightenment, and contemporary theories of rhetoric.

Enforced Prerequisite at Enrollment: 3rd Semester Standing or 6 credits of CAS

Bachelor of Arts: Humanities

CAS 421: Communication and Aging

3 Credits

Concentrates on the pivotal role that communication plays in the social process of aging. CAS 421 CAS 421 Communication and Aging (3) Communication and Aging is a course that concentrates on the pivotal role that communication plays in the social process of aging. An understanding of the communicative behavior of older adults can result in significant improvements in our ability not only to describe the essential components of a quality life, but to actively intervene in the various factors that help each of us adapt to the many physiological, psychological, social and economic challenges of the aging process. Topics covered in this course include: the theories of social aging; attitudes and ageism; mass media use and portrayals; work, leisure, and retirement; family relationships such as siblings, grandparent-grandchild, parent-child; friendships; health and aging; death and dying; and successful aging. This course places communication and our interactive behavior at the heart of the aging process and helps us combine the growing bodies of literature in physical, psychological and social aging as we attempt to grasp the process of life long development.

Enforced Prerequisite at Enrollment: 3rd Semester Standing or 6 credits of CAS

CAS 422: Contemporary African American Communication

3 Credits

A focused study on the continuities between African and African American culture and communication. CAS 422 / AFAM 422 Contemporary African American Communication (3) (US)(BA) This course meets the Bachelor of Arts degree requirements. At least once a year, this multidisciplinary course is designed to serve both Speech Communication and African and African American Studies. It is concerned with the relationship between a people's culture and world view and their systems of rhetoric/communication. It also provides a focus on the continuities between African and African American culture and communication. Specifically, it offers an approach to ascertaining the salient features of African and African American communication for community development. Special emphasis is given to the development and rhetoric of the Civil Rights Movement. The course utilizes videos,

guest lectures, tapes of speeches, etc. to clarify objectives and stimulate classroom discussion. Students will be evaluated on two exams, one oral report, a final paper and class participation. Even though students need 400-level courses for their major and minor, this course is not required for Speech Communication majors. However, it does meet the Intercultural and International Competency requirement because it focuses on the communication of African Americans and how that communication has affected all Americans. The course will accommodate ten students in Speech Communication and ten students in African and African American Studies to ensure active discussion of issues.

Enforced Prerequisite at Enrollment: 3rd Semester Standing

Cross-listed with: AFAM 422

Bachelor of Arts: Humanities

United States Cultures (US)

CAS 426W: Communication Ethics

3 Credits

Ethical issues in public and private communication; role of communication in expressing and realizing individual and social values.

Enforced Prerequisite at Enrollment: 3rd Semester Standing and CAS 100 or CAS 137H or ENGL 137H or ENGL 15 or ENGL 30H

Bachelor of Arts: Humanities

Writing Across the Curriculum

CAS 438: Rhetoric of Documentary

3 Credits

Rhetorical analysis of the documentary in film, television, and other media; historical and critical analysis of functions and form.

Enforced Prerequisite at Enrollment: 3rd Semester Standing or 6 credits of CAS

CAS 450W: Group Communication Theory and Research

3 Credits

This writing-intensive course provides students with an overview of a broad range of theories and perspectives on group interaction and their implications for communication, including topics such as group formation, development, maintenance, and behavior.

Enforced Prerequisite at Enrollment: 3rd Semester Standing and (CAS 137H or ENGL 137H or ENGL 15 or CAS 100)

Bachelor of Arts: Social and Behavioral Sciences

Writing Across the Curriculum

CAS 452: Organizational Communication Theory and Research

3 Credits

CAS 452: Organizational Communication Theory and Research explores the nature and function of communication in organizations; emphasis is placed on theoretical concepts, tools, and skills for effective management of communication. The goal is to open students' minds to the importance and centrality of the communicative process within formal and informal organizations. The course explores communication theories which focus on and help explain the complex interactions that occur at numerous levels within modern organizations. The course culminates in a semester long "communication audit" of an organization to test the explanatory

power of communication theories in the working world. There is also a writing intensive version of this course, CAS 452W. Students may only receive credit for one of the versions of CAS 452.

Enforced Prerequisite at Enrollment: CAS 100 or CAS 137H or ENGL 137H or 3rd semester standing or 6 credits of CAS

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

CAS 452W: Organizational Communication Theory and Research

3 Credits

CAS 452W explores the nature and functions of communication in organizations; emphasis on writing and exploring concepts, tools, and skills for effective management of communication. This course is designed to further introduce students to the field of Organizational Communication. Emphasis is placed on macro-organizational variables that can systematically affect micro-communication behaviors; in other words, how could something like the hierarchy of the organization influence who someone talks with as an organizational employee. The purpose of the course is to provide students with a basic understanding of communication-relevant behaviors and activities in organizations. This includes things like leadership, teamwork, conflict management, and diversity. Additionally, this course examines various theories of and approaches to studying communication within organizations. This version of the course is writing intensive, there is also one that is not. Students may only receive credit for one: CAS 452 or CAS 452W.

Enforced Prerequisite at Enrollment: CAS 100 or CAS 137H or ENGL 137H or ENGL 15 or ENGL 30H

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

Writing Across the Curriculum

CAS 453: Health Communication Theory and Research

3 Credits

Principles of communication about health across the lifespan and within health-care contexts. CAS 453 Health Communication Theory and Research (3) This is an upper division course designed to provide students with a comprehensive introduction to multiple discourses about health and health care. CAS 453 emphasizes the communication about health and health care that reaches us everyday through many and varied professional, personal, and mediated forms. Interactions with health care providers were once limited primarily to physicians and nurses. Today, careers in health care are among the most rapidly expanding job areas, and a bewildering array of technicians and technical and professional titles greets the client of formal health care. Awareness and understanding of how to assess these various roles increases the ability of students to interact competently with care providers. Family, friends, and the cultural groups that nurture our youth and sustain our adulthood interact with us about health on a regular basis as well. Awareness and understanding of the impact that interactions with these primary social network members has on interactions with health care providers increases the likelihood that both provider and client will be

better understood and better served. Every message about health and health care carries an ethical dimension in its content. The course will increase a students' critical thinking and informed decision-making skills associated with others efforts to influence them regarding their own health practices. It also frames discussion about the ethics of and ethical decision-making associated with health communication. Students will examine communication about health in many situations and contexts to illustrate how it reflects efforts to assign labels to illness and disease, and sometimes the environmental and political contributors to the situation. Students will assess whether communication about health and health care places the responsibility on individuals, institutions, society, or some combination for the particular health condition or situation. Finally, students will evaluate how communication is used to invoke personal, professional, and societal norms of conduct associated with standards of conduct that should promote health and well-being. The course is linked to the courses in interpersonal communication, organizational communication, health communication, and small group communication, as discourse about health crosses societal, cultural, and personal contexts. CAS 453 is one of the upper division courses that may be used to fulfill Major or Minor students' requirements for upper division credits.

Enforced Prerequisite at Enrollment: 3rd Semester Standing or 6 credits of CAS

CAS 455: Gender Roles in Communication

3 Credits

Explores the literature on gender research in the discipline of human communication. CAS (WMNST) 455 Gender Roles in Communication (3) (US) This 400-level course is a theory and application course which also satisfies an intercultural requirement. CAS/WMNST 455 strives to ensure that students understand female and male differences and similarities in communication patterns, perceptions of the opposite sex, and expectations and stereotypes regarding the opposite sex. Many researchers find that gender communication is 'cross cultural' i.e., that women and men come from two different cultures, and therefore misunderstanding of each others' intent and expectations may frequently occur. This course examines how distinctions in meaning and interpersonal dynamics may create these two differing cultures, and promotes understanding and possibilities for adaptation. It also investigates when and if changing communication styles is desirable, and in which settings. A goal of the course is to help students to solve puzzles toward understanding those we work with and relate to, as well as to apply their knowledge to their own lives and contexts. The course content and format reflects these goals. CAS/WMNST 455 begins with theoretical information, later applying it to situations of interest to most -- relationships, language use differences (verbal and nonverbal), media messages, and workplace issues. Lecture incorporates considerable discussion and exploration of gender issues, and most topics are followed by activities, which illustrate how theories work in real life. This course is useful for any students seeking an intercultural course. It is recommended to Communications Arts and Sciences and Women's Studies majors and minors due to emphasis on communication theory and gender issues. Business, counseling, psychology, sociology, education and any social science majors may fulfill a US requirement through 455.

Enforced Prerequisite at Enrollment: 3rd Semester Standing

Cross-listed with: WMNST 455

United States Cultures (US)

CAS 460: Introduction to Honors Thesis

3 Credits

This course will guide students through steps that result in Honors Thesis Proposal.

Enforced Prerequisite at Enrollment: Student must be in good standing in Schreyer Honors College. CAS 201 or CAS 202 or CAS 204 Honors

CAS 470: Nonverbal Communication

3 Credits

Examining ways nonverbal messages, such as gestures, posture, vocal intonation, and facial expressions, affect us on a daily basis.

Enforced Prerequisite at Enrollment: 3rd Semester Standing or 6 credits of CAS

CAS 471: Intercultural Communication Theory and Research

3 Credits

CAS 471 Intercultural Communication Theory and Research (3)(US;IL)
This upper division course provides a comprehensive overview of intercultural communication theories and research. Students will apply theories to analyze and solve problems that affect intra-group and intercultural communication within and across national boundaries. Course includes a variety of activities, including interactions that cross cultural, linguistic, or national boundaries.issues of humanity, tolerance, values, and communication.

Enforced Prerequisite at Enrollment: 5th Semester standing
International Cultures (IL)
United States Cultures (US)

CAS 475: Studies in Public Address

3 Credits

History and criticism of public discourse; intensive analysis of selected public addresses and social movements.

Enforced Prerequisite at Enrollment: 3rd Semester Standing or 6 credits of CAS
Bachelor of Arts: Humanities
Bachelor of Arts: Social and Behavioral Sciences

CAS 478: Contemporary U.S. Political Rhetoric

3 Credits

In this course students will learn how to analyze selected discourses and movements in recent U.S. political history and to compose and deliver their own discourses—written, spoken, and mediated by digital information technologies. The discourses students will learn to analyze include speeches, debates, news stories, commentaries and other written arguments; audio, visual, and video messages; and persuasive campaigns. This course provides students the opportunity to study contemporary U.S. political rhetoric in order to contribute to improving its quality. Using rhetoric's analytic and productive capacities, students will read, listen to, and view examples of public discourse on vital issues of the day. Informed by the diverse, millennia-long history of rhetorical theory in general and argumentation and public memory studies in

particular, this course offers variously mediated texts as points of departure to enable students to learn and deliberate together about the causes and consequences of and the possible remedies for the state of U.S. political rhetoric in the past, present, and future. This course thus serves as one kind of culmination of undergraduate rhetorical study, equipping students with the skills, habits, and practices they need to be informed and capable citizens of a democratic republic. Further, the course enables students to synthesize what they have studied in various disciplines across their undergraduate education because the course focuses on public problems and public memory. While different sections of the course will focus on different public problems and political issues, the rhetorical theory and criticism core of the course will remain consistent across sections. Over the course of the semester students will learn through practice how to compose and deliver factually correct and rhetorically credible discourses for different audiences. Students will learn through practice how to analyze and produce rhetorically sound arguments. Students will learn the histories of social and political movements in the United States as those histories pertain to contemporary political discourses and controversies.

Enforced Prerequisite at Enrollment: 3rd Semester Standing or 6 credits of CAS

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

CAS 483: Communication and Information Technology II

3 Credits

Theory and application of interactive internet-based communication and information management; for students who want a Liberal Arts approach.

Enforced Prerequisite at Enrollment: 3rd Semester Standing or 6 credits of CAS

CAS 490: Peer Tutoring for Public Speaking

3 Credits

This course will prepare students to become peer tutors in public speaking. CAS 490 Peer Tutoring for Public Speaking (3) This course will prepare undergraduates for work as peer tutors in the area of public speaking. Students will begin by considering peer tutoring as an opportunity for civic engagement, and public speaking as integral to the democratic process. Students will review and practice elements of the speaking process both to become excellent speakers themselves and also highly competent tutors for their peers across the university's curriculum. In addition to instruction on elements of public speaking, students will study and practice the art of critique. This course will include in-class instruction, discussion, and activities, as well as a practicum in which students will participate in reviews of peers' work at all stages of the speaking process.

Enforced Prerequisite at Enrollment: CAS 100A or CAS 137H or ENGL 137H or CAS 138T or ENGL 138T or approved higher level speaking course

CAS 493: Undergraduate Teaching Assistantship

1-3 Credits/Maximum of 6

As a Teaching Assistant, you'll activate your learning in a way that will reinforce and enrich your understanding of course material. In addition to this intellectual benefit, working as a Teaching Assistant is great professional experience that enhances other skill sets including: organization, time management, planning and executing effective meetings, and, of course, effective communication. Finally, teaching assistantships are great ways to cultivate strong relationships with faculty and graduate students who may become mentors and personal and professional resources. Specific duties of undergraduate teaching assistants might include leading discussions, holding office hours, doing research or creating materials for the instructor, and performing tasks related to the course (e.g., taking attendance or keeping records). Grading of exams and assignments is not an appropriate task for undergraduate TAs.

CAS 494: Research Topics

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small group basis.

Enforced Prerequisite at Enrollment: prior approval of proposed assignment by instructor

CAS 494H: Research Topics

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small group basis.

Enforced Prerequisite at Enrollment: prior approval of proposed assignment by instructor
Honors

CAS 495: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: prior approval of proposed assignment by instructor

CAS 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

CAS 496H: Introduction to Thesis Research

1-3 Credits

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Honors

CAS 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

CAS 498: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

CAS 499: Foreign Studies

1-9 Credits/Maximum of 9

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Communication Sciences and Disorders (CSD)

CSD 100: Preventing Vocal Abuse, Misuse, and Disorders

3 Credits

Preventing Vocal Abuse, Misuse, and Disorders is a 3 credit course intended to be the first course for all University students exploring communication sciences and disorders as a possible major, and students interested in learning specifically about vocal hygiene, voice use, vocal abuse and voice disorders. Principles of the voice mechanisms, preventing vocal abuse, and promoting vocal health across the life span are core principles of the course. The focus of this course is on preventing voice disorders and promoting activities that contribute to healthy vocal habits across the life span. The course is designed to integrate theoretical knowledge, practice-based, and measurement-focused activities to assist learners in understanding, achieving, maintaining, and promoting a lifetime of healthy vocal activities. Learning activities include use of specialized computer instrumentation for analyzing voice qualities. The educational objectives of the course are to: 1) develop a basic understanding of the normal and disordered vocal mechanism; 2) understand the need for maintaining and promoting lifetime wellness in your vocal activities and habits for any occupational choice; 3) learn about the prevention of vocal disorders across the life span from vocal nodules to laryngeal cancer; 4) understand the subjective and objective measures of vocal qualities to assist in changing and altering vocal abuses and misuses while improving and enhancing good vocal habits, and 5) developing an understanding of how vocal behaviors influence social behaviors, employment, and quality of life. The course includes an overview of the anatomy and physiology of the respiratory and vocal mechanisms, physics of voice production, development of vocal abuses and resulting pathologies, disorders including vocal growths, paralysis, voice disorders associated with cleft lip and cleft palate, syndromes, neurodegenerative disorders, aging and head and neck cancer.

United States Cultures (US)

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

CSD 146: Introduction to Communication Sciences and Disorders

3 Credits

Classification of speech, language, and hearing disorders, diagnostic and treatment procedures; skills and responsibilities of the speech-language pathologist and audiologist. CSD 146 CSD 146 Introduction to Communication Disorders (3) (US;IL) CSD 146, Introduction to Communication Sciences and Disorders (INTRO TO CSD), is a 3-credit course typically offered every semester. The course is intended as the first course for Communications Sciences and Disorders majors or for students exploring Communications Sciences and Disorders as a possible major. For Communications Sciences and Disorders majors, CSD 146 is a required course, requiring a grade of "C" or better, and should be taken during the first or second year (semester standing 1-4) since CSD 146 is a prerequisite for CSD 230, 245, 395W, 442, 444, 451, and 459W. The educational objectives of the course are to introduce students to speech, language, and hearing disorders and the professions of speech/language pathology and audiology. This is done by providing an overview of the normal aspects of speech, language, and hearing followed by an overview of speech, language, and hearing disorders with emphasis on assessment and intervention strategies. The course includes an overview of the anatomy and physiology of the speech and hearing mechanisms, physics of sound, and linguistic and psycholinguistic development. Students are required to complete several observations of speech, language, or hearing therapy or assessment in the Penn State Speech and Hearing Clinic and readings from a required text and Internet sites. Students are evaluated by three to four tests and their clinical observation reports.

International Cultures (IL)

United States Cultures (US)

CSD 218: American Sign Language I

3 Credits

In this course, students will develop their knowledge and awareness of American Sign Language (ASL). Students will learn and develop comprehension and production abilities in ASL. Emphasis will be on recognition and demonstration of basic grammatical features of ASL with focus on development of fluency and accuracy. The primary components of this course will be to introduce and practice what students are learning in this language class including, vocabulary development, grammatical features, conversation and communication skills, and cultural awareness. When possible, classroom instruction will be augmented with guest speakers and videos. Class attendance and outside practice with other people who know or are studying ASL are essential in this course.

Bachelor of Arts: World Language (All)

CSD 230: Introduction to Audiology

3 Credits

Basic measurement procedures, evaluation, and screening of hearing loss using pure-tone and speech audiometry, immittance, and physiological measurements. CSD 230 CSD 230 Introduction to Audiology (3) CSD 230, Introduction to Audiology (INTRO TO AUDIOLOGY), is a 3-credit course typically offered during Fall semester. The course is prerequisite by Communications Sciences and Disorders 146, required for Communications Sciences and Disorders majors, and should be taken during the second or third year. The course can also be taken by students

exploring CSD as a major. The intent of this course is to provide students with a basic understanding of hearing measurement procedures, screening for hearing loss, and the educational, social, and vocational problems of hearing impaired individuals across the age span. The educational objectives are that students will acquire an understanding of: 1) acoustics as related to hearing testing, 2) anatomy and physiology of the auditory system, 3) common disorders of the auditory system, 4) the basic principles of measuring hearing sensitivity, speech understanding ability, and middle ear function, 5) screening for hearing loss, and 6) the educational, social, and vocational problems caused by a hearing loss across the life span. Students meet the educational objectives by attending and participating in class discussions, completing assigned readings, participating in workshops, observing hearing testing, and completing several examinations.

CSD 240: Supporting Communication Through The Performing Arts

3 Credits

This course will allow students to acquire skills, knowledge, and experiences about the ways in which performance activities such as improvisation, vocal performance, and dance can promote valued communication and developmental outcomes for individuals with and without developmental and intellectual disabilities. The course is explicitly designed to include students from the Lifelink PSU program who have intellectual disabilities, who learn with and alongside enrolled students. This structure directly emphasizes the interconnections between students with and without disabilities, as well as between the knowledge bases and theoretical approaches brought by specialists in the performing arts and in diverse areas of disability services. The course will emphasize the pluralistic nature of knowledge in the social and behavioral sciences by incorporating the pedagogy and knowledge of experts from the performing arts with the empirical scientific approach taken in diverse disciplines dedicated to disability services and rehabilitation, including but not limited to Communication Sciences and Disorders, Education and Special Education, Psychology, Music Therapy, and Rehabilitation. Students will collaborate to analyze both in the empirical research literature as well as in their classroom experiences with the Lifelink students the specific ways in which various performing arts offer opportunities for growth in self-expression, interpersonal understanding, and other important communication skills.

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

CSD 250: Professional Issues in Communication Sciences and Disorders

2 Credits

This course is an overview of contemporary professional issues within the field of communication sciences and disorders. Topics include choosing an appropriate graduate school, understanding the processes of credentialing Speech-Language Pathologists (SLPs) and audiologists, exposure to employment settings in the field, and current legislation and topics affecting service delivery. This course provides coursework on ethics, universal precautions, and patient confidentiality to meet the American Speech-Language-Hearing Association (ASHA) Speech-Language Pathology Assistant (SLPA) Certification requirements.

Enforced Concurrent at Enrollment: CSD 146

CSD 251: Guided Clinical Observations in Communication Sciences and Disorders

1 Credits

This course guides students through clinical observation of assessment and treatment of adult and pediatric clients with communication disorders and differences conducted by ASHA-certified speech-language pathologists and provides additional training of professional and clinical skills. The course is intended for students planning to pursue graduate study in speech-language pathology (SLP) or students who wish to explore the field in more depth (e.g., students interested in pursuing speech-language pathology assistance, audiology, or related fields). During this course, students will complete a minimum of 25 hours of guided clinical observation to meet the American Speech Language and Hearing Association (ASHA) standards required for graduate SLP training and professional certification. This course is designed to facilitate critical thinking about clinical sessions such as by identifying behavioral objectives, analyzing activities, materials, and data, and evaluating client performance and session effectiveness.

Enforced Prerequisite at Enrollment: CSD 146

CSD 269: Deaf Culture

3 Credits

Explores the economic, social, psychological, and political aspects of the deaf culture and its interaction with the majority hearing culture. CSD 269 Deafness and Society (3) (GS;US;IL) explore this community as being a distinct culture having its own rules of social interaction, values, group norms, and identity. The educational objectives are that the student will acquire an understanding of: 1) the development of the American Deaf Community, 2) factors affecting an individual's choice to affiliate with the Deaf Community, 3) history and current trends in deaf education, 4) American Sign Language (ASL) and other forms of communication used by Deaf Americans, 5) social, emotional, and psychological aspects of deafness, 6) diversity with the Deaf Community, and 7) deafness in the literature, media, and the arts.

International Cultures (IL)

United States Cultures (US)

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

CSD 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

CSD 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

CSD 300: Developmental Considerations in the Assessment and Treatment of Language Disorders

3 Credits

Using a developmental framework to interpret problems in child language acquisition. CSD 300 Developmental Considerations in the Assessment and Treatment of Language Disorders (3) (US;IL) CSD 300, Developmental Considerations in the Assessment and Treatment of Language Disorders (DEV OF LANG DIS), is a 3-credit course typically offered every Fall semester. For Communications Sciences and Disorders majors, CSD 300 is a required course, requiring a grade of 'C' or better, and should be taken during the second or third year (semester standing 3-6). The course is oriented toward students who intend to pursue a career in speech-language pathology and provides the foundation for higher level speech and language courses in Communications Sciences and Disorders. The overall educational objective of the course is to introduce students to child language development as the foundation for assessing and treating children with language disorders. This is done by lecture and active learning experiences so that students understand (a) several theories and information concerning the relations between normal and abnormal language development in children, (b) how individual, cultural, and linguistic differences contribute to language development, (c) the relations between theories of language development and empirical research, and (d) the interaction between normal and abnormal language development in children. Students are required to complete reading assignments and participate in group activities.

Enforced Prerequisite at Enrollment: CSD 146

International Cultures (IL)

United States Cultures (US)

CSD 311: Clinical Phonetics

3 Credits

Introduction to phonetic transcription of speech emphasizing articulatory phonetics of American English, its dialects, and disordered speech; extensive transcription experiences. CSD 311 Clinical Phonetics (3) For Communications Sciences and Disorders majors, CSD 311 is a required course, requiring a grade of "C" or better, and should be taken during the second or third year (semester standing 3-6). The educational objectives of this course are to introduce students to the phonetic transcription of speech sounds using the Internal Phonetic Alphabet, provide an overview of articulatory phonetics, describe representative sounds from languages of the world with primary emphasis on American English and its dialects, and the transcription of disordered speech production. Students will be expected to read and transcribe broad and narrow phonetic symbols, become familiar with sociolinguistic factors and non-organic and organic speech disorders that affect pronunciation. In addition, students will be expected to describe the phonetic capabilities of humans including the articulatory basis of speech sounds, aspects of speech production, and speech sounds produced by the world's languages and disordered speakers. Recitation and extensive practice in transcription of live speech are integral parts of the course.

Enforced Prerequisite at Enrollment: CSD 146

CSD 318: American Sign Language II

3 Credits

In this course, the students will use their knowledge from the introductory course to further their development of comprehension and production

abilities in American Sign Language (ASL). Emphasis will be on recognition and demonstration of more sophisticated grammatical features of ASL with focus on increasing fluency and accuracy. The primary components of this course will be to practice what students are learning in this language class including vocabulary development, grammatical features, conversation and communication skills, and cultural awareness. Speech will not be permitted in the classroom; communication will be in American Sign Language. When possible, classroom instruction will be augmented with guest speakers and videos. Class attendance and outside practice with other people who know or are studying ASL are essential in this course.

Prerequisite: CSD 218

Bachelor of Arts: World Language (All)

CSD 331: Anatomy and Physiology for Speech and Hearing

3 Credits

Structure and function of the physical systems involved in speech and hearing, including respiration, phonation, articulation, perception, and neurology. CSD 331 Anatomy and Physiology for Speech and Hearing (3) For Communications Sciences and Disorders majors, CSD 331 is a required course, requiring a grade of "C" or better, and should be taken during the second or third year (semester standing 3-6). The overarching goal of this course is to provide a comprehensive foundation for understanding normal anatomy and physiology of the speech and hearing mechanisms (respiration, phonation, articulation, neurology, and perception), which is essential for evaluating and treating individuals with speech, language, or hearing disorders. Through lectures and active learning experiences, students will be expected to (a) distinguish between principles of anatomy and physiology, (b) demonstrate knowledge of terminology, concepts, and theories related to anatomy and physiology of the speech and hearing mechanism, and (c) understand how normal anatomy and physiology of the speech and hearing mechanism relates to understanding communication disorders.

Enforced Prerequisite at Enrollment: CSD 146

CSD 341: Acoustic Principles in Communication Sciences and Disorders

3 Credits

Explores the fundamental concepts of acoustics as applied to individuals with communicative disabilities; special emphasis is placed on the acoustic analysis of speech. CSD 301 CSD 301 Acoustic Principles in Communication Sciences and Disorders (3) For Communications Sciences and Disorders majors, CSD 301 is a required course, requiring a grade of "C" or better, and should be taken during the second or third year (semester standing 3-6). The educational objectives of the course are to introduce students to fundamental concepts of acoustics and to apply those concepts to individuals with communicative disabilities and to the acoustic analysis of speech. The course includes a detailed overview of the physics of sound, sound propagation, sound measurement, the generation, acoustic principles, measurement of speech sounds, and the acoustical analysis of speech for normal and disordered speakers. Students are required to have a scientific calculator capable of exponentiation, logarithms, and trigonometric functions.

Enforced Prerequisite at Enrollment: CSD 311 and CSD 331

CSD 397: Special Topics

1-3 Credits/Maximum of 3

Formal Courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

CSD 418: American Sign Language III

3 Credits

In this course, the students will continue to further development of comprehension and production abilities in American Sign Language (ASL). Emphasis will be on recognition and demonstration of more sophisticated grammatical features of ASL with focus on increasing fluency and accuracy. The primary components of this course will be to practice what students are learning in this language class including vocabulary development, grammatical features, conversational and communication skills, and cultural awareness. Speech will not be permitted in the classroom; communication will be in American Sign Language. When possible, classroom instruction will be augmented with guest speakers and videos. Class attendance and outside practice with other people who know or are studying ASL are essential in this course.

Prerequisite: CSD 318

Bachelor of Arts: World Language (All)

CSD 428: American Sign Language IV

3 Credits

In this course, the students will continue to further development more advanced comprehension and production abilities in American Sign Language (ASL). Emphasis will be on recognition and demonstration of more sophisticated grammatical features of ASL with focus on increasing fluency and accuracy. The primary components of this course will be to practice what students are learning in this language class including vocabulary development, grammatical features, conversational and communication skills, and cultural awareness. Speech will not be permitted in the classroom; communication will be in American Sign Language. When possible, classroom instruction will be augmented with guest speakers and videos. Class attendance and outside practice with other people who know or are studying ASL are essential in this course.

Enforced Prerequisite at Enrollment: CSD 418

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

CSD 431: Neuroanatomical and Neurophysiological Foundations of Communication Disabilities

3 Credits

This course discusses various modes of communication, including speech perception, speech production, reading, writing, and sign language. All levels of language processing are discussed, from the morpheme level (smallest unit of meaning) to the discourse level, including prosody. The major psycholinguistic and neurolinguistic models of and the basic neuroanatomy responsible for the major aspects of linguistic communication are investigated. For all modes and levels of communication, examples from both normal and disordered language processing perspectives are included. Patterns of disordered language that result from neurological insult or neurodegeneration are discussed. To facilitate understanding, neuroanatomy, brain mapping methods, and the aphasias are the first topics of discussion.

Enforced Prerequisite at Enrollment: CSD 331

CSD 432: Introduction to Deglutition

3 Credits

This course will provide the CSD major with foundational knowledge on the anatomy, physiology, and neurology of the typical, healthy swallowing process (deglutition). This is an elective course for CSD majors and should be taken during the third or fourth year of the major. The overarching goal of this course is to provide the student with a comprehensive foundation on the swallow and to better prepare the student for their graduate course in dysphagia. Through lectures and experiential learning, students will be expected to: (a) understand the anatomy, physiology, and neurology of the typical swallow; (b) understand the different stages of the typical swallow; (c) understand various methods of clinical and instrumental evaluation techniques used to assess the swallow; (d) understand the importance of the ability to swallow on a person's overall quality of life; and (e) understand the legal issues surrounding a person's ability to swallow.

Enforced Prerequisite at Enrollment: CSD 146 and CSD 331 or one of the following BIO courses: BIOL 155 or 161 or BIOL 163 or BISC 2 or BISC 4 or undergraduate standing in the CSD program and/or consent of department.

CSD 433: Aural Rehabilitation

3 Credits

Methods for improving receptive skills of persons with hearing impairments; clinical observation and practice. CSD 433 Aural Rehabilitation (3) Students will gain a basic understanding of the principles of aural rehabilitation for hearing impaired (HI) and deaf infants, children, and adults. Specifically, students will gain an understanding of: 1) hearing loss and hearing handicap in relation to speech understanding and communication, 2) the principles of amplification systems and assistive listening and alerting devices, 3) assessment of communication and communication strategies, 4) auditory training, 5) speech reading, 6) aural rehabilitation for adults, and 7) aural rehabilitation for infants/children. In addition, students will also acquire knowledge concerning the roles and work-sites of professionals working with HI and deaf individuals, and the impact of hearing loss and deafness on the individual, family, and society.

Enforced Prerequisite at Enrollment: CSD 146 and CSD 230

CSD 433H: Aural Rehabilitation

3 Credits

Methods for improving receptive skills of persons with hearing impairments; clinical observation and practice.

Honors

CSD 442: Introduction to Disorders of Articulation and Phonology

3 Credits

This course is required for Communications Sciences and Disorders majors and should be taken during the third or fourth year. The intent of this course is to provide students with a basic understanding of the etiology, diagnosis, and treatment of children having articulatory and phonological disorders. The course is designed to facilitate critical thinking through problem solving. The educational objectives are

that students will acquire an understanding of: 1) the theoretical and practical bases of language and dialectal variations, 2) normal and abnormal articulatory and phonological acquisition, 3) factors related to phonological disorders, 4) assessment procedures and analysis and interpretation of assessment results, and 5) remediation concepts, principles, and methodologies.

Enforced Prerequisite at Enrollment: CSD 311 and CSD 331

CSD 444: Introduction to Organic Disorders of Speech and Language

3 Credits

The profession of speech-language pathology and audiology deals with varied disorders of communication and swallowing. Many clients demonstrate communication challenges due to acquired disorders such as stroke, traumatic brain injury, dementia, laryngeal cancer, stuttering and various voice disorders. This course will introduce basic concepts and pathophysiology of selected organic disorders and the role of the speech-language pathologist in treating organic disorders in adults. Students will gain basic knowledge in the pathophysiology, assessment, and treatment related to a variety of acquired disorders in field of Communication Sciences and Disorders.

Enforced Prerequisite at Enrollment: CSD 300 and CSD 331

CSD 451: An Introduction to Augmentative and Alternative Communication

3 Credits

Examination of assessment and intervention issues in augmentative and alternative communication techniques with persons with severe communication disorders. The course is required for Communications Sciences and Disorders majors, and should be taken during the third or fourth year. The intent of this course is to examine assessment and intervention issues in augmentative and alternative communication (AAC) techniques for persons having severe communication disorders. Students will be expected to spend outside of class time becoming familiar with common AAC devices located in the department's AAC laboratory. The educational objectives are that students will acquire an understanding of: 1) persons with severe communication disorders who may require AAC, 2) terminology and principles of AAC applications, 3) types and evaluation of existing AAC systems and emerging technology, 4) assessment issues for children and adults concerning the use of AAC devices, 5) intervention, learning, and therapy issues for children and adults who use AAC, 6) research in AAC, and 7) theoretical issues. Although the course will focus on non-electronic AAC applications, students will be expected to spend time in or outside of class becoming familiar with common electronic AAC devices located in the department's AAC laboratory.

Enforced Prerequisite at Enrollment: CSD 300

CSD 459W: Principles of Clinical Management in Communication Disorders

3 Credits

CSD 459, Principles of Clinical Management in Communication Disorders (PRIN CLIN MGMT), is a 3-credit writing-intensive course required for Communications Sciences and Disorders majors, and should be taken during the final year of their undergraduate curriculum. The intent of this course is to closely review the principles and practices for assessing and treating people across the life span who have a communication

disorder as well as reviewing, interviewing, counseling, and report writing skills. Overall, this "how-to" course is designed to provide students with practical solutions and methods when serving persons with communication disorders. The educational objectives are that students will acquire an understanding of: 1) report writing with emphasis on different styles and the need for clear documentation and explanations, 2) assessment with emphasis on interviewing skills, preparation and test administration, interpretation of the results, and oral and written presentation, 3) therapy practices with emphasis on task analysis, behavioral objectives, and implementation, 4) documentation with emphasis on lesson plans, mid and final reports, documentation specific to school versus medical settings, and billing, and 5) client and family counseling and group sessions.

Enforced Prerequisite at Enrollment: CSD 300 and (CSD 431 or CSD 442 or CSD 444 or CSD 462 or CSD 451)
Writing Across the Curriculum

CSD 462: Clinical Bases of Language Disorders

3 Credits/Maximum of 3

The course is required for Communications Sciences and Disorders majors. The course is designed to be an overview of language disorders with emphasis given to child language disorders. Specifically, the course provides information with a wide range of language disorders that affect individuals having different disabilities such as autism spectrum disorder, deaf and hard of hearing, intellectual disability, cerebral palsy, specific language impairment, learning disabilities, and traumatic brain injury. Through lecture, active learning experiences, and out-of-class assignments, students will learn to differentiate communication characteristics and associated problems for specific populations and become familiar with basic assessment and intervention principles. In addition, students will gain information of associated educational and medical problems common to individuals with language disorders.

Enforced Prerequisite at Enrollment: CSD 300
International Cultures (IL)
United States Cultures (US)

CSD 494: Undergraduate Research

1-6 Credits/Maximum of 6

Undergraduate research experience under the supervision of a faculty member.

CSD 494H: Senior Honors Thesis

1-6 Credits/Maximum of 6

Independent study related to a student's interests directed by a faculty supervisor and culminating in the production of a thesis.

Prerequisite: Approval of honors thesis advisor.
Honors

CSD 495A: Speech Therapy Practicum

1-6 Credits/Maximum of 6

CSD 495A, Speech Therapy Practicum (SPCH THPY PRACT), is a variable credit (1-6 credit) course offered every semester. The course is not required for Communications Sciences and Disorders majors. Fourth year Communications Sciences and Disorders students having a GPA of 3.0 can apply to take this course by contacting the Penn

State Speech and Hearing Clinic, Coordinator of Clinical Services; however, Communications Sciences and Disorders graduate students are given priority. Typically, undergraduate students enroll in this course for 1-2 credits. Students enrolled in this course are student clinicians and provide assessment and treatment to clients of the Penn State Speech and Hearing Clinic. Students are highly supervised by Communications Sciences and Disorders clinical faculty and may be paired with Communications Sciences and Disorders graduate students. Students must adhere to all of the policies and procedures stated in the Penn State Speech and Hearing Clinical Policy Manual. Students are evaluated using outcome-based competency measures that includes oral and written reports skills.

Enforced Prerequisite at Enrollment CSD 442

CSD 495B: Audiology Practicum

1-5 Credits/Maximum of 5

CSD 495B, Audiology Practicum (AUDIOLOGY PRACT), is a variable credit (1-5 credit) course offered every semester. The course is not required for Communications Sciences and Disorders majors. Fourth year Communications Sciences and Disorders students having a GPA of 3.0 and an interest in Audiology can apply to take this course by contacting the Penn State Speech and Hearing Clinic, Coordinator of Audiological Services; however, Communications Sciences and Disorders graduate students are given priority. Typically, under-graduate students enroll in this course for 1-2 credits. Students enrolled in this course are student clinicians and provide hearing assessment and treatment to clients of the Penn State Speech and Hearing Clinic. Students are highly supervised by Communications Sciences and Disorders clinical faculty and may be paired with Communications Sciences and Disorders graduate students. Students must adhere to all of the policies and procedures stated in the Penn State Audiology Clinic Policy Manual. Students are evaluated using outcome-based competency measures that includes oral and written reports skills.

Enforced Prerequisite at Enrollment CSD 433

CSD 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

CSD 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

CSD 497A: Neuro Foundation

3 Credits

This course will introduce students to the underlying neuroanatomy and neurophysiology of communication and social disabilities focus will be on the role of the nervous system plays in communication (e.g., speaking, listening, writing). This course will prepare CSD majors for higher level course, dealing with assessment and treatment of individuals who suffer from, neurological insult, injury, lesions, as well as congenital and degenerative, disorders. ,

CSD 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Communications (COMM)

COMM 1: Newspaper Practicum

1-3 Credits/Maximum of 8

A newspaper/print media practicum. Credits do not fulfill Communication major credits in all programs.

COMM 2: Newspaper Editorial Staff

1-3 Credits/Maximum of 8

A newspaper/print media practicum. Credits do not fulfill Communication major credits in all programs.

Enforced Prerequisite at Enrollment: COMM 1

COMM 3: Radio Practicum

1-3 Credits/Maximum of 8

A broadcast media practicum. Credits do not fulfill Communication major credits in all programs.

COMM 4: Television Practicum

1-3 Credits/Maximum of 8

A broadcast media practicum designed to provide students experience with TV and video production in a variety of contexts.

COMM 20N: Critical Media Literacy

3 Credits

We live in a world in which we are surrounded with media messages that influence how we think and act. Since we are so immersed in media culture, it is important that we know how to analyze media content, production and reception, so that media can become tools for liberation and creativity, not control. In this course, we will learn to critically analyze work produced in different forms of mass communication. The course focuses on power, ideology and social inequality, analyzing relationships between media producers and audiences, and between information, the politics of representation, and power, including a focus on the crucial areas of gender, sexuality, class, and race. The course takes a dialectical perspective that focuses on both theory and practice, providing students with the opportunity and knowledge necessary to produce their own short film using the resources of Penn State's media commons.

Cross-listed with: SOC 20N

General Education: Arts (GA)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

COMM 97: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

COMM 99: Foreign Studies

1-6 Credits/Maximum of 6

Courses offered in foreign countries by individual or group instruction. This course may not be used to satisfy the basic minimum requirements for graduation in any baccalaureate degree program.

COMM 100N: The Mass Media and Society

3 Credits

Mass communications in the United States: organization, role, content, and effects of newspapers, magazines, television, radio, books, and films. The Mass Media and Society is an overview of the interaction between mass media and society. By drawing from selected topics, the course pays particular attention to the social influences (e.g., economics, politics, technology, law and culture) that shape media messages. Among others, the course examines the nature of media controllers as well as the character of users and consumers of media products. By so doing, students are informed about the overall structure and scope of the mass media and led to understand the power and influences associated with media messages and practices. By the end of the semester, each student should have a better understanding of the dynamic nature of the mass media in an information society.

Cross-listed with: AMST 106N

Bachelor of Arts: Humanities

Bachelor of Arts: Social and Behavioral Sciences

United States Cultures (US)

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

COMM 101N: Understanding and Enhancing Creativity

3 Credits

Creative work challenges the existing ways of seeing and understanding the world and is at the heart of many disciplines. This course will be an integrated general education course (GA-GS) that encourages students to approach Creativity through the concepts, principles, and the methods of scientific inquiry. This course will begin with an overview of the various approaches and theoretical views of Creativity. This will be followed by a module applying these to analyze the role of creativity in several global and cross-cultural works in the fields of art (paintings, sculptures), writing (prose, poetry, comics), mass media (movies, recorded music, magazines), strategic communications (advertisements, public relations, digital/internet marketing) science, and organizations. Students will develop an understanding and appreciation of the comprehensive role of creativity in the creative works, literature, and history of arts. In the third module, students will be introduced to techniques and strategies for creativity enhancement. During this module, students will learn of empirical investigations of how creativity enhancement has been studied

and apply those techniques to their own work. The course will conclude with students producing their own creative work. Over the journey of this course, students will be sensitized and introduced to the science of creativity. Students will develop a better understanding of what is creative and what is not. Students will learn to think in an integrative way across disciplines, improve their critical thinking and analytical skills, while creating their own creative work.

General Education: Arts (GA)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Integrative Thinking

COMM 110: Media and Democracy

3 Credits

COMM 110 Media and Democracy (3) (GH) (BA) This course meets the Bachelor of Arts degree requirements. COMM 110 seeks to introduce students to the important role of the mass media in developing conceptions of democracy and democratic participation in contemporary societies. Utilizing current events, popular culture and the students' own relationship to media as the template, this course is designed to stimulate student thinking about the interrelationship between the dynamics of US culture, news, politics, and civil society in order to develop a greater understanding and appreciation of what civic engagement and global awareness can do towards nurturing democracy's principles and practices.

Bachelor of Arts: Humanities

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

COMM 118: Introduction to Media Effects

3 Credits

COMM 118 Introduction to Media Effects (3) (GS) Aside from working and sleeping, individuals in the United States spend more time consuming media than any other single activity. By the time the average person reaches the age of 65, he or she will have spent over six full years of life watching television - not to mention the additional time spent reading newspapers and magazines, listening to the radio, using the Internet, and playing videogames. Given the centrality of media in the lives of most people, it is imperative that we understand and critically explore the variety of ways in which we perceived and are influenced by media messages. The purpose of this course is to introduce students to the study of the effects of media on individuals and on society. This course will overview a broad range of media theories that have examined media as a social force, that have explored factors that affect individuals' selection of and perceptions of media messages, and that have studied how media affect viewers' attitudes, beliefs, and behaviors. These theories will be used to examine a variety of different types of content, including media violence, portrayals of race and gender, politics, advertising, and entertainment, among others. Students will be assessed by exams on these theories and topics, by group-based writing assignments, and by an assignment requiring students to locate, identify, and critically evaluate media content that illustrates the theories and issues covered in class.

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

COMM 150N: The Art of the Cinema

3 Credits

COMM 150 (The Art of Cinema): COMM 150 is an introduction to cinema studies which aims to provide students with media literacy for a world in which communication is increasingly visual and cinematic in its form. The course assumes that films tell stories and make arguments as communicative forms by drawing on a visual language that can be learned. As such, films can be interpreted and analyzed to reveal something about the cultural conditions that produced them. The course seeks to familiarize students with examples of films that speak to both the forms that they follow and the cultural context in which they were produced. Movies, from early silent films to contemporary blockbusters, are examined as formal constructs, market commodities, and cultural artifacts that aim to represent a world for the viewer. Topics include the emergence of the cinema as a communications technology, business industry and cultural institution; the global dominance of classical Hollywood cinema; American film industry organization (production, distribution, exhibition, vertical integration, the studio system, the star system); analysis of film styles (national cinemas, historical movements); analysis of film genres (e.g., silent film melodrama, film noir, comedy, the war film, the western); consideration of film audiences (reception, spectatorship, criticism); introduction to film aesthetics (film art and appreciation); and alternative cinemas (independent, documentary and experimental cinemas). COMM 150 emphasizes media literacy and seeks to help students develop critical thinking, reading and viewing skills while providing them with a historical context for the media that they consume on a regular basis. All sections integrate lectures and readings with viewing feature films during the weekly practicum period. Many sections also incorporate slides and film or video clips during the lecture periods to allow students to exercise their critical viewing skills regarding certain teaching points. Students prepare for film screenings by reading, listening to lectures, and analyzing examples of relevant works. Introductory lectures seek to provide a critical and historical context for each week's screening; follow-up lectures offer critical analysis and examinations reward close viewing. The core purpose of the course, therefore, is to make film viewing a conscious, critical and analytic activity.

Bachelor of Arts: Arts

General Education: Arts (GA)

General Education: Humanities (GH)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

COMM 150Q: The Art of the Cinema

3 Credits

COMM 150Q The Art of the Cinema (3) (GA) This course takes a critical and historical approach to cinema, exploring relationships between classical and contemporary films and society and culture. It stresses critical thinking, analytical viewing, and essay writing (rather than memorization of facts or aesthetic evaluation of movies). COMM 150Q

assumes that the cinema reveals, both directly and indirectly, something about collective experience, identity, and culture, and that movies can be analyzed-even psychoanalyzed-to reveal something about the cultural conditions that produced them and attracted audiences to them. The course seeks both to familiarize students with works they probably haven't seen and to "defamiliarize," through critical and historical analysis, works they very well may have seen. Students will examine movies as formal constructs, market commodities, and cultural artifacts-as reflections, however distorted, of society in the twentieth and twenty-first century.

Bachelor of Arts: Arts

Bachelor of Arts: Humanities

General Education: Arts (GA)

General Education: Humanities (GH)

General Education - Integrative: Interdomain

Honors

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

COMM 151N: Film and Extraterrestrial Life: Science Fact or Fiction?

3 Credits

The search for life beyond planet Earth has been the subject of much interdisciplinary scientific search and has stimulated human imagination. Scientific discoveries of exoplanets (outside of our solar system), of extremophiles (life which can survive in extreme conditions) and the discoveries of conditions on other bodies in our solar system which might be able to support life, has provided progress in answering the question of the existence of extraterrestrial life. Not only have a plethora of fictional work appeared in the film media to depict scenarios of life beyond Earth, but there has also been an abundance of video media created to present the scientific ideas to the wider audience beyond the scientific community. This course intends a critical evaluation of both nonfiction and fictional media works in the educational dissemination of scientific ideas and the effective presentation of concepts. We will analyze techniques in photography, mise en scene, editing, sound, dramatization and writing as they are applied to topics in astrobiology.

Cross-listed with: ASTRO 141N

General Education: Arts (GA)

General Education: Natural Sciences (GN)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

COMM 160: Basic News Writing Skills

1 Credits

COMM 160 Basic News Writing Skills (1) COMM 160 is a one-credit course that will provide instruction in the basic writing skills required of all journalists. The course will cover three main topics: (1) spelling and word usage, (2) grammar, and (3) punctuation. Students will be assessed by exams on each of the three course parts and a comprehensive final exam. Writing is the lynchpin of the journalism curriculum and it is essential that students possess the basic writing skills necessary to be successful in journalism classes. For that reason, COMM 160 will be a

prerequisite to all writing courses in the journalism curriculum. Students will be advised to take the course in their freshman year.

COMM 165: Build Your Media Brand

1 Credits

is course will explore and apply the concepts, tools, resources and techniques involved in building a strong digital brand as students start preparing for a career in the communications professions. Students conduct guided reflection on their strengths and goals; craft mission statements meant to inspire and focus their curricular and co-curricular activities and internships; learn how to interact professionally with members of the profession; create and use digital tools to network and display their best work; practice an "elevator pitch" to connect their experience and aspirations, learn about internship opportunities and best practices in media-related professions; and hone their interviewing skills.

COMM 168: American Journalism: Values, Traditions, and Practices

3 Credits

This course is designed to give students an overview of American journalism's traditions, principles and values. It examines the historic role of journalism in a democracy and how that is often under economic, legal and political pressure. Students learn the different forms of journalism (print, electronic, internet, and converged.) They gain an understanding of what the forms share in common and how they differ. They also learn to identify the practices of responsible, ethical journalism, and irresponsible, unethical journalism. The goal is to help students understand the nature of journalism & why it is the way it is, how it got to be that way, and what changes are likely in store & so that they can be to be sophisticated consumers of the news.

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

COMM 170: Introduction to the Sports Industry

3 Credits

COMM 170 Introduction to the Sports Industry (3) Since 1987 the sports industry has grown from \$50 billion to more than \$200 billion. It has become one of the ten leading industries in the United States. It is also an industry that is unlike any other in its structure and operating principles. In traditional business, the participants compete vigorously with one another for revenue and profits. By contrast, in almost every sports venture, the competitors, while competing on the field of play, must cooperate off the field in order for the venture to be profitable. Students in this course will study the unique aspects of the sports industry. They will begin to understand the workings through learning the history. Students will study the effect of the sports industry on the mass media and vice versa. The interrelationships of sports with the print, broadcast and electronic media will be considered. Students will learn how the basic principles of law, marketing, labor relations, profitability, finance and economics apply to the sports industry. The effect of legislation and regulation on the sports industry will be covered. The subject of ethics in sports will also be examined. The course will explore the formation and structure of leagues and governing agents in the sports industry. Professional, amateur, collegiate, international and Olympic sports will be included. An emphasis will be placed on current events in the sports industry. Students will be required to read and discuss the contents of

weekly editions of Sports Business Journal. They will apply the principles learned in class and through the readings to the business problems of the day as reported in the Journal. Career opportunities in the sports industry and related fields will be explored. Students will be able to begin to evaluate their interest and ability to pursue careers in this area. The course will explore the formation and structure of leagues and governing agents in the sports industry. Professional, amateur, collegiate, international and Olympic sports will be included. An emphasis will be placed on current events in the sports industry. Students will be required to read and discuss the contents of weekly editions of Sports Business Journal. They will apply the principles learned in class and through the readings to the business problems of the day as reported in the Journal. Career opportunities in the sports industry and related fields will be explored. Students will be able to begin to evaluate their interest and ability to pursue careers in this area.

COMM 175N: Mental Illness and the Movies

3 Credits

This course serves as an introduction to the integration of psychology and film analysis, with a focus upon mental health. PSYCH 175N / COMM 175N seeks to help students understand the extent to which cinema can influence our perceptions of mental illness, and how the experience of mental illness can influence cinema. Students will be guided to critically analyze and discover how cinema can build or break the stigma and stereotypes regarding various types of mental illnesses and their treatments. The course is designed to familiarize students with various mental disorders (e.g., autism, schizophrenia, bipolar disorder, dissociative identity disorder, anxiety disorders, substance abuse, and dementia), aspects of their treatment (e.g., psychotherapy, medication, and ECT), and the creative ways in which filmmakers can choose to portray mental illness and its treatment (e.g., camera angles, lighting, music, costuming, casting, editing, method acting, and marketing) across cinema formats (e.g., in feature, independent, and documentary films). Students will be guided to consider how the cinema has shaped their own perceptions of mental illness, and how they could guide a filmmaker to generate a creative, compelling, and accurate portrayal of various types of mental illness and their treatments. PSYCH 175N / COMM 175N emphasizes integrative thinking, and seeks to help students develop critical reading, viewing, and thinking skills. The course incorporates lectures and assigned readings with the viewing of feature films during a weekly practicum period. Most lectures incorporate case examples and video clips to help students exercise their critical thinking skills. Introductory lectures provide a critical social and historical context for each week's film screening. Follow-up lectures and discussions offer critical and integrative analysis. Course assessment includes both objective measures and essay exams. PSYCH 175N / COMM 175N is an Interdomain General Education course that incorporates student learning criteria from both the arts (GA) and the social sciences (GS). It assumes to prior exposure to psychology or to film studies. As such, the course is designed to have broad accessibility, primarily for introductory level students.

Cross-listed with: PSYCH 175N

General Education: Arts (GA)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

COMM 180: Survey of Electronic Media and Telecommunications

3 Credits

COMM 180 Survey of Electronic Media and Telecommunications (3) (GS)(BA) This course meets the Bachelor of Arts degree requirements. This course is an introduction to electronic communications (telecommunications) and their consequences for society and the economy. Until a few years ago, this primarily meant over-the-air television, radio and cable TV, and a dial-up telephone. Increasingly, however, the field has expanded to include a wide variety of broadcast, wire-based and wireless forms of video, data and voice communications. The rapid convergence of previously disparate industries and services, especially the melding of television, telephone and Internet systems, will be a dominant theme in the course. At the same time, a global system of electronic communications has been steadily evolving. This class is also about the dynamics of that changing system; it is about the origins of the telecommunications system, and its future. To better understand these developments, we will examine powerful interacting forces that are shaping the world of information by drawing on history, economics, technology studies, politics, and culture. While the course is intended primarily for Telecommunications majors planning careers in these fields, all students will benefit from the course by learning to critically analyze media structures and programming and to better appreciate the importance of ICTs (Information, Communication and Technology) in their lives. This course serves both as an introductory core course for students in the Telecommunications major and as a broad social science course for students in other departments across the university. For students within the Telecommunications major, the course introduces the key terminology, concepts and issues in the field as well as the range of career options within the telecommunications industries. For students outside the major, this course provides a grounding in the current shift from an industrial society to an information society in which electronic media play a pervasive role in our personal, social, economic, and political lives.

Bachelor of Arts: Social and Behavioral Sciences

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

COMM 190: Gaming and Interactive Media

3 Credits

COMM 190 (GAME 140) Gaming and Interactive Media (3) The course is an introduction to the digital interactive media industries for students who may consider seeking employment in that sector, which includes video games and simulations, products for education, training, medicine, business, government/military, and virtual environments for a range of applications. Students will learn about industry structures, basic economics, business models, work flow, types of enterprises, job descriptions, and opportunities. It examines both the national and global markets. It provides students with a factually and theoretically informed appreciation of these industries. The course will build on the students' personal and social experiences of these media, but it is not a course about playing or designing games or mastering individual applications. No special knowledge or experience in playing video games, using "serious games," or experiencing virtual worlds is required. It will provide students with the foundation to make a well-informed choice about careers in this sector and respond to their natural curiosity about this pervasive part of their lives. The course is divided into five segments.

The first provides general context: history, scale and scope of the field, information on industry structure, business models and operations, and types of skills required. The second focuses on the video game industry, including social, regulatory and ethical issues. Video games are now a major media industry, having surpassed in U.S. revenue both the movie and recorded music industries. The third section looks at "serious games." A "serious game" is a game designed for a primary purpose other than pure entertainment, such as education, scientific exploration, health care, emergency management, city planning, military, engineering, religion, etc. The fourth segment looks at simulations and virtual worlds and their multiple models and uses (entertainment, learning, business, research, etc.), and the development of related online communities. The final section will examine the interrelationship of these industries with the other entertainment industries in terms of planning, marketing, finance, production, etc. It will conclude with a look ahead at new technologies, markets, business models, advancements in artificial intelligence and the convergence of virtual and material worlds. The course will employ presentations, class discussions, outside readings, demonstrations, videos, class exercises, online explorations, guest experts (in person and via technology), and experiences in virtual worlds.

Cross-listed with: GAME 140

General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Soc Resp and Ethic Reason

COMM 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

COMM 197G: Special Topics - GenEd

1-9 Credits/Maximum of 9

Formal courses given on a topical or special interest subject offered infrequently; several different topics may be taught in one year or semester. This Special Topics is a GenEd course.

COMM 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

COMM 205: Gender, Diversity and the Media

3 Credits

COMM (WMNST) 205 Gender, Diversity and the Media (3) (GS;US)(BA)
 This course meets the Bachelor of Arts degree requirements. This course examines diversity, equity and inclusion issues in media content, media business and media practice. Students examine communications scholarship, theory, media effects research and critical analysis of media content, policy and practice. Students learn about the media industry, its diverse distribution formats and representation patterns and the media role as public educator and social reality framer. Students research scholarship on human diversity issues in media representation and media effects and explore economic, political and social implications of media practice. Students critically analyze media content and media

industry practice to build knowledge about ethical and responsible media practice. Course content is designed to help build deeper knowledge of how media interacts with identity formation, public knowledge and social understanding or misunderstanding of gender, race, ethnicity, ability, sexual orientation and class diversity, equity and inclusion. Students learn relevant communication theory to help explain how media interacts with our identity formation and our capability to navigate human difference in society. Students build critical thinking and media literacy skills, which are essential to navigate media and distinguish truth from fallacy. The course provides a foundation for further study of media in our diverse complex US democracy and global society and empowers students to interpret and pursue their interests, rights, and opportunities with ethics and integrity as media professionals.

Cross-listed with: WMNST 205

Bachelor of Arts: Social and Behavioral Sciences
 United States Cultures (US)
 General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Soc Resp and Ethic Reason

COMM 208N: Visual Representations of the Middle East in the US and Middle East

3 Credits

This course is an introduction to the visual culture, the visual experience and sociological/historical context of images of the Middle East in the US mass media. The focus of the course will be on reading and interpreting visual images (painting, photography, film, illustration, digital media) and analyzing the larger social and cultural forces that shape the production, distribution and consumption of these media forms. We will explore these issues by focusing on a series of images/case studies located in a specific historical context, allowing us to introduce some of the major movements in visual culture, explore the social contexts of these images, and the ways in which the visual experience shapes our social lives and personal identities. Course evaluations will include exams, writing assignments, a class blog, and a final art project. The course examines visual representations of cultures over time, providing students with the artistic, historical, political and sociological context of their production. This integrative framework will enable students to understand how the creation of visual media and its interpretations both influence and are influenced by social context. It will introduce students to integrative thinking by providing them with interpretive techniques of the social sciences and the arts to increase their powers of visual analysis so that they can discuss an image's medium, composition, style and iconography. The course will examine the ways that the arts can be an expression of cultural values, helping students to comprehend the hegemonic aspects of image composition, production, exhibition and distribution. The course will explore the social milieus in which media is created, often depicting stereotypical images that poorly represent the complexity of the myriad cultural groups in the Middle East.

Enforced Prerequisite at Enrollment: ENGL 15

Cross-listed with: SOC 208N
 General Education: Arts (GA)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning
GenEd Learning Objective: Integrative Thinking

COMM 215: Basic Photography for Communications

3 Credits/Maximum of 3

An introduction to digital photography, emphasizing camera skills, aesthetics and storytelling. COMM 215 Basic Photography (3) An introduction to photography as a means of visual communication in the digital age. Students will learn basic picture-taking principles, camera techniques, photographic aesthetics, and the use of digital imaging software. Students will be encouraged to explore photography as an aesthetic, expressive, and socially significant medium. This will be achieved through individual and group critique of each student's photographs, as well as through analysis of examples of the work of prominent photographers. Students will complete a series of assignments that help them learn to produce visual content for a digitally savvy audience. At the end of the semester, students will be able to produce story-telling images as well as write captions for their photographs. They will have a knowledge of the aesthetics of photography, will understand the importance of both form and content, and will have the ability to critically evaluate photographs.

COMM 222N: Social Justice and the Image

3 Credits/Maximum of 3

How do we perceive injustice? What are the roles of images in our perceptions of justice? If justice lies in the eyes of the observer, as the saying goes, what are the eyes seeing? Creating an image does not only mean creating the strictly visual, but also words that capture the imagination. Where do those words lead us? Social Justice and the Image (GA/GH) prompts students to reflect upon image-making and the reception of images in a variety of social justice contexts, to study the public claims made upon these images, and to explore interdisciplinary texts on social justice that assist us in interpreting those claims. Students will be introduced to a variety of critical approaches to social justice, and reflect upon how these images are connected to social movements, visual rhetoric, poetic protest, and rights-building. Readings will generally be determined by the instructor, and may include the work of authors such as Confucius, Plato, Aristotle, Asho Zarathushtra, Mary Wollenstonecraft, Louis Althusser, Gordon Avery, Gloria Anzaldúa, John Rawls, Roland Barthes, Warren J. Blumenfeld, Judith Butler, Virginia Held, Patricia Hill Collins, Donna Haraway, bell hooks, and Seyla Benhabib, and Ximena Zúñiga. The subjects of study will be images, justice, and the categories ascribed to them, but also the possibility of challenging those categories. Rather than focus on how justice and images are treated by various disciplines separately, students will be asked to explain how various disciplines speak to (or perhaps ignore) one another, and what is missing from the analyses. "Interdisciplinary work," Roland Barthes wrote, "is not about confronting already constituted disciplines (none of which, in fact, is willing to let itself go) . . . Interdisciplinarity consists in creating a new object that belongs to no one." Social Justice and the Image invites students to "let go" with scholarly intensity, to explore what happens when disciplinary insights converge. ENGL 15 is recommended prior to COMM 222N

General Education: Arts (GA)

General Education: Humanities (GH)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

COMM 228: Introduction to Science Writing and Communication

3 Credits

Introduction to Science Writing and Science Communication (3) COMM 228 introduces students to the basics of science writing and communication. Through a combination of lecture, discussion, and writing assignments, students learn how to write science stories that are accurate, clear, and compelling. After completing COMM 228 are students will be able to: demonstrate an understanding of the importance of science communication; write interesting, clear science stories that grab the reader's attention and explain the science in terms that people with a non-scientific background can understand; gather information through the use of interviews, research documents, scientific conference papers, and events.; generate story ideas that reflect an understanding of important science stories; produce copy free of misspellings, grammatical errors, AP style errors, and factual errors; understand the legal, ethical, and historical principles underlying science communication, including the role of science in society; and communicate the latest scientific, technological, and medical findings to create an informed populace.

COMM 230W: Writing for Media

3 Credits

COMM 230 Writing for the Media (3) This course is an introduction to writing for various kinds of mass communication media. Students will practice writing public relations news releases, public information announcements, print, television and radio advertisements, as well as news stories and editorials. Students will be given weekly writing assignments, some of which will be re-writes of earlier submissions. In-class exercises will include various writing exercises designed to get students more comfortable with writing for media. Prerequisite: ENGL 015 and ENGL 202.

Enforced Prerequisite at Enrollment: ENGL 15 and ENGL 202
Writing Across the Curriculum

COMM 232: Communication Strategies for Social Justice

3 Credits

This course provides students in the Communication and Social Justice minor with an overview of how different digital media platforms are used to create and amplify public interest messages in our contemporary media ecosystem. Designed for students who are new to strategic communication, it will instruct them in how to disseminate, optimize and amplify media content designed for public media campaigns on social media. The course will be supported by research about best practices in the various strategic communication domains, focusing on strategies and analytics for using current digital tools while preparing students for new trends in strategic communication.

Recommended Preparation: This course, combined with the skills learned in COMM 270, 282 or LA 235N, will prepare students for the Communication and Social Justice capstone course for the Communication and Social Justice Minor.

COMM 234N: Digital Cultures

3 Credits

This introductory course will combine theory and practice to help students develop a rich understanding of the constantly evolving US digital culture. We will survey a variety of information and communication technologies (ICTs), and their modes of production, distribution, and consumption by individuals and institutions including traditional media, business, and government. Specifically, we will examine the impact of social and mobile technologies on how we consume, share, resist, and participate in digital culture. Students will also develop basic technical and media creation skills. The general theme of the course is analyzing contemporary cases to understand the significance of new ICTs in shaping our identities, behaviors, language, imaginations, and society. Students will read texts authored by some of the most formative thinkers examining the impact ICTs on society, and apply these core concepts in our analysis of digital cultures. Students will actively use microblogging, RSS feeds, social networking and other Web 2.0 tools to produce and consume content, interact with peers, and reflect critically on this experience. This course will emphasize awareness of current events and technology trends, as well as critical thinking skills and the ability to frame and explore issues through written, visual and verbal communication. This is an introductory course in IST and COMM, and meets the requirements for a Social and Behavioral Sciences (GS) and Humanities (GH) Course. This course is delivered with significant student and instructor interaction with computers and digital media.

Cross-listed with: IST 234N

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

COMM 241: Graphic Design for Communications

3 Credits

Introduction to basic design principles, critical analysis of visual material, and solving graphics problems utilizing traditional and digital production tools.

COMM 242: Basic Video/Filmmaking

3 Credits

COMM 242 Basic Video/Filmmaking (3) COMM 242 is an introductory course that emphasizes the development of creative expression and technical skills in digital film production. Students will explore modes of moving image representation through screenings, lectures, discussions, and especially through hands-on digital filmmaking. Students are required to construct projects that have both clear intentions and technically competent execution. The work of the course will facilitate the development of basic skills in image design, editing, and writing as they apply to single camera techniques for documentary, narrative, and experimental film modes. The course will also provide a basic cultural and historical context for the various production modes, and students will be encouraged to consider their own projects in relation to the work of other video and film artists. Creative collaboration and group critique are essential elements of the course. Students will be required to produce some collaborative projects, and to respond critically to the work of the other students in the course. Students will make projects using digital

film cameras, microphones, portable lighting, and nonlinear editing stations.

Enforced Prerequisite at Enrollment: COMM 150

COMM 250: Film History and Theory

3 Credits

This is an intermediate film studies course that teaches the student to consider various theoretical approaches to the analysis of film, and to the moving image in general. The course familiarizes the student with formal analysis as a foundation for these various approaches, which include authorship, feminism, cultural studies, realism/montage theory, genre theory, and cultural difference theory.

Enforced Prerequisite at Enrollment: COMM 150

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

COMM 251: The Nature of Media

3 Credits

A theoretical, cultural, and philosophical study of print and non-print media, including their histories, possibilities, limitations, and interrelationships. COMM 251 The Nature of Media (3) An examination of the theory, history, practice, and meaning of media. Within the framework of various media theories, students examine how print media, broadcast media, film, telephones, the Internet, and other technological forms communicate. Executives and practitioners from various media outlets visit the class to discuss what happens in the real world and what career opportunities might be available. Emphasis is placed on a final creative project which should reflect each student's understanding of the nature of media and how it creates the culture we live in.

COMM 260W: News Writing and Reporting

3 Credits

COMM 260W News Writing and Reporting (3) COMM 260W introduces students to the basics of news reporting and writing. Through a combination of lecture, discussion, and writing assignments, students learn how to write news stories that are accurate, fair, clear, and concise. The goals of COMM 260W are to produce students who can: * Demonstrate an understanding of the importance of accurate, thorough, and fair news writing * Write concise, well-organized stories with effective leads that get the reader's attention and tell the most important news * Gather information through the use of interviews, documents, and basic reference materials * Generate story ideas that reflect an understanding of the elements of newsworthiness (timeliness, prominence, proximity, conflict, novelty, and impact) * Produce copy free of misspellings, grammatical errors, AP style errors, and factual errors * Understand the legal, ethical, and historical principles underlying journalism, including the role of journalists in society * Appreciate the joy and importance of being well informed

Enforced Prerequisite at Enrollment: COMM 160 and (ENGL 15 or ENGL 30H)

Writing Across the Curriculum

COMM 261: The Literature of Journalism

3 Credits

Representative nonfiction by writers such as Susan Sheehan, George Orwell, Joan Didion, Alice Walker, Truman Capote, C. D. B. Bryan, Russell Baker. COMM 261 The Literature of Journalism (3) (GH) The Literature of Journalism introduces students to 20th century nonfiction by people who were/are considered journalists. Most of the work originally appeared in magazines or newspapers and in some cases was expanded on before being published as a book. This is not a course in literary journalism, although some of the books assigned might qualify as such. Instead, the course is designed to give students a greater appreciation for the journalistic enterprise and different styles of writing. Students will also see how different writers influenced other writers. Students will read works by Hunter Thompson, Alex Haley, Joan Didion, Truman Capote, George Orwell, and James McBride, among others.

COMM 268: Media Graphics Tools

1 Credits

Over the 10 weeks of this Technology Skills/Tools course students will build a working competency with the industry standard graphics software (such as the Adobe Creative Suite) as used in many careers in the mass media. Specifically, the course will explore how common image editing and page layout graphics programs are utilized for advertising communications as well as for journalistic applications for public relations and news communications. Students will learn an overview of graphics file formats created from the design software, as well as other basic design terminology and how and when each software program could be used appropriately in the development of mass communication messages. By the end of the 10-week course students will understand the basics of image correction (journalistic use) and photo collaging/manipulation (advertising/design use) and how to save these corrected and manipulated images. As the development of communication materials is a cumulative process, students will then learn how these images can be incorporated into end result basic page layouts along with text elements in ads, brochures, posters, web pages & editorial articles.

COMM 269: Photojournalism

3 Credits

COMM 269 Photojournalism (3) Photography as a medium for communication; creating visual content for newspapers, magazines, and online publications; digital camera and editing techniques. Students complete a series of assignments that help them learn to produce visual content for newspapers, magazines, and online publications. Major topics of the course include fundamentals of digital photography for multimedia and print, ethics, composition, caption writing, photo editing, and the use of electronic imaging software. Through individual and class projects, students critically evaluate their own work and the work of others. Students use class assignments to create a portfolio

Enforced Prerequisite at Enrollment: COMM 260W**COMM 270: Introduction to Multimedia Production**

3 Credits

Introduction to multimedia project activities to explore image editing, layout, the integration of texts and images and web architecture.

COMM 271: Principles of Journalism

3 Credits

The course introduces how journalists work with the tools of multimedia and how multimedia is changing journalism. COMM 271 Principles of Journalism (3) Journalists have never had better tools to cover the news than they do today. Every news organization can now tell stories with text, video, sound and images. Reporters can interact with their audience while covering stories in real time. Audiences have unprecedented choice in when and where they can access information. These innovations are allowing the news industry to reinvent itself. But there are major challenges. What does it take to be competitive in a 24/7 news cycle? What is the best way to work with text, video, still images and sound? How much do reporters and editors need to know about these tools? What role do social media have in this mix? Are ethical standards and being lost in the scramble to gain audience and grow revenue? This course will introduce multimedia news and be a foundation for skills courses. It will examine the latest platforms and tools of the trade, adding value with multimedia, the roots and development of multimedia, working in a cross-platform environment, multimedia reporting and editing, data visualization, intellectual property rights, ethical issues, citizen journalism, social media and the news, business models for multimedia journalism, finding a job, and other subjects.

COMM 280: Introduction to Telecommunications Technologies

3 Credits

Students will evaluate content creation and distribution methods and demonstrate proficiency across emerging digital products and services. COMM 280 Introduction to Telecommunications Technologies (3) The media, communication and information industries of the 21st century are built upon the digitization of information. Professionals and consumers alike rely on digital technology for the creation and distribution of content. The technologies used for production, distribution and consumption of this content continue to evolve at a rapid pace. The proliferation of smartphone, tablet, and wearable devices has dramatically altered the way in which consumers interact with media. This course will introduce students to the basic technologies used in the creation of various types of digital content and examine the technologies used to distribute that content across wireless and wired networks. By the end of this course, students will understand the prevalent technologies utilized within the telecommunications industry. Through extensive project work, students will also develop an appreciation for the myriad of compatibility challenges that exist in a world with rapid technology advancements and multi-industry convergence. This course is especially appropriate for students in the Telecommunications major as it will familiarize them with the technologies they will encounter during their course of study and future careers.

COMM 282: Introduction to Video Field Production

3 Credits

COMM 282 provides an introduction to the pre-production, production and post production techniques when creating video content. The course will explore the grammar and syntax of constructing and criticizing video messages in single camera productions. Students will apply shooting and editing concepts while doing a variety of projects typical of single camera shoots. Students will learn the particularities of single camera production from the textbook, the lectures, discussions and classmates' experiences. While learning the technical aspects of video production, the students will learn the managerial aspects of production. Students will practice

and apply the processes of budgeting, topic and location research, script writing, production treatments, dealing with unions, releases, etc.

COMM 283: Introduction to Multicamera Production

3 Credits

Students will learn the technical aspects of multi-camera studio television production. COMM 283 Introduction to Multicamera Production (3) Communications 283W is an advanced video course. The course builds on the principles learned in Communications 282. The purpose of this course is two fold. The first goal is to learn the technical aspects of multi-camera (studio) television production. Students will learn how to brainstorm ideas, write program proposals, treatments and scripts for various formats of television studio production. Incorporated in the technical aspects of the class, the students will learn how to produce and direct a studio production. They will also learn all the crew positions in a television studio production including audio, teleprompter, technical director, assistant director, videotape, floor manager, character generator operator and camera crew. The second goal of this course is to apply the grammar and syntax of constructing and criticizing video messages to multi-camera television productions. Students will apply shooting, producing and directing concepts while doing a variety of projects typical of multiple-camera shoots. They will learn the particularities of multi-camera television production from lectures, discussions and their own experiences.

Enforced Prerequisite at Enrollment: COMM 282 or COMM 242

COMM 290N: Cinema and Globalization

3 Credits/Maximum of 3

This course explores how films reflect (and in some cases attempt to explain, promote and memorialize) the emergence and transformation of global social phenomena. Through course readings, students will become familiar with key texts on globalization produced by social scientists and cultural theorists, and will link those key texts to a diverse array of cinematic representations of various global actors, issues, institutions and processes, as well as historical and theoretical interpretations and debates on globalization. The course introduces students to the work of internationally recognized film directors (for example, Euzhan Palcy, Jia Zhangke, Stephen Frears, Rainer Werner Fassbinder, or Majid Majidi) and studies of globalization (by scholars such as Arjun Appadurai, Guy Standing, Saskia Sassen, John Tomlinson, Robbie Robertson), and asks students to link scholarly perspectives with the visual rhetoric of cinema artists.

Enforced Prerequisite at Enrollment: ENGL 15 and COMM 150
Recommended Preparations: ENGL 202A or ENGL 202B or ENGL 202C or ENGL 202D

Cross-listed with: SOC 290N

International Cultures (IL)

General Education: Arts (GA)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

COMM 292: Introduction to Media & Politics

3 Credits

This course explores the intersection of media and politics, introducing students to the critical analysis of mediated political discourse. COMM 292 Introduction to Media & Politics (3) (GH) COMM 292 examines how mass media and political institutions interact to shape public thinking and debates around social goals, priorities, and policies. The course explores how media structures, routines, and practices shape political decision making; how political forces influence mass media institutions; and how public opinion and media audiences are formed. Students will gain an understanding of these issues through in-depth case studies, class discussions, and written assignments, helping students to develop their own informed views and to learn to express them constructively. The course is designed for both Communications majors and other students with an interest in media and politics.

COMM 294: Research Project Courses

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

COMM 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

COMM 296A: **SPECIAL TOPICS**

1-6 Credits

COMM 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

COMM 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

COMM 300H: Bellisario Honors Colloquium

1 Credits

This course is designed to introduce third-year honors students to research across the communications disciplines. Discussions and guest speaker presentations will cover research from media studies, journalism, advertising, public relations, film and telecommunications. Research opportunities within the college will be explored. Students will learn about the thesis writing process and will be encouraged to select an honors advisor and choose a topic for their honors thesis during the semester.

Honors

COMM 301: Entertainment Media Industries

3 Credits

This course examines the creation of content in film and television from the genesis of an idea to the deals on the back end. It will explore the new business models that enable content creators to keep pace with newer and more mobile technologies, encompassing the various ways viewers consume media content today. The class will include discussions with industry professionals, including from the creative side (actors, writers, directors, showrunners) and the business side (network and studio executives, agents and producers).

COMM 302: Art of Comedy

3 Credits

Comedy is an art. Each and every day, we are touched by comedy, from a movie we love to a sitcom we binge-watch. With the advent of new media, we watch more comedy now than ever before. The artists of comedy are numerous and have dominated television and film from the inception of these media. Their craft is not happenstance, although great comedians may make it look that way. Comedy is crafted through writing and performance and delivered in a variety of forms: from stand-up to musical theater, from television and film to online video. The genesis of this course is the why and how of comedy. It is only by a thorough look back at the evolution of comedy can we understand comedy today. In this course, we will study some of the great comedic films and television programs to get an understanding of comedic timing, rhythm and material. We will also explore comedy writing and take a look at how television and movies are created. Lastly, we will take a look at the creation of a sitcom or film. What can sustain a show over many seasons or a film to be economically successful. Students will learn how to develop an idea into a comedy show, as well as how to pitch that idea to industry executives.

COMM 303: Entertainment Law

3 Credits

Entertainment law is an overarching term that describes the interplay between several areas of law, including contracts, intellectual property, agency, constitutional law, federal and state administrative law, labor law and negotiation. This course explores the key components that comprise entertainment law, including defamation, privacy, the right of publicity, parody and satire, violent and sexual content in media, stalking and paparazzi laws, regulation of talent and literary agents, the role of managers, copyright and trademarks, contractual obligations (step deals and production overall deals, options, permissions, clearances and releases), employment law (unions and guilds, child actors, equal opportunity) and FCC broadcast content regulations.

COMM 304: Mass Communication Research

3 Credits

COMM 304 Mass Communication Research (3) This course provides an introduction to the logic and methods of social science research as it is employed to study topics in media. Students will be introduced to key principles of social scientific reasoning, including aspects of concept explication and effective measurement, evaluation and demonstration of causality, and reliance on empirical data. Core standards of evidence are presented for both quantitative and qualitative data, but a focus is placed on statistical evidence and reasoning. Topics include effective question wording, ethical treatment of research participants, experimental

research designs, sampling and survey research, content analysis, and sound interviewing techniques. In addition, students address key ideas in statistical analysis, including principles of inference, common descriptive statistics, and widely used tests of both bivariate and multivariate relationships. Presentation of this material includes training in effective use of appropriate statistical software. Based on this training, students should be able to contribute to sound research on media-related topics in both the academic and professional environments. In addition, significant attention is paid to evaluating research done by others. Students read and assess original research and consider the merits of such research as well as its applicability to novel studies. Based on this training, students should be prepared to better understand the results presented in social scientific research, particularly within the field of media studies, and apply this knowledge to future coursework. Beyond this, students learn how to critically evaluate quantitative research when presented in media content, such as public opinion polling, and when making professional judgments about sound organizational strategies as a response to research conducted by others. At the end of this course, students should be better prepared to engage with the increasingly complex array of statistical information available to modern companies and citizens.

Enforced Prerequisite at Enrollment: COMM 100N or COMM 110 or COMM 118 or COMM 150 or COMM 180 or COMM 260W or COMM 320 or COMM 370

COMM 305: Introduction to Critical Studies of Media

3 Credits

The course will acquaint students with the key terms, concepts and research areas of critical media studies (e.g. key terms/concepts and topic areas) and prepare them more effectively for advanced material in media studies. The course will also integrate practical insights into professional opportunities for the media studies major concentrations as well as future careers in media industries and media research (including jobs for the public sector, private industry, and academia). In addition, by presenting a critical perspective on the cultural forces represented by media in a global context, students develop media literacy skills to better evaluate their own use of media and the political and social consequences of the modern media industry. The course provides an overview of a diverse set of domains in the study of media throughout the world as well as the underlying principles that drive research in these areas and the skills necessary to both understand and evaluate such research. Perspectives summarized include critical theory, cultural studies, and political economy approaches.

Enforced Prerequisite at Enrollment: COMM 100N or COMM 110 or COMM 118 or COMM 180 or COMM 205

COMM 310: Digital Media Metrics

3 Credits

Analysis of audience data for traditional and new media to create metrics for advertising, content marketing and audience analysis. COMM (IST) 310 Digital Media Metrics (3) The emergence of a converged marketplace where all media are now digital, including broadcasting, websites and social media, has created enormous new opportunities for advertising, promotions and content distribution. The proliferation of media has made the marketplace much more competitive, but simultaneously the availability of data too has increased significantly making possible the much more precise and segmented distribution of messages and content. For media practitioners in this new environment, a familiarity with audience data, metrics and dimensions is essential.

This course is an introduction to the methods for collecting, analyzing and utilizing audience data for traditional and new media. The class will cover the fundamentals of traditional media audience analysis, web metrics, and social media metrics, specifically as they relate to audience measurement, advertising campaign evaluation and content distribution. Students will learn the methods of data collection, analysis and use for traditional broadcast media, and the transformation of these practices in the newly digitized and converged multiplatform, multiscreen environment. The course will also cover the basics of data capture for new media (at an appropriate technical level), and the use of this data for the design of metrics appropriate for various purposes such as monitoring traffic, conversions and revenue generation. The use of metrics in pricing models for advertising, sales generation and content distribution will also be covered. Students will be introduced to data sources for digital media audience analysis, with a special focus on Google Analytics. Students passing this class would be able to pass the Google Analytics Individual Qualification test.

Cross-listed with: IST 310

COMM 315: Applications for Media Writing

3 Credits

Tutorial and practice in various kinds of journalistic and commercial writing, emphasizing basic skills.

Enforced Prerequisite at Enrollment: COMM 160 and (ENGL 202A or ENGL 202B or ENGL 202C or ENGL 202D)

COMM 320: Introduction to Advertising

3 Credits

Advertising management in business, including communication theory; common industry practices; basics of copy, media, and budget decision; and environmental influences. A student may not receive credit for both COMM 320 and MKTG 422. COMM 320 Introduction to Advertising (3) COMM 320 introduces students to the advertising industry and provides a foundation for understanding what advertising is and how it developed to its current state, what it tries to accomplish, how it works, and how it can affect society. The class includes numerous examples of advertising, from the 1880s to the 2010s, to illustrate the topics covered. The goal is have students think more clearly and critically about the commercial actors behind advertising, their strategic objectives, how advertising messages help achieve specific marketing goals, and the possible social impacts. This course provides the basis for all further courses students take in the advertising sequence. During the course students: learn the basic concepts and vocabulary essential to the fields of advertising and brand promotion; understand the process and effects of advertising and brand communications; are introduced to the strategic and conceptual decisions advertisers face when deciding the best way to both say and deliver a message within the public marketplace; learn the landscape of the advertising industry, including understanding how the industry works and how it is organized; understand current trends in the advertising and marketing industries, and examine their implications for both industry and society; are exposed to the history and role of professionals and institutions in shaping communications; gain an understanding of the diversity of groups in a global society in relationship to communications. Specific topics covered in the course include definitions of marketing, advertising, and integrated marketing communication (IMC). Students learn what it means to be a brand, as well as how brand equity is developed by marketers. The fundamentals of brand positioning are also explored, in the context of brand promotion

and evolution. The psychological processes that underlie persuasive commercial messages are explored. The differences between subliminal and non-conscious routes to persuasion are presented and discussed. The course also includes a review of promotional activities outside of traditional advertising, including public relations, direct marketing, personal selling and sales promotions. The role of social media and other online communications in the promotional mix are explored. The legal and ethical dimensions of commercial communication are outlined. Students are asked to think critically about the implications of marketing harmful products, selling to susceptible target audiences, using controversial appeals and the perpetuation of negative stereotypes.

Enforced Prerequisite at Enrollment: Third Semester Standing

COMM 320H: Introduction to Advertising

3 Credits

Advertising management in business, including communication theory; common industry practices; basics of copy, media, and budget decision; and environmental influences. COMM 320H Introduction to Advertising (3) COMM 320 introduces students to the advertising industry and provides a foundation for understanding what advertising is and how it developed to its current state, what it tries to accomplish, how it works, and how it can affect society. The class includes numerous examples of advertising, from the 1880s to the 2010s, to illustrate the topics covered. The goal is to have students think more clearly and critically about the commercial actors behind advertising, their strategic objectives, how advertising messages help achieve specific marketing goals, and the possible social impacts. This course provides the basis for all further courses students take in the advertising sequence. During the course students: learn the basic concepts and vocabulary essential to the fields of advertising and brand promotion; understand the process and effects of advertising and brand communications; are introduced to the strategic and conceptual decisions advertisers face when deciding the best way to both say and deliver a message within the public marketplace; learn the landscape of the advertising industry, including understanding how the industry works and how it is organized; understand current trends in the advertising and marketing industries, and examine their implications for both industry and society; are exposed to the history and role of professionals and institutions in shaping communications; gain an understanding of the diversity of groups in a global society in relationship to communications. Specific topics covered in the course include definitions of marketing, advertising, and integrated marketing communication (IMC). Students learn what it means to be a brand, as well as how brand equity is developed by marketers. The fundamentals of brand positioning are also explored, in the context of brand promotion and evolution. The psychological processes that underlie persuasive commercial messages are explored. The differences between subliminal and non-conscious routes to persuasion are presented and discussed. The course also includes a review of promotional activities outside of traditional advertising, including public relations, direct marketing, personal selling and sales promotions. The role of social media and other online communications in the promotional mix are explored. The legal and ethical dimensions of commercial communication are outlined. Students are asked to think critically about the implications of marketing harmful products, selling to susceptible target audiences, using controversial appeals and the perpetuation of negative stereotypes.

Enforced Prerequisite at Enrollment: Fourth-semester standing; A student may not receive credit for both COMM 320H and MKTG 322 Honors

COMM 325: Effects of digital games

3 Credits

The course explores the influences of digital games on players and society. It helps students make sense of the complex and conflicting evidence from social science research about both positive and negative outcomes from playing games. Topics include violent and stereotypical content, enjoyment and immersion, addiction, learning, and persuasive applications such as games for health. In particular, the class considers prominent debates about the effects of games and how to understand the actual evidence and methodological controversies behind these debates. A significant focus is on the logic of media effects research and the strengths and weaknesses of this approach. Students emerge with greater familiarity with media effects scholarship as a process as well as the specific ways it can help them media literate players of games as well as thinking about how games might be used to promote positive outcomes.

Enforced Prerequisite at Enrollment: COMM 100N or COMM 118 or COMM 190

COMM 326: Effects of social media

3 Credits

The course explores the effects of social media on individuals, organizations and society. It introduces students to social science research about both positive and negative outcomes of using social media. Topics include identity formation, self-esteem, social capital, relational maintenance, addiction, cyberbullying, enterprise social media, crisis management, political mobilization, online activism, philanthropy, online terrorist networks, effects of social media use for news, entertainment, advertising, public relations and other mass communications. Theoretical mechanisms governing the causes and consequences of social media will be explored, with a substantial discussion component. Applications to media practices and implications for design of future media will also be covered.

Enforced Prerequisite at Enrollment: COMM 100N or COMM 118

COMM 327: Effects of entertainment media

3 Credits

This course examines the central role that entertainment plays in the lives of most people in contemporary media landscapes. Today we are almost constantly tied to media entertainment through a variety of mobile devices, second screens, and streaming content. We see and listen to the world through entertainment media, and we construct, share, and post our lives on entertaining platforms. This course will examine the variety of ways that we use, experience, and are affected by entertainment, including its benefits and its harms. Topics include specific types of media content such as music, sports, and humor, as well as outcomes on our self-images, our stereotypes of others, and our feelings of connection with friends, family, and with society at large.

Enforced Prerequisite at Enrollment: COMM 100N or COMM 118

COMM 328: Effects of Science, Environmental and Health Media

3 Credits

This course provides students with a conceptual and applied overview of the effects of media representations of science, the environment, and health topics on different audiences. This course is appropriate for

students interested in media effects as well as for students interested in science-related topics who want to gain a deeper understanding as to how messages about science (broadly defined) impact individuals and society. Class readings and discussions will encourage students to draw connections between theory, research, and message effects related to science, the environment, and health. In addition to learning and applying theories of media effects to the context of messages about science, students will also learn about the history of science, environmental, and health communication efforts and develop skills to critically interpret media messages related to these topics. This is one of multiple 300-level courses in the Media Effects sequences of the Media Studies major that focus on the effects of various types or genres of media on audiences.

Enforced Prerequisite at Enrollment: COMM 118 or CAS 101N or PSYCH 100

COMM 332: Reporting

3 Credits

Practice in researching and gathering material for and preparation of news stories for print media. COMM 332 Reporting (3) The course is an introduction to the various tools and techniques of researching and gathering information, using a combination of traditional research methods and new computer-based technologies. It develops performance and critical skills focusing on concepts of news, fact checking, finding and developing sources, interviewing, writing styles, and structures of different story types. It also provides solid grounding in historical, ethical, and legal dimensions of U.S. newspaper journalism within a comparative media system context. For the duration of the course, there shall also be continuous discussion on the role of the journalist in society, where students shall examine the legal provisions and ethical considerations that govern the practice of journalism, the unwritten "social contract" between journalists and their audiences, and the nature of the relationship between journalists and those who wield political and economic power in the community.

Enforced Prerequisite at Enrollment: COMM 260W

COMM 333: Film History for Filmmakers I: The Development of the Cinema to 1960

3 Credits

Film History I describes the prehistory and history of the medium of cinema to 1960. The course explores the artistic, technical, economic development of the cinema, and the cultural contexts in which this development occurred. The course covers narrative, experimental, and documentary cinema and trains students in the techniques of close formal analysis of the cinema. The course stresses formal, thematic, and cultural analysis of the cinema throughout the first decades of its history. This course is integral to the curriculum in Film-Video. It provides Film-Video students with a detailed description of trends in their art form. It provides students with intensive study in the history of an influential medium in the development of the concept of mass media and communications.

Enforced Prerequisite at Enrollment: COMM 150 and COMM 242

COMM 335N: Media, Social Justice, and the Public Humanities

3 Credits/Maximum of 3

This course introduces students to the ideas and skills that comprise "public humanities," with a focus on digital media tools. It aims to develop student understanding of how public humanities work can address present-day problems, fostering empathy within and building bridges between persons, groups, and communities. It offers hands-on training in three forms of digital media: documentary film, podcasting, and web publishing. Through honest and respectful engagement with a diverse range of ideas, perspectives, and experiences, students will develop creative and critical thinking and problem-solving skills by locating, analyzing and applying information in project formation and production.

Cross-listed with: LA 335N

General Education: Arts (GA)

General Education: Humanities (GH)

General Education - Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

COMM 337: Intermediate Documentary Production

3 Credits

Exploration of documentary video techniques and aesthetics through the completion of short exercises and projects. COMM 337 Intermediate Documentary Production (3) This course focuses on intermediate technical and aesthetic aspects of single-camera documentary production with an emphasis on storytelling. In producing a series of short visual exercises students will explore the conventions of the documentary form, formal concepts of the visual image – both still and motion, the principals of controlling light and sound recording, the conventions of editing, and idea development. Written work and group critique will also inform the study of non-fiction modes of visual media. Technically this course builds on the skills and knowledge obtained in the beginning production course. Students work independently and collaboratively on the production of short media projects using video and digital technologies that provide project-driven experience in the disciplines of writing, producing, directing, camera work, sound, and editing. This course introduces new technologies and production techniques in relation to non-fiction modes. Students will develop ideas for one or more documentary projects and will have the opportunity to work in a variety of production roles. The course will require a significant amount of work outside of class. Students are encouraged to participate in class discussions and contribute critical feedback on their classmates' projects.

Enforced Prerequisite at Enrollment: COMM 242 and Film-Video Major

COMM 338: Intermediate Narrative Production

3 Credits

Exploration of narrative film or video techniques and aesthetics through the completion of short exercises and projects. COMM 338 Intermediate Narrative Production (3) This course is an intermediate aesthetic and technical production course in short-form narrative production. Through screenings, discussions, readings and creative production projects, students will explore the collaborative process of narrative filmmaking and the conventions of the fiction form. This course builds on the skills

and knowledge obtained in the beginning production course. Students work independently and collaboratively on the production of short media projects using video and digital technologies that provide project-driven experience in the disciplines of writing, producing, directing, camera work, sound, and editing. The success of any narrative film depends on a focused collaborative effort by a number of individuals to tell a story. In this course, students will explore the process of producing a short narrative video using traditional production techniques. An emphasis is placed on learning the responsibilities and established practices of key production roles such as producer, director, cinematographer, sound designer and editor. Working in small groups, students will develop a short project where they will apply the processes associated with pre-production, production and post-production. Students will be building on their technical and aesthetic knowledge of digital video formats through lectures, demonstrations, outside readings and class exercises; videos will be viewed throughout the semester to demonstrate these concepts. Students will participate in class discussions and contribute critical feedback on their classmates' projects. The emphasis will be on the exploration of visual and aural expression and a fundamental mastery of the digital medium as it applies to traditional narrative production.

Enforced Prerequisite at Enrollment: COMM 242 and Film-Video major

COMM 339: Intermediate Alternative Production

3 Credits

Exploration of alternative film or video production techniques and aesthetics through the completion of short exercises and projects. COMM 339 Intermediate Alternative Production (3) COMM 339 is an intermediate level course in alternative film and video aesthetic theory and technique. The class is designed to expose students to a broad range of alternative and avant-garde filmmaking concepts, including classical and contemporary experimental practices, animation and new forms of cross disciplinary media production. The course is designed to encourage students to think about film and video production as the beginning point in an expanding journey of creative exploration. It exposes students to a diverse range of historical and contemporary alternative or experimental filmmaking practices and forms and enables them to: - Expand their creative horizons beyond preconceived and popular forms of film culture. - Develop their abilities to discover their own personal filmmaking focus and language. - Learn the skills necessary to create unique bodies of work in film and video media. - Critically assess the success of their own and their fellow students' efforts.

Enforced Prerequisite at Enrollment: COMM 242 and Film-Video major or program permission

COMM 340: Intermediate Cinematography and Editing Techniques

3 Credits

Exploration of film and video production techniques through the use of camera, lighting, audio and digital post-production equipment.

Enforced Prerequisite at Enrollment: COMM 242 and Film-Video major

COMM 342W: Idea Development and Media Writing

3 Credits

Introduction to various modalities of idea development and written expression for media production. COMM 342 Idea Development and Media Writing (3) This writing-intensive course is designed to introduce students to various modalities of idea development and

expression for audio-visual projects. Writing as an ideational, descriptive or reflexive tool is an integral element of each modality. Learning objectives encompass the development of skills in the following areas: Conceptualization, Visualization, Decision-making, Intellectual articulation and Manifestation. Emphasis will be placed on using written work as an integral part of the creative process. As a designated W course, students will gain experience in the writing of media criticism and analysis as well as learning the writing styles specific to the profession. Writing assignments will include informal writing such as exercises in intuitive and timed writing, one minute response papers and collective story telling. Formal writing assignments will include observational essays, descriptive essays or stylistic "treatments", formal narrative proposals, analytic and editorial story reports, and self-reflexive critique papers. Students will progress through a series of creative exercises that support the development of the above skills consisting of short (200-500 word) written and oral exercises, exercises in visual thinking, visual storytelling and image composition and longer (750-1500 word) written assignments in various forms (descriptive, persuasive, analytical, editorial and critical) tailored to the professional requirements of the film-video major; these include descriptive essays or stylistic "treatments" formal narrative proposals, analytic and editorial story reports, and self-reflexive critique papers. Written feedback from the instructor will be provided on a regular basis, as well as in class peer critique and story workshops. Students will be required to redraft and rewrite assignments as needed.

Enforced Prerequisite at Enrollment: COMM 242 or COMM 282
Writing Across the Curriculum

COMM 346: Writing for the Screen I

3 Credits

A beginning course in narrative Screenwriting emphasizing analysis, creativity, and critiquing skills necessary for the development of storytelling. COMM 346 Writing for the Screen I (3) The course is about the creative process of conceiving and fashioning films that wish to order experience into a meaningful and expressive narrative structure. It is designed for students who wish to delve more deeply into screenwriting and those wishing to develop a script for senior-level production. It continues to develop screenwriting and storytelling skills introduced in Introductory Film and Video Production and Media Writing, and seeks to further hone their creative skills as writer-filmmakers. A large part of classroom sessions will be conducted in a traditional writers workshop structure, focusing on the presentation, discussion, and critiquing of written work; other sessions will concentrate on the analysis and critiquing of professional screenplays, with particular emphasis on close-reading of individual scenes, and study of screenwriters writing about the process. Scripts produced will be limited to short-form work, target length being no more than 15 pages maximum. Such a length combines both the virtues of disciplined, sharply-focused perceptions with a length sufficient for developed narrative arcs and tonal and thematic complexity. Scripts produced in this class will be appropriate for all of the advanced single semester advanced production courses and submission as part of a student's application for the two-semester advanced production for groups course. Assessment is based on the progress of creative written work throughout the semester, as well as participation within the critiquing process, both verbally in class discussions and in critical writing submitted to each other and the instructor. Each individual will be expected to: (a.) display an understanding of the various creative elements of filmic storytelling - including visual story-telling, character, dialogue, narrative structure, and theme - and how those elements create and amplify meanings in the work; (b.) thoroughly develop original and

meaningful narratives and effectively convey them cinematically; (c.) hone the specific writing and (most especially) re-writing skills needed for successful screenwriting through their application and practice; (d.) illustrate the ability to thoughtfully and constructively critique their own work as well as that of their fellow writers in the class. During the semester students will be expected to learn to write original and creative constructed pitches, treatments, and scripts.

Enforced Prerequisite at Enrollment: COMM 342W

COMM 360: Audio News Production

3 Credits

Reporting, writing, producing, and presenting radio news programs, focusing on the development of news judgment and writing skills. COMM 360 Audio News Production (3) COMM 360 provides an introduction to broadcast news writing and radio production. Students take this course after they have completed an introductory print reporting course but before they take advanced courses that focus on television news production. This course is designed to introduce students to the general principles of broadcast writing used in both the radio and television mediums. As a prerequisite for 400-level courses, COMM 360 is offered on a regular basis to allow students to complete curricular requirements in a timely manner. Students learn the techniques needed to report, write and produce radio news. During the semester, students report on news and learn to produce, anchor and engineer a newscast. Learning objectives for COMM 360 are that students: * demonstrate an understanding of professional ethical principles in news reporting and apply those principles in newsgathering; * demonstrate basic proficiency in the tools used to report and produce broadcast-quality radio news; * demonstrate the ability to write news for a broadcast format; * demonstrate the ability to produce quality work on deadline; * apply an understanding of news values in the creation of a newscast; and * demonstrate the ability to supervise other students in a working newsroom. Students work together in a broadcast facility to produce a radio newscast. They are evaluated throughout the semester on their ability to integrate skills and concepts they learn into their broadcast stories. Upon successful completion of the course, students will have learned the theories and skills at the core of their broadcasting profession.

Enforced Prerequisite at Enrollment: COMM 260W

COMM 361: Entrepreneurial Journalism

3 Credits

This course provides an overview of entrepreneurship and innovation in journalism and teaches students how to recognize and act on opportunities to innovate and launch journalism-related enterprises. Active learning pedagogies are emphasized to support student learning and skill development. First students learn trends, concepts, theories and/or current best practices and then apply them in assignments and major projects. Topics may include innovation in the news business, entrepreneurship, intrapreneurship and self-employment/freelancing in media, disruption caused by technology, globalization, competition and changes in customer/user news habits, opportunity recognition and idea assessment, customer discovery, value proposition design, lean methods, rapid prototyping, due diligence, analyzing/researching markets and competition, negotiation skills, pitching ideas to investors, financing and marketing for start-ups, and digital branding. Students apply what they learned in projects that could include developing and assessing their own news enterprise idea with a completed business plan or lean canvas,

conducting primary market research, designing and implementing a digital brand, practicing negotiation techniques and pitching their idea to potential investors and/or customers.

Enforced Prerequisite at Enrollment: MGMT 215 or ENGR 310 or COMM 271

COMM 362: Podcasting

3 Credits

In this introduction to podcasting, students will explore one of the 21st century's fastest-growing digital journalism platforms. They will learn the skill of audio storytelling by creating, editing and publishing audio projects that include scripted stories and unscripted interview and discussion programs. Students will also examine podcasting's revenue-generating models as well as the ethical challenges of advertising, sponsorship and branding. By the end of the course, students should be able to launch audio podcasts for organizations, such as news sites, or for their own personal use. Beyond getting a broad understanding of podcasting, students will learn important entry-level journalism skills to do podcasts – using microphones, audio recorders and non-linear audio editing software.

Enforced Prerequisite at Enrollment: COMM 260W

COMM 364: Data Visualization for Journalists

3 Credits

In this course, students will learn to recognize and appreciate data-driven stories. They will produce stories from data by demonstrating proficiency in sorting, filtering and using simple functions of Excel. Students will use the U.S. Census website to find and download demographic data, file a federal Freedom of Information Act or state right-to-know request and use tools such as Structured Query Language, Chartbuilder, Tableau and Carto to query databases as well as build charts and maps. Students will also learn how data and visualizations, including graphics and maps, have become integral parts of story-telling in all journalism platforms – print/digital, broadcast and multimedia.

Enforced Prerequisite at Enrollment: COMM 260W

COMM 365: Social Media Communication and Strategy

3 Credits

As social media are profoundly transforming human communication, this course aims to help students develop in-depth knowledge of social media communication. With these soft skills, students are better equipped in assessing and analyzing information flows on social media platforms. More importantly, they will design and improve social media action plans for news media organizations and other institutes. This course aims to study the mechanism of social media communication. Specifically, it focuses on human communication happening on social media, not social media per se. Most of the training materials will be constantly updated to reflect the latest social media trends. All the soft skills learned in this course are directly relevant to communication professions, such as news media, advertising, public relations, and marketing.

COMM 370: Public Relations

3 Credits

Public understanding of organizations and institutions; identification and analysis of public; media relations; public relations practice.

COMM 370 Public Relations (3) This is the introductory course in public relations. It is a survey course that will provide students with a foundation for understanding the role and function of public relations and public opinion in American society, business and industry. The course defines the role of public relations, its societal value, and the workplace settings where public relations is practiced. Students are introduced to the interrelationships between the disciplines of public opinion and public relations and the many definitions of public relations and how they vary from organization to organization. Students learn how individuals, interest groups, organizations, corporations and politicians monitor and analyze public attitudes, opinions and issues that impact individual citizens, groups, organizations, institutions, and society. Students examine public relations from a historical perspective and study important social campaigns that have laid the groundwork for public relations in the modern era. Students are introduced to a myriad of communications theories and how they apply to different scenarios ranging from persuasion to crisis communications. The course helps students develop an understanding of the history, structure, and functions of public relations, the four-step public relations process (research, objectives, programming, and evaluation), the tools used to carry out public relations, ethics in public relations, and legal framework adhered to by public relations practitioners. Additionally, students are taught to appreciate the value of public relations in solving problems and making policy, i.e., the importance of being involved in the decision-making body of a corporation or public relations firm. Students are also shown why individual as well as institutional credibility is critical to public relations practice.

Enforced Prerequisite at Enrollment: Third Semester Standing

COMM 372: Digital Public Relations

3 Credits

This course discusses digital strategies and techniques for public relations. COMM 372 Digital Public Relations (3) This course provides students with a conceptual and applied overview of how digital media are used in the field of public relations. Digital media combines traditional public relations content creation with social media, search and mobile, thus transforming static news into conversations and connecting directly with target audiences online. This hands-on experience will be supported by theoretical, strategic and professional best practices. A specific focus will be on current digital tools while preparing students for future growth and changes by covering trends, strategy, and analytics.

Enforced Prerequisite at Enrollment: COMM 370 or COMM 320

COMM 373: Crisis Communications in Public Relations

3 Credits

The course is designed to introduce students to organizational risk assessment and protecting an organization's reputation in times of crisis. COMM 373 Crisis Communications in Public Relations (3) All organizations, large or small, face the prospect of a crisis. At best, a crisis is a challenge; at worst, it has the potential to destroy the organization's ability to conduct business. Nearly half of Fortune 500 companies operate without a crisis communications plan in place, yet there are scores of examples of crises that should serve as a warning to businesses to prepare for the worst. This course is designed to introduce students to organizational risk assessment and how to protect the company's reputation while minimizing the. Students learn to deliver positive media interviews in order to deliver key messages to target publics. In times of crisis, public perception is reality. It is the

practitioner's job to be prepared and to act quickly and efficiently in times of crisis and be able to work with the media, not against them. It is also important that practitioners address their audiences with the right messages at the right time. Students will learn how to assemble a crisis communication team, hold a news conference to address a crisis, manage key information, and maintain effective media relations during a time of high anxiety. Students will learn the basic anatomy of a crisis in order to be able to respond with clarity and vision in the heat of a crisis. From product-tampering to oil spills, students will be able to recognize the warning signs of a crisis and identify the five stages of a crisis. In a world connected by the Internet and social media, it's likely the news media will be at the organization's doorstep before the public relations director gets there, and it places enormous pressure on corporate leadership and government leaders to make decisions quicker and respond to media queries as quickly as possible. Successful crisis management begins before a crisis occurs. It is the responsibility of crisis management specialists to see the crisis coming and move to minimize the impact or even relegate the impending crisis to a problem. It is far better to be proactive than reactive. Having a crisis management plan is important, but avoiding a crisis by identifying its weaknesses; identifying the resources the company can use before, during and after a crisis; identifying any perceived threats that can turn into a crisis, and identifying the things that company does well in a crisis can go a long way toward negating long-term negative effects of a crisis.

Enforced Prerequisite at Enrollment: COMM 260W and (COMM 370 or COMM 320)

COMM 374: Audio Production

3 Credits

Theory and practice in studio recording and broadcasting techniques, including continuity/news writing, control room operation and audio production. COMM 374 Audio Communication (3) Studio techniques for the production of audio essays, musical portraits, news, and on-air editorials and radio drama are explored through various writing and control room exercises. Students learn how to make interesting, marketable audio material suitable for both broadcast and non-broadcast markets. This course also covers the aesthetic limitations of each format and the marketing potential in the current broadcast and narrowcast markets. The cultural genesis and brief history of each medium and format provides the context for the producer, as will readings covering the ethical and legal constraints particular to each production medium.

Enforced Prerequisite at Enrollment: COMM 180 or COMM 251 or COMM 100 or permission of program

COMM 375: Ad/PR Strategy

3 Credits

Through a combination of case studies and lectures, this class will prepare students to build upon their knowledge of the planning process and to learn how to make strategic communications decisions based on diverse scenarios. Specifically, they will explore problem-solving and decision-making processes in strategic communication through the analysis of case studies and the development of strategic planning documents. A significant amount of work in this class is team-based.

Enforced Prerequisite at Enrollment: COMM 320 or COMM 370

COMM 380: Telecommunications Management

3 Credits

Introduction to basic principles of management as they apply in electronic media industries. COMM 380 Telecommunications Management (3) This course aims to introduce students to the operation and management of the broadcast, cable and telecommunications industries. It is one of three required courses for the telecommunications major of the Bellisario College of Communications, and is the entry-point into the major's management sequence. The learning objectives for the course is to provide an understanding of the management function in the media and telecommunications industries; to familiarize students with sources of information about firm and markets; to provide basic training in critically evaluating and using financial information; and to improve writing skills. An associated objective is to prepare students for successful careers in the media and telecommunications industries, by building awareness about industry events and trends, and communicating information about job designations and career paths. The class provides a broad survey of management topics and includes modules devoted to topics such as financial management, marketing and sales, and human resources. These topics are customized to accommodate the management issues specific to the media and telecommunications industries, such as program management, ratings analysis and the Federal Communications Commission's Equal Employment Opportunity (EEO) guidelines. A special module devoted to management ethics is included in the course. Topical coverage for the course includes not only the radio and television industries that have been the traditional mainstay of telecommunications careers, but also industries such as cable, wireline and mobile telephony, and the dot-com sector in which increasing numbers of telecommunications majors are finding job opportunities.

Enforced Prerequisite at Enrollment: COMM 180

COMM 381: Telecommunications Regulation

3 Credits

Overview of the regulation of electronic media.

COMM 383: Advanced Multicamera Production

3 Credits

COMM 383 uses rotating topics to teach advanced video and television production techniques. Building on the concepts and skills taught in the introductory production course, students will learn advanced techniques in production budgeting, preproduction planning, location scouting, logistics, advanced lighting and audio techniques, post-production techniques, video formats and distribution issues. Throughout the course students will learn how to produce a live remote multi-camera broadcast from the ground up. Each semester the instructor will choose an appropriate project that will serve as the focus of the course. Projects that occur outside the studio will include logistical issues such as power supply and safety and environmental considerations. Examples of projects include coverage of live sporting events, development of scripted and non-scripted programs, and exploration of alternative distribution platforms via the Internet and alternative telecommunications networks.

Enforced Prerequisite at Enrollment: COMM 283

COMM 384: Selling the New: Professional Sales Skills & Technology Innovations

3 Credits

Professional selling is the set of skills, knowledge, values and activities involved in selling a product to a customer. But it is so much more. Every business and non-profit enterprise, whether it's a new startup or big firm, expect all employees to understand or engage with users, audiences and customers. In other words, everyone - from designers and engineers to coders, production line staffers and creatives - is in sales. This is especially true for communications, information and new technology products and services. The two-fold purpose of this course is 1) understanding the sales profession with respect to innovation and 2) learning and practicing customer-focused sales and service skills, including customer relationship management (CRM). The context is the everchanging, globalized marketplace for information, communication and new technologies across industries including news/media, non-profits, health/medicine, food/agriculture, education/training, manufacturing, finance, arts, music, sports, retail, and tourism/hospitality. Topics covered include sales professionalism, the customer-focused selling process; ethics, communication and planning skills; presenting/pitching and negotiating; customer discovery in the context of design thinking; customer relationship management (CRM) systems. Class time is devoted to lectures and active learning including using a CRM system, case study discussion, simulations and roles plays of sales pitches, service and consulting.

Enforced Prerequisite at Enrollment: COMM 180 or COMM 320 or MGMT 215 or ENGR 310

COMM 385: Media Programming Strategies

3 Credits

Framework, principles, and strategies for media programming from perspective of content distributors and media outlets. COMM 385 Media Programming Strategies (3) This course will expose the students to the framework, principles, and strategies for content distribution via wired and wireless networks. Students will learn programming strategies for cable and broadcast networks, local television stations, cable systems, Internet sites, and other distribution outlets. The class will explore programming from the perspective of the network or outlet that acquires programming content as well as the perspective of the content producer trying to obtain distribution. The course explores how new technologies, laws, and social trends influence programming strategies. Students will learn audience analysis including Nielsen ratings and Internet measurement techniques. The class typically includes multiple group projects, presentations and written reports that evaluate programming strategies in addition to quizzes and exams. By the end of the course students should have a fundamental understanding of programming strategies, trends, and terminology. Broader course objectives include the understanding and application of ethics, diversity, the role of professionals in the industry, critical thinking, written and oral presentations including the use of visual information, appropriate use of mathematical concepts, professional writing, clear communication, and conducting and evaluating research.

Enforced Prerequisite at Enrollment: COMM 180

COMM 386: Telecommunications History

3 Credits

Historical development of telecommunications systems in the United States, including telegraph, telephone, radio, television, and the internet. COMM 386 Telecommunications History (3) Telecommunications History examines the development of electric and electronic communication systems in the United States within their economic, political, social and cultural contexts. Students will look at the origins and growth of communications systems and how those systems arise from and are constrained by existing social conditions. The evolution and impact of the telegraph, telephone, radio, television and Internet systems and industries will be among major topics addressed. In the process of examining the evolution of specific industries, students will be exposed to broader theories of technology and social change. As a 300-level course, students will be expected to acquire modest skills in historical research, including library, Internet and some original research such as oral histories.

COMM 388: Production Management

3 Credits

Videos are an important means by which organizations communicate, whether online, through social media, during presentations, or delivered through traditional media platforms. In the professional arena, more and more organizations use videos to raise money, communicate, or market and promote their business. This course teaches students how to manage a video production agency and produce videos for clients. COMM 388, through a combination of lecture, readings, and practical exercises, will teach students how to communicate with clients, assign production team roles, create accurate and effective production timelines and budgets, as well as understand the legal issues that can arise when creating videos for clients that meet their specific needs. Student will bring an actual client's story from the idea phase to final delivery, as well as learn and utilize proper client etiquette, including email, phone, and in person conversations. Student will have the opportunity to learn about the responsibilities of each member on a production team, how to create and manage a production budget, the purpose and use of contracts and release forms, all while working together as a team to create a video for their client. The course will follow a standard production timeline starting with pre-production topics such as the basics of pitching, story development, and budgeting. The second portion of the class will focus on production issues particularly as they apply to client based production. This will include scheduling, interview outlining, location scouting, conducting on camera interviews, and filming footage. Finally, post-production and formatting topics will be addressed including discussions of different delivery platforms, including online, presentation, and social media. Throughout the semester students will complete practical exercises that will help build their skills at translating a client's idea into a realized project with a minimum budget and maximum production value.

Enforced Prerequisite at Enrollment: C or better in COMM 242 or C or better in COMM 282

COMM 395: Experiential Career Exploration

0.5-2 Credits/Maximum of 2

In this unique experiential education opportunity, students visit a variety of companies and businesses in the media and communications ecosystem and have the opportunity to engage in small group settings directly with key industry players. Students will be able to learn from

senior executives who are shaping the fields that our students will soon enter. Students will have the opportunity to engage with alumni and friends of the school through dinner/networking events.

COMM 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

COMM 400: In the Game: TV Sports Magazine

3 Credits

Students will produce, report, anchor and direct half-hour sports magazine show. COMM 400 In the Game: TV Sports Magazine (3) Magazine shows have expanded beyond traditional news subjects to cover various aspects of American culture. None is more prominent and prevalent than the coverage of sports. In the Game: TV Sports Magazine is a sports story-telling course in which students examine sports-related topics in their context within society. Students will use writing, photography, editing and technical skills gained from their journalism skills courses. The goal will be to produce sports enterprise stories.

Enforced Prerequisite at Enrollment: COMM 465 or COMM 283

COMM 401: Mass Media in History

3 Credits

Relationship of news media to social, economic, and political developments in the Western world.

Bachelor of Arts: Social and Behavioral Sciences

COMM 402: International Reporting

3 Credits

International Reporting is an advanced level course in the Bellisario College of Communications designed to give student journalists experience in reporting the news in a foreign country. COMM 402 International Reporting (3) International Reporting is an advanced level course in the College of Communications designed to give student journalists experience in reporting the news in a foreign country. The course is offered in the spring semester only. The key component is a 10-day reporting trip over the spring break to a foreign country. In its first three semesters, the class has gone to Mexico City and Shanghai, and Cape Town, South Africa. The course has been approved as an embedded program by the Office of Global Programs. Admission to the course is highly selective and open only to junior and senior journalism majors. Students must apply for admission and present examples of their work as well as recommendations by a member of the journalism faculty. The aim of this course is to help young journalists acquire the skills they will need to compete in an industry where increasingly the threads of even the most local stories either come from, or lead, overseas. This is not a course aimed at training students to become foreign correspondents. Rather, we hope to prepare students to function in a foreign environment, and to recognize, overcome and ultimately benefit from the linguistic, cultural, economic and legal challenges that working in another country will entail. The course has three segments. In the first half of the semester we study the history, culture, politics and economics of the country to which we are traveling. We also develop and refine our ideas for the stories we will report when we get there. We will also learn about foreign

reporting and how it differs from the reporting we have been used to doing here. The second part of the course consists of supervised travel to our target country. Here, we report the stories we have selected, file blogs and video posts to ComMedia, and also meet with local journalists, officials and students of the host country. Depending on the country in which we are working, students also have the opportunity to collaborate, when appropriate, with students from local universities. The final half of the semester is devoted to supervised individual work aimed at turning our reporting into stories suitable for publication or broadcast. Although students are required to acquire a general working knowledge of the country to which we are traveling, and will be tested on it, in the end they will be evaluated almost entirely on their work product. This results-oriented approach has been chosen because it most closely replicates the environment of a professional newsroom.

Enforced Prerequisite at Enrollment: COMM 260W

COMM 403: Law of Mass Communications

3 Credits

Nature and theories of law; the Supreme Court and press freedom; legal problems of the mass media. COMM 403 Law of Mass Communications (3) This discussion-intensive seminar provides an in-depth analysis of contemporary First Amendment issues ranging from the protection of violent media content and sexually explicit speech to defamation and invasion of privacy. Students explore the legal standards, public policies and theories that protect - and restrict - the Constitutional rights of free speech and free press. The primary area of study in this course is the law of mass communications and, in particular, legal issues facing the entertainment and news media. Using a law school casebook, written by a Harvard Law School professor, we will cover legal issues related to topics such as sex and violence in the media, defamation, privacy, and copyright.

Bachelor of Arts: Social and Behavioral Sciences

COMM 403H: Law of Mass Communications

3 Credits

Nature and theories of law; the Supreme Court and press freedom; legal problems of the mass media. COMM 403H Law of Mass Communications (3) This discussion-intensive seminar provides an in-depth analysis of contemporary First Amendment issues ranging from the protection of violent media content and sexually explicit speech to defamation and invasion of privacy. Students explore the legal standards, public policies and theories that protect - and restrict - the Constitutional rights of free speech and free press. The primary area of study in this course is the law of mass communications and, in particular, legal issues facing the entertainment and news media. Using a law school casebook, written by a Harvard Law School professor, we will cover legal issues related to topics such as sex and violence in the media, defamation, privacy, and copyright.

Honors

COMM 404: Telecommunications Law

3 Credits

Overview of the regulation of electronic media. COMM 404 Telecommunications Law (3) Telecommunications Regulation offers students an introduction to a wide range of regulatory and policy issues affecting the telecommunications industries. These industries include

traditional radio and television broadcasting, cable, satellite, telephone (wired and wireless), broadband, and the internet. This class is especially useful for students interested in careers in telecommunications, electronic commerce, public policy, information science, business management, law, information policy, and other related fields. Students taking this course will learn how regulations can affect business opportunities and how public policy shapes the development of the world's communications infrastructure. New developments in technology, business practices and regulatory philosophy are leading to dramatic changes in the regulatory climate in telecommunications. The goal of this course is to help you understand the implications of these changes for business strategy and for society as a whole. Some of the questions we will consider include: Why do we regulate telecommunications? What are the legal parameters of regulation? How does the regulatory process work? Why do "experts" disagree on the proper way to regulate? How do regulations influence business strategy and industry development? How do regulations affect the way individuals communicate and acquire information? How can we choose the best policies for the future to balance reliance on marketplace forces versus the need for Government intervention? This course emphasizes an economic and legal approach to regulation. Readings will include primary documents such as FCC regulations, court cases, and statutes as well as historical and economic analyses of telecommunications regulation.

COMM 405: Political Economy of Communications

3 Credits

COMM 405 takes a critical look at the structure and practices of the U.S. mass media within the U.S. and global political economy. The normative purpose of the course is to consider whether a media system operates in a manner which supports and promotes the development of a democratic society. As such, the course is both a theoretical and practical exploration of the study of political economy and the development of capitalism as it relates to the mass media. Topics include: the structure of contemporary capitalism (its nature and logic); the ownership and control of mass communications; commercialism, advertising and their impact on U.S. society, the mass media and journalism: the economic structure and organization of the cultural industries and precarious labor; the political economy of digital media; media policy; the tenets of democratic communication.

Enforced Prerequisite at Enrollment: COMM 100N or COMM 110
Bachelor of Arts: Social and Behavioral Sciences

COMM 406: Electronic News Gathering and Editing

3 Credits

Intermediate level skills in creating and editing television news packages. COMM 406 Electronic News Gathering and Editing (3) This course is designed to provide a substantial background in video production techniques coupled with electronic newsgathering and the use of video equipment. Although students enrolled in this course would be expected to have a basic understanding of video production from previous courses, more advanced editing techniques, along with sustained practice in interviewing, taping, organizing and writing various types of news and feature packages, should provide an excellent preparation for subsequent internships or employment. This is a "hands-on" course and will provide extensive opportunities for practical application of material covered in class. Students will be evaluated on the quality of their productions. This course serves as a supporting course in the Communication and Media Studies major.

Enforced Prerequisite at Enrollment: COMM 315 or COMM 283W

COMM 407A: Media and Government

3 Credits

This course examines the relationship between politics, governance, and news media, and provides a foundation for understanding media's role in public policy. COMM 407A Media and Government (3) The course is designed to broaden, inform, and empower thinking about media influence on the ways people think about issues and how that influences public policy choices. The course will also analyze the various ways in which elected officials seek to craft messages and manipulate media to encourage support for policy agendas and initiatives. Through the process of examining the relationship between these powerful forces, students will gain critical thinking skills that will better prepare them to consume and create media and to function as citizens in American democracy. This course will examine the symbiotic relationship between politics, governance, and media, particularly news media, and will provide a foundation of classic media theory combined with new thinking on media's role in public policy formation and its impact on the larger society. The course will emphasize the importance of political narratives, how they are constructed and communicated and also how they influence elections and public policy choices. Primary sources will provide diverse perspectives on the many questions that will emerge from readings and discussions. This course is only offered as part of the Washington, D.C. Program.

COMM 407B: Perspectives on American Journalism

3 Credits

The course examines a number of current issues and topics surrounding journalism including: ethics, state of the industry, and news vs. entertainment. COMM 407B Perspectives on American Journalism (3) Journalism is a unique occupation. News editors, reporters, producers, anchors, and other media professionals have a special responsibility to the public - the responsibility to provide their readers and audience members with the information they need in order to make choices about how to vote, what issues to get involved with, how to live their daily lives. While journalists - unlike members of other professions - have very few laws that exist specifically to govern their work, their duty to the public carries with it a number of important ethical burdens and responsibilities to the public and to society as a whole. The course examines a number of current issues and topics surrounding journalism. While there will be new themes and topics for each week's class, nearly all of the topics are interrelated, and each class will build on what has gone before. Among the topics that will be covered are the current state of the news industry, the ethical guidelines that journalists are supposed to follow, the blurring of lines between news and entertainment, and the news media's role in making people famous or infamous. The issues that we examine in this course will be most directly related to the practice of journalism, although we may touch on other aspects of communications (e.g. advertising or public relations) from time to time. Our goal will be to examine news coverage with a critical eye - to think about the reasoning and decision-making that shape the final products that we read or view. The class meetings themselves will center on discussion of the readings and presentation of real-world examples drawing from current news stories and issues involving the news industry.

COMM 408: Cultural Foundations of Communications

3 Credits

Examination of oral, scribal, print, industrial, and electronic cultures; analysis of impact of technology on communications and social structure. COMM 408 / STS 408 Cultural Foundations of Communications (3)(BA) This course meets the Bachelor of Arts degree requirements. COMM 408 / STS 408 traces the development of communications technologies and their impact on culture over the last 500 years. Students will examine how different tools for communicating changed the way people organized and made sense of their worlds. The course begins by looking at oral cultures and moves on to the scribal, print, industrial, electronic and post-industrial or postmodern cultures, studying the media developments that marked each of these eras. With each period and its corresponding technology students will examine how and why the new media altered not only the form of communication (the type of speech, form of writing and/or speed of information transfer), but also how such changes altered the content of knowledge (how people made sense of their lives and communities). Readings are drawn from a range of disciplinary perspectives on the issues, from history, sociology and anthropology, to philosophy, communication studies and cultural theory. The historical and theoretical knowledge provided by the course will give students a solid foundation for coming to terms with media trends in present-day society and for thinking through their possible epistemological, political and cultural impacts. The course is a communications elective for the Journalism and Telecommunications majors and the Media Studies minor.

Enforced Prerequisite at Enrollment: Select 3 credits from the following: COMM 100 or COMM 110 or COMM 118 or COMM 150 or COMM 180 or COMM 251 or COMM 320 or COMM 370
Cross-listed with: STS 408
Bachelor of Arts: Social and Behavioral Sciences

COMM 409: News Media Ethics

3 Credits

Ethical problems in the practice of journalism; principal public criticisms of news media; case study approach. COMM 409 News Media Ethics (3) Ethics is about doing the right thing - which, in the news business, is rarely as easy as it sounds. Is it ever OK for reporters and photographers to intrude on grieving families? Is it ever OK to lie to get information? Are the sex lives of politicians and celebrities our business? COMM 409 will give students a fuller understanding of how journalists do their jobs and how they should make ethically sound decisions. This class is more about learning to ask the right questions than learning the right answers. We'll rely on recent news coverage to get us in the habit of working through the moral dilemmas that reporters routinely confront.

Bachelor of Arts: Social and Behavioral Sciences

COMM 409H: News Media Ethics

3 Credits

Ethical problems in the practice of journalism; principal public criticisms of news media; case study approach. COMM 409H News Media Ethics (3) Ethics is about doing the right thing - which, in the news business, is rarely as easy as it sounds. Is it ever OK for reporters and photographers to intrude on grieving families? Is it ever OK to lie to get information? Are the sex lives of politicians and celebrities our business? COMM 409H will give students a fuller understanding of how journalists do their jobs

and how they should make ethically sound decisions. This class is more about learning to ask the right questions than learning the right answers. We'll rely on recent news coverage to get us in the habit of working through the moral dilemmas that reporters routinely confront.

Honors

COMM 410: International Mass Communications

3 Credits

The role of international media in communication among and between nations and peoples. COMM 410 International Mass Communications (3) (IL)(BA) This course meets the Bachelor of Arts degree requirements. This course examines the role of international mass media in communications and debates about global questions and/or crises between and among nations and peoples. These roles will be examined using such theories as imperialism, hegemony, information society, modernization, globalization, capitalism, cultural industries, propaganda, and others. Among other issues the course will examine the way in which media report, portray, represent, misrepresent, and construct knowledge about global questions and crises that may border on social injustices, health, the politics of armament, disarmament, and recognition of statuses of states. The course may also explore other issues of international importance not limited to those involving economic questions such as balance of trade, global debt, and financial crises. In addition, this course provides avenue for the appraisal of mediated debates between nations at such platforms as the United Nations (UN), the World Health Organization (WHO), and the World Trade Organization (WTO) among other international and bilateral organizations that serve as platforms for consideration of issues of global importance. Students are led to understand ways in which states relate and communicate with each other in the environment of supranational governance. Students are exposed to these issues through readings in pertinent theories, ICT-enhanced conversations, and critical examinations of applicable concepts, exposure to contemporary issues via media messages; including those presented via newspapers, news magazines, broadcast documentaries, films, and other media products that will aid students' ability to better appreciate issues of historical and contemporary relevance to the global community.

Enforced Prerequisite at Enrollment: COMM 100 or COMM 110 or COMM 118 or COMM 150 or COMM 180 or COMM 251 or COMM 260W or COMM 320 or COMM 370
Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)

COMM 411: Cultural Aspects of the Mass Media

3 Credits

The mass media as creators and critics of mass culture in American life; relationships between the media and mass culture. COMM 411 Cultural Aspects of the Mass Media (3) This course examines the mass media as creators and critics of mass culture in American life and the relationship between the media and the mass culture. What are the mass media? What is culture? What are the relationships between mass media and culture? How do mass media help construct the way we live our lives? Do the mass media reflect or condition social reality? How does one study or engage the mass media? Why would you want to anyway? This course is designed to answer some of these questions by promoting a critical understanding of the mass media from historical, social, philosophical, cultural, and economic perspectives. Ultimately, the course will equip students to address these opening questions on

their own terms, without simply allowing the mass media to provide their own pictures of how they should be understood. One of the goals of this course is to denaturalize the way people view the mass media-as simply a given, or as pure unmediated reality. Media culture has been and continues to be made. Course materials and lectures will provide several ways of thinking about and studying the conditions of media making and interpretation. Students are encouraged to think as broadly and creatively as possible: to this end, the course will make use of research across a wide range of academic fields such as sociology, history, ethnography, cultural studies, literature, politics, gender studies, economics, art, and philosophy. The course is a communications elective for the Journalism and Telecommunications majors and the Media Studies minor.

Enforced Prerequisite at Enrollment: COMM 305
Bachelor of Arts: Social and Behavioral Sciences

COMM 411H: Cultural Aspects of the Mass Media

3 Credits

The mass media as creators and critics of mass culture in American life; relationships between the media and mass culture. COMM 411H Cultural Aspects of the Mass Media (3) COMM 411H takes a cultural studies approach to media and more generally culture and politics. The class is predicated upon three assumptions about media. First, media must be examined in context. Second, media play a significant role in the construction of our lived reality. Third, these constructions and all attempts to study them are political and implicated in relations of power. As such, this course treats media as part of cultural and political processes that are not separable, but instead co-constitutive. In other words, these three assumptions have some immeasurable effect on each other and impact our understanding of their relationships.

Enforced Prerequisite at Enrollment: COMM 305
Honors

COMM 412: Sports, Media and Society

3 Credits

Sport and media relationship in American culture. COMM 412 Sports, Media and Society (3) This course is designed to help students more critically view the role of sport media in American culture. The influence of/relationship between sport media and issues such as race, gender, sexuality (homophobia), nationalism, capitalism/consumerism, violence and civic life will be examined. Issues in relation to journalism ethics and the production of sport media also will be examined.

COMM 413W: The Mass Media and the Public

3 Credits

Social-level and political theories of the relationships between media and public; media influences on public opinion; social pressure on the media; political communications. COMM 413W The Mass Media and the Public (3) This course is designed to explore the complex and dynamic relationships among the media, public, and government. These relationships are examined through the lenses of sociological and political theories regarding the nature and process of mass communication. The central questions answered in the course are: "How do the media influence the public, its opinions, and social and political behavior?" and "How does the public - through social pressures, and political constraints - influence media performance and content?" Special attention is paid to modes of inquiry in communication research, social functions and control of the media, social construction of reality,

political communication, and public opinion. The goals of the course are to introduce students majoring in professional areas of communications to theoretical frameworks that help explain media practices, advance the understanding of the communications research literature for Media Studies majors, and develop skills of all students to be informed and critical consumers of the media. The course is required of Media Studies majors and is a communications elective for the Journalism and Telecommunications majors, the Corporate Communications and Journalism options in Communications, and the Media Studies minor.

Enforced Prerequisite at Enrollment: (COMM 100 or COMM 110 or COMM 118 or COMM 150 or COMM 180 or COMM 251 or COMM 260W or COMM 320 or COMM 370) and (COMM 304 or COMM 420)
Bachelor of Arts: Social and Behavioral Sciences
Writing Across the Curriculum

COMM 414: Media Management

3 Credits

Theoretical bases and practical approaches for management and administration of communications projects, organizations, and resources. COMM 414 Media Management (3) Students examine various management styles and how they are applied in various media industries. Special issues in media management such as intellectual rights and work-for-hire contracts are covered. General business management topics are also covered, such as human resource management, sales, motivation, working with unions, managing talent and other assets, and maximizing profits within the framework of very basic business principles. In addition, this course includes topics useful for small media business startups and freelance media content producers. Usually this course utilizes a case/book study approach relying heavily on in-class discussion.

Enforced Prerequisite at Enrollment: COMM 100 or COMM 251

COMM 415: Advanced Photography for Communications

3 Credits

Advanced applications in documentary photography emphasizing the narrative qualities of imagery, and utilizing digital technologies. COMM 415 Advanced Photography (3) An advanced undergraduate examination of documentary photography with the goal for each student to produce a portfolio of pictures suitable for exhibition or to show prospective employers. Each week students complete photographic assignments designed to simulate commercial photography work and to give experience with a variety of photographic techniques and subjects. Assignments include topics such as portraiture, documentary photo story production, studio lighting, fill-flash lighting, and sports photography. Classroom exercises include demonstrations of various techniques as well as critique sessions to discuss student assignments and other photography work.

Enforced Prerequisite at Enrollment: COMM 215 or COMM 269

COMM 416: News Practicum

3 Credits

News Practicum is a professionally oriented course for students who have mastered basic news writing and interviewing skills to produce stories for professional news outlets. COMM 416 News Practicum (3) This is a course in which students employ skills they developed in previous classes including: reporting, writing and working in collaboration

with editors to develop a variety of short and long stories that are designed to be used in professional publications. In the course of reporting stories, students will work independently, using sources ranging from first responders to local government officials and experts, to gather information that they will use writing their stories. Students will turn in multiple drafts to the instructor, who will work with them to edit the stories in preparation for publication. Part of the course will include post-publication review of the stories to discuss techniques and how to improve upon them.

Enforced Prerequisite at Enrollment: COMM 260W

COMM 417: Ethics and Regulation in Advertising and Public Relations

3 Credits

Ethical issues in practice of advertising and public relations; legal and regulatory issues; case studies. COMM 417 Ethics and Regulation in Advertising and Public Relations (3) The purpose of this course is to help students gain an understanding of the complex legal and ethical issues they may face in advertising and public relations practice. Through an examination of historic and contemporary issues and cases, students will develop a professional framework for evaluating ethical dilemmas. Perspectives of advertisers, public relations practitioners, agencies, government, media, clients and advocacy groups will be examined, with a focus on social responsibility in professional practice.

Enforced Prerequisite at Enrollment: COMM 320 or COMM 370
Bachelor of Arts: Social and Behavioral Sciences

COMM 418: Media Effects: Theory and Research

3 Credits

Investigation of social and psychological effects of media messages and technologies via theories and empirical evidence pertaining to processes of effects. COMM 418 Media Effects (3) This is an upper-level undergraduate course on the social and psychological effects of media messages and technologies, which moves beyond a simple introduction of media theories. Drawing on social and behavioral research in communication, psychology and related disciplines, it will attempt an advanced understanding of media effects via theories and empirical evidence pertaining to the processes of effects. Emphasis will be placed on rigorous examination of theory testing and theory development. The class will assume a general familiarity of basic communication theories pertaining to the relationship between media and public (COMM 118) and a working knowledge of quantitative research methods (COMM 304).

Enforced Prerequisite at Enrollment: COMM 118 and COMM 304

COMM 419: World Media Systems

3 Credits

Comparative study of modern mass systems and the evolution and structure of specific countries' systems. COMM 419 World Media Systems (3) (US;IL)(BA) This course meets the Bachelor of Arts degree requirements. This course is a comparative study of modern mass media systems with focus on the ways in which two or more countries' media have evolved and are structured by the political, economic, social, and cultural environments within which they exist. Students will be exposed to the theories and practices of media systems - as explained in such normative expositions as the four theories of the press and other contemporary iterations. One objective of the course is for students to gain a better appreciation of the structure and location of the media

system in the United States vis-à-vis greater awareness of media systems in other political contexts where media cultures may vary from the U.S. matrix. Across the board of sampled countries'; media systems, students will be exposed to the ways in which each country's media have developed, are shaped, and are continually shaped by factors that include history, political cultures, evolving legal regimes, media regulations, finances, media economics, new technologies, institutional arrangements, citizens' access to information, or lack thereof. Another objective of this course is to equip students with a toolbox and framework with which they can replicate comparative media systems analyses in other countries and regions of interest as they contemplate study abroad and/or long-term career (employment, graduate studies) engagements. To achieve foregoing objectives students will be exposed to readings in theories of media systems and to academic articles using comparative methodologies to examine structural evolution of media in tandem with countries transformations over time. Students will analyze historical or contemporary media systems' developments through careful comparisons and applying critical thinking skills. In the process, students develop analytical skills useful in contending with academic and professional environments.

Enforced Prerequisite at Enrollment: COMM 410
Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)
United States Cultures (US)

COMM 419H: World Media Systems

3 Credits

Comparative study of modern media systems of mass communications in selected foreign countries. COMM 419H World Media Systems (3) (US;IL)(BA) This course meets the Bachelor of Arts degree requirements. Students in this course will have the opportunity to discover the variety of media systems in the world today and, more importantly, how they got that way and what functions they perform for their respective societies. Students will evaluate each media system's history and analyze the functions of the mass media in the respective contexts. They will examine the historical, social, economic and cultural forces that influence the adoption of a national media system. They will compare perspectives on the problems and issues in freedom of expression within national media systems and evaluate the organization, regulation and economics of those systems. Finally, students will analyze the national development of media systems and the impact of the mass media in the modernization of peasants.

Enforced Prerequisite at Enrollment: COMM 410
Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)
United States Cultures (US)
Honors

COMM 420: Research Methods in Advertising and Public Relations

3 Credits

Primary and secondary research methods used in the development of solutions to advertising and public relations problems. COMM 420 Research Methods in Advertising and Public Relations (3) This course is designed to provide an introduction to the logic and methods of social science research and its applications in the professional practice of advertising and public relations. Students will be introduced to methods of primary research used in the advertising and public relations fields such as survey, focus group, content analysis, and

experimental design. Students will also become more familiar with basic and advanced statistical techniques and statistical software used in the field. Understanding how research is conducted and the strengths and limitations of research findings is a critical first step in developing the ability to apply research findings to communication problems in advertising and public relations. In addition to helping students understand how to conduct research, this course is also designed to help them become critical consumers of the research conducted by others. Advertising and public relations problems often require the identification, understanding, synthesis, and application of data collected by others in developing problem solutions. Understanding secondary sources of data commonly used in the field, such as Simmons, Nielsen, Arbitron and SRDS, is an essential component of professional expertise. Problem-solving in advertising and public relations requires decision-making in a turbulent and dynamic marketing environment. To help students learn how to relate research tools and outcomes to the advertising and public relations problems at hand, this course will examine the role of research in decision-making at the critical steps in the problem-solution process. As part of developing understanding of this decision-making process, students will also become more aware of the ethical issues associated with research in advertising and public relations.

Enforced Prerequisite at Enrollment: (COMM 320 or COMM 370) and (STAT 200 or SCM 200 or PSYCH 200)

COMM 421W: Advertising Creative Strategies

3 Credits

Planning, designing, writing advertisements; introduction to graphics and production techniques and processes; layout and copywriting practice and critiques. COMM 421W Advertising Communications Problems (3) This course is designed to provide students with an overview of the intellectual and practical skills involved with the development of advertising creative work. Students are introduced to research and thinking strategies that lead to creative ideas and are provided with computer software and other training that facilitates the execution of advertising based on their ideas. The course requires students to complete several creative projects, in distinct product categories (e.g., packaged goods, durable goods, public services, consumer services), over the course of the semester. Before developing advertising, students will be expected to research the product, service or idea that constitutes the creative project. They will gain an understanding of the kinds of information most valuable to creative professionals in the development of ideas, and be provided with an overview of research strategies leading to the discovery of such information. After completing the required research, students will produce briefs that summarize findings and serve as a platform for further work on their creative projects. Given the course's designation as writing intensive, these documents will be evaluated both for their content and the degree of accuracy demonstrated in grammar, spelling, punctuation and word choice. Since the evaluation of creative ideas is inherently subjective, these written research documents are usually weighted more heavily in the calculation of final course grades. Students will use their own research as the platform for generating creative ideas to advertise their product, service or idea. Instruction on creative thinking techniques will be provided as tools for this activity. As ideas are developed, students are encouraged to share their work with their peers and the instructor for feedback. In "workshop" fashion, these in-class critiques of creative work serve to refine and improve ideas. Over the course of the semester, students work toward finalizing creative solutions. By semester's end, each student will be expected to submit a final portfolio of work that demonstrates proficiency in the subject matter

covered by the course. Traditionally, the final portfolio includes creative briefs and ads developed from them.

Enforced Prerequisite at Enrollment: COMM 320
Writing Across the Curriculum

COMM 422: Advertising Media Planning

3 Credits

Analysis, selection, and scheduling of advertising media; examination of algorithms, technologies, and software used in media planning. COMM 422 Advertising Media Planning (3) This course is designed to provide an introduction to the concepts and techniques of media planning. The course will cover traditional and online media options. The student will learn to use software models to facilitate media decisions. Secondary sources of research used in the media planning process will be discussed. The design, construction, implementation and evaluation of effective media plans that meet specific advertising objectives will be detailed. Ethical media planning processes will be reviewed. The goal of the course is to develop critical thinking skills that will improve decision making in a dynamic and turbulent media environment.

Enforced Prerequisite at Enrollment: COMM 320

COMM 424: Advertising Campaigns

3 Credits

Advertising campaign problems from the viewpoint of the national advertiser and advertising agency; production of a complete advertising campaign. COMM 424 Advertising Campaigns (3) This comprehensive capstone course is designed to provide an opportunity to showcase your creativity and knowledge about advertising communications. Strategic integrated marketing communications concepts are emphasized. The campaign proposal developed in this course will showcase the full weight of your knowledge and skill in the area of advertising communications. Students will need a background in creative design and practices, media planning principles and practices, and research methods used to delineate appropriate target groups and evaluate campaign effectiveness. A strong focus will be on understanding the audience and developing message strategies that have a high potential to influence attention and marketing behaviors. During the course you will create a complete advertising/marketing communications campaign proposal that reflects a set of communication goals derived from a set of measurable objectives all designed to meet the needs of your client. A situation analysis will be developed to provide a detailed assessment of the product or service environment. This includes analysis of the product class, life cycle, generic and brand level competition, and target group identification. The goal is to gain relevant information that can be used to make justifiable strategic decisions related to the advertising campaign. Strategic goals and objectives will be developed that allow the direction and efficacy of the campaign to be measured. Tactics must reflect the strategies developed in the campaign. Campaigns include diagnostic and performance benchmarks used to evaluate the progress of a set of predetermined measurable objectives. The goal is to provide timely feedback that allows the agency and client to evaluate the effectiveness of the campaign. This is especially important as client-agency relations continue to adapt a series of formal measures of campaign effectiveness. The class is designed to develop critical thinking skills. For example, each strategic decision presented in a campaign must have a fully explicated rationale that is based on quantitative and qualitative criteria. Research tools will be presented in class that allow

and support the development of measurable objectives. The campaign proposal must include a series of benchmarks designed to evaluate the progress of the campaign at key time points. The campaign will have a complete media plan that includes selected media, cost efficiencies, and media schedule. Students will be expected to be familiar with media principles and media planning software.

Enforced Prerequisite at Enrollment: COMM 420 and COMM 421W and COMM 422

COMM 425: Advanced Advertising Campaigns

3 Credits

An academic option for student AAF members who will develop an integrated advertising campaign to be presented in District competition. COMM 425 Advanced Advertising Campaigns (3) The class is structured along the lines of a real-world advertising agency and the manner in which they might pitch a new account. Students work through the research and situational analysis to develop an integrated communication plan, campaign budget, and message strategies for a client. The client is provided by the National Student Advertising Competition. This group provides undergraduate advertising students with a realistic problem that is solved through team effort, knowledge and creativity. Students might have the opportunity to pitch their plan to the NSAC client.

Enforced Prerequisite at Enrollment: COMM 424 or COMM 473

COMM 426: International and Intercultural Strategic Communication

3 Credits

Advertising and public relations in the international and intercultural arenas; multicultural strategic communications strategies. COMM 426 International and Intercultural Strategic Communication (3) COMM 426 will provide students with a framework for applying their existing public relations and advertising tools in the global arena. Working internationally and/or interculturally challenges the advertising, public relations or marketing executive to think outside his or her own "cultural box." Some of the challenges include finding research about consumers, competitors and the marketplace outside of North America and Western Europe, understanding local cultures and customs, understanding the importance of ethnicity, and building an integrated core of professional communications that work with a common purpose, even if they come from different backgrounds - or are on different continents. The emphasis will be on developing a methodology for researching international and intercultural strategic communications problems, and then discussing possible communications-based solutions. To that end, case studies from both the international advertising and international public relations disciplines will play an important role in the course. Additionally, students will be exposed to a number of frameworks for analyzing culture, coming from the areas of anthropology (Schwartz' 10 Value Domains), social psychology) Bond's essay on impression management in multicultural organizations) and international business (Hofstede's Dimensions of National Culture).

Enforced Prerequisite at Enrollment: COMM 320 or COMM 370

COMM 427: Client/Agency Relations

3 Credits

Building and maintaining client/agency relationships in advertising, public relations and direct response agency business functions.

COMM 427 Client/Agency Relations (3) Client/Agency relations provides students with an understanding of advertising, public relations and direct response agency business functions, and the important role of building and maintaining client/agency relationships. It covers the phases of pre-relationship (identifying, prospecting, pitching and winning accounts), developing relationships with clients and maintaining and enhancing these relationships over time. Client/agency relationships are built on the development of viable partnerships with clients, establishing strategies to support and maintain the vitality of client business success, and the on-going delivery of fresh creative ideas from all agency disciplines. Today's agency has become a resource for all integrated marketing communication (MARCOM) needs. This includes, but is not limited to, advertising, promotion, public relations, direct response marketing, event marketing, customer-relationship marketing, interactive internet communication and branding ideas. This course covers the integration of these disciplines on behalf of an agency's clients.

Enforced Prerequisite at Enrollment: (COMM 421W and COMM 422) or COMM 471

COMM 428A: Principles of Strategic Communications

3 Credits

Principles of Strategic Communications provides an overview of the various media and communications methods that comprise modern integrated marketing campaigns. COMM 428A Principles of Strategic Communications (3) Principles of Strategic Communications will introduce students to strategic communications in the context of integrated marketing communication (IMC). It will overview the industry by providing a foundation for understanding what IMC is and how it developed to its current state, what it tries to accomplish, how it works, and how it can affect society. It lays the groundwork for other courses in the strategic communications sequence. The fundamentals of consumer psychology will be introduced, along with theories of persuasion. In addition to traditional advertising, the course will review other critical functional areas of IMC such as public relations, sales promotion and direct marketing. The role of the internet and emerging new media technologies will also be covered. The advantages and disadvantages for different media will be summarized, and the basics of media planning will be introduced. Course content is present in the context of strategy and planning, with the goal of illustrating how various elements in the promotional mix work together to achieve campaign objectives. The importance of effective measurement and accountability at each point of campaign development and execution will be explained. Finally, the ethical and regulatory environment for IMC will be explored.

COMM 428B: Strategic Communications Law

3 Credits

Analysis of laws and regulations affecting online advertising and strategic communications. COMM 428B Strategic Communications Law (3) Strategic communications law focuses on the key legal issues affecting strategic communications, advertising and marketing in an online environment. Major topics include First Amendment protection for commercial speech; advertising regulation including spam and the use of trademarks and copyrights; privacy regulation including the collection of user data and use of endorsements, and procedural issues such as jurisdiction and analysis of various regulatory authorities. Additional topics will include domain names, marketing to minors and current developments in advertising and Internet law.

Enforced Prerequisite at Enrollment: COMM 428A

COMM 428C: Strategic Communications in a Global Environment

3 Credits

Strategic Communications in a Global Environment will provide students with a framework for applying public relations and advertising tools across media platforms and across cultures. COMM 428C Strategic Communications in a Global Environment (3) Strategic Communications in a Global Environment will provide students with a framework for applying public relations and advertising tools across media platforms and across cultures. While cross-cultural communication has always been a challenge for strategic communicators, introducing online elements to campaigns exposes strategic communications professionals to a host of new challenges, including a wide range of ethical and legal dilemmas emanating from new to abilities to collect sensitive data from audiences, often without their knowledge. Students will be exposed to a number of frameworks for segmenting publics in this new environment, both geographically and psychographically, and will learn the skills to work with colleagues across borders and cultures to create effective, ethical strategic communications campaigns.

Enforced Prerequisite at Enrollment: COMM 428A and COMM 428D

COMM 428D: Research & Analytics

3 Credits

This course covers online research methods for strategic communication, including web analytics, online surveys, online interviews, and content analysis. COMM 428D Research and Analytics (3) Increasingly, organizations are using the web as a vehicle for communicating with key audiences such as customers, shareholders, volunteers, donors, community members, and government entities. In this class students will be exposed to theories and practices in the areas of online research and analytics with a focus on understanding how customers perceive the organization, assessing the engagement with target audiences online, measuring the value of relationships that organizations initiate and build online, and tracking how web site visitors experience an organization's site. The course will expose students to tools for tracking and measuring online communication, and it will help students understand how to prioritize audiences and communication to maximize the effectiveness of measurement. Research methods taught in this class include web analytics, online surveys, online interviews, content analysis, and online focus groups. Gauging the impact of online communication helps organizations engage in more efficient and effective communication practices. Practitioners in strategic communication need to understand how to measure and evaluate the effectiveness of their communication in this medium. This course will prepare students to conduct online research in practice.

Enforced Prerequisite at Enrollment: COMM 428A and STAT 200

COMM 428E: Social Media Strategies

3 Credits

This course covers social media theory, tools and best practices to prepare students for current and future use of social media. COMM 428E Social Media Strategies (3) Social media - including social networking, podcasting, bookmarking, blogging, microblogging, location-based, wikis, and other collaborative content creation platforms - are changing the field of public relations. While many public relations professionals claim to be social media "experts," those who can demonstrate true expertise are rare

and much sought after. This course narrows the focus from the broad field of social media to cover the specific tools and best practices needed to conquer current and future use of social media in public relations.

Enforced Prerequisite at Enrollment: COMM 428A and COMM 428D

COMM 428F: Strategic Communications Campaign Planning

3 Credits

This is an advanced strategic communications class that covers the process and steps involved in campaign planning. Lectures and readings will cover the relevant concepts and strategies in campaign preparation. Students will have the opportunity to apply the concepts and skills and develop a communications campaign for a client. An important part of the class is the final project that students are required to put together. The class will begin by reviewing the key concepts and steps of campaign planning. It will review the tools and resources for students to conduct both primary and secondary research. Based on the research, students will develop the message and communication strategies for a comprehensive campaign. At the end of the semester, students will present the final campaign in the class.

Enforced Prerequisite at Enrollment: COMM 428A and COMM 428B and COMM 428C and COMM 428D

COMM 430: Mass Media and Politics

3 Credits

Study of mass media as institutions and the effects of the mass media on politics, public policy, and citizens. COMM 430 Mass Media and Politics (3) In Mass Media and Politics, we address issues and relations of the political realm, the media institutions, and the public sphere. Particular attention is dedicated to the influence of and coverage by both the domestic and international news media. In addition, we also examine topics such as bias in the media, women and politics, political campaigns, and advertising, ideology and hegemony, and cultural representations in the media. Of importance are notions of how and why mass media influences the national political debate, as well as what mass media exports in terms of culture and what this means to the political reality of other nations. The discussion of these issues is often couched in terms of technologies, especially emerging and traditional mass media technology systems such as convergence technologies, the World Wide Web, television, radio, and newspapers. Prerequisite: COMM 251.

Enforced Prerequisite at Enrollment: COMM 100 or COMM 251

COMM 431: Topics in Television Culture and Communication

3 Credits

Study television technologies, techniques, audiences, genres and trends in relation to a specific decades or cultural periods.

Enforced Prerequisite at Enrollment: COMM 100 and COMM 180 or permission of program.

Bachelor of Arts: Arts

COMM 432: Social Justice Media Project

3 Credits

This course is the Capstone Experience for the Communication and Social Justice Minor. The course provides students with a hands-on

experience applying skills and insights gained during the prerequisite and supporting courses. The focus of the course is the creation of an individual or group Social Justice project on a topic of the student's choosing. The course will culminate with the launch of a social justice-oriented communication campaign to promote this project and engage with a larger public.

Enforced Prerequisite at Enrollment: COMM 232 and one of the following courses: COMM 270 or COMM 282 or LA 235N

COMM 434: Movies, Media, and the Jewish American Experience

3 Credits

Study of Jewish American Film and Popular Culture. COMM (J ST) 434 Movies, Media, and the Jewish American Experience (3) The course examines film and other popular media, including theater, radio, and television, as important sources for understanding the Jewish experience and its impact on and relationship with American culture more generally since the late 19th century. Topics to be considered include US film and popular media as representations of Jewish history, culture, and experience; the role of Jews as prominent directors, producers, actors, and writers in their social-historical context; and the history and function of the representational modes and techniques used in these texts. A major emphasis of the course will be on analyzing film and other media texts as lenses to reflect, refract, and focus on Jewish American identity. By way of analyzing the interrelationships between filmic and other media texts and Jewish American experience, the course will attend to a number of key themes in Jewish cultural history, including Jewish life in late 19th-early 20th century Europe; immigrant life in turn of the century America and questions such as assimilation, preservation of tradition, family life, social mobility, and male/female relations; Jews in show business, organized crime, and sports; American Jews and the Holocaust; American Jews and Israel; Jews in the modern age; generational and denominational differences among Jews; and Jews and anti-Semitism.

Prerequisite: A previous course in Jewish Studies, Film Studies, Media Studies, Art, Music, English, or Comparative Literature.
Cross-listed with: JST 434

COMM 436: Advanced Audio Production

3 Credits

Advanced concepts and techniques of audio production in analog and digital formats with hands-on experience in recording, mixing and editing. COMM 436 Advanced Audio Production (3) This course builds on the concepts and techniques of audio production in both analog and digital formats introduced in COMM 374 and includes in-depth examination of sound theory and hands-on practice in advanced projects involving recording, mixing and editing in analog and digital formats. This course provides an understanding of technical and aesthetic aspects of advanced audio production, and provides students the opportunity to demonstrate advanced skills in recording, editing and mixing. Students gain an understanding of professional studio and field practices and develop advanced studio and field projects suitable for a portfolio.

Enforced Prerequisite at Enrollment: COMM 374

COMM 437: Advanced Documentary Production

3 Credits/Maximum of 6

Advanced exploration of documentary production techniques and aesthetics through the completion of a short video project. COMM 437 Advanced Documentary Production (3 per semester/maximum of 6) This course is designed to enable students to produce portfolio-quality work while bringing together ideas, processes, practices, and theories in the service of documentary production. Students will explore the history, conventions and theory of the documentary film form, while developing and producing a film or video work for screening at the end of the semester. Working in small crews with others from the class and using sophisticated production equipment, students will write and produce short digital video projects. Utilizing a workshop structure, class time will be focused on discussion and analysis of the challenges faced by individual productions as well as on providing the support, guidance, and critique necessary for a successful production. Particular emphasis is given to the traditions of social criticism, the creative treatment of actuality, the individual and collective points of view. The history of documentary form is illustrated by comparing the work of the American 'Direct Cinema' style embodied in the work of Drew Associates to the French 'Cinema Verite' style developed by Jean Rouch. The evolution of these styles into what we now just refer to as 'Verite' filmmaking is put into practice through a series of exercises that incorporate a variety of points of view. Analysis of the above works, as well as examples from Barbara Kopple, Errol Morris, and Frederick Wiseman, provide students with a springboard to develop their own style, vision, and personal creative voice. An examination of Bill Nichols taxonomy of non-fiction film classification further contextualizes aesthetic and theoretical issues for students. A series of lectures, discussions, readings, and screenings move students through the personal and collaborative process of documentary production.

Enforced Prerequisite at Enrollment: COMM 337 and COMM 340 and COMM 342W

COMM 437A: Advanced Documentary Production Abroad

3 Credits

Advanced exploration of documentary production techniques and aesthetics through the completion of a short video project abroad. COMM 437A Advanced Documentary Production Abroad (3) This course is designed to enable students to produce portfolio-quality work while bringing together ideas, processes, practices, and theories in the service of documentary production. Working in small crews with others from the class and using sophisticated production equipment, students will write and produce short digital video projects. While exploring the history, conventions and theory of the documentary film form, students will develop and produce a 3-9 minute video work to be filmed abroad either during the Spring Break, in the middle of Maymester or over the Thanksgiving Break (depending on the semester offered). Upon return from their time abroad, students will edit and screen their final projects. Utilizing a workshop structure, class time will be focused on discussion and analysis of the challenges faced by individual productions as well as on providing the support, guidance, and critique necessary for a successful production. Particular emphasis is given to the traditions of social criticism. The history of documentary form is illustrated by comparing the work of the American "Direct Cinema" style embodied in the work of Drew Associates to the French "Cinema Verite" style developed by Jean Rouch. The evolution of these styles into what we now just refer to as "Verite" filmmaking is put into practice through a series

of exercises that incorporate a variety of points of view. Analysis of the above works, as well as examples from Barbara Kopple, Errol Morris, and Frederick Wiseman, provide students with a springboard to develop their own style, vision, and personal creative voice. An examination of Bill Nichols taxonomy of non-fiction film classification further contextualizes aesthetic and theoretical issues for students. A series of lectures, discussions, readings, and screenings move students through the personal and collaborative process of documentary production.

Enforced Prerequisite at Enrollment: COMM 337 and COMM 340 and COMM 342W

COMM 438: Advanced Narrative Production

3 Credits/Maximum of 6

Advanced exploration of narrative production techniques and aesthetics through the completion of a short film or video project. COMM 438 Advanced Narrative Production (3 per semester/maximum of 6) This course is designed to enable students to produce portfolio-quality short projects that bring together ideas, processes, practices, and theories in the service of narrative production. Over the course of the semester, students will pursue an entire project from conception to completion through intensive pre-production, production, and post-production stages. Working in small crews composed of fellow classmates and using sophisticated production equipment, students will write and produce short digital video projects. Utilizing a workshop structure, class time will be focused on discussion and analysis of the challenges faced by individual productions, as well as providing the support, guidance, and critiques necessary for a successful production. There will be an emphasis on the thorough execution and evaluation of the steps taken toward completion of their project. As a workshop, specific topics pertaining to the three stages of production will be reviewed as necessary. Students will be expected to hand in a pre-production packet (budget, schedule, script breakdown and lined script) before proceeding to the production phase.

Enforced Prerequisite at Enrollment: COMM 338 and COMM 340 and COMM 342W

COMM 439: Advanced Alternative Production

3 Credits/Maximum of 6

COMM 439 Advanced Alternative Production (3) is a senior level course focusing on the development and expression of the individual filmmaker. The emphasis of the course is on exploring the history, conventions and modes that surround the experimental and animation film forms and using this knowledge in creating work that challenges conventions of mainstream media. The course involves viewing works of classic and contemporary alternative media, discussing its contribution or value in communications, and using these examples as models for exploration. Utilizing a workshop structure, class time will be focused on discussion and analysis of the challenges faced by individual productions, as well as on providing the support, guidance, and critique necessary for a successful production. There will be an emphasis on the thorough execution and evaluation of the steps taken toward completion of their project. This course assumes a working knowledge of intermediate film and video production and post-production techniques. Additional production and post-production techniques may be introduced based on the students' interest.

Enforced Prerequisite at Enrollment: COMM 339 and COMM 340 and COMM 342W

COMM 440: Advanced Cinematography and Lighting Techniques

3 Credits

Advanced exploration in camera, lighting, audio, and color-grading techniques, emphasizing technical skills as well as aesthetics. COMM 440 Advanced Cinematography and Lighting Techniques (3) This course is a comprehensive approach to techniques, equipment and procedures of film and video production with an emphasis on both practical skills and aesthetics. The course is divided into four sections that will employ a combination of lectures and workshops in camera, lighting, audio and color grading. The course will focus on understanding the theory and procedures underlying dynamic composition, visual and psychological perspective, practical and emotive lighting and sound, color, and the conveyance of meaning through color and continuity. In addition, students will learn accepted procedures in care and use of film and video cameras, sound recording equipment, lighting and grip gear, as well as proper organization, media storage and maintenance techniques specific to post-production. Students will work individually and collaboratively to produce projects for critique and evaluation. The emphasis of the course is on the artistic and technical aspects that allow an idea to be cinematically realized on celluloid and/or a suitable digital format. The course involves viewing the work of outstanding, established cinematographers and videographers in great detail, and assessing their contributions to film aesthetics and history through the detailed, direct analysis of film excerpts and sequences from landmark films and video work, and the discussion of assigned reading materials on both film and video technique. Students then work in specific film and video production positions to reproduce precisely scenes from the films analyzed. By doing so, students will develop an understanding of the technology and artistic vision used in film and video production so that they may be better prepared to successfully create challenging and thought-provoking projects. In addition, this course also allows for an exploration and comparison of the ever-changing technology used in film and video production. Through this direct use of multiple visual and audio formats, students will discover the creative advantages and disadvantages of various media used to fulfill their artistic vision. COMM 440 is a support course for the senior level production courses. Student cinematographers in COMM 448 (Adv. Production for Groups) are strongly encouraged to take this course concurrently. It can also be taken as an elective technique course in conjunction with any of the one-semester mode specific advanced production courses (COMM 437, COMM 438, or COMM 439).

Enforced Prerequisite at Enrollment: COMM 340 and COMM 342 and (COMM 337 or COMM 338 or COMM 339)

COMM 441: Advanced Graphic Design for Communications

3 Credits

Theory and practice designing graphic visual communication in commercial, non-commercial, and fine art formats for print and on-line media. COMM 441 Advanced Graphic Design (3) An advanced examination of graphic design. Students develop proficiencies in the art, craft, formats, and vocabulary of commercial graphic design by creating original work in a series of hands-on projects. During the semester, students learn to research, organize, and interpret verbal and visual information and to solve increasingly complex communication problems. They will further refine their creative problem solving and collaborative production skills. By semester end, students will have begun

to develop their own styles and are able to verbally articulate it to others. Assignments generally include topics such as interactive media design, animation, advertising design, and infographic design.

Enforced Prerequisite at Enrollment: COMM 241 or COMM 371

COMM 443: Producing Workshop

3 Credits

This course will immerse students in the language and practice of producing film and video projects. COMM 443 Producing Workshop (3) Through a combination of lecture, readings, screenings, and practical exercises, students will learn the fundamental producing skills needed to begin to understand creative producing in an increasingly complex global marketplace. Producing students will learn how to bring stories all the way from development through post-production and beyond. Students will be afforded an opportunity to develop their creative voices, all the while developing their communication and problem-solving skills. The course will follow a standard production timeline starting with pre-production topics such as the basics of pitching, script development, and financing. The second portion of the class will focus on production issues particularly as they apply to independent film production. This will include line producing and production management, including scheduling/budgeting, script breakdowns, assembling talent and crew, location scouting, and running a set. Finally post-production and distribution topics will be addressed including discussions of trends from major trade publications that impact the industry. Throughout the semester students will complete practical exercises that will help build their skills at translating a script into a realized project with a minimum budget and maximum production value. COMM 443 is a support course for the senior level capstone production courses. Student producers in COMM 448 (Adv. Production for Groups) are strongly encouraged to take this course concurrently. It can also be taken as an elective technique course in conjunction with any of the one-semester mode specific advanced production courses (COMM 437, COMM 438, or COMM 439). The prerequisites are in place to ensure students have the necessary production background taught in the intermediate-level courses.

Enforced Prerequisite at Enrollment: COMM 340 and COMM 342 and (COMM 337 or COMM 338 or COMM 339)

COMM 444: Advanced Post-Production Techniques

3 Credits

This course offers intensive practical experience in editing, motion graphics and sound mixing techniques, emphasizing both technical skills and aesthetics. COMM 444 Advanced Post-Production Techniques (3) Through a combination of lectures, readings, screenings, and practical exercises, students will learn advanced post-production techniques needed to produce high quality finished film and video pieces. The course includes modules on the theory and aesthetics of editing, motion graphics, visual effects, 2D animation, audio signal processing and audio mixing. The course will enable students to develop creative skills for translating ideas into short films and to serve as post-production support for senior level productions. Specific design strategies and approaches will be discussed. Students will also be required to demonstrate competence in a variety of digital graphics programs. Throughout the semester students will work individually and collaboratively on practical exercises for critique and evaluation, developing technical, analytical and critical skills. The course is divided into three sections. In the first section students will focus on the procedures for successful post-production supervision and workflow management, including an exploration of

accepted professional practices of editing departments. Students will explore advanced methods of picture editing in all modes and will edit and critique a professionally produced scene. In the second section of the course, students will work on graphics, animation and special effects procedures generally accepted as part of film-video post-production processes. The focus will be on techniques that translate to a variety of software and work environments; including manipulation of picture and text, light and color effects, compositing of multiple images and manipulation thereof. The third section of the course will focus on the practice of preparing elements for a professional audio mix and use of advanced digital audio workstations. This section will feature a discussion of the theory and practice of how tracks are organized, advanced psychoacoustics and signal processing, preparing a multi-track project for mix, and completion of a mixed sound design project.

Enforced Prerequisite at Enrollment: COMM 340 and COMM 342 and (COMM 337 or COMM 338 or COMM 339)

COMM 445: Directing Workshop

3 Credits

An advanced aesthetic and skill production course in directing for the screen. COMM 445 Directing Workshop (3) This course is an advanced aesthetic and skill production course in directing for the screen. The class is designed to introduce more advanced directing concepts and techniques as well as to more deeply explore the collaborative processes of working with a creative team on effectively integrating the aesthetics of cinematography, production design and acting performance in film narrative. The first section of the course will focus on understanding the actor's preparation and process with the goal of developing the appropriate and effective communications skills to coach performance. Students will thoroughly explore scenes for interpretation of subtext and motive, and will learn accepted practices of script preparation. Casting and audition styles will be investigated and demonstrated, as will various types of rehearsal techniques. At the end of this section students will workshop a scene in a small group, blocking it and executing it to illustrate concepts of character relationships, stage and camera craft to produce a short scene for discussion and critique. The second section of the course will be an advanced aesthetic exploration of the visual vocabulary, including cinematic, psychological and fine art concepts that contribute to the planning and design of screen direction. Students will then analyze the technical means to execute this aesthetic vision through production design, lighting and composition. In practice the students will then translate this analysis into a working scene plan and will produce a short scene for discussion and critique. Students will also be introduced to professional practices such as location and studio set protocols and on-set safety procedures. The third section of the course will explore narrative conventions and their relationship to screen genres in the interest of understanding the film language shared between filmmaker and audience. At the end of the section students will produce a short classic scene with an alternative interpretation for discussion and critique.

Enforced Prerequisite at Enrollment: COMM 340 and COMM 342 and (COMM 337 or COMM 338 or COMM 339)

COMM 446: Writing for the Screen II

3 Credits

An advanced course in screenwriting that further develops elements of storytelling technique.

Enforced Prerequisite at Enrollment: COMM 346

COMM 448: Advanced Group Production I

3 Credits

COMM 448 Advanced Group Production I (3) is designed to enable students to produce portfolio-quality work in any production mode (alternative, documentary, narrative) and to bring together ideas, processes, practices, and theories in the service of this production. Over the course of the semester, students will engage in intensive pre-production and production of an approved film or video project. Utilizing a workshop structure, class time will be focused on discussion and analysis of the challenges faced by collaborative productions as well as providing the support, guidance, and critique necessary for a successful production. There will be an emphasis on the thorough execution of every step of pre-production, principal photography, and preparation for post-production in spring semester. Students will fill a single production role (such as producer, director, cinematographer, sound designer, editor) throughout the two semesters and are strongly encouraged to take concurrently the supporting technique course for that production role. Students will be assigned individual exercises specific to their production role in addition to the collaborative work of the project's production. Production groups will be formed the first week of class. The first part of the semester is devoted to the development of the projects and pre-production. Roughly half way through the semester, the projects will begin production, with shooting and editing to be completed the following semester.

Enforced Prerequisite at Enrollment: COMM 340 and COMM 342 and (COMM 337 or COMM 338 or COMM 339)

COMM 449: Advanced Group Production II

3 Credits

Continuation of advanced production course emphasizing intensive collaborative film-video production from script through post-production. COMM 449 Advanced Film and Video Projects (3) This course is the second half of a two-semester production course designed to enable students to produce portfolio-quality work in any production mode and to bring together ideas, processes, practices, and theories in the service of this production. Students from the fall semester will complete production and engage in intensive post-production in order to have a high-quality finished project to submit to film festivals by the end of the semester. Utilizing a workshop structure, class time will be focused on discussion and analysis of the challenges faced by individual productions as well as providing the support, guidance, and critique necessary for a successfully completed project. Students will continue in the same production role (producer, director, cinematographer, sound designer, editor) from the fall semester, learning new skills for their role in the post-production phase. Students will be assigned individual exercises specific to their production role in addition to the collaborative work of the project's production. It is expected that all production group members will continue into the spring as well.

Enforced Prerequisite at Enrollment: COMM 448

COMM 450: Digital Advertising

3 Credits

Digital advertising has transformed many industry activities related to buying and delivering advertising. Information technology and big data have revolutionized the way media and content providers interact

and negotiate with advertisers, agencies and third parties. This course will explore the digital advertising and media ecosystem, identify key players and trends, and review performance analysis and evaluation. Particular attention will be paid to sources, management, storage, analysis and visualization of data. Trends in industry regulation and ethics will be explored. This includes ad industry selfregulation and data privacy regulations. The implications of big data and artificial intelligence on industry ethics is discussed.

Enforced Prerequisite at Enrollment: COMM 310 or IST 310 or COMM 422
Cross-listed with: IST 450

COMM 450A: Digital Campaigns

3 Credits/Maximum of 3

This project-oriented course provides students with the knowledge and skills necessary to conduct sponsored advertising-based marketing campaigns. This course offers students an opportunity to gain knowledge and hands-on experience on sponsored search and email advertising. Strategies for developing successful digital advertising campaigns will be discussed, including qualifying and researching clients, account and campaign structure, identifying and organizing keywords, bidding strategies and budgeting, and targeting approaches (including geo, time-based, audience, content and domain targeting), and conversion tagging, tracking and attribution. Students will earn certifications for Google Search and Display, and gain experience with the Google Ads platform, including use of the keyword planning tool, setting up campaigns, ad groups and keywords, writing text and display ad copy, and applying proper settings at the account, campaign, ad group and ad levels. Finally, students will learn important principles for landing page design and become proficient building professional landing pages. Students cannot earn credit for both COMM 450A and MKTG 473.

Enforced Prerequisite at Enrollment: COMM 450 or IST 450

Cross-listed with: IST 450A

COMM 451: Topics in American Film

3 Credits/Maximum of 6

Critical and historical studies of American films. Analysis of directing, cinematography, editing, screenwriting, and acting.

Enforced Prerequisite at Enrollment: COMM 250

Cross-listed with: AMST 451

COMM 452: Topics in International Cinema

3 Credits/Maximum of 6

Critical and historical studies of topics in non-American film. Analysis of theory, direction, cinematography, editing, and screenwriting.

Enforced Prerequisite at Enrollment: COMM 250

COMM 453: Narrative Theory: Film and Literature

3 Credits

This course explores the relationships between language and the medium of film through analysis of adaptations between other mediums and the cinema, and by analysis of the influences between the discourses of literature(s) and the cinema. The course has broad applicability not only to students of literature and students of the cinema, but to all students who need to understand ways to compare relationships

between disparate communications and artistic media. Students begin by understanding techniques and theories of both cinematic and literary analysis. Then, they explore theories of adaptation between media, including general theories of artistic and cultural influence. Among the media students may encounter in addition to literary fiction and narrative cinema are the graphic novel, creative nonfiction, drama, poetry, journalism, video games, the documentary cinema, and the experimental cinema. Students work through case studies of adaptation in literal terms, such as the transformation of graphic novels into narrative cinema. Students also work through case studies in influence, in which distinct art and media discourses affect one another, as in the relationship between videogames and the cinema. Students study transmedia storytelling, in which core narratives are expressed in different media. Students also study transcultural and transnational storytelling, in which adaptation and influence are conducted across borders. Students study questions of representation, particularly of difference (race, class, sexuality/gender) and cultural specificity. Students learn the historical and institutional settings which have conditioned these intermediations. The economics of literary and media production and the circumstances of reception of distinct media are explored. Students will experience classical and non-classical forms of storytelling, as well as fictional and non-fictional discourses. In this course, students will meet ancillary concerns in adaptation, such as translation, dramaturgy, and genre scholarship. Students express their individual conclusions in summary projects which apply theory to particular instances of adaptation and influence between media. These projects may include creative work, and multimedia texts which enact as well as analyze adaptation. As advanced scholars in the disciplines of literary and cinematic studies, students are expected to synthesize previous learning in these fields in their summary projects.

Enforced Prerequisite at Enrollment: COMM 150 or ENGL 15 or ENGL 30H or ENGL 137H or CAS 137H

Cross-listed with: CMLIT 453

Bachelor of Arts: Humanities
International Cultures (IL)

COMM 454: Documentary in Film and Television

3 Credits/Maximum of 6

Study of representative films from various documentary movements, examining form, technique, trends, and audience objectives.

Enforced Prerequisite at Enrollment: Fourth Semester Standing

COMM 455: Advanced Film Theory and Criticism

3 Credits/Maximum of 6

Description: This capstone course builds upon scholarly ideas and experiences in COMM 150 to familiarize the student with various theories of film, and their application to specific films and categories of films. This course requires media studies and film/video majors to develop the ability to perform criticism: that is, to select among philosophical, analytical, and rhetorical tools those which best fit the goals of a specific critical engagement with a media text, and to execute this criticism in a manner that will be persuasive to readers, listeners, and/or viewers. Because this extended critical and evaluative act is fundamental to both the study and making of media, this course is designed to have broad applicability to a variety of media-based professions. Among the concepts students will engage in this course are: neoformalism, semiotics, auteurism/authorship, genre theory, feminist film theory, theories of difference (including race, class, and sexuality/gender),

theories of national and transnational cinema, cultural history, realist and montage theories, behavioral studies, psychoanalytic and apparatus theory, reception studies, political economic and convergence theories of the cinema, and theories of the digital in cinema. Students will engage a selection of film styles: narrative, documentary, experimental, and animation; silent and sound, national and international. Students will analyze the cinema as an art form, and as a mass communications medium. Students will also gain knowledge of the history of theory and the history of criticism in the cinematic medium. During the course of their semester's work, students will use the tools of reading, discussion/presentation, analysis, examination, and particularly writing to develop performative skills in criticism. Students are expected to become proficient in the practice of criticism, as well as understanding the principles of criticism. In their summary work in this course, students apply the theories they have learned to cinema in various ways: in group projects, in individual research papers, or through multimedia and digital scholarship settings. Students are expected to demonstrate a synthesis of ideas and experiences from previous course work in cinema studies and media studies. In some iterations of this course, students will address a single overarching topic, such as "Authorship and the Cinema," through which the broad learning objectives and capstone nature of the course will be realized.

Enforced Prerequisite at Enrollment: COMM 250 or COMM 333

COMM 456: Media Criticism and Theory

3 Credits

Critical and theoretical approaches to the analysis of media and communication. To what extent does media (television, movies, print, radio, Internet, etc.) shape our awareness of not only the world around us but also ourselves as thinking human beings? Is it all a matter of perception and relative exposure to these media? How do we approach everyday interfaces with the immense number of media messages in both public and private spaces? Where do our opinions of the validity of both the informational and the aesthetic standards of media messages come from? In this course, we attempt to come to terms with the rise and apparent predominance of media as a dominant cultural institution.

Enforced Prerequisite at Enrollment: COMM 251 Enforced Corequisite at Enrollment: 5th Semester standing

COMM 457: Media Audiences and Contexts

3 Credits

Survey of the ways media attempt to influence audience reception and how audiences hold sway over media content. COMM 457 Media Audiences and Contexts (3) The course begins with an examination of how the mass audience is conceived as a statistical entity by analyzing quantitative methods such as the Nielsen ratings. Much of the course is then spent interrogating how this statistical information is used and by whom. If the audience is created as a commodity and is sold to advertisers, what ethical guidelines are in place? How do audience profiles influence the programs we see and consume? As media become more and more fragmented, how does the problem of audience as a commodity get resolved? Students utilize a case-study approach to explore a variety of audience problems and present their findings in papers, demonstrations, and exhibitions.

Enforced Prerequisite at Enrollment: COMM 100 or COMM 251.

COMM 458: Media Law and Ethics

3 Credits

The study and practice of key issues in media law and ethics, including libel law, conflict of interest, truth in advertising. COMM 458 Media Law and Ethics (3) An examination of the role of the mass media in American society in regard to the rights, responsibilities, and duties of practicing media professionals. The semester is almost evenly divided between law and ethics topics. Students examine current laws in mass media with the goal of preparing them to be lawful and responsible members of the profession. Law topics include defamation, privacy, intellectual property and protection of anonymous sources. Students also get an introduction to ethical theories and their practical applications in media industries. Topics include journalistic responsibilities, objectivity, conflicts of interest, invasion of privacy, and the ethics of persuasion and entertainment.

Enforced Prerequisite at Enrollment: COMM 100 or COMM 251.

COMM 459: Cultural Effects of Interactive and Online Media

3 Credits

Study of the global social impact and rhetorical limitations of converging media, emphasizing cross-cultural media influences. COMM 459 Cultural Effects of Interactive and Online Media (3) An examination of the various effects of digital media on society and culture. The nature of digital media affects content and production, the way people use media, and social interaction. Topics include convergence, the information society, the global village, and the various changes in the ways media producers do their work. Various aspects of changes including philosophical, economical, and political are examined with the goal of helping students understand how to prepare for future changes in media industries.

Enforced Prerequisite at Enrollment: COMM 251

COMM 460W: Reporting Methods

3 Credits

Techniques in reporting news and trends at the local, regional, and county levels. Emphasis on both deadline and interpretive reporting.

Enforced Prerequisite at Enrollment: COMM 260W
Writing Across the Curriculum

COMM 461: Magazine Writing

3 Credits/Maximum of 6

Students will learn about idea conception, writing, and editing of magazine stories. COMM 461 Magazine Writing (3 per semester/maximum of 6) Students will learn about idea conception, writing, and editing of magazine stories. They will walk through the idea process, including how to pitch their ideas to editors. They will learn about research and reporting for stories, and then begin the process of organizing and writing their material. They will write stories and then work with editors to rewrite and improve the story for publication.

Enforced Prerequisite at Enrollment: COMM 260W

COMM 461A: Digital Magazine Production

3 Credits/Maximum of 6

Students will be expected to develop a coherent editorial voice that will engage and educate their identified target audience. This voice will be embodied in a regularly updated web site which will be monitored and improved by a student team. Students will also be expected to manage a coordinated professional social media campaign to expand the reach of the publication well beyond the classroom. The structures in place can easily accommodate students from various campuses. This will allow easily for a diversity of content within a common enterprise.

Prerequisites: COMM 100; COMM 271; LA 101

COMM 462: Feature Writing

3 Credits

Reporting and writing the human interest article for newspapers and magazines. COMM 462 Feature Writing (3) COMM 462 teaches the fundamentals of reporting and writing feature stories for newspapers and magazines. Students learn reporting and writing techniques for various types of feature stories. The course emphasizes the development of sound journalistic judgment and proper ethical standards. Students write various types of features stories.

Enforced Prerequisite at Enrollment: COMM 260W

COMM 463: Newspaper Design

3 Credits

This course will cover newspaper design. Students will learn to solve design problems, edit photos, and work with industry software. COMM 463 Newspaper Design (3) This upper-division course will cover contemporary design theory, grid systems, typography, color and photography as they pertain to newspapers. Students will develop skills necessary to solve design problems associated with the editing process. Students will also learn to use photo editing and page layout software.

Enforced Prerequisite at Enrollment: COMM 260W

COMM 464W: Editorial, Opinion and Commentary Writing

3 Credits

Introduces techniques of editorial, opinion and commentary writing. COMM 464W Editorial, Opinion and Commentary Writing teaches the fundamentals of writing editorial, opinion and commentary articles. Students learn the techniques of gathering information and writing various types of opinion articles. The course emphasizes the development of sound journalistic judgment and proper ethical standards. Students write various types of opinion articles.

Enforced Prerequisite at Enrollment: COMM 260W
Writing Across the Curriculum

COMM 465: Television Reporting

3 Credits

Television news reporting and production. COMM 465 Television Reporting (3) COMM 465 provides an introduction to television news reporting and production. Students learn the techniques of reporting and writing news for television. They also learn the audio and video techniques required to produce television news stories. The course

emphasizes the development of sound news judgment and proper ethical standards. Students complete actual news assignments.

Enforced Prerequisite at Enrollment: COMM 360

COMM 466: Public Affairs Broadcasting

3 Credits

Students research, write, produce and direct public affairs shows and in-depth reports. COMM 466 Public Affairs Broadcasting (3) This is an advanced field production and reporting course focusing on the exploration of timely public affairs issues on the local, state and national level. Students learn to research a topic, conduct effective television interviews in the field, and produce in-depth reports with emphasis on solid broadcast writing, visual storytelling, editing, fairness, balance and accuracy.

Enforced Prerequisite at Enrollment: COMM 465

COMM 467: News Editing and Evaluation

3 Credits

Concepts and procedures involved in processing news for various news media, but with emphasis on print media editing. COMM 467 News Editing and Evaluation (3) The goal of the course is to qualify the student to be a proficient newspaper copy editor. These skills can be easily transferred to editing assignments on a Web site, in magazines and other publications, in broadcasting, and in public relations. Even if the student does not intend to become a copy editor, the course should help him or her do a better job of writing. The course emphasizes editing for accuracy, clarity, precision in language, and fairness of content. Students will learn about evaluating the relative importance of news and writing headlines, captions and other display elements. The course familiarizes the student with editing photographs and graphics and designing a newspaper page. Skill in editing is particularly important to the student majoring in print journalism. It is useful to anyone who regularly works with words. The student is evaluated through written work (editing copy, writing headlines and captions) and through quizzes, examinations, or other methods the instructor chooses to assess a familiarity with the theory and principles of the course. Because students need an opportunity to practice their skills under supervision, the course must be taught in a laboratory setting in which each student has access to a computer connected to the Internet. COMM 260 is a prerequisite. COMM 467 builds on the student's understanding of reporting and news writing techniques by teaching rigor in the use of language.

Enforced Prerequisite at Enrollment: COMM 260W

COMM 468: Graphic Applications in Print Communications

3 Credits

Issues, concepts, and practice identified with contemporary design strategies for print journalism, advertising, and public relations.

Enforced Prerequisite at Enrollment: COMM 260W or COMM 320

COMM 469: Photography for the Mass Media

3 Credits

Development of an informed and critical approach to photocommunication; individual and team projects, seminars, and critiques.

Enforced Prerequisite at Enrollment: COMM 269

COMM 470A: Convergent Media News Service: Newspaper Production

3 Credits

Practicum emphasizing newsgathering and reporting for newspaper and for additional media formats.

Enforced Prerequisite at Enrollment: COMM 260W

COMM 470B: Convergent Media News Service: TV

3 Credits

Practicum emphasizing television news package production for periodic campus news program and for additional media formats. Students must have completed COMM 260W and (COMM 242 or COMM 282) or receive permission from the program before enrolling in COMM 470B. Please complete the Prerequisite Override Form to request permission from the program to override a prerequisite and enroll in the course.

Enforced Prerequisite at Enrollment: COMM 260W and (COMM 242 or COMM 282)

COMM 470C: Convergent Media News Service: Radio and Online Publications

3 Credits

The digital revolution and cross media ownership has challenged all areas of communications, especially the electronic and print news media. Most media outlets now have an online presence along with their traditional operations. Increasingly news outlets are producing news packages for more than one media outlet, which can include online production of breaking news reports presented with text, images, movies and/or sound bites. Currently students preparing for news careers must have traditional news skills across media along with multimedia computer-based skills to develop versatility in reporting and production. This practicum in streaming radio and online news provides opportunities to produce pieces for streaming radio and online publications and also to reformat these pieces for other media outlets such as the newspaper or television. It will also give students the opportunity to produce news pieces suitable for a cross-media portfolio. Students must have completed COMM 260W and (COMM 270 or COMM 374) or receive permission from the program before enrolling in COMM 470C. Please complete the Prerequisite Override Form to request permission from the program to override a prerequisite and enroll in the course.

Enforced Prerequisite at Enrollment: COMM 260W and (COMM 270 or COMM 374)

COMM 471: Public Relations Media and Methods

3 Credits

Analyzing media and audiences for public relations purposes; planning, designing, and writing public relations communications; press relations and publicity methods. COMM 471 Public Relations Media and Methods

(3) COMM 471 introduces students to the methods used in public relations to generate news media coverage for organizations and individuals. The public relations practitioner must understand the goals of the client organization and its publics to establish effective and ethical communication between them. This course focuses on writing and is designed to assist students in developing and improving professional writing skills for public relations practice, in many forms and for a wide variety of media. Students will learn the importance of different writing approaches required for specific publics and news media organizations. In this course students learn to: (1) locate, read, and evaluate research materials; (2) develop clear, concise program objectives based on the organizations' or clients' goals and the results of their research; (3) determine materials that need to be developed and written to achieve the program objectives; (4) develop newsworthy story ideas; (5) write clear, concise copy that is accurate and logically organized; (6) write in a variety of formats commonly used in public relations practice, including: pitch letters, news releases, position papers, backgrounders, public service announcements; and (7) design media kits.

Enforced Prerequisite at Enrollment: COMM 260W and COMM 370

COMM 472: Public Relations Event Planning

3 Credits

Effective planning, organization, implementation and evaluation of events planning. COMM 472 Public Relations Events Planning (3) This course links the public relations theories and practices with skills and techniques required for effective events planning. Students will build on their understanding of public relations introduced in COMM 370 by working on projects that are designed to help them to develop skills in conceptualizing public relations events, designing events, selecting sites, analyzing audiences, budgeting, and promoting/marketing. Students will gain experience in event conceptualization and implementation through in-class exercises and discussions, and public events projects. These assignments will provide students the opportunity to develop portfolio materials.

Enforced Prerequisite at Enrollment: COMM 370

COMM 473: Public Relations Campaigns

3 Credits

Case studies and problems in publicity and public relations in industry, government, and institutions. COMM 473 Public Relations Problems (3) This capstone course in the public relations major is designed to provide the student with the opportunity to develop a comprehensive public relations/marketing communications campaign plan based on the four-step process of public relations programming. Those steps include formative research, objectives, programming, and evaluative research. Initially, students will critically analyze award-winning public relations problems, cases, and programs that will provide a foundation for understanding the public relations planning process. Students will be introduced to public relations and communications theories that provide the foundation for excellence in program development. The public relations campaign plan will be developed from the analysis of primary and secondary research sources. The campaign plan will begin with a situation analysis that includes the client's historical, financial, and competitive position in the marketplace. Previous public relations, advertising, and marketing communications programs will be reviewed and evaluated. Additional secondary research will include a content analysis of the client's news media coverage as well as an analysis of the psychographic and demographic profiles of previously targeted publics.

Account teams will design and conduct surveys and focus groups as part of the formative research required in setting the program objectives, strategies, and tactics. The public relations plan will require the development of a media plan, media objectives, production timetable, and budget for implementing the program objectives, strategies, and tactics. Students will apply their critical thinking skills and creative abilities to design and produce communication executions that will communicate the program message to the targeted publics. Those creative abilities include a working knowledge of writing, desktop publishing, photography, and graphic communication. The final phase of the public relations/marketing communications plan will include the design of evaluative research to measure the effectiveness of the program objectives. Those research methods will include content analysis, survey research, and focus groups. Students will work in account teams where each team will be responsible for developing a public relations counseling firm, where team members will produce a firm manual outlining the firm's mission statement, organizational policies, organizational chart, records of all meetings with clients, records of all firm meetings, time sheets for each firm member, a weekly summary of firm activities, project budget reports, bi-weekly evaluations of firm members, and a client presentation plan. The final public relations plan will be presented to the client for evaluation and critique. The final goal of the course is to provide students with the technical and managerial knowledge and experience required for effective public relations program design and implementation.

Enforced Prerequisite at Enrollment: COMM 370 and COMM 420 and COMM 471

COMM 474: Depth Reporting

3 Credits

Exploration of strategies for developing indepth newspaper or magazine articles, with an emphasis on gathering information and long-form writing. COMM 474 Depth Reporting (3) This is an upper-level undergraduate course designed to prepare students for writing in-depth newspaper or magazine articles, which extends beyond the basics of writing and reporting techniques emphasized in courses such as News Writing and Reporting, Reporting Methods, and the Feature Article. Depth stories are comprehensive accounts that go well beyond a basic news story or feature. An emphasis on longer, more comprehensive stories that require extensive research and interviews gives students an opportunity to be more than technicians following a rigid set of journalistic guidelines or principles. Depth stories require journalists to spend days, weeks or months exploring and investigating a topic and writing a lengthy story that must be cemented with effective transitions.

Enforced Prerequisite at Enrollment: COMM 260W

COMM 476: Sports Writing

3 Credits

Techniques in sports reporting and writing for media. COMM 476 Sports Writing (3) This is an upper-level course designed to prepare students to write sports stories for news outlets. These specialized stories - including contest coverage, analysis, columns, enterprisers, profiles, and sidebars - require skills that go beyond those taught in classes such as News Writing. As the popularity of high-school, college, and professional sports grows, the sports section has become one of the most widely read sections of newspapers. Many magazines as well cover a variety of sports. Modern sports writing requires sportswriters to not only attend games and interview coaches, but also to use statistics, profile sports figures, and explore trends in sports industry. Through a variety of

story assignments, the course provides students with the skills that will prepare them for the demands of being modern sportswriters. The course grounds them in the ethical principles that all journalists must follow.

Enforced Prerequisite at Enrollment: COMM 260W

COMM 477: Sports Broadcasting

3 Credits

Techniques of sports broadcasting for radio and television. COMM 477 Sports Broadcasting (3) This is an upper-level course designed to prepare students to broadcast sports events and news. These specialized broadcasts - including play-by-play, studio sportscasts, field reporting, and features - requires myriad skills that go beyond those taught in classes such as Broadcast Journalism I (Radio News Reporting) and Broadcast Journalism II (Television News Reporting). As the popularity of high-school, college, and professional sports has exploded, sports shows have become some of the most popular on radio and television. Myriad networks and shows are devoted to sports coverage exclusively. But increasingly knowledgeable sports viewers demand more from sports broadcasters than game coverage and opinion pieces. Modern sports broadcasting requires journalists to not only attend games and interview coaches, but also to use statistics, profile sports figures, and explore trends in sports. Through a variety of story assignments, the course will give students the experience that will prepare them for the demands of being modern sports broadcasters. And it will ground them in the ethical principles that all journalists must follow.

Enforced Prerequisite at Enrollment: COMM 260W and COMM 360

COMM 478: Sports Information

3 Credits

Techniques of effective media relations used in a sports information office. COMM 478 Sports Information (3) This is an upper-level course designed to prepare students for a specialized form of modern media relations, sports information. Sports information professionals combine skills of both journalists and public relations specialists, so the advanced techniques go beyond those taught in introductory classes such as News Writing and Public Relations Methods. As the popularity of high-school, college, and professional sports has exploded, sports information professionals have increasing demands put on them. More and more journalists, working for a variety of publications and broadcasts, cover sports today. Moreover, the growing complexities of modern sports - from the impact of drugs to the enormous salaries of many athletes - means that sports information professionals have to provide more than simple information on athletes, coaches and sporting contest. Through a variety of assignments, the course will provide students with the experience that will prepare them for the demands of being sports information professionals. And it will ground them in the ethical principles that all media relations specialists must follow.

Enforced Prerequisite at Enrollment: COMM 260W

COMM 479: Telecommunication Economics

3 Credits

Economic, regulatory/business issues in the design/operation of large-scale telecommunication networks such as telephone, cable, wireless, and computer networks. COMM 479 Telecommunications Economics (3) The objective of the course is to help students understand the economic, regulatory, and business aspects of the physical infrastructures

underlying modern telecommunications. We will discuss the large-scale technological systems such as telephone, cable, wireless and computer networks over which media and telecommunications services are delivered today. We will not be discussing the content offered over telecommunications networks as much as the infrastructures themselves: the conduits over which information is delivered to the home and the workplace. With technological convergence and regulatory changes, telephone, cable and wireless networks have acquired the capability to provide services earlier reserved exclusively for one or the other network. For example, we can now access telephone services over wireless networks or over the Internet. Similarly, Web content is available with the traditional telephone modem, as well as over cable, wireless and even satellite networks. In the not too distant future, it may become more meaningful to talk in terms of consumer network to a broadband conduit for all types of content, rather than to particular services such as cable television or long-distance telephony. It thus becomes necessary for those who wish to participate in the telecommunications industry of the future to have a clear understanding of the way large-scale telecommunications infrastructures are put together and operated. Existing courses in the telecommunications curriculum provide instruction in the technology and content aspects of the media and telecommunications industries. The proposed course will complement these existing courses by focusing on the economic, regulatory and business aspects of large-scale networks, in a historical and policy context. What are the mechanisms by which large-scale telecommunications systems such as telephone, cable, wireless and computer networks are deployed over time? What are the costs involved in the initial deployment and expansion, and how do they influence policy? How do planners evaluate and choose between alternative technologies of delivering services? What are the economic justifications for and against government regulation of networked technologies? How do companies charge for services provided over networked systems? What problems do we face as more and more services—such as real-time gaming and interactive television—are added to telecommunications networks, and what are some of the current proposals to solve these problems? These are some of the questions that will be discussed in class.

Enforced Prerequisite at Enrollment: COMM 180 and COMM 380 or permission of the program.

COMM 480: Television News

6 Credits

Produce a weekly television newscast. COMM 480 Television News (6) COMM 480-Television News will help prepare students for a career in television newscast content, presentation and production with a strong multimedia component. Students will gain experience in all aspects of producing a newscast. The class will meet Mondays and Fridays, but they will be expected to produce content on a daily basis, whenever and wherever stories in Centre County happen. After a few weeks of training, we will produce the Centre County Report each week with elements BOTH ONAIR and ONLINE. This is NOT a newscast focusing only on Penn State activities. Students must be prepared to produce a newscast that informs the larger audience of Central Pennsylvania. COMM 480 needs the best students to produce the Centre County Report. Students will primarily serve as the news-editorial side of the newscast (anchors, reporters, sports, producers and some in-field photojournalists and studio camera operation) or as the technical team (director, technical director, audio, graphics, studio camera operator AND field production/photojournalists). By the end of this course, students will have the skill set to: 1. Pursue a career in television news 2. Write solid television news scripts 3. Enhance your storytelling ability 4. Enhance your ability to produce and technically

support a newscast 5. Understand the importance of multimedia 6. Produce an effective resume tape

Enforced Prerequisite at Enrollment: COMM 465

COMM 481: Advanced Multimedia Production

3 Credits

Advanced work in multimedia production using web authoring, video editing, audio editing, image editing and animation software. COMM 481 Advanced Multimedia Production (3) This course builds on the foundations of multimedia production developed in COMM 270 giving students the opportunities to create multimedia website projects. Students will apply advanced multimedia concepts and techniques to website production and demonstrate versatility in multimedia software. Working individually and in teams, students will develop projects for clients using multimedia software, including web authoring, video editing, audio editing, image editing and animation software. These projects will be uploaded to the World Wide Web, and will serve as portfolio materials for the students. This course emphasizes skills development in multimedia and visual media in support of program objective to help students develop cross-media skills and versatility in media.

Enforced Prerequisite at Enrollment: COMM 465 or COMM 269

COMM 482: Brand Storytelling

3 Credits

This course, in conjunction with the Penn State Office of Strategic Communications or other non-profit groups will teach students how to combine advanced production skills and advanced branding knowledge with social media strategies and brand storytelling techniques to engage and inspire a target audience. COMM 482, through a combination of advanced production workshops, lectures, exercises and assignments students will learn how to create engaging digital content that helps deliver a specific brand message. Students will work directly with a client to develop a semester-long storytelling project. This collaboration will span the entire production process to ensure that the creative vision of the students aligns with the needs of the client. By participating in advanced production workshops, students will be expected to learn how to use professional quality production equipment. They will learn how lens selection and lighting can impact storytelling. Students will interact with creative professionals to understand how brand identity and messaging will impact their assignments. Students will gain hands on experience working in a client driven environment. They will be expected to develop a creative pre-production plan, successfully pitch that plan to a client and produce and deliver a professional quality multi-media project. During this process students will learn advanced branding techniques. They will learn how social media and digital platforms are utilized to reach the desired groups and they will be expected to work effectively in a team environment.

Enforced Prerequisite at Enrollment: B or better in COMM 242 or B or better in COMM 282 or COMM 320 or COMM 370

COMM 483: Wireless Communications Industry

3 Credits

A broad examination of the wireless phone industry including its development, current structure and future. COMM 483 Wireless Communications Industry (3) Since the 1990s, the wireless industry has transformed "how" people communicate. The ability to offer mobile

communication services to consumers allowed the telecommunications industry to rapidly expand and create new products and services. Throughout this period of rapid growth, new players emerged from relative obscurity while incumbent telecommunication providers weighed the benefits & drawbacks of deploying this new technology. Although wireless devices have become pervasive throughout the United States, few people appreciate the technology and partnerships that are required to offer wireless services for millions of customers. This course will address a variety of wireless topics to allow students to develop a greater understanding and appreciation of the wireless industry. In terms of course design, there are three distinct elements: (1) The early days of the wireless and the key figures and events that shaped an industry, (2) A current state view of the tier 1 carriers, device manufacturers and product offerings, (3) The emerging trends in the wireless industry and the potential impact on consumer products and services. By the end of this course, the objective is for students to view the wireless industry quite differently. Students will understand the relationship between wireless spectrum, carrier, device manufacturer and products. The industry landscape will be clearer to students and they will be well positioned to pursue a career in wireless.

Enforced Prerequisite at Enrollment: COMM 180 and COMM 380 or permission of the program.

COMM 484: Emerging Telecommunications Technologies

3 Credits

Overview of technology of electronic media and related societal issues. COMM 484 Emerging Telecommunications Technologies (3) COMM 484 introduces advanced topics related to the technologies in telecommunications and information processing. The course investigates old, new and prospective technologies primarily through analysis of incumbent or emerging companies bringing products and services to market. Students will examine materials not customarily used by undergraduates including stock prospectuses, company annual reports, and Internet searches. The class will consider recent strategic alliances, mergers and acquisitions (whether consummated or not) in the context of whether and how technologies drove the deal.

Enforced Prerequisite at Enrollment: (COMM 180 and COMM 280) or MGMT 215 or ENGR 310 or Permission of program

COMM 484A: Wireless Devices and Global Markets

3 Credits

Wireless devices and applications have become pervasive throughout the world. Global wireless carriers continue to evolve their networks to provide increased access and data speeds for their subscribers. To leverage the increased network capabilities, device manufacturers have responded by introducing Smartphone wireless devices that are feature-rich, complex and dramatically influence the way subscribers access and download wireless applications. This course will specifically focus on the design challenges facing the major wireless device manufacturers across the world. Students will work in teams and utilize IBM's Design Thinking methodology to address a broad array of usability challenges that impede user adoption and threaten long-term success in the global marketplace. Students will also develop an appreciation for the intense competition that exists in the wireless device market as well as how swiftly market conditions can impact the long-term viability of a device manufacturer.

Enforced Prerequisite at Enrollment: (COMM 180 and COMM 280) or MGMT 215 or ENGR 310

COMM 486W: Telecommunications Ethics

3 Credits

Drawing on normative theory and political philosophy, this course explores problems in ethics and social responsibility in telecommunications. COMM 486 Telecommunications Ethics (3) In this course the instructor and students work together to consider and analyze ethical issues in contemporary telecommunications practice. Using the tools of ethical and political philosophy, students will discuss current cases in often long-standing problem areas such as truth, privacy and content control. The intention is that all involved will develop a greater sensitivity to the ethical dilemmas confronting telecommunication professionals and a greater ability to evaluate media performance. The course also strives to help students gain a deeper insight into their own ethical principles and become more keenly aware of the foundations and professional implications of those principles. In the first few weeks of the semester, students will review the major ethical theories and theorists. They will discuss the nature and types of normative analysis, including the major systems of ethical thought, the process of ethical reasoning and the meta-ethical problems of definition and justification. They will also explore the foundations of political philosophy as they relate to the role of telecommunications industries in democratic society. Related topics will include the nature and history of professional norms and values, the development of ethical codes within specific industries and existing organizational processes for the applications of those standards (the clearance process). In the remainder of the semester, students will discuss case studies involving various ethical dilemmas in professional practice across all segments of the relevant industries including, broadcasting, cable, telephony and the Internet. Special attention will be given to contemporary problems in areas such as social networking and Internet search companies. Topics will include: content control in entertainment and advertising, including issues involving race, gender and age; freedom of expression; privacy; intellectual property; international and cross-cultural issues; truth and anonymity; system access and power; questions of civic engagement; image ethics in a digital age; and broader philosophical questions about the inherent social nature of telecommunications technology. There are, of course, no 'correct' answers in these cases; stress is placed on the process of analysis. Students will be evaluated on their ability to articulate their assumptions and formulate coherent ethical rationales based on those assumptions. COMM 180 is a prerequisite for this course.

Enforced Prerequisite at Enrollment: COMM 180 and COMM 280 and COMM 380 or permission of the program.
Writing Across the Curriculum

COMM 487W: Advanced Telecommunications Management and Leadership

3 Credits

Strategic management, leadership and ethics issues including marketing, financing, entrepreneurship, and innovation. COMM 487 Advanced Telecommunications Management and Leadership (3) This senior-level capstone course discusses a range of strategic management, leadership and ethics issues in telecommunications and media firms. Learning objectives include creative problem-solving, critical thinking and writing, basic financial literacy and management considerations in ethics, globalization, diversity and free speech. Specific areas of emphasis include marketing, programming, customer service, technology adoption,

finance and strategic planning. Broadly, the aim is the honing of critical and creative problem solving skills and the enhancement of collaboration and communication skills. The course also stresses the fiduciary and social responsibilities that adhere to the telecommunication manager's role.

Enforced Prerequisite at Enrollment: COMM 180 and COMM 280 and COMM 380 or permission of the program.
Writing Across the Curriculum

COMM 488: Writers' Seminar

3 Credits/Maximum of 99

Workshop designed for advanced students interested in professional writing, involving extensive mutual and self-criticism. COMM 488 COMM 488 Writer's Seminar (3) This course is designed for advanced students interested in professional writing in the theatre, screen, and media arts. The class work involves submission and extensive revision of a variety of written projects. Revisions are based upon direct feedback from the instructor, as well as mutual critiques from classmates. Students will also learn the technique of self-criticism of their writing and in doing so develop a sense of their own writing style and subject matter preferences.

Enforced Prerequisite at Enrollment: COMM 230W or COMM 260W

COMM 489W: Advanced Telecommunications Topics

3 Credits

Exploration of advanced topics related to the telecommunications industries. COMM 489 Advanced Telecommunications Topics (3) This capstone course provides students with an in-depth exploration of current issues facing the telecommunications industries. Students will have the opportunity to synthesize and apply the concepts and skills they have acquired in their previous telecommunications courses. Topics vary by instructor and semester and may include: intellectual property, privacy and surveillance, technology applications, children and media, social impact of telecommunications, impact of telecommunications on democracy, environmental impact of telecommunications, and the relationship of telecommunications to economic development. Students must have senior standing and completed all required core courses in the major before taking this course.

Enforced Prerequisite at Enrollment: COMM 180 and COMM 280 and COMM 380 or permission of the program.
Writing Across the Curriculum

COMM 490A: Convergent Media Seminar

3 Credits

This seminar examines media convergence issues, trends, and effects on society through discussions, presentations, and creation of a capstone project.

Enforced Prerequisite at Enrollment: COMM 470A or COMM 470B or COMM 470C

COMM 491A: International Telecommunications - Travel

3 Credits

This course focuses on how a nation or region's unique cultural and political environment shapes the development and impact of its media

and telecommunications industries, and how those industries in turn influence the nation's or region's cultural and political trajectory. The course includes one week of travel to the country or region being studied during the semester. A passport and an additional mandatory fee to cover partial travel expenses is required. Students will explore how information and communication technologies (ICTs) such as computers, telephone networks, mass media, and the Internet develop within a particular cultural context and how they influence the socio-economic and political development of a society. Students will study the historical development of telecommunications within the country or region being studied and examine how that nation or region's geographic, cultural and political environment shapes its response to technological change and where future opportunities may lie. The class will also explore ways ICTs can be used to foster economic development, human rights and international development. Ultimately, students will come away with a better understanding of how ICTs influence society and how the adoption and use of ICTs is grounded within a particular cultural context.

Enforced Prerequisite at Enrollment: COMM 180

COMM 492: Internet Law and Policy

3 Credits

Development in the law, policy, and business of Internet-mediated communications and commerce; emphasis on impact on existing legal, regulatory, and economic models. COMM 492 Internet Law and Policy (3) This course will provide a forum for students to investigate and debate ongoing or anticipated conflicts in Internet-mediated telecommunications, information processing and commerce. The resulting confrontations may stem from technological innovation, real or perceived changes in the marketplace, or the imperatives of prevailing regulatory, political or economic philosophies. Conflict resolution often results from persuasive advocacy, coalition building, and accommodation of outsiders with new perspectives or entrepreneurial visions, rather than applying legal precedent or treaty interpretations. Internet mediation has the potential to change how we communicate, educate, inform, entertain, and transact business. Technological and marketplace convergence means that Internet mediation will have a profound impact on many legal, regulatory and economic constructs, i.e., the preexisting templates we use to describe and understand the communications process and impact on individuals and society. The course also will examine the growing body of cases that have addressed aspects of Internet-mediation in each of the following general categories: *Speech-commercial and political speech, obscenity, forums analysis *Legal and Regulatory Consequences of Convergence-the juxtaposition of telecommunications and information processing technologies, markets and regulatory regimes *Governance and regulation of the Internet-whether the need exists for government intervention on such matters as numbering and domain registration *Intellectual Property Rights-the impact of Internet-mediation on copyright, trademark and patent laws *Electronic Commerce-the law and policy of Internet-mediated transactions, privacy and encryption concerns *Equity, Competition Policy and Consumer Protection Concerns-what, if anything, should governments do to remedy market failures

Enforced Prerequisite at Enrollment: COMM 180 or COMM 271 or MGMT 215 or ENGR 310

COMM 493: Entrepreneurship in the Information Age

3 Credits

Provides students with knowledge/tools to take their innovation/technology idea through the business planning, capital, and operations

budgeting processes. COMM 493 Entrepreneurship in the Information Age (3) COMM 493 provides students with knowledge and tools to take their own idea for a media or communications innovation and determine the feasibility of launching it as a small business. Students bring their own ideas for a communications product or service. They work through the market feasibility, business planning, capital and operations budgeting processes to finally researching and seeking start up capital. This course is designed for both students plan to pursue careers as entrepreneurs and those who wish to learn more about small business management in the information age. Topics include entrepreneurship, business planning and budgeting, starting and managing a small media or communication technology firm, economic history of media, telecommunications and information innovation, trends and opportunities in media and information sectors, high tech start up legal and employment issues, financing options, overview of venture capital, COMM 493 and market capitalization, market feasibility analysis. Cases of recent successes and failures in the information and media sectors are used to illustrate principles of business planning, market and financing trends and entrepreneurship.

Enforced Prerequisite at Enrollment: COMM 180 and COMM 380 or permission of program.

COMM 494: Research Project Courses

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

COMM 494H: Research Project Courses

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Honors

COMM 495: Internship

1-3 Credits/Maximum of 6

Supervised practicum with a variety of communications-specific entities including but not limited to digital media outlets, newspapers, broadcast/cable stations and networks, public relations agencies, advertising agencies, full-service marketing firms and film/video production companies.

COMM 495A: Internship

1-6 Credits/Maximum of 6

Supervised practicum with a variety of communications-specific entities including but not limited to digital media outlets, newspapers, broadcast/cable stations and networks, public relations agencies, advertising agencies, full-service marketing firms and film/video production companies.

COMM 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

COMM 496H: Independent Studies

1-6 Credits/Maximum of 6

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses. These are generally used as thesis credits for undergraduate students in the Schreyer Honors College with the area of honors in one of the majors in the College of Communications. The honors thesis may take the form of a scholarly project involving the examination of some aspect of the field of communications, or the thesis may involve the production of a professional project.

Honors

COMM 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

COMM 498: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

COMM 499: Foreign Study--Mass Communications

1-12 Credits/Maximum of 12

Study of mass communication systems and practices in selected foreign countries, by individual or group instruction.

International Cultures (IL)

Community and Economic Development (CEDEV)

CEDEV 430: Principles of Local Economic Development

3 Credits

Concepts, strategies, and techniques of local economic analysis, planning, and development; case studies and decision-making exercises. CEDEV 430 CEDEV (AG EC) 430 Principles of Economic Development Planning (3) This course is designed to introduce the issues giving rise to concern for rural and regional economies, and the theories, concepts and tools of rural and regional economic development. The goal is to integrate theory and practice and apply them to economic development problems. Tools are presented in a "how to" manner. Topics include current issues in rural economies, the economic view of rural development; business retention, expansion and location; entrepreneurship and its role in the economy; understanding the local economic structure and the forces of change; introduction to economic growth theories; export base theory and economic base analysis; the role of labor and capital in development; techniques of market area, central place, shift-share and input-output analysis; policies of local economic development and growth.

Prerequisite: introductory course in economics**CEDEV 452: Community Structure, Processes and Capacity**

3 Credits

Social organization, processes and change in communities; use of sociological principles in analysis of community problems and development. CEDEV 452 CEDEV (R SOC) 452 Rural Organization (3) This course combines an introduction to the social theories of communities with real-life examples of applications to understanding community problems and concerns. The focus is on the special circumstances facing small towns and rural communities, but the concepts are applicable in all communities, from urban neighborhoods to suburbs. Topics covered include local community in a global economy, power and decision-making, the role of governments and other social institutions, development of community and the importance of building social infrastructure as well as economic and physical infrastructure, multi community collaboration and building sustainable communities. Those taking the class will gain experience in conducting a case study of a small Pennsylvania community, build skills in working in a team, and gain understanding of the complexity of factors that influence community (and your own) well-being. If your future career involves operating within a community setting this course can increase your knowledge of that setting and how to function within it. And, even if you don't plan on working with communities in your job, you will be living in a community. This course can help you to understand the ways that you can contribute to improving your own quality of life by becoming involved in your community. Grades in this class are based on the community case study report, take-home mid-term and final exams, short team exercises, and class participation. Graduate students taking the course also are required to write reaction papers to three different topics during the semester.

Enforced Prerequisite at Enrollment: 6 credits in RSOC or SOC or PSYCH

Community Environment and Development (CED)

CED 102N: Wicked Problems Like Inequality, Sustainability & Climate Change: What's the Right Thing to Do?

3 Credits

Many of the most pressing problems facing humankind, like inequality, sustainability & climate change, are known as Wicked Problems; they are complex with many interconnected components, are difficult to clarify or define, involve different stakeholders with very different views, and often are intertwined with other major problems. They require working within a social and ethical context because their resolution typically requires individual and institutional change, and they are relentless; Wicked Problems can't be solved "once and for all." It is easy to feel overwhelmed by such problems, as if little can be done. Yet there are ways to work proactively and effectively on such problems, 'living your solutions locally.' This discussion-based interdomain course explores how people are addressing Wicked Problems, examining the 'Right Thing to Do' from several dimensions, including (1) what is ethically appropriate to do in response to a Wicked Problem (and how perspectives on this vary); and (2) the social and behavioral means people use to address such problems. In the course students explore the complex nature of Wicked Problems, including how these are shaped by social, political, and other factors. The rules matter. Students then learn major concepts of justice which commonly are applied to such issues, how these views vary across people affected by the problem, and the importance of recognizing other peoples' perspectives. Students use case studies to explore and critique

strategies for engaging Wicked Problems, and how these are used by people working to address these issues. Finally, students work together in small learning teams to analyze a Wicked Problem of their choice, including how various stakeholders view the problem and its potential solutions, and how practitioners are addressing the problem through social and behavior means.

General Education: Humanities (GH)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Soc Resp and Ethic Reason

CED 102Q: Wicked Problems Like Inequality, Sustainability & Climate Change: What's the Right Thing to Do?

3 Credits

Many of the most pressing problems facing humankind, like inequality, sustainability & climate change, are known as Wicked Problems; they are complex with many interconnected components, are difficult to clarify or define, involve different stakeholders with very different views, and often are intertwined with other major problems. They require working within a social and ethical context because their resolution typically requires individual and institutional change, and they are relentless; Wicked Problems can't be solved "once and for all." It is easy to feel overwhelmed by such problems, as if little can be done. Yet there are ways to work proactively and effectively on such problems, 'living your solutions locally.' This discussion-based interdomain honors course explores how people are addressing Wicked Problems, examining the 'Right Thing to Do' from several dimensions, including (1) what is ethically appropriate to do in response to a Wicked Problem (and how perspectives on this vary); and (2) the social and behavioral means people use to address such problems. In the course students explore the complex nature of Wicked Problems, including how these are shaped by social, political, and other factors. The rules matter. Students then learn major concepts of justice which commonly are applied to such issues, how these views vary across people affected by the problem, and the importance of recognizing other peoples' perspectives. Students use case studies to explore and critique strategies for engaging Wicked Problems, and how these are used by people working to address these issues. Finally, students work together in small learning teams to analyze a Wicked Problem of their choice, including how various stakeholders view the problem and its potential solutions, and how practitioners are addressing the problem through social and behavior means.

General Education: Humanities (GH)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 Honors
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Soc Resp and Ethic Reason

CED 109N: Gentrification in Everyday Life

3 Credits

The concept of *gentrification* offers a framework to understand the rapid urban and rural transformations that have occurred over the past decades all over the world. Since the 1960s, the definition

of gentrification as displacement of the working class by the upper-middle class (the "gentry") has evolved to become more comprehensive and open, recognizing the 21st-century forces of globalism, capital accumulation, class reconfiguration, and landscape transformation. Gentrification is mappable as a structural and public policy force similar to suburbanization, forming one of the major historical trends shaping global cities in the twentieth and early twenty-first centuries. In the first part of the course, students will learn about and identify global gentrification trends in the Global North and Global South using global data. These trends will be explained as a joint effort of cities and investors to remake the social class structure and urban landscapes. Social theory and cultural studies will be used to explain ethical aspects and social mobilization against gentrification. In the second part of the course, different types of gentrification will be reviewed, as well as survival strategies of communities experiencing adverse consequences of gentrification. This is not to say that gentrification cannot improve communities or energize them to curtail unrestrained gentrification. Students will learn to analyze situations where there is debate and uncertainty about gentrification. Next, students will apply their insights to a city of their choice anywhere in the world, using web-based mapping technologies, to develop basic skills in gentrification research. Finally, students will conduct basic community research to discover the everyday lived experiences of a gentrifying community they are familiar with. The purpose of these exercises is for students to learn about the many perspectives and uncertainties that communities, planners and investors must negotiate. The course will end with identifying options for democratic deliberation among communities, government, and investors for creating just landscapes for the future.

General Education: Humanities (GH)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Soc Resp and Ethic Reason

CED 152: Community Development Concepts and Practice

3 Credits

Community development is broadly recognized as a process by which places (cities, small towns, neighborhoods) and the people in them, improve their economic and/or social well-being. Health of the environment and sustainable use of natural resources ensure the long-term well-being of human populations and so are central to sustainable community development. The practice of community development requires the ability to identify and understand the interrelationships of economy, society and environment locally, nationally and globally. Community development hinges on the capacity of local communities and residents to influence and determine their own futures. Students will gain an introduction to the concepts and models of community development and will become familiar with the roles of community development practitioners in developed and developing country settings. They will be able to identify the consequences of development strategies for social, economic and environmental well-being, focusing on the interrelationships of these aspects of development. Students will be introduced to strategies to identify capacity and resources available in communities and those that need to be enhanced. Models of decision-making will be introduced and students will work in teams in class with a focus on successful team functioning, identifying commonalities and shared interests to foster decision-making, and being able to extend that experience to working with groups in a community. Students will

gain knowledge and understanding of the relevant concepts, processes and practice through readings and in-class lecture and discussion. Case studies of specific community development issues will give students the opportunity to apply the concepts and skills they learn in class, and to work in teams where students take on perspectives of different stakeholders and attempt to reach a resolution. Examples will be used throughout the course to portray important concepts. This knowledge and associated skills can be used to form the basis for further training and a career in community development or to provide a basic understanding for those interested in volunteering in their own community.

General Education: Social and Behavioral Scien (GS)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Soc Resp and Ethic Reason

CED 155: Science, Technology and Public Policy

3 Credits

The overarching course objective is for students to understand the roles of science and technology in sustainable development, including public policy formation and implementation. The course consists of three parts. Part I is an introduction to how science has become such a powerful form of knowledge and how it informs public policy. The role of politics, skeptical scientists, media, and citizens on the science-policy interface are discussed as well. Part II deals in depth with theoretical concepts explaining the complex relationship between science, technology, and public policy. In part III we will discuss how researchers, policymakers and the 'public' can nevertheless work together to find solutions to actual sustainability problems. It is expected that after completing this course, students can critically review the factors which shape and constrain the use of science and policy in addressing pressing issues in their field of interest in an academic fashion.

Bachelor of Arts: Social and Behavioral Sciences
General Education: Social and Behavioral Scien (GS)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Soc Resp and Ethic Reason

CED 160: Introduction into Ethics and Issues in Agriculture

3 Credits

This course covers ethics and the social contract to include substantive ethical theories focusing on rights-based ethical theories (libertarianism and egalitarian theories) and consequentialist theories (utilitarianism and axiology). These theories assist in conceptually defining levels of participation and consent in democracy. This course explores the circumstances in which rational persons and political groups historically agree to be bound in collective decision making. The primary focus by examines four separate ethical themes illustrating why and how individuals accept a variety of terms. The course highlights philosophical/ethical decisions related to agriculture issues during the history of the United States. Issues range from non-interference rights to opportunity rights dealing with food, fiber, natural resource and environmental issues. Procedural theory emphasizes the formation of legitimate and defensible rules rather than ethics. Policy choices are assumed to be legitimate and defensible as long as individuals follow the rules/procedures for decision making. The content of this course meshes the procedural

and the substance theories found throughout historical debates in agriculture communities. The course identifies traditional agrarian problem identification, policy formation, policy adoption and funding, program implementation and program evaluation. How ethics figures historically in agriculture policy processes is applied in a variety of case studies and debates as well as selected readings. The course includes an examination of the ethics of when, how and where the policy process historically influenced agriculture public policies. The course emphasizes the need to critically think about various points of view expressed by various conflicting authors.

Cross-listed with: AG 160
General Education: Humanities (GH)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Soc Resp and Ethic Reason

CED 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

CED 201: Introductory Environmental and Resource Economics

3 Credits

Apply principles of economics to analyze environmental protection policies and natural resource use decision. Examine contemporary policy issues. E RRE (AG EC) 201 Introductory Environmental and Resource Economics (3) An introduction to the concepts, theories, and applied methods used in the economic analysis of environment and natural resource issues. The course covers topics such as the principles of market efficiency, why the market often fails where environmental and natural resource issues are concerned, and environmental policy prescriptions and tools designed to correct this market failure. These principles and tools are explored with respect to air and water pollution, management and use of renewable natural resources such as forests and fisheries, and the unique problems of managing nonrenewable resources such as minerals and oil. The course aims to give students an understanding of how traditional economic principles can be used to suggest and evaluate possible responses to the environmental and resource problems facing society.

Enforced Concurrent at Enrollment: AGBM 106 or CMPSC 203 or ERM 300

CED 230: Development Issues in the Global Context

3 Credits

Local communities - in both developed and developing countries -- are influenced by strong global forces that affect the well-being of their residents. Community economic development is one approach to enhance improve economic outcomes. This course will use an issue-oriented approach to help students understand economic development patterns and resultant issues in the U.S. as compared to what is observed and what is of critical concern in other places. Topics will include the concept of globalization, economic restructuring trends, investment in human capital and the ability to retain this often mobile form of capital, migration and change in patterns of migration, and environmental effects of development in different contexts. Each year that the course is taught, there will be a focus on patterns of economic development by region in the U.S. but with comparisons to three other selected countries -- one in Latin America, one in Asia and one in Africa. Students will be encouraged

to compare and contrast economic and related social issues that arise in these contexts, with particular emphasis given to recent economic trends and events and to the rate of change compared to the past.

Enforced Prerequisite at Enrollment: ECON 102 or RSOC 11 or SOC 1

CED 252: Anti-Racist Theory and Practice in Community Work

3 Credits

The career path for many students in the CED program will position them to work in neighborhoods and communities where people come from a diversity of backgrounds, often different from the students' own background. Without proper training in histories of racism and marginalization as well as how those practices continue today, students are likely to perpetuate those harms within the communities they intend to serve. This course addresses issues of race, racism, and privilege, helping students develop a critical lens on community development through exploring questions such as "who is developed and by whom?"; "who has decision making power in the community development world?" and "what does sustainability mean, and whose experience or knowledge counts in working to build more sustainable futures?" The broad theme of social justice is explored by critically analyzing current trends and ethical issues and their implications. Additional focus is directed towards how structural and institutional conditions affect the opportunities and well-being of different populations (advantaged and disadvantaged groups) in society. While this course is primarily focused on the US context, there is also discussion of international issues, especially how race and racism impact media coverage and societal responses to world events impacting different groups. Students will have the opportunity to learn about and engage with community development issues related to race, racism, oppression, and privilege in State College and/or in their home communities through different course assignments. After taking this course, students should feel better equipped to deploy an equity lens in their educational and community-based experiences and practices. The learning objectives and themes of this course are reinforced throughout upper level CED courses so students are able to carry this knowledge and skills into their future professional lives.

Enforced Concurrent at Enrollment: CED 152

CED 275: Community, Environment and Development Professional Seminar

1 Credits

The CED Professional Seminar helps students learn how to be successful in the CED major and in their future professional careers. The emphasis is on career opportunities, important skills to learn and hone, and tailoring the major to fit their future professional interests. The course operates similar to a lab, with most work done in the classroom. It includes frequent interaction with CED professionals from a variety of organizations and topical areas, and hands-on skill training in facilitation and community-process techniques.

Enforced Concurrent at Enrollment: CED 152

CED 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

CED 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

CED 309: Land Economics and Policy

3 Credits

Land is a key natural resource for society. This course uses economic analysis to examine land use and land use policy, considering how the spatial configuration of landscapes changes in response to changes in land prices, population growth, human preferences, the environment, markets, and institutions. Given current issues including the twin problems of urban sprawl and land abandonment, the course will also examine the role of land use policy and specific programs to guide and provide greater public control over land use decisions, taking into consideration environmental practicality, economic feasibility, and institutional acceptability. Students will gain an appreciation of the importance of land as a resource, and how to use economic tools to understand current land use issues. Knowledge will be gained of the relevant theories, trends and policies through readings and in-class lecture and discussion.

Enforced Prerequisite at Enrollment: (ECON 102 or AGBM 101) and (GEOG 160 or GEOG 260)

CED 327: Environment and Society

3 Credits

Environmental and natural resource problems are not only biophysical in nature but intersect with social, political, economic, belief, value, and knowledge systems. The goals of this course are to introduce students to sociological questions that address the sources and implications of environmental and natural resource problems. The course focuses on the ways that social and environmental systems intersect, and how they are mutually constitutive. The course introduces students to the societal systems that create and exacerbate environmental problems (such as market processes, consumption patterns, political institutions) and how people respond to these problems (environmental concern and beliefs, individual and organizational behavior, social movements, green markets, political change). After taking this course, students should be better prepared to identify core systemic causes and potential pathways to address complex environmental and natural resource problems from local to global scales.

Enforced Prerequisite at Enrollment: RSOC 11 or SOC 1

CED 329H: Intermediate Environmental & Resource Economics (Honors)

3 Credits

This Honors course focuses on intermediate principles of environmental and natural resource economics, with strong emphasis on policy analysis and applications. The central focus in any economics course is how best to allocate scarce resources and this holds true for this course as well. However, in this course the goods and services we will talk about differ from those in other economics courses in that there is typically no market in which to trade them - e.g., air and water quality or a scenic view. Thus, it may be the case that government policies are needed to maintain and enhance their quantity and/or quality. The course is structured around a number of broad thematic areas with individual book chapters, papers,

class discussions, and assignments used to learn the material. The first two parts provide a review of micro and environmental economic theory, and an overview of how economists think about environmental issues. The third section focuses on benefit-cost analysis and valuation issues, and the fourth section looks at government intervention and policy. The final section(s) focus on specific topics in environmental and natural resource economics and related policy issues with the general goal being to provide students a better understanding of current issues related to the environment.

Enforced Prerequisite at Enrollment: (MATH 110 or MATH 140) and CED 201 and ECON 302

Honors

CED 360: The Corporation and Social Responsibility

3 Credits

The corporation has emerged as perhaps the most powerful institution in the world in the 21st Century. A recent estimate listed 31 nations and 69 corporations among the 100 largest economies in the world. These circumstances lead reasonable people to ask how corporations can be held accountable when many of them command more resources and are nimbler than most of the world's governments. This course explores the historical and legal dimensions of the corporation and its contemporary social, environmental, and economic impacts and responsibilities. It further considers the internal and external factors that shape corporate decisions on social responsibility. The internal dimensions that will be discussed in the course include decisions made by top management, relationships between labor and management, and the capacity for lower management and laborers to influence company policies and practices. The external influences will include labor and community organizing, shareholder activism, government regulations, consumer activism, and various government entities to shape corporate policies and practices.

Enforced Prerequisite at Enrollment: 6 credits of CED

CED 375: Community, Local Knowledge, and Democracy

3 Credits

Understanding community decision-making, citizen-expert interactions and methods for resolving seemingly intractable conflicts associated with public issues. CED 375H Community, Local Knowledge, and Democracy (3) Decisions made in our communities have far reaching effects on individuals, families, neighborhoods, the local economy, the environment, the health and welfare of all citizens, and the community as a whole. These decisions or choices are the result of the collective action of community leaders and citizens, either through governmental, non-governmental, or community organizations. This course will familiarize students with principles, concepts and skills essential to understanding processes of community decision making and community development. These processes involve countless human interactions, which ultimately lead to choices that affect the future economic, environmental, political, and social viability of citizens, their families, and the sustainability of their communities. These interactions are central to community decision making and community development, and to the functioning of local democracy. The nature of these interactions and the way in which they take place determine if desired community outcomes occur or not. This course seeks to reveal important, sometimes neglected or underdeveloped, factors in community decision making, specifically issue framing, tensions between local and expert knowledge, methods for resolving seemingly intractable conflicts associated with public issues, and the nature and role of participatory processes in debate, deliberation,

and doing public work. This course will enable students to use these factors for analyzing community decision making situations and as community development tools in professional practice. In addition, students will be challenged to examine ethical issues in community decision making and community development professional practice.

Enforced Concurrent at Enrollment: CED 152

Honors

CED 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

CED 400N: Exploring Indigenous Ways of Knowing in Great Lakes Region: Lecture

3 Credits

Exploring Indigenous Ways of Knowing in the Great Lakes Region explores concepts and values distinctive to indigenous ways of knowing (IK) in the Great Lakes Region through readings, video segments, and lectures. Five structural concepts or key themes - local knowledge, relational knowledge, empirical knowledge, spiritual knowledge, and traditional knowledge - provide a conceptual framework for understanding indigenous cultures and knowledge production and their unique contributions to western society in the 21st century. Students will be introduced to the Algonquian cultures of the Great Lakes Region and to the Ojibwe (Anishinaabeg), Odawa, and Potawatomi (Three Fires) cultures in particular. This course will introduce students to the distinctive ways indigenous people experience, understand, and know the world through their relationship with the land or region to which they belong. Too often, colonizers around the world have ignored indigenous knowledge systems even though these ways of knowing have sustained peoples, cultures, and environments for thousands of generations. Because these ways of knowing are generally preserved and transmitted through stories, music, ceremony, and embodied traditions, they are seldom understood and frequently dismissed by those who control the production of knowledge in the modern world. The knowledge of the indigenous peoples of the Great Lakes region will, in this course, be presented as an empirically grounded scientific body of knowledge and theory comparable and complementary to the European tradition and, in specific ways, enhancing the sustainability of western scientific knowledge and practice. This course is a prerequisite for the Maymester field experience - Exploring Indigenous Ways of Knowing among the Ojibwe CED 401 which offers students an opportunity to experience indigenous ways of knowing by engaging with Ojibwe educators, traditional knowledge holders, elders, and families in several of the three largest Ojibwe reservations in the US.

Enforced Prerequisite at Enrollment: RSOC 11 or SOC 1

Cross-listed with: RSOC 400N

United States Cultures (US)

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

CED 401: Exploring Indigenous Ways of Knowing Among the Ojibwe

0.5 Credits

Through an intensive cultural engagement students will learn skills important to the pursuit of ethnographic research in cross-cultural contexts. CED 401 Exploring Indigenous Ways of Knowing Among the Ojibwe (0.5) (US) Exploring Indigenous Ways of Knowing among the Ojibwe- CED 400B, a 2-3 week field experience, transports students from the classroom to the Red Lake, Leech Lake, and White Earth Nations in northern Minnesota. During travel, students will follow part of the 800 year Great Migration route of the Ojibwe from their ancestral home around the St. Lawrence River estuary to western Lake Superior and the headwaters of the Mississippi River. This field experience will immerse students in the Anishinaabeg community, the largest of the "three fires" (Ojibwe, Odawa, Potawatomi) of the Great Lakes region. While most Americans learn history facing west, history will be presented through the experiences and memories of people facing east. Early Ojibwe history will be outlined while the period of contact, colonization, and restoration (late 1700 to the present) will be covered in greater detail. Ojibwe cultural codes and spiritual values will be explored through "the teachings" and participation in important ceremonies (sweat lodge, pipe, big drum, wiping the tears, shake tent, intertribal traditional powwow). The political and social injustices of colonialism will be examined, including removal, allotment, religious oppression, and the boarding school era. To experience family and social life, students will live for two days with Ojibwe host families on the Red Lake Nation (one of 2 closed reservations in the US). Students will be introduced to indigenous science and environmental justice (climate change, water quality, biodiversity and endangered species, traditional and sustainable agriculture, fish and game, wild edible and medicinal plants, forest management, etc.). Finally, a canoe trip through the headwaters of the Mississippi River will focus on nature and environmental health. The five key IK themes explored in the classroom -Local knowledge, relational knowledge, empirical knowledge, spiritual knowledge, and traditional knowledge will provide a framework for engaging with and understanding Ojibwe culture and knowledge production and their unique contributions to western science and American culture. Students will meet and learn from more than 25 prominent Ojibwe elders, educators, scientists, political leaders, medicine men/women, environmentalists, ethnobotanists, storytellers, and host family members. Students will also learn listening, observing, attending, respecting, critical thinking, and recording skills, all important to the study of cultures and the pursuit of ethnological research in cross cultural contexts. Exploring Indigenous Ways of Knowing among the Ojibwe- CED 400A, offered during spring semester, is a prerequisite for this field experience.

Enforced Prerequisite at Enrollment: CED 400N
United States Cultures (US)

CED 404: Community, Environment and Development Research Methods

4 Credits

CED 404 teaches students practical approaches to empirical research in the areas of community, environment, and development (CED). Through classroom work and the data lab, the course covers research tools commonly used by CED professionals at the local level, including secondary data analysis, surveys, focus groups, and participatory research. As importantly, students learn and practice the basic mindset required for developing and exploring research questions. Students discuss and practice appropriate methods for presenting research

results, including writing for different genres. The course includes a weekly data lab for hands-on work.

Enforced Prerequisite at Enrollment: STAT 200 Enforced Concurrent at Enrollment: AGBM 106 or CMPSC 203

CED 409: Land Use Planning and Procedure

3 Credits

This course provides students with an understanding of the legal and procedural aspects of land use planning as found in the United States. The emphasis of the course is to explain the sources of land use planning authority, the processes by which it is applied and the potential conflicts that arise in the application of this authority. As a result of taking this course, students will be expected to learn and explain a) the objectives of land use planning systems and a comparative analysis of these systems; b) the bases on which land use planning law and procedure is applied across the U.S.; c) policies, strategies and principles that can be applied to land use planning decisions; d) several land use planning models currently applied in American jurisdictions, including the structure of each land use planning system; e) the procedural steps used to engage the land use planning system by property owners and government officials; f) typical conflicts that arise in creating, changing or enforcing land use planning measures; g) how land use planning conflict is resolved in various systems. Student performance will be measured in two midterm exams and a final exam. The instructor reserves the right to give additional exams to aid in measuring student knowledge and understanding of course material. Each test will primarily be short essays questions that ask for an explanation, discussion, comparison or application of specific concepts and principles. Case studies also will be used to present students with situations to hone their analytical, organizational and problem solving skills on specific problem situations. This will ask students to analyze a given set of facts, assess the issues raised by the facts from the perspectives of individuals who are described in the situation and form and present a response that addresses a specific question posed to the student.

Enforced Prerequisite at Enrollment: 6 credits of CED

CED 410: The Global Seminar

3 Credits

Exploration of critical global issues relevant to sustainable development and the environment. Collaborative with other universities worldwide. CED 410 The Global Seminar (3) The Global Seminar course will help students gain an understanding of the implications of global change in a world of limited natural resources. The course will help students to understand the difficulties that society faces in balancing the environment with human needs; appreciate the challenge of balancing competing needs at different levels (individuals, communities, organizations, governments); understand trade-offs and the role of policy; and explore and critically assess avenues for effectively dealing with global issues. Students participating in the Global Seminar have the opportunity of direct interaction with students from other universities and academic institutions who may have different perspectives on these issues. To allow this interaction, the Global Seminar is offered jointly with other universities from across the world, with students engaging in global videoconferences, virtual classroom discussions and group work with student peers at other universities. Case studies are used, with critical assessment of important global issues related to development and environment, with a particular focus on food production and natural resources. Specific cases vary by course offering but may include

cases related to: population dynamics, biodiversity, water quality, waste management, GMOs, BSE, organic food production, novel protein foods, among others. Issues of long-term sustainability are explored to gain a better understanding of the implications of alternative choices. The course is offered in collaboration with Cornell University, with students using Cornell's Blackboard system. The course is intended to strengthen linkages for students with other universities for study and research.

CED 417: Power, Conflict, and Community Decision Making

3 Credits

Community decision making and public choice is the result of collective action among individuals. The purpose of this course is to develop frameworks for analyzing conflict, power, and public choice. This course enables students to understand how culture and institutions affect the nature of human interdependence and behavior, shape patterns of influence and power, and impact community decision making and policy.

Enforced Prerequisite at Enrollment: (RSOC 11 or SOC 1) and 6 credits of CED

CED 420W: Gender and International Development

3 Credits

This course examines gendered processes of economic and social change in the Global South in a context of rapid globalization. We will study how gender inequities and inequalities shape and are shaped by economic restructuring, environmental change, international migration, the global spread of ideas and culture, and the shifting goals of International Development agencies. Readings and discussions are organized around three main learning units: 1) Approaches to Gender in Development; 2) Gender, Work, and Identity in the Global Economy; and 3) Rights, Reproduction and the Body. Particular attention will be paid to representations of women and men by Western organizations acting in the name of Feminism and/or Development, and to the responses of feminist communities in the South to these portrayals. In studying these issues, we will resist the tendency to conflate "gender" with "women", instead looking comprehensively at the identities, rights, and lived experiences of diverse gendered identities. We will carefully consider differences using an intersectional frame that considers social factors such as sexuality, race, economic class, and legal status. Students will explore issues through diverse materials including reports, articles, book chapters, documentaries, presentations, and popular media.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 30H or ENGL 137H or CAS 137H

Cross-listed with: WMNST 420W

International Cultures (IL)

Writing Across the Curriculum

CED 425: International Community and Economic Development

3 Credits

International community and economic development. CED 425 International Community and Economic Development (3) Eight of ten people on the planet live in developing countries where problems such as hunger, malnutrition, infant mortality, inadequate housing, underemployment, over-urbanization, and environmental degradation often are severe. This class will focus on community and economic development in developing countries. Through lectures, readings, a series of topical videos, and in-depth class discussions, students will obtain a firm grounding in the ways development has been defined, the social and

economic problems facing developing countries today, the basic ways in which economic development has been approached theoretically and empirically, the implications for developing countries of being embedded in a globalizing economy, the influence of multinational corporations, the policies that developing countries have followed to foster economic growth, the nature of foreign aid, the causes and consequences of Third World debt, the promise of micro-enterprise and the informal economy, rural development and land reform, and other topics.

Enforced Prerequisite at Enrollment: CED 152 and CED 230

CED 429: Natural Resource Economics

3 Credits

Optimal management of resources; roles of markets and other institutions; resources and economic development; public policy.

Enforced Prerequisite at Enrollment: ECON 302 and (MATH 110 or MATH 140)

CED 430W: Principles of Community Economic Development

3 Credits

This course is designed to introduce the issues giving rise to concern for rural and regional economies, and the theories, concepts and tools of rural and regional economic development. The goal is to integrate theory and practice and apply them to economic development problems. Tools are presented in a "how to" manner. Topics include what is meant by 'Economic Development' and how perspectives on it vary; national and state policies on economic development; economic development theory, including Economic Base, Product Cycle, Central Place Theory, and Attraction Models, and their implications; basic analytical tools for community economic development, including Location Quotients, Shift Share, and Input-Output analysis; business retention, expansion, and location; and economic development strategies, such as entrepreneurship, business development, locality development, and human resources. As a writing-intensive course, strong emphasis is placed on using the written word to apply these concepts and tools to real world situations, with most homework assignments modeled on the types of analysis and reports conducted by economic development practitioners.

Enforced Prerequisite at Enrollment:

(ENGL 15 or ENGL 30 or ENGL 137H or CAS 137H) and 6 credits of CED Writing Across the Curriculum

CED 431W: Economic Analysis of Environmental and Resource Policies

3 Credits

In this course students learn economic analysis methods for understanding environmental and natural resource issues, and for analyzing environmental and natural resource policies. Methods considered include benefit-cost analysis, non-market valuation techniques, and resource damage assessments. As a writing-intensive course, students learn and practice professional-style writing appropriate for economic analysis, project findings, and policy papers. Homework assignments include a blend of analysis and written reports explaining findings.

Enforced Prerequisite at Enrollment: (ENGL 15 or ENGL 137H or ENGL 30H or CAS 137H) and ECON 302

Writing Across the Curriculum

CED 440: Labor in the Global Economy

3 Credits

This course examines laborers in the global economy and the economic, political, and social forces that shape worker experiences of precarity and empowerment. We will study the global division of labor, experiences of work, and how workers claim rights. The course is divided into three main learning units. In Unit 1, Theorizing Labor in the Global Economy, we will discuss how the changing global political economy, including the consolidation of corporate power in global commodity chains, enables regimes of precarious work. In Unit 2, Vulnerable Workers, we will examine specific groups in different context across the globe and their experiences of both exploitation and empowerment in the workplace, including child workers, migrant workers, women, and agricultural workers. In Unit 3, Resistances and Solutions, we will examine and compare different proposed solutions to worker vulnerability, including 'top-down' initiatives such as corporate social responsibility campaigns and voluntary sustainability standards, and 'bottom-up' approaches such as workers' centers and worker-led social responsibility. Invited guest speakers who represent and work with workers around the world will provide their perspectives on key topics to enhance student learning of contemporary events in this field. Students will have the opportunity to deepen their knowledge through writing assignments including case studies of workers and worker movements, a blog connecting concepts learned in class to news stories from around the world about labor, and take-home essays. This is a discussion-based course and students are expected to contribute actively to the learning community. Many examples discussed in class will be from companies in the agri-food system.

Enforced Prerequisite at Enrollment: 6 credits of CED

CED 442: Changing Food Systems: Comparative Perspectives

3 Credits

The course begins with an overview of the scope of food systems and an orientation to interdisciplinary and community - based approaches for understanding and addressing social and ecological problems and potential changes in food systems. Two weeks are dedicated to reviewing selected challenges facing the food and agricultural system to underscore the complexity of these issues and illustrate how they have been approached and analyzed by different disciplinary fields. The next two weeks of the course are devoted to critical exploration of theoretical and policy models for understanding how food systems function and change. These conceptual and analytical tools are then applied in three subsequent course modules, focused on 1) Changing Agricultural Production Systems; 2) Changing Food and Farm Work; and 3) Changing Food Consumers and Eaters. Each of these three - week modules will focus on 3 - 4 cases of change efforts either led from "above" through government policies or business initiatives or from "below" by grassroots groups or social movements. Cases will be selected to compare and contrast U.S. contexts with other international contexts and to highlight the diverse experiences and perspectives across racial - ethnic, class, cultural and gender differences within the food and agricultural system. The course will conclude by synthesizing ideas and insights about the limitations and potentials of different approaches to food systems change. In the last week of class, students will also give "lightning talks" distilling their learning about food systems change through an individual semester long field - project with a local or regional community group, business, agency or farm.

Enforced Prerequisite at Enrollment: AGBM 170

Cross-listed with: FDSYS 442

CED 445: International Development Practice

3 Credits

The goal of this 400-level course is to facilitate students' development of the hands-on skills and practical knowledge needed to engage successfully in international development work in the public, private, and non-governmental sectors. The course emphasizes competencies needed to effectively secure employment and work in occupations and sub-fields of international development that are most related to the CED major. It is organized into a series of modules that correspond to the major phases of international development projects - design, implementation, and evaluation. Students will integrate these phases by working through a "case study" of a specific development project for each semester. The course includes guest lecturers and budget requests accordingly who are currently working in the international development sector.

Enforced Prerequisite at Enrollment: CED 230 and CED 404

CED 450: International Development, Renewable Resources, and the Environment

3 Credits

Theories of agricultural and economic development, with particular attention to interactions between development, renewable resources, and the environment. CED 450 International Development, Renewable Resources, and the Environment (3) (IL) This course introduces the key economic concepts and theories used to analyze agricultural and economic development in developing countries, with particular attention to interactions between development, natural resources, and the environment. The course examines how economic development can affect natural resources and the environment, and how resource and environmental conditions affect development. The course integrates theory with empirical evidence from developing countries, so that students gain an understanding of how different development strategies have actually fared in practice.

Prerequisite: 6 credits in Environmental Economics, Resource Economics or Economics
International Cultures (IL)

CED 452: Community Organization

3 Credits

This course combines an introduction to the social theories of communities with real-life examples of applications to understanding community problems and concerns. The focus is on the circumstances facing the range of places from small towns and rural communities to urban neighborhoods and suburbs. Topics covered include local community in a global economy, power and decision-making, the role of governments and other social institutions, community development and sustainability, and the importance of social as well as economic and physical infrastructure. Those taking the class will gain experience in conducting a case study of a Pennsylvania community, build skills in working in a team, and gain understanding of the complexity of factors that influence community and individual well-being. If your future career involves working within a community setting, this course can give you insights into its dynamics. And, even if you don't plan on working with communities in your job, you will still be living in a community. This course can help you to understand the ways that you can contribute

to improving your own quality of life by becoming involved in your community.

Enforced Prerequisite at Enrollment: 6 credits in RSOC or SOC or PSYCH

CEC 460W: Policy, Politics and Perspectives on Social & Environmental Responsibility

3 Credits

Social and environmental responsibility often is viewed very differently by various stakeholders, such as consumers, investors, businesses, labor government, and others. The elements and issues they consider as important elements within social and environmental justice, and how they weight each element, can vary significantly across stakeholders. The terminology used to describe this work similarly differs (i.e. sustainability, social responsibility, corporate citizenship, corporate social responsibility, etc.), which can lead to misunderstandings. This course examines the differing perspectives that consumers, investors, businesses, labor, government, and others have towards social and environmental responsibility, and the differing roles that each stakeholder plays. Such roles can range from individual choices about what to purchase and consume, where to invest, and where to work, to collective and organizational choices, such as about what services or products to offer, how these are produced, and where/how supplies are obtained. The course uses institutional and behavioral economic concepts of the interdependent nature of the market, as a theoretical framework for understanding the interdependence of various stakeholders' opportunities and decisions, and the influence of the public policy.

Enforced Prerequisite at Enrollment: 6 credits of CED Writing Across the Curriculum

CEC 462: Corporate Social and Environmental Performance

3 Credits

This seminar-style course uses speakers from a range of stakeholder groups to highlight and discuss the performance of Corporate Social Responsibility (CSR) programs in industry. The influence of government, non-profits and selected activist's groups on CSR programs will be evaluated. Recognized speakers will discuss social and environmental issues in the supply chain related to land use, farm workers, farmers, women in agriculture, youth development, climate change, food security and water rights. Speakers from industry will highlight industry topics such as corporate governance, ethics, employee engagement and public policy. Students will write weekly reviews for each topic for discussion in class. They will complete two case studies over the course of the semester to better understand how CSR goals are accomplished in industry. To determine company performance, students will work in teams to evaluate the CSR program of a company and rank their performance relative to peers.

Enforced Prerequisite at Enrollment: 6 credits of AGBM or CED

CEC 475: CED Integrated Capstone Experience

3 Credits

A well-designed capstone experience provides students with a valuable reflective and integrative experience as they complete their baccalaureate degree programs. This course is designed to encourage students to reflect, integrate and apply the knowledge that they have learned in previous coursework for the CED major. The course is built on discussion and exercises that require integration. Like the CED program more

generally, this course relies on case studies to help students apply the skills that they have learned to actual cases that challenge communities and regions in developed and developing areas of the world. The CED program is also designed to include experiential-learning exercises throughout the program; this course engages students in a significant in-depth experience or project that will vary year-by-year. The experience could be in the United States or in another country. The project will be hands-on and action-oriented. Evaluation is based on assessment of active participation in class discussions, papers that provide critical assessments of the case studies assigned to the class, and a final project conducted in the field, either in the U.S. or internationally.

Enforced Prerequisite at Enrollment: 7th semester standing or (18 credits of CED and 6th semester standing)

CEC 494: Undergraduate Research

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small group basis.

CEC 494H: CED Honors Research Project

1-12 Credits

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Honors

CEC 495A: Internship in Community, Environment, and Development

1-15 Credits/Maximum of 15

Supervised field experience in an environmental setting.

Enforced Prerequisite at Enrollment: prior approval of program Full-Time Equivalent Course

CEC 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

CEC 497: Special Topics

1-18 Credits/Maximum of 18

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

CEC 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Comparative Literature (CMLIT)

CMLIT 1: Introduction to Western Literatures Through the Renaissance

3 Credits

CMLIT 1 provides a survey of Western literary tradition and considers a variety of genres – such as epic, drama, sonnet, essay, saga, chronicle, folktale, and novel – with attention to the literary and historical contexts which these works reflect in the Ancient, Medieval, and Renaissance (Early Modern) periods. Universal themes and cultural values, along with individual differences, will be discussed and compared in works from such authors as Homer, Dante, Chaucer, Cervantes, and Marguerite de Navarre. Comparative study focuses on the understanding and appreciation not only of the individual works, but also of their influence on other literary works and artistic forms and the ways in which they relate to their cultures. You will articulate and compare interpretations of texts spanning 2500 years of Western literary history. The variety of the Western tradition will lead you to an understanding and critical discussion of the process by which certain works become regarded as "great." This course will also allow you the pleasure of encountering a wide variety of creative literary expressions from three distinct periods. Along with CMLIT 2, this course forms a 6-credit overall Western literature series – but either half may be taken separately. CMLIT 1 may be selected to fulfill one of the course requirements for the CMLIT major or the World Literature Minor. This course also fulfills the General Education Humanities requirement, the Bachelor of Arts Humanities requirement, and International Cultures requirement.

Bachelor of Arts: Humanities
International Cultures (IL)
General Education: Humanities (GH)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Global Learning

CMLIT 3: Introduction to African Literatures

3 Credits

Comparative analysis of drama, essay, novel, poetry, and stories from traditional oral forms to contemporary expressions of African literary styles. CMLIT 3 Introduction to African Literatures (3) (GH;IL)(BA) This course meets the Bachelor of Arts degree requirements. CMLIT 3, Introduction to African Literatures, provides an introduction to the wonderful variety of African literary production, from early oral epic traditions, through the colonial/post-colonial period, to recent Nobel Prize winning authors. We will read texts written in English or translated into English from French or African languages, including several recorded from the oral tradition, as well as some texts from the African Diaspora. These literatures come from different geographic and cultural areas of Africa, and are composed in a variety of forms (novel, drama, epic, poetry), and range in date from 2,000 BCE to the colonial period to the modern national era. The focus of the course, however, is on the 20th century. We will also consider the ways in which history, culture and geography impact literary production. African literary and cultural influences on Western traditions may also be explored. Students will be evaluated on some or all of the following: short answer/essay exams, in-class discussion and group work, written assignments, collaborative presentations, and a final comprehensive exam/essay. Writing and speaking will always be included. This course fulfills a requirement for the Comparative Literature major and the World Literature minor. This course also fulfills the General Education Humanities requirement and

the Bachelor of Arts Humanities and Other Cultures requirement. It also satisfies the United States and International Competence requirement.

Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures
International Cultures (IL)
General Education: Humanities (GH)
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Key Literacies

CMLIT 4: Introduction to Asian Literatures

3 Credits

Satisfies General Education (GH), International Cultures (IL), Other Cultures (BA) requirements. This course is designed to act as a gateway to Asian literatures and cultures - through English translation - of selected fictional and cinematic texts from Japanese, Chinese, Korean, and Asian diaspora literature (our main focus is on literature of modern Asia). Exploring the historical and cultural contexts of each work, we will pay attention to the ways in which each text depicts the diversities within geographical areas (for instance, "Japanese culture" is not monolithic than "U.S. Culture" is, and writers might see the same social reality in quite differently). The cross/inter-cultural approach used in this course invites students to acquire a global perspective on the rich traditions of Asian cultures and literatures. Students are expected to develop the ability to comparatively analyze and express, in speech and writing, their views through the reading of literary texts and watching of films.

Cross-listed with: ASIA 4
Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures
International Cultures (IL)
General Education: Humanities (GH)
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Soc Resp and Ethic Reason

CMLIT 5: Introduction to Literatures of the Americas

3 Credits

Comparative interpretation of the oral and written literary traditions of North, Central, and South America. CMLIT 5 Introduction to Literatures of the Americas (3) (GH;US;IL)(BA) This course meets the Bachelor of Arts degree requirements. CMLIT 5, Introduction to Literatures of the Americas, allows you to explore the great variety of literatures of the Americas, including translations of texts written in Spanish, French, Portuguese, and Amerindian languages, as well as texts originally written in English. Readings include many genres and artistic forms dealing with histories and accounts of "American" issues, such as conquest, nationalism, slavery, diaspora, and immigration. You will also consider the various influences among these traditions in terms of time period and genre. This course investigates the literary and cultural notion of "America," and what it means to be "American," in terms of the entire hemisphere. We will deal with issues of race, ethnicity, class, religion, as well as other vital concerns of identity and "Americanness" as reflected in both oral and written literary traditions through the history of the Americas. At the conclusion of this course, you should be able to understand and make - comparisons among the many "American" literary traditions. This course fulfills requirements for the Comparative Literature major, the World Literature minor, General Education Humanities,

Bachelor of Arts Humanities, and General Education United States and International Competency.

Bachelor of Arts: Humanities
International Cultures (IL)
United States Cultures (US)

General Education: Humanities (GH)
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Global Learning

CMLIT 6: Literature and Philosophy

3 Credits

This course serves as an introduction to philosophy through the critical and analytic reading of popular, classic, and insightful literature - novels, plays, poetry, and creative non-fiction - from both Western and Non-western authors and cultures. We ask questions about the experience, purpose, and value of reading these works: Why do we sympathize with fictional characters? What do "coming of age" books contribute to our own maturity? Does literature give us insight into other people, and even into ourselves, unavailable in any other way? What is happening when someone says that a work belongs to the "canon"? What does a literary artist need to know to create the works of great insight she or he creates?

Cross-listed with: PHIL 6

Bachelor of Arts: Humanities
International Cultures (IL)

General Education: Humanities (GH)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

CMLIT 7: Introduction to Middle Eastern Literatures

3 Credits

This course provides an introduction to the diverse literatures of the region known as the Middle East. Through a study of translations of works from Arabic, Turkish, Persian, Hebrew and other languages as well as Anglophone Middle Eastern literatures, students will study Middle Eastern literatures and cultures in their diversity. Approaching works from the modern period in the context of shared histories of modernization, secularization, postcolonial nation-building, and globalization, this course will emphasize important thematic continuities across modern literatures of the region. Though the focus will be on the modern period, students will also be introduced to the rich literary networks of the so-called premodern era, exploring past literary connections and their legacies for the present. The relationship between literature, film, and other media may also be explored. Topics to be discussed may include Orientalism, Middle Eastern refugee and migration literatures, cross-cultural encounters, women's and minority writings, prison and protest literatures, petrofiction and climate fiction. This course fulfills the General Education Humanities requirement, the International Cultures requirement, and the Bachelor of Arts Humanities and Other Cultures requirement.

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures
International Cultures (IL)

General Education: Humanities (GH)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

CMLIT 10: World Literatures

3 Credits

The development of literature around the world - from epic, legend, lyric, etc. in the oral tradition to modern written forms. CMLIT 10 The Forms of World Literature: A Global Perspective (3) (GH;IL)(BA) This course meets the Bachelor of Arts degree requirements. As a one-semester introduction to the range and diversity of world literature from the ancient past to the present, CMLIT 10 is intended to help you read (or listen to) a work of literature from any time or place and to appreciate it more fully - whether it belongs to the more familiar types of literature you may have read in the Western tradition or is a fable, folktale, hero story, play, or narrative from another cultural tradition. You will practice expressing your ideas through written exams and in-class and on-line discussions/activities. Discussion sessions allow interaction with the instructor and with other students in the class. This course presents a global sampling of masterpieces of world literature. Students will become familiar with various literary genres and become proficient in the analysis of the similarities and differences between texts from many different time periods and cultures. CMLIT 10 is one of the choices of survey courses which can count toward the Comparative Literature major and the World Literature minor. This course also fulfills the General Education humanities requirement, the Bachelor of Arts humanities requirement, and the United States and International requirement.

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures
International Cultures (IL)

General Education: Humanities (GH)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Global Learning

CMLIT 10U: The Forms of World Literature: A Global Perspective

3 Credits

The development of literature around the world—from epic, legend, lyric, etc. in the oral tradition to modern written forms. CMLIT 10U The Forms of World Literature: A Global Perspective (3) (GH;IL)(BA) This course meets the Bachelor of Arts degree requirements. As a one-semester introduction to the range and diversity of world literature from the ancient past to the present, CMLIT 10U is intended to help you read (or listen to) a work of literature from any time or place and to appreciate it more fully—whether it belongs to the more familiar types of literature you may have read in the Western tradition or is a fable, folktale, hero story, play, or narrative from another cultural tradition. You will practice expressing your ideas through written exams and in-class and on-line discussions/activities. Discussion sessions allow interaction with the instructor and with other students in the class. This course presents a global sampling of masterpieces of world literature. Students will become familiar with various literary genres and become proficient in the analysis of the similarities and differences between texts from many different time periods and cultures. CMLIT 10U is one of the choices of survey courses which can count toward the Comparative Literature major and the World Literature minor. This course also fulfills the General Education humanities requirement, the Bachelor of Arts humanities requirement, and the United States and International requirement.

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Humanities (GH)
 Honors
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning

CMLIT 11: The Hero in World Literature

3 Credits

The figure of the hero/heroine examined in world literature as a vehicle for expressing social and cultural values. CMLIT 11 The Hero in World Literature (3) (GH;IL)(BA) This course meets the Bachelor of Arts degree requirements. This course will examine the concept of heroism and of heroes throughout the world in different time periods and different literary genres. We will examine different types of heroes and theories of heroism, as well as gender relations involved in concepts of heroes/heroines, and the roles of anti-heroes, villainous heroes, and the enemies of heroes. Heroes represent the most ideal values of a particular society. By examining heroes revered by a variety of societies, a greater awareness of values both specific to individual cultures and universal across cultures can be reached. Through comparisons of a variety of heroes, literary and social roles in the formulation and manipulation of heroic types can be assessed. The objectives of this course include expanding students' awareness of the values of different cultures, examining the consequences of value systems as explored in literature, and increasing their skills of critical analysis on a body of literature designed to encourage the student to accept, reject, or question specific ideas of good and evil, proper behavior, and appropriate action within cultural contexts. CMLIT 11 is one of the many choices of survey courses which count towards the Comparative Literature major and the World Literature minor. This course also fulfills the General Education Humanities requirement, the Bachelor of Arts Humanities requirement, or the United States and International requirement.

Bachelor of Arts: Humanities
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Global Learning

CMLIT 12: Introduction to World Drama and Performance

3 Credits

The power, ethics, and excitement of drama and related forms of performance literature, presented in a global and comparative context. CMLIT 12 Introduction to World Drama and Performance (3) (GH;IL) (BA) This course meets the Bachelor of Arts degree requirements. Introduction to World Drama will enable students to discover the power and excitement of drama in a global context. Students will encounter a variety of cultural contexts as they observe how playwrights portray local histories and lifestyles, in settings from many parts of the world. The course will offer (1) an introductory overview of concepts and terms associated with understanding drama. It will present (2) traditional dramatic forms such as tragedy, comedy, history play, allegory, Noh, etc., as seen in plays prior to the twentieth century; and (3) recent dramatic forms such as testimonial, other politically engaged plays, drama online or on film, etc., as seen in plays from the twentieth and twenty-first centuries. Attention will be given to (4) the dramatic contributions of multiple cultural groups in the U.S., with African American, Asian

American, Latino, and other U.S. plays seen not in isolation, but in relation to world drama. Finally, (5) the course will consider ways in which drama, as a form of world literature, can have an international and intercultural impact, both in earlier periods and recently, when global circulation and international collaboration are increasingly frequent.

Bachelor of Arts: Humanities
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning

CMLIT 13: Virtual Worlds: Antiquity to the Present

3 Credits

Virtual worlds from ancient to postmodern, in a comparative and global context that includes literature, film, and online multiplayer games. CMLIT 13 Virtual Worlds: Antiquity to the Present (3) (GH;IL) (BA) This course meets the Bachelor of Arts degree requirements. What are virtual worlds? And why do they speak so intensely to us about the present? This course puts immensely popular online virtual worlds like World of Warcraft into a historical perspective. Beginning with Homer, students will work through some of the major imaginative worlds of literary history, including those of the Bible, Dante, Shakespeare, Goethe, Lu Xun, Basho, Balzac, and others. We will conclude by reading and discussing about the meaning and value of contemporary online virtual worlds. We will analyze the ways in which virtual worlds represent/reflect on the cultures from which they emerge; their ethical stances and structures; and the alternative imageries they embody.

Bachelor of Arts: Humanities
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Key Literacies

CMLIT 19N: Being in the Universe

3 Credits

"Being in the Universe" considers three fundamental questions of human existence from both humanistic and scientific perspectives: (1) What is the nature of our universe, and to what extent are creatures like ourselves a predictable consequence of it? (2) What is the nature of time, and what does it mean to be a conscious being living our lives through time? (3) What would it mean for humans to be alone in the Galaxy or the universe, or alternatively, not alone? "Being in the Universe" is an integrative GH+GN GenEd course. The course's three major units cover the following topics: (1) We discuss cosmology and religion as human enterprises, as well as the history of science; (2) We study the basic scientific theory of the Big Bang universe, and consider its implications for human life; (3) We address contemporary theories of the multiverse from scientific, philosophical, and literary perspectives; (4) We consider the thermodynamic and relativistic theories of time, and the basic philosophical approaches to time, and discuss the implications of these for our ordinary human experience of the past, present, and future; (5) We discuss the history of life in the universe, the possibility of life on other planets, and the social, religious, and imaginative reactions to those possibilities in literature and film.

Cross-listed with: ASTRO 19N

Bachelor of Arts: Humanities
 Bachelor of Arts: Natural Sciences
 General Education: Humanities (GH)
 General Education: Natural Sciences (GN)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

CMLIT 83S: First-Year Seminar in Comparative Literature

3 Credits

International topics in literature and culture; each seminar will have a specific topic as announced (see the Comparative Literature Web site). CMLIT 83S First-Year Seminar in Comparative Literature (3) (GH;FYS;IL) (BA) This course meets the Bachelor of Arts degree requirements. This course has two main purposes: to introduce first-year students to college study in the Liberal Arts, especially in literature as a humanities field of lifelong value, regardless of their majors; and to explore one of the most important trends of our time, which is the emphasis upon globalization and intercultural competence. In a small-class format that fosters individual engagement, the course includes practical guidance to help students optimize the opportunities available to them at Penn State, along with experiencing an international, intercultural approach to ways that literature addresses issues of crucial personal and social importance. With an entire world of literature to choose from, the theme of each seminar varies. Sample themes include "Hero-Tales: Boundaries between Fact and Fiction," "Literature, Health, and Wellness," "Cosmopolitan Cities, Real and Imagined," "Books that Change Lives," "America Seen from Elsewhere," "World Literature, Human Rights, and the Environment," "Myth, Legend, and Gender Identities," or "Forbidden Stories: Literature and Censorship." Course materials will cross boundaries of time, place, identities, languages, and cultures, and will often include media such as graphic narrative (comics) and film.

Bachelor of Arts: Humanities
 International Cultures (IL)
 First-Year Seminar
 General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Soc Resp and Ethic Reason

CMLIT 97: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Humanities

CMLIT 99: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Humanities
 International Cultures (IL)

CMLIT 100: Reading Across Cultures

3 Credits

CMLIT 100 Reading Across Cultures, is an introductory course to the discipline of Comparative Literature. The course is generally based upon a central theme (or series of themes) around which the reading assignments are chosen. Through a range of traditional (poems, short stories, drama, novellas, novels) and non-traditional (film, multimedia, hypermedia) texts from around the world, students will develop the ability to analyze literature in a variety of ways. Students will examine works both within their individual and diverse cultural contexts, and in relation to broader themes that transcend the boundaries of time and place. As an introductory course, CMLIT 100 is intended to lay a solid foundation for further study in any college-level courses on cultures and/or literature. Through an examination of a wide range of world literature, we will explore the practical aspects of what it means to deal with literary works in a comparative global context. The course is intended to help you develop your analytical and comparative skills and to simultaneously introduce you to a wide variety of interesting world literatures.

Bachelor of Arts: Humanities
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Key Literacies

CMLIT 101: Race, Gender, and Identity in World Literature

3 Credits

CMLIT 101 The Theme of Identity in World Literatures; Race, Gender, and Other Issues of Diversity (3) (GH;US;IL)(BA) This course examines issues of race, gender, religions, and ethnicity as expressed in literary, social, and cultural contexts. We will address these questions in works from a variety of traditions and time periods. Literary works from around the world show a wide range of response to the "other" -- idealization of difference as exotic, fear of difference as threat, the desire to suppress difference or force it into conformity, the recognition of difference within ourselves, etc. The scope includes authors who are themselves members of racial, sexual or ethnic groups with which you may be less familiar. You will also consider the question of who and what constitutes identity as perceived by oneself and by others.

Bachelor of Arts: Humanities
 International Cultures (IL)
 United States Cultures (US)
 General Education: Humanities (GH)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Key Literacies

CMLIT 105: The Development of Literary Humor

3 Credits

Literary humor expressed as satire, comedy, and farce--from ancient times to the present--in an international and multicultural context. CMLIT 105 The Development of Literary Humor (3) (GH;IL)(BA) This course meets the Bachelor of Arts degree requirements. CMLIT 105 is a broadly international course dealing with the nature of comedy and humor in literature. You will read samples from a broad spectrum of

humor, including comedy, wit, satire, parody, irony, and farce. Through discussion and writing, you will also examine the techniques through which humor criticizes human nature, analyzes society, and expresses differing world views. The syllabus may be represented chronologically or divided into topics or literary forms that suggest various emphases, functions, and objects of literary humor. This course will provide opportunity to discuss both the widespread, or even universal, aspects of literary humor, and the diversity of literary humor across cultures and time periods. At the conclusion of this course, you should be able to understand and compare various literary forms and social, political, and cultural contexts that define humor and to assess the extent to which literary humor is or is not translatable across cultures or ethnic communities, or other groups. This course fulfills requirements for the Comparative Literature major, the World Literature minor, General Education Humanities, Bachelor of Arts Humanities, and General Education International/Intercultural Competency.

Bachelor of Arts: Humanities
International Cultures (IL)
General Education: Humanities (GH)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Key Literacies

CMLIT 106: The Arthurian Legend

3 Credits

The growth and development of the legend of King Arthur, from medieval Europe to modern Japan. CMLIT 106 The Arthurian Legend (3) (GH;IL) (BA) This course meets the Bachelor of Arts degree requirements. This course is designed to familiarize students with the legends about and surrounding King Arthur and the Round Table fellowship. Through a series of readings, students will survey the development of the legends of Arthur from their beginnings in early medieval Europe to their modern adaptations in many cultures around the world. The Arthurian legend is an ideal vehicle for showing the ways in which literary works capture and express changing value systems in different cultural and historical situations, and thus the course is a good example of comparative (international) approaches to literary study. Classes will discuss the changing cultural ideals represented, the different characterizations of the central figures, and the literary techniques employed. Lectures and discussions will be supplemented by overheads, slides, music, and films or film clips dealing with Arthurian themes. Throughout, the course will ask why and how the stories of Arthur and the Round Table fellowship have captured the imagination of artists, political and religious leaders, and readers throughout the ages and around the world. Finally, it will ask how the practical concerns of daily life are developed in this literature—for example, how does this highly imaginative literature address practical concerns such as striking a balance between one's short-term goals and personal gratifications, and one's long-range obligations to other people? Means of evaluation will be selected from the following (always including writing): essay exam questions, short answer and objective questions, reading journals, quizzes, in-class discussion, group projects (including web sites), research and critical papers, and final comprehensive written exam. CMLIT 106 is not required for the Comparative Literature major but may be selected to fulfill one of the course requirements for the major or the World Literature Minor. This course also fulfills the General Education Humanities requirement, the Bachelor of Arts Humanities requirement, and the IL requirement.

Bachelor of Arts: Humanities

International Cultures (IL)
General Education: Humanities (GH)
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Key Literacies

CMLIT 107: Exploration, Travel, Migration, and Exile

3 Credits

CMLIT 107 The Literature of Exploration, Travel, Migration, and Exile (3) (GH;IL)(BA) This course meets the Bachelor of Arts degree requirements. CMLIT 107 compares the literatures of travel, migration, exploration, and exile from ancient times to the future, from narratives of journeys actually experienced through narratives of journeys imagined in the mind. The notion of the journey is broadly defined as encompassing both literal and metaphorical experiences, including travel journals and diaries, epic adventures, quests of introspection, dreams and visions, and depictions of the future. Through reading, discussion, and writing, you will examine and compare the different roles that travel can play in the imaginations of both the individual writers and the cultures from which they come. You will not only explore recurrent themes and timeless topics, but also the ways in which travel writing can both reinforce and subvert the basic value-systems, stereotypes, or other assumptions present in its cultural context. For many writers, traveling elsewhere is a means of evaluating their own societies, as well as a means of recording their responses to encountering real or imagined new places. The journeys of this course, which vary greatly from each other, will also allow you to consider some of the vast unknowns of the individual human mind and imagination. By traveling through this course, you will have the opportunity to develop the analytic reading, thinking, and writing skills necessary for the understanding of a variety of literatures and cultures, as well as the exploration of your own identity as an individual. This course fulfills requirements for the Comparative Literature major, the World Literature minor, General Education Humanities, Bachelor of Arts Humanities, and General Education International/Intercultural Competency.

Bachelor of Arts: Humanities
International Cultures (IL)
General Education: Humanities (GH)
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Soc Resp and Ethic Reason

CMLIT 108: Myths and Mythologies

3 Credits

World mythology: myths primarily of non-Western cultures, based on selected areas and traditions around the world. CMLIT 108 Myths and Mythologies (3) (GH;IL)(BA) This course offers a survey of several different cultural traditions as expressed in myth, as well as discussion of myth in its literary, social, geographical, political, and religious contexts. Various theories of the evolution and analysis of myth will be examined. Mythological traditions from around the globe will be compared in order to determine qualities which they share and examine ways in which they are unique. This course will help you see the world in new and exciting ways, based on the wide variety of global myths. At the same time, you will consider the permanent human issues which connect all of these traditions to each other, to the modern world, and to you. CMLIT 108 is one of the choices of survey courses, which count toward the Comparative Literature major and the World Literature minor. This course also fulfills the General Education humanities requirement, the

Bachelor of Arts humanities requirement, and the International Cultures requirement.

Cross-listed with: RLST 108

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

CMLIT 109: Native American Myths, Legends, and Literatures

3 Credits

Myths, legends, and literatures of Native American cultures. CMLIT 109 Native American Myths, Legends, and Literatures (3) (GH;GI)(BA) This course meets the Bachelor of Arts degree requirements. CMLIT 109, Native American Myths, Legends, and Literatures, will allow you to read many traditional tales and selected works of modern literature representing a variety of American indigenous peoples. We will be examining the ways in which the myths, legends, and literary works reflect the cultural values and religious beliefs of the tribal nations from which they derive. You will learn how to read critically, analyzing symbols, archetypes, and motifs through the comparison of selected tales to others from the same and from different cultures, allowing you to recognize the rich diversity and unique oral traditions of Native American culture. You will also examine various geographical, historical, political, and social conditions which contribute to myth-making. Through the application of various theories of myth analysis, you will also synthesize the information learned about various Native American traditions with a view toward understanding the distinctive identities of Native American cultures, including where applicable their position as minority cultures, and also seeing their participation in universal human beliefs and concerns. CMLIT 109 can serve as a foundation for other courses dealing with the literatures of the Americas or for other courses dealing with minority literatures and cultures. CMLIT 109 is not required for the CMLIT major but may be selected to fulfill one of the course requirements for the major or form part of a student's choices for the World Literature minor.

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

CMLIT 110: Jewish Literature: An International Perspective

3 Credits

Literature of the Jewish tradition in various cultures and contexts, such as Europe, Israel, Islamic countries, and the Americas. J ST 131 (CMLIT 110) Jewish Literature: An International Perspective (3) (GH;US;IL) (BA) This course meets the Bachelor of Arts degree requirements. CMLIT 110 (JST 131) will provide an introduction to the multiple worlds of Jewish experience and the different literatures they continue to inspire. Jewish literary creativity has varied widely with the personal and communal experience of writers in many parts of the world, and in many different time periods. Readings usually range from the first Jewish literary text, the Hebrew Bible, to twentieth- and twentieth-century

works, including writings about the Holocaust. The course typically includes units such as Jewish writing and culture in Eastern Europe, in the Americas, in Spain during the Middle Ages, and in Israel and the Middle East today. The material may be organized chronologically, thematically, or by regions or languages. Texts that critique or apparently suppress Jewish identity, as well as texts with representations of Jews by writers of other heritages, may be included for comparative purposes. We will include writings by Jewish authors who have written in languages usually associated with Jewish tradition (such as Hebrew and Yiddish) and in other languages (such as Spanish, Arabic, German, English, etc.). Topics discussed in the literature may focus on questions of Jewish identity and continuity, the situation of Jews as a minority people, the immigrant and diasporic experience, representations of the Holocaust, and the establishment of Israeli culture as a mixture of several traditions. We will question generalizations about the meaning of "Jewish" by showing the wide range of characteristics associated with Jewish literary productions, and the great diversity of depictions of Jews and Jewish lifestyles, in different times and places. In addition to our primary focus on literary texts, we may include examples of other cultural productions (film, music, the visual arts, philosophy, etc.). CMLIT 110 (JST 131) counts towards the Comparative Literature major and the World Literature minor. No prior knowledge of Jewish tradition is required, and General Education students are welcome. This course also fulfills the General Education Humanities requirement, the Bachelor of Arts Humanities requirement, and the United States and International Cultures requirement.

Cross-listed with: JST 131

Bachelor of Arts: Humanities

International Cultures (IL)

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

CMLIT 111: Introduction to Literatures of India

3 Credits

CMLIT 111 Introduction to Literatures of India (3) (GH;IL)(BA) This course examines readings and cultural texts from India and other parts of South Asia, including both classical and modern texts from a variety of traditions. Readings from languages other than English will be in translation. You will read, discuss, and write about these texts from the viewpoint of race, gender, culture, religion, philosophy, and ethnicity in a comparative, global, and historical perspective. While improving your understanding of difference and diverse cultures, this course incorporates lesser known and even marginalized works by Asian writers in this study of cultural and social identities and contexts. CMLIT 111 will also help you understand the influence of classical texts, as well as classical and modern culture, on recent literary productions of South Asia. You will gain an understanding of different national literatures and cultures, as well as knowledge of the historical, philosophical, and political contexts that produced them. Ideas such as "the other," gender, and Orientalism will also be included in discussions of the texts. CMLIT 111 is one of the many choices of survey courses which count towards the Comparative Literature major and the World Literature minor. This course also fulfills the General Education Humanities requirement, the Bachelor of Arts Humanities requirement, and International Cultures requirement.

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Soc Resp and Ethic Reason

CMLIT 112N: Introduction to Global Drama, Theatre, and Performance

3 Credits

Introduction to Global Drama, Theater, and Performance will enable students to discover the power and excitement of drama in a global context. Students will encounter a variety of cultural contexts as they observe how playwrights portray local histories and lifestyles, in settings from many parts of the world. The course will offer (1) an introductory overview of concepts and terms associated with understanding drama and the technical aspects of theater. It will present (2) traditional dramatic forms such as tragedy, comedy, history play, allegory, Noh, etc., as seen in plays prior to the twentieth century; and (3) the dramatic contributions of multiple cultural groups in the U.S., with African American, Asian American, Latino, and other U.S. plays seen not in isolation, but in relation to world drama. (4) the course will consider ways in which drama, as a form of world literature, can have an international and intercultural impact, both in earlier periods and recently, when global circulation and international collaboration are increasingly frequent. Finally, (5) this course will look at world drama and theater from a design and performance perspective. Class work may include lectures or presentations by the instructor, presentations by students, web based activities, and focused discussions.

International Cultures (IL)
 United States Cultures (US)
 General Education: Arts (GA)
 General Education: Humanities (GH)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking

CMLIT 113: Jewish Myths and Legends

3 Credits

Comparative study of diverse interpretations of stories from the Bible in Judaism and Christianity. CMLIT 113 / JST 113 / CAMS 113 / RLST 113 Myths and Legends of the Jews (3) (GH;IL) The impact of the Bible on Western Culture is immense. Beyond its religious importance, the motifs and images from its myths and stories permeate literature and art, providing a basic frame of reference that for much of history could be taken for granted. A degree of familiarity with these motifs so as to be truly fluent is no longer common, and so it requires special effort to discern allusions to biblical traditions. Moreover, these traditions are not static: religious communities continually re-interpret them and appropriate them in very different contexts. Many prominent traditions in Judaism, Christianity, and Islam do not appear explicitly anywhere in the Hebrew Bible, but are the product of imaginative and ingenious interpretation and re-tellings. Why, for example, is Noah an example of a righteous person in Christian tradition, but in rabbinic tradition is more often portrayed as a profane, earthly-minded man who was saved only because he was the least bad of an evil generation? Why is Moses commonly portrayed with horns in medieval art? Underlying

such different traditions are centuries of debate and reflection on these texts as sacred scripture, and competing religious communities often authorized their distinctive beliefs and practices by reading them into scripture. The differences are often too subtle to discern apart from careful comparison. This course will explore the boundaries between Scripture and tradition by means of a close examination of the myths and stories in the Hebrew Bible and their subsequent interpretation and re-tellings in Judaism, Christianity, and Islam. Using methods from comparative mythology and folklore, as well as comparative midrash, our procedure will be to compare these traditions closely with the biblical text, asking: What are the main motifs in the mythology of Judaism? Does Judaism have a coherent mythology? How do their myths compare with the myths of their neighbors? Where did these myths come from? How do these traditions relate to the Bible? What was the function of these myths? Why are there competing myths? How is it possible that Judaism affirms belief in only one God, but has myths that include other divine beings? We will also compare with later interpretive traditions (Jewish, Christian, Islamic). Can we trace trajectories of interpretation? Can we discern particular interpretive methods in operation? We will seek to answer: what do these re-workings of the traditions tell us about the development and function of Scripture, and the social circumstances of the communities? Finally, we will seek to detect reflections of these interpretive traditions in literature and art from the medieval to the modern periods. The course is organized around major topics in the Jewish Scriptures: God, creation, heaven and hell, Torah, Sabbath, Abraham and other ancestors, Israel and holy land, exile, and Messiah. Throughout we will consider how sacred stories function to form ethical perspectives and values.

Cross-listed with: CAMS 113, JST 113, RLST 113
 Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies
 GenEd Learning Objective: Soc Resp and Ethic Reason

CMLIT 116: Jewish Great Books

3 Credits

Historical and cultural survey of key texts of the Jewish Tradition, from The Bible to the present. CMLIT (J ST) 116 Jewish Great Books (3) (GH;IL) (BA) This course meets the Bachelor of Arts degree requirements. This course will introduce students to the rich and diverse expanse of the Jewish tradition through a survey of that tradition's most important texts. Starting from the Bible, moving up through the contemporary world, and spanning the globe, the course will examine religious, cultural, folkloric, philosophical, national, and literary traditions, and attention will be paid to both breadth emphasizing the vast range and diversity of Jewish thought and writing and depth emphasizing the complexity and subtlety of particular texts in examining the material. Students will learn methods and practices of textual, cultural, and historical criticism as they engage in analysis of Jewish textual traditions, of the relationship between representation and history, and of the productive interchanges between representation, history, and identity.

Cross-listed with: JST 116
 Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)

General Education: Humanities (GH)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Key Literacies
 GenEd Learning Objective: Soc Resp and Ethic Reason

CMLIT 120: The Literature of the Occult

3 Credits

Important literary works dealing with witchcraft, demonology, vampirism, ghosts, and related concepts, from biblical times to present. CMLIT 120 The Literature of the Occult (3) (GH;IL)(BA) This course meets the Bachelor of Arts degree requirements. CMLIT 120 is the study of literatures of the occult. Through readings of creative and critical works, you will develop an enhanced awareness of the variations among cultures and historical periods in accepting, fostering, tolerating or sometimes suppressing-unorthodox traditions. Our range of readings from world literature will show that what is rejected or scorned in one cultural context may be tolerated or even honored in another. You will also explore the social, political, ethical and religious implications of "occult." The course will be designed to compare various manifestations of the occult in literatures from around the globe and throughout history. You will explore issues of difference, and will develop an awareness of the tendency to demonize the 'strange' and 'inaccessible.' Through various texts from around the world, you will develop the ability to analyze literature in different ways. Readings will be examined both within their cultural context, and in relation to widely found or perhaps universal themes of the occult which transcend the boundaries of time and place. CMLIT 120 is one of the many choices of survey courses which count towards the Comparative Literature major and the World Literature minor. This course also fulfills the General Education Humanities requirement, the Bachelor of Arts Humanities requirement, or the United States and International Cultures requirement.

Bachelor of Arts: Humanities
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Key Literacies

CMLIT 122: Global Science Fictions

3 Credits

A study of the relationships between science, literature, and film, from an international and interdisciplinary perspective. CMLIT 122 Global Science Fictions (3) (GH;US;IL) (BA) This course meets the Bachelor of Arts degree requirements. This course examines science fiction and the fictions of science from an international and interdisciplinary perspective. Course content includes a history of the idea of science, of its engagement with and by fictional, filmic, dramatic, and poetic narratives, within an explicitly comparative framework that includes material from Europe, the Americas, Asia, and Africa. Students will develop a theory of genre and its development over time; they will recognize regional, cultural, and historical differences and forms of change that affect the intellectual development of the arts and sciences.

Bachelor of Arts: Humanities
 International Cultures (IL)
 United States Cultures (US)
 General Education: Humanities (GH)

GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Key Literacies

CMLIT 128N: The Holocaust in Film and Literature

3 Credits

This class studies how art, literature, film, and other media can help us to gain a perspective on one of the most horrific events in human history, the Holocaust: the genocidal murder of more than six million men, women, and children (mostly Jewish) under the Nazi regime during World War II. We will also examine the theoretical questions involved in any attempt to capture what appears to be beyond our comprehension, in terms of moral outrage and the sheer scale, inhumanity, and bureaucratic efficiency. To this end we will study literary works, such as Primo Levi's *Survival in Auschwitz*, films such as Steven Spielberg's *Schindler's List*, Roman Polanski's *The Pianist*, and Roberto Benigni's *Life is Beautiful*, as well as photographs, poems, artworks, installations, museum architecture, the design of monuments and other artifacts. We will also examine questions of memorialization (Holocaust museums and memorials), national guilt, survivor's guilt, stigmatization, and the ethics of historical representation.

Cross-listed with: ENGL 128N, GER 128N, JST 128N
 Bachelor of Arts: Arts
 Bachelor of Arts: Humanities
 International Cultures (IL)
 United States Cultures (US)
 General Education: Arts (GA)
 General Education: Humanities (GH)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies
 GenEd Learning Objective: Soc Resp and Ethic Reason

CMLIT 130: Banned Books: International and Comparative Perspectives

3 Credits

The world of banned books, their history, and their politics, studied comparatively and internationally. CMLIT 130 Banned Books: International and Comparative Perspectives (3) (GH;IL) This course examines one of the most documented events in the history of book reception - the banning of books. Bannings provide a useful window onto the myriad functions of culture in social identity formation. In order to understand how and why offense is given and taken, students will learn to place texts in a specific context of their historical production and reception and also to extrapolate connections between disparate moments when taboos were named. Incorporating examples from a range of global systems of censorship, the course examines differences in the modes and effects of repression and the sometimes surprising connections between church and monarchy, fascism and democracy. This course raises the following questions:-How has censorship been justified? When, if ever, is censorship justifiable? What are the grounds on which censorship can be judged successful or incomplete? Who censors? Who is censored? What are local categories of censorship? Though books are banned for reasons of blasphemy, sedition, and obscenity in various guises in several cultures, are these global categories? How do writers write against a ban? How do they write within it? What are the roles of importation, technologies of circulation, and geography in the censorship of texts? How do border-crossings and forms of miscegenation offend?

Is there a unifying aesthetics to books that offend? The course will help students understand value systems and historical contexts in which they were produced and in which they caused offense. It will also ask students to draw connections between seemingly unrelated moments of offense in order to assist students in developing both analytical and expressive abilities. The course is designed to be suitable for all students, whether or not they have previously studied literature or comparative literature.

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

CMLIT 131: Crime and Detection in World Literature

3 Credits

Issues of ethics, truth, justice, and social order as embodied in crime and detective literature, presented in comparative contexts. CMLIT 131 Crime and Detection in World Literature (3) (GH;IL) This course studies the origins and development of crime and detective literature from an international and interdisciplinary perspective. Beginning with early Greek tragedies, the course traces literature's investment in issues of crime, violence, detection, forensics, and social justice through a variety of historical and cultural contexts; this may include the classical era, the early modern period, the Enlightenment, the industrial era, and the modern/contemporary world. Some of the questions addressed may include reigning myths about law and order; the rise of urban societies and mass culture; the construction of the detective figure, the witness, the criminal, and the victim as models of subjectivity; issues of gender and sexual violence; and the nature of justice. Students will learn about the history of the idea of crime and its relationship with literary form. They will develop ideas about the contribution of literary thinking to ideas of social justice, as well as a theory of genre and its development over time; they will recognize regional, cultural, and historical differences and forms of change that affect the intellectual development of literature and detection alike.

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Soc Resp and Ethic Reason

CMLIT 132: Nobel Prize Literature

3 Credits

Introduction to Nobel Prize winning literature and the culture of the prize in international and historical context. CMLIT 132 Nobel Prize Literature (3) (GH;IL) (BA) This course meets the Bachelor of Arts degree requirements. This course will provide an introduction to Nobel prize-winning literature. Students will learn about the authors and their works in cultural and historical context. Readings will cover several genres (such as poetry, drama, short story, and novel) and will include authors from an array of linguistic and cultural traditions (such as African, Latin American, Middle Eastern, European, North American, and Asian). In addition to reading primary literature, students will enrich their understanding of literary history by exploring secondary material such as essays, short biographies, reviews of author's works, and the authors' Nobel Prize acceptance lectures. The course will begin by introducing Alfred Nobel, founder of the Nobel Prize, and by surveying the parameters guiding how the prize has been awarded since its inauguration in 1901.

Further readings may be organized temporally or thematically, but will be structured so that students develop a global perspective, allowing them to understand the variety of cultural contexts that have inspired the creative works under study. By examining the primary literature in connection with developing trends in prize culture, students will investigate such topics as pacifism and optimism in international prize culture, narrative and rhetorical techniques, the formation and expression of identity, changing gender roles and social expectations, the development of global Englishes, the emerging notion of world literature, and the changing climates of censorship and freedom of expression. The course is designed to be suitable for all students generally interested in literature and the globalization of culture. Prior study of literature is not required and all materials will be available in English.

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Global Learning

CMLIT 133N: Global Satire and Modern Politics

3 Credits

Across cultures and across history, people have used political satire to call out abuses of power, manipulation, deception, and absurdity. While there are examples of political satire everywhere, its growth has been on the rise since the turn of the 21st century. Drawing on examples from Stephen Colbert to Bassem Youssef to Charlie Hebdo and studying a range of different types of satirical media this course examines the role that satire has played in shaping political discourse and advancing democracy. Possible topics include the use of satire to bring down Serbian dictator Slobodan Milosevic, the attacks on the French satirical magazine Charlie Hebdo, the political comedy of Jon Stewart and Stephen Colbert, the street art of Banksy, and the use of political cartooning in Africa. Students will hone their analytical skills through critical response papers, cross-cultural assessment of satire, comparative analysis of satirical forms, group projects, assessment of the effects of satire on shaping political debates, and quizzes on readings from the social sciences and humanities. This class is a GenEd inter-domain course for GH/GS; and International Cultures (IL) course.

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

CMLIT 140: Literature and the Other Arts: International and Comparative Perspectives

3 Credits

A comparative, international examination of the relationship between literature and non-literary art forms. CMLIT 140 Literature and the Other Arts: International and Comparative Perspectives (3) (GH;IL) (BA) This course meets the Bachelor of Arts degree requirements. All around the world, literature and other forms of creative expression are related in

many fascinating ways. Writers and artists often find inspiration from each other, and some artists work across a wide spectrum of genres and embody several identities at once. In different times and places, how have writers and artists reacted to critical events or lifecycle experiences? What techniques have writers, artists, composers, and choreographers shared? In examining a broadly international range of materials, in this course we will consider (1) how artists and writers depict common themes such as nature, death, aging, love, and more; (2) ways in which art and literature relate to each other; and (3) how literature and other arts are influenced by, and in turn exert influences upon, their cultural and social contexts. Using a global perspective, we will examine relationships between literature and a variety of artistic forms, such as painting, photography, comics, film, theatre, opera, music, sculpture, and more. Students will practice enabling skills for reading across genres, media, and cultures, and for expanding their skills in analyzing and synthesizing information, their awareness of a wide variety of value systems and cultural traditions in different times and places, and their horizons of literature in global contexts.

Bachelor of Arts: Humanities
International Cultures (IL)
General Education: Humanities (GH)
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Key Literacies

CMLIT 141: Religion and Literature

3 Credits

Major religious themes as expressed in literary masterpieces; sacred texts from various cultures read as literature. CMLIT 141 Religion and Literature (3) (GH;US;IL)(BA) This course meets the Bachelor of Arts degree requirements. CMLIT 141 is an introduction to literature, to religious writing, and to the many ways in which literature draws upon or interacts with religion. Among the many possible relationships between religion and literature are: straightforward dramatization of sacred texts; allegory; expression of mystical experience; exploration, dramatization, and individualization of theological issues; the creation of literature to promote or to meet the needs of piety; and utilization of religious imagery and symbolism as a poetic resource. Readings will include sacred texts, and also literature that draws upon or responds to sacred texts and religious traditions. It may also include avowedly secular literature that shows some relationship to religious tradition, and even literature questioning or critical of specific religious traditions or their adherents. Students will read works from a range of historical periods and world societies, both Western and non-western. CMLIT 141 is not required for the CMLIT major but may be selected to fulfill one of the course requirements for the major or for the World Literature Minor. This course also fulfills the General Education Humanities requirement, the Bachelor of Arts Humanities requirement, and the United States and International Cultures requirement.

Bachelor of Arts: Humanities
International Cultures (IL)
United States Cultures (US)
General Education: Humanities (GH)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Global Learning

CMLIT 142: The Psychology of World Literature

3 Credits

A comparative, psychological approach to world literature from the perspectives of writer, narrative, character, and reader. CMLIT 142 The Psychology of World Literature (3) (GH;IL) (BA) This course meets the Bachelor of Arts degree requirements. This course explores various psychological approaches to the discussion of literature from the perspectives of writer, narrative, character and reader. Can authors, narrators, and fictitious characters be "psychoanalyzed"? To what extent do cultural variants affect a psychological approach to literature? Are there psychological universals that transcend time and culture? How does an awareness of psychology affect the reader? All of these issues will be discussed and compared with an eye to speculating the ways in which the human mind creates literature and literature impacts the human mind.

Bachelor of Arts: Humanities
International Cultures (IL)
General Education: Humanities (GH)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Integrative Thinking

CMLIT 143: Human Rights and World Literature

3 Credits

Human rights violations discussed in tandem with their literary representation, presented in a global and comparative context. CMLIT 143 Human Rights and World Literature (3) (GH;US;IL)(BA) This course meets the Bachelor of Arts degree requirements. "Human rights" refers to basic rights and freedoms to which all humans are entitled, often held to include the right to life and liberty, freedom of thought and expression, and equality before the law. But these ideas have not always been a part of human thought and some scholars believe that without certain forms of literature today's understanding of human rights would not exist. Through comparative analysis of a variety of human rights storytelling genres that reflect a range of contexts, this course will suggest that it is impossible to understand human rights without also thinking about the stories that create and sustain their idea. One main premise of this course is that the representation of human rights violations is always a vexed undertaking. It is both urgent and necessary, while also incomplete and inadequate. In order to explore this dilemma, this course focuses on the intersection between human rights advocacy and the various cultural forms that explicitly attempt to participate in human rights discourse. The course will cover a variety of cultural forms such as comic books, movies, photography, novels, testimonials, poetry, plays, etc. that reflect on human rights atrocities such as slavery, the Holocaust, war, dictatorships, apartheid, genocide, and more. At the center of the course are questions about aesthetics and ethics. What are the risks and obligations of human rights storytelling and how are these linked to specific cultural forms and aesthetic practices? This course examines a range of human rights stories through a balance of context and close reading, where stories are studied both for what they say and how they say it.

Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures
International Cultures (IL)
United States Cultures (US)
General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Soc Resp and Ethic Reason

CMLIT 147N: Displacement and Migration

3 Credits

Why do we live in a world where so many people must flee their homes to survive? This course focuses on the rise in forced migration in response to violence, persecution, war, natural disasters, poverty, and environmental degradation from the late twentieth century onward. In the news media, the story of "the global refugee crisis" tends to be told through images of unprecedented disaster and spectacular havoc. To historicize displacement, students will consider the legacies that have led to violence and conflict, giving special consideration to European colonialism and the transatlantic slave trade. They will further learn about the impact of World War II, the Holocaust, and the Cold War on the emergence of the modern human rights architecture and on legal definitions that remain relevant to this day. To investigate this wide-ranging global topic, this course brings together frameworks and contributions from the social sciences and the humanities, inviting students to study the histories, experiences, and voices of those living in a world that moves. Students will engage with artistic representations of displacement through literature and film, in dialogue with migrant testimonies, archival material, international agreements, legal documents, and statistical data. This course adopts a comparative approach, inviting students to consider regimes of (im)mobility from a number of global contexts. Finally, to connect the international content of this course to the local environment, the class will also consider how forcible migration has reshaped communities in Pennsylvania. Given the large scope of the course topic, students can expect some variance in course content as reflective of faculty expertise and interest. Course activities might include interactions with guest speakers, representatives from organizations, interviews with various stakeholders, field trips, creative work, and participation in a public showcase. Students are encouraged to contact the listed instructor for more detailed information.

International Cultures (IL)
 General Education: Humanities (GH)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking

CMLIT 153: International Cultures: Film and Literature

3 Credits

Comparison of narrative techniques employed by literature and film in portraying different cultures, topics may vary each semester. CMLIT 153 International Cultures Through Literature and Film (3) (GH;IL) (BA) This course will compare narrative and artistic techniques employed by literature and film in portraying different social and cultural environments, which will range widely around the globe and may include Africa and the Middle East, East Asia, and South America, as well as European and North American examples. Students will view films and read novels or other texts such as short stories, plays, and poems. The purpose of this course is to have students examine how the selected artists have developed their intentions and their subject matter in their respective

medium, literature or film, and to allow students to study modes of narration across different cultures and media. Through a combination of lectures and comparative discussions, students will examine how components, including plot, genre, environment, character, and point of view are developed in films and fiction from diverse cultures. The course will also discuss techniques that are exclusive to each medium such as editing and cinematography. The comparative nature of the course allows students to understand, evaluate, and appreciate both the universal and unique qualities of the human condition. The study of narrative technique will help students develop analytical skills in discussing and writing about the literary and cinematic expression of cultural values.

Bachelor of Arts: Humanities
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning

CMLIT 183Q: From Beast Books to Resurrecting Dinosaurs

3 Credits

In this honors course, we'll explore changing perspectives on life and approaches to studying life. More specifically, we'll examine, through an historical lens, humankind's quest to describe and explain and, ultimately, to expand the diversity of the living world. We begin with early attempts to classify living things for example, Aristotle and Pliny. We then see how medieval bestiaries appropriated classical ideas about nature while adding to them in the context of Christian historia. In the Enlightenment, Linnaeus's taxonomic work provided a new way of naming and systematizing organisms. On the other hand, the nascent scientific methods of Sir Francis Bacon anticipate the shift from the descriptive to the theoretical and mechanistic that accompanied Darwin's first sketch of a phylogenetic tree and the theory of evolution. We consider new theories, methods, and language in our examination of Watson and Crick and the double helix, molecular biology, and genomics. The course concludes with a glimpse at future possibilities enabled by what was studied previously in the course: genetic engineering, synthetic biology, and de-extinction. The course's original structure offers the experiential engagement of the sciences through laboratory experiments and fieldwork along with the workshop and directed discussions characteristic of the humanities seminar. The content and type of "readings" also reflect both areas and include primary and secondary sources in a variety of media. A visit to a natural history museum and/or zoo provides important physical contexts where students learn about type specimens, live specimens, and how scientists today use collections. They will assemble and curate their own zoological collection, juxtaposing various approaches to describing and classifying animals. The integration of the humanities and the sciences into a single course, along with the incorporation of significant experiential work, helps students gain a broad and deep understanding of and appreciation for each of these intellectual disciplines and for life itself.

Cross-listed with: SC 183Q
 General Education: Humanities (GH)
 General Education: Natural Sciences (GN)
 General Education - Integrative: Interdomain
 Honors
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

CMLIT 184: The Short Story

3 Credits

This course is designed to introduce students to the art of the short story and to acquaint them with some of its most talented writers. During the semester we will read short stories from various cultures and countries, ranging from stories written in the early nineteenth-century to those written within the last few years. Readings will include works from authors like Hawthorne, Melville, Tolstoy, Dostoevsky, Gogol, Bierce, Chekhov, Kafka, Chopin, Crane, Gilman, James, Cather, Joyce, Woolf, Faulkner, Hemingway, Lawrence, Orwell, O'Connor, Baldwin, Olson, Silko, Erdrich, Ondaatje, Barth, Barthelme, Atwood, Mukherjee, Walker, Tan, Calvino, Garcia Marquez, and Cortazar. All readings will be in English. This course is intended to help one learn how to read fiction, how to understand it, and how to talk about it. The desire to tell stories and to be told stories is one of the most basic human needs, and all cultures have been defined in part by the stories they hear and the stories they tell. We are not born knowing how to read the short story or any fiction for that matter. Rather it is a skill that one acquires, and the more one does it, like playing tennis or any other activity, the better one becomes at it, for we learn what to look for. We will explore the historical development of the short story genre, and examine how historical contexts relate to the content and style of the stories under discussion. We will become familiar with how stories are put together and with the vocabulary that is used to discuss fiction—terms such as plot, narrative, character, tone, language, closure, irony, imagery, and so forth. CMLIT/ENGL 184 is not required for the Cmlit major but may be selected to fulfill one of the course requirements for the major or the World Literature Minor. This course also fulfills the General Education Humanities requirement, the Bachelor of Arts Humanities requirement, and International Cultures requirement.

Cross-listed with: ENGL 184
 Bachelor of Arts: Humanities
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

CMLIT 185: World Novel

3 Credits

Development of the modern novel in the last century (outside the British Isles and the United States); lectures, discussions, readings in translation. CMLIT 185 / ENGL 185 The Modern Novel in World Literature (3) (GH) (BA) This course meets the Bachelor of Arts degree requirements. In this course, students will read examples of the modern novel from around the world. Focusing on novels written outside of America and England, this class will explore the development of the modern novel as a genre across a number of world cultures. As an example, moving from the beginnings of literary modernism (the late nineteenth century) through the early and mid twentieth century, the course will consider works by writers such as the following: Chinua Achebe, Italo Calvino, Albert Camus, Simone deBeauvoir, Fyodor Dostoevsky, Isak Dinesen, Marguerite Duras, Natalia Ginzburg, Herman Hesse, James Joyce, Thomas Mann, Gabriel Garcia Marquez, Kenzaburo Oe, and Marcel Proust. This course will address the ways in which the world novels under consideration constitute examples of various literary forms and styles. The class will examine the differences and distances

between literary movements such as social realism and magical realism, modernism and postmodernism. The goals of this course will be to hone students' critical reading and writing skills while granting them the ability to think about the modern novel as a distinct genre in a comparative global context. This course will help students to develop the analytical skills necessary to analyze complex written texts..

Cross-listed with: ENGL 185
 Bachelor of Arts: Humanities
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

CMLIT 191N: Introduction to Video Game Culture

3 Credits

This course is a comparative introduction to the nature and history of video games as cultural artifacts, from Pong to online role-playing. It introduces students to academic discussion on and creative work in new digital forms including hypertexts, video games, cell phone novels, machinima, and more. Students will survey major debates over the meaning and value of video games, and study some of the major theoretical terms and perspectives developed to elaborate the cultural and sociological value of video games. The course extends students' skills in literary interpretation to a variety of new objects, and makes them aware of the role medium plays in aesthetic development and production. Students will leave with a far sharper understanding of how the interpretive tools used in the humanities can be extended to include new media, and with a sense of the historical role video games have played and will continue to play in global cultural production. Because the course is historically focused, it will spend significant time looking at the differential development of video games in three major regions: the United States, Europe, and East Asia (especially Japan).

Cross-listed with: GAME 160N
 Bachelor of Arts: Arts
 Bachelor of Arts: Humanities
 United States Cultures (US)
 General Education: Arts (GA)
 General Education: Humanities (GH)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking

CMLIT 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Humanities

CMLIT 199: Foreign Study—Comparative Literature

3-6 Credits/Maximum of 6

Course offered on comparative literary topics as part of a foreign-study program.

Bachelor of Arts: Humanities
 International Cultures (IL)

CMLIT 240Q: Artistic Patronage in Europe

3 Credits

This course surveys the institutions and social networks in which European fine arts were created, consumed and critiqued. Beginning with the medieval period and ranging to the early 20th century, the course will examine the variety of communities where public and private often intersected and which sponsored innovations in the arts. Often indexing social movements and political change, such communities include convents and cathedrals, royal academies and courts, coffee houses, salons, and theaters. Artists, performers, patrons, politicians, journalists, and others collaborated and competed in these spaces. Such communities could embody political and economic power, or foster resistance to it. This approach to the history of the arts in western culture puts the focus less on the individual creative genius of great composers, writers, painters, and sculptors, and more on the social exchanges and institutions that sponsored and received their work. Such an approach brings to light particularly the ways in which women played significant roles in the production and reception of culture: as salon hostesses, patronesses, and divas, women often enabled and enacted cultural production. Some examples of particular units of study might include: the German convent of Hildegard of Bingen (1098-1179), where monophonic chant and allegorical morality plays developed; the Mantuan (Italy) court of Isabella d'Este, the first lady of the world, (1474-1539) where the roots of the madrigal began and where notable painters found support and sponsorship; the French salons of Mme. Geoffrin (1699-1777) and Mme. de Staël (1766-1817); and the student residences in Madrid where avant-garde writers and artists interacted. Each unit will also consider the relationships between the aesthetic norms and values of a period and the economic and political realities of sponsorship. The course will require that students attend at least one musical performance or concert held on campus during the semester and complete a brief writing project based on that experience. This requirement will encourage students to think about their own university as a contemporary space of cultural sponsorship.

Cross-listed with: HIST 240Q, IT 240Q, WMNST 240Q

International Cultures (IL)

General Education: Arts (GA)

General Education: Humanities (GH)

General Education - Integrative: Interdomain

Honors

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

CMLIT 295: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, non-group instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Bachelor of Arts: Humanities

CMLIT 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Bachelor of Arts: Humanities

CMLIT 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Humanities

CMLIT 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

CMLIT 300: Honors Thesis

3 Credits

Individual projects involving research, reading, and writing; preparation of an honors thesis in comparative literature or world literature.

Prerequisite: Participation in the University Scholars program

Bachelor of Arts: Humanities

Honors

CMLIT 399: Foreign Study--Comparative Literature

3-6 Credits/Maximum of 6

Special course offered on comparative literary topics as part of a foreign-study program.

Prerequisite: third-semester standing

Bachelor of Arts: Humanities

International Cultures (IL)

CMLIT 400Y: Senior Seminar in Literary Criticism and Theory

3 Credits

Discussions of theories of literature, of literary criticism, and particularly of the distinct methods of comparative study; individual projects.

Prerequisite: seventh-semester standing; 18 credits in literature

Bachelor of Arts: Humanities

International Cultures (IL)

United States Cultures (US)

Writing Across the Curriculum

CMLIT 403: Latina/o Literature and Culture

3 Credits

Literary and other forms of cultural expression (film, music, art, and theater) are compared across different Latina/o communities. LTNST (CMLIT) 403 Varieties of Latina/o Cultural Expression (3) (US)(BA) This course meets the Bachelor of Arts degree requirements. This course provides students with a multi-faceted comparative view of Latina/o literature in relation to other forms of cultural expression. First, the course presents a variety of cultural expressions to students in an effort to teach them the different ways that form affects content. Each text will be studied in its historical context as well, thereby providing students with a sense of Latina/o cultural history. Second, this course compares

works from within the same genre, allowing students to recognize the ways that Latina/o culture has worked to build identity, to deconstruct identity, and to challenge cultural stereotypes. Such comparison further facilitates comparison of the ways that different cultural forms have been used by diverse Latina/o communities. Third, this course compares cultural forms, allowing students to see how Latina/o poetry affects music or how Latina/o theater affects novels. Fourth, this course will include texts that represent a variety of linguistic and national contexts, including many countries in Latin America, thereby allowing students to see the relationship between history, culture, language, geography, and identity. These are all themes that are at the center of both Latina/o Studies and Comparative Literature. A comparative perspective facilitates appreciation of the vast and varied ways that Latina/o communities have used cultural expression. A particular point of contact between Latina/o Studies and Comparative Literature is the influence of hybridity. A central issue explored in this course concerns the intricate connections between multiple ways of expressing identity, in the arts, literature, music, etc., in diverse circumstances, such as locations where Latina/o cultures may be in the mainstream (such as in Latin America) and in the minority (in the U.S.). Drawing upon approaches offered by comparative literature and theories such as post-structuralism, feminism, and post-colonialism, we will examine the complex process through which Latina/o culture has been defined, disseminated, contested, and commercialized. Of particular interest from a comparative perspective are the ways that Latina/o cultures are created through hybridization, processes of mutual borrowing and differentiation, as well as through transnational processes of migration, urbanization, and cultural contact. The course's objective is to show not only how complex societies consolidate a shared culture but also how diverse Latina/o communities have produced a multiplicity of cultures that have been expressed via a broad range of cultural registers. These communities often span vast geographical areas, not only in the U.S. but across the Americas as people continue to look to their countries of origin for artistic inspiration.

Prerequisite: 3 credits in the humanities or in any LTNST course, or 4th-semester proficiency in Spanish

Cross-listed with: LTNST 403
Bachelor of Arts: Humanities
United States Cultures (US)

CMLIT 404Y: Topics in Asian Literature

3 Credits

Selected works from the major poetry, fiction, and drama of such countries as India, China, Japan. CMLIT 404 / ASIA 404 Topics in Asian Literature (3) (IL)(BA) This course meets the Bachelor of Arts degree requirements. This course focuses on Asian literature in a comparative and international frame. Different iterations of this course will have different topics as well as different historical or geographic foci, but may include literatures from the countries of East Asia (China, Japan, Korea), Southeast Asia (Thailand, Vietnam, Laos, Indonesia, Cambodia), or South Asia (Bangladesh, India, Pakistan). Because the course is comparative it will highlight relationships between and among literary traditions of Asia, or between Asia and the rest of the world, whether in the fields of poetry, drama, or fictional and non-fictional prose.

Prerequisite: 3 credits in literature or related field appropriate to this course

Cross-listed with: ASIA 404Y
Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures
International Cultures (IL)

Writing Across the Curriculum

CMLIT 405: Inter-American Literature

3 Credits

This course examines the development of literature in Canada, the United States, Spanish America, the Caribbean area, and Brazil.

Prerequisite: 3 credits in literature

Bachelor of Arts: Humanities
International Cultures (IL)
United States Cultures (US)

CMLIT 406: Women and World Literature

3 Credits

Literature written by women, especially women from non-Western cultures; the spectrum of genres in which women writers have excelled.

Prerequisite: 3 credits in literature or in women's studies

Bachelor of Arts: Humanities
International Cultures (IL)

CMLIT 408: Heroic Literature

3 Credits

Traditional heroes, their traits and adventures; typical themes and examples chosen from the epics and sagas of world literature.

Prerequisite: 3 credits in literature or folklore

Bachelor of Arts: Humanities
International Cultures (IL)

CMLIT 410: Literary Translation: Theory and Practice

3 Credits

Emphasizing literary translation, a study of the theoretical and practical problems encountered in the processes of translation, transmission, and interpretation. CMLIT 410 Literary Translation: Theory and Practice (3) (IL) (BA) This course meets the Bachelor of Arts degree requirements. This course focuses on the history and practice of literary translation, ranging across space and time to provide a comparative, international perspective. It addresses such issues as the difficulties of literary language; theories of translation and translatability; theories of semantic equivalence; alternative modes of translation including sound- and graph-translation; and the history of important moments of translation in shaping the literary imagination. No second language is required, but students interested in learning how to translate literature may be given assignments allowing them to practice important skills connected to that task.

Prerequisite: 18 credits in a foreign language

Bachelor of Arts: Humanities
International Cultures (IL)

CMLIT 415: World Graphic Novels

3 Credits

Critical analyses of form, genre, medium, and discourse of the graphic novel and its historical precedents in an international and comparative context. CMLIT 415 World Graphics Novels (3) (GH; US;IL) (BA) This

course meets the Bachelor of Arts degree requirements. This course considers the graphic novel (also known as graphic fiction, comics, or sequential narrative) as an emergent literary medium and global phenomenon. The course focuses on texts that engage issues of contemporary identity, ethnicity, sexuality, technology, and/or history (personal, family, and national). These graphic novels engage these issues through the medium of text joined with image. This course explores the aesthetic of sequential narrative, its methods of production and consumption, and its place in a contemporary culture of reading. Assigned texts include titles from the United States, France, Japan, Italy, Canada and Norway. All texts will be read in English translation.

Prerequisite: 3 credits in literature
Bachelor of Arts: Humanities
International Cultures (IL)
United States Cultures (US)
General Education: Humanities (GH)

CMLIT 422: African Drama

3 Credits

Traditional and popular drama forms; modern anglophone and francophone drama; nationalism and social criticism in contemporary African drama.

Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures
International Cultures (IL)

CMLIT 423: African Novel

3 Credits

From traditional oral narratives to modern autobiographical, historical, satirical, sociological, and allegorical forms; novelist as social critic.

Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures
International Cultures (IL)

CMLIT 424: Transnational Korean Literature

3 Credits

Exploration of seminal Korean texts, including poetry, fiction, autobiography, and criticism, from the early twentieth century to the contemporary era. This course provides a comprehensive overview of modern Korean literature within a transnational context. As we learn how to critically analyze seminal Korean texts, we will locate them in the social, political, economic, and cultural conditions under which they were produced and received. In grappling with some of the fundamental issues they raise; including colonialism, migration, national division, war, gender relations, developmentalism, urbanization, democratization, and contemporary consumer culture; we will also seek to situate these writings in the Korean vernacular within the larger context of global modernity. Rather than take Korean literature and global modernity as given or apart from each other, we will attend to their intersections by raising such questions as: How did modern experiences, constructed through the interface with unfamiliar Others, change preexisting ways of writing and reading? How did foreign occupations affect the formation of a national literature? In what ways do Korean writers' representations of the inter/national events and phenomena on and beyond the Korean peninsula at once enrich and complicate empirical investigations into modern histories of Korea, East Asia, and the world? In an increasingly

borderless world, can we draw a boundary around what is called "Korean" literature? In parallel with these questions, we will further discuss why and how to engage in literary practices in the current age of digital reproduction. Instruction and all materials will be in English. No preliminary knowledge of Korean history or language is required for taking this course.

Prerequisite: KOR 120; KOR 121; ASIA 100; ASIA 102; ASIA 83; ASIA 4; CMLIT 4; 5th Semester standing
Cross-listed with: ASIA 424, KOR 424
Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures
International Cultures (IL)

CMLIT 425: Global Korean Cinema

3 Credits

Exploration of Korean cinema from the early twentieth century to the present, with an emphasis on its global/local dynamics. This course offers an introductory overview of Korean cinema. As we trace its history from the colonial period to the current "Korean wave," we will also engage with film criticism, the trans/national contexts of film productions, the particular aesthetics of selected auteurs/genres, and local/global receptions of Korean cinema. Our discussion of formal elements and key issues featured in these films; modernity, colonialism, division, nation, class, gender, identity, tradition, ideology, desire, violence, and migration, among others; will be informed by readings of secondary sources and theoretical works, as well as literary materials produced during the same period. Throughout our analyses, we will seek to contextualize the cinematic texts within moments of major shifts not only in modern Korean history, but also in the transnational film industry and screen culture. In pursuing a broad and detailed perspective of Korean cinema, this course will ultimately enrich, and simultaneously complicate, our understanding of Korea, cinema, and the world. Instruction and all materials will be in English. No preliminary knowledge of Korean history or language is required for taking this course.

Prerequisite: KOR 120; KOR 121; ASIA 100; ASIA 102; ASIA 83; ASIA 4; CMLIT 4; 5th Semester standing
Cross-listed with: ASIA 425, KOR 425
Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures
International Cultures (IL)

CMLIT 429: New Media and Literature

3 Credits

New media literary genres; critical discussion of creative works in digital media.

Cross-listed with: ENGL 429
Bachelor of Arts: Humanities

CMLIT 435: Cultures of Globalization

3 Credits/Maximum of 3

Cultural and literary effects of the process of globalization, with an emphasis on world literatures and transnationalism. CMLIT 435 Cultures of Globalization (3 per semester/maximum of 6) (IL) This course focuses on the cultural and literary effects of the process of globalization, with an emphasis on world literatures and transnationalism. It invites students to think about the ways in which the globalization of culture, politics, and/

or the economy affects literary production, and the ways in which such literary features as genre, form, medium, style, and theme in turn reflect and attempt to shape our understanding of the global and its becoming. The course will have a significant focus on primary material (literature, film, other media) and secondary material (philosophy, journalism, criticism, and so on). It will introduce students to the main theoretical concepts that govern thinking about globalization and global culture, as well as to important literary and cultural texts that articulate those values. It will prepare them for further research in comparative literary studies and in the critical history of globalization.

Prerequisite: 3 credits of literature
International Cultures (IL)

CMLIT 438: Fantastic Worlds: International and Comparative Perspectives
3 Credits

A comparative, international study of fantastic worlds in literature and visual culture. CMLIT 438 Fantastic Worlds: International and Comparative Perspectives (3) (IL) This course will explore a wide range of "fantastic" narrative voices, crossing the boundaries of genres, periods, and nations, through literary and visual texts from the 19th century to contemporary eras, and from Asia to Americas. Students will examine various types of literary techniques and concepts, such as magic realism, grotesque realism, the absurdity, the fantastic, etc., and learn how texts best capture/grasp the nature of "realities" in their creation of "fantastic" worlds. Students will develop more profound understanding of literatures through global lenses, develop and refine critical thinking, in speech and writing, and comparative methods of literary analysis, and develop communications skills in essays, response papers, class discussions, presentation and research papers. Instructional objectives: 1) Students will develop more profound understanding of literature's through global lenses 2) Students will develop and refine critical thinking, in speech and writing, and comparative methods of literary analysis 3) Students will develop communications skills in essays, response papers, class discussions, presentation and research papers.

Prerequisite: 3 credits in literature
International Cultures (IL)

CMLIT 440: War Stories: The Literature of War
3 Credits

War Stories: The Literature of War (US/IL): an exploration of representations of war in culture. This course considers how war is represented in a variety of cultural artifacts including literature, film, television, video games, music, art, etc. What stylizations, omissions, and blindspots are necessary in order to represent the reality or the surreality of war? Readings are from the Classical period (the Iliad) to the current wars. Issues of memory, of traumatic reconstruction after the fact, and of the glorification of war as a necessary aftermath will complement some specific readings and films about (and often against) war. Texts and focus may vary but can include novels, film, video games, television, comics, social media, music, art, and more. Some of the major objectives of this course are to identify formal and aesthetic aspects of literary texts dealing with the topic of war and its aftermath including genre, period, style, theme, language, and narrative structure as well as analyze those texts and other artistic media within a comparative or global context. We will also compare written and visual texts from different cultures, regions, languages, time periods, and genres that deal with the concept of war.

International Cultures (IL)
United States Cultures (US)

CMLIT 446: Postcolonial Literature and Culture
3 Credits/Maximum of 3

Postcolonial literature and theory in a comparative and international context. CMLIT 446 Postcolonial Literature and Culture (3 per semester/ maximum of 6) (IL) (BA) This course meets the Bachelor of Arts degree requirements. Taking a comparative and transnational approach, this course will provide an advanced introduction to the field of postcolonial literature and theory. Readings will include the foundational anti-colonial writings of the early twentieth century, the postwar literature of decolonization, and the most recent literature on cultures of globalization. Themes to be discussed may include nationalism, subalternity, neocolonial formations, migration, and cultural translation. In general, this course will be taught in the active learning mode, featuring in-class discussion, writing projects, and group presentations. CMLIT 446 is one of the many courses, which count towards the Comparative Literature major and the World Literature minor.

Prerequisite: 3 credits in the study of literature
Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures
International Cultures (IL)

CMLIT 448: Literary Cultures of Buddhism
3 Credits

Comparative exploration of various Buddhist literary cultures, from the classical Indian subcontinent to modern movements like the Beats and dalit writing. CMLIT 448 Literary Cultures of Buddhism (3) (IL) This course will provide an in-depth exploration of various cultures of Buddhist literary production. Readings will cover a broad temporal and geographical range. Prior study of Buddhism or literature is not required and materials will be in English. Students will learn about major genres of Buddhist literature, such as sutras (scripture), j'ataka (stories of the Buddha's previous incarnations), hagiography, miracle tales, religiously inspired poetry, and k'an meditative riddles. The course will also examine the various forms into which contemporary authors have adapted these materials (such as manga, novels, memoirs, and film). The course, or individual units within the course, will be structured so that students develop an historical perspective, allowing them to understand the literary cultures that gave rise to the works under study. Class work includes some lecture but emphasizes guided discussions, group work, writing exercises, and some student presentations. This participatory approach is intended to deepen students' appreciation of the works, to help them understand value systems that may differ from those predominant in western cultures, and to assist students in developing both analytical and expressive abilities. The course is designed to be suitable for all students generally interested in religious cultures of writing, in Buddhism, or in literature, whether or not they have previously studied in any of these areas. The Comparative Literature major requires a certain number of electives at the 400-level, of which this could be one, depending on its content. Further, the course is designed to count as General Education and as an IL ("International") course. It will be taught, as feasible, every 2-3 years with an enrollment of 20-30 students. With the addition of supplementary reading and research assignments, the course may also be suitable for certain graduate students. This course would benefit from access to a laptop and digital projector.

Prerequisite: 3 credits in literature

International Cultures (IL)

CMLIT 449: Literary Cultures of Islam

3 Credits/Maximum of 3

Comparative discussion of the literary cultures of Islam from the seventh century to the present. CMLIT 449 Literary Cultures of Islam (3-6) (IL) (BA) This course meets the Bachelor of Arts degree requirements. This course is an advanced introduction to the literary cultures of the Islamic world, from the seventh century to the present. No prior knowledge is required. Works will be read in translation. Students will study the foundational text of Islam, the Quran, as a literary text, and learn about major genres of Islamic literatures (ghazal, masnavi, and maqamah, among others). They will also examine how these genres have been adapted in modern literature and media (novels, memoirs, and film). Supplementary historical readings will be provided to contextualize the primary texts. CMLIT 449 is one of the many courses which count toward the Comparative Literature major and the World Literature minor.

Prerequisite: 3 credits in the study of literature
Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures
International Cultures (IL)

CMLIT 453: Narrative Theory: Film and Literature

3 Credits

This course explores the relationships between language and the medium of film through analysis of adaptations between other mediums and the cinema, and by analysis of the influences between the discourses of literature(s) and the cinema. The course has broad applicability not only to students of literature and students of the cinema, but to all students who need to understand ways to compare relationships between disparate communications and artistic media. Students begin by understanding techniques and theories of both cinematic and literary analysis. Then, they explore theories of adaptation between media, including general theories of artistic and cultural influence. Among the media students may encounter in addition to literary fiction and narrative cinema are the graphic novel, creative nonfiction, drama, poetry, journalism, video games, the documentary cinema, and the experimental cinema. Students work through case studies of adaptation in literal terms, such as the transformation of graphic novels into narrative cinema. Students also work through case studies in influence, in which distinct art and media discourses affect one another, as in the relationship between videogames and the cinema. Students study transmedia storytelling, in which core narratives are expressed in different media. Students also study transcultural and transnational storytelling, in which adaptation and influence are conducted across borders. Students study questions of representation, particularly of difference (race, class, sexuality/gender) and cultural specificity. Students learn the historical and institutional settings which have conditioned these intermediations. The economics of literary and media production and the circumstances of reception of distinct media are explored. Students will experience classical and non-classical forms of storytelling, as well as fictional and non-fictional discourses. In this course, students will meet ancillary concerns in adaptation, such as translation, dramaturgy, and genre scholarship. Students express their individual conclusions in summary projects which apply theory to particular instances of adaptation and influence between media. These projects may include creative work, and multimedia texts which enact as well as analyze adaptation. As advanced scholars in the disciplines

of literary and cinematic studies, students are expected to synthesize previous learning in these fields in their summary projects.

Enforced Prerequisite at Enrollment: COMM 150 or ENGL 15 or ENGL 30H or ENGL 137H or CAS 137H
Cross-listed with: COMM 453
Bachelor of Arts: Humanities
International Cultures (IL)

CMLIT 455: Ethics, Justice, and Rights in World Literature

3 Credits

Concepts of ethics, justice, and rights, appearing in world literature and/or film. CMLIT 455 Ethics, Justice, and Rights in World Literature (3) (IL) The course will consider how literature and culture address common concerns, including morality, justice, equality, and agency from different perspectives, aesthetic styles, and formal constraints. Students will consider how cultural texts, like legal and philosophical texts, have the power to influence politics and society. Literature is important for understanding ethics, justice, and rights because it teaches ways of thinking and of relating to others that are central to social values. How do we develop the commitment to social equity? How do stories develop ideas of altruism, of prejudice, of pathos, and more in their audience? What role does culture play in developing the moral imagination required to think through social crises? Each class will explore one or more interrelated topics through a variety of cultural and philosophical works. Readings might include works by Melville, Shakespeare, Kafka, Glaspell, Morrison, Capote, Garcia Marquez, and others. Topics might include: formalism; the paradoxes of equity; narrative, storytelling, and framing; custom, law and the political order; law, society, and power; interpretation, authority, and legitimacy; punishment, retribution, and redemption; and others. This course will provide an opportunity to think about the law and ethics in a new way, to read engaging works of fiction and non-fiction, and to examine the humanistic and philosophical perspectives that are at the core of the ethical imagination.

Prerequisite: 3 credits in the study of literature
International Cultures (IL)

CMLIT 470: The Modern Novel

3 Credits

Major novels of Joyce, Proust, Kafka, Thomas Mann, Nabokov, and others; their contributions to the art of the novel. CMLIT 470 The Modern Novel (3) (IL) (BA) This course meets the Bachelor of Arts degree requirements. This course focuses on the modern novel in a comparative and transnational perspective. It explores the basic connections between the modern period and the novel as a form, noting the rise to prominence of the novel in the modern period, and focuses on several important examples of the genre. Some versions of this course may adopt specific organizing themes, such as the novel and the city, the novel and war, the novel and love, and so on. Other versions may focus on the historical development of the novel over time or on crucial interpretive or narratological issues, including the problems of character, time, or point of view; still others may concentrate on major sub-genres of the modern novel, including realism, magic realism, modernism, and postmodernism.

Prerequisite: 3 credits in literature
Bachelor of Arts: Humanities
International Cultures (IL)

CMLIT 471: Poetry and Poetics

3 Credits

Theoretical and practical concepts in the comparative, global history of poetry and/or poetics. CMLIT 471 Poetry and Poetics (3) (IL) This course explores theoretical and practical concepts in the history of poetry and/or poetics. Like all comparative literature courses, it pursues this task through discussions of poetry from a wide variety of national or linguistic origins and ranges widely across historical period, medium, and social form, where appropriate. Students will develop a broad array of interpretive skills appropriate to poetry and poetics; they will acquire a knowledge of a wide variety of poetic forms; they will undertake comparative analyses of poems and poetic structures; they will learn how to think about poetics outside poetry.

Prerequisite: 3 credits in literature
International Cultures (IL)

CMLIT 480: The International Folktale

3 Credits

Traditional tales from various parts of the world: their origin, characteristics, forms; their transmission as oral narrative and written literature.

Prerequisite: 3 credits in literature or folklore
Bachelor of Arts: Humanities
International Cultures (IL)

CMLIT 486: Tragedy

3 Credits

Development of tragic drama and its relationship to social background and philosophical theory.

Bachelor of Arts: Humanities
International Cultures (IL)

CMLIT 487: Comedy

3 Credits

Development of comic drama and its relationship to social background and philosophical theory.

Bachelor of Arts: Humanities
International Cultures (IL)

CMLIT 489: Contemporary World Fiction

3 Credits

A survey of developments in contemporary world fiction in translation. CMLIT 489 Contemporary World Fiction (3) (IL) The purpose of this course is to expose students to the developments in world fiction in the last 50 years and to expose them to a range of authors from a number of countries. This course, then, also involves getting to know the novel-writing histories of those countries and in many cases, the recent histories of those countries (for example, in novels like Rushdie's *Midnight's Children* or Garcia Marquez's *Hundred Years of Solitude*). The class will approach these fictions from a variety of thematic, historical, and/or generic vantages. Authors under consideration will vary from class to class, but may include writers such as Pamuk, Grass,

Murakami, and Marquez. Time allotted for the study of the works under consideration will vary.

Prerequisite: 3 credits in literature
International Cultures (IL)

CMLIT 490: Video Game Lit Studies

3 Credits

A comparative look at the nature and history of video games as cultural artifacts, from Pong to online role-playing. This course meets the Bachelor of Arts degree requirements. The video game industry is larger than the film industry, and yet the academic study of video games has only just begun. This course is a comparative introduction to the nature and history of video games as cultural artifacts, from Pong to online role-playing. It introduces students to academic discussion on and creative work in new digital forms including hypertexts, video games, cell phone novels, machinima, and more. Students will learn basic narrative theory, and study its impact on game studies and game production. They will survey major debates over the meaning and value of video games, and review its history from Pong to contemporary games, including online world-based games. The course extends students' skills in literary interpretation to a variety of new objects, and makes them aware of the role medium plays in aesthetic development and production. Students will leave with a far sharper understanding of how the interpretive tools used in the humanities can be extended to include new media, and with a sense of the historical role video games have played and will continue to play in global cultural production.

Prerequisite: GAME 160 , GAME 140 , or 3 credits in literature; Concurrent: GAME 160 or GAME 140 if desired
Cross-listed with: GAME 460
Bachelor of Arts: Humanities

CMLIT 491: Literary Adaptation: International and Comparative Perspectives

3 Credits/Maximum of 3

A comparative, international study of adaptations between literature and other media (film, theater, photography, music). CMLIT 491 Literary Adaptations: International and Comparative Perspectives (3 per semester/maximum of 6) (IL) (BA) This course meets the Bachelor of Arts degree requirements. From the very first expressions of literary impulses in prehistoric times, and continuing through the present, literary material has been re-used and creatively recycled through processes of adaptation and appropriation, often involving translations not only between languages, but also between media. This course uses a global perspective to explore the processes and aesthetics of adaptations of literary works, including adaptations into other genres or media, such as the visual arts, a film, opera, stage play (or vice versa adaptations from other media into literature). Drawing upon a broadly international selection of materials, we will explore multiple discourses surrounding adaptation; address the importance of translation and the dynamics between languages, audiences, and texts; study how adaptations address common themes such as race, class, gender, and sexual orientation; discuss international taxonomies of literary genres; and critically assess different cultural notions of authorship, intellectual property, and communal vs. individual ownership. From year to year the works and authors studied in this course may change. Course objectives include (1) to encourage students to think critically about adaptations within and between cultures and media, in different parts of the world (2) to critically evaluate several of the often conflicting analytical paradigms

which characterize the study of literary adaptations; (3) to assess varied approaches to genre in adapted works in different cultural settings; (4) to understand different perspectives on the concept of the author, such as the literary author and the 'author' in theatre studies; (5) to question assumptions about the world, re-examine personal points of view, and understand an expanded international range of ethical and value systems as expressed in literature. For methods of student evaluation, see the syllabus for each section; options include class presentations, response papers, research projects, and exams. This course may form part of the Comparative Literature major, the World Literature minor, and other majors.

Prerequisite: 3 credits in literature or other fields relevant to this course
Bachelor of Arts: Humanities
International Cultures (IL)

CMLIT 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Humanities

CMLIT 494H: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Humanities
Honors

CMLIT 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Bachelor of Arts: Humanities

CMLIT 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Humanities

CMLIT 499: Foreign Study--Comparative Literature

3-6 Credits/Maximum of 6

Advanced courses offered on comparative literary topics as part of a foreign-study program.

Prerequisite: 18 credits or equivalent in the appropriate foreign language; 6 credits in literature or related field appropriate to this course
Bachelor of Arts: Humanities
International Cultures (IL)

Computer Engineering (CMPEH)

CMPEH 472: Microprocessors

4 Credits

This course is designed to provide students with strong foundation in microprocessor programming and hardware interfacing both in the classroom and laboratory settings. This course is a required course in the Electrical Engineering BS curriculum and is intended to be taken by students who have completed their digital systems and first electronics course requirements. As such, the course integrates materials from the above undergraduate electrical courses in addition to related math, engineering, and science courses.

Prerequisite: (CMPSC 101; CMPSC 121; CMPSC 131; CMPSC 201; CMPSC 202) (CMPEN 271, CMPEN 275; CMPEN 270)

Computer Engineering (CMPEN)

CMPEH 111: Computers and Computer Hardware

1 Credits

A brief orientation to University life and resources and an introduction to computers and computer hardware. CMPEN 111S Computers and Computer Hardware (1) This course contains two components: an orientation to University life and an introduction to the hardware aspects of computer engineering. In the orientation to University life, students learn about the responsibilities of and expectations on a student including ethical behavior, and explore some of the academic and non-academic resources of the University. In the introduction to computer engineering students learn about some of the fundamental concepts, devices, and methodologies that are involved in the design and use of digital and computer hardware. This exploration begins with a foundation of logic and critical thinking. Logic is examined first from a theoretical problem solving standpoint. The discussion then progresses to an implementation perspective examining how logic devices are created and used. Included is a look at some CAD tools and some logic design laboratory exercises. Using logic as a basic building block, the organization and design of a computer is then examined, ending in an exploration of some of the contemporary methods used to make computers faster and more efficient.

First-Year Seminar

CMPEH 270: Digital Design: Theory and Practice

4 Credits

Introduction to digital systems and their design. Topics include combinational and sequential devices and circuits, modern design tools and design practices. Students may take only one course for credit for CMPEN 270 or CMPEN 271 and CMPEN 270 or CMPEN 275. CMPEN 270 Digital Design: Theory and Practice (4) CMPEN 270 is a first course in digital systems and digital system's design. It lays the groundwork for many later courses in computer organization and architecture and switching theory. The course includes both a lecture component to introduce important concepts, principles, methodologies and theories and a laboratory component in which the lecture material can be applied and practiced. The course introduces the theoretical foundation for digital systems including number systems, a variety of commonly used codes and Boolean algebra. Combinational devices, logic gates, and sequential devices, latches and flip-flops are introduced along with

design techniques, methods and tools. Design criteria and objectives are considered and design trade-offs are examined. Higher level design elements are also examined such as decoders, multiplexers, counters, and registers, and their use in system design. Students are exposed to a variety of design tools and implementation techniques, including schematic capture tools, simulation tools, Hardware Description Languages (HDL) and HDL design tools. Laboratory work includes the design, construction and debugging of a variety of digital circuits, and the use of standard laboratory tools such as the oscilloscope and logic analyzer, and various software design tools.

Enforced Concurrent at Enrollment for: PHYS 212

CMPEN 271: Introduction to Digital Systems

3 Credits

Introduction to logic design and digital systems. Boolean algebra, and introduction to combinatorial and sequential circuit design and analysis. Students may take only one course for credit for CMPEN 270 or 271. CMPEN 271 CMPEN 271 Introduction to Digital Systems (3) This course introduces students to logic design and digital systems. The course begins with an overview of number systems, base conversions, and binary arithmetic. Boolean algebra is presented and several basic theorems and postulates are introduced. Boolean algebra is then used to model digital devices. Canonical forms for expressing Boolean functions are introduced including sum-of-products and product-of-sum forms. Basic Small Scale Integrated (SSI) combinational devices are introduced along with a description of their operations characterization, and use. The basic symbols used in a logic diagram/schematic are introduced and the principles involved in reading and creating logic diagrams/schematics are discussed. A systematic design methodology for combinational circuits is covered, including the concepts of function minimization using Karnaugh maps, handling don't care conditions, and designing multiple output circuits. Medium Scale Integrated (MSI) combinational devices and functions such as multiplexers and decoders are discussed and their use in a variety of applications is explained. Simple programmable logic devices and their use in implementing combinational functions is covered. The process of combinational circuit analysis is discussed and the use and interpretation of timing diagrams is introduced. Binary arithmetic is reviewed along with binary addition and subtraction circuits. Various negative number codes are discussed including 2's complement, 1's complement and sign-magnitude representation. The concept of state and memory is introduced along with various sequential devices including the R-S latch, the D latch and the D, T, and J-K flip-flops. Timing considerations such as set-up and hold times for sequential devices is discussed along with various flip-flop triggering methods. The basic model for a sequential circuit/finite state machine is introduced. A systematic design methodology for creating synchronous sequential circuits is covered including state table/diagram creation, state reduction, state assignment, and circuit implementation. The process of sequential circuit analysis is also described. Special sequential devices and circuits are introduced including counters and registers. Their use in various applications is highlighted. The course ends with a discussion of memory devices including RAM's and ROM'S. Throughout the course, students use a schematic capture and design simulation CAD tool to model and test a variety of circuits.

Enforced Concurrent at Enrollment: PHYS 212

CMPEN 275: Digital Design Laboratory

1 Credits

Introduction to digital design techniques. Students may take only one course for credit for CMPEN 270 or 275.

Enforced Concurrent at Enrollment: CMPEN 271 and PHYS 212

CMPEN 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

CMPEN 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

CMPEN 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

CMPEN 331: Computer Organization And Design

3 Credits

INTRODUCTION TO MAJOR COMPONENTS OF A COMPUTER SYSTEM, HOW THEY FUNCTION TOGETHER IN EXECUTING A PROGRAM, HOW THEY ARE DESIGNED. CMPEN 331 Computer Organization and Design (3) The goals of the course are to introduce students to the major components of a computer system (the data path, the control path, the memory system, the I/O system), how they function together in executing a program, and how they are designed. The relationships between instruction set design, addressing modes, fetch and execute operations, and their impact on the underlying architecture are presented. Students will develop skills both in assembly language programming and in designing architecture components in a hardware description language (VHDL or verilog). CMPEN 331 is a required course for both computer engineering and computer science majors. CMPEN 331 requires access to PCs/workstations with commercial hardware description language tools (e.g., Synopsys VSS compiler and simulator) and a modern assembler/debugger (e.g., SPIM MIPS assembler, simulator, and debugger).

Enforced Prerequisite at Enrollment: (CMPEN 270 or CMPEN 271) and (CMPSC 121 or CMPSC 131 or CMPSC 201)

CMPEN 351: Microprocessors

3 Credits

Microprocessor architecture; memory system design; assembly language programming; interrupts; the stacks and subroutines; memory and I/O interfacing; serial I/O and data communications; microprocessors applications.

Enforced Prerequisite at Enrollment: CMPEN 271 and CMPEN 275

CMPEN 352W: Embedded Systems Design

3 Credits

Design/development of embedded systems for data acquisition, process control, and special-purpose computing systems; peripheral interfacing, serial/parallel communications and bus systems. CMPEN 352W Microprocessor-based System Design (3) In this course students learn how to design application specific embedded systems. Embedded systems are increasingly important as they are used in industrial applications, personal computing, and consumer products. Embedded systems are based on microprocessors and microcomputers, but are not intended to be general-purpose computers. In the laboratory students will design, implement, and validate application specific embedded systems. Being a writing-across-curriculum course, students will learn effective techniques of reporting their technical designs.

Enforced Prerequisite at Enrollment: (CMPEN 351 or CMPEN 472) and EE 210

Writing Across the Curriculum

CMPEN 362: Communication Networks

3 Credits

Data transmission, encoding, link control techniques; communication network architecture, design; computer communication system architecture, protocols. CMPEN 362 CMPEN (E E) 362 Communication Networks (3) CMPEN (E E) 362 is an elective course in both the electrical and computer engineering curricula which provides an overview of the broad field of data and computer communications. First, a general model of the communication task is presented, including the layered concept by which each layer provides services for the layer above. First, the lowest (physical) layer is studied. This involves signal design, Fourier analysis representations, bandwidth concepts, transmission impairments and communication media properties. Then the next higher (link) layer is considered which involves organizing bits into frames, data link and error control methods (including frame sequence numbering and error detection principles). Multiplexing to share a link is studied, including frequency division multiplexing, dedicated time division multiplexing, and statistical time multiplexing. At the network layer level, there are two categories: broadcast (usually local area) and switching networks. Broadcast and local area network studies include bus, tree and star topologies, Ethernet, optical fiber bus networks, ring networks, and medium access control protocols. Switching and routing concepts for networks are explained, including both circuit and packet switching, datagrams and virtual circuits. Properties of frame relay and asynchronous transfer mode (ATM) networks are described. Internetworking frame structures, routing and protocols are studied. Also, bridge routing for local networks is described. At the still higher transport (network end-to-end control) layer, transport protocols, including TCP/EP, are described.

Enforced Prerequisite at Enrollment: CMPEN 270 or CMPEN 271
 Concurrent Courses: STAT 318 or STAT 401 or STAT 414 or MATH 414 or STAT 418 or MATH 418
 Cross-listed with: EE 362

CMPEN 371: Advanced Digital Design

3 Credits

Theory, design, and implementation of digital circuits based on combinational and sequential circuits; implementation of designs using

hardware description language. CMPEN 371 Advanced Digital Design (3) Students will learn advanced concepts in digital design for complex combinational and sequential logic, and learn how to effectively use minimization and synthesis techniques. Contemporary CAD tools and target digital technologies including Field Programmable Gate Arrays (FPGAs) are utilized. The use of a hardware-description language for digital design is introduced. In the laboratory portion, students will implement, simulate, and test designs.

Enforced Prerequisite at Enrollment: CMPEN 271 and CMPEN 275 and (CMPSC 121 or CMPSC201) and (EE 210 or EE 211)

CMPEN 395: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: Prior approval of proposed assignment by instructor

CMPEN 396: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

CMPEN 396A: Current Technologies in Computer Engineering

1-6 Credits

Investigation of a current technology relevant to computer engineering.

CMPEN 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

CMPEN 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

CMPEN 411: VLSI Digital Circuits

3 Credits

Basic building blocks of CMOS design, design rules, chip planning, layout design, system power and timing, simulation of VLSI structures.

Enforced Prerequisite at Enrollment: (CMPEN 371 or CMPEN 471) and EE 310

CMPEN 416: Digital Integrated Circuits

3 Credits

Analyses and design of digital integrated circuit building blocks, including logic gates, flip-flops, memory elements, analog switches, multiplexers, and converters. CMPEN 416 CMPEN 416 Digital Integrated Circuits (3) CMPEN 416 is a technical elective available to electrical and computer engineering students. It is intended for students who wish to specialize

in the field of digital circuits. This course introduces the basic concepts involved in the design of digital circuits, which find practical application as logic and memory circuits in computers and other digital processing systems. The course emphasizes integrated circuit process-compatible circuit design techniques in recognition of the amazing synergy that has characterized the relationship between computer circuits and integrated circuit processing technology. This course includes three lectures and a two-hour laboratory each week. The only prerequisite is E E 310, a basic circuits course required for both electrical engineering and computer engineering students. CMPEN 416 begins with a review of the bipolar junction transistor (BJT) device and proceeds into the more advanced Ebers-Moll device model. This is followed by an examination of a series of BJT-based saturating and non-saturating digital circuits of ever increasing complexity illustrating the evolution of the modern bipolar logic circuit families. The next phase of the course reviews the metal oxide semiconductor field effect transistor (MOSFET) and proceeds along the same path taken for the bipolar transistor circuits. Various MOSFET logic circuit families are introduced and analyzed. Computer semiconductor memory circuits are considered next. Both BJT and MOSFET versions of both static and dynamic read-write and read-only memories are considered. The cell array, memory addressing circuits, and sense amplifier designs are all examined in detail. This is followed by the related subject of programmable logic arrays, the final topic. The emphasis of the laboratory component of the course is to compare the performance of representatives of each class of circuits to computer simulations of the same circuits. Parameters such as input-output voltage transfer characteristics, noise margins, and propagation delays are evaluated by building and measuring laboratory models. Most of the laboratory exercises require the student to evaluate a specified circuit, but the final exercise requires the student to design a circuit to meet a predefined set of specifications, then to prove that the design meets the requirements by measuring the circuit performance. Students are required to write a formal engineering report detailing the results of each laboratory exercise.

Enforced Prerequisite at Enrollment: EE 310

Cross-listed with: EE 416

CMPEN 417: Digital Design Using Field Programmable Devices

3 Credits

Field programmable device architectures and technologies; rapid prototyping using top down design techniques; quick response systems. CMPEN 417 CMPEN (E E) 417 Digital Design Using Field Programmable Devices (3) Field Programmable Devices, such as Field Programmable Gate Arrays (FPGAs) and Complex Programmable Logic Devices (CPLDs) are widely used for rapid prototyping and quick response-time designs. The objective of this course is to introduce the student to digital design using Field Programmable ICs, and to provide an understanding of the underlying technologies and architectures of these Integrated Circuits. The course begins by introducing design alternatives for modern electronic systems identifying and classifying alternative system solutions, and evaluating when particular design solutions are optimal. These alternatives include microprocessors, microcontrollers, off-the-shelf digital ICs, Programmable logic ICs (FPGAs and CPLDs), and various forms of Application Specific Integrated Circuit (ASIC) designs. A homework assignment requires the student to quantitatively evaluate the cost, complexity, packaging, and time-to-market issues for a complex system design specification. Next, the underlying Field Programmable Logic IC architectures and technologies are studied in detail. Following a broad survey of available programmable IC vendors and on-chip programming technologies (and their cost/performance trade-offs),

several specific case studies are presented in the class. The first is the Xilinx XC4000xl line, because of the target boards used in the CAD laboratory component for this class. The initial lab portions of the class help the students to specify their design using various forms of design entry tools and also allows them to see how their design map on to the underlying FPGA architecture. The students also learn the underlying algorithms used by the design software they use in their Labs. Next, the systematic top-down method for specifying complex designs using VHDL is introduced. Students are given a supporting homework assignment to develop high-level behavioral models for a simple digital system to reinforce this segment of the course. VHDL behavioral synthesis is now introduced as a preferred path to go from high-level system behavior to actual implementation on the FPGA. The strengths and weaknesses of synthesis are discussed, as are the emerging CAD tool trends. Additional VHDL-based homework assignments reinforce behavioral design and synthesis using commercial CAD tools. The final segment of the class covers special topics that identify current trends in digital system architecture and programmable logic design. These include such topics as partially reconfigurable architectures and dynamic reconfiguration techniques, system design for testability, and field programmable analog arrays. Applications of FPGAs in special purpose computing environments such as signal processing, Java acceleration and image processing are also introduced. In the laboratory, student design project assignments explore larger and more complete system specifications of such things as controllers, CPU and memory design, and signal processing blocks. These assignments reinforce the lecture content as the students model, synthesize and implement their digital designs on the target Xilinx FPGA boards.

Enforced Prerequisite at Enrollment: CMPEN 331

Cross-listed with: EE 417

CMPEN 431: Introduction to Computer Architecture

3 Credits

Introduction to computer architecture. Memory hierarchy and design, CPU design, pipelining, multiprocessor architecture. CMPEN 431 Introduction to Computer Architecture (3) This course will introduce students to the architecture-level design issues of a computer system. They will apply their knowledge of digital logic design to explore the high-level interaction of the individual computer system hardware components. Concepts of sequential and parallel architecture including the interaction of different memory components, their layout and placement, communication among multiple processors, effects of pipelining, and performance issues, will be covered. Students will apply these concepts by studying and evaluating the merits and demerits of selected computer system architectures.

Enforced Prerequisite at Enrollment: CMPEN 331 or CMPEN 371

CMPEN 441: Operating Systems

3 Credits

Resource management in computer systems. Process scheduling, memory management, file system design, I/O management, Unix operating system.

Enforced Prerequisite at Enrollment: CMPSC 360

CMPEN 454: Fundamentals of Computer Vision

3 Credits

Introduction to topics such as image formation, segmentation, feature extraction, matching, shape recovery, object recognition, and dynamic scene analysis. CMPEN 454 CMPEN 454 Fundamentals of Computer Vision (3) CMPEN 454 is an introduction to computer vision. The goal of computer vision is to make computers understand and interpret visual information. Computer vision systems bring together imaging devices, computers, and sophisticated algorithms for solving problems in areas such as industrial inspection, medicine, document analysis, autonomous navigation, and remote sensing. The course involves both pedagogical written assignments and computer projects. The beginning of the course gives an overview of computer vision and introduces low level image analysis techniques for binary images. Binary vision systems are useful when the silhouette of imaged objects convey enough information to recognize them. Examples can be found in optical character recognition, chromosome analysis and recognition of industrial parts. Moreover, many techniques developed for binary systems can be applied to gray level or color images. Next, the course covers image segmentation and contours. These topics are the foundation of most computer vision techniques. For an image to be correctly interpreted, it must be partitioned into regions that correspond to distinct objects or parts of objects. First, region based techniques such as thresholding, split and merge, region growing and texture analysis are introduced. Next, edge based techniques using gradient and Laplacian operators are discussed. Finally, contour representations and curve approximations linking edges into region boundaries are studied. Next, depth from vision, with emphasis in stereo vision, is considered. Calculating distances to and among various points in the scene is important in many computer vision tasks such as inspection, robot manipulation, and autonomous navigation. In this part of the course the geometry of stereo systems and how to obtain depth maps from stereo image pairs is studied. Also, alternative 3D imaging sensors such as laser based range finders and radars are discussed. Following stereo, the topic of computer vision is broadened to understand sequences of images over time. In this section techniques using information on spatial and temporal changes are used to design computer vision systems capable of coping with moving and changing objects, changing illumination and changing viewpoints. Visual motion is important primarily for two reasons. First, motion is a very important cue to understand the scene structure. Second, biological systems do use motion to infer properties of the surrounding world with very little a priori knowledge. Finally, the topic of 3D object recognition is discussed. Object recognition entails two main issues: object identification and object localization. Identification determines the objects being imaged while localization determines their position in the world and with respect to the sensors. This topic builds upon all the different techniques discussed until this point.

Enforced Prerequisite at Enrollment: (MATH 230 or MATH 231) and MATH 220 and (CMPSC 121 or CMPSC 131 or CMPSC 201)
Cross-listed with: EE 454

CMPEN 455: An Introduction to Digital Image Processing

3 Credits

Overview of digital image processing techniques and their applications; image sampling, enhancement, restoration, and analysis; computer projects. E E (CMPEN) 455 An Introduction to Digital Image Processing (3) E E/CMPEN 455, a technical elective available to both electrical and computer engineering seniors and graduate students, discusses many

current techniques for processing and manipulating digital images. The course involves both pedagogical written assignments and computer projects. The beginning of the course gives an overview of digital image processing systems and digital image fundamentals. During this unit, important elements of human visual perception are reviewed; these ideas help motivate many of the computer-based techniques described in subsequent units. Also, the standard model for a digital image, in addition to the concepts of sampling and quantization, are described. Finally, basic topological concepts between digital image pixel are discussed. The next unit considers image transform analysis, with a primary focus on Fourier-based techniques. The one-dimensional Fourier transform is reviewed, and then two-dimensional Fourier transform analysis is discussed. To bridge the gap from the continuous world to the digital world, the sampling theorem is introduced. Next, the Discrete Fourier Transform and its properties are described. Fourier-based filtering techniques, such as the ideal low-pass and Butterworth filters are then introduced. The Fast Fourier Transform is also discussed. Finally, the Discrete Cosine Transform, used later in JPEG and MPEG, is introduced. The next unit discusses techniques for image enhancement and segmentation. These techniques include point-based techniques based on histogram analysis. They also involve linear and nonlinear mask-based methods for noise reduction and region sharpening. Further, techniques of mathematical morphology, which involve an application of set-theoretic concepts to image processing, are described. Finally, image segmentation methods, based on edge detection and thresholding, are described. The final unit considers the concept of image compression. Techniques for image encoding and decoding are discussed. A brief model of the encoding-decoding process is described. Next, compression techniques, such as run-length encoding and Huffman coding, are described. Finally, the multimedia image-compression methodologies, JPEG and MPEG, are discussed.

Enforced Prerequisite at Enrollment: (EE 350 or EE 353 or EE 352) and (CMPSC 121 or CMPSC 131 or CMPSC 201)
Cross-listed with: EE 455

CMPEN 461: Communication Networks

3 Credits

Data transmission, encoding, link control techniques, network architecture, design, protocols, and multiple access. CMPEN 461 Communication Networks (3) This course introduces students to fundamental concepts and principles underlying data communication networks, with an emphasis on the Internet and its five-layer architecture: the application, transport, network, link, and physical layers. The fundamental issues to be covered include, but not limited to, reliable communication over an unreliable network layer, connection establishment/teardown and handshaking, congestion and flow control, path determination, multiple access control. The student learning these principles will gain knowledge that lasts long after today's network standards and protocols have become obsolete.

Enforced Prerequisite at Enrollment: CMPEN 271 and (CMPSC 121 or CMPSC 201)

CMPEN 462: Wireless Communications Systems and Security

3 Credits

This course explores the fundamental concepts and engineering processes of wireless communication systems, sensors, and security algorithms through the design, implementation, and evaluation of next generation wireless network architectures, and network and

cryptographic protocols. This course is intended as a senior level course for computational majors such as computer science and computer engineering since it covers hardware and software design concepts associated with wireless access, data transmission, and computational security, security models, and privacy in a broad range of settings. The first part of the course studies programmatic, computational, and engineering issues associated with wireless systems and sensors at the physical protocol layer. Hardware, software, and engineering design considerations associated with MIMO, low latency, high reliability, and high data rate constraints will be analyzed. The next part of this course will introduce virtual machines, function virtualization, and network-slicing for constraint matching, resource scheduling, and mobility management at the data link and network protocol layers. The final component of the course focuses on the security and privacy for wireless systems and sensors including models and algorithms. The design and implementation of cryptographic algorithms for cellular, Wi-Fi, Bluetooth, Zigbee, and next generation systems including Device to Device (D2D), Vehicle to Vehicle (V2V), and Machine Type Communications (MTC) are studied and analyzed. Upon completion of the course students will be able to critically analyze the design, implementation, and protocols associated with wireless systems and sensors and assess the computational security and privacy vulnerabilities associated with these systems.

Enforced Prerequisite at Enrollment: CMPEN 362 or EE 362

CMPEN 472: Microprocessors and Embedded Systems

3 Credits

Microprocessors: architecture, design, assembly language, programming, interfacing, bus structure, and interface circuits and their use in embedded systems. CMPEN 472 Microprocessors and Embedded Systems (3) In this course students should learn about the operation and design of microprocessor-based systems, including both hardware and software aspects with an emphasis on real time control environments and embedded systems. After completing the course, students should be able to develop, write and debug programs in a microprocessor's assembly language and use standard assembly language program development tools. They should also be able to interpret and analyze basic microprocessor system hardware. This course is a senior level elective for students in computer engineering and computer science. The course requires the use of general department computing facilities consisting of UNIX workstations running the appropriate program development tools.

Enforced Prerequisite at Enrollment: CMPEN 331

CMPEN 473: Microcomputer Laboratory

3 Credits

Design of digital systems using microprocessors. CMPEN 473 Microcomputer Laboratory (3) This laboratory course provides senior students with both theory and practice in designing, implementing, and debugging microprocessor-based systems. Students are guided through a series of projects in which they design, develop, and implement all of the components in a microprocessor based single-board system. After completing the course students will be able to design microprocessor based systems, including both software and hardware design. Students will also be able to use standard system design tools including standard laboratory equipment. This course is a senior level elective for computer engineering majors. CMPEN 472 is a prerequisite for this course. The course requires the use of a design laboratory including standard test

equipment such as an oscilloscope, logic analyzer and signal generator as well as a PC with appropriate design software and a microprocessor or EPROM emulation system.

Enforced Prerequisite at Enrollment: CMPEN 472

CMPEN 475: Functional Verification

3 Credits

Introduce concepts, methods, and technology for effective functional verification of modern electronic systems. CMPEN 475 Functional Verification (3) Verifying design correctness of increasingly complex system-on-chip designs poses a major challenge to the semiconductor industry. Functional or logic errors in a chip design that are not identified early in the design phase can dramatically increase a project's overall cost and schedule. Further, design verification is consuming an ever-increasing portion of IC development time and cost. As much as 70% of effort in a complex IC design project is now attributed to verification. This course will cover five key aspects of verification: an introduction to verification; a detailed description of simulation-based dynamic verification; formal verification; verification methodologies and advanced techniques; and case studies. First, the course will place verification in the context of the chip design process and introduce the verification cycle. Then, it will cover essential methodology principles and introduce the first hands-on example. It will also delve into various topics in dynamic verification, including the basic constructs of stimuli, monitors, checkers, observations categories, assertions, and test benches. Various case studies on actual industry and research designs will be provided. The course will be supplemented by lab-assignments that provide hands-on experience to experiment with methodologies taught in lectures.

Enforced Prerequisite at Enrollment: CMPEN 331

CMPEN 480: Computer Engineering Design

3 Credits

Engineering design and modeling, engineering economy, project planning, capstone project selections, and technical communication skills. CMPEN 480 Computer Engineering Design (3) This course prepares senior computer engineering students for industrial engineering design and project management. It covers the engineering design process, project planning and evaluation, engineering ethics, and engineering economy. In addition, students select, specify, and start their capstone design project, which is completed, in the follow-up course, CMPEN 481. Students are expected to carry out a group design project that is on par with industrial expectations. Upon completion of this course a student should have a solid understanding of the engineering design process, a clear capstone project description, should have completed some preliminary design work, and be adequately prepared to complete the project in CMPEN 481.

Enforced Prerequisite at Enrollment: CMPEN 352W and CMPEN 431

CMPEN 481: Computer Engineering Project

3 Credits

Group or individual design projects in the area of computer engineering.

Enforced Prerequisite at Enrollment: CMPEN 480

CMPEN 482W: Computer Engineering Project Design

3 Credits

Computer engineering design project, project management, documentation, reporting, and group and individual communication skills. CMPEN 482W Computer Engineering Project Design (3) The two principle goals of CMPEN 482W are (1) to introduce the fundamentals of systems engineering and systems engineering management, and (2) to develop written and oral communication skills. The course explores the process of translating a problem statement into an effective and economical computer system that meets the needs of the customer. Topics include a comparison of popular process models, analysis and derivation of requirements, requirements allocation and flow down, the work breakdown structure, object-oriented analysis and modeling, the design and development of the user interface, reliability engineering, scheduling, costing, and ethics. Communication skills are developed through oral presentations and a sequence of writing assignments, beginning with a description of requirements and leading to a final design document. CMPEN 482W is not a prerequisite for any other course. CMPEN 482W requires access to PCs or Unix workstations having a C++ compiler. Other specialty hardware or software may be required on a semester-by-semester basis.

Enforced Prerequisite at Enrollment: CMPSC 311 and EE 310 and EE 353 Enforced Concurrent at Enrollment: CMPSC 473 Recommended Preparation: ENGL 202C Writing Across the Curriculum

CMPEN 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

CMPEN 494H: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Honors

CMPEN 495: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: Prior approval of proposed assignment by instructor

CMPEN 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

CMPEN 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

CMPEN 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Computer Engineering Technology - CA (CMPET)

CMPET 5: Engineering Methods in Engineering Technology

1 Credits

Introduction to experimental and computer methods in engineering technology; applications of experimental concepts through student involvement in computer exercises. CMPET 005 Engineering Methods in Engineering Technology (1) Engineering Methods in Engineering Technology is a follow-on computer skills course to EET 002S. Its purpose is to teach EET students how to use computers to help solve technical problems. The course begins by focusing on the use of the mathematical and graphing capabilities of spreadsheet programs to help analyze and present technical data. This is followed by investigation of more sophisticated problem-solving and analytical software such as Mathcad, Matlab, Mathematica, etc. (depending upon availability). Finally, the basic electronic simulations introduced in EET 002S are extended to include more sophisticated circuit analyses using PSpice, Electronic Workbench, etc. In all cases, the problem studied in CMPET 005 are typical of the applications that will be seen in future technology classes and in the engineering technology field. In some cases, again depending on availability of the software, students are exposed to the capabilities of modern 4th generation programming languages such as Visual Basic, LabView, HPVee, etc.

Enforced Prerequisite at Enrollment: EET 101 and MATH 81

CMPET 117: Digital Electronics

3 Credits

Fundamentals of digital circuits, including logic circuits, boolean algebra, Karnaugh maps, counters, and registers. CMPET 117 Digital Electronics (3) Digital Electronics covers fundamentals of both combinatorial and sequential digital logic circuits. Basic topics include Boolean algebra, binary codes, Boolean logic simplification and minimization theorems, and Karnaugh maps. Combinatorial and sequential logic topics include the theory and operation of arithmetic circuits, registers, counters, multiplexers, encoders/decoders, all major types of flip-flops, A-D and D-A conversions, counters, and memory systems. The course focuses primarily on small and medium scale devices using TTL logic with some use of MOS devices. Significant emphasis is placed on the use of manufacturers' data books to define device operating characteristics. CMPET 117 is generally taken concurrently with CMPET 120, which is a digital electronics laboratory course. The lab exercise in CMPET 120 are coordinated with the CMPET 117 lecture material.

Enforced Concurrent at Enrollment: EET 105

CMPET 120: Digital Electronics Laboratory

1 Credits

Laboratory study of digital electronics circuits. CMPET 120 Digital Electronics Laboratory (1) Digital Electronics Laboratory is a one credit laboratory that meets for a single 2-hour session each week. It is normally taken concurrently with CMPET 117. The lab exercises in CMPET 120 expose students to the digital devices that are described in the CMPET 117 lecture course and give them an opportunity to observe and understand their operation in practical terms. The exercises cover basic logic gate functions using AND, OR, NOT, NAND, and NOR devices. Students also investigate the operation of flip-flops, adder circuits, binary counters, shift registers, encoders and decoders, and memory units. Often, students are required to complete a digital design project as part of the CMPET 120 course. Many faculty also require selected labs to be submitted as formal reports. Digital simulation software is also commonly used in this course.

Enforced Concurrent at Enrollment: EET 105 and CMPET 117

CMPET 211: Embedded Processors and DSP

3 Credits

Introduction to micro-controllers and embedded controllers with applications, including concepts of digital signal processing. CMPET 211 Embedded Processors and DSP (3) CMPET 211 provides students with a basic understanding of microprocessors and microcontrollers with an emphasis on integrated embedded control of real world applications. The course provides a background in micro-processor/controller architecture, presents the operation and application of microcontroller peripherals, and introduces assembly language and higher level structured programming language. This can be a structured language such as C++ or PIC Basic. The intent is to introduce the students to a more powerful programming language capable of developing algorithms for embedded control of real world processes. Students will learn the analog to digital (ADC) and digital to analog (DAC) process and understand the resolution and aliasing consequences of these conversions. With the ADC and DAC material mastered, the course will then introduce students to basic applications of Digital Signal Processing (DSP), such as digital filtering and noise reduction. Simple discrete Fourier transforms can be covered along with sampling theory and digital aliasing. Although some of the mathematical theory underlying DSP techniques, such as Fourier and Hilbert Transforms, digital filter design and signal compression, can be fairly complex, the numerical operations required to actually implement these techniques are relatively simple and will be shown. DSP chips and applications will be covered to illustrate how to carry out such operations incredibly fast and efficiently. Topics covered include:- Microprocessor, microcontroller, and embedded system architecture- Microcontroller peripherals- Assembly Language Syntax and Programming- Structured Programming and Algorithms- Input and Output interfacing- ADC and DAC conversions- Sampling and DSP The course will emphasize the concepts, principles, procedures, and programming models used by engineers and technologists to design, develop and implement digital control for real world instrumentation. Particular emphasis will be given to embedded controllers for process control. Lectures will be supported by laboratory exercises in which the student will develop, assemble, download, and run programs on the target processor. Programming activities will focus on the development of algorithms for control of real world processes. Students will be required to prepare written laboratory reports outlining the program documentation. Reports will be graded based both on their

technical quality and their grammatical and professionalism. Students in CMPET 211 will be required to use computers in both class and laboratory exercises to develop and test their programs.

Enforced Prerequisite at Enrollment: CMPET 117 and CMPET 120

CMPET 301: Algorithmic Processes for Electrical Systems

3 Credits

Algorithms, languages, notations and applications of object- and procedure- oriented languages to electrical and electronic problem solving. CMPET 301 Algorithmic Processes for Electrical Systems (3) Algorithmic Processes for Electrical Systems is a required course for junior-level students in the Electrical and Computer Engineering Technology (ECET) baccalaureate degree program. It is essential for Electrical Engineering Technology students to acquire a working knowledge of a computer language commonly used in practice. This course will prepare the student to analyze a problem and implement a structured procedural design and also an object-oriented design. This course is a follow-up course to CMPET 5 and CMPET 211, and prepares the student for several more advanced courses in the program related to computer analysis of circuits and systems. This course covers properties of algorithms and languages, software development process, notations for describing algorithms, applications of object- and procedure-oriented languages to electrical and electronic problem solving, high-level language programming, integrated development environment, and structured programming. Laboratory exercises parallel lecture material.

Enforced Prerequisite at Enrollment: CMPET 211 Enforced Concurrent at Enrollment: MATH 141 or MATH 210

CMPET 333: Computer Networking

3 Credits

Introduction to Local Area Networks (LANs) and Wide Area Networks (WANs), including transmission mediums, protocols, topologies, software, and hardware. CMPET 333 Computer Networking (3) The purpose of the course is to understand the principles of networking as applied to local area networks (LANs) and wide area networks (WANs). The students learn internet working models such as the OSI seven-layer, Ethernet, and Cisco three-layer models. Network topologies and various connectivity devices are investigated to form networks. Cisco IOS is introduced and console port and web interfaces are used for configuring Cisco devices. Subnetting is discussed and Cisco switches and routers are used for the implementation of LANs and WANs. Various protocols such as ARP, ICMP, IP, and TCP are presented and a software protocol analyzer is utilized. Applications such as file-sharing and remote data collection are investigated. Laboratory exercises reinforce concepts developed in lecture.

Enforced Prerequisite at Enrollment: EET 212W and CMPET 301

CMPET 355: Intermediate Microprocessors and Microcomputers

3 Credits

Microprocessor architecture and assembly language programming. Hardware and software of basic microprocessors. Input/output structure in microcomputers. CMPET 355 CMPET 355 Intermediate Microprocessors and Microcomputers (3) Intermediate Microprocessors and Microcomputers is a required course for junior-level students in the Electrical and Computer Engineering Technology (ECET) baccalaureate degree program. This course builds upon prerequisite digital logic,

microprocessors and electronics courses. It includes microprocessor architecture and assembly language programming, hardware and software of basic microprocessors, and input/output structure in microcomputers. The course covers a review of number systems, digital logic, computer architecture, software development process; the microcontroller, specifications, block diagrams; assembly language programming; jump, loop and call instructions; I/O port programming, addressing modes, arithmetic instructions and programs, logic instructions and programs, single-bit instructions and programs, counter/timer programming, serial communication, interrupts programming, real world interfacing, and bus interfacing to external memory. Laboratory exercises parallel lecture material.

Enforced Prerequisite at Enrollment: EET 212W and CMPET 301 and EET 341

CMPET 401: Data Communication and Networking

3 Credits

Signal representations, communication techniques, interfacing, serial and parallel communication, modems, error detection, LAN and WAN protocols. CMPET 401 CMPET 401 Data Communication and Networking (3) This course is designed to provide the students with a foundation in signal presentation, communication techniques, serial and parallel communication, modems, and other interfacing methods. The networking technologies for local and wide area networks are also studied in detail. The range of topics covered depends on students' background. Topics: Part 1. (2 weeks) Overview: Introduction Protocols and Architecture; Part 2. (9 weeks) Data Communications: Data Transmission Media Data encoding Communication techniques Data Link Control Multiplexing; Part 3. (4 weeks) Local and Wide Area Networks: LAN and WAN protocols Switching techniques Bridges and routers High speed networks Internetworking Internet resources. This course is a required course in the Computer Engineering Technology Option of the Electrical Engineering Technology BS curriculum.

Enforced Prerequisite at Enrollment: CMPEN 271 or CMPET 117

CMPET 402: Data Communication and Networking Laboratory

1 Credits

Network operating systems, LAN and WAN protocols, serial and parallel communications, modems, FAX, and other interfacing methods.

Enforced Concurrent at Enrollment: CMPET 401

CMPET 403: Switching Circuit Design

4 Credits

Analysis and design of advanced combinational and sequential circuits using IC logic devices and PLD's while promoting the use of software development tools. CMPET 403 Switching Circuit Design (4) This course is designed to enhance students' abilities to analyze and design complex digital systems. The course will include the following topics: 1. Review of combinational circuits' analysis and design using, karnaugh maps with up to six variables and Quine-McCluskey method 2. Advanced combinational logic analysis and design with MSI logic circuits 3. Hazard in digital systems 4. Review of analysis and design of synchronous finite state machines (Moore and Mealy methodologies) 5. Synchronous sequential logic design using One-hot finite state machines 6. State reduction for completely and incompletely specified circuits/systems 7. Analysis and design of asynchronous sequential circuits/systems 8. Logic circuit

testing and testable design 9. Introduction to Hardware Description Language This course is a technical elective in the Electrical Engineering Technology BS curriculum and is intended to be taken by students who have completed their first digital systems course requirements. As such, the course integrates materials from the above undergraduate electrical course in addition to related math, engineering, and science courses. No special facilities are required for this course other than laboratories available to the Electrical Engineering Technology Program.

Enforced Prerequisite at Enrollment: (CMPEN 271 or CMPET 117) and (CMPEN 275 or CMPET 120)

CMPET 412: Microcomputers

4 Credits

Design, architecture, programming, and interfacing of microprocessors, enhanced by lab experiments. CMPET 412 Microcomputers (4) E E T 412 is an intermediate course in microprocessor architecture, programming, and interfacing. It details the inner workings of a contemporary microprocessor, including its registers, busses, external connections, instruction set, and its available support devices for memory management, data transfer, clocking and interfacing. It includes a laboratory in which students program in machine language, assembly language, and high level language. Labs also teach students to interface a microprocessor to the user keyboard, the user display, floppy and hard disk drives, and external serial and parallel devices. E E T 412 is intended as an intermediate course, offered to students who have already had some exposure to microprocessor systems, microcomputer architecture, and low-level computer programming.

Enforced Prerequisite at Enrollment: (CMPEN 271 or CMPET 117) and (CMPEN 275 or CMPET 120)

CMPET 456: Advanced Microprocessors, High Level Interfacing

3 Credits

Operating systems; systems programming; high-level application programming; high-level hardware and software protocols; serial and parallel digital communications. CMPET 456 CMPET 456 Advanced Microprocessors, High Level Interfacing (3) Advanced Microprocessors, High Level Interfacing is a required course for senior-level students pursuing the computer engineering technology (CET) option in the Electrical and Computer Engineering Technology (ECET) baccalaureate degree program. Topics of this course include operating systems, systems programming, high-level application programming, high-level hardware and software protocols, serial and parallel digit communications. The purpose of this course is to extend and augment the topics covered in the earlier computer oriented courses, and build upon the foundations established there. It covers large scale embedded systems along with the related hardware and software design considerations. It is organized around a few intensive projects that cover the breadth of the material. The need for operating systems is discussed, as well as their important features including system services, command processing, device drivers, interrupt handling, memory and device management, system libraries, dynamic linking, virtual memory, multitasking, and inter-task communication. Unique considerations of real time operating systems are reviewed, such as throughput, task blocking, semaphores and special services. The gray area between operating systems and application programming known as systems programming is addressed, including standardization, generalization, choice of language, and make-buy decision issues. A large part of the course is spent on high-level application programming. Topics include

structured programming, user-written functions, data structuring and packetizing, and use of commercial libraries and other intellectual property. Protocols based on current technology such as EPP, RS232, RS485, IIC, DeviceNet, USB, IEEE488, IEEE1394, are covered. Binary and character-based data transfer is discussed, along with communication layers and error detection, correction, and recovery issues. Serial and parallel communication topics include analysis and evaluation of the pros and cons of each protocol, debugging, monitoring, timing, and throughput.

Enforced Prerequisite at Enrollment: CMPET 355

CMPET 457: Software Engineering

3 Credits

Application of modern techniques in software development, including program design based on new methods and tools. CMPET 457
CMPET 457 Software Engineering (3) Software engineering is a required course for senior-level students pursuing the computer engineering technology (CET) option in the Electrical and Computer Engineering Technology (ECET) baccalaureate degree program. Topics of the course include application of modern techniques in software development including program design based on current methods and tools. The purpose of this course is to stress a rigorous and systematic approach to embedded software development that represents current best practices and is widely accepted by business, industry and regulatory agencies governing embedded software. This includes proper planning and implementation. Knowledge of generally accepted core standards and guidelines is stressed, including safety planning, hazards analysis, software management planning, requirements specification, design documents, coding, test plans, test specifications, test logs, test reports, design reviews, structured code walk-throughs, verification and validation, and reporting. The Unified Modeling Language (UML) is introduced and followed, including the components of UML, class diagrams, object diagrams, use-case diagrams, state diagrams, sequence diagrams, activity diagrams, collaboration diagrams, component diagrams, and deployment diagrams. Object oriented concepts include classes, abstraction, inheritance, polymorphism, encapsulation, message sending, associations, and aggregation.

Enforced Prerequisite at Enrollment: CMPET 355

Computer Science (CMPSC)

CMPSC 97: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

CMPSC 100: Computer Fundamentals and Applications

3 Credits

Introduction to computer fundamentals and applications to data processing environments.

Enforced Prerequisite: MATH 21 or satisfactory performance on the mathematics placement examination.

CMPSC 101: Introduction to Programming

3 Credits

This course introduces the fundamental concepts and processes of solving computational problems through the design, implementation, testing, and evaluation of basic computer programs. The concepts include basic computational constructs such as calculation, iteration, conditions, functions, and data types. These provide the basic building blocks found in virtually all programming languages. The processes include the step-by-step refinement of a problem description into individual components that can be implemented, tested, and integrated into an effective solution. As a general education course, the central theme to the course is computational thinking which includes a wide range of approaches to solving problems and designing systems that draw upon concepts fundamental to computer science. Computational thinking includes thinking about various types and sources of data, and the correctness, efficiency, elegance, and simplicity of various potential solutions. Computational thinking is applying principles of abstraction at multiple levels to focus on important details; it is applying problem decomposition to identify small problems that can be individually solved then combined to form a solution to the original problem. Upon completion of this course, the student will be able to conceptualize and implement computational solutions to problems; to utilize the imperative model of computation to solve problems; to reason about problems at multiple levels of abstraction; and to analyze code for its behavior, efficiency, and correctness. A student may receive credit for only one of the following courses: CMPSC 101, CMPSC 121, CMPSC 131, CMPSC 200, CMPSC 201

Enforced Prerequisite: MATH 21 or satisfactory performance on the mathematics placement examination.

Bachelor of Arts: Quantification

General Education: Quantification (GQ)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

CMPSC 102: Introduction to Visual Programming

3 Credits

Problem solving for non-majors; high-level language programming; control structures, functions, parameters, recursion, arrays, records/structures; verification; debugging; documentation.

Prerequisite: 2 entrance units in mathematics

CMPSC 111: Logic for Computer Science

1 Credits

An introduction to logic and its application to problem solving and computer science. CMPSC 111S Logic for Computer Science (1) Computer Science provides the fundamental tools for analyzing problems and designing solutions to these problems which can be implemented on a computer. Logic plays an important role in this process, from a general-purpose tool for reasoning about knowledge to a special-purpose language for specifying the behavior of programs and designing hardware. This course examines the role of logic in problem solving and its application to computer science and computer engineering. Example problems will be drawn from a variety of sources, including brain teasers, puzzles, and mathematics. We will show how these problems and their solutions apply to real problems involving

computers. We will also explore a number of the important areas of computer science and computer engineering including Boolean and Digital Logic, Designing Arithmetic Hardware, Cryptography and Security Programming Languages, Networking and Wireless Communication, Artificial Intelligence, and Computer Ethics.

First-Year Seminar

CMPSC 121: Introduction to Programming Techniques

3 Credits

Design and implementation of algorithms. Structured programming. Problem solving techniques. Introduction to a high-level language, including arrays, procedures, and recursion.

Enforced Prerequisite at Enrollment: MATH 110 or Enforced Concurrent at Enrollment: MATH 140

Bachelor of Arts: Quantification

CMPSC 122: Intermediate Programming

3 Credits

Object-oriented programming, recursion, fundamental data structures (including stacks, queues, linked lists, hash tables, trees, and graphs), the basics of algorithmic analysis, and an introduction to the principles of language translation.

Enforced Prerequisite at Enrollment: CMPSC 121

CMPSC 122H: Intermediate Programming

3 Credits

Object-oriented programming, recursion, fundamental data structures (including stacks, queues, linked lists, hash tables, trees, and graphs), the basics of algorithmic analysis, and an introduction to the principles of language translation.

Honors

CMPSC 131: Programming and Computation I: Fundamentals

3 Credits

This course introduces the fundamental concepts and processes of solving computational problems through the design, implementation, testing and evaluation of efficient and robust computer programs. The concepts include basic computational constructs found in imperative, object-oriented and functional programming languages such as iteration, conditionals, functions, recursion, and datatypes. These provide the basic building blocks found in virtually all programming languages. The processes include the stepwise refinement of a problem description into individual components that can be implemented, tested, and integrated into an effective solution. A central theme to the course is computational thinking which includes a wide range of approaches to solving problems and designing systems that draw upon concepts fundamental to computer science. Computational thinking includes thinking recursively, considering parallel processing, thinking about types and type checking, judging a program not just for correctness and efficiency but also for its esthetics, and judging a system design for its simplicity and elegance. Computational thinking is applying principles of abstraction at multiple levels to focus on important details; it is applying problem decomposition to identify small problems that can be individually solved then combined to form a solution to the original problem. Computational thinking uses

program invariants to describe a system's behavior succinctly and declaratively. Computational thinking considers multiple models of computation when designing an effective solution to a problem.

Enforced Concurrent at Enrollment: MATH 110 or MATH 140

CMPSC 132: Programming and Computation II: Data Structures

3 Credits

This course builds upon the foundations of programming and computation by introducing and studying the data structures and programming language features that support the design and construction of large-scale software systems. It introduces the foundations of object-oriented programming, the design and analysis of efficient algorithms using important data structures, and programming techniques that support reusable and modular program components, including data abstraction, polymorphism, and higher-order functions. Topics from object-oriented programming include classes, objects, inheritance, methods, message passing, static and dynamic type checking. These topics form the core of most object-oriented languages and provide a foundation for learning more advanced language topics. Data structures capture the common organization of many kinds of data arising in the design of efficient solutions to computational problems. Specific data structures covered include stacks, queues, trees, graphs and linked lists. The design and analysis of efficient algorithms using these data structures provide a foundation for the study of computing, where understanding the complexity of a problem and the availability of efficient solutions are essential skills. Finally, topics including higher-order functional programming, data abstraction and parametric polymorphism, as well as principles from object-oriented programming, come together to support the design and implementation of modular, reusable and robust code.

Enforced Prerequisite at Enrollment: CMPSC 121 or CMPSC 131

CMPSC 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

CMPSC 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

CMPSC 200: Programming for Engineers with MATLAB

3 Credits

This course introduces basic programming concepts including algorithm development, simple data types, number representation, control structures, functions, plotting, and basic numerical analysis techniques, all in the context of science and engineering. The course enables students to develop computer programs in a scientific programming language to solve simple engineering and science problems. The basic numerical analysis techniques covered in the course include matrix operations, systems of equations, solving equations, roots, curve fitting, interpolation, numerical integration, and numerical solutions of ordinary differential equations. Students analyze engineering and science

problems, develop algorithms to solve those problems, implement their algorithms in an appropriate programming language, and produce informative output in both numerical and graphical form. The general programming concepts learned in the course are commonly found in most programming languages. The problem-solving skills learned in the course can then be utilized in upper-level engineering and science courses. This course includes an exploration of the conceptual and syntactical background needed for the successful completion of practical programming assignments. The course also includes an emphasis on the actual design and implementation of computer programs necessary for solving computational problems. This course satisfies University quantification requirements because it assists students in assessing and interpreting quantitative data and information. In addition, the course assists students with recognizing patterns, establishing relations, exercising conceptual thinking, developing problem-solving skills, and thinking logically and critically. Finally, the course supports students in their efforts to draw accurate and useful conclusions, to make informed decisions based on quantitative analysis, and to use mathematical skills to solve conceptual problems. A student may use only one of the following courses to satisfy degree requirements: CMPSC 101, 102, 121, 131, 200, 201.

Enforced Prerequisite at Enrollment: MATH 140 or MATH 140A or MATH 140B or MATH 140E or MATH 140G or MATH 140H
Enforced Concurrent at Enrollment: MATH 141 or MATH 141B or MATH 141E or MATH 141G or MATH 141H
Recommended Preparation: MATH 220
 Bachelor of Arts: Quantification
 General Education: Quantification (GQ)
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

CMPSC 201: Programming for Engineers with C++

3 Credits

Development and implementation of algorithms in a procedure-oriented language, with emphasis on numerical methods for engineering problems. A student may receive credit for only one of the following courses: CMPSC 101, CMPSC 102, CMPSC 200, CMPSC 201, or CMPSC 202.

Enforced Prerequisite at Enrollment: MATH 140
Enforced Concurrent at Enrollment: MATH 141
 Bachelor of Arts: Quantification
 General Education: Quantification (GQ)

CMPSC 203: Introduction to Spreadsheets and Databases

4 Credits

Design, use, and programming of spreadsheets and data bases with applications from a range of disciplines.

Prerequisite: 2 entrance units in mathematics
 Bachelor of Arts: Quantification
 General Education: Quantification (GQ)

CMPSC 204: Introduction to Computational Sciences Programming

3 Credits

This introductory programming course teaches the foundations of programming and computational problem solving for scientific and

engineering domains. The emphasis of the course is on computation as a problem-solving tool for highly mathematical intensive applications. The course includes the study of core programming concepts, including data types, data structures, control structures, functions, and problem decomposition, and then continues with techniques applicable to modeling and visualizing scientific data. Students gain experience solving scientific and engineering problems by translating mathematical specifications into computational solutions, using a variety of mathematical and related libraries. They also gain experience developing solutions that provide visual representations of the results.

Enforced Prerequisite at Enrollment: MATH 141

CMPSC 205: Intermediate Computational Sciences Programming

3 Credits

This course introduces intermediate concepts of programming including object-oriented programming, dynamic data structures, and data visualization and data modeling. The core of this course covers data analysis, efficient usage of data structure, simulations, data visualization, and data structure collections. The topics include, but are not limited to, the study and the use of lists, stacks, queues, and hash tables. Emphasis will revolve around application to scientific computing libraries in conjunction with data abstraction, object-oriented program design, data visualization, and data manipulation. Hands-on programming assignments and usage of scientific libraries are the integral part of this course.

Enforced Prerequisite at Enrollment: CMPSC 204 or CMPSC 121 or CMPSC 131

CMPSC 208: Technical Game Development

3 Credits

Introduction to the tools and techniques required to implement games in a virtual environment. GAME 250 / CMPSC 208 Technical Game Development. First, students learn about game and player elements by creating characters and objects and the means of user interactivity. Both orthographic and perspective views are introduced to assist in character design. Objects and characters are created using fundamental geometric primitives like scale, rotation, translation and extrusion. The set operations, union, intersection, and subtraction, are applied to create compound objects. Bezier and NURB curves are introduced to create objects with irregular contours. Students also learn to design graphical user interfaces (GUIs) and handle mouse and keyboard events to support user interactions. Second, students are introduced to methods of storytelling and guide them to build narratives for games. Methods of proximity and collision detection in the environment are studied for both static and dynamic objects. Dynamic objects are programmed to move and behave in a deterministically, random, or probabilistically under a variety of lighting methods including ambient, directional, point and diffuse lights are introduced. A number of particle systems are developed with different considerations of randomness, vector direction and velocity. The concept of linear interpolation is illustrated and applied to texture mapping to improve the look and feel of objects. Third, students are introduced to functions, propositional logic, loops, and randomness to model game behavior. Students will learn to combine a series of primitive actions into a function for control and reuse. Propositional logic will guide students to define conditions and develop game rules. Loops are introduced to simplify the implementation of repeated game behavior. Randomness enables the simulation of many life-like object movements.

Students will learn and practice how to write concurrent, event driven and sequential processing algorithms for game objects. Fourth, students are introduced to the game development process of pre-production, production and post-condition phases and have them apply it to their own project. The topic of maintenance will be introduced with an emphasis on refactoring techniques, critical to improving the quality of game and providing flexibility for future updates. This course has a significant applied element. Game engine tools are used to develop prototypes of games and playtest them. Lab assignments are given throughout the semester and a final project requires students to demonstrate mastery of all aspects of the course.

Enforced Prerequisite at Enrollment: MATH 21

Cross-listed with: GAME 250

Bachelor of Arts: Quantification

General Education: Quantification (GQ)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Key Literacies

CMPSC 221: Object Oriented Programming with Web-Based Applications

3 Credits

The course covers advanced object-oriented principles and their application to web-based, net-centric computing. Major topics include virtual machines, intermediate code generation (Java-specific), graphical user interfaces (GUI) design, event handling, server-side programming with database queries, and security, permissions and file management concepts for client/server systems. Extensive programming assignments provide an understanding of the entire process of client/server development including interface prototyping, program design, implementation of both client and server programs, unit testing, and documentation. This course prepares students to meet immediate demands in solving complex computational problems.

Enforced Prerequisite at Enrollment: CMPSC 122 or CMPSC 132

CMPSC 263: Blockchain and Modern Web Development

3 Credits

This course covers the technical aspects and development behind blockchain technology with a primary focus on software implementation including Web3 development and the basics of JavaScript. Students will be taught the fundamentals of web development, blockchain-based application and architectures, smart contracts for running blockchains as decentralized applications, introduction to UI development, and applications of blockchain in industry. Overall, this class teaches the implementation of blockchain technology and web development in the modern world.

Enforced Prerequisite at Enrollment: CMPSC 132 or CMPSC 122

CMPSC 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

CMPSC 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

CMPSC 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

CMPSC 301: Event Driven Programming for Computational Sciences

3 Credits

This course focuses on the development of event-driven applications for problems found in science and engineering disciplines using object-oriented programming concepts, application programming interfaces, and event-driven programming techniques. Additional topics include stream I/O, data visualization, and user-interface design. Students will gain experience in the design and construction of independent and deployable applications that leverage their mathematical and problem-solving skills.

Enforced Prerequisite at Enrollment: CMPSC 205

CMPSC 302: Intermediate Visual Programming

3 Credits

OO programming, visual programming, classes, objects, ADTs, inheritance, recursion, regular expressions, user-defined controls, documentation, testing, verification, productivity tools. CMPSC 302 Intermediate Visual Programming (3) This course forms the second of a two course sequence of courses for non-major students. It is designed to build upon concepts and skills presented in the first course, CMPSC 102, with the intent of enabling the student to develop larger scale programs and interface with databases and Web servers using a visual programming language. Some of the topics covered in this course will be object-oriented programming, inheritance, string manipulation, regular expressions, creating custom controls, creating controls dynamically, interfacing with databases and using an appropriate platform, such as ASPX.net to create web pages. This course forms the second of a two course sequence of courses for non-major students. It covers advanced features of the target language, building larger scale programs and interfaces to databases and web servers. It builds on the skills covered in CMPSC-102 and introduces creating new controls, dynamically placing controls at run time, arrays and lists of controls, the use of regular expressions, more in-depth treatment of classes and objects, including inheritance and polymorphism, multi-dimensional arrays, lists, unit testing and project deployment.

Enforced Prerequisite at Enrollment: CMPSC 102 or CMPSC 121

CMPSC 311: Introduction to Systems Programming

3 Credits

Unix system programming in C; organization of programs and data; program analysis and support tools; software standards; common system functions. CMPSC 311 CMPSC 311 Introduction to Systems Programming (3) System Programming concerns the development of software components and methods for their combination, independent

of any particular application. This course will provide information and experience required to understand, design and implement components of large software systems. In general, students should be able to evaluate design alternatives according to standard practice, specifications, performance analysis, robustness, etc. To concentrate attention, we investigate one system and one programming language in detail, through demonstration programs, short- and long-term programming assignments. The specific system is Unix, a family of operating systems forming a complete standardized programming environment based on the idea of software tools. The specific language is C, which is widely used for operating system implementations, and which forms the basis for the C++ and Java languages studied in the prerequisite courses. This will help students understand operating system services available to application programmers, and provide a firm ground for study of operating systems in general. There are several themes of the course: (1) Understand computer systems, especially low-level influences on high-level goals. This includes the machine-level representation of programs and data structures; the memory hierarchy and its impact on performance; access to stored information via file systems, and access to other computer systems via networks. (2) Understand existing system software and software standards, especially the UNIX toolset. This includes preparing a program (editors, static analysis, development environments); running a program (compilers and interpreters, assembler, linker, loader, debugger, profiler, tracer); controlling parts of a program (memory management, threads); communication between programs (within one system using signals, between systems using sockets and communication protocols); and combinations of software tools with scripting languages. (3) Understand "real code", such as selections from the Linux operating system kernel and GNU utilities and libraries, and through comparative selections from Solaris, Linux, and Mac OS X. (4) Understand system performance, including experiments on program performance and optimization techniques.

Enforced Prerequisite at Enrollment: CMPSC 221

CMPSC 312: Computer Organization and Architecture

3 Credits

Data representation, digital logic, instruction set/control logic, machine/assembly languages, advanced architectures, memory hierarchy, I/O devices, overall system design.

Enforced Prerequisite at Enrollment: CMPSC 121 or CMPSC 131

CMPSC 313: Assembly Language Programming

3 Credits

Program design, addressing modes, subroutines, parameter passing, stacks, bit manipulation, text processing, DOS functions, macros, I/O, high level language interfaces. CMPSC 313 CMPSC 313 Assembly Language Programming (3) This is a course in assembly language programming for IBM PCs and compatibles. Students will gain experience writing efficient, well-documented programs that are easily maintained. The course investigates the architecture and instruction set of a typical microcomputer based on the Intel 80x86 microprocessors. Topics include the basic structure of computers, the internal behavior of computers, program design, testing, debugging, machine architecture, addressing, BCD and binary arithmetic, subroutines and parameter passing, stacks, text processing, bit manipulation, DOS functions, macros, I/O routines, high level language interfaces and the assembly process. This course is important because assembly language is often used in programs where small size or fast execution is critical. Knowledge of assembly

language is also useful in debugging programs written in high level languages. It also helps bridge the gap between hardware and high level languages. After successfully completing CMPSC 313, the student should be able to: explain the 80x86 architecture, including registers and segment:offset addressing; describe different ways data are represented in a computer and work with binary and hexadecimal numbers; describe the functions of an assembler; implement program designs in 80x86 assembly language, including: writing, documenting, testing and debugging a program in PC assembly language; manipulating strings; coding basic algorithms such as searching and sorting in assembly language; calling and passing parameters to subroutines; utilizing DOS functions; and interfacing with a high level language; explain how the underlying hardware affects software design and performance; appreciate the factors that contribute to program efficiency. Students will be evaluated on homework (35% of grade), semester exams (35%), and a final comprehensive exam (30%). The major only requires that a student have experience with assembly language programming. This course is intended for students who have not had any experience with assembly language programming before entering the program. It will also serve as an elective. The material learned in this course is beneficial in understanding concepts in the required courses CMPSC 422, CMPSC 472, and CMPSC 460, as well as in the elective courses CMPSC 428 and CMPSC 470. No special facilities are required for this course. The software necessary is available in the computer labs or for students to use at home. This course will be offered once per year, with an expected enrollment of 55.

Enforced Prerequisite at Enrollment: CMPSC 312

CMPSC 330: Advanced Programming in C++

3 Credits

In-depth study of various programming paradigm including procedural, object oriented, and generic programming in C++ programming language. The primary goals of this course are (1) to provide students with an in-depth knowledge of different programming paradigms, (2) to provide students with the ability to design and develop software using the paradigm that is appropriate to a given problem, and (3) to provide students with the programming concepts that are applicable to programming in other languages. The secondary goal of this course is to expose students to a diverse range of programming tasks using C++ programming language that is frequently used in the follow up courses as well as in industry.

Enforced Prerequisite at Enrollment: C or better in CMPSC 122 or C or better in CMPSC 132

CMPSC 335: Fundamentals of Communication Networks

3 Credits

Introduction to the composition of communication networks, including transmission mediums and protocols, transfer methods, topologies and software, and communications hardware.

Prerequisite: 3 credits of programming

CMPSC 348: Data Science and Machine Learning for Computational Sciences

3 Credits

This course will introduce students from different engineering and sciences disciplines to the data driven problem solving methods using

machine learning techniques including clustering, classification, data modeling, and data visualization. The course will focus on processes, techniques, and algorithms for data mining and machine learning. Processes and phases include data preparation, exploration, modeling, and prediction. Specific clustering and classification techniques will be used to emphasize machine learning models using high-level language and their libraries. Students will learn and apply key concepts of modeling, analysis and validation from machine learning and data mining to analyze and develop data-driven predictive models. Upon completion of the course, students will be able to develop machine learning based solutions with applications in different science and engineering domains.

Enforced Prerequisite at Enrollment: CMPSC 301 and (MATH 414 or MATH 418 or STAT 414 or STAT 418 or EE 465)

CMPSC 360: Discrete Mathematics for Computer Science

3 Credits

Discrete mathematics and foundations for modern computer science. Topics include sets, relations, logic, algorithms, graphs, finite state machines and regular expressions.

Enforced Concurrent at Enrollment: CMPSC 122 or CMPSC 132

CMPSC 395: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Full-Time Equivalent Course

CMPSC 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

CMPSC 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

CMPSC 410: Programming Models for Big Data

3 Credits

Recommended Preparations: DS 310; CMPSC 448 This course introduces modern programming models and related software stacks for performing scalable data analytics and discovery tasks over massive and/or high dimensional datasets. The learning objectives of the course are that the students are able to choose appropriate programming models for a big data application, understand the tradeoff of such choice, and be able to leverage state-of-the-art cyber infrastructures to develop scalable data analytics or discovery tasks. Building on data models covered in DS 220, this course will introduce programming models such as MapReduce, data flow supports for modern cluster computing environment, and programming models for large-scale clustering (either a large number of data samples or a large number of dimensions). Using these frameworks and languages, the students will learn to implement data aggregation algorithms, iterative algorithms, and algorithms for generating statistical

information from massive and/or high-dimensional data. The realization of these algorithms will enable the students to develop data analytic models for massive datasets.

Enforced Prerequisites at Enrollment: (CMPSC 122 or CMPSC 132) and (DS 220 or CMPSC 221)

Cross-listed with: DS 410

CMPSC 412: Data Structures Lab

1.5 Credits

Programming with common data structures; recursion; stacks, queues, dictionaries, priority queues; string searching and manipulation; sorting; trees; combinatorics.

Enforced Concurrent at Enrollment: CMPSC 462 or CMPSC 465

CMPSC 413: Algorithms Lab

1.5 Credits

Programming with common algorithm design techniques; divide and conquer, greedy method, dynamic programming, and tree and graph traversals.

Enforced Concurrent at Enrollment: CMPSC 463

CMPSC 414: Contest Programming

1 Credits/Maximum of 4

This course provides hands-on practice with a wide range of computer science topics that are used to solve programming contest questions. These topics include common data structures; strings; sorting; combinatorics; number theory; graph traversal and other algorithms; dynamic programming. In the course, students will solve a range of programming contest questions, both using an online judge in practice sessions and during actual programming contests. In addition to solving programming problems, the course time will also be used to explore topics mentioned above and the relationship to specific problems, solution techniques, and the analysis of proposed solutions to specific problems. This course is envisioned to be a hands-on lab, with instructor supported, self-guided study. The course topics will be chosen from topics that commonly appear in current programming contests, including but not limited to: · Contest Programming · Common Data Structures · Strings · Sorting · Combinatorics · Number Theory · Graph Traversal and Other Algorithms · Dynamic Programming

Enforced Concurrent at Enrollment: CMPSC 221 or CMPSC 330

CMPSC 421: Net-centric Computing

3 Credits

This course introduces JavaScript and AJAX for creating Rich Internet Applications, and XML for client-server communication and Web Services. CMPSC 421 Net-centric Computing (3) This course will build on the client-server computing concepts and techniques that students learned about in prerequisite courses. The goal of the course is to introduce students to the most significant and fundamental of those technologies that are used in the computing paradigm known by a number of terms including "Net-centric", "Web 2", and "cloud" computing. On the client: We will use Dynamic XHTML, Cascading Style Sheets, JavaScript and AJAX to develop the client side of Rich Internet (or Web) Applications. For client-server-communication: We will learn how

to create and validate XML documents and use these as the primary language for transmission of data from the server to the client. We will also consider how JavaScript Object Notation (JSON) can sometimes be used as a viable alternative to XML for server to client data transmission. On the server: We will learn about a variety of server-side technologies for consuming, storing, transforming, and generating content. We will use the three main types of XML parsers to consume, transform, and generate XML; we will use XSL and XPath to style and transform XML; we will use XML binding tools to convert XML to and from classes (in some high-level language); we will use Data Access Objects and object-relational mapping tools for data persistence. We will learn how servers use Web services and RSS feeds to provide XML structured content, and we will consume existing Web services and RSS feeds and produce simple Web services.

Enforced Prerequisite at Enrollment: CMPSC 221 or SWENG 311

CMPSC 430: Database Design

3 Credits

The main goal of this course is to explore the relational database model, with special emphasis on the design and querying of relational databases. Secondary goals include exploration of the mathematical basis for relational databases and exploration of the relationship of database to the rest of computer science. Study of these topics should improve student skills in programming, modeling the structure of data and using and administering databases. After completing CMPSC 430 the student should be able to: (1) Demonstrate comprehension of general database concepts (2) Identify key issues in developing database systems and applications (3) Explain the general organization of a relational database and explain the functions of the basic relational operators (4) Use query languages, in particular, Structured Query Language (SQL), to define, maintain, and query relational databases (5) Model a relational database through entity-relationship (ER) modeling and construct ER diagrams (6) Explain the methodologies used to conceptualize and design database systems (7) Apply decomposition and analyze/construct functional dependencies (8) Demonstrate an understanding of the concepts of relation normalization and the supporting fundamental knowledge of efficient database implementation

Enforced Concurrent at Enrollment: CMPSC 462

CMPSC 431W: Database Management Systems

3 Credits

Topics include: conceptual data modeling, relational data model, relational query languages, schema normalization, database/Internet applications, and database system issues.

Enforced Prerequisite at Enrollment: CMPSC 221 and ENGL 202C Writing Across the Curriculum

CMPSC 432: Exploratory Data Mining

3 Credits

This course teaches fundamental concepts, algorithms and problem-solving techniques for exploratory data mining and their applications, with an emphasis on the algorithmic aspects. The course covers extensively the design of algorithms and implementations of software solutions to various exploratory data mining tasks. In addition, we discuss in depth various requirements and technical issues arising in the design and implementations of robust, efficient, effective and

scalable software solutions. Topics covered include types and quality of data, similarity measures of data, algorithms and approaches for data processing/cleaning/analysis, data exploration, cluster analysis, association analysis, and anomaly detection. Additionally, basic concepts and techniques for predictive data mining, i.e., regression and classification, are reviewed. Students will exercise the obtained knowledge to address important technical issues in realistic exploratory data mining tasks and applications. Because the knowledge of various data structures (e.g., index structures, hash trees, graphs, lattices, and pointers) and algorithmic concepts (e.g., recursions, traversal, and pruning) are essential background to many data mining algorithms taught in the course. Students who are interested in the course are required to take the prerequisite courses in order to equip themselves with appropriate background knowledge and programming skillsets to succeed in the course.

Enforced Prerequisite at Enrollment: CMPSC 221 and (CMPSC 465 or CMPSC 463) and (STAT 318 or STAT 414 or STAT 418)

CMPSC 436: Communications and Networking

3 Credits

Data transmission, basic signaling, data encoding, error control, communication protocols, security, network topologies, routing, switching, internetworking, emerging high speed networks. CMPSC 436CMPSC 436 Communications and Networking (3)This course introduces the elements and architecture of computer and data communication networks, demonstrates the fundamental principles of computer networking, and provides experience in the practical use of current networking technology. Topics in this course include: data communications (basic signaling, data transmission, data encoding, errors and error control), communications architecture and protocols (communication protocols, internetworking, transport protocols, layered network architecture, network security) and computer networks (WANs, LANs, network topologies, internetworking, routing and switching strategies and emerging high speed networks).After taking CMPSC 436, students should be able to:1) understand the fundamentals of networking concepts and terminology2) define and contrast the classifications local area network (LAN), metropolitan area network (MAN), and wide area network (WAN)3) name and describe basic networking elements4) define the roles of clients, servers, and peers as they relate to computer networks5) define the term "protocol" and explain how it relates to computer networks6) identify specific network management areas and describe the organizational issues relating to each of themStudents will be evaluated on homework (35% of grade), semester exams (35%), and a final comprehensive exam (30%).This course is an elective in the computer science (COMP) BS curriculum. This course is intended to be taken by second semester juniors or seniors.No special facilities are required for this course. This course will be offered once per year, with an expected enrollment of 60.

Enforced Prerequisite at Enrollment: CMPSC 312

CMPSC 438: Computer Network Architecture and Programming

3 Credits

This course introduces elements and architecture of computer and data communication networks, demonstrates the fundamental principles of computer networking, and provides practical experience in the network application development. This course will provide an overview of computing network architectures and programming that are essential knowledge for many professionals working in computer science and

information systems fields. Students will gain hands on experience in a range of network programming assignments.

Enforced Prerequisite at Enrollment: CMPSC 312 and (CMPSC 221 or CMPSC 330)

CMPSC 440: Data-driven Security Analytics

3 Credits

Today's security event monitoring and correlation tools are being taxed more than ever before. The constant deluge of data being output by the many devices in our security infrastructures and input into log managers, SIEM (Security information and event management) and other security management interfaces creates quite a load on our analytics systems. In the noise of all this security and event-related data, it is difficult to sort through and obtain real, actionable events that need attention. The market is in need of a new generation of security tools - ones that process much larger datasets, are capable of deep-dive analytics and rely more on intelligence than attack signatures. The proposed course will cover the fundamental data science techniques that are applied to enhance security intelligence. This course will complement the existing computer science and software engineering curriculum. It also prepares students for both a career as a data scientist and as a cybersecurity analyst.

Enforced Prerequisite at Enrollment: CMPSC 335 or CMPEN 461

CMPSC 441: Artificial Intelligence

3 Credits

Problem solving, search techniques including local search and genetic algorithms, knowledge representation, planning, learning, and neural networks. CMPSC 441 Artificial Intelligence (3) The primary goals of this course are (1) to provide the students with an introduction to Artificial Intelligence concentrating on some fundamental areas of AI, and (2) to provide the students with a working knowledge of LISP so that they can investigate some basic problems in AI using LISP as a vehicle language.

Enforced Prerequisite at Enrollment: CMPSC 462

CMPSC 442: Artificial Intelligence

3 Credits

This course provides an overview of the foundations, problems, approaches, implementation, and applications of, artificial intelligence. Topics covered include problem solving, goal-based and adversarial search, logical, probabilistic, and decision theoretic knowledge representation and inference, decision making, and learning. Through programming assignments that sample these topics, students acquire an understanding of what it means to build rational agents of different sorts as well as applications of AI techniques in language processing, planning, vision.

Enforced Prerequisite at Enrollment: CMPSC 221. Enforced Concurrent at Enrollment: CMPSC 465

Cross-listed with: DS 442

CMPSC 443: Introduction to Computer and Network Security

3 Credits

Introduction to theory and practice of computer security with an emphasis on Internet and operating system applications.

Enforced Prerequisite at Enrollment: CMPEN 362 Enforced Concurrent at Enrollment: CMPSC 473

CMPSC 444: Secure Programming

3 Credits

Secure software design principles/practices, common threats, applied cryptography, trust management, input validation, OS-/programming language- specific issues, software validation. CMPSC 444 Secure Programming (3) This course presents an overview of the principles and practices of secure software design. The course begins with a presentation of overarching principles of secure software development that enable the design, implementation, and testing of secure systems that can withstand attacks. These principles and strategies for realizing them will be illustrated through an analysis of common security issues and pitfalls in the software development process. The course will cover a variety of programming languages including C/C++, Java, and scripting languages; different classes of systems including standalone applications, client/server systems, and peer-to-peer applications; and development issues specific to different operating systems. Students will develop and analyze programs that demonstrate security principles, strategies, coding techniques, and the use of tools that can help make code more resistant to attacks.

Enforced Prerequisite at Enrollment: CMPSC 221 or CMPSC 330

CMPSC 445: Applied Machine Learning in Data Science

3 Credits

Applied machine learning techniques are used in many different areas, such as the classification, visualization and analysis of data, clustering, and understanding of natural languages for human-computer interactions. These applications are crossing the boundaries of computer science and data science. Big technology firms have all started offering their own cloud machine learning platforms. This course will start with an overview of supervised and unsupervised learning, and introduce the associated libraries. It covers basic machine learning concepts, tasks, and workflow using an example classification problem based on K-nearest neighbors, Naïve Bayes, Support Vector Machine (SVM), K-means, and implementation using Python libraries. Natural language processing (NLP) techniques including n-gram models, grammar, parse trees, and part-of-speech tagging will be discussed. The issue of dimensionality of data will be discussed, and the task of clustering data, as well as supervised approaches for creating predictive models will be described, and learners will be able to apply Python predictive modeling methods while understanding process issues related to data generalizability (e.g. cross validation, overfitting). The course will also look at more advanced techniques, such as neural network, feed-forward network, back-propagation and deep learning with cloud AI services. Technological differences between using cloud services at a higher level of abstraction and coding locally will be discussed. Students will be able to identify the difference between a supervised (classification) and unsupervised (clustering) technique, identify which technique they need to apply for a particular dataset, manage and understand data, and engineer features to meet that need. Students will work in teams to develop web applications

that use industry standard cloud services provided by one of the AI cloud service providers.

Enforced Prerequisite at Enrollment: STAT 318 and MATH 220 and (CMPSC 122 or CMPSC 132)

CMPSC 446: Data Mining

3 Credits

Data Mining is the process of discovering patterns, correlations, and trends, in large data sets. This course is designed to provide an overview of the data mining process, with an emphasis on data management, pattern discovery, and cluster analysis. Data management includes data selection, cleaning, clustering, visualization, and distributed data storage and processing. The course covers pattern mining concepts, including pattern discovery concepts, efficient pattern mining algorithms, and graph pattern mining. The classification problem is illustrated through decision tree algorithms and ensemble methods. Basic concepts of cluster analysis are introduced, followed by typical clustering algorithms, including partitioning methods, hierarchical clustering, and graph clustering. Applications of cluster analysis are also covered. The course concludes with a study of data mining in the context of graphs used to model a wide range of networks from social networks to biological networks to web pages on the Internet.

Enforced Prerequisite at Enrollment: MATH 220 and (DS 220 or CMPSC 430 or CMPSC 431W) and (MATH 318 or STAT 318 or MATH 414 or STAT 414)

CMPSC 447: Software Security

3 Credits

This course explores the fundamental concepts and engineering processes of software development and testing to produce software that is designed for security. This course is intended as a senior-level course for computational majors such as computer science and computer engineering since it covers the exploitation of programs based on computer architecture, systems, and software concepts. First, software engineering considerations associated with a variety of software vulnerabilities will be analyzed, along with defensive programming techniques to avoid such vulnerabilities. The next part of this course will introduce systematic software engineering principles for building secure software to defend its attack surface, such as reference monitors, privilege separation, information flow, and program verification. The third part will focus on methods for security testing of software including fuzz testing, symbolic execution, grey-box testing, and forensics. The final week of the course will examine adding security into the software engineering life cycle. The design and implementation of techniques to develop reference monitors, information-flow secure programs, testing mechanisms and enhancements, as well as defensive programming against prominent software vulnerabilities will be studied and analyzed. Upon completion of the course students will be able to critically analyze the design and implementation of software for security flaws and build security mechanisms to prevent exploitation of such flaws.

Enforced Prerequisite at Enrollment: CMPSC 443 Recommended preparation: CMPSC 360

CMPSC 448: Machine Learning and Algorithmic AI

3 Credits

Evaluation and use of machine learning models; algorithmic elements of artificial intelligence.

Enforced Prerequisite at Enrollment: (STAT 319 or STAT 415) and (CMPSC 122 or CMPSC 132)

CMPSC 450: Concurrent Scientific Programming

3 Credits

Problems of synchronization, concurrent execution, and their solution techniques. Design and implementation of concurrent software in a distributed system.

Enforced Prerequisite at Enrollment: (CMPSC 121 or CMPSC 131 or CMPSC 201) and MATH 220 and (MATH 230 or MATH 231)

CMPSC 451: Numerical Computations

3 Credits

ALGORITHMS FOR INTERPOLATION, APPROXIMATION, INTEGRATION, NONLINEAR EQUATIONS, LINEAR SYSTEMS, FAST FOURIER TRANSFORM, AND DIFFERENTIAL EQUATIONS EMPHASIZING COMPUTATIONAL PROPERTIES AND IMPLEMENTATION. STUDENTS MAY TAKE ONLY ONE COURSE FOR CREDIT FROM MATH 451 AND 455.

Enforced Prerequisite at Enrollment: (CMPSC 101 or CMPSC 121 or CMPSC 131 or CMPSC 200 or CMPSC 201) and (MATH 230 or MATH 231)
Cross-listed with: MATH 451
Bachelor of Arts: Quantification

CMPSC 455: Introduction to Numerical Analysis I

3 Credits

Floating point computation, numerical rootfinding, interpolation, numerical quadrature, direct methods for linear systems. Students may take only one course for credit from MATH 451 and MATH 455.

Enforced Prerequisite at Enrollment: (CMPSC 201 or CMPSC 202 or CMPSC 121 or CMPSC 131) and MATH 220 and (MATH 230 or MATH 231)

Cross-listed with: MATH 455
Bachelor of Arts: Quantification

CMPSC 456: Introduction to Numerical Analysis II

3 Credits

Polynomial and piecewise polynomial approximation, matrix least squares problems, numerical solution of eigenvalue problems, numerical solution of ordinary differential equations.

Enforced Prerequisite at Enrollment: MATH 455
Cross-listed with: MATH 456
Bachelor of Arts: Quantification

CMPSC 457: Computer Graphics Algorithms

3 Credits

Graphics systems/hardware, color models, transformations, projections, clipping, hidden line/surface removal, aliasing, parametric curves/

surfaces, 3D modeling animation. CMPSC 457 CMPSC 457 Computer Graphics Algorithms I (3) Concepts and techniques needed to draw geometrical objects with a discrete device: Coordinate systems, clipping, curves and regions, geometric transformations, parallel and projective projections, hidden line and surface removal, animation.

Enforced Prerequisite at Enrollment: CMPSC 330 and MATH 220

CMPSC 458: Fundamentals of Computer Graphics

3 Credits

Fundamentals of computer graphics: input/output devices, transformation, projection, clipping, hidden line/surface elimination.

Enforced Prerequisite at Enrollment: CMPSC 311 and MATH 220 and (MATH 230 or MATH 231)

CMPSC 460: Principles of Programming Languages

3 Credits

Design and implementation of high level programming languages and survey of language paradigms including imperative, functional, and object-oriented programming. CMPSC 460 Principles of Programming Languages (3) The primary topics of this course include run-time systems for imperative programming languages and aspects of the object-oriented, functional and declarative paradigms that have applications in industrial software development. Study of these topics should improve student skills in programming, debugging and problem solving.

Enforced Prerequisite at Enrollment: CMPSC 312 and CMPSC 462
Enforced Concurrent at Enrollment: CMPSC 469

CMPSC 461: Programming Language Concepts

3 Credits

Fundamental concepts of programming language design, specifications, and implementation; programming language paradigms and features; program verification.

Enforced Prerequisite at Enrollment: CMPSC 221 and CMPSC 360

CMPSC 462: Data Structures

3 Credits

In-depth theoretical study of data structures such as balanced trees, hash tables, priority queues, B-trees, binomial heaps, and Fibonacci heaps. CMPSC 462 Data Structures (3) The primary goals of this course are (1) to provide the students with a set of basic data structures useful in the design of efficient algorithms, and (2) to provide the students with the ability to design and analyze new data structures as needed to solve problems. The secondary goal of this course is to introduce basic algorithm analysis techniques to prepare the students for the follow up course CMPSC 463, Design and Analysis of Algorithms. This is a required course in the BS COMP program. It is also a prerequisite for a number of other courses in the COMP program such CMPSC 463, 460, 430, etc.

Enforced Prerequisite at Enrollment: C or better in MATH 141 and (C or better in CMPSC 122 or C or better in CMPSC 132) and C or better in CMPSC 360 and CMPSC 330

CMPSC 463: Design and Analysis of Algorithms

3 Credits

Recurrences, algorithms design techniques, searching, sorting, selection, graph algorithms, NP-completeness, approximation algorithms, local optimization algorithms. CMPSC 463 Design and Analysis of Algorithms (3) The primary goals of this course are (1) to provide the students with fundamental techniques for designing and analyzing algorithms, and (2) to introduce some techniques for dealing with inherently intractable problems. This is a required course in the BS COMP program.

Enforced Concurrent at Enrollment: MATH 318 or STAT 318 or STAT 414 or MATH 414
Enforced Prerequisite at Enrollment: CMPSC 462

CMPSC 464: Introduction to the Theory of Computation

3 Credits

Computability/Complexity: finite automata, regular & context-free languages, Turing machines, Church-Turing Thesis, undecidability, reducibility, completeness, time/space complexity, P versus NP. CMPSC 464 Introduction to the Theory and Computation (3) CMPSC 464 introduces students to an essential part of theoretical computer science: how to define abstract mathematical models of computational devices (automata), how to characterize their computational power by studying the family of languages that they can recognize (formal languages), and what the limitations of even the most powerful computational devices are (computability). The course studies regular languages by means of deterministic and nondeterministic finite-state automata and regular expressions; it studies context-free languages through the use of context-free grammars and pushdown automata; and it studies computability by means of Turing machines and recursive and recursively-enumerable languages. The unsolvability of the halting problem for Turing machines is proved by a diagonalization argument, and this result is then used to show that various problems about languages are unsolvable, such as the problem of determining whether two context-free grammars generate the same language. Finally, the concept of computational complexity is introduced, and the classes P and NP are defined. (Informally, the former class consists of problems that can be solved computationally in a manageable amount of time, and the latter consists of problems for which a proposed solution can be verified in a manageable amount of time.) The concept of an NP-complete problem is defined, and some specific problems are proved to be values to the variable of a Boolean formula that will make the formula true).

Enforced Prerequisite at Enrollment: CMPSC 465

CMPSC 465: Data Structures and Algorithms

3 Credits

Fundamental concepts of computer science: data structures, analysis of algorithms, recursion, trees, sets, graphs, sorting.

Enforced Prerequisite at Enrollment: (CMPSC 122 or CMPSC 132) and (CMPSC 360 or MATH 311W)

CMPSC 466: Introduction to Quantum Computation

3 Credits

In this course, we will focus on the benefits brought by quantum mechanics to information processing and computation tasks. The content of this course is theoretical, i.e., we will give an overview of various topics in quantum computation from a theoretical computer

science perspective. We will first introduce the fundamental framework for quantum information processing and computation. Then, we will introduce topics in quantum algorithms, quantum information theory, and quantum cryptography.

Enforced Prerequisite at Enrollment: MATH 220 and (MATH 318 or STAT 318 or MATH 414 or STAT 414 or MATH 418 or STAT 418)

CMPSC 467: Factorization and Primality Testing

3 Credits

Prime sieves, factoring, computer numeration systems, congruences, multiplicative functions, primitive roots, cryptography, quadratic residues. Students who have passed MATH 465 may not schedule this course.

Enforced Prerequisite at Enrollment: CMPSC 360 or MATH 311W

Cross-listed with: MATH 467

Bachelor of Arts: Quantification

CMPSC 469: Formal Languages with Applications

3 Credits

Regular, context free, recursive, and recursively enumerable languages; associated machine models; applications. CMPSC 469 Formal Languages with Applications (3) The primary goal of this course is to explore formal language theory, including regular, context free and recursively enumerable languages. Notations for specifying these languages (regular expressions, finite automata, context free grammars and Turing machines) are emphasized. Applications of these languages, including pattern recognition, scanning, parsing, specification of programming language syntax and Unix shell programming, are also discussed. Study of these topics should provide a solid theoretical basis for students to draw on in studying diverse areas such as algorithm analysis, complexity theory and compiler construction.

Enforced Prerequisite at Enrollment: CMPSC 360

CMPSC 470: Compiler Construction

3 Credits

Compiler design and implementation; scanning, parsing, semantic analysis, optimization (including static analysis), code generation, garbage collection, and error detection. CMPSC 470 Compiler Construction (3) The primary topics of this course are areas of compiler construction that are applicable both in building compilers and in many other areas of computer science. Both the concepts and the implementation of these techniques will be emphasized. Study of these topics should improve student skills in programming, debugging and software engineering. This course is an elective for students in both the BS COMP and MS COMP programs. The course builds on concepts learned in earlier programming, data structure and computer organization courses.

Enforced Prerequisite at Enrollment: CMPSC 312 and CMPSC 330 and CMPSC 462 and CMPSC 469

CMPSC 471: Introduction to Compiler Construction

3 Credits

Design and implementation of compilers; lexical analysis, parsing, semantic actions, optimization, and code generation.

Enforced Prerequisite at Enrollment: CMPSC 461

CMPSC 472: Operating System Concepts

3 Credits

Theoretical and practical issues of operating systems design and implementation, process management, concurrent programming, memory management, scheduling, I/O, and security. CMPSC 472 CMPSC 472 Operating Systems Concepts (3) A course on operating systems is an essential part of a computer science education. This course is intended as an introduction to study the concepts, structure and mechanisms that underlie operating systems. A tremendous range and variety of computer systems exist for which operating systems are designed. Rather than focus on individual operating systems, this course discusses the key mechanisms of modern operating systems, the types of design trade-offs and decisions involved in operating system design and the context within which the operating system functions. After completing CMPSC 472 the student should be able to: (1) describe and understand the four major components of an operating system: process management (including synchronization, scheduling, mutual exclusion, deadlocks and concurrency), input/output (including disk scheduling and disk I/O), memory management (including virtual memory, paging, segmentation and addressing) and management of the file systems (2) describe and understand how a centralized operating system functions (3) describe and understand the various components of an operating system (4) describe the various goals of protection and the security problem in general (5) compare centralized operating systems with distributed operating systems. Students will be evaluated on homework (35% of grade), semester exams (35%), and a final comprehensive exam (30%). This course is required in the computer science (COMP) BS curriculum. It is intended for seniors to take this course in their fall semester. This course is also an admission requirement for the (COMP) MS program. No special facilities are required for this course. The software necessary is available in the computer labs or for students to use at home. This course will be offered once per year, with an expected enrollment of 80.

Enforced Prerequisite at Enrollment: CMPSC 312 and (C or better in CMPSC 330) and CMPSC 462 and CMPSC 469

CMPSC 473: Operating Systems Design & Construction

3 Credits

Design and implementation of computer operating systems; management of various system resources: processes, memory, processors, files, input/output devices.

Enforced Prerequisite at Enrollment: CMPSC 311 and CMPEN 331

CMPSC 474: Operating System & Systems Programming

3 Credits

Operating Systems overview and principles; processes and signals; concurrency and synchronization; memory and file management; client-server computing; scripts; systems-programming.

Enforced Prerequisite at Enrollment: CMPSC 122 and CMPSC 312

CMPSC 475: Applications Programming

3 Credits

Development of software for devices including smart phones, tablets, handheld units, and other general purpose computing platforms.

Enforced Prerequisite at Enrollment: CMPSC 221 and (CMPSC 311 or CMPSC 312) and (CMPSC 462 or CMPSC 465)

CMPSC 476: Systems Debugging

3 Credits

Debugging is a practical and essential skill for any computer scientist to be able to properly diagnosis and fix problems (i.e., bugs) in systems and/or code. The goal of this course is for students to develop debugging skills through extensive practice. The course will cover general methodologies for debugging such as instrumentation, consistency checking, and divide & conquer. The course will also cover how to effectively utilize a variety of debugging tools such as debuggers, memory error detectors, race condition detectors, etc. Lastly, the course will explain specific types of bugs such as race conditions, deadlocks, and corrupted memory, which is necessary for finding these types of bugs. This is a project-based course that will involve extensive reading and writing of C code and use of Linux, so a solid background knowledge in C and Linux is expected.

Enforced Prerequisite At Enrollment: CMPSC 311 or CMPSC 472 or CMPSC 474 or CMPEN 441

CMPSC 483W: Software Design Methods

3 Credits

Applications of scientific knowledge and methods in the design and construction of computer software using engineering concepts.

Enforced Prerequisite at Enrollment: CMPSC 311 and CMPSC 465;
Recommended Preparation: ENGL 202C
Writing Across the Curriculum

CMPSC 484: Computer Science Senior Project I

2 Credits

Computer science capstone project with documentation emphasis. CMPSC 484 CMPSC 484 Computer Science Senior Project I (2) This course is phase one preparation for completing a design for a project to serve as the capstone to the computer science degree program. The course provides instruction and specification of a simulated real-world work environment and associated activities to employ and integrate computer science concepts. Technical instruction and delivered products will be required. Students enrolled in the program will: 1) produce a design for a significant senior project using a cooperative, team approach, 2) present concepts, progress, and products to and interact with peer and faculty review boards. The course will: 1) provide the student with an opportunity to work in a team environment designed around sound development practice, 2) present to students current team organization and management techniques, 3) describe various forms of written communication targeted to different audiences, and 4) reinforce the technical knowledge attained through the computer science curriculum.

Enforced Prerequisite at Enrollment: ENGL 202C and CMPSC 221 and CMPSC 465

CMPSC 485W: Computer Science Senior Project II

3 Credits

Computer science capstone project with documentation emphasis.

Enforced Prerequisite at Enrollment: CMPSC 484
Writing Across the Curriculum

CMPSC 487W: Software Engineering and Design

3 Credits

Software development process, life cycle; requirements analysis, specification, design, prototyping, testing, project management, and documentation. CMPSC 487W Software Engineering and Design (3) The primary goal of this course is to familiarize students with the wide variety of techniques and methodologies used in software engineering to assist in the development of large software systems. Issues discussed include the human factors involved in developing software, models of the software development process, the use of formal methods in software engineering, software validation and verification, and software maintenance. A second goal is to help students understand the importance of written communication in software engineering, and to provide opportunities for students to improve the quality of their writing - specifically in describing software systems. The primary means of accomplishing this goal is a semester long project in which students write requirements for a large software system. In writing these requirements, students describe the system for non-technical readers (clients and users) and specify it for technical readers (other system developers). A final goal is to emphasize the role of teams in software development. Modern software systems are simply too large to reasonably be produced by one person, so the ability to work as part of a team is vital. To support achieving this goal, techniques and tools for working in groups are discussed in the course, and students work on the semester project in teams. This course is a required course in the computer science (COMP) BS curriculum, and is intended to be taken by seniors as the capstone course for the major. As such, the course integrates material from many (potentially all) of the undergraduate computer science courses. This course is also available as an elective for students in the MS COMP program.

Enforced Prerequisite at Enrollment: ENGL 202C and CMPSC 330
Writing Across the Curriculum

CMPSC 488: Computer Science Project

3 Credits

Project design and implementation with an emphasis on team work, documentation, and the employment and integration of computer science concepts. CMPSC 488 Computer Science Project (3) This class provides a hands-on experience designing and developing a real-world software system. The course will emphasize collaboration and teamwork to employ and integrate computer science concepts. Students will work on a project that will serve as the capstone to the computer science degree program. Technical instruction, research, software implementation and delivered products will be required.

Enforced Prerequisite at Enrollment: CMPSC 487W

CMPSC 494: Senior Honors Thesis

1-6 Credits/Maximum of 6

Supervised Honors thesis research in computer science and engineering.

Honors

CMPSC 495: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experience, practica, or internships. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: prior approval of proposed assignment by instructor
Full-Time Equivalent Course**CMPSC 496: Independent Studies**

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

CMPSC 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

CMPSC 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Corporate Communication (CC)

CC 200: Introduction to Corporate Communication

3 Credits

As a field, Corporate Communication involves taking organizational goals and translating them into communication strategies and tactics inside and outside the organization as well as managing communication processes on an ongoing basis. Corporate Communication is complex, dynamic, and involves navigating various communication channels. As a lower-level introduction to Corporate Communication, this course introduces fundamental concepts, theories, and practices in Corporate Communication by providing a basic overview for students within the major/minor, as well as those who may not necessarily go on to major in the field. The course emphasizes the application of Corporate Communication concepts for any contemporary professional.

Bachelor of Arts: Social and Behavioral Sciences
 General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

CC 401: Internal Communication

3 Credits

Explores the various ways organizations communicate with internal stakeholders, including senior leaders, managers, and frontline employees. CC 401 focuses on strategic communication processes between the organization and internal stakeholders such as senior leaders, managers, and frontline workers. The course explores the effective use of internal media, including intranet content, emails, social media content (strongly directed at internal audiences), memos, reports, newsletters, brochures, training content, and speeches. Considerable attention will be given to how to write effectively for each channel. Emphasis will also be placed on the importance of strategically coordinating internal communication and sustaining the overall function. CC 401 provides a thorough grounding in one of the two major subdivisions of the Corporate Communication field (with external communication as the other major subdivision). As an advanced course in the major, CC 401 provides considerable depth in terms of concepts, theories, and practices. Students will mainly need to apply, analyze, evaluate, and synthesize/create in this course. Students will primarily explore internal communication in terms of present day practices and future trends.

Prerequisite: CC 200 with 5th Semester Standing**CC 402: External Communication**

3 Credits

Explores the various ways organizations communicate with external stakeholders. CC 402 focuses on the process of communication with external stakeholders. An integral part of Corporate Communication, external communication is an integrated function that includes building relationships and writing for the traditional media, creating materials such as advertisements and brochures, writing for the web, and creating credible spokespeople. As such, this course focuses on identifying and defining methods of external communication, as well as, how to write effectively for each communication channel. Students will gain experience in core Corporate Communication competencies, including writing media releases, integrating content and design, and evaluating communication effectiveness.

Prerequisite: CC 200 with 5th Semester Standing**CC 404: Risk and Crisis in Corporate Communication**

3 Credits

Explores crisis communication theory and practice as related to internal and external processes. Every organization will encounter crisis. Understanding how to communicate before, during, and after a crisis can dramatically alter the trajectory of an organization. This course approaches the topic of crisis holistically, as part of the organizational lifecycle, with a focus on internal and external organizing, and ultimately positions crisis as an organizational learning opportunity. The course is broken into four sections: key concepts, and pre-, during, and post-crisis organizing and communicating. The first section will cover foundation concepts such as crisis, risk, and uncertainty, as well as provide an overview of crisis types and stages. The second section of the course will explore pre-crisis issues such as risk assessment, crisis management teams and plans, and contingencies for crisis eventualities. The third section will focus on the acute stage of crisis, including activating the crisis management plan and exogenous variables that affect crisis

communication. The final section of the course will focus on the post-crisis stage, including organizational learning, evaluation, and preparing for future crises.

Prerequisite: CC 200 and Fifth semester standing

CC 405: Strategic Speaking

3 Credits

This course addresses the design and delivery of strategic spoken word communications with stakeholders inside and outside organizations. CC 405 concentrates on strategic spoken word communications used to advance overall Corporate Communication goals inside and/or outside the organization. The course specifically addresses group-based speaking and/or speaking potentially shared with a large number of individuals through electronic means. For each of various contemporary modes of strategic spoken expression, students will learn standard elements, examine industry examples, create an original design, and deliver an original performance. CC 405 will be an additional elective course in the Corporate Communication major. It is designed to integrate with the internal-external conceptual model used throughout the Corporate Communication major. As an advanced course in the major, CC 405 provides considerable depth in terms of concepts, theories, and practices. Students will mainly need to apply, analyze, evaluate, and synthesize/create in this course. Students will primarily explore strategic speaking in terms of present day practices and future trends.

Prerequisite: CC 200 and Fifth semester standing

CC 406: Social Media in Corporate Communication

3 Credits

Explores the internal and external functions of social media in organizations, with a focus on organizational-stakeholder relationships. Social media allows organizations to connect and build dialogic relationships with stakeholders, and is therefore an integral part of the Corporate Communication field. This course discusses the role of social media in Corporate Communication, the communicative and social functions that social media technology enables, issues of appropriate and effective use, social media use from both the organizational and stakeholder point of view, and the ethical considerations of using social media. Emphasis will be placed on theoretical understanding and practical application in the context of organizations seeking to advance internal and external communication goals. This course integrates the internal/external communication focus that shapes the Corporate Communication major by focusing on the different types of messages, platforms, and issues that are unique to each audience, while also emphasizing how to create synergistic organizational messages that resonate with both internal and external audiences.

Prerequisite: CC 200 and Fifth semester standing

CC 490W: Seminar in Corporate Communication

3 Credits

Explores and applies concepts and theories to various cases, emphasizing written development of strategies relevant to the internal and external organization. This course explores Corporate Communication as it encompasses both the internal and external organization. It takes a comprehensive approach to exploring theory and application in the context of specific cases. Course content builds on and unifies other required courses in the major. Coursework will primarily

involve students developing major strategies and related tactics for existing or newly emerging organizations. Coursework may also involve students applying Corporate Communication concepts and theories to the development of their own career plans. This course emphasizes student synthesis and creativity in applying theory and research from Corporate Communication and allied fields to the total organization. The course will typically include analysis and evaluation of practitioner and scholarly readings, students' work, and case studies.

Prerequisite: CC 401 or CC 402 and 6th Semester Standing Writing Across the Curriculum

CC 495: **SPECIAL TOPICS**

3 Credits

CC 495A Internship in Corporate Communication (3) Communications experience in businesses or agencies that may include activities in writing, media production, planning, public relations, advertising, employee relations, or training.

Prerequisite: Prior approval of proposed assignment by instructor. CC 401 or CC 402, and 6th Semester standing

CC 495A: Internship in Corporate Communication

3 Credits/Maximum of 3

CC 495A Internship in Corporate Communication (3) Communications experience in businesses or agencies that may include activities in writing, media production, planning, public relations, advertising, employee relations, or training.

Prerequisite: Prior approval of proposed assignment by instructor and CC 200 and CC 401 or CC 402 and 6th Semester standing

Counselor Education (CNED)

CNED 97: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

CNED 100: Effective Career Decision-Making

3 Credits

Examination of internal and external factors that contribute to career development to assist students undecided about major or career. CN ED 100CN ED 100 Effective Career Decision-Making (3) CN ED 100 teaches students career decision-making skills by closely examining internal factors, the world of work, and decision-making styles and strategies. The premise of this course is that career decisions are greatly enhanced by: (1) considering personal traits such as interests, values, abilities, decision-making styles and other factors; (2) gathering information about the world of work and education; and (3) integrating knowledge about the self and the world through an on-going process. Learning the career decision-making process is empowering and skills learned in the course can be valuable throughout life as individuals encounter crossroads that may prompt career changes. CN ED 100 is intended for students who are undecided about their major and career selection. The course format consists of lectures, discussions, and experiential learning activities designed to help students analyze their personal traits and to relate their traits to career theories, occupational fields and work

settings. Self-assessment activities include reflective writing, use of established career assessment inventories, and completion of various activities. Diverse information is shared on majors and occupations as well as information gathering strategies. Students more closely discuss their career development and progress in formal small group sessions, facilitated by career counseling professionals. Five classes of the semester are devoted to these meetings.

CNED 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

CNED 198: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

CNED 200: Peer Mentoring

1 Credits

This course will prepare students for the roles and responsibilities of being a Peer Mentor. CN ED 200 Peer Mentoring (1) "Peer Mentoring" is designed to present to the student the basic principles, characteristics, and benefits of a peer mentoring relationship. Peer Mentoring is a beneficial relationship to both the mentee and mentor and ultimately can aid in college retention rates. Once this knowledge is gained, students in the course will learn how to deal with the various situations that could occur during the transition process. This course offers the student the opportunity to develop intellectual relationships with faculty, current campus peer mentors, and fellow classmates who share similar academic interests in leadership, mentorship, and role modeling. In this course, students will be introduced and learn to apply active listening skills, the hidden rules of college, how to conduct mentee interactions both virtually and in person, intrinsic and extrinsic motivation, along with cultural and self-awareness. Once introduced to the multi-layer elements of the course, students will demonstrate their knowledge of these skills through their in class involvement. The course is delivered as an interactive learning environment where in class exercises and hands-on demonstrations help the student understand the principles and implications of peer mentoring. Additionally, students will work on a campus resource project outside of the classroom that will be presented to the entire campus community at the conclusion of the semester. The course is open to all students, however, students interested in taking the course must get course entry approval by the faculty member in charge to determine the student's true interest in peer mentoring.

CNED 280: Job/Internship Search and Professional Skills

1 Credits

This course will teach students how to implement a career strategy to effectively secure a job/internship.

CNED 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

CNED 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

CNED 298: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

CNED 301: Student Organization Management

2 Credits

Exploration and development of leadership and group process skills necessary for effectively managing student organizations in higher education settings.

CNED 303: Career Search Strategies for Educators

1 Credits

An aid in preparing students with information helpful for entry into education and alternative job markets.

CNED 304: Education of the Peer Assistant

3 Credits

Student development theories: skill development in listening, informing, and referring culturally diverse peers in individual and group situations.

Prerequisite: limited to students selected as peer assistants or similar positions

CNED 393: Peer Support Counseling

2 Credits/Maximum of 8

CNED 393 is a course that prepares and supports students in their role as a Peer Counselor (PC) on campus to help support fellow students as they navigate difficult decisions, points of crisis, or everyday aspects of student life. Student Peer Counselors approved to participate in this course will learn how to work cooperatively with their respective campus to respond to fellow student needs, promote student safety and personal wellness, meet individually with students to discuss any emotional concerns, facilitate support groups, and hold events that cater to student wellness and stress reduction. This 2-credit course consists of the CNED 393 seminar taught by a qualified faculty member, who has clinical counseling experience, along with clinical group supervision conducted by campus psychological and counseling services staff members.

Prerequisite: B or better in (PSYCH 100 or RHS 100) and 6 additional credits in (RHS or PSYCH) Concurrent: RHS 301 or HDFS 301 Corequisite: Reference from a faculty member and approval from the CNED 393 instructor Recommended Preparation: SOC 1 and (PSYC

CNED 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

CNED 401: Foundations of Chemical Dependency Counseling

3 Credits

An overview of diagnosis and assessment, models for chemical dependency prevention, counseling, and recovery; contexts of chemical dependency treatment.

Prerequisite: 3 credits in general psychology

CNED 404: Group Procedures in Guidance and Counseling

3 Credits

The nature and functioning of groups in educational and agency settings. Provides prospective counselors with experience in the group process.

Prerequisite: 6 credits in counselor education; 6 credits in psychology, sociology, or individual and family studies

CNED 416: Interpersonal Relationships and Alcohol and Other Drugs (AOD) Dependency

3 Credits

This course examines families with chemically dependent members, dynamics, appropriate interventions, and treatment.

Prerequisite: CN ED401 or RHS 301

CNED 420: Chemical Dependency: Youth at Risk

3 Credits

Study of youth who are at-risk of developing chemical dependency including the characteristics and factors related to chemical dependency.

Prerequisite: CN ED401

CNED 421: Counseling Strategies for Preventing Chemical Dependency

3 Credits

Examines helping professional's role in primary and secondary prevention of substance abuse, and related problems like delinquency, suicide, and pregnancy.

Prerequisite: CN ED401

CNED 422: Foundations of Addictions Counseling

3 Credits

Study of the fundamental principles of counseling individuals with a wide variety of addictions. CN ED 422 Foundations of Addictions Counseling (3) Students explore the fundamental principles of addictions counseling from a wide range of perspectives. These include the psychopharmacological aspects of alcohol and abusable drugs, along with theories and assessments of addictive disorders. Many treatment models are considered, and are examined in the context of individual, group, and family therapy perspectives. The course also addresses the research literature on codependence, COA's AA and other 12-step programs, dual diagnosis, relapse, prevention, and multicultural and gender issues.

Prerequisite: a minimum of 12 hours of coursework in sociology, psychology, education, or family studies.

CNED 423: Student Assistance Programs

3 Credits

Exploration of early stages of adolescent "at-risk" behavior and skills for student assessment and intervention within schools and communities.

Prerequisite: CN ED401

CNED 424: Facilitating Career Development

3 Credits

This course provides individuals with relevant skills and knowledge to assist others in planning careers and obtaining meaningful work. CN ED (WF ED) 424 Facilitating Career Development (3) This course provides individuals with relevant skills and knowledge to assist others in planning careers and obtaining meaningful work. This course addresses the following 12 Career Development Facilitator (CDF) competencies: 1) helping skills, 2) labor market information and resources, 3) assessment, 4) diverse populations, 5) ethical and legal issues, 6) career development models, 7) employability skills, 8) training clients and peers, 9) program management/implementation, 10) promotion and public relations, 11) technology, and 12) consultation. These 12 competencies are identified by the National Career Development Association (NCDA) for those who (will) deliver career development programs and services in a variety of settings. Potential job titles of CDFs include career group facilitator, job search trainer, career resource center coordinator, career coach, career development case manager, intake interviewer, occupational and labor market information resource person, human resource career development coordinator, employment/placement specialist, and workforce development staff. With certain years of work experience in career development, students who complete this course are eligible to apply for the Global Career Development Facilitator (GCDF) certification through the Center for Credentialing & Education (CCE), which is affiliated with the National Board for Certified Counselors (NBCC). A GCDF is a person who works in any career development setting or who incorporates career development information or skills in their work with students, adults, clients, employees, or the public. As of January 2011, about 18,000 individuals acquired the GCDF certification world-wide including Bulgaria, Canada, China, Germany, Japan, Romania, Turkey, South Korea, and New Zealand. The goal of the GCDF credential was to provide standards, training specifications, and credentialing for diverse career development practitioners. This GCDF credential differentiates two levels of career practice, which are 1) career counseling and 2) career facilitation that does not require a counseling degree. This differentiation reflected the reality where many individuals who are currently providing career assistance are not professional counselors. This course is taught by a nationally and internationally trained CDF Instructor (CDFI) who is certified by the NCDA. In addition, the CDF curriculum is updated every three years by the Career Development Leadership Alliance (CDLA) under the supervision of the NCDA CDF Advisory Council in order to keep up with recent changes in the field.

Prerequisite: 300-400 level Psychology, HD FS, or Education courses or permission of the program
Cross-listed with: WFED 424

CNED 430: Couples and Family Counseling

3 Credits

The theory and practice of counseling with couples and families emphasizing family development and major intervention approaches. CN

ED 430 Couples and Family Counseling (3) Students study the theory and practice of couples and family counseling with an emphasis on models of family development and major approaches to intervention with couples and families. Systemic models of family intervention are emphasized as well as the study of other historically important and contemporary approaches to couples and family therapy. The course blends didactic and experiential learning.

Prerequisite: A minimum of 12 hours of coursework in sociology, psychology, education, or family studies.

CNED 431: Counseling and Teaching Youth at Risk

3 Credits

This course is focused on how to counsel and/or teach youth at risk for a variety of social, emotions, and educational problems. CN ED 431 Counseling and Teaching Youth at Risk (3) This course is designed to provide participants with an overview of information focused on counseling and teaching youth at-risk. Emphasis will be placed on identifying youth-at-risk for depression, suicide, eating disorders, pregnancy, AIDS, use and/or abuse of alcohol and drugs, homelessness, gang membership, difficulties related to sexual orientation, and several other at-risk behaviors. Ideas for primary, secondary and tertiary prevention from individual, family, school and community perspectives will also be presented. The course provides a varied format structured to include lecture/discussion, audio-visual presentations, participant self-evaluation of their own at-risk behaviors, role-plays and small group discussion.

Prerequisite: A minimum of 12 hours of coursework in sociology, psychology, education, or family studies.

CNED 432: Ethical, Legal, and Professional Issues in Counseling

3 Credits

Examination of the current ethical and legal issues related to professional counselors and counseling. CN ED 432 Ethical, Legal, and Professional Issues in Counseling (3) Participants explore an overview of ethical and legal issues related to the professional practice of counseling. Topics include responsibility, competence, public statements, confidentiality, professional relationships, licensing and other regulatory programs, and research. The course emphasizes clinical strategies relevant to legal and ethical issues.

Prerequisite: A minimum of 12 hours of coursework in sociology, psychology, education, or family studies.

CNED 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

CNED 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

CNED 498: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Criminal Justice (CRIMJ)

CRIMJ 12: Criminology

3 Credits/Maximum of 3

Criminology is the study of the causes of criminal behavior. As such this course is an introduction to the topic with special focus on the major theories and concepts explaining criminal behavior. A key focus of the class is examining the most recent scientific research testing the basic theories in criminology. The students learn the various research techniques that have been methods and data sources used to study criminal behavior. Several important areas of study that link understanding criminal behavior and its distribution across the social system are investigated including age, gender, race and ethnicity. One goal of the course is to promote a more complete understanding of crime and how it is enmeshed in human social life. Students read a general text, as well as scholarly articles in Criminology.

Cross-listed with: CRIM 12, SOC 12

Bachelor of Arts: Social and Behavioral Sciences

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

CRIMJ 12H: Honors Criminology

3 Credits

Criminology is the study of the causes of criminal behavior. As such this course is an introduction to the topic with special focus on the major theories and concepts explaining criminal behavior. This honors version of Introduction to Criminology is especially designed to be appropriately challenging for Schreyer Honors College students. A key focus of the course is examining the most recent scientific research testing the basic theories in criminology. Students learn the various research methods and data sources used to study criminal behavior. Several important areas of study that link understanding criminal behavior and its distribution across the social system are investigated including age, gender, race and ethnicity. One goal of the course is to promote a more complete understanding of crime and how it is enmeshed in human social life. Students read a general text, as well as scholarly articles in criminology.

Cross-listed with: CRIM 12H, SOC 12H

General Education: Social and Behavioral Scien (GS)

Honors

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

CRIMJ 13: Juvenile Delinquency

3 Credits

Juvenile conduct, causes of delinquency, current methods of treatment; organization and function of agencies concerned with delinquency.

Cross-listed with: SOC 13

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Integrative Thinking

CRIMJ 100: Introduction to Criminal Justice

3 Credits

Criminal Justice 100 is an overview of the United States criminal justice system and the major components of police, courts and corrections. Students will engage in reviews of, evaluate and consider legal foundations, types and causes of crime, the development of policing, the influence and evolution of the court process, and rehabilitative and reintegrative components of corrections. Specific topics can include, but are not limited to, the extent of crime in the United States; competing and complementary goals within the criminal justice system; sources of criminal law; interactions between various agencies within the criminal justice system; and the impact of crime on victims. During the course of study of the criminal justice system, students will have various opportunities to examine how age, gender, race and ethnicity impact and are impacted by the criminal justice system at critical phases.

Cross-listed with: CRIM 100

Bachelor of Arts: Social and Behavioral Sciences

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

CRIMJ 113: Introduction to Law

3 Credits

Introduction to law in society with a focus on criminal law, judicial code, laws of sentencing and corrections, criminal procedure. CRIM (CRIMJ) 113 Introduction to Law (3) Introduction to the law is designed to provide CLJ majors with an introductory level of knowledge of the criminal law, and other legal codes such as the Judicial Code, laws of corrections, probation and parole, and the rules of criminal and appellate procedure. The course will serve as a gateway course to taking more advanced criminology and criminal justice courses. CRIMJ (CRIM) 113 is one of the Prescribed Courses in the CLJ curriculum and is used as a prerequisite for many 400 level courses including CRIM 467 AND 469.

Cross-listed with: CRIM 113

United States Cultures (US)

CRIMJ 150N: Safe and Sound: The Intersection of Criminal Justice and Public Health

3 Credits

This course will consider the overlapping responsibilities and epistemologies of criminal justice and public health. Both fields

concerned with the promotion of population welfare, the public health and criminal justice systems nevertheless confront the same social problems from different ethical perspectives, research methodologies, and knowledge bases. Each may further mobilize different institutional actors driven by divergent political agendas. While we will discuss the productive collaboration between public health and public safety agencies, we will also consider ongoing ownership struggles over certain issues, behaviors, and even populations. Given its practical relevance to many ongoing social issues and controversies of general importance, this course is motivated by a commitment to community-engaged scholarship, and thus will include topics, readings, assignments, speakers, and field trips of local and state importance. At the same time, specific topics will be framed in terms of their national and international importance, and students will be encouraged to link micro-level problems to macro-level processes.

Cross-listed with: BBH 150N

General Education: Health and Wellness (GHW)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

CRIMJ 159: History of the FBI

3 Credits

Chronological survey of the History of the FBI since its founding in 1908, focused on the evolution of Federal law enforcement, bureaucracy, the increasing power of the Executive branch, the targeting of various minority groups, civil rights and civil liberties issues, and the growth of a national security role for the federal government over time. In its long history the FBI has intersected with a wide variety of groups and issues, and this reality will further expose students to the histories of African Americans, gays and lesbians, women's groups, Latinos, Native Americans, war protesters, students, various political dissenters, immigrants, targeting of morality, obscenity, and labor organizing. Because the FBI is responsive to both the political and policy interests of presidents and the influences of American society, students will come to appreciate the influences that politics has on bureaucracy and law enforcement, as well as the different social, political, economic, and cultural influences that each historical time period have exerted on the FBI to help shape its priorities and structure.

Cross-listed with: HIST 159

Bachelor of Arts: Humanities

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

CRIMJ 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

CRIMJ 200: Introduction to Security and Loss Control

3 Credits

A general introduction to the field of private security and asset protection. CRIMJ 200CRIMJ 200 Introduction to Criminal Justice (3) (GS)(BA)

This course meets the Bachelor of Arts degree requirements. This course focuses on a body of scholarship addressing the critical issues, policies, and complexities of the criminal justice system. It includes specific topics on key components of the system while demonstrating the intra-relationships of the system. Students will be provided numerous opportunities to broadly survey the concept of justice as well as investigate comparative issues on a governmental level and internationally. Students will also focus on specific social and justice system challenges such as substance abuse, family violence, minorities and justice, street crime, corrections for adults and juveniles, sentencing patterns, and ethics. Students will also analyze the global impact of criminality as they study transnational crime and the challenges faced by the collaboration of nations. Students will be required to familiarize themselves with electronic web sites, refereed journals, and national and international events for class discussion, research, and writing assignments. Students will learn how to comprehend legal decisions and legal procedures. By the end of the course students will be expected to integrate the information of the semester into comparisons and critical evaluation of the criminal justice system components. Frequency of enrollment: Every semester with 35 students.

CRIMJ 205N: Critical Race Theory in the Humanities and Social Sciences

3 Credits

This course closely examines the place and power of race in America. By tracing the history of how race works in particular American institutions, such as public education, criminal justice, and federal housing, students will gain a deep sense of how social categories and understandings shape material conditions and human welfare. Through the study of policies, court cases, memoirs, documentary films, and freedom struggles, this course will interrogate the many Americas that race has created and their implications for democracy and justice. Not only will this course focus on making race visible, but also the many ways that race intersects with class, gender, and sexuality and how these concepts empower and marginalize at the same time. All the while, students will use Critical Race Theory methods to reach empathy and strengthen social (GS) and historical (GH) literacies. Discussion, writing, critical reading, and primary source analysis will be integral to this class. Class sessions will include whole- and small-group discussion where active listening and thoughtful participation will be taught and required. Students will be encouraged to explore their own conceptions of race and how those ideas shape knowledge and experience. Ultimately, this is a course that will weave data, theory, and story as we encourage students to move toward empathy through comprehensive understandings of race. This course therefore examines race as both deeply personal and structural.

Recommended Preparations: ENGL 15 and CAS 100

Cross-listed with: EDUC 205N, SOC 205N

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

CRIMJ 210: Policing in America

3 Credits

Police organization and operations in America.

Prerequisite: or concurrent: CRIMJ100

CRIMJ 220: Courts and the Prosecution Process

3 Credits

Purpose and function of criminal courts in society, organization, jurisdiction and staffing; prosecution, adjudication, and sentencing of offenders.

Prerequisite: CRIMJ100

CRIMJ 221: Issues in the American Criminal Justice System

3 Credits

Examination of the models of the criminal process, functions of the justice system, and approaches to crime and punishment.

Prerequisite: CRIMJ100

CRIMJ 230: Corrections in America

3 Credits

Punishment and treatment of sentenced offenders, correctional institution organization, staffing, inmates, and subcultures.

CRIMJ 234: Fundamental Techniques of Scientific Criminal Investigation

3 Credits

Traditional and innovative technical approaches utilized by law enforcement scientists; capabilities and limitations of technical techniques highlighted. CRIMJ 234 CRIMJ 234 Fundamental Techniques of Scientific Criminal Investigation (3) This course is designed to introduce students to the fundamental methods by which scientific-criminal investigations are pursued. Course objectives focus upon a familiarity with various strategies and techniques of scientific criminal investigation within the law enforcement context so that students may understand both the potentials and limitations of such methods. The course maintains a focus upon traditional methods of scientific criminal investigation as well as examination of scientific developments that have altered investigation in recent years. While this course cannot produce expertise in the more sophisticated technologies of criminal investigation, it serves as a basic introduction to the field. As such, it is designed to give an overview of various possibilities, so that students completing the course will have a general grasp of the various strategies and techniques that are available for criminal investigation and will be in a position to call upon the necessary and appropriate expertise when the occasion arises. The course design alerts students to many of the limitations of the various strategies and techniques of scientific criminal investigation, equipping, them to judge the validity of various findings and to assess the qualifications, and methods employed by different experts. The course gives special attention to strategies and tactics of interrogation and to means of corroborating interrogation data with scientific data obtained from other investigative techniques. The course provides an introduction to various techniques of fingerprinting, including ink pads and dusting techniques, as well as several techniques for bringing out latent fingerprints, with an emphasis on the careful collection and preservation of this evidence. It will introduce methods of drug testing, including techniques for insuring the validity of specimens and basic chemical analysis kits currently available for drug testing, with an emphasis on the careful collection and preservation of this evidence. It demonstrates and provides practical experience in breathalyzer utilization, as well as other investigative techniques for assessing driver

impairment resulting from excess alcohol intake. It provides a basic introduction to DNA technology to the point of equipping students with a fundamental understanding of DNA evidence, including probabilities associated with various findings. Throughout the course, there is special stress on the concept of crime scene investigation, including strategies for cordoning off crime scenes and restricting contamination of evidence, basic crime scene mapping, and analysis of evidence such as blood splattering, foreign objects, unusual markings, hair and fiber samples, and other aspects of evidence. Finally, the course stresses preparation of investigative reports, with an emphasis upon clarity of presentation, attention to relevant details, preparation for presentation of evidence in court, and careful and concise writing. Faculty Member Proposing Course : Richard A. Ball

CRIMJ 240W: Field Research in the Criminal Justice

4 Credits

Field research and observational strategies appropriate to the identification, investigation, and analysis of research questions in criminal justice. CRIMJ 240W CRIMJ 240W Field Research in Criminal Justice (4) Administration of Justice majors who are interested in completing an internship must first complete CRIMJ 240W. As augmented, this course attempts to introduce students to research strategies appropriate to the identification, investigation, and analysis of research questions in the administration of justice, while also providing intensive training in the use of various investigative strategies and intensive training in analysis of findings derived from such research, as well as preparation for an internship and extensive writing experience. As augmented, it will involve additional writing assignments by which students will demonstrate their ability to identify researchable questions, lay out their investigative strategies in written form and produce in writing analyses of their findings and conclusions, with recommendations for policy if appropriate. Considerable time is devoted to strategies for identification of research questions. Students will be required to perform an analysis of a setting in administration of justice, locate and specify aspects of the setting that require systematic research in order to explicate the setting or provide information on problems that might be solved by various administrative approaches or promising programs, projects or policies that might be adopted by other agencies. The course will provide an overview of field research methods appropriate to investigation of administration of justice issues such as those identified earlier. The course will include introduction to the theory and rationale of field research in the social sciences and considerable training and experience in field research methods across several different areas of methodology. The overview of field research methods introduces students to the variety of field methods that are available to researchers in administration of justice. Students will then proceed to an understanding of the issues associated with the theoretical perspectives and epistemological assumptions underlying the various field methods examined in the preceding overview. Here attention will be given to the assumptions upon which each research method is built and the strengths and weaknesses of each method. As augmented, this course is designed to require students to take special account of the weaknesses of the various methods and learn how to counter these weaknesses by augmenting the research strategy by complementary methods where appropriate. As augmented, the course is designed to teach students the reasons for use of various methods as well as the methods themselves. Because this course places such emphasis on data collection, and because research is best learned by doing it, the course is further augmented with additional research exercises. Students are required to spend additional time in the field research exercises beyond that required for a 3-credit course, completing as much as 20 hours of

participant observation for sharpening their observational skills, as 10 hours of focus group work, with much of this effort aimed at sharpening their ability to interpret communications from several different sources with respect to the same events, and as 20 hours of interviewing, using several different interviewing techniques. These efforts concentrate upon developing students' ability to elicit information from interviewees and cross-validate the information through a variety of interview techniques. Students must complete several papers demonstrating their ability to organize their research finding and present them in understandable form. The research writing elements in this course include development of hypotheses, preparation of a research proposal, development of literature reviews, description of research settings, and preparation of research bibliographies. Finally, this course is designed to serve as a bridge in preparation for a successful internship experience. As such, it must succeed in teaching students how to develop and conduct a research study on their own before graduation. Faculty Members Proposing Course : Lisa Morris and Richard A. Ball

Prerequisite: CRIMJ100
Writing Across the Curriculum

CRIMJ 241: Computer Applications in Public Affairs/Criminal Justice

3 Credits

Introduction to computer applications for criminal justice and public affairs agencies. CRIMJ 241 CRIMJ (PUBPL) 241 Computer Applications in Public Affairs (3)The student will gain a working knowledge of microcomputer and Internet applications to utilize them in course and/or job functions. The class will be treated primarily as a lab. The purpose is to make the student familiar with popular computer applications in current use. Applications covered include: Word Processing (Microsoft Word); Spreadsheet (Microsoft Excel); Presentation Package (Microsoft PowerPoint); Database (Microsoft Access). Internet Applications include: email - Webmail; World Wide Web Browser - Netscape Communicator and Internet Explorer; and creating a Homepage.

Cross-listed with: PUBPL 241

CRIMJ 250W: Research Methods in Criminal Justice

3 Credits

Fundamental concepts of social science research including design, measurement, sampling, and interpretation of the study of crime, law, and justice.

Prerequisite: CRIM 012
Writing Across the Curriculum

CRIMJ 260: Statistical Analysis for the Social Sciences

3 Credits

Methods of collection, presentation, and analysis of quantitative data in the social science; procedures, interpretation, and application. CRIMJ 260 Statistical Analysis for the Social Sciences (3)This course covers the theory and methodology of statistical analysis. This course includes mathematical calculation of Univariate and Bivariate models, including mean, mode median, variance and standard deviation, Crosstabs with Chi-Square, Independent and Paired Samples t-tests, Anova and Tukey's H.S.D, Correlation and Regression. It also makes use of SPSS and publically available data sets to examine univariate data, and test hypotheses at both the bivariate and multivariate level. Students become

familiar with the calculations behind the analysis, and engage in the analysis and reporting of actual data.

Prerequisite: (Placement into MATH 21 Or higher) and CRIMJ 100 or Permission of program

General Education: Quantification (GQ)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

CRIMJ 290: Introduction to Internship Experience

1-3 Credits

Planning and preparation for field experience in a criminal justice agency setting. This course provides the student learner with an intimate understanding of the academic requirements of the criminal justice internship. Students will engage in practical application of the skills, traits, characteristics and qualities necessary to be successful in the criminal justice internship, as well as their chosen career. Guidance will be provided as to how to conduct themselves in a professional setting and learn to utilize critical thinking and problem-solving in the day-to-day encounters in the field.

Prerequisite: CRIMJ100 ; Prerequisite or concurrent: CRIMJ240W

CRIMJ 294: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

CRIMJ 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

CRIMJ 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

CRIMJ 304: Security Administration

3 Credits

Interdisciplinary analysis of security and loss prevention; its administration, role in crime control and prevention, and relationship to criminal justice.

CRIMJ 310: Forensic Science I

3 Credits

Presentation of the techniques, skills, and limitations of modern crime laboratory. CRIMJ 310 CRIMJ 310 Forensic Science I (3) Presentation of techniques, the principles underlying the techniques, skills and limitations of the modern crime laboratory for student who has no background in the forensic sciences form the basis of the course. The nature of physical evidence is emphasized along with limitations that technology and knowledge impose on its individualization and characterization. Particular attention is paid to the meaning and role

of probability in interpreting the individual significance of scientifically evaluated evidence. Major, lecture topics include the following: The Crime Scene; Physical Evidence; Physical Properties of Glass, Soil, and Plastics; Organic Analysis; Inorganic Analysis; the Microscope; Hairs, Fibers, and Paints; Drugs; Forensic Toxicology; Forensic Aspects of Arson and Explosion Investigation; Forensic Serology; Forensic Anthropology; DNA; Finger Prints; Fire Arms; Tool Marks and Other Impressions; Document and Voice Examination; and Forensic Science on the Internet. To understand the techniques used in crime scene analysis hands-on activities as formal experiments in the laboratory setting form part of the course. The specific objectives of the laboratory components of the courses are: 1) To provide a first set of laboratory experiments for criminal justice and general science students who have had little or no previous science laboratory experience. 2) To show beginning students in criminal justice and general science the significance of physical evidence at the scene of a crime. 3) To demonstrate what happens to physical evidence when it is sent to the laboratory so that students will know what is needed, how much is needed, and how to prepare 4) To educate the student in basic laboratory practices so that they can ask and/or answer questions more intelligently in a court of law. And probably most important, to educate students so that they will not unintentionally destroy physical evidence at a crime scene, and will in fact try to preserve it for the trained forensic scientist. The experiments are designed to provide students with an overview of what can be done as a prelude to making them potential professional forensic scientists/criminologists. The proposed courses are meant for students majoring in the Administration of Justice Programs and should augment their knowledge of criminology and reinforce approaches utilized by law enforcement scientists. Students will carry out hands on experiments in biology, chemistry and physics in a dedicated laboratory setting. Use of instrument to analyze specimens and gather/interpret data using computers and statistical techniques form part of the course. Students will be graded based on their understanding of the principles involved in selecting and using specific laboratory techniques and on the quality of results of their laboratory experience. It is anticipated that the course will be offered once a year, first part during fall semester and the second part during the following semester. Since laboratory space and instruments are limited class size will not exceed fifteen.

Prerequisite: CRIMJ100

CRIMJ 345: Criminal Justice and the Community

3 Credits

Justice agencies and the community's crime prevention and participation strategies; community involvement in policy development.

Prerequisite: CRIMJ100

CRIMJ 389: Gangs and Gang Behavior

3 Credits

The history, structure, and practices of gangs in America as well as societal reaction to them. CRIMJ 389 CRIMJ 389 Gangs and Gang Behavior (3) This class takes a look at gangs: their history, structure, activities, and practices-as well as law enforcement practices targeting gangs and gang members. This class examines the following types of gangs: Outlaw Motorcycle Gangs, Supremacists and Militias, Skinheads, African-American, Latino, and Asian Gangs. It also addresses relatively recent phenomena in gang involvement: (1) the rise of the independent girl gang; (2) middle class suburban gangs (Goths); and, (3) anti-drug and anti-sex Straight-Edge gangs. Both the positive and negative functions

of gangs are examined critically through a comparison of conventional and non-conventional youth activities. It concludes with an examination of emerging trends in gang development and activities, including the link between street gangs and organized crime. This course complements CRIMJ 403-Juvenile Law and Justice and is recommended for students wishing to pursue a career in juvenile intervention. It consists of three examinations (objective and subject measures), three traditional essays (out-of-class), and four directed asynchronous message board essays (using ANGEL course management software). This course will be offered annually with a projected enrollment of 25 students.

CRIMJ 406: Sociology of Deviance

3 Credits

Theory and research concerning deviant behaviors and lifestyles viewed as significant departures from a group's normative expectations. SOC (CRIMJ/CRIM) 406 Sociology of Deviance (3) (BA) This course meets the Bachelor of Arts degree requirements. Sociology of Deviance focuses on the theory and research in social construction of social norms, the violation of norms, and social reaction to the violation of norms. The course focuses on the role of social structure and power in the definition of deviance, on structural, cultural, and social psychological processes involved in deviant behavior, and the dynamics of social reaction to deviance. The course includes some content focusing on criminal deviance, but also emphasizes non-criminal deviance, as well as the role of social movements and social change in constructing and contesting deviance definitions. CRIMJ/SOC/CRIM 012 and CRIM/CRIMJ 250W are prerequisites. This course may be counted toward the credits required for the B.A. and B.S. in Crime, Law, and Justice. It would fulfill one of the 400-level requirements in the 'Crime' component of the major. The course may also be counted toward credits required for the B.A. and B.S. in Sociology for students with the Deviance and Criminology specialization.

Enforced Prerequisite at Enrollment: 3 credits of SOC or CRIM or CRIMJ

Cross-listed with: CRIM 406, SOC 406

Bachelor of Arts: Social and Behavioral Sciences

CRIMJ 407: Victimology

3 Credits

This course will explore the legal, emotional, and social responses to the process of victimization by offenders and third parties. CRIMJ 407 Victimology (3) (US) Victimology studies the victim-offender relationship. Victimization is analyzed using the Bible, Anglo-Saxon Law, Common Law, and legal precedent as a historical development of the status of "victim." Cultural changes during the 1950s and 1960s resulted in the reemergence of the victim and the designation of social services and community awareness for victims. Social scientific studies of the status of unique groups analyzed victimizations according to demographics and socioeconomic status. Political viability of victims in terms of restitution and community response are viewed in terms of Census data, the Department of Justice's National Crime Victimization Survey and The Uniform Crime Reports, Morbidity Reports, Emergency Room Reports, and the Insurance Industry Reports. The above data is evaluated in terms of age, race, education, socioeconomic status, and gender. The development and merging of culture, sub-cultural liaisons, social relationships, leisure activities, and routine transactions are reviewed as they apply to personal and unique group victimizations. Comparative issues and transnational crime are addressed under the format of globalization, gender, economics, and cultural mores. Interdisciplinary evaluation of Victimology considers psychology, medicine, sociology, criminal justice, legal studies, and mass media. Documentaries, case

studies, problem based learning, and popular films provide numerous activities for discussion, analysis, and integration in writing and for discussion.

United States Cultures (US)

CRIMJ 408: Police Administration

3 Credits

Principles of administration as they relate to a police organization; and policy development. CRIMJ 408CRIMJ 408 Legal Aspects of Law Enforcement (3) This course is one of the law enforcement offerings directed at students interested in pursuing a career in the field. This course builds upon legal courses and the police administration course. It is intended to challenge students to comprehend the complexities of working within a litigious society where policing is often the target of simultaneous praise and criticism. Research is introduced to allow students to consider alternatives to conflicts and the court's interpretation of the efficacy and constitutionality of such efforts. Civil liberties, use of force, use of technology, and communications have played significant roles challenging public safety. The consistent expansion of the role of law enforcement presents complexities that are often different according to the jurisdiction and community sentiment. Issues of hiring, training, education, accreditation, force, and racial profiling are the basis for assignments, research, and directed projects and class discussion.

Prerequisite: CRIMJ100 or CRIM 100 and CRIMJ210 or CRIM 210

CRIMJ 409: White Collar Crime

3 Credits

In this course students will learn what kinds of offenses constitute the various types of white collar crime including occupational crime, corporate crime, governmental crime, state-corporate crime, avocational white collar crime, and entrepreneurial crime. The course will explore how white collar crime is measured and will examine the victimization and offending patterns revealed by data on white collar crime. The course will further examine the usefulness of various criminological theories such as strain, control, and learning theories in explaining white collar offending. Comparisons to street crime in terms of seriousness, punishment, and offender and victimization patterns will be discussed throughout the course.

Prerequisites: CRIM 12 or CRIMJ 12 or CRIMJ 100 or CRIM 100

CRIMJ 410: The Pennsylvania Court System

3 Credits

Tracing the steps of criminal cases through the investigative stage, arrest, trial, sentencing and appellate review in Pennsylvania.

Prerequisite: CRIMJ100 , CRIMJ113

CRIMJ 412: Crime, Social Control, and the Legal System

3 Credits

Legal and extralegal control; public opinion on crime; criminal justice and correctional processes; legal sanctions; control strategies. Field trip.

Prerequisite: CRIM 012 , CRIM 013 , or SOC 005

Cross-listed with: CRIM 412

CRIMJ 413: Advanced Criminological Theory

3 Credits

This course provides an in-depth look at theories of crime and examines influential empirical studies designed to these theories. CRIMJ 413 (CRIM/SOC) 413 Advanced Criminological Theory (3) Advanced criminological theory is intended to extend and deepen students' knowledge of core ideas in criminology. The course has four main emphases: 1) learning major schools of thought in criminology, 2) learning about the uses and construction of theory, 3) learning about approaches to integrating criminological theories, and 4) exploring how criminological concerns are grounded in and interrelated with core issues in sociology. The course is offered once a year with 50 seats per offering. CRIMJ/CRIM/SOC 012 is a prerequisite. Students will be evaluated on research or analytical papers, written assignments on course readings, and/or in-class essay-style exams. This course may be counted toward the credits required for the B.A. and B.S. in Crime, Law, and Justice. It would fulfill one of the 400-level requirements in the major. The course may also be counted toward credits required for the B.A. and B.S. in Sociology for students with a Deviance and Criminology specialization.

Enforced Prerequisite at Enrollment: (SOC 12 or CRIM 12) and CRIMJ 250W

Cross-listed with: CRIM 413, SOC 413

CRIMJ 414: Criminal Careers and the Organization of Crime

3 Credits

Research on and theory of criminal careers and crime organizations, emphasizing recruitment and disengagement; offender characteristics and lifestyles; policy implications.

Enforced Prerequisite at Enrollment: CRIMJ 12 or CRIMJ 13 or SOC 5

Cross-listed with: SOC 414

Bachelor of Arts: Social and Behavioral Sciences

CRIMJ 415: Drug Control Policy in Comparative Perspective

3 Credits

Examines the history of drug control policy in the United States; comparisons and contrasts with other countries' experiences. CRIMJ 415 (PUBPL) 415 Drug Control Policy in Comparative Perspective (3) This course focuses on the history of drug control policy in the United States and the internationalization of drug prohibition. We also examine the experience of other countries with drug use, abuse and control, including alternative regulatory policies in Western Europe. This class is both historical and comparative in orientation: in tracing the roots of drug prohibition, and examining the experience of other countries, we seek to enrich our understanding of American style drug control and the feasibility of alternative approaches.

Prerequisite: CRIMJ200 or PL SC001 or PL SC014 or SOC 001

Cross-Listed

CRIMJ 416: The Death Penalty

3 Credits

The death penalty is the ultimate punishment in the criminal justice systems in the world. The United States is one of the few democratic nations that still uses this punishment. The death penalty is also one of the most central and debated topics for candidates in high-profile political elections. In this course, students are introduced with the

complexity and implications of this punishment to better understand the American exceptionalism regarding criminal sanctions in comparison to the rest of the world; the focus is on the development of the death penalty in the modern-era United States. Surrounding the death penalty debate, issues such as deterrence, retribution, incapacitation, cost, innocence, and constitutionality are critically examined using key Supreme Court cases and important scholarly readings. In addition, six foreign countries are discussed to offer a comparative view in the procedural and substantive domains of the death penalty.

Prerequisite: SOC 12 or CRIM 12 or CRIMJ 12 or CRIM 100 or CRIMJ 100

International Cultures (IL)

United States Cultures (US)

CRIMJ 417: Hate Crime, Extremism, and Terrorism

3 Credits/Maximum of 3

This course is primarily a discussion-based seminar, engaging in a critical analysis of hate crime, extremism, and terrorism from a criminological perspective. First, students will engage with issues related to genocide and the role of the state in fostering hate. Students will then grapple with the arguments surrounding legislation relevant to hate speech and hate crime. There will also be an overview of the nature of hate crime, focusing on victims, motivations, and explanations of such crime. After discussing organized hate and extremist groups, students will also engage with the debate on the nature of the hate crime-terrorism relationship. The second half of the course focuses on terrorism as students learn about complexity of defining and explaining terrorism, focusing on the wide array of definitions of terrorism and the main theories of terrorism across a variety of disciplines. Students will examine different types of terrorism, including state and dissident terrorism generally as well right-wing, left-wing, religious, and international terrorism in the United States. The course will end with an overview of responses to hate crime, extremism, and terrorism, including issues surrounding the War on Terror. Students will further develop research, writing, and critical analysis skills after writing a term paper addressing a topic related to hate crime, extremism, and/or terrorism.

Prerequisites: CRIMJ 12 or SOC 12

CRIMJ 420: Criminal Law and Procedure

3 Credits

Common law and statutory crimes; constitutional rights of accused persons, liability of criminal justice professionals.

Prerequisite: CRIMJ113

CRIMJ 421: Violent Crime in the United States

3 Credits

The impact of violent crime on victims, their families, and communities; the police process as it relates to violent crime. CRIMJ 421 (CRIM) 421 Violent Crime (3) This course will examine the nature, frequency, and causes of violence, generally and of assault, robbery, rape, and homicide, specifically. Several different theoretical and research perspectives are reviewed, including biological, psychological, social, and cultural. The course also examines individual and societal responses to violence. Students are evaluated on three objective exams (25% each) and a series of short assignments (25%). CRIM/CRIMJ 421 may be used by both CLJBA and CLJBS degree candidates to satisfy a 400-level course

requirement in the major. This course will be offered twice a year with 60 seats per offering.

Prerequisite: CRIMJ012
Cross-listed with: CRIM 421

CRIMJ 422: Victimization

3 Credits

Examines the history, how victimization is measured/studied in social sciences, public policy implications of victimization movement in U.S. CRIM 422 / CRIMJ 422 Victimization (3) Victimology has emerged as an important area of study for the social sciences and an important arena for policy development. This course will familiarize students with the historical development of the research into victimization and the importance of the victims' movement to public policy. Areas explored will include the relationship between victim and offender, the cultural images of victims and their impact on the victim and the response of the criminal justice system to them, and how research has attempted to measure victimization. The course will be one of the supporting courses where the student must select 6 credits at the 400 level.

Prerequisite: CRIM 250W
Cross-listed with: CRIM 422

CRIMJ 423: Sexual and Domestic Violence

3 Credits

Legal, sociological, and psychological perspectives on sexual and domestic violence. CRIMJ 423 / CRIM 423 / WMNST 423 Sexual and Domestic Violence (3) (US) This course investigates violence against women, specifically domestic, sexual, and relationship violence. Students will examine some of the legal, sociological, and psychological perspectives about sexual, domestic, and relationship violence as well as the social and cultural roots of violence against women. Students will also gain an understanding of the experiences of victims of domestic and sexual violence as well as the issues presented by perpetrators. Students will be evaluated based on performance on exams, and two research papers. CRIMJ 423 / CRIM 423 / WMNST 423 is a supporting course in both the WMNST major and minor as well as a supporting course in the CLJ major. It may also be used to satisfy a GI requirement. This course is offered fall and spring semester with an enrollment of 60 students each semester.

Prerequisite: CRIMJ100
Cross-listed with: CRIM 423, WMNST 423
United States Cultures (US)

CRIMJ 424: Drugs, Crime, and Society

3 Credits

Why do people take drugs? Why and how does society attempt to control drug use and distribution? What is the association between drugs and crime? Exploring questions such as these will be central in CRIM 429. The focus of this course will be examining explanations of drug use and the social construction of drug policies. We will begin by asking the question "What are drugs?" From there, we will discuss theories of drug abuse and the methods used to study patterns of drug use. We will also take an in-depth look at the histories, pharmacologies, and patterns associated with the most popular drugs in modern society. In the second half of the semester, we will focus on the social control of drugs and the connections between drugs and crime. At the heart of

this discussion will be the causes and consequences of modern U.S. drug policies. We will conclude with a look at alternative drug policies and what the future may hold for drug use in America. Throughout the semester, you will be asked to think critically about material and evaluate its strengths and weaknesses. To foster critical thinking skills, you will have ample opportunities to discuss topics in class, analyze arguments in written assignments and in-class exercises, and apply ideas to real world situations through course projects and presentations.

Cross-listed with: CRIM 424

CRIMJ 424W: Drugs and Crime

3 Credits

Analysis of international narcotics trafficking in the twentieth century.

Prerequisite: CRIMJ100
Writing Across the Curriculum

CRIMJ 425: Organized Crime

3 Credits

This course examines organized crime in terms of historical antecedents, structure, related theories, and policy issues. CRIM (CRIMJ) 425 Organized Crime (3) This course will provide students with a historical and theoretical overview of organized crime. Students will gain an understanding of the structure of organized crime as well as an understanding of the businesses associated with traditional and nontraditional organized crime groups. The course will also provide students with a detailed analysis of state and federal laws and policies regarding organized crime. Students will be evaluated by two mid-term exams (25% each), an essay final exam (40%), and class participation (10%). Crime, Law, and Justice students may use this course to satisfy a 400-level course requirement in the Bachelor of Arts and Bachelor of Science majors. This course will be one of the supporting courses from which students are required to select six credits.

Prerequisite: CRIM 100
Cross-listed with: CRIM 425

CRIMJ 426: Special Offender Types

3-6 Credits/Maximum of 6

Study of special offender types; relationships with criminal justice system (drug abuse, victimless crime, white collar crime considered different semesters).

Prerequisite: 3 credits in Criminal Justice or permission of program

CRIMJ 430: Alternatives to Incarceration

3 Credits

Control and treatment of offenders in the community, probation and parole organizations, diversion programs, innovative sentences, supervision techniques. This course introduces students to the system of "criminal justice" as defined and interpreted by the Supreme Court as well as lower courts. Students study the judicial process, the intricacies of opinion formation, the nature and extent of judicial power, the willingness of the courts to hear appeals, and the reality of criminal sanctioning and procedure. The adversarial process, the willingness of the courts to hear appeals, and the conflicting opinions of the court introduce students to the lack of conformity that is part of upholding Constitutional rights.

Court attitudes and how the changing system is studied through stare decisis and case briefing. Particular cases and issues are critiqued such as capital punishment of the mentally ill, juveniles, and those who are mentally challenged. The tension between justice versus law is studied through cases, evaluation of court behavior, and changing attitudes towards racial inequities.

Prerequisite: CRIMJ100, and CRIMJ113, and CRIMJ230, or permission of program

CRIMJ 431: Offender and Prisoner Rights

3 Credits

The identification of correctional problems and the setting of objectives as reflective of court rulings, legislative change, and administrative law.

Prerequisite: CRIMJ100, CRIMJ113, CRIMJ230 or permission of program

CRIMJ 432: Crime and the American Court System

3 Credits

This course examines the American court system including structure and the way courts process offenders with special focus on sentencing. CRIM (CRIMJ) 432 Crime and the American Court System (3) CRIM/CRIMJ 432, Crime and The American Court system, studies the courts from the lower courts to the Supreme Court and the various actors that play important roles in the functioning of the courts. First, the course studies the jurisdictions of the various courts and their organization in various state systems as well as the federal courts as well as the organization of state and federal administrative offices that manage the courts including the training of judges and the preparation of the court budget. Subsequent to the development of the basic understanding of the court jurisdiction and organization, the class studies the roles of the key actors in the day-in and day-out operation of the courts. In the spotlight are judges, prosecutors and defense attorneys although the role of the probation officers and clerk of courts are also intertwined with the processing of defendants. Of particular importance in this component of the course is the development of what is referred to as the court community and the focal concerns and goals that the court must consider as it processes cases. An understanding of court community and focal concerns serves as crucial context for understanding the role of public policy as it attempts to shift or change the decision making of the court. One important dynamic of this course is the understanding that the court, although functioning as an institution to provide a neutral field on which accusations of criminality are to be played out, operates similarly to other organizations in that they are to be efficient (move cases with minimum overhead) and to be effective (provide justice, and protect the public). How the courts balance these competing demands and the informal processes that emerge in the processing of defendants is the key focus of the class. Finally, the course explores the attempts to reform the courts from the sentencing reforms such as determinate sentencing, mandatory minimums including '3 strikes' and sentencing guidelines. These issues highlight the political context of the courts and adaptability of the courts to attempts to change their values, and decisions. This course serves as one core 400-level course in the major. Each student must take two of the five core 400-level courses.

Prerequisite: CRIM 100

Cross-listed with: CRIM 432

CRIMJ 435: Border Security

3 Credits

This course provides knowledge about government organizations charged with American border security, guiding laws and policies. CRIMJ 435 Border Security (3) The Border Security course provides depth of knowledge of key border issues for students of homeland security. The course achieves this goal by focusing on border integrity strategies, the motivation and nature of criminal and other organizations which violate borders, the policies established by governments to maintain border integrity, identification of the key players in maintaining the border, and the relevant legal issues in enforcing laws on the border. This course allows the student to apply principles and concepts of homeland security to a specialized and very relevant area.

Prerequisite: 6th semester standing

CRIMJ 439: The Politics of Terrorism

3 Credits

Analysis of political terrorism as a violent alternative for peaceful change and traditional warfare in the nuclear age.

Prerequisite: CRIMJ100 or PL SC014, or permission of program

Cross-listed with: PLSC 439

Bachelor of Arts: Social and Behavioral Sciences

CRIMJ 441: The Juvenile Justice System

3 Credits

Historical and contemporary view of the juvenile justice system. Focus on analyzing components of the system, their interactions, processing, and handling of youths. CRIMJ 441 CRIMJ (CRIM) 441 Delinquency and Juvenile Justice (3) This course examines delinquency and the juvenile justice system from a variety of viewpoints. It looks at the problems the system is expected to address, how the problems have changed through the ages, how the current juvenile justice system developed, and the programs used to prevent and control delinquency and their effectiveness. By the end of the course, students should be able to think critically about the research and issues in the field. Evaluation methods include exams, brief writing assignments and a longer paper on policy issues. Students will be evaluated through brief written assignments, a term paper, a mid-term essay, and essay final. This course will be offered twice a year with 60 seats per offering. Students in the major may select CRIM (CRIMJ) 441 as one of several required courses in either the BA or BS program. This course is one of the core courses in the curriculum from which students must choose six credits from five core courses offered. It also serves as one of the supporting courses in the curriculum from which the students must take six credits at the 400-level.

Prerequisite: CRIMJ100

Cross-listed with: CRIM 441

United States Cultures (US)

CRIMJ 441W: The Juvenile Justice System

3 Credits

Historical and contemporary view of the juvenile justice system. Focus on analyzing components of the system, their interactions, processing, and handling of youths.

Prerequisite: CRIMJ100 or permission of program

Writing Across the Curriculum

CRIMJ 450W: Senior Seminar

3 Credits/Maximum of 6

Capstone course exploring past, current and future developments in criminal justice.

Prerequisite: CRIMJ100 or CRIM 100 and sixth semester standing or permission of program.

Writing Across the Curriculum

CRIMJ 451: Race, Crime, and Justice

3 Credits

This course focuses on the significance of race, class, and ethnicity to criminal justice processing and criminal offending. CRIMJ 451 CRIMJ (CRIM) 451 Race, Crime, and Justice (3) (US)(BA) This course meets the Bachelor of Arts degree requirements. This class is designed to explore the relationship between the criminal justice system and racial minorities in the United States. Students will examine theoretical issues of race and justice, as well as empirical understandings of the relationship between race, crime, and the criminal justice system. Students will endeavor to understand some of the economic, political, and sociological reasons why racial minorities are over-represented in the criminal justice system. Students will also explore normative issues of justice and equity in broader social interactions that influence and are influenced by crime and the criminal process. This course may be used towards the additional courses requirements for the CLJ BS/BA and ADM J degrees. It will also satisfy the Intercultural/International competence (GI). Students will be evaluated by a midterm and final exam, a term paper and class participation. This course will be offered twice a year with 60 seats per offering.

Prerequisite: CRIMJ100

Cross-listed with: CRIM 451

Bachelor of Arts: Social and Behavioral Sciences
United States Cultures (US)

CRIMJ 453: Women and the Criminal Justice System

3 Credits

This course focuses on the experiences of women as offenders, victims, and professionals in the criminal justice system. CRIMJ 453 / CRIM 453 / WMNST 453 Women and the Criminal Justice System (3) (US) The course will examine the role of women in the criminal justice system and look at the issues related to women as offenders, victims of crime, and as professionals in the system. Students will gain an understanding of the issues concerning women in the criminal justice system, examine how societal arrangements affect women as offenders, victims, and criminal justice professionals, and better understand the overlooked problems faced by women in the criminal justice system. Students will be evaluated on the basis of exams, presentations, and papers. CRIMJ 453 / CRIM 453 / WMNST 453 is a supporting course for both WMNST and CLJ majors, as well as the WMNST minor. This course may also be used to satisfy a GI requirement. This course will be offered twice a year with 60 seats per offering.

Prerequisite: CRIMJ100 or WMNST100

Cross-listed with: CRIM 453, WMNST 453

United States Cultures (US)

CRIMJ 455: Contemporary Issues in Law Enforcement

3 Credits/Maximum of 3

This course will examine some of the current and most pertinent issues facing law enforcement today. This course will examine some of the current and most pertinent issues facing law enforcement today. The course is designed to provide both insight and application of some of the fundamentals necessary to be successful as a law enforcement professional. An interactive and collaborative learning approach will focus on various topics of concern which are vital to effective law enforcement personnel. Examples of these topics may include; use of force, drug enforcement, search and seizure, interviewing and interrogation, stress in policing, as well as any other topics which may develop as an issue of concern for law enforcement.

Prerequisite: CRIMJ 100; CRIMJ 210

CRIMJ 457: American Guns: History, Law & Criminal Justice Challenges

3 Credits

Although violent crime has generally been on the decline since the mid-1990's, the subjects of gun ownership, gun violence, and gun control have become ubiquitous in election campaigns. This course explores the historical, legal, and cultural context of this debate. To address historical context, the course examines the US Constitution, early U.S. history, and American gun culture. The course then shifts to modern history to outline what is known about gun ownership and gun crime today. With this background, students explore both sides of the gun control debate and resulting legislation from the 1800's to the present. Current laws regulating gun ownership and purchase, conceal carry and self-defense are also addressed. Law enforcement efforts, including crime scene investigation, are explored. Lastly, the course highlights examples of international and transnational efforts related to gun control and trade. Students will have the opportunity to explore controversial gun-related topics in an independent course project. At the completion of this course, students will be able to: 1. Describe the early history of gun ownership in the U.S. 2. Detail the known trends in gun ownership and the life cycle of a gun. 3. List arguments for and against regulation of gun ownership. 4. Describe the laws regulating gun ownership, purchase, and conceal carry. 5. Detail law enforcement and legislative efforts to restrict or deter the use of guns in crime. 7. Identify examples of international and transnational attempts to address gun ownership and trade. 8. Detail and evaluate the future of a modern issue related to firearms and Criminal Justice.

Prerequisites: CRIMJ 100, CRIMJ 210 Recommended Preparations: SOC 207

CRIMJ 460: History and Function of Criminal Justice Components

3 Credits

Historical development of criminal justice system components (police, courts, corrections) related to formulation and function of the state.

Bachelor of Arts: Social and Behavioral Sciences

CRIMJ 462: Comparative Criminal Justice Systems

3 Credits

A comparison of American and selected foreign justice systems to illustrate the variety of possible responses to crime.

Prerequisite: CRIMJ100 or permission of program
Bachelor of Arts: Social and Behavioral Sciences

CRIMJ 465: Ethics in Criminal Justice

3 Credits

Ethical behavior in the criminal justice system.

Prerequisite: CRIMJ100 or permission of program

CRIMJ 467: Law and Society

3 Credits

Law and society studies the social origins of law and legal systems; occupational careers, and decision-making of legal officials. SOC (CRIMJ/CRIM) 467 Law and Society (3) (BA) This course meets the Bachelor of Arts degree requirements. Law and society teaches students' knowledge of key concepts and core ideas about the role of law in society. The course will cover the basics of key legal philosophies, major social science theories of law and society, research in law and society, the structure of the legal profession, and vital contemporary issues involving the role of law in society. CRIM/CRIMJ 113 and CRIM/CRIMJ 250W are prerequisites. The evaluations methods will include written assignments on course readings, and essay-style exams. Law and Society may be counted toward the credits required for the B.A. and B.S. in Crime, Law and Justice. It would fulfill one of the 400-level requirements in the 'Law' component of the major. The course may also be counted toward credits required for the B.A. and B.S. in Sociology for students with the Deviance and Criminology specialization.

Enforced Prerequisite at Enrollment: CRIM 12 or CRIMJ 12 or CRIMJ 100 or permission of program

Cross-listed with: CRIM 467, SOC 467

Bachelor of Arts: Social and Behavioral Sciences

CRIMJ 469: Drugs and Drug Policy in the United States

3 Credits

Examines the history and dimensions of drug use and analyzes the impact of drug policy. CRIMJ 469 / HIST 469 Drugs and Drug Policy in the United States (3) For nearly a century, the United States has been waging its version of a hundred years' war on drugs, spending billions of dollars and incarcerating thousands of offenders while failing to significantly reduce the use of illicit drugs. This course examines drug use in a historical context while addressing the changing nature and dimension of drug use, including the pharmacology of drugs, patterns of drug use, and sentencing policies. Because drug control is inextricably linked to social, political, and public policy, the course will provide the student with a foundation for critical thinking and rational decision making relative to the efficacy of the various drug control initiatives. Since drugs seemingly permeate every level of American society and directly or tangentially touch most Americans' lives, issues such as drug testing in the workplace, the use of drug courier profiles, legalized medical marijuana, and needle exchange programs are evaluated. Students will be expected to learn the pharmacology of various drugs, the history of drug use in the United States since the colonial era, the evolution of federal drug agencies, and acquire knowledge about contemporary drug issues. They also will be expected to develop and strengthen their critical thinking skills as they assess the consequences of implementing particular anti-drug policies and their impact on reducing the use of illicit drug use. An example of the evaluation methods would be: students will be evaluated on the basis of three exams and four "think

pieces" (requiring students' critical responses to an assigned topic) scheduled throughout the semester. Class attendance also will influence the grade. Faculty Member Proposing Course : John C. McWilliams

Prerequisite: CRIMJ100 or HIST 021

Cross-listed with: HIST 469

Bachelor of Arts: Humanities

CRIMJ 471: Legal Rights, Duties, Liabilities of Criminal Justice Personnel

3 Credits

Civil law issues within a justice agency and between criminal justice agencies and members of the public.

Prerequisite: CRIMJ100

CRIMJ 473: Criminal Procedure and Evidence in the Business Community

3 Credits

Law of evidence and proof, constitutional constraints on police procedures (arrest, search, etc.) in society and the business community.

Prerequisite: CRIMJ100

CRIMJ 482: Seminar, Criminal Justice Agency Administration

3 Credits

Relates organizational and public policy management approaches to police, courts, and correctional institutions. CRIM (CRIMJ) 482 Seminar, Criminal Justice Agency Administration (3) In this course, you will learn about the nature of criminal justice organizations, individual and group behavior within the system, and the issues involved in reforming the system. This course will NOT teach you how to become an administrator in the criminal justice system, but hopefully will teach you about the issues and theories surrounding organizations and reform- and most importantly, teach you to think and communicate (in both written and verbal form). After taking this course, you should have a more accurate perception of criminal justice organizations and have a better understanding of the complexity surrounding the administration and management of these organizations. Criminal Justice Agency Administration may be counted toward the credits required for the B.A. and B.S. in Crime, Law, and Justice.

Prerequisite: CRIM 100

Cross-listed with: CRIM 482

CRIMJ 489W: Victimology: Predatory Crime

3 Credits

This course uses medical, social scientific and legal research to study the complexities of predatory crime. CRIMJ 489W/CRIMJ 489W Victimology: Predatory Crime (3) This course builds upon CRIMJ 407, Victimology. Students are directed toward the development of forensic knowledge, crime scene analysis, comprehension of predatory injuries, films, and current serial crimes to initiate research and critical thinking. Issues such as gender, family abuse, protective services, trends in victim selection, and societal responses provide numerous opportunities for learning communities and interaction with other classes. The use of WEB based assignments and Department of Justice information encourages students to expand their research skills for writing assignments, short research papers, and legal research. The course also uses graphic slides to introduce students to the reality of physical and sexual child abuse,

sexual assault, and homicide. Students are expected to review anatomy and use proper terminology when speaking about predatory behavior, victimization injuries, and psychological issues. Crime classification is introduced using the Federal Bureau of Investigation Manual and the DSM IV is used to classify aberrant behavior. Research completed by leaders in the field are assigned readings and special topics such as female serial killers, angels of death, spree killers, and terrorism provide a basis for class discussions and projects. The course also includes the "high crime low-war" classification of international terrorism and concepts of lethality of attack.

Prerequisite: CRIMJ407
Writing Across the Curriculum

CRIMJ 494: Research Topics

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis. CRIMJ 494
CRIMJ 494. Research Topics
This common course will focus on specific research issues. Issues to be covered will be social violence, legal issues, and impact on crime control. Students will study the design and implementation of topical issues as they address specific issues. The course will add to the diversity offerings within the criminal justice program. Faculty member proposing course: M. A. DuPont-Morales

CRIMJ 494H: Research Topics

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Honors

CRIMJ 495: Internship in Criminal Justice

3-12 Credits/Maximum of 12

Experience with a criminal justice agency coordinated through readings and discussion.

Prerequisite: CRIMJ100

CRIMJ 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

CRIMJ 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

CRIMJ 499: Foreign Studies

6 Credits

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Criminology (CRIM)

CRIM 12: Criminology

3 Credits/Maximum of 3

Criminology is the study of the causes of criminal behavior. As such this course is an introduction to the topic with special focus on the major theories and concepts explaining criminal behavior. A key focus of the class is examining the most recent scientific research testing the basic theories in criminology. The students learn the various research techniques that have been methods and data sources used to study criminal behavior. Several important areas of study that link understanding criminal behavior and its distribution across the social system are investigated including age, gender, race and ethnicity. One goal of the course is to promote a more complete understanding of crime and how it is enmeshed in human social life. Students read a general text, as well as scholarly articles in Criminology.

Cross-listed with: CRIMJ 12, SOC 12

Bachelor of Arts: Social and Behavioral Sciences

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

CRIM 12H: Honors Criminology

3 Credits

Criminology is the study of the causes of criminal behavior. As such this course is an introduction to the topic with special focus on the major theories and concepts explaining criminal behavior. This honors version of Introduction to Criminology is especially designed to be appropriately challenging for Schreyer Honors College students. A key focus of the course is examining the most recent scientific research testing the basic theories in criminology. Students learn the various research methods and data sources used to study criminal behavior. Several important areas of study that link understanding criminal behavior and its distribution across the social system are investigated including age, gender, race and ethnicity. One goal of the course is to promote a more complete understanding of crime and how it is enmeshed in human social life. Students read a general text, as well as scholarly articles in criminology.

Cross-listed with: CRIMJ 12H, SOC 12H

General Education: Social and Behavioral Scien (GS)

Honors

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

CRIM 100: Introduction to Criminal Justice

3 Credits

Criminal Justice 100 is an overview of the United States criminal justice system and the major components of police, courts and corrections. Students will engage in reviews of, evaluate and consider legal foundations, types and causes of crime, the development of policing, the influence and evolution of the court process, and rehabilitative and reintegrative components of corrections. Specific topics can include, but

are not limited to, the extent of crime in the United States; competing and complementary goals within the criminal justice system; sources of criminal law; interactions between various agencies within the criminal justice system; and the impact of crime on victims. During the course of study of the criminal justice system, students will have various opportunities to examine how age, gender, race and ethnicity impact and are impacted by the criminal justice system at critical phases.

Cross-listed with: CRIMJ 100

Bachelor of Arts: Social and Behavioral Sciences

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

CRIM 113: Introduction to Law

3 Credits

Introduction to law in society with a focus on criminal law, judicial code, laws of sentencing and corrections, criminal procedure. CRIM (CRIMJ) 113 Introduction to Law (3) Introduction to the law is designed to provide CLJ majors with an introductory level of knowledge of the criminal law, and other legal codes such as the Judicial Code, laws of corrections, probation and parole, and the rules of criminal and appellate procedure. The course will serve as a gateway course to taking more advanced criminology and criminal justice courses. CRIMJ (CRIM) 113 is one of the Prescribed Courses in the CLJ curriculum and is used as a prerequisite for many 400 level courses including CRIM 467 AND 469.

Cross-listed with: CRIMJ 113

United States Cultures (US)

CRIM 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

CRIM 201: Presumed Innocent? Social Science of Wrongful Conviction

3 Credits

The criminal justice system is a human creation and some errors are expected. Sometimes guilty parties go free and sometimes innocent people are convicted. In this course, we will employ the perspective of the social scientist to understand why and how wrongful convictions occur. How can social science help to predict, explain, and prevent wrongful convictions? This course is organized into three units. In the first unit, we will examine the large body of social science research that demonstrates disparities in all stages of the criminal justice system. For example, young Black and Latino men are disproportionately arrested, charged, convicted and imprisoned for violent crimes. This is partly due to these men disproportionately living in environments that foster crime, but social science research shows sometimes it's also partly due to the discretionary decisions of police, prosecutors, and courts. As a result, these demographic groups are most likely to be wrongfully convicted. In the second unit, we'll explore the factors in the justice system that might lead to a wrongful conviction, including false confessions, eyewitness misidentification, poor legal representation, government misconduct, and informants and snitches. Social scientific findings elucidate how each of these factors influence conviction accuracy. Finally, we'll discuss

how social science research on the risks and factors that contribute to wrongful convictions can be used to improve policies to reduce the risk of such convictions. Simple reforms such as openness about plea-bargaining, eyewitness identification reform (e.g., sequential lineups, double-blind procedures, etc.), recording of interrogations, and introducing Innocence Commissions in every state can improve our criminal justice system.

Cross-listed with: SOC 201

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

CRIM 225N: Organized Crime in Film and Society

3 Credits

IT 225N / CRIM 225N, Organized Crime in Film & Society, examines the relationship between criminological and justice theories regarding organized crime and the portrayal of the mafia in popular Italian American film. The course follows two simultaneous threads of inquiry: an examination of historical and theoretical models of organized crime in the United States and the state and federal laws that address them; and an analysis of how such models are depicted in American films and television about the the Italian American community. By the end of the course, students will gain key literacy skills by identifying varied definitions of organized crime and distinguishing between structural models, particularly La Cosa Nostra and network models. Students will also sharpen analytical and critical thinking skills through written and spoken interpretations of films and the scholarly approaches to studying organized crime (e.g. research methods). Throughout the semester students will also be able to apply knowledge of the social scientific aspects of organized crime to guide their observations and analyses of film and Italian American culture, thus refining Integrative Thinking across the humanities and social sciences.

Cross-listed with: IT 225N

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

CRIM 249: Criminology Theory and Evidence

3 Credits

This course provides criminology majors a more in-depth understanding of the theories, methodologies, and research results within the scientific discipline of criminology. Students will first focus on concepts and definitions associated with theory development and research methods prior to applying these to historical and present theories of criminal behavior. Sociological theories and methods will be given greater weight in the course. At the end of the course, students will apply what they've learn to theoretically motivate a testable research question and outline this in a short research proposal. Throughout the course, theoretical concepts and evidence will be connected to current and historical criminal justice policies. This course serves as the foundation for later courses on specific substantive criminological topics, such as violence, race, gender, and neighborhood crime. The course also provides

students the theoretical and methodological background for completing CRIM 250W, Research Methods in Criminal Justice, which includes an empirical research paper component. The Criminology program learning objectives directly relevant for this course are: - Recognize the causes and consequences of crime at the micro and macro levels and match these with prominent criminological Course Justification perspectives. - Apply theories of crime to explain actual and hypothetical scenarios, behaviors, and trends. - Explain the various social science methods of inquiry and use these to test specific criminological research questions.

Prerequisite: CRIM 12; SOC 12 CONCURRENT: CRIM 100; CRIM 100H

CRIM 250W: Research Methods in Criminology

3 Credits

The purpose of this writing-intensive course is to engage students in the social scientific research process used by criminologists to answer empirical research questions. It is the second course (after CRIM 249) that overviews theory and research in criminology. Students learn to use social science research methods through instructor-led demonstrations and applications of research methods, data analysis exercises, and critical reading of published research. Students apply their research knowledge and skills to an empirical research project completed in a sequence of steps producing written drafts that receive instructor feedback. After completion of this course, students will have acquired the following knowledge and skills: (1) The ability to generate a research question and effectively and efficiently search and review the relevant research literature. (2) A working knowledge of how to apply social science research methods and research designs to answer research questions. (3) The ability to strategically read published research articles to extract different types of information. (4) An understanding of the inductive and deductive aspects of the research process. (5) The ability to collect, analyze, and interpret quantitative and qualitative data. (6) The ability to design a quantitative research project to test hypotheses of interest to criminologists. (7) The ability to summarize and explain in writing the methods used and results derived from studies seeking answers to a common research question. (8) An understanding of social science research methods needed to be critical consumers of research and claims about crime, criminal behavior, and social response to them. (9) A certified knowledge about ethical issues in social science research.

Prerequisite: CRIM 249, STAT 200
Writing Across the Curriculum

CRIM 294: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

CRIM 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

CRIM 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

CRIM 298: Preceptorship in Criminology

1-6 Credits/Maximum of 6

CRIM 298 Preceptorship in Criminology (1-6 per semester/maximum of 6) The Preceptorship provides undergraduates with an opportunity to work closely with a faculty member in a regularly scheduled course as a teaching assistant. Undergraduate juniors and seniors who have done well in a particular course can deepen their understanding of the material by assisting in teaching about the subject. The Preceptorship also provides greater opportunity for interaction between faculty and students. Moreover, if graduate students also are involved in teaching, they provide role models for undergraduates.

CRIM 395: Internship in Criminal Justice

1-9 Credits/Maximum of 9

Field experience focusing on the student's major interest within the area of criminal justice.

Prerequisite: CRIM 250W

CRIM 406: Sociology of Deviance

3 Credits

Theory and research concerning deviant behaviors and lifestyles viewed as significant departures from a group's normative expectations. SOC (CRIMJ/CRIM) 406 Sociology of Deviance (3) (BA) This course meets the Bachelor of Arts degree requirements. Sociology of Deviance focuses on the theory and research in social construction of social norms, the violation of norms, and social reaction to the violation of norms. The course focuses on the role of social structure and power in the definition of deviance, on structural, cultural, and social psychological processes involved in deviant behavior, and the dynamics of social reaction to deviance. The course includes some content focusing on criminal deviance, but also emphasizes non-criminal deviance, as well as the role of social movements and social change in constructing and contesting deviance definitions. CRIMJ/SOC/CRIM 012 and CRIM/CRIMJ 250W are prerequisites. This course may be counted toward the credits required for the B.A. and B.S. in Crime, Law, and Justice. It would fulfill one of the 400-level requirements in the 'Crime' component of the major. The course may also be counted toward credits required for the B.A. and B.S. in Sociology for students with the Deviance and Criminology specialization.

Enforced Prerequisite at Enrollment: 3 credits of SOC or CRIM or CRIMJ
Cross-listed with: CRIMJ 406, SOC 406
Bachelor of Arts: Social and Behavioral Sciences

CRIM 412: Crime, Social Control, and the Legal System

3 Credits

Legal and extralegal control; public opinion on crime; criminal justice and correctional processes; legal sanctions; control strategies. Field trip.

Prerequisite: CRIM 012, CRIM 013, or SOC 005
Cross-listed with: CRIMJ 412

CRIM 413: Advanced Criminological Theory

3 Credits

This course provides an in-depth look at theories of crime and examines influential empirical studies designed to these theories. CRIMJ

413CRIMJ (CRIM/SOC) 413 Advanced Criminological Theory (3)Advanced criminological theory is intended to extend and deepen students' knowledge of core ideas in criminology. The course has four main emphases: 1) learning major schools of thought in criminology, 2) learning about the uses and construction of theory, 3) learning about approaches to integrating criminological theories, and 4) exploring how criminological concerns are grounded in and interrelated with core issues in sociology. The course is offered once a year with 50 seats per offering. CRIMJ/CRIM/SOC 012 is a prerequisite. Students will be evaluated on research or analytical papers, written assignments on course readings, and/or in-class essay-style exams. This course may be counted toward the credits required for the B.A. and B.S. in Crime, Law, and Justice. It would fulfill one of the 400-level requirements in the major. The course may also be counted toward credits required for the B.A. and B.S. in Sociology for students with a Deviance and Criminology specialization.

Enforced Prerequisite at Enrollment: (SOC 12 or CRIM 12) and CRIMJ 250W

Cross-listed with: CRIMJ 413, SOC 413

CRIM 421: Violent Crime in the United States

3 Credits

The impact of violent crime on victims, their families, and communities; the police process as it relates to violent crime. CRIMJ 421CRIMJ (CRIM) 421 Violent Crime (3)This course will examine the nature, frequency, and causes of violence, generally and of assault, robbery, rape, and homicide, specifically. Several different theoretical and research perspectives are reviewed, including biological, psychological, social, and cultural. The course also examines individual and societal responses to violence. Students are evaluated on three objective exams (25% each) and a series of short assignments (25%). CRIM/CRIMJ 421 may be used by both CLJBA and CLJBS degree candidates to satisfy a 400-level course requirement in the major. This course will be offered twice a year with 60 seats per offering.

Prerequisite: CRIMJ012

Cross-listed with: CRIMJ 421

CRIM 422: Victimization

3 Credits

Examines the history, how victimization is measured/studied in social sciences, public policy implications of victimization movement in U.S. CRIM 422 / CRIMJ 422 Victimization (3) Victimology has emerged as an important area of study for the social sciences and an important arena for policy development. This course will familiarize students with the historical development of the research into victimization and the importance of the victims' movement to public policy. Areas explored will include the relationship between victim and offender, the cultural images of victims and their impact on the victim and the response of the criminal justice system to them, and how research has attempted to measure victimization. The course will be one of the supporting courses where the student must select 6 credits at the 400 level.

Prerequisite: CRIM 250W

Cross-listed with: CRIMJ 422

CRIM 423: Sexual and Domestic Violence

3 Credits

Legal, sociological, and psychological perspectives on sexual and domestic violence. CRIMJ 423 / CRIM 423 / WMNST 423 Sexual and Domestic Violence (3) (US) This course investigates violence against women, specifically domestic, sexual, and relationship violence. Students will examine some of the legal, sociological, and psychological perspectives about sexual, domestic, and relationship violence as well as the social and cultural roots of violence against women. Students will also gain an understanding of the experiences of victims of domestic and sexual violence as well as the issues presented by perpetrators. Students will be evaluated based on performance on exams, and two research papers. CRIMJ 423 / CRIM 423 / WMNST 423 is a supporting course in both the WMNST major and minor as well as a supporting course in the CLJ major. It may also be used to satisfy a GI requirement. This course is offered fall and spring semester with an enrollment of 60 students each semester.

Prerequisite: CRIMJ100

Cross-listed with: CRIMJ 423, WMNST 423

United States Cultures (US)

CRIM 424: Drugs, Crime, and Society

3 Credits

Why do people take drugs? Why and how does society attempt to control drug use and distribution? What is the association between drugs and crime? Exploring questions such as these will be central in CRIM 429. The focus of this course will be examining explanations of drug use and the social construction of drug policies. We will begin by asking the question "What are drugs?" From there, we will discuss theories of drug abuse and the methods used to study patterns of drug use. We will also take an in-depth look at the histories, pharmacologies, and patterns associated with the most popular drugs in modern society. In the second half of the semester, we will focus on the social control of drugs and the connections between drugs and crime. At the heart of this discussion will be the causes and consequences of modern U.S. drug policies. We will conclude with a look at alternative drug policies and what the future may hold for drug use in America. Throughout the semester, you will be asked to think critically about material and evaluate its strengths and weaknesses. To foster critical thinking skills, you will have ample opportunities to discuss topics in class, analyze arguments in written assignments and in-class exercises, and apply ideas to real world situations through course projects and presentations.

Cross-listed with: CRIMJ 424

CRIM 425: Organized Crime

3 Credits

This course examines organized crime in terms of historical antecedents, structure, related theories, and policy issues. CRIM (CRIMJ) 425 Organized Crime (3) This course will provide students with a historical and theoretical overview of organized crime. Students will gain an understanding of the structure of organized crime as well as an understanding of the businesses associated with traditional and nontraditional organized crime groups. The course will also provide students with a detailed analysis of state and federal laws and policies regarding organized crime. Students will be evaluated by two mid-term exams (25% each), an essay final exam (40%), and class participation

(10%). Crime, Law, and Justice students may use this course to satisfy a 400-level course requirement in the Bachelor of Arts and Bachelor of Science majors. This course will be one of the supporting courses from which students are required to select six credits.

Prerequisite: CRIM 100

Cross-listed with: CRIMJ 425

CRIM 429: Seminar in Criminal Behavior

3-4 Credits/Maximum of 7

This course explores the study of the application of criminological theories to our understanding of various forms of criminal behavior. CRIM 429 Seminar in Criminal Behavior (3-4/maximum of 7) The course is intended to provide in the curriculum an avenue for the faculty to offer special focus courses on emerging forms of criminal behavior. For example, during the past several years the criminal justice system has had to respond to new forms of criminal behavior that have developed as we have developed new technologies. Recent use of the Internet as a means of committing crime has been the focus of federal and state legislation. Thus, societies have developed new forms or new means to old forms of criminal behavior through the use of technology. CRIM 429 will provide the faculty with the opportunity to develop special criminal behavior topic courses on offenses such as these and many other topics on our understanding and ability to explain criminal behavior. The course can satisfy 400 level requirements for the students in the CLJ major. This course will evaluate the students using a combination of written assignments and oral presentations.

Prerequisite: CRIM 012

CRIM 430: American Correctional System

3 Credits

Study of corrections from probation, intermediate punishment, adult and juvenile correctional institutions to parole. CRIM 430 American Correctional System (3) This course examines the correctional system from the sentencing decision to reentry or release from the correctional system. The course focuses on the choices that decision-makers face in sentencing, classification and responding to violations by offenders as well as the problems that offenders face as they confront their treatment/punishment. As part of the analysis the course explores the persistent conflicting expectations that society imposes on our correctional system and the effectiveness of the system in rehabilitating, deterring and incapacitating offenders. This course expands on the brief introduction of the topic in CRIM/CRIMJ 100 and relies on the student's understanding of social science research developed in CRIM/CRIMJ 250W to critically analyze what we know about corrections. This course provides the opportunity for students to study in depth a major component of the criminal justice system and is one of five classes students may select from to meet a major core course requirement.

Prerequisite: CRIM 100 , CRIM 250W

CRIM 432: Crime and the American Court System

3 Credits

This course examines the American court system including structure and the way courts process offenders with special focus on sentencing. CRIM (CRIMJ) 432 Crime and the American Court System (3) CRIM/CRIMJ 432, Crime and The American Court system, studies the courts from the lower courts to the Supreme Court and the various actors that

play important roles in the functioning of the courts. First, the course studies the jurisdictions of the various courts and their organization in various state systems as well as the federal courts as well as the organization of state and federal administrative offices that manage the courts including the training of judges and the preparation of the court budget. Subsequent to the development of the basic understanding of the court jurisdiction and organization, the class studies the roles of the key actors in the day-in and day-out operation of the courts. In the spotlight are judges, prosecutors and defense attorneys although the role of the probation officers and clerk of courts are also intertwined with the processing of defendants. Of particular importance in this component of the course is the development of what is referred to as the court community and the focal concerns and goals that the court must consider as it processes cases. An understanding of court community and focal concerns serves as crucial context for understanding the role of public policy as it attempts to shift or change the decision making of the court. One important dynamic of this course is the understanding that the court, although functioning as an institution to provide a neutral field on which accusations of criminality are to be played out, operates similarly to other organizations in that they are to be efficient (move cases with minimum overhead) and to be effective (provide justice, and protect the public). How the courts balance these competing demands and the informal processes that emerge in the processing of defendants is the key focus of the class. Finally, the course explores the attempts to reform the courts from the sentencing reforms such as determinate sentencing, mandatory minimums including '3 strikes' and sentencing guidelines. These issues highlight the political context of the courts and adaptability of the courts to attempts to change their values, and decisions. This course serves as one core 400-level course in the major. Each student must take two of the five core 400-level courses.

Prerequisite: CRIM 100

Cross-listed with: CRIMJ 432

CRIM 433: Sentencing

3 Credits

This course studies sentencing from prosecutorial charging decisions through revocation of probation, and the complex goals and responsibilities at sentencing. CRIM 433 Sentencing (3) This course focuses on the key decision in our court system—sentencing. The course covers the historical development of sentencing both within the United States and internationally as a backdrop to the reform efforts of the late 20th Century. The course explores how sentencing has changed from a judge-based discretionary system to a system where numerous restrictions to judicial discretion have been imposed by state and federal legislatures. Students will be evaluated on two essay exams (midterm and final) with the midterm worth 20 and the final 30 percent of the grade. A research analysis paper will be required that will be completed in three stages. The first stage will be the setting forth of a research problem and a scheme for analyzing the data (10%). The second stage will be an oral presentation of the findings (20%). The final stage will be a written term paper on the project (20%). This course will be used by CLJ majors as one of the six credits of 400-level elective credits required in the major.

Prerequisite: CRIM 100 , CRIM 250W

CRIM 435: Policing in America

3 Credits

This course will focus on current, historical, theoretical, and research issues surrounding law enforcement in the United States. CRIM 435

Policing in America (3) This course is designed to provide a basic knowledge of the structure of policing in America and to explore findings from research considering police behavior. Students will examine and discuss controversial issues relating to policing in American society. Current trends in policing philosophies and strategies will be identified and their effectiveness will be debated. The relationship between police and citizens will be stressed. CRIM 435 can be used to satisfy a core 400-level course requirement in the CLJBA and CLJBS majors.

Prerequisite: CRIM 100 , CRIM 250W

CRIM 441: The Juvenile Justice System

3 Credits

Historical and contemporary view of the juvenile justice system. Focus on analyzing components of the system, their interactions, processing, and handling of youths. CRIMJ 441 CRIMJ (CRIM) 441 Delinquency and Juvenile Justice (3) This course examines delinquency and the juvenile justice system from a variety of viewpoints. It looks at the problems the system is expected to address, how the problems have changed through the ages, how the current juvenile justice system developed, and the programs used to prevent and control delinquency and their effectiveness. By the end of the course, students should be able to think critically about the research and issues in the field. Evaluation methods include exams, brief writing assignments and a longer paper on policy issues. Students will be evaluated through brief written assignments, a term paper, a mid-term essay, and essay final. This course will be offered twice a year with 60 seats per offering. Students in the major may select CRIM (CRIMJ) 441 as one of several required courses in either the BA or BS program. This course is one of the core courses in the curriculum from which students must choose six credits from five core courses offered. It also serves as one of the supporting courses in the curriculum from which the students must take six credits at the 400-level.

Prerequisite: CRIMJ100

Cross-listed with: CRIMJ 441

United States Cultures (US)

CRIM 451: Race, Crime, and Justice

3 Credits

This course focuses on the significance of race, class, and ethnicity to criminal justice processing and criminal offending. CRIMJ 451 CRIMJ (CRIM) 451 Race, Crime, and Justice (3) (US)(BA) This course meets the Bachelor of Arts degree requirements. This class is designed to explore the relationship between the criminal justice system and racial minorities in the United States. Students will examine theoretical issues of race and justice, as well as empirical understandings of the relationship between race, crime, and the criminal justice system. Students will endeavor to understand some of the economic, political, and sociological reasons why racial minorities are over-represented in the criminal justice system. Students will also explore normative issues of justice and equity in broader social interactions that influence and are influenced by crime and the criminal process. This course may be used towards the additional courses requirements for the CLJ BS/BA and ADM J degrees. It will also satisfy the Intercultural/International competence (GI). Students will be evaluated by a midterm and final exam, a term paper and class participation. This course will be offered twice a year with 60 seats per offering.

Prerequisite: CRIMJ100

Cross-listed with: CRIMJ 451

Bachelor of Arts: Social and Behavioral Sciences
United States Cultures (US)

CRIM 453: Women and the Criminal Justice System

3 Credits

This course focuses on the experiences of women as offenders, victims, and professionals in the criminal justice system. CRIMJ 453 / CRIM 453 / WMNST 453 Women and the Criminal Justice System (3) (US) The course will examine the role of women in the criminal justice system and look at the issues related to women as offenders, victims of crime, and as professionals in the system. Students will gain an understanding of the issues concerning women in the criminal justice system, examine how societal arrangements affect women as offenders, victims, and criminal justice professionals, and better understand the overlooked problems faced by women in the criminal justice system. Students will be evaluated on the basis of exams, presentations, and papers. CRIMJ 453 / CRIM 453 / WMNST 453 is a supporting course for both WMNST and CLJ majors, as well as the WMNST minor. This course may also be used to satisfy a GI requirement. This course will be offered twice a year with 60 seats per offering.

Prerequisite: CRIMJ100 or WMNST100

Cross-listed with: CRIMJ 453, WMNST 453

United States Cultures (US)

CRIM 459: Communities and Crime

3 Credits

In this course you will learn about how crime levels vary across different types of neighborhoods and about the role of different socioeconomic, demographic, spatial, and informal social control aspects of neighborhoods in promoting or buffering crime. We will address the patterns, concepts, theories, methods, and policies related to communities and crime. We will critically assess theory and research on the effects of neighborhood structure and social organization on crime, focusing in particular on the classic and contemporary thinking on poverty, social disorganization, disorder, collective efficacy, institutional trust, cultural heterogeneity, segregation, immigration and how they affect criminal behavior and victimization. Through readings, class discussions, and activities, writing projects, and presentations, you will be given the opportunity to reflect on what you are learning and to apply the theoretical concepts to real-life examples and to new contexts in and out of the class.

Enforced Prerequisite at Enrollment: SOC 12 or CRIM 12

Cross-listed with: SOC 459

CRIM 466: Solving Community Problems

3 Credits

Explains how communities solve local problems by partnering with researchers, practitioners, and policy makers. Demonstrates how such partnerships help communities tackle complex problems by clarifying their causes, identifying solutions, leveraging resources, and mobilizing stakeholders to act. Examines community-engaged research projects - such as collaborative efforts to revitalize neighborhoods, reduce crime & violence, empower youth, house the homeless, improve health, and promote sustainability - that address local manifestations of broader societal problems. Students will collaborate with community partners to design, implement, and evaluate problem-solving projects. Provides

students with skills and knowledge needed to collaborate productively in community-engaged problem-solving initiatives.

Enforced Prerequisite at Enrollment: SOC 207 or CRIM 250W

Recommended Preparation: 5th Semester standing

Cross-listed with: SOC 466

CRIM 467: Law and Society

3 Credits

Law and society studies the social origins of law and legal systems; occupational careers, and decision-making of legal officials. SOC (CRIMJ/CRIM) 467 Law and Society (3) (BA) This course meets the Bachelor of Arts degree requirements. Law and society teaches students' knowledge of key concepts and core ideas about the role of law in society. The course will cover the basics of key legal philosophies, major social science theories of law and society, research in law and society, the structure of the legal profession, and vital contemporary issues involving the role of law in society. CRIM/CRIMJ 113 and CRIM/CRIMJ 250W are prerequisites. The evaluations methods will include written assignments on course readings, and essay-style exams. Law and Society may be counted toward the credits required for the B.A. and B.S. in Crime, Law and Justice. It would fulfill one of the 400-level requirements in the 'Law' component of the major. The course may also be counted toward credits required for the B.A. and B.S. in Sociology for students with the Deviance and Criminology specialization.

Enforced Prerequisite at Enrollment: CRIM 12 or CRIMJ 12 or CRIMJ 100 or permission of program

Cross-listed with: CRIMJ 467, SOC 467

Bachelor of Arts: Social and Behavioral Sciences

CRIM 469: Seminar in the Law

3-4 Credits/Maximum of 7

The focus of this seminar is the law such as the laws of sentencing, appellate court decisions and their impact. CRIM 469 Seminar in Law (3-4 per semester/maximum of 7) This seminar explores topics related to the law and will vary from semester to semester depending on current events, faculty research and other areas of study related to the criminal law. Evaluation methods will vary depending on the focus of the seminar, however, student evaluations will rely on techniques such as writing and presentations to enhance student presentation skills as well as evaluate their understanding of the course material. Students may take this course twice. This course serves as one of the supporting courses from which students must select 6 credits at the 400-level. It also serves as one of the additional courses from which students must select 18 credits under the Legal Studies Option.

Prerequisite: CRIM 113

CRIM 480H: Honors Research Topics in Crime, Law, and Justice

1 Credits

Supervised experience in planning the honors thesis and a criminological career. In this 1 credit Honors course, criminology students who are in the Schreyer Honors College, who are Criminology majors, and who are in the fall of their Junior year will begin the thesis research process with faculty supervision. The course focuses on a variety of activities and assignments that help students learn about criminological research, become acquainted with Criminology faculty research projects, develop their own research interests, identify potential faculty thesis supervisors,

and develop a concrete idea for their Honors thesis research project in cooperation with a faculty thesis supervisor.

Prerequisites: CRIM 250

Honors

CRIM 481H: Honors Information Literacy in Crime, Law, and Justice

1 Credits

This one-credit seminar is intended for Scholars in the spring semester of their third year who intend to complete their honors thesis in Crime, Law, and Justice. This course surveys the structures of information, patterns of information retrieval, and the resources and technologies used to research topics related to crime, law, and justice. Students complete a series of assignments involving information retrieval and the effective use of information technologies. This includes working with their faculty supervisor and collecting information on the topic they have selected for their honors thesis. At the conclusion of the class, students present a research proposal for their honors thesis, including a review of the relevant literature and a schedule for completing the thesis during their fourth year.

Prerequisites: CRIM 480H

Honors

CRIM 482: Seminar, Criminal Justice Agency Administration

3 Credits

Relates organizational and public policy management approaches to police, courts, and correctional institutions. CRIM (CRIMJ) 482 Seminar, Criminal Justice Agency Administration (3) In this course, you will learn about the nature of criminal justice organizations, individual and group behavior within the system, and the issues involved in reforming the system. This course will NOT teach you how to become an administrator in the criminal justice system, but hopefully will teach you about the issues and theories surrounding organizations and reform- and most importantly, teach you to think and communicate (in both written and verbal form). After taking this course, you should have a more accurate perception of criminal justice organizations and have a better understanding of the complexity surrounding the administration and management of these organizations. Criminal Justice Agency Administration may be counted toward the credits required for the B.A. and B.S. in Crime, Law, and Justice.

Prerequisite: CRIM 100

Cross-listed with: CRIMJ 482

CRIM 490: Crime Policy

3 Credits

This course focuses on criminal justice policy and the factors that influence policy development and implementation. CRIM 490 Crime Policy (3) This class will study crime and criminal justice in the context of law and the development and implementation of public policy. The course will focus on the politics of law and social control by exploring the construction of crime as a social problem, fundamental aspects of the policy development and implementation process, the legal interpretation of public policy, and the role of federal, state, and local governments in crime control. Students will be evaluated on essay exams and a term paper. This course is intended to be a capstone course for advanced undergraduates. The course will draw on the broad range of course work that students will have taken prior to taking this course to develop a

course that takes what we know about crime, the law and the justice system and focus on public policy as it relates to these areas. The course may be used toward the six credits required at the 400 level under Additional Courses or as one of the courses under the Legal Studies Option.

Prerequisite: CRIM 250W or permission from department
Cross-listed with: PPOL 490

CRIM 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

CRIM 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

CRIM 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

CRIM 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Curriculum and Instruction (CI)

CI 105N: Improv Theater, Curriculum & Instruction

3 Credits

This course will engage students in the study and practice of longform improv theatre in ways that will develop their knowledge of the field of curriculum and instruction. At Penn State, we are all familiar with the chant, "We Are!" and the purpose of this course is to learn together about ourselves and our collectiveness through creative performance. Improv theater is the performing art of spontaneous, collaborative, embodied story-telling. It is often presumed to be a comedic art form, and while it is true that there are often joyful moments that arise from shared experiences of surprise or upended expectations, we will be studying the disciplined practice of longform improvisational theater, which consists of more sustained, narrative constructions. In longform improv, creative outcomes are just as likely to be serious, or tragic, or thought-provoking, or any number of emotions, but in all cases: what we create together says something about who "We Are!" to each other as co-performers and as observers. The course will culminate with a public performance. Throughout the course, students will write and reflect on practitioner and academic readings from the field of curriculum and instruction, which are relevant not only to aspiring professionals in education (e.g., Educators preparing to teach in both formal and informal settings, Instructional Leaders, School Administrators, and Athletic Coaches), but also to university students who will benefit from more scholarly-

informed reflection on their own educational experiences. In particular: we will draw from literature on learning theories and epistemologies; curricular approaches to diversity and inclusion; and improvisational pedagogies. We will learn improv theater exercises, but more importantly: we will practice the collective embodiment of an improvisational ethos, such that we develop our skills at affirming difference, embracing risk-taking, vulnerability, and uncertainty, listening without judgment, and attuning to our entanglements with one another. Participants will cultivate skills to be responsive to students and other populations for whom they may be providing care or leadership. These are the skills and practices that contribute to living a wholehearted life-as individuals and as communities.

General Education: Arts (GA)

General Education: Health and Wellness (GHW)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

CI 185: Principles of Social Justice in Education

3 Credits

This course explores the foundations of equity-based educational practices and helps students construct individual working definitions of social justice. The course includes engagement with foundational, historical, and contemporary scholarly and popular literature; guest lecturers from the University and local communities; and multimedia. Students explore tensions between theory and practical application and begin developing a language of critique for considering issues within the world of education. Progress is assessed via a variety of artifacts including self-assessment, guided journal entries, reflection upon campus and community social justice events, and written and oral research reports on a social justice topic of choice. For students interested in the Social Justice in Education minor, the course provides a conceptual foundation and skill set.

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

CI 195: Early Observation Experience for Teacher Preparation

1-2 Credits/Maximum of 2

Early observational work in educational settings with a variety of age/grade levels.

CI 197: Special Topics

1-3 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

CI 200: Peer Tutoring

1 Credits

Prepares students to develop successful practices as a peer tutor.

CI 210: Small Group & One-on-one Tutoring

1 Credits

The course gives students knowledge in one-on-one peer tutoring as well as in a small group setting.

CI 280: Introduction to Teaching English Language Learners

3 Credits

Introduction to language, culture, instruction, assessment, and professionalism as they relate to teaching English Language Learners in U.S. schools. CI 280 Introduction to Teaching English Language Learners (3) (GH) CI 280 focuses on the development of foundational knowledge to successfully assist English language learners in U.S. school contexts. The basic premise of the course is that teachers play an important role in creating a positive classroom learning environment and bringing school success for English language learners. This course is designed to develop essential dispositions, skills, and knowledge for teacher education students to fulfill their important role. Course objectives are to understand culture, language, learning contexts, and pedagogy. Culture focuses on a) sociocultural characteristics of English language learners, b) how English language learners' cultural communication and learning styles affect the learning process, c) how English language learners' cultural values affect their academic achievement and language development, d) negative effect of cultural bias in instruction, materials and assessments, and e) the importance of developing cross-cultural competence in interactions with colleagues, administrators, school and community specialists, students and their families.

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

CI 285: Active Engagement for Social Justice in Education

3 Credits

The course prepares students for pedagogical thinking and active engagement in social justice education in community and school-based contexts. This course is a core class of the Social Justice in Education minor and is taken either together with or subsequent to CI 185, Foundations of Social Justice in Education. It builds on the key theoretical content of the minor's Foundations course, introducing students to the major patterns of thought that have shaped the history of education and curriculum design in the United States, and guiding students through a process of curricular reasoning. Students will engage in argumentation to investigate ways in which theoretical concepts have implications for the design of curricular interventions. Case studies or 'live' examples of social justice-oriented advocacy or educational projects being implemented in the US and abroad will provide a space for analysis and discussion. Students will explore curricular assumptions, identify instructional objectives, and articulate learning outcomes based on the cases they explore. Additionally, an action research project conducted in a classroom or community group will ask students to identify and research a problem, and develop a preliminary plan of action in collaboration with community or school-based stakeholders. Students are introduced to ethnographic data gathering techniques, problem-posing, and pedagogical reasoning and documentation. Team-building, listening and communication skills, and reflective practices are emphasized. A final project encourages students to document and

express their work through visual and digital technologies directed at both their peers and the community partners.

Concurrent Courses: CI 185

CI 288: Foundations of Teaching Multilingual Learners

3 Credits

This course will examine language and its structures and the ways that language mediates learning in classrooms and schools. Our charge in this course will be to better understand the nature of language learning, asking specifically how English as a Second Language (ESL) Program Specialists, in collaboration with content area teachers, can support the holistic learning and success of language learners in ways that value home languages and acquisition of multilingual literacies. Students will develop a critical understanding of foundational concepts related to first and second language acquisition and the development of bilingualism and biliteracy for children and young people. Students will explore English as a language system, including linguistic forms and functions, as well as the fundamentals of early literacy and strategies to build semantic networks across languages and support learners' emergent biliteracy. Analysis of curricular materials at different grade levels will guide students to identify genre and linguistic features and consider how teachers can integrate learning of content and language in lesson plans and larger curricular units. Direct instruction of academic language will be a focus as well as how language mediates learning in content area classrooms. In sum, this course will consider features of language and how to create opportunities for MLs to think analytically, build explanations, and explore conceptual understandings through classroom interactions.

Prerequisite: CI 280

CI 295: Introductory Field Experience for Teacher Preparation

1-3 Credits/Maximum of 6

This introductory teacher preparation course utilizes a variety of field experiences (both observations within secondary school classrooms and individualized tutoring) to engage prospective education majors in issues related to teaching and learning. Students will learn about adolescent learners and elements of socially and emotionally safe classrooms. Inquiry into teacher beliefs as well as student diversity is a focus of the course. Students will be introduced to elements of teacher professionalism and professional identity.

Prerequisites: 2nd Semester Standing Recommended Preparation: Official Clearances Required. See: <http://www.ed.psu.edu/preservice/clearance.htm>

CI 295A: Introductory Field Experience for Teacher Preparation

1-3 Credits

CI 295A is designed to enable students interested in early childhood education as a potential major and career to gain experience observing and assisting in a variety of school and community settings. Students will be engaged in observing as well as tutoring individual children and small groups of children in pre-kindergarten settings as well as in kindergarten through fourth grade settings. As students have not yet been exposed to methods of instructional planning and delivery, their tutoring of individuals and small groups will be carried out under the direct supervision of a professional teacher. Through their observation and participation in these educational settings, students will develop

an awareness of observation as a tool for understanding and analyzing educational environments, teaching and learning. They will develop an understanding of the nature of participant observation as well as a variety of frameworks and strategies that can be used for observation as well as the skills necessary to communicate observations professionally and ethically. Engaging in extended observations in educational settings provides students with an opportunity to enrich and deepen their understanding of a variety of educational concepts that they will encounter in prerequisite or concurrent courses including child development, English language learning and development, principles of human learning, individual differences in human ability including special needs students, cultural diversity, and contemporary issues in education and their impact on childhood educational settings. Finally, CI 295A will provide an opportunity for students to examine childhood education as a future career. They will be introduced to notions of teaching in general as a career as well as to specialized aspects of teaching in both pre-kindergarten and elementary school settings. Students will examine their own biographies as learners and the implications of their biographies for the development of a teacher identity and the potential suitability of childhood education as a career. Students will also be engaged in examining a variety of codes for professional and ethical conduct for educators. Through examining, critiquing and synthesizing these various articulations of professionalism, students will begin the development of a personalized code of ethical, and professional conduct.

Prerequisites: 2nd Semester standing Recommended Preparation: EDPSY 11 or HD FS229 or C I 280 or EDPSY014 or EDTHP115

CI 295B: Introductory Field Experience in Middle Level Education

1-3 Credits/Maximum of 3

C I 295B Introductory Field Experience for Middle Level Education (1-3)CI 295B is designed to enable students interested in middle level education (Grades 4 to 8) as a potential major and career to gain experience observing and assisting in a variety of school settings. Students will be engaged in observing as well as tutoring individual children and small groups of children in middle level educational settings. As students have not yet been exposed to methods of instructional planning and delivery, their tutoring of individuals and small groups will be carried out under the direct supervision of a professional teacher. Through their observation and participation in these educational settings, students will develop an awareness of observation as a tool for understanding and analyzing educational environments, teaching and learning. They will develop an understanding of the nature of participant observation as well as a variety of frameworks and strategies that can be used for observation as well as the skills necessary to communicate observations professionally and ethically. Engaging in extended observations in educational settings provides students with an opportunity to enrich and deepen their understanding of a variety of educational concepts that they will encounter in prerequisite or concurrent courses including child development, English language learning and development, principles of human learning, individual differences in human ability including special needs students, cultural diversity, and contemporary issues in education and their impact on middle level educational settings. Finally, CI 295B will provide an opportunity for students to examine middle level education as a future career. They will be introduced to notions of teaching in general as a career as well as to specialized aspects of teaching in both pre-kindergarten and elementary school settings. Students will examine their own biographies as learners and the implications of their biographies for the development of a teacher identity and the potential suitability of middle level education as a career. Students will also be engaged in

examining a variety of codes for professional and ethical conduct for educators. Through examining, critiquing and synthesizing these various articulations of professionalism, students will begin the development of a personalized code of ethical, and professional conduct.

Prerequisites: Second semester standing

CI 295D: ****SPECIAL TOPICS****

3 Credits

CI 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

CI 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

CI 304N: Food, Farms & Justice: What's Education Got To Do With Them?

3 Credits

This course intends to unite students' minds, hearts, and bodies in an historical, sociological, and experiential exploration of food and farms and their educational possibilities. Students' minds will be engaged as they explore the 20th century history, contributions, and legacy of industrial agriculture and the emergence of alternative approaches related to food and farming in recent decades. Students' hearts will be engaged as they consider their own relationship to food, to soil and place, and to learning. Finally, students' bodies will be engaged as they directly participate in farming/gardening and communal meal preparation and enjoyment. The uniting of mind, heart and body culminates as students become teachers - applying their embodied knowledge in the creation of learning activities that are taught to others. Guiding questions for students' explorations include: (1) How is food - its cultivation, preparation and enjoyment - a cultural, ecological and moral activity? and (2) How might farm/garden based education cultivate abiding relationships between people and their places/communities, their soils, their bodies, and to more just and humane relationships to others? In the first half of the course, students will be introduced to influential writers representing diverse perspectives within the humanities. The aim is that students conduct a reckoning of industrial, large-scale and corporate orientations to agriculture. Why? To discern desirable alternatives that promote the health and well-being of people, soils, and communities. Students will discern a vision of a just, sustainable and meaningful life. In the second half of the course, students apply their understandings of food, farm, justice and sustainability to developing farm/garden based learning experiences for others. To this end students will be introduced to farm/garden based education; constructivist, student-centered learning theories; curriculum development approaches; and the design of performance assessments. Finally, having studied instructional/curricular theory and practice, students will apply their learning through a "field-based" teaching practicum, showcasing their skills in developing farm/garden based curriculum and instruction.

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Soc Resp and Ethic Reason

CI 333: Education and the Student in Recovery

3 Credits

This highly interdisciplinary course provides a broad exploration of how students accomplish abstinent recovery from Alcohol Use Disorders (AUDS) and other Substance Use Disorders (SUDs) in high-risk environments with the support of Recovery High Schools and Collegiate Recovery Programs. In particular, the course examines the problem posed by alcohol and substance use disorders on high school and college campuses, and explains the benefits of expanding the continuum of student health services to include ongoing support for the major lifestyle changes required to sustain recovery from chronic health conditions. Educational environments can pose challenges to students in recovery, and without proper support, students often return to active use of alcohol and other substances, which often invites disastrous life consequences, including educational failure. With the proper supports in place, students often thrive across multiple domains. Recovery High Schools provide access to social systems, coping mechanisms, recreational activities, and pro-recovery peer groups. Collegiate Recovery Programs are expanding rapidly: they are typically low-cost, featuring a small staff, a space on campus in which to meet, a peer-support community, and recovery-protective programming. A growing body of evidence suggests that these programs have very low relapse rates, low attrition, and higher GPAs than their host institutions. The course builds awareness of terminology, especially in relation to stigma-reduction and recovery messaging. It explores various theoretical contexts, including ecological theory and resiliency theory. It explores new paradigms in the management of chronic health conditions, through Recovery-oriented Systems of Care (ROSC) and the expansion of the continuum of care that colleges and universities offer their students to include ongoing support for recovery. Since participation in 12-step recovery programs is very high in RHSs and CRPs, we explore the known mechanisms of 12-step programs such as Alcoholics Anonymous and Narcotics Anonymous. Building on these insights, the role of narrative in making "storied" identity changes is also explored. The course also examines the way in which educational and recovery curricula complement one another to bring about lasting personal transformations. Students will apply their understandings in the course by completing a final project in which they demonstrate various ways that the course content might inform the work of practitioners who work with students in recovery in healthcare, education, and beyond. This course is especially suited for students intending to work in schools and other education-related settings, including Recovery High Schools and Collegiate Recovery Programs.

CI 385: DC Social Justice in Education: Empowering Communities through Transformative Teaching

3 Credits

CI 385 is the first course in a two-part sequence, the "DC Social Justice in Education Experience." This course is ordinarily followed by a two-week teaching internship in Washington, DC (CI 395). Together, these courses aim to increase students' capacity to understand diversity issues, while living and working in diverse, multicultural residential settings and workplaces. The experience infuses diversity issues, topics, and perspectives into a sequence for undergraduates that focuses on the skill set necessary for advocacy in educational equity and social justice.

It is a hands-on experience that delivers a service learning opportunity for Penn State students to work with diverse, underserved communities in the District of Columbia. CI 385 is a required preparatory course for students who want to participate in the Washington DC CI 395 internship, and students are expected to enroll in CI 395 upon successful completion (a grade of a C or better) of CI 385.

CI 387: Education, Culture, and Society in Brazil and Colombia

3 Credits

Given the increasing need to instill students with global perspectives, students from a range of backgrounds and academic majors will benefit from an in-depth exploration of the educational systems, cultures, and societies of Brazil and Colombia – additionally, the course may also prepare students for (optional) summer travel to Brazil and/ or Colombia (provided they are interested in either of both of those opportunities). Students are invited to use their emerging understandings to reflect upon the U.S. educational system, its culture, and its society. Throughout the course, students will examine the structure of educational systems, educational policy, educational inequality across nations, education as a constitutional right, colonial histories, Dependency Theory, government corruption, urban and rural environments, labor issues, economics (i.e. Marxism, socialism, communism, inflation, currency devaluation, neoliberalism), politics, Colombia's ongoing civil war, and Brazilian culture (including music, beauty obsession, and sports). In addition, the course also provides a grounding in basic travel skills and basic Portuguese. Although the course's main emphasis is on education, students from a broad variety of backgrounds and educational interests are encouraged to enroll, since they are likely to find a broad array of topics that will increase their international acumen considerably.

Honors

CI 388: Sociopolitical Contexts of Teaching Multilingual Learners

3 Credits

This course will examine the micro-level experiences of language learners and macro-sociopolitical context in which they are embedded. This course will prepare English as a Second (ESL) Program Specialists to better understand political and social dynamics shaping the experiences of culturally and linguistically diverse students. As such, ESL Program Specialists will develop a strong understanding of the technical qualities of formalized and standardized assessment, and the potential biases they hold in relation to multilingual populations. This course will discuss alternative forms of assessments that can inform curriculum and instruction. Professional resources and organizations at the state, national and international levels will be explored to help teachers with their future career development. As a result, this course will help build ESL Program Specialists' capacity to collaborate with other educators and school personnel, advocate on behalf of MLs, and partner with families and communities to support MLs.

Prerequisite: CI 280

CI 395: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, non-group instruction including field experiences, practica, or internships. Written and oral critique of activity required.

CI 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

CI 400: Introduction to Research Literature

3 Credits

Introduction to research literature and methodology; stress on interpretation, sources, and research reporting.

Prerequisites: 6th Semester standing or Graduate Status

CI 405: Strategies in Classroom Management

3 Credits/Maximum of 3

Managing and coping with disruptive student behavior in instructional settings so that they support the teaching/learning process. EDLDR 405 / CI 405 Strategies in Classroom Management (3) This course has been designed to engage students in in-depth examination of the process of creating and sustaining a classroom learning community that fosters and enables success for all children. Emphasis is placed on understanding a variety of theoretical models of classroom management as well as observing and studying individual children to develop a better understanding of their needs. The result should be the development of a coherent set of beliefs concerning the creation of classroom learning environments that support learners and meet their individual needs.

Concurrent Courses: CI 495A; CI 495B; CI 495C; Non Degree Graduate Status or Graduate Status

CI 444: Writing Support for IUG and Honors Scholars

3 Credits

The purpose of this course is to support IUG/Reading Specialist MED students in writing their Master's papers as well as Schreyer Honors Scholars in The College of Education writing their Honors theses. The course provides an overview to the conventions of academic writing, and divides a major task into manageable sections. This class walks students through each section, provides models, and engages students in the actual practice of writing. Substantial working time is dedicated to writing the thesis. Students often have more faith in their ability to structure writing time into their week than is actually warranted. This course provides structured writing time, and students work in close proximity to other writers and to instructor feedback.

Prerequisite: 4th Semester Standing Honors

CI 460: The Creative Child

3 Credits

This course will explore the relationships among the various arts and material inquiries and learning for children in the preschool and elementary years via research, theory, and pedagogical application. CI 460 is one component in the PSU teacher education program that is unified by the basic set of principles supporting the development of a broader and more inclusive understanding of texts, art, children, and communities. Students will learn about theories of child art, creativity, and multimodal learning as they engage in their own creative processes

and plan to integrate the creative arts in early childhood and elementary classrooms.

Prerequisites: CI 295A and EDTHP 115

CI 485: Social Justice in Education Capstone Course

3 Credits

This capstone course is a culminating experience taken at the end of the Social Justice in Education minor. In this course, students apply theory toward action and develop meaningful partnerships with an appropriate community. It provides students the opportunity to revisit major ideas and themes learned during minor coursework. In doing so, students reflect on their learning journeys, synthesize key understandings, and complete a community-oriented project. Key components of the capstone project include manifesting theories into action; developing meaningful partnerships with community stakeholders; advocating for educational equity; and designing and implementing justice-focused curriculum for schools, community-based educational programs, or other non-traditional educational settings. Students will assess community needs, while working collaboratively to prepare a civic action plan/local initiative. Upon completion of the capstone experience, students present their final reflections to colleagues - presentations that examine their growth throughout their studies and lay out their trajectories as advocates for social justice in education.

Prerequisites: CI 185, CI 285 and one course from the list below AEE 100; AFAM 103; AFAM 431; AFAM 492; BBH 446; CED 375; CIED 440; CMLIT 100; CRIMJ 230; CRIM 453; EDTHP 200; EDTHP 440; ENGL 245; GLIS 101; GLIS 102; HDFS 410; PHIL 437; PLSC 428; PLSC 451

CI 488: Designing Assessment and Curriculum for Multilingual Learners

3 Credits

English as a Second Language (ESL) Program Specialists play multiple roles in schools and classrooms. They collaborate with classroom teachers to identify and assess newcomers, assist in the adjustment of new students into the school and classroom, and most importantly, build a caring and pedagogically sound classroom environment for multilingual learners (MLs). In this course, our focus will be on how teachers can design and implement a curriculum that integrates language and content-area learning. The course will prepare ESL Program Specialists to better attend and develop MLs' literacy skills while engaging them in rigorous grade-level curriculum to meet Pennsylvania content and English language development standards. The course will cover topics such as linguistic differentiation, translanguaging pedagogies, classroom discourse practices, multimodal learning strategies, and ongoing formative assessments.

Prerequisite: CI 280 Recommended Preparations: CI 288 and CI 388

CI 492: Identities, Power and Perceptual Pedagogies in Teaching and Learning

3 Credits

Students will perform inquiries into the intersections of identities, power, and pedagogical formations in relation to urban teaching/learning contexts. AFAM 492 / CI 492 / EDTHP 492 Identities, Power and Perceptual Pedagogies in Teaching and Learning (3) In this course, students will take part in inquiries into the intersections of identities, power, and perceptual pedagogies, particularly as these phenomena pertain to methods of teaching and learning in urban contexts. To

develop new knowledge and analytic skills, students will be introduced to perceptual and conceptual frameworks that assist deep engagements with youth- and teacher-centered case studies. These cases will depict actual lived experiences among racially and economically diverse students and teachers in urban contexts.

Prerequisite: 5th semester standing
Cross-listed with: AFAM 492, EDTHP 492

CI 495: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Prerequisites: 7th Semester standing

CI 495A: Clinical Application of Instruction - PK-4

1-6 Credits/Maximum of 6

Practicum situation for demonstration of selected instructional strategies and management skills acquired in professional training.

Recommended Preparation: Official clearances required. See: <http://www.ed.psu.edu/preservice/clearance.htm>; Suggested concurrent: regular professional methods courses in area of certification.

CI 495B: Clinical Application of Instruction - Middle Level Education

3-15 Credits/Maximum of 15

CI 495B Clinical Application of Instruction—Elementary and Kindergarten Education (3) CI 495B for Middle Level Education is a full-time teaching practicum. It provides an opportunity for teacher candidates to integrate concepts, theories, and ideas from their coursework. Specifically, CI 495B engages candidates in examining 1) what it means to be a professional and establish professional relationships with colleagues, students, and families, 2) how to use various tools (e.g., observation, writing, reflection, teaching, case studies, etc.) that are available to them in learning to be a teacher, 3) how to make connections across the various courses and experiences they are taking during the semester, and 4) how effectively they are developing their knowledge and skills as a beginning teacher and what sources of evidence they should use in judging their effectiveness. Teacher candidates in CI 495B are expected to achieve desired outcomes in four domains: 1) planning and preparing for student learning, 2) teacher, 3) inquiry and analysis of teaching and learning, and 4) fulfilling professional responsibilities. CI 495B is a part of a block of courses in a PSU teacher education program that is unified by a basic set of principles and a field experience component.

Prerequisites: Admission to Middle Level Education Major

CI 495C: Clinical Application of Instruction – Secondary Education

3 Credits

This is a pre-student teaching field experience and seminar for secondary education and world languages majors that is taken in the same semester with a discipline-specific methods class. The course takes place in 7th-12th grade classrooms and in seminars with university supervisors where students apply, extend, and reflect on concepts, questions, theories, and models of teaching studied in the university-based methods courses. Throughout the semester, students are engaged in weekly sessions on the university campus providing

instructional support on professional behavior, ethics, school culture, time management, motivation, portfolio development, lesson planning, writing objectives, questioning techniques, formative and summative assessments, instructional strategies, differentiated instruction, and classroom management.

Prerequisites: CI 295, EDPSY 14 Corequisites: LLED 412W; MTHED 412W; SCIED 412; SSED 412W Recommended Preparation: Official Clearances Required. See: <http://www.ed.psu.edu/preservice/clearance.htm>

CI 495D: Practicum in Student Teaching—Childhood and Early Adolescent Education

12 Credits/Maximum of 12

Full-time classroom instruction in elementary and early childhood education. Students supervised by University personnel and practicing teachers. No corequisite courses other than CI 495F permitted.

Prerequisites: 7th Semester standing and CI 495A; CI 495B; Corequisites: CI 495F Recommended Preparation: Official clearances required. See: <http://www.ed.psu.edu/preservice/clearance.htm> Take concurrently with CI 495F

CI 495E: Practicum in Student Teaching—Secondary Education

15 Credits

Full-time classroom instruction in secondary education. Students supervised by university personnel and practicing teachers.

Prerequisites: LLED 412W; MTHED 412W; SCIED 412; SSED 412W, CI 495C, 7th Semester standing Recommended Preparation: Grades of C or higher are required in all specified and professional courses. No courses may be taken concurrently, other than those speci

CI 495F: Professional Development Practicum

3 Credits/Maximum of 3

Instruction concurrent with student teaching practicum. Students focus on the solution of instructional problems identified at the practicum site.

Prerequisites: 7th Semester standing; COREQUISITE: CI 495D; Recommended Preparation: Official clearances required. See: <http://www.ed.psu.edu/preservice/clearance.htm>

CI 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

CI 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

CI 497N: Special Topics - Inter Domain

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest. This Special Topics is an Inter-Domain GenEd course

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

Cybersecurity Analytics and Operations (CYBER)

CYBER 99: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

CYBER 100: Computer Systems Literacy

3 Credits

This is an introductory university-level course in computer systems literacy. The history, architecture and operation of computing systems and underlying computing theory are covered. The intent of this course is to ensure that students with diverse backgrounds can gain the information technology fundamental skills and understanding to succeed with subsequent in-depth courses in the Cybersecurity Analytics and Operations curriculum. At the same time the general nature of the introduction may make it useful for other programs that involve education in concepts and skills relating to information and computing systems.

CYBER 100S: Computer Systems Literacy

3 Credits

This is an introductory university-level course in computer systems literacy. The history, architecture and operation of computing systems and underlying computing theory are covered. The intent of this course is to ensure that students with diverse backgrounds can gain the information technology fundamental skills and understanding to succeed with subsequent in-depth courses in the Cybersecurity Analytics and Operations curriculum. At the same time the general nature of the introduction may make it useful for other programs that involve education in concepts and skills relating to information and computing systems.

First-Year Seminar

CYBER 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

CYBER 262: Cyber-Defense Studio

3 Credits

This studio course teaches four basic hands-on cyber-defense skills: configuring a firewall, implementing a host-based intrusion detection software tool, using the Metasploit tool to do penetration testing, and implementing a network intrusion detection tool. The first cyber-defense skill is on configuring an ACL (Access Control List) firewall. This module provides the students with a practical exercise applying their analytical skills to properly configure the ACL of a firewall and to verify the correctness of their firewall configurations. Through this exercise, the students also learn firewall oriented network security policies. The second cyber-defense skill is on implementing a host-based intrusion detection software tool which can detect suspicious user sessions on a computer. This module provides the students with a practical exercise applying their programming skills to solve anomaly detection problems. The third cyber-defense skill is on using the Metasploit tool to do penetration testing. This module provides the students with a practical exercise applying their programming skills to do penetration testing. The fourth cyber-defense skill is on implementing a network intrusion detection software tool which can detect suspicious network flows. This module provides the students with a practical exercise applying their programming skills to solve signature-based intrusion detection problems

Enforced Prerequisite at Enrollment: (CYBER 100 or CYBER 100S) and (IST 140 or CMPSC 121 or CMPSC 131)

CYBER 294: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

CYBER 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

CYBER 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses offered infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

CYBER 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

CYBER 342W: Cyber Incident Handling and Response

3 Credits

Cyber Incident Handling and Response is an intermediate course appropriate for students who are majoring in Cybersecurity. This course provides the student with the background, experience and perspective that is required to document organizational preparation for cyber incidents, document cyber incident impact and resolution, document response strategies, as well as integrate business continuity

planning into the organization. This is a writing intensive course, which requires each student to individually document cyber security incidents and communicate the impact of those incidents to the organization. Peer writing evaluation will help students to consider how effective their written communication skills are. Team writing assignments will provide students with the real-world experience of writing portions of organizational documents such as preparedness documentation, documenting the organization of computer incident response teams, documenting organizational disaster recovery plans, and documenting post-incident recovery plans. Students will receive peer feedback on their writing assignments, as well as direct feedback from the instructor with a goal of improving writing skills and conforming their writing styles to the expectations of organizations and industry.

Enforced Prerequisite at Enrollment: CYBER 262 and SRA 221 and SRA 231

Writing Across the Curriculum

CYBER 362: Cybersecurity Analytics Studio

3 Credits

Cyberattacks involve advanced and sophisticated techniques to infiltrate corporate computers, networks and enterprise systems and critical infrastructures. Types of attacks include advanced malware, zero day attacks and advanced persistent threats. Advance warning about attackers and intelligence about the threat landscape is considered by many security leaders to be essential features in cyber-defense. The massive increase in the rate of novel cyberattacks has made data-mining-based analytics techniques a critical component in detecting security threats. Big data analytics in security involves the ability to gather massive amounts of digital information to analyze, visualize and draw insights that can make it possible to predict and stop cyberattacks. This studio course teaches fundamental data-driven cybersecurity analytics skills using programming skills acquired in earlier courses. The course will be divided into three modules. The first module prepares students for security analytics, by refreshing or making them familiar with two popular data analytics programming languages (e.g., R and Python). The second module focuses on understanding the key cybersecurity analytics process including data exploration, data visualization and data preparation and examining popular data mining algorithms such as linear and logistic regression, decision trees, support vector machine, and neural networks and similar techniques for security analytics. In the third module, students use analytics process and methods for selected cybersecurity problems, such as security breaches, ZeroAccess Infection, Log Analytics, Access Analytics and Web Hacking Analytics. Through this studio course, the students will gain concrete understanding of security analytics processes, methodologies and how to apply these concepts and tools to real-world cybersecurity. A major component of the course will be several hands-on exercises and a final team-based project. Hands-on exercises provide students with knowledge, skills and hands-on experience of learning security analytics process and methodologies to address security problems. The team-based project allows students to apply what they have learned to address real world security threat. This course will incorporate collaborative and action-learning experiences wherever appropriate. Emphasis will be placed on developing and practicing writing and speaking skills through application of the concepts, theories and technologies that define the course.

Enforced Prerequisite at Enrollment: (STAT 200 or SCM 200) and (IST 256 or IST 261 or IST 361) and CYBER 262

CYBER 366: Malware Analytics

3 Credits

Malware Analytics is an intermediate course required for students who are majoring in Cybersecurity Analytics and Operations. It is a three-credit hands-on course that teaches principles and practice of malware detection, analysis, and defense. The course begins by introducing the foundations of malware, including history, vulnerability, types, analysis methods, and defenses. It then builds on this foundation by teaching students how to address malware issues using analysis techniques such as reverse engineering and static program analysis, as well as how to use analytic approaches such as automatic malware trace classification and clustering. The course relies extensively on hands-on laboratory activities to help students obtain practical experience in malware analysis and analytics. Through this course, the students will gain concrete understandings on principles and practices of malware analysis and defense.

Enforced Prerequisite at Enrollment: (IST 256 or IST 261 or IST 311) and CYBER 262

CYBER 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

CYBER 440: Cybersecurity Capstone

3 Credits

Cybersecurity Capstone is an advanced, culminating course for students who are majoring in Cybersecurity. This course provides the student with a practical exercise, designed by the instructor. The initial weeks of the semester provide the student with an overview of several analytic frameworks that are used in cybersecurity shops and organizations. Then, the student reviews specific technical analysis methods in malware, static and dynamic analysis, file system exploration, security log file analysis and network analysis. The findings from these analyses are then integrated into the analytic framework, gaps are identified, further analysis is conducted to fill the gaps. In the final weeks of the semester, students construct a high level briefing that supplies appropriate levels of technical detail to top level executives.

Enforced Prerequisite at Enrollment: CYBER 342W and (ENGL 202C or ENGL 202D or IST 489) and 7th semester standing

CYBER 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

CYBER 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

CYBER 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses offered infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

CYBER 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Dance (DANCE)

DANCE 100: Dance Appreciation

3 Credits

Explore dance as a vital, communicative and performing art, reflecting social values and cultural beliefs. DANCE 100 Dance Appreciation (3) (GA;US;IL)(BA) This course meets the Bachelor of Arts degree requirements. An introduction to dance as a vital, communicative and performing art reflecting social values and cultural beliefs. Through a combination of lectures, video samples, and active participation in scheduled movement classes, lecture demonstrations and live performances, this course will examine a wide range of dance across cultures and time periods. Students will learn to identify the key components of movement: time, space, shape and effort. Once identified, these elements will become the building blocks for further analysis and understanding of the myriad forms of movement that can be called dance. Emphasis will be placed on the integration of dance within various cultural belief systems and the relationship between dance and cultural identity. The influence of social and political values as they relate to the development of specific dance forms will also be examined. Students will be graded on their ability to clearly and intelligently articulate their observations and analysis through participation in threaded discussions and online quizzes. Students will also be graded on their level of participation in scheduled movement classes, lecture demonstrations and attendance at live performances. The mid-term and final exams will assess the student's ability to integrate and synthesize the experiential components of the course.

Bachelor of Arts: Arts

International Cultures (IL)

United States Cultures (US)

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

DANCE 170: Dance Conditioning

1.5 Credits/Maximum of 3

This course is designed to improve technique through strengthening, toning, improving coordination, increasing balance, and helping alignment. The course also addresses common areas of injury. Dance Conditioning is designed to enhance the efficiency of movement and body usage by applying a mind-body for increasing strength and flexibility in the body. Dance is both athletics and an art form, and equal training is essential for both. This course applies the tools and principles of

athletic dance training to health and fitness for the non-dancer to achieve efficient and effective usage of the body while increasing well-being. In addition to increased strength, muscle tone, and flexibility the Kinesthetic and proprioceptive senses are developed resulting in greater balance, coordination, and dynamic alignment. The course completes with the creation of a Personal Practice.

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

DANCE 199: Dance Foreign Study

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

DANCE 220: Mojah Fusion Dance

1.5 Credits/Maximum of 3

Mojah introduces intermediate/advanced level dance students to a unique dance technique that blends Horton, Dunham, West African and jazz movements in one form. DANCE 220 Mojah Fusion Dance (1.5 per semester/maximum of 3) DANCE 282 is an introduction to the Mojah dance form. Moja is a Swahili term meaning one. Mojah fuses various forms to create a unique style of modern African dance that blends Horton, Dunham, West African and jazz movements into one form. The objectives of the course include: learning/executing Mojah terminology and technique; and learning/executing the techniques from which Mojah is derived. Mojah is a dance course and is directly related to other dance courses, theatre/arts courses and African American studies courses.

Enforced Prerequisite at Enrollment: DANCE 222 or DANCE 230 or DANCE 231 or DANCE 240 or DANCE 241 or DANCE 261

DANCE 221: Introduction to African Dance and Culture

1.5 Credits

Africa, with its diverse people, languages, and history has a rich cultural foundation that includes many artistic elements including music, dance, folk tales, poems, graphic/plastic arts, mask making and more. According to Lynne Emery, author of Black Dance in America, "music and dance are two of the most highly developed of the arts and the complexities of African rhythmic structure. . . dance is a fundamental element of African aesthetic expression that historically was recreational and secular, but in one form or another pervaded all of African life." This course will introduce you to traditional West African based dance movements and culture. The course focuses on integrating music, movement, drama, costume, and vocalization.

DANCE 222: Beginning Hip Hop Dance

1 Credits

Beginning Hip Hop dance introduces the student to Hip Hop culture through dance, free expression with the body/freestyle and choreography. DANCE 222 Beginning Hip Hop Dance (1) Hip Hop dance is designed for students with an interest in Hip Hop dance/culture. This class introduces students to Hip Hop through movement that includes freestyle dancing, locomotive movements, and choreography. In addition, this class includes lecture sessions and discussions about Hip Hop culture and its role in society. This course seeks to introduce students to a

culturally significant art form, enhance mind/body awareness, and provide practical opportunities for students to apply skills learned in class via performances. This course is directly related to dance, theatre, African American history and other arts based and humanities based courses.

DANCE 225: Introduction to Hip Hop

1.5 Credits/Maximum of 6

Introduction to Hip Hop. Dance 225 Intro to Hip Hop (1.5 per semester/maximum of 6) (GA) (BA) This course meets the Bachelor of Arts degree requirements. Dance 225 is an introduction to Hip Hop and the many elements of this genre of dance. The course is designed for any student with an interest in Hip Hop. This class explores the many influences and components of Hip Hop developed through history. Emphasis is placed on the development of technique, expression, and performance. Each semester the student will be introduced to different aspects of Hip Hop which will require an increasing awareness of Hip Hop and its' impact on all of dance. Technique classes will be supported through viewing historical and contemporary dance footage. In every class, daily movement experiences will be introduced to build coordination, self-awareness, strength and flexibility, as well as the understanding of the Hip Hop genre of dance.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

DANCE 230: Ballet

1.5 Credits/Maximum of 6

An exploration of Ballet technique. DANCE 230 Ballet (1.5 per semester/maximum of 6) (GA)(BA) This course meets the Bachelor of Arts degree requirements. DANCE 230 is an exploration of Ballet technique. The course is designed for any student with an interest in Ballet and to support the Dance Studies Minor. This class explores the many styles and genres of Ballet developed through history. Emphasis is placed on the development of a strong technique, vocabulary, and performance. Ballet, as a technique class, has at its core, increasing the strength, alignment and flexibility of each dancer. Each semester, the dancer will be introduced to different aspects of ballet which will require an increasing awareness of ballet and its' impact on all of dance. Technique classes will be supported through viewing historical and contemporary dance footage. In every class, daily movement experiences will be introduced to build coordination, flexibility and strength, as well as the understanding of the ballet technique. These experiences will take place at the barre, in the center floor, adagios and allegros, and culminate in a combination of all these experiences in a combination to develop their potential as a performer.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

DANCE 231: Beginning Ballet I

1.5 Credits

An introduction to the techniques of ballet. DANCE 231 Beginning Ballet I (1)In DANCE 231, the student will learn the basics of ballet. These include the structure of a ballet class and the required focus and behavior of the successful student, as well as the fundamental positions and vocabulary of movement characteristic of ballet. The course is designed for any beginning student of ballet and, in particular, to instruct the first-year BFA Music Theatre candidate with a foundation of technique to support their success in the prescribed sequence of dance courses in that major. The student will be introduced to alignment exercises from the Zena Rommett floor barre technique and the Pilates technique to develop strength and flexibility in their execution of dance. The course also is designed to help the student develop greater physical self-awareness and discipline. The student's grade is determined by their attendance, attitude, and progress. More than three absences or lateness will affect the grade. Their attitude should be positive, receptive to correction, and exhibit an eagerness to work, and their progress should reflect growth in their abilities to perform the choreography and to know the terms used. The student will be required to identify and explain the meaning of the terms used in class, as well as perform choreography with confidence and a sense of character. This course serves as a prerequisite for DANCE 232. Together, these two semesters satisfy requirements for the BFA Music Theatre option and can also fulfill optional requirements for the Dance Minor. For the BFA Music Theatre candidates: part of the final exam for this course will be a performance juried by members of the School of Theatre Performance Faculty. Their evaluation will help to determine whether the candidate may be allowed to enroll into the next level of the performance course sequence. Required dress for this course for women is black leotard, pink or tan tights, pink ballet shoes and for men is black tights, white t-shirt, black ballet shoes, and dance belt. Belts, suspenders, leg warmers are optional. Sweat clothes are not to be worn. All hair must be secured so that it cannot fly into the face.

Enforced Prerequisite at Enrollment: Admission into THRMT_BFA major

DANCE 232: Beginning Ballet II

1.5 Credits

A continuation of Beginning Ballet I to augment technical proficiency. DANCE 232 Beginning Ballet II (1)DANCE 232 allows the student who has successfully completed DANCE 231 to continue broadening their knowledge of fundamental movements in ballet. The barre warm-up and the center floor work is more demanding and challenges the student to learn the combinations of movement quicker. Choreography is more complex, involving more different kinds of turns, large jumps, and adding beats to the petit allegro. Adagios are longer and demand more stamina to sustain. The ability to communicate character and mood through dance is emphasized more strongly. The student will deepen their knowledge of the Zena Rommett floor barre techniques and Pilates techniques to develop more strength and flexibility. The development of increased self-awareness and discipline is stressed. The student's grade is determined by their attendance, attitude, and progress. Also, to supplement their understanding of the variety of ways ballet can be performed, the student is required to write two papers, expressing their reactions to two different dance concerts viewed during the semester. Classical ballet concerts are preferred, but the student is encouraged to consult the instructor concerning a performance they are interested in viewing. Dates will be designated for the completion of these papers. No late papers will be accepted. Attendance is mandatory; more than

three absences or lateness will affect the grade. The attitude should be positive, receptive to correction, and exhibit an eagerness to work, and the student's progress should reflect growth in their ability to perform the choreography and to know the terms used. The student will be required to identify and explain the meaning of the terms used in class, as well as perform choreography with confidence and a sense of character. Students enrolling in this course should have successfully complete DANCE 231 or have received the permission of the instructor. For the BFA Music Theatre candidate, this course serves as a prerequisite for DANCE 241, Beginning Jazz I. Part of the final exam for this course will be a performance juried by members of the School of Theatre Performance Faculty. Their evaluation will help to determine whether the candidate may be allowed to enroll into the next level of the performance course sequence. Required dress for this course for women is black leotard, pink or tan tights, pink ballet shoes and for men is black tights, white t-shirt, black ballet shoes, and dance belt. Belts, suspenders, leg warmers are optional. Sweat clothes are not to be worn. All hair must be secured so that it cannot fly into the face.

Enforced Prerequisite at Enrollment: DANCE 231 and DANCE 230

DANCE 240: Jazz Dance

1.5 Credits/Maximum of 6

An exploration of jazz dance technique throughout history. DANCE 240 Jazz Dance (1.5 per semester/maximum of 6) (GA) (BA) This course meets the Bachelor of Arts degree requirements. DANCE 240 is an exploration of Jazz Dance. The course is designed for any student with an interest in Jazz Dance and to support the Dance Studies Minor. This class explores the many styles and genres of jazz dance developed through American history. Emphasis is placed on the development of a personal jazz dance style, exploration, and self-expression. Jazz dance, as a technique class, has at its core, increasing the strength, alignment and flexibility of each dancer. Each semester the dancer will be introduced to different styles of jazz which will require a changing perspective of the body and its' movement. Movement classes will be supported through viewing a variety of the dance styles being studied. In each style, daily movement experiences will be introduced to build coordination, flexibility and strength, as well as the understanding of the particular jazz dance idiom. These experiences will take place in the center floor, across the floor accumulations, and culminate in a combination of all these experiences in a dance to develop their potential as a performer. Connections to the social aspect of jazz dance will be consistently addressed, as all dance forms are vernacular in origin. Jazz dance, being a true American dance form, has its roots in the late 1800's and early 1900's with a pre-history in Africa and West Indies. The desire for self-expression through physical movement drove the dance form to a formal art expression on the concert stage. This connection to the vernacular has been maintained in the jazz dance idiom. The exploration in Jazz Dance emphasizes the individual expression through movement in response to music particular to the style being presented in each semester.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

DANCE 241: Beginning Jazz I

1.5 Credits

An introduction to the techniques of Jazz dance. DANCE 241 Beginning Jazz I (1)DANCE 241 is an introduction to basic jazz techniques. The course is designed for any beginning student with an interest in jazz dance, those who are BFA Music Theater candidates, and Dance Minors. The work will include awareness of space as related to the barre, floor, other dancers, and environment. The student will learn basic jazz dance vocabulary as well as the awareness of space to stage elements such as audience, direction, focus, and energy. The student's grade will be based on attendance, attitude, and progress of learning and performing dance combinations. More than three absences or lateness will affect the grade. Maintaining a positive attitude, proper discipline, and willingness to work and learn are essential. The student is required to perform individual rehearsal hours (as homework). Students are responsible for learning and executing all material taught in class. This course serves as a prerequisite for DANCE 242. Together, the two semesters of jazz satisfy requirements for the BFA Music Theater option and the Dance Minor. The BFA Music Theater student will be juried by the School of Theatre Performance Faculty as a part of their final grade. The jury will consist of a showing of the pieces taught in class. This evaluation will help to determine whether the candidate may be allowed to enroll into the next level of the performance sequence. The required dress for men: Jazz shoes, t-shirt or muscle shirt, dance belt, Jazz pants or tights. For women: Jazz shoes, leotard and tights (possible character shoes).

Enforced Prerequisite at Enrollment: DANCE 232

DANCE 242: Beginning Jazz II

1.5 Credits

A continuation of Beginning Jazz I to augment technical proficiency. DANCE 242 Beginning Jazz II (1)DANCE 242 allows the student who has successfully completed DANCE 241 to continue to broaden their knowledge of beginning jazz dance. The course will emphasize a broader dance vocabulary and more complex dance combinations. The repetition and rehearsal techniques will be reinforced and intensified. The ability to communicate character and setting through dance is strongly emphasized. The student's grade will be based on attendance, attitude, and progress of learning and performing dance combinations. More than three absences and lateness will affect the grade. Maintaining a positive attitude, proper discipline, and willingness to work and learn are essential. The student is required to perform individual rehearsal hours (as homework). Students are responsible for learning and executing all material taught in class. Students enrolling in this course should have successfully completed DANCE 241 or have permission of the instructor. JAZZ 242 satisfies requirements for the BFA Music Theater option and the Dance Minor. The BFA Music Theater student will be juried by the School of Theatre Performance Faculty as a part of their final grade. The jury will consist of a showing of the pieces taught in class. This evaluation will help to determine whether the candidate may be allowed to enroll into the next level of the performance sequence. The required dress for men: Jazz shoes, t-shirt or muscle shirt, dance belt, Jazz pants or tights. For women: Jazz shoes, leotard and tights (possible character shoes).

Enforced Prerequisite at Enrollment: DANCE 241

DANCE 250: Tap Dance

1.5 Credits/Maximum of 6

An exploration of tap dance technique throughout history. DANCE 250 Tap Dance (1.5 per semester/maximum of 6) (GA)(BA) This course meets the Bachelor of Arts degree requirements. DANCE 250 is an exploration of Tap Dance. The course is designed for any student with an interest in Tap Dance and to support the Dance Studies Minor. This class explores the many styles and genres of Tap Dance developed through American history. Emphasis is placed upon the understanding of the origins of tap, exploration, and self-expression. Tap Dance is grounded in rhythm, exploration and importance of improvisation and origins with a focus on the entertainment component. DANCE 250 will introduce the dancer to different styles of tap, which will require a changing perspective of rhythm and expression. In each style, daily movement experiences will be introduced to build coordination, stamina and flexibility with rhythms, as well as the understanding of the particular historical aspect of Tap Dance. These experiences will take place in the center floor, across the floor accumulations, and culminate in a combination of all these experiences in a dance to develop their potential as a performer. The origins and influences of tap are rich and deep, imbedded in the history of the country and the people. The richness of this history allows the dancer to take on a personal and individual style important to the further development of tap and dance in general. Tap Dance will emphasize this importance and assist the student in their exploration of this dance form.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

DANCE 251: Beginning Tap I

1.5 Credits

An introduction to the technique of tap dance. DANCE 251 Beginning Tap I (1) DANCE 251 is an introduction to basic tap techniques. The course is designed for any beginning student with an interest in tap dance, those who are BFA Music Theater candidates, and Dance Minors. The work will include awareness of space, sound, rhythm, and tempo. The work will also introduce counting, executing rhythm, and developing confidence for a beginner level tap dancer. The student will learn basic tap vocabulary as well as the awareness of space and stage elements such as audience, direction, focus, and energy. The student's grade will be based on attendance, attitude, and progress of learning and performing dance combinations. More than three absences or lateness will affect the grade. Maintaining a positive attitude, proper discipline, and willingness to work and learn are essential. The student is required to perform individual rehearsal hours (as homework). Students are responsible for learning and executing all material taught in class. This course serves as a prerequisite for DANCE 252. Together, the two semesters of jazz satisfy requirements for the BFA Music Theater option and the Dance Minor. The BFA Music Theater student will be juried by the School of Theatre Performance Faculty as a part of their final grade. The jury will consist of a showing of the pieces taught in class. This evaluation will help to determine whether the candidate may be allowed to enroll into the next level of the performance sequence. The required dress for men: tap shoes, or hard soled shoes with taps attached. T-shirt or muscle shirt, dance belt, Jazz pants or tights. For women: tap shoes, leotard and tights

(possible character tap shoes). The clothing must allow movement, and still be able to distinguish an outline of the dancer's body.

Enforced Prerequisite at Enrollment: DANCE 232 or DANCE 250**DANCE 252: Beginning Tap II**

1.5 Credits

A continuation of Beginning Tap I to augment technical proficiency. DANCE 252 Beginning Tap II (1) DANCE 252 allows the student who has successfully completed DANCE 251 to continue to broaden their knowledge of beginning tap dance. The course will emphasize a broader dance vocabulary and more complex dance combinations. The repetition and rehearsal techniques will be reinforced and intensified. The ability to communicate character and setting through dance is strongly emphasized. The student's grade will be based on attendance, attitude, and progress of learning and performing dance combinations. More than three absences or lateness will affect the grade. Maintaining a positive attitude, proper discipline, and willingness to work and learn are essential. The student is required to perform individual rehearsal hours (as homework). They are responsible for learning and executing all material taught in class. Students enrolling in this course should have successfully completed DANCE 251 or have permission of the instructor. Tap DANCE 252 satisfies requirements for the BFA Music Theater option and the Dance Minor. The BFA Music Theater student will be juried by the School of Theatre Performance Faculty as part of their final grade. The jury will consist of a showing of the pieces taught in class. This evaluation will help to determine whether the candidate may be allowed to enroll into the next level of the performance sequence. The required dress for men: tap shoes, or hard soled shoes with taps attached. T-shirt or muscle shirt, dance belt, Jazz pants or tights. For women: tap shoes, leotard and tights (possible character tap shoes). The clothing must allow movement, and still be able to distinguish an outline of the dancer's body.

Enforced Prerequisite at Enrollment: DANCE 251**DANCE 260: Introduction to Modern Dance**

1.5 Credits/Maximum of 6

Introduction to Modern Dance. DANCE 260 Intro to Modern Dance (1.5 per semester/maximum of 6) (GA) (BA) This course meets the Bachelor of Arts degree requirements. DANCE 260 is an introduction to modern dance and the many elements of this vast form of dance. The course is designed for any student with an interest in Modern Dance and to support the Dance Studies Minor. This class explores the many influences and components of modern dance developed through history. Emphasis is placed on the development of strong technique, performance and exploration. Each semester the dance will be introduced to different aspects of modern dance which will require increasing awareness of modern dance and its' impact on all of dance. Technique classes will be supported through viewing historical and contemporary dance footage. In every class, daily movement experiences will be introduced to build coordination, self-awareness, strength and flexibility, as well as the understanding of modern dance.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

DANCE 261: Beginning Modern Dance I

1.5 Credits/Maximum of 6

Introduction to modern dance as an art form; development of dance technique and composition; teaching methods for improvisational skills. DANCE 261 Beginning Modern Dance I (1.5) (GA) (BA) This course meets the Bachelor of Arts degree requirements. DANCE 261 is an introduction to Modern Dance. The course is designed for any student with an interest in Modern Dance and Dance Minors. This class explores the use of weight, time, space, and energy in relation to a release based modern dance technique. There is emphasis placed upon the development of a personal movement vocabulary, experimentation, and self-expression. Modern dance is grounded in somatic practices with importance placed upon finding organic or efficient ways to engage the body in movement. Students should demonstrate an opening and willing attitude in every class situation. Students are responsible for learning and executing all material taught in class. This class serves as a prerequisite for DANCE 262. Together these two semesters serve as core technique classes for all dance minors.

Bachelor of Arts: Arts
General Education: Arts (GA)

DANCE 262: Beginning Modern Dance II

1.5 Credits

A continuation of Beginning Modern Dance I to augment technical proficiency and to further comprehension of choreographic methods. DANCE 262 Beginning Modern Dance II (1.5) DANCE 262 is a continuation of Beginning Modern Dance I. The course is designed for any student with an interest in Modern Dance and Dance Minors. This class explores the use of weight, time, space, and energy in relation to a release based modern dance technique. There is emphasis placed upon the development of a personal movement vocabulary, experimentation, and self-expression. Modern dance is grounded in somatic practices with importance placed upon finding organic or efficient ways to engage the body in movement. The students grade is based upon attendance, participation, attitude, progress, keeping a dance journal, setting dance goals, doing a mid-semester self evaluation, and attending a mid-semester 'check-up' with the instructor. More than three absences (excused or unexcused) will automatically drop the final grade one letter. Students should demonstrate an opening and willing attitude in every class situation. Students are responsible for learning and executing all material taught in class. Beginning Modern Dance I and Beginning Modern Dance II serve as core technique classes for all dance minors.

Enforced Prerequisite at Enrollment: DANCE 261

DANCE 270: Introduction to Bartenieff Fundamentals

3 Credits

Physical and theoretical approach to movement: facilitates efficiency, and expression through dynamic alignment, mobility, kinesthetic awareness; reduce physical injuries.

General Education: Health and Wellness (GHW)
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Integrative Thinking

DANCE 285: Contemporary Dance Performance

1-2 Credits/Maximum of 8

Contemporary Dance Performance is designed to introduce the beginning performer to the choreographic and rehearsal process as preparation for performance. DANCE 285 Contemporary Dance Performance (1-2 per semester/maximum of 8) This is a dance course to introduce the beginning performer to the rehearsal process, creative process and performance experience. The class will develop around the building of an original dance piece, created on and for the participating students by the instructor of record. The students will perform this piece at the end of the semester in a formal performance situation, on a proscenium stage with full lighting and sound accompaniment. The instructor will create an original dance on students enrolled in this course which will provide the student with performance experience in a live dance concert. The student will learn original choreography, be responsible for retention of movement, experience and assist in the choreographic process, participate in discussions concerning choreography, expression, rehearsal expectations and roles. The student will keep a journal and complete written assignments which demonstrate cognitive understanding of the artistic process. Each student will be expected to execute the choreography at a level suitable for concert performance, show an understanding of the choreographic process through written work, demonstrate growth as a dancer and artist through performance and written work and participate fully in a concert performance of the dance work created in class.

DANCE 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

DANCE 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

DANCE 301: Movement Analysis

2 Credits

Introduce student to principles of practical and abstract movement analysis to determine individual physical limitations and potentials.

DANCE 331: Intermediate Ballet I

1.5 Credits/Maximum of 6

A continuation of the course work established in Beginning Ballet II. DANCE 331 Intermediate Ballet I (1) Dance 331 allows the student who has had a solid introduction to the fundamental movements and style of ballet to develop more strength and flexibility in their technique. The pace of the class is faster. Choreography is more complex and taught more quickly. The student is expected to know the elements that constitute a ballet class and is ready to embrace seriously the study of the skill and artistry required to perform ballet. The student is expected to be able to execute a double pirouette and simple beats in petit allegro. Interpretation of choreography taught for exams is emphasized more strongly than in the previous courses. The attitude should be positive, receptive to correction, and exhibit an eagerness to work, and the student's progress should reflect growth in their abilities to perform the

choreography and to know the terms used. The student will be required to identify and explain the meaning of the terms used in class, as well as perform choreography with confidence and a sense of character. Required dress for the course for women is black leotard, pink or tan tights, pink ballet shoes and for men it is black tights, white T-shirt, black ballet shoes, and dance belt. Belts, suspenders, leg warmers are optional. Sweat clothes are not to be worn. All hair must be secured so that it cannot fly into the face.

Enforced Prerequisite at Enrollment: DANCE 230 or DANCE 231 or DANCE 232

DANCE 332: Intermediate Ballet II

1.5 Credits/Maximum of 6

A continuation of the course work established in Intermediate Ballet I. DANCE 332 Intermediate Ballet II (1) Dance 332 allows the student who has a strong background in the basics of ballet technique to be challenged with more difficult movements and choreography and to develop a more mature approach to healthy alignment. The Zena Rommett floor barre and the Pilades techniques will be explored with more emphasis than in the beginning semesters of ballet study. The student is expected to know the terms used in ballet in French, their meaning, and how to execute them. The student should be able to perform choreography with a sense of character and style, as well as strong technique. The attitude should be positive, receptive to correction, and exhibit an eagerness to work, and the student's progress should reflect growth in their abilities to perform the choreography and to know the terms used. Required dress for the course for women is black leotard, pink or tan tights, pink ballet shoes and for men it is black tights, white T-shirt, black ballet shoes, and dance belt. Belts, suspenders, leg warmers are optional. Sweat clothes are not to be worn. All hair must be secured so that it cannot fly into the face.

Enforced Prerequisite at Enrollment: DANCE 230 or DANCE 231 or DANCE 232

DANCE 361: Intermediate Modern Dance I

1.5 Credits/Maximum of 6

This course is a development of techniques and principles of modern dance at the intermediate level. DANCE 361 Intermediate Modern Dance I (1.5), continues to build on the technical foundation from Beginning Modern I and Beginning Modern II in relation to a release-based modern dance technique. Along with technique, students should develop greater flexibility, strength, and alignment. The emphasis of this course is movement as a lexicon used with specificity for expression of context, content, metaphor, image, and representation. Through this course, students gain a greater understanding of the body as a vehicle for communication and develop skills for creating and performing a specific vocabulary for expression. This course builds upon exploring the use of weight, time, space, energy, initiation, isolation (gesture), integration (whole body or body segment), suspension, and grounding as well as the Bartenieff/Laban vocabularies.

Enforced Prerequisite at Enrollment: DANCE 262 and THEA 225B
Bachelor of Arts: Arts
General Education: Arts (GA)
GenEd Learning Objective: Creative Thinking
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Integrative Thinking

DANCE 362: Intermediate Modern Dance II

1.5 Credits/Maximum of 6

This course is a continuation of Modern Dance to augment technical proficiency. DANCE 362 Intermediate Modern Dance II (1.5) continues to build on the technical foundation from Intermediate Modern Dance I (DANCE 361) in relation to a release-based modern dance technique. This course also highlights elements of the genre Dance Theatre. This intermediate level class centers on continuing developing a strong technical foundation in modern dance and how to apply that in performance. Along with technique, students should develop greater flexibility, strength, and alignment. The concepts of weight, time, energy, and space are central to the class. The body as a tool of expression and communication and using dance as a language is stressed. The emphasis of this course is movement as a lexicon used with specificity for expression of context, content, metaphor, image, and representation. Through this course, students gain proficiency in communication with the body and develop skills for creating and performing a specific vocabulary for expression. This course builds upon exploring the previous explorations and moves into a more formal structure of creating dance theatre. This class serves as a prerequisite for DANCE 461.

Enforced Prerequisite at Enrollment: DANCE 361

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

DANCE 365: Contemporary Movement Lab I

3 Credits

An intermediate level modern dance technique utilizing improvisation to enhance technical and performance issues: alignment, connection, balance, transition, expression, discovery. DANCE 365 Contemporary Movement Lab I (3) DANCE 365 is an intermediate level modern dance course utilizing improvisation as a tool for understanding technique and performance. This class is designed specifically for the Dance Studies Minor student to enhance the efficient and expressive use of the body as a vehicle for expression. The student will not only develop greater flexibility, strength, and alignment, but also will gain self-awareness and begin to develop a personal dance vocabulary. Contemporary Movement Lab I will meet four hours a week, with an additional 1 hour studio lab for personal discovery. CML I is designed to further expose the intermediate level dancer to the style and techniques of modern dance as it uses improvisation for expression and performance. The intermediate level dancer will be developed through more thorough movement requirements, floor work, and strengthening experiences with the support of improvisation as a tool. Full articulation of body, feet and arms will be fostered through regular exercises, which will bring about stronger connections through the body to support complicated and difficult movement. Each class period will allow time to be spent in the traditional aspects of an intermediate modern dance technique class: floor warm up and connection to center of weight, center floor balance and strengthening technique exercises and combinations, traveling sequences across the floor, and final accumulative combination. An equal amount of time will be spent in the exploration of improvisation: personal introspection, group interaction based on conceptual themes, weight sharing and beginning contact improvisational techniques, and development of a group structured performance improvisation. Improvisation will be explored regularly through individual and group

work. The students will experience moving without specific directions for the body, but rather with directions for content, sensing, theme, or task oriented physicality. Observation of self and others will aid in the discovery of the freedom of moving improvisationally. Outside reading and follow up discussions will further support their experience in the studio. Discussion, journals, goal setting and writing assignments will allow for opportunities to express and share levels of comfort and personal discoveries with various experiences. This is an important aspect of the process of opening up to the act of improvisation.

Enforced Prerequisite at Enrollment: DANCE 230 or DANCE 240 or DANCE 250 or DANCE 260

DANCE 366: Contemporary Movement Lab II

3 Credits

An intermediate level modern dance technique utilizing composition to enhance technical and performance issues: alignment, connection, balance, transition, expression, discovery. DANCE 366 Contemporary Movement Lab II (3) DANCE 366 is an intermediate level modern dance course utilizing the techniques, tools and theories of composition for understanding technique and performance. This class is designed specifically for the Dance Studies Minor student to enhance the efficient and expressive use of the body as a vehicle for expression. The student will not only develop greater flexibility, strength, and alignment, but also will gain self-awareness and further develop a personal dance vocabulary. Contemporary Movement Lab II will meet four hours a week, with an additional 1-hour studio lab for personal discovery. CML II is designed to further expose the intermediate level dancer to the style and techniques of modern dance as it uses composition for expression and performance. The intermediate level dancer will be further developed through a more thorough level of movement requirements: floor work, and strengthening experiences while exploring the connections of technique to composition and performance. Full articulation of body, feet and arms will be fostered through regular exercises, which will bring about stronger connections through the body to support complicated and difficult movement. Each class period will allow time to be spent in the traditional aspects of an intermediate modern dance technique class: floor warm up and connection to center of weight, center floor balance and strengthening technique exercises and combinations, traveling sequences across the floor, and final accumulative combination. An equal amount of time will be spent in discovering the many theories and tools of composition: time, weight, space, rhythm/phrasing, theme based creative experiences, and dance as a tool for communication. Students will be expected to create a variety of studies regularly through individual and group work. Outside reading and follow up discussions will further support their experience in the studio. Discussion, journals, goal setting and writing assignments will allow for opportunities to share and express levels of comfort and personal discoveries with various experiences.

Enforced Prerequisite at Enrollment: DANCE 230 or DANCE 240 or DANCE 250 or DANCE 260

DANCE 370: Anatomy and Physiology for Performers

3 Credits

The purpose of this course is to provide performers with anatomical theory and concepts to apply to movement. The course will progress through the body in systems as they relate to the biomechanics of movement and the body in performance. All body systems will be covered, but we will explore the musculoskeletal system in depth including

specific bones and muscles most commonly used in the movement of the performing arts. Students will not only become proficient in the anatomy and physiology of the moving body, but also learn to apply this material to specific movements to facilitate the efficiency of movement in their area of interest. This course will be grounded in specific principles of western anatomy and physiology, but will also focus on application to analyze movements for the biomechanical basis that allows each movement, and the way the body system function and interact when performing. This knowledge is to aid in more efficient moving, performing, better body awareness/understanding, and injury prevention. The class covers different topics each week and will build upon practices learned in each previous session. Within each class period, lecture will be immediately followed by experiential hands on exercises and experiential learning application.

Enforced Prerequisite at Enrollment: THEA 100 or THEA 105 or THEA 106 or THEA 112 or DANCE 100 or DANCE 230 or DANCE 240 or DANCE 260 or DANCE 270

General Education: Natural Sciences (GN)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

DANCE 370H: Anatomy for Performers

3 Credits

To provide performers with anatomical theory and concepts applicable to the disciplines of the performing arts.

DANCE 381: Dance Composition I

2 Credits

Introduction to the basic principles and craft of choreography. DANCE 381 Dance Composition I (2) This course is an introduction to the basic principles and craft of the art of choreography. The students will work with the principles and craft of choreography through practical methods to foster and enhance the creative process with relation to the solo form. Each student will develop an understanding of the architectural strengths of the proscenium stage and how best to use these for the solo form; gain knowledge of professional working methods through the exploration and use of the choreographic tools; develop an individual vocabulary through improvisational and choreographic elements; gain a knowledge of the craft for original creative expression; and demonstrate an overall understanding of the course by choreographing an original solo work as a culminating project.

DANCE 382: Music Theatre Dance–Style I

1.5 Credits

A practical study of dance styles from the 1890'S to the 1990'S. DANCE 382 Music Theatre Dance –Style I (1.5) DANCE 371 allows the student who has successfully completed two semesters of ballet (DANCE 231 and 232), two semesters of jazz (DANCE 241 and 242), and two semesters of Music Theatre Studio (THEA 223 and 224) to expand their capabilities of combining their skills of dancing and acting through the use of different stylistic approaches. In this semester, the BFA Music Theatre candidate will study and perform choreography characteristic of Vaudeville, Charleston, Ragtime, Ballet, Folk/Ethnic and elements of Modern and Jazz. In particular, Agnes deMille's use of ballet and Jerome Robbins' use of Ballet/Jazz/Modern will be studied. The goals of the course include enabling the student to feel confident in identifying,

performing, and competing in the professional audition venue using these styles. Also, the student should deepen their understanding of how the use of varied dance styles contributes to the development of character and/or the furthering of plot in Music Theatre. Successfully completing DANCE 371 is the prerequisite for DANCE 372.

Enforced Prerequisite at Enrollment: THEA 224

DANCE 383: Performance Devising

3 Credits/Maximum of 9

Devised performance is that which that does not proceed from a published script or score. In this course, students will use the various languages of the stage—including movement, dance, and design—as equal partners in creating new works. Students will use various methodologies for creation, including some that come from dance such as Viewpoints, and others that come from Theatre, such as Moment Work. Through a collaborative auto-course based process, students will create new performances in collaboration with others. The semester will end with one or more new devised performance pieces that will be performed as classroom projects and/or public showings. Although everyone in class is expected to move/perform as part of the learning process, contributions from designers, dramaturgs, and directors are encouraged.

Enforced Prerequisite at Enrollment: DANCE 100 or THEA 100 or THEA 101N or THEA 105 or THEA 112
Bachelor of Arts: Arts

DANCE 384: Music Theatre Dance--Style II

1.5 Credits

A continuation of course work established in Music Theatre Dance Style I. DANCE 384 Music Theatre Dance --Style II (1.5) DANCE 372 allows the student who has successfully completed DANCE 371 to continue broadening their understanding and expanding their performance skills of different stylistic approaches to choreography. In this course the student will study and perform choreography using stronger Jazz and Folk/Ethnic/Social influences. In particular, the works of Jerome Robbins, Ron Field, Michael Bennett, and Bob Fosse will be studied. The goals of the course include enabling the student to feel confident in identifying, performing, and competing in the professional audition venue using these styles. Also, the student should deepen their understanding of how the use of varied dance styles contributes to the development of character and/or the furthering of plot in Music Theatre.

Enforced Prerequisite at Enrollment: DANCE 382

DANCE 385: Leadership Practicum: Dance

1 Credits

Supervised experiences in teaching and assisting with the teaching of dance techniques.

Enforced Prerequisite at Enrollment: DANCE 100

DANCE 399: Dance Foreign Study

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

DANCE 405: Conditioning, Self-Defense, and Combat for Theatre

3 Credits/Maximum of 18

This course is designed to build and enhance physical awareness, control, stage movement, impulse work, self-defense skills, confidence, and athleticism. The course focuses on conditioning, breath and stretch, coordination, mind-body connection, fight/flight response, multiple forms of martial arts, SAFD technique, and specific Tae Kwon Do training. Movement training, at its best, is both an exploration of creative possibilities and a specific connection to the craft of acting. Self-defense training at its best gives the student the confidence, skills, and ability to effectively defend himself/herself/themselves in a dangerous situation.

Enforced Prerequisite at Enrollment: THEA 100 or THEA 105 or THEA 106 or THEA 101N

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Key Literacies

DANCE 410: Dance History

3 Credits

Survey of dance history concerning perspectives of culture, race, and gender with a focus on Nineteenth and Twentieth centuries. DANCE 410 Dance History (3) (US/IL) DANCE 484 (US;IL) Dance History (3) Survey of dance history concerning perspectives of culture, race, and gender with a focus on Nineteenth and Twentieth centuries. Dance History (3) General Education: None Diversity: US;IL Bachelor of Arts: None Effective: Fall 2006 Note : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

International Cultures (IL)

United States Cultures (US)

DANCE 412: Practical Applications of Movement in the Classroom

3 Credits

This course will guide the students in movement-oriented activities and explore how these activities relate to learning academic concepts. DANCE 412 Practical Applications of Movement in the Classroom (3) Moving and learning is the focus of this course. Classrooms vary in size, age, understanding, world experience and venue. Being able to recognize all these situations as learning opportunities is a talent built on experience. This class will challenge the students to see learning not just as an event that must happen in desk chairs with only the use of traditional classroom technology to support the 'lesson' but also as an opportunity for expansion into the whole child, including the moving child. Experience in designing and applying movement ideas into curriculum ideas and concepts will be developed throughout the semester. The student will begin to see ideas and learning themes as opportunities to engage the child through their physicality while expressing ideas, challenging the expected way of learning and yes, even having fun. Teaching is a creative act, learning is a creative act, and designing moving opportunities to reinforce the act of learning creates a sense of knowing within the child that becomes embodied. Reading, discussion, classroom application of material, and critical assessment of self and others will create an environment, at times, modeling some of the potential venues in which the student may expect to find themselves.

Using this information will be critical to their growth into visualizing movement as a viable option for teaching and learning.

Enforced Prerequisite at Enrollment: 3 credits in HDFS or PSYCH or EDPSY or DANCE

DANCE 422: Advanced Hip Hop Dance

1.5 Credits

Advanced Hip Hop Dance reinforces and expands concepts from Beginning Hip Hop Dance. Free expression of the body, freestyle, and choreography are emphasized. DANCE 422 Advanced Hip Hop Dance (1.5) Advanced Hip Hop Dance is designed for the serious minded dance student with an interest in Hip Hop dance/culture. This class provides an intensive study of dance, choreography and culture. As in Beginning and Intermediate Hip Hop Dance, freestyle dancing, locomotive movements, and choreography are emphasized. In addition, this class includes lecture sessions and discussions about Hip Hop culture and its role in society. By the end of this course students should be able to articulate why Hip Hop is a culturally significant art form and choreograph and perform a Hip Hop dance combination. This course also enhances mind/body awareness, and provides choreographic and performance opportunities. This course is directly related to dance, theatre, African American studies and other arts based and humanities based courses.

Enforced Prerequisite at Enrollment: DANCE 222

DANCE 431: Advanced Ballet I

1.5 Credits

An advanced ballet training course. DANCE 431 Advanced Ballet I (1)DANCE 431 allows the student who has successfully completed DANCE 232, or who has interviewed with the Instructor concerning their previous training in ballet, to develop greater proficiency in performing ballet. The barre work continues to emphasize proper alignment, supported by exercises using the Zena Rommett floor barre technique and the Pilates technique, and the floor work moves more quickly than in the beginning levels of study. The student will learn more complex steps requiring greater strength and coordination, and the class will move at a faster pace, thus enabling the student to learn choreography more quickly. The student will also develop their ability to communicate character and mood through their dancing. More advanced ballet terminology will be taught, and the student will learn the French terms, their English meanings, be able to identify the steps and perform them. DANCE 431 can satisfy one of the two semesters of advanced dance study required by the BFA Music Theatre degree option and can satisfy requirements for the Dance Minor. The student's grade is determined by their attendance, attitude, and progress. Attendance is mandatory. More than three absences or lateness will affect the grade. The attitude should reflect a serious focus on improving their abilities with a positive approach to applying corrections to their dancing. Their progress will be assessed through observation of their classroom work and especially the video-taped performances of their mid-term and final exam choreography. There will be a final showing at the end of the semester with an invited audience. The exams will also include an oral section, covering the terms used in class. Required dress for class is – for men, dance belt, black tights, white t-shirt, and black ballet shoes, and for women, pink or tan tights, leotard, and pink ballet shoes. All hair must be pulled back and secured away from the face. No sweat clothes may be worn, but leg warmers, belts, and suspenders are optional.

Enforced Prerequisite at Enrollment: DANCE 230 or DANCE 232 or DANCE 331 or DANCE 332

DANCE 432: Advanced Ballet II

1.5 Credits

A continuation of Advanced Ballet I to augment technical proficiency. DANCE 432 Advanced Ballet II (1)DANCE 432 allows the student who has successfully completed DANCE 431, or who has interviewed with the Instructor concerning their previous dance training, to challenge themselves further in the study of ballet. The barre work continues to emphasize proper alignment, supported by exercises using the Zena Rommett floor barre technique and the Pilates technique. The center work expands on some of the vocabulary taught in DANCE 431, requiring more confidence, strength, and stamina in different ways of turning and jumping, as well as adagio work. The student will learn more complex steps requiring greater strength and coordination, and the class will move at a faster pace, thus enabling the student to learn choreography more quickly. The student will also develop their ability to communicate character and mood through their dancing. More advanced ballet terminology will be taught, and the student will learn the French terms, their English meanings, be able to identify the steps and perform them. DANCE 432 can satisfy one of the two semesters of advanced dance study required by the BFA Music Theatre degree option and can satisfy requirements for the Dance Minor. The student's grade is determined by their attendance, attitude, and progress. Attendance is mandatory. More than three absences or lateness will affect the grade. The attitude should reflect a serious focus on improving their abilities with a positive approach to applying corrections on their dancing. Their progress will be assessed through observation of their classroom work and especially the video-taped performances of their mid-term and final exam choreography. There will be a final showing at the end of the semester with an invited audience. The exams will also include an oral section, covering the terms used in class. Required dress for class is - - for men, dance belt, black tights, white t-shirt, and black ballet shoes, and for women, pink or tan tights, leotard, and pink ballet shoes. All hair must be pulled back and secured away from the face. No sweat clothes may be worn, but leg warmers, belts, and suspenders are optional.

Enforced Prerequisite at Enrollment: DANCE 431

DANCE 441: Advanced Jazz I

1.5 Credits

An advanced course in the techniques of jazz dance. DANCE 441 Advanced Jazz I (1)DANCE 441 allows the student who has successfully completed DANCE 242 to continue their study of jazz technique and performance. The focus of the course is to improve capability through learning and performing more challenging choreography at a faster pace. Eight combinations of choreography are taught, to music of various types – pop, jazz, and musical theatre. Performing with confidence and a sense of character will be emphasized. The student will also become familiar with the fundamentals of the Pilates technique to improve alignment, strength, and flexibility. The student will also be given opportunities to develop confidence in improvisation. DANCE 441 enables the BFA Music Theatre candidate to satisfy one semester of advanced level dance training. For the Dance Minor and other students of dance, it provides challenges in technical execution and a greater range of jazz styles. The student's grade will be determined by their attendance, attitude, and progress at learning quickly and performing the dance combinations, as well as the completion of two projects. Attendance is mandatory; more than three absences or lateness will affect the grade. The attitude

should be focused, positive, receptive to correction, and eager. Progress will be assessed in frequent performance 'quizzes'. The mid-term and final exams will be video-taped and viewed by the class. The two projects consist of paper and one minute of original choreography. The paper should consist of the student's personal analysis of jazz dancing and their abilities, based on their past and present experience. The choreography should reflect work learned in class and be performed to instrumental music. The student will perform their choreography for the class. Required dress for DANCE 441 consists of dance belt, dance pants, t-shirt and jazz shoes for men and tights and leotard, jazz and character shoes for women. Dance sneakers are not appropriate for warm-ups and certain combinations.

Enforced Prerequisite at Enrollment: DANCE 240 or DANCE 242 or DANCE 341 or DANCE 342

DANCE 442: Advanced Jazz II

1.5 Credits

A continuation of Advanced Jazz I to augment technical proficiency. DANCE 442 Advanced Jazz II (1) DANCE 442 allows the student who has successfully completed DANCE 441 to continue to broaden their knowledge of advanced jazz dance. The purpose of this course is to improve capability through learning and performing more challenging choreography at a faster pace. Technique will be stressed, but performance and interpretation will be emphasized with the following standard in mind: to develop character, mood, and ability to improvise and choreograph jazz dance. A variety of choreographed dances ranging from pop, jazz, to musical theater styles will be taught. Students are responsible for learning and executing all material taught in class. The student's grade will be based on attendance, attitude, and progress of learning and performing dance combinations. More than three absences or lateness will affect the grade. Maintaining a positive attitude, proper discipline, and willingness to work and learn are essential. The student is required to perform individual rehearsal hours (as homework). Students enrolling in this course should have successfully completed DANCE 441 or have permission of the instructor. JAZZ 442 satisfies requirements for the BFA Music Theater option and the Dance Minor. The BFA Music Theater student will be juried by the School of Theatre Performance Faculty as a part of their final grade. The jury will consist of a showing of the pieces taught in class. This evaluation will help to determine whether the candidate may be allowed to enroll into the next level of the performance sequence. The required dress for men: Jazz shoes, t-shirt or muscle shirt, dance belt, Jazz pants or tights. For women: Jazz shoes, leotard and tights (possible character shoes).

Enforced Prerequisite at Enrollment: DANCE 240 or DANCE 341 or DANCE 342 or DANCE 441

DANCE 451: Advanced Tap I

1.5 Credits

An advanced course in the techniques of tap dance. DANCE 451 Advanced Tap I (1) DANCE 451 allows the student who has successfully completed DANCE 251 and 252, or has permission of the instructor, to continue to broaden their knowledge of tap dance. The work will include expanding the student's knowledge of tap vocabulary, rhythm, tempo and counting. The work introduces audition techniques from the dancer's perspective and expands the awareness of proper rehearsal discipline. Professional conduct and behavior is now cultivated into a useful marketing tool. Material is taught faster and with greater detail to reinforce audition techniques and equate professional challenges.

Audition classes will be held at the instructor's discretion. The student's grade will be based on attendance, attitude, and progress of learning and performing dance combinations. More than three absences or lateness will affect the grade. Maintaining a positive attitude, proper discipline, and willingness to work and learn are essential. The student is required to perform individual rehearsal hours (as homework). Students are responsible for learning and executing all material taught in class. Students enrolling in this course should have successfully completed DANCE 251, 252 or have permission of the instructor. Tap DANCE 451 satisfies requirements for the BFA Music Theater option and the Dance Minor. The BFA Music Theater student will be juried by the School of Theatre Performance Faculty as a part of their final grade. The jury will consist of a showing of the pieces taught in class. This evaluation will help to determine whether the candidate may be allowed to enroll into the next level of the performance sequence. The required dress for men: tap shoes, or hard soled shoes with taps attached. T-shirt or muscle shirt, dance belt, Jazz pants or tights. For women: tap shoes, leotard and tights (possible character tap shoes). The clothing must allow movement, and still be able to distinguish an outline of the dancer's body.

Enforced Prerequisite at Enrollment: DANCE 250 or DANCE 252

DANCE 452: Advanced Tap II

1.5 Credits

A continuation of Advanced Tap I to augment technical proficiency. DANCE 452 Advanced Tap II (1) DANCE 452 allows the student who has successfully completed DANCE 451 to continue to broaden their knowledge of advanced tap dance. The course will emphasize a broader dance vocabulary and more complex dance combinations. The repetition and rehearsal techniques will be reinforced and intensified. The ability to communicate character and setting through dance is strongly emphasized. Material is taught faster and with greater detail to reinforce audition techniques and equate professional challenges. The student's grade will be based on attendance, attitude, and progress of learning and performing dance combinations. More than three absences or tardiness will affect the grade. Maintaining a positive attitude, proper discipline, and willingness to work and learn are essential. The student is required to perform individual rehearsal hours (as homework). Students are responsible for learning and executing all material taught in class. Students enrolling in this course should have successfully completed DANCE 451 or have permission of the instructor. Tap DANCE 452 satisfies requirements for the BFA Music Theater option and the Dance Minor. The BFA Music Theater student will be juried by the School of Theatre Performance Faculty as a part of their final grade. The jury will consist of a showing of the pieces taught in class. This evaluation will help to determine whether the candidate may be allowed to enroll into the next level of the performance sequence. The required dress for men: tap shoes, or hard soled shoes with taps attached. T-shirt or muscle shirt, dance belt, Jazz pants or tights. For women: tap shoes, leotard and tights (possible character tap shoes). The clothing must allow movement, and still be able to distinguish an outline of the dancer's body.

Enforced Prerequisite at Enrollment: DANCE 250 or DANCE 451

DANCE 461: Advanced Modern Dance I

1.5 Credits/Maximum of 9

Development of dance technique and movement combinations on the advanced level. DANCE 461 Advanced Modern Dance I (1.5) DANCE 461 is Advanced Modern Dance. This class continues the technique foundation from DANCE 261 & DANCE 262 of exploring the use of weight, time,

space, and energy in relation to a release-based modern dance technique. DANCE 461 also works with focus, style, and performance techniques. Students should gain greater technical proficiency, flexibility, strength, and alignment. Understanding and demonstrating the different uses of weight and the concept of grounding is essential. Students should begin to develop as an individual mover (personal artistic voice) and gain greater confidence in using the body as a tool of expression and communication. Students should demonstrate an opening and willing attitude in every class situation. Students are responsible for learning and executing all material taught in class. This class serves as a prerequisite for DANCE 462. Together these two semesters serve as core technique classes for all dance minors.

Enforced Prerequisite at Enrollment: DANCE 262 or DANCE 361 or DANCE 362 or DANCE 365 or DANCE 366

DANCE 462: Advanced Modern Dance II

1.5 Credits/Maximum of 9

A continuation of Advanced Modern Dance I to augment technical proficiency. DANCE 462 Advanced Modern Dance II (1.5) DANCE 462 is a continuation of Advanced Modern Dance I. This class continues the technique foundation from DANCE 261, 262, and 461 of exploring the use of weight, time, space, and energy in relation to a release based modern dance technique. DANCE 462 also works with focus, style, and performance techniques. Students should gain greater technical proficiency, flexibility, strength, and alignment. Understanding and demonstrating the different uses of weight and the concept of grounding is essential. Students should begin to develop as an individual mover (personal artistic voice) and gain greater confidence in using the body as a tool of expression and communication. Students should demonstrate an opening and willing attitude in every class situation. Students are responsible for learning and executing all material taught in class. DANCE 461 and 462 serve as core technique classes for all dance minors.

Enforced Prerequisite at Enrollment: DANCE 361 or DANCE 362 or DANCE 365 or DANCE 366 or DANCE 461

DANCE 466: Contemporary Movement Lab III

3 Credits/Maximum of 6

An advanced exploration of modern dance techniques supported by the choreographic process. DANCE 466 Contemporary Movement Lab III (3 per semester/maximum of 6) DANCE 466 is an advanced level modern dance course using the choreographic process and experience as a way to enhance and further understand technique and performance. This class is designed specifically for the Dance Studies Minor student to enhance the efficient and expressive use of the body as a vehicle for expression. The student will not only develop greater flexibility, strength, and alignment, but also will gain ability for self-awareness and increase in personal dance vocabulary. Contemporary Movement Lab III will meet four hours a week, with a minimum additional 1-hour studio lab for personal discovery. CML III is designed to further expose the advanced level dancer to the choreographic process as a means of expression of modern dance as it influences the discovery of personal style and communication. The advanced level dancer will be further developed through higher levels of movement requirements: floor work, and strengthening experiences while exploring the connections of movement as a goal for communication and performance. Each class period will allow time to be spent in the traditional aspects of an advanced modern dance technique class: floor warm up and connection to center of weight, center floor balance and strengthening technique

exercises and combinations, traveling sequences across the floor, and final accumulative combination. An equal amount of time will be spent in discovering the choreographic process utilizing the tools of composition from Dance 366 and improvisation from Dance 365 to successfully communicate personal ideas or themes through fully explored dances. Students will be expected to create a number of dances/studies throughout the semester with the goal of producing one for the concert stage. Outside reading and follow up discussions will further support their experience in the studio. Discussion, journals, goal setting and writing assignments will allow for opportunities to express levels of comfort and personal discoveries with various experiences.

Enforced Prerequisite at Enrollment: DANCE 365 or DANCE 366

DANCE 472: Introduction to Laban Movement Analysis

3 Credits

Observe and analyze movement elements by exploring concepts of Body, Effort, Shape, and Space to increase personal communication and expression. DANCE 472 Introduction to Laban Movement Analysis (3) Laban Movement Analysis (LMA) is a method and language for describing, visualizing, interpreting and documenting all varieties of human movement. It is one type of Laban Movement Study originating from the work of Rudolf Laban. In addition many derived practices have developed with great emphasis on LMA methods. This course focuses on elements known as Laban/Bartenieff Movement Analysis, which uses a multidisciplinary approach, incorporating contributions from anatomy, kinesiology, psychology, Labanotation and many other fields. It is used as a tool by dancers, actors, musicians, athletes, physical and occupational therapists, psychotherapy, peace studies, anthropology, business consulting, leadership development, health & wellness and is one of the most widely used systems of human movement analysis today. In this course, students will study and practice the basic categories of LMA: Body (Bartenieff Fundamentals, total-body connectivity), Effort (Energetic dynamics), Shape, and Space (Space Harmony). In addition students will discover how LMA looks at the categories in terms of Phrasing and themes of opposites. The themes are: Mobility/Stability, Inner/Outer, Function/Expression, and Exertion/Recuperation.

Enforced Prerequisite at Enrollment: DANCE 230 or DANCE 240 or DANCE 250 or DANCE 260

DANCE 480: Choreographic Projects

2 Credits

Choreographic practicum experiences for concert performances. DANCE 480 Choreographic Projects (2) This course is a forum for choreographic practicum experiences for concert performances. This course will provide an opportunity to students to develop their artistic and creative abilities in the field of dance. The student will create a group choreographic work to be presented in concert dance. This course will cover skills for advanced group dances, the creative process, selection of music of dance, costuming for dance, lighting for dance, rehearsal techniques, performance techniques, and organizational/leadership skills. Each student will submit a written proposal of the dance s/he intends to create, specifying the number of dancers, choreographic intent, and movement phrases as well as ideas for music, costumes, and lighting. The student will complete one choreographic dance to be performed in concert, which is presented each semester. The student must attend technical week prior to the concert, use past choreographic experiences gained from compositional study and be responsible for organizing weekly rehearsals. The student is required to hand in a self-

evaluation paper reflecting on the original proposal and completed dance, and to maintain a journal throughout the semester documenting the choreographic process. This course will be offered fall semester with an enrollment of 10 students.

Enforced Prerequisite at Enrollment: DANCE 381

DANCE 485: Contemporary Dance Repertory

1-2 Credits/Maximum of 12

An advanced dance course in the choreographic process with emphasis on original choreography in performance. DANCE 485 Contemporary Dance Repertory (1-2) This is an advanced dance course in the choreographic process with emphasis on original choreography. The instructor will create an original dance on students enrolled in this course which will provide the student with performance experience in a live dance concert. The student will learn original choreography, experience and assist in the choreographic process, participate in discussions concerning choreography, performance and style. The student will keep a journal and complete written assignments which demonstrate cognitive understanding of the artistic process. Each student will demonstrate proper rehearsal protocol and behavior, execute the choreography at a level suitable for concert performance, show an understanding of the choreographic process through written work, demonstrate growth as a dancer and artist through performance and written work and participate fully in a concert performance of the dance work created in class.

Enforced Prerequisite at Enrollment: permission of the program

DANCE 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

DANCE 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

DANCE 499: Dance Foreign Study

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Data Analytics (DA)

DA 101: Introduction to Data Analytics

3 Credits

This course is designed around storytelling with data. It is designed to introduce students to foundational concepts in data analytics. Students will learn key concepts used in the data analytics industry to understand and frame projects. The core dimensions of analytics prescribed by current data analytics professional guidelines will be introduced and demonstrated through case studies. Students will be exposed to spreadsheets, scripting languages for analytics, and current statistical

software packages. The importance of communicating findings to different constituents will be emphasized throughout this class.

Enforced Prerequisite: MATH 21 or satisfactory performance on the mathematics placement examination.

General Education: Quantification (GQ)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

DA 201W: Descriptive Analytics

4 Credits

DA 201W is a four-credit course with lecture and writing components. (DA201W, DA 302W, and DA 401W each carry only one credit of "writing"; completion of all three courses is required to meet the writing requirement.) This course introduces students to the core areas of descriptive analytics, where the main objective is to answer "what happened" in the project. Students will learn how to accurately describe the attributes of data variables available to them for their projects. Students will have the opportunity to work on real-life projects and cases throughout the course. The course will expose students to spreadsheets, scripting languages for analytics, and current statistical software packages. The instructor will emphasize the importance of communicating findings to different constituents throughout this class.

Enforced Prerequisite at Enrollment: (PSYCH 200 or STAT 200 or STAT 250 or SCM 200) and (DA 101 or DS 200) and (CMPSC 131 or CMPSC 121)

Writing Across the Curriculum

DA 301: Diagnostic Analytics

3 Credits

This course introduces students to the core areas of diagnostic analytics. The diagnostic analysis takes descriptive data a step further by examining the relationships between variables through root cause analysis. Students will learn current tools and techniques, including external environmental factors, that allow analysts to explain why the patterns are observed in data and discover relationships between two or more attributes of the data. Students will have the opportunity to review case studies and work on real-world projects throughout the course.

Enforced Prerequisite at Enrollment: DA 201W

DA 302W: Predictive Analytics

4 Credits

DA 302W is a four-credit course with lecture and writing components. (DA201W, DA 302W, and DA 401W each carry only one credit of "writing"; completion of all three courses is required to meet the writing requirement.) The principal objective of this course is to help students predict what will happen in future events based on historical data. This course exposes students to predictive analytics techniques that are consistent with best practices in the data analytics industry. Students will learn how to properly examine problem contexts to use the most appropriate method to develop the best predictive model. Students will also learn how to evaluate their results and interpret findings to users at different levels of an organization. This course focuses on the application of spreadsheets, scripting languages for data analytics, and current statistical software packages.

Enforced Prerequisite at Enrollment: DA 301
Writing Across the Curriculum

DA 305: Data Ethics and Privacy

3 Credits

DA 305 will cultivate students' awareness of ethical, privacy, and security rules and standards to guide how to use and analyze data and communicate the report findings. The course will demonstrate appropriate ethical, privacy, and security standards. This course will utilize case studies to demonstrate the realworld implications of these topics in data analytics and identify the appropriate communication styles. The course will emphasize ethics at various stages of data analytics. This includes the communication of the implications of the data analysis to stakeholders, including how data are collected and stored as well as how it is analyzed and presented to different stakeholders. Students will be able to define who has access to which data, where and how long the data will be stored, and which procedures will be implemented for further use.

Enforced Prerequisite at Enrollment: DA 101

DA 401W: Prescriptive Analytics

4 Credits

DA 401W is a four-credit course with lecture and writing components. (DA201W, DA 302W, and DA 401W each carry only 1 credit of "writing"; all three courses must be taken to meet the writing requirement). This course will introduce students to how data analytics assists in making decisions and advocating for a course of action. The core objective of this course is to help students develop a set of viable decision options (based on considerations including costs and benefits, key stakeholder preferences, ethical guidelines, etc.), ranking those decision options to create alternative courses of action, and how to achieve an optimal decision. Topics covered will include optimization, sensitivity analysis, decision making, linear programming, and simulation.

Enforced Prerequisite at Enrollment: DA 302W
Writing Across the Curriculum

DA 402: Qualitative Analytics

3 Credits

The majority of non-numeric data is unstructured (e.g., blogs, emails, forums). DA 402 is an overview of data analytics techniques for non-numeric data (e.g., text, videos or images). The methodological reasons for a qualitative rather than a quantitative approach, and the underlying challenges with this type of data depend on the hypothesis or research question. Often, research questions and organizational problems can best be answered by qualitative, non-numeric data. Students in data analytics will be exposed to situations and conditions where these practical analyses would be applicable rather than students in data sciences who create or improve the algorithm for analysis. This course will enable students to pursue further study in these types of practical applications. Students need a strong background in statistics before scheduling this course.

Enforced Prerequisite at Enrollment: DA 201W Enforced Concurrent at Enrollment: (ENGL 202A or ENGL 202B or ENGL 202C or ENGL 202D)

DA 475: Data Analytics Implementation Capstone I

3 Credits

DA 475 is the first semester of a two-semester sequence and completion of the BS in Data Analytics. The course requirements enable the student to demonstrate the student's ability to use industry or organization data to develop a descriptive, diagnostic, predictive, and prescriptive analysis. This portion of the capstone addresses the understanding of the industry data, project scope, data journalism, and descriptive analysis.

Enforced Prerequisite at Enrollment: DA 302W and DA 305 and MIS 447
Enforced Concurrent at Enrollment: MGMT 409

DA 476: Data Analytics Implementation Capstone II

3 Credits

DA 476 is the second semester of a two-semester sequence and completion of the BS in Data Analytics. The course requirements will include a continuation of industry project (assigned in DA 475) and the remaining three-part analysis of organization-specific analysis (diagnostic, predictive, and prescriptive).

Enforced Prerequisite at Enrollment: DA 475

Data Sciences (DS)

DS 97: SPECIAL TOPICS

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

DS 99: Foreign Studies

1-12 Credits/Maximum of 999

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

DS 120: Scripting for Data Sciences

1 Credits

Introductory course in computer-based scripting languages for use in data analyses. DS 120 Scripting for Data Sciences (1) This introductory course aims to teach practical skills in data manipulation and preprocessing scripting, including the fundamentals of an interpreted programming language for use in the data sciences. The goal of the course is to provide an accessible (no pre-requisites) and brief (1 credit) introduction, preparing students for hands-on data analytics assignments in DS 200 Introduction to Data Sciences. This practical course teaches fast manipulation of datasets on the Unix command line, scripting in spreadsheets, and fundamental control structures and data manipulation in a modern interpreted programming language. It is expected that students gain an overview of the available tools and techniques that allows them to acquire basic proficiency in select techniques in the course of applications in most other courses in Data Sciences.

DS 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

DS 197G: Special Topics - GenEd

1-9 Credits/Maximum of 9

Formal courses given on a topical or special interest subject offered infrequently; several different topics may be taught in one year or semester. This Special Topics is a GenEd course.

DS 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

DS 200: Introduction to Data Sciences

4 Credits

The course introduces students to data sciences, an emerging discipline focused on the knowledge and skills needed to harness the power of data to advance science and engineering, address complex national and global challenges, inform public policy, and improve human lives. It demonstrates how the discipline of data science integrates knowledge and skills in computer sciences, statistics, and informatics (with exposure to application domains such as life science, health science, cyber security, astronomy, etc). Through a combination of lectures, hands-on labs, and case studies, students are introduced to the "big picture" of data sciences including elements of understanding data through exploratory data analysis, testing hypotheses against data, building predictive models, all using real-world examples. The course also introduces students to opportunities to specialize in Applied Data Sciences (with an emphasis on data sciences applications in the real world), Computational Data Sciences (with an emphasis on well-engineered data analytics systems), and Statistical Data Sciences (with an emphasis on advanced statistical theory and methods).

DS 220: Data Management for Data Sciences

3 Credits

The course introduces students to the fundamentals of data models: organizing, managing, and using different types of data that arise in real-world applications. The course introduces students to several alternative data models and database solutions, emphasizing their strengths and limitations in the context of real-world applications. Topics covered include the relational databases, key-value stores, column-oriented databases, vector-space databases, graph databases, and distributed file systems together with their applications in solving real-world big data management problems. Upon completion of the course, the students will be able to choose an appropriate data model and database solution for a given application, and use the chosen database to organize, manage, and use data in the context of specific applications.

Enforced Prerequisite at Enrollment: C or better in CMPSC 121 or CMPSC 131
Enforced Concurrent at Enrollment: CMPSC 122 or CMPSC 132

DS 294: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

DS 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

DS 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

DS 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

DS 300: Privacy and Security for Data Sciences

3 Credits

This course provides an overview about data privacy and security implications arising in the context of data analytics, as well as the techniques and processes for managing privacy and security of large-scale structured and unstructured data sources. Concepts are taught in reference to a variety of data types and application areas. Students will learn design principles to enhance privacy and security in data science practice.

Enforced Prerequisite at Enrollment: C or better in (DS 200 or STAT 200) and DS 220 and (IST 230 or CMPSC 360 or MATH 311W)

DS 305: Algorithmic Methods and Tools

3 Credits

This course teaches students how to formulate data science problems that arise in different applications that involve different types of data (tabular, sequence, network, matrix data); and introduces students to common strategies for formulating, and solving those problems. The course will cover (1) how to formulate data science problems (e.g., text analysis, biological sequence analysis, social network analysis, recommender systems) and how to evaluate alternative formulations, (2) common algorithmic methods and tools (as implemented in software libraries) for representing, processing, and sampling data, (3) how to apply the methods and tools to solve well-formulated data science problems. The course will also teach students how to understand and use results about the correctness, efficiency, and scalability of the techniques and tools, and they will learn to recognize when specific algorithmic tools can be used to improve the performance of their data science tasks. Through exercises, students will gain hands-on experience in problem formulation and solution development for data science problems that arise in applications.

Enforced Prerequisite at Enrollment: Prerequisites: (CMPSC 122 or CMPSC 132 or IST 242) and (IST 230 or CMPSC 360 or MATH 311W)

DS 310: Machine Learning for Data Analytics

3 Credits

The course teaches students the principles of machine learning (and data mining) and their applications in the data sciences. DS 310 Machine Learning for Data Analytics (3) The course introduces the principles of machine learning (and data mining), representative machine learning algorithms and their applications to real-world problems. Topics to be covered include: principled approaches to clustering, classification, and function approximation from data, feature selection and dimensionality reduction, assessing the performance of alternative models, and relative strengths and weaknesses of alternative approaches. The course will include a laboratory component to provide students with hands-on experience with applications of the algorithms to problems from several domains. Prerequisites for the course include basic proficiency in programming, elementary probability theory and statistics, and discrete mathematics.

Enforced Prerequisite at Enrollment: C or better in (CMPSC 122 or CMPSC 132) and (STAT/MATH 318 or STAT/MATH 414 or STAT/MATH 418) and MATH 220 and (IST 230 or CMPSC 360 or MATH 311W)
Recommended Preparation: DS 305

DS 320: Data Integration

3 Credits

Recommended Preparations: DS 310 Modern data-intensive applications (healthcare, security, public policy, science, commerce, crisis management, education, among others) increasingly call for integration of multiple types of data from disparate sources. This course introduces students to the principles and the practice of data integration, with particular emphasis on relational, knowledge-based, graph-based, and probabilistic methods. Carefully crafted assignments will help enhance the students' mastery of both the theoretical underpinnings as well as practical aspects of data integration. The students will work in teams to solve representative data integration problems drawn from real-world applications. Upon completion of the course, students should be able design, implement, and evaluate data integration solutions to support data intensive applications.

Enforced Prerequisites at Enrollment: DS 220 and (STAT/MATH 318 or STAT/MATH 414 or STAT/MATH 418)

DS 330: Visual Analytics for Data Sciences

3 Credits

The course introduces visual analytics methods and techniques that are designed to support human analytical reasoning with data. DS 330 Visual Analytics for Data Sciences (3) Visual analytics is the science of combining interactive visual interfaces and information visualization techniques with automatic algorithms to support analytical reasoning through human-computer interaction. People use visual analytics tools and techniques to synthesize information and derive insight from massive, dynamic, ambiguous, and often conflicting data, and to communicate their findings effectively for decision-making. This course will serve as an introduction to the science and technology of visual analytics and will include lectures on both theoretical foundations and application methodologies. The goals of this course are for students to (1) develop a comprehensive understanding of this emerging,

multidisciplinary field, and (2) apply that understanding toward a focused research problem in a real-world application or a domain of personal interest.

Enforced Prerequisite at Enrollment: C or better in (DS 200 or STAT 200) and (CMPSC 122 or CMPSC 132 or IST 242)

DS 340W: Applied Data Sciences

3 Credits/Maximum of 3

This course builds up the students' understanding of data sciences by discussing the fundamental principles in the context of real-world examples, and then shows specifically how the principles can provide understanding of many of the most common methods and techniques covered in previous data science courses. The course features three individual projects as well as a team project spanning the entire course. After taking this course, the students should be able to cover the entire pipeline of a data science project, from problem formulation to data science solutions. That is, start from a data driven problem, identify pertinent datasets to the problem and collect data, reason about the best techniques that should be used to solve the problem, implement algorithms and models, assess performance, and communicate actionable insights through both written reports and oral presentations. As one example, a fundamental principle of data science is that solutions for extracting useful knowledge from data must carefully consider the problem in the real world scenarios. This may sound obvious at first, but the notion underlies many choices that must be made in the process of data analytics, including problem formulation, method choice, solution evaluation, and general strategy formulation. Another fundamental principle is that predictive modeling can both inform and be informed by relevant knowledge (including theories, models, frameworks) of the relevant domains. This principle manifests itself throughout data science: in the specific design of many particular data sciences applications, and more generally as the basis for all intelligent solutions. In this course, this principle will be highlighted by case studies from multiple domains so that students can be inspired to apply this principle to their term projects. Lastly, as most data science projects are delivered as solutions as opposed to software deliverables, the ability for data scientists to communicate their results through concise and actionable insights plays a critical role in a data science project. This course places a particular focus on developing student writing abilities, through formal project reports and presentations. The individual projects will offer an interactive experience for students through feedbacks on their reports provided by the instructor. The term-long project will also train students in writing in a collaborative environment.

Enforced Prerequisite at Enrollment: DS 300 and (DS 310 or CMPSC 448).
Recommended Preparation: DS 330.
Writing Across the Curriculum

DS 396: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

DS 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

DS 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

DS 402: Emerging Trends in the Data Sciences

3 Credits/Maximum of 9

This course exposes and trains students in the analysis of emerging trends in data sciences. DS 402 Emerging Trends in the Data Sciences (3) Data sciences is a rapidly evolving field affected by innovations in a variety of technical domains, including data generation, capture, storage, and processing. Staying abreast of new developments can be a daunting task but is critical for success. This course provides an in-depth analysis of a particular innovation, but starts with developing generally applicable skills for analyzing new technologies. In particular, the analytic framework considers the innovation's technical aspects and potential for widespread adoption, but also its social, organizational and policy implications. As a course focused on a new data sciences technology or analytic innovation, it is repeatable. As such, the course enables students to be exposed to the cutting edge of data sciences, supporting a forward looking view of the field for students across the university.

Enforced Prerequisite at Enrollment: DS 220

DS 410: Programming Models for Big Data

3 Credits

Recommended Preparations: DS 310; CMPSC 448 This course introduces modern programming models and related software stacks for performing scalable data analytics and discovery tasks over massive and/or high dimensional datasets. The learning objectives of the course are that the students are able to choose appropriate programming models for a big data application, understand the tradeoff of such choice, and be able to leverage state-of-the art cyber infrastructures to develop scalable data analytics or discovery tasks. Building on data models covered in DS 220, this course will introduce programming models such as MapReduce, data flow supports for modern cluster computing environment, and programming models for large-scale clustering (either a large number of data samples or a large number of dimensions). Using these frameworks and languages, the students will learn to implement data aggregation algorithms, iterative algorithms, and algorithms for generating statistical information from massive and/or high-dimensional data. The realization of these algorithms will enable the students to develop data analytic models for massive datasets.

Enforced Prerequisites at Enrollment: (CMPSC 122 or CMPSC 132) and (DS 220 or CMPSC 221)

Cross-listed with: CMPSC 410

DS 420: Network Analytics

3 Credits

Networks constitute a useful representational abstraction for data from many real-world applications, such as social networks, biomolecular networks, brain networks, among others. This course aims to cover the conceptual, algorithmic, and applied aspects of network analytics to prepare the students to analyze network data. Specific topics to be covered include different kinds, e.g., undirected, directed, weighted, unweighted, labeled, unlabeled, networks; network properties and

network statistics; statistical models of static and dynamic networks; classes of networks, different classes of network structure, e.g., random, small-world, modular hierarchical; methods for community detection, information propagation, node and link classification, network embedding, and their applications in life sciences e.g., predicting protein function, social sciences, e.g., analyzing social ties, e-commerce e.g., recommender systems.

Enforced Prerequisites at Enrollment: DS 220 and DS 310

DS 435: Ethical Issues in Data Science Practice

3 Credits

This course explores social and ethical dimensions of data science. Datafication can be a powerful force for good, but it can also do harm to individuals and society. Oriented primarily around case studies, the course investigates when, why, and how data is collected, analyzed, and used, and explores the ethical stakes of data-driven systems. In addition to diagnosing ethical problems-e.g., invasions of privacy, algorithmic bias, and lack of transparency and accountability-students are asked to think creatively and constructively about how the tools of data science can be used to realize shared ethical and social commitments. The course will be comprised of both "theory" and "lab" components. The former will contextualize ethical problems, introducing students to ethical theories and frameworks for addressing them. The latter will ask students to put those ideas to work, using the tools of data science to identify examples of ethical issues in data science practice, and proposing means of addressing them.

Enforced Prerequisite at Enrollment: DS 220

DS 440: Data Sciences Capstone Course

3 Credits/Maximum of 3

This course provides opportunities for students to develop their data science problem solving skills via a semester long group project. Projects typically involve analyses of real data. Students should be able to conceptualize a research project, plan its execution, implement the plan, and communicate their results. The capstone projects will integrate knowledge gained in technical subjects such as machine learning, data mining, data integration, and visualization. Other aspects of problem solving including considerations of security, privacy, fairness and ethical issues will often be required. At the end of the semester, students will communicate the results of their projects through a written report and an oral project presentation.

Enforced Prerequisite at Enrollment: C or better in DS 220 and DS 340W
Enforced Concurrent at Enrollment: DS 435 and (DS 305 or CMPSC 465)

DS 440W: Data Science Capstone

3 Credits

The Data Sciences capstone develops the research orientation and creative problem solving necessary for successful careers. The capstone develops these skills in the context of a semester long project, the solution to which requires integration of knowledge, skills and analytic techniques taught in the core curriculum. The Data Sciences capstone will also give student a real world experience in which they will need to work in teams and will be coached on ways to translate analytic outcomes into meaningful and actionable information for decision makers. The course is intended for seniors who have successfully completed the core courses. The capstone projects will integrate

knowledge gained in technical subjects such as machine learning, data mining, data integration and visualization. The project will also require students to analyze the privacy and security aspects of the problem as well as apply concepts of decision analysis. Students will also hone their presentation and technical writing skills, generating effective reports that not only explain their analytic processes, assumptions underlying the processes and outcomes, but also communicate the limitations of their approach and potential alternate strategies.

Enforced Prerequisite at Enrollment: Data Science Major or 7th semester standing
Writing Across the Curriculum

DS 441: Information Retrieval and Organization

3 Credits

The practices and foundations of access to textual and nontextual information using the principles of information retrieval and web search. Introductory course for undergraduate students in the last year of their academic program and graduate students covering the practices, issues, and theoretical foundations of organizing and analyzing information and information content for the purpose of providing access to textual and nontextual information resources. Introduces students to the principles of information storage and retrieval systems and databases. IST 441 Information Retrieval and Organization (3) This is an introductory course for Information Sciences and Technology senior and graduate students covering the practices, issues, and theoretical foundations of organizing and analyzing information and information content for the purpose of providing access to textual and non-textual information resources. This course will introduce students to the principles of information storage and retrieval systems and databases. Students will learn how effective information search and retrieval is interrelated with the organization and description of information to be retrieved. Students will also learn to use a set of tools, such as search engines, and procedures for organizing information. They will become familiar with the techniques involved in conducting effective searches of information resources.

Enforced Prerequisite at Enrollment: C or better in MATH 141 and DS 220 and (IST 230 or CMPSC 360 or MATH 311W)

DS 442: Artificial Intelligence

3 Credits

This course provides an overview of the foundations, problems, approaches, implementation, and applications of, artificial intelligence. Topics covered include problem solving, goal-based and adversarial search, logical, probabilistic, and decision theoretic knowledge representation and inference, decision making, and learning. Through programming assignments that sample these topics, students acquire an understanding of what it means to build rational agents of different sorts as well as applications of AI techniques in language processing, planning, vision.

Enforced Prerequisite at Enrollment: CMPSC 221. Enforced Concurrent at Enrollment: CMPSC 465
Cross-listed with: CMPSC 442

DS 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

DS 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

DS 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

DS 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction

International Cultures (IL)

Digital Arts (DART)

DART 100: Introduction to Digital Art & Media Design

3 Credits

DART 100 Introduction to Digital Arts and Media Design (3) This course introduces students to concepts, skills, language and principles of practice in digital arts and design. This course introduces concepts and principles of practice necessary for digital arts and media design creative research and production. Students develop technical and critical proficiencies in design by applying problem-solving skills and exploring issues and ideas in digital arts and design; this is achieved by completing a series of individual and collaborative projects in a hands-on, digital studio setting.

DART 102N: Introduction to 2d Digital Art and Technology

3 Credits

DART 102N Introduction to 2d Digital Art and Technology (3) A General Education Integrative Studies, digital arts course introducing 2D graphics software through explorations of the 2d digital art medium. This is a General Education Integrative Studies, digital arts course introducing 2D graphics software through the creation of original digital artwork and the exploration of the 2d digital art medium. Course content explores technology, digital art, and visual culture, and concepts of identity, digital culture, and propaganda. Students create original artwork using graphic software such as Adobe Photoshop. They acquire skills and methods of research and development, creative production, critical review, reflection, and strategies for revision. Learning focuses on problem solving, exploration of creative options, visual communication, critique of images and ideas, and reflective writing. Students apply this process of visual research as a personal means of exploring topical issues and ideas, responding in informed ways to the images created by others, and reacting critically and creatively to the visual world around them. The course looks at topics such as the impact of technology on

personal identity and community practices as they are represented in the mix of visual culture. Methods of visual expression and graphic communication such as advertising, messaging and propaganda are examined and critically analyzed as cultural practices that serve many purposes, from education, entertainment, marketing, and politics. The purpose of the course is to introduce students to the creative use of digital technologies in responding critically and imaginatively to this changing visual world of image, text and story in which they live. By developing original digital artwork, students learn to formulate and communicate their ideas related to the course topics from a personal perspective and build an understanding of how they make an impact on a world beyond the classroom.

Bachelor of Arts: Arts
 General Education: Arts (GA)
 General Education: Humanities (GH)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

DART 200: Creative Research in Digital Arts & Media Design

3 Credits

DART 200: Creative Research in Digital Arts and Media Design (3) provides digital artists and designers with a studio-based exploration of critical, theoretical, and historical understandings of digital media and research. This course provides digital arts and media design majors with a studio-based exploration of critical, theoretical, and historical understandings of digital media processes and creative research methodologies. Students practice formal art and design skills, acquire and expand digital proficiencies, and reflect upon their creative research in studio-based inquiry and production.

Enforced Prerequisite at Enrollment: DART 100 or DART 202

DART 201: Focused Realization Studio

3 Credits

DART 201: Focused Realization Studio (3) Provides students with the opportunity for the realization of more focused studio explorations in digital arts and design disciplines. This course provides digital arts and media design students the opportunity for the realization of more focused digital media explorations, creative research and studio production while building upon material introduced in previous courses. Students will create individual and team-based studio work that investigates more advanced issues and problems in the digital arts and design from a variety of disciplinary understandings, resulting in a portfolio of completed and fully realized studio-based projects. A primary purpose of the course is to bring together students engaged in a range of studio explorations and create a synergistic group dynamic that will inform and advance the work of all participants; hence, personal initiative and strong self-learning skills are a given expectation.

Enforced Prerequisite at Enrollment: DART 200 enforced Concurrent at Enrollment: ART 211Y

DART 202: 2D Digital Art & Computer Graphics

3 Credits

DART 202 2D Digital Arts and Computer Graphics (3) Introduces 2D digital imaging techniques and concepts for the production of original art and design using graphics software. This course will introduce 2D digital art and design concepts and computer graphics imaging techniques for artists and designers through creative exploration of the medium using industry standard software like Adobe Photoshop and Illustrator. Students look at key concepts relating to art and digital culture, identity and visual culture through the development of conceptual criticality, creativity and problem solving to better understand how to express ideas visually in interesting ways. The course also looks at the impact of technology on visual culture and the relevance to artistic creation. In developing their artwork, students will learn to formulate their own ideas in relation to the topics and build an understanding of how they relate to them beyond the classroom. The course provides students the requisite 2D computer graphics and conceptual skills to take more advanced new media, digital arts and media design courses in the School of Visual Arts.

DART 203: 3D Digital Art & Design Fundamentals

3 Credits

DART 203 3D Digital Art and Design Fundamentals (3) Introduces 3D foundational skills for producing images, videos, objects, and interactive real-time virtual spaces with 3D software. This course will introduce 3D digital art and design foundational skills, concepts, and methodologies for producing images, videos, objects, and interactive real-time virtual spaces using 3D software. Student will master and apply 3D tools in exploring creative expression, design possibilities, and effective and compelling means of communication. 3D design concepts and tools extend the means by which we respond to change in a purposeful way & connected to a wide range of media formats that create, communicate, and respond to new ideas, forms, and questions. In this course, students will respond to project and exercise prompts through the production of textured polygonal surfaces, animated 3D scenes, image and video renders, and thoughtful critique. Students will engage with readings and film screenings through discussions and writing to encourage critical understanding and reflection. Students will come away from this course with a broad repertoire of creative design approaches and the ability to apply digital 3D production concepts, methodologies, and skills in publishing creative works in a variety of media settings including the web, film, print, and product design. The course provides students the requisite 3D computer graphics and conceptual skills to take more advanced new media, digital arts and media design courses in the School of Visual Arts.

Bachelor of Arts: Arts

DART 204: Animation Fundamentals

3 Credits

DART 204 Animation Fundamentals (3) Introduces time-based animation fundamentals along with core skills and knowledge necessary for producing animated work. This course focuses on creative work that is grounded in fundamentals and engages students in studio-based research methods to advance their skills and critical competence in time-based media. Students are introduced to core skills and knowledge necessary for producing animated works that communicate ideas, enhance user interface and interaction, and inspire critical reflection. Through a series of animation exercises students apply visual digital concepts in the creation of original animated projects that are further

enhanced by critical responses to screenings and discussions of key texts about animation. Initial exercises cover animation principles and tools, creating assets, production planning, layout and composition, keyframes, transformation and deformation, and interpolation. Character animation design and development, rigging, asset preparation, cameras are covered, along with various forms of interface prototypes such as interaction design, wireframes, interface elements. Students are also introduced to typography, sound design and Foley, motion design, color, masking, post effects, and color grading. Later in the course, students also develop a series of more ambitious animation projects using an iterative design process that further develops their digital competencies and creative and critical capabilities in time-based media.

DART 205: Creative Coding: Scripting for Art and Design

3 Credits

DART 205 Creative Coding: Scripting for Art and Design (3) Introduces object-oriented programming fundamentals for the production of expressive interactive experiences such as animations, interfaces and games. This course introduces object-oriented programming fundamentals for the production of expressive interactive experiences such as animations, interfaces and games. This course focuses on creative work that is exploratory and experimental and engage students in studio research methods to advance their skills and critical competence in new media. Students apply computation concepts based on readings and discussions of key texts about interactive design, media art, and game design to the creation of original interactive projects. The course offers a series of scripting exercises in which students learn to develop applications using both a top-down and bottom-up design process. Students also develop a series of more ambitious computational projects using an iterative design process. They produce detailed design treatments and working prototypes before turning in final applications developed using an object-oriented programming language. The course gives students the requisite computational and conceptual skills to take more advanced new media, digital arts and media design courses in the School of Visual Arts.

Bachelor of Arts: Arts

DART 206: Web Design and Visual Web Development

3 Credits

DART 206 Web Design and Visual Web Development (3) Introduces essential techniques and concepts of modern web design, focusing on how visual graphics and layout contribute to user experience. This course introduces students to essential techniques and concepts of web design, focusing on how visual graphics and layout contribute to user experience. Students will examine historical and emerging trends in web design, while producing original websites and digital media work. The course will include frontend skills such as designing icons, responsive layouts, and typography as well as essential development skills like HTML, CSS, and a general understanding of web protocols. Accessibility standards, multi-language audiences, and other vital aspects of online culture will be discussed to help students create flexible and modern web projects.

DART 213: 3D Printing for Artists and Designers

3 Credits

DART 213 3D Printing for Artists and Designers (3) This course explores the potential of 3D printing as a vehicle for creative expression. Studio sessions include hands-on printing with materials both hard and soft,

from bio-plastics to ceramics. The class is designed to be collaborative and interdisciplinary. We will investigate the role 3D printing can play in the working processes of Artists & Designers presently and in the future. We'll ask questions about the potential of this technology and we'll discuss our answers and opinions. Our class will spend a significant amount of time making and iterating designed objects and sculptural forms via 3D modeling, 3D scanning, and 3D printing. We will become familiar with 3d modeling software programs and printer control programs via course projects, tutorials, and one-on-one instruction. Our software and hardware choices will be focused particularly on tools that are open source and free, emphasizing a D.I.Y. approach to this emerging technology. We will also spend a great deal of time investigating a range of approaches to 3D printing from craft processes to industrial applications, large and small. Each week we will introduce a discussion topic and a hands-on project.

DART 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

DART 297: Special Topics

1-9 Credits

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

DART 300: Digital Portfolio Elements

3 Credits

DART 300: Digital Portfolio Elements (3) An intermediate level studio course in which students develop digital art and design work that promotes creative thinking and problem-based learning in producing digital media projects to be included in their digital portfolio. Students also gain increased ability and independence in the application of relevant digital tools and technologies. The structure of the assignments and overall course will prepare and guide the students towards increased critical awareness and professionalism through the creation of a body of work, greater understanding of the languages of art and design, and an increased ability to analyze and critique the work of others. This course relies on the active and collective participation of each student.

Enforced Prerequisite at Enrollment: DART 202 or DART 203 or DART 204 or DART 205 or DART 206

DART 301: Creative Collaboration Studio

4 Credits

DART 301 Creative Collaboration Studio (4) Provides students with an advanced studio exploration of interdisciplinary collaborative projects in the digital arts and design disciplines. This course will consider and develop advanced studio work that investigates, from a variety of disciplinary understandings, increasingly complex issues and problems in the digital arts and design disciplines. The course will emphasize collaborative and team-based projects, exploring the creative potential within the group dynamic as well as in relation to a client. A primary purpose of the course is to bring together students engaged in a wide range of studio explorations and create a synergistic group dynamic that will inform and advance the work of all participants; hence, personal initiative and strong self-learning skills are a given expectation.

Enforced Prerequisite at Enrollment: DART 300 and ART 211Y

DART 302: Digital Painting Studio

4 Credits

DART 302 Digital Painting (4) A digital arts studio course that focuses on creating and critically evaluating digital painting. This digital arts studio course focuses on creating and critically evaluating digital painting and builds upon previous digital arts studio courses by extending students experience with the creative exploration of the digital medium. This course will engage art and design students on the principles, techniques and relevant technologies to advance their skills and critical competencies in digital painting and concept art through hands-on studio production in collaboration with SoVA studio faculty. The course is for students enrolled in the Art BA, Art BFA, Art Education BS, Digital Arts and Media Design BDes or Photo BDes degree programs

Enforced Prerequisite at Enrollment: DART 202 and ART 250

DART 303: 3D Studio

4 Credits/Maximum of 8

DART 303 3D Studio (4) A digital arts studio course focusing on developing 3D computer generated digital art and design work. This course will build upon previous digital arts studio courses and provide students with an in-depth studio experience to further develop 3D production techniques and strategies; incorporating workflows for modeling, animation, and rendering in support of creative exploration of the medium.

Enforced Prerequisite at Enrollment: DART 202, and enrollment in the ARTBA_BA, ARBFA_BFA, AED_BS, DIGMD_BDES, IDS_BDES, PHOTO_BDES or ARTAB_BA degree program
Bachelor of Arts: Arts

DART 304: Motion Graphics Studio

4 Credits

DART 304 Motion Graphics Studio (4) A digital arts studio course focuses on developing and critically evaluating motion graphics and time-based media art and design. This course will build upon previous digital arts studio courses and provide students with an in-depth studio experience to further develop motion graphics and time-based media techniques and production strategies through the creative exploration of the medium. This course will focus on the production of creative work that is exploratory and experimental and engage digital art and design students on the principles, processes, methods and relevant technologies to advance their skills and critical competence in motion graphics, animation and time-based media. The course is for students enrolled in the Art BA, Art BFA, Art Education BS, Digital Arts and Media Design BDes or Photo BDes degree programs.

Enforced Prerequisite at Enrollment: DART 202

DART 305: Mobile and Touch Studio

4 Credits

DART 305 Mobile and Touch Studio (4) A studio course focusing on designing and developing interactive stories, games and expressive applications targeting mobile and touch screen devices This course teaches students how to design and develop interactive applications for mobile and touch screen devices. Through lectures, discussions

and exercises, students are exposed to the latest methods of gestural interface design. They produce through an iterative design process a series of short projects and learn to integrate interface elements, interactive storytelling techniques, and implement design patterns using a scripting language.

Enforced Prerequisite at Enrollment: DART 202 and DART 205

DART 314: Video Art and Time-Based Media

4 Credits/Maximum of 8

DART 314 Video Art and Time-Based Media (4 per semester/maximum of 8) A digital arts studio course that focuses on video art, new media and time-based work. This digital arts course provides an in-depth studio experience in video art and time-based media production through the creative exploration of the medium. The course will engage art and design students on the principles, methods and relevant technologies to help advance critical competencies and technical proficiencies with an emphasis on integrating digital video and time-based media into current studio practice.

Enforced Prerequisite at Enrollment: DART 304

Bachelor of Arts: Arts

DART 315: Game Studio

4 Credits/Maximum of 8

DART 315 Game Studio (4 per semester/maximum of 8) A digital arts studio course concentrating on authoring interactive games as a creative vehicle for self-expression. This digital arts course provides an in-depth studio experience that will concentrate on authoring and critically evaluating interactive games as a creative vehicle for self-expression. This course will focus on creative work that is exploratory and experimental and engage students in research methods to advance their skills and critical competence in new media. Students will learn fundamentals of game design as it applies to board games and digital games. Through a series of small projects, students will design and develop both individually and in teams, analog, 2D and 3D game prototypes using a scripting language.

Enforced Prerequisite at Enrollment: DART 202 and DART 205

DART 400: Digital Arts & Media Design Capstone I

4 Credits

DART 400 Digital Art and Design Capstone I (4) Provides digital arts and media design students an opportunity to conceptualize an undergraduate thesis. Each student will have the opportunity to identify the primary issue of theoretical concern based on his/her personal interest, and pursue research in a rigorous, in-depth manner. The preparation and initiation of the undergraduate thesis will occur within a collaborative team-based studio environment. Students in DART 400 will begin to research and synthesize disciplinary and interdisciplinary understandings through the exploration of critical, theoretical, and historical perspectives of digital media. This understanding will foster the spirit of in-depth arts and design inquiry and research, and will build upon arts and design awareness, skills, and methods introduced in previous courses. The student will integrate studio and theory while creating a significant work of digital art or design. The student will work with a faculty adviser(s) in addition to the instructor of record for the course towards the

completion of design documents, proof of concepts and prototypes for the undergraduate thesis.

Enforced Prerequisite at Enrollment: DART 301 Enforced Concurrent at Enrollment: ART 476

DART 401: Digital Art & Media Design Capstone II

4 Credits

DART 401 Digital Art and Media Design Capstone II (4) Provides digital arts and media design students an opportunity to implement an undergraduate thesis. This course is the second part of a two-course undergraduate digital arts and media design thesis to be taken in the final year of study. Each student will have the opportunity to further explore the primary issue of theoretical concern based on his/her personal interest, and complete research in a rigorous, in-depth manner. The creation and implementation of the undergraduate thesis will occur within a collaborative team-based studio environment. Students in DART 401 will build upon the preliminary research and studio investigations undertaken in DART 400. The thesis will synthesize the student's arts and design awareness, skills, and methods introduced in previous courses. The student will integrate studio and theory while creating a significant work of digital art or design, which demands a high degree of responsibility, self-motivation, and personal commitment. The student will work with a faculty adviser(s) in addition to the instructor of record for the course towards the completion and presentation of the undergraduate thesis.

Enforced Prerequisite at Enrollment: DART 400

DART 404: Animation Studio

4 Credits/Maximum of 8

DART 404 Animation Studio (4 per semester, maximum of 8) An in-depth digital arts production course focusing on exploring animation and time-based media through the development of self-initiated projects. This course will build upon previous digital arts studio courses and provide students with an in-depth studio experience to produce animated and time-based media works. In animation studio, students will explore animation and time-based media in relationship to their creative interests and studio practice while seeking to integrate course lectures, discussions and screenings into the realization of new work. This course is receptive to all forms of traditional and experimental animation techniques (analog, digital, hybrid) as well as creative and time-based media approaches.

Enforced Prerequisite at Enrollment: DART 303 or DART 304 or DART 314
Recommended Preparation: DART 204

DART 405: Physical Computing Studio

4 Credits/Maximum of 8

DART 405 Physical Computing Studio (4 per semester, maximum of 8) A studio course concentrating on interactive physical systems using software/sensors that can sense and respond to the analog world. This course will build upon previous digital arts studio courses and will concentrate on interactive physical systems using software/hardware that can sense and respond to the analog world. Physical Computing Studio will focus on creative work that is exploratory and experimental and engage students in research methods to advance their skills and critical competence in new media. Assignments will cover both a technical introduction to basic electronics, analog circuit design,

and micro controllers as well as design concepts and philosophies for building interactive art objects.

Enforced Prerequisite at Enrollment: DART 202 and DART 205

DART 406: Advanced Web and Multimedia Publishing Studio

4 Credits/Maximum of 8

DART 406 Advanced Web and Multimedia Publishing Studio (4 per semester/maximum of 8) A digital arts studio course concentrating on advanced web and multimedia publishing practice for art and design. This course will build upon previous digital studio courses and provide students with an in-depth experience on web authoring and multimedia publishing practice through readings, discussions and hands-on studio production towards the realization of new work and representative online portfolio.

Enforced Prerequisite at Enrollment: (ART 101 or DART 203 or DART 305) and 8 credits in DART
Bachelor of Arts: Arts

DART 410: Integrating Media: Convergence in Practice

4 Credits/Maximum of 12

DART 410 Integrating Media: Convergence in Practice (4 per semester/maximum of 12) A studio course focusing on integrating new media concepts and related technologies into digital arts, media design and contemporary studio practice. This course is designed to provide an intensive studio experience for more focused creative research, media exploration and studio practice in new media. Students will seek to engage and synthesize a wide range of technologies, techniques and digital workflows in 2d, 3d, 4d or interactive media towards the development of a compelling and cohesive body of work.

Enforced Prerequisite at Enrollment: DART 302 or DART 303 or DART 304
Bachelor of Arts: Arts

DART 411: Advanced New Media: Capstone

4 Credits/Maximum of 8

DART 411 Advanced New Media: Capstone (4 per semester/maximum of 8) A new media and digital arts capstone course concentrating on the integration of art and technology in advanced thesis projects. This is an advanced senior level capstone experience for new media. The course concentrates on advanced media theory and discourse, the integration of new media technologies into contemporary studio art and design practice, and on the creation and documenting of senior thesis projects. DART 411 will also focus on the final preparation of professional portfolios. Student thesis projects may cover a range of digital multimedia applications in sound, image, motion, interactivity, interface design, 2D, 3D, 4D media authoring, etc. in relation to their focus in new media art and design practice.

Enforced Prerequisite at Enrollment: (DART 302 or DART 303 or DART 304 or DART 305) and 12 credits in DART and 7th semester standing or higher
Recommended Preparation: ART 101 or DART 206 or DART 406

DART 412: Portfolio Design and Professional Practices

3 Credits

DART 412 Portfolio Design and Professional Practices (3) This course emphasizes the development of presentation skills for digital artists in

audience/client interactions. This course is the concluding experience for all students enrolled in the Digital Arts Certificate (DAC) program. The course provides opportunities for students to learn about the practical application of professional practices and portfolio development tools specific to careers that require knowledge of digital art and design principles and culminates in the development of a professional-quality creative portfolio. The course is taught fully online and comprises coursework supported by online presentations and guest talks, assigned readings, and other resources and reference materials relevant to the professional development of digital artists and designers. Students engage in both individual and team-based projects and interactions via activities such as asynchronous group discussions and guest talks delivered by streaming media. Students are required to have access to the Internet.

Enforced Prerequisite at Enrollment: DART 300

DART 495: Internship

1-18 Credits/Maximum of 18

Supervised on or off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

DART 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

DART 497: Special Topics

1-9 Credits

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Digital Media, Arts, and Technology (DIGIT)

DIGIT 100: Introduction to Digital Humanities

3 Credits/Maximum of 3

The traditional theories and methods that underwrote the study of literature, history, and philosophy in the 20th century are now being supplemented with new techniques and tools. While this class will give a sense of the breadth of theoretical writings that have defined digital humanities (DH), we will imagine how current debates in DH share similarities to a longer history of philosophy, literature, and technology. Intended for students unfamiliar with digital humanities, this course surveys an array of tools, techniques, and cultures related to the field. We will be reading a survey of literature that emerged alongside computing and digital humanities properly. This course will challenge you to experiment with new techniques, and students who are resourceful, creative, and energetic will find this course an ideal forum to test their curiosity and inquisitiveness.

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

DIGIT 110: Text Encoding Fundamentals

3 Credits

DIGIT 110 teaches students standardized encoding techniques for archival quality data creation, storage, and analysis.

DIGIT 210: Large Scale Text Analysis

3 Credits

Course teaches students programmatic and algorithmic techniques and tools for accessing and analyzing unstructured text.

DIGIT 297: Special Topics

3-6 Credits/Maximum of 6

Formal courses given infrequently to explore, in dept, a comparatively narrow subject which may be topical or of special interest.

DIGIT 400: Digital Project Design

3 Credits

This course will introduce students to the tools and resources available to design and implement digital project.

Prerequisite: DIGIT100 , DIGIT110 , DIGIT210

DIGIT 409: Advanced Digital Creations

3-6 Credits/Maximum of 6

Students will develop 3d digital creation skills in relation to their field(s) of study. DIGIT 409: Advanced Digital Creations is a problem-based learning class that uses the digital media concepts and tools introduced in Art 168 to develop an in-depth understanding of 3d digital art. They will enhance their creative and philosophical sensibilities in the technology, software, and media relevant to the field (s) of study they are pursuing. Through a series of learning problems, students will synthesize advanced skills and knowledge needed to accomplish techniques used in the creation of digital 3d imagery. They will integrate 3d sculpting, modeling, animation, and/or painting practices with computer-based image processing for creative, and professionally oriented results. They will develop critical and conceptual sensibilities needed to discuss and evaluate their work and the work of others using these methods. Students will identify, research, and analyze effective professional and creative practices in the field of digital creativity with emphasis on developing skillful digital processing techniques. These practices include creating mockups of concepts, art-making practices for enhanced digital workflow, and choosing the 3d processing techniques most appropriate for the end-use of the work. The digital medium has a relatively short history, however, as the advancement of digital technology continues these techniques have entered the popular mainstream. This shift has raised challenges in graphic-reliant fields such as the arts, engineering, advertising, simulation, and gaming. This course will give students of these fields the opportunity to develop their artistic skills further than possible in Art 168. Students will analyze and assess the factors related to their fields in in order to make sound design decisions.

Prerequisite: ART 168

DIGIT 410: Data Visualization

3 Credits

In-depth understanding of techniques and software for data visualization. Students will be introduced to complex data sets and learn how to present findings in interactive and innovative ways.

Prerequisite: PSYCH200 or STAT 200

DIGIT 430: Simulations of Human Behavior

3 Credits

In Modeling and Simulation, students will develop an understanding of the systems, processes, tools, and implications of this field.

Prerequisite: 3 credits of programming; 3 credits of mathematics
Cross-listed with: GAME 430

DIGIT 489: Professional Development in Digital Media, Arts, and Technology

1 Credits/Maximum of 2

Students taking this course will have completed or be enrolled in Digital Project Design (DIGIT 400) or Senior Project (DIGIT 494) or Internship (DIGIT 495). This class will extend the content knowledge of those courses into professional applications. Specifically, students will gain experience in communicating their digital competence orally and in writing for their post-baccalaureate life. Students will complete a professional digital portfolio of their work that presents themselves, their ideas, and their projects. They will write and revise cover letters, resumes, and portfolio materials to feature their DIGIT projects as they prepare for a career or graduate school. Topics include: - Mapping potential careers and/or graduate programs - Writing, reviewing, and revising job letters, personal statements - Developing resumes and/or curriculum vitae - Mock job interviews - Portfolio development and review - Planning, sharing, and delivering project presentations Conference participation

Concurrents: DIGIT 400 or DIGIT 494 or DIGIT 495 Recommended preparations: Students should have taken or should be taking concurrently any of the following courses: DIGIT 400, DIGIT 494, or DIGIT 495

DIGIT 494: Senior Project

3 Credits

DIGIT 494 is a senior capstone course that allows students to design, complete, and present an independent digitally based project.

Prerequisite: DIGIT100 , DIGIT110 , DIGIT400

DIGIT 495: Internship

3 Credits

A professional internship opportunity with a business, organization, or non-profit agency.

Prerequisite: DIGIT100 , DIGIT110 , DIGIT400

DIGIT 496: Independent Study

3-9 Credits/Maximum of 9

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal course.

DIGIT 497: Special Topics

3-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

DIGIT 499: Foreign Study

3-6 Credits/Maximum of 6

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Digital Multimedia Design (DMD)

DMD 100: Digital Multimedia Design Foundations

3 Credits

This course introduces students to concepts, skills, language and principles of practice in art and design, communication, and information sciences. DMD 100 Digital Multimedia Design Foundations sets a strong foundation of design process and thinking skills to support and facilitate creative and reasoned approaches to ambiguous and ill-defined problem spaces related to the fields of art and design, communication, and information sciences. Design leadership balances design management with creative vision to guide creative teams, frame complex issues, and effectively communicate. To prepare students for transformative design leadership roles, students will think, evaluate, and respond to local and global issues leveraging the digital medium and peer collaboration. In this course, students are exposed to basic concepts, skills, ethics, language, and other principles of practice by engaging in critical discussions, activities, projects, writing, and work presentation. Students will be introduced to a basic historical perspective of art and design, technology, and communications through case studies and readings. They will write critical reflections on current and historical issues, ethical quandaries, and social impacts in blog posts to generate peer discussion. Independent and collaborative activities will guide students through skill mastery and research-based design projects will reinforce a breadth of concepts including universal design principles, research methods, reasoning and decision making strategies, speculative design and forecasting, curation and remix, narrative and communication, community, tools and technology, and professionalism.

DMD 300: Digital Multimedia Design Studio

3 Credits

Students adapt skills and knowledge of digital media to solve problems and communicate ideas in producing collaborative multimedia projects. In DMD 300 Digital Multimedia Design Studio, students synthesize the concepts, theories, and applications acquired in the introductory courses and begin to think critically about their professional objectives. Students will work on projects aimed to help them understand available learning pathways and real world applications based on their scholarly and professional interests. Students will work collaboratively to investigate a problem space, conduct a needs assessment, write a design plan

or proposal, develop deliverables, and implement and evaluate the final product(s). Students will develop a sense of stewardship over the project development process by completing project milestones that reinforce time management behaviors, participating in team building activities that facilitate discussion and interaction, co-authoring project proposals that prompt critical analysis, and distributing production tasks to encourage ownership in completing both defined and open-ended assignments. Students will also be required to thoroughly document and reflect on the production process and project impact through blogging and discussions. Through the duration of the course, students are encouraged to interact with industry advisors for feedback and direction as they work through real-world challenges in their selected digital tools and methodologies.

Enforced Prerequisite at Enrollment: DMD 100 and 9 credits from the following list: IST 140, IST 250, COMM 230W, COMM 215, DART 202, ART 211Y

DMD 400: Digital Multimedia Design Capstone

3 Credits

In this capstone, students develop portfolio projects by applying creative production concepts, tools, and approaches to a contemporary issue. DMD 400 Digital Multimedia Design Capstone is an advanced, senior-level capstone experience, students will synthesize the concepts, tools, and approaches learned throughout their studies and demonstrate competencies in creative and technical production in an applied human-centered thesis project. Students will work as change agents to address a critical, real-world, local or global issue or challenge and work through the design process to complete a capstone project. Students will explore processes in interdisciplinary problem spaces and connect to broader context of design decisions promoting agency over project outcomes, applications, deliverables, and knowledge-sharing. Student projects will include design proposals and/or implementations for digital or physical products and systems. To examine their understanding of design leadership, students will practice design thinking and production methods to generate project ideas, discover opportunities, and communicate intent; practice systems thinking to define the boundaries and impact of a problem space; and practice critical thinking to evaluate research issues, develop meaning, and inspire creative output. Students will be able to deploy project management skills to ensure on-time delivery of final project, communicate project concepts through visual models, and will leverage a variety of digital resources and methods to disseminate work in online contexts including social media, websites, and others.

Enforced Prerequisite at Enrollment: DMD 100 and DMD 300

Earth and Mineral Sciences (EMSC)

EMSC 100S: Earth and Mineral Sciences First-Year Seminar

3 Credits

Writing, speaking, and critical thinking skills applied to topics of general interest in Environmental and Materials Science. EM SC 100S Earth and Mineral Sciences First-Year Seminar (3) (GWS;FYS) The EMS First-Year Seminar is designed to encourage students to begin the important process of 'thinking for a living.' The primary focus of the seminar is to promote critical reading and thinking skills, and to help students develop effective written and oral arguments. Students learn the importance of reading, sharing ideas and collaborating, through independent and group

research, discussion and debate. We want our students to think about some of the major issues facing the world today, the role that science and technology have played in defining and addressing these issues, the way in which present-day thinking has been shaped by the past, and the development of scientific thought. The Seminar's content focuses on communication skills, but these are addressed within the context of issues relevant to the disciplines represented in EMS. As such, the discussions range across topics such as the Earth and its resources; scientific and technical aspects of global habitability; development of the advanced materials necessary for sustaining and advancing civilization in the 21st century; and the social, economic, and political factors that shape and constrain society's view of the Earth system. Students undertake three to five major writing projects throughout the semester, as well as several smaller one to two paragraph written assignments. Grades are determined from their performance on the written papers, oral presentations, and in-class participation. The Seminar is a required course for all EMS first-year students at the University Park campus and, together with English 015 and either English 202 or Speech Communications 100, will satisfy the Writing and Speaking requirements of General Education.

First-Year Seminar

General Education: Writing/Speaking (GWS)

EMSC 101: Resource Wars

3 Credits

"Resource Wars" presents an analysis of natural resources and how competition for them shapes national and international cultures and geopolitics. EM SC 101 Resource Wars (3) (US;IL) The faculty of the College of Earth and Mineral Sciences are uniquely qualified to teach "Resource Wars", a course that presents an analysis of natural resources and how competition for them shapes contemporary and historical culture and geopolitics. "Resource wars" will examine the extent to which the Gulf War of 1991, the explosive conflict between the United States and Islamic extremists, and present engagement in Iraq are manifestations of a foreign policy that comes from a desire for resource security. While the current Iraq war is the most recent manifestation of the clash between US and IL cultures, there are many examples of past resource wars in world history. Although the present conflict in the Middle East is about petroleum, past conflicts involve the entire spectrum of natural resources from gold and diamonds to rubber and tea to water, clean air, and living space. Class discussion will meld the technical aspects of discovery and extraction with its impact on society from a cultural and geopolitical points of view (US & IL). Technical analysis starts with the geology of the natural resource. The extraction, harnessing, or mining of that natural resource and resource transportation come next. The use of that natural resource as a material follows. Of course, short term and long climatic instability may play roles. The human elements (US & IL) involved in the trading and development of the resource lead to both armed interstate conflicts and intrastate disputes. Cultural questions might include how the digital age impact resource control and trade, how global resource distribution impacts energy security and utilization, and how international resource competition impacts the climate. Ultimately, the class is led to an understanding about how scarcity has impacted cultures throughout human history (US & IL). The tentative plan is that each lecture period consists of two parts starting with a moderator (the lead faculty member throughout the entire semester) who summarizes the resource under discussion in a 10-15 minute introduction. Then, appropriate EMS faculty will offer detailed accounts of their particular expertise. This format requires two 75-minute classes per week (30 per semester). The moderator shall be responsible

for grading the class including the discussion and written responses in a large classroom format (50+ students) taught in one lecture hall. Active learning shall include discussion sessions with a wireless response pad technology for in-class interaction between student and instructor.

International Cultures (IL)
United States Cultures (US)

EMSC 121: Minerals and Modern Society

3 Credits

Production and use of mineral resources in modern society with an emphasis on the interrelationships and their effect on the Earth system.

Bachelor of Arts: Natural Sciences

EMSC 125: Plastics in the Environment

3 Credits

This course introduces students to various aspects of plastics in the environment. Major topics covered include the production and uses of plastics, the science of plastics in the environment (distribution and degradation), the impacts of plastics on ecosystems and humans, and potential solutions. The various ways in which plastics are used in a variety of products and applications are discussed. Plastics production has accelerated and evolved over the past several decades, now utilizing multiple raw materials, including recycled plastics, to create different types of plastics, including primary (nurdles) and secondary forms. Themes covered under the fate of plastics include timescales of transport and degradation, measurement techniques, size range classifications, and the distribution in the environment (water, soil, and air). The global plastics budget is discussed, including the low rate of recycling. The degradation of plastics includes fracturing, photolysis, and microbial decomposition. Ecological impacts are separated into those due to macroplastics and microplastics. Effects on humans include those resulting from the consumption of food and from inhalation of airborne fibers. Existing laws and policies surrounding plastics are discussed at local, national, and international levels, including bans on certain types of plastics (e.g., bags and microbeads). The course culminates in the analysis of solutions to plastics pollution, including recycling, bioplastics, compostable plastics, and non-plastic replacements. This course will provide a BA student with the intended breadth of a BA degree.

Bachelor of Arts: Natural Sciences
General Education: Natural Sciences (GN)
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Soc Resp and Ethic Reason

EMSC 240N: Energy and Sustainability in Contemporary Culture

3 Credits/Maximum of 3

In this course students are guided through an engaging exploration and the critical evaluation of selected media (e.g., books, film) in contemporary culture on topics related to energy and sustainability. Three selections are used each term, typically two books and one film. Students consider the subject matter in light of humanistic values, where the science, ideas and history presented in the selected media are critically evaluated relative to the viability of our planet's ability to support life. Opening lessons cover the foundational science of energy and sustainability, with a global perspective and consideration of the

human dimension. The science is presented without technical jargon or advanced mathematics, to promote a genuine and sound understanding of these essential concepts for college-level students of all academic backgrounds. Learning units are devoted to each media selection, with all content, activities and assessments within the unit contributing to this concentrated focus. After completing this course, students will possess the foundational science knowledge necessary to evaluate contemporary topics related to energy and sustainability, from the perspective of universal humanity on a planet of finite resources. This knowledge prepares students to develop observations, questions and opinions on topics related to energy and sustainability and to self-express them, in both written and oral presentations, to others with different backgrounds and points of view. Students will have the foundational knowledge necessary to be skilled critical readers of energy and sustainability subject matter, knowing how to raise (and answer) questions related to scientific clarity and soundness and how to test assumptions and scope of arguments, especially as related to inclusion of humanistic values and planetary limits. This knowledge prepares students to be willing and able to avoid entrenched ideology-based positions on issues related to energy and sustainability and to develop, instead, a personal position based in science and data with a humanistic perspective. Students will gain the knowledge of credible resources and organizations for ongoing research related to energy and sustainability and be prepared to participate in public dialogue on some of the most challenging and complicated issues of our time, including activities such as letters to the editor, online commenting, political engagement, and public advocacy.

Bachelor of Arts: Humanities
Bachelor of Arts: Natural Sciences
General Education: Humanities (GH)
General Education: Natural Sciences (GN)
General Education - Integrative: Interdomain
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Soc Resp and Ethic Reason

EMSC 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

EMSC 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

EMSC 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

EMSC 302: Orientation to Energy and Sustainability Policy

1 Credits

Orientation to goals of the Energy and Sustainability Policy program and resources available to help students succeed. EM SC 302 Orientation to Energy and Sustainability Policy (1) EM SC 302 provides an orientation to the goals of the Energy and Sustainability Policy (ESP) degree program, helping students to successfully prepare for the five program

learning outcomes. The course is conducted as a group seminar, with topics that are designed to provide an initial understanding of program outcomes: energy industry knowledge, global perspective, analytical skills, communication skills, and sustainability ethics. Students are expected to actively participate in discussions and work hands-on with online tools in activities that will allow them to gain an understanding of what it means to successfully participate as an ESP student in different educational and course contexts. Students are evaluated based on active class participation, written assignments, and class presentations. This course is intended to be taken during the first semester after being admitted to the ESP program.

EMSC 420: Energy and Modern Society

3 Credits

Technology and economics of energy resources, production, and consumption; environmental factors, exhaustion, new technology.

Enforced Prerequisite at Enrollment: 3 credits of SOC

Cross-listed with: SOC 420, STS 420

Bachelor of Arts: Social and Behavioral Sciences

EMSC 440: Science Diving

4 Credits

Advanced scuba diving skills applied to underwater research. EM SC 440 Science Diving (4) EM SC 440 is a four credit intermediate science diving course for students already holding a basic open water scuba diving certification from an internationally recognized certification agency (e.g. PADI, NAUI, CMAS, YMCA, SSI etc.). Scientific diving is concerned with the observation of underwater phenomena and the acquisition of scientific data. This course introduces students to advanced scuba diving skills following the standards established by the American Academy of Underwater Sciences (AAUS) – with a significant emphasis on diver safety. The course covers theoretical aspects of the physics of diving, dive physiology, and underwater environments. There is a strong emphasis on diver safety with theoretical and practical training in cardiopulmonary resuscitation, diving-related first aid, accident management and dive rescue. The course will cover advanced recreational diving techniques, including deep diving and enriched air (nitrox) diving. A significant component of the course will involve scuba diving accident analysis, the focus of the course textbook. The course will also include an introduction of advanced underwater sign language. The course will include classroom sessions, pool sessions, and open water dives focusing on underwater skills development for eventual application in research settings. Each government or university underwater research program certifies its own divers based on standards that, at a minimum, conform to those of the AAUS. Successful completion of the course will allow the student diver in training to enroll in EM SC 441, Advanced Science Diving. Successful completion of EM SC 441 will allow the student diver in training to apply for science diver certification from the Penn State Science Diving Program. Certification is also dependant on a medical examination and is at the discretion of the University Dive Safety Officer; it is not automatically offered on completion of the course. The course is usually offered once a year in the spring semester and will involve several day trips (usually at weekends) to various river, lake, and quarry locations within the state. There will be an additional fee charged to cover the costs of the open water dives and administrative charges for recreational dive certifications.

Prerequisite: basic open water SCUBA certification and approval of program

EMSC 441: Advanced Science Diving

4 Credits

Advanced scuba diving skills applied to underwater data collection and research. EM SC 441 Advanced Science Diving (4) EM SC 441 is a four credit advanced science diving course for students who have completed EM SC 440 (Science Diving), an equivalent course at a recognized AAUS member institution, or have been approved by the University Dive Safety Officer based on acceptable demonstration of practical and academic dive experience. Students must have a minimum of 20 logged dives beyond their basic open water certification dives by the start of the course. Scientific diving is concerned with the observation of underwater phenomena and the acquisition of scientific data. This course introduces students to some of the basic skills and techniques used in scientific diving, following the standards established by the American Academy of Underwater Sciences (AAUS) – with a significant emphasis on diver safety. The course covers theoretical aspects of science diving techniques. The course will focus on advanced techniques in underwater ecology, geology, paleontology and archaeology, leveraging expertise from PSU faculty in these disciplines. The course will include classroom sessions, pool sessions, and open water dives. The classroom and pool sessions and the open water dives will involve skills development and their application in research settings. Research will involve a variety of projects (e.g. fish surveys, lake sediment sampling for climate reconstruction, underwater mapping) – the exact nature of which will vary depending on the areas of expertise of the faculty and students involved. Each government or university underwater research program certifies its own divers based on standards that, at a minimum, conform to those of the AAUS. Successful completion of the course will allow the student diver in training to apply for science diver certification from the Penn State Science Diving Program. Certification is also dependant on a medical examination and is at the discretion of the University Dive Safety Officer; it is not automatically offered on completion of the course. The course is usually offered once a year in the fall semester and will involve several day trips (usually at weekends) to various river, lake, and quarry locations within the northeastern United States. There will be an additional fee charged to cover the costs of the open water dives and administrative charges for recreational dive certifications.

Prerequisite: successful completion of EM SC440 or waiver by University Dive Safety Officer based on acceptable demonstration of practical and academic dive experience

EMSC 460: Environmental Data Analytics

3 Credits

With the rapid increase in quality and quantity of environmental data, emerging data-driven analytical methods are becoming important for discovering patterns and making predictions about our Earth and environmental systems. The datasets, such as in-situ measurements, remote sensing observations acquired by satellite, airborne, and UAV systems, Earth system modeling outputs, and energy datasets, are generally characterized by different spatial and temporal scales and coverage, complex data structures, high dimensionality, and large data volume. It is important to understand the principles, strengths, and limitations of data-driven methods for Earth and environmental science applications, and to learn the practical skills for applying them to real-world datasets. This course introduces various data analytical methods focused on machine learning for Earth and environmental sciences.

A range of supervised and unsupervised methods for regression, classification, and clustering problems will be discussed with real-world examples, including but not limited to climatological data, biodiversity data, remote sensing imagery classification, and geomorphological analysis. This 3-credit course is designed to include lectures and class projects. The lectures will focus on the basic principles and environmental and earth science applications of machine learning algorithms, including regression (e.g., OLS, Ridge, LASSO, PCR), gradient descent optimization, classification (e.g., logistic regression, naïve Bayes, decision trees, random forest, support vector machine), neural networks and deep learning, and clustering (e.g., k-means, hierarchical, self-organizing map) techniques, etc. The class projects will include practical programming exercises in using these techniques for various real-world datasets. Students are encouraged to bring datasets from their own domain (e.g., geography, geoscience, materials science, meteorology, and energy) for analysis in the final project.

Prerequisite: (GEOG 365 or GEOG 485 or GEOG 489 or GEOSC 210 or GEOSC 444 or METEO 273 or EME 210 or MATSE 219 or CMPSC 101 or CMPSC 200 or CMPSC 201) and (MATH 110 or MATH 140 or MATH 140A or MATH 140B or MATH 140E or MATH 140G or MATH 140H)

EMSC 470W: Undergraduate Collaborative Research in Earth and Materials Sciences

1-6 Credits/Maximum of 6

Interdisciplinary research seminar involving students in the process of discovery, writing, and debate on issues of broad interest to Earth and Materials Sciences.

Writing Across the Curriculum

EMSC 494: Research Project Courses

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

EMSC 494H: Research Project Courses

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Honors

EMSC 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

EMSC 497: Special Topics

1-9 Credits/Maximum of 18

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest. Several different topics may be taught in one year or semester. A specific title may be used in each instance and will be entered on the student's transcript.

Earth Sciences (EARTH)

EARTH 2: The Earth System and Global Change

3 Credits

EARTH 2 is a broad introduction to the Earth and to the forces and processes that shape the present-day global environment. The course focuses on global-scale changes, both natural and human-induced. These include: global climate change, destruction of stratospheric ozone, tropical deforestation, species extinction, and the loss of biodiversity. The discussion of these modern environmental issues occupies about 40% of the course. Unlike other "environmental" courses, this one sets these issues in the context of the long-term evolution and natural variability of the Earth systems. Thus, the course is structured around three major themes—the issues of global change, time scales of change, and understanding the Earth as a system. By the end of this course, we expect students to: 1) Recognize that: - the Earth operates as a complex system, - there is considerable interaction between the different components of this system (e.g. atmosphere, oceans, solid Earth, and biota), - changes in one part of the system can be expected to impact all others to a greater or lesser degree. 2) Develop an understanding of how the Earth system operates at the global scale, and the consequences this has for regional variability. 3) Understand how this system has evolved through time. 4) Understand how to use systems and graphical analyses to predict system response to perturbations. As a result of this course, we expect students to: 1) Synthesize this information to better appreciate the complexity of modern global change issues. 2) Be in a position to make more informed judgments on the nature and seriousness of these issues.

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

EARTH 10: Energy and Earth's Climate

1 Credits

Energy and Earth's Climate examines the immense value we get from energy, where we get most of our energy, why the energy system must change eventually, and why a faster change would help us. Our ancestors burned trees and whales far faster than nature produced more, gaining good from the energy but causing big problems. Our use of fossil fuels allows us to live well, and to let the whales and trees grow back. But highly confident science shows that fossil-fuel-sourced carbon dioxide promises even bigger problems in a warming future, if we don't change course. This course is based on the widely viewed PBS series Earth: The Operators' Manual. In the series, Dr. Richard Alley's (Evan Pugh University Professor of Geosciences) presents an objective, accessible assessment of the Earth's problems and possibilities. Through this course, successful students will be able to: - Recognize the natural and human-driven systems and processes that produce energy and affect the environment - Explain scientific concepts in language non-scientists can understand - Find reliable sources of information on the internet - Use numerical tools and publicly available scientific data to demonstrate important concepts about the Earth, its climate, and resources

General Education: Natural Sciences (GN)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

EARTH 100: Environment Earth

3 Credits

This course is designed to introduce students to issues surrounding the development and maintenance of human civilization on Earth. This includes developing an understanding of how human population has grown over time, the resources required by humans and how this has changed over time, and the by-products of activities related to resource extraction on the environment and, hence, on human health and the cost of maintaining human civilization. A considerable focus is placed on developing critical thinking skills by using scientific data to describe, and evaluate the relative importance of, environmental issues. Accordingly, the course presents, and explains, scientific data in formats that students are likely to find in scientific journals, mass media, and websites. In this course, students will: * Develop an understanding of the Earth system and how it operates, * Quantify human demands on natural resources, * Learn how resource extraction and use impacts the environment, * Foster the ability to critically evaluate scientific arguments, and * Practice expressing reasoned opinions on complex problems. By the end of the semester, students will be able to: * Identify important, and human-relevant, environmental issues. * Understand the breadth and complexity of environmental issues. * Think critically about environmental issues. * Have scientifically-accurate discussions about environmental issues with others. * Propose, and evaluate critically, solutions to environmental issues.

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

EARTH 100H: Environment Earth: Environment and Energy

3 Credits

Examination of climate change and energy issues. EARTH 100H Environment Earth: Environment and Energy (3) (GN) In this course, students will be asked to investigate the natural processes that affect the Earth's climate and their effects on Life on Earth. Once a fundamental understanding of natural processes is developed, then an examination of the anthropogenic atmospheric changes covers the increases in greenhouse gases mainly due to fossil fuel use and agriculture. After discussing the potential environmental and economic impacts of increased greenhouse gases on Man and Nature, the major energy sources will be studied for their potential to meet increasing energy needs and their possible ability to mitigate climate change.

Honors

EARTH 101: Natural Disasters: Hollywood vs. Reality

3 Credits

"Natural Disasters: Hollywood vs. Reality" investigates a variety of natural hazards and disasters. We use the popular media as a starting point to motivate discussions and development of tools for analyzing the causes of disasters. Using excerpted segments of 'disaster films' in conjunction with scientific treatments, the class identifies the causes, consequences

and public perceptions of natural hazards. Small group discussions and cooperative research activities held 'real time' in the classroom are a major component of this course. The goal is to help students develop both an understanding of natural hazards and disasters, and enhance their understanding of scientific approaches to problem solving.

Bachelor of Arts: Natural Sciences

United States Cultures (US)

General Education: Natural Sciences (GN)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

EARTH 103N: Earth in the Future: Predicting Climate Change and Its Impacts Over the Next Century

3 Credits

Earth has a complex, fascinating, interconnected system of processes that control the state of the climate. If we can understand how this system works, then we can make intelligent predictions about the climate in the future. The future of climate is of great importance to the quality of life in the future. In this class, we will explore the workings of the climate system ζ at the present, and in the past ζ through a series of modules with hands-on learning activities. We will learn how simple and sophisticated computer models can provide useful tools for making predictions about what our climate will be like in the next few hundred years, which will be a critical time for our species as we endeavor to find a more sustainable way of living. A changing climate means changes in, among other things, temperature and precipitation, which will affect our water supplies, our energy consumption, and our ability to grow enough food to feed the people of Earth. A changing climate also means a range of stresses on the global economy. We will examine these climate impacts, but we will not stop there ζ we will also focus our attention on what can be done to help us successfully meet these challenges

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

EARTH 104N: Climate, Energy and Our Future

3 Credits

This class explores how we can shift our society to a sustainable energy system that improves our quality of life, our economy, and our natural environment. Energy provides well-being, jobs and about 10% of our economy, while powering the rest. But, energy is also the least sustainable part of our economy—we rely on fossil fuels that we are burning about a million times faster than nature saved them for us. These fossil fuels, mostly coal, oil and gas, help us grow food and avoid some environmental disasters, but the limited fossil-fuel supplies mean we must move toward a more sustainable system. And, we will be better off by avoiding damaging climate changes from fossil-fuel CO₂ if we move before all of the fossil fuels are gone. The warming influence of fossil-fuel CO₂ is shown by physics known for more than a century and really refined by the US Air Force after WWII. History, data, and models confirm the physics, giving us high confidence that burning much of the remaining

fossil-fuel resource and releasing the CO₂ will cause much larger climate changes than we have experienced so far. This class will explore the big issues in energy, including the value of burning oil rather than whales, and other historical insights. Then, after looking at the basic science and engineering of our energy system and how it affects climate, we will examine the multitude of options for the future, including alternative energy sources, conservation, and intentionally manipulating the climate. The economics, policies and ethics of these options will help us consider how to build a sustainable energy system that will encourage economic growth and improved quality of life, while at the same time defending against potentially catastrophic future climate change.

General Education: Natural Sciences (GN)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies
 GenEd Learning Objective: Soc Resp and Ethic Reason

EARTH 105N: Environments of Africa: Geology and Climate Change

3 Credits

Significant natural features of Africa as related to human endeavor; case studies include the Nile, climate change, and natural resources. EARTH 105N Environments of Africa: Geology and Climate History (3) (GN/GS;IL)(BA) This course meets the Bachelor of Arts degree requirements. Environments of African: Geology and Climate History investigates the interrelationships between geology, hydrology, land use, societies and human development in several areas of Africa. We focus primarily on regions north of the equator, although there is a brief segment on South Africa mining. Specific topics include the Nile River (sources of the Nile, agricultural practices, effects of damming the Nile, hydropolitics), the Sahara and Sahel (salt mines, climate change, drought, water resources), and natural resources and their role in politics (gold, diamonds, oil, and gas). The theme of climate change cuts across the entire semester. The quantitative and analytical components of the course involve working through a combination of map exercises and data manipulations (flood stage, groundwater age, rainfall and temperature records). Writing exercises are conducted both individually (essays, analysis of readings) and in collaborative teams (climate change analysis). Readings for the course come from the popular scientific literature; current refereed research journals, and transcribed oral histories of African people. Faculty lectures will comprise ~30% of the course, and student presentations ~20%, with the remainder of the time devoted to in-class collaborative exercises. There are no pre-requisites for this course. It will be offered annually with a maximum enrollment of 100 students. The goals of the course are to (1) explore the relationship between human society and the natural world; (2) develop quantitative and scientific reasoning skills; (3) introduce the scientific study of Africa. The topics that we explore (e.g., global climate change, allocation of limited water resources) are important political issues that affect people in developed and developing countries throughout the world. It is crucial that the next generation of citizens be informed as to how scientific data is obtained, presented, and interpreted by scientists as well as politicians. Students will work individually and (more commonly) in teams to analyze real data from natural African systems, and will then report their findings to the class both orally and in writing. Examples of the data sets include 100-year records of monthly rainfall and temperature from stations throughout the continent, fossil suites from ancient lake cores in the modern Sahara, and historical writings of Nile flood levels

from pre-Biblical times. Through these exercises students will gain an appreciation of the scope of geological time and change, and will be able to incorporate this new long-term perspective into identification and resolution of modern questions.

Bachelor of Arts: Natural Sciences
 International Cultures (IL)
 General Education: Natural Sciences (GN)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

EARTH 107N: Coastal Processes, Hazards and Society

3 Credits

Ten percent of the world's population or approximately 600 million people live on land that is within 10 meters of sea level. This low elevation coastal zone includes some of the world's most populous cities including New York, London, Miami, Calcutta, Tokyo, and Cairo. This zone is threatened by a host of environmental challenges, including but not limited to sea level rise. The overarching goal of this course is to provide students with a global perspective of coastal landscapes, the processes responsible for their formation, diversity and change over time, as well as socioeconomic and policy responses to current biophysical changes in the coastal zones around the world. Students will use real-world coastal data sets to evaluate hazards such as hurricanes and tsunamis and their effects on coastal populations. Coastal processes to be considered include tectonic settings, effects of glaciation, sediment supply, and wave and tidal energy. The impacts of sea level rise and its local effects on communities will be a focus. Engineering solutions to projected sea level rise impacts such as coastal flooding and habitat loss in coastal areas will also be examined.

Recommended Preparation: MATH 22
 General Education: Natural Sciences (GN)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Soc Resp and Ethic Reason

EARTH 109: The Fundamentals of Shale Energy Development

3 Credits

Energy is a critical component of modern society, yet we face significant challenges associated with balancing energy demands, energy security, environmental sustainability, and stable economics with sound regulations and policy. Unconventional energy development from shale formations has been a game changer for the fossil fuel industry over the past decade and is projected to continue to grow over the next several decades. But there are still many uncertainties on how to optimally develop these largely untapped resources to maximize the social benefits while minimizing environmental impacts. This course covers key topics needed to provide students with an overview of the science, engineering, environmental impacts, geopolitics, economics and societal impacts of shale energy development. These topics include geology, resource assessment, drilling technology, hydraulic fracturing methods,

environmental impacts, economics, workforce needs, infrastructure, utilization trends, regulation, energy policy, energy exports, international geopolitics, societal considerations, and the future of unconventional energy and its relationship with other energy forms. The class is geared toward a broad audience of students to provide a big picture view of the shale energy landscape. The course is structured in four parts. The course begins with the geology of shale (part 1), then examines engineering and environmental aspects of shale energy production (part 2), then explores relevant economic, geopolitical and societal issues (part 3) and ends with a capstone project (part 4). Shale energy development in a key U.S. shale basin is used in parts 1 -3 to provide examples and illustrate concepts, impacts and problems. In the capstone project, students will learn about the shale energy development in another basin of their choosing and present their findings to the class, thereby developing further the students' understanding of the core course content while gaining an overview of shale energy development beyond the U.S. shale basin presented in the course.

General Education: Natural Sciences (GN)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

EARTH 111N: Water: Science and Society

3 Credits

The Earth is often called "The Blue Planet", a reference to the fact that over two-thirds of its surface is covered by water. Despite its apparent abundance, water is a valuable and limited resource; less than 2.5% of the water on the planet is fresh, and only one third of that is potable. The small fraction of Earth's water that is useable to humans is distributed very unevenly. As a result, conflicts over water occur from the local level, for example: pitting rancher against developer - to the global level, at which nations square off against one-another in war and use water as a mechanism for imposing sanctions. The dire situation in some regions has spurred numerous research and technological endeavors, such as water desalinization, genetic engineering of crops, and major overhauls of agricultural practice. In this course, we explore the relationships between water and human populations, with emphasis on water resources and quality in the Western U.S., and how these have shaped history and modern politics. We will focus first on developing the scientific underpinnings of water's unique properties, behavior, movement, occurrence, and quality. With this background, we will then discuss key issues relating to modern and historical conflicts, human impacts on the natural world, and human engineering accomplishments driven by our thirst for this valuable resource. We will discuss historical examples from the American West, specifically the development of water resources in Arizona, Colorado and California. We will also explore modern and historical conflicts between stakeholders. Major themes will include political and economic conflicts over (1) water resources - for example, balancing agricultural and urban demands in the American west in the Denver and Los Angeles metropolitan areas, (2) water quality - for example, considering the impact of economically profitable human activities on water quality and transmission of disease, and (3) human impacts on natural processes, specifically connecting human activity with our cultural history of water use and exploration in the American West.

United States Cultures (US)
 General Education: Natural Sciences (GN)
 General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies
 GenEd Learning Objective: Soc Resp and Ethic Reason

EARTH 112: Climate Science for Educators

3 Credits

Concepts of climate sciences highlighted by evidence-based explanations and scientific discourse in preparation for K-6 science teaching. This introductory, multidisciplinary course will focus on the interactions among physical science concepts, earth science concepts, and scientific practices to develop understandings about Earth's climate system. The course is primarily intended for prospective elementary school teachers (Childhood and Early Adolescent Education, PK-4 and 4-8 majors), although it is available to other non-science majors. The development of models is an integral part of the course as a means to facilitate climate systems thinking by serving as a means to explain phenomena and predict outcomes. In addition, students in the course consider how what they are learning applies to teaching by offering opportunities to think about how they might extend their knowledge to teaching contexts. This course consists of integrated lectures and laboratory investigations in class meetings each week, with work on collaborative projects outside of class.

Cross-listed with: SCIED 112

EARTH 150: Dinosaur Extinctions and Other Controversies

3 Credits

One of the most dramatic developments in the Earth sciences is the suggestion that extinction of the dinosaurs was caused by a meteorite impact. Evidence for and against this controversial idea is just one of the subjects addressed by this course, dealing broadly with the history of our planet, the evolution of life upon it, and the sometimes rocky development of our understanding of Earth history. In addition to dinosaur extinction, we will discuss issues relating to catastrophic vs. gradual theories about the Earth's history, fossils and the history of life, and mass extinctions, including whether or not we're in the middle of one now. How are scientific discoveries made? What distinguishes a scientific argument from a non-scientific one? What roles do social and historical factors play in the construction and acceptance of scientific theories? Questions such as these will permeate the course. Readings will include selected texts by leading scientists, with supplements from the primary scientific literature, including current discoveries published in Science and Nature.

Bachelor of Arts: Natural Sciences
 General Education: Natural Sciences (GN)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Soc Resp and Ethic Reason

EARTH 155N: Scientific Controversies and Public Debate

3 Credits

EARTH 155N Scientific Controversies and Public Debate is an introduction to critical thinking about the messages consumers get from public relations (PR) on behalf of industry, and from scientists

regarding environmental health risks. Because such messages may be contradictory, the course seeks to help students understand the extent to which message communication influences our perception of risk. The course is designed to familiarize students with science topics that, because of message manipulation, are (or historically were) perceived as controversial (e.g., smoking, secondhand smoke, flame retardants, nuclear energy, the ozone hole, global climate change, acid rain, junk science, rBGH milk, biosolids, pesticides, vaccines, and endocrine disrupting chemicals). Students will learn the science and environmental health risks underlying several controversial topics. They will be guided to consider how industry and science messaging has shaped their own perceptions of risk. Then, using tools for effective communication, and avoiding communication pitfalls and deceptive tactics, students will combine accurate science content with compelling storytelling in a professional-quality video to inform the public about a targeted environmental health risk and persuade the public to avoid that risk. EARTH 155N focuses on the intersection between science and communication in the realm of environmental health. The course guides students to closely examine controversial environmental health topics, learn the science to understand public health risks, learn strategies to identify false or misleading arguments, and then think critically about industry and science messaging, including the impact of such messaging on their own lives. EARTH 155N Scientific Controversies and Public Debate is an interdomain course that integrate GN environmental health topics with GH message evaluation. It has no prerequisites, and is designed for students who may be unfamiliar with, or have only introductory knowledge of controversial environmental health topics, the norms of science communication, and public relations techniques.

General Education: Humanities (GH)

General Education: Natural Sciences (GN)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Integrative Thinking

EARTH 200N: Earth Systems Through a Soc & Envir Justice Lens

3 Credits

EARTH 200N Earth Systems through a Social and Environmental Justice Lens is an introduction to critical thinking about the intersectionality between environmental degradation and human harm. The course seeks to help students understand the relationships among lack of access (e.g., to credit, affordable housing, good schools, greenspace, healthcare, nutritious food, walkable streets), social factors (e.g. racism, poverty, unemployment), and environmental hazards (e.g., pollution, natural disasters, disease, heat islands, rising sea level, melting permafrost) for marginalized groups, and the institutional structures that support inequality. The course is designed to familiarize students with commonly misunderstood SJ topics such as race as a social (not biological) construct, historical racial inequality, and its present-day consequences (e.g., wealth and education gaps), environmental racism, the root causes of urban poverty, redlining, etc. Case studies will familiarize students with major environmental issues in each sphere (anthroposphere, biosphere, geosphere, hydrosphere, cryosphere, and atmosphere). In addition to academic content, research suggests that case studies help students make meaningful affective connections and practice empathy. The case studies presented in EARTH 200N show EJ issues from the perspective of marginalized groups that have organized to reduce inequalities. Students will learn the science underlying major environmental issues associated with exceeding Earth's planetary boundaries in areas such as biogeochemical cycling, climate change,

chemical pollution, and freshwater use. The scale (local, regional, global) of various environmental issues will be discussed. EARTH 200N Earth Systems through a Social and Environmental Justice Lens is an interdomain course that integrates GN Earth systems science with GS social justice (SJ) and environmental justice (EJ). It has no prerequisites, and is designed for students who may not be familiar with the intersectionality between environmental degradation and human harm.

General Education: Natural Sciences (GN)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Integrative Thinking

EARTH 240: Coral Reef Systems

4 Credits

The geography, geology, biology ecology and chemistry of coral reef ecosystems; threats to reef environments; and techniques for reef surveying and monitoring; with local geologic and distant modern field studies. EARTH 240 Coral Reef Systems (4) (GN) The course introduces students to coral reef environments, past and present. It describes the processes that control the distribution, growth, and morphology of reefs and introduces students to the complexity of the coral reef ecosystem. The course emphasizes the role that reefs play in the natural environment and examines their importance to society both globally (e.g. in terms of biodiversity and its potential benefits) and locally in terms of, for example, food supply and tourism. We then look at the natural disturbances (such as disease, storms, sea surface temperature variations) that affect the reef, as well as ways in which reefs are threatened from human impacts, with an emphasis on global climate change and the long-term outlook for reef survival. Students will work in groups to research elements of the system, first at a global scale, and then focusing specifically on one region – the Bahamas platform. Students will look at the history of the Bahamas platform and its relationship to the present nature and distribution of coral reefs. They will then examine these in the context of their social, cultural, and economic importance to local communities. A third component of the course will concentrate on the identification of vertebrate and invertebrate species and substrate conditions that are important indicators of reef health. There will then be a one-week field trip to a coral reef system to conduct reef surveys. The surveys follow the Reef Check protocol (a volunteer, community-based monitoring protocol designed to measure the health of coral reefs on a global scale). Reef Check is administered out of the University of California at Los Angeles. The coral reef surveys will be conducted on scuba and the field trip and participation in the survey are required elements of the course. Students who are not scuba certified will be given the opportunity to obtain open water scuba certification as part of the course, through Penn State's Science Diving Program (The PSU Science Diving Program is a member of the American Academy of Underwater Sciences). There will be an additional charge for the scuba certification course and the field trip. Student assessment will be through group presentations, term papers, 3 exams and their contribution to the field program. The course satisfies part of the field requirement for the University's Marine Science Minor and serves as an introduction to the Science Diving Program.

Prerequisite: Prerequisite or concurrent: KINES045 or Nationally Recognized Scuba Certification

EARTH 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

EARTH 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

EARTH 303: Analysis of Earth Future Scenarios

3 Credits

Climate change is an existential threat that will impact every aspect of life in countries around the world, including basic needs for human survival such as food and water. Understanding the systems that control Earth's climate is key to making predictions about the future. Even though the direction of climate change is clear, predictions are uncertain because of the complexity of the climate system and the ability of countries to curb carbon emissions. Widespread understanding of the scientific issues and choices among citizens is central to making sound decisions about sustainability in their own lives. Beyond this, communication of this understanding to business leaders and lawmakers is critical to making changes in policy and the corporate world that will impact future sustainability. In this course, students will learn about the climate system, predictions for the coming century and how they are made, the impact on food, water, and sea level, and what changes are necessary to help us successfully meet these challenges. A fundamental part of the course will be the development and communication of sound policy aimed at lawmakers and corporate leaders.

Prerequisite: (ENGL 15 or CAS 100A) and (GEOSC 001 or GEOSC 020 or EARTH 002 or EARTH 100 or GEOG 30N)

EARTH 400: Earth Sciences Seminar

3 Credits

Interdisciplinary study of environmental problems in the earth sciences.

Prerequisite: seventh-semester standing in the Earth major

EARTH 402: Modeling the Earth System

3 Credits

Earth 402 is a course that focuses on modeling Earth systems with a focus on the climate system, including the economic and policy aspects of energy and carbon emissions. By building and experimenting with numerical models of these systems, students gain insight into the dynamics of these systems, including the future consequences of different policy decisions that impact the climate system.

Prerequisite: EARTH 2; EARTH 103 MATH 140; MATH 110; MATH 83; CHEM 110

EARTH 412: Urban Sustainability

3 Credits

EARTH 412 examines the relationships between people and the environment in the context of urban spaces with international

context, United States national conditions and perspectives, and local implementation and practice. The course explores the fundamental question of "What is urban sustainability?" by: First, framing sustainability through the unique aspects of urban sustainability including political, economic, and social challenges; and investigating the roots of unsustainability and possible ways to address it. Second, the dimensions of sustainability will introduce urban food production and food systems issues; challenges linking affordable housing and transportation alternatives; urban waste management problems; and urban water systems incorporation of green infrastructure and low-impact development research and implementation. And third, improving sustainability with an introduction to industrial ecology; the role of intermediaries and civic engagement; and an examination of the role of government policy in addressing urban sustainability through legislation, regulation, and judicial action. Concepts of sustainable development principles, justice and equity, urban food policy, affordable housing, transportation options, water and green infrastructure, waste management, industrial ecology, sustainable design, and community development will be addressed via in class activities and (virtual or in-person) field trips.

Prerequisites: EARTH 2 or SOILS 101 or SUST 200 or GEOG 30N or GEOSC 1; Recommended Preparation: Completion of one of the listed prerequisite courses, or permission of program instructor.

EARTH 495: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Prerequisite: prior approval of proposed assignment by instructor

EARTH 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

EARTH 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

EARTH 498: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Economics (ECON)

ECON 14: Principles of Economics

3 Credits

ECON 14 Principles of Economics (3)(GS)(BA) This course meets the Bachelor of Arts degree requirements. Economics is the study of how people satisfy their wants in the face of limited resources. Economics is a consistent set of methods and tools that is valuable in analyzing

certain types of problems related to decision-making, resource allocation, and the production and distribution of goods and services. There are two main branches of economics, microeconomics, and macroeconomics. Microeconomics deals with the behavior of individual households and firms and how that behavior is influenced by government. Macroeconomics is concerned with economy-wide factors such as inflation, unemployment, and overall economic growth. ECON 14 is a survey course that covers introductory topics from both microeconomic and macroeconomics. The course is designed as a general education course in basic economics for non-majors. An important goal of this course is to take each student as far down the road of "thinking like an economist" as possible. The course begins by studying microeconomic topics, including supply and demand, elasticity, and market efficiency. The course then switches course to macroeconomics topics, including GDP, income, growth, inflation, unemployment, fiscal policy, and monetary policy. A variety of mechanisms is used to assess student performance. These evaluation methods typically include exams, quizzes, and homework assignments. Students who have passed ECON 102 or ECON 104 or who are registered in the College of Business Administration may not schedule this course.

Bachelor of Arts: Social and Behavioral Sciences
 General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

ECON 102: Introductory Microeconomic Analysis and Policy

3 Credits

Methods of economic analysis and their use; price determination; theory of the firm and distribution. ECON 102 Introductory Microeconomic Analysis and Policy (3)(GS)(BA) This course meets the Bachelor of Arts degree requirements. Economics is the study of how people satisfy their wants in the face of limited resources. One way to think about economics is that it is a consistent set of methods and tools that is valuable in analyzing certain types of problems related to decision-making, resource allocation, and the production and distribution of goods and services. There are two main branches of economics, microeconomics, and macroeconomics. Macroeconomics is concerned with economy-wide factors such as inflation, unemployment, and overall economic growth. Microeconomics deals with the behavior of individual households and firms and how government influences that behavior; it is the subject of this course. More specifically, ECON 102 is an introduction to microeconomic analysis and policy. The principal objective of the course is to enable students to analyze major microeconomic issues clearly and critically. Students will be introduced to the methods and tools of economic analysis, and these analytical tools will be applied to questions of current policy interest. Learning these methods and tools and applying them to interesting policy questions and issues is sometimes called "thinking like an economist." An important goal of this course is to take each student as far down the road of "thinking like an economist" as possible. A variety of mechanisms are used to assess student performance. These evaluation methods typically include exams, quizzes, homework assignments, and group projects. ECON 102 is an introductory course in economics and as such, serves as a prerequisite for several microeconomics-oriented 300-level courses. It is also a required course for all majors and minors in economics, and meets requirements for a General Education (GS) or Bachelor of Arts social science course. Students who have completed ECON 302 may not enroll in this course.

Bachelor of Arts: Social and Behavioral Sciences
 General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

ECON 102H: Introductory Microeconomic Analysis and Policy (Honors)

3 Credits

ECON 102H Introductory Microeconomic Analysis and Policy, Honors (3)(GS)(BA) This course meets the Bachelor of Arts degree requirements. Economics is the study of how people satisfy their wants in the face of limited resources. One way to think about economics is that it is a consistent set of methods and tools that is valuable in analyzing certain types of problems related to decision-making, resource allocation, and the production and distribution of goods and services. There are two main branches of economics, microeconomics, and macroeconomics. Macroeconomics is concerned with economy-wide factors such as inflation, unemployment, and overall economic growth. Microeconomics deals with the behavior of individual households and firms and how government influences that behavior; it is the subject of this course. More specifically, ECON 102 is an introduction to microeconomic analysis and policy. The principal objective of the course is to enable students to analyze major microeconomic issues clearly and critically. Students will be introduced to the methods and tools of economic analysis, and these analytical tools will be applied to questions of current policy interest. Learning these methods and tools and applying them to interesting policy questions and issues is sometimes called "thinking like an economist." An important goal of this course is to take each student as far down the road of "thinking like an economist" as possible. A variety of mechanisms are used to assess student performance. These evaluation methods typically include exams, quizzes, and homework assignments. This course serves as a prerequisite for several microeconomics-oriented 300-level courses. This honors version of the course is designed to provide the opportunity to pursue this course at a more in-depth and mathematically rigorous level.

Recommended Preparation: MATH 110 or MATH 140
 Bachelor of Arts: Social and Behavioral Sciences
 General Education: Social and Behavioral Scien (GS)
 Honors
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

ECON 104: Introductory Macroeconomic Analysis and Policy

3 Credits

This course meets the Bachelor of Arts degree requirements. Economics is the study of how people satisfy their wants in the face of limited resources. One way to think about economics is that it is a consistent set of methods and tools that is valuable in analyzing certain types of problems related to decision-making, resource allocation, and the production and distribution of goods and services. There are two main branches of economics, microeconomics, and macroeconomics. Microeconomics deals with the behavior of individual households and firms and how that behavior is influenced by government. Macroeconomics is concerned with economy-wide factors such as inflation, unemployment, and overall economic growth; it is the subject of this course. More specifically, ECON 104 is an introduction to macroeconomic analysis and policy. The principal objective of the

course is to enable students to analyze major macroeconomic issues clearly and critically. Students will be introduced to the methods and tools of economic analysis, and these analytical tools will be applied to questions of current policy interest. Broadly, the course focuses on the determination of national income, on unemployment, inflation, and economic growth in the context of a global economy, and on how monetary and fiscal policy, in particular, influence the economy. Learning the methods and tools of economics and applying them to interesting policy questions and issues is sometimes called "thinking like an economist." An important goal of this course is to take each student as far down the road of "thinking like an economist" as possible. A variety of mechanisms is used to assess student performance. These evaluation methods typically include exams, quizzes, homework assignments, and group projects. ECON 104 is an introductory course in economics, and as such, serves as a prerequisite for 300-level courses in intermediate macroeconomic analysis, international economics, and money and banking. It is also a required course for all majors and minors in economics, and meets requirements for a General Education or Bachelor of Arts Social Science (GS) course. Students who have completed ECON 304 may not enroll in this course.

Bachelor of Arts: Social and Behavioral Sciences
General Education: Social and Behavioral Scien (GS)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

ECON 104H: Introductory Macroeconomic Analysis and Policy (Honors)

3 Credits

ECON 104H Introductory Macroeconomic Analysis and Policy (3)(GS) (BA) This course meets the Bachelor of Arts degree requirements. Economics is the study of how people satisfy their wants in the face of limited resources. One way to think about economics is that it is a consistent set of methods and tools that is valuable in analyzing certain types of problems related to decision-making, resource allocation, and the production and distribution of goods and services. There are two main branches of economics, microeconomics, and macroeconomics. Microeconomics deals with the behavior of individual households and firms and how that behavior is influenced by government. Macroeconomics is concerned with economy-wide factors such as inflation, unemployment, and overall economic growth; it is the subject of this course. More specifically, ECON 104H is an introduction to macroeconomic analysis and policy. The principal objective of the course is to enable students to analyze major macroeconomic issues clearly and critically. Students will be introduced to the methods and tools of economic analysis, and these analytical tools will be applied to questions of current policy interest. Broadly, the course focuses on the determination of national income, on unemployment, inflation, and economic growth in the context of a global economy, and on how monetary and fiscal policy, in particular, influence the economy. Learning the methods and tools of economics and applying them to interesting policy questions and issues is sometimes called "thinking like an economist." An important goal of this course is to take each student as far down the road of "thinking like an economist" as possible. A variety of mechanisms is used to assess student performance. These evaluation methods typically include exams, quizzes, and homework assignments. This course serves as a prerequisite for 300-level courses in intermediate macroeconomic analysis, international economics, and money and banking. This honors version of the course is designed to provide the

opportunity to pursue this course at a more in-depth and mathematically rigorous level.

Recommended Preparation: MATH 110 or MATH 140
Bachelor of Arts: Social and Behavioral Sciences
General Education: Social and Behavioral Scien (GS)
Honors
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

ECON 106: Statistical Foundations for Econometrics

3 Credits

Basic statistical concepts used in economics. Topics include probability distributions, expectations, estimation, hypothesis testing, correlation, and simple regression. Students who have completed ECON 306 may not schedule this course.

Bachelor of Arts: Social and Behavioral Sciences

ECON 197: Special topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Bachelor of Arts: Social and Behavioral Sciences

ECON 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)

ECON 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

ECON 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Social and Behavioral Sciences

ECON 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)

ECON 302: Intermediate Microeconomic Analysis

3 Credits

ECON 302, Intermediate Microeconomics (3 credits) (GS) (BA). This course teaches microeconomic theory at an intermediate undergraduate level, taking a more mathematical approach. Major components of the course are constrained maximization, the theory of the consumer, the theory of the producer, general equilibrium, market structures, and game theory. The goal of this course is to give the student the fundamentals of microeconomics that will be applied widely to upper level courses in economics. The course begins by developing a model of consumer behavior. This model is extended to derive a consumer's demand for a good, and then numerous applications of this model are investigated, including income and substitution effects of a price change, as well as the determination of relative prices in a general equilibrium framework. The supply side of the market is then discussed. The theory of the firm is developed, and students will explore firm behavior and welfare analysis in various market settings including perfectly competitive markets, monopoly, and oligopoly with strategic interaction between firms. Economics is an analytical subject. Students will learn to use inductive reasoning and other scientific methodology necessary to understand this and other (social) sciences. In short, students will learn to think like an economist. The goal of this course is to extend student understanding of the topics introduced in the principles-level class to the way they are applied in the upper level courses in economics.

Enforced Prerequisite at Enrollment: ECON 102

Bachelor of Arts: Social and Behavioral Sciences
 General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

ECON 302H: Intermediate Microeconomic Analysis (Honors)

3 Credits

ECON 302H Intermediate Microeconomic Analysis (Honors) (3) (GS) (BA) This course is the honors version of ECON302 and meets the Bachelor of Arts degree requirements. There are two branches within the discipline of economics: microeconomics, focused on the behavior of individual economic actors (consumers, firms, and government) and macroeconomics, focused on economic aggregates (e.g., inflation, unemployment, aggregate economic growth). There are four core courses in economics that are required of all majors and minors: introductory and intermediate courses in microeconomics and macroeconomics. This course is the upper-level core course in microeconomic analysis. Students will learn, at a deeper level than that covered in the beginning microeconomics course (ECON 102), and with extensive use of calculus, about supply and demand, consumer theory, the theory of the firm, market structure and market power, factor markets, and extensions to consider uncertainty, missing markets, and limited information. Students will develop their skills for analysis of microeconomic issues. The skills learned in this course are necessary for a student to succeed in advanced courses. As such, this course is a prerequisite for a large number of microeconomics-oriented courses at the 400 level. This honors version of intermediate microeconomics is designed to provide the opportunity for students with advanced knowledge to pursue this key course at a more rigorous and in-depth level.

Enforced Prerequisite at Enrollment: ECON 102 and (MATH 110 or MATH 140)

Bachelor of Arts: Social and Behavioral Sciences
 General Education: Social and Behavioral Scien (GS)
 Honors
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

ECON 304: Intermediate Macroeconomic Analysis

3 Credits

ECON 304 (Intermediate Macroeconomics) (3) (GS) (BA). This course looks at the causes and consequences of business cycles. Students begin by examining key macroeconomic variables, including nominal and real interest rates, nominal and real GDP, unemployment rates, and potential economic growth. A two-period consumption model is also analyzed with the life cycle theory of consumption. Economic models are studied to analyze these topics, and macroeconomic goals for a society are discussed. After acquiring many analysis tools, the course discusses general equilibrium, where formal theories can model a variety of shocks that hit the macroeconomy and the corresponding reactions in a variety of markets. Related topics include the production function, marginal productivity of capital, firm investment, labor demand, labor supply, marginal product of labor, the supply side of the economy, and aggregate demand. After establishing a solid understanding of general equilibrium, students will examine the Federal Reserve, monetary policy, the market for reserves, open market operations, and quantitative easing. The course finishes with lessons comparing and contrasting classical economic theory vs. Keynesian economic theory. The strengths and weaknesses of each theory are considered relative to the business cycle data.

Enforced Prerequisite at Enrollment: ECON 104

Bachelor of Arts: Social and Behavioral Sciences
 General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

ECON 304H: Intermediate Macroeconomic Analysis (Honors)

3 Credits

ECON 304H Intermediate Macroeconomic Analysis (Honors) (3) (GS) (BA) This course is the honors version of ECON304 and meets the Bachelor of Arts degree requirements. There are two branches within the discipline of economics: microeconomics, focused on the behavior of individual economic actors (consumers, firms, and government) and macroeconomics, focused on economic aggregates (e.g., inflation, unemployment, aggregate economic growth). There are four core courses in economics that are required of all majors and minors: introductory and intermediate courses in microeconomics and macroeconomics. This course is the upper-level core course in macroeconomic analysis. Students will learn, at a deeper level than that covered in the beginning macroeconomics course (ECON 104), and with extensive use of calculus, about the measurement and structure of the national economy, long-run economic performance and the factors that influence it, business cycles and macroeconomic policy, and the environment and institutions that are pertinent to macroeconomic policy. Students will develop their skills for analysis of macroeconomic issues and policy. The skills learned in this course are necessary for a student to succeed in advanced courses. As such, this course is a prerequisite for a large number of macroeconomics-oriented courses at the 400 level. This honors version of intermediate macroeconomics is designed to provide the opportunity for students with

advanced knowledge to pursue this key course at a more rigorous and in-depth level.

Enforced Prerequisite at Enrollment: ECON 104 and (MATH 110 or MATH 140)

Bachelor of Arts: Social and Behavioral Sciences
General Education: Social and Behavioral Scien (GS)
Honors

GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

ECON 306: Introduction to Econometrics

3 Credits

The implementation of statistical techniques to analyze data and address economic questions. Econometric results are produced and assessed.

Enforced Prerequisite at Enrollment: ECON 106

ECON 306H: Introduction to Econometrics

3 Credits

The implementation of statistical techniques to analyze data and address economic questions. Econometric results are produced and assessed. ECON 306H Introduction to Econometrics (3) In this course students learn basic quantitative methods used in applied economics, focusing on linear regression models and their applications. The course will cover topics similar to those covered in ECON 306 but with more mathematical rigor (i.e., using calculus). Following an introduction and reviews of probability and statistics, the course will focus on: (1) the statistical properties of commonly-used estimators and test statistics in regression models, (2) how to use them in practice for statistical inference, and (3) the issue of endogeneity and instrumental variables. Students will study both practical and theoretical aspects of econometrics, by which they will be able to implement the basic methods in practice and to understand the limitations of these methods. This course is an honors version of the second quantitative course in economics that is now required of all economics majors. As noted above, students will learn both theoretical and practical aspects of econometrics, so that they will be able to carry out econometric analyses of data. Evaluation of student performance will be based on homework assignments, midterm exams, and a final exam. Typically, the homework assignments would account for 20 percent of the overall course grade, each of two midterm exams would count for 25 percent of the grade, and the final exam would count for the remaining 30 percent of the grade. This course has ECON 106/106H, Statistical Foundations for Econometrics, as a prerequisite, and will use calculus. Further, the course is a prerequisite for advanced course work in econometrics, such as ECON 465W, ECON 466W, and ECON 483W, as well as other 400-level courses requiring econometrics.

Enforced Prerequisite at Enrollment: ECON 106 and (MATH 110 or MATH 140)

Honors

ECON 315: Labor Economics

3 Credits

Labor Economics, ECON 315 (3 credits) (GS) (BA). This course is designed to develop the concepts and techniques of labor economic theory and its applications. Key questions to consider for the course include: Why do some people earn more than others? When would people

choose to work or not? When would someone choose to further his or her education? Do earnings differences necessarily mean discrimination? To answer these questions, students will begin the course by learning the basics of the labor market, including labor demand and labor supply. Employment and earnings are then discussed, including the definition of unemployment, different types of unemployment, and reasons individuals would choose to work or not. Data is used to examine labor market trends and their implications. The course also explores human capital, wage determination, collective bargaining, wage differentials, discrimination, and related government policies. Considerable emphasis will be placed on problem solving and the application of labor economics to selected public policy issues and current economic events. Knowledge and understanding will be assessed through exams, homeworks, and a final project. This course is one of several 300-level electives which can be used toward the Economics major and meets requirements for a General Education (GS) or Bachelor of Arts social science course.

Enforced Prerequisite at Enrollment: ECON 102

Bachelor of Arts: Social and Behavioral Sciences
General Education: Social and Behavioral Scien (GS)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

ECON 323: Public Finance

3 Credits

ECON 323, Public Finance (3) (GS) (BA). This course examines contemporary fiscal institutions in the United States, public expenditures, public revenues, and the incidence of major taxes such as the personal income tax, the corporate income tax, and consumption taxes. We also discuss intergovernmental fiscal relations in a federal system of government, and public debt (or deficit financing). We explore the economic rationale for, the current data, and status of the political debate on these topics and others as time permits. Some of the key topics discussed in the lectures include externalities and solutions to market failure associated with them, efficient provision of public goods, and cost-benefit analysis as a nonmarket way to allocate scarce resources. We also devote a substantial amount of time to the market for health care and the role of government in the provision of health care in the United States. In addition to government's role in health care, we spend a great deal of time on other major federal government spending programs including social security and a number of spending programs targeted at low income citizens. The latter includes the Temporary Assistance for Needy Families (TANF) and the Supplemental Nutrition Assistance Program (SNAP). Here, students are expected to critically analyze the major effects of these programs on poverty as well as incentives to work. On the revenue side of public finances, we focus on both the redistributive and efficiency effects of taxation. We discuss the statutory and economic incidence of consumption taxes, the personal income tax, and the corporate income tax. The last part of the course includes two major topics deficit financing and intergovernmental fiscal relations. In the deficit-financing chapter, we focus on the federal government debt. Students learn about the different measures of public debt, which include gross national debt, intergovernmental debt, and debt held by the public. Under intergovernmental fiscal relations, we discuss the delineation of spending responsibilities between the federal and state governments. We also discuss major funding sources for states and local governments in the United States.

Enforced Prerequisite at Enrollment: ECON 102

Bachelor of Arts: Social and Behavioral Sciences

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

ECON 333: International Economics

3 Credits

ECON 333, International Economics (3 credits) (GS) (BA). This course applies the knowledge from Introductory of Microeconomics (ECON 102) and Introductory of Macroeconomics (ECON 104) into International trade. Students will learn about why nations trade and the effects of trade on both consumer and producer. Some people will gain and some people will lose from trade and students will learn how to measure gain and loss from trade. This class also introduces trade barrier policies imposed by the government such as tariff, quota, subsidy and other commercial policy such as dumping and countervailing duty. The creation of the international organizations, such as the World Trade Organization (WTO) and General Agreement on Tariffs and Trade (GATT) are discussed. Later in the course, the Macroeconomics side of the international trade is discussed as well as the Balance of Payments, which is a way to summarize and measure a countries trade with the rest of the world. Students will also examine some of the basics of the foreign exchange market and the relationship with the interest rates. Toward the end of the course, the lessons will cover the International monetary systems, which include the gold standard, Bretton Woods system, fixed exchange rates, and flexible exchange rates

Enforced Prerequisite at Enrollment: ECON 102 or ECON 104 or ECON 14

Bachelor of Arts: Social and Behavioral Sciences

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

ECON 342: Industrial Organization

3 Credits

Industrial Organization (3 credits) (GS) (BA) Industrial Organization focuses on the study of markets with imperfect competition. After reviewing the Perfect Competition model, the assumptions of that model are systematically relaxed, allowing us to focus on market failures that result, and how they might be remedied. The Structure-Conduct-Performance paradigm is followed. The structure of an industry affects the behavior of firms in that industry, which in turn affects the performance of that industry, evaluated from an efficiency standpoint. Much current material is discussed, especially potential mergers in certain industries and how they might affect market outcomes. Attention is given to oligopolies, using game theory as a tool with which to analyze the performance of these types of markets. Pricing strategies, asymmetric information, advertising, and antitrust law are also covered. The course is designed to provide students with a theoretical background with which to understand current market structures and events. Empirical data is discussed to test the models and theories presented in class.

Enforced Prerequisite at Enrollment: ECON 102

Bachelor of Arts: Social and Behavioral Sciences

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

ECON 351: Money and Banking

3 Credits

Money, credit, commercial and central banking, financial intermediaries, treasury operations, monetary policy. Students who have already taken ECON 451 may not schedule this course. ECON 351 Money and Banking (3)(BA) This course meets the Bachelor of Arts degree requirements. In this course, students learn all about the Federal Reserve and the conduct of monetary policy: both conventional and unconventional. Students will examine many different interest rates and learn how they are determined. Students will study the importance of the Federal Reserve's dual mandate and become familiar with business cycles in the US economy since 1970 and the associated Fed policy during these episodes. Term structures of interest rates are analyzed as well as the risk structure of interest rates. The Taylor Rule and various specifications of the Taylor Rule are applied to these topics. Students also study the efficient market theory and the determination of stock and bond prices. The course finishes by engaging students in the topics of futures, options, and futures options and hedging with futures and options. The objective of the course is help students get a better understanding of macroeconomic and monetary topics and policy. Upon successful completion of this course, students will be able to contribute to any discussion about the U.S. economy and Federal Reserve policy, analyze real world events as they relate to U.S. monetary policy, and share their newly acquired human capital with others. The prerequisite for this course is ECON104. Students who have taken ECON451 cannot schedule ECON351.

Enforced Prerequisite at Enrollment: ECON 104

Bachelor of Arts: Social and Behavioral Sciences

ECON 395: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: Prior approval of proposed assignment by instructor.

Bachelor of Arts: Social and Behavioral Sciences

ECON 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

ECON 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

ECON 400M: Honors Seminar in Economics

3-12 Credits/Maximum of 12

Readings, discussion, and oral and written reports on selected topics in economics.

Enforced Prerequisite at Enrollment: ECON 302 and ECON 304 and fifth-semester standing and admission into Honors program

Bachelor of Arts: Social and Behavioral Sciences
Honors
Writing Across the Curriculum

ECON 402: Decision Making and Strategy in Economics

3 Credits

Development and application of the tools for decision making under uncertainty and for game theoretic analysis of economic problems.

Enforced Prerequisite at Enrollment: ECON 302 and (ECON 106 or SCM 200 or STAT 200)

Bachelor of Arts: Social and Behavioral Sciences

ECON 407: Political Economy

3 Credits

Applications of the tools of game theory to analyze topics in collective decision making.

Enforced Prerequisite at Enrollment: ECON 302

ECON 410: Economics of Labor Markets

3 Credits

Economic analysis of the employment relationship from the microeconomic perspective, with emphasis on current labor-market problems and public policy issues.

Enforced Prerequisite at Enrollment: ECON 102

ECON 411: Behavioral Economics

3 Credits

Topics in behavioral economics; selected games; evolutionary models of social behavior, herding, overconfidence.

Enforced Prerequisite at Enrollment: ECON 302 or ECON 444

ECON 412: Labor Economics and Labor Markets: Theory, Evidence, and Policy

3 Credits

Advanced topics in labor economics: theory, empirical evidence, and policy. ECON 412 Labor Economics and Labor Markets: Theory, Evidence, and Policy(3)This course is an advanced course in labor economics. Its coverage of topics overlaps somewhat with the topics covered in ECON 315, but typically the treatment of the topics considered will be distinctly more rigorous for this 400-level course. The broad areas that will be focused on in the course include labor supply, investment in human capital, labor demand, wage determination, search and unemployment, and earnings inequality. The objective of this course is to introduce students to topics in labor economics with a rigorous and advanced analytical approach. For each topic, the course will consider the underlying theory, pertinent empirical evidence, and implications for public policy. The instructional and educational objectives are to provide students with a strong background in labor economics. This will allow them to take advanced seminar courses in the labor field. This course is an advanced introduction to labor economics, and as such has a prerequisite of either ECON 302 or ECON 315. In turn, this course will serve as a gateway to advanced seminar courses in labor economics at

the 400 level that the Economics Department is in the midst of creating. The course will count toward both the major and the minor in economics.

Enforced Prerequisite at Enrollment: ECON 306 and (ECON 302 or ECON 315)

Bachelor of Arts: Social and Behavioral Sciences

ECON 413: Economic Growth and the Challenges of World Poverty

3 Credits

This course is for those who are interested in the challenge posed by persistent world poverty. We will address many different poverty related issues and the goal is to examine how economists can contribute to shedding light on the problem of world poverty and providing insights into its alleviation. Among the questions that we will address are: How persistent is the extent of world poverty? Does rapid economic growth help the poor? Why do some countries grow fast and others fall further behind? What is economic life like when living under a dollar a day? How do we deal with the disease burden? Does providing meals in schools help students perform better? Is microfinance overrated? Has globalization hurt or help the poor? Does foreign aid help or hinder the economic prospects of poor countries?

Enforced Prerequisite at Enrollment: ECON 304 and ECON 471

ECON 415: The Economics of Global Climate Change

3 Credits

Evidence on climate change; economic models of the environment and market failure; cost-benefit analysis of policy options; carbon markets.

Enforced Prerequisite at Enrollment: ECON 302 and ECON 306

ECON 417: The Economics of Uncertainty

3 Credits

Uncertainty and Risk as related to finance, insurance, health, labor, industrial organization, and macroeconomics.

Enforced Prerequisite at Enrollment: ECON 302

ECON 422: Applying Monetary Theory and Monetary History

3 Credits

This course provides a framework for the analysis of monetary history. The course objectives are to introduce students to the theoretical framework used by economists to study monetary theory, and to apply that framework in order to explain various monetary systems that have existed in the past. We will examine the empirical evidence, and also consider policy issues in this area. There is scope for re-examining existing analyses of many of those historical systems. Topics discussed in the course include the Federal Reserve control of the money stock, the demand for money, money as part of economic activity, economic indicators and monetary policy, the Lucas critique, interest rates and the frequency at which they are changed, the creation and purpose of central banking, and private banking regulations. Historical monetary events to be discussed include monetary policy before and during the Great Depression, monetary policy during the Great Recession of 2007 - 2009, the gold standard monetary system, the Bretton Woods system, and the termination of these standards. Among all topics, both current and historical, we will examine the incentives of individuals, firms, banks, borrowers, and lenders, and governments as responses to

monetary policy changes. Finally, advances in monetary theory based on macroeconomic events, both national and global, will be analyzed. The course will count toward both the major and minor in economics.

Enforced Prerequisite at Enrollment: ECON 302

ECON 425: Economics of Public Expenditures

3 Credits

Analytic and policy aspects of public expenditure decisions; applications from areas of contemporary public interest.

Enforced Prerequisite at Enrollment: ECON 302 or ECON 323

Bachelor of Arts: Social and Behavioral Sciences

ECON 428: Environmental Economics

3 Credits

Environmental pollution, the market economy, and optimal resource allocation; alternative control procedures; levels of environmental protection and public policy.

Enforced Prerequisite at Enrollment: ECON 302 or ECON 323

Bachelor of Arts: Social and Behavioral Sciences

ECON 429: Public Finance and Fiscal Policy

3 Credits

Analysis of public revenue and expenditure structure primarily at the federal level; federalism; fiscal policy and public debt.

Enforced Prerequisite at Enrollment: ECON 323 and (ECON 302 or

ECON 304)

Bachelor of Arts: Social and Behavioral Sciences

ECON 430: Regional Economic Analysis

3 Credits

Analysis of personal and industrial location decisions, regional economic growth, migration patterns, and regional policy; emphasis on tools and techniques.

Enforced Prerequisite at Enrollment: ECON 102 or ECON 104

ECON 432: Urban Economics

3 Credits

Theories and methods for economic analysis of such urban problems as housing, segregation, government services, and transportation.

Enforced Prerequisite at Enrollment: ECON 302 or ECON 323

Bachelor of Arts: Social and Behavioral Sciences

ECON 433: Advanced International Trade Theory and Policy

3 Credits

Causes/consequences of trade; effects of tariffs and quotas; strategic trade policy; political economy of trade restrictions and other topics.

Enforced Prerequisite at Enrollment: ECON 302 or ECON 333

Bachelor of Arts: Social and Behavioral Sciences

ECON 434: International Finance and Open Economy Macroeconomics

3 Credits

Trade balance movements, exchange rate determination; monetary and fiscal policies in open economies; international policy coordination; the world monetary system.

Enforced Prerequisite at Enrollment: ECON 304 or ECON 333

Bachelor of Arts: Social and Behavioral Sciences

ECON 436: Economics of Discrimination

3 Credits

Analysis of the economic characteristics of women and minorities; with examination of race and sex discrimination and related government policies.

Enforced Prerequisite at Enrollment: ECON 302 or ECON 315

ECON 437: Multinationals and the Globalization of Production

3 Credits

Globalization entails many dimensions: trade, migration, FDI, offshoring, cross-border licensing of technologies.

Enforced Prerequisite at Enrollment: ECON 302 or ECON 333

ECON 438: Winners and Losers from Globalization

3 Credits

Globalization, US, International, Trade, Finance, Growth, Labor, Industrial Organization, Political Economics.

Enforced Prerequisite at Enrollment: ECON 306 and (ECON 302 or

ECON 333)

ECON 442: Managerial Economics

3 Credits

Application of economic theory to managerial decision making; risk, uncertainty; models and statistical techniques.

Enforced Prerequisite at Enrollment: ECON 102

ECON 443: Economics of Law and Regulation

3 Credits

An economic analysis of property rights, contractual arrangements, illegal activities, and regulation; competitive problems due to externalities and market failure.

Enforced Prerequisite at Enrollment: ECON 302 or ECON 342

Bachelor of Arts: Social and Behavioral Sciences

ECON 444: Economics of the Corporation

3 Credits

Coordination and incentive issues within a corporation. Topics include employment contracts, performance incentives and pricing of financial assets.

Enforced Prerequisite at Enrollment: ECON 302

Bachelor of Arts: Social and Behavioral Sciences

ECON 445: Health Economics

3 Credits

Economic analysis of U.S. health care system; planning, organization, and financing; current public policy issues and alternatives.

Enforced Prerequisite at Enrollment: ECON 302 or ECON 315 or ECON 323

Cross-listed with: HPA 445

Bachelor of Arts: Social and Behavioral Sciences

ECON 447: Economics of Sports

3 Credits

Topics in sports; demand, owners, ticket resale, leagues, markets, efficiency, antitrust, discrimination, collegiate sports.

Enforced Prerequisite at Enrollment: ECON 302 or ECON 306

ECON 448: Economics of Auctions and Procurements

3 Credits

Theoretical and empirical analyses of auctions and procurements; different modeling environments; econometric analysis of auction and procurement data.

Enforced Prerequisite at Enrollment: ECON 302 and ECON 306

ECON 449: Economics of Collusion

3 Credits/Maximum of 3

Collusion, Bidding Rings, Antitrust, Price Fixing, Incentives, Law

Enforced Prerequisite at Enrollment: (ECON 302 or ECON 342) and ECON 306

ECON 451: Monetary Theory and Policy

3 Credits

Monetary and income theory; monetary and fiscal policy.

Enforced Prerequisite at Enrollment: ECON 304 or ECON 351

Bachelor of Arts: Social and Behavioral Sciences

ECON 452: Economics of the Financial Crisis

3 Credits

This course studies the economics of financial crises with special emphasis on 2008.

Enforced Prerequisite at Enrollment: ECON 304

ECON 454: Economics of Mergers

3 Credits

It is not uncommon for two separate and distinct corporate entities within an industry to merge and become one firm. This course includes topics that examine the economics of mergers as well as economic policy with regard to mergers. There often are both pro-competitive and anti-competitive effects of mergers. In the U.S. the Federal Trade Commission has primary responsibility for assessing the balance between effects.

Along with the FTC, the antitrust division of the department of justice can analyze potential mergers using economic data and forecasts with tools such as the HHI and four-firm concentration ratio. Legality of non-competitive markets and mergers is also analyzed using the Clayton and Sherman antitrust acts. Topics discussed related to pro-merger economic effects include reduction in the duplication of costly capital, economies of scale, reducing costs by cutting management, human resources, payroll, and other jobs not directly related to production of output. Further, some firms may contend that they are non-viable as a small business, but can survive as a larger competitor as the result of a merger. Finally, mergers may have positive implications for shareholders who effectively own the company. Negative effects of mergers topics are discussed, including a reduction in the number of competing firms, increase in market power, higher prices, reduction in consumer choice, and increased lobbying power of larger firms. This course examines unilateral effects and coordinated effects as identified in the horizontal merger guidelines. Vertical mergers are analyzed as well, where multiple parts of the production process of a final good come under the same ownership. Econometric issues associated with the measurement of unilateral and coordinated effects are discussed. The course concludes with ex-post merger reviews. This course is an applied microeconomics seminar in the field of industrial organization and will seek to provide students with the analytical methods of both the theoretical and empirical analysis of mergers. The course will count toward both the major and the minor in economics.

Enforced Prerequisite at Enrollment: ECON 302

ECON 460: Issues in Sports Economics

3 Credits

Economic analysis of professional and collegiate sports: organization, input and output markets, the public sector, decision-making, and public policy. ECON 460 Issues in Sports Economics (3) This course is designed to provide students the opportunity to examine and understand the sports industry. The course integrates the perspectives of various economic areas (i.e., industrial organization, managerial economics, labor economics, public economics) with those of marketing, finance, and accounting into a single approach to industry analysis. It provides students with an appreciation for the unique realities of the professional and amateur sports enterprise. Case studies and assignments are developed so students can apply theoretical and statistical concepts to real sports activities and/or policies. Students have the opportunity to complete case analyses in teams, present their results and suggestions to the class, and respond to questions and critical reviews by their peers.

Enforced Prerequisite at Enrollment: ECON 102. Credit can be earned from taking ECON 447 or ECON 460 but not both.

ECON 465: Cross Sectional Econometrics

3 Credits

Econometrics, simultaneous equations, discrete choice, sample selection.

Enforced Prerequisite at Enrollment: ECON 106 and ECON 306

ECON 470: International Trade and Finance

3 Credits

Economic analysis of why nations trade, barriers to trade, the international monetary system, and macroeconomic policy in an open economy.

Enforced Prerequisite at Enrollment: ECON 102 or ECON 104
International Cultures (IL)

ECON 471: Growth and Development

3 Credits

Problems of capital formation, institutional considerations, theories of economic growth.

Enforced Prerequisite at Enrollment: ECON 302 or ECON 304
Bachelor of Arts: Social and Behavioral Sciences

ECON 472N: Russian Economic History

3 Credits

Russia is the largest country on earth. It has had a major influence on world events, especially during the Soviet period. The Soviet period represents the greatest economic experiment ever undertaken. Russia has had a vast imperial experience, and its economy has proven capable of producing nuclear weapons and space exploration. Yet, its economy remains dependent on natural resources. Russia is a literary, nuclear and geopolitical superpower but not an economic superpower. This juxtaposition is unique. The aim of the course is to provide a review of Russian economic history together with main concepts explaining the peculiarities of economic and institutional development of the country. The course combines historical narrative with formal economic analyses. We will utilize both an economics and a history perspective. We will explore the development of the Russian economy in the Tsarist period, the abolition of serfdom and Russian industrialization before the Russian Revolution, and we will explore the economic history of the Soviet period. We will also explore the interaction of economic history with social history. The course will conclude by examining the myriad economic and social difficulties encountered in transitioning from a socialist to capitalist economy.

Enforced Prerequisite at Enrollment: ECON 102 and ECON 104

Cross-listed with: HIST 402N

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

ECON 474: Experimental and Behavioral Economics

3 Credits

experimental methods and experimental design and uses this framework to inform a careful examination of the strengths and limitations of economic theory in explaining actual human behavior in economic situations. When economic theories do not seem to fit the data

the course draws on findings from other social sciences such as psychology and sociology to explore reasons for divergence of theory and practice. The content begins with a brief history of experiments in economics. Then it outlines key features of experimental design and an introduction to the basics of game theory, which are commonly utilized in experiments. After establishing the basics, the course investigates decision making under uncertainty and compares how various theoretical explanations predict actual human decisions. We then discuss bargaining experiments and bargaining theory. The course concludes with a description of common behavioral influences and biases in judgment and decision making. There is a common theme throughout the course showing how theory and experiments can be used in conjunction to improve of understanding of economic behavior.

Enforced Prerequisite at Enrollment: ECON 102 and ECON 104

ECON 475: Migration and Development

3 Credits

Human Capital Approach to Migration; Economics of Family Migration; Evidence: Micro and Macro Perspectives; Migration Policies.

Enforced Prerequisite at Enrollment: ECON 306 and (ECON 302 or ECON 304)

ECON 479: Economics of Matching

3 Credits

There are many resource allocations that are not unilateral decisions but instead require approval from two sides of the market. This course provides the theoretical constructs for the analysis of matching in market environments. Following a review of game theory, the course develops the theory of matching. The topic at large is introduced by the seminal paper in matching "College Admissions and the Stability of Marriage" by Gale and Shapley. Other peer-reviewed literature on the topic will be discussed. Topics that follow include economic applications in the areas of employment, marriage, college admissions, human organ donations, medical residents, and other current topics. Within each of these topics, analysis is performed to study the following questions: 1) What are the preferences and incentives of all of the market participants involved in the matching market? 2) What was the method in which matching occurred? 3) Is this end result Pareto efficient and stable? 4) If the result isn't Pareto efficient, could another method or algorithm be used to improve efficiency? 5) Does the efficient outcome yield equal (or near equal) gains to all market participants involved, or is there a large discrepancy in the utility of the participants post-matching? For example, in a marriage matching algorithm, do women end up much happier than men? In medical residencies, do hospitals end up with larger gains than the doctors? Within certain topics, specific models are also discussed, including the Beveridge curve, Cobb-Douglas matching functions, labor market frictions, Nash bargaining games, feasibility sets, disagreement points, egalitarian and non-egalitarian bargaining solutions, and risk aversion. This course is an applied economics course with relevance to the areas of microeconomics, macroeconomics, and labor economics. The course objective is for students to learn the analytical methods for understanding the economics of matching. Students will develop skills in applying matching models and analysis to practical situations. The course will count toward both the major and minor in economics.

Enforced Prerequisite at Enrollment: ECON 302

ECON 480: Mathematical Economics

3 Credits

Mathematical techniques employed in economic analysis; formal development of economic relationships.

Enforced Prerequisite at Enrollment: ECON 302 and ECON 304 and MATH 110

Bachelor of Arts: Social and Behavioral Sciences

ECON 481: Business Forecasting Techniques

3 Credits

A survey of contemporary business forecasting techniques, with emphasis on smoothing, decomposition, and regression techniques.

Enforced Prerequisite at Enrollment: SCM 200 or STAT 200

ECON 483: Economic Forecasting

3 Credits

Forecasting time series, using linear regression models and econometric software; useful forecasting models; financial and seasonal time series; trends. ECON 483 Economic Forecasting (3) This course is an applied econometrics course, and will seek to provide students with hands-on experience in forecasting. The goal of this course is to teach the students how to forecast time series, using econometric software, and what kinds of models are useful for that purpose. Topics to be covered include a review of regression analysis, with applications to forecasting; introduction to an econometric software package; introduction to time series regression analysis, with applications; the Box-Jenkins approach to time series modeling and forecasting; modeling and forecasting seasonal time series; deterministic and random trends, and how to distinguish them; and modeling and forecasting volatility of financial time series. The course will count toward both the major and the minor in economics. This course is one of a series of 400-level seminars in each of seven broad areas of economics; this is a seminar in econometrics.

Enforced Prerequisite at Enrollment: ECON 306

ECON 485: Econometric Techniques

3 Credits

Applying statistical techniques to test and explain economic relationships; integration of economic theory with observed economic phenomena.

Enforced Prerequisite at Enrollment: (ECON 102 or ECON 104) and (SCM 200 or STAT 200)

ECON 489M: Honors Thesis

1-6 Credits/Maximum of 6

No description.

Enforced Prerequisite at Enrollment: ECON 302 and ECON 304 and admission into the departmental honors program

Bachelor of Arts: Social and Behavioral Sciences
Honors

Writing Across the Curriculum

ECON 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Social and Behavioral Sciences

ECON 494A: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Social and Behavioral Sciences

ECON 494H: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Social and Behavioral Sciences
Honors

ECON 495: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: prior approval of proposed assignment by instructor

Bachelor of Arts: Social and Behavioral Sciences
Full-Time Equivalent Course

ECON 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Bachelor of Arts: Social and Behavioral Sciences

ECON 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Social and Behavioral Sciences

ECON 499: Foreign Study--Economics

2-6 Credits/Maximum of 6

Study in selected countries of economic institutions and current economic problems.

Enforced Prerequisite at Enrollment: ECON 102 and ECON 104

Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)

Education (EDUC)

EDUC 99: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

EDUC 100: First-Year Seminar in Education

1-3 Credits

This seminar explores theories of teaching and learning, the education of teachers and other school employees, issues of professional practice, and selected topics in national educational policy. The seminar also supports students' transition to college through small group discussions and other activities. Class sizes are limited; the frequency of offering and evaluation methods vary by location and instructor.

First-Year Seminar

EDUC 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

EDUC 199: Foreign Studies

1-12 Credits/Maximum of 12

Study of educational topics in a country other than the United States.

International Cultures (IL)

EDUC 205N: Critical Race Theory in the Humanities and Social Sciences

3 Credits

This course closely examines the place and power of race in America. By tracing the history of how race works in particular American institutions, such as public education, criminal justice, and federal housing, students will gain a deep sense of how social categories and understandings shape material conditions and human welfare. Through the study of policies, court cases, memoirs, documentary films, and freedom struggles, this course will interrogate the many Americas that race has created and their implications for democracy and justice. Not only will this course focus on making race visible, but also the many ways that race intersects with class, gender, and sexuality and how these concepts empower and marginalize at the same time. All the while, students will use Critical Race Theory methods to reach empathy and strengthen social (GS) and historical (GH) literacies. Discussion, writing, critical reading, and primary source analysis will be integral to this class. Class sessions will include whole- and small-group discussion where active listening and thoughtful participation will be taught and required. Students will be encouraged to explore their own conceptions of race and how those ideas shape knowledge and experience. Ultimately, this is a course that will weave data, theory, and story as we encourage students to move toward empathy through comprehensive understandings of race. This course therefore examines race as both deeply personal and structural.

Recommended Preparations: ENGL 15 and CAS 100

Cross-listed with: CRIMJ 205N, SOC 205N

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

EDUC 294: Research Project Courses

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

EDUC 295: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, non-group instruction including field experience, practica, or internships.

EDUC 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

EDUC 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

EDUC 302: Basic Preparation for Teaching

3 Credits

Philosophical, psychological issues in education; instructional objectives, lesson planning; evaluation, grading procedures; assessment, instruction of individual children. Field experience.

Prerequisite: admission into Elementary Education Major

EDUC 303: Inclusive Practices in General Education Classrooms

3 Credits

This course is designed to examine the procedures, characteristics and strategies for working with special learners in the elementary school. EDUC 303 Inclusive Practices in General Education Classrooms (3) This course examines the foundations and strategies for educating exceptional learners and for including students with disabilities in general education classrooms /inclusive settings, grades PK-4 and 4-8. Students will gain the knowledge and skills to respond effectively to learners with varying abilities and diverse needs in inclusive classrooms. Course content will address the following: foundations for inclusive education including legal provisions, ethical principles and policies; characteristics of various disabilities; the special education process including evaluation, IEP and service delivery models; assessment of student learning in a standards aligned system including diagnostic, formative, benchmark and summative assessment; pre-referral intervention, including universal screening and response to intervention; evidence-based instructional strategies that are effective in meeting

the needs of students with disabilities in inclusive settings including universal design, accommodations, modifications and adaptations of curriculum and instruction, differentiated instruction, improving memory, attention and independent learning; and partnerships including effective communication and collaboration, teaming, co-teaching and communication with families. The course format will include discussion, collaborative group work, student presentations, simulations, classroom observations, case studies, online activities, review of research and some lectures.

Prerequisite: seventh-semester standing in Elementary Education Major

EDUC 304: Classroom Organization and Management

3 Credits

Organization, integration of the elementary school day; classroom management, control techniques; audio-visual techniques.

Prerequisite: sixth-semester standing in Elementary Education Major

EDUC 305: Creative Arts

3 Credits

Experiences in self-expression through a variety of visual and performing arts. Techniques for guiding school children in artistic expression.

EDUC 305 Creative Arts (3) This is an arts education course for elementary education majors. The course is designed to provide pre-service teachers with knowledge of the elements of the performing arts and the visual arts. Today's public school population is diverse, and teachers encounter heterogeneous groups of students with unique interests, distinctive strengths, special needs, and varied languages. The arts provide a beneficial bridge to assist teachers in connecting with all persons. Not only do the arts enhance the quality and depth of lesson content, each of the arts contains the possibility of reaching students of all levels and backgrounds no matter what their cognitive ability, learning style, or native language. The purpose of this course is to equip students with the necessary tools to implement meaningful and effective arts education into the regular education curriculum.

Prerequisites: Admission to ED program

EDUC 306: Physical Education, Health, and Safety in Elementary Schools

2 Credits

A study of appropriate activities for elementary-age children. Student participation in physical activities is required. This course is designed to prepare elementary classroom teachers to provide age appropriate instruction related to issues of health and safety encountered in the school, home, and community. Understanding and demonstrating a knowledge of foundations, lesson planning, instructional strategies, and assessment is a key component of the program. In addition, the pre-service teachers are prepared to organize and implement physical education activities that may be carried out in the classroom, playground and/or appropriate indoor facilities. The physical education aspects of the program are generally provided as ancillary activities to the program provided under the guidance and direction of a certified Health and Physical Education instructor.

Prerequisite: 5th semester standing

EDUC 313: Field Observation

2 Credits

Observation techniques; classroom observation and participation.

Prerequisite: admission into Secondary Teacher Certification Program. Prerequisite or concurrent: EDUC 314

EDUC 314: Learning Theory and Instructional Procedures

3 Credits

Theories of learning in relation to instructional practices. Analysis of motivation, transfer of learning, and retention. Field practicum.

Prerequisite: admission into Secondary Teacher Certification Program. Prerequisite or concurrent: EDUC 313

EDUC 315Y: Social and Cultural Factors in Education

3 Credits

Critical examination of how different experiences linked to race, ethnicity, religion, gender, and sexual orientation influence education.

Prerequisite: admission into Elementary Education Major or Secondary Teacher Certification Program
United States Cultures (US)
Writing Across the Curriculum

EDUC 320: Methods in Teaching Beginning Readers

3 Credits

Concepts, methods, and materials for developing beginning reading abilities, with emphasis on personalized instruction through diagnostic teaching.

Prerequisite: sixth-semester standing in Elementary Education Major

EDUC 321: Methods in Teaching Intermediate and Advanced Readers

3 Credits

Concepts, methods, and materials for personalizing reading instruction with emphasis on extending personal and functional reading abilities beyond beginning reading.

Prerequisite: EDUC 320

EDUC 322: Adolescent Literature and Developmental Reading

3 Credits

Adolescent literature materials, reading principles, and practices suitable for an English class. EDUC 322 Adolescent Literature and Developmental Reading (3) This course is designed to prepare candidates with the objectives, content, methods and knowledge necessary to teach adolescent literature in today's secondary language arts classrooms in middle and high schools. Candidates will gain understandings of adolescent literature in contemporary sociocultural life and how it can be used to develop critical literacy perspectives, reading strategies, and communication that is developmentally appropriate for 21st century literacy. Particular emphasis will be placed on instructional methods to comprehend, interpret, evaluate, integrate prior experience, and apply a range of texts (print, non-print, digital, and multimodal) in authentic contexts; developing and struggling adolescent readers will be

highlighted. Course readings include research-based, adolescent literacy publications as well as a selection of adolescent literature. Adolescent literature selections include social and cultural issues relevant to adolescent development and diverse student populations. Candidates will compose and discuss critical responses to readings, participate in and contribute to the design of literature circles to discuss adolescent literature selections, and develop research-based lesson plans consistent with Commonwealth of Pennsylvania Common Core standards (PACC) and NCTE/IRA Standards for the English Language Arts. This course adheres to professional and content area standards and practices from: National Council of Teachers of English (NCTE), the National Writing Project (NWP), International Reading Association (IRA), and National Center for Literacy Education (NCLE).

Prerequisites: Admission to ED program

EDUC 352: Teaching Language Arts

3 Credits

Teaching the writing process, including speaking and listening skills in relation to oral and written composition.

Prerequisite: sixth-semester standing in Elementary Education Major

EDUC 353: Teaching Elementary Social Studies

3 Credits

The theory and practice of elementary social studies instruction.

Prerequisite: seventh-semester standing in Elementary Education Major

EDUC 371: Teaching Music in the Elementary School

3 Credits

Music methods course for elementary education majors; students will learn elements of music, and instructional techniques.

Prerequisite: seventh-semester standing in Elementary Education Major

EDUC 385: Professional Development in Teaching

3 Credits

This course addresses practical issues central to the profession of teaching and, in some cases, specific to Pennsylvania.

Prerequisite: eight-semester standing, approval of program

EDUC 395: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, non-group instruction including field experiences, practica, or internships. Written and oral critique of activity required. A specific title may be used in each instance and will be entered on the student's transcript.

EDUC 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

EDUC 399: Foreign Studies

1-12 Credits

Courses offered in foreign countries by individual or group instruction

International Cultures (IL)

EDUC 400: Diversity and Cultural Awareness Practices in the K-12 Classroom

3 Credits

This course addresses diversity, cultural awareness and sensitivity about cultures, concepts and methods in society, communities and educational settings. EDUC 400 Diversity and Cultural Awareness Practices in the K-12 Classroom (3) This course is an examination of diverse cultures, stereotypes, concepts and issues that impact the way individuals interact with one another in society. In relation to EDUC 315, it takes students to the next level as they experience cultural attributes from a media perspective, as well as being immersed into diverse settings throughout the course. It is designed for students to develop sensitivity and awareness of cultural influences in America and the public school systems. An emphasis is placed on sociopolitical aspects of the United States and other world cultures, sources of cross-cultural conflict, and approaches to cross-cultural conflict resolution as they relate to P-12 settings, their communities and the communities in which they teach. Cultural awareness is concrete and/or visible in society and is necessary for promoting sensitivity and respect of cultural beliefs and values amongst teachers, administrators and students. Course participants will be required to demonstrate knowledge of with regard to developing sensitivity and awareness of cultural influences on behavior as these relate to the community, society and schooling processes. Course participants will be required to analyze methods of teaching Multicultural Education and its various camps including: Culturally Responsive Pedagogy, Critical Multiculturalism, and Anti-Racist Pedagogy. The creative tension between dominant and subordinate voices will lead to both visual and written responses. The major goal of the course is to help students identify their diversity in American society and to develop their own creative voices, while drawing on issues of race, ethnicity, gender, geographical location, sexual identity, age, ability, social class, social status and other cultural attributes that make individuals uniquely diverse.

EDUC 402: Early Learning: Language and Concept Development

3 Credits

Examining the development of language and self-expression in young children, and the role of children's literature in facilitating development. EDUC 402 Early Learning: Language and Concept Development (3) This course examines foundations and strategies related to encouraging language development and concept acquisition of young children infant through age five. Students will gain the knowledge and skills to design relationships, environments, activities, and responses to young children at varying stages of early language and conceptual development. Course content will address the following: foundations for approaches to early learning including young children's characteristics, multiple factors that influence child construction of language and concept development, the importance of teacher child relationships, the emerging nature of children's learning patterns, and the benefits of providing books and experiences that support present knowledge levels while challenging new learning. Students will gain knowledge to use to design supportive relationships, documentation of observation, other assessment tools,

and intentional instructional strategies that encourage early development of vocabulary and content concepts. Students will design instruction that encourages child awareness of concepts of receptive language, such as phonemic awareness; concepts of self-expression, such as vocabulary, concepts of comprehension, such as read aloud recall; concepts of early writing, such as alphabet and phonics; and concepts related to reading, such as illustrations and meaning. In science, students will design instruction that encourages child awareness of the value of questioning, observing and experimenting for answers about life science, earth science and physical science issues. In mathematics, students will design instruction that encourages child awareness of numbers, operations, geometry, measurement, patterns, and data representation. In social studies, students will design instruction that encourages child awareness of concepts related to families, communities, early economics, and local geographical characteristics. In the arts, students will design instruction that encourages child awareness of ways to express self with drawings, paintings, sculpture, drama, music and dance. In the areas of social and emotional skills, students will design instruction that encourages child sensitivity to social and emotional skills that do and do not work well in group settings. Emphasis will be placed on the need to differentiate instruction for each young learner and the need to differentiate relationship interactions with each family. The course format will include discussion, collaborative group work, student presentations, simulations, child care classroom observations, case studies, online activities, review of research and some lectures. In addition, each student will design and complete a teacher inquiry.

EDUC 403: Curriculum for Early Childhood

3 Credits

Examining early childhood programs and methodology, focusing on areas of social studies, mathematics, and science.

EDUC 404: Young Children's Behavior: Observation and Evaluation

3 Credits

Observation, recording and evaluation of student behaviors, and the use of prescription techniques for early childhood students with special needs.

EDUC 408: Administration of Early Childhood Education Programs

3 Credits

The role of the early childhood administrator as it relates to regulations, staffing, management, funding and curriculum.

Prerequisite: EDUC 401

EDUC 410: The Child and Social Institutions

3 Credits

The effects of the family on a child's development, especially in the infancy and preschool years.

EDUC 414: Teaching Secondary Science

3 Credits

Study of the objectives, content, methods, and evaluation procedures of science. This course is designed to prepare students with the knowledge and methods necessary to teach secondary science in authentic integrative contexts. Teaching science with integrative concepts requires

educators to be proficient in integrating various technologies and highlighting interdisciplinary connections to other disciplines such as engineering (the national and state standards for science call for science educators to teach both science and engineering concepts). Science pedagogies, strategies, approaches, content knowledge, and practices needed to teach with a focus on building students' problem-solving skills and understanding will be highlighted. Research-based learning theories and their role in science classrooms/labs are discussed and sample teaching strategies are safely modeled. Discussions are also based on prior and/or current field experiences and case study analyses. State and national science, technology, and engineering standards emphasized and demonstrated throughout the course. Long- and short-range planning of teaching units and lesson plans address disciplinary core content, practices, assessment, technological integration, historical connections and current trends in science and engineering education disciplines, equity for all students, English learners, and adaptations or modifications for students with special needs. A problem-solving/constructivist approach to learning and assessment is emphasized. Students are engaged in cooperative learning experiences, using lab equipment/materials and technology such as spreadsheets, statistical simulation and analysis software, and probeware. They are assessed through both formative and summative evaluations, including the creation of an interdisciplinary secondary science unit plan. The content and processes of scientific inquire and engineering design emphasized throughout this course are presented with three principal goals in mind: (1) to inform students about current research related to teaching science and engineering, (2) to enhance students' pedagogical scientific and engineering knowledge and skills, and (3) to help students develop as competent secondary science teaching professionals.

Prerequisite: Admission into the Secondary Education Program required and EDUC 314

EDUC 415: Teaching Secondary Social Studies

3 Credits

Study of the objectives, content, methods, and evaluation of procedures of social studies. Students design units and lesson plans. EDUC 415 Teaching Secondary Social Studies (3) This course is designed to prepare social studies candidates with the teaching methods and content knowledge required to teach the many social studies subjects at the middle and high school level. Stressing a constructivist approach, students learn to utilize various instructional strategies to meet learning goals and objectives based on the National Council for the Social Studies (NCSS) thematic strands and relevant PA Academic and Core Standards. Long and short range planning of teaching units address content, assessment, technological integration, historical connections, equity for all students, ELL, and adaptations for special needs students. Students engage in focused classroom discussions on assigned readings and analyze critical issues in teaching social studies in order to develop a coherent and relevant social studies teaching and assessment philosophy. Students are evaluated based on lesson planning competence, the knowledge of and ability to promote NCSS thematic strands and PA standards in both planning and teaching, leading discussions on relevant social studies topics and readings, implementing a preplanned lesson to the class, and the development of a complete middle level or high school level unit of study.

Prerequisite: EDUC 315Y and admission into Teacher Education Programs

EDUC 416: Teaching Secondary English and the Humanities

3 Credits

Study of the objectives, content, and methods of English and humanities courses. EDUC 416 Teaching Secondary English and the Humanities (3) This course is designed to prepare candidates with the objectives, content, methods and knowledge necessary to teach English in today's secondary classrooms in middle and high schools. The pedagogical approaches, dispositions, and skills appropriate for adolescent learners will be highlighted. Instructional strategies include multiple types of texts, genres, and modes to address diverse learners' needs and 21st century literacies in society and the workplace. Developmentally appropriate practices and theories will be discussed and modeled. Course content, strategies, and dispositions are consistent with literacy research, adolescent development, best practice pedagogy, and content and professional standards appropriate for English language arts candidate preparation. This course adheres to professional and content area standards and practices from: National Council of Teachers of English (NCTE), the National Writing Project (NWP), International Reading Association (IRA), and National Center for Literacy Education (NCLE). Candidates will design a range of learning experiences for their future students consistent with Commonwealth of Pennsylvania Common Core standards (PACC) and NCTE/IRA Standards for the English Language Arts. Candidates will engage with constructivist learning practices that center on collaboration, authentic learning, critical reflective practice, ongoing assessment, instructor coaching, and peer review.

Prerequisite: EDUC 315Y and admission into Teacher Education Programs

EDUC 417: Teaching Secondary Mathematics

3 Credits

Study of the objectives, content, methods, and evaluation procedures of mathematics. EDUC 417 Teaching Secondary Mathematics (3) This course is designed to prepare students with the methods and knowledge necessary to teach mathematics in today's middle level and secondary classrooms. The pedagogical approaches and content needed to teach with a focus on understanding will be highlighted. Learning theories and their role in the mathematics classroom will be discussed and sample teaching strategies will be modeled. Discussions will also be based on field experiences and case study analyses. The National Council of Teachers of Mathematics standards addressed in the Principles and Standards for School Mathematics (2000), the Common Core State Standards for Mathematics (2010), the PA Core Standards in Mathematics (2013), as well as the Pennsylvania Standards Aligned System will be emphasized and demonstrated throughout the course. Long and short range planning of teaching units will address content, assessment, technological integration, historical connections, equity for all students, ELL, and adaptations for special needs students. A problem solving/constructivist approach to learning and assessment will be emphasized. Students will be engaged in cooperative learning experiences, use manipulatives and technology, and will be assessed through both formative and summative evaluations. The content and processes of mathematics emphasized throughout this course will be presented with three principal goals in mind: to inform students about current research related to teaching mathematics, to enhance students' pedagogical mathematical knowledge and skills, and to help students develop as competent mathematics teaching professionals.

Prerequisite: EDUC 315Y and admission into Teacher Education Programs

EDUC 418: Positive Classroom Climate for Positive Attitudes About Learning

3 Credits

Participants will learn strategies for creating classroom climates which encourage positive attitudes toward learning while preventing and correcting student misbehavior.

Prerequisite: permission of program

EDUC 421: Children's Literature

3 Credits

Knowledge of literature appropriate for elementary school children and utilization of literature-related activities in teaching reading.

Prerequisite: admission into Elementary Education Major

EDUC 422: Literature for Children and Adolescents

3 Credits

Literature for children and adolescents, approaches for using such literature in the school curriculum. EDUC 422 Literature for Children and Adolescents (3) This course, which is required for students enrolled in the Reading Specialist Program and those who wish to complete the language arts option in the Teaching and Curriculum Program, is designed to assist Pre-K through grade 12 educators who are interested in incorporating children's and/or adolescent literature into the curriculum. The course will focus on an in-depth exploration of selecting, evaluating, and using a wide range of contemporary (published in the last ten years) literature for children and young adults. This course will provide participants the opportunity to explore reader response theory and its relationship to classroom teaching practices, in particular to reading and literacy instruction. The study and application of principles and techniques of integrating literature circles, discussion strategies and literature extension projects will be addressed.

EDUC 425: Literacy Assessment

3 Credits

This course emphasizes alternative literacy measures focusing on portfolio assessment and performance assessments.

Prerequisite: permission of the program

EDUC 432: Children's Literature in Teaching Writing

3 Credits

Introduction to introduces methods for transferring writing skills and literary devices from literature to student writing in all subject areas.

EDUC 435: Addressing the Needs of Special Learners

1 Credits

An examination of attitudes toward, barriers experienced by, and special needs of special learners in the schools.

Prerequisite: eighth-semester standing in Secondary Teacher Certification Program

EDUC 436: Inclusion Practices in Education

3 Credits

The educational, social, and political foundations for inclusion practices in public education.

Prerequisite: permission of program

EDUC 440: Educational Statistics and Measurements

3 Credits

Descriptive statistics, correlation, reliability, validity, scaling techniques, and introduction to item analysis.

EDUC 450: Current Topics in Education

1-15 Credits/Maximum of 15

No description.

EDUC 452: Teaching Writing

3 Credits

Techniques for teaching the writing process, kindergarten through grade 12, including writing in content areas; workshop format.

EDUC 454: Modern Elementary Science Education

3 Credits

This course exposes candidates to content, knowledge and teaching pedagogy as they relate to science and science education. The science content knowledge is primarily focused on Biological Sciences, Physical Sciences and Earth and Space Sciences at the K-5 level. Current research is used to ensure that the best practices in teaching and learning K-5 Sciences are explored. At the conclusion of this course, all candidates should have a strong understanding of the best practices in teaching and learning K-5 science. Candidates should have an awareness of the Physical Sciences, Biological Sciences, and Earth Space Sciences taught at the K-5 level. They should be able to utilize best practices in the teaching of these sciences.

Prerequisites: Admission to ED program

EDUC 458: Behavior Management Strategies for Inclusive Classrooms

3 Credits

Provides knowledge and skills essential for designing positive learning environments in secondary classrooms with the inclusion of exceptional learners. EDUC 458 Behavior Management Strategies for Inclusive Classrooms (3) Well-organized and effectively managed classrooms provide task-focused instructional environments where students are actively engaged in learning. The inclusion of exceptional learners in the general education classroom has brought the need for a unique set of knowledge and skills to promote student task engagement and prosocial behavior. Topics to be addressed include: characteristics and specific (or unique) needs of exceptional learners and their effect on student learning; components of effective classroom organization and management; principles of applied behavior analysis and research-based behavior management strategies appropriate for use with exceptional

learners in the secondary classroom. This course will be a required course for all Secondary English, Math, and Social Studies students seeking initial certification. Course delivery methods will include lectures, reflections, online discussions, projects, class presentations, library research, and other relevant media

Prerequisite: admission to teacher education

EDUC 459: Strategies for Effective Teaching in Inclusive Classrooms

3 Credits

Course examines effective strategies for accommodating and adapting instruction for exceptional learners in secondary classrooms. EDUC 459 Strategies for Effective Teaching in Inclusive Classrooms (3) This course will examine strategies for teaching exceptional students in inclusive secondary classrooms. The course will focus on academic assessment; instructional planning, development and implementation; and strategies for making the curriculum more accessible, flexible and supportive for diverse learners. Topics to be addressed include the following: multidisciplinary evaluation and programming for exceptional learners; designing instruction based on assessment data; progress monitoring; technology for teaching and learning as a way to promote access to curriculum; designing appropriate and legally acceptable accommodations and/or modifications to promote access to the standards-based curriculum for students with exceptional learning needs; research-based instructional strategies to facilitate literacy development and instruction across academic content areas and collaborative structures to support exceptional learners in general education classrooms. This course will be required for all Secondary English, Math, and Social Studies Education students seeking initial certification and will be offered during the 8th semester (student teaching) to optimize performance of students during their student teaching experience. Course delivery methods will include lectures, reflections, online discussions, projects, class presentations, case studies, and other relevant forms of media.

Prerequisite: admission to Teacher Certification Program or Approval of program

EDUC 463: Teaching With Modern Web Technologies

3 Credits

Relates educational theory and practice to applications of the modern Web, applying content from educational foundations, curriculum, and research. EDUC 463 Teaching With Modern Web Technologies (3) This course focuses on the World Wide Web as a valuable resource for P-12 education. Designed for teachers, curriculum supervisors, and building administrators, this course relates educational theory and practice to applications of the Web and Web 2.0 technologies in classrooms and schools. Class participants apply resources available through the Web to content from the fields of educational foundations, learning theories, curriculum development, educational assessment and evaluation, and educational research. The impact that the Web and technology in general has had on the educational experience of both teachers and students, including the working relationship between the two, is also a main focus. Students maintain a documentation of weekly assignments that form the basis for the final project: the development of a web-based teaching portfolio. Students also complete a mid-term project that entails the design of an online learning activity for students that utilizes Web technologies. This activity requires the student to apply principles of learning theory to web-based resources identified and evaluated to support an identified classroom learning objective or set of objectives.

The final project consists of a technology-based teaching portfolio, demonstrating application of the key concepts covered in the course.

EDUC 464: Technology and the Learning Process

3 Credits

Evaluates the relationship between technology-based resources and learning theories through design, implementation, and evaluation of online instructional modules. EDUC 464 Technology and the Learning Process (3) Designed for teachers, curriculum supervisors, and building administrators, this course examines and evaluates the relationship between technology-based resources and learning theories. Students explore learning theories in terms of how technology may or may not support implementation of those theories in the classroom. Students also examine problem-based learning approaches and how they can be combined with technology, resulting in what has been defined by Dr. Bernie Dodge as a 'WebQuest' for classroom use. In the WebQuest development process, students identify a real life problem for their students to solve. They correlate that problem to their academic standards and district curriculum. They then design, implement, and evaluate instructional modules with integrated technology resources designed to lead to a solution of the identified problem, while promoting student acquisition of higher order thinking skills. Through this experience, students must plan for their students' learning tasks and activities, resource needs, performance evaluation and rubrics. As a culminating experience, students design an action research project related to the implementation of their learning module in the classroom setting.

Prerequisite: EDUC 462 or EDUC 463 or permission of program

EDUC 466N: Foundations of Teaching English as a Second Language

3 Credits

Overview of various legal, historical, and socio-cultural implications of teaching and learning English as a Second Language. This course is the first course in a five-course sequence designed to meet the Pennsylvania Department of Education's (PDE) requirements for the ESL Program Specialist endorsement. EDUC 466 addresses the legal, historical, and socio-cultural issues related to non-native speakers of English, and the implications for ESL curriculum, instruction, and assessment within the K-12 school setting. The course is designed: (1) to encourage understanding and appreciation for language diversity and culture, and (2) to enhance the knowledge and skills of teachers working with culturally and linguistically diverse learners, their families, and their communities. The course specifically addresses two of the PDE competencies necessary for a teacher to acquire in order to be endorsed as an ESL Program Specialist: PDE Competency IV-Developing cultural awareness/sensitivity. The four areas of emphasis within EDUC 466 are: a) The legal, historical, and cultural implications of English as a Second Language, which explores the legal and historical bases of ESL and analyzes the differences among home and school cultures, especially as they relate to language; b) Fundamentals of developing English language skills, which provides an introduction to the structure of the English language, grammar, and pronunciation, including lexical, morphological, syntactical, and phonological components; c) An overview of second language acquisition, which introduces the topics of linguistic skill development, and first and second language acquisition; and d) Multicultural education, which focuses on helping teachers acquire knowledge, develop cultural sensitivity, and identify educational

strategies that address the needs of multilingual and multicultural learners and their families.

Prerequisite: EDPSY 10 or EDPSY 14 or EDTHP 115 or EDUC 100 or HDFS 129 or PSYCH 83S or PSYCH 100 or PSYCH 105

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Soc Resp and Ethic Reason

EDUC 467: English Language Structure for English as a Second Language Teachers

3 Credits

An in-depth study and review of general linguistic concepts and their application to ESL pedagogy. EDUC 467 English Language Structure for ESL Teachers (3) EDUC 467 is the second course in a four-course, 12-credit sequence designed to meet the Pennsylvania Department of Education's (PDE) requirements for an ESL Program Specialist Certificate. The 12-credit sequence which has previously been approved by PDE has been offered as 'Special Topics' courses. The 12-credit sequence is consistent with other approved ESL certificate programs. EDUC 467 introduces students to general linguistic concepts and their application to ESL pedagogy and practice. The course provides an intensive study and review of major linguistic concepts and issues, including but not limited to: phonetics, phonology, morphology, syntax, semantics, pragmatics and discourse analysis, sociolinguistics and dialectology, historical linguistics and world languages, and writing systems. The course specifically addresses two of the PDE competencies necessary for a teacher to acquire to meet the minimum requirements as an ESL Program Specialist: PDE Competency I-English usage and developing linguistic awareness; and PDE Competency III-English language learners [ELLS] language and language services knowledge. The three areas of emphasis within EDUC 467 are: a) Language and communication, which explores the use of dictionaries, English use and usage, social conventions and English usage, American English variations, meaning and significance. b) Grammar, pronunciation, literacy development for second language learners, which focuses on the significance of these areas for ESL learners; and c) Evaluative classroom instruments to measure student progress in grammar, pronunciation and English language structure, which highlights the incorporation of linguistic tools in the assessment of ESL learners' language skills and needs.

Prerequisites: EDUC 100 or EDTHP 115S or EDPSY 10 or EDPSY 14 or EDUC 466 or Admission to ED program

EDUC 468: Language Acquisition for English as a Second Language Teachers

3 Credits

Study of the theory, research, and processes involved in first and second language development, acquisition, and assessment. EDUC 468 Language Acquisition for ESL Teachers (3) EDUC 468 is the third course in a four-course sequence designed to meet the Pennsylvania Department of Education's (PDE) requirements for an ESL Program Specialist Certificate. The 12-credit sequence has previously been approved by PDE. The 12-credit sequence is consistent with what other PDE-approved ESL certificate programs offer. This course builds upon EDUC 466, Foundations of Teaching English as a Second Language, and EDUC 467, English Language Structure for Teachers, with an emphasis

on the processes involved in second language acquisition. EDUC 468 explores first and second language learning, socio-cultural contexts and learner variables, and the issues related to cognition and developmental psycholinguistics. The course specifically addresses two of the PDE competencies necessary for a teacher to acquire to meet the minimum requirements as an ESL Program Specialist: PDE Competency I-English usage and developing linguistic awareness; and PDE Competency III-English language learners [ELLS] language and language services knowledge. The four areas of emphasis within EDUC 468 are: a) Learning a first language, which provides an in-depth study of the process involved in the acquisition and development of first language interrelations between psycholinguistics and cognition, as well as understanding of the processes involved in the acquisition and development of language in human species. b) Learning a second language, which explores the interrelationships between psycholinguistics and cognition, and first and second language acquisition, as well as identifying issues related to developmental psycholinguistics? c) Differences in how children, adolescents and adults learn language, major contributions of leaders in the field of the psychology of language learning. d) Evaluative classroom instruments to measure student progress in listening, speaking, reading and writing, which identifies linguistic tools that can be used to assess the language skills and needs of ESL learners.

Prerequisites: EDUC 100 or EDTHP 115S or EDPSY 10 or EDPSY 14 or EDUC 466 or EDUC 467 or Admission to ED program

EDUC 469: Teaching Methods and Assessment of English as a Second Language

3 Credits

Integration of theory, research, and practice about ESL curriculum, instructional methods, assessment, and literacy development. EDUC 469 Teaching Methods and Assessment of English as a Second Language (3) EDUC 469 is the fourth and final course in a four-course sequence designed to meet the Pennsylvania Department of Education's (PDE) requirements for an ESL Program Specialist Certificate. The 12-credit sequence has previously been approved by PDE. The 12-credit sequence is consistent with what other PDE-approved ESL certificate programs offer. The emphasis in EDUC 469 is to learn and integrate curricular, instructional, and assessment theories and practices into the K-12 classroom setting to promote language and literacy development. The course specifically addresses three of the PDE competencies necessary for a teacher to acquire to meet the minimum requirements as an ESL Program Specialist: PDE Competency I-English usage and developing linguistic awareness; PDE Competency II-English as a Second Language-instructional materials/development; and PDE Competency III-English language learners [ELLS] language and language services knowledge. The three areas of emphasis within EDUC 469 are: a) English as a Second Language methods and collaboration with academic content areas, which focuses on: the preparation for ESL teaching by exploring trends, major theories, methodologies, and assessment in second language learning; the study of second language teaching approaches applicable to elementary and secondary students; materials development and evaluation; and the development of a broad base of knowledge and skills that will enhance teacher effectiveness in meeting the needs of diverse learners through appropriate instructional, curricular, and behavioral strategies; b) Assessment and evaluation of English Language Learners (ELLs), which explores: the use of multiple measures of assessment to evaluate academic achievement; the development and implementation of authentic assessment tools; and various approaches and challenges to classroom assessment; and c) Literacy development, which focuses on elementary and secondary ESL students by exploring ways in which to

enhance English language learning in elementary students and to enrich content-area instruction for secondary ESL students.

Prerequisites: EDUC 468

EDUC 470W: Higher-Order Thinking for Educators

3 Credits

Presentation of strategies, techniques, and principles of higher-order thinking which are grounded in relevant research and practice will be presented. EDUC 470W Higher Order Thinking for Educators (3) This required course for elementary education majors focuses on three primary objectives. The first objective is to develop students' metacognitive, critical thinking, creative thinking, decision making, problem solving and reflection skills. A second objective is for students to become aware of ways to increase the higher order thinking of children in the elementary classroom. The third objective is to improve the students' ability to write critical thinking/reflection papers on educational problems and issues. This course serves as one of the foundation courses for the Elementary Education Program as one of the goals of the program is to develop reflective practitioners. Students are evaluated on the quality of eight writing samples, the quality and quantity of their contributions during whole class discussions, and the quality of their performance during cooperative group activities.

Prerequisite: admission into Elementary Education Major Writing Across the Curriculum

EDUC 471: Best Practices in Literacy

3 Credits

An application of best literacy practices to classroom instruction and assessment of reading, writing, listening, and speaking. EDUC 471 Best Practices in Literacy (3) This course is offered to support the Masters of Education degree in Teaching and Curriculum at Penn State Harrisburg by providing an application of research in best language arts. It is a required course in the Reading Specialist Certification Program. The course acquaints students with an instructional and assessment framework that has been embraced by the educational community on a nationwide basis. Objectives for the course include the following: (1) Students will demonstrate an understanding of the theoretical underpinnings of the established best practices in literacy. (2) Students will demonstrate the ability to implement effective literacy practices. (3) Students will be able to assess and evaluate student performance according to established best practices. Evaluation methods will include: (1) attendance and participation in class discussion and exercises (10%); (2) a 5-7 page paper dealing with the use of children's books to teach reading and writing (25%); (3) a 5-7 page paper on the most current methods of assessing students' reading, writing, speaking, and listening skills (25%); and (4) the creation of an integrated Thematic Unit for instruction (40%).

Prerequisite: EDUC 320 or EDUC 321

EDUC 472: Teaching Reading Through the Content Areas

3 Credits

Designed to enable teachers of content areas to improve the reading/skyl skills needed by their students.

EDUC 475: ESL Leadership, Research and Advocacy

3 Credits

Teachers will develop their skills as instructional leaders and researchers by conducting school-based action research projects. EDUC 475 ESL Leadership, Research and Advocacy (3) EDUC 475, the capstone course in the ESL Specialist and Leadership Certificate program (now the online SCOPE program), is a hybrid course involving online readings and discussions and field-based action research in PreK-12 educational settings with English Language Learners. ESL faculty will provide mentoring/coaching in the field. This course is designed to familiarize ESL candidates with the processes for developing, implementing, and evaluating action research projects. The ESL candidates will explore best practices in ESL pedagogy through implementation of various models of action research. The four areas of emphasis within EDUC 475 are as follows: a) the principles of ethical and methodologically sound action research related to ELLs; b) culturally and linguistically inclusive best practices supported by ESL research; c) collaborative partnerships between school and community to advocate for ELLs and their families; and d) ESL research, evaluation, and assessment for dissemination of research findings, professional development, and continuous quality improvement within ESL programs. ESL faculty will coach and mentor ESL candidates in the field while they conduct action research. By the conclusion of this course, ESL candidates will have gathered, analyzed, and summarized their data into a research paper for potential publication, as well as developed either: a) a workshop training presentation for their school or district; or b) a draft of a conference proposal for a national, regional, or state conference. By conducting action research projects and subsequently disseminating the results of their research through professional development presentations and potential publications, candidates are expected to become instructional leaders in the ESL field. This course is the final capstone 3-credit ESL course for the ESL Specialist and Leadership Certificate program.

Prerequisite: EDUC 469**EDUC 477: Literacy Instruction and Evidence-Based Interventions**

3 Credits

Students in this course will demonstrate knowledge of multi-tiered comprehensive literacy programs that incorporate all essential elements of reading: vocabulary development, early intervention, early literacy, assessment, phonological awareness, phonics, phonemic awareness, comprehension, fluency, and literacy grouping and instruction. Students will also be able to determine appropriate literacy screening, diagnostic, and progress monitoring assessments and align evidence-based instruction to identified student needs.

EDUC 478: Secondary Transition for Students with Disabilities

3 Credits

Process and procedures for successful transition of secondary students with disabilities.

Prerequisite: EDUC 459**EDUC 484: School Law for Teachers**

3 Credits

This course will focus on increasing teacher awareness of law and how it impacts on daily performance and job security.

Prerequisite: permission of program**EDUC 490: Student Teaching**

1-12 Credits/Maximum of 12

Observation and teaching in selected elementary or secondary schools under direction of cooperating classroom teachers and University supervisors. Regular seminars. GPA 3.0 or higher. Passing scores on required Praxis I tests. EDUC 490 Student Teaching (1-12) This course fulfills one of the certification requirements established by the Commonwealth of Pennsylvania. Students are assigned for a period of twelve weeks to teach in either an elementary or secondary school. Students have the option of selecting either the primary or intermediate level in elementary education, or the middle or high school level in secondary education. Cooperating classroom teachers provide the day-to-day direction, evaluation and mentoring, and an assigned university supervisor makes weekly visits and observations. Students are phased into the full responsibilities of a classroom teacher, with the ultimate goal being, the assumption of all duties and responsibilities for a period of several weeks. Students plan, implement, evaluate and reflect on a variety of instructional activities throughout their experience. In addition to planning and implementing instruction, students assume responsibilities for classroom management, assessing student progress, communicating with all stakeholders, and participating in professional and co-curricular activities. Student teacher evaluations are based on clearly defined expectations and criteria. The assessment criteria are linked to Commonwealth and national standards.

Prerequisite: eight semester standing, approval of program**EDUC 494: Research Project**

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

EDUC 494H: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Honors

EDUC 495: Internship

1-15 Credits/Maximum of 15

Supervised off-campus, non-group instruction including individual field experiences, practicums or internships. Written and oral critique of activity required.

Prerequisite: prior approval of proposed assignment by instructor**EDUC 495A: Junior Field Experience**

1 Credits

EDUC 495A Junior Field Experience (1) This course is designed to provide Elementary Education majors with an intensive field experience that acquaints the student with the 'real' world of elementary education in a suburban setting. The experience will be under the direction of a certified elementary teacher in a suburban Harrisburg setting. Students will have an opportunity to actively work at the primary (K-3) and/or

the intermediate (4-5) level, and will be directed to accomplish specific field tasks assigned by their course instructors. These tasks are directly related to each course in which the student is enrolled. Students are assigned a university supervisor who observes and consults with the students throughout the experience. Specific activities will vary depending on the grade level and the school district's curriculum. Students are evaluated by both the cooperating teacher and the university supervisor, and the evaluations are based on classroom observations. This course is offered each semester and is required of all students enrolled in the Elementary Education program.

Prerequisite: prior approval of proposed placement by instructor.

EDUC 495B: Senior Field Experience

3 Credits

EDUC 495B Senior Field Experience (1) This course is designed to provide Elementary and Middle-Level Education majors with an intensive field experience that acquaints the student with the "real" world of elementary education in an urban or suburban setting. The experience will be under the direction of a certified elementary and middle-level teacher in a school setting in the Harrisburg area. Students will have an opportunity to actively work at the K-4 or the middle (4-8) level, and will be directed to accomplish specific field tasks assigned by their course instructors. These tasks are directly related to each course in which the student is enrolled. Students are assigned a university supervisor who observes and consults with the students throughout the experience. Specific activities will vary depending on the grade level and the school district's curriculum. Students are evaluated by both the cooperating teacher and the university supervisor, and the evaluations are based on classroom observations. This course is offered each semester and is required of all students enrolled in the Elementary Education program.

Prerequisite: prior approval of proposed placement by instructor.

EDUC 495C: Early Childhood Field Experience

1 Credits

EDUC 495C Early Childhood Field Experience (1) This course is designed to provide Early Childhood Education majors with an intensive field experience that acquaints the student with the "real" world of early childhood education in an urban setting. The experience will be under the direction of a certified elementary teacher in an urban Harrisburg setting. Students will have an opportunity to actively work at the primary (K-3) level and will be directed to accomplish specific field tasks assigned by their course instructor. These tasks are directly related to early childhood courses in which the student was previously enrolled. Students are assigned a university supervisor who observes and consults with the students throughout the experience. Students are evaluated by both the cooperating teacher and the university supervisor. The evaluations are based on classroom observations and the completion of learning activities correlated with the required text. This course is offered each semester and is required of all students enrolled in the Early Childhood Education program.

Prerequisite: prior approval of proposed placement by instructor and completion of all four early childhood prerequisite courses.

EDUC 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

EDUC 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

EDUC 499: Foreign Studies

1-12 Credits/Maximum of 12

Study of educational topics in a country other than the United States.

Prerequisite: permission of instructor
International Cultures (IL)

Education Mathematics - CA (EDMTH)

EDMTH 301: Mathematics in Elementary Education I

3 Credits

Survey of content, pedagogy, and psychology of mathematics instruction relating to numbers, operations, geometry, measurement, and algebraic thinking for pre-school through fourth grade. EDMTH 301 Mathematics in Elementary Education I (3). The course will provide students with the opportunity to explore and develop research-based practices needed to teach elementary mathematics in alignment with national and state content standards. This course will focus on the big ideas and learning trajectories associated with the mathematical content strands of numbers and operations, geometry, measurement, and algebraic reasoning across grades PK - 4. Course content will also focus on curriculum materials and considerations, planning effective lessons, pedagogical practices, and assessment of students' knowledge related to these mathematical content areas. The course will also emphasize the use of manipulatives and technology to represent the essential understandings needed to help students make sense of mathematical operations and make mathematical connections. Throughout the course, students will engage in mathematical tasks and mathematical discussions, and observe videos of elementary mathematics classes to explore the focus, coherence, and rigor needed across PK-4 grade levels relative to the content strands of numbers and operations, geometry, measurement, and algebraic reasoning. They will also learn about various formative and summative assessment strategies to identify students' misconceptions and learn various intervention strategies to clarify students' mathematical understandings. The course will also emphasize instructional approaches designed to help all students develop the mathematical behaviors associated with the Common Core Mathematical Practices across grade levels.

EDMTH 302: Mathematics in Elementary Education II

3 Credits

Survey of content, pedagogy, and psychology of mathematics instruction relating to rational numbers, algebraic thinking and functions, geometry, measurement, data analysis, and probability for fourth through eighth

grades. The course will provide candidates with the opportunity to explore and develop research-based practices needed to teach elementary mathematics in alignment with national and state content standards. This course will focus on the big ideas and learning trajectories associated with the mathematical content strands of rational numbers, algebraic thinking and functions, geometry, measurement, data analysis, and probability across grades fourth through eight. Course content will also focus on curriculum materials and considerations, planning effective lessons, pedagogical practices, and assessment of students' knowledge related to these mathematical content areas. The course will also emphasize the use of manipulatives and technology to represent the essential understandings needed to help students make sense of mathematical operations and make mathematical connections. Throughout the course, teacher candidates will engage in mathematical tasks and mathematical discussions, and observe videos of elementary mathematics classes to explore the focus, coherence, and rigor needed across 4- 8 grade levels relative to the above content strands. They will also learn about various formative and summative assessments strategies to identify students' lack of knowledge or misconceptions and learn various intervention strategies to clarify students' understanding. The course will also emphasize instructional approaches designed to help students develop the mathematical behaviors associated with the Common Core Mathematical Practices across grade levels.

Prerequisites: Two MATH/STAT courses at 100-level or above

EDMTH 441: Geometry and Measurement Across the K-12 Curriculum

3 Credits

The course presents participants with investigations of reports, research, and recent trends related to teaching geometry and measurement. EDMTH 441 Geometry and Measurement Across the K-12 Curriculum (3) This course addresses the areas of Geometry and Measurement as defined by the National Council of Teachers of Mathematics (NCTM) standards and the Pennsylvania academic standards. Designed for graduate students who teach mathematics in K-12 grades or are leaders in mathematics education, the course focuses on discussions and teaching practices related to the fundamental concepts of geometric and measurement. Also, participants will become familiar with current research, reports and recent trends related to the teaching of a geometry or measurement topic.

Prerequisite: permission of program

EDMTH 442: Algebra and Functions Across the K-12 Curriculum

3 Credits

The course presents participants with investigations of reports, research, and recent trends related to teaching algebra and function concepts. EDMTH 442 Algebra and Functions Across the K-12 Curriculum (3) This course addresses the areas of Algebra and Functions as defined by the National Council of Teachers of Mathematics (NCTM) standards and the Pennsylvania academic standards. Designed for graduate students who teach mathematics in K-12 grades or are leaders in mathematics education, the course focuses on current research and recent trends related to teaching algebra. The course will also focus on teaching algebraic concepts and algebraic reasoning from patterns, mathematical modeling, and variables of change using manipulatives, graphical representations, and technology.

Prerequisite: permission of program

EDMTH 443: Data Analysis and Probability Across the K-12 Curriculum

3 Credits

The course presents participants with investigations of reports, research, and recent trends to teaching data analysis and probability concepts. EDMTH 443 Data Analysis and Probability Across the K-12 Curriculum (3) This course covers the concepts of Data Analysis and Probability as defined by the National Council of Teachers of Mathematics (NCTM) standards and the Pennsylvania Academic Standards. Designed for K-12 teachers of mathematics or mathematics leaders, the course focuses on discussions related to the teaching of data analysis and probability through problem sets, written assignments, classroom-based projects and research. Topics will also include incorporating activities to address teaching probability and statistics to diverse populations. Also, participants will become familiar with current research and recent trends related to the teaching of a topic on data analysis and probability. Attention will be given to practices utilizing manipulatives, writing, problem solving, technology, and simulations.

Prerequisite: permission of program

EDMTH 444: Numbers and Operations Across the Curriculum

3 Credits

The course focuses on investigating reports, research, and recent trends related to teaching number and operation concepts K-12. A student who has passed MATH 200 may not take EDMTH 444 for credit.

EDMTH 455: Current Issues in Mathematics Education

3 Credits

An examination and analysis of contemporary trends and concerns in the teaching of mathematics.

Prerequisite: EDMTH302 or EDUC 417

Educational Psychology (EDPSY)

EDPSY 10: Individual Differences and Education

3 Credits

This course is an overview of the major theories and significant research on the development and explanation of individual differences and how those differences affect the education of school-age children. Specific topics include physical, cognitive, language, social-emotional, and cultural development in children and youth ages 3-20. By its very nature, the course will include a diversity focus, with special attention to ethnic, cultural, and gender issues as well as the needs of special populations. Within each topics area, the course will pay special attention to theoretical and empirical work on how and why variations occur, how they are to be interpreted and measured, and the implications those variations have for society, especially for schooling. Traditional and alternative practices in schools will be examined to see which approaches best meet the needs of in increasingly diverse American society. The course will also address cross-cultural comparisons to identify similarities and differences in developmental patterns, what these patterns tell us about development, and the societal impacts of these patterns. While the course will focus on individual differences in education it will not be exclusively oriented toward future teachers. The course will also help parents (or future parents) and citizens understand

the nature of development and individual differences of students as they progress through the educational system.

Bachelor of Arts: Social and Behavioral Sciences
 General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Soc Resp and Ethic Reason

EDPSY 11: Educational Implications of Individual Differences in Childhood

3 Credits

EDPSY 11 is a course about individual differences in learners that may stem from biological and environmental influences on development and wellness. This course addresses the ways in which we consider these differences as we design environments for learners in early and middle childhood. Course content includes cognitive, language, social-emotional, moral and physical development of students in pre-elementary through middle school settings. Content also includes understanding and promotion of health and wellness in educational settings; as well as individual differences that stem from gender, ethnic, racial, and other forms of diversity in children and youth. Both primary and secondary sources serve as foundational readings for the course. Readings share research on how and why variations occur, how to measure and interpret them, and what implications such variations have on traditional and non-traditional educational environments with emphasis on developmentally appropriate and individually appropriate educational practice. Specific applications for teacher certification are included. Within each topic area, the course will pay special attention to theoretical and empirical work on how and why variations occur, how they are to be interpreted and measured, and the implications those variations have for social policy and ethical dilemmas with particular attention to educational settings. Traditional and alternative practices in schools will be examined to see which approaches best meet the needs of an increasingly diverse American society. While the course will focus on individual differences in education, it will not be exclusively oriented toward future teachers. The course will also help students understand how course content relates to parents (or future parents) understand the nature of development and individual differences of children and the students as they progress through the educational system.

General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Soc Resp and Ethic Reason

EDPSY 14: Learning and Instruction

3 Credits

This introduction to educational psychology provides students with an understanding of the major concepts, principles and theories, and related research of learning and teaching. The research on learning and teaching is a primary emphasis, with clear connections made to diverse real-world contexts such as home, family life, informal and formal teaching and learning settings, as well as the influence of mass media and digital technologies on the learning process.

Bachelor of Arts: Social and Behavioral Sciences
 General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Soc Resp and Ethic Reason

EDPSY 14H: Learning and Instruction

3 Credits

Psychology of human learning applied toward the achievement of educational goals; evaluation of learning outcomes. EDPSY 014H Learning and Instruction (3) This course is designed to give honors students an applied introductory course in learning and instruction, particularly for students who may work in an educational setting. The honors section is designed to give students a more in-depth look at content in learning and instruction and the principles underlying learning theory and effective instructional processes. The class uses a seminar approach to discuss readings related to topics in learning theory, classroom management, effective instruction, student motivation, and applied assessment. Class discussions will focus on deeper understanding of the principles of learning and instruction with a focus on how one would apply those principles in teaching others.

Honors

EDPSY 97: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

EDPSY 99: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

EDPSY 101: Analysis and Interpretation of Statistical Data in Education

3 Credits

This course is an introduction to quantitative methods in educational and social science research emphasizing the interpretation of frequently encountered statistical procedures. Students will learn both conceptual and technical aspects of common approaches to understanding score interpretation and ranges, relationships among variables, and hypothesis testing and group comparisons. Students will learn how to use these approaches to interpret findings and draw conclusions from quantitative data.

Bachelor of Arts: Quantification
 General Education: Quantification (GQ)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

EDPSY 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

EDPSY 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

EDPSY 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

EDPSY 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

EDPSY 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

EDPSY 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

EDPSY 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

EDPSY 400: Introduction to Statistics in Educational Research

3 Credits

The foundations of statistical techniques used in educational research; distributions, central tendency, variability, correlation, regression, probability, sampling, hypothesis testing.

EDPSY 406: Applied Statistical Inference for the Behavioral Sciences

3 Credits

This course introduces evidence-based decision making in education and the social sciences. The topical focus is on descriptive and inferential statistical concepts and procedures applied to univariate distributions including central tendency, variability, confidence intervals, error, p-values, mean differences, correlation, and the general linear model. Students will also gain experience with the use of statistical software to analyze and interpret data.

Prerequisites: EDPSY 101; STAT 200 and PSYCH 200; or Graduate Status

EDPSY 408: Meeting Instructional Needs of English Language Learners with Special Needs

3 Credits

A major objective of this course is for students to be able to develop or modify instructional plans that reflect evidence based practices for adapting for the needs of English Language Learners (ELL) with special needs. The course has been developed to fulfill Pennsylvania Department of Education requirements and in recognition of the growing number of ELLs in the general population and thus, in special education settings. This course covers (1) theory and research on the instructional needs of ELLs and (2) the knowledge base on effective instruction for students with special needs and assists students in bringing these two areas of research together. Major topic areas include principles and issues in second language acquisition; ELLs characteristics including linguistic and cultural factors that affect second language acquisition; techniques and methods of research-based instruction for ELLs with special needs; lesson planning and instructional modifications for ELLs with special needs; and appropriate assessment practices for ELLs with special needs.

Prerequisites: EDPSY 14, EDPSY 10; EDPSY 11 or Graduate Status
Corequisites: SPLED 395W, SPLED 401, SPLED 425; Graduate Status
Cross-listed with: SPLED 408

EDPSY 421: Learning Processes in Relation to Educational Practices

3 Credits

This course covers the major theories used to explain learning across educational settings. Students will learn foundational assumptions and concepts in each theory with a primary focus on the principles that have been forwarded to explain learning. The emphasis in this course is on how these principles can be understood in applied settings and how knowledge of these principles can inform learning and instruction. This course is appropriate for students who are interested in understanding students' learning processes.

Prerequisites: EDPSY 14; EDPSY 10; EDPSY 11; PSYCH 212 or Graduate Status
Recommended Preparation: Permission of program

EDPSY 450: Principles of Measurement

3 Credits

This is an introductory course about properties of test scores such as reliability and validity. In addition, the course focuses on the construction and evaluation of measurement instruments used in educational and psychological settings and may include topics such as test development, score reporting, and interpretation. Basic statistics are introduced throughout the course to interpret the psychometric properties of scores.

Enforced Prerequisite at Enrollment: PSYCH 100 or STAT 200 or PSYCH 200 or EDPSY 101 or Graduate Status
Cross-listed with: PSYCH 404
Bachelor of Arts: Social and Behavioral Sciences

EDPSY 475: Introduction to Educational Research

3 Credits

This is an introductory course about research methods used in educational research. Students will learn how to evaluate research in educational and applied settings and acquire knowledge needed to design a research study. Overall goals are that students will appreciate

the value and limitations of research and continue to seek research articles related to their interests or expertise throughout their careers. The course offers a general survey of research methods commonly used in education and other social sciences; the primary emphasis focuses on various stages of quantitative research with less time spent on qualitative or mixed methods research.

Prerequisites: EDPSY 101; STAT 200 or Graduate Status

EDPSY 493: Child Maltreatment and Advocacy Studies: Capstone Experience

1-3 Credits/Maximum of 3

This course serves as the capstone experience for students enrolled in the Child Maltreatment and Advocacy Studies minor.

Enforced Prerequisite at Enrollment: CMAS 258N or HDFS 258N or SOC 258N Enforced Concurrent at Enrollment: (CMAS 465 or HDFS 465) and (CMAS 466 or NURS 466)
Cross-listed with: CMAS 493

EDPSY 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

EDPSY 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Educational Theory and Policy (EDTHP)

EDTHP 99: Foreign Studies

1-12 Credits

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

EDTHP 115: Education in American Society

3 Credits

This course introduces students to the historical, political, philosophical, and sociological forces that have shaped the course of schooling in the United States. Through a semester-long analysis of a range of educational policies, practices, reforms, and developments, students will develop a stronger knowledge of American schooling and strengthen their skills in finding, interpreting, and presenting evidence in such a way so as to inform and guide both teaching and policy making.

United States Cultures (US)

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

EDTHP 115A: Competing Rights: Issues in American Education

3 Credits

An examination of educational issues relevant to democratic citizenship; emphasis is on understanding the relationship among politics, schools, and society. EDTHP 115A Competing Rights: Issues in American Education (3) (GS;US)(BA) This course meets the Bachelor of Arts degree requirements. This course offers students a chance to practice solving skills necessary for active and responsible citizenship. Because the course requires students to engage in detailed analysis of contested issues, students will: acquire information about the history and governance of public schools; develop an understanding of ideologies underlying existing schools and proposed reforms; and, as a result, be better equipped to make informed choices as voters. Major topics include curriculum design; school accountability; education of minority populations; the conflict between students' rights and the need of a school to maintain order; and the teaching of values. The course will require extensive reading, discussion (in-class and/or on-line), writing, and field research, to include such activities as interviewing teachers and politicians, or attending a school board meeting. Readings may include editorials, proposed legislation, court decisions, chapters from texts, essays and scholarly articles, and material from web sites of interested organizations (such as the National Education Association, the Christian Coalition, or the American Civil Liberties Union). After readings, analysis and discussion, students will prepare and defend a position on each issue, either individually or in groups, formally or informally, in speech or in writing. Students will be graded on their ability to support a particular stance with credible evidence, and on their ability to articulate the ideology underpinning a stance. Therefore, the ability to identify credibility of sources is inherent to success in the course. In general, this course draws upon concepts and information from history, political science, economics and philosophy as well as from education. As a General Education course, it seeks to help students broaden their perspective on social issues; to offer them practice in informed decision-making; and to understand and accept the responsibilities of active citizenship. The course might be particularly useful to social science majors because it will reveal interdisciplinary connections, while it will also be useful to the wider student body as a form of civic education.

Bachelor of Arts: Social and Behavioral Sciences

United States Cultures (US)

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Soc Resp and Ethic Reason

EDTHP 115S: Competing Rights: Issues in American Education

3 Credits

An examination of educational issues relevant to democratic citizenship; emphasis is on understanding the relationship among politics, schools, and society. EDTHP 115S Competing Rights: Issues in American Education (3) (GS;US)(BA) FYS This course meets the Bachelor of Arts degree requirements. This course offers students a chance to practice solving skills necessary for active and responsible citizenship. Because the course requires students to engage in detailed analysis of contested issues, students will: acquire information about the history and governance of public schools; develop an understanding of ideologies underlying existing schools and proposed reforms; and, as a result, be better equipped to make informed choices as voters. Major topics include curriculum design; school accountability; education of minority

populations; the conflict between students' rights and the need of a school to maintain order; and the teaching of values. The course will require extensive reading, discussion (in-class and/or on-line), writing, and field research, to include such activities as interviewing teachers and politicians, or attending a school board meeting. Readings may include editorials, proposed legislation, court decisions, chapters from texts, essays and scholarly articles, and material from web sites of interested organizations (such as the National Education Association, the Christian Coalition, or the American Civil Liberties Union). After readings, analysis and discussion, students will prepare and defend a position on each issue, either individually or in groups, formally or informally, in speech or in writing. Students will be graded on their ability to support a particular stance with credible evidence, and on their ability to articulate the ideology underpinning a stance. Therefore, the ability to identify credibility of sources is inherent to success in the course. In general, this course draws upon concepts and information from history, political science, economics and philosophy as well as from education. As a General Education course, it seeks to help students broaden their perspective on social issues; to offer them practice in informed decision-making; and to understand and accept the responsibilities of active citizenship. The course might be particularly useful to social science majors because it will reveal interdisciplinary connections, while it will also be useful to the wider student body as a form of civic education.

Bachelor of Arts: Social and Behavioral Sciences
United States Cultures (US)

First-Year Seminar

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

EDTHP 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

EDTHP 200: Educational Reform and Public Policy

3 Credits

This course uses an interdisciplinary approach to explore the policies and reforms that shape the nation's largest social institution: public schools. This course is designed for students interested in understanding broad issues in public policy and in exploring fundamental questions about the United States through the lens of public educational institutions. Drawing from multiple social science disciplines, the course analyzes how ideologies, institutions, and social groups have interacted to shape formal schooling. Both past and present school reforms are used to interpret the relations of schools to historic changes in legal norms, the distribution of power and resources in public institutions, and the access of different social groups to leadership and leverage in the political process of American society. The course has no prerequisites. The lectures, discussions, readings, and projects are designed for students interested in studying public policy and are intended to lead to informed interpretation of educational policy dilemmas.

United States Cultures (US)

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

EDTHP 220: Children, Parents and Schools

3 Credits

This course examines the space within which parents, children and schools interact. We will look in depth and breadth at economic, social, cultural, and emotional factors that shape these relationships. Sociological perspective will be applied to examine children's and parents' experiences with schooling within the context of time and place. The course will cover a variety of topics, including parenting in historical perspective, social class differences in parental practices, race/ethnicity and education, education of immigrant children, school discipline, and others.

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

EDTHP 234: Honors Leadership Jumpstart

3 Credits

Intensive survey of contemporary leadership theory joined with practice, team-building skills, policy formation and influence, and service leadership. EDTHP 234H Honors Leadership Jumpstart (3) This is an intensive honors course for incoming First-Year students in the Schreyer Honors College with an interest in leadership. It provides introductory skills, perspective and background to prepare for and participate in a variety of leadership roles at Penn State and in the university community. Contemporary leadership theory joined with increasingly complex practice situations will be introduced. Content matter will include personal assessments, team building skills, organizational leadership, collaborative leadership, civics and diversity, policy formation and influence, and lessons about service learning and public scholarship. Considerable reading, writing, and discussion, as well as a first-year orientation project and a semester-long team service project will be required.

Prerequisite: first-semester Penn State student in the Schreyer Honors College
Honors

EDTHP 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given on a topical or special interest subject which may be offered infrequently.

EDTHP 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

EDTHP 394: Professional Development in Education and Public Policy

3 Credits

This course develops professional skills and opportunities to prepare students for field placement and future employment or study. EDTHP 394 Professional Development in Education and Public Policy (3) This course focuses on the development of personal understanding of educational policy in a wide range of governmental, private, and civic organization with interest in educational policy, broadly defined. Students are provided opportunities to discover their policy interests, develop their professional communication and research skills, and design an on-site research project to be implemented during a summer field experience. The culminating project, the Field Experience Proposal, synthesizes readings, research, professional presentation, and details of the field placement. This becomes the blueprint for the students' summer field experience in EDTHP 395.

EDTHP 395: Field Experience in Education and Public Policy

3 Credits

This course structures a summer field experience, research project, and service in an off-site educational policy organization. EDTHP 395 Field Experience in Education and Public Policy (3) This course structures a summer semester field placement for EPP majors in a non-profit, governmental, or civic organization with an educational policy component. Students gain hands-on, real-world experience implementing their Field Experience Plan (created in EDTHP 394) while serving internships in regional and national settings. Student-directed Field Placement Plans include identification of a policy issue relevant to the placement, implementation, evaluation, and analysis and can apply to broad topics such as diversity, multiculturalism, social justice, and educational equity in rural, suburban, and urban settings. Communication, assignment submission, and instructor assessment will take place on the ANGEL Course Management System.

Prerequisite: EDTHP394

EDTHP 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

EDTHP 401: Introduction to Comparative Education

3 Credits

Origins, nature, scope, basic literature, and methodology of comparative education. Study of sample topics. CI ED 401 CI ED (EDTHP) 401 Introduction to Comparative and International Education (3) (IL) The course introduces undergraduate students to global issues in education and provides a survey of schooling practices used in various educational systems around the world. Students will have the chance to create an individual research project that will allow them to explore one country and one global educational issues in depth. Students are required to attend all classes, participate in the discussion sections, and take notes on the films shown. These films play an integral part in the course and provide students with views into classrooms and schools around the world. Students will also have access to international databases and be expected to make use of these databases in developing their projects. Finally, in-class discussions will focus on how comparative educational

studies have been used by politicians to influence educational reform around the world. In this course, we will survey the state of public education in the world today. Each student will focus on one nation and provide a synopsis of educational practice in that nation. We will then move on to focus on global or cross-national issues such as how competition between "core" nations like Singapore and the U.S. drives reform (GOALS 2000 or No Child Left Behind). Other issues will include power differences between north and south, education for democracy, barriers to girls and women's education in developing nations, as well as education and national identity.

Prerequisite: 5th semester standing or higher

Cross-listed with: CIED 401

International Cultures (IL)

EDTHP 410: The Global Impact of Education

3 Credits

This course examines the global impact of education on human rights, health, economic development, political mobilization, religion, and environmental sustainability. The education revolution has significantly changed the world's population from one largely unschooled to one mostly schooled in just the last 150 years, yet the full impact of this major transformation is only now emerging through social science research. The course will explore, at both the individual and societal levels, how education changes many dimensions of global society in both positive and negative ways. It also focuses on the use and misuse of educational programs in social and economic development worldwide through Non-Government Organizations (NGO's), national governments, and multinational agencies.

Enforced Prerequisite at Enrollment: 5th semester standing

Cross-listed with: CIED 410, GLIS 410, SOC 410

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Soc Resp and Ethic Reason

EDTHP 412: Education and the Status of Women

3 Credits

An examination of the relationship of education to the status of women in American society.

Cross-listed with: WMNST 412

EDTHP 416: Sociology of Education

3 Credits

The theoretical, conceptual, and descriptive contributions of sociology to education.

Cross-listed with: SOC 416

Bachelor of Arts: Social and Behavioral Sciences

United States Cultures (US)

EDTHP 420: Education and Public Policy

3 Credits

Focus on the development and analysis of education policy, and policy's influence on schools. EDTHP 420 Education and Public Policy (3) This

course examines the inherently political process in which educational policies are developed and implemented. It also considers how these formal policies interact with the practice of teaching and learning in U.S. schools. In this course, students will be expected to actively participate in classroom discusses and activities as we examine the development of policies and their implementation, with a focus on understanding pressing policy dilemmas in education today. Course evaluation includes quizzes, a midterm paper analyzing a policy issue, and a series of final exam essays.

Prerequisites: 5th Semester standing

EDTHP 426: Economic Foundations of Education Policy

3 Credits

This course is designed for undergraduate students interested in understanding the economic dimensions of education. Students will be shown how to apply economic models to fundamental questions of education policy. Concepts and principles such as returns to education, education production function, market failure in education, signaling model of education, and externalities of education will be introduced with a specific eye towards the application of those concepts to real world education policy issues. The concepts and methods of analysis addressed in this class would enable you to assess the validity of the arguments put forth by economists and education policy makers in various situations and hopefully make you a more discerning consumer of news and education policy topics. The main goals of the course are to (1) introduce students to the theoretical frameworks and empirical methods used by economists to understand and analyze core questions and problems in education; and (2) To teach students how to apply economic concepts, modes of analysis, and methods to analyze real-world education policy issues affecting the United States.

Prerequisites: ECON 102

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

EDTHP 427: Intelligence and Educational Policy

3 Credits

This course explores the concept of intelligence and its assessment from historical, psychological, educational and policy perspectives. EDTHP 427 Intelligence and Education Policy (3) In this course, we will focus on two main content areas. First, we'll explore the concept of intelligence and its assessment from historical, psychological, educational, and policy perspectives: What does intelligence look like in different cultures and at different points in history? What forces help to shape conceptions of intelligence? Second, we will consider the ways in which conceptions of intelligence influence students' opportunities to learn. For example, how are students assigned to higher-level or remedial classes and on what bases should admission to elite educational programs be allocated? What policies govern such decisions? The study of intelligence has been a controversial one. This course will touch on several controversies associated with the topic, including the "nature/nurture" debate and the "merit/affirmative action" debate. Readings and discussion will draw on opposing sides of these issues.

Prerequisites: 5th Semester standing

EDTHP 430: History of Education in the United States

3 Credits

American educational ideas and practice critically examined in terms of their historical development and contemporary significance.

EDTHP 433: Education and Civil Rights

3 Credits

The United States is in the midst of a demographic transformation and by the middle of the 21st century, demographic projections suggest no one racial group will constitute a majority in the U.S. More than half of children under 5 are children of color, and the nation's K-12 public schools are also serving a majority of minoritized children. At the beginning of the 21st century, economic inequality grew, as well. Policies and laws that had been implemented to expand access to educational opportunity during the civil rights movement have been curtailed as a result of legal and political pushback. Yet, communities, educators, advocates and leaders continue to push for new strategies to fully realize protecting the civil rights of all students in the U.S. This course will help students examine the history of efforts to adopt policies and laws to advance civil rights in education as well as resistance to them.

Cross-listed with: EDLDR 433

EDTHP 434: Honors Teaching Experience in Leadership Jumpstart

1 Credits/Maximum of 3

Guided instruction and practical experience for teaching assistants to the Honors Leadership Jumpstart course (EDTHP 234H). EDTHP 434H Honors Teaching Experience in Leadership Jumpstart (1) This course trains and supports the teaching assistants (TAs) who work with the first-year students in the Leadership Jumpstart course (EDTHP 234H). The TAs help guide the first-year students through their course by assisting in the design, implementation, and evaluation of the course and the student projects, providing feedback for what worked and what did not work, and providing important perspective from when they were first-year students. The TAs are expected to be a role model, assist in the instruction of the course, assist in the functional elements of the course, be a confidant/mentor to new students, and occasionally serve as an evaluator of students' work. The TAs' grades will be based on attendance at all class sessions and interactive assistance and leadership during the EDTHP 234H course and on the TA's reflections on the course, its effectiveness to achieve the objectives, and possible improvements.

Prerequisite: EDTHP234H and permission of program Honors

EDTHP 435: Child Labor and Education in the Global Economy

3 Credits

The legal instruments and social science theories useful for understanding and combating child labor through education policy and practice.

EDTHP 440: Introduction to Philosophy of Education

3 Credits

Introduction to the examination of educational theory and practice from philosophical perspectives, classical and contemporary. CI ED 440 CI ED (EDTHP) 440 Introduction to Philosophy of Education (3) The major

objective of EDTHP (CI ED) 440, Introduction to Philosophy of Education, is to broaden and deepen the students' understanding of the nature of education. Such a study involves exploring the ends as well as the means of education. It includes both an examination of some of the distinctive or defining characteristics of "educated persons" as well as the different elements of the learning experience (including curricula, pedagogies, and evaluative processes) that encourage the development of such persons. As part of developing an understanding of the educational enterprise, this course will introduce students to some of the important ideas and theories that comprise the rich tradition of educational philosophy. In the design of a course of this nature with constraints established by space, time, and the background of the student, it is necessary to confront the task of making judicious selections from the vast literary wealth accumulated over the centuries. In doing so, the decision made has been to focus primarily on the literary contributions of western philosophers of education. In the interest of making the sample varied and interesting, however, an effort has been made to include writings of some philosophers of education from different cultural contexts. The educational thoughts of A.S. Neill, John Dewey, Eliot Wigginton, Maxine Greene, Paolo Freire, Mohandas Karamchand Ganddhi, David Orr, Ivan Illich, and Wendell Berry, among others, will be explored in this class. The exposure to diverse, rich, and provocative ideas of the educators included for study here will, it is hoped, stimulate students to re-examine and further develop their own philosophy of education into a more comprehensive, coherent, and consistent one.

Prerequisite: ENGL 015
Cross-listed with: CIED 440

EDTHP 441: Education, Schooling, and Values

3 Credits

Studies in education and schooling as problems in value; axiological problems and positions; examination of practical applications, including moral education.

EDTHP 447: Ethnic Minorities and Schools in the United States

3 Credits

Analysis of the social and cultural factors which affect educational outcomes among minority pupils, especially Blacks, Hispanics, and Indians.

Cross-listed with: SOC 447
United States Cultures (US)

EDTHP 492: Identities, Power and Perceptual Pedagogies in Teaching and Learning

3 Credits

Students will perform inquires into the intersections of identities, power, and pedagogical formations in relation to urban teaching/learning contexts. AFAM 492 / CI 492 / EDTHP 492 Identities, Power and Perceptual Pedagogies in Teaching and Learning (3) In this course, students will take part in inquiries into the intersections of identities, power, and perceptual pedagogies, particularly as these phenomena pertain to methods of teaching and learning in urban contexts. To develop new knowledge and analytic skills, students will be introduced to perceptual and conceptual frameworks that assist deep engagements with youth- and teacher-centered case studies. These cases will depict

actual lived experiences among racially and economically diverse students and teachers in urban contexts.

Prerequisite: 5th semester standing
Cross-listed with: AFAM 492, CI 492

EDTHP 496: Individual Studies

1-18 Credits/Maximum of 18

Creative projects supervised on an individual basis and which fall outside the scope of formal courses.

EDTHP 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given on a topical or special interest subject which may be offered infrequently.

Electrical Engineering (EE)

EE 8: Introduction to Digital Music

1 Credits

First-year seminar that discusses digital music from an electrical engineering perspective; topics include sampling, digital filtering, compression, and music synthesis. E E 008S Introduction to Digital Music (1) (FYS) E E 008S is a lab-oriented first-year seminar course aimed at students interested in the field of digital music. Specifically, this course discusses how the various digital music formats (and other types of digital audio) relate to the electrical engineering sub-discipline of digital signal processing. Students will come out of this course with a more technical understanding of the digital audio formats that they listen to every day. This course is structured to have alternating periods of lecture and lab. New concepts are first covered in the lectures and then reinforced with a variety of laboratory activities. In the laboratory experiments, students will use various computer programs and will also get exposure to standard test equipment used by electrical engineers. Topics covered in the lectures/labs include investigating the physics of sound, sampling and quantization of music signals, generating audio special effects through the use of digital filters, compression techniques used in digital audio, and mathematically synthesizing instrument sounds. Current popular digital audio formats such as compact disc audio, WAV, MP3, and MIDI will also be investigated throughout this course. No musical experience/talent is necessary.

First-Year Seminar

EE 9: First-Year Seminar in Electrical Engineering

1 Credits

First-year seminar covering a variety of Electrical Engineering topics that vary from year to year. E E 009S First-Year Seminar in Electrical Engineering (1) (FYS) The overall objectives of Engineering First-Year Seminars are to engage students in learning about engineering and orient them to the scholarly community in a way that will bridge to, and enhance their benefit from, later experiences in the College and the University. Seminars adhere to the two specific goals identified below by including one or more of the three strategies following each goal: (1) Introduce students to a specific field, or encourage their exploration of a number of fields, of study in engineering; familiarization with the engineering majors and career options and with the objectives of general

education and other components of the curriculum; development of a particular topic, contemporary issue, emerging or interdisciplinary field of concentration, or professional responsibilities in engineering; plant tours or demonstrations of engineering facilities(2)Acquaint students with tools, resources and opportunities available to them in the department(s), College and University; exposure to learning support services and career development resources

First-Year Seminar

EE 97: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

EE 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

EE 200: Design Tools

3 Credits

A working knowledge of electrical engineering design tools and hardware realization of electrical engineering systems. E E 200 Design Tools (3) E E 200 provides students with a working set of design tools that are required to complete subsequent courses in the electrical engineering design curriculum. This course directly builds upon circuit analysis/ design concepts in the required introductory courses in electrical circuits, digital systems and computer programming. Specific topics covered in this course include automated instrument control, hardware realization using field programmable devices, hardware realization using embedded microcontroller systems, circuit simulation and printed circuit board layout. Student performance is evaluated using exams, homework assignments, and projects. Concepts introduced in lecture are reinforced with hands-on experience provided by laboratory projects.

Enforced Prerequisite at Enrollment: [C or better in CMPEN 270 or ((C or better in CMPEN 271) and CMPEN 275)] and (CMPSC 201 or CMPSC 121 or CMPSC 131)

EE 210: Circuits and Devices

4 Credits

EE 210 serves as the gateway course for all subsequent coursework in Electrical Engineering. It introduces engineering circuit analysis to students headed towards Electrical Engineering and related fields. The course includes both a theoretical component, covered in the lecture portion of the course, and a practical hands-on component, covered in the laboratory portion of the course. The lecture portion of the class begins with a review of basic concepts of charge, current, voltage, electric power and electric energy. Next, circuit elements and devices used in DC circuits are introduced - independent and dependent sources, resistors, potentiometers, and operational amplifiers. Circuit analysis theorems (KVL, KCL, resistor and source combinations, voltage division, current division, source transformations, nodal analysis, mesh analysis, linearity, superposition, Thevenin's theorem, and Norton's theorem) are then presented and used to analyze DC circuits. In the next part of the course, circuit elements with time-varying properties (capacitors and

inductors) are introduced and algorithms for analyzing transient RC, RL, and RLC circuits are formulated. In the final part of the course, the concepts of phasors and impedances are developed and these tools are used to analyze AC steady state circuits. These tools are then extended to calculate the frequency response of RLC circuits. In the laboratory portion of the course, students first learn how to use basic electrical engineering test equipment - oscilloscopes, function generators, digital multimeters, and power supplies. Students then perform a series of experiments that parallel the theory learned in the lecture-portion of the course. Experiments involve electrical devices such as resistors, potentiometers, capacitors, and operational amplifiers. Circuit analysis modeling software is introduced as a tool for circuit analysis and design.

Enforced Prerequisite at Enrollment: C or better in PHYS 212 Enforced Concurrent at Enrollment: MATH 250 or MATH 251

EE 211: Electrical Circuits and Power Distribution

3 Credits

D.C. and A.C. circuits, transformers, single and three-phase distribution systems, A.C. motors and generators.

Enforced Prerequisite at Enrollment: PHYS 212

EE 212: Introduction to Electronic Measuring Systems

3 Credits

Electronic devices and characteristics, amplifiers and feedback, electronic instruments and recording systems. Designed for non-electrical engineering students.

Enforced Prerequisite at Enrollment: PHYS 212

EE 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

EE 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

EE 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

EE 300W: Design Process

3 Credits

Introduction to the electrical engineering design process, project teaming and management, and technical communication. E E 300W Design Process (3) E E 300W course will introduce students to the electrical engineering design process, project teaming, and project management in preparation for conducting a senior design project. In the lab, students will get practice managing a project from pre-definition to completion within constraints of customer needs, technical parameters

and budgets. The principles of systems engineering will be introduced. The student-engineer will gain professional skills (in areas such as technical communication, teaming, conflict resolution and life-long learning) important for a successful career in a wide range of engineering environments. There will also be discussion of engineering ethics and the responsibilities of the engineer in the emerging global marketplace. A series of lectures by outside speakers will provide perspectives on life as an engineer.

Enforced Prerequisite at Enrollment: EE 200 and EE 310 Enforced Concurrent at Enrollment: ENGL 202C Writing Across the Curriculum

EE 310: Electronic Circuit Design I

4 Credits

EE 310 provides the foundational education in electronic circuit analysis and design through lecture, laboratory, and out-of-class assignments. In EE 310, students learn about the electrical properties of different fundamental semiconductor devices and their basic circuit design applications. This course deals explicitly with both linear and nonlinear applications of devices, and with the practical aspects of design such as the inherently nonlinear nature of semiconductor devices. The lecture portion of the class begins with the introduction of diodes (their characteristics and DC/AC models), followed by methods for analysis and design of diode circuits, such as rectifiers, regulators, and limiters. Next, both metal-oxide-semiconductor field-effect transistors (MOSFET) and bipolar junction transistors (BJT) are introduced with an emphasis on their characteristics and DC/AC models as well as the analysis (gain and input/output resistance) of different amplifier configurations with transistors. The design and analysis of integrated-circuit analog MOSFET amplifiers and digital MOSFET logic gates are also covered in this course. EE 310 also introduces the design and analysis of circuits containing ideal operational amplifiers (op amps), such as buffers, inverting/noninverting amplifiers, summers, integrators, differentiators, and instrumentation amplifiers, as well as the effects of non-ideal op-amp characteristics on circuits. In the laboratory portion of the course, students first learn how to use basic electrical engineering test equipment. Students then perform a series of experiments that parallel the theory learned in the lectures. Experiments involve electronic devices such as diodes, transistors (both MOSFET and BJT), and operational amplifiers. Circuit analysis modeling software is utilized as a tool for circuit analysis and design.

Enforced Prerequisite at Enrollment: C or better in EE 210 or C or better in EE 315 or C or better in EET 310

EE 311: Electronic Circuit Design II

3 Credits

Electronic circuit design with consideration to single and multi-device subcircuits, frequency response characteristics, feedback, stability, efficiency, and IC techniques. E E 311 Electronic Circuit Design II (3) E E 311 is intended to provide competency in the application of basic electronic principles to design with operational amplifiers and integrated circuits. The course will include passive and active filter design, and feedback principles and non-ideal aspects of operational amplifiers (op-amps) including compensation, stability, and sensitivity needed for advanced design with op-amps, as well as some nonlinear op-amp circuits including comparators, Schmitt triggers, pulse width modulators, and waveform generators.

Enforced Prerequisite at Enrollment: C or better in EE 310

EE 312: Electrical Circuit Analysis

3 Credits

Circuit analysis techniques; mutual inductance; frequency response; FOURIER series; LAPLACE transform.

Enforced Prerequisite at Enrollment: EE 210

EE 313W: Electronic Circuit Design II

4 Credits

Design/analysis of electronics circuits including: single/multistage transistor amplifiers, op amp circuits, feedback amplifiers, filters, A/D and D/A converters. E E 313W Electronic Circuit Design II (4) The prerequisite course, E E 310 - Microelectronics 1, covers the basic operation of microelectronic devices and their use in logic circuit design. This course focuses on the design of electronic circuits for amplification, filtering, and A/D and D/A conversion. Advanced circuit design concepts, such as IC biasing, feedback, and frequency response, are covered. This course is designated as writing intensive, and students are required to produce a variety of technical documents based on laboratory work.

Enforced Prerequisite at Enrollment: EE 310

Writing Across the Curriculum

EE 314: Signals and Circuits II

3 Credits

Circuit analysis including op-amps, and ideal transformers; one/two port network models; three-phase and industrial loads; engineering professionalism.

Enforced Prerequisite at Enrollment: EE 210 and (CMPSC 201 or CMPSC 121 or CMPSC 131 or CMPSC 200)

EE 315: Electrical Signals and Circuits with Lab

5 Credits

Introduction to circuits, signals, energy, circuit analysis; frequency response, Bode diagrams, two-port networks; Laplace transforms, Polyphase circuits.

Enforced Concurrent at Enrollment: MATH 250

EE 316: Introduction to Embedded Microcontrollers

3 Credits

Introduction to microcontrollers in electronic and electromechanical systems. Hardware and software design for user/system interfaces, data acquisition, and control.

Enforced Prerequisite at Enrollment: (CMPSC 121 or CMPSC 131 or CMPSC 200 or CMPSC 201) and (CMPEN 271 or CMPEN 270) Enforced Concurrent at Enrollment: EE 310

EE 317: Circuits II and Data Acquisition

2 Credits

E E 317 Circuits II and Data Acquisition This course is a follow up to the introductory circuit analysis course. The first part of this course is

devoted to the study of multi-phase circuits, magnetic coupling, two-port networks and their applications. The second part of the course is devoted to automated instrument control with emphasis on data acquisition and processing, and printed circuit boards manufacturing. Student performance is evaluated using exams, homework assignments, and projects. Concepts introduced in lecture are reinforced with hands-on experience provided by laboratory projects.

Enforced Prerequisite at Enrollment: EE 210 and (CMPSC 201 or CMPSC 121 or CMPSC 101)

EE 320: Introduction to Electro-Optical Engineering

3 Credits

An introduction covering several fundamental areas of modern optics, optical PROCESSES, AND DEVICES.

Enforced Prerequisite at Enrollment: EE 210 and (MATH 230 or MATH 232)

EE 330: Engineering Electromagnetics

4 Credits

Static electric and magnetic fields; solutions to static field problems, Maxwell's equations; electromagnetic waves; boundary conditions; engineering applications.

Enforced Prerequisite at Enrollment: (C or better in EE 210 or C or better in EE 315) and (MATH 230 or MATH 232)

EE 331: Electromagnetic Fields and Waves

3 Credits

Electromagnetic field theory and applications; Maxwell's equations; plane wave propagation; boundary conditions; basic antenna theory; impedance matching. E E 331 Electromagnetic Fields and Waves (3) After completing this course the student should understand, and be able to demonstrate a working knowledge of the following topics: 1)Vector Calculus 2)Coulomb's Law and applications 3)Gauss's Law and applications 4)Electric potential and electric fields 5)Static boundary conditions 6)Computation of capacitance 7)Laplace's equation 8)Current density and Ohm's Law 9)The Biot-Savart Law 10)Magnetic field characteristics 11)Computation of Inductance 12)Faraday's Law of electromagnetic induction 13)Maxwell's equations 14)Time-harmonic fields 15)Plane electromagnetic waves in various media 16)Plane waves at boundaries 17)Transmission lines 18)Smith charts 19)Basic antenna theory 20)Impedance matching.

Enforced Prerequisite at Enrollment: EE 210 and MATH 230

EE 337: Introduction to Quantum Information Science and Engineering

3 Credits

This course will introduce quantum mechanics from the perspective of quantum information science and engineering, focusing on two-level systems and the concepts of entanglement and decoherence. It will educate students on how quantum information can be used in quantum communication and quantum computing, both in theory and experiment. The course covers basic concepts such as two-level systems, Schroedinger equation, Bloch sphere, superposition, entanglement, quantum bits, quantum gates, Bell's inequalities, and mixed states. Covering these basic concepts prepare the students for

more advanced courses in the minor where they learn in depth about quantum algorithms, physical implementation of different quantum systems, and how to compute with existing quantum computers.

Enforced Prerequisite at Enrollment: MATH 220 and PHYS 214
Cross-listed with: ESC 337, PHYS 337

EE 340: Introduction to Nanoelectronics

4 Credits

Introduction to the physics and technology of nanoelectronic devices. E E 340 Introduction to Nanoelectronics (4) This is a required course for junior-level electrical engineering students. The first part of the course provides an introduction to the key aspects of electronic materials, quantum mechanics, and solid state physics needed to understand nanoelectronic devices. The second part is devoted to the fundamental theory of carrier transport including ballistic transport, drift, diffusion, and recombination/generation. The third part of the course applies the fundamentals to describe the operation of several basic semiconductor devices: p-n junctions, metal-semiconductor junctions, and metal oxide semiconductor field effect transistors (MOSFETs), and provides an introduction to fabrication methods used to create these devices. This portion of the course also highlights contemporary concepts in thin film electronics, optoelectronic devices, and solar energy conversion. The course includes several in-class demonstrations and also web-based remote device measurement laboratories. One of the in-class demonstrations uses a Breeze interface to link a field emission scanning electron microscope session to the classroom. The students can see and communicate with the microscope operator to visualize real nanoelectronic materials and devices at different levels of magnification. The remote device measurement laboratories use web-based labview software to collect device characteristics from silicon p-n junctions and MOSFETs fabricated in the senior level device technology class. The students are given microscope images of the devices and an assignment to analyze the device performance. This allows the students to compare ideal text book performance to non-ideal device response.

Enforced Prerequisite at Enrollment: PHYS 214 and C or better in EE 210

EE 341: Semiconductor Device Principles

3 Credits

This course prepares students to learn electronic design by providing an understanding of how semiconductor devices work, how they are made, how they are modeled, how they fail, and how they are applied as discrete and integrated components. Emphasis will be placed on silicon devices, especially diodes, bipolar junction transistors, field-effect transistors, optoelectronic devices, microelectromechanical devices, and integrated circuits. Lectures will transition along the progression from the underlying physics to the fabrication process, and end with an introduction to diode and transistor circuit design, using material from the textbook, with supplemental material added where applicable.

Enforced Prerequisite at Enrollment: CHEM 110 and PHYS 214
Enforced Concurrent at Enrollment: EE 210

EE 350: Continuous-Time Linear Systems

4 Credits

Introduction to continuous-time linear system theory: differential equation models, sinusoidal steady-state analysis, convolution, Laplace transform and Fourier analysis.

Enforced Prerequisite at Enrollment: (C or better in EE 210) and MATH 220 and (MATH 250 or MATH 251)

EE 351: Discrete-Time Linear Systems

3 Credits

Introduction to discrete-time signal processing: sampling, linear time-invariant systems, discrete-time Fourier transform and discrete Fourier transform, Z transform.

Enforced Prerequisite at Enrollment: C or better in EE 350

EE 352: Signals and Systems: Continuous and Discrete-Time

4 Credits

Transient response, frequency response, Bode plots, resonance, filters, Laplace transform, Fourier series and transform, discrete-time signals/systems; sampling z-transform. E E 352 Signals and Systems (4) E E 352 is a course designed to study the characteristics of continuous and discrete time linear systems. These include signal and power input/output relationships in both domains, impulse responses, and the differential equations that describe these systems. Convolution is an essential component of any linear systems course, therefore several classes will be devoted to this topic in order that students fully understand the concept. Fourier series is used to determine the spectral content of periodic signals thus illustrating how a signal is distributed in frequency. This is very important when determining bandwidth requirements. There will be a brief refresher on the trigonometric Fourier series then the exponential series will be studied extensively. The Fourier transform can be used to determine the spectral content of virtually any signal encountered in the undergraduate curriculum, aperiodic, or periodic. It is also valuable in determining the frequency response characteristics of linear systems. Some filter theory is included in the course along with the Laplace transform. Much of the signal processing performed today is done digitally so the remainder of the course will approach most of the aforementioned topics from the viewpoint of the discrete domain with a strong emphasis on sampling and aliasing. Finite impulse response filters will be introduced along with recursive filters using the bilinear transform method.

Enforced Prerequisite at Enrollment: MATH 250 and (EE 210 or EE 314 or EE 315)

EE 353: Signals and Systems: Continuous and Discrete-Time

3 Credits

Fourier series and Fourier transform; discrete-time signals and systems and their Fourier analysis; sampling; z-transform. E E 353 Signals and Systems: Continuous and Discrete Time (3) is a core course taken by all computer engineering students that provides exposure to a variety of topics in linear systems. The material in this course is needed for further study in image processing and data communications, both of which are major areas of specialization within the computer engineering curriculum. This course is divided into three main sections - continuous-time linear system analysis, sampling and reconstruction, and discrete-

time (digital) linear system analysis. Although the material covered in the first and last sections is similar, fundamental differences between continuous- and discrete-time exist. One of the goals of this course is to make the student aware of these differences. The first part of the course discusses continuous-time linear system analysis. It begins with basic time-domain mathematical descriptions of various signals and systems. The bulk of the analysis, however, is in frequency domain approaches such as the Fourier Series and the Fourier Transform. Applications such as modulation and multiplexing are understood much easier using frequency-domain analysis approaches. The middle part of the course deals with the bridge between continuous- and discrete-time, namely signal sampling and reconstruction. Theoretical and practical approaches to sampling/reconstruction are covered. Finally the Nyquist sampling theorem, which is the key to all digital signals, is developed. At this point, students are ready to study discrete-time systems. The final part of this course revisits system analysis, although now discrete-time (or digital) systems are considered. As in the continuous-time case, both time-domain and frequency-domain approaches to the analysis problem are discussed. The course ends with select topics in the z-transform, which is the digital counterpart to the Laplace transform.

Enforced Prerequisite at Enrollment: EE 210 and (MATH 250 or MATH 251)

EE 360: Communications Systems I

3 Credits

Generic communication system; signal transmission; digital communication systems; amplitude modulation; angle modulation. E E 360 Communications Systems (3) E E 360 is a junior-level elective course in the electrical engineering curriculum that provides a detailed foundation of communications systems, expanding on the topics covered in a standard linear systems class. The first part of the course deals with analog communications. First, analog amplitude modulation (AM) is presented, covering double-sideband suppressed carrier, double-sideband large carrier, single sideband, and vestigial sideband modulation formats. Detection techniques for these modulation schemes are also covered. The phase-locked loop for coherent carrier tracking is also presented. Second, analog angle modulation is presented in the forms of frequency modulation (FM) and phase modulation (PM). Estimating the bandwidth of the angle modulated carrier is covered, as well as various generation and detection methods. After analog communications are covered, the basics of digital modulation are presented. Sampling theory and analog-to-digital conversion are covered. Particular attention is paid to the signal-to-noise ratio and the aggregate bit rate at the output of the digital modulator. The principles of Nyquist pulse shaping are presented. Particular topics include intersymbol interference, line coding, and power spectral density. A presentation of emerging digital communications technologies concludes the course. Topics may include mobile radio, high definition television, broadband services, video compression, and high-speed local area networks.

Enforced Prerequisite at Enrollment: C or better in EE 350 or C or better in EE 352

EE 362: Communication Networks

3 Credits

Data transmission, encoding, link control techniques; communication network architecture, design; computer communication system architecture, protocols. CMPEN 362 CMPEN (E E) 362 Communication Networks (3) CMPEN (E E) 362 is an elective course in both the electrical

and computer engineering curricula which provides an overview of the broad field of data and computer communications. First, a general model of the communication task is presented, including the layered concept by which each layer provides services for the layer above. First, the lowest (physical) layer is studied. This involves signal design, Fourier analysis representations, bandwidth concepts, transmission impairments and communication media properties. Then the next higher (link) layer is considered which involves organizing bits into frames, data link and error control methods (including frame sequence numbering and error detection principles). Multiplexing to share a link is studied, including frequency division multiplexing, dedicated time division multiplexing, and statistical time multiplexing. At the network layer level, there are two categories: broadcast (usually local area) and switching networks. Broadcast and local area network studies include bus, tree and star topologies, Ethernet, optical fiber bus networks, ring networks, and medium access control protocols. Switching and routing concepts for networks are explained, including both circuit and packet switching, datagrams and virtual circuits. Properties of frame relay and asynchronous transfer mode (ATM) networks are described. Internetworking frame structures, routing and protocols are studied. Also, bridge routing for local networks is described. At the still higher transport (network end-to-end control) layer, transport protocols, including TCP/IP, are described.

Enforced Prerequisite at Enrollment: CMPEN 270 or CMPEN 271
 Concurrent Courses: STAT 318 or STAT 401 or STAT 414 or MATH 414 or STAT 418 or MATH 418
 Cross-listed with: CMPEN 362

EE 380: Introduction to Linear Control Systems

3 Credits

State variables; time-domain and frequency-domain design and analysis; design of feedback control systems; Root Locus.

Enforced Prerequisite at Enrollment: (C or better in EE 350 or C or better in EE 312) and MATH 220

EE 383: Signals and Controls Laboratory

1 Credits

Design, computer simulation, and practical implementation of systems in the areas of filtering, digital signal processing, and controls. E E 383 Signals and Controls Laboratory (1) In this course, students will be exposed to designing, simulating and implementing practical circuits for filtering of signals, digital signal processing, and control of physical processes. The design aspect of the course will be a direct extension of the two associated lecture courses (E E 352 and E E 380). The simulations will use industry standard software tools (e.g., MATLAB, Hyperception, C/C++) while the actual implementation will be accomplished using PC based DSP hardware in addition to analog circuitry. This will be a hands-on laboratory intended to augment the material presented in E E 352 and E E 380. Students will be expected to do a large portion of pre-lab work before starting the laboratory session.

Enforced Concurrent at Enrollment: EE 352 and EE 380

EE 387: Energy Conversion

3 Credits

Modeling of induction machines, synchronous machines, transformers, and transmission lines. E E 387 Energy Conversion (3) E E 387 is an

electrical engineering technical elective course intended for students with an interest in energy conversion in electrical, electromagnetic, electromechanical, and electrochemical systems. The course begins with a review of static and quasi-static electromagnetics. In particular, methods of determining electromagnetic forces and torques will be discussed in detail. The course will then present methods of developing models for electromagnetic, electromechanical, and electrochemical systems and discuss the use of these models in the analysis and design of devices such as inductors, transformers, actuators, transducers, and rotating machines. Furthermore, fundamental concepts related to the operation of power electronic circuits, which often interface with these types of devices, will be presented. The course includes a lab component where students gain experience with the analysis and design of energy conversion systems. E E 350, Continuous-Time Linear Systems, is a prerequisite for this course.

Enforced Prerequisite at Enrollment: EE 350 or EE 312

EE 388: Energy Conversion Laboratory

1 Credits

Learn the basic rules of electrical safety, power factor correction, and power measurement for balanced/unbalanced loads. This also includes operation and characteristics of single-phase and three-phase power transformers, main characteristics and operation of synchronous generators, and synchronization of a three-phase synchronous generator to an ac power network. Operation and the main characteristics of synchronous motors, three-phase squirrel-cage induction motors, and characteristics of various dc motors are also covered.

Enforced Concurrent at Enrollment: EE 387

EE 395: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: Prior approval of proposed assignment by instructor
 Full-Time Equivalent Course

EE 396: Independent Studies

1-4 Credits/Maximum of 4

Junior-level honors course involving special individual projects under the direction of an electrical engineering faculty member.

Enforced Prerequisite at Enrollment: Fifth semester standing or higher Honors

EE 397: Special Topics

1-9 Credits/Maximum of 9

FORMAL COURSES GIVEN INFREQUENTLY TO EXPLORE, IN DEPTH, A COMPARATIVELY NARROW SUBJECT THAT MAY BE TOPICAL OR OF SPECIAL INTEREST.

EE 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

EE 400: Engineering Design Concepts

3 Credits

Engineering design and modelling, engineering economy, project planning, capstone project selection, and technical communication skills. E E 400 Engineering Design Concepts (3) This course prepares senior electrical engineering students for industrial engineering design and project management. It covers the engineering design process, project planning and evaluation, engineering ethics, and engineering economy. . In addition, students select, specify, and start their capstone design project which is completed in the follow-up course, EE BD 481. Students are expected to carry out a group design project that is on par with industrial expectations. Upon completion of this course a student should have a solid understanding of the engineering design process, a clear capstone project description, should have completed some preliminary design work, and be adequately prepared to complete the project in E E 401.

Enforced Prerequisite at Enrollment: EE 313W and EE 316 and EE 352 and EE 380 and seventh-semester standing or higher

EE 401: Electrical Design Projects

3 Credits

Group design projects in the areas of electronics and electrical/computer systems. E E 401 Electrical Design Projects (3) In this course students complete their senior design project started in E E 400. Design groups meet regularly with a faculty advisor to report progress and resolve design issues. Oral and written progress reports are expected at selected times. The class culminates with a final technical defense of the project.

Enforced Prerequisite at Enrollment: EE 400 and eighth-semester standing or higher

EE 403W: Capstone Design

3 Credits

Design projects in the various areas and subdisciplines of electrical engineering, with an emphasis on technical communication skills. EE 403 Capstone Design (3) will give electrical engineering students a "real-world simulation" of a total design experience. Students will address design challenges in one of several ways: a. Projects submitted by corporate sponsors which emphasize teaming and interaction with a customer and with professional engineers in a pseudo-professional engineering environment. Some of these projects require multi-disciplinary teams. b. Projects in "Special Focus" sections in which all of the projects will loosely deal with a particular electrical engineering topic. Examples of Special Focus topics include: Microwave engineering, RF engineering, Acoustics and Microcontrollers. Small-team projects or class-wide projects will be offered at the discretion of the instructor. c. "Projects with Faculty" are arranged on the initiative of individual students or student teams, who solicit a mentoring relationship with faculty in an area of shared interest. Projects with faculty may include research projects, projects associated with internship experiences, and projects associated with student organization competitions or activities. In addition to

the completion of a capstone project, EE 403 includes an emphasis on technical communication and professional behavior. Students will develop their skills at conveying technical information through technical writing, oral presentation and graphics (such as a project poster or web page). Students will be expected to conduct themselves in a professional manner during project-related interactions with fellow students, faculty, and practicing engineers. Student work is evaluated on the technical merit of the completed project and the degree to which constraints and priorities (as expressed in the engineering requirements) are acknowledged throughout the design process.

Enforced Prerequisite at Enrollment: EE 300W and ENGL 202C Writing Across the Curriculum

EE 405: Capstone Proposal Preparation

1 Credits

Performing the initial research needed for the capstone course, and the preparation of the written project proposal. E E 405 Capstone Proposal Preparation (1) The capstone design course will incorporate engineering standards and realistic constraints including most of the following considerations: economic; environmental; sustainability; manufacturability; ethical; health and safety; social; and political. While engineering constraints are included in the earlier courses, the senior capstone design requires integration of the appropriate engineering constraints into the capstone design course. This course will mimic the problems encountered by an engineer working in commercial, industrial, and governmental entities. This basically requires that students in the Electrical Engineering BS program select a topic prior to starting the semester of their capstone design course, do the initial research for the topic, prepare a timeline, and prepare a well written proposal that would make a suitable capstone project. The time devoted to the careful topic selection, research, timeline, and proposal preparation, makes for a much better capstone design experience.

Enforced Prerequisite at Enrollment: Seventh semester standing or higher and ENGL 202C and CAS 100

EE 406W: Electrical Engineering Capstone Design

3 Credits

Project designs of analog and digital systems, interfacing, and relevant electronic circuits, with an emphasis on technical communications skills. EE 406 Electrical Engineering Capstone Design(3) is designed with the following goals and objectives: * The students will enter the course with a well-defined capstone design proposal and a timeline for which the first task will be to write the specifications. Upon the specifications' approval, the student teams will begin designing and building the projects. * Each student will maintain a laboratory notebook that documents the day-to-day activities of the project in a style that could be used for patent documentation. * Team members will provide short oral and written reports every week for the first five to six weeks, and then, every two weeks until the end of the semester. * The students will incorporate engineering standards and constraints, i.e., consideration of economic, environmental, sustainability, manufacturability, ethical, safety, etc., in their project and final report. * A draft copy of the final report will be collected, critiqued, and returned to students with comments and suggestions for changes. * A final project oral report (20 - 25 minutes) will be given by the project team during the last week of the semester. * An extensive well-written report describing the project that has been designed and built, is the major outcome of the capstone design course. This course is a required course in the Electrical Engineering BS

curriculum and is intended to be taken by seniors as the capstone course for the major. As such, the course integrates materials from many of the undergraduate electrical courses in addition to related math, engineering, and science courses.

Enforced Prerequisite at Enrollment: EE 405

Writing Across the Curriculum

EE 410: Linear Electronic Design

3 Credits

Linear circuit design via integrated circuit processes; A/D converters, switched capacitor filters, phase lock loops, multipliers, and voltage-controlled oscillators. E E 410 Linear Electronic Design (3) E E 410 is a technical elective intended for electrical engineering students who wish to specialize in semiconductor circuits, especially in linear circuit design. The course emphasizes integrated circuit process-compatible circuit design techniques in recognition of the amazing synergy that has characterized the relationship between modern circuits and integrated circuit processing technology. This course is the third in a series of three courses dealing with the analysis and design of electronics circuits, following E E 310 and E E 311. E E 410 includes three lectures and a two-hour laboratory each week. E E 410 begins with a deeper look into several key concepts previously considered in earlier course work, such as node voltage and mesh current methods for solving circuits, which are emphasized throughout the course. The small-signal method is revisited and thoroughly examined. The more advanced Ebers-Moll bipolar junction transistor model is introduced and the metal oxide semiconductor field effect transistor device model is reviewed. The next phase of the course introduces the vertical geometries of integrated circuit devices commonly used in linear circuits. Unwanted parasitic devices that are introduced as a result of the integrated circuit processes are revealed and their effects on circuit sign techniques operation are discussed. Both the limitations and the opportunities provided by integrated circuit technology are examined, particularly in the light of de used to minimize the problems and to take advantage of the features. The last half of the course is devoted to applications of linear circuits, especially those which students have not previously encountered. The first topics in this series are analog-to-digital and digital-to-analog conversion. Various methods of accomplishing each of these functions are examined. The inverse relationship between speed and accuracy is emphasized. These topics are followed by studies of switched capacitor filters, phase lock loops, analog multipliers, and voltage-controlled oscillators. The emphasis of the laboratory component of the course is to successfully accomplish a student-chosen linear circuit design project. Students work in two- or three-person teams to select their project and do the design and evaluation. A three-way methodology is emphasized; mathematical analysis by hand, computer simulation, and laboratory breadboarding and measurement. At the end of the project students give an oral presentation and submit a formal engineering report.

Enforced Prerequisite at Enrollment: EE 311

EE 413: Power Electronics

3 Credits

Switch-mode electrical power converters. Electrical characteristics and thermal limits of semiconductor switches. E E 413 Power Electronics (3) E E 413 is an elective course taken by undergraduate and graduate electrical engineering students. The objective of E E 413 is to introduce techniques for the analysis, design, and application of the switch-mode power converters that are used in power supplies, motor and

actuator drives, and the interface between power distribution systems and emerging energy sources such as fuel cells, photovoltaics, and superconducting magnetic energy storage systems. Several laboratory experiments provide an opportunity to characterize the switching behavior of semiconductor devices, build and test various dc/dc and ac/dc converters, and consider alternatives for gate/base drive and feedback isolation circuits required to build practical converters. This course draws upon the students' background in time-domain circuit analysis, electronic devices and circuits, Fourier analysis, and use of software such as PSPICE and MATLAB. It does not require a background in power or electric machinery, although students with such a background will be able to appreciate many of the applications more fully. The course is divided into four major areas: rectifiers and phase-controlled converters, dc-to-dc converters, inverters, and design considerations for practical converters. The focus in each of the first three areas is to determine the relationship between the magnitude of the fundamental frequency component and/or average value of the voltages and currents at the two ports of the particular converter. Additional harmonic or ripple components are then considered and design guidelines for the switching and reactive components are derived. The fourth area encompasses the study of power device characteristics, the design of gate drive and feedback circuits, and the analysis/design of elementary controllers. As the name implies, students interested in either electronics or power will find this course worthwhile. Electronics students will gain a new perspective on the operation and analysis of electronic circuits as well as an opportunity to discover what has powered the circuits that they have studied up until this course. Power students will see how and why power electronics are revolutionizing motor control and power distribution as well as the power quality issues associated with electronic power conversion.

Enforced Prerequisite at Enrollment: EE 310

EE 416: Digital Integrated Circuits

3 Credits

Analyses and design of digital integrated circuit building blocks, including logic gates, flip-flops, memory elements, analog switches, multiplexers, and converters. CMPEN 416 CMPEN 416 Digital Integrated Circuits (3) CMPEN 416 is a technical elective available to electrical and computer engineering students. It is intended for students who wish to specialize in the field of digital circuits. This course introduces the basic concepts involved in the design of digital circuits, which find practical application as logic and memory circuits in computers and other digital processing systems. The course emphasizes integrated circuit process-compatible circuit design techniques in recognition of the amazing synergy that has characterized the relationship between computer circuits and integrated circuit processing technology. This course includes three lectures and a two-hour laboratory each week. The only prerequisite is E E 310, a basic circuits course required for both electrical engineering and computer engineering students. CMPEN 416 begins with a review of the bipolar junction transistor (BJT) device and proceeds into the more advanced Ebers-Moll device model. This is followed by an examination of a series of BJT-based saturating and non-saturating digital circuits of ever increasing complexity illustrating the evolution of the modern bipolar logic circuit families. The next phase of the course reviews the metal oxide semiconductor field effect transistor (MOSFET) and proceeds along the same path taken for the bipolar transistor circuits. Various MOSFET logic circuit families are introduced and analyzed. Computer semiconductor memory circuits are considered next. Both BJT and MOSFET versions of both static and dynamic read-write and read-only memories are considered. The cell array, memory addressing circuits, and sense amplifier designs are all examined in detail. This is followed

by the related subject of programmable logic arrays, the final topic. The emphasis of the laboratory component of the course is to compare the performance of representatives of each class of circuits to computer simulations of the same circuits. Parameters such as input-output voltage transfer characteristics, noise margins, and propagation delays are evaluated by building and measuring laboratory models. Most of the laboratory exercises require the student to evaluate a specified circuit, but the final exercise requires the student to design a circuit to meet a predefined set of specifications, then to prove that the design meets the requirements by measuring the circuit performance. Students are required to write a formal engineering report detailing the results of each laboratory exercise.

Enforced Prerequisite at Enrollment: EE 310
Cross-listed with: CMPEN 416

EE 417: Digital Design Using Field Programmable Devices

3 Credits

Field programmable device architectures and technologies; rapid prototyping using top down design techniques; quick response systems. CMPEN 417 CMPEN (E E) 417 Digital Design Using Field Programmable Devices (3) Field Programmable Devices, such as Field Programmable Gate Arrays (FPGAs) and Complex Programmable Logic Devices (CPLDs) are widely used for rapid prototyping and quick response-time designs. The objective of this course is to introduce the student to digital design using Field Programmable ICs, and to provide an understanding of the underlying technologies and architectures of these Integrated Circuits. The course begins by introducing design alternatives for modern electronic systems identifying and classifying alternative system solutions, and evaluating when particular design solutions are optimal. These alternatives include microprocessors, microcontrollers, off-the-shelf digital ICs, Programmable logic ICs (FPGAs and CPLDs), and various forms of Application Specific Integrated Circuit (ASIC) designs. A homework assignment requires the student to quantitatively evaluate the cost, complexity, packaging, and time-to-market issues for a complex system design specification. Next, the underlying Field Programmable Logic IC architectures and technologies are studied in detail. Following a broad survey of available programmable IC vendors and on-chip programming technologies (and their cost/performance trade-offs), several specific case studies are presented in the class. The first is the Xilinx XC4000xl line, because of the target boards used in the CAD laboratory component for this class. The initial lab portions of the class help the students to specify their design using various forms of design entry tools and also allows them to see how their design map on to the underlying FPGA architecture. The students also learn the underlying algorithms used by the design software they use in their Labs. Next, the systematic top-down method for specifying complex designs using VHDL is introduced. Students are given a supporting homework assignment to develop high-level behavioral models for a simple digital system to reinforce this segment of the course. VHDL behavioral synthesis is now introduced as a preferred path to go from high-level system behavior to actual implementation on the FPGA. The strengths and weaknesses of synthesis are discussed, as are the emerging CAD tool trends. Additional VHDL-based homework assignments reinforce behavioral design and synthesis using commercial CAD tools. The final segment of the class covers special topics that identify current trends in digital system architecture and programmable logic design. These include such topics as partially reconfigurable architectures and dynamic reconfiguration techniques, system design for testability, and field programmable analog arrays. Applications of FPGAs in special purpose computing environments such as signal processing, Java acceleration and image

processing are also introduced. In the laboratory, student design project assignments explore larger and more complete system specifications of such things as controllers, CPU and memory design, and signal processing blocks. These assignments reinforce the lecture content as the students model, synthesize and implement their digital designs on the target Xilinx FPGA boards.

Enforced Prerequisite at Enrollment: CMPEN 331
Cross-listed with: CMPEN 417

EE 420: Electro-optics: Principles and Devices

3 Credits

Spatially linear system and transform; diffraction theory, partial coherence theory, optical image detection, storage and display, holography.

Enforced Prerequisite at Enrollment: EE 320 or EE 330 or PHYS 400 or ESC 400

EE 421: Optical Fiber Communications

3 Credits

Operational principles of optical components, including sources, fibers and detectors, and the whole systems in optical fiber communications. E E 421 Optical Fiber Communications (3) E E 421 is an introduction course to fiber optic communications. This course is designed as an elective course for both the E E senior undergraduate students and E E graduate students. Students are expected to have a general knowledge on fiber optic communications after taking this course. The content of this course focuses on the engineering aspects of fiber optic communications. This course is offered once a year. This course basically consists of four major parts: The first part introduces the motivations of using fiber optic communication systems, which include the huge bandwidth, low attenuation, immune from the electromagnetic field interference, et al. (1 week) The second part of this course deals with light propagation in the optical waveguides. Both the simple geometrical approach and wave optics approach are used to calculate the light propagation in the optical fiber. The geometrical approach (i.e., total internal reflection) provides an intuitive feeling about light propagation in the fiber while the wave optics approach (i.e., Maxwell's equations) provides more accurate solutions. In particular, it can explain important concepts such as the conditions for single mode fiber and intramodal dispersions in single mode optical fiber. With the help of popular calculation software (e.g., Matlab, Mathcad), students are required to solve waveguide equations for single shape optical fibers (such as step index fiber). (5 weeks) The third part of this course introduces some critical components that are needed in fiber optic communication systems. This includes the optical transmitter (laser diode), optical receiver (i.e., photodetector), modulators and demodulators (such as driving current approach and optical waveguide modulators), optical coupler (how to connect more than two fibers together), optical amplifier (including the basic principle of erbium doped fiber optic amplifiers), fiber optic gratings (a critical component for the multiple wavelengths fiber optic network systems), dispersion compensation device (such as chirped fiber optic grating based device) et al. (6 weeks) The fourth part of this course talks about fiber optic networks. The major contents include fiber optic network architectures (such as star connect), multiplexing techniques in fiber optic networks (such as wavelength division multiplexing and time division multiplexing), connection fiber optic networks with non-fiber

optic networks (such as copper wire based networks), current trends in fiber optic networks, et al. (2 weeks).

Enforced Prerequisite at Enrollment: EE 320 or EE 330 or PHYS 400 or ESC 400

EE 422: Optical Engineering Laboratory

3 Credits

Hands-on experience covering areas of optical transforms, electro-optics devices, signal processing, fiber optics transmission, and holography.

Enforced Prerequisite at Enrollment: EE 320 or EE 330 or PHYS 400 or ESC 400

EE 424: Principles and Applications of Lasers

3 Credits

Principles of lasers--generation, propagation, detection and modulation; applications in fiber optics communication, remote sensing, holography, optical switching and processing.

Enforced Prerequisite at Enrollment: EE 320 or EE 330 or PHYS 400 or ESC 400

EE 430: Principles of Electromagnetic Fields

3 Credits

This course provides the grounding in fundamental laws of electromagnetics and provides practical training in solution of engineering electromagnetics problems. In particular, it investigates electric fields due to stationary charges and magnetic fields due to stationary currents in practical geometries, and solution of problems involving polarization and magnetization effects in material media. The course covers Maxwell's equations and propagation of transverse electromagnetic waves in lossy and lossless media. It explores the behavior of electromagnetic waves at the interface between different media at normal and oblique incidence, wave polarization, and applications to optics and fiber optics. The transmission line equations, transmission line transient waves and sinusoidal time variations are covered putting emphasis on solution of practical problems involving arbitrary impedance terminations. The retarded potentials, linear antennas and array antennas are also considered.

Enforced Prerequisite at Enrollment: C or better in EE 330

EE 432: RF and Microwave Engineering

3 Credits

Transmission line and waveguide characteristics and components; design of RF and microwave amplifiers, oscillators, and filters; measurement techniques; design projects.

Enforced Prerequisite at Enrollment: C or better in EE 310 and C or better in EE 330

EE 434: Introduction to Signal Integrity for Interconnects

4 Credits

This course provides a solid foundation in signal integrity for interconnects, the performance of which becomes the key factor in ensuring reliable system operation as the speed of new digital systems

is pushed higher into the gigabit range. This course introduces parasitic elements that can impair the signal, such as coupling capacitances, ground capacitances, mutual inductances, self-inductances, and wire resistances. These parasitic elements can produce data losses, crosstalk, jitter, and time delays that can significantly degrade system performance and reliability. Students will also learn how the characteristics of materials and interconnect layout affect system performance and will develop models that can be simulated to verify that performance before production. This course will also cover necessary supporting ideas such as transmission line theory, impedance mismatch and reflection, lossy transmission lines, rise time degradation, material properties, crosstalk, and jitter. Students will be taught to make and interpret measurements in both the time and frequency domains.

Enforced Prerequisite at Enrollment: EE 330 and (EE 350 or EE 352)

EE 437: Physical implementation of qubits

3 Credits

Introduction to the physical implementation of quantum bits (qubits) based on state-of-the-art technologies. The course will consider issues in quantum information technology from an experimental point of view. The various types of qubits that will be discussed include those made with superconducting circuits, atoms (including ions, atoms and molecules), electron spins, and photons. In each case, the goal will be to develop a physical understanding of the various approaches, to get a sense of their strengths and weaknesses, and to learn about the state of the art and future prospects.

Enforced Prerequisite at Enrollment: PHYS 337

Cross-listed with: ESC 437, PHYS 437

EE 438: Antenna Engineering

3 Credits

Radiation from small antennas, linear antenna characteristics, arrays of antennas, impedance concepts and measurements, multifrequency antennas, and aperture antennas. E E 438 Antenna Engineering (3) E E 438 is an electrical engineering technical elective course intended for students with a specialization in electromagnetics. This course presents antenna engineering concepts including in-depth studies of various antennas and arrays and computer modeling of antennas for analysis and design. The course has three lectures each week as well as an additional period for demonstrations and discussions of outside lab and computer projects. This course requires E E 330, the undergraduate electromagnetics course, as a prerequisite. E E 438 begins with a review of electromagnetics which leads into an introduction of antennas. A lecture is given which shows how the evolution of a guided wave on a transmission line eventually leads into a device that can act as a wave launcher or antenna. A series of lectures are then given introducing the various classes and types of antennas. Performance parameters such as input impedance, radiation patterns, directivity, gain, polarization, and efficiency are then discussed. Examples and pictures of many antennas and their respective patterns are shown as part of these lectures. Next, extensive lectures are given which describe definitions and antenna parameters in detail. Much time is spent on how to visualize radiation patterns and beamwidth. Derivations are carried out for directivity and gain adhering to IEEE standard definitions. Theorems are discussed on the subject of reciprocity and how it can be related to practical measurements of patterns. Another lecture deals with the subject of antenna polarization and cross-polarization. Link analysis is discussed for communication systems and real-world examples are given for its

use. The second half of the course involves extensive study of various types of antennas including center-fed dipoles, monopoles, loops, phased arrays, broadband antennas, Yagi antennas, traveling wave antennas, frequency antennas, and aperture antennas. Throughout the course, students are introduced to and utilize an advanced antenna computer modeling software package for carrying out assigned projects and use in homework problems. They are also assigned a group design project during the last third of the course where extensive use of the software package is required. Each group gives an oral presentation of the project and the results during the last week of class and turns in a final report.

Enforced Prerequisite at Enrollment: C or better in EE 330

EE 441: Semiconductor Integrated Circuit Technology

3 Credits

An overview of fundamentals of processes involved in silicon integrated circuit fabrication through class lectures and hands-on laboratory. E E 441 Semiconductor Integrated Circuit Technology (3) E E 441 is an elective electrical engineering course typically taken by seniors and graduate students from various majors including electrical engineering, materials engineering, engineering science, physics, and chemistry. Its objective is to introduce students to the processes and procedures involved in the manufacture of advanced silicon integrated circuits (IC) using tools and methods of semiconductor nanotechnology. In the sequence corresponding to the order of IC fabrication steps, the lecture portion of the course covers fundamentals of the formation of single-crystal silicon wafers, epitaxial deposition of thin silicon layers, fundamentals of thin film semiconductors, dielectric and metal deposition techniques, pattern definition by photolithography and etching, dopant introduction, and finally, contact and interconnect metallization. In selected cases theoretical considerations regarding manufacturing steps discussed are supported by process simulation using dedicated software. Besides the specific objectives listed above this course has a more general goal. Manufacturing methods and tools used to process nanochips represent the most advanced technology across a broad range of engineering domains. Experiences gained in this course advance student's knowledge and understanding of state-of-the-art manufacturing technology that is applicable in several other domains such as nanomaterials, including nanowires, nanotubes, and nanodots, MEMS fabrication, as well as in bioelectronics, molecular electronics, spintronics and others. In addition to lectures, EE 441 has a laboratory portion that gives students an opportunity to gain hands-on experience with key processes used to manufacture advanced silicon integrated circuits. The laboratory experience helps students appreciate the intricacies of the integrated circuit fabrication procedures as well as establish connection between theoretical concepts and the outcome of the real-life manufacturing process. In the course of ten laboratory sessions students first process from scratch a simple MOS integrated circuit and then test its performance by carrying out a set of electrical tests.

Enforced Prerequisite at Enrollment: EE 340 or EE 341 or ESC 312 or ESC 313 or ESC 314 or MATSE 413 or PHYS 412 or PHYS 414

EE 442: Solid State Devices

3 Credits

The physics of semiconductors as related to the characteristics and design of solid state electronic devices. E E 442 Solid State Devices (3) The objective of E E 442, an electrical engineering elective course taken by seniors and graduate students, is to develop a rigorous introduction to

the relevant concepts in quantum mechanics and statistical mechanics pertaining to understanding the key physical mechanisms that govern the electrical, optical and even mechanical behavior of semiconductor materials and devices. This course explicitly deals with the physics of operation of electronic and optoelectronic devices, and expounds on the practical aspects of device design given the inherently non-ideal nature of semiconductor devices in real life. The course typically features a couple of invited guest lectures from leading experts involved in the state-of-the-art research on semiconductor materials and devices so that seniors and first year graduate students learn about the recent advances in electronic and optoelectronic devices which reside outside the scope of the recent text books. Nanoelectronics today is a very broad discipline that extends the traditional solid-state devices such as transistors, diodes, resistors, capacitors, photodetectors, laser diodes commonly found in electronic and optoelectronic integrated circuits to a variety of emerging technologies such as large area flexible electronics, energy conversion devices, chemical and biological sensors, microelectromechanical devices. A continuous trend of fundamental breakthroughs at the materials and device architecture level keeps this field exciting and opens up new application space hitherto unexplored. The opportunity exists for the students taking this course to get introduced at a broad level to each of these areas. This course will serve as a cornerstone of the students' electronics education should they join the 275 billion dollar global semiconductor industry or should they decide to pursue graduate education in the area of advanced materials and devices.

Enforced Prerequisite at Enrollment: EE 340 or EE 341 or ESC 312 or ESC 314 or MATSE 413 or PHYS 412 or PHYS 414

EE 453: Fundamentals of Digital Signal Processing

3 Credits

Design of FIR and IIR filters; DFT and its computation via FFT; applications of DFT; filter implementation; finite arithmetic effects. E E 453 Fundamentals of Digital Signal Processing (3) The objective of E E 453, an electrical engineering elective course taken by seniors and graduate students, is to develop a rigorous, yet elementary, introduction to the fundamentals of one-dimensional discrete-time (digital) signal processing. The main topics in the course are the analysis and design of finite impulse response (FIR) and infinite impulse response (IIR) digital filters, the discrete Fourier transform (DFT) and its computation via the fast Fourier transform (FFT), and error analysis due to the constraints of finite arithmetic. The emphasis on the analysis and design of linear time-invariant discrete-time filters rests on the background acquired in the time as well as transform domain analysis of continuous-time and discrete-time signals and systems interfaced via the Shannon sampling theory. The students are alerted about topics outside the main thrust of the course mentioned above and these peripheral issues (that lead to more advanced subject matter pursued in depth in subsequent signal processing courses) include interpolation, decimation, and multirate digital signal processing. There is also a laboratory portion of E E 453 that exposes students to the use of digital signal processing workstations – a collection of hardware and software that is used to acquire, digitize, filter, analyze, and display a variety of real-life signals. This hands-on experience helps the student appreciate and understand theoretical concepts covered in class like the sampling and reconstruction of continuous-time signals, IIR and FIR filter design, and error analysis.

Enforced Prerequisite at Enrollment: EE 351 or EE 352 or EE 353

EE 454: Fundamentals of Computer Vision

3 Credits

Introduction to topics such as image formation, segmentation, feature extraction, matching, shape recovery, object recognition, and dynamic scene analysis. CMPEN 454 CMPEN 454 Fundamentals of Computer Vision (3) CMPEN 454 is an introduction to computer vision. The goal of computer vision is to make computers understand and interpret visual information. Computer vision systems bring together imaging devices, computers, and sophisticated algorithms for solving problems in areas such as industrial inspection, medicine, document analysis, autonomous navigation, and remote sensing. The course involves both pedagogical written assignments and computer projects. The beginning of the course gives an overview of computer vision and introduces low level image analysis techniques for binary images. Binary vision systems are useful when the silhouette of imaged objects convey enough information to recognize them. Examples can be found in optical character recognition, chromosome analysis and recognition of industrial parts. Moreover, many techniques developed for binary systems can be applied to gray level or color images. Next, the course covers image segmentation and contours. These topics are the foundation of most computer vision techniques. For an image to be correctly interpreted, it must be partitioned into regions that correspond to distinct objects or parts of objects. First, region based techniques such as thresholding, split and merge, region growing and texture analysis are introduced. Next, edge based techniques using gradient and Laplacian operators are discussed. Finally, contour representations and curve approximations linking edges into region boundaries are studied. Next, depth from vision, with emphasis in stereo vision, is considered. Calculating distances to and among various points in the scene is important in many computer vision tasks such as inspection, robot manipulation, and autonomous navigation. In this part of the course the geometry of stereo systems and how to obtain depth maps from stereo image pairs is studied. Also, alternative 3D imaging sensors such as laser based range finders and radars are discussed. Following stereo, the topic of computer vision is broadened to understand sequences of images over time. In this section techniques using information on spatial and temporal changes are used to design computer vision systems capable of coping with moving and changing objects, changing illumination and changing viewpoints. Visual motion is important primarily for two reasons. First, motion is a very important cue to understand the scene structure. Second, biological systems do use motion to infer properties of the surrounding world with very little a priori knowledge. Finally, the topic of 3D object recognition is discussed. Object recognition entails two main issues: object identification and object localization. Identification determines the objects being imaged while localization determines their position in the world and with respect to the sensors. This topic builds upon all the different techniques discussed until this point.

Enforced Prerequisite at Enrollment: (MATH 230 or MATH 231) and MATH 220 and (CMPSC 121 or CMPSC 131 or CMPSC 201)
Cross-listed with: CMPEN 454

EE 455: An Introduction to Digital Image Processing

3 Credits

Overview of digital image processing techniques and their applications; image sampling, enhancement, restoration, and analysis; computer projects. E E (CMPEN) 455 An Introduction to Digital Image Processing (3) E E/CMPEN 455, a technical elective available to both electrical and computer engineering seniors and graduate students, discusses many

current techniques for processing and manipulating digital images. The course involves both pedagogical written assignments and computer projects. The beginning of the course gives an overview of digital image processing systems and digital image fundamentals. During this unit, important elements of human visual perception are reviewed; these ideas help motivate many of the computer-based techniques described in subsequent units. Also, the standard model for a digital image, in addition to the concepts of sampling and quantization, are described. Finally, basic topological concepts between digital image pixel are discussed. The next unit considers image transform analysis, with a primary focus on Fourier-based techniques. The one-dimensional Fourier transform is reviewed, and then two-dimensional Fourier transform analysis is discussed. To bridge the gap from the continuous world to the digital world, the sampling theorem is introduced. Next, the Discrete Fourier Transform and its properties are described. Fourier-based filtering techniques, such as the ideal low-pass and Butterworth filters are then introduced. The Fast Fourier Transform is also discussed. Finally, the Discrete Cosine Transform, used later in JPEG and MPEG, is introduced. The next unit discusses techniques for image enhancement and segmentation. These techniques include point-based techniques based on histogram analysis. They also involve linear and nonlinear mask-based methods for noise reduction and region sharpening. Further, techniques of mathematical morphology, which involve an application of set-theoretic concepts to image processing, are described. Finally, image segmentation methods, based on edge detection and thresholding, are described. The final unit considers the concept of image compression. Techniques for image encoding and decoding are discussed. A brief model of the encoding-decoding process is described. Next, compression techniques, such as run-length encoding and Huffman coding, are described. Finally, the multimedia image-compression methodologies, JPEG and MPEG, are discussed.

Enforced Prerequisite at Enrollment: (EE 350 or EE 353 or EE 352) and (CMPSC 121 or CMPSC 131 or CMPSC 201)
Cross-listed with: CMPEN 455

EE 456: Introduction to Neural Networks

3 Credits

Artificial Neural Networks as a solving tool for difficult problems for which conventional methods are not applicable. E E (E SC/EGEE) 456 Introduction to Neural Networks (3) This course is in response to students needs to learn Artificial Neural Networks (ANN) as a solving tool for difficult problems for which conventional methods are not available. The objective of this course is to give students hands-on experiences in identifying the best types of ANN, plus developing and applying ANN to solve difficult problems. Students will be introduced to a variety of ANN and will use their training skills to solve their own applications. During this course the students will develop a final project, in which they will apply ANN to widely varied problems. Examples: I) students from E E may be interested in applying ANN to solve control problems; II) students from Material Sciences may be interested in applying ANN to predict the pitting corrosion of components; III) students from Petroleum Engineering may be interested in applying ANN to characterize the life of a reservoir; IV) students from Agricultural Engineering may be interested in applying ANN to sort apples automatically, etc.

Enforced Prerequisite at Enrollment: (CMPSC 201 or CMPSC 121 or CMPSC 131) and MATH 220
Cross-listed with: EGEE 456, ESC 456

EE 458: Digital Image Processing and Computer Vision

3 Credits

Principles of DSP and computer vision, including sensing preprocessing, segmentation, description, recognition, and interpretation.

Enforced Prerequisite at Enrollment: EE 352

EE 460: Communication Systems II

3 Credits

EE 460 is an elective course in the electrical engineering curricula that provides detailed performance analysis of communications systems first studied in introductory communications courses such as EE 360 or EE 461. The course begins with a review of topics in linear system theory, communication theory, and probability/random processes. Following the review of this important background material, this course studies the behavior of communication systems in the presence of noise. First, the behavior of analog communication systems in the presence of additive white Gaussian noise (AWGN) is analyzed. As a benchmark, signal-to-noise ratio is derived for a base band system. This is followed by a performance assessment of amplitude modulated and frequency modulated systems and comparison is made to the base band system performance. Concepts of optimum pre- and de-emphasis systems are explained. Next, behavior of digital communication systems in AWGN is studied. This includes optimum threshold detection and general analysis of optimum binary receivers. Performance of carrier modulation systems ASK, FSK, PSK and DPSK is derived in terms of average bit error rate (BER) as a function of bit-energy-to-noise density height. M-ary communications systems are analyzed. Synchronization issues are discussed. This is followed by the theory of optimum signal detection; geometrical representation of signals and signal spaces, Gaussian processes, optimum receiver and equivalent signal sets are illustrated by several examples. BER performance analysis of complex digital modulated systems is demonstrated, using the developed signal space concepts.

Enforced Prerequisite at Enrollment: (EE 360 or EE 461) and (STAT 418 or MATH 418 or STAT 414 or MATH 414 or STAT 200)

EE 461: Communications I

4 Credits

Element of analog and digital communication systems, AM, FM, and digital modulation techniques, receivers, transmitters, and transmission systems, noise.

Enforced Prerequisite at Enrollment: EE 352

EE 465: Probability for Electrical and Computer Engineers

3 Credits

This course covers basic concepts in probability, including random variables, conditioning, independence, laws of large numbers, and statistical confidence. While covering these basic probability concepts, illustrative examples drawn from Electrical and Computer Engineering topics such as communications, signal processing, networking, image processing, and control systems will be used to show engineering applications of the probability and statistical theory. The course concludes with a module on linear filtering of wide-sense stationary processes, including in the frequency domain via power spectral density. The course consists of lectures and recitations. Recitations reinforce

concepts learned in lecture through problem solving. Recitations are also used to study applications such as information theory and signal detection using binary hypothesis testing. Laboratory exercises demonstrate the use of software packages for simulation and calculations.

Enforced Prerequisite at Enrollment: EE 350 or EE 352 or EE 353

EE 466: Introduction to Software-Defined Radio

3 Credits

An overview of the principles of software-defined radio systems with laboratory component.

Enforced Prerequisite at Enrollment: (EE 351 or EE 352 or EE 353) and (EE 360 or EE 461)

EE 471: Introduction to Plasmas

3 Credits

This course provides the education on models that are used for description of plasma phenomena as applicable to plasma confinement, plasma assisted materials processing, astrophysical plasmas and plasmas in the near Earth's space environment. It provides practical training in solution of problems involving collisional and collisionless plasmas. In particular, it investigates dynamics of charged particles in specified uniform, non-uniform and time varying electric and magnetic fields. It explores collective behavior of plasmas, including various electrostatic and electromagnetic waves that can be excited and propagate in plasmas parallel and perpendicular to the externally applied magnetic field. The course considers non-linear effects in plasmas, as typically occurring in the sheath regions near the plasma confining walls. It discusses concepts of equilibrium and stability of plasmas, and various models of unstable plasma motions, especially in relation to plasma confinement.

Enforced Prerequisite at Enrollment: (C or better in EE 330) or PHYS 400
Cross-listed with: AERSP 490, NUCE 490

EE 472: Space Astronomy and Introduction to Space Science

3 Credits

The physical nature of the objects in the solar system; the earth's atmosphere, ionosphere, radiation belts, magnetosphere, and orbital mechanics.

Enforced Prerequisite at Enrollment: (C or better in EE 330) or PHYS 400
or (METEO 421 and METEO 431)
Cross-listed with: AERSP 492

EE 474: Satellite Communications Systems

3 Credits

Overview of satellite communications systems, principles, space platforms, orbital mechanics, up/down links and link budgets, modulation techniques. EE 474 Satellite Communications Systems (3) This course is designed to give seniors and graduate students an overview of the principles of satellite communications systems. Building on junior-level courses in electromagnetics and communications, it shows how complex satellite systems operate and provide services that we depend on, such as telephone, television, weather forecasting, and global positioning. Specific topics include: historical background on how satellite systems

came to be, present uses of satellite systems, and future trends in satellite systems design, construction, and uses; orbital mechanics and launch systems and vehicles; earth stations; radio propagation and link analysis; signals and satellite access methods. Student performance is evaluated via exams, homework assignments, and projects. Hands-on experience in the design of satellite communications links is gained through the use of industry-standard satellite system analysis software. In their design, the student must achieve specific goals of satellite accessibility, earth coverage footprint, orbital launch and stability, and communications link budget.

Enforced Prerequisite at Enrollment: EE 360 and C or better in EE 330

EE 477: Fundamentals of Remote Sensing Systems

3 Credits

The review of fundamental physical properties leads into discussions of various techniques, including imaging, spectroscopy, radiometry, and active sensing.

Enforced Prerequisite at Enrollment: (C or better in EE 330) or METEO 436
Cross-listed with: METEO 477

EE 480: Linear Systems: Time Domain and Transform Analysis

3 Credits

Signals and systems representations, classifications, and analysis using; Difference and Differential equations, Laplace Transform, Z-Transform, Fourier series, FT, FFT, DFT. The major topics covered in this course include; Signals and Systems representations, classifications, and analysis using; Difference and Differential Equations, Laplace Transform, Z-Transform, Fourier series, Fourier Transform, Fast Fourier Transform (FFT), Discrete-Time Fourier Transform (DTFT) and Discrete Fourier Transform (DFT). The objective of this course is to develop intuitive and practical understanding of the essentials in signals and systems. The stress is on fundamentals of representation, and analysis of signals and their applications to systems in both discrete and continuous time and frequency domains. This course is designed to prepare the students for more advanced work in broad range areas including communications, control systems, power systems, computer engineering, signal processing and image processing.

Enforced Prerequisite at Enrollment: EE 350 or EE 352 or permission of program

EE 481: Control Systems

4 Credits

Classical/modern approaches to system analysis/design; time/frequency domain modeling, stability, response, optimization, and compensation. E E 481 Control Systems (4) This course presents both classical and modern approaches to the modeling, analysis and control system design for continuous time systems. Students learn how to model both mechanical and electrical systems in the time and frequency domains using differential equations, transfer functions, state space methods and frequency domain (Bode) techniques. The goal of developing linear system models is to facilitate system analysis and control design. Modeling is followed by an in-depth study of systems analysis, including stability, transient response and steady state characteristics. The study of stability involves examining the effects of pole and zero placement, and the Routh criterion is used extensively. In the consideration of transient response characteristics, students investigate rise time, peak

time, overshoot, and settling time. The primary steady state feature studied is the error between the reference signal input and the system output, and students learn to characterize steady state error through the determination of system type and computation of the error constants. Design of control systems focuses on altering one or more of the system characteristics by adding compensation. Students employ a variety of root locus techniques, proportional-plus integral-plus-derivative (PID), state feedback, and frequency response methods. Students begin with simple proportional, closed-loop control and examine pole migration through root locus plots. They then learn to apply more robust pole placement techniques using proportional and derivated (PD) control. Next, PID controllers are examined with a number of opportunities for design. After learning the classical control techniques, students then concentrate on state feedback control methods, including the design of partial- and full-order observers. Finally, students learn the relationship between time domain analysis and design and frequency domain (Bode) analysis of both magnitude and phase. This course includes a laboratory in which students use MATLAB and Simulink for modeling, analysis and control system design. A minimum of seven laboratory exercises offer students the opportunity to experiment with nearly every concept in a powerful simulation environment. To be successful in this course, students should have a solid background in differential equations, Laplace transform techniques, Bode analysis, linear algebra, complex variables, and they should have a familiarity with MATLAB.

Enforced Prerequisite at Enrollment: PHYS 211 and EE 352

EE 482: Introduction to Digital Control Systems

3 Credits

Sampling and hold operations; A/D and D/A conversions; modeling of digital systems; response evaluation; stability; basis of digital control; examples. E E 482 Introduction to Digital Control Systems (3) E E 482 introduces fundamental concepts that will enable the student to analyze, design, and synthesize closed-loop systems that contain a digital computer. In order to successfully complete this course the student must have a foundation in classical control (E E 380 or equivalent) and discrete-time system concepts (E E 351 or equivalent). Problem solving is emphasized. Concepts introduced in lecture are reinforced by a series of laboratory projects and weekly problem sets. Through these exercises the student will acquire competence in analytical and computer aided analysis techniques. The course covers several topic areas including modeling of sampled-data systems, system identification using the batch least squares method, time response characteristics, stability analysis techniques, discrete-time approximation of continuous-time controllers, classical design methods based on root locus and frequency response, and modern design methods including state and observer feedback design. Laboratory projects include system identification and control design based on the root locus, frequency response, and state-feedback methods. Each project involves the use of either a servomechanism or a fluid testbed. Laboratory projects and problem sets will develop the student's appreciation for computer aided control system analysis and design techniques. Student performance is assessed using homework, laboratory projects, hour exams, and a final exam.

Enforced Prerequisite at Enrollment: EE 380 and (EE 351 or EE 352)

EE 483: Introduction to Automation and Robotics Systems

3 Credits

Introduction to robotics systems with emphasis on robotic motion and control, and robotic components such as actuators and sensors.

Enforced Prerequisite at Enrollment: EE 481

EE 485: Energy Systems and Conversion

3 Credits

EE 485 is designed to give students an overview of available energy alternatives, and to study the fundamental theory of operation and system models for major energy conversion devices. The course is interspersed with consideration of emerging technologies and the power industry's impact on the environment, public safety, power quality, and health of the nation's electrical grid. Various forms of raw energy sources used in powering conventional electric generating plants such as coal, natural gas, oil, and uranium will be studied, along with worldwide distribution and reserves. The course also covers energy storage technology, power electronics, three phase power systems, and theory and applications of electric machines, including DC, induction, and synchronous motors.

Enforced Prerequisite at Enrollment: EE 210 or EE 314 or EE 315 or EET 310
Enforced Concurrent at Enrollment: MATH 141

EE 486: Sustainable Energy System Integration

3 Credits

EE 486 (Sustainable Energy System Integration) is an elective course that introduces typical renewable energy units and their integration and control strategies, including photovoltaic devices, wind power, batteries, supercapacitors, flywheels, and micro-turbines. Maximum power point tracking (MPPT), droop control, and V-F control will be discussed to integrate those sustainable energy units into the AC power system. Computer models will be developed for the sustainable energy units. Simulations will be given to show the control and system integration details. After completing this course, students should be able to: ζ Describe the key operational features of typical sustainable energy resources ζ Understand the operations and controls of typical sustainable energy resources ζ Know the integration of sustainable energy units into the AC power system ζ Calculate and analyze an energy system dominated by sustainable energy units ζ Model and demonstrate the integration and operations of sustainable energy systems

Enforced Prerequisite at Enrollment: (EE 210 or EE 211 or EE 212) and (CMPSC 121 or CMPSC 131 or CMPSC 200 or CMPSC 201)

EE 487: Electric Machinery and Drives

3 Credits

Analysis of variable-speed drives comprised of AC electric machines, power converters, and control systems. EE 487 Electric Machinery and Drives (3) This course is a technical elective intended for seniors and graduate students interested in electromechanical systems. The first part of the course (approximately two thirds) is devoted to fundamental theory in the modeling and analysis of power converters and AC electric machines. The second part is devoted to the theory and implementation of two specific control schemes: simple volts-per-hertz control applied to the induction machine and high-performance field-oriented control applied to the induction machine and to the permanent magnet machine.

The course includes a significant laboratory component consisting of hands-on experience with DSP-based control of drives. Each station in the Electric Machinery and Drives Laboratory is comprised of a dynamometer, an induction machine, a permanent magnet machine, a 3-phase inverter with built-in diode rectifier, a 3-phase power supply, and a DSP-based controller. The DSP-based controller is programmed in the MATLAB/Simulink graphical environment, allowing a student to modify control algorithms easily. Separate computer software allows easy access to controller variables for modification and display. This course builds upon basic knowledge of continuous-time linear systems theory and electric machine modeling. The materials in this course has applications in hybrid/electric vehicles and other transportation systems, industrial processes and automation, and power generation/energy storage systems.

Enforced Prerequisite at Enrollment: EE 387

EE 488: Power Systems Analysis I

3 Credits

Fundamentals, power transformers, transmission lines, power flow, fault calculations, power system controls.

Enforced Prerequisite at Enrollment: EE 387 or EE 485

EE 489: Power Systems Analysis II

3 Credits

Symmetrical components, unbalanced networks, unsymmetrical faults, unbalanced operation of rotating machines, transient transmission line modeling, system protection.

Enforced Prerequisite at Enrollment: EE 488

EE 494: Senior Thesis

1-9 Credits/Maximum of 9

Students must have approval of a thesis adviser before scheduling this course.

EE 494H: Senior Thesis

1-9 Credits/Maximum of 9

Students must have approval of a thesis adviser before scheduling this course.

Honors

EE 495: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: Prior approval of proposed assignment by instructor
Full-Time Equivalent Course

EE 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

EE 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

EE 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Electrical Engineering Technology (EET)

EET 2: Introduction to Engineering Technology

1 Credits

Introduction to engineering technology and the use of computer methods for analyzing and solving engineering technology problems; microcomputer fundamentals, word processing, spreadsheet, and database software packages. EET 2 Introduction to Engineering Technology (1) The primary objective of this course is to teach basic computer skills and the use of basic computer word processing and spreadsheet applications, as well as the fundamentals of formal report writing. More specifically, students learn to use Microsoft Word (word processing) and Excel (spreadsheet) for the preparation of laboratory reports and business documentation. In addition to these applications, the course should also address as many of the following topics as possible: * Windows operating system * Selection of a personal computer * Communication through electronic mail (e-mail) * Use of the World Wide Web * Preparation of professional letters and reports * Use of an HTML editor to create web pages and use of File Transfer Protocol * Integration of drawing, image, and spreadsheet files into word processing documents * Technical problem solving The course should also provide the student with an introduction to the field of engineering technology, with a discussion of job and educational opportunities in the field. Homework and other exercises should, wherever possible, allow the student to investigate the different aspects of engineering technology, or to interact with other faculty, students, or professionals involved with engineering technology.

First-Year Seminar

EET 97: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

EET 100: Electric Circuits, Power, and Electronics

3 Credits

AC and DC circuits; machinery; controls; and introduction to electronic devices, circuits, and instrumentation. EET 100 Electric Circuits, Power, and Electronics (3) Electric Circuits, Power, and Electronics is a course for non-major students who will be working with electronic equipment in industry. This course starts with basic knowledge of DC and AC components and concepts used in industrial electrical work. Topics such as circuits, electromagnetism, sources, energy conversion and electrical instruments prepare students to continue with topics in electronics. Beginning with the basics of semiconductors and moving through diodes and transistors, the student is prepared to learn the concepts of rectification and amplification. These form a foundation for the completion of the course with a look at understanding the concepts and use of analog and digital circuitry found in Programmable Logic Control (PLC) systems used in industry today.

Enforced Prerequisite at Enrollment: MATH 82 or MATH 41

EET 101: Electrical Circuits I

3 Credits

Fundamental theory of resistance, current, and voltage; capacitance, inductance. Direct current and alternating current concepts through series/ parallel circuits. EET 101 Electric Circuits I (3) Electric Circuits I has been designed to accomplish several related goals. A basic understanding of voltage, electric current and resistance is established early in the course. Then resistance becomes a focal point of the course as resistance of copper and other materials is examined. Resistance as a function of temperature is also considered. Efficiency, electric energy and electric power concepts are developed. A considerable effort is devoted to resistors in series, parallel and series parallel arrangements. Voltage sources in series and parallel are also considered. Resistive circuits with one voltage source are considered. Branch circuit analysis using Kirchhoff's Voltage Law (KVL) and Kirchhoff's Current Law (KCL) receives considerable attention. The basic nature of Capacitance and Inductance is examined in great detail. Transient analysis of resistive-capacitive circuits and resistive - inductive circuits is covered. Sinusoidal waveforms, frequency and phase relations are introduced. Complex and polar numbers are introduced, as tools for AC circuit analysis. AC circuits with resistance, capacitance and inductance are explored. Power factor and power in AC circuits also receive considerable attention. Throughout the course, computer software is utilized for circuit analysis and evaluation.

Enforced Concurrent at Enrollment: MATH 81

EET 105: Electrical Systems

3 Credits

Introduction to the study of electrical systems, with a focus on applications in our society. EET 105 Electrical Systems (3) is an introductory course in electrical systems and circuits. It is an entry level course intended to give students the big picture of the electrical technology spectrum. The course will cover the fundamentals circuit analysis such as: Kirchoff's laws, parallel and series circuits, and superposition. The course then applies this knowledge to various commonplace electrical systems (toaster, electric toothbrush, fan, etc.). The course also gives students a broad, limited exposure to the breath of electrical systems by including components and topics such as resistors,

capacitors, inductors, switches, relays, fuses, amplifiers, transformers and motors. Topics covered include: - Electrical Safety and House Wiring - Electrical Science - Electrical Generation and Utilization - Electrical Circuits and Analysis - Electrical Instrumentation and Measurements - Electronics - Electrical Systems - Electrical Machines The course will emphasize the basic concepts, principles, and analytical models used by engineers and technologists to design, develop and test electrical systems The course does so from a top down, non-detailed systems perspective. Upon completion of this course, students will have a broad perspective of the electrical technology spectrum as they gain a deeper focused knowledge in subsequent courses. Lectures will be supported by laboratory exercises in which the student learns about electrical instrumentation and performs electrical measurements on circuits and systems. Students will also be required to complete an electrical system project of their choosing. Students will be required to prepare written laboratory reports outlining the laboratory activity. Reports will be graded based both on their technical quality and their grammatical and professionalism. Students in EET 105 will be required to use computers in both class and laboratory exercises to simulate electrical circuits and systems and also produce high quality laboratory reports.

Enforced Prerequisite: MATH 21 or satisfactory performance on the mathematics placement examination.

EET 109: Electrical Circuits Laboratory I

1 Credits

Use of basic electrical instruments to measure AC and DC voltage, current, power, resistance. Introduction to report writing. EET 109 Electric Circuits Laboratory I (1) Electric Circuits Laboratory I provides a variety of experiences building electric circuits and utilizing voltmeters, ammeters, ohmmeters and oscilloscopes to take electrical readings. Emphasis is placed on using computer spreadsheet software and computer analysis software. Throughout the course, technical writing is utilized to describe electrical experiment results. Concepts presented in EET 101 are utilized through this course. Experiments related to resistor color code, the ohmmeter and Ohm's Law provide a elementary understanding of resistance as well as the measurement of voltage, electric current and resistance. Experiments with resistors in series, parallel and series-parallel arrangements provide experience with electric circuit construction and electric circuit analysis in a laboratory situation. Kirchhoff's Voltage Law (KVL) and Kirchhoff's Current Law (KCL) receive considerable attention. Capacitors are studied in charging and AC circuits. The oscilloscope and signal generator are introduced and utilized in later experiments. AC resistive- capacitive circuits and resistive - inductive circuits are built and analyzed.

Enforced Concurrent at Enrollment: EET 101

EET 114: Electrical Circuits II

4 Credits

Direct and alternating current circuit analysis including Thevenin and Norton Theorems, mesh, node analysis. Capacitance, inductance, resonance, power, polyphase circuits. EET 114 ELECTRICAL CIRCUITS II (4) Electrical Circuits II is the second of two circuit courses aimed at developing fundamentals of electrical circuit operation and analysis. It covers topics in graphical analysis of circuit operation; capacitive, inductive, and magnetic circuits; and sinusoidal excitation and AC reactance due to inductors and capacitors. EET 114 is normally taken in the second semester of the freshman year concurrently with a coordinated lab course, EET 118. Completion of EET 114 provides a

student with all the circuit analysis fundamentals that will be needed for later courses in electronics and AC machinery.

Enforced Prerequisite at Enrollment: EET 105 and MATH 26

EET 118: Electrical Circuits Laboratory

1 Credits

Use of basic electrical instruments to measure AC and DC voltage, current, power, resistance, and lab reporting. EET 118 Electrical Circuits Laboratory II (1) Electrical Circuits Laboratory is typically taken concurrently with EET 114. The course is a 1 credit course that meets for one 2-hour session each week. Exercises in the lab guide are coordinated with materials being covered in the EET 114 course. All lab exercises involve hands-on work with equipment, and many of the labs are supported by computer activities that help the student collect and interpret data. The computer exercises are coordinated with the lab guide materials. Students are required to submit formal, written lab reports for many of the exercises. Material covered in the EET 118 lab include exercises in graphical circuit solutions, charging and discharging characteristics of capacitors, reactance and impedance measurements in AC circuits, and circuit resonance. The EET 118 lab is the first lab in which students get significant exposure to the oscilloscope, function generator, and other more sophisticated laboratory equipment.

Enforced Prerequisite at Enrollment: EET 105 Enforced Concurrent at Enrollment: EET 114

EET 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

EET 212W: Op Amp and Integrated Circuit Electronics

4 Credits

Analysis and design of amplifier, rectifier, filter, comparator, oscillator, and other practical circuits using op amps and integrated circuit devices. EET 212W Op Amp and Integrated Circuit Electronics (4) EET 212W provides students with a basic understanding of the operation and functions of general-purpose linear and non-linear electronic circuits typically found in industrial applications. The course provides background on the basic operating characteristics of key semiconductor devices (diodes, transistors, FETs, etc.); however, the emphasis is on the operation, analysis, design, and application of circuits that use op-amp's and various linear integrated circuit devices to perform typical electronic functions. Topics covered include:- Open- and closed-loop amplifier operation and feedback concepts - Inverting, non-inverting, differential, and instrumentation amplifiers - Summing, comparators, clippers, clamping, and function generator circuits - Integrators and differential circuits - Filter and oscillator circuits - Rectifier and regulator circuits The course will emphasize the concepts, principles, procedures, models, and computations used by engineers and technologists to analyze, select, specify, test, maintain, and design modern electronic systems. Particular emphasis will be given to circuits and applications prevalent in modern instrumentation and control systems. Modeling detail and the sophistication of mathematical analyses will emphasize the application of standard methods with the aid of computers. Lectures will be supported by laboratory exercises in which students will investigate actual operating characteristics of devices and circuits explained in the classroom. Lab activities will emphasize comparisons of theoretical

and actual performance. Students will also be expected to develop proficiency making electronic circuit measurements using standard laboratory instruments. Laboratory activities will also form the basis for the 'W' designation assigned to this course. Students will be required to use standard analysis and reporting tools to prepare formal, written laboratory reports for a substantial portion of all laboratory activities undertaken in the class. Reports will be graded based both on their technical and grammatical quality and on their professionalism. A complete understanding of the electronic circuits covered in this course requires the use of computers. Thus, students in EET 212W will be required to use computers in both class and laboratory exercises to model and simulate the relevant performance of circuits studied.

Enforced Prerequisite at Enrollment: EET 114 and ENGL 15 and (MATH 22 or MATH 40 or MATH 82)

Writing Across the Curriculum

EET 213W: Fundamentals of Electrical Machines Using Writing Skills

5 Credits

AC and DC machinery principles and applications; introduction to magnetic circuits, transformers, and electrical machines including laboratory applications. EET 213W Fundamentals of Electrical Machines Using Writing Skills (5) EET 213W is devoted to the study of ac and dc electrical machines and power conversion equipment. The course teaches fundamental concepts of electromagnetic circuits as they relate to the physical forces that act on electrical conductors moving in magnetic fields, and the electrical currents and voltages induced in those conductors by that same motion. The course covers characteristics of magnetic materials and how they influence the operation of electrical machines, and investigates how these properties and principles are used to develop simple yet practical models of various electromotive and power conversion devices. Presentation of principles and theory will be relatively rigorous; however, the level of modeling detail and the sophistication of mathematical analyses of machine operation will be limited to first order (i.e., linear) and some simple second-order (non-linear) approximations. Students in EET 213W should gain a sound understanding of how and why ac and dc motors and generators, and single phase ac transformers work as they do. The understanding should extend to cover most types of motors, generators, and transformers commonly used in industry today. Students should also understand and be able to apply the basic mathematical and electrical models developed in the course to determine the power requirements, power capability, efficiency, operating characteristics, control requirements, and electrical demands of these machines when used in typical applications. Students will also gain a general knowledge of how motors, generators, and transformers are constructed, and understand the reasons behind the various construction techniques that are used. EET 213W is also a 'writing-intensive' course, which means one of the course objectives is to teach students to prepare formal, written documents about technical subjects. Thus, students will be required to do a significant amount of writing in the course.

Prerequisite: EET 114 , EET 118 , ENGL 015

Writing Across the Curriculum

EET 214: Electric Machines and Energy Conversion

3 Credits

Fundamental operating principles, characteristics, and analysis of electric machines, transformers, and power systems. EET 214 Electric Machines and Energy Conversion (3)The purpose of EET 214 is to

introduce students to the electromechanical energy conversion components associated with power system generation, utilization, transmission, and distribution. The course teaches fundamental concepts of electromagnetic circuits as they relate to the induced voltages and physical forces acting on electrical conductors within magnetic fields. The course covers characteristics of magnetic materials and how they influence the operation of rotating electrical machines and transformers, and investigates how these properties and principles are used to develop simple yet practical models of various power conversion devices. Basic control of AC motors, such as starting, reversing, plugging, and variable speed operation using volts per hertz is discussed in the course. Following the study of the basic components of the power system (motors, generators, and transformers), the course will provide an introduction to power systems engineering. This introduction shall include any the following topics: power distribution fundamentals and protection, power flow, analysis and load flow studies of small power systems, and computer solutions for larger power system studies. Topics covered include:- Magnetics: energy conversion principles, motor and generator action- Transformers: Single-phase, 3-phase, and autotransformers; per-unit representation- Induction Machines: construction, operation, modeling, characteristics, and basic control methods- Synchronous Machines: construction, operation, modeling, characteristics, motor and generator operation, power factor control, power delivery- Power System Representation- Power System Analysis Presentation of the principles and theory will be relatively rigorous; however, the level of modeling detail and the sophistication of the mathematical analyses of machine operation will be limited to first order (i.e. linear) and some simple second-order (non-linear) approximations. Students in EET 214 should gain a sound understanding of electrical machines and transformers and their models, and this knowledge should be extended so that the models are used in the analysis of power systems. Students should be able to apply the basic mathematical and electrical models developed in the course to determine power requirements, power capability, efficiency, operating characteristics, and electrical demands of these components when used in typical applications. The course will require that students apply basic knowledge of electric circuit analysis, electric machines, and engineering concepts to analyze and solve technical problems, using the assistance of computer tools as necessary.

Enforced Prerequisite at Enrollment: EET 114 and EET 118

EET 214H: Electric Machines and Energy Conversion

3 Credits

Fundamental operating principles, characteristics, and analysis of electric machines, transformers, and power systems. EET 214 Electric Machines and Energy Conversion (3)The purpose of EET 214 is to introduce students to the electromechanical energy conversion components associated with power system generation, utilization, transmission, and distribution. The course teaches fundamental concepts of electromagnetic circuits as they relate to the induced voltages and physical forces acting on electrical conductors within magnetic fields. The course covers characteristics of magnetic materials and how they influence the operation of rotating electrical machines and transformers, and investigates how these properties and principles are used to develop simple yet practical models of various power conversion devices. Basic control of AC motors, such as starting, reversing, plugging, and variable speed operation using volts per hertz is discussed in the course. Following the study of the basic components of the power system (motors, generators, and transformers), the course will provide an introduction to power systems engineering. This introduction shall

include any the following topics: power distribution fundamentals and protection, power flow, analysis and load flow studies of small power systems, and computer solutions for larger power system studies. Topics covered include:- Magnetics: energy conversion principles, motor and generator action- Transformers: Single-phase, 3-phase, and autotransformers; per-unit representation- Induction Machines: construction, operation, modeling, characteristics, and basic control methods- Synchronous Machines: construction, operation, modeling, characteristics, motor and generator operation, power factor control, power delivery- Power System Representation- Power System Analysis Presentation of the principles and theory will be relatively rigorous; however, the level of modeling detail and the sophistication of the mathematical analyses of machine operation will be limited to first order (i.e. linear) and some simple second-order (non-linear) approximations. Students in EET 214 should gain a sound understanding of electrical machines and transformers and their models, and this knowledge should be extended so that the models are used in the analysis of power systems. Students should be able to apply the basic mathematical and electrical models developed in the course to determine power requirements, power capability, efficiency, operating characteristics, and electrical demands of these components when used in typical applications. The course will require that students apply basic knowledge of electric circuit analysis, electric machines, and engineering concepts to analyze and solve technical problems, using the assistance of computer tools as necessary.

EET 215: Electric Machines and Energy Conversion Laboratory

1 Credits

Laboratory study of electric machine applications, transformers, and power systems. EET 215 Electric Machines and Energy Conversion Laboratory (1)The purpose of EET 215 is to provide students with practical experience with electromechanical energy conversion components associated with power system generation, utilization, transmission, and distribution. The laboratory experiments in this course will demonstrate empirically the concepts introduced in the companion lecture course, EET 214. Topics covered include: -Magnetics: energy conversion principles, motor and generator action -Transformers: single-phase, 3-phase, autotransformers; per unit representation - Induction machines: operation, modeling, characteristics, basic controls -Synchronous machines: motor, generator, power factor control -Power system representation and analysis Laboratory activities will require that students apply basic knowledge of electric circuit analysis, electric machines, and engineering concepts to analyze and solve technical problems, using the assistance of computer tools as necessary. Students will be expected to develop proficiency in instrumentation using standard lab equipment, and will be required to use standard analysis and reporting tools to prepare formal laboratory reports and oral presentations.

Enforced Prerequisite at Enrollment: EET 114 and EET 118 Enforced Concurrent at Enrollment: EET 214

EET 215H: Electric Machines and Energy Conversion Laboratory

1 Credits

Laboratory study of electric machine applications, transformers, and power systems. EET 215 Electric Machines and Energy Conversion Laboratory (1)The purpose of EET 215 is to provide students with practical experience with electromechanical energy conversion components associated with power system generation, utilization, transmission, and distribution. The laboratory experiments in this course will demonstrate empirically the concepts introduced in the

companion lecture course, EET 214. Topics covered include: -Magnetics: energy conversion principles, motor and generator action -Transformers: single-phase, 3-phase, autotransformers; per unit representation - Induction machines: operation, modeling, characteristics, basic controls -Synchronous machines: motor, generator, power factor control -Power system representation and analysis Laboratory activities will require that students apply basic knowledge of electric circuit analysis, electric machines, and engineering concepts to analyze and solve technical problems, using the assistance of computer tools as necessary. Students will be expected to develop proficiency in instrumentation using standard lab equipment, and will be required to use standard analysis and reporting tools to prepare formal laboratory reports and oral presentations.

EET 275: Introduction to Programmable Logic Controls

3 Credits

Principles of industrial control, programming, interfacing, input/output devices, and applications. EET 275 Introduction to Programmable Logic Controls (3)Introduction to Programmable Logic Controls is a required course for sophomore-level students in the Electrical and Computer Engineering Technology (ECET) baccalaureate degree program. Programmable Logic Controllers are one of the fastest growing multi-billion dollar segments of industry. This course provides an in-depth introduction to these devices and their use in modern process industries. Starting with an overall look at the block and modular type PLC, digital inputs, digital outputs and devices such as pushbuttons, pressure switches, motors, and indicators demonstrate the elementary application and system design to which they are applied. Ladder logic programming techniques encompass gate logic, contact/coil logic, timers, counters, arithmetic functions and number comparisons. An introduction to analog input and output applications, along with study of the Proportional +Integral+Differential (PID) process function, and PLC communication networks prepare the technologist for advanced courses on these topics. The lab component of this course provides live experience with all these concepts along with industrial problem solving experience by using indicating and actuating real-time positional and process applications.

Enforced Prerequisite at Enrollment: CMPET 117 and CMPET 120

EET 280: System Integration Project

1 Credits

Schematic design, circuit board layout and fabrication, mechanical housing fabrication.

Enforced Prerequisite at Enrollment: EET 212W Enforced Concurrent at Enrollment: EGT 119

EET 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

EET 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

EET 310: Direct and Alternating Current Circuits

5 Credits

EET 310 provides an introduction to basic electrical principles and covers the DC and AC circuit analysis techniques necessary for most upper-level EET courses. The course covers DC and AC sources, capacitors and inductors, impedance, mutual inductance, ideal transformers, phasor diagrams, power and energy calculations in DC and AC Circuits, signal and energy transfer, and an introduction to three-phase systems. It also introduces ideal amplifier models and ideal operational amplifiers and their use in performing mathematical operations on analog signals. Circuit analysis techniques covered include nodal analysis, mesh analysis, linearity, superposition, source transformation, and one-port networks (Thevenin's and Norton's Theorems) and two-port networks (Z, Y, h, and T) as equivalent circuits. Topics covered in the course are supported by weekly hands-on laboratory experiences.

Enforced Concurrent at Enrollment: MATH 140 and (PHYS 150 or PHYS 250 or PHYS 211)

EET 311: Alternating Current Circuits

4 Credits

EET 311 Alternating Current Circuits (4) EET 311 is intended to provide competency in analysis of circuits and application of basic electrical principles including equivalent circuits and models, power and energy, and signal/energy transfer. The course will introduce ideal amplifier models, ideal op-amps and ideal transformers as circuit elements and one-port networks (Thevenin, Norton, and driving point impedance), and two-port networks (Z, Y, H, G, T, and T-I) as equivalent circuits. Since this is the first required course taken by all upper division electrical engineering technology students, ethics and professionalism will be discussed by and expected of the students. This course requires calculus through integral and differential calculus of transcendental functions. It provides the circuit analysis skills required in almost every other EET course and is a specific prerequisite for analysis of signals and systems (EET 312) and understanding semiconductor models and electronic circuits (EET 330).

Enforced Prerequisite at Enrollment: EET 114 Enforced Concurrent at Enrollment: MATH 140 and (PHYS 150 or PHYS 211 or PHYS 250)

EET 312: Electric Transients

4 Credits

EET 312 is designed to provide students with a strong foundation in transient circuit analysis in addition to introduction to signals and systems. The primary objective of the course is to reinforce continuous-time system fundamentals in order to prepare the students for more advanced work in a broad range of areas including communications, control, signal processing and image processing. The topics covered in this course include: Applied differential equations; Transient analysis of RC, RL, and RLC circuits, using differential equations; Complex frequency; Network functions; Bode plots and frequency response; Filter networks and resonant circuits; Laplace transform pairs and their applications in circuit analysis; Fourier analysis techniques and their applications in circuit analysis; State-variable circuit analysis. This course is a required course in the Electrical Engineering Technology BS curriculum and is intended to be taken by students who have completed their first circuits course requirements.

Enforced Prerequisite at Enrollment: EET 310 or EET 311 or EE 314

Enforced Concurrent at Enrollment: MATH 141 and (PHYS 151 or PHYS 212 or PHYS 251)

EET 315: Linear and Discrete System Analysis

3 Credits

Introduction to the principles and operation of linear and discrete systems. EET 315 Linear and Discrete System Analysis (3) Linear and Discrete System Analysis is a required course for junior-level students in the Electrical and Computer Engineering Technology (ECET) baccalaureate degree program. The purpose of the course is to introduce the students to linear system analysis, primarily using Laplace transforms. Students learn the concept of a transfer function, and are able to analyze both the transient and steady state response of a system. Students then learn about discrete time systems, including z-transforms, difference equations, and basic digital filters. Laboratory exercises reinforce concepts developed in lecture.

Enforced Prerequisite at Enrollment: CMPET 301 Enforced Concurrent at Enrollment: MATH 250 or MATH 211

EET 320: Industrial Electricity and Electronics

3 Credits

Basic circuit theory applied to DC/AC circuits containing resistors, inductors, capacitors; magnetic circuits; power; control; electronic applications. EET 320 Industrial Electricity and Electronics (3) This course is designed to offer non-electrical students the opportunity to become familiar with the theory and operation of electrical, electronic, and electromechanical devices that are widely used in practice. The course concentrates on the most important concepts, rather than in-depth treatment of any individual area. The number of units covered depends on the class background. The topics covered in this course include: 1. Introduction 2. DC Networks 3. AC Networks 4. Magnetics 5. DC & AC Machinery 6. Selected topics depending on class background (if time permits): Basic electronic devices and their applications; Integrated circuits and their applications; Power Distribution; Transducers & signal conditioning; Control Systems Electronic Instrumentation.

Enforced Prerequisite at Enrollment: MATH 140 and (PHYS 150 or PHYS 250 or PHYS 211)

EET 330: Wireless Communications Systems

3 Credits

Wireless communications technology, transceivers, modulation techniques, serial communications, and applications. Personal area networks, local area networks, RFID systems. EET 330 Wireless Communications Systems (3) Wireless Communications Systems is a required course for junior-level students pursuing the Electrical Engineering Technology (EET) option in the Electrical and Computer Engineering Technology (ECET) baccalaureate degree program. The course provides a foundation in spectrum analysis, filtering, serial communications, analog modulation and demodulation, and digital modulation and demodulation. The course discusses applications utilizing infrared (IR) and radio frequency (RF) technologies. Applications for wireless networking include the development of personal area networks (PAN) and local area networks (LAN). The course also introduces radio frequency identification (RFID) systems

and applications. Laboratory exercises reinforce concepts developed in lecture.

Enforced Prerequisite at Enrollment: EET 341 and CMPET 301 Enforced Concurrent at Enrollment: EET 315 and MATH 211

EET 331: Electronic Design

4 Credits

Analog/Digital and Digital/Analog Converters; advanced and nonlinear Op-Amp circuit design; noise analysis; Active Filters and Waveform Generators. EET 331 Electronic Design (4) EET 330 is intended to provide competency in the application of basic electronic principles to design with operational amplifiers and integrated circuits. The course will include analog-to-digital and digital-to-analog conversion techniques; introduction to the feedback principles and non-ideal aspects of operational amplifiers including noise - needed for advanced design with op-amps; some nonlinear op-amp circuits - including comparators, Schmitt triggers, pulse width modulation, and ideal rectifiers, active filter design and waveform generator design. Grades will be based on 3 or 4 exams including a final exam (65%), laboratory work, computer projects requiring the use of circuit simulation software, spreadsheets, and math packages, and homework (30%), and student professionalism (5%). The IEEE code of ethics and the Penn State policy on academic integrity will be applied in the instructor's judgment of student professionalism. This course requires calculus through integral and differential calculus of transcendental functions, advanced circuit analysis techniques (EET 311, E ENG 354, or E ENG 352), and knowledge of frequency response analysis techniques (EET 312). It provides the electronic circuit analysis and design skills required in the Electronics, Systems, and Technical Electives in the General Electrical Engineering Technology Option and the Applications and Technical Electives in the Computer Engineering Technology Option.

Enforced Prerequisite at Enrollment: EET 311 or EE 314 or EE 315 and Concurrent EE 310 and EET 312

EET 341: Measurements and Instrumentation

3 Credits

Measurement concepts, transducers, electronic-aided measurement, mechanical and electrical measurements. Intended for electrical engineering technologists. EET 341 Measurements and Instrumentation (3) Measurements and Instrumentation is a required course for junior-level students in the Electrical and Computer Engineering Technology (ECET) baccalaureate degree program. The purpose of the course is to understand the principles of measurement systems. The course enables students to design software for programming PC-based data acquisition (DAQ) systems, understand various sensors, design signal conditioning circuits for interfacing sensors to DAQ systems, and design various types of measurement systems. Laboratory exercises reinforce concepts developed in lecture.

Enforced Prerequisite at Enrollment: CMPET 117 and EET 212W Enforced Concurrent at Enrollment: MATH 141 or MATH 210

EET 395: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

EET 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

EET 402: High-Frequency Circuit Design

4 Credits

EET 402 provides students with fundamental concepts in high frequency (RF and microwave) circuit design used in the development of front-end electronics in telecommunication systems. Students will gain familiarity with high frequency circuit design topics including (but not limited to) limitations of lumped elements at high frequencies, parasitic effects, transmission line and distributed circuits, various types of transmission lines including (but not limited to) coaxial and planar transmission lines, Smith Chart, impedance matching, resonators and filters, scattering parameters, multiport networks, power divider and combiners, directional couplers, and RF and microwave circuit modeling through computer aided design (CAD). The laboratory portion of the course provides students with the opportunity to learn about the operation of high frequency test equipment, such as network analyzers and spectrum analyzers, and to build and evaluate high-frequency and transmission-line-based circuits.

Enforced Prerequisite at Enrollment: (EET 212W or EE 310) and EET 312

EET 408: Communication System Design

4 Credits

This course is for students in Electrical Engineering Technology to gain understanding of the fundamental concepts and components of communication systems, supported by hands on experiments. Fundamentals of communication systems are covered and include signal analysis, noise, main building blocks and circuit components, effect of nonlinearities, signal generation, concepts of modulation and demodulation, analog modulation schemes such as AM, DSB, SSB, FM, and PM, transmitter and receivers architectures, and, if time permits, an introduction to digital communication schemes. After overviewing basic terminology and concepts such as signal spectrum, bandwidth, filtering, harmonics, power, and signal to noise ratio in communication systems, this course, in two parts, will expose students to two distinct aspects of communication technology. In the first part, the students will learn about the main components such as filters, resonators, amplifiers, mixers, oscillators, and phase locked loops. The second part will cover the main amplitude and angle modulation schemes and familiarize the students with modulator and demodulator circuits for those schemes. Topics covered in the course are supported by hands on labs performed each week during a lab session.

Enforced Prerequisite at Enrollment: EET 312

EET 409: Power System Analysis I

4 Credits

This course will help students to understand power generation units, transmission lines, distribution systems and load flow. The main power system elements will be studied in detail. These elements include: generators (to generate electricity), transformers (to step up/down voltage levels for transmission purposes), transmission lines (in order to transmit the power from one location to another with minimum

dissipation), and distribution systems (in order to distribute the transmitted power to customers). The course also helps students to learn the concept of fault analysis, the effect of line length on transmission lines, and the calculation of losses in synchronous generators. The basic theory of complex numbers will be used to simplify the analysis and calculations. Students will understand the typical operating principles for different types of power plants including: nuclear, coal, gas, wind, and solar.

Enforced Prerequisite at Enrollment: EET 312

EET 410: Power System Analysis II

4 Credits

Power System Analysis II follows up the material from Power System Analysis I with more details on the analysis and calculation during faults or transients. Students will understand symmetrical faults such as three-phase and single-phase short circuits. Next, symmetrical components in power system will be introduced and impedance loads, series impedances, three-phase transmission lines, rotating machines, and transformers will be modeled. This course (Power System Analysis II) helps students to understand unsymmetrical faults such as single line to ground, double line to ground, and line to line faults. Furthermore, students will understand how to analyze the power system components under different fault conditions. Protection and relaying play an important role in a power system. Having equipment such as generators or transformers in power grids, engineers and power system planners should protect these expensive devices from faults or any transients. Relays and breakers are the best tools for protection. Relays sense the currents/voltages in multiple locations. If the measured current/voltage is not within the limit, they send the command to the breakers to disconnect the circuit and protect the equipment. Students in Power System Analysis II will analyze the protection devices and operation principles of relays. The last topic in this course is the transient stability of synchronous machines using equivalent dynamic model and generator control. This course will help students to model the generators in power systems and apply various control mechanisms such as: voltage, frequency, or power control to the synchronous generator model.

Enforced Prerequisite at Enrollment: EET 409

EET 413: Optoelectronics

4 Credits

Principles and applications of optoelectronics including sources, detectors, imagers, transmitters, fiber optics, systems and integrated optics. This course is designed as an elective course for the EET senior undergraduate students. This course introduces some critical components that are needed in fiber optic communication systems. This includes optical transmitters (Light emitting diode, and laser diodes), optical receivers (i.e., photodetector), modulators and demodulators, optical couplers (how to connect more than two fibers together), and optical amplifiers (including the basic principle of erbium doped fiber optic amplifiers). The topics covered in this course include Optics Review, Lightwave Fundamentals, Measuring Light, Optical Waveguides, Light Sources and Detectors, Couplers and Connectors, Noise and Detection, and System Design. Relevant laboratory experiences are used to reinforce the topics covered in class.

Enforced Prerequisite at Enrollment: EET 312

EET 414: Biomedical Instrumentation

4 Credits

Introduction to transducers and circuits used to detect and process medical physiological data with focus on cardiovascular and respiratory systems.

Enforced Prerequisite at Enrollment: EET 312 and EET 331

EET 416: Fluid and Thermal Design in Electrical Systems

3 Credits

Introduction to basic electrical engineering technology concepts and applications of thermodynamics, heat transfer, and fluid power in electrical/ electronic systems. EET 416 Fluid and Thermal Design in Electrical Systems (3) Fluid and Thermal Design in Electrical Systems is a required course for senior-level students pursuing the electrical engineering technology (EET) option in the Electrical and Computer Engineering Technology (ECET) baccalaureate degree program. The purpose of the course is to teach principles of thermal sciences with an emphasis on electrical/electronic system applications. The course enables students to understand fundamental principles of thermodynamics, heat transfer, and fluid mechanics as they apply to thermal management of electronic systems. These principles include the first law of thermodynamics, the continuity equation, basic principles of system pressure loss and fans, the three modes of heat transfer, resistance analogy for heat flow, and the finite difference method for analyzing two-dimensional heat flow. Specialized CFD software is used to analyze temperatures in electronic systems. Laboratory exercises reinforce concepts developed in lecture.

Enforced Prerequisite at Enrollment: EET 315 and (MATH 211 or MATH 231) and MATH 250

EET 419: Project Proposal Preparation

1 Credits

This course is required for all senior students in the Bachelor of Science in Electrical Engineering Technology (BSEET) program. It is the first course in a two-semester sequence that comprises the capstone design experience. In this course, students work in teams to develop an idea for an innovative product or system, including the determination and weighting of customer requirements, design constraints, applicable standards, engineering specifications, a functional decomposition (block diagram), work breakdown structure (WBS), project schedule, and proposed project budget. The culmination of the course is a proposal that guides the project into the second semester, which is the implementation phase. In the proposal, students will also provide background information on the history of relevant technologies, state of the practice in similar products and the life cycle of related products. Weekly presentations focus on important components of the proposal and drafts of these components are submitted for review on a regular basis.

Enforced Prerequisite at Enrollment: ENGL 202C and CAS 100

EET 420W: Electrical Design Project

3 Credits

Design, construction, and testing of a project either selected by the students with approval or assigned by the instructor. EET 420W Electrical Design Project (3) This course is designed with the following goals and objectives: 1. The students will enter the course with a well-defined

project proposal and a timeline for which the first task will be to write the specifications. Upon the specifications' approval, the student teams will begin designing and building the project. 2. Each student will maintain a laboratory notebook that documents the day-to-day activities of the project in a style that could be used for patent documentation. 3. Team members will provide short oral and written reports every week for the first five to six weeks, and then every two weeks until the end of the semester. 4. The students will incorporate engineering standards and constraints, i.e., consideration of economic, environmental, sustainability, manufacturability, ethical, safety, etc., in their project and final report. 5. A draft copy of the final report will be collected, critiqued, and returned to students with comments and suggestions for changes. 6. A final project oral report (20-25 minutes) will be given by the project team during the last week of the semester. 7. An extensive, well-written report describing the project that has been designed and built is the major outcome of the project course. Grades for the course will be based on: Weight Factor a. Written specifications for the project b. General conduct in the laboratory including lab notebook c. Oral and written progress reports including question-and-answer sessions d. Final oral and written reports including question-and-answer sessions This course is a required course in the Electrical Engineering Technology BS curriculum and is intended to be taken by seniors as the capstone course of the major. As such, the course integrates materials from many of the undergraduate electrical courses in addition to related math, engineering technology, and science courses. This course should be taken during the last semester (prior to graduation).

Enforced Prerequisite at Enrollment: EET 312 and EET 331 and EET 419 and ENGL 202C

Writing Across the Curriculum

EET 431: Advanced Electronic Design

4 Credits

Applications of analog and digital integrated circuits; introduction to analog and digital communication techniques.

Enforced Prerequisite at Enrollment: EET 331

EET 433: Control System Analysis and Design

4 Credits

Classical and modern control analysis and design approaches, such as Laplace and state-space, aided by analog and digital computers.

Enforced Prerequisite at Enrollment: EET 312

EET 440: Applied Feedback Controls

3 Credits

Analysis and design of analog and digital feedback control systems. EET 440 Applied Feedback Controls (3) Applied Feedback Controls is a required course for senior-level students pursuing the electrical engineering technology (EET) option in the Electrical and Computer Engineering Technology (ECET) baccalaureate degree program. The purpose of the course is to teach principles of feedback control systems. The course enables students to understand different elements of a feedback control system. System stability is determined, including phase and gain margin, through the use of Bode analysis techniques. Different control schemes are investigated, with emphasis on PID control.

Laboratory exercises, including the construction of various control systems, reinforce concepts developed in lecture.

Enforced Prerequisite at Enrollment: EET 315

EET 456: Automation and Robotics

4 Credits

Introduction to robotic systems and automation. Emphasis includes robot motion, control, and components, as well as programming PLCs. EET 456 Automation and Robotics (4) The objective of this course is to use a hands-on approach to introduce the basic concepts in robotics, focusing on mobile robots and illustrations of current state of the art applications. The course is offered at the senior undergraduate level with emphasis on kinematics, dynamics and control of robot arms. Course materials are tied to lab experiments in which students will work in teams to build and test mobile robots (such as LEGO-based robots).

Enforced Prerequisite at Enrollment: EET 331 and CMPET 403 Enforced Concurrent at Enrollment: MATH 220 or EET 433

EET 461: Power Electronics

3 Credits

Fundamentals of power electronic circuits, semiconductor power devices, power conversion equipment. Circuit topologies, closed-loop control strategies, equipment design consideration. EET 461 Power Electronics (3) Power electronics is a technical elective for senior-level students in the Electrical and Computer Engineering Technology (ECET) baccalaureate degree program. The course introduces students to the different topologies used to convert electrical power via the use of solid state switching. Specifically, the course presents ac-dc, ac-ac, dc-dc and dc-ac converters. The different switching devices used (diodes, SCRs, MOSFETs, etc.) are discussed. Laboratory exercises complement the lecture material. Relevant topics such as power quality, EMI and applications of power electronics are presented.

Enforced Prerequisite at Enrollment: EET 212W and (EET 214 or EET 213W) and (EET 315 or (EET 312 and EET 331))

EET 475: Intermediate Programmable Logic Controllers

3 Credits

Application of programmable logic controllers (PLCs) to data acquisition, automation and process control. EET 475 Intermediate Programmable Logic Controllers (3) Programmable logic controllers (PLCs) are the workhorse of the automation and process control industry. Their rugged design and ease of programming enables PLCs to operate in almost any manufacturing environment. PLCs are employed wherever measurement equipment and computers are needed to control large electrical equipment such as motors and actuators. In this course, students apply their knowledge of basic PLC programming to see how the PLC can be used to communicate with other equipment, sense and react to external stimuli, and provide both open loop and closed loop system control.

Enforced Prerequisite at Enrollment: (EET 275 or CMPET 211) and (EET 315 or EET 312)

EET 478: Digital Communication Systems

4 Credits

Discrete signal analysis, A/D conversion, digital modulation techniques, encoding, decoding, data communication, noise.

Enforced Prerequisite at Enrollment: CMPET 403

EET 480: Electrical and Computer Systems Senior Seminar

1 Credits

Concepts of career development; project management; engineering design documentation; industrial design examples. EET 480 Electrical and Computer Systems Senior Seminar (1) Electrical and Computer Systems Senior Seminar is a required course for senior-level students in the Electrical and Computer Engineering Technology (ECET) baccalaureate degree program. The purpose of the course is to introduce students to the practices associated with managing an industrial-based project. Student teams begin working on a capstone project. Project definition, specification development, scheduling, engineering constraints, and budgeting of both time and money are discussed. Other issues of career development are presented, such as interviewing, resume preparation, and career opportunities. Ethical issues related to the discipline are discussed. Engineering economy is introduced.

Enforced Prerequisite at Enrollment: EET 341 and (EET 330 or CMPET 333) and CMPET 355 and ENGL 202C . Enforced Concurrent at Enrollment: ECON 102 or ECON 104

EET 490W: Electrical/Computer Senior Design Project

3 Credits

Individual or group design projects in electrical and computer engineering technology. EET 490W Electrical/Computer Senior Design Project (3) The Electrical/Computer Senior Design Project is a required course for senior-level students in the Electrical and Computer Engineering Technology (ECET) baccalaureate degree program. The purpose of the course is to have teams of senior students continue the senior design project they had started the prior semester in their Senior Seminar. The course focuses on project-based work where teams design, build, test and document the results of their senior design project effort. The course integrates and applies prior knowledge learned throughout the curriculum.

Enforced Prerequisite at Enrollment: EET 480

Writing Across the Curriculum

EET 495: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experience, practica or internships. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: Prior approval of proposed assignment by instructor
Full-Time Equivalent Course

EET 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

EET 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Electro-Mechanical Engineering Technology (EMET)

EMET 100: Computation Tools for Engineering Synthesis

1 Credits/Maximum of 1

EMET 100 is a first semester course intended to introduce first-year EMET students to a core set of computational tools and simulation software that will be used repeatedly throughout the EMET curriculum to investigate engineering/technical problems. The course is conducted in a computer-based laboratory format to ensure that students gain hands-on experience with the tools, learn the capabilities and limitations of each, and come to understand the types of problems best handled by each tool.

EMET 215: Manufacturing Engineering

3 Credits/Maximum of 3

EMET 215 is intended to introduce the student, in both a lecture and site visit setting, to production planning, and production routing for the purpose of part creation and assembly, manufacturing process and equipment layout required for an assembly of artifacts from raw materials to shipping, including material handling. The course will provide students with a thorough understanding of the manufacturing processes and material handling equipment necessary to formulate a facility layout for producing an assembly of artifacts. Additionally, EMET 215 is intended to provide the student, in both a laboratory and site visit setting, learn the skills necessary to design, manufacture, and assemble a simple engineered product. The course will provide the experience and interactions to give them the knowledge necessary to develop basic hands-on skills for processing and assembly operations, 3d printing, operating and programming CNC machinery. Course activities will be based upon equipment/resources available at each campus. It is suggested that students observe manufacturing processing and assembly operations during site visits to local companies, based on availability.

Enforced Prerequisite at Enrollment: MET 105 or IET 101 Enforced Corequisite at Enrollment: EGT 114

EMET 222: Applied Mechanics

3 Credits/Maximum of 3

The purpose of this course is to give students the ability to calculate engineering stresses, strains, and deflections in members subjected to different types of loading using the applied forces and reactions obtained from static equilibrium calculations. Various types of components are analyzed such as rods subjected to axial loading, shafts subjected to torsion, and beams of various cross-sectional geometries subjected

to bending moments. Additionally, members under combined loadings are analyzed to determine principal stresses and maximum shear stresses using stress transformation equations and Mohr's circle. For all applications, free body diagrams will be used in order to relate external and internal reactions.

Enforced Prerequisite at Enrollment: MET 111 Enforced Concurrent at Enrollment: MATH 83 or MATH 140

EMET 225: Applied Dynamics

2 Credits/Maximum of 2

This course is designed to provide engineering technology students with knowledge in solving problems using fundamental laws and equations of motion that are applied to particles and rigid bodies. Dynamics is typically broken into two categories: (1) kinematics (the study of motion without considering the causes of the motion; and (2) kinetics (the study of motion due to applied external forces). Topics addressed in dynamics for technology include: kinematics of particles, application of Newton's laws to particles and rigid bodies, energy and momentum of particles, kinematics of rigid bodies, impact of particles and rigid bodies, and energy and momentum for rigid bodies.

Enforced Prerequisite at Enrollment: MET 111 and (MATH 83 or MATH 140)

EMET 230: Computerized I/O Systems

3 Credits

Introduction to concepts of structured programming, data acquisition, computerized interfaces, and graphical user interfaces. EMET 230 Computerized I/O Systems (3) EMET 230 is designed to provide the students with the knowledge of steps and issues to be addressed when deciding on computerized input-output systems. Understanding the basics property, classification and types of signals, significant figures, rounding off, etc. Steps in choosing hardware and understanding the principles used in the software design to develop friendly user interfaces.

Enforced Concurrent at Enrollment: EET 212W

EMET 325: Electric Drives

3 Credits

Study of operation, application and specification of AC/DC electrical drive motors, servos, actuators, control units and power converters. EMET 325 Electric Drives (3) EMET 325 provides students with a basic understanding of the operation, capabilities, limitations, and selection of electrical drive devices and drive controls typically found in industrial manufacturing and production systems. The course provides background on the basic operating characteristics of variety of drive devices, both AC and DC; however, the emphasis is on the practical limitations and typical application of these devices. Particular emphasis will be given to concepts and topics important to the selection, implementation and operation of electrical drives in common industrial applications. Lectures will be supported by classroom demonstrations of setup, connection, and operating characteristics of devices covered in lectures. These demonstrations will emphasize typical uses of the devices studied.

Enforced Prerequisite at Enrollment: EET 212W

EMET 326: Mechanical Drives

3 Credits

Transmission of force and motion using linkages, cams, gears, belts, and hydraulic and pneumatic drives. EMET 326 Mechanical Drives (3) EMET 326 is designed to provide the students with the knowledge of various mechanical drives used in engineering. The course introduces the concepts displacement, velocity and acceleration analysis of linkages, cams, gears and belts. Instructor may employ purely geometric methods or combine it with vector approaches. Differential and integral calculus for some of the topics and may considering using techniques of optimizations for mechanism synthesis. Static and dynamic force analysis of linkages is studied.

Enforced Prerequisite at Enrollment: EMET 222

EMET 330: Measurement Theory and Instrumentation

3 Credits

Fundamentals of measuring, transmitting, and recording temperature, pressure, flow, force, displacement, and velocity; laboratory component emphasizes systems used in manufacturing. EMET 330 Measurement Theory and Instrumentation (3) The purpose of EMET 330 is to familiarize students with the measurement and instrumentation systems typically used in automated manufacturing and automated process industries. The primary focus of the EMET degree program is the technology of automated control, and measurement and instrumentation systems are essential elements in the control of any industrial or manufacturing process. This course is designed to cover those topics in process measurement, data monitoring, signal conditioning, and data acquisition that are typical in such control systems. The majority of industrial instrumentation systems involve measurement of position, displacement, velocity, force, flow, pressure, or temperature. EMET 330 will cover the common techniques used to make these types of measurements. Measurement systems also require signal conditioning and amplification to convert primary sensor signals into practical analogs that can be used in electronic controls. EMET 330 will also cover fundamentals of signal conditioning and amplification, including analog and digital data acquisition techniques, D-to-A and A-to-D conversion methods and equipment, and fundamentals of automated data acquisition and instrumentation-computer interfacing. Finally, accurate application of any measurement requires an understanding and proper application of basic statistical methods of data reduction. EMET 330 will include coverage of these topics as well. EMET 330 is also a lab-based course. Thus, students in the course will be required to conduct lab exercises in which they actually use industrial-quality sensors, transmitters, signal conditioning equipment, and data acquisition systems to gain experience with how these devices actually perform.

Enforced Prerequisite at Enrollment: EMET 230 Enforced Concurrent at Enrollment: MATH 211 or MATH 250

EMET 350: Quality Control, Inspection, and Design

3 Credits

Fundamentals of quality including statistics, probability, and design of experiments. EMET 350 Quality Control, Inspection, and Design (3) The purpose of EMET 350 is to familiarize students with the use of statistical methods to measure, describe, and control the quality of products and processes. This will be done by teaching students the statistical and probabilistic methods that are applied to quality

monitoring and quality control; the typical methods used to monitor, describe, and control quality; and the accepted methods for designing effective statistical experiments to characterize quality. Specific topics that will be covered include: ♦ Basic statistical concepts, measures, and tools ♦ Basic concepts of continuous and discrete probability, probability distributions, populations, and samples ♦ Standard sampling methods ♦ Data presentation tools, including histograms, frequency charts, stem-leaf plots, Pareto charts, etc. ♦ Control charting tools and methods as applied to both variables and attributes, including x-bar/R charts, x-bar/s charts, median/R charts, trend charts, charts of non-conformities or nonconforming items, etc. ♦ Standard measures of process capability ♦ Acceptance sampling techniques, methods, and tools ♦ Concepts of gage control ♦ Methods and tools for design of statistical experiments. The course will also introduce students to standard computer tools for statistical and quality control computations.

EMET 351: Quality Control, Inspection, and Design

2 Credits

The objective of Quality Control, Inspection, and Design is to introduce the student to fundamentals of quality including statistics, probability, and process control. EMET 351 will provide a fundamental understanding of modern statistical quality control methods used by industry. It covers the concepts, principles, procedures, statistical tools, and computations used to analyze and maintain statistical control of manufacturing and production processes and systems. Standard statistical methods are emphasized rather than the mathematical theory of statistical models.

EMET 394: EMET Student Design Competition

1-3 Credits/Maximum of 3

Students collaborate on research and design of appropriate solutions to real-life problems and projects.

Enforced Prerequisite at Enrollment: Sixth semester standing

EMET 395: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: Prior approval of proposed assignment by instructor

EMET 396: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

EMET 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

EMET 402: Fundamentals of Engineering Review

2 Credits

Overview of the topics covered on the Fundamentals of Engineering Exam administered by the NCEES for the purpose of earning a Professional Engineering license. EMET 402 Fundamentals of Engineering Review (2) EMET 402 Fundamentals of Engineering Review is intended to provide students with an overview of topics covered on the morning portion of the Fundamentals of Engineering Exam. Passage of the exam, administered twice per year by the National Council for Examiners for Engineering and Surveying (NCEES), is the first step toward Professional Engineering licensure. Since students have already taken courses that cover all of the subject areas, this course merely serves as a review of these topics in order to help the student prepare for the exam.

Enforced Prerequisite at Enrollment: Seventh semester standing

EMET 403: Electromechanical Design Project Preparation

1 Credits

This course involves the planning and preliminary design activities for the capstone electro-mechanical design project. EMET 403 Electromechanical Design Project Preparation (1) EMET 403, Electromechanical Design Project Preparation, involves the planning and development of a design plan for a project to be completed in the capstone electro-mechanical project design course, EMET 440, which is required for all Electro-Mechanical Engineering Technology baccalaureate degree students. Both EMET 403 and EMET 440 require formal report writing, project documentation, and group presentations. In EMET 403, students will present design plans to a faculty panel for review and approval. In this planning and design development process, students will be required to follow a rigorous design methodology. To support the process, EMET 403 will include instruction in the use of project management software, and students will undergo the typical process of periodic design reviews and critiques as their plans evolve. Finally, EMET 403 is a team-based course. All project designs will be prepared by teams of two or more students. Generally, these same teams will be maintained through actual completion of the project in the following project design course, EMET 440. Because of this linkage of EMET 403 and EMET 440, both in design plans and team structure, it is essential that students schedule EMET 403 in the semester immediately prior to the semester in which they will register for EMET 440.

Enforced Prerequisite at Enrollment: Seventh semester standing

EMET 405: Fluid Mechanics and Heat Transfer

3 Credits

Introduction to the principles of fluid mechanics and heat transfer with emphasis on the application to practical problems. EMET 405 Fluid Mechanics & Heat Transfer (3) This course is designed to provide students with knowledge in fluid statics, fluid dynamics, and heat transfer. The emphasis of the course is to introduce them to the fundamental laws and principles of these engineering sciences, and to give them experience in solving problems using these laws and principles. The instructor may employ methods of differential and integral calculus as a part of selected topics. The fluid mechanics portion of the course introduces the students to fluid statics (e.g. hydrostatic pressure on submerged surfaces) and to fluid dynamics (e.g. continuity equation, energy equation, and laminar and turbulent flow). The heat transfer portion of the course introduces the three modes heat transfer.

conduction, convection and radiation. It also covers an important type of heat transfer equipment, the heat exchanger.

Enforced Prerequisite at Enrollment: EMET 326 and (MATH 211 or MATH 250)

EMET 410: Automated Control Systems

4 Credits

Introduction to analog feedback control theory and computer simulation and analysis using Matlab; laboratory study of feedback systems. EMET 410 Automated Control Systems (4) Automated Control Systems is a required course for senior-level students in the Electro-Mechanical Engineering Technology (EMET) baccalaureate degree program. The main goal of the course is to teach students the concepts of automated control by coupling theory, industrial practices, and appropriate laboratory activities. The course demonstrates that physical processes can be represented by differential equations and hence, Laplace transforms. It teaches students how to measure and modify a system's performance in a variety of ways as well as how to make use of time-domain techniques, root locus and Bode plots. Improving student communication skills is also a goal of this course. The specific EMET program outcomes addressed by the course are: OUTCOME 1: * Students will readily recognize the availability of and be able to apply electrical, fluid and mechanical analogues for use in system models. * In laboratory exercises, students will correctly design and test control systems as applied to integrated electrical and mechanical systems. OUTCOME 2: * Students will develop linear, constant coefficient, ordinary differential equations from electromechanical system models, and solve them using Laplace transform techniques. OUTCOME 6: * Students will correctly analyze and design analog control systems to meet performance requirements by using computer tools to perform root locus, frequency domain, and time domain analysis and design. OUTCOME 8: * Students will correctly design and test analog control systems, including proportional, integral and derivative (PID) feedback control and other compensators in laboratory exercises. This includes tuning PID controllers.

Enforced Prerequisite at Enrollment: (MATH 211 or MATH 250) Enforced Concurrent at Enrollment: EMET 330

EMET 430: Programmable Logic Controls II

3 Credits

A second course in PLCs covering sequencing/shift instructions, program flow control, data and math instructions, PID loops, and machine communication. EMET 430 Programmable Logic Controls II (3) The objective of EMET 430 - Programmable Logic Controls (PLC) II course is to give students an in-depth understanding of the advanced control, programming, I/O, communications, and distributed processing capabilities of modern PLCs. The objective is achieved through coordinated lecture and laboratory activities. Lectures cover theoretical and operational concepts; laboratory exercises will require students to apply lecture concepts to actual control problems using real equipment. EMET 430 is a senior-level elective in the Electro-Mechanical Engineering Technology program. It is intended for those students who want to expand their PLC knowledge beyond the basics covered in required courses in the EMET curriculum. Students must have prior knowledge of basic PLC capabilities, ladder logic programming, and general methods of interfacing PLCs with external devices. This background is typically obtained via the EE T 220 - Programmable Logic Controls (or equivalent) course. By building on prior concepts of

ladder logic and simple relay/contactors style programming, EMET 430 can focus on the applications, programming, and use of specialty I/O modules and advanced control technologies available in state-of-the-art PLCs. The following major topical areas will generally be covered: ♦ advanced programming instructions related to program flow control, data manipulation, mathematical computations, and timing/sequencing functions; ♦ use of specialty processor and I/O modules (viz., analog current and voltage I/O, digital I/O, thermocouple and RTD interface devices, specialized motor controls, etc.); ♦ advanced technology that adapts PID capabilities to PLC systems permitting them to be used when circumstances require dynamic, closed-loop feedback control; and ♦ standard installation and safety practices for PLC installations. Programming tasks in the course will be carried out using modern operator interface equipment and software to ensure that students understand the capabilities and limitations of those systems. The course will also examine the capabilities, flexibility, and limitations of computer-linked, distributed PLC systems, including study of the communication technologies and systems currently used by industry. Generally, a capstone student project will be used to tie all these concepts together and to give students direct, hands-on experience with actually setting up and operating a PLC-based control system. Performance in the lecture portion of the course will typically be evaluated by a combination of major exams, short quizzes, and out-of-class problem and programming assignments. Performance in the laboratory will typically be evaluated based on a series of both formal and informal lab reports documenting programming solutions to assigned control problems.

Enforced Prerequisite at Enrollment: EET 275

EMET 432: Electromechanical Devices for Biomedical Instrumentation

3 Credits

A study of electromechanical devices, transducers, and instrumentation used in the biomedical field. EMET 432 Electromechanical Devices for Biomedical Instrumentation (3) This course concentrates on electromechanical devices and equipment (used in a hospital setting) that involve determining information about a patient's health or controlling treatment. Basic components of such equipment include transducers that convert physiological events to electrical signals, imaging devices such as charge coupled arrays, electronic control systems, and mechanical systems such as pumps. The design and use of such equipment will be demonstrated. Upon completion of this course, the student should be able to: describe basic human physiology and systems; explain how various biomedical instrumentation functions and how biomedical measurements are made; explain how a variety of biomedical transducers work and how they are interfaced to biomedical equipment; describe various physiological signals such as ECG and EEG; perform various mechanical and electrical calculations that are used in biomedical instrumentation; complete and explain a block diagram for the design process of biomedical instrumentation; design electronic amplifier circuits used in biomedical instrumentation; explain how various regulatory agencies such as the FDA, FCC, IEC, and UL are involved in the regulation of biomedical equipment. This course is a 400 level technical elective course in the EMET program. Students will use their knowledge in math, science, and physics to understand biomedical instrumentation devices and systems. This course will apply previous knowledge in measurement theory and instrumentation to various devices and measurements in the biomedical field. In addition, this course will look at total systems for biomedical instrumentation, including transducers, data acquisition, analysis and feedback. System design that includes both digital and analog circuits will be covered in detail. The type of required

equipment that should be demonstrated and explained should include: electrodes, sensors, cardiovascular measurement devices such as EKG equipment, respiratory therapy equipment, and ultrasound equipment. In addition, a study of the electrical, mechanical, and system schematics should be included. A hospital demonstration tour should be included for larger radiological equipment. Students' academic achievement will be evaluated using exams, quizzes, term paper and/or research project.

Enforced Prerequisite at Enrollment: EMET 330 and (PHYS 151 or PHYS 212 or PHYS 251)

EMET 433: Smart Manufacturing

3 Credits

Exploration of central concepts and technologies of smart manufacturing with focus on the internet of things, data analytics for production data, simulation and digital twins, and process and manufacturing systems optimization. Smart Manufacturing introduces the concepts and technologies of modern data-driven smart manufacturing. The purpose of the course is to empower students to incorporate smart manufacturing thinking and technologies into manufacturing processes. Key smart manufacturing topics that the student will explore include the industrial internet of things, data analytics and predictive machine learning, simulation and the digital twin, and process and manufacturing systems optimization. The course includes a laboratory component to provide students experience with implementing these technologies. The laboratory exercises are a mix of hardware development via internet of things sensor collection, software use for data analysis and visualization, numerical modeling for digital twin creation, and systemic process optimization.

Enforced Prerequisite at Enrollment: (EET 275 and CMPET 211 and EMET 330) or (ME 345W and ME 357)

EMET 440: Electro-Mechanical Project Design

3 Credits

Planning, development, and implementation of electro-mechanical design project; includes formal report writing, project documentation, group presentations, project demonstrations. EMET 440 Electro-Mechanical Project Design (3) Electro-Mechanical Project Design is to provide students with theoretical and practical experience associated with the integration of the various disciplines within the field of electromechanical engineering technology. Students working in teams will employ previously developed and approved design plans to construct, demonstrate, and document an integrated, electromechanical system. Plans for designs will come from the results of the project design preparation course, EMET 403, conducted in the immediately preceding semester. Thus students in EMET 440 are expected to have participated in the design development process that occurred in that same offering of EMET 403. Projects will be required to use a variety of electromechanical equipment, including such items as robots, machine vision systems, programmable logic controllers, personal computers, electric motors, CNC equipment, etc. Appropriate project documentation exercises, project presentations, progress reporting, budgeting and scheduling, system performance to specifications, and development of final design reports will be required elements of the course.

Enforced Prerequisites at Enrollment: EMET 325 and EMET 326 and EMET 410 and EMET 403

EMET 441: Mechatronics Project Design

2 Credits

Planning and development activities for the capstone electro-mechanical design project. Mechatronics Project Design involves working as a team member using appropriate management techniques in the investigation, analysis, and design of electromechanical systems by demonstrating the ability to allocate effectively time, responsibilities, and resources to a project. All Electro-Mechanical Engineering Technology baccalaureate degree students take EMET 441 followed by EMET 442 in the next semester. This is a 2 credit/4 contact-hour course.

Enforced Prerequisite at Enrollment: EMET 325 and EMET 326 Enforced Concurrent at Enrollment: EMET 410

EMET 442: Mechatronics Project Implementation

2 Credits

Assembly and testing activities for the electro-mechanical design project. Mechatronics Project Implementation provides students with theoretical and practical experience associated with the integration of the various disciplines within the field of electromechanical engineering technology. Students working in teams will employ previously learned material to plan, construct, and test an integrated, electromechanical system. Projects will require a variety of electromechanical equipment, including such items as robots, machine vision systems, programmable logic controllers, personal computers, electric motors, CNC equipment, etc. Appropriate project documentation exercises, project presentations, progress reporting, budgeting and scheduling, and development of final project reports will be required elements of the course. This is a 2 credit/4 contact hour course.

Enforced Prerequisite at Enrollment: EMET 410 and EMET 441

EMET 495: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: Prior approval of proposed assignment by instructor

EMET 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

EMET 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Elementary Education in Multicultural Settings (ELEDM)

ELEDM 395W: **SPECIAL TOPICS**

2 Credits/Maximum of 6

Prerequisite: C I 295 , EDPSY014 , EDTHP115; Concurrent: SPLED444, ELEDM400 , ELEDM401A , or ELEDM402
Writing Across the Curriculum

ELEDM 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Energy and Geo-Environmental Engineering (EGEE)

EGEE 12: Energy Science and Engineering Lectures

1 Credits

Lectures and discussion by faculty and visiting scientists/engineers on energy science and engineering, job selection, patents, licensing, ethics, and other professional issues and challenges. EGEE 012 Energy Science and Engineering Lectures (1) The objective of the course is to expose students through a lecture or seminar format to a wide range of topics on energy science and engineering. The lectures would be presented by faculty and visiting scientists. Occasionally, students may be asked to make presentations. Students would be required to write a short summary of each presentation and provide a critique of the presentation. Seminar topics will cover aspects of energy production, processing, utilization, and conservation, and the associated environmental, health and safety, and policy, economics, and management issues. Students are expected to keep up with current developments on each topic and to actively participate in the discussions. Students will be evaluated based on their class participation, and written summary and critique of each presentation. This is a required course in the energy engineering major.

Enforced Prerequisite at Enrollment: Fifth-semester standing in Energy Engineering major (ENENG_BS) or Chemical Engineering (CHE_BS)

EGEE 101: Energy and the Environment

3 Credits

Energy utilization and technological development, energy resources, conversion and consequences on the local and global environment, and future energy alternatives. EGEE (MATSC) 101 Energy and the Environment (3) (GN)(BA) This course meets the Bachelor of Arts degree requirements. Energy is the life-blood of any society. The information and principles learnt in this course will allow the students to make sound judgments in the area of personal energy choices; There is increasing concern about the influence of human activities, particularly energy use, on global climate change. This has an impact on global business aspects. Students in all walks of life need to be exposed to the basic concepts to appreciate the positions of policymakers, scientists, and industry over the interrelationship between greenhouse gas emissions and global climate change. The students will acquire

knowledge, which will enable them to critically evaluate any energy-related concerns of the society. This is important for any college graduate for responsible citizenship and stewardship. The main objectives of this course are to: provide basic understanding and appreciation of energy and environmental concepts and interconnectedness; analyze energy consumption patterns; discuss various energy resources that power the modern society; examine the energy conversion processes; explore interrelationships between energy use and industrial progress and environmental consequences; discuss future energy alternatives. Student performance will be evaluated continuously through homework assignments, exams, group activities, class participation and a final examination. Position papers or term papers may be used in lieu of homework assignments in some sections. This course is a stand-alone General Education course.

Cross-listed with: MATSE 101

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

EGEE 101A: Energy and the Environment

3 Credits

Energy utilization and technological development, energy resources, conversion and consequences on the local and global environment, and future energy alternatives. EGEE (MATSC) 101A Energy and the Environment (3) (GN;IL)(BA) This course meets the Bachelor of Arts degree requirements. Energy is the life-blood of any society. The information and principles learnt in this course will allow the students to make sound judgments in the area of 'personal energy choices.' There is increasing concern about the influence of human activities, particularly energy use, on global climate change. This has an impact on global business aspects. Students in all walks of life need to be exposed to the basic concepts to appreciate the positions of policymakers, scientists, and industry over the interrelationship between greenhouse gas emissions and global climate change. The students will acquire knowledge, which will enable them to critically evaluate any energy-related concerns of the society. This is important for any college graduate for responsible citizenship and stewardship. The main objectives of this course are to: provide basic understanding and appreciation of energy and environmental concepts and interconnectedness; analyze energy consumption patterns; discuss various energy resources that power the modern society; examine the energy conversion processes; explore interrelationships between energy use and industrial progress and environmental consequences; discuss future energy alternatives. Student performance will be evaluated continuously through homework assignments, exams, group activities, class participation and a final examination. Position papers or term papers may be used in lieu of homework assignments in some sections. This course is a stand-alone General Education course. The course is currently offered in four sections every semester (Spring and Fall) with a total target enrollment of approximately 200-250 students per semester.

Cross-listed with: MATSE 101A

Bachelor of Arts: Natural Sciences

International Cultures (IL)

EGEE 101H: Energy and the Environment

3 Credits

Energy utilization and technological development, energy resources, conversion and consequences on the local and global environment, and future energy alternatives. EGEE 101H Energy and the Environment (3) (GN) Energy is the life-blood of any society. The information and principles learnt in this course will allow the students to make sound judgments in the area of 'personal energy choices.' There is increasing concern about the influence of human activities, particularly energy use, on global climate change. This has an impact on global business aspects. Students in all walks of life need to be exposed to the basic concepts to appreciate the positions of policymakers, scientists, and industry over the interrelationship between greenhouse gas emissions and global climate change. The students will acquire knowledge, which will enable them to critically evaluate any energy-related concerns of the society. This is important for any college graduate for responsible citizenship and stewardship. The main objectives of this course are to: provide basic understanding and appreciation of energy and environmental concepts and interconnectedness; analyze energy consumption patterns; discuss various energy resources that power the modern society; examine the energy conversion processes; explore interrelationships between energy use and industrial progress and environmental consequences; discuss future energy alternatives.

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

Honors

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Key Literacies

EGEE 102: Energy Conservation for Environmental Protection

3 Credits

Energy is a vital component of modern society. Much of the general population believes that the energy sources we depend on are perpetual. While people believe that energy use is the culprit for environmental damage, they are not aware of the methods and principles by which energy conversion devices operate. This general education course will provide you with the necessary knowledge and information on the main operating principles of devices/appliances that are in common use and information on which to make the right decision in selecting the most energy efficient and economical choice. These devices are day-to-day appliances such as refrigerators, washers and dryers, ovens, etc., and home heating or cooling and transportation choices. The course also provides necessary information on heating furnaces, insulation, doors and windows, lighting, and air conditioning principles. The objective of the course is to expose you to energy efficiency in day to day life in order to save money and energy and thereby protect the environment. I hope the information in this course will help you become an environmentally-responsible individual of this Global Village. This course is a stand-alone General Education course that contributes to the General Education Learning objectives of Key Literacies, Critical and Analytical Thinking, Global Learning, and Social Responsibility and Ethical Reasoning. Furthermore, this course meets the Bachelor of Arts degree requirements.

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

EGEE 102H: Energy Conservation for Environmental Protection

3 Credits

Exposure to energy efficiency in day-to-day life to save money and energy, and thereby protect the environment. EGEE 102H Energy Conservation for Environmental Protection (3) (GN) Energy is a vital component of modern society. Much of the general population believes that the energy sources we depend on are perpetual. While people believe that the energy use is the culprit for environmental damage, they are not aware of the methods and principles by which energy conversion devices operate. This honors level general education course provides students with necessary knowledge and information on the main operating principles of devices/applications that are in common use and information on which to make the right decision in selecting the most energy efficient and economical choice. These devices are day-to-day appliances such as refrigerators, washers and dryers, ovens, etc., and home heating or cooling and transportation choices. The course also provides necessary information on heating furnaces, insulation, doors and windows, lighting, and air conditioning principles. The objective of the course is to expose students to energy efficiency in day to day life in order to save money and energy and thereby protect the environment. This education is very important for all college students to turn them into environmentally-responsible individuals of this Global Village. Students will be doing two energy related projects and one presentation in class. This honors course also requires two additional home activities compared to a regular course. This honors class is designed to be more discussion based.

Bachelor of Arts: Natural Sciences

Honors

EGEE 110N: Environmental Health and Safety Science

3 Credits

EGEE 110 Environmental Health and Safety Science (3) (GN) (GS). Environmental Health and Safety is an applied field with many aspects. It has engineering, science, psychology, and management components. For an understanding of how humans interact with their working and living environment, one has to understand basic sciences such as physics, biology, chemistry, mathematics, and psychology as well as some of the traditional engineering disciplines. This general education course is intended to provide students with a basic understanding of how these science and engineering principles are applied in an environmental health and safety context to topics and hazards commonly encountered in our lives. At the conclusion of the course, participants should be able to: 1) Demonstrate an understanding of how the dynamic processes of both the natural and man-made world impact the health, safety, and well-being of all of us in our daily lives; 2) Identify and understand common hazards inherent in industries, residences, transportation systems, and natural environments; 3) Explain the definition of risk including the concepts of probability, severity, presence of a hazard, and exposure to a hazard; 4) Recognize and understand ways of quantitatively expressing risk; 5) Explain risk perception and some of the factors that influence it; 6) Understand and apply control strategies and protective measures to hazards and risks to self, family, friends, and co-workers throughout daily activities;

General Education: Natural Sciences (GN)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking

EGEE 120: Oil: International Evolution

3 Credits

Oil is the world's most important commodity. Access to oil was decisive in the great military struggles of the 20th century. The economic and strategic value of oil has led to the evolution of a fascinating array of business, political, and strategic alliances around the world. The objective of this course is to describe this evolution and the technological, commercial, and political innovations shaping its current face. This knowledge is vital in achieving a more complete understanding of the role of oil in international affairs and economic development. The course begins with a discussion of the development of the American and European oil industries during the 19th century and the formation of the first great industrial oil monopolies. The emergence of oil as a strategic commodity prior to and during World War I will then be discussed. The economic and technological reasons for the recurring boom-bust cycles of oil markets and the political arrangements developed to cope with their effects is the third major topic of the course. The focus then shifts back to military affairs with a discussion of the role of oil in the battles of World War II. We then examine the social and cultural roots of the post-war dissolution of company ownership and the nationalization of oil reserves. Also in the policy arena is a discussion of the policy response of western governments to a growing dependence upon low-cost oil from the Middle East, Africa, and South America. The analysis then focuses on the ideology and strategy behind the formation of the Organization of Petroleum Exporting Countries (OPEC) and the motivations and execution of their strategies to drive up oil prices during the 1970s and early 1980s. The last part of the course discusses the emergency of oil as a commodity traded in open commodity market exchanges, the development of reserves in deep water and in Africa, and the relationship between oil policy and the war on international terrorism. Allowing students to gain a new perspective on global relations, and domestic politics. By the end of the semester, students will have broad understanding of oil and its pervasive impact on society over the years, better writing ability, and improved critical reading and thinking skills. This general education course will provide a multi-disciplinary approach to understanding how oil affects international relations and commerce. The relationships between oil technology, social and political institutions, and the unique cultures in oil-producing regions.

International Cultures (IL)
 United States Cultures (US)
 General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Global Learning

EGEE 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

EGEE 295: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

EGEE 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

EGEE 302: Principles of Energy Engineering

3 Credits

Basic engineering calculations and mathematical methodologies on material and energy balances and reaction rates during chemical transformations in energy systems. EGEE 302 Principles of Energy Engineering (3) This introductory energy engineering course enables students to identify and apply fundamental principles of chemistry and physics, as they pertain to energy and fuels, and mathematics to describe materials and energy flow through a process. Examples of the processes studied will include stoichiometry in combustion and other reactions and material flows with recycle streams. This course also enables students to describe the energy transformations in energy systems. The examples of the processes we would be applying energy conservation principles to include calculation of adiabatic flame temperature during combustion of fuels. In addition, the course will present an introduction to chemical kinetics with an overview of solid, liquid and gaseous fuel transformations. This is a required introductory course to the BS in Energy Engineering degree program. It will be a prerequisite to several of the 400 level energy engineering curriculum courses. Students will be evaluated based on homework, projects, class participation, and mid term and final exams.

Enforced Prerequisite at Enrollment: CHEM 112 and MATH 141

EGEE 304: Heat and Mass Transfer

3 Credits

Introduces the fundamentals of heat and mass transfer. Conduction, convection, radiation, and diffusion mass transfer will be emphasized. EGEE 304 Heat and Mass Transfer (3) This course will emphasize the modes of heat and mass transport in energy engineering systems. Students will know, understand, and solve heat transfer problems that involve conduction, convection, and radiation. The course will provide an integrated treatment of heat, mass and momentum transfer by convection and mass transfer by diffusion. Students will also learn and use software that will enable them to solve problems that involve exploratory, what-if, and parameter sensitivity considerations. The course will also assist students to understand the design and operation of different types of heat exchangers. This course also enables students to identify and describe the energy transformations in energy systems. The examples of the processes we would be applying energy conservation principles to include power plant, geothermal energy systems, and industrial reactors and combustors. This is an essential and required thermal science course in the BS in Energy Engineering degree program. Students will be evaluated based on homework, projects, class participation, and mid term and final exams.

Enforced Prerequisite at Enrollment: EME 301 and EGEE 302

EGEE 395: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

EGEE 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

EGEE 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

EGEE 401: Energy in a Changing World

3 Credits

Energy is in transition, with increased international energy demand and increasing environmental pressures. Energy transitions, approaches, and outcomes are addressed. EGEE 401 Energy in a Changing World (3) The role of energy is increasingly important with increasing environmental constraints, transitioning energy policies, supply disruption, international pressure on climate change compliance and competition for energy. This course evaluates the existing energy infrastructure and energy/fuel use, both domestic and international, along with evolving technologies, implementation and challenges in meeting energy demands. The class provides a holistic view and serves all students interested in an energy or energy-related career. Students will understand the interrelationship between legislative, technology, environmental, and international factors associated with energy production, processing, distribution and utilization.

Enforced Prerequisite at Enrollment: EGEE 101 or EGEE 102 or CHEM 112

EGEE 405: Renewable Energy in Electricity Markets

3 Credits

This course covers the structure and economics of the power grid in the US and the role played by renewable generation on the existing system. The course begins by introducing students to the structure of the power grid and teaches them to use typical analysis methods that are used to describe power transmission. The regulatory structure of US electricity markets is described to develop the framework for interpreting electricity pricing. Power analyses are used in conjunction with economic analyses to describe the interplay between transmission and cost of electricity to consumers. Unique aspects of renewable generation are introduced to this established context to begin to describe future drivers in the marketplace. Specific challenges associated with renewables are discussed, including the need for power system reserves, flexibility, the potential for overgeneration and the need for frequency and demand response. Methods to manage or overcome these challenges will also be discussed. Finally, this knowledge will be applied via discussion of several case studies of real power generation and transmission systems in the world.

Enforced Prerequisite at Enrollment: EE 210 and (ECON 102 or ECON 104)

EGEE 411W: Energy Science and Engineering Lab

3 Credits

A comprehensive introduction to classic and modern laboratory skills and experimentation of relevance to energy science and engineering practice.

Enforced Prerequisite at Enrollment: FSC 401 or EGEE 302 or permission of program

Writing Across the Curriculum

EGEE 412: Green Engineering & Environmental Compliance

3 Credits

Material and energy flows as they relate to industrial systems, environmental concerns, pollution prevention, and the development of clean technologies. EGEE 412 Green Engineering & Environmental Compliance (3) The primary objective of EGEE 412 is to introduce students to how engineering and industrial decisions affect the environment and how clean technologies can reduce environmental impact. Students will also be exposed to global mass and energy flows from an environmental perspective that relate to both industrial and natural systems. Students will be exposed to environmental concepts, principles, and evaluation techniques within the framework of green engineering, pollution prevention, and environmental sustainability. The course is for students with a general science or engineering background. By examining mass and energy flows on the unit operation, plant-wide, local and regional scale, students will understand the interaction of anthropogenic flows with natural cycles of materials and energy. Students will understand how environmental concerns and regulations provide the motivation and incentive behind reducing pollution during the design phase rather than as an 'add-on' or 'end of pipe' treatment technology. Students will evaluate plant flow sheets to identify engineering means by which to reduce plant-wide environmental impact.

Enforced Prerequisite at Enrollment: EGEE 302

EGEE 420: Hydrogen and Fuel Cells

3 Credits

Course will cover the fundamental principles of electrochemical engineering, hydrogen production and storage, and the design and application of the main types of fuel cells. EGEE 420 Hydrogen and Fuel Cells (3) The primary objective of the course is to help students understand the fundamental principles of electrochemistry, the production and storage of hydrogen from biomass and fossil fuels, and the design and operation of different types of fuel cells. Students will begin with electrochemistry and electrochemical engineering systems including fuel cells. The chemical and biochemical methods used for producing hydrogen for fuel cells applications and the current technologies available for hydrogen storage will follow next. Students are expected to be able to apply their knowledge and understanding in the analysis of fuel cell systems. Students are also expected to be able to distinguish between the design, operation, and advantages and disadvantages of the different types of fuel cells available. This is an elective course for the energy engineering major. It complements the required course on electrochemical energy conversion in the energy engineering curriculum.

Enforced Prerequisite at Enrollment: EME 301

EGEE 430: Introduction to Combustion

3 Credits

Concepts related to laminar and turbulent premixed and nonpremixed combustion with applications to propulsion and stationary systems. EGEE (M E) 430 Introduction to Combustion (3) This course provides an introductory treatment of combustion science. The objectives of the course are to develop in the students an understanding of combustion kinetics, combustion thermochemistry, flame dynamics, flame stability, and pollutant formation. Coverage includes laminar and turbulent flames, premixed and diffusion flames, and detonations. Emphasis is placed on the role that Kinetics, heat transfer, mass transfer, and fluid dynamics have on flame structure and flame stability. The course includes some laboratory demonstrations of flat flame and diffusion flame burners, and incorporates numerical calculations of thermodynamic and kinetic combustion phenomena. The course begins with a review of transport phenomena, physical gas dynamics, and thermochemistry. Then, the concept of the laminar flame speed is introduced in the context of a one-dimensional flame and a propagating chemical wave. Issues of premixed flame structure and stability are presented along with a discussion of flammability limits. Next, laminar diffusion flames are presented via the Burke-Schumann analysis. From laminar flames, the emphasis shifts to turbulent premixed and diffusion flames, and the concepts of flame stretch and strain. Detonations are considered, with emphasis on thermodynamic analysis of the detonation and the structure of the detonation wave. Details of chemical kinetics for the hydrogen-oxygen and hydrocarbon-air reaction systems are presented, with linkage back to earlier topics such as flame stabilization and flammability limits. After kinetic phenomena, the course then considers pollutant formation focusing on soot and NO_x. The fundamental aspects of combustion are applied to analysis of the combustion process and pollutant formation in international combustion engines and catalytic combustors. The course wraps up with discussion of atmospheric chemistry, the fate of pollutants, and the formation of secondary pollutants.

Enforced Prerequisite at Enrollment: ME 201 or ME 300 or EME 301

Cross-listed with: ME 430

EGEE 436: Modern Thermodynamics for Energy Systems

3 Credits

Thermodynamics of external fields, theory of stability and fluctuations, irreversible and non-linear thermodynamics, and bifurcation theory and their applications in energy and environmental processes are discussed. This course will be an advanced thermodynamics class that will expose students to the thermodynamics of irreversible processes and the thermodynamic analysis of dynamic systems. Students will learn to analyze the thermodynamics of conductivity, diffusion, gravitation, electrochemical systems, stability, fluctuations and critical phenomena. Students are expected to be able to understand and apply their knowledge to analyze problems involving fuel cells, membrane potential in electrolysis systems for hydrogen production, and other energy and environmental processes. This is an elective course in the energy engineering major and will be offered once a year in the spring semester to about 40 students. Student performance will be evaluated based on homework, mid term exams, class participation, project, and final exams.

Enforced Prerequisite at Enrollment: EME 301 and EGEE 302 and (MATH 230 or MATH 231)

EGEE 437: Design of Solar Energy Conversion Systems

3 Credits

A review of fundamental concepts in solar energy conversion including photovoltaic (PV) and solar thermal conversion systems. EGEE 437 Design of Solar Energy Conversion Systems (3) The course examines the principles of solar energy conversion to build a foundation for explaining the basic concepts and implementation of conversion processes. It reviews the properties and availability of solar radiation and geometric relationship of sun/collector, principles of photovoltaic conversion and properties of materials used in PV systems, designing PV systems, procedures for solar thermal engineering calculations, and thermal power plants for electricity generation. This course will complement the existing courses on fossil fuels and other renewable energy sources. Students will be engaged to actively participate in learning through team projects, semester papers, class presentations, and field trips.

Enforced Prerequisite at Enrollment: EGEE 304 or permission of program

EGEE 438: Wind and Hydropower Energy Conversion

3 Credits

Principles of sustainability and renewable energy conversion with emphasis on wind and hydrokinetic energy resources. EGEE 438 Wind and Hydropower Energy Conversion (3) This course examines the principles of sustainability and renewable energy conversion with emphasis on wind and hydrokinetic energy resources. Concentration is placed on the relationships between the renewable resources, conversion technology and economic feasibility along with consideration of the associated risks and environmental impacts. It will complement existing energy engineering courses on fossil fuel and solar energy conversion. Students will actively participate in learning through team projects, semester papers, class presentations, and field trips. This is a required course in the energy engineering major. The course will be offered every spring with an expected enrollment of 60 students.

Enforced Prerequisite at Enrollment: EGEE 302 and EME 303

EGEE 439: Alternative Fuels from Biomass Sources

3 Credits/Maximum of 3

This course will examine the chemistry of technologies of bio-based sources for power generation and transportation fuels.

Enforced Prerequisite at Enrollment: CHEM 110

EGEE 441: Electrochemical Engineering Fundamentals

3 Credits

Course covers fundamental principles of electrochemistry, including electrochemical thermodynamics, kinetics, catalysis, and corrosion and focuses on applications such as fuel cells, batteries, and photovoltaics. Each application covers: principles of method, criteria determining performance, present state of development, and advantages/disadvantages. Laboratory demonstration of the performance (current-voltage) measurements of an electrochemical converter is scheduled in this course. EGEE 441 Electrochemical Engineering Fundamentals (3) The course will cover the fundamental principles of electrochemistry, including electrochemical thermodynamics, kinetics, catalysis, and

corrosion. Students will be exposed to the application of these principles in fuel cells, batteries, and photovoltaics. Students will be able to perform efficiency analysis in these systems. They will also be able to understand the differences between types of fuel cells and distinguish between electrochemical and chemical energy systems. For each of the above application areas students will learn the criteria used to determine their performance, their current state of development, and their advantages/disadvantages. Laboratory demonstration will help to enhance student knowledge and understanding. Student performance will be evaluated through problem sets, quizzes, midterm, project papers, class participation, and final examination. This is a required course in the energy engineering major.

Enforced Prerequisite at Enrollment: (EME 301 and EME 303) or (CHE 220 and CHE 330) or (ME 300 and ME 320) or (MATSE 401 and MATSE 402)

EGEE 442: Electrochemical Methods

3 Credits

This course is for senior undergraduates, graduate students and professionals to learn electrochemical techniques and data analysis. EGEE 442 Electrochemical Methods (3) This course is (1) for undergraduate and graduate students in engineering who have already knowledge of electrochemical engineering/electrochemistry fundamentals but would like to understand how the electrochemical techniques can be used, and (2) for professionals who would like to be trained in electrochemical methods and learn how to correctly treat the obtained data.

Enforced Prerequisite at Enrollment: EGEE 441

EGEE 451: Energy Conversion Processes

3 Credits

Emphasizes processes for conversion of fossil fuels, nuclear and biomass to other fuel forms as transportation fuels and electricity. EGEE 451 Energy Conversion Processes (3) The primary objective of this course is to expose students to the principles of chemical and nuclear reactions that underlie most major energy conversion processes, particularly with reference to the conversion of energy resources such as fossil and nuclear energy to fuels and electric power. The emphasis of the first major unit of the course is on fundamental reaction chemistry including nuclear. The second objective is to connect chemical and nuclear principles to practical energy conversion processes by an analysis of case studies used as examples of such processes as ethanol via fermentation, biodiesel via transesterification, formation of light liquids by pyrolysis, coal gasification and Fischer-Tropsch synthesis, direct coal liquefaction, fissionable and fertile isotopes chain reactions, breeding cycles and reactors, and electric power from nuclear reactions. This is a required course for the energy engineering major and will be offered in fall semester with an enrollment of about 50. Student performance will be assessed through weekly homework, mid-term tests, student projects and final exam.

Enforced Prerequisite at Enrollment: FSC 431

EGEE 455: Materials for Energy Applications

3 Credits

Overview of key principles and technologies for materials relevant to energy applications, including membranes, catalysis, supercapacitors, adsorbents, and semi-conductors. EGEE 455 Materials for Energy

Applications (3) The primary objective of this course is to introduce engineers and scientists to key principles in the design of materials relevant to energy applications. Application areas will include separations, catalysis, adsorption, semi-conductors, and photovoltaics. Students will be able to understand and apply principles in solid state chemistry/physics, material science and engineering, adsorption, surface science, and catalysis in analyzing materials for energy applications. Introductory information will be followed by case studies, state of the art review of current materials, and research needs for development. Students will be evaluated on their ability to understand and apply basic concepts in material science, solid state chemistry, and surface chemistry; report on an in depth study of one surface characterization technique; perform literature search and understand basic technical concepts in one application area. Term projects will provide an opportunity to apply concepts and skills to real world applications, and require students to report on current 'state of the art' technology and research needs. Groups of three or four students will be asked to choose from a variety of applications and then asked to present their findings. This is an elective course for energy engineering majors with particular interest in materials for energy applications.

Enforced Prerequisite at Enrollment: EGEE 302 and MATSE 201

EGEE 456: Introduction to Neural Networks

3 Credits

Artificial Neural Networks as a solving tool for difficult problems for which conventional methods are not applicable. E E (E SC/EGEE) 456 Introduction to Neural Networks (3) This course is in response to students needs to learn Artificial Neural Networks (ANN) as a solving tool for difficult problems for which conventional methods are not available. The objective of this course is to give students hands-on experiences in identifying the best types of ANN, plus developing and applying ANN to solve difficult problems. Students will be introduced to a variety of ANN and will use their training skills to solve their own applications. During this course the students will develop a final project, in which they will apply ANN to widely varied problems. Examples: I) students from E E may be interested in applying ANN to solve control problems; II) students from Material Sciences may be interested in applying ANN to predict the pitting corrosion of components; III) students from Petroleum Engineering may be interested in applying ANN to characterize the life of a reservoir; IV) students from Agricultural Engineering may be interested in applying ANN to sort apples automatically, etc.

Enforced Prerequisite at Enrollment: (CMPSC 201 or CMPSC 121 or CMPSC 131) and MATH 220

Cross-listed with: EE 456, ESC 456

EGEE 464W: Energy Design Project

3 Credits

A team and capstone design project on an industrial energy-related problem.

Enforced Prerequisite at Enrollment: Seventh-semester standing in ENENG_BS or CHE_BS and ENGL 202C Writing Across the Curriculum

EGEE 470: Air Pollutants from Combustion Sources

3 Credits

Generation of pollutants in combustion chambers; reduction by combustion control; pre- and post-combustion treatment of fuels and effluents.

Enforced Prerequisite at Enrollment: EME 301

EGEE 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

EGEE 495: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

EGEE 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

EGEE 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

EGEE 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Energy and Mineral Engineering (EME)

EME 210: Data Analytics for Energy Systems

3 Credits

Data Analytics for Energy Systems merges introductory statistics with coding through simulation-based inference. Class lectures are split between discussing the concepts and illustrating their application through coding examples. The course is highly data-centric, using mostly datasets pertaining to the energy industry or grand challenges related to energy and sustainability (although some data are generated through fun in-class exercises). The course starts by discussing different types of data and introducing students to basic coding skills to manipulate datasets and extract summary statistics. The course then moves into data visualization, discussing common types of graphical tools and the types of data for which they are appropriate. Simulation-based inference then begins around the third week with bootstrapping in the context of finding confidence intervals, which then moves into hypothesis testing

through randomization distributions. The concepts from hypothesis testing carry over into chi-square tests, ANOVA, and regression, which also delves into prediction. Neural Networks and Random Forests are covered at a conceptual and applied level (not getting into the theory) towards the end of the course. The course concludes with some topics in basic probability that weren't covered earlier in the semester.

Enforced Prerequisite at Enrollment: MATH 22 or higher

General Education: Quantification (GQ)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

EME 301: Thermodynamics in Energy and Mineral Engineering

3 Credits

Treatment of classical thermodynamics targeted to the needs of students in the Department of Energy and Mineral Engineering.

Enforced Prerequisite at Enrollment: CHEM 112 and PHYS 212 and (MATH 250 or MATH 251)

EME 303: Fluid Mechanics in Energy and Mineral Engineering

3 Credits

Treatment of fluid mechanics targeted to the needs of students in the Department of EME.

Enforced Prerequisite at Enrollment: (MATH 250 or MATH 251) and PHYS 211

EME 407: Electrochemical Energy Storage

3 Credits

Electrochemical concepts in energy storage devices, cell construction and materials involved in batteries and capacitors, electrochemical testing methods and applications.

Enforced Prerequisite at Enrollment: (EME 301 or ME 300 or CHE 220) and (EME 303 or ME 320 or CHE 330)

EME 432: Energy Policy

3 Credits

Analysis, formulation, implementation, and impacts of energy-related policies, regulations, and initiatives.

Enforced Prerequisite at Enrollment: EBF 200 and EGEE 120 and PLSC 490

Cross-listed with: GEOG 432

EME 444: Global Energy Enterprise

3 Credits

Global Energy Enterprise provides in-depth insight into the role that public and private nonmarket actors and actions play in contemporary energy markets through a variety of artifacts and case studies. Students perform a nonmarket analysis of a current energy policy case study through series of guided steps using a well-regarded analytical framework. The course also provides an overview of technical, environmental, economic, and sociopolitical aspects of modern energy sources, as well as an overview of international energy and policy regimes.

Enforced Prerequisite at Enrollment: ECON 104 and EGEE 102 and EGEE 120

EME 450: Energy Crisis Leadership

3 Credits

Energy Crisis Leadership prepares students to lead in high-pressure, high-stakes environments. This is an interactive class that utilizes case studies to help students solve open-ended and complex problems. The case studies are from rare, but significant events with challenges that students are likely to experience someday in the energy and natural resource industries. In addition to the case studies, we will have guest speakers from the energy industry discuss their experiences with various operational upsets and their roles in addressing them. The culmination of the class is a competition where teams of students must formulate a plan to deal with a major crisis.

Enforced Prerequisite at Enrollment: 7th Semester standing or higher

EME 460: Geo-resource Evaluation and Investment Analysis

3 Credits

The course covers engineering evaluation of geo-resources, present value and rate of return analysis, mineral property and reserve estimation, and cost estimation and engineering economy concepts applied to geo-resources including energy and minerals.

Enforced Prerequisite at Enrollment: 5th semester or higher

EME 466: Energy and Sustainability in Society

3 Credits

EME 466 provides the culminating experience for Energy and Sustainability Policy majors through an individualized inquiry-based capstone project in which students tackle the wicked problems of sustainability they see and experience in their own communities. Students identify, organize, execute, and reflect on a local issue related to energy, the environment, or sustainability with particular emphasis on policy-based solutions.

Enforced Prerequisite at Enrollment: GEOG 30N and CAS 100 and GEOG 432

Energy Business and Finance (EBF)

EBF 200: Introduction to Energy and Earth Sciences Economics

3 Credits

Resource use decisions and their effect on local, national, and global development. EBF 200 Introduction to Energy and Earth Sciences Economics (3) (GS)(BA) This course meets the Bachelor of Arts degree requirements. Facing the challenge of ever-increasing demand for energy, and limited energy resources to meet those demands, will be one of the great problems/opportunities of the 21st century. This class will help students understand and discuss the current event items you hear about every day, and help to prepare many of you to work to address this challenge. This class introduces the economic method of analysis to the environmental and resource questions facing society. It introduces a "paradigm," a way of thinking, that has four elements: What advantages can be gained by using market forces? What are the drawbacks of the market ("market failures") that may lead to a rationale for government

intervention? What are the drawbacks of using government intervention ("government failure")? How do you apply these three concepts to real-world situations? Examples are drawn from both the United States economy and from the worldwide community. Both analytical and quantitative methods are used to understand the environmental and resource challenges faced by modern society.

Enforced Prerequisite at Enrollment: ECON 102 and (MATH 22 or MATH 26 or MATH 41 or MATH 110 or MATH 140 or satisfactory performance on the mathematics placement examination)

Bachelor of Arts: Social and Behavioral Sciences

General Education: Social and Behavioral Science (GS)

GenEd Learning Objective: Critical and Analytical Thinking

GenEd Learning Objective: Key Literacies

EBF 301: Global Finance for the Earth, Energy, and Materials Industries

3 Credits

The aim of this course is to introduce fundamental concepts of financial management and illustrate their global applications.

EBF 304W: Global Management for the Earth, Energy, and Materials Industries

3 Credits

The real world is often complex and unstructured. A major goal of this course is to teach you how to structure "real-world" environmental and energy problems that involve business decisions in the face of uncertainty. The focus of this course is problems in environmental and resource management, but rather than teaching you specific facts, the goal of this course is to teach you how to think systematically about problems at the interface between business, society, and the environment. The course develops a number of tools for analyzing decision problems where impacts on the environment or human health and safety are important components. These tools include benefit-cost analysis, technological and environmental risk assessment, decision-making under uncertainty (perfect and imperfect information), and Monte Carlo analysis. Students will then use these models in the homework assignments and projects to solve a number of different decision problems.

Enforced Prerequisite at Enrollment: EBF 200 and EME 460 and (STAT 401 or EBF 472 or ECON 306)

Writing Across the Curriculum

EBF 401: Strategic Corporate Finance for the Earth, Energy, and Materials Industries

3 Credits

The objective of this course is to give students a working knowledge of the major tools used by financial managers for making investment and financing decisions. Topics include, but are not limited to: time value of money, trade-off between risk and expected return, Capital Asset Pricing Model, valuation and role of debt and equity, capital budgeting/project evaluation techniques, cost of capital, cash flow estimation, real and financial options, company valuation, and capital structure decisions. As an illustration of the theory, we will discuss examples and cases, with a focus on the energy industry. Students will learn the fundamentals of capital budgeting and structure analysis; how capital structure decisions affect the value of the firm; and how to develop financial statements for energy projects.

Enforced Prerequisite at Enrollment: EBF 200 and EBF 301 and EME 460 and (EBF 472 or STAT 200 or STAT 401 or ECON 106 or SCM 200)

EBF 402: Energy Law and Contracts

3 Credits

An examination of the law that applies to acquiring the property rights for exploration and drilling of energy sources. This course examines the area of energy law and contracts, which is crucial to successful drilling in natural gas and oil properties. The course begins with a description of ownership and rights in the mineral estate, and how those rights have evolved over time. Students will be instructed in the how different types of land affect legal rights, and the details of the law of capture. They will also review the Statute of Frauds and examine how it applies to land drilling contracts. The second part of the course presents the basic tenets of real estate law, examining the seminal cases in this area. It will review the standard oil and gas lease used in the United States. Issues reviewed will include the nature of lease clauses and implied covenants, as well as farmout and joint operating agreements. It will also examine how royalty payments can be structured. Environmental regulation is a critical component of energy exploration. To address this topic, students will be introduced to the regulatory process. They will study regulatory compliance and how to deal with government officials. They will also be instructed in corporate liability for property clean up and pollution, and in strategies for minimizing both that liability and harm to the environment. In addition, the course will review topics of environmental due diligence and the joint and several nature of environmental liability.

Enforced Prerequisite at Enrollment: BLAW 243 or BA 242 or BA 243

EBF 404W: The Great Energy Transition: Law, Economics, and New Frontiers

3 Credits

The U.S. energy sector is in the process of a great transformation. This Writing Across the Curriculum course examines how evolving federal, state, and local policies; regulatory efforts toward electricity market deregulation; and the technical innovations driving shale gas development and renewable energy generation have changed markets for energy and electricity in the United States. This all occurs in the context of a movement towards lower carbon emissions. The Great Energy Transition explores these energy topics from a law, policy, and economics perspective. It analyzes energy topics such as natural gas development and renewable energy by asking how law, policy, and economics are driving changes in these types of sectors, how these changes impact society, and how these changes present both opportunities and challenges in their design and implementation. Successful completion of the course will enable students to productively engage with prospective employers, energy experts, policymakers, and administrative professionals on a broad range of modern energy topics. The Writing Across the Curriculum aspects of this course will hone students' skills at outlining and structuring their writing, identifying sources, incorporating feedback, and making their writing more concise.

Enforced Prerequisite at Enrollment: ECON 302
Writing Across the Curriculum

EBF 410: Petroleum and Natural Gas Operations

3 Credits

The course is designed to instruct energy land management option students of the EBF major in the drilling of petroleum and natural gas

wells and the challenges in that process. EBF 410 Petroleum and Natural Gas Operations (3) Energy landmen graduating from the energy land management option (ELMO will work directly with natural gas and petroleum engineers on drilling projects. This course will present the basics of natural gas and petroleum operations, so that ELM graduates will be able to assist engineering and other personnel in solving drilling operating problems. After taking this course, ELM students will have the background to move to a production company and start their training in assisting at a well site. The challenges students will be introduced to include (i) being able to develop plans for oil and gas field drilling, as well as for product recovery and treatment, (ii) coordinating the installation, maintenance, and operation of mining and oil field equipment, (iii) assessing costs and estimating production capabilities and economic value of oil and gas wells, (iv) evaluating the economic viability of potential drilling sites, and (v) participating in the completion and evaluation of wells, well testing, or well surveys. Students will also have an understanding of several other important facets of drilling operations, including (i) maintaining records of drilling and production operations, (ii) writing reports on the success or lack thereof of particular wells, and (iii) becoming aware of the challenges involved in the removal of drilling equipment, the removal of any waste, and the safe return of land to structural stability when wells are exhausted.

Enforced Prerequisite at Enrollment: (PHYS 211 or PHYS 250) and GEOSC 1

EBF 411: Petroleum and Natural Gas Geology for Land Professionals

3 Credits

This course provides energy land students with a knowledge base, as well as a set of notes and references, that they can draw on during a career in the petroleum industry. EBF 411 Petroleum and Natural Gas Geology for Land Professionals (3) The aim of this course is to provide students with a knowledge base, as well as a set of notes and references, that they can draw on during a career in the petroleum industry. This course will cover most aspects of geology and petroleum geology that students are likely to encounter in their professional endeavors. Open note examinations will encourage students to take well organized and thorough notes that can be used as a future reference. Two class projects are designed to reinforce the petroleum systems concept, which is probably the single most important concept in this course. Throughout the course, key concepts will be illustrated with examples from the Pennsylvania portion of the Appalachian Basin. This is an active petroleum province, and many oil and gas companies in the Pittsburgh area are involved in exploration and production in this field setting. This course does not cover petroleum engineering. The course begins with an overview the geologic subdisciplines that are most pertinent to petroleum geology. In the second part of the course, the petroleum system is reviewed. The third part of the course is designed to introduce students to the various roles that geologists play at petroleum companies. Finally, the concept of the petroleum system is extended to unconventional plays, which will play an increasingly large role in the petroleum industry in the coming decades. Depending on time constraints, the course may include some discussion of the world's remaining petroleum reserves.

Enforced Prerequisite at Enrollment: GEOSC 1

EBF 472: Quantitative Analysis in Earth Sciences

3 Credits

Quantitative analysis of decision making in atmospheric/geophysical sciences: exploratory data analysis, quantification of uncertainty, parametric/non-parametric testing, forecasting, time series analysis.

Enforced Prerequisite at Enrollment: MATH 110 or MATH 140

EBF 473: Risk Management in Energy Industries

3 Credits

All major firms engage in financial risk management. In this course, we will learn quantitative techniques for describing of how firms can use financial instruments to manage their financial risk. In particular, we will focus on risk management with respect to threats to financial viability from the weather. The course takes a highly statistical approach to the valuation and analysis of financial derivatives such as futures and options. Specific topics to be covered include the structure and pricing of options, the theory of arbitrage, financial statistics and the use of options to hedge financial risk. Students will gain experience using the Black-Scholes equation to value financial options, and will also learn strategies for hedging financial exposure to large commodity price variations. The techniques discussed in this class will be primarily illustrated using weather and energy commodity derivatives, but can be applied to a large variety of different commodity markets.

Enforced Prerequisite at Enrollment: EBF 200 and (MATH 111 or MATH 141) and (EBF 472 or STAT 200 or STAT 401 or ECON 106 or SCM 200)

EBF 483: Introduction to Electricity Markets

3 Credits

This course is designed to teach students about the structure of the electricity industry, the regulatory institutions that oversee the industry, and the new market institutions that have been put into place since electricity restructuring. Much of the focus will be on the U.S. electricity industry. Since Pennsylvania has been a national leader in electricity restructuring, we will place particular emphasis on events in the Mid-Atlantic region, but will also discuss other market structures in the U.S. and in other countries. Specific topics covered will include cost models for power generation, transmission and distribution; rate of return regulation for electric utilities; the process of electricity restructuring and creation of electricity markets; Locational Marginal Pricing of electric energy; financial risk management in electric power; and detecting and mitigating market power.

Enforced Prerequisite at Enrollment: EBF 200 and MATH 140 and EBF 301 and (EBF 472 or STAT 200 or STAT 401 or ECON 106 or SCM 200)

EBF 484: Energy Economics

3 Credits

What is the role of energy in the economic system? What are the implications of the energy transformation on economic welfare? How can we efficiently meet new demand while also addressing the myriad social, environmental, and regulatory challenges related to the energy system? This course will examine these questions from an intermediate microeconomics perspective. The course covers topics in the organization and conduct of firms operating in energy markets,

measuring and detecting the manipulation of energy markets, and regulating the environmental impacts of energy production, delivery and consumption.

Enforced Prerequisite at Enrollment: (MATH 110 or MATH 140) and EBF 200 and EBF 301 and (ECON 302 or MATH 250 or MATH 251)

EBF 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

EBF 499: Foreign Study

1-15 Credits/Maximum of 15

This course is designed to enable students to study in EBF study abroad programs.

International Cultures (IL)

Engineering (ENGR)

ENGR 97: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

ENGR 99: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

ENGR 100: Introduction to Engineering

1 Credits

A seminar providing information about different engineering majors, coping with college life, and exploring educational and career goals. ENGR 100S ENGR 100S Introduction to Engineering (1) (FYS)Engineering 100 is a First-Year Seminar designed as an introduction to the majors available to students in engineering. There are three main goals:1. To introduce students to the areas of study that the college has to offer - this is to assist students in deciding whether engineering is for them. It also helps students decide which major within engineering is for them. This introduction is accomplished through homework exercises and guest speakers - graduates in industry, graduate students, department heads, faculty, and current undergraduates.2. To introduce students to the university in general - what resources are available and what it means to be a student at a university instead of high school. This is accomplished through guest speakers, lectures by your professor, and homework exercises.3. To provide students with an opportunity to interact with faculty members, academic advisers, and other students. The class meets twice a week. All sections meet together once a week to listen to presentations from people representing each major. On the other class day, sections meet separately with their professor for presentations and activities unique to that instructor.

First-Year Seminar

ENGR 110: Introduction to Engineering for Educators

3 Credits

This course focuses on physics content, engineering design principles, and elementary science education pedagogy.

Cross-listed with: SCIED 110

ENGR 111: Introduction to Cross-Cultural Communication for Engineers

1 Credits

Introduction to theoretical approaches and practical applications of intercultural communications for engineering students.

International Cultures (IL)

ENGR 115N: Science, Humanity and Catastrophe: Scientific Discovery in Germany

3 Credits

The 20th century was a time of great scientific advancement - advancements that were used both for good and for evil (and for other purposes that lie somewhere in between). Germany and German-speaking scientists played central roles in many of these discoveries. In this course we will take an interdisciplinary approach to discussing key scientific advancements, including the discovery of nuclear fission and the development of the nuclear bomb, the discovery of polymers and the invention of pain medicines such as morphine and oxycodone, learning about the science behind these discoveries alongside the social and historical contexts in which they occurred, and the impact these discoveries had on society. While a majority of the scientific discoveries that we will focus on took place in the first half of the 20th century, we will also discuss the ways in which the long-term consequences of these discoveries are still relevant today, especially as they relate to current issues on sustainability (e.g., the use of plastics) and the ethical considerations that arise more generally when thinking about the relationship between science, technology, engineering and society. This course will count as an interdomain, GH/GN.

Cross-listed with: GER 115N

General Education: Humanities (GH)

General Education: Natural Sciences (GN)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

ENGR 118: Impact of Culture on Engineering in China

3 Credits

Study of engineering in the context of cultural, historical, societal, political, and environmental considerations to understand the relationship between Chinese culture and engineering projects and policies; brief introduction to the basic engineering principles underlying the engineering projects and their design. ENGR 118 Impact of Culture on Engineering in China (3) (GS;IL) This summer-session course is delivered in China. Chinese culture, history, society, environment, politics, population, economics, and policies are related to engineering practice, design, manufacturing, processes, engineering education, and transportation. Exposure to Chinese cultural components and how they influence engineering project implementation are presented

and demonstrated through site visits and participation in relevant activities. Sites and activities in China are selected to expose students to examples that illustrate the impact of Chinese culture on engineering in an integrated manner. For example, ancient engineering projects, such as the Great Wall, Forbidden City, and Terracotta Warriors, and modern engineering projects, such as the Three Gorges Dam, Hangzhou Bay Bridge, the Shanghai Dongtang Eco-city project, may be selected. In addition to site visits and local cultural and transportation experiences, the course includes guest lectures, documentaries, readings, class discussions, and projects. This course is designed to provide basic understanding of Chinese culture and to relate it to historical and contemporary applications of technology. A program fee is charged for course costs that are not covered by tuition. Students are required to participate in all aspects of the course: scheduled site visits, presentations, lectures, readings, and cultural experiences. An interest in technical applications and not necessarily a technical background is required. However, engineering and technical principles are presented.

Enforced Prerequisite at Enrollment: ENGR 111
International Cultures (IL)

ENGR 120N: Design Thinking and 3D Printing in Engineering and Healthcare

3 Credits

Design Thinking and 3D Printing in Engineering and Healthcare (ENGR 120N) is an introductory general education interdomain course. The course will introduce basic concepts of design processes, engineering, and medicine. The course will assist students in realizing the power of creativity and imagination as it is applied to the use of emerging technologies to solve design dilemmas at the local, regional, national, and international levels. Students will be encouraged to secure an interdisciplinary and collaborative foundation through an exploration of topics including basic engineering, human anatomy and health, design (proportion, structure, integrity, design, scale, manufacturing, iteration), Design Thinking concepts (empathize, define, create, prototype, and test), problem-solving processes (brainstorming, free thought, think aloud, reverse engineering), 3D production processes, Bioprinting (use of biofilm to create human tissue and organs), Engineering, Medicine, and Microprinting (creating works of art from photos taken from microscope slides). Students will be encouraged to view projects from the User/Patient perspective. Promotion of integrative thinking will be encouraged throughout the coursework with the goal of increasing the incorporation of design, problem-solving, engineering and medicine in the disciplines of study for individual students. Integrative thinking will be assessed through student involvement in online discussions, case studies, class conversations encompassing ethical/legal/financial considerations to design issues, studio time, image production and manipulation, internet file sharing, materials/properties selection, production processes, and interdisciplinary individual and team-based projects encompassing creative expression and science. By the end of the course, students will be furnished with basic knowledge and strategies to evaluate the role of design in the world and to independently act on the information. This course will fulfill 3 credits of the General Education requirements addressing the interdomain fields of Art (GA) and Natural Sciences (GN). No prerequisites are required for the course. This course will serve as an introduction to the basic ideas of design, creativity, imagination and problem-solving to complement development in science disciplines across the university community.

General Education: Arts (GA)

General Education: Natural Sciences (GN)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies
 GenEd Learning Objective: Soc Resp and Ethic Reason

ENGR 185: Short Term/Short Duration Internship

1 Credits/Maximum of 4

This short-term or short-duration internship course allows undergraduate engineering students to be enrolled for credit while working at a professional research, industry, or government agency internship relevant to their major that does not meet the requirements for any other established internship course. Students enrolled in ENGR 185 may earn 1 credit while working fewer than 15 hours per week or fewer than 10 weeks during the semester of enrollment. Credit for this course may not be applied to degree requirements. Students enrolled in ENGR 195B gain real-world experience in a professional setting while learning other needed skills including communication, ethics, and time and project management. Students will complete an End-of-Semester Evaluation (with their workplace adviser) and an End-of-Semester Report at the conclusion of the internship; grading will be PS/FL.

ENGR 191: Millennium Scholars Summer Seminar

2 Credits

The Millennium Scholars Program, Summer Seminar (ENGR 191) will introduce first-year scholars to the expectations and standards of the Millennium Scholars Program. Throughout the summer, scholars will meet different faculty and campus leaders, engage in community building with peers, and network with present and past Scholars. Scholars will understand the importance of presenting themselves professionally, learn how to engage in the various learning environments, learn how to hold the cohort accountable, and get acclimated to the Program and Penn State. This particular section of seminar is unique because only students participating in the Millennium Scholars Program will be enrolled.

ENGR 192: Millennium Scholars First-Year Seminar

1 Credits

Millennium Scholars Program (MSP) First-Year Seminar is a one credit course designed for First-Year MSP students. This course is designed to assist new scholars in understanding and meeting the expectations of the Millennium Scholars Program. The course will focus on professional development including developing networking and interviewing skills, preparing applications for summer research experiences (REUs), wellness and self-care, learning self-advocacy, and learning how to effectively access and use university resources. This section of seminar is unique because only first-year students participating in the Millennium Scholars Program will be enrolled. At the conclusion of the seminar students should have the foundational elements of an REU application completed and a list of fifteen REUs they will apply to in the spring semester. Students will also discuss what it means to be a Millennium Scholar.

First-Year Seminar

ENGR 194: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

ENGR 195: Engineering Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Full-Time Equivalent Course

ENGR 195A: Engineering Internship

1 Credits/Maximum of 4

A supervised work experience in a professionally relevant position in research, industry or government. ENGR 195A Engineering Internship (1 per semester/maximum of 4) This course provides students the opportunity to apply fundamental skills and academic concepts in a professional laboratory, industry, or government agency setting within the United States. The final grade (SA/UN) will be based on the final report submitted by the student and a mid-term and final evaluation submitted by the employer. This course will be offered fall, spring, and summer semesters, and may be repeated.

Full-Time Equivalent Course

ENGR 195I: Engineering International Internship

0.5-1 Credits/Maximum of 4

A supervised work experience in a professionally relevant position in research, industry, government or service sector. ENGR 195I Engineering International Internship (1 per semester/maximum of 4) (IL) This course provides students the opportunity to apply fundamental skills and academic concepts in a professional laboratory, industry, or government agency setting outside of the United States. The final grade (SA/UN) will be based on the final report submitted by the student and a mid-term and final evaluation submitted by the employer. This course will be offered fall, spring, and summer semesters, and may be repeated.

International Cultures (IL)

Full-Time Equivalent Course

ENGR 196: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

ENGR 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

ENGR 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

ENGR 287: Career Preparation and Development for Engineers

1 Credits

This course will provide engineering students with awareness of University support structures and resources for career development and training in a variety of key career topics (resume writing, interviewing, networking, etc.). The course will develop understanding of how skills such as time management and goal setting are applied to professional development and the impact of effective written, spoken, and digital communication in the job search process. Students will experience a variety of professional interactions through course assignments and learn to manage deadlines and submit deliverables as expected in work environments.

Enforced Prerequisite at Enrollment: Third-semester standing or above

ENGR 290: Millennium Scholars Professional Development Seminar

0.5 Credits/Maximum of 2.5

The Millennium Scholars Program prepares undergraduates to enter graduate school. As part of this preparation, each scholar participates in a professional development seminar. Students will be exposed to various professional development topics through lecture, visiting guest speakers and interactive activities. The topics covered include Learning about career development tools; Gain knowledge from peers and professionals in the industry; Learn about summer research and graduate opportunities at other institutions; Learn about Penn State on campus resources; Participate in stress management and self-care exercises; Participate in team building and networking events; Career opportunities for people with graduate degrees. Third- and fourth-year students will be given an opportunity to develop mentoring skills. In addition, students will practice holistic well-being and use their learning to be a productive, empathetic member of their cohort and MSP community.

ENGR 291: The Role of the Engineering Peer Advising Leader

1 Credits/Maximum of 2

ENGR 291 is a 1-credit class designed to facilitate the preparation and professional development of students serving as College of Engineering Peer Advising Leaders (EPALs). EPALs support College of Engineering students through conversations about resources (Department, College, and/or University), about their individual experience as a Penn State engineering student, and about navigating the various Penn State management, registration and advising systems. Through this course, students who are training to become peer advising leaders will be familiarized with appropriate College and University resources that can support social and academic integration and success for students. Students will explore key aspects of communication in a 1-on-1 setting that will be critical to their work as an EPAL. Engineering 291 will serve to build cohesion and a shared experience culture for EPALs. The course experience will provide robust opportunities for targeted development, critical analysis, and reflection for specific professional skills relevant to the long-term success of engineering students.

Recommended Preparation: 5th semester standing or higher

ENGR 292: Millennium Scholars Second-Year Seminar

1 Credits

Millennium Scholars Program (MSP) Second-Year Seminar is a one-credit course designed for Second-Year MSP students. This one credit course is designed to assist scholars in developing research and presentation skills, prepare for the summer research experience (REU) application process and to understand the role of ethics and morals in the conduct of scientific research. This course will focus on the skills necessary to be an effective researcher and presenter of research; how to identify and apply for summer research experiences; clarifying personal research interests and understanding professional ethics. This section of seminar is unique because only second-year students participating in the Millennium Scholars Program will be enrolled. At the conclusion of the seminar students should have the foundational elements of an REU application completed and a list of ten REUs they will apply to in the spring semester. Students will also discuss issues relating to ethics and equity in science.

ENGR 295: Engineering Co-Op Work Experience I

1-3 Credits/Maximum of 3

A supervised work experience where the student is employed in an engineering position in industry or government. (To be offered only for SA/UN grading.)

Enforced Prerequisite at Enrollment: CHEM 110 and CMPSC 122 and MATH 140 and (MATH 141 or PHYS 211)
Full-Time Equivalent Course

ENGR 295A: Engineering Cooperative Education

1 Credits/Maximum of 1

ENGR 295A Engineering Cooperative Education (1) This course provides students the opportunity to apply the fundamentals and academic concepts learned in their major classes in a professional laboratory, industry, or government agency setting in the United States. This course is the first in a series that provides progressive semesters of career-related experience in the Cooperative Education Program (defined as two or more work semesters). The final grade (SA/UN) will be based on the end-of-semester report submitted by the student and mid-semester and end-of-semester evaluations submitted by the employer and student. This course will be offered fall, spring, and summer semesters.

Full-Time Equivalent Course

ENGR 295I: Engineering International Cooperative Education

1 Credits/Maximum of 1

ENGR 295I Engineering International Cooperative Education (1) This course provides students the opportunity to apply the fundamentals and academic concepts learned in their major classes in a professional laboratory, industry, or government agency setting outside of the United States. This course is the first in a series that provides progressive semesters of career-related experience in the Cooperative Education Program (defined as two or more work semesters). The final grade (SA/UN) will be based on the end-of-semester report submitted by the student and mid-semester and end-of-semester evaluations submitted by the employer and student. This course will be offered fall, spring, and summer semesters.

International Cultures (IL)
Full-Time Equivalent Course

ENGR 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

ENGR 297: Special Topics

0.5-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

ENGR 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

ENGR 310: Entrepreneurial Leadership

3 Credits

This course develops leadership and entrepreneurial skills using collaborative, problem-based projects, with engineering and business students working in teams. ENGR 310

ENGR 320: Materials Properties Measurement I

3 Credits

Measurement and experimental procedures determination of the mechanical properties of engineered materials under deflection, compression, tension, fracture and fatigue conditions. ENGR 320 Materials Properties Measurement I (3) Materials Laboratory I introduces students to the experimental procedures in determining mechanical properties (elastic modulus, shear modulus, Poisson's ratio, and fracture toughness) of engineered materials. Students gain hands-on experience in strain gage mounting and material properties measurement using strain gages. In conjunction with mathematical modeling software, finite element analysis is used to analyze engineering components subjected to mechanical and thermal loading (static and dynamic). Experiments and lectures are designed to demonstrate the theory and practice of mechanical measurement of material. Students utilize state-of-the-art equipment for experimentation in conjunction with advanced modeling software such as ANSYS to predict and evaluate material behavior under mechanical and thermal loading.

Enforced Prerequisite at Enrollment: EMCH 213 Enforced Concurrent at Enrollment: ENGR 350 or EMCH 407 or EMCH 461

ENGR 320Y: Design for Global Society

3 Credits

ENGR 320Y examines engineering design from a societal perspective by asking the question, "What are the responsibilities and challenges of designers in considering the needs and welfare of current and future societies, and of specific segments and groups within those societies?" Students investigate and analyze a diverse range of perspectives

on technology and consider and apply those perspectives to actual design projects and case studies. ENGR 320Y is designed as writing-intensive with the goal of having students practice a variety of writing assignments. Those assignments include short, informal assessments and longer research papers. Also, students will work in collaborative groups on an academically-themed project related to the design intent of this course. Student teams will write proposals for projects that explore the means of environmental improvement. Teams will deliver presentations in class and at related events such as campus Earth Day celebrations. Beyond the writing-intensive focus, the course has three other stated goals. One is to enhance student understanding by adopting a writing-to-learn approach for course assignments. The second is to help students appreciate and understand the formal design process with a focus on the diversity of the end users of their designs. The third is to have students take responsibility for their design during the process by recognizing the impact of technology on society. Meeting these goals involves readings and critical analyses in the areas of ethics, history, economy, ecology, science, and engineering.

Enforced Prerequisite at Enrollment: ENGL 202A or ENGL 202B or ENGL 202C or ENGL 202D

International Cultures (IL)

United States Cultures (US)

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Soc Resp and Ethic Reason

Writing Across the Curriculum

ENGR 350: Computational Modeling Methods

3 Credits

Computational Modeling Methods is intended to introduce students to strategies in mathematical modeling of physical phenomena using modern computer simulation software. The course provides theoretical understanding and hands-on experience of the modeling techniques used in current engineering practice and allows students to apply these skills to engineering computational problems. Modeling of engineering processes requires users to have a working knowledge of computer simulation software and modeling techniques such as mesh construction and analysis. This course teaches the principles of mathematical modeling of various physical phenomena and allows students to learn the basic strategies of mathematical modeling and the proper use of computational tools for the analysis of topics involving structural, thermal, and materials engineering.

Enforced Prerequisite at Enrollment: EMCH 213 and (ME 201 or ME 300 or EME 301) and (CMPSC 121 or CMPSC 131 or CMPSC 200 or CMPSC 201)

ENGR 390: Millennium Scholars Third-Year Seminar

1 Credits

Millennium Scholars Program (MSP) Third-Year Seminar is a one credit course designed for Third-Year students MSP students. This one credit course is designed to assist scholars in preparing for the graduate school application process. This course will focus on the documents, skills and knowledge needed to apply for graduate school. Additionally, the course will provide resources to help students make decisions about graduate school and opportunities to practice skills like interviewing and presenting research. This section of seminar is unique because only students participating in the Millennium Scholars Program will be enrolled. At the conclusion of the seminar, students should have the

foundational elements of a graduate school application completed and a list of ten schools they will apply to in the fall semester. Students will complete a thesis proposal and a timeline for the completing of their undergraduate research thesis. Students will participate in GRE or MCAT preparation according to their goals.

ENGR 394: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

ENGR 395: Engineering Co-Op Work Experience II

1-3 Credits/Maximum of 3

A supervised work experience where the student is employed in an engineering position in industry or government. (To be offered only for SA/UN grading.)

Enforced Prerequisite at Enrollment: ENGR 295
Full-Time Equivalent Course

ENGR 395A: Engineering Cooperative Education

1-2 Credits/Maximum of 2

ENGR 395A Engineering Cooperative Education (1-2) This course provides students the opportunity to apply the fundamentals and academic concepts learned in their major classes in a professional laboratory, industry, or government agency setting in the United States. This course is the second in a series that provides progressive semesters of career-related experience in the Cooperative Education Program. The final grade (SA/UN) will be based on the end-of-semester report submitted by the student and mid-semester and end-of-semester evaluations submitted by the employer and student. This course will be offered fall, spring, and summer semesters.

Enforced Prerequisite at Enrollment: ENGR 295A or ENGR 295I
Full-Time Equivalent Course

ENGR 395I: Engineering International Cooperative Education

1-2 Credits/Maximum of 2

ENGR 395I Engineering International Cooperative Education (1-2) This course provides students the opportunity to apply the fundamentals and academic concepts learned in their major classes in a professional laboratory, industry, or government agency setting outside of the United States. This course is the second in a series that provides progressive semesters of career-related experience in the Cooperative Education Program. The final grade (SA/UN) will be based on the end-of-semester report submitted by the student and mid-semester and end-of-semester evaluations submitted by the employer and student. This course will be offered fall, spring, and summer semesters.

Enforced Prerequisite at Enrollment: ENGR 295A or ENGR 295I
International Cultures (IL)
Full-Time Equivalent Course

ENGR 396: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

ENGR 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

ENGR 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

ENGR 405: Project Management for Professionals

3 Credits

Covers the essential concepts and skills needed to make effective contributions on projects, on time and within budget. WF ED (ENGR) 405 Project Management for Professionals (3) Professionals in the workplace carry out many different projects every day ranging from somewhat small tasks, e.g., planning events and designing courses, to big projects, e.g., launching an enterprise wide system. Project Management for Professionals is a practical "hands-on" course designed for mid-career adult students and covers the essential concepts and skills needed to make effective contributions and have an impact on the successful accomplishment of projects on time and within budget. Project management principles and techniques are presented with an emphasis on how they are applied to real world workforce development projects. Topics include the project management life cycle and process; techniques for planning, scheduling, budgeting, and controlling project performance; project manager responsibilities and skills; project team development and effectiveness; project communication; and organization structures.

Enforced Prerequisite at Enrollment: 4th semester standing. Students with no 4th semester standing need to provide evidence to the instructor of their work experience.

Cross-listed with: WFED 405

ENGR 407: Technology-Based Entrepreneurship

3 Credits

Technology innovation coupled with business planning and development.

Enforced Prerequisite at Enrollment: ECON 102 or ECON 104

ENGR 408: Leadership Principles

3 Credits

A project-based exploration of theories and principles of engineering leadership applicable to technical careers. This leadership course provides the basic theories, principles, skills, and relevant literature germane to leadership within the engineering discipline in particular. Leadership in an engineering context will be explored. This will range from developing awareness of personal leadership strengths to analysis

of corporate mission, vision, values, and strategies. Students will apply these to semester-long team projects. Lectures, assignments, and group projects develop knowledge of the impacts of globalization, different cultural values, traditions, beliefs, and customs to develop leaders ready to impact an international workforce. Students will apply leadership theory to the global engineering industry through the following: - Describe leadership concepts, principles, and theories in the context of global engineering business practices - Demonstrate knowledge of how leadership behaviors impact cross-cultural teams (US) - Analyze their own personal leadership strengths and weaknesses through course projects - Evaluate and critique engineering leadership effectiveness displayed by others through project work and current event analysis - Demonstrate appreciation for life-long learning of leadership and teaming skills Course assignments and projects align with the current nature of a global market and require that students cultivate awareness of social identity such as ethnicity, race, class, religion, gender, physical/mental disability, age, or sexual orientation (US). Students are also evaluated on interpersonal communication through team projects, presentations, and written assignments as they apply to interactions within a culturally diverse team completing a semester-long project (US). Application of learning objectives will occur within a small team environment through the completion of a semester-long project dedicated to developing an engineering leadership solution to a challenging problem. The course will be offered each fall and spring semester.

Enforced Prerequisite at Enrollment: Fifth semester standing or program approval
United States Cultures (US)

ENGR 409: Leadership in Organizations

3 Credits

Development of leadership skills essential for engineers to guide colleagues or an organization in a productive direction.

United States Cultures (US)

ENGR 410: Coaching Skills and Practice for Engineering Leaders

3 Credits

This course provides an applied approach to engineering leadership education. Students will develop a deeper understanding of leading engineering teams through applying coaching techniques designed to foster innovative and creative thinking through a nondirective process. Leader-as-coach theory will be explored and applied to teams in pre-requisite Engineering Leadership courses. The course centers on experiential learning by providing a real-world organizational structure of student teams reporting to their leadercoach on project progress. Students previously completing courses in the Engineering Leadership Minor will be assigned as leadercoaches for students currently completing a pre-requisite course. Leader-coaches will apply coaching techniques to positively impact their teams' progress through a semester-long engineering design project. Coaching through the design process, students in the course will gain experience in motivating and supporting engineers in creative and innovative design solutions. Leader-coaches will spend time critiquing technical solutions and apply coaching skills to support the design thinking process. Students will practice giving feedback to individual students based on observed performance. Upon completion of this course, students will be able to describe coaching skills and their application for effective leadership, recognize appropriate coaching skills for use in various situations, implement coaching techniques to foster creativity and innovation through the design thinking

process, prepare clear and informative written performance reviews, conduct effective one-on-one performance reviews focused on individual personal development, and build self-awareness of personal leadership strengths and areas for growth. Course assignments require application of the design process, review of technical concepts, and coaching skills and support personal leadership development.

Enforced Prerequisite at Enrollment: ENGR 408

ENGR 411: Entrepreneurship Business Basics

3 Credits

Three critical entrepreneurship skills are covered for non-business majors: business finance, intellectual property, and marketing. Untitled Document

Enforced Prerequisite at Enrollment: Three credits in ECON

ENGR 415: Launching Innovation: Ideas to Opportunities

3 Credits

This course engages students in the processes involved in creating a technology-based product or service. This course will require students to manage, create, build and introduce a product to the market place within a tightly defined time frame. The course will begin with exploring the creative process by factoring out existing products leading to a clearly defined and well researched idea or service. The course will develop to include an overall product design, planning for manufacturing, prototyping, resource allocation, and market identification. Students will be assigned readings, experience guest speakers and engage in activities on topics related to the product development process that includes: project ideation, determining a distinct value proposition and competitive position, technology product design, management, strategic differentiated and integrated marketing techniques, customer identification/sales, sourcing manufacturers domestically and abroad, modeling and prototyping, costing, pricing, assessing start-up costs, calculating cash flow, and intellectual property issues. The product development organization will be examined to include human interactions, reporting guidelines, and financial relationships. Students will be required to maintain a binder that will serve as a measure of progress related to the topics noted. Students will have the opportunity to "pitch" their ideas and demonstrate the workings in the form of a competition or be evaluated in a non-competitive setting by a panel of local entrepreneurs, faculty and/or business leaders.

Enforced Prerequisite at Enrollment: ENGR 407 and (MGMT 215 or ENGR 310) and 5th semester standing

ENGR 421: Materials Properties Measurements II

4 Credits

Materials powder characterization, compaction and densification techniques, density measurements, micro structural evaluation, thermal and electrical properties of materials. ENGR 421 Materials Properties Measurement II (4) Materials property measurement II introduces students to experimental procedures in the determination of thermal properties (heat transfer/conduction and thermal expansion) and electrical properties (resistance and dielectric measurements) of materials through demonstrations and experiments. Lectures provide a theoretical understanding of the characterization techniques and provide information for the design and interpretation of experimental results. This laboratory complements lectures in materials characterization, materials

processing and materials design courses allowing students to apply theoretical knowledge to experimental processes. Students gain hands-on knowledge of testing equipment and experience in data acquisition and interpretation. Students gain experience in the processing of material (powder characterization, consolidation, and densification), the analysis of material microstructures and investigations of structure property relationships.

Enforced Prerequisite at Enrollment: ENGR 320 and MATSE 201 and MATSE 400

ENGR 422: Leadership of International Virtual Engineering Teams

3 Credits

ENGR 422 provides students with the opportunity to develop intercultural engineering collaboration skills. The course focuses on developing leadership competence in cross-cultural teaming through a virtual learning environment. Students will team with students from other countries on completing a project with socially relevant solutions. Students will work virtually with students from other institutions outside the US to complete a project throughout the semester. Students completing this course will: Acquire and apply a theoretical foundation in appropriate engineering design across cultural and international boundaries; Discuss contemporary international engineering development, ethics, and project leadership principles as they relate to intercultural communication in engineering teams; Demonstrate engineering project collaboration and leadership skills in the context of virtual cross-cultural interdisciplinary teams; Assess business and leadership skills displayed by others and critically evaluate current international events and assigned reading material. Students will be evaluated on these learning objectives through a variety of methods such as presentation of a semester long team project, critiques and reflection of relevant literature, papers, and peers reviews. This course is part of the international track within the engineering leadership development minor.

Enforced Prerequisite at Enrollment: ENGR 408 International Cultures (IL)

ENGR 425: New Venture Creation

3 Credits

Via problem-based learning, students define new business ventures to meet current market needs, develop business models, and present to various stakeholders. The goal of New Venture Creation is to better prepare undergraduate students to be leaders in adaptive, globally-minded, technology-savvy organizations. The course is structured so students develop skills that are of high value in any workplace: leadership skills, self-efficacy, creativity and the ability to deal with ambiguity. Upon course completion, students will have a working knowledge of traditional and non-traditional ways for identifying a new product or business opportunity, quantifying the potential, understanding the key competitive factors, researching the audience, and producing a convincing plan for financing and launch. Students who want to augment the skills and knowledge from their major with the ability to develop a new product/service/process, will find New Venture Creation a valuable course. This is a novel problem-based learning (PBL) course, where the learning is student-centered, with faculty acting primarily in the role of facilitators. Active/Experiential learning happens in this course because students develop ownership of their venture concepts and are fully responsible for the genesis of ideas.

Enforced Prerequisite at Enrollment: (ECON 102 or ECON 104 or ECON 14 or MGMT 215) and (CAS 100 or CAS 138T or EMSC 100S)
Cross-listed with: IST 425, MGMT 425

ENGR 426: Invention Commercialization

3 Credits

Working with Penn State inventions selected by the Intellectual Property Office, student teams define an optimum commercialization path each technology. ENGR 426ENGR (MGMT/IST/ENR) 426 Invention Commercialization (3) The goal of ENGR (MGMT/IST/ENR) 426 is to have students understand why invention commercialization is complicated and difficult by participating in the process. For example, the inventor rarely has insights into the markets for his/her invention, is often not interested in the details of commercialization, and can be secretive. In addition, the business and financial communities often do not take the time, or have the resources, to understand new technologies and perform complex due diligence. Thus lack of due diligence often leads to rejection of innovation because existing companies often discount new technologies from outside the company as NIH - 'not invented here'. Effective transfer of new invention or innovation to a commercial product requires at least three different functional communities to interface: technical, legal and business. Each uses a different language, comes from different educational and cultural backgrounds, and may have an inherent distrust of the others. These functional barriers are difficult to overcome. This course teaches how these barriers can be broken down as student teams help bridge the perceived chasm between key players in the invention commercialization process. In these teams, students bring the skills and knowledge from their major to develop an invention commercialization recommendation for the Technology Transfer Office and the inventor. For example, business students focus on finance and market opportunity assessment; engineering and IST students focus on design refinements, prototyping support, and (if appropriate) making technology suggestions to the inventor. Upon completing the course, the students will have a working knowledge of different university and corporate technology or invention commercialization processes, important intellectual property management tools for inventions (patents, license agreements, option agreements) source of funding to move inventions toward product development, and delivering top quality presentations which outline the recommended commercialization path. Students who enjoy open-ended projects which involve the interplay of business and invention of who wants to work on interdisciplinary teams with the newest inventions will find this course a valuable course. NOTE: Because the inventions/products are based on Penn State faculty intellectual property, students must sign the Penn State Special Intellectual Property Agreement For Students - For Use When Assigning Intellectual Property to The Pennsylvania State University. The form can be viewed at <http://guru.psu.edu/policies/RAG13.html> The course will be offered both Spring and Fall semesters with an enrollment of 40 students.

Enforced Prerequisite at Enrollment: (ECON 102 or ECON 104 or ECON 14) and CAS 100
Cross-listed with: IST 426, MGMT 426

ENGR 450: Materials Design and Applications

3 Credits

Engineering design considerations for materials selection, organization of property trends of materials families, materials design strategies and property compatibility. ENGR 450 Materials Design and Applications (3) ENGR 450 introduces students to the process of materials organization and selection for application needs. Students select materials for

applications based on desired properties, materials compatibility, and economic factors and learn how to design materials (composites) to fulfill critical materials requirement of an engineering application. The course facilitates students with the understanding of the engineering design process to make educated decisions on the materials selection and/or design for industry application needs. Students learn to understand trends in property characteristics associated within given families of materials, i.e. metals, ceramics and polymers, and to balance engineering needs and economic considerations with the application design process.

Enforced Prerequisite at Enrollment: (ENGR 350 or EMCH 407 or EMCH461) and ENGR 421

ENGR 451: Social Entrepreneurship

3 Credits

Students develop business models and implementation strategies for social ventures in diverse world regions. ENGR 451 Social Entrepreneurship (3) Social Entrepreneurship is about pursuing direct action to address a social problem in a manner that leads to a truly sustainable solution. A similar perspective on social entrepreneurship is based on Jean-Baptiste's definition of entrepreneurs as permanent value creators. If the primary objective of value creation is positive social change, then the entrepreneur can be categorized as a social entrepreneur. Sustainability and scalability of the venture to create social change on a larger scale is essential. Metaphorically, while conventional entrepreneurs might pursue the creation of multi-million dollar enterprises, social entrepreneurs strive to create multi-million smile enterprises, while understanding that their ability to expand their social returns bears a dynamic interdependence with their economic bottom line. The mission of the venture must be strongly aligned with the measured outcomes, and this emphasis on measuring social and economic impact is crucial to the efficacy and success of social enterprises. The theory and praxis of social entrepreneurship is constantly evolving within the complex framework of political, economic and social changes occurring at the global, national and local levels in the US and other countries. Students study the dynamics of social challenges, approaches to address them, and the conceptual framework of social innovation and social entrepreneurship from theoretical and practical perspectives. Students explore technology solutions to addressing global social problems with a systems thinking approach. Case studies of successful and failed social ventures from diverse world regions and fields like healthcare, energy, food and agriculture, education, income generation, and access to capital are employed. There is an emphasis on the opportunities and challenges to multi-sectoral collaboration to address social challenges. Students learn how to develop appropriate business models and implementation strategies for a "sustainable" social venture. Sustainability, in this regards, refers to ventures that are technologically appropriate, environmentally benign, socially acceptable and economically sustainable. There is a specific emphasis on understanding the customers and their context and economic sustainability of the ventures. The course draws heavily from cases to understand the diverse business structures and execution strategies used by social entrepreneurs and the varied challenges faced by them. Students work in multidisciplinary cross-functional teams to develop a business/implementation model for a social venture in diverse world regions. These are real ventures that are connected to other Humanitarian Engineering and Social Entrepreneurship (HESE) course offerings.

Enforced Prerequisite at Enrollment: Fifth semester standing

ENGR 455: Humanitarian Engineering and Social Entrepreneurship Reflection and Research Dissemination

3 Credits

This post-fieldwork course focuses on reflection on ethical issues and grassroots diplomacy challenges, and workshops on research dissemination. ENGR 455 Humanitarian Engineering and Social Entrepreneurship Reflection and Research Dissemination (3) The HESE Reflection and Research Dissemination course provides students an opportunity to reflect and build upon their experiences following the EDSGN 454 class involving travel to the partnering community to advance their HESE venture. There are three intertwined themes. One theme explores the ethical intricacies of conducting research and advancing entrepreneurial ventures in developing communities. The grassroots diplomacy theme delves into the complicated and delicate challenges of working in developing communities in a harmonious and effective manner. The research dissemination theme provides students with just-in-time information and skill-sets necessary for developing their research manuscripts into refereed publications. Post-travel reflection on ethical issues: This theme explores the ethical intricacies of conducting research and advancing entrepreneurial ventures in the context of developing communities. The ethics-related discussions help students reflect on their experience and develop a mindset where they want to make better ethical decisions because they are emotionally engaged and can effectively assess the implications of their actions. Grassroots Diplomacy: During their field experience, HESE students interact with diverse parties including local communities, non-governmental organizations, governmental and UN agencies, religious organizations, political groups, bureaucrats, local industry, US corporations, tourists, etc. Students observe and experience ego and community tensions and dynamics. They might get asked for grease payments or be propositioned for dowry. They might experience conflict or observe other groups, or their own group, compromise the core concept of self-determination. Workshops in the grassroots diplomacy theme delve into the complicated and delicate challenges of working in developing communities in a harmonious and effective manner to catalyze social change with their technology-based ventures. Research Dissemination: HESE students are engaged in an IRB-approved research study related to their venture, for which they gather data during the summer field experience. This workshop series provides students with just-in-time information and skill-sets necessary for developing their research manuscripts. The workshops lower the barriers to the scholarly dissemination of their work. Sharing designs, business/implementation strategies, and lessons learned is extremely important for the praxis of HESE worldwide. For examples, published designs for low-cost greenhouse can help people in many world regions. A paper on the non-technical challenges to the growth of the small-scale wind power industry in Kenya served as a starting point for a windmill venture.

Enforced Prerequisite at Enrollment: EDSGN 454

ENGR 460: Teaching Intern Seminar

0.5 Credits

This course prepares students for the responsibilities involved in serving as Teaching Interns in the College of Engineering. Topics addressed in the course include: Individual differences and implication for learning, preparing for and conducting office hours, grading and assessment, instructional design, effective teaching practices, and faculty careers. Findings from research on how people learn and strategies for increasing

student engagement are integrated into the course discussions. Issues related to academic integrity and ethical aspects of teaching are addressed as they evolve from in-class discussions.

ENGR 467Q: Robots and Their Role in Society

3 Credits

This course explores and critically analyzes the growing influence and impact of robots and automation on society. In particular, the course introduces students to the ever widening role that intelligent robots are playing and will come to play in our workplaces, on our battlefields, and in our homes. Emphasis will be placed on understanding and critically analyzing how the technical, computational, and systems role of the machine effect the behavior and values of individuals and segments of society. The course is not technical in its treatment of robots and robotics, rather the focus is on critically investigating how the development of robotic technologies have impacted society in the past, present, and future. This is an honors course.

Enforced Prerequisite at Enrollment: Fifth Semester standing

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

Honors

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Soc Resp and Ethic Reason

ENGR 475: Space Systems Engineering Seminar

1 Credits

Seminar overviewing the systems engineering approach as applied to practical space systems. ENGR 475 Space Systems Engineering Seminar (1) As a requirement for the Space Systems Engineering (SPSYS) Certificate, this course is offered to students in the Certificate and others interested in Space Systems and more broadly in systems engineering. The course exposes students to the systems engineering approach as applied to practical space systems. The goal of this course is to prepare the student to understand and implement the systems approach to designing, building, testing, and flying space systems. The course begins with a series of lectures and discussions on the systems approach to engineering and how it applies to space systems in particular. Students then explore past, present, and future space systems and report on the use of systems principles in their design, fabrication, test, and flight operations-for both successful and unsuccessful space systems.

Enforced Prerequisite at Enrollment: Fifth semester standing or higher

ENGR 486: Business Opportunities in Engineering

2 Credits

Business principles, leadership and management strategies, accounting fundamentals, engineering and business ethics, creativity, and personal character as a formula for success. ENGR 486 Business Opportunities in Engineering (2) This course focuses on business principles that will help Engineering students transition from academia to the business world. Engineers can be highly successful and climb the corporate ladder or transition to entrepreneurship. Awareness of what is needed to succeed in business is the key to success. This course opens the horizon to new ideas, business opportunities, and profitability. Fundamental aspects of accounting including budgeting, cash flow, profit-loss statements,

job cost ledgers, overhead and fringe computation are examined.

Creativity, critical thinking methods, and ethics as applied to engineering and business are studied in conjunction with case studies. Business plan structure and content are analyzed along with case histories of successful companies. Students will learn how to articulate a business viewpoint, create a mission or vision statement, and present a creative idea clearly and concisely using an "elevator ride" or "billboard" approach via essays, proposals, and business plan preparation and presentation. Students will learn leadership and management strategies that will be applicable immediately.

Enforced Prerequisite at Enrollment: Fifth semester standing or higher.

This course is not open to Business students.

ENGR 486H: Business Opportunities in Engineering

2 Credits/Maximum of 2

Business principles, leadership and management strategies, accounting fundamentals, engineering and business ethics, creativity, and personal character as a formula for success.

Honors

ENGR 487: Business Opportunities in Engineering: The Business Plan

1 Credits

Essential elements, development, and presentation of the Business Plan from both an engineering and business point of view. ENGR 487 Business Opportunities in Engineering: The Business Plan (1) This course focuses on business opportunities in engineering. Students will learn about the essential elements of the Business Plan and the value of, and methods for, developing and presenting a Business Plan to start a business. Topics include The Business, Marketing, Financials, Supporting Material, Writing and Presentation Tips and Practice, and Case Studies. Aspects of creativity, winning business plans, strategies, strengths, competition, litigation, insurance, marketing, distribution, sales, and funding will also be discussed. This course complements Business Opportunities in Engineering that must be taken as a prerequisite or in conjunction with this course.

Enforced Concurrent at Enrollment: ENGR 486

ENGR 490W: Senior Design I

1 Credits

Analysis of environmental impacts on a design, designing products for the global environment and discussion on engineering ethics and professionalism. ENGR 490W Senior Design I (1) Senior design I provides students with experience in solving engineering problems independently and/or working in groups on an open-ended design problems. Students refine skills in information gathering, analysis of market and technical considerations, critical thinking of project/design scope and effective communication of project/design objectives. This course builds on previous knowledge and applies it to a global consideration of design criteria to a specific projects provided by relevant faculty. The course is the first installment of a senior capstone program in which students start to understand the global aspects of the engineering design process with respect to individual/group projects. Students gain perspective on project selection and research expectations from faculty and gather the relevant technical knowledge required to initiate the project. Projects are appropriately scoped for undergraduate research and are faculty initiated sponsored by regionally based industry (similar to The Learning Factory

Experience at UP). Faculty provides research opportunities and external industry collaborations to students for selection based on common interest.

Enforced Concurrent at Enrollment: ENGR 350 or EMCH 407 or EMCH 461 or ME 461

Writing Across the Curriculum

ENGR 491W: Senior Design II

3 Credits

Capstone of research projects from conception to prototype through industry sponsored collaboration on common technical interests between faculty and student. ENGR 491W Senior Design II (3) Senior design I provides students with experience in solving engineering problems independently and/or working in groups on an open-ended design problems. Students refine skills in information gathering, analysis of market and technical considerations, critical thinking of project/design scope and effective communication of project/design objectives. This course builds on previous knowledge and applies it to a global consideration of design criteria to a specific projects provided by relevant faculty. The course is the first installment of a senior capstone program in which students start to understand the global aspects of the engineering design process with respect to individual/group projects. Students gain perspective on project selection and research expectations from faculty and gather the relevant technical knowledge required to initiate the project. Projects are appropriately scoped for undergraduate research and are faculty initiated sponsored by regionally based industry (similar to The Learning Factory Experience at UP). Faculty provides research opportunities and external industry collaborations to students for selection based on common interest.

Enforced Prerequisite at Enrollment: ENGR 490W

Writing Across the Curriculum

ENGR 493: Individual Leadership Experience

1 Credits

Approved individual project or internship for students to practice the leadership skills developed in the Engineering Leadership Development Minor.

Enforced Concurrent at Enrollment: ENGR 408

ENGR 494: Research Project Courses

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

ENGR 494H: Research Project Courses

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Honors

ENGR 495: Engineering Co-Op Work Experience III

1-3 Credits/Maximum of 3

A supervised work experience where the student is employed in an engineering position in industry or government. (To be offered only for SA/Un grading.)

Enforced Prerequisite at Enrollment: ENGR 395

Full-Time Equivalent Course

ENGR 495A: Engineering Cooperative Education

1-3 Credits/Maximum of 3

ENGR 495A Engineering Cooperative Education (1-3 per semester/ maximum of 3) This course provides students the opportunity to apply the fundamentals and academic concepts learned in their major classes in a professional laboratory, industry, or government agency setting in the United States. This course is the third in a series that provides progressive semesters of career-related experience in the Cooperative Education Program. The final grade (SA/UN) will be based on the end-of-semester report submitted by the student and mid-semester and end-of-semester evaluations submitted by the employer and student. This course will be offered fall, spring, and summer semesters.

Enforced Prerequisite at Enrollment: ENGR 395A or ENGR 395I

Full-Time Equivalent Course

ENGR 495I: Engineering International Cooperative Education

1-3 Credits/Maximum of 3

ENGR 495I Engineering International Cooperative Education (1-3 per semester/maximum of 3) This course provides students the opportunity to apply the fundamentals and academic concepts learned in their major classes in a professional laboratory, industry, or government agency setting outside of the United States. This course is the third in a series that provides progressive semesters of career-related experience in the Cooperative Education Program. The final grade (SA/UN) will be based on the end-of-semester report submitted by the student and mid-semester and end-of semester evaluations submitted by the employer and student. This course will be offered fall, spring, and summer semesters.

Enforced Prerequisite at Enrollment: ENGR 395A or ENGR 395I

International Cultures (IL)

Full-Time Equivalent Course

ENGR 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

ENGR 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

ENGR 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Engineering Design (EDSGN)

EDSGN 11: Explorations in Design First-Year Seminar

1 Credits

Students explore topical issues in engineering design.

First-Year Seminar

EDSGN 13: Ethics of Star Trek First-Year Seminar

1 Credits

The Star Trek television series is used as an introduction to ethics, with application to student life and engineering practice. EDSGN 013S Ethics of Star Trek First-Year Seminar (1) In this first-year seminar, The Ethics of Star Trek, students explore ethical issues that arise in various episodes of Star Trek, from The Original Series with Captain James T. Kirk and company, through The Next Generation, with Captain Jean Luc Picard. Students learn how to methodically approach tough ethical decisions in their lives, especially those in professional life. This course helps them to identify, understand, and examine their moral values, and especially to plan actions that are consistent with these values. The class explores the current thinking on the responsibilities of engineers to society, community, family, and themselves. This is a discussion and application oriented course with emphasis placed on applying key concepts to realistic problems and on developing skills such as team work, argumentation, and communication skills. Underpinning the viewing of Star Trek episodes, the course starts with a foundation on moral and ethical theory. After discussing the ethical issues faced by the Star Trek crews, the class investigates similar situations faced by students and by engineers. Teams analyze and solve progressively more complex ethical cases in engineering and in general. The goal of the course is for students to develop their moral imagination and to understand how to make the best choices in difficult circumstances.

First-Year Seminar

EDSGN 97: Special Topic

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest. Several different topics may be taught in one year or semester. A specific title may be used in each instance and will be entered on the student's transcript.

EDSGN 100: Cornerstone Engineering Design

3 Credits

EDSGN 100 Cornerstone Engineering Design provides students with a foundation for engineering design through hands-on team projects that address specified design opportunities. Through this course, students will recognize the role that engineering and design have in improving the health, safety, and welfare of the global community, as well as identifying when a solution is technically feasible, economically viable,

and desirable. Students will use a range of design tools and techniques to carry out and communicate their design processes as applied to their projects. Additionally, students will develop and practice professional skills, such as communication, teamwork, and ethical decision making. Course delivery will be via faculty-led lessons, hands-on activities, and discussions.

EDSGN 100H: Introduction to Engineering Design

3 Credits

Introduction to engineering design processes, methods, and decision making using team design projects; design communication methods including graphical, verbal, and written.

Honors

EDSGN 100S: Introduction to Engineering Design

3 Credits

Introduction to engineering design processes, methods, and decision making using team design projects; design communication methods including graphical, verbal, and written.

First-Year Seminar

EDSGN 110: Spatial Analysis in Engineering Design

2 Credits

Spatial analysis techniques using advanced computer-aided drafting and design systems, with an emphasis on engineering concepts, analysis and design. EDSGN 110 Spatial Analysis in Engineering Design (2) EDSGN 110 is a continuation of EDSGN 100, moving toward an introduction to computer-aided engineering. Emphasis is on the design of mechanical systems using two-dimensional (2D) drawings and three-dimensional (3D) solid modeling techniques commonly used in the mechanical design and structural systems. This course covers spatial relationships using the advanced functionality of computer-aided drafting and design systems. Students will be able to: (1) create and interpret advanced 2D engineering models and drawings; (2) create and manipulate 3D solid models; and (3) use these techniques in practical engineering design problems. Students will become proficient in the use of computers for the simulation of mechanical systems, design documentation, network storage and retrieval, and presentation technologies. The student will create and interpret advanced 2D engineering drawings which may include auxiliary views and working drawings. Using the engineering design process and solid modeling software, the student will create and manipulate 3D solid models and assemblies to aid in the design and documentation of simple mechanical systems.

Enforced Prerequisite at Enrollment: EDSGN 100

EDSGN 130: Architectural Graphics and CAD

3 Credits

Principles of architectural drawing; spatial relations with architectural applications; introduction to computer graphics (CAD) with project.

EDSGN 196: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses. A specific title may be used in each instance and will be entered on the student's transcript.

EDSGN 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest. Several different topics may be taught in one year or semester. A specific title may be used in each instance and will be entered on the student's transcript.

EDSGN 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)**EDSGN 210: Tolerancing and Spatial Models**

2 Credits

Tolerances; form and size; unilateral, bilateral, and symmetric; form control, critical fits, tolerances specifications precedence; applications in spatial models. EDSGN 210 Tolerancing and Spatial Models (2) Professional parametric solid modeling software will be applied to produce complete, industry-typical and standard working drawings, including part detail drawings and various types of assembly drawings; to implement the appropriate tolerance design of interfacing components and to explore advanced productivity-enhancing add-in modules. Students will be introduced to the variety and relative precedence of specifications for feature tolerances, and to the basic differences between form and size tolerance. Topics covered include: unilateral, bilateral and symmetric size tolerances, form control and tolerances, calculations for critical fits, specification precedence for tolerances, e.g., stock size vs. size directly specified in the drawing field vs. title block tolerances vs. drawing notes, etc. Laboratory assignments will include: part drawing with standard three orthographic views, complete dimensions, and a section view; part drawing with complete dimensions and a broken view; part drawing with complete dimensions and a primary auxiliary view; part drawing with complete dimensions and a secondary auxiliary view; part drawing with complete dimensions and removed detail view(s); detail drawing with correct limit tolerances on features which are critical for fit and function, assembly file with separate sub-assemblies, assembly drawing (with part identification balloons and a bill-of-material) which uses sectional views to expose fine internal detail and part interrelationships, assembly drawing (with part identification balloons and a bill-of-material) which is based upon an exploded view, assembly drawing of a tooling fixture (with part identification balloons and a bill-of-material) which shows the subject work piece transparently with phantom lines, Configured part file with tabulated drawing, welding of an assembly using advanced software capabilities and production of a welding drawing with correct symbols, production of an injection mold cavity from the subject part file, exploration of the functionality of sheet metal modules, applications of top down design and layout sketches, application of motion-simulating modules and functionality. The differences between coordinate tolerancing and geometric tolerancing

are included in the course. The American Society of Mechanical Engineers Y14.5M will be referenced. The following topics will be covered: Eight key GD&T terms, GD&T modifiers and symbols, Rule #1 and #2, concepts of GD&T, introduction to the flatness control, straightness control, circularity control, perpendicularity control, angularity control, parallelism control, concentricity control, symmetry control, the datum system (planar datum, introduction to datum targets, FOS datum specifications (RFS), FOS datum specifications (MMC).

Enforced Prerequisite at Enrollment: EDSGN 110**EDSGN 270: Summers by Design: An International Engineering Design Experience**

3 Credits

The School of Engineering Design, Technology, and Professional Programs (SEDAPP) offers this Penn State faculty-led study abroad program. Students will practice design with international collaborators in international environments and conduct design for global markets. In addition, students will learn to function in cross-cultural engineering design teams, partnering with students from both the U.S. and other global institutions. Specific locations of study are varied, and have included San Sebastian, Spain, and Nantes, France. This study abroad program takes place at a partnering university over a two-week period at the end of May. While enrolled in the course, participants will also experience many cultural activities relevant to the part of the world in which they find themselves, including partaking in local cuisine, visiting historical landmarks, and interacting with local engineering companies. This is an ideal program for Penn State engineering students as it allows students the opportunity to participate in a study abroad program while still having time to return home to complete a summer engineering internship. The objectives of the course include identifying global engineering design problems, developing effective engineering solutions within a cultural context, evaluating engineering designs with global parameters, working with a team consisting of designers from different global backgrounds, and effectively communicating engineering designs to a cross-cultural audience. Students will be evaluated through completion of pre-departure activities, participating in a design project while abroad, and completing a final project report upon their return. The course will be offered once a year through SEDAPP and Penn State Global Programs.

Enforced Prerequisite at Enrollment: EDSGN 100**International Cultures (IL)****EDSGN 294: Research Project**

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

EDSGN 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

EDSGN 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

EDSGN 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

EDSGN 367: Design Thinking and Making

3 Credits

Creating innovative products and services that matter for society and users, i.e. designing for impactful results, involves a complex process of thinking and making-both thinking and making strengthen each other-that uses a plethora of design methods, some of which are elaborated in conversation with the context in which they operate. Successful design practitioners channel their ability to read cultural contexts, empathize with users, and design and communicate compelling solutions to complex problems. They seek to offer solutions that are human-centered; foster deep and positive cultural change; and strive to achieve sustainable goals that consider society, culture, the economy, and the environment. Students enrolled in this class will be tasked with finding, in a team, a solution to a complex problem. They will develop a thorough understanding of the design process through collaboratively thinking (user-researching, framing, analyzing, formulating) and making (preparing fieldwork, prototyping, role-playing, user-testing). Students who take the course will be prepared to conduct qualitative research, design creatively for a variety of contexts and users, and demonstrate the pertinence of their solution to a wide audience.

Enforced Prerequisite at Enrollment: 3rd Semester standing

EDSGN 395: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique or activity required.

EDSGN 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

EDSGN 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

EDSGN 401: Engineering Systems Design

3 Credits

Design requirements for complex systems; trade-offs between market opportunities and technology; translation of priorities and needs into

an operational concept. EDSGN 401 Engineering Systems Design (3) This course provides the knowledge and skills necessary to translate needs and priorities into system requirements, and develop derived requirements, which together form the starting point for engineering of complex systems. Students will develop an understanding of the larger context in which requirements for a system are developed, and learn about trade-offs between developing mission needs or market opportunities first versus assessing available technology first. Techniques for translating needs and priorities into an operational concept and then into specific functional and performance requirements will be presented. Students will assess and improve the usefulness of requirements, including such aspects as correctness, completeness, consistency, measurability, testability, and clarity of documentation. The course explores the role of techniques such as decision analysis, cost-benefit analysis, and risk assessment. Students will understand the limitations of the way that current systems engineering is practiced in terms of dealing with complexity, lifecycle uncertainty and other factors.

Enforced Prerequisite at Enrollment: EDSGN 100 and 4th Semester standing

EDSGN 402: Materials and Manufacturing

4 Credits

Students will study principles and properties of engineering materials and manufacturing processes with a focus on their appropriate selection in design. Based on these principles and properties, as well as hands-on laboratory experiences, students will develop systematic methods for matching material and process choices to the mechanical, thermal, electro-magnetic, and environmental constraints set by the technical requirements of a design problem or project. Knowledge of current manufacturing processes is required to align appropriate processes and materials with the requirements of designed products. Students will develop basic, practical knowledge and skills in operating manual and CNC machine tools. Both subtractive and additive manufacturing processes will be explored, and students will learn best practices for making informed choices between them based on design needs. Computer aided manufacturing will be introduced to provide background for future courses (e.g., senior capstone projects).

Enforced Prerequisite at Enrollment: CHEM 110 and EMCH 211 and EMCH 213 and EDSGN 401 and (CMPSC 200 or CMPSC 201 or CMPSC 121 or CMPSC 131)

EDSGN 403: Product Realization

3 Credits

This course provides students with practical experience in the product design and development process. Computer aided design and a variety of related analytical tools are employed in team-oriented design activities, as well as defined in-class team interactions. Team progress will be monitored through weekly team check-ins, during which two project status communication tools will be reviewed an updated Gantt Chart and a Weekly Project Activity Plan document. The hands-on design activities will culminate in the presentation and demonstration of a functioning engineering system. In working toward this goal, students will employ several industry-standard product design tools and techniques. In addition to Gantt charts for project management, they will employ formal ideation techniques, such as '6-3-5 Brainwriting' and Mind Maps. Conceptual designs will be communicated through morphological charts, preceding the process of reconciling conflicting Customer Needs via deterministic engineering design techniques. They will utilize the House

of Quality to implement Quality Function Deployment. The hands-on aspect of the course will utilize programmable manufacturing equipment, both one additive manufacturing technique (3D printing) and three subtractive manufacturing techniques (CNC milling, water-jet, and laser cutting). Design Verification Testing will be conducted in the context of design-build-test iterations of their functional engineering prototype.

Enforced Prerequisite at Enrollment: (EDSGN 402 or IE 312) and (EE 316 or ME 357) Enforced Concurrent at Enrollment: ENGR 490W

EDSGN 410: Robotics Design and Applications

4 Credits

Introduction to robotics, with emphasis on the design of robotics systems through multidisciplinary integration of electrical, mechanical, and software components. EDSGN 410 Robotics Design and Applications (4) The objective of this course is to apply the basic concepts of electrical, mechanical, and software technologies to analyze, design and test a robotics system. This course will draw from skills in prior coursework in electricity and electronics, statics and dynamics, and software design. The course includes a discussion of present applications and future directions of robotics in such areas as manufacturing, science, transportation, military, healthcare, and entertainment. Students will be introduced to mechanical systems analysis, sensors, software development, electrical systems, control algorithms, testing, prototyping, design, modeling, and simulation of robot systems. Students will work in teams to design and prototype a robot to perform a task and to satisfy a set of design requirements. Professional communication and documentation will be included in the course experience. This course is a multi-disciplinary, project-based course and will have a substantial laboratory component supporting team-based design, integration and testing of a robot system.

Enforced Prerequisite at Enrollment: (EE 316 or CMPEN 472) and (CMPSC 200 or CMPSC 201 or CMPSC 121 or CMPSC 131) and EE 310 and EMCH 212

EDSGN 420: Advanced Robotics Design and Applications

3 Credits

The objective of this course is to apply advanced topics in robotics. It serves as the second course of a possible two-course sequence in robotics design and applications. This second course will enable students to explore advanced topics not covered in the first course, or to continue a complex robot system design that would incorporate advanced topics and span two semesters in duration. One or more advanced topics, such as computer vision, artificial intelligence, biologically-inspired robots, multi-robotics, collaborative robots, human-robot interface, advanced navigation, or others, will be introduced based on background of the instructor. Students will work in teams to design and prototype a robot that integrates the advanced algorithms and technology and satisfies a set of design requirements. Laboratory exercises will provide experience in key areas to support the design and implementation process. Professional communication and documentation will be included in the course experience. This course is a multi-disciplinary, project-based course and will have a substantial laboratory component supporting team-based design, integration, and testing of an advanced robot system.

Enforced Prerequisite at Enrollment: EDSGN 410

EDSGN 452: Projects in Humanitarian Engineering

2 Credits

Multidisciplinary student teams engage in integrated design of real-world humanitarian ventures. EDSGN 452 Projects in Humanitarian Engineering (2) EDSGN 452 is intended to promote civic responsibility and enhance the student's abilities to engage in research and design, project management, communications, professional conduct and the understanding of user needs. This is accomplished by students undertaking team-based engineering projects in community service with partner community organizations. The projects offer real-world engineering design experience, from problem formulation through performance assessment. The project offerings will include a mix of local and international offerings. Students work on multidisciplinary teams with a project supervisor (i.e., faculty or practicing engineer) and a representative from the partner community organization. Projects are selected based on academic content, potential significance to the partner community, commitment of the partner community organization, and student safety. Students also examine the politics of technology, the relationship between engineering and communities (either domestic or international), and ethics in engineering practice. This includes the ways that engineering can be used positively and negatively in development. In the course of their work, the students will examine the ways that economic, social, cultural, political, and other contextual considerations are implicated in engineering design. Students are challenged to think critically about how engineering can be done most effectively to support community goals, and how engineering can weaken community efforts if done insensitively. These issues are explored through discussions of the relevant scholarly theory and through their manifestation in the course projects.

Enforced Prerequisite at Enrollment: 5th semester standing Enforced Concurrent at Enrollment: EDSGN 453

EDSGN 453: Design for Developing Communities

1 Credits

A seminar series related to the context and integrated design of Humanitarian Engineering and Social Entrepreneurship ventures in developing communities. EDSGN 453 Design for Developing Communities (1) The Design for Developing Communities seminar course grounds students in EDSGN 452, BIOE 401, and other related courses in the basics of user-centered / context-driven design, extreme affordability, systems thinking, research ethics, privilege systems, travel and fieldwork, and related issues for technology-based social ventures in developing communities. These seminars directly help students across various classes and professional programs with their Humanitarian Engineering and Social Entrepreneurship (HESE)-related ventures. Typically, three sections of this course are offered: one focusing on international ventures, one on local ventures and an honors section focusing on international ventures. Designing appropriate products for customers inherently requires a thorough understanding of their needs. However, what happens when your target customers live in a developing country and have radically different needs than what you are accustomed to? Similarly, what happens when your audience lives in the United States, but in an unfamiliar environment? How do you know your product will be used by your intended customers? What pre-existing systems must your product work in harmony with? Open to students of all majors, the seminar class prepares students working on HESE ventures to create sustainable enterprises in resource-constrained environments. Students are introduced to the contextual factors that must be taken into

consideration throughout their design process. Relevant philosophies and methodologies that relate to the integrated design, business and implementation strategy development of social enterprises are introduced to the students in the seminar class. The objective is to light a fire and not fill a pail. The relevant methodologies and philosophies are then reinforced in an experiential manner in the concurrent design classes (like EDSGN 452, BIOE 401, etc.) where students work on their ventures. Through the use of open discussion, videos, pictures, stories, and lectures, the course covers concepts such as systems-thinking, user-centered design, value creation, and effective communication. The seminar is highly interactive; students are encouraged to ask questions and provide examples of real-world situations that relate to the topics of conversation.

Enforced Prerequisite at Enrollment: 5th semester standing

EDSGN 454: Humanitarian Engineering and Social Entrepreneurship Field Experience

0.5 Credits

A hands-on integrated learning research and entrepreneurial engagement experience for students working on various humanitarian projects. EDSGN 454 Humanitarian Engineering and Social Entrepreneurship Field Experience (0.5) The Humanitarian Engineering and Social Entrepreneurship (HESE) Field Experience is a hands-on integrated learning, research and entrepreneurial engagement experience for students engaged in HESE ventures in the EDSGN 452 and allied courses (e.g. BIOE 401, ME 440W). Students travel to project site(s) for three weeks to advance their ventures by conducting field-testing of their technologies, testing their preliminary business models, and gathering data for research projects. They work closely with community members and various partnering agencies during the course. The partnering agencies range from community members to non-profits, community-based organizations, and governmental and United Nations agencies. Students work in cross-national cross-functional teams and make several presentations to community members, potential partners and investors. In the past, HESE students have worked in Kenya, Tanzania, Rwanda, India, El Salvador, Jamaica, Ecuador and other countries. There is no set schedule for the three weeks in the partnering community. A (two-hour long) debriefing meeting is held every evening to discuss progress made by all the teams on that day and decide the action plan for the next day. Administrative issues, technological challenges, ethical or diplomatic issues are also discussed in this meeting and solutions are developed by consensus. The field experience is also a rich environment for students to explore the ethical intricacies of engaging in projects in international contexts. Students engage in debates on ethical issues related to science, technology and society in an applied setting -the people are real, the ethical dilemma is real and most importantly, a consensus is required to address the ethical issue and decide on the further course of action. A collaborative and integrated approach of system design, business strategy, and implementation strategy development is employed. The process of operationalizing the design and the business / implementation strategies is as important as the product itself. This integrated design and implementation process encompasses conceptualization, validation, design, field-testing, implementation, and evaluation, all done in an iterative fashion. Several tools, from literature, industry (like the IDEO Human-Centered Design toolkit) and those developed by our teams (like the E-Spot Canvas) are employed during fieldwork. Student evaluation is by a reflective essay written 3-4 weeks after the completion of the trip.

Enforced Prerequisite at Enrollment: EDSGN 453

EDSGN 460W: Multidisciplinary Capstone Design Project

3 Credits/Maximum of 6

Course provides multidisciplinary industry-sponsored and service-based senior design projects in conjunction with the Learning Factory.

Prerequisite: BIO E, CH E, CMPEN, E E, I E, or M E; BME 440 or E E 300W or I E 302, I E 305, I E 323, I E 327, I E 330, I E 405 or M E 340 Writing Across the Curriculum

EDSGN 462: Introduction to Design for Additive Manufacturing

3 Credits

Additive manufacturing (AM, colloquially 3D printing) is rapidly changing the face of modern manufacturing. This layer-by-layer manufacturing approach allows for parts to be created with significant levels of complexity and in cost-effective small batches, with reduced raw material waste when compared with traditional manufacturing processes. This technology has given rise to the need for Design for Additive Manufacturing (DfAM) techniques capable of accounting for both the possibilities and restrictions offered by AM in product design. In this class, students will be introduced to the core design advantages behind DfAM at the desktop printer scale, including lattice structures, topology optimization, and mass customization. Students will learn how to balance these opportunities with the limitations inherent to AM process types, including minimum feature sizes and support material removal. Throughout the course, students will be tasked with applying specific DfAM concepts to improve end-use product design. The objectives of the course include demonstrating the workflow for creating objects with desktop AM, identifying proper use of AM in the design process, describing the role of the digital thread, utilizing the concepts of geometric complexity and mass customization, and identifying the limits and challenges imposed by desktop-scale AM on design.

Enforced Prerequisite at Enrollment: EDSGN 100

EDSGN 467: Prototyping to Launch

3 Credits

This course will focus on strengthening the fundamentals of human-centered design taught in the Design Thinking and Making course (EDSGN 367), which serves as a prerequisite to this course. The course will be a team- and project-based course, encouraging hands-on learning through action; students will be given a problem prompt at the start of the semester, but the project and solution are to be of their choosing. Students will develop a prototype each week that advances their understanding of design methodologies and project-specific design knowledge. The goal of the course will be to "launch" a solution in some meaningful way. This could include getting market validation via online platforms, for example, having users sign-up for a beta release. The course will focus on teaching hands-on design-thinking skills via intentional prototyping practice, leveraging a series of design methods and toolsets. Students will also be exposed to a variety of "maker" technologies, and become proficient in not only using this technology to manufacture prototypes, but selecting appropriate maker tools dependent upon design need and context.

Enforced Prerequisite at Enrollment: EDSGN 100 and EDSGN 367

EDSGN 468: Engineering Design and Analysis with CAD

3 Credits/Maximum of 6

This course delivers methods and techniques necessary to become proficient in applying CAD as a design tool for engineering design and analysis. Students will gain a deep understanding in principles, best practices, and strategies for solid-model representation of engineering designs. The use of CAD as a design tool will prepare students to effectively develop, analyze, and communicate engineering designs. Learning is reinforced through lectures, tutorials, quizzes, laboratory assignments, design projects, and online design portfolios. Students will learn how to recognize and capture design intent by using symmetry and parametric associativity; virtually test fit, form, and function of assembled components; analyze and improve models using analysis tools (e.g., finite element analysis); obtain, edit, and integrate existing non-native file formats; prepare models for stereolithography apparatus and other CNC machinery for prototyping; produce and manage part family models, and prepare technical drawings and illustrations. Through all these, students will be able to master special techniques for engineering design and analysis with CAD. The exercises, laboratory assignments, quizzes, midterm design projects, final design projects, and online design portfolios will enhance students' understanding of how engineering design and analysis efforts are supported through the use of CAD as a design tool and will prepare students to effectively develop, analyze, and communicate engineering designs with the use of CAD. The course will be taught in each semester with different sections utilizing different CAD packages, such as AutoCAD, CATIA, and SolidWorks. The course may be repeated if taken to learn a second software package. Credit toward the major will not be granted a second time for taking the course with the same CAD package.

Enforced Prerequisite at Enrollment: EMCH 210 or EMCH 211**EDSGN 479: Human Centered Product Design and Innovation**

3 Credits

Consumer product design for a global market, incorporating human factors principles and user desires in a multicultural perspective. EDSGN (I E) 479 Human Centered Product Design and Innovation (3) This course will focus on consumer product design for a global market, incorporating human factors and ergonomics principles as well as user needs and emotional desires. The students will be led through product design process, various product design strategies, product planning, managing the development process, product evaluation, decision making tools, and market entry. Special emphasis will be placed on user centered design, incorporating user characteristics, user needs and emotional desires (including Kansei engineering approaches), survey methodology, and usability testing. To emphasize the multicultural perspectives in today's global product design, interdisciplinary teams from two universities on opposite sides of the globe will apply these principles on actual industrial product designs for leading consumer product manufacturers.

Enforced Prerequisite at Enrollment: IE 408 or IE 419**EDSGN 485: Engineering Design Portfolio**

1 Credits

Positions in engineering design typically require a portfolio representing an applicant's best work. In preparation for this requirement, students in this course will develop the skills needed to design a portfolio that represents the depth and breadth of their engineering design training,

by collecting, sorting, and sequencing visual information from relevant previous design experiences. The material will be presented through a series of Web-based modules. The objectives of this course include organizing a collection of graphics and text to effectively communicate engineering design experiences and development, summarizing both the depth and breadth of design experiences, analyzing and interpreting information for presentation to third party readers, and using modern engineering graphics and text communication methods to present information. Students will be evaluated on their ability to visually, textually, and sequentially present their design work in a design portfolio. The course will be taught once a semester as an online-course. The course is required for students pursuing the Engineering Design Certificate.

Enforced Prerequisite at Enrollment: EDSGN 100 and 7th Semester standing or higher**EDSGN 494: Research Project**

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

EDSGN 494H: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Honors

EDSGN 495: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practice, or internships. Written and oral critique of activity required.

EDSGN 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

EDSGN 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

EDSGN 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Engineering Graphics Technology (EGT)

EGT 60: 3D Visualization and Spatial Development

1 Credits

Supplemental course designed to improve spatial skills through the use of interactive hands-on activities, such as clay modeling and multi-media software. EG T 060 3D Visualization and Spatial Development (1) The ability to visualize objects and situations in one's mind, and more specifically the ability to manipulate those visualizations is an important skill for those in the engineering field. For example, EG T 120 Introduction to Graphics and Solid Modeling requires strong visualization skills to create orthographic (2D) and isometric (3D) representations of mechanical parts. Students must also be able to sketch an object 3-dimensionally from a 2D drawing and vice-versus. Strong visualization skills are also essential to successfully model 3D parts in a solid modeler, such as Pro/ENGINEER. In addition, research has shown students with poorly developed spatial skills, especially women, tend to become discouraged and drop out of engineering altogether if they are struggling in their very first 'engineering' course. EG T 060 is designed to improve these spatial skills through the use of interactive hands-on activities, such as clay modeling (building a 3D object from a 2D drawing), snap cubes, and multi-media software specifically designed to improve these skills.

EGT 102: Introduction to Computer Aided Drafting

1 Credits

A first course presenting an intensive study utilizing a computer assisted drafting and design system to obtain graphic solutions.

EGT 114: Spatial Analysis and Computer-Aided Drafting

2 Credits

Spatial relations of applications in engineering technology with more advanced functionality of computer-aided drafting and design systems. EG T 114 Spatial Analysis and Computer-Aided Drafting (2)The EG T 114, Spatial Analysis and CAD course is a continuation of CADD (Computer Aided Drafting and Design) and an introduction to CAE (Computer Aided Engineering) with an emphasis on the state-of-the art 2-D drawing and 3-D solid modeling techniques commonly used in mechanical design and analysis of structural systems. This course is also designed to cover spatial relations of applications in engineering technology, with more advanced functionality of computer-aided drafting and design systems. Building on the knowledge and experience of Engineering Design from prior courses, the student will be able to: understand, create and interpret more advanced 2-D Engineering drawings; understand, create and manipulate 3-D solid models; use these two techniques in practical Engineering Design problems. Having an understanding of computer systems, students will become proficient in the use of computers for the simulation of mechanical systems, design documentation, network storage and retrieval, and presentation technologies. With a basic understanding of 2-D drawing software, the student will also be able to understand, create and interpret more advanced 2-D Engineering drawings, which may include auxiliary views and working drawings. Finally, having an understanding of the Engineering Design process and a basic understanding of solid modeling software, the student will be able

to understand, create and manipulate 3-D solid models and assemblies to aid in the design and documentation of simple mechanical systems.

Enforced Prerequisite at Enrollment: EDSGN 100

EGT 119: Introduction to CAD for Electrical and Computer Engineering

2 Credits

Introduction to computer-aided drafting (CAD) for Electrical and Computer Engineering Technology students with a focus on three dimensional assemblies. EG T 119 Introduction to CAD for Electrical and Computer Engineering (2) This course is intended to teach Electrical and Computer Engineering Technology students to use a 3-D CAD software package to communicate their ideas so that they may transfer their ideas to others including engineers, designers, and lay people. Students will successfully create 3-D objects such as rectangular solids, spheres, and cylinders. Those 3-D objects will then be employed to create actual samplings of electrical and electronic components (such as resistors, capacitors, transformers, etc), as well as electro-mechanical components (such as relays, motors, solenoids, etc), enclosures (chassis), and operator interfaces (knobs, buttons, displays, etc) and similar items. Students will successfully create 3-D assemblies. Students will successfully create working drawings of components and assemblies. The designated course outcomes are as follows: visualize mechanical part(s) 2-D to 3-D and vice versa; incorporate design intent into solid models using extrusions, revolves, shells, ribs, chamfers and rounds; construct datum references (e.g. planes and axes) to facilitate solid modeling; properly execute duplicating operations to create circular and linear patterns of features and mirrored features; use mathematical relations to drive solid models; create a detail drawing of a mechanical part; create 3-D assemblies.

Enforced Prerequisite at Enrollment: MATH 81

EGT 120: Introduction to Graphics and Solid Modeling

3 Credits

Development of visualization skills; introduction to parametric solids modeling techniques with constrained and unconstrained geometry, and assemblies.

EGT 121: Applied Solid Modeling

3 Credits

Creation of working drawings from solid models; dimensioning, GD&T, fastener, weld and finish symbols, layouts and bill of materials.

Enforced Prerequisite at Enrollment: EGT 120

EGT 201: Advanced Computer Aided Drafting

2 Credits

Application of the principles of engineering graphics; preparation of working drawings; details, examples, and bill of material using CAD. EG T 201 Advanced Computer Aided Drafting (2) Professional parametric solid modeling software will be applied to produce complete, industry-typical and standard working drawings, including part detail drawings and various types of assembly drawings; to implement the appropriately toleranced design of interfacing components; and to explore advanced productivity-enhancing add-in modules. Additionally, students will be introduced to the variety and relative precedence of specifications for feature tolerances and to the basic differences between form and

size tolerancing. Topics that will be covered in the course include: Unilateral, bilateral and symmetric size tolerances, Form control and tolerances, Calculations for critical fits, Specification precedence for tolerances, e.g., stock size vs. size directly specified in the drawing field vs. title block tolerances vs. drawing notes, etc. The following laboratory assignments will include: Part drawing with standard three orthographic views, complete dimensions, and a Section View, Part drawing with complete dimensions and a Broken View, Part drawing with complete dimensions and a Primary Auxiliary View, Part drawing with complete dimensions and a Secondary Auxiliary View, Part drawing with complete dimensions and removed Detail View(s), Detail drawing with correct limit tolerances on features which are critical for fit and function, Assembly file with separate sub-assemblies, Assembly Drawing (with part identification balloons and a bill-of-material) which uses Sectional Views to expose fine internal detail and part interrelationships, Assembly Drawing (with part identification balloons and a bill-of-material) which is based upon an Exploded View, Assembly Drawing of a tooling fixture (with part identification balloons and a bill-of-material) which shows the subject workpiece transparently with phantom lines, Configured part file with tabulated drawing, Welding of an assembly using advanced software capabilities and production of a welding drawing with correct symbols, Production of an injection mold cavity from the subject part file, Exploration of the functionality of sheet metal modules, Applications of Top Down Design and Layout Sketches, Application of motion-simulating modules and functionality. The differences between coordinate tolerancing and geometric tolerancing are included in the course. The American Society of Mechanical Engineers Y14.5M will be referenced. The following are among the topics that will be covered: Eight key GD&T terms, GD&T modifiers and symbols, Rule #1 and #2, Concepts of GD&T, Introduction to the flatness control, straightness control, circularity control, perpendicularity control, angularity control, parallelism control, concentricity control, symmetry control, The datum system (planar datums, Introduction to datum targets, FOS datum specifications (RFS), FOS datum specifications (MMC).

Enforced Prerequisite at Enrollment: EDSGN 100 and EGT 114

EGT 205: Transition From 2-D CAD to Solid Modeling

1 Credits

Supplemental course designed to introduce students (primarily transfer) to a solid modeling program. EG T 205 Transition From 2-D CAD to Solid Modeling (1) This is a one credit course in parametric solid modeling. Students will learn how to do basic geometry creation as well as how to create and use reference geometry such as points and planes. Duplicating features through the use of patterns and mirroring will be covered. More advanced geometry creation such as sweeps and blends are introduced, as well as the use of top-down as well as bottom-up modeling techniques. Assembly modeling and detailing topics are covered. Evaluation is done through both weekly homework assignments and a final, comprehensive project. This course is designed to bring students (especially transfer students who already have taken EG T 201) up to a base level of proficiency on the specific CAD package used in MET 306.

Enforced Prerequisite at Enrollment: EGT 201

Engineering Mechanics (EMCH)

EMCH 210: Statics and Strength of Materials

5 Credits

Equilibrium of particles, rigid bodies, frames, trusses, beams, columns; stress and strain analysis of rods, beams, pressure vessels. E MCH 210 E MCH 210 Statics and Strength of Materials (5) This course is a combination of E MCH 211 and E MCH 213. Students taking E MCH 210 may not take E MCH 211 or 213 for credit, or vice versa. Students will learn how forces and moments acting on rigid and deformable bodies affect reactions both inside and outside the bodies. Students will study the external reactions, and their inter-relationships; the discipline of statics (E MCH 211), as well as the associated internal forces and deformations, quantified by their corresponding stresses and strains; the discipline of strength of materials (E MCH 213). The student will be able to analyze and design simple structural components based on deflection, strength, or stability. Students will be prepared to analyze and design simple structures and take upper division courses in mechanics of materials and structural analysis and design. Students will communicate their analysis through the use of free-body diagrams and logically arranged equations.

Enforced Prerequisite at Enrollment: MATH 140 or MATH 140B or MATH 140E or MATH 140H

EMCH 210H: Statics and Strength of Materials, Honors

5 Credits

Equilibrium of particles and rigid bodies, frames, trusses, beams, columns; stress and strain analysis of rods, beams, pressure vessels. E MCH 210H E MCH 210H Statics and Strength of Materials, Honors (5) This honors course is a combination of E MCH 211 and E MCH 213. Students taking E MCH 210H may not take E MCH 211 and 213 for credit, or vice versa. The same general topics are covered as in E MCH 210, but in a more advanced fashion and with more advanced applications. Students will learn how forces and moments acting on rigid and deformable bodies affect reactions both inside and outside the bodies. Students will study the external reactions, and their inter-relationships - the discipline of statics (E MCH 211), as well as the associated internal forces and deformations, quantified by their corresponding stresses and strains - the discipline of strength of materials (E MCH 213). The student will be able to analyze and design simple structural components based on deflection, strength, or stability. Students will be prepared to analyze and design simple structures and take upper division courses in mechanics of materials and structural analysis and design. Students will communicate their analysis through the use of free-body diagrams and logically arranged equations.

Enforced Prerequisite at Enrollment: MATH 140 or MATH 140B or MATH 140E or MATH 140H
Honors

EMCH 211: Statics

3 Credits

Equilibrium of coplanar force systems; analysis of frames and trusses; noncoplanar force systems; friction; centroids and moments of inertia. E MCH 211 E MCH 211 Statics (3) Engineering Mechanics is the engineering science that relates forces and moments to the motion (displacement, velocity, acceleration) of bodies. The understanding

of the concepts of force, moment, and motion is essential to design efficient engineering components ranging from a bridge to a wing strut to a robot arm to the mother board of a computer. Statics (E MCH 211) is the foundational course for both Dynamics (E MCH 212), which is the study of motion and the forces causing motion, and Strength of Materials (E MCH 213), which is the study of deformation and strength design of solids. Statics will provide students with the tools and guidance to master the use of equilibrium equations and Free Body Diagrams (FBD's) and to solve real engineering problems. Students should leave this class with the ability to logically approach a variety of static engineering problems, to translate a physical situation into an analytic model, and to use various mathematical tools to determine desired information. Course topics include: introduction and vectors, problem solving, force vectors, particle equilibrium, moments/couples, equivalent systems, distributed loads/FBDs, rigid body equilibrium, trusses, frames and machines, 3-D equilibrium, friction, centroids and center of gravity, and moments of inertia.

Enforced Prerequisite at Enrollment: MATH 140 or MATH 140B or MATH 140E or MATH 140H

EMCH 212: Dynamics

3 Credits

Motion of a particle; relative motion; kinetics of translation, rotation, and plane motion; work-energy; impulse-momentum. E MCH 212 E MCH 212 Dynamics (3) Dynamics (E MCH 212) is the study of forces causing motion and, at least in engineering, its primary goal is the determination of loads on moving structures for the purpose of design. Dynamics will provide students with the tools and guidance to analytically model a wide variety of mechanical and structural systems. In Dynamics, this is done by drawing free-body diagrams of the relevant parts of the system and then applying the laws of Newton and Euler, laws governing material behavior, and equations describing the geometry of motion of points and bodies (kinematics) to those free-body diagrams to obtain the equations governing the motion of the system. Once a system has been modeled, Dynamics will also provide students with the tools to obtain desired information from those models by solving the equations governing the motion of the system. Topics covered in Dynamics include: kinematics of particles, application of Newton's laws to particles, energy and momentum methods for particles, kinematics of rigid bodies, application of the laws of Newton and Euler to rigid bodies, and energy and momentum methods for rigid bodies.

Enforced Prerequisite at Enrollment: (EMCH 211 or EMCH 210H or EMCH 210) and (MATH 141 or MATH 141B or MATH 141E or MATH 141H)

EMCH 212H: Dynamics

3 Credits

Motion of a particle; relative motion; kinetics of translation, rotation, and plane motion; work-energy; impulse-momentum. E MCH 212H E MCH 212H Dynamics (3) Dynamics (E MCH 212) is the study of forces causing motion and, at least in engineering, its primary goal is the determination of loads on moving structures for the purpose of design. Honors Dynamics (E MCH 212H) will provide students with the tools and guidance to analytically model a wide variety of mechanical and structural systems. In Dynamics, this is done by drawing free-body diagrams of the relevant parts of the system and then applying the laws of Newton and Euler, laws governing material behavior, and equations describing the geometry of motion of points and bodies (kinematics)

to those free-body diagrams to obtain the equations governing the motion of the system. Once a system has been modeled, Honors Dynamics will also provide students with the tools to obtain desired information from those models by solving the equations governing the motion of the system. Topics covered in Honors Dynamics include: kinematics of particles, application of Newton's laws to particles, energy and momentum methods for particles, kinematics of rigid bodies, application of the laws of Newton and Euler to rigid bodies, and energy and momentum methods for rigid bodies. In addition to what is done in Dynamics (E MCH 212), students in Honors Dynamics will typically do a project in which they design an experiment and use what they have learned to compare theory with experiment. They will also make use of modern mathematical software to solve the nonlinear differential equations obtained in their analysis of mechanical and structural systems to obtain further understanding of the behavior of these systems.

Enforced Prerequisite at Enrollment: (EMCH 211 or EMCH 210H or EMCH 210) and (MATH 141 or MATH 141B or MATH 141E or MATH 141H)

Honors

EMCH 213: Strength of Materials

3 Credits

Axial stress and strain; torsion; stresses in beams; elastic curves and deflection of beams; combined stress; columns. E MCH 213 E MCH 213 Strength of Materials (3) In this elementary course on the strength of materials the response of some simple structural components is analyzed in a consistent manner using i) equilibrium equations, ii) material law equations, and iii) the geometry of deformation. The components analyzed include rods subjected to axial loading, shafts loaded in torsion, slender beams in bending, thin-walled pressure vessels, slender columns susceptible to buckling, as well as some more complex structures and loads where stress transformations are used to determine principal stresses and the maximum shear stress. The free body diagram is indispensable in each of these applications for relating the applied loads to the internal forces and moments and plotting internal force diagrams. Material behavior is restricted to be that of materials in the linear elastic range. A description of the geometry of deformation is necessary to determine internal forces and moments in statically indeterminate problems. The underlying mathematics are boundary value problems where governing differential equations are solved subject to known boundary conditions. Students will be able to: a) Identify kinematic modes of deformation (axial, bending, torsional, buckling and two dimensional) and associated stress states on infinitesimal elements and sketch stress distribution over cross sections b) Analyze determinate and indeterminate problems to determine fundamental stress states associated with kinematic modes of deformation c) Apply strength of materials equations (and formulas) to the solution of engineering and design problems d) Recognize and extract fundamental modes in combined loading and do the appropriate stress analysis e) Extract material properties (modulus of elasticity, yield stress, Poisson's ratio) from data and apply these in the solution of problems f) Calculate the geometric properties (moments of inertia, centroids, etc) of structural elements and apply these in the solution of problems which will enable them to solve real engineering problems.

Enforced Prerequisite at Enrollment: EMCH 211

EMCH 296: Independent Studies

1-18 Credits

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

EMCH 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

EMCH 302H: Thermodynamics, Heat Conduction, and Principles of Modeling, Honors

4 Credits

EMCH 302H is a required course for engineering science students. This course presents the fundamental principles of classical thermostatics, thermodynamics, and heat transfer with relevant engineering applications. The students are expected to develop skills necessary to apply these principles to common engineering problems involving properties of matter, energy, non-reacting mixtures, and energy transport. The classical thermostatics and thermodynamics instruction will typically take 9 weeks. Control volume analysis techniques are introduced for closed and open systems undergoing both quasi-static and dynamic processes. The techniques are applied to analyze common power and refrigeration cycles, including gas and vapor systems. Diffusion in fluid and solid mixtures will also be considered. Special attention will be devoted to the notions of Helmholtz and Gibbs free energies as well as enthalpy. Use and significance of these concepts constitutive theories of gas, fluid, and solid materials systems will be discussed. The heat transfer component of the course will typically take 4 weeks. Instruction on heat transfer, will cover the three classical modes of heat transfer: conduction, convection, and radiation. Heat exchangers and heat transfer from extended surfaces are presented at a very basic level. Two weeks will be devoted to an introduction to statistical thermodynamic concepts in which a thermodynamic system is viewed as an ensemble whose state can be characterized in phase space. Enough background will be provided to compare and contrast the classical and statistical notions of entropy.

Enforced Prerequisite at Enrollment: (CHEM 110 or CHEM 110H) and (PHYS 211 or PHYS 211H) **Enforced Concurrent at Enrollment:** (MATH 230 or MATH 231 or MATH 231H or MATH 230H) Honors

EMCH 315: Mechanical Response of Engineering Materials

2 Credits

Mechanical response measures and design theories for engineering materials; elastic and plastic response as affected by stress, strain, time, temperature. E MCH 315 E MCH 315 Mechanical Response of Engineering Materials (2) The main goal of E MCH 315 is to present mathematical models to describe mechanical behavior of materials and develop skills relevant to understanding the mechanical response of an engineering design using realistic materials. Engineering analysis is emphasized by introducing various material responses to external factors including static loading, cyclic loading, and elevated temperatures. The student will gain a broad base in this area that serves as a foundation for subsequent employment in systems design and testing, or further study in engineering analysis, mechanical design, materials engineering or

materials selection. E MCH 315 is an extremely useful and versatile class that has many applications in all engineering disciplines. The general topics include: elastic, viscoelastic, plastic, and creep deformation; temperature effects, stress based failure criteria for ductile and brittle material behavior; creep rupture; fracture mechanics prediction of brittle failure; and failure by fatigue.

Enforced Prerequisite at Enrollment: EMCH 213 or EMCH 210H or EMCH 210

EMCH 316: Experimental Determination of Mechanical Response of Materials

1 Credits

Experimental techniques for mechanical property measurement and structural testing. E MCH 316 E MCH 316 Experimental Determination of Mechanical Response of Materials (1) The objective of EM CH 316 is to introduce students to the relevant technology and methods used to determine the mechanical responses of engineering materials and structural components. Student teams will apply stress and strain measurement techniques; conduct tensile, torsion, creep, internal pressurization, and fatigue tests; then characterize mechanical behavior and explain the material parameters obtained. The laboratory assignments are designed to complement the lecture course E MCH 315, which must be taken as a prerequisite of concurrently.

Enforced Prerequisite at Enrollment: (MATSE 259 and ME 360) or Concurrently enrolled in EMCH 315.

EMCH 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

EMCH 400: Advanced Strength of Materials and Design

3 Credits

Combined stresses; energy methods; special problems in bending and torsion; plates; thin-walled structures; buckling and stability; design projects.

Enforced Prerequisite at Enrollment: EMCH 213 or EMCH 210H or EMCH 210

EMCH 402: Applied and Experimental Stress Analysis

3 Credits

Experimental design of structural and machine components; photoelasticity, electrical resistance strain gauge techniques, Moire techniques, interferometry, holography.

Enforced Prerequisite at Enrollment: EMCH 213 or EMCH 210H or EMCH 210

EMCH 403: Strength Design in Materials and Structures

4 Credits

Determination, interpretation, significance, and application of mechanical properties such as plastic flow, fatigue strength, creep resistance, and dynamic properties.

Enforced Prerequisite at Enrollment: EMCH 213 or EMCH 210H or EMCH 210

EMCH 407: Computer Methods in Engineering Design

3 Credits

Computer methods in mechanical design: solid modeling, graphics, surface smoothing/interpolation and underlying numerics: simultaneous equations, quadrature, eigen problems, discrete models. E MCH 407 Computer Methods in Engineering Design (3) E MCH 407 teaches computer methods and the use of modeling tools for doing mechanical design and the underlying numerical methods necessary to design, design analysis and development of design-related computer tools. The programming tool used in the course is MATLAB. E MCH 407 provides preparation for study of finite element analysis and professional practice. It is well suited to students who expect to work in design, manufacturing and/or project engineering. E MCH 407 is not a typical numerical methods course; for example, it treats solution of differential equations using finite differences only as minor application. Nonetheless the mathematics is at times rather abstract. Course Objectives (labels for ABET criterion met are appended to each objective). Students will be able to: ♦ Apply methods prerequisite to finite element analysis to solve well-defined problems (a, e, f, g, i, k) ♦ Generate splines and curves for the smoothing of surfaces (a, b, e, f, g, h, i, j, k) ♦ Write computer code to do computer graphics and object manipulation (a, c) ♦ Do solid modeling, create rapid-prototypes, generate meshes using a commercial package (c, e, h, j, k) ♦ Calculate eigenvalues/eigenvectors and plot mode shapes (a, e, j, k) 2. Evaluation Methods include homework, mini-project submittals, midterm and final exams. 3. Special Facilities: E MCH 407 is taught in classrooms with computers. 4. Frequency of Offering/Enrollment: E MCH 407 is offered every spring semester. Enrollment is limited to the number of computers in the classroom.

Enforced Prerequisite at Enrollment: (ESC 261 or CMPSC 200 or CMPSC 201) and (EMCH 210 or EMCH 210H or EMCH 213)

EMCH 409: Advanced Mechanics

3 Credits

Continuation of E MCH 012; Euler's equations for the rotation of a rigid body, gyroscopic motion, impulsive motion, Lagrangian mechanics.

Enforced Prerequisite at Enrollment: (EMCH 212 or EMCH 212H) and MATH 230

EMCH 416: Failure and Failure Analysis of Solids

3 Credits

Examination and analysis of the various modes of failure of solid materials.

Enforced Prerequisite at Enrollment: 5th Semester standing or higher and (EMCH 213 or EMCH 210 or EMCH 210H)
Honors

EMCH 440: Nondestructive Evaluation of Flaws

3 Credits

Methods and limitations of nondestructive evaluation of mechanical flaws; optical, acoustical, electromagnetic, x-ray, radiography, thermography, and dye techniques.

Enforced Prerequisite at Enrollment: EMCH 213 or EMCH 210H or EMCH 210

Cross-listed with: MATSE 440

EMCH 446: Mechanics of Viscoelastic Materials

3 Credits

Nature of viscoelastic materials, constitutive relations, thermorheological materials, viscoelastic stress analysis, rubber elasticity, viscoelastic liquids, experimental techniques for material characterization.

Enforced Prerequisite at Enrollment: (EMCH 315 and EMCH 316) or EMCH 416

EMCH 461: Finite Elements in Engineering

3 Credits

Computer modeling and fundamental analysis of solid, fluid, and heat flow problems using existing computer codes. E MCH (M E) 461 Finite Elements in Engineering (3) This is an introductory course in the Finite Element Method. Through this course, students gain knowledge in finite element theory and problem modeling. The mathematical formulation of the method is presented and then applied to problems in elasticity and heat transfer. Projects are assigned to demonstrate the finite element method in simplified problems using hand-calculations and computer programs such as Matlab. The use of commercial FEA programs is introduced and problems of increased complexity are assigned to demonstrate their use in a computer lab. Finally, problems of realistic complexity are assigned such that students can practice solving, documenting and presenting their use of commercial FEA programs.

Enforced Prerequisite at Enrollment: (EMCH 213 or EMCH 210H or EMCH 210) and (CMPSC 201 or CMPSC 200)

Cross-listed with: ME 461

EMCH 470: Analysis and Design in Vibration Engineering

3 Credits

Application of Lagrange's equations to mechanical system modeling, multiple-degree-of-freedom systems, experimental and computer methods; some emphasis on design applications. In this course, students will learn basic techniques for modeling and analyzing linear multidegree-of-freedom (MDOF) mechanical systems, and will learn how to use these techniques for mechanical design. Students will learn to obtain equations of motion using energy methods (Lagrange's equations), with emphasis on the efficient formulation and reduction to the linear case. The basic theory of MDOF systems will be presented, including: eigenvalue problems; natural frequencies and normal modes; superposition and modal analysis; and frequency response. Numerical methods for solving static, dynamic and eigenvalue problems will be presented. Introductions to the theory of linear continuous systems and experimental methods of vibrations will be presented. A substantial portion of the course will be spent discussing design applications of the basic theory, such as: finite element numerical analysis and experimental modal analysis of beams and plates; vehicle suspension design; and vibration isolation and absorption.

Enforced Prerequisite at Enrollment: (EMCH 212 or EMCH 212H) and (ME 370 or ESC 407 or EMCH 407)

Cross-listed with: ME 470

EMCH 471: Engineering Composite Materials

3 Credits

Properties, manufacture, forms of composites; micromechanics; orthotropic lamina properties; laminate analysis; theories; failure analysis; thermal, environmental effects.

Enforced Prerequisite at Enrollment: (EMCH 213 or EMCH 210 or EMCH 210H) and (CMPSC 200 or CMPSC 201 or ESC 261)

EMCH 473: Composites Processing

3 Credits

An introduction to the principles of mechanics governing manufacturing, computer-aided design, and testing of composite materials and structures.

Enforced Prerequisite at Enrollment: EMCH 471
Cross-listed with: AERSP 473

EMCH 480: Mechanism Design and Analysis

3 Credits

Design and analysis of mechanical linkages including kinematic synthesis and dynamic analysis. Linkages for a variety of applications are considered. M E 480 Mechanism Design and Analysis (3) The student who takes this course will develop a basic understanding of the analysis and synthesis of planar linkage mechanisms. Students will develop the ability to model real linkage mechanisms using kinematic diagrams, including identification of links and joints. They will also learn to use Gruebler's equation to calculate the mobility or number of degrees of freedom of linkages based on the kinematic diagram. Students will also become familiar with real mechanism applications in the context of mechanism synthesis, where they will learn to determine the required dimensions of a mechanism for a specific application. Students will apply these dimensional synthesis methods in a design project which includes building a simple linkage prototype. They will learn kinematic analysis methods, i.e., analysis of position, velocity, and acceleration of planar linkages. These methods consist of graphical, algebraic, and complex number approaches. Students will also learn to use commercial software packages, e.g. Working Model, to predict position, velocity, and acceleration of planar linkages, and will compare their predictions to those using analytical approaches. Finally, students will learn to do dynamic force analysis of planar linkages to predict joint forces and motor torques. They will use commercial software packages to predict joint forces and motor torques of planar linkages, and will compare their predictions to those using analytical approaches.

Enforced Prerequisite at Enrollment: (EMCH 212 or EMCH 212H) and (CMPSC 201 or CMPSC 200 or ESC 261)
Cross-listed with: ME 480

EMCH 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

EMCH 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Engineering Science (ESC)

ESC 97: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

ESC 120: Design for Failure--First-Year Seminar

1 Credits

This seminar, through the utilization of commonly used examples, discusses the engineering principles which are exploited by such designs. ESC 120 Design for Failure (1) (FYS) Although an important facet of engineering design is to minimize the possibility of failure of a system component, there are many devices which actually protect a system by their controlled 'failure'. Further, some components are designed to "work" through failure. In the former situation are such devices as: a shear pin in an outboard motor driveline, a fuse in an electrical circuit, a valve actuated by heat in a sprinkler system. In the latter situation, "tab tops" allow one to open a beverage can, perforations cause the paper towel to "tear" in a prescribed manner, plasticity/elasticity allows stamped parts, such as automobile hoods, to retain their new shape following stamping.

First-Year Seminar

ESC 121: Science/Engineering Fiction and the Engineering Sciences--First-Year Seminar

1 Credits

Examines the technology predictions of authors in view of the engineering sciences on which the underlying devices of their stories are based. ESC 121S Science/Engineering Fiction and the Engineering Sciences (1) (FYS) From the times of Jules Verne, books, then movies and TV, have utilized engineering/science and pseudo-engineering, in envisioning devices which were not then available, but perhaps became so in later times. From Verne's nuclear driven submarine to his voyage to the moon; to Mary Shelly's electrically created monster; to Dick Tracy's wrist radio (cell phone); to the warp speed of the Jedi, there are successes and failures as to predictions of what would some day be possible. These are examined and discussed.

First-Year Seminar

ESC 122: Weird, Wild, and Wonderful Materials and Devices--First-Year Seminar

1 Credits

First-year seminar that surveys the use of novel materials and material systems to create practical devices. ESC 122S Weird, Wild, and Wonderful Materials and Devices (1) (FYS) There are many materials whose response to a particular stimulus (mechanical, thermal, electrical, etc.) is of a completely different type. For example, if a piezoelectric material is mechanically 'squeezed' (stimulus) the response is the creation of an electrical signal. Birefringent (photoelasticity) materials

change their optical properties under mechanical displacement. Thermoluminescent 'remember' their configuration under certain environmental combinations, to which they will abruptly return when these same combinations are repeated. This seminar surveys many classes of such materials and material systems and provides examples of engineers utilizing their behavior for sensors, transducers, and actuators. Examples include acoustic refrigerators, phonograph cartridges, door openers, and stress concentration locators.

First-Year Seminar

ESC 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

ESC 211: Material, Safety and Equipment Overview for Nanotechnology

3 Credits

Nanotechnology processing equipment and materials handling procedures with a focus on safety, environment, and health issues. E SC 211 Material, Safety, and Equipment Overview for Nanotechnology (3) This course overviews basic material properties as well as environment, health, and safety (EHS) issues in equipment operation and materials handling in "top down" and "bottom up" nanofabrication. The chemical and physical materials properties underlying nanotechnology are surveyed. EHS topics arising from the processing and disposal of these materials are addressed including: cleanroom operation, OSHA lab standard safety training, health issues, biosafety levels (BSL) guidelines, and environmental concerns. Specific safety issues dealing with nanofabrication equipment, materials, and processing will also be discussed including those pertinent to wet benches, thermal processing tools, vacuum systems and pumps, gas delivery systems and toxic substance handling and detection.

Enforced Prerequisite at Enrollment: CHEM 101 and MATH 81 and (PHYS 150 or PHYS 250H or PHYS 250 or PHYS 211 or PHYS 211H)

ESC 212: Basic Nanotechnology Processes

3 Credits

Step-by-step description of equipment and processes needed in top-down, bottom-up, and hybrid nanotechnology processing. E SC 212 Basic Nanotechnology Processes (3) This course is an overview of the broad spectrum of processing approaches involved in "top down", "bottom up", and hybrid nanofabrication. The majority of the course details a step-by-step description of the equipment, facilities processes and process flow used in today's device and structure fabrication. Students learn to appreciate processing and manufacturing concerns including safety, process control, contamination, yield, and processing interaction. The students design process flows for micro- and nano-scale systems. Students learn the similarities and differences in "top down" and "bottom up" equipment and process flows by undertaking hands-on processing. This hands-on overview exposure covers basic nanofabrication processes including deposition, etching, and pattern transfer.

Enforced Concurrent at Enrollment: ESC 211

ESC 213: Materials in Nanotechnology

3 Credits

The processing of materials in nanotechnology as well as the unique material properties available at the nano-scale. ESC 213 Materials in Nanotechnology (3) This course is an in-depth, hands on exposure to the producing and tailoring of the materials used in nanofabrication. The course will cover chemical materials production techniques such as colloidal chemistry; atmosphere, low-pressure and plasma enhanced chemical vapor deposition; nebulization; and atomic layer deposition. It will also cover physical techniques such as sputtering, thermal and electron beam evaporation, and spin-on approaches. This course is designed to give students experience in producing a wide variety of materials tailored for their mechanical, electrical, optical, magnetic, and biological properties.

Enforced Concurrent at Enrollment: ESC 211 and ESC 212

ESC 214: Patterning for Nanotechnology

3 Credits

Pattern transfer techniques from photolithography to nanoimprinting and nanomolding. ESC 214 Patterning for Nanotechnology (3) This course is a hands-on treatment of all aspects of advanced pattern transfer and pattern transfer equipment including probe techniques; stamping and embossing; e-beam; and optical contact and stepper systems. The course is divided into five major sections. The first section is an overview of all pattern generation processes covering aspects from substrate preparation to tool operation. The second section concentrates on photolithography and examines such topics as mask template, and mold generation. Chemical makeup of resists will be discussed including polymers, solvents, sensitizers, and additives. The role of dyes and antireflective coatings will be discussed. In addition, critical dimension (CD) control and profile control of resists will be investigated. The third section will discuss the particle beam lithographic techniques such as e-beam lithography. The fourth section covers probe pattern generation and the fifth section explores imprinting lithography, nano-molding lithography, step-and-flash, stamp lithography, and self-assembled lithography.

Enforced Concurrent at Enrollment: ESC 211 and ESC 212

ESC 215: Nanotechnology Applications

3 Credits

Applications of nanotechnology including those in medicine, biology, electronics, energy, and materials. E SC 215 Nanotechnology Applications (3) This course covers the applications of nano-scale devices and systems and the material chemical, physical, biological, or multiple-property requirements necessitated in these applications. Material modifications to meet these requirements will be addressed including structure control, composition control, surface property control, strain control, functionalization, and doping.

Enforced Concurrent at Enrollment: ESC 211

ESC 216: Characterization, Testing of Nanotechnology Structures and Materials

3 Credits

Measurements and techniques essential for controlling device fabrication. E SC 216 Characterization, Testing of Nanotechnology

Structures and Materials (3) This course examines a variety of techniques and measurements essential for testing and for controlling material fabrication and final device performance. Characterization includes electrical, optical, physical, and chemical approaches. The characterization experience will include hands-on use of tools such as the Atomic Force Microscope (AFM), Scanning Electron Microscope (SEM), fluorescence microscopes, and fourier transform infrared spectroscopy.

Enforced Concurrent at Enrollment: ESC 211 and ESC 212

ESC 220N: Ethics, Society, and Science Fiction

3 Credits

This inter-domain (GH and GS) course will introduce students to the application of technology-ethics and bioethics, as well as the humanities (especially health and medical humanities) and the social sciences, through the lens of science fiction and speculative fiction. As an inter-domain course, it will: (1) develop foundational knowledges across the disciplines of the humanities and the social and behavioral sciences; and (2) encourage an appreciation for the plethora of stakeholders and often-competing values and interests underlying bioethical/technology-ethics concerns. By applying ethics-based, analytical arguments and counterarguments, students will engage in civil, reasoned debate on highly charged, challenging topics using ethical frameworks. In addition, given exposure to a wide range of non-canonical authors and other creators with varied intersectionalities, students will engage with the concepts of diversity, equity, and inclusion.

Cross-listed with: BIOET 220N, HHUM 220N

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

ESC 261M: Computational Methods in Engineering

3 Credits

Computational methods for solving engineering problems using C++ and MATLAB. Reports on root finding, systems of algebraic equations. ESC 261M Computational Methods in Engineering (3) ESC 261M covers programming language fundamentals (organization strategies) and language grammar (syntax) of C++, MATLAB software libraries and packaged tools, and the following numerical methods: root searching techniques, solvers for systems of algebraic equations, curve fitting methods. ESC 261M is taught in a modern technology classroom. ESC 261M is essential for courses on advanced computational methods for engineers, finite element methods, and for all the other engineering courses which rely on computational methods and computer programs to analyze and interpret experimental data.

Prerequisite: or concurrent: MATH 141

Honors

Writing Across the Curriculum

ESC 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

ESC 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

ESC 312: Engineering Applications of Wave, Particle, and Ensemble Concepts

3 Credits

The engineering applications of the wave and ensemble pictures of the physical world. ESC 312 Engineering Applications of Wave, Particle, and Ensemble Concepts (3) This course covers the engineering applications of wave based and ensemble-formulated pictures of the physical world. It begins by discussing criteria for the applicability of geometrical optics and of physical optics and moves into a general discussion of wave phenomena. An introduction to the formalism of physical optics is then given along with examples of its use in engineering applications. The course then moves to discussing the criterion for the applicability of classical mechanics and of quantum mechanics. The parallelism between the geometrical optics/physical optics and classical mechanics/quantum mechanics criteria is underscored. An introduction to the formalism of quantum mechanics is then undertaken followed by a discussion of engineering applications of quantum mechanics. The impact of quantum mechanics on particle, quasi-particle, and cooperative phenomena is discussed. The course then treats the problem of determining the physical properties of ensembles of particles and quasi-particles. Statistical mechanics concepts are introduced and the effects of quantum mechanics on ensemble predictions is covered. Fermi-Dirac, Bose-Einstein, and Boltzmann statistics are developed and discussed. The connection is also made between statistical mechanics and thermodynamics. Engineering applications of statistical mechanics are presented and discussed. The objective of this course is to give engineering students a broad technical picture of physical concepts that will affect much of the engineering advances of this century. Students will be exposed to the duality of the wave-particle picture and to that picture's critical engineering importance to the fields of optics and mechanics. They will be taught the influence of quantum mechanics on physical properties and the need for ensemble approaches for predicting the expected values of those properties for many particle systems. The impact of wave and ensemble approaches on engineering applications will be stressed and the students will be given hands-on exposure to this impact in three laboratory experiences. Evaluation methods to be used in this course will be two in-class examinations and one final period examination.

Enforced Prerequisite at Enrollment: PHYS 214

ESC 313: Introduction to Principles, Fabrication Methods, and Applications of Nanotechnology

3 Credits

Principles, fabrication methods and applications of nanoscale. ESC 313 Introduction to Principles, Fabrication Methods, and Applications of Nanotechnology (3) This course covets the unique opportunities

provided by the nano-scale and focuses on the engineering issues of fabricating and applying structures designed to take advantage of these opportunities. The course begins with defining nanotechnology and nanofabrication. It then moves to the unique features available in nano-scale structures such as large surface-to-volume ratios, quantum size effects, unique chemical bonding opportunities, dominance of physical optics, surface control of reactions and transport, and the creation of structures on the same size scale as basic features in living cells. With this understanding of the uniqueness of the nano-scale, the course progresses into the fabrication methods used in nanotechnology and then into nanostructure applications. The various nanofabrication approaches found in top-down, bottom-up, and hybrid fabrication approaches are explained and discussed in the lecture format. The principles behind the application of structures fabricated at the nano-scale are then addressed in more depth. This section of the course includes an introduction to nano-scale electronic devices, an introduction to nano-scale sensing devices, an introduction to nano-scale optics and optical devices, an introduction to material property modification at the nano-scale, and an introduction to the biology/nano-scale interface. Specific applications of the structures made using various combinations of top-down and bottom-up fabrication techniques are overviewed in various applications including sensors, nano-electronics, molecular electronics, photonics, nano-optics, information storage and computing, materials, nano-mechanics, and nano-biotechnology and medicine. The course concludes with an introduction to the manufacturing issues encountered when fabricating, assembling, and interfacing nano-scale structures as well as with an overview of health, environmental, and societal issues. The objective of this course is to give a broad technical picture of nanotechnology to engineering students from various engineering disciplines. In so doing, the course will develop a sound background for making informed judgments concerning the potential of nanotechnology for various technical applications and a sound background for assessing the societal and health issues as well as environmental impact of nanotechnology. The course objectives are to have students be able to consider nanotechnology solutions to technical problems, be able to fabricate these nanotechnology solutions in a manufacturable manner, be able to determine if there are any potential health or environmental issues involved in their solutions, and be able to assess the societal impact of their solutions. The course will require a college-level chemistry and physics background. Evaluation methods to be used in this course will be two in-class examinations and one final period examination.

Enforced Prerequisite at Enrollment: (CHEM 110 or CHEM 110H) and PHYS 212

ESC 337: Introduction to Quantum Information Science and Engineering

3 Credits

This course will introduce quantum mechanics from the perspective of quantum information science and engineering, focusing on two-level systems and the concepts of entanglement and decoherence. It will educate students on how quantum information can be used in quantum communication and quantum computing, both in theory and experiment. The course covers basic concepts such as two-level systems, Schrodinger equation, Bloch sphere, superposition, entanglement, quantum bits, quantum gates, Bell's inequalities, and mixed states. Covering these basic concepts prepare the students for more advanced courses in the minor where they learn in depth about quantum algorithms, physical implementation of different quantum systems, and how to compute with existing quantum computers.

Enforced Prerequisite at Enrollment: MATH 220 and PHYS 214

Cross-listed with: EE 337, PHYS 337

ESC 386: Engineering Principles of Living Organisms

3 Credits

This course will explore how engineering principles apply to living organisms. E SC 386 Engineering Principles of Living Organisms (3) This course uses an engineering approach that applies basic physical and mathematical principles to the fundamental problems living organisms encounter. The objectives of the course are to understand the role of scaling in size and construction trade-offs in living organisms, how diffusion shapes and limits cellular processes, the role of electrical fields and concentration gradients in signaling, the statistical mechanics of ion channel and receptor gating, how the dynamics of transcriptional interactions can generate genetic circuits, the role of mechanical amplification in hearing. At the completion of the course, students will have insight into how to use quantitative techniques from engineering and the physical sciences to analyze biological systems.

Enforced Prerequisite at Enrollment: CHEM 110 and MATH 251 and PHYS 214

ESC 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

ESC 400: Electromagnetic Fields

3 Credits

Irrrotational and solenoidal fields, potentials, vector and scalar field and wave equations, harmonic and wave functions in various coordinates, radiation. E SC 400H Electromagnetic Fields (3) E SC 400H is a required senior-level course for students pursuing a bachelor's of Engineering Science. At the conclusion of this course, students will be able to: 1. Apply the basic principles of electrostatics, such as Coulomb's Law, electric field intensity, electric flux density, Gauss's Law, the concepts of divergence and gradient, and potential functions to solve basic and applied problems. 2. To compute resistance and capacitance for a variety of geometric configurations. 3. They will apply the basic principles of steady magnetic fields, such as the Biot-Savart Law, Amper6s Circuital Law, magnetic flux and flux density, Stoke's Theorem and the concept of the curl and Maxwell's equations for static electric and steady magnetic fields to solve basic and applied problems. 4. Compute self and mutual inductance for a variety of geometric configurations. 5. Understand the necessary modifications of Maxwell's equations for time varying fields including Faraday's Law and the concept of displacement current and apply these to solve basic and applied problems. 6. Understand the solutions of the reduced wave equation, for time-harmonic excitations, for plane wave propagation in both perfect and lossy dielectrics, the concepts of skip depth and wave polarization, plane wave reflection at planar boundaries, Snell's Law, Brewster's angle, and the concept of standing wave ratio and apply these to solve basic and applied problems. 7. Understand the basic principles of waves on transmission lines and apply these to solve basic and applied problems. Topics include: Vector Analysis; Coulomb's Law and Electric Field Intensity; Electric Flux Density, Gauss's Law, and Divergence; Energy and Potential; Conductors, Dielectrics, and Capacitance; Poisson's and Laplace's Equations; the Steady Magnetic Field; Magnetic Forces, Materials, and Inductance; time-

Varying Fields and Maxwell's Equations; the Uniform Plane Wave; Waves at Boundaries and in Dispersive Media. A typical course assessment includes homework assignments, mid-semester examinations and a final examination. The course is offered, in a lecture format, each spring at the University Park Campus. A typical enrollment is 25-30 students. This course is not a prerequisite for other courses.

Enforced Prerequisite at Enrollment: EE 210 and (MATH 250 or MATH 251 or MATH 251H)
Honors

ESC 404: Analysis in Engineering Science

3 Credits

Unified application of coordinate transformations; Laplace's, heat, and wave equations to boundary value problems and problems of continua in engineering.

Enforced Prerequisite at Enrollment: MATH 250 or MATH 251
Honors

ESC 407: Computer Methods in Engineering Science, Honors

3 Credits

Numerical solution of differential equations including fundamentals: roots of single nonlinear and simultaneous (Matrix) equations, least squares fitting and statistical goodness, interpolation, finite differences, differentiation, integration, eigensolutions. ESC 407H Computer Methods in Engineering Science, Honors (3) The overall objective of this course is the creation of mathematical continuum models in the form of differential equations and the application of numerical methods to solve them.

To reach this goal, fundamental methods dealing with numerical approximation, specifically starting with Taylor's series, are covered: differentiation, integration, and root search of single nonlinear equations. Mathematical models are transformed into discrete models using the finite difference method, hence the solution of simultaneous algebraic equations in matrix and iterative forms is also covered. In addition, eigenvalue problems are also covered in order to characterize models, both continuous and discrete. The concept of vector-variable and vector-valued functions are used to form algorithms, cast them into computer code, in a language of student choice, usually Mathematica or MATLAB because graphical output is required in doing assignments. This course relates to programs of study in most engineering disciplines based upon the physics of solids and fluids. Evaluation methods include assessment of written reports, at least one midterm examination and either a final examination or a final report.

Enforced Prerequisite at Enrollment: (CMPSC 200 or CMPSC 201 or ESC 261) Enforced Concurrent at Enrollment: (MATH 220 or MATH 220H)
Honors

ESC 409: Senior Research and Design Project Preparation, Honors

1 Credits

Preliminary identification and planning for the senior year research and design project. ESC 409 Senior Research and Design Project Preparation, Honors (1) is the first of a three-part series of courses that constitute the Engineering Science honors capstone research and design project. Engineering Science students participate in projects in all engineering disciplines and employ design principles before, during, and after analysis, experimentation and/or simulation. The resulting designs of systems, components or processes are then

tested and refined by changing material, geometric, stochastic or other parameters, as required. Students will spend the first few weeks of the course investigating various areas of research being conducted at the university. They will then interview key faculty and graduate students in several research groups and ultimately select one area to be the focus of their senior thesis research. After obtaining the agreement of a faculty member to supervise the thesis project, they will spend time familiarizing themselves with the people, equipment, materials, and software available in their selected research group as well as reading and summarizing key literature in preparation for conducting research. As an end product of this 1 credit course, students will develop a detailed set of project objectives and create a timeline for the year-long project. Class time will be spent exposing students to a variety of different research areas. In addition, time will be given for students to support each other through facilitated discussions to share their success stories as well as difficulties encountered in the process of identifying and selecting their research topics. Students will also be given the opportunity to present the preliminary details of their intended research topic. ESC 409 (1 credits) will be followed by ESC 410 (3 credits) where students will conduct their research, subsequently followed by ESC 411 (2 credits) where students will complete their research and prepare a written honors thesis. Through these combined 6 credits, students will integrate the scientific principles of research, design, and analysis and apply them to a particular field of engineering.

Enforced Prerequisite at Enrollment: Fifth Semester standing
Honors

ESC 410H: Senior Research and Design Project I, Honors

3 Credits

Design and synthesis in the context of a specific design project undertaken during the senior year. ESC 410 Senior Design Project, Honors (3) is the second of a three-part series of courses that constitute the Engineering Science honors capstone research and design project. Engineering Science students participate in projects in all engineering disciplines and employ design principles before, during, and after analysis, experimentation and/or simulation. The resulting designs of systems, components or processes are then tested and refined by changing material, geometric, stochastic or other parameters, as required. ESC 410 is the continuation of ESC 409 and constitutes the core effort in the honors senior research and design project for Engineering Science majors. It is followed by ESC 411. All three courses are required of Engineering Science majors and together they comprise the capstone research and design project, which integrates the scientific principles of research, design, and analysis and applies them to a particular field of engineering. In-class lectures and discussions on a wide range of topics such as design, engineering ethics, international relations, engineering management, safety, government and public policy, environmental issues, workforce preparation and graduate school occur in tandem with the students' development of their individual topics.

Enforced Prerequisite at Enrollment: ESC 409
Honors

ESC 411: Senior Research and Design Project II, Honors

2 Credits

Design and synthesis in the context of a specific design project undertaken during the senior year. ESC 411 Senior Research and Design Project II, Honors (3) is the third of a three-part series of courses that constitute the Engineering Science honors capstone research and

design project. Engineering Science students participate in projects in all engineering disciplines and employ design principles before, during, and after analysis, experimentation and/or simulation. The resulting designs of systems, components or processes are then tested and refined by changing material, geometric, stochastic or other parameters, as required. ESC 411 is the continuation of ESC 409 and ESC 410. All three courses are required of Engineering Science majors and together they comprise the capstone research and design project, which integrates the scientific principles of research, design, and analysis and applies them to a particular field of engineering. In-class lectures and discussions on a wide range of topics such as design, engineering ethics, international relations, engineering management, safety, government and public policy, environmental issues, workforce preparation and graduate school occur in tandem with the students' development of their individual topics.

Enforced Prerequisite at Enrollment: ESC 410 Honors

ESC 412: Nanotechnology: Materials, Infrastructure, and Safety

3 Credits/Maximum of 999

Cleanroom based nano/micro fabrication and related environmental health and safety issues. The nanotechnology consumer products market currently has more than 1,000 nanomaterial-containing products varying from makeup, sunscreen, food storage products, appliances, clothing, electronics, computers, sporting goods, and coatings to drug delivery systems. These products exist in the market place and are expanding in number because nano-scale materials and structures can have properties that are very different from larger size-scale versions of the same materials and structures. These property differences at the nano-scale can make nanotechnology products unique and desirable for specific applications. However, the uniqueness of the nano-scale can also affect toxicity and environmental repercussions due to differences in physicochemical properties arising from size but also from shape, chemistry, surface properties, agglomeration, bio-persistence, solubility, and charge, as well as from differences caused by attached functional groups, as outlined in this course. The greater surface-area-to-mass ratio of nanoparticles makes them generally more reactive than their macro-sized counterparts. These properties that make nanomaterials unique and valuable in manufacturing many products also make manufacturing at this scale an endeavor which must be studied and appreciated for its potential safety, health, and environmental impact. Practicing engineering at the nano-scale requires awareness of the nanotechnology safety, health concerns, and environmental issues laid out in E SC 412.

Enforced Prerequisite at Enrollment: Seventh semester standing

ESC 414M: Elements of Material Engineering

3 Credits

Structure and imperfections in engineered materials; their influence on properties, behavior, and processing. Applications of metals, ceramics, polymers, and composites. E SC 414M Elements of Material Engineering (3) This course is a junior-level, writing-intensive engineering science course designed to introduce students to the fundamentals of materials science and engineering. In the early part of this honors course, structure property relationships in materials are explored. The student will examine how atomic structure and bonding influence engineering properties such as strength and electrical properties Next, solidification, strengthening mechanisms, and phase diagrams for some common engineering materials are discussed to further examine structure property relationships and to provide the basis for the study of more complex

materials The second half of the course introduces properties and attributes of each of the major classes of materials (metals, ceramics, polymers, and composites) to acquaint the student with the wide array of material properties and choices available for design. Next, electrical, optical, and thermal properties of the various classes of materials are introduced Finally, the course closes with an introduction to the topics of materials selection and design Throughout the course, integrated writing assignments allow the student to explore the properties of a specific material or materials process in detail and gain insight the design process.

Enforced Prerequisite at Enrollment: EMCH 213 or EMCH 210H or EMCH 210 Enforced Concurrent at Enrollment: ESC 312 or PHYS 237 Honors Writing Across the Curriculum

ESC 417: Electrical and Magnetic Properties

3 Credits

Electrical conductivity, dielectric properties, piezoelectric and ferroelectric phenomena; magnetic properties of ceramics. ESC 417 / MATSE 417 Electrical and Magnetic Properties (3) is designed to provide students with a fundamental understanding of the different responses a material can have to crapped electrical or magnetic fields. Important properties are introduced and correlated with knowledge of material chemistry, crystal structure, and microstructure to provide an understanding of the mechanisms responsible for controlling the observed properties, as well as the ways in which properties can be engineered. Electronic and magnetic properties encompass dielectric, ferroelectric, conductor, superconductor, and ferromagnetic materials. Material properties and structures are related to sensors, energy storage and conversion devices, biomedical devices and electronic components in telecommunications.

Enforced Concurrent at Enrollment: MATSE 400 and MATSE 413 Cross-listed with: MATSE 417

ESC 419: Electronic Properties and Applications of Materials

3 Credits

The course covers the electrical, optoelectronic, dielectric, and other electron-based properties of solids, semiconductors in particular, and their engineering/ device applications. E SC 419 Electronic Properties and Applications of Materials (3) This course is designed primarily as a Foundation Elective for Engineering Science majors. It covers the electron-based properties of materials and their engineering applications. Building upon the strong foundation of wave, particle and ensemble concepts covered in the prerequisite course (E SC 312), it will offer an advanced introduction to the behavior of electrons in crystalline as well as non-crystalline solids, and its impact on properties. A comprehensive treatment of electrons in solids is essential to understand the electronic, optical, thermal, magnetic and other properties of materials and their incorporation in functional devices. The topics will address many facets of electrons in solids, their interaction with fields, cooperative phenomena and low-dimensional effects, and lead up to a broad range of elementary device applications. It will draw upon the results of quantum mechanics and band theory of solids that will provide the broad umbrella needed for understanding the properties of materials and designing them into practical devices and nanosystems. The importance of structure on material properties will be emphasized, so as to bring forth the importance of artificially synthesized structures and emergence of new phenomena. Along with a detailed coverage of semiconductors due to their widespread applications and their dominance in modern micro-

and optoelectronics, dielectric, magnetic and superconducting materials will also be discussed in the course. The role of defects, impurities and interfaces on electrical, optical, dielectric and other properties will be discussed, along with corresponding applications in device structures. The broad topical coverage will prepare students for advanced studies in a variety of fields including micro- and optoelectronics, functional nanosystems and synthesized nanostructures. The course will provide a solid background for senior technical electives such as E SC 481 (Elements of Nano/Micro-electromechanical Systems Processing and Design) E SC 445 (Semiconductor Optoelectronic Devices) offered in ESM, as well as Electrical Engineering and Materials Science and Engineering Courses. It will also complement (and be independent of) E SC 414M that encompasses atomic structure and mechanical properties of materials.

Enforced Prerequisite at Enrollment: ESC 312

ESC 433: Engineering Science Research Laboratory Experience

1 Credits

Hands-on lab experience and exposure to campus-wide interdisciplinary experimental research. Experimental probability and statistics. Applications across all Engineering Science disciplines. E SC 433H Engineering Science Research Laboratory Experience (1) This course provides an introduction to experimental research, including hands-on laboratory experience. In addition, students take part in campus-wide laboratory tours that illustrate the variety of experimental practice, as well as the strongly interdisciplinary nature of contemporary experimental research in Engineer Science. Lab tours involve laboratories in a variety of disciplines, both within the Department of Engineering Science and Mechanics, and in other departments with related interdisciplinary activities. The classroom content focuses on the fundamentals of experimental probability and statistics, including: the experimental process; probability distributions and error; statistical estimators; least squares; and confidence limits and hypothesis testing. Applications of the statistical analysis of experimental data are drawn from across all Engineering Science disciplines and illustrated in the labs and lab tours. There will be three hands-on laboratories. Each lab will include additional introductory lecture material, specific handouts, and readings A report will be required for each lab that represents a significant writing component to the class, and includes both descriptive and analytical components Assessment for the course is based on the laboratory reports, which include analytical and descriptive components, as well as exercises involving the material discussed in lectures.

Enforced Prerequisite at Enrollment: MATH 141 or MATH 141B or MATH 141E or MATH 141H
Honors

ESC 437: Physical implementation of qubits

3 Credits

Introduction to the physical implementation of quantum bits (qubits) based on state-of-the-art technologies. The course will consider issues in quantum information technology from an experimental point of view. The various types of qubits that will be discussed include those made with superconducting circuits, atoms (including ions, atoms and molecules), electron spins, and photons. In each case, the goal will be to develop a physical understanding of the various approaches, to get a sense of their strengths and weaknesses, and to learn about the state of the art and future prospects.

Enforced Prerequisite at Enrollment: PHYS 337

Cross-listed with: EE 437, PHYS 437

ESC 445: Semiconductor Optoelectronic Devices

3 Credits

The course will present the basic engineering science and technology involved in modern semiconductor optoelectronic devices. E SC 445 Semiconductor Optoelectronic Devices (3) This course deals with the optoelectronic properties of semiconductors and their application in functional devices for detection, emission, amplification and conversion of optical and electrical signals. A comprehensive introduction to the various optical absorption and emission processes in semiconductors is followed by an outline of specific properties of important optoelectronic semiconductors. The physical basis of detectors operating in the visible and near-visible regions is covered with an exploration of various photon detection phenomena present in solids. The devices discussed at length include intrinsic and extrinsic photoconductive detectors, p-n and Schottky detectors, p-i-n and heterojunction devices, avalanche photodiodes and photoemissive detectors, and light emitting and laser diodes Novel structures based on variable gap and superlattice structures are also considered The topical coverage includes basic operating principles, design considerations and performance assessment of each of these devices The course will enable students to apply the physics of optoelectronic devices to applications such as displays, fiber optic communications, imaging, and integrated optoelectronics. The course is offered once every year, and complements related courses on semiconductor device offered by the departments of Engineering Science and Mechanics, and Electrical Engineering. Student assessment is from homework, exams and a writing assignment involving a device application note.

Enforced Prerequisite at Enrollment: ESC 419 or ESC 314

ESC 450: Synthesis and Processing of Electronic and Photonic Materials

3 Credits

The materials science of applying thin film coatings, etching, and bulk crystal growth; includes materials transport, accumulation, epitaxy, and defects.

Enforced Prerequisite at Enrollment: (MATSE 201 or ESC 414M) and Sixth Semester standing

Cross-listed with: MATSE 450

ESC 455: Electrochemical Methods Engineering and Corrosion Science

3 Credits

The objective of the course is to give students hands-on experience in assessing environmental degradation of engineering materials. E SC 455 E SC 455 Electrochemical Methods in Corrosion Science and Engineering (3) The objective of the course is to give students hands-on experience in assessing environmental degradation of engineering materials. Students will be introduced to a variety of experimental electrochemical methods and will use their training to evaluate corrosion of steel, stainless steel, and aluminum. Techniques that will be used in this laboratory-intensive course include potentiodynamic and potentiostatic polarization, galvanic corrosion measurements, localized corrosion measurements (scratch, critical pitting temperature, and metastable pitting experiments), evaluation of sensitization (double-loop electrochemical potentiokinetic

reactivation), cyclic voltammetry, and electrochemical impedance spectroscopy of painted and unpainted specimens.

Enforced Prerequisite at Enrollment: MATSE 259 or ESC 414 or EGEE 441

ESC 456: Introduction to Neural Networks

3 Credits

Artificial Neural Networks as a solving tool for difficult problems for which conventional methods are not applicable. E E (E SC/EGEE) 456 Introduction to Neural Networks (3) This course is in response to students needs to learn Artificial Neural Networks (ANN) as a solving tool for difficult problems for which conventional methods are not available. The objective of this course is to give students hands-on experiences in identifying the best types of ANN, plus developing and applying ANN to solve difficult problems. Students will be introduced to a variety of ANN and will use their training skills to solve their own applications. During this course the students will develop a final project, in which they will apply ANN to widely varied problems. Examples: I) students from E E may be interested in applying ANN to solve control problems; II) students from Material Sciences may be interested in applying ANN to predict the pitting corrosion of components; III) students from Petroleum Engineering may be interested in applying ANN to characterize the life of a reservoir; IV) students from Agricultural Engineering may be interested in applying ANN to sort apples automatically, etc.

Enforced Prerequisite at Enrollment: (CMPSC 201 or CMPSC 121 or CMPSC 131) and MATH 220

Cross-listed with: EE 456, EGEE 456

ESC 460M: Multidisciplinary Design Project

3 Credits

This course will provide students with the opportunity to learn the design process in the context of an industry- or government-sponsored or service-based design project that demands delivering a working solution. The design projects in this course will be structured for students from two or more different engineering majors, as defined by the project sponsors in collaboration with the instructor and departmental project coordinators. While the projects may be supplied/supported/initiated by industry, topics may be related to the cutting-edge multidisciplinary research areas represented by the strengths and diversity of the Engineering Science faculty, such as nanotechnology, biomaterials, and other areas requiring cross-discipline collaboration. The project sponsor will provide the technical expertise for the project, a clear definition of all project deliverables, and the financial support to cover needed materials and supplies and travel costs. Project sponsors will be invited to attend two key events each semester: Project Kickoff in week 1 of the semester to define the project and answer questions from the students as well as the Design Showcase in week 15 of the semester, when teams present their project results to sponsors, faculty, other students, and the public. The College of Engineering will provide the facilities where the design teams will work together to develop the design concept and prototype solutions. Faculty members in the Department of Engineering Science and Mechanics will administer the course, including reading, evaluating, and grading the final project report, provide lectures on topics including on project management, design, product manufacturing, intellectual property, engineering ethics, societal/global/contemporary/professional issues, and related technical topics, and organize invited technical lectures related to industry projects. In accordance with standard procedures, specific multidisciplinary projects will be selected for this course to provide challenging design experiences for all students. The

selection of these projects will be done by the course instructor prior to the start of each semester of the course offering. Multidisciplinary teams are be formed based on specific technical elements of the project and project scope.

Enforced Prerequisite at Enrollment: (5th semester standing in ESC or 7th semester standing or Schreyer Honors College) and (MATH 250 or MATH 251 or MATH 251H) and (PHYS 212 or PHYS 212H)

Honors

Writing Across the Curriculum

ESC 460W: Multidisciplinary Design Project

3 Credits

This course will provide students with the opportunity to learn the design process in the context of an industry- or government-sponsored or service-based design project that demands delivering a working solution. The design projects in this course will be structured for students from two or more different engineering majors, as defined by the project sponsors in collaboration with the instructor and departmental project coordinators. While the projects may be supplied/supported/initiated by industry, topics may be related to the cutting-edge multidisciplinary research areas represented by the strengths and diversity of the Engineering Science faculty, such as nanotechnology, biomaterials, and other areas requiring cross-discipline collaboration. The project sponsor will provide the technical expertise for the project, a clear definition of all project deliverables, and the financial support to cover needed materials and supplies and travel costs. Project sponsors will be invited to attend two key events each semester: Project Kickoff in week 1 of the semester to define the project and answer questions from the students as well as the Design Showcase in week 15 of the semester, when teams present their project results to sponsors, faculty, other students, and the public. The College of Engineering will provide the facilities where the design teams will work together to develop the design concept and prototype solutions. Faculty members in the Department of Engineering Science and Mechanics will administer the course, including reading, evaluating, and grading the final project report, provide lectures on topics including on project management, design, product manufacturing, intellectual property, engineering ethics, societal/global/contemporary/professional issues, and related technical topics, and organize invited technical lectures related to industry projects. In accordance with standard procedures, specific multidisciplinary projects will be selected for this course to provide challenging design experiences for all students. The selection of these projects will be done by the course instructor prior to the start of each semester of the course offering. Multidisciplinary teams are be formed based on specific technical elements of the project and project scope.

Enforced Prerequisite at Enrollment: (5th semester standing in ESC or 7th semester standing or Schreyer Honors College) and (MATH 250 or MATH 251 or MATH 251H) and (PHYS 212 or PHYS 212H)

Writing Across the Curriculum

ESC 475: Particulate Materials Processing

3 Credits

Fundamentals of processing particulate materials including production, characterization, handling, compaction, and sintering of metal, carbide, intermetallic, and composite powders.

Enforced Prerequisite at Enrollment: EMCH 315 or ESC 414M or MATSE 259

Cross-listed with: MATSE 475

ESC 481: Elements of Nano/Micro-electromechanical Systems Processing and Design

3 Credits

Interdisciplinary fundamentals of nano/microelectromechanical systems (NEMS/ MEMS), including design, fabrication and machining of miniature systems. Draws from mechanics, science and materials. E SC 481 Elements of Nano/Micro-electromechanical Systems Processing and Design (3) The objective of the course is to introduce students to the theory and technology of nanofabrication. This objective is realized via the study of materials and devices for NEMS as well as nano-system's design, manufacture and packaging,. Emphasis on the interrelationships between material properties and processing, device/system structure, and the mechanical, electrical, optical, or (bio)chemical behavior of devices/systems. As taught, the course is multidisciplinary and requires adequate background in materials science, mechanics, and device physics. The course comprises lecture presentations and laboratory demonstrations. Students attending this course come from different engineering majors, physics, and materials science. The students are assessed using a combination of homework assignments, class presentations, group projects, and written quizzes and exams.

Enforced Prerequisite at Enrollment: EMCH 213 or EMCH 315 or ESC 312

ESC 482: Micro-Optoelectromechanical Systems (MOEMS) and Nanophotonics

3 Credits

Principles and applications of Micro-Optoelectromechanical and Nanophotonic devices and systems. E SC 482 Micro-Optoelectromechanical Systems (MOEMS) and Nanophotonics (3) E SC 482 provides the engineering student with a unifying and multifaceted description of MOEMS and nanophotonics. Students will learn the fundamental principles behind many novel micro- and nanophotonic devices and systems and their practical applications in the fields of communication, sensor and image technology. The course starts with an overview of the fundamental physics of semiconductors with emphases on silicon, III-V and II-V compound semiconductors due to their important applications in MOEMS and active nanooptoelectronic devices. Semiconductor nanostructures, such as epitaxial grown quantum wells and quantum dots, and chemically synthesized nanowires and colloidal nanocrystals will be introduced through discussions on their unique electronic structures carrier transport and excitonic dynamics. In addition to inorganic materials, the structures and critical characteristics of electro-optic and light emitting polymers will also be reviewed for their fast-growing applications in display technology, sensory and information processing systems. The general principles for the design and operation of MOEMS and nanooptoelectronic devices will be discussed in the frame of geometrical optics, electromagnetic theory, and semiconductor physics. The reflection of light at dielectric interfaces will be reviewed to reveal the critical features of optical waveguide structures and to introduce the concept of surface plasma waves. In-depth descriptions will be given for the interband-and intraband-electron transition and exciton emission process in semiconductor quantum structures. Important instances of applying the 'quantum confinement' in nanostructures to tailor their optical and optoelectronic properties will be underscored during the mechanism-analysis of laser diodes, detectors and modulators. The new concept of 'photonic crystals' will be introduced through the analysis of parallelism between electron transport in semiconductor lattices and light propagation in

periodic dielectric media. Following a brief survey of the state-of-the-art technologies for the fabrication of MOEMs and nanophotonic devices, the course topics will move to their application examples in the fields of communication, sensor and image technology. For each application example, analysis will be carried out on the design, fabrication, and characterization issues of the involved systems/devices. Their merit-of-performance will be linked to the application practice to illustrate how the introduction of MOEMs/nanophotonic devices advances the technology in each specific field. Important topics to be covered in this part include micromachined lightwave systems, microcavity light emitting devices, fiber based biological nanosensors, nanoparticle enhanced surface plasma resonance sensors, microspectrometers, and digital micromirror device (DMD)-based projection display engine.

Enforced Prerequisite at Enrollment: PHYS 214

ESC 483: Simulation and Design of Nanostructures

3 Credits

Introduction to computer simulation techniques and their applications at the physical/life sciences interface. E SC (MATSE) 483 Simulation and Design of Nanostructures (3) Students will learn the simulation techniques and the design rules of nanostructures. Basic concepts of computer modeling will be introduced using quantum and classical approaches. Fundamental physical phenomena encountered in the molecular fields of computational physics, chemistry, and biology will be studied. Applications are drawn from a broad range of fields including soft and condensed matter to build an understanding of nanostructures. The course will assume knowledge and skill developed in the prerequisite courses of PHYS 214 and MATH 230. Students are expected to combine knowledge from other courses with information presented here to develop sophisticated interpretations and understanding of physical and chemical principles of nanostructures and their design rules. Evaluation methods to be used in this course will be two in-class examinations and one final period examination. The course contains a computer code generation and implementation component. Students will use commercial or educational computer codes (e.g. Matlab, Mathematica, AMBER, CHARMM, VASP, etc.) which are available at our high performance computing clusters (<http://gears.aset.psu.edu/hpc/>) Students will use the computing clusters to perform simulations which are accessible from any classroom or laboratory at Penn State. The principal objectives of the course is to learn the fundamental physics of nanostructures and to design them with computer simulations. This approach starts from classical molecular dynamics that apply on the large scale biological and synthetic assemblies and encompasses quantum mechanics for the molecular and atomic sizes. This course will give a broad scientific picture of simulation techniques in the area of nano-science and technology.

Prerequisite: PHYS 214 or ESC 312, MATH 230

Cross-listed with: MATSE 483

ESC 484: Biologically Inspired Nanomaterials

3 Credits

Advances in biomolecular-based Science and technology at the physical/life sciences interface. E SC 484 Biologically Inspired Nanomaterials (3) Students will learn the concepts of molecular engineering and the advances in biomolecular-based science and technology at the physical/life sciences interface. Basic concepts of protein structure and function will be introduced. Applications from a broad range of fields, including condensed and living matter to build an understanding

of device applications including biologically-inspired molecular-scale devices will be introduced. The course will assume knowledge and skill developed in the prerequisite courses of PHYS 214 and MATH 230. Students are expected to combine knowledge from other courses with information presented here to develop sophisticated interpretations and understanding of physical and chemical principles of molecular structures and their design rules. Evaluation methods to be used in this course will be two in-class examinations and one final period examination. The course contains a substantial writing component. Students will prepare bio-science and technology reports. The principal objective of the course is to learn and analyze molecular engineering technologies at the bio and nano interface. This course will give a broad technological picture of emerging protein technologies in the area of biomolecular materials.

Prerequisite: PHYS 214 , MATH 230

ESC 494: Senior Thesis

1-9 Credits/Maximum of 9

Students must have approval of a thesis adviser before scheduling this course.

ESC 494H: Senior Thesis

1-9 Credits/Maximum of 9

Students must have approval of a thesis adviser before scheduling this course.

Honors

ESC 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

ESC 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Engineering Technology (ET)

ET 200: Graphic Communications

3 Credits

The study of graphic communications relating to the design and construction industry.

Prerequisite: 2-credit drafting course

ET 300: Mechanics I: Statics

3 Credits

Equilibrium of coplanar force systems; analysis of frames and trusses; shear and moment diagrams; friction; centroids and moment of inertia. ET 300 Mechanics I: Statics (3) This course is intended to provide the students with both the theory and application of the fundamental principles of static analysis by introducing free-body diagrams as a

tool for solving statics problems. Students gain knowledge of Vector Mechanics, representation of physical quantities by a vector notation. Grasp the meaning of magnitude and direction of a vector; understand the definition of a unit vector. Master the mechanics of Vector Algebra. Emphasis will be placed on equations of equilibrium for particles and rigid bodies. Students are able to understand the physical meaning of a force and moment equilibrium. Master the balance of forces and moments to ensure equilibrium for 2D and 3D structures. This will be followed by analyzing internal forces in cables and bending moments in beams.

Prerequisite: MATH 140

ET 321: Dynamics

3 Credits

Motion of a particle, relative motion; kinetics of translation; rotation and plane motion; conservation of energy and momentum. ET 321 Dynamics (3) The students will be introduced to the fundamental concepts of dynamics for particles motion along straight and curved paths. The students will learn and utilize concepts in particle kinematics and study the relationship between the forces acting on a body, the mass of the body and the motion of the body by using Newton's second law of motion, the principle of work and energy and the principle of linear momentum and impulse. This will be followed by analyzing the rotation of a rigid body about a fixed axis, and extending kinematic concepts to plane motion of rigid bodies. The concepts of work, energy, linear momentum and angular momentum of a rigid body in plane motion will be introduced. The students will learn how to apply the principle of impulse/momentum to solve rigid-body planar kinetic problems that involve force, mass, velocity and time, and the principle of work/energy to solve problems that involve force, mass, velocity and displacement. Dynamics course will also provide students with the tools to obtain desired information from those models by solving the equations governing the motion of the system. Topics covered in Dynamics include: kinematics of particles, application of Newton's laws to particles, energy and momentum methods for particles, kinematics of rigid bodies, application of the laws of Newton and Euler to rigid bodies, and energy and momentum methods for rigid bodies.

Prerequisite: EMCH 211 or ET 300 or MET 111

ET 322: Strength of Materials

3 Credits

Axial, torsional, bending, and combined stress analysis; deformation and deflection analysis of cables, shafts, and beams; column design and analysis. ET 322 Strength of Materials (3) Strength of materials deals with the relationship among the external forces acting on a body, the resulting stresses (intensity of internal forces) and the deformation (change of size or shape). The determination of proper sizes and material of construction of mechanical components and structural members to satisfy strength and deformation requirements are important topics of strength of materials. The students will be introduced to the concept of stress - normal, shear and bearing stress, and relate strain to stress using material properties. The students will develop an understanding of design parameters such as design stresses, factors of safety for axial loads, transverse loads and torsional loads, to design components such as beams and circular shafts satisfying strength and deformation requirements. The students will also learn to calculate moments of inertia, centroids and apply parallel axis theorem for moment of inertia. The students will be introduced to the concept of combined stresses and

their analysis using graphical and analytical methods. Finally, the concept of buckling in columns will be introduced.

Prerequisite: ET 300 , EMCH 211 or MET 111

ET 323: Strength of Materials Laboratory

1 Credits

Measurement of mechanical properties of materials, structural testing. ET 323 Strength of Materials Laboratory (1)The objective of the strength of materials laboratory is to demonstrate the basic principles in the area of strength and mechanics of materials to the undergraduate students through a series of experiments. Students will be conducting experiments using Universal Testing Machines to calculate tensile strength of steel and aluminum samples and experiments to measure hardness of non-heat treated and heat treated steels. Students will also test steel samples in single shear, double shear and impact loading, followed by experiments on the torsion testing machine to calculate torsional strength of aluminum samples and the strut apparatus to analyze different modes of buckling in a slender aluminum column. The laboratory demonstrates important concepts from the strength of materials theory course.

PreRequisite or concurrent: ET 322 , EMCH 213 or MET 213

ET 495: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written or oral critique of activity required.

Prerequisite: prior approval of proposed assignment by instructor

ET 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

English (ENGL)

ENGL 2: The Great Traditions in English Literature

3 Credits

This course provides fundamental skills of textual analysis in the context of literary texts written in English, drama, and poetry (from the Middle Ages to the twentieth century) that address large questions of ethical and social value. Course reading includes English-language texts from around the world. Students learn to speak and write clearly about the ideas generated by the texts as they consider interpretive issues found in their assigned readings and participate actively in the various forms of critical thinking required to address those issues.

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

ENGL 4: Basic Writing Skills

3 Credits/Maximum of 6

Intensive practice in writing sentences and paragraphs and instruction in grammar, usage, and punctuation. Designed for students with deficient preparation. This course may not be used to satisfy the basic minimum requirements for graduation in any baccalaureate degree program.

ENGL 5: Writing Tutorial

1 Credits

Tutorial instruction in composition and rhetoric for students currently enrolled in ENGL 4 or ENGL 15. This course may not be used to satisfy the basic minimum requirements for graduation in any baccalaureate degree program.

ENGL 6: Creative Writing Common Time

1-8 Credits/Maximum of 8

Required one hour a week meeting time; readings, professional development, advising, community-building. ENGL 006 Creative Writing Common Time (1 per semester/maximum of 8) This course is to be required of all B.F.A. in Creative Writing majors at Penn State Erie as long as they are students in that degree program. This means that every semester they are working toward the B.F.A. in Creative Writing they must sign up for this course, and they must complete it successfully. Successful completion is based on regular attendance at the various functions, all held at the same one hour time period each week. The purpose of this course is to provide students with the necessary experience of listening to the writers of national stature brought to campus through The Smith Series, to provide them with lectures by both faculty and outside experts to help them develop professionally as writers, to allow for essential group advising for successful completion of the major, and to foster a sense of community among the student writers in the program.

Bachelor of Arts: Humanities

ENGL 10: Group Writing Tutorial

1 Credits/Maximum of 2

Course Description: ENGL 10 is a one-credit course that provides group tutorial instruction in writing for students currently enrolled in ENGL 15. It is not a replacement for composition classes or individual conferences with the ENGL 15 instructor. Rather, ENGL 10 offers the opportunity to learn about and practice writing in a collaborative, group setting and to become an active part of the writing community at Penn State. Throughout ENGL 10, students work directly with texts and assignments from their ENGL 15 course.

Enforced Concurrent at Enrollment: ENGL 15

ENGL 15: Rhetoric and Composition

3 Credits

ENGL 15 is an intensive, rhetorically based experience in reading and writing that will prepare you both to understand the communications that surround you and to succeed in your own communication efforts. Thus, in this course, we will focus specifically on analyzing verbal and visual texts (our reading) as well as on producing such texts (our writing),

always in terms of rhetorical principles. Even if the term rhetoric isn't familiar to you, you bring a good deal of rhetorical skill to this class: you already know how to gauge the way you perceive and produce language according to the speaker, the intended audience, and the purpose. You may not always gauge perfectly, your perception may not always be accurate, and your production may not always be successful, but you still often try to interpret and choose language that is appropriate to the rhetorical situation. When you do not succeed, you often try again. The goal of ENGL 15, then, is to help you build on what you already know how to do as you become a more confident reader and writer. You will become more attuned to your goals as a writer, more aware of the ongoing conversation surrounding the topic, and more resourceful in terms of the appropriate delivery of your information, the rhetorical appeals at your disposal, and the needs and expectations of your audience. You will also learn to research and synthesize multiple outside sources in order to support your arguments effectively and ethically. In other words, we hope you'll come to write with skill, conviction, sophistication, and grace, if not immediately, then soon. In the process, you'll learn how to read more critically as well.

General Education: Writing/Speaking (GWS)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

ENGL 15A: Rhetoric and Composition

3 Credits

English 15A is an intensive, rhetorically based experience in reading and writing that will prepare you both to ENGL 15A is a version of ENGL 15 with an added emphasis on culture and diversity. The term diversity can have multiple definitions. During this class, you will sharpen your argumentation skills by exploring the many layers of this term as well as how it relates to issues of social justice, race, class, gender & sexuality, higher education, and more. By focusing on diversity and rhetoric & composition, you can become critical citizens inside and outside the university by using writing as a tool to engage actively and influentially with the communities you belong to and as an act of inquiry. This course attempts to emphasize diversity in a safe and yet provocative learning environment where you can develop sophistication as both a producer and consumer of knowledge as you explore and respect the diverse perspectives and backgrounds of your classmates. Major writing assignments for this course typically deal with issues of diversity in some form. understand the communications that surround you and to succeed in your own communication efforts. Thus, in this course, we will focus specifically on analyzing verbal and visual texts (our reading) as well as on producing such texts (our writing)-always in terms of rhetorical principles. Even if the term rhetoric isn't familiar to you, you bring a good deal of rhetorical skill to this class: you already know how to gauge the way you perceive and produce language according to the speaker, the intended audience, and the purpose. You may not always gauge perfectly, your perception may not always be accurate, and your production may not always be successful-but you still often try to interpret and choose language that is appropriate to the rhetorical situation. When you do not succeed, you often try again. The goal of English 15A, then, is to help you build on what you already know how to do as you become a more confident reader and writer. You will become more attuned to your goals as a writer, more aware of the ongoing conversation surrounding the topic, and more resourceful in terms of the appropriate delivery of your information, the rhetorical appeals at your disposal, and the needs

and expectations of your audience. You will also learn to research and synthesize multiple outside sources in order to support your arguments effectively and ethically. In other words, we hope you'll come to write with skill, conviction, sophistication, and grace-if not immediately, then soon. In the process, you'll learn how to read more critically as well.

United States Cultures (US)
 General Education: Writing/Speaking (GWS)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

ENGL 15E: Rhetoric and Composition Enhanced

3 Credits

ENGL 15E Enhanced prepares students to understand the functions of and produce a variety of texts for public and academic audiences. Class size is limited to 18 (as opposed to the regular 24) and provides individualized instruction, regular engagement with peers, and weekly online tutorials. The combination of these resources helps familiarize students with conventional genres and practices of usage and style written discourse. The course is cohort-based and paced, which means that there is an established start and end date, and that students will have weekly deadlines to meet throughout the term.

General Education: Writing/Speaking (GWS)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

ENGL 15S: Rhetoric and Composition

3 Credits

English 15S is an intensive, rhetorically based experience in reading and writing that will prepare you both to understand the communications that surround you and to succeed in your own communication efforts. Thus, in this course, we will focus specifically on analyzing verbal and visual texts (our reading) as well as on producing such texts (our writing)-always in terms of rhetorical principles. Even if the term rhetoric isn't familiar to you, you bring good deal of rhetorical skill to this class; you already know how to gauge the way you perceive and produce language according to the speaker, the intended audience, and the purpose. You may not always gauge perfectly, your perception may not always be accurate, and your production may not always be successful-but you still often try to interpret and choose language that is appropriate to the rhetorical situation. When you do not succeed, you often try again. The goal of English 15S, then, is to help you build on what you already know how to do as you become a more confident reader and writer. You will become more attuned to your goals as a writer, more aware of the ongoing conversation surrounding the topic, and more resourceful in terms of the appropriate delivery of your information, the rhetorical appeals at your disposal, and the needs and expectations of your audience. You will also learn to research and synthesize multiple outside sources in order to support your arguments effectively and ethically. In other words, we hope you'll come to write with skill, conviction, sophistication, and grace-if not immediately then soon. In the process, you'll learn how to read more critically as well.

First-Year Seminar
 General Education: Writing/Speaking (GWS)
 GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

ENGL 30H: Honors Rhetoric and Composition

3 Credits

English 30H is an intensive, rhetorically based experience in reading and writing that will prepare you both to understand the communications that surround you and to succeed in your own communication efforts. Thus, in this course, we will focus specifically on analyzing verbal and visual texts (our reading) as well as on producing such texts (our writing)- always in terms of rhetorical principles. Even if the term rhetoric isn't familiar to you, you bring a good deal of rhetorical skill to this class: you already know how to gauge the way you perceive and produce language according to the speaker, the intended audience, and the purpose. You may not always gauge perfectly, your perception may not always be accurate, and your production may not always be successful, but you still often try to interpret and choose language that is appropriate to the rhetorical situation. When you do not succeed, you often try again. The goal of English 30, then, is to help you build on what you already know how to do as you become a more confident reader and writer. You will become more attuned to your goals as a writer, more aware of the ongoing conversation surrounding the topic, and more resourceful in terms of the appropriate delivery of your information, the rhetorical appeals at your disposal, and the needs and expectations of your audience. You will also learn to research and synthesize multiple outside sources in order to support your arguments effectively and ethically. In other words, we hope you'll come to write with skill, conviction, sophistication, and grace-if not immediately, then soon. In the process, you'll learn how to read more critically as well. As an honors section, ENGL 30H is enriched by more rigorous requirements (longer papers, additional research component where the student is required to cite and engage critical sources and conversations). Participation requirements are also enhanced, making for a richer honors experience.

General Education: Writing/Speaking (GWS)

Honors

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

ENGL 30T: Honors Freshman Composition First-Year Seminar

3 Credits

English 30T is an intensive, rhetorically based experience in reading and writing that will prepare you both to understand the communications that surround you and to succeed in your own communication efforts. Thus, in this course, we will focus specifically on analyzing verbal and visual texts (our reading) as well as on producing such texts (our writing)- always in terms of rhetorical principles. Even if the term rhetoric isn't familiar to you, you bring a good deal of rhetorical skill to this class: you already know how to gauge the way you perceive and produce language according to the speaker, the intended audience, and the purpose. You may not always gauge perfectly, your perception may not always be accurate, and your production may not always be successful-but you still often try to interpret and choose language that is appropriate to the rhetorical situation. When you do not succeed, you often try again. The goal of English 30T, then, is to help you build on what you already know how to do as you become a more confident reader and writer. You will become more attuned to your goals as a writer, more aware of

the ongoing conversation surrounding the topic, and more resourceful in terms of the appropriate delivery of your information, the rhetorical appeals at your disposal, and the needs and expectations of your audience. You will also learn to research and synthesize multiple outside sources in order to support your arguments effectively and ethically. In other words, we hope you'll come to write with skill, conviction, sophistication, and grace-if not immediately, then soon. In the process, you'll learn how to read more critically as well. As an honors section, ENGL 30T is enriched by more rigorous requirements (longer papers, additional research component where the student is required to cite and engage critical sources and conversations). Participation requirements are also enhanced, making for a richer honors experience.

First-Year Seminar

General Education: Writing/Speaking (GWS)

Honors

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

ENGL 50: Introduction to Creative Writing

3 Credits

If you enjoy writing to express yourself creatively - you will be at home in this course. You will also be at home here if you are an avid reader of fiction, poetry, and nonfiction, but have never tried your hand at writing it. In ENGL 50 you will explore the genres of nonfiction, fiction, and poetry by reading published essays, short stories, and poems and by writing personal essays, sketches, scenes, and poems. We'll discuss the relationship between the genres and also discuss what makes each a distinct art form. You'll hand in regular writing assignments in addition to completing longer writing projects. You'll share some of your creative work to discuss in class.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

ENGL 50H: Introduction to Creative Writing

3 Credits

This course provides students with an introduction to, and extensive practice in, creative writing in the three genres of fiction, nonfiction, and poetry. The course includes instruction in principles of composition in each genre, as well as techniques of literary composition that cross and interlink those genres. If you enjoy writing to express yourself creatively- you will be at home in this course. You will also be at home here if you are an avid reader of fiction, poetry, and nonfiction, but have never tried your hand at writing it. In English 50H you will explore the genres of nonfiction, fiction, and poetry by reading published essays, short stories, and poems and by writing personal essays, sketches, scenes, and poems. We'll discuss the relationship between the genres and also discuss what makes each a distinct art form. You'll hand in regular writing assignments in addition to completing longer writing projects. You'll share some of your creative work to discuss in class. This is an honors course.

Bachelor of Arts: Arts

General Education: Arts (GA)

Honors

GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Crit and Analytical Think

ENGL 83S: First-Year Seminar in English

3 Credits

Each section of the course will focus on a well-defined body of scholarship that is topical in the discipline, such as "Ethical Dilemmas in Literature," "Individual Freedom and Social Constraint in Literature," "Global Cultures, Local Identities," "American Landscapes, American Literatures," "Shakespeare," "Vital Rhetorics," and "Turning 2000: Nostalgia and Popular Culture at the Turn of the Century." In addition to the academic topic and issues of this course, students can expect to gain a general introduction to the University as an academic community and have the opportunity to explore their responsibilities as members of that community. Students will develop an understanding of the learning tools and resources available to them, including the opportunity to develop relationships with faculty and other students who share their academic interests. Each section of 83S will require active class participation from all students and a minimum of three substantial written assignments. Each of these written assignments will take one of the following forms: essay, essay exam, or a semester long reading journal. The course fulfills a General Education humanities requirement or a bachelor of arts humanities requirement.

Bachelor of Arts: Humanities
 First-Year Seminar
 General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Soc Resp and Ethic Reason

ENGL 88: Australian/New Zealand Cultural Perspectives

3 Credits

Australian and New Zealand cultural and social perspectives, with emphasis on the historical development of intellectual, aesthetic, and humanistic values. ENGL 88 Australian/New Zealand Cultural Perspectives (3) (GH)(BA) This course meets the Bachelor of Arts degree requirements. Students are expected to learn fundamental skills of close textual analysis in the context of the study of a variety of works by authors from Australia and New Zealand. Studying a range of novels, poems, plays, and works of non-fiction, students will discuss the development of Australian and New Zealander literatures in historical context and gain understanding of the historical development of societal values in nations other than the U.S.A. The course aspires to relate geography and history to emerging social and cultural developments as the state and status of the two countries changed during the nineteenth and twentieth centuries, and to track their increasing separation from the "Mother Country"; (i.e. Great Britain) as they developed a sense of themselves as different and separate from European societies. The process was neither comfortable nor easy, nor steadily progressive, but the record of it is an often fascinating story of human endeavor and struggle, very frequently against great odds and disappointments, which in turn affected the development of national character if such a thing can be said to exist. The literatures reflect some of the attitudes and qualities that emerged as the two societies were coming into being and forging their own unique identities.

Bachelor of Arts: Humanities

International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning

ENGL 97: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Humanities

ENGL 98: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Humanities

ENGL 100: English Language Analysis

3 Credits

An examination of English sounds, words, and syntax using traditional, structural, and transformational grammar.

Bachelor of Arts: Humanities

ENGL 101: Introduction to Literature

3 Credits

In ENGL 101 students will study a wide variety of forms of literature -- poetry, novel, short story, drama, graphic novels -- from different time periods and cultures to gain a better understanding of how literature explores human values and issues. Throughout the course, students might use the texts to ask such questions as: of what value is a play, a novel, a poem, or a short story? Is literature worthwhile for its ability to tell a good story or for its questions that do not lend themselves to easy answers? Can literature improve our lives, individually and collectively? The course may also take advantage of literary events occurring on campus each semester--such as poetry readings, dramatic performances, even films relating to the course -- to enrich the experience both of literature and of campus life.

Bachelor of Arts: Humanities
 General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

ENGL 103: The Great Traditions in American Literature

3 Credits

Fred Lewis Pattee's career at Penn State marks the beginning of a heyday for the study of American literature. By the 1930s, prominent American critic Granville Hicks hailed what he dubbed "the great tradition of American literature" as a series of key themes in American writing, including folk traditions, politics, business, labor, social critique, fugitives,

and flight. Since Hicks's time, literary scholars have contested the very notion of any "great tradition," because so many different authors have always participated in the American literary scene. This course examines American literature by looking at the dynamic and varied literary productions that, across time, have comprised the American literary canon, even as it calls into question the notion of whether America ever had a single literary canon, whether historically or in the present day. Students will learn how access to educational institutions, to writing equipment, and to printed and graphic materials all influenced who might become an author, and who, a reader. They will also learn how changing political and cultural institutions influenced writers' literary production and literary achievements. With text selection at the instructors' discretion, students will study poetry, fiction, non-fiction, oratory, and drama, and they will examine many of the most enduring themes in American literature: religion; moral and ethical ideals; the lure of mobility, especially upward mobility (or absence of it); gender dynamics; enslavement, abolitionism, and emancipation; race and ethnicity; the lure (and social complications) of the American West; American pragmatism; love and loss; hope and despair. Students will be asked to take up such questions as the following: Who has had a voice in American literary history? Why are some writers more frequently studied than others? Who determined what should be considered "great" literature inside the academy? In what ways does the study of American literary history uphold American values of freedom and freedom of expression? Who had access to publication, when, and under what circumstances? How does the publishing marketplace influence readers' choices regarding "great" American literature? How do educational institutions influence readers' choices? The course aims to provide a foundation for further study of American literature by equipping students with an understanding of the American literary past and its complex relationship to American culture and to American educational, political, and marketing institutions. Instructors might examine one or two key themes in the tradition, or they might ask students to learn about sweeping literary movements across time.

Bachelor of Arts: Humanities
 United States Cultures (US)
 General Education: Humanities (GH)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies
 GenEd Learning Objective: Soc Resp and Ethic Reason

ENGL 104: The Bible as Literature

3 Credits

This course examines the literature of the Bible. Throughout this course, students will study the language, thought, images, and structures of the book that has arguably proved the central text of Western literature. Students will also actively explore the ways in which the Bible has shaped the literature of English-speaking cultures around the world. Students will read substantial portions of the Old and New Testaments, learning to read critically and to interpret the Bible as they would any other literary text. They will also learn about the historical construction of the Bible, some history of its translation, and contemplate the competing versions of existing Biblical texts. Accordingly, reading the Bible as literature by necessity requires critical engagement with different international cultures from different historical periods.

Cross-listed with: JST 104
 Bachelor of Arts: Humanities
 International Cultures (IL)

General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking

ENGL 105: American Popular Culture and Folklife

3 Credits

AMST 105 / ENGL 105 offers a survey of popular culture and folklife in America's past and present. The course synthesizes a broad scope of materials from areas such as literature, movies, television, sports, amusement parks, music, media, and advertising. While selected topics for readings, lectures, and discussion vary from class to class, all courses focus on a critical examination of a variety of popular and folk cultures in order to produce an enriched understanding of America, its past, its diverse cultures, its evolving values and traditions, and its inhabitants. To meet this goal, popular and folk cultures will be examined from a variety of perspectives, including race, gender, and class. AMST 105 may be taken by students pursuing the American Studies major; for them, the course provides preparation for more advanced courses in American folklore, American literature, and American cultural history. Non-American Studies students may use this course to fulfill the general education requirement (GH). Students will receive the US designation for this course, and it meets the Bachelor of Arts degree requirements.

Cross-listed with: AMST 105
 Bachelor of Arts: Humanities
 United States Cultures (US)
 General Education: Humanities (GH)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking

ENGL 106: The Lynd Ward Graphic Novel Prize

1 Credits/Maximum of 3

This course is offered in tandem with The Lynd Ward Graphic Novel Prize, sponsored and administered by Penn State University (the first prize of its kind in the United States). The Lynd Ward Prize is awarded annually to the best graphic novel, fiction or non-fiction, published in the previous calendar year by a living U.S. or Canadian citizen or resident. The course provides background for the history of the graphic novel in the United States, with a focus on Lynd Ward's woodcut novels from the 1930s. Students also study the winning book, attend the award ceremony and public talk from the creator(s), and meet with the creator(s) to discuss their work. This is a one-credit course with limited meetings.

ENGL 108N: Buddhism and US Society

3 Credits

This course focuses on Buddhism in the United States. We will overview the historical factors that led to the development of Buddhism in the U.S., the many traditions that currently exist in the U.S., the role of Buddhism in the daily lives of different types of Americans, and various problems or frameworks that have characterized American Buddhism (such as race, gender, technology, and media representations). One major theme of the course is literary expressions of American Buddhism, such as the writings of Jack Kerouac and bell hooks. A second major theme, Buddhist meditation, will be explored through interdisciplinary perspectives drawing from both the humanities and social sciences. In the final portion of the class, we will focus on Buddhism in Pennsylvania, involving

students in an ethnographic exploration of the religious pluralism in our home state.

Cross-listed with: RLST 105N, SOC 130N

Bachelor of Arts: Humanities

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

United States Cultures (US)

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

ENGL 110: Newswriting Practicum

2 Credits/Maximum of 6

Practice in writing and editing articles for the campus newspaper.

Bachelor of Arts: Humanities

ENGL 111: The Possibilities of English

2 Credits

This course familiarizes students with the range of professional possibilities offered by the English major.

ENGL 112: Pennsylvania Literature

3 Credits

This course introduces the variety of literature that has been written and published by Pennsylvania authors from the colonial era through the present day. This course explores how the literature written in Pennsylvania relates to historical developments within the Commonwealth, and to literary, cultural, and historical developments across the United States and throughout the world. Toward that end, the course provides a chronological survey of developments in the literature of Pennsylvania through readings from the work of Pennsylvania authors whose work illuminates developments in literary history and exemplifies important aspects of Pennsylvania history and culture.

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

ENGL 114: Modern Pagan Traditions and Texts

3 Credits

This course introduces students to modern Paganism through the literary traditions that inform contemporary Pagan religions. From popular culture approaches to Norse myths to the ancient tales of Slavic folklore and Celtic Fairy Faith, this course builds understanding of the beliefs and foundational narratives of modern Pagan religion(s). Students will examine some of the stories of Norse, Slavic, Hellenic, Egyptian, and Celtic mythology from a Pagan perspective. Finally, this course will engage students in interpretation and analysis of the literary and religious significance of these stories.

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

ENGL 115N: Arts of Love

3 Credits

This course will familiarize students with expressions of love in Western arts and literature. Students will analyze the artistic, philosophical and literary representations of courtship, friendship, homoeroticism, sexuality, marriage, adultery, and familial bonds and explore how the preceding phenomena are inflected by gender roles, race and miscegenation, and class and religious differences. We will also trace the way particular narratives about love have been adapted by different artistic media. Love is a universal human experience and its study transcends disciplinary boundaries. It is a linchpin of human existence, uniting and enriching nearly any subject worthy of serious study.

Cross-listed with: ARTH 115N

General Education: Arts (GA)

General Education: Humanities (GH)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

ENGL 118: Music and Literature

3 Credits

This course explores depictions and inclusion of music in different literary forms over time, such as poetry, drama, fiction, and comics. Course topics can include the connections between poetry, song, and lyric; the presence of music in different kinds of drama; the textual, visual, and performative culture of specific musical traditions (such as opera, punk, hip-hop, and/or metal); ways to appreciate songwriters and performers as both musical and literary artists; and music as a medium for expressing identity and culture, primarily through written and visual texts.

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

ENGL 120: Difference in Early Literature

3 Credits

This course explores representations of identity and community in early literature, from classical traditions through the early modern era. How did early literature engage issues of cultural contact, conflict, and/or exchange, such as those created through trade, warfare, religious conflict, migration and/or travel? How did early writers conceive of and represent difference, and to what ideological and/or aesthetic end? Additionally, students will consider how these early representations have influenced later cultural productions and events, from modern politics (nationalism, neo-paganism) to popular entertainments (films, video games, graphic novels).

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Key Literacies

ENGL 124: Legal Fictions: Law, Justice, Literature

3 Credits

This course explores intersections between literature and law, with attention to issues of social justice. How are social concepts and procedures of law and justice represented in different texts and media over time, both fictional and nonfictional? How have texts worked to define and justify the law and its application at different historical moments in the United States? Course content includes select literary works with legal content and themes, and the ways in which those texts represent different forms of justice, crime, and punishment. Students may also analyze legal writing (judicial decisions, jurisprudence, statutes); examples of the 'true crime' genre (visual and textual); memoir; and/or essay writing.

United States Cultures (US)
 General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Soc Resp and Ethic Reason

ENGL 125: On the Farm: Agriculture and Literature

3 Credits

This course explores representations of farming in literature, with a focus on American texts. How have literary and popular texts shaped cultural perceptions of agriculture in the United States? How have novels, poetry, drama, and films defined and challenged cultural understanding of the practices, participants, and values (economic, cultural, ethical) of farming? Topics might include representations of the family farm and its significance, concepts of property and cultivation, historical developments in agri-business, and/or the U.S. farm and farmer in the cultural imagination.

United States Cultures (US)
 General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think

ENGL 126: Bad Literature

3 Credits

This course explores texts and traditions that were once considered non-literary but are now the object of critical inquiry and/or aesthetic appreciation. In other words, how does trash become literature? Course content includes texts and media once considered to be in bad taste or to have come from disreputable publishers and venues. Other considerations might include aesthetic and commercial issues (genre and series fiction, bestsellers); the presence of polemics and propaganda in fiction; and/or the formation and influence of different processes of critical exclusion and inclusion.

General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

ENGL 128N: The Holocaust in Film and Literature

3 Credits

This class studies how art, literature, film, and other media can help us to gain a perspective on one of the most horrific events in human history, the Holocaust: the genocidal murder of more than six million men, women, and children (mostly Jewish) under the Nazi regime during World War II. We will also examine the theoretical questions involved in any attempt to capture what appears to be beyond our comprehension, in terms of moral outrage and the sheer scale, inhumanity, and bureaucratic efficiency. To this end we will study literary works, such as Primo Levi's *Survival in Auschwitz*, films such as Steven Spielberg's *Schindler's List*, Roman Polanski's *The Pianist*, and Roberto Benigni's *Life is Beautiful*, as well as photographs, poems, artworks, installations, museum architecture, the design of monuments and other artifacts. We will also examine questions of memorialization (Holocaust museums and memorials), national guilt, survivor's guilt, stigmatization, and the ethics of historical representation.

Cross-listed with: CMLIT 128N, GER 128N, JST 128N
 Bachelor of Arts: Arts
 Bachelor of Arts: Humanities
 International Cultures (IL)
 United States Cultures (US)
 General Education: Arts (GA)
 General Education: Humanities (GH)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies
 GenEd Learning Objective: Soc Resp and Ethic Reason

ENGL 129: Shakespeare

3 Credits

English 129 constitutes a broad introduction to Shakespeare's dramatic works from a variety of thematic, historical, formal, and/or generic vantages. Students practice close reading Shakespeare's language while also learning how his plays reflect upon the social and theatrical conventions of the historical period in which they were written and performed. The class will consider issues such as gender, social class, politics, sexuality, and race, as students learn how early modern perspectives on these issues may differ from their own. In order to analyze how Shakespeare's plays continue to be adapted and transformed around the world, the class may also involve the study of modern stage and film performances of Shakespeare. This class prepares students for advanced courses in early modern literatures as well as other academic courses that engage in the verbal and written analysis of complex written texts.

Bachelor of Arts: Humanities
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

ENGL 129H: Shakespeare

3 Credits

English 129H constitutes a broad introduction to Shakespeare's dramatic works from a variety of thematic, historical, formal, and/or generic vantages. Students practice close reading Shakespeare's language while also learning how his plays reflect upon the social and theatrical conventions of the historical period in which they were written and performed. The class will consider issues such as gender, social class, politics, sexuality, and race, as students learn how early modern perspectives on these issues may differ from their own. In order to analyze how Shakespeare's plays continue to be adapted and transformed around the world, the class may also involve the study of modern stage and film performances of Shakespeare. This class prepares students for advanced courses in early modern literatures as well as other academic courses that engage in the verbal and written analysis of complex written texts.

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

Honors

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

ENGL 130: Reading Popular Texts

3 Credits

READING POPULAR TEXTS explores a variety of popular texts across various media with the goal of enabling students to sharpen their ability to interpret the social, political, and cultural significance of such texts in the contemporary world. Since these texts are primarily examples of popular culture-pervasive, selfreplicating, commercialized artifacts of the contemporary scene-they are familiar to the general student outside the classroom. Too often, however, students have not seen such texts subjected to the same kind of critical readings more elite cultural forms (e.g., canonized literature, art, and music). The purpose of the course is fulfilled if such students come away from it with a sharpened awareness of the role that popular texts play in their daily lives and the means to discuss and explain their influence-in short, to read their culture more critically.

Bachelor of Arts: Humanities

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

ENGL 131: Weird Tales: Literature of Horror and the Supernatural

3 Credits

This course surveys the long tradition of literature that depicts the intrusion of supernatural forces into social order. The fantastic or horrific elements of these tales might be their best-known traits, but such literature can also express social desires and fears, as well as ruminate on personal and political history. The supernatural, in other words, works to reveal those individuals and institutions that face it. This course explores a range of horror writing, investigating issues raised by individual texts and considering possible connections between them.

Bachelor of Arts: Humanities

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

ENGL 132: Jewish American Literature

3 Credits

This course will provide an introduction to Jewish American literature through a historical survey of the tradition's key texts, figures, and themes. The course will focus on the defining aspects of the literature and on what the literature "thinks" about Jewish American culture and identity. But rather than assuming a unity to Jewish-American culture, this course will use Jewish literature to seek ways of articulating and representing both the points of cohesion and the points of divergence that characterize Jewish life in America. The United States has absorbed large numbers of Jewish immigrants hailing from many parts of the world, holding many different ideas about Jewish practice, and affiliating themselves with many different political, social, and cultural traditions. Moreover, Jews have settled and made homes in a wide variety of American communities. This course aims to explore Jewish American culture's marked diversity by offering a literary window onto the major fault-lines running through Jewish American culture: lines demarcated by gender, by political affiliation, by geography, by pre-immigration community by religious practice, by attitude toward world Jewry, by national allegiance, and by minhag (or custom), to name just a few. The class therefore provides an opportunity to consider the constitution, origin, and development of Jewish American's identity and social formations by looking at how that identity and those social formations exist and what they "do" in literature written by and about Jews in America. Materials will consist predominantly of primary texts, including prose fiction and nonfiction, poetry, drama, and film. Course methodology will emphasize the close reading of these texts. The course complements offerings in Jewish Studies and English, and it will satisfy the GH and US requirements. Most obviously, the course will offer students of Jewish literature, world literature, and American literature an opportunity for contextualization. It enables students in Jewish Studies to study the rich literature of American Jews, and it adds to courses covering Jewish American history, religion, and culture. The course offers students in English a valuable, sustained introduction to an important U.S. and world sub-culture.

Cross-listed with: JST 132

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

ENGL 133: Modern American Literature to World War II

3 Credits

ENGL 133 Modern American Literature to World War II (3) (GH)(BA)(US)
This course meets the Bachelor of Arts degree requirements. ENGL 133 will constitute a wide ranging study of modernist American literature, and may include novels, short stories, poems, plays, and non-fictional prose, written roughly between the turn of the 19th century and the end of the Second World War. The class will approach this literature from a variety of thematic, historical, and/or generic vantages. Topics under consideration

will vary from class to class, but may include a chronological introduction to the development of modernist American literature, a consideration of a principle theme or themes common to modernist American literature through a number of works from across the period, a consideration of a number of modernist works in the context of historical events central to the period, such as the American participation in the First World War and/or the effect on American literature of the ensuing world-wide economic depression. This class will prepare students for advanced courses in modernist literatures as well as other academic courses that engage in the verbal and written analysis of complex written texts. The course may be used as English Major elective credit or as credit towards the English Minor. Non-English majors may use this course to fulfill a general education, U.S. cultures, or Bachelor of Arts/Humanities requirement.

Bachelor of Arts: Humanities
 United States Cultures (US)
 General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

ENGL 134: American Comedy

3 Credits

ENGL 134 serves as a survey of and introduction to strands of American comedy and satire from its eighteenth- and nineteenth-century roots through its many directions in the twentieth century. Students will read works from multiple literary genres-poetry, novel, short story, drama, and essay, for instance. The course will help students to understand how both formal and contextual considerations shape American comedy through the centuries. Authors under consideration will vary from class to class, but selected texts will represent many variations of comedy embodied in American literature and present across an evolving media landscape. ENGL 134 is a General Education course in the General Humanities domain. ENGL 134 can also be used as a requirement for the English major and minor.

Cross-listed with: AMST 134
 Bachelor of Arts: Humanities
 United States Cultures (US)
 General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Key Literacies

ENGL 135: Alternative Voices in American Literature

3 Credits

English 135 considers literature from diverse backgrounds (for example, Latino, African-American, Asian-American, Native-American, Jewish, Muslim, working-class, lesbian, gay, or women's literature, or any other configuration that expresses an alternative literary heritage to traditionally canonized texts). Course content will subsequently vary.

Cross-listed with: AMST 135
 Bachelor of Arts: Humanities
 United States Cultures (US)
 General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

ENGL 136: The Graphic Novel

3 Credits

This course considers the contemporary graphic novel (also known as graphic fiction, comics, or sequential narrative) as a literary medium that joins image and text. Course texts engage issues such as contemporary identity, alienation, ethnicity, sexuality and history (personal, family, and national). The course explores the aesthetic of sequential narrative, its formal properties and generic range, its methods of production and consumption, and its place in a contemporary culture of reading.

Bachelor of Arts: Humanities
 General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think

ENGL 137H: Rhetoric and Civic Life I

3 Credits

Rhetoric and Civic Life (RCL) is a year-long honors course offering comprehensive training in oral, written, visual, and digital communication. It unites these various modes under the flexible art of rhetoric and uses rhetoric both to strengthen communication skills and to sharpen awareness of the challenges and advantages presented by oral, written, visual, and digital modes. This portion of the course, CAS/ENGL 137 focuses particularly on two critical academic capacities: analyzing and contextualizing. In this semester, students learn to rigorously examine the rhetoric surrounding them, compellingly present their findings in various modes, and thoughtfully contextualize their research. In this course, students will: -Develop a rich understanding of rhetorical concepts - Practice application of concepts and terms in expressing understanding of effectiveness of rhetoric through analysis and contextualization of existing texts -Enhance communication skills by practicing and applying in a variety of communication modes (written, oral, digital)

Cross-listed with: CAS 137H
 General Education: Writing/Speaking (GWS)
 Honors
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Integrative Thinking

ENGL 138T: Rhetoric and Civic Life II

3 Credits

This course builds rhetorical skills in oral, written, visual, and digital contexts and introduces deliberation and advocacy in civic and disciplinary spheres. CAS (ENGL) 138T Rhetoric and Civic Life II (3) (GWS)ENGL/CAS 138T, Rhetoric and Civic Life II, expands knowledge and aptitudes built in ENGL/CAS 137H by asking students to use rhetorical skills and principles to develop strategies for persuasion and advocacy in the context of civic issues. The course continues the multimodal emphasis-the focus on oral, written, visual, and digital communication-used in 137H and adds new components as well. Students will develop a repertoire of communication skills through hands-on practice at composing and delivering speeches and essays, and they will work with digital media to create multimedia texts, podcasts, and websites. Students will reflect on these different modes as themselves rhetorical choices. The course's civic and ethical components take center stage

as students learn how to deliberate important public issues thoughtfully and with civility and respect. They will learn the difference between persuasion and advocacy and develop strategies for both in the context of pertinent local, national, and global issues. They will participate in a public deliberation forum on topics they generate and vote on. The forum will be organized to allow small deliberative action groups as well as large forum-style meetings. The course focuses on ethics in many contexts, e.g., community action and public deliberation; ethics of persuasion; ethical controversies in the disciplines. Students will be encouraged to explore percolating disciplinary interests and to share knowledge in online disciplinary communities. Students will work throughout the semester to design and build a final electronic portfolio that represents their academic work with an eye to their imagined professional futures. The portfolio assignment offers students an opportunity to reflect on their work, assessing the merits and themes of inquiries, and to curate and present their work to both targeted and broad online audiences.

Enforced Prerequisite at Enrollment: ENGL 137H or CAS 137H

Cross-listed with: CAS 138T

First-Year Seminar

General Education: Writing/Speaking (GWS)

Honors

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

ENGL 139: African American Literature

3 Credits

This course offers an introduction to African American literature from the early writings of slavery and freedom to the works of present-day African American authors. We will explore the major themes, literary traditions and narrative strategies that merge and shape this body of literature, considering, for example, the influence of double-consciousness, questions of authenticity and performance, representations of blackness and whiteness, the significance of place, and the persistent presence of folklore and vernacular traditions. Our analyses of texts will be attentive to the intersections of race, class, gender, and sexuality, and by the end of the course you will be able to discuss fluently several literary techniques and strategies including irony, satire, narration, voice, characterization, imagery, style and setting. We will situate texts in their various historical and cultural contexts, and you will be introduced to key literary concepts and terms that should inform your reading and writing about these texts. You will learn how to analyze literature, do close and careful readings of texts and write persuasively about literary works. Students will engage in thoughtful, creative and open-minded class discussions, analyze literature and do close and careful readings of texts.

Cross-listed with: AFAM 139

Bachelor of Arts: Humanities

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

ENGL 140: Contemporary Literature

3 Credits

Writers such as Baldwin, Beckett, Bellow, Ellison, Gordimer, Lessing, Lowell, Mailer, Naipaul, Pinter, Plath, Pynchon, Rushdie, and Walker. ENGL 140 Contemporary Literature (3) (GH)(BA) This course meets the Bachelor of Arts degree requirements. ENGL 140 will constitute a wide-ranging study of contemporary literature written in English, including novels, short stories, poems, plays, and prose, written roughly between the end of the Second World War and the present. The class will approach this literature from a variety of thematic, historical, and/or generic vantages. Authors under consideration will vary from class to class, but may include writers such as Baldwin, Beckett, Bellow, Ellison, Erdrich, Delillo, Kingston, Lee, Pynchon, Gordimer, Lessing, Lowell, Mailer, Naipaul, Pinter, Plath, Rushdie, Silko, and Walker. Topics under consideration will vary from class to class, but may include a chronological introduction to the development of contemporary literature, a consideration of a principle theme or themes common to contemporary literature through a number of works from across the period, a consideration of a number of contemporary works in the context of historical events central to the period, a consideration of a number of contemporary works in the context of formal or aesthetic elements common to those works and their various effects. Time allotted for the study of the works under consideration will vary. This class will prepare students for advanced courses in post-modern and contemporary literatures as well as other academic courses that engage in the verbal and written analysis of complex written texts. Students will be evaluated by means of essays written in and out of class, essay exams, term-long reading journals, and class participation. Students should expect to complete a minimum of three written assignments in the course of the term. The course may be used as English major elective credit or as credit towards the English minor. Non-English majors may use this course to fulfill a General Education or Bachelor of Arts/Humanities. The course will be offered once a year with 60 seats per offering.

Bachelor of Arts: Humanities

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

ENGL 140H: Contemporary Literature - Honors

3 Credits

ENGL 140H offers a wide-ranging study of contemporary literature written in English across different forms and/or media. The class will approach this literature from a variety of thematic, historical, and/or generic vantages. Authors and texts under consideration will vary by instructor. Topics under consideration will likewise vary from class to class, but may include a chronological introduction to the development of contemporary literature, a consideration of a principle theme or themes common to contemporary literature through a number of works, a consideration of a number of contemporary works in the context of historical events central to the period, a consideration of a number of contemporary works in the context of formal or aesthetic elements common to those works and their various effects.

General Education: Humanities (GH)

Honors

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

ENGL 141N: African American Read-In Engaged Learning Experience

1-3 Credits/Maximum of 6

This course will allow students to study African American literature, culture, history, and arts in connection with an annual public event, the African American Read-In (AARI). The AARI, promoting literacy and appreciation of African American literature, is a national event established in 1990 under the auspices of the National Council of Teachers of English. It has become a regular feature of Black History Month celebrated by community, neighborhood, and church groups as well as schools and institutions of higher education throughout the United States and elsewhere on a given Sunday and Monday in February attracting more than a million participants annually. This course offers students an engaged learning experience in which they will produce original intellectual and artistic content to be presented publicly at an AARI event on campus. Students will study texts from a range of historical periods and/or genres, and thus gain a solid introduction to the African American literary tradition. At the same time, the primary organizing principle of the course will be a particular theme that both allows a broad and coherent overview of a significant cultural or historical topic and engages issues of cultural diversity in the United States. The specific theme, thus, will bring the study of African American literature into a broader interdisciplinary context that intersects with African American culture, history, identity, and the struggle for equality. Students will study texts that relate to this annual theme and participate in a relevant field trip (museum, theater, cultural site, library, etc.) to deepen their understanding of the significance and contexts, social, historical, cultural, artistic of these materials and this theme. They will then develop this knowledge through creative and critical engagements into exhibitions, presentations, or performances to communicate their insights about a particular author, text, or topic in the African American literary tradition. As shapers of the AARI program on their campus, class members will also have a voice in designing and planning the AARI as well as a stake in its overall success. As this course necessarily spans semesters, students who enroll in the Fall course will be expected to enroll in the Spring course in order to present their projects at the AARI in February. Only students who were enrolled in the Fall course will be permitted to enroll in the Spring, as it is the culmination of the same course.

Cross-listed with: AFAM 141N, INART 141N
United States Cultures (US)
General Education: Arts (GA)
General Education: Humanities (GH)
General Education - Integrative: Interdomain
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Creative Thinking
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Integrative Thinking

ENGL 142N: Science in Literature

3 Credits

The course explores two streams in parallel. Students will examine selected historic landmarks in science (e.g. evolution, atomic energy/weapons, climate change, biotechnology), with a focus on common misconceptions about the facts and practice of science. The course

will also examine the development of literary and popular portrayals of science and scientists in their political, economic, social and cultural contexts, paired to these particular scientific developments. By considering past and current scientific problems, students will refine their quantitative and analytical skills. By considering scientific writing, novels, short stories, graphic novels, cinema, poetry, and other forms, students will refine their critical and reflective writing and speaking about both the rhetorical and discursive practices of science writing, and the social and cultural impact of literature in popular understandings of science.

Cross-listed with: SC 142N
General Education: Humanities (GH)
General Education: Natural Sciences (GN)
General Education - Integrative: Interdomain
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Key Literacies

ENGL 144: Everyday Rhetoric

3 Credits

This course provides a general introduction to the practices and traditions of rhetoric, as well as its presence and use in daily life. How do speakers and writers use language to move audiences in strategic ways? How have different forms of technology facilitated or limited different modes of persuasion? Additional topics include the consideration of different rhetorical situations, the study of the enduring influence of established rhetorical traditions and devices, and the rhetorical analysis of current popular texts and media (written, aural, visual, digital).

General Education: Humanities (GH)
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

ENGL 145: Modern Irish Literature

3 Credits

Students will learn about Irish literature in the twentieth century and beyond; focus on the interplay of political, social, and cultural forces brought to bear on Irish literature, history, and politics from the early twentieth century to the present. The course will begin with the socio-political implications of the Home Rule movement and the important figures associated with the rise of the Irish Literary Renaissance. Instructors will spend much of the course focusing on canonical figures of modern Irish Literature (such as Joyce, Yeats, Synge, Beckett, Shaw, O'Casey, O'Flaherty, and Lady Gregory). The course will introduce students to the political context and themes of Irish Literary Renaissance (Irish Literary Renaissance), including cultural nationalism. Instructors may draw upon contemporary literary critics, such as Declan Kiberd, Seamus Deane, and Terence Brown, by way of introduction to the ILR. The class will then move on to Post-World War II Irish Literature. In this component of the course, instructors will select literature from writers who began publishing in the Post-War era. These authors may be examined as they follow the legacy of the ILR, or as they challenge it and forge new courses for Irish literature. In other words, these authors can be writing within or against the traditions and themes of ILR artists' or, more likely, doing both things at once. This component of the course will help students see the enduring legacy of the themes and forms of

the ILR, as Irish authors continually reckon with its massive political and cultural inheritance. The course fulfills IL requirements in its emphasis on postcolonial relationships between Irish identity and culture and issues of British colonial occupation and the influence of American popular culture in the later twentieth century. The interpretive framework of postcolonial studies will inform the instructor's approach to the literature. Postcolonial studies seeks to examine the conditions and tropes of colonial and post-colonial writers and peoples. While postcolonial studies offers broad theories and concepts that can be applied to any postcolonial scene, the movement nonetheless has an interest in studying and honoring the regional particularities and the specific reaction of its writers to the postcolonial moment. This interplay of the unifying, international experience of colonialism with the particularity of individual nations and writers helps students to become sensitive to ideas of nation, unity, and difference. More so, the tropes of postcolonial literature, and Irish literature especially—focus on concepts of hybridity, the Other, contact zones, modernity vs. tradition, national identity, and personal identity, all on which seek to understand the self and others within an intercultural context. The literature of the IRL also explores the corrosive effects of British imperialism, which helps students to consider whether might makes right; and interrogate various forms of cultural imperialism, then and now. The literature of the IRL also promotes themes of intercultural understanding, featuring examples of reconciliation and compromise between tradition and modernity, and, more importantly, between Irish, American, and British characters. Assignments will help students focus on issues of identity construction, and social and political conflicts within and between cultures (Ireland in relationship to British and American culture and influence) within a post-colonial context.

Bachelor of Arts: Humanities
International Cultures (IL)
General Education: Humanities (GH)
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Soc Resp and Ethic Reason

ENGL 161N: The Pursuit of Happiness in American Life: Historical Literature and Modern Practice

3 Credits

When Thomas Jefferson elevated one pursuit to stand with life and liberty as inalienable rights, he eschewed others. The Declaration of Independence features the pursuit of happiness rather than that of amusements, consumer goods, status, money, or ease. Happiness carried a history of deeper meanings in philosophy and religion. In 1776, "happiness" peppered discussions of individualism, rights, civilization, economics, and government, and echoed Ancient Greek dialogues about virtue and civil society. In America, "happiness" joined the religious language of salvation, rapture, and joy to define states of grace. By the twentieth century, happiness became suspect as the term frequently represented a superficial type of enjoyment in needless consumption manipulated through marketing. As happiness came to be twined with wealth and goods, so too did it align increasingly with success in all pursuits. Happiness became a form of winning and a status marker whose overt pursuit was as likely to lead to psychological and social problems as to health. We open with ancient philosophers and modern positive psychologists. The pursuit of happiness reached zenith speed in the history of American literature. From transcendentalists, to pragmatists, self-help, children's fantasy, psychoanalysis, or post-modernism, genres fell out of themselves in the pursuit to merely understand happiness. Novels, poems, memoirs,

films, popular psychology, medical literature, memes, and blogs addressed happiness from nearly every conceivable angle to explore strategies such as choosing positive thoughts; stilling thoughts; cultivating enriching interests and habits; influencing our moods and emotions; and optimizing strategies for securing the resources, skill-sets, possessions, and relationships that encourage happiness. Some of these achievements aligned with health and economic benefits and introduced limitations in access or cultural relevance. Bio-behaviorists are exploring correlation vs. causation and ways of assessing social and individual well-being. Bringing modern bio-behavioral methodologies into the chronological narrative creates unprecedented opportunities for integrative study. Experiential elements of wellness fulfill goals of General Health and Wellness, identifying "wellness as a positive state of well-being, not merely the absence of disease." Students will learn the most promising research on generating tangible, healthful benefits in individuals and communities and be introduced to sources for further learning, continuing to learn and pursue long-term happiness.

Cross-listed with: HIST 162N
Bachelor of Arts: Humanities
United States Cultures (US)
General Education: Humanities (GH)
General Education: Health and Wellness (GHW)
General Education - Integrative: Interdomain
GenEd Learning Objective: Creative Thinking
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Key Literacies

ENGL 162N: Communicating Care

3 Credits

Communicating Care ENGL 162N / SOC 162N / CAS 162N What do we talk about when we talk about health? Our states of well-being and illness are topics that, like the weather, drive our daily conversations, but we rarely have time to study and practice these vital exchanges. Spoken in emergency rooms or on long-distance calls, by medical professionals, family members, or strangers making small talk, the languages we use to share pain and recovery require our knowledge of long-established scripts and our willingness to improvise. By exploring how these encounters draw from and work as textual and dramatic performances, this course will guide students to achieve a new level of literacy in the most essential communicative art of caring. Students will analyze health conversations in literary texts, such as short stories, poems, memoirs, and graphic novels. They will explore real-life scenarios drawn from their own experiences, fieldwork, social science theories, and published case studies. Developing skills in the humanities (GH), they will see how subjective, often individual experience, historical perspectives, and creative expression help people to communicate about health and care. Developing their abilities in the social and behavioral sciences (GS), they will see how theory provides insights to predict and understand health and practices of care, investigate objective perspectives and recognize the contributions of fieldwork and data-driven studies to analyzing and improving communication when health is a main concern. They will integrate these methodologies especially to pursue these fields' common goals of making beneficial connections between individuals and groups, and managing private and public life.

Cross-listed with: CAS 162N, SOC 162N
General Education: Humanities (GH)
General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies
 GenEd Learning Objective: Soc Resp and Ethic Reason

ENGL 163N: Defining the Animal

3 Credits

Is it possible to comprehend the mind of another species? Can humans communicate with other animals? Do they have anything to say? In 1859, the publication of Darwin's *The Origin of Species* set the stage for the scientific investigation of animal minds. This course studies both scientific and non-scientific approaches to the study of thinking and emotion in animals. Students contemplate what researchers, artists, philosophers, writers and filmmakers learn by investigating the minds of animals, focusing on breakthroughs as well as misconceptions. Students conduct their own research on such topics as animal cognition and intelligence, animal language, anthropomorphism, animal testing and bioethics. Examples will be drawn from a range of disciplines in an effort to answer the central question: what is an animal, and what is a human?

General Education: Humanities (GH)
 General Education: Natural Sciences (GN)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Soc Resp and Ethic Reason

ENGL 165N: Work and Literature

3 Credits

If you get a job out of college, work eight hours a day, fifty weeks a year, and retire at age 65, at that point you have will spent roughly one third of your adult, waking life at work. And that is just paid work. Add in housework, childcare, and other forms of unpaid labor and the share of your waking hours devoted to work creeps closer to one half. And those calculations may actually underestimate the influence work has over your life. What you do will determine where you live, how you live, and, perhaps, whether you believe you have ultimately done something meaningful with your life. With work playing such an outsized role in a life, you may as well understand it as best you can. Hence this class. In it, we approach the question of work from the perspective of two disciplines: labor and employment relations and literature. The field of labor and employment relations asks about the social and economic forces—markets, compensation, globalization, immigration, etc.—that shape work. By contrast, the discipline of literature takes a more subjective approach to the question of work. Very broadly speaking, it shows how the forces that shape work play out in individual lives. In short, it shows how individuals feel about the work they do or, in the case of the unemployed, they do not do. Together, the two disciplines provide a global and personal perspective on one of the most important parts of our lives. Students registering for the course will read representative selections from both domains, engage in course discussions, take exams, and write essays as they explore the variety of ways both labor and employment relations and Literature can prepare them for their work lives and help them understand the place of work in culture and society.

Cross-listed with: LHR 165N
 General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Soc Resp and Ethic Reason

ENGL 170N: Introduction to American Folklore

3 Credits

This course introduces the verbal and nonverbal genres of folklore that have influenced literature, economics, politics and culture in North America. Approaching folklore as traditional patterns, practices, and performances, the course explains folklore to be fundamental to human cultural life, and therefore an intimate part of the identities and values that Americans express in contemporary society. It will explore these identities and values on various levels: the individual, the family, the community, the region, the nation, and the world. Folklore, you will discover, is not something confined to the past, but all around us in the present, and is continually emerging anew. Students will read and discuss a number of folk genres, including folk speech, narratives, beliefs and religious experiences, use of space, and material culture. Students will learn strategies for researching, "reading," and understanding the verbal and nonverbal folklore of diverse communities. The class may include readings on cultural traditions drawn from Native American, Latinx, African American, and immigrant cultures, as well as other folk groups defined by social identities such as age, occupation, gender, sexuality, or religion. By the end of the course, students will be able to recognize the cultural, political, and historical implications of such traditions. Assignments will include a fieldwork project; involving first-hand interviews, site observations, and archival research; to document, annotate, and analyze oral traditions. Students will be evaluated on the basis of class discussion, oral presentation and group exercises, in-class examinations, and the fieldwork portfolio.

Cross-listed with: AMST 170N
 Bachelor of Arts: Humanities
 United States Cultures (US)
 General Education: Humanities (GH)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Soc Resp and Ethic Reason

ENGL 179: Exploring the Literature of Food: Current Trends in American Food Writing and Environmentalism

3 Credits

"Exploring the Literature of Food: Current Trends in American Food Writing and Environmentalism" begins by demonstrating the deep history of environmentally-minded agriculture in American thought. In the sample course, an understanding of the relationship between environmentalism and farming is developed through a consideration of thinking about food and food production in texts from the seventeenth through nineteenth centuries. These texts might touch on the importance of notions about the political importance of yeoman farmers, thoughts on the blending of cultivation and wildness, and late-nineteenth-century critiques of cruel and unsanitary industrial food production. The class might then turn to texts that argue for a return to sustainable agriculture in terms of Jeffersonian democracy and the ideal of the citizen-farmer. The

topics raised in the first portion of the course include environmentalism, the role of labor in America, and the history of the industrialization of farming in the post-World War II era. From these origins, the course progresses into a consideration of the contemporary moment. It is clear that a great deal of change has occurred since mid-twentieth century critiques, and students are encouraged to trace the development of topics from the first portion of the syllabus in the later material. For example, the development of organic food standards by the FDA has resulted in a new system of organic industrial agriculture, which is compared to small scale agriculture by Michael Pollan, and Eric Schlosser updates muckraking investigations of labor and sanitation by turning to modern investigative journalism into the production of meat and the standards of uniformity set by fast food chains. The course ends with a consideration of the future of food as writers have imagined it. With a recommended experiential component, students are learning about the history of food production and writing about it while they encounter farmers who practice sustainable agriculture. Ideally, students learn from both the literature and from the farmer how something as practical as the production of food can be informed by philosophy and literature.

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

ENGL 180: Literature and the Natural World

3 Credits

This course is an introduction to literature that takes as its subject the natural world. Students will practice the methods of ecologically oriented literary analysis (eco-criticism) and they will learn to contextualize the major historical periods, movements, and arguments for the necessity of literature about the natural world as it intersects with environmental studies. The course can cover anything considered "literature," but namely fiction, poetry, nonfiction, and drama. Students will examine not only strategies of description, but also literature's unique ability to showcase conflict, reflection, and insight when it comes to protecting our environment. The course should include literature that addresses the human impact on nature. Students should learn about familiar environments and unfamiliar environments. Students should also come to understand the motivations of the authors.

Bachelor of Arts: Humanities

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

ENGL 181A: Adventure Literature: Exploring the Chesapeake Bay

4.5 Credits

Examines the interconnection of culture and nature in the Chesapeake Bay region through the literature of the region. ENGL 181A Adventure Literature: Exploring the Chesapeake Bay (4.5) The course focuses on a specific place—the Chesapeake Bay and its watershed—that has generated a distinctive regional identity and literature from its natural and social context. The course begins consideration of the concept of watershed, both as a geographical concept and a literary metaphor,

before turning to an examination of the culture(s) and nature of the largest and most important tributary of the Bay, the Susquehanna River. Students will read texts associated with the history and the development of the Susquehanna, with some emphasis on logging, rafting, mining, and hydropower development. Readings here should aim at helping students see how a regional cultural identity has evolved from the river's geography and economics. Focus on the Bay itself, students can learn similar lessons. We begin by looking at the rich native cultures that occupied the region before the advent of Europeans and then move to initial European exploration and settlement. The class might then focus on development (agricultural, cultural, and industrial) of the Bay and Bay Region generally, through readings that might include regional histories and literary works like James Michener's *Chesapeake: A Novel*. Significant attention should be devoted to the sub-culture of the Chesapeake waterman, a regional identity that has generated its own mythology and folklore and has been the focus for numerous writers. Texts might be chosen to show the role nostalgia plays in conceptions of the Bay or the ways in which issues of race, class, and gender are raised by examining representations of the waterman culture. What students should see is how literature and culture are transformed over time, while resonances of former place identities remain. Finally, the course will turn to the Bay as it is today and how the representation of place and regional identity in literature has changed over time. This course was designed to include out-of-the-classroom educational experiences on the Susquehanna River and other tributaries of the Bay and on the Chesapeake Bay itself. The trips should provide students opportunities to fully understand the interconnections of nature and culture in the Bay region. They should also allow students the chance to travel in the footsteps of the writers they read in venues throughout the region. The goal is to both see how a distinctive culture derived from the natural circumstances of the Chesapeake and to understand how that culture might continue (or not) into the future.

Bachelor of Arts: Humanities

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

ENGL 181B: Adventure Literature: Exploring Cape Cod

4.5 Credits

Examines the interconnection of culture and nature on Cape Cod through considerations of texts in various literary genres that have contributed to development of a distinctive regional identity and culture. ENGL 181B Adventure Literature: Exploring Cape Cod (4.5) The purpose of this course is to teach students how natural and cultural contexts contribute to the production of meaning in literary texts. In this case, the locality that serves as the focus of study is Cape Cod, arguably the most written-about locale in the United States. The course begins with classes devoted to the Cape's natural history its formation and the ever-present effect of wind and water and then moves to its early human history. Readings in the first part of the course will focus on the period just before and after European settlement and readings could include selections from William Bradford's *Of Plymouth Plantation* or Mourt's *Relation*, both contemporaneous accounts of the Pilgrim's landing on and exploration of the Cape and appropriate chapters from Paul Schneider's history of the Cape, *The Enduring Shore*, and Nathaniel Philbrick's excellent account of the Pilgrim adventure, *Mayflower*. These readings could be enhanced

with selections on the European settlement of the Cape in Robert Finch's anthology of writing about the Cape, *A Place Apart*. This introductory material will lead to the major part of the course, which will be devoted to reading and study of classic literature about the Cape, such as Thoreau's *Cape Cod*, Henry Beston's *The Outermost House*, Wyman Richardson's *The House on Nauset Marsh*, and John Hay's *The Great Beach*, as well as selections of poetry poets associated with the Cape. Each of these works, in its time, represents the writer's attempt to somehow capture and come to terms with the landscape and natural exigencies of the Cape. The focus will then turn to representations of the Cape in the work of contemporary writers, and might include work by Michael Cunningham, Annie Dillard, David Gessner, Cynthia Huntington, and Mary Oliver among others. The course ends with a brief look at Cape Cod's literary and natural future as it has been imagined over the last 140 years. This course was designed to include an out-of-the-classroom education experience on Cape Cod. The trip to the cape should include experiences related to the cultural and natural history of the region, and it should provide students the opportunities to walk in the footsteps of William Bradford, Thoreau, Beston, and Hay, as well as opportunities to see for themselves how the natural features that have inspired the classic and contemporary writers of the Cape will continue to inspire future generations of artists.

Bachelor of Arts: Humanities
 United States Cultures (US)
 General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies
 GenEd Learning Objective: Soc Resp and Ethic Reason

ENGL 181C: The Beach: Exploring the Literature of the Atlantic Shore

4.5 Credits

ENGL 181C - "The Beach: Exploring the Literature of the Atlantic Shore" begins with some exploration of the dynamic forces at work on the barrier beach, with special attention to the ways in which great literature has taken what is described in the scientific literature and turned it into art. Examples for discussion are drawn from the work of such writers as Rachael Carson and Henry Beston. The general concerns of the course then move to environmental ethics, specifically as ethical questions are embodied in literature's representation of the human relationship with the other-than-human world, from such difficult-to-personify species as starfish, snakes, and spiders. General ethical questions then lead to specific treatments of human and wild animal interaction by various writers. The point is to explore how writers represent the optimal sort of relationship humans can have with the wild world, and what such representation might mean to the ways we personally interact with nature. From these opening considerations, the course turns to an examination of the way in which writers who focus on a specific region of the coast—South Atlantic barrier islands, for example—establish a sense of the place in their writing. The course then narrows its focus even more, moving from a consideration of a regional cultural identity to that of specific towns or narrowly defined areas within the general region. This narrowed subject is explored in specific detail, beginning with pre-European cultures, the first explorers and settlers and then moving on to other aspects of the American culture history that make the subject area distinctive. For example, a course on the Low Country of South Carolina might start with the accounts of John Lawson, who published his journal of his own trip up the Santee River in 1701, move to accounts of the rice culture so important to the region in the nineteenth century and to the an examination of the Gullah Geechee culture established by West African

slaves on Low Country plantations, and then move to writing from more recent writers, all of which help to define the area's distinctive cultural and particularly its literary identity.

Bachelor of Arts: Humanities
 United States Cultures (US)
 General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Key Literacies
 GenEd Learning Objective: Soc Resp and Ethic Reason

ENGL 181D: Adventure Literature: Exploring the Literature of American Wilderness

3 Credits

The purpose of ENGL 181D - "Exploring the Literature of American Wilderness" is to study the literature and ideas associated with American wilderness in an experiential context; that is, the heart of this course should be an extended backpacking trip into a federally protected wilderness preserve. So the basic assumption on which this course is founded is that our understanding of literature and other cultural concerns can be enhanced by knowledge of and experience in a place. To achieve its purpose, this course will expose students to the following: - The history of wilderness in American culture, including the ongoing political debate about the meaning, value, and place of wilderness/wildness in that culture. - A representative sampling of the writing that has been directly inspired by wilderness experience. - Philosophical ideas directly associated with wilderness experience. - The rudiments of safe and low-impact backcountry travel and the manner in which to engage in that travel most ethically. - The direct experience of legally protects wilderness itself. - An opportunity, however briefly, to experiment with the Thoreavian notion of "living deliberately." To accomplish this purpose, students will be asked to accomplish some reading and writing (of various types). In a version of this course previously offered, the exploration of the literary representation of wilderness over time—from Puritan historians and Enlightenment philosophers; to Thoreau, John Muir, and Theodore Roosevelt; to contemporary poets, novelists and literary journalists—is framed by reading Roderick Nash's standard history of wilderness in the United States, *Wilderness and the American Mind*

Bachelor of Arts: Humanities
 United States Cultures (US)
 General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies
 GenEd Learning Objective: Soc Resp and Ethic Reason

ENGL 182: Literature and Empire

3 Credits

This course examines literature written in English from countries that were once part of the British Empire or some other European empire. The class will approach this literature from a variety of thematic, historical, and/r generic perspectives. Topics under consideration will vary, but the course will often discuss matters of colonialism, race, and ethnicity, as well as matters of religion, gender, sexual orientation, and global contexts. The principle emphasis of the works in this course will be the consideration of non-European/ non-American societies and the differences between their culture and that of Europeans or Americans. This class will accordingly prepare students to consider social and

cultural problems from a variety of cultural perspectives. This course meets the Bachelor of Arts degree requirements. This course may be used as English Major elective credits or as credit towards the English Minor.

Bachelor of Arts: Humanities
International Cultures (IL)

ENGL 182A: Literature and Empire

3 Credits

Literature written in English from countries that were once part of the British Empire or some other European empire., e.g., India, Canada, South Africa, and others. ENGL 182A Literature and Empire (3) (GH;US;IL)(BA) This course meets the Bachelor of Arts degree requirements. English 182A will constitute a wide ranging study of literature written in English, including novels, short stories, poems, plays, and prose, from countries that were once part of the British Empire or some other European empire. The class will approach this literature from a variety of thematic, historical, and/or generic vantages. Authors under consideration will vary from class to class, but may include writers such as Chinua Achebe, Buchi Emecheta, Alan Paton, David Malouf, Robertson Davies, Ngugi Wa Thiongo, J. M. Coetzee, R. K. Narayan, Amitabha Ghosh, Salman Rushdie, Christina Stead, Thomas Keneally, Jill Ker Conway, V. S. Naipaul, Wilson Harris, and Michael Ondaatje. Topics under consideration will vary from class to class, but the course will often discuss matters of race and ethnicity, as well as matters of religion, gender, sexual orientation and global context, where appropriate. The principle emphasis of the works in this course will be the recognition of non-European/non-American societies and the differences between their culture and that of Europeans or Americans. The conflicts generated by clashing cultures will drive the choice of readings. By the end of the course, students will have studied works from a minimum of five different cultural perspectives. This class will also prepare students to consider social and cultural problems from a variety of cultural perspectives. The course may be used as English Major elective credit or as credit towards the English Minor.

Bachelor of Arts: Humanities
International Cultures (IL)
United States Cultures (US)
General Education: Humanities (GH)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Soc Resp and Ethic Reason

ENGL 182C: Literature and Empire

3 Credits

Literature written in English from countries that were once part of the British Empire or some other European empire., e.g., India, Canada, South Africa, and others. ENGL 182C Literature and Empire (3) (GH;IL)(BA) This course meets the Bachelor of Arts degree requirements. ENGL 182C will constitute a wide-ranging study of literature written in English, including novels, short stories, poems, plays, and prose, from countries that were once part of the British Empire or some other European empire. The class will approach this literature from a variety of thematic, historical, and/or generic vantages. Authors under consideration will vary from class to class, but may include writers such as Chinua Achebe, Buchi Emecheta, Alan Paton, David Malouf, Robertson Davies, Ngugi Wa Thiongo, J. M. Coetzee, R. K. Narayan, Amitabha Ghosh, Salman Rushdie, Christina

Stead, Thomas Keneally, Jill Ker Conway, V. S. Naipaul, Wilson Harris, and Michael Ondaatje. Topics under consideration will vary from class to class, but the course will often discuss matters of race and ethnicity, as well as matters of religion, gender, sexual orientation and global context, where appropriate. The principal emphasis of the works in this course will be the recognition of non-European/non-American societies and the differences between their culture and that of Europeans or Americans. The conflicts generated by clashing cultures will drive the choice of readings. By the end of the course, students will have studied works from a minimum of five different cultural perspectives. This class will also prepare students to consider social and cultural problems from a variety of cultural perspectives. Students will be evaluated by means of essays written in and out of class, essay exams, term-long reading journals, and class participation. Students should expect to complete a minimum of three written assignments in the course of the term. The course may be used as English Major elective credit or as credit towards the English Minor and will be offered once a year, when staffing restrictions permit, with 35 seats per offering.

Bachelor of Arts: Humanities
International Cultures (IL)
General Education: Humanities (GH)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Global Learning

ENGL 183: Adventure Literature

3-4.5 Credits/Maximum of 12

Adventure Literature (ENGL 183) students not only read Thoreau, but like him, they travel to the mountains, the river, or the seashore; they hike, climb, and/or kayak; they interview residents with a stake in the area; and they synthesize their experiences through writing. In this course, students analyze works of fiction, poetry, and nonfiction (including scientific and historical texts) that interrogate human relationships with a specific natural environment or region. As part of the course, students visit the region that inspires that literature they explore its wild places on foot and/or by water, and meet authors, activists, and experts invested in its continued legacy. The course combines physical adventure with intellectual rigor; students of all majors will hone their writing and close reading abilities, enhance their analytical and integrative thinking skills, and gain unique insight into diverse US values, traditions, beliefs, and customs rooted in place and environmental practice.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

United States Cultures (US)
General Education: Humanities (GH)
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Soc Resp and Ethic Reason

ENGL 183N: The Cold War in Literature, Politics, and History

3 Credits

The course will focus on the history and politics of the Cold War and its depiction in literature and film, especially in British and American literature, but also in that of other countries. Students will read political science and history texts, novels, short stories, and poetry, and view

films. Students will analyze the reasons that the Cold War has been and continues to be a major inspiration for literary production and a transformative influence on literary style. Students will be encouraged to explore alternative methodologies for research on cold war topics including the use of primary sources, for ex. documents from the intelligence community archives that have since been declassified. In addition to a class field trip, students will be encouraged to make additional site visits to appropriate institutions in U.S. intelligence history. They'll be making a series of visits to relevant sites.

Cross-listed with: PLSC 183N
 Bachelor of Arts: Humanities
 Bachelor of Arts: Social and Behavioral Sciences
 International Cultures (IL)
 General Education: Humanities (GH)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking

ENGL 184: The Short Story

3 Credits

This course is designed to introduce students to the art of the short story and to acquaint them with some of its most talented writers. During the semester we will read short stories from various cultures and countries, ranging from stories written in the early nineteenth-century to those written within the last few years. Readings will include works from authors like Hawthorne, Melville, Tolstoy, Dostoevsky, Gogol, Bierce, Chekhov, Kafka, Chopin, Crane, Gilman, James, Cather, Joyce, Woolf, Faulkner, Hemingway, Lawrence, Orwell, O'Connor, Baldwin, Olson, Silko, Erdrich, Ondaatje, Barth, Barthelme, Atwood, Mukherjee, Walker, Tan, Calvino, Garcia Marquez, and Cortazar. All readings will be in English. This course is intended to help one learn how to read fiction, how to understand it, and how to talk about it. The desire to tell stories and to be told stories is one of the most basic human needs, and all cultures have been defined in part by the stories they hear and the stories they tell. We are not born knowing how to read the short story or any fiction for that matter. Rather it is a skill that one acquires, and the more one does it, like playing tennis or any other activity, the better one becomes at it, for we learn what to look for. We will explore the historical development of the short story genre, and examine how historical contexts relate to the content and style of the stories under discussion. We will become familiar with how stories are put together and with the vocabulary that is used to discuss fiction—terms such as plot, narrative, character, tone, language, closure, irony, imagery. and so forth. CMLIT/ENGL 184 is not required for the CmLit major but may be selected to fulfill one of the course requirements for the major or the World Literature Minor. This course also fulfills the General Education Humanities requirement, the Bachelor of Arts Humanities requirement, and International Cultures requirement.

Cross-listed with: CMLIT 184
 Bachelor of Arts: Humanities
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

ENGL 185: World Novel

3 Credits

Development of the modern novel in the last century (outside the British Isles and the United States); lectures, discussions, readings in translation. CMLIT 185 / ENGL 185 The Modern Novel in World Literature (3) (GH) (BA) This course meets the Bachelor of Arts degree requirements. In this course, students will read examples of the modern novel from around the world. Focusing on novels written outside of America and England, this class will explore the development of the modern novel as a genre across a number of world cultures. As an example, moving from the beginnings of literary modernism (the late nineteenth century) through the early and mid twentieth century, the course will consider works by writers such as the following: Chinua Achebe, Italo Calvino, Albert Camus, Simone deBeauvoir, Fyodor Dostoevsky, Isak Dinesen, Marguerite Duras, Natalia Ginzburg, Herman Hesse, James Joyce, Thomas Mann, Gabriel Garcia Marquez, Kenzaburo Oe, and Marcel Proust. This course will address the ways in which the world novels under consideration constitute examples of various literary forms and styles. The class will examine the differences and distances between literary movements such as social realism and magical realism, modernism and postmodernism. The goals of this course will be to hone students' critical reading and writing skills while granting them the ability to think about the modern novel as a distinct genre in a comparative global context. This course will help students to develop the analytical skills necessary to analyze complex written texts..

Cross-listed with: CMLIT 185
 Bachelor of Arts: Humanities
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

ENGL 190Q: Medievalism

3 Credits

In English 190Q / INART 203Q students will gain an understanding of medievalism, defined by Leslie J. Workman in 1987 as "the study of the Middle Ages, the application of medieval models to contemporary needs, and the inspiration of the Middle Ages in all forms of art and thought." As this definition suggests, understanding medievalism and, thus, the popular works students know, such as Game of Thrones and Lord of the Rings' benefit from learning something about the Middle Ages and the reach of its re-mediation across various kinds of expression. Therefore, ENGL 190Q / INART 203Q begins by introducing students to medieval works and a few of the forms that characterize it. More particularly, the medieval works to be studied are those combining more than one genre, media, and/or form. For example, students will read and listen to (or sing!) medieval lyrics, read and perform short medieval plays such as Robin Hood, be introduced to manuscripts of the bestiary with its illuminations, historiated letters, and scribal copying. They also will be introduced to Romanesque and Gothic architecture The first medievalist remediations—works adapted in other media—to be examined will be Book I of Spenser's Faerie Queene, with the woodcut of the Redcrosse Knight and Dryden/Purcell's King Arthur, which will introduce students to Early Modern English medievalism and how it reflects prevailing values in new combinations of old and new artistic forms. Still greater emphasis will be placed on the English Medieval Revival of the nineteenth century, including John Ruskin and the PreRaphaelites poetry, paintings,

and essays, as well as William Morris's poetry, painting and Arts and Crafts Movement. Then, as now, medievalism served multiple purposes, including aesthetic, political, and social. To put into practice what students learn and to engage their creativity, one assignment involves hand crafting an art project to be accompanied by an artist statement. In the last part of the course, the focus shifts to contemporary medievalist arts and theory. In keeping with the contemporary direction, another assignment asks students to remediate their handcrafted medievalist work, or to create a new one, using digital resources to engage both their creativity and understanding of key medievalist concepts.

Cross-listed with: INART 203Q

General Education: Arts (GA)

General Education: Humanities (GH)

General Education - Integrative: Interdomain

Honors

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Integrative Thinking

ENGL 191: Science Fiction

3 Credits

As a genre of literature, science fiction enables human beings to model themselves as a cosmic species, a life form that imagines and inhabits an entirely new scale of being. No longer confined to a tribe, nation or tradition, science fiction narrates and explores the galactic magnitudes of both the external world of astronomical exploration (billions and billions of stars) and the inner world of subjective reality and imagination (billions and billions of neurons). This course introduces students to the surprisingly long history of science fiction as a way of exploring both the microcosm and the macrocosm, mapping a species imagining themselves into the future.

Bachelor of Arts: Humanities

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

ENGL 192: The Literature of Fantasy

3 Credits

Perhaps more than any other genre of speculative fiction, fantasy is richly varied. This course examines the development of literary traditions in fantasy literature from their earliest origins in mythology and folklore, through the historical development of classic fantasy works, into the books, movies and other fictions of the modern day. The course specifically considers how the fantasy genre has incorporated a range of international traditions. The course also explores different critical and theoretical approaches to the student of fantasy literature and related artistic traditions, as surrealism and magical realism.

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

ENGL 193N: The Craft of Comics

3 Credits

This course combines the literary analysis of comics and graphic novels with the creative practice of making comics. Students will learn through an integrated and ongoing process of interpreting select comics texts and also making their own work in that same medium. Students will gain a technical vocabulary for discussing and assessing comics, which they will then apply to formal analysis of compositional and narrative elements in select assigned texts. This analysis will occur first in class discussion, facilitated by the instructors, and then through a sequence of individual written assignments. At the same time, students will receive formal instruction in making comics as they create their own work over the course of the semester, workshoping with peers and instructors as a way of gaining further insight into the creative and technical processes of the studied texts. Formal analysis and creative work will be coordinated and progressive across the course of the semester. The culmination of this collaborative learning would be an integrated understanding and appreciation of comics art.

Cross-listed with: AA 193N

General Education: Arts (GA)

General Education: Humanities (GH)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

ENGL 194: Women Writers

3 Credits

Short stories, novels, poetry, drama, and essays by English, American, and other English-speaking women writers. ENGL (WMNST) 194 Women Writers (3) (GH;US;IL)(BA) This course meets the Bachelor of Arts degree requirements. English 194 will constitute a wide ranging study of works by American, British, and other English-speaking women writers, including novels, short stories, poems, plays, and prose. The class will approach this literature from a variety of thematic, historical, and/or generic vantages. Authors under consideration will vary from class to class, but may include writers such as Bradstreet, Wollstonecraft, C. Rosefti, M. Shelley, Austen, C. Bronte, E. Bronte, G. Eliot, D. Wordsworth, Dickinson, Wharton, Stowe, Freeman, Jewett, Fuller, H.D., Moore, Sitwell, Bishop, Brooks, Plath, Cather, Woolf, Stein, Lessing, Bowen, O'Connor, Welty, Porter, Oates, Olsen, Sarton, Gordimer, Atwood, Morrison, Kinkaid, McCarthy, and Churchill. The course seeks to make students aware of the extensive body of literature written by women through the analysis, evaluation, and appreciation of specific works by women writers. The course also seeks to help students understand the female perspectives—the varying values and interests of women—reflected in the texts at hand and to position these perspectives within wider social, historical, and political contexts. The course also seeks to make students aware of the special problems faced by both women writers and the female inhabitants of the societies they describe in their work. As a course in women's literature, ENGL/WMNST 194 concerns itself with questions of gender. In so far as some of these women writers are black or women of color, it concerns itself with questions of race and ethnicity. In as far as the course looks at women's literature in the context of men's literature, it is concerned with the inter-relationship between dominant (male) and non-dominant (female) culture in the United States as well as in Britain.

In so far as the course covers lesbian writers, it is concerned with sexual orientation. Topics under consideration will vary from class to class, but may include a chronological introduction to the development of women's literature, a consideration of a principle theme or themes common to women's literature through a number of works from across a number of historical periods, a consideration of a number of women's works in the context of historical events central to their creation, a consideration of a number of women's works in the context of formal or aesthetic elements common to those works and their various effects. This class will prepare students for advanced courses in women's literature as well as other academic courses that engage in the verbal and written analysis of complex written texts.

Cross-listed with: WMNST 194

Bachelor of Arts: Humanities

International Cultures (IL)

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

ENGL 194H: Women Writers - Honors

3 Credits

English 194H will constitute a wide ranging study of works by American, British, and other English-speaking women writers, including novels, short stories, poems, plays, and prose. The class will approach this literature from a variety of thematic, historical, and/or generic vantages. Authors under consideration will vary from class to class, but may include writers such as Bradstreet, Wollstonecraft, C. Rossetti, M. Shelley, A. Austen, C. Bronte, E. Bronte, G. Eliot, D. Wordsworth, Dickinson, Wharton, Stowe, Freeman, Jewett, Fuller, H.D., Moore, Sitwell, Bishop, Brooks, Plath, Cather, Woolf, Stein, Lessing, Bowen, O'Connor, Welty, Porter, Oates, Olsen, Sarton, Gordimer, Atwood, Morrison, Kinkaid, McCarthy, and Churchill. The course seeks to make students aware of the extensive body of literature written by women through the analysis, evaluation, and appreciation of specific works by women writers. The course also seeks to help students understand the female perspectives—the varying values and interests of women—reflected in the texts at hand and to position these perspectives within wider social, historical, and political contexts. The course also seeks to make students aware of the special problems faced by both women writers and the female inhabitants of the societies they describe in their work. This class will prepare students for advanced courses in women's literature as well as other academic courses that engage in the verbal and written analysis of complex written texts.

Bachelor of Arts: Humanities

International Cultures (IL)

United States Cultures (US)

General Education: Humanities (GH)

Honors

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

ENGL 194S: Women Writers

3 Credits

Short stories, novels, poetry, drama, and essays by English, American, and other English-speaking women writers. ENGL 194S Women Writers (3) (GH;US;IL;FYS)(BA) This course meets the Bachelor of Arts degree

requirements. English 194 will constitute a wide ranging study of works by American, British, and other English-speaking women writers, including novels, short stories, poems, plays, and prose. The class will approach this literature from a variety of thematic, historical, and/or generic vantages. Authors under consideration will vary from class to class, but may include writers such as Bradstreet, Wollstonecraft, C. Rossetti, M. Shelley, Austen, C. Bronte, E. Bronte, G. Eliot, D. Wordsworth, Dickinson, Wharton, Stowe, Freeman, Jewett, Fuller, H.D., Moore, Sitwell, Bishop, Brooks, Plath, Cather, Woolf, Stein, Lessing, Bowen, O'Connor, Welty, Porter, Oates, Olsen, Sarton, Gordimer, Atwood, Morrison, Kinkaid, McCarthy, and Churchill. The course seeks to make students aware of the extensive body of literature written by women through the analysis, evaluation, and appreciation of specific works by women writers. The course also seeks to help students understand the female perspectives—the varying values and interests of women—reflected in the texts at hand and to position these perspectives within wider social, historical, and political contexts. The course also seeks to make students aware of the special problems faced by both women writers and the female inhabitants of the societies they describe in their work. As a course in women's literature, ENGL/WMNST 194 concerns itself with questions of gender. In so far as some of these women writers are black or women of color, it concerns itself with questions of race and ethnicity. In as far as the course looks at women's literature in the context of men's literature, it is concerned with the inter-relationship between dominant (male) and non-dominant (female) culture in the United States as well as in Britain. In so far as the course covers lesbian writers, it is concerned with sexual orientation. Topics under consideration will vary from class to class, but may include a chronological introduction to the development of women's literature, a consideration of a principle theme or themes common to women's literature through a number of works from across a number of historical periods, a consideration of a number of women's works in the context of historical events central to their creation, a consideration of a number of women's works in the context of formal or aesthetic elements common to those works and their various effects. Time allotted for the study of the works under consideration will vary. This class will prepare students for advanced courses in women's literature as well as other academic courses that engage in the verbal and written analysis of complex written texts. Students will be evaluated by means of essays written in and out of class, essay exams, term-long reading journals, and class participation. Students should expect to complete a minimum of three written assignments in the course of the term. The course may be used as English Major elective credit or as credit towards the English Minor and will be offered once a year with 60 seats per offering.

Bachelor of Arts: Humanities

International Cultures (IL)

United States Cultures (US)

First-Year Seminar

General Education: Humanities (GH)

ENGL 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Bachelor of Arts: Humanities

ENGL 198: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Humanities

ENGL 199: Foreign Study–English

3-6 Credits/Maximum of 6

Studies in English language and/or literature.

Bachelor of Arts: Humanities

International Cultures (IL)

ENGL 200: Introduction to Critical Reading

3 Credits

Responses to a variety of literary texts written in English that evoke different approaches.

Bachelor of Arts: Humanities

ENGL 200H: Introduction to Critical Reading

3 Credits

Responses to a variety of literary texts written in English that evoke different approaches.

Honors

ENGL 200W: Introduction to Critical Reading

3 Credits

Responses to a variety of literary texts written in English that evoke different approaches. ENGL 200W Introduction to Critical Reading (3)(BA) This course meets the Bachelor of Arts degree requirements. When we read a work of literature, how do we determine what it means? Why do readers and critics come up with different interpretations of the same work? How do we decide if a literary work is valuable or not? This course addresses these and other questions by introducing students to the variety of literary questions on which critics and scholars base their interpretations of literature. Each theory poses different questions about a literary text's meanings and focuses our attention on different aspects of a text's language and background. We will examine the theory and practice the application of the following schools of criticism: formalism, psychoanalytic criticism, new historicism, Marxism, and feminism. We will apply different methods to particular literary texts, and students will practice different types of approaches in in-class writing assignments as well as in four papers (4-5 pages each). At the end of the semester, each student will put together a portfolio containing careful revisions of three of those papers as well as an introductory commentary of 1-2 pages.

Bachelor of Arts: Humanities

Writing Across the Curriculum

ENGL 201: What is Literature

3 Credits

ENGL 201 What is Literature acquaints students with theory and practice relevant to studies of narrative, lyric poetry, and drama. This course meets the Bachelor of Arts degree requirements. English 201 will familiarize students with theories and practices that are foundational for thinking about literature, and for studying narrative fiction, poetry, and drama. The course will pose such questions as what is narrative fiction?; what is poetry?; what is drama?; It will introduce students to how conventions of literary genres operate, how they generate meaning, and how they require and manipulate reader's responses. English 201 will also encourage students to explore whether or not literary discourse, as instanced in the genres that have been named, can be distinguished from other written or spoken discourses. While asking such questions, the course will acquaint students with technical vocabularies used by literary scholars and literary historians, and will provide students with sample scholarly rationales for hypothesizing the singularity of literary discourse, for constructing literary history, and for understanding literature's relation to life. It will teach students close analytic practices of reading, both those that have shaped the discipline of English studies and those emerging currently. The course will be required of all English majors and will be a part of their 36 credit degree requirement.

Bachelor of Arts: Humanities

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

ENGL 201H: What is Literature

3 Credits

ENGL 201H will familiarize students with theories and practices that are foundational for thinking about literature and for studying narrative fiction, poetry, and drama. The course will pose such questions as "what is narrative fiction?" "what is poetry?" and "what is drama?" It will introduce students to how conventions of literary genres operate, how they generate meaning, and how they require and manipulate readers responses. English 201H will also encourage students to explore whether or not literary discourse, as instanced in the genres that have been named, can be distinguished from other written or spoken discourses. While asking such questions, the course will acquaint students with technical vocabularies used by literary scholars and literary historians, and will provide students with sample scholarly rationales for hypothesizing the singularity of literary discourse, for constructing literary history, and for understanding literature's relation to life. It will teach students close analytic practices of reading, both those that have shaped the discipline of English studies and those emerging currently. As an honors course, ENGL 201H will introduce students to how conventions of literary genres operate, how they generate meaning, and how they require and manipulate readers' responses. English 201H will also encourage students to explore whether or not literary discourse, as instanced in particular genres, can be distinguished from other written or spoken discourses. While asking such questions, the course will acquaint students with technical vocabularies used by literary scholars and literary historians, and will provide students with sample scholarly rationales for hypothesizing the singularity of literary discourse, for constructing literary history, and for understanding literature's relation to life. It will teach students close analytic practices of reading, both those that have

shaped the discipline of English studies and those emerging currently. Students can expect to take a highly engaged role in seminar-style discussion, including prepared presentations intended to provide a basis for that session's discussion, and which may both draw on, and emerge from, written work for the course.

Bachelor of Arts: Humanities
General Education: Humanities (GH)
Honors

GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

ENGL 202A: Effective Writing: Writing in the Social Sciences

3 Credits

ENGL 202A introduces students to the types of writing that social scientists typically do in the workplace, including research proposals, proper citation practices, literature reviews, and research reports. In discussing writing and writing activities, this class will focus on some of the more common forms of social science research - among them, experiments, interviews, observations, and surveys. Students will learn to formulate ideas and create coherent pieces of writing from the research they have conducted and read about. In short, this course will introduce students to a variety of writing and research strategies from which they can begin to develop their own identity as a social scientist. (A student may take only one course for credit from ENGL 202A, 202B, 202C, and 202D.)

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H and 4th Semester

General Education: Writing/Speaking (GWS)
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Crit and Analytical Think

ENGL 202B: Effective Writing: Writing in the Humanities

3 Credits

Instruction in writing persuasive arguments about significant issues in the humanities. (A student may take only one course for credit from ENGL 202A, 202B, 202C, and 202D.) ENGL 202B Advanced Writing in the Humanities encourages students to develop professional writing skills most likely required in humanities careers. These writing modes include professional materials and then a wider range of writing projects that may include a professional narrative, analysis of a controversy, argumentation, persuasion, and synthesis. Students may analyze a wide-variety of texts - both verbal, digital, and visual - to learn skillful argumentation with advanced writing techniques.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H and 4th Semester

General Education: Writing/Speaking (GWS)
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Creative Thinking
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Key Literacies

ENGL 202C: Effective Writing: Technical Writing

3 Credits

Writing for students in scientific and technical disciplines. (A student may take only one course for credit from ENGL 202A, 202B, 202C, and 202D.) ENGL 202C is an advanced writing course designed to help students in science and engineering develop the writing strategies that they will need to communicate successfully on the job and to help them understand why those strategies are appropriate and effective. A key emphasis will be on the rhetorical principles of effective communication, including context analysis and defining clear, actionable purposes. Students will gain experience with a wide range of technical writing genres, including reports, descriptions, definitions, procedures, job application documents, emails, memos, and web applications. Students will also learn about the importance of document and graphic design, including how best to design communications to maximize their potential for success.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H and 4th Semester

General Education: Writing/Speaking (GWS)
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

ENGL 202D: Effective Writing: Business Writing

3 Credits

Writing reports and other common forms of business communication. (A student may take only one course for credit from ENGL 202A, 202B, 202C, and 202D.) ENGL 202D is an advanced writing course designed to help students develop the writing strategies that they will need to write successfully on the job and to help them understand why those strategies are appropriate and effective. A key emphasis will be on rhetorical principles of effective communication, including audience analysis and defining clear, actionable purpose. Students will gain experience with a wide range of business writing genres, including reports, letters, job application documents, emails, memos and web applications like business blogs, online articles, social media profiles and personal branding. Students will also learn about the importance of document design, including how best to utilize headings, page layout, graphics and other visuals to maximize the potential for communication success.

Enforced Prerequisite at Enrollment: 4th Semester standing and one of the following courses: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

General Education: Writing/Speaking (GWS)
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Crit and Analytical Think

ENGL 202H: Effective Writing: Honors

3 Credits

ENGL 202H teaches the distinctive features of professional and scholarly writing across disciplines, while inviting students to develop their professional identities. Unlike existing 202 versions 202H is designed for students in all majors, with assignments that address more area-specific expectations while highlighting commonalities and the need

to communicate with non-specialist audiences. 202H is intended as rigorous preparation for third-year students preparing for an honors thesis or project, by examining how to identify and develop a topic, how to contextualize it within wider scholarship, and how to convey its significance within and beyond the field.

Enforced Prerequisite at Enrollment: 4th semester standing and one of the following courses: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H
 General Education: Writing/Speaking (GWS)
 Honors
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

ENGL 205: Children's Literature

3 Credits

As a child, what you read, or what is read to you, forms your first and foundational experience with literature. Moreover, what you read, and what is read to you, introduces you to the values that your culture holds dear. Despite its importance to individuals and their culture, we-instructors, students-only rarely approach children's literature with the same seriousness that we approach other works of literature. This course sets out to correct that. It assumes that texts like Alice's Adventures in Wonderland, Harry Potter and the Sorcerer's Stone, or Don't Let the Pigeon Drive the Bus! reward the kind of close and careful study that scholars and students usually reserve for more canonical works of literature. Students who take this course will leave it with a sense of the history and development of children's literature in English, the methods of studying children's literature, and, most of all, an understanding of how children's literature reproduces and occasionally challenges the values of the culture that produces and disseminates it. Its overall premise is that you can learn a lot about a culture-how it feels about childhood, race, gender, work, religion, and so on-by what that culture does and does not offer its children to read.

General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Soc Resp and Ethic Reason

ENGL 206: Business and Literature

3 Credits

For many people, literature and business could not have less to do with each other. According to this view, literature escapes from reality to the imaginative, while nothing could be more focused on the real than business and its buying and selling of commodities and services. The problem is that no one told literary writers of this mutual incompatibility. For centuries, writers have peered into the world of business and brought back stories intended to document, inspire, and warn. True, writers have often, and sometimes unthinkingly, condemned business and those who follow it, but they have just as often had genuine insights into its workings. In this course, we will follow the relationship between literature and business over the course of modern history. Although one version of the course would begin with literature that dates back to the invention of capitalism in (more or less) the sixteenth century, our course will begin at the turn of the nineteenth century, with the Industrial Revolution in

England and the United States, and follow the literature of business up to the present. Our aim in reading is not just to understand how writers have represented business and those who pursue it, which, it has to be admitted, has often been with contempt. But, rather, in reading more sympathetic works, to understand the drama of business, why those who pursue it find it so invigorating, and why those who have historically been excluded from it-women, African Americans, colonial subjects-have been so eager to join it. Money, of course, is one answer to those questions, but it is neither the only nor the most important one.

General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Soc Resp and Ethic Reason

ENGL 208N: The Music of the Beatles and American Popular Culture

3 Credits

The Beatles are the most significant musical group in the history of popular music. Their songs are derived from diverse sources, such as rhythm 'n' blues, rock 'n' roll, country 'n' western, Motown, soul, folk music, folk rock, the British Music Hall, and European and Indian classical music traditions. Two ideas define their work: an emphasis on freedom, and how song texts can be interpreted in different ways. The Beatles had a great impact not only on American popular music during their heyday in the 1960s but also on the country's popular culture in which they were considered philosopher kings. Beatle albums mirrored changing trends in the culture, from the pre-Vietnam War youthfulness of A Hard Day's Night, to the psychedelia of Revolver and Sgt. Pepper, to the countercultural mindset of The White Album. This inter-domain course will focus on how the Beatles influenced American popular culture from the 1960s to the present day. It will examine how the Beatles were a part of a mid-twentieth-century British youth subculture that was shaped by the cultural attitudes of American rock 'n' roll. The course will then turn its attention to the seismic shift initiated by the Fab Four in both music and pop culture in the US from 1964 to 1970, demonstrating how it has permeated the popular culture of the 1970s to the present day. The course will enhance the appreciation of the Beatles and their music through its interdisciplinary focus, contextualizing the Fab Four's work in order to show how both popular music and culture can influence one another. One way the course will facilitate this goal is through the inclusion of selected readings from English literature and popular culture upon which students will write reflection essays.

Cross-listed with: MUSIC 209N
 United States Cultures (US)
 General Education: Arts (GA)
 General Education: Humanities (GH)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking

ENGL 209: Journal or Magazine Practicum

1-6 Credits/Maximum of 8

A practicum in the editing and publishing of a magazine or journal.

Bachelor of Arts: Humanities

ENGL 210: The Process of Writing

3 Credits

Examination of the relation between fiction and nonfiction; practice in principles common to all writing.

Bachelor of Arts: Humanities

ENGL 211: Introduction to Writing Studies

3 Credits

This course introduces students to the most salient issues and theories in writing studies. Students explore contemporary theories and issues about writing in order to understand writing as a skill and a complex object of study in various professional contexts.

ENGL 211W: Introduction to Writing Studies

3 Credits

This course introduces students to the most salient issues and theories in writing studies. Students explore contemporary theories and issues about writing in order to understand writing as a skill and a complex object of study in various professional contexts. ENGL 211W Introduction to Writing Studies (3) Most students know that writing is something one does; they are less aware that writing is something one studies, and that doing so is a challenging and fascinating intellectual endeavor. In this class, students explore the multifaceted nature of writing. As the list of major topics indicates above, students study a broad range of contemporary theories and issues, from the socially-constituted self in the act of writing, to plagiarism as it is variably defined in professional settings, to the role of the writer in social change. The course is designed for both breadth and depth. Breadth is achieved through the many topics described above. The exams are designed to encourage students to make connections from one topic to another, to see how each builds on and intertwines with others. For example, early semester study on a writer's individual agency is later complicated by issues of power determined by race, class, and gender. Writers' ethical choices are made more challenging when confronted with questions of ideology and social justice. Depth is achieved through the written essays. Each essay requires that students examine a narrow topic in depth, building on an assigned reading with limited and manageable primary and secondary research. For example, students may study their own writing as intertextual, drawing conclusions about originality and creativity in the process. Throughout the course, students are encouraged to apply issues and theories to real-world situations, in such realms as professional settings, politics, media, and social justice. Several speakers come to class throughout the semester to expose students to the many kinds of writing professional writers do, the expectations and standards required of professional writers, and the avenues to success as professional writers.

Writing Across the Curriculum

ENGL 212: Introduction to Fiction Writing

3 Credits

English 212 is a course for students who want to try writing fiction for the first time and for more seasoned writers who are ready to develop greater courage for expression, complexity of craft, and skills for analysis and revision. You will find new sources of inspiration and sharpen your senses for observation. You will master the core components of fiction,

such as character, setting, point of view, dialogue, and plot, and you will learn to improve your writing by sharing and reworking it. The course typically involves short exercises designed to help you strengthen key areas of your writing; analysis of published short stories and essays for examples and advice; and, centrally, workshop settings, where you will gain experience giving and receiving generous, useful criticism. You will complete at least one longer, cohesive work of fiction, such as a short story or section of a novel. You will learn to take up the writing life with a spirit of adventure and play, even as you get serious about the disciplined work and vital stakes of making fiction. By inspiring the production, analysis, and appreciation of creative arts, this course satisfies Bachelor of Arts and General Education requirements for Arts.

Bachelor of Arts: Humanities

General Education: Arts (GA)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

ENGL 213: Introduction to Poetry Writing

3 Credits

Written exercises in the components and techniques of poetry writing in conjunction with selected readings.

Bachelor of Arts: Humanities

General Education: Arts (GA)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

ENGL 214: Introduction to Creative Nonfiction Writing

3 Credits

Introduces lyric and narrative forms in memoir writing and the personal essay. ENGL 214 Introduction to Creative Nonfiction Writing (3) Creative nonfiction borrows techniques from fiction and poetry while adhering to but also sometimes questioning notions of truth. It stretches the bounds of literary or narrative journalism by asking the reader to consider it as art, primarily, versus as testimony, fact, or information-delivery. Students taking this course will explore the genre's influences in fiction, research, and poetry; critical analyses will complement this exploration, and formal experimentation will prepare students to imagine novel relationships between form and content. Discussing traditional storytelling technique, the course introduces students to story rudiments including the inciting episode, rising and falling action, climax and denouement and the so-called swerve ending. The course also introduces students to the possibilities of the nonlinear "lyric essay" as outlined in Seneca Review and elsewhere, as well as to the "modular" essay; uses of blank space for communicating the unsayable; and how poetic style can circle elusive meaning. In exploring issues of nuance and implied or glanced-at meaning, the course also discusses the place of truth in nonfiction - differing constructions and conceptions of truth; reader expectations for factuality in a work of nonfiction; and the complications of unreliability when the fallibility of memory or a multiplicity of perspectives color testimony. Finally, the course examines the role of nontraditional structure in conveying a postmodern understanding of subjectivity, for instance by looking at the use of multiple voices and personae in the works of certain contemporary authors. While ENGL 215 teaches skills for the journalist in developing feature-style journalism and narrative personal essays,

ENGL 214, alternatively, will explore and exploit the influence of fiction, poetry, and other lyric forms. Students in this course will produce writing more appropriate to a literary journal than a news magazine; their writing will concern broad, sometimes disjunctive themes, and stray away from the nut-graf, news-hook, or even an obvious narrative focus.

Bachelor of Arts: Arts
 General Education: Arts (GA)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Crit and Analytical Think

ENGL 215: Introduction to General Nonfiction Writing

3 Credits

Students will be directed in a variety of commercial and professional nonfiction forms, including but not limited to blog posts, feature articles, reported narratives, investigative reporting, literary journalism, criticism, and commentary. Specifically, students will discuss the basic elements or building blocks of commercial and professional nonfiction, such as structure, setting, quotation, point of view, and narrative distance. Students will practice those techniques by producing writing exercises and longer pieces, and by reading a variety of published works that showcase these techniques and skills. Students will also participate in full-class workshops, in which each student's original writing is read and collectively discussed by the class. All students will participate in in-depth discussions of their peers' work. To hone their skills, students will practice, experiment, improvise, and revise, and in doing so, develop an appreciation for writing as a form of creative and social expression.

Bachelor of Arts: Humanities

ENGL 221: British Literature to 1798

3 Credits

Introduction to literary history and analysis; Beowulf and writers such as Chaucer, Shakespeare, Donne, Milton, Swift, Pope, and Fielding. ENGL 221 British Literature to 1798 (3) (GH)(BA) This course meets the Bachelor of Arts degree requirements. Focusing on major writers and their cultural contexts, English 221 surveys British literature to 1798. A remarkable amount of important work was produced over this period. Students will read major texts like Beowulf, Romeo and Juliet, and Tom Jones; learn about renowned authors such as Chaucer, Shakespeare, and Fielding; and be introduced to influential literary forms, such as the epic, the revenge tragedy, and the picaresque novel. The tradition of British literature evolved over periods of significant upheaval and change. Students will also learn about the shifting historical and ethical orientations that energized this tradition, from the Heroic Ethos to Christian Humanism to Neoclassicism. As an introductory survey of British literature, English 221 welcomes non majors: no previous course in literature is required. By reading and discussing some of the best-known works in British literature, students will sharpen their skills of interpretation while surveying an important literary tradition.

Bachelor of Arts: Humanities
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

ENGL 221W: British Literature to 1798

3 Credits

Focusing on major writers and their cultural contexts, ENGL 221W surveys British literature to 1798. A remarkable amount of important work was produced over this period. Students will read major texts like Beowulf, Romeo and Juliet, and Tom Jones; learn about renowned authors such as Chaucer, Shakespeare, and Fielding; and be introduced to influential literary forms, such as the epic, the revenge tragedy, and the picaresque novel. The tradition of British literature evolved over periods of significant upheaval and change. Students will also learn about the shifting historical and ethical orientations that energized this tradition, from the Heroic Ethos to Christian Humanism to Neoclassicism. As an introductory survey of British literature, English 221W welcomes non majors: no previous course in literature is required. By reading and discussing some of the best-known works in British literature, students will sharpen their skills of interpretation while surveying an important literary tradition.

Bachelor of Arts: Humanities
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies
 Writing Across the Curriculum

ENGL 222: British Literature from 1798

3 Credits

Focusing on major writers and their cultural contexts, ENGL 222 surveys British literature from 1798 to the present. A remarkable amount of important literature was produced during this period. Students will read major texts like Pride and Prejudice, Hard Times, and Jane Eyre; learn about renowned authors such as William Blake, Charles Dickens, and Virginia Woolf; and be introduced to influential literary forms, such as the dramatic monologue, the gothic novel, and stream-of-consciousness narrative. The tradition of British literature since 1798 evolved over periods of significant political and cultural upheaval and change. Thus students will also learn about the shifting historical and ethical orientations that energized this tradition, from rising industrialization and changing class and gender relations as manifested in Romanticism, Modernism, and Postmodernism. As an introductory survey of British literature, ENGL 222 welcomes non majors; no previous course in literature is required. By reading and discussing some of the best-known works in British literature, students will sharpen their skills of interpretation while surveying important literary traditions and gaining crucial critical insight into an international culture that literally influenced-through its imperial reach-countries around the world.

Bachelor of Arts: Humanities
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

ENGL 222W: British Literature from 1798

3 Credits

Focusing on major writers and their cultural contexts, ENGL 222W surveys British literature from 1798 to the present. A remarkable amount of important literature was produced during this period. Students will read major texts like *Pride and Prejudice*, *Hard Times*, and *Jane Eyre*; learn about renowned authors such as William Blake, Charles Dickens, and Virginia Woolf; and be introduced to influential literary forms, such as the dramatic monologue, the gothic novel, and stream-of-consciousness narrative. The tradition of British literature since 1798 evolved over periods of significant political and cultural upheaval and change. Thus students will also learn about the shifting historical and ethical orientations that energized this tradition, from rising industrialization and changing class and gender relations as manifested in Romanticism, Modernism, and Postmodernism. As an introductory survey of British literature, ENGL 222W welcomes non majors; no previous course in literature is required. By reading and discussing some of the best-known works in British literature, students will sharpen their skills of interpretation while surveying important literary traditions and gaining crucial critical insight into an international culture that literally influenced—through its imperial reach—countries around the world. This is a WAC course

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

Writing Across the Curriculum

ENGL 223N: Shakespeare: Page, Stage, and Screen

3 Credits

This course will explore the relation between literary analysis and both film and theatrical performance by asking students to approach a limited set of plays from multiple perspectives, using texts, film, and theatrical performance from around the world to integrate these methodologies. Students will work closely with Shakespearean texts, practice textual and poetic analysis, and will also examine critically different forms of international performance: film and live theatre. In particular, the course will explore the interrelation of these elements, revealing a deeper imaginative understanding of works that continue to influence English-speaking literature and culture.

International Cultures (IL)

General Education: Arts (GA)

General Education: Humanities (GH)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

ENGL 224N: Authors and Artists

3 Credits

This course explores the many links between modern art and literature, including fiction about artists, illustrations of fiction and poetry, efforts to

write in the styles associated with modern art, and practices of ekphrasis (the evocation of visual art in language). These links between authors and artists have exerted a formative influence on the development of modern fiction and poetry as authors and artists in various avant-garde groupings collaborated and competed to generate modes of artistic expression appropriate to modernity. This course examines those interactions. Course objectives are to bring together for comparative examination: * Formal or generic relationships between texts and images at particular historical moments; under this rubric we will consider issues such as ekphrasis. * Creative collaboration and cross-pollination between writers and artists, which have been crucially important in the history of literature and poetry; examples include Pre-Raphaelite poetry and painting, Virginia Woolf and Post-Impressionism, Gertrude Stein and Cubism * Conceptions of creativity as these have been expressed by writers using the figure of the artist; texts in this category range from Balzac's *The Unknown Masterpiece*, through Hawthorne's *The Marble Faun*, to Paul Auster's appropriation from the performance artist Sophie Calle This course explores the ways knowledge of literature and skills in critical reading can be rewardingly brought to bear on the visual arts, and considers how visual art can illuminate the workings of literature both for individual readers and in the classroom.

Cross-listed with: ARTH 224N

General Education: Arts (GA)

General Education: Humanities (GH)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

ENGL 225N: Sexuality and Modern Visual Culture

3 Credits

ENGL 225N / ARTH 225N / WMNST 225N Sexuality and Modern Visual Culture (3) (GA;GH) An examination of the visual expression of gender and sexual identities in English-speaking cultures since the late nineteenth century. The terms "feminist" and "homosexual" were invented by the Victorians and reflect profound shifts in conceptions of identity. Another invention of the nineteenth century was the idea of the literary and artistic "avant-garde" as a minority contingent with politically and/or aesthetically advanced views. These ideas of minority culture were deeply enmeshed with one another, and have exerted profound influence ever since. This course explores that history with the objectives of expanding students' knowledge of modern art and literature, and of fostering more sophisticated understandings of how evolving socio-political ideas affect our sense of who we are and how we relate to texts and images. The course is relevant to students of American and English studies, art, art history, and women's, gender and sexuality studies.

Cross-listed with: ARTH 225N, WMNST 225N

General Education: Arts (GA)

General Education: Humanities (GH)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

ENGL 226: Latina and Latino Border Theories

3 Credits

English 226 will constitute a wide-ranging examination of contemporary texts (1960-present) central to the construction of contemporary Latino/a culture. ENGL 226 Latina and Latino Border Theories (3) (GH;US;IL)(BA) This course meets the Bachelor of Arts degree requirements. This course focuses on contemporary Latina/o cultural production, placing it in historical context and analyzing it through the framework of borders. We make connections between Latina/o groups, showing both similarities and differences. We examine the politics of representation, asking how artistic texts define community and individual identities that are coherent yet also embody the complexity of these identities. The texts cross and claim borders- cultural, sexual, gender, geographical, generational, spiritual, and institutional. We will ask how these art forms work to claim border spaces: How are cultural differences retained without constructing hierarchies of exclusion? What models of identity do these artists propose in response to structures of domination? We'll read novels, short stories, poems, history, and theoretical essays; we will also watch several films. Throughout the course, we will attend to particular histories and cultures of Latina/o groups; it is crucial to both maintain the specificity of each culture (Chicana/o, Puerto Rican, Cuban-American, and Dominican-American) and their connections to each other as Latinas/os in the U.S. Inquiring into these intersections leads one to ask the following: how can Latinos unite against the assault on immigrants and bilingual education without erasing very important differences among Latina/o populations? How can Latinas unite against ongoing sexism and homophobia within their communities and the U.S. in general? How should we view the marketing category "Hispanic" and/or "Latino" and how do artists offer alternative conceptions of group identity?

Cross-listed with: LTNST 226
Bachelor of Arts: Humanities
International Cultures (IL)
United States Cultures (US)
General Education: Humanities (GH)

ENGL 227: Introduction to Queer Theory

3 Credits

ENGL 227 Introduction to Sexuality Studies (3) (GH;US) This course focuses on the body of critical writings known as queer theory in order to analyze issues of sexuality and gender since 1969. The course interrogates sexual norms and their deviations, with a particular focus on the relationships between sexuality, imagination, and ethics in the making of sexual communities and fostering activism around sexuality and gender. We will study how class, race, and gender have been shaped, and themselves shape, the production of and resistance to sexual norms. Queer Theory engages issues "queer space" and "queer time," related concepts that relate bodies and environments to history and memory, and to fantasy, imagination, and utopianism. We will also explore the ways marginalization, shame, and criminalization have been transformed into visionary acts of "world-making" that have changed contemporary understandings of bodies, identities, social formations, literature and visual culture. Throughout, our focus will be on the relationships between sexuality and ethics, and how both shape the history of queer culture and activism.

Cross-listed with: WMNST 227
United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Soc Resp and Ethic Reason

ENGL 228: Introduction to Disability Studies in the Humanities

3 Credits

ENGL 228 provides a humanities-based interdisciplinary introduction to Disability Studies. This is one of two paired introductory courses developed as required courses for the Disability Studies minor. (The other is RHS 100.) Students will have wide exposure to both the lived experiences of disability, past and present, and to the unstable cultural norms that have traditionally stigmatized disability. The course explores valuable varieties of human embodiment and mindedness; it also asks central questions about what counts as "normal," and who gets to say why. Making use of historical tracts, novels, poetry, movies, plays, art exhibits, memoirs, youtube clips, and activist documents, ENGL 228 offers important new dimensions and challenges to traditional accounts of human value and political agency.

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Soc Resp and Ethic Reason

ENGL 229: Digital Studies

3 Credits

This course will introduce students to concepts, methods, and resources for digital studies, meaning both the study of culture using digital means and the study of digital culture and digital cultural objects in themselves. In some cases, digitization and digital production enrich existing approaches to English studies; in other cases, they present new paradigms and practices, requiring the cultivation of new analytic and theoretical approaches along with new technical skills. Accordingly, the course will emphasize both that enrichment of existing approaches to English studies, in the use of computers to present and analyze English-language materials preserved in the past, and the application of computing to the creation of expressive cultural artifacts unique to networked and programmable media (at the instructor's discretion, the creation of such artifacts may be incorporated into the course). Working in this balance of modes, students will also acquire familiarity with the intellectual history of digital studies and its key debates. Topics to be covered may include the fundamentals of the digital representation of linguistic, visual, and other cultural data; differences between language and code, including the difference between human languages and artificial languages, including computer programming languages; data storage methods and media; electronic archiving and digital preservation, both personal and institutional; issues and debates in electronic publishing, including intellectual property and open access; computer-assisted methods of cultural analysis; the history of creative and expressive computing, from video games to electronic literature, code poetry, glitch culture, esoteric programming languages, etc.; data privacy and security issues; differences between the traditional qualitative approaches of humanities research and the quantitative approaches to the study of writing and language preferred by some social sciences, and what is at stake in blending these approaches.

General Education: Humanities (GH)

GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

ENGL 231: American Literature to 1865

3 Credits

This course offers students a broad introduction to key moments and authors in the literary traditions that shaped US literature up to 1865. While individual authors and works discussed in class will vary, the course addresses the overall development of literatures in the United States by time periods and genres that may range from pre-Columbian oral traditions to American fiction and poetry published until the end of the Civil War. The class may feature the study of representative examples of both oral traditions and written works. In addition to highlighting enduring literary voices, the class may also highlight the development of specific genres (such as slave narratives), literary movements (such as Transcendentalism), periods of literary production (such as the American Renaissance) or other groupings of authors (such as the Fireside Poets) over the course of US literary history. Likewise, the class may include works both by authors who were popular at the time when they published their works (and thus able to impact American literature and culture during their lifetime) and those whose contributions to literary history were recognized only later. While it should be expected that no version of this course will be able to cover all authors whose works emerged before 1865, selected authors and works might include the following: examples of Native American, African American, and other oral traditions; excerpts from works by authors such as Anne Bradstreet, Edward Taylor, Cotton Mather, Phillis Wheatley, Samson Occom, Benjamin Franklin, Washington Irving, James Fenimore Cooper, Harriet Beecher Stowe, William Cullen Bryant, Henry Wadsworth Longfellow, John Greenleaf Whittier, James Russell Lowell, Oliver Wendel Holmes, Frederick Douglass, Harriet Jacobs, Edgar Allan Poe, Nathaniel Hawthorne, Henry David Thoreau, Ralph Waldo Emerson, Margaret Fuller, Herman Melville, Walt Whitman, or Emily Dickinson.

Bachelor of Arts: Humanities
 United States Cultures (US)
 General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies
 GenEd Learning Objective: Soc Resp and Ethic Reason

ENGL 231Y: American Literature to 1865

3 Credits

This course offers students a broad introduction to key moments and authors in the literary traditions that shaped US literature up to 1865. While individual authors and works discussed in class will vary, the course addresses the overall development of literatures in the United States by time periods and genres that may range from pre-Columbian oral traditions to American fiction and poetry published until the end of the Civil War. The class may feature the study of representative examples of both oral traditions and written works. In addition to highlighting enduring literary voices, the class may also highlight the development of specific genres (such as slave narratives), literary movements (such as Transcendentalism), periods of literary production (such as the American Renaissance) or other groupings of authors (such as the Fireside Poets) over the course of US literary history. Likewise, the class may include

works both by authors who were popular at the time when they published their works (and thus able to impact American literature and culture during their lifetime) and those whose contributions to literary history were recognized only later. While it should be expected that no version of this course will be able to cover all authors whose works emerged before 1865, selected authors and works might include the following: examples of Native American, African American, and other oral traditions; excerpts from works by authors such as Anne Bradstreet, Edward Taylor, Cotton Mather, Phillis Wheatley, Samson Occom, Benjamin Franklin, Washington Irving, James Fenimore Cooper, Harriet Beecher Stowe, William Cullen Bryant, Henry Wadsworth Longfellow, John Greenleaf Whittier, James Russell Lowell, Oliver Wendel Holmes, Frederick Douglass, Harriet Jacobs, Edgar Allan Poe, Nathaniel Hawthorne, Henry David Thoreau, Ralph Waldo Emerson, Margaret Fuller, Herman Melville, Walt Whitman, or Emily Dickinson.

Bachelor of Arts: Humanities
 United States Cultures (US)
 General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies
 GenEd Learning Objective: Soc Resp and Ethic Reason
 Writing Across the Curriculum

ENGL 232: American Literature from 1865

3 Credits

Focusing on major writers and their cultural contexts, English 232 surveys American literature from 1865 to the present. A remarkable amount of important literature was produced during this period. Students will read major texts like *The Great Gatsby*, *The Grapes of Wrath*, and *Beloved*; learn about renowned authors such as Ernest Hemingway, Flannery O'Connor, and James Baldwin; and be introduced to influential literary forms, such as the imagist poem, the modernist novel, and New Journalism. The tradition of American literature since 1865 evolved over periods of significant upheaval and change. Students will also learn about the shifting historical and ethical orientations that energized this tradition, from Naturalism to Modernism and Postmodernism. As an introductory survey of American literature, English 232 welcomes non majors: no previous course in literature is required. By reading and discussing some of the most important works in American literature, students will sharpen their skills of interpretation while surveying an important literary tradition.

Bachelor of Arts: Humanities
 United States Cultures (US)
 General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

ENGL 232Y: American Literature from 1865

3 Credits

Focusing on major writers and their cultural contexts, ENGL 232Y surveys American literature from 1865 to the present. A remarkable amount of important literature was produced during this period. Students will read major texts like *The Great Gatsby*, *The Grapes of Wrath*, and *Beloved*; learn about renowned authors such as Ernest Hemingway,

Flannery O'Connor, and James Baldwin; and be introduced to influential literary forms, such as the imagist poem, the modernist novel, and New Journalism. The tradition of American literature since 1865 evolved over periods of significant upheaval and change. Students will also learn about the shifting historical and ethical orientations that energized this tradition, from Naturalism to Modernism and Postmodernism. As an introductory survey of American literature, ENGL 232 welcomes non majors: no previous course in literature is required. By reading and discussing some of the most important works in American literature, students will sharpen their skills of interpretation while surveying an important literary tradition.

Bachelor of Arts: Humanities
 United States Cultures (US)
 General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies
 Writing Across the Curriculum

ENGL 233N: Chemistry and Literature

3 Credits

This pedagogically innovative course will be team taught by an instructor from the English department and one from the Chemistry department. Both instructors will be present in the classroom throughout the semester, providing joint presentations and leading discussions. The integration of humanities and natural sciences domain content will encourage students from humanities and natural science backgrounds, as well as other interested students, to take the course and learn how to integrate these two domains of knowledge in their education and their lives after leaving Penn State. This course teaches both basic concepts of chemistry and their cultural elaboration in literature, and it models a critical assessment of the implications of chemistry and literature emerging from a shared cultural field, rather than autonomously from two separate cultures. The course seeks to provide students with a nuanced understanding of how literature and science inform each other and negotiate cultural, religious, and political tensions. Understanding the origin and development of these ideas, perspectives, and discoveries is an essential component of science and scientific achievement, but too often our methods of teaching science focus almost exclusively on teaching facts and theories at the expense of the historical discovery, creation, and development of those facts and theories. This course teaches both the scientific facts and theories and the contexts of their production in order to sharpen students' abilities at critical evaluation of facts. The literary and scientific focus will vary from class to class, but may include writings by literary authors such as Mary Shelley, Edward Bulwer-Lytton, Bram Stoker, H. G. Wells, Garrett Serviss, Aldous Huxley, Roald Hoffmann, Carl Djerassi, Don DeLillo, William Butler Yeats, Arthur Machen, D.H. Lawrence, A. E. Waite, Aleister Crowley, Arthur Conan Doyle, Camille Flammarion, and Rachel Carson, and scientific texts by scientists such as T.H. Huxley, William Crookes, William Ramsay, Frederick Soddy, Ernest Rutherford, Wilhelm Conrad Roentgen, Henri Bequerel, J.J. Thomson, Niels Bohr, and Marie Curie. Key concepts of environmental chemistry. The specific focus of this class will vary from class to class, but all sections will spend approximately 40% of the class on units specifically devoted to key concepts in basic chemistry, 40% of the class on literary interpretations of and influences upon concepts in chemistry in specific historical periods, and 20% of the class on significant methods of theorizing the boundaries between and interrelationships of science and culture., and on the concept of the "culture of science." However,

these subjects will be interwoven throughout the semester. Indeed, the pedagogy of the course depends upon the literature and the science not being neatly separated from each other. Instead, students will learn up-to-date science while exploring the origins, development, and cultural dimensions of that science, and will learn to integrate their understanding of the domains of science and the humanities through the course. The course will be offered once every year with approximately 20-35 seats per offering.

Cross-listed with: CHEM 233N
 Bachelor of Arts: Humanities
 General Education: Humanities (GH)
 General Education: Natural Sciences (GN)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

ENGL 234: Sports, Ethics, and Literature

3 Credits

A passing glance at a newspaper sports page is enough to confirm how ethically fraught the sports world is. This course explores the ethical issues that arise in a culture of competition, and it uses a variety of literary texts to ground that exploration. It seeks to provide students with a nuanced understanding of how dependent sports are on narratives, and how a variety of ethical issues underwrite existing narratives about sports. With a focus on "the big three" (baseball, basketball, and football), the course has a U.S. focus but also has opportunities for students to write about other sports and in non-U.S. contexts. The course connects issues in literature to issues that arise in real time as the semester unfolds. Through the readings, students will develop a heightened awareness of how different a sport can look from the "inside," as an athlete or coach. The literature, that is, develops ethical imaginations and helps students think in a more complicated way about one of the most talked-about phenomena in American culture: athletics, at all levels. Units on baseball, basketball, and football focus on issues specific to those sports (e.g., the basketball unit features texts and discussions about Title IX and gender equity in sport; football on violence, injury, and athlete expendability. The course seeks to equip students to have more sophisticated conversations about sports issues, and to be more discerning as spectators and consumers of sports.

General Education: Humanities (GH)
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Soc Resp and Ethic Reason

ENGL 235: From Folk Shouts and Songs to Hip Hop Poetry

3 Credits

The origins, forms, and function of the oral folk tradition of African Americans. ENGL 235 / AFAM 235 From Folk Shouts and Songs to Hip Hop Poetry (3) (US)(BA) This course meets the Bachelor of Arts degree requirements. This course contemplates connections between African oral traditions and contemporary trends in Black poetry including hip-hop and spoken word poetry. The central objective of the course is to examine the degree to which the most contemporary forms of African American poetry continue to function as folk expression; it provides an opportunity for students to examine the oral roots of African American literature in general and contemporary hip-hop and spoken word poetry, in particular. Music, particularly the Blues and Jazz, will be a prominent feature of this

class as we try to discover the peculiarities of Black poetry. Students will begin by comparing African and African American folk forms such as proverbs and epic poetry, continue with early African American poets such as Phyllis Wheatley, George Moses Horton, Frances Ellen Watkins Harper, and Paul Laurence Dunbar, and continue through the 20th century with the poetry of the Harlem Renaissance and Black Arts Movement to contemporary Hip-Hop and Spoken Word, including Def Poetry Jam recordings. Background readings will include important essays (such as James Weldon Johnson's "Preface to the Book of Negro Poetry" and Langston Hughes's "The Negro Artist and the Racial Mountain") that reveal the kinds of aesthetic issues African American artists faced in crafting their art in the face of a dominant culture that consistently questioned their capacity for artistic production. Students will listen as Margaret Walker reads her famous poem, "For My People," and they will consider the importance of the Black Arts Movement, its poets and critics to the development of contemporary hip-hop and spoken word poetry. Other course materials will include videotaped interviews and poetry readings. Readings would come from an appropriate anthology and/or a combination of other appropriate texts selected by the instructor.

Cross-listed with: AFAM 235
Bachelor of Arts: Humanities
United States Cultures (US)

ENGL 236N: Inequality: Economics, Philosophy, Literature

3 Credits

The Cubists were a group of painters including George Bracques, Pablo Picasso, working in Paris in the 1910s who, in addition to other painterly innovations, depicted objects not from one perspective but from multiple perspectives simultaneously. The final painting could sometimes look like a blur, but, or so the theory went, such multiplicity of perspectives could offer a truer, more complete representation of reality than any single perspective. In this class, we shall adopt a Cubist strategy of taking multiple perspectives. But instead of a guitar or a nude, our object of study will be inequality, and the multiple perspectives will not be different angles of seeing but different disciplines: economics, sociology, education, philosophy, and literature. How does each discipline define inequality? What does each have to say about it? And what does each argue, if anything, should be done about it? The class will mostly focus on economic inequality, but as you will discover, discussions of economic inequality quickly involve discussions of other forms of inequality (principally race and gender) besides economic inequality, and we shall consider those as well.

General Education: Humanities (GH)
General Education: Social and Behavioral Scien (GS)
General Education - Integrative: Interdomain
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Soc Resp and Ethic Reason

ENGL 237N: Reading and Writing Documentary Poetry

3 Credits

You've probably heard of documentary photographs and documentary films, but you may not be familiar with documentary poetry. In this course, we will discuss how poets can use letters, diaries, transcripts, and other materials to create poems that capture historical events and everyday life in order to bear witness to particular moments in time.

An important element of the course will be the role of documenting our world in terms of social justice and ethical responsibility. Whether focusing on public education, poverty, race, class, disability, gender, environmentalism, or other subjects, documentary poets personalize issues that are typically represented with broader brushstrokes. As Paul Metres observes, documentary poets invite "the real life outside the poem" into the poem itself, thereby "testing" the boundaries of what Wallace Stevens called "the pressure of reality." We will begin by viewing and discussing documentary poetry within the context of photography and filmmaking. Next, we will read and discuss documentary poems, including persona, collage, and erasure poems. These readings will also include interviews with select documentary poets about their processes. An overview of poetry terminology, research methods, and the ethics of documentary art will provide you with the basis for composing your own documentary poems. The last third of the course will be spent writing and workshopping your original documentary poems.

United States Cultures (US)
General Education: Arts (GA)
General Education: Humanities (GH)
General Education - Integrative: Interdomain
GenEd Learning Objective: Creative Thinking
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Soc Resp and Ethic Reason
Writing Across the Curriculum

ENGL 240: Exploring Literary Traditions

3 Credits/Maximum of 6

The examination of specific literary traditions in English-language texts and an inquiry into the question of tradition itself. (Section subtitles may appear in the Schedule of Courses.)

Bachelor of Arts: Humanities
General Education: Humanities (GH)
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

ENGL 245: Introduction to LGBTQ Studies

3 Credits

An introduction to the dominant themes in Lesbian, Gay, Bisexual, Transgender, and Queer Studies, with an emphasis on both literary & cultural studies. This course explores the history of modern, western ideas about sexual identity as manifested in literature, theater, film, and other narrative forms of popular culture. Drawing on the substantial body of "queer theory" generated by scholars in the humanities since the 1990s, this class examines sexuality not as a "natural" or consistent phenomenon, but as a set of beliefs that have changed over time and manifest themselves differently in different cultural and historical contexts. Starting in the late nineteenth century, scientific and medical authorities began categorizing individuals into sexual types based on their manifestations of gendered characteristics and their erotic attractions and practices. This medical typing corresponded with the development of subcultures associated with deviance from sexual norms; these subcultures produced a rich variety of texts, images, performances, and social forms, many of which became central to both popular and high culture. This course explores this rich archive, moving among media. It investigates constructions of sexual conformity and how sexual

nonconformists positioned themselves in relation to cultural and medical group identities. It examines how distinctions between gendered, raced, and classed bodies were historically produced and culturally contested. It considers what commonalities gay identities may - or may not - share with lesbian identities and how transgender and other identities have altered perceptions of sexual identity. The course also explores the relationship of the avant-garde to the mass media and how sexual subcultures have shaped literary and other cultural forms of expression. Comparative study of issues of sexual mobility beyond and between the borders of the United States expands the course's critical scope beyond dominant forms of western culture. This course does not propose definitive answers to the questions of identity it addresses. Instead it negotiates the ways sexualities have enabled individuals to articulate - and disarticulate - themselves within social bodies past and present. This course, therefore, has wide relevance for students interested in how group identities come into being and transform over time in dynamic relation to other historical forces. Exploring a wide variety of cultural forms associated with the history of sexual identity as well as a variety of interpretations of that history, this course opens students to an archive of literature, theater, film, and other narrative arts with the potential to inform and enrich their understandings of many kinds of challenges to regimes of normativity today.

Cross-listed with: WMNST 245

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

ENGL 250: Peer Tutoring in Writing

3 Credits

Introduction to theories and skills of successful peer tutoring in writing.

Provides tutoring experience in a writing center.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

ENGL 260: Theory & Practice of Screenwriting

3 Credits

Students will consolidate and extend their critical understandings of the creative process within their own writing and in relation to the works of other screenwriters. Through the course, students will build on the ideas, concepts and issues discussed in class and in assigned readings and viewings, to explore new theoretical orientations, extend knowledge, and refine their skills in script analysis and creative writing. The course will help students navigate through foundational theories so that they may build upon them.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

ENGL 261: Exploring Literary Forms

3 Credits/Maximum of 6

What is genre and why does it matter to the study of literature? This course takes up the question of genre - what it is and why it matters - using a particular literary form (the early novel, epic poetry, episodic drama, memoir detective fiction, etc.) as its focus. Students will examine specific genre iterations across time and media, with attention to how conventional forms can both value tradition and incorporate innovation.

Bachelor of Arts: Humanities

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

ENGL 262: Reading Fiction

3 Credits

ENGL 262 examines the critical, theoretical, and practical issues that readers face when reading fiction. Students will examine critical concepts ranging from fundamental analytical concerns such as plot structure, characterization, and themes, to broader ethical, philosophical, social, and political questions raised by fiction. As a genre course, ENGL 262 will pay special attention to the critical issues and problems raised by reading fiction, as opposed to reading poetry, drama, or non-fiction. Authors might include the following: Defoe, Richardson, Fielding, Walpole, Burney, Sterne, Smollett, C.B. Brown, Austen, J.F. Cooper, Hawthorne, Melville, Child, Chopin, Shelley, the Brontes, G. Eliot, Dickens, Hardy, Thackeray, James, Joyce, Woolf, Bellamy, Faulkner, Hemingway, Morrison, Delillo, Reed, Barthe, Coover, Ellison, Nabokov, Wright, Welch, Erdrich, and others.

Bachelor of Arts: Humanities

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

ENGL 263: Reading Poetry

3 Credits

English 263 will take up the questions, problems, and delights involved in reading poetry in British, American, and other English-language traditions. Examining the fundamental tools of reading poetry (meter, rhyme, image, diction, poetic forms, figurative language, and other rhetorical devices), students in English 263 will pay special attention to the critical issues and problems raised by reading poetry, as opposed to reading fiction, drama, non-fiction, or social texts. Authors under consideration will vary from class to class, but may include writers such as Chaucer, Shakespeare, Marvell, Herbert, Donne, Jonson, Milton, Pope, Blake, Coleridge, Wordsworth, Byron, Shelley, Keats, Tennyson, Clare, Browning, Hopkins, Rossetti, Wheatley, Melville, Whitman, Dickinson, Poe, Dunbar, Justice, Frost, Stevens, Williams, Pound, Eliot, Moore, Loy, H.D., Cummings, Crane, Robinson, Yeats, Hughes, Cullen, Olson, O'Hara, Creeley, Duncan, Auden, Lowell, Plath, Ginsberg, Lorde, Atwood, Brooks, Baraka, GLOck, Doty, and many others. The course may be taught in a number of different ways, for instance, simply by breaking the course down into relatively equally weighted units on particular formal aspects of poetry (rhyme, meter, genre-epic, dramatic, lyric, and various sub-genres-fixed forms, and the like) and then moving on to units designed

to explore how poetry addresses specific social, cultural, and historical contexts.

Bachelor of Arts: Humanities

General Education: Humanities (GH)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

ENGL 265: Reading Nonfiction

3 Credits

Reading Nonfiction will provide students with a historical context and the reading skills necessary for this "fourth genre" of creative writing, with an emphasis on memoirs and the essays that have defined the genre across different eras. Biographies, autobiographies, travel narratives, science writing, and political writing could be included along with hybrid nonfiction such as graphic memoir and the video essay. As a reading (not writing) class, content will focus on the implicit contract of truth between the writer and the reader, with discussions to focus on the impact of a "true story" told creatively. What must the writer accomplish on the page in order for a reader to become engaged with this genre? The course will bring to the table questions of ethics and morals when applied to our latest understanding of the fallibility or reliability of memory and how authors use their memories to write nonfiction. Later weeks in the course will examine publishing trends in nonfiction and identify career paths for students wishing to further explore the scholarship of nonfiction.

Bachelor of Arts: Humanities

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

ENGL 268: Reading Drama

3 Credits

Reading Drama is a course that will cover elements of drama including plot, character, dialogue, staging, and dramatic forms in primarily British, American, and other English-language traditions. Students will explore different techniques for reading drama through a literary lens, including the overlap of reading for history, reading for theory, reading for pleasure, and reading as a preparation for the eventual staging of drama. Students can expect to encounter a range of drama presented in such a way that learning outcomes explore historical trends, artistic movements, critical reception, and drama's effect on culture, society, politics, and art. Students will by the end of the course have a solid foundation in comparing and contrasting styles of drama and will also be able to engage in the scholarly dialogue of analyzing dramatic literature to a depth that goes beyond appreciating the entertainment value of a good play.

Bachelor of Arts: Humanities

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

ENGL 281: Television Script Writing

3 Credits

An introduction to the writing of scripts for television production.

Bachelor of Arts: Humanities

ENGL 282: TV Script Writing 2

3 Credits

This creative writing course will further explore the specialized techniques and requirements of television script writing. Students will complete a first draft of a pilot episode (begun in ENGL281) and then revise the draft, focusing especially on the main character's story arc, plot structure, adding multiple narrative lines, scene and dialogue revision, and developing larger narrative lines for future episodes. Through script readings, discussions, writing exercises, and workshopping, students will come to understand the revision process and develop skills that can be applied to future scriptwriting.

Enforced Prerequisite at Enrollment: ENGL 281

ENGL 294: Research Topics

1-12 Credits/Maximum of 12

Individual or small group instruction.

Bachelor of Arts: Humanities

ENGL 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Bachelor of Arts: Humanities

ENGL 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Humanities

ENGL 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Humanities

International Cultures (IL)

ENGL 310H: Honors Thesis in English

3 Credits

Research paper or creative project on a topic approved by the Departmental Honors Committee. Departmental approval required (for more special information please refer to the notes section in LionPATH).

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H and permission of program
Bachelor of Arts: Humanities
Honors

ENGL 312: Globality and Literature

3 Credits

This course examines contemporary fiction that reflects on globality and globalization, most often from contexts where planetary crisis registers as linguistic or narrative disturbance: war, empire, economic underdevelopment, state repression, diaspora, immigration, or major historical shifts. Anglophone writings will be read alongside works in translation to track the common-or-uncommon-conditions of humanity that results from economic and political globalization. The course pays special attention to questions of violence and justice, the principal preoccupations of human rights discourse.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)
Bachelor of Arts: Humanities
International Cultures (IL)

ENGL 395: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: prior approval of proposed assignment by instructor
Bachelor of Arts: Humanities

ENGL 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Humanities

ENGL 399: Foreign Study-English

3-6 Credits/Maximum of 6

Advanced studies in English language and/or literature.

Bachelor of Arts: Humanities
International Cultures (IL)

ENGL 400: Authors, Texts, Contexts

3 Credits/Maximum of 6

Styles, cultural milieus, critical perspectives toward particular English-language authors and/or movements they represent, and the idea of authorship. (Section subtitles may appear in the Schedule of Courses.)

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

ENGL 401: Studies in Genre

3 Credits/Maximum of 6

English-language texts exemplifying particular genres, with attention to critical theories, historical development, rhetorical strategies, and social, cultural, and aesthetic values. (Section subtitles may appear in the Schedule of Courses.)

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

ENGL 401W: Creative Writing Theory

3 Credits

Theories of art and creativity which inform the making of literary works.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

Writing Across the Curriculum

ENGL 402: Literature and Society

3 Credits/Maximum of 6

Texts confronting social, political, technological, or other issues in the English-speaking world. (Section subtitles may appear in the Schedule of Courses.) ENGL 402 Literature and Society (3)(BA) This course meets the Bachelor of Arts degree requirements. One variation will focus on Literature and Censorship by first considering general arguments for and against censorship and then by examining texts by writers who sought publication in their own country but whose books were censored or banned. The course will consider such questions as, Are there ever legitimate grounds for censorship? How do standards of censorship differ between countries? What is the relation between censorship on political and on moral grounds? What does artistic merit have to do with concern about moral or political subversion? Works from England, South Africa and the United States will be read and discussed, and where available, excerpts from trial transcripts will be read in order to examine arguments for and against publication. Readings will include works by Milton, D. H. Lawrence, Alan Paton, Nadine Gordimer, Athol Fugard, Eugene O'Neill, Henry Miller, and Alan Ginsberg. Another variation will focus on war and gender in 20th century American literature by examining the ways male and female authors write about war. Texts will vary from battlefield experiences to repercussions of war to the symbolic implications of war. Questions will be raised about literary authority. Does one need to be combatant to write about war? If not, how does one find the authority to speak, particularly as a woman? How does race and/or ethnicity complicate one's perceptions of American participation in war? Readings will include works by Ernest Hemingway, William Faulkner, Joseph Heller, Cynthia Ozick, Leslie Marmon Silko, Norman Mailer, Bobbie Mason, Tim O'Brien, and Toni Morrison. Another variation will focus specifically on the writings which emerged from the postwar African-American struggle for civil rights. The course will include not only fiction and poetry but also those speeches, sermons, editorials, and other forms of discourse to have emerged from the era. The emphasis will be both traditional literary concerns as well as on the various rhetorical strategies involved in each work. Ideally, the course would make visible to students the

difficulties attendant upon any attempt to separate the concerns of rhetoric and persuasion too firmly from the concerns of literature. The course could conclude with a look at some of the various biographies, autobiographies, and histories written over the last twenty-five years, which attempt to shape our national memory. Other variations include literature as a response to Newtonian science or to Darwinism or to the American Depression or to postwar technology or to new dystopias or to AIDS or, as in the sample outline, the Civil Rights movement.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

ENGL 403: Literature and Culture

3 Credits/Maximum of 6

Historical, theoretical, and practical issues within cultural studies in relation to English-speaking texts. (Section subtitles may appear in the Schedule of Courses.) ENGL 403 Literature and Cultural Studies (3)(BA) This course meets the Bachelor of Arts degree requirements. Topics covered in this course will vary from semester to semester, but a broad framework will be to introduce students to literary and other texts read in relation to cultural studies. Individual instructors may take up different historical periods, while other versions may suggest ways cultural studies draws on different theoretical discourses such as rhetoric, deconstruction, feminism, or the New Historicism for its problems. All Reading Culture courses should serve as an introduction to cultural studies, moving from theoretical to practical readings of literature and culture. In any case, a common goal would involve examining cultural studies as constituted by plural theories and ends.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

ENGL 404: Mapping Identity, Difference, and Place

3 Credits/Maximum of 6

Ethnicity, gender, class, race with reference to theoretical inquiry into identity, difference, and place in English-language literatures. (Section subtitles may appear in the Schedule of Courses.)

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

ENGL 405: Taking Shakespeare From Page to Stage

3 Credits

Students experience a Shakespeare play as a text to be explicated and as a script to be performed.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

ENGL 406M: Honors Course in English: General Topic in Recent Literature

3-12 Credits/Maximum of 12

This advanced Honors Seminar in literature, rhetoric, and cultural studies allows students to explore and research a topic related to recent literary culture. Topics will vary depending on the course instructor but may include the study novels, poetry, drama, theory, film, nonfiction, or rhetoric. Recent topics have included Alfred Hitchcock, contemporary novels, prison narratives, authors and artists, and apocalyptic fiction. Assignments will include extensive primary and secondary reading, participation in class discussion, and a substantial paper or final project. Departmental approval required (for more special information please refer to the notes section in LionPATH).

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Bachelor of Arts: Humanities

Honors

Writing Across the Curriculum

ENGL 407: History of the English Language

3 Credits

This course provides an accessible overview of the English language from its earliest beginnings as an insular language to its current place as a global language. One central issue will be the ways in which the external history (culture, political power, geography) of the language has impacted its internal history (spelling, pronunciation, dialect) over time. In the process, we will examine several representative English texts which illustrate significant moments in this long process of language change. Other topics will include the traces of early English vocabulary and structures in modern English, sound changes and pronunciation, English's heavy lexical borrowing from other languages, the politics of language and language use, longstanding debates over what constitutes standard English, the impact of prescriptive language guides, varieties of spoken and written English, the English language and colonialism, English as a global language, and the influence of technologies.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

International Cultures (IL)

ENGL 408M: Honors Seminar in English: General Topic in Post-1800 Literature

3-12 Credits/Maximum of 12

This advanced Honors Seminar in literature and literary and cultural history allows students to explore and research a topic related to post-18th century literary culture. Topics will vary depending on the course instructor but may include the study 19th- or 20th-century novels, poetry, drama, theory, film, nonfiction, or rhetoric. Recent topics have included critical medical humanities, historical novels, Victorian underground literature, spiritual biography, and the 1890s. Departmental approval required (for more special information please refer to the notes section in LionPATH).

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Bachelor of Arts: Humanities
Honors
Writing Across the Curriculum

ENGL 409: Composition Theory and Practice for Teachers

3 Credits

An overview of the theory and practice of writing for teachers, with emphasis on the writing process. ENGL 409 Composition Theory and Practice for Teachers (3)(BA) This course meets the Bachelor of Arts degree requirements. ENGL 409 is intended to help teachers improve their writing instruction by immersing them in composition theory and providing them with the opportunity to learn the writing process through personal experience. On completion of the course, participants will be able to: ♦ Articulate and test composition theory in written works ♦ Work through each phase of the writing process in assigned essays ♦ Develop strategies for writing effectively in various genres and styles, including journal writing ♦ Produce written works which demonstrate an awareness of audience ♦ Implement recommendations for effective revisions ♦ Provide responsive feedback to peers' written work ♦ Develop a precis for a model lesson
Evaluation: Students will be evaluated on their knowledge and understanding of instructional objectives, demonstrated in written assignments, class discussions and other projects.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H
Concurrent at Enrollment: EDUC 452
Bachelor of Arts: Humanities

ENGL 411M: Honors Seminar in English: Creative Writing

3-12 Credits/Maximum of 12

Advanced Seminars in Creative Writing focus on a particular genre and/or topic. Genres include poetry, fiction, graphic novel, memoir, creative non-fiction, essay, or drama. Topics vary. Students work as apprentice writers, reading the work of published and expert authors, experimenting within the genre, engaging in structured peer review and group workshops, and preparing texts for publication and contest submission. Students discuss a number of issues relevant to the practice of creative writing and the production of literature, such as innovation and circulation, and numerous techniques, including the establishment of voice, creation of character plot development, pacing, and principles of prosody. Students may also consider the responsibilities of literary citizenship and the ethics of artistic representation. The courses offer an intense investigation of creative writing craft. Students develop skills in close, critical reading through the examination of exemplary works of contemporary literature and craft analysis, often reading an entire book per week. They also learn to read analytically and practically in workshop critiques of peer writing. In workshop discussion, students engage in a range of critical and editing tasks from close reading to broad conceptualization; they develop the ability to communicate ideas clearly and extemporaneously, and to negotiate meaning with others. Students experiment with and hone various writing techniques by executing focused exercises and drafting and developing pieces for final submission. They apply critical and analytical reading skills to revise and strengthen their own writing. The final project may include drafts and polished versions of two to three stories or essays, and up to a dozen poems.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Bachelor of Arts: Humanities
Honors
Writing Across the Curriculum

ENGL 412: Advanced Fiction Writing

3 Credits/Maximum of 12

Advanced study of the techniques of fiction writing; regular practice in writing the short story; group discussion of student work.

Enforced Prerequisite at Enrollment: ENGL 212 and (ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H)
Bachelor of Arts: Humanities

ENGL 413: Advanced Poetry Writing

3 Credits/Maximum of 12

Advanced study of the techniques of poetic composition; regular practice in writing poetry; group discussion of student work. ENGL 413 Advanced Poetry Writing (3 per semester/maximum of 6)(BA) This course meets the Bachelor of Arts degree requirements. Students enrolled in the Advanced Poetry Workshop will have successfully completed ENGL 213, Introduction to Poetry Writing. In the advanced course, they continue their study of prosody through the close reading of published poems, including entire volumes of poetry by a single author. Students will also study articles and books that discuss various elements of craft. They can expect to prepare written reading responses and formal classroom presentations on the assigned readings. They will also draft approximately one new poem or revision each week, in addition to completing various writing exercises in or outside of class. All students will prepare for and engage in the workshop critiques; participation in these conversations is essential and subject to assessment. The writing, revision, and workshop process prepare the student to compile a portfolio of 8-10 poems, which they will submit as a final project for the course.

Enforced Prerequisite at Enrollment: ENGL 213 and (ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H)
Bachelor of Arts: Humanities

ENGL 414: Biographical Writing

3 Credits

Writing of biography and autobiography, character sketches, "profiles," and literary portraits; analysis and interpretations of source materials.

Enforced Prerequisite at Enrollment: ENGL 214 and [ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)]
Bachelor of Arts: Humanities

ENGL 415: Advanced Nonfiction Writing

3 Credits/Maximum of 12

Advanced study of the principles of nonfiction; substantial practice in writing and submitting magazine articles for publication.

Enforced Prerequisite at Enrollment: (ENGL 212 or ENGL 215) and [ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)]

Bachelor of Arts: Humanities

ENGL 416: Science Writing

3 Credits/Maximum of 6

Prepares scientists and writers to gather, interpret, and present scientific information to the layman with clarity and accuracy.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

ENGL 417: The Editorial Process

3 Credits

The process of editing from typescript through final proof.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

ENGL 418: Advanced Technical Writing and Editing

3 Credits/Maximum of 6

Preparing and editing professional papers for subject specialists and for others interested in careers as writers or editors.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

ENGL 419: Advanced Business Writing

3 Credits

Preparing and editing reports and presentations common to business, industry, and government.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

ENGL 420: Writing for the Web

3 Credits

Analysis and composition of informative, persuasive, and "creative" Web texts, based on rhetorical principles; no prior Web writing experience required. ENGL 420 Writing for the Web (3)(BA) This course meets the Bachelor of Arts degree requirements. This course, designed for writers and potential writers, will explore the unique opportunities and constraints of writing for the Web. As a writing course, it should appeal to students in the Humanities; however, because of the growing importance of Web texts in fields such as business and the social sciences and given the opportunity to compose/construct a variety of fictional and non-fictional "creative" and informative/persuasive Web texts, this course should be of value to students across the college. In this course, students will survey a wide variety of Web texts—webs, electronic journals and books, learning to analyze these as to their efficacy in light of each text's rhetorical situation. As students learn to compose

and construct such texts themselves, rhetorically based principles of audience awareness and persuasive appeal will be emphasized. Rather than focusing on writing html codes and java scripts, this course will build on the rhetorical principles taught in first-year writing courses, teaching students how to apply those principles to more sophisticated, multi-sensory, multi-media hyper textual writing. The course will be taught primarily in a hands-on workshop environment in a PC computer lab or laptop-equipped classroom. Although no prior Web writing experience is required, some experience with Web navigation and computer word processing will be helpful. Students will be evaluated on the basis of their participation/attendance in the course's workshop environment, written web analyses, and constructed web texts.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

ENGL 421: Advanced Expository Writing

3 Credits

Develops skill in writing expository essays, with particular attention to style. Intended for liberal arts majors.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

ENGL 422: Fiction Workshop

3 Credits/Maximum of 6

Practice and criticism in the composition of the short story and the novel.

Enforced Prerequisite at Enrollment: ENGL 412

Bachelor of Arts: Humanities

ENGL 423: Poetry Writing Workshop

3 Credits/Maximum of 6

Extensive practice in writing poetry; consideration of contemporary poetic forms; selected readings.

Enforced Prerequisite at Enrollment: ENGL 413

Bachelor of Arts: Humanities

ENGL 424: Creative Writing and the Natural World

3 Credits

Creative writing workshop focused on the environment and related issues. ENGL (ENVST) 424 Creative Writing and the Natural World (3) American literature includes a long and rich tradition of writing that focuses on the natural world. From the oral stories of indigenous people to the journals of the first European settlers, many have looked for a way to understand their own place in the world based upon their relationship to the earth and its creatures. While Puritans often discerned the pleasure or wrath of God in the environmental changes they experienced, Transcendentalists like Henry David Thoreau and Ralph Waldo Emerson sought out moments of spiritual enlightenment by immersing themselves in the natural order. More recently, such poets as Galway Kinnell, James Wright, and Robert Bly have attempted to connect with the depths of collective unconsciousness by exploring the natural world, while others,

like Mary Oliver, Dan Gerber, Jim Harrison, Gary Snyder and Wendell Berry, have used transcendental thought and melded it with Christian and Buddhist insights. Still others, like Gary Paul Nabhan, Rachel Carson, and Alison Hawthorne Deming have brought science to bear upon the riches that nature, art, and scientific exploration may offer when joined in the pursuit of a deeper understanding of, and relationship with, the natural world. This course will acquaint students with the tradition of American nature writing, as well as contemporary nature writing, in the genres of nonfiction, poetry and fiction. Students will be introduced to issues of style, philosophy, and content, as they produce their own essays, poems, and stories. The course culminates in the production of a portfolio of nature writing. Much of this work will begin in class with specific assignments, which will include field work, and feedback from other students in the class. As a workshop course in creative writing, the emphasis will be upon the production of literary texts that interact with the natural world and upon the revision of those texts.

Enforced Prerequisite at Enrollment: ENGL 50 or ENVST 100N

Cross-listed with: ENVST 424

ENGL 426: Chicana and Chicano Cultural Production: Literature, Film, Music

3 Credits/Maximum of 3

An in-depth study of Chicana/Chicano literature, film, and music from the inception of the Chicano Movement (1965-1975) to the present. ENGL 426 Chicana and Chicano Cultural Production: Literature, Film, and Music (3) (US)(BA) This course meets the Bachelor of Arts degree requirements. ENGL 426 will constitute an in-depth study of Chicano/a literature, film, and music from the inception of the Chicano movement (1965-1975) to the present. In addition to primary aesthetic texts, students will read historical, political, and theoretical essays designed to situate the Chicano/a cultural texts in historical and political context. The aim of the course is to give students a better understanding of Chicano/a cultural production by situating these works of art against other U. S. artistic traditions and within wider historical and political movements. Authors and artists under consideration in this class will vary, but will likely include Luis Valdez, Tomas Rivera, Estella Portillo Trambley, Oscar Zeta Acosta, Corky Gonzales, Gloria Anzaldua, Norma Alarcon, Cherrie Moraga, Richard Rodriguez, Dagoberto Gilb, Rolando Hinojosa, Alfredo Veal, Charlie Trujillo, Diego Vasquez Jr., Joe Rodriguez, Tomas Almaguer, Jose Esteban Munoz, Manuel Ramos, Lucha Corpi, Rudolfo Anaya, Michael Nave. This class will prepare students for advanced courses in Latin/a literatures as well as other academic courses that engage in the verbal and written analysis of complex texts. Students will be evaluated by means of essays written in and out of class, essay exams, group projects, term-long journals, and class participation. Students should expect to complete a minimum of three written assignments in the course of the term. The course may be used as ENGL major elective credit or as credit towards the ENGL minor and will be offered once a year with 40 seats per offering.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Cross-listed with: LTNST 426

Bachelor of Arts: Humanities
United States Cultures (US)

ENGL 427: Topics in Jewish American Literature

3 Credits/Maximum of 9

An in-depth examination of important themes, writers, and/or historical developments in Jewish Literature of the United States. ENGL (J ST) 427 Topics in Jewish American Literature (3) This course will provide sustained examination of major themes, texts, and figures in the Jewish American literary tradition. The course will focus on depth rather than breadth in its analysis of the defining aspects of the literature and on what the literature reveals about Jewish American culture and identity. The United States has absorbed large numbers of Jewish immigrants from many parts of the world, holding many different ideas about Jewish practice, and affiliating themselves with many different political, social, and cultural traditions, and moreover Jews have settled and made homes in a wide variety of American communities. Close analysis of literature will therefore provide an opportunity to consider the constitution, origin, and development of Jewish America's wider cultural, political, and social contexts. Materials will consist predominantly of primary texts, including prose fiction and nonfiction, poetry, drama, and film, and the methodology will emphasize the close reading of these texts. The course complements offerings in Jewish Studies, English, and Comparative Literature. Most obviously, the course will offer students of Jewish literature, world literature, and American literature an opportunity for contextualization. It enables students in Jewish Studies to study the rich literature of American Jews, and it adds to courses covering Jewish American history, religion, and culture. The course offers students in English and Comparative Literature a valuable, sustained introduction to an important U.S. and world sub-culture and -literature.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Cross-listed with: JST 427

ENGL 428: Asian American Literatures

3 Credits/Maximum of 6

This course explores contemporary Asian American literary production by reading a wide variety of texts focused on the possibilities and limits of space and place. Our goal in this class is two-fold: to orient ourselves in relation to Asian American literatures and to orient Asian American literatures in relation to other geographical formations such as the nation, the hemisphere, the transpacific, and the world. To accomplish this, we will consider how physical and geographical spaces map on to psychic and historical ones, in the process focusing on a diverse set of locations-including ethnic enclaves, detention camps, islands, the transpacific, and the hemisphere. We will engage key concepts in Asian American literary studies such as transnationalism, globalization, racialization, imperialism, history, culture, and postracialism. Additionally, we will think about how issues of identity, belonging, contestation, aesthetics, diaspora, and genre are critical to Asian American literary production. Finally, we will interrogate the constructed, pan-ethnic nature of "Asian America" as itself an imagined nation. In the process, we will familiarize ourselves with the richness and diversity of Asian American literature by considering a variety of genres, including short stories, novels, drama, memoir, comics, and film. In encouraging students to develop understanding of the historical backgrounds, cultural and scientific contributions, economic, social, psychological, and political circumstances of Asian Americans, they will 1) Learn to see nations, cultures, and/or social identities not in isolation, but in relation to each other; 2) Gain increased knowledge of different cultural values, traditions, beliefs, and customs;

3) Appreciate the diversity that exists among persons who share a particular social identity; 4) Recognize and be sensitive to the different ways social identities have been valued; 5) Increase their understanding of stereotypes and biases; and 6) Increase their awareness of the nature of social justice and equity. These goals are supported by every aspect of the course: the reading list, the in-class conversation and lectures, the collaborative projects, the quizzes and exams, and the analytical essays. Students are not simply exposed to texts and topics but must demonstrate engagement with, understanding of, and critical analysis in relation to the course's focus.

Cross-listed with: ASIA 428
Bachelor of Arts: Humanities
United States Cultures (US)

ENGL 429: New Media and Literature

3 Credits

New media literary genres; critical discussion of creative works in digital media.

Cross-listed with: CMLIT 429
Bachelor of Arts: Humanities

ENGL 430: The American Renaissance

3 Credits

Studies in the works and the interrelationships of writers such as Emerson, Hawthorne, Poe, Thoreau, Whitman, Melville, and Dickinson. The course will cover Transcendentalism and the authors who contributed to this movement, many of whom lived in Concord, MA. Though the class will feature the works of Emerson, Hawthorne, and Thoreau, it can also branch out to address other authors such as Margaret Fuller, Jones Very, and Elizabeth Peabody. Departing from Concord, the course will explore Walt Whitman and Emily Dickinson, both of whom read and were inspired by Emerson. Finally, the course will include works by Herman Melville, who formed a friendship with Hawthorne prior to writing *Moby-Dick*. Though literature constitutes the center piece of this course, iterations of the course may bring in other parts of the cultural, social, and political landscape: slavery, abolitionism, Jacksonian Democracy, western settlement, art, science, and technology.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Cross-listed with: AMST 470
Bachelor of Arts: Humanities

ENGL 431: Black American Writers

3 Credits/Maximum of 6

A particular genre or historical period in the development of Black American literature. ENGL 431 / AMST 475 Black American Writers (3) (US) A study of a particular genre or historical period in the development of Black American literature. This course will allow faculty and students to focus a semester's study on a particular genre, theme, or problem in African-American literature. The flexibility of the course will allow faculty a forum in which to share current scholarship or to relate issues in African-American literature to larger school-wide themes in a classroom environment. Because of the potential variety of topics and faculty members, specific evaluation methods will be determined by the instructor and specified in the syllabus. The course will be offered once

every two years with an expected enrollment of 25 students. The course satisfies the "area" requirement in culture for American Studies majors.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Cross-listed with: AMST 475
Bachelor of Arts: Humanities
United States Cultures (US)

ENGL 432: The American Novel to 1900

3 Credits

Such writers as Hawthorne, Melville, Stowe, Mark Twain, James, Crane, Chopin, and others.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

ENGL 433: The American Novel: 1900-1945

3 Credits

Such writers as Wharton, Dreiser, Cather, Fitzgerald, Faulkner, Hemingway, Hurston, Wright, and others.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

ENGL 434: Topics in American Literature

3 Credits/Maximum of 99

Focused study of a particular genre, theme, or problem in American literature. (May be repeated for credit.) ENGL 434 / AMST 472 Topics in American Literature (3) This course will allow faculty and students to focus a semester's study on a particular genre, theme, or problem in American literature. The flexibility of a topics course will allow faculty a forum in which to share current scholarship or to relate issues in American literature to larger school-wide themes in a classroom environment. Because of the potential variety of topics and faculty members, specific evaluation methods will be determined by the instructor and specified in the syllabus. The course will be offered once every two years with an expected enrollment of 25 students. The course satisfies the "area" requirement in culture for American Studies majors.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Cross-listed with: AMST 472
Bachelor of Arts: Humanities

ENGL 435: The American Short Story

3 Credits

Development of the short story as a recognized art form, with emphasis on major writers.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

ENGL 436: American Fiction Since 1945

3 Credits

Study of novels and short fiction written in the United States since World War II, with attention to different movements, traditions, and genres.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

ENGL 437: The Poet in America

3 Credits

American poets such as Bradstreet, Taylor, Poe, Emerson, Whitman, Dickinson, Frost, Eliot, Stevens, Hughes, Brooks, Moore, Williams, Plath, Rich, Lowell.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

ENGL 438: American Drama

3 Credits

Development from the colonial period to playwrights such as O'Neill, Wilder, Hellman, Miller, Williams, Albee, Shepard, Norman, Wilson, and others.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

ENGL 439: American Nonfiction Prose

3 Credits

Major prose writers such as Franklin, Emerson, Thoreau, Fuller, Henry Adams, Mailer, Baldwin, McCarthy, Dillard, Didion, Angelou, and others.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

ENGL 440: Studies in Shakespeare

3 Credits

Focused study of a single genre, topic, or critical approach to selected plays by Shakespeare and contemporaries.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

ENGL 441: Chaucer

3 Credits

This course surveys the literary career of Geoffrey Chaucer, perhaps the most celebrated English-language poet of the medieval ear. The course primarily examines Chaucer's own writings, with consideration of the several international authors and traditions that informed his own literary productions. Selections may vary, but students will read texts from across Chaucer's career, including from major works like *Troilus and Criseyde* and *The Canterbury Tales*. Readings from Chaucer's sources and models may include translated selections from Boethius's *Consolation of Philosophy* or from Guillaume de Lorris and Jean de Meun's *Romance of the Rose*, and/or examples from relevant literary genres such as romance, fabliaux, beast fable, sermon, tragedy, and exemplum. Accordingly, students will develop a knowledge and appreciation of how Chaucer shaped (and was shaped by) his continental influences and the ways in which he developed a poetic tradition in English that proved deeply influential for many centuries.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

International Cultures (IL)

ENGL 442: Medieval English Literature

3 Credits

Study of major works and genres of medieval English literature, exclusive of Chaucer.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

ENGL 443: The English Renaissance

3 Credits

Study of different early modern texts and traditions, with attention to poetry, drama, fiction, and nonfiction.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

ENGL 444: Shakespeare

3 Credits

Selected tragedies, comedies, and histories.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

ENGL 445: Shakespeare's Contemporaries

3 Credits

Selected plays by Shakespeare's major predecessors and contemporaries: Kyd, Marlowe, Jonson, Webster, Marston, Middleton, and others.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

ENGL 446: Milton

3 Credits

Analysis of principal poems and their background.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

ENGL 447: The Restoration and the Eighteenth Century

3 Credits

Study of different English writers and traditions from the neoclassical age (1660-1776), with attention to poetry, fiction, romance, and drama.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

ENGL 448: The English Novel to Jane Austen

3 Credits

Study of different writers and traditions in the early English novel.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

ENGL 449M: Honors Seminar in English: Pre-1800s literature

3-12 Credits/Maximum of 12

This course offers honors students the opportunity to explore in depth a period of early English literature before 1800. Topics will vary from year to year, but may include Beowulf and Anglo-Saxon literature and culture, late medieval authors such as Chaucer, Gower, and Langland, sixteenth-century lyric poets, Shakespeare, Shakespeare and film, Elizabethan dramatists, authorship and book history, early women authors, seventeenth-century writers such as Donne, Herrick, Wroth, and Bacon, writers of the English Revolution, Milton, and eighteenth-century writers such as Pope, Dryden, and Swift. Assignments will include extensive primary and secondary reading, participation in class discussion, and a substantial paper or final project. Departmental approval required (for more special information please refer to the notes section in LionPATH).

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

Honors

Writing Across the Curriculum

ENGL 450: The Romantics

3 Credits

Writers of the British Romantic period (roughly 1790 to 1832) often made sweeping claims for the power of poetry and imagination. Percy Bysshe Shelley contended that "poets are the unacknowledged legislators of the world," while John Keats declared that "beauty is truth, truth beauty." Against the background of political revolution in France, the rise of industrialization and empire, and increasing social instability, Romantic writers turned to nature as a source of the self and looked back to childhood as a site of both innocence and ambivalence. Others turned their efforts to the supernatural and the gothic, hoping to inspire what Samuel Taylor Coleridge called "that willing suspension of disbelief for the moment which constitutes poetic faith." This course is designed to provide an introduction to the richness and diversity of Romantic-era literature. It is not intended to be an exhaustive overview of the entire period, but rather an introduction to the best known Romantic ideas' many of which still influence the way we think about art and literature in the present day as well as an invitation to further study and engagement. In that spirit, we will not work from a predetermined definition of "romanticism," but instead will build a collective, working understanding of the concept.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

International Cultures (IL)

ENGL 451: Literary Modernism in English

3 Credits

Survey of literary modernism in English and English translation in a variety of genres, including poetry, fiction, and drama.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

ENGL 452: The Victorians

3 Credits

Poets such as Tennyson, Browning, Arnold, and Hopkins; also prose by writers such as Carlyle, Mill, Ruskin, and Arnold.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

ENGL 453: Victorian Novel

3 Credits

Study of texts and traditions in the nineteenth-century English novel.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

ENGL 454: Modern British and Irish Drama

3 Credits

From Wilde and Shaw to the present season. ENGL 454 Modern British and Irish Drama (3)(BA) This course meets the Bachelor of Arts degree requirements. ENGL 454 will introduce students to some of the most exciting playwrights and important trends in modern British and Irish drama from the late nineteenth century to the present. The course will examine a number of plays, exploring not only how they work formally, but also how changing cultural and historical contexts helped to shape the plays and British and Irish drama more generally. Authors under consideration will vary from class to class, but may include writers such as Oscar Wilde, George Bernard Shaw, John Synge, Lady Gregory, William Butler Yeats, Sean O'Casey, Samuel Becket, Denis Johnston, Brendan Behan, Brian Friel, Tom Murphy, Martin McDonagh, Noel Coward, John Osborne, T. S. Eliot, Robert Bolt, Harold Pinter, Caryl Churchill, and Tom Stoppard. The course will explore such topics as the role of drama in the Irish Revival, nationalism, and the revolution, the use of myth and folklore in drama, the emergence of realism, the function of Wilde and Shaw's humor in their plays, drama's response to the decline of the British empire, the modernist verse drama, post-modernism in drama, issues of stagecraft and performance, and the political function of such theaters as the Abbey Theatre or the Field Day Company. Students will write at least two papers on particular plays, and can expect to take a mid-term exam and a final exam. The course may be used as English Major elective credit or as credit towards the English minor, and will be offered once a year with 40 seats per offering.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

ENGL 455: Topics in British Literature

3 Credits/Maximum of 99

Focused study of a particular genre, theme, or problem in British literature. (May be repeated for credit.) ENGL 455 Topics in British Literature (3)(BA) This course meets the Bachelor of Arts degree requirements. This course will allow faculty and students to focus a semester's study on a particular genre, theme, or problem in British literature. The flexibility of a topics course will allow faculty a forum in which to share current scholarship or to relate issues in British literature to larger School-wide themes in a classroom environment. Offering such focused studies under a British literature umbrella will allow majors to apply these offerings to their upper-level British literature requirement. Because of the potential variety of topics and faculty members, specific evaluation methods will be determined by the instructor and specified in the syllabus. This course will be offered once every two years, with an expected enrollment of 20-25 students.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

ENGL 456: British Fiction, 1900-1945

3 Credits

Study of writers and traditions in British short fiction and novels, 1900-1945.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

ENGL 457: British Fiction Since 1945

3 Credits

Readings in British fiction since World War II.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

ENGL 458: Twentieth-Century Poetry

3 Credits

Study of poetry written in English during the twentieth and twenty-first centuries, with attention to different writers, forms, and traditions.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

ENGL 459: Writing Palestine-Israel

3 Credits

Study of literary writing of and about the Israel-Palestine conflict. This course examines the Israel-Palestine conflict through an analysis of literature written by participants, victims, bystanders, and observers. We will read literature by Arabs, Jews, and Christian; by Israelis, Palestinians, and other populations affected by the conflict; and by writers in the Arab World, Europe, and the Americas in order to develop a nuanced understanding of the conflict, its history, what's at stake for its participants, antagonists, and victims. The course will emphasize close reading and aesthetic analysis, but it will also pay attention to the ways in which literature can be used to think about history, experience, and politics. The course will survey a wide array of writing from a diverse set of global traditions, including significant figures, themes, and histories, and the course will pay attention to literature's intersections with migration history, international politics, faith, nationalism, and revolutionary liberation. The course will showcase national and religious diversity. We will focus on the relationship of writing of and about the Israel-Palestine conflict to other subfields and literary study more generally, including issues such as ethnicity, culture, religion, diaspora, gender, politics, and identity. A major emphasis of the course will be on analyzing literary texts as lenses to reflect, refract, and focus on Arab, Jewish, and Palestinian identity. In addition, by way of analyzing the

interrelationships between literary representation and experience, the course will attend to a number of key themes in how we think about Diaspora, with some special emphasis on American literature about the Israel-Palestine conflict: how have American writers, and especially American writers of Arab, Jewish, and Muslim heritage, articulated their identities in relation to the Israel-Palestine conflict and the Middle East more generally, including the long history of US involvement in the Middle East? The course will cover both English-language literature and literature in translation from other languages.

Enforced Prerequisite at Enrollment: Prerequisites: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H Recommended Preparations: Some knowledge of the Israel-Palestine conflict would be helpful.

Cross-listed with: JST 459

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

ENGL 460: Business and Literature

3 Credits/Maximum of 3

An investigation into how writers and the cultures in which they write have represented business and those engaged in it. For many people, literature and business could not have less to do with each other. According to this view, literature escapes from reality to the imaginative, while nothing could be more focused on the real than business and its buying and selling of commodities and services. The problem is that no one told literary writers of this mutual incompatibility. For centuries, writers have peered into the world of business and brought back stories intended to document, inspire, and warn. True, writers have often, and sometimes unthinkingly, condemned business and those who follow it, but they have just as often had genuine insights into its workings. In this course, we will follow the relationship between literature and business over the course of modern history. Although one version of the course would begin with literature that dates back to the invention of capitalism in (more or less) the sixteenth century, our course will begin at the turn of the nineteenth century with the Industrial Revolution in England and the United States and follow the literature of business up to the present. Our aim in reading is not just to understand how writers have represented business and those who pursue it, which, it has to be admitted, has often been with contempt. But, rather, in reading more sympathetic works, to understand the drama of business, why those who pursue it find it so invigorating. Money, of course, is one answer to that question, but it is neither the only nor the most important one. Texts may vary, but they are almost certain to include Charles Dickens's *Dombey and Son* (1847); Herman Melville's "Bartleby the Scrivener" (1853); the "Economy" chapter of Henry David Thoreau's *Walden* (1854); Anthony Trollope's *The Way We Live Now* (1875); Thorstein Veblen's *Theory of the Leisure Class* (1899); George Bernard Shaw's *Major Barbara* (1905); Theodore Dreiser's *The Financier* (1912); Sinclair Lewis's *Babbitt* (1922); Edwin Lefevre's *Reminiscences of a Stock Operator* (1922); James M. Cain's hardboiled masterpiece *Mildred Pierce* (1941); F. Scott Fitzgerald's unfinished novel *The Love of the Last Tycoon* (1941); Arthur Miller's *Death of a Salesman* (1949); Sloan Wilson's *The Man in the Gray Flannel Suit* (1955); Ayn Rand's *Atlas Shrugged* (1957); Ken Kesey's *Sometimes a Great Notion* (1962); Joseph Heller's *Something Happened* (1974); William Gaddis's *J R*

(1975); David Mamet's *Glengarry Glen Ross* (1984); Michael Lewis's *Liars Poker* (1987); and Richard Powers' *Gain* (1998).

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

ENGL 462: Reading Black, Reading Feminist

3 Credits

This course examines intersectional identity and its representations of gender, class, race, sexuality, and cultural difference in texts by black American women. The course also identifies analyzes major issues concerning the discovery and development of a black feminist tradition and the ways in which that tradition has engaged issues of racism, sexism, class exploitation, and/or heteronormativity.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Cross-listed with: WMNST 462

Bachelor of Arts: Humanities

United States Cultures (US)

ENGL 463: African American Autobiography

3 Credits

The African American literary quest for identity and its adaptation to Euro-American culture and autobiographies. ENGL 463 African American Autobiography (3) (US)(BA) This course meets the Bachelor of Arts degree requirements. Starting with the slave narratives which initiate the literary quest of African Americans for identity, this upper-division course will examine the trope of writing (the "talking" book) as the (w)rite of passage into the dominant Euro-American culture. The course will identify, describe, and analyze how the major elements of the "quest" found in the slave autobiographies have been adapted as textual strategies by many contemporary African American writers of autobiography, semi-autobiography, and fictional autobiography. Authors under consideration will vary from class to class, but may include writers such as Frederick Douglass, Harriet Jacobs, W. E. B. Du Bois, Ida B. Wells, Richard Wright, Zora Neale Hurston, Maya Angelou, Martin Luther King, Alex Haley, Harriet E. Wilson, James Weldon Johnson, and Ernest Gaines. Topics explored will vary from class to class, but will likely consider slave narratives, the role of autobiography in the fashioning of identity and self, gender issues, genre questions, and the historical development of the genre and its shifting preoccupation from slave times through the early twentieth-century, the pre-Civil Rights era, the Civil Rights Movement, the Black Power Movement, and the present. The course will prepare students for other courses that engage in the verbal and written analysis of complex written texts, and will also prepare students to consider the social and cultural issues involved in the role of race in American history. Students will be evaluated by means of essays written out of class, essay and short answer exams, a term-long reading journal reflecting upon issues of the student's own "autobiography," an oral class presentation, and class participation. The course may be used as English Major elective credit or as credit towards the English Minor and will be offered once a year, with 40 seats per offering.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Cross-listed with: AFAM 463

Bachelor of Arts: Humanities
United States Cultures (US)

ENGL 464M: Honors Seminar in English: Multicultural

3-12 Credits/Maximum of 12

This advanced Honors Seminar in multicultural literature, rhetoric, and cultural studies allows students to explore and research a topic related to race, gender, ethnicity, sexuality, queer theory, post-colonialism, disability, minority literature, women's literature, world rhetorics, or other literatures reflecting the diversity of cultures and perspectives important to the English major. Topics will vary depending on the course instructor. Recent topics have included disability and literature, post-racial America, revolutionary writing, cognitive disability in literature, and early modern women authors. Department approval required (for more special information please refer to the notes section in LionPATH).

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities
Honors
Writing Across the Curriculum

ENGL 466: African American Novel I

3 Credits

This course examines the origins of the African American novel and follows the genre's evolution into the early twentieth century, outlining the relationships among the texts that form the body of African American narrative as well as the relationships of those texts to the constantly shifting cultural and political realities surrounding their writing. From the earliest novels, written during the period of slavery, through the Reconstruction era, the nadir of Black Codes and Jim Crow Supreme Court decisions, and into the Renaissance heralded by Alain Locke and others, course readings encompass a broad range of styles and genres, from early proto-documentary modes, through the realism and naturalism of a later time. The course takes up Robert S. Levine's claim that "the history of the early African American novel is not fixed or stable" by mapping the genre's early history and by developing an understanding of the novel as genre according to both early African American authors and later scholars. It addresses the fact that this history continues to be updated and that some texts whether in part or in whole remain lost. Authors covered in the course might include William Wells Brown, Frederick Douglass, Frank J. Webb, Julia C. Collins, Hannah Crafts, Martin Delany, Frances Ellen Watkins Harper, Charles Chesnutt, Pauline Hopkins, Paul Laurence Dunbar, Sutton Griggs, James Weldon Johnson, Oscar Micheaux, Nella Larsen, Jessie Fauset, and others. Scholarly readings accompany primary texts in order to give students a sense of the critical work that has gone into and continues to go on in the study of African American literature. Course topics may include the issue of firsts; the challenges of publication and the attendant realities of early African American print cultures; questions of tradition and influence; and the political, social, religious, and philosophical aims of early African American novels. Readings and discussions also attend to questions of form, specifically regarding intertextuality and generic blurring and hybridity. The study of early African American novels necessarily includes attention to issues of race, identity, nation, diaspora, and the question of authenticity, and each is taken up in turn. Course assignments and discussions engage students in critical work that demands careful attention to both content and context in order that all students might

strengthen their close reading capabilities and engage with course figures and materials within their historical milieu.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Cross-listed with: AFAM 466
Bachelor of Arts: Humanities
United States Cultures (US)

ENGL 467: African American Novel II

3 Credits

This course examines the African American novel, its forms, and its traditions starting during the Harlem Renaissance. It follows the genre's evolution into the twenty-first century, outlining the relationships among the texts that form the body of African American narrative as well as the relationships of those texts to the constantly shifting cultural and political realities surrounding their writing. From the Renaissance heralded by Alain Locke, through the Civil Rights and Black Power Movements -and their attendant Black Arts Movement- and into the era of the Movement for Black Lives, course readings encompass a broad range of styles and genres, from realism, naturalism, and naturalist primitivism, through the experimental forms, magical realism, and "postrace aesthetics" of later times. The course invites students to think critically about the African American novel as a socially and politically engaged form, and to identify and analyze the long tradition of resistance that variously informs its development. Authors covered in the course might include major figures such as Claude McKay, Zora Neale Hurston, Nella Larsen, Wallace Thurman, Richard Wright, Ralph Ellison, Ann Petry, James Baldwin, Ishmael Reed, Ernest Gaines, Alice Walker, Toni Morrison, Toni Cade Bambara, Octavia Butler, Gayle Jones, Samuel Delany, Charles Johnson, John Edgar Wideman, Colson Whitehead, and others. Still, the course gives due attention to lesser known/studied materials from the period, including graphic novels, satire, speculative fiction, performance novels, and various other experimental forms. Course readings and instruction give particular attention to how African American novels of the twentieth and twenty-first centuries variously engage social identity categories, like race, gender, class, and sexuality, and how they engage and resist various literary conventions associated with naturalism, modernism, and postmodernism. The course also traces the development of new thematic and aesthetic interests in a generation of writers whose fiction has been influenced by the explosion of interest in the graphic novel, the popularity of cultural forms such as hip hop, and the ascendancy of the digital age. Scholarly readings accompany primary texts to give students a sense of the critical work that has gone into and continues to go on in the study of African American literature. In this course, students learn how to analyze literature, do close and careful readings of texts, conduct related research, and write persuasively about literary works. Assignments and discussions are designed such that students may engage with course figures and materials within their historical milieu.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Cross-listed with: AFAM 467
Bachelor of Arts: Humanities
United States Cultures (US)

ENGL 468: African American Poetry

3 Credits

Meta duEwa Jones argues, "We cannot afford to continue to treat black poetry and poetics as loose change among the more highly valued paper currency of fiction and nonfiction prose. . . . The myriad aesthetic forms and concomitant political functions of black poetry and poetics should be seriously considered as grounds for broader and more nuanced theoretical and sociocultural claims." This course takes as its subject matter these aesthetic forms and political functions of the poetry of black America. It surveys the broad history of African American poetry and poetics, tracing the evolution of formal structures and aesthetics, but also taking a critical view of the reception of African American verse. Whether reading Phillis Wheatley or the contemporary poet Ed Roberson, all the poets included in this course have contended within the writing itself with the racially striated nature of the literary spaces they occupy. Course readings may come from poets including Wheatley, Frances Ellen Watkins Harper, Paul Laurence Dunbar, Alice Dunbar Nelson, Claude McKay, Langston Hughes, Robert Hayden, Melvin Tolson, Gwendolyn Brooks, Amiri Baraka, John Coltrane, Ishmael Reed, Nathaniel Mackey, Rita Dove, Maya Angelou, Audre Lorde, Natasha Trethewey, Sonia Sanchez, Nikki Giovanni, Nikky Finney, Roberson, Claudia Rankine, and others. The course addresses works by many of the key figures of this American literary tradition so that students may develop an understanding of the various contributions and legacies formal, musical, cultural, critical, political of African American poetry from the eighteenth century to today. Scholarly readings accompany primary texts to give students a sense of the critical work that has gone into and continues to go on in the study of African American poetry and poetics. The course surveys early African American poetry through works from the Harlem Renaissance and the Black Arts Movement, and through contemporary movements and formations. Topics will cover a range of thematic and formal issues relevant to individual poets, to major movements and periods, to regions, and to various smaller organizations and collectives. Course assignments, lectures, and discussions engage students in critical work that requires careful attention to form, content, and context such that all students might strengthen their explicatory skills and approach course figures and texts from an informed, analytical perspective.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Cross-listed with: AFAM 468

Bachelor of Arts: Humanities

United States Cultures (US)

ENGL 469: Slavery and the Literary Imagination

3 Credits

The impact of slavery on the petitions, poetry, slave narratives, autobiographies, and novels of African Americans. ENGL 469 / AFAM 469 Slavery and the Literary Imagination (3) (US)(BA) This course meets the Bachelor of Arts degree requirements. ENGL 469 /AFAM 469 provides an opportunity for undergraduate students to examine African American petitions, poetry, slave narratives, autobiographies, and novels as literary reconstructions of the economics, politics, ethics, and poetics of slavery. Authors under consideration will vary from class to class, but may include writers such as Paul Laurence Dunbar, Phillis Wheatley, F. Harper, James Weldon Johnson, Langston Hughes, Claude McKay, Sterling Brown, Booker T. Washington, Harriet Jacobs, W. W. Brown, Harriet

Wilson, Margaret Walker, Arna Bontemps, D. Bradley, S. A. Williams, Toni Morrison, Ishmael Reed, and Charles Johnson. The course will focus on the complex relationship of slavery to the literary imagination of Americans of African descent as they increasingly discovered the limitations and possibilities of reading and writing themselves into freedom, literacy, and wholeness as human beings and American citizens. Topics covered will vary, but will include issues of the legacy of slavery in the west; the political aims and rhetorical conventions of African-American autobiography; the myths and realities of slavery; economic, political, ethical, and aesthetic issues of the representation of slavery; understandings of black consciousness and black culture on the road from slavery to freedom; the rise of African American realism as a response to the legacy of slavery; Black Feminism and issues of slavery; the role of history and memory in the construction of slavery; post-modern configurations of slavery; and the like. This class will prepare students for advanced courses in African American literature, as well as other academic courses that engage in the verbal and written analysis of complex written forms.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Cross-listed with: AFAM 469

Bachelor of Arts: Humanities

United States Cultures (US)

ENGL 470: Rhetorical Theory and Practice

3 Credits

Application of certain rhetorical principles to problems in composition. Writing exercise. Designed as preparation for the teaching of composition.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

ENGL 471: Rhetorical Traditions

3 Credits/Maximum of 6

This course introduces students to significant texts and movements in the history of rhetoric from antiquity to the present. The purpose of the course is to familiarize students with the role that rhetoric has played in shaping the attitudes of societies throughout the world. The content of the course may vary from semester to semester, as different aspects, movements, or periods in the history of rhetoric may be foregrounded for special attention. Any version of the course, however, will attend to central documents in the history of rhetoric and consider them within a broad historical perspective.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

International Cultures (IL)

ENGL 472: Current Theories of Writing and Reading

3 Credits/Maximum of 6

Investigates models of textual production and reception current within English studies. (Section subtitles may appear in the Schedule of Courses.)

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

ENGL 473: Rhetorical Approaches to Discourse

3 Credits/Maximum of 6

Practices the criticism of written texts from selected rhetorical perspectives. (Section subtitles may appear in the Schedule of Courses.)

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

ENGL 474: Issues in Rhetoric and Composition

3 Credits/Maximum of 6

Examines selected topics in the field of rhetoric and composition. (Section subtitles may appear in the Schedule of Courses.)

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

ENGL 475: Comics Studies

3 Credits

This course introduces students to the academic field of Comics Studies, that is, the scholarship of comics and graphic novels. The course surveys different methodologies and focuses of comics scholarship, with historical representation of different theorists and critics. In addition to reading widely in comics scholarship, students will also read several comics and graphic novels, for which they will produce their own analyses and criticism. Overall, the course provides a foundation in Comic Studies, with broad reading across primary and secondary texts.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

ENGL 478: Grant Writing

3 Credits

Grants can do many things. Let's say you are a student who has always dreamed of combining help for food-insecure people with support for the mentally ill homeless. You've written papers about it for classes; you've read lots of research that points to past pitfalls and future innovative possibilities—but now you want to make it real by finding funding for the program you've envisioned. Or maybe you have your sights set on finding an existing non-profit foundation that might serve as a fiscal conduit for grants that will feed the cause you feel passionately about. These

scenarios and many others call for finding and winning a grant. Here's what grants can't do: Write themselves. Given that writers of grants do not have one how-to professional manual to rely on, professional grant-seekers must learn to have flexible responses to a variety of writing situations. Every grant proposal is different, as is every population with a problem to solve, and every organization hoping to help with the solution. A successful grant-writer achieves confidence with hands-on practice-confidence earned from mastering the underlying principles of effective research and outreach; feasible and complete content-generation; and the writing of precise, clear, audience-centered prose. English 478 will provide you with the basic knowledge and practice needed to get you on your way to professional confidence. Six Main Learning Goals: * Comprehensive understanding of the grant-writing field * Strategic use of research skills to match program to foundation, need to grant-maker * Beginning mastery of all elements of the basic proposal, including: mission match, objectives that fill a proven need, evaluation strategies that reliably measure outcome, a feasible budget, and proof of capacity and sustainability * Practice of skills most needed in the current economic and political climate, including collaboration, diversified funding, and innovation within an established organization * Practical use of social media and cultivation skills for sustainability of project * Mastery of applied rhetorical style emphasizing clarity and precision

Enforced Prerequisite at Enrollment: (ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H) and (ENGL 202A or ENGL 202B or ENGL 202C or ENGL 202D)

ENGL 480: Communication Design for Writers

3 Credits

This course explores visual design, non-verbal communication, and software packages used in professional settings to most effectively present written communications. ENGL 480 Communication Design for Writers (3) ENGL 480 is a course designed to familiarize students with an integrated theory of the roles that visual, verbal, and non-verbal communication play in the production of professional documents using the technologies and software applications most widely used in many organizational settings. To this end, the course will focus on employing non-verbal design elements (color, photographs, graphics, page layout, typography, paper) to develop effective communications tailored to a variety of media, audiences, and purposes using software packages such as Quark XPress, Photoshop, Illustrator, InDesign, Excel. Emphasis will be placed on producing clear, insightful, polished, professional documents, both individually and as part of a team. As part of the course, students can expect to a.) Understand the theories, elements, and principles of visual and non-verbal communication. b.) Appreciate the roles of the audience, purpose, and context in planning and composing documents. c.) Value the role of ethos, pathos, and logos when planning and composing documents. d.) Learn basic skills in a variety of software packages most widely used in the professional world. e.) Design and compose a variety of documents for a variety of audiences that display their writing and design skills. f.) Demonstrate through their documents an understanding of the theories of visual, verbal, and non-verbal communication. g.) Assess their own strengths and weaknesses as writers and designers. h.) Demonstrate the ability to reflect critically on their own and others' discourse practices. i.) Gain an understanding of the role and scope of other professionals and other disciplines in creating professional communications.

Enforced Prerequisite at Enrollment: (ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or

CAS 137H) and (ENGL 202A or ENGL 202B or ENGL 202C or ENGL 202D) and 7th Semester standing or higher
Bachelor of Arts: Humanities

ENGL 481: Literary Theory: Historical Perspectives

3 Credits

Selected topics in the history of literary criticism and theory within the English-language tradition.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

ENGL 482: Contemporary Literary Theory and Practice

3 Credits/Maximum of 6

Contemporary literary theories and their implication for critical practice as applied to British, American, and other English-language literary works.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

ENGL 482W: Contemporary Literary and Cultural Theory

3 Credits

Contemporary literary and cultural theories and their implication for critical practice as applies to a variety of texts, e.g. literary, linguistic, visual, multimedia, and/or popular.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

Writing Across the Curriculum

ENGL 483: Problems in Critical Theory and Practice

3 Credits

Intensive study of one or more recent theoretical approaches as applied to British, American, and other English-language literary works.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

ENGL 485: Australian and New Zealand Literature and Culture

3 Credits

Questions of nationality, identity, gender, race, class, colonialism, and postcolonialism in these literatures.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

ENGL 486: The World Novel in English

3 Credits

Studies in the novel, written in English, by writers outside of the United States and Great Britain. ENGL 486 The World Novel in English (3) (IL) This course examines the nature of the novel as written in English by writers outside of the United States and Great Britain. Such a study necessarily involves both an aesthetic and a political perspective, in that the tradition of the novel in these landscapes so often involves the aesthetic and political suppression of native literary forms and voices. Thus, this course looks at the novel as written both by the colonizer and by the colonized. It considers the politics of the aboriginal author writing in an adopted language, and the ways in which such an adoption bears upon related ethnic and gender matters; it also considers the sorts of artistic and political tensions that emerge in the work of writers who write in what might be called the dominant English tradition. This course also studies the work of what might be called the multi-cultural writer, or the writer perforce extracted from a native, non-English-speaking culture and placed within a larger, colonial, English-speaking culture. Matters of novelistic form, as they are related to ethnic and cultural identity, are also discussed. One intent of the course is to reveal the cultural, racial, and gender diversity that naturally adheres to these particular literary traditions.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

International Cultures (IL)

ENGL 487W: Senior Seminar

3 Credits

Issues, themes, periods, critical theories, etc., that invite students to use prior English studies, limited to seniors majoring in English.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Bachelor of Arts: Humanities

Writing Across the Curriculum

ENGL 489: British Women Writers

3 Credits

A study of selected British women writers. ENGL (WMNST) 489 British Women Writers (3) This course provides the opportunity to study writing by British Women from a historical perspective and to explore the views these women have of themselves as artists. The course will concentrate on a careful reading of works by a variety of authors. It will address the question of the role gender plays in the selection of literary forms and the development of character, theme, symbols, and rhetorical strategies. It will also explore what particular dimensions British women writers have brought to the British literary tradition. Students will be active learners through keeping reading journals, presenting background reports on the history of women in England, participating in small-group discussions about the texts, and writing 2 shorter essays and one longer research essay for the class. This course focuses on an area of British literature, which more traditionally structured courses tend to obscure. The course will be attractive to students from a variety of programs, including English majors, Women's Studies minors, and Interdisciplinary Humanities

students. The course will be offered once every two years. Estimated class size 20.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Cross-listed with: WMNST 489

Bachelor of Arts: Humanities

ENGL 490: Women Writers and Their Worlds

3 Credits

American and British literature written from the perspective of women. ENGL (WMNST) 490 Women Writers and Their Worlds (3) (US;IL)(BA) This course meets the Bachelor of Arts degree requirements. ENGL/WMNST 490 covers particular aspects of American and British literature written from the perspective of women. The courses stress the diversity of women's authorial worlds, both through time and/or space. The readings and specific focus vary from semester to semester. ENGL/WMNST 490 seeks to make students aware of the extensive body of literature written by women, but, unlike ENGL 194, which is a survey course of women's literature, ENGL/WMNST 490 can be a more intensive course, focusing on selected themes and topics of particular concern to women as reflected in the poetry and fiction of twentieth-century American and British women writers. The class can also be taught in relationship to earlier periods, dealing, for instance, with English women novelists from 1775-1865. In such a class, readings would include fiction by Fanny Burney, Mary Wolistonecraft, Ann Radcliffe, Jane Austen, Mary Shelly, Emily Bronte, Elizabeth Gaskell, and George Eliot. The course would then place each novel in its historical, social, intellectual, and literary context, and explore the various ways in which some of England's best writers transformed their female experience of the world into fiction that extended the range and influenced the development of the novel. Regardless of the particular focus, all sections of the course pose the following questions throughout: Do women use the same myths, archetypes, and literary conventions as male writers? Or do they sometimes have to modify the myths, archetypes, and literary conventions originated by their male precursors in order to adapt them to female experience? Is there such a thing as a distinctively female imagination, with a symbolic language of its own? Is there such a thing as a chain of literary influence linking women writers to each other? What are the strategies for coping with the anxieties of authorship? What is the interaction between gender and genre? In what ways are creativity and procreativity modes of defying prevailing ideologies? Does a woman's psychological development have an effect on the plots a woman novelist conceives? How does women's literature reflect the realities of women's lives? As a course in women's literature, ENGL/WMNST 490 concerns itself with questions of gender. In so far as some of these women writers are black or women of color, it concerns itself with questions of race and ethnicity. In as far as the course looks at women's literature in the context of men's literature, it is concerned with the inter-relationship between dominant (male) and non-dominant (female) culture in the United States as well as in Britain. In so far as the course covers lesbian writers, it is concerned with sexual orientation. Students should expect to complete a minimum of three written assignments in the course, two course papers, and an essay final exam in class. The papers each will ask students to choose a text to analyze in relationship to one of the thematic modules the course has chosen, for instance, to discuss how Virginia Woolf's *Mrs. Dalloway* analyzes the position of upper-middle class women in a particular moment in history when women had achieved the vote, but were still largely constrained by patriarchal social norms. In addition to written assignments, students will be evaluated on class discussion and

general participation. The course not only prepares students for taking up literary and cultural analysis in English classes, but also in any other class that engages in the verbal and written analysis of complex written texts, and in other classes in Women's Studies or in other Penn State departments that address the social, cultural, or ethical issues of gender. The course may be used as English Major elective credit or as credit towards the English Minor; it may also be used in the Women's Studies major and minor. It will be offered once a year with 40 seats per offering.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Cross-listed with: WMNST 490

Bachelor of Arts: Humanities

International Cultures (IL)

United States Cultures (US)

ENGL 491: The Capstone Course in Professional Writing

3 Credits

This culminating course for Professional Writing majors concentrates on reflective analyses, design, and presentation of documents in the development of professional portfolios.

Enforced Prerequisite at Enrollment: (ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H) and (ENGL 202A or ENGL 202B or ENGL 202C or ENGL 202D) and 7th Semester standing and in the Prof Writing major
Bachelor of Arts: Humanities

ENGL 492: American Women Writers

3 Credits

A study of selected American women writers. ENGL 492 / AMST 476 / WMNST 491 American Women Writers (3) A study of selected women writers, this course provides the opportunity to study writing by American women from an historical perspective and to explore the views these women have of themselves as artists. The course will concentrate on a careful reading of works by a variety of authors. It will raise the question of the role that gender—as well as other differences such as race, class, and ethnicity—play in the selection of literary forms and the development of character, theme, symbol, and rhetorical strategy. It will also explore the dimensions American women have brought to the American literary tradition. The course satisfies the area requirement in culture for American Studies majors and is open to all majors meeting the prerequisite requirements. The course will be offered once every two years and enrollment is 25.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Cross-listed with: AMST 476, WMNST 491

Bachelor of Arts: Humanities

ENGL 494: Senior Thesis in English

1-6 Credits/Maximum of 6

Senior English (ENGL) majors write a thesis arranged with in-charge person and submit it to a faculty committee for appraisal. Departmental approval required (for more special information please refer to the notes section in LionPATH).

Enforced Prerequisite at Enrollment: 7th Semester standing
Bachelor of Arts: Humanities

ENGL 494H: Senior Thesis in English

1-6 Credits/Maximum of 6

Honors Senior English (ENGL) majors write a thesis arranged with in-charge person and submit it to a faculty committee for appraisal. Departmental approval required (for more special information please refer to the notes section in LionPATH).

Enforced Prerequisite at Enrollment: 7th Semester standing
Bachelor of Arts: Humanities
Honors

ENGL 495: Internship

3-12 Credits/Maximum of 12

Supervised practicum in fields appropriate to the English major.

Bachelor of Arts: Humanities
Full-Time Equivalent Course

ENGL 496: Independent Studies

1-18 Credits/Maximum of 18

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Humanities

ENGL 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Humanities

ENGL 498: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Humanities

ENGL 499: Foreign Study--English

3-6 Credits/Maximum of 6

Studies abroad in English language and/or literature.

Bachelor of Arts: Humanities
International Cultures (IL)

English as a Second Language (ESL)

ESL 4: ESL Composition for American Academic Communication I

3 Credits

For undergraduate students who are beginning-intermediate level non-native speakers of English to improve their grammar and writing skills

in preparation for future American academic writing assignments. This course may not be used to satisfy the basic minimum requirements for graduation in any baccalaureate degree program. ESL 004 ESL/Composition for American Academic Communication I (3) This course is for undergraduate students who are beginning-intermediate level non-native speakers of English. The course is designed to improve their grammar and writing skills in preparation for future American academic writing assignments. Topics to be covered include the following: (a) subject-verb agreement; (b) verb tenses; (c) adjectives and adverbs; (d) independent and dependent clauses; (e) essay and paragraph organization; (f) paragraph development; editing and proof-reading. This course may not be used to satisfy the basic minimum requirements for graduation in any baccalaureate degree program.

ESL 5: Writing Tutorial

1 Credits/Maximum of 1

This course supplements ESL 015, providing focused instruction for non-native English speaking students in English composition and academic writing. This course may not be used to satisfy the basic minimum requirements for graduation in any baccalaureate degree program

Concurrent: ESL 015

ESL 15: ESL Composition for American Academic Communication II

3 Credits

ESL 15 ESL/Composition for American Academic Communication II (3) This course is for undergraduate students who are intermediate-advanced level non-native speakers of English. Students will become familiar with the various stages in the process of writing and develop strategies for reading and writing various models of American academic discourse. Students will be able to use what they have learned in this course to participate successfully in academic reading and writing tasks throughout their university experiences in the United States. Students will participate in a variety of reading and writing tasks that will enable them to: (a) define the subject, purpose, audience, and appropriate organizational structure for written compositions; (b) revise and reshape their writing to improve ideas, organization, language use, vocabulary and mechanics; (c) identify and correct structural and grammatical errors within their written texts; (d) select sources, take notes, and acknowledge sources to support ideas, using the library to conduct library research; and, (e) become better writers in preparation for their college careers.

Prerequisite: a grade of C or higher required in ESL 004
General Education: Writing/Speaking (GWS)
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

ESL 114G: American Oral English for Academic Purposes

3 Credits

Instruction in ESL for graduate students, focusing on the use of oral language skills in an academic setting. ESL 114G American Oral English for Academic Purposes (3) This course is designed for graduate students who are non-native speakers of English in order to develop and improve their oral communication skills for effective interaction in social, as well as academic settings in English-speaking environments. Activities will include: (a) a pre- and post-testing of oral proficiency for diagnostic and achievement purposes; (b) a series of in-class oral presentations

which will be audio-taped and videotaped for self, peer, and instructor evaluation; (c) participation in group discussions, role plays, and impromptu speeches; and, (d) various oral language assignments, including listening and pronunciation activities, transcriptions of recorded speech, and the creation of an audio-taped oral dialogue journal.

ESL 115G: American Oral English for ITAs I

3-9 Credits/Maximum of 9

Initial course in American Oral English for preparation of international teaching assistants. ESL 115G American Oral English for ITAs I (3 per semester/maximum of 9) This course is designed for non-native speakers of English who wish to improve their overall speaking and listening skills in English. Through various oral and aural language activities, students will increase the intelligibility of their speech by improving their pronunciation of American English. They will also develop academic speaking skills in order to engage critically and constructively in the exchange of ideas during discussions of academic content. They will improve their overall listening comprehension, as well as their discrimination of particular sounds in English. By the end of this course, students will have improved their overall speaking and listening skills, in particular their fluency, to participate successfully in academic settings.

Prerequisite: score below 150 on the American English Oral Communicative Proficiency Test (AEOCPT)

ESL 116G: ESL Composition for Academic Disciplines

3 Credits

For international students at the graduate level to engage in scholarly activity in their academic disciplines. ESL 116G ESL Composition for Academic Disciplines (3) This course is designed for international students at the graduate level who are preparing to engage in scholarly activity in their academic disciplines. Through reading and writing selected rhetorical models of academic disclosure, students will be able to analyze and use the organizational structure of various models of academic texts. They will engage in contextualized language activities, which will enable them to match appropriate English linguistic forms to specific rhetorical purposes. Students will be expected to gather appropriate sources, organize information, and compose various models of academic essays and research papers. By the end of the course, students will be able to translate their research activities into written reports that conform to the expectations of the English-speaking academic community.

ESL 117G: American Oral English for ITAs II

3-9 Credits/Maximum of 9

Intermediate course in American Oral English for preparation of international teaching assistants. ESL 117G American Oral English for ITAs II (3 per semester/maximum of 9) This course is designed for intermediate level non-native speakers of English who need to improve their communication effectiveness in order to become teaching assistants (TAs). Through various language related activities, students will increase the intelligibility of their speech by improving their pronunciation of American English. Students will also develop oral presentation skills necessary for different types of classroom interaction. In addition, they will learn about American cultural traits as they pertain to communication in the university-level classroom. By the end of this course, students will have improved their overall communication

effectiveness to participate successfully in a variety of future teaching assistant responsibilities.

Prerequisite: score of 150-199 on the American English Oral Communicative Proficiency Test (AEOCPT) or a grade of A- required in ESL 115G

ESL 118G: American Oral English for ITAs III

3 Credits

Advanced course in American Oral English for preparation of international teaching assistants. ESL 118G American Oral English for ITAs III (3) This course is designed to provide English language instructional support for advanced non-native speakers of English who need to improve their communication effectiveness in order to become teaching assistants. Through various language related activities, students will increase the intelligibility of their speech by improving their pronunciation of American English. To do this, they will develop an acute awareness of their own strengths and weaknesses as a communicator in real and simulated instructional contexts. They will also develop effective oral communication strategies necessary for interaction with individual students, small groups, and large classes. Students will learn about American cultural traits and underlying assumptions as they pertain to communication in the university-level classroom. By the end of this course, students will have improved their overall communication effectiveness to carry out their future teaching assistants responsibilities successfully.

Prerequisite: score of 200-249 on the American English Oral Communicative Proficiency Test (AEOCPT) or a grade of A- required in ESL 117G

ESL 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Enterprise Technology Integration (ETI)

ETI 99: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

ETI 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

ETI 294: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

ETI 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

ETI 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses offered infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

ETI 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

ETI 300W: Development and Documentation of Enterprise Web

3 Credits

Organizations utilizing enterprise stack platforms leverage several core components in order to be successful in implementations across system boundaries. Students will draw upon their prior experience in databases, networks, and programming to understand how cloud-based infrastructure solutions are built, the possible choices an analyst will have, and the written communication needed in order to convey these design choices to others. In addition, understanding the development life cycle and workflow needed to create web-based solutions and how they overlap with elastic operations will also be explored. Students will work in teams not only to better understand group collaboration, but to appreciate differences in backgrounds and biases as they relate to solutions development.

Enforced Prerequisite at Enrollment: IST 210 and IST 220 and IST 256 Writing Across the Curriculum

ETI 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

ETI 435: Enterprise Analytics

3 Credits

Analytics and big data, enabling analytics through information technology, ROI in analytics, leveraging proprietary data for analytical advantage, analytics on the web, analytics of online engagement, applying analytics at production scale, predictive analytics in the cloud, analytical technology and the business user, using analytics for improved organization performance, organizing analysts, engaging analytical talent, analytics governance, and building a global analytical capability, and analytics case studies in healthcare, manufacturing, HR, financial services, etc.

Enforced Prerequisite at Enrollment: IST 210

ETI 461: Database Management and Administration

3 Credits

A study of advanced topics in database management systems that are fundamental to effective administration of modern enterprise information systems. The objective of the course is to enable a student to comprehend a range of issues in modern database management and administration. The students will learn advanced SQL, database system development lifecycle topic that include: database planning, requirements and design, database selection and application design, prototyping, implementation, testing operational and maintenance; database performance tuning concepts, monitoring the system for improved performance, and DBMS performance tuning; database transaction management covering transactions and the ACID properties, concurrency control techniques, and database recovery management; query processing and optimization techniques via query decomposition and optimization options; introduction to distributed processing and distributed database concepts, components and characteristics of DDBMS, and distributed database design; web connectivity technologies and XML; introduction to Business intelligence and data warehouses; introduction to Big data, NOSQL and cloud databases; and database security and database administration.

Enforced Prerequisite at Enrollment: IST 210 and IST 242

ETI 463: Distributed Database Management Systems

3 Credits

Today, most enterprise databases are no longer a centralized data store that is accessed by thousands of users from multiple locations which may be globally situated. These databases are typically web-based and distributed across multiple sites for availability, low latency and better reliability. This course exclusively focuses on the design and system issues related to such distributed database systems. An initial review of relational DBMS is required in the first week of the course. Students will learn the architectural options and design issues and choices for DDBMSs. Design considerations include fragmentation alternatives (vertical or horizontal), fragment allocation and the data directory. Database integration covers at schema matching, integration, and mapping. Data cleaning is also studied under database integration. Processing distributed queries is challenging, and this topic is studied next by first trying to understand the query processing problem followed by: the objectives for query processing, characterization of query processors and layers of query processing. Query decomposition and localization of distributed data is then studied. The next issue is the problem of optimizing distributed queries using various techniques such as centralized query optimization, join ordering in distributed queries and distributed query optimization using dynamic, static. Semi-join and hybrid approaches. The ACID properties of transactions are studied and different types of transactions, and this is followed by distributed concurrency control using techniques such as locking, timestamps, and optimistic concurrency control algorithms. Deadlock management which is a problem in concurrency control schemes is also studied. Distributed reliability to address failures in DDBMSs is addressed by studying local reliability protocols, distributed reliability protocols, dealing with site failures and network partitioning. Data replication is an important aspect of reliability and various replication update management strategies and replication protocols are studied. Modern databases are web-based and this topic is considered next. Topics studied include: web searches, web querying and distributed XML processing. Many databases have moved

to the cloud and cloud data management covers: cloud deployment models, service models SQL data services, and so on.

Enforced Prerequisite at Enrollment: IST 220 and IST 242 and ETI 461

ETI 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

ETI 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

ETI 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses offered infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

ETI 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Entomology (ENT)

ENT 202N: Insect Connections: Insects, Globalization and Sustainability

3 Credits

An introduction to the diversity of insects and the ways in which they interact with humans and impact our world. ENT 202N is a Science course that will use an interdisciplinary approach to look at the biology and the interplay between nature and society. Major themes of the course will be illustrated by focusing on the world of Insects and the relationships between society and Insects. Emphasis will be placed on critical analysis of both the costs and the benefits of human activities that impact natural systems. Course Learning Goals : 1. Discuss, describe, and give examples of relevant ecological and evolutionary processes and / or phenomena. 2. Apply content knowledge and understanding in novel contexts and situations. 3. Recognize the implications of the two-way dynamic between human activities and insects and how these dynamics differ in different parts of the world. 4. Make predictions associated with likely impacts of human activities on natural systems, ecosystem services, and insect and human populations. 5. Conduct research of relevant literature and utilize empirical evidence to support claims made in a popular press news story about insects. 6. Discuss, describe, and give examples of the two-way relationship between social issues and scientific discovery. 7. Communicate scientific knowledge to a diverse audience.

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

ENT 216N: Plagues Through the Ages

3 Credits

This interdomain, general education course examines the major plagues of human history from both a scientific and societal lens. The course will be co-taught by instructors with biology and political science backgrounds who will help the students to integrate across those disciplines. Each week during a single lecture, students will learn the etiology, mode of transmission and treatment/control measures of a different disease. In parallel, students will also read popular press articles on how these diseases had particular cultural, economic or political impacts. These readings, in conjunction with guide questions, will prepare students for a weekly discussion during the second lecture run by both instructors. During the course, students will develop their ability to think critically about diseases and society and demonstrate this skill by designing a novel response to an emerging pathogen in a particular cultural context. This course will develop student communication skills, both oral and written.

General Education: Humanities (GH)

General Education: Natural Sciences (GN)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

ENT 222N: Honey Bees and Humans

3 Credits

Among more than 1,000,000 known insect species, honey bees are truly unique. No other insect has been harnessed so effectively to benefit humankind: honey bees provide critical pollination services for agricultural crops, and the wax and honey they produce are valuable commodities. Furthermore, their fascinating social life-style has intrigued individuals from hobby beekeepers to scientists studying complex questions about the evolution of sociality. More recently, documented declines in populations of honey bees and wild bees have stimulated interest in many communities, including policymakers, in improving health outcomes for bees. This course will provide students with a strong understanding of (1) honey bee behavior (particularly their complex and sophisticated social systems), biology, and health, (2) the important contributions honey bees and their pollination services make to maintaining natural ecosystems and increasing productivity of many of our key agricultural crops; and (3) the global history of human interactions with honey bees, including how people from many cultures have managed bees to provide honey, wax, and pollination services (4) the social and political context of addressing bee health issues. The course material will be presented in a series of interactive lectures, videos, and discussions, and also include a field trip to the Pollinator Gardens at the Arboretum at Penn State, a field trip to one of the Penn State apiaries, tracking individual honey bees in an observation hive, and dissections of samples in a laboratory exercise.

General Education: Natural Sciences (GN)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Soc Resp and Ethic Reason

ENT 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

ENT 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

ENT 313: Introduction to Entomology

2 Credits/Maximum of 2

This course is an introduction to entomology addressing issues of insect diversity, morphology and physiology, and identification of the most common groups of adult and immature insects. This course will highlight the beneficial and detrimental roles insects in human society along with responsible methods of pest management. Other topics such as insects as vectors of disease and the ecological and agricultural impact of exotic insect species introduction and climate change will be discussed.

Enforced Prerequisite at Enrollment: 3 credits from AGECO or AGRO or ANSC or ANTH or BIOL or BISC or CHEM or ENT or ERM or FOR or FRNSC or HORT

ENT 314: Management of Insect Pests of Ornamentals

1 Credits

Diagnosis and management of insect pests on shrubs and trees in the landscape or production nursery.

Enforced Prerequisite at Enrollment: ENT 313

ENT 316: Field Crops Entomology

1 Credits

Laboratory-based approach to identification and management of insect pests of agronomic crops.

Enforced Prerequisite at Enrollment: ENT 313

ENT 317: Turfgrass Insect Pest Management

3 Credits

This course will introduce students to a thorough understanding of insects and their relatives, IPM, and control strategies. The course will provide the students the opportunity to review EPA registered turfgrass insecticides and respective Material Safety Data Sheets, the effects of turfgrass insecticides on nontarget organisms, and the Food Quality Protection Act and how this legislation has altered public perception of insecticides. Students will be provided with a fundamental understanding of the ecology, ethology, life history and development of IPM plans for the key surface and subsurface pests of cool- and warm-season turfgrass. Students will be introduced to a wide array of commercial, educational and government web sites to strengthen their understanding of turfgrass entomology. Students also will be encouraged to develop

a web based notebook which they can utilize upon completion of the course. Students will be invited to share their experiences with pest problems and methods they deployed to manage turfgrass insect species in the turfgrass environment. Students will be evaluated by the use of class assignments, quizzes, two hour exams and a final exam, refereed journal reading assignment, and an IPM class project.

Enforced Concurrent at Enrollment: TURF 235

ENT 320: Insects and Natural History Collections

1 Credits

This course focuses on the roles of natural history collections, with an emphasis on arthropods. Through hands-on activities and discussions, students explore insect preservation and collection management techniques, biodiversity data standards, data sharing, insect natural history, and effective exhibit design. Students gain a basic understanding of how research and policy decisions are informed by biodiversity data and natural history collections and how these resources can be used to educate and inspire non-experts.

Recommended Preparation: ENT 313 provides knowledge of insect biology that will help students understand the research concepts discussed in this course. However, the requisite background information will also be provided in this course.

ENT 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

ENT 402W: Biology of Animal Parasites

3 Credits/Maximum of 3

An introduction to animal parasitology. Emphasis placed on host/parasite interactions, parasites of zoonotic importance, control programs and taxonomy. VB SC 402W Biology of Animal Parasites (3) This course provides students an opportunity to obtain an introduction to the field of animal parasitology. Material presented emphasizes life cycle patterns of animal parasites, host-parasite interactions and pathology, disease patterns and zoonotic potential of parasites to human disease, economic importance of parasitic diseases, taxonomy and parasite control programs. Information presented in this course will be useful to students interested in pursuing a career in veterinary medicine or careers dealing with animal care and management. Evaluation of student performance is achieved by 6 quizzes, three examinations and 3 writing assignments. The course is offered each spring semester with an enrollment of 15 to 25 students.

Enforced Prerequisite at Enrollment: BIOL 110

Cross-listed with: VBSC 402W

Writing Across the Curriculum

ENT 410: Insect Structure and Function

3 Credits

Integrated physiology and anatomy of insects; emphasis on unique adaptations, genetic regulation of development, insects as model systems, environmental physiology.

Enforced Prerequisite at Enrollment: BIOL 110 and BIOL 220W and BIOL 230W and BIOL 240W

ENT 419W: Pesticide Science

3 Credits

This interdisciplinary course explores the basic science of pesticides from biology, chemistry, and ecology perspectives. Students will learn the basic science of pesticides and their impacts on the environment. The first class meeting each week will be given in lecture format. Lectures will cover topics including an introduction to pesticides and integrated pest management (IPM), pesticide exposure and evaluation of toxicity, chemical classification of pesticides and their modes of action, toxicodynamics, pesticide residue, pesticide resistance, the major classes of synthetic pesticides and biopesticides, genetic engineering of pest resistant crops, environmental toxicology and pesticide regulation. The second class meeting each week will be an active learning paper discussion designed to develop their discussion and critical thinking abilities. Students will read classic and/or current literature papers relevant to that week's lecture. Starting from the first week, students will begin work on their class project by choosing their topic of interest associated with pesticides (due on the third week), writing a literature review paper (with clear guidance step by step), and presenting their review in class at the end of the semester (last 2 weeks or more time if enrolled student number is larger than 12), design to help students develop their oral and written communication skills.

Enforced Prerequisite at Enrollment: BIOL 110 Recommended Preparations: ENGL 15 and (CHEM 110 or CHEM 130) Writing Across the Curriculum

ENT 420: Introduction to Population Dynamics

3 Credits

Principles of population regulation, demographic analysis, modeling of dynamic processes are discussed; laboratories involve the exploration of population growth models.

Enforced Prerequisite at Enrollment: BIOL 110 and BIOL 220W

ENT 424: Sensory Biology of Insects

3 Credits

This course provides students an understanding of insect sensory systems contributing to behaviors performed for survival and reproduction.

Enforced Prerequisite at Enrollment: BIOL 110

ENT 425: Freshwater Entomology

3 Credits/Maximum of 3

Collection and identification of insects and other arthropods in freshwater ecosystems; field study of habitats.

ENT 432: Insect Biodiversity and Evolution

4 Credits

In this course students learn insect taxonomy, evolutionary history, collection and preservation techniques, morphology, fossils, and natural history. ENT 432 Insect Biodiversity and Evolution (4) In this course students learn insect taxonomy, evolutionary history, collection and

preservation techniques, morphology, fossils, and natural history. Lab work focuses on adult forms, especially of insects found in Pennsylvania. Students learn how to handle specimens, use diagnostic keys, and identify insects by sight. Collecting techniques will be honed during field trips. Upon completion of this course students should be able to: (1) teach others how to collect, preserve, and transport insect specimens, (2) name and sight-identify all insect orders and several common local families, (3) label a generalized insect diagram with external anatomy terms, (4) draw a phylogenetic tree of relationships between insect orders, (5) teach others how to read a phylogenetic tree, what kinds of data are used to estimate trees, how those data are analyzed, and what it means to be monophyletic, (6) describe key innovations and life history strategies of major insect lineages, (7) solve taxonomic problems and describe how species and other taxa are named and described, i.e., understand the fundamentals of taxonomic practice, (8) name and briefly describe the latest developments in insect biodiversity research, (9) describe how hexapods inform us about biodiversity and influence our conservation decisions.

Enforced Prerequisite at Enrollment: ENT 313

ENT 440: Plant-Insect Interactions

3 Credits

This course is an introduction to and survey of the major areas of plant-insect interactions. This course explores how plant traits facilitate or deter insect behavior and development, chemical and structural counter-adaptation and co-evolution, and how insects can benefit or adversely affect plant growth and survival. We will consider how plant-insect interactions influence insect population dynamics and plant community ecology. We will also investigate the effect of environmental quality on plant-insect interactions. Undergraduate and graduate students who complete the course will also be introduced to new tools and approaches in studying plant-insect interactions at the molecular level utilizing transcriptome data. Undergraduate students who complete the course will have a firm grounding in these areas. They will be prepared for other upper-division or graduate courses in plant biology and entomology. In addition, these students will gain enough knowledge in this area to be able to read and understand primary literature. Upon completion of this course, students will: (1) Demonstrate knowledge and understanding of plant morphology and chemistry as they relate to plant-insect interactions, including plant biochemistry and insect perception semiochemicals, plant protective phytohormone cascades, and plant-induced resistance. (2) Demonstrate intermediate knowledge and understanding of insect morphology, physiology, and behavior as it pertains to plant-insect interactions, including insect diversity, specialization, physiological adaptations, and protection against plant-induced defenses. (3) Demonstrate knowledge and understanding of interactions between plants, insects, microbial pathogens, parasites, and endophytes. (4) Recognize key evolutionary adaptations of plants and insects in co-evolutionary relationships. (5) Demonstrate knowledge and understanding of biotic and abiotic factors affecting plant-insect interactions, herbivore activity as it pertains to the recycling of nutrients in ecosystems, and how small and large scale geographic variability can affect herbivore diversity.

Enforced Prerequisite at Enrollment: BIOL 110

ENT 450: Medical Entomology

3 Credits/Maximum of 3

Transmission of human and animal pathogens by insects, mites and ticks, including emergent pathogens, envenomization, and forensic entomology. This course presents principles of transmission of human and animal pathogens by insects, mites and ticks. Non-transmission based aspects of medically important arthropods such as envenomization, forensic entomology and genomics will be discussed also. Basic arthropod biology with special attention to biological properties of vectors and their interactions with pathogens will be presented. We will cover basic components of arthropod disease cycles and principles of pathogen transmission dynamics. The major groups of arthropod-borne pathogens and vectors will be discussed. Special topics will include emergent pathogens, vector genetics, traditional and modern disease control strategies and venomous arthropods.

Enforced Prerequisite at Enrollment: ENT 313 or (BIOL 11 and BIOL 12) or BIOL 110 or BIOL 220W
Cross-listed with: VBSC 450

ENT 457: Principles of Integrated Pest Management

3 Credits

Integrated study of pest complexes and their management, emphasizing ecological principles drawing on examples from a range of agricultural, forestry and urban systems. This course is designed for sixth, seventh, and eighth semester students and graduate students. AGECO 457 / ENT 457 Principles of Integrated Pest Management (3) The goal of this course is to introduce upper level undergraduates and graduate students to the principles and practices of integrated pest management (IPM). This course addresses IPM issues concerning insects, plant diseases, and weeds in agriculture, natural systems and urban environments. Rooted in ecology, IPM also addresses the influence of human social, economic and regulatory systems in pest management. Emphasis is placed on the basic tactics and tools of IPM including biological, cultural, legal, mechanical and chemical controls, host plant resistance, pest monitoring and decision making. The overarching goals of environmental protection, economic viability and social welfare are considered throughout the course. In addition, students will learn about IPM program implementation both domestically and internationally, including pest population modeling and the use of internet resources to inform decision makers. Several projects will provide real-world examples. These may include field trips and a semester-long project where students research and solve an actual pest management problem.

Enforced Prerequisite at Enrollment: Must take two or more of the following - ENT 313 or PPEM 405 or PPEM 318 or HORT 238
Cross-listed with: AGECO 457

ENT 484: Insect Behavior

3 Credits

Insects are one of the most ecologically successful and diverse taxonomic groups on the planet, and their success is attributed to the amazing range and complexity of the behaviors they exhibit. This course provides an introduction to fundamental concepts and processes in the study of animal behavior, with an emphasis on insect examples, insect diversity and a theoretical and empirical overview of insect behavior. The course is structured around four complementary categories to study

behavior based on their development, adaptive value, function, and evolution. Students will learn how scientists study insect behavior, why insects behave the way they do, what functions these behaviors serve, and how behavior is shaped by the evolutionary forces of natural and sexual selection.

Enforced Prerequisite at Enrollment: (BIOL 110 or BIOL 110H) and (BIOL 230W or BIOL 230M or BIOL 220W or BIOL 220M)

ENT 495: Entomology Internship

1-18 Credits/Maximum of 18

Supervised non-group instruction, including field experiences, practica, or internships. Written and oral critique of activity required.

ENT 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

ENT 496H: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Honors**ENT 497: Special Topics**

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

ENT 499: Foreign Studies

1-12 Credits/Maximum of 12

Foreign travel, specific locations and activities will vary by instructor

International Cultures (IL)

Entrepreneurship (ENTR)

ENTR 300: Principles of Entrepreneurship

3 Credits

Overview of the fundamental principles and processes of entrepreneurship including idea generation and opportunity analysis.

Prerequisite: ACCTG211 , ECON 102

ENTR 320: Entrepreneurship and New Venture Creation

3 Credits

Explores the process for starting and growing a new venture including the development of a business plan.

Prerequisite: ENTR 300

ENTR 400: Financing Entrepreneurial Ventures

3 Credits

Overview of alternative forms of financing including seed capital, valuing a company, going public, partnerships, and acquisitions.

Prerequisite: (BA 241 and BA 242) or BA 243 or BLAW 243 and ENTR 320 and FIN 301

ENTR 410: Entrepreneurial Marketing

3 Credits

Principles of Internet marketing and strategies for marketing new ventures on the Web.

Prerequisite: ENTR 320 , MIS 204 , MKTG 301

ENTR 430: Entrepreneurship and New Product Development

3 Credits

Examines the process of designing, testing and launching new products, and developing a strategy for commercialization of the technology.

Prerequisite: ENTR 300

ENTR 440: Entrepreneurship and Franchising

3 Credits

Overview of the entire franchising process with a focus on licensing and distributorship, trade marks, strategy, and growing the enterprise.

Prerequisite: ENTR 300

ENTR 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

ENTR 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Environmental Engineering (ENVE)

ENVE 401: Occupational Safety and Environmental Health

1 Credits

Regulations, management practices, hazard identification, exposure assessment, monitoring, employee protection, and program management for occupational safety and health. ENVE 401

Prerequisite: CHEM 301 and ENVE 301W

ENVE 411: Water Supply and Pollution Control

3 Credits

Water supply, wastewater characteristics, design of unit processes for water and wastewater treatment, sludge processing, and related

new technologies. ENVE 411 Water Supply and Pollution Control (3) Providing safe drinking water to the public and decontamination of wastewater before discharge are the two main functions of municipal water system. Properly designing and operating municipal water and wastewater systems allows safe and sustainable use of this limited resource. This course introduces students to design concepts used in water and wastewater treatment processes. Concepts will be categorized into physical, chemical, and biological processes, and presented through a series of lectures, readings, and problem solving. Subjects covered include: water and wastewater characteristics and flows; unit processes for drinking water treatments, including coagulation, flocculation, sedimentation, water softening, filtration, and disinfection; and unit processes for wastewater treatments, including preliminary headwork, primary sedimentation, secondary treatment, tertiary nutrient removal, final clarifier, and residual digestion and management. After completion of this course, students should have the basic knowledge necessary to select and design water and wastewater treatment processes.

Prerequisite: C E 370 or graduate standing

ENVE 415: Hydrology

3 Credits

Watershed response to rainfall events; hydrologic systems; ground water flow. ENVE 415 Hydrology (3) Hydrology is the study of water's movement over the earth and in the atmosphere, with a particular focus in the class on the processes of precipitation, infiltration and runoff. The general public focuses on hydrology when there either is too much water(flooding) or too little water (drought). Engineers working in the hydrology arena focus on evaluating the timing and location of potential floods, designing structures and sites to minimize the impacts of the site on the hydrologic behavior of an area, and evaluating potential sources of water supply during drought times so that the public impact of a drought is minimal. This course builds on concepts learned in the hydraulic design course in terms of conveyance system design. Course topics include determination of the safe yield of a water supply, calculation of hydrographs in ungaged watersheds, the hydraulics of groundwater wells, and the design of storm water management structures to minimize flooding. The students use currently available models from the U.S. Department of Agriculture, the U.S. EPA and the U.S. Army Corps of Engineers in their watershed evaluations and design of storm water control practices.

Prerequisite: ENVE 417 ; and STAT 301 or STAT 401

ENVE 416: Treatment Plant Design

3 Credits

Design of treatment facilities for water and waste water based on regulatory requirements and standards. ENVE 416 Treatment Plant Design (3) This capstone design course will teach students how to integrate various design concepts they have learned from other environmental engineering courses, including ENVE 411 Water Supply and Pollution Control, ENVE 415 Hydrology, ENVE 417 Hydraulic Design, and ENVE 425 Hazardous Waste Management. Additional design and design related concepts will be introduced through a series of lecturer, seminars, tours, case studies, and design projects. Subjects covered include unit processes for water and wastewater treatment, hydraulic design, sludge handling and disposal, chemical storage and safety, project bidding and management, plant design and retrofitting, and engineering ethics and society impacts. After completion of this capstone design course, students should have basic knowledge in

selection and design of conventional and modern environmental systems, especially water and waste water treatment processes and application of knowledge they learned from various environmental engineering courses in solving real world engineering problems.

Prerequisite: ENVE 411; Concurrent: ENVE 417

ENVE 417: Hydraulic Design

3 Credits

Design of water and waste water conveyance systems and storage facilities. ENVE 417 Hydraulic Design (3) The delivery of clean drinking water and the collection of wastewater are two of the fundamental activities of municipal or regional governments. Installing new systems or rehabilitating old ones are expensive, large-scale infrastructure projects. Therefore, it is important that these projects be designed correctly and address both current population needs and growth projections for the design life of the project, typically 25 or more years. This course builds on the concepts learned in fluid mechanics and applies them to the design of municipal water conveyance systems. Students learn to apply the appropriate pipe flow equation (Darcy-Weisbach, Hazen-Williams, or Chezy-Manning) to the design of the conveyance system, e.g., drinking water supply, sanitary sewer collection and storm sewer collection systems. Their projects focus on the design of small conveyance systems and use currently available EPA models for water supply, sanitary sewer, and storm water piping design. Students also learn to perform basic population projections, design water storage towers and design appurtenances such as manholes and storm sewer inlet structures. Culvert, weir and orifice design also are covered in the class.

Prerequisite: C E 360

ENVE 424: Solid Waste Management

3 Credits

Solid waste collection and disposal techniques; recycling and design optimization; including content analysis, legislation, and planning.

Prerequisite: C E 335

ENVE 425: Hazardous Waste Management

3 Credits

Overview of regulations, risk assessment, waste minimization and pollution prevention, treatment of hazardous waste, and remediation of contaminated sites. ENVE 425 Hazardous Waste Management (3) This course covers concepts and techniques for managing hazardous wastes. Subjects covered include hazardous waste fundamentals (hazardous waste characteristics, regulations, fate and transport, and toxicology), current management practices (environmental audits, and pollution prevention), treatment and disposal methods (physicochemical processes, biological methods, stabilization and solidification, thermal methods, and land disposal) and site remediation (site characterization, and remedial technologies). Additional hazardous waste management related concepts will be introduced through a series of lectures, tours, case studies, and design projects. After completion of this course, students should have basic knowledge in identifying hazardous wastes, understand physical, chemical, and biological factors governing the fate of a compound in the environment, know the fundamental physical, chemical, and biological processes used to treat hazardous wastes.

Prerequisite: ENVE 411

ENVE 430: Sustainable Engineering

3 Credits

A course on engineering which uses ecological principles to minimize waste and maximally use input materials. ENVE 430

Prerequisite: Permission of program

ENVE 460: Environmental Law

3 Credits

This course provides a survey of Federal and State environmental laws, including statutory, common and administrative law. May not be taken for graduate credit by Dickinson School of Law students in the concurrent J.D./EPC programs. ENVE 460

Prerequisite: senior standing, graduate standing or permission of program.

ENVE 470: Air Quality

3 Credits

Overview of air quality issues with regard to the sources, measurements, effects, transport and control of potential air contaminants. ENVE 470 Air Quality (3) The protection of clean air is vital for the health of people. Air pollution has been linked to increased cases of asthma, lung cancer, and other lung diseases. This course, building on concepts covered in the Introduction to Environmental Engineering course, provides an overview of air quality issues with regard to the sources, measurements, effects, transport and control of potential air contaminants. Specifically, the students will learn the fundamental concepts of air pollution generation, modeling and control, plus the impacts of air pollution on human and environmental health and welfare. They will understand the fundamental concepts of acid rain and global climate change. They will learn/be updated on the current regulations that exist to address air quality concerns. Through homework and projects, they will examine and perform preliminary designs on common types of air pollution control equipment. They also will participate in discussions of contemporary air pollution issues (global warming, mobile and stationary air pollution source control, airshed issues in the Chesapeake Bay watershed).

Prerequisite: C E 370

ENVE 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

ENVE 494H: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Honors

Environmental Resource Management (ERM)

ERM 150S: ERM First Year Engagement

1 Credits

This First Year Engagement course is for first-year students intending to major in Environmental Resource Management at University Park campus. First year DUS students may also enroll. Students will explore environmental science, natural resource, and sustainability issues and research methodologies through literature review, library searches, field studies, critical thinking exercises, and exposure to Penn State faculty. Students will also be introduced to the breadth of University resources at their disposal.

First-Year Seminar

ERM 151: Careers and Issues in Environmental Resource Management

1 Credits

ERM 151 introduces students to the environmental sciences and resource management field early in their academic experience. The course is the first prescribed ERM course for students in the Environmental Resource Management major, and is also designed for non-majors (e.g. DUS students) interested in exploring career paths in the environmental sciences. Weekly presentations are made by ERM graduates, Penn State faculty, and upper-level students. Course objectives include discussion of topical issues in environmental sciences and resource management, familiarization with environmental career opportunities for graduates, providing feedback to enhance students' Penn State experience, enhancement of critical thinking and communication skills, and creating an opportunity to address student questions about the ERM program. Weekly writing assignments are designed to enhance the learning process and require students to reflect on the day's speaker and the issues of importance to them. A service learning and seminar assignment are also required to familiarize new students to engagement opportunities outside the classroom. Students also develop a draft and final Personal and Professional Development Plan throughout the semester, which is designed to facilitate the establishment and refinement of career goals and objectives, and to be an action plan for their remaining Penn State experience

ERM 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

ERM 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

ERM 210: Environmental Factors and Their Effect on Your Food Supply

3 Credits

An exploration of how urban environmental problems influence our ability to obtain food and natural resources. E R M 210E R M 210 Environmental

Factors and Their Effects on Your Food Supply (3) (GN)(BA) This course meets the Bachelor of Arts degree requirements. Environmental Factors and Their Effect on Your Food Supply will study links between environmental issues and the agricultural systems from an urban perspective. Insects, one the most diverse groups of organisms, will be used to provide examples of human impact on ecosystem structure and function. Differences between sustainable and non-sustainable systems, along with efforts to create sustainable human systems, will be explored. This course looks at the Earth as a single ecosystem composed of interacting biological, chemical and physical systems. The social and economic dimensions of issues will be discussed. We will focus on how non-human systems interact with each other and with the human population. The course focus will be on the principles and concepts from biology, chemistry, geology and physics. Specific topics treated within the context of this interdisciplinary course include but are not limited to: human response to (insecticide use) and influence on (reduction in diversity) insects, the unique and life-giving properties of water, nutrient cycles, energy flows, species diversity, the dose-response relationship, risk assessment and perception, global climate change, and conservation of energy and matter. We will also be learning about how the use of the scientific method an interdisciplinary setting. Scientific situations found in everyday life will be used to explore and practice how to ask questions, gather data, and reach conclusions. Evaluation of student performance will be based upon critical thinking exercises, class discussion, short in-class writing assignments, and examinations. The critical thinking exercises will be assessed by written material submitted by the student. The written material will include the steps undertaken in the exploration (methods), the observations made (results) and description of what was learned (conclusions). These explorations will help students learn to solve problems and think critically using information they have discovered. The explorations will require students to supplement their observations with information found on the Web and in the Library. Students will be required to participate in class discussions using CourseTalk. Contributions will be evaluated for content and quality. Short, in-class, written student feedback will be collected frequently to determine the level of understanding and attendance. Two midterm evaluations and a comprehensive final will be given. These exams will consist of higher-order thinking questions requiring the student to synthesize information to solve problems. Self-quizzes will accompany each unit to help the student determine when they understand the concepts being learned. Environmental Factors and Their Effect on Your Food Supply is an introductory level, general education science course without prerequisites. This course is not a prerequisite for any other course. An introductory level course in sustainable environmental systems will provide a useful context for future course work. Recitation sections will be used to increase the student's understanding of concepts discussed during lecture. Computer exercises develop specifically for this course, the textbook CD-ROM, and data found on the Web will be used to aid students in their understanding of course concepts. The course will be offered annually in the spring. Expected enrollment is 100 students.

Bachelor of Arts: Natural Sciences

ERM 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

ERM 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

ERM 300: Basic Principles and Calculations in Environmental Analysis

3 Credits

This course will demonstrate the dependence of environmental science on biology, chemistry and physics, and provide a contextual link between principles learned in basic science courses and the advanced environmental concepts presented in later required Environmental Resource Management (ERM) courses. Students will integrate the knowledge from each of these disciplines into an interdisciplinary framework. This course will teach Environmental Resource Management students basic problem solving skills while using examples taken from environmental media - air, water, and soil. Students will have many opportunities to examine, manipulate, and solve quantitative problems related to the environment. This is a required course for Environmental Resource Management majors.

Enforced Prerequisite at Enrollment: 3 credits in BIOL and CHEM 111 and (MATH 110 or MATH 140) Enforced Concurrent at Enrollment: PHYS 250 or PHYS 211

ERM 309: Measurement & Monitoring of Hydrologic Systems

3 Credits

This course is an introduction to measurement and monitoring equipment/techniques commonly used in analyses and design of hydrologic systems and will provide students the opportunity to learn and apply basic measurement techniques that serve as critical tools in professional practice in water resources. During the first part of the course, the instruments and techniques commonly used in water resources assessment, including rainfall monitoring, flow monitoring, and interest as part of the Sustainability Institute's Sustainable Communities Collaborative. Data generated over the course of the semester are used to develop a report that is shared, along with the data with a community partner. In the second part of the course, mapping development is explored, which serves as a critical aspect of water resources engineering and planning. ArcGIS serves as a primary software tool used in engineering design and water resources planning, and students will learn to develop maps to present and process various watershed - data including land use data, soils data, and hydrography data. Various aspects of the course will coalesce around the concept of the watershed being the basic unit of water resources analyses and design, and students will experience how various measurement techniques and approaches are necessary tools for practicing professionals. This course will be useful to any undergraduates seeking degrees in a major related to water resources planning, engineering, or technology.

Enforced Prerequisite at Enrollment: CHEM 110. Enforced Concurrent at Enrollment: PHYS 211 or PHYS 250
Cross-listed with: ABSM 309

ERM 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

ERM 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

ERM 402: Foundations of Sustainable Business

3 Credits

This course will provide students with an understanding of how environmental and sustainability issues are impacting business strategies and ultimately profits. We will also examine the external stakeholders, such as environmental groups, policy-makers, and "green" consumers, that impact business management. Business students will benefit by a better understanding of environmental/sustainability issues that impact their operations and strategies. Non-business students will benefit by understanding how business decisions can impact the natural environment. An emphasis will be on a thorough understanding of making a business case for sustainability. We will also discuss the triple bottom line and its use. Some Specific Issues to Cover: 1. How are organizations shifting business models to work with sustainability trends? 2. How can we make a business case (justification) for being "green"? 3. Can firms differentiate themselves by being responsible/sustainable? Do consumers and other stakeholders care? 4. Thorough understanding of stakeholders and how they impact operations. 5. How can the "business" side of the world work with the "environmental" side? 6. Use of packaging as an example of where parts of the supply chain are working together to be more sustainable. 7. How "waste" in its many forms can be seen as a surrogate for unsustainable practices. 8. Pros and cons of metrics used to measure sustainability. 9. Impacts of business operations on the environment.

Enforced Prerequisite at Enrollment: (AGBM 101 or ECON 102 or ECON 104) and 7th semester standing
Cross-listed with: ABSM 402

ERM 411: Legal Aspects of Resource Management

3 Credits

Legal systems and lawmaking processes; property rights in land, water, and wildlife resources; jurisdictional problems in planning resource use. E R M 411 Legal Aspects of Resource Management (3) This course provides a survey of the basic legal principles, regimes, and issues related to environmental protection and natural resource management. The course is designed for students interested in environmental resource management and related careers, providing them with a basic grounding in core principles of environmental law and regulation. The course will offer instruction, discussion, and practical application of theories of environmental law and basic legal and regulatory regimes related to water, air, and land. Focus will be on core federal legal regimes and statutes and their application in Pennsylvania. These legal regimes will be explored through topical case studies, such as Chesapeake Bay restoration, Marcellus Shale natural gas extraction, and climate change. During the latter half of the course, practical application of

environmental legal issues will be demonstrated in a hands on manner where students will represent private, nonprofit, or government sectors in a hypothetical land development proposal, and will be expected to perform tasks they may be asked to perform during their environmental careers: preparing permit applications, public comment documents, writing permit conditions, and challenging and defending final agency decisions.

Enforced Prerequisite at Enrollment: ECON 102 or AGBM 101
Enforced Concurrent at Enrollment: ERM 151 or CED 152 or EBF 200

ERM 412: Resource Systems Analysis

3 Credits

ERM 412 is a course in problem solving, as it relates to environmental and resource related issues. The course covers a variety of problems within an environmental context, including mass balance, steady-state, dynamic, and statistical problems. Students will gain experience in making assumptions and testing those assumptions in the application of biological, chemical, and physical principles to problem solving. The course is designed to develop experience in quantitative problem solving using spreadsheets, modeling tools, and computer-based statistical analysis.

Enforced Prerequisite at Enrollment: (MATH 111 or MATH 141) and (STAT 200 or STAT 240 or STAT 250)
Enforced Concurrent at Enrollment: ERM 300

ERM 413W: Case Studies in Ecosystem Management

3 Credits

Application of biological, physical, and social science principles to ecosystem management problems; introduction to environmental impact analysis and review.

Enforced Concurrent at Enrollment: ERM 300 and ERM 412
Writing Across the Curriculum

ERM 429: The Chesapeake Bay Watershed: Issues and Careers in Complex Environmental Problem Solving

3 Credits

This course will offer an in-depth exploration of issues related to the health of the Chesapeake Bay and its watershed, with an emphasis on pollutants impacting water quality, and the long history of efforts to improve Bay watershed health. These issues will be explored from a wide variety of perspectives, including environmental, hydrological, historical, social, and political. While the main pollutants of concern are few (nitrogen, phosphorus and sediment), the issues related to addressing them are extremely complex and require a multidisciplinary approach to environmental problem solving. Nutrient pollution represents the leading unsolved water quality issue in the United States and is one of major worldwide significance threatening freshwater, estuarine, and coastal ecosystems. Students will be introduced to the wide variety of environmental career opportunities that exist in "saving the Bay," spanning multiple disciplines, areas of expertise, and job sectors. The depth of complexity of the issues and the diversity of careers will be experienced firsthand through classroom guest lectures, as well as travel throughout the Bay watershed, including overnight travel to the Chesapeake Bay.

Enforced Concurrent at Enrollment: ERM 411

ERM 430: Air Pollution Impacts to Terrestrial Ecosystems

3 Credits

This course introduces student to air pollutant sources, transport, meteorology, and temporal and spatial trends of pollution dispersion and deposition. An overview is presented of the direct and indirect effects of air pollutants on terrestrial ecosystems with an emphasis on plant life. The effects of ozone, sulfur dioxide, nitrogen oxides, particulate matter, halogens, and combined pollutants leading to acidic atmospheric depositions are presented. Emphasis is placed on air pollutants as plant pathogens leading to symptoms and eventual long-term accumulative effects to entire ecosystems. Methods of diagnostics, pest interactions, assessment of loss and cost/benefit analysis leading to abatement follows. Final parts of the course include perspectives of public awareness, development of National Ambient Air Quality Standards, compliance prevention of significant deterioration, and the Clean Air Act reforms of 1990.

Enforced Prerequisite at Enrollment: (BIOL 110 or FOR 308) and 5th Semester standing or higher
Cross-listed with: PPEM 430

ERM 431: Environmental Toxicology

3 Credits

Effects of pollutants on animal health at the chemical, physical, and cellular level.

Enforced Prerequisite at Enrollment: BIOL 110 and CHEM 110 and CHEM 112
Cross-listed with: VBSC 431

ERM 433: Transformation of Pollutants in Soils

3 Credits

The course provides the chemical and biological basis for understanding, predicting and controlling the fate of pollutants added to the soil. The material falls distinctly into two major sections: Section I discusses the fundamental concepts of soil science as they relate to the fate of pollutants in soil systems. Section II provides specific coverage of important classes of soil pollutants. The environmental impacts associated with soil enrichment of these pollutant groups are discussed. Primary emphasis is given to pollutants having adverse effects on human health via water and the food supply, namely, trace elements, trace organic contaminants, pathogens, and radionuclides. The major plant nutrients, nitrogen and phosphorus, warrant coverage because of their potential negative impacts on aquatic systems. Salts can harm soil productivity and structure and thus represent a third distinct pollutant category.

Enforced Prerequisite at Enrollment: CHEM 111 and CHEM 112 and SOILS 101

ERM 435: Limnology

3 Credits

Biogeochemistry and natural history of freshwater ecosystems. W F S (E R M) 435 Limnology (3) This course will define and describe major principles (physical, chemical, biological, and ecological) that govern the structure and function of freshwater ecosystems (ponds, lakes, and rivers). Current scientific literature will be critically reviewed and

discussed in relation to comparative philosophy, methodology, and case studies that cover a range of topics in limnology. The objectives of E R M (W F S) 435 are to familiarize students with the major physical properties, chemical cycles, taxonomic groups of organisms, and ecological interactions that define and describe the natural function of aquatic ecosystems. The course will use case studies to illustrate and examine pertinent issues (e.g., excessive material loading, introduction to exotic species, habitat fragmentation, and climate change) that can alter the structure and function of aquatic ecosystems. Knowledge of these basic ecosystem principles will be applied towards formulating real-life resolutions to the issues identified in class, in order to better manage aquatic resources (methods to reduce material loads, transport controls of exotic species, habitat restoration, and reduction of global gases). This course will be useful to both undergraduate and graduate students seeking degrees in Environmental Resource Management, Wildlife and Fisheries Science, Ecology, and other related subjects. At the undergraduate level, the course will serve as a 400-level selection in both the Environmental Resource Management and Wildlife and Fisheries Science degree programs. At the graduate level, the course will compliment several Wildlife and Fisheries courses that form the compliment of that degree program. Moreover, the course can satisfy the course requirement for ecosystems ecology in the inter-college Ecology graduate program and serve as a breadth course in Water Resources for graduate students in the Watershed Stewardship program.

Enforced Prerequisite at Enrollment: BIOL 110 and BIOL 220W and CHEM 110

Cross-listed with: WFS 435

ERM 436: Limnological Methods

3 Credits

Application of current methodologies to evaluate the biological, chemical, and physical characteristics of aquatic ecosystems. E R M (W F S) 436 Limnological Methods (3) Limnological Methods will instruct students to apply state of the art analytical measurements in order to gain an understanding of how and why ecosystems support specific biodiversity and biogeochemical cycles. The course will help students define key ecological elements (e.g., ecosystem metabolism, resource limitation, predator-prey relations) in both qualitative and quantitative terms, thereby making them tangible, tractable, and readily understandable. The course will use an instructional rubric to integrate conceptual, analytical, and communicative exercises in order to instruct students about how to evaluate variation in natural ecosystems. This course provides experiential training in the scientific process (rubric), so students can learn by doing, thereby internalizing their knowledge. Course content is organized into three 5-week sections, each of which will emphasize one component of the biogeochemical cycle (physical, chemical, biological). In each section, students will carry out a focused group study designed to evaluate how a pertinent environmental perturbation can affect that component of the aquatic biogeochemical cycle. The course content in each five-week block will have students: 1) review the experimental design and hypothesis, 2) implement the experimental design in the field or laboratory, 3 and 4) process and analyze samples in the laboratory, and 5) make statistical and graphical evaluations of the experimental results relative to their hypothesis (in class) and present these findings in written form. Knowledge of these basic ecosystem principles will be applied towards formulating real-life solutions to the issues identified in class, in order to better manage aquatic ecosystems. This course will be useful to undergraduate students seeking degrees in Environmental Resource Management and Wildlife and Fisheries Science, as well as graduate students pursuing degrees in Ecology, Forest Science, Wildlife and

Fisheries Science, Watershed Stewardship, and other related subjects. At the undergraduate level, the course will serve as a 400-level elective in Environmental Resource Management degree program, Wildlife and Fisheries Science degree program, and the inter-college Marine Science option. At the graduate level, the course will complement several Forest Science and Wildlife and Fisheries courses. Moreover, the course can also satisfy the requirements for the ecosystems ecology focus in the inter-college Ecology graduate program. Grades will be based on three research papers, and a final laboratory practical.

Enforced Prerequisite at Enrollment: BIOL 110 and CHEM 110

Cross-listed with: WFS 436

ERM 440: Chemistry of the Environment: Soil, Water, and Air

3 Credits

This course is designed for junior and senior undergraduates with some previous chemistry background. The course will advance students' understanding of chemical concepts and link them to applications in environmental chemistry. The course focuses on topics in environmental soil chemistry such as: soil mineralogy, mineral weathering, sorption and ion exchange, chelation and complex formation, soil pH and acidic/alkaline soils, oxidation/reduction, soil salinity, soil biochemistry, and the dissolution/precipitation of common metals and compounds. The solid phase is emphasized, but solid/solution equilibria, aquatic chemistry, metals in the aqueous environment, and aquatic pollution will also be covered. The course also covers a detailed overview of stratospheric chemistry, tropospheric chemistry, and climate change.

Enforced Prerequisite at Enrollment: (CHEM 110 and CHEM 111 and CHEM 112) or CHEM 202 or CHEM 210

Cross-listed with: SOILS 440

ERM 444: Environmental Biophysics

3 Credits

Analysis of the interaction of living organisms and their microenvironment by applying biophysical principles and engineering methods. E R M 444 Environmental Biophysics (3) This course trains students in the analysis of the interaction of living organisms and their microenvironment by applying biophysical principles and engineering methods. Students will learn to describe the physical environment surrounding the organism (wind, temperature, radiation, humidity) and to calculate biophysical responses of the organisms to these variables in terms of transfer of mass (liquid water, gases) and other processes. Practical examples and accompanying calculations are fundamental components of the course as the students learn to quantitatively explore the links between the environment and features of living organism such as the shape and color of leaves and canopies, the distribution of the rooting system, or the thickness of an animal fur. A laboratory section complements the lectures and introduces the students to basic techniques and equipment utilized in this discipline. This course can be helpful for students in the areas of plant and animal sciences, ecology, entomology, environmental sciences, and agricultural and environmental engineering.

Enforced Prerequisite at Enrollment: BIOL 110 and (MATH 110 or MATH 140) and (PHYS 250 or PHYS 211)

ERM 447: Stream Restoration

3 Credits

Stream restoration will focus on understanding stream impairment by evaluating the stream channel, its floodplain, and the watershed supplying runoff to the stream. A wide variety of stream assessment tools will be introduced along with several stream classifications systems. Students will be introduced to the concepts of stream stability and evolution and how human activities and our infrastructure impact the health of a stream. Various restoration approaches designed to restore impaired stream reaches to stable channels will be introduced. Stream stability and the role of sediment transport in the context of pebble-count data will be introduced along with several sediment transport models. Stream biology, macro-invertebrates, the role of riparian buffers, and desirable plant populations will be introduced. The laboratory experiences will focus on stream assessment tools and stream surveys needed for the stream restoration design process. Students will be responsible for assessing a stream and developing a preliminary design for restoring an impaired local stream reach.

Enforced Prerequisite at Enrollment: ASM 327 or BE 307 or CE 360 or CE 370

ERM 448: Rural Road Ecology and Maintenance

3 Credits

Roads are ubiquitous throughout the landscape and this course is intended for students who anticipate working in natural resource management fields. This course provides students with the fundamental understanding of the interaction of natural systems with unpaved and low volume paved roads in order to economically maintain roadways with minimum impact on the environment. The major focus area will be the road/stream interface, including the fundamentals of hydrology, geology, soils, and erosion processes as they pertain to roads and streams. It is expected that the student will gain a practical understanding of rural road maintenance in order to provide a foundation for real-world application. Emphasis is placed on Environmentally Sensitive Maintenance (ESM) practices for rural roads that are used throughout Pennsylvania. The goal of ESM practices is to minimize the environmental impact of the existing road network by maintaining proper road drainage in order to keep road materials out of the adjacent streams and surrounding landscape. Upon completion the student will be ESM certified under Pennsylvania's Dirt, Gravel and Low Volume Road Maintenance Program.

Enforced Prerequisite at Enrollment: (MATH 22 and MATH 26) or MATH 41 or MATH 110 or MATH 140 Enforced Concurrent at Enrollment: ASM 327 or BE 307 or CE 335 or CE 370 or FOR 308 or FOR 470

ERM 449: Sustainable Water Management: Economics and Policy

3 Credits

Water resource management is of fundamental importance to human societies and natural ecosystems. Yet, despite millennia of human experience in managing water resources, water shortages and water quality degradation harmful to the health and prosperity of people and to ecosystems are common, and stresses on water are expected to increase globally in coming years. Growing populations and incomes are increasing the demand for scarce water while creating new stresses on water quality. Climate change and changes in land use and land cover that accompany population growth and climate change are affecting water supplies and water quality. Addressing existing and emerging

water problems requires understanding the underlying causes, and the development and implementation of remedies that are effective, efficient, resilient, fair. This is a multi-disciplinary problem. This course introduces students to the methods and contributions of economics as a behavioral and decision science to the task. Topics include water supply costs, water demands, ecosystem services and values provided by water, efficiency and fairness in water use, water rights institutions, water markets, water pricing, effluent taxes, pollution permit trading, and methods of water project and policy evaluation.

Enforced Prerequisite at Enrollment: (MATH 22 or MATH 110 or MATH 140) and (AGBM 101 or ECON 102) Recommended Preparation: CED 201 or EBF 200

ERM 450: Wetland Conservation

3 Credits

Wetland types, classification, functions and values; hydrology, soils, and plants; introduction to wetland identification and delineation; wetland regulations. E R M (W F S) 450 Wetland Conservation (3) Wetlands are unique ecosystems, differing in many ways from both terrestrial and aquatic environments. They provide recognized values and functions to society, although these values and functions remain difficult to quantify. The study of wetlands is interdisciplinary, requiring background knowledge in science, management and policy disciplines. This course will explore the variety of wetland types and functions, and emphasize the diverse hydrological, biological, chemical, and physical interactions that occur within wetlands. Because wetlands are recognized as valuable assets in the landscape, issues surrounding wetland management and regulation have taken on increased importance; we will address these issues as well. Topics will also include the restoration of degraded wetlands and wetland creation, along with the construction of wetlands for pollution abatement. Students will become familiar with different wetland types and how they are classified, and will develop skills in understanding the interactions between wetland hydrology, hydric soils and hydrophytic vegetation. They will also develop an understanding of important national and state policies and regulations pertaining to wetlands and their protection and delineation. Classroom assessment will be based on three cumulative exams, homework assignments, and a final project. The course will fulfill 3 credits of electives or technical selections in the Wildlife and Fisheries Science major. Other students university-wide may be interested in the course, and the intention is to develop a course that is accessible to a wide variety of traditional and non-traditional students. For proper instruction, a technology classroom with computer projection equipment will be required. E R M 450 will be offered each fall semester. Enrollment will be limited to 60-80 students.

Enforced Prerequisite at Enrollment: ERM 300 or WFS 209
Cross-listed with: WFS 450

ERM 489: Supervised Experience in College Teaching

1-3 Credits/Maximum of 3

The Supervised Experience in College Teaching course provides select undergraduate students with formal, supervised teaching experience in an Environmental Resource Management (ERM) course. Faculty recruit students who excel in a particular course to serve as undergraduate teaching assistants for subsequent offerings of that course. Duties may include serving as peer tutors, teaching assistants, or laboratory assistants, and developing and/or evaluating course activities and materials. Students participating in this course will develop a deeper understanding of the focus within the course material by actively helping

to teach the material. The course is only available to students who are invited to serve as teaching assistants for an ERM course and enrollment is by permission of the instructor.

Enforced Prerequisite at Enrollment: Permission of program

ERM 494: Undergraduate Research in Environmental Science

1-6 Credits/Maximum of 6

Supervised student activities on research projects identified on an individual or small group basis.

Enforced Prerequisite at Enrollment: Permission of the Environmental Resource Management program

ERM 494H: Honors Thesis

1-6 Credits/Maximum of 6

Independent study directed by a faculty supervisor that culminates in the production of an ERM honors thesis.

Enforced Prerequisite at Enrollment: Junior or senior status in the Schreyer Honors College and permission of the ERM honors advisor Honors

ERM 495: Internship

1-12 Credits/Maximum of 12

A supervised practicum in the environmental field. To be offered only for SA/UN grading.

Enforced Prerequisite at Enrollment: Prior approval of assignment by instructor

Full-Time Equivalent Course

ERM 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

ERM 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

ERM 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered with a component in foreign countries, by individual or group instruction.

International Cultures (IL)

Environmental Science (ENVSC)

ENVSC 200: Introduction to Environmental Science

3 Credits

This team-taught course is designed to be the entrance/introduction to major course in Environmental Science. The course consists of seven

modules. The first module is an introduction to research methods, and is designed to teach students the fundamentals of searching the primary literature, reading scientific research papers, and accessing and using available environmental databases. Modules 2-6 address various large issues in environmental science. Each of these issues manifests across spatial and temporal scales from local/short-term to global/long-term. Information in each module will be conveyed via assigned readings from a textbook, student presentations of case studies, computer laboratory exercises in which students will access existing databases with the goal of downloading and analyzing some small data set, reviews of 1-2 papers from the primary literature, and discussions of the readings. These modules cover the breadth of environmental science including population growth/control, climate science and climate change, water resources, energy issues, and pollution. The last module specifically addresses communication skills, science-based policy and resource management, and the critical importance of communication between scientists and non-scientists. This module will include writing exercises and presentation skills. At the end of the course, local environmental professionals (lawyers, regulatory personnel, health department officials, urban planners) will be invited to participate in a panel discussion of careers options.

Prerequisite: BIOL 110, CHEM 110

ENVSC 294: Research in Environmental Science

1-3 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small group basis.

ENVSC 296: Independent Studies in Environmental Science

1-3 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

ENVSC 297: Special Topics in Environmental Science

1-3 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

ENVSC 400W: Case Studies in Environmental Analysis and Problem-Solving

3 Credits

A writing-intensive environmental science course comprising review and analysis of field, lab, policy, and management aspects; investigative methods; and projects.

Prerequisite: BIOL 402W ; CHEM 202 ; GEOSC 300/400 level; ENGL 202C ; any PL SC or ECON

Writing Across the Curriculum

ENVSC 494: Research in Environmental Science

1-3 Credits/Maximum of 9

ENVSC 494 is an experiential course that allows undergraduates to design, complete and present a research project in environmental science.

Prerequisite: 3 credits of 400-level coursework; Junior or senior standing

ENVSC 495: Internship in Environmental Science

1-3 Credits/Maximum of 9

ENVSC 495 is an off-campus internship experience with a local, regional, or national environmental organization, government agency, or private-sector business.

Prerequisite: 3 credits of 400-level coursework; Junior or senior standing

ENVSC 496: Independent Studies in Environmental Science

1-3 Credits/Maximum of 9

Creative projects or specialized coursework, supervised on an individual basis, that falls outside the scope of formal ENVSC coursework.

Prerequisite: 3 credits of 400-level coursework; Junior or senior standing

Environmental Studies (ENVST)

ENVST 100N: Visions of Nature

3 Credits

An interdisciplinary introduction to environmental studies, including perspectives from environmental ethics, economics, public policy, art, literature, history, geology, biology, and ecology. This course may be team-taught and include field and laboratory work. Students will be introduced to interdisciplinary study of the environment with an overview of nature's role as subject matter in a variety of academic disciplines. Students will examine the formative value of nature in our cultural history, consider the role of nature in our current value systems and social and economic structure, and be introduced to the theory and practice of ecological science. Students should achieve a broad understanding of the value (not just economic) of living things and their habitats. The course will demonstrate how information from different fields can interconnect. It also serves as the "gateway" course for students intending to major or minor in an interdisciplinary environmental studies program, introducing the program's concerns, aims, and goals and the varied academic perspectives to be built upon in later coursework.

Bachelor of Arts: Humanities

Bachelor of Arts: Natural Sciences

General Education: Humanities (GH)

General Education: Natural Sciences (GN)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

ENVST 200: Research Methods in Environmental Studies

3 Credits

Focus on interdisciplinary research methodologies from biology, social sciences, and humanities for the study of environmental issues and problems. ENVST 200

Prerequisite: BIOL 110 , ENGL 015 , ENVST100

ENVST 294: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or group-basis.

ENVST 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

ENVST 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

ENVST 299: Foreign Studies in Environmental Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Prerequisite: approval of the program

International Cultures (IL)

ENVST 395: Internship

1-6 Credits/Maximum of 6

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Prerequisites INTSP 370

ENVST 400W: Senior Seminar in Environmental Studies

3 Credits

Writing-intensive study of a specified topic in environmental studies integrating approaches and research from a variety of disciplines. ENVST 400W

Prerequisite: ENVST200

Writing Across the Curriculum

ENVST 424: Creative Writing and the Natural World

3 Credits

Creative writing workshop focused on the environment and related issues. ENGL (ENVST) 424 Creative Writing and the Natural World (3) American literature includes a long and rich tradition of writing that focuses on the natural world. From the oral stories of indigenous people to the journals of the first European settlers, many have looked for a way to understand their own place in the world based upon their relationship to the earth and its creatures. While Puritans often discerned the pleasure or wrath of God in the environmental changes they experienced, Transcendentalists like Henry David Thoreau and Ralph Waldo Emerson sought out moments of spiritual enlightenment by immersing themselves in the natural order. More recently, such poets as Galway Kinnell, James Wright, and Robert Bly have attempted to connect with the depths of collective unconsciousness by exploring the natural world, while others, like Mary Oliver, Dan Gerber, Jim Harrison, Gary Snyder and Wendell Berry,

have used transcendental thought and melded it with Christian and Buddhist insights. Still others, like Gary Paul Nabhan, Rachel Carson, and Alison Hawthorne Deming have brought science to bear upon the riches that nature, art, and scientific exploration may offer when joined in the pursuit of a deeper understanding of, and relationship with, the natural world. This course will acquaint students with the tradition of American nature writing, as well as contemporary nature writing, in the genres of nonfiction, poetry and fiction. Students will be introduced to issues of style, philosophy, and content, as they produce their own essays, poems, and stories. The course culminates in the production of a portfolio of nature writing. Much of this work will begin in class with specific assignments, which will include field work, and feedback from other students in the class. As a workshop course in creative writing, the emphasis will be upon the production of literary texts that interact with the natural world and upon the revision of those texts.

Enforced Prerequisite at Enrollment: ENGL 50 or ENVST 100N
Cross-listed with: ENGL 424

ENVST 424H: Creative Writing and the Natural World

3 Credits/Maximum of 3

Creative writing workshop focused on the environment and related issues. ENVST (ENGL) 424 Creative Writing and the Natural World (3) American literature includes a long and rich tradition of writing that focuses on the natural world. From the oral stories of indigenous people to the journals of the first European settlers, many have looked for a way to understand their own place in the world based upon their relationship to the earth and its creatures. While Puritans often discerned the pleasure or wrath of God in the environmental changes they experienced, Transcendentalists like Henry David Thoreau and Ralph Waldo Emerson sought out moments of spiritual enlightenment by immersing themselves in the natural order. More recently, such poets as Galway Kinnell, James Wright, and Robert Bly have attempted to connect with the depths of collective unconsciousness by exploring the natural world, while others, like Mary Oliver, Dan Gerber, Jim Harrison, Gary Snyder and Wendell Berry, have used transcendental thought and melded it with Christian and Buddhist insights. Still others, like Gary Paul Nabhan, Rachel Carson, and Alison Hawthorne Deming have brought science to bear upon the riches that nature, art, and scientific exploration may offer when joined in the pursuit of a deeper understanding of, and relationship with, the natural world. This course will acquaint students with the tradition of American nature writing, as well as contemporary nature writing, in the genres of nonfiction, poetry and fiction. Students will be introduced to issues of style, philosophy, and content, as they produce their own essays, poems, and stories. The course culminates in the production of a portfolio of nature writing. Much of this work will begin in class with specific assignments, which will include field work, and feedback from other students in the class. As a workshop course in creative writing, the emphasis will be upon the production of literary texts that interact with the natural world and upon the revision of those texts.

Honors

ENVST 425: Environmental Communication

3 Credits

ENVST 425W Environmental Communication (3). Environmental communication is an increasingly important specialty within the discipline of communication, and a critical topic for students interested in participating in environment-related discourse as policy advocates, subject-matter experts, journalists, strategic communication

professionals, or citizen-stakeholders. In this course, students will learn (1) how the environment is constructed and contested as an idea in public discourse, via news, current events, and popular culture; (2) how individuals, organizations, and authorities engage in environmental discourse, and to what ends; and (3) how environmental policy advocates and entrepreneurs attempt to enlist and mobilize publics via communication campaigns. Students will learn to design and critique environmental messages. Methods of assessment center on the production of informative, persuasive, and reflective environmental messages in a variety of textual forms and genres to develop practical communication skills. Class size is limited to 10 students. This course may be substituted for ENVST 400W with program approval.

Prerequisite: ENGL 202 CAS 100
Writing Across the Curriculum

ENVST 428: Environmental Economics and Policy

3 Credits

Our free market system has brought us tremendous increases in productivity and innovation over the last century. However, at times the production or consumption of goods or services generates side effects that can lower the welfare of society, or even threaten society's very existence. What should be done? Environmental economics provides one tool to examine this question. There are four broad areas in the field of environmental economics: benefit-cost analysis including the valuation of the environment and the cost of environmental regulation; institutional design in the regulation of the environment; and exhaustible and renewable resource management. This course will provide an overview of these four areas and will examine several applications of the techniques found in the environmental economics literature.

Prerequisite: (ECON 102; ECON 104) and (STAT 200; STAT 250)
Bachelor of Arts: Natural Sciences

ENVST 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or group basis.

ENVST 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

ENVST 497: Special Topics in Environmental Studies

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Prerequisite: 6th semester standing and 6 credits in ENVST or related disciplines

ENVST 499: Foreign Studies in Environmental Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Prerequisite: 6th semester standing, approval of program, and 6 credits in ENVST or related disciplines
International Cultures (IL)

Environmental Systems Engineering (ENVSE)

ENVSE 400: Safety Engineering

3 Credits/Maximum of 3

An introduction to the application of engineering principles for the promotion of safety for workers, consumers, and the public.

Enforced Prerequisite at Enrollment: CHEM 110 and PHYS 211 and MATH 141

ENVSE 404W: Surface and Interfacial Phenomena in Environmental Systems

3 Credits

Principles underlying surface and interfacial phenomena with application to mineral processing and environmental systems.

Enforced Prerequisite or Concurrent at Enrollment: CHEM 110 and MATH 141 and PHYS 212 and EME 301
Writing Across the Curriculum

ENVSE 406: Sampling and Monitoring of the Geo-Environment

3 Credits

Issues of sampling, analysis, monitoring and control techniques for effective environmental management in the extractive industries.

Enforced Prerequisite or Concurrent: MNPR 301

ENVSE 408: Contaminant Hydrology

3 Credits

Mobility of contaminants in aquifers; multiphase flow, transport, retardation and attenuation, vapor mobility, aquifer characterization, mathematical models and aquifer remediation.

Enforced Prerequisite at Enrollment: GEOSC 452

ENVSE 412: Environmental Systems Engineering Laboratory

1 Credits

A laboratory study of the principles involved in the characterization and remediation of process wastes with an emphasis on physical separations.

Enforced Prerequisite at Enrollment or Concurrent: MNPR 301

ENVSE 427: Pollution Control in the Process Industries

3 Credits

The major objective of this course is to teach the design principles for different unit operations commonly employed in environmental pollution control in the mineral, energy, and chemical process industries. The course is required of all ENVSE students, who must score at least a grade of C to graduate. Students will develop the ability to identify, formulate,

and solve complex engineering problems by applying principles of engineering, science, and mathematics. Fundamental principles covered in earlier courses (math, physics and chemistry) will be applied to derive design equations for different unit operations (e.g. sedimentation basins, activated sludge processes, dissolved air flotation, gas absorption and stripping, and precipitation). Students will develop engineering design solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors. Student evaluation will be based upon homework assignments, quizzes, in-class tests, and design projects. Some assignments may require students to work in teams.

Enforced Prerequisite at Enrollment: CHEM 110 and CHEM 112 and MATH 141 and MNPR 301 and (EME 303 or CE 360)

ENVSE 440: Industrial Ventilation for Contaminant Control

3 Credits

Ventilation system design and analysis for control of industrial contaminants; measurements, dilution and local exhaust ventilation strategies; laboratory demonstrations included.

Enforced Prerequisite at Enrollment: MATH 141 and PHYS 212 and CHEM 110

ENVSE 450: Environmental Health and Safety

3 Credits

Overview of toxicology, epidemiology, exposure assessment, industrial hygiene, environmental laws, and engineering approaches to protecting workers and the environment.

Enforced Prerequisite at Enrollment: CHEM 110

ENVSE 457: Industrial Hygiene Measurements

3 Credits

Industrial hygiene is the discipline devoted to the anticipation, recognition, evaluation, and control of hazards in the workplace. This course provides an overview of the most common industrial hygiene measurement techniques used to evaluate exposure to chemical, physical, and biological agents in the workplace. Topics will include coverage of basic definitions, exposure standards, and guidelines, and an introduction to the different types of sampling equipment and analytical methods used most often in the evaluation of airborne exposure to gases, vapors, and aerosols. Interpretation of quantitative sample results will be an area of emphasis and students will become familiar with different types of exposure distributions, appropriate sampling strategies, and different statistical tools available for making decisions in occupational exposure assessment.

Enforced Prerequisite at Enrollment: CHEM 110 and ENVSE 450

ENVSE 458: Industrial Hygiene Measurements Laboratory

1 Credits

Industrial hygiene is the discipline devoted to the anticipation, recognition, evaluation, and control of hazards in the workplace. This course provides an overview of the most common industrial hygiene measurement techniques used to evaluate exposure to chemical, physical, and biological agents in the workplace. Topics will include coverage of basic definitions, exposure standards, and guidelines,

and an introduction to the different types of sampling equipment and analytical methods used most often in the evaluation of airborne exposure to gases, vapors, aerosols, and physical agents (noise, heat, ergonomics). Interpretation of quantitative sample results will be an area of emphasis and students will become familiar with different types of exposure distributions, appropriate sampling strategies, and different statistical tools available for making decisions in occupational exposure assessment.

Enforced Concurrent at Enrollment: ENVSE 457

ENVSE 470: Engineering Risk Analysis

3 Credits/Maximum of 3

Quantitative methods of systems analysis, probabilistic risk and reliability analysis, as well cost-benefit, and value of information analysis.

Enforced Prerequisite at Enrollment: MATH 251

ENVSE 480: Environmental Systems Engineering Process Design

3 Credits

ENVSE 480 provides a culminating design experience for students in the Environmental Systems Engineering major. Students develop the skills and techniques for managing and executing engineering design projects with an emphasis on treatment and remediation processes of the basic industries including those involved in the extraction, conversion, and utilization of energy and mineral resources. Engineering science and design skills will be integrated and applied to the solution of realistic open-ended environmental systems engineering problems such as: flue gas desulphurization and mercury removal; treatment of hydraulic fracturing wastewater (produced water); acid mine drainage treatment; phytoremediation of heavy metals; and treatment of industry-specific wastes such as pharmaceutical and refinery wastewater. Students completing this course will have the ability to apply engineering design to develop solutions that meet specified needs while also satisfying constraints related to public health, safety, and welfare, as well as economic, environmental, and social factors. Students will work together in teams to provide leadership in a collaborative and inclusive environment, while establishing goals, planning tasks, and meeting project objectives. The ability to communicate effectively to a range of audiences will be demonstrated through the preparation and delivery of written reports and presentations to peers, faculty, and other project stakeholders.

Enforced Prerequisite at Enrollment: ENVSE 427 and ENVSE 404W and 7th semester standing or higher in Environmental Systems Engineering (ENVSE_BS) major

ENVSE 494: Senior Thesis

1-6 Credits/Maximum of 6

Independent research and/or design projects under the supervision of the Environmental Systems Engineering program.

Enforced Prerequisite at Enrollment: Seventh semester standing or higher in Environmental Systems Engineering (ENVSE_BS) major
Honors

ENVSE 495: Environmental Health and Safety Engineering Internship

2 Credits

Students work with an advisor to prepare technical memos and a final report summarizing the experiential education gained through employment in industry.

Enforced Prerequisite at Enrollment: Fifth semester standing or higher

ENVSE 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

ENVSE 497: Special Topics

1-9 Credits

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Finance (FIN)

FIN 100: Introduction to Finance

3 Credits

The nature, scope, and interdependence of the institutional and individual participants in the financial system. May not be used to satisfy Penn State Business baccalaureate degree requirements. Not available to students who have taken B A 301 or FIN 301.

Enforced Prerequisite at Enrollment: third-semester standing

FIN 108: Personal Finance

3 Credits

Personal management of budgets, bank accounts, loans, credit buying, insurance, real estate and security buying. May not be used to satisfy Smeal College baccalaureate degree requirements.

Enforced Prerequisite at Enrollment: third-semester standing

FIN 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

FIN 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

FIN 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

FIN 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

FIN 301: Corporation Finance

3 Credits

This course provides a basic understanding and framework of how firms acquire, allocate, and control their financial resources. It covers the acquisition and management of corporate capital; analysis of operations, forecasting capital requirements, raising capital, and planning profits. This is a core finance course focusing on basic financial principles and practices essential to managing a business. In addition, this course also covers financial markets, institutions, organizational forms and investments. It relies heavily on accounting and economic principles with a strong emphasis on problem solving and decision making. One objective of this course is to be able to assess the past and present performance of the firm. This can be achieved through vertical and horizontal analysis of the financial statements as well as ratio analysis. Another aspect of this course is the financial planning process. This includes concepts such as pro forma statements, developing the statement of cash flows, as well as the budgeting process through the preparation of the cash budget. Another facet of this class is to understand how financing and investment decisions are made. Students will learn about the time value of money as well as fundamental techniques for valuing financial assets such as stocks and bonds. Additionally, capital budgeting techniques such as the net present value and internal rate of return are explained. Other important objectives include the management of working capital, the determination of the cost of capital, operating and financial leverage, and risk and return. The concepts and tools covered in this class allow the student to gain a fundamental understanding of how the finance function works within the business environment. The course promotes critical thinking and will enable the student to better integrate the individual functions of a business in order to make good business decisions. A student may receive credit toward graduation for only one of the following; BA 301, FIN 100, FIN 301, or FIN 301H.

Enforced Prerequisite at Enrollment: (ENGL 15 or ENGL 30H or ESL 15 or ENGL 137H or CAS 137H) and ACCTG 211 and (ECON 102 or ECON 104) and (SCM 200 or STAT 200)

FIN 301H: Corporation Finance (Honors)

3 Credits

FIN 301H honors course provides insight into real world issues that are needed to effectively run a business. Students will utilize the fundamental concepts learned in finance (integrated with accounting, marketing, management, logistics, operations, and business law/ethics) as a foundation for running a business in the classroom. The "product" in this business will be a comprehensive strategic business plan for a real, live local, state, national, or international business that will serve not only as an articulation of understanding of core course concepts, but also as a supplement to the existing core package of introductory business courses. The honor students in this course will be building their strategic business plan products in electronic format in closely-knit, high performance teams. The strategic plan product development process in this course inherently involves integration across the functional areas

of business: marketing, logistics, finance, and management. There is also inclusion and integration of courses in accounting, business law, management information systems, and statistics as applicable. Each student team will allocate product development responsibilities according to areas of expertise and interest. An appropriate balance of students from several majors will be assigned to each group. Class time will involve exchanging information within and across groups and coordinating activities between groups where necessary. Students will periodically meet with individual and team-based corporate mentors who will provide one-on-one advice on an as-needed basis. Students will also receive specialized training in team-based processes, leadership, and technology tools required to implement the products under development. Select members of the Penn State faculty and Smeal College alumni will be on hand at times to provide this specialized training and consulting expertise. Company owners and principals will provide periodic (monthly) reviews of honor students' work to assist them in the development of a first-class, professional business plan product.

Enforced Prerequisite at Enrollment: (ENGL 15 or ENGL 30H or ESL 15 or ENGL 137H or CAS 137H) and ACCTG 211 and (ECON 102 or ECON 104) and (SCM 200 or STAT 200)

Honors

FIN 302: Introductory Financial Modeling

3 Credits

This course applies spreadsheets to build financial models and solve numerically intensive problems in finance. FIN 302 Introductory Financial Modeling (3) This course is designed to provide students with an understanding and practical application of spreadsheet skills needed in Finance. The course will introduce students to spreadsheet models and tools to solve finance problems. It will also introduce students to finance databases and data preparation for analysis. These technical skills are necessary for Finance majors to effectively apply concepts learned in advanced finance courses and be successful in their careers. The course is intended to be an introductory level so that students can apply the skills in other courses.

Enforced Prerequisite at Enrollment: ACCTG 211 and ECON 102 and (MATH 110 or MATH 140) and (SCM 200 or STAT 200) and Concurrent FIN 301

FIN 305: Financial Management of the Business Enterprise

3 Credits

Development of advanced practices of financial management and their application to decision making in business firm. FIN 305 Financial Management of the Business Enterprise (3) The objective of this course is to give students an understanding, and working knowledge of the major decisions faced by corporate financial managers. In general, the course will emphasize three major areas: investment and capital budgeting, financing and capital structure, dividend policy and corporate growth. A basic understanding of financial analysis and valuation will be provided. Basic corporate securities markets will be described. Determinants of securities prices, yields, and returns will be discussed. Special emphasis is placed on the role of the capital markets in financing corporate operations and investment, in facilitating corporate reorganizations and financial restructuring, and in reflecting owners wealth and evaluating the performance of corporate management. Within the general framework, a number of special topics will be covered, including mergers and acquisitions and the market for corporate control, international financial management, derivative instruments and their

applications to corporate risk management. Students taking the course should have a working knowledge of elementary statistics, and a basic understanding of accounting and financial statements.

Enforced Prerequisite at Enrollment: BA 301 or FIN 301

FIN 305M: Financial Management of the Business Enterprise (Honors)

3 Credits

Development of advanced practices of financial management and their application to decision making in a business firm. FIN 305M Financial Management of the Business Enterprise (Honors) (3) The objective of this course is to give students an understanding, and working knowledge of the major decisions faced by corporate financial managers. In general, the course will emphasize three major areas: investment and capital budgeting, financing and capital structure, dividend policy and corporate growth. A basic understanding of financial analysis and valuation will be provided. Basic corporate securities markets will be described. Determinants of securities prices, yields, and returns will be discussed. Special emphasis is placed on the role of the capital markets in financing corporate operations and investment, in facilitating corporate reorganizations and financial restructuring, and in reflecting owner's wealth and evaluating the performance of corporate management. Students taking the course should have a working knowledge of elementary statistics, and a basic understanding of accounting and financial statements. As an Honors course, students will study the impact of corporate activities on the market value of its stock, so a common stock pricing model is needed that accounts for factors that matter to investors. FIN 305M looks at these issues through topics such as, time value of money, risk and return, and valuation of stocks and bonds. The course concludes with topics related to specific business activities, such as capital budgeting, capital markets, capital structure, and dividend policy. The level of discussion and critical analysis expected in FIN 305M compliments the expected level of performance for honors students.

Enforced Prerequisite at Enrollment: BA 301 or FIN 301

Honors

Writing Across the Curriculum

FIN 305W: Financial Management of the Business Enterprise

3 Credits

The objective of this course is to give students an understanding, and working knowledge of the major decisions faced by corporate financial managers. In general, the course will emphasize three major areas: investment and capital budgeting, financing and capital structure, dividend policy and corporate growth. A basic understanding of financial analysis and valuation will be provided. Basic corporate securities markets will be described. Determinants of securities prices, yields, and returns will be discussed. Special emphasis is placed on the role of the capital markets in financing corporate operations and investment, in facilitating corporate reorganizations and financial restructuring, and in reflecting owners wealth and evaluating the performance of corporate management. Within the general framework, a number of special topics will be covered, including mergers and acquisitions and the market for corporate control, international financial management, derivative instruments and their applications to corporate risk management. Students taking the course should have a working knowledge of elementary statistics, and a basic understanding of accounting and financial statements.

Enforced Prerequisite at Enrollment: BA 301 or FIN 301

Writing Across the Curriculum

FIN 306W: Investment Valuation

3 Credits

Approaches to investment strategy, investment decisions; valuation of corporate securities, including the impact of dividend policy and capital structure.

Enforced Prerequisite at Enrollment: FIN 301

Writing Across the Curriculum

FIN 330: Personal Financial Planning

3 Credits

Developing financial plans including cash budgets, credit purchases, investments, and insurance.

Enforced Prerequisite at Enrollment: third-semester standing or permission of instructor

FIN 362: Intrieri Family Student Managed Fund - Associate Analyst Practicum

1-4 Credits/Maximum of 4

In this course, students will provide research support for the Officers and Lead Analyst for the Intrieri Family Student Managed Fund, an actual investment fund that currently holds a stock portfolio of approximately \$250,000. The student will serve as economic, industry, and security financial analysts and portfolio managers in concert with the Standards of Practice Handbook from the CFA Institute. These standards are integral to the curriculum for all three levels of the Chartered Financial Analyst exam.

FIN 395A: Nittany Lion Fund - Associate Fund Manager Practicum

3 Credits/Maximum of 6

FIN 395A Nittany Lion Fund - Associate Fund Manager Practicum (3 per semester/maximum of 6) While the Lead Fund Manager is accountable for all work done by a given sector, an Associate Manager often does much of the behind the scenes work. Specific assignments include: putting together the weekly reports for investors, creating reports that are sent out to the Nittany Lion Fund (NLF), and providing assistance with pitches. In general, an Associate Manager is supposed to be well informed about the sector's current holdings and with that, an Associate should be able to provide support for the Lead Manager during a stock pitch or class discussion. Although Associate Fund Managers are the workhorses of the fund, often performing some of the more tedious tasks, the position offers the opportunity to learn from the Lead Managers as well as make an impression by delivering quality work. While Lead Managers are responsible for and have the final say in stock pitches and sector strategies, it is highly encouraged that the Associates provide their Lead Managers with pitch ideas as well as inform them of their opinions about current market trends. Ultimately, the Associate Manager position is more detail and task oriented than the Lead Fund Manager position. However, there is always room to provide high quality insight into the market by asking thought provoking questions during pitches and staying current on market news. Students use financial software, such as Bloomberg Professional, Reuters Station, TradeStation, and FactSet, and must have working knowledge of various forms of financial modeling. The Penn State Investment Association (PSIA), which co-exists with the Nittany Lion Fund, LLC (NLF) assists the NLF in ensuring

students are appropriately trained in these skills. The PSIA is open to students of all majors and experience levels and is the starting point for students interested in participating in the NLF.

Enforced Prerequisite at Enrollment: permission of program

FIN 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

FIN 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

FIN 405: Advanced Financial Management

3 Credits

An examination of the development and application of decision rules for major long-term financial and investment problems of the firm.

Enforced Prerequisite at Enrollment: FIN 305W

FIN 406: Security Analysis and Portfolio Management

3 Credits

Advanced valuation theory; fundamentals of security analysis; portfolio construction and management.

Enforced Prerequisite at Enrollment: BA 301 or FIN 301

FIN 406H: Security Analysis and Portfolio Management (Honors)

3 Credits

Advanced valuation theory; fundamentals of security analysis; portfolio construction and management. FIN 406H - Security Analysis and Portfolio Management (Honors)(3) Finance 406 is about how to invest money in stocks, bonds and derivative securities. The course focus is on creating portfolios of assets rather than on picking individual assets for investment. To create a portfolio of assets, the portfolio manager must have knowledge of the assets available for purchase, the markets the assets are traded in, and the statistical and mathematical techniques needed to assign weights to the assets within the portfolio. The manager must also be able to predict changes in the economy that justify changes in the portfolio, as well as be able to evaluate the performance of the portfolio relative to standard benchmark portfolios such as the S&P500. The course begins with a review of the structure of the asset markets, basic pricing formulas, fundamental and technical analysis, and the tools from previous statistics, economics, and calculus classes needed. Different models relating risk and return such as the CAPM and arbitrage pricing model are covered. These models exemplify how investors are willing to trade-off the variance in returns from investments with the expected value of the investment. The students then learn how to choose the weights to assign to each asset available to maximize the expected return while minimizing risk of the portfolio using the portfolio theory of Markowitz. While the focus of this section of the class is on investing in equities, the portfolio theory learned is applicable to all types of assets. Because there are important differences between

stocks and bonds, the next section of the class focuses on the unique characteristics of fixed income securities. Models explaining the different risk and return characteristics of bonds are examined. Because fixed income securities prices and returns are directly linked to changes in interest rates, theories of what determines interest rates are presented and applied to evaluating the performance of portfolios including fixed income securities. The course concludes with an overview of investment in options and futures contracts. The basic pricing models for these types of assets are reviewed as well as practical concepts of investing in derivatives such as margin accounts and creating synthetic returns using combinations of different types of options. As an Honors course, the level of research and academic investigation is enhanced with outside journal readings in topics such as portfolio theory, anomalies and market efficiency, overpricing, and current topics in Portfolio Management as material is published. This material is incorporated into class discussions and course exams beyond what is covered in the standard version of the class.

Enforced Prerequisite at Enrollment: BA 301 or FIN 301 Honors

FIN 407: Multinational Financial Management

3 Credits

Analysis of the international aspects of managerial finance; emphasis on the impact of the international financial environment on firm operations.

Enforced Prerequisite at Enrollment: FIN 305W

FIN 408: Financial Markets and Institutions

3 Credits

Functional analysis of major credit institutions; sources and uses of funds; impact of government regulation.

Enforced Prerequisite at Enrollment: BA 301 or FIN 301

FIN 408H: Financial Markets and Institutions (Honors)

3 Credits

Introduction to bonds, equities, derivatives, and financial institutions including insurance, pension funds and mutual funds. FIN 408H - Financial Markets and Institutions (Honors) (3) Finance 408H is about financial institutions and markets. The markets section will include approximately 9 classes on debt markets, and another nine classes on equity markets (e.g. NYSE, NASDAQ) and derivatives (options and futures). The primary institutions covered in this course include insurance companies, mutual funds, pension funds, securities firms, and investment banks. We hope to include an analysis of personal financial planning issues as well. Reading assignments at various web sites will be made. The course will include weekly spreadsheet assignments that focus on the course concepts presented in class. These assignments ought to provide a rigorous understanding of the concepts recently presented in class and they will develop and improve the students' Excel skills. The overarching objective is for each student to develop an understanding of markets and institutions that will provide lifetime enjoyment.

Enforced Prerequisite at Enrollment: BA 301 or FIN 301 Honors

FIN 409: Real Estate Finance and Investment

3 Credits

The sources and uses of credit; instruments and methods of financing; the theory and practice of real estate investment analysis. FIN (R EST) 409 Real Estate Finance and Investment (3) Real Estate financial markets are rapidly changing, with new instruments and ideas introduced every day. Therefore, the emphasis of this class will be on preparing the students to tackle any new instrument that might be introduced to the market, understanding why and how people make money in the field, and be able to understand and utilize the innovations that have been introduced and are still being developed. The course will provide a broad coverage of real estate investment, finance, and valuation. We will study different measures of investment performance, the impact of the financing decision on real estate investment risks and return, and various real estate financing techniques. Specific topics include: legal considerations in real estate finance, present value concepts, fixed rate mortgage loans, adjustable rate and variable payment mortgages, underwriting and financing residential properties, income-producing properties and valuation fundamentals, leases, projecting cash flows, investment value, investment and risk analysis, financial leverage and financing alternatives, disposition and renovation of income properties, financing corporate real estate, real estate capital markets, the secondary mortgage market and REITS.

Enforced Prerequisite at Enrollment: BA 301 or FIN 301

FIN 410: Derivative Markets

3 Credits

Functions, techniques, and impact of speculation conducted through forward markets; the nature of speculative transactions, pricing, and methods of trading.

Enforced Prerequisite at Enrollment: FIN 406

FIN 413: Risk Management of Financial Institutions

3 Credits

Measuring and managing risk faced by financial institutions. FIN 413 Risk Management of Financial Institutions (3) This course focuses on measurement and management of risk faced by managers of modern financial institutions. Students will be introduced to various tools and techniques used to measure and analyze risk from traditional balance sheet activities (such as credit risk, liquidity risk, insolvency risk, interest rate risk and market risk) and from off-balance sheet activities. In addition, students will learn strategies for controlling and managing the risks to achieve the best risk-return outcome. This course is designed to be an upper level, undergraduate course. Students will have opportunities to apply fundamental concepts learned in other finance classes. It is recommended for business students, especially finance majors, who wish to have careers in financial service firms or non-financial firms that use financial assets.

Enforced Prerequisite at Enrollment: BA 301 or FIN 301

FIN 414: Financial Trading and Applications

3 Credits

The focus of this course is the application of financial theory and technology to the practice of financial trading. The first half of the class examines tools for constructing and evaluating trading strategies.

After a short review of probability and statistics, attention turns to the analysis of models for valuing options, credit default swaps, and other financial instruments. Emphasis is placed on the assumptions underlying these models and the application of these models in the real-world. This discussion includes approaches for estimating volatility and the use of the models when underlying assumptions do not hold. The first half of the course concludes with a discussion of value-at-risk and tools for evaluating performance. The analysis of these topics highlights commonly used measures of performance and the potential pitfalls using these measures. The second half of the class examines trading strategies commonly used by hedge funds. Strategies discussed include merger arbitrage, relative value, momentum, index arbitrage, and other quantitative based strategies. Students also study accounting based and fundamentally based trading strategies. Application of these strategies in both the equity and fixed income markets is examined. Attention is also paid to the impact of trading on market prices and other aspects of market microstructure. Throughout the second half of the course, students participate in a project in which they form into teams of fund managers who analyze market data with the purpose of constructing and managing a portfolio that applies various trading strategies. The fund is managed using market simulation software that allows students to execute all trades using real-time market prices and allows them to go long or short equity, commodity, fixed income, and foreign exchange instruments, as well as derivative securities. Upon completion of the project, students make a pitch to a group of potential investors (the class) in which they summarize the themes underlying their strategies, provide performance metrics for their fund, and discuss their primary trading strategies if they were to continue as fund managers. The course pedagogy is lectures, case assignments, trading and valuation simulations, and a trading project. The class will make extensive use of Bloomberg, Reuters, trading software, basic programming languages for financial software, and other technology available.

Enforced Prerequisite at Enrollment: FIN 305W and FIN 406

FIN 414H: Financial Trading and Applications

3 Credits/Maximum of 3

This course focuses on financial modeling and analysis of trading strategies. Bloomberg, Reuters, spreadsheets and trading simulations are used extensively.

Honors

FIN 415: Advanced Financial Modeling

3 Credits

Develop financial models using spreadsheets, VBA programming, and trading room applications such as Bloomberg and @Risk. FIN 415 Advanced Financial Modeling (3) Students will develop financial models using spreadsheets, VBA programs, and trading room applications such as Bloomberg and @Risk. Students learn Excel's financial functions, shortcuts, web queries, data analysis capabilities, and optimization techniques. Students use @Risk software to define variable distributions and correlations to run Monte Carlo simulations to evaluate stochastic processes. Students access market data through the internet and proprietary providers such as Bloomberg. Students build models to construct optimal portfolios of securities and asset classes. Students estimate asset returns using CAPM, multi-factor models, and fundamental analysis. Students estimate asset volatility using exponential weighting, GARCH, and Black-Scholes implied volatility. Students model and optimize bond portfolios using portfolio duration,

convexity, leverage, and income. Students value options using Monte Carlo, Black-Scholes, and binomial option pricing models. Students learn to apply Brownian motion models to asset returns and prices. Students construct and test delta-hedging strategies for option portfolios. Students use matrix algebra and Excel matrix functions to compute portfolio return and volatility. Students write VBA functions and macros using VBA code, objects, array functions, loops, matrix operations, and data types. Achievement is measured by assignments, computer-based exams, and a final assignment.

Enforced Prerequisite at Enrollment: FIN 406

FIN 416: Intermediate Financial Modeling

3 Credits

The topics covered in this course build on the foundations of corporate finance presented in FIN 301, Corporate Finance. Specifically, the course focuses primarily on the development of spreadsheet applications and the use of the case method to apply decisionmaking procedures to real-world problems in finance areas. The primary objective of this course is to "marry" corporate finance theory with practice. Students should develop the ability to use finance concepts to solve practical finance problems. Throughout the course, students will be exposed to spreadsheets (e.g., Microsoft Excel) to develop models used in the financial decision-making process. The course will enable students to build a firm foundation in the principles of financial management and an understanding of how to apply concepts in financial management for the valuation process. Students will work as a group for a semester-long project, which will expose students to critical topics such as financial ratio analysis, financial forecasting, regression analysis, portfolio management, asset valuation, capital budgeting decisions via spreadsheets. Students will access market data through the internet and proprietary providers such as Bloomberg and Y-Charts.

Enforced Prerequisite at Enrollment: FIN 301

FIN 418: Energy Finance

3 Credits

This course offers an exploration into energy finance through an examination of the oil, gas, and coal commodity markets, as well as global electricity markets and renewable generation. The course addresses fundamental concepts associated with the complex physical and financial risks faced by firms in the energy industry. Students gain the ability to think critically about the entire energy value chain through an overview of the fundamental practices used by firms in the exploration, production, storage, refining, and processing of hydrocarbon-based energy commodities and the development and distribution of renewable energy and clean-air technologies.

Enforced Prerequisite at Enrollment: FIN 301 or equivalent approved course

FIN 420: Investment and Portfolio Analysis

3 Credits

Investment and risk, types of security investments, sources of investment information, the broker, the stock market, portfolio management.

Enforced Prerequisite at Enrollment: FIN 301

FIN 426: Analysis of Interest Rates and Debt Markets

3 Credits

The course starts off with a review of the time value of money concepts and the pricing of standard cash flows such as annuities, perpetuities. Next, an overview of the Treasury markets is provided with emphasis on both the primary and the secondary markets. In particular, the economics of the Treasury auctions, on-the-run/off-the-run liquidity issues, the presence of the zero lower bound, the economics of inflation-protected bonds, and other topics will be discussed at length. Students will also learn how to interpret the shapes of the nominal and the real yield curves, how to forecast short/long term future directions of rates as well as how to forecast future inflations based on nominal-real rate differentials. The course then moves on to non-Treasury segments of the fixed income markets: forward contracts, repurchasing agreements, floating rate notes, swaps, single stock futures, corporate bonds. For each topic, standard pricing techniques and relevant practical issues will be discussed. For example, how can a fixed income investor price a bond newly issued by a corporation based on their past equity market performance, using techniques typically employed by Moody's KMV? How does an investor gauge the potential illiquidity of a bond when transaction data are sparse? Or how one can extract a measure of the London Inter-bank Offered Rate (LIBOR) from the single stock futures markets? Or how a Chief Financial Officer (CFO) could hedge interest rate risks using standard duration and convexity hedging techniques even in a quick moving environment when assumptions underlying these techniques are likely, to varying degrees, violated. The final third of the course deals with relatively more advanced topics. Students are introduced to the use of risk-neutral probability measures in pricing fixed income derivative products (callable bonds, treasury futures, swaptions) in the context of a binomial tree. For example, students learn how to use calibrated binomial trees of interest rates to accommodate bonds, callable features, how to compute/interpret the options-adjusted spreads, how to account for various institutional features of the Treasury bonds futures markets and why futures and forward prices may differ when bonds are the underlying assets. The class finishes with a topic on Collateralized Debt Obligations (CDOs) and the economics of their mispricing prior to the Great Recession.

Enforced Prerequisite At Enrollment: FIN 406

FIN 427: Derivative Securities

3 Credits

Introduction to futures contracts and options, leading to a working understanding of their importance in financial management applications.

Enforced Prerequisite at Enrollment: FIN 420 or approval of program

FIN 428: Fixed Income Securities

3 Credits

This course develops a framework for the analysis of fixed income securities, one of the largest segments of global financial markets. Valuation and risk-return characteristics of these instruments are examined, in addition to trading and portfolio strategies for bonds, forwards, swaps, and repurchase agreements. Students examine these securities with regard to duration, convexity, credit risk, and formal term structure models. Various data sources and financial software, including Bloomberg Professional®, are used to integrate theoretical concepts with practical applications. The aim of this course is to provide you

with an introduction to the valuation of fixed income securities and the management of fixed income investment portfolios. In their simplest form, fixed income securities are characterized by pre-determined cash-flows that occur at fixed points in time, thus the term "fixed income". Coupon bonds are the most widely recognized fixed income securities. We will start with the basics of bond pricing - the relationship between the price of a bond, measures of return on the bond, and measures of risk. The tools for the valuation of bonds, fixed income derivatives and credit derivatives will be covered. With these building blocks in place, we will discuss bond portfolio management and construction.

Enforced Prerequisite at Enrollment: FIN 301 and FIN 420

FIN 430: Estate Planning

3 Credits

Liquidity planning, titling and transfer of property, trusts, federal unified tax system, gifting, incapacity planning, legal documents. FIN 430 Estate Planning (3) This course addresses estate planning issues for individuals as part of an overall personal financial plan. Personal financial planning encompasses budgeting, credit management, insurance, taxes, investments and retirement planning in addition to estate planning. The objective of this course is identifying and quantifying the goals of an individual regarding their final wishes and determining how best to meet those goals given the current applicable laws and the individual's situation. The estate administration and probate process are discussed along with common estate documents. The titling and transfer of assets as well as asset valuation are covered. Methods used to provide estate liquidity are presented. Common forms of trusts that are used in estate planning are introduced along with an overview of basic methods of transferring family owned businesses. Case studies are emphasized since estate planning is unique to each individual's situation. Some legal research is commonly incorporated into the course because estate planning is based on federal and state law. Student evaluation generally consists of examinations, individual and group assignments, quizzes, and case studies. Students desiring a career in financial services, law, or tax accounting should consider incorporating this course into their program of study.

Enforced Prerequisite at Enrollment: FIN 330 and (ACCTG 310 or ACCTG 405)

FIN 450: Retirement Planning

3 Credits

Retirement planning: qualified and non-qualified plans, characteristics, provisions, regulations administration, application approach with case studies. FIN 450 Retirement Planning (3) This course presents retirement planning from the perspective of a financial services practitioner. Students will develop a working knowledge of both qualified and non-qualified company retirement plans including plan characteristics, provisions, applications, and qualifications. Individual retirement plans will also be covered. Exposure to the regulatory and legal basis for plans will be provided. Application case studies will be integrated throughout the course. Emphasis will be placed on designing an appropriate plan given either an individual or a company situation.

FIN 451: Intermediate Financial Management

3 Credits

Case studies are used to develop skills in solving a variety of financial management problems. FIN 451 Intermediate Financial Management

(3) This course is designed to reinforce and extend the principles from its prerequisite, FIN 301, Corporation Finance. It is a required course for the Finance major. It will also serve as a business supporting course for students in other School of Business majors. Students will develop skills necessary to solve a variety of complex financial problems by applying statistical and analytical techniques and utilizing electronic spreadsheets. The course will enable students to develop a firm foundation in the principles of financial management and an understanding of how concepts in financial management are used in the valuation process. The topics are consistent with the knowledge required to prepare students for the relevant portions of Level I of the Chartered Financial Analysts (CFA) Exam. The course will address important financial management topics, including the methods of analyzing capital budgeting decisions and the unique problems they pose, long-term capital structure and dividend policy decisions, corporate financial analysis and forecasting, working capital management, and additional special topics in financial management.

Enforced Prerequisite at Enrollment: FIN 301

FIN 455: Quantitative Analysis for Business

3 Credits

This course provides students with working knowledge of some widely used quantitative methods, such as Monte Carlo simulations, t-tests, linear regressions, nonlinear regressions, regressions with dummy variables, and regressions with interacting explanatory variables, as well their applications in business. The course will focus on understanding and applying each method, but not on statistical theory or their proof. Monte Carlo simulations will be used to substitute for mathematical proofs. By the end of the course, students should understand the purposes of the above methods and how to use them to solve real estate, financial, marketing, and risk management problems. Students should also be able to interpret results in ways that are correct, insightful, and useful, should be aware of potential problems of each method, such as the omitted variable bias, multicollinearity, heteroskedasticity of regressions, and should know how to make corrections if these problems are present. Students should also have developed working knowledge of R, which is a programming language and software environment widely used by quantitative analysts. Students should know how to use R to conduct basic data manipulation, do simple Monte Carlo simulations, do t-tests, and run linear and non-linear regressions.

Enforced Prerequisite at Enrollment: SCM 200 or STAT 200

Cross-listed with: RM 475

FIN 456: International Capital Markets

3 Credits

This course develops understanding of international capital markets by striking a balance between institutional details, theoretical foundation and practical application. FIN 456 International Capital Markets (3) (IL) This course extends the issues of international finance into a framework for international investing. It is designed for students aspiring to be money managers and investors operating across national boundaries. Foreign travel enables students to contrast the micro-structure of financial markets in the United States. with those in other centers that play important roles in our global financial system. Students are also given an opportunity to learn about business, cultural, and political aspects of international investment. Besides class meetings on campus, students are assigned readings, videos, and research projects to be completed before the foreign experience component of

the course. While abroad, students visit specific sites and attend specific lectures that will enable them to complete further course work upon their return to the United States. Topics include the case for international asset diversification, international asset pricing, international stock, fixed-income, and derivative markets, and the process of international investing. Other materials will be specific to the foreign business center visited during the course. (The initial offering of this course included a visit to London where students toured the stock exchange and financial firms, attended lectures, and met with financial executives; this gave students exposure to a major international financial institution and the largest currency market in the world.) The travel portion requires additional costs to the student beyond tuition.

Enforced Prerequisite at Enrollment: FIN 301
International Cultures (IL)

FIN 460: Real Estate Financial Analysis

3 Credits

Debt and equity financing, capital structure, "creative financing," risk analysis, corporate asset management. FIN (R M) 460 Real Estate Financial Analysis (3) The objective of this course is to provide in-depth coverage of real estate investment and financing decisions. The focus is on the private market, including corporate asset management. Investment analysis moves from the basics of forecasting cash flows, through advanced topics including the impact of real option value on investment and development decisions. Risk measurement is given particular attention with a focus on sensitivity and simulation analysis. There is some coverage of asset pricing models like the Capital Asset Pricing Model, which is critically analyzed with respect to its applicability in real estate markets. The impact of illiquidity, management costs, and the suspicion of non-normally distributed returns are explored, as are the implications of relative market inefficiency. The financing module begins with the basics of mortgage debt mathematics, which is then extended to include comparisons of various repayment programs. Included are interest-only, balloon, shared appreciation, growing equity, graduated payment and reverse annuity loans, as well as various creative financing of commercial properties. The latter include participating mortgages, convertible mortgages, and mezzanine debt. Featured in the corporate asset management section is the lease/buy decision. Other topics may be addresses based on current events. It is anticipated that guest speakers will be invited where appropriate.

Enforced Prerequisite at Enrollment: FIN 305W or RM 303 or RM 330W
Cross-listed with: RM 460

FIN 461: Portfolio Management and Analysis

3 Credits

Investment policy and process, modern portfolio theory, portfolio construction, and portfolio performance measurement and evaluation. FIN 461 Portfolio Management and Analysis (3) The course provides a mix between theories and applications of portfolio management. The content is divided into five sections: (1) implications of the efficient market hypothesis and behavior finance in portfolio management, (2) investment policy and process, (3) diversification and modern portfolio theory, (4) portfolio performance measurement and evaluation and (5) bond portfolio management. After completing the course, students are expected to (1) demonstrate the importance of portfolio management under the efficient market hypothesis and behavior finance, (2) write an investment policy statement, (3) create an optimal portfolio, (4) manage

bond and equity portfolios, and (5) measure and evaluate portfolio performance.

Enforced Prerequisite at Enrollment: FIN 420

FIN 462: Intrieri Family Student Managed Fund - Fund Officer / Lead Analyst Practicum

1-3 Credits/Maximum of 4

Students provide leadership as an Officer or Lead Analyst for the Intrieri Family Student Managed Fund. Students conduct economic, industry, and company financial analysis to recommend investment portfolio decisions. In this course, students will provide leadership as an Officer and/or Lead Analyst for the Intrieri Family Student Managed Fund, an actual investment fund that currently holds a stock portfolio of approximately \$250,000. The student will serve as economic, industry, and security financial analysts and portfolio managers in concert with the Standards of Practice Handbook from the CFA Institute. These standards are integral to the curriculum for all three levels of the Chartered Financial Analyst exam.

Enforced Prerequisite at Enrollment: FIN 461 or approval of program

FIN 470: Real Estate and Capital Markets

3 Credits

Analysis of publicly-traded real estate of both the equity, (REITs) and debt (MBSs) sides. The course also provides international perspectives. FIN 470 / RM 470 Real Estate and Capital Markets (3) The objectives of this course are to expose the student and explore the issues associated with the analysis of "public" ("Wall Street") real estate, including both equities (such as Real Estate Investment Trusts or REITs) and debt vehicles (such as Mortgage-Backed Securities or MBSs). In addition, the course will focus on the increasingly globalization of real estate capital markets as the real estate sector becomes integrated into the global financial system. The differences between private and public real estate analysis will also be explored, including the suitability of traditional asset pricing models for real estate analysis. Topics include the growing impact of institutional real estate forces on the real estate sector, the use of modern financial economics methods to real estate including the concept of market efficiency, modern portfolio theory applications, market measures of risk and return, the use of option-based models, and other advances. The rise of Wall Street's interest in real estate securities is an important institutional development and serves as the underlying background for the analysis of MBSs using fixed-income security techniques. As globalization has spread, the real estate sector has moved with these changes and prospects for a global real estate market are examined and evaluated. This course serves as a compliment to FIN 460, which emphasizes traditional financial analyses of individual real estate projects. In FIN 470, real estate securities are viewed as a natural extension towards the complete integration of real estate and capital markets. In this sense, these courses will enable traditional and modern analyses of the real estate sector for years to come.

Enforced Prerequisite at Enrollment: FIN 305W or RM 303 or RM 330W
Cross-listed with: RM 470

FIN 471: International Finance

3 Credits

Financial decision making in an international environment. Emphasis on topics relevant to small businesses and entrepreneurs. FIN 471

International Finance (3) This course provides an understanding of the basic terminology, structure, and importance of international finance for corporations. It will also help enhance analytical and critical thinking skills. Topics of study include foreign exchange (FX), FX markets, FX instruments, FX risk, hedging of these risks, international debt and equity markets, etc.

Enforced Prerequisite at Enrollment: FIN 301

FIN 475: Financial Decision Making

3 Credits

Problems and cases in financial decision making for non-financial corporations and financial institutions. FIN 475 Financial Decision Making (3) The objective of this course is to tie together the various topics in finance such as corporate finance, investments, and financial institutions & markets. Using the variety of different analytical tools and techniques that students have been exposed to, they will - Evaluate the relationship between profitability and solvency of a firm. - Project the need for short term and long term financing. - Evaluate the various sources of financing and recommend the optimal. - Budget the capital that is raised to identify the profitable projects that capital should be invested in. - Evaluate different dividend policies to maximize value of a firm. - Carefully examine the risk-return tradeoff that portfolio managers face. - Study the relationship between assets and liabilities of financial institutions. - Critically evaluate synergies that are created in mergers and acquisitions.

Enforced Prerequisite at Enrollment: FIN 302 and FIN 420 and senior standing

FIN 476: Financial Ethics

1 Credits

In this one credit course, we explore ethical standards for financial analysts and portfolio managers as a part of the Standards of Practice Handbook from the CFA Institute. In this one credit course, we explore ethical standards for financial analysts and portfolio managers as a part of the Standards of Practice Handbook from the CFA Institute, which also serves as a part of the curriculum for all three levels of the Chartered Financial Analyst exams and both levels of the Chartered Alternative Investment Analyst (CAIA) exams.

Enforced Prerequisite at Enrollment: FIN 301

FIN 477: Behavioral Finance

3 Credits

This course will introduce students to behavioral finance, which is the intersection of psychology, economics, and finance. They will learn how individuals and firms make financial decisions and how these decisions might deviate from perceived rational or traditional choices. Students will explore the existence of psychological biases in financial decision-making and examine their impact on financial markets. The course will also explore the interplay of biases through a stock trading simulation.

Enforced Prerequisite at Enrollment: ECON 102 and PSYCH 100 and (PSYCH 200 or SCM 200 or STAT 200)

FIN 478: Advanced Financial Analysis

3 Credits

This seminar course covers the investment tools necessary to prepare junior professionals in the investment management industry. Students are exposed to economic foundations that underpin financial statement analysis, corporate finance, and portfolio management. The course focuses on advanced applications in traditional asset classes (such as equity and fixed income investments) and alternative investments (such as private equity and hedge funds).

Prerequisite: FIN 301, FIN 420; permission of program

FIN 480: Alternative Investments

3 Credits

This seminar course covers topics necessary for junior professionals to understand how alternative investments operate on a stand-alone and portfolio basis. Students are exposed to economic foundations and statistical properties common in non-traditional investments, the role of asset pricing and risk management, and advanced applications in real assets, commodities, real estate, hedge funds and managed funds, private equity, and structured products.

Enforced Prerequisite at Enrollment: FIN 301 and FIN 420 or Permission of program

FIN 491: Financial Planning Capstone

3 Credits

Critical thinking and decision-making about personal financial planning topics in the context of the financial planning process. FIN 491 Financial Planning Capstone (3) This capstone course is designed to reinforce and extend the principles from each of its prerequisite courses. The CFP Board of Directors are requiring the addition of this financial plan course as a requirement to CFP Board's educational standards to enhance the knowledge, skills and abilities of individuals seeking to attain the CFP® certification to deliver professional and competent financial planning services to the public. This course will engage the student in critical thinking and decision-making about personal financial planning topics in the context of the financial planning process. The purpose of this course is to both refine and develop the skills needed to become successful financial planners when working with individuals, families, and business owners in helping them to meet their financial needs and goals. This course will address the important financial planning topics listed in the previous section.

Enforced Prerequisite at Enrollment: FIN 330 and FIN 420 and FIN 430 and FIN 450

FIN 494: Research Projects

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

FIN 494H: Research Projects

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Honors

FIN 495: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: prior approval of proposed assignment by instructor

FIN 495A: Lead Fund Manager Practicum

3 Credits/Maximum of 6

FIN 495A Nittany Lion Fund – Lead Fund Manager Practicum (3 per semester/maximum of 6) A Lead Fund Manager is accountable for sector performance as well as sector output. This means that while the Lead Fund Manager has to be an effective delegator of work to his or her Associate(s), the manager must also have great attention to detail when reviewing all aspects of pitches, weekly reports, and earnings reports. A Lead Fund Manager focuses more on knowing the big trends in his or her overall sector and in each subsector. The Lead is the strategist for the sector. He or she has the responsibility of choosing what stocks to pitch in class and at PSIA meetings. This means that the Leads must constantly reevaluate not only their current portfolio, but the sector as a whole, in order to find where to best allocate their respective funds. Another major responsibility that a Lead Fund Manager has is to lead a group of anywhere from 10-50 PSIA members. While there are weekly educations for the PSIA analysts, it is one of the most important responsibilities of a Lead Fund Manager to provide support for the PSIA analysts to help them with their PSIA certification assignments. In addition to helping the analysts understand their weekly assignments, the Lead Fund Managers are also responsible for holding weekly sector meetings to give sector-specific educations to a smaller group of PSIA analysts. The goal for any Lead should be to get as many PSIA analysts as involved and interested as possible in PSIA. The interest generated should draw PSIA analysts to apply for entrance into the Nittany Lion Fund. PSIA is the feeder system for the NLF and making sure there are intelligent and motivated applicants each semester ensures that the investment group will continue to have a strong class going forward. Consequently, once the Lead Manager has developed analysts' interest in applying for the NLF, it is an unwritten responsibility of the Lead to help the applicants to become as best prepared as possible for the interviews (Associates are encouraged to help new applicants as well). In total, the role that the Lead plays is not just that of a figurehead, the Lead must be well informed of current events and trends within their sector, and they must be able to speak eloquently of their investment strategy when speaking in class, at PSIA meetings, or to investors at the yearly investment meeting.

Enforced Prerequisite at Enrollment: prior approval of proposed assignment by instructor

FIN 495B: Nittany Lion Fund - Executive Board Practicum

3 Credits/Maximum of 6

FIN 495B - Nittany Lion Fund - Executive Board Practicum (3 per semester/maximum of 6) The Executive Board practicum affords students with intense practical experience in oversight and performance of the Nittany Lion Fund (NLF). Executive Board members and Directors are accountable for all aspects of the NLF. An Associate Fund Manager is responsible for all work that is presented to his or her Lead Fund

Manager and in turn, a Lead Fund Manager is responsible for all work that is submitted for the Nittany Lion Fund (NLF) to view. While those are certainly tremendous responsibilities, an Executive Board Member is ultimately responsible for any and every document that leaves the Nittany Lion Fund, most of which are delivered to investors. It is the responsibility of the Executive Board to make sure that both the weekly news, and quarterly performance releases are flawless. Additionally, although the Lead Fund Managers are responsible for their individual sector's performance, the Executive Board is held responsible for the overall performance of the Nittany Lion Fund. This means that the Executive Board must do a number of things to keep performance awareness and accountability at high levels. Students in these executive positions are expected to ask excellent questions during stock pitches and be, in a sense, a devil's advocate for each pitch, making sure that there was proper due diligence and thought put into the strategy of the pitch. With regard to being accountable to investors, the Executive Board is responsible for conducting weekly conference calls with the NLF's investment committee as well as leading the yearly investor meeting. As for the PSIA, the Executive Board is responsible for booking locations for meetings, handling the funds for all club transactions, and developing and implementing the education for the analysts to become PSIA certified. Education is a very large part of the Nittany Lion Fund. An Executive Board Member is expected to utilize their past experience to provide helpful influence to other members of the Nittany Lion Fund as well as the large group of PSIA members. While the members of the Executive Board all have different responsibilities, in aggregate the group is responsible for the performance of Nittany Lion Fund as a whole, as well as being individual figureheads and spokesmen for the NLF.

FIN 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

FIN 496A: **SPECIAL TOPICS**

1-6 Credits

FIN 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

FIN 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Financial Services (FINSV)

FINSV 420: Estate Planning for the Financial Services Professional

3 Credits

Studies the processes relating to the use, conservation, and transfer of an individual's wealth; emphasizing investments, insurance and taxation. FINSV 420 Estate Planning for the Financial Services Professional (3) This course examines the why and how people plan for their retirement. The course examines the various aspects of estate planning: wills and

trusts, estate and gift tax planning, estate administration and taxation. The course guides the student in a step-by-step process through the entire estate planning process. Critical to the process is gathering the necessary financial facts, setting realistic objectives, and planning the requisite income tax and investment strategies. Students will utilize a range of personal financial statements and planning forms to assist in the gathering, organization, and use of pertinent data. This course has four objectives: (1) To understand the motives for why people plan for their retirement. Related to retirement planning is the disposition of the residual value of their estate in a financial and tax prudent manner. (2) To understand the process by which individuals explore the various decision options. The most frequently cited motivation for estate planning is to minimize the tax burden on beneficiaries and to maintain the integrity of the planning process. (3) Students are motivated to understand how estate planners manage their client's wealth portfolios. The increasing wealth of the baby-boomer generation and those that follow make this process more important than for earlier generations. (4) To help students prepare for the Certified Financial Planner certification exams. FINSV 420 is an additional course in the Financial Services Option of the Bachelor of Science in Business (BSB) program. It is a relatively sophisticated course and students who select FINSV 420 will complete it only after completing courses in investments, insurance, and taxes. Evaluation will normally take the form of examinations, a research project, and class participation. At most campuses, the course will be offered once per year.

Prerequisite: FINSV400, FINSV411

First-Year Seminar (CAP)

CAP 100: Orientation to the Undergraduate Experience

1 Credits

To facilitate transition of new students through active engagement and introduction to university and campus resources. CAP 100s CAP 100S Orientation to the Undergraduate Experience (2) This course, CAP 100S, which is a one-credit course, completes the Penn State Capital College's first year seminar. The overarching goal of the FYS is to provide students with an introduction to Penn State culture and resources, information literacy and collaboration skills needed for academic success, as well as an introduction to majors and careers relevant to the discipline. These core elements of the FYS will aid students in the professional/academic community both inside and outside Penn State University. The instructor will place emphasis on having students work in collaborative groups on academically themed project(s) deemed relevant to the discipline.

First-Year Seminar

Food Science (FDSC)

FDSC 105: Food Facts and Fads

3 Credits

This course is an introduction to the central role of food and food production in all areas of human life. The social and technological bases of various food systems are examined from the hunter-gatherer to the agrarian to the modern industrial system and its discontents. The course also considers how different types of food (e.g., meat, milk, cereals, chocolate) are preserved and distributed, examining both the effects of the development of the science and technology on society and vice versa. The roles of various food components (e.g., proteins, carbohydrates, fats, and vitamins) are examined both within the foods as determinants of

quality, and also in terms of human nutrition and health. Finally, various other ways food may be considered appropriate or inappropriate will be studied including scientifically based reasons (e.g., safety, taste, adulteration) and non-scientifically based reasons (e.g., ethical, legal, religious).

Cross-listed with: STS 105

Bachelor of Arts: Social and Behavioral Sciences

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

FDSC 134: Food, Values, and Health

3 Credits/Maximum of 3

This course studies the ethical and social issues connected to food, personal and cultural eating habits, body image and ideas of health, and agricultural practices and industrialized food production. We will discuss the following sorts of questions: In what ways are cooking and eating central to our human identity? What do judgments about being anorexic, overweight, or eating unhealthily mean and do? How strong are the arguments for vegetarianism, veganism, or raw-food-ism? Ought we to eat as our Paleolithic ancestors did? If the future holds engineered meat, GMO fruit, and Soylent shakes, what are we to think? Should food-companies be allowed to advertise to children? Is alcohol more like food, like medicine, or like drugs? Students will pursue answers to such food-ethical questions by learning relevant moral and social theory, discussing past and contemporary approaches to these issues, and analyzing case studies. We will pay particular attention to food as a symbol with psychological, social, and spiritual meanings and effects.

Cross-listed with: PHIL 134

Bachelor of Arts: Humanities

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Soc Resp and Ethic Reason

FDSC 150S: Food Science First Year Engagement

2 Credits

This first year seminar course was designed to facilitate transition into college with a particular emphasis on food sciences. This course is structured into two main modules, (1) general academic requirements (such as expectations) and (2) the field of food science. Topics related to fulfilling academic requirements provides students with resources related to academic advising, time management, student support services, getting to know the college, and student affairs. In the first module, our aim is that (1) students will be able to identify and understand opportunities that exist within academic-related support services at Penn State and (2) become familiar with major requirements and understand as well as interpret degree audits. In the second module, our aim is that (1) students understand what food science is, (2) identify and understand extracurricular and curricular opportunities within food science, and (3) identify and understand career opportunities within the food science field. Specific examples of topics related to module two are faculty huddle assignments (series of faculty-driven guest speaker series), hands-on activities related to food microbiology and safety, food engineering, food chemistry, and food choice, and team building challenge tasks (e.g., Chef Microbe and The Food Waste Challenge).

First-Year Seminar

FDSC 175: Careers in Food Science

2 Credits

Graduates in food science have the opportunity to pursue a range of careers in industry, academia or government. In this course students will interact with a range of food science professionals and explore their career paths. They will also develop professional skills relevant to applying for internships and permanent positions (e.g., resume development, interview techniques).

Recommended Preparation: Intended for students enrolled in or considering the Food Science major

FDSC 200: Introductory Food Science

3 Credits

General overview and principles; food constituents and properties; quality and safety; preservation methods; processing animal and plant products.

Enforced Prerequisite at Enrollment: CHEM 110

FDSC 201: Introductory Food Science Practicum

1 Credits

Demonstration to illustrate actual chemical reactions in food systems and visits to campus and area food processing operations.

Enforced Concurrent at Enrollment: FDSC 200

FDSC 205: Food Plant Sanitation

3 Credits

Organization and administration of food plant sanitation with emphasis on the production and maintenance of safe, wholesome food products.

Enforced Prerequisite at Enrollment: FDSC 200

FDSC 206: Improving Food Quality

3 Credits

Modern philosophies coupled with practical information on improving product quality, including topics on HACCP, SPC, recall procedures and customer relations.

Enforced Prerequisite at Enrollment: FDSC 200

FDSC 207: Animal Products Technology

2 Credits

Composition, safety, palatability, preservation, and processing of foods from animals, impact of animal production and handling practices on product properties. FDSC 207 / ANSC 207 Animal Products Technology (2) This course is intended to give students knowledge and understanding of production and processing of foods derived from animals (meat, milk, and eggs). Upon completion of this course students will be able to describe and explain the physical and biochemical characteristics of muscle foods, milk, and eggs. Students will be able to describe and compare harvesting, processing, and preservation procedures used in preparation of animal products for human consumption. Students will be prepared to predict the impact of variations in animal production, handling, harvesting, and product processing on meat, milk, and egg product characteristics. This is one

of a group of courses dealing with foods from animals. Related courses offered in Animal Science covers animal growth and development and evaluation of animals and meat products. Related courses in Food Science cover food microbiology, food chemistry, and meat and dairy processing technology. The content of this course is intended to emphasize the connection between animal production and the resulting food products. FDSC 207 / ANSC 207 is intended to be of general interest to people who produce or eat animal products and thus is an integral part of the Animal Sciences major. This course will also be useful for strengthening meat industry knowledge for students in Food Science. FDSC 207 / ANSC 207 will be offered one semester per year. Student performance will be evaluated through written exams, quizzes, and written reports.

Cross-listed with: ANSC 207

FDSC 208: Animal Products Technology Laboratory

1 Credits

Harvesting and processing of foods from animals; hands-on and demonstration exercises; industry procedures for processing meat, milk, and egg products. FDSC 208 / ANSC 208 Animal Products Technology Laboratory (1) This laboratory is intended to be taken along with or following Animal Products Technology lecture. Providing students with an opportunity to experience the procedures involved in harvesting and processing foods from animals. Upon completion of this course students will be able to describe, demonstrate, and explain procedures commonly used in harvesting and processing of muscle food, milk, and egg products. Students will be able to recognize and predict the impact of incorrect procedures for harvesting and processing muscle food, milk, and egg products. The course includes hands-on exercises and demonstrations that allow students to experience the "look and feel" of industry procedures used in harvesting and processing meat, milk, and egg products for human consumption. Focus on issues related to food safety and food quality. Student performance is evaluated through weekly written reports, and a final lab exam.

Enforced Concurrent at Enrollment: ANSC 207

Cross-listed with: ANSC 208

FDSC 223: Understanding Science Through Wine Beer and Bread

3 Credits

Fermented beverage production has been a driving force for scientific discovery and as such is a wonderful way to introduce areas of scientific knowledge. This course will use beer, wine, and other fermented products, as well as their ingredients to teach core scientific concepts. These concepts will include the biology of fruit development, the microbiology of wine and beer production, the physics of carbonated beverages, and the flavor chemistry induced through fire. Through these areas, students will learn critical thinking skills, as well as apply what they have learned to practical problems including utilizing some of the key mathematical equations used in beer and wine production. Upon completion, students will be expected to be able to understand key elements of fermented beverage production, along with the science behind it, and to be able to apply that knowledge to practical problems.

General Education: Natural Sciences (GN)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

FDSC 233: The Science of Winemaking

3 Credits/Maximum of 3

Introduction to the principles of wine production emphasizing basic wine grape biology, fermentation science, wine chemistry, and wine perception. FDSC 233 / HORT 233 provides an interdisciplinary treatment of the science of grape growing, vinification, and wine consumption. Students will learn how viticultural practices translate to wine chemistry, and how key variables associated with that conversion affect consumer perception. The course will cover topics such as basic grapevine physiology, vineyard management practices, vinification, domestic and international wine styles, and consumer interactions with wine (e.g., sensory evaluation, health aspects of wine). Although the course is considered to be introductory, students must have a basic grounding in university-level chemistry and biology. Course material will be primarily transmitted through lectures, reading assignments to be completed outside of class, and brief practical exercises in the Sensory Evaluation Center (Department of Food Science).

Enforced Prerequisite at Enrollment: CHEM 110 or BIOL 110
Cross-listed with: HORT 233

FDSC 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

FDSC 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

FDSC 400: Food Chemistry and Analysis (I)

3 Credits

The focus of this course is food macro-components (water, proteins, lipids, carbohydrates) as well as food structure (phase behavior, dispersions). Food micro-components are covered in FDSC 410. Students will enter the class with a basic knowledge of chemistry and leave understanding food as a chemical system. Students will learn the important molecules in foods and how their reactions are influenced by food processing and affect food quality. They will also learn how to select and implement appropriate methods to quantify the composition and reactions of food through chemical analysis. This course has a required laboratory component.

Enforced Prerequisite at Enrollment: FDSC 200 or FDSC 201 or CHEM 202
Enforced Concurrent at Enrollment: BMB 211 and BMB 212

FDSC 402: Supervised Experience in Food Science Teaching

1-3 Credits/Maximum of 5

Theories and experiences of teaching and learning relevant to food science and to the work of a teaching assistant. This course provides an introduction to the ways topics in food science can be effectively taught to diverse populations. Students will serve as a teaching assistant in a food science course and in addition meet regularly as a group to reflect on their experience as learners and teachers in the context of readings

from the educational literature. The focus on the class is on the teaching of food science topics, so special attention will be given on laboratory and project based learning as well as teaching to industry short courses and in the context of cooperative extension. This course is only available to students currently serving as undergraduate teaching assistants in food science and enrollment is by permission of the instructor.

Enforced Prerequisite at Enrollment: Junior or senior standing in food science. Permission of

FDSC 403: Sensory Data Collection & Analysis

3 Credits

The field of Sensory and Consumer Science is primarily focused on responses of consumers to food products and non-food fast-moving consumer goods (e.g., shampoo). These responses may be sensory/perceptual (i.e., how sweet, how bitter, how smooth) or affective (i.e., liking / preference), with the assumption that the former generally drives the later. Numerous tools have been developed by sensory practitioners over the last 70 years, with additional influences from experimental psychology. The course also addresses contemporary research on pedagogy that indicate applied statistics are best taught in context to the field in which students will apply the statistical concepts. Here, students will gain practice applying introductory statistical topics (t-tests, Analysis of Variance, etc) to sensory and consumer data collected from human participants.

Enforced Prerequisite at Enrollment: STAT 250 or STAT 240 or STAT 200

FDSC 404: Sensory Evaluation of Foods

3 Credits

Sensory evaluation of food, methods of test analyses, panel selection and training, taste sensation theory, consumer testing methods. FD SC 404 Sensory Evaluation of Foods (2) This course is designed to demonstrate how the senses function in the perception of tastes, flavors, and textures of foods and how sensory tests are used to measure human perceptions. Students will have the opportunity to design sensory tests and apply statistical methods when interpreting sensory test results. The overall objective of this course is to learn the theories and practical applications of sensory evaluation that will enable students to conduct valid sensory tests and use the test results in the decision making process in food product development. Evaluation will be based on written essay exams, group reports, and written lab reports in which they will be expected to demonstrate their understanding of theoretical issues regarding sensory testing and how to use statistical procedures to effectively interpret the test results. This course is a support course for the Food Science major.

Enforced Prerequisite at Enrollment: STAT 250 and Junior standing

FDSC 405: Food Engineering Principles

3 Credits

Engineering principles of importance to food manufacturing, including units, dimensions, mass and energy balance, fluid flow, rheology, heat transfer, and psychrometrics. FD SC 405 Food Engineering Principles (3) Food engineering will discuss the principles of the various unit operations used in the food processing and manufacturing industry. Topics covered will include: units, dimensions, mass and energy balance, fluid flow, rheology, heat transfer, psychrometrics. Through lectures, the student will learn the principles of fluid flow, heat transfer and mass transfer as applied to food processing and manufacturing operations.

Through practicum sessions, the student will be exposed to practical applications in the above three areas. Additionally, they will learn to analyze experimental data, organize and communicate thoughts in a logical fashion through cooperative and collaborative learning strategies, and to write effective lab reports. Through practicum sessions, they will also learn numerical problem solving and to size and select equipment for fluid flow, heat transfer and drying operations within the food industry. Student evaluation within this course will be conducted through weekly quizzes, home works, lab write-ups and three exams. This is a required course for the food science major. This course serves as a prerequisite for several 4th year required courses within the food science major.

Enforced Prerequisite at Enrollment: MATH 110 and PHYS 250 Enforced Concurrent at Enrollment: FDSC 200 and FDSC 201

FDSC 406W: Physiology of Nutrition

3 Credits

Physiological mechanisms involved in thirst and appetite, digestion, absorption, utilization of nutrients, respiration, and body temperature regulation.

Enforced Prerequisite at Enrollment: BMB 211 Enforced Concurrent at Enrollment: FDSC 200 or FDSC 201
Writing Across the Curriculum

FDSC 407: Food Toxins

3 Credits

Food Toxins focuses on natural and synthetic toxins that are relevant to the food system including those produced by food plants; those introduced by contamination of foods by microbes, non-food plants, or environmental/agricultural chemicals. The course provides an overview of basic principles of toxicology and the approaches used to study the potential toxicity of a compound. Using this foundational information, the course explores the sources, biological effects, and mechanisms of action of various classes of food-relevant toxins including: plant defense molecules, agricultural chemicals (pesticides/herbicides), industrial chemicals, environmental contaminants, microbial toxins, and process-induced toxins. Student knowledge will be assessed using a combination of exams, projects, and in-class discussion activities.

Enforced Prerequisite at Enrollment: BMB 211 and 7th Semester standing or higher

FDSC 408: Food Microbiology

3 Credits

Food Microbiology focuses on the application of microbiological principles to foods and food ingredients. Topics covered include: potential for microbial growth in a particular food or food ingredient based on the following parameters - biological structure, nutrient composition, naturally occurring inhibitors, pH, water activity, oxidation reduction potential, temperature, atmosphere conditions and humidity; choice of appropriate microbial detection methods for groups of organisms and foodborne pathogens; identification of types and the consequence of growth of pathogens and non-pathogens associated with particular commodities; evaluation of the effect of different processing conditions on the destruction, survival and growth of spoilage and pathogenic microorganisms; identification of significant factors affecting the association of pathogens with food and food ingredients, events leading to infection and/or intoxication, and prevention and

control of foodborne illness; comprehension of the importance of food microbiology in everyday living. Student knowledge will be evaluated through examinations and other class activities

Enforced Prerequisite at Enrollment: MICRB 201 Enforced Concurrent at Enrollment: FDSC 200 and FDSC 201

FDSC 409: Laboratory in Food Microbiology

2 Credits/Maximum of 2

Methods of isolation, detection of spoilage, pathogenic microorganisms in foods; effects of processing and preservation on survival of food microorganisms. FD SC 409W Laboratory in Food Microbiology (3) Food Microbiology Laboratory is intended to demonstrate microbiological concepts through the appropriate use of equipment and laboratory procedures. The laboratory focuses on the practical application of microbiological principles to foods and food ingredients based on the following experiences: development of proficiency in using selected microbiological techniques currently employed in regulatory, quality control and research laboratories; performance of specific microbiological analyses of foods to assess numbers and kinds of spoilage organisms or foodborne pathogens; evaluation of the effects of several processing methods on growth and survival of microorganisms. The course emphasizes problem solving and critical thinking as manifested by communication skills (such as writing); scientific analysis of data, including statistics where applicable; and usage of primary scientific sources in the food microbiology literature. Practical laboratory skills are assessed through measurement of proficiency Evaluation will be conducted via projects and examinations throughout the semester. this course is required for Food Science majors. Practical laboratory skills are assessed using written lab reports, projects, and examinations.

Enforced Prerequisite at Enrollment: MICRB 202 Enforced Concurrent at Enrollment: FDSC 200 and FDSC 201 and FDSC 408

FDSC 410: Food Chemistry and Analysis (II)

3 Credits

The focus of this course is food micro-components (enzymes, allergens, secondary metabolites, contaminants, etc.) as well the major chemical reactions occurring in foods (lipid oxidation, thermal reactions). They will also learn how to select and implement appropriate methods to quantify the composition and reactions of food through chemical analysis. This course has a required laboratory component. This is the second part of a two-course sequence with food macro-components and structure being covered in the pre-requisite, FDSC 400.

Enforced Prerequisite at Enrollment: FDSC 200 and FDSC 201 and BMB 212 and FDSC 400

FDSC 411: Managing Food Quality

3 Credits/Maximum of 3

Principles and applications of Hazard Analysis Critical Control Points. Statistical tools for the control and improvement of food quality. FD SC 411 is an introduction to organizational and HACCP concepts related to quality food production. FD SC 200, FD SC 201, STAT 250 and FD SC 408 are the prerequisite courses for FD SC 411. It is expected that students will have a understanding of the following statistical concepts: measures of central tendency and variability, use of histograms, discrete probability distributions (binomial, Poisson), random variables, continuous probability distributions (the normal distribution), the Central

Limit Theorem, confidence interval estimation, means comparison, correlation, simple linear regression, use of scatter diagrams, intrinsic and extrinsic factors governing microbiological growth, the basis of food preservation techniques, knowledge of specific food-borne pathogens and the products they are commonly associated with, and basic microbial testing procedures. The course will include practice in the form of problem sets and "mini-labs" and provide time for recitation. In addition, it will allow the students to pursue the following topics: root cause analysis (1 period), design of experiments (5 periods), and shelf life determination (4 periods).

Enforced Prerequisite at Enrollment: FDSC 200 and FDSC 201 and FDSC 408 and STAT 250

FDSC 413: Science and Technology of Plant Foods

3 Credits/Maximum of 3

Investigate the physical and chemical behavior of plant-based raw materials and ingredients, with emphasis on parameters influencing finished product quality. FD SC 413 Science and Technology of Plant Foods (3) This course focuses on the unique importance of foods produced from plants to human health and wellness. The influence of cultural practices, harvesting and handling methods and processing technology on quality and safety of whole, fresh and processed food products using minimal processing and fermentation to preserve food products from plant sources will be emphasized.

Enforced Prerequisite at Enrollment: FDSC 200 and FDSC 201. And at least 2 of the following 400 level courses: FDSC 400 or FDSC 405 or FDSC 408 or FDSC 410

FDSC 414: Science and Technology of Dairy Foods

3 Credits/Maximum of 3

Investigate the physical and chemical behavior of dairy-based raw materials and ingredients, with emphasis on parameters influencing finished product specifications. FD SC 414 Science and Technology of Dairy Foods (3)FD SC 414 provides students with information about the composition, properties and physiochemical aspects of milk and milk products and an understanding of the changes that occur in milk during processing into a variety of dairy products. Laboratory exercises are held weekly and complement the topic being addressed in lecture. A semester-long group project is conducted during the course to help students integrate knowledge gained throughout the Food Science Curriculum. The project focuses on a "real life" product development problem and requires students to develop problem statements, design experiments, design formula and processing schemes, obtain ingredients and actually manufacture a product. Time is allotted in the laboratory schedule for some group activities; other are scheduled outside of class.

Enforced Prerequisite at Enrollment: FDSC 200 and FDSC 201. And at least 2 of the following 400 level courses: FDSC 400 or FDSC 405 or FDSC 408 or FDSC 410

FDSC 415: Science and Technology of Muscle Foods

3 Credits/Maximum of 3

Investigate the physical and chemical properties of muscle food commodities, with emphasis on muscle-based ingredients in formulated foods. FD SC 415 Science and Technology of Muscle Foods (3)This course applies food science and technology to the processing, storage and handling of red meat, poultry, and seafood products. The course

includes two lectures and one lab session each week. The laboratory sessions are conducted in the Meat Laboratory located on Porter Road. Student performance is evaluated based on exams, lab reports, and homework exercises. Course objectives are set to: 1. help students understand the nature and importance of structure, compositional and quality differences among muscle food ingredients and their impact on product manufacturing, 2. inform students of the basic steps of primary processing for livestock, poultry and seafood species and their impact on meat properties, 3. give students first-hand experience with typical manufacturing steps and processes for fresh, cured, smoked, fermented, dried or cooked meats and help them understand how variations in processing will affect finished product properties, and 4. give students practice in applying the scientific method in answering questions or solving problems that may arise during the manufacture of muscle foods products. Course activities draw on the students' prior knowledge of food chemistry, food engineering, food microbiology and food analysis, applying concepts from those disciplines in the manufacture and evaluation of meat products. Course topics cover the range from meat science through technical and practical aspects of meat product manufacture including product quality, safety, profitability and regulatory issues. There is emphasis on meat industry practices including traditional and recent technology. Through laboratory exercises and independent group projects students gain experience in application of the scientific method for solving product development problems.

Enforced Prerequisite at Enrollment: FDSC 200 and FDSC 201. And at least 2 of the following 400 level courses: FDSC 400 or FDSC 405 or FDSC 408 or FDSC 410

FDSC 417: Food Laws and Regulations

3 Credits

This course provides a perspective to the principles and practice of food law and regulation as they impact the work of a food scientist. Food law will be discussed with reference to the roles of politics, culture, ethics (including social justice issues), science and business. The learning approach to this course uses case studies, problem solving, class discussions, and review of current topics. While some examples will be globally relevant, the focus of the course is on the regulation of food in the US.

Enforced Prerequisite at Enrollment: FDSC 200 and FDSC 201 and 6 credits from FDSC 400, FDSC 404, FDSC 405, FDSC 406, FDSC 408, FDSC 409, FDSC 410, FDSC 411, FDSC 413, FDSC 414, FDSC 415
Recommended Preparation: 7th semester standing

FDSC 422: Communicating Research in Agricultural Sciences

1 Credits

This course provides opportunities to develop effective communication skills within the context of scientific research. Students participating in independent studies with faculty mentors will use their independent research projects as the subject of a series of exercises that will enhance their abilities to share scientific ideals and findings with a variety of audiences including grant writing, poster presentations, and both technical and non-technical oral presentations about research topics. This course will prepare students for graduate school and, importantly, provide students with a set of skills that would be applicable to any career.

Cross-listed with: AG 422

FDSC 430: Unit Operations in Food Processing

3 Credits

Thermal processing, refrigeration, freezing, dehydration, and concentration in the food industry, including effects on food quality; food packaging; waste management. FD SC 430 Unit Operations in Food Processing (3) Unit Operations in Food Processing will discuss major unit operations used in the food processing and manufacturing industry. Topics covered will include: thermal processing, microwave heating, extrusion, food packaging and waste management. Through lectures, the student will learn the principles of selected unit operations in food manufacturing, and the effects of input and operational parameters on performance and food quality. Through practicum sessions, the student will be exposed to practical applications in the above areas. Additionally, they will learn to analyze experimental data, organize and communicate thoughts in a logical fashion through cooperative and collaborative learning strategies, and to write effective lab reports. Through practicum sessions, they will also learn numerical problem solving and to size and select equipment for food manufacturing operations. Student evaluation within this course will be conducted through weekly quizzes, home works, lab write-ups and two exams. This is a required course for the food science major.

Enforced Prerequisite at Enrollment: FDSC 405 and FDSC 400 and FDSC 408

FDSC 444: Arguing about Food

3 Credits

The food science major seeks to educate students in the sciences and technologies important in the industrial manufacture of food and food scientists tend to value foods in this context. Food is good if it can be manufactured at scale, distributed and sold at a profit. The qualities of the food can be defined in largely physical terms (e.g., price and costs, free from pathogens, certain levels of defined nutrients, good sensory scores, stability, and uniform and predictable properties). However, deservedly or not, food attracts more ethical attention than other goods. For food scientists to fail to appreciate the different values, theirs and others, that impact arguments about food is harmful for (i) the food scientists themselves who may feel conflicted if they cannot resolve their personal preferences for food (perhaps local and organic) with the value set of their profession. (ii) the quality of the public conversation around food if scientists and technicians cannot usefully contribute their perspectives and (iii) the food companies that employ the scientists and who seek to make and sell products acceptable to a set of consumers. The first part of the course will focus on some foundational ideas useful to all controversies. A background in toxicology (or, if most of the projects are around the healthfulness as opposed to the risks of food, nutrition), epistemology in science, critiques of sciences, science as a social construct, ethics. The second part of the course will use current controversies to examine the ways different values combine with empirical scientific facts to create arguments about foods. Students are not taught to 'win' arguments but rather examine how they are structured and why they are appealing to different people. Students will use concepts from social science and philosophy (ethics, epistemology) to critique the strong normative opinions of guest speakers and readings. Throughout the course they will work in groups around projects on specific current controversies related to the formulation or manufacture of foods. They will collect and critique the scientific facts available and then respond to the speakers/readings by generating multiple different

arguments reflecting the different perspectives ('how might the speaker think about my case?').

Enforced Prerequisite at Enrollment: FDSC 200

FDSC 450: Food Innovation and Product Design

3 Credits

This course provides upper-level undergraduate students in the Food Science major with project-based learning experience in food innovation and product design. Working in small groups, students will use their foundational and technical knowledge in food science to address a new product challenge of interest to the food industry sponsor or an equivalent client. Student groups will complete their new product design experience based on one of the challenges provided. They will design and produce an actual new product prototype that will be evaluated by the course instructor, industry sponsor and qualified individuals as appropriate. While a large percentage of the work will be performed in a laboratory setting (students will spend an average of 3 hours/week in laboratory engaged in product design-focused projects assigned by company sponsors in the Department of Food Science Wet Pilot Plant), all students enrolled in FDSC 450 will also meet as a group with the course instructor each week. Weekly discussion topics will address themes such as project and team management, market trends, effective teamwork, concept and prototype development, experimental design, recipe management and shelf life as well as what it is like to work in product development in the food industry. Final project reports are due during finals week.

Enforced Prerequisite at Enrollment: FDSC 200 and FDSC 201 and 6 credits from FDSC 400, FDSC 404, FDSC 405, FDSC 406, FDSC 408, FDSC 409, FDSC 410, FDSC 411, FDSC 413, FDSC 414, FDSC 415, FDSC 417

FDSC 460: International Food Production

1 Credits/Maximum of 3

FDSC 460 / INTAG 460 is designed to give food science undergraduate and graduate students an appreciation of how food is produced and processed abroad. Students participate in a number of production facility tours, interact with local food scientists and food technologists, and gain valuable international experience. A major point of emphasis for the course is comparing and contrasting food production norms in the U.S. and the host country or region. The course consists of pre-trip lectures and meetings and culminates in a faculty-guided embedded study tour. Prior to the travel component of the course, students work in small groups to research a specific food product that is of economic and cultural importance to the country or region of interest, then write reports to be presented in-country before a tour of the related product's production facility. The course integrates and builds upon core concepts in food chemistry and food microbiology; as such, FDSC 460 / INTAG 460 is targeted towards upper-level food science undergraduate students, as well as food science graduate students.

Enforced Prerequisite at Enrollment: FDSC 200 and Permission of program

Cross-listed with: INTAG 460
International Cultures (IL)

FDSC 494H: Honors Thesis

1-6 Credits/Maximum of 6

Independent study directed by a faculty supervisor that culminates in the production of a Food Science honors thesis.

Enforced Prerequisite at Enrollment: Junior or senior status in the Schreyer Honors College and permission of the Food Science honors advisor
Honors

FDSC 495: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: Prior approval of proposed assignment by instructor
Full-Time Equivalent Course

FDSC 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

FDSC 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

FDSC 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Food Systems (FDSYS)

FDSYS 407: The Sustainable Fork: Food Systems Decisions for Away-From-Home Eating

3 Credits

The course will incorporate economic and managerial dimensions to the discussion of food decisions in foodservice away-from-home eating contexts, particularly emphasizing the behavioral aspect of decisions - how individuals (consumers, providers, managers) make choices in the food system, and what might be the consequences of these choices. The course will use evidence from multiple farm-to-fork perspectives to allow students to analyze food systems problems and solutions. It will also require students to engage directly with the local food service system through course projects and tours. The major topics of discussion will be organized under each of the value chain components of the farm-to-fork continuum: production, distribution, purchasing, preparation, and consumption. Specific topics under each of these value chain components will include: nutrition, food safety, food waste, sustainable practices, social justice, consumer utility, economic profits, ethics, government policy, and decision-making. In particular,

the course will be motivated by economic theories such as: agency relationship, information asymmetry, transaction cost economics, and behavioral economics topics such as self-rationing, and time discounting.

Enforced Prerequisite at Enrollment: C or better in HM 101 or C or better in AGBM 170 or C or better in AGBM 170N

Cross-listed with: HM 407

FDSYS 442: Changing Food Systems: Comparative Perspectives

3 Credits

The course begins with an overview of the scope of food systems and an orientation to interdisciplinary and community - based approaches for understanding and addressing social and ecological problems and potential changes in food systems. Two weeks are dedicated to reviewing selected challenges facing the food and agricultural system to underscore the complexity of these issues and illustrate how they have been approached and analyzed by different disciplinary fields. The next two weeks of the course are devoted to critical exploration of theoretical and policy models for understanding how food systems function and change. These conceptual and analytical tools are then applied in three subsequent course modules, focused on 1) Changing Agricultural Production Systems; 2) Changing Food and Farm Work; and 3) Changing Food Consumers and Eaters. Each of these three - week modules will focus on 3 - 4 cases of change efforts either led from "above" through government policies or business initiatives or from "below" by grassroots groups or social movements. Cases will be selected to compare and contrast U.S. contexts with other international contexts and to highlight the diverse experiences and perspectives across racial - ethnic, class, cultural and gender differences within the food and agricultural system. The course will conclude by synthesizing ideas and insights about the limitations and potentials of different approaches to food systems change. In the last week of class, students will also give "lightning talks" distilling their learning about food systems change through an individual semester long field - project with a local or regional community group, business, agency or farm.

Enforced Prerequisite at Enrollment: AGBM 170

Cross-listed with: CED 442

FDSYS 490: From Agriculture to Culture: Perspectives on your food from seed to plate

1 Credits

This course explores a diversity of contemporary topics of the food system, as well as current and emergent career opportunities. Emphasis is on the multi-disciplinary and interdisciplinary nature of work inherent to many careers throughout the food value chain. The food system has received greater public attention over the past 15-20 years as we face increasingly complex challenges of environmental resource quality and quantity; climate change impacts; health, hunger and malnutrition; and distributional equity and ethics of the food. Beyond growing public awareness and interest, the need exists for fuller knowledge about complexity and change across the food system. The course provides a framework where students see the food system as a comprehensive value chain encompassing producers, processors and distributors who jointly deliver food to consumers, and do so embedded in community, cultural, institutional and regulatory contexts that are variously supportive or constraining of the multiple goals for the food system. During the course, a combination of in-class presentations by food systems stakeholders, reading of relevant literature and reflection

on students' own immersive experiences in the food system will expose students to issues and opportunities along the entire value chain.

Enforced Prerequisite at Enrollment: FDSYS 495

FDSYS 495: Internship

1-18 Credits/Maximum of 18

FDSYS 495 is an internship experience with a food systems related organization or entity. This individualized course includes three components: a proposal of the individualized internship, developed in conjunction with the sponsor organization, to be approved by a supervising faculty member and the minor coordinator before registering for the course; the completion of the internship experience, monitored by the sponsor organization and supervising faculty member; and a written and/or oral presentation detailing the internship experience. The course is designed to help students refine their skills in problem solving, critical reflection, systems thinking, community engagement, and oral and written communication.

Enforced Prerequisite at Enrollment: Instructor Permission

Forensic Arts (FRNAR)

FRNAR 100: Introduction to Forensic Photography

3 Credits

This course will explore the principles of forensic photography and photographic methods, and discuss the procedures and standards that differentiate forensic photography from "artistic" photography and other methods of documentary photography. Through readings, analysis and photographic practice, this course will explore the fundamentals of photography, including lighting, image quality, composition, and more. Students will then apply and implement these fundamentals in forensic settings, for evidence documentation such as accidents, injuries, fingerprints, footprints, and bloodstains. Students will follow the standards and guidelines created by Scientific Working Groups in the taking of these images.

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

FRNAR 200: Intermediate Forensic Photography

3 Credits

The emphasis of FRNAR 200 is the Category 1 Forensic Photography. This course builds upon FRNAR 100, which focuses on the standards and guidelines for First Responder Forensic Photography. This course requires that the student have access to a DSLR camera with memory, multiple types of lenses and adjustable settings meeting a minimum set of requirements, which will be provided in an updated syllabus each year. In addition, the student must acquire supplies and equipment typically used by the Forensic Photographer. These may include camera accessories, forensic rulers, flashes, and filters. The student will also be responsible for creating forensic photography scenarios and may have to be creative in assembling the necessary items. Through readings, analysis and photographic practice, this course will explore the basics of DSLR photography, and then apply and implement these fundamentals in forensic settings. Students will follow the standards and guidelines

created by the Scientific Working Groups in the taking of images and evidence documentation for crime scenes, motor vehicle accidents, impressions and imprints, and victim photography. In two-week modules, students will take photographs to fulfill assignments; after critique (either peer or instructor), the students will re-take the photographs correcting errors. Successful students will complete the course with images and scenarios that can be used for their forensic photographer portfolio.

Enforced Prerequisite at Enrollment: FRNAR 100

Forensic Science (FRNSC)

FRNSC 100: Introduction to Forensic Science

3 Credits

This course is designed for students to step into the role of a criminalist, one who performs the scientific examination of evidence - as they process a case from start to finish over the semester. Students begin by learning a scientific approach to crime scene investigation, evidence collection, and transport. They then follow the collected evidence as it is disseminated throughout the crime lab for examination and analysis. Disciplines such as forensic serology, trace evidence, impression evidence, drug chemistry, toxicology, and DNA will be discussed. Students will learn about the examinations performed by crime lab professionals; the application of scientific principles from disciplines such as biology, chemistry, physics, and math to those exams; and the instrumentation commonly used in the lab to complete those examinations and analyses. Once the evidence has been processed, students will use critical thinking skills to interpret the evidence within the context of the case. They will reconstruct the crime as it could have occurred guided by the results and conclusions generated from their analyses. Students will also explore the role of various scientific disciplines outside of criminalistics (anthropology, entomology, pathology, etc.) as they are used in modern forensics, as well as the role of forensic science in society and the criminal justice system.

General Education: Natural Sciences (GN)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

FRNSC 200: Introduction to Crime Scene Investigation

3 Credits

This course offers an exploration of the science, management, and investigative techniques for the field of crime scene investigation. Students will develop the intellectual skills needed to plan for and organize a crime scene investigation, including crime scene approach and management; how to be tenacious when recovering and developing evidence; prescribing and amending crime scene search plans; making competent use of limited time, human, and other resources; and understanding and accounting for chain of custody. Throughout the course, students will employ the philosophies and practice of science to the investigation of crimes. Each student will understand the nature and value of each kind of physical evidence and how to recognize, collect, and preserve it. They will generate hypotheses of crimes based on evidence and use deduction in a scientific manner. Students will learn to prescribe recovery and development cascades for: fingerprints, trace evidence, impression evidence, and biological evidence, as well gain an understanding of the science behind the methods used for each type of evidence. The advantages, disadvantages, and limitations of these

methods will be discussed. Additionally, students will gain experience by performing crime scene investigation exercises that enhance their understanding of the science and methodology discussed, including processing a mock crime scene.

General Education: Natural Sciences (GN)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

FRNSC 210: Essential Practices of Forensic Science

3 Credits

Practices of forensic science including documentation, microscopy, communication of results, and integration of concepts from other sciences, mathematics, and statistics. FRNSC 210 Essential Practices of Forensic Science (3) In this course, students will learn the essential practices of forensic science and criminalistics. The necessity of an objective, rigorous, scientific approach in a forensic investigation will be stressed. This course will prepare students to understand the foundation of forensic science practice including the basic knowledge required to understand the nature and origin of physical evidence, preservation of the physical evidence record, forensic microscopy, and communication of results. This course uses an intensive, problem-solving style and through practical exercises, students will be introduced to * Documentation techniques including measurements, notes, sketches, photography, and other techniques * Basic microscopy and forensic microscopy * Verbal and written communication of forensic findings The primary aims of the course are to * Introduce students to scientific philosophy, integrity, forensic science, criminalistics, basic practices of forensic science/ criminalistics, and the role of the criminalist as they relate to a forensic investigation * Prepare students for advanced 400-level courses in forensic science and criminalistics.

Enforced Prerequisite at Enrollment: FRNSC 100 and CHEM 110 and CHEM 111

FRNSC 294: Research Projects

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

FRNSC 295: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

FRNSC 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

FRNSC 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

FRNSC 400: Courtroom Proceedings and Testimony

1 Credits

Introduction to courtroom proceedings and testimony as they related to forensic science. FRNSC 400 Courtroom Proceedings and Testimony (1) Classroom discussions will focus on the structure and procedures of the courtroom, the role of its members, admissibility issues, and how testimony is presented in court. Students will read transcripts from actual forensic cases, will discuss how the evidence was presented in court, and will have an opportunity to present data in mock proceedings. At the end of the course, students will have a strong understanding of how courts operate regarding the introduction of forensic evidence. The course is relevant to any forensic science student who has taken FRNSC 201 and 301, and should be taken either concurrent with or before FRNSC 401. Any student in the Forensic Science major who has an interest in obtaining employment in a private forensic company or a local, state or federal law enforcement agency will benefit greatly from this course. This is a 400-level forensics course for students in the Forensic Science major. It will also satisfy a requirement for accreditation by the Forensic Science Education Programs Accreditation Commission (FEPAC).

Enforced Prerequisite at Enrollment: FRNSC 411 and FRNSC 413

FRNSC 410: A Scientific Approach to Crime Scene Investigation

2 Credits

Principles of crime scene investigation with emphasis on scientific philosophy, concepts, and procedures. FRNSC 410 A Scientific Approach to Crime Scene Investigation (2) In this course, students will learn many of the essential principles and techniques of crime scene investigation. The necessity of a rigorous scientific approach will be stressed. This course uses an intensive, problem-solving style to teach scene management and the recognition, evaluation, enhancement, documentation, control, and collection of physical evidence. Students will be introduced to: * Scene management principles * Search techniques * Techniques to recognize, enhance, document, and collect various types of physical evidence * Communication of procedures and results * Scene reconstruction and its role in a scientific investigation The primary aim of the course is to immerse students in the scientific philosophy, integrity, scene investigation procedures, criminalistics, and role of the criminalist as they relate to scene investigation.

Enforced Prerequisite at Enrollment: FRNSC 210 and (STAT 200 or STAT 250)

FRNSC 411: Criminalistics: Trace and Impression Evidence

3 Credits

Laboratory-based examination of forensic evidence; microscopy, classification and identification. FRNSC 411 Criminalistics: Trace and Impression Evidence (3) Laboratory-based examination of physical evidence typically recovered from crime scenes. Examination of physical evidence will occur according to established forensic procedures, including the location of trace evidence and performance of presumptive and confirmatory tests. Students will establish a laboratory notebook to document their findings. Since forensic testing ultimately results in testimony in a courtroom, students will prepare written reports of their findings and learn how to present their findings in a courtroom setting. The course will concentrate on microscopy (stereo, transmitted light, polarized light, and comparison), physical and chemical techniques to classify evidence, and pattern matching techniques to individualize

impression evidence. The course is relevant to any student majoring in Forensic Science or who has an interest in obtaining employment in local, state, or federal law enforcement agencies and crime lab facilities.

Enforced Prerequisite at Enrollment: FRNSC 210 and (STAT 200 or STAT 250) and (PHYS 212 or PHYS 251)

FRNSC 412: Laboratory in Criminalistics: Trace and Impression Evidence

1 Credits

Laboratory-based examination of forensic evidence; microscopy, classification and identification. Criminalistics: Trace and Impression Evidence Laboratory-based examination of physical evidence typically recovered from crime scenes. Examination of physical evidence will occur according to established forensic procedures, including the location of trace evidence and performance of presumptive and confirmatory tests. Students will establish a laboratory notebook to document their findings. Since forensic testing ultimately results in testimony in a courtroom, students will prepare written reports of their findings and learn how to present their findings in a courtroom setting. The course will concentrate on microscopy (stereo, transmitted light, polarized light, and comparison), physical and chemical techniques to classify evidence, and pattern matching techniques to individualize impression evidence. The course is relevant to any student majoring in Forensic Science or who has an interest in obtaining employment in local, state, or federal law enforcement agencies and crime lab facilities.

Enforced Prerequisite at Enrollment: FRNSC 210 and (STAT 200 or STAT 250) and (PHYS 212 or PHYS 251) Enforced Corequisite at Enrollment: FRNSC 411

FRNSC 413: Criminalistics: Biology

3 Credits

Laboratory-based examination of forensic evidence; biological fluid identification, hair microscopy. FRNSC 413 Criminalistics: Biology (3) Laboratory-based examination of biological evidence typically recovered from crime scenes. Examination of biological evidence will occur according to established forensic procedures, including the identification of biological evidence and the performance of presumptive and confirmatory tests. Students will establish a laboratory notebook to document their findings. Since forensic testing ultimately results in testimony in a courtroom, students will prepare written reports of their findings and learn how to present their findings in a courtroom setting. The course will concentrate on the analysis of biological such as human blood, semen, saliva, urine, fecal matter and hair; including the employment of chemical, biological, and biochemical techniques to classify evidence. The course is relevant to any student majoring in Forensic Science or who has an interest in obtaining employment in local, state, or federal law enforcement agencies and crime lab facilities.

Enforced Prerequisite at Enrollment: FRNSC major and FRNSC 210 and (BIOL 230W or MICRB 202 or BMB 251 or BIOL 240W)

FRNSC 415W: Laboratory in Crime Scene Investigation

2 Credits

Laboratory course covering crime scene investigation with emphasis on scientific philosophy, concepts, procedures, problem solving, and hands-on activities.

Enforced Prerequisite at Enrollment: FRNSC 410

Writing Across the Curriculum

FRNSC 419: Firearm and Tool Mark Examination

3 Credits

Laboratory-based examination of forensic evidence; firearms, tool marks, shooting reconstruction and related evidence. FRNSC 419 Firearms and Tool Marks Examination (3) Laboratory-based examination of firearms-related evidence typically recovered from crime scenes. Examination of physical evidence will occur according to established forensic procedures, including the microscopic comparison and performance of chemical enhancement techniques. Students will establish a laboratory notebook to document their findings. Since forensic testing ultimately results in testimony in a courtroom, students will prepare written reports of their findings and learn how to present their findings in a courtroom setting. The course will concentrate on classification and microscopic comparison of impression evidence (bullets, cartridge cases and tool marks), serial number restoration, gunshot residue processing, muzzle-to-target distance estimation and shooting incident reconstruction. The course is relevant to any student majoring in Forensic Science or who has an interest in obtaining employment in local, state, or federal law enforcement agencies and crime lab facilities.

Enforced Prerequisite at Enrollment: FRNSC 210 and FRNSC 411

FRNSC 420: Advanced Molecular Biology for Forensic Scientists

3 Credits/Maximum of 3

Classroom discussions will focus on advanced aspects of molecular biology, including as they relate to forensic DNA analysis. The course will start with an overview of molecular structures (i.e., DNA, RNA, and proteins) and an advanced discussion of DNA topology, macromolecular interactions, and chromatin formation. From there, discussions will move from replication, mutation, mutation repair, and recombination, to transcription and translation, and then to regulation of gene expression. This latter topic will include an advanced discussion of microRNAs and how they can be used to distinguish body fluids in forensic DNA laboratories. At the end of the course, students will have a strong understanding of molecular biology concepts and tool, and how they relate to forensic DNA analysis. Recitation and active learning sessions will be used to reinforce the material. The proposed course is relevant to any forensic science student who has taken BMB 251/MICRB 251, BIOL 230W, BMB 251H, or BIOL 230M and CHEM 212 or CHEM 212H, and is required for Forensic Science majors who elect to complete the biology option. Genetics takes a different lens into molecular biology with a focus on problem-solving that is an important foundation for forensic science and would provide foundations (both skills and concepts) for this proposed course. FRNSC 420 serves as a prerequisite for FRNSC 421W, Forensic Molecular Biology, as it lays the foundation of advanced molecular biology concepts that forensic DNA reply upon, including molecular tools employed by forensic molecular biologists. In addition, this course is for any student who has an interest in obtaining employment in a local, state or federal law enforcement agency and/or crime laboratory facility, as it is a requirement to have a molecular biology course for employment and advancement in a forensic DNA laboratory.

Enforced Prerequisite at Enrollment: (BIOL 222 or BIOL 322) and (BMB 251 or MICRB 251 or BIOL 230W or BMB 251H or BIOL 230M) and (CHEM 212 or CHEM 212H)

FRNSC 421W: Forensic Molecular Biology

4 Credits

Classroom discussions will focus on the application of molecular biology techniques to forensic DNA analysis. The course will start with a history of forensic biology techniques and move quickly to modern day techniques (e.g., STR analysis). Laboratory analysis will include population samples and mock evidence samples. Students will expand their knowledge of population genetics and fine tune their practical laboratory skills. Students will learn about laboratory safety, quality assurance and control, and ethics. They will evaluate results from actual forensic DNA cases, discuss how evidence is presented in court, and have the opportunity to present their data in mock deposition proceedings. Laboratory exercises will result in the preparation of courtroom ready materials (data, documents, and demonstrations). Many of the classroom discussions will be problem solving exercises designed to emphasize specific applications of laboratory analysis. At the end of the course, students will have a strong understanding of forensic STR analysis on relevant forms of biological evidence, and how to convey their findings in written and oral formats. In the laboratory, students will have analyzed different sample types, interpreted complex DNA profiles, prepared laboratory reports and case files, and presented their findings in mock testimony proceedings. As a result, students will have the basic skills necessary to work in a forensic molecular biology crime laboratory. The proposed course is relevant to any science student who has taken FRNSC 420, BMB 401, and BMB 442, and any student in the Forensic Science major who has an interest in obtaining employment in a local, state or federal law enforcement agency and/or crime laboratory facility. This is a 400-level forensics course that is required for students in the Forensic Science major who elect to complete the biology option.

Enforced Prerequisite at Enrollment: BMB 401 and BMB 442 and FRNSC 413 and FRNSC 420
Enforced Corequisite at Enrollment: FRNSC 400

Writing Across the Curriculum

FRNSC 425: Chromatography and Spectroscopy in Forensic Science

3 Credits

FRNSC 425 will provide the student with understanding in essential instrumentation for chemical analysis. The first section in the course will be dedicated to separation technology which is of paramount importance for further chemical analysis. A thorough understanding of chromatographic theory and practical applications will be gained with respect to High Performance Liquid Chromatography, Gas Chromatography and Solid Phase Extraction techniques. Since forensic determinations (both qualitative and quantitative) require a spectroscopic technique for proof of chemical structure, the second two thirds of the class will be dedicated to Mass Spectrometry followed by Spectroscopic methodologies for chemical analysis. The section on Mass Spectrometry will focus on both Electron Impact Mass Spectrometry which is used for confirmation testing as well as quantitation and soft-ionization Mass Spectrometry including tandem mass spectrometry methodology used with Liquid Chromatography. The final section of the course will provide a theoretical background of the electromagnetic spectrum and how it interacts with matter. Instrumentation techniques to be presented including X-Ray techniques (such as X-ray Photoelectron Spectroscopy, Scanning Electron Microscopy), Ultraviolet techniques (including Atomic Absorption, Ultraviolet (UV) Colorimetric techniques, Inductively Coupled Plasma with Optical Emission detection, General UV detection methods) and Vibrational techniques (Including Raman Spectroscopy and Infrared

Spectroscopy). The student will gain a thorough understanding of instrumental chemical analysis used in forensics laboratories.

Enforced Prerequisite at Enrollment: (CHEM 202 or CHEM 210) and CHEM 227

FRNSC 427W: Forensic Chemistry

4 Credits

Analytical and instrumental methods used in the forensic sciences with special emphasis on the analysis and characterization of trace evidence. Forensic chemistry is a classroom and laboratory based course designed to introduce the student to the forensic analysis of trace evidence according to established forensic procedures. The trace evidence can include paint, fire debris, glass, controlled drug substances, blood alcohol analysis, fibers, smokeless powders, inks/dyes, gunpowder, and low explosives. The focus of the course will be on identifying and understanding the nature of the samples, common sample preparation methods, chemical and analytical instrumental methods, and proper collection and storage of evidence. The course will simulate the methods in a standard forensic chemistry laboratory. The analytical methods will include microscopical, spectroscopic, trace elemental, and chromatographic analytical tools that are commonly used in these laboratories. The course will rely heavily on the students' knowledge and skills that have been learned or acquired during their studies in the pre-requisite course work. The pre-requisite knowledge include, but are not limited to: algebra, calculus, general chemistry, organic chemistry, analytical chemistry, basic statistics, polarizing light microscopy, spectroscopy theory, chromatography theory, proper evidence handling practice, and good writing skills. All of these knowledge areas are represented in the required pre-requisite courses which are CHEM 213 AND CHEM 227 AND (FRNSC 411 OR CHEM 431W).

Enforced Prerequisite at Enrollment: CHEM 213 and CHEM 227 and (FRNSC 411 or CHEM 431W)

Cross-listed with: CHEM 427W

Writing Across the Curriculum

FRNSC 460: Medicolegal Death Investigation

3 Credits

This course will introduce students to the concepts of medicolegal death investigation and the operations of a medical examiner or coroner's office. Topics will include determining cause and manner of death, issuing a death certificate, making death notification, forensic autopsy, typical postmortem findings in common natural and unnatural deaths, mortuary procedures, cultural differences in death rituals, mass casualty events, and others. Relevant learning objectives will be in alignment with the training standards of the American Board of Medicolegal Death Investigators (ABMDI). An optional Saturday field exercise will be conducted in which students can have the opportunity to practice many of the skills learned in class including scene assessment, witness interviewing, family death notification, and transport of the body to the morgue. This may also include a visit to the morgue and/or funeral home. The course will involve much active learning, group activities/discussions, and both individual and group quizzes. Students will be expected to prepare for class by completing assigned readings and pre-lecture activities. Instructor lecturing will be limited to approximately 30% of class time.

Enforced Prerequisite at Enrollment: FRNSC 410 and (FRNSC 411 or FRNSC 413)

FRNSC 475: Forensic Science Seminar

1 Credits

Presentation and discussion of special issues in forensic science; extension and application of background knowledge to unusual topics and cases.

Enforced Prerequisite At Enrollment: FRNSC 411 or FRNSC 413
Recommended Preparation: FRNSC 410

FRNSC 485: The Profession of Forensic Science

2 Credits

This course will prepare students to make the transition to professional careers in forensic science and allied fields. The primary goals of this course are to: · Prepare students for the process of seeking and obtaining professional employment in forensic science or an allied field. In addition to standard employment practices, these activities (lectures and exercises) include behavioral-based mock interviews, preparation for background investigations and civil-service employment practices. · Develop professional standards and practices in forensic science which will not only prepare students to enter the field, but to excel and advance throughout their careers. These activities will include discussions of laboratory operations, quality assurance/quality control, professional conduct, ethical reasoning and laboratory safety. · Finalize students' education in forensic science and criminalistics through activities in case integration. The case integration activities prepare students to incorporate available information into the investigative process and to serve as consultants to the criminal justice system. · Prepare each student to sit for a comprehensive exam, to include the full content of coursework across the scope of the Forensic Science Program. This will be administered using the Forensic Science Assessment Test (FSAT) offered by the American Board of Criminalistics (ABC) or its equivalent.

Enforced Concurrent at Enrollment: FRNSC 421W or FRNSC 427W

FRNSC 485W: Coalescence of Forensic Science Concepts.

4 Credits

Advanced concepts in criminalistics as they apply to criminal and civil investigations.

Enforced Prerequisite at Enrollment: FRNSC 411 and FRNSC 413 and FRNSC 415W or Concurrent: FRNSC 421W and FRNSC 427W
Writing Across the Curriculum

FRNSC 490: Traceology & Event Reconstruction

3 Credits

This course will explore the knowledge and methods relevant to traceology and the scientific reconstruction of events. Traceology will be compared and contrasted with historical and experimental science; rigorous utilization of the scientific method will also be discussed. Philosophical topics will include scientific inductivism and falsificationism, the two primary methods used to evaluate hypotheses, and other epistemological approaches to the pursuit of knowledge and truth. A significant portion of the course will be devoted to the knowledge and techniques necessary to identify and sequence discrete actions

that comprise events including the analysis of blood deposits, firearm evidence including ballistics, and other traces.

Enforced Prerequisite at Enrollment: FRNSC 411 and FRNSC 413 and FRNSC 415W

FRNSC 494: Research Projects

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

FRNSC 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

FRNSC 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Forest Technology (FORT)

FORT 100: Introduction to Forestry

1 Credits

A general introduction to forest ecology, history, management, and practices.

First-Year Seminar

FORT 105: Forest Measurements

3 Credits/Maximum of 3

FORT 105 is a first year, three credit course required for the completion of the associate degree in Forest Technology. The course covers the techniques, procedures, and equipment used to measure tree and forest parameters, including various forest products. The course also covers statistical concepts and sampling and includes the use of current computer software. The course includes lectures and students improve their skills in weekly field lab exercises. The course objectives include that students learn the principles, techniques, tools, and technologies used in forest measurements, the use of statistics as related to forest measurements, to prepare and write comprehensive, professional reports, and to work cooperatively as a crew member under field conditions by always performing accurate, safe work, and by following directions and assignments of the instructor.

FORT 110: Forest Inventories

3 Credits

Application of forest mensuration, mapping, GIS, sampling, and statistical analysis to the inventory of forest resources. FORT 110 Forest Inventories (3) FORT 110 is a 3-credit, field-lab-oriented course that is a continuation of FORT 105 (Forest Mensuration) and builds upon other forestry, math, and English courses. Students will apply the principles of tree measurements to the inventory of forest resources. The major inventory systems will be covered as well as sampling techniques and statistical

analysis of data. The management and stewardship of forest resources depends upon the collection, analysis, and conveyance of quantitative and qualitative data that describe forest resources. The data is used to make informed, science-based management decisions concerning the growth, health, and/or volume of forest resources. The basis of the course is learning how to plan, conduct, coordinate, and summarize forest inventories. The course objectives are for students to develop an understanding of sampling techniques and statistical analysis in the inventory of forest resources, learn how to use forest inventory systems currently used in natural resource management, conduct inventories that are cost-efficient and that meet predetermined sampling standards, learn to accurately and efficiently process and compute inventory data by hand and computer, learn to prepare and write comprehensive, professional cruise, and inventory reports for supervisors and/or clients, and learn to work well as a member of an inventory crew under field conditions. Conducting accurate and safe work, following directions, and the assignments of supervisors and instructors is imperative. Course grades will be based on lecture exams, a cumulative final, quizzes, lab reports, assignments, and class attendance and participation.

Enforced Prerequisite at Enrollment: FORT 105

FORT 140: Forest Surveying

3 Credits/Maximum of 3

Plane surveying for forestry applications using compass, survey equipment, and GPS; topographic map reading, deed research, and land descriptions. FORT 140 Forest Surveying (3) FORT 140 is a three-credit, field-lab-oriented course that reinforces the skills gained in FORT 130 (Forest Mapping Systems) and MATH 081 (Technical Mathematics). Students will apply the principles of mapping and mathematics to land surveying techniques used by forest technicians and foresters. The course objectives are for students to learn to measure horizontal and vertical angles and distances in the field, perform boundary, topographic, and road surveys, use USGS topographic maps, and become proficient with deed and boundary research. Course grades will be based on exams, quizzes, lab reports, assignments, and class attendance and participation.

Enforced Prerequisite at Enrollment: MATH 21

FORT 150: Dendrology

3 Credits

Taxonomy, identification, ranges, and uses of important U.S. timber species and lesser vegetation of a regional nature. FORT 150 Dendrology (3) FORT 150 is a first-semester, 3-credit course for students in the Forest Technology program as well as interested students in other academic programs. It is a field course that is focused on taxonomy, nomenclature, ecology, and silvics of common forest plant species. Students are exposed to native and introduced to plant species in south central Pennsylvania. Scientific names, common names, geographic ranges, and economic importance are taught. Students learn to identify plants by key characteristics: arrangement, bark, buds, flowers, fruits, general form, and leaves. Basic plant biology as well as ecological relationships are covered. Information learned in this course serves as the foundation for future courses, including FORT 110 (Forest Inventories) and FORT 160 (Silvicultural Practices). Course objectives are for students to gain an understanding of the rules of scientific nomenclature, to know the meanings of scientific terms used in dendrology, to identify 100-plus different woody plant species, to know ranges and site requirements for major species, and to know and be able to spell correctly the common

and scientific names (family, genus, and species) of plants. Grading and course structure will be based on daily field quizzes, a mid-term examination, and field and written final examinations.

FORT 160: Silvicultural Practices

3 Credits

Principles and techniques of forest establishment, culture, and regeneration systems. FORT 160 Silvicultural Practices (3) FORT 160 is a second-semester, three-credit course in the Forest Technology program. It builds upon the knowledge of silvics introduced in FORT 150 (Dendrology). It combines the tools of FORT 105 (Forest Mensuration) with basic ecology and enables students to understand the processes and management alternatives in the forest ecosystem. This is a lecture class supplemented with weekly field laboratory sessions. The lab sessions allow students to experience silvicultural practices through design and implementation. The course objectives are for students to develop an understanding of silvics of North American forests, to understand silvicultural relationships, and to be able to write and administer silvicultural prescriptions. Course grading will be based on lecture exams, a cumulative final, lab reports, assignments, and attendance and participation.

Enforced Prerequisite at Enrollment: FORT 150

FORT 170: Forest Harvesting and Operations

3 Credits

Forest harvesting and intermediate operations: forest worker safety, hand and power tools, harvest planning, and best management practices. FORT 170 Forest Harvesting and Operations (3) FORT 170 is a three-credit, applied field-oriented course in the Forest Technology curriculum. Students will be introduced to woods safety and the identification of hazards; the safety and use of hand and power tools used in forest harvesting and intermediate operations; and logging equipment safety, maintenance, and operation. Axes, crosscut saws, chain saws, heavy logging equipment including logging skidder, bulldozer, and woods tractor will be used. Students will work in crews to complete a forest harvest or thinning operation from beginning to end including forest inventory and stand analysis; the use of best management practices; the development of an erosion and sedimentation plan; harvest planning and layout; forest stand marking; and the harvest of the marked forest stand. Daily performance is evaluated based upon safety, effort, and motivation, skill improvement, cooperation, and attendance. Course grades will be based on quizzes, assignments, and daily performance.

Enforced Concurrent at Enrollment: FORT 110 and FORT 160

FORT 175: Forest Products Industry Tour

1 Credits

Field tour of local and regional forest products industries. FORT 175 Forest Products Industry Tour (1) FORT 175 is a 1-credit, field-based course in the Forest Technology curriculum. The course is offered in the 4-week summer intersession following completion of the second semester. It provides students with the opportunity to visit and tour forest products industries. Tours of sawmills, pulp and paper facilities, plywood factories, and other manufacturing industries are incorporated into a 3-to 4-day field trip in the Mid-Atlantic region. This course provides a basic understanding of forest products industries for FORT 250 (Forest Management Practices). The course objectives are for students to develop an understanding of general industrial and manufacturing

sectors of forestry and to learn and apply basic concepts of business, economics, and management in relation to forest products. Course grades will be determined by the level of participation at each forest products industry visited and by the quality of trip reports.

Enforced Prerequisite at Enrollment: FORT 110 and FORT 160

FORT 200: Wood Identification and Properties

1 Credits

Anatomy of wood and bark; cell wall formation and composition; and identification of wood by gross and microscopic qualities. FORT 200 Wood Identification and Properties (1) FORT 200 is a third-semester, one-credit course at Mont Alto. It will introduce students to the basic concepts of the anatomical properties of wood and bark cells. Students taking this class will learn: basic information on tree form and structure; basic information on cell wall chemical composition, formation, and structure. A significant part of the course will be learning to identify and differentiate selected hardwood and softwood species from gross and microscopic characteristics. The course objectives are for students to gain an understanding of wood formation and structure and to be able to identify assigned wood samples from gross and/or microscopic characteristics. Grades will be determined from weekly quizzes in wood identification and exams on lecture material.

FORT 210: Arboriculture

3 Credits

Selection, planting, care, and maintenance of woody ornamental plants and shade trees grown in urban, suburban, and rural landscapes. FORT 210 Arboriculture (3) FORT 210 is a third-semester, three-credit forestry elective in the Forest Technology curriculum. The course is recommended for students who have a basic knowledge of tree/plant identification and forestry but with the instructor's permission is open to third-semester-standing students interested in arboriculture. A significant portion of the course includes labs where tree-climbing skills are taught using climbing saddles, ropes, and applicable hardware. Course objectives include an understanding of the importance of the urban-community forest, the importance of trees and woody plants, how they grow and how to care for them. Students will gain the basic knowledge and experience needed for employment in the field of urban forestry and arboriculture. Course grades will be based on assignments, lecture exams, a final examination, lab performance, and reports and quizzes.

Enforced Prerequisite at Enrollment: Second-year standing

FORT 220: Forest Ecosystem Protection

4 Credits

Principles and concepts involved in managing the forest ecosystem in regard to fires, insects, and diseases. FORT 220 Forest Ecosystem Protection (4) FORT 220 is a third-semester, four-credit course that builds upon information learned in FORT 150 (Dendrology) and FORT 160 (Silvicultural Practices). This course will provide students with tools to identify and understand the effects of insects, disease, and fire on individual trees, forests, and ecosystems. They will learn signs and symptoms of insects and disease, integrated pest management principles, tactics of fire suppression, and will complete the PA-130 wildland fire training course. Emphasis is placed on recognition, prevention, and control of insects and pathogens. A case-study approach is used for the major pest problems of the northeastern United States. Course objectives include development of assessment

and diagnostic skills for major plant pests, recognition of signs and symptoms of abiotic and biotic disease, knowledge of integrated pest management, basic fire behavior and control techniques, and development of verbal and written communication skills. Course grading will be based on scheduled lecture exams and quizzes, a final comprehensive examination, lab reports, and participation.

FORT 230: Introduction to Remote Sensing

2 Credits

Remote sensing technologies applied to forest resource analysis and management. FORT 230 Introduction to Remote Sensing (2) FORT 230 is a third-semester, two-credit course that explores the applications of aerial photography in forest and natural resource management. Both black-and-white and infrared photographs at diverse scales will be used. Photographic measurements of distance, area, and elevation will be studied. The use of aerial photos in ecological classification, forest vegetation mapping, and forest inventory will also be covered. Lab exercises will include forestry operations such as logging road layout, timber harvest mapping, and property boundary mapping. Linkages with global positioning system (GPS) and geographic information systems (GIS) will be stressed. The course objectives are for students to develop skills in interpreting and using aerial photos for forest resource management. Grading will be based on tests, quizzes, lab exercises, and student participation.

Enforced Prerequisite at Enrollment: GEOG 160 and GEOG 161

FORT 240: Forest Soils and Hydrology

3 Credits

The study of forest soils and hydrology, especially as they are affected by forest management activities. FORT 240 Forest Soils and Hydrology (3) FORT 240 is a fourth-semester, three-credit course in the Forest Technology program. The course includes the study of soils and forest hydrology, especially as they are affected by forest management activities. Land reclamation activities in the reclamation and re-vegetation of disturbed sites found in the coal mining areas of Pennsylvania are also considered. This course uses outdoor and indoor labs to reinforce material discussed in lectures. Course objectives are for students to develop an understanding of the physical, chemical, and organic properties of soils, of forest hydrology, and the impacts of forest management activities of the reclamation process and activities, and of the importance of soil and water resources and their conservation. Course grades will be based on scheduled quizzes, lab reports, assignments, lecture exams, a cumulative final, and attendance and participation.

Enforced Prerequisite at Enrollment: Second-year standing

FORT 250: Forest Management Practices

3 Credits

Practical techniques for implementing management plans for forest stands under various ownerships and management regimes. FORT 250 Forest Management Practices (3) FORT 250 is a capstone course in the forest technology program taught in the fourth semester. It will give students the opportunity to use the various skills they have learned in other courses to develop management plans for forests managed with varying objectives. Concepts of valuation, timber procurement, and discounted cash flow will be covered. Regulatory, management certification, public sector, and private sector management issues will also be explored. The skills will be applied as students work on a

semester-long management plan of a selected forest tract. The objective of the course is for students to develop skills in creating and executing forest management and timber harvesting plans in forest stands. Course grades will be based on quizzes, homework, laboratory exercises, management plans, and exams.

Enforced Prerequisite at Enrollment: FORT 110 and FORT 160

FORT 260: GIS for Natural Resources Management

3 Credits/Maximum of 3

Geographic Information Systems technology including mapping and GIS data management procedures with emphasis on natural resource management applications. FORT 260 GIS for Natural Resources Management (3) In this course, students will acquire the basics of spatial data analysis using geographic information systems technology. The course will cover acquiring data, manipulating databases, and displaying the results to solve spatial analysis problems. Problems will come largely from natural resources sciences and forest management. GIS is rapidly becoming a standard technology in many disciplines that use data having a spatial component. Students with knowledge and experience in GIS may improve their job prospects significantly.

Enforced Prerequisite at Enrollment: GEOG 160 and GEOG 161

FORT 295: Forest Technology Internship

1-4 Credits/Maximum of 4

Supervised field experience related to the student's major.

Enforced Prerequisite at Enrollment: Permission of program

FORT 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

FORT 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest

FORT 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Forestry (FOR)

FOR 150S: First-Year Seminar

2 Credits

The objectives of this first-year seminar course are to: (1) Engage and prepare first-year college students for academic success by orienting them to the scholarly community and introducing them to available academic resources. (2) Introduce students to Pennsylvania's forests and some of the research and other activities currently underway at

Penn State that supports the conservation and management of these resources. (3) Introduce students to strategies they can use while at Penn State to prepare for careers related to forestry, wildlife/fisheries, and other natural resources disciplines.

Cross-listed with: WFS 150S

First-Year Seminar

FOR 200: The Profession of Forestry

1 Credits

Introduction to the profession of forestry and related career opportunities.

FOR 201N: Global Change and Ecosystems

3 Credits

Ecosystems across the planet are facing unprecedented pressures and changes as society seeks to support continued population growth and increasing standards of living. The course provides students with a general understanding of global change, ecosystems, and linkages among them. This course: 1) Surveys the diversity of Earth's ecosystems, considering life on land and water and linkages among terrestrial and aquatic ecosystems. 2) Explores human drivers of global change, including climate, land use, and pollution. 3) Presents major environmental issues confronting humanity and the natural world. 4) Considers ecosystem and societal responses to climate change. 5) Considers options for mitigating and adapting to climate change in ecosystems, toward sustainability. 6) Develops critical thinking skills, considering the many relationships between society and natural systems.

Recommended Preparations: 3 credits of science

General Education: Natural Sciences (GN)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

FOR 203: Field Dendrology

3 Credits

Field identification of native and introduced trees and shrubs. FOR 203 Field Dendrology (3) This course establishes the basic skills of woody plant and tree species identification necessary for students of natural resource management, ecology, and natural history. The objectives of the course are for students to 1) recognize many of the common woody plant species encountered in Pennsylvania (and the region) and the taxonomic traits used in their identification, 2) employ the diagnostic skills useful for woody plant identification, including the use of dichotomous keys, and 3) identify resources for identification and continued study of woody plants in Pennsylvania and the region. This field-based course introduces native, ornamental, and invasive woody plant species in a diversity of landscapes including forested, urban, suburban, and riparian areas.

FOR 204: Dendrology

2 Credits

Taxonomic and silvical characteristics, ranges, genetic relationships, and uses of important forest tree species.

Enforced Prerequisite at Enrollment: FOR 203 or FORT 150

FOR 228: Chainsaw Safety, Maintenance, and Operation in Forest Management

1 Credits

This course covers the detailed use of the modern chainsaw. The course begins with safety and personal protective equipment (PPE), Occupational Safety and Health Agency (OSHA) regulations, saw selection, and an introduction into safe saw handling skills and techniques. The course then transitions to saw maintenance and proper care of the chainsaw, and then to a hazard recognition, mitigation, and avoidance component that addresses both the work site and the resource being harvested and processed. Once these objectives have been understood, the remaining two-thirds of the course focuses on the practice of chainsaw handling skills and techniques that are necessary for safe operation. This course has an extensive hands-on, experiential learning component in actual tree-felling and processing in the forest, including on-site discussion of harvesting as a forest management tool. The course concludes with training in proper log manufacturing, including scaling and grading of the harvested resource. Efficient recovery of the timber resource that minimize damage on the residual stand is emphasized. (In the B.S. program in Forest Ecosystem Management, this course counts only as an Elective.)

FOR 242: Elements of Project Supervision in Forestry

3 Credits

Supervisory techniques developed through an understanding of the behavioral sciences applied to field forestry personnel management.

FOR 255: GPS and GIS Applications for Natural Resources Professionals

3 Credits

FOR 255 GPS and GIS Applications for Natural Resources Professionals (3) FOR 255, GPS and GIS Applications for Natural Resources Professionals, teaches students to apply Global Positioning Systems (GPS) and Geographical Information Systems (GIS) in the management of natural resources. Students learn how GPS works and how to use GPS to find locations in the field and to capture spatial data and transfer it to a GIS system. Students learn how GIS data are structured and how to find, use and edit existing GIS databases and to create new ones. They learn to use various software applications to work with and analyze GIS databases, including both spatial and non-spatial data, to address a variety of natural resources management questions and issues. Finally, they learn to present spatial information in a map that effectively communicates information relevant to a variety of natural resources situations.

FOR 266: Forest Resources Measurements

4 Credits

This course focuses on the collection, analysis, and presentation of quantitative and qualitative data that describe forest resources and are used in the management and stewardship of forest resources. Sampling techniques, procedures, and equipment used to measure trees and forest parameters, including various forest products, are covered, as is statistical analysis of data. Students learn how the data provides the basis for making informed, science-based management decisions concerning the growth, health, and/or volume of forest resources.

Enforced Prerequisite at Enrollment: FOR 203 or FORT 150 Enforced Concurrent at Enrollment: (FOR 255 or FORT 260 or WILDL 211) and (STAT 200 or STAT 240 or STAT 250)

FOR 295: Forestry Internship

1-4 Credits/Maximum of 4

Supervised field experience related to the student's major.

Enforced Prerequisite at Enrollment: Permission of program

FOR 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

FOR 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

FOR 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

FOR 303: Herbaceous Forest Plant Identification and Ecology

3 Credits

This course focuses on developing herbaceous plant identification skills with emphasis on important plant structural features, common taxonomic terms, dichotomous keys, and botanical nomenclature. This course provides a practical, applied approach to understanding biological and ecological concepts relevant to plants occurring in forested environments. Human dimensions and ethnobotany, and relevant economic, management, and conservation issues are also included, along with the methods by which botanists collect and preserve plant specimens for historical documentation and research purposes.

Enforced Prerequisite at Enrollment: 3 credits in BIOL or BISC or FOR or FORT or HORT or PLANT

FOR 308: Forest Ecology

3 Credits

FOR 308 FOR 308 Forest Ecology (3) This class will provide the basic concepts of forest ecology and silvics. The class will emphasize (a) community concepts such as sampling, succession, productivity, disturbance, and animal factors, (b) ecosystem concepts such as nutrient and energy cycles and plant-soil relationships, and (c) environmental factors such as light, temperature, moisture, and pollution, and their effects on individual tree species and community structure and function. Other special topics of interest (allelopathy, seed behavior, tropical forests, etc.) will be included as time permits. The class will also include a field component that allows students to observe the effects of various conditions or treatments on forest community structure and growth, and

to practice field methods commonly used to measure site factors and environmental processes in forest communities.

Enforced Concurrent at Enrollment: FOR 203 or FORT 150

FOR 320: Forest Fire Management

2 Credits

This course will cover the principles and concepts involved in managing forest ecosystems in regard to fire. It will enable students to think analytically and operationally about fire in forested landscapes, taking into account a complex of physical/biological factors, management objectives, and public interest. Fire behavior, fire ecology, and environmental impacts of fire will be studied. This course includes concepts behind both wildfire suppression and prescribed fire planning.

FOR 350: Forest Ecosystem Monitoring and Data Analysis

3 Credits

Quantitative approaches for characterization, monitoring, and comparison of forest ecosystems. FOR 350 Forest Ecosystem Monitoring and Data Analysis (3) The overall goal of this course is to provide students with opportunities to develop a quantitative approach to the management and conservation of forest ecosystems. The course comprises three sections, each of a different length. The first section reviews descriptive statistics and basic concepts needed to understand sampling design in the context of forest ecosystem monitoring and data analysis. The second section addresses concepts and steps for designing a monitoring plan, and sampling designs for forest ecosystem monitoring. Sampling designs discussed include (but are not limited to): simple and stratified random sampling, double sampling, and cluster sampling. The third section covers data analysis and modeling tools. Students are expected to know two-sample inference, correlation analysis, analysis of variance and linear regression. The focus of this third section is on the application of these to forest ecosystem issues. The course also covers concepts of statistical model development, selection, and evaluation. Students will develop an understanding of strengths and limitations of using statistical models for forest ecosystem management and conservation. Finally, a broad overview of spatial statistical analysis will be offered. The objective is for the students to know about available tools and be able to look for more information. Major emphasis is placed on case studies and real-world data.

Enforced Prerequisite at Enrollment: C or higher in STAT 200 or STAT 240 or STAT 250

FOR 370: Watershed Ecohydrology

3 Credits

Watershed Ecohydrology is an interdisciplinary scientific field that studies the interactions between water and ecological systems. This course presents foundational concepts in ecohydrology of watersheds, considers coupled hydrological and ecological processes that shape water quality and watershed health, and explores ecohydrology as a tool for the sustainable management of freshwater resources. Examples will be drawn from forested watersheds at multiple spatial and temporal scales.

Enforced Prerequisite at Enrollment: SOILS 101 or 3 credits of CHEM

FOR 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

FOR 400: Senior Forest Practicum

2 Credits

Application of forest management concepts and principles. Students will collect, analyze, and interpret forest management data and present project solutions.

Enforced Prerequisite at Enrollment: FOR 203 and FOR 255 and FOR 266 and FOR 308 and FOR 421 and ECON 102 and SOILS 101 and (STAT 200 or STAT 240 or STAT 250)

FOR 401: Urban Forest Management

3 Credits/Maximum of 3

Nature's role in community development, landscapes, arboriculture, administering urban forestry programs, land-use planning and regulatory policy, open-space conservation, civic environmentalism. The purpose of this course is to provide a broad exploration of planning for and managing trees and natural landscapes to support development of community. Healthy natural resources such as air, water, soil, and vegetation are critical components of community development. Students will explore arboriculture practices, goal-oriented urban forest management, land use planning and regulatory policy, and civic environmentalism. They will learn about ecosystem services of trees and landscapes; arboricultural practices including tree planting in urban areas, tree pruning, tree risk assessment, and amenity tree valuation; policy development and analysis including street tree ordinances and municipal tree commissions; street and park tree assessments and inventories; development of community tree plans and goal oriented urban forest management; land use planning and regulatory policy to conserve natural resources including zoning, subdivision and land development ordinances, comprehensive plans, and open space conservation; civic environmentalism and volunteerism; and conflict resolution. This course will provide students a practical understanding of planning for, and managing, trees and other natural resources associated with human communities.

Enforced Prerequisite at Enrollment: Fifth-semester standing

FOR 403: Invasive Forest Plants: Identification, Ecology, and Management

3 Credits

This course addresses the impacts and challenges associated with "exotic" plant invasions in eastern North American forests through an interdisciplinary exploration of topics including invasive plant identification and management, ecological interactions and impacts, human roles and influences, and management and policy options. Students are also exposed to a variety of scientific and societal perspectives related to monitoring, managing, and controlling invasive plants.

Enforced Prerequisite at Enrollment: 6 credits in BIOL or BISC or FOR or FORT or HORT or PLANT

FOR 409: Tree Physiology

2 Credits/Maximum of 2

Fundamentals of the relationship of the basic physiological functions of forest trees to form. Tree Physiology is the study of how trees grow and develop in terms of genetics; biochemistry; cellular, tissue, and organ functions; and interaction with environmental factors. While many physiological processes are similar in trees and other plants, trees possess unique properties that help determine their outward appearance. These processes include carbon relations (photosynthesis, carbohydrate allocation), cold and drought resistance, water relations, and mineral nutrition. The characteristics of trees that define their physiology are longevity, height, and simultaneous reproductive and vegetative growth. Trees have physiological processes that are more adaptable than those in other plants. Height allows trees to successfully compete for light, but also creates transport and support problems. This course investigates the anatomy, morphology and physiology of growth, development, and responses of woody plants with particular consideration of the influence of environmental factors on physiological processes. To develop an understanding of tree physiology the following topics will be presented: Organization, development, and function of woody plant tissues Photosynthesis, respiration, and assimilation in forest trees Water relations and mineral nutrition. Tree growth responses to atmospheric and soil condition. Physiology variation among tree species. Herbicides and tree physiology. Methods and tools of tree physiology research.

Enforced Prerequisite at Enrollment: BIOL 110 or BIOL 127

FOR 410: Elements of Forest Ecosystem Management

3 Credits

Changing public attitudes towards the environment during the last several decades have led to a philosophical shift in how we manage our forests. The primary focus of a sound stewardship of many of our public forests has now shifted to the recognition that sustaining ecological integrity of forest ecosystems, including the maintenance and restoration of native biological diversity, may be more important than focusing primarily on commodity production. Ecosystem management has become policy on national forests managed by the U.S. Forest Service and Pennsylvania state forests managed by the Pennsylvania Department of Natural Resources. This course invites students to critically examine the concept of ecosystem management from an ecological, economic, and social perspective. Students will review the evolution of ecosystem management and learn how it is being implemented. Basic questions addressed in this course include: What is ecosystem management? How can concepts such as biodiversity preservation, ecosystem integrity, sustainability, and forest health be achieved in forested landscapes? How can human needs be balanced with ecological goals? How can competing societal goals be balanced? This course is designed for forestry majors and places contemporary management approaches into the larger ecosystem context that uses knowledge of forest history, landscape ecology, conservation biology, forest restoration, and forest certification requirements to develop management solutions that pay particular attention to the maintenance of biodiversity (habitat) and soils. Forest management approaches are investigated with regards to the issue of long-term sustainability, recognizing the often challenging and conflicting demands on forestry to satisfy a diverse set of values given ecological, social, and economic constraints.

Enforced Prerequisite at Enrollment: (BIOL 110 or BIOL 127) and (BIOL 220W or FOR 308) and 7th Semester standing or higher

FOR 418: Agroforestry: Science, Design, and Practice

3 Credits

Agroforestry integrates trees in agricultural landscapes, and/or agriculture products into forested areas for multiple benefits. FOR 418 Agroforestry: Science, Design, and Practice (3) (US;IL) Agroforestry is the intentional design of land use systems that combine tree crops with plants and/or animals in a manner that seeks to promote ecological and economic benefits within the landscape. Two possible arrangements for such systems are (1) the integration of trees within non-forested settings; and/or (2) the introduction of high value 'crop' species into existing forestlands. The objective of the course is to foster a practical working knowledge of agroforestry as it is experienced both in Pennsylvania and throughout the world, so that students from a variety of backgrounds can integrate agroforestry practices and thinking into their own disciplines, interests, and lives. Although agroforestry is an ancient land use approach, it is new in many places, and improvements and adaptations to traditional practices are needed to meet local circumstances. This course will provide a framework for critical assessment and implementation within this context. One of the fundamental aspects of agroforestry is that it is a land use system that operates at a landscape or ecosystem scale. For agroforestry to succeed, many factors, including ones external to the agroforestry practice itself must be considered. Therefore the course is interdisciplinary in nature and topics in ecology, economics, sociology, and policy that are related to agroforestry practices will be discussed. In evaluating the students, the primary emphasis is on class discussion. Students will be expected to review and discuss papers and contribute to the ongoing dialogue and debate about agroforestry as a sustainable land use. Students will be required to carry out critical reviews of agroforestry papers and publications as well as design and develop an agroforestry project pertinent to their individual field of interest and expertise. The course will be offered every Spring semester.

International Cultures (IL)
United States Cultures (US)

FOR 421: Silviculture: Applied Forest Ecology

3 Credits

This course explores the methods available to apply ecological concepts to actively manage forested ecosystems for a variety of societal objectives. It addresses methods used to blend the maintenance of biodiversity in forest ecosystems with extraction of commodities under the paradigms of Ecosystem Management and Ecological Forestry. Course objectives include gaining the ability to 1) apply silvicultural terminology and basic ecological concepts as they relate to forest development and silvicultural practices, 2) predict how silvicultural practices influence soil resources, water issues, forest health, timber production, wildlife habitat, and biodiversity, 3) integrate ecological and social considerations into silvicultural practices, and 4) employ silvicultural concepts to actual forest stands by developing silvicultural prescriptions. Topics include silvicultural systems, silvics, cover types, soil, habitat types, ecological classification systems, growth and yield, stand descriptions, crown classes, the site index, release, precommercial thinning, wood quality and pruning, herbicides and vegetation management, commercial thinning, crop tree management, stocking charts, maintaining forest health, natural and anthropogenic disturbances, forest stand dynamics, succession, regeneration inventories, managing for complexity, natural regeneration, seed-tree and

shelterwood methods, uneven aged silviculture (selection and control methods), coppice, irregular shelterwood, deer browsing, clearcutting, site preparation, direct seeding, planting, ecosystem management across different scales, prescribed fire, and management techniques that maintain critical ecosystem processes and components such as soil, water, and wildlife. This is a core course in forestry, although it is also designed for wildlife professionals, conservation biologists, and natural resource professionals interested in the scientific foundation and practical application and implementation of forest management techniques. Whereas the disciplines of ecology and conservation biology help us understand the biological consequences of human manipulation, it falls upon the field of silviculture to balance the often conflicting demands between ecological integrity and society's demand for forest products in practice.

Enforced Prerequisite at Enrollment: [C or higher in FOR 266 or (C or higher in FORT 105 and FORT 110)] and FOR 308

FOR 430: Conservation Biology

3 Credits

The application of biological principles to issues in the conservation of biodiversity. FOR (W F S) 430 Conservation Biology (3) This course applies basic principles of ecology and genetics to issues regarding the conservation forested ecosystems and their associated fisheries and wildlife. The objective of this course is to provide a broad appreciation of the concepts in conservation biology that are important to solving contemporary natural resources problems. Students will be exposed to the history of conservation biology, values of biodiversity, definitions of species concepts, protecting the genetic structure of species, extinction as a natural process, vulnerability to extinction, biodiversity at the community, ecosystem, and landscape levels, habitat fragmentation, metapopulations, legal aspects of conservation, ecosystem management, exotic species, pollution, human population issues, measuring genetic diversity, attitudes towards nature, ex-situ conservation, and ecosystem restoration.

Enforced Prerequisite at Enrollment: BIOL 220W or FOR 308 or WFS 209
Cross-listed with: WFS 430

FOR 431: Conservation Genetics

3 Credits

This course will provide a comprehensive overview of evolution and conservation genetics, an interdisciplinary science that focuses on understanding the processes that influence genetic diversity at the individual and population levels. Foundational concepts in evolutionary ecology, population, and quantitative genetics, and tools described therein will be applied to conservation design, management, and restoration strategies for species of conservation or commercial importance to address real-world challenges in conservation science. This course will cover issues including inbreeding, climate change, invasive species, conservation of threatened and endangered species, adaptation and climate change, and habitat restoration using examples from a broad range of biological systems.

Enforced Prerequisite at Enrollment: BIOL 110
Cross-listed with: WFS 431

FOR 439: Timber Sale Administration

3 Credits/Maximum of 3

This course provides hands-on experience with all of the activities associated with overseeing a timber sale, including the legal aspects of arranging a sale, marking timber and calculating volume, road and sale layout, best management practices, inspections, harvesting equipment, working with contractors and loggers, and liability issues. The objectives of the course are to 1) obtain and translate a property deed onto the ground and create a professional map of the timber sale area; 2) design a timber sale, including cutting boundaries, skid trails, haul roads, and landings such that site impact is minimized, harvesting efficiency and safety is maximized and productivity is maintained; 3) collect sufficient information for a professional timbersale prospectus, including which harvesting systems would be best suited to the situation; 4) complete an erosion and sedimentation plan, a stream crossing permit, and local harvesting ordinance requirements; 5) develop a timber sale contract and a landowner-consultant contract to protect all parties and address all possible legal scenarios; 6) work with, inspect, supervise and provide meaningful feedback to harvesting, road building, and herbicide application contractors; 7) retire a timber sale area to prevent erosion, create habitat variety and/or recreational opportunities, and maintain aesthetic qualities.

Enforced Prerequisite at Enrollment: (FOR 203 or FORT 150) and [FOR 266 or (FORT 105 and FORT 110)]

FOR 440: Forest and Conservation Economics

3 Credits

This course focuses on economic and financial concepts and tools used in managing forests and natural resources. Specifically, students will: a) use financial tools including cost-benefit analysis to analyze forest investments, b) recognize forest-related business operations and management issues, c) apply economic principles to forest and natural resource management decisions including environmental and nonmarket valuation methods, and d) discuss current issues in forest management and economics such as climate change, bioenergy and tropical deforestation. Students will carry out a case study of a forest-related business.

Enforced Prerequisite at Enrollment: AGBM 101 or ECON 102 or ECON 104

FOR 442: Forest Conservation: Principles and Practices

3 Credits

Forest conservation is the promotion and maintenance of healthy, resilient, and functioning forest ecosystems that ensure the continued provision of high-quality ecosystem services and socio-economic benefits. To achieve desired conservation outcomes, on-the-ground forest practices must comply with minimum standards detailed in regulatory and/or voluntary management guidelines (i.e., Best Management Practices, BMPs) to not be harmful to the environment or local people. Further, many private and public forest management entities follow voluntary global and national third-party forest certification schemes that promote environmentally responsible management of the world's forests. Compliance with certification standards is evaluated through annual field audits as the central element to verify that forest operations meet sustainability criteria. Because timber harvesting now constitutes the predominant disturbance regime in northeastern forests, poorly planned,

timed, and executed logging operations constitute the most serious threat to forest conservation and sustainability in managed forests and thus receive particular scrutiny in field audits. Foresters must therefore ensure that forest practices do not injure advance tree regeneration and ground flora, damage structural legacies such as residual trees and deadwood, reduce the potential to sequester carbon, undermine biodiversity and wildlife goals (e.g., breeding success), or adversely affect soil structure and site productivity (e.g., compaction and soil erosion), water quality, wetlands, riparian areas, visual quality, and cultural and spiritual values. This course traces the evolution of forest conservation and sustainability and introduces students to modern, low impact timber harvest systems and a variety of other forest practices intended to safeguard biodiversity, maintain the productive capacity of forests, and protect soil and water resources. Students will become familiar with BMPs and principles, criteria, and sustainability indicators of common certification schemes. These indicators are the basis for planning and conducting field audits following harvesting operations that evaluate to what extent the intent various BMPs and certification standards have been met.

Enforced Prerequisite at Enrollment: BIOL 220W or FOR 308 or 7th semester standing or higher

FOR 445: Wildlife Habitat Management

3 Credits

This course covers concepts of wildlife habitat ecology and management. Topics include the relationship between wildlife and their habitat, identification of important plant structure and composition, quantifying vegetation structure at both stand and landscape scales, understanding disturbance ecology as a basis for habitat management practices (e.g., silvicultural applications and prescribed burning), and determining how specific management practices can be used to achieve future habitat goals and objectives.

Enforced Prerequisite at Enrollment: FOR 203 or FORT 150
Recommended Preparation: WFS 310 or FOR 421

FOR 450W: Human Dimensions of Natural Resources

3 Credits

Addresses human needs and desires, from individuals to nations, for social, ecological, and economic benefits derived from natural resource decisions.

Prerequisite: 6 credits of social and behavioral sciences
Writing Across the Curriculum

FOR 455: Remote Sensing and Spatial Data Handling

3 Credits

FOR 455 is an advanced remote sensing and geospatial technology course emphasizing the use of remote sensors and geographic information systems to study the Earth's land surface. The course emphasizes the use of these technologies primarily in the context of forestry but also in the broader context of natural resources management. Remote sensing technologies that are emphasized include aircraft and satellite-borne sensors in the visible and near-infrared portions of the electromagnetic spectrum, as well as active sensing devices like lidar (Light-detection and Ranging) technology. Students gain proficiency in the use of advanced remote sensing/image processing and

geographic information systems (GIS) software to display, analyze, and map land surface features.

Enforced Prerequisite at Enrollment: FOR 255 or FORT 260 or GEOG 160 or GEOG 260 or WILDL 211

FOR 465: Restoration Ecology

4 Credits

Restoration ecology is a discipline that integrates principles from ecology, engineering, landscape architecture, economics and other select social sciences to repair ecosystems that have been degraded, damaged, or destroyed. The goal of restoration is to restore the structure of biological communities and the ecological functions and ecosystem services they provide to society. This course will cover the field of restoration ecology for students who see themselves someday practicing or participating in restoration projects during their careers. The course will cover the conceptual and theoretical foundations that underlie restoration efforts and link these to real-world applications in past and ongoing restoration projects in a variety of types of ecosystems. Examples of local and regional restoration projects will be used to reinforce principles discussed in class.

Enforced Prerequisite at Enrollment: BIOL 110 or FOR 203
Enforced Concurrent at Enrollment: BIOL 220W or FOR 308
Recommended Preparation: 3 credits in statistics
Cross-listed with: WFS 465

FOR 466W: Forest Management and Planning

3 Credits

Students learn the rationale, processes, and tools for forest management decision-making and planning. Developing and communicating forest plans for forested properties. FOR 466W Forest Management and Planning (3) Students learn the rationale, processes, and tools for forest management decision-making and planning. They learn to identify and obtain information needed for management decision-making and planning. They learn to develop management alternatives and to use appropriate data and tools to evaluate those alternatives. Students learn to apply financial analysis to evaluate the financial viability of stand-level forest management activities. Students develop and write forest management plans for small (< 250 acres) and large (> 250 acres) forested properties. Students identify how alternative forest management objectives are balanced in developing management plans. Students evaluate and critique public agency forest management plans.

Enforced Prerequisite at Enrollment: (FOR 255 or FORT 260 or WILDL 211) and FOR 421 and FOR 440
Writing Across the Curriculum

FOR 470: Watershed Management

3 Credits

Management of wild land watersheds for control of the amount and timing of water yield, water quality, erosion, and sedimentation. FOR 470 Watershed Management (3) In FOR 470 Watershed Management students are expected to learn the fundamentals of watershed hydrology and how management of natural resources, especially forest resources, can be adapted to protect and enhance the natural flow, quantity and quality of water resources. Emphasis is placed on acquisition of available hydrologic and climatic data over the internet, solving basic hydrologic problems using the proper units, writing short essays

summarizing assigned papers or lectures, and in-class tests on managing impacts of timber harvesting, road construction, application of forest chemicals, and other land uses activities. The course is primarily, but not exclusively, intended as a course for upper-level undergraduate and graduate students in forest resources and wildlife and fisheries majors or other majors such as ERM with related natural resources backgrounds and interests. The course is a Prescribed Course for Forest Resources undergraduates in the Forest Management and Watershed Management options and is a Water Science breadth course for students in the Graduate Option in Watershed Stewardship. A companion one-credit course FOR 471 -Watershed Management Laboratory - may be taken concurrently with or following FOR 470. This course is offered each Spring Semester and generally has an enrollment of about 80-90 students.

Enforced Prerequisite at Enrollment: 3 credits in SOILS

FOR 471: Watershed Management Laboratory

1 Credits

Introduction to hydrologic and climatic measurements and computations useful in watershed management.

Enforced Concurrent at Enrollment: FOR 470

FOR 475: Principles of Forest Soils Management

3 Credits

Effect of current forest management practices on the properties and productive capacity of forest soils.

Enforced Prerequisite at Enrollment: FOR 308 and 3 credits in SOILS

FOR 477: Field Methods in Watershed Ecohydrology

3 Credits

The fields of watershed hydrology and ecohydrology, and the careful management of forested watershed and their water resources, rely heavily on observations and accurate time series data. The collection of reliable data is a career unto itself, and the proper understanding of field methods is equally important in the prudent use of ecohydrological data. This course is intended for upper-level undergraduate students and will give a detailed introduction to and experience with field methods and calculations of important fluxes in watershed ecohydrology. Topics will span the hydrologic cycle from evapotranspiration to the partitioning of precipitation, groundwater, and streamflow, as well as water quality. Detailed units will include measurements of rainfall, evapotranspiration, and streamflow, pipe flow through culverts on forest roads, water quality sampling as well as a host of tree-soil-water fluxes including canopy throughfall, stemflow, and sapflow.

Enforced Prerequisite at Enrollment: FORT 240 or 3 credits in SOILS

Enforced Concurrent at Enrollment: FOR 470

FOR 480: Policy and Administration

3 Credits

Forest resources policy objectives; criteria and goals of society; policy implementation by ownership classes; planning, administration, and evaluation of programs.

Prerequisite: 3 credits of social or behavioral science

FOR 488Y: Global Forest Conservation

3 Credits

Ecological, economic, technological, and political aspects of forested ecosystems in a global context, emphasizing tropical and developing countries. FOR 488Y Global Forest Conservation (3) Forested ecosystems cover one third of world's land area, and about two billion people depend on forest products for their livelihood. Students in this course will learn about trends in global forest cover, human demands on forests in different parts of the world, and how national and international institutions and policies regulate forest use. Topics covered include tropical deforestation, biodiversity, climate change, poverty, forest production and trade. Students come away from the course with an understanding of the diversity of forestry practices around the globe.

Prerequisite: 3 credits in natural sciences, and 3 credits in social and behavioral sciences

International Cultures (IL)

Writing Across the Curriculum

FOR 489: Supervised Experience in College Teaching

1-3 Credits/Maximum of 3

The Supervised Experience in College Teaching course provides select undergraduate students with formal, supervised teaching experience in a Forestry (FOR) course. Faculty recruit students who excel in a particular course to serve as undergraduate teaching assistants for subsequent offerings of that course. Duties may include serving as peer tutors, teaching assistants, or laboratory assistants, and developing and/or evaluating course activities and materials. Students participating in this course will develop a deeper understanding of the focus course material by actively helping to teach the material. The course is only available to students who are invited to serve as teaching assistants for a Forestry course and enrollment is by permission of the instructor.

Enforced Prerequisite at Enrollment: Permission of program

FOR 494: Undergraduate Research

1-12 Credits/Maximum of 999

Supervised student activities on research projects identified on an individual or small group basis.

Enforced Prerequisite at Enrollment: Permission of the Forest Ecosystem Management Program

FOR 494H: Honors Thesis Research

1-6 Credits/Maximum of 999

Independent study directed by a faculty supervisor that culminates in the production of a Forestry honors thesis. This course is the means by which Forest Ecosystem Management honors students receive credit for thesis research. The course involves research and other scholarly activities (such as writing) necessary for completion of an approved honors thesis.

Enforced Prerequisite at Enrollment: Enrollment in the Schreyer Honors College and permission of a Forest Ecosystem Management honors adviser
Honors

FOR 495: Forestry Internship

1-6 Credits/Maximum of 6

Supervised field experience related to the student's major.

Enforced Prerequisite at Enrollment: Approval of proposed assignment by instructor prior to registration
Full-Time Equivalent Course

FOR 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

FOR 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

FOR 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

French (FR)

FR 1: Elementary French I

4 Credits

Grammar, with reading and writing of simple French; oral and aural work stressed. Students who have received high school credit for two or more years of French may not schedule this course for credit, without the permission of the department.

Bachelor of Arts: World Language (All)

FR 2: Elementary French II

4 Credits

Grammar and reading continued; oral and aural phases progressively increased. Students who have received high school credit for four years of French may not schedule this course for credit, without the permission of the department.

Bachelor of Arts: World Language (All)

FR 3: Intermediate French

4 Credits

Grammar, reading, composition, oral and aural exercises.

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

FR 51: Elementary Intensive French I for Graduate Students

3 Credits

Intensive introduction to French: first half of graduate intensive sequence in elementary reading, writing, speaking, listening, cultural contexts. FR 051 Elementary Intensive French I for Graduate Students (3) This is the first in a series of three courses designed to give students an intensive introduction to French. This is the first half of elementary sequence in reading, writing, speaking, listening, and cultural contexts. Students will learn the French vocabulary and will learn to create simple sentences. Lessons are taught in an authentic cultural context.

Prerequisite: graduate standing

FR 52: Elementary Intensive French II for Graduate Students

3 Credits

Intensive introduction to French: second half of graduate intensive sequence in elementary reading, writing, speaking, listening, cultural contexts. FR 052 Elementary Intensive French II for Graduate Students (3) This is the second in a series of three courses designed to give students an intensive introduction to French. This is the second half of graduate intensive sequence in elementary reading, writing, speaking, listening, and cultural contexts. Students will learn the French vocabulary. Lessons are taught in an authentic cultural context.

Prerequisite: FR 051 or equivalent, and graduate standing

FR 53: Intermediate Intensive French for Graduate Students

3 Credits

Continued intensive study of French at the intermediate level: reading, writing, speaking, listening, cultural contexts. FR 053 Intermediate Intensive French for Graduate Students (3) This is the third in a series of three courses designed to give students an intermediate intensive knowledge of French. Continued intensive study of French at the intermediate level: reading, writing, speaking, listening, and cultural contexts. Lessons are taught in an authentic cultural context.

Prerequisite: FR 052 or equivalent, and graduate standing

FR 83: First-Year Seminar in French

3 Credits

Critical approaches to the dimensions and directions in French/ Francophone literatures and cultures. FR 083S First-Year Seminar in French (3) (GH;FYS;L)(BA) This course meets the Bachelor of Arts degree requirements. Through the reading of texts, discussions (in-class, study groups, listservs), debates, and collaborative research projects, students are introduced [a] to French/Francophone literatures and/or cultures; [b] to the humanities and to the nature of research and scholarship; [c] to cross-cultural issues (international); and [d] to scholarly conduct and responsibilities. Students develop international competence by cultivating curiosity about and empathy for other cultures; by recognizing that social variables, such as age, gender, social class, religion, ethnicity, race, sexual orientation, and place of residence, affect the way people view the world, behave, and communicate; and by developing the ability to locate, organize, and evaluate information about the culture(s) from a variety of sources (print, electronic, people, personal observations). The points of departure for the development of all of these competencies are literary and cultural texts from France and French-speaking regions/ countries of the world. All texts are in translation, and knowledge of the

French language is not required. Students will be evaluated through written essays, quizzes, class discussions, and a collaborative group project. This course will prepare the students for other courses in the humanities by giving them the opportunity to gain insights into the study of the humanities through literary and cultural texts. In addition to the academic topic and issues of this course, students can expect to gain a general introduction to the University as an academic community and have the opportunity to explore their responsibilities as members of that community. Students will develop an understanding of the learning tools and resources available to them including the opportunity to develop relationships with faculty and other students who share their academic interests. The Department of French plans to offer three (twenty student limit per seminar) first-year seminars per academic year. The course fulfills the first-year seminar requirement as well as one of the humanities requirements in general education or a Bachelor of Arts humanities requirement. This course does not require any special facility or equipment to be taught effectively.

Bachelor of Arts: Humanities
International Cultures (IL)
First-Year Seminar

FR 111: Elementary French

6 Credits

Acquisition of basic skills in the active use of French: listening, speaking, reading, and writing.

Bachelor of Arts: World Language (All)
Bachelor of Arts: World Lang (12th Unit)
Bachelor of Arts: Humanities
Exceeds 12th Unit of World Language

FR 112: Intermediate French

6 Credits

Reinforcement of basic skills previously acquired in the active use of French in FR 111.

Bachelor of Arts: World Language (All)
Bachelor of Arts: World Lang (12th Unit)
Exceeds 12th Unit of World Language

FR 121G: Fundamentals of Reading French

3 Credits

Instruction in fundamental skills required for reading expository French prose, primarily for research purposes. (This course may not be used to satisfy any baccalaureate degree requirements. No graduate credit is given for this course.)

Prerequisite: seventh-semester standing
Bachelor of Arts: Humanities

FR 122G: Practice in Reading French

3 Credits

Development and reinforcement of basic reading skills, with emphasis on the individual student's area of research. (This course may not be used to satisfy any baccalaureate degree requirements. No graduate credit is given for this course.)

Prerequisite: FR 121G

Bachelor of Arts: Humanities

FR 137: Paris: Anatomy of a Global City

3 Credits

Exploration of the cultural, artistic, literary, and social life of the city of Paris. FR 137, taught in English, is an introduction to the cultural, artistic, literary, and social life of the city of Paris that pays particular attention to its transnational influences. We will explore painting, sculpture, architecture, music, dance, theater, literature, and the graphic novel as well as the history and geography of Paris. Looking at pivotal moments both past and present, the course examines what has made the city and its people through the ages. Students will read representative texts from every period and be exposed to artistic and social movements through visual presentations, films, and virtual tour.

Bachelor of Arts: Humanities
International Cultures (IL)
General Education: Humanities (GH)

GenEd Learning Objective: Global Learning
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Key Literacies

FR 138N: French Culture Through Film

3 Credits

This course presents a survey of important cultural and historical moments in France with a special emphasis on the ways in which these moments are represented in film. The course has a dual focus: 1.) a chronological and historical overview of major moments in 20th and 21st century French history as they have been represented, imagined and presented through the selected films and 2.) the artistic and cinematic movements and concepts that inform our understanding of these films. Beginning with WWI, the historical trajectory outlined by the course will cover the Interwar period, the Occupation and Liberation, the consumer culture of France in the 1950s, France as a former colonial power and the Algerian war, France in the 60s, May 1968, France in the 1970s and les trente glorieuses, Mitterrand's 1980s, and Immigration and French identity. We will grapple with these historical moments as they have been filtered through the lens of cinema. Our attention will remain focused both on the historical time periods in which the films of the course were made as well as the moments they are representing. Our approach to the filmic corpus of the course will be one that seeks to understand and situate the films within the broader context of the aesthetic movements that have characterized film both within France and in world cinema. Movements and moments such as Poetic Realism, Neorealism, the French New Wave, Left-Bank filmmaking, cinema vérité, documentary filmmaking and le ciné du Look will serve as an artistic backdrop and provide a framework for understanding the cinematic choices of the directors studied. No prior coursework in film is required; FR 138 will introduce students to the special vocabulary and building block concepts that allow them to deeper comprehend and analyze film on a formal basis. Concepts covered include mise en scène, editing, approaches to narrative, dialogue and soundtrack, lighting, set pieces, characterization, camerawork, CGI special effects, and the technology of film making. Students can expect to come away with a set of tools to analyze not only other French films but also visual texts in general.

Bachelor of Arts: Arts

Bachelor of Arts: Humanities
 General Education: Arts (GA)
 General Education: Humanities (GH)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

FR 139: France and the French-speaking World

3 Credits

An introduction to the culture of France and its impact on the world. FR 139 France and the French Speaking World (3) (GH;IL)(BA) This course meets the Bachelor of Arts degree requirements. By studying the artistic, social and intellectual components of the French cultural ethos, the undergraduate student will develop an appreciation of a major Western European humanistic tradition and its impact and adaptation on several continents. The notion of a national culture, which has become an international phenomenon integrates a broad spectrum of subject areas in the arts, humanities, and social sciences. The elements to be articulated embrace: socioeconomic, linguistic, and demographic profiles, social stereotypes (internal, external, and colonial), social structures (family, gender, childhood/old age), and selected "high" and "popular" cultural themes (cuisine, architecture, dress, painting, social philosophy). Using today's metropolitan French culture as a point of departure, and its historical legacy, the course will explore the consequences of French cultural hegemony in various French-speaking areas (Belgium, Switzerland, North and West Africa, North America, Maghreb-Middle East, Orient). In brief, the course introduces Penn State students to the dynamics of cultural pluralism, a crucial acquisition in today's "global village."

Bachelor of Arts: Humanities
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning

FR 142: French Fiction, Drama, and Film (In English)

3 Credits

An introduction, in English, to French and francophone literature and cultural history through film, theater, and literature. FR 142 French Fiction, Drama, and Film (in English) (3) (GH;IL)(BA) This course meets the Bachelor of Arts degree requirements. Taught entirely in English with no assumption of prior knowledge of French, this course is a broad introduction to French/francophone literature and cultural history through a selection from the best-known authors and famous masterpieces of the French-speaking world. The course promotes an informed reflection on narratives, plays, and films; develops critical methods for enjoying all three genres; and may be complemented with FR 137, 138, and/or 139. The course will satisfy a General Education humanities and International Cultures requirement for students in all majors except French and Francophone Studies.

Bachelor of Arts: Humanities
 International Cultures (IL)

FR 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Humanities

FR 199: Foreign Study--French

1-12 Credits/Maximum of 12

Intensive postintermediate grammar review, with emphasis on oral skills and vocabulary building.

Prerequisite: FR 003

Bachelor of Arts: World Language (All)
 Bachelor of Arts: World Lang (12th Unit)
 Bachelor of Arts: Humanities
 International Cultures (IL)
 Exceeds 12th Unit of World Language

FR 201: Oral Communication and Reading Comprehension

3 Credits

Emphasis on oral skills and reading for total comprehension. FR 201 Oral Communication and Reading Comprehension (4) (IL)(BA) This course meets the Bachelor of Arts degree requirements. This course is designed to improve French language skills, with an emphasis on speaking and reading. It aims to hone students' ability to understand a wide array of native speakers and to expand their active vocabulary; to foster discussion and debate in a range of formats; to enhance the ability to analyze films and literary texts; and to increase awareness of historical and contemporary cultural issues. It also provides opportunities for reviewing selected grammatical points and for practicing writing short interpretive and imaginative exercises. Students draw on written texts, videos, the Web, and other media to explore cultural and literary aspects of France and the Francophone world from a variety of perspectives. Evaluation methods include individual oral and written exams (30%); formal debates (20%); quizzes and homework assignments (10%); class attendance and participation (20%); and a final oral presentation (20%).

Prerequisite: FR 003 or FR 112

Bachelor of Arts: World Language (All)
 Bachelor of Arts: World Lang (12th Unit)
 International Cultures (IL)
 Exceeds 12th Unit of World Language

FR 202: Grammar and Composition

3 Credits

Grammar review and writing of short essays.

Prerequisite: FR 003

Bachelor of Arts: World Language (All)
 Bachelor of Arts: World Lang (12th Unit)
 Bachelor of Arts: Humanities
 International Cultures (IL)
 Exceeds 12th Unit of World Language

FR 270: Race and Gender in Literature Translated from French

3 Credits

A critical presentation, taught in English, of changing ideas and values on race and gender in French and Francophone literatures.

Cross-listed with: WMNST 270

Bachelor of Arts: Humanities

FR 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Bachelor of Arts: Humanities

FR 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Humanities

FR 299: Foreign Study--French

1-12 Credits/Maximum of 12

Foreign study course in French.

Prerequisite: FR 199

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

International Cultures (IL)

Exceeds 12th Unit of World Language

FR 301: Advanced Grammar And Conversation

3 Credits

FOR MAJORS, MINORS, AND OTHERS WITH ADEQUATE PREPARATION; INTENSIVE GRAMMAR REVIEW, COMPOSITION, AND CONVERSATION.

FR 316: French Linguistics

3 Credits

Survey of the theory and methods of linguistics as they apply to the major subfields. FR 316 French Linguistics (3) The goal of this course is to provide the undergraduate student with a solid overview of the theory and methods used by linguists seeking to develop a formal account of French grammar. Specifically, the student will become acquainted with the basic assumptions of the field (e.g. the prescriptive/descriptive distinction, the notion of competence versus performance, various methods of data collection, and the notion of Universal Grammar). In addition, a selection of the major subfields of linguistics will be surveyed (these include: phonetics, phonology, syntax, semantics, and morphology with the focus being on the linguistic rules found in the French language).

Prerequisite: FR 201 , FR 202

FR 331: French and Francophone Culture I

3 Credits

French and francophone history and culture from the Middle Ages until the French Revolution. FR 331 French and Francophone Culture I (3) (IL) This course, which fulfills the Humanities requirement within the Bachelor of Arts degree, will present a survey of French and francophone culture and civilization from the Middle Ages up to the French Revolution. The course aims to familiarize students with the major events and themes in French and francophone history of this period; prominent artistic and other cultural developments; and social and daily life. Students will gain a rich appreciation of this time period through frequent exposure to web sites, films, music and other audio-visual materials. Taught in French, the course also aims to help students develop further facility in written and spoken French through a combination of readings, writing assignments, class lectures, conversation and in-class activities. The course is designed as a complement to the French and francophone literature survey sequence. In addition, it serves as an important basis for 400-level language, literature and culture courses.

Prerequisite: FR 201 , FR 202

Bachelor of Arts: Humanities

International Cultures (IL)

FR 332: French and Francophone Culture II

3 Credits

French and francophone history and culture from the French Revolution through the Third Republic. FR 332 French and Francophone Culture II (3) (IL) This course, which fulfills the Humanities requirement within the Bachelor of Arts degree, will present a survey of French and francophone culture and civilization from the French Revolution to the collapse of the Third Republic with the onset of World War II. The course aims to familiarize students with the major events and themes in French and francophone history of this period; prominent artistic and other cultural developments; and French social and daily life. Students will gain a rich appreciation of this period through frequent exposure to web sites, films, music and other audio-visual materials. Taught in French, the course also aims to help students develop further facility in written and spoken French through a combination of readings, writing assignments, class lectures, conversation and in-class activities. The course is designed as a complement to the French literature survey sequence. In addition, it serves as an important basis for 400-level language, literature and culture courses.

Prerequisite: FR 201 , FR 202

Bachelor of Arts: Humanities

International Cultures (IL)

FR 351: French and Francophone Literature I

3 Credits

This course presents a survey of selected works of French and francophone literature from the Middle Ages to 1789. It aims to familiarize students with major literary works of this time period through close textual reading and analysis. Taught in French, it also aims to help students develop an appreciation for a wide variety of styles, genres, themes, literary movements, and historical contexts. It also serves to develop students' written and oral language skills. This course is designed as a complement to the French and francophone culture sequence.

Prerequisite: FR 201 , FR 202

Bachelor of Arts: World Language (All)
 Bachelor of Arts: World Lang (12th Unit)
 Bachelor of Arts: Humanities
 International Cultures (IL)
 Exceeds 12th Unit of World Language

FR 352: French and Francophone Literature II

3 Credits

This course presents a survey of selected works of French and francophone literature from 1789 to the present. It aims to familiarize students with major literary works of this time period through close textual reading and analysis. Taught in French, it also aims to help students develop an appreciation for a wide variety of styles, genres, themes, literary movements, and historical contexts. It also serves to develop students' written and oral language skills. This course is designed as a complement to the French and francophone culture sequence.

Prerequisite: FR 201 , FR 202

Bachelor of Arts: World Language (All)
 Bachelor of Arts: World Lang (12th Unit)
 Bachelor of Arts: Humanities
 International Cultures (IL)
 Exceeds 12th Unit of World Language

FR 397: Independent Studies

1-18 Credits

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

FR 399: Foreign Study--French

1-12 Credits/Maximum of 12

Intermediate French in a study abroad program.

Prerequisite: FR 201 , FR 202

Bachelor of Arts: Humanities
 International Cultures (IL)

FR 401: Advanced Oral Communication

3 Credits

Emphasis on speaking and listening comprehension through discussion of current issues, using journalistic materials.

Prerequisite: FR 201 , FR 202

Bachelor of Arts: World Language (All)
 Bachelor of Arts: World Lang (12th Unit)
 International Cultures (IL)
 Exceeds 12th Unit of World Language

FR 402Y: Advanced Grammar and Writing

3 Credits

Advanced study of the structure of the French language. Intensive essay writing.

Prerequisite: FR 201 , FR 202

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

Bachelor of Arts: Humanities
 International Cultures (IL)
 Exceeds 12th Unit of World Language
 Writing Across the Curriculum

FR 408: French-American Business Translation

3 Credits

Translation from French to English of actual documents from the business world; theoretical consideration and systematic vocabulary building.

International Cultures (IL)

FR 409: French for Professional Purposes

3 Credits

This course prepares students to use French in a variety of professional contexts and situations via a series of interpersonal, interpretive and presentational tasks. The focus is on real world language use and developing language proficiency so that students can interact professionally with French speakers in various business, medical, scientific, environmental and humanitarian contexts. The class will work on creating materials such as a French-language cv, a cover letter and other documents that will be of use to them in their specific careers. Additionally, students will engage in a hands on group simulation project in which they create and market a start up.

Prerequisite: FR 202 or FR 201

Bachelor of Arts: Humanities
 International Cultures (IL)

FR 410: French Press

3 Credits

Extensive readings of selected french daily and weekly newspapers and magazines, along with newscast viewings. FR 410 French Press (3) (IL) This course, which is taught in French, is designed to introduce students to the history and current state of French press and media (including newspapers, magazines, radio and television) while introducing them to French society and culture through media coverage of current and recent events. The course is also designed to help students perfect reading, writing and oral communication in French. The course starts with a brief history of the press in France, including the creation of dailies such as Le Journal de Paris and the impact of some well-known journalists or writers upon events such as the Dreyfus Affair. It will then focus more specifically upon the origins of high-circulation, contemporary newspapers and magazines. Quickly moving to the post-WWII period, students will be introduced to radio and television in France and, as they become more familiar with French and Francophone press and media, will be given several opportunities to study current or recent events of the French and Francophone world, in fields such as sports, politics, culture and economics. Library holdings and internet sites will allow the class to regularly read daily newspapers such as Le Monde and Le Figaro and view newscasts on channels such as TF1 and FR2. Once they are familiar with the available resources, students will share research with fellow classmates through oral presentations, for example in the form of simulated newscasts. Students will also develop with the guidance of the instructor an independent, final paper which will explore some aspect of the French press and media. One of several departmental offerings in the area of French Civilization, FR 410 course can be used to fulfill

a 400-level requirement for the French Business, French-Engineering, Applied French, and French Language and Culture options, as well as for the French minor. By covering the way in which the range of social identities and the cultural beliefs and values of French-speaking peoples are reflected in various media, and by assisting students in finding and assessing information about current events in the Francophone world, the course can also fulfill an 'IL' requirement. Evaluation methods include a series of short quizzes to cover historical and factual data; a short midterm paper based on primary (newspaper-based) research; a longer final paper based on primary and secondary research; other written work of a short-response nature; a group oral presentation summing up the previous week's news and events; and participation, including presence. The course is offered once a year, usually in the spring semester.

Prerequisite: FR 331 or FR 332

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

Bachelor of Arts: Humanities

International Cultures (IL)

Exceeds 12th Unit of World Language

FR 417: French Phonology

3 Credits

A formal study of the sound pattern of French. FR 417 French Phonology (3) (IL) The goal of this course is to present an introduction to the linguistic analysis of the sound pattern of French as it is actually spoken by real speakers. by the end of the semester, the student should be able to: -transcribe French phonetically; -understand the articulatory characteristics of French and how these differ from English; -describe the relationship between French spelling and phonology -examine what gives us accent in French; -discern patterns of pronunciation in different varieties of the language; -analyze real speakers' pronunciation on your own; -create your own teaching/learning unit about some aspect of French phonology
Evaluative Methods: Student performance in this course is generally based on a series of assignments, quizzes, transcriptions, a research project and presentation, an evaluation of other students' presentations, and preparation/participation.

Prerequisite: FR 201 , FR 202

Bachelor of Arts: Humanities

International Cultures (IL)

FR 418: French Syntax

3 Credits

A formal theory of word order and related issues in French grammar. FR 418 French Syntax (3) (IL)(BA) This course meets the Bachelor of Arts degree requirements. The aim of this course is to provide the upper level undergraduate student with the background needed to understand modern generative syntactic theory, as well as to eventually enable him or her to do creative and informed research in this area. Roughly three-quarters of the semester will be devoted to an in-depth overview of the historical development of generative syntax, focusing particularly on modern Chomskyan theory - the so-called Minimalist Program. The remainder will build upon and round out this knowledge of syntax by exploring in depth a number of topics that any syntactician must be familiar with in order to do informed research in the field. This section of the course will involve lectures based on close readings of articles and book chapters exploring such topics as the syntax of negation, raising verbs, auxiliary verbs, adverbs, middle constructions, and/or verb

movement. (Only a subset of these topics will be discussed, selected on the basis of student interest.)

Prerequisite: FR 201 and FR 202

Bachelor of Arts: Humanities

International Cultures (IL)

FR 419: French Semantics

3 Credits

The study of meaning in human language with a special focus on how it is encoded in French. FR 419 French Semantics (3) The aim of this course is to provide upper level undergraduate students in French with a relatively informal introduction to the field of semantics as it applies to the French language. Semantics is the subfield of theoretical linguistics that seeks to make explicit the rules native speakers use to interpret stable aspects of the meaning of natural language sentences. The course will begin by comparing and contrasting semantic and pragmatic aspects of meaning -an important undertaking since only the former are assumed to be subject to invariable rules of grammar. The conclusions reached in this portion of the course will then be extended to account for a very special type of language -humor -in a particular context, France. That as, it will be shown that a more complete understanding of this linguistic behavior entails recognition of the relative contributions of pragmatics and semantics. We will then turn to a survey of the classic model-theoretic approach to lexical and compositional aspects of semantic meaning, with important (sociolinguistic) refinements to the standard approach to lexical semantics being discussed in detail. With a survey of the fundamentals of the field in place, we will then undertake an investigation of specific topics in semantics, looking first at the status of thematic roles in semantic theory (focusing on work by David Dowty). Here we will examine the important implications his work holds for the initial mapping of arguments into sentence structure, not only for primary transitive verbs, but also unaccusative and psych-verbs. We will then examine current analyses of causation in French, certain aspectual distinctions, and semantic, pragmatic, and syntactic approaches to negative and positive polarity items, n-words, and minimizers.

Prerequisite: FR 316

FR 430: Contemporary France

3 Credits

This course surveys contemporary French historical, cultural, economic, and political changes from the end of WW II to the present day. A significant portion of the course is devoted to examining key events and transformations of the time period. The second half explores major themes that emerge from the evolutions characterizing these tumultuous decades. Taught entirely in French, students will gain an understanding of and an appreciation for modern France through exposure to web sites, films, music, and authentic written texts.

Prerequisites: FR 331; or FR 332; or FR 332H

Bachelor of Arts: Humanities

International Cultures (IL)

FR 436: French and Francophone Theater

3 Credits

French Theater: From "classical unities: to Contemporary Performances.

Prerequisite: FR 351 or FR 352

Bachelor of Arts: Humanities
International Cultures (IL)

FR 440: Teaching of Romance Languages

3 Credits

Theories of second language acquisition. Current classroom practices in the teaching of Romance languages.

Prerequisite: 15 credits beyond the elementary level
Bachelor of Arts: Humanities
International Cultures (IL)

FR 445Y: Self and Society in Eighteenth-Century France

3 Credits

The changing relationship of the individual to society in pre-Revolutionary France will be explored in texts by major writers.

Prerequisite: FR 331 or FR 351 or FR 352 or FR 332
Bachelor of Arts: Humanities
International Cultures (IL)
Writing Across the Curriculum

FR 452Y: Nineteenth-Century French Literature

3 Credits

Selected readings in romanticism, realism, and symbolism, including Balzac, Stendhal, Sand, Baudelaire, and others, with emphasis on cultural issues. FR 452Y Nineteenth-Century French Literature (3) (IL) This course offers an overview of Nineteenth-Century French literature. It includes reading material representative of the major literary movements of the period (romanticism, realism, symbolism). It also gives students a chance to examine a great variety of literary genres (novels, plays, short stories, poems, children's narratives among others). In addition to developing close textual reading skills, emphasis is placed throughout the semester on the larger relationship between literary production, aesthetics and Nineteenth-Century history (political systems, education, social transformations, industries and technologies, etc.). Anthologies and complete texts will be used.

Prerequisite: FR 331 or FR 332 or FR 351 or FR 352
Bachelor of Arts: Humanities
International Cultures (IL)
Writing Across the Curriculum

FR 453Y: La Belle Epoque: Politics, Society, and Culture in France, 1880-1914

3 Credits

Interdisciplinary perspectives on the politics, society, and culture of France, 1880-1914. FR 453Y LaBelle Epoque: Politics, Society, and Culture in France, 1880-1914 (3) (IL) The goal of this course is to present and analyze the period of extraordinary changes in all domains known as the "Belle Epoque." The starting point for an examination of these changes is Guy de Maupassant's novel, *Bel-Ami* (1885), which describes the social and professional ascension of an egotistical Parisian parvenu, Georges Duroy. The reading of this novel will allow us at the same time to study in detail one of the novel's protagonists: Paris. Through our discussions and through consideration of a wide range of primary and secondary texts, we will examine the complex rapport between literature (as well as art) and society at the end of the nineteenth century, and

we will attempt to answer questions such as: how did the changing Parisian landscape inspire the authors, artists et musicians of this era? How did the new Parisian space encourage the development of new "places of pleasure" cafes, cabarets, cafes-concerts, theaters, racetracks, restaurants, etc.? How did innovations in architecture and the decorative arts, which flourished under the name of Art Nouveau, reflect both social developments and the transforming profile of Paris? What was, in fact, the new social and artistic geography of the capital?

Prerequisite: FR 351 or FR 352
Bachelor of Arts: Humanities
International Cultures (IL)
Writing Across the Curriculum

FR 458: African Literature of French Expression

3 Credits

Genesis of Franco-African literature in the 1930s; phases of the negritude movement; colonial and national literature. FR 458 African Literature of French Expression (3) (IL)(BA) This course meets the Bachelor of Arts degree requirements. African literature in French is one of the most vigorous of the many new literatures in French that are emerging throughout the vast francophone world. Writers from a variety of countries, from Senegal to Djibouti, from Algeria to Congo, are producing works in French, that reflect their own very distinct cultural experiences. They must often modify both the French language and traditional Western genres such as the novel to convey African ways of speaking and narrating. In this course, students will read novels, poems and an epic that has been translated into French from an African language. The subjects range from autobiographical accounts of growing up in an African town and going off to Europe to study during the colonial era to sharp criticism of both the French colonial regime and the subsequent national governments that took over after independence, an event that occurred in 1960 in most francophone African countries. For the new wave of women writers that has emerged on the literary scene in the last two decades, more personal themes such as love, family, personal freedom, and the task of balancing traditional customs with the needs of contemporary life in large cities have marked their works. Students who take this course will discover the diversity of African literature written in French, the traits that distinguish this literature from metropolitan French literature, the links between the oral tradition and the written tradition, and the changing role of women in society today. Students will be evaluated on written essays, submission of questions in advance of classroom discussion of each work, presentation of a talk in class on some aspect of the works read, a midterm and final exam. French 458 satisfies the literature course requirements in the French major and the 400-level course requirement in the French minor. It can also satisfy the diversity requirement for General Education. FR 458 will be offered once a year with 18 seats per offering.

Prerequisite: FR 331 or FR 332 or FR 351 or FR 352
Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures
International Cultures (IL)

FR 460: Contemporary French Literature

3 Credits

Major authors and movements in French novel, drama, and poetry from Proust to the present. FR 460 Contemporary French Literature (3) This course is designed for advanced undergraduate work and it is taught in French. To function well in this course, students need to have passed

an intermediate introductory course to French literature. The primary goal of FR 460 is to facilitate students acquisition of a coherent view of major contemporary literary movements, from modernism in poetry and drama, through surrealism, both lay and Christian humanistic fiction, and existentialism, to the absurd theatre, the nouveau roman, and post-modernism, écriture feminine, anti-colonial and post-colonial literatures. Major authors are presented thru one of their works, taking into account the cultural, historical context in which they were developed. Instruction also comprises an initiation to basic theoretical notions on genres, literary techniques, and critical reading methodology. Contents will vary according to instructors choices but balance between periods, movements and genres is implied. Multi-media resources abound for the purpose of illustration and interdisciplinary considerations but the primary thrust is cultural/ literary enrichment, and the development of students reading and analytical skills in French. Web resources, excerpts, and shorter whole texts will be incorporated to the reading materials and will supplement the required books. Students are expected to read between ten and thirty pages according to the level of difficulty of the materials. No manual or anthology has been established a satisfactory choices for this course even though such tools exist, they generally do not treat the last third of the period properly. So FR 460 instructors have relied on a variety of primary texts to achieve as comprehensive yet coherent a survey of this overflowing century as possible. Occasionally a thematic approach has been attempted to introduce more cohesiveness in the selected readings but this must be combined with traditional, diacritical approaches so as to facilitate the students ability to see linkages between literature and history as well as other arts, as they pursue their French and other Liberal Arts majors.

Prerequisite: FR 331 or FR 351 or FR 332 or FR 352

Bachelor of Arts: Humanities

International Cultures (IL)

FR 470: Race and Gender Issues in Literatures in French

3 Credits

A critical presentation, taught in French, of changing ideas and values on race and gender in French and Francophone literatures. FR 470 Race and Gender Issues in Literature in French (3) (IL)(BA) This course meets the Bachelor of Arts degree requirements. In addition to presenting subject matter that fosters an appreciation of literatures written in French while exploring racial and gender-related aspects of French and Francophone cultures, this course aims at developing a sophisticated, analytical outlook on peoples of different races and cultures and on women as authors, subjects, and literary 'constrictions' evolving over time. It provides a sense of the historical development of these questions and the interconnectedness of literature with society, and culture. One example of the issues and selections is the vindication of women - including Middle Eastern and Biblical figures- in Christine de Pisan's City of the ladies, in the early 15th c.; it is shown to have links with the 1970 modernistic and satirical text by Monique Wittig, Les Guilbres. Other examples can be the famed surrealist negritude poetry of Aim Csaire of Martinique, or a classic saga of European Jews by Andr Schwarz-Bart, or the humorous narrative of an African boy in contemporary Paris by Calixthe Beyala. Evaluation is based on a balance of in-class and take home exams and a final paper. Participation is expected, including electronic communication with the instructor. Attendance and participation are assigned a significant proportion of the grade (20%) as is feasible and desirable in small classes with fifteen students or less. The class is led in French, the language of most materials presented, and it is designed primarily for French majors and minors. The literature is supported and illustrated with video excerpts and films available outside

class. Internet research is encouraged and expected. It is offered every three or four years, alternating with FR 471 (Francophone Women in Literature and Culture), or special topics courses and period-bound, advanced literature courses in French.

Prerequisite: FR 331 or FR 351 or FR 332 or FR 352

Bachelor of Arts: Humanities

International Cultures (IL)

FR 471: Francophone Women in Literature and Culture

3 Credits

Women's issues in literatures and cultures of French-speaking countries in Europe, the mediterranean, Africa, the Caribbean, and Quebec. FR 471 Francophone Women in Literature and Culture (3) (IL)(BA) This course meets the Bachelor of Arts degree requirements. In addition to presenting subject matter that fosters an appreciation of documents and literary sources in French by and about women of Francophone countries in the post-colonial and post-modern era, the course initiates students to researching authentic documentation on those cultures. This course aims at developing a sophisticated, analytical outlook on Francophone women of different ethnic backgrounds and cultures and on women as authors, subjects, and literary 'constructions' evolving over time. It provides a sense of the history of colonialism, slavery and Islam where Caribbean or African women are involved. One important component is sociological, demographic research and education. The Internet is a crucial tool for this course. The course contents varies by focussing on particular groups of women such as Caribbean or Islamic Francophone women. Evaluation is based on a balance of in-class and take home exams and a final paper. Participation is expected, including electronic communication with the instructor. Attendance and participation are assigned a significant proportion of the grade (20%) as is feasible and desirable in small classes with fifteen students or less. The class is led in French, the language of most materials presented, and it is designed primarily for French majors and minors. The printed sources and documents are supported and illustrated with video excerpts, films available outside class. Internet research is encouraged and expected. It is offered every three with 18 seats per offering, alternating with FR 470 (Race and Gender Issues in Literatures in French), or special topics courses ('The Francophone Short Story') and period-bound courses ('Twentieth Century French Literature'), advanced literature courses in French. This course fulfills the French major 400-level requirements in either the literature or the culture options, or the French minor similar requirement, and is also meant to fulfill the General Education requirement in race/gender and cultural diversity.

Bachelor of Arts: Humanities

International Cultures (IL)

FR 475: Women's History in Post-Revolutionary France

3-6 Credits/Maximum of 6

Women's history and creativity in post-revolutionary France.

Prerequisite: FR 332 or FR 352

FR 487: Topics in French Film History and Theory I: 1895-1945

3 Credits

Provide background needed to understand the broad outlines of French film history and theory in their first fifty years (1895-1945). FR 487

Topics in French Film History and Theory I: 1895-1945 (3) (IL)(BA) This course meets the Bachelor of Arts degree requirements. The aim of this course is to provide the upper level undergraduate student with the background needed to understand French film in the period up to the end of World War II. This will greatly aid the student in understanding French literature and culture of the period as well. Topics will include the invention of cinema and the early days of French film; adventure serials and commercial films; avant-garde and surrealist film of the 1920s and 30s; and finally, the period often considered the 'golden age' of French film, the 1930s and 40s, and the so-called 'poetic realism' movement. Films will be supplemented with readings in criticism by writers and filmmakers of the period, as well as by the scholarship of critics and theorists writing today. The course would allow upper-level undergraduate students to partially fulfill the 400-level course requirement for French majors and minors. This course may also be used to fulfill a requirement in the newly proposed Film Studies minor. A student's performance in this course will normally be evaluated through an in-class expose, two in-class essay tests, and a short research paper. The class will be offered once a year with 50 seats per offering.

Prerequisite: (COMM 250 or COMM 150) and (FR 331 or FR 332 or FR 351 or FR 352)

Bachelor of Arts: Humanities
International Cultures (IL)

FR 488: Topics in French Film History and Theory II: 1945-2002

3 Credits

Provide background needed to understand the broad outlines of French film history and theory in their second half-century (1945-2002). FR 488 Topics in French Film History and Theory II: 1945-2002 (3) (IL)(BA) This course meets the Bachelor of Arts degree requirements. The aim of this course is to provide the upper level undergraduate student with the background needed to understand French film in the period from the end of World War II to the present. This will greatly aid the student in understanding French literature and culture of the period as well. Topics will include the French commercial film of the early postwar period; the ground breaking film criticism of the 1950s, and the films it spawned (the early 'New Wave'); the later, more experimental films done in the later 1960s and 1970s by other critic-directors; and, finally, films made in more recent years specifically concerned with the historical memory of social trauma-the Occupation and Holocaust-and the possibility of the cultivation and preservation of this memory in and through the film medium. The analysis will include readings by critics (many of the filmmakers) writing at the time the films were made, as well as more recent scholarship and criticism. The course would allow upper-level undergraduate students to partially fulfill the 400-level course requirement for French majors and minors. It will be offered every other year. This course may also be used to fulfill a requirement in the newly proposed Film Studies minor. A student's performance in this course will normally be evaluated through an in-class expose, two in-class essay tests that will determine the student's analytical skills; and a short research paper. This course will be offered once a year with 50 seats per offering.

Prerequisite: FR 351 and FR 352 or COMM 250

Bachelor of Arts: Humanities
International Cultures (IL)

FR 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Humanities

FR 494H: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Humanities
Honors

FR 495: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Prerequisite: prior approval of proposed assignment by instructor
Bachelor of Arts: Humanities

FR 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Bachelor of Arts: Humanities

FR 496H: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Honors

FR 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Humanities

FR 499: Foreign Study--French

1-12 Credits/Maximum of 12

Advanced studies in French language and literature in a study abroad course.

Prerequisite: FR 201 , FR 202

Bachelor of Arts: Humanities
International Cultures (IL)

Fuel Science (FSC)

FSC 401: Introduction to Fuel Technology

3 Credits

An introduction to the scientific and engineering principles of fuel technology. For non-fuel science majors; fuel science majors will not receive credit.

Enforced Prerequisite at Enrollment: CHEM 112 and PHYS 211

FSC 431: The Chemistry of Fuels

3 Credits

Nature and properties of fossil and other fuels, including aerospace, in relation to use; preparation of fuels; by-products; fuel analysis. The course deals with the formation, composition and properties of the principal naturally occurring fossil hydrocarbons (coal, petroleum, natural gas), and their refining, upgrading, and conversion chemistry. The objectives of this course are to equip students with a fundamental knowledge of the chemistry for the fossil hydrocarbon resources and their energy use for transportation and stationary fuels as well as their use as chemical feedstocks. It also helps to prepare students for the challenges, opportunities, and changes in the world of energy and resource-related enterprises. The primary emphasis is on petroleum, natural gas, coal, and liquid transportation fuels. This is a required course for the Energy Engineering Major.

Enforced Prerequisite at Enrollment: (CHEM 202 or CHEM 210) and EGEE 302

FSC 432: Petroleum Processing

3 Credits

Transportation of people and goods in many parts of the world depend almost completely on petroleum fuels, such as gasoline, jet fuel, diesel fuel, and marine fuel. Apart from the fuels, materials that are necessary for operating the combustion engines of cars, trucks, planes, and trains also come from petroleum. These materials include lubricating oils (motor oils), greases, tires on the wheels of the vehicles, and asphalt to pave the roads for smooth rides in transportation vehicles. All petroleum fuels and many materials are produced by processing of crude oil in petroleum refineries. Petroleum refineries also supply feedstock to the petrochemicals and chemical industry for producing all consumer goods from rubber and plastics (polymers) to cosmetics and medicine. This course explains how physical processes and chemical reactions that take place in separate petroleum refinery units are integrated to convert crude oil into desired fuels and materials. Refinery processes are divided into four types that include separation, conversion, finishing, and support. The overall objective of petroleum refining is to convert crude oil into fuels and materials that comply with commercial specifications and environmental regulations. All refining processes and refinery operations are also subjected to the applicable environmental regulations. A historical evolution of process concepts is introduced to demonstrate how the refining efficiency has increased with significant reduction of pollutant emissions from individual refinery processes. The principal objectives of this course are to enable students to: 1. explain the market drivers for the refining industry (ABET student outcome 2). 2. indicate what crude oils consist of and how crude oils are characterized based on their physical properties (ABET 1, 2); 3. express the objectives of petroleum refining and classify the processes used in petroleum refining

(ABET 1, 2, 7); 4. demonstrate how a petroleum refinery works and sketch a flow diagram that integrates all refining processes and the resulting refinery products (ABET 2); 5. examine how each refinery process works and how physical and chemical principles are applied to achieve the objectives of each refinery process (ABET 1, 2, 7); 6. assess implications of changing crude oil feedstocks on refinery configuration and propose strategies to resolve conflicts with degrading crude oil quality and increasingly stringent environmental regulations on petroleum fuels (ABET outcome 4, 7); 7. discuss different sources of natural gas and explain how natural gas is processed at well sites and in processing plants with application of selected refinery processes and other physical operations (ABET 1, 2).

Enforced Prerequisite at Enrollment: CHEM 202 or CHEM 210
Cross-listed with: CHE 432

FSC 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

FSC 494H: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Honors

FSC 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Gaming (GAME)

GAME 140: Gaming and Interactive Media

3 Credits

COMM 190 (GAME 140) Gaming and Interactive Media (3) The course is an introduction to the digital interactive media industries for students who may consider seeking employment in that sector, which includes video games and simulations, products for education, training, medicine, business, government/military, and virtual environments for a range of applications. Students will learn about industry structures, basic economics, business models, work flow, types of enterprises, job descriptions, and opportunities. It examines both the national and global markets. It provides students with a factually and theoretically informed appreciation of these industries. The course will build on the students' personal and social experiences of these media, but it is not a course about playing or designing games or mastering individual applications. No special knowledge or experience in playing video games, using "serious games," or experiencing virtual worlds is required. It will provide students with the foundation to make a well-informed choice about careers in this sector and respond to their natural curiosity about this pervasive part of their lives. The course is divided into five segments. The first provides general context: history, scale and scope of the field, information on industry structure, business models and operations, and types of skills required. The second focuses on the video game

industry, including social, regulatory and ethical issues. Video games are now a major media industry, having surpassed in U.S. revenue both the movie and recorded music industries. The third section looks at "serious games." A "serious game" is a game designed for a primary purpose other than pure entertainment, such as education, scientific exploration, health care, emergency management, city planning, military, engineering, religion, etc. The fourth segment looks at simulations and virtual worlds and their multiple models and uses (entertainment, learning, business, research, etc.), and the development of related online communities. The final section will examine the interrelationship of these industries with the other entertainment industries in terms of planning, marketing, finance, production, etc. It will conclude with a look ahead at new technologies, markets, business models, advancements in artificial intelligence and the convergence of virtual and material worlds. The course will employ presentations, class discussions, outside readings, demonstrations, videos, class exercises, online explorations, guest experts (in person and via technology), and experiences in virtual worlds.

Cross-listed with: COMM 190

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Soc Resp and Ethic Reason

GAME 160N: Introduction to Video Game Culture

3 Credits

This course is a comparative introduction to the nature and history of video games as cultural artifacts, from Pong to online role-playing. It introduces students to academic discussion on and creative work in new digital forms including hypertexts, video games, cell phone novels, machinima, and more. Students will survey major debates over the meaning and value of video games, and study some of the major theoretical terms and perspectives developed to elaborate the cultural and sociological value of video games. The course extends students' skills in literary interpretation to a variety of new objects, and makes them aware of the role medium plays in aesthetic development and production. Students will leave with a far sharper understanding of how the interpretive tools used in the humanities can be extended to include new media, and with a sense of the historical role video games have played and will continue to play in global cultural production. Because the course is historically focused, it will spend significant time looking at the differential development of video games in three major regions: the United States, Europe, and East Asia (especially Japan).

Cross-listed with: CMLIT 191N

Bachelor of Arts: Arts

Bachelor of Arts: Humanities

United States Cultures (US)

General Education: Arts (GA)

General Education: Humanities (GH)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GAME 180N: The Art and Science of Virtual Worlds

3 Credits

GAME 180N is a multidisciplinary course which introduces students to the theories, concepts, and technologies behind virtual worlds. This

course will focus on the myriad ways that narrative arts and physical sciences relate to the development of technologically mediated virtual worlds. Designing the physical and narrative voyages of avatars through virtual worlds is necessarily a team-centered undertaking requiring recursive editing from a macroscopic and microscopic point of view to refocus project goals and deliverables. Besides learning the requisite computing and technical skills involved in virtual world development, students enrolled in this course will produce a world design proposal, and storyboards, interactive fiction graphics, or world maps for their virtual world; in this way, they will explore some of the ways that creative writing, particularly interactive fiction and storytelling techniques drawn from non-VR and VR gaming contribute to the planning, design, and execution of virtual worlds. Students will also learn about the basic science behind virtual world concepts such as the physical environment, physical processes (e.g. kinematics, motion), and light; ultimately, they will produce an immersive time-space experience in their proposed world and reflect on the complexity of integrating design elements in a way that creates a satisfying immersive experience. The objectives of the course include: (1) students will work in teams to design a proposed virtual world using world making principles found in interactive fiction narratology and physical principles that embody the avatar and allow it to move in a virtual world environment; (2) students will work in teams to construct a virtual scene, movement in time/space, from that world using computer software tools and mediated through virtual reality hardware; (3) students will be able to discuss developing immersive technology and applications of virtual worlds in business, society, and academia; (4) students will analyze and critique the virtual world designs of other student teams; (5) students will demonstrate comprehension of interactive fiction scene and level structures and world maps as they relate to designing the voyage of the avatar in a virtual world; and (6) students will demonstrate comprehension of physical principles (e.g. kinematics, light) as they apply to virtual worlds. In addition to directed readings, discussions, and quizzes in computing, narrative arts, and physics (related to concepts inherent in virtual worlds), the course will incorporate hands-on lab exercises and online discussions. A semester-long team project will be the primary means of student evaluation. During this semester-long team project students will design and create their own virtual environment(s) and character(s) using software tools and accepted world design principles. Students will apply a variety of computing concepts in the world creation, including some combination of programming, 360-degree video, and digital imagery. The course will culminate in the oral and visual presentation of their creative and technological works. The semester-long team project will be heavily integrated into the in-class experience and assessed using rubrics that draw on examples and assignment descriptions provided to students.

General Education: Arts (GA)

General Education: Natural Sciences (GN)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GAME 220: Introduction to Game Design

3 Credits

Design of games as aesthetic objects and cultural artifacts that people find meaningful and entertaining. In his 2007 book *Persuasive Games*, Professor Ian Bogost writes about the power of digital games in social, political, artistic, and psychological meaning-making through what

he calls 'procedural rhetoric'. 'Procedural rhetoric entails persuasion - to change opinion or action - to convey ideas effectively.' Procedural rhetoric is a subdomain of procedural authorship; its arguments are made not through the construction of worlds or images, but through the authorship of rules and behavior, the construction of dynamic models' (Bogost 2007, 29). As games become cultural objects with artistic value, achieving orchestral performances in the opera houses of the world, permanent exhibits in the Smithsonian, and having numerous charitable organizations entirely devoted to the appreciation of games, their art, and their rhetoric it behooves educators to enable the next generation of students to become literate in this new and emerging form of expression. This course will provide students with an introduction to game design. It will focus on the design of games as aesthetic objects, both inasmuch as video games have significant aesthetic properties (lighting, narrative, animation, sound design) but also, more generally, inasmuch as games are cultural artifacts that people find meaningful and entertaining. Because GAME 220 takes this broad perspective, students will learn design principles that are used not only in video game design but in traditional "pen-and-paper" games, such as board games, card games, role playing games, and so forth. The course will teach students how to design artful, creative games in general.

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

GAME 250: Technical Game Development

3 Credits

Introduction to the tools and techniques required to implement games in a virtual environment. GAME 250 / CMPSC 208 Technical Game Development. First, students learn about game and player elements by creating characters and objects and the means of user interactivity. Both orthographic and perspective views are introduced to assist in character design. Objects and characters are created using fundamental geometric primitives like scale, rotation, translation and extrusion. The set operations, union, intersection, and subtraction, are applied to create compound objects. Bezier and NURB curves are introduced to create objects with irregular contours. Students also learn to design graphical user interfaces (GUIs) and handle mouse and keyboard events to support user interactions. Second, students are introduced to methods of storytelling and guide them to build narratives for games. Methods of proximity and collision detection in the environment are studied for both static and dynamic objects. Dynamic objects are programmed to move and behave in a deterministically, random, or probabilistically under a variety of lighting methods including ambient, directional, point and diffuse lights are introduced. A number of particle systems are developed with different considerations of randomness, vector direction and velocity. The concept of linear interpolation is illustrated and applied to texture mapping to improve the look and feel of objects. Third, students are introduced to functions, propositional logic, loops, and randomness to model game behavior. Students will learn to combine a series of primitive actions into a function for control and reuse. Propositional logic will guide students to define conditions and develop game rules. Loops are introduced to simplify the implementation of repeated game behavior. Randomness enables the simulation of many life-like object movements. Students will learn and practice how to write concurrent, event drive and sequential processing algorithms for game objects. Fourth, students are introduced to the game development process of pre-production, production and post-condition phases and have them apply it to their own

project. The topic of maintenance will be introduced with an emphasis on refactoring techniques, critical to improving the quality of game and providing flexibility for future updates. This course has a significant applied element. Game engine tools are used to develop prototypes of games and playtest them. Lab assignments are given throughout the semester and a final project requires students to demonstrate mastery of all aspects of the course.

Enforced Prerequisite at Enrollment: MATH 21

Cross-listed with: CMPSC 208

Bachelor of Arts: Quantification

General Education: Quantification (GQ)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Key Literacies

GAME 251: 2D Game Programming

3 Credits

Introduction to programming 2D Games with HTML5 and Javascript. GAME 251 2D Game Programming (3) (GQ) An introductory course on web programming, GAME 251 introduces students to HTML Programming for online, browser-based, and mobile games. HTML is a versatile programming and markup language that allows for a lot of flexibility in game development. Throughout the course, students will learn HTML programming using the Canvas element, programmed in Javascript, using a variety of engines and technologies. Students will receive a primer in database management using MySQL, and will interface that database with their games using AJAX calls through PHP. The versatility and cross-platform nature of the HTML programming standard allows games to be compiled across numerous platforms seamlessly - a practice with which students will become accustomed.

Prerequisites: MATH 21

Bachelor of Arts: Quantification

General Education: Quantification (GQ)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Key Literacies

GAME 420: Advanced Game Design

3 Credits

Develop the habits of successful game designers - playing games thoughtfully, and documenting those thoughts. GAME 420 Advanced Game Design (3) Topics covered in this class will include independent game development, marketing, scheduling, and analysis of contemporary games for design choices in something called a "post-mortem." This is done with the intent of training students in the habits of successful game designers- namely, playing games thoughtfully, and then documenting those thoughts. The successful student will have a clear and thoughtful record of at least 15 games he or she has played and analyzed with a critical eye by the end of the semester. These should be peppered with thoughtful critique on the games industry, and musings on trends in game design. This will of course become clear as the course progresses. The culmination of this course will result in the creation of a professional, competent game designer portfolio and blog that can be used in search for a job, to represent oneself as an independent game developer, and to showcase the talents and skills developed over this course and its prerequisite.

Prerequisite: GAME 220

GAME 430: Simulations of Human Behavior

3 Credits

In Modeling and Simulation, students will develop an understanding of the systems, processes, tools, and implications of this field.

Prerequisite: 3 credits of programming; 3 credits of mathematics
Cross-listed with: DIGIT 430

GAME 434: Psychology of Gaming

3 Credits

Upper level course examining the core psychological principles as they apply to the topic of games. GAME 434 / PSYCH 434 Psychology of Gaming (3) This course looks at how the field of psychology can be applied to understand and improve the world of games. This requires the application of theories and research based in experimental, cognitive and several other disciplines within psychology, including but not limited to cognitive, social, motivation & emotion, and experimental psychology. By applying different theories within these disciplines we can start to understand how humans interact with games and in turn how games have evolved as a result. This course addresses an active research area in psychology, of broad interest to students in Psychology and other disciplines. The course will fulfill a 400-level requirement for students in the PSYCH majors and minors as well as those in the GAME minor. Students typically will be evaluated by exams, research project, in-class activities, homework, and article discussions.

Enforced Prerequisite at Enrollment: PSYCH 100
Cross-listed with: PSYCH 434

GAME 450: Advanced Game Programming

3 Credits

Autonomously generating object behavior and content in games. GAME 450 Advanced Game Programming (3) The course is developed in two parts, creating programs to automatically generate object behavior and world content. Students are first introduced to the mathematical basis of vectors and transforms. This is necessary to create engaging characters that properly display behaviors and interact with the player and the world. These behaviors can range from orientating towards the player or pursuing/fleeing from some object in the game. In the presence of obstacles these behaviors require path finding algorithms like A* in order to navigate through the world. Students then learn how to create challenges that adapt their difficulty level based on the user's proficiency and skill in the game. In order to reduce costs and meet the demand to get a product to market, the gaming industry is looking for ways to automate the content generation. Instead of hiring a room-full of artists to generate the layout of a city, a computer can be programmed to dynamically generate this content at run-time, saving not only the work-load of the artists, but also the storage space necessary for the representation of the city. An optimization method like genetic algorithms is presented so that dynamically generated content like the layout of building and streets in a city can be produced at run-time. From the beginning of video games mazes and labyrinths have been a common theme and one of the first examples of run-time generated content. Students are introduced to a variety of maze generation methods using a variety of methods. Fractal geometry is introduced to provide a powerful tool to recursively generate natural looking content like plants and terrain. The mathematical basis of chaotic systems provides the theoretical background necessary to understand the limits of these methods as well

as how to apply them to create new content. In addition to the technical content, students are required to demonstrate effective communication skills in these disciplines. Students are required to read and report out on a research paper of historical note or in an emerging field in content generation. Finally, a final project in the course will demonstrate the application of two or more of the concepts covered in the class.

Prerequisite: GAME 250 , CMPSC122 , and MATH 220

GAME 460: Video Game Lit Studies

3 Credits

A comparative look at the nature and history of video games as cultural artifacts, from Pong to online role-playing. This course meets the Bachelor of Arts degree requirements. The video game industry is larger than the film industry, and yet the academic study of video games has only just begun. This course is a comparative introduction to the nature and history of video games as cultural artifacts, from Pong to online role-playing. It introduces students to academic discussion on and creative work in new digital forms including hypertexts, video games, cell phone novels, machinima, and more. Students will learn basic narrative theory, and study its impact on game studies and game production. They will survey major debates over the meaning and value of video games, and review its history from Pong to contemporary games, including online world-based games. The course extends students' skills in literary interpretation to a variety of new objects, and makes them aware of the role medium plays in aesthetic development and production. Students will leave with a far sharper understanding of how the interpretive tools used in the humanities can be extended to include new media, and with a sense of the historical role video games have played and will continue to play in global cultural production.

Prerequisite: GAME 160 , GAME 140 , or 3 credits in literature; Concurrent: GAME 160 or GAME 140 if desired
Cross-listed with: CMLIT 490
Bachelor of Arts: Humanities

GAME 480: Game Development Project

3 Credits

A team of students manages the production of a game from concept to implementation. GAME 480 Game Development Project (3) In this course students take the entire semester to creating a game that will be published. Students are assembled into teams and will be expected to create a game from conception to publication in a very short period of time. What will result from the completion of this course is a demonstration of the knowledge accumulated in previous GAME courses and in important components of your portfolio to enable you to obtain a job in the industry.

Prerequisite: 3 credits of 400 level GAME classes

GAME 495: Internship

1-18 Credits/Maximum of 999

Supervised off-campus, non-group instruction including field experiences, practicums, or internships. Written and oral critique of activity required.

Prerequisite: 3 credits of GAME courses. Prior approval of proposed assignment by instructor

Geography (GEOG)

GEOG 1N: Global Parks and Sustainability

3 Credits

This course uses parks and protected areas - both in the U.S. and globally - as a framework for exploring broad themes of sustainability, conservation, and socio-ecological systems. Case studies that exemplify U.S. and international parks (i.e., parks and protected areas embedded within complex landscapes) are used to convey stories of evolving attitudes and approaches toward conservation and sustainability. These stories help explain the historical, transitioning, and future role of conservation in societies shaped by local ecologies, conflict, and change. The unique geographies of conservation parks - past and future - reinforce and challenge a globally dynamic conservation discourse. Examining the sustainability of conservation activities themselves, as well as the socio-ecological systems in which they are embedded, can provide a lens through which we can begin to understand other cultures, aesthetic values and value systems, and the diverse ecologies of Earth. In this course, we will: - Explore the history of parks and protected areas globally, including the development of the U.S. National Park system, and the globalization of conservation and sustainability policies and approaches - Examine globally representative case-studies to assess how parks and protected areas are part of both social and ecological landscapes ("parks") - Assess new challenges and opportunities for conservation in an era of rapid change and conflict - Evaluate the history, current socio-ecological condition, and future approaches in sustainability for a particular global parkscape By the end of the course students should be able to: - Describe why the idea of 'wilderness' is both influential and contested - Explain temporal and spatial trends in national and international conservation management - Compare and contrast contemporary conservation approaches - Illustrate a parkscape as a coupled socio-ecological system - Identify key drivers of future ecological change affecting conservation management

Bachelor of Arts: Natural Sciences

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

United States Cultures (US)

General Education: Natural Sciences (GN)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GEOG 2N: Apocalyptic Geographies: How can we prevent the end of the world?

3 Credits

This course explores various visions of the apocalypse and their relevance for addressing major contemporary social, ecological, and economic issues. These issues include global climate change, nuclear war, the growing refugee crisis, the breakdown of democratic governance, economic recession and forms of everyday violence and social fracture. Students will develop and employ critical and analytical thinking skills to engage a diversity of texts from the humanities (e.g., historical and literary accounts, graphic novels, films and other historical and contemporary media) and contemporary popular culture in order to situate these apocalyptic visions in particular historical, cultural, and

political contexts. Students will utilize integrative thinking skills and an interdisciplinary geographic approach to connect these visions with contemporary social issues in order to consider how we might address these complex problems while imagining and actualizing alternative futures. Students will practice global learning, drawing on course material that engages U.S. and cross-cultural perspectives in recognition of the global reach of the interconnected social, economic, political, and cultural systems that shape humanity's shared fate.

International Cultures (IL)

United States Cultures (US)

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

GEOG 3N: Food and the Future Environment

3 Credits

GEOG 3 introduces students to the multiple connections of people and the environment through the dynamics of food and the places where it is produced, processed, and consumed. It introduces an integrated human-environment perspective on food systems in the United States, with emphasis on the Northeast and Western U.S., as well as in diverse locations around the world. The course offers a global perspective on the major challenges and opportunities facing food systems, including the sustainability of agriculture, organization of global food systems and local food initiatives, food insecurity, and the influence of modern diets on human health. This course promotes critical thinking regarding key concepts in Environment and Society Geography such as coupled human-environment systems, the Anthropocene; anthropogenic landscapes and domestication; carrying capacity; ecological footprint; life-cycle analysis; globalization; urbanization, dietary change and land use; soils and society; environmental and social justice; climate change and resilience; agrobiodiversity and adaptive capacity; human-environment interactions involving vulnerability; regional analysis; geography and culture of food systems; development and food security; and social-ecological systems. Students are encouraged to examine their role and responsibilities for the sustainability of the social-ecological systems we inhabit and to take action in their own lives to contribute to a more equitable and sustainable environment. The course will provide students with the opportunity to read, learn, and debate the ways in which humans value, use, affect, and are affected by small-scale and large-scale human-environment interactions. It will provide skills for the critical analysis and evaluation of the ways in which humans have transformed the environment in different parts of the world. Students will also learn how to assess what future pathways are sustainable and ethically sound. One key course goal is to help students increase their sensitivity, awareness, and knowledge concerning the global and international context of human interactions with nature. Upon completion of this course, students will be able to: 1. Survey and analyze environmental resources in relation to systems of food production, land use, and consumption; 2. Survey and analyze how human food systems significantly alter the earth's environmental systems and landscapes; 3. Use environment and society geography to understand the resilience of agri-food systems in contexts of climate change, human population changes, and socioeconomic, cultural and policy factors.

Bachelor of Arts: Natural Sciences
 Bachelor of Arts: Social and Behavioral Sciences
 General Education: Natural Sciences (GN)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Soc Resp and Ethic Reason

GEOG 4: Earth and Environmental Systems Geography

3 Credits

Earth and Environmental Systems Geography provides a means for understanding how Earth operates naturally and in response to human action. This course takes a holistic, interdisciplinary approach, focusing on the Earth as a series of components that dynamically interact with one another via fluxes of energy and matter, biogeochemical cycles, and feedbacks. Together, the geosphere, atmosphere, hydrosphere, biosphere, and the anthroposphere (humans), make up the Earth system. This course explores these systems individually as well as their interconnections from the perspective of geography, and thus touches upon aspects of more traditional disciplines including atmospheric science, geosciences, hydrology, biology, and ecology. By studying the Earth as an assemblage of interacting parts and processes, this course will provide students with a critical scientific foundation and geographical perspective for understanding some of the most pressing human-environmental issues of the 21st century, including global climate change, environmental degradation, and loss of natural biodiversity.

Bachelor of Arts: Natural Sciences
 General Education: Natural Sciences (GN)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

GEOG 6N: Maps and the Geospatial Revolution

3 Credits

The rapid evolution of digital mapping technology via personalized digital mapping applications and location-aware devices has completely transformed how we use place and space to make decisions about human and environmental problems. This course introduces the fundamentals of cartography, geographic information science, and associated technologies through mapping and spatial analysis to answer key human and environmental problems. The class explores the power and utility of geographic information to transform how we navigate, tell stories about data, and make decisions that impact people and the planet. The course also encourages students to become knowledgeable, critical, and ethical consumers of maps and geographic data produced by government agencies, industry, and the media. Hands-on laboratory exercises, individual creative mapping projects, and course lecture contents are designed to reveal the many ways in which geographic information can play a role in shaping contemporary society. In addition, key course elements focus on the diversity and growth associated with the geospatial industry, an industry that is expected to grow rapidly over the next twenty years. Students who successfully complete Geography 6N will be able to: - Describe and explain fundamental concepts in Geographic Information Science (GIScience) and related technologies for making maps and solving spatial analysis problems; - Explain how and

why organizations create and use geographic data, including reference, thematic, and imagery sources - Demonstrate geographic information literacy to identify the kinds of geographic information needed for a particular task, determine whether needed data are available, use relevant technologies to acquire data, and to interpret and explain maps of the data critically; - Create digital thematic maps to tell stories about geographic phenomena

Bachelor of Arts: Natural Sciences
 Bachelor of Arts: Social and Behavioral Sciences
 General Education: Natural Sciences (GN)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking

GEOG 10: Physical Geography: An Introduction

3 Credits/Maximum of 3

Survey and synthesis of processes creating geographical patterns of natural resources, with application of basic environmental processes in resource management. GEOG 010 Introduction to Physical Geography (3) (BA) This course meets the Bachelor of Arts degree requirements. Introduction to Physical Geography systematically examines the spatial patterns and interrelationships among physical elements at the earth's surface. Particular emphasis is given to developing an integrative view of how atmospheric, hydrologic, geomorphic, and biotic processes control the patterns of climate, water, landforms, soils, and biota across a local-to-global continuum. Those physical elements that influence and/or are influenced by people are the primary focus of study. Physical geography does not simply discuss the atmosphere, hydrosphere, lithosphere, and biosphere in isolation; instead, it concentrates on understanding the integration of these realms of the natural world. For example, the study of weathering processes demonstrates how the physical and chemical breakdown of Earth's surface material depends on the interaction of air, water, and biota with rock. The focus of physical geography is unlike the component disciplines from which it draws. On the one, hand, meteorology focuses on the atmosphere above our heads. Hydrology focuses on water in isolation from people. Geology and soil science focus on the Earth beneath our feet. Biology and ecology focus on the plants, animals, and ecosystems in isolation from people. One the other hand, physical geography concentrates on the surface of the Earth where the atmosphere, hydrosphere, lithosphere, and biosphere intersect. Introduction to Physical Geography is concerned with the human habitat-the life layer in which humans interact with their natural world. Like all geography, five recurring themes permeate Introduction to Physical Geography: location, place, regions, movement, and human-environment relationships. Physical geographers not only are interested in where natural phenomena are located on Earth's surface, but also they want to know the answers to such questions as: 1. What is special about the physical processes that take place in a location? 2. How does the physical geography of a place relate to other places in the region? 3. How does energy and mass flow into and out of a region? 4. How do biophysical processes change as we move up and down spatial scales? 5. How do people influence natural processes? How do these processes influence people? Other disciplines typically do not cover these spatial and nature-society themes systematically. Physical geographers have developed and adopted many tools to address these themes. Maps are obvious choices, but geographers also use a wide array of photographic and imaging technologies to study the distribution of Earth processes and the processes themselves. They use geographic information systems

and computer models to manipulate, display, and analyze spatial data. Introduction to Physical Geography acquaints students with many of these tools. When the above points are taken together, physical geography emerges as a unique field of science. Introduction to Physical Geography provides a learning experience that students can get in no other discipline-one that takes an integrated view that makes the nature environment relevant.

Bachelor of Arts: Natural Sciences

GEOG 10H: Physical Geography: An Introduction

3 Credits

Survey and synthesis of processes creating geographical patterns of natural resources, with application of basic environmental processes in resource management.

Bachelor of Arts: Natural Sciences
Honors

GEOG 20: Human Geography: An Introduction

3 Credits/Maximum of 3

Spatial perspective on human societies in a modernizing world; regional examples; use of space and environmental resources; elements of geographic planning. GEOG 020

Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)
United States Cultures (US)

GEOG 20U: Human Geography: An Introduction

3 Credits

Spatial perspective on human societies in a modernizing world; regional examples; use of space and environmental resources; elements of geographic planning.

Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)
United States Cultures (US)
Honors

GEOG 30N: Environment and Society in a Changing World

3 Credits

GEOG 30N "Environment and Society in a Changing World" introduces students to the relationships between humans and the natural environment, in addition to the theories and methods that geographers employ in addressing them. The course begins with an overview of theories and key concepts to examine the interactions between social and ecological systems, across settings in the United States and globally. The course will provide students with the opportunity to read and learn about the ways in which humans think about, use, and are affected by the natural environment. It will also provide skills for analyzing and evaluating the ways in which humans have transformed the environment in different parts of the world through the integration of knowledge from the natural and social sciences. This class is designed to address big questions in human-environment interactions at the present time, while drawing upon their histories and key conceptual ideas. 1. What is a human-environment system? How does the geographic discipline

contribute towards understanding human-environment systems and sustainability? 2. Why do we conserve what we conserve? Is it possible to conserve natural resources and also meet human needs? 3. What are ways to manage the effects of economic development upon the natural environment? Is sustainable development possible? 4. How is climate change impacting social and ecological systems? Can we adapt to the impacts of climate change? One of the hallmarks of the discipline of geography is attention to how social and ecological processes interact and spread across spatial scales. This means that specific events, such as the consumption of particular product or the emission of greenhouse gases, connect sites within countries and across the globe. GEOG 30N meets the definition for both a US and international cultures course by emphasizing how current human-environment systems developed over time in the U.S. and internationally. GEOG 30N examines how various political, economic, and cultural factors influenced the creation of the different forms of human-environment systems that exist today. Further, it teaches students to see nations, cultures, and social identities in relation to one another, exploring how decisions made in relation to a human-environment system in one place or by one group can impact other people or places.

Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)
United States Cultures (US)
General Education: Natural Sciences (GN)
General Education: Social and Behavioral Scien (GS)
General Education - Integrative: Interdomain
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Integrative Thinking

GEOG 40: World Regional Geography

3 Credits

World Regional Geography examines a world that is undergoing political, economic, social, and environmental transformations at many different spatial scales. Viewing content through the lens of the Six Essential Elements of Geography (National Geographic Society) and other geographic concepts such as scale, place, and human-environment interaction, this course examines international linkages, such as economic globalization, which help to forge a world community. The course also examines more regional and localized manifestations that contradict our understanding of a global community and examines a variety of regions' physical systems, cultures, economic systems, environmental challenges, and political realities. Larger concepts such as North and South, developed and developing, and environmental degradation and climate change, take on new meaning when they are explored at a regional level.

Bachelor of Arts: World Cultures
Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)
General Education: Social and Behavioral Scien (GS)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Soc Resp and Ethic Reason

GEOG 97: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

GEOG 107N: Immersive Technologies - Transforming Society Through Digital Innovation

3 Credits/Maximum of 3

Immersive technologies are an emerging field. Although envisioned and available for several decades, technological challenges of the past made their application in education, research, and everyday life a rather specialized endeavor, restricted to research labs rather than being open to communities. This is changing with the advent of consumer grade VR headsets offered essentially by every major tech company and smartphones becoming devices to augment any physical reality. We refer to these technologies as xR as they comprise everything from augmented to virtual reality. This development is occurring at an incredible pace and is opening new opportunities for the integration of this technology into every aspect of human life. xR is revolutionizing how humans communicate, how we experience spatially and temporally remote places, how we are able to view, understand, and analyze data, and how we train people. Instead of interacting with data on a 2D desktop screen, researchers and decision makers can immerse themselves in virtual environments where geospatial data are represented in intuitive, immersive, and flexible ways. In parallel to developments in xR we are witnessing an incredible increase in creating content for immersive experiences; with the ready availability of massive amounts of environmental data (e.g., LiDAR) and efficient 3D modeling technologies (e.g., SketchUp, CityEngine), realistic immersive scenarios are easier to create than ever before. We are seeing a paradigm shift which enables new methods of environmental decision making from urban planning to climate change. The combination of xR and automated 3D modeling enables models of real-world places to be integrated within data visualization workbenches. This course will provide students with the basics of what xR technologies are and what their history is, it will connect xR to recent developments in 3D modeling and environmental sensing as two sides of the same coin in that one is focusing on content creation and the other on accessing content. The course will theoretically address what the key features of xR are and introduce students to core concepts such as immersion, presence, and reality-trade off. Furthermore, the course will provide students with hands on experiences to create their own xR experiences focusing on entry level technologies such as 360 cameras, modeling using SketchUp, photogrammetry techniques such as structure from motion mapping, and Unity, a game engine flexible to cater to a broad range of needs.

General Education: Natural Sciences (GN)

General Education: Social and Behavioral Sciences (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Integrative Thinking

GEOG 110: Climates of the World

3 Credits/Maximum of 3

Introduction to climatology, including principal processes of the global climatic system and their variation over space and time. GEOG 110

Bachelor of Arts: Natural Sciences

GEOG 110H: Climates of the World

3 Credits

Introduction to climatology, including principal processes of the global climatic system and their variation over space and time. GEOG 110

GEOG 115: Landforms of the World

3 Credits/Maximum of 3

Geography 115 World Landforms (GN) provides an introduction to the modern geologic study of landforms and the Earth processes responsible for their creation and modification. Emphasis is placed on internal geophysical processes and external landscape responses to tectonic and climatic forcing. The course is structured into three units. The first unit introduces Earth's atmospheric processes. The second unit examines the relationship of water, weather and climate change to the dynamic equilibrium of landforms. The final and largest unit covers tectonics, weathering, mass movement, and fluvial, coastal and glacial processes and their role in shaping the large-scale details of Earth's topography and the geographic distribution of resources. This course includes 2 lecture discussions and weekly laboratory practicums with emphasis on terrain analysis, natural hazards and human adaptation and contribution to landscape change.

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

GEOG 123: Geography of Developing World

3 Credits

Patterns of poverty in poor countries; conventional and non-conventional explanations; focus on solutions; case studies of specific regions.

Bachelor of Arts: World Cultures

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

GEOG 124: Elements of Cultural Geography

3 Credits

Locational analysis of changes in non-Western cultures. Problems of plural societies, economic development, population growth, and settlement. GEOG 124 Elements of Cultural Geography (3) (GS;IL)(BA) This course meets the Bachelor of Arts degree requirements. Elements of Cultural Geography, provides an overview of the impact of cultural processes at multiple scales, from the global to the local. Class time will include lectures and discussions in relation to how social identities, such as race and class, just to name a few, impact and are impacted by geographic concepts such as landscape, place and space. The course aims to survey and explore a range of perspectives on the nature of human integration with the environment and the manifestation of human culture on the landscape. The course will engage philosophical and metaphysical questions in addition to those of landscapes and place. The ultimate objective is for participants to develop a deep and multidimensional understanding of how social identities and the environment are inter-related. This course is a selection for majors; it has

no prerequisites and is not a prerequisite for any other course. It provides a foundation for understanding human-environment interactions at a global scale, including the regional interactions involved.

Bachelor of Arts: World Cultures
 Bachelor of Arts: Social and Behavioral Sciences
 International Cultures (IL)

GEOG 126: Economic Geography

3 Credits

This course is an introductory course on economic geography and serves as background for any course on international economics, economic development, international political economy, and international business management. GEOG 126 promotes the study of national and international macroeconomic concepts and principles through a geographic and geospatial lens, uncovering how physical and human systems influence economic decision-making and behavior around the globe. GEOG 126 provides a balanced view of contemporary globalization processes across the world, focusing on a wide range of topics including the history of globalization, spatial structures of firms and business, international trade, and state interventions based on detailed case studies.

Bachelor of Arts: Social and Behavioral Sciences
 International Cultures (IL)
 United States Cultures (US)
 General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking

GEOG 128: Geography of International Affairs

3 Credits

Contemporary international affairs in their geographical setting; geographic elements in the development of national power, political groupings, and international disputes. GEOG 128 Geography of International Affairs (3) (GS;IL)(BA) This course meets the Bachelor of Arts degree requirements. Geography of International Affairs uses the organizing principle of geographic scale to examine the spatial patterns of and interrelationships among political processes and institutions. Particular emphasis is given to developing an integrative view of how global, national, local and individual scale processes interact to produce patterns of peace and conflict. The course analyzes how the actions of individuals, states and other political actors are influenced by their dynamic geographical contexts. The political geography approach does not simply discuss the war, peace, nationalism, terrorism, and religious organizations in isolation; instead, it concentrates on understanding the integration of these processes, and how their integration mediates political decisions and outcomes. Geography of International Affairs is concerned with the geopolitical context, broadly defined - the manner in which spaces and places are combinations of the political and the social, the domestic and the international, the global and the local - and how it partially determines the form and outcomes of politics. As a course in geography, Geography of International Affairs encourages students to interpret political problems, actions, and disputes through the lens of the Six Essential Elements of Geography (National Geographic): Places and Regions; Physical Systems; Human Systems: Environment and Society; the World in Spatial Terms; and Uses of Geography. Further, this course also encourages students to examine and interpret international

affairs through the lens of different geopolitical theories, developed by the likes of Ratzel, Mahan, Mackinder, Spykman, Kissinger, Wallerstein, and others. In this sense, students are encouraged to adopt the role of political geographers. Political geographers have developed and adopted many tools to address these themes. Maps are obvious choices, but geographers also use a wide array of statistical and qualitative techniques to study the distribution of political processes and the processes themselves. They use geographic information systems and computer models to manipulate, display, and analyze spatial data. Geography of International Affairs acquaints students with many of these tools. When the above points are taken together, political geography emerges as a unique field of social science. Geography of International Affairs provides a learning experience that students can get in no other discipline - one that takes an integrated view that makes contemporary international affairs relevant and understandable.

Bachelor of Arts: Social and Behavioral Sciences
 International Cultures (IL)
 General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking

GEOG 160: Mapping Our Changing World

3 Credits

Fundamental concepts of GIS, cartography, remote sensing, and GPS in the context of environmental and social problems. GEOG 160 Mapping Our Changing World (3) (GS)(BA) This course meets the Bachelor of Arts degree requirements. Mapping involves producing and using geographic data. Geographic data specify the locations and characteristics of people, the objects people create, and the various phenomena of the natural environment with which people interact. Geographic data are produced by several methods, including land surveying, aerial photography and photo grammetry, satellite remote sensing and positioning systems, and social surveys such as those conducted by the U.S. Census Bureau. Geographic information systems (GIS) and related technologies are used to turn data into maps, tables, and other kinds of information people need to make informed decisions. In a rapidly changing world, detailed, up-to-date geographic data are indispensable for governance, for commerce, and for research intended to improve our understanding of social and environmental systems. GEOG 160 helps students begin to develop the knowledge, skills, and dispositions that constitute geographic information literacy - the ability to 'recognize when information is needed and ... to locate, evaluate, and use effectively the needed information' (ALA 1989). Geographic information science (GIScience) is a search enterprise concerned with the design, development, and use of geographic information technologies to help institutions and individuals not only respond to, but ideally to predict, environmental and social change. GEOG 160 is an introduction to GI Science that provides students with the technical and contextual knowledge they need to become knowledgeable consumers of geographic data and information produced by government agencies, industry, and popular media. The course is intended to be of value not only to future specialists in the geographic information enterprise, but also to every student who is concerned with social and environmental research and policy-making. Like other information technologies, GIS is evolving rapidly. People who work with GIS understand that learning is a way of life, not just a prelude to a career. With this in mind, GEOG 160 aims not only to help students

learn about geography and GIS, but also to develop the disposition to become effective lifelong learners.

Bachelor of Arts: Social and Behavioral Sciences
General Education: Social and Behavioral Scien (GS)

GEOG 161: Applied Geographic Information Systems

1 Credits

An introduction to GIS (Geographic Information Systems) with emphasis on applications and analysis. GEOG 161 GEOG 161 Applied Geographic Information Systems (1) GEOG 161 is a one-credit two-hour laboratory course to be taken concurrently with GEOG 160, Mapping Our Changing World. GEOG 160 and GEOG 161 will be offered concurrently as a required course pair for the proposed Environmental Studies Option within the B.S. Science major (SCNBD) at Behrend College. The courses can also be choices in the 'Supporting Courses and Related Areas' list for the B.S. Science major's General, General Pre-certification, and Earth & Space Science Pre-certification options. The purpose of the course is to familiarize students with GIS and provide them with the ability to use GIS software commonly used by industry, academia, and government agencies. GEOG 161 will provide students with training and experience in computer-based practical applications of concepts and theory learned in GEOG 160. They will analyze and solve 'real-world' problems using hands-on, problem-solving, and inquiry-based approaches to learning. Students will work individually and in small teams in a GIS software-equipped computer laboratory. Students will be evaluated based on the quality of laboratory reports/assignments and on a larger research project with a presentation conducted during the final five weeks of the semester. GEOG161 will be offered at least once per year. Enrollment is expected to be 8-20 students.

Prerequisite: or concurrent GEOG 160

GEOG 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

GEOG 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Prerequisite: prior approval of program
International Cultures (IL)

GEOG 210: Geographic Perspectives on Environmental Systems Science

3 Credits

This lecture, lab and field-based course explores Earth's physical environment and its interactions with human activities. While it is intended primarily for Geography majors and minors, the subject matter and approach are sufficiently broad to be relevant to any student with interests in the environmental and natural sciences. We survey the geographic patterns and physical processes attending Earth's environmental and landscape systems; its climate, hydrology, landforms, soils and vegetation, and their mutual interactions of energy and mass (water, sediment). We adopt both spatial 'map-able' and temporal perspectives; for example, the evidence for, causes of, and impacts from,

past and contemporary environmental changes such as glaciations, pluvials (wet periods), and warming. An important emphasis involves human interactions with the natural environment; how human activities are constrained by, yet also constrain processes and alter features of, the physical landscape across spatial and temporal scales. Representative topics include the burning of fossil fuels and emissions of greenhouse gases and particulates into the atmosphere, natural gas fracking and earthquakes, river diversion and dam construction, ground-water withdrawal and land subsidence, urbanization and the 'heat island' effect, land clearance and deforestation, irrigated agriculture, wildland fire, the introduction of invasive species, and coastal over-development. Our examples will come from across the globe, from areas as diverse as tropical oceans to the polar deserts. An important outcome of the course is that students become better scientific observers of Earth's environmental system and its spatio-temporal variations.

Recommended Preparations: (ENGL 15 or ENGL 30H or ENGL 137 or CAS 137 or ESL 15) or EMSC 100

Bachelor of Arts: Natural Sciences
General Education: Natural Sciences (GN)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Key Literacies

GEOG 220: Perspectives on Human Geography

3 Credits

Why are some countries richer than others? How do consumption patterns in one part of the world affect 'far flung' peoples and environments? How does global warming shape land use patterns and rates of hunger across different regions, and what are the political implications of these patterns? Why do rich economies around the world increasingly depend on the recruitment of low-wage immigrant workers, both "legal" and "illegal"? How do race and gender shape access to services, housing and employment in many large cities? In what ways does drone warfare change the nature of state power in the 21st century? These kinds of questions are ones that animate the work of human geographers. The purpose of this course is to introduce you to the breadth of contemporary human geography. We will explore both the range of topics that geographers study, and some of the key concepts and methods used to study geographic topics. Major themes will investigate how cultural, economic, political, and environmental interactions relate to geographic processes. These general topics will be explored through a detailed examination of case studies in the United States and across the globe

Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)
United States Cultures (US)
General Education: Social and Behavioral Scien (GS)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Integrative Thinking

GEOG 230: Geographic Perspectives on Environment, Society and Sustainability

3 Credits

Recommended Preparations: Completion of a basic rhetoric and composition course (ENGL 15; ENGL 30 ENG 137 CAS 137 ESL 15) OR completion of College of Earth and Mineral Sciences First-Year

Seminar EMSC 100 is recommended. A major theme in the discipline of geography is the study of the relationships between humans and the natural environment. GEOG 230 introduces students to the multiple ways in which people and the environment are interconnected. From a dynamic systems perspective, we refer to this interconnectedness as 'coupled social-ecological systems.' The course uses a geographic perspective to understand how differently these linkages are shaped in various ecological and cultural settings around the globe. The course follows an interdisciplinary approach, exploring from multiple angles major environmental and societal challenges such as climate change, genetically-modified food, over-consumption, disease, and environmental service provision in the industrialized North and the Global South. It promotes critical thinking regarding key concepts such as carrying capacity, ecological footprints, feedback, stability domains, and resilience. Students are encouraged to examine their role and responsibilities for the sustainability of the social-ecological systems we inhabit and to take action in their own lives to contribute to a more equitable and sustainable environment. The course will provide students with the opportunity to read, learn, and debate about the ways in which humans value, use, affect, and are affected by small-scale and large-scale human-environment interactions. It will provide them with skills for critically analyzing and evaluating the ways in which humans have transformed the environment in different parts of the world. They will also learn how to assess what future pathways are sustainable and ethically sound. One key goal of the course will be to help students increase their sensitivity to the global and international context of human interactions with nature. A discussion section allows students to explore controversial issues such as biotechnology, nature as a commodity, and global warming, and to develop critical positions on such issues. Through attendance of lectures, participation in discussion sections, and completion of reading and writing assignments, successful students will:

- build an interdisciplinary understanding of how biophysical and social environments are intertwined and shape one another
- comprehend the range and importance of different disciplinary approaches to researching human-environment systems
- develop a toolkit of key concepts and theories for understanding human-environment systems and evaluating questions of sustainability
- evaluate and critique different perspectives for intervening in human-environment interactions, including sustainable development, deep ecology and degrowth.

GEOG 260: Geographic Information in a Changing World: Introduction to GIScience

3 Credits

In a rapidly changing world, detailed, up-to-date geographic data are indispensable in governance, commerce, security, public health, and many other domains. These data are also needed to support research intended to improve our understanding of social and environmental systems. Making data useful in these domains requires methods and tools that transform data to information and that make that information accessible where and when it is needed. Geographic data specify the locations and characteristics of people, and objects both natural and anthropogenic in nature. Geographic data are produced by several formal methods, including land surveying, aerial photography and photogrammetry, satellite remote sensing and positioning systems, and social surveys such as those conducted by the U.S. Census Bureau. They also are derived through informal methods that rely on the vast and growing array of location-enabled devices including cell phones, smart watches, credit card transaction records, and RFID tags on packages, along with volunteers compiling input to projects such as the Open Street Map. Geographic information systems (GIS) and related technologies

are used to turn those data into the information people need to make informed decisions. Maps and related graphics generated on a wide array of devices from cell phones to large touch-screen displays then make the information more accessible and by doing so enable those decisions. Geographic Information Science (GIScience) is concerned with the design, development, and use of geographic information and technologies (also called geospatial technologies) to help institutions and individuals respond to, and ideally to predict, environmental and social change. This course provides a broad, practical foundation of Geographic Information Science methods and technologies for aspiring Geography majors and students pursuing the Geographic Information Science minor or undergraduate certificate, as well as students whose academic programs utilize geospatial information and analysis. Course Objectives The overall objectives of GEOG 260 are that students will:

1. gain a broad perspective on geographic information science and related technologies and how those technologies are used to collect, process, and provide access to geographic data;
2. be prepared for more advanced study of GIS, remote sensing, cartography, and spatial analysis. After the course, students will be prepared to demonstrate:

1. Familiarity with the professional, academic, and industry-specific competencies (Positioning & Data Acquisition; Analysis & Modeling; Software & Application Development) specified in the U.S. Department of Labor's Geospatial Technology Competency Model (GTCM).
2. How to appropriately acquire, apply, and communicate geographic data and information
3. Lifelong learning skills, including the ability to investigate topics independently, the ability to work in teams, and the ability to communicate effectively.
4. The ability to use maps and geospatial technology as a story-telling medium.
5. How and why Geographic Information Science matters in a changing world.

Recommended Preparation: (ENGL 15 or ENGL 30H or ENGL 137H or CAS 137H or ESL 15) or EMSC 100S

Bachelor of Arts: Social and Behavioral Sciences

General Education: Social and Behavioral Sciences (GS)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Critical and Analytical Thinking

GenEd Learning Objective: Key Literacies

GEOG 294: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

GEOG 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

GEOG 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Social and Behavioral Sciences

GEOG 298: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Social and Behavioral Sciences

GEOG 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Prerequisite: prior approval of program
International Cultures (IL)

GEOG 301: Thinking Geographically

3 Credits

Learning to think geographically. GEOG 301 Thinking Geographically (3) The course explores the process of thinking geographically. As a discipline that draws on elements of four intellectual traditions - the physical sciences, the social sciences, the information sciences, and the humanities - geography offers an extensive palette of approaches to the study of the interactions among people, places, and environments. In addition to those traditions, geography also draws on key themes: setting events and activities into multiple spatial and temporal contexts; setting events and activities into multiple spatial scales from the local to the global; seeing complex, multi-way interactions between human and physical systems; recognizing the interconnectedness between places. In terms of methods, the fundamental building block is the idea of geospatial location and the associated spatially- or geo-referenced data. Data, both quantitative and qualitative in character, is increasingly available in terms of amounts and quality. Students must come to appreciate and be able to use this powerful way of thinking about the world. GEOG 301 assumes a beginning understanding of geography, in terms of basic content knowledge, and builds an understanding of how to think geographically, how to ask geographic questions, how to find geographic answers, how to assess the quality of those answers, and how to present and communicate those answers convincingly and compelling in multiple formats. Students will learn how to think geographically and to appreciate the power, applicability, and limitations of the geographic approach. Each year the course is organized around a significant contemporary problem as a commonly shared case study. Students will work in small groups to analyze the case study, presenting their own portfolio of work for 60% of the course grade and collaborating with group colleagues for a collective presentation for 40% of the grade. Work will be submitted in stages through ANGEL. GEOG 301 is required of all geography majors and will be offered Fall and Spring of each academic year with an annual enrollment of approximately 120 students. Preference will be given first to declared Geography majors, then to Geography minors, before places are offered to students from other programs. Geography 301 is a bridge between the knowledge that comes from the broad-based introductory geography courses and the detailed understanding that comes from the focused, advanced-level geography courses. It enables students to learn about and to practice geographical thinking in real-world contexts.

Prerequisite: GEOG 010 , GEOG 020 , GEOG 030 , Prerequisite or concurrent: GEOG 160

GEOG 308: Research and Qualitative Inquiry in Geography

3 Credits

This course examines the theory and practice of research in geography, with particular emphasis on qualitative inquiry commonly used by human as well as environment-society geographers. Students will explore fundamental debates regarding methods and knowledge claims that underlie the research process. Students will also gain hands-on experience developing research questions and using secondary scholarly literature and primary data to explore their question(s) in written and oral formats. Particular emphasis will be paid to the ethics and practices associated with qualitative methods, including the approaches taken by geographers in the collection and analysis of interview, observational, and textual data. Course Objectives and Learning Outcomes By the end of this course students will be able to: - Explain and compare models of knowledge underlying distinct methodological approaches in Geography - Describe research design principles commonly used in qualitative research - Evaluate the appropriate use of interview, observational and textual sources of primary data - Employ qualitative data collection methods to collect interview, observational and textual data. - Explain the ethical dimensions of qualitative research and assess strategies to navigate these constraints both practically and ethically - Find and appraise scholarly, peer-reviewed literature in relation to the student's research topic - Develop a research question, justify it in relation to scholarly literature, and mobilize primary data to provide evidence for your analysis of the question. - Communicate research and analysis in written and oral formats.

GEOG 310: Introduction to Global Climatic Systems

3 Credits

This intermediate-level course in Climatology emphasizes geographic patterns of interannual climate variability (climate variations) and physical processes responsible for those variations (climate dynamics). Interannual climate variations include regional- to large-scale anomalies of temperature, precipitation, cloud cover, etc., that may manifest as extreme weather (drought, floods, heat and cold waves, etc.). The physical processes associated with these fluctuations include the following: interactions among climate-system components (atmosphere, biosphere, cryosphere, hydrosphere); external forcing (e.g., solar variations, volcanic activity); and long-distance interactions involving coupled atmospheric-ocean circulations, or teleconnections (El Niño Southern Oscillation (ENSO), the North Atlantic Oscillation (NAO), the Arctic Oscillation (AO), and the Pacific-North America (PNA) pattern). Climatic teleconnections manifest shifts in the atmospheric pressure "centers of action", storm tracks, long waves, jet stream positions, etc. We study the patterns and processes of regional climate features such as the South Asian and West African monsoons, "nor-easter" snow storms, Arctic/Antarctic sea ice variations, the summer/winter transition in Mediterranean-type climates, the role of "blocking" in middle-latitude climate variations, etc. Also, the course examines the role of human activities in climate, particularly the "global warming" related to increases in greenhouse gases, biomass burning, desertification, deforestation and afforestation, urbanization, irrigation for agriculture, and jet aviation. A key issue addressed is the role of human activities in possibly altering the frequency and intensity of teleconnections, especially ENSO, and of severe storms (thunderstorms, tornadoes) and hurricanes. The possibilities for geo-engineering the climate are also considered. In understanding the physical processes of climate, students are better able to assess the extent humans are a factor in contemporary climate changes. Course Objectives: 1. Understand how climate variables depict

the characteristic patterns of climate and its variations on local/regional to hemispheric/global scales (climate diagnostics); 2. Evaluate the physical processes responsible for those climate and weather variations and their role in regional-scale phenomena (climate dynamics); 3. Assess the role of human activities in contemporary climate changes, on scales of the urban heat island to global warming (human impacts on climate); Upon completing this course, students will understand the geographic patterns (regional to global) and physical processes associated with climate variations, trends and changes on seasonal through interannual to decadal/multi-decadal temporal scales.

Prerequisite: GEOG 210 or GEOG 10; or METEO 3; or METEO 201

GEOG 310W: Introduction to Global Climatic Systems

3 Credits

Introduction to global atmospheric circulation, including tropical, midlatitude and polar subsystems; ocean, land, cryospheric and urban climatic systems and interactions. GEOG 310W GEOG 310W Introduction to Global Climatic Systems (3) Geography 310W is an advanced undergraduate course in Climatology that emphasizes study of the patterns of interannual climate variability (climate fluctuations) and the physical processes responsible for those variations (climate dynamics). Interannual climate variations include regional- to large-scale anomalies of temperature, precipitation, cloud cover, etc., that become manifest as drought, floods, heat and cold waves, etc. The physical processes associated with climate fluctuations include the following: interactions among the climate-system components (atmosphere, biosphere, cryosphere, hydrosphere); external forcing (e.g., solar variations, volcanic activity); and long-distance interactions involving the coupled atmospheric-ocean circulations, or teleconnections (El Niño Southern Oscillation (ENSO), the North Atlantic Oscillation (NAO), the Arctic Oscillation (AO), and the Pacific-North America (PNA) pattern). Climatic teleconnections manifest shifts in the atmospheric pressure "centers of action", storm tracks, jet stream positions, etc. In addition to the study of these climate patterns and processes, the course examines the role of human activities in climate, particularly "global warming", desertification, deforestation and afforestation, urbanization, irrigation for agriculture, and aviation impacts. In this regard, a key issue that is addressed is the potential role of human activities on the frequency and intensity of teleconnections, such as ENSO, and of severe storms (thunderstorms, tornadoes) and hurricanes; possibly the result of modifications to the oceanic Thermo-Haline Circulation. Students write a term paper, as well as critiques of a number of published articles relating to the above topics in climate dynamics. There is a mid-term (essay) exam but no final exam.

Prerequisite: GEOG 010 or METEO003

Writing Across the Curriculum

GEOG 313: Introduction to Field Geography

3 Credits

Introduction to the methods and techniques for collecting spatial and environmental data for physical geography and ecological studies. GEOG 313 GEOG 313 Introduction to Field Geography (3) This course explores a variety of methods used to acquire primary data from field locations. Aspects of physical, chemical, biological, and cultural factors are examined. Fieldwork is often an important component of research and it involves collecting and analyzing data, handling logistical concerns, developing sampling strategies and techniques, and addressing quality assurance and archiving issues. The course objectives are: to explore methods used to collect, analyze, and interpret field data;

to expose students to techniques for sampling physical (geomorphologic, topographic, hydrologic), chemical (water and soil), and biological (flora and fauna) factors; and to explore ways to use field data to interpret geographical and ecological questions and hypotheses. Evaluation involves preparation of written laboratory reports, assignments, and tests. The course is offered every Fall semester with enrollment limited to the number of students supported in a laboratory section.

Prerequisite: GEOG 160

Bachelor of Arts: Social and Behavioral Sciences

GEOG 314: Biogeography and Global Ecology

3 Credits

Dynamics of plant and animal distributions on global, regional, and local scales; their causes and consequences.

Prerequisite: GEOG 010 or BIOL 110 or equivalent

Bachelor of Arts: Social and Behavioral Sciences

GEOG 315: Landforms and Geomorphic Systems in the Anthropocene

3 Credits

Geography 315 builds on concepts presented in the introductory physical geography course to explore the subfield of geomorphology from a geographic perspective. It surveys the various processes shaping Earth's surface and the landforms resulting from those processes. The course relates these processes and landforms and their connection to human activity on Earth's surface. By taking this course, students will be able to: 1. recognize basic geomorphic processes and the resulting landforms and landscapes; 2. identify the observations and measurements used to understand geomorphic processes and landforms; 3. explain the implications for human use and livelihood on Earth's landforms and landscapes For students who are not geography majors, GEOG 315 may satisfy a General Education Natural Science requirement or may be used as a Natural Sciences selection for students pursuing a Bachelor of Arts degree.

Prerequisites: GEOG 210 or GEOG 10

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

GEOG 320: Urban Geography: A Global Perspective

3 Credits

For the first time in human history, urban dwellers came to outnumber rural residents in the year 2000. The influence of cities extends to nearly every point on the globe. Urban areas, however, differ dramatically in their physical structure, economic base, governance patterns and the lived experiences of their residents with diverse work patterns, striking inequalities in living conditions and varied cultural expression. In short, contemporary cities are vibrant and complex phenomenon formed by conflicting social forces and economic processes. This course examines urban settlements and analyzes the processes of urbanization from a global perspective.

Prerequisite: GEOG 20 or GEOG 220

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)
United States Cultures (US)

GEOG 324: Place, Space and Culture

3 Credits

What is culture? Is it good literature, music, art and food? Or is it a full range of learned human behavior? Culture is in itself a very exciting topic; it invokes diverse imaginaries of life, livelihoods, ways of living, languages, and forms of entertaining, consuming, playing, and eating. In this course, we will delve deep to understand the 'how' and 'why' of culture, that is, how is a particular cultural landscape, a mode of living, produced and why? Most importantly, this course will examine how culture is not a stand-alone concept but rather a phenomenon that intersects with other social processes such as politics and economics. This course aims to survey and explore a range of perspectives on the nature of human integration with the environment and the manifestation of human culture on the landscape. The course will engage philosophical and metaphysical questions in addition to those of landscapes and place. The ultimate objective is for participants to develop a deep and multidimensional understanding of human-environment relations, and the manifestation of human activity on the landscape. Learning Outcomes: Through taking this course, students will be able to: 1. analyze the major themes and debates within cultural geography; 2. interpret representations of landscape, space and place in a variety of textual materials, such as academic readings, films, novels, newspaper articles and art; 3. evaluate the landscape, space and place as an expression of cultural forces.

Prerequisites: GEOG 220 or GEOG 20 or GEOG 2N
Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)
United States Cultures (US)
General Education: Social and Behavioral Scien (GS)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Integrative Thinking

GEOG 326: Geographic Perspectives on Economic Systems

3 Credits

This course builds on concepts presented in the introductory human geography course to explore the subfield of economic geography. It serves as a foundation for courses on economic development, political economy, and other offerings in geography. It will provide a balanced view of contemporary economic processes across the world through a geographical lens, focusing on a wide range of topics including the history of globalization, spatial structures of firms and businesses, international trade, and state interventions. The main objective of this course is to give students access to a geographer's lens for analyzing, interpreting, and critiquing information related to the economy. By the end of the course, students should be able to evaluate the role of different abstract principles in the creation of the economic landscape and to incorporate important critiques of these abstractions into their understanding of how and why uneven development is produced in economic systems. This course will also develop students' skills in formulating and presenting written and oral arguments based on their own knowledge in conjunction with various reference materials.

Prerequisite: GEOG 220 or GEOG 20 or GEOG 2N

Bachelor of Arts: Social and Behavioral Sciences
General Education: Social and Behavioral Scien (GS)
GenEd Learning Objective: Creative Thinking
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Integrative Thinking

GEOG 328: War, Peace, and Diplomacy: Understanding Contemporary Geopolitics

3 Credits

This course expands on concepts presented in the introductory human geography course, understanding geopolitics and international relations through an examination of the spatial relationships among political processes and institutions. It explores the problems, promises and paradoxes of international violence and the efforts to address violence through human rights initiatives and international peace movements. Particular emphasis is given to developing an integrative view of how global, national and local scale processes interact to produce patterns of peace and conflict. The course analyzes how individuals, the state and other political actors engage with geography to produce violent or peaceful outcomes. GEOG 328 does not simply explore issues of violence and peace from a "top-down" perspective that focuses on the nation-state and international, state actors. Rather, it focuses on the multiplicity of perspectives and actors that come together to create violent or peaceful conditions. As a result, this course explores violence and the broader movement to address violence through human rights initiatives. We will explore violence and peace in the 20th and 21st centuries, the ways the organization of space and place is linked to violence and peace, and how international efforts to address violence and war are linked through time and space. This course also dissects the definition of human rights, the idea of 'just war' and the way peace movements may both sustain and undermine efforts at ending violence. Course Objectives: The overarching goal of this course is to educate us about the legacies of violence and the struggle to construct a more just and peaceful world. At the end of the semester students should be able to: 1) Define and articulate different notions of violence and recognize how the definition of violence is related to diplomatic efforts at addressing human rights violations. 2) Understand the relationship between violence in one area of the world and resulting broader geopolitical power dynamics, especially the human-territorial considerations of violence and peace. Learning Outcomes: At the end of this course students should be able to: 1) Identify and define structural violence. 2) Explain the differences between positive and negative peace. 3) Define human rights, and explain their connection to geopolitics. 4) Explain how truth processes work, and identify their strengths and limitations. 5) Identify how the definition of peace changes at different scales.

Prerequisite: GEOG 220 or GEOG 20

GEOG 330N: Political Ecology

3 Credits

This course introduces students to political ecology as one approach to advanced human-environment studies in geography. Political ecology is an interdisciplinary approach that combines environmental justice, cultural ecology, and other related approaches to undertake an integrated, holistic assessment of the relationships between social and ecological change. In particular, it analyzes the power dynamics at play in social and ecological marginalization and change; the social issues surrounding conservation of protected natural areas and species and conflicts over natural resources; the underlying causes of environmental conflicts;

and issues of justice and distribution as they relate to the production and consumption of environmental goods and services. Students will gain familiarity with a wide range of theories and methods central to contemporary human-environment geography, such as Marxist political economy, Foucauldian governmentality, feminist intersectionality, ethnography, and land change science. Students will increase their knowledge of the world in general, and of approaches to the challenges of environmental policy in particular, by learning how these theories and methods have been put to use in the analysis of case studies from many different countries and continents. They will develop their ability to conduct independent research, work collaboratively, and present their thinking verbally and in writing through a variety of exercises and assignments. Upon completing this course, students will be able to: 1. understand key theories in political ecology 2. evaluate contemporary debates in human-environment studies using political ecology thinking 3. apply political ecology theories and concepts to relevant topics 4. use integrated thinking across the natural and social sciences to analyze and produce possible solutions to complex human-environment challenges

Prerequisite: GEOG 230 or GEOG 30

Bachelor of Arts: Natural Sciences

Bachelor of Arts: Social and Behavioral Sciences

General Education: Natural Sciences (GN)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GEOG 332N: Science and policy of global greenhouse gas emissions and management

3 Credits

This interdomain course introduces students to the science and policy of greenhouse gas emissions. The course focuses on emissions from natural sources, energy production and food production. Policy components will introduce students to the fundamentals of environmental policy and examine key policy options for mitigating and managing emissions. Global in scope, the course will also address how emissions and policy options differ in developed and developing countries. Topics will include overviews of the global carbon cycle, agriculture and land use change emissions, history of global energy use and production, overview of global climate change policy, frontiers in climate, energy and agriculture policy, amongst others.

Enforced Prerequisite at Enrollment: ENGL 15

Cross-listed with: ANSC 332N, METEO 332N

General Education: Natural Sciences (GN)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

GEOG 333: Human Dimensions of Natural Hazards

3 Credits

An introduction to natural hazards, integrating physical and social science perspectives. GEOG 333 Human Dimensions of Natural Hazards (3)(BA) This course meets the Bachelor of Arts degree requirements. Natural hazards -such as earthquakes, tsunamis, volcanoes, and floods

are not simply forces of nature. Their impacts depend on the interaction between the hazardous events and the characteristics of people, their communities, and the human systems in which they operate. The physical dimensions of natural hazards require knowledge of physical science, and the human dimensions of natural hazards call for knowledge of social science. Nevertheless, understanding natural hazards means not only that students know the physical and social sciences, but also that they know how nature and society work together to increase or decrease potential harm posed by these phenomena. This course introduces students to the topic by surveying the range of natural hazards and by applying important social science perspectives, such as risk, vulnerability, and the true costs of hazards, to each of the hazards. Because the study of natural hazards is interdisciplinary, readings, lectures, and discussions address crucial aspects of both natural and social sciences. GEOG 333 has two goals: (1) to develop understanding of a set of issues related to the human dimensions of natural hazards; (2) to develop and apply communication skills by discussing, writing about, and presenting on natural hazards. The specific content of the course will change with the instructor, but the focus on interactions between the natural and human worlds and on skill-development in writing and speaking will be constant. Students will be evaluated on both the course goals: (1) understanding of the human dimensions of natural hazards; (2) application of communication skills. Although exact procedures for determining grades will vary with instructor, the basis for grades will always include a combination of written exams based on lectures and readings, oral presentations and papers, and in-class discussion and participation.

Prerequisite: junior or senior standing

Bachelor of Arts: Social and Behavioral Sciences

GEOG 361: Cartography--Maps and Map Construction

3 Credits/Maximum of 3

The art and science of creating small-scale maps as a medium for communication and research. GEOG 361 GEOG 361 Cartography - Maps and Map Construction (3)(BA) This course meets the Bachelor of Arts degree requirements. Mapping is crucial to exploring and understanding distributions of geographic phenomena. It is also an important phase of many database-intensive analyses because a map is often the best way to visualize results and show them to others. Emphases in this course will be on designing and producing both thematic and reference maps that use symbols and visual hierarchies which allow the content of the maps to be readily understood. In addition to principles of graphic design, students learn about map projections, generalization, and data classification, with the objective of becoming proficient mapmakers. Hands-on computer work for lab sections will involve working with varied digital data sources using GIS software. Maps are often built from existing data created by government mapping agencies, stored as geographic information systems (GIS) databases, and based on remotely-sensing imagery. The prerequisite for GEOG 361 is the 100-level mapping course covering basic principles of these technologies and data sources. The course is typically offered once a year. Evaluation is based on written exams and mapping projects that students produce to map location information and represent social and environmental data.

Prerequisite: GEOG 160

Bachelor of Arts: Social and Behavioral Sciences

GEOG 362: Image Analysis

3 Credits/Maximum of 3

Introduction to the basic principles of remote sensing, and the analysis of aerial and satellite data. GEOG 362 GEOG 362 Image Analysis (3)(BA) This course meets the Bachelor of Arts degree requirements. Geography 362 is a course designed to introduce students to the field of remote sensing. Modern remote sensing is a multi-disciplinary and many-faceted subject encompassing knowledge from a broad array of areas. Remote sensing has steadily grown in importance since the early 1970s and continues to expand as sensing technology improves, as imagery becomes cheaper, as coverage becomes more widespread and as good software for processing the data become readily available. This course is not meant to be an exhaustive treatment of remote sensing. Rather, it is designed to provide an overview of the field. The field of remote sensing is vast and includes several inter-related themes. Remote Sensing as a science primarily involves the extraction of information contained within energy. The engineering component of remote sensing involves the design and construction of instruments and systems capable of capturing and recording energy from a target. Remote Sensing as a vital tool is expressed in myriad applications, from land cover change analysis to weather forecasting. This course will be administered in two parts - The first seven weeks of the semester will focus on three broad topics (Fundamental Principles of Radiative Transfer and Energy-Matter, Remote Sensing Systems, and Applications). This part of the course will expect student to grasp the major laws describing the energy-matter interactions. Recitations will be devoted to reviewing homework problems designed to solidify understanding of radiation concepts central to the construction of remote sensing imagery. -The remainder of the semester will be devoted to image analysis with an emphasis on digital remote sensing, i.e. analyzing data in digital form using computer software. This aspect of the course will have a practical focus on using imagery to analyze land cover and to construct land cover maps, with the expectation that students will be able to become proficient in the handling and processing of remote sensing imagery. Consequently, laboratory work will play a major role in this component of the course.

Prerequisite: GEOG 160

Bachelor of Arts: Social and Behavioral Sciences

GEOG 363: Geographic Information Systems

3 Credits

This course describes and explains the principles of Geographic Information Systems (GIS). Building on the overall introduction in the prerequisite course on the special characteristics of spatial data and how our earth is measured and mapped, Geography 363 focuses on how to use data to develop solutions for geographic representation and analysis tasks using GIS software. Students learn the basics of GIS data acquisition, manipulation, and analysis. Students will learn to gather or create relevant spatial data, clean/recertify/bring the data into the GIS, perform GIS operations, visualize and communicate results in an informative way, and sufficiently answer basic research questions. Upon completion of this course, students will be able to: 1. Understand Geographic Information Science principles. 2. Handle geographic data for a variety of applications. 3. Find, use and evaluate GIS datasets. 4. Describe capabilities and limitations of GIS methods and models. 5. Confidently use capabilities of the ArcMap GIS software package. 6. Demonstrate ability to design and carry out spatial analyses using GIS. 7. Communicate the results of geographic analyses to others, both in oral & written form. 8. Acquire skills to use GIS in a career, or work in a

GIS-related career. 9. Solve spatial problems. 10. Give advice for what problems can be solved and what techniques can be used.

Prerequisite: GEOG 260 or GEOG 160

GEOG 364: Spatial Analysis

3 Credits/Maximum of 3

Geographic measurement, scaling, and classification; analysis of spatial pattern and structure; geographic covariation and autocorrelation. GEOG 364 GEOG 364 Spatial Analysis I (3)(BA) This course meets the Bachelor of Arts degree requirements. Geography 364 is an introduction to spatial analysis that focuses on statistical methods for geographers. You will have an opportunity in this course to: learn how to use statistics in your own work; learn how to consume statistics in everyday life The statistical methods you will learn to use are simple descriptive statistics that we use to summarize complex data, as well as the associated charts, diagrams and maps. From there, we will move on to look at chance and probability theory, and simple inferential statistics. Throughout the course, we will be concerned with "everyday statistics", primarily as it relates to geography. Contemporary media are saturated with statistics, from reports of climatic change, through latest presidential election polls, to batting averages and yards-gained statistics in sports. A lot of the presentation of these statistics is lazy or inaccurate, and often misleading (whether, deliberately or not), and a major theme of this course will be to look at the issues involved. During most lectures we will spend some time working with sample problems, and to discuss practical applications. These activities are meant to build a deeper understanding of the subject matter but it also relies heavily on your active participation. You will often have work to prepare before lectures or other types of lecture homework. Labs will give you experience with statistics functions in Excel before moving onto SPSS as well as other statistical software, and also with mapping statistical data using GIS software.

Prerequisite: STAT 200 and 6 credits in social science
Bachelor of Arts: Social and Behavioral Sciences

GEOG 365: Introduction to GIS Programming

3 Credits

The rate at which geospatial data are being generated exceeds our ability to analyze them. These developments are quickly leading toward a data-rich but knowledge-poor environment. New challenges arise from an unprecedented access to massive amounts of data. Specialized algorithms are needed to address these scientific and computational challenges and provide innovative and effective solutions to analyze these large, often multi-modal, spatio-temporal datasets generated by high-resolution sensors or computational models. Traditional computational frameworks are specialized to serve a single science application, and are not flexible to drive diverse models on changing computational platforms. GEOG 365 addresses this new challenge by introducing specialized algorithms and data structures to analyze and visualize large and rapidly changing Earth science data. The emphasis of this course is on specialized data mining algorithms suitable for spatial data and spatio-temporal data with geoscience and Earth science applications. This course teaches how to automate GIS tasks using scripting languages. Automation can make work easier, faster, and more accurate, and knowledge of a scripting language is a highly desired skill in GIS analysts. This course dedicates time to programming fundamentals so that the skills learned can be applied to languages. Increased ability to adapt to new technologies and programming languages will be the greatest benefit students gain from this course.

Course Objectives and Learning Outcomes By the end of this course, students should be able to: - Design and implement solutions using scripting languages to automate geoprocessing tasks. - Demonstrate an understanding of programming concepts, methods, and approaches such as debugging, error checking, and documentation. - Demonstrate an awareness of advanced concepts such as external libraries. - Be aware of and able to integrate content, examples, and libraries.

Prerequisite: GEOG 260 or GEOG 160

GEOG 390: Professional Development Seminar in Geography

1-3 Credits/Maximum of 4

This course equips geography students with a toolkit for career development as they explore the discipline, develop professional networks, and move into life "beyond" Penn State. It will help students develop a deeper understand of the relationship between careers, research, experiential learning, civic responsibility, transferable skills, and the discipline of geography. Students will come away with a set of career-related competencies as well as a framework for achieving further professional development. Students will hone a resume, engage in professional networking via LinkedIn and informational interviews, and construct an e-portfolio to showcase their accomplishments.

RECOMMENDED PREPARATIONS: 3 credits in geography

GEOG 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

GEOG 398: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

GEOG 398A: **SPECIAL TOPICS**

1-3 Credits

GEOG 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Prerequisite: prior approval of program
International Cultures (IL)

GEOG 411: Forest Geography

3 Credits

This course studies processes that control spatial and temporal change in forests.

Prerequisite: GEOG 010 , GEOG 314 ; or BIOL 220W
Bachelor of Arts: Social and Behavioral Sciences

GEOG 411W: Forest Geography

3 Credits

This course studies processes that control spatial and temporal change in forests.

Prerequisite: GEOG 010 , GEOG 314 ; or BIOL 220W
Bachelor of Arts: Social and Behavioral Sciences
Writing Across the Curriculum

GEOG 412W: Climatic Change and Variability

3 Credits

Theories and observations of past, present, and future climatic change and variability; introduction to techniques used in climatic change research. GEOG 412W Climatic Change and Variability (3)(BA) This course meets the Bachelor of Arts degree requirements. GEOG 412W introduces students to the physical dimensions of climate change and variation. Climate change topics include radiative forcing, greenhouse gases, scenarios, equilibrium models, and time-dependent models. Important Climate variation topics are teleconnections and the El Nino-Southern Oscillation phenomenon. GEOG 412W would appeal to students with interests in Earth and atmospheric sciences, as well as environmental protection. As a writing-intensive course, GEOG 412W aims to help students improve their ability to communicate scientific information. The course devotes considerable class time to the mechanics of reading, writing, speaking, and especially report production. Students not only write, but also learn to edit and critique writing. Because most professional research on climate change and variation involves collaborative science teams, GEOG 412W focus on collaboration and participation. Students form teams, conduct research, and compile formal collaborative reports on climate change and variation. Students document their individual contributions by producing portfolios.

Prerequisite: GEOG 110 or METE0003
Bachelor of Arts: Social and Behavioral Sciences
Writing Across the Curriculum

GEOG 413: Cryosphere and Climate Systems

3 Credits

Earth's cryosphere is undergoing rapid change, with high latitude warming and ice losses among the most prominent signatures of anthropogenic climate change. In turn, cryospheric changes possess global ramifications, including impacts on sea level, the planetary energy balance, and global weather and climate. Addressing climate change begins with understanding its manifestations, and few natural components of the Earth system are changing as quickly and with greater impacts than the cryosphere. This course focuses on the cryosphere and its significance in the global climate system. It provides an introduction to the dynamics of glaciers, ice sheets, and sea ice, including the various feedback mechanisms inherent to these systems. We begin with an exploration of evidence for past variability in ice sheets governed by natural Earth system cycles, before embarking on analysis of interactions between ice and the climate system today, and potential future cryospheric changes in a warming climate. This course combines lecture-based instruction, applied activities, and project-based learning. Emphasizing a data-driven approach, students gain an introduction to Python programming tailored to earth and climate sciences, as well as Jupyter Notebooks for interactive data exploration. The course investigates techniques used in contemporary cryospheric sciences,

including analysis of satellite remotely sensed data, output from regional and global Earth system models, in situ meteorological observations, and climate reanalysis products. Students will build proficiency in practical and transferrable skills essential for modern cryospheric and climatic research.

Prerequisite: GEOG 210 or EARTH 2 or EARTH 103N or EARTH 303 or METEO 101 or METEO 201 Recommended Preparation: Basics of college algebra and physics; experience and/or interest in scientific data analysis, particularly using Python.

GEOG 414: Principles and Applications in Landscape Ecology

1-3 Credits

Landscape ecology is a rapidly evolving discipline that is poised to address contemporary challenges in sustainability science, land management, and conservation. The focus of landscape ecology is on the controls, interactions and outcomes of spatial patterns and processes on ecological dynamics at multiple spatial scales. Landscape ecology explores how energy and nutrients flow across spatially variable patches, how dispersal and migration of aquatic and terrestrial organisms are affected by spatial networks, and how disturbances propagate across complex terrain. Grounded in related fields of ecology, geography, and spatial analysis, landscape ecology provides additional theoretical tools and approaches to guide applied conservation decision-making in a dynamically changing world. The objective of this course is for students to apply the methods, theories, approaches and practical applications of landscape ecology to inform landscape decision-making. Particular emphasis is placed on how humans modify landscapes and how species, ecological communities, and ecosystems have responded to these changes. These objectives will be met through lecture and discussion of prominent landscape ecology topics (scale, pattern quantification, agents of pattern formation, green infrastructure, and conservation biology), computer laboratory exercises, written papers, and group presentations. By the end of the course students will be able to (1) articulate in written and oral form the concepts of scale and pattern, (2) use landscape pattern metrics, spatial statistics, and models to characterize ecological pattern on landscapes, and explain how ecological patterns develop, and (3) apply knowledge of spatial pattern-process interactions to issues of sustainability, conservation, and landscape management.

Prerequisite: BIOL 110; BIOL 220; GEOG 314; FOR 308; WFS 209; LARCH 241

GEOG 417: Satellite Climatology

3 Credits

A discussion of the application of satellite data to current and planned large-scale climate experiments. GEOG 417 GEOG 417 Satellite Climatology (3)(BA) This course meets the Bachelor of Arts degree requirements. Geography 417 presents the theory and practice of satellite remote sensing as applied to the study of climate. Remote sensing refers to the acquisition of information about a target or phenomenon from a distance; climate is the low-frequency signal of weather that involves interactions among Earth's environmental systems (atmosphere, biosphere, cryosphere, hydrosphere). Combining these two disciplines into Satellite Climatology is logical because the fundamental basis of both remote sensing and climate is radiation transfer through Earth's atmosphere. The course emphasizes understanding the different techniques used to determine, from space-borne platforms, the atmospheric, oceanic and land surface conditions important to climate

and its variations, and the interpretation of these remotely sensed data in the context of "climate dynamics" and "synoptic climatology." Specific topics include the following: Satellite systems (platforms, sensors, orbits, data processing); Remote sensing clouds and cloud systems, Retrieval of atmospheric temperature, moisture, and precipitation, the Earth-atmosphere radiation and energy budgets, and Land-surface conditions and their modification by humans. In addition, examples of the different satellite-based climatologies, and their advantages and limitations with respect to conventional observations ("ground truth"), are presented.

Prerequisite: GEOG 362

Bachelor of Arts: Social and Behavioral Sciences

GEOG 420Y: Comparative Urbanism

3 Credits

This course investigates selected urban issues through the lens of comparative urbanism. GEOG 420Y Comparative Urbanism (3) (US;IL)(BA) This course meets the Bachelor of Arts degree requirements. As an upper level urban geography seminar, this course investigates selected urban issues through the lens of comparative urbanism and requires active class participation. Examination of readings from the growing literature on comparative urbanism will introduce students not only to possible ways to design an effective comparative study but also to the varying goals of such work. Other readings, drawn from a wide variety of sources, will target particular issues facing urban areas that may vary from year to year, such as economic restructuring, uneven urban redevelopment, transportation planning, historic preservation, arts districts, the social construction of race and ethnicity, aging in place, and urban poverty. Students in turn will be required to design and carry out a comparative research project focusing on a particular urban issue, highlighting both the similarities and the differences between their selected case study cities and placing them in local, regional, and global contexts. This course is reading and writing intensive and satisfies United States Cultures and International Cultures requirements, as well as the Bachelor of Arts Social and Behavioral Sciences Field.

Prerequisite: GEOG 120, GEOG 160

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

United States Cultures (US)

Writing Across the Curriculum

GEOG 421: Population Geography

3 Credits

This course examines key demographic characteristics of the U.S. population and how they are distributed in space. At the same time, we will look at how individuals come to be part of a population and with what implications. The course will focus on the U.S. with a special emphasis on where people live in U.S. cities. Given this focus we will spend significant time on issues of segregation, gentrification, health disparities, environmental justice, and migration. The class includes a significant lab component and students will have the opportunity to conduct empirical analyses that are common in the fields of planning, epidemiology, social work, and other cognate professional fields. This course meets the social and behavioral components of the BA field. The first goal of this seminar is to prepare students to think critically about the way demography and policy interact to produce outcomes that vary within and across populations and across space. Many of the most critical policy debates of our time hinge on an understanding of subgroups delineated by gender, age, race, and/or immigration status.

Students will learn to identify the role of history, economics, culture and geography in shaping the contexts in which these policy debates now exist and will gain the critical capacity to evaluate changing conditions in the world around them. The second key goal of this course is to train students in some of the basic techniques for analyzing populations. Being able to devise and execute a project that answers basic questions about the distribution of a population is a foundational skill for many careers that geographers might choose to follow, and can be powerful for engagement in the policy process. The emphasis here will be on applying statistical and GIS skills learned elsewhere to the messy world of real-life data. Students will achieve a better understanding of the possibilities and pitfalls of quantitative analysis of demographic information.

Prerequisite: GEOG 020; GEOG 220; SOC 001; R SOC 011 and GEOG 361; GEOG 362; GEOG 363; GEOG 364; SOC 207; CED 404

GEOG 422W: Globalization, Migration, and Displacement

3 Credits

This course explores the economic, political, legal, and socio-cultural dimensions of displacement and migration in the context of globalization. The substantive focus will be transnational low-wage labor migration and refugee flows of the late 20th- early 21st centuries, even as the course situates contemporary processes within histories and geographies of economic modernization, urbanization and colonialism. At a conceptual level, students will engage key theories of migration from sociology, economics, geography, and demography, and they will closely explore how race and gender shape migrant experiences and policy debates. Topics to be examined include: political and economic drivers of labor migration; immigration and border policies and politics; refugee politics and policies; human trafficking; shifting social identities, cultures, and notions of belonging in sending and receiving communities; and the role of race, gender, class and nationalism in these processes. Upon completion of this course students will be able to: - Identify and describe the historical antecedents to contemporary cross-border labor migration and refugee flows - Analyze the economic, political, legal, and social-cultural dimensions of transnational labor migration. - Explain the causes and consequences of labor migration from sending regions - Discuss the causes and consequences of labor migration to regions of reception - Compare the factors generating refugee flows across distinct regions over the 20th century - Integrate scholarly understandings of migrant experiences and identities with broader structural forces generating cross-border flows. - Examine distinct politics and policies of refugee protection and resettlement. - Demonstrate how social hierarchies of race, gender, and class shape cross-border labor migration and refugee resettlement. - Apply theories of migration to specific case studies of cross-border mobility. - Develop a research paper that engages course themes and scholarly debates, linking class concepts and debates to a specific case study. - Demonstrate effective visual and oral presentation skills

Prerequisites: GEOG 20 or GEOG 220 Recommended Preparations: Successful completion of an English composition course: ENGL 15; or ENGL 30H; or ENGL 137; or CAS 137; or ESL 15
Bachelor of Arts: Social and Behavioral Sciences
Writing Across the Curriculum

GEOG 424: Geography of the Global Economy

3 Credits

Focus on industrial location theory, factors in industrial location, studies of selected industries and problems of industrial development. GEOG

424GEOG 424 Geography of the Global Economy (3) This class will conduct research on firms and industries engaged in the global economy. Students learn to conduct industry and firms analyses in the context of international regulation. Students learn about the competitive conditions, governmental context, and technological challenges facing selected industries.

Prerequisite: ECON 102 , ECON 104 , GEOG 126
Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)
United States Cultures (US)

GEOG 424W: Geography of the Global Economy

3 Credits

This course examines the actors, processes, and policies relevant to understanding the global economic system. How does the global economy work? How is it changing? What are the pieces and how do they fit together? What can we do to shape outcomes within this system? In the first section of the course we examine these questions in the context of the 2009 World Development Report produced by the World Bank. The report has as its focus "Economic Geography" with a particular focus on the role of cities in development. We will emphasize the differing assumptions made by economists and geographers with regards to processes of economic development and the impact of globalization. In the second portion of the class we will focus on specific industries, firms, and regions in an attempt to put the broader concepts from Part 1 into an applied context. The focus of this section will be on identifying the complexity of the economic system. In Part 3 of the class we draw from the literature on alternative understandings of the global economy and its possibilities and link this literature to broader debates about global capitalism, international economic policy, and social welfare. Bringing together the broad themes from Part 1 and the applied responses and strategies gleaned from Part 2 we will attempt to synthesize both macro and micro-scale understandings of the present economic system.

Prerequisite: GEOG 326; GEOG 126; or ECON 102; or ECON 104; or EBF 200
Writing Across the Curriculum

GEOG 425: Geography of Race, Class, and Poverty in America

3 Credits

This class examines the spatial interactions of race, class and poverty in the United States. GEOG 425 Geography of Race, Class, and Poverty in America (3) (US)(BA) This course meets the Bachelor of Arts degree requirements. The terms 'race,' 'class,' and 'poverty' are often discussed in the same breath in academic scholarship. Research portrays the interwoven relationships between economic status, economic security, and ethnic heritage. Despite this powerful and abundant literature, few scholars examine the spatial interactions among race, class, and poverty. The class introduces students to a range of literatures on the meaning of race, class, and poverty in the contemporary United States. We will situate these terms in their local spatial context and investigate how location influences perceptions of the meaning of race, class, and poverty. We will blend historical, contemporary, theoretical and empirical scholarship as we investigate the meaning, understanding and manifestation of race, class and poverty in the U.S. Beginning with history, we will move through the 20th century examining how economic and political cycles have influenced social understanding of these terms. There will be a particular focus on deconstructing the measurement and meaning of the terms and their use in public policy discussions based on

perceptual understandings of the terms 'race', 'class', and 'poverty'. We will examine powerful historical and contemporary media images of race, class, and poverty as seen through the lens of place and identity.

Prerequisite: GEOG 126 ; ECON 102 or ECON 104
Bachelor of Arts: Social and Behavioral Sciences
United States Cultures (US)

GEOG 426W: Gendered Worlds

3 Credits

Gendered Worlds examines how systems of dominance manifest in everyday life. Through an intersectional approach to social differences, such as gender, race, class, ethnicity, age, ability, and sexuality, the course highlights the significance of difference in shaping experiences of space and place in a global context. The course incorporates approaches from cultural, postcolonial, subaltern, queer, gender, and critical race studies, all of which have influenced current debates across the field of geography. Feminist scholars have long been concerned with the spatial politics of cultural difference. As a point of entry to discussions of gender and geography, this course will explore the diverse ways in which geographers have conceived of, analyzed, and redefined gender as a contested spatial practice that intersects with other facets of identity such as race, class, and sexuality. Using contemporary geographic texts, we will explore the gendered dynamics of geographic research, citizenship, violence, security, nationalism, nature, and globalization. The purpose of this course is to examine how gender is understood and utilized in the field of geography. This course also aims to enhance students' ability to engage in first-hand critical research, as well as collaborative learning, through a reflective and on-going process of research and writing over the course of the semester. At the end of the course, the successful student will be able to: 1. Deploy contemporary debates around gender theory, gendered spatial practices, and cultural difference. 2. Critique the cultural and social construction of gender across time and cultures. 3. Analyze representations of gender in social institutions such as the media. 4. Apply theories of gender and cultural difference in the context of critical written analysis.

Prerequisites: (GEOG 220 or GEOG 20 or GEOG 2N or WMNST 100) and (C or higher in ENGL 15 or ENGL 30H or ENGL 137H or CAS 137H or ESL 15) Recommended Preparation: GEOG 324 (preferred) or GEOG 320 or GEOG 326 or GEOG 328
Cross-listed with: WMNST 426W
Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)
United States Cultures (US)
Writing Across the Curriculum

GEOG 427: Urban Historical Geography

3 Credits

Study of the development and transformation of the historical urban built environment. GEOG 427 Urban Historical Geography (3) (US;IL)(BA) This course meets the Bachelor of Arts degree requirements. Close up, cities can be seen as sets of buildings - some that are lived in, some that are places of work, and others that are places of cultural celebration. The streetscapes created by these sets of buildings can be decoded as a palimpsest of the past. Likewise, the patterns and names of streets, lanes and alleys between buildings contribute to morphological databases of property parcels and land use that help in the analysis of the historical transformations of urban form. Seen at a more distant scale, cities are also nodes - centers for surrounding regional trading systems, and

partners with other places in national and global trading systems - that have evolved over a set of decades or even centuries. This course offers an investigation of such multiple frames on the urban past. Examples will be drawn from the Americas, but many will be from Europe, Africa and Asia. Imperialism and its associated colonial mercantile practices meant that variants of urbanism were mapped on to other parts of the world where they often created hybrid forms of cities over time. In the industrial era, new relations between cities and the countryside emerged, as new forms of production developed and resources were harnessed from a more global hinterland. Radically different types of cities have emerged in the past two centuries. Geography 427 will survey the global urban past and explore ways of decoding urban morphological complexity through historical cartographic record and extant landscape evidence. The ultimate objective is for students to develop an appreciation for the complexity of urban life and landscapes in times past and to understand some of the ways in which American urban forms adapt or draw distinction from urban forms elsewhere. At the same time, the course aims to enhance student oral and written communication skills. To enhance their oral communication skills, each student will be expected to make two presentations on their research and to participate in class workshops. To enhance their written communication skills, students are required to write two papers that include instructor feedback on interim drafts, to craft three article summaries, and to write short log responses to most lectures.

Prerequisite: 6 credits in geography, humanities, or social sciences
Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)
United States Cultures (US)

GEOG 428W: Political Geography

3 Credits

This upper-level undergraduate seminar examines theories and concepts of political geography, with special emphasis on the geographic foundations of power in a globalizing world. The course covers the foundational themes of political geography: state formation; citizenship and nationality; geopolitics; borders; sovereignty; colonialism/postcolonialism; environmental politics; political identity and social movements. The course readings include a balance of theory and case study material and include international and domestic examples. As a writing-intensive course, students will write weekly assignments, workshop their essays in peer-groups, and focus on the techniques of expository writing on political geographic topics. The objective is to develop effective writing skills for presenting analyses of political geographic processes and basing these analyses on investigation, evidence, and clear argumentation in a concise essay format. Students will receive regular feedback and evaluation from the instructor and have several opportunities for presenting their work to their peers. The final project consists of a larger research and writing project and class presentation. After taking this class students will: 1. understand the various linkages between geography and politics 2. be able to apply a multi-scalar framework to understanding politics 3. contextualize concepts of power and resistance in relation to space and time 4. understand how geographic settings simultaneously enable and constrain political agents and options 5. be able to engage quality news media using geographic to gain a broader understanding of what is going on in the world.

Prerequisite: (GEOG 220 or GEOG 20 or GEOG 2N) and (C or higher in ENGL 15 or ENGL 30H or ENGL 137H or CAS 137H or ESL 15)
Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)
United States Cultures (US)
Writing Across the Curriculum

GEOG 429: Geographic Perspectives on Global Urbanization

3 Credits

This course reflects critically on a number of issues related to global urbanization, including the culture and political economy of urban space.

Prerequisite: GEOG 020 , GEOG 126 , or GEOG 120
Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)
United States Cultures (US)

GEOG 430: Human Use of Environment

3 Credits

The human use of resources and ecosystems and social causes and consequences of environmental degradation in different parts of the world; development of environmental policy and management strategies. GEOG 430
GEOG 430 Human Use of Environment (3)(BA) This course meets the Bachelor of Arts degree requirements. Geography 430 examines the human use of resources and ecosystems, the multiple causes and consequences of environmental degradation, and adaptive institutional and policy arrangements as prerequisites for resilient and sustainable management and development in different parts of the world. The major objective of this course is to help geographers, earth scientists, and other professionals to develop an awareness and appreciation of the multiple perspectives that can be brought to studies of human use of the environment and of the ways in which resource-management decisions are made in human society. This is a capstone course that encourages students to place their individual major and technical skills within the context of multiple approaches to environmental decision making and management in complex and dynamic social-ecological systems. GEOG 430 is designed as a collective/social learning experience. This implies that the professor and students share responsibility for the learning process and take advantage of collective skills, insights, experiences, and efforts of each other. As in system dynamics, this requires both commitment and flexibility and the willingness to explore foreign territory. As part of this philosophy, learning consists not only of information flow from professor to student, but also from student to student and student to professor. The course follows a case study approach to explore real life lessons of adaptive management around the globe. To make this process work, attendance and active participation are imperative. The course is run more like a seminar than a lecture course and integrates lectures, in-class discussions, presentations, and interactive activities. Student performance is evaluated based on active participation in all of the above, individual short assignments, group projects, in-class quizzes and exams, and one major writing assignment, varying by faculty teaching. This course is offered every semester.

Prerequisite: GEOG 010 or GEOG 020 or GEOG 030 or GEOG 040 or GEOG 130 or permission of the program
Bachelor of Arts: Social and Behavioral Sciences

GEOG 431: Geography of Water Resources

3 Credits

GEOG 431 is designed for students to understand the natural processes of aquatic ecosystems, management of water resources, and threats

to sustaining water quantity and quality, for all types of freshwater surface, groundwater, rivers, lakes, wetlands. This course should appeal to water resource managers, geographers, ecologists, earth scientists, planners, other environmental professionals as well as non-science majors. This course will develop awareness and appreciation of the multiple perspectives about water as a precious resource, commodity, and sometimes hazard. Students in the course will first examine water. Course Justification characteristics, sources, classification systems, and aquatic ecosystems. Next, we will examine water resource management, including issues surrounding irrigation; floods and dams; provision of safe potable water; threats to water quantity and quality including human and aquatic ecosystem effects; the water economy including virtual water and water footprints; water laws and policy; institutions for water management at the global, national, regional and local scale; and issues of water conflict, security, and climate change. Course Objectives: - Learn how/why water is distributed unevenly in space and time around the Earth. - Examine ways resource management decisions made in human society are strongly related to the availability, quantity, and quality of water. - Examine water characteristics, sources, classification systems, and aquatic ecosystems. - Examine water resource management, including issues surrounding irrigation; floods and dams; provision of safe potable water; threats to water quantity and quality including human and aquatic ecosystem effects; the water economy including virtual water and water footprints; water laws and policy; institutions for water management at the global, national, regional and local scale; and issues of water conflict, security, and climate change. When you successfully complete this course, you will be prepared to: - Identify the unique characteristics of freshwater. - Describe, with a geographic perspective, how and why freshwater is distributed unevenly in space and time around Earth. - Explain the natural processes of aquatic ecosystems. - Discuss why conflicts arise over the vital resource of freshwater. - Identify challenges facing water management in varied climate types around the world. - Compare how humans interact with aquatic ecosystems.

Prerequisite: (GEOG 10; or GEOG 210; or GEOG 30; or GEOG 230) ; or 6 credits natural science

Bachelor of Arts: Social and Behavioral Sciences

GEOG 431H: Geography of Water Resources

3 Credits

Perspectives on water as a resource and hazard for human society; water resource issues in environmental and regional planning.

Bachelor of Arts: Social and Behavioral Sciences
Honors

GEOG 432: Energy Policy

3 Credits

Analysis, formulation, implementation, and impacts of energy-related policies, regulations, and initiatives.

Enforced Prerequisite at Enrollment: EBF 200 and EGEE 120 and PLSC 490

Cross-listed with: EME 432

GEOG 433: Geographies of Justice

3 Credits

The justice concept has been a topic of interest within various academic and policy realms concerned with the inequities experienced by racial

groups, socio-economic class, and ethnicity. The environment justice movement is generally understood to have begun in the early 1980s with a series of events that demonstrated the inequitable distribution of health hazards and risk. While much work in environmental justice has usefully focused on the disproportionate exposure of poor and minority populations to environmental hazards, conceptualizations of justice have expanded in recent years to include systematic and comparative research within urban and rural populations, industrialized and developing contexts, access to and control over resources, as well as unwilling exposure to hazards, processes and institutions of environmental governance. These trends have resulted in greater attention to the social processes that create and perpetuate inequality on the basis of race, gender, income, or other social categories. In exploring the 'fast conceptual transfer' of the environmental justice concept to other settings, Walker and Bulkeley (2006: 655) suggest emerging interest in distribution between nation-states, an expansion of terms to include gender, age and future generations, and intersections with the vulnerability literatures to examine the threat of natural and produced risks. This course engages with the history and future of social and environmental justice. We begin by examining the emergence of the environmental justice movement in the United States and subsequent export of the justice concept to other topics, including sustainable development and climate change, and within other settings, including Sub-Saharan Africa and Latin America. In exploring the diverse ways that justice is being applied at the present time, we will also question the future viability for justice as a conceptual and organizational tool.

Course Objectives This course has four primary objectives: - Examine the history of the concept of environmental justice and the environmental justice movement in the United States; - Consider multiple definitions of environmental justice such as procedural and distributive justice; - Examine the application of the environmental justice concept to other topics, including sustainable development and climate change, and within other settings, including Sub-Saharan Africa and Latin America; and - Consider future directions for environmental justice.

GEOG 434: Politics of the Environment

3 Credits

This course explores politics related to the use, transformation, valuation, and representation of the environment. GEOG 434GEOG 434 Politics of the Environment (3) Scholarship in geography and related disciplines has demonstrated that nature in general and specific environments in particular are unavoidably political. Environmental management can thus never be a purely scientific or technological challenge; it requires critical analysis of cultural, political, and economic contexts, factors, and effects. For instance, effective environmental management requires consideration of how culture shapes how we perceive and value our environments, who wins and who loses in any particular approach to environmental management, and what the relative advantages and disadvantages of competing institutional approaches to environmental management are. This course examines the development of environmental governance, with a primary focus on the United States. It explores both how various groups within society conceive of and value the environment, and multiple approaches to environmental governance and protection. It reviews the history of environmental movements and regulation, and contemporary issues and debates in environmental governance, with particular attention to the effects of institutional forms and social movements. In particular, it examines competing arguments for and against governance approaches centered on state action, market mechanisms, and prominent roles for NGOs and social movements. Students will be evaluated based on: 1) their participation in class discussions, based on critical engagement with material from

course readings and lectures; 2) their performance on a midterm and a final examination; 3) an individual research project on a topic relevant to the course, to be designed and carried out under the supervision of the course instructor.

Prerequisite: 6 credits in social sciences or humanities

GEOG 436: Ecology, Economy, and Society

3 Credits

Analyses of major themes in ecology and economic development, poverty- alleviation, and sustainability. GEOG 436GEOG 436 Ecology, Economy, and Society (3) For many years, it was believed that there was a direct tradeoff between economic growth and a clean environment. Sustainable development has been proposed as a framework within which these two objectives can be pursued in harmony and actually can reinforce one another. This course focuses on sustainability issues at the broader (macroeconomic) level, as opposed to the operation of individual businesses (microeconomic, or industrial ecology) level. The course will have two main emphases: 1) to evaluate the major conceptual ideas surrounding natural resource management and sustainable development, including equity, poverty, fairness, power, knowledge, and community empowerment; 2) to use empirical case studies to examine the practical, material and policy relevance of these concepts. The first part of the semester will be used to untangle and clarify the ideological and theoretical bases (biases) of broad human-environment discourses as they pertain to community empowerment and resource development. The final part of the semester will be used to analyze case studies in order to assess the relevance of existing theoretical framework for resource empowerment and community development in industrialized countries and the Third World, especially Africa.

Prerequisite: upper-division standing

GEOG 437W: Energy Geographies and Policy

3 Credits

This course explores the motivations, key concepts, and contemporary challenges of US and international energy policy. The approach of the course is inherently geographical in that we engage the concepts of scale, place, landscape, and materiality to evaluate energy policy issues. The course addresses the following questions: 1) Why and how is energy governed? 2) How does energy policy differ across political scales and energy sectors? 3) Who are the key stakeholders influencing energy policy? 4) How are the costs and benefits of energy policy distributed? 5) How can a geographic perspective advance energy policy making? 6) How well do existing tools and policy frameworks address emerging challenges in energy policy and governance? The course is designed to explore these questions through interactive discussion, drawing on examples from various political levels and in various geographical contexts. A combination of independent writing and presentations will provide students with the expertise to be careful and critical observers of policy developments, and to prepare students for future roles as policy advisors in business and government settings. The course is divided into four parts: 1) overview of US and international energy policy; 2) key concepts and debates in analyzing energy; 3) case studies; and 4) emerging issues and challenges. After successful completion of this course, students will be able to: 1. Analyze the origins, motivations and distributional impacts of U.S. and international energy policies; 2. Apply key concepts from the energy social sciences to contemporary energy

debates; 3. Critically assess how geographic perspectives can advance energy policy making

Prerequisite: (GEOG 230 or GEOG 30N or EGEE 101 or EBF 200) and C or higher in an English composition course (ENGL 15; ENGL 30H; ENGL 137H; CAS 137H; ESL 15); Recommended Preparation: GEOG 330N or GEOG 332N or ANSC 332N or METEO 332N

Bachelor of Arts: Social and Behavioral Sciences
Writing Across the Curriculum

GEOG 438W: Human Dimensions of Global Warming

3 Credits

Human dimensions of climate change: human causes, human consequences, and policy implications of global warming. GEOG 438W - Human Dimensions of Global Warming (3)(BA) This course meets the Bachelor of Arts degree requirements. Geography 438W, the Human Dimensions of Global Warming, covers both the human causes and consequences of what many people view as the most significant problem facing society. Humans cause climate change primarily by emitting heat-trapping greenhouse gases through everyday activities associated with industrialized society (such as energy production and consumption, transportation, and manufacturing) and land transformation (such as agriculture and deforestation). People experience the consequences of climate change directly through reduced resources (such as food, fiber, forests, and fisheries) or increased natural hazards (such as droughts, floods, and intense storms). They also experience the consequences indirectly through such mechanisms as higher prices for food or larger insurance premiums. GEOG 438W does not address the physical science of climate change; instead, it concentrates on social science issues surrounding the topic. GEOG 438W has two goals: (1) to develop understanding of a set of issues related to the human dimensions of climate change; (2) to develop and apply communication skills by discussing and writing about the topic. The specific content of the course will change with the instructor, but the focus on the human causes and consequences of climate change and on skill-development in writing will be constant. Students will be evaluated on both the course goals: (1) understanding of the human dimensions of climate change; (2) application of communication skills. Although exact procedures for determining grades will vary with instructor, the basis for grades will always include a combination of written exams based on lectures and readings, regular written assignments with instructor feedback, and in-class discussion and participation.

Prerequisite: EARTH002 , GEOG 010 or METEO003 ; GEOG 030

Bachelor of Arts: Social and Behavioral Sciences
Writing Across the Curriculum

GEOG 439: Property and the Global Environment

3 Credits

This course reviews theoretical and empirical relationships between multiple legal, economic, and cultural approaches to property, and environmental quality and conflicts. GEOG 439GEOG 439 Property and the Global Environment (3) Property relations are among the most powerful and pervasive institutions in human societies. Fundamental rules governing and legitimating who can do what, and where, they shape and reveal interactions between human societies and physical environments, a concern at the heart of geography. Our own property relations are often all but invisible to us precisely because they are so deeply woven into our perceptions, consciousness, social structures, and everyday experiences of the world. It is thus easy to overlook the fact

that we live within highly specific and contingent property arrangements and that changing circumstances are prompting important changes in contemporary property relations. This course explores these issues with a particular focus on their implications for environmental politics and regulation. We will address questions such as: Is the privatization and commodification of nature a recipe for ecological disaster, or the most effective means of preservation? Can we own the weather? What were the historical-geographical circumstances surrounding the development of major modern property forms, and are those forms adequate to the environmental problems we now confront? Are there property relationships outside of the law? How do property relations and conflicts change in response to changing human control over nature, and how can different kinds of property arrangements lead to, or help to solve, environmental and social problems? Readings will review debates over common property; the benefits and dangers of privatization of environmental goods; distinctions between formal and informal property rights; the development of zoning and other regulation of private property; and contemporary debates over intellectual property rights in nature, and relationships among trade, property rights, and environmental quality. The course will be of interest to students interested in environmental policy, land use planning and management, law, the areas of nature-society relations and historical geography, and environmental history. Students will gain a sophisticated understanding of the central underpinnings of much property and environmental regulation, and familiarity with many cutting-edge debates in these domains, both domestically and internationally. Evaluation methods will include examinations and an independent research paper and presentation by each student. The course will be offered every other year, with enrollment capped at 30 students.

Prerequisite: 6 credits in geography, humanities, or social sciences

GEOG 444: African Resources and Development

3 Credits

Ecological and cultural factors in the geography of Africa; natural resources and development. GEOG 444 / AFR 444 African Resources and Development (3) (BA) This course meets the Bachelor of Arts degree requirements. This course is designed to analyze the ecological, economic, political and cultural factors, which influence development in sub-Saharan Africa. The traditional system, colonialism, modernization, post-colonial philosophies are four conceptual artifacts used to address some of these issues. Within these broad frameworks, the course focuses on existing debates surrounding key development ideologies and narratives in the region, including, poverty, conservation, population, debt, food security, land reform, foreign intervention and global politics. The topics and texts for the course are chosen carefully to provide general factual material as well as exposure to the major discourses surrounding the region's development. The views of many Americans concerning Africa are often both unitary (Africa is a country) and unidimensional (Africa is a place of conflict, poverty, corruption and crisis). Assuming that a number of students are likely to join the class with this general background, the main objectives of the course will be : (i) to provide a broad geographic and historical tutorial to dispel myths and stereotypes about the region; (ii) to explore the literature, which analyzes the historical, geographic and political factors that underlie the region's present status in the global economy; and (iii) to gain insights into the intellectual and ideological dimensions of the "raging" debates surrounding issues like environment, conservation, population, corruption, and poverty in the region. By the end of the semester, students should have acquired the skills to accomplish the following goals: *develop a "mental map" of the broad physiographic, ecological, economic and

political zones (blocs) in the region; *be able to discriminate between stereotype and reality on information pertaining to the region; *be able to interpret and analyze the internal (national, regional) dynamics of the region's development; *be able to interpret and analyze the global factors, which influence the environment, economy, and politics of the region; *develop an informed background on the ideological narratives that guide policy in the region, for example, population, sustainable development, post-colonialism, "empire" (whether, American, European, Indian, Chinese, South African?).

Prerequisite: GEOG 010 or GEOG 020 or GEOG 030 or GEOG 123 or GEOG 124 or GEOG 130 or EARTH105 or AFR 105 or AFR 110

Cross-listed with: AFR 444

Bachelor of Arts: World Cultures

Bachelor of Arts: Social and Behavioral Sciences

GEOG 448: Neighborhoods and Health Equity

3 Credits

This course examines local and regional domains of disease prevention, health behavior and promotion, and health inequities in the context of urban and suburban neighborhoods. We will draw on urban geographic and social theory as well as urban planning, public health, and environmental justice literature to identify ways in which neighborhood and geographic features combine with policies, individual-level behaviors, and social interaction to produce health and disease. We will further apply concepts and issues addressed in course readings and lecture to selected urban areas, large and small, to gain understanding of the tools and methods most often used in evaluating urban spaces for community health and health equity.

Prerequisite: GEOG 220 Recommended Preparations: Successful completion of GEOG 260 and GEOG 320 are recommended but not required

United States Cultures (US)

GEOG 453: Geospatial Applications in Water Resources & Aquatic Ecosystems

3 Credits

This course is designed to expose students to different geospatial analysis applications in water resources. It will emphasize geospatial data acquisition of hydrologic features, spatial analysis, and data representation. Students will learn through projects, lectures and hands-on computer lab exercises to investigate and solve water resource issues. Practical applications will focus on watershed and drainage network delineation, assessment of aquatic ecosystems, and surface generation methods using spatial hydrology models. Students who successfully complete GEOG 453 will be able to manage, analyze, and represent geospatial data by using spatial analysis software and have a vision of hydrological applications used in land use planning and watershed management. Specific objectives include: 1. Review of data sources and structure in hydrology: georeferenced coordinate systems, datum and scale, map projections, and data acquisition and representation. 2. Use digital terrain models to route surface runoff and derive watershed and stream networks. 3. Assess aquatic ecosystems and riparian buffers based on landscape analysis and other sources of hydrologic modeling parameters. 4. Model continuous surfaces from point to raster data structure using interpolation techniques. 5. Practice real-world resource problems in both urban and rural areas by integrating hydrologic calculations and automated geospatial procedures.

Prerequisite: GEOG 363 or GEOG 483 or SOILS 450

GEOG 461W: Dynamic Cartographic Representation

3 Credits

Theory and practice of mapping and geo-representation in a dynamic media context. Applications in science, policy, travel, and education. GEOG 461W GEOG 461W Dynamic Cartographic Representation (3) (BA) This course meets the Bachelor of Arts degree requirements. Most maps produced today are electronic, dynamic, and often ephemeral – with millions of maps generated on the web each day. At the same time, computer graphics technologies developed to enable scientific visualization generally, are being adapted and extended for applications with geographic information. The goal of this course is to provide students with both the conceptual understanding and practical experience needed to design effective dynamic representations and assess their effectiveness. During the term we will explore the potential and implications of recent advances in cartography, exploratory data analysis, and information visualization as they relate to the theory and practice of geographic visualization (geovisualization). A key focus of the course is on 'dynamic' representations of geographically referenced information. Dynamic representations are those that change as a result of user actions or data updates. Topics include: animated and interactive maps, exploratory multivariate spatial data analysis, geovisualization to support knowledge construction, interactive web maps, navigation aids for real and virtual worlds, map-enabled decision-support, collaborative geovisualization, dynamic maps to enable learning, semiotic principles for design of dynamic maps and related geovisualization tools, and perceptual/cognitive issues in dynamic geo-representation (including methods for studying the success of visual displays and interaction devices). As a writing intensive course, particular attention will be given to writing for geographic information science (GIScience). This writing will include laboratory project reports, reviews of published literature, and a term project.

Prerequisite: GEOG 361 or GEOG 362 or GEOG 363

Bachelor of Arts: Social and Behavioral Sciences

Writing Across the Curriculum

GEOG 462: Advanced Observation of Earth and Its Environment

3 Credits

Recommended Preparations: (GEOG 365 AND GEOG 464) OR prior exposure to R programming language This course will provide the requisite materials to understand and apply techniques of remote sensing to study Earth and its environment using the R programming language. Every day numerous satellites from different countries acquire and transmit multispectral high resolution data of Earth and its environment. Such data are used for a variety of operational and research applications, such as weather forecasting, national security, natural hazards, navigation, land use and land cover, surface temperature, climate change, urban planning and many others. Massive amounts of data are received, processed, stored and distributed by several centers around the world, giving an unprecedented access to global high resolution information. Such information can give new insights to study the complementary nature of different parameters of Earth's environment. The first part of the course discusses the R programming language to analyze data, generate maps and plots and general remote sensing methodologies, products availability and characteristics, data types and formats. The second part of the course discusses remote sensing applications for specific tasks including natural hazards, global change, seasonal and interannual studies. Current research issues will

be illustrated, including examples pertaining to the atmosphere, land masses, and oceans, and concluding with a survey of some problems that are at the current frontiers of remote sensing.

Prerequisite: Recommended Preparations: (GEOG 365 and GEOG 464) or prior exposure to R programming language Prerequisite: GEOG 362 or FOR 455 or METEO 477 or EE 477

GEOG 463: Geospatial Information Management

3 Credits

This course examines geospatial data representations and algorithmic techniques that apply to spatially-organized data in digital form.

Prerequisite: GEOG 363

Bachelor of Arts: Social and Behavioral Sciences

GEOG 464: Advanced Spatial Analysis

3 Credits

Skills and knowledge for applying quantitative methods to analyze information with spatial distributions. GEOG 464GEOG 464 Analysis and GIS (3)(BA) This course meets the Bachelor of Arts degree requirements. Geography 464 is a course in methods for analyzing spatial data—methods that can and should be used when the geographic arrangement of a set of measured observations is thought to be of significance in explaining the values of those measurements. The methods of spatial analysis looked at in this course can be distinguished from conventional statistical analysis techniques, and also from many of the analysis functions programmed into many GIS packages. In fact several spatial analysis methods considered in this course the result of attempts to alter and extend conventional statistical techniques to take account of locational similarity and distance measurements (which is why Geography 364 or an equivalent primer in introductory statistical methods is a prerequisite). This means that the techniques that will be introduced in the course are often quite complex mathematically or statistically. Having said this, the overall goal of the course is to provide sufficient conceptual understanding and practical experience so that students become competent in selecting and applying methods appropriate to a variety of frequently-encountered analytical situations.

Prerequisite: GEOG 364

Bachelor of Arts: Social and Behavioral Sciences

GEOG 465: Advanced Geographic Information Systems Modeling

3 Credits

Before taking GEOG 465, students will have learned the fundamentals and principles of GIS. This course extends such knowledge to modeling geospatial scenarios. A GIS model simulates real-world phenomena, including environmental, physical and natural features, as well as social features such as demographic, transportation and origin-destination data. We will model raster and vector data types with an emphasis on multi-criteria GIS operations, using ArcGIS, R and potential other software packages. Upon completion of the course, successful students will have achieved the following objectives and learning outcomes: Students will be able to: a) discuss basic GIS modeling principles; b) find, use, store, retrieve and evaluate GIS datasets; c) describe capabilities and limitations of GIS methods and models; e) implement capabilities, tools and packages in ArcMap GIS and R environments; f) use R for programming tasks such as looping and branching; g) evaluate an external software program and create a model using this software;

h) exhibit ability to design and carry out spatial analyses using GIS; i) communicate the results of geographic analyses to others, both in oral and in written form; j) analyze spatial data sets in terms of predictability and uncertainty; and k) calibrate models based on real-world datasets.

Prerequisite: GEOG 363

GEOG 467: Applied Cartographic Design

3 Credits

Project-based map production problems with emphasis on map design and advanced mapping tools in geographic information systems. GEOG 467 Applied Cartographic Design (3)(BA) This course meets the Bachelor of Arts degree requirements. The course objective is to immerse the student in applied problems of map production and geographic representation. Topics include advanced software methods for labeling and data editing; advanced symbolization and production of extended map series; conversion between software environments; and representation for multiple media, scales and purposes. The challenge of working with clients for mapping is often included in a project. Evaluation is based primarily on meeting draft deadlines, map project quality, written reports on project decisions, and an exam. The 300-level cartography course is a prerequisite for GEOG 467, and an introductory GIS course also provides useful background skills, though it is not a prerequisite.

Prerequisite: GEOG 361

Bachelor of Arts: Social and Behavioral Sciences

GEOG 468: Geographic Information Systems Design and Evaluation

3 Credits

Design and evaluation of Geographic Information Systems and other forms of integrated spatial data systems. GEOG 468GEOG 468 Geographic Information Systems Design and Evaluation (3)(BA) This course meets the Bachelor of Arts degree requirements. This course teaches GIS design, project management and communication skills and an appreciation of the ethical, legal and social issues surrounding maps, GIS and geographical data. It also introduces some of the newer information-technology aspects of handling geographic information, such as location-based services and sensor webs, that affect how GIS data are accessed and used. The bulk of practical component of the course is taken up with a large group project (four to six persons per group). The project gives students the opportunity to engage in an exercise that spans the entire range of GIS design and implementation: from problem inception to solution testing. Outcomes revolve around the experience gained by conducting a GIS project from inception to solution, including specification, design, implementation and evaluation, and specifically: 1. Practical experience with technical writing relating to GIS systems lifecycle, including interviewing, fact finding, description of the contents of the various project deliverables and their importance. 2 An appreciation of legal and ethical issues surrounding GIS, maps and geographic including copyright, responsibility and liability and computing law. 3. An understanding of newer technological innovations that will impact the access and use of geographic information, including: data sharing (interoperability), digital libraries and information portals, web services and grid computing. 4. A portfolio of practical systems development work, that documents all stages in the lifecycle of a GIS project.

Prerequisite: GEOG 363

Bachelor of Arts: Social and Behavioral Sciences

GEOG 469: Energy Industry Applications of GIS

3 Credits

Roles of geographic information systems in energy siting decisions focusing on electric energy transmission networks. GEOG 469 Energy Industry Applications of GIS (3) Over 2 million miles of oil and gas pipeline and nearly 200,000 miles of electric transmission grid currently traverse the U.S. Geographic information systems (GIS) are used to help maintain these far-flung and extremely expensive energy infrastructures. GIS is also used to help determine optimal routes for pipelines and transmission lines as energy demand and production increase, and as the grid is extended to connect to new energy sources and consumers. GEOG 469 provides students with an in-depth exploration of the complexities of siting decisions. The course introduces a variety of siting challenges that confront the energy industry and its customers and neighbors, but focuses on the siting of electrical transmission lines. The course also provides hands-on experience with a common decision support technology, and considers how the technology may be used to facilitate public participation in siting decisions. Students will undertake a term-length project in which they must propose, research, develop and implement a siting recommendation for an electrical transmission line. They will utilize activities from each lesson to develop primary and alternative routes. Using GIS, students will develop overlays, weights and rankings to determine the most suitable location for a proposed transmission line. Students' final product will be maps showing proposed routes based on the siting criteria and rankings developed to minimize the impacts associated with the various siting criteria used. To help students develop the critical thinking skills needed in the energy industry, students will learn to critique their peers' analyses systematically from the perspective of local stakeholders who are most affected by siting decisions. GEOG 469 is designed to help students achieve two of the programmatic educational objectives established for the Energy and Sustainability Policy degree. It fosters energy industry knowledge by illuminating the difficulties intrinsic to facilities siting decisions. And it nurtures analytical skills by familiarizing students with GIS methodology, and by teaching them how to critique GIS analyses systematically.

Prerequisite: GEOG 030 , EGEE 102 , EME 444

GEOG 479: Spatial Data Science for Cyber and Human Social Networks

3 Credits

This course examines the nexus of geospatial intelligence analysis with cyberspace, the geopolitics of cyber threats, the politics of censorship and hacking, public safety, disaster response, and humanitarian relief. Students will utilize a range of cyber data, systems, and spatial sciences to examine human social networks of the Internet. The course will be centered on geospatial intelligence with emphases on technology, information theory, and cyber and human networks.

Prerequisite: GEOG 160 , GEOG 482 , or permission of program

GEOG 480: Exploring Imagery and Elevation Data in GIS Applications

3 Credits

Using imagery and terrain data in typical application scenarios faced by the geospatial professional.

Prerequisite: GEOG 482 or equivalent professional experience

GEOG 481: Topographic Mapping with Lidar

3 Credits

Using airborne topographic lidar to create elevation models for GIS applications.

Prerequisite: GEOG 362 or GEOG 480 ; GEOG 160 or GEOG 482 ; or equivalent professional experience
Bachelor of Arts: Social and Behavioral Sciences

GEOG 482: Making Maps That Matter With GIS

3 Credits

Despite its widespread use in thousands of organizations worldwide, Geographic Information Systems (GIS) remains for many an obscure set of technologies and professional practices. Even practicing GIS professionals may have limited awareness of the breadth of the field and its impacts in government, industry, and non-governmental and non-profit organizations. The course uses case studies of meaningful applications of GIS to reveal key topics across the spectrum of industry sectors defined by the U.S. Department of Labor in its Geospatial Technology Competency Model (GTCM): Positioning and Data Acquisition, Analysis and Modeling, and Software and Application Development. Topics to be mastered include concepts like positioning frameworks, uncertainty, and geo-enablement, methods and techniques including the GPS positioning, spatial modeling, and geo app development, and relevant ethical, legal, and policy issues such as locational privacy. In addition to topical objectives, the course cultivates competencies associated with lifelong learning, a cornerstone of the GTCM. Students achieve educational objectives by searching, discovering, and evaluating information from a variety of sources, including, but not limited to, the Internet. Those with substantial professional experience are encouraged to share their perspectives. Students develop mastery through class discussions in which they collaboratively prepare to demonstrate individual mastery in tests. They also learn to craft case studies of their own by creating and presenting story-telling web apps using cloud-based GIS technology. They gain self-knowledge by assessing their individual competencies in relation to the GTCM. The awareness, knowledge and technical skills they gain prepare them for success in programs such as Penn State's Postbaccalaureate Certificate Program in Geographic Information Systems (GIS) and Master of GIS graduate degree program, and for professional growth.

Prerequisite: admission to the Master of GIS program or Certificate Program in GIS

GEOG 483: Problem-Solving with GIS

3 Credits

How geographic information systems facilitate data analysis and communication to address common geographic problems. GEOG 483

Prerequisite: GEOG 482
Bachelor of Arts: Social and Behavioral Sciences

GEOG 484: GIS Database Development

3 Credits

Database design, creation, maintenance, and data integration using desktop GIS software. GEOG 484

Prerequisite: GEOG 483

Bachelor of Arts: Social and Behavioral Sciences

GEOG 485: GIS Programming and Software Development

3 Credits

The course focuses on solving geographic problems by modifying and automating generic Geographic Information System (GIS) software through programming. In GEOG 485, students use the Python programming language to write and modify scripts that add functionality to desktop GIS tools and to automate geospatial analysis processes. No previous programming experience is assumed. Core topics covered in this class include object-oriented programming, component object model technologies, object model diagrams, loops, if-then constructs, and modular code design, and situates these topics in the geospatial workflow through their integration with maps, layers, spatial data tables, and spatial analysis methods. Students who successfully complete the course can automate repetitive GIS tasks, customize GIS interfaces, and share their geospatial software development work with others.

Prerequisite: Permission of instructor or admission to the program
Bachelor of Arts: Social and Behavioral Sciences

GEOG 486: Cartography and Visualization

3 Credits

Theory and practice of cartographic design emphasizing effective visual thinking and visual communication with geographic information systems.
GEOG 486

Prerequisite: GEOG 484
Bachelor of Arts: Social and Behavioral Sciences

GEOG 487: Environmental Challenges in Spatial Data Science

3 Credits

This course takes a problem-based approach to investigating, evaluating, and communicating the results of spatial analysis applied to a wide variety of environmental challenges. Students will develop competencies related to securing spatial data from reliable sources, designing, developing, executing spatial analysis workflows, and presenting results with contemporary mapping systems. Students gain experience with a variety of spatial data science concepts and technologies that they are likely to encounter as environmental management professionals.

Prerequisite: Enrollment in Post-baccalaureate Certificate in GIS (GIS_C_PCT), Master of GIS (GIS_MGIS), or Master of Science in Spatial Data Science (SDS_MS) program

GEOG 489: Advanced Python Programming for GIS

3 Credits

In GEOG 489, you will learn advanced applications of Python for developing and customizing GIS software, designing user interfaces, and solving complex geoprocessing tasks using both proprietary and open source platforms. Students will also learn the use of version control software for code management and techniques for distributing geospatial Python applications to end users. The course consists of readings, applied projects, quizzes, and discussions about advanced GIS and spatial data science programming concepts and techniques, and it culminates with a term project. GEOG 489 is intended for students who already possess basic geospatial programming knowledge and skills via professional experience or completing GEOG 485. The technology

covered in the course includes: Esri ArcGIS Pro/arcpy, Jupyter Notebook, Esri ArcGIS API for Python, QGIS, and GDAL/OGR.

Prerequisite: GEOG 485

GEOG 493: Service Learning

3-12 Credits/Maximum of 12

Classroom instruction with supervised student activity on a group community service project. GEOG 493GEOG 493 Service Learning (3-12) GEOG 493, Service Learning, provides students with activities that integrate community service with academic study. The aim of service learning is to enrich traditional classroom-based education by getting students into a community, thereby engendering civic responsibility and simultaneously strengthening communities. GEOG 493 has five objectives: (1) to develop understanding of a set of issues; (2) to learn and apply skills associated with those issues; (3) to learn to interpret science issues for dissemination to the public; (4) to develop and apply communication skills by speaking, writing, and/or desktop publishing; and (5) to reflect on personal and career interests in science, the environment, public policy, or related areas. Thus, students will read, write, and talk about a set of issues of importance to a community and engage in a project in that community. The specific service-learning projects will change each semester, although some projects will be ongoing. In addition, more than one GEOG 493 project will be available to students in most semesters and will have alphabetical designations (e.g., 493A or 493B). Students can take GEOG in more than one semester, to a maximum of 12 credits. Depending on the topic of the service-learning project, GEOG 493 can complement courses in most colleges and their majors. The course is available to all Geography majors as elective credits; it is also available to all Geography Minors for credit toward the minor. It counts for credit as an Advanced Physical/Environmental Geography course in the Physical/Environmental Geography Option, and counts for credit as an Advanced Geography course in the General Geography Option. Students will be evaluated on four of the five course objectives: (1) understanding of the issues, (2) learning and application of skills, (3) interpretation of issues for public dissemination, and (4) application of communication skills. Although exact procedures for determining grades will vary with the instructor and service-learning project, the basis for grades will include a combination of written work, oral presentations, in-class participation, and outside-class participation.

Prerequisite: sophomore standing; 6 credits of social or environmental science

GEOG 494: Research Project in Geography

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Prerequisite: prior approval of program

GEOG 494H: Research Project in Geography

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Prerequisite: prior approval of program
Honors

GEOG 495: Internship

1-13 Credits/Maximum of 13

Supervised off-campus, non-group instruction including individual field experience, practicums, or internships. Written and oral critique of activity required.

Prerequisite: prior approval of proposed assignment by instructor
Bachelor of Arts: Social and Behavioral Sciences

GEOG 495B: Geography Teaching Internship

1-10 Credits/Maximum of 10

GEOG 495B Geography Teaching Internship (1-10)(BA) This course meets the Bachelor of Arts degree requirements. The Teaching Internship provides undergraduate students with formal, supervised teaching experience. Instructors recruit students who excel in a particular course to serve as teaching interns (TIs) in subsequent offerings of the same course. TIs may assist their peers as tutors or as laboratory assistants. They may be assigned to assist faculty members by developing and evaluating new course activities and materials. Although TIs may not evaluate their peers' class work, they can play important roles in the formative course assessment by providing feedback in regular meetings with instructors. In the process of developing the knowledge, skills and dispositions needed to be effective in helping fellow students learn, TIs gain experience that prepares them for leadership roles in their professional careers. TIs also gain respect for the effort and imagination involved in designing and conducting college classes.

Bachelor of Arts: Social and Behavioral Sciences

GEOG 495C: Internship Supervision and Mentoring

1 Credits

GEOG 495C Internship Supervision and Mentoring (1)(BA) This course meets the Bachelor of Arts degree requirements. GEOG 495C enables MGIS students who participate at a distance through the University's World Campus to earn credit through contributions to the Department's resident programs. Qualified MGIS students will be encouraged to earn one credit (up to a maximum of three) for every semester that they supervise a resident Penn State Geography student in GIS-related internship conducted in the MGIS student's place of work. Qualifications will be judged by MGIS students' academic advisors. Advisors will help MGIS students recruit qualified internship candidates. Advisors will also evaluate the quality of supervision on the basis of the documentation provided by both the MGIS student and the student intern he or she supervised. MGIS students unable to provide internships may still contribute by serving as mentors to students enrolled in the resident course EM SC 300: Professional e-Portfolio Development, through the University's LionLink program.

Bachelor of Arts: Social and Behavioral Sciences

GEOG 495G: Giscience Internship

1-10 Credits/Maximum of 10

GEOG 495GGEOG 495G Giscience Internship (1-10)(BA) This course meets the Bachelor of Arts degree requirements. Prospective interns apply directly to faculty members in charge of the Department of Geography's Geo VISTA Center or Gould Center for Geography Education and Outreach, or to persons in charge of appropriate public or private agency external to the University. Students accepted into the internship

program are assigned to research or application projects that involve the development, evaluation and/or use of geographic information technologies under the supervision of an experienced faculty member or professional. Per Faculty Senate rules, interns are expected to devote 40 hours of effort for each credit earned.

Prerequisite: GEOG 160
Bachelor of Arts: Social and Behavioral Sciences

GEOG 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Bachelor of Arts: Social and Behavioral Sciences

GEOG 497: Special Topics

1-9 Credits/Maximum of 18

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Social and Behavioral Sciences

GEOG 498: Special Topics

1-9 Credits/Maximum of 18

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Social and Behavioral Sciences

GEOG 498A: **SPECIAL TOPICS**

1-3 Credits

Bachelor of Arts: Social and Behavioral Sciences

GEOG 498B: **SPECIAL TOPICS**

2-3 Credits

Bachelor of Arts: Social and Behavioral Sciences

GEOG 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Prerequisite: prior approval of program
International Cultures (IL)

Geosciences (GEOSC)

GEOSC 1: Physical Geology

3 Credits

Earth processes and their effects on the materials, structure, and morphology of the earth's crust. Practicum includes field work, study of rocks, minerals, dynamic models, and topographic maps. (This course includes from one to several field trips for which an additional charge will be made to cover transportation.)

GEOSC 2: Historical Geology

3 Credits

History of the earth and its life; fundamentals of evolution, correlation, and paleogeography; practicum includes field trips, study of geologic maps, geologic problems, and fossils, with emphasis on Appalachian geology. (This course includes from one to several field trips for which an additional charge will be made to cover transportation.)

Bachelor of Arts: Natural Sciences

GEOSC 10: Geology of the National Parks

3 Credits

"Geology of the National Parks" uses the unsurpassed features of national parks to address the key questions of geology and the environment. Each topic is introduced with a virtual field trip to a specially chosen national park (involving pictures of the park, a brief history, other highlights of the park, with supplemental materials and links provided on-line). Key questions about the park (Why has Death Valley been getting wider? Why is much of Mt. St. Helens spread across neighboring states?) then motivate discussion of the topic (here, the spreading or squeezing associated with drifting continents), with special attention to implications for humans (for example, predicting earthquakes and volcanic eruptions associated with these features). A suite of exercises provides the opportunity for analytical experience. There are no prerequisites for the course; however, students must meet the university's technical requirements for running Canvas. This course is offered online during the fall, spring, and summer sessions. The goals of the course are to help students learn how certain common-sense ideas allow science to be such a successful human endeavor, that the Earth efficiently but slowly recycles almost everything, that the Earth's environment has been nearly balanced for very long times, that human-induced changes are among the fastest Earth has ever experienced, and that the National Parks are critical but challenged living laboratories, museums, and repositories of biodiversity. In doing so, the students will see the applications to real-world problems of related fields including physics, chemistry, biology, and mathematics, and will develop a greater appreciation of these other subjects. Students will be challenged to reason from data to generalizations, and from these generalizations back to cases, through exercises, quizzes, and examinations.

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

GEOSC 20: Planet Earth

3 Credits

GEOSC 20 is a 3-credit, introductory level course about the Earth, and since you live on the Earth, you will be affected by the topic we will cover this semester. We will emphasize earth processes and materials that affect the landscape of Earth. You will be learning about fundamental geologic processes and how they impact humans and the environment on regional and global scales. Some of these processes are slow, such as the movements of continents, and change the Earth over a period of millions of years. Others are rapid, such as earthquakes and floods. You will learn how these processes are related and interact with each other.

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GEOSC 21: Earth and Life: Origin and Evolution

3 Credits

Introduction to the origin and evolution of life on Earth from the perspective of geologic time and the fossil record. GEOSC 021

Bachelor of Arts: Natural Sciences

GEOSC 30: Volcanoes

3 Credits

Basic concepts in Volcanology and Geosciences are explored through a series of virtual field trips to historic eruptions. Since the dawning of history, humankind has been faced with the destructive power of volcanoes. Volcanic eruptions can wipe out entire populations, destroy food supplies, and alter the Earth's climate for years at a time. At the same time, volcanoes provide fertile soil for growing crops and natural geothermal energy. This course uses virtual field trips to one pre-historic and five historic volcanic eruptions to introduce basic concepts in geosciences and volcanology. Each visits a different type of volcano with unique characteristics and impacts - a shield volcano, a cinder cone, a fissure, a stratovolcano, a lava dome, and a supervolcano. We will examine the tectonic driving forces behind these volcanoes as well as their hazards and environmental impacts. Students will use real data from active volcanic fields, as well as original data collected during home experiments, to calculate physical properties of magmas and to interpret the potential impacts of various volcanic hazards. Sidebars will delve into the less obvious interactions between humans and volcanoes from the perspective of mythology, art, and history. Observations and ideas will be logged in virtual field notebooks.

General Education: Natural Sciences (GN)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

GEOSC 40: The Sea Around Us

3 Credits

Introduction to marine sciences and the world ocean, including physical, chemical, biological, and geological aspects of oceanography. GEOSC 40 The Sea Around Us (3) (GN)(BA) This course meets the Bachelor of Arts degree requirements. The Sea Around Us introduces students to the basic workings of the ocean. The course covers the origin of the ocean's rock-walled boundaries, the evolution of its coastlines, the motion of currents, waves and tides and their destructive power, the source and composition of seawater, and the role of the ocean in local and global climate. The majority of the Earth's surface is covered by water and thus it seems likely that the human race will become increasingly dependent on oceanic resources in the future. This course seeks to illuminate how the ocean will respond to increased anthropogenic pressure. Students are shown how such issues can be addressed through detailed understanding of the complex interplay between the physical, chemical and biological properties of the ocean. Lectures focus on fundamental

principles of natural sciences as related to the ocean using extensive graphics, video clips and demonstrations.

Bachelor of Arts: Natural Sciences
 General Education: Natural Sciences (GN)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Key Literacies

GEOSC 40H: The Sea Around Us

3 Credits

Introduction to marine science, including physical, chemical, biological, and geological aspects of oceanography; the sea as a multipurpose natural resource.

Honors

GEOSC 50: Planetary Geology

3 Credits

Planetary Geology will introduce students to the rocky planets and moons of the solar system. Students will learn the geological processes that are important in the shaping of planetary surfaces and interiors, as well as their ancient or current potential habitability. Throughout the course, students will learn about the various geologic processes that are relevant for each planet and moon, including volcanism, impact cratering, sediment transport, differentiation, and plate tectonics, among others. Students will understand the geologic history of planets using the best available data, but will also learn about the evolution of our knowledge through successive planetary missions to collect more data. The course will couple scientific material and real data with historical perspectives surrounding space and planetary exploration missions.

Bachelor of Arts: Natural Sciences
 General Education: Natural Sciences (GN)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

GEOSC 97: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

GEOSC 107N: Rocks, Minerals, and the History of Art

3 Credits

This online course investigates select rocks and minerals used in the production of art between the Prehistoric Era and the Early Modern period. Topics covered include chemical and physical properties, occurrence in nature, the processes by which natural materials are acquired and worked, their symbolic and monetary value, and specific works of art in which they are found. Each material (ochre, garnet, lapis lazuli, rock crystal [quartz], igneous rocks [basalt, diorite and porphyry], alabaster and marble) is addressed in a 2-week unit. The seven units are split equally between scientific analysis of the materials and art historical case studies. A final project integrates Geosciences and Art History topics to investigate the use of a chosen natural material in a specific work of art. Each material addressed in the course plays a crucial role in the history of art, and each one was particularly prized

for its physical and material properties (color, hardness, etc.). Ochre was the first known pigment, and was in use by early humans for bodily adornment and for drawing and painting in caves and shelters as early as 100,000 years ago for bodily adornment and 40,000 years ago in cave art. Its availability worldwide and in multiple strong colors made it a desirable choice. Lapis lazuli, by contrast, was difficult to obtain, and difficult to refine as a pigment. It was first used to make small sculptures and cylinder seals in the Ancient world, and was prized for its brilliant blue color. The difficulty in grinding and purifying blue pigment from lapis lazuli made it one of the most expensive pigments in the Medieval and Renaissance world—it was worth its weight in silver! Pure blue lapis pigment, when found in a painting, is always a sign of great expense and importance. Rock crystal was valued for its clarity and purity, and its extreme brittleness meant that works made from it were valued for their intricacy and fragility. Nero reportedly destroyed two elaborate crystal goblets in a rage, and in so doing, deprived future generations of masterpieces of the sculptor's art. In the Ancient Near East and Ancient Egypt, rock crystal was frequently used for amulets and other magical objects, while in the Medieval world, its purity was seen as a metaphor for the Virgin Mary. Garnet had a similar symbolic value in the Middle Ages: its red color was related to the blood of Christ, and it was thus used frequently in liturgical vessels. In the Ancient world, the rich red tone of garnets was prized in jewelry and in small-scale relief carvings. Igneous stones like porphyry, basalt and diorite were particularly prized for their extreme hardness and permanence, and thus the Law Code of Hammurabi was inscribed on basalt to ensure its permanence. Other Ancient Near Eastern rulers had images of themselves made from basalt and diorite in order to ensure that those works would survive for centuries. Imperial porphyry, an igneous stone with a rich red-purple color, came from a single remote quarry in the Egyptian mountains. Its use was reserved just for the Imperial family in Rome, and it was used for carved sarcophagi, for columns, for colored veneers on floors and walls, etc., as a sign of Imperial authority. Marble is of course one of the most familiar of all art materials, used frequently for sculpture from the very beginnings of art production. The Greeks and Romans in particular took great pains to obtain different types of marbles with specific colors, veining patterns, etc., for use in both sculpture and architecture. Finally, alabaster is one of the easiest of all stones to work: it is so soft that one can make a mark simply with a fingernail! Its intricate banding and translucency made it a favorite material for thin-walled bowls and vases in the Ancient Near East, Ancient Egypt, and in the Classical world. Later, in Early Christian and Medieval Italy, it was used for windows instead of glass—sun shining through alabaster casts a golden glow into a church interior. By the Late Gothic period, alabaster was being exploited as an easily sculpted material throughout Europe, with major quarries and workshops in England (Nottingham), France, and Northern Spain.

Cross-listed with: ARTH 107N
 General Education: Arts (GA)
 General Education: Natural Sciences (GN)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

GEOSC 109H: Earthquakes and Society

3 Credits

Introduction to earthquakes and seismology, and their relationship to society, including monitoring for nuclear weapons and seismic hazards.
 GEOSC 109H

Bachelor of Arts: Natural Sciences
Honors

GEOSC 110H: The Science of Gemstones

3 Credits

From Biblical times to the present, gems and precious metals have served as the standard by which empires have measured their worth. Through the ingenious marketing of an international cartel, diamonds have become identified with the oldest and most sacred of human contracts. To what can we attribute the unique allure of beautiful minerals? In this course, students will learn the underlying science of what distinguishes a gemstone from dross. A broad historical introduction will trace the social role that gemstones have played in human history over tens of thousands of years. After a review of the properties of atoms, they will learn the connections between atomic bonds and the physical hardness that has preserved diamonds and other gems against billions of years of abrasive forces. Students also will engage in directed discussions of ethical issues raised by gem materials: Why are gems so costly? Is it moral to purchase an expensive gemstone? What ethical hazards do synthetic gems pose? In addition, the course will explain the surprisingly simple physical processes that account for the magnificent optical properties of gemstones. Students will understand in a quantitative way how the bending of light (refraction) within a gem produces its sparkle: how variation in refraction generates fire (dispersion); how the interference of light rays from periodic structures in some rare gems like opal can yield colors that change with viewing angle (diffraction); and how vanishingly small traces of impurity atoms can generate the deep coloration of rubies, sapphires, and emeralds. In addition, students will learn about the atomic symmetries that govern the physical character of gemstones and allow modern mineralogists to distinguish imposters from real gems.

Prerequisite: MATH 26

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

Honors

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

GEOSC 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

GEOSC 201: Earth Materials

4 Credits

Elements of crystallography and crystal chemistry; origin, occurrence, and identification of sedimentary, igneous, and metamorphic rocks and their minerals. This course has one or more required field trips for which a fee is charged to the student.

Prerequisite: CHEM 110, third-semester standing. Prerequisite or concurrent: GEOSC 1 or GEOSC 20

GEOSC 202: Chemical Processes in Geology

4 Credits

An in-depth examination of the application of chemical principles to geological processes.

Prerequisite: GEOSC 1, MATH 140, third-semester standing. Prerequisite or concurrent: CHEM 113

GEOSC 203: Physical Processes in Geology

4 Credits

An in-depth examination of various physical processes that operate within and at the surface of the earth. GEOSC 203 Physical Processes in Geology applies basic principles from physics and mathematics to explore and understand the Earth and the processes that operate within the Earth and at the Earth's surface. The course includes the study of Earth's gravity and magnetic fields, focusing on how they reveal the internal structures and dynamics related to plate tectonics. The basic physics and mathematics of plate motions are also explored in some detail. We will also examine the elastic properties and behaviors of rocks, which form the basis for understanding seismic waves, rock fracture, and fault slip. The next major topic of the class is the flow of heat through the solid Earth system, involving the study of conduction, convection, and advection. The study of heat will provide the basis for understanding the application of simple differential equations with boundary conditions to geological processes; this will also introduce the mathematics of diffusion, which will permeate much of the course. This study of diffusion will enable us to move from steady state conditions to non-steady state conditions that typify most geological settings. We will examine the fluid dynamics relevant to the flow of the mantle and less viscous fluids at the surface such as lava flows and glaciers. The fluid dynamics will also lead us into an exploration of the basic physics of ocean circulation, stream flow, and erosion on land. Throughout the course, students will learn how to use calculus and very simple computer programming in MATLAB to provide a quantitative framework for understanding the physical processes that shape the Earth. The class involves a weekly lab that involves several field trips to make measurements using a variety of geophysical instruments to solve problems related to gravity, stream flow, and heat flow. Other lab activities involve studies of rock friction and fracture, ocean currents, glacial flow, seismology, and plate motions.

Prerequisite: GEOSC 1 or permission of program. Prerequisite or concurrent: PHYS 211, MATH 140

GEOSC 204: Geobiology

4 Credits

An introduction to how biological processes and materials are used to solve geological problems. GEOSC 204

Prerequisite: BIOL 110; GEOSC 1 or GEOSC 20

GEOSC 210: Geoscience Data Analytics

3 Credits

Modern geoscience careers require students to be versatile in managing and analyzing data, solving quantitative problems, comfortable in statistical analysis and projection, and adept in presenting numerical interpretations to stakeholders. The proposed course will provide students with the numerical skills to be successful in their undergraduate

careers and in the workplace and will serve as entry for more advanced quantitative courses in Geosciences and the College of Earth and Mineral Sciences. The course has five major objectives: (1) To give students an overview of the different types of geoscience data and the skills to organize, manipulate and structure them appropriately for conducting simple analyses including regression, import/export, conditional subsetting, creating and using database structures and design, queries, and metadata; (2) To train students in the fundamentals of a widely used programming language (e.g., Python, Matlab), including variables, functions, loops, boolean logic, and arrays; (3) To teach students how to use programming skills to conduct a range of basic numerical and statistical analyses; (4) To show students how to integrate and analyze several related datasets in solving complex geoscience problems; and (5) To train students how to summarize and present data in an effective manner, including appropriate data visualizations, and to communicate interpretations to stakeholders. Instruction will consist of demonstrations followed by hands-on activities in which students learn skills on laptops. Assessment will include these activities and follow-on homework problems. In addition, students will conduct a capstone project in the last few weeks of the course in which they integrate several data sets to interpret a complex geoscience problem. The course map is designed to reinforce key concepts and skills through scaffolding: Unit 2 applies the principles of geoscience data and data analysis introduced in Unit 1 in a basic programming environment. Unit 3 reinforces the programming concepts from Unit 2 while developing more advanced data analytics skills. Unit 4 applies and synthesizes the concepts and skills covered in the previous three units in the completion of a capstone project.

Prerequisite: GEOSC 1 or GEOSC 20

General Education: Quantification (GQ)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

GEOSC 212N: Earthquakes and Human History

3 Credits

A natural disaster is the result of a natural hazard impinging upon human society. In this course we examine seismicity as a geophysical phenomenon and as a natural hazard that interacts with the built environment and the social structures of human societies. Whenever possible, we approach this subject historically. Among other topics, we examine the history of how earthquakes have been understood as well as the impact of earthquakes and seismicity on the history and development of certain societies. Our specific perspectives include: Earthquakes as understood by modern and contemporary earth science Major conceptions of earthquakes in the past Impacts of seismic hazards on the built environment of past societies Impacts of seismic hazards on politics, economic development and social policies of past societies Seismic hazards, earthquake-related technology, and contemporary societies By examining earthquakes in these ways, the study of earthquakes becomes a vehicle for enhancing skills in analytical reasoning. In particular, this course focusses on applications of modern scientific analysis and the approaches commonly employed in historical investigation. Specific skills addressed in this course include, processing and quantifying information, problem solving using evidence and sound reasoning, and expressing ideas with clarity. Immersion in the study of earthquakes affords an opportunity to think more broadly about how people have dealt with natural disasters in the past and to explore the roles that science, technology, and social policy play in defining and addressing natural hazards in contemporary societies and in the future.

Class meetings include lectures, discussions, and in-class activities. We analyze scientific observations that have led to increased understanding of earthquakes, earthquake hazards and risk. We also make extensive use of case studies as concrete examples of different types of earthquakes, the historical evolution of ideas about earthquakes, and the range of social impacts of earthquakes. Reading assignments provide essential background for class sessions.

Recommended Preparation: 3RD SEMESTER STANDING

Cross-listed with: HIST 212N

General Education: Humanities (GH)

General Education: Natural Sciences (GN)

General Education - Integrative: Interdomain

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

GEOSC 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

GEOSC 296H: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Honors

GEOSC 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

GEOSC 301: Plate Tectonics

3 Credits

Plate Tectonics plays a primary role in virtually all geologic/tectonic processes, and is the foundation for most disciplines within geosciences. This course will cover plate tectonic topics in depth and will explore the processes that link plate tectonics to the geologic record. The course has two overarching goals: (1) Develop an improved understanding of the Plate Tectonic framework for use in their other geosciences studies, and (2) exploit its broad application across the geosciences to further develop student skills in scientific reasoning, data analysis, science communication, and integrating knowledge across earth science sub-disciplines. Since the development and acceptance of plate tectonic theory in the earth sciences is relatively recent (since - 1970's), students will also be exposed to how science thinking evolves with the addition of new data and new hypotheses. It will combine lectures, labs, case studies, and discussions to address fundamental questions in plate tectonics.

Prerequisite: GEOSC 1 or GEOSC 20; Recommended Preparation: GEOSC 201 and MATH 140 (or MATH 110 as appropriate)

GEOSC 302: Global Biogeochemistry

3 Credits

Biogeochemistry is the exploration of the physical, chemical, and biological processes that govern the exchange of energy and elements between the biosphere and geosphere. This course will examine principal biogeochemical cycles (e.g., C, O, S, N, P) with a focus on geologic processes and geologic origins. Drawing from the primary literature, we will investigate how biogeochemical cycling has changed over Earth's history and as a result of human activities.

Prerequisites: CHEM 112 Concurrents: GEOSC 202

GEOSC 303: Introduction to Environmental Geology

3 Credits

Origin of earth and earth materials; natural resources, geologic barriers and hazards, and relationships to human use of the environment. (This course includes from one to several field trips for which an additional charge will be made to cover transportation.)

GEOSC 310: Earth History

4 Credits

The principles of stratigraphy and paleontology and their use, in combination with plate tectonics, in reconstructing the earth's history. This course has one or more required field trips for which a fee is charged to the student.

Prerequisite: GEOSC 201

GEOSC 310H: Earth History

4 Credits

The principles of stratigraphy and paleontology and their use, in combination with plate tectonics, in reconstructing the earth's history.

Honors

GEOSC 320: Geology of Climate Change

3 Credits

Geologic evidence for climate change and mechanisms of change, especially from the Ice Age through the near future. GEOSC 320

GEOSC 340: Geomorphology

3 Credits

Physical and chemical processes operating at the earth's surface and their resulting landforms. This course has one or more required field trips for which a fee is charged to the student.

Prerequisite: GEOSC 1; fifth-semester standing

GEOSC 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

GEOSC 400: Paleoclimatology

3 Credits

This course will discuss past climate dynamics, as well as touch on what we know about ancient environments, human interactions and responses to changing climates, and methodological developments within the field. We will emphasize topics that span the Earth system (atmosphere-biosphere-geosphere-oceans) and use the paleoclimate record to inform future global change. We will also think about what a proxy and archive mean for a signal being recorded and use real data to extract and interpret past climate signals. The first 2/3 of the semester will be a combination of paired lectures and student-led discussion of foundational and recent exciting scientific literature around topics that help us explore what drives climate change over different timescales. The last 1/3 of the semester will allow students to work with real paleoclimate data by exploring existing datasets that inform their own research or interests and applying statistical techniques common in the field. Student participation is important for success in this course, and paleoclimate datasets will serve as the basis for a capstone project.

Prerequisite: GEOSC 204

GEOSC 401: Geosciences Entrepreneurship: Embrace Change

3 Credits

This course explores the intersection of entrepreneurship and geoscience, focusing on emerging fields and the changing dynamics of traditional industries. Targeted at upper-level undergraduate and graduate students of all majors, the course aims to equip participants with entrepreneurial skills and a mindset that goes beyond starting new companies. By incorporating case studies, guest lectures, and practical exercises, and student led-research, students will gain a comprehensive understanding of the entrepreneurial opportunities within geoscience. The course may cover a range of topics, including critical minerals, geothermal energy, carbon sequestration, and geological hydrogen, which are becoming increasingly important to society. Students will explore the geoscience principles, technological innovations, market dynamics, policy considerations, and environmental impacts associated with these fields. Additionally, the course emphasizes the value of entrepreneurial thinking for researchers and employees within legacy companies, such as the hydrocarbon industry, encouraging them to embrace intrapreneurship and drive innovation. Throughout the course, students will develop essential entrepreneurial skills, including opportunity identification, market analysis, business planning, financing strategies, and ethical considerations. They will also learn about collaboration, networking, and leadership within the entrepreneurial ecosystem. By the end of the course, students will be equipped with the knowledge and mindset to navigate emerging fields, adapt to shifting landscapes, and create value in geoscience-related ventures, whether as entrepreneurs or intrapreneurs and researchers.

Prerequisite: GEOSC 001 or EARTH 002

GEOSC 402Y: Natural Disasters

3 Credits

Case studies of the causes and consequences of natural disasters; analysis of disaster impact in different economic, cultural, and social conditions. GEOSC 402 Natural Disasters (3) (IL)(WAC) Is anywhere safe from natural disasters? Can we hide, or should we learn to live with the hazards around us? This course will explore the causes, effects, and

societal response to disasters. By learning from previous disasters, we can develop strategies to avert the disasters or at a minimum mitigate their affects. We will look at a variety of natural hazards and related disasters including flooding, volcanoes, landslides, earthquakes, hurricanes, and tsunami. By the sue of case studies of recent occurrences of natural disasters, we will determine how damaging disasters can be, and what we can do to minimize their impact on society. This course will provide an in-depth, hands-on study of natural hazards, their geography, and their impact on societies worldwide. We will focus on both the physical processes (e.g. underlying geoglogy or geophysics) of selected natural hazards and the humn systems that have developed to minimize the impact of natural disasters. The course will place emphasis on active learning exercises to investigate processes and responses to natural hazards. We will meet for two periods each week which will include both lecture and group research activities (approximately 30% of time is in lectures, 70% time is in group research activities). Grading will be based on reports for each topic, a disaster diary, and a term report. The term report is an independent project which focuses on a selected city facing significant natural hazards. Cities will be selected from both the developed and developing world to allow comparisons of the impacts of natural disasters under different socio-economic and cultural conditions. The course is offered once each year with a target enrollment of 25-30 students. Prerequisites for the course are at least 6 credits in science courses (including GN courses).

Prerequisite: fourth-semester standing
International Cultures (IL)
Writing Across the Curriculum

GEOSC 405: Hydropedology

3 Credits

Soil and water interactions across scales, integrated studies of landscape- soil-water relationships, fundamental processes of water flow and chemical transport. SOILS (GEOSC) 405 Hydropedology (3)Hydropedology is the study of the fluxes, storages, pathways, residence times, and spatio-temporal organization of water in the root and deep vadose zones, and their relations to climate, ecosystem, land use, and contaminant fate. The aim is to characterize integrated physical, chemical, and biological processes of soil-water interactions across scales (including chemicals and energy transported by water flow). This course embraces interdisciplinary and multiscale studies of interactive pedological and hydrological processes in the earth's surface and subsurface environments. The course will address the fundamental issues and practical applications of hydropedology (as a sister discipline of hydrogeology). This course emphasizes in situ soils that have distinct characteristics of pedogenic features, structures, layers, and soil-landscape relationships in the real world. Students will gain an in-depth understanding of soil and water interactions across scales from point observations to watershed phenomena, and will gain skills in predicting flow pathways and water fluxes in the landscape. This course promotes active learning, critical thinking, and hands-on skills. Course format will consist of two lectures and one laboratory/field exercise each week. The course will utilize a network of local watersheds with different land uses for demonstrations and class projects. Grading will be based on weekly lab/field exercise (20%), class research project (40%), homework (10%), one midterm exams (15%), and one final exam (15%). Since hydropedology is linked to a wide array of environmental, ecological, geological, agricultural, and natural resource issues of societal importance, SOILS (GEOSC) 405 will support interdisciplinary training of students in Soil Science as well as in other disciplines of the College of Agricultural Sciences, especially Agricultural and Biological Engineering,

Agronomy, and Forest Resources. Students in the College of Earth and Mineral Sciences, College of Engineering, Eberly College of Science, and the Intercollege Graduate Degree Program in Ecology also will find this course useful when undertaking research on the vadose zone, the hydrologic cycle, and the earth system.

Enforced Prerequisite at Enrollment: SOILS 101

Cross-listed with: SOILS 405

GEOSC 409W: Geomicrobiology

3 Credits

Investigation of modern and ancient microbial interactions with soils, sediments, the atmosphere, minerals, rocks, nutrients, and pollutants.

Prerequisite: CHEM 112; GEOSC 1, GEOSC 20, GEOSC 40, EARTH 2, BIOL 110 or MICRB 201

Writing Across the Curriculum

GEOSC 410: Marine Biogeochemistry

3 Credits

Exploration of the ways in which life influences and is influenced by chemical, physical, and geological processes in the ocean. GEOSC 410

Prerequisite: CHEM 112; EARTH 2 or GEOSC 1, GEOSC 20, GEOSC 40

GEOSC 412: Water Resources Geochemistry

3 Credits

Aqueous geochemistry of silica, alumina, carbonate minerals, and selected metals; organic species in water; isotope geochemistry applied to water.

Prerequisite: CHEM 110 , CHEM 112

GEOSC 413W: Techniques in Environmental Geochemistry

3 Credits

This course teaches techniques needed for the collection, chemical analysis, and data analysis of environmental geochemical measurements. This course has one or more required field trips for which a fee is charged to the student.

Prerequisite: one of the following: CE 475, CHEM 402, GEOSC 202, GEOSC 412, SOILS 419

Writing Across the Curriculum

GEOSC 414: Carbonate Geochemistry

3 Credits

Carbonate minerals that form in lakes, soils, and oceans help us understand the chemistry and biology of their environment. In this course, we build a foundation of carbonate equilibrium chemistry as a framework for discussions of carbonate-forming environments, the impacts of chemical, thermal, and biological processes on the carbonate rock record, and carbonate-based proxies for ancient Earth conditions.

Prerequisite: CHEM 110 and CHEM 112

GEOSC 415: Geochemistry

3 Credits

Element abundance and genesis, application of chemical principles to earth materials, element fractionation in geologic processes.

Prerequisite: CHEM 112, GEOSC 201

GEOSC 416: Stable and Radioactive Isotopes in Geosciences: Introduction

3 Credits

Discussions on theories for natural isotopic and element variations and their applications to the solution of geologic and cosmologic problems.

Prerequisite: CHEM 110, CHEM 112, CHEM 111, CHEM 113; GEOSC 1 or GEOSC 20

GEOSC 418: Soil Environmental Chemistry

3 Credits

Introduction to chemical constituents and processes occurring in soils. Topics include mineral weathering, soil solution chemistry and adsorption of solutes. GEOSC 418GEOSC 418 (SOILS 419) Soil Environmental Chemistry (3) Upon completion of the course, the students will be able to identify the soil components and properties responsible for the chemical reactivity of soils and will know the fundamental chemical processes that occur in soils. The students will also be able to link theoretical concepts to real life environmental problems. The students will be evaluated on examinations, homework, and class participation. GEOSC 418 (SOILS 419) is offered every Spring semester. Class limit: 25 students.

Enforced Prerequisite at Enrollment: CHEM 112 and SOILS 101

Cross-listed with: SOILS 419

GEOSC 419: The Organic Geochemistry of Natural Waters and Sediments

3 Credits

Composition, sources, and fates of particulate and dissolved organic matter in natural environments; biogeochemical processes; organic geochemistry of anthropogenic contaminants.

Prerequisite: CHEM 110, CHEM 112

GEOSC 420: Paleobotany

3 Credits

Classification, morphology, phylogeny, and stratigraphic occurrence of fossil plants; practicum includes field trips and study of paleobotanical techniques and specimens. GEOSC 420 BIOL (GEOSC) 420 Paleobotany (3) Land plants provide the oxygen, food, and forest structure that make our lives on land possible. They are sensitive indicators of global change in the past as well as today. This course will examine the history of green plants on the dynamic Earth from their beginnings in the Proterozoic oceans to today, with emphasis on central topics such as the colonization of land, the histories and relationships of major plant groups, the evolution of seeds and flowers, the evolution of plant-animal interactions, extinction and diversification, paleoclimates, and the origins of modern biomes such as rainforests and grasslands. This course is strongly recommended to graduate students and advanced undergraduates with interests in paleobiology and/or plant biology.

Specimen observation and field trips will be important course components. Exams, assignments, and class participation will be the primary bases of evaluation.

Prerequisite: any 3 credit introductory course in historical geology or plant biology

Cross-listed with: BIOL 420

GEOSC 422: Vertebrate Paleontology

3 Credits

Course covers scientific thinking and skills in scientific writing, the history of vertebrates, and modern evolutionary theory applied to vertebrates.

Prerequisite: GEOSC 1 and BIOL 110

GEOSC 424: Paleontology and Fossils

3 Credits

Concepts and procedures using fossils to solve problems in systematics, evolution, biostratigraphy, correlation, sedimentation, paleoecology, and global change.

Prerequisite: GEOSC 1 or GEOSC 20

GEOSC 434: Volcanology

3 Credits

Phenomena and products of volcanic eruptions; physical characteristics of lava and pyroclastic material.

Prerequisite: GEOSC 201

GEOSC 435: GEOSCHOLARSHIP

3 Credits

The goal of this class is to learn how to function as a geoscientist engaged in the relentless pursuit of knowledge. This course aims to benefit students in professional development, preparation for advanced courses, and senior thesis research and writing. The most important topic is peer-reviewed scientific literature, the currency of science. Recognizing, accessing, databasing, annotating, writing about, summarizing, critically discussing, and correctly citing peer-reviewed papers are the principal activities. There will be regular assigned activities involving much reading, writing, presenting, and discussion. Other topics will include professionalism, gathering data, how to handle specimens and data, publishing, talking to the media, what graduate programs are looking for and how to approach them, and participation in scientific meetings. There will be a major final paper due during exam week (and no exams). This will be a review article written in the style of a top review journal series such as Annual Reviews. For grading, simply, the strongest possible participation, enthusiasm, completeness, and quality of work is expected at all times, and the professor's perception of this is what the grade will be based on, with a heavy weighting from the term paper. Students will receive comments and other feedback all the way through that will make it clear how they are progressing, and the term paper will receive a formal grade.

Prerequisite: ENGL 15, GEOSC 1, GEOSC 201

General Education: Writing/Speaking (GWS)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GEOSC 439: Principles of Stratigraphy

3 Credits

An introduction to the description and genesis of sedimentary rock bodies, the determination of their stratal geometries, and their correlation. (This course includes from one to several field trips for which an additional charge will be made to cover transportation.)

Prerequisite: GEOSC 201

GEOSC 440: Marine Geology

3 Credits

Chemical and physical processes affecting the topography and sediments of the sea floor.

Prerequisite: fourth-semester standing

GEOSC 444: Matlab Applications for Geoscience

2 Credits

An introduction to Matlab: m-file development, descriptive statistics, bootstrapping, Fourier transforms, regression, interpolation, least-squares, differentiation, integration, differential equations, signal analysis, graphics. GEOSC 444 Matlab Application for Geoscience (2) The goal of this class is that students become familiar with Matlab so that they can conduct scientific research without needing to manipulate spreadsheets or other non-mathematically based software. The course is geared towards, beginning graduate and advanced undergraduate students with little or no previous Matlab experience, and examples are focused on applications in the science and engineering with a focus on the geosciences, including problems from groundwater hydrology, tectonics, geochemistry, rock physics, and climate change. Some basic concepts about vectors and matrices will be helpful, but are not required.

Prerequisite: MATH 110 or MATH 140

GEOSC 450: Risk Analysis in the Earth Sciences

3 Credits

An introduction to concepts and methods of quantitative risk analysis with focus on water, climate, and energy related risks. GEOSC 450 Risk Analysis in the Earth Sciences is an introduction to concepts and methods of quantitative risk analysis in the Earth system. Key concepts include probability, impacts, risk, uncertainty, statistical estimation, and decision-making under uncertainty. Important methods to be covered are sensitivity studies, probabilistic prediction, and uncertainty analysis. Examples of risks to be analyzed include: drought, flooding, nuclear waste storage, and anthropogenic climate change. Students will also use simple risk analysis software (provided by the instructor and accessible without prior programming experience) to actively apply these concepts to example problems. The course is designed for advanced undergraduate students with a prior exposure to basic statistics and calculus.

Prerequisite: MATH 140 or MATH 110, Introductory Earth Science or Geoscience class, Introductory Statistics class (e.g. STAT 200, or STAT 301, or ENNEC 473), or permission of program

GEOSC 451: Natural Resources: Origins, Economics and Environmental Impact

3 Credits

Geologic, economic and environmental issues related to exploitation of non-renewable natural resources (metals, minerals, rocks, and fossil fuels). GEOSC 451 GEOSC 451 Natural Resources: Origins, Economics and Environmental Impact (3) All the materials needed for health and prosperity in our complex society come from the earth, such as water, iron and other metals to make steel, silica to make glass, limestone to make concrete, potash and phosphate to make fertilizers, and oil, natural gas, coal and uranium to generate heat and electricity. Most of these natural resources are non-renewable, and easily recoverable quantities are limited. The main purpose of this course is to increase understanding and appreciation of geological, economical and environmental aspects of exploitation of mineral and energy resources. Approximately two-thirds of the lectures/discussions will focus on geological, geochemical and biological processes that have governed the concentration and dispersion of economically important elements and natural materials on Earth, including water, heavy metals (aluminum, iron, copper, zinc, lead, etc.), precious metals (gold, silver, platinum, etc.), industrial minerals and rocks (clays, limestone, gypsum, salts, etc.), nuclear-energy sources (uranium and thorium) and fossil fuels (petroleum, natural gas and coal). The remaining one-third of the lectures/discussions will focus on: (i) exploration methods to discover new mineral (and fossil fuel) deposits; (ii) economic aspect of mineral commodities (usages, production statistics, economic of mining and concentration); and (iii) environmental issues related to mining, nuclear waste disposal, and constructions. There will be two half-day field trips to study the nature of sulfide mineralization and acid-water pollution.

Prerequisite: GEOSC 1 or GEOSC 20

GEOSC 452: Hydrogeology

3 Credits

Hydrologic cycle: occurrence, movement, quality, and quantity of groundwater; solute transport; quantitative hydrogeologic methods; role of water in geologic processes. This course has one or more required field trips for which a fee may be charged to the student. GEOSC 452 GEOSC 452 Hydrogeology (3) GEOSC 452 is the study of the relation between geological and hydrological processes in the earth's surface and subsurface environments. The course will address the fundamental issues and practical applications of natural flow systems, emphasizing the occurrence, movement, quality, and quantity of groundwater and its relations to contaminate fate and transport. The primary objective is to provide students with the fundamental knowledge and tools that are necessary to understand the hydrologic cycle. Students will gain an in-depth understanding of fluid flow across scales from point observations to watershed phenomena, and will gain skills in using mathematics to describe water fluxes. The course format consists of two lectures each week, and includes two field trips. Grading is based on weekly homework assignments, exams, and participation on the field trips. Because hydrogeology is linked to a wide array of environmental, ecological, engineering, and natural resource issues of societal importance, GEOSC 452 will support interdisciplinary training of students in the natural sciences and engineering. Students will find this course useful when undertaking research about fluids in geologic processes.

Prerequisite: CHEM 112; GEOSC 1, GEOSC 20, or GEOSC 71; MATH 140 or MATH 110

GEOSC 454: Geology of Oil and Gas

3 Credits

Properties, origin, migration, and occurrence of oil and gas. This course has one or more required field trips for which a fee is charged to the student.

Prerequisite: GEOSC 1

GEOSC 460: Principles of Igneous and Metamorphic Petrology

3 Credits/Maximum of 3

Igneous and metamorphic processes drive planetary evolution. This course is designed to provide an understanding of the formative processes of igneous and metamorphic rocks through application of simple physical and chemical processes. Through a combination of petrographical observations and applied thermodynamics, students will learn how to treat rocks as chemical systems and, in doing so, equip themselves with a skillset that is of tremendous utility in industry and academia.

Prerequisites: GEOSC 201

GEOSC 465: Structural Geology

4 Credits

Effects and mechanics of deformation of the earth's crust; practicum includes field trips and studies of maps and structural problems. This course has one or more field trips for which a fee is charged to the student.

Prerequisite: or concurrent: GEOSC 203, GEOSC 310

GEOSC 470W: Introduction to Field Geology

3 Credits

Field interpretation of geologic features; principles and techniques of geologic mapping; interpretation of geologic maps and diagrams. This course has one or more required field trips for which a fee is charged to the student.

Prerequisite: GEOSC 1; fifth-semester standing
Writing Across the Curriculum

GEOSC 472A: Field Geology I (Introduction to Field Methods)

3 Credits

Introduction to geologic field methods and the 3-D characterization of earth structure and the reconstruction of geologic histories. This course includes travel outside the University for which an additional charge will be made to cover transportation, food, and lodging.

Prerequisite: GEOSC 310

GEOSC 472B: Field Geology II (Advanced Field Methods)

3 Credits

Advanced application of geologic field methods to the 3-D characterization of earth structure and the reconstruction of geologic

histories. This course includes travel outside the University for which an additional charge will be made to cover transportation, food, and lodging.

Prerequisite: GEOSC 310, GEOSC 465. Prerequisite or concurrent: GEOSC 472A

GEOSC 474: Astrobiology

3 Credits

Astrobiology is the study of life in the universe. Astrobiology has become a major focus of scientific research in the United States and a topic often discussed in popular science literature. The recent interest in astrobiology has resulted in the formation of an Astrobiology Institute at Penn State University. This advanced undergraduate course in astrobiology will cover many topics in the field including, biochemical evolution, the origin and evolution of life on Earth, microbial diversity, protein evolution, and the distribution of life in the universe. This course is intended to provide students of the natural sciences with the opportunity to prepare for a research career in the rapidly expanding field of astrobiology. The course will also present astrobiology as a cross-disciplinary framework that ties together the diverse courses the students have already taken. The students will learn new concepts while having, to draw on their previous knowledge of chemistry, biology, and the geosciences. In summary, this course has the following objectives: (1) to develop the student's literacy in astrobiology so that they can critically evaluate claims that they encounter well after the course has ended; (2) to present a scientific question that requires the sum of the student's previous education to solve; (3) to provide a deep background to some of the astrobiological concepts that are often only briefly mentioned in other classes or in the media; (4) to develop research and communication skills required for a young scientist through a class term paper and short oral presentation; and (5) to prepare the students for graduate research in astrobiology by giving them a broad background of the field and by demonstrating many of the outstanding problems yet to be solved.

Enforced Prerequisite at Enrollment: (BIOL 110 or BIOL 110H) and (CHEM 110 or CHEM 110H)
Cross-listed with: BIOL 474

GEOSC 479: Advanced Stratigraphy

3 Credits

Modern topics of sequence stratigraphy are addressed, with a heavy emphasis on field and laboratory data analysis and interpretation.

Prerequisite: GEOSC 439

GEOSC 480: Planetary Geophysics

3 Credits

GEOSC 480 is an advanced geophysics course that introduces students to the mathematics and physics behind the processes governing planet formation and planet evolution. Students will learn about planet and star formation, and differentiation of planetesimals into cores and mantles. Students will learn about heat transfer by conduction and convection, and apply this knowledge to learn about the temperature distribution within planets, and how they evolve over time. The course also covers the interior structure of planets, and uses basic physical laws to determine the pressure, density, and gravity profiles through planetary interiors. Students will also learn about gravitational interactions between planetary bodies, including tidal interactions between the Earth and moon. We will then cover geophysical techniques for constraining the

interior structure and properties of planets, including moment of inertia, gravity, and lithospheric flexure. Homework problems will be used to hone student's skills, including simple exercises in plotting and modeling with MATLAB. The course will be capped off by a term project, where each student will conduct research on a topic of their choice relevant to planetary interiors and their evolution.

Prerequisites: MATH 140 and PHYS 211; Recommended Preparation: GEOSC 203

GEOSC 481: Petroleum Seismology

4 Credits

The proposed course will be specially designed for undergraduate students (junior or senior) who are eager to pursuing a career in petroleum energy industry or pursuing a grad school in exploration seismology as well as new graduate students who did not have a petroleum seismology class in their previous studies. This course provides an overview of the physical principles of petroleum seismology with emphasis on exploring and characterizing petroleum reservoirs using seismic methods. The content will include the physical basis of the seismic methods, including wave properties, wave propagation in the Earth, seismic reflections & refractions, data processing, seismic migration, seismic interpretation and well logs, and borehole seismology. Hands-on experience working with field data examples will be provided through computer lab exercises throughout the semester.

Prerequisites: GEOSC 203 or GEOSC 454 Recommended Preparations: MATH 141

GEOSC 482: Satellite Remote-Sensing For Earth Observation

4 Credits

Comprehensive introduction to theory and methods in remote-sensing, covering optical, thermal and radar methods and their application in geosciences.

GEOSC 483: Environmental Geophysics

3 Credits

This course presents the principles and applications of the variety of techniques geophysicists use to address environmental problems.

Prerequisite: PHYS 211 , PHYS 212

GEOSC 487: Analysis of Time Series

3 Credits

Nonstatistical approach to data analysis; spectral and correlation analysis; filter theory; signal-to-noise improvement applied to geoscience data.

Prerequisite: MATH 140 and MATH 141

GEOSC 488: An Introduction to Seismology

4 Credits

An overview of the observations, methods, and frameworks used in seismogram analysis for earthquake and earth-structure investigations (includes laboratory). GEOSC 488

Prerequisite: MATH 140 , MATH 141

GEOSC 488H: An Introduction to Seismology

4 Credits

An overview of the observations, methods, and frameworks used in seismogram analysis for earthquake and earth-structure investigations (includes laboratory).

Honors

GEOSC 489: Dynamics of the Earth

4 Credits

Constitution and dynamics of the solid earth; mechanics and consequences of Plate Tectonic processes.

Prerequisite: GEOSC 203, GEOSC 310, PHYS 211

GEOSC 494M: Thesis Research

1-6 Credits/Maximum of 6

Supervised student activities on research projects identified on an individual, or small group basis. ,

Prerequisite: seventh-semester standing

Honors

Writing Across the Curriculum

GEOSC 494W: Senior Thesis

1-4 Credits/Maximum of 4

Supervised student activities on research projects identified on an individual, or small group basis. ,

Prerequisite: seventh-semester standing

Writing Across the Curriculum

GEOSC 495: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

GEOSC 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

GEOSC 496H: Independent Studies

1-18 Credits

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Honors

GEOSC 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

GEOSC 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

German (GER)

GER 1: Elementary German I

4 Credits

Introduction to listening, speaking, reading, and writing with emphasis on the first two skills; cultural aspects through readings and videos. Students who have received high school credit for two or more years of German may not schedule this course for credit, without the permission of the department. GER 001 Elementary German I (4) German 001: Elementary German I is designed to help students develop skills in the interpretation, expression, and negotiation of spoken and written German. In addition to German language skills, students in the course will develop a greater understanding of German-speaking culture. The course requires active student involvement and participation. Attendance is mandatory. Students will be guided by the instructor in working with German-language materials available on the internet. Student evaluation is based on active participation in class, homework, quizzes, oral and mid-term examinations, oral and written final examinations and culture projects. Placement in German 001 is based on Penn State foreign language placement policy (link to: http://bulletins.psu.edu/bulletins/bluebook/general_information.cfm?section=Placement2). Students who have received high school credit for two or more years of German may not schedule this course for credit, without permission of the department. German 001 is offered every semester. Enrollment is capped at 24 students per section.

Bachelor of Arts: World Language (All)

GER 2: Elementary German II

4 Credits

GER 2 is a continuation of GER 1; further introduction of basic structures, culture, and development of four basic skills stressing aural-oral aspects. Students who have received high school credit for four or more years of German may not schedule this course for credit, without the permission of the department. GER 2 Elementary German II is a continuation of German 1 and is designed to help students develop skills in the interpretation, expression, and negotiation of spoken and written German. In addition to German language skills, students in the course will develop a greater understanding of German-speaking culture. The course requires active student involvement and participation. Attendance is mandatory. Students will be guided by the instructor in working with German-language materials available on the internet. Student evaluation is based on class participation, homework, quizzes, oral and mid-term examinations, oral and written final examinations and culture projects. Students who have received high school credit for four or more years of German may not schedule this course for credit, without permission

of the department. German 2 is offered every semester. Enrollment is capped at 24 students per section.

Prerequisite: GER 001

Bachelor of Arts: World Language (All)

GER 3: Intermediate German

4 Credits

Continued four-skill development with increased emphasis on reading, writing, and grammatical accuracy; culturally-oriented reading selections and videos. Students may receive credit for only one of the following: GER 003 or GER 008.

Prerequisite: GER 002

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

GER 11: Intensive Basic German

6 Credits

Listening, speaking, reading, writing, basic structures and vocabulary of German. Taught on an accelerated basis. Students may receive credit for only one of the following: GER 001, 011, or 015.

Bachelor of Arts: World Language (All)

GER 12: Intensive Intermediate German

6 Credits

Continued skill development of structures and vocabulary; listening, speaking, reading, writing. Taught on an accelerated basis. Students may receive credit for only one of the following: GER 002, 003, 012, or 016.

Prerequisite: GER 011

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

GER 51: Elementary Intensive German for Graduate Students I

3 Credits

Intensive introduction to German: first half of graduate intensive sequence in elementary reading, writing, speaking, listening, cultural contexts. GER 051 Elementary Intensive German for Graduate Students (3) This is the first in a series of three courses designed to give students an intensive introduction to German. This is the first half of elementary sequence in reading, writing, speaking, listening, and cultural contexts. Students will learn the German vocabulary and will learn to create simple sentences. Lessons are taught in an authentic cultural context.

Prerequisite: graduate standing

GER 52: Elementary Intensive German for Graduate Students II

3 Credits

Intensive introduction to German: second half of graduate intensive sequence in elementary reading, writing, speaking, listening, cultural contexts. GER 052 Elementary Intensive German for Graduate Students II (3) This is the second in a series of three courses designed to give students an intensive introduction to German. This is the second half of graduate intensive sequence in elementary reading, writing,

speaking, listening, and cultural contexts. Students will learn the German vocabulary. Lessons are taught in an authentic cultural context.

Prerequisite: GER 051 or equivalent, and graduate standing

GER 53: Intermediate Intensive German for Graduate Students

3 Credits

Continued intensive study of German at the intermediate level: reading, writing, speaking, listening, cultural contexts. GER 053 Intermediate Intensive German for Graduate Students (3) This is the third in a series of three courses designed to give students an intermediate intensive knowledge of German. Continued intensive study of German at the intermediate level: reading, writing, speaking, listening, and cultural contexts. Lessons are taught in an authentic cultural context.

Prerequisite: GER 052 or equivalent, and graduate standing

GER 83: First-Year Seminar in German

3 Credits

Germany's cultural past and present. GER 083S First-Year Seminar in German (3) (GH;FYS;US;IL)(BA) This course meets the Bachelor of Arts degree requirements. This course is designed to give the student an introductory overview of certain important aspects of German culture and its development during the past 1500 years. The topics selected will give the student an introduction to major periods and representative thinkers that have helped shape the destiny of German-speaking countries and much of Europe as well. As Goethe noted, our views of the past are a mirror in which we dimly see our own reflection. Serious examination of the issues raised in this course also result in learning something about one's self and the world in which s/he live today. This course can be used to fulfill the General Education or Bachelor of Arts Humanities requirement, the Intercultural/International Competence requirement, and the first year seminar requirement. A series of short papers will enable students to develop the skills of information gathering and written expression. The course grade will be based on oral participation and on the grade for the papers, which will be evaluated both for content and writing. This course will help to prepare students for a variety of additional courses in the fields of literature and German-speaking area studies. In addition to the academic topic and issues of this course, students can expect to gain a general introduction to the University as an academic community and have the opportunity to explore their responsibilities as members of that community. Students will develop an understanding of the learning tools and resources available to them, including the opportunity to develop relationships with faculty and other students who share their academic interests. The course will be offered once per year to an audience of 20 students.

Bachelor of Arts: Humanities

International Cultures (IL)

United States Cultures (US)

First-Year Seminar

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

GER 99: Foreign Study--German

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Humanities

International Cultures (IL)

GER 100: German Culture and Civilization

3 Credits

German 100 provides a cultural history of Germany, Switzerland, and Austria from the Roman Empire to the Nazi defeat. Readings and discussions will be in English. The class examines the role of German tribes in the collapse of Rome, the emergence of a powerful medieval Empire, the architecture and devotions of Romanesque and Gothic cathedrals, the rise of manufacturing cities, the art of the Northern Renaissance, Martin Luther and the Protestant Reformation, Catholic Responses, The Thirty Years War, the Absolute King and the ban on sectarian warfare, the Rise of Prussia as a military monarchy, the Enlightenment, Napoleon and the end of the Holy Roman Empire, German Romanticism and Nationalism, Industrialization, the 1848 Revolution, Unification, Ethnic nationalism in the Austro-Hungarian Empire, World War One, Empires collapse, the Weimar Republic, Inflation, the Versailles Treaty, Modern art, Nazi seizure dictatorship, racial policy and the Holocaust, World War Two, Nazi defeat. Readings will include historical documents and a history textbook. Short discussions of art, architecture, music, literature, and philosophy are included. The class is organized around lectures, with visual aids and class screenings of films. The course is designed to be suitable for all students generally interested in German, or interested in various fields of humanistic study, whether or not they have previously studied the culture of Germany. This course is designed to fulfill General Education GH "General Humanities," IL "International Cultures," and also BA requirements.

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

GER 115N: Science, Humanity and Catastrophe: Scientific Discovery in Germany

3 Credits

The 20th century was a time of great scientific advancement - advancements that were used both for good and for evil (and for other purposes that lie somewhere in between). Germany and German-speaking scientists played central roles in many of these discoveries. In this course we will take an interdisciplinary approach to discussing key scientific advancements, including the discovery of nuclear fission and the development of the nuclear bomb, the discovery of polymers and the invention of pain medicines such as morphine and oxycodone, learning about the science behind these discoveries alongside the social and historical contexts in which they occurred, and the impact these discoveries had on society. While a majority of the scientific discoveries that we will focus on took place in the first half of the 20th century, we will also discuss the ways in which the long-term consequences

of these discoveries are still relevant today, especially as they relate to current issues on sustainability (e.g., the use of plastics) and the ethical considerations that arise more generally when thinking about the relationship between science, technology, engineering and society. This course will count as an interdomain, GH/GN.

Cross-listed with: ENGR 115N
 General Education: Humanities (GH)
 General Education: Natural Sciences (GN)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Soc Resp and Ethic Reason

GER 123: Genocide in Global perspectives: Twentieth Century and beyond

3 Credits

The history and memory of the Holocaust, the Armenian, Cambodian and other forms of genocide are often taught separately in different disciplines. This course will examine them together through the various ways different societies dealt with, experienced and understood these. Using the extensive literature on the history of genocide this course further suggests ways in which these tragic events affected and were entangled by each other's. Specific content will vary according to individual instructor, but topics may include victim cultures, ethnic cleansing, trauma, human rights, dark tourism, memorials, architecture as well as the general impact of these tragedies on global politics, or the way the memories of the tragedies were entangled with the civil rights and other struggles in American and global history.

Cross-listed with: HIST 195, JST 195
 Bachelor of Arts: Humanities
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Soc Resp and Ethic Reason

GER 128N: The Holocaust in Film and Literature

3 Credits

This class studies how art, literature, film, and other media can help us to gain a perspective on one of the most horrific events in human history, the Holocaust: the genocidal murder of more than six million men, women, and children (mostly Jewish) under the Nazi regime during World War II. We will also examine the theoretical questions involved in any attempt to capture what appears to be beyond our comprehension, in terms of moral outrage and the sheer scale, inhumanity, and bureaucratic efficiency. To this end we will study literary works, such as Primo Levi's *Survival in Auschwitz*, films such as Steven Spielberg's *Schindler's List*, Roman Polanski's *The Pianist*, and Roberto Benigni's *Life is Beautiful*, as well as photographs, poems, artworks, installations, museum architecture, the design of monuments and other artifacts. We will also examine questions of memorialization (Holocaust museums and memorials), national guilt, survivor's guilt, stigmatization, and the ethics of historical representation.

Cross-listed with: CMLIT 128N, ENGL 128N, JST 128N
 Bachelor of Arts: Arts
 Bachelor of Arts: Humanities

International Cultures (IL)
 United States Cultures (US)
 General Education: Arts (GA)
 General Education: Humanities (GH)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies
 GenEd Learning Objective: Soc Resp and Ethic Reason

GER 143: The Culture of Stalinism and Nazism

3 Credits

This course, which is cross-listed between Russian and German, aims to acquaint students with an important and troubling chapter of 20th-century culture. The regimes of Stalin and Hitler have had a decisive impact not only on life in Russia and Germany, but in much of Europe and the world at large. There is no consensus among scholars about how to classify these systems, whether the term "totalitarian" is appropriate to describe them, and whether Stalinist Russia and Nazi Germany are essentially similar or essentially different historical phenomena. Espousing a comparative perspective, this course explores the culture produced by Stalinist Russia and Nazi Germany, taking into account both the culture of daily life and selected works of "high culture," including literature, the visual arts, architecture, music, and film. The ideological underpinnings of both systems will be discussed and compared. The classics of Stalinist Socialist Realism and Nazi propaganda will be analyzed both as political statements and works of art. The course will also include a reading of authors who attempted to create critical representations of life in Stalinist and Nazi societies, such as Lydia Chukovskaya, Varlam Shalamov, Primo Levi, and George Orwell. The course is designed to be suitable for all students generally interested in Russian and/or German culture, or interested in various fields of humanistic study, whether or not they have previously studied the culture of Russia or Germany. A knowledge of Russian or German is not required, as class lectures and discussions as well as all reading assignments will be in English. This course is designed to count as General Education, as a GH "Humanities," and as an IL "International Cultures" course. It meets the BA requirements in the humanities by asking students to demonstrate competence in 20th-century German and Russian history, political philosophy, literature, art and film.

Cross-listed with: RUS 143
 Bachelor of Arts: Humanities
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Soc Resp and Ethic Reason

GER 157N: The Amish

3 Credits

This course investigates the history, culture, religion, beliefs, language and society of the Old Order Amish and related Anabaptist sectarian groups in North America. By studying their historical background, their cultural and social life based on their religious beliefs, their economic and political interactions with mainstream American society, students are offered a unique opportunity to learn more about another culture and are enabled to arrive at a better understanding of their own cultural concepts and values. The course will also focus on basic human issues,

such as family, community and economy, and the values that inform the Amish approach to these issues. The ongoing struggle of the Amish and historically-related groups to retain their religious, ethical, and moral values dates back to the Reformation. In particular, the course will discuss the maintenance by the Amish and other Old Order sectarians of their traditional language, beliefs and values after living more than three centuries in North America. Perhaps, surprisingly, the Old Order Amish are thriving economically and demographically in the twenty-first century, and their numbers are doubling approximately every 20 years. This course is designed to be suitable for all students generally interested in the Amish from the perspectives of history, religious studies, anthropology, sociology, agriculture, government, law, or business. This course is designated as Integrated Domain (N) because of the interdependence of humanities and social sciences as fundamental to understanding the Amish. The course is also designated as US "United States Cultures." The course cultivates student knowledge of the social and religious identity of the Amish, and students will learn about the beliefs and values that inform distinctive Amish practices, such as plain dress and the use of horse-and-buggy transportation.

Bachelor of Arts: Humanities
 United States Cultures (US)
 General Education: Humanities (GH)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Soc Resp and Ethic Reason

GER 166: Marx, Nietzsche, Freud

3 Credits

This course introduces the thought of three German-language writers (Karl Marx, Friedrich Nietzsche, and Sigmund Freud) who transformed the fields of philosophy, economics, psychology, and have made an immense impact on the fields of history, political science, aesthetics, theology, as well as literature and the arts. We will spend approximately equal time on each thinker, with an emphasis on their most important works as well as on their writings that deal with aesthetics, literature, and the arts. Each thinker will be presented in his respective historical and intellectual context. Students will gain an understanding of how each thinker shaped the course of German intellectual history and history of ideas more broadly. Importance will be placed on identifying each thinker's distinct method, the targets of their critiques, and the stakes of their interventions. Why was each thinker so revolutionary, and why is their thought still important today? Additional materials may include relevant literary and cinematic works. The course fulfills the General Education requirement in the Humanities (GH), as well as the International Cultures (IL) requirement. All texts and discussion in English.

Bachelor of Arts: Humanities
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think

GER 175: Germanic Heroic and Medieval Literature in English Translation

3 Credits

In this course, students will become able to describe the complex cultural history of the German-speaking Middle Ages and its modern reception through analysis of literary and cultural production. The period between the Germanic migrations of the fourth century C.E. (Common Era) and the waning of the high Middle Ages around 1250 C.E. was shaped by a complex convergence of sociocultural, theological, and political forces. A shift from the agrarian society of early Germanic peoples with a minimal government structure, to the stratified socio-political system of the High Middle Ages is reflected in written documents and literary production of the time. Evolving and emerging value systems often clashed. For instance, knights were expected to be the warriors depicted in heroic epic and yet also to behave like the civilized courtiers of Arthurian Romance. Modern retellings of Arthurian and heroic stories are popular in modern film and literature. Newer scholarly approaches such as culture theory, gender studies, critical race theory, and post-colonial studies have expanded the available tools for analysis of Germanic medieval literature and culture. Students will examine historical documents, literary works, visual art, music, as well as secondary articles on history, culture, and literature and will discuss the complexity and diversity of this time period in German-speaking regions. Using modern tools of analysis, students will compare the medieval material with its reception in modern cultural production and will evaluate the relevance of medieval culture to modern society.

Bachelor of Arts: Humanities
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking

GER 189N: German Film

3 Credits

A survey of German film from its beginnings to the present, with emphasis on historical, political, and cultural contexts. GER 189 German Film (3) (GH; GA; IL) This course is an introduction to German cinema, broadly defined as any representation of moving images made in Germany, Switzerland, or Austria, or by filmmakers from these countries working in exile. The course will be both an historical survey of the developments in German film, as well as a general introduction to film analysis. Neither prior knowledge of German culture and language nor of film history and terminology is required. All materials will be supplied in English. Students will learn about the technology of film production as well as fundamental concepts for film analysis (shots, angles, sound, lighting, etc.). The course will be structured around different political and cultural contexts, providing students with a concrete historical perspective on Germany from the late nineteenth to the early twenty-first centuries. Screenings will cover several artistic modes, including comedy, melodrama, propaganda film, experimental film, period drama, crime drama, horror film, and documentary. Readings will complement screenings with seminal writings by filmmakers and theorists, as well as texts that provide historical perspective and close analysis. By examining German film with attention to changing cultural settings, students will investigate such topics as the relation of memory and history, the representation of war and genocide, the roles of propaganda and censorship, the formation (and deformation) of national identity,

the impact of technological and economic changes on culture, and changing gender roles. In addition, students will learn to think critically about the visual medium of film, becoming more engaged and critical spectators in a world saturated with the moving image. Class work includes some lecture but emphasizes guided discussions, group work, writing exercises, and some student presentations. The course is designed to be suitable for all students generally interested in German, or interested in various fields of humanistic study, whether or not they have previously studied the culture of Germany. As an inter domain course, GER 189 also counts towards the integrative studies requirement.

International Cultures (IL)

General Education: Arts (GA)

General Education: Humanities (GH)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

GER 190: Twentieth-Century German Literature in English Translation

3 Credits

GER 190, German Twentieth-Century German Literature in Translation (GH; IL; BA) offers an introduction to 20th-century literary texts written in Austria, Germany, and Switzerland, or by authors originally from these countries, with emphasis on cultural, historical, and political contexts. No prior knowledge of German, 20th-century German history, or narrative analysis is required. All texts and discussions are in English. Students will gain a historical perspective of 20th-century German-speaking worlds by analyzing works of award-winning authors and a few filmmakers including but not limited to Arthur Schnitzler, Franz Kafka, Ernst Toller, Bert Brecht, Ruth Klüger, Helma Sanders-Brahms, Paul Celan, Max Frisch, and Heinrich Böll. The course draws on diverse genres, such as prose fiction, memoirs, poetry, diaries, short stories, drama, cinematic adaptations of literary works, and film. Short lectures and presentations contextualize the readings about Vienna 1900, two World Wars, the Interwar Years, the Holocaust, and divided and united Germany. Students will engage in an on-going dialogue about the relationships between literature, history, and society. We will explore how literature captures value and belief systems in distinct cultural, social, and political settings. Class discussions focus on the depiction of the individual in modern society, the role of intellectuals as WWI enthusiasts turned pacifists, censorship, the representation of war and the Holocaust, trauma, memory and gender, post-WWII values in a consumer culture, the student movement of 1968, the power of the mass media in the 1970s turning published opinion into public opinion, terrorism, the fall of the Berlin Wall, and German reunification. In German 190, students will critically think about text and context, explore literature as a powerful seismograph of profound cultural and political changes, examine literary works as manifestations of cultural memory and means of social critique, and appreciate writers as keen observers of the world around them. This course is suitable for all students interested in German Studies or the humanities. The course has a GH (General Humanities) and IL (International Cultures) designation and meets the requirement for a BA in the humanities.

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

GER 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Humanities

GER 197E: Special Topics GN/GH

3 Credits

Cross-listed with: ENGR 197E

General Education: Humanities (GH)

General Education: Natural Sciences (GN)

General Education - Integrative: Interdomain

GER 199: Foreign Study--German

3-6 Credits/Maximum of 6

Intermediate training in German language skills.

Prerequisite: GER 002

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

International Cultures (IL)

Exceeds 12th Unit of World Language

GER 200N: Contemporary German Culture

3 Credits

How do we make sense of Germany, the country's history, culture, politics, and economics during the twentieth century? In modern German history, periods of impressive social, political, economic, cultural, and intellectual achievements alternated with times of violence, destruction, two world wars, genocide, and authoritarian structures in politics and society. This course helps students to understand Germany during the 20th century. The main focal points of this course include World War I, the 1918 revolution followed by the short history of the Weimar Republic, the rise of the Nazis and the Third Reich, World War II and the Holocaust, post-war reconstruction, the foundation of two German states in 1949, their development until (re-) unification in 1990, the development of Germany from unification to today, Germany's current dominant economic position within the EU, and the recent rise of radical right-wing politics in Germany for the first time since 1945. These focal areas will be approached from various perspectives: From historical (and historiographical) vantage points, from sociological and economic perspectives, and through the lenses of cultural productions such as novels, movies, and other works of art.

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

GER 201: Conversation and Composition

4 Credits

Continuation of GER 003; emphasis on reading, writing, and conversational skills; course utilizes short literary selections, a concise novel, videos. GER 201 Conversation and Composition (4) IL Offered in the fall and spring semesters of each academic year, this fourth-semester German language course satisfies International Cultures (IL) requirement and is a required course for the German B.A. degree. For the German B.S. degree and the German minor, students must take either German 201 or German 208. German 201 is designed to help students further develop the four basic language skills (listening, speaking, reading and writing) they have attained in previous language courses with particular emphasis on the advancement of their speaking and writing proficiency in German. Through a task-based approach the course aims to assist students in learning to write and speak German with level-appropriate fluency and accuracy. This course will also provide students with ample opportunity to increase their reading command of German through an authentic literary work and short stories by prominent German-speaking authors. The course language is German and class sessions will consist of communicative activities and practices. The learning of the German language will occur through completion of tasks in which students use the level-specific grammatical structures in different formats and circumstances (e.g. writing and oral projects) while receiving little or no direct lecture on German grammar. The delivery and practice of factual information on grammatical structures are integral to the course and thus instructors will highlight them to the extent to help students achieve the course objectives. The class meets twice in a regular classroom and twice in a computer-lab throughout the semester where students will be exposed to computer-mediated language instruction and work on various computer-based projects. Film viewing and discussions will be incorporated into the course, as deemed necessary by the instructors. Attendance and preparation are mandatory and homework is assigned on a regular basis. The evaluation and grading of students' course performance is based on active class participation, successful completion of a rhetorical portfolio, an orally presented cultural project, four brief interviews, and a semester-end aural-oral test.

Prerequisite: GER 003 or GER 008

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

International Cultures (IL)

Exceeds 12th Unit of World Language

GER 245: The Vikings

3 Credits

The Vikings will study the rise and proliferation of Viking culture and society during the Viking Age (c. 793 - c. 1066 CE). This course will examine Norse/Scandinavian culture including their social structure, political and economic systems, technology (especially shipbuilding and navigation), religion, literature, language and of course the raiding, trading and exploration traditionally associated with Vikings. As the course synthesizes and analyzes historical evidence, several themes will be of importance including: social and economic structures, religious belief systems, the place of women and marginalized groups in society, and cultural developments such as art and literature. The overall goal of this course is to use factual and thematic knowledge of this time period and these cultures to analyze and appreciate both change and continuity in the development of Viking history.

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

GER 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Bachelor of Arts: Humanities

GER 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Humanities

GER 299: Foreign Study--German

3-6 Credits/Maximum of 6

Advanced training in German language skills.

International Cultures (IL)

GER 301: Intermediate Speaking and Listening

3 Credits

Intensive practice in spoken German through readings, discussions and video. GER 301 Intermediate Conversation and Composition (3) (IL) German 301 is a continuation of the composition and conversation emphases of both GER 201 and GER 208. Fundamental to the course is a thorough grammar review of both basic and advanced grammatical situations. Much of this review is done outside of class. In class, students devote their time primarily to oral work. GER 301 requires students to use German in various ways: group work, individual presentations, discussion of texts, structured partner drills, etc Student evaluations are based on participation, homework, quizzes, a class room presentation, and essays. GER 301 is required for all German majors and the German minor and will be offered every semester.

Prerequisite: GER 201 or GER 208Y

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

International Cultures (IL)

Exceeds 12th Unit of World Language

GER 302W: Intermediate Composition and Grammar

3 Credits

Continuation of oral and written practice in German with extensive work in composition. GER 302W Intermediate Conversation and Composition II (3)(BA) This course meets the Bachelor of Arts degree requirements. German 302 is a continuation of the language and composition emphases of both GER 201 and 208. Fundamental to the course is a thorough grammar review of both basic and advanced grammatical

situations, with the goal of improving students' grammatical and stylistic precision in written German discourse. GER 302 requires students to use German in various ways: group work, individual presentations, discussion of texts, structured partner drills, etc.

Prerequisite: GER 201 or GER 208Y
Bachelor of Arts: World Language (All)
Bachelor of Arts: World Lang (12th Unit)
Bachelor of Arts: Humanities
Exceeds 12th Unit of World Language
Writing Across the Curriculum

GER 308Y: German Business Communication

3 Credits

Development of German commerce and industry; extensive practice in the major forms of business communications such as business correspondence. GER 308Y German Business Communication (3) (IL) This course provides an introduction to German business and economics. Students will read and respond to a variety of texts about German economic practices and the German business world, as well as texts that introduce and describe more general economic principles. Emphasis is also placed on expanding students' vocabulary and further developing their writing skills in German, especially with regards to economic and business terminology, and writing genres common in business contexts. As this is not intended to be a grammar review course, students are expected to have previously completed or be concurrently enrolled in GER 301 or its equivalent. This course complements other offerings in the German business track and prepares students for the final course in the Business German sequence. This course can also be counted towards either the German minor or the German major. It is offered once a year during the fall semester.

Prerequisite: GER 301 or GER 302W
International Cultures (IL)
Writing Across the Curriculum

GER 310: Introduction to the Study of German Literature

3 Credits

History, methods, and the terminology of literary interpretation and analysis in German.

Prerequisite: GER 301 or GER 302W
Bachelor of Arts: Humanities
International Cultures (IL)

GER 344: Intermediate German Culture

3 Credits

An overview of German culture from the Middle Ages to the present. Conducted in German. GER 344 Intermediate German Culture (3) (IL) This course will be a comprehensive overview of major events and figures in German history that have influenced the development of German culture. This will be a foundational course that will enable students to better situate advanced courses in German literature and culture in the broader context of a cultural tradition that stretches from the Germanic migrations to the present. The course will be taught in German at the intermediate level and will be required of all German majors and minors. It will be a prerequisite for culture courses taught in German at the 400-level. Students will be evaluated on the basis of written tests, an oral presentation and essay on a major cultural figure or event, homework,

and class participation. The course will be offered every semester. The enrollment for each section will be capped at approximately 22.

Prerequisite: GER 301 or GER 302W
Bachelor of Arts: World Language (All)
Bachelor of Arts: World Lang (12th Unit)
Bachelor of Arts: Humanities
International Cultures (IL)
Exceeds 12th Unit of World Language

GER 399: Foreign Study--German

3-12 Credits/Maximum of 12

Advanced studies in German language and/or literature.

Prerequisite: GER 201
Bachelor of Arts: Humanities
International Cultures (IL)

GER 401Y: Advanced Composition

3 Credits

Intensive practice in writing different text types in German. GER 401Y Advanced Composition (3) (IL) GER 401Y is the writing across the curriculum component of the German language sequence. After thorough discussion of various text types, students will read and practice writing in different genres. GER 401Y concentrates on building other language skills as well. We will do so by reading and discussing short German texts from a variety of sources and watching film and television. In addition, we will review aspects of German grammar that present difficulties to many English speakers. Evaluation will be based on five writing assignments, a writing portfolio, quizzes, and class participation. The course will be offered twice a year with an enrollment of up to twenty students. GER 401Y is required for all German B.A. and B.S. major options as well as for the German minor.

Prerequisite: GER 301 and GER 302W
International Cultures (IL)
Writing Across the Curriculum

GER 408: Advanced German Business Communications

3 Credits

Study of German business organization, forms of business communications, business terminology; writing of reports and abstracts.

Prerequisite: GER 301, GER 302
International Cultures (IL)

GER 411: The Teaching of German

3 Credits

Theory, methods, techniques, materials, bibliography; use of inter-active media; contributions of linguistics or psychology to language learning.

Prerequisite: or concurrent: GER 401Y

GER 412: Contrastive Analysis of Modern German and English

3 Credits

Structural comparison of the German and English grammatical systems: morphology, syntax, phonology.

Prerequisite: or concurrent: GER 401Y
Bachelor of Arts: Humanities
International Cultures (IL)

GER 420: Genre

3-9 Credits/Maximum of 9

Special studies in a particular literary genre in German literature, such as lyrical poetry, drama, or narrative prose.

Prerequisite: GER 401
Bachelor of Arts: Humanities
International Cultures (IL)

GER 430: History of the German Language

3 Credits

Development of German from its earliest stages, including historical and cultural aspects. GER 430 History of the German Language (3) (IL) This course provides an overview of the history of the German language from its origins to the present. Historical changes and dialectal variation in phonology (sound system), morphology (word structure), syntax (sentence structure), lexicon (vocabulary), and semantics (word meaning) will be examined. Particular emphasis is placed on the impact of cultural and historical changes on the development of German, including its standardization. Students will be evaluated on the basis of homework, classroom participation, tests, and an in-class presentation with a written abstract. No prior knowledge of linguistics is required. The class is conducted in German.

Prerequisite: or concurrent: GER 401Y
Bachelor of Arts: Humanities
International Cultures (IL)

GER 431: History of German Literature and Culture I

3 Credits

Significant works of German literature before the mid-eighteenth century considered in their cultural context.

Prerequisite or Concurrent: GER 401
Bachelor of Arts: Humanities
International Cultures (IL)

GER 432: History of German Literature and Culture II

3 Credits

Significant works of German literature from the mid-eighteenth century to the present considered in their cultural context.

Prerequisite or Concurrent: GER 401
Bachelor of Arts: Humanities
International Cultures (IL)

GER 440: Seminar in German Culture

3-6 Credits/Maximum of 6

Seminar devoted to a special topic in the field of German culture and civilization.

Prerequisite: or concurrent: GER 401Y
Bachelor of Arts: Humanities
International Cultures (IL)

GER 472: Romanticism

3 Credits

A study of both early and late romanticism, including such writers as Novalis, the Schlegels, E.T.A. Hoffmann, and Heine.

Prerequisite or Concurrent: GER 401
Bachelor of Arts: Humanities
International Cultures (IL)

GER 489: Introduction to German Film History and Theory in Context

3 Credits

Introduces films in German since the 1960s and addresses issues relevant to German and European cultures and politics. GER 489 Introduction to German Film History and Theory in Context (3) This course focuses on German cinema's development since the 1960s. The course situates the 'Young' and then 'New German Cinema' within contemporaneous European and U.S. film cultures. Thus the course will address the difference between the European cinematic culture of 'auteurs' versus the school of 'genres' in the U.S. The preceding traditions of Italian Neo-realism and of the French nouvelle vague are also engaged alongside a few Hungarian, Czech and/or Polish films. The students will have the opportunity to consider how these other national cinematic productions impacted the German filmmakers who were involved in the creation of a national German cinema that would critically engage Hollywood on the one hand, and distance itself from the Nazi past on the other. The course will be structured around questions about the grounds for a national cinema and its cultural and critical relevance both at the time these films were produced and today. Yet, the national question will not be the only focus of this class, in the course of which students will be able to discuss the historical, political and ethical questions raised by the directors selected. In addition, students in this course will learn about the specificity of cinematic language and will be exposed to some film theory. In conclusion, the course provides upper level undergraduate students with a basic knowledge of the most important New German films, with a confrontation with issues specifically relevant to a study of German culture, and with some familiarity with film theory. The evaluation methods for this course will be based on 1) participation [attendance; reports/worksheets, after each film and in class discussion]: 30%; 2) presentation 20%; 3) take-home mid term essay 20%; and 4) final paper 30%. The course is part of the German Program, in particular of the German Studies curriculum. It teaches students of German culture about German and European contemporary cinema, while situating the cinema within broader historical-political debates concerning Europe. It functions as an excellent complementary course to our GER LIT classes at the 400 level and offers an additional choice to pursue cultural studies to those who are more reticent about reading texts. Enrollment: 25. The course will be offered every other year.

Prerequisite: GER 310 or COMM 250

GER 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Humanities

GER 494H: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Humanities
Honors

GER 495: Internship

3-9 Credits/Maximum of 9

Supervised off-campus, non-group instruction including individual field experiences, practicums, or internships. Written and oral critique of activity required.

Prerequisite: prior approval of proposed assignment by instructor
Bachelor of Arts: Humanities

GER 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Bachelor of Arts: Humanities

GER 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Humanities

GER 499: Foreign Study--German

3-12 Credits/Maximum of 12

Advanced studies in German language, literature, and culture.

Prerequisite: any 300-level course in German
Bachelor of Arts: Humanities
International Cultures (IL)

Global and International Studies (GLIS)

GLIS 101N: Globalization

3 Credits

This course provides a broad introduction to the topic of global studies. This course meets the Bachelor of Arts degree requirements. This

interdisciplinary course explores how people and nations confront the phenomenon of globalization, presenting different perspectives for studying and making sense of the world. Students are exposed to a variety of analytical approaches from the arts, humanities and social sciences to allow them to see how different perspectives portray the world, interpret events, and often shape human actions. The course begins from a humanities perspective, exploring the concept of social identity, in particular understanding how people in different cultures develop a sense of their identity and how this is perpetuated over time through a society's products, practices, and perspectives (e.g. artifacts, value systems, traditions). The focus then shifts to organizations in society, comparing how they operate with either national or global identities. This leads to an exploration of how information and communication technologies are tools to create both global connectivity, yet can also be a source of division. Globalization is then considered in terms of its impact on the natural environment, populations, and health. Challenges arising in each of these areas are the concern of all global citizens, and are explored in terms of how interdependencies are increasing their impact. The focus of the course progresses to gender, poverty, and human rights, exploring these in tandem with their literary representations, presented in both global and comparative contexts. Economic development models are also used to uncover trends in gender and poverty. The final focus is on global peace and conflict, highlighting how globalization, in bringing people and nations closer together, can also give rise to conflict and division. This course is one of two 100-level courses that are required for the GLIS major. While this course focuses on a general introduction to global studies as a field of study, GLIS 102N complements the topics raised here, exploring many from a range of different perspectives to prepare students for choosing their options through the major.

Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures
Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)
General Education: Humanities (GH)
General Education: Social and Behavioral Scien (GS)
General Education - Integrative: Interdomain
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Integrative Thinking

GLIS 102N: Global Pathways

3 Credits

This course meets the Bachelor of Arts degree requirements. This course introduces students to five pathways to thinking about global issues today: Global Conflict, Health & Environment, Culture & Identity, Wealth & Inequality, and Human Rights. We will spend three weeks focusing on each problem. Students will complete the course with a stronger sense of many of the major global issues of our time, as well as a sense of how those issues can be approached and studied from a variety of humanistic and social scientific perspectives. Students will also learn how aspects of identity, like race, sexuality, or gender, affect and are affected by global forces. Combined with GLIS 101N, this course will help prepare students for lives and careers in which they will interact with these large-scale global issues on a daily basis; it will allow students to understand how various local or national issues are affected by global ones, and to see ways of intervening in the world to address global problems. 1. Global Conflict: Why do people fight? Is violence inherent to human society? How is it possible to dream of an end to war, as creative writers of many

cultures have done? 2. Health & Environment: How does climate affect human history? How have societies and individuals interacted with their environments, and how have the relations between human beings and the natural world been represented in literature and the arts? How are health issues depicted in narratives and other media, and how do health crises challenge political or cultural norms? 3. Culture & Identity: How do we come to be who we are? How are we shaped by the circumstances we grow up in? What is culture, and how do we understand cultures other than our own? What happens when people move or change cultures, or when cultures move or change people? 4. Wealth & Inequality: Why are some nations, and some people, rich, and others poor? What structural factors help explain those differences? How does the distribution of wealth factor into what counts as a good society? 5. Human Rights: What are the most fundamental properties of being human? Does everyone in a society have the same rights?

Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 Bachelor of Arts: Social and Behavioral Sciences
 International Cultures (IL)
 General Education: Humanities (GH)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking

GLIS 310: Language Rights, Policy, and Planning

3 Credits

This is a course on language rights, policy, and planning from individual, group, inter-ethnic, and national perspectives. Linguistic minorities are a consequence of colonization by European powers in different regions of the globe. Other effects of colonization and political conflicts include mass movement, migration, and the emergence of nationalism. In such contexts, minorities have made demands for language rights and used language policy and planning as strategies to realize demands for social justice. This course will examine how linguistic minorities secure opportunities to use their own languages and have them accommodated in official legislation as mother tongue, second, or foreign languages. The course will adopt a global perspective and analyze language rights as well as language policy and planning in diverse regions of the globe, including but not restricted to, Africa, Asia, and South America. Analysis will primarily focus on how language policies can be carried out from different perspectives (e.g., literary, linguistic, and political) in different geographical regions. After examining how language policies operate in and influence society, the course will use sociopolitical ideologies to explore the nature of the relationship between language policies and language rights and the ways this relationship enables one to achieve an expanded understanding of the impact of language policies and language rights on local language practices.

Cross-listed with: AFR 310, APLNG 310
 International Cultures (IL)

GLIS 400Y: Seminar in Global and International Studies

3 Credits/Maximum of 3

Capstone Seminar focusing on critical themes and the development of the senior thesis for Global Studies Majors. This interdisciplinary course will offer a seminar on some current event, issue, or phenomenon that involves a significant proportion of the globe. Topics will vary each

year and depend on the faculty member leading the course, but it may include subjects such as the European Union, global economic change, international pop culture, or international response to human rights violations. Students will develop, write, and workshop a global studies research thesis. Both written and oral work will be assigned and graded. Students will discuss material from a variety of academic fields such as political science, economics, sociology, history, anthropology, and cultural studies.

Prerequisite: GLIS 101, GLIS 102
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 Writing Across the Curriculum

GLIS 410: The Global Impact of Education

3 Credits

This course examines the global impact of education on human rights, health, economic development, political mobilization, religion, and environmental sustainability. The education revolution has significantly changed the world's population from one largely unschooled to one mostly schooled in just the last 150 years, yet the full impact of this major transformation is only now emerging through social science research. The course will explore, at both the individual and societal levels, how education changes many dimensions of global society in both positive and negative ways. It also focuses on the use and misuse of educational programs in social and economic development worldwide through Non-Government Organizations (NGO's), national governments, and multinational agencies.

Enforced Prerequisite at Enrollment: 5th semester standing
 Cross-listed with: CIED 410, EDTHP 410, SOC 410
 General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Soc Resp and Ethic Reason

GLIS 478: China and the World

3 Credits

This course examines China's economic reform and development and its engagement with the world since 1978. It pays close attention to the interplay of politics and economics. The course first examines the initiation and process of China's economic reform. This part of course covers topics including state-owned enterprise reform, township and village enterprises, fiscal decentralization, and tax reform. Then the course explores China's interactions with the world, paying special attention to trade, foreign investment, and development aid. Finally, the course addresses the issues and challenges that China faces for sustainable development, including corruption, income inequality, and environmental deterioration. The goal of this course is to give students a comprehensive view of the political economy of contemporary China and its relationship with the world and to develop students' understanding of economic reform and development in the developing world.

Prerequisite: PLSC 3 or PLSC 14 or ASIA 100Z
 Cross-listed with: ASIA 478, PLSC 478
 International Cultures (IL)

GLIS 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

GLIS 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Graphic Design (GD)

GD 1S: First-Year Seminar in Graphic Design

1 Credits

An orientation to the historical, social, and professional context of design and an exposure to a variety of ethical, philosophical, and topical ideas from the world of design.

First-Year Seminar

GD 100: Introduction to Graphic Design

3 Credits

A beginning level graphic design course. Instruction touches on the practice, theories, history and processes of the graphic design industry. GD 100 Introduction to Graphic Design (3) (GA) GD 100 (GA) INTRODUCTION TO GRAPHIC DESIGN (3) is a beginning level graphic design course. Instruction touches on the practice, history, theories, and analysis of the design industry. This course places emphasis on problem solving and observing design, while developing intuition and creativity. Projects focus on the process of defining the parameters of a design problem, observing examples within the design industry, and critically evaluating examples of effective and ineffective design. The course will help students to: 1. Understand the graphic design industry and the responsibilities of the profession. 2. Develop an appreciation for the practice of design. 3. Begin to develop the ability to define and solve problems. 4. Increase their knowledge of the history of graphic design and typography. 5. Refine their conceptual skills. 6. Learn and understand the vernacular of the industry. Students will be quizzed on terminology and important facts provided in the readings.

General Education: Arts (GA)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GD 101: Design Foundation

4 Credits

Design Foundation is a beginning-level studio course appropriate for students enrolled in a graphic design program. Through exercises and projects, students will use the elements and principles of design to convey information with clarity and impact. Students will practice thinking critically and acting creatively. Work will focus on key design issues, including process, method, technique, technology, and the production of visual and physical artifacts.

GD 102: Design Foundation 2

3 Credits

Design Foundation 2 continues a student's education in the fundamental practices of graphic design. Students develop greater facility with creative ideation, the fundamentals of visual communication, and the practical application of design principles and elements. Production methods build on the hand-skill of Design Foundation 1, moving into digital platforms.

Enforced Prerequisite at Enrollment: GD 101

GD 107: Graphic Design Studio - Components

4 Credits

GD107 Design Studio - Components is a beginning-level studio course appropriate for students enrolled in Graphic Design. The course serves as an introduction to analysis and form-making in graphic design through investigation of design artifacts as components of larger physical, social, cultural, and technological systems. Students will observe the world around them, define problems, and develop creative solutions. These solutions will be produced with an eye towards clear and effective visual communication. Critiques will build fluency in the language of design and sharpen their evaluation of design choices.

Enforced Prerequisite at Enrollment: GD 101

GD 110: User Experience Design: Concepts and Principles

3 Credits/Maximum of 6

Students in this introductory course will study foundational concepts and methodologies in User Experience (UX) design and thinking. User experience (UX) design is the process designers use to create products that provide meaningful and relevant experiences to users and is rooted in the research and discovery of digital audiences, inclusive of enhancing user engagement and loyalty through usability, accessibility and product satisfaction. GD110 offers practical instruction focused on visual communications perspective, rather than one focused on programming alone. The process of designing user experiences within digital systems and applications will be explored and analyzed, as well as introductory knowledge in constructing design systems for various based on the needs of users. The course will feature iterative design processes to employ basic management techniques in working with product stakeholders for digital planning practices. GD 110 will provide foundation level instruction for concepts and principles that will be applied more broadly in GD 210.

General Education: Arts (GA)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GD 115N: Visualizing Information

3 Credits

The world is awash with complex, dynamic information. With the development of powerful technologies capturing vast amounts of data, the art of visually representing information in ways that increase understanding of complex data and models will become a critical skill. Effective representations can communicate information in ways that maximize comprehension, analysis, exploration, and understanding

of the underlying data. Knowing how to read and interpret visual data is essential to navigating this ocean of information. Those who know how to present data visually employ a powerful communication tool. In this class, you will become an effective reader and creator of visual representations of data. Through critical assessment of examples, interactions with peers, and the generation of your own projects, you will generate visualizations of data and create works using a common visual language to help people analyze and understand the information at hand. Good visualizations not only present a visual interpretation of data, but also do so by improving comprehension, communication, and decision-making. Effectively functional visualizations can offer insights that reveal evidence and truths that may be difficult to otherwise observe. They can often empower readers to explore both the norms that give meaning to the data and the exceptions that convey its complexity or uncertainty. Visualized information can assist in revealing: - Distributions and frequency over time - Changes and trends - Relationships and correlations - Spatial and mapping information Regardless of your major field of study, the ability to effectively visualize information represents a significant and essential skill for effective communication. Whether you are creating representation of your work for your company's leadership board, a general public audience, or a meeting of your peers, the ability to craft a visual display that offers an accurate and insightful interpretation of data is a key capability in the workplace. No prior experience in design or statistics is required for success in this course.

General Education: Arts (GA)

General Education: Humanities (GH)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

GD 200: Graphic Design Studio I

3 Credits

A beginning graphic design studio course. Instruction focuses on the practical and analytical process of creating graphic designs and their critical evaluation. GD 200GD 200 Graphic Design Studio I (3) This course is a beginning graphic design studio course. Instruction focuses on the practical and analytical process of creating graphic designs and their critical evaluation. Emphasis is on problem solving and technical training while, at the same time, nurturing intuition and creativity. The course will help students to: 1. Develop skills and techniques applicable to graphic design. 2. Become familiar with appropriate computer hardware and software. 3. Develop the ability to define and solve problems. 4. Develop an understanding of graphic design as a profession. 5. Refine their conceptual skills. 6. Develop the work habits and attitudes of design professionals. Grading: 1. Work will be evaluated on the relevance and originality of the design idea, the suitability of the design approach in serving the client's needs, the effectiveness of the design in reading its intended audience, and all pertinent functional parameters. 2. Professional attitude and the development of professional work habits will be evaluated. Students are expected to think for themselves, budget their time, meet deadlines, and adhere to production schedules. 3. Attendance is required. In the case of illness or an emergency, students are required to contact the professor just as they would contact an employer. Three unexcused absences will result in the final semester grade being lowered one full letter grade. 4. Neatness, craft and attention to detail will be considered in the final grade. 5. Visual, verbal and written

communication skills will also be part of the evaluation. GD 200 carries the prerequisite of GD 102.

Enforced Prerequisite at Enrollment: GD 102

GD 201: Typography

4 Credits

GD201 Typography 1 is an intermediate-level studio course appropriate for students enrolled in a graphic design program. This course introduces the practical and analytical application of typography across a range of formats with an emphasis on concept development. Students will develop a strong foundation in typography, including knowledge of typographic principles, terminology and technical application. Students will apply knowledge of grid-based systems, typographic hierarchy, and systems-thinking across multiple formats. Projects introduce studio-based problem-solving using typographic principles and include competencies in formal typographic systems as well as experimental application. This course introduces typographic history as well as contemporary typographic considerations. Critiques will advance students' skills in the critical evaluation of design principles and communication in typographic design.

Enforced Prerequisite at Enrollment: GD 107

GD 202W: The History of Graphic Design

3 Credits

A survey of graphic design, especially emphasizing influential movements, innovative designers and technological advances relevant to contemporary visual communication. GD 202 The History of Graphic Design (3) The History of Graphic Design course provides an overview of design as a vehicle of visual communication. The primary focus of the coursework is on images and styles of image-making as well as on language as a visual, typographic form. The application of images and typography is the basis of design, and its history ranges from Sumerian clay tablets to 21st century digital tablets. Special emphasis is given to periods of innovation and inspiration, including the late Roman period, the Renaissance, the Industrial Era, the rise of Modernism in Europe and America, and the digital revolution. Graphic design is a discipline which embraces its production and delivery technology; therefore, attention is also focused on the evolution of that technology—from the letterpress and metal typography, through the camera and photomechanical reproduction era, to current computer and digital production processes.

Writing Across the Curriculum

GD 203: Typography 2

3 Credits/Maximum of 3

GD 203, Advanced Typography is a course that comprises the study and development of advanced knowledge and skills of typography. Specifically, it includes the study and use of type to accomplish broader knowledge and skills in using type to create meaningful visual narratives, advanced skills of typography in organizing, arranging, and presenting information within multi-page layouts, and gain competent critical analysis skills concerning historical contemporary contextual perspectives.

Enforced Prerequisite at Enrollment: GD 201

GD 207: Graphic Design Studio - Products

4 Credits

Graphic Design Studio - Products is an intermediate-level studio course appropriate for students enrolled in a graphic design program. This course advances concepts and methodologies learned in GD101, GD107, and GD201. Through a series of multifaceted projects, students will analyze complex problems and apply research methodologies to design unique, systems-based solutions. Various modes of image-making will be explored, combining analog and digital techniques to develop fluency across media. Projects will explore the use of type and image in design solutions and expand upon typographic principles from GD201. Students will begin practicing client-designer relationships and addressing real-world problems through studio-based projects. Critiques will advance practical knowledge of critical evaluation and hone oral articulation of design choices.

Enforced Prerequisite at Enrollment: GD 107 and GD 201

GD 210: User Interface Design and Prototyping

3 Credits/Maximum of 6

Students in this course will apply knowledge in User Interface (UI) design and practice designing and prototyping compelling visual interfaces for multiple platforms - from websites to physical spaces to the nuanced interactions in mobile and wearable environments. The relationship of context to concept will be evaluated and applied, with emphasis placed upon designing for desktop and mobile environments through project-based learning and critique. Knowledge acquired in GD 110: User Experience Design: Concepts & Principles will allow students to understand user behavior while applying technical knowledge in learning design systems and standards for desktop and mobile devices. Students will learn user interface design software to increase design capabilities, as well as prototyping software to further interaction design skill sets.

Enforced Prerequisite at Enrollment: GD 110

General Education: Arts (GA)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Key Literacies

GD 211: Design Photo and Motion

4 Credits

Design Photo and Motion is a beginner-level course that introduces students to the technologies and problem-solving skills of photography and motion design. GD211 will explore the theories and methodologies of verbal and visual communication as it relates to still and moving imagery. Through exercises, lectures, and projects, students will be introduced to the relationship between verbal and visual information. The objectives for this course are to provide design students with an understanding of how visuals pair with other design context to create engaging experiences and messages. This course is a required studio course that is additionally a pre-requisite to electives GD 300 Design Photography and GD 400 Time and Sequence.

Enforced Prerequisite at Enrollment: GD 107

GD 295: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

GD 296: Independent Study

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

GD 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

GD 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

GD 300: Design Photography

4 Credits

GD 300 Design Photography (4) GD 300 is an intermediate design and photography course that explores the visual and conceptual relationship between typography and photography as it relates to the communication of information.

Enforced Prerequisite at Enrollment: GD 203

Bachelor of Arts: Arts

GD 301: Experience Design Process + Methods

4 Credits/Maximum of 4

GD 301, Experience design process and methods, is an advanced graphic design studio class that provides graphic design students with an in-depth study of the intricate relationship between the professional graphic designer and digital technology. Students will advance their knowledge of design software applications and will be introduced to programming languages that will assist them throughout the design process. From research and ideation to the creation of comprehensive studies and final designs, students will be given the tools that are critical to the completion of a variety of graphic design projects.

GD 302: Applied Communication

4 Credits

Definition and concentrated involvement in problem/audience analysis, with emphasis on understanding symbol and image in evoking audience response. GD 302

Enforced Prerequisite at Enrollment: GD 300 and GD 301

Bachelor of Arts: Arts

GD 303: Applied Experience Design

4 Credits/Maximum of 4

Applied Experience Design, GD 303 explores digital technology as a medium graphic design. Topics include design expressed over time - both linear and nonlinear. The objectives for this course are to give graphic design students experience in the complexities of digital visual communication and to provide students with the opportunity to work with software packages that facilitate digital communication. Students will receive instruction regarding the graphic designer's role in complex, collaborative digital communications.

Enforced Prerequisite at Enrollment: GD 301

GD 304: Practical Communications

3 Credits

GD 304 Practical Communications (3) GD 304 is an advanced course that is intended to offer practical design experiences to graphic design students through assignments for various University and not-for-profit community clients.

Enforced Prerequisite at Enrollment: GD 300 and GD 301
Bachelor of Arts: Arts

GD 307: Graphic Design Studio - Systems

4 Credits

Design practice is evolving-focusing less on physical things and more on the connections between them. Increasingly, design practice is concerned with nodes and links-networks, systems, and communities of systems. This course advances concepts and methodologies learned in GD107, and GD207. The design objectives for third year studio evolve to include not just the physical and digital deliverables but focus on the connections between them. Through a series of comprehensive projects, students will analyze complex problems and address integrating concepts and methods in application through systemsbased solutions.

Enforced Prerequisite at Enrollment: GD 207

GD 308: Graphic Design Seminar

3 Credits

Graphic Design Seminar offers a theoretical and critical examination of contemporary and future-facing design issues. The course includes lectures and discussions of current design strategies and practices. Students will be introduced to critical reading, writing, discussion, and presentation as reflective practices with a focus on diverse perspectives and approaches.

Enforced Concurrent at Enrollment: GD307

GD 310: Studio Apprenticeship

3-6 Credits/Maximum of 6

GD 310 is an advanced course that will offer pragmatic design experiences to graphic design students through direct involvement in the creative process of the designer-teacher in the studio environment.

Bachelor of Arts: Arts

GD 315: Humanizing Data

4 Credits

Humanizing data is an advanced-level studio course for majors and minors in graphic design, analyzing and visualizing data through aesthetic and humanistic approaches.

Enforced Prerequisite at Enrollment: GD 115N

GD 320: Interaction Design

4 Credits

This class advances the concepts, technologies, and languages used to design and build modern interactive experiences learned in GD110 and GD210. GD320 will explore the visual aspects and structural flow of interface design. Through projects, lectures, and workshops students will explore design strategies for web and mobile devices. Students will design screen-based experiences through research and empathy to achieve their user's end-goals and objectives. Core concepts might include content strategy, personas, sitemaps, user flows, wireframes, information architecture, and usability principles. The objectives for this course are to give graphic design students experience in the complexities of digital visual communication in emerging mediums. Students will receive instruction regarding the graphic designer's role in complex, collaborative digital communications.

Enforced Prerequisite at Enrollment: GD 210

GD 395: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

GD 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

GD 400: Time and Sequence

4 Credits

Development of visual sequence as replies to graphic design problems.
GD 400

Enforced Prerequisite at Enrollment: GD 302
Bachelor of Arts: Arts

GD 401: Package Design

3 Credits

Orientation to packaging designs as it relates to the consumer, client, and to societal and environmental concerns. GD 401

Enforced Prerequisite at Enrollment: GD 302
Bachelor of Arts: Arts

GD 402: Senior Problems

4 Credits

GD 402, Senior Problems, allows the senior student to incorporate their knowledge and experience acquired from their years of experimentation, research, and critical thinking. The course focuses on the final preparation of the professional portfolio culminating extensive design projects and the organization and production of senior student design exhibition.

Enforced Prerequisite at Enrollment: GD 400

Bachelor of Arts: Arts

GD 405: Minor Advanced Studio

3 Credits/Maximum of 3

This class introduces the concepts, technologies, and languages used to design and build publications, objects, and complex collaborative digital communications. GD405 provides Graphic Design Minors with an advanced-level design studio, appropriate in rigor, and in keeping with the expectations of the Minor in Graphic Design degree. This will prepare the successful student for the self-guided thesis environment of the Minor in Graphic Design Capstone Course (GD406). Within this advanced studio course, students will continue to develop core professional competencies in their quest for mastery of industry tools and techniques for actual and virtual domains. It will apply the student's existing knowledge of design methodology to the completion of project-based studio coursework. Through research, ideation, and the creation of final designs, students will be given continued experiences in printed mediums, be introduced to the design of physical artifacts, and exposed to the complexities of digital visual communication in emerging mediums. These may include complex long-format publications, commercial product packaging, websites, and digital interfaces. Students will develop an understanding of the graphic designer as a professional communicator, and develop the work habits and attitudes found within this design profession.

Enforced Prerequisite at Enrollment: GD 200 and GD 201

GD 406: Minor Capstone Studio

3 Credits/Maximum of 3

A structured studio for Minors in Graphic Design culminating into a final self-authored project on a topic that engages each student's declared major. The Minor Capstone Studio applies each student's accumulated knowledge of graphic design towards the development of a self-authored project on a topic that engages his or her declared major. Each project will exercise the student's capacity to synthesize visual form and written components through the application of design methodology, and culminate their findings into a completed, presented thesis. Coursework will also include an introduction to communication theory, contemporary communication paradigms, the changing notion of audience and context, and formal research methodology.

Enforced Prerequisite at Enrollment: GD 405

GD 407: Graphic Design Studio - Communities

4 Credits

Design Studio - Communities is an Advanced-level studio course appropriate for students enrolled in a graphic design major. Classes will focus on developing skills to conceive and execute projects for social change with a focus on developing ideas that are rooted in the

community and have the power to impact people's lives. Students will be expected to work in diverse groups, often collaborating with individuals outside of the discipline to solve problems within local and global communities. This course advances concepts and methodologies learned in GD107, GD207, GD307, and other design studios.

GD 409: Exhibition and Portfolio

4 Credits

An in-depth, advanced level course for students enrolled in the graphic design program. Students will prepare for the professional working environment by creating solutions to complex, multi-faceted, systems-based design problems. Students will practice leadership and independence in designer-as-author based projects with an emphasis on clearly defining problems, and developing strong, polished solutions that are clearly presented visually, verbally, and in writing. Students will demonstrate a professional attitude and work habits. This course will culminate in a senior capstone exhibition, which students will organize, brand, and actualize for an audience. There is an emphasis on the transition from school to future career. Students engage in both individual independent projects and collaborative group projects. Readings and discussions of professional practice, guidelines, and ethics are integrated throughout the course.

Enforced Corequisite at Enrollment: GD 407

GD 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

GD 494H: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Honors

GD 495: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

GD 496: Independent Study

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

GD 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

GD 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Greek (GREEK)

GREEK 99: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Humanities

International Cultures (IL)

GREEK 101: Introductory Ancient Greek

4 Credits

GREEK 101 is the first course in a two-semester introduction to ancient Greek, the language of Homer, Sophocles, Plato, and the New Testament. Students will begin to learn the grammar and vocabulary necessary for reading Greek literature of different periods. Unlike a modern language, ancient Greek is not a spoken language. Consequently, the class will be devoted to honing reading skills through drills and the translation of short sentences and passages. Students will also be encouraged to compose ancient Greek sentences and passages as they develop their fluency in the language. By the end of the semester, students will be prepared to continue to GREEK 102.

Bachelor of Arts: World Language (All)

Bachelor of Arts: Humanities

GREEK 102: Intermediate Ancient Greek

4 Credits

GREEK 102 continues the work begun in GREEK101, which is prerequisite for enrollment. Students will continue to learn the grammar and vocabulary necessary for reading ancient Greek literature of different periods. During this course, students will begin to read extended, unadapted passages from Plato, Xenophon, the New Testament and other sources. GREEK 102 will prepare students for GREEK 203.

Prerequisite: GREEK 101 or permission of instructor

Bachelor of Arts: World Language (All)

Bachelor of Arts: Humanities

GREEK 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

GREEK 203: Greek Reading and Composition

4 Credits

GREEK 203 is the third course in the introductory ancient Greek language sequence. The aim of this course is to help students increase their familiarity with forms and vocabulary, as well as gain confidence in their

ability to read, appreciate, and interpret ancient Greek literature. Students will be introduced to advanced grammar and syntax and will read extensive passages of ancient Greek prose. Greek prose composition will also comprise a significant component of this course. Possible authors covered in this course may include but are not limited to: Plato, Xenophon, Herodotus, Attic orators, and Lucian. The prerequisite for this course is GREEK 102 or the permission of the instructor.

Prerequisite: GREEK 102 or permission of instructor

Bachelor of Arts: World Language (All)

Bachelor of Arts: Humanities

GREEK 420: Greek Prose Authors

3-12 Credits/Maximum of 12

GREEK 420 is an advanced reading course in ancient Greek, which focuses on the writings of prose authors. The primary aim of the course will be to hone students' ability to read connected passages of Greek prose by a given author or on a particular theme. In addition, students will read and evaluate secondary scholarship in preparation for a final research project. Possible authors/ genres of focus include, but are not limited to: Plato, Xenophon, the Attic Orators, Aristotle, Plutarch, Lucian, the Greek Novel, and the New Testament. The prerequisite for this course is GREEK 203 or the permission of the instruction. This course may be repeated.

Prerequisites: GREEK 203 Or permission of instructor

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

Bachelor of Arts: Humanities

Exceeds 12th Unit of World Language

GREEK 425: Greek Historians

3-6 Credits/Maximum of 6

GREEK 425 is a reading course in ancient Greek focusing on one or more of the major ancient Greek historians. The course is designed to advance the student's fluency in reading Greek prose, while at the same time enriching their understanding of Greek civilization and history by a thematic choice of historical readings. The course may concentrate on one author or may address a thematic issue with readings from a variety of Greek historians (usually Herodotus, Thucydides, or Xenophon, or Polybius). The prerequisite for this course is GREEK 203 or the permission of the instruction. This course may be repeated.

Prerequisites: GREEK 203 Or permission of instructor

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

Bachelor of Arts: Humanities

Exceeds 12th Unit of World Language

GREEK 430: Greek Poetry

3-6 Credits/Maximum of 6

GREEK 430 is an advanced reading course in ancient Greek poetry. The primary aim of the course will be to hone students' ability to read and appreciate Greek poetry. In addition, students will read and evaluate secondary scholarship in preparation for a final research project. Possible poets include but are not limited to: Homer, Hesiod, Sappho & the Lyric poets, Callimachus, and Apollonius Rhodius. The prerequisite for this

course is GREEK 203 or the permission of the instructor. This course may be repeated.

Prerequisites: GREEK 203 Or permission of instructor
Bachelor of Arts: World Language (All)
Bachelor of Arts: World Lang (12th Unit)
Bachelor of Arts: Humanities
Exceeds 12th Unit of World Language

GREEK 440: Greek Drama

3-6 Credits/Maximum of 6

GREEK 440 is an advanced reading course in ancient Greek Drama (tragedy and comedy). The primary aim of the course will be to hone students' ability to read and appreciate Greek drama. In addition, students will read and evaluate secondary scholarship in preparation for a final research project. Possible poets include: Aeschylus, Sophocles, Euripides, Aristophanes, and Menander. The prerequisite for this course is GREEK 203 or the permission of the instructor. This course may be repeated.

Prerequisites: GREEK 203 Or permission of instructor
Bachelor of Arts: World Language (All)
Bachelor of Arts: World Lang (12th Unit)
Bachelor of Arts: Humanities
Exceeds 12th Unit of World Language

GREEK 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Humanities

GREEK 494H: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Humanities
Honors

GREEK 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Bachelor of Arts: Humanities

GREEK 496H: Independent Studies (Honors)

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Honors

GREEK 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Humanities
International Cultures (IL)

Health and Human Development (HHD)

HHD 100H: Honors Seminar on Longevity, Health, and Human Development

1 Credits

This course aims to provide students with an overview of the impact the growth in human longevity is having on society, viewed through the lens of current research in the fields of health and human development. Students will explore the recent research on growth in the human lifespan and how this is having impacts on individuals, families, employers, governments, and communities. Through readings and discussions with faculty working on research related to aging and longevity, students can see how these issues connect with physical activity, nutrition, communication, health behaviors, health policy, cognition and the effects longer life is having on restaurants, hotels, parks, tourism, health care facilities, schools, and other service industry employers.

Honors

HHD 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

HHD 200N: Addiction Science to Society

3 Credits

Addiction is commonly defined as set of compulsive behaviors that cannot be stopped despite negative consequences. The term itself is controversial and defined differently by various disciplines. This has resulted in skewed perceptions of addiction by society as a whole. This course aims to inform students on the biological, psychological, and sociological viewpoints of addiction and how they interact to form an integrated perspective (the biopsychosocial model). By understanding the current knowledge on the biological and psychological bases of addiction, students will be better prepared to make knowledgeable decisions on their own behaviors, understand the behavior of others, and generate informed opinions on the social aspects of addiction. We will begin by comparing and contrasting the different ways addiction has been defined in various fields and exploring the debate on which substances/behaviors are actually considered addictive. Throughout the course, students will broadly explore basic concepts in biology (cells, neural communication, brain anatomy, use of animal models, pharmacology, genetics, epigenetics, and comorbidity), psychology (memory, conditioning, reward, expectancy, bias, and mental health) and sociology (family systems theory, stress theory, developmental theory, feminist theory). These concepts will be practically applied to various questions concerning 1. The status of addiction as a disease. 2. How addiction is or should be treated. 3. The effects of addiction on

family and society. 4. Policies concerning the criminalization of drugs and compulsive behaviors. In addition, methods and data from primary research in all three domains of the biopsychosocial model will be analyzed. Several assignments using various forms of communication will serve to illustrate the connections and assess integrated learning.

General Education: Natural Sciences (GN)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Soc Resp and Ethic Reason

HHD 245N: Health, humanity, and longevity: Conversations with elders

3 Credits

How can a person grow to become more truly themselves? How do our habits inform our future? This course examines current research on happiness, aging, and well-being alongside the lived experience of older adults. Together students and older adult community members discuss research as well as compare perceptions and perspectives of the aging experience. We will use humanities orientation to explore what it means to grow as a human being, how to become the person we would like to be, and how to help others do the same. Students will partner with older adults for conversations and a collaborative project.

General Education: Humanities (GH)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Soc Resp and Ethic Reason

HHD 294: Research in HHD

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis

HHD 295: Internship in Health and Human Development

1-18 Credits

Supervised internship, field experience, or practicum related to student career objectives.

HHD 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

HHD 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

HHD 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

HHD 401: Women's Leadership Initiative: Leadership Concepts and Competencies I

2 Credits

HHD 401 is the first semester of the year-long program for students selected to participate in the Women's Leadership Initiative (WLI). The course designed to work in concert with WLI activities to support students in their development of the foundational values, knowledge, skills, and confidence to realize their potential as effective, life-long leaders. Through their participation in this course and the spring semester course, students will develop a deeper knowledge of themselves and others, be able to define and critically assess leadership concepts, develop leadership skills, and practice leadership skills in various settings. Students will accomplish these objectives through the completion of assessment tools, discussions with leaders from the campus and the community, mentoring by women leaders, and the delivery of course topics pertaining to leadership. Students will be evaluated through communication skills assignments, reflection assignments, class participation, and completion of assessment tools. Students must apply and be selected to participate in the Women's Leadership Initiative in order to take this course.

HHD 402: Women's Leadership Initiative: Leadership Concepts and Competencies II

2 Credits

HHD 402 is the second semester of the year-long program for students selected to participate in the Women's Leadership Initiative (WLI). The course designed to work in concert with WLI activities to support students in their development of the foundational values, knowledge, skills, and confidence to realize their potential as effective, life-long leaders. Through their participation in this course and the spring semester course, students will develop a deeper knowledge of themselves and others, be able to define and critically assess leadership concepts and incorporate these into a personal leadership philosophy, develop leadership skills, and practice leadership skills in various settings. Students will accomplish these objectives through the completion of assessment tools, discussions with leaders from the campus and the community, mentoring by women leaders, and the delivery of course topics pertaining to leadership. Students must apply and be selected to participate in the Women's Leadership Initiative in order to take this course.

Enforced Prerequisite at Enrollment: HHD 401

HHD 410: Clinical Research Practice

3 Credits

As new molecules progress from the laboratory to the bedside, the clinical trials enterprise needs a fresh generation of professionals with knowledge of the application of research applied to human health and disease; professional skills in regulatory oversight, human subjects' protections, and research administration; and a willingness to share health interventions in communities. In this course students will develop a deeper understanding of clinical research practice including legal

requirements and oversight, good clinical practice, essential elements of clinical practice/operations, data management, the financing/budgeting of clinical trials, and socio-political factors impacting trials; all of which will help prepare students for internships and jobs in clinical research organizations. The course is best suited to students with fifth semester standing or higher who are considering future careers and professional certification in clinical research specialties.

Enforced Prerequisite at Enrollment: (BIOL 161 or KINES 203) and (STAT 250 or STAT 200) Recommended Preparation: Fifth semester standing or higher. Knowledge of the health services enterprise. Cross-listed with: BBH 471

HHD 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects on an individual or small-group basis.

HHD 495: Internship in Health and Human Development

1-18 Credits

Approved experiential learning related to student career objectives

HHD 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

HHD 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

HHD 497I: Intergenerational Communication

3 Credits

How can a person grow to become more truly themselves? How do our habits inform our future? This course examines current research on happiness, aging, and well-being alongside the lived experience of older adults. Together students and older adult community members will discuss research as well as compare perceptions and perspectives of the aging experience. We will use an aging lens to explore what it means to grow as a human being, how to become the person we would like to be, and how to help others do the same. Students will partner with older adults for engagement experiences and a collaborative project.

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

HHD 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

HHD 499H: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Honors

Health Education (HLHED)

HLHED 406: Human Sexuality

3 Credits

Examination of physiology, diseases, attitudes, morality, and controversial topics related to human sexuality.

Prerequisite: 7th semester standing or permission of program

HLHED 415: Planning and Developing Health Education Programs

3 Credits

Premises and strategies for planning, implementing, and evaluating wellness programs in corporate, hospital, and community agency settings.

Prerequisite: permission of program

HLHED 420: Development of Stress Management Programs for Health Education

3 Credits

Planning, development, and implementing strategies for stress management programs for health education professionals in school, community, and corporate settings.

Prerequisite: permission of program

HLHED 443: Alcohol and Drug Education

3 Credits

Principles of integration and coordination of alcohol and drug education programs for health education and other social service professions.

Prerequisite: permission of program

HLHED 456: Advanced Techniques in School and Community Health Education

3 Credits

Public health, mental health, nutrition, dental school health, physical education, accident prevention, health teaching; projects, consultation, visitation, discussions, and resources.

Prerequisite: permission of program

Health Humanities (HHUM)

HHUM 197N: Special Topics - InterDomain

1-9 Credits/Maximum of 9

Formal course given on a topical or special interest subject offered infrequently; several different topics may be taught in one year or semester. This Special Topics is an Inter-Domain GenEd course.

HHUM 220N: Ethics, Society, and Science Fiction

3 Credits

This inter-domain (GH and GS) course will introduce students to the application of technology-ethics and bioethics, as well as the humanities (especially health and medical humanities) and the social sciences, through the lens of science fiction and speculative fiction. As an inter-domain course, it will: (1) develop foundational knowledges across the disciplines of the humanities and the social and behavioral sciences; and (2) encourage an appreciation for the plethora of stakeholders and often-competing values and interests underlying bioethical/technology-ethics concerns. By applying ethics-based, analytical arguments and counterarguments, students will engage in civil, reasoned debate on highly charged, challenging topics using ethical frameworks. In addition, given exposure to a wide range of non-canonical authors and other creators with varied intersectionalities, students will engage with the concepts of diversity, equity, and inclusion.

Cross-listed with: BIOET 220N, ESC 220N

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

HHUM 294: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

HHUM 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

HHUM 494: Research Project

1-6 Credits/Maximum of 6

Supervised student activities on research projects identified on an individual or small-group basis.

HHUM 495: Internship

1-12 Credits/Maximum of 12

Supervised off-campus, nongroup instruction including field experiences, practica, or internships appropriate to the Health Humanities major.

Health Policy and Administration (HPA)

HPA 57: Consumer Choices in Health Care

3 Credits

HPA 57 is designed to provide students with an understanding of the breadth of decisions related to health and health care in the United States. HPA 57 introduces students to the consumers' role in health related decisions, including assessing health risks, health benefits, service choices, and end-of-life care. The growth in available health care information resources, the expansion of for-profit medical care, and increasing cost pressure are transforming the role of the health care consumers from passive recipients to active participants in many health care decisions. The main goal of this course is to educate students to become knowledgeable health care consumers and providing them with opportunities to learn how to gather, analyze, and synthesize information about health and health care to make sound health care choices. Students will learn practical information, key terminology and where/how to find reliable, up-to-date information on different sectors of the health care system (e.g. physicians, hospitals, commercial and public health insurance, mental health, long-term care).

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

HPA 100: Research Careers in Health Policy and Administration

1 Credits

HPA 100 is designed to provide students with an introduction to research as a potential career path in health policy and administration. This course will give students an overview of the research process, the disciplines that contribute to research in health policy and administration, and common themes of research in those disciplines. It will also introduce students to career opportunities in research and the educational paths to those careers.

HPA 101: Introduction to Health Services Organization

3 Credits

Examination of the social, political, historic, and scientific factors in the development and organization of health services.

HPA 123S: Exploring Health Policy and Administration

1 Credits

This course gives an introduction to some of the major academic topics in the Department of Health Policy and Administration with the aim to meet the Penn State first-year seminar goal of orienting students to the scholarly community from the outset of their undergraduate studies in such a way that will bridge to later experiences in a chosen major. The class provides an overview of the key academic topics in Health Policy and Administration as well as more in-depth exploration of several themes in health services research and scholarship consistent with student and faculty interests. The course aims to help students explore their academic interests in health policy and administration as they begin their education at Penn State.

Enforced Corequisite at Enrollment: PSU 14

First-Year Seminar

HPA 200: An Introduction to Data in the Health Care System

3 Credits

This course examines the broad topic of data and healthcare decisions, particularly how to be an astute consumer of data about health, the health care system, and health policy. To work in the health sector means facing a dizzying array of claims based on data with varying levels of quality. To be an informed consumer requires thinking critically about the claims being made, understanding what data are being presented, dissecting the claims, critiquing the methods carefully, and weighing the totality of the evidence to make informed decisions. Some topics of discussion include: 1) what is data? 2) how can we evaluate the quality of data 3) how can data be presented honestly and what are common pitfalls? 4) what is causality? 5) how to evaluate analytic methods, 6) how can data and results be presented visually and fairly? 7) how can a non-researcher understand research, and 8) how can one begin the transition from consumer to producer of data and research.

Recommended Preparation: HPA 101 and STAT 100 or STAT 250

HPA 210: Health Care Payment

3 Credits

This course covers basic concepts and issues related to health insurance and payment of health care services in the United States. Students learn insurance related concepts including factors that influence the purchase of insurance and those insurance companies considered when determining rates. Sources and uses of health care dollars are examined as well as how laws, policies, and regulations influence health insurance and payment. Both public insurance programs and private health insurance are studied. Students explore reimbursement and payment methodologies and assess how health care payment influences provider behavior and care delivery. Budgeting concepts and spreadsheet software are introduced.

Enforced Prerequisite at Enrollment: ECON 102 or HPA 101

HPA 211: Financial Decisions in Health Care Organizations

3 Credits/Maximum of 3

An introduction to financial and economic information to make decisions in health care organizations. Healthcare Finance is at the core of issues surrounding quality healthcare delivery. It involves wisely balancing the need to manage/control costs while simultaneously investing in strategic opportunities. This course will present and allow students to examine the major issues involved in finance, budgeting and strategic planning and the unique applications of these in health care organizations. This course is designed to help you understand the basic concepts of finance and financial management. The objective is to have you become knowledgeable of how health care entities organize and report financial data and use that data to make decisions. The course will focus initially on the conceptual framework of basic accounting techniques such as the preparation of financial reports, annual and capital budgeting, cost accounting and analysis of financial statements. The course builds on these basic concepts to provide students a conceptual and practical knowledge of health care finance, which includes sources of funding, revenue, cost determinants, third party payers, and valuations that have an impact on the health care organization. The course is also designed to provide students with a working knowledge of vocabulary, concepts in financial management and strategy that will help them be prepared

to plan, create, implement and monitor strategic initiatives within a health care organization. Finally, successful completion of this course should equip the student with the tools necessary to be able to effectively communicate with the finance professionals in a health care organization regarding financial decisions being made by that organization.

Enforced Prerequisite at Enrollment: HPA 210

HPA 295: Field Experience

1-3 Credits/Maximum of 3

Field Experience

HPA 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

HPA 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

HPA 301: Health Services Policy Issues

3 Credits

This course provides students with a basic framework for health policy analysis and examines major strands of U.S. health policy. Detailed consideration and discussion are given to the relationship of national policy to the planning, implementation, and funding of health care services, with particular emphasis on low-income and minority populations. This course will cover topics such as the healthcare policy environment in the U.S, government-funded health care through Medicaid and Medicare, and contemporary health care reform initiatives.

Enforced Prerequisite at Enrollment: HPA 101 or ECON 102 or PLSC 1

HPA 301H: Health Services Policy Issues

3 Credits

HPA 301H uses a case study method to examine health services policy issues and emphasizes the skills needed to analyze and communicate knowledge about health services policy. The chief goals of the course are to broaden student understanding of selected current policy issues in health care, to deepen student knowledge of the development of health policy issues, and to develop student skills in the areas of information literacy, communication, and teamwork. Students are evaluated on a combination of individual and team work.

Enforced Prerequisite at Enrollment: ECON 102 and HPA 101 and PLSC 1

HPA 301W: Health Services Policy Issues

3 Credits

Analysis of major issues in health services delivery in hospitals, medical practice, public health, mental health, and health professional education. This course provides students with a basic framework for health policy analysis and examines major strands of U.S. health policy. Detailed consideration and discussion are given to the relationship of

national policy to the planning, implementation, and funding of health care services, with particular emphasis on low-income and minority populations. This course will cover topics such as the healthcare policy environment in the U.S, government-funded health care through Medicaid and Medicare, and contemporary health care reform initiatives.

Enforced Prerequisite at Enrollment: ECON 102 and HPA 101 and PLSC 1 Writing Across the Curriculum

HPA 310: Health Care and Medical Needs

3 Credits

HPA 310 introduces students to the use of medical terminology in the context of the structure of the human body, functions of its systems, and disease. Disease processes include development, progression, diagnosis, treatment, and prevention. We will also highlight technological developments in the health care field that are used to assist in diagnosis, treatment, and prevention of diseases. In the process of learning the language of the medical profession and health care industry, students are expected to develop an appreciation for the complex interactions between individual, social, environmental and community factors in the development, growth, and progression of disease processes. Students are also expected to develop skills in accessing and disseminating reliable and relevant information concerning the disease process. On completion of this course students will have a more in depth understanding of 1. The language and terminology of medicine and the health care field; 2. Technologic developments in clinical, diagnostic and therapeutic areas; 3. Anatomy and physiology of organ systems, and how they relate to disease states; 4. Major chronic illnesses prevalent in the U.S.

Enforced Prerequisite at Enrollment: BBH 101 or BISC 4 or BIOL 141 or BIOL 161 Concurrent Courses: HPA 101

HPA 310H: Health Care and Medical Needs

3 Credits

Health care from an individual, family, and community standpoint illustrated with specific diseases and health problems.

Honors

HPA 311: Population Health and Healthcare

3 Credits/Maximum of 3

This course covers fundamental theories, concepts, issues, and strategies related to a population health approach to health and health services

Enforced Prerequisite at Enrollment: HPA 101

HPA 332: Health Systems Management

3 Credits

Health Systems Management provides you with an overview of how health care institutions are organized and governed, the role of the management staff, and the management systems designed for their efficient and effective operation. This course will build student competencies in management. By the end of the semester students will have an appreciation for the complexities in managing a health care organization. They will develop this awareness by both examining their own patterns of behavior and learning about many dynamics common

within organizations, using both conceptual information from the text and by analyzing selected cases. Class activities will primarily focus on the application of concepts in a variety of different situations and settings. By the end of this class students will: 1) Understand management as a balance among competing goals in a variety of situations; 2) Display such critical managerial competencies as listening, providing feedback, managing time effectively and managing conflict; 3) Apply organizational behavior theories to situations in health care management; 4) Solve organizational challenges using quality improvement tools; 5) Synthesize financial and economic information to make decisions in health care organizations; and 6) Understand the process of making ethical decisions.

Enforced Prerequisite at Enrollment: (HPA 211 or ACCTG 211) and HPA 101

HPA 332H: Health Systems Management

3 Credits

Introduction to and analysis of managerial roles and practices in health service organizations.

Honors

HPA 390: Professional Development in Health Policy & Administration

3 Credits

Development of personal understanding and professional skills to prepare students for future employment or study in health policy and administration. HPA 390 Professional Development in Health Policy and Administration The objectives of HPA 390 are to help students understand themselves and the opportunities available in the health care field and professional skills in preparation for their required internship and future profession. In HPA 390 students learn to assess their talents and abilities and how those talents can be best applied in one of the many career settings in health care. They research different types of organizations and opportunities in the health care field. They learn the basic professional skills that are required in the health care industry.

Enforced Prerequisite at Enrollment: HPA 101

HPA 390W: Professional Development in Health Policy & Administration

3 Credits

Development of personal understanding and professional skills to prepare students for future employment or study in health policy and administration. H P A 390 Professional Development in Health Policy and Adiminstration (3) The objectives of H P A 390 are to help students understand themselves and the opportunities available in the health care field and professional skills in preparation for their required internship and future profession. In H P A 390 students learn to assess their talents and abilities and how those talents can be best applied in one of the many career settings in health care. They research different types of organizations and opportunities in the health care field. They learn the basic professional skills that are required in the health care world. Students are evaluated on the basis of a personal self-study exercise, completion of a required planning for several professional development exercises, and a team project on a health care organization. Health Policy Administration students take H P A 390 after they have completed the initial overview of the health care system in H P A 101 and while they are taking their core courses in the major, H P A 301, H P A 310, and H P A 332. The course is a prerequisite for H P A 395, the student's professional

internship, providing the professional development background that students need to have a high-quality internship experience that furthers their education. H P A 390 is a required course in the curriculum. No students from other departments may take the course without H P A permission.

Enforced Prerequisite at Enrollment: HPA 101
Writing Across the Curriculum

HPA 395: Field Experience in Health Policy and Administration

1-13 Credits/Maximum of 13

Professional field experience providing opportunities to apply skills and knowledge in health care setting.

Enforced Prerequisite at Enrollment: HPA 301W and HPA 310 and HPA 332 and HPA 390W
Full-Time Equivalent Course

HPA 401: Comparative Health Systems

3 Credits

Comparative analysis of health services in selected developed and developing countries. H P A 401 Comparative Health Systems (3) (IL) In HPA 401 students will examine health and health services delivery systems as complex and variable entities that reflect individual country's values and beliefs. Health systems influence and are influenced by the various cultures, demographics, geographies, economies, technologies, and political infrastructures of the country. This class will provide students with a tool kit to begin the difficult task of understanding health care outside the U.S. The class will be focusing on the challenges of attempting comparisons before drawing comparative conclusions.

Enforced Prerequisite at Enrollment: HPA 301W
International Cultures (IL)

HPA 401H: Comparative Health Systems

3 Credits

Comparative analysis of health services in selected developed and developing countries.

Honors

HPA 410: Principles of Public Health Administration

3 Credits

This course is an overview of issues pertaining to public health administration and the uses of data analytics in population health. Course content provides the foundational understanding for the organization and function of public health activities within the health care delivery system of the United States. Students are introduced to fundamental concepts, issues, and strategies related to the public health system in the United States. On successful completion of this course students should be able to discuss and analyze policies and population-based interventions related to public health and utilize scientific knowledge base and public policy skills to approach solutions to public health problems.

Enforced Prerequisite at Enrollment: HPA 301W and HPA 311

HPA 420: Principles of Managed Care

3 Credits

Survey of managed health care, including history, typology, current issues, management challenges, and impacts on patients, providers, and special populations. H P A 420 Principles of Managed Care (3) H P A 420 is designed to introduce students to managed health care in the United States, including history, typology, current issues, management challenges, and impacts on patients, providers, and special populations. Participants must have a basic knowledge of the US healthcare system, including key stakeholders, national trends in health delivery, financing, and health policy. Most assignments encourage students to select a focus on the impact of managed care on either the private sector or public sector, allowing them to examine concepts in detail that is relevant to their career path. This course is designed as a seminar and employs team-based learning and other projects to achieve the learning objectives. Students will demonstrate mastery of skills through tests, written assignments, and oral presentations. All students are expected to actively participate in class discussions. Much of the work for this course will be conducted in project teams. All students are expected to participate as full and equal members of their team and are responsible for all research and content developed by the team.

Enforced Prerequisite at Enrollment: HPA 301W

HPA 430: Health Care Leadership

3 Credits

The objectives of HPA 430 are: (1) to help students learn about their own strengths and weaknesses as leaders; (2) to give students an opportunity to build their skills in small group leadership; and, (3) to explore the leadership challenges in health care. On successful completion of the course students should be able to do the following: 1) Describe, compare, and contrast several leadership competency models in current use in health care; 2) Understand the four cornerstones of health care leadership; self-awareness, vision, interpersonal relationships, and execution. Explain two to four significant leadership challenges in the current health care system; 3) Identify their leadership strengths and weaknesses and develop a plan for improving their leadership skills and/or explore ways to improve those skills; 4) Understand the leadership skills required for leading small group projects and discussions.

Enforced Prerequisite at Enrollment: HPA 301W or HPA 311 or HPA 332

HPA 433: Administration of Hospital and Health Service Systems

3 Credits

Analysis of administrative structures and interorganizational arrangements among hospitals and other health care organizations.

Enforced Prerequisite at Enrollment: HPA 332

HPA 435: Safety Net Health Care

3 Credits

This course is designed to provide students with knowledge about what safety net health care is, how it is delivered and financed, and current policy and practice initiatives related to safety net care. A safety net can generally be described as a program that transfers benefits to those who are impoverished. The course will describe how poverty is defined in the United States and other countries. Safety net benefits could be in the form of cash, vouchers, or services. Transferring benefits to the

impoverished can help to limit or prevent future economic shock or vulnerability for them. In health care, safety net is a generic term that is often used to describe services that are available to impoverished individuals, some of whom are insured and some are not. The safety net can also be described as a group of clinics, hospitals, and providers that have decided to provide services to impoverished patients. This decision may be based on altruism, but oftentimes an organization or provider must carefully consider the financial implications of providing this care. Given the challenges that public and private organizations face in providing safety net health care, novel approaches have been developed and students will have an opportunity to examine recent innovative approaches. After learning about the components of the safety net students will consider how these components work together within communities. In the last part of the course students will study marginalized groups that are often served in the safety net. Students will think about how they would manage these groups from a clinical, operational, and patient-centered perspective.

Enforced Prerequisite at Enrollment: HPA 301W and HPA 311

HPA 438: Culturally Competent Health Services for Diverse Populations

3 Credits

This course examines the broad concept of diversity and its impact on health care, particularly on rendering services to patients from diverse groups and about the challenges health care professionals face serving diverse populations. Diversity includes many factors, such as age, ethnicity, race, religion, physical and mental disability, class, gender and sexual orientation. To eradicate health disparities and improve health outcomes, students will explore effective and culturally appropriate strategies and interventions to deliver health care to diverse health care consumers. Some topics of discussion include health disparities, health determinants and health outcomes, cultural competence theories and models, health promotion, research and ethics, and the challenges of diversity within health care with a focus on specific cultural groups and non-ethnic cultures.

Enforced Prerequisite at Enrollment: HPA 311
United States Cultures (US)

HPA 440: Principles of Epidemiology

3 Credits

This course is designed to provide students with a basic understanding of the principles of Epidemiology and to familiarize students with the methods and applications of epidemiology to understanding the bases for heterogeneity of disease and health among populations. The goals of the course are: 1) recognize and use basic principles, concepts, terminology, and techniques in Epidemiology as applied to the study of infectious disease, chronic diseases, and other health-related problems; 2) examine and understand measures of risk and burden of illness on populations defined in terms of age, race, gender, class, time, and other relevant socio-cultural and demographic factors; 3) be able to interpret and critique epidemiological research reports on the identification of risk factors and casual factors for diseases in populations; 4) assess the health status and burden of diseases and health problems of populations at multiple levels of analysis for the purpose of planning health promotion activities and health care services; 5) have a basic understanding of the epidemiology tools for disease screening and other methods for primary and secondary prevention of disease and health problems; 6) examine the validity and applicability of various health interventions used to improve health status and the barriers for successful interventions; and

7) have a basic understanding of the epidemiology of the major causes of morbidity and mortality in the U.S. and for other selected regions and nations of the world. This is a required course in the Biobehavioral Health major and an elective course in the Health Policy and Administration major. The course is also appropriate for students intending to advance to post-baccalaureate graduate and professional programs in medicine, public health, health policy and planning, and other health-related careers. Students will be evaluated based on their performance on a combination of written assignments, a term paper or project, and exams.

Enforced Prerequisite at Enrollment: (BBH 310 or BIOL 230W or HPA 311) and (STAT 200 or STAT 250) Students are required to have a C or better in all prerequisite courses.

Cross-listed with: BBH 440

International Cultures (IL)

United States Cultures (US)

HPA 442: Long-Term Care Management

3 Credits

Management and policy issues for institutional, community, and home settings for chronic care services.

Enforced Prerequisite at Enrollment: HPA 332

HPA 443: Nursing Home Administration

3 Credits

This course provides students who are interested in a career in long-term care to gain an operational knowledge of managing skilled nursing facilities. After mastering the concepts of skilled nursing management, the student can step into a position as an administrator, assistant administrator, or trainee administrator, and find a level of comfort in dealing with operational issues and problems encountered in day-to-day management situations in any type of long-term care organization. To accomplish this, the course incorporates numerous theories, models, illustrations, and examples to help the student grasp the complexities of managing a long-term care facility. Upon course completion students will be able to: Discuss the broad range of operational issues related to the field of nursing home administration; Describe the rules and regulations that impact nursing home operations; and Recognize the professional development needs of nursing home administrators.

Enforced Prerequisite at Enrollment: HPA 332

HPA 444: Aging Policy in the United States

3 Credits

The United States is an aging nation and in the coming decades the number of elders in the United States is expected to grow dramatically. Policymakers faced with growing concern about containing the cost and scope of government face tough questions: Given the current and changing political climate, what course should policy makers chart to meet the challenges of a societies where large numbers of people are moving into old age and living long lives? How will their decisions affect entitlements for older adults now and in the future? What social, economic, political, and cultural factors will influence policymaking? This course will address the impacts of national age-based and age-related policy and programs such as Social Security, Medicare, Medicaid, and the Older Americans Act. In addition, it will examine the implementation of these programs in state and local settings, where implications are tangible for vulnerable groups such as low-income and frail older people

and their families. Policy challenges of issues such as Alzheimer's, long term services and supports, housing, caregiving, transportation, nutrition, emergency management, and disease prevention will be considered.

Enforced Prerequisite at Enrollment: HPA 301W

HPA 445: Health Economics

3 Credits

Economic analysis of U.S. health care system; planning, organization, and financing; current public policy issues and alternatives.

Enforced Prerequisite at Enrollment: ECON 302 or ECON 315 or ECON 323
Cross-listed with: ECON 445

Bachelor of Arts: Social and Behavioral Sciences

HPA 446: Economics and Health In Low- and Middle-Income Countries

3 Credits

In this course, students will learn about health systems and policies in low- and middle-income countries (LMIC). The course begins by exploring the link between health and economic development in LMICs. The majority of the course examines LMICs' performance in the United Nations health-related Sustainable Development Goals (e.g. clean water and sanitation, zero hunger, etc.). Through an in-depth reading of seminal articles, class discussion and guest lectures, student's will attempt to understand policy measures that researchers and policymakers have investigated to address the most pressing health related challenges in these countries.

Enforced Prerequisite at Enrollment: ECON 102 (STAT 200 or STAT 250)

HPA 447: Financing Health Care

3 Credits

This course is to prepare health care administrators for the responsibilities involved in maintaining a well-managed health care organization. The course covers concepts in managerial accounting and finance that are critical to decision-making. Topics covered include types of budgets; considerations for cash flow, payables and receivables; and considerations in working with various types of revenue streams. These topics include evaluation of capital investment decisions, sources of financing, managerial accounting concepts (including cost behavior, profit analysis, and incremental analysis), reimbursement under various third-party payer environments, cost allocation and government program reporting.

Enforced Prerequisite at Enrollment: HPA 332 and HPA 211

HPA 450: Healthcare Policies and Politics

3 Credits

Survey of health care's political contexts: formulation, implementation, and modification stages of policy process; politics of private interests (associations) at national and state levels.

Enforced Prerequisite at Enrollment: HPA 101 and HPA 301W and PLSC 1

HPA 454: Health Care Professional Communication

3 Credits

This course will focus upon the analysis and application of professional communication principles and practices for successful participation in health care organizational and occupational activities. The changing health care industry towards greater coordination and integration of health delivery and the increased emphasis on the active participation of service recipients require that individuals send clear verbal messages, choose effective nonverbal behaviors, listen for desired results, and apply valid critical-thinking and problem-solving processes. Students in this course will be expected to identify, analyze, develop, and evaluate communication skills needed for professional success in interpersonal situations, group interactions, and professional written documents and oral presentations.

Enforced Prerequisite at Enrollment: HPA 301W and HPA 332 and HPA 390W

HPA 455: Strategic Planning and Marketing for Health Services

3 Credits

The history, principles, techniques, and methodologies of health services planning and marketing are studied and students learn how to plan for new or changed health services, programs, or facilities. Students will examine the various stakeholders and explore community and healthcare program specific needs assessments, planning and marketing design. They will apply concepts learned and analyze real-life situations found in the market today. This course will build students' competencies in management, with a focus on application of these concepts to healthcare organizations. By the end of the semester students will have a deepened appreciation for the complex balancing of priorities and responsibilities necessary to effectively manage the strategic priorities within healthcare organizations. They will develop this awareness by both examining their own patterns of behavior and learning about common behavioral and structural dynamics within organizations. By the end of the course students will be able to: 1) identify critical features on an organization's environment and examine the implications of each feature on organizational goals and objectives; 2) Recognize and analyze regulatory, demographic, and policy trends to inform planning and assess potential impact on long-range goals; 3) Differentiate service/product specific markets and identify competitors within each market; 4) Propose comprehensive approaches for distribution network development and marketing/communication plan implementation; 5) Design metrics for evaluating goal attainment; 6) Formulate and defend strategic plans, marketing plans, goals and action steps; 7) Demonstrate the conceptual mastery of team dynamics through effective service as team members.

Enforced Prerequisite at Enrollment: HPA 395

HPA 460: Human Resource Management in Health Care Organizations

3 Credits

Foundations of human resource management applied to health care organizations, including hospitals, long-term care facilities, and community health organizations.

Enforced Prerequisite at Enrollment: HPA 332

HPA 470: Health Care Information Management

3 Credits

This course introduces information systems terminology, data structures, software applications, and their management functions in health services organizations. H P A 470 Health Care Information Management (3) This course introduces the student to information systems terminology, structures, specific applications, and their relationships to management functions in health services organizations. Health providers and health systems are continuing to make multi-million dollar investments in information systems in order to meet new market and regulatory requirements. All health services managers will play a role in the analysis, design, acquisition, installation, operation and ultimate success of information systems necessary to meet organizational goals and objectives. This course exposes students to the IS/IT applications used to support management functions. Further, applications and management issues unique to industry segments (e.g., long-term care, home care, hospital administration, physician practice management) will also be explored. The goal of the course is to ensure that students are schooled in the terminology, conceptual models, applications and opportunities and limitations of information systems in health services to the point that they can ask appropriate questions, recognize and state significant issues, and participate in the discussion and analysis of information systems development and application. The course is one of several elective courses in the Health Policy Administration major that students can complete and is also a required part of the Information Sciences and Technology/Health Policy Administration Minor providing students with an understanding of the basic structures of information systems in health administration; the relationship of these systems to managerial functions such as communications, coordination, control strategic and process planning and decision making, and the important policy and ethical issues associated with privacy, confidentiality, and security in information systems. Since the course represents the capstone of the Information Sciences and Technology/Health Policy Administration minor, it is important for students to have the pre-requisites for the course (H P A 332, IST 210, and IST 220), including an understanding of major issues in the health care system, health care management and information systems. Student's attainment of educational objectives will be assessed through a variety of evaluation methods. Understanding and appropriate application of terminology, management issues, and ethical/privacy concerns will be assessed through examination. Concept integration will be assessed through case-study analysis and project papers. Data presentation and training communication issues will be assessed through individual application projects and presentations. A technology classroom with access to the World Wide Web and Penn State servers is required for effective instruction. We will use these facilities to demonstrate software applications, provide technical support for guest speaker presentations, and facilitate student presentations. The course will be offered once per academic year with an expected enrollment of 20-40 students.

Enforced Prerequisite at Enrollment: HPA 332 and IST 210 and IST 220

HPA 475: Health Care Quality

3 Credits

This course covers the basic principles and techniques of quality management in healthcare: including the definition, measurement, and uses of data for improving the quality of health and health services. The course also covers the organizational responsibilities related to quality assurance. Students will examine methods and tools for managing

quality in health facilities, physician practices, and integrated health systems; including developments in quality assurance and improvement, utilization review, risk management, and patient satisfaction. From this examination students will be able to understand how to benchmark quality indicators using accreditation standards. On the successful completion of the course students will be able to: 1) Define the common terminology related to quality and process improvement; 2) Apply the quality management concepts to the modern health care operating environment; 3) Evaluate the effectiveness of a quality/process improvement program; 3) Define accreditation standards and how they drive quality; 4) Be able to use quality tools to improve quality; 5) Discuss the current issues and future trends associated with quality in the health care environment.

Enforced Prerequisite at Enrollment: HPA 332

HPA 490: Physician Practice Management

3 Credits

Development of skills needed to effectively manage physician practices. Practice management may be defined as the body of knowledge and skills necessary to manage the multiple elements of a specific practice of a physician. These elements include organization, administration, communication, marketing, and patient care. This course provides students an opportunity to develop the knowledge and skills necessary to be successful in the growing field of physician practice management. Topics include management of tasks and responsibilities, supervision and training, practice marketing, service scheduling, accounting processes, benchmarking and receivables, reimbursement and billing related to the physician practice. Upon successful completion of the course, the student will have: 1) A historical knowledge of the origins and evolution of physician practices; 2) An awareness of the legal entities which make up physician practices; 3) A working knowledge of the governance, performance domains, hiring processes, revenue cycles, medical record keeping, and common quality measures used in physician practices.

Enforced Prerequisite at Enrollment: HPA 332 and HPA 211

HPA 494: Undergraduate Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis. HPA 494 is a mentored investigation conducted by undergraduates that seek to make a scholarly contribution. HPA 494 is designed to provide students with the opportunity to develop discipline-specific projects in collaboration with faculty members.

HPA 494H: Senior Honors Thesis

1-6 Credits/Maximum of 6

Independent study related to student's interests directed by a faculty supervisor and culminating in the production of a thesis.

Enforced Prerequisite at Enrollment: approval of honors thesis advisor
Honors

HPA 495: Field Experience

1-12 Credits/Maximum of 12

Field Experience

HPA 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

HPA 496H: Independent Studies

3 Credits

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Honors

HPA 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

HPA 499: Foreign Study

1-3 Credits/Maximum of 3

Study of health care systems and practices in selected foreign countries.

Enforced Prerequisite at Enrollment: Department approval

Hebrew (HEBR)

HEBR 1: Basic Modern Hebrew I

4 Credits

An introduction to modern Hebrew in its written and spoken forms; oral and aural work stressed.

Bachelor of Arts: World Language (All)

HEBR 2: Basic Modern Hebrew II

4 Credits

Continued study of grammar; emphasis on improving oral-aural facility, with increased attention to reading and writing.

Prerequisite: HEBR 001

Bachelor of Arts: World Language (All)

HEBR 3: Intermediate Modern Hebrew

4 Credits

Grammar, reading, composition, and oral and aural exercises.

Prerequisite: HEBR 002

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

HEBR 10: Jewish Civilization

3 Credits

This course explores the life of the Jewish people from Biblical times on, emphasizing cultural, religious, and institutional developments.

HEBR 10 / HST 10 Jewish Civilization (3) (GH;IL)(BA) This course meets the Bachelor of Arts degree requirements. Jewish tradition goes back thousands of years, and Jews have resided in many different lands. They have become an integral part of many different cultures, yet have often retained (or been forced to retain) a certain degree of separateness or difference. In this course we will trace continuity and change in Jewish traditions from ancient to modern times, and across different regions. Taking into account inter-cultural contact and historical events – ranging in place from the Middle East to Muslim Spain to Asia, Africa, Europe, and the Americas, and in time from the ancient world to the medieval era, the Holocaust, and contemporary Israel and the U.S. – we will explore developments in Jewish history, literature, and culture. The course considers topics such as the attitudes other groups have had toward Jews (and vice-versa), the question of whether Jewish identity is a race, a religion, or an ethnicity, the dilemmas Jews face today, and the ways that Jews in many diverse settings have balanced change and continuity. We will explore the factors that shape Jewish experience in different times and places, the diversities within and among Jewish lifestyles, and the ways in which events and interactions with other peoples have influenced the development of Jewish civilization. Finally, we will consider the dilemmas Jews face today in terms of the preservation of their identity and traditions. The course includes class discussion. Students are evaluated on the basis of, essay exams, quizzes, in-class discussion and commentaries, and group projects.

Cross-listed with: JST 10

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

HEBR 97: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.

Bachelor of Arts: Humanities

HEBR 99: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Humanities

International Cultures (IL)

HEBR 151: Introductory Biblical Hebrew

3 Credits

Fundamentals of Biblical Hebrew grammar, syntax, and vocabulary. J ST (CAMS/HEBR) 151 Introductory Biblical Hebrew (3) The aim of CAMS/ J ST/HEBR 151 is to introduce students to the fundamentals of Biblical Hebrew as quickly and thoroughly as possible. Biblical Hebrew is the language in which the Old Testament was written, between the period of approximately 1200-200 B.C.E. This focuses primarily on the morphology and syntax of Biblical Hebrew. Drills on each point of grammar, as well as translation of sentences from Hebrew to English and English to Hebrew, and brief passages taken from the Bible are the basis of the student's homework throughout the semester. By the end of the semester, the

students will be prepared to read short, unmodified passages of the Bible. The course will focus primarily on reading and writing, though students will read aloud in class regularly in order to ensure correct pronunciation and understanding. CAMS/J ST/HEBR 151 will prepare students to continue with CAMS/J ST/HEBR 152 and then 400-level courses. The course goals, in addition to providing the students with a firm grounding in Hebrew grammar and vocabulary, include giving the students a basic understanding of the history of the Biblical text. The primary focus will be on mastering paradigms and syntax, but the students will also be introduced to the Biblical texts themselves, which together form such an important piece of literature.

Cross-listed with: CAMS 151, JST 151

HEBR 152: Intermediate Biblical Hebrew

3 Credits

Intermediate study of Biblical Hebrew grammar, syntax, and vocabulary. CAMS (JST/HEBR) 152 Intermediate Biblical Hebrew (3)(BA) This course meets the Bachelor of Arts degree requirements. CAMS/JST/HEBR 152 continues from CAMS/J ST/HEBR 151, which is a prerequisite for enrollment. After a brief review of key grammar and morphology from the first semester, the course will complete the process of providing students with a sufficient grasp of Hebrew vocabulary, morphology, and syntax to enable them to read unadapted passages from Biblical Hebrew texts (with the aid of a lexicon) by the end of the course. Class sessions will focus on grammar drills, sentences, and similar exercises as homework to supplement class work. As the semester progresses, students will read more and more from actual Hebrew texts, rather than composed sentences by the textbook author, so that when the students enter more advanced classes, they will find the transition to reading Hebrew as smooth as possible. In tandem with the increasing emphasis on Hebrew written by ancient Hebrews, the course will continue to focus on the linguistic and cultural background for the texts that the students read. Students will be evaluated on a combination of written work, including frequent quizzes, tests, homework completion, and course attendance and participation. CAMS/J ST/HEBR 152 will prepare students to continue with courses at the 400-level.

Cross-listed with: CAMS 152, JST 152

Bachelor of Arts: Humanities

HEBR 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.

Bachelor of Arts: Humanities

HEBR 199: Foreign Study--Basic Hebrew

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Humanities
International Cultures (IL)

HEBR 295: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practicums, or internships.

Prerequisite: prior approval of proposed assignment by instructor

HEBR 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Bachelor of Arts: Humanities

HEBR 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.

Bachelor of Arts: Humanities

HEBR 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Humanities
International Cultures (IL)

HEBR 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.

Bachelor of Arts: Humanities

HEBR 399: Foreign Study--Intermediate Hebrew

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Humanities
International Cultures (IL)

HEBR 401: Advanced Hebrew--Conversation Emphasis

3-6 Credits/Maximum of 6

Development of oral proficiency through discussions focusing on issues in contemporary Jewish culture.

Bachelor of Arts: World Language (All)
Bachelor of Arts: World Lang (12th Unit)
Bachelor of Arts: Humanities
Exceeds 12th Unit of World Language

HEBR 402: Advanced Hebrew--Reading Emphasis

3-6 Credits/Maximum of 6

Readings in representative works of traditional and modern literature; practice in composition; study of aspects of Jewish culture.

Bachelor of Arts: World Language (All)
 Bachelor of Arts: World Lang (12th Unit)
 Bachelor of Arts: Humanities
 Exceeds 12th Unit of World Language

HEBR 451: Advanced Biblical Hebrew

3 Credits

Translation and analysis of selected readings in Biblical Hebrew texts; attention will be paid to grammatical as well as literary details. HEBR 451 Advanced Biblical Hebrew (3) HEBR 451 is a Biblical Hebrew literature course in which students will read selections of various genres and dates from different sections of the Hebrew Bible. The overall goal of this course is to increase the ease and fluency of advanced-level students with Biblical Hebrew. Although students will be expected to enter the class with a comfortable level of reading skill as acquired in HEBR 152 or its equivalent, the course will include grammar and building vocabulary. By the end of the course, it is expected that the students will be able to read a Biblical Hebrew text comfortably and be able to analyze grammatical structures. Students' work in the course will be evaluated on class participation (20%), several in class quizzes (20%), and a mid-term (30%) and final exam (30%). HEBR 451 is part of a series of advanced Hebrew classes that will allow students to gain skill and knowledge about a range of Biblical Hebrew texts. HEBR 451 may be used to fulfill a requirement for the Hebrew minor, as well as for the CAMS major language requirement. The course will be offered every other year, with 20 seats per offering.

Prerequisite: HEBR 152 or equivalent

HEBR 452: Readings in Biblical Hebrew

3 Credits

Translation and analysis of selected readings in Biblical Hebrew texts; attention will be paid to grammatical as well as literary details. HEBR 452 Readings in Biblical Hebrew (3) HEBR 452 is a Biblical Hebrew literature course which students will read selections of various genres and dates from different sections of the Hebrew Bible. The overall goal of this course is to increase the ease and fluency of with which advanced students are able to read all types of Biblical texts. Although students will be expected to enter the class with a comfortable level of reading skill as acquired in HEBR 451 or its equivalent, the course will continue to emphasize grammar and building vocabulary. By the end of the course, it is expected that the students will be able to read any Biblical Hebrew text comfortably and be able to analyze grammatical structures. Students' work in the course will be evaluated on class participation (20%), short in class quizzes (20%), and a mid-term (30%) and final exam (30%). HEBR 452 is part of a series of advanced Hebrew classes that will allow students to gain skill and knowledge about a range of Biblical Hebrew texts. HEBR 451 may be used to fulfill a requirement for the Hebrew minor, as well as for the CAMS major language requirement. The course will be offered every other year, with 20 seats per offering.

Prerequisite: HEBR 451 or equivalent

HEBR 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Humanities

HEBR 494H: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Humanities

Honors

HEBR 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects including research and design which are supervised on an individual basis and which fall outside the scope of formal courses.

Bachelor of Arts: Humanities

HEBR 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.

Bachelor of Arts: Humanities

HEBR 499: Foreign Study--Advanced Hebrew

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Humanities

International Cultures (IL)

Higher Education (HIED)

HIED 200: Leadership, Communication & Outreach Ambassador

1-3 Credits

The Leadership, Communication & Outreach Ambassador course will provide students an opportunity to have a deeper and more impactful interaction with their department, school, college and university. The students will gain more in-depth knowledge of how their school works and all of the different ways students can interact with the educational community as well as industry. The students will become Penn State Behrend ambassadors to the K-12 community, parents, industry, faculty, fellow students and the community at large. This course will promote leadership within the ambassador program with all of their experiences and interactions within Penn State Behrend and with external audiences. Students will be taught the best way to communicate with different audiences and the messaging used. Outreach will include working with the K-12 leader and help with retention efforts with current students. Students need to meet a minimum GPA requirement and criteria to participate in the course and program.

HIED 302: The Role of the Resident Assistant: Theory and Practice

3 Credits

An analysis of the various roles of the resident assistant, including interpersonal facilitator, disciplinarian, program developer, and activities facilitator.

HIED 303: Leadership Development through Orientation

3 Credits

Assisting new students and their parents and family members at New Student Orientation goes far beyond campus tours and providing directions. Today's mentors are charged with teaching new students about issues related to the classroom transition from high school to college, mental health, alcohol and drug use and abuse, sexual assault prevention, diversity and inclusion, and more. Beyond the subject matter knowledge required to facilitate these conversations, mentors must have confidence in their ability to speak publicly, think critically, and manage a group of students their age. The foundation of student development and transition theory provided in this course set the stage for both knowledge and skill acquisition in these areas. Once the foundation exists, students will hone their public speaking, critical thinking and multicultural competency skills. Through classroom discussions, personal reflection, and engaging faculty, staff, and advisers throughout the University, this course is designed to assist students in their journey to being a peer mentor. Students will explore their personal strengths, navigate personal bias in regards to the issues mentioned previously, and understand the role all of these play in a successful academic, social and personal transition to Penn State.

HIED 396: Individual Studies

1-9 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

HIED 397: Special Topics

1-9 Credits/Maximum of 12

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

HIED 490: Exploration of Careers in Higher Education

3 Credits

Foundation of graduate study in the field of higher education. HI ED 490 Master's Professional Seminar (3) This course is an introduction to higher education as a field, and as an orientation to graduate study. Early sessions will provide a brief review of the history of higher education, an introduction to the Carnegie Classification scheme of colleges and universities, and an overview of the structure of public and private higher education. Students will participate in an orientation to the services of the library including internet sources and tools needed to develop research skills. Technical writing skills will be developed through direct instruction, practice writing assignments, and peer review workshops in service of completing a literature review on a topic of the student's choosing. Students will explore a variety of career options through guest lectures and individual projects in areas of potential interest. A final career exploration portfolio will demonstrate what the student has learned regarding career areas. Professional, interpersonal, and ethical skills will be developed through role playing and interviews with actual

higher education practitioners. Written work will include an annotated bibliography, a literature review, and integrative analysis essays. In addition, students will explore various options appropriate for a capstone project for their master's degree: internships, academic papers, portfolios, etc. Readings will reflect current topics and issues.

HIED 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Hindi (HINDI)

HINDI 1: Level One Hindi A

4 Credits

This is an introductory course in Hindi that presents the Devanagari script, elementary grammar and sentence structure.

Bachelor of Arts: World Language (All)

HINDI 2: Level One Hindi B

4 Credits

This intermediate level course seeks to impart functional literacy in oral and written expression in Hindi to students.

Prerequisite: HINDI001 or equivalent competency
Bachelor of Arts: World Language (All)

HINDI 3: Level Two Hindi A

4 Credits

This is an intermediate level course in Hindi that seeks to improve student's skills in oral and written expression.

Prerequisite: HINDI002 or equivalent competency
Bachelor of Arts: World Language (All)
Bachelor of Arts: World Lang (12th Unit)

HINDI 110: Intermediate Hindi

4 Credits/Maximum of 4

Hindi 110 teaches basic intermediate to advanced functional proficiency (ACTFL Standards) in reading, writing, and speaking Hindi.

Prerequisite: HINDI003 or equivalent competency

History (HIST)

HIST 1: Western Civilization I

3 Credits

HIST 1 examines the development of western civilization, beginning with the ancient world of the Mediterranean, Europe, and Mesopotamia, and continuing through Early Modern Europe, which involves the Reformation, the Counter-Reformation, and the early period of the Age of Exploration. The course is intended to introduce aspects of Ancient, Medieval and Early Modern history that has helped to shape the developments of Western Civilization. The examination of written and visual primary

sources, as well as secondary sources, allows this course to examine the political, religious, economic, and cultural development of the western world. The variety of sources used in the course aids the students in learning how to understand and interpret history, and encourages the students to develop a critical method by which to evaluate primary and secondary historical sources.

Bachelor of Arts: Humanities
International Cultures (IL)
General Education: Humanities (GH)
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Key Literacies

HIST 2: Western Civilization II

3 Credits

This survey examines the history of "Western" civilization from the period of Early Modern Europe to the present. The development of social, political, and religious movements in Europe and the development of European colonies around the world had far-reaching, global repercussions. Among the broad developments of this complex period are the creation and collapse of several political and economic global empires, the development of modern nation states, revolutions in technology and industry, and the rise of nationalism, liberalism, socialism, and neoconservatism. The variety of sources used in this course will aid students in learning how to understand and interpret history and in encouraging them to develop a critical method by which to evaluate primary and secondary historical sources and to examine the political, religious, economic, and cultural developments of the "Western" world in the Early Modern and Modern periods.

Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures
International Cultures (IL)
General Education: Humanities (GH)
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Key Literacies

HIST 2H: Western Civilization II

3 Credits

This honors-level survey examines the history of "Western" civilization from the period of Early Modern Europe to the present. The development of social, political, and religious movements in Europe and the development of European colonies around the world had far-reaching, global repercussions. Among the broad developments of this complex period are the creation and collapse of several political and economic global empires, the development of modern nation states, revolutions in technology and industry, and the rise of nationalism, liberalism, socialism, and neoconservatism. The variety of sources used in this course will aid students in learning how to understand and interpret history and in encouraging them to develop a critical method by which to evaluate primary and secondary historical sources and to examine the political, religious, economic, and cultural developments of the "Western" world in the Early Modern and Modern periods.

Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures
International Cultures (IL)
General Education: Humanities (GH)
Honors

GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Key Literacies

HIST 3: The American Nation: Historical Perspectives

3 Credits

HIST/AMST 3 allows for faculty and students to work in a small setting in order to explore the history of the United States through a detailed interdisciplinary examination of a particular theme, institution, or person in American history. Faculty can structure their particular theme for this course, allowing for the incorporation of a wide range of materials, out of class field trips, examination of popular culture, primary source documents, and/or seminar-style discussions. For example, in recent years this course has been structured around the themes of "Utopianism in America" and "The Life, Times, and Legacies of Abraham Lincoln". In-depth examinations of such themes in American history offer students the opportunity to work closely with faculty in their area of interest, and to gain an understanding of American historiography and the historical profession.

Cross-listed with: AMST 3
Bachelor of Arts: Humanities
United States Cultures (US)
General Education: Humanities (GH)
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Key Literacies

HIST 5: Ancient Mediterranean Civilizations

3 Credits

Survey of the history and cultures of ancient Mediterranean civilizations in Mesopotamia, Egypt, Syro-Levant, Anatolia, Greece, and Rome. CAMS (HIST) 5 Ancient Mediterranean Civilizations (3) (GH;IL) This course provides an introduction to the history and cultural traditions of the ancient civilizations of the Mediterranean. From the origins of cities and the invention of writing, it surveys the intellectual, artistic, and political traditions that laid the foundations for the later civilizations of Europe and western Asia. Students will acquire a basic historical framework for the ancient Mediterranean from the third millennium BCE through the end of antiquity in the first millennium CE. Within this framework cross-cultural relationships of time and ideas will be established among religious texts, epic literatures, and political and legal traditions. In the part of the world where the division between Asia and the East and Europe and the West was born, the course will examine the development of regional and ethnic identities along with the historical development of concepts of the universal nature of humanity. This course is designed to serve as the foundation course for all majors in the department of Classics and Ancient Mediterranean Studies (CAMS).

Cross-listed with: CAMS 5
International Cultures (IL)
General Education: Humanities (GH)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Key Literacies

HIST 6N: History and Weather: How Weather Played an Instrumental Role in Great World Events

3 Credits

In HIST 6N / METEO 6N, we'll survey how weather and history are integrated throughout time. Moving from past to present, the course will use case studies to navigate historical moments where weather shaped the outcome. Each case study will have a historical, cultural, and meteorological analysis of the event so students gain a deeper understanding of the national or international event and the integration of science and history. Weather has shaped the outcome of major world events. For example, a weather forecast led to the delay of the Allied invasion of Normandy (D-Day), record cold weather in Florida led to the Challenger Space Shuttle explosion, General George Washington used fog to conceal the withdrawal of his troops at the Battle of Long Island, and the list goes on. The case studies range from the Revolutionary War through present day, and this period of history has been selected because there are firsthand accounts of the weather and/or recorded weather data for each event. The meteorological study examines the event's atmospheric conditions. How or why did they occur? How did they affect the event? Therefore, students will learn basic meteorology and climatology. They will also analyze weather maps and scientific data. The historical study provides context for the event. What led to the event? What happened during the event? What are the event's lasting impacts? To better understand the decisions that leaders faced, students will be asked to assess risk and make decisions based on the same weather data or information leaders at the time had. Students will also explain the context, cause, and effects of major historical moments in everyday language to an audience of their peers through discussions and/or projects. The cultural study examines each event from a psychological and sociological point of view. What were the mindsets of the people and cultures involved in the event? How does the event connect to or parallel things in today's society? How would a present day culture react? This study will give students a better understanding of cultural differences in the world and how those cultural differences can alter the course of history. Time in the course is equally split between United States and international topics, and there will be frequent discussion of current events.

Cross-listed with: METEO 6N

International Cultures (IL)

United States Cultures (US)

General Education: Humanities (GH)

General Education: Natural Sciences (GN)

General Education - Integrative: Interdomain

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

HIST 10: World History to 1500

3 Credits

World Civilizations to 1500 is an introductory survey of the world's major civilizations from the rise of the earliest human communities to the age of global expansion in the sixteenth century. The emphasis will be on the distinctive histories and cultural values that shaped major regions and cross-cultural contacts between those regions. Students will learn how ancient to early modern societies adapted their environments, organized

their political economies, expressed themselves in art and philosophy. The course provides a historical overview of global changes over time.

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

HIST 11: World History since 1500

3 Credits

World Civilizations since 1500 is an introductory survey of the world's major civilizations from the age of global expansion in the sixteenth century. The emphasis will be on the distinctive and interconnected histories and cultural values that shaped major regions and cross-cultural contacts between those regions in the early modern and modern eras. Students will learn how early modern societies adapted their environments, organized their political economies, shared technology and ideas as well as being drawn into conflict with one another. The course provides a historical overview of global changes over time.

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

HIST 12: History of Pennsylvania

3 Credits

The course offers a chronological and topical survey, emphasizing immigration of diverse ethnic groups and religious, political, economic, and social developments, including industrialization and urbanization. This survey of the history of the Commonwealth of Pennsylvania satisfies the Gen Ed GH requirement. Course content features important events and themes in the history of Pennsylvania, including colonial development, the importance of Philadelphia in the Revolutionary and Civil War Eras, immigration and urbanization, and labor unrest, as well as the continuing relevance of history to Pennsylvania today

Bachelor of Arts: Humanities

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

HIST 20: American Civilization to 1877

3 Credits

An historical survey of the political, social, and economic development of America from colonial settlement through the Civil War and Reconstruction. This course meets the Bachelor of Arts degree requirements. HIST 20 provides a historical overview of change over time in North America before 1877 with a focus on the diverse experiences of different groups of Americans. Students will receive an overview of the most important historical developments in American History from the colonial period through Reconstruction, including the history of American

slavery, the evolution of American political systems, gender roles, and regional differences, changes in immigration, economic development, and the American Civil War and Reconstruction. While "knowing the facts" is obviously important to historical understanding, this course helps students develop critical thinking skills. These skills include: close and thoughtful reading and analysis of primary and secondary sources; looking for a broader coherence or "order" to the material; independent analysis and effective articulation (both in writing and in class discussion) of well-reasoned, well-crafted conclusions and interpretations and arguments (conclusions/interpretations / arguments which are supported by specific factual evidence derived from a variety of sources). The three specific course objectives underscore its scholarly dimensions: (1) Students will gain a knowledge and understanding of the diverse histories of the peoples of the United States prior to 1877; (2) Students will gain an understanding and knowledge of the domestic, transnational and global political and economic processes that have shaped the lives, labor, institutions and cultures of the United States before 1877; (3) Students will learn how to "think historically" by placing documents written in the past in their historical contexts, and to consider the relationship of the past to the present. By the end of the course students will: Demonstrate an understanding of the chronology of American history prior to 1877. Demonstrate an understanding of the diverse experiences of different groups of Americans prior to 1877. Demonstrate an understanding of the economic, social, and political structures that emerged before 1877 and continue to shape the modern United States.

Bachelor of Arts: Humanities
 United States Cultures (US)
 General Education: Humanities (GH)
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

HIST 20Y: American Civ to 1877Y

3 Credits

This course offers a writing-intensive historical survey of the political, social, and economic development of America from colonial period through the Civil War and Reconstruction, including the history of American slavery, the evolution of American political systems, gender roles, and regional differences, changes in immigration, economic development, and the American Civil War and Reconstruction. HIST 20Y provides a historical overview of change over time in North America before 1877 with a focus on the diverse experiences of different groups of Americans. Students learn how to "think historically", interpreting facts drawn from primary and secondary sources with the goal of understanding how historical events in America unfolded as they did. Students will learn how to recognize the relevance of the past to the present, and how to write to learn in ways that help them think about new material and learn to write in a historical genre.

Bachelor of Arts: Humanities
 United States Cultures (US)
 General Education: Humanities (GH)
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies
 Writing Across the Curriculum

HIST 21: American Civilization Since 1877

3 Credits

An historical survey of the American experience from the emergence of urban-industrial society in the late nineteenth century to the present. This course meets the Bachelor of Arts degree requirements. HIST 21 seeks to introduce students to salient events, developments, and themes of United States history since 1877, including westward expansion and the decline of the Native American, the industrial revolution, urbanization, immigration, Gilded Age culture and politics, the labor movement, imperialism, Progressivism, segregation and African-American response, the women's movement, World War I, the Great Depression and New Deal, World War II, post-war prosperity, the Cold War, the Civil Rights movement, the Vietnam War, the disillusionment of the 'Seventies', the Reagan revolution, and America in the post-Cold War era. The social and ideological diversity of the American experience is a prominent theme of HIST 21. Students learn how to "think historically", developing their capacity to identify and analyze key themes and issues from the past, critically assess primary sources, and sharpen their skills in marshaling data and concepts, and expressing them cogently in discussions and in writing.

Bachelor of Arts: Humanities
 United States Cultures (US)
 General Education: Humanities (GH)
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

HIST 66: Survey of British History

3 Credits

This course is a survey of British history, which chronicles the origins and development of Great Britain from its Romano-Celtic past to the present. The course focuses on the long history of Britain, emphasizing its various and ever-changing political, cultural, economic, intellectual developments. The course is designed to instruct students on how to identify recurring trends and notable anomalies in how Britain developed and to recognize Britain's unique impact on broad international developments and on individual nations in both the past and present world.

Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Key Literacies

HIST 83: First-Year Seminar in History

3 Credits

HIST 83, students are expected to master the subject material of this seminar, as well as to acquire basic skills useful to the study of the humanities and Liberal Arts. The topics chosen for these seminars will acquaint students with a major figure, theme, or development in a significant historical area. Through readings, discussions, lectures, and research projects, students will learn to read historical documents and secondary sources, discuss them, formulate effective arguments, and write essays and papers. Historical analysis of this type will provide

students with techniques for appreciating and judging arguments and presentations in many fields of learning.

Bachelor of Arts: Humanities

United States Cultures (US)

First-Year Seminar

General Education: Humanities (GH)

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

HIST 100: Ancient Greece

3 Credits

The Greek world from the earliest Aegean cultures to the death of Alexander the Great and the beginnings of Hellenistic civilization. CAMS 100 / HIST 100 Ancient Greece (3) (GH;IL)(BA) This course meets the Bachelor of Arts degree requirements. The course presents a survey of ancient Greek history and culture beginning with the Bronze Age palace-states of Crete and Mycenae, examines the emergence of Greek city-states, notably Athens and Sparta, traces their transformation through conflicts among themselves and with the Persian empire, and describes their eventual eclipse by the kingdom of Macedon. Since this course treats the beginnings of historical writing among the Greeks, students learn to evaluate diverse historical texts and their relationship to legend, myth, and poetry. The nature of historical thought itself is emphasized throughout the course. Also emphasized is the debate between the egalitarian Justice of democracy, the sober wisdom of oligarchy, and the overwhelming power of monarchy, as experienced by the Greeks down to the end of the fourth century B.C.E.

Cross-listed with: CAMS 100

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

HIST 101: The Roman Republic and Empire

3 Credits

History of the Roman Republic and Empire from the origins of Rome to the disintegration of the Empire. CAMS 101 / HIST 101 The Roman Republic and Empire (3) (GH;IL)(BA) This course meets the Bachelor of Arts degree requirements and fulfills 3 credits of the General Education-Humanities (GH) requirement. The course provides an introduction to the ancient Roman empire: how that empire came into being, how it evolved, how it came to govern much of the Mediterranean and European world, and how that empire declined. The course demonstrates the social and legal structures employed by a past society to govern an ethnically and religiously diverse population. The course also introduces students to the sources of our knowledge of the past, and illustrates how these sources are to be critically evaluated. This course complements other courses on the ancient Mediterranean world (such as HIST 100 / CAMS 100) and is a prerequisite to more advanced (400-level) courses in ancient Mediterranean history.

Cross-listed with: CAMS 101

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

HIST 102: Canaan and Israel in Antiquity

3 Credits

This course is an overview of the ancient history and cultures of Canaan (the Mediterranean Levant of Syria-Palestine) and the emergence of Israel. It involves a critical view of biblical texts (especially the Hebrew Bible, aka Old Testament) in light of other ancient texts, archaeology, and historical methods, in order to explain the nature and the evolution of society, religion, and thought in the prebiblical and biblical era. We will be especially interested in the period from the end of the Late Bronze Age (c. 1200 BCE) to the Persian period (539-332 BCE), and will examine ongoing debates about the Bible and history, as well as the development of Israelite religion from polytheism toward monotheism and a distinctive worldview.

Cross-listed with: CAMS 102, JST 102, RLST 102

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

HIST 103: The History of Madness, Mental Illness, and Psychiatry

3 Credits

More than perhaps any other set of human afflictions, the phenomena that have gone under the names of "madness," "insanity," "lunacy," and "mental illness" have historically provoked a wide variety of often contradictory reactions. Those who have been in the throes of "madness" have described experiences ranging from an ecstatic sense of holiness to being beset by undeniable impulses to feelings of unending despair. Observers have sought explanations for the behavior of "touched" and "crazy" individuals by invoking such things as sin, destiny, heredity, moral degeneracy, upbringing, trauma, fatigue, and body chemistry. Those afflicted have been admired, pitied, mocked, hidden from public view, canonized, imprisoned, restrained, operated on, sterilized, hospitalized, killed, counseled, analyzed, and medicated. Why? This course will examine the ideas that have shaped European and American perceptions of madness, insanity, and mental illness. This course will be an introduction to the modern history of "madness" in the Western world. In particular, we will examine the ideas that have shaped European and American perceptions of madness, insanity, and mental illness; the changing experiences of those afflicted; the development of those professions designed to look after those deemed mad, insane, and mentally ill; and the social and cultural assumptions behind treatments, policies, and public opinions.

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

HIST 104: Ancient Egypt

3 Credits

This course will track the history of Egypt, the first nation state in the world, covering a time span of over 3,000 years. The investigation of the history will focus primarily on the major players (i.e. the pharaohs themselves) and the political events that shaped their reigns. Its history involves not only the Nile Valley, but also that of the entire northeast African continent and lands of Western Asia. The magnificent ruins and artifacts that have survived offer the student a visual examination of the ancients and will provide illustration to a great extent of the specific time periods and dramatic incidents. The student will also be confronted at every turn by textual sources (in translation) and the archaeological evidence. The latter will be addressed at length with introduction to archaeological expeditions. This will serve to teach the student the contribution of archaeological method and interpretation in the knowledge and understanding of the history of the Near East.

Cross-listed with: CAMS 104

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

HIST 105: The Byzantine Empire

3 Credits

This course examines the development and history of the Byzantine Empire from the decline of the Roman Empire to the fall of Constantinople to the Ottomans in 1453. As the Roman Empire disintegrated, the West slowly developed into smaller kingdoms, while the East survived in a unified empire centered on Constantinople. Modern scholars call this eastern empire, and its culture, Byzantine. This course examines the process by which the Latin imperial culture of Rome was transformed into a profoundly Greek culture, which for centuries represented the model against which other civilizations & the various kingdoms of the Latin West, the Islamic caliphates of Damascus and Baghdad, and the Slavic chieftaincies of eastern Europe & measured themselves.

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

HIST 105H: The Byzantine Empire

3 Credits

Development of Byzantine civilization from the decline of the Roman Empire to the fall of Constantinople.

Honors

HIST 106: Early Modern Empires of Islam: The Ottomans, Safavids, and Mughals

3 Credits

This course examines the history of the Ottoman, Safavid, and Mughal empires, from their origins to the Safavid Collapse, a historical time period covering approximately 1300 to 1722. Each week, the class will focus on a major turning point or theme using a combination of regional case studies and primary sources. In the process, students will be exposed to ongoing historiographical debates about a variety of events and trends in Ottoman, Safavid, and Mughal history. Topics covered include war, diplomacy, urbanism, architecture, science, religion, technology, and art. This course focuses on and examines how the Ottoman, Safavid, and Mughal states evolved in a changing global context.

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

HIST 107: Medieval Europe

3 Credits

HIST 107 / MEDVL 107 examines the history of Europe from c. 300-c. 1400 CE. The many themes of this course include: the development of political, judicial and diplomatic institutions; the role of religion, especially that of Christianity in all its forms - orthodox, heretical, and popular - as a significant element of medieval society; the development of royal houses; and changes in economic and social life of medieval Europe. Within these primary themes, the course addresses many subjects, including the development of both secular and ecclesiastical authority, various efforts to control or wield violence, and the importance of a number of agricultural and economic changes that transformed Europe.

Cross-listed with: MEDVL 107

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

HIST 108: Crusades: Holy War in the Middle Ages

3 Credits

The course examines the social and political history of the "Crusades", one form of holy war in medieval Europe, the Levant, and North Africa, focusing primarily on the period from the 11th through the 14th centuries, but also offering background to, as well the history of later repercussions of, the "Crusades". This warfare of the Central and Late Middle Ages, later called "Crusades", were fought in many geographical regions, including the Levant, the Baltic, the Iberian peninsula, southern France, and North Africa. The course addresses various elements of this kind of medieval warfare, and examines how such "crusading" evolved with complex political, religious, and economic origins.

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

HIST 109: Introduction to U.S. Environmental History

3 Credits

This course explores the major themes of U.S. Environmental History, examining changes in the American landscape, the development of ideas about nature in the United States, and the history of U.S. environmental activism. Throughout the course, we will be exploring definitions of nature, environment, and environmental history as we investigate the interactions between Americans and their physical worlds. HIST 109 provides an introduction to environmental history as a field of scholarship that examines changing relationships between human beings and the natural world. Environmental history centers on the examination of various questions about such relationships, including exploring how natural forces shape history, how humankind affects nature, and how those ecological changes then reciprocally influence human life. Major themes of the course include: (1) recognizing that American history has a natural context; (2) that relationships between nature and culture change over time; and (3) that knowledge about nature is socially constructed and historically contingent.

Bachelor of Arts: Humanities
 United States Cultures (US)
 General Education: Humanities (GH)
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

HIST 110: Introduction to Global Environmental History

3 Credits

This course provides a broad introduction to the history of human relationships with nature throughout the world. The human relationship with the natural environment the world of plants, animals, and microbes, of air, water, and land is an important historical subject. History 110 provides a broad, thematic description and analysis of major global trends and shifts, with an emphasis on contemporary issues and problem solving. The most important goal of the course is to provide students with the historical context necessary to construct a thoughtful appreciation of the environmental dilemmas of our time. Ecology has contributed a great deal to historical understanding in terms of specific examples or case studies; however, it has also begun to reconstruct the overall structure of the history that we teach. History 110 seeks to leverage this new paradigm by encouraging students to break down the barriers that often divide the humanities and the sciences. This course utilizes environmental science to demonstrate and explain specific human tendencies. Finally, this course is structured to help students better situate the history of the United States in a more global centered view of both the past and contemporary environmental concerns. Particularly in relation to contemporary environmental issues, History 110 will make clear that many environmental problems are local in neither their construction nor impact. The course will focus on several critical points, including: How has the non-human world shaped the course of human history? What were the environmental impacts of historic changes in the ways humans produced and consumed resources? What ideas

shaped the ways different groups of people defined and used specific resources? What role have science and technology played in changing popular attitudes about the human place in the world?

Bachelor of Arts: Humanities
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Key Literacies

HIST 111: Introduction to U.S. Food History

3 Credits

This course is a historical analysis of agriculture and food production in the United States. It includes examination of the history of food production and consumption patterns, the food industry, food marketing, and the politics and regulation of the American food system. This course explores the food system as a nexus that brings together history, technology, and culture in ways that have significant impacts on human livelihoods and wellbeing. A core theme of the course will be consideration of questions about food ethics and the challenge of improving the sustainability of food systems including the need to maintain or increase improvements in productivity while also addressing social effects and reducing environmental impacts of food production.

Bachelor of Arts: Humanities
 United States Cultures (US)
 General Education: Humanities (GH)
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

HIST 112: Introduction to Public History

3 Credits

Practicing as a historian outside traditional classrooms opens up worlds of diverse professional opportunities. This course is designed to introduce students to that broad world, allowing for learning and experimentation. The course teaches theories of public history practice, audience development, collection management, interpretation, organizational management, finance, and other pillars of practicing history with and for the masses. The course will consider both the past and future of the field. Students should encounter public history at work in society. There are various ways to achieve such aims, including interaction with practicing public historians through field trips and/or in class, preparing a grant application, and presenting a modest public history project in class.

Bachelor of Arts: Humanities
 United States Cultures (US)
 General Education: Humanities (GH)
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies
 GenEd Learning Objective: Soc Resp and Ethic Reason

HIST 113: Baseball in Comparative History

3 Credits

This course offers a comparative survey of baseball history from its origins in the nineteenth century to the present. The course uses the broad cultural and geographic diffusion of baseball over time to examine

the diverse and changing social, economic, and political meanings of this activity in different cultural settings, emphasizing the ways in which a common activity may acquire unique meanings in different cultures. Although North America, Cuba, and Japan demand attention as the most striking examples of baseball's pervasive impact, the course will also consider baseball as a global phenomenon, for example, exploring the minimal impact or failure of baseball promotions in many European and African societies.

Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 United States Cultures (US)
 General Education: Humanities (GH)
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

HIST 114N: Historical Perspectives on HealthCare Innovations

3 Credits

This course will explore how historical context influenced major innovators in health care. It will pursue the general education objectives of 1) integrative thinking, and 2) social responsibility and ethical reasoning. GH learning criteria will include: 1) knowledge of major cultural current issues and developments through time, 2) competence in critical thinking about topics in the humanities, and 3) familiarity with groups, individuals, ideas, or events that have influenced the experiences and values of different communities. GS learning criteria will include the abilities to: 1) describe the ways in which many different factors may interact to influence behaviors and/or institutions, 2) explain how social science researchers work to better understand and address world problems, and 3) recognize social, cultural, political and/or ethical implications of work in the social and behavioral sciences.

United States Cultures (US)
 General Education: Humanities (GH)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Soc Resp and Ethic Reason

HIST 115: The American Jewish Experience

3 Credits

Chronological and topical survey of the story of Jewish life in America. We will trace the social, religious, cultural, and political developments in the Jewish community from the Colonial Period to the present. Topics to be covered include immigration, acculturation, ethnicity, gender, politics, and communal and religious innovation. While "knowing the facts" is obviously important to historical understanding, this course helps students develop critical thinking skills. These skills include: close and thoughtful reading and analysis of primary and secondary sources; looking for a broader coherence or "order" to the material; independent analysis and effective articulation (both in writing and in class discussion) of well-reasoned, well-crafted conclusions and interpretations and arguments (conclusions/interpretations/arguments which are supported by specific factual evidence derived from a variety of sources). The three specific course objectives underscore its scholarly dimensions: (1) Students will gain a knowledge and understanding of

the relationship between the experiences of members of the American Jewish community and United States history as a whole. (2) Students will gain an understanding and knowledge of the political, economic, and social processes that shaped the American Jewish experience. (3) Students will learn how to "think historically" by placing documents written in the past in their historical contexts, and to consider the relationship of the past to the present. By the end of the course students will: Demonstrate an understanding of the chronology of American Jewish history. Demonstrate an understanding of the diverse experiences of different groups of Americans. Demonstrate an understanding of the social, political, and ideological structures that shaped the American Jewish experience and continue to shape the modern United States.

Cross-listed with: JST 115, RLST 115
 Bachelor of Arts: Humanities
 United States Cultures (US)
 General Education: Humanities (GH)
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

HIST 116H: Family and Sex Roles in Modern History

3 Credits

Historical perspectives on the western family since 1500: gender roles, marriage, sexuality, child rearing, and old age; emphasis on United States.

Cross-Listed
 Bachelor of Arts: Social and Behavioral Sciences
 Honors

HIST 116N: Family and Gender Roles in Modern History

3 Credits

This course explores the transformation of modern families in the "Western" world, beginning with the basic context and elements of families as early as sixteenth-century Europe and Colonial America. The course has a primary focus on marriage, parents and children, and gender in the context of the history of family, family life, and gender roles in the United States. The course focuses on the social history of families, encompassing the ever-changing elements of sociological, political, and gender history within American families.

Cross-listed with: WMNST 116N
 Bachelor of Arts: Social and Behavioral Sciences
 International Cultures (IL)
 United States Cultures (US)
 General Education: Humanities (GH)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

HIST 117: Women in United States History

3 Credits

HIST 117 / WMNST 117 provides students with an overview of the most important historical developments in the history of women in the United States, including women's actual experiences as members of a class, a race, and an ethnic community, the progress women have made as individuals, workers, and citizens as well as the opposition they have faced. While "knowing the facts" is obviously important to historical

understanding, this course helps students develop critical thinking skills. These skills include: close and thoughtful reading and analysis of primary and secondary sources; looking for a broader coherence or *order* to the material; independent analysis and effective articulation (both in writing and in class discussion) of well-reasoned, well-crafted conclusions and interpretations and arguments (conclusions/interpretations/arguments which are supported by specific factual evidence derived from a variety of sources). The three specific course objectives underscore its scholarly dimensions: (1) Students will gain a knowledge and understanding of the diverse experiences of different groups of American women. (2) Students will gain an understanding and knowledge of the political, economic, and social processes that shaped the history of women in the United States. (3) Students will learn how to *think historically* by placing documents written in the past in their historical contexts, and to consider the relationship of the past to the present. By the end of the course students will: Demonstrate an understanding of the chronology of United States women's history. Demonstrate an understanding of the diverse experiences of different groups of American women. Demonstrate an understanding of the social, political, and ideological structures that shaped the history of American women and continue to shape the modern United States.

Cross-listed with: WMNST 117

Bachelor of Arts: Humanities

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

HIST 118: Modern Jewish History

3 Credits

Modern Jewish history is a complex and fascinating story. Some scholars depicted it as a long period of suffering and isolation that culminated in the Holocaust and only ended with the founding of the state of Israel. In recent decades a more balanced perspective has found wide acceptance. Today scholars highlight Jewish agency and different conditions in the various places Jews settled without downplaying anti-Jewish prejudice and violence. A recurring theme in this course concerns the relationship between individual Jews and Jewish communities, and on a broader level, the perception and treatment of Jews by societies and states. As Jews in Western and Central Europe "left the Ghetto" around 1800 and became citizens of states, they redefined their relationship to Jewish communities in strikingly different ways. Some Jewish women and men emerged as agents of change, others resisted change. We will explore Jewish "responses to modernity," ranging from assimilation, Zionism, and socialism to migration. While many Jews in Western Europe and the United States prospered, the lives of Jews (and their neighbors) in Eastern Europe and the Ottoman Empire were shaped by social and economic crisis (albeit not constantly and not everywhere). For the twentieth century the course will concentrate on three major events that had a dramatic impact on Jews, especially in Europe: the First World War and the collapse of the large multiethnic Empires in Eastern Europe, the Holocaust and the founding of the first modern Jewish state, Israel.

Cross-listed with: JST 118

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

HIST 119: Gender and History

3 Credits

Survey of the development of gender roles in Western societies from the prehistoric era to the early modern period.

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

General Education: Humanities (GH)

HIST 120N: History of Modern Europe since 1789

3 Credits

This course traces the history of modern Europe, beginning with a brief contextual background of the French Revolution and the Napoleonic era. The course then focuses primarily on the political, economic, and social developments in Europe from rise of the European nation state during the nineteenth century through the present day. The course examines several broad topics, including the political and ideological developments of this period in European history; the origins and enduring impact of two World Wars; the developments of totalitarianism, fascism, socialism, and democracy in Europe; and Europe's political and economic roles in the modern world.

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

General Education: Humanities (GH)

General Education: Social and Behavioral Sciences (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

HIST 121: History of the Holocaust 1933-1945

3 Credits

This course focuses on the history and historiography of the Holocaust from 1933-1945. In addition to cultivating intellectual skills, such as critical analysis and concise presentation, the primary purpose of this course is to provide an in-depth overview of the Holocaust. The course will touch on various aspects of the Holocaust, including the function of the "Ghettos", the role of the mobile killing units, extermination camps, Jewish resistance, the role of the Allies, Holocaust trials, and the question how the Holocaust can be compared with other genocides. The course will analyze the Holocaust using historical, literary, and philosophical approaches.

Cross-listed with: JST 121

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

HIST 122: History of Science I

3 Credits

The main goal of this course is to think through and understand major developments, ideas and issues in natural philosophy. "Natural philosophy" is the premodern term for science. The term "science" began to acquire its modern meanings around 1840. The geographic focus of this course is the Mediterranean region and Europe, but we will also investigate early science in China, the Indian subcontinent, and the Islamic world. The temporal coverage of this course is vast: from about 10,000 years ago to the 19th century. As is common in history courses, it will be essential for us temporarily to set aside modern and contemporary biases and ways of thinking. Our goal is to understand the world as ancient and premodern people did. Issues of religion will constantly make appearances in this course. If you have studied world religions already, that is great, but if not, the books and lectures will provide the essential points as we go along. You should also use Wikipedia or similar reference tools to look up any key term or concept that does not make sense to you, whether with respect to lectures or the books. It is your job to make an active effort to master the material. This course is ideal for anyone pursuing a scientific or technical major, but anyone should benefit from it. We will be exploring some of the most important issues that have shaped our world, key developments in the human capacity for creating knowledge and useful technologies, and, in some cases, innovative solutions to vexing problems. We will also examine some of the ways that social institutions, belief systems, and paradigms (models) have helped both to organize and to constrain human knowledge. If all goes reasonably well, this course will enhance your knowledge and open your mind to hitherto unfamiliar ways of thinking and approaches to problems.

Bachelor of Arts: Humanities

General Education: Humanities (GH)

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

HIST 123: History of Science II

3 Credits

A history of science and culture from the scientific revolution to the present. HIST 123 examines the intellectual, social, and cultural history of science from the Scientific Revolution to the present. The course covers a range of theoretical and applied disciplines, including engineering and medicine. In addition to major discoveries and new ideas, methods, and tools, the course examines the effect of social conditions on science as well as the impact science has had on society. Scientific developments in the Western world, broadly defined, constitute the organizing framework of the course, but the course also examines science in non-Western cultures

Bachelor of Arts: Humanities

General Education: Humanities (GH)

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

HIST 124: History of Western Medicine

3 Credits

This course explores the history of health, illness, and medicine in western society from Ancient Egypt through the modern world. Relying

on both primary and secondary sources, the course examines major developments in the understanding of health, illness, medical treatment, and medical practice in western society from Ancient Egypt to the present. The course will explore such themes as the changing status of medical practitioners, the experience of patients in different historical settings, artistic depictions of illness and healing, and the increasingly prominent role of medicine in public policy in order to better understand the links between medicine and its social, cultural, intellectual, and political contexts.

Cross-listed with: STS 124

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

HIST 125N: History of Infectious Disease and Epidemiology

3 Credits

Infectious diseases once thought to be nearly eradicated have seen a resurgence in recent years. The majority of the cases arose from people who deliberately chose not to vaccinate their children against these disease. Even in the twenty-first century the nature of disease and how to prevent it is not merely a matter of science, but an issue laden with cultural, political, and religious concerns. This course charts the history of disease both as a subject of scientific inquiry and a cultural and religious phenomenon. We will begin with early Greek and Egyptian attempts to understand disease as a foreign entity attacking the body and end in the twenty-first century with current ideas surrounding the use of antibiotics, vaccines, and emerging threats throughout the world. Along the way we will discuss the impact of significant epidemics - for example, Bubonic Plague, Syphilis, and Influenza - as well as changing scientific thinking of both how to deal with disease and how to understand the natural world. In tandem with the historical background key scientific ideas necessary for studying disease - including current understanding of the microbial world, microscopy techniques, and modern gene theory - will be presented to the students through classroom instruction and virtual laboratories.

Cross-listed with: SC 125N

General Education: Humanities (GH)

General Education: Natural Sciences (GN)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

HIST 127: Introduction to U.S. Latina/o History

3 Credits

This course provides an interdisciplinary introduction to the study of Latinas and Latinos in the United States. The course includes a historical overview of the major events in the U.S. Southwest, Mexico, the Caribbean, and Central and South America that led to the creation of Latina/o communities in this country. Students will examine the formation of racial and class hierarchies within U.S. Latina/o communities; the processes of (international and regional) migration; gendered hierarchies and responses to sexism; and the complexities of U.S. Latina/o identity.

Cross-listed with: AMST 127, LTNST 127

Bachelor of Arts: Humanities

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

HIST 128N: Cultural Perspectives on Mathematics

3 Credits

This course will investigate the development of mathematical thought in multiple Afro-Eurasian cultures from the Bronze Age through the early medieval period, including Mesopotamia, Egypt, Greece, India, China, and the Islamic world. Math will be examined as a cultural product, with specific developments contextualized in the generating civilization's history, socio-political structures, economic systems, artistic and literary movements, and prevailing religious and philosophical ideas. Students will investigate the ways in which specific aspects of a culture influenced the development of specific ideas about, approaches to, and techniques regarding number and mathematical processes. Key themes in this respect will be what social forces encourage the development of practical or theoretical mathematics; how a society determines what is truth; the conception of abstract ideas such as zero and negative, infinite, and irrational numbers; the social status of mathematicians and their relationship with political and social authorities; and what social forces hinder the development of practical and/or theoretical mathematics. Students will also consider how the availability of certain mathematical knowledge enabled the development of particular social systems, architectural achievements, and more. Key themes in this respect will be the mathematical needs of specific political systems (such as the accounting involved in imperial administration), legal systems (such as fair division of goods), and religious systems (such as the calculation of accurate systems of time). At the same time, students will draw connections across time periods and cultures by examining the interactions between civilizations and how those interactions influenced the development of mathematics as a human endeavor. Key themes in this respect will be understanding what political, economic, and other forces cause cultures to come into contact or seek out contact; and how the exchange of knowledge shapes both the receiving culture and the study of mathematics as a whole. As part of this course, students will study both specific mathematical ideas (e.g., number systems, deductive reasoning, geometric algebra, and the motivating problems that spurred development) and the specific ancient and medieval cultures named above.

International Cultures (IL)

General Education: Humanities (GH)

General Education: Natural Sciences (GN)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

HIST 129N: Chocolate Worlds

3 Credits

This course will examine the "world" of chocolate throughout human history. First cultivated by the ancient peoples of the Americas and then manufactured by Europeans and Pennsylvanians alike, chocolate has played a privileged role as a luxury good. An interdomain course,

"Chocolate Worlds" is interdisciplinary, taught by faculty in the departments of Plant Science, Anthropology, and History. As a team we investigate the how diverse societies have differentially interacted with this crop. Rather than be organized chronologically, this course will be divided into course Units, such as the history of cocoa uses and cultivation, cocoa plant science and farming issues, chocolate making and markets, and the state of the global chocolate industry. The course's lectures and assigned readings work in concert equally directed by scientific inquiry and the queries of the social sciences and humanities. Assignments will address real world questions relating to contemporary cocoa cultivation and production, and its role in international development and social justice. As a class we will take field trips to sites such as local chocolate manufacturing facilities and cocoa research sites and laboratories. The learning objectives of this course include students' broad knowledge of cacao production, its history, and ethnical issues surrounding its cultivation in today's global economy. Additionally, students will gain an historical appreciation for the role this crop has played in diverse human societies and a scientific understanding of its genetic structure.

Cross-listed with: ANTH 129N, PLANT 129N

Bachelor of Arts: Humanities

Bachelor of Arts: Natural Sciences

Bachelor of Arts: World Cultures

General Education: Humanities (GH)

General Education: Natural Sciences (GN)

General Education - Integrative: Interdomain

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

HIST 130: Introduction to the Civil War Era, 1848 through 1877

3 Credits

Survey of the causes and consequences of America's deadliest conflict, the Civil War, from the end of the U.S.-Mexican War in 1848 through the end of Reconstruction in 1877. This course meets the Bachelor of Arts degree requirements. HIST 130 is a general survey of the American Civil War Era that satisfies the Gen Ed GH requirement. Course content features the causes of the war, the conflict itself, the consequences for the meaning of freedom in the United States, and the continuing relevance of this conflict today. Students will become familiar with American slavery; Northern and Southern social, cultural, political, and economic composition; the military progress of the war; problems on the home front; the struggle for emancipation; and the creation of a new nation based on free labor.

Bachelor of Arts: Humanities

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

HIST 130H: Introduction to the Civil War Era, 1848-1877 Honors

3 Credits

Survey of the causes and consequences of America's deadliest conflict, the Civil War, from the end of the U.S.-Mexican War in 1848 through the end of Reconstruction in 1877. HIST 130H is an honors course surveying the American Civil War Era that satisfies the Gen Ed GH requirement. Course content features the causes of the war, the conflict itself, the

consequences for the meaning of freedom in the United States, and the continuing relevance of this conflict today. Students will become familiar with American slavery; Northern and Southern social, cultural, political, and economic composition; the military progress of the war; problems on the home front; the struggle for emancipation; and the creation of a new nation based on free labor. The honors course will also take time to go further in depth in discussion and analysis of significant trends and topics in the history of the Civil War Era through intensive focus on primary sources in discussion and written assignments.

Bachelor of Arts: Humanities
 United States Cultures (US)
 General Education: Humanities (GH)
 Honors
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

HIST 131N: Slavery, the Civil War, and Cinema

3 Credits

This course provides a general introduction to two very different modes of thinking about race and slavery in the United States between the 1770s and the 1860s. The first half of the class will present historians' interpretations of the lives of slaves, the politics of slavery, and the Civil War. The other half of the class is devoted to examining cinematic and artistic treatments of slavery and the Civil War. Overall, the course will focus on the differences and tensions between historians' methods and ways of knowing about and understanding the world, versus the essential truths that artists try to present in film while focusing on the specifics of slavery and the Civil War in the United States. Rather than privileging one way of knowing over the other, the course will focus on the strengths and limits of each. In addition, the course will examine how collective historical memories concerning race, slavery, and the Civil War are created and contested. The first half of the class offers an historical analysis of the history of slavery in the United States between the American Revolution in the 1770s and the American Civil War in the 1860s. The second part of the class will focus on cinematic presentations of slavery and the Civil War. The second part of the course will NOT focus on using historical facts to evaluate a film's fidelity to history as a scholarly discipline. It will instead examine film as art, as a commercial endeavor, and as a cultural product. It will then explore how different filmmakers portray slavery and the Civil War in different genres; how films reflect the period of their production and the personality of their producers; the commercial demands of filmmaking and how that limits subject matter; and how films shape collective historical memories. Students will also learn the basics of film criticism.

Bachelor of Arts: Arts
 Bachelor of Arts: Humanities
 United States Cultures (US)
 General Education: Arts (GA)
 General Education: Humanities (GH)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking

HIST 134: Great Britain and Ireland in the Early Modern World

3 Credits

This course provides an interdisciplinary introduction to the study of Latinas and Latinos in the United States. The course includes a historical overview of the major events in the U.S. Southwest, Mexico, the Caribbean, and Central and South America that led to the creation of Latina/o communities in this country. Students will examine the formation of racial and class hierarchies within U.S. Latina/o communities; the processes of (international and regional) migration; gendered hierarchies and responses to sexism; and the complexities of U.S. Latina/o identity. HIST 134 provides a survey of the history and cultures of Great Britain and Ireland from 1400 to 1800. The course particularly focuses on the diversity of English, Welsh, Scottish, and Irish cultures and customs, their influence on early forms of nationalism in the British Isles, and their importance in the formation of the modern British nation-state. The relationships between English and Scottish protestants, the importance of translating the Book of Common Prayer from English to Welsh, and the influence of Irish-born families of English descent on the governance of early modern Ireland were all key elements in the emergence of an empire under the authority of an English dynastic state whose practical control over the territories it claimed to govern often remained quite limited. Through an examination of primary and secondary historical sources, students will consider the dynamism of this process, involving complex interrelationships, rather than the simple supremacy of one ethnic group over another.

Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

HIST 140: The History of the Israel-Palestine Conflict (1917-Present)

3 Credits/Maximum of 3

This course covers the origins of the Israeli-Palestinian conflict and how the issues at stake changed over time, up to the present day. The course situates the conflict in the history of the Middle East and the larger context of international relations, including the Cold War and the end of the Cold War. Topics include regional warfare and its significance, efforts at peacemaking, and social, economic, and cultural developments among Israelis and Palestinians.

Cross-listed with: JST 140
 Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Key Literacies

HIST 141: Medieval and Modern Russia

3 Credits

This course is an introductory survey, including political, social, economic, and cultural development of Kievan, Muscovite, and Imperial Russia.

Tracing the history of Russia from the ninth to early twentieth century, this course examines the central role of the people, politics and culture at the crossroads of Europe and Asia. Particular topics include the rise of the Kievan State, the Mongol rule, the rise of Muscovy, Ivan the Terrible, Peter the Great, relations with Western Europe up until the end of imperial Russia under the last tsar of Russia, Nicholas II. It offers a basic knowledge of the cultural, political, economic, artistic and historical background of this vital region of the world.

Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Key Literacies

HIST 142N: History of Communism

3 Credits

This course examines the development of communism, one of the most powerful ideologies to have developed in modern history. This course first explores the writings of Marx and his advocates, notably Engels and Lenin, in order to understand why the first communist regime emerged in the unlikelyst of places: Russia. This course then examines the developments of communism through the evolution of the Soviet Union, the formation and development of the Communist bloc, the impact of Chinese communism, and the impact of Communist ideologies in other areas of the world, such as Cuba.

Bachelor of Arts: World Cultures
 Bachelor of Arts: Social and Behavioral Sciences
 International Cultures (IL)
 General Education: Humanities (GH)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

HIST 143N: History of Fascism and Nazism

3 Credits

This course studies the developments of right-wing totalitarianism in the twentieth century with special emphasis on Fascist Italy and Nazi Germany, which provided the roots for fascist developments in the modern world. The course concerns itself with understanding the social, political, and economic contexts of fascism, its governing assumptions, ideals, and values, how it worked in practice, and its consequences and historical implications. Another focus will be on the question of why these illiberal, anti-democratic, and ultimately murderous regimes appear to have appealed to many groups during the 1930s and 1940s, not only within Italy and Germany, but also within broader European society.

Cross-listed with: JST 143N
 Bachelor of Arts: Humanities
 International Cultures (IL)
 General Education: Humanities (GH)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

HIST 144: The World at War: 1939-1945

3 Credits

History 144 provides an in-depth study of World War II, which brought many new aspects to modern warfare: civilians were the majority of casualties, deliberate air attacks were made on cities, research brought the advent of new technologies, and several of the global belligerents represented the participation of militaristic totalitarian states where dictators had risen to power with considerable popular support. Thus, topics of the course include: the origins of the war; political and economic struggles leading to the conflict; actions of both Axis and Allied military forces; broad violence in the forms of rape and genocide; and the aftermath of the struggle.

Bachelor of Arts: Humanities
 International Cultures (IL)
 United States Cultures (US)
 General Education: Humanities (GH)
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

HIST 145N: The Holocaust and Human Rights

3 Credits

This inter-domain course integrates historical (GH) study of the Holocaust with sociological (GS) perspectives on the Holocaust and human rights. Topical content begins with historical antisemitism ("the longest hatred") and elaborates the history of the Holocaust in German and in Europe. A second half of the course explores consequent definitions of genocide and human rights, globally established by the United Nations through international law. Post-war campaigns to reduce prejudice and to raise 'Holocaust consciousness' are presented along with sociological insights into problems of persecution through eugenics, xenophobia, and racialized inequalities. Survivor testimonies underscore the value of resilience and the ethics of standing up against injustice, including discrimination or persecution based on cultural or another group identification.

Cross-listed with: SOC 145N
 Bachelor of Arts: Humanities
 Bachelor of Arts: Social and Behavioral Sciences
 International Cultures (IL)
 General Education: Humanities (GH)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Soc Resp and Ethic Reason

HIST 148: History of Pennsylvania State University

3 Credits

This course examines the complex history of Penn State. The time period covered extends from mid-19th century origins as the Farmers' High School to the highly complex, multi-faceted, modern "research university" of the early 21st century. The course will study closely: the conduct,

leadership, perspectives, and educational visions of notable presidents, administrators, and faculty (such as George Atherton, Edwin Sparks, Ralph Hetzel, Milton Eisenhower, Eric Walker, Jesse Arnette, Howard Davidson, Della Durant, Seth Williams among many others); various dimensions of student life (including student protest and the demise of *loci parentis*); race and gender relations; athletics; and the challenges of university life, research, admissions, co-education and achieving diversity in the post-World War II era. The Penn State experience will be examined in the context of larger historical developments in American higher education, student life and attitudes, and the broad political / economic / social and legal environment. Comparisons will be made to other colleges and universities. Using primary and secondary historical sources, this course pursues a distinctly historical angle; particular emphasis will be placed on chronicling and evaluating change over time and thoughtful consideration of a diversity of voices and perspectives

Bachelor of Arts: Humanities
 United States Cultures (US)
 General Education: Humanities (GH)
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

HIST 150: America in the 1960s: An Introduction

3 Credits

This course offers an introduction to the history of the United States in the 1960s. The dual goals of this course are to instill a particular body of knowledge - in this case, America in the 1960s, and to provide students with tools that will help formulate interpretations of this crucial period in U.S. history. Topics covered will include the leadership of John Kennedy, Lyndon Johnson, and Richard Nixon; the struggle for civil rights for people of color; the emergence of student movements across the country; the steady escalation of US involvement in Vietnam; shifting relations across gender lines, and particularly the rise of the modern feminist movement; and, finally, the growing influence of popular culture, such as music, literature, and film.

Cross-listed with: AMST 150
 Bachelor of Arts: Humanities
 United States Cultures (US)
 General Education: Humanities (GH)
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

HIST 151N: Technology and Society in American History

3 Credits

This course examines the development of technology in the United States from the colonial period to the present, and places into a historical context the reception and influence of these technological developments on the social, economic, and political life of the United States. The technologies serving American society—past and present—range widely and include, for example, new harvesting techniques, railroads and motor vehicles, assembly-line mass production, and electricity and its multiple dependent technologies. Technologies have always influenced, and been influenced by, human societies; this course examines how technologies and Americans have interacted and influenced each other.

Cross-listed with: AMST 151N, STS 151N
 Bachelor of Arts: Social and Behavioral Sciences
 United States Cultures (US)

General Education: Humanities (GH)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

HIST 152: African American History

3 Credits

Chronological and topical survey of the history of African Americans from the colonial period to the early twenty-first century. This course covers major themes in African American history including the societies and cultures of Africa, the Middle Passage, the Colonial experience, slavery, abolition, and the quest for freedom, Civil War and emancipation, Reconstruction, Jim Crow, the Great Migration, African American cultural expressions, WWII and the seeds of Civil Rights, the Freedom Movement, Black politics and White backlash. While "knowing the facts" is obviously important to historical understanding, this course helps students develop critical thinking skills. These skills include: close and thoughtful reading and analysis of primary and secondary sources; looking for a broader coherence or "order" to the material; independent analysis and effective articulation (both in writing and in class discussion) of well-reasoned, well-crafted conclusions and interpretations and arguments (conclusions/interpretations/arguments which are supported by specific factual evidence derived from a variety of sources). The three specific course objectives underscore its scholarly dimensions: (1) Students will gain a knowledge and understanding of the relationship between the experiences of African Americans and United States history as a whole. (2) Students will gain an understanding and knowledge of the political, economic, and social processes that shaped African American history. (3) Students will learn how to "think historically" by placing documents written in the past in their historical contexts, and to consider the relationship of the past to the present. By the end of the course students will: Demonstrate an understanding of the chronology of African American history. Demonstrate an understanding of the diverse experiences of different groups of Americans. Demonstrate an understanding of the social, political, and ideological structures that shaped African American history and continue to shape the modern United States.

Cross-listed with: AFAM 152
 Bachelor of Arts: Humanities
 United States Cultures (US)
 General Education: Humanities (GH)
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

HIST 153: Native American History

3 Credits

HIST 153 provides students with an overview of the most important historical developments in the history of America's Native people, including first contact with Europeans, diplomacy and war, assimilation and cultural traditions, military service and the rise of Native casinos. While "knowing the facts" is obviously important to historical understanding, this course helps students develop critical thinking skills. These skills include: close and thoughtful reading and analysis of primary and secondary sources; looking for a broader coherence or "order" to the material; independent analysis and effective articulation (both in writing and in class discussion) of well-reasoned, well-crafted conclusions and

interpretations and arguments (conclusions/interpretations/arguments which are supported by specific factual evidence derived from a variety of sources). The three specific course objectives underscore its scholarly dimensions: (1) Students will gain a knowledge and understanding of the diverse experiences of different groups of Native people. (2) Students will gain an understanding and knowledge of the political, economic, and social processes that shaped Native American history. (3) Students will learn how to "think historically" by placing documents written in the past in their historical contexts, and to consider the relationship of the past to the present. By the end of the course students will: Demonstrate an understanding of the chronology of Native America history. Demonstrate an understanding of the diverse experiences of different groups of Native peoples. Demonstrate an understanding of the social, political, and ideological structures that shaped the history of Native peoples and continue to shape the modern United States.

Bachelor of Arts: Humanities
United States Cultures (US)
General Education: Humanities (GH)
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Key Literacies

HIST 153Y: The Indian in North America

3 Credits

A survey of the American Indian from prehistory to the present.

Bachelor of Arts: Humanities
United States Cultures (US)
Writing Across the Curriculum

HIST 154: History of Welfare and Poverty in the United States

3 Credits

History of care of the impoverished (emphasis on gender, race, nationality, age of poor, and welfare givers), 18th century to present.

Bachelor of Arts: Humanities
United States Cultures (US)
General Education: Humanities (GH)

HIST 155: American Business History

3 Credits

This course examines major developments in the history of modern American business and industry from the colonial period to the present. History 155 introduces students to a number of the main themes, concepts, and events comprising American business history. Although the course has a pronounced big business/large corporation focus, it nonetheless provides a broader perspective than simply one of selected corporate histories. Indeed, the course treats the conduct of business as an integral element of American society and culture. Topics to be discussed include the colonial commitment to commerce, the effects of new technologies, the emergence of modern large-scale industrial production and the changes it brought to business management, and the importance of world events and American businesses.

Cross-listed with: AMST 155
Bachelor of Arts: Social and Behavioral Sciences
United States Cultures (US)
General Education: Humanities (GH)

GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Key Literacies

HIST 156: History of the American Worker

3 Credits

A study of the American worker from the preindustrial era to the present.

Bachelor of Arts: Social and Behavioral Sciences
United States Cultures (US)

HIST 157: Railroads and American Society

3 Credits/Maximum of 3

HIST157 shows that, without railroads, the United States would not have become the United States. It provides a panoramic view of 200 years, from the earliest rail lines to the current day and shows how the rail industry affected everything, from the economy to daily life. One of the course's central objectives is to demonstrate how these changes were experienced differently by different communities and social groups.. The first half of the course investigates how and why the American rail network was built and how the public and government reacted to the changes it brought. It reviews the financial, geographical, and legal resources needed to build the first rail lines and why they proved to be superior to roads and canals. During and after the Civil War, the building of the transcontinental lines relied heavily on federal aid and the labor of minorities (including African American, Irish, and Chinese). Although many Americans initially embraced the railroad industry, after experiencing improvements in their local economies and lifestyles, many turned against it in the late nineteenth century. Hard economic times turned labor against management, farmers against the industrial centers, nativist Americans against immigrants, and so on. After two decades of protest, the reformers of the Progressive era passed sweeping legislation to regulate the industry. The second half of the course studies how railroads declined during the twentieth century and how government regulations were relaxed. In addition to the challenges of two world wars and The Great Depression, it explores how railroads experienced new economic and technological pressures. These include competition from motor vehicles and airplanes, which led railroads to lose most of their passengers and much of their freight. The change from steam to diesel locomotives brought difficulties for rail communities and rail workers. The course investigates how demands made by labor often served to alienate public opinion. Although streamlined passenger trains briefly regained public enthusiasm, this soon dwindled in the post-WW2 years, as Americans embraced the automobile and the airplane. By the 1970s, railroad troubles were extreme enough to test America's sense of balance between free enterprise and government aid. Despite public criticism, the federal government intervened, to create Amtrak and then Conrail. The final sections of the course investigate how the relaxation of federal regulations led to a partial rail renaissance. It shows how freight service has been a great success but why inter-city passenger service continues to be unattractive to many American citizens and investors.

United States Cultures (US)
General Education: Humanities (GH)
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Integrative Thinking

HIST 158: History of American Immigration

3 Credits

HIST 158 examines the immigrant experience in North America since 1607. The course explores the various ways in which immigrants of diverse backgrounds experienced life in British North America and the United States, a study that includes an examination of immigration memoirs, policies, responses to immigration, and immigrant culture in different parts of the United States. In addition, the course will critically examine popular representations of immigrants and encourages an analysis of the resulting minority groups, their reception, assimilation, and persisting identity.

Bachelor of Arts: Humanities

International Cultures (IL)

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

HIST 159: History of the FBI

3 Credits

Chronological survey of the History of the FBI since its founding in 1908, focused on the evolution of Federal law enforcement, bureaucracy, the increasing power of the Executive branch, the targeting of various minority groups, civil rights and civil liberties issues, and the growth of a national security role for the federal government over time. In its long history the FBI has intersected with a wide variety of groups and issues, and this reality will further expose students to the histories of African Americans, gays and lesbians, women's groups, Latinos, Native Americans, war protesters, students, various political dissenters, immigrants, targeting of morality, obscenity, and labor organizing. Because the FBI is responsive to both the political and policy interests of presidents and the influences of American society, students will come to appreciate the influences that politics has on bureaucracy and law enforcement, as well as the different social, political, economic, and cultural influences that each historical time period have exerted on the FBI to help shape its priorities and structure.

Cross-listed with: CRIMJ 159

Bachelor of Arts: Humanities

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

HIST 160: American Naval History

3 Credits

Introduction to the role of the United States Navy in the defense, diplomacy, commerce, and scientific development of the nation.

Bachelor of Arts: Humanities

United States Cultures (US)

HIST 161: The Battle of Gettysburg in American Historical Memory

3 Credits

HIST/AMST 161 examines the history of the Battle of Gettysburg, as well as the political and social factors that have shaped perceptions of the Battle of Gettysburg as one of the Civil War's decisive battle and as a national symbol that has transformed over time. The variety of historical sources used in this course will aid students in learning how to understand and interpret history and in encouraging them to develop a critical method by which to evaluate primary and secondary historical sources.

Cross-listed with: AMST 161

Bachelor of Arts: Humanities

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

HIST 162N: The Pursuit of Happiness in American Life: Historical Literature and Modern Practice

3 Credits

When Thomas Jefferson elevated one pursuit to stand with life and liberty as inalienable rights, he eschewed others. The Declaration of Independence features the pursuit of happiness rather than that of amusements, consumer goods, status, money, or ease. Happiness carried a history of deeper meanings in philosophy and religion. In 1776, "happiness" peppered discussions of individualism, rights, civilization, economics, and government, and echoed Ancient Greek dialogues about virtue and civil society. In America, "happiness" joined the religious language of salvation, rapture, and joy to define states of grace. By the twentieth century, happiness became suspect as the term frequently represented a superficial type of enjoyment in needless consumption manipulated through marketing. As happiness came to be twined with wealth and goods, so too did it align increasingly with success in all pursuits. Happiness became a form of winning and a status marker whose overt pursuit was as likely to lead to psychological and social problems as to health. We open with ancient philosophers and modern positive psychologists. The pursuit of happiness reached zenith speed in the history of American literature. From transcendentalists, to pragmatists, self-help, children's fantasy, psychoanalysis, or post-modernism, genres fell out of themselves in the pursuit to merely understand happiness. Novels, poems, memoirs, films, popular psychology, medical literature, memes, and blogs addressed happiness from nearly every conceivable angle to explore strategies such as choosing positive thoughts; stilling thoughts; cultivating enriching interests and habits; influencing our moods and emotions; and optimizing strategies for securing the resources, skill-sets, possessions, and relationships that encourage happiness. Some of these achievements aligned with health and economic benefits and introduced limitations in access or cultural relevance. Bio-behaviorists are exploring correlation vs. causation and ways of assessing social and individual well-being. Bringing modern bio-behavioral methodologies into the chronological narrative creates unprecedented opportunities for integrative study. Experiential elements of wellness fulfill goals of General Health and Wellness, identifying "wellness as a positive state of well-being, not merely the absence of disease." Students will learn the most promising research on generating tangible, healthful benefits in

individuals and communities and be introduced to sources for further learning, continuing to learn and pursue long-term happiness.

Cross-listed with: ENGL 161N
 Bachelor of Arts: Humanities
 United States Cultures (US)
 General Education: Humanities (GH)
 General Education: Health and Wellness (GHW)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

HIST 164: The History of Brazil

3 Credits

This course will study the history of Brazil, the only Portuguese-speaking nation in Latin America, from the colonial to the present period. We will examine Brazil's transformation from Portuguese colony to the seat of a nineteenth century transcontinental empire ruled by the only European monarch to rule from the Americas, and discuss developments such as plantation slavery and industrialization that transformed Brazil into an international powerhouse. We will examine political, economic, cultural and racial movements and institutions that defined Brazilian history during the empire, the first republic, the Vargas era, and the military dictatorship. We will conclude with a look at Brazil's struggles with democracy from the 1980s to the present as well as the rise of contemporary populist leaders, Brazil's struggles surrounding policing, political corruption, affirmative action, and its hosting international sporting events in the twenty-first century. This course is designed to introduce students to the making of the modern Brazilian state focusing on the period from the rise of the Brazilian Empire in 1808 through the modern day. We will survey major historical trends in Brazilian society, from its roots as a Portuguese colony and its role at the center of slavery and the slave trade in the Americas to its distinctive patterns of independence and nationhood. Brazil's experience as an independent nation during the nineteenth century (it became the only long-term monarchy in the Americas) offers an interesting point of comparison to the history of republican nationhood elsewhere in North and South America. We will also examine the challenges of state and nation building during the nineteenth and early twentieth century as well as the challenges associated with late industrialization and state-sponsored development.

Cross-listed with: AFAM 164
 Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning

HIST 165: Islamic States, Societies and Cultures c. 600-1500

3 Credits

This course introduces students to the history and culture(s) of the Islamic world from c. 600-1500. The course develops a historical framework for understanding developments in religious and legal thought

and practice, science, medicine, and technology, philosophy, and the arts. Students will learn about culture through lecture and discussion and through examination and analysis of a variety of texts and examples of material culture from different periods and regions.

Cross-listed with: ARAB 165, RLST 165
 Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Key Literacies

HIST 166: History of Sexuality

3 Credits

WMNST/HIST 166 History of Sexuality (3) (GH;US) This is a 100-level course on the history of sexuality, spanning several centuries and a wide range of contexts. The study of sexuality offers a particularly good lens for developing students' analytical ability to think historically about something that is often considered both natural and exclusively modern. Topics will include the role of religion, medicine, law, and politics in controlling and shaping sexuality; change and controversy over birth control, abortion, and gender roles; the connections between prescriptive literature and lived experience; the origins and meanings and racial violence in the context of ideas about sexuality; the concept of respectability; and the experiences and conflicts that have shaped the emergence of modern lesbian, gay, and trans identities. Students evaluate large questions about sources, methods, and analysis that historians face, including: How do we recover stories of private life, from societies and eras different from our own? How does our own understanding of what sexuality "is" complicate our historical exploration? What can we learn about gender and sexuality, repression and resistance, deviance and acceptance, identity and community from studying persons of nonconforming gender from the past? How has racism been employed to justify particular reproductive and sexual practices, as well as to limit claims to sexual respectability? To what extent is the study of sexuality inherently a study of gender, sex roles, and feminism? While focused primarily on the United States, the course will offer students opportunities to examine these questions in other, transnational contexts.

Prerequisite: one introductory level course in History or Women's Studies
 Cross-listed with: WMNST 166
 United States Cultures (US)
 General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

HIST 169: The Indian Ocean World

3 Credits

The Indian Ocean has been a zone of human interaction for several millennia facilitating the circulation of individuals, ideas, commodities and technologies from the Mediterranean and Persian Gulf regions to as far as Southeast Asia. This course introduces students to the growing historical field of the Indian Ocean world and to the usefulness of studying oceans as a useful category of historical analysis. It will examine the dynamism of the Indian Ocean world by exploring themes like trade, migration, slavery, piracy, European expansion, and various

kinds of cultural exchange across this vast body of water. The course will also introduce students to a variety of primary sources including travel narratives, personal accounts and diplomatic correspondences.

Bachelor of Arts: Humanities
International Cultures (IL)
General Education: Humanities (GH)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Integrative Thinking

HIST 170: South Asia to 1500

3 Credits

This course will introduce students to major themes in the history of ancient and medieval South Asia, a region that is now made up of the nation-states of Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan and Sri Lanka. Students will gain a firm understanding of the key political, economic and socio-cultural traditions and practices that shaped the formation of diverse social groups, sectarian and religious communities and political institutions in the region. While developing a chronological perspective on the history of pre-modern South Asia, this course will encourage students to look beyond the modern nation-state boundaries in order to gain a firm understanding of the region's shared political and cultural past in the period up to 1500. Students will learn to critically read primary sources and secondary literature, to identify historical arguments and take a position in a scholarly conversation in written assignments.

Bachelor of Arts: Humanities
International Cultures (IL)
General Education: Humanities (GH)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Integrative Thinking

HIST 172: Introduction to Japanese Civilization

3 Credits

This course surveys the development of civilization in Japan from ancient times to the present. Among the key goals of this course is to discuss what is distinctive about "Japanese civilization." As a survey of Japan it includes topics such as external relations and cultural exchanges with Japan's neighbors and the world more broadly; the nature of indigenous beliefs, Shinto and Buddhism; the making of the Japanese bureaucratic state and gentry society; the rise of the commercialized economy; the growth of Japanese culture; Tokugawa Japan. It offers a basic knowledge of the cultural, political, economic, artistic and historical background of this vital region of the world.

Cross-listed with: ASIA 172, JAPNS 172
Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures
International Cultures (IL)
General Education: Humanities (GH)
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Key Literacies

HIST 173: Vietnam in War and Peace

3 Credits

This course examines the long history and culture of Vietnam with a focus on Vietnam's anti-colonial and independence movements of the 20th century. Among the topics covered are Vietnam under French colonial rule, the rise of nationalism and communism, Vietnam during WWII, and the multi-decade struggle for independence in the fifties, sixties and culminating in the departure of American forces in 1973. Vietnam's recent economic rise and emergence as a commercial power is also covered. It offers a basic knowledge of the cultural, political, economic, artistic and historical background of this vital region of the world.

Bachelor of Arts: World Cultures
Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)
General Education: Humanities (GH)
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Key Literacies

HIST 174: East Asia to 1800

3 Credits

This course provides students with an overview of the most important historical developments and external relations of China, Japan and Korea from ancient times to the end of the eighteenth century. As a comparative survey of China, Japan and Korea it includes topics such as external relations and cultural exchanges; early Chinese dynasties; Confucianism, Daoism, Shinto and Buddhism; the making of East Asian bureaucratic state and gentry society; the rise of Ming-Qing commercialized economy; the growth of Japanese culture; Tokugawa Japan, and the role of Korea in East Asia. It offers a basic knowledge of the cultural, political, economic, artistic and historical background of this vital region of the world.

Cross-listed with: ASIA 174
Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures
International Cultures (IL)
General Education: Humanities (GH)
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Key Literacies

HIST 175: East Asia since 1800

3 Credits

This course is a comparative survey of the internal developments and external relations of China, Japan and Korea since the early 1800s. Topics include interaction with the West, internal rebellions and reforms, the importance of certain key figures, the changing roles of women, student protests, and current social problems. Considerable focus will be placed on the transition from imperial to constitutional governments, rise of nationalism, World War II in the East Asian context and the phenomenal role China, Japan and Korea have played in shaping the post-World War II world. It offers a basic knowledge of the cultural, political, economic, artistic and historical background of this vital region of the world.

Cross-listed with: ASIA 175
Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

HIST 175H: The History of Modern East Asia

3 Credits

Comparative survey of the internal developments and external relations of China and Japan since their contact with the industrialized West.

Honors

HIST 176: Survey of Indian History

3 Credits

Survey of cultural, institutional, and political history from ancient times to the present. HIST 176 Survey of Indian History (3) (GH;IL)(BA) This course meets the Bachelor of Arts degree requirements. This course surveys the history and civilization of India or South Asia from the earliest times to the modern period. The goal of the course is to enable students to form a comprehensive conception of the various facets of Indian or, South Asian civilization in a historical context. This course is an excellent foundation for the history of modern India and also complements a variety of existing courses on the history of the non-western world. In addition to satisfying the GI requirement, HIST 175 satisfies the general credit requirements for the history major or minor, including the 'non-western' component of the major. Non-majors may use this course to satisfy a general education humanities selection. Typically, students will be evaluated on in-class quizzes, written exams, participation in class discussions of assigned readings and critical reviews of books. This course is offered once every year and has an enrollment of 50 students.

Cross-listed with: ASIA 176

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

HIST 177: Rise of Modern Southeast Asia

3 Credits

This course looks at Southeast Asia from the rise of early empires to the present. Beginning with the great empires of Southeast Asia this course surveys the rise of Southeast Asian politics, culture and society before examining the colonial period when the region was dominated by European imperial powers, and concluding with the formation of the modern-day nations of Burma (Myanmar), Cambodia, Laos, Thailand, Indonesia, Malaysia, Singapore, Vietnam, and the Philippines. As part of this discussion, issues of Indianization, colonization, life under Japanese during World War II, and the way in which Cold War politics shaped the region. By the end of the course, students should have a firm understanding of changes in Southeast Asia and be able to assess these historical factors that shaped the current societies.

Cross-listed with: ASIA 177

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

HIST 178: Latin-American History to 1820

3 Credits

This course examines the history of Latin America from c. 1450 to 1820, a period encompassing Iberia and the New World before and after the conquest; the course is a survey of three centuries, from the initial encounter on New World soil of Iberian, African, and native cultures and races, to the birth of independent culturally- and racially-mixed nations. Historical topics include the conquest of the New World, the development of colonial institutions and their impact on indigenous cultures, the maintenance of slavery and forced labor systems, the development of multi-ethnic communities, and the origins of independence movements. We will also study colonial-era documents produced by or about the people who lived in colonial Latin America (what historians call primary sources), including Spaniards and Portuguese; African slaves and free blacks; Mayas, Nahuas/Aztecs, and Incas; mixed race peoples called castas; wealthy and poor; and women, men, and children. Particular emphases of the course focus on various patterns of conquest and cultural encounters, the processes of colonial rule, the nature of interaction between social groups, and the cultural impact of the colonial experience upon all colonial Latin America's peoples.

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

HIST 179: Latin-American History Since 1820

3 Credits

This course examines the history of modern Latin America from the period of independence in the early nineteenth century until the present day. Students will learn about the geographic and political development of the region, the development of various economic models, and the widespread extraction of labor focusing on This African slavery and Indigenous exploitation. The course examines significant events and historical trends in local, national, regional and global contexts. The goal of this class is for students to think critically and analytically about important issues and themes in Latin America, and to understand how historical events have shaped this region. We will look mostly chronologically at important historical themes such as social, economic, gender, and racial conditions, as well as politics, focusing on events throughout select Latin American nations and regions. The course will focus on the following periods: the Independence and post-Independence period of the Spanish Americas (1810-1850); the period of Brazilian Empire (1808-1889); the integration of Latin America into the modern world economy (1850-1914); the rise of oligarchic and military governments (1914-86); Latin America and the US in the Cold War (1945-1989); and concludes with the recent rise of the Populist New Left and the Conservative Right backlash and violence that has recently threatened many nations of Latin America. This course fulfills the requirements for Bachelor of Arts: Humanities (BA), International Cultures (IL), General Education: Humanities (GH) and fulfills the requirement for Latin American Studies Major and Minor as well as the general credit requirement for the History Major.

Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Key Literacies

HIST 180: Ancient Warfare

3 Credits

Historical survey of the evolution of warfare in the ancient Mediterranean region from prehistoric times to the Later Roman Empire. CAMS 180 CAMS (HIST) 180 Ancient Warfare (3) (GH;IL) Warfare has occupied a central place in the civilizations of the Mediterranean from the earliest times. The prehistoric origins of warfare is a hotly debated topic and constitutes the starting point for this course. Most scholars are agreed that military culture grew in step with sociopolitical development over the course of the third millennium BCE. In the following centuries, the Egyptians, and later the Assyrians and Persians, took great strides in developing sophisticated tactical systems, using infantry, chariotry, and cavalry. These matters occupy a little over the first third of the course. Across the Aegean Sea, Bronze Age (Mycenaean) Greece was ruled by elites occupying massively walled citadels, their leaders buried surrounded by their weapons. But how did these warriors fight? Do the epic poems of Homer memorialize Bronze Age combat? In the Archaic Period (700-500 BCE) infantry warfare in Greece was transformed by the appearance of the heavily-armored infantryman (the hoplite), deployed in a tight formation (the phalanx). The processes involved in the appearance of this kind of warfare, its nature, and its affects on Greek society and culture will be the focus of our attention for the second third of the course. On the periphery of the Mediterranean basin stood a variety of warrior cultures (the Scythians, Celts, or Germans). Numerous warrior-dominated polities vied with each other in Archaic Italy, but one of them, sitting on a ford of the river Tiber, ultimately rose to be the greatest military power produced by the ancient Mediterranean world: Rome. The Roman legions first won and then ensured the security of a Mediterranean-wide empire that stood for 700 years and evolved ultimately into world's first standing army of professional volunteers. The Roman military system holds our attention for the final third of the course. The course defines warfare broadly to include both tactical and strategic, as well as cultural and ideological, matters. Even this canvas is too vast to be surveyed in all its richness, so the major themes explored are: (i) what is war, where does it come from, and how did it change as civilization spread?; (ii) in what ways did warfare develop in the periods under study, in terms of strategy, tactics, and weapons technology?; (iii) how do different warfare practices reflect essential facets of the various cultures under consideration?

Cross-listed with: CAMS 180
 Bachelor of Arts: Humanities
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning

HIST 181: Introduction to the Middle East

3 Credits

The course offers a survey of the history of the Middle East from the rise of Islam to the present day. The course introduces students to structures of power, society, and economy in three distinctive periods: 1) the rise of Islam and the caliph era; 2) the pre-modern Ottoman era; 3) the modern era. The course also introduces students to some of the art, architecture, and literature of each period. Students will thus gain some depth in each period of history and acquire a broad view of change over time.

Cross-listed with: JST 181
 Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Key Literacies

HIST 182: Asian Trade: Economy, Industrialization and Capitalism in Asia

3 Credits

An historical overview of economy, industrialization, globalization and capitalism in Asia from the 16th century to present. ASIA (HIST) 182 Asian Trade: Economy, Industrialization and Capitalism in Asia (3) (GH;IL) (BA) This course meets the Bachelor of Arts degree requirements. Asian economies have experienced spectacular growth in the second half of the 20th century. But this growth is part of a longer story of Asian commerce and trade and its relationship to and integration with (and, in some cases, isolation from) global patterns of exchange. Moreover, these exchanges are best understood alongside the politics, society, and culture—sometimes local, sometimes regional—that shaped trade and business in entrepots, capitals, and hinterlands throughout Asia. This course begins with a historical exploration of the economic development and social change and ends by asking what lies in store for one of the world's fastest growing economic regions. By offering a historical frame for Asian economic experience, students will gain insight into the strengths and weaknesses of prevailing theories that tend to overstate centralized control, market mechanisms, and cultural determination. Asian economies and markets are quite diverse, consisting of emerging and mature markets, making it difficult to view them through a single lens. As a result this course seeks to introduce students to a variety of conceptual frameworks in these countries. Examinations of the major economic players China, India, and Japan form the backbone of the course, but the precise geographic emphasis will vary with instructor, and may also include discussions of Japan, Korea, Vietnam, Singapore, Indonesia, Taiwan, and other Asian states. Themes of the course will vary depending on instructor, but may include industrialization, sustainability and the environment, gender and labor, protest and political reform, and consumerism and advertising, among others. The course will also offer a general introduction to economic theories that underpin the concepts of globalization, capitalism, and socialism as they are understood in an Asian context. This course is intended as an introduction to Asia for those with particular interests in Business, Economics, Global Studies, Labor, and/or Government. Through weekly readings, films and class discussion students will be introduced to the development of Asian economies in the global context.

Cross-listed with: ASIA 182
 Bachelor of Arts: Humanities

International Cultures (IL)
General Education: Humanities (GH)

HIST 183: Gender, Family, and Society in East Asia

3 Credits

This course tracks the changes in East Asian gender roles, relationships, and family life from 1800 to the present, placing private life at the center of the history of China, Japan, and Korea. Among the topics covered are the examination of gender and family life in early modern East Asia, considering topics such as marriage customs, the cult of female chastity, birthing practices, male-male sexuality as well as tracing the remarkable shifts in gender and private life in East Asia beginning in the nineteenth century and continuing to the present. The course will likely also cover issues such as women's liberation, changing expectations for courtship, marriage and sex, homosexuality, cross-dressing and androgyny, gender and revolution, and the state's role in regulating sex and procreation.

Cross-listed with: ASIA 183
Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures
International Cultures (IL)
General Education: Humanities (GH)
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Key Literacies

HIST 184: Society and Culture in the Pacific War

3 Credits

This course examines will explore the origins, nature, and consequences of World War II in the Pacific. Moving beyond the common American focus on the war as a U.S.-Japanese conflict, it will explore the different nations, political movements, ideologies, and empires that clashed across Asia-Pacific from 1931 to 1945. Topics include the culture and society of modern Asia in the periods immediately before, during and after the Pacific War. This course looks at social and historical roots of the war across Asia from the 1890s to the present to better understand the causes of the war and the affect it had on people throughout Asia.

Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures
International Cultures (IL)
General Education: Humanities (GH)
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Key Literacies

HIST 186: The Silk Roads

3 Credits

Taking cross-cultural communication and connectivity as its central themes, this course explores the central role that the silk roads and Indian Ocean maritime routes have played throughout Eurasian history. The course provides a historical survey of the land and sea routes and networks connecting Europe and Asia, the peoples and cultures that flourished along these routes, and a variety of exchanges that took place by way of these routes. The course develops insight into trends and patterns over a long period of history, from ancient to modern times; the course also focuses on distinctive periods of history when patterns were

disrupted and reformed, and when relationships changed among the peoples and states involved in the silk roads and maritime routes.

Cross-listed with: ASIA 186, JST 186
Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures
International Cultures (IL)
General Education: Humanities (GH)
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Key Literacies

HIST 187: Global Taiwan

3 Credits/Maximum of 3

This course examines the historical, cultural, and ethnic dimensions of Taiwan over several centuries to the present day. Taiwan's rich history and important economic role in contemporary East Asia clashes with its exclusion from international organizations like the UN and WHO and resultant international isolation. This class will examine the history and culture of Taiwan to better understand how it got here and where it might go. Topics covered will include the Dutch incursions in "Formosa," Japanese colonization, years of military dictatorship and cross-straits tension, rebirth as one of the four "Asian Tiger" economies, and its current rowdy democracy and warming ties with the People's Republic of China. We will also explore the literature, film, and culture of this multi-ethnic, multi-lingual, and multi-cultural island.

Cross-listed with: ASIA 187
International Cultures (IL)

HIST 188: Tibet: People, Places and Spaces

3 Credits

Few places generate as much curiosity, interest, or controversy, in the Western mind than Tibet. This course examines Tibet from a variety of perspectives from Tibet's political unification under a single ruler in the seventh century up to Tibet's incorporation into the People's Republic of China in the latter half of the twentieth century. Adopting a Tibet-centered focus, this course examines three core dimensions of Tibet namely its people, its religion and its strong sense of place to allow for a more nuanced and comprehensive understanding of Tibet to emerge. No background or specialized knowledge about Tibet is expected though a willingness to read primary documents on a variety of religious, ethnic and political themes will be quite useful. In this course students can expect to gain an appreciation for how religion, history and politics contribute to contemporary portrayals of Tibet, Tibetans and their society.

Cross-listed with: ASIA 188
International Cultures (IL)
General Education: Humanities (GH)
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Key Literacies

HIST 190: The Middle East Today

3 Credits

This course introduces students to the peoples and places of the contemporary Middle East. The course engages students in discussion of themes that are pertinent to the region and to contemporary issues, including demographic change, youth culture and university life, human rights issues and activism, the trauma of war, effects of globalization,

ecology, and the environment. Exploring the Middle East in the present with attention to historical context, students will examine a variety of sources, including news media, novels, stories, poetry, films, soap operas, blogs and vlogs.

Cross-listed with: JST 190
 Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Key Literacies

HIST 191: Early African History

3 Credits

The course is an introduction to the history of Africa south of the Sahara from the origins of humankind to roughly 1750 with a focus on common themes in the cultural and historical development of African societies. Themes include (but are not limited to): Ancient Egypt, Africa's place in the Greco-Roman world, Early African Christianity, Islam in Africa, European contact, and the Atlantic Slave Trade

Cross-listed with: AFR 191
 Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Key Literacies

HIST 192: Modern African History

3 Credits

This course offers an overview of the history of Africa from 1750 to the present. The course introduces students to the diversity of Africa's geography, demography, and history and investigates the experience of modern history through specific, regionally distinct, examples. Students will learn about structures of power, society, and economy in the colonial and post-colonial era in comparative terms, and about a variety of cultural forms and expressions.

Cross-listed with: AFR 192
 Bachelor of Arts: Humanities
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Key Literacies

HIST 192H: Modern African History

3 Credits

This Honors course offers an overview of the history of Africa from 1750 to the present. The course introduces students to the diversity of Africa's geography, demography, and history and investigates the experience of modern history through specific, regionally distinct, examples. Students will learn about structures of power, society, and economy in the colonial and post-colonial era in comparative terms, and about a variety of cultural forms and expressions. The honors course takes time to go into

greater depth in a few selected topics, with attention to primary sources, historical method, and historiographic trends.

Cross-listed with: AFR 192H
 Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Humanities (GH)
 Honors
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Key Literacies

HIST 193: Modern Iran

3 Credits

This course covers the history of modern Iran from the late nineteenth century to the present day. The course examines significant events and historical trends with attention to local, regional, and global contexts, and examines causes and consequences of policies, protests, and revolutions from a variety of sources and perspectives. Through class lectures and discussions, and reading and written assignments, students will learn important terms, concepts, contexts, individuals, and events. They will learn to identify and analyze trends and patterns in Iran's history, make meaningful comparisons, locate specific events in meaningful context, and explain their significance. By the end of the course students will be able to explain current events in terms of Iran's long history of revolution as well as in terms of the more immediate history of the Islamic republic. Students will be able to discuss how the modern history of Iran is an example of larger historical trends of the twentieth century.

Cross-listed with: JST 193
 Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Key Literacies

HIST 194: Jerusalem: Sacred and Profane

3 Credits

Jerusalem, a city sacred to Judaism, Christianity, and Islam, is often depicted as the spiritual and physical center of the world. Throughout its 5000-year history, Jerusalem has attracted diverse cultures, empires, and peoples who have vied for control of this city that is both religiously significant and a very ordinary site of urban life. Jerusalem: Sacred and Profane surveys the archaeological, religious, cultural, political, social, and historical record of Jerusalem in the ancient, medieval, and modern periods. We will explore a series of themes in the city's history: the built urban environment, political power in and over the city, sacred sites and pilgrimage, the everyday experiences of Jerusalemites, the changing cultural meanings of the city across various religious and national traditions, and war, violence, and memory in the urban landscape. The significance of Jerusalem's past, its impact on contemporary society and politics in the modern Middle East, and differing visions for this contested city's future are examined in light of various interpretations of the historical evidence.

Cross-listed with: CAMS 194, JST 194, RLST 194
 Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

HIST 195: Genocide in Global perspectives: Twentieth Century and beyond

3 Credits

The history and memory of the Holocaust, the Armenian, Cambodian and other forms of genocide are often taught separately in different disciplines. This course will examine them together through the various ways different societies dealt with, experienced and understood these. Using the extensive literature on the history of genocide this course further suggests ways in which these tragic events affected and were entangled by each other's. Specific content will vary according to individual instructor, but topics may include victim cultures, ethnic cleansing, trauma, human rights, dark tourism, memorials, architecture as well as the general impact of these tragedies on global politics, or the way the memories of the tragedies were entangled with the civil rights and other struggles in American and global history.

Cross-listed with: GER 123, JST 195

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

HIST 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Humanities

HIST 197G: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

General Education: Humanities (GH)

HIST 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Humanities

International Cultures (IL)

HIST 200: American Local History

3 Credits/Maximum of 6

Topics in American local history relating local to national developments and studying the historical method by using primary source material.

Prerequisite: HIST 020 or HIST 021

Bachelor of Arts: Humanities

United States Cultures (US)

HIST 203N: History of Monsters, Aliens & the Supernatural

3 Credits

HIST 203N course considers the role of the supernatural and otherworldly forces in a variety of human societies. The course focuses on narratives of the supernatural/anomalous, as well as the social power that such stories can afford their tellers, who may include poets, writers, filmmakers, journalists, and camp counselors, among many others. Students will read and analyze texts from history, folklore, anthropology, and popular media. A primary tool for describing and understanding the supernatural in human history is ethnography; as such, ethnographic texts dealing with the supernatural will also form an important component of the course, and students will have the opportunity to conduct ethnographic research of their own. In all cases, supernatural beliefs will be considered in their social contexts, rather than as texts divorced from the lives of groups and individuals.

Bachelor of Arts: Humanities

International Cultures (IL)

United States Cultures (US)

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

HIST 210: Freedom's First Generation: African American Life and Work, from the Civil War to World War II

3 Credits

HIST/AFAM 210 explores the context and events that shaped African American life during the post-abolition period from the U.S. Civil War until WW II. The course begins with a comparative examination of the decline of African slavery and of emancipation throughout the Americas, and then focuses on Black lives in the United States. The course explores a wide range of topics, including: Black identity in the U.S., the criminalization and disposability of Black bodies, Reconstruction, Jim Crow Laws, lynching, forced labor, the rise of African American leadership, gender and reproduction under slavery and in freedom, the development of protest strategies, the impact of industrialization and urbanization, and the significance of African American culture and art.

Cross-listed with: AFAM 210

Bachelor of Arts: Humanities

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

HIST 211: Slavery and Freedom in the Black Atlantic

3 Credits

This course examines the history of African and Afro-descended people throughout the Atlantic world from the 15th through the 21st centuries. Historical topics include African societies before and after the advent of European trade systems, the Atlantic Slave Trade, the role of enslaved Africans in the conquest, establishment, and independence of the Americas, and the role of free and freed Afro-descended people in resistance, in service, and as citizens of American colonies and nations. This course compares and contrasts the systems of slavery that appeared throughout the Americas, the resistance that developed against these systems, and the nations that developed out of these institutions.

Cross-listed with: AFAM 211

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

HIST 212N: Earthquakes and Human History

3 Credits

A natural disaster is the result of a natural hazard impinging upon human society. In this course we examine seismicity as a geophysical phenomenon and as a natural hazard that interacts with the built environment and the social structures of human societies. Whenever possible, we approach this subject historically. Among other topics, we examine the history of how earthquakes have been understood as well as the impact of earthquakes and seismicity on the history and development of certain societies. Our specific perspectives include: Earthquakes as understood by modern and contemporary earth science Major conceptions of earthquakes in the past Impacts of seismic hazards on the built environment of past societies Impacts of seismic hazards on politics, economic development and social policies of past societies Seismic hazards, earthquake-related technology, and contemporary societies By examining earthquakes in these ways, the study of earthquakes becomes a vehicle for enhancing skills in analytical reasoning. In particular, this course focusses on applications of modern scientific analysis and the approaches commonly employed in historical investigation. Specific skills addressed in this course include, processing and quantifying information, problem solving using evidence and sound reasoning, and expressing ideas with clarity. Immersion in the study of earthquakes affords an opportunity to think more broadly about how people have dealt with natural disasters in the past and to explore the roles that science, technology, and social policy play in defining and addressing natural hazards in contemporary societies and in the future. Class meetings include lectures, discussions, and in-class activities. We analyze scientific observations that have led to increased understanding of earthquakes, earthquake hazards and risk. We also make extensive use of case studies as concrete examples of different types of earthquakes, the historical evolution of ideas about earthquakes, and the range of social impacts of earthquakes. Reading assignments provide essential background for class sessions.

Recommended Preparation: 3RD SEMESTER STANDING

Cross-listed with: GEOSC 212N

General Education: Humanities (GH)

General Education: Natural Sciences (GN)

General Education - Integrative: Interdomain

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

HIST 213Y: African American Women's History

3 Credits

This course examines the social, political, and economic history of African American women in the United States from slavery to the present. Using secondary and primary sources along with film and discussion, we will explore the varied lived experiences of African American women paying special attention to the themes of family, sexuality, labor, politics, and religion. We will examine how the simultaneity of racial and sexual oppression influence African American women's actions. Additionally, we will consider dominant images of African American women in a historical context. While the course is primarily discussion in format, the professor will lecture when necessary. As the course is writing-intensive, papers of various lengths constitute the bulk of student assessment.

Cross-listed with: AFAM 213Y, WMNST 213Y

Bachelor of Arts: Humanities

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

Writing Across the Curriculum

HIST 238N: Society and Culture in Palestine/Israel

3 Credits

The course provides students with basic knowledge on major topics in Palestinian and Israeli societies and cultures with a thematic analysis of these topics. It examines the encounter between Palestinians and Israelis from a perspective that questions our ability to understand them separately and it emphasizes interdependency between the Israeli-Palestinian conflict and internal tension within Palestinian and Israeli societies. Some of the major themes under discussion are: the place of religion in defining national identities and boundaries, intra-ethnic divides, competing discourses of citizenship, the fragile status of Palestinian citizens and non-citizens under the Israeli control system, struggles over collective memory, and the place of gender and sexuality in the conflict. The course emphasizes the intersection of politics and culture, demonstrating the political relevance of cultural fields such as music, cinema, and sports.

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

HIST 240Q: Artistic Patronage in Europe

3 Credits

This course surveys the institutions and social networks in which European fine arts were created, consumed and critiqued. Beginning with the medieval period and ranging to the early 20th century, the course will examine the variety of communities where public and private often intersected and which sponsored innovations in the arts. Often indexing social movements and political change, such communities include convents and cathedrals, royal academies and courts, coffee houses, salons, and theaters. Artists, performers, patrons, politicians, journalists, and others collaborated and competed in these spaces. Such communities could embody political and economic power, or foster resistance to it. This approach to the history of the arts in western culture puts the focus less on the individual creative genius of great composers, writers, painters, and sculptors, and more on the social exchanges and institutions that sponsored and received their work. Such an approach brings to light particularly the ways in which women played significant roles in the production and reception of culture: as salon hostesses, patronesses, and divas, women often enabled and enacted cultural production. Some examples of particular units of study might include: the German convent of Hildegard of Bingen (1098-1179), where monophonic chant and allegorical morality plays developed; the Mantuan (Italy) court of Isabella d'Este, the first lady of the world, (1474-1539) where the roots of the madrigal began and where notable painters found support and sponsorship; the French salons of Mme. Geoffrin (1699-1777) and Mme. de Staël (1766-1817); and the student residences in Madrid where avant-garde writers and artists interacted. Each unit will also consider the relationships between the aesthetic norms and values of a period and the economic and political realities of sponsorship. The course will require that students attend at least one musical performance or concert held on campus during the semester and complete a brief writing project based on that experience. This requirement will encourage students to think about their own university as a contemporary space of cultural sponsorship.

Cross-listed with: CMLIT 240Q, IT 240Q, WMNST 240Q

International Cultures (IL)

General Education: Arts (GA)

General Education: Humanities (GH)

General Education - Integrative: Interdomain

Honors

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

HIST 245: Middle Eastern Cities

3 Credits

This class explores the history of Middle Eastern and North African cities in the 19th-21st centuries. Cities are more than an agglomeration of buildings and bodies; they are also sites of tremendous political, economic, social, and cultural meaning, contestation, and change. The class focuses on the intersection of various urban settings (house, market, street, neighborhood), themes (sacred spaces, gender in the public sphere, sectarianism), and historical forces (nationalism, colonialism, war, revolution). The class draws on a wide range of primary sources such as memoirs, music, poetry, literature, and film, as well as

multidisciplinary scholarship in history, anthropology, sociology, and architecture.

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

HIST 250: Introduction to the Caribbean

3 Credits

A survey course exploring the emergence and historical evolution of the modern Caribbean. This course will explore the evolution of the Caribbean region from the eve of the arrival of Columbus to the 21st century. It will explore Indigenous societies prior to the arrival of Columbus and the interactions that lead to their destruction and the consolidation of European colonial empires. We will explore the coercive labor systems that emerged in the region including indentureship, Indigenous enslavement, transportation of Europeans, the establishment of African slavery, and the establishment of the plantation system that defined the region until the 20th century using both free and unfree labor to maintain its dominance in these island societies. Themes examined will include revolutions in Haiti and Cuba, the struggle for independence, slavery and racial hierarchy, the rise of U.S. neo-colonialism and hegemonic control in the region, nationalism, tourism, and the economic underdevelopment that defines the Caribbean until today.

Cross-listed with: AFAM 250

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

HIST 252: Revolutions in the Middle East

3 Credits

The "Arab Spring" of 2011 that spread rapidly across the region and featured movements for democratization, social justice, and minority rights collapsed into authoritarian military rule, struggles over the role of political Islam, sectarian and civil violence, massive refugee flight and urban destruction, and outside intervention. This course places the 21st century Middle Eastern revolutions and their aftermath in a broader historical perspective. What were the political, economic, religious, social, and geopolitical factors that contributed to the outbreak of revolution throughout the region? In which ways were these revolutions new, and in which ways were they extensions of earlier, unresolved struggles? How can we understand the distinct trajectories of revolution and counter-revolution across the region? We will focus on several country case studies framed against their late 19th and 20th century histories. The class integrates extensive interdisciplinary and multi-media sources, including novels and memoirs, movies and songs, websites and twitter feeds.

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

HIST 255N: History of the Book

3 Credits

HIST 255N studies the global history of the book broadly conceived, from oracle bones to "born digital" materials. The course will examine major developments including the invention of parchment and paper, the prevalence of woodblock printing in East Asia, the influence of printing in early modern Europe, Latin American writing systems, and the rise of the world wide web. Major themes include book-making technologies, the interplay of form and decoration, the social impact of printing, and the social context of reading practices. Students will combine course readings with hands-on experience examining materials in the Penn State Library's Special Collections and the Palmer Museum.

Bachelor of Arts: Arts
 Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Arts (GA)
 General Education: Humanities (GH)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

HIST 260: The Middle East in Film

3 Credits

Through the medium of film, HIST/JST 260 examines the contemporary and historical transformation of the Middle East from the Ottoman period, through the British and French mandates, and the eventual establishment of the modern nation-states. This course analyzes the political-religious-social tensions of this region, and through film illuminates many of the conflicts in a different light. This course engages in specific film define certain moments in the contemporary history of the Middle East. The films reveal the culture perception of politics, the Arab-Israeli conflict, views on and of religious and ethnic minorities, women and gender issues, carious elements of political Islam, and the generational shift in politics and culture. The course will watch, analyze and engage in films (with subtitles) from - among other states - Iran before and after the revolution, Turkey, Israel, Palestine, Egypt, and Tunisia.

Cross-listed with: JST 260
 Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 General Education: Humanities (GH)
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

HIST 266Y: Sexuality and Violence in Nineteenth-Century America

3 Credits

HIST/WMNST 266Y explores the social and cultural history of sexuality and violence in the United States during the nineteenth century. Both

sexuality and violence are extremely broad topics, and the course will focus on a few intriguing elements of sexuality and violence, including courtship, prostitution, the early popular culture of sports, slavery, military violence, exploitative journalism, and sexuality and violence as metaphor. The course also examines the "creation" of homosexuality in the nineteenth century, and manner in which masculinity has been historically constructed.

Cross-listed with: WMNST 266Y
 Bachelor of Arts: Humanities
 United States Cultures (US)
 General Education: Humanities (GH)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies
 Writing Across the Curriculum

HIST 292N: Witches and Witchcraft from the Middle Ages to the Present

3 Credits

This course will explore the social and cultural history of witches and witchcraft from the late Middle ages in Europe and the U.S. to the present. The very nature and broad scope of the topic lends itself to an interdisciplinary approach that combines history, folklore, religious studies, criminology, women's studies, art history, English literature and popular culture. Historically, real individuals were accused of witchcraft and suffered persecution and punishment accordingly. Others proclaimed themselves to be witches and the practice continues to attract adherents today such as in the modern Wiccan movement. However, modern consensus views witches as fictions: figures of magical power in folklore, literature, visual art and popular culture. From Shakespeare's Macbeth to the characters in the popular Harry Potter books and films, fictional witches have haunted European and American culture for centuries. This course will explore the complex interplay of fact and fiction in the history of witches and witchcraft. In other words, how do fictions become powerful enough to inform history? The course will also focus on the historical status of witches as a source of power outside of, and in opposition to, established political, religious and social structures. Since those accused of witchcraft were predominately women, how has witchcraft functioned as a means of empowerment for women as well as a tool for their persecution? And how has the representation of witches influenced attitudes towards women both historically and today? The course will begin with an historical inquiry into the belief in witchcraft during the late Middle Ages in Europe and the social and cultural role witches played in society. We will look at texts such as the Malleus Maleficarum (Hammer of Witches) published in 1486 as a guide for hunting and destroying witches, as well as studies on the more constructive role witchcraft may have offered women and communities. The course will be organized chronologically and move back and forth between history, such as the Salem witch trials, and the representations of that history in art, literature and film. Particular emphasis will be placed on the visual arts, from the engravings of German Renaissance artists such as Albrecht Durer and Hans Baldung Grien, the gothic paintings of Francisco Goya during the Romantic period, to contemporary artist Louise Bourgeois' monument to those executed as witches in Norway. The course will end with analysis of images of witches in popular culture, movies and television, and with a discussion of the modern representations of the domesticated witch and the femme fatale.

Cross-listed with: ARTH 292N
 International Cultures (IL)

United States Cultures (US)
 General Education: Arts (GA)
 General Education: Humanities (GH)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Soc Resp and Ethic Reason

HIST 294: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Humanities

HIST 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Bachelor of Arts: Humanities

HIST 296A: **SPECIAL TOPICS**

1-6 Credits

Bachelor of Arts: Humanities

HIST 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Humanities

HIST 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Humanities
 International Cultures (IL)

HIST 301W: Scope and Methods of History

3 Credits

A course designed to introduce students to the analysis, methods, and practices of historical writing and research.

Prerequisite: 3 credits in history
 Writing Across the Curriculum

HIST 302M: Undergraduate Seminar

3 Credits

Thematic or topical investigation; emphasis on historical criticism and analysis.

Honors

Writing Across the Curriculum

HIST 302W: Undergraduate Seminar

3 Credits

Thematic or topical investigation; emphasis on historical criticism and analysis. HIST 302W Undergraduate Seminar (3)(BA) This course meets the Bachelor of Arts degree requirements. The principal aim of the course is to assist in training History Majors in writing, analysis, and criticism by pursuing the study of one historical topic in detail. The precise contents of the course may vary in accordance with the teaching and research interests of the instructors. The course is not a conventional lecture course. It is, instead, designed in the seminar format with emphasis on discussion, sequential writing assignments, and further developing the core skills of the historian. Several features reflect its writing intensive designation. The course requires a series of writing exercises (with on-going instructor feedback), attention to relevant methods of research, all leading to the production of a final seminar paper. The final paper should effectively advance a reasoned argument derived from multiple sources (a portion of which must be primary sources when the historical topic permits).

Prerequisite: 4th semester standing
 Bachelor of Arts: Humanities
 Writing Across the Curriculum

HIST 305Y: Middle East Studies Research Workshop

3 Credits/Maximum of 6

The course is a research seminar for undergraduates majoring in Middle East Studies and for students interested in pursuing a sustained research project on a topic related to the Middle East. Course topics on the Middle East will vary according to the interests of the instructor. This course is writing-intensive with attention to developing, drafting, and producing a quality research paper over the course of the semester.

Cross-listed with: JST 305Y
 Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 Writing Across the Curriculum

HIST 320: Contemporary World History and Issues

3 Credits

Aspects of global history in 20th and 21st centuries and study of selected trends and controversies.

HIST 320W: Contemporary World History and Issues

3 Credits

Aspects of global history in 20th and 21st centuries and study of selected trends and controversies.

Writing Across the Curriculum

HIST 395: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Prerequisite: prior approval of proposed assignment by instructor
Bachelor of Arts: Humanities

HIST 399: Foreign Study–History

1-12 Credits/Maximum of 12

Study in selected foreign countries of various periods and topics in history.

Bachelor of Arts: Humanities
International Cultures (IL)

HIST 400: Global History of Food and Famine

3 Credits

This course examines different case studies of agriculture, food production, and food availability in diverse settings to show how access to food and its denial intersects with ethnic and nationalist politics, imperial and colonial encounters, and global asymmetries. The course reveals the close association of food to social and cultural identities and to conflicts in a global history framework. Spanning case studies from the Irish Potato Famine of the mid-nineteenth century to the Russian Famine of early twentieth century to the Bengal Famine of mid-twentieth century, the course focuses on disparity in access to food for social classes. It focuses on discrete social classes (landlords, farmers, labor, women), but also on modernizers, agronomists and scientists, on state, and on global diplomacy and developmentalist perspectives in the post-World War II era to show the embeddedness of food production and consumption in social relations and in emergent political economy contexts.

Prerequisite: 3 credits in HIST
Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures
International Cultures (IL)

HIST 402N: Russian Economic History

3 Credits

Russia is the largest country on earth. It has had a major influence on world events, especially during the Soviet period. The Soviet period represents the greatest economic experiment ever undertaken. Russia has had a vast imperial experience, and its economy has proven capable of producing nuclear weapons and space exploration. Yet, its economy remains dependent on natural resources. Russia is a literary, nuclear and geopolitical superpower but not an economic superpower. This juxtaposition is unique. The aim of the course is to provide a review of Russian economic history together with main concepts explaining the peculiarities of economic and institutional development of the country. The course combines historical narrative with formal economic analyses. We will utilize both an economics and a history perspective. We will explore the development of the Russian economy in the Tsarist period, the abolition of serfdom and Russian industrialization before the Russian Revolution, and we will explore the economic history of the Soviet period. We will also explore the interaction of economic history with social history. The course will conclude by examining the myriad economic and social difficulties encountered in transitioning from a socialist to capitalist economy.

Enforced Prerequisite at Enrollment: ECON 102 and ECON 104
Cross-listed with: ECON 472N

Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)
General Education: Humanities (GH)
General Education: Social and Behavioral Scien (GS)
General Education - Integrative: Interdomain
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Key Literacies

HIST 403: Alexander the Great and the Hellenistic World

3 Credits

The career of Alexander, his impact on his own time, and the Hellenistic legacy.

Prerequisite: HIST 100
Bachelor of Arts: Humanities
International Cultures (IL)

HIST 404: Advanced Public History

3 Credits

Public historians build essential bridges between ordinary citizens and the knowledge and understanding of the past required by any self-governing society. Knowing how time has acted upon a society, how things came to be the way they are, helps individuals and groups move toward where they want that society to go, what they want it to become. This class will lay the groundwork for what is expected of public historians in the many professional settings available to them, which include museums, art galleries, national parks, historical societies, non-profit organizations, park and recreation commissions, historic homes, battlefields, foundations, corporations, government departments, preservation organizations, archives, libraries, living history organizations, tourism councils, convention and visitors' bureaus, and universities. This course allows students to experience of some of these roles and places, and more importantly, to develop a lived sense of how they all can fit together in an individual career. The course does this partly in the classroom and partly through direct engagement with doing public history, well-supported by faculty and classmates. The course invites students to meet public historians and to participate in the public history process - mobilizing accurate history to stimulate emotions that then produce citizen engagement. The heart of public history practice involves sharing authority with audiences and confronting the line between entertainment and education. The first several weeks of the course introduce students to specific elements of practice and examples of public history, followed by an extended public history work project that can be actual and/or virtual. After the completion of the project, students gather to reflect on their practice and develop a deeper theoretical understanding of what they have come to know. Together, the three sections of the course create the capacity, and the motivation, to become active public historians either as professionals or as participants in the communities students will encounter in their own lives.

Prerequisite: HIST 020 or HIST 021 or HIST 001 or HIST 002
United States Cultures (US)

HIST 405Y: The Roman Empire

3 Credits

The political and social history of the Roman empire; economic institutions and religious groups which influenced Roman administration.

Prerequisite: HIST 001 , HIST 101 , or 3 credits in classical studies

Bachelor of Arts: Humanities

International Cultures (IL)

Writing Across the Curriculum

HIST 406W: Research in Medieval Sources

3 Credits

Guided research in the literature of medieval Europe.

Prerequisite: HIST 001

Writing Across the Curriculum

HIST 407: Early Medieval Society

3 Credits

Rise of European nations and evolution of their social and political institutions from the time of Constantine to the Crusades.

Prerequisite: HIST 107

Bachelor of Arts: Humanities

International Cultures (IL)

HIST 408: Church and State in the High Middle Ages

3 Credits

European political, institutional, and social history in light of church- state tensions from the Crusades to the Renaissance.

Prerequisite: HIST 107

Bachelor of Arts: Humanities

International Cultures (IL)

HIST 409Y: Antisemitisms

3 Credits

Surveys the history of anti-Semitism from antiquity through the Middle Ages to the present. HIST (J ST) 409Y (RL ST 407Y) European Anti-Semitism from Antiquity to the Present (3) (IL)(BA) This course meets the Bachelor of Arts degree requirements. This course analyzes major episodes in the history of anti-Semitism and tries to clarify the motives and dynamics involved. It seeks to understand what these episodes have in common and what is unique in each case—is there a single universal, eternal antisemitism? Or are there rather 'anti-Semitismisms' each belonging to a unique historical context? Is there a single continuous line of development in anti-Semitism? What is the relationship of a particular anti-Semitism to the national culture in which it originates? We will be reading the major original texts of anti-Semitism from Roman and ancient writers, through early Christian texts and medieval Christian Blood Libels against the Jews, documents of the Spanish expulsion, Lutheran tracts, Voltaire's essays, German philosophical texts from Kant to Marx, Wagner's racial essays, the Protocols of Zion, and documents of Nazi anti-Semitism by Hitler and Streicher. The major part of the grade will depend on a short research paper which will be presented in various drafts, so that the final version represents the culmination of discussion and constructive criticism and advice. This course is a parallel course

to J ST/HIST 416 (Zionist History) and J ST/HIST 118 (Modern Jewish History). This course will count toward the Religious Studies, Jewish Studies, and History majors and minors in the 400-level category.

Cross-listed with: JST 409Y, RLST 407Y, RLST 409Y

Bachelor of Arts: Humanities

International Cultures (IL)

Writing Across the Curriculum

HIST 410: Jews in the Medieval World

3 Credits

Trends in medieval Jewish society under Islam and Western Christendom. HIST 410 HIST 410 Jews in the Medieval World (3) (US;IL)(BA) This course meets the Bachelor of Arts degree requirements. The Jews lived in widely scattered communities under Christian and Islamic rule in the medieval period. This course will examine how Jews adapted the traditions they developed in Palestine and Babylonia in the early centuries C.E. to the new conditions they encountered in Europe and the Mediterranean region from the ninth to the fifteenth centuries. It will focus on the general problem of how traditional societies survive in rapidly changing circumstances, particularly when their members are a minority population. The course will aim at developing students' skills in comparative analysis as they compare the adaptive strategies of Jews in different cultural spheres (the Franco-German region versus Spain, for example). They will also be asked to compare the different polemical stances Jews adopted vis-a-vis Christianity, on the one hand, and Islam, on the other. They will be encouraged to understand the ways in which Jews internalized certain aspects of the majority culture and rejected others. It is hoped that they will come to see how deeply Jewish history was intertwined with medieval Christian and Islamic history, despite inter-religious hostilities and the frequent need for Jews to defend against majority aggression. Students will be evaluated on the basis of two mid-term exams (the first after the survey of the Muslim world, the second after the examination of the Franco-German region) and a comprehensive final exam. The course will be linked to most of the courses taught in the field of Jewish Studies, especially J ST 111 (Early Judaism), J ST 114 (Modern Judaism), and J ST 118 (Modern Jewish History from 1492). It will also be linked to offerings in Religious Studies: RL ST 001 (Introduction to World Religions), RL ST 101 (Comparative Religion), RL ST 107 (Introduction to Islam), RL ST 124 (Early and Medieval Christianity), and RL ST 165 (Introduction to Islamic Civilization). Further, it would complement HIST 001 and 002 (The Western Heritage), HIST 107 (Medieval Europe), HIST 108 (The Crusades), HIST 407 (Early Medieval Society), HIST 408 (Church and State in the High Middle Ages), HIST 412 (Intellectual History of the Middle Ages), and HIST 471W (Classical Islamic Civilization, 600-1258). The course will count for 3 credits toward: a) the 22 credits required for the minor in Jewish Studies, b) the 33 credits required for the major in Jewish Studies, c) the 30 credits required for the major in Religious Studies, and d) the 36 credits required for the History major. It will be offered once a year with an enrollment of approximately 60 students.

Cross-listed with: JST 410, RLST 410

Bachelor of Arts: Humanities

International Cultures (IL)

United States Cultures (US)

HIST 411: Medieval Britain

3 Credits

Political, cultural, and economic history of Britain from circa 400 to 1485 with an emphasis on the kingdom of England.

Prerequisite: 6 credits in European history or medieval studies

Cross-listed with: MEDVL 411

Bachelor of Arts: Humanities

International Cultures (IL)

HIST 412: Intellectual History of the Middle Ages

3 Credits

Intensive study of selected topics, such as philosophy, mysticism, heresy, the church, literary and artistic expression, and science.

Prerequisite: HIST 107

Bachelor of Arts: Humanities

International Cultures (IL)

HIST 413: Medieval Celtic Studies

3 Credits

Celtic civilization from antiquity to the end of the middle ages.

Prerequisite: 3 credits in medieval studies, or in language, literature, or European history of the medieval period

Cross-listed with: MEDVL 413

Bachelor of Arts: Humanities

International Cultures (IL)

HIST 414: Renaissance and Reformation

3 Credits

The transformation of consciousness from medieval to modern times, with special emphasis on Renaissance Italy and Reformation Germany.

Prerequisite: HIST 001

Bachelor of Arts: Humanities

International Cultures (IL)

HIST 416: Zionism

3 Credits

History of Zionist thought and politics to the foundation of Israel 1948.

Cross-listed with: JST 416

Bachelor of Arts: Humanities

HIST 417: The Age of Absolutism

3 Credits

Seventeenth- and eighteenth-century royal absolutism in France, Prussia, and Austria; concurrent economic, social, and scientific developments; the Enlightenment.

Prerequisite: HIST 001

Bachelor of Arts: Humanities

International Cultures (IL)

HIST 418: The French Revolution and the Napoleonic Era

3 Credits

Development of revolutionary France and the First French Empire and their impact on Europe from 1789 to the Vienna settlement.

Prerequisite: HIST 002

Bachelor of Arts: Humanities

International Cultures (IL)

HIST 420: Recent European History

3 Credits

Impact of two World Wars in twentieth century; social conflict and economic catastrophe; political radicalism; post-1945 recovery and cooperation.

Prerequisite: 3 credits in European history

Bachelor of Arts: Humanities

International Cultures (IL)

HIST 421: The History of European Women

3 Credits

European women's lives from the Middle Ages to the present.

Prerequisite: HIST 116 , HIST 117 , WMNST100 , or WMNST106

Bachelor of Arts: Humanities

International Cultures (IL)

HIST 423: Orthodox Christianity: History and Interpretations

3 Credits

Examines Orthodox Christianity from origins to present using critical historical analysis of primary and secondary sources. RLST 423 / HIST 423 Orthodox Christianity: History and Interpretations (3) (GH;IL) (BA) This course meets the Bachelor of Arts degree requirements. This course examines Orthodox Christianity from its origins to the present by focusing on a series of four major problems using critical historical analysis of primary and secondary sources.1) The course provides students with the means to examine Orthodox self-understanding:Orthodox doctrine of God, its anthropology. 2)The issue of a world religion and the relationship of Orthodoxy to other world religions and secular authorities and other forms of Christianity, especially "western"Christians. 3) The challenge of alternate world religions--Judaism, Islam, western Christianities. 4)The challenge of modern Orthodoxy in the context of twentieth and twenty-first century developments and issues.

Prerequisite: HIST 105

Cross-listed with: RLST 423

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

HIST 424: Comparative History of Sports and Politics

3 Credits

Although sport is popularly considered as a sphere separate from other aspects of social and political dynamics, this course illustrates the contrary reality that both active and passive involvements in competitive

sports have taken part in shaping and undermining social structures, political mobilizations, collective identities, patterns of domination, and more. This course takes a global and comparative perspective to follow the processes through which national, racial, ethnic, civic, religious, local, and gender identities have been constructed by sport. Special emphasis is given to: the relation between sports, colonialism, and anti-colonialism; sports as a political battleground for the production of meanings in ethno-national conflicts and colonial contexts; the importance of sport in deeply divided societies; and the implications of sport globalization on various collective identities. Theoretical themes are illustrated through various particular case studies from around the globe, including North America, Latin America, the Caribbean, Europe, Africa, India, the Middle East, and Papua-New Guinea.

Prerequisite: 3 credits in HIST
Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures
International Cultures (IL)

HIST 425: History of the Incas

3 Credits

This course examines the political, social, cultural, environmental and religious history of the Incas and their Andean subjects from the 15th century to the present. Via written and visual primary and secondary sources, the course explores how the Incas built the largest Indigenous empire of the Americas, and how their descendants and subjects experienced that empire's 16th century invasion and takeover by Spain's conquistadors, surviving to shape the world's adoption of their environmental innovations. The course will then survey how Incas and Andeans rose up against Spain in the 18th century, and in the 19th through 21st century fought against their economic marginalization by collaborating in the resurrection of the Incas as national, archaeological, and touristic ancestors in republican Peru, Bolivia, and Ecuador, with varying success.

Prerequisite: 3 credits in HIST
Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures
International Cultures (IL)

HIST 426: Holocaust

3 Credits

This course is an in-depth study of the history of the Holocaust in Europe that puts special emphasis on primary sources. HIST 426 / JST 426 Holocaust (3) (IL)(BA) This course meets the Bachelor of Arts degree requirements. The Holocaust stands out as the most terrible and challenging phenomenon of the 20th Century. Societies and the scholarship struggled for decades to fully grasp how much the Holocaust has questioned widely shared assumptions about modernity and progress. This course pursues the overarching question how the Holocaust could have taken place. Who were the perpetrators, victims and bystanders? How much agency did they have? How was the Holocaust organized? The course will encourage students to critically engage with the Holocaust, and will consider a variety of different kinds of sources and means of representation, including oral testimony, film and fiction, as well as more conventional documentation. After discussing some of the most important studies about the Holocaust and identifying the main historiographical debates, students will look at the origins and the evolution of the "Final Solution." The class will touch on the function of the "Ghettos," the role of the mobile killing

units, the extermination camps, and Jewish resistance. The course will also deal with Jewish responses to the Holocaust, notably with attempts to enable Jews to emigrate to safe countries; with efforts to alert the public to the systematic killing after 1940; and the support especially of American Jews for Jewish survivors and DPs. Apart from discussing the historiography, students will work mostly with primary sources. Students are expected to do extensive reading for this class and prepare oral presentations on their respective paper topic. The research paper for this course will be based largely on primary sources. Apart from discussing the historiography, the sessions will concentrate on the interpretation of primary sources: - documents created by the perpetrators, bystanders, and victims; - files relating to postwar trials of perpetrators; - photographs; - representations of objects relating to the Holocaust; - memoirs by survivors; - interviews with survivors and bystanders.

Prerequisite: J ST 010 , J ST 121 , or by consent of the program
Cross-listed with: JST 426
Bachelor of Arts: Humanities
International Cultures (IL)

HIST 427: Germany Since 1860

3 Credits

Bismarckian power-state; rise to economic dominance; welfare and warfare under Weimar republic and Hitler; post-1945 reconstruction and democracy.

Prerequisite: 3 credits in European history
Bachelor of Arts: Humanities
International Cultures (IL)

HIST 427H: Germany Since 1860

3 Credits

Bismarckian power-state; rise to economic dominance; welfare and warfare under Weimar republic and Hitler; post-1945 reconstruction and democracy.

Honors

HIST 428: The Darwinian Revolution

3 Credits

The origins and implications of evolutionary theory.

Prerequisite: an introductory science course and a history course
Cross-listed with: STS 428
Bachelor of Arts: Humanities
International Cultures (IL)

HIST 429: Europe in the Age of Nationalism, 1789-1914

3 Credits

Emphasizing the role of nationalism in European cultural, diplomatic and imperial developments; concurrent economic and social changes.

Prerequisite: HIST 002

HIST 430: Eastern Europe in Modern Times

3 Credits

Influence of geography, economic conditions, and nationalism upon the Eastern European and Balkan peoples; Pan-Slavism, conflicting interests of the great powers.

Prerequisite: HIST 001 or HIST 002

Bachelor of Arts: Humanities

International Cultures (IL)

HIST 431: Black Liberation and American Foreign Policy

3 Credits

This course deals with American foreign policy and Black liberation in Africa since 1945. AFAM 431 / HIST 431 Black Liberation and American Foreign Policy (3) (US;IL)(BA) This course meets the Bachelor of Arts degree requirements. Black Liberation and American Foreign Policy in Africa since 1945 presents an interdisciplinary approach to the study of American foreign policy in Africa. Course readings will consist of both secondary and primary sources to explore the evolution of American policy toward the continent over the last half-century, and the meaning of the American engagement with Africa for American politics and society. The course will also examine the reasons that Africa has served as a focus of concern among African Americans both prior to, and, over the period 1945 to the present. Of particular concern will be the ways in which American policy has reflected pressures from African Americans as a constituency in foreign policy. The focus of the course will be student-centered written research and discussion. Students will be required to select topics from the course outline for presentation in class with the instructor serving as the moderator of discussion and guide to relevant research materials. Students will be encouraged to use both primary and secondary sources for their research. Students will be expected to prepare two individual written presentations which will serve as the basis for class discussion (30% of the grade), a book review (10% of the grade), and a research paper of 15 pages (40% of the grade) on a topic drawn from the areas identified in the course outline. The final 20% of the grade will be awarded for participation in class discussion.

Prerequisite: 3 credits in African history; 3 credits in African political science; or 3 credits in American political science

Cross-listed with: AFAM 431

Bachelor of Arts: Humanities

International Cultures (IL)

United States Cultures (US)

HIST 432: Between Nation and Empire: The Caribbean in the 20th Century

3 Credits

An exploration of the political evolution of the Caribbean Region over the course of the 20th Century. HIST 432 / AFAM 432 Between Nation and Empire: The Caribbean in the 20th Century (3) (IL)(BA) This course meets the Bachelor of Arts degree requirements. This course will explore the political evolution of the Caribbean Region over the course of the 20th century. Its focus will be the ways in which imperial rule and the search for national identity have been the parameters that have shaped Caribbean political history over that period. Students will explore, in written assignments and class presentations, the ways in which the region which has historically been a theatre of confrontation among the major powers in the international system continued to serve that role over the course of the 20th century. The costs that have been borne

by the people of the region from these conflicts have been enormous and crippling for several societies, especially Haiti, Cuba, Jamaica, and the Dominican Republic. Among those costs have also been the continued dependence of these societies upon human migration, limited economic strategies of transformation, increasing levels of poverty, and the emergence of a wide variety of political systems that reflect different historical experiences, demographic diversity, varying levels of political autonomy, and a remarkable level of cultural similarities. Evaluation will be based upon two class presentations; one research paper and class participation. The course will be required for students pursuing the African Diaspora minor and for those seeking to broaden their diversity requirements. It can be used to meet non-Western history requirements in the History major.

Prerequisite: HIST 250

Cross-listed with: AFAM 432

Bachelor of Arts: Humanities

International Cultures (IL)

HIST 433: Imperial Russia, 1700-1917

3 Credits

Enlightened absolutism, mercantilism, westernization; economic progress, liberal reforms, and revolutionary movement; major intellectual and cultural trends; Russia as great power.

Prerequisite: HIST 141

Bachelor of Arts: Humanities

International Cultures (IL)

HIST 434: History of the Soviet Union

3 Credits

Revolution; social, political, economic, and cultural continuity and change in the U.S.S.R. since 1917.

Prerequisite: HIST 141 or HIST 142

Bachelor of Arts: Humanities

International Cultures (IL)

HIST 435: Topics in European History

3 Credits/Maximum of 9

Study of a particular period or country in European history, its significance and relation to other areas and the present. (May be repeated for credit.)

Prerequisite: HIST 001 or HIST 002

HIST 436: Great Britain Under the Tudors and Stuarts, 1485-1688

3 Credits

Religious, political, and constitutional developments in the British Isles.

Prerequisite: HIST 001 or HIST 002

Bachelor of Arts: Humanities

International Cultures (IL)

HIST 437: Great Britain 1688-1867

3 Credits

Social, economic, and political history of Great Britain from late Stuart times until the mid-Victorian era.

Prerequisite: HIST 001 or HIST 002
Bachelor of Arts: Humanities
International Cultures (IL)

HIST 438: Great Britain 1867-Present

3 Credits

Social, economic, and political history of Great Britain from the mid-Victorian era to the present.

Prerequisite: HIST 001 or HIST 002
Bachelor of Arts: Humanities
International Cultures (IL)

HIST 439: Women and the Holocaust

3 Credits

Analysis of women's experience in the Holocaust and exploration of the role of gender in Holocaust Studies. J ST (HIST/WMNST) 439 Women and the Holocaust (3) Most of the early study of the Holocaust focused almost exclusively on the experiences of Jewish men. It was men who wrote the first and most widely read Holocaust memoirs and men who produced the first studies of the Holocaust. The first question motivating this class is thus what we can learn from examining women's experiences. Is it possible that the ghetto, the camp, and the forest look different from women's perspectives? Are there factors we miss when we read primary documents written by only half of the participants in these historical events? Beyond this, however, our exploration will also lead us to look more broadly at gender as a category of analysis. What do we gain by bringing questions of gender to bear on our study of the Holocaust? Are there any ethical concerns that should inform our approach?

Prerequisite: J ST 010 or J ST 121 or HIST 121 or consent of program
Cross-listed with: JST 439, WMNST 439

HIST 440: Colonial America to 1753

3 Credits

Background, establishment, and growth of the American colonies, including economic, political, social, religious, and intellectual developments.

Prerequisite: HIST 020 , 3 additional credits in history
Bachelor of Arts: Humanities
United States Cultures (US)

HIST 440H: Colonial America to 1753

3 Credits

Background, establishment, and growth of the American colonies, including economic, political, social, religious, and intellectual developments.

Honors

HIST 441: Revolutionary America, 1753-1783

3 Credits

Forces in Great Britain and America causing withdrawal of thirteen colonies from the British Empire and the Revolutionary War.

Prerequisite: HIST 020 , 3 additional credits in history
Bachelor of Arts: Humanities
United States Cultures (US)

HIST 442: The Early American Republic, 1783-1850

3 Credits

Confederation and Constitution; the Federalist and Jeffersonian periods; "the Era of Good Feelings"; "the Age of Jackson."

Prerequisite: 3 credits in American history
Bachelor of Arts: Humanities
United States Cultures (US)

HIST 443: Jewish Histories of the Middle East

3 Credits/Maximum of 6

Jews have been part of Middle Eastern societies for thousands of years. They flourished at times and endured hardships at others, but they have been part of every significant social and cultural transformation of the Middle East. In this class, students will discuss the significant contribution of the Jewish community to the development of various Middle Eastern societies throughout the centuries. Students will critically read and analyze primary sources and secondary literature. We will delve into national historiographies of places such as Morocco, Egypt, and Iran-to name a few-and seek to discover a nuanced narrative of Jewish histories of the region. We will also analyze popular culture products, such as documentaries, television, and literature. The course will follow a chronological and thematic order, and will examine Jewish history in conjunction with global and interregional processes in the Middle East and beyond, such as colonialism, imperialism, nationalism, relations with the West, the formation of the modern nation states of the Middle East, and the Israeli-Arab conflict.

Cross-listed with: JST 443

HIST 444: The United States in Civil War and Reconstruction--1850-1877

3 Credits

Causes of the Civil War; conduct of the war, North and South; impact of the war; problems of Reconstruction.

Prerequisite: HIST 130
Bachelor of Arts: Humanities
United States Cultures (US)

HIST 444W: The United States in Civil War and Reconstruction--1850-1877

3 Credits

Causes of the Civil War; conduct of the war, North and South; impact of the war; problems of reconstruction.

Prerequisite: HIST 130 or HIST 020
Bachelor of Arts: Humanities
United States Cultures (US)

Writing Across the Curriculum

HIST 445: The Emergence of Modern America

3 Credits

Economic, social, political history of the United States, 1877-1919, emphasizing growth of industrialism and development as a modern nation.

Prerequisite: HIST 021 , 3 additional credits in history, economics, or political science

Bachelor of Arts: Humanities
United States Cultures (US)

HIST 446: America Between the Wars

3 Credits

The Roaring Twenties, the Great Crash, Depression, and New Deal; war debts, reparations, isolationism, and World War II.

Bachelor of Arts: Humanities
United States Cultures (US)

HIST 447: Recent American History

3 Credits/Maximum of 3

Contemporary economic, social, and political aspects of the United States and its role as a world power since 1945. AMST 447 / HIST 447 Recent American History (3) This course covers the history of the United States from the end of World War II to the present. Topics include but are not limited to the Marshall Plan, the Cold War, the Korean War, the rise of television, atomic power, the Eisenhower presidency, the Civil Rights and Women's Movements, the Vietnam War and protests, the space race, Watergate, the Reagan presidency, the two Iraq Wars, the Dot-com revolution, 9-11 and the War on Terror, and the Obama presidency. While addressing major historical movements, the course will also explore the culture of the period - art, literature, music, sports, television, religion, and film. Even though the course covers a relatively short span of years, students will see that American society has undergone dramatic changes in this period as the result of social movements, immigration, wars, political scandal, and technological innovation. The course will close by speculating on the current direction of the United States in light of the serious challenges the nation faces.

Prerequisite: HIST 021 , 3 additional credits in history, economics, or political science

Cross-listed with: AMST 447
Bachelor of Arts: Humanities
United States Cultures (US)

HIST 448: America in the 1960s

3 Credits

Social, political, and cultural themes in the United States in the 1960s.

Prerequisite: HIST 021

Bachelor of Arts: Humanities
United States Cultures (US)

HIST 449: Constitutional History of the United States to 1877

3 Credits

Colonial background; framing and adoption of the constitution; development of the court under Marshall and Taney; sectionalism, Civil War, Reconstruction.

Prerequisite: HIST 020 or HIST 021 , 3 additional credits in history or political science

Bachelor of Arts: Humanities
United States Cultures (US)

HIST 450: Constitutional History of the United States Since 1877

3 Credits

Constitutional developments from laissez-faire to the welfare state; imperialism, war, internationalism; the contemporary court, civil liberties, and civil rights.

Prerequisite: HIST 020 or HIST 021 , 3 additional credits in history or political science

Bachelor of Arts: Humanities
United States Cultures (US)

HIST 451: The Consumer Revolution

3 Credits

The origins and impact of American consumer society since 1870. HIST 451 HIST 451 The Consumer Revolution (3) (US)(BA) This course meets the Bachelor of Arts degree requirements. This lecture course shows how the United States became a nation of consumers from 1870 to the present. It is designed both for the business and communications student as well as the liberal arts major. The origins of department stores, name-brand goods, fast-food chains, modern advertising, and mass entertainment show us how American business and culture was transformed by the consumer revolution. We will explore how the automobile became the leading consumer good of the 20th century and analyze its impact on how Americans shopped. The rise of advertising and its linkage to home-based mass entertainment through the radio and TV will interest us. We will also consider how events like the Great Depression, World War II, the counter-cultural movement of the 1960s, the energy crisis of the 1970s, and the economic deregulation of the 1980s and 90s shaped consumer attitudes and advertising. " The Consumer Revolution" also briefly explains how American consumer culture has been globalized (with companies like Coca Cola, Disney, and Ford). The course also explores how new consumer goods shaped the experience of childhood, youth, family and home life, and retirement. In particular, we will consider how youth-oriented goods in fashion, foods, and entertainment created a unique youth consumer culture. Also important are the intellectual debates about the meaning and value of consumer society: Is mass consumption the real meaning of American democracy or is it a perversion of it? Are consumer needs unlimited and where does the desire for goods come from? Because consumer society seemed to threaten so many traditional values, we will also analyze movements for restricting consumption. We will consider the origins and impact of Prohibition, dieting and health food crazes, and movements to restrict advertising and sale of goods like cigarettes. In addition to lectures and visual presentations in class, students will read chapters from major studies of the above topics, some of which will be discussed in class. Grades will be based on performance in discussion and essay exams.

Prerequisite: three credits in history, marketing, or advertising

Bachelor of Arts: Humanities
United States Cultures (US)

HIST 452: History of U.S. Foreign Relations

3 Credits

History of U.S. foreign relations since 1789; emphasis on twentieth century.

Prerequisite: HIST 020 or HIST 021

Bachelor of Arts: Humanities
International Cultures (IL)
United States Cultures (US)

HIST 453: American Environmental History

3 Credits

The history of the ways Americans have used and thought about the environment since 1500.

Prerequisite: GEOG 030 ; and HIST 020 , HIST 021 ; or 6 credits in the humanities or social sciences

Bachelor of Arts: Humanities
Bachelor of Arts: Social and Behavioral Sciences

HIST 454: American Military History

3 Credits

Development of U.S. military policy, 1776 to the present, emphasizing the conduct of our wars, interrelationship of civil and military authority.

Prerequisite: HIST 020 or HIST 021

Bachelor of Arts: Humanities
United States Cultures (US)

HIST 455: The History of Epidemics

3 Credits

This course introduces the history of epidemics from the 1300s to the present day through historical case studies from across the globe, including examples such as the Black eath; Smallpox; Cholera; Influenza; HIV/AIDS; Zika; and most recently, COVID-19. A central focus of the course examines how epidemic and infectious diseases, and human responses to them, have shaped the world history socially, politically, environmentally, medically, and economically to the present day. The analysis of written and visual primary sources, as well as secondary sources, allows this course to ask and answer questions about the experiences of women, men, and children who witnessed epidemics, treated the sick, lived and died during various epidemic outbreaks, and attempted to understand death and disease from a range of perspectives.

Prerequisite: 3 credits in HIST

Bachelor of Arts: Humanities
International Cultures (IL)

HIST 457: Hiroshima & the Holocaust in History and Memory

3 Credits

The history and memory of the Holocaust and Hiroshima and Nagasaki are often taught separately in different disciplines. This course will examine them together through the various ways different societies remembered, understood and commemorated these. Using the extensive

literature on the history of memory, this course further suggests ways in which these memories and histories affected and were entangled by each other. Specific content will vary according to individual instructor, but topics may include victim cultures, cold war nuclear history, trauma, human rights, dark tourism, memorials, architecture as well as the general impact of these tragedies on the fraught politics of memory in East Asia and the Middle East, or the way the memories of the tragedies were entangled with the civil rights and other struggles in American and global history.

Prerequisites: Three credits in JST, HIST, or ASIA

Cross-listed with: ASIA 457, JST 474
International Cultures (IL)

HIST 458Y: History of Work in America

3 Credits

LHR 458Y, "History of Work in America," a writing-intensive course, studies selected problems in the history of work in the United States. This course addresses economic, technological, social, cultural, and political aspects of employment and self-employment. Major topics of concern include methods of producing goods and services, work time, working conditions, the composition of the workforce, the changing functions of managers, the role of the state in shaping labor markets and regulating employment, the formation and actions of unions and other pro-labor organizations, and the relation of work to the family and other social institutions. In addition, students will undertake original research in primary sources and secondary literature, thereby learning something of historical research methods. The essay project is treated as a process, besides regular encouragement of students to submit a paper proposal, rough drafts, and a final draft. Students are advised that the instructor will read and comment on additional drafts as they care to submit. This section of LHR 458Y is a blended course. Some activities take place in the classroom, and other activities are conducted on Canvas.

Prerequisite: 3 credits in HIST or LHR or LHR 100 or 5th Semester standing

Cross-listed with: LHR 458Y
Bachelor of Arts: Social and Behavioral Sciences
United States Cultures (US)
Writing Across the Curriculum

HIST 459Y: Social and Cultural History of the United States Since 1783

3 Credits

Role of immigration, social reform movements, religion, education, science, literature, and the arts in American history.

Bachelor of Arts: Humanities
United States Cultures (US)
Writing Across the Curriculum

HIST 461: The Emergence of the American City: 1100-1880

3 Credits

The growth of American cities from their urban origins in Europe and the Native-American Southwest to 1880.

Bachelor of Arts: Humanities
International Cultures (IL)
United States Cultures (US)

HIST 462: The Twentieth Century City

3 Credits

Political, economic, social, and cultural transformations in American cities from 1880 to 2000.

Bachelor of Arts: Humanities
International Cultures (IL)
United States Cultures (US)

HIST 465: The Post-World War II Civil Rights Movement

3 Credits

The civil rights struggle and its impact upon American politics. AFAM 465 / HIST 465 The Post-World War II Civil Rights Movement (3) (US) This course focuses on the post-World War II Civil Rights Movement. It begins with a discussion of the "Long Civil Rights Movement," briefly looking at the roots of the movement in the labor movement and social struggles of the Great Depression and World War II. We then turn to the impact of World War II on African Americans, the growing militancy during the war, the struggles over segregation in the military, the growing role of blacks in the labor movement, and the growing link between African Americans and the rising anti-imperial movements that accelerated after the war. We discuss the role of African Americans in the Cold War and the struggles over the role of Communism and Socialism in the emerging Civil Rights Movement. The course is broken down into key topics of the movement years: the rise of localized grassroots movements all over the United States that were led by local people who sought to challenge school segregation, political disfranchisement, poor housing conditions, police brutality, and job discrimination. While legal disfranchisement and segregation existed solely in the southern states, the entire country practiced both and black people suffered the consequences universally. Much time is spent on the more famous southern civil rights movement, with discussions of the Emmett Till Murder of 1955; the Montgomery Bus Boycott and the rise of Martin Luther King, Jr. and the Southern Christian Leadership Conference; and the Little Rock Crisis of 1957. The beginning of the 1960s saw the creation of the Student Non-Violent Coordinating Committee and the emergence of key women leaders in the struggle such as Mrs. Ella Baker, Mrs. Fannie Lou Hamer, Mrs. Rosa Parks, and Mrs. Septima Clark, to name only a few. We discuss key moments in the 1960s, beginning with SNCC and CORE and the Freedom Rides, the SCLC in Birmingham and Albany; the March on Washington, the 1964 Mississippi Freedom Summer and the murders of Chaney, Goodman, Schwerner, and Medgar Evers; the 1965 Selma to Montgomery March, and the final passage of the 1964 Civil Rights Act and the 1965 Voting Rights Act. The emphasis on the southern struggle is on the local, ordinary people who achieved extraordinary things.

Prerequisite: AF AM100 , HIST 021 , HIST 152 , PL SC001 , or PL SC002
Cross-listed with: AFAM 465
Bachelor of Arts: Humanities
United States Cultures (US)

HIST 466: Lesbian and Gay History

3 Credits

Critical exploration of the history of sexuality, focusing especially on the emergence of modern lesbian and gay identities. WMNST (HIST) 466 Lesbian and Gay History (3) (US;IL) This course will explore the relationships in different cultures and historical periods between the

dominant culture and homosexuals, whom the culture deemed, at different times, sinful, deviant, criminal or, more recently, a minority community. Students will confront the very nature of difference, and how it has been played out in European and American history. The course will challenge students to deal with how societies define difference itself; how they isolate or punish deviants; and how the creation of the 'homosexual' helped establish not simply difference but 'normalcy' in a highly sexualized modern culture. Finally, the course will explore notions of identity itself, focusing on the creation of a modern gay and lesbian identity and its impact on broader questions of gender, community, civil rights, and political discourse in the United States. An example of evaluation methods would be: course presented in a seminar format with grades based on class participation, brief analytical papers, and a longer research or historiographic paper.

Prerequisite: WMNST100 , WMNST117

Cross-listed with: WMNST 466
International Cultures (IL)
United States Cultures (US)

HIST 467: Latin America and the United States

3 Credits

Historical development of policies of the United States with regard to Latin- American affairs from colonial times to the present.

Cross-listed with: LTNST 467
Bachelor of Arts: Humanities
International Cultures (IL)
United States Cultures (US)

HIST 468: Mexico and the Caribbean Nations in the Twentieth Century

3 Credits

Political, economic, and social development in Mexico and the Caribbean since 1900. Emphasis on Mexican, Guatemalan, and Cuban revolutions.

Bachelor of Arts: Humanities
International Cultures (IL)

HIST 468H: Mexico and the Caribbean Nations in the Twentieth Century

3 Credits

Political, economic, and social development in Mexico and the Caribbean since 1900. Emphasis on Mexican, Guatemalan, and Cuban revolutions.

Honors

HIST 469: Drugs and Drug Policy in the United States

3 Credits

Examines the history and dimensions of drug use and analyzes the impact of drug policy. CRIMJ 469 / HIST 469 Drugs and Drug Policy in the United States (3) For nearly a century, the United States has been waging its version of a hundred years' war on drugs, spending billions of dollars and incarcerating thousands of offenders while failing to significantly reduce the use of illicit drugs. This course examines drug use in a historical context while addressing the changing nature and dimension of drug use, including the pharmacology of drugs, patterns of drug use, and sentencing policies. Because drug control is inextricably linked to social, political, and public policy, the course will provide the student with a foundation for critical thinking and rational decision

making relative to the efficacy of the various drug control initiatives. Since drugs seemingly permeate every level of American society and directly or tangentially touch most Americans' lives, issues such as drug testing in the workplace, the use of drug courier profiles, legalized medical marijuana, and needle exchange programs are evaluated. Students will be expected to learn the pharmacology of various drugs, the history of drug use in the United States since the colonial era, the evolution of federal drug agencies, and acquire knowledge about contemporary drug issues. They also will be expected to develop and strengthen their critical thinking skills as they assess the consequences of implementing particular anti-drug policies and their impact on reducing the use of illicit drug use. An example of the evaluation methods would be: students will be evaluated on the basis of three exams and four "think pieces" (requiring students' critical responses to an assigned topic) scheduled throughout the semester. Class attendance also will influence the grade. Faculty Member Proposing Course : John C. McWilliams

Prerequisite: CRIMJ100 or HIST 021

Cross-listed with: CRIMJ 469

Bachelor of Arts: Humanities

HIST 470: Modern Bondage: Slavery in the Americas, 1492-1888

3 Credits

The work, culture, ideology, and political economy of slavery in the Americas between 1500 and 1888.

Prerequisite: HIST 011 , HIST 020 , HIST 152 , HIST 178 or HIST 192

Bachelor of Arts: Arts

HIST 471Y: Classical Islamic Civilization, 600-1258

3 Credits

Pre-Islamic Arabia; Muhammad; Arab conquests; Islamic beliefs and institutions; literary, artistic, and scientific achievements; relations with Europe; breakdown of unity.

Cross-listed with: RLST 471Y

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

Writing Across the Curriculum

HIST 472: The Ottoman Empire

3 Credits

This course examines the history of the Ottoman Empire from its origins to the rise of the Turkish Republic, an historical time period covering approximately 1300 to 1923. Each week, the class will focus on a major turning point or theme using a combination of regional case studies and primary sources. In the process, students will be exposed to ongoing historiographical debates about a variety of events and trends in Ottoman history. Topics covered include war, diplomacy, gender, architecture, science, religion, technology, and slavery. This course focuses on and examines how the Ottoman state evolved in a changing global context.

Prerequisite: 3 credits in HIST

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

HIST 473: The Contemporary Middle East

3 Credits

Political, economic, and social changes in Turkey, Iran, Israel, and the Arab countries in the twentieth century; Arab-Israeli conflict.

Cross-listed with: JST 473

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

HIST 474: Early Modern Japan

3 Credits

Japanese history from 1580-1880. ASIA 474 (HIST 474, JAPNS 426) Early Modern Japan (3) Japan's Tokugawa period can be difficult to grasp. It resembles a modern society in many respects but operated according to a logic of social organization different from that of most modern states. There was a collective sense of national identity, but its characteristics differed significantly from modern forms of Japanese identity. Moreover, modern ideologies have contributed to the characterization of early modern Japan as a rigid society and of the country as a whole having been isolated from the rest of the world. The main purpose of this course is to afford students the opportunity to study early modern Japan in detail and, insofar as possible, on its own terms. Through readings in primary and secondary sources, and through the evaluation of visual images, this seminar-style course will deepen students' knowledge of Japan and serve as basis for comparative study of other early modern societies. Although the course investigates classic areas of historical study such as institutional development and foreign relations, the emphasis is on social and environmental history. The course encourages students to think about a range of approaches to the past and to think about the ways our contemporary biases influence the ways we understand the past.

Prerequisite: HIST 172 , HIST 174 , JAPNS120 or JAPNS121

Cross-listed with: ASIA 474, JAPNS 426

HIST 475Y: The Making and Emergence of Modern India

3 Credits

India's transition to social, economic, and political modernity through the experience of British colonial rule and the nationalist struggle. ASIA (HIST) 475Y The Making and Emergence of Modern India (3) (IL) (BA) This course meets the Bachelor of Arts degree requirements. This course covers India's transition to social, economic, and political modernity through the experience of British colonial rule and the nationalist struggle. It begins during the early modern period, when European travelers encountered the flourishing Mughal Empire, and moves into the dynamic moment following, when the East India Company was one of various competing forces, both locally and globally. It then examines the rise of British power, and the various responses to it from collaboration to mutiny; the multiple development of nationalisms and anticolonialisms, including secular, socialist, Hindu and Muslim variations; the accompanying social reform visions, including caste abolition and feminism; the turbulent paths toward partition and independence, resulting in the postcolonial states of India, Pakistan, Bangladesh, Nepal, Sri Lanka, and Afghanistan. It then follows the continuing trajectories of these countries after independence, from the Nehruvian years to the neoliberal shift, with attention to emerging social movements and issues including caste and gender relations;

religious and separatist politics; struggles around land and development; urbanization, and labor migration. This course raises important questions about the nature of modernity and its relationship to global interconnectedness, the rise of capitalism and colonialism, industry and technology; while emphasizing South Asian social and cultural contributions and responses to these global shifts. By filling in the context of this part of the world to that global story, the course enables students to grapple with some of the major economic and geopolitical trends of the early 21st century.

Prerequisite: HIST 010 , HIST 011 , HIST 172 , HIST 175 , HIST 176 , HIST 181 , or HIST 191

Cross-listed with: ASIA 475Y

Bachelor of Arts: Humanities

International Cultures (IL)

Writing Across the Curriculum

HIST 477: American Military History to 1900

3 Credits

Development of United States military policy, 1776-1900, emphasizing conduct of wars, interrelationship of civil and military authority.

Prerequisite: 3 credits in history

HIST 478: American Military History Since 1900

3 Credits

Development of United States military policy in the 20th and 21st centuries, emphasizing conduct of wars, interrelationship of civil and military authority.

Prerequisite: 3 credits in history

HIST 479: History of Imperialism and Nationalism in Africa

3 Credits

A selective overview of the history of imperialism and nationalism in Africa. HIST/AFR 479 History of Imperialism and Nationalism in Africa. This course meets the Bachelor of Arts degree requirements. History/African Studies 479 will provide a selective introduction to major developments and issues concerning Africa's colonial and postcolonial history. The beginning of this course will concentrate on the meanings of imperialism and nationalism and the fact that there is no "single" African experience with either of them. This will be followed by a discussion of 19th and 20th century political history in specific contexts in North, East, West, and Southern Africa. The course concludes with a review of African decolonization and the most notable manifestations of recent nationalism on the continent. Special attention will be given to the methods of colonial takeover, methods of African resistance, the West's role in Africa, and Africa's formative role in the West. Religion, the military, and racial/ethnic identity politics will be recurring themes in the course. The actual time devoted to each topic and the sequence of topics will vary from instructor to instructor. The objective of the course is to introduce to the causes, nature, and consequences of modern imperialism in Africa. In doing so, students will receive a comprehensive history about a region of the world that is often misunderstood and misrepresented. Also, the course emphasizes critical thinking and analytical writing. The course will consist of polls, practice discussions, quizzes, response papers, and a final project. As a general education course, this class will provide an introduction to African political history for students of any major. Students majoring or minoring in History,

African Studies, International Relations, or Political Science will learn vocabulary and information that is basic to the field and broaden their knowledge of History.

Prerequisite: 3 credits in HIST

Cross-listed with: AFR 479

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

HIST 480: Japan in the Age of Warriors

3 Credits

An overview of Japan from the 10th to 17th century, a period of political decentralization, cultural efflorescence, and social change. ASIA (HIST) 480 Japan in the Age of Warriors (3) (IL)(BA) This course meets the Bachelor of Arts degree requirements. By the eighth century, Japan had become a centralized state centered on the reign of a sovereign, commonly known in English as an emperor. At the end of the ninth century, the emperor's court relocated to the city of Heian (Kyoto), and soon thereafter, an elegant court culture developed in the capital. The courtly culture was based on civilian values and civilian rule. In the countryside, however, Japan was gradually becoming militarized. Local warlords began rising to prominence and vying with each other for power. One of them, Taira-no-Masakado, rebelled against the central government during the years 939-940, declaring himself "emperor" of several provinces in eastern Japan centered on Hitachi. Although the central government in Kyoto enlisted other warrior groups to put down Taira-no-Masakado's rebellion, the process of militarization was underway. Buddhist temples also participated in this process, using their wealth and influence to assemble monastic armies on occasion. This course examines Japanese history beginning approximately in the 10th century, at time when civilian high culture in the capital was approaching the height of its development. At the same time, the process of militarization of the countryside was beginning to undermine that civilian court culture. The course ends in approximately the seventeenth century with the establishment of a military government under the Tokugawa shoguns. This development was ostensibly the peak of warrior influence, with the samurai (=warrior) class entrenched by law as the elite group within society. However, just as the warriors began their rise to power in the tenth century, by the end of the seventeenth century they were rapidly losing influence and prestige to wealthy merchants as the forces of the market economy spread throughout Japanese society. HIST 480 is a course in medieval Japanese history, broadly defined. Different instructors will emphasize different aspects of Japanese history and culture during this era. Approaches to teaching will also vary depending on the instructor. Class sessions can take the form of lectures or discussions. Assessment methods and learning activities may include debates, discussions, exams, research papers, book review papers, and other similar academic activities.

Cross-listed with: ASIA 480

Bachelor of Arts: Humanities

International Cultures (IL)

HIST 481: Modern Japan Since 1800

3 Credits

The transformation of Japan from a relatively isolated, agricultural nation into a highly industrialized world power. ASIA (HIST) 481 Modern Japan Since 1800 (3) (IL)(BA) This course meets the Bachelor of Arts degree requirements. In the late 19th century, Japan emerged from relative

seclusion and grew, within the period of a few decades, into one of the world's major powers. Japan's remarkable transformation into an imperialist power ended suddenly with defeat by the Allied powers in August 1945. But the history of prewar and wartime Japanese nation-building and economic growth set the stage for postwar rebuilding. This course examines Japan's development as a powerful modern state, imperialist aggressor, defeated nation, economic power-house, and pop culture super-power. Specific content will vary according to individual instructor, but may include the structures of state and society in the early 19th century, the creation of the Meiji state (1868-1912), the successes and costs of the Meiji government's program of rapid modernization and Westernization, imperialist expansion, the road to war and defeat in World War II, the postwar U.S. occupation of Japan (1945-1952), Japan's resurgence as a global power, and some of the major challenges facing the Japanese state and society today. The goals of the class are not only to gain an understanding of the history of another country, but also to develop the skill of building such an understanding through primary and secondary sources, both written and visual. Students in this class will take on the role of historian themselves, thinking critically about assigned texts and making their own interpretations of their meanings. Through readings, discussions, and written work, students will enhance their ability to think critically and to express their ideas clearly in both speech and writing.

Prerequisite: HIST 172 , HIST 174 , or HIST 175

Cross-listed with: ASIA 481
Bachelor of Arts: Humanities
International Cultures (IL)

HIST 482: Confucius and the Great Books of China

3 Credits

This course familiarizes students with the critical texts and intellectual cultures of Warring States and early imperial China. CHNS 418 / ASIA 418 / HIST 482 Confucius and the Great Books of China (3) This course exposes students to the key texts, thinkers, and ideas that form the foundation of the Chinese classics and classical period, providing an integral foundation for the study of Chinese history, culture, or literature. While the emphasis is on the texts and their main themes, the course will encourage historical engagement with the texts by placing them into a context of competing cultural, social, political trends. Readings may be grouped around categories of teachings such as Confucianism, Buddhism, and Daoism, or around thinkers such as "(Confucian) ritualists," "statesmen," "military strategists," "rebels," "recluses," and "spiritual leaders." Students will learn how each of these types of teachings and thinkers related to each other, as well as how they responded to the emergent, centralized political order of the day. This will help students better understand many of the recurrent intellectual, political, and religious themes that arise in later Chinese history as well.

Prerequisite: ASIA 3; ASIA 100; ASIA 104; ASIA 175; ASIA 181; HIST 175; CHNS 120; CHNS 121; ENGL 15; RLST 3; RLST 181; 5th Semester standing

Cross-listed with: ASIA 418, CHNS 418
Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures
International Cultures (IL)

HIST 483: Middle China

3 Credits

The social, political, and cultural issues and developments from the 8th to 16th century. ASIA (HIST) 483 Middle China (3) (IL)(BA) This course meets the Bachelor of Arts degree requirements. This advanced discussion-based course covers the social, political, and cultural issues and developments in Chinese history from roughly the eighth century through the sixteenth century. Specific content will vary according to instructor. Students will gain a strong foundation in Chinese history and culture and experience analyzing historical texts.

Prerequisite: HIST 174

Cross-listed with: ASIA 483
Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures
International Cultures (IL)

HIST 484Y: History of Chinese Thought

3 Credits

A study of the dynamic historical development of Chinese thought with its diverse expressions from antiquity to the present. ASIA (HIST) 484Y History of Chinese Thought (3) (IL)(BA) This course meets the Bachelor of Arts degree requirements. This course examines the historical developments of Chinese thought and its multifarious expressions from ancient times to the eighteenth century. It explores the unique Chinese ways and means of making sense of the world and the human condition by probing China's philosophical and religious traditions. It reveals the conscious life of the Chinese in matters moral, ethical, aesthetic and metaphysical. Moreover, by showing the unity, diversity, continuity and discontinuity in Chinese thought throughout the ages, this course debunks the popular "Orientalist" myth that Chinese culture had been a hermetically sealed and stagnant monolith until the modern era when Western influences became dominant.

Prerequisite: HIST 174 or HIST 175

Cross-listed with: ASIA 484Y
Bachelor of Arts: Humanities
International Cultures (IL)
Writing Across the Curriculum

HIST 485Y: China's Last Empire: The Qing Dynasty, 1644-1911

3 Credits

China from 1644 founding of Qing dynasty to 1911 fall; Chinese society and institutions, imperialism and China's internal diversity. ASIA (HIST) 485Y China's Last Empire: The Qing Dynasty, 1644-1911 (3) (IL)(BA) This course meets the Bachelor of Arts degree requirements. This course will examine the Qing dynasty, the last imperial dynasty to rule China, from the seventeenth to early twentieth centuries. More than doubling the size of the previous Ming dynasty, the empire also included people such as Tibetans, Muslims and Mongols who had never before considered themselves as "Chinese" but were now Qing subjects. The course will examine how Manchu ruling family, a non-Chinese people, outnumbered by the Chinese by about three hundred and fifty to one managed to conquer and rule China for nearly three hundred years. Tracing the political, social and cultural development of china starting with the foundation and consolidation of the Qing in 1644 and concluding with the collapse of the dynastic system in 1911, this course examines the role of the imperial system, internal rebellions, and the impact of

Western colonialism on China. Considerable time will also be focused on China's ethnic, religious and cultural differences in order to allow a deeper understanding of major issues and themes in late imperial Chinese history. Finally, the theme of China's international relations in Asia and the world and China's shifting place in the world will be a prominent thread of the course. Through a blend of primary and secondary sources, students in this class will need to think critically, read broadly and express their ideas clearly regarding the evolving challenges facing China's last empire.

Prerequisite: HIST 175 or HIST 300H

Cross-listed with: ASIA 485Y

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

Writing Across the Curriculum

HIST 486: China in Revolution

3 Credits

China from 1900 to the present; nationalism, cultural change; development of communism. ASIA (HIST) 486 China in Revolution (3) (IL) (BA) This course meets the Bachelor of Arts degree requirements. This course examines the social and cultural history of modern China from 1900 to the present. Major topics may include the formation of a modern national state, relationships between society and government, economic development and environmental crises, changes in kinship and family life, and changing relationships between elite and popular culture. The course uses excerpts from primary documents, fiction, and film to help students understand the modern Chinese historical experience.

Prerequisite: HIST 175 or HIST 300H

Cross-listed with: ASIA 486

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

HIST 487: American Diplomacy, 1776-1914

3 Credits

Developments in the foreign policy of the United States from independence to the eve of World War I.

Prerequisite: HIST 002 or HIST 020

HIST 488: American Diplomacy Since 1914

3 Credits

Developments in the foreign policy of the United States since the eve of World War I.

Prerequisite: HIST 002 or HIST 021

HIST 490: Archival Management

1-3 Credits/Maximum of 3

Introduction to the principles and procedures in the management of archives and historical manuscripts.

Cross-listed with: LST 490

Bachelor of Arts: Humanities

HIST 491: British Civil Wars and Revolutions, 1639-1651

3 Credits

This is an advanced course on the history of the general crisis in the British Isles, from the outbreak of war between England and Scotland in 1639 to the securing of the Commonwealth regime following the destruction of the last major royalist army in 1651.

Prerequisite: HIST 002 , HIST 134 , or HIST 436

International Cultures (IL)

HIST 492: Witchcraft in Early Modern Europe

3 Credits

Survey of the social, economic, political, and religious conditions of accusations and prosecutions of witchcraft in western Europe and north America, from 1500 to 1700.

Prerequisite: HIST 002

International Cultures (IL)

HIST 493: History of Death and Mourning

3 Credits

This seminar will examine the social, cultural, religious, and philosophical attitudes regarding the treatment of death and dying, the care and disposal of the dead, and the processes associated with mourning and commemoration from antiquity to the present. The course will examine the transformations that have taken place in western society's attitudes toward death, modes of dying, relationship with the dead, and ways to remember the dead. While the major emphasis of the course will be on the history of these themes in western cultures, the course also includes comparative analysis of non-western societies and religions so that students will be able to understand death practices within a global context. Various readings and discussion will examine the idea of death, on both macrocosmic (societal) and microcosmic (personal) levels.

Prerequisite: 3 credits of HIST Recommended Preparations: HIST 1;

HIST 2; HIST 10; HIST 11; HIST 20 or HIST 21

Bachelor of Arts: Humanities

International Cultures (IL)

United States Cultures (US)

HIST 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Humanities

HIST 494H: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Humanities

Honors

HIST 495: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practicums, or internships.

Prerequisite: prior written approval of proposed assignment by instructor
Bachelor of Arts: Humanities

HIST 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Bachelor of Arts: Humanities

HIST 496A: **SPECIAL TOPICS**

1-18 Credits

Bachelor of Arts: Humanities

HIST 496H: Independent Studies

1 Credits

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Bachelor of Arts: Humanities

Honors

HIST 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Humanities

HIST 499: Foreign Study--History

1-6 Credits/Maximum of 6

Study in selected foreign countries of various periods and topics in history.

Prerequisite: 3 credits in the appropriate introductory history course for the geographic location specified

Bachelor of Arts: Humanities

International Cultures (IL)

Homeland Security (HLS)

HLS 201: Introduction to Homeland Security

3 Credits

An introduction to homeland security, and defense, with a focus on policy, legal issues, organization, and administration. PUBPL 201 Introduction to Homeland Security (3) Introduction to Homeland Security provides a baseline of common knowledge for understanding the nature of homeland security. The course achieves this goal by focusing on homeland security, the motivation and nature of terrorists, the policies

established by governments, pertinent governmental plans to meet homeland security goals, who the key players are in homeland security, and the relevant legal issues framing efforts to defend the nation's security. As an introduction to the broad area of study, this course serves as a basis for specialized study such as critical infrastructure protection, emergency response management (including natural disasters), border security, security administration, national security, and terrorism. Understanding key principles of homeland security will be expected from students who complete this course.

Cross-listed with: PUBPL 201

HLS 306: Introduction to Crisis and Emergency Management

3 Credits

An introduction to emergency management in mitigating, preparing for, responding to and recovering from hazards. PUBPL 306 Introduction to Crisis and Emergency Management (3) The course offers an overview of the field of emergency management in dealing with routine emergencies, crises or disasters, and mega disasters. Specific topics emphasized include: the roles and interactions of the public, nonprofit, and private sectors in emergency management; the legal and organizational structure of the national emergency management system; and the problems and policy issues associated with emergency management. This is done by examining the four phases of emergency management: mitigation, preparedness, response and recovery as they relate to resilience, the attempt to; and an overview, including case studies, of various human-made and, technological disasters as well as disasters related to natural hazards. Emergency management as conducted within the U.S. integrated emergency management system (IEMS) by local state and national emergency management agencies, not terrorist incidents, is the course focus rather than the emerging field of homeland security and terrorist events.

Cross-listed with: PUBPL 306

HLS 401: Introduction to Homeland Security

3 Credits

This course provides foundational knowledge about homeland security, including policy, organization, and legal issues in the American context. P ADM 401 Introduction to Homeland Security (3) The Introduction to Homeland Security/Defense course provides a baseline of common knowledge for homeland security professionals. The course achieves this goal by focusing on homeland security/defense, the motivation and nature of terrorists, the policies established by governments, pertinent governmental plans to meet homeland security/defense goals, who the key players are across the homeland security/defense spectrum, and the relevant legal issues framing efforts to defend the nation's security. As an introduction to this broad area of study, this course serves as a basis for specialized study such as bioterrorism defense, critical infrastructure protection, cyber-security, and emergency response management. Understanding key principles will be measured through preparation of a written analysis of key homeland security/defense issues with alternative strategies consistent with current policy and legal constraints.

Cross-listed with: PADM 401

HLS 475: Critical Infrastructure Protection

3 Credits

This course provides knowledge about protection of critical infrastructure as an aspect of homeland security. PUBPL 475 Critical Infrastructure Protection (3) Critical Infrastructure Protection provides a definition of critical infrastructure and examines the importance of protecting it in the post-9/11 era. The course focuses on policies and programs designed to prevent catastrophic events and to protect and maintain the nation's critical infrastructure. It examines such activity through an understanding of the network of organizations at all levels of government and in the private sector responsible for protecting infrastructure. Case examples are provided of catastrophic events to provide an understanding of risks involved in infrastructure protection. Understanding key principles will be measured through preparation of a written analysis of a key homeland security/defense issue with alternative strategies consistent with current policy and legal constraints.

Prerequisite: PLSC 201; HLS 404
Cross-listed with: PUBPL 475

HLS 476: Homeland Security Intelligence

3 Credits/Maximum of 3

The Homeland Security Intelligence course provides a depth of knowledge of key intelligence issues for homeland security professionals.

Prerequisite: PLSC 201; HLS 404
Cross-listed with: PUBPL 476

HLS 483: Seminar in National Security Policy

3 Credits

This course provides a comprehensive overview of the process of U.S. national security policy - the principles, practices, and participants in the development and implementation of security strategy and policy. It applies theories and models to the bureaucratic policy making structure of the Executive Branch, looks at the roles of other governmental participants, and evaluates the many factors that constrain decision making. It assesses the impact of non-governmental entities such as the media, interest groups, and public opinion, and considers the effect of changing domestic factors on the process. Finally, it prepares students to be knowledgeable and effective participants in the process and presents them with a practitioner's framework for policymaking. The main themes of this course are that the U.S. Constitution established a federal government of separate institutions sharing powers within an intentionally inefficient system of checks and balances that has evolved by virtue of a dynamic process of Constitutional Amendments, legislative statutes, judicial decisions, and executive actions; and, that national security decisions are best understood by considering the bureaucratic context in which they are made within the Executive Branch, and as a result of the interaction of other governmental and non-governmental participants.

Prerequisite: seventh-semester standing
Cross-listed with: PLSC 483, PUBPL 483

HLS 495: Homeland security internship

1-18 Credits/Maximum of 18

Supervised off-campus, non-group instruction including field experiences, practica, or internships. Written and oral critique of activity required. A

specific title may be used in each instance and will be entered on the student's transcript.

Honors (HONOR)

HONOR 201: Developing Critical Thinking for Leadership

1-3 Credits

Discussions on various topics using critical thinking skills to make informed leadership decisions.

Prerequisite: member of the Presidential Leadership Academy
Honors

HONOR 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Honors

HONOR 301: The Role of Knowledge in Society

3 Credits

Honors interdisciplinary study of topics utilizing contributions from science/ engineering, business, public policy, behavioral sciences/ education, and the humanities. HONOR 301H The Role of Knowledge in Society (3) This course is designed as an honors interdisciplinary study course composed of topics utilizing contributions from science/ engineering, business, public policy, behavioral sciences/education, and the humanities.

Prerequisite: admission to an honors program belonging to the Penn State Honors Consortium
Honors

HONOR 401: Honors Seminar

1-6 Credits/Maximum of 6

In-depth honors-level exploration of a topic or theme that crosses disciplinary boundaries; may be repeated for credit. HONOR 401H Honors Seminar (3 per semester/maximum of 6) Students will accomplish in-depth honors-level exploration of a topic or theme at the 400-level that crosses disciplinary boundaries. This course may be repeated for credit.

Prerequisite: admission to an honors program belonging to the Penn State Honors Consortium or approval from the Schreyer Honors College
Honors

HONOR 493: Honors Service Learning

1-3 Credits/Maximum of 3

A supervised honors experience doing service for campus or community welfare and analyzing related issues. HONOR 493H Honors Service Learning (1-3 per semester/maximum of 6) Students will have a supervised honors experience doing service, service learning, and/or public scholarship dedicated to improving campus or community welfare and then analyzing the related issues through structured reflection.

Prerequisite: admission to an honors program belonging to the Penn State Honors Consortium

Honors

HONOR 494M: **SPECIAL TOPICS**

1-2 Credits

HONOR 494M Interdisciplinary Writing and Thesis Formulation (2) This course is a seminar to help students understand various approaches to interdisciplinary analysis. The course helps students learn about writing as an interpretive process. The course helps students with the formulation of their honors thesis projects and proposals.

Prerequisite: admission to an honors program belonging to the Penn State Honors Consortium

Honors

Writing Across the Curriculum

HONOR 495: Research Studies

1 Credits

A capstone seminar for honors students working on honors theses and projects to work together and learn about their research interests.

HONOR 495H Research Studies (1) A capstone seminar for honors students working on honors theses and projects. Students work together and learn about their research interests.

Prerequisite: HONOR301H and enrollment in an honors program belonging to the Penn State Honors Consortium

Honors

HONOR 496: Honors Thesis

3 Credits

Research, creative activities, and writing necessary for pursuit and completion of an interdisciplinary honors thesis. HONOR 496H Honors Thesis (3) Students will learn research, creative activities, and writing techniques necessary for the pursuit and completion of an interdisciplinary honors thesis or honors research project.

Prerequisite: HONOR301H, senior standing, and enrollment in an honors program belonging to the Penn State Honors Consortium

Honors

HONOR 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Honors

Horticulture (HORT)

HORT 101: Horticultural Science

3 Credits

Introduction to horticulture with an emphasis on plant domestication, morphology, classification, world food crops, commodities, gardens, propagation, and agrochemicals. The course content of HORT 101, as indicated in the complete course outline, deals with the fundamental concepts and specialty areas, which contribute not only to the science and technology involved in horticulture but also to the art. It provides

an overview of the role of various specialties of the natural sciences (e.g. plant morphology, physiology, taxonomy, genetics and nutrition, pest management, management and production of crops, landscaping, and technology) relevant to a range of plant uses from medicinals and food production to the aesthetic benefits derived from plants. The course begins with the origin and domestication of plants followed by: A. An Overview of horticulture which includes an explanation of the horticulture industry, how to achieve success in horticulture and the relationship between horticulture and the environment; B. Science in horticulture which includes the classification of plants, plant propagation, plant nutrition, environmental factors affecting plant growth and development, plant growth regulators, post harvest physiology and pest management; C. Management and production of horticultural crops which include nursery, floral, turfgrass, vegetable, fruit and nuts; D. Landscaping including designing landscapes, xeroscapes and sitescapes, establishing and maintaining landscapes; and E. Concluding with Technology in horticulture. The course content additionally includes major areas of knowledge based on the fundamentals, universal concepts and achievements in the cluster of scientific disciplines comprising horticulture and provides students with the opportunity to appreciate that the origins, domestication and production of cultivated plants are the essence of human existence.

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

HORT 120: Computer Applications for Landscape Contracting

2 Credits

Emphasis is placed on the use of commercial software used for landscape planning and estimating. Limited to Landscape Contracting majors only.

HORT 131: Herbaceous Perennial and Annual Identification

3 Credits

In this class students learn to identify and use many common and some not-so-common ornamental herbaceous annual and perennial plants. After completing this class students will have practiced identifying by scientific name and common name over 200 herbaceous annual and perennial plants in the field, and will have studied common uses for these plants, and practiced selecting plants for different landscape applications. Students will use online resources and databases to aid in identification of herbaceous annual and perennial plants and to research their characteristics and cultural needs.

HORT 137: Ornamental Plant Materials

3 Credits

Identification and description under fall conditions; discussion of cultural and aesthetic aspects of trees of value in ornamental planting.

HORT 138: Ornamental Plant Materials

3 Credits

Identification and description under spring conditions; discussion of cultural and aesthetic aspects of shrubs of value in ornamental plantings.

HORT 150N: Plants in the Human Context

3 Credits

Plants have played a dynamic role in shaping our life. In reality, human existence on Earth is made possible by the breath of plants through photosynthesis. Likewise, our botanical connections and interactions are many: we need plants for food, beverages, medicines, materials, healthy lifestyles, and aesthetics. Plants have also played an important role in where our ancestors settled and where we live today. Some of the important topics discussed in this class will include the role of tea in transforming world cultures, the importance of sugar in the Civil War and the establishment of the Caribbean nations, the effect of the Irish potato famine on Europe and the US, and the use of plants in solving crimes.

General Education: Natural Sciences (GN)

General Education: Social and Behavioral Science (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Critical and Analytical Thinking

GenEd Learning Objective: Integrative Thinking

HORT 169N: Fundamentals of Home Landscaping: An Introduction to Design, Construction, and Maintenance

3 Credits

Fundamentals of Home Landscaping offers broad coverage of the environmental, human, technological, and aesthetic issues associated with residential landscape design. Beginning with the way we perceive, manage, and design the landscape, the course examines the arrangement of land, water, plant forms, and structures for their best use and greater enjoyment. Relying on actual procedures and underlying principles utilized by experienced residential landscape designers, the course will introduce students to basic design principles, concepts, specific procedures for preparing site plans and associated documents. The course will also explore designing with and general care of plants, assorted hardscape types, and how to properly assess a site. From choosing trees, shrubs, groundcovers that are correct for the site to properly installing patios, decks, and walkways, students will be presented with the varied ways plants and hardscape are installed and maintained. The course will conclude with students completing a design for a residential site.

General Education: Arts (GA)

General Education: Natural Sciences (GN)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Critical and Analytical Thinking

HORT 201: Applied Arboriculture

2 Credits

The objective of this course is to provide students with the opportunity to develop an appreciation of the skills required to properly care for large trees. The course provides information that is especially useful to those in the Landscape Management option of the Landscape Contracting major. The course will provide an overview of the methods used to diagnose problems and provide for the long term care of large trees. Areas of emphasis will include accessing the upper parts of large trees; safety when working in and around large trees; and the proper selection,

use, and maintenance of the equipment used in the arboriculture profession.

Recommended Preparation: Students should be physically capable of pulling their weight up a rope

HORT 202: Plant Propagation

3 Credits

This course introduces the principles and practices of asexual and sexual plant propagation. By the end of this class students will have hands on experience with many common forms of plant propagation and should be able to figure out how to successfully propagate most plants. The class covers common plant propagation techniques and equipment, commercial scale propagation methods, basic plant physiological processes that influence plant propagation, and the role of environmental factors such as light, temperature, and water on propagation success.

HORT 220: CAD Applications in Landscape Contracting

3 Credits

Application of computer-aided design software including AutoCAD and LANDCADD to landscape contracting.

Enforced Prerequisite at Enrollment: HORT 120

HORT 232: Horticultural Systematics

3 Credits

Fundamentals of horticultural crop plant classification and systematics. Examples chosen from fruits and vegetables, exclusive of subtropical and tropical fruit.

Enforced Prerequisite at Enrollment: HORT 101

HORT 233: The Science of Winemaking

3 Credits/Maximum of 3

Introduction to the principles of wine production emphasizing basic wine grape biology, fermentation science, wine chemistry, and wine perception. FDSC 233 / HORT 233 provides an interdisciplinary treatment of the science of grape growing, vinification, and wine consumption. Students will learn how viticultural practices translate to wine chemistry, and how key variables associated with that conversion affect consumer perception. The course will cover topics such as basic grapevine physiology, vineyard management practices, vinification, domestic and international wine styles, and consumer interactions with wine (e.g., sensory evaluation, health aspects of wine). Although the course is considered to be introductory, students must have a basic grounding in university-level chemistry and biology. Course material will be primarily transmitted through lectures, reading assignments to be completed outside of class, and brief practical exercises in the Sensory Evaluation Center (Department of Food Science).

Enforced Prerequisite at Enrollment: CHEM 110 or BIOL 110

Cross-listed with: FDSC 233

HORT 238: Turf and Ornamental Weed Control

3 Credits

Students will be introduced to the development of integrated weed management strategies utilizing a variety of cultural and chemical methods.

Cross-listed with: TURF 238

HORT 250: Landscape Contracting Design/Build Principles

3 Credits

Introduction to the processes and principles of residential landscape site development, from initial client contact to implementation.

HORT 269: Residential Landscape Planning

3 Credits

Introductory course which develops the student's ability to understand the processes, techniques, and theories that form the basis of residential site planning. The course covers the planning process, principles of design and graphic presentation

HORT 270: Basic and Advanced Hand and Digital Graphics for Landscape Contracting

1 Credits

Graphics are the language of design and presentation in Landscape Contracting. The ability to develop, document and communicate design ideas is essential for success in any design profession. As a graphics arts course, emphasis will be placed on hands-on studio activities and skill development to explore drafting, graphic, and rendering techniques using a variety of traditional drawing media to develop symbolic and representational graphics essential for the communication of design ideas. Digital rendering and hybrid (tradigital) graphics methods and techniques will also be explored.

Enforced Prerequisite at Enrollment: Landscape Contracting majors, in the Design/Build Option Enforced Corequisite at Enrollment: HORT 269

HORT 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

HORT 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

HORT 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

HORT 301: Principles of Arboriculture

3 Credits

The objective of the course is to introduce students to the theories and practices related to the care of trees in developed areas. The course provides information that is especially useful to those in the Landscape Management option of the Landscape Contracting major, and the Urban Forestry option of the Forestry major. This course will provide an overview of the concepts and methods prescribed for the evaluation and care of large trees in urban settings. Emphasis will be placed on maintaining the long-term health of large trees. Major topic areas will include methods for characterization of tree health, diagnosing problems in trees, the influence of environmental factors on tree health, and the assessment of hazard trees. Proper pruning techniques and factors to consider when making decisions regarding long-term tree care in urban areas will be discussed.

Enforced Prerequisite at Enrollment: BIOL 110

HORT 315: Environmental Effects on Horticultural Crops

3 Credits

Horticultural plants respond to the environmental factors of light, temperature, water, and fertilizer both in controlled and field environments.

Enforced Prerequisite at Enrollment: HORT 101

HORT 352: Flower Arranging

2 Credits

Floral design beginning with elements and principles of design. Flower arranging techniques as well as different styles of flower arrangements.

HORT 368: Landscape Planting Design

4 Credits

Basic planting design employing the use of indigenous and ornamental plants as design elements in the man-made environment. Intended for Landscape Contracting majors only.

Enforced Prerequisite at Enrollment: HORT 269

HORT 402W: Plant Nutrition

3 Credits

Mineral nutrition of higher plants, including nutrient acquisition, transport, metabolism, and practical implications. HORT 402W Plant Nutrition (3) The course considers the mineral nutrition of higher plants from physiological, ecological, and agricultural perspectives. The first part of the course considers factors influencing the acquisition of mineral nutrients and their transport in the plant, including nutrient mobility in the soil, root biology, rhizosphere interactions, membrane transport, xylem, and phloem transport. Root symbioses and metabolic assimilation of N and S will also be discussed. The second part of the course gives an overview of mineral metabolism. The final third of the course illustrates the practical dimensions of plant nutrition. The diagnosis of nutritional disorders, nutrition, and yield, foliar fertilization, genetic aspects of plant nutrition, and nutrient cycling will be covered by lecture and laboratory exercises. Laboratory exercises demonstrate lecture topics and permit a

'Hands-on' involvement with the subject. Emphasis is placed on concepts and integrating principles rather than memorization of technical details.

Enforced Prerequisite at Enrollment: (HORT 315 or BIOL 441) and SOILS 101

Writing Across the Curriculum

HORT 407: Plant Breeding

3 Credits

The scientific principles and techniques of utilizing genetic variability in improving the heredity of plants for specific purposes. HORT 407 Plant Breeding (3) Horticulture 407 is a 3-credit course that is taught every spring semester and is required of horticulture undergraduate students at Penn State. This course also attracts upper-division and graduate students from other departments such as Agronomy, Biology, Forest Resources, Plant Pathology, Biochemistry, and Molecular Biology. The objectives of the course are to 1) develop an understanding of the role of genetics in plant breeding, 2) elucidate the diversity of plant characteristics which are subject to improvement, 3) review conventional and contemporary techniques for the development of new cultivars, and 4) present the opportunity for the student to effectively communicate scientific information in writing and through speaking. Horticulture 407 emphasizes basic principles of plant genetics and breeding and the utilization of molecular biology techniques for crop improvement. It includes two-hours of lecture and a two-hour laboratory-discussion session each week. Major topics of discussion during lecture periods include plant reproduction, genetic variation in plants, review of mitosis and meiosis, Mendelian genetics, linkage, and recombination, qualitative and quantitative traits, population genetics, cytogenetics, theory of selection and response to selection, heritability, review of statistical tools useful in plant genetics and breeding, systems of pollination controls in plants including self-incompatibility and male sterility, breeding methods for self- and cross-fertilized plants, and application of modern technologies, including molecular markers, marker-assisted selection, and genetic transformation, to crop improvement. The laboratory sessions are designed to complement the lectures and provide opportunities for hands-on experience. For example, students practice staining and counting plant chromosomes on microscope slides, self- and cross-pollination of different plant species, linkage mapping and analysis of plants for Mendelian segregation, inoculating plants with fungal pathogens and observing and evaluating plants for disease development, extracting DNA from plant tissue and separating DNA segments on agarose medium using gel electrophoresis, and practicing computer programs for gene mapping and analysis of Quantitative Trait Loci (QTLs). Furthermore, students are mentored to prepare a term paper on a plant breeding/plant genetics subject and to orally present their findings to the class using visual aids. Student evaluation is based on two mid-term exams (each 100 points), one comprehensive final exam (200 points), 10 weekly homework or laboratory reports (for a total of 100 points), and a term paper (50 points for writing and 50 points for presentation). For the presentation, each student is required to turn in a 3-5 page write-up about a topic of interest.

HORT 408: Landscape Plant Establishment and Maintenance

4 Credits

The course examines the environmental factors that assure success of landscape plants and the plant physiological conditions affected by the management practices (e.g., selecting plants, planting, irrigating, fertilizing, mulching, pruning, and pest management) used to successfully produce, grow, install, and maintain ornamental plants in the nursery

and landscape. Students analyze and summarize their findings from landscape evaluations conducted in the field and produce and present a thorough landscape management plan to an audience of their peers, professionals, and guests. By the end of the semester students will be conversant on the best management practices for selecting, planting, and maintaining plants in the landscape and capable of making landscape installation and management decisions and presenting them to their clientele.

Enforced Prerequisite at Enrollment: (HORT 137 or HORT 138 or FOR 203) and SOILS 101

HORT 410W: Issues in Landscape Contracting

3 Credits

An overview of current and emerging issues in the Landscape Contracting Industry. Students will learn about the entrepreneurial, management, labor, and environmental issues that are shaping careers and the direction of the industry. Interactions with personnel within the landscape industry will expose the students to company expectations of employees, and the immediate issues those companies are facing in the marketplace. Students will also practice and perfect their written communication skills.

Enforced Prerequisite at Enrollment: HORT 269 or HORT 250
Writing Across the Curriculum

HORT 412W: Post-Harvest Physiology

3 Credits

The purpose of this course is to examine the changes occurring in harvested horticultural crops and understand the means of controlling these changes. This is accomplished through an understanding of the basic physiological, biochemical, and molecular processes associated with senescence, such as respiratory metabolism, chilling injury, and ethylene action. The processes associated with the deterioration of specific plants or plant parts are also discussed, for example the physiological changes associated with fruit ripening, flower senescence, leaf yellowing and abscission. This knowledge is then used to understand why various storage technologies are effective in prolonging the useful life of horticultural commodities.

Enforced Prerequisite at Enrollment: HORT 101 RECOMMENDED
PREPARATION: HORT 315
Writing Across the Curriculum

HORT 431: Small Fruit Culture

3 Credits

An overview of small fruit crop production, including grapes, strawberries, raspberries, blackberries, blueberries, cranberries, currants and gooseberries. The botany and physiology of each crop is discussed so students understand how the crops can be manipulated for maximum production under various environmental conditions. Production practices are described for each crop, including growing requirements, cultivar selection, planting systems, pruning, plant nutrition, frost protection, irrigation scheduling, harvest and postharvest handling, mechanization, and pest identification and control. Sustainable production techniques, including aspects of organic production methods, are stressed. Laboratories in the field stress hands-on production practices.

Enforced Prerequisite at Enrollment: HORT 101

HORT 432: Deciduous Tree Fruits

3 Credits

Science, art, and techniques of regulated cropping; orchard designs and management systems.

Enforced Prerequisite at Enrollment: HORT 101

HORT 433: Vegetable Crops

3 Credits

Cultural requirements of important vegetable crops in conjunction with physiological processes and problems related to commercial production. This course will provide students with information, techniques and ideas to produce vegetable crops on a commercial scale. Students learn production fundamentals applying to all vegetable crops including fertility management, transplant production, season extension, and pest management during the first part of the semester. This is followed by detailed and specific information for important vegetables on the science of producing high quality crops. Using a participatory approach students learn important techniques to successful production including experimenting on a small scale, designing a drip irrigation system, scouting for pests and developing a pest management strategy. Field trips to successful operations and outlets and the research farm are important elements of the class.

Enforced Prerequisite at Enrollment: HORT 101

HORT 445: Plant Ecology

3 Credits

Advanced lectures on plant ecology which stress integration of physiological, population-level and community-level phenomena, and ecology in agriculture.

Enforced Prerequisite at Enrollment: BIOL 220W or FOR 308 or HORT 315

HORT 451: Hydroponics and Aquaponics

3 Credits

The course provides information that is especially useful to those with knowledge of horticultural plants; however a background in plant production is not needed. Major topics discussed include basic concepts in plant and fish biology; nutrient and water use, cycling, and management; pest and pathogen management; and environmental factors as they relate to the design and operation of hydroponics and aquaponics systems. This course includes a weekly laboratory session where students gain practical skills in growing crops in a variety of hydroponics systems and growing crops and fish in an aquaponics system.

Enforced Prerequisite at Enrollment: HORT 101 or AGRO 28 or AGECO 121 Recommended Preparation: Students without one of the formal prerequisite courses should have 3 credits of PLTSC, BIOL, or a 6th level standing in a science or engineering major.

HORT 453: Flower Crop Production and Management

3 Credits

The objective of this course is to provide students with detailed and specific knowledge, skills, and techniques used in production of commercial floricultural crops in the greenhouse and to introduce

students to the systems and approaches used in managing a greenhouse. After completing this course students will understand basic greenhouse management practices and environmental systems, controls and management used to produce potted flowering plants, bedding plants, greenhouse grown cut flowers, potted perennials, transplants, plugs and liners, and houseplants. Students will know the cultural and environmental conditions required for about 60 common floriculture crops and will have practiced scheduling and producing some of these plants in the PSU teaching greenhouses. We will also cover costs of production, production management and post harvest needs for many greenhouse crops.

Enforced Prerequisite at Enrollment: HORT 101

HORT 455: Retail Horticulture Business Management

3 Credits

The nature, operation, and management of retail garden centers, winery tasting rooms, and independent food retailers. Overview of retail marketing principles and practices as they pertaining to horticultural retail businesses. Lectures, discussions, and projects focus on: selecting and pricing goods and services ; how independent retailers effectively use traditional promotion avenues and social media networks to connect with customers; and how to develop a relevant brand, cause marketing effort, and loyalty program. Students will also learn: about retail layout and display strategies; that each consumer segment has different wants, interests, and abilities to obtain goods and services, and about effective employee management.

Enforced Prerequisite at Enrollment: AGBM 101 or ECON 102

Cross-listed with: AGBM 455

HORT 459: Plant Tissue Culture and Biotechnology

3 Credits

The overall goal of this course is to provide a strong overview of the techniques used in plant biotechnology and the applications made possible by those techniques. The lecture topics will be used to introduce the principles of tissue culture and molecular biology, including how they are used to produce transgenic plants. Furthermore, the course will give students a broader and deeper knowledge in the field of Plant Biotechnology and provide a foundation for understanding the field as it changes in the future. Topics include the safety, legal and ethical issues surrounding GMOs and the study of the anti-GMO arguments surrounding each issue. In the laboratory component of the course, students will be introduced to the underlying principles of molecular biology techniques and aseptic culture of plant cells as well as the tissues and organs used to produce transgenic plants. In summary, through this course students will be introduced to many of the most important tools of the biotechnologist.

Enforced Prerequisite at Enrollment: BMB 252 or BMB 252H or MICRB 252 or BIOL 230W or BIOL 230M

Cross-listed with: BIOL 459, BIOTC 459

HORT 464: Landscape Construction I

4 Credits

Develop and refine the student's ability to understand construction details likely to be encountered by the landscape contractor. It will introduce the technical considerations required to implement design in

a manner that is both functional and aesthetically pleasing. It will also introduce principles of grading and drainage.

Enforced Prerequisite at Enrollment: HORT 250 or HORT 269

HORT 466: Landscape Construction II

5 Credits

Project scheduling methods, plant installation techniques, and field layout principles and practices. Implications of site preparation.

Enforced Prerequisite at Enrollment: HORT 464

HORT 468: Landscape Estimating and Bidding

2 Credits

Reading and interpreting contract drawings and specifications, quantity take-offs, cost estimating, and bid document preparation.

Enforced Prerequisite at Enrollment: HORT 250 or HORT 269

HORT 495: Internship

1-13 Credits/Maximum of 13

Supervised off campus experience in a public or commercial horticultural enterprise. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: Approval of proposed assignment required prior to registration
Full-Time Equivalent Course

HORT 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

HORT 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

HORT 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

HORT 499F: Special Topics

1-9 Credits/Maximum of 9

Formal courses given on

International Cultures (IL)

Honors

Hospitality Management (HM)

HM 99: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

HM 100S: Hospitality Management First Year Seminar

1 Credits

The purpose of the First-Year Seminar is to introduce new students to an open and purposeful learning community, and to help them develop the habits and pleasures of good scholarship. Working with faculty members, students will learn that expectations of personal integrity, level of effort, and civility at Penn State are much higher than in high school, but that there are many people, vehicles, and support to help them meet those expectations. They will learn to take charge of their own education, to plan for internships, international experiences, research, and, in general, to become active learners. This First-Year Seminar specific to Hospitality Management (HM) offers students an up-close perspective of the School of Hospitality Management (SHM) experience directly from interactions with SHM faculty. Each class period a different HM faculty member will meet with first-year students to share their personal and professional motivations for being engaged in the hospitality industry. Unique to this class will be the opportunity for students to learn how their academic program prepares them for the breadth of opportunities the hospitality profession has to offer and the positive impact both hospitality research and practice have on our communities.

Enforced Corequisite at Enrollment: PSU 14
First-Year Seminar

HM 101: Exploring the Global Hospitality Industry

3 Credits

This course introduces students to the many exciting facets of the global hospitality industry, the largest service industry in the world. Students will be provided an overview of the major segments of the hospitality industry and key players, a historical perspective of the hospitality industry, and key operational issues common to most hospitality enterprises. This course will provide students with an overview of the characteristics that distinguish the hospitality industry from other industries and addresses the primary strategic and tactical issues relevant to hospitality enterprises. Current events, diversity, well-being, ethical issues related to the hospitality industry, and global trends will be integrated throughout. Ultimately, the course will provide students a broad and integrative overview of the global hospitality industry, and the opportunities for career development.

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Soc Resp and Ethic Reason

HM 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

HM 201: Introduction to Management in the Hospitality Industry

3 Credits

Introduction to the hospitality industry and hospitality management. HM 201 Introduction to Management in the Hospitality Industry (3) The objectives of this course are to provide an introduction to the hospitality industry, to management practices within the industry, and to the hospitality major. Students have an opportunity to learn about the functions of management; the major components of the hospitality, travel, and tourism industries; trade associations and publications; growth areas and trends; and the need for creative leadership. Main topics typically include: functions of management and functional areas of business segments of the hospitality industry, international business as related to hospitality, services business, the planning process and strategic planning, organization design in hospitality, directing and leading in hospitality, the control process in hospitality, travel and tourism industries hospitality, hotels and lodging, the restaurant business, managed services, leisure and recreation/other hospitality opportunities, beverage management, and management ethics and social responsibility.

Enforced Concurrent at Enrollment: HM 202

HM 202: Colloquium in Hospitality Management

1 Credits/Maximum of 4

Major industry and professional speakers lecture on current issues followed by discussion with students and faculty. HM 202 Colloquium in Hospitality Management (1) This course has two primary objectives. First, students have an opportunity to hear from industry leaders. Second, students can determine their career directions, learn about the requirements for success in the industry, and identify career opportunities. The topics for the course vary from semester to semester depending upon the expertise of the distinguished speakers who address the class. However, a common theme is to explore trends in the industry regarding hotels, restaurants, and institutional foodservice. Students may learn about related career opportunities, such as careers with cruise lines, travel agencies, and other sectors in the hospitality and tourism industry.

HM 203: Hospitality Professional Development Seminar

1 Credits

The purpose of this course is to provide students with professional development preparation early in the curriculum. This course will help students obtain quality work experience during their college career to best prepare them for post-graduate employment. In particular, this course is designed to prepare students for meeting the major's work experience requirement. Meaningful work experience serves as a complement to classroom learning and provides the foundation for securing employment upon graduation. This course will help students understand the connection between college work experience and full-time careers and will impart strategies for conducting a successful job search and making the most out of these work opportunities. The class will include lectures, discussions, experiential exercises, guest lectures, and professional development assignments.

Enforced Prerequisite at Enrollment: C or better in HM 101

HM 208: Social, Cultural, and Health Influences of Alcohol

1.5 Credits

This course is designed to provide a historical approach to educating students on the development of alcohol and its influence on society. Alcohol is both culturally and economically significant as its usage has been a source of global trade, economic status, and political conflict. Science has proven positive and negative impacts of alcohol, which have shaped marketing, regulation, and consumption patterns. A better understanding of alcohol and its place in our society is not only educational from a historical perspective, but provides students with impactful nutritional and health knowledge regarding alcohol. By the end of this course, each student will feel more comfortable with the topic of alcohol in our society. This course will focus on how we can promote a more responsible educational process involving alcohol consumption, sale, and service. Education on alcohol can provide fundamental information that cannot only significantly improve one's well-being and quality of life, but also others.

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

HM 209: Alcohol & Cuisine: Culture & Responsible Service

1.5 Credits

This course focuses on the relationship between alcohol and cuisine. Students will gain a historical perspective on the societal, economic, and regulatory trends that shaped the gastronomy of regional entities around the world. The course will explore the role of these trends in defining the customs, opinions, health policies, as well as the attitudes of the various cultures towards alcohol and gastronomy. Evaluating social influences and issues with the spread of food and beverage across communities will allow students to engage in thoughtful discussions regarding cultural differences related to health and wellness initiatives, regulations, and service standards. A primary goal of the class is to instill a strong sense of social responsibility by educating the students not only on the legalities of alcohol sales and service in their community, but on health and wellness issues, and more importantly, on the responsible way to serve and consume alcohol. Students will gain a worldly perspective on regional food and alcohol cultures and how this shapes policies and regulations related to health guidelines and service practices. Specific lectures will emphasize the potential liabilities nationally linked to alcohol service in private settings or organizations such as Greek life, tailgating or other social gatherings. The course will provide training and may offer professional certification in responsible sales and service of alcohol. This certificate, besides educating students on the regulations and proper alcohol service standards, is also a critical mitigating factor in problem cases involving insurance companies or legal courts.

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

HM 210N: The Impact of Culture and Customs in Global Hospitality Environments

3 Credits

We live, work, and travel in a world in which interactions with individuals from different cultures is increasingly common and necessary. This course investigates the differences that exist between countries and geographical regions in their cultural norms and looks at the social customs that are at the basis of proper behavior. The course draws on philosophical explorations of the importance of customs as extensions of cultural norms and morals, and on social science research into the differences between cultures. It provides students with an opportunity to see the world through the eyes of people from different cultures, and broadens their understanding of the different ways of seeing and thinking about themselves and others, and of their place in a global society. Through a greater understanding of the diverse cultural forces that influence values, behaviors, attitudes and business practices, students will develop the critical thinking skills that will allow them to successfully interact with others in personal and business environments, which are exemplified by hospitality management-specific cases. The course provides the opportunity for students, who are future managers, employees, and travelers, to become better global citizens with an appreciation of other cultures.

International Cultures (IL)

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

HM 228: Hospitality Food Safety

1 Credits

Application of HACCP, U.S. Food Code, biosecurity and other federal regulations to hospitality foodservice operations. Students attain certification in foodservice sanitation. HM 228 Hospitality Food Safety (1) This course will examine the science associated with preparing and serving food that is safe for consumption with regards to biological, chemical, and physical contamination. Emphasis is on federal regulations associated with HACCP, the U.S. Food Code, and other issues associated with safety of the food supply in the U.S. Case studies help students apply food safety principles to hospitality operations. Students will attain certification in foodservice sanitation by taking the examination administered by the National Restaurant Association.

HM 230: Principles of Food Production Management

3 Credits

This course introduces students to the food service industry, one of the biggest and most dynamic segments in hospitality. This course will prepare students with a better understanding of the food service industry as well as prepare them for future classes throughout the program. Students will learn how to integrate tools such as menu planning, standardized recipes, forecasting and budget planning to successfully drive revenues, control costs, and manage customer service. This course will also offer students hands-on experience in a professional kitchen environment while introducing them to quantity food production principles. Students will be able to understand and apply the safety, sanitation and sustainability principles in food production, storage,

and food handling practices within a professional kitchen. Through a hands-on approach, students will be introduced to professional kitchen equipment and smallwares and their uses, as well as recognition of various food products commonly utilized in foodservice.

HM 235: Hospitality Financial Accounting

3 Credits

Accounting, in many respects, is the language of business and translates business transactions into quantifiable information. The purpose of this course is to provide the tools as to how to use and understand this language for making informed business decisions. Areas of focus include how to analyze and record business transactions, compiling and analyzing three of the four major financial statements, banking procedures and control of cash, various issues related to the payment of employees and the introduction of how to analyze financial statements. Regardless of the functional area in the hospitality industry in which students choose to work, they will be most likely be required to understand how accounting impacts the various financial statements, and how to use financial information to make informed business decisions. Therefore, an understanding of the importance of accounting information to make informed business decisions is vital to students' future success.

Enforced Prerequisite at Enrollment: a grade of C or better required in HM 201

HM 242: Hospitality Marketing

3 Credits

This course gives an overview of marketing applied to the hospitality industry, including unique attributes of hospitality marketing; understanding consumers and the service-quality imperative; market segmentation; relationship and target marketing; promotion planning; market research; and competitor analysis. The course examines the similarities and differences in Hospitality Marketing practices across service sectors.

Enforced Prerequisite at Enrollment: HM 101

HM 250: Principles of Quantity Food Production

3 Credits

Principles and methods of quantity food production including preparation techniques, quality control and evaluation, and cost control.

HM 265W: Teams and Leadership in the Hospitality Industry

3 Credits

The human element is vital to the success of any organization, particularly in the hospitality industry. The purpose of this course is to provide students tools for successfully leading teams of employees to enhance organizational performance. Particular areas of focus will be on understanding motivation, individual differences, power and influence, diversity, group dynamics, and conflict management. Students will be familiarized with these content areas and will apply them through project-based work, group assignments, experiential activities, and case studies. As a writing-intensive course, special emphasis will be placed on the development of students' written communication skills. Regardless of the functional area in which students choose to work, they will be required to work with, manage, and lead other people. Therefore, an understanding

of leadership and the dynamics of working in and with teams is vital to students' future success.

Enforced Prerequisite at Enrollment: HM 101

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

Writing Across the Curriculum

HM 271: Hospitality Information Technology Fundamentals

2 Credits

This course introduces students to the technology used in the hospitality industry and to technology concepts. To prepare students for success in the industry, the class is designed to allow students to possess a working knowledge of technology and how to best use this technology to improve the guest experience and increase an organization's performance.

Enforced Prerequisite at Enrollment: C or better in HM 101

HM 272: Introduction to Worksheet-Based Analysis and Modeling for Managerial Decision Making

2 Credits

The ability to use and apply MS Excel is a vital competency for SHM graduates to have. Companies expect it for career success and dependency on one's ability to use Excel in solving financial and managerial problems. The advisory board of SHM has identified the students' ability to use and apply MS Excel as a competency required by many hospitality companies. In addition, the use of worksheets and MS Excel is required in such diverse classes as hotel and food service management, marketing, revenue management, finance, real estate, and entrepreneurship. The course involves a lecture on the functionality of the software as well as hands-on, in-class learning exercises illustrating the topics presented in the lecture. Case studies will enable students to explore and analyze a variety of hospitality concepts on a common worksheet platform.

Enforced Prerequisite at Enrollment: C or better in HM 101

HM 280: Fundamentals of Hotel and Accommodations Management

3 Credits

Students will explore the typical ownership and management structures of various types of hotels. Ownership discussions include the various types of ownership entities from sole proprietorships to real estate investment trusts and large institutional owners. The role of the owner is discussed to enable students to understand how ownership entities effect their role as a hotel manager. Students will learn about franchise agreements, brand affiliations, and management companies. Students will learn how key operating departments of a typical hotel work, how the departments interrelate, work with one another to deliver exceptional guest service and profits. Discussions of the key operating departments in a hotel to include front office, housekeeping and laundry, engineering, food and beverage, and safety and security. Students will learn the key performance metrics and terminology related to the operation of the various hotel departments. Students will apply linear programming to optimize staffing and labor scheduling. Students will be provided tours of the primary operating departments, housekeeping and laundry, food and beverage, maintenance, and front office, to experience and observe operations. Students will have the opportunity to enhance their classroom learnings with observation of functioning operations. Students

will explore the growth in the home sharing sector and its effect on the hotel business. Other trends and current events will be presented and discussed regarding their short- and long-term impact on the hotel business.

Enforced Prerequisite at Enrollment: C or better in HM 101

HM 290W: Hospitality Managerial Communication

3 Credits

Communication in organizations is essential to creating an open and collaborative environment. The premise of this course focuses on the core fundamentals of creating and delivering clear and concise business messages. Additionally, the course draws on the ability to recognize and understand the differences between communication styles that exist in a global marketplace. Students will be familiarized with types of messages and will apply their knowledge through writing, reviewing, and evaluating written and verbal messages. Particular areas of focus include creating routine business messages, preparing persuasive memos, and delivering bad news messages. Students will also be challenged to create professional reports and presentations, which are essential to influencing and informing key stakeholders. Content in this course will help students become more effective communicators and leaders, regardless of their future profession.

Enforced Prerequisite at Enrollment: (ENGL 015 or ENGL 030H or ESL 015) and a grade of C or better required in HM 201 Writing Across the Curriculum

HM 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

HM 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual of group instruction.

International Cultures (IL)

HM 304: Institutional Food Service Management

3 Credits

Institutional food service management systems in the hospitality field. HM 304 Institutional Food Service Management (3) Institutional and contract food service management is in the growth stage of the hospitality industry life cycle. The objective of this course is to provide an overview of the various segments of institutional food service, including health care, life care, education, business, transportation (i.e., airlines, cruise ships), correctional and recreational services. Main topics typically include: historical overview of institutional/non-commercial food service management, exploring key markets where institutional food service management exists, key systems used in the fundamental areas of quantity food production, current and future trends effecting institutional food service management, career opportunities in the institutional food service management sector, and managed services and multi-department management. This course is an elective in the Hospitality Management program.

Enforced Prerequisite at Enrollment: a grade of C or better required in HM 201

HM 305: Restaurant Management

3 Credits

Restaurant food service management systems in the hospitality field; analysis including cost control and quality control techniques. HM 305 Restaurant Management (3) Providing quality service and products and ultimately making a profit in a restaurant require the foodservice professional to control and analyze costs. The objective of this course is to provide an overview of the food, labor, budget, and finance information required in restaurant management. Main topics typically include: framework and function of control in foodservice operations, steps and processes of using management information systems in controlling food cost and preparation of food; forecasting and menu pricing techniques in controlling food cost in the preparation and service of food; problems associated with labor costs and analyzing various techniques and tools used to control labor cost effectively through proper staffing and scheduling; methods of controlling food and beverage cost through effective purchasing, receiving, storage, issuing, preparation, inventory, and portion control; techniques of preparation and implementation of effective budgets as control tools; ratio-analysis for analyzing cost in foodservice operations; financial statements used to monitor the financial health of a foodservice operation; and capital budgeting and how it is used. This course is required in the Hospitality Management program. The introductory course in Hospitality Management must have been completed or must be taken concurrently.

Enforced Prerequisite or Concurrent at Enrollment: HM 201

HM 306: Hospitality in Senior Living

3 Credits

Introduction to senior living and continuing care retirement communities and related hospitality management career opportunities. HM 306 Hospitality in Senior Living (3) This course introduces students to continuing care retirement communities (CCRC's) and senior living facilities. The course is taught from a hospitality perspective and focuses on how the application of hospitality management can enhance senior communities and their residents. The multidisciplinary content includes a variety of perspectives on designing and delivering services for seniors, including long-term care administration, geriatric nursing, adulthood and aging, therapeutic recreation, and nutrition and foodservice.

HM 310: Beverage Management and Professional Service

3 Credits

This course is designed to familiarize students with the beverage industry. The course will introduce students to beverage identification, production, and service strategies. The course provides the principles for responsible service, efficient processes, and profitable management of various alcoholic and nonalcoholic beverages.

Enforced Prerequisite at Enrollment: students must be at least 21 years old

HM 311: Introduction to Wines of the World

2 Credits

The course introduces students to viticulture and viticulture and the sensory evaluation of wine. It focuses on the complexities of production,

storage, grape-growing, and the intersection of agriculture, commerce, and hospitality businesses. Special emphasis is given to the climates, topographies, and other natural conditions that make some regions more suited to certain wine cultivation than others and how these conditions are replicated around the world. It concentrates on the sensory elements of wine that make it a global economic and culture phenomenon with emphasis on Old World and New World traditions, food pairing, new entries to the marketplace, and trends in the wine business. It covers the important role wine plays in the delivery of dining experiences in both hospitality enterprises such as catering and restaurant venues as well as retail and social experiences. Wine sales makes a substantial contribution to the profitability and marketability of many food service operations. The wine industry is replete with specific and technical vocabulary that when mastered enables students to engage in wine activities knowledgeably and successfully, whether as a consumer or hospitality professional.

Recommended Preparation: Must be 21 years old or older to register for the class

HM 318: Club Management and Operations

2 Credits

Principles and practices of club organizations and management. HM 318 Club Management and Operations (2) This course focuses on the unique management skills that are necessary in the private club industry. A key objective is to demonstrate to students the concept of "exceptional service" that is demanded in this field. The course leads students on a tour of the responsibilities and operations of all departments that would be found in a city or country club. Main topics typically include: club management industry and career opportunities; types of clubs that exist in the industry, including structure, organization, and philosophy; the various departments of a successful club including but not limited to: food and beverage, accounting and cost control, human resources, marketing and promotion, catering and banquets, golf operations, tennis operations, aquatics, and fitness facilities; and management skills required of a club manager: leadership, board relations, general management, service excellence, communications. The course is required in the Professional Golf Management option in the Recreation, Park, and Tourism Management program and is a professional elective for Hospitality Management majors.

Enforced Prerequisite at Enrollment: a grade of C or better required in HM 201

HM 319: Hospitality Facilities Management

3 Credits

Fundamental principles of facilities planning, facilities management, and maintenance for all segments of the hospitality industry. HM 319 Hospitality Facilities Management (3) This course has been designed to provide students with information related to hospitality facility design and maintenance. While managers may not have to fix equipment or install heaters, they should understand the complexity of these tasks and respect the position of the architect and hospitality engineer. Main topics typically include: principles of facility engineering and maintenance, costs associated with the life cycle of a hospitality facility; role of the manager in the planning and maintenance process; function of the building in service and marketing, impact of building design on guest service and operation; evaluation of building and grounds for compliance with the Americans with Disabilities Act of 1990; role of management in development, planning, and remodeling of food service

operations; and flow of resources as exhibited in blueprints. The course is a required course for all Hospitality Management majors. Students must first complete the introductory hospitality course and the hospitality colloquium.

Enforced Prerequisite at Enrollment: a grade of C or better required in HM 201

HM 322: Introduction to Brewed Alcoholic Beverages (Beer, Cider, and Mead)

2 Credits

Discover the world of brewed alcoholic beverages. Historical and cultural impacts of brewed beverages (beer, cider, and mead) resonate in nearly all parts of our society. Explore and learn about production techniques, classic and modern ingredients, flavor profiles, and sensory expectations of different brewed alcoholic beverages. Taste and discover the sensory elements that make brewed alcoholic beverages vital economic products contributing to the hospitality industry. Appreciate marketing, merchandising, packaging, and service standards incorporated by industry leaders. Recognize the significance of responsible sales and service of all alcoholic beverages, specifically brewed beverages. Discover why brewed alcoholic beverages are culturally engrained in our future.

Recommended Preparations: Proof of Age 21+

HM 330: Food Production and Operations Management

3 Credits

This course is designed to apply management principles to foodservice production and service in a lab environment. HM 330 stresses the integration of management principles acquired in prior classes, including planning, organizing, controlling, staffing, and leading. Students will rotate in management and staff positions for the quantity production of quality food. The course draws from the students' theoretical background in accounting, management, nutrition, food production and sanitation. HM 330 integrates this content into the daily operation of a campus foodservice facility as a living laboratory.

Enforced Prerequisite at Enrollment: C or better in HM 230

HM 336: Hospitality Managerial Accounting

3 Credits

The course provides managerial tools for decision-making by focusing on the basic concepts, analyses, uses, and procedures of cost accounting in the hospitality industry. Managerial decision-making using accounting data is an integral part of the function of managers in the hospitality industry. The accounting function of a business generates financial data, and managers need to be able to interpret the data, analyze it and make decisions based on their interpretation and analysis of the data. This course provides the student with the core knowledge needed to understand the kinds of data generated by the financial systems of hospitality operations, prepare budgets, perform variance analysis, and provide control over the financial aspects of the hospitality business.

Enforced Prerequisite at Enrollment: (ACCTG 211 or HM 235) and HM 272

HM 344: Digital Marketing for Hospitality Management

3 Credits

This class explores the consumer's decision process for hospitality purchases within the changing landscape of digital technologies. The class focuses on expanding students' knowledge of the applications of digital communications across multiple channels within the context of hospitality. Students explore how to employ digital marketing to build hospitality brands, conduct business, handle guest complaints, drive sales, and forge and maintain guest relationships.

Enforced Prerequisite at Enrollment: HM 242

HM 350: Hospitality Revenue and Profit Optimization

3 Credits

This course introduces students to the principles of revenue and profit optimization, and the methodologies and analytical techniques required to make data-driven, profit-oriented decisions across all of the major revenue streams in hospitality. Areas of focus include data analytics, pricing, demand forecasting, capacity and duration management, and distribution channel management. The overriding goal of this course is to provide students with the skills necessary to make data-driven, profit-oriented decisions.

Enforced Prerequisite at Enrollment: HM 272

General Education: Quantification (GQ)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

HM 355: Legal Aspects of the Hospitality Industry

3 Credits

Specialized applications of law to the hospitality industry. HM 355 Legal Aspects of the Hospitality Industry (3) Laws, courts, and more generally the legal system together constitute an integral feature of the environment within which the hospitality industry operates. The objective of this course is to acquaint students with the application of law to hotels, restaurants, and institutional settings. A hospitality manager who understands the law can prevent many legal problems from occurring, including preventing injuries that may lead to lawsuits. Main topics in this course typically include: types of law, judicial structure and trial procedures; conduct of legal research, including use of Web resources; legal duties of innkeepers and guests; negligence and other torts; contract law; civil rights and public accommodations, especially protections from discrimination; guests' property; regulation and licensing; employment law, especially protections from discrimination; casinos and the law; and food and alcohol service liability.

Enforced Prerequisite at Enrollment: C or better in HM 101

HM 366: Human Resource Management in the Hospitality Industry

3 Credits

Hospitality is a people-intensive industry that relies on employees to provide the primary product delivered to the customer - the service experience. Therefore, the goal of this course to further develop your understanding and skill in managing people in a dynamic, diverse, and complex workplace. The course will begin by examining the strategic role of human resources in organizations and legal issues surrounding

the employment relationship. The course will then shift its focus to employee recruiting, selection, training, performance, management, and compensation and benefits. In addition to addressing the fundamentals in these core areas of human resources management, current issues and trends will be explored and analyzed. The course is grounded in the foundational principles of effective in human resource management and focuses on issues relevant to the hospitality industry throughout.

Enforced Prerequisite at Enrollment: A grade of C or better required in HM 201 and HM 365

HM 382: Franchising in the Hospitality Industry

3 Credits

The course examines franchising from the perspective of the both the Entrepreneur interested in franchising their business (Franchisor) and the Entrepreneur interested in starting a business by buying a franchise (Franchisee). Franchising is explored from legal requirements to marketing to feasibility and aptitude. Examples are included for a variety of hospitality franchise operations and franchise opportunities in other business segments. The course is oriented to the student who would like to start a business, explore buying a franchise of an existing business, or work for franchisors.

HM 384: Introduction to Meeting and Event Management

3 Credits

HM 384 Meetings and Events I examines the meeting and event industry, and the skill set of successful Meeting and Event Professionals. The course covers a broad overview of the processes involved in planning and implementing meetings, special events, and conferences by focusing on the basic processes of developing, planning, coordinating, implementing, and evaluating. Meetings & Events management is a viable career option within the hospitality industry. Hotels, restaurants, schools, arenas, convention centers, and retirement communities can all serve as venues for events. Events add value to organizations by creating engaging and memorable experiences for its stakeholders. Effective event managers know how to assess stakeholder objectives and design an event that meets or exceeds those objectives. With actual event case studies, the student will apply best practices in event design, promotion, management, and evaluation.

HM 386: Introduction to the Gaming and Casino Industry

3 Credits

HM 386 will serve as a gateway course to the casino concentration for some students and as a supplemental course for students focusing in other areas. The goal is to provide students with an overview of the commercial gaming industry with a focus on the United States gaming market. Students will be exposed to the early stages of the gaming industry in the twentieth century as well as the rapid expansion that has occurred in the last twenty years. Students will understand how casinos are structured depending on the markets they serve as well as how they are regulated. After providing the students with a framework from which to view commercial gaming, the course will provide an introduction to four important games that all contribute to casino profits. The goal will be to familiarize students with terms as well as operational knowledge necessary should they decide to pursue a career in commercial gaming. Lastly, HM 386 will serve as an entry course for the remainder of the casino concentration. This course will help students determine whether

they wish to make a further commitment which will involve three additional courses and an internship.

HM 388: Advanced Gaming Operations Management

3 Credits

The primary objective of this course is to build upon the fundamental understanding of the gaming industry that was introduced in the introductory course. The advanced students will gain an understanding of what it means to be a casino manager. Students will build this knowledge by working through case studies derived from actual issues that have confronted casino managers. In addition, students will continue to build their expertise in the various revenue producing games offered the casino industry. Finally, the students will continue to be exposed to some of the fundamentals of casino mathematics.

Enforced Prerequisite at Enrollment: HM 386

HM 390: Corporate Social Responsibility in Hospitality

3 Credits

This course introduces students to issues of corporate social responsibility. The course is taught from both general business and hospitality perspectives. Specifically, this course addresses the general historical development of CSR along with hospitality cases, fundamental concepts of CSR, different arguments for CSR, major frameworks of CSR, sustainability (environmental) issues, and hospitality cases and applications. The course will provide an opportunity to students for analyze the CSR programs of major hospitality companies by applying the concepts and practices of CSR discussed in the course.

Enforced Prerequisite at Enrollment: C or better in HM 101

HM 395A: Penn State Hospitality Services Internship

3 Credits/Maximum of 12

The on-campus internship course provides experience that will prepare students for management-level employment. This is designed to provide students with real job experience that complements their classroom learning and affords them the opportunity to apply their knowledge in real-world settings. This will be accomplished by participating in rotations as an employee, student supervisor, and Manager in Training in the daily operations in their department of Penn State Hospitality Services, and by developing their job skills specific to their internship position and personal goals. The students professional work experience offers knowledge about the hospitality industry, the chance to learn new skills, and a means to assess strengths and areas for development. Students will receive direct hands-on training in a functional area of Penn State Hospitality Services working in such areas as; front desk, housekeeping, maintenance, sales, restaurants, culinary, banquets, and marketing for 15-20 hours per week for 15 weeks. Students will also attend a 75-minute class weekly, which will feature presentations by Penn State Hospitality Services department heads, and professional development presentations.

Enforced Prerequisite at Enrollment: Approval by course instructor

HM 395B: Penn State Hospitality Services Executive Internship

3 Credits/Maximum of 6

The on-campus internship course provides experience that will prepare students for management-level employment. This is designed to provide students with real job experience that complements their classroom

learning and affords them the opportunity to apply their knowledge in real-world settings. This will be accomplished by participating in rotations as an employee, student supervisor, and Manager in Training in the daily operations in their department of Penn State Hospitality Services, and by developing their job skills specific to their internship position and personal goals. The students professional work experience offers knowledge about the hospitality industry, the chance to learn new skills, and a means to assess strengths and areas for development. Students will receive direct hands-on training in a functional area of Penn State Hospitality Services working in such areas as; front desk, housekeeping, maintenance, sales, restaurants, culinary, banquets, and marketing for 15-20 hours per week for 15 weeks. Students will also attend a 75-minute class weekly, which will feature presentations by Penn State Hospitality Services department heads, and professional development presentations.

Enforced Prerequisite at Enrollment: HM 395A and approval by course instructor

HM 395C: Penn State Food Services Internship

3 Credits/Maximum of 12

The on-campus internship course provides experience that will prepare students for management-level employment. This is designed to provide them with real job experience that complements their classroom learning and affords them the opportunity to apply their knowledge in real-world settings. This will be accomplished by participating in rotations as an employee, student supervisor and Manager in Training in the daily operations of Penn State Food Services, and by developing their job skills specific to their internship position and personal goals. The student's professional work experience offers knowledge about the hospitality industry, the chance to learn new skills, and a means to assess strengths and areas for development. Students will receive direct hands-on training in a functional area of Penn State Housing and Food Services for working 15-20 hours per week for 15 weeks. Students will also attend a 75-minute class weekly, which will feature presentations by Housing & Food Services department heads, professional development, and tours of the Penn State Housing & Food Services facilities.

Enforced Prerequisite at Enrollment: Approval by course instructor

HM 395D: Off Campus Internship - PSHS

3 Credits/Maximum of 12

The Off-campus internship course provides experience that will prepare students for management-level employment. This is designed to provide students with real job experience that complements their classroom learning and affords them the opportunity to apply their knowledge in real-world settings. This will be accomplished by participating in rotation as an employee, student supervisor and Manager in Training in the daily operations in their department. The students professional work experience offers knowledge about the hospitality industry, the chance to learn new skills, and a means to assess strengths and areas for development. Students will receive direct hands-on training in a functional area working in the hospitality industry for 15-20 hours per week for 15 weeks during Fall and Spring semesters, and 30-40 hours per week during the summer.

Enforced Prerequisite at Enrollment: Approval by course instructor.

HM 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

HM 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual of group instruction.

International Cultures (IL)

HM 407: The Sustainable Fork: Food Systems Decisions for Away-From-Home Eating

3 Credits

The course will incorporate economic and managerial dimensions to the discussion of food decisions in foodservice away-from-home eating contexts, particularly emphasizing the behavioral aspect of decisions - how individuals (consumers, providers, managers) make choices in the food system, and what might be the consequences of these choices. The course will use evidence from multiple farm-to-fork perspectives to allow students to analyze food systems problems and solutions. It will also require students to engage directly with the local food service system through course projects and tours. The major topics of discussion will be organized under each of the value chain components of the farm-to-fork continuum: production, distribution, purchasing, preparation, and consumption. Specific topics under each of these value chain components will include: nutrition, food safety, food waste, sustainable practices, social justice, consumer utility, economic profits, ethics, government policy, and decision-making. In particular, the course will be motivated by economic theories such as: agency relationship, information asymmetry, transaction cost economics, and behavioral economics topics such as self-rationing, and time discounting.

Enforced Prerequisite at Enrollment: C or better in HM 101 or C or better in AGBM 170 or C or better in AGBM 170N
Cross-listed with: FDSYS 407

HM 413: New Product Development for Commercial Foodservice

3 Credits

This course introduces students to a new product development process that requires coordination, communication, and integration throughout the organization.

Enforced Prerequisite at Enrollment: A grade of C or better in HM 230

HM 430: Applied Leadership in Foodservice Operations Management

3 Credits

This course is designed to give students an opportunity to gain experience in the wide range of skills and techniques that are normally associated with the duties of a hospitality manager. The skills and techniques that will be emphasized include, but are not limited to, duties involved in the planning, execution, and evaluation of full-service, theme-oriented ala carte dining. Students are expected to form a marketable theme and then develop, produce, and evaluate an authentic dining experience. A successful dining experience is contingent upon both guest satisfaction and the achievement of financial goals.

This course simulates technical, conceptual, and interpersonal skills required in foodservice operations. The emphasis is on group dynamics, improvement in managerial skills, and management team functions.

Enforced Prerequisite at Enrollment: HM 330

HM 432: Contemporary Issues in Restaurant Management

3 Credits

A focus on special topics and current events in the restaurant industry. HM 432 Contemporary Issues in Restaurant Management (3) The purpose of this course is to focus on contemporary issues and current events in the restaurant and food service management. The course will attempt to keep the students as updated as possible regarding the industry by covering these topics and including a discussion of current events from headline news services and other electronic references. Students gain knowledge that is applicable specifically to the restaurant and foodservice industry. This course explores the global food and drink market in today's challenging climate with analysis of trends and conditions expected to influence sales value and volume growth over the next five years. Discussion will include the impact economic shifts have on the restaurant and food service industry and the subsequent influence on consumer purchasing habits and food and drink sales over several years. This course considers food and drink New Product Development (NPD) and other vital branding, marketing and sales strategies in the context of the following challenges, issues and trends expected to influence restaurants and food service management over the years.

Enforced Prerequisite at Enrollment: A grade of C or better in HM 201 and HM 228 and HM 230

HM 435: Hospitality Corporate Finance

3 Credits

This is an introductory financial management course for the hospitality management major. The course will teach students fundamental knowledge of financial management concepts. This course will introduce a wide range of essential concepts that students can utilize to improve their decision-making and value creation abilities. The course introduces financial management Health and Human Development concepts with a focus on practical application, both in professional and personal lives. Students' ability to learn these concepts will be tested through group and individual assignments. This course focuses on conceptual and analytical knowledge and skill. Practical knowledge will also be reinforced through in-class discussions, and periodic readings that focus on current issues in finance and hospitality.

Prerequisites: ECON 102, A grade of C or better in HM 336

HM 480: Applied Hospitality Concepts and Decision Making

3 Credits

Applied Hospitality Concepts and Decision Making is designed as a capstone course in the Hospitality Operations stream. The course primarily focuses on students' participation in a hotel management simulation. The simulation requires students to consider strategic objectives through the application of revenue management, managerial accounting, human resource management, sales and marketing, and sustainability and innovation concepts. The course also devotes time to the topic of service quality and the considerations in delivering high-quality service in the hospitality experience including both theoretical perspectives and quantitative analysis (i.e., project management, process

analysis). As a capstone course, the course will also keep students abreast of trends and current events in the hospitality industry.

Enforced Prerequisite at Enrollment: HM 280 and HM 336 and HM 350

HM 481: Advanced Topics in Hotel Management

3 Credits

This course will focus on advanced topics in hotel management that are of critical importance in a dynamic and ever-changing operating environment. In particular, this course will address the economy, hotel ownership relationships, brand development, other industries in the value chain, product and service trends, and legislative issues. Knowledge of the economy and its relationship to the hotel industry is presented with discussions on stock markets, economic indicators, capital structure, and hotel economic indicators. Hotel ownership relationships are becoming more complicated, which will be addressed with discussions on asset management, owner objectives, management contracts, and franchise agreements. The introduction of new brands is a key component to corporate strategy, and the nature of strategic brand development will be covered. Other industries in the value chain have a significant impact on the hotel industry, and this course will focus on the evolution of alternative booking channels and lodging options. Product and service trends will also be a course focus, including healthy hotel initiatives, environmental initiatives, design trends, amenity trends, and technological advances. In addition, legal issues impacting the hotel industry will be discussed, along with the role of the American Hotel and Lodging Association and its lobbying efforts on specific legislation.

Enforced Prerequisite at Enrollment: HM 280

HM 482: Hospitality Real Estate

3 Credits

Ultimately, hospitality enterprises are location-based businesses requiring the deployment of real estate. To understand this important concept, hospitality students need to understand real estate in a hospitality industry environment. Students in HM 482 complete projects including feasibility studies for proposed hotels where they evaluate the competition, project hotel supply by future year, including evaluating and quantifying future supply additions. Then, students project hotel demand by future year by market segment, including estimating growth and any induced demand, and they calculate fair share by future year for proposed hotels. Students estimate penetration ratios by future year by market segment for proposed hotels, until stabilization, calculate occupancy by future year for proposed hotels, until stabilization, and estimate Average Daily Rate (ADR) by future year for proposed hotels, including estimating inflation. Students develop detailed financial projections by future year for proposed hotels, estimate market value for proposed hotels by applying the Income Approach, Cost Approach, and Sales Comparison Approach, conduct a Reconciliation to conclude a single, final Market Value Estimate, and compare the estimated market value of proposed hotels to the estimated development cost to conclude feasibility.

Enforced Prerequisite at Enrollment: C or better in HM 101

HM 483: Revenue Management

3 Credits

Students learn how to effectively implement revenue management strategies and techniques in the hospitality industry.

Enforced Prerequisite at Enrollment: a grade of C or better in HM 350

HM 484: Hospitality Entrepreneurship and Innovation

3 Credits

This course examines Entrepreneurship, Intrapreneurship and Innovation in the Hospitality Industry. The course provides a foundation of how ideas are generated, implemented, and taken to market. The course examines the characteristics of the entrepreneur and the process from idea generations, building a business model, preparing competitive analysis, completing a feasibility study, reviewing intellectual property, developing a business plan, seeking funding, and presentation to investors. The course is oriented to the student who would like to start a business or explore innovation within an existing organization

Enforced Prerequisite at Enrollment: ACCTG 211 or HM 235

HM 485: Advanced Meeting and Event Management

3 Credits

Meeting and event planning is an important and viable professional career option within the hospitality industry. Each event contains all the aspects of any business venture: stakeholder analysis, operations plan, marketing plan, and financial plan. Accordingly, the execution of an event requires effective communication, teamwork, motivational, and analytical skills. Therefore, students seeking a career in event management need to possess these fundamental business skills. In this advanced, hands-on course, students will plan and execute an event, building on event management content from HM 384: Introduction to Meeting and Event Planning. Students will be involved in all major aspects of planning and executing events, including contract negotiation, budgeting, risk management, promotion, menu planning, site selection, on-site management, sustainability, inclusivity, volunteer management, and evaluation.

Enforced Prerequisite at Enrollment: HM 384

HM 486: Casino Marketing

3 Credits

The primary objective of this course is to build upon the fundamental understanding of the gaming industry that was introduced in the introductory course. The advanced students will gain an understanding of the various promotional programs currently used by the commercial gaming industry. Students will build this knowledge by working in teams to build competence and present specific programs to their classmates. In addition, students will continue to learn to evaluate marketing programs based on their incremental contributions to profits and thereby understand that some marketing approaches cannot be financially justified. Finally, the students will continue to build competence in the fundamentals of casino mathematics.

Enforced Prerequisite at Enrollment: HM 386

HM 488: Hospitality Asset Management

3 Credits

Asset management is a growing and dynamic discipline in the hospitality industry. Asset managers are integral to the relationships between owners, managers, franchisors, franchisees, and brands. Today's owners expect asset management to function as the owner's representative in optimizing the value and protecting the asset. This course introduces

students to asset management ("AM") and the role of the asset manager in global hospitality operations. The course is taught from a hospitality perspective and focuses on how asset managers usually work with hospitality asset owners and third-party providers to enhance and optimize the value of hospitality assets. The multidisciplinary content includes a variety of perspectives on asset manager helping owners and third-party operators make investment decisions, enhance asset value, review and assess contractual agreements, and be aware of ongoing global and local trends that could eventually affect the value of hospitality assets such as hotels and restaurants

Enforced Prerequisite at Enrollment: ACCTG 211 or HM 235

HM 490: Strategic Hospitality Management

3 Credits

The purpose of this capstone course is to integrate previous course work to enhance students' analytical and critical thinking skills, managerial decision making skills, and an awareness of emerging trends in the hospitality industry. In particular, this course will integrate content in the areas of hospitality marketing, human resource management, organizational behavior, finance, accounting, and hospitality operations. The course offers a blend of theory and practical application of models of competitive strategy. The central questions that drive the course are: 'How do hospitality companies make strategic decisions, and how does strategy enhance the effectiveness of hospitality enterprises?' During the first half of the semester, the course will focus on the model of strategy formulation, from developing company vision and mission and setting objectives, through conducting an environmental scan, SWOT analysis, strategic analysis, and strategic choice. During the second half of the course, the focus will shift to corporate social responsibility, ethics, international strategic decision making, global hospitality management, and emerging trends in the industry.

Enforced Prerequisite at Enrollment: HM 242 and a grade of C or better in HM 336 and HM 365

HM 490W: Strategic Hospitality Management

3 Credits

This capstone writing-intensive class integrates content from throughout the previous curriculum, focusing on strategic application to current industry issues. HM 490W Strategic Hospitality Management (3) This capstone course integrates previous courses in the curriculum and introduces students to new strategic management concepts. This course adopts a macro perspective by focusing on the total hospitality enterprise and the external competitive environment in which hospitality firms operate. The goal of the course is to develop students' analytical skills to formulate, implement, and evaluate business strategies. Using a case-based approach, the course emphasizes critical thinking and evidence-based decision making.

Enforced Prerequisite at Enrollment: A grade of C or better in HM 336 and HM 365 and HM 442

Writing Across the Curriculum

HM 492: Advanced Professional Seminar in Hospitality Management

1 Credits

Course prepares senior HM students to assume leadership positions in the hospitality industry (Focus on careers, leadership, ethics, lifelong learning).

Enforced Prerequisite at Enrollment: 1000 hours of work experience in the hotel, restaurant and institutional management industry; Concurrent: HM 430 and HM 466 and HM 490W

HM 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

HM 494H: Senior Honors Thesis

1-6 Credits/Maximum of 6

Independent study related to a student's interests directed by a faculty supervisor and culminating in the production of a thesis.

Enforced Prerequisite at Enrollment: STAT 200 and a grade of C or better in HM 201
Honors

HM 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

HM 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

HM 498: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

HM 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Human Development and Family Studies (HDFS)

HDFS 97: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

HDFS 101N: Helping People: Introduction to Understanding Social Problems & How to Help

3 Credits

This inquiry-based course introduces students to the dynamic world of helping through the exploration of "hot topics"/pressing social issues. Exploration will highlight core themes of lifespan human development, lives in context, and the ethics of care as well as integrate how to use concept maps to understand complex social issues and identify policies and interventions to help. While discussion and exploration of hot topics may extend to address international contexts and applications, exploration will primarily be grounded in exploring issues within the U.S. By the end of the semester, students should develop the skills and knowledge needed to independently learn about and find ways to help address the pressing social issues that interest them.

United States Cultures (US)

General Education: Health and Wellness (GHW)

General Education: Social and Behavioral Science (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Critical and Analytical Thinking

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Social Responsibility and Ethical Reasoning

HDFS 108N: Art and Science of Human Flourishing

3 Credits

This course offers students the opportunity to explore human flourishing - defined as a life of deep meaning, fulfillment and service to others. Students will be taught about flourishing through the lens of science, philosophy, and their own experience. Through exposure to diverse scientific theories and research on the skills associated with flourishing, to philosophical and religious writings on human happiness and wellbeing, and to various reflective exercises and contemplative practices (e.g., mindfulness and compassion meditation), students will develop conceptual knowledge, experiential insight, and practical skills related to flourishing. The course begins by introducing a conceptual framework that defines flourishing in terms of foundations, domains and dimensions. First, students will learn about the foundations of flourishing in terms of the unique human capacities for reflection, resilience and transformation. Second, students will learn about four major domains and related dimensions that characterize flourishing, including the domains of awareness (e.g., focus, emotion, mindfulness), connection to others (e.g., interdependence, compassion, diversity), wisdom (identity, aesthetics, values) and integration of one's values and intentions in everyday living (e.g., courage, performance). Together, in a supportive and highly experiential learning environment, students will be encouraged to envision, articulate and pursue their own unique path to flourishing during their time in college and beyond based on their intellectual and experiential learning in the course. By the end of this course, students

are able to: (I) Demonstrate foundational knowledge, including the ability to analyze and describe the relevant concepts and theories in multiple intellectual fields on the nature and cultivation of human flourishing, and the ability to recognize the possibilities, value, and relevance of cultivating personal flourishing in their own lives in relation to flourishing in social relationships, communities, and institutions; (II) Experience deep engagement in terms of being familiar with the basic personal experiences relating to individual qualities of human flourishing in order to make personal sense of them, and master individual practices for assessing and developing them; and (III) Understand real-world applications in terms of acquiring skills, sensibilities, and perspectives relating to individual qualities of human flourishing, which they are able to apply in the diverse contexts of their lives

General Education: Health and Wellness (GHW)

General Education: Social and Behavioral Science (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

HDFS 109: Community, Connection, and Contemplation

1.5 Credits

Supportive relationships and communities are critical to health and well-being. However, creating meaningful relationships is challenging, and often requires a continuous exploration of the self and others. In this course, human development and contemplative science research sets the foundation to explore and understand connections between wellness, self-care, and community. Students will examine qualities of healthy relationships, social connection in their lives, and contemplative practices as they build skills for to promote collective resilience and solidarity. Additionally, they will be guided to examine challenges of self-care and caring for others by exploring systemic, social, and psychological barriers perpetuated by culture. Primary goals of this course are for students to develop greater awareness of self and a skill set to build and support a culture that values belonging, acceptance, and authenticity.

Recommended Preparations: It is suggested (but not required) that students complete HDFS 108N prior to or concurrent with HDFS 109. United States Cultures (US)

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Soc Resp and Ethic Reason

HDFS 129: Introduction to Human Development and Family Studies

3 Credits

Introduction to psychosocial and family development at all stages of the individual and family life cycle. Students may take only one course for General Education credit from SOC 30 or HDFS 129. HDFS 129 Introduction to Human Development and Family Studies (3) (GS)(BA) This course meets the Bachelor of Arts degree requirements. This course provides a basic introduction to the concepts, theories, and research on human development as it occurs over the life span and in context. Students will be introduced to developmental tasks and challenges unique to each stage of human development from the womb through infancy, early and middle childhood, adolescence, emerging adulthood, middle age and old age. Beginning with the prenatal state and infancy, students will be introduced to the biological, emotional, cognitive, psychosocial, as well as the social, cultural and historical

factors that influence growth and development across infancy, childhood, adolescence, adulthood, and advanced adulthood. Students will be introduced to basic concepts, theoretical orientations, and key empirical studies that inform human growth and development. Furthermore, attention is given to the central role of families and family life as a context for development. The formation of intimate relationships, marriage, marital processes, motherhood and fatherhood will be reviewed, as well as problems and challenges that families face such as financial stress, separation and divorce, abuse, and caregiving. Finally how families and family behavior are influenced by their communities, the larger culture, and other social and economic forces will be discussed.

Bachelor of Arts: Social and Behavioral Sciences

General Education: Social and Behavioral Science (GS)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

HDFS 129S: Introduction to Human Development and Family Studies

3 Credits

Introduction to psychosocial and family development at all stages of the individual and family life cycle.

Bachelor of Arts: Social and Behavioral Sciences

First-Year Seminar

HDFS 175N: Introduction to Youth Development and Arts-based Social Justice

3 Credits

Youth Development and Arts-based Social Justice is an inter-domain course (GA/GS) intended to help students develop a critical understanding of the ways that sociopolitical factors influence youth development. The course will examine youth development as an indicator of broader community development and explore the inter-dependencies between the two by drawing both from the interdisciplinary fields of youth development and arts-based social justice. This course will assess the proposition that goals of social equity at the community, metropolitan, or regional scale cannot be achieved unless disparities in youth development are also addressed. Students will learn to read, interpret, discuss, and integrate information from the arts and social sciences. We will primarily, but not exclusively, focus on youth-led organizing and social justice movements as sites of youth development wherein young people have utilized the arts to mobilize and transform public policy, determine the destiny of their communities and challenge injustice (e.g., mass incarceration, educational inequality, and forced relocation). We will explore key concepts, theories, models, and examples of youth development and youth organizing from the perspectives of youth and adults who are actively engaged in building progressive movements for social justice through the arts. Throughout this exploration, we will pay close attention to issues of identity, culture, community, and politics. Students in this course will be introduced to key ideas and dispositions for working with diverse youth populations through a social justice lens. Students will engage in critical thinking based on their own identities, values, experiences and perspectives while also practicing deliberate and strategic open-mindedness rooted in the awareness of the personal and political limitations. Students will reflect upon their own developmental experiences and the contexts in which these played out in their weekly sketchbook entries and the two papers. The course will consider the mutual impact that arts and social movements have on each other. This will be assessed through classroom dialogue, students' sketchbooks

and the integrative creative action project. The historical and theoretical materials will be contextualized by guest lectures, discussions, and performances involving visiting scholars, artists and activists.

Enforced Prerequisite at Enrollment: Recommended Preparations: ENGL 15 and CAS 100

General Education: Arts (GA)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

HDFS 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

HDFS 197N: Special Topics - InterDomain

1-9 Credits/Maximum of 9

Formal course given on a topical or special interest subject offered infrequently; several different topics may be taught in one year or semester. This Special Topics is an Inter-Domain GenEd course.

HDFS 200: Quantitative Skills for Human Services

3 Credits

This course introduces students to the quantitative methods used in human service careers emphasizing the implementation and interpretation of quantitative procedures in human service program settings. Students will obtain an understanding of programming basic Microsoft Excel calculations used to manage and analyze data; budgeting required in human service settings; interpreting descriptive and foundational inferential statistics; using quantitative statistics for program evaluations, producing charts and graphs for presenting information to community shareholders and funding agencies, and using output from statistical software to guide conclusions about human service program effectiveness.

General Education: Quantification (GQ)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

HDFS 210: Ethnicity, Health and Aging

3 Credits

The study of health and aging among persons from diverse race populations is not only the study of how people of different racial groups age, but also the contexts in which these populations function physically, psychologically, and socially. This course will allow students to develop a better understanding of the aging process across racial/ethnic populations and how differences in adult and aging development can be affected by social structures. Furthermore, the course is designed to encourage students to transfer learned material into modifying existing or developing new practical solutions to reduce aging and health disparities. This course will cover multiple areas, such as: (1) Overview of the concepts regarding race, ethnicity, and culture; (2) Aging

demographics; (3) Research methods in aging and racially diverse populations; (4) Health Disparities (e.g., physical and mental health); (5) Family, work, and retirement; (6) Aging in neighborhoods; (7) Policy.

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

HDFS 215N: Global health and families

3 Credits

This course examines global health from a family dynamics approach. The emphasis throughout the course is on the integration of family and health. Social science theories are introduced to understand how family kinship patterns and family dynamics influence health issues globally, as well as how family patterns are impacted by global health issues. This course also emphasizes how the family is used as a basis for intervention and prevention, and the social science theories that inform these strategies. Although global health itself is of great importance, the connections between global health and family dynamics will provide students a micro-macro connection and the skills to examine global issues from multiple levels of analysis.

International Cultures (IL)

General Education: Health and Wellness (GHW)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

HDFS 216: Personal and Interpersonal Skills

3 Credits

Conceptions of lifespan personal and interpersonal skill enhancement.

HDFS 229: Infant and Child Development

3 Credits

Theory, research, and methods of social/behavioral/biological sciences related to developmental processes and intervention during infancy and childhood. HD FS 229 Infant and Child Development (3) (GS)(BA) This course meets the Bachelor of Arts degree requirements. This course introduces students to the study of children from the prenatal period to (not including) adolescence. Students will become familiar with the most prominent theoretical ideas about child development. The latest research on prenatal development, infancy, early and middle childhood will inform the discussions, and students will become familiar with key studies. The major domains of children's functioning covered include social interactions and emotional development, cognitive changes and acquisition of language, physiological growth in infancy and biological changes that underlie the transition out of childhood into adolescence. A key feature of this course is how processes in these different domains interact to influence children's overall adaptation. Finally, informed by a life course developmental framework, this course will place these developmental processes in context. Students will become familiar with the theoretical and empirical literature that locates children's growth and development in the context of families and family change, peer groups, neighborhoods and communities, and the larger cultural context within which they are embedded.

Bachelor of Arts: Social and Behavioral Sciences
 General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

HDFS 230: Overview of Curricular Practices in Early Childhood Care and Education

3 Credits

Curricular practices in programs for infants, toddlers and preschoolers. Focus on developmentally appropriate practice, emergent curriculum and home/child care links. HD FS 230 Overview of Curricular Practices in Early Childhood Care and Education (3) This course, intended for current or future providers of early childhood care and education, examines curricular practices in programs for young children. It is required for the proposed Early Childhood Care and Education option to the associate degree in Human Development and Family Studies. The course addresses current practices in early childhood care and education programs for infants, toddlers, and preschoolers. After a brief examination of the history of early childhood care and education, this course focuses on the use of developmentally appropriate activities and strategies to maximize children's positive growth and development. Each of the traditional early childhood curricular areas (involving physical, social, emotional, cognitive development) is considered, as is the importance of the connection between families and early care and education settings. Reading and discussion in each curricular area stresses diversity issues and inclusion of children with special needs in groups with normally developing children. There is an emphasis on applications of the project approach and emergent curriculum as appropriate for use with infants, toddlers and preschoolers. Students show mastery of the course material through tests over each topic of discussion, reports on outside reading related to current issues in early childhood care and education, individual and small group presentations about a specific curricular issues, and use of a reflective journal. The course will be offered once each academic year, with an enrollment of 15-25 students.

Enforced Prerequisite at Enrollment: HDFS 229

HDFS 231: Guidance in Early Childhood Care and Education

3 Credits

Positive guidance methods for infants, toddlers and preschoolers, leading to self-control and social capability. Includes focus on home/childcare links. HD FS 231 Guidance in Early Childhood Care and Education (3) This course, intended for current or future providers of early childhood care and education, examines guidance methods for use with young children. It is required for the proposed Early Childhood Care and Education option to the associate degree in Human Development and Family Studies. The course emphasizes the use of guidance techniques that help children grow in independence, responsibility, self-control, and ability to function as group members. It addresses organization and guidance methods that foster the child's responsibility, independence, positive social interactions and emotional self-control. While the course covers various types of guidance, it emphasizes responding to children with respect and acceptance, using positive discipline. Since guidance is an area in which families and teachers frequently must confer, this course also deals with the use of effective parent-teacher communication skills. It requires weekly experience with young children. Each student will produce a portfolio demonstrating understanding of guidance techniques and their theoretical backgrounds. In addition, portfolios will demonstrate evidence of competence in analyzing the early childhood care and education environment in terms of its effect on young children's

behavior, as well as competence in solving environmental problems that contribute to guidance issues. Portfolios will also demonstrate evidence of competence in communicating with parents and families about guidance issues. Students will reflect, in writing, on their own use of developmentally appropriate guidance techniques in their work with young children. The course will be offered once each academic year, with an enrollment of 15-25 students.

Enforced Prerequisite at Enrollment: HDFS 229

HDFS 232: Creativity and Play in Early Childhood Care and Education

3 Credits

Planning for play, creativity and exploration in programs for infants, toddlers and preschoolers. Includes focus on home/childcare links. HD FS 232 Creativity and Play in Early Childhood Care and Education (3) This course, intended for current or future providers of early childhood care and education, examines the development of play and creativity in young children. It is required for the proposed Early Childhood Care and Education option to the associate degree in Human Development and Family Studies. The course addresses the potential of play, creativity, and exploration in the optimal development of a child. Content includes the development of play, creativity, and aesthetics. The course emphasizes adult-child interaction styles and activities that encourage, enhance and expand play, exploration and creativity in infants, toddlers, and preschoolers throughout the daily care and education routine. There is an emphasis on effective communication with families regarding the benefits of play and open-ended activities. It requires weekly experience with young children. Each student will develop a portfolio that demonstrates understanding of the development of play, exploration and creativity in the early years, as well as competence in planning for and enhancing that development. The portfolio will also show evidence of competence in communicating with parents and families. In addition to the portfolio, the student will develop an activity card file containing ideas for developmentally appropriate play and creative activities for infants, toddlers, and preschoolers. Each student will participate in individual and group presentations related to course topics, and will take tests covering reading and other class material. The course will be offered once each academic year, with an enrollment of 15-25 students.

Enforced Prerequisite at Enrollment: HDFS 229

HDFS 233: Emergent Language and Literacy: Development and Practice in Early Childhood Care and Education

3 Credits

Fostering development of language and literacy in infants, toddlers and preschoolers. Includes children's literature and focus on home/childcare links. HD FS 233 Emergent Language and Literacy: Development and Practice in Early Childhood Care and Education (3) This course, intended for current or future providers of early childhood care and education, examines the emergence of language and literacy. It is required for the proposed Early Childhood Care and Education option to the associate degree in Human Development and Family Studies. The course emphasizes why and how to foster continuous development from first sound through recognizable speech; from initial symbol recognition through reading; from making the first mark through writing. Content also includes choosing literature appropriate for use with infants and young children and methods of integrating literature throughout the daily child care and education routine. There is a focus on developing activities centered on language and literature, and an emphasis on effective communication with parents and families. This course requires

weekly experience with young children. Students will produce a portfolio demonstrating understanding of language and literacy development, competence in planning developmentally appropriate language and literacy activities for infants and young children, and competence in evaluating child care settings in terms of support for emergent language and literacy. Portfolios will also demonstrate evidence of competence in choosing and using good literature with young children, and in communicating to parents and families the importance of facilitating early language and literacy. In addition to the portfolio, students will develop files of language and literacy activities appropriate for use with infants and young children. They will also take tests related to reading and material covered in class. The course will be offered once each academic year, with an enrollment of 15-25 students.

Enforced Prerequisite at Enrollment: HDFS 229

HDFS 234: Mathematics and Science Reasoning: Development and Practice in Early Childhood Care and Educat

3 Credits

Fostering development of mathematical reasoning and scientific inquiry in infants, toddlers and preschoolers. Includes project approach and focus on home/childcare links. HD FS 234 Mathematics and Science Reasoning: Development and Practice in Early Childhood care and Education (3) This course, intended for current and future providers of early childhood care and education, examines the emergence of mathematics and science reasoning. It is required for the proposed Early Childhood Care and Education option to the associate degree in Human Development and Family Studies. The course addresses processes involved in mathematical reasoning and scientific inquiry. It emphasizes the development of activities, questioning skills, and observation and documentation techniques that extend infants' and young children's exploration, discovery, and thinking patterns. Content also includes methods of integrating mathematics, science and reasoning activities throughout the daily child care and education routine. Participation in the project approach provides students with an experiential understanding of constructing knowledge. There is also an emphasis on effective communication with parents and families. This course requires weekly experience with young children. Students will produce a portfolio demonstrating understanding of the development of mathematics and science reasoning in the very early years and competence in planning developmentally appropriate mathematics, science, and logical thinking activities for infants and young children. Portfolios will also demonstrate evidence of competence in communicating to parents and families the importance of exploration and discovery in facilitating young children's mathematics and science knowledge. Students will reflect, in writing, on their own growth in knowledge and competence in facilitating young children's thinking. In addition to the portfolio, students will develop files of mathematics and science reasoning activities appropriate for use with infants and young children. They will also take tests related to reading and materials covered in class. The course will be offered once early academic year, with an enrollment of 15-25 students.

Enforced Prerequisite at Enrollment: HDFS 229

HDFS 239: Adolescent Development

3 Credits

This course provides a basic introduction to concepts, theoretical perspectives, and key empirical studies on adolescent development. Students will become familiar with key developmental trends and

challenges that must be addressed to achieve healthy growth and development from the beginning of adolescence (puberty) up to the transition to adulthood. The course addresses biological changes (hormones, brain development), cognitive changes (abstract thinking, information processing) and social changes (families, peers, school, work); and the implications of these changes for issues such as identity development, autonomy, intimacy, sexuality and achievement. For each topic, students will become familiar with major theoretical frameworks, approaches to empirical research, and findings from empirical studies. Key features of this course are its attention to: how biological, cognitive and social changes combine to influence adolescents' overall adaptation; the ways in which adolescent development occurs in the context of families, peer groups, neighborhoods and communities, and the larger cultural context; and how theories and empirical findings can be applied to promote healthy adolescent development. Students pursuing the HDFS major must complete HDFS 129N plus two of the three 200-level developmental courses (HDFS 229, HDFS 239, HDFS 249N). This course may count toward the minor in HDFS. Students who are not pursuing a major in Human Development and Family Studies can apply credits from this course towards the General Education Social and Behavioral Sciences (GS) knowledge domain.

Bachelor of Arts: Social and Behavioral Sciences
General Education: Social and Behavioral Scien (GS)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

HDFS 249N: Adult Development and Aging

3 Credits

This course provides a basic introduction to concepts, theoretical perspectives, and key empirical studies on adult development and aging. Students will become familiar with key developmental trends and challenges that must be addressed to achieve healthy growth and development throughout adulthood and late life. The course addresses changes in physical health, cognition, and psychosocial functioning (including mental health, social roles and relationships, and transitions in work and retirement); and the implications of these changes for issues such as risk of disability, dementia, caregiving, and end-of-life decisions. For each topic, students will become familiar with major theoretical frameworks, approaches to empirical research, and findings from empirical studies. Key features of this course are its attention to: how biological, cognitive and social changes combine to influence overall adaptation and throughout the aging process; the ways in which adult development and aging occurs in the context of families, social relationships, neighborhoods and communities, and the larger cultural context; and how theories and empirical findings can be applied to promote healthy adult development and aging. Students pursuing the HDFS major option must complete HDFS 129 plus two of the three 200-level developmental courses (HDFS 229, HDFS 239, HDFS 249N). This course may count toward the minor in HDFS. Students who are not pursuing a major in Human Development and Family Studies can apply credits from this course towards the General Education Integrative Studies requirement: as an Inter-domain Course, the course puts approximately equal emphasis on learning objectives for Social and Behavioral Sciences (GS) and for Health & Wellness (GHW) knowledge domains.

Bachelor of Arts: Social and Behavioral Sciences
General Education: Health and Wellness (GHW)
General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

HDFS 250: Sexual Identity over the Life Span

3 Credits

Concepts of affectional and sexual orientation over life span, with emphasis on lesbian and gay male personal, family, and community adaptation. HD FS (WMNST) 250 Sexual Identity over the Life Span (3) (US) This course reviews concepts of sexual identity as informed by a human development perspective. Concepts of sexual orientation are discussed in the context of a review of lesbian, gay male, and bisexual lives. Developmental processes of lesbian and gay life are detailed: personal change from the teenage years through adulthood, changes in family and relationship patterns, and impact of communities, laws, and culture. These processes are contrasted to the developmental processes of women and men who identify themselves as heterosexual. The complex effect of gender, race, ethnicity, class status, and historical time on sexual orientation and its expression has generated ongoing controversies in scholarship as well as in public discourse. The course will be an introduction to these controversies as informed by human development research.

Enforced Prerequisite at Enrollment: 3 credits in ANTH or BBH or CAS or COMM or CRIM or CRIMJ or GEOG or HDFS or HIST or PSYCH or SOC or WMNST

Cross-listed with: WMNST 250

United States Cultures (US)

HDFS 250H: Sexual Identity Over The Lifespan

3 Credits

CONCEPTS OF AFFECTIONAL AND SEXUAL ORIENTATION OVER LIFESPAN, WITH EMPHASIS ON LESBIAN AND GAY MALE PERSONAL, FAMILY, AND COMMUNITY ADAPTATION.

Cross-Listed

Honors

HDFS 254N: Reading Our Lives: Understanding Diversity and Human Development through Memoirs

3 Credits

Students will explore the way people and their environments interact to influence human development through the integration of memoirs and other personal narratives, humanist themes and methods of inquiry, and social science theory and research. The personal narratives will expose students to the diversity of human experience including differences in gender, race, socioeconomic status, cultural and historical contexts. To frame and inform discussions of each memoir, students will examine relevant social science theories and research. The social science material will include key developmental frameworks such as lifespan development and ecological systems theory, and micro- and macro-level contextual factors influencing development, such as interpersonal relationships, cultural norms, and structural constraints. Students will also examine core humanist themes relevant to each memoir, such as values, cultural relativism vs. universalism, narratives and objective facts, structure and agency. Students will learn to read, interpret, and integrate information from the humanities and social sciences. They will learn to critically reflect on their own experiences, perceptions, and values, while

developing an understanding of other people's experiences, perceptions, and values. Students will also learn to engage in compassionate, informed, and knowledge-generating discussions to understand the complexity of human experiences.

United States Cultures (US)

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

HDFS 258N: Introduction to Child Maltreatment and Advocacy Studies

3 Credits

Introduction to the multidisciplinary field of child maltreatment. CMAS (HD FS) 258 Introduction to Child Maltreatment and Advocacy Studies (3) This course will focus on the identification, investigation, service, advocacy, prosecution, and prevention of child maltreatment as well as the treatment of adverse health outcomes for children who have been maltreated. Specific topics include the causes, correlates, and consequences of child maltreatment, best practices for reporting and investigating an allegation of child maltreatment, evidence-based prevention and intervention programs, the Child Welfare System, and relevant legal issues (e.g., termination of parental rights, children's testimony in court, etc.). By definition, this course will detail issues related to the abuse and neglect of children. This material can be difficult to hear, view, and discuss. This course is a required course, and a prerequisite for all advanced courses, for a Minor in Child Maltreatment and Advocacy Studies.

Cross-listed with: CMAS 258N, SOC 258N

General Education: Health and Wellness (GHW)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

HDFS 287Y: Intercultural Community-Building

3 Credits

An experiential introduction to negotiating differences in small groups, families, institutions, and communities. HD FS 287Y Intercultural Community -Building (3) (GS;US) This course provides students an experiential introduction to how individuals and families both affect and are affected by the various cultural/community contexts in which they develop, including schools, places of work, and youth and community programs. Students will identify and explore their own unique and shared assumptions, and the relationships between those assumptions and life histories and experiences. They will become aware of the dynamics of how communities are formed and function by forming a community themselves, and through involvement in a local community group or agency. Group discussions and written reflections will link their personal experiences to theory and research presented in class and readings on such topics as developing systems theories, cultural communication theories, and decision-making. The goals of the course are to increase students' understanding of the relations between values, power relations, and the various processes of social change, and encourage the development of communication skills and citizenship. Special

emphasis will be placed on developing relationships within culturally and ethnically diverse groups. Because it is designated as a writing intensive course, particular attention will be given to the development of written communication skills. Students will be evaluated on the basis on their performance in several areas, which may include examinations and quizzes, several writing assignments, and participation in class discussions and simulations. The course may be delivered at certain Commonwealth College campuses and Altoona College. Depending on location, the course may be offered during the fall, spring and/or summer sessions, with anticipated class enrollments of 12-20 students.

United States Cultures (US)
Writing Across the Curriculum

HDFS 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

HDFS 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

HDFS 298: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

HDFS 300: Honors Seminar: Concepts and Issues in Human Development and Family Studies

3 Credits

Introduces core concepts and issues in the study of Human Development and Family Studies.

Enforced Prerequisite at Enrollment: HDFS 129 or permission of human development and family studies honors adviser
Honors

HDFS 301: Values and Ethics in Health and Human Development Professions

3 Credits

Examines bases for choices among values in personal and professional relations in human development processes and supporting services.

HDFS 302A: Leadership and Technology Skills for Human Services Professionals A

3 Credits

Development of skills essential for contemporary human services professionals, including critical thinking, problem solving, electronic communications, and information handling.

Enforced Prerequisite at Enrollment: HDFS 129

HDFS 310M: Seminar in Honors--Research Methods

4 Credits

Overview of research and methods issues tailored around development of honors thesis proposals. HDFS 310 Seminar in Honors--Research Methods is designed to cover all of the elements in designing a research project. Through a series of written projects, students study the scientific method, research question development, and tools and techniques for data gathering and analysis. The course covers how to take a theory about human development and family studies and develop testable hypotheses/research questions. Students learn the basic skills needed for managing and understanding data; analyzing data; and presenting data. Then, students use real data to practice data management, data analysis, and reporting on data in both oral and written forms.

Enforced Prerequisite at Enrollment: Permission of Human Development and Family Studies honors adviser

Honors
Writing Across the Curriculum

HDFS 311: Human Development and Family Studies Interventions

3 Credits

Survey of individual and family formal and informal intervention efforts; historical and current perspectives and approaches.

Enforced Prerequisite at Enrollment: HDFS 129

HDFS 312W: Empirical Inquiry in Human Development

3 Credits

Introduction to the skills involved in critical thinking in general and the methods of empirical inquiry in particular. Open to HD FS majors only.

Enforced Prerequisite at Enrollment: A grade of C or better required in EDPSY 101 or STAT 200

Writing Across the Curriculum

HDFS 314: Understanding Human Development and Family Research

1 Credits

Students who complete HDFS 314 will have a broad understanding of the methodological principles and the techniques used to measure human and family behavior. Students will also acquire an understanding of how statistics, reading, and writing research are integrated together for a complete learning experience. By the end of the semester, students will have gained a supplementary understanding of the research process. Students who successfully complete HDFS 314 will have become proficient (1) in the use of standard methodological terminology related to HDFS research. (2) in the use reference managing software (such as Zotero or Mandalay). (3) using software for family data collection (such as Qualtrics, SPSS, or Excel). (4) recording and reporting family data collected from "participants." (5) analyzing family data sets through the use of standard statistical analysis.

Recommended Preparations: HDFS 312W

HDFS 315: Family Development

3 Credits

Family functions over the life course; family from a multidisciplinary perspective, emphasizing adaptation and change. HDFS 315 Family

Development (3) (US) This course offers an overview of families focusing primarily on contemporary American families. The primary thrust of this course is to step beyond our personal experiences with families and place them within a broader social, historical, cultural and economic context. This class will be multi-disciplinary in its approach to the study of American families. However, we will begin with the historical, demographic and social changes that American families have undergone and try to understand some of the causes and consequences of these changes for the developmental life course of adults and children in families today. Throughout this course we will be particularly concerned with the diversity of American families stressing differences based on gender, race and ethnicity, and socioeconomic status.

Enforced Prerequisite at Enrollment: HDFS 129 or (3 credits in ANTH or BBH or CAS or COMM or CRIM or CRIMJ or GEOG or HDFS or HIST or PSYCH or SOC or WMNST or BIOL or BISC)
United States Cultures (US)

HDFS 315Y: Family Development

3 Credits

Family functions over the life course; family from a multidisciplinary perspective, emphasizing adaptation and change. HDFS 315Y Family Development (3) (US) This course offers an overview of families focusing primarily on contemporary American families. The primary thrust of this course is to step beyond our personal experiences with families and place them within a broader social, historical, cultural and economic context. This class will be multi-disciplinary in its approach to the study of American families. However, we will begin with the historical, demographic and social changes that American families have undergone and try to understand some of the causes and consequences of these changes for the developmental life courses of adults and children in families today. Throughout this course we will be particularly concerned with the diversity of American families stressing differences based on gender, race and ethnicity, and socioeconomic status.

Enforced Prerequisite at Enrollment: HDFS 129 or (3 credits in ANTH or BBH or CAS or COMM or CRIM or CRIMJ or GEOG or HDFS or HIST or PSYCH or SOC or WMNST or BIOL or BISC)
United States Cultures (US)
Writing Across the Curriculum

HDFS 330: Observation or Experience with Children, Youth, and Families

1-6 Credits

Directed observations of, or supervised experience with children, youth, and families in group or home settings.

Enforced Prerequisite at Enrollment: HDFS 229 or PSYCH 212

HDFS 345: CONTEMPORARY URBAN ISSUES AND SOCIAL JUSTICE FRAMEWORKS

3 Credits/Maximum of 3

The discipline of Human Development and Family Studies has a tradition of culturally sensitive engagement within communities, helping to improve quality of life by applying and disseminating knowledge about development across the lifespan, all in their larger social contexts. Issues of social justice and equity play an integral role in defining the questions that Human Development and Family Studies students ask and the solutions that they pursue, as students must account

for diverse needs and values based on age, gender, ethnicity and cultural background. Students preparing to work in the field of Human Development and Family Studies must possess the content, pedagogical and professional knowledge, skills, and dispositions necessary to work in diverse communities. HDFS 345 is an opportunity for students to explore the relationship between contemporary urban issues and family development. Participants will evaluate urban development from a Human Development perspective and with a critical eye to how urban development has accounted for the distinctive needs of different segments of the public. Therefore, HDFS 345 incorporates the knowledge of different Human Development and Family Studies theories and social justice paradigms to help students examine urban themes and build their understanding of social justice and family development as related to these themes. Students will learn how urban planning accounts for differences in society, identify different segments of the urban population differentiated by a few diversity constructs (culture, race, SES, gender, etc) and gain awareness of the varying and distinctive needs and concerns of these groups with respect to living in the urban environment. Students will also explore contemporary issues, like modern policing practices, and find resources to develop solutions to social issues or problems. Discussions of policy and moral philosophy will contribute to students' aptitude to plan an appropriate solution with tangible results. Ultimately, students are expected to leave the course with geographically-informed conceptualizations of social justice and insight into how individuals, families and organizations can work within urban communities as collaborators and partners.

Recommended Preparations: HDFS 175N or HDFS 129 or HDFS 239
United States Cultures (US)

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

HDFS 395: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: prior approval of proposed assignment by instructor

HDFS 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

HDFS 400: Youth Development and Social Justice Capstone Seminar

4 Credits

This course will immerse students in theories, historical contexts, and practices of structural oppressions that influence youth development, and responses to them through youth empowerment, democratic action, and popular education in communities through study, reflection and, most importantly, on-site partnership field placement with an urban youth worker or agency, such as in a school or community organization. Specifically, you will work with various community-based organizations in partnerships set up by the Penn State Faculty that are local exemplars of democratic action with and for youth development, working closely with professionals affiliated with those programs to support their work

and learn from them. HDFS 400 is a community engaged and culture of support course. Community engagement, also called service learning, is a form of reciprocal experiential education wherein students learn through the collaborative process of meeting authentic community needs. High quality community engagement also attempts to affect real, material social conditions; to authentically integrate the work done to meet community needs with the curriculum/course through continuous, critical reflexive and reflective inquiry; and to be a system of praxis (theory - practice) where the inquiry then informs the work participants do, participants' self-concepts, and the practices of the community. The field, reading, in class and written work will reflect these principles

Enforced Prerequisite at Enrollment: HDFS 175N Recommended Preparations: HDFS 345 or ENGL 15 or CAS 100 or HDFS 239

HDFS 401: Project Planning, Implementation, and Evaluation in the Human Services

3 Credits

Exercises and activities related to the design, planning, implementation and management, and evaluation of projects and programs in the human services. HD FS 401 Project Planning, Implementation, and Evaluation in the Human Services (3) HD FS 401 is part of a sequence of courses that develop skills and competencies of the human services student. The course emphasizes the further development of communication skills, diversity skills, team-building skills, critical thinking skills, and technology and leadership skills. Intended to be completed prior to the internship experience, the course will initially focus students' efforts on the identification of a field-based human services project or program, and a setting within which it could be carried out. Subsequently, students will design and plan the project or program, examine and propose effective implementation and management procedures, and incorporate state-of-the-art evaluation procedures into the design.

Enforced Prerequisite at Enrollment: HDFS 312W and approval by internship coordinator. Prerequisite or concurrent: HDFS 411

HDFS 402: Human Services Seminar

4 Credits

Presentations and discussion of contemporary human issues by students and visiting professionals.

Enforced Prerequisite at Enrollment: HDFS 401

HDFS 405: Gender and Social Development

3 Credits

A REVIEW OF GENDER-RELATED PATTERNS OF SOCIAL DEVELOPMENT OVER THE LIFESPAN, AS INFLUENCED BY BIOLOGICAL, SOCIOLOGICAL, AND PSYCHOLOGICAL FACTORS.

Enforced Prerequisite at Enrollment: HDFS 129 and (HDFS 312W or 6 credits in ANTH or BBH or CAS or COMM or CRIM or CRIMJ or GEOG or HDFS or HIST or PSYCH or SOC or WMNST or BIOL or BISC) United States Cultures (US)

HDFS 410: Communities and Families

3 Credits

Family and community interaction, emphasizing strategies for intervention to solve family-community problems.

Enforced Prerequisite at Enrollment: HDFS 312W and (3 credits in ANTH or BBH or CAS or COMM or CRIM or CRIMJ or GEOG or HDFS or HIST or PSYCH or SOC or WMNST or BIOL or BISC)

HDFS 411: The Helping Relationship

3 Credits

Theory and research related to interpersonal conditions which facilitate personal growth; intensive interpersonal competency training.

Enforced Prerequisite at Enrollment: (HDFS 311 and HDFS 312W) or [6 credits in HDFS or 6 credits in PSYCH or (3 credits in HDFS and 3 credits in PSYCH)]

HDFS 412: Adult-Child Relationships

3 Credits

Theories, research, and application of adult behavior for maximizing adult-child relationships and optimizing child socialization and self-development.

Enforced Prerequisite at Enrollment: (HDFS 229 or PSYCH 212) and HDFS 311 and HDFS 312W and (HDFS 315 or HDFS 315Y)

HDFS 413: Developmental Problems in Adulthood

3 Credits

Analysis of individual developmental problems from young adulthood through old age and their prevention and modification.

Enforced Prerequisite at Enrollment: (HDFS 129 or HDFS 249) and HDFS 312W

HDFS 414: Resolving Human Development and Family Problems

3 Credits

Strategies for, and roles of professional specialists in, the solution of problems in human development and family functioning.

Enforced Prerequisite at Enrollment: HDFS 312W and [6 credits in HDFS or 6 credits in PSYCH or (3 credits in HDFS and 3 credits in PSYCH)]

HDFS 415: Program Development in Family Relationships

3 Credits

Methods for planning, developing, and evaluating human service programs for families across the life span.

Enforced Prerequisite at Enrollment: HDFS 311 and HDFS 312W and (HDFS 315 or HDFS 315Y)

HDFS 416: Racial and Ethnic Diversity and the American Family

3 Credits

This course will explore the nature and determinants of racial and ethnic variation in family processes in the United States. HD FS 416 (SOC 411)

Racial and Ethnic Diversity and the American Family (3) During the last several decades, the racial and ethnic composition of the U.S. population has changed dramatically. At end of the 20th century, non-Hispanic whites accounted for less than 75 percent of the U.S. population. While blacks remained the largest minority group, there were nearly as many Hispanics as blacks, and the number of Asians was increasing. Population projections indicate that by the middle of the 21st century, Hispanics will make up nearly one-fourth of the U.S. population. Blacks, Asians, and American Indians together will comprise an additional fourth of the population. The last several decades have also brought significant changes in family life in the United States, including declining rates of marriage, a rising age-at-marriage, an increase in cohabitation, and a dramatic rise in the proportion of births outside of marriage. While these trends in family life have been experienced by all racial and ethnic groups, there is substantial variation in family patterns by race and ethnicity. The course will build on other courses in social inequality and the family. The course does not overlap with any existing courses in the Department of Sociology or with courses offered in other relevant departments. This course will explore the nature and determinants of racial and ethnic variation in family processes in the United States. The student will read articles from major sociological journals and learn to extract major points and issues. He/she will learn to synthesize and critique various arguments on major issues in the field. The student will acquire skills in summarizing and evaluating arguments in essay form. He/she will also develop oral presentation skills. Final grades for the course will be based on class participation, a brief (approximately 5 pages) paper, a group presentation, a midterm examination (essay format) and a final examination (essay format). The course is not required for the Sociology minor or major. However, the course can count as one of the 400-level elective courses in Sociology for the Sociology minor, B.A. or B.S.

Enforced Prerequisite at Enrollment: 3 credits in SOC
Cross-listed with: SOC 411
United States Cultures (US)

HDFS 417: Biocultural Studies of Family Organization

3 Credits

Study of variability in family organization with an emphasis on cultural and economic factors influencing household organization and family roles.

Enforced Prerequisite at Enrollment: HDFS 129 and HDFS 312W and [(HDFS 315 or HDFS 315Y) or (6 credits in SOC or ANTH)]
International Cultures (IL)
United States Cultures (US)

HDFS 418: Family Relationships

3 Credits

Dynamics of family interaction; effects of parenthood, sibling and intergeneration relationships on family solidarity.

Enforced Prerequisite at Enrollment: HDFS 312W and (HDFS 315 or HDFS 315Y)

HDFS 420: Laboratory in Individual and Family Enhancement

3 Credits

Supervised practice in methods of assessment, intervention, and evaluation to enhance individual and family development.

Enforced Prerequisite at Enrollment: HDFS 312W and HDFS 411 and 6 additional credits in HDFS

HDFS 424: Family Development in an Economic Context

3 Credits

Economic conditions influencing family functioning; familial effects on the economy; strategies to enhance work-family relations.

Enforced Prerequisite at Enrollment: HDFS 312W and (HDFS 315 or HDFS 315Y)
United States Cultures (US)

HDFS 427: Developmental Sport & Exercise Psychology

3 Credits

Developmental changes in the antecedents and consequences of physical activity across the lifespan. HD FS (KINES) 427 Developmental Sport & Exercise Psychology (3) Change is constant with physical activity - our reasons for being active change across the lifespan and our experiences with physical activity change how we view ourselves and those around us. Developmental Sport & Exercise Psychology focuses on developmental changes in the psychosocial antecedents and consequences of physical activity across the lifespan. Specific course objectives include (1) describing theoretical frameworks and methods used to study physical activity-related psychosocial development across the lifespan, (2) describing how self-perceptions develop and influence behavior in movement contexts at different points in life, (3) explaining how contextual factors influence developmental processes associated with physical activity, (4) identifying age-related differences in activity-related antecedents and consequences of physical activity, and (5) developing, reviewing, and critiquing theoretically-grounded interventions to address issues related to developmental processes associated with physical activity across the lifespan. Evaluation will be based on written examinations, submission of a series of reflection papers on reading assignments, a group presentation, and the students' engagement in the class. It extends but does not duplicate existing courses in the Department of Innersole, Human Development & Family Studies, and Psychology.

Enforced Prerequisite at Enrollment: PSYCH 100 and (KINES 321 or HDFS 129 or PSYCH 212)
Cross-listed with: KINES 427

HDFS 428: Infant Development

3 Credits

Conceptual analysis, assessment, and empirical investigation of normal and deviant development, prenatal through first two years of life.

Enforced Prerequisite at Enrollment: (HDFS 229 or PSYCH212) and HDFS 312W

HDFS 429: Advanced Child Development

3 Credits

Processes of development during childhood from birth to adolescence. Emphasis upon theory, method, and empirical research.

Enforced Prerequisite at Enrollment: (HDFS 229 or PSYCH212) and HDFS 312W

HDFS 430: Experience in Preschool Groups

1-6 Credits/Maximum of 6

Guided practicum experience in planning and facilitating developmentally appropriate activities for young children. HD FS 430 Experience in Preschool Groups (1-6 per semester/maximum of 6) This course is intended to provide students with guided experience in interacting with young children and in designing and conducting developmentally appropriate activities for children in preschool groups. In addition to working with preschool children in preschool classrooms, students will meet weekly to discuss curriculum and activity planning, guidance techniques and issues relevant to providing quality preschool settings. Time will be set aside in each class period for open discussion of classroom experiences. Visits to campus preschool locations are planned to enhance the selection of appropriate teacher resources for curriculum development.

Enforced Prerequisite at Enrollment: (HDFS 229 or PSYCH 212) and HDFS 312W and HDFS 330

HDFS 431: Family Disorganization: Stress Points in the Contemporary Family

3 Credits

Focuses on divorce, remarriage, incest, family violence as well as problems associated with family formation and parent-child relations.

Enforced Prerequisite at Enrollment: 6 credits in HDFS or 6 credits in PSYCH or 6 credits in SOC or (3 credits in HDFS and 3 credits in PSYCH) or (3 credits in HDFS and 3 credits in SOC) or (3 credits in PSYCH and 3 credits in SOC)

Cross-listed with: SOC 431

Bachelor of Arts: Social and Behavioral Sciences

HDFS 432: Developmental Problems in Childhood and Adolescence

3 Credits

Analysis of problems in individual development from infancy through adolescence; prevention and modification of developmental difficulties.

Enforced Prerequisite at Enrollment: HDFS 229 and (HDFS 239 or PSYCH 212) and HDFS 312W

HDFS 433: Developmental Transition to Adulthood

3 Credits

Conceptual analysis and empirical investigation of interrelationships between developmental processes during the period of pubertal growth.

Enforced Prerequisite at Enrollment: HDFS 239 and HDFS 312W

HDFS 433H: Developmental Transition to Adulthood

3 Credits

Conceptual analysis and empirical investigation of interrelationships between developmental processes during the period of pubertal growth.

Honors

HDFS 434: Perspectives on Aging

3 Credits

An analysis of the demographic, social, and cultural factors affecting the aged population in American society.

Enforced Prerequisite at Enrollment: 3 credits in SOC

Cross-listed with: SOC 435

Bachelor of Arts: Social and Behavioral Sciences

HDFS 440: Family Policy

3 Credits

An in-depth examination of family policy. HD FS (SOC) 440 Family Policy (3)(BA) This course meets the Bachelor of Arts degree requirements. This course is designed to provide an in-depth examination of family policy. Students will identify and critically analyze major issues, controversies, and policies that affect families. Attention will be devoted to recognizing both intended and unintended consequences of family policies and understanding policy challenges and trade-offs. Students will gain an understanding of how policies are shaped by both facts and myths, as well as our values. Students will examine historical and current trends in family patterns (e.g., divorce, women's labor force participation, nonmarital births) to understand the implications they hold for individuals, families and society. Students will gain an awareness of the social, economic, historical, legal, and political contexts within which family policies exist and are proposed. Although the main focus is on U.S. family policy, some time will be devoted to learning about family policies in other countries. We will learn about several specific family policies in-depth (e.g., welfare), but a final goal is to help students develop a general way of looking at family policy that they can then use to understand any issue of family policy that unfolds throughout their lifetime. This course will foster thoughtful reflection and critical thinking, writing skills, research skills, and skills of synthesis, logic, and argument. Course goals will be accomplished through course readings, writing assignments, lectures, class discussions, debates and group projects. Mastery of course material and student evaluation are assessed in several ways. Students will take a midterm and final exam that cover lectures, class discussions, and assigned readings. Two papers are also required. The first paper is based on an analysis of newspaper articles dealing with family policy issues that students will collect and relate to course materials. The second paper is a literature-based analysis of a family policy in a society outside the United States. Class participation is also essential and its evaluation will be based on a combination of class attendance, contributions to class discussions, participation in group debates and projects, and an oral presentation of the final paper on a non-U.S. family policy.

Enforced Prerequisite at Enrollment: 3 credits of SOC or HDFS

Cross-listed with: SOC 440

Bachelor of Arts: Social and Behavioral Sciences

HDFS 445: Development Throughout Adulthood

3 Credits

Processes of development and change of behavior from early adulthood through old age, emphasizing theory, method, and empirical research.

Enforced Prerequisite at Enrollment: HDFS 249 and (HDFS 312W or PSYCH 301W) and (PSYCH 200 or STAT 200 or 3 credits in STAT) and (6 credits in HDFS or PSYCH or SOC)

Cross-listed with: PSYCH 416

Bachelor of Arts: Social and Behavioral Sciences

HDFS 447: Issues in Gerontology

3 Credits

Analysis of major issues in adulthood and aging, with an emphasis on integration of theory and research.

Enforced Prerequisite at Enrollment: HDFS 249 or HDFS 445 and HDFS 312W

HDFS 448: Death and Bereavement

3 Credits

The course takes a social and developmental perspective to illuminate an often hidden, but significant dimension of human development in the context of death-related encounters, attitudes, historical patterns, cultural variations, as well as the complexities of the American death system. In considering death-related patterns in society, it explores notable examples like 'human-induced death' (e.g., suicides, accidents and homicides), 'socially sanctioned death' (e.g., violence from war, genocide, and terrorism), and the characterization of death in daily discourse, the media, and present day death rituals. Key issues and questions from the field are discussed at both individual and societal levels, which include the meaning of death, facing death across the life-course, the sociocultural context of death, bereavement and grief, the death industry, and ethical and legal issues surrounding death. Examining the variegated meanings in different social institutional spheres, such as ethics, politics, mass media, and family from a social-scientific perspective, the course helps students recognize and appreciate that death and bereavement are deeply embedded into social and cultural structures of society, including how we learn about death, the typical ways in which our attitudes and beliefs are shaped, and how death and bereavement affect children, adolescents, adults, and older adults. It also addresses issues specific to death/dying in careers Human Development and Family Studies prepares for in terms of death education and bereavement counseling.

Enforced Prerequisite at Enrollment: (HDFS 229 or HDFS 239 or HDFS 249 or PSYCH 212) and HDFS 301 and (HDFS 312W or PSYCH 301W)

HDFS 451: Adoption: Policy, Practice, and Experience

3 Credits

This course introduces students to the concepts, research, and policies associated with historical and contemporary adoption practice. Topics will include adoption policies, practices, and experiences from the viewpoints of birth parents, adoptees, and adoptive parents. Social, emotional, and developmental issues faced triad members throughout the adoption process and lifespan are also examined. For example, students will be guided to consider implications of various adoption arrangements and policies on identity development (e.g. ethnicity/race and transracial adoption; social class and issues of privilege related to adoption; gender, sexuality, and adoption) as well as how historical and contemporary U.S. adoption policies, laws, and practices intersect with issues of social justice and equity.

Enforced Prerequisite at Enrollment: 6 credits of HDFS or PSYCH or SOC or RHS.

United States Cultures (US)

HDFS 452: Child Maltreatment Prevention, Intervention, and Legal Issues

3 Credits

Examines causes, correlates, and consequences of child maltreatment, empirically supported prevention/intervention programs, the Child Welfare System and relevant legal issues.

Enforced Prerequisite at Enrollment: (HDFS 229 or HDFS 239) and HDFS 312W

HDFS 453: Family Participation and Involvement in Child Services

3 Credits

Current and historical perspectives of roles and functions of family members in designing, delivering, and evaluating of child service programs.

Enforced Prerequisite at Enrollment: HDFS 229 and HDFS 312W and (HDFS 315 or HDFS 315Y)

HDFS 455: Development and Administration of Human Services Programs

3 Credits

Fundamentals of program development and administration of human service programs in community settings; emphasis given to program content, strategies, and the overall planning process.

Enforced Prerequisite at Enrollment: HDFS 311

HDFS 465: Child Maltreatment: Prevention and Treatment

3 Credits

Advanced examination in approaches for preventing child maltreatment and treating its consequences. HD FS (CMAS) 465 Child Maltreatment: Prevention and Treatment (3) Child maltreatment, including physical abuse, sexual abuse, emotional abuse, and neglect, is a highly prevalent condition affecting nearly one million children each year in the United States alone. This course will delineate the long-term health consequences affecting those who have experienced child maltreatment with an emphasis on those outcomes exerting the greatest impact on overall public health throughout the lifespan. Importantly, a focus on the etiology of such health consequences in the child maltreatment population will be made in order to understand the causal pathways leading to these health consequences. This focus on etiology will serve as a segue into the remaining sections of this course, specifically the prevention and treatment of child maltreatment and its consequences. Universal and targeted prevention programs, where the focus is to prevent an initial instance of child maltreatment from occurring, will be detailed, as will tertiary prevention programs, where the focus is on preventing a re-occurrence of child maltreatment. Similarly, prevention of adverse health outcomes for those affected by child maltreatment will also be covered. Finally, evidenced-based interventions applied with children who have been maltreated and are currently experiencing clinical levels of impairment (e.g. post-traumatic stress disorder) will be detailed. Identification and rehearsal of treatment components commonly used in prevention and clinical intervention programs will be emphasized. Students successfully completing this course will have direct knowledge of the consequences of child maltreatment and the established methods used in prevention and intervention programs applied with this population.

Enforced Prerequisite at Enrollment: CMAS 258N or HDFS 258N or SOC 258N

Cross-listed with: CMAS 465

HDFS 467: Autism: Providing Professional Support for Individuals and Families

3 Credits

This course emphasizes the professional development for students planning to pursue careers in the field of autism. Topics include the stresses and needs of families and siblings of children with Autism Spectrum Disorders (ASD), vocational and social challenges faced as individuals with ASD age into adolescence and adulthood, and techniques to aid parents in becoming effective advocates for their child's academic, social, and behavioral needs. Although the core symptomatology of ASD and empirically validated interventions are covered as foundational knowledge, these topics are not the focus of this course. Rather, this course identifies the challenges and strengths likely to be encountered in the lives of families and individuals with ASD and provides current best practices to help clients navigate life with ASD.

Enforced Prerequisite at Enrollment: (HDFS 229 or HDFS 239) and (HDFS 312W or PSYCH 212)

HDFS 469U: Family Change in the Global Economy

3 Credits

Exploration of how family life, quality, and structures in each region of the world are affected by the new global economy. HDFS 469U Family Change in the Global Economy (3) (IL) We know that family life, structure, and practices undergo dramatic change when there are economic and political changes in the society. Economic globalization is unprecedented as a force for social and political change. How is it affecting family life and structures around the world? While we have considerable research on globalization and on family change, there has been little work that connects the two. This is an exploratory seminar that involves locating those linkages and discovering families in each world region are changing as they meet up with global economic forces. As we explore each world region, we will learn about diverse cultures and how they are affected by global forces. In the Americas, Africa, Asia, the Middle East and Europe this course uncovers new forms of inequality that are emerging from the global economy and having direct effects on women and families. Through it all, we explore how human action, in the family, the community and the society, struggles for quality of life in a global economic context.

International Cultures (IL)
Honors

HDFS 477: Analysis of Family Problems

3 Credits

Analysis of families' behavioral, managerial, interpersonal, and financial problems and their interrelationships.

Enforced Prerequisite at Enrollment: HDFS 312W and (HDFS 315 or HDFS 315Y) and (3 credits in ANTH or BBH or CAS or COMM or CRIM or CRIMJ or GEOG or HDFS or HIST or PSYCH or SOC or WMNST)

HDFS 485: Supporting Healthy Development: Understanding Systems, Successes, and Challenges

3 Credits

In this advanced, project-based course, each student will select a topic to study for an individual, semester-long project. Through interviews with people in their communities and reading academic literature, students will examine their topic in detail and explore the way individuals and contexts interact to influence development. Throughout the semester, students will be instructed on topics such as ecological systems theory, policy analysis, concept mapping, and network theory, as well as be guided to develop skills in interviewing, networking, and project management. Students will learn about each other's topics, share resources, and provide each other with support. Assignments will be professional-style products ranging from concise interview and reading summaries to project proposals, weekly logs, and presentations.

Enforced Prerequisite at Enrollment: HDFS 301 Recommended Preparation: HDFS 312W, 6 additional credits of HDFS coursework at the 300/400 level

HDFS 490: Introduction to Internship Experience

2 Credits

Planning and preparation for field experience in human service setting. Analysis of human service system and arrangement of site.

Enforced Prerequisite at Enrollment: HDFS 312W and approval by internship coordinator. Prerequisite or concurrent: HDFS 411

HDFS 492: Palliative Care and Bereavement

3 Credits

Palliative care focuses on enhancing the quality of life for persons with life-limiting conditions and their families throughout potentially curative treatment and disease progression, through assessment and intervention methods that prevent and ease suffering of biological, psychosocial, and spiritual. From a biopsychosocial perspective, this course provides students with the conceptual, assessment, intervention, and professional skills to assist individuals and families across the lifespan facing illnesses such as cancer, heart disease, dementia, and Parkinson's Disease from the time of a palliative care diagnosis to day of terminal care diagnosis. Additionally, the course applies a holistic viewpoint to the assessment of ecological, social, and psychological factors influencing individual and family well-being in emphasizing best practices in addressing psychosocial stress and grief. This course will cover multiple areas, such as: (1) Psychosocial and spiritual issues, (2) Optimizing quality of life, (3) Strategies to support individuals and families, (4) Ethical and legal issues, (5) Communication, and (6) Interprofessional practice. Focusing on sociocultural and ecological approaches to relationship building and problem-solving, the course emphasizes best practices in patient/client and family-centered methods. The course is designed to foster clinical skills, thoughtful reflection and critical thinking, research knowledge, and skills of synthesis and logic crucial to assisting persons and their families from the healthcare to counseling setting. Students will be asked to participate in role-play simulations, contribute to weekly in-class discussions, develop and analyze case studies, analyze empirical-based literature, complete written assignments, and create a final project.

Enforced Prerequisite at Enrollment: HDFS 129 or PSYCH 100 or SOC 1

HDFS 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

HDFS 494H: Senior Honors Thesis

1-6 Credits/Maximum of 6

Independent study under the direction of the thesis advisor of topics related to the interests of the student, culminating in presentation of a thesis.

Enforced Prerequisite at Enrollment: approval of honors thesis advisor Honors

HDFS 495A: Internship: Advanced Experience

3-9 Credits/Maximum of 9

HD FS 495A Internship: Advanced Experience (8) HD FS 495A represents a full-time, one-semester internship experience. Its focus is experiential learning accompanied by intensive supervision, provided by one-site personnel, as well as University-based mentoring. Taken within a year of the pre-internship course (HD FS 490), which helps the student with the details of making arrangements for their internship, HD FS 495A, taken during the same semester as HD FS 495B, is considered the capstone of the HD FS undergraduate program. The internship can be taken during the fall, spring, or summer semester. It is one full semester spent working as a human service professional in a setting of your choice. Generally interns will work as a full-time professional (35-40 hours a week) for the semester.

Enforced Prerequisite at Enrollment: HDFS 490 and HDFS 301 and HDFS 455, and permission of internship director

HDFS 495B: Internship: Advanced Project

3 Credits

HD FS 495B Internship: Advanced Project (4) HD FS 495B is taken at the same time as HD FS 495A, and within a year of the pre-internship course (HD FS 490), which helps you with the details of making arrangements for the HD FS internship, HD FS 495B focuses on the academic aspects of the internship experience. This course can be taken during the fall, spring, or summer semester. Currently, HD FS 495B consists of writing three papers; The Organizational Analysis, The Policy Analysis, and The Personal Development Paper. The purpose of the organizational analysis paper is to give the intern an opportunity to learn about his or her internship setting or organization in greater depth than might be possible otherwise. This will necessitate the intern taking an active approach to systematically securing information about the internship organization through the review of relevant documents, conducting formal or informal interviews, and observation. This paper will then be saved at the internship office, without identifying information or grade, to be viewed as a source of information about potential internship sites by future students who are seeking internships.

Enforced Prerequisite at Enrollment: HDFS 495A

HDFS 495C: Professional Practicum in Human Services

3-8 Credits/Maximum of 8

Guided professional practicum in human services, usually in the form of a project related to a human services issue.

Enforced Prerequisite at Enrollment: HDFS 401 or HDFS 490

HDFS 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

HDFS 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

HDFS 498: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

HDFS 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

HDFS 499A: **SPECIAL TOPICS**

3 Credits/Maximum of 12

International Cultures (IL)

HDFS 499B: **SPECIAL TOPICS**

3 Credits/Maximum of 12

International Cultures (IL)

HDFS 499C: **SPECIAL TOPICS**

3 Credits/Maximum of 12

International Cultures (IL)

Human Resource Management (HRM)

HRM 494: Research Topics in HRM

1-12 Credits

Supervised student activities on research projects identified on an individual or small-group basis.

HRM 495: Internship in Human Capital Management

1-3 Credits/Maximum of 6

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Human-Centered Design and Development (HCDD)

HCDD 99: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

HCDD 113: Foundations of Human-Centered Design and Development

3 Credits

HCDD 113 provides a rigorous introduction to the theories, models, and tools that inform Human-Centered Design and Development. It lays the groundwork for subsequent courses in the sequence by examining the relationship between physical capabilities, cognitive and social models, and philosophical issues pertinent to human-centered analysis, design and development work. The course is practice-based, which means that it instructs more abstract concepts through practical activities and practice-based inquiry. Students will learn how to apply cognitive models and philosophical concepts to real-world problems. This approach has the dual benefit of (1) highly engaging pedagogy and (2) the production of portfolio-quality deliverables that students will be able to use to secure internships and entry-level positions in industry. Students will gain skills for synthesizing and communicating design implications as well as presenting work in multiple contexts (e.g. live presentations vs. bite-sized portfolio pages). The format of the class will balance project work with tests, quizzes, short essays, and discussions on key topics. It will also include readings and some short lectures.

HCDD 113S: Foundations of Human-Centered Design and Development FYS

3 Credits

HCDD 113S provides a rigorous introduction to the theories, models, and tools that inform Human-Centered Design and Development. It lays the groundwork for subsequent courses in the sequence by examining the relationship between physical capabilities, cognitive and social models, and philosophical issues pertinent to human-centered analysis, design and development work. The course is practice-based, which means that it instructs more abstract concepts through practical activities and practice-based inquiry. Students will learn how to apply cognitive models and philosophical concepts to real-world problems. This approach has the dual benefit of (1) highly engaging pedagogy and (2) the production of portfolio-quality deliverables that students will be able to use to secure internships and entry-level positions in industry. Students will gain skills for synthesizing and communicating design implications as well as presenting work in multiple contexts (e.g. live presentations vs. bite-sized portfolio pages). The format of the class will balance project work with tests, quizzes, short essays, and discussions on key topics. It will also include readings and some short lectures.

First-Year Seminar

HCDD 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

HCDD 264: Design Practice in Human-Centered Design and Development

3 Credits

This course focuses on concepts, methods, techniques, and tools for designing effective technology-enabled experiences. The course will provide students with all the elements for a toolbox they can use to design and create both prototypes and working applications, and some analytic methods they can use to perform basic evaluations. The course will emphasize iterative design and the benefits of employing a cycle of analyze - design - built - evaluate in close cooperation with prospective technology users and other product stakeholders. In addition to more practice-oriented skills and knowledge, the course will provide students with an appreciation for some persistent design challenges including managing design trade-offs, ensuring universal and international access, working with others on co-design, and receiving and delivering design critiques. Students who successfully complete the course will leave equipped to engage with practicing design teams in industry, government, and academia.

Enforced Prerequisites at Enrollment: HCDD 113 or HCDD 113S

HCDD 294: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

HCDD 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

HCDD 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses offered infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

HCDD 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

HCDD 340: Human-Centered Design for Mobile Computing

3 Credits

The course will provide students with an appreciation for the importance of mobile computing in modern life. It will also provide an introduction to the technical aspects of mobile computing including input modalities, sensors and sensing, wearable and smart home devices, and virtual/augmented reality. It will provide an introduction to established design

concepts as well as explore emerging ideas and new concepts in the domains of mobile computing, and explore some of the most important domains where mobile computing is having a significant impact including health and wellness and computing in the developing world. The latter part of the course will include an analysis, design, and development project for students to work on individually or in groups.

Enforced Prerequisites at Enrollment: (HCDD 264 or IST 331) and (IST 256 or IST 311)

HCDD 364W: Methods for Studying Users

3 Credits

This course focuses on concepts, methods, and techniques for studying users and evaluating technology in the context of use. It will provide students with methods and tools they can use to incorporate knowledge of users and their settings into the design and evaluation of interactive systems. These methods will include both qualitative and quantitative techniques, as well as how to combine and sequence multiple techniques to gain a more holistic understanding. Students will learn to select and use appropriate data gathering and analysis methods and how to assemble these into a coherent user research design. The course also provides an overview of the most important statistical analysis methods employed in user research. This is a hands-on, practical course designed for HCDD undergraduate students, and others as an elective.

Enforced Prerequisites at Enrollment: HCDD 264 Writing Across the Curriculum

HCDD 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

HCDD 440: Human-Centered Design and Development Capstone Course

3 Credits

The Human-Centered Design and Development Capstone course develops the research orientation and creative problem solving necessary for successful careers. The capstone develops these skills in the context of a semester long project, the solution to which requires integration of knowledge, skills and analytic techniques taught in the core curriculum. The capstone will also give student a real world experience in which they will need to work in teams and will be coached on ways to translate analytic outcomes into meaningful and actionable information for decision makers. The course is intended for seniors who have successfully completed the core courses. The capstone projects will integrate knowledge gained in technical subjects such as usability engineering, software construction and engineering, and mobile computing as well as general information technology topics such as machine learning, data mining, data integration and visualization, and privacy and security. Students will also hone their presentation and technical writing skills, generating effective reports that not only explain their analytic processes, assumptions underlying the processes and outcomes, but also communicate the limitations of their approach and potential alternate strategies.

Enforced Prerequisites at Enrollment: HCDD 364W

HCDD 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

HCDD 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

HCDD 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses offered infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

HCDD 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Humanities - CA (HUM)

HUM 100N: Foundations in the Humanities: Understanding the Human Experience

3 Credits

This course is an introduction to great ideas, themes, creations, and values in the arts and humanities, emphasizing the development of students' basic interpretive and close reading skills as applied to historically significant works in the various disciplines. The course introduces students to interpretive skills for analyzing and understanding historically significant works in the visual arts (painting, sculpture, architecture), the performing arts (theater, film, dance, music), history, literature, and philosophy. Students demonstrate their basic understanding of the disciplines encompassed in the course by interpreting key works in the various fields. The course stresses introducing students to these fields, as well as interdisciplinary connections between them, through broadly synthetic interpretations of important works within their cultural settings. The course will develop students' understanding of different historical periods by examining a variety of cultures, traditions, and aesthetic movements. The course promotes critical conversation among students, for example, by providing lectures that introduce and frame topics for discussion (this pedagogical practice is suggested as one possible approach, not as a requirement). The course also stresses the improvement of students' writing and critical thinking skills through such means as essay exams, group work, oral reports, and/or term papers, as deemed appropriate by the instructor.

General Education: Arts (GA)

General Education: Humanities (GH)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

HUM 101: Transformative Texts Part 1: Foundational Knowledge

3 Credits

This 3-credit General Humanities (GH) course with an International Cultures (IL) designate offers an introduction to transformative texts from around the world. Students will learn foundational knowledge from various disciplines in the humanities and arts, while developing basic interpretive, close-reading, writing, communication, and critical-thinking skills. This first course of the Keystone sequence engages students with core texts and arts-based materials from antiquity to the modern era, offering a roadmap of disciplinary, interdisciplinary, historical, cultural, and aesthetic perspectives within which to contextualize interpretation. Students will read texts from a variety of humanities disciplines alongside appropriate historical context to learn how ideas transformed, and were transformed, by social, economic, political, and historical events and institutions. The course supports open dialogue and critical engagement among students and faculty, to promote curiosity, reflexivity, and mindfulness, while cultivating the spirit of life-long learning. Students will learn about the value of the humanities and the arts in the context of its historical, sociopolitical, cultural, and global contributions. Student engagement will focus on close textual analysis, critical thinking, and synthesis skills with an emphasis on promoting excellence in written communication through a variety of written assignments designed to prepare students for the oral communication skills expected in our increasingly high-tech, global economy.

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

HUM 102: Transformative Texts Part 2: Contemporary Issues & Practical Perspectives

3 Credits

This 3-credit General Humanities (GH) course with a United States (US) designate offers an introduction to transformative texts from the beginning of modern history to the present that address current issues in the United States. Students will learn foundational knowledge from various disciplines in the humanities and the liberal arts, while developing basic interpretive, close-reading, writing, communication, and critical-thinking skills. This second course of the Keystone sequence engages students with transformative texts from beginning of the modern era to present day, offering a roadmap of disciplinary, interdisciplinary, historical, cultural, and aesthetic perspectives within which to contextualize interpretation. Students will read texts from a variety of humanities disciplines alongside appropriate historical context to learn how ideas transformed, and were transformed, by social, economic, political, and historical events and institutions and how these ideas relate to the history, politics, economics, and social structures of the United States. The course supports open dialogue and critical engagement among students and faculty, to promote curiosity, reflexivity, and mindfulness, while cultivating the spirit of life-long learning. Students will learn about the value of the humanities and the arts in the context of its historical, sociopolitical, cultural, and global contributions. Student engagement will focus on close textual analysis, critical thinking, and synthesis skills with an emphasis on promoting excellence in written communication through a variety of written assignments designed to prepare students for the

oral communication skills expected in our increasingly high-tech, global economy.

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

HUM 150N: World Mythologies in the Arts

3 Credits

This course is an interdisciplinary, cross-cultural, historical, and contemporary examination of myth as it appears in the visual arts, literature, and film. Each iteration of the course covers myths in the arts of at least several of the following cultures-Greek and Roman, Celtic, Norse, European, Egyptian, Near Eastern, Indian, Chinese, Pacific, African, and Native American. The course is thematic and intercultural, for example in the way myths are told in historical cultures and then retold and transformed in art, literature, and films in later cultures. Thus, the course considers in what ways myths are reconceived and altered when they appear in later cultures and in different media within the arts. The course is not a survey of world mythologies, but an interdisciplinary examination of myths and mythic themes and images in the arts (such as painting and film) and literature, with an emphasis on the interpretations and transformative processes applicable to myths as they are (sometimes radically) altered and embodied in art forms that may be far removed in time, place, and meaning from the original contexts of the myths themselves. The course is intended to familiarize students with the ways that different cultures have interpreted the world in which they live-how cultures created their own explanations for phenomena they could not understand, and how contemporary culture gives new life to older myths. The course examines such questions as the meanings of myths as represented in the arts, the various purposes of myths in the arts, such as the functions of creation myths and myths of the hero; theories of how myths originate; and ways that myths have been analyzed, interpreted, and adapted in other cultures through the arts. Students learn to compare and contrast myths in the arts, discuss common elements in myths in the arts, and to interpret the meaning of the myths both within the cultural and historical context in which they were created and the ways they are reinterpreted in later cultures in the arts.

International Cultures (IL)

General Education: Arts (GA)

General Education: Humanities (GH)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

HUM 197N: Special Topics - InterDomain

1-9 Credits/Maximum of 9

Formal courses given on a topical or special interest subject offered infrequently; several different topics may be taught in one year or semester. This Special Topics is a GenEd course.

HUM 200N: Explorations in the Humanities: The Quest

3 Credits

The theme of this course, Explorations in the Humanities: The Quest, is a highly flexible one used to investigate a variety of historically significant works in the arts and humanities from different perspectives—moral, social, historical, literary, artistic, and philosophical. The quest is conceived as a theme involving active human inquiry and historical breakthroughs that enlarged understanding of the world in new ways. The major fields within the arts and humanities that are covered in the course include art and art history, history, literature, philosophy, mythology, and the performing arts (theater, film, music). The selected works within the disciplines exemplify the broad theme of the course. This thematic course emphasizes the development of students' interpretative and close reading skills as applied to historically significant works in the fields of the arts and humanities. The course promotes the improvement of students' writing and critical thinking. It is designed so that students investigate, analyze, and interpret topics within the arts and humanities as they develop principles of critical practice and interpretation. The course promotes critical conversation among students, for example, by providing lectures that introduce and frame topics for discussion (this pedagogical practice is suggested as one possible approach, not as a requirement). The course also stresses the improvement of students' writing and critical thinking skills through such means as essay exams, group work, oral reports, and/or term papers, as deemed appropriate by the instructor. The course also emphasizes interdisciplinary connections between these arts and humanities fields, through broadly synthetic interpretations of important works within their cultural settings. Each iteration of the course is designed by the instructor teaching it, within the framework set out here. The specific works from the arts and humanities covered in the course are selected by the instructor, and represent major works within the disciplines specified above, and as reflected in the theme of The Quest.

Prerequisite: HUM 100N

General Education: Arts (GA)

General Education: Humanities (GH)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

HUM 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

HUM 300N: Interpretations in the Humanities

3 Credits

Two to four (usually three) different interpretive approaches to understanding creative and/or scholarly works in the arts and humanities, as exemplified by the study of specific works organized by theme, topic, or time period(s). The interpretive approaches chosen will be applied to a variety of arts and humanities content drawn from the arts, including the visual arts and art history, the performing arts, including theater, film, and music, and the humanities, including literature, history, and philosophy. The core course will develop students' abilities to employ advanced interpretive strategies appropriate to upper-division study in a range

of fields of study within the School of Humanities. Students will learn to interpret and analyze primary texts or creative works using several different methods, will exchange views with one another, and will develop skills in writing and expression through a variety of assignments. The course is designed to be taken at the junior level, because it presupposes a preliminary knowledge of the disciplines, before an interdisciplinary study can be undertaken. It is a writing-intensive course that requires substantial writing and revision. This course is designed to familiarize students with several different approaches to understanding creative and scholarly works in a range of humanities areas; to expose them to the viewpoints of others and encourage dialogue among students; to reinforce the interdisciplinary connections among arts and humanities fields; and to improve students' abilities to formulate, express, and defend their own interpretations using the approaches studied. Individual instructors select the particular interpretive methods to be studied, along with appropriate primary works or texts and examples of the scholarly or critical methods chosen. Instructors will typically organize their sections around specific themes, periods, or topics, which will vary from time to time. Ideally, students should take the course in the junior year.

Prerequisite: ENGL 015, ENGL 202

General Education: Arts (GA)

General Education: Humanities (GH)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

Writing Across the Curriculum

HUM 400N: Expressions in the Humanities

3 Credits

Advanced interdisciplinary study of a particular theme, period, or topic including materials from various arts and humanities disciplines and interdisciplinary works. Students will identify and apply several approaches to interpretation of such works—theoretical perspectives, integrating questions, comparative criticism—and express their understanding in class discussion, formal and informal writing, and creative expression. The course investigates the humanities from different perspectives—moral, social, historical, literary, artistic, and philosophical. The major fields within the arts and humanities that are covered in the course include, from the arts, the visual arts (painting, sculpture, architecture) and the performing arts (theater, film, music), and from the humanities, art history, history, literature, philosophy, and mythology. The selected works within the disciplines exemplify the broad theme of the course. This thematic course emphasizes the development of students' interpretative and close reading skills as applied to historically significant works in the fields of the arts and humanities. The course promotes the improvement of students' writing and critical thinking. It is designed so that students investigate, analyze, and interpret topics within the arts and humanities as they develop principles of critical practice and interpretation. The course promotes critical conversation among students, through the framing of topics for discussion. The course also emphasizes interdisciplinary connections between these arts and humanities fields, through broadly synthetic interpretations of important works within their cultural settings. Each iteration of the course is designed by the instructor teaching it, within the framework set out here. The specific works from the humanities covered in the course are selected by the instructor, and represent major works within the disciplines specified above.

Prerequisite: HUM 300W , seventh-semester standing

General Education: Arts (GA)

General Education: Humanities (GH)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

HUM 410: Religion and Culture

3 Credits

A comparative examination of several world religions in their social and cultural contexts.

International Cultures (IL)

HUM 430: Philosophy and Literature

3 Credits

The study of philosophical viewpoints in literature.

Prerequisite: fifth-semester standing

HUM 453: Texts and Culture

3 Credits

Study of art, literature, film, and other creative genres to illustrate the interrelationships between creative expression and cultural practices.

HUM 460: Thematic Studies

3 Credits/Maximum of 9

Analysis of a group of related ideas in art, music, literature, and/or philosophy. (May be repeated for credit.)

HUM 461: Selected Periods in the Humanities

3 Credits

Interdisciplinary studies dealing with selected periods of world culture. (May be repeated for credit.) | HUM 461 Selected Periods in Humanities (3) (IL) Study of interdisciplinary aspects of a particular chronological period, including works from several disciplines or genres within the humanities. The period chosen may be from any time and any culture (or more than one culture during the same period).

International Cultures (IL)

HUM 491: Seminar in Interdisciplinary Humanities

3 Credits/Maximum of 9

Interdisciplinary studies dealing with selected periods of world culture. (May be repeated for credit.)

HUM 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

HUM 495: Internship

1-6 Credits/Maximum of 6

Supervised internship for undergraduate or graduate Humanities majors in state offices, educational institutions, arts agencies, community organizations, or humanities councils.

HUM 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

HUM 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

HUM 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Humanities and Social Sciences (HSS)

HSS 97: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparative narrow subject which may be topical or of special interest.

HSS 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparative narrow subject which may be topical or of special interest.

HSS 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

HSS 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparative narrow subject which may be topical or of special interest.

HSS 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparative narrow subject which may be topical or of special interest.

HSS 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

HSS 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Industrial Engineering (IE)

IE 100: Discover Industrial Engineering: First-Year Seminar

1 Credits

Informational First-year on Industrial Engineering as a career choice and profession; lab exercises; guest speakers; real world problems. IE 100S IE 100S Discover Industrial Engineering: First-Year Seminar (1) (FYS) The objective of this first-year seminar course is to provide information on industrial engineering as a career choice and as a profession. It is a fact that most first-year students have never heard of Industrial Engineering (IE), or the many varied opportunities that exist within the IE major. This course explores the many aspects of the major and also offers the opportunity to interact with IE faculty and students, something that is an uncommon occurrence during the first year of engineering study. Class time is used for a variety of activities including: interactive class sessions where students work in teams to analyze and solve applied "real-world" problems in industrial and manufacturing engineering; IE faculty guest speakers addressing career opportunities in a particular area within IE; Lab experiences or demonstrations; Alumni guest speakers or panels; Plant tours (1 per semester); IE student panels on topics such as Co-op. The class atmosphere is relaxed and there are no examinations. Homework assignments are given throughout the semester on relevant topics.

First-Year Seminar

IE 302: Engineering Economy

3 Credits

Principles and methods for analyzing the economic feasibility of technical alternatives leading to a decision or recommendation.

Enforced Prerequisite at Enrollment: MATH 141

IE 304: Introduction to Service Systems Engineering

3 Credits

This course provides an introduction to service systems engineering by focusing on various modeling techniques for describing their characteristics and evaluating their productivity and performance. Students will learn descriptive modeling of service system from the perspective of different disciplines and functions. Building on this, students will study key concepts and issues in measuring and managing productivity of service systems, especially the role of the customer in services. Large-scale services built on cloud platforms will be discussed using real-world examples. Students will conduct performance modeling studies of such service platforms using analytical and simulation

approaches. Students will gain hands-on experience in computing and modeling with cloud platform.

Enforced Prerequisite at Enrollment: MATH 141 and (CMPSC 121 or CMPSC 131 or CMPSC 200 or CMPSC 201)

IE 305: Product Design, Specification and Measurement

3 Credits

Principles of product design and specifications and methods for product verification. IE 305 Product Design, Specification and Measurement (3) Product Design, Specification and Measurements a first level junior course in manufacturing, required for all the baccalaureate students in the Department of Industrial and Manufacturing Engineering. It exposes students to the principles required for designing a product and developing the specifications for its components and the methods for product verification and checking conformance to specifications. Students taking this course should be familiar with introduction to engineering design and should have graphical communication skills.

Enforced Prerequisite at Enrollment: EDSGN 100

IE 306: Machining Process Design & Analysis

3 Credits

Application of Engineering Principles for the Design and Implementation of Economic and Effective Machining Processes. Machining Process Design & Analysis is an elective course within the Department of Industrial & Manufacturing Engineering that can be used to satisfy the undergraduate, manufacturing process course requirement. Its purpose is to provide students with an in-depth experience into the science, engineering, and thought processes that are used to apply machining processes to economically convert raw materials into finished products. Students will learn how to design, analyze, implement, and troubleshoot machining processes and machining systems. Students taking this course must have previously completed IE 305, and have knowledge of produce specification, metrology, and computer aided design tools.

Enforced Prerequisite at Enrollment: IE 305 and IE 322

IE 307: Additive Manufacturing Process and Reverse Engineering

3 Credits

The study and application of rapid prototyping technologies in design and manufacturing. IE 307 Additive Manufacturing Process and Reverse Engineering (3) Speed to market is an essential element of competitiveness. New manufacturing technologies, driven by CAD, such as Additive Manufacturing (AM), Rapid Tooling (RT), and Reverse Engineering are making it possible for companies to significantly cut design and manufacturing cycles times. This course will explore these new manufacturing technologies, study the basic processes and their role in the design and manufacturing cycle, and provide hands on experience with these processes. Students will be able to use process models, characteristics and capabilities of specific AM processes such as Stereo Lithography Process, Fused Deposition Modeling, Selective Laser Sintering, Electron Beam Melting, and 3-D Printing to compare different processes. The students will study the use of these processes for Rapid Tooling applications for sand casting, investment casting, and injection molding. The students will be able to describe the role of CAD and Reverse Engineering in providing the data needed and current technological challenges for AM. The students will be able to develop cost models for the processes to evaluate the production economics.

Students will gain hands on experience with the processes and reverse engineering through the laboratory component.

Enforced Prerequisite at Enrollment: IE 305

IE 311: Principles of Solidification Processing

3 Credits

Discussion, laboratory practices, and laboratory experiments covering principles of metal casting and joining, nondestructive testing, and nonmetallic processing.

Enforced Prerequisite at Enrollment: IE 305

IE 312: Product Design and Manufacturing Processes

3 Credits

Theory and principles of mechanical design specification, verification, and manufacturing. Industrial engineering majors may not schedule this course.

Enforced Prerequisite at Enrollment: EMCH 213 or EMCH 210H or EMCH 210 Enforced Concurrent at Enrollment: ESC 414M or MATSE 259

IE 322: Probabilistic Models in Industrial Engineering

3 Credits

The study and application of probability theory in the solution of engineering problems. IE 322 Probabilistic Models in Industrial Engineering (3) Probabilistic Models in Industrial Engineering is a first level junior course required for all the baccalaureate students in the Department of Industrial and Manufacturing Engineering. It exposes students to the probability theory and models and discrete and continuous probability distributions which are necessary for solving real life engineering problems with uncertainty. Reliability modeling, one such problem of interest to the manufacturers and consumers, will be taught in this course. The course will also cover sampling distributions and point and interval estimation of mean, variance and proportion. Students taking this course should be familiar with elementary algebra, and differential and integral calculus.

Enforced Prerequisite at Enrollment: MATH 141

IE 323: Statistical Methods in Industrial Engineering

3 Credits

The study and application of statistics in the solution of engineering problems. Statistical Methods in Industrial Engineering is a second level junior course required for all the baccalaureate students in the Department of Industrial and Manufacturing Engineering. It exposes students to the statistical tools such as estimation, testing of hypotheses, control charts, process capability indexes, gage R & R studies, simple regression and design of experiments, which are necessary for analyzing and solving real life engineering problems using data. Students taking this course should be familiar with the following topics taught in the first course in probability offered in the department. Probability concepts, Random variables, Independence, Probability Distributions (both discrete and continuous), Mathematical Expectation, Variation and Binomial and Standard Normal tables.

Enforced Prerequisite at Enrollment: IE 322

IE 327: Introduction to Work Design

3 Credits

Job analysis, cognitive and physical considerations in design of work, work measurement. Introduction to Work Design is a first level junior course required for all the baccalaureate students in the Department of Industrial and Manufacturing Engineering. It exposes students to the basic introductory tools required for analyzing and designing both the job and the worksite in a cost-effective manner, as well as measuring the resulting output. These tools include human information processing, basic auditory and visual displays, anthropometry and musculoskeletal principles, cumulative trauma disorders, work measurement and stopwatch time study. Students taking this course should be familiar with the basic concepts of cost.

Enforced Prerequisite at Enrollment: MATH 141 Enforced Concurrent at Enrollment: EMCH 211 or EMCH 210

IE 330: Engineering Analytics

3 Credits

The study and application of Computing, Information Technology and Analytics to Industrial Engineering. IE 330 Engineering Analytics (3) Engineering Analytics is a required course for all baccalaureate students in the Industrial Engineering major. It provides students with a quantitative background in descriptive analytics which deals with data mining, predictive analytics which deals with forecasting, and the use of Big Data in analysis. Examples of analytics will be presented in various industries including manufacturing, healthcare, and distribution. The students will learn to work in settings to make data-informed decisions from large data sets. Students taking this course should be familiar with differential and integral calculus, statistics, and basic computing.

Enforced Prerequisite at Enrollment: IE 322 and (CMPSC 200 or CMPSC 201)

IE 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

IE 399: Foreign Studies–Industrial Engineering

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

IE 402: Advanced Engineering Economy

3 Credits

Concepts and techniques of analyses useful in evaluating engineering projects under deterministic and uncertain conditions.

Enforced Prerequisite at Enrollment: IE 302 and IE 322 and IE 405

IE 405: Deterministic Models in Operations Research

3 Credits

Deterministic models in operation research including linear programming, flows in networks, project management, transportation and assignment models and integer programming. IE 405 Deterministic Models in Operations Research (3) This course will be an introduction to deterministic modeling. In particular, the student will learn to formulate linear programs, network models, and integer programs. The student will also learn solution strategies such as the simplex method and branch and bound. Duality and sensitivity analysis will be covered along with their economic interpretation. Optimization software will be used for solving the formulations. Practical examples along with a detailed case study will be presented to help the student to synthesize the topic. This will be a required course for all undergraduate students pursuing a baccalaureate degree in Industrial Engineering.

Enforced Prerequisite at Enrollment: MATH 220

IE 408: Cognitive Work Design

3 Credits

Design and evaluation of cognitive work, including the human/computer interface, visual displays, software design, and automated system monitoring, with emphasis on human performance. Cognitive Work Design is a senior level course offered in the Department of Industrial and Manufacturing Engineering. It is one of two courses which follow IE 327, Introduction to Work Design. This course focuses on the cognitive part of human factors and work design. This course will enable students to design, implement, and evaluate human-computer interfaces according to principles outlined in foundational human-computer interaction readings. Students will be engaged in the active learning of design, programming, and usability concepts by way of building interfaces on the personal computer. Students taking this course should be familiar with computer programming and introduction to work design.

Enforced Prerequisite at Enrollment: IE 327

IE 418: Human/Computer Interface Design

3 Credits

Design and evaluation of the human/computer interface, including human performance, visual displays, software design, and automated system monitoring. IE 418 Human/Computer Interface Design (3) The objective of this course is to enable students to design, implement, and evaluate human-computer interfaces according to principles outlined in foundational human-computer interaction readings. Students will be engaged in the active learning of design, programming, and usability concepts by way of building interfaces on the personal computer as well as on the Palm computing platform. A major component of the course is the capstone design project for which student teams will communicate with users to design, implement, and assess interfaces to improve existing work processes in an actual work domain (e.g., safety office, power plant).

Enforced Prerequisite at Enrollment: IE 327 and (CMPSC 200 or CMPSC 201)

IE 419: Work Design - Productivity and Safety

3 Credits

Methods improvement, physical work design, productivity, work measurement; principles and practice of safety. Work Design - Productivity and Safety is a senior level course offered in the Department of Industrial and Manufacturing Engineering. It is one of two courses which follow IE 327, Introduction to Work Design. This course focuses on the methods improvement physical work design, productivity, work measurement; principles and practice of safety. This course will enable students to perform work measurement: develop an MTM analysis, and carry out a work sampling study. Students taking this course are expected to understand basic concepts of work design.

Enforced Prerequisite at Enrollment: IE 327

IE 424: Process Quality Engineering

3 Credits

Statistical methods for engineering process characterization and improvement. For non-Industrial Engineering majors. IE 424 Process Quality Engineering (3) This course will provide students with probabilistic and statistical methods required to improve the quality of products and processes. It will start with the introduction to quality culture and the key elements of quality improvement. Then the methods for data presentation and interpretation are discussed. Next, the basic probability concepts and commonly used probability distributions are taught followed by statistical concepts, such as sampling distributions, point and interval estimation, and hypotheses testing. The concepts and methods of statistical tools required for process selection and improvement such as process capability indexes and control charts are discussed next. The course ends with the coverage of simple and multiple regression models.

Enforced Prerequisite at Enrollment: MATH 141 Enforced Concurrent at Enrollment: MATH 220 or BE 301

IE 425: Stochastic Models in Operations Research

3 Credits

This course will be an introduction to the modeling of stochastic systems. The student will learn about Poisson processes, Markov Chains, Dynamic Programming, and Queuing systems; both model formulations and solutions strategies. The students will learn several applications of these models in manufacturing and service systems, so that they can synthesize the lecture material. The student will study the topic of inventory theory, including fundamental trade-offs, economic order quantity (EOQ) modeling, and stochastic models. This will be a required course for all undergraduate students pursuing a baccalaureate degree in Industrial Engineering.

Enforced Prerequisite at Enrollment: MATH 220 and IE 322

IE 427: Human Systems Networks

3 Credits

This course provides an awareness of the role of humans in systems. It builds upon a fundamental understanding of human work by situating humans within systems of other humans and things. Students will learn the fundamentals of social networks analysis methods. They will also learn to collect and compile data from humans in systems. Equipped with the fundamentals, students will then formulate task, knowledge,

and social networks to represent behavior and performance in different work domains. The use of human-system networks as a descriptive mechanism will be contrasted with optimization methods to improve networks. Examples will be provided to enable students to apply the methodology in the transportation domain and in sociotechnical systems (such as a hospital).

Enforced Prerequisite at Enrollment: IE 327

IE 428: Metal Casting

3 Credits

This course is designed to provide a fundamental understanding of contemporary metalcasting science and technology principles through integrated lecture and laboratory experiences. Lectures will focus on the primary manufacturing steps for producing castings – patternmaking and runner system design, molding systems, melt practices and solidification science, and the application of Industrial Engineering principles for efficient casting production. Laboratory instruction includes the use of foundry laboratory facilities, 3D sand printing facilities, and solidification/flow modeling simulation software. Students perform structured casting experiments in lab and work in project teams to develop effective gating and risering systems for metal castings based on both simulation and laboratory results.

Enforced Prerequisite at Enrollment: IE 305 and MATSE 259

IE 432: Introduction to Healthcare Systems Modeling

3 Credits

The objective of this course is to equip students with both domain knowledge about healthcare systems and the skills of applying quantitative modeling techniques for tackling application problems specific to the healthcare domain. This course exposes students to the contextual knowledge about the structure, finance, and operations of healthcare systems and provides students with the understandings of decision-making from different perspectives within the healthcare systems. It introduces common types of data used in healthcare settings, measures for health outcomes, and the framework of health economic evaluation. This course also emphasizes applications of quantitative modeling techniques ranging from statistical analysis, data analytics, optimization, and simulation to a variety of decision problems in healthcare operations and health policy settings. Students will learn to identify and formulate decision-making problems in healthcare systems, apply proper analytic tools and data sources to solve the problems, and interpret the modeling analysis results in the healthcare context. Students taking this class should be familiar with computer programming and basic mathematical modeling techniques.

Enforced Prerequisite at Enrollment: IE 304 and IE 323 and IE 405

Enforced Concurrent at Enrollment: IE 330

IE 433: Regression Analysis and Design of Experiments

3 Credits

Theory and Application of Regression Analysis and Design of Experiments to build models and optimize process and product parameters. This is an elective course for the baccalaureate students in the Department of Industrial and Manufacturing Engineering. It exposes students to the two important statistical tools which are regression analysis and design of experiments. Topics include simple and multiple regression analysis (matrix formulation), diagnostics, prediction, Analysis

of Variance, Blocking, and Fractional Factorial designs. Students taking this course should be familiar basic matrix computations and with the following topics taught in the second course in probability and statistics offered in the department: properties of point estimators, sampling distributions, and test of hypotheses.

Enforced Prerequisite at Enrollment: IE 323 or STAT 319 or MATH 319 or STAT 415 or MATH 415

IE 434: Statistical Quality Control

3 Credits

Statistical techniques for univariate and multivariate monitoring of independent and autocorrelated processes; foundations of quality control and improvement. I E 434 Statistical Quality Control (3) This course is about the use of modern statistical methods for process and product improvement. The goal is to impart a sound understanding of the principles and basis for applying them in a variety of practical situations in manufacturing and service fields. The course will give an overview of the basic statistical methods and then concentrate on some of the more useful recent developments including univariate and multivariate techniques to monitor autocorrelated data, analyzing process capability, and improving process quality in short-run environments. The course objectives are to: (1) understand the assumptions and theoretical foundations of process monitoring; (2) know how to select, set up, and use monitoring charts effectively depending on the system characteristics; and (3) understand the basic business and economic principles of process monitoring.

Enforced Prerequisite at Enrollment: IE 323 or STAT 319 or MATH 319 or STAT 415 or MATH 415

IE 435: Pricing and Demand Management

3 Credits

This course provides a broad exploration of improving profitability for organizations using revenue- and demand-based strategies. After a brief introduction to the time value of money, it investigates the topics of customer demand and choice, traditional and dynamic pricing methods, auction methods, customer-based strategies such as bundling and customization, and how to determine service charges for service activities. It considers the various factors that influence how and why customers make the decisions they do for service-based products, particularly in relation to their utility for transactions. Building on these insights, students will be able to develop various pricing and other customer-based strategies that help to improve profitability for service industries that use either traditional or dynamic pricing strategies. Students will be able to apply these strategies to a variety of service industries including the logistics, hospitality, healthcare, and retail industries.

Enforced Prerequisite at Enrollment: IE 405 Enforced Concurrent at Enrollment: IE 330

IE 436: Six Sigma Methodology

3 Credits

Techniques for structured problem-solving to improve the quality and cost of products and processes. I E 436 Six Sigma Methodology (3) Six Sigma is a structured, quantitative approach to improving the quality and cost of products and processes. It provides a framework for quality improvement that builds upon statistical tools to achieve business

results. Although statistical techniques are emphasized throughout, the course has a strong engineering and management orientation that will prepare students for synthesizing the material that comprises the Six Sigma body of knowledge. Important aspects of the Six Sigma approach include a strong focus on the customer, proactive management, fact-based decision-making, and interdisciplinary collaborations. The course objectives are: (1) to give students a fundamental understanding of and experience with solving a problem using the structured problem-solving approach of Define-Measure-Analyze-Improve-Control (DMAIC); (2) to provide an opportunity for students to solve or be involved with solving business problems with statistical tools; and (3) to help students build confidence in their business sense and statistical skills.

Enforced Prerequisite at Enrollment: IE 323 or STAT 319 or MATH 319 or STAT 415 or MATH 415

IE 453: Simulation Modeling for Decision Support

3 Credits

Introduction of concepts of simulation modeling and analysis, with application to manufacturing and production systems. IE 453 Simulation Modeling for Decision Support (3) Simulation Modeling for Decision Support is a senior level course offered in the Department of Industrial and Manufacturing Engineering. It is the third course in operations research offered to the undergraduate students. The objective of this course is for students to learn to appropriately apply discrete event simulation modeling for decision support in IE problems through developing skills in model building, simulation output analysis, and communication of technical information and conclusions drawn from data analysis. Students taking this course should be familiar with computer programming and operations research techniques.

Enforced Prerequisite at Enrollment: (CMPSC 200 or CMPSC 201) and IE 323 and IE 425

IE 454: Applied Decision Analysis

3 Credits

Theory and practice of decision analysis applied to engineering problems.

Enforced Prerequisite at Enrollment: IE 322

IE 456: Industrial Robot Applications

3 Credits

Introduction to robotics, with emphasis on robot selection, programming, and economic justification for manufacturing applications. IE 456 Industrial Robot Applications (3) This course is a technical elective, and is normally taken by students in their Senior years. In this course, students learn about present and future status of robot applications, and are required to apply fundamental knowledge of physics and mathematics to develop software to analyze and control robots. The course deals with mechanics and control of robot manipulators and wheeled mobile robots. First, students are taught to analyze 3-D kinematics, statics and dynamics of robot manipulators. Then, control algorithms for robot manipulators are presented. Sensors, actuators and softwares used in industrial robots are discussed. In the end, kinematics and control of wheeled mobile robots are presented. During this course, application of computer, particularly Matlab, is emphasized as much as possible.

Enforced Prerequisite at Enrollment: EMCH 212 and (ME 360 or ME 367)

IE 458: Manufacturing and Design of Nano Devices

3 Credits

This is an advanced undergraduate course on the manufacturing and design of advanced devices at the nano- or micro-scale. The topic covers many disciplines in engineering and science, including: nanotechnology, nanomaterials, nano- or micro-scale sensors and actuators, energy storage devices, and subtractive and additive processing. Upon completion of this course, students will understand the scaling effect, design principles of nano- or micro-devices, fabrication methods, and their practical applications.

Enforced Prerequisite at Enrollment: EDSGN 100

IE 460: Service Systems Engineering

3 Credits

Use of quantitative models and methods for analysis, design and control of service systems. IE 460 Service Systems Engineering (3) This course focuses on using operations research methods such as mathematical programming, network analysis and applied probability to solve problems that arise in service systems. The lecture topics will include measuring service quality, methods for evaluating service systems, financial engineering & portfolio optimization, supply chain design & operations, manpower planning & scheduling, and revenue management. Several case studies will be used to illustrate applications. Course grades are based on homework, case studies, mini-project, midterm and final exams.

Enforced Prerequisite at Enrollment: IE 322 and IE 405

IE 466: Concurrent Engineering

3 Credits

Concurrent engineering methods for product/process development, capturing customer requirements, insuring manufacturability and serviceability.

Enforced Prerequisite at Enrollment: MATH 141 and MATH 220

IE 467: Facility Layout and Location

3 Credits/Maximum of 3

Analytical and computational methods for facility layout designs, material handling systems and equipment, and location. IE 467 Facility Layout and Material Handling (3) Facilities planning and design is the process of locating and laying out the of industrial and service facilities to best support the purpose of the facility while respecting constraints on resources such as space and budget. The facility planning function involves strategic, tactical and operational decisions depending on the nature of the facility. In this course, we address both the layout and the location of facilities. The layout problem involves a discussion of the arrangement of departments within a plant, the design of material handling systems and the design of storage and warehousing systems. Structural and architectural design questions are NOT addressed in this course. We shall also consider simplifications to the manufacturing process that result in a simplification of the layout problem. Finally, we will investigate a range of facility location problems, including median and center location problems as well as some advanced variants. One of the objectives of this course is also to familiarize the student with the analytical and computer tools that can be used for facility planning and other production and operations management problems.

Enforced Prerequisite at Enrollment: IE 322 and IE 405

IE 468: Optimization Modeling and Methods

3 Credits

Mathematical modeling of linear, integer, and nonlinear programming problems and computational methods for solving these classes of problems. IE 468 Optimization Modeling and Methods (3) This course provides an analytic treatment of optimization models in linear, integer, and nonlinear programming. In particular, the course is concerned with the development of mathematical optimization models and computational solution techniques for solving these problems. The mathematical modeling of real-world applications is complemented with the use of modeling software such as LINGO or GAMS (General Algebraic Modeling System), which allows the user to readily develop large-scale mathematical models. The course also considers solution techniques for solving these optimization problems. Students will develop a basic understanding of the solution techniques through actual implementation of simple algorithms, as well as the use of commercial software such as those provided by LINDO, LINGO, and GAMS.

Enforced Prerequisite at Enrollment: IE 405 and (MATH 231 or MATH 230)

IE 470: Manufacturing System Design and Analysis

3 Credits

Contemporary design and analysis methodologies used to organize systems for economic manufacture of products. IE 470 Manufacturing System Design and Analysis (3) Manufacturing System Design and Analysis is a senior level course in manufacturing, required for all the baccalaureate students in the Department of Industrial and Manufacturing Engineering. Students will be exposed to the contemporary techniques used to design and analyze manufacturing systems for economic manufacture of products. Students will learn to design manufacturing systems (human and automated) to satisfy differing types of product demand. Students taking this course should be familiar with introduction to manufacturing and product specifications and introduction to manufacturing process design and analysis.

Enforced Concurrent at Enrollment: IE 306 or IE 307 or IE 311 or IE 428

IE 475: Modeling and Optimization of Stochastic Service Systems

3 Credits

This course will cover the analysis, modeling, optimization, and evaluation of practically occurring service systems. The first part of the course will employ a queueing-theoretic approach for modeling service systems, which will cover the modeling and simulation of arrival processes via Poisson models and their variants, steady-state analysis for service models with exponential and general service time distributions, and non-stationary arrival processes. The second part of the course will expose students to modern data-driven approaches for uncertainty modeling, scheduling, and optimization of service systems. Case studies from service systems in diverse fields including but not limited to healthcare, call centers, transportation, and computer networks will be employed to supplement and reinforce the material.

Enforced Prerequisite at Enrollment: IE 304 and (IE 330 or STAT 380) and (IE 405 or STAT 440) and (IE 425 or STAT 416)

IE 478: Retail Services Engineering

3 Credits

Objective of this course is to understand modern retail industry with focus on their operations and information technologies. The course starts with an overview of the basic types of retailing, their channels, and economics of their operations. This will be followed by an introduction to financial statements and understanding how they are used for measuring performance of retailers. Warehousing and distributions operations will be reviewed. Queuing models will be introduced and applied for staffing checkout processes and distribution centers. Mean value analysis from queuing theory will be used for rough-cut capacity planning of automated cross-docks which are now being increasingly used in retailing. Information technologies and data analytics in retail industry will be covered through exercises in class using MS Access and MS Excel VBA to give students hands-on learning experience with these techniques. Data warehouse architectures will also be discussed.

Enforced Prerequisite at Enrollment: IE 322

IE 479: Human Centered Product Design and Innovation

3 Credits

Consumer product design for a global market, incorporating human factors principles and user desires in a multicultural perspective. EDSDG (I E) 479 Human Centered Product Design and Innovation (3) This course will focus on consumer product design for a global market, incorporating human factors and ergonomics principles as well as user needs and emotional desires. The students will be led through product design process, various product design strategies, product planning, managing the development process, product evaluation, decision making tools, and market entry. Special emphasis will be placed on user centered design, incorporating user characteristics, user needs and emotional desires (including Kansei engineering approaches), survey methodology, and usability testing. To emphasize the multicultural perspectives in today's global product design, interdisciplinary teams from two universities on opposite sides of the globe will apply these principles on actual industrial product designs for leading consumer product manufacturers.

Enforced Prerequisite at Enrollment: IE 408 or IE 419

IE 480W: Capstone Design Project

3 Credits

Industry-based senior capstone design project emphasizing manufacturing systems, service systems, and information systems in an interdisciplinary setting. IE 480W Capstone Design Project (3) Students will develop 'real world' engineering project experience through an industry-based project. Projects will focus on manufacturing systems, service systems, and/or information systems. Students will work in teams to complete the projects, where the teams will be interdisciplinary and composed of students from within the major with different areas of expertise and students from other majors as needed. Students interested in taking this course should have senior standing and be familiar with basic principles in manufacturing, operations research, and human factors engineering. Students will be evaluated through in-class participation, and a group project that consists of weekly communication with the project sponsor along with three design reviews, interim written reports and a final report, presentation and poster. This is a Writing-Intensive course in the department and hence students will be given

opportunities to practice writing throughout the semester in multiple writing assignments.

Enforced Prerequisite at Enrollment: IE 302 and IE 305 and IE 323 and IE 327 and IE 405. Enforced Concurrent at Enrollment: IE 330 Writing Across the Curriculum

IE 494: Senior Honors Thesis

1-9 Credits/Maximum of 9

Students must have approval of a thesis adviser before scheduling this course.

Honors

IE 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

IE 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

IE 499: Foreign Studies--Industrial Engineering

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Industrial Engineering Technology (IET)

IET 101: Manufacturing Materials, Processes, and Laboratory

3 Credits

Mechanical properties of materials; primary processing methods used in manufacturing; ferrous and nonferrous metals; important plastic plus ceramic materials; dimensional verification and measurements; mechanical properties evaluation; laboratory methods; statistical interpretation of data.

IET 215: Production Design

2 Credits

The study of manufacturing processes for the purpose of part creation and/or part feature creation using both current and advanced technologies.

Enforced Prerequisite at Enrollment: IET 101 or MET 105

IET 216: Production Design Laboratory

2 Credits

Laboratory methods in production design including conventional and advanced manufacturing processes, computer applications, and automation/robotics.

Enforced Concurrent at Enrollment: IET 215

IET 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

IET 308: Statistical Quality Control

3 Credits

Fundamentals of probability and statistics, introduction to quality control fundamentals, control charts, acceptance sampling.

IET 311: Elements of Metallurgy

3 Credits

Introduction to metallurgical concepts, metallurgical testing, phase diagram studies, heat treating concepts, ferrous and nonferrous systems.

Enforced Prerequisite at Enrollment: ET 322

IET 321: Manufacturing Processes

3 Credits

Manufacturing processes for producing metal, plastic, and ceramic items. Primary emphasis is placed on machine tool processes.

IET 333: Engineering Economics for Technologists

2 Credits

Fundamentals of engineering economics; equivalence and rate of return analysis; replacement models; depreciation and tax considerations; and economic decision making for technologists.

Enforced Prerequisite at Enrollment: MATH 26 or MATH 40 or MATH 41 or MATH 83 or MATH 140

Information Sciences and Technology (IST)

IST 97: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

IST 99: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

IST 110: Information, People and Technology

3 Credits

Information, People and Technology presents the high points of an education in the College of Information Sciences and Technology. It opens an intellectual journey through the ideas and challenges that IT professionals face in the world. It will address major questions such as: How can we use technology to organize and integrate human enterprises? How can technology help people and organizations adapt rapidly and creatively? What can we do about information overload? Three perspectives (or facets) address the core issues: information or the basic science of data encoding, transmission and storage; people or the interactions among technologies, institutions, regulations and users; and technology or the design and operation of basic information technology devices. Students completing the course will be confident users and consumers of information technology. Students will develop research and analytical skills to evaluate specific devices and understand how those devices function in larger socio-technical systems. Students will be able to predict and anticipate the impact of new technologies on human institutions as well as understand the potential impact of institutions on the use and design of information technologies. The course employs an action-oriented approach. Students learn by doing-formulating and solving problems drawn from professional contexts, detecting and recovering from errors related to technology use, and locating, reading and studying materials that support their analysis and problem-solving. Students will accomplish this by participating in team-based learning. The course provides students with the opportunity to use, modify, and evaluate software to search for, frame, and express ideas with fluency. A variety of mechanisms are used to assess student performance. These evaluation methods typically include exams, quizzes, homework assignments, group projects, and peer and self-assessments.

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

IST 111: Seminar in IST

1 Credits

Introduction to academic requirements, career planning & information literacy for students majoring in College of IST. IST 111 Seminar in IST (1)IST 111 introduces the student to the academic requirements, career planning and information literacy for the School of Information Sciences and Technology degree programs. Seminar in Information Sciences and Technology is required of all Information Sciences and Technology Associate degree candidates. Upon completion of the course, the student will have an understanding of the programs and requirements of the School of Information Sciences and Technology and the University, and the career options for which they prepare students. The student will also develop and exercise habits and techniques for continuing self-assessment of learning styles, personality traits, vocational interests, and career plans. The student will learn how to maintain involvement in professional conversations and networks, including local, state, national, international organizations, listservs, etc. Students will have a basic knowledge of professional news literature, and the ability to identify and use reference tools and databases, which provide access to professional knowledge and literature. Finally, the student will have a

basic understanding of government plans, policies and actions regarding the information professions including: regulatory agencies of the executive branch, legislative activities, and judicial decisions at local state and national levels. Students will be graded on course attendance, participation, examinations and brief exercises.

IST 111S: Seminar in Information Sciences and Technology

1 Credits

Introduction to academic requirements, career planning, and information literacy for students majoring in the College of Information Sciences and Technology. IST 111S Seminar in IST (1) IST 111S introduces the student to the academic requirements, career planning and information literacy for the School of Information Sciences and Technology degree programs. Seminar in Information Sciences and Technology is required of all Information Sciences and Technology Associate degree candidates. Upon completion of the course, the student will have an understanding of the programs and requirements of the School of Information Sciences and Technology and the University, and the career options for which they prepare students. The student will also develop and exercise habits and techniques for continuing self-assessment of learning styles, personality traits, vocational interests, and career plans. The student will learn how to maintain involvement in professional conversations and networks, including local, state, national, international organizations, listservs, etc. Students will have a basic knowledge of professional news literature, and the ability to identify and use reference tools and databases, which provide access to professional knowledge and literature. Finally, the student will have a basic understanding of government plans, policies and actions regarding the information professions including: regulatory agencies of the executive branch, legislative activities, and judicial decisions at local state and national levels. Students will be graded on course attendance, participation, examinations and brief exercises. Since this is a core requirement, all IST students will be enrolling; it should be offered at least once per year. As enrollment growth warrants, it may require more frequent offering.

First-Year Seminar

IST 130: Emerging Technologies in Popular Culture

3 Credits

A survey course that explores emerging technologies used to produce and consume popular cultural artifacts. Through individual and team-based learning activities, students will analyze and interact with information and communication technologies across popular culture genres. The course content and the assignments are directed at helping students to both create and critique digital media in ways that demonstrate their understanding of, engagement with, and reflections upon the relationships among people and organizations, emerging technology, and popular culture. Students will also design and produce digital media that demonstrate their ability to integrate and synthesize central concepts and themes from the course. This is an introductory course in IST, and meets the requirements for a General Education course in Arts (GA). This course is delivered with significant student and instructor interaction with computers and digital media.

General Education: Arts (GA)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

IST 140: Introduction to Application Development

3 Credits

A first course in concepts and skills for application development. Math 22 is recommended as preparation for IST 140. This is a first course in application development. Applications are computer programs developed to support human activity in enterprise and other social contexts. Examples of applications might include programs to help run a business, manage personal information, or provide entertainment. The emphasis of this course is on learning to translate practical problems through domain analysis into software applications usable in a human or organizational context. It will focus on the knowledge needed to create applications that use high level programming languages, combining original code with existing code libraries and application programming interfaces (APIs). Students in this course will learn application development concepts including problem solving using computer programming; how to recognize the need for different types of data and how to use data of different types to represent an application's information; application testing and debugging; basic computer organization; and the basics of operating systems. This is a hands-on, practical course designed for students without prior computer programming experience who will use computer languages and tools to develop applications in their later courses and future careers.

Enforced Prerequisite at Enrollment: C or better in Math 21 or placement above the level of Math 21 in the mathematics placement test.
Recommended Preparation: Math 22

IST 140H: Introduction to Application Development

3 Credits

A first course in concepts and skills for application development. IST 140 Introduction to Application Development (3) This is a first course in application development. Applications are computer programs developed to support human activity in enterprise and other social contexts. Examples of applications might include programs to help run a business, manage personal information, or provide entertainment. The emphasis of this course is on learning to translate practical problems through domain analysis into software applications usable in a human or organizational context. It will focus on the knowledge needed to create applications that use high level programming languages, combining original code with existing code libraries and application programming interfaces (APIs). Students in this course will learn application development concepts including problem solving using computer programming; how to recognize the need for different types of data and how to use data of different types to represent an application's information; application testing and debugging; basic computer organization; and the basics of operating systems. This is a hands-on, practical course designed for students without prior computer programming experience who will use computer languages and tools to develop applications in their later courses and future careers.

Honors

IST 144N: Invasion of Technology from a 21st Century Perspective

3 Credits

The Invasion of Technology from a 21st Century Perspective introduces students to the world of technology from a humanistic point of view. Students will embark on a journey starting in the early 20th century to explore technology and relationships between technology and society

and what the varying theoretical and historical underpinning about "human progress" in respect to these relationships. They will then sojourn through the years to learn about the advances of technology for better or worse. Students will develop an understanding of how individuals and social groups shape and are shaped by technological change and how human societies create means for both social control and freedom, with a focus on ethics and morality as related to the use of technology and its resulting consequences. Students will also be introduced to the latest technology and current collaboration with other professionals. They will gain a better understanding of the historical perspective and the societal, political, cultural and economic issues relative to technology. This course is a multidimensional, interactive course, which allows students to explore the nuances of modern technology as it pertains to security, medicine, education, employment, treatment, military defense and social media. Students will create/invent a design proposal for a scalable and usable application that focuses on topics related to the humanities and social sciences, which may ultimately find its way into the marketplace. Students will also conduct an interview with a grandparent or equivalent to gain a better understanding of people's impact on technology and visa-versa.

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

IST 170N: What is Information?

3 Credits

"What is Information?" considers the material and social nature of information in historical and contemporary contexts. How has information been managed and valued? How have information infrastructures served as sites of social and political connection or antagonism? How have ideas about information changed over time and how have they remained the same? The course integrates perspectives from the social sciences and the humanities, and prepares students to think about (and act in) a world in which information (and its linked concepts, like data) play an increasingly important social and political role. The course addresses the history of information as both a concept and as a matter of social practice, and then focuses on three major topics: how information is presented, how information is organized, and how information is put to social and political use. Moving from the earliest periods of human history and their "information ages" (including the birth of writing and the dawn of printing and mass literacy), the course leads students into our contemporary "information society," and the ways in which both the use and manipulation of information shape our lives.

Cross-listed with: CAS 170N

Bachelor of Arts: Humanities

Bachelor of Arts: Social and Behavioral Sciences

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

IST 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

IST 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

IST 210: Organization of Data

3 Credits

Introduction to concept of databases including the storage, manipulation, evaluation, and display of data and related issues. IST 110 is recommended as preparation for IST 210. IST 210 Organization of Data (3) As the database management software becomes one of the critical components in modern IT applications and systems, a solid understanding of the fundamental knowledge on the design and management of "data" is required for virtually any IT professionals. In a business setting, such IT professionals should be able to talk to the clients to derive right requirements for database applications, ask the right questions about the nature of their entities and in-between relationships in their business scenarios, analyze and develop an effective and robust design to address business constraints, and react to the existing database designs as new needs arise. Modern IT professionals should be able to guide a company in the best use of the diverse database-related technologies and applications toward the "Big Data" era. As such, IST 210 aims to prepare students for obtaining fundamental understanding on the database concepts and practical skills to analyze and implement a well-defined database design. In particular, IST 210 provides an introduction to physical database design, data modeling, relational model, logical database design, SQL query language, and instructors' choices on database applications and advanced concepts. Students will learn to use a real-world commercial or open-source database management system, too. Upon taking IST 210, students should be able to understand the implications and future directions of databases and database technologies.

IST 220: Networking and Telecommunications

3 Credits

Introduction to digital network topologies; transmission media, signal modulation, digital packet switching and routing, systems integration, communications management, and security. IST 110 is recommended as preparation for IST 220. The course includes an introduction to: telecommunications history; telecommunications transmission media (conducted and radiated); transmission characteristics (including an introduction to coding and modulation techniques); error characteristics, detection, and correctional; local and wide area networking applications, hardware, and software; the OSI models; industry standards; topologies; protocols; internetworking devices; communications management; security and recovery; information system applications; and the selection of telecommunications and networking systems. Special attention will be paid to evolving Internet Protocol (IP) technologies, e.g., Internet2. IST 220 is an introduction to digital networking and telecommunications and their applications in information systems. It is a required core course for both the two-year and four-year Information Sciences and

Technology degrees, and is a critical part of the curriculum. Its objective is to provide the students with a basic understanding of the working of digital networks and the ability to apply this knowledge to specific applications and situations. Evaluation of knowledge objectives will be by examination; and of application (i.e., selection and management) objectives by grading of group and individual projects and case studies. As a "core course", IST 220 will be offered every semester at University Park, in as many sections as necessary to meet current demand. At other locations where the Associate and Baccalaureate degrees are offered, it will be offered 1-2 times annually depending on demand. Ideally, section size should not exceed 45 students per class. While the course is about digital technology and how it works, it is not a "hands on" course, or a training course in particular equipment and/or applications. While there will be demonstrations of relevant technologies, the course is not equipment-intensive and will not involve special technology needs beyond the normal access to computing and the Internet. The course is not duplicative of any other course currently offered. Although there is some overlap with CMPET 401-402, CSE 458, and COMP 421, none of these courses cover exactly the same material, and they operate at a different level of depth and detail. M I S 180 also overlaps somewhat, but it appears that no current course provides the same 200-level mixture of local and wide-area networking and business communications topics.

IST 222H: Community Informatics

3 Credits

This course combines theory and practice to help students develop a contextualized understanding of community as a conceptual lens for understanding human history and human experience. This course examines the history of community, and of interactions between community and information technology, emphasizing how possibilities and practices of community have been transformed by information technology through the last half century, and currently. The course includes opportunities for students to engage with, and thereby come to understand and appreciate local community institutions off campus. Thus, in the tradition of the Chicago School of Sociology, the course directly utilizes the local community itself as a living laboratory for the study of community informatics. The objective of the course is to help students think critically about community and technology in society, and more specifically, about the how information technology can be used to shape human participation in and experience of community. The course is an honors course. It is run as a small class. It is taught by a research leader in the field of community informatics. The class environment is dominated by debate and discussion. And the course has challenging assignments, involving direct interaction with local community groups.

General Education: Social and Behavioral Scien (GS)

Honors

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

IST 225: PC Hardware Basics

3 Credits

Preparation for PC hardware support: Students learn data recovery and how to build, configure, upgrade, troubleshoot, diagnose, and repair PC's. IST 225 PC Hardware Basics (3) IST 225 covers materials needed to prepare students to function as PC support technicians in business and industry. In a hands-on laboratory environment, students learn to build, configure, upgrade, troubleshoot, diagnose, and repair PC

hardware. Course modules cover all the basic hardware components of the PC - their functions, interactions, installation, configuration, upgrading, repair, and replacement. Detailed coverage of system BIOS, CMOS setup, and the boot process is also included. Preventive maintenance and data recovery procedures are also studied. IST 225 is one of four courses required for the Networking Option in the Associate degree in Information Sciences and Technology (IST). The IST 225 is designed to help the student to thoroughly understand all the basic hardware and firmware PC components, from PC resources, their function (BIOS and CMOS setup) and interaction, to diagnosing and resolving resource conflicts. The IST student should be able to install, configure, troubleshoot, repair, recover data, correct errors or replace all basic hardware components. The student should also be able to make appropriate hardware recommendations, purchases and upgrade decisions, as well as, determine appropriate preventive maintenance procedures. Finally, the Information Sciences and Technology major will learn how to foster communications, interpersonal, and group interaction skills through appropriate collaborative and active learning projects, laboratory exercises, and related experiences. Achievement of knowledge objectives will be evaluated by examinations. Ability to perform hands-on support activities will be evaluated by grading appropriate group and individual hands-on laboratory projects, scenarios, and case studies. The majority of campuses offering the Associate degree in Information Sciences and Technology will have 20-30 students enrolled in the course. The course will be offered one semester each academic year.

Enforced Prerequisite at Enrollment: IST 220

IST 226: Networking Essentials

3 Credits

Concepts for peer-to-peer and server-based network: International Organization for Standardization-Open Systems Interconnection (ISO-OSI) reference model, industry standards, troubleshooting, performance monitoring, and optimization. IST 226 Networking Essentials (3) IST 226 covers basic networking concepts such as network types, cable types, wireless technologies, and network adapters. It discusses network models, including the ISO-OSI reference model and all industry standard network architectures. Both peer-to-peer and server-based commercial network operating systems are introduced with hands-on laboratory experience provided. Basic network administration issues are introduced. Internetworking/enterprise networking devices and architectures are also covered, as are network troubleshooting, performance monitoring, and optimization. IST 226 is one of four courses required for the Networking Option in the Associate degree of Information Sciences and Technology (IST). Achievement of knowledge objectives will be evaluated by examinations. Ability to perform hands-on network administration and support activities will be evaluated by grading appropriate group and individual hands-on laboratory projects, scenarios, and case studies. Upon completion of this course, the students will be able to understand both cabled and wireless media types and be able to select appropriate media. The student will also understand the ISO-OSI and IEEE models and other industry standards, the roles of drivers and protocols and network architectures. The student will have experience with the installation, configuration and administration of basic server-based networking, as well as, an understanding of wide area/enterprise networking, performance monitoring and network troubleshooting. Most important, the student will learn how to foster communications, interpersonal, and group interaction skills through appropriate collaborative and active learning projects, laboratory exercises, and related experiences. The majority of campuses offering the Associate degree in Information

Sciences and Technology will have 20-30 students enrolled in the course. The course will be offered one semester each academic year.

Enforced Prerequisite at Enrollment: IST 220

IST 227: Network Administration

3 Credits

Administering peer-to-peer and client/server networks: Planning, installation, server configuration, resource management, remote access, performance monitoring, and optimization. IST 227 Network Administration (3) IST 227 covers the essential knowledge and skills required to successfully administer peer-to-peer and client/server networks. Hands-on experience with commercial networking software such as Windows 9x, NetWare, Windows NT Workstation, and Windows NT Server is an important course component. Topics covered include pre-installation planning, network installation, network software architecture, server configuration, profiles and logon scripts, user account management, policies, resource sharing and security, disk management, remote access, backup and recovery, performance monitoring, and network optimization. IST 227 is one of four courses required for the Networking Option in the Associate degree in Information Sciences and Technology (IST). Upon completion of this course, the students will be able to understand network software architecture, plan and install peer-to-peer and server-based networks. The IST student will also be able to manage user accounts, profiles, logon scripts, and system policies. The student will have practical experience with disk storage, resources, security, backup and recovery procedures. Finally, the student will be able to manage remote access features, monitor and optimize network performance, and foster communications, interpersonal, and group interaction skills through appropriate collaborative and active learning projects, laboratory exercises, and related experiences. Achievement of knowledge objectives will be evaluated by exam. Ability to perform hands-on network administration and support activities will be evaluated by grading appropriate group and individual hands-on laboratory projects, scenarios, and case studies. The majority of campuses offering the Associate degree in Information Sciences and Technology will have 20-30 students enrolled in the course. The course will be offered one semester each academic year.

Enforced Prerequisite at Enrollment: IST 226

IST 228: Advanced Network Administration

3 Credits

TCP/IP planning, installation, configuration: IP addressing, subnetting, routing, Dynamic Host Configuration Protocol (DHCP), Windows Internet Naming Service (WINS), address/name resolution, Domain Name System (DNS); database, web, mail server management. IST 228 Advanced Network Administration (3) IST 228 covers the essential knowledge and skills required to successfully administer TCP/IP networks and applications servers such as database servers, web servers, and mail servers. Hands-on experience with commercial software such as SQL Server, Exchange Server, and Internet Information Server is an important course component. Topics covered include TCP/IP planning, installation, and configuration, IP addressing, subnetting, IP routing, DHCP, WINS, address and name resolution protocols, DNS, and management of database, web, and mail servers. IST 228 is one of four courses required for the Networking Option in the Associate degree of Information Science and Technology (IST). Upon completion of this course, the IST students will be able to plan, install, configure and troubleshoot TCP/IP. The student will also understand IP addressing, subnetting, supernetting,

routing and configuration. The student will have practical experience installing and configuring DHCP, WINS, and various protocols. Finally, the IST student will have administrative skills with database, server and web software, as well as, the ability to foster communications, interpersonal, and group interaction skills; through appropriate collaborative and active learning projects, laboratory, exercises, and related experiences. Achievement of knowledge objectives will be evaluated by exam. Ability to perform hands-on network administration and support activities will be evaluated by grading appropriate group and individual hands-on laboratory projects, scenarios, and case studies. The majority of campuses offering the Associate degree in Information Sciences and Technology will have 20-30 students enrolled in the course. The course will be offered one semester each academic year.

Enforced Prerequisite at Enrollment: IST 226

IST 230: Language, Logic, and Discrete Mathematics

3 Credits

Introduction to formal languages, mathematical logic, and discrete mathematics, with applications to information sciences and technology. IST 230 Language, Logic, and Discrete Mathematics (3) IST 230 is one of the five introductory core courses for the baccalaureate degree program in Information Sciences and Technology. The purpose of IST 230 is to provide students with an understanding of an array of mathematical concepts and methods which form the foundation of modern information science, in a form that will be relevant and useful for IST students. Exams and assignments will be used to assess that understanding. IST 230 will draw some of its material from several mathematical disciplines: formal language theory, mathematical logic, discrete mathematics. In-depth treatments of each of these subjects are offered elsewhere in the University as advanced mathematics and computer science courses. The difference is that IST 230 will present these concepts in a more elementary way, with much more emphasis on IST applications, and in a more eclectic, web-based format. IST 230 will be structured as a small number of modules. Each module will introduce a group of mathematical concepts and present applications of those concepts to problems of information storage, information retrieval, information management, etc. These include: MODULE 1: SET, RELATIONS, FUNCTIONS, NUMBERS set operations, applications of relations, equivalence relations, function composition, inverse functions, logarithms, exponential function, number systems, applications of number theory. APPLICATIONS: mathematical data types (integers, fractions, real numbers, tuples, function spaces); exponential growth; non-feasible algorithms; public key encryption. MODULE 2: LOGIC AND BOOLEAN ALGEBRA predicates, quantifiers, formulas, interpretations, syllogisms, logical consequence, tableau method, boolean connectives, boolean functions, valuations, truth tables, logic gates. APPLICATIONS: database query languages; specification languages; switching circuits; boolean search expressions. MODULE 3: COMBINATORICS AND PROBABILITY combination, permutation, discrete probability APPLICATIONS: lexicographic ordering; combinatorial explosions; lower bounds of algorithms; reliability of computer systems MODULE 4: GRAPHS AND TREES directed and undirected graphs, weighted graphs, walks, paths, matrix representations, graph algorithms, spanning trees, rooted and structured trees, combining trees to form new trees, inserting nodes in trees, sorting, searching. APPLICATIONS: flow diagrams; task scheduling; critical paths; network connectivity; finite state machines; parsing; derivation; trees as data structures for storing information. MODULE 5: INDUCTION AND RECURSION induction and recursion on the natural numbers and other structures such as trees. APPLICATIONS: recursive evaluation of mathematical and Boolean expressions; recursive searching and sorting algorithms; asymptotic

analysis of algorithms. MODULE 6: GRAMMARS, LANGUAGES AND FINITE STATE MACHINES alphabets, strings, grammars, languages, regular languages, regular expressions, finite state machines, language recognizers. APPLICATIONS: regular expression search; efficient pattern matching using finite-state machines.

Enforced Prerequisite at Enrollment: MATH 110 or MATH 140

IST 234N: Digital Cultures

3 Credits

This introductory course will combine theory and practice to help students develop a rich understanding of the constantly evolving US digital culture. We will survey a variety of information and communication technologies (ICTs), and their modes of production, distribution, and consumption by individuals and institutions including traditional media, business, and government. Specifically, we will examine the impact of social and mobile technologies on how we consume, share, resist, and participate in digital culture. Students will also develop basic technical and media creation skills. The general theme of the course is analyzing contemporary cases to understand the significance of new ICTs in shaping our identities, behaviors, language, imaginations, and society. Students will read texts authored by some of the most formative thinkers examining the impact ICTs on society, and apply these core concepts in our analysis of digital cultures. Students will actively use microblogging, RSS feeds, social networking and other Web 2.0 tools to produce and consume content, interact with peers, and reflect critically on this experience. This course will emphasize awareness of current events and technology trends, as well as critical thinking skills and the ability to frame and explore issues through written, visual and verbal communication. This is an introductory course in IST and COMM, and meets the requirements for a Social and Behavioral Sciences (GS) and Humanities (GH) Course. This course is delivered with significant student and instructor interaction with computers and digital media.

Cross-listed with: COMM 234N

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

IST 235: Gender and the Global Information Technology Sector

3 Credits

Integrates information technology and gender studies. Overview issues and socio-cultural shaping of gender in the IT field.

Cross-listed with: WMNST 235

United States Cultures (US)

IST 237: Digital Entrepreneurship

3 Credits

The proliferation of new IT combined with the reach of the Web, Internet, and mobile devices is opening up new possibilities for individuals and companies to leverage IT to create new digital businesses. This course provides a broad overview of the role of entrepreneurial thinking and innovation in advancing IT-focused businesses. Students will examine how these skills can be leveraged to create new IT-driven businesses as well as to create competitive advantage for existing businesses via new

IT products and services (i.e., intrapreneurship). This course provides a broad overview of the role of entrepreneurial thinking and innovation in advancing IT-focused businesses and familiarizes students with the processes and tools used to conceptualize and plan new innovative products and/or services that leverage IT as a core component of their business model. Students will be introduced to concepts, tools, and principles of business management including business strategy, finance, marketing, human resources, and leadership within the context of IT business models. This will be a very hands-on active class. Students will have the opportunity to work in teams to practice skills related to identifying novel ideas, assessing market opportunities, defining customer segments, identifying key partners, and building IT-based business models.

Enforced Prerequisite at Enrollment: MGMT 215 or ENGR 310

IST 240: Introduction to Computer Languages

3 Credits

Introduction to the specification and application of languages and language paradigms that interact with computers. IST 240 is one of two courses added to the three core courses for the associate degree program to form the core courses for the baccalaureate degree program in Information Sciences and Technology. The primary goal of this course is to study the foundations underlying the design, specification and use of a wide variety of language paradigms used to interact with computers. The following details the content of the course: (1) nature of languages; (2) elements of languages; (3) classification of languages; (4) formal descriptions of languages; (5) data and types; (6) names and bindings; (7) control structures; (8) language processors; and (9) study experiences. Student evaluation may be accomplished by means of assignments, examinations, and possibly a project. This course will most likely involve Web-based course material and will therefore require student access to computers and the Web. Although other existing courses are similar to IST 240 in content, none of those courses fit the objective of this course and of this program.

Enforced Prerequisite at Enrollment: C or better in IST 140 or CMPSC 101 or CMPSC 121 or CMPSC 131

IST 240H: Introduction to Computer Languages

3 Credits

Introduction to the specification and application of languages and language paradigms that interact with computers.

Honors

IST 242: Intermediate & Object-Oriented Application Development

3 Credits

Intermediate application development including algorithms, data structures, and object-oriented concepts. IST 242 Intermediate & Object-Oriented Application Development (3) This is a second course in application development. It will focus on the intermediate knowledge needed to create applications that use high level programming languages, combining original code with existing code libraries and application programming interfaces (APIs). The perspective will be of application development that takes place within a human and organizational context; in this sense data structures will be construed as representations of organizational entities and information, and algorithms as a reflection of human and organizational processes and

activity. Students will also learn about common application architectures and design patterns. This is a hands-on, practical course designed for IST design and development option undergraduate students and others as an elective.

Enforced Prerequisite at Enrollment: C or better in IST 140 or IST 240 or CMPSC 121 or CMPSC 131

IST 250: Introduction to Web Design and Development

3 Credits

Introduction to how the World Wide Web utilizes emerging technologies. Students acquire conceptual and practical understanding of constructing Web sites. IST 110 is recommended to be taken before or at the same time as IST 250. This course provides an introduction to the visual/information design of Web sites and the technologies of the World Wide Web. Students will acquire a sound conceptual understanding of how to design and construct simple to complex web sites, and how this knowledge can be applied in practical ways across all disciplines. Knowledge gained in this course will support the Information Sciences and Technology (IST) Associate degree, as well as other degree options within IST and across the university. Knowledge gained in this course will also support other disciplines within the University, as the Web becomes the predominant publication medium of the 21st Century. There are two major course objectives: (1) students will be able to perform a written critical evaluation of any web site, using the criteria listed below for evaluation; (2) students will be able to develop a written and/or electronic comprehensive proposal for the design or redesign of a web site, based on their understanding of visual and information design.

IST 256: Programming for the Web

3 Credits

IST 256 will provide students with the knowledge and skills to create both basic and more dynamic web-based content pages and applications. The course will first focus on acquiring competencies in core web development languages including HTML, CSS, and JavaScript, then move on to more advanced topics such as information architecture, incorporation of multimedia, and the use of application programming interfaces (APIs) and application development frameworks for the web. The course will follow an active learning pedagogy and incorporate a substantial project component. The first part of the course consists of introduction of web programming concepts, techniques, and tools. Students will demonstrate understanding of the course content by building web pages via individual and group activities. The latter half of the course will involve more in-depth project work both as individuals and in groups.

Enforced Prerequisites at Enrollment: IST 250 or IST 242 or CMPSC 122 or CMPSC 132

IST 260W: Introduction to Systems Analysis and Design

3 Credits/Maximum of 3

Introduction to systems analysis and design, stressing the process of requirements acquisition, specification, design, and implementation. IST 260W Introduction to Systems Analysis and Design (3) IST 260W is an introductory course to system analysis and design. It covers the process and is intended to be independent of the specific system, whether it be a hardware, software, telecommunication, logistics, or information system. This course can be used as a prerequisite to specific Associate degree system design courses. It can also be used for

breadth for those IST students who do not pursue technical emphases. It serves as a writing across the curriculum course for the Information Sciences and Technology Associate degree. The course looks at two design paradigms. A small design project is included in the course. The objectives of the course include: (1) teaching students the importance of teamwork, project management, and oral and written communication skills; (2) teaching students a systems design strategy that emphasizes customer requirements at all stages of the process; (3) introducing students to the object oriented design process; (4) giving students a full design experience on a small project such as designing an e-Commerce system; and (5) showing students examples of the writing required for systems design and requiring them to write individual and team reports as well as give oral presentations on their designs. Students will be evaluated by examinations and by grading of their written reports and oral presentations. System design courses are taught at the upper-division level in Engineering and Business departments. This is a lower-division course that serves as an introduction for Associate degree students to give them a background for project-level courses in their fourth semester. It will serve as a core requirement in the Associate degree program and act as a prerequisite for the design courses that are capstone courses in many of the Associate degree options. The course will be offered one semester each academic year.

Enforced Prerequisite at Enrollment: IST 110, IST 210, IST 220, and ENGL 15
Writing Across the Curriculum

IST 261: Application Development Design Studio I

3 Credits

Introductory design and development studio course for IST and SRA students. IST 261 Application Development Design Studio I (3) This studio course will provide opportunities for students to practice the technical skills acquired in their foundation application design and development courses, specifically, in IST 140 and IST 242. The course will follow the general format of experiential studios in the arts and architecture. It will be primarily problem-based and project oriented. Peer and instructor design critiques will be the major feedback and assessment mechanisms. Students in the IST Software Design Studios will be expected to complete deliverables in each phase of the systems development lifecycle (i.e. problem definition, requirements analysis, design, development, test) regardless of the development paradigm employed (plan-based, agile, etc). A key objective of this design studio will be to introduce students to the challenges faced in different application design and development activities before exposing them to specific techniques to manage these challenges in upper-division courses. Projects may be undertaken by individuals, pairs, or larger groups but each studio participant will be responsible for producing significant individual project deliverables. Project ideas may come from the student or from the instructor; however, projects related to students' other course deliverables will require the agreement of both instructors. Students will be required to maintain a design and development journal. This journal will be the analog of an engineering notebook or artist's sketchbook and should contain a running account of the students design and development ideas, explorations, rationale, and other notes. The IST design and development studios are a forum for serious students to engage with the concepts, process, tools, and materials used to envision and build software applications. Both collaboration and individual performance will be emphasized, as will experimentation, risk-taking, and enthusiasm for the process of designing and building working software

applications. Students will be expected to improvise and then respond constructively to feedback from instructors and peers.

Enforced Prerequisite at Enrollment: C or better in IST 242 or CMPSC 221

IST 261H: Application Development Design Studio I

3 Credits

Introductory design and development studio course for IST and SRA students.

IST 294: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

IST 295A: Distributed Team Project

1-3 Credits/Maximum of 3

IST 295A Distributed Team Project (3) This course offers a web-based distributed project that simulates an internship of a student in a company. Faculty gather information system design projects from industry or units within the university. These projects are announced on the web and students bid to join groups to work on the projects. Each project has a faculty mentor with an additional industrial mentor where appropriate. Student groups are formed by the mentors based on the resumes and skill sets of the students. Students bid on one project at a time until they have been selected to be a member of a project team. Membership in a group may include students from different campuses throughout the Penn State System. The majority of communication within the groups and with the mentors is to be via the internet. This course gives a true experience in information project development. Students will be graded as a team by the faculty mentor on the quality of the project. An individual written report detailing the work accomplished during the course is required from all team members. The grade of the individual report and the team project grade form a basis for student evaluation. The objectives of the course include: (1) teaching students the importance of teamwork, project management, and oral and written communication skills; and (2) exposing students to the virtual workplace and providing them with meaningful information and technology related tasks.

Enforced Prerequisite at Enrollment: IST 110

IST 295B: IST Internship

1-3 Credits/Maximum of 3

IST 295B IST Internship (1-3) This course is offered as an internship for a student within a company. Faculty and industry collaborate to specify the duties of the intern. The faculty member responsible for the course then approves the internship. The internship must consist of a minimum of 150 hours of meaningful information and technology related tasks. A written report by the student, detailing the work accomplished during the internship, is required. This report and a report from the intern supervisor form the basis for the grade. The objectives of the course include: (1) teaching students the importance of teamwork, project management, and oral and written communication skills; and (2) exposing students to the workplace and providing them with meaningful information and technology related tasks.

Enforced Prerequisite at Enrollment: IST 110

Full-Time Equivalent Course

IST 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

IST 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

IST 298: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

IST 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

IST 301: Information and Organizations

3 Credits

Overview of organizational structures and functions. Includes information processing and analytic perspectives of organizations. IST 301 Information and Organizations (3) This course provides students the opportunity to learn and experience: 1. Applicable organization and the ways in which IT can alter and enable these activities. 2. A series of analytic techniques that students can use to investigate the effects of new IT on work and organization. 3. Examples and problems set in and drawn from a range of domains including military, medical, high technology, business and government. This course is designed around a series of ill-structured, contemporary problems that require students to develop responses by applying analytic techniques and theories of work and organization. At the end of the course, students will be able to: 1. Apply theories of work and organization as analytic techniques. 2. Conduct organizational and inter-organizational process analyses. 3. Map information flows among organizational units and actors.

Enforced Prerequisite at Enrollment: IST 210 and IST 220

IST 302: IT Project Management

3 Credits

Exploration and application of the basic concepts, methodologies, and tools of project management in the field of information sciences and technology. IST 302 IT Project Management (3) This course is designed to introduce and explore the basic concepts and practices of project management and help students understand how to plan and manage IT projects successfully. Throughout the course, students will be asked to utilize course concepts, methodologies, and tools while utilizing technology applications and addressing real-world problems. Students will learn the skills necessary to define project scope, create workable project plans, and manage projects with quality, budget, and schedule in

mind. The course is structured around the key phases of project lifecycle, including initiating a project, developing project plans, executing and managing a project, and closing out a project. In addition, students will be taught how to identify and address the change management and political issues associated with project management.

Enforced Prerequisite at Enrollment: IST 210 and IST 220

IST 310: Digital Media Metrics

3 Credits

Analysis of audience data for traditional and new media to create metrics for advertising, content marketing and audience analysis. COMM (IST) 310 Digital Media Metrics (3) The emergence of a converged marketplace where all media are now digital, including broadcasting, websites and social media, has created enormous new opportunities for advertising, promotions and content distribution. The proliferation of media has made the marketplace much more competitive, but simultaneously the availability of data too has increased significantly making possible the much more precise and segmented distribution of messages and content. For media practitioners in this new environment, a familiarity with audience data, metrics and dimensions is essential. This course is an introduction to the methods for collecting, analyzing and utilizing audience data for traditional and new media. The class will cover the fundamentals of traditional media audience analysis, web metrics, and social media metrics, specifically as they relate to audience measurement, advertising campaign evaluation and content distribution. Students will learn the methods of data collection, analysis and use for traditional broadcast media, and the transformation of these practices in the newly digitized and converged multiplatform, multiscreen environment. The course will also cover the basics of data capture for new media (at an appropriate technical level), and the use of this data for the design of metrics appropriate for various purposes such as monitoring traffic, conversions and revenue generation. The use of metrics in pricing models for advertising, sales generation and content distribution will also be covered. Students will be introduced to data sources for digital media audience analysis, with a special focus on Google Analytics. Students passing this class would be able to pass the Google Analytics Individual Qualification test.

Cross-listed with: COMM 310

IST 311: Object-Oriented Design and Software Applications

3 Credits

Introduction to object-oriented applications including applications in an Object Oriented Design (OOD) language or OOD languages. IST 311 Object-Oriented Design and Software Applications (3) IST 311 is among the courses making up the Application Design & Development option in the Baccalaureate degree in Information Sciences and Technology. This course is normally taken in the 5th or 6th semester. It is the first upper-division course in the option sequence. The course is intended to provide students with a background in object-oriented design and object-oriented application development. Students will learn the fundamentals of object-oriented analysis, design, and modeling. They will apply design concepts and develop the skills necessary to bring an idea through the different phases of the application development lifecycle. The course normally involves students working on teams to design and develop working application prototypes. Upon completion of this course, students will be able to apply object-oriented design principles using object-oriented modeling and programming languages, show how object-oriented principles increase the quality of complex applications, and begin

development of the team skills necessary when developing complex systems.

Enforced Prerequisite at Enrollment: C or better in IST 242 or CMPSC 221

IST 331: Foundations of Human-Centered Design

3 Credits

Interdisciplinary survey of topics and methods related to the human-centered design use and usability of information systems. IST 331 Foundations of Human-Centered Design: User and System Principles (3) This course provides a focused introduction to one of the most complicated parts of information systems design: users and the contexts in which they live, work, and play. The course provides a balance between theory and practice, which are tightly intertwined in this area. Students will learn how to use social science theories about human capabilities and group behavior to predict whether an information system will be usable and useful, and they will learn about the opportunities and challenges that are associated with a wide range of emerging technologies. Students will also gain skills in designing and evaluating information systems that meet the needs of a target audience. Because the information technology design space evolves rapidly, much of the technology-related content covered in this course will evolve from year to year; however the focus throughout will be understanding and responding to the needs, capabilities and preferences of the users of interactive information systems. The format of the class may include lectures, readings, in-class or online discussions, projects, or case studies. Assessment of student performance may include short assignments, quizzes, exams, or in-depth projects.

Enforced Prerequisite at Enrollment: C or better in IST 240 or IST 242 or CMPSC 122 or CMPSC 132

IST 337: Technologies for Digital Entrepreneurs

3 Credits

This course introduces the student to the applications, technologies, and tools for entrepreneurs engaging in or considering engaging in a start-up or running a small-to-medium size business. Although there will be some consideration of product concept development and implementation, much of the course will be devoted to the tools and infrastructure need to support a start-up up a small-to-medium size business. These concepts and skills will also support entrepreneurs looking to develop new applications to open new market opportunities. This will be a very hands-on and active class that relies on approaches such as problem-based learning (PBL), "flipped" classrooms, and learning by doing. Students will spend time outside class learning key concepts and time inside class applying them.

Enforced Prerequisite at Enrollment: IST 237

IST 361: Application Development Design Studio II

3 Credits

Second of two design and development studio courses for IST and SRA students. IST 361 Application Development Design Studio II (3) This studio course will provide opportunities for students to practice technical skills acquired in their previous design and development courses to date, specifically, in IST 140, Introduction to Application Development; IST 242, Intermediate and Object-Oriented Application Development; and IST 311, Object-Oriented Design and Software Applications. The course will follow the general format of experiential studios in the arts

and architecture. It will be primarily largely problem-based and project oriented. Peer and instructor design critiques will be the primary feedback and assessment mechanisms. Students in the IST Software Design Studios will be expected to complete deliverables in each phase of the systems development lifecycle (i.e. problem definition, requirements analysis, design, development, test) regardless of the development paradigm employed (plan-based, agile, etc). A key objective of this design studio will be to provide application development opportunities where students can apply knowledge and practice techniques gained from their foundation and first upper-division courses. Projects may be undertaken by individuals, pairs, or larger groups but each studio participant will be responsible for producing significant individual project deliverables. Project ideas may come from the student or from the instructor; however, projects related to students' other course deliverables will require the agreement of both instructors. Students will be required to maintain a design and development journal. This journal will be the analog of an engineering notebook or artist's sketchbook and should contain a running account of the students design and development ideas, explorations, rationale, and other notes. The IST design and development studios are a forum for serious students to engage with the concepts, process, tools, and materials used to envision and build software applications. Both collaboration and individual performance will be emphasized, as will experimentation, risk-taking, and enthusiasm for the process of designing and building working software applications. Students will be expected to improvise and then respond constructively to feedback from instructors and peers.

Enforced Prerequisite at Enrollment: C or better in IST 311

IST 389: Leadership and Technology for Instruction

1-4 Credits

Leadership in college instructional settings; teaching and learning principles; instructional technologies; and best practices in coaching, team facilitation, learning assessment. This course prepares undergraduate students for their role as Learning Assistants (LA's) in the College of IST. In this course, LA's will prepare to assist in instructional environments that encourage students to participate actively in their learning. LA's will be immersed in activities that introduce them to some of the teaching methods aimed at promoting active learning in College of IST classrooms, while being prepared for leadership responsibilities such as coaching, providing feedback, evaluating, monitoring academic integrity, fostering inclusive learning environments, and supporting teams. Students will also learn about information technologies designed for managing courses and increasing student engagement. Outside of class meetings, students will serve as instructional assistants in an assigned course. They will be mentored, supervised, and evaluated on the job by their assigned faculty member.

Enforced Prerequisite at Enrollment: IST 110 or SRA 111. Co-requisite: Employment as a Learning Assistant in the College of IST.

IST 390: Introduction to Professional Development

1 Credits

Interdisciplinary course to introduce students to the issues, concepts and skills involved in successfully transitioning into professional life. IST 390 Introduction to Professional Development (1) IST 390 focuses on introducing the students to professionalism and professional development in the field of IT. Emphasis will be placed on the theories and skills required for planning, developing, implementing, and managing professional skills. For example, students will attempt to

master relationship skills such as client relationship management and interpersonal communication, business skills such as presentation planning and scheduling; leadership skills such as decision making and goal setting; and career management skills such as networking and interviewing. Additional focus will be placed on the various resources and strategies available for pursuing a successful job search. Students will be given opportunities to practice the concepts, theories, and methodologies learned in class by working in teams on real-world case studies (many derived from corporate partners). Students will be periodically assessed through examinations, case studies, individual and group assignments and projects, and other performance indicators where appropriate. The audience is students who are ready to enter the work force. For those pursuing Baccalaureate Degrees, this would mean a class standing of Junior or Senior. For those pursuing Associate Degrees, this would mean a second year standing.

IST 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

IST 398: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

IST 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

IST 402: Emerging Issues and Technologies

3 Credits/Maximum of 9

Introduction to emerging issues, technology forecasting and analysis; overview of emerging issues and leading technologies in IST and how they impact information systems, users, the IT labor force and society. IST 402 Emerging Issues and Technologies (3 per semester/ maximum of 9) Information Sciences and Technology (IST) is a rapidly changing discipline. New issues, methods, tools, applications and terminology appear on a continual basis. A key skill is the ability to analyze new issues and assess new technologies within the context of the information age. This course prepares students to understand the difference between potential technological failures and success, fads and revolutionary technology. It also helps students to view emerging issues as an opportunity rather than a threat. Intellectual tools are provided to assist in understanding issues, assessing and forecasting technological changes for feasibility and planning in real world situations. The course provides students with: a.) A process framework for analyzing new issues and a theoretical framework to study technological and social impacts of such issues. b.) A process framework for recognizing and understanding new technologies and a theoretical framework to take advantage of such technologies. c.) Exposure to new issues and technologies. d.) Hands-on experience in studying recent technological advances in detail. The course will also provide students with the ability to: a.) Understand the concept of issue analysis and technology forecasting. b.) Recognize the important of new issues and technologies in information

sciences. c.) Incorporate these new issues and technologies into an existing information systems framework. d.) Develop and implement new technology solutions, or discuss policies for addressing emerging issues. e.) Predict impacts of issues and technology on information management, users, policies, and the environment. Each time the course is offered; new issues and/or information technology areas will be explored. Examples of issues and technologies addressed include: wireless communications, security and intrusion detection, intelligent agents, web search, languages, intelligent systems, bio-informatics, advanced visualization and human-computer interactions, ubiquitous-pervasive computing, groupware, computer aided cognition, system design by global IT teams, IT outsourcing, and digital divide.

Enforced Prerequisite at Enrollment: IST 210 and IST 220

IST 402H: Emerging Issues and Technologies

3 Credits/Maximum of 9

Introduction to emerging issues, technology forecasting and analysis; overview of emerging issues and leading technologies in IST and how they impact information systems, users, the IT labor force and society.

Honors

IST 411: Distributed-Object Computing

3 Credits/Maximum of 3

Introduction to distributed-object computing and its use in client/server and real-world computing applications. This course presents the fundamental concepts of distributed-object computing, including client/server computing which is an important platform for real-world computing systems. The course focuses on design, development, and deployment of distributed systems. Students will also consider issues of managing distributed systems and the relationships between organizational processes and information-system architectures. IST 411 is an elective course for the Baccalaureate degree program in Information Sciences and Technology. Students completing the Systems Development Option may take this course to fulfill option requirements. Upon completion of this course, students will have a broad understanding of the fundamental concepts of distributed objects and distributed-computing architectures, have the ability to apply these concepts to real-world applications, and be able to design, develop, deploy, and maintain distributed applications.

Enforced Prerequisite at Enrollment: C or better in IST 311

IST 412: The Engineering of Complex Software Systems

3 Credits/Maximum of 3

Introduction to the engineering of complex software systems including software system specification, design and implementation, integration and test, and evolution. IST 412 The Engineering of Complex Software Systems (3) This course presents the fundamental concepts of the engineering of complex software systems, including iterative and agile development strategies. The course gives students insight into the full software development cycle, including design, implementation, test and quality assurance, deployment, maintenance, and project estimation and management. IST 412 is an elective course for the Baccalaureate degree program in Information Sciences and Technology. Students completing the Systems Development Option may take this course to fulfill option requirements. Upon completion of this course, students will have a broad understanding of the fundamental concepts of complex

system software engineering and be able to apply these concepts to managing and developing a complex software project over the full software development cycle.

Enforced Prerequisite at Enrollment: C or better in IST 311

IST 413: Usability Engineering

3 Credits

This course addresses activities in the system development process that ensure usability. It considers the emerging concept of usability, requirements gathering and analysis, activity design, information design, interaction design, documentation design, user testing and usability evaluation. IST 413 Usability Engineering (3) The modern system development process includes concurrent engineering of usability - features of a system that make it approachable, learnable, as well as easy and satisfying to use. Topics in the course include the emerging concept of usability, requirements gathering and analysis, the use of scenarios and claims to describe and analyze both current human practices and envisioned practices, activity design, information design, interaction design, documentation design, and user testing, including techniques for formative and summative usability evaluation.

Enforced Prerequisite at Enrollment: C or better in IST 331

IST 420: Fundamentals of Systems and Enterprise Integration

3 Credits

Introductory course on integration of information technology into different venues, including the planning, development, and implementation of the integration. IST 420 Fundamentals of Systems and Enterprise Integration (3) IST 420 focuses on introducing the student to the role of information systems and technologies in achieving a variety of system goals. Emphasis will be placed on the theories and skills required for planning, developing, implementing, and managing the integration of information technology and different systems. IST 420 is required of all Information Sciences and Technology (IST) undergraduates who have chosen the Information Technology Integration Option in their baccalaureate degree. It is the prerequisite for IST 421 which is also required for the Option. Upon completion of the course, the student will be able to recognize information technology integration. They will also understand the 'business processes and information value chain' within a system, and be able to foster an understanding of the role of IT in system integration. Students will be periodically assessed through examinations, case studies, individual and group assignments and projects, and other performance indicators where appropriate.

Enforced Prerequisite at Enrollment: C or better in IST 240 or IST 242 and C or better in IST 301 and C or better in IST 302

IST 421: Advanced Enterprise Integration: Technologies and Applications

3 Credits

Advanced course on the integration of information technology into systems applications. IST 421 Advanced Enterprise Integration: Technology and Applications (3) IST 421 expands the knowledge gained in IST 420 on the theories and skills required for planning, developing, implementing, and managing information systems. IST 421 is required of all Information Sciences and Technology (IST) undergraduates who have chosen the Information Technology: Integration and Application Option in their Baccalaureate degree. Upon completion of the course, the student will have expanded knowledge of information technology and systems

integration issues across multiple application settings. They will also have a deeper understanding of the specific information technology (both hardware and software) that can serve as the foundation for designing systems within an organization, and have experience that fosters an understanding of the role of IT achieving system performance goals.

Enforced Prerequisite at Enrollment: C or better in IST 420

IST 422: Enterprise Architecture Foundations

3 Credits

Theoretical foundations and practice of enterprise architecture. IST 422 Enterprise Architecture Foundations (3) Enterprise Architecture is the overall framework and set of strategic objectives for the usage of technology over time across an organization. Enterprise Architecture can also be described as the top-down, strategy-driven, integrating framework that brings together and manages the business model, applications and technology. Its primary goal is to facilitate improvement and deliver business-aligned information systems. This course presents the key components and processes involved in the effective creation and governance of enterprise architectures. Students will acquire knowledge about the key foundational aspects of enterprise architecture, learn what decisions need to be made and how to make them, and be able to explain and justify their recommendations.

Enforced Prerequisite at Enrollment: IST 301

IST 423: Enterprise Information Management and Storage Architecture

3 Credits

Provide in-depth study of the concepts, issues, and technologies associated with the complex world of enterprise information and storage architecture. IST 423 Enterprise Information Management and Storage Architecture (3) This course is designed to introduce students to enterprise information storage and management concepts, issues, trends, and technologies. As an upper-division course, the focus will center on applying design concepts and associated technologies to real-world problems in the area of enterprise information storage and management. Existing partnerships with leading information management firms will be leveraged to provide real-world exposure to the complex enterprise information storage and management issues facing all organizations today. This course also focuses increasingly on the critical areas of information security and the emerging field of information storage virtualization. The course will mix technical details, applied value, and organizational insights of enterprise information storage and management through the use of labs, case studies, real-life problems, and team projects. This is a unique course that has generated great industry interest.

Enforced Prerequisite at Enrollment: IST 301

IST 424: Architectural Modeling of Organizations

3 Credits

Theoretical foundations and practice of enterprise modeling. IST 424 Architectural Modeling of Organizations (3) Enterprise Architecture is the overall framework and set of strategic objectives for the usage of technology over time across an organization. Enterprise Architecture can also be described as the top-down, strategy-driven, integrating framework that brings together and manages the organization model, applications and technology. Its primary goal is to facilitate improvement and deliver organization-aligned information systems. Effective modeling is crucial

for successful EA. This course provides an exposure to the foundational concepts and practices of effective enterprise modeling for EA. Students will acquire knowledge about the key foundational knowledge in modeling different layers of the enterprise, learn what decisions need to be made and how to make them, and be able to explain and justify their models and recommendations. This course explores the use and effectiveness of architectural modeling to describe an organization and to integrate and manage IT resources strategically from an enterprise perspective. Hands-on exercises and cases studies are used to illustrate the role and effect of enterprise architecture concepts and methodologies. Emphasis is placed on understanding different architectural approaches, standards, and styles. Students will use enterprise architectural tools to develop descriptive models and understand how to integrate and manage IT within and between organizations. For each general topic area, core readings are used to define standard vocabulary, concepts and relations, methods and criteria for evaluation, and implications for enterprise architecture. Students participate in class discussions as well as complete written assignments that focus on solidifying the understanding of the course content. Students also complete a team modeling project that is motivated by, and whose outcomes are discussed with respect to, one or more theoretical frameworks covered in the course.

Enforced Prerequisite at Enrollment: IST 301

IST 425: New Venture Creation

3 Credits

Via problem-based learning, students define new business ventures to meet current market needs, develop business models, and present to various stakeholders. The goal of New Venture Creation is to better prepare undergraduate students to be leaders in adaptive, globally-minded, technology-savvy organizations. The course is structured so students develop skills that are of high value in any workplace: leadership skills, self-efficacy, creativity and the ability to deal with ambiguity. Upon course completion, students will have a working knowledge of traditional and non-traditional ways for identifying a new product or business opportunity, quantifying the potential, understanding the key competitive factors, researching the audience, and producing a convincing plan for financing and launch. Students who want to augment the skills and knowledge from their major with the ability to develop a new product/service/process, will find New Venture Creation a valuable course. This is a novel problem-based learning (PBL) course, where the learning is student-centered, with faculty acting primarily in the role of facilitators. Active/Experiential learning happens in this course because students develop ownership of their venture concepts and are fully responsible for the genesis of ideas.

Enforced Prerequisite at Enrollment: (ECON 102 or ECON 104 or ECON 14 or MGMT 215) and (CAS 100 or CAS 138T or EMSC 100S)
Cross-listed with: ENGR 425, MGMT 425

IST 426: Invention Commercialization

3 Credits

Working with Penn State inventions selected by the Intellectual Property Office, student teams define an optimum commercialization path each technology. ENGR 426/ENGR (MGMT/IST/ENTR) 426 Invention Commercialization (3) The goal of ENGR (MGMT/IST/ENTR) 426 is to have students understand why invention commercialization is complicated and difficult by participating in the process. For example, the inventor rarely has insights into the markets for his/her invention, is often

not interested in the details of commercialization, and can be secretive. In addition, the business and financial communities often do not take the time, or have the resources, to understand new technologies and perform complex due diligence. Thus lack of due diligence often leads to rejection of innovation because existing companies often discount new technologies from outside the company as NIH - 'not invented here'. Effective transfer of new invention or innovation to a commercial product requires at least three different functional communities to interface: technical, legal and business. Each uses a different language, comes from different educational and cultural backgrounds, and may have an inherent distrust of the others. These functional barriers are difficult to overcome. This course teaches how these barriers can be broken down as student teams help bridge the perceived chasm between key players in the invention commercialization process. In these teams, students bring the skills and knowledge from their major to develop an invention commercialization recommendation for the Technology Transfer Office and the inventor. For example, business students focus on finance and market opportunity assessment; engineering and IST students focus on design refinements, prototyping support, and (if appropriate) making technology suggestions to the inventor. Upon completing the course, the students will have a working knowledge of different university and corporate technology or invention commercialization processes, important intellectual property management tools for inventions (patents, license agreements, option agreements) source of funding to move inventions toward product development, and delivering top quality presentations which outline the recommended commercialization path. Students who enjoy open-ended projects which involve the interplay of business and invention of who wants to work on interdisciplinary teams with the newest inventions will find this course a valuable course. NOTE: Because the inventions/products are based on Penn State faculty intellectual property, students must sign the Penn State Special Intellectual Property Agreement For Students - For Use When Assigning Intellectual Property to The Pennsylvania State University. The form can be viewed at <http://guru.psu.edu/policies/RAG13.html> The course will be offered both Spring and Fall semesters with an enrollment of 40 students.

Enforced Prerequisite at Enrollment: (ECON 102 or ECON 104 or ECON 14) and CAS 100

Cross-listed with: ENGR 426, MGMT 426

IST 431: The Information Environment

3 Credits

Survey of social environment of information technology themes: Community, sovereignty, privacy, ethics, economics, and knowledge management. IST 431 The Information Environment (3) The ways that people communicate and utilize information is being changed dramatically by new information technologies. Information and the technologies that are employed by create, organize, transfer, and utilize that information in a networked environment, using such global networks as the internet or internal networks such as intranets, have become a key component of the global economy. This global environment can change the way we interact, communicate, and function on the job and in our daily lives. The new technologies also raise new economic, legal, ethical, and social issues that are of grave importance to society. IST 431 examines the overall context of the new information environment and new technical issues relating to knowledge management in the global networked environment. IST 431 is a required course in the Information, Society and Public Policy Option. There may be some overlap of material with COMM 405, COMM 483, COMM 485, PHIL 407, PHIL 423, PHIL 433 and PL SC 460m but none of these courses cover the same material, or approach it in the same manner. Upon completion of this

course, the student will gain an appreciation of the differences between 'cyberspace' and the 'real' world. The student will also understand that the implementation and modern information technologies has significant social and policy implications that demand appropriate policy issues in several different contexts (global, national, local). The student will also be able to discuss the major themes in information policy studies (e.g., community, privacy, access, economic participation, security) and be able to relate these themes to the applications of particular technologies. They will be able to describe policy frameworks and issues, as well as the ethical and social implications of these choices. Homework assignments; Socratic dialogue; analysis and write-up of case studies; assessment of group research projects and presentations; participation in on-line discussion groups; two mid-term and one final examination (objective and essay). The precise mix of evaluation components will be determined by individual instructors; a typical weighting might be exams (60%), written assignments and papers (20%), and collaborative projects (20%). IST 431 will be offered every semester at University Park. At every other campus location where the Baccalaureate degree program is offered, the course will be offered 1-2 times annually depending on demand. Student enrollment at University Park will begin at approximately 50-75 in the first year and grow to 200 over a 3-4 year time period. At other locations, enrollment should range from 25-50 annually.

Enforced Prerequisite at Enrollment: IST 210 and IST 220

IST 432: Legal and Regulatory Environment of Information Science and Technology

3 Credits

Legal environment of information technology, constitutional/political issues, intellectual property, management, e-commerce, privacy, access, computer contracting, cyberspace regulation. IST 432 Legal and Regulatory Environment of Information Science and Technology (3) The new information technologies are creating a global economy heavily dependent upon networked information, hardware, software, and electronic commerce, which calls for adaptation of existing legal and business practices. In many cases, the new technologies pose problems that existing laws or legislation are inadequate to cope with; but the complexity of the environment makes new solutions elusive. This course examines the legal, regulatory, and political environment within which intellectual property rights and examination of contracting issues, licensing of information and products, data protection, patents, cyberspace regulation, and implications for personal privacy. It also focuses on where technology is making regulation difficult by challenging previous concepts upon which our legal and regulatory systems depend.

Enforced Prerequisite at Enrollment: IST 301 or SRA 231

IST 437: Digital Design & Innovation

3 Credits

This course introduces students to design thinking, user-driven innovation and user experience, and business model implementation issues for IT-driven innovation. IST 437 Digital Design & Innovation (3) IT-driven innovation requires a deep understanding of the user, the context of the compute environment, and a systems approach to identifying critical system features. In addition, the IT-driven innovation must meet user needs in a commercially feasible manner. Students taking this class will work in teams to create a design concept and refine it through user analysis and prototyping. To get to a commercially feasible concept, students will analyze the competitive landscape and the ecosystem in which their concept will reside. Each team will express

their concepts using the Business Model Canvas - a tool used in both educational and professional settings - to identify the value proposition and potential monetization strategies. Throughout the class, students will be introduced to tools in the IT design space through hands-on problem solving, role playing, and improvisation, among other techniques. A critical part of this course is the in-class coaching that teams will receive from the instructor, as well as guest speakers who can demonstrate the real world challenges of entrepreneurship and innovation. Frequent communication practice using techniques such as idea pitches will help students refine their ability to express their ideas more effectively.

Enforced Prerequisite at Enrollment: IST 237

IST 440W: Information Sciences and Technology Integration and Problem Solving

3 Credits

Problem-based approach to technology integration by focusing on real-life problems faced by an organization. IST 440W Information Sciences and Technology Integration and Problem Solving (3) This course is the undergraduate capstone for Information Sciences and Technology majors in the Baccalaureate degree. It requires students to work collaboratively in teams of 4-6 students, with each team comprised of students from more than one option and, if possible, more than one campus. Each team is given a significant real-world problem or issue in which information technology is part of the solution. Teams will be expected to manage the project effectively and to communicate its results clearly to a variety of audiences within an organization. Major topics include: review of problem-based and case-based learning; overview of project management practices; assessment of organizational and technical issues posed by the scenario; development and testing of work plans and analysis of options; communication within the group; communication within a management environment; and presentation of results to a variety of audiences inside and outside the organization. IST students need to understand the organizational and social contexts in which technology functions. Indeed, many technology problems are multi-dimensional—they have an economic dimension, a legal dimension, a human resources dimension, and so on. This course will require students to analyze, evaluate, and test alternative solutions and to weigh their advantages and disadvantages for the organization. Students will be evaluated in three ways: by the effectiveness of their team's solution of the technical or organizational problem; by the quality of the students' written and oral presentations; and by the quality of their project management and internal communication. A substantial written paper will be required of each student and each time; in addition, each team will also construct a Web-site for sharing results. Other technologies will be used as required by the project. It is expected that membership on teams of students will be drawn from the various options in the Information Sciences and Technology major. At least nine credits (including at least one IST 300-level and one IST 400-level course) in the student's option must be completed before enrollment in IST 440W. This course should be offered every fall and spring semester beginning in the fall semester 2002. It will be taught in sections of 25 and have a total enrollment of approximately 100 per semester.

Enforced Prerequisite at Enrollment: ENGL 202C or ENGL 202D and seventh semester standing (this course is intended for seniors) Writing Across the Curriculum

IST 442: Information Technology in an International Context

3 Credits

International concepts to improve strategies for the design, dissemination, and use of information technology. IST 442 Information Technology in an International Context (3) (IL) IST 442 focuses on the implications of the international context for the design, diffusion and use of information technology. The course will provide students with an understanding of the three crucial IT-related characteristics of the international context: 1. information infrastructure, 2. the economic and policy environment, and 3. social and cultural structures. Students will develop analytic skills that will enable them to predict the implications of the international context for information technology and will apply these skills in a final project that addresses a problem in the areas such as information systems integration, interface design, or management of information technology projects.

Enforced Prerequisite at Enrollment: IST 110
International Cultures (IL)

IST 445: Globalization Trends and World Issues

3 Credits

This course covers trends in globalization and their influence on U.S. policy making as well as the role of the U.S. in international issues.

Recommended Preparation: 6 credits of honors course work.
Honors

IST 446: An Introduction to Building Computer/Video Games

3 Credits

An interdisciplinary course that introduces students to process and techniques involved in developing a video or computer game. IST 446 An Introduction to Building Computer/Video Games (3) The course is project driven. Students will form teams and collaborate with one another to develop an interactive immersive experience. During the course, students will be exposed to several techniques for building graphical 3D worlds, animating characters, moving the camera and lights in real-time, and building intelligent characters (using state machine-based architectures). They will also learn different techniques of interactive storytelling, such as linear narrative, branching narrative, and adaptive narrative. Furthermore, they will be introduced to several tools that will aid in realizing their own projects and ideas, such as graphic engines (e.g. Wildtangent), and game engines (e.g. Unreal Tournament). The course is heavily project driven. Students will, in the first half of the course, learn the tools used in the development of interactive 3D environments. They will submit 2 individual assignments using these tools to develop a simple interactive environment. These individual assignments will be graded and critiqued. In the second half of the course, students will work on a game idea from generation to actual implementation. Students will be grouped in teams of three to develop a project, integrating concepts they learned through the class. They will use one or more of the tools they learned to build this project. Projects will be continuously evaluated and critiqued during game tuning sessions. In addition, projects will be formally evaluated through two prototypes that are critiqued by the class and the instructor. The students will continuously revise their designs and projects through the semester. The final version of the system is due by the end of the semester.

Enforced Prerequisite at Enrollment: C or better in IST 311 and IST 331

IST 450: Digital Advertising

3 Credits

Digital advertising has transformed many industry activities related to buying and delivering advertising. Information technology and big data have revolutionized the way media and content providers interact and negotiate with advertisers, agencies and third parties. This course will explore the digital advertising and media ecosystem, identify key players and trends, and review performance analysis and evaluation. Particular attention will be paid to sources, management, storage, analysis and visualization of data. Trends in industry regulation and ethics will be explored. This includes ad industry selfregulation and data privacy regulations. The implications of big data and artificial intelligence on industry ethics is discussed.

Enforced Prerequisite at Enrollment: COMM 310 or IST 310 or COMM 422
Cross-listed with: COMM 450

IST 450A: Digital Campaigns

3 Credits/Maximum of 3

This project-oriented course provides students with the knowledge and skills necessary to conduct sponsored advertising-based marketing campaigns. This course offers students an opportunity to gain knowledge and hands-on experience on sponsored search and email advertising. Strategies for developing successful digital advertising campaigns will be discussed, including qualifying and researching clients, account and campaign structure, identifying and organizing keywords, bidding strategies and budgeting, and targeting approaches (including geo, time-based, audience, content and domain targeting), and conversion tagging, tracking and attribution. Students will earn certifications for Google Search and Display, and gain experience with the Google Ads platform, including use of the keyword planning tool, setting up campaigns, ad groups and keywords, writing text and display ad copy, and applying proper settings at the account, campaign, ad group and ad levels. Finally, students will learn important principles for landing page design and become proficient building professional landing pages. Students cannot earn credit for both COMM 450A and MKTG 473.

Enforced Prerequisite at Enrollment: COMM 450 or IST 450
Cross-listed with: COMM 450A

IST 451: Network Security

3 Credits

Fundamental issues and concepts of network security, network security technologies and protocols, and emerging technologies in network security. IST 451 Network Security (3) Information technology has become a key component to support critical infrastructure services in various sectors of our society. In an effort to share information and streamline operations, organizations are creating complex networked systems and opening their networks to customers, suppliers, and other business partners. Increasing network complexity, greater access, and a growing emphasis on the Internet have made information/network security a major concern for organizations. IST 451 focuses on network security. The course will provide the students with a comprehensive understanding of the fundamental issues and concepts of network security, and the mainstream network security technologies and protocols that are widely used in the real world. The course will also address emerging technologies in network security. A major component of the course will be several team-based hands-on attack-defense projects.

Each project has two phases: the attack phase and the defense phase. A group may be asked to defend against the attacks enforced by another group. This course will incorporate collaborative and action-learning experiences wherever appropriate. Emphasis will be placed on developing and practicing writing and speaking skills through application of the concepts, theories and technologies that define the course.

Enforced Prerequisite at Enrollment: C or better in IST 220 and SRA 221

IST 452: Legal and Regulatory Environment of Privacy and Security

3 Credits

Exploration of legal, regulatory, public policy, and ethical issues related to security and privacy for information technology professionals in public institutions, private enterprise, and IT services. IST 452 Legal and Regulatory Environment of Privacy and Security (3) Institutional constraints on security historically focused on traditional criminal enforcement and a slow but steady increase in civil remedies through the twentieth century. Professional security protection could satisfy reasonable assurance criteria by managing legal and regulatory risks based on commonly-held understandings of burglary, theft, conversion and widely-understood but related institutional constraints in the protection of physical property. This focus retained effectiveness so long as physical security over tangible property appeared successful, even extending to the maintenance of control over mainframe computers and their peripherals. However, the proliferation of networked computers has made access and storage ubiquitous, vastly increasing the vulnerability of confidential data, private information and critical national security infrastructure. Security and privacy regulation compliance responsibility now falls much more harshly on both organizations and most of their individual personnel. These complex new duties constrain organizations in the data management industry as well as suppliers and users of data and all participants in the information supply chain, including consultants, software suppliers, applications service providers, maintenance, outsourcing and communications providers. Other factors exacerbate these liability risk management difficulties. Advances in network computer storage and use, the broadening perception of heightened value of information and the pervasive availability of rich data warehousing increase the vulnerability of data management. Risks of information theft and integrity losses as well as the explosion of privacy rights and national security concerns now require pervasive and fuller understanding of liability risk management principles/techniques among all managers and subordinates in the data management industry and in government. Information suppliers, handlers, owners and network service providers are increasingly exposed to civil litigation, regulatory oversight/compliance and criminal prosecution for various information-related wrongs. For example, confidentiality is compulsory for corporate trade secrets, privacy is required for personally identifiable information about individuals and secrecy is mandatory over matters of national security; all of which create complex legal duties that are fundamentally driving the design of information handling processes. This course surveys legal and regulatory constraints on information security and privacy practices.

Enforced Prerequisite at Enrollment: IST 432

IST 453: Legal, Regulatory, Policy Environment of Cyber Forensics

3 Credits

Legal, regulatory and public policy environment of computer and network forensics that constrain investigatory and monitoring activities in computer and network environments. IST 453 Legal, Regulatory, Policy Environment of Cyber Forensics (3) This course covers the major legal,

regulatory and policy issues in cyber-forensics including, pre-trial discovery, production of electronic documents (electronic data discovery or EDD), custody, EDD cost balancing, admissibility of electronic evidence, "business records," expert witness roles and qualification, constitutional rights to privacy and confidentiality, privilege, litigation support, forensic service providers, document retention standards, legal constraints on electronic records management, EDD employment policies, key EDD laws, civil, criminal and regulatory procedure and evidence, litigation holds, spoliation, obstruction of justice, interaction with inside and outside service providers and counsel, EDD strategy, audit trails, and multi-disciplinary relations with computer and network forensic experts. Students are exposed to the failure and successes of particular cyber forensic techniques in the dominant legal and regulatory forums.

Enforced Prerequisite at Enrollment: IST 110 and sixth semester standing or higher.

IST 454: Computer and Cyber Forensics

3 Credits

Fundamental issues and concepts of computer forensics; aspects of computer and cyber crime; methods to uncover, protect, exploit, and document digital evidence; tools, techniques, and procedure to perform computer and cyber crime investigation. IST 454 Computer and Cyber Forensics (3) Computer and communication technologies have become the key components to support critical infrastructure services in various sectors of our society. In an effort to share information and streamline operations, organizations are creating complex networked systems and opening their networks to customers, suppliers, and other business partners. Increasing network complexity, greater access, and a growing emphasis on the Internet have made information and network security a major concern for organizations. IST 454 focuses on computer and cyber forensics. Students will learn different aspects of computer and cyber crime and ways in which to uncover, protect, exploit, and document digital evidence. Students will be exposed to different types of tools (both software and hardware), techniques and procedure, and be able to use them to perform rudimentary forensic investigations. A major component of the course will be several hands-on exercises and a final team-based project. This course will incorporate collaborative and action-learning experiences wherever appropriate. Emphasis will be placed on developing and practicing writing and speaking skills through application of the concepts, theories and technologies that define the course. Integrated throughout are perspectives of computer and related legal process, including computer crimes from state and federal law, methods of interaction with law enforcement and prosecutors, admissibility of expert witness testimony and the use of forensic reports in civil, regulatory and internal investigations.

Enforced Prerequisite at Enrollment: C or better in IST 220 or SRA 221

IST 456: Information Security Management

3 Credits

Contemporary Security Issues; security management processes, architecture and models; risk analysis and management; security planning, analysis and safeguards; security policies development and administration; contingency planning, incidence handling and response; and security standards and certification processes. IST 456 Information Security Management (3) Communication technologies have become a key component to support critical infrastructure services in various sectors of our society. In an effort to share information and streamline operations, organizations are creating complex networked

systems and opening their networks to customers, suppliers, and other business partners. Increasing network complexity, greater access, and a growing emphasis on the Internet have made information systems and network security a major concern for organizations. IST 456 focuses on security and risk management. Students will learn contemporary security issues; security management processes, architecture and models; risk analysis and management; security planning, analysis and safeguards; security policies development and administration; contingency planning, incidence handling and response; and security standards and certification processes. A major component of the course will be several case studies and a final team-based project. This course will incorporate collaborative and action-learning experiences wherever appropriate. Emphasis will be placed on developing and practicing writing and speaking skills through application of the concepts, theories and technologies that define the course.

Enforced Prerequisite at Enrollment: C or better in IST 220 and SRA 221

IST 461: Database Management and Administration

3 Credits

Introduces advanced topics in database management systems that are fundamental to effective administration of enterprise information systems. IST 461 Database Management and Administration (3) The objective of the course is to enable a student to comprehend principles of database management and administration. The students will learn how data are stored (indexing), accessed (query processing), shared (currency and transactions), and controlled (security). Students will be creating and using these features in a database in the laboratory. They can then develop, use, and tune database systems and applications, utilizing advanced database management features. This course assumes basic familiarity with relational model, Entity-Relationship diagram, SQL query language, and normalization (as covered in IST 210). It builds the foundation on more advanced concepts of database systems that are fundamental to a career in database administration.

Enforced Prerequisite at Enrollment: IST 210 and IST 240

IST 462: Database Modeling and Applications

3 Credits

This course introduces advanced topics in database modeling and applications. IST 462 Database Modeling and Applications (3) The objective of the course is to enable a student to comprehend advanced database modeling and their applications. Students will model requirements using the advanced techniques and implement various applications in different domains. This course assumes basic familiarity with relational model, Entity-Relationship diagram, SQL query language, and normalization (as covered in IST 210). This course will cover more advanced topics in database modeling and database applications.

Enforced Prerequisite at Enrollment: IST 210 and IST 240

IST 489: Research Methods for the Information Sciences and Technology

3 Credits

Seminar course focused on approaches to studying information and communication technologies and writing theses and other research reports. IST 489H Research Methods for the Information Sciences and Technology (3) IST 489H provides students the opportunity to learn and experience: 1) Conceptualizing what are information and communications technologies. 2) Approaches to conducting research on,

and reporting results of studies, of ICT. 3) The research process and its academic context. The course is designed around a series of ill-structured, contemporary, problems that require students to develop responses by applying research approaches to ICT. At the end of the course, students will be able to: 1) Apply different conceptualizations of ICT to common problems. 2) Select and initiate research on ICT. 3) Begin writing research-oriented work such as theses and papers.

Enforced Prerequisite at Enrollment: IST 110
Honors

IST 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

IST 494H: Honors Thesis Research

1-12 Credits/Maximum of 12

This course is the mechanism by which students in the Schreyer Honors College who are conducting research with a faculty member affiliated with the IST undergraduate major will register for thesis credits. The course includes activities related to research, scholarship, and/or writing necessary for the completion of an approved honors thesis.

Honors

IST 495: Internship

1-18 Credits/Maximum of 18

Supervised on or off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: Prior approval of proposed assignment by instructor
Full-Time Equivalent Course

IST 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

IST 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

IST 498: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Information Technology (ITECH)

ITECH 495: Internship

0.5-3 Credits/Maximum of 3

Supervised on or off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required IST 495 is offered as an internship for a student within a company. Faculty and industry collaborate to specify the duties of the intern. The course facilitator responsible for the course then approves the internship. The internship must consist of a minimum of 240 hours for 1 credit and 120 hours for .5 credit of meaningful information and technology-related tasks per credit hour.

Integrative Arts (INART)

INART 1: The Arts

3 Credits

The Arts is a course designed to give students an integrative experience of the themes and purposes common among the arts, visual, performing, and literary. Students are given the opportunity to view and discuss many forms of art, learning a specific vocabulary for discussing each artistic form and arriving at an answer to the question "what is art?" The goal of the course is to enhance aesthetic perception by examining works of art, by discerning what can be seen and heard in them, by understanding what those elements are called, and by determining how the artwork creates a response in the viewer or listener.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

INART 3: Reception of the Arts

3 Credits

This course considers how art uses time, space, and causality to define culture and the human condition. INART 003 Reception of the Arts (3) (GA)(BA) This course meets the Bachelor of Arts degree requirements. INART 003 approaches the study of the arts from the audience's point of view. It is designed to meet the General Education Arts requirement. The course is offered in the Fall and Spring University Park, with a typical enrollment of 50, and is available to other locations through Campus Course Exchange. There are no prerequisites, and students are assumed to have little or no background in art. As a result of taking the course, students are able to use analogy, the idea of structure, and theories of reception and communication in both art and non-art situations. The course is offered on-line, making it particularly useful for students with family and personal obligations, for older students with job obligations, and for students with handicaps limiting their access to traditional 'classroom' courses. Although INART 003 is designed for potentially large enrollments, students relate to the instructor on a one-to-one basis through e-mail and interact with other students using an on-line bulletin board. Writing, criticism, and analytical thinking are required. Evaluation is based on five on-line quizzes, two on-line exams, and participation in on-line discussions. Tests measure students' ability to reason, synthesize materials, and apply ideas about art to other situations. The discussion sessions expand ideas found in art to apply them to everyday life. Writing

is required for the course. Students must contribute at least three short essays and post commentary on others' work for 20 points of the final grade. Informal e-mail conversations supplement this requirement. The course's extensive web site includes lessons corresponding to each chapter in the text, a lexicon of difficult terms, links to other web sites, study guides, works of art, and provocative essays about art.

Bachelor of Arts: Arts

INART 5: Performing Arts

3 Credits

INART 5 is not an "art appreciation" course in any traditional sense of the term. Rather, it is focused on the act of experience and the encouragement of critical thinking about those experiences. No effort is made to encourage students to "like" or "dislike" the things that they experience or to encourage them to accept the view that some experiences are more or less valuable than others. The idea, simply, is to have informed experiences in the performing arts and think about them in a critical context. To satisfy those ends, the course will provide students with exposure to significant examples of dance, music, and theatre as well as give students a practical and theoretical background to enrich their experience of those performing arts. The course will also help to develop students' critical thinking as they evaluate their experiences. This is accomplished through student attendance at six performing arts events on campus throughout the semester and the completion of related assignments.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

INART 10: The Popular Arts in America: Mass Media Arts

3 Credits

An introduction to the arts of the mass media with emphasis on how film, radio, television, and the print media influence and reflect society. INART 010 The Popular Arts in America: Mass Media Arts (3) (GA)(BA) This course meets the Bachelor of Arts degree requirements. INART 10 examines the historical and technological development of media in relationship to popular culture from the invention of the printing press up to present 21st century America. The primary goal of the course is to help students develop a critical and analytical approach to dealing with contemporary mass media. The course presupposes some familiarity with modern popular media and takes as its content both historical and contemporary examples as sources for analysis. While the class offers facts and data, the central focus of the course is the theory, stylistic elements, and structural workings of media content. The pedagogical goal of this approach is to examine not just what the mass media arts are but also where they come from, how they function, and what effects they have on our culture and society. The key to this goal is understanding the naturalized ideologies imbedded in the structural form of popular culture: how the early expressions of popular culture both shaped cultural attitudes and reflected societal notions of race, gender, and socioeconomic norms. Class meetings consist of lectures and in-class discussions that illustrate modern critical approaches to popular culture and the terminology used in presenting critical arguments and ideological viewpoints on these art forms. Reading assignments will support classroom work by presenting students with a diversity of

opinion on popular culture and significant examples of that culture in media. Further, examples of historically significant popular mass media arts will be shown in class or online and then discussed in relation to the concepts and critical viewpoints covered in lectures.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

INART 15: The Popular Arts in America: Performing Arts

3 Credits

The development of the performing arts of American popular culture; emphasis on popular music, dance, theatre, and variety arts. INART 015 The Popular Arts in America: Performing Arts (3) (GA)(BA) This course meets the Bachelor of Arts degree requirements. INART 015 examines the Popular performing arts and their place in American popular culture. broken into four units: popular music, popular stage dance, popular theatre, and acts like the circus and stand up comedy. The course will highlight important influences, artists, events, works, and effects such as: 1) Popular Music: This unit will trace the development of the American popular music from the emergence of the popular songwriter in the 1830s to the beginnings of rock and roll. Jazz, country, blues, and mainstream pop will be major genres examined. 2) Popular Stage Dance: This unit will cover the evolution of dance as a popular performance art from percussive dances performed in the minstrel show to rock and roll choreography in music videos. 3) Popular Theatre: This unit examines the founding forms of popular theatre (minstrelsy, vaudeville, and burlesque) and their effect on later arts like motion pictures and television. 4) Popular Variety Arts: This unit deals with those performing arts that fall outside of the broader categories of dance, music, and theatre. The circus, stand up comedy, and stage magic will be highlighted. There will be three equally weighted objective tests in the course, each covering approximately one-third of the course's content. These examinations account for 75% of the semester grade (25% each). Students in INART 015 also participate in the Popular Arts Forum, a semester-long examination of an important contemporary issue in popular culture (cultural imperialism and censorship; sexuality in popular culture; gender, ethnicity, and race in the popular arts; etc.) that requires research, critical thinking, the formation of objective opinions, and discussion. The Popular Arts Forum is conducted online utilizing resources held on the Forum website and World Wide Web. Asynchronous online discussions on the topic will occur three times during the semester. The class will be broken into groups of fifteen students for the purpose of discussion. Participation in the Popular Music Forum will account for 25% of the semester grade. The discussion grade will be determined by the quality of participation and degree of involvement in the discussion.

Bachelor of Arts: Arts

INART 50: The Science of Music

3 Credits

Waves, physics of sound, hearing, musical scales, musical instruments, and room acoustics. INART 050 The Science of Music (3) (GN)(BA) This course meets the Bachelor of Arts degree requirements. This course explores the physical and acoustical bases of sound and music. The physics include a study of vibrating systems and simple harmonic motion, wave propagation, reflection and refraction, superposition,

resonant frequencies, harmonics, phase, the relationship of speed and velocity, and spectra. The acoustics portion applies these physical properties to hearing, sound and music, covering the nature of the human auditory system, and correlations of pitch to frequency, loudness to amplitude/power/intensity, timbre to spectra and envelope. An overview of perceptual psychological studies of Gestalt organizational principles and auditory streaming explores how the auditory system organizes sound on a primitive, unlearned level. NOTE: there need be no specific math prerequisite for the course. Though high school algebra and trigonometry will be recommended, these topics will be integrated with the rest of the course material. With physical and physiological groundwork laid, the subject matter moves to purely musical areas: the construction of musical scales, the nature of consonance, dissonance, and harmony. Twelve-tone equal temperament, the basis of Western common practice music, is not an absolute, but a decision made to facilitate certain musical choices, and a compromise in terms of optimal consonance. The nature of the different instruments is then discussed - strings, winds, brass, percussion, and voice. Different instruments naturally produce different scale types and different types of spectra. Students will learn to appreciate the inherent differences in different instrument types. The course then returns to acoustics, exploring the role that performance spaces play in the propagation and reception of sound. The shape and materials of a room determine its characteristic sound. Students learn about how sound in large auditoriums is characterized by the balance of direct and reflected sound, the distinction between specular and diffuse reflections, the absorptive properties of different building materials, and the nature of reverberation. Smaller performance spaces are subject to standing waves, flutter echo, and comb filtering. Taking steps to avoid undesirable characteristics is often an easy matter once the nature of these characteristics is understood. The final weeks cover audio technology and the distinctions between analog and digital formats.

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

INART 55N: History of Electronic Music

3 Credits

This course investigates how technology and music developed in parallel from the start of the twentieth century to the present. It explores the international cultural movements, technological developments, and music trends and genres of the era. Students will learn to recognize the primary innovators in the field of electronic music, not only by name, date, nationality and affiliations, but also by the sound of their music.

Bachelor of Arts: Arts

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Arts (GA)

General Education: Humanities (GH)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

INART 100: Seminar in Integrative Arts

3 Credits

A study of various arts with emphasis on comparison, contrast, and other aspects of interrelation. Topics will change each semester. INART 100 Seminar in Integrative Arts (3) (GA)(BA) This course meets the Bachelor of Arts degree requirements. INART 100 is a semester-long seminar that explores a theme or topic through selected works of the visual or performing arts. Various arts will be examined with emphasis on comparison, contrast, and other aspects of interrelation. Although topics will change each semester, they will always be bound to broad concerns in the arts that are shared or common. The approach will be strictly interdisciplinary with emphasis, on discussion and the direct experience of art. INART 100 is a General Education Arts offering (GA) and, for selected topics, will satisfy the Intercultural and International Competence Requirement (GI). This is an experiment in experiential learning, combined with a traditional examination of modern cinema from Latin America. As regards the latter point, students will become familiar with the history and scope of Latin American cinema in the past 30 years, considering the historical and social contexts in which movies were made and which the movies address. The films chosen for this course are "road movies" about journeys of discovery. We'll watch six movies, read about them, and discuss them in light of these historical and social contexts. In addition, we will discuss the films from technical angles - the use of music, narration, camera angles, dialogue, settings, etc. This technical component feeds into the first point of the first sentence above. As part of the course requirements, students will make their own "on the road" film.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

INART 100W: Seminar in Integrative Arts

3 Credits

A study of various arts with emphasis on comparison, contrast, and other aspects of interrelation. Topics will change each semester. INART 100W Seminar in Integrative Arts (3) (GA)(BA) This course meets the Bachelor of Arts degree requirements. INART 100W is a semester-long seminar that explores a theme or topic through selected works of the visual or performing arts. Various arts will be examined with emphasis on comparison, contrast, and other aspects of interrelation. Although topics will change each semester, they will always be bound to broad concerns in the arts that are shared or common. The approach will be strictly interdisciplinary with emphasis on writing, discussion, and the direct experience of art. INART 100w is a General Education Arts offering (GA), a writing intensive course (W), and, for selected topics, will satisfy the Intercultural and International Competence Requirement (GI). At University Park, the course is built around twelve to thirteen motion pictures shown as part of the Palmer Museum of Art's film series, a gallery exhibition at the Palmer, and two or three performances at the Center for the Performing Arts. Students are required to attend all of these events and showings. The film series and the gallery exhibition are free. Tickets for the two events at the Center for the Performing Arts must be purchased. Attendance will constitute 20% of the semester grade. Each week, there will be a required online discussion based on the "Commentaries" associated with the event or exhibition of that week. These "Commentaries" are included with the

background information on the events and exhibitions contained in the course web site. Discussions will last for one week and all students are required to participate in all online discussions. Participation in discussions will constitute 30% of the semester grade. INART 100W is a "writing intensive" course and, as a consequence, a major portion of the course is devoted to the acquisition of skills and practice in writing. There are three required papers in the course: one 600 word critical review, one 900-word critical opinion paper, and a final 1500-word critical opinion paper. Grading will be based on the quality of students' critical arguments and the quality of their writing. These three papers will constitute 50% of the semester grade.

Bachelor of Arts: Arts

Writing Across the Curriculum

INART 110: The Dramatic Arts in the Mass Media

3 Credits

The place of television-radio-film drama in our culture; relationship with other art forms; standards of evaluation. INART 110 Dramatic Arts in the Mass Media (3) (GA)(BA) This course meets the Bachelor of Arts degree requirements. INART 110 examines the history and development of the dramatic arts of the mass media with a particular focus on television as the strongest exemplar of media practice. The primary goal of the course is to help students develop a critical and analytical approach to dealing with the dramatic arts of the contemporary mass media. The course presupposes some familiarity with modern popular media and takes as its content both historical and contemporary examples as sources for analysis. While the class offers facts and data, the central focus of the course is the theory, stylistic elements, and structural workings of media content. The pedagogical goal of this approach is to examine not just what the mass media arts are but also where they come from, how they function, and what effects they have on our culture and society. The key to this goal is understanding the effects and influence of dramas in the mass media on our society and its beliefs and values. Class meetings consist of lectures and in-class discussions that illustrate modern critical approaches to popular culture and the terminology used in presenting critical arguments and ideological viewpoints on the dramatic arts of the mass media. Reading assignments will support classroom work by presenting students with a diversity of opinion on mass media and the influence of television dramas and comedies. Further, examples of historically significant radio and television dramatic works will be shown in class and then discussed in relation to the concepts and critical viewpoints covered in lectures. In addition to regular scheduled classes, students will participate in an on-line Television Journal that requires watching and critically responding to assigned television programs. Each week, students will be required to watch and critically respond to assigned television programs. Their critical responses will be posted on the online Television Journal and made available to all members of the class. Grades will be based on three equally weighted objective examinations that will account for 50% of the semester grade. A written paper will account for 25% of the final grade, and the remaining 25% of the grade will be determined by participation in the online Television Journal.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Soc Resp and Ethic Reason

INART 115: The Popular Arts in America: Popular Music

3 Credits

An examination of the roots, development, and significance of popular music in our culture. INART 115 The Popular Arts in America: Popular Music (3) (GA)(BA) This course meets the Bachelor of Arts degree requirements. INART 115 examines the roots, development, and significance of popular music in our culture. It covers the origin of popular music in the early nineteenth century and introduces the major genres of the art: blues, jazz, country, mainstream pop, and rock and roll. The thrust of the course is sociological and cultural rather than musicological and will trace the music's development in a historical context. The intent of the course is to provide students with a comprehensive overview of popular music, the significance of major artists in its development, and its importance in our social and cultural history. There are three equally weighted objective tests in the course, each covering approximately one-third of the course's content. These examinations account for 75% of the semester grade (25% each). Students in INART 115 also participate in the Popular Music Forum, a semester-long examination of an important contemporary issue in popular music (censorship, copyright infringement and music piracy, music and violence, etc.) that requires research, critical thinking, the formation of objective opinions, and discussion. The Popular Music Forum is conducted online utilizing resources held on the Forum website and World Wide Web. Asynchronous online discussions on the topic will occur three times during the semester. The class will be broken into groups of fifteen students for the purpose of discussion. Participation in the Popular Music Forum will account for 25% of the semester grade. The discussion grade will be determined by the quality of participation and degree of involvement in the discussion.

Bachelor of Arts: Arts
United States Cultures (US)
General Education: Arts (GA)

INART 116: The Popular Arts in America: The History of Rock and Roll-
The 1950s

3 Credits

This course examines the roots, development, and significance of rock and roll music in its first decade. INART 116 INART 116 The Popular Arts in America: The History of Rock and Roll-The 1950s (GA;US)(BA) This course meets the Bachelor of Arts degree requirements. This course is composed of eight chronologically arranged units of study that examine the major developments in early rock and roll in an historical context. Rock and roll music, especially in the 1950s, was the reflection of the dynamic cross-cultural interplay between country, gospel, rhythm and blues, and mainstream pop. Of central importance in early rock and roll was the influence of African American music and culture and the effect that African American music and culture had when brought into the mainstream. Through an examination of the foundation of emergence of rock and roll in our culture, students gain an understanding of the role played by intercultural cross-influences in shaping both our music and our cultural sensibilities. Both the content of the course and the assignments in the Popular Music Forum are directed at helping students understand, reflect upon, and critically think about the intercultural nature and effect of our musical heritage. The thrust of the course is sociological and cultural rather than musicological, and the intent of the course is to provide students with a comprehensive overview of the early development of rock and roll and its importance in our social

and cultural history. Each unit of study will be accompanied by key examples of recorded music from the period of the late 1940s through the 1950s. The course includes approximately 100 important recordings for required study. Grades in INART 116 will be determined by a series of eight objective tests and four assignments in the Popular Music Forum. The Popular Music Forum will examine important issues in popular music and culture concerning or related to rock and roll in the 1950s that require research, critical thinking, the formation of objective opinions, and discussion. The Popular Music Forum is conducted online as a series of asynchronous discussions on Forum topics. The class will be broken into groups of fifteen students for the purpose of discussion. Grading will be based on a point system. There are 1200 possible points that can be earned during the course - 800 points on exams (2/3 of the final grade) and 400 points on written assignments in the Popular Music Forum (1/3 of the final grade).

Bachelor of Arts: Arts
United States Cultures (US)
General Education: Arts (GA)

INART 125: The Popular Arts in America: The History of Rock and Roll -
Punk Rock

3 Credits

An examination of the roots, development, and significance of punk rock in our culture. INART 125 The Popular Arts in America: The History of Rock and Roll - Punk Rock (3) (GA;US;IL)(BA) This course meets the Bachelor of Arts degree requirements. Punk rock was an important and historically significant genre in rock and roll music that initially developed in the United States and Great Britain in the late 1960s and has continued to the present. Through an examination of the now more than thirty-year history of punk rock in our culture and that of Great Britain, students gain an understanding of the role played by punk rock in shaping both our musical and cultural sensibilities and the historical and social movements that influenced and led to the development of punk rock as a musical genre and lifestyle. This course is composed of eight chronologically arranged units of study that examine the major developments in punk rock in an historical context. In addition to weekly text assignments, students are required to complete four assignments in the Popular Music Forum. The Popular Music Forum will examine important issues in popular music and culture concerning or related to the historical development of punk rock in both countries that require research, critical thinking, the formation of objective opinions, and discussion. The Popular Music Forum is conducted online as a series of asynchronous discussions on Forum topics. The class will be broken into groups of fifteen students for the purpose of discussion. Both the content of the course and the assignments in the Popular Music Forum are directed at helping students understand, reflect upon, and critically examine the music created in the genre and the social and cultural forces that influenced and were influenced by punk rock. The thrust of the course is sociological and cultural rather than musicological, and the intent of the course is to provide students with a comprehensive overview of the development of punk rock its importance in our social and cultural history. Each unit of study will be accompanied by key examples of recorded music. The course will include approximately 200 important recordings for required study.

Bachelor of Arts: Arts
International Cultures (IL)
United States Cultures (US)

INART 126N: The Popular Arts in America: The History of Hip-Hop

3 Credits

Hip-hop is an important and historically significant genre in popular music that initially began in the South Bronx in the early 1970s and has grown to become one of the most influential, controversial, and important genres to emerge in the last quarter of the 20th century. Beyond music, hip-hop has also been defined as a commercial enterprise, a lifestyle, and a sociocultural movement. This course explores the various meanings and manifestations of hip-hop throughout its evolution from the early 1970s to the present day. Students will examine the cultural, economic, social, and political implications of hip-hop nationally and globally. Drawing on frameworks like critical race theory and Black feminist/womanist theory, students will engage enduring debates at the heart of hip-hop-debates about art, race, class, gender, citizenship, power, and the body. Topics to be covered include: four foundational elements of hip-hop (rap, DJ arts, graffiti & visual arts, dance); the cultural, economic, political, and social conditions under which hip-hop emerged and developed; impact of hip-hop on the culture industries and the commercialization of the genre; stylistic principles that constitute the hip-hop aesthetic; racial parameters of hip-hop and notions of authenticity; gender and hip-hop's framing of black femininity and masculinity; and global circulation of hip-hop culture. Throughout the course students will explore the following questions: Under what social, political, and economic conditions did hip-hop emerge? Who were the key producers, fans, and detractors of hip-hop in its earliest years? Whose voices are privileged (and marginalized) within hip-hop studies as an academic project? How has hip-hop been framed within and/or transcended traditional notions of art and beauty? In what ways has hip-hop style been criminalized and degraded as low culture? In what ways has hip-hop style been (mis)appropriated? What is authentic hip-hop and how is it measured? To what extent do hip-hop artists pander to stereotypes? What is the relationship between hip-hop and capitalism? What are the benefits and limitations of the commercialization of hip-hop? How do fans and producers impact the genre in the contemporary digital era? What are the primary impediments to rappers who are neither black, nor male achieving the level of popularity and respect that hip-hop's biggest stars have attained? To what extent does the music industry use talent and marketability as a stand in for racial identity? How has hip-hop been taken up by marginalized groups in countries such as Brazil, Cambodia, and South Africa?

Cross-listed with: AFAM 126N

United States Cultures (US)

General Education: Arts (GA)

General Education: Humanities (GH)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

INART 141N: African American Read-In Engaged Learning Experience

1-3 Credits/Maximum of 6

This course will allow students to study African American literature, culture, history, and arts in connection with an annual public event, the African American Read-In (AARI). The AARI, promoting literacy and appreciation of African American literature, is a national event established in 1990 under the auspices of the National Council of Teachers of English. It has become a regular feature of Black History

Month celebrated by community, neighborhood, and church groups as well as schools and institutions of higher education throughout the United States and elsewhere on a given Sunday and Monday in February attracting more than a million participants annually. This course offers students an engaged learning experience in which they will produce original intellectual and artistic content to be presented publicly at an AARI event on campus. Students will study texts from a range of historical periods and/or genres, and thus gain a solid introduction to the African American literary tradition. At the same time, the primary organizing principle of the course will be a particular theme that both allows a broad and coherent overview of a significant cultural or historical topic and engages issues of cultural diversity in the United States. The specific theme, thus, will bring the study of African American literature into a broader interdisciplinary context that intersects with African American culture, history, identity, and the struggle for equality. Students will study texts that relate to this annual theme and participate in a relevant field trip (museum, theater, cultural site, library, etc.) to deepen their understanding of the significance and contexts, social, historical, cultural, artistic of these materials and this theme. They will then develop this knowledge through creative and critical engagements into exhibitions, presentations, or performances to communicate their insights about a particular author, text, or topic in the African American literary tradition. As shapers of the AARI program on their campus, class members will also have a voice in designing and planning the AARI as well as a stake in its overall success. As this course necessarily spans semesters, students who enroll in the Fall course will be expected to enroll in the Spring course in order to present their projects at the AARI in February. Only students who were enrolled in the Fall course will be permitted to enroll in the Spring, as it is the culmination of the same course.

Cross-listed with: AFAM 141N, ENGL 141N

United States Cultures (US)

General Education: Arts (GA)

General Education: Humanities (GH)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

INART 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

INART 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

INART 200: The Popular Arts in America: Elvis Presley - The King of Rock and Roll

3 Credits

The significance and influence of Elvis Presley as an artist and cultural force focusing on his recordings and major performances. INART 200 The Popular Arts in America: Elvis Presley - The King of Rock and Roll (3) (GA)(BA) This course meets the Bachelor of Arts degree requirement.

INART 200 is composed of eight chronologically arranged units of study that trace Elvis Presley's life; accomplishments; the significance of his art; his influence as a performer, recording artist, and motion picture star; and, perhaps most important, his place as a force and symbol of social/cultural change in the second half of the 20th century. Elvis was the principal symbol of change in a time when change was all-important. He was the first of the great rock and roll superstars, a herald of the cultural revolution of the 1960s, and the central figure in the musical revolution that brought rock and roll into the popular mainstream. He was - and is - the King of Rock and Roll and his place and importance in the cultural history of the twentieth century can never be overstated or exaggerated. The thrust of the course is sociological and cultural rather than musicological and the intent of the course is to provide students with a comprehensive overview of Elvis as an artist, his significance in the development of rock and roll, and his importance in our social and cultural history. Each unit of study will be accomplished by key examples of recorded music and video records of important performances from television and motion pictures. The course includes approximately 100 important recordings and 15 video performances for required study. Grades in INART 200 will be determined by a series of eight objective tests and four assignments in the Popular Music Forum. The Popular Music Forum will examine important issues in popular music and culture concerning or related to the life of Elvis Presley that require research, critical thinking, the formation of objective opinions, and discussion. The Popular Music Forum is conducted online as a series of asynchronous discussions on Forum topics. The class will be broken into groups of fifteen students for the purpose of discussion. Grading will be based on a point system. There are 1200 possible points that can be earned during the course - 800 points on exams (2/3 of the final grade) and 400 points on written assignments in the Popular Music Forum (1/3 of the final grade).

Bachelor of Arts: Arts

INART 203Q: Medievalism

3 Credits

In English 190Q / INART 203Q students will gain an understanding of medievalism, defined by Leslie J. Workman in 1987 as "the study of the Middle Ages, the application of medieval models to contemporary needs, and the inspiration of the Middle Ages in all forms of art and thought." As this definition suggests, understanding medievalism and, thus, the popular works students know, such as *Game of Thrones* and *Lord of the Rings*' benefit from learning something about the Middle Ages and the reach of its re-mediation across various kinds of expression. Therefore, ENGL 190Q / INART 203Q begins by introducing students to medieval works and a few of the forms that characterize it. More particularly, the medieval works to be studied are those combining more than one genre, media, and/or form. For example, students will read and listen to (or sing!) medieval lyrics, read and perform short medieval plays such as *Robin Hood*, be introduced to manuscripts of the bestiary with its illuminations, historiated letters, and scribal copying. They also will be introduced to Romanesque and Gothic architecture. The first medievalist remediations—works adapted in other media—to be examined will be Book I of Spenser's *Faerie Queene*, with the woodcut of the Redcrosse Knight and Dryden/Purcell's *King Arthur*, which will introduce students to Early Modern English medievalism and how it reflects prevailing values in new combinations of old and new artistic forms. Still greater emphasis will be placed on the English Medieval Revival of the nineteenth century, including John Ruskin and the PreRaphaelites poetry, paintings, and essays, as well as William Morris's poetry, painting and Arts and

Crafts Movement. Then, as now, medievalism served multiple purposes, including aesthetic, political, and social. To put into practice what students learn and to engage their creativity, one assignment involves hand crafting an art project to be accompanied by an artist statement. In the last part of the course, the focus shifts to contemporary medievalist arts and theory. In keeping with the contemporary direction, another assignment asks students to remediate their handcrafted medievalist work, or to create a new one, using digital resources to engage both their creativity and understanding of key medievalist concepts.

Cross-listed with: ENGL 190Q

General Education: Arts (GA)

General Education: Humanities (GH)

General Education - Integrative: Interdomain

Honors

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Integrative Thinking

INART 205: Introducing the Beatles

3 Credits

The influence and achievement of the Beatles as artists focusing on their recordings and films as sociocultural artifacts. INART 205 Introducing the Beatles (3) (GA) INART 205 is composed of eight units of study that trace the lives and work of the Beatles. The course's chronological design is arranged in order to capture the band's artistic trajectory from two-track recording and the relatively primitive *Please Please Me* album through the sonic heights of *Revolver*, *Sgt. Pepper's Lonely Hearts Club Band*, *The White Album*, and *Abbey Road*. This course examines the group's wide-ranging sociocultural influence in terms of music, fashion, film, gender, consumerism, and politics. The thrust of the course is interpretive in nature, with the Beatles' songs and albums receiving considerable scrutiny in terms of their composition, production, and attendant musicianship. Developments in recordings and instrument technology are germane to our understanding of the Beatles' evolving aesthetic, as is the bandmates' development as songwriters who eventually eschew issues associated with romance in order to address larger and more prescient subjects such as loneliness, oppression, nostalgia, ethics, and redemption in their music. Each unit of study will be accompanied by the analysis of key examples from the Beatles' massive recorded corpus. More than 100 songs will receive consideration, as will the group's five forays as feature-film stars. Grades in INART 205 will be determined by two objective examinations— a midterm and a final. Class participation will be a key ingredient in student performance, as will students' work on two papers. The first of such assignments will involve a shorter paper in which students address a particular aspect of the band's sociocultural emergence during their early years. The longer term paper will be researched, argumentative essay in which students will be assigned to discuss any aspect of the Beatles' career - a particular album (or series of albums), their musical influence, or their cultural impact, among other topics - and construct a mature, expansive thesis about its meaning.

General Education: Arts (GA)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

INART 205H: Introducing the Beatles

3 Credits

The influence and achievement of the Beatles as artists focusing on their recordings and films as sociocultural artifacts.

Honors

INART 210: Integrative Approaches to Computer-Aided Music Composition

3 Credits

INART 210 is an interdisciplinary introduction to software-assisted music composition. This course explores the basic concepts and techniques of computeraided music composition, including historical background, fundamental principles of computer programming, practical exercises in programming interactive multimedia art, and conceptualization and design of complete works of interactive music.

Enforced Prerequisite at Enrollment: MUSIC 8 or instructor permission
Bachelor of Arts: Arts
General Education: Arts (GA)
GenEd Learning Objective: Creative Thinking
GenEd Learning Objective: Key Literacies

INART 220: Stand-Up Comedy: A Cultural History

3 Credits

An American cultural history from mid-19th through mid-20th Century as seen through the prism of stand-up comedy. INART 220 Stand-Up Comedy: A Cultural History (3) (GA;US)(BA) This course meets the Bachelor of Arts degree requirements. Stand-up comedy, the art of making an audience laugh through primarily the spoken word, is a vital and revealing part of American cultural history. The best American comedians from Mark Twain and his sardonic monologues to Lenny Bruce and Richard Pryor's unexpurgated free form rants not only entertained, but illuminated, challenged, reflected the times, and at their best influenced the culture for the better. This course, through rare uncensored video and audio clips, readings, and lecture, offers an American cultural history through the lens of stand-up comedy covering a span from the mid-19th through the 20th Century. Topics of consideration include the art of the joke and stand-up comedy performance, the evolution of American comedy genres and venues, the significant performers, the impact of technologies such as radio and television, as well as a variety of issues ranging from racism, ethnic, and gender stereotyping to freedom of speech and political and social change.

Enforced Prerequisite at Enrollment: Fifth semester standing
United States Cultures (US)
General Education: Arts (GA)
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Soc Resp and Ethic Reason

INART 226N: Critical Approaches to Hip-Hop

3 Credits

This course will examine the politics of hip-hop art and culture. To do so, we will place hip-hop in broad historical context and trace its aesthetic

and cultural roots from Africa to Jamaica to 1970s New York City and then forward to 1980s gangsta rap and former President Barack Obama's iPod. We will think through the implications of hip-hop's addiction to Italian-American mobsters, bling, and all-things keepin' it real. We will also search for hip-hop's political foundations in funk records, 1960s community organizing, and poetry of the Harlem Renaissance. All the while, we will analyze the varieties of hip-hop politics by paying close attention to how hip-hoppers vie for authenticity, recognition, and power through cultural practices—b-boying/girling, graffiti art, emceeing, djing, e.g.-at odds with the State, inequality, and injustice. We will also situate hip-hop politics within the ongoing history of American social movements. To avoid over-romanticizing, we will equally examine hip-hop's appetite for conspicuous consumption, misogyny, homophobia, trappin', and criminality. A deep understanding of hip-hop politics, then, requires examining its contradictions as well as the ways race, class, gender, sexuality, and geography shape hip-hop—and therefore American-culture, art, and identity. To get at these and other ideas, we will read, listen, and think broadly about why a full understanding of hip-hop truly matters.

Recommended Preparations: AMST 100 or AFAM 126 or INART 126
Cross-listed with: AFAM 226N, AMST 226N
General Education: Arts (GA)
General Education: Humanities (GH)
General Education - Integrative: Interdomain
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Integrative Thinking

INART 236: Integrating Music and Animation with Technology

3 Credits

An introduction to the theory, design and creation of musical animations. For general students.

INART 258A: Fundamentals of Digital Audio

3 Credits

A thorough introduction to digital music production technologies, covering fundamentals of how digital musical information is stored, processed and transmitted. INART 258A Fundamentals of Digital Audio (3) (GA)(BA) This course meets the Bachelor of Arts degree requirements. A thorough introduction to digital music production technologies, covering the fundamentals of how musical information is stored and transmitted in digital devices. This course is meant for people who are passionate about working with sound, and who are willing to take on new technical and creative challenges in audio production. It is the pre-requisite for many more advanced courses in music technology and audio production. Students complete a series of low-stakes audio exercises on fundamental operations, a series of written responses to questions on the underlying theory of digital audio, and a small number of extended creative projects. The software used is at the level of professional audio production workstations. Students complete the course with a set of vocational skills in computer music and audio.

Bachelor of Arts: Arts
General Education: Arts (GA)
GenEd Learning Objective: Creative Thinking
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

INART 258B: Fundamentals of Digital Audio

1 Credits

A general overview of music technologies current to music educators and performers, as defined by their accrediting organization. This course is meant for students who do not intend to pursue further studies in music technology. Students will be exposed to software that is meant for non-specialists, and learn basics of music recording and editing. Students complete a set of lessons, each of which features a hands-on exercise. They gain a set of technical tools that should be of immediate relevance to their careers, including basics of music recording, audio editing, Internet resources, music arranging and score preparation.

Enforced Prerequisite at Enrollment: MUSIC 131

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

INART 295: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: Prior approval of proposed assignment by instructor

INART 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

INART 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

INART 298: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

INART 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

INART 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

INART 410: Early Pennsylvania Decorative Arts and Furniture

3 Credits

The study of Pennsylvania and related furniture, pottery, paintings, and decorative arts of the seventeenth, eighteenth, and early nineteenth centuries. INART (AM ST) 410 Early Pennsylvania Decorative Arts and Furniture (3)(BA) This course meets the Bachelor of Arts degree requirements. This course explores the aesthetic, cultural, and social significance of the household arts common in Pennsylvania in the seventeenth, eighteenth, and nineteenth centuries. Emphasis is placed on the major periods and styles (Puritan, William and Mary, Queen Anne, Chippendale, and Federal) as represented in furniture, pottery, paintings and decorative arts. Indigenous styles and crafts representative of Pennsylvania arts and crafts will be explored in detail. The course combines lecture and discussion with seven field trips to historic sites to provide students with the opportunity to view furniture and decorative arts within the setting of period homes. The course carries no prerequisite.

Bachelor of Arts: Arts

INART 415: Nineteenth Century Pennsylvania Architecture and Restoration

3 Credits

Interior and exterior design of early Pennsylvania architecture; understanding and evaluation of and experience in restoration. INART (AM ST) 415 Nineteenth Century Pennsylvania Architecture and Restoration (3)(BA) This course meets the Bachelor of Arts degree requirements. This course provides students with hands-on practical experience in the restoration of historic buildings of the nineteenth century. Each semester, students will research, evaluate, identify problems, and develop solutions to restore these structures in an historically correct manner. Students will then practically restore these structures and gain practical experience in the process of restoration. Major classroom topics will vary in order to meet the specific needs of the project at hand. Topics may include wood technology, structural problems and solutions, vernacular architecture, use of early tools, etc. Students will also take field trips to several restored homes to gain insight into applicable methods and approaches to restoration and gain perspective on costs and outcomes. INART 410 Early Pennsylvania Decorative Arts and Furniture is the prerequisite for this course.

Enforced Prerequisite at Enrollment: INART 410

Bachelor of Arts: Arts

INART 420W: Portfolio Matters: Integrative Arts Capstone

3 Credits

INART 420W: Portfolio Matters is the writing-intensive capstone course for the Integrative Arts degree. The course is based on the application of integrated learning to complex life and career questions through assignments that include self-reflection exercises, independent research, collaborative teamwork, participation in seminar-based discussions, peer critiques, resume writing, portfolio planning, and individual presentations that may include visual and written elements. The course prepares Integrative Arts majors to be able to evaluate and curate their creative, academic, and work experiences for the development of a strategic plan for a professional portfolio and resume. The course design provides students with the opportunity to use thought and creativity to develop a plan for a portfolio and resume that reflects their creative and

intellectual accomplishments and the range of their capabilities. The skills, reflections, shared engagement, and written documentation of the work produced as part of the course will enhance students' preparation for post-graduate study and career activities. Through this course, students will gain experience in the definition, articulation, and design of life and career goals and how to incorporate them into focused actions. This course provides the opportunity for individual student and program assessment. Although designed specifically for Integrative Arts majors, the course may function as an elective course for students who are intent on pursuing professional goals that involve a synthesis of learning across creative disciplines. Students who enroll in the course should be sixth-semester standing or higher and have completed at least six credits or more of 400-level or equivalent courses in ARCH, ART, A ED, ART H, DANCE, GD, INART, LARCH, MUSIC, PHOTO, THEA, COMM or ENGL.

Writing Across the Curriculum

INART 494: Research Projects

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

INART 494H: Research Projects

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Honors

INART 495: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: Prior approval of proposed assignment by instructor

INART 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

INART 496H: Independent Studies - Honors

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Honors

INART 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

INART 498: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

INART 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Interdisciplinary Science and Business (ISB)

ISB 207: Integrating Science and Business

1 Credits

This course is designed to bring together second and third year ISB majors to discuss in-depth the Interdisciplinary Science and Business (ISB) major. ISB students are required to select one science module and one business module for the major. The first seven weeks will be used to explore the six different modules. Science modules currently include quantitative, lab sciences, and human health. Business modules currently include accounting and finance; technical sales; and operations and supply chain management. The modules covered may change to reflect changes in offering of the ISB program. Students will then explore how science and business have been integrated in industry by examining case studies. These case studies will be used to show students how business and science can be integrated to solve real world problems. Career opportunities and internships will then be explored by interacting with people whose jobs require integrating science and business and by bringing in employers who hire students with these skills, both as interns and as graduates. Finally, the last two weeks of the course will be spent exploring the future of these types of jobs, including what skills students might be interested in acquiring outside the curriculum and what future skills may be desirable.

Prerequisites: 3rd semester standing.

ISB 475W: Strategic Integration of Science & Business

3 Credits

This course will provide a capstone experience for the Interdisciplinary Science and Business BS degree. The tools of strategic management and cross-functional collaboration will be introduced and serve as a background for the design, development, and implementation of a new product or process within an existing corporation. Student teams will be provided with an industry concept and work toward the objectives of a firm sponsoring the product concept. During the course, the evaluation of the product will include the feasibility of the product or process in terms of design, manufacture, and intellectual property. This evaluation will be presented to the firm by student teams. The final deliverable will include a complete written assessment of each of the components of feasibility.

Prerequisites: 7th Semester standing; FIN 301; SCM 301; MGMT 301; MKTG 301; ISB 207
Writing Across the Curriculum

ISB 495: Internship

1-18 Credits/Maximum of 18

Supervised field experience related to the student's major.

International Agriculture (INTAG)

INTAG 100N: Everyone Eats: Hunger, Food Security & Global Agriculture

3 Credits

How does reduced rainfall impact the lives of people growing coffee in Honduras... and immigration in the USA? How does increasing consumption of meat in China influence deforestation of the Amazon Rainforest? How do subsidies for cotton in the USA affect cotton growers in Mali and the price of a t-shirt in Italy? These are a few of the complex issues we will explore this semester. Agriculture affects all of us. Every time we eat, go to the grocery store, or even buy clothing, we are participating in complex agricultural systems that are increasingly more globally integrated. This course takes an interdisciplinary approach, combining both natural and social science theory and scholarship to investigate topics such as climate change, technological applications to agriculture (e.g. GMOs), soil and water usage, the role of culture and local knowledge, and population growth. Over the course of the semester we will investigate issues receiving widespread attention from policymakers, national governments, academics, farmers, consumers, and many others. This class will place a specific emphasis on agriculture in the global South examining issues related to food security. As we explore the issues related to international agriculture, we will confront implications for national and global security, human rights, sustainability, and other ethical questions.

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

General Education: Natural Sciences (GN)

General Education: Social and Behavioral Sciences (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Critical and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

INTAG 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

INTAG 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

INTAG 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

INTAG 298: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

INTAG 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

INTAG 300: Tropical Agriculture and Food Systems

3 Credits

The primary goal of this course is to inform students about tropical agriculture, including the environments of tropical agroecosystems, the production of crops, livestock and forestry within these systems, and major farming systems of the tropics. This class will focus on agriculture in developing countries in the tropics. Several examples from around the world will be included. By the end of this course students should be able to: 1. Describe the various environments of the tropics and explain the influence of these environments on tropical agroecosystems 2. Identify the major crops and livestock of the tropics and discuss their agroecological requirements and production in tropical environments 3. Identify and describe the major farming systems of the tropics 4. Critically analyze the important issues facing contemporary tropical agriculture

International Cultures (IL)

INTAG 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

INTAG 398: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

INTAG 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

INTAG 460: International Food Production

1 Credits/Maximum of 3

FDSC 460 / INTAG 460 is designed to give food science undergraduate and graduate students an appreciation of how food is produced and processed abroad. Students participate in a number of production facility tours, interact with local food scientists and food technologists, and gain valuable international experience. A major point of emphasis for the course is comparing and contrasting food production norms in the U.S. and the host country or region. The course consists of pre-trip

lectures and meetings and culminates in a faculty-guided embedded study tour. Prior to the travel component of the course, students work in small groups to research a specific food product that is of economic and cultural importance to the country or region of interest, then write reports to be presented in-country before a tour of the related product's production facility. The course integrates and builds upon core concepts in food chemistry and food microbiology; as such, FDSC 460 / INTAG 460 is targeted towards upper-level food science undergraduate students, as well as food science graduate students.

Enforced Prerequisite at Enrollment: FDSC 200 and Permission of program

Cross-listed with: FDSC 460
International Cultures (IL)

INTAG 470A: Comparing Agricultural and Food Systems in the US and France: Lecture

2.5 Credits

This course is designed to explore key similarities and differences in the food and agricultural systems of the United States and France. It introduces students to a number of overarching food and agricultural topics that pertain to both countries, and students explore and analyze these key issues from both countries perspective. These overarching topics include the structure of agricultural and environmental policies, the use agricultural land for biofuel production, organic agriculture, food safety, attitudes and policies surrounding the use of genetically modified crops, the role of large agribusiness firms, attitudes towards diet and health, and several others important topics. Students conduct background reading on these topics, hear lectures – sometimes from guest presenters – that frame the topics from both the U.S. and France's perspective, and write reports on specific crops or foods that expose key similarities and differences between the two food systems. Finally, students pick one crop or food for an oral presentation that contains background information on how that crop fits into the two food systems, U.S. and France, and analyzes the key issues that relate to the overarching topics already identified. This course has two components that must be taken in partnership: 470A (FOOD SYS US/FRANCE I) and 470B (FOOD SYS US/FRANCE II). The first is a classroom - based course, and meets regularly during the semester. The second is a two - week component that takes place after the end of the semester. In this second component, after traveling to France, students hear presentations from the French perspective on the overarching topics identified earlier and also explore the topics first hand via field trips to farms, wholesale markets, retail markets, and other places relevant to the French food system. This component is organized by a host university, AgroParisTech. For these two weeks, students live in dorms within the city of Paris. Knowledge of French is not required.

Enforced Prerequisite at Enrollment: INTAG 100 or AGBM 101 or ECON 102

Cross-listed with: AGBM 470A

INTAG 470B: Comparing Agricultural and Food Systems in the United States and France: Travel

0.5 Credits

Explore key differences and similarities in the food and agricultural systems of the United States and France. INTAG 470B / AGBM 470B Comparing Agricultural and Food Systems in the US and France: Travel (0.5) This course is designed to explore key similarities and differences in the food and agricultural systems of the United States and France. It

introduces students to a number of overarching food and agricultural topics that pertain to both countries, and students explore and analyze these key issues from both countries perspective. These overarching topics include the structure of agricultural and environmental policies, the use agricultural land for biofuel production, organic agriculture, food safety, attitudes and policies surrounding the use of genetically modified crops, the role of large agribusiness firms, attitudes towards diet and health, and several others important topics. Students conduct background reading on these topics, hear lectures – sometimes from guest presenters – that frame the topics from both the U.S. and France's perspective, and write reports on specific crops or foods that expose key similarities and differences between the two food systems. Finally, students pick one crop or food for an oral presentation that contains background information on how that crop fits into the two food systems, U.S. and France, and analyzes the key issues that relate to the overarching topics already identified. This course has two components that must be taken in partnership: 470A (FOOD SYS US/FRANCE I) and 470B (FOOD SYS US/FRANCE II). The first is a classroom - based course, and meets regularly during the semester. The second is a two - week component that takes place after the end of the semester. In this second component, after traveling to France, students hear presentations from the French perspective on the overarching topics identified earlier and also explore the topics first hand via field trips to farms, wholesale markets, retail markets, and other places relevant to the French food system. This component is organized by a host university, AgroParisTech. For these two weeks, students live in dorms within the city of Paris. Knowledge of French is not required.

Enforced Prerequisite at Enrollment: INTAG 470A or AGBM 470A

Cross-listed with: AGBM 470B

INTAG 490: Senior Seminar in International Agriculture

3 Credits

Seminar discussions on contemporary topics in global agriculture; capstone course for INTAG minor. INTAG 490 Senior Seminar in International Agriculture (3) This course is designed to meet the need for a capstone course within the International Agriculture (INTAG) minor. The course provides a range of experiential learning techniques including intensive reading and in-class discussion, practical experience through a group trip to the nation's capital, and application of the international experiences encountered through the INTAG program. Included is course content designed to provide a holistic integration of the four main INTAG study areas (Socioeconomic and Communication Systems, Animal and Plant Sciences, Natural Resources and the Environment, and Food, Health, and Nutrition). Students will learn about the current state of international agriculture through recent articles and analyses and respond in-class discussions and through written response papers. The second half of the course involves site visits to major international development organizations in Washington, D.C. (US government, international agricultural research organizations, and various NGOs) and participation in the form of an INTAG senior seminar series open to the public. This seminar series allows students to present and discuss their past (or intended) international agriculture experiences while a student at Penn State, and share with both those in the class and those outside of the class options, opinions about and critical issues in international agriculture. This seminar series will be an important tool in promoting the INTAG minor. The students will then synthesize the knowledge they have obtained both from the course and their international agriculture experiences to complete final reports which outline their understanding of the current state of international agriculture. This course is ultimately designed to facilitate the development of students to be global citizens

in the agricultural arena. The course is geared towards students in their junior or senior years. Evaluation consists of class participation (20%), student-led presentation of materials (15%), response papers to readings and D.C. trip (30%); presentation at INTAG seminar series (15%) and the completion of a final paper on their understanding of the current state of international agriculture (20%). The course is offered once every academic year in the Spring semester. The course is a core requirement for the International Agriculture minor. INTAG 100 is a prerequisite.

Enforced Prerequisite at Enrollment: INTAG 100N

INTAG 495: Internship in International Agriculture

1-13 Credits

Observation of and participation in the operation and management of a University-approved international agricultural firm or international agricultural development agency.

Enforced Prerequisite at Enrollment: Prior approval of proposed internship plan.

Full-Time Equivalent Course

INTAG 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

INTAG 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

INTAG 498: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

INTAG 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

International Business (IB)

IB 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

IB 290: International Business Goes to the Movies

1 Credits/Maximum of 3

A business elective to expose students to international and global issues through the eyes of film makers around the world. I B 290 International

Business Goes to the Movies (1 per semester/maximum of 3) I B 290 is an international business elective class which exposes students to international and global issues through the eyes of film makers around the world. Using film as the medium, students can evaluate differing perspectives and arguments on issues affecting business and economics in the global environment. This course is intended for students who are likely to study abroad during their PSU careers. Thus, the course attempts to prepare students for immersion in a variety of cultures, often different from the US. The course objective is to begin a broadening process of students' world views by examining a wide range of issues captured in film around the world. Typical topics include the rise of globalization and its impact on various countries and societies, a range of cross-cultural issues and controversies inherent in competing cultural differences between peoples of various nations, the impact of American culture on social, political, economic, and legal institutions throughout the world, and the differential role played by economics in various societies and at different stages of economic development across many nation states. This course employs film as a powerful medium to enable historical and modern understandings of global issues and international perspectives. As students enter the business world and learned professions, it is imperative that their world view include images and understandings found in a host of competing cultures including Eastern and Central Europe, East Asia, The Middle East, Latin America as well as Western Europe, Australia, and North America. Upon completion of the course, students will be introduced to a wide range of international issues as well as a foundation for approaching cross-cultural disputes inherent in international and global business. In addition, they will obtain an appreciation of international cinema and its wide scope as an art form, as an informational source for business, and as a powerful medium for argument and debate.

IB 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

IB 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore in depth, a comparatively narrow subject interest.

IB 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

IB 303: International Business Operations

3 Credits

A survey of the major aspects of international business environment and operations with an emphasis on the cultural dimension. I B 303 International Business Operations (3) (IL) International business is important and necessary because economic isolationism has become impossible. Failure to become a part of the global market assures a nation of declining economic influence and deteriorating standards of living for its citizens. International business therefore presents more opportunities for expansion, growth, and income than does domestic

business alone. This course will cover the major aspects of international business environment and operations with emphasis on its impact on the local businesses in your state. In other words, in this course you will learn why international business differs from domestic business, economic theories on international trade, and how managers deal with the uncontrollable forces such as cultural differences of international environment. In this course you will develop a global perspective through studying the impact of other countries and their peoples on society and develop skills that will enable you to interact effectively in an interdependent global community.

Enforced Prerequisite at Enrollment: fifth-semester standing International Cultures (IL)

IB 350: International Business Law

3 Credits

International Business Law examines the framework and systems of international law, including: world legal systems, international commercial disputes, contracts, banking and trade regulation, European Union law, the World Trade Organization, import/export law, marketing regulations, intellectual property, foreign direct investment, labor & employment, and environmental laws.

Enforced Prerequisite at Enrollment: IB 303 and (BA 241 or BA 243 or BLAW 341)

IB 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparative narrow subject which may be topical or of special interest.

IB 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

IB 403: International Business and National Policies

3 Credits

Evaluation of national economic policies in the light of international economic theory; their impacts on operations of the international business firm. IB 403 International Business and National Policies (3) IB 403 integrates macro and micro analyses of the dynamics between international businesses/ multinational enterprises (MNEs) and national Governments. Students who successfully complete IB 403 will acquire knowledge of and tools to understand, analyze and evaluate actions, theories and philosophies that influence home and host Government policies, the roles businesses play in shaping, these policies, and how policies and other factors shape competitive strategies of international business firms in the areas of trade, investment and other international economic activities. * Theories, Models and Policies - Country-based advantages Imperfect Competition, Barriers to Entry and Strategic Trade Policy * Competitive Analysis: Product Life Cycle and Porter Models * Integrating Market and Non-Market Strategy * Manipulating and Managing External Stakeholders Across Borders * Transitional Economies: Opportunities, Risks and Strategies * Strategies for Successful Foreign Direct Investment in China * Evaluating Opportunities and Risks in Global Industries * Privatization of Telecommunications

* Economic Integration: the Case of Europe * Industrial Policy, Foreign Direct Investment and Economic Growth * Foreign Market Entry Strategies for Regulated Industries * Industrial Policy and International Competition * International Competition in Services Industries * Update on U.S. and EU policies in the Airline Industry and Impacts on Industry Structure and Firm Strategy.

Enforced Prerequisite at Enrollment: ACCTG211 and (BA 301 or FIN 301)

IB 404: Contemporary Issues in International Business

3 Credits

Investigation of issues in international business practice interpreted from the foundations of the social sciences. Topics will be chosen from contemporary issues in global business and economics. I B 404 Contemporary Issues in International Business (3) I B 404 enables students to study the most current topics in international and global business from the framework of the social science issues that form the framework for understanding, business decisions. The course provides structured experiences in library research and data gathering, techniques, and builds the habit of reading the international business press daily and analyzing it weekly. The class is typically organized around 3 integrative business topics that represent a spectrum of questions important to business. These include questions about finance and economics in international business, questions about people and organizations in an international environment, and questions about products (development, production, distribution of goods and services) in international business contexts. This is not an introductory course, and as such, the topics chosen should be substantive and nuanced. For example, one topic might be how the structure of franchises must be modified to reflect the property rights in a particular country, and how those property rights laws impact the value of the franchise. The second topic might be how the internationalization of the structure and role of Boards of Directors in multinational firms contribute to globalization, and challenge the cultural norms in those organizations The third topic might be how North American firms have been forced to adjust their product packaging, in response to environmental impact laws in Germany, and how this shifts the locus of the product message from point-of-purchase to alternative media.

Enforced Prerequisite at Enrollment: ACCTG211 and (BA 301 or FIN 301)

IB 440: Globalization and Its Implications

3 Credits

This course explores the socioeconomic implications of globalization.

Enforced Prerequisite at Enrollment: AFAM 100N or AFR 110 or PLSC 3 or PLSC 14 or PLSC 200N or PLSC 220

Cross-listed with: AFR 440, PLSC 440

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

United States Cultures (US)

IB 450: The Business Environment of Europe

3 Credits

This course provides an overview of the economic, institutional, and regulatory environment in Europe at the EU and national levels. IB 450 The Business Environment of Europe (3) This course provides an overview of the business, economic, and regulatory environment in Europe at the European Union (EU) and national levels. The course

examines how regional integration, through the EU, has shaped industrial, competition, monetary, and related economic policies, and how Europe's international trade and finance capabilities affect the global economy. As a result, a significant part of the course focuses on the evolution of the EU, its institutional structure, and its impact on business (both European and foreign). The course also compares business-government relations, models of capitalism, and corporate governance in individual European countries, using the United States as a basis of comparison. Particular attention is given to France, Germany, Ireland, and the United Kingdom, and how their business environments differ from each other. While the primary focus of this seminar will be on these themes, we will use articles from the Financial Times and similar publications as the basis of discussion in each class for a range of topics related to Europe. The approach taken in this course is a multidisciplinary one, with the assumption that business executives must understand the political, cultural, institutional, historical, and geographic aspects of Europe if they are to be successful in the business environment of Europe. Students are expected to be active participants in class discussion. Readings usually will include a textbook, readings packet, and a subscription to the Financial Times. Evaluation will be based on a combination of participation and attendance, exams, quizzes, a group project, and essay assignments.

Enforced Prerequisite at Enrollment: ACCTG211 and (BA 301 or FIN 301)

IB 460: International Business in Emerging Nations

3 Credits

An overview of international business strategies and economic environments of emerging nations with a specific focus on markets in China, India, and Southeast Asia.

Enforced Prerequisite at Enrollment: ACCTG 211 and (BA 301 or FIN 301) and Enforced Concurrent: IB 303

IB 464: International Logistics

3 Credits

This course will examine the logistics function and the unique requirements of the movement of products internationally. To effectively maneuver in today's global marketplace, a mastery of the international logistics function has become a critical success factor. The course will explore the key elements of international logistics (including INCO terms, container shipments, and packaging for rail, water, and land shipments). The requirements of moving material through the supply chain from raw materials to finished goods, including sourcing, manufacturing, packaging, and documentation through its delivery to the final customer.

Enforced Prerequisite at Enrollment: IB 303 and MKTG 301 and SCM 301

IB 470: International Development in an African Context

3 Credits

This course looks at international development from an African perspective and discusses the prospects for African economic growth in the 21st Century. With an understanding of historical events that have shaped the political and social landscape of modern day Africa, the economic potential of African nations will be discussed in detail. Utilizing success stories, the course introduces economic, business, social, and political issues that confront developing countries in Africa, along with solutions that have been proposed or are in use to address various development challenges. This course will provide students with the

opportunity to learn first-hand about international development issues. It will introduce students to definitions of international development terms, data on international development, measures of development and development indices, as well as leading issues in International development. Using an interdisciplinary approach, the course explores some of the key development issues in sub-Saharan Africa, examines empirical findings to better understand Africa and its nations, and reviews the prospects for successful international business in this emerging growth market. Cases studies focus on successful economic growth that have emerged out of Africa and what how these successes are laying the groundwork for future international business opportunities. As such, the various components of the course are designed to promote the student's abilities to: -Describe and analyze social, economic, political elements that influence development in African countries. Students will learn that development problems, while often measured in economic terms, are multi-faceted and interrelated, thereby learn to appreciate that meaningful analysis and problem solving in international development must include different components. -Identify and analyze specific global issues, illustrating the social, economic and political context that may affect their resolution. Students will have the opportunity to experience the different facets of international development and participate, in a limited way, in efforts to address the issues.

Enforced Prerequisite at Enrollment: Fifth semester standing or higher required

IB 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Enforced Prerequisite at Enrollment: permission of the program

IB 494H: Honors Research Project

1-3 Credits/Maximum of 6

Supervised honors student research projects identified on an individual or small-group basis.

Enforced Prerequisite at Enrollment: permission of the program
Honors

IB 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

IB 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore in depth, a comparatively narrow subject interest.

IB 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

International Studies (INTST)

INTST 100: Introduction to International Studies

3 Credits

An introductory multidisciplinary course designed to familiarize students with critical international issues. INTST 100 Introduction to International Studies (3) (GS;IL)(BA) This course meets the Bachelor of Arts degree requirements. This is an interdisciplinary course designed to provide students with an introduction to a range of global issues. The course will emphasize the themes of international interdependence and globalization and their development over time. A key component of this course is cultural diversity and the connecting international and domestic issues, particularly those of race and culture. In both their written and oral work, students will be required to relate international issues to their own fields of study. The disciplines involved are mainly political science and economics, ecology, history, and cultural studies.

Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)
First-Year Seminar

General Education: Social and Behavioral Scien (GS)
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Integrative Thinking

INTST 400: Seminar in International Studies

3 Credits

An upper-division seminar focusing on one or two critical international issues from an interdisciplinary perspective; individual projects. INTST 400 Seminar in International Studies (3) (IL) This interdisciplinary course will offer a seminar on some current event, issue, or phenomenon that involves a large number of countries. Topics will vary each year and depend on the faculty member leading the course, but it may include subjects such as the European Union, global economic change, international pop culture, or international response to human rights violations. Both written and oral work will be assigned and graded. Students will discuss material from a variety of academic fields such as political science, economics, sociology, history, anthropology, and cultural studies.

Prerequisite: INTST100
International Cultures (IL)

INTST 493: International Studies

3 Credits

Selected topics in International Studies.

Prerequisite: prior participation in an Education Abroad program or international work experience, and enrollment in the International Studies major

INTST 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

INTST 494H: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Honors

INTST 495: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written or oral critique of activity required.

Prerequisite: Approval by International Studies or Global Studies Advisor

Internship (INTSP)

INTSP 295B: Internship in Business & Engineering

1-6 Credits/Maximum of 6

ALT 295B Internship in Business & Engineering (1-6) Individual exploration of practical applications of a field of study through a supervised work experience. Final analytic paper, essays, journals and oral presentation as required by the instructor. Satisfactory employer evaluation required for passing grade. Prior approval of a member of the College faculty required.

Prerequisite: minimum 30 credit hours; minimum 2.0 GPA; prior approval of proposed assignment(s) by instructor

INTSP 295C: Internship in Education, Human Development, & Social Sciences

1-6 Credits/Maximum of 6

ALT 295C Internship in Education, Human Development, & Social Sciences (1-6) Individual exploration of practical applications of a field of study through a supervised work experience. Final analytic paper, essays, journals and oral presentation as required by the instructor. Satisfactory employer evaluation required for passing grade. Prior approval of a member of the College faculty required.

Prerequisite: minimum 30 credit hours; minimum 2.0 GPA; prior approval of proposed assignment(s) by instructor

INTSP 370: Internship Preparation

1 Credits

Planning and preparation for upper-level or capstone internship experience, suited to students' individual academic and career interests. ALT 370 Internship Preparation (1) Planning and preparation for upper-level or capstone internship experience, suited to students' individual academic and career interests. Evaluation methods include two-three page reflective/analytic papers at the end of each segment; preparation and presentation at mock interview. This is an optional preparatory course for upper-division/senior-level internships in degree programs not offering formal internship preparation and will be offered for elective credit.

Prerequisite: formal acceptance into a College major; junior standing; minimum 2.0 GPA; completion of core research/skills course(s) for student's degree program

INTSP 495: **SPECIAL TOPICS**

1-6 Credits/Maximum of 6

ALT 495A Internship in Business for non-Business Students (1-6)
Individual exploration of the application of a non-business field of study in a business-related setting. Final analytic paper, essays, journals and oral presentation as required by the instructor. Satisfactory employer evaluation required for passing grade. Prior approval of a member of the College faculty required. Intended for non-Business students.

Italian (IT)

IT 1: Elementary Italian 1

4 Credits

Elementary Italian I (4 credits) is for students who have not previously studied the Italian language. The course provides an introduction to the written and spoken language through a variety of exercises. Information is also presented regarding current issues in Italian society with the goal of developing intercultural competencies. Topics may include both traditional themes (e.g. cuisine, family and the arts) and contemporary themes (e.g. immigration, environmental issues and civil rights). The class will be conducted in Italian.

Bachelor of Arts: World Language (All)

IT 2: Elementary Italian 2

4 Credits

Elementary Italian 2 (4 credits) is for students who have successfully completed IT 001 (or equivalent). The course continues the introduction to the written and spoken language in IT 001 through a variety of exercises. Information is also presented regarding current issues in Italian society with the goal of developing intercultural competencies. Topics may include both traditional themes (e.g. cuisine, family and the arts) and contemporary themes (e.g. immigration, environmental issues and civil rights). The class will be conducted in Italian.

Prerequisite: IT 001

Bachelor of Arts: World Language (All)

IT 3: Intermediate Italian

4 Credits

This course (4 credits) is designed for students who have successfully completed Italian 001 and 002 at Penn State, or the equivalent level at another university, or who have taken four or more years of high school Italian. The purpose of the course is to continue the development of communication skills in written and spoken Italian at the intermediate level. The course offers students the opportunity to expand their vocabulary and to use more complex sentence structures in a variety of contexts to express more sophisticated concepts and opinions. Information is also presented regarding current issues in Italian society with the goal of developing intercultural competencies. Topics may include both traditional themes (e.g. cuisine, family and the arts) and contemporary themes (e.g. immigration, environmental issues and civil rights). The course will be conducted in Italian.

Prerequisite: IT 002

Bachelor of Arts: World Language (All)
Bachelor of Arts: World Lang (12th Unit)
Bachelor of Arts: Humanities

IT 10: Intensive Elementary Italian

6 Credits

Intensive Beginning Italian is equivalent to IT 001 and half of IT 002. This course is intended for students with no experience of Italian and provides an intensive language-learning environment in which to complete 6 credits of Italian language. Students receive an extensive introduction to Italian grammar, speech, and culture and develop skills in written and spoken Italian through a variety of exercises. Information is also presented regarding current issues in Italian society with the goal of developing intercultural competencies. Topics may include both traditional themes (e.g. cuisine, family and the arts) and contemporary themes (e.g. immigration, environment and civil rights). The course will be conducted in Italian and prepares students for IT20, Intensive Intermediate Italian.

Bachelor of Arts: World Language (All)

IT 20: Intensive Intermediate Italian

6 Credits

Intensive Intermediate Italian is equivalent to the second half of IT 002 and IT 003. The course is for students who have successfully completed IT 010 Intensive Elementary Italian and who seek an intensive learning environment of all aspects of Italian language: reading, writing, listening, and speaking. The course emphasizes reinforcement of elementary language and offers students the opportunity to expand their vocabulary, to use Italian in a variety of contexts and acquire more complex skills. Information is also presented regarding current issues in Italian society with the goal of developing intercultural competencies. Topics may include both traditional themes (e.g. cuisine, family and the arts) and contemporary themes (e.g. immigration, the environment, and civil rights). The course will be conducted in Italian. The course satisfies the BA 12th-credit level language requirement.

Prerequisite: IT 010

Bachelor of Arts: World Language (All)
Bachelor of Arts: World Lang (12th Unit)
Bachelor of Arts: Humanities

IT 50: Italian Conversation Tutorial

1-3 Credits/Maximum of 3

Roundtable conversation practicum for students concurrently enrolled in IT 001, 002, 003, 010, or 020. May be repeated up to 3 times for credit. IT 050 Italian Conversation Tutorial (1-3)(BA) This course meets the Bachelor of Arts degree requirements. Students supplement their elementary or intermediate language classes (001, 002, 003, 010, 020) with this practicum, which has as its objective to improve pronunciation and oral conversational skills. This course must be taken concurrently with an elementary or intermediate language course and may be repeated up to three times for credit. Evaluation based on student participation (80%) and performance in oral drills and exercises (20%).

Prerequisite: Concurrent enrollment in IT 001 , IT 002 , IT 003 , IT 010 or IT 020

Bachelor of Arts: Humanities

IT 51: Elementary Intensive Italian for Graduate Students I

3 Credits

Intensive introduction to Italian: first half of graduate intensive sequence in elementary reading, writing, speaking, listening, cultural contexts. IT 051 Elementary Intensive Italian for Graduate Students I (3) This is the first in a series of three courses designed to give students an intensive introduction to Italian. This is the first half of elementary sequence in reading, writing, speaking, listening, and cultural contexts. Students will learn the Italian vocabulary and will learn to create simple sentences. Lessons are taught in an authentic cultural context.

Prerequisite: graduate standing

IT 52: Elementary Intensive Italian for Graduate Students II

3 Credits

Intensive introduction to Italian: second half of graduate intensive sequence in elementary reading, writing, speaking, listening, cultural contexts. IT 052 Elementary Intensive Italian for Graduate Students II (3) This is the second in a series of three courses designed to give students an intensive introduction to Italian. This is the second half of graduate intensive sequence in elementary reading, writing, speaking, listening, and cultural contexts. Students will learn the Italian vocabulary. Lessons are taught in an authentic cultural context.

Prerequisite: IT 051 or equivalent, and graduate standing

IT 53: Intermediate Intensive Italian for Graduate Students

3 Credits

Continued intensive study of Italian at the intermediate level: reading, writing, speaking, listening, cultural contexts. IT 053 Intermediate Intensive Italian for Graduate Students (3) This is the third in a series of three courses designed to give students an intermediate intensive knowledge of Italian. Continued intensive study of Italian at the intermediate level: reading, writing, speaking, listening, and cultural contexts. Lessons are taught in an authentic cultural context.

Prerequisite: IT 052 or equivalent, and graduate standing

IT 83: First-Year Seminar in Italian Literature, Film, and Culture

3 Credits

Introduction to the study of Italian literature and culture. IT 083S First Year Seminar in Italian Literature, Film, and Culture (3) (GH;IL)(BA) This course meets the Bachelor of Arts degree requirements. The first-year seminar will introduce students to the study of Italian literature, film and culture in their first year at Penn State. Students will read significant texts (in English), view videos (with subtitles), listen to music and explore Italian thought and culture in general. These experiences will help prepare students for additional courses in literature and in Italian as well provide a point of comparison with U.S. culture. In addition to the academic topic explored in this course, students can expect to gain a general introduction to the University as an academic community and have the opportunity to explore their responsibilities as members of that community. Students will develop an understanding of the learning tools and resources available to them including the opportunity to develop relationships with faculty and other students who share their academic

interests. This course satisfies both the first-year seminar and a General Education humanities or Bachelor of Arts humanities requirement. We will offer the course once every two years with enrollment limit of twenty students.

Bachelor of Arts: Humanities

International Cultures (IL)

First-Year Seminar

General Education: Humanities (GH)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

IT 99: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Humanities

International Cultures (IL)

IT 130: Italian Culture and Civilization

3 Credits

IT 130, Italian Culture and Civilization, examines Italian life from antiquity to the present. It is designated an International Cultures course, which aims to develop critical and analytical skills of undergraduate students through a global exploration of the historical, cultural, and political aspects of Italian society. Historical material will be studied to facilitate understanding of how Italian unity is imagined across time, and will emphasize the continuous process of fragmentation and negotiation of cultural, national, and political identity through the ages. The course traces, among other topics, the importance of the Roman Empire, the Catholic Church, the Renaissance, Italian Unification, Fascism, and contemporary immigration to Italy. Students will analyze primary texts – literature, visual art, essays and speeches, music, dramatic works, and film – to become familiar with significant aspects of Italian thought and culture. Consideration will be given to the various representative Italians such as Dante Alighieri, Leonardo Da Vinci, Niccolò Machiavelli, Galileo Galilei, and Vittorio De Sica; inclusion of lesser-known figures, such as Igiaba Scego and Amara Lakhous, will provide students with a wider range of voices that will enrich critical engagement with course themes. By the end of the course students will be able to identify and critically analyze diversity within the peninsula, and demonstrate a familiarity with the key moments, people, and products of Italian culture from antiquity to the present. Throughout the semester, students will also be encouraged to develop a critical appreciation of the influence of Italian culture on Western civilization, and demonstrate a more nuanced understanding of the country by recognizing and articulating similarities and differences among the various international cultures that have influenced, and continue to shape Italy.

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

IT 131: Introduction to Italian American Culture

3 Credits

Between 1870 and 1920 over five million Italians immigrated to the United States. Of those who came, about one-third returned to Italy. Those who remained, often joined by their families, left an indelible mark on the American cultural, political, artistic, educational, and social landscape. This course provides an overview of Italian emigration to America in the 19th and 20th centuries and the conditions within the United States as a destination culture. Through a study of historical, sociological, literary, and cinematic texts, students will consider, among other topics: 19th-century Italy, the odyssey of immigration to and assimilation in the United States, and life in ethnic neighborhoods. The course will also look at the Mafia, forms of prejudice, and ways Italians uniquely manifested their social values in labor unions, religion, and education in America. Interrogating the immigrant experience for at least three generational periods through the lens of race and ethnicity, the course probes how Italian American identity has been represented in American culture both as profoundly "other" and as emblematically "American." Upon successfully completing this course, students will have a solid grasp of how Italians, in becoming Americans, contributed to the rich fabric of life in the United States. Conducted in English.

Bachelor of Arts: Humanities

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

IT 140: Italian Language & Culture for Study Abroad

3 Credits

IT 140 prepares students for study abroad in Italy through contact with language and customs and through the inclusion of pragmatic information and cultural intelligence/sensitivity. IT 140 splits equal classroom time between developing basic language skills and providing important cultural information. Pronunciation, key vocabulary terms and scenario-based instruction form the basis of the language portion. Vocabulary sets include travel (emphasis on public transportation), cuisine (cafe and restaurant settings), navigation (using maps, giving/receiving directions), health (pharmacy and doctor's office settings) and shopping (open air market and boutique settings). These areas of content naturally overlap with cultural lessons as does learning to use formal and informal registers. Accordingly, cultural lessons deal with these topics as well as geography (including regional variations), history and safety. Italian 140 is both GH and IL. This course does not count for the Italian major or minor.

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

IT 175: Italian Language and Culture for Embedded Experiences Abroad

3 Credits

IT175 Italian Language and Culture for Embedded Experiences Abroad, is designed for students who have little or no knowledge of Italy's language and culture. This course is linguistic and cultural preparation for students participating in an embedded experience in Italy. Properly preparing for study and travel to Italy helps students to maximize the abroad experience. The ability of students to function abroad can be greatly facilitated by an understanding of the local culture and language. Students will be introduced to key Italian social and cultural issues, pragmatic information (for travelers, students, and residents of Italy) as well as essential vocabulary terms, phrases, and pronunciation. The course also explores themes of cultural intelligence/sensitivity and proper behavior abroad. IT175 is designed to be taught as a co-requisite for any course with an embedded experience in Italy (e.g. BIOL 475N Anatomy in Italy). With this co-requisite, particular emphasis is placed on vocabulary relevant to the embedded experiences in history of science/medicine museums, university settings and religious institutions.

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

IT 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Humanities

IT 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Humanities

International Cultures (IL)

IT 210N: Multilingual and Intercultural Communication

3 Credits/Maximum of 6

SPAN 210N Multilingual and Intercultural Communication course will showcase the fundamental components of the intersection of language and culture through humanities and social science. The purpose of this course is to teach the underlying mechanisms of multilingualism through language science principles and develop an understanding of intercultural communication through humanistic approaches. The content of this course focuses on linguistic strategies for succeeding in multilingual environments (e.g. dialect variation, second language acquisition strategies) as well as intercultural communication practices for navigating new environments (e.g. understanding cultural norms, skills for global leadership). The course requires an introductory level understanding of language. Students will learn how language and culture inform each other through the examination of cultures within the United States and internationally, including non-Western cultures.

Prerequisites: SPAN 3 or SPAN 3H or SPAN 20 or IT 3 or IT 20 or PORT 3 or PORT 123

Cross-listed with: PORT 210N, SPAN 210N

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

United States Cultures (US)

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

IT 225N: Organized Crime in Film and Society

3 Credits

IT 225N / CRIM 225N, Organized Crime in Film & Society, examines the relationship between criminological and justice theories regarding organized crime and the portrayal of the mafia in popular Italian American film. The course follows two simultaneous threads of inquiry: an examination of historical and theoretical models of organized crime in the United States and the state and federal laws that address them; and an analysis of how such models are depicted in American films and television about the the Italian American community. By the end of the course, students will gain key literacy skills by identifying varied definitions of organized crime and distinguishing between structural models, particularly La Cosa Nostra and network models. Students will also sharpen analytical and critical thinking skills through written and spoken interpretations of films and the scholarly approaches to studying organized crime (e.g. research methods). Throughout the semester students will also be able to apply knowledge of the social scientific aspects of organized crime to guide their observations and analyses of film and Italian American culture, thus refining Integrative Thinking across the humanities and social sciences.

Cross-listed with: CRIM 225N

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

IT 240Q: Artistic Patronage in Europe

3 Credits

This course surveys the institutions and social networks in which European fine arts were created, consumed and critiqued. Beginning with the medieval period and ranging to the early 20th century, the course will examine the variety of communities where public and private often intersected and which sponsored innovations in the arts. Often indexing social movements and political change, such communities include convents and cathedrals, royal academies and courts, coffee houses, salons, and theaters. Artists, performers, patrons, politicians, journalists, and others collaborated and competed in these spaces. Such communities could embody political and economic power, or foster resistance to it. This approach to the history of the arts in western culture puts the focus less on the individual creative genius of great composers,

writers, painters, and sculptors, and more on the social exchanges and institutions that sponsored and received their work. Such an approach brings to light particularly the ways in which women played significant roles in the production and reception of culture: as salon hostesses, patronesses, and divas, women often enabled and enacted cultural production. Some examples of particular units of study might include: the German convent of Hildegard of Bingen (1098-1179), where monophonic chant and allegorical morality plays developed; the Mantuan (Italy) court of Isabella d'Este ,the first lady of the world, (1474-1539) where the roots of the madrigal began and where notable painters found support and sponsorship; the French salons of Mme. Geoffrin (1699-1777) and Mme. de Staël (1766-1817); and the student residences in Madrid where avant-garde writers and artists interacted. Each unit will also consider the relationships between the aesthetic norms and values of a period and the economic and political realities of sponsorship. The course will require that students attend at least one musical performance or concert held on campus during the semester and complete a brief writing project based on that experience. This requirement will encourage students to think about their own university as a contemporary space of cultural sponsorship.

Cross-listed with: CMLIT 240Q, HIST 240Q, WMNST 240Q

International Cultures (IL)

General Education: Arts (GA)

General Education: Humanities (GH)

General Education - Integrative: Interdomain

Honors

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

IT 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Bachelor of Arts: Humanities

IT 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Humanities

IT 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Humanities

International Cultures (IL)

IT 301: Advancing Italian in Context

3 Credits

IT 301 serves as a bridge between intermediate language courses (IT 3/20) and 300- and 400-level Italian courses. This language course begins with a review of grammar basics and includes intermediate and advanced topics (subjunctive, hypothetical sentence, passive voice, etc.)

that students need for success in upper-level courses. The grammar review is conducted in context of contemporary cultural materials, such as web sites, music lyrics, newspapers, and magazine articles. Our readings will illuminate how 'italianità' is continuously reimagined as it embraces, or resists, movements towards greater inclusivity and diversity. More challenging speaking and writing tasks that students will encounter in advanced 300- and 400-level courses are here delivered in manageable pieces, and IT 301 helps students increase their comfort level with the language through reading and writing assignments, conversation, class discussions and presentations. By successfully completing this course, students will feel more confident in their study of Italian and have a smoother transition into upper-level courses.

Prerequisite: IT 3 or IT 20 or permission of instructor
Bachelor of Arts: World Language (All)
Bachelor of Arts: World Lang (12th Unit)
Exceeds 12th Unit of World Language

IT 310: Advancing Conversation

3 Credits

Focusing on intensive oral communication practice, this course is designed to bolster student self-confidence in the use of advanced intermediate speaking skills through vocabulary development, presentations, and oral practice in small and large group discussions on a wide array of conversational topics.

Prerequisite: IT 3 or IT 20 or permission of instructor
Bachelor of Arts: World Language (All)
Bachelor of Arts: World Lang (12th Unit)

IT 320: Global Italy: An Introduction to Italian Culture

3 Credits

This course focuses on cultural, historical, and sociopolitical issues of Italy, with a particular emphasis on contemporary current events, and by utilizing advanced grammatical tools. Students will be exposed to authentic material from books, newspapers, magazines, comics, movies, songs, the web, and they will deal with topical aspects of the Italian culture: not only food, fashion, and family, but also art, graffiti, cinema - as well as current sociopolitical issues such as immigration, racism, integration, LGBTQ rights, and feminism. Evaluation methods include quizzes, exams, current events reviews, class discussions, and oral presentations. This course is in Italian.

Prerequisites: IT 20 or IT 3
Bachelor of Arts: Humanities

IT 325: Italy's Inspiration for Your Life

3 Credits

In this highly interdisciplinary course taught in Italian, students take cues from a selection of Italy's great examples of literature, art, music, science and innovation, design and artisanal goods, political change, etc., to explore their own intellectual and creative potential through participation in class activities, group trips, oral presentations, notebooks in the style of Leonardo da Vinci, and a final project in which students learn a new hobby or skill directly in Italian. Among the class content modules is one on Il movimento Slow Food and the ethics of sustainability within Italian culture today. The course will amplify students' Italian vocabulary in multiple disciplinary areas and will provide the opportunity to work on the

expression of advanced conditional and subjunctive modes to express hopes, fears, and ambitions.

Prerequisite: IT 3 or IT 20 or permission of instructor
Bachelor of Arts: World Language (All)
Bachelor of Arts: World Lang (12th Unit)
Bachelor of Arts: Humanities
General Education: Humanities (GH)
GenEd Learning Objective: Creative Thinking
GenEd Learning Objective: Integrative Thinking

IT 330W: Greatest Books of Italian Literature

3 Credits

A survey of the greatest books of Italian literature (prose, poetry, drama). Time period varies each semester. In Italian. IT 330W Greatest Books of Italian Literature (3) This course is a survey of the greatest books of Italian literature (prose, poetry, drama). Time period varies each semester, and may include early literature (St. Francis, Marco Polo, Dante, Boccaccio, Petrarch, Machiavelli, etc.) or modern authors (Vico, Goldoni, Manzoni, Foscolo, Leopardi, Pirandello, Fo, Calvino, Eco, etc.). Please check with department faculty for current offering. Taught in Italian. Course objectives are to read, discuss, and better understand the enduring relevance of Italy's literary masterpieces, while strengthening linguistic skills in writing (especially), as well as reading, speaking, and listening, through weekly or bi-weekly written reading reactions, critical notebooks, and class discussions/participation. Course is appropriate for students who have successfully completed an intermediate Italian course (such as IT 003 or 020) and counts toward the Italian major (all tracks) and minor. Successful completion of this course may permit further Italian study at the 400-level.

Prerequisite: IT 003 , IT 020 , or permission of program
Writing Across the Curriculum

IT 395: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Prerequisite: prior approval of proposed assignment by instructor
Bachelor of Arts: Humanities

IT 399: Foreign Study-Italian

1-12 Credits/Maximum of 12

Advanced training in Italian language skills.

Prerequisite: IT 003
International Cultures (IL)

IT 412: Theory and Practice of Translation

3 Credits

Advanced practicum in Italian explores the technical, artistic, and practical applications of translation between Italian and American cultures. IT 412 Theory and Practice of Translation (3)(BA) This course meets the Bachelor of Arts degree requirements. This course explores the technical, artistic, and practical applications of translation between Italian and American cultures in wide variety of contexts: literature, technical writing, film subtitling, etc. Taught in Italian. Evaluation consists

of reading quizzes, short translation assignments, class presentation, longer (roughly 10-page) individual final translation project. Prerequisite: Any 300-level course in Italian.

Prerequisite: any 300-level course in Italian
Bachelor of Arts: Humanities

IT 415: Dante

3 Credits

Students read and discuss in Italian selections from Dante Alighieri's *Divine Comedy* with special consideration of the biographical, historical, political, literary, and/or theological ramifications of the poetic masterpiece, and without forgetting its enduring influence today. Critical thinking skills in literary interpretation are rigorously emphasized. Given the sustained examination of Dante's hierarchical ethical scheme and his notion of "contrapasso," credits from this course may be applied to the Paterno Fellows Ethics requirement.

Prerequisite: IT 301 or IT 310 or IT 320 or IT 325 or IT 330W or IT 399 or permission of instructor

Bachelor of Arts: World Language (All)
Bachelor of Arts: World Lang (12th Unit)
Bachelor of Arts: Humanities
Exceeds 12th Unit of World Language

IT 422: Topics in the Italian Renaissance

3 Credits

Topics vary by year and may include "Theories of Love," "Magic, Witchcraft, Alchemy, and the Emergence of Modern Science," etc. IT 422 Topics in the Italian Renaissance (3)(BA) This course meets the Bachelor of Arts degree requirements. In this course students develop their advanced language skills while pursuing study of Italian Renaissance and/or Humanist topics. Topics in Italian Renaissance literature vary by year and may include; "Theories of Love" ; "Magic, Witchcraft, Alchemy, and the Emergence of Modern Science" etc. Check with faculty for current topic. Course may only be taken once for credit. Course counts toward the Italian major and minor. Course taught in Italian. Evaluation methods include two midterms, short reading response papers, class presentation, and final exam. Prerequisite: any 300-level Italian course.

Prerequisite: any Italian course at the 300-level

Bachelor of Arts: World Language (All)
Bachelor of Arts: World Lang (12th Unit)
Bachelor of Arts: Humanities
Exceeds 12th Unit of World Language

IT 430: Italian Children's Literature

3 Credits

This course, conducted in Italian, examines Italian children's books from the post-unification period (1880s) to the present day.

Prerequisite: any 300-level IT course

IT 450: Nineteenth-Century Italian Literature

3 Credits

Italian romanticism, Verismo and neoclassicism, their origin and development in the novel, poetry, and drama.

Prerequisite: any 300-level IT course
Bachelor of Arts: World Language (All)
Bachelor of Arts: World Lang (12th Unit)
Bachelor of Arts: Humanities
Exceeds 12th Unit of World Language

IT 460: Twentieth-Century Italian Literature

3 Credits

Modern and contemporary Italian prose, drama, and poetry.

Prerequisite: any 300-level IT course
Bachelor of Arts: World Language (All)
Bachelor of Arts: World Lang (12th Unit)
Bachelor of Arts: Humanities
Exceeds 12th Unit of World Language

IT 470: Ghosts and Otherworldly Visions in Italy c. 1300-1600

3 Credits

This course explores ghost storytelling and visions of the afterlife in early Italian literature and culture. Motivations for telling ghost stories go far beyond entertaining or inducing fear in an audience. Ghost stories can engage some of the most profound human inquiries, mortality, grief, commemoration, spirituality, ethics, human imagination, and the violations of proper societal behavior. This course will explore such issues in a range of readings (poetry, short stories, diaries, and dialogues), including works by Dante, Boccaccio, Petrarch, Ficino, Machiavelli, and Ariosto. In addition to a foundational survey knowledge and contextualization of some of the greatest works of medieval/Renaissance Italian literature, successful students of this course will receive a deep understanding of the potentials of authorial power and the rhetorical strategies that storytellers use to convince or manipulate the beliefs and emotions of their readers through close study of the primary texts, active in-class discussions, practice in critical interpretation, and individual experiments in the creative composition of spirit narratives. This 3-credit course is taught in English, and no knowledge of Italian is expected.

Prerequisite: 5TH SEMESTER STANDING

IT 475: Modern Italian Literature and Cinema

3 Credits

Focus on silent films, fascism, WWII, Resistance, Neorealism, and reactions against Neorealism. IT 475 Modern Italian Literature and Cinema (3)(BA) This course meets the Bachelor of Arts degree requirements. This course will explore the literary, cultural, and historical backdrops behind a variety of films from Fellini's *The Road*, to one of the greatest spaghetti westerns ever made (Leone's *Once Upon a Time in the West*), to the Oscar winner for Best Foreign Film (Benigni's *Life is Beautiful*). Selected 19th and 20th-century prose texts also trace such issues as the individual's role in society and the use of the imagination in the representation of history. This course aims to provide students with the fundamental tools to read texts and watch films critically and intelligently while presenting an overview of some major themes of Italian culture. Students will be evaluated on three in-class exams, paper outline, final paper, and participation in class discussions/activities/debates. IT 475 is the first interdisciplinary course taught in English at the IT 400 level. The course helps satisfy the Italian minor requirement. It is also good for students who have taken IT 130 and want to know more about 20th-century Italian lit/film/culture without having to do course work

in Italian. IT 475 may also be of particular interest to students of film and media studies, English or comparative literature, religious studies, and history. This course satisfies the Italian minor or bachelor of arts humanities requirements. IT 475 will be offered once a year with 40 seats per offering.

Bachelor of Arts: Humanities

IT 480: Italian Women Writers

3 Credits

Italian women have often been stereotyped as the "Mamma" or the "Nonna" who cooks, prays, and idolizes her sons. Such images do not accommodate the wide variety of experiences and contributions of Italian women throughout history. This seminar explores texts written by women during the 19th, 20th, and 21st centuries in Italy, including autobiography, historical novels, short stories, poetry, children's books, and theater. We consider the political and cultural developments in Italy in these centuries with attention to differences among the various geographic regions and an emphasis on issues of special relevance to women and their changing legal status and social roles. As we approach each creative work, we analyze such issues as: the role of form and genre; the author's use of language and rhetoric; the political, philosophical, and theological questions posed by the text; the ways in which the text responds to the established Italian literary canon; and the text's depictions and uses of history. The course is conducted in English.

Prerequisite: Minimum fifth-semester standing or permission of instructor

Cross-listed with: WMNST 480

IT 485: Italian American Cultural Studies

3 Credits

Italian American Cultural Studies explores the representations and self-representations of Italian Americans that have been produced since the 19th Century in a variety of aesthetic forms. Through analysis of literary and cinematic works, informed by readings in history and sociology, students will refine their critical reading and writing skills while gaining a more informed appreciation of the contributions of Italian Americans to American culture. We consider how gender, sexuality, and class intersect with ethnicity and race in the experience and construction of Italian American identity, and how later generations of Italian Americans remember and represent their heritage. This course fulfills requirements for the major and minor in Italian, and allows students interested in Italian American culture to undertake more in-depth and specialized study than is possible in the 100-level General Education survey offered by the department. Conducted in English.

Prerequisite: Minimum fifth-semester standing or permission of instructor

Bachelor of Arts: Humanities

IT 490: Dante in Translation

3 Credits

Students read and discuss Dante's poetic journey through the afterlife realms of Hell, Purgatory, and Paradise in *The Divine Comedy*. Also featured is his *Vita Nuova*, the account of Dante's love for Beatrice, which he wrote in his 20s. By the end of this course, successful students will have a critically sophisticated understanding of Dante's two most important literary works and the ability to compare Dante's hierarchical

ethical scheme with other ethical paradigms (such as Aristotle's or the American code of justice). Students are invited to practice interpreting texts literally, allegorically, and symbolically; to come to a greater understanding of the demands and rewards of reading a canonical masterpiece of world literature; and to consider the values/morals/responsibilities that shape their lives and ambitions from differing perspectives (religious/spiritual, ethical, legal, cultural). Credits from this course can be used to satisfy a Paterno Fellows Ethics requirement.

Prerequisite: Minimum fifth-semester standing or permission of instructor

Bachelor of Arts: Humanities

IT 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Humanities

IT 494H: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Humanities

Honors

IT 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Bachelor of Arts: Humanities

IT 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Humanities

Japanese (JAPNS)

JAPNS 1: Level One Japanese A

4 Credits

Introduction to modern Japanese; development of audio-lingual facility and ability to read and write Japanese without aid of romanization.

Bachelor of Arts: World Language (All)

JAPNS 2: Level One Japanese B

4 Credits

Continuation of elementary Japanese, with emphasis on improving audio-lingual facility and strengthening reading and writing skills in modern Japanese.

Prerequisite: JAPNS001

Bachelor of Arts: World Language (All)

JAPNS 3: Level Two Japanese A

4 Credits

Continued study of modern Japanese at elementary level; extensive audio-lingual practice for conversational fluency; reading/writing original scripts.

Prerequisite: JAPNS002

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

JAPNS 97: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

JAPNS 99: Foreign Study

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

JAPNS 110: Level Two Japanese B

4 Credits

Intermediate Japanese - Continued study of modern Japanese at intermediate level; extensive audio-lingual practice for conversational fluency; reading/writing original scripts. JAPNS 110 Conversation, Reading, and Composition (3) (IL) (BA) This course meets the Bachelor of Arts degree requirements. The course offers the instruction of intermediate Japanese where students learn how to communicate and express various ideas using the Japanese language. Each chapter includes new essential vocabulary items, grammar patterns, and kanji which enable us to achieve higher overall communicative fluency in Japanese. By the end of the semester, students are able to construct grammatical structures, such as presuppositions, desire, hypothetical condition, causative, completion, regret, etc. The usage of polite expressions of humble and honorific is introduced. Various aspects of Japanese culture and customs are also discussed throughout the semester. This course fulfills the International Cultures requirement.

Prerequisite: JAPNS003

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

International Cultures (IL)

Exceeds 12th Unit of World Language

JAPNS 120: Japanese Literature in Its Cultural Context

3 Credits

Japanese literature and film from classical through contemporary times, with attention to changing cultural settings. Taught in English. This course is intended to provide an introduction to the literature of Japan from the seventh century to the postmodern era. Prior study of Japan is not required and materials will be available in English. Students will learn about major eras of Japanese literature and culture, such as the age of the Man'yōshū, the age of the Genji monogatari (The Tale of Genji), the age of No and Kyogen, the age of Wit and Learning, the age of Meiji, the age of industrialization, the postwar years, and postmodernity. The readings will include several genres, such as poetry, folktale, short story, and novel, with an emphasis on prose fiction. The course is structured so that students develop a historical/cultural perspective in order to understand the contexts that have inspired the literary works. By examining literature in its cultural contexts, students will investigate such topics as the relation between social institutions and the individual, the traditional patriarchal system, the changing roles of women, westernization, the Emperor system, and postmodern consumer culture, among others. Students will read literature and related materials from different periods, with occasional presentations of films. Class work includes some lecture but emphasizes guided discussions, group discussions, and student presentations. This participatory approach is intended to deepen appreciation of the texts, to help students understand value systems that may differ from, or else be shared with, those predominant in modern Western cultures, and to assist them in developing both analytical and expressive abilities. The course is designed to be suitable for all students generally interested in Japan, or interested in various fields of humanistic study, whether or not they have previously studied the culture of Japan.

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

JAPNS 120W: Japanese Literature in its Cultural Context

3 Credits

Japanese literature and film from classical through contemporary times, with attention to changing cultural settings. Taught in English. JAPNS 120W Japanese Literature in its Cultural Context (3) (GH;IL) (BA) This course meets the Bachelor of Arts degree requirements. This course is intended to provide an introduction to the literature of Japan from the seventh century to the postmodern era. Prior study of Japan is not required and materials will be available in English. Students will learn about major eras of Japanese literature and culture, such as the age of the Man'yōshū, the age of the Genji monogatari (The Tale of Genji), the age of No and Kyogen, the age of Wit and Learning, the age of Meiji, the age of industrialization, the postwar years, and postmodernity. The readings will include several genres, such as poetry, folktale, short story, and novel, with an emphasis on prose fiction. The course is structured so that students develop a historical/cultural perspective in order to understand the contexts that have inspired the literary works. By examining literature in its cultural contexts, students will investigate such topics as the relation between social institutions and

the individual, the traditional patriarchal system, the changing roles of women, westernization, the Emperor system, and postmodern consumer culture, among others. Students will read literature and related materials from different periods, with occasional presentations of films. Class work may include both lectures and guided discussions, group discussions, and students' presentations. This participatory approach is intended to deepen students' appreciation of the texts, to help them understand value systems that may differ from, or else be shared with, those predominant in modern Western cultures, and to assist students in developing both analytical and expressive abilities. The course is designed to be suitable for all students generally interested in Japan, or interested in various fields of humanistic study, whether or not they have previously studied the culture of Japan.

Bachelor of Arts: World Cultures
International Cultures (IL)
General Education: Humanities (GH)
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Global Learning
Writing Across the Curriculum

JAPNS 121N: Japanese Film and New Media

3 Credits

Survey of Japanese film and new media in the twentieth century and beyond, with attention to changing cultural settings. Taught in English. JAPNS 121N Japanese Film and New Media (3) (GH;GA;IL) (BA) This course meets the Bachelor of Arts degree requirements. This course is intended to provide an introduction to modern and cutting-edge forms of cultural production in Japan from the twentieth century to the present day. Prior study of Japan is not required and materials will be available in English. Students will learn about major technologies and forms of media, including film, manga, anime, and various forms of new media (cell-phone novels, blogs, MMOGs, IM, and Web 2.0 for instance). Readings and screenings will cover several artistic modes including formalism, historiography, documentary, period drama, and experimental works. The course, or individual units within the course, will be structured so that students develop an historical perspective, allowing them to understand the cultural contexts that have inspired the creative works under study. By examining Japanese film and new media with attention to changing cultural settings, students will investigate such topics as the relation between social institutions and the individual, the formation and expression of identity, changing gender roles and family structures, the impact of technological and economic trends on social structure, and changing climates of censorship and freedom of expression. In addition, students will learn to think critically about various media's techniques and aesthetics of representation, and will become more engaged, critical spectators of film and related media. Class work includes some lecture but emphasizes guided discussions, group work, writing exercises, and some student presentations. This participatory approach is intended to deepen students' appreciation of the works, to help them understand value systems that may differ from those predominant in western cultures, and to assist students in developing both analytical and expressive abilities. Through critical reading, group discussion and interpretive writing, students will hone skills for evaluating modes of cultural production and consumption in modern Japan. The course is designed to be suitable for all students generally interested in Japan, or interested in various fields of humanistic study, whether or not they have previously studied the culture of Japan.

Bachelor of Arts: Arts
Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures
International Cultures (IL)
General Education: Arts (GA)
General Education: Humanities (GH)
General Education - Integrative: Interdomain
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Key Literacies

JAPNS 121Q: Japanese Film and New Media

3 Credits

Survey of Japanese film and new media in the twentieth century and beyond, with attention to changing cultural settings. Taught in English. JAPNS 121Q Japanese Film and New Media (3) (GH;IL) (BA) This course meets the Bachelor of Arts degree requirements. This course is intended to provide an introduction to modern and cutting-edge forms of cultural production in Japan from the twentieth century to the present day. Prior study of Japan is not required and materials will be available in English. Students will learn about major technologies and forms of media, including film, manga, anime, and various forms of new media (cell-phone novels, blogs, MMOGs, IM, and Web 2.0 for instance). Readings and screenings will cover several artistic modes including formalism, historiography, documentary, period drama, and experimental works. The course, or individual units within the course, will be structured so that students develop an historical perspective, allowing them to understand the cultural contexts that have inspired the creative works under study. By examining Japanese film and new media with attention to changing cultural settings, students will investigate such topics as the relation between social institutions and the individual, the formation and expression of identity, changing gender roles and family structures, the impact of technological and economic trends on social structure, and changing climates of censorship and freedom of expression. In addition, students will learn to think critically about various media's techniques and aesthetics of representation, and will become more engaged, critical spectators of film and related media. Class work variously includes lecture, guided discussions, group work, writing exercises, and some student presentations. This participatory approach is intended to deepen students' appreciation of the works, to help them understand value systems that may differ from those predominant in western cultures, and to assist students in developing both analytical and expressive abilities. Through practice such as critical reading, group discussion and interpretive writing, students will hone skills for evaluating modes of cultural production and consumption in modern Japan. The course is designed to be suitable for all students generally interested in Japan, or interested in various fields of humanistic study, whether or not they have previously studied the culture of Japan.

Bachelor of Arts: Arts
Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures
International Cultures (IL)
General Education: Arts (GA)
General Education: Humanities (GH)
General Education - Integrative: Interdomain
Honors
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

JAPNS 122: Gods to Godzilla: A Survey of Japanese Culture

3 Credits

This course will examine the formation of Japanese culture through the lens of exchange and adaptation. Seeking to examine our understanding of "Japan" and "culture," the course will explore the interplay between culture and identity, with the Japanese experience providing a viewpoint that differs from the standard Western-centric narrative in important ways. Focusing primarily on cultural studies and history, we will also consider not only how the world influenced Japan, as is the standard narrative, but also, how Japanese culture impacted other cultures, both near and far, as the country emerged from being an obscure Asian island to a cultural superpower at the beginning of the 21st century.

Cross-listed with: ASIA 122

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

JAPNS 172: Introduction to Japanese Civilization

3 Credits

This course surveys the development of civilization in Japan from ancient times to the present. Among the key goals of this course is to discuss what is distinctive about "Japanese civilization." As a survey of Japan it includes topics such as external relations and cultural exchanges with Japan's neighbors and the world more broadly; the nature of indigenous beliefs, Shinto and Buddhism; the making of the Japanese bureaucratic state and gentry society; the rise of the commercialized economy; the growth of Japanese culture; Tokugawa Japan, It offers a basic knowledge of the cultural, political, economic, artistic and historical background of this vital region of the world.

Cross-listed with: ASIA 172, HIST 172

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

JAPNS 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

JAPNS 199: Foreign Study--Basic Japanese

1-8 Credits/Maximum of 8

Small group instruction in spoken and written modern Japanese at the introductory level.

International Cultures (IL)

JAPNS 210: Extensive Reading in Japanese

1.5 Credits/Maximum of 12

This course consists of reading Japanese books without translation or grammar instruction in and outside of class. Students will choose books from a selection provided by the instructor, beginning at a lower level and moving gradually to higher levels under the instructor's supervision. Books may include an audio component. The instructor will select appropriate reading materials and organize them by levels, then constantly monitor students' reading behavior, occasionally giving suggestions and regularly consulting with students. The idea of this class is to learn incidentally, by encountering new words and grammatical patterns that can be understood based on context, and by reinforcing existing knowledge through increased familiarity. The emphasis is on learning the way of reading that allows you to enjoy the content of authentic but carefully selected reading materials. The course will help students develop a habit of reading at a designated time and place. Using language skills acquired in the classroom as a real communication tool will encourage use of Japanese beyond the classroom.

Prerequisite: JAPNS002

Bachelor of Arts: World Cultures

International Cultures (IL)

JAPNS 295: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Prerequisite: prior approval of proposed assignment by instructor

JAPNS 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

JAPNS 296A: Independent Studies

1-18 Credits

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

JAPNS 296B: Independent Studies

1-18 Credits

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

JAPNS 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

JAPNS 299: Foreign Study--Intermediate Japanese

1-12 Credits/Maximum of 12

Small group instruction in spoken and written modern Japanese at the intermediate level.

Prerequisite: JAPNS002
International Cultures (IL)

JAPNS 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

JAPNS 399: Foreign Study

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

JAPNS 401: Level Three Japanese A

4 Credits

Further acquisition of the four language skills in Japanese--reading, writing, speaking and listening comprehension. JAPNS 401 Advanced Conversation (4) (IL) (BA) This course meets the Bachelor of Arts degree requirements. This course aims to enhance students' abilities in speaking, listening, reading, and writing. The objectives in this course are: 1) to review, reinforce, and expand the basic grammar; 2) to expand knowledge of Kanji, vocabulary and idioms; 3) to be able to speak not only in single sentences, but in dialogues to perform basic communicative functions; 4) to be able to read and understand simple essays and stories; 5) to be able to write a short composition; and 6) to be able to type Japanese on the computer.

Prerequisite: JAPNS110
Bachelor of Arts: World Language (All)
Bachelor of Arts: World Lang (12th Unit)
International Cultures (IL)
Exceeds 12th Unit of World Language

JAPNS 402: Level Three Japanese B

4 Credits

Exclusively for study abroad returnees. To further develop Japanese proficiency in speaking, listening, reading, and writing. JAPNS 402 Advanced Reading (3) (IL) (BA) This course meets the Bachelor of Arts degree requirements. This class is offered exclusively to students who have studied abroad in Japan. Only primary multimedia sources (i.e., not a text book) will serve as course materials. Five classes a week will consist of reading session, multimedia presentation, and high level discussion. Intensive analysis and class discussion of multimedia materials will provide the student the opportunity to develop advanced ability to understand, construct, and express opinions and complex verbal concepts in appropriate contextual forms/modes.

Prerequisite: JAPNS401
Bachelor of Arts: World Language (All)
Bachelor of Arts: World Lang (12th Unit)
Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures
International Cultures (IL)
Exceeds 12th Unit of World Language

JAPNS 403Y: Level Four Japanese A

4 Credits

Continuation of JAPNS 402. Aims to improve students' proficiency in all four language skills, with a special emphasis on writing. JAPNS 403Y Level Four Japanese A (4) (IL) This is a four credit course designed for those who have completed Level Three Japanese B or the equivalent. The course aims to further develop students' proficiency in all four language skills, with a special emphasis on writing. Students will study several topics such as Japanese society and Japanese literature for content-based language learning throughout the semester. For each topic variety of media will be used -newspaper articles, essays, short stories, TV programs, movies, etc. The majority of reading and writing assignments will be done outside class, with some guidance from the instructor. That will help students become more independent in studying Japanese. They will use appropriate resources such as dictionaries, reference books, online dictionaries and other online resources depending on their individual needs. Class time will be used mainly for discussions of content, feedback on writing, and presentations by students. All class activities will be conducted in Japanese. Writing exercises include short response papers on topics and summaries of literary pieces or audio visual materials. In the response papers students will reflect more deeply on certain topics, synthesize information from course materials, express their opinions, and support ideas by referring to and citing from source texts. This will help students be prepared for a longer thesis in the next course in the sequence. Discussion on the summaries will cultivate sensitivity toward words and expressions. The course will help students start building their career in Japanese. Students will familiarize themselves with and if they wish study for the Japanese Language Proficiency Test (Level N2). They will also write a resume and formal letters that could be used in job applications and practice formal spoken communication in business settings.

Prerequisite: JAPNS402
International Cultures (IL)
Writing Across the Curriculum

JAPNS 404: Level Four Japanese B

4 Credits

Continuation of JAPNS 403Y. Aims to improve students' proficiency in all four language skills through content-based language learning. JAPNS 404 Level Four Japanese B (3)(IL) This is a four credit course designed for those who have completed Level Four Japanese A or the equivalent. The course aims to further develop students' proficiency in all four language skills. Students will study several topics such as Japanese popular culture and issues in contemporary Japan for content-based language learning throughout the semester. For each topic variety of media will be used -newspaper articles, essays, short stories, TV programs, movies, etc. The majority of reading and writing assignments will be done outside class, with some guidance from the instructor. That will help students become more independent in studying Japanese. They will use appropriate resources such as dictionaries, reference books, online dictionaries and other online resources depending on their individual needs.

Prerequisite: JAPNS403Y

International Cultures (IL)

JAPNS 410: Japanese Through Manga

3 Credits

The course aims to expand students' knowledge and application of Japanese language beyond elementary and intermediate textbooks through the use of manga (graphic novels). JAPNS 410 Japanese Through Manga (3) (IL)(BA) This course meets the Bachelor of Arts degree requirements. This course is a three credit course designed for those who wish to expand their knowledge in Japanese and application of it beyond typical elementary and intermediate textbooks. The course will use manga, the format of which helps students understand the story line, the setting, and the thoughts and emotions of the main characters. Given quick interactions between manga characters and onomatopoeia that accompany pictures, students will learn natural daily communications of Japanese. Class discussions will also cover relevant customs, manners, cultural values, socio-historical context, and social perspectives along with language use. The exact texts will vary from instructor to instructor, and may include film and new media in addition to a primary focus on manga. The course will serve as a gateway to the further exploration of Japanese authentic texts and audio visual materials. The prerequisite is JAPNS 110. Students who have successfully completed JAPNS 110, JAPNS 401, or JAPNS 402 are encouraged to take the course. Students who have finished JAPNS 403Y or JAPNS 404 may also take the course.

Prerequisite: JAPNS110 or equivalent
Bachelor of Arts: World Cultures
International Cultures (IL)

JAPNS 426: Early Modern Japan

3 Credits

Japanese history from 1580-1880. ASIA 474 (HIST 474, JAPNS 426) Early Modern Japan (3) Japan's Tokugawa period can be difficult to grasp. It resembles a modern society in many respects but operated according to a logic of social organization different from that of most modern states. There was a collective sense of national identity, but its characteristics differed significantly from modern forms of Japanese identity. Moreover, modern ideologies have contributed to the characterization of early modern Japan as a rigid society and of the country as a whole having been isolated from the rest of the world. The main purpose of this course is to afford students the opportunity to study early modern Japan in detail and, insofar as possible, on its own terms. Through readings in primary and secondary sources, and through the evaluation of visual images, this seminar-style course will deepen students' knowledge of Japan and serve as basis for comparative study of other early modern societies. Although the course investigates classic areas of historical study such as institutional development and foreign relations, the emphasis is on social and environmental history. The course encourages students to think about a range of approaches to the past and to think about the ways our contemporary biases influence the ways we understand the past.

Prerequisite: HIST 172 , HIST 174 , JAPNS120 or JAPNS121
Cross-listed with: ASIA 474, HIST 474

JAPNS 430: Japan in the World

3 Credits

Study of Japan's foreign relations and position in the international community from the early 19th century to the present. ASIA (JAPNS) 430 Japan in the World (3) (IL)(BA) This course meets the Bachelor of Arts degree requirements. This course will examine Japan's foreign relations and changing position in the international community, from the rethinking of relations with the Western world in the early nineteenth century to its emergence as a pop culture superpower in the present day. The course will explore the structures of international relations, such as imperialism and international organizations, with the Japanese experience providing a viewpoint that differs from the standard Western-centric narrative in important ways. We will also consider the development of alternative methods of diplomacy, including cultural exchange and economic and technical assistance.

Prerequisite: JAPNS 120; JAPNS 121; ASIA 100; ASIA 101; ASIA 102; ASIA 105; ASIA 172; ASIA 175; ASIA 185; HIST 172; HIST 175; HIST 185; 5th Semester standing
Cross-listed with: ASIA 430
Bachelor of Arts: World Cultures
International Cultures (IL)

JAPNS 431: Courtyly Japan

3 Credits

Focused study of aristocratic society and culture of Heian period Japan. JAPNS 431 (ASIA 431) Courtyly Japan (3) (IL)(BA) This course meets the Bachelor of Arts degree requirements. The Heian period of Japanese history saw the apex of a refined court culture. Through readings of primary and secondary sources, this seminar-style course will explore the activities, norms, and structures of courtly society in Japan, from the centralization of imperial power in the 8th century through the court's political marginalization in the late 12th century. We will pay particular attention to religion, the arts, politics and governances, gender, and the gradual rise of samurai power in the shadows of the court. This course is intended to provide an introduction to the political, social, economic, and cultural life of the Heian court of ancient Japan. The goals of the class are not only to gain an understanding of a time and place far removed from our own, but also to develop the skill of building such an understanding through primary and secondary sources, both written and visual. Students in this class will take on the role of historian or literary critic themselves, thinking critically about assigned texts and making their own interpretations of their meanings. Through reading, discussions, and writing, students will enhance their ability to think critically and to express their ideas clearly in both speech and writing. The course is intended to deepen student's appreciation of the cultural production of ancient Japan, to help them understand value systems that may differ from those predominant in western cultures, and to assist students in developing both analytic and expressive abilities. The course is designed to be suitable for all students generally interested in Japan or in various fields of humanistic study.

Cross-listed with: ASIA 431
Bachelor of Arts: World Cultures
International Cultures (IL)

JAPNS 432: War and the Warrior in Japan

3 Credits

Survey of the role of warfare and the warrior in Japan, with attention to changing cultural settings. Taught in English. JAPNS 432 (ASIA 432) War and the Warrior in Japan (3) (IL) This course is intended to provide an introduction to the social and historical roles of warfare, and the changing cultural figure of the warrior, in Japan. Some prior study of Japan (JAPNS 120 or JAPNS 121 or HIST 172) is required. All materials will be available in English. Students will learn about subjects like the causes of violence, culturally acceptable ways of resolving conflict, obligations of victor toward vanquished, expectations regarding the memory of the war dead, the ideal of the warrior as a cultural figure, and historical roles that Japanese warriors have played in ages of peace. Readings and screenings will cover several genres, such as film, historiography, history, documentary, classical epic, modern novel, and excerpts from Japanese history textbooks (in translation). The course, or individual units within the course, will be structured so that students develop an historical perspective, allowing them to understand the cultural contexts that have generated attitudes toward war and the warrior in Japan. In addition, students will learn to think critically about various media's techniques and aesthetics of representation, and will become more engaged, critical investigators of literature and related media. Readings and in-class discussion will focus on the image of the warrior as a cultural icon, exploring the many ways in which popular understandings of the warrior have changed over time, for instance, as popularized dramatics began to idealize warriors as moral exemplars in the late medieval period, and then as historical realities made the position of the warrior itself redundant in the early modern era. Class work includes some lecture but emphasizes guided discussions, group work, writing exercises, and some student presentations. This participatory approach is intended to deepen students' appreciation of the works, to help them understand value systems that may differ from those predominant in western cultures, and to assist students in developing both analytical and expressive abilities. Through critical reading, group discussion and interpretive writing, students will hone skills for evaluating modes of cultural production and consumption in premodern and modern Japan. Evaluation will be through means such as in-class presentations, short writing assignments, midterms or quizzes, one analytic paper (3-7 pages), and in-class/on-line participation and discussion. The course is designed to be suitable for all students generally interested in Japan, or interested in various fields of humanistic study.

Prerequisites: ASIA 4; ASIA 100; ASIA 101; ASIA 102; ASIA 104; ASIA 172; ASIA 174; ASIA 175; ASIA 185; CMLIT 4; HIST 172; HIST 174; HIST 175; HIST 185; JAPNS 120; JAPNS 121; RLST 104; 5th Semester standing

Cross-listed with: ASIA 432

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

JAPNS 434: Beyond Anime

3 Credits

The visual, tactile, and literary arts play key roles in how modern nation-states make sense of themselves and how they make sense of other nations. Japan provides one key example through which to observe the use and function of art to create not only the image and identity of a nation and national culture, but also the image and identity of other national cultures. In recent years, Japanese popular culture has been

reborn around the world. A global generation has grown up watching anime and reading manga in Spanish, Chinese, Russian, and English. Beyond Anime is designed to contextualize the recent appropriation and dissemination of Japanese popular culture through the cyclical history of such appropriations through the modern period. In this way, the course will explore the precursors, antecedents, and contexts to our present cultural moment. Through film, photography, posters, matchbook-labels, textiles, industrial design, novels, and myriad other popular media, this seminar-style study of Japanese popular visual culture will help students see Japanese visual arts in terms that are local to Japanese aesthetics and through those that transcend local cultures. Drawing on the long history of illustrated narrative from scrolls to chapbooks, through film and photo essay, this course confronts the exoticist notion that Japan's arts have always placed a disproportionately heavy emphasis on the visual. Through comparative readings of cultural and visual material from Japan, this course will raise questions of aesthetic, cultural, and national difference. Specific topics will vary with instructor, but may include: the rendering of three dimensional space through perspective, the use of pictures in the service of narrative versus the use of pictures as narrative, and how notions of negative space promise deep insight and risk cross stereotypes.

Prerequisite: ASIA 4; ASIA 100; ASIA 101; ASIA 102; ASIA 104; ASIA 172; ASIA 174; ASIA 175; CMLIT 4; HIST 172; HIST 174; HIST 175; JAPNS 120; JAPNS 121; RLST 104; 5th Semester standing

Cross-listed with: ASIA 434

Bachelor of Arts: World Cultures

International Cultures (IL)

JAPNS 452: Contemporary Japan: Cultures, Lifestyles, Trends

3 Credits/Maximum of 6

Survey of aspects of modern Japanese society; includes readings from Japanese newspapers, magazines, and fiction; topics may vary each semester. JAPNS 452 Contemporary Japan: Cultures, Lifestyles, Trends (3 per semester/maximum of 6) (IL) (BA) This course meets the Bachelor of Arts degree requirements. This course orients students to cultural issues and trends in contemporary Japan, and the way that those issues and trends are explored in literature, film, newspapers and magazines. The course examines a selection of Japanese-language materials from an array of genres, modes of representation, and historical settings. Focusing on the postwar era to present (1945-), this course introduces various aspects of contemporary Japanese culture, from literary works of the postwar experience to recent popular culture, including anime (animated movies) and manga (graphic novels). Each work is discussed in terms of its own literary or artistic merit, the social context that produced it, its position within the larger trends of literary development in Japan, and its relevance for the modern reader. This course is designed for (prospective) Japanese major or minor students interested in broadening their knowledge of Japanese culture and society as well as for students who wish to compare other cultures and literatures they have studied with those of Japan.

Prerequisite: JAPNS401

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

International Cultures (IL)

Exceeds 12th Unit of World Language

JAPNS 453: Japanese Film

3 Credits/Maximum of 6

Selected films and directors representing various aspects of Japanese culture and cinema; topics may vary each semester. JAPNS 453 Japanese Film (3 per semester/maximum of 6) (IL) (BA) This course meets the Bachelor of Arts degree requirements. This class will be a seminar-style study of Japanese culture, texts, and language as seen through the lens of Japanese cinema. The goal is to deepen the students' understanding of diverse aspects of Japanese life, history, and culture while developing language skills. Typical class sessions may involve watching sections of film (with or without English subtitles); working with listening comprehension; engaging with student presentations (in Japanese) on studios, directors, or actors; discussing Japanese film history; and analyzing film stills for aesthetic qualities. Participants will be required to view and discuss films in Japanese (with or without English subtitles). Viewing's will be accompanied by secondary readings (at least some of which may be in Japanese). We will also be discussing the films and readings in the context of nation, identity, history, sociology and culture. Exercises will range from group discussion, web-based research in Japanese and English, presentations, essays and film analysis. Students must prepare for class by reading the material carefully, taking notes, writing down questions, and being ready to take part in lively conversations. Course discussion will take place primarily or exclusively in Japanese. This course satisfies the International Cultures requirement.

Prerequisite: JAPNS401

Bachelor of Arts: World Language (All)
Bachelor of Arts: World Lang (12th Unit)
International Cultures (IL)
Exceeds 12th Unit of World Language

JAPNS 454: Japanese Literature

3 Credits/Maximum of 6

Selected works from important Japanese texts representing genres such as autobiography, poetry, fiction, and drama; topics may vary each semester. JAPNS 454 Japanese Literature (3 per semester/maximum of 6) (IL) (BA) This course meets the Bachelor of Arts degree requirements. This class will be a seminar-style study of contemporary Japanese literature. The goal of the course is to help students move from grammar-assisted reading assignments (which may provide vocabulary lists, grammar notes, and cultural notes) to reading 'raw' materials in Japanese, where students are responsible for knowing how to use the appropriate reference materials so that they can compile vocabulary lists, grammar notes, and cultural notes on their own. Students will be reading selected works from an array of genres such as autobiography, poetry, fiction, drama and essays, with topics and thematic focuses varying from semester to semester. Typical class sessions may involve reading aloud from a literary work; engaging with student presentations (in Japanese) on authors, genres, thematic elements, and relevant historical or cultural events; discussing Japanese literary history; analyzing short passages for their aesthetic qualities; and working with specific items of grammar or vocabulary. Participants will be required to read and discuss Japanese literature in Japanese. Exercises will range from group discussion, web-based research in Japanese and English, presentations, essays, quizzes and tests. Students must prepare for class by reading the material carefully, taking notes, writing down questions, and being ready to take part in lively conversations. Course discussion will take place primarily or

exclusively in Japanese. This course satisfies the International Cultures requirement.

Prerequisite: JAPNS401

Bachelor of Arts: World Language (All)
Bachelor of Arts: World Lang (12th Unit)
International Cultures (IL)
Exceeds 12th Unit of World Language

JAPNS 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

JAPNS 494H: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Honors**JAPNS 496: Independent Studies**

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

JAPNS 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

JAPNS 498: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

JAPNS 499: Foreign Study--Advanced Japanese

1-15 Credits/Maximum of 15

Small group instruction in spoken and written modern Japanese at the advanced level.

Prerequisite: JAPNS110 or JAPNS299

International Cultures (IL)

Jewish Studies (JST)

JST 4: Jewish and Christian Foundations

3 Credits

This course seeks to help students better understand the Bible and appreciate its role as an authoritative collection of sacred texts for Jews and Christians. The Bible is a difficult book, one that is demanding on many levels. In order to read the Bible intelligently, it is important to understand the historical and cultural backgrounds of the biblical

writings. This course explores the history and geography of ancient Near Eastern civilizations that shaped the experience of ancient Israel and, later, the Greek and Roman imperial contexts that shaped Second Temple Judaism and early Christianity. The focus of the course, however, is on the biblical narrative itself and the particular ways that the story of Israel and its covenant with God was represented in scripture: in tales, poems, hymns, dialogues, and genealogies. A basic goal of the course, then, is to promote intelligent, well-informed reading of the Bible. Also important is the willingness to read the Bible closely and critically, with a view toward larger questions raised by biblical texts: how is God to be known and understood? What is the purpose of human life in the world? What moral obligations ought to structure our common life? Does human history have direction and purpose? What is the good and how do we follow it? The Bible takes up these questions and many more. Though an ancient anthology shaped by the succession of Assyrian, Babylonian, Persian, Hellenistic, and Roman empires, the Bible is not merely a product of its original contexts. Millennia of transmission and interpretation have made it a product of history in a much more extended and dynamic sense. In this course, we will examine larger questions raised by the biblical writers and consider the ways that the Bible has shaped, informed, and guided Jewish and Christian ways of life.

Cross-listed with: CAMS 4, RLST 4

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

JST 10: Jewish Civilization

3 Credits

This course explores the life of the Jewish people from Biblical times on, emphasizing cultural, religious, and institutional developments. HEBR 10 / HST 10 Jewish Civilization (3) (GH;IL)(BA) This course meets the Bachelor of Arts degree requirements. Jewish tradition goes back thousands of years, and Jews have resided in many different lands. They have become an integral part of many different cultures, yet have often retained (or been forced to retain) a certain degree of separateness or difference. In this course we will trace continuity and change in Jewish traditions from ancient to modern times, and across different regions. Taking into account inter-cultural contact and historical events -- ranging in place from the Middle East to Muslim Spain to Asia, Africa, Europe, and the Americas, and in time from the ancient world to the medieval era, the Holocaust, and contemporary Israel and the U.S. -- we will explore developments in Jewish history, literature, and culture. The course considers topics such as the attitudes other groups have had toward Jews (and vice-versa), the question of whether Jewish identity is a race, a religion, or an ethnicity, the dilemmas Jews face today, and the ways that Jews in many diverse settings have balanced change and continuity. We will explore the factors that shape Jewish experience in different times and places, the diversities within and among Jewish lifestyles, and the ways in which events and interactions with other peoples have influenced the development of Jewish civilization. Finally, we will consider the dilemmas Jews face today in terms of the preservation of their identity and traditions. The course includes class discussion. Students are

evaluated on the basis of, essay exams, quizzes, in-class discussion and commentaries, and group projects.

Cross-listed with: HEBR 10

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

JST 12N: Lands of the Bible

3 Credits

Utilizing the textual and archaeological evidence, this course introduces students to the lands, cultures, and peoples associated with the Hebrew Bible, New Testament, and Qur'an. Geographically, the lands of the Bible encompass what is often referred to as the Cradle of Civilization or Fertile Crescent - an arc-shaped region defined by the Nile, Jordan, Tigris and Euphrates river valleys. Today this crescent includes the modern countries and regions of Egypt, Israel, the Palestinian territories, Jordan, Syria, southeastern Turkey, and Iraq. Spanning ten millennia of history (ca. 9000 BCE-750 CE), this course explores a series of landmarks in the history of human development, which are considered together with Jewish, Christian, and Islamic traditions. These include the birth of religion and the agricultural revolution (Garden of Eden), the first cities and the invention of writing (Tower of Babel; Patriarchal/Matriarch traditions), Egyptian imperial rule in Canaan (Exodus), the collapse of the Bronze Age (Emergence of Israel), impact of empire (united and divided kingdoms of Israel and Judah), Alexander the Great and the Roman imperial expansion to the east (world of Jesus and development of rabbinic Judaism), Byzantine Palestine (expansion of Christianity), and the Islamic conquest of the Holy Land. Through an integration of numerous disciplines, including historical geography, archaeology, ancient history, biblical studies, epigraphy, and anthropology, students will investigate the interaction between the cultures of the ancient Near East and the religious traditions that developed in the lands associated with the Bible, a relationship that continues to shape the region and the world until today.

Cross-listed with: CAMS 12N, RLST 12N

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

JST 60N: Society and Cultures in Modern Israel

3 Credits

Israel is often portrayed in media and popular society in incomplete or distorted terms. In some cases, it is presented as a troubled, violent, dangerous place, as a place permeated by long-standing hatred between Jews and Muslims, Israelis and Arabs, Israelis and Palestinians. In

others, the focus is on the state's role as the center of Judaism—a home of the "chosen people" and the source of inspiration for one of the world's great monotheistic religions. Some present it as a model for how a democracy can succeed under trying demographic, historic, and geopolitical circumstances. Others frame Israel as a place of conflagration (armageddon) that will usher in a messianic period or as a nation-state with a discriminatory regime that privileges its majority population over its minority and administers oppressive policies over Palestinians in the occupied territories it captured in the 1967 War. While there are elements of truth in each of these presentations, the full picture of Israeli society is much richer and more complex. This course teaches students to cut through the mythology, and develop a more accurate understanding of what Israel is in the 21st century. Since Israel is a culturally, ethnically, and religiously diverse society, it is only possible to understand the true nature of modern Israel through exploring the many sub-groups that comprise the Israeli citizenry. The course looks at Ashkenazi and Mizrahi Jews (both religious and secular), Muslim and Christian Palestinian Arab citizens of Israel, Ethiopian-Israelis, Russian-Israelis, Bedouins, and Druze. For each group, it looks at demographics, background histories, migration patterns, institutions, cultural norms, values, and practices. We will look at what is important to each group, how they see and organize themselves, and how they understand and experience the world around them. The course aims to convey an understanding of the geographic, demographic, and social-historical context in which Israelis live as well as the diversity of Israeli culture. Students will be challenged to be critical readers of Israeli society and the way it is represented and to strive for measured, evidence-based analyses.

Cross-listed with: ANTH 60N, PLSC 60N, SOC 60N
International Cultures (IL)
General Education: Humanities (GH)
General Education: Social and Behavioral Sciences (GS)
General Education - Integrative: Interdomain
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Key Literacies

JST 70: Prophecy in the Bible and the Ancient Near East

3 Credits

This course will introduce students to the prophetic traditions of the Bible and the Ancient Near East. The course will explore the development of prophetic circles in the ancient Near East (including Egypt, Syria-Palestine, and Mesopotamia), and then focus on the major prophetic traditions of the Hebrew Bible (e.g., the books of Isaiah, Jeremiah, Ezekiel, Amos, Hosea, Micah, Haggai, Zechariah, and Daniel). It will also look at how these traditions were understood in early Judaism and nascent Christianity. Special attention will be paid to the roles of priests, kings, and prophets in ancient Israel to better understand Israelite and Judaean prophetic traditions in ancient Israelite society. The course will then examine the rise of apocalypticism and its medieval and modern manifestations including a brief look at Islam. Additional emphasis will be placed on the religious and political interactions which manifest themselves in prophetic movements - then and now - including the rhetoric of ideology and propaganda. Important figures and events illustrate these cultural and political trends.

Cross-listed with: CAMS 70, RLST 70
International Cultures (IL)
General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Critical and Analytical Think
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Key Literacies

JST 83: First-Year Seminar in Jewish Studies

3 Credits

Critical approaches to the history, sociology, and literature of Jewish Studies. JST 83 First-Year Seminar in Jewish Studies (3) (GH;FYS;IL)(BA)
This course meets the Bachelor of Arts degree requirements. Through a combination of readings, lectures, discussions, and research projects, students will learn to master the subject material of the course and acquire basic skills important to the study of humanities. Students will learn to read academic books, as well as original documents, to formulate arguments, and to write analytical essays and papers. Analyses of this type will provide students with techniques for formulating, identifying, and judging academic arguments and presentations in many fields of learning other than Jewish Studies. The topics chosen for these seminars will introduce students to some of the major figures, historical, literary, religious, and sociological developments in Jewish Studies. By concentrating on these topics, the students will better understand the cultural assumptions of different groups and societies. Although the course will focus on a specific topic, the instructor will aid the student in seeing the larger implications of the issues and controversies discussed in the class. The international and intercultural aspects of the topic will consistently be considered. The course will require students to express their ideas as well as to gather information through research, discussion, and writing. It will consistently challenge students to consider social behavior, the nature of the community, and the value of scholarly work as these relate to the particular topic of the seminar. The course fulfills the first-year requirement, as well as one of the humanities requirements in general education or a Bachelor of Arts humanities requirement. The first-year seminar will be offered twice per year with an enrollment limit of 20 per section.

Bachelor of Arts: Humanities
International Cultures (IL)
First-Year Seminar
General Education: Humanities (GH)
GenEd Learning Objective: Critical and Analytical Think
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Key Literacies
GenEd Learning Objective: Soc Resp and Ethic Reason

JST 90: Jerusalem: Past, Present, and Future

3 Credits

Jerusalem, a city sacred to Judaism, Christianity, and Islam, is often depicted as the spiritual and physical center of the world. Throughout its 5000-year history, Jerusalem has attracted diverse cultures, empires, and peoples who have vied for control of this holy city. Jerusalem: Past, Present, and Future surveys the cultural, religious, political, archaeological, and historical record of Jerusalem, beginning with its earliest settlement during the third millennium BCE; through its expansion as a second millennium Canaanite urban center; its role as the capital of Israel and Judah during the first millennium BCE biblical periods; the influence of the Egyptian, Assyrian, Babylonian, Persian, Hellenistic, Roman, Byzantine, Crusader, Mamluk, and Ottoman empires; and its development under Jewish, Christian, and Islamic control. The

significance of Jerusalem's past, its impact on contemporary society and politics in the modern Middle East, and differing visions for this contested city's future are examined in light of various interpretations of the textual and archaeological evidence.

Cross-listed with: CAMS 90, RLST 90

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

JST 97: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

JST 102: Canaan and Israel in Antiquity

3 Credits

This course is an overview of the ancient history and cultures of Canaan (the Mediterranean Levant of Syria-Palestine) and the emergence of Israel. It involves a critical view of biblical texts (especially the Hebrew Bible, aka Old Testament) in light of other ancient texts, archaeology, and historical methods, in order to explain the nature and the evolution of society, religion, and thought in the prebiblical and biblical era. We will be especially interested in the period from the end of the Late Bronze Age (c. 1200 BCE) to the Persian period (539-332 BCE), and will examine ongoing debates about the Bible and history, as well as the development of Israelite religion from polytheism toward monotheism and a distinctive worldview.

Cross-listed with: CAMS 102, HIST 102, RLST 102

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

JST 104: The Bible as Literature

3 Credits

This course examines the literature of the Bible. Throughout this course, students will study the language, thought, images, and structures of the book that has arguably proved the central text of Western literature. Students will also actively explore the ways in which the Bible has shaped the literature of English-speaking cultures around the world. Students will read substantial portions of the Old and New Testaments, learning to read critically and to interpret the Bible as they would any other literary text. They will also learn about the historical construction of the Bible, some history of its translation, and contemplate the competing versions of existing Biblical texts. Accordingly, reading the Bible as literature by necessity requires critical engagement with different international cultures from different historical periods.

Cross-listed with: ENGL 104

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

JST 106: Mysticism and Kabbalah

3 Credits

A survey of the history, philosophy, and cultural impact of various mystical traditions in relation to world religions.

Cross-listed with: RLST 106

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

JST 110: Introduction to the Bible: Old Testament

3 Credits

The Old Testament (or, Hebrew Bible) is the record of the interaction between the people of ancient Israel and their God. As a religious text, the Bible is inextricably intertwined with the cultures of Israel's neighbors, including the Canaanites, Syrians, Greeks, Assyrians, Babylonians, Arabs, Egyptians, and the peoples of the eastern desert. To study the Hebrew Bible and its development during the first millennium BCE is to study the history, culture, and literature of the entire region. This course introduces students to the literature of ancient Israel, its rituals, the stories which established a people's identity, and which defined their moral behavior. Great figures of the texts, such as Moses, David, Solomon, Bathsheba, Ruth, Jeremiah, Daniel, and Ezra, teach us important lessons about life and how people of faith attempted to relate to one another, to God, and to people outside their ethnic group. Students will read from the biblical text, as well as from secondary source readings which contains scholarly opinion from a variety of sources. Recent archaeological and epigraphical studies will be incorporated into the course to enhance our work. The ultimate goal will be to assess the meaning of the texts in their ancient Near Eastern environment; to understand the development of Hebrew religion and the beginnings of Rabbinic Judaism; and to understand the connection between biblical studies and other fields of study, such as History, Religious Studies, Archeology, Linguistics, and Comparative Literature.

Cross-listed with: CAMS 110, RLST 110

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

JST 111: Early Judaism

3 Credits

Early Judaism will introduce students to the history of Judaism as reflected in Jewish literature from the period of the Babylonian exile (587/6 BCE) to the closure of the Babylonian Talmud (ca. 600 CE). This course will analyze the development of Judaism from its emergence out of the ancient Israelite religion through the formative period of rabbinic Judaism. Attention will be given to the diversity of ideas and practices that characterized early Judaism and the influence the larger Persian, Hellenistic, and Roman worlds had on Judaism's development. We will examine selections from the Hebrew Bible, and from other literature, including the Dead Sea Scrolls, the Apocrypha, the New Testament, the Mishnah, and the Talmudim.

Cross-listed with: CAMS 111, RLST 111

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

JST 112: Jesus the Jew

3 Credits

Although Jesus of Nazareth is the object of Christian devotion, he was not a Christian himself, but a pious Jew. What can be known about the historical figure of Jesus the Palestinian Jew? How would his teachings and actions have fit in the context of Judaism of his day, in the Greco-Roman world? What did he mean when he proclaimed the coming kingdom of God? Because almost all of our source material espouses Jesus as the Christ of Christian faith, the first step is to understand the aims and perspectives of these Christian sources, including the canonical Gospels as well as non-canonical Gospels. Through careful examination of these sources in light of critical scholarship and the social and historical context of Judaism in the Greco-Roman world, we will consider how much the historian is able to reconstruct of Jesus using historical method, what the limits of this investigation are, and how relevant the task is. We will consider and evaluate a few of the different scholarly reconstructions of the historical Jesus. Major emphases will include the historical, social, religious, political, and cultural contexts of Jesus, including important precursors; the political, institutional, and cultural history of the teachings and actions of Jesus in their Jewish setting, and how these are reinterpreted by his followers after his death. Attention will be paid to the development of variant Christian traditions about Jesus including Jesus as Messiah, his death as a saving event, the resurrection as exaltation of Jesus as Lord, the memorialization of Jesus in Christian ritual practice, and the cultural and religious impact of Jesus throughout history. In addition to the early Christian sources on Jesus (especially the canonical Gospels, but also other New Testament texts and non-canonical writings), on each topic students will read selections from early Jewish writings in order to illuminate the cultural context. These include the Dead Sea Scrolls, Philo, Josephus, Jewish texts among the so-called Apocrypha and Pseudepigrapha, early rabbinic texts, and epigraphical writings. Relevant archeological evidence and Greco-Roman sources will also be considered. Broader issues of historical, cultural,

linguistic, political and geographical context will be covered in lectures and secondary readings.

Cross-listed with: CAMS 121, RLST 121

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

JST 113: Jewish Myths and Legends

3 Credits

Comparative study of diverse interpretations of stories from the Bible in Judaism and Christianity. CMLIT 113 / JST 113 / CAMS 113 / RLST 113 Myths and Legends of the Jews (3) (GH;IL) The impact of the Bible on Western Culture is immense. Beyond its religious importance, the motifs and images from its myths and stories permeate literature and art, providing a basic frame of reference that for much of history could be taken for granted. A degree of familiarity with these motifs so as to be truly fluent is no longer common, and so it requires special effort to discern allusions to biblical traditions. Moreover, these traditions are not static: religious communities continually re-interpret them and appropriate them in very different contexts. Many prominent traditions in Judaism, Christianity, and Islam do not appear explicitly anywhere in the Hebrew Bible, but are the product of imaginative and ingenious interpretation and re-tellings. Why, for example, is Noah an example of a righteous person in Christian tradition, but in rabbinic tradition is more often portrayed as a profane, earthly-minded man who was saved only because he was the least bad of an evil generation? Why is Moses commonly portrayed with horns in medieval art? Underlying such different traditions are centuries of debate and reflection on these texts as sacred scripture, and competing religious communities often authorized their distinctive beliefs and practices by reading them into scripture. The differences are often too subtle to discern apart from careful comparison. This course will explore the boundaries between Scripture and tradition by means of a close examination of the myths and stories in the Hebrew Bible and their subsequent interpretation and re-tellings in Judaism, Christianity, and Islam. Using methods from comparative mythology and folklore, as well as comparative midrash, our procedure will be to compare these traditions closely with the biblical text, asking: What are the main motifs in the mythology of Judaism? Does Judaism have a coherent mythology? How do their myths compare with the myths of their neighbors? Where did these myths come from? How do these traditions relate to the Bible? What was the function of these myths? Why are there competing myths? How is it possible that Judaism affirms belief in only one God, but has myths that include other divine beings? We will also compare with later interpretive traditions (Jewish, Christian, Islamic). Can we trace trajectories of interpretation? Can we discern particular interpretive methods in operation? We will seek to answer: what do these re-workings of the traditions tell us about the development and function of Scripture, and the social circumstances of the communities? Finally, we will seek to detect reflections of these interpretive traditions in literature and art from the medieval to the modern periods. The course is organized around major topics in the Jewish Scriptures: God, creation, heaven and hell, Torah, Sabbath, Abraham and other ancestors, Israel and holy land, exile, and Messiah.

Throughout we will consider how sacred stories function to form ethical perspectives and values.

Cross-listed with: CAMS 113, CMLIT 113, RLST 113
 Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies
 GenEd Learning Objective: Soc Resp and Ethic Reason

JST 114: Modern Judaism

3 Credits

This course will explore the developments in Judaism since the Enlightenment and the French Revolution. Major changes have come to the world since 1700—changes represented by terms such as the Enlightenment, Emancipation, Industrialization, Nationalism, Urbanization, Immigration, and Egalitarianism/Feminism. These broad social changes led to the break-up of traditional communities and, among other things, reformulations of Jewish Life and Jewish Religion. The effects can be seen in a number of Jewish responses—Assimilation, Hassidism, Self-Defense and Nationalism, Denominationalism, and Egalitarianism/Feminism—which we shall study in this class. In particular, we shall look at Jewish spirituality—its historical and theological development, its many historical and modern manifestations, and how it works.

Cross-listed with: RLST 114
 Bachelor of Arts: Humanities
 International Cultures (IL)
 United States Cultures (US)
 General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Soc Resp and Ethic Reason

JST 115: The American Jewish Experience

3 Credits

Chronological and topical survey of the story of Jewish life in America. We will trace the social, religious, cultural, and political developments in the Jewish community from the Colonial Period to the present. Topics to be covered include immigration, acculturation, ethnicity, gender, politics, and communal and religious innovation. While "knowing the facts" is obviously important to historical understanding, this course helps students develop critical thinking skills. These skills include: close and thoughtful reading and analysis of primary and secondary sources; looking for a broader coherence or "order" to the material; independent analysis and effective articulation (both in writing and in class discussion) of well-reasoned, well-crafted conclusions and interpretations and arguments (conclusions/interpretations/arguments which are supported by specific factual evidence derived from a variety of sources). The three specific course objectives underscore its scholarly dimensions: (1) Students will gain a knowledge and understanding of the relationship between the experiences of members of the American Jewish community and United States history as a whole. (2) Students will gain an understanding and knowledge of the political, economic, and social processes that shaped the American Jewish experience.

(3) Students will learn how to "think historically" by placing documents written in the past in their historical contexts, and to consider the relationship of the past to the present. By the end of the course students will: Demonstrate an understanding of the chronology of American Jewish history. Demonstrate an understanding of the diverse experiences of different groups of Americans. Demonstrate an understanding of the social, political, and ideological structures that shaped the American Jewish experience and continue to shape the modern United States.

Cross-listed with: HIST 115, RLST 115
 Bachelor of Arts: Humanities
 United States Cultures (US)
 General Education: Humanities (GH)
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

JST 116: Jewish Great Books

3 Credits

Historical and cultural survey of key texts of the Jewish Tradition, from The Bible to the present. CMLIT (J ST) 116 Jewish Great Books (3) (GH;IL) (BA) This course meets the Bachelor of Arts degree requirements. This course will introduce students to the rich and diverse expanse of the Jewish tradition through a survey of that tradition's most important texts. Starting from the Bible, moving up through the contemporary world, and spanning the globe, the course will examine religious, cultural, folkloric, philosophical, national, and literary traditions, and attention will be paid to both breadth emphasizing the vast range and diversity of Jewish thought and writing and depth emphasizing the complexity and subtlety of particular texts in examining the material. Students will learn methods and practices of textual, cultural, and historical criticism as they engage in analysis of Jewish textual traditions, of the relationship between representation and history, and of the productive interchanges between representation, history, and identity.

Cross-listed with: CMLIT 116
 Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Key Literacies
 GenEd Learning Objective: Soc Resp and Ethic Reason

JST 118: Modern Jewish History

3 Credits

Modern Jewish history is a complex and fascinating story. Some scholars depicted it as a long period of suffering and isolation that culminated in the Holocaust and only ended with the founding of the state of Israel. In recent decades a more balanced perspective has found wide acceptance. Today scholars highlight Jewish agency and different conditions in the various places Jews settled without downplaying anti-Jewish prejudice and violence. A recurring theme in this course concerns the relationship between individual Jews and Jewish communities, and on a broader level, the perception and treatment of Jews by societies and states. As Jews in Western and Central Europe "left the Ghetto" around 1800 and became citizens of states, they redefined their relationship to Jewish communities in strikingly different ways. Some Jewish women and men

emerged as agents of change, others resisted change. We will explore Jewish "responses to modernity," ranging from assimilation, Zionism, and socialism to migration. While many Jews in Western Europe and the United States prospered, the lives of Jews (and their neighbors) in Eastern Europe and the Ottoman Empire were shaped by social and economic crisis (albeit not constantly and not everywhere). For the twentieth century the course will concentrate on three major events that had a dramatic impact on Jews, especially in Europe: the First World War and the collapse of the large multiethnic Empires in Eastern Europe, the Holocaust and the founding of the first modern Jewish state, Israel.

Cross-listed with: HIST 118

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

JST 120: New Testament

3 Credits

CAMS 120 / JST 120 / RLST 120 New Testament (3) (GH)(BA) This course meets the Bachelor of Arts degree requirements. This course provides an introduction to the collection of early Christian writings that make up the New Testament. It begins with an examination of the first-century context in which these writings took shape—one overshadowed by the Roman empire, influenced by Hellenistic culture, and based, above all, on varieties of Judaism. From there, the course takes up a few guiding questions. How, in this ancient context, did the first Christians understand and portray the figure at the center of their communities, Jesus of Nazareth? What do the New Testament writings reveal about the beliefs and aspirations of these communities as they advanced a movement that would, in time, become among the most consequential in world history? By the end of the course, students will have gained knowledge of the historical context of New Testament writings and an understanding of why the New Testament has been such an important and influential collection of writings.

Cross-listed with: CAMS 120, RLST 120

Bachelor of Arts: Humanities

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

JST 121: History of the Holocaust 1933-1945

3 Credits

This course focuses on the history and historiography of the Holocaust from 1933-1945. In addition to cultivating intellectual skills, such as critical analysis and concise presentation, the primary purpose of this course is to provide an in-depth overview of the Holocaust. The course will touch on various aspects of the Holocaust, including the function of the "Ghettos", the role of the mobile killing units, extermination camps, Jewish resistance, the role of the Allies, Holocaust trials, and the question how the Holocaust can be compared with other genocides. The course will analyze the Holocaust using historical, literary, and philosophical approaches.

Cross-listed with: HIST 121

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

JST 122: Apocalypse and Beyond

3 Credits

Apocalypse and Beyond is a topic (and title) meant to suggest that apocalyptic imagination about the end of the world, first begun in the Ancient Near East with certain Jewish and Christian writings, is constantly re-envisioned for each new age. Apocalyptic literature and world views are frequently produced by marginalized groups who perceive themselves to be persecuted, and who envision a violent (often divine) intervention, which alone will bring justice. In Part One of the course, we will examine the ancient literary genre of apocalypse, which was popular in the Ancient Near East from around 200 BCE to 200 CE, especially in Jewish and Christian writings both in the Bible (e.g., Daniel and Revelation) and outside of it (e.g., First Enoch, the Apocalypse of Peter, and the Apocalypse of Paul). The authors of these apocalypses expected the evil age in which they were living to dramatically end in their lifetimes; although that did not happen, apocalyptic thinking became foundational to the three world religions stemming from the Near East: Judaism, Christianity, and Islam to varying degrees. In Part Two, we will examine the ideology, sociological underpinnings and some historical examples of apocalyptic groups and movements in medieval to modern times, and look at the impact that apocalyptic world views have had on the secular world, including philosophy, political movements, and popular culture, such as movies.

Cross-listed with: CAMS 122, RLST 122

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

JST 123: History of God: Origins of Monotheism

3 Credits

This course examines the early history of God; that is, the concept of the divine as a single supreme being. In particular, it focuses on the origins of monotheism and the development of its three major traditions in the Near East: Judaism, Christianity, and Islam, from their respective beginnings to around 1000 C.E. The course will begin with an analysis of the polytheistic religious milieu of the Ancient Near East in the second and first millennia B.C.E., and will consider the question of how, when, and why belief in one God first appeared in ancient Israel. Various modern theories about the origins of Israel's national God (Hebrew Yhwh/Yahweh and Aramaic Yhw/Yaho) will be analyzed, with careful attention to the evidence of ancient texts and archaeology. Following a discussion of the nature of the religion(s) of early Israel, the course will then turn to the development of Judaism as the world's first monotheism. It will then examine the subsequent emergence of Christianity in Roman-era Palestine and Islam in Late Antique Arabia, with a brief glance at the

Persian religion of Zoroastrianism, which shares some commonalities. Finally, the course will compare and contrast some of the major beliefs, practices, and significant historical trends and movements within the first centuries of the three major monotheisms.

Cross-listed with: CAMS 123, RLST 123

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

JST 124: Early and Medieval Christianity

3 Credits

This course provides an introduction to the history of Christianity. It traces, specifically, the development of the Christian movement from its beginnings as a small Jewish sect in Jerusalem to its unlikely emergence as the religion of the Roman Empire and, finally, its subsequent spread and development in Europe, Asia, and Africa. In form and structure, the course is historical, following figures and events in a more or less chronological sequence and taking up questions of causality, influence, and social identity. Yet the course is also concerned with the ideas, concepts, and philosophical viewpoints that have shaped Christianity and given it a certain intellectual coherence over time. The course begins with first-century construals of messianic identity and also with the figure of Jesus, as he was portrayed in the New Testament gospels. It then follows the first generations of the Christian movement, considering it within the context of first-century Judaism and the early Roman empire. Topics include persecution, martyrdom, and the important contributions of Origen. The middle section of the course looks at the second, third, and fourth centuries through three lenses, as it were: the office of bishop, the rise of monasticism, and the realities of empire. Bishops, monks, and emperors all shaped Christianity in essential ways, creating a rich and complicated spiritual, moral, theological, intellectual, and geo-political legacy for generations to come. The final third of the course looks at the development of Christianity beyond the fourth century in geographical groupings including churches in Africa, Asia, the Middle East, western Europe, Byzantium, and the Slavic lands. It is hoped, in all of this, that students will gain an understanding not only of Christian history but also of what made - and what makes - Christianity a distinctive and influential religion.

Cross-listed with: CAMS 124, RLST 124

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

JST 128N: The Holocaust in Film and Literature

3 Credits

This class studies how art, literature, film, and other media can help us to gain a perspective on one of the most horrific events in human history, the Holocaust: the genocidal murder of more than six million men,

women, and children (mostly Jewish) under the Nazi regime during World War II. We will also examine the theoretical questions involved in any attempt to capture what appears to be beyond our comprehension, in terms of moral outrage and the sheer scale, inhumanity, and bureaucratic efficiency. To this end we will study literary works, such as Primo Levi's *Survival in Auschwitz*, films such as Steven Spielberg's *Schindler's List*, Roman Polanski's *The Pianist*, and Roberto Benigni's *Life is Beautiful*, as well as photographs, poems, artworks, installations, museum architecture, the design of monuments and other artifacts. We will also examine questions of memorialization (Holocaust museums and memorials), national guilt, survivor's guilt, stigmatization, and the ethics of historical representation.

Cross-listed with: CMLIT 128N, ENGL 128N, GER 128N

Bachelor of Arts: Arts

Bachelor of Arts: Humanities

International Cultures (IL)

United States Cultures (US)

General Education: Arts (GA)

General Education: Humanities (GH)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

JST 131: Jewish Literature: An International Perspective

3 Credits

Literature of the Jewish tradition in various cultures and contexts, such as Europe, Israel, Islamic countries, and the Americas. JST 131 (CMLIT 110) Jewish Literature: An International Perspective (3) (GH;US;IL) (BA) This course meets the Bachelor of Arts degree requirements. CMLIT 110 (JST 131) will provide an introduction to the multiple worlds of Jewish experience and the different literatures they continue to inspire. Jewish literary creativity has varied widely with the personal and communal experience of writers in many parts of the world, and in many different time periods. Readings usually range from the first Jewish literary text, the Hebrew Bible, to twentieth- and twentieth-century works, including writings about the Holocaust. The course typically includes units such as Jewish writing and culture in Eastern Europe, in the Americas, in Spain during the Middle Ages, and in Israel and the Middle East today. The material may be organized chronologically, thematically, or by regions or languages. Texts that critique or apparently suppress Jewish identity, as well as texts with representations of Jews by writers of other heritages, may be included for comparative purposes. We will include writings by Jewish authors who have written in languages usually associated with Jewish tradition (such as Hebrew and Yiddish) and in other languages (such as Spanish, Arabic, German, English, etc.). Topics discussed in the literature may focus on questions of Jewish identity and continuity, the situation of Jews as a minority people, the immigrant and diasporic experience, representations of the Holocaust, and the establishment of Israeli culture as a mixture of several traditions. We will question generalizations about the meaning of "Jewish" by showing the wide range of characteristics associated with Jewish literary productions, and the great diversity of depictions of Jews and Jewish lifestyles, in different times and places. In addition to our primary focus on literary texts, we may include examples of other cultural productions (film, music, the visual arts, philosophy, etc.). CMLIT 110 (JST 131) counts towards the Comparative Literature major and the World Literature minor. No prior knowledge of Jewish tradition is required, and General Education

students are welcome. This course also fulfills the General Education Humanities requirement, the Bachelor of Arts Humanities requirement, and the United States and International Cultures requirement.

Cross-listed with: CMLIT 110
 Bachelor of Arts: Humanities
 International Cultures (IL)
 United States Cultures (US)
 General Education: Humanities (GH)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Key Literacies

JST 132: Jewish American Literature

3 Credits

This course will provide an introduction to Jewish American literature through a historical survey of the tradition's key texts, figures, and themes. The course will focus on the defining aspects of the literature and on what the literature "thinks" about Jewish American culture and identity. But rather than assuming a unity to Jewish-American culture, this course will use Jewish literature to seek ways of articulating and representing both the points of cohesion and the points of divergence that characterize Jewish life in America. The United States has absorbed large numbers of Jewish immigrants hailing from many parts of the world, holding many different ideas about Jewish practice, and affiliating themselves with many different political, social, and cultural traditions. Moreover, Jews have settled and made homes in a wide variety of American communities. This course aims to explore Jewish American culture's marked diversity by offering a literary window onto the major fault-lines running through Jewish American culture: lines demarcated by gender, by political affiliation, by geography, by pre-immigration community by religious practice, by attitude toward world Jewry, by national allegiance, and by minhag (or custom), to name just a few. The class therefore provides an opportunity to consider the constitution, origin, and development of Jewish American's identity and social formations by looking at how that identity and those social formations exist and what they "do" in literature written by and about Jews in America. Materials will consist predominantly of primary texts, including prose fiction and nonfiction, poetry, drama, and film. Course methodology will emphasize the close reading of these texts. The course complements offerings in Jewish Studies and English, and it will satisfy the GH and US requirements. Most obviously, the course will offer students of Jewish literature, world literature, and American literature an opportunity for contextualization. It enables students in Jewish Studies to study the rich literature of American Jews, and it adds to courses covering Jewish American history, religion, and culture. The course offers students in English a valuable, sustained introduction to an important U.S. and world sub-culture.

Cross-listed with: ENGL 132
 United States Cultures (US)
 General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

JST 135: Ethics in Jewish Tradition and Thought

3 Credits

This course takes as its starting point the idea that modern ethical frameworks are deeply rooted in the soil of older traditions. By examining the development of Jewish intellectual traditions and their roots in the Bible, it provides students with an opportunity to study ethics in a philosophically textured, culturally rich, and historically informed way. And by focusing on Jewish engagement with the Bible, the course illuminates other traditions that derive from biblical monotheism: for example, those associated with Christianity, Islam, and the Enlightenment. The first part of the course takes up the idea of tradition and includes a study of biblical texts that serve as the foundation for key moral concepts. Following the traditional division of the scriptures, it examines questions of human identity and responsibility in the Torah, social ethics in the Prophets, and the quest for wisdom in the Writings. The final topic in this unit is the development of ethical tradition among the great sages of Jewish antiquity. The second unit shifts focus to the appropriation of tradition in modern Jewish thought. After reviewing important developments in Jewish thought in the medieval and early modern periods, it turns attention to the ways that some recent figures have addressed perennial concerns in light of commitments and ways of being that are integral to Jewish identity. By reading closely the works of such seminal thinkers as James Kugel, Joseph Soloveitchik, and Abraham Heschel, we will gain a deep acquaintance not only with important vocabulary but also with the ways that traditional words and concepts may be used dynamically to produce fresh ways of looking at questions in moral philosophy.

Cross-listed with: PHIL 135, RLST 135
 Bachelor of Arts: Humanities
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Soc Resp and Ethic Reason

JST 140: The History of the Israel-Palestine Conflict (1917-Present)

3 Credits/Maximum of 3

This course covers the origins of the Israeli-Palestinian conflict and how the issues at stake changed over time, up to the present day. The course situates the conflict in the history of the Middle East and the larger context of international relations, including the Cold War and the end of the Cold War. Topics include regional warfare and its significance, efforts at peacemaking, and social, economic, and cultural developments among Israelis and Palestinians.

Cross-listed with: HIST 140
 Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Key Literacies

JST 143N: History of Fascism and Nazism

3 Credits

This course studies the developments of right-wing totalitarianism in the twentieth century with special emphasis on Fascist Italy and Nazi Germany, which provided the roots for fascist developments in the modern world. The course concerns itself with understanding the social, political, and economic contexts of fascism, its governing assumptions, ideals, and values, how it worked in practice, and its consequences and historical implications. Another focus will be on the question of why these illiberal, anti-democratic, and ultimately murderous regimes appear to have appealed to many groups during the 1930s and 1940s, not only within Italy and Germany, but also within broader European society.

Cross-listed with: HIST 143N

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

JST 151: Introductory Biblical Hebrew

3 Credits

Fundamentals of Biblical Hebrew grammar, syntax, and vocabulary. J ST (CAMS/HEBR) 151 Introductory Biblical Hebrew (3) The aim of CAMS/ J ST/HEBR 151 is to introduce students to the fundamentals of Biblical Hebrew as quickly and thoroughly as possible. Biblical Hebrew is the language in which the Old Testament was written, between the period of approximately 1200-200 B.C.E. This focuses primarily on the morphology and syntax of Biblical Hebrew. Drills on each point of grammar, as well as translation of sentences from Hebrew to English and English to Hebrew, and brief passages taken from the Bible are the basis of the student's homework throughout the semester. By the end of the semester, the students will be prepared to read short, unmodified passages of the Bible. The course will focus primarily on reading and writing, though students will read aloud in class regularly in order to ensure correct pronunciation and understanding. CAMS/J ST/HEBR 151 will prepare students to continue with CAMS/J ST/HEBR 152 and then 400-level courses. The course goals, in addition to providing the students with a firm grounding in Hebrew grammar and vocabulary, include giving the students a basic understanding of the history of the Biblical text. The primary focus will be on mastering paradigms and syntax, but the students will also be introduced to the Biblical texts themselves, which together form such an important piece of literature.

Cross-listed with: CAMS 151, HEBR 151

JST 152: Intermediate Biblical Hebrew

3 Credits

Intermediate study of Biblical Hebrew grammar, syntax, and vocabulary. CAMS (JST/HEBR) 152 Intermediate Biblical Hebrew (3)(BA) This course meets the Bachelor of Arts degree requirements. CAMS/JST/HEBR 152 continues from CAMS/J ST/HEBR 151, which is a prerequisite for enrollment. After a brief review of key grammar and morphology from the first semester, the course will complete the process of providing students with a sufficient grasp of Hebrew vocabulary, morphology,

and syntax to enable them to read unadapted passages from Biblical Hebrew texts (with the aid of a lexicon) by the end of the course. Class sessions will focus on grammar drills, sentences, and similar exercises as homework to supplement class work. As the semester progresses, students will read more and more from actual Hebrew texts, rather than composed sentences by the textbook author, so that when the students enter more advanced classes, they will find the transition to reading Hebrew as smooth as possible. In tandem with the increasing emphasis on Hebrew written by ancient Hebrews, the course will continue to focus on the linguistic and cultural background for the texts that the students read. Students will be evaluated on a combination of written work, including frequent quizzes, tests, homework completion, and course attendance and participation. CAMS/J ST/HEBR 152 will prepare students to continue with courses at the 400-level.

Cross-listed with: CAMS 152, HEBR 152

Bachelor of Arts: Humanities

JST 153: Dead Sea Scrolls

3 Credits

The discovery of the Dead Sea Scrolls was one of the most important archeological discoveries of the 20th century. This collection of over 900 scrolls found in caves by the Dead Sea includes the oldest manuscripts of the Hebrew Bible (Old Testament) and hundreds of other Jewish writings dating from the 2nd century BCE to the 1st century CE, many of which were previously unknown. In this course we will examine select examples of the Dead Sea Scrolls in order to understand how these writings have revolutionized our understanding of the formation of the Bible, Jewish groups in the Greco-Roman period, and the origins of Christianity and rabbinic Judaism, and why there is so much scholarly debate around them. We will consider such issues as Jewish law, biblical interpretation, messianism, apocalypticism, prayer and rituals. The course will include discussion of the archaeology of the Qumran settlement and caves, scribal practices and the production of scrolls, and scholarly methods in reconstructing and interpreting ancient texts. We will study this one sectarian movement as a microcosm of the issues related to Jewish identity in this critical period that birthed both rabbinic Judaism and Christianity. We will focus on the beliefs and practices by which this movement constructed their particular community identity and worked out their place in the world.

Cross-listed with: CAMS 153, RLST 153

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

JST 160: Sacrifice in the Ancient World

3 Credits

Sacrifice (from Latin sacer "holy + facere "to make") is one of the most prevalent yet troubling aspects of religion. Its destruction and violence is often at odds with other rituals and core understandings within a religion, so why is it done and what good does it do? For the sacrificer, does it represent a gift to the gods, a renunciation, an exchange, a surrogate, or something else? This course will examine some competing definitions

and theories of sacrifice, as well as its manifestations in the cultures and religions of the ancient Mediterranean world, especially those of Greece, Rome, Egypt, Mesopotamia, Hatti, Israel, and Phoenicia. A brief look at religious sacrifice elsewhere, such as ancient Mesoamerica and India, will conclude the course.

Cross-listed with: CAMS 160, RLST 160
 Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Key Literacies

JST 181: Introduction to the Middle East

3 Credits

The course offers a survey of the history of the Middle East from the rise of Islam to the present day. The course introduces students to structures of power, society, and economy in three distinctive periods: 1) the rise of Islam and the caliph era; 2) the pre-modern Ottoman era; 3) the modern era. The course also introduces students to some of the art, architecture, and literature of each period. Students will thus gain some depth in each period of history and acquire a broad view of change over time.

Cross-listed with: HIST 181
 Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Key Literacies

JST 186: The Silk Roads

3 Credits

Taking cross-cultural communication and connectivity as its central themes, this course explores the central role that the silk roads and Indian Ocean maritime routes have played throughout Eurasian history. The course provides a historical survey of the land and sea routes and networks connecting Europe and Asia, the peoples and cultures that flourished along these routes, and a variety of exchanges that took place by way of these routes. The course develops insight into trends and patterns over a long period of history, from ancient to modern times; the course also focuses on distinctive periods of history when patterns were disrupted and reformed, and when relationships changed among the peoples and states involved in the silk roads and maritime routes.

Cross-listed with: ASIA 186, HIST 186
 Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Key Literacies

JST 190: The Middle East Today

3 Credits

This course introduces students to the peoples and places of the contemporary Middle East. The course engages students in discussion of themes that are pertinent to the region and to contemporary issues, including demographic change, youth culture and university life, human rights issues and activism, the trauma of war, effects of globalization, ecology, and the environment. Exploring the Middle East in the present with attention to historical context, students will examine a variety of sources, including news media, novels, stories, poetry, films, soap operas, blogs and vlogs.

Cross-listed with: HIST 190
 Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Key Literacies

JST 193: Modern Iran

3 Credits

This course covers the history of modern Iran from the late nineteenth century to the present day. The course examines significant events and historical trends with attention to local, regional, and global contexts, and examines causes and consequences of policies, protests, and revolutions from a variety of sources and perspectives. Through class lectures and discussions, and reading and written assignments, students will learn important terms, concepts, contexts, individuals, and events. They will learn to identify and analyze trends and patterns in Iran's history, make meaningful comparisons, locate specific events in meaningful context, and explain their significance. By the end of the course students will be able to explain current events in terms of Iran's long history of revolution as well as in terms of the more immediate history of the Islamic republic. Students will be able to discuss how the modern history of Iran is an example of larger historical trends of the twentieth century.

Cross-listed with: HIST 193
 Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Key Literacies

JST 194: Jerusalem: Sacred and Profane

3 Credits

Jerusalem, a city sacred to Judaism, Christianity, and Islam, is often depicted as the spiritual and physical center of the world. Throughout its 5000-year history, Jerusalem has attracted diverse cultures, empires, and peoples who have vied for control of this city that is both religiously significant and a very ordinary site of urban life. Jerusalem: Sacred and Profane surveys the archaeological, religious, cultural, political, social, and historical record of Jerusalem in the ancient, medieval, and modern periods. We will explore a series of themes in the city's history: the built urban environment, political power in and over the city, sacred sites and

pilgrimage, the everyday experiences of Jerusalemites, the changing cultural meanings of the city across various religious and national traditions, and war, violence, and memory in the urban landscape. The significance of Jerusalem's past, its impact on contemporary society and politics in the modern Middle East, and differing visions for this contested city's future are examined in light of various interpretations of the historical evidence.

Cross-listed with: CAMS 194, HIST 194, RLST 194

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

JST 195: Genocide in Global perspectives: Twentieth Century and beyond

3 Credits

The history and memory of the Holocaust, the Armenian, Cambodian and other forms of genocide are often taught separately in different disciplines. This course will examine them together through the various ways different societies dealt with, experienced and understood these. Using the extensive literature on the history of genocide this course further suggests ways in which these tragic events affected and were entangled by each other's. Specific content will vary according to individual instructor, but topics may include victim cultures, ethnic cleansing, trauma, human rights, dark tourism, memorials, architecture as well as the general impact of these tragedies on global politics, or the way the memories of the tragedies were entangled with the civil rights and other struggles in American and global history.

Cross-listed with: GER 123, HIST 195

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

JST 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

JST 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

JST 235: The Church and the Jews

3 Credits

Examination of the relationship between Western church and the Jews from the First Century to Enlightenment. HIST 235/HIST 235 The Church and the Jews (3) (US;IL)(BA) This course meets the Bachelor

of Arts degree requirements. This course will examine a key aspect of western history - the complex relationship between the Western (Roman Catholic) Church and the Jews, from the first century to the present. We will analyze ideas and policies regarding Jews as expressed in different realms, from theology and canon law to church art and popular preaching. We will also examine how changing conditions led to striking changes in church attitudes and policy, and how church policy was often at odds with popular sentiments about Jews. The course will be designed to enable students to grasp the fluidity of attitudes over time, and the interplay of economic, social, political, and theological factors; to grasp of essential elements of a key area of conflict in western culture; and to develop their skills in the close reading of primary texts. Students will be evaluated on the basis of three quizzes and a final exam. The course would offer a chance for students to develop perspectives previously gained in a number of courses, particularly HIST 001 and 002 (The Western Heritage), RL ST 001 (Introduction to World Religions), RL ST 101 (Comparative Religion), HIST 107 (Medieval Europe), HIST 407 (Early Medieval Society), and J ST 010 (Jewish Civilization). It would complement such courses as HIST 108 (The Crusades), HIST 408 (Church and State in the High Middle Ages), HIST 412 (Intellectual History of the Middle Ages), HIST 414 (Renaissance and Reformation), J ST 111 (Early Judaism), J ST 110 (Hebrew Bible), RL ST 120 (New Testament), and RL ST 124 (Early and Medieval Christianity). The course will count for 3 credits toward a) the 22 credits required for the minor in Jewish Studies, b) the 33 credits required for the major in Jewish Studies, c) the 30 credits required for the major in Religious Studies, and d) the 36 credits required for the History major.

Cross-listed with: HIST 235, RLST 235

Bachelor of Arts: Humanities

International Cultures (IL)

United States Cultures (US)

JST 260: The Middle East in Film

3 Credits

Through the medium of film, HIST/JST 260 examines the contemporary and historical transformation of the Middle East from the Ottoman period, through the British and French mandates, and the eventual establishment of the modern nation-states. This course analyzes the political-religious-social tensions of this region, and through film illuminates many of the conflicts in a different light. This course engages in specific film define certain moments in the contemporary history of the Middle East. The films reveal the culture perception of politics, the Arab-Israeli conflict, views on and of religious and ethnic minorities, women and gender issues, various elements of political Islam, and the generational shift in politics and culture. The course will watch, analyze and engage in films (with subtitles) from - among other states - Iran before and after the revolution, Turkey, Israel, Palestine, Egypt, and Tunisia.

Cross-listed with: HIST 260

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

General Education: Humanities (GH)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

JST 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

JST 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

JST 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

JST 305Y: Middle East Studies Research Workshop

3 Credits/Maximum of 6

The course is a research seminar for undergraduates majoring in Middle East Studies and for students interested in pursuing a sustained research project on a topic related to the Middle East. Course topics on the Middle East will vary according to the interests of the instructor. This course is writing-intensive with attention to developing, drafting, and producing a quality research paper over the course of the semester.

Cross-listed with: HIST 305Y

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

Writing Across the Curriculum

JST 320N: Language, Ideology, and Propaganda

3 Credits

The course gives students hands-on tools for investigating ideology and propaganda through the analysis of a variety of historical and contemporary texts. With the help of different theoretical perspectives, students learn how to analyze ideologies that can be found in texts, identify whose interests those ideologies serve, and discuss their biases, with the goal of learning how these belief systems can be used to promote and circulate specific political views (i.e., propaganda). The course begins with a historical overview of the role played by language and other meaning-making resources in the production and circulation of ideology and propaganda across a variety of historical contexts. The course will then explore contemporary practices of disinformation, and investigate alternative strategies through which to counter disinformation.

Cross-listed with: APLNG 320N

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

JST 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

JST 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

JST 401: Ancient Technologies and Socio-cultural History in the Ancient Levant

3 Credits

Social and intellectual development in the Ancient Levant as they affected and were affected by technological development.

Prerequisite: RL ST110

Cross-listed with: HIST 401

Bachelor of Arts: Humanities

International Cultures (IL)

JST 409Y: Antisemitisms

3 Credits

Surveys the history of anti-Semitism from antiquity through the Middle Ages to the present. HIST (J ST) 409Y (RL ST 407Y) European Anti-Semitism from Antiquity to the Present (3) (IL)(BA) This course meets the Bachelor of Arts degree requirements. This course analyzes major episodes in the history of anti-Semitism and tries to clarify the motives and dynamics involved. It seeks to understand what these episodes have in common and what is unique in each case—is there a single universal, eternal antisemitism? Or are there rather 'anti-Semitismisms' each belonging to a unique historical context? Is there a single continuous line of development in anti-Semitism? What is the relationship of a particular anti-Semitism to the national culture in which it originates? We will be reading the major original texts of anti-Semitism from Roman and ancient writers, through early Christian texts and medieval Christian Blood Libels against the Jews, documents of the Spanish expulsion, Lutheran tracts, Voltaire's essays, German philosophical texts from Kant to Marx, Wagner's racial essays, the Protocols of Zion, and documents of Nazi anti-Semitism by Hitler and Streicher. The major part of the grade will depend on a short research paper which will be presented in various drafts, so that the final version represents the culmination of discussion and constructive criticism and advice. This course is a parallel course to J ST/HIST 416 (Zionist History) and J ST/HIST 118 (Modern Jewish History). This course will count toward the Religious Studies, Jewish Studies, and History majors and minors in the 400-level category.

Cross-listed with: HIST 409Y, RLST 407Y, RLST 409Y

Bachelor of Arts: Humanities

International Cultures (IL)

Writing Across the Curriculum

JST 410: Jews in the Medieval World

3 Credits

Trends in medieval Jewish society under Islam and Western Christendom. HIST 410/HIST 410 Jews in the Medieval World (3) (US;IL)(BA) This course meets the Bachelor of Arts degree requirements. The Jews lived in widely scattered communities under Christian and Islamic rule in the medieval period. This course will examine how Jews adapted the traditions they developed in Palestine and Babylonia in the early centuries C.E. to the new conditions they encountered in Europe and the Mediterranean region from the ninth to the fifteenth centuries. It will focus on the general problem of how traditional societies survive in rapidly changing circumstances, particularly when their members are a minority population. The course will aim at developing students' skills in comparative analysis as they compare the adaptive strategies of Jews in different cultural spheres (the Franco-German region versus Spain, for example). They will also be asked to compare the different polemical stances Jews adopted vis-a-vis Christianity, on the one hand, and Islam, on the other. They will be encouraged to understand the ways in which Jews internalized certain aspects of the majority culture and rejected others. It is hoped that they will come to see how deeply Jewish history was intertwined with medieval Christian and Islamic history, despite inter-religious hostilities and the frequent need for Jews to defend against majority aggression. Students will be evaluated on the basis of two mid-term exams (the first after the survey of the Muslim world, the second after the examination of the Franco-German region) and a comprehensive final exam. The course will be linked to most of the courses taught in the field of Jewish Studies, especially J ST 111 (Early Judaism), J ST 114 (Modern Judaism), and J ST 118 (Modern Jewish History from 1492). It will also be linked to offerings in Religious Studies: RL ST 001 (Introduction to World Religions), RL ST 101 (Comparative Religion), RL ST 107 (Introduction to Islam), RL ST 124 (Early and Medieval Christianity), and RL ST 165 (Introduction to Islamic Civilization). Further, it would complement HIST 001 and 002 (The Western Heritage), HIST 107 (Medieval Europe), HIST 108 (The Crusades), HIST 407 (Early Medieval Society), HIST 408 (Church and State in the High Middle Ages), HIST 412 (Intellectual History of the Middle Ages), and HIST 471W (Classical Islamic Civilization, 600-1258). The course will count for 3 credits toward: a) the 22 credits required for the minor in Jewish Studies, b) the 33 credits required for the major in Jewish Studies, c) the 30 credits required for the major in Religious Studies, and d) the 36 credits required for the History major. It will be offered once a year with an enrollment of approximately 60 students.

Cross-listed with: HIST 410, RLST 410
Bachelor of Arts: Humanities
International Cultures (IL)
United States Cultures (US)

JST 411: Jewish Studies

3 Credits/Maximum of 9

Study of the life and thought of a particular period or movement in the history of Judaism.

Prerequisites: Second semester standing
Cross-listed with: RLST 411
Bachelor of Arts: Humanities
International Cultures (IL)
United States Cultures (US)

JST 416: Zionism

3 Credits

History of Zionist thought and politics to the foundation of Israel 1948.

Cross-listed with: HIST 416
Bachelor of Arts: Humanities

JST 420: Archaeology of the Near East

3 Credits

Culture of the Near East and India from Paleolithic times through the Bronze Age.

Prerequisite: 3 credits in CAMS or 3 credits in ANTH or permission of instructor
Cross-listed with: ANTH 420, CAMS 430
Bachelor of Arts: World Cultures
Bachelor of Arts: Social and Behavioral Sciences

JST 421: Introductory Targumic Aramaic

3 Credits

Fundamentals of Aramaic grammar, syntax, and vocabulary. CAMS 420 Introductory Targumic Aramaic (3) The aim of CAMS 420 is to introduce students to the fundamentals of Targumic Aramaic as quickly and thoroughly as possible. Targumic Aramaic, is the dialect used by Jews in the last few centuries BCE in their translations of the Bible into Aramaic. Targumic Aramaic texts remain vital within Judaism and Biblical study. This course focuses primarily on the morphology and syntax of Aramaic. Drills on each point of grammar, as well as translation of sentences from Aramaic to English and English to Aramaic, and brief passages taken from the native texts are the basis of the student's homework throughout the semester. By the end of the semester, the students will be prepared to read short, unmodified passages of actual Aramaic. The course will focus primarily on reading and writing, though students will read aloud in class regularly in order to ensure correct pronunciation and understanding. CAMS will prepare students to work with Aramaic in related courses in CAMS, in particular those dealing with other Aramaic dialects, the Bible, and other related ancient languages. The course goals, in addition to providing the students a basic understanding of the history of the Aramaic literary tradition. The primary focus will be on mastering paradigms and syntax, but the students will also be introduced to real Targumic Aramaic texts, which are of great importance to understanding the history of Biblical textual transmission.

Cross-listed with: CAMS 420

JST 425W: Books of the Bible: Readings and Interpretation

3 Credits/Maximum of 12

Study of a biblical book/topic in terms of literary, historical, and cultural contexts, history of interpretation, and critical scholarship. CAMS (J ST/RL ST) 425W Books of the Bible: Readings and Interpretation (3 per semester/maximum of 12) The Bible is a diverse collection of writings sacred to Jews and Christians written over about 1000 years, in a variety of different genres and historical circumstances. This course allows students the opportunity to study in depth a particular book of the Bible, from either the Hebrew Bible/Old Testament or the New Testament. We will explore the literary, historical and cultural context of the book in question. A literary analysis of the book will include consideration of genre and literary devices, and a close reading of the text. A historical

analysis will consider the date of composition, its source materials, comparative traditions in other cultures, and relevant historical and cultural factors relevant to understanding the text. The course will introduce students to various other approaches to interpretation of the Bible in modern scholarship, including feminist and post-colonial critiques. We will also explore the varied interpretations and uses of the book in Judaism, Christianity, and Islam throughout history, and its influences in Western culture, including art and literature. The course will be offered once a year with varying content, and students may repeat it when taught with different content.

Prerequisite: 3 credits in CAMS or J ST or RL ST, recommended CAMS/J ST/RL ST 110 or 120; or ENGL 104.

Cross-listed with: CAMS 425W, RLST 425W
Writing Across the Curriculum

JST 426: Holocaust

3 Credits

This course is an in-depth study of the history of the Holocaust in Europe that puts special emphasis on primary sources. HIST 426 / JST 426 Holocaust (3) (IL)(BA) This course meets the Bachelor of Arts degree requirements. The Holocaust stands out as the most terrible and challenging phenomenon of the 20th Century. Societies and the scholarship struggled for decades to fully grasp how much the Holocaust has questioned widely shared assumptions about modernity and progress. This course pursues the overarching question how the Holocaust could have taken place. Who were the perpetrators, victims and bystanders? How much agency did they have? How was the Holocaust organized? The course will encourage students to critically engage with the Holocaust, and will consider a variety of different kinds of sources and means of representation, including oral testimony, film and fiction, as well as more conventional documentation. After discussing some of the most important studies about the Holocaust and identifying the main historiographical debates, students will look at the origins and the evolution of the "Final Solution." The class will touch on the function of the "Ghettos," the role of the mobile killing units, the extermination camps, and Jewish resistance. The course will also deal with Jewish responses to the Holocaust, notably with attempts to enable Jews to emigrate to safe countries; with efforts to alert the public to the systematic killing after 1940; and the support especially of American Jews for Jewish survivors and DPs. Apart from discussing the historiography, students will work mostly with primary sources. Students are expected to do extensive reading for this class and prepare oral presentations on their respective paper topic. The research paper for this course will be based largely on primary sources. Apart from discussing the historiography, the sessions will concentrate on the interpretation of primary sources: - documents created by the perpetrators, bystanders, and victims; - files relating to postwar trials of perpetrators; - photographs; - representations of objects relating to the Holocaust; - memoirs by survivors; - interviews with survivors and bystanders.

Prerequisite: J ST 010 , J ST 121 , or by consent of the program

Cross-listed with: HIST 426
Bachelor of Arts: Humanities
International Cultures (IL)

JST 427: Topics in Jewish American Literature

3 Credits/Maximum of 9

An in-depth examination of important themes, writers, and/or historical developments in Jewish Literature of the United States. ENGL (J ST) 427 Topics in Jewish American Literature (3) This course will provide sustained examination of major themes, texts, and figures in the Jewish American literary tradition. The course will focus on depth rather than breadth in its analysis of the defining aspects of the literature and on what the literature reveals about Jewish American culture and identity. The United States has absorbed large numbers of Jewish immigrants from many parts of the world, holding many different ideas about Jewish practice, and affiliating themselves with many different political, social, and cultural traditions, and moreover Jews have settled and made homes in a wide variety of American communities. Close analysis of literature will therefore provide an opportunity to consider the constitution, origin, and development of Jewish America's wider cultural, political, and social contexts. Materials will consist predominantly of primary texts, including prose fiction and nonfiction, poetry, drama, and film, and the methodology will emphasize the close reading of these texts. The course complements offerings in Jewish Studies, English, and Comparative Literature. Most obviously, the course will offer students of Jewish literature, world literature, and American literature an opportunity for contextualization. It enables students in Jewish Studies to study the rich literature of American Jews, and it adds to courses covering Jewish American history, religion, and culture. The course offers students in English and Comparative Literature a valuable, sustained introduction to an important U.S. and world sub-culture and -literature.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Cross-listed with: ENGL 427

JST 432W: Gender and Sexuality in the Bible

3 Credits

This writing intensive course will examine issues of gender and sexuality in the Bible, including the Hebrew Bible/Old Testament, the Deuterocanon, and the New Testament. It will introduce students to a variety of academic approaches to the Bible with respect to a broad range of topics. These topics include: gender identity, sexual orientation, sex, marriage and divorce, adultery, monogamy and polygyny, same-sex relations, chastity and celibacy, prostitution, gender violence, pornography, fertility, procreation, abortion, divine gender and sex, incest, and many others. In covering these themes, the course will deal with some of the most challenging and often disturbing stories and passages in the Bible, the ancient library of books that is sacred to Jews and Christians and which has otherwise greatly influenced civilization for more-or-less two thousand years. Alongside a close reading of the text (philology), this course will employ historical and literary criticism, investigations into ancient material culture (archaeology), modern theoretical interpretive approaches, reception theory, and other methodologies to examine not only the biblical writings in their ancient contexts, but their interpretation and use throughout history to construct social norms.

Prerequisite: 3 credits in CAMS, RLST, or JST.

Cross-listed with: CAMS 432W, RLST 432W, WGSS 432W
Bachelor of Arts: Humanities
Writing Across the Curriculum

JST 434: Movies, Media, and the Jewish American Experience

3 Credits

Study of Jewish American Film and Popular Culture. COMM (J ST) 434 Movies, Media, and the Jewish American Experience (3) The course examines film and other popular media, including theater, radio, and television, as important sources for understanding the Jewish experience and its impact on and relationship with American culture more generally since the late 19th century. Topics to be considered include US film and popular media as representations of Jewish history, culture, and experience; the role of Jews as prominent directors, producers, actors, and writers in their social-historical context; and the history and function of the representational modes and techniques used in these texts. A major emphasis of the course will be on analyzing film and other media texts as lenses to reflect, refract, and focus on Jewish American identity. By way of analyzing the interrelationships between filmic and other media texts and Jewish American experience, the course will attend to a number of key themes in Jewish cultural history, including Jewish life in late 19th-early 20th century Europe; immigrant life in turn of the century America and questions such as assimilation, preservation of tradition, family life, social mobility, and male/female relations; Jews in show business, organized crime, and sports; American Jews and the Holocaust; American Jews and Israel; Jews in the modern age; generational and denominational differences among Jews; and Jews and anti-Semitism.

Prerequisite: A previous course in Jewish Studies, Film Studies, Media Studies, Art, Music, English, or Comparative Literature.
Cross-listed with: COMM 434

JST 439: Women and the Holocaust

3 Credits

Analysis of women's experience in the Holocaust and exploration of the role of gender in Holocaust Studies. J ST (HIST/WMNST) 439 Women and the Holocaust (3) Most of the early study of the Holocaust focused almost exclusively on the experiences of Jewish men. It was men who wrote the first and most widely read Holocaust memoirs and men who produced the first studies of the Holocaust. The first question motivating this class is thus what we can learn from examining women's experiences. Is it possible that the ghetto, the camp, and the forest look different from women's perspectives? Are there factors we miss when we read primary documents written by only half of the participants in these historical events? Beyond this, however, our exploration will also lead us to look more broadly at gender as a category of analysis. What do we gain by bringing questions of gender to bear on our study of the Holocaust? Are there any ethical concerns that should inform our approach?

Prerequisite: J ST 010 or J ST 121 or HIST 121 or consent of program
Cross-listed with: HIST 439, WMNST 439

JST 443: Jewish Histories of the Middle East

3 Credits/Maximum of 6

Jews have been part of Middle Eastern societies for thousands of years. They flourished at times and endured hardships at others, but they have been part of every significant social and cultural transformation of the Middle East. In this class, students will discuss the significant contribution of the Jewish community to the development of various Middle Eastern societies throughout the centuries. Students will critically

read and analyze primary sources and secondary literature. We will delve into national historiographies of places such as Morocco, Egypt, and Iran-to name a few-and seek to discover a nuanced narrative of Jewish histories of the region. We will also analyze popular culture products, such as documentaries, television, and literature. The course will follow a chronological and thematic order, and will examine Jewish history in conjunction with global and interregional processes in the Middle East and beyond, such as colonialism, imperialism, nationalism, relations with the West, the formation of the modern nation states of the Middle East, and the Israeli-Arab conflict.

Cross-listed with: HIST 443

JST 450H: Genocide and Tyranny

3 Credits

This course focuses on the conceptualization and socio-political determinants of genocide and tyrannical regimes, with an emphasis on the Holocaust.

Prerequisite: PL SC003 , PL SC007 or PL SC014 or HIST 121

Cross-listed with: PLSC 450H

Honors

JST 457: Jewish Communities: Identity, Survival, and Transformation in Unexpected Places

3 Credits

Examines the global array of smaller Jewish communities that have flourished outside the main urban centers of Jewish settlement. JST 457 / ANTH 457 / SOC 457 Jewish Communities: Identity, Survival, and Transformation in Unexpected Places (3) (US;IL) This course addresses an understudied aspect of Jewish experience. It aims to expand our understanding of Jewish communities by focusing on those that are, alternatively, small, situated in out-of-the-way places, culturally outside the Jewish urban mainstream, or embedded in a larger society with markedly different values and traditions. These communities often constitute the points-of-contact between Jews and non-Jews, and in so doing sometimes transform Jews, non-Jews, and the relationships among them. Other such communities constitute experiments in Jewish lifeways and provide mainstream Jews with pilot projects for potential social and cultural change. This course will explore the significance of small, little-known, idiosyncratic, and anomalous Jewish communities on Jewish history and culture, and draw on them to instruct students on the social and cultural processes of small or unusual communities generally. The communities studied will be located both in the U.S. and elsewhere in which Jews have lived as a minority community during modern times. The course will look at the founding, growth, and decline of such communities and at their social processes and institutions. It will explore how to understand and analyze such communities, which vary from one part of the world to another. The social world of Jewish communities, large and small, is a core interest of Penn State's Jewish Studies Program. This course will complement the current offerings in Jewish Studies, strengthening the social, cultural, and contemporary perspectives available in the Program. It will provide students with an opportunity to explore individual experience and micro-level processes among Jews, and to study the dynamics of identity and survival. It will complement the current offerings in Sociology and Anthropology by affording an opportunity to focus on community-level social processes and by adding a course on contemporary Jewry. The course will integrate knowledge from a variety of sources and fields, promote intercultural understanding, and meet US and IL requirements. Materials will be

interdisciplinary, and will include ethnographies, sociological studies, population studies, histories, and personal narratives. They will include primary texts, creative works, and scholarly analyses. The assignments will be structured to facilitate preliminary experience in independent analysis, library research, or field research. The course will be offered approximately once a year. Enrollment will be limited to 30 students in order to promote active, engaged learning. Evaluations will be based on short papers and outlines that will prepare students for their final, term papers.

Enforced Prerequisite at Enrollment: Three credits in JST or ANTH or SOC
Cross-listed with: ANTH 457, SOC 457
International Cultures (IL)
United States Cultures (US)

JST 459: Writing Palestine-Israel

3 Credits

Study of literary writing of and about the Israel-Palestine conflict. This course examines the Israel-Palestine conflict through an analysis of literature written by participants, victims, bystanders, and observers. We will read literature by Arabs, Jews, and Christian; by Israelis, Palestinians, and other populations affected by the conflict; and by writers in the Arab World, Europe, and the Americas in order to develop a nuanced understanding of the conflict, its history, what's at stake for its participants, antagonists, and victims. The course will emphasize close reading and aesthetic analysis, but it will also pay attention to the ways in which literature can be used to think about history, experience, and politics. The course will survey a wide array of writing from a diverse set of global traditions, including significant figures, themes, and histories, and the course will pay attention to literature's intersections with migration history, international politics, faith, nationalism, and revolutionary liberation. The course will showcase national and religious diversity. We will focus on the relationship of writing of and about the Israel-Palestine conflict to other subfields and literary study more generally, including issues such as ethnicity, culture, religion, diaspora, gender, politics, and identity. A major emphasis of the course will be on analyzing literary texts as lenses to reflect, refract, and focus on Arab, Jewish, and Palestinian identity. In addition, by way of analyzing the interrelationships between literary representation and experience, the course will attend to a number of key themes in how we think about Diaspora, with some special emphasis on American literature about the Israel-Palestine conflict: how have American writers, and especially American writers of Arab, Jewish, and Muslim heritage, articulated their identities in relation to the Israel-Palestine conflict and the Middle East more generally, including the long history of US involvement in the Middle East? The course will cover both English-language literature and literature in translation from other languages.

Enforced Prerequisite at Enrollment: Prerequisites: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H Recommended Preparations: Some knowledge of the Israel-Palestine conflict would be helpful.
Cross-listed with: ENGL 459
Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures
International Cultures (IL)
General Education: Humanities (GH)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Global Learning

JST 468: Jewish Philosophy

3 Credits

Explores major figures and trends in Jewish philosophy and their influences on other philosophical traditions. J ST (PHIL) 468 Modern Jewish Philosophy (3) The primary objective of this course is to encourage students to have a reflective stance on Jewish thought. Students will learn what comprises Jewish thought and how it is distinguished from theology. They will learn what role religion plays in philosophical thought and what is at stake for a philosophy that emerges from a particular religion. This course will give students perspective on how Judaism links to other philosophical movements, for example, the enlightenment of the modern period. It will enable to think about Judaism from a theoretical perspective, adding a new dimension to what they might study from historical, sociological, or literary viewpoints. Some questions we will consider include: In what ways does it converge/diverge, with the philosophical strains that influence it? In what ways have particular events in history shaped Judaic thinking? Does Judaism, or Judaic thinking, have an essence? If so, what is it? What does Judaism mean for the Jews, and what does it mean for others? And finally, what role does mysticism have in the play between religion and philosophy? Students will be evaluated by written work (short papers and a longer seminar paper) and a class presentation.

Prerequisite: one course in Philosophy and/or Jewish Studies
Cross-Listed

JST 473: The Contemporary Middle East

3 Credits

Political, economic, and social changes in Turkey, Iran, Israel, and the Arab countries in the twentieth century; Arab-Israeli conflict.

Cross-listed with: HIST 473
Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures
International Cultures (IL)

JST 474: Hiroshima & the Holocaust in History and Memory

3 Credits

The history and memory of the Holocaust and Hiroshima and Nagasaki are often taught separately in different disciplines. This course will examine them together through the various ways different societies remembered, understood and commemorated these. Using the extensive literature on the history of memory, this course further suggests ways in which these memories and histories affected and were entangled by each other. Specific content will vary according to individual instructor, but topics may include victim cultures, cold war nuclear history, trauma, human rights, dark tourism, memorials, architecture as well as the general impact of these tragedies on the fraught politics of memory in East Asia and the Middle East, or the way the memories of the tragedies were entangled with the civil rights and other struggles in American and global history.

Prerequisites: Three credits in JST, HIST, or ASIA
Cross-listed with: ASIA 457, HIST 457
International Cultures (IL)

JST 478: Ethics After the Holocaust

3 Credits

The aim of this course is to explore various ways in which philosophers have responded to Auschwitz (a signifier, or name, which is in turn not without controversy and complexity). It will examine, in particular, the promise and failure of post-Holocaust ethical theory, with attention to evil, suffering, goodness, witnessing, testimony, trauma, and human rights. Authors include Levi, Agamben, Arendt, Adorno, Levinas, Jonas, and Jankelevitch. Through reading and discussion of primary sources, this course introduces students to these philosophers' leading questions, methods, and conclusions, with reference to their historical context and their impact on later philosophy. The course will make these writings accessible to students without unduly presupposing prior knowledge, while also encouraging students to rise to the challenge with their own critical analysis and creative interpretations.

Prerequisite: One course in either JST or PHIL

Cross-listed with: PHIL 478, RLST 478

Bachelor of Arts: Humanities

JST 480: Greeks and Persians

3 Credits

Development and achievements of the Achaemenid kingdom; relationships between Persians and Greeks.

Prerequisite: 3 credits in CAMS

Cross-listed with: CAMS 480

Bachelor of Arts: Humanities

JST 494: Research Projects

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

JST 494H: Research Projects

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Honors

JST 495: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Prerequisite: prior approval of proposed assignment by instructor

JST 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

JST 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

JST 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Kinesiology (KINES)

KINES 1: Introduction to Outdoor Pursuits

1.5-3 Credits/Maximum of 12

Introduction to Outdoor Pursuits (KINES 1/ RPTM 1) is a course that is designed to introduce the student to selected outdoor pursuit activities. The selected activities will depend on the time of the year and availability of resources. The activities could include but are not limited trail day hiking, mountain biking, backpacking, orienteering, kayaking, canoeing, cross country skiing, or to rock climbing experiences. All selected activities will follow the same basic format of skill development and training procedures, history and philosophical underpinnings of the activity, available written resources and professional organizations related to the activity, logistical equipment preparation, appreciation of environmental impact of partaking in the selected activity, safety management / risk assessment and future opportunities to participate in the activity. It is a purpose of this course to allow the student to explore different outdoor pursuit activities and then to make a more informed decision as to which activities they might choose to further develop their skill base and competency necessary to partake in the activity at a more advanced level on a life long basis. Through opportunities to develop camaraderie through collaborative work/ teamwork, students practice safe participation in the selected activities with attention to environmental impact. Students will experience a common skill base from which to engage in the activities. After completion of the course, students are encouraged to engage in adventure recreation programs, and other appropriate courses to help with the continued development of life skills. This course fulfills credits toward the GHW General Education requirement.

Cross-listed with: RPTM 1

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

KINES 4: Principles of Fly Tying and Fly Fishing for Trout

1.5 Credits

KINES 4 is a unique course designed to give students of all experience levels an introduction to the lifetime sport of fly fishing. The purpose of the course is to present the students with the many aspects of fly tying and fishing for trout, so that they can enjoy outdoor activity for the remainder of their active lives. In KINES 4, students acquire the knowledge, skills and tactics they will use to solve problems in the constantly changing natural environment. Instruction includes, but is not

limited to: conditioning, basic fly tying, tying local patterns, appreciation for conservation techniques, equipment use/care/selection, fly casting, aquatic entomology, stream hydrology, fly fishing tactics, basic knots and experiencing local streams. Because of the geologic location, students have access to the premiere fly fishing streams in the eastern United States. These streams are a destination for fly fishing minded individuals and provide an outstanding opportunity for practice of a new healthy activity. In this active course, students apply what is learned to enhance the basic understanding of the sport and to experience the full complement of wellness components. Students will find that they have enhanced their quality of life now and for the remainder of their lives. Appreciating the rich history, this course models that of the first accredited university fly tying and fishing course started in the 1930s by Mr. George Harvey, known as the "dean of fly fishing" at Penn State ("Fly Fishing U").

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

KINES 6: Cycle Conditioning

1.5-3 Credits

KINES 6 introduces students to the performance of cycling as a lifelong activity that helps maintain and enhance physical fitness and overall wellness. This course provides the information that the student needs to understand, organize, plan and implement a physical fitness program that features cycling as a primary activity. The centerpiece of this course is a progression of individually-paced rides of varying lengths that are conducted over various terrains and potentially utilizing both indoor and outdoor training. Cycle conditioning typically includes a longer group trail ride utilizing designated cycling trails such as the Rails to Trails system. Students may experience opportunities to attempt individual time trial, interval training, and indoor, road or trail riding depending on the offering. Additionally, students are exposed to such topics as the physiology of exercise, cycling safety, goal-setting for personal health, principles and concepts of physical fitness, training methods to address different cycling goals, and nutrition and weight control. Students also have the opportunity to monitor their performance throughout the course using a variety of personal assessment inventories and instruments and are encouraged to utilize current technologies such as heart rate monitors and fitness apps. A student who completes KINES 6 will be able to identify the components of an effective physical fitness program and explain how cycling contributes to the success of this program, develop realistic fitness goals and design a cycling program to meet these goals, perform a variety of fitness cycling techniques, and understand how cycling promotes psychological well-being.

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

KINES 10: Techniques in Rock Climbing

1.5 Credits

KINES 10 is a course designed to give students a comprehensive introduction to the skills, safety, terminology and equipment used in the sport and recreational activity of rock climbing. This course also provides the knowledge base and experience the student needs to evaluate their

continued safe participation in rock climbing. There is an emphasis on belaying, technical systems, use and selection of equipment, climbing technique, and the metaphorical and psychological aspects of climbing. Students learn and practice proper physical aspects of climbing focusing on foundational training and conditioning through cardiovascular, strength, and flexibility movements. Important information on training, safety issues, injury prevention and treatment, and gaining appreciation for conservation and preservation of resources are included in the course. The rock climbing surface provides a conduit to promote lifelong wellness by engaging the entire body and mind to be physically challenged and mentally stimulated. Rock climbing challenges the participant to take risks, to work with others to solve problems and make informed decisions, and to learn to trust in partners. Students may be exposed to a wide range of climbing opportunities including indoor and/or outdoor experiences. In this course, students practice responsibility, cooperation, and collaborative skills. Teamwork and communication are essential components to the success of the student; students typically work together as climber, belayer (method of securing a climber by the use of a rope), and observer. The group connection is dependent on building communication and trust. Students provide constructive feedback and positive encouragement to one another during climbs.

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

KINES 10A: Lead Rock Climbing

1.5 Credits

Kinesiology 10A is designed to give students a comprehensive introduction to the skills, safety, terminology and equipment used in the activity of lead rock climbing. Lead climbing involves the climber placing protection to protect oneself as opposed to top roping (KINES 10). This course also provides the knowledge base and experience the student needs to evaluate their continued safe participation in lead rock climbing including a strong group work ethic and practicing the responsibility, cooperation, and collaborative skills needed for safety in lead rock climbing. In Lead Rock Climbing, students are introduced to advanced climbing techniques such as: footwork, hand holds, and body positions and benefit from immediate encouragement and assessment from the group. Lead climbing challenges the climber to be more critically aware of making good decisions in clipping, route choice and direction, back-stepping if necessary, body positions, equipment use, and safety. This class delves more deeply into issues of kinesthetic awareness of the climber's relationship to the climbing surface and to gravitational forces when climbing. Students learn and practice proper physical aspects of climbing focusing on foundational training and conditioning through cardiovascular, strength, and flexibility movements. Important information on training practices, safety issues, injury prevention and treatment, and understanding the climbing environment are important aspects of the course. The climbing surface provides a conduit to promote lifelong wellness by engaging in the entire body and mind to be physically challenged and mentally stimulated. Rock climbing challenges the participant to take risks, to work with others to solve problems and to make informed decisions. Students may be exposed to a wide range of climbing opportunities including indoor and/or outdoor experiences including bouldering and more advanced rock climbing techniques.

Enforced Prerequisite at Enrollment: KINES 10 or with permission of program

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

KINES 11: Snowsports: Downhill Skiing

1.5 Credits

KINES 11 is designed to help students build overall fitness and wellness based in winter snowsports, specifically downhill skiing. Students acquire the knowledge and critical thinking skills that are essential to the development and continual evolution of a fitness and wellness plan focused on a healthy and active lifestyle that includes cold weather exercise. Students explore such topics as wellness, training principles, cold weather injury and illness prevention and management, and proper mechanics to promote safety and success on snow. Downhill skiing is a popular recreational physical activity in a global market. The early days of skiing in the United States were typified by a variety of styles and techniques, many of which were brought to this country by European ski instructors. As the equipment and the snowmaking capabilities change, these changes are translated into adapting techniques for successful skiing. Downhill skiing can be performed across all ages and skill levels; in KINES 11, students are grouped appropriately by ability, so all students can be challenged individually on snow. If done properly, downhill skiing will promote comprehensive wellness while developing important life-long motor skills. Ultimately students will learn the benefits of downhill skiing as a lifetime activity for health and wellness.

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

KINES 12: Snowsports: Snowboarding

1.5 Credits

KINES 12 is designed to help students build overall fitness and wellness based in winter snowsports, specifically snowboarding. Students acquire the knowledge and critical thinking skills that are essential to the development and continual evolution of a fitness and wellness plan focused on a healthy and active lifestyle that includes cold weather exercise. Students explore such topics as wellness, training principles, cold weather injury and illness prevention and management, and proper snowboarding mechanics to promote safety and success on snow. Snowboarding is a popular winter recreational physical activity. The early days of snowboarding in the United States were typified by a variety of styles and techniques. As the equipment and snowmaking capabilities continue to change, these changes are translated into adapting techniques for successful snowboarding. Snowboarding can be performed across all ages and skill levels; KINES 12, students are grouped appropriately by ability, so all students can be challenged individually on snow. If done properly, snowboarding will promote comprehensive wellness while developing important life-long motor skills. Ultimately students will learn the benefits of snowboarding as a lifetime activity for health and wellness.

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

KINES 13: First Aid & Safety, CPR/AED

1.5 Credits

KINES 13 provides students with the knowledge and skills necessary to assess and recognize an emergency situation, call for help, and administer basic first aid & cardiopulmonary resuscitation (CPR) with an automated external defibrillator (AED) while maintaining appropriate personal safety precautions. Students are trained to use specific techniques that are current with the practicing standards of the American Red Cross or American Heart Association organizations. Students receive information on the prevention of injury and illness, with a focus on personal safety. Participants assess their environment and personal habits to help reduce their risk of injury and illness and risk to others.

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

KINES 17: Ballroom Dance

1.5 Credits

KINES 17 introduces students to ballroom dance as a social/recreational or competitive activity, with the goal of leading to an active lifestyle. This course provides the basic skills and information necessary to develop and continue one's appreciation for and interest in ballroom dancing. Dance history and etiquette, cooperation with a partner, and learning the fundamental of leading/following techniques are stressed from the beginning of the semester. As different dances are introduced (i.e. FoxTrot, Waltz, Jitterbug/Swing, Cha-Cha-Cha, Tango, Slasa, etc.), additional terminology and movement patterns are included. Students must combine skills in a variety of ways: timing movement to music, executing dance relevant movements, and interacting with partners. The remainder of the class has the option of practicing or observing. Outside opportunities for dancing are encouraged within Penn State and the local community. This class involves continuous movement for cardiovascular and muscle fitness as well as stretching and strengthening of the muscles to develop and improve posture, balance, coordination and flexibility. Students explore the importance of general fitness and wellness as paths to lifetime activity participation. The weight-bearing, low-impact benefits of Ballroom Dancing allows for maintaining bone density over time. Ballroom Dancing is a lifetime activity and provides an opportunity to encourage physical activity.

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

KINES 20: Modern Dance

1.5 Credits

KINES 20 is a beginner's level course designed to provide students with an introduction to the motor skills and cognitive understanding needed for expression through modern dance. This class explores the use of weight, time, space, and energy in relation to a release based on modern dance technique. There is emphasis placed on the development of personal movement vocabulary, experimentation, and self-expression. Modern dance is grounded in somatic practices with importance placed on finding organic or efficient ways to engage the body in movement.

By the end of the course, students will develop an appreciation for the lifetime benefits offered by expression through dance and will understand how dance can be incorporated into a lifetime pursuit of health and wellness.

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

KINES 24: Lifetime Sports

3 Credits

KINES 24 is divided into three equal units that are designed to give students the opportunity to explore three different sports that have the potential for lifetime participation. This format will give students an opportunity to gain a breadth of information and experience that will serve as a gateway to learning opportunities in more advanced classes that offer more depth and focus. Such sports may include, but are not limited to: racquet sports, winter sports, archery, bowling or golf. Sports that have lifetime social and wellness values may be offered due to specific location considerations such as unique facilities or faculty expertise. This course provides information not only specific to the sports included, but also on how to incorporate those sports into one's fitness plan throughout life, the potential fitness and wellness benefits of regular participation in the sport, injury prevention, and sportsmanship/etiquette to promote lifelong participation. Participating in lifetime sports will help students understand that regular activity has social, emotional, and physical benefits with potential for total well-being and a better quality of life.

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

KINES 25: Introduction to Court Sports

1.5 Credits

KINES 25 is a course that has been designed to give the Penn State student an introduction to selected lifetime racquet sports such as but not limited to tennis, racquetball, squash, table tennis, badminton, handball, pickleball, and/or other court sports. By the end of the course, each student will possess a basic knowledge of a selection of racquet sports that will allow them to be a knowledgeable spectator or participant over the lifespan. KINES 25 is offered in as a series of modules with two to three racquet sports selected for the course content for the semester. Selections of included sports are noted by section in the schedule of courses. The fundamental skills, strategies, etiquette, and rules will be covered for each racquet sport included in the course. Successful completion of this course serves as a 'gateway' to advanced level courses in court sports, intramural and recreational play and provide the skills and knowledge necessary to participate in a lifetime activity. In addition to acquisition of knowledge and skill in a variety of racquet sports, students will examine the level of fitness necessary for successful participation in such sports, the potential fitness benefits of participating in racquet sports on a regular basis, and the social benefits associated with the betterment of one's well-being and quality of life. Furthermore, students will explore proper training techniques, injury prevention, and fitness

habits that may aid their enjoyment of a variety of racquet sports in pursuit of wellness over the lifetime.

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

KINES 27: Badminton

1.5 Credits

KINES 27 is a course designed to give the student the understanding, knowledge and skills to begin an exploration of the game of badminton. While the primary focus of this course is shot development and acquiring an understanding of rules, regulations, and terminology, subsequent effort will emphasize the development of movement skills and a progression from rallying to game play. By the end of the course, each student will possess a basic knowledge of the game of badminton that will allow them to be a knowledge spectator or participant in the game of badminton over the lifetime. KINES 27 delivers badminton as a lifetime sport. Students will examine such content as the minimum level of fitness necessary for successful participation in the game of badminton, the potential fitness benefits of participating in badminton on a regular basis, promoting lifetime wellness through activity, and the social benefits associated with the betterment of one's well-being and quality of life. Perhaps the most unique feature of Badminton is the regular on court practice. Each week during this course, students will have a chance to apply the skills they have learned during the week on an actual badminton court. This situation creates an ideal practice areas for the student badminton player to become acquainted with the situational application of badminton skills and to engage in and promote community in badminton.

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

KINES 29: Golf I

1-1.5 Credits

KINES 29 is a beginner's level course designed to give students the understanding, knowledge and skills to begin an exploration of the game of golf. While the primary focus of this course is the short game, 100 yards and in to the green, students will also develop proficiency in short and mid-range irons. By the end of the course, each student will possess a basic knowledge of the game of golf that will allow them to be a knowledgeable spectator or participant in the game of golf. KINES 29 also explores golf as a lifetime sport. Students will examine the level of fitness necessary for successful participation in the game of golf, the potential fitness and wellness benefits of participating in golf on a regular basis, and the social benefits associated with the betterment of one's well-being and quality of life. During this course, students will have a chance to apply the skills they have learned during the course through practicing the game on an actual golf course. This opportunity creates an ideal practice area for the student golfer to become acquainted with the situational application of golf skills and the decision-making and problem-solving skills needed to manage the golf course including the various hazards.

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

KINES 29B: Total Golf

1.5-3 Credits

KINES 29B is a course that provides the information needed to understand, prepare for, and execute the game of golf and includes mandatory participation in travel during Spring Break. Students in this course work to appreciate the history of the game of golf, gain appreciation for etiquette and ethical play, learn and implement USGA Rules of the Game, practice golf-specific physical conditioning and mental strategies, and develop the swing for various conditions. This course is designed for students who have at least played golf. The main focus during active rounds of golf within the course is not the golfer's score, but the sportsmanship, ethical behavior, and etiquette displayed while demonstrating pace of play. KINES 29B emphasizes golf as a lifetime sport of high integrity. Students will examine the level of fitness necessary for successful participation in the game of golf, the potential social wellness benefits of participating in golf on a regular basis, and potential effect on one's quality of life. Students apply the knowledge and skills they have learned during the course through playing multiple rounds of golf on a golf course. This opportunity creates an ideal practice area for the student golfer to become acquainted with the situational application of golf skills and the decision-making and problem-solving skills needed to manage the golf course while balancing the mental game, ever important etiquette, and displaying ethical behavior and sportsmanship. During the course, students experience golf and good sportsmanship in a social, yet competitive situation. Students receive group and individual practical instruction in addition to learning theoretical knowledge. For completion of this course, students are required to travel with the class during Spring Break, generally to the Southeastern United States; specific details including location and costs are displayed on the section information on the schedule of courses.

Enforced Prerequisite at Enrollment: Recommended Preparations:

KINES 29 or have played golf

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

KINES 29C: Total Golf in Pennsylvania

3 Credits

KINES 29C is a course that provides the information needed to understand, prepare for, and execute the game of golf and includes mandatory participation in rounds of golf in and around Pennsylvania per the individual course offering. Students in this course work to appreciate the history of the game of golf, learn and implement USGA Rules of the Game, practice golf-specific physical conditioning and mental strategies, and develop the swing for various conditions. This course is designed for students who have played golf. The main focus during active rounds of golf within the course is not the golfer's score, but the sportsmanship, ethical behavior, and etiquette displayed while demonstrating pace of play. KINES 29C emphasizes golf as a lifetime sport. Students will examine the level of fitness necessary for successful participation in the game of golf, the potential social wellness benefits of participating in golf on a regular basis, and potential effect on one's quality of life. Students apply the knowledge and skills they have learned during the course through playing multiple rounds of golf on a golf

course. This opportunity creates an ideal practice area for the student golfer to become acquainted with the situational application of golf skills and the decision-making and problem-solving skills needed to manage the golf course while balancing the mental game, ever important etiquette, and displaying ethical behavior and sportsmanship. During the course, students experience golf and good sportsmanship in a social, yet competitive situation. Students receive group and individual practical instruction in addition to learning theoretical knowledge. For completion of this course, students are required to travel locally for day trips; specific details including location and costs are displayed on the section information on the schedule of courses.

Recommended Preparations: KINES 29 or have played golf

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

KINES 42: Ice Skating

1.5 Credits

KINES 42 is a course focused on the development of basic ice skating skills, and introducing a new physical fitness activity option into the lifestyle of the Penn State student. In the course, students develop balance and control while performing the basic skills necessary for the execution of many ice skating maneuvers for use in recreational skating or in learning to play hockey and/or figure skate. Skills are acquired through the use of exercises and patterns designed to strengthen the fundamentals of skating and to further develop balance, edge control, and confidence while participating in the activity. Such skills are developed and reinforced through off-ice practices to enhance the components of physical fitness, enhance balance, and to promote healthy behaviors in general fitness and wellness. Students may have the opportunity to work as partners and in small groups to balance the individual efforts through peer support and involvement. This course provides the necessary skill foundation for participation in forms of ice skating such as hockey, figure and/or recreational skating activities. In addition to the core component of physical skill development, the student has an opportunity to acquire an enlightened appreciation and understanding of the skill and art of ice sports and enhance general wellness and quality of life.

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

KINES 44: Racquetball I

1.5 Credits

This course is a beginner's level course that seeks to give students the understanding, knowledge and skills to begin an exploration of the game of racquetball. While the primary focus of this course is acquiring an understanding of rules, fundamentals, and terminology, subsequent effort will emphasize the development of movement skills and a progression from drills and modified games to full game play. By the end of the course, each student will possess a basic knowledge of the game of racquetball that will allow them to be a knowledgeable spectator or participant in the game of racquetball. KINES 44 also examines racquetball as a lifetime sport. In addition to acquisition of knowledge and skill in tennis, students will examine the level of fitness necessary for

successful participation in the game of racquetball, the potential fitness benefits of participating in racquetball on a regular basis, and the social benefits associated with the betterment of one's well-being and quality of life. Furthermore, students will explore proper training techniques, injury prevention, and fitness habits that may aid their enjoyment of racquetball as a lifetime pursuit of wellness. Perhaps the most unique feature of Racquetball I is the regular on court practice. Routinely, students will have a chance to apply the skills they have learned during the week on regulation racquetball courts. This practice time creates an ideal practice area for the student racquetball player to become acquainted with the situational application of racquetball skills.

General Education: Health and Wellness (GHW)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

KINES 45: NAUI Basic SCUBA

1.5 Credits

KINES 45 introduces students to the fundamental academic concepts and practical skills of SCUBA diving as described by NAUI (National Association of Underwater Instructors) standards. Students explore the importance of fitness and wellness and their personal fitness needed to succeed in SCUBA. Water safety and emergency response skills are emphasized. Students must be able to tread water, swim the front crawl for an extended time, and be able to swim underwater for a length of the pool. This course addresses academic elements and applied sciences such as: the gas laws, Archimedes' principle, physics (light, sound, heat, aquatic pressure relationships), physiology (arterial gas embolism, miscellaneous barotrauma, decompression illness, hypo and hyperthermia), dive planning, equipment configuration and function, environmental considerations (salt vs. fresh water, dangerous plants and animals, water temperature and visibility, and altitude). In addition, this course introduces practical confined water skills including: basic skin-diving skills, fundamental SCUBA skills (regulator clearing and retrieval, emergency out of air ascents, buoyancy control, rescue techniques, ditch and don of gear, underwater communication, and proper partnership), and equipment preparation and assembly. Students may only earn credit in either KINES 45 or KINES 45A.

Enforced Prerequisite at Enrollment: Meet NAUI standards and/or by permission of the instructor. and Students may only earn credit in either KINES 45 or KINES 45A.

General Education: Health and Wellness (GHW)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Key Literacies

KINES 46: Squash I

1-1.5 Credits/Maximum of 1.5

KINES 46 is a beginner's level course designed to provide students with the motor skills and cognitive understanding necessary to successfully compete in the game of squash. While the initial focus of this course is development of racquet skills, acquiring an understanding of rules, regulations, and terminology are integral to the process in learning squash. Subsequent effort will emphasize the development of movement skills, progression of racquet fundamentals, and application of the above to managing game situations. Here, students will learn to recognize, comprehend, and develop on-court strategies, and will learn to employ

these tactics in game play. By the end of the course, each student will possess a basic knowledge of the game of squash and sound racquet fundamentals that will allow them to be a knowledgeable spectator or participant in the game of squash. This will serve as a "connector" to, not only advanced levels of squash, but other forms of racquet play as well. In turn, this will facilitate the discovery and appreciation of the significant lifetime benefits offered by all racquet sports. Finally, KINES 46 examines squash as a lifetime sport. Students will explore the level of fitness necessary for successful participation in racquet sports, the potential fitness benefits of participating in squash on a regular basis, and the social benefits associated with the betterment of one's well-being and quality of life. Furthermore, students will explore proper training techniques, injury prevention, and fitness habits that may aid their enjoyment of squash as a lifetime pursuit of wellness.

General Education: Health and Wellness (GHW)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

KINES 47A: Beginning Swimming

1.5 Credits

KINES 47A introduces students who are beginning swimmers to the performance of swimming safety and skills that can be used as lifelong activities. Students will learn and practice a progression of swimming related skills designed to acclimate the new or beginning swimmer to the aquatic environment. An introduction to personal safety skills provides the students with knowledge necessary for safe behavior in an aquatic setting. The course provides basic knowledge of hydrodynamic principles that will identify a kinetic awareness at various water depths. KINES 47A may also introduce students to a variety of aquatic fitness activities that include jogging in the water and water aerobics. As swimming and basic aquatic fitness may play a role in lifetime activity, fitness, and wellness, students learn valuable personal fitness knowledge and principles and how to implement them. Though the importance of water safety and basic survival tactics is paramount to the course, so to is the appreciation for self-care and wellness over the lifespan and possessing the tools to have a rich quality of life.

Recommended Preparation: Students should be comfortable in shallow and deep water and be moderately proficient in front crawl, elementary backstroke, sidestroke, and breaststroke.

General Education: Health and Wellness (GHW)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

KINES 47B: Intermediate Swimming

1.5 Credits

KINES 47B introduces students who have attained moderate swimming skills and knowledge to advanced swimming strokes. Aquatic activities are introduced as they relate to one's lifetime for maintenance of physical health and psychological well-being. Students learn and practice a progression of swimming skills designed to promote efficiency and fitness in the water. Personal safety skills provides the students with knowledge necessary for safe behavior in an aquatic setting. Students are exposed to a variety of aquatic fitness activities that include walking and jogging in the water, lap swimming, and water aerobics. Students also experience recreational aquatic sports (i.e. water polo, volleyball) to allow them to participate independently outside class. Though the

importance of water safety and basic survival tactics is paramount to the course, so too is the appreciation for self-care and wellness over the lifespan and possessing the tools to have a rich quality of life.

Enforced Prerequisite at Enrollment: 47A or Students taking this course must demonstrate the ability to swim in depths of over 4ft successfully or one length of the pool without apprehension or fear.

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

KINES 48: Tennis I

1.5 Credits

This is a beginner's level course that seeks to give students the understanding, knowledge and skills to begin an exploration of the game of tennis. While the primary focus of this course is stroke development and acquiring an understanding of rules, regulations, and terminology, subsequent effort will emphasize the development of movement skills and a progression from hitting to rallying. By the end of the course, each student will possess a basic knowledge of the game of tennis that will allow them to be a knowledgeable spectator or participant in the game of tennis. KINES 48 also examines tennis as a lifetime sport. In addition to acquisition of knowledge and skill in tennis, students will examine the level of fitness necessary for successful participation in the game of tennis, the potential fitness benefits of participating in tennis on a regular basis, and the social benefits associated with the betterment of one's well-being and quality of life. Furthermore, students will explore proper training techniques, injury prevention, and fitness habits that may aid their enjoyment of tennis as a lifetime pursuit of wellness. Perhaps the most unique feature of Tennis I is the regular on court practice. Routinely, students will have a chance to apply the skills they have learned during the week on regulation tennis courts. This practice time creates an ideal practice area for the student tennis player to become acquainted with the situational application of tennis skills.

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

KINES 50: Lifeguarding

3 Credits

KINES 50 is a course designed to provide the student with comprehensive knowledge of fitness and safety in the aquatic environment. This course includes the development and understanding of aquatic skills, survival techniques, stroke mechanics, patron safety, and rescue skills, as well as provide the knowledge and skills necessary to recognize and respond to life treating emergencies. Emphasis is placed on leadership, professional growth, swimming mechanics, endurance, emergency identification and safety, and understanding of patron safety at aquatic facilities, both in and out of the water. Upon completion of this course, students will be prepared to take Lifeguarding Certification exam.

Recommended Preparations: KINES 47B; KINES 47A; Satisfactory placement on the swimming examination; proficiency of front crawl, breast stroke, headfirst dive from the surface, and treading water.

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

KINES 53N: History and Practice of Martial Arts

3 Credits

History and Practice of Martial Arts, is an integrative, interdomain (GH, GHW) course. It examines the history of martial arts in which students will learn both about the origins, development, and diffusion of martial arts dating to China in the late 6th century and how it morphed and spread to different cultures including but not limited to Okinawa, Japan, Korea, the United States, Brazil, and Europe. Students will understand the philosophical bases of the martial arts as a mode of thinking combining the mental, physical, and spiritual well-being of the practitioner. For the health & wellness (GHW) portion students will also be introduced to a particular martial art (whatever the choice/specialty of the course instructor). While martial arts date to the late 500s C.E., many martial arts, like Korean Tae Kwon Do for instance, developed as a nationalistic martial art in Korea only in 1955 influenced by and becoming a synthesis of native Korean martial arts, Japanese karate, and Chinese Kung Fu. Other martial arts have similar evolutions. It's a classic product of trans-cultural influences at a particular moment in time given the histories of Korea, Japan, and the region. Examination for this will be done in class through a physical demonstration of skills for belt promotions.

General Education: Humanities (GH)

General Education: Health and Wellness (GHW)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

KINES 56: Introduction to Martial Arts

1.5 Credits

KINES 56 is designed to give students an introduction to martial arts and the use of martial arts for lifelong fitness. Martial arts have been practiced for centuries as a method of integrating mind, body, and spiritual well-being. While improving physical fitness and emotional health, martial arts are the cornerstone of unarmed self-defense. In addition to being able to identify and enact strategies for improving situational awareness and display proficiency in basic Martial Arts for personal defense, this course will promote comprehensive wellness while developing important lifelong motor skills. Assessments will be both written and physical. Students will be expected to show knowledge of martial arts history and terminology and perform martial arts techniques covered in the course.

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

KINES 57: Personal Defense

1.5 Credits

KINES 57 is designed to give students an understanding of and proficiency in self-defense strategies based on martial arts techniques. Students are introduced to the culture and history of the martial arts which encompasses a wide variety of Asian self-defense systems. The skills, strategies and techniques of self-defense developed through this course can be performed at any level across all ages, and the training will promote comprehensive wellness and facilitate the development of

a lifelong fitness program. For many, the emotional and psychological benefits of learning self-defense can be as important as the physical benefits. While the focus of this course is not solely on physical fitness, it will challenge students to improve their flexibility and conditioning which will enhance their ability to defend themselves and allow for additional options when defending oneself.

General Education: Health and Wellness (GHW)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

KINES 61: Fitness Theory and Practice

3 Credits

Fitness theory and Practice is a course designed to give the Penn State student a complete understanding of the fundamental principles of physical fitness and the skills necessary to implement a personalized fitness program. This course will provide the information and skill needed for the student to organize, plan and implement a complete physical fitness program which can evolve over the lifespan. In this course the Penn State student will acquire the knowledge and critical thinking skills that are essential to the development of a healthful and active lifestyle. Students explore the training principles, health-related components of physical fitness, benefits of these components, and learn to use and apply established fitness guidelines. Students also consider factors which affect their performance in executing a fitness plan such as nutritional concerns, the impact of stress, choice of proper equipment, matching personal goals to proper execution, and personal motivation. In their pursuit of an active and healthy lifestyle, students assess and evaluate their personal health, fitness, and wellness using pre and post intervention strategies, and engage in physical exercise to practice concepts presented in course materials including cardiovascular, flexibility, muscular strength and endurance training techniques.

General Education: Health and Wellness (GHW)
GenEd Learning Objective: Creative Thinking
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

KINES 61S: Fitness Theory and Practice

3 Credits

Fitness Theory and Practice is a course designed to give the Penn State student a complete understanding of the fundamental principles of physical fitness and the skills necessary to implement a personalized fitness program. This course will provide the information and skills needed for the student to organize, plan and implement a complete physical fitness program which can evolve over the lifespan. In this course the Penn State student will acquire the knowledge and critical thinking skills that are essential to the development of a healthful and active lifestyle. Students explore the training principles, health-related components of physical fitness, benefits of these components, and learn to use and apply established fitness guidelines. Students also consider factors which affect their performance in executing a fitness plan such as nutritional concerns, the impact of stress, choice of proper equipment, matching personal goals to proper execution, and personal motivation. In their pursuit of an active and healthy lifestyle, students assess and evaluate their personal health, fitness, and wellness using pre and post intervention strategies, and engage in physical exercise to practice concepts presented in course materials including cardiovascular,

flexibility, muscular strength and endurance training techniques. As a first year seminar course, students receive instruction in and introduction to campus resources and receive peer mentoring.

First-Year Seminar
General Education: Health and Wellness (GHW)
GenEd Learning Objective: Creative Thinking
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

KINES 62: Introduction to Cardiovascular Activities

1.5 Credits

KINES 62 has been designed to help students become acquainted with and proficient in many types of cardiovascular activities that can be used as part of a lifelong exercise program. Students should expect to participate in a variety of activities such as, but not limited to, walking/jogging, cycling, aquatics, aerobic dance, and cardiovascular exercise machine use. Additionally, students will have an opportunity to learn skills necessary to create safe cardiovascular exercise programs while considering safety, injury prevention, and the pursuit of lifelong wellness. KINES 62 is taught in a modular format including three to five separate types of cardiovascular exercise being chosen for the course content for the semester. Students will know which courses have been selected by listings in the semester Schedule of Courses. KINES 62 will provide a unique balance of training guidelines that can be applied to the various cardiovascular activities one pursues throughout life. Fundamental guidelines for safe exercise, progression, self-monitoring, etiquette, and injury prevention will be introduced and practiced throughout the course. Cardiovascular Activities serves as a stepping stone to lifetime physical fitness and disease prevention. Self and group paced activity will allow for each individual to maximize the benefits of exercise.

General Education: Health and Wellness (GHW)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

KINES 63: Aerobic Dance

1.5 Credits

KINES 63, students engage in participation in various types of group fitness classes including but not limited to aerobic dance, Zumba, interval training, cardio circuit training. This active participation is joined with delivery of information addressing components of cardiovascular training, including principles, components, theories, and training strategies of physical fitness. Students learn how to prepare for and engage in group exercise activities by applying theories of kinesiology and aerobic exercise in real-world experiences. In addition to active engagement in group exercise, students experience collaborative work in small and large groups to solve complex movement problems by developing their own brand of group exercise training. Critical thinking is stressed as students negotiate the implementation of cardiovascular training principles as part of their ADL (activities of daily living). When a student completes KINES 63, he or she is able to identify the components of an effective physical training program and explain how that program contributes to lifelong wellness; develop training goals and design a wellness program to meet these goals; perform a variety of physical training techniques; and understand how the acquisition of components of cardiovascular training skills and knowledge promotes psychological well-being.

General Education: Health and Wellness (GHW)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

KINES 65: Lifetime Jogging

1.5 Credits

KINES 65 is a beginner's level course that seeks to give students the understanding, knowledge and skills to establish a fitness program involving jogging. This course introduces students to the performance of jogging as a lifelong activity that helps maintain and enhance physical fitness and overall wellness. It also provides the information that the students need to understand, organize, plan and implement a physical fitness program that features jogging as a primary activity. Students will examine the varying levels of fitness necessary for successful participation in jogging, the potential fitness benefits of engaging in jogging on a regular basis, and the social benefits associated with the betterment of one's well-being and quality of life. The centerpiece of this course is a progression of individually paced jogs of varying lengths that are conducted over various terrains. Students will experience participation in jogging through a variety of training techniques including interval runs, hill runs, and runs to various locations of interest dependent on each campus location and the surrounding community. These activities are complemented by lectures on a variety of jogging and fitness related topics. Students may also participate in small group-based activities that build leadership and teamwork skills. Throughout the course, students will have opportunities to apply the knowledge and skills they have learned during the course through participation in regular exercise. This opportunity creates an ideal practice arena for the students to become acquainted with situational awareness and the ability to make "on-the-fly" problem solving decisions.

General Education: Health and Wellness (GHW)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

KINES 67: Physical Conditioning

1.5 Credits

KINES 67 has been designed to help students build high levels of overall physical conditioning based upon a variety of training techniques such as, but not limited to, high intensity interval training, functional training, and body weight training. Students should expect to physically challenge themselves through a variety of activities focusing on aerobic, anaerobic, and resistance training. Students will acquire the knowledge and critical thinking skills that are essential to the development of a healthful and active lifestyle. Students explore such topics as wellness, training principles, health-related components of physical fitness, benefits of these components, and learn to use and apply established fitness guidelines. Students must also consider nutritional concerns and choice of proper equipment and training tactics to match one's goals. In this course, students will acquire the knowledge and critical thinking skills that are essential to the development of a healthful and active lifestyle. Additionally, students will have an opportunity to learn skills necessary to create safe, complete conditioning programs while considering safety and injury prevention. Physical Conditioning will provide a unique balance of training guidelines that can be applied to the various activities one pursues throughout life. KINES 67 may serve as a stepping stone to lifetime fitness, competition in organized athletic events, and personal

challenge activities. Students will develop a holistic approach to training for endurance, strength, and integrated activities. Students should expect to work individually and in groups to complete athletic challenges and integrate exercise, team work, and problem-solving skills.

General Education: Health and Wellness (GHW)
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

KINES 68: Resistance Training

1.5 Credits

Resistance Training is a course designed to improve students' muscular strength/endurance and is focused on development and implementation of an effective personal strength/endurance training program for lifelong fitness. Key purposes of this class are to learn the basic principles of resistance training, to learn the role of resistance training in an overall program of health and wellness, and to acquire the necessary skills and experience to develop an individualized program for developing muscular strength and endurance over the lifespan. Students will explore the benefits of incorporating a resistance training program as part of a complete fitness plan and how implementation of such a plan may contribute to such changes as increased weight loss/control, balance and coordination, and a better overall sense of well-being. Students practice proper technique for a wide variety of training exercises and to create a personal training program. Students will explore resistance training principles through learning basic anatomy, basics in muscular physiology, and understanding the body's adaptations to training and detraining. Attention will be given to safety and injury prevention, performance enhancement through natural means and training, proper training techniques and full fitness and wellness plan creation and implementation, and strategies in progression and motivation. Furthermore, students will learn validated techniques to assess muscular strength and endurance and to compare results to normative data. Students will be encouraged to explore their personal health and fitness goals and how resistance training may be incorporated into their lifelong fitness and wellness plan.

General Education: Health and Wellness (GHW)
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

KINES 70: Swim Conditioning

1.5 Credits

KINES 70 addresses, in both a theoretical and practical manner, the fitness benefits derived from swimming. These benefits include but are not limited to: flexibility, cardiovascular endurance, muscular strength and endurance, and weight management. Because of its non-weight bearing nature, attention is also given to the exercise value of swimming for arthritic, injured and overweight individuals. This course promotes swimming as a lifelong pursuit and at the same time, enables a student to design an individualized fitness plan, using swimming as the primary activity. Students taking this course must be proficient in swimming skills with the ability to swim distance in the pool. During the swim conditioning portion, students should expect a warm-up, training session, flexibility portion, and a cool-down phase. Training progresses through the semester and takes into account the fitness goal

(group or individual). Throughout the semester, swimming is the primary activity, but an exposure to aquatic walking/jogging/running and dryland training is also provided. Moreover, the importance of implementing training variety, proper technique and appropriate safety procedures is emphasized throughout the course with consideration for altering training to meet current and future health and fitness needs. Students have an opportunity to practice skills and behaviors that enable them to better maintain health across their lifespan, as well as to recognize the importance of social, emotion and physical health and wellness.

Enforced Prerequisite at Enrollment: Intermediate or advanced swimming level or Students taking this course must be proficient in swimming skills with the ability to swim distances in the pool.

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

KINES 72: Walking for Fitness

1.5 Credits

KINES 72 introduces students to the performance of fitness walking as a lifelong activity that is intended to maintain and enhance physical health, wellness, and psychological well-being. This course provides information the student needs to understand, organize, plan and implement a physical fitness program that features walking as a primary, low-impact activity. Students examine the potential fitness benefits of engaging in walking on a regular basis and the social benefits associated with the betterment of one's well-being and quality of life. This course includes a progression of individually paced routes varying lengths that are conducted over various terrains. Students experience participation in ambulation through a variety of training techniques including intervals, hill training, and walks to various locations of interest dependent on each campus location and the surrounding community. These activities are complemented by teachings on a variety of walking and fitness related topics such as the philosophy of walking and walking safety, goal-setting for personal health, principles and concept of physical fitness, the physiology of walking, assessing exercise, promoting wellness, and nutrition and weight control. Students may also participate in small group-based activities that build leadership and teamwork skills. Throughout the course, students have opportunities to apply the knowledge and skills they have learned during the course through participation in regular exercise. Students also experience techniques used to monitor performance throughout the course.

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

KINES 76: Introduction to Tai Chi Ch'uan

1.5 Credits

KINES 76 is designed to introduce students to Tai Chi Ch'uan, a traditional Chinese system of personal cultivation and self-defense. Students explore Tai Chi Ch'uan as a health and martial arts system which is based on more than five thousand years of observation and practice culled from the major Chinese Schools of philosophy and Chinese medical practice. Tai Chi Ch'uan is considered a physical embodiment of the supreme Taoist principles. Tai chi Ch'uan has been the focus of research in China and the west and has been found extremely beneficial for balance, arthritis, Parkinson Disease and for general health and well-being. Tai

Chi Ch'uan has gained popularity throughout the world as a means for attaining physical health and vitality and as a formidable defensive martial art. Students are introduced to the principles of Tai Chi Ch'uan by learning Tai Chi relaxation techniques and warm ups to relax the joints, right body alignment and Qi Gong exercises to promote the flow of chi, or life energy, through the body and the internal organs. Students become proficient in the performance of the first part of the Tai Chi Yang form, which is the heart of the practice. Students also explore the martial art aspects of Tai Chi Ch'uan through the practice of push hands, a two person play, and through the demonstration and introduction to the Tai Chi Sword. The martial art aspects enrich the student's experience and demonstrate the interaction of the student's chi with their environment. Students are encouraged to practice daily outside of class to progress to perform movement and related exercises on their own to create beneficial exercise for mind and body over the lifespan.

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

KINES 77: Yoga for a Lifetime

1.5 Credits

KINES 77 is a course designed to give students an understanding of and proficiency in yoga. Yoga for the Lifetime introduces students to the performance of yoga as a lifelong activity that maintains and enhances physical health, psychological well-being, and overall wellness. This course provides the information that the student needs to understand, organize, plan, and implement a wellness program that features yoga as a central practice. The centerpiece of this course is an integration of foundations in yoga principles and the physical practice of yoga, introducing students to classical yoga postures that address such needs as stress management, muscular tightness, skeletal alignment, and injury recovery. In addition to posture instruction, students practice breathing techniques and meditation; various breathing techniques are included to calm the mind and focus mental energy on specific tasks. Students explore such topics as the historical and philosophical foundations of yoga, nutritional practices that enhance the value of a lifelong yoga program, and Eastern-based movement traditions that complement yoga practice. Students also have the opportunity to reflect upon various aspects of yoga philosophy and the evolution of their personal practice. Upon completion of KINES 77, the student will be able to identify the components of an effective lifelong wellness program and explain how yoga contributes to the success of this program; perform yoga to develop flexibility, strength, and cardiovascular endurance; select and perform yoga postures that address specific needs (e.g., stress management, muscular tightness); describe the philosophical and historical framework that supports yoga practice; and explain how effective breathing and meditation techniques promote physical and psychological well-being.

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

KINES 77A: Advanced Yoga Practice

1.5 Credits

Students who enter Advance Yoga Practice (KINES 77A) have experience with yoga but are introduced to a deeper and more detailed knowledge and practice of this ancient philosophy now practiced in all contemporary societies throughout the world. Advanced Yoga is designed to deepen the student's understanding and practice of yoga, including yoga postures (asana), breath-work (pranayama), anatomy, philosophy, meditation, sequencing, and applied personal practice. This course involves basic postures (asanas) building to advanced postures, workshops and partner work, readings and discussions, development of restorative and active home practices, and personal reflection to deepen one's practice and overall wellness throughout one's 'lifespan. Students become familiar with the research that supports the benefits of yoga to the body's systems while exploring the power of changing the mind. Movement-based sessions focus purposeful practicing of yoga postures with the knowledge of their specific benefits. For instance, when learning the bridge pose students will learn that the bridge increases flexibility in the back and shoulders, strengthens the leg muscles and stimulates thyroid function. Students learn to integrate such knowledge into their personal practice of yoga. In addition to the physical practice, students will explore mindfulness, the eight limbs of yoga, restorative practices, the seven chakras, use of breath, use of bandhas, and chanting during the course. The course emphasizes connecting to the core, proper alignment, anatomy, functional movement, intelligent and interesting sequencing, moving fluidly with the breath, mindfulness, and compassion. There are opportunities in Advanced Yoga Practice to understand Sanskrit, the historical language of yoga, in relationship to meditation techniques, energy center practices, temperament determination and application of specific yogic activities.

Enforced Prerequisite at Enrollment: KINES 77

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

KINES 81: Wellness Theory

3 Credits

KINES 81 is a course designed to explore the cognitive foundations of wellness. Wellness is dynamic and multidimensional. Each individual possesses a unique potential for wellness that is impacted by biological, environmental and behavioral factors. This course covers the physical components of wellness as well as the social, emotional, intellectual, and spiritual components. Students explore the health benefits of exercise, diet, and cardiovascular wellness, along with the management of lifestyle change and personal responsibility to achieve wellness across the lifespan. Social, economic, and cultural factors that may influence wellness will be discussed. Assessment activities are integrated to enable and encourage responsible decision making. Emphasis will be placed on helping students understand the impact of lifestyle on acute and chronic disorders. A portion of the course will be devoted to theoretical constructs as they apply to human behavior including the Health Belief Model, Theory of Reasoned Action, Self Efficacy Theory, Transtheoretical Model (Stages of Change), and Planned Behavior. By examining theories of human health behavior over a variety of topics, students will be able to analyze their personal health behavior and gain an understanding of the importance of prevention. Students may

participate in collaborative learning activities related to health care ethics, individual rights versus public health and safety issues, and issues related to health information on the internet. Students will explore and differentiate medical based information and marketing based information on the internet. The student who successfully completes KINES 81 will be able to identify the components of a positive healthy lifestyle, understand health risk behavior that delimits wellness, grasp the multidimensional nature of wellness, and comprehend the importance of personal responsibility in maintaining wellness.

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

KINES 82: Action Methods for Stress Management

3 Credits

In Action Methods for Stress Management, students explore how the mind and body are affected by stress over the lifespan. Through the course students examine the effects of stress on various body systems (i.e. cardiovascular system), learn to identify those factors that typically lead to certain mental and physical stress-related illnesses, study invasive and non-invasive interventions and techniques of stress management, and explore theoretical connections between stress and disease. Students will concentrate their cognitive learning efforts on the most common non-invasive practices that can be implemented to control stress. In the course, students identify factors that lead to stress-related illness and develop an understanding and practice of active methods of stress management, with a focus on relaxation and meditation techniques. Both formal and informal contemplative practices are introduced, with students expected to develop a daily action method, meditation and/or relaxation practice to promote stress management and overall wellness in changing life conditions. Students will have an opportunity to become proficient with action methods such as yoga, meditation, conscious eating, and regular exercise; time spent in mindfulness, stillness, silence, and nature may also be explored.

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

KINES 83: Exercise for Stress Management

1.5 Credits

KINES 83 is a course designed to give the student an introductory understanding of the fundamental principles of stress management. This course will provide pertinent information the student needs to understand, organize, plan and implement a preliminary stress management program. In this course, the student will follow a progression to manage stress that encourages gaining awareness of the factors that contribute to stress, gives attention to the physical/emotional/ behavioral symptoms in response to stress, encourages exploration of a variety of stress management techniques, and fosters the development of strategies that can be effective over time. Throughout the course, the student considers many components of wellness. Attention is given to specific strategies in physical wellness such as using physical activity and exercise to promote fitness, healthy eating to combat nutritional stresses, and physical relaxation techniques to explore reduction in muscular tightness, physical signs and symptoms

of stress, and elevated mental distraction. The course also includes good practices in addressing emotional wellness through improving awareness and practicing cognitive stress management techniques such as reframing and cognitive restructuring. The student is introduced to the elements of fitness and research data that support inclusion of fitness prescriptions to enhance the relaxation response and/or to produce relevant changes in hormone levels. In conjunction with this knowledge and application of such knowledge, the student learns how nutritional decisions and qualities food possesses can result in calming versus energizing effects. Combining this knowledge, the student develops skills to create a personal program to incorporate these fitness and nutritional goals into their own behaviors. As the course progresses, there is continual emphasis on the importance of awareness and the connectedness of the mind and the body. Common themes through the course are awareness, mindfulness, and acting with intention with a goal of performing more effectively in a time of stress.

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

KINES 84: Fitness for Life

1.5-3 Credits

Kinesiology 84 is a course that has been designed to give the Penn State student a complete understanding of the fundamental principles of physical fitness. This course will provide the necessary skills and information the student needs to understand, organize, plan and implement a complete physical fitness program. Students are expected to explore wellness, disease progression, assess personal fitness and wellness, and explore variables (such as stress and nutritional practices) which may affect performance in the personal plan. In this course the Penn State student will acquire the knowledge and critical thinking skills that are essential to the development of a healthful and active lifestyle, be able to articulate the interrelationship between fitness and wellness, apply the concepts of physical fitness, develop an appreciation having a physically active lifestyle, and be able to alter a personal plan over the lifespan.

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Soc Resp and Ethic Reason

KINES 88: Varsity Sport Experience

1.5-3 Credits

kines 88 introduces students to the rigors of the varsity sport experience. This course provides the information that the student needs to understand, organize, plan and thrive in the competitive environment of a collegiate sport program while integrating themselves into the university community. The intent of the course is to provide an active learning environment including service. The "corner stone" of this course is the varsity sport experience itself. Under the tutelage of some of the best instructors in the nation these student-athletes will learn how to prepare for and engage in physical and psychological contests of the highest order. In addition to engagement with the finest physiological training, students experience collaborative work in small and large groups to solve complex movement problems. Critical thinking is stressed as students negotiate the complex real world problem of being a student athlete in a collegiate athletic program. Social behavior, community and

scholarly conduct are continually addressed as the student-athletes attempt to integrate themselves into the university and local community. When a student completes KINES 88, he or she is able to identify the components of an effective physical training program and explain how that program contributes to lifelong wellness; develop training goals and design program to meet these goals; perform a variety of physical training techniques; and understand how the acquisition of sport specific skills and knowledge promotes psychological well-being. Sport-appropriate training and performing venues are provided by the university. All offerings of KINES 88 require completion of the signature assignment including, but not limited to, reflection on one's own sport participation, discussion of how participation impacted academic performance, and based on at least five principles discussed during the semester.

Enforced Prerequisite at Enrollment: Member of Varsity team sport in season.

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

KINES 89: Wilderness Experience

3 Credits/Maximum of 3

KINES 89 is a wilderness orientation program that is offered for incoming students to assist in their transition to life at Penn State. This course includes multiple days of backpacking in various locations. Through these activities students learn the various skills associated with backpacking and wilderness living which they can continue to use across the lifespan. Students are placed into small groups of eight to ten students with Penn State students and graduate students who mentor and lead the backpacking experience. Small group discussions are threaded throughout the course and focus on student life at Penn State. This class emphasizes teamwork, group living skills, nutritional strategies, living in the elements, wilderness ethics, and health and wellness by introducing students to the craft of backpacking, an activity that students can continue throughout their lifetime. Through this aspect of the course the aim is to help students develop skills to successfully manage their time and stress in order to better balance the physical, social and academic aspects of their lives. Throughout the class these various topics are addressed. Equipment for all activities is provided. Incoming students with all levels of experience may take this course. Both course travel and engagement in and completion of all other course content are required.

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

KINES 90: Indoor Team Sports

3 Credits

This course is divided into two to three units that are designed to provide students with an introduction to a variety of lifetime indoor team sports. The course may include, but is not limited to, basketball, volleyball, team handball, indoor soccer, or floor hockey. Specific location considerations such as facilities or faculty expertise may allow for other indoor team sports to be made available. This format will give students an opportunity to gain a breadth of information and experience that will serve as a

gateway to learning opportunities as a knowledgeable spectator or participant over the lifespan; students may also develop an interest to pursue participation in more advanced intramural and recreational sports activities or opportunities. This course provides information not only on participation in the included sports, but also on how to incorporate those sports into one's fitness plan throughout life and the potential fitness benefits of regular participation in the sport. Foundational principles of creating an effective fitness and wellness plan including appreciation for factors impacting performance, safety, and injury prevention are addressed. Participating in team sports will help students understand that regular activity has social, emotional, and physical benefits with potential for total well-being and a better quality of life. While the primary focus of the class is the skills, strategies and rules of a variety of indoor team sports, the underlying sub-focus of the course is the development of the social skills required to be a good team member. The commitment to a team sport requires students to encounter a collaborative atmosphere where they seek to solve complex movement problems and learn to cooperate to achieve various team goals. The improvement of individual skills is important however the successful integration of these individual skills into the team is a valuable life lesson. As the student leaves the university the lessons learned in this class will prepare him/her for "team membership" in their various areas of professional practice.

General Education: Health and Wellness (GHW)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

KINES 90A: Introduction to Team Sports/Indoor - Volleyball

1.5 Credits/Maximum of 99

KINES 90A focuses specifically and solely on volleyball. It is designed to give students an understanding of the knowledge and skills necessary for successful participation in the game of volleyball. This format will give students more depth and focus on the game of volleyball and the communication skills that good teamwork requires. While the primary focus of the class is the skills, strategies and rules of volleyball, the underlying sub-focus of the course is the development of the social skills required to be a good team member. The commitment to a team sport requires students to encounter a collaborative atmosphere where they seek to solve complex movement problems and learn to cooperate to achieve various team goals. This course provides information not only on volleyball, but also on how to incorporate volleyball into one's fitness plan throughout life and the potential fitness benefits of regular participation in volleyball. Foundational principles of creating an effective fitness and wellness plan including appreciation for factors impacting performance, safety, and injury prevention are addressed. Participating in team sports will help students understand that regular activity has social, emotional, and physical benefits with potential for total well-being and a better quality of life.

General Education: Health and Wellness (GHW)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

KINES 90B: Introduction to Team Sports/Indoor - Basketball

1.5 Credits/Maximum of 99

KINES 90B focuses specifically and solely on basketball. It is designed to give students an understanding of the knowledge and skills necessary for successful participation in the game of basketball. This format will

give students more depth and focus on the game of basketball and the communication skills that good teamwork requires. While the primary focus of the class is the skills, strategies and rules of basketball, the underlying sub-focus of the course is the development of the social skills required to be a good team member. The commitment to a team sport requires students to encounter a collaborative atmosphere where they seek to solve complex movement problems and learn to cooperate to achieve various team goals. This course provides information not only on basketball, but also on how to incorporate basketball into one's fitness plan throughout life and the potential fitness benefits of regular participation in basketball. Foundational principles of creating an effective fitness and wellness plan including appreciation for factors impacting performance, safety, and injury prevention are addressed. Participating in team sports will help students understand that regular activity has social, emotional, and physical benefits with potential for total well-being and a better quality of life.

General Education: Health and Wellness (GHW)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

KINES 91A: Introduction to Outdoor Team Sports-Soccer

1.5 Credits

KINES 91A focuses specifically and solely on outdoor soccer. It is designed to give students an understanding of the knowledge and skills necessary for successful participation in the game of soccer. This format gives students a more in-depth understanding of and focus on soccer and the communication skills that good teamwork requires. While the primary focus of the class is the skills, strategies and rules of soccer, the underlying sub-focus of the course is the development of the social skills required to be a good team member. The commitment to a team sport requires students to encounter a collaborative atmosphere where they seek to solve complex movement problems and learn to cooperate to achieve various team goals. This course provides information not only on soccer, but also on how to incorporate soccer into one's fitness plan throughout life and the potential fitness benefits of regular participation in soccer. Foundational principles of creating an effective fitness and wellness plan including appreciation for factors impacting performance, safety, and injury prevention are addressed. Participating in team sports will help students understand that regular activity has social, emotional, and physical benefits with potential for total well-being and a better quality of life.

General Education: Health and Wellness (GHW)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

KINES 91D: Introduction to Outdoor Team Sports - Ultimate

1.5 Credits

KINES 91D focuses specifically and solely on the lifetime sport of ultimate. It is designed to give students an understanding of the knowledge and skills necessary for successful participation in the game of ultimate. This format gives students more depth and focus on the game of ultimate and the communication skills that good teamwork requires. While the primary focus of the class is the skills, strategies and rules of ultimate frisbee, the underlying sub-focus of the course is the development of the social skills required to be a good team member. The commitment to a team sport requires students to

encounter a collaborative atmosphere where they seek to solve complex movement problems and learn to cooperate to achieve various team goals. This course provides information not only on ultimate, but also on how to incorporate ultimate into one's fitness plan throughout life and the potential fitness benefits of regular participation in ultimate. Foundational principles of creating an effective fitness and wellness plan including appreciation for factors impacting performance, safety, and injury prevention are addressed. Participating in team sports will help students understand that regular activity has social, emotional, and physical benefits with potential for total well-being and a better quality of life.

General Education: Health and Wellness (GHW)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

KINES 92: Personal Fitness and Wellness

0.5-3 Credits/Maximum of 3

KINES 92 has been designed to help students build overall fitness and wellness based upon their individual condition and accommodating individual needs. Students acquire the knowledge and critical thinking skills that are essential to the development and continual evolution of a fitness and wellness plan focused on a healthy and active lifestyle. Students explore such topics as wellness, training principles, health-related components of physical fitness, benefits of these components, and learn to use and apply established fitness guidelines. Students learn skills necessary to create safe, complete conditioning programs while considering such topics as nutritional choices, safety and injury prevention. KINES 92 may serve as a stepping stone to lifetime fitness, participation in organized athletic events, and personal challenge activities. Students develop a holistic approach to training for endurance, strength, and integrated activities.

General Education: Health and Wellness (GHW)
GenEd Learning Objective: Creative Thinking
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

KINES 93: Enhancing Mastery in Physical Activity

1.5-3 Credits/Maximum of 6

The KINES 93 curriculum provides a unique approach to movement education. Rather than focusing on regimented skill development over a period of a semester, KINES 93 requires students to incorporate activity into their daily lives which may continue over multiple semesters. The curriculum is designed to bring a higher percentage of students into a movement subculture requiring understanding of and involvement in such experiences as related clubs, tournaments, competitions, engaging experiences, and/or membership in national or international organizations or workshops. Students experience opportunities to enhance mastery through a focus on specified lifestyle management, personalized wellness, and training as well as advanced movement instruction. Students experience a healthy balance of more advanced training practices and depth to performance related behaviors (e.g. nutrition, training, lifetime wellness) in the specified activity. To reinforce the subject and to encourage practice of becoming part of the subculture, students become connected to the subculture by engaging in appropriate organizations, and/or subscribing to relevant publications. This intensity of involvement is designed to produce students who become bona fide

members of a movement subculture by the time they leave the program. The expectation is that students will embody the habits, values, and attitudes needed for an active, healthy lifestyle.

Enforced Prerequisite at Enrollment: Successful completion of relevant course, adequate experience in the topic, or permission of the instructor
General Education: Health and Wellness (GHW)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

KINES 96: Independent Study in Physical Activity

0.5-3 Credits/Maximum of 99

This course is designed to meet the needs of students to expand Kinesiology experiences beyond the designed course curriculum. KINES 096 Independent Study in Physical Activity (1-3 per semester) (GHA) Students enroll in KINES 096 to take advantage of a unique movement experience in which they plan to participate. They enroll in KINES 096 by an application process. Students who feel that they would like to fulfill their Health Science and Physical Activity (GHA) requirement by pursuing a movement form outside of the normal curricular offerings apply to the department of Kinesiology. Applications will be screened to see that they fulfill the tenants of the GHA requirement. The topics for this course vary widely from student to student. A student may be working on a personal contract that has been designed to report the progress of experiences from hiking excursions in Nepal to a mountain biking course in Crested Butte, Colorado, to walking a mile in 15 minutes after major knee surgery. Therefore, many common topics are an exception rather than a rule during any given semester. Each student completes a proposal form that requires that they describe their need for this course. They are also asked to describe the experience that they have identified in detail and also a preliminary program and implementation plan for the detailed program. This proposal is then approved or denied by the faculty member facilitating the independent study program. After the proposal has been approved or denied the student will receive a letter notifying them of their status in the course. If they have received an approval letter they are instructed in the letter to meet one-on-one with the class instructor. At the initial meeting, the proposal is discussed and when there is an agreement with the student and instructor concerning the requirements for the student to complete the course successfully a contract is written and signed by both the instructor and the student. Weekly contact, at a minimum, with the instructor is required. Student evaluation techniques shall include but not be limited to objective testing, individual projects, presentations, journals and subjective evaluation of effort involved in meeting the stated goals and objectives for the course. There are no special facilities for this course. The department plans to offer this course every fall and spring semesters, with an enrollment of up to 25 students each semester.

KINES 97: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

KINES 100: The Cultural and Behavioral Foundations of Kinesiology

3 Credits

Philosophical, ethical, historical, cultural, psychological, and behavioral foundations of human movement, health, wellness and exercise.

KINES 100 The Cultural and Behavioral Foundations of Kinesiology

(3) This course introduces and integrates the philosophical, ethical, historical, cultural, and psychological foundations of kinesiology. Kinesiology is a dynamic, multi-disciplinary area devoted to the study of human movement. Kinesiology is unique in that it covers the "three cultures" of academia: the sciences, the social sciences, and the humanities. This foundational, entry-level survey course introduces students to social scientific and the humanistic approaches to sport, exercise, health, wellness, and physical activity. Topic areas include the psychology of exercise and sport, the history of sport and physical activity, and the philosophy and ethics of sport and physical activity. Throughout the course, applications and integration to human health, physical activity, and to health and fitness professions are provided.

The Philosophical & Ethical Foundations of Human MovementThis section introduces students to the philosophical and ethical aspects of kinesiology. This includes fundamental question of human movement, explorations of dualism and holism, ethical decision-making in sport, games and play, and an introduction to the ethical obligations of kinesiology and health/wellness professionals

The Cultural Foundations of Human Movement This section introduces to the historical, cultural, and social dynamics of kinesiology. Building off a philosophical foundation, it includes questions about why and humans move, the effects of historical and cultural influences on sport, physical activity, health, and human movement, as well as the roles that social identities play in these processes. In addition, this course module explores significant cultural considerations for kinesiology and health/wellness professionals.

The Psychological Foundations of Human Movement This section introduces students to the psychological dimensions of kinesiology. This includes information about psychological orientations and enhancement in exercise and sport and foundations of health and psychological well-being. This section also addresses principles of behavior change, reinforcement, motivation, intervention, and performance enhancement and emphasizes psychological and health theories to explain physical activity behavior. It also includes information about the importance of sport and exercise psychology for kinesiology and health/wellness professionals.

KINES 101: The Biophysical Foundations of Kinesiology

3 Credits

Biomechanical, physiological, and neurobiological foundations of human movement and exercise, including applications to clinical conditions, rehabilitation, and fitness are presented.

KINES 101 The Biophysical Foundations of Kinesiology (3) This course introduces and integrates the physiological, neural, anatomical and biomechanical foundations of kinesiology. Throughout the course, applications to human health, physical activity, and to health and fitness professions are provided.

The Physiological Foundations of Human MovementThis section introduces students to basic physiological principles that are necessary to understand exercise metabolism, adaptations to training, and changes that occur throughout the lifespan. This section builds important groundwork in exercise physiology to enable the student to understand the fundamental principles of energy metabolism and adjustments to energy metabolism as a result of acute and chronic exercise. Adaptations to chronic exercise training to the aerobic, anaerobic and muscular strength systems are a cornerstone of this section, but emphasis is also expanded to include functional capacity. The final section emphasizes the effects of exercise on chronic diseases, and takes a lifespan approach.

The Neural Foundations of Human MovementThis section introduces students to basic neural anatomy and physiology that serve as a basis for understanding neural control of movement. This includes the cellular, anatomical and functional organization of the central nervous system, and applications to clinical conditions. Students are introduced

to sensorimotor processes, as a foundation for understanding human motor control and motor coordination, and associated dysfunction.

Anatomical Foundations of Human MovementThis section provides a survey of basic terms for describing human anatomy, including anatomical planes, axes, and directions, as well as an introduction to the major components of the musculoskeletal system. The fundamental structure and function of muscles and bones will be discussed with reference to their contributions to human movement.

Mechanical Foundations of Human MovementThis section introduces the physical principles that underlay the study of biomechanics. Students will learn how to properly describe human movement using terminology for linear and angular motion. Newton's three laws of motion will be introduced and used for as a basis for discussing the role of forces and torques in starting and stopping motion. This section will include discussions of the biomechanics of walking and the biomechanical causes and effects of movement disorders.

KINES 123S: Thinking Critically about Key Questions in Kinesiology

1 Credits

This course gives an introduction to some the major academic topics in the Department of Kinesiology with the aim to meet the Penn State first year seminar goal of orienting students to the scholarly community from the outset of their undergraduate studies in a way that will bridge to later experiences in a chosen major. After an overview of kinesiology, different key questions in kinesiology will be explored as vehicles for introducing students to scholarly themes in kinesiology and careers arising from studying kinesiology including and introduction to the role of scientific literature. Specifically themes will relate to the following scholarly areas: Biomechanics, Exercise Physiology, History and Philosophy of Sport, Motor Control, and Psychology of Physical Activity. Themes will be examined using critical thinking, providing students with tools to evaluate information.

Enforced Corequisite at Enrollment: PSU 14 First-Year Seminar

KINES 126: The Health Program for the Elementary School Child

1.5 Credits

Introduction to the Coordinated School Health Program. Overview of contemporary school-based health education theory, content, methods, and practice.

KINES 126 The Health Program for the Elementary School Child (1.5) KINES 126 is an introductory course designed to prepare school-and community-based educators to implement health promotion and disease prevention educational programs to elementary-aged audiences. Emphasis of the course is on the coordinated school health program model, theory, content, and teaching methods. Eight specific components of a coordinated school health program serve as the foundation for the course: (1) comprehensive school health education; (2) physical education; (3) school health services; (4) school nutrition services; (5) school counseling, psychological, and social services; (6) healthy school environment; and (7) school-site health promotion for faculty and staff; and family and (8) community involvement in school health. Students will gain experience in health promotion and disease prevention concepts; lesson planning; roles and responsibilities of teachers, staff, administrators, and students; and implementing effectively the health education concepts outlined above. The Department will offer one large section each fall and spring semesters with an anticipated enrollment of 150 students per section. A technology room will be required. Participation in this course will enable the student to:

- Analyze the goals, roles, and responsibilities of the

classroom teacher concerning the health of the school-aged child. b. Identify appropriate educational resources related to school health. c. Describe the components of the coordinated school health program d. Discuss the important of learning healthy life skills for elementary-aged learners. e. Organize and submit one modified health-based lesson plan for elementary-aged learners. f. Demonstrate competency in accessing health education resources from the World Wide Web. Methods for Evaluation: Written examinations 50% Lesson Planning 30% In-Class Participation 20%

Enforced Prerequisite at Enrollment: EDPSY 14

KINES 127: The Physical Education Program for the Elementary School Child

1.5 Credits

Theoretical and practical overview of developmentally appropriate physical education for children. KINES 127 The Physical Education Program for the Elementary School Child (1.5) KINES 127 is an introductory course designed to introduce future classroom teachers to the conceptual framework of developmentally appropriate physical education. The class includes both theoretical and practical guidelines for analysis and implementation of children's physical education. The course focuses on applications of the Pennsylvania standards for elementary educators K-6. The components of KINES 127 include: concepts related to becoming and remaining physically active for a lifetime, physical fitness, motor development, movement and fitness concepts and fundamental motor skills, safety procedures, role and value of play, game and sports in child development. Students will gain experience teaching physical education lessons, as well as observing and participating in physical education experiences. Students will be introduced to multi-cultural dance and games. Students will understand the use of small and large equipment. Evaluation will include written examination, group peer teaching, and participation. The Department will offer 4 sections each Fall and Spring semesters with an anticipated enrollment of 30 students. The Department will offer 1 section per summer semester with an anticipated enrollment of 30 students. Participation in this course will enable students to: 1. Define and develop a philosophy of elementary physical education. 2. Identify developmental characteristics and stages for children grades K-8. 3. Develop professional teaching techniques. 4. Apply activities for physical education, using proper safety procedures. 5. Discuss the importance of nutrition, personal wellness, and lifelong healthy habits. 6. Understand the human body and its systems. 7. Demonstrate competency in accessing physical education activities and resources from the World Wide Web. Methods for Evaluation: Writing Examination 50% Group Peer Teaching and lesson planning 20% Written Observation of Peer Teaching 10% Participation 20%

KINES 135: Introduction to Athletic Training

3 Credits

Introduction to Athletic Training provides an overview of the field of athletic training exploring the breadth of athletic training terminology, issues, and injuries. After completing the course, the students will be able to describe the roles of the sports medicine team, understand the legal considerations for the athletic trainer as a health care provider, and identify the basics of physical conditioning and nutrition in reference to injury prevention. Students will be able to describe an emergency action plan for injuries, and environmental conditions. Students will be able to identify basic use of therapeutic modalities and principles of therapeutic exercise programs. Students will gain an understanding of acute vs.

chronic injury conditions and be able to describe the related anatomy, etiologies, pathologies, signs and symptoms, and general treatment and management for injuries of the foot, ankle, lower leg, knee, hip/groin, shoulder, elbow, wrist, hand, cervical spine, and head. Rationale and demonstrations for a variety of taping techniques are included to address upper and lower extremity injuries. Students are also provided an overview of general medical conditions that may occur in the athletic arena.

Cross-listed with: ATHTR 135

KINES 136: Introduction to Careers in the Health Professions

3 Credits

Approximately 11% of all jobs in the economy are in the healthcare sector. This course will provide an overview of the US healthcare system and the various careers that can be pursued within it. Several career paths (such as athletic training, physical therapy, occupational therapy, physician assistant, chiropractor, medical doctor/osteopath, nursing, diagnostic technician, clinical exercise physiologist, speech pathology and alternative therapies) will be explored in detail with opportunities to interact with professionals working in those careers. For each profession, the clinical focus, clientele, job responsibilities, knowledge, skills, personal attributes, typical workday, work/life balance, financial considerations, ethical considerations, and legal considerations will be discussed. Student personality traits will be assessed and used to help with career exploration. The requirements for gaining admission to various healthcare educational programs will be elucidated. In culmination, students will outline an academic plan to prepare them to apply to the program of their choice, as well as a Plan B option.

KINES 160N: Fitness with Exercise Physiology

3 Credits

Biology of Exercise is an integrative exercise physiology course that combines performing physical activity (Kinesiology) and applying biological principles (Biology). This course will explain the benefits, changes, and processes the body exhibits while exercising. Students will gain knowledge and comprehension through both a lecture (or online) setting (approximately half of the class meetings) as well as an activity component (approximately half of the class meetings) in which students will demonstrate their health related components of fitness. This includes, but is not limited to, muscular strength, muscular endurance, flexibility, power, cardiorespiratory endurance, and body composition. In the lecture component, students will describe biological principles including homeostasis, nutrition, the structure and function of musculoskeletal, cardiovascular, and respiratory systems. At the completion of this course, students will be able to argue for the lifelong significance of exercise including why it is important, benefits related to organ systems, and disease prevention.

Cross-listed with: BIOL 160N

Bachelor of Arts: Natural Sciences

General Education: Health and Wellness (GHW)

General Education: Natural Sciences (GN)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

KINES 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

KINES 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

KINES 200: Muscle Training: Physiology, Programs, Techniques

3 Credits

KINES 200 addresses the physiological basis of strength training emphasizing mechanisms of muscle contraction and growth, program and facility design, and individual exercise technique. This course focuses on the concepts and applications of strength exercise science including relevant testing and evaluation of strength protocols. It explores the organization and administration of resistance training and conditioning facilities including the development of resistance training programs. The course also introduces students to exercise techniques. As a result of this course students will be able to work collaborative with others. They should be able to evaluate information for authority, relevance, currency and accuracy. They will understand the biomechanics of strength training, the physiological adaptations to muscle training and the mechanisms of change with varying populations. In addition they should be able to select and organize appropriate muscle testing protocols. They should be able to teach and demonstrate appropriate strength exercises to an individual or group as well as be able to identify and correct errors an individual might make. They should be able to prescribe the proper exercise and exercise sequence to strengthen a specific muscle or muscle group, and they should be able to design and organize a strength training facility.

Enforced Prerequisite at Enrollment: BIOL 141 or BIOL 161 or KINES 202

KINES 201: Cardiorespiratory Training for Health and Performance

3 Credits

Exploration of the principles and practical applications of cardiorespiratory training for health and performance enhancement. KINES 201 Cardiorespiratory Training for Health and Performance (3) KINES 201 prepares students in understanding the process of developing a cardiorespiratory exercise prescription program. Exercise programming is scripted on an individual basis according to goals, national guidelines, age, interests, available time, and commitment. The benefits of physical activity are becoming increasingly documented. However, physical activity is not without risks. The proper cardiorespiratory exercise prescription is important to the safe participation for a wide range of populations. Students will be able to determine the differences between activity, fitness, and sport performance and be cognizant of the various components and modes of cardiorespiratory activity. Students will understand the different models of cardiorespiratory exercise prescription for health, fitness, and sport performance. Applying this knowledge, students will experience practical applications of cardiorespiratory exercise prescription on various training modalities applied to a wide range of settings. Homework assessments, laboratory activities and/or mid-term and final exams based on the discretion of the course instructor

will reflect the pedagogical and practical application of cardiorespiratory exercise prescription concepts. The Department is planning to offer one section every year with an anticipated enrollment of 25 students per section.

KINES 202: Functional Human Anatomy

3 Credits

This course is designed to provide students a didactic and laboratory experience in functional human anatomy. Upon course completion, students should be able to comprehend and apply standard anatomical nomenclature pertaining to human movement science; comprehend structure and function of the musculoskeletal, systems pertaining to human movements science; comprehend the classification, structure and function of human anatomical articulations (joints) pertaining to human movement science; and comprehend the classification, structure, and function of human biological tissues (epithelium, connective, muscle and nervous) pertaining to human movement science. In the laboratory portion of the course students will learn to identify bone and capsuloligamentous tissues as well as their respective landmarks pertaining to human movement science; identify origins, insertions, actions and innervations of skeletal muscles pertaining to human movement science; and identify biomechanical characteristics and neuromuscular activity of human anatomy during the execution of active, passive as well as resistive movements. The laboratory portion of this course will use three-dimensional bone models, joint models, ligament models and cadaveric models to apply concepts covered in lecture.

Enforced Prerequisite at Enrollment: 2nd Semester Standing in HDD or KINES major or KINES minor or ATHTR major
Cross-listed with: ATHTR 202

KINES 202H: Functional Human Anatomy

4 Credits

In-depth examination of the, musculoskeletal, nervous, cardiovascular, and respiratory systems, and their relationship to human movement.

Honors

KINES 203: Medical Terminology for Allied Health Professionals

3 Credits

Comprehensive review of terms related to functions, disorders, diagnosis, and treatment of body systems related to physical activity and movement. KINES 203 Medical Terminology for Allied Health Professionals (3) This course is designed for students who wish to enter an allied health field related to physical activity and human movement. This course will help students prepare for careers in physical therapy (PT), occupational therapy (OT), medicine (MD, DO), physician assistant (PA-C), pharmacy (R.Ph), dietary medicine (RD) and emergency care (EMT, EMT-P). Some of the allied health programs listed above requires a 3 credit course in medical terminology prior to admission into graduate school and this course fulfills that requirement. The goal of this course is to help students develop an understanding of medical terminology related to physical activity and human movement used when dealing with the anatomy and physiology of the systems of the body, disease processes associated with each system, and pharmacology and clinical treatments associated with the pathology of the body systems. Students will appreciate the weights and measures, chemical symbols, diagnoses,

procedures, and medical documentation used in allied health fields, especially in sports and human movement medicine.

KINES 222N: Science and Politics of the Female Athlete

3 Credits

The purpose of this course is to explore gender differences in sport and politics that emerge from physiology, culture, history, politics, and policy. The engagement of women in sport has unique physiological considerations and ethical dilemmas as well as a rich history of defining moments and important ties to feminism and politics. In this course, students will learn how physiology differences affect female athletic performance and the effects of exercise on the female body, as well as how cultural, historical, and political forces shaped women's participation in sport. Students will also see how similar historical, cultural, and political forces affect women's involvement in politics. Combined, students will understand how similar forces shape gender norms and participation two different, yet related, aspects of society. Additionally, students will learn about the push for evidence-based policymaking and apply that knowledge to topics including doping, pregnancy, and gender verification. Students will integrate physiology and policy in a final assignment advocating for evidence-based sport policy. They will also educate their peers through a public education project.

Cross-listed with: PLSC 222N, PUBPL 222N

General Education: Health and Wellness (GHW)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

KINES 260: Research Skills in Kinesiology

3 Credits

KINES 260 prepares students to read, understand and critique scientific research. The epistemological belief that knowledge is static and science discovers truth will be challenged. Rather than research being a product achievable only by professors, research will be presented as a process that students can understand and contribute to. Therefore, this course will develop skills and knowledge in understanding and conducting scientific research through practical experience. Specifically, students will learn to search for articles and be able to evaluate different sources of knowledge. Reading strategies will be employed to develop the ability to read and produce research papers according to standard structure and formatting. Students will gain experience using a range of different measurements of human movement and behavior, and understand general measurement issues. Practical experience with different types of research in kinesiology will occur throughout the semester, aiding students to critique and design research. Students will learn when to employ different statistical tests, be able to analyze data using statistical software, and interpret the results. Experience in other computer software will occur throughout the semester to develop student's word processing, spreadsheet and graphical skills. This knowledge and skills will be integrated throughout the semester and culminate in a research project performed by teams of students.

Enforced Prerequisite at Enrollment: KINES 101

KINES 267: Fundamental Movement Skills Instruction

1 Credits

Instruction for performing and delivering developmentally appropriate psychomotor skills, movement patterns, and content to preschool and elementary school-aged children. The course is designed for students interested in understanding how to instruct movement concepts, skill themes, and fundamental movement skills to preschool and elementary school aged-children. An understanding of developmentally appropriate skills and physical activities and an understanding of how to effectively instruct fundamental movement skills to this population of children make-up the foundations of the course. Students will apply content knowledge to instructing, coaching, and executing movement concepts, skill themes, and fundamental movement skills. Students will be able to identify and organize appropriate skills and activities based on the developmental level of preschool and elementary students. Students develop knowledge and skill in designing and implementing movement and rhythmical activities for preschool and elementary students. Emphasis is placed on the ability to analyze and instruct the associated movement skills. A primary focus of the course is to create interesting challenges that motivate children to continue to practice tasks and engage in regular physical activity. The first half of the course will provide an introduction to developmentally appropriate fundamental movement skills, physical activity participation rates of children, and special considerations when instructing and coaching. Students will examine how the developmental level of the child relates to their level of skill proficiency and the importance of children learning correct skill execution in order to enjoy participation in regular physical activity. The second half of the course will focus on each specific fundamental motor skill. Students will learn the correct form of execution, common errors of execution, verbal cues associated with correct execution, and application of the fundamental motor skill to a developmentally appropriate activity. In this portion of the course, students will have the opportunity to use the knowledge and skills learned in this course by engaging in peer-to-peer instruction sessions.

Enforced Concurrent at Enrollment: KINES 295B

KINES 295: Introduction into Careers

1 Credits/Maximum of 1

This course exposes students to self-examination, career pathways, certification prerequisites and internship opportunities within the related field of studies. This course is designed to expose students to specific career pathways, specific certification prerequisites, internship opportunities and professionals in the applied kinesiology fields of study through experimental learning. This course offers, but is not limited to offering, many enriching professional development skill building lectures and assignments, professional interview, and completion of observation hours within a professional setting. Students can choose from a variety of sites, including but not limited to schools, YMCAs, fitness centers, university courses, community or corporate health and wellness programs. Students are required to choose a field that directly relates to their career goals and/or expected professional certifications. Students must complete a minimum of 12 hours of a hands-on experience in that field. The expectation is that students apply and integrate content from other and concurrent courses in the program and further learn appropriate applied skills that are critical to success in the field. This course covers the breadth and depth of discussion pertaining to professional career development within the vast possibilities within the field of applied exercise & health. An important

focus of the course are the preparatory fundamentals that foster better student awareness, opportunities and discussion of how to utilize a B.S. degree in Kinesiology for career development and success within the industry. The student's field experience productivity and work will be evaluated on an ongoing basis by the course instructor as well as the field experience supervisor. The course may take place at either on campus facilities or off campus locations.

KINES 295B: Kines Careers & Observation

1 Credits/Maximum of 1

KINES 295B (1 credit) is a required course for students in the Movement Science Option and the Applied Exercise and Health Option of the Kinesiology curriculum. It is the first of three practicum courses that exposes students to general and specific career information, an observational experience, research and professionals in Kinesiology related fields of studies. This course is designed to expose students to specific career pathways, specific certification prerequisites, internship opportunities and professionals in the applied Kinesiology fields of study through experimental learning. This course offers, but is not limited to offering, many enriching professional development skill building lectures and assignments, professional interview, and completion of observation hours within a professional setting. Students can choose from a variety of sites, including but not limited to schools, YMCAs, fitness centers, university courses, community or corporate health and wellness programs. Students are required to choose a field that directly relates to their career goals and/or expected professional certifications. Students must complete a minimum of 12 hours of a hands-on experience in that field. This course covers the breadth and depth of discussion pertaining to professional career development within the vast possibilities within the field of applied exercise & health. An important focus of the course are the preparatory fundamentals that foster better student awareness, opportunities and discussion of how to utilize a B.S. degree in Kinesiology for career development and success within the industry. The student's field experience productivity and work will be evaluated on an ongoing basis by the course instructor as well as the field experience supervisor. The course may take place at either on campus facilities or off campus locations.

Enforced Prerequisite at Enrollment: 2nd semester standing

KINES 295C: Professional Development - Field Experience

1-2 Credits/Maximum of 8

KINES 295C Professional Development - Field Experience (1-2 per semester/maximum of 8) This course is designed to provide undergraduate students the opportunities of professional development via lecture format, professional travel to a national conference, and guest round table discussions. Throughout the course, students will have exposure to professional communication with faculty through formats including, but not limited to the following: conference forums, faculty/professional/expert dinner discussions, lectures, training sessions, symposiums, break-out sessions, and a poster forum. The students will enhance skills needed to develop networking and interview skills, communicate information effectively, and build resumes to meet the needs for such endeavors as graduate school, internship acquisition, and/or employment. Other class foundational principles include but are not limited to: attending a professional conference, practicing business etiquette at professional lectures and expositions, exposure to professional networking, learning how to exchange knowledge within the professional realm, and researching professional collaborative work. Students will share the experience and knowledge gained from this

professional travel through relevant exercises that may include a formal poster forum within the university setting.

Enforced Prerequisite at Enrollment: completion of three credits in KINES

KINES 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

KINES 296F: **SPECIAL TOPICS**

1-6 Credits/Maximum of 18

KINES 296G: **SPECIAL TOPICS**

1-6 Credits/Maximum of 18

KINES 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

KINES 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

KINES 303: Emergency Recognition and Care with BLS CPR

3 Credits

KINES 303 is designed to provide students with the opportunity to acquire and develop the skills and competencies needed for First Responder Certification from the American Red Cross, American Heart Association, or Emergency Care and Safety Institute. Students will understand the role of the Emergency Medical System (EMS) in a complex society and the importance of emergency care in our health care system. KINES 303 will foster the student's critical thinking skills and their ability to assess and evaluate life threatening and disabling injuries and illnesses and to respond with appropriate care and life saving action steps in variety of medical emergencies. Students will develop an understanding of the importance of emergency care, first aid and safety at all levels of society with emphasis on providing and improving the quality of emergency care practices in a wide variety of community organizations, occupations and professions including childcare, education, human services, geriatric care and disaster management. KINES 303 is taught through a variety of teaching methods. Students are prepared for proficiency through readings, classroom discussion, video presentation, practical skills, sudden illness and injury scenarios, group presentations and possible direct observation of EMS (Ride-Alongs). The course is practice-focused on developing the skills and competencies necessary for emergency scene management, CPR/AED and sudden illness and injury. Various evaluation techniques will be used to assess the students progress in KINES 303. These techniques shall include but not be limited to conventional objective testing, practical skill tests, sudden illness and injury scenarios, group presentation and written observation papers. Students may wish to pursue certification following completion of the course. Students who have already received credit

for NURS 203 and/or KINES 233 may not enroll in this course due to duplication of material.

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

KINES 321: Psychology of Movement Behavior

3 Credits

Psychology of Movement Behavior is designed to introduce students to the basic concepts and applications of psychological knowledge for organized sport, physical activity, athletic training, and related environments where people are active. The course touches on the history of sport and exercise psychology, sport and exercise psychology consultants' responsibilities (i.e., research, teaching, and service), and understanding sport and exercise participants' personality traits and motivation for participation. The course also promotes an understanding of sport and exercise environments through discussion of competition, group dynamics, and the principles of feedback and reinforcement. Performance enhancement is also covered through discussion of topics related to psychological skills training and application (e.g., goal setting, imagery, and relaxation training). Finally, the course focuses on enhancing sport and exercise participants' health and well-being by promoting an understanding of addictive behaviors (e.g., exercise dependence, eating disorders, and substance dependence), body image, injury rehabilitation, and exercise initiation, maintenance, and adherence. The general objective of this course is to familiarize the student with the science and practice of sport and exercise psychology from both a theoretical and applied perspective. To achieve this objective, the student will: (a) develop an understanding of how various psychological factors influence athletic performance, physical activity participation, and overall health and well-being; (b) learn the methods used by athletes and exercisers of various skill levels to achieve peak performance; (c) understand the scientific and theoretical background of sport and exercise participation; and (d) comprehend how psychological skills are applied to sport and exercise environments to enhance peak performance and quality of life, and recognize the ethical principles of applying these psychological skills.

Enforced Prerequisite at Enrollment: Students must have a grade of C or better in KINES 100

KINES 341: The Historical, Cultural, and Social Dynamics of Sport

3 Credits/Maximum of 3

Connections between sport and broader historical, cultural, social, political, intellectual, and economic contexts.

Enforced Prerequisite at Enrollment: Students must have a grade of C or better in KINES 100

International Cultures (IL)

United States Cultures (US)

KINES 345: Meaning, Ethics, and Movement

3 Credits

The course focuses on the development of philosophic reasoning skills to better understand the values and ethics of physical activity in a variety of professional settings. Emphasis is placed on the practicality of good philosophy, on applying philosophic insights to the health

and physical activity workplace. The course shows how philosophic commitments are unavoidable and thus, why it is better to formally consider these commitments and evaluate their worth than adopt professional standards and behaviors without critical reflection. Specific course content emphasizes a number of learning outcomes. The first objectives are related to clarifying the nature of the philosophy of physical activity and relationships between the philosophy and science of human movement. The field of philosophy is described including the areas of metaphysics, epistemology, axiology, ethics and aesthetics. A variety of philosophic methodologies are identified and practiced including inductive, deductive and descriptive reasoning. Emphasis is placed on the varying degrees of confidence placed on the trustworthiness of philosophic methods and the validity of its conclusions. Students take a "philosophic readiness inventory" to determine their own philosophic tendencies and interests. Once the philosophy of physical activity is better understood, its methods and products are compared to the methods and outcomes of science. The course emphasizes a potential complementary relationship between the two where neither one is sufficient. A major portion of the class is devoted to three rival interpretations of personhood that have significant implications for professional practice. Students review the strengths and weaknesses of dualism, materialism, and holism and see their impact on biomedical ethics, motivational strategies, professional-client relationships, and other facets of health and physical activity professions. The undergirding logic here is that practitioners must first understand what a person is before they can best determine how to intervene or otherwise provide services to them. Attention is also directed to the subject matter of Kinesiology-namely, skilled movement in general and physical abilities in work, exercise, sport, dance, games, and play more specifically. The nature and values of these different ways of moving are analyzed in terms of their ability to serve as "tools" (means to other ends) and "jewels" (ends in themselves). Issues of motivation, efficacy, safety, and other factors are analyzed in an attempt to determine whether a play-and-enjoyment or a work-and-duty philosophy should be emphasized in various professional settings. Quantity and quality of life are juxtaposed to show their interdependence and the variable roles they play in affecting allied medical, coaching, teaching, fitness, recreation, and other movement-related professions. Finally, the course addresses common ethical problems faced by athletes, as well as physical activity and health professionals.

Enforced Prerequisite at Enrollment: Students must have a grade of C or better in KINES 100

KINES 350: Exercise Physiology

3 Credits

Structure and function of the human body as applied to health, wellness, exercise, and sports. KINES 350 Exercise Physiology (3) Exercise Physiology is a mid- to upper division course that will appeal to students with an interest in human biological adaptation. The course has two primary goals: First, students develop an understanding of the physiological adaptations that occur during and after endurance and resistance exercise. Second, students improve their comprehension of the differences between the acute exercise response and the changes that occur with chronic physical activity (exercise training). A major emphasis is placed on physiological systems as they relate to physical activity, exercise and health, and environmental stress; including, but not limited to, cardiovascular, respiratory, musculoskeletal, renal, neural, and metabolic. These systems are considered singly and in combination with regard to both exercise intensity and exercise duration. The depth of inquiry can range from molecular to organismal (whole-

body). In addition, the mechanisms underlying the preventive and protective effects of exercise on human health and performance are discussed. The ability to apply concepts and principles of physiology to situations involving exercise, exercise training and decreased physical activity are highlighted, improving students' abilities to develop and differentiate between paradigms that utilize exercise to improve athletic performance and those that utilize physical activity to promote health. Special topics of applied study may include aging; development; gender; body composition; disease and environmental extremes such as heat, cold, diving and altitude. Students are required to demonstrate via assessment, knowledge and understanding of the acute physiological response to exercise and physiological adaptations to programs of chronic resistance and endurance exercise. Quantitative and analytical skills are emphasized, especially as they pertain to exercise testing and exercise program evaluation. The ability to interpret scientific data as they pertain to exercise physiology is required. Background knowledge in biology, chemistry, physics, and exercise science represent the knowledge base from which the class is built and contributes to the mastery of concepts presented. This course is required for Athletic Training and Kinesiology majors.

Enforced Prerequisite at Enrollment: Students must have a C or better in KINES 101 and [(BIOL 141 and KINES 202) or (BIOL 161 and BIOL 163)] and (CHEM 101 or CHEM 106 or CHEM 110 or CHEM 130)

KINES 356: Activity and Disease

3 Credits

KINES 356 is an examination of hypokinetic disease on human wellness involving identification, assessment, research, and exercise design of human activity for disease prevention. Content in this course defines what physical activity, fitness, and lifestyle are. It covers the methodological and measurement assessment of physical activity and disease as well as exploring the relationships between physical activity and specific physical diseases, and between physical activity and various disorders of the mind. After this course students will be able to design and implement an exercise program to prevent or combat the effects of a specific disease on an individual. They will understand and be able to persuasively inform clients to the dangers of a sedentary lifestyle. They will know the strategies necessary to motivate and modify individual behavior so that it results in a more healthy lifestyle. And they will be able to design epidemiological research protocols to study the relationship between a specific disease and activity. Knowledge will be assessed by written evaluations, through the use of case studies in the case of exercise prescription skills, and through presentation of high quality group projects. This course will complement other courses in this curriculum but will be the only course devoted to a thorough investigation of the relationship between inactivity and various disease states. Material in this course and experience in the lab cover the conceptions and applications of strength exercise science. It also addresses testing and evaluation of strength protocols including selecting appropriate tests, organizing testing procedures, and individual testing protocols and procedures. Students will be introduced to material which overviews the organization and administration of resistance training and conditioning facilities. They will also learn the design principles of resistance training programs as well as exercise techniques. After this course, students will understand the biomechanics of strength training, the physiological adaptation to muscle training, and the mechanisms of change with varying populations. Students will be able to select and organize appropriate muscle testing protocol and will be able to teach

and demonstrate appropriate strength training exercises to individuals and groups, including being able to identify and correct errors.

Enforced Prerequisite at Enrollment: BIOL 141 or BIOL 161

KINES 358: Ergogenic Aids

1 Credits

Skills development including research identification and evaluation of work-enhancing methods and devices as related to human performance and wellness. In this course students will learn about the research identification and evaluation of work-enhancing methods and devices as they relate to human performance and wellness. The course will overview historical and ethical issues associated with the use of ergogenic aids, as well as the mechanisms that delineate how they affect body systems. Ergogenic aids will be classified as hormonal, pharmacological, psychological, physiological, mechanical and nutritional. In the course students will also look at various restorative and accelerate healing agents. As a consequence of this course students, will be able to identify specific ergogenic aids, their actions, their legality, advantages, disadvantages, and safety concerns. Students will also understand the research issues involved with ergogenic aids, as well as developing a philosophy for dealing with clients who approach them interested in these kinds of enhancements. Because of the topic's relevance to work in this field, this course gives students knowledge necessary to function effectively as a professional.

Enforced Prerequisite at Enrollment: (BIOL 161 or BIOL 141) and NUTR 251

KINES 360: The Neurobiology of Motor Control and Development

3 Credits

This 3 credit lecture course provides a rigorous presentation of the neuroscientific foundations of human movement control and coordination. This course introduces students to the cellular basis of neurophysiology, while emphasizing the contributions of both sensory and motor systems to motor control, coordination, and development. The course provides an in-depth presentation of systems neuroscience, with a special emphasis on the spinal, brainstem, and cortical contributions to movement. The course introduces the physiology and functional anatomy of the major sensory systems, motor systems, and sensorimotor integration networks, of the spinal cord, brainstem, and hemispheric structures in the central nervous system. These include spinal circuitry underlying reflexes and central pattern generators, basal ganglia organization and functional networks, cerebellar organization and functional networks, primary, secondary, and tertiary cortical areas associated with sensory and motor functions, neural tracts associated with ascending and descending sensory and motor systems, and cortical-subcortical loops. Students are introduced to dysfunction in these systems from both disease and traumatic processes, due to development disabilities such as cerebral palsy, degenerative processes including Parkinson's Disease, vascular disease including stroke, as well as traumatic brain injury. The overall objective of this course is to prepare Kinesiology students with a foundational level preparation in neuroscience, as required for understanding control of human movement, motor coordination, motor development and dysfunctions in these processes. This course forms one of four 300-level core courses that provide the basic science foundations that underlie the study of human movement, including exercise physiology, biomechanics, and the psychology of movement behavior. Neuroscience represents the fourth foundational discipline that contributes to human movement

science. This course is presented from a hierarchical perspective, that introduces the cellular basis of neural communication, as well as cortical, brainstem, and spinal systems that underlie sensorimotor functions. It provides a thorough introduction to the central nervous system, focusing on a systems level approach to sensory and motor physiology and its impact on motor control and coordination, as well as both developmental, degenerative, and traumatic disorders in these processes. Considerations of applications of the material to the fields of athletics and rehabilitation medicine are often provided.

Enforced Prerequisite at Enrollment: Students must have a grade of C or better in KINES 101 or KINES 180 and KINES 202 and (BIOL 141 or BIOL 161)

KINES 360H: Movement Skills

3 Credits

Examination of the basic mechanisms and variables that govern the coordination and control of movement and the acquisition of skill.

Honors

KINES 366: The Process of Teaching Physical Education

3 Credits

Analysis of pedagogical skills and methods applied to K-12 physical education. KINES 366 The Process of Teaching Physical Education (3) The purpose of this course is to introduce teacher candidates to the pedagogical processes used in teaching K-12 physical education. Physical education instruction techniques related to classroom management, creating effective learning environments, analysis of motor skills, providing effective feedback, content development, creating active learning experiences and systematic analysis of effective instruction comprise the foundation of this class. These pedagogical skills will be practiced and analyzed throughout the semester. Specifically, students will be required to demonstrate the ability to use, analyze and critique these techniques in micro-teaching situations with their peers. The primary focus of the class is to develop a repertoire of effective teaching skills based upon research of teacher effectiveness that enables teacher candidates to become reflective physical educators with the ability to deliver, analyze and modify their teaching to provide developmentally appropriate instruction for elementary, middle and high school students. The content of this course also addresses the physical education teaching standards developed by the National Association for Sport and Physical Education (NASPE), the national accrediting body for physical education teacher education programs that works in conjunction with the National Council for Accreditation of Teacher Education (NCATE) to certify physical education teacher education programs throughout the United States. Assessment of student performance in the course includes: 1. Participation in laboratory experiences (10%) 2. Performance on knowledge tests (35%) 3. The ability to correctly and effectively demonstrate a repertoire of pedagogical skills in simulated teaching situations (35%) 4. Teaching reflections based on class teaching experiences and analyses and observations of teaching (20%)

Enforced Prerequisite at Enrollment: Students must have a C or better grade in all of the following: EDPSY 10 and KINES 100 and KINES 101 and KINES 295B and PSYCH 100 Concurrent Courses: KINES 400 and KINES 464 and KINES 468W

KINES 367: Games and Sports Instruction Across the Lifespan

1 Credits

How to understand, perform and deliver individual and team games and sports across the lifespan. This course is designed to provide students with the opportunity to research, experience, and reflect upon the content knowledge necessary to successfully instruct and coach a variety of individual and team games and sports across the lifespan. Students will gain experience in at least one activity from each of the four games classification groups (net and wall, invasion, striking and fielding, and target games). Students will develop the knowledge and skills necessary to instruct and coach various lifetime individual and team games and sports. The games and sports chosen for this course (basketball, soccer, golf, softball, and tennis) have been specifically selected for three reasons related to lifespan development and participation. First, they are consistently included in preschool through 12th grade school physical education curriculums. Second, they are popular extra-curricular activities, which are heavily attended by young people and adolescents. Finally, they represent popular adult recreational (pick-up games) and competitive activities (adult leagues) that are often continued over the lifespan. Emphasis is placed on the student's competency in being able to effectively instruct and perform across multiple individual and team games and sports. Students will be expected to practically demonstrate a range of psychomotor techniques and skills for each given game and sport to a high level. Students will also need to display competence in a range of cognitive, affective and behavioral domain skills. This includes the ability to make appropriate game play decisions, communicate with teammates, understand and adhere to governing body rules/regulations and creating strategies to promote lifelong participation. Students will be assessed on their ability to instruct and coach the associated psychomotor skills, principles of play, and the official rules and regulations operated by each game or sport's governing body in a peer-to-peer instructional setting. Practical activity learning experiences are designed to provide students with a sound knowledge of the concepts associated with skill acquisition including the class/team/client structure and organization, teaching and coaching techniques, and developmentally appropriate activities. Peer to peer instructing and coaching sessions will be used as an instructional strategy.

Enforced Concurrent at Enrollment: KINES 267

KINES 368: Individual Fitness and Wellness

2 Credits

How to perform and deliver fitness and wellness concepts and exercises to individuals across the lifespan. The purpose of this course is to teach students how to effectively communicate, motivate, and engage individuals in fitness improvement exercises and activities across the lifespan (children, young adults, adults, and older adults). Understanding client management skills, various fitness environments, and specific individual fitness exercises and activities from the foundation of the course. Initially, students will learn appropriate and effective client management skills and will explore different instructional environments. Throughout the course, students will work on acquiring skills for developing progressions of exercises across the lifespan. The students will become familiar with contemporary fitness practices and exposed to a variety of exercises. Students will learn the associated execution cues and how to demonstrate the exercise. Students will apply content knowledge to instructing individuals how to properly engage in fitness exercises and activities that contribute to one's overall wellness. Students will be able to organize and execute a developmentally

appropriate fitness program for a client that targets one or more of the components of fitness including: cardiovascular, muscular strength, agility, power, coordination, and flexibility. The primary objectives of the course are to develop an understanding of how to create an individualized fitness program that is appropriate for the individual and how to interact with the individual to promote engagement in regular exercise and activity and successful achievement of goals. Students will examine how the age and developmental level of the individual relates to ability and individual fitness programming. Students will learn the correct form of exercise execution and progressions of exercises. Content knowledge is integrated with application of skills in fitness exercise and instruction and will be put to use in a learning laboratory setting which students will have the opportunity to engage in hands-on instructional experiences.

Enforced Prerequisite at Enrollment: KINES 200 and KINES 201
Concurrent Courses: KINES 267 and KINES 367

KINES 384: Biomechanics

3 Credits

Basic mechanical knowledge required to understand human movement. KINES 384 Biomechanics examines biological phenomena from a mechanical perspective; this course examines predominantly human movement from this perspective. The course aims to introduce students to the mechanical principles that underpin biomechanics, and to the measurement procedures used in biomechanics. Students will examine these principles for a variety of activities including: walking, running, jumping, quiet standing, throwing, striking, and reaching. Laboratory activities emphasize the qualitative and quantitative analysis of human movement. These sessions require students to work effectively in groups to collect data, and then work independently to analyze and interpret their data. Students use Newton's laws, basic algebra and trigonometry in the analysis of their data, and produce reports about these laboratory activities. The lectures provide the framework for all class activities. They aim to link the student's knowledge of anatomy with mechanics to provide an understanding of how movement is produced in both health and disease. The lectures provide information about the history, scope, and impact of biomechanics. Students are introduced to the pertinent kinematic variables required for the analysis of human movement. Newton's laws are used to understand both linear and angular human motion. Basic principles from aerodynamics are introduced as they may apply to man and the implements he or she may use. The examination of aerodynamic factors is augmented by examining the mechanics of balls spinning, and bouncing. Approaches for the determination of the inertial properties of human body segments are examined in detail, with a view to understanding the strengths and weaknesses of the various approaches. The theory, methodology, and protocols for image-based motion analysis are introduced as common methodology used in biomechanics. The principles behind force measurement are presented, using force plates as the core example. Students are taught the basics of the interpretation of ground reaction forces, using the impulse-momentum relationship. Contractile muscle mechanics are studied to understand the influences of muscle fiber activation, length, and velocity on the production of force are presented. The mechanical properties of tendon are presented (stress-strain relationship), and its role in human movement. Potential and kinetic energy are introduced, along with the concept of energy storage and its application in the analysis of human movement examined. The principles governing modeling are introduced, and approaches for modeling human movement are established and then used to understand the coordination of human movement.

Enforced Prerequisite at Enrollment: Students must have a grade of C or better in: KINES 101 and KINES 202 and (PHYS 150 or PHYS 250)
 General Education: Quantification (GQ)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

KINES 395: Leadership Practicum for Applied Exercise and Health Careers

1 Credits/Maximum of 1

Introduction to hands-on leadership experience within the fields of health, fitness, wellness, and physical activity. This course is designed to provide students with a supervised practicum experience in applied careers in the fields of health, wellness, fitness, and physical activity. Through a combination of classroom-based discussion and workplace opportunities, this course allows each student the opportunity to observe professionals in the fields of health, fitness, wellness, and physical activity, complete hands-on experiences, and learn skills in professional development. This course also offers, but is not limited to offering, many enriching professional development skill building lectures and assignments. Students can choose from a variety of sites, including but not limited to YMCAs, fitness centers, university courses, community or corporate health and wellness programs. Students are required to choose a field that directly relates to their career goals and/or expected professional certifications. Students must complete a minimum of 40 hours of a hands-on experience in that field. The expectation is that students apply and integrate content from other and concurrent courses in the program and further learn appropriate applied skills that are critical to success in the field. The student's field experience, productivity, and work will be evaluated on an ongoing basis by the course instructor as well as the field experience supervisor. The course may take place at either on-campus facilities or off-campus locations.

Enforced Prerequisite at Enrollment: KINES 295

KINES 395A: Ldrshp Prac:Tchrs

1 Credits

This is a one credit practicum designed to provide teacher candidates with the opportunity to observe, assist, and teach physical education classes in school settings. Most KINES 395A teacher candidates are in the final semester before starting their student-teaching internship and these experiences are intended to provide additional practical experiences in physical education instruction. This practicum involves a minimum of 10 consecutive weeks during a University semester. Teacher candidates need to demonstrate the ability to plan lessons, teach lessons, assess student learning, and reflect on their teaching performance during this practicum experience.

Enforced Prerequisite at Enrollment: Students must have a C or better in: EDPSY 10 and KINES 100 and KINES 101 and KINES 295B and PSYCH 100
Concurrent Courses: KINES 366 and KINES 400 and KINES 464 and KINES 468W

KINES 395B: Leadership Practicum: KINES

1 Credits

Supervised experience in leading/assisting in tasks associated with fitness testing/prescription in a variety of settings.

Enforced Prerequisite at Enrollment: KINES 295B and fifth-semester standing

KINES 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

KINES 398: Special Topics Course

1-9 Credits/Maximum of 9

Forman courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

KINES 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

KINES 400: Adapted Physical Education

3 Credits

Basic concepts of planning and conducting physical education programs for children with physical, sensory, and/or intellectual impairments.

KINES 400 Adapted Physical Education (3) This is an undergraduate level course teaching students the basic concepts of planning and conducting physical education programs for children with physical, sensory, and/or intellectual impairments. This course will help the student to become more aware of the physical needs of children with disabilities and of the possibilities to professionally deal with these needs. The course requires the student to complete a 10-hour practicum, providing the opportunity to work with children with a disability. The practicum will be conducted in cooperation with physical education staff members working with various schools in State College. The children's difficulties may range from emotional problems to severe physical and mental handicaps. Students are free to identify alternative practicum sites (e.g., work with a friend or family member with a disability). The requirements for the practicum may include: select a child who has a physical, sensory, or intellectual disability; write an Individualized Education Program (IEP) using the guidelines presented in the textbook; implement the IEP in a two-on-one teaching situation (two students, one child); keep a log of all the practice sessions; after completing the 10-hour practicum, write a final report based on the IEP, this final report should state the definition of the problem, the etiology, the general characteristics, the teaching techniques specific to the disability, an evaluation of the actual teaching strategies and an evaluation of the outcome of the practice (did it work?); and, present the findings orally (10-15 minute talk).The student will generally be evaluated by exam, teaching activity, an oral presentation, and a final report.

Enforced Prerequisite at Enrollment: KINES 202

KINES 401: Applied Group Fitness Exercise Prescription and Program Design

3 Credits/Maximum of 3

Skills and practical knowledge to design safe and effective exercise classes for a variety of populations to improve health. The primary

purpose of this course is to provide students interested in applied exercise and health careers (group fitness instructors, health and physical education teachers, personal trainers, wellness professionals, corporate fitness professionals, physical therapists) with skills and practical knowledge to design as well as instruct safe and effective exercise classes for a variety of populations to improve cardiovascular health, strength, and flexibility. Students will learn how to prepare for a class, which includes participant monitoring as well as evaluation and progresses to developing the skills for both programming as well as leading group exercise classes. Students will gather and apply the current literature regarding the ideal training strategies and practical tips for both healthy adults as well as special populations (i.e. asthma, obesity, youth, pregnancy, older adults). They will also learn how to verbally and physically cue and demonstrate the exercises to a group. Strategies for adherence to assist in behavior modification will be a focus throughout the course. At the conclusion of KINES 401, the students will be able to demonstrate a knowledge and understanding of group fitness class components. Inherent in the course goals is an understanding of the adaptations that occur as a result of programs of cardiorespiratory and muscular exercise in apparently healthy, at-risk, and diseased populations. Content knowledge is integrated with application of skills in fitness exercise, and instruction and will be put to use in a learning laboratory setting which students will have the opportunity to engage in hands-on instructional experiences.

Enforced Prerequisite or Concurrent at Enrollment: KINES 367 and KINES 368

KINES 402: Human Anatomy Cadaver Dissection

3 Credits

This course is designed to provide students with an established anatomy background (i.e. completed KINES 202 or an equivalent course (BIO 129, 161/162, 163/164, 472) the basic concepts and applications of human cadaver dissection. Upon completion of the course, students will gain an appreciation for the amount of variability that exists in human anatomy as well as be able to apply anatomical concepts related to clinical pathologies to prepare them for a career in the allied health fields.

Prerequisites: KINES 202 or BIOL 129 or BIOL 161 or 162 or 163 or 164

KINES 403: Emergency Medical Technology

4 Credits

Theoretical and practical aspects of emergency medical techniques as applied in the pre-hospital environment.

Enforced Prerequisite at Enrollment: KINES303 and/or current advanced first aid and cardiopulmonary resuscitation certification

KINES 405N: Bicycling Culture and Urban Design

3 Credits

KINES 405N, a study abroad course, based in a bicycle friendly European city, provides students with an opportunity to experience the programs, policies, infrastructure (including urban design features) and culture associated with bicycling in what is one of the most bike-friendly cities in the world. Students will have an opportunity to be immersed in the city's bicycle culture, observe bicycle infrastructure and multi-modal transportation solutions, learn from programs and policies that support bicycling and learn about the role of bicycling in sustainable, liveable

communities. This course will be taught from a multi-disciplinary perspective to address the complex issues associated with bicycling. Students are expected to apply information and content to other countries and communities.

Enforced Prerequisite at Enrollment: KINES 100 or LARCH 125 or [5th Semester standing and (3 credits of CAS or 3 credits of ENGL)]

Cross-listed with: LARCH 405N

International Cultures (IL)

General Education: Arts (GA)

General Education: Health and Wellness (GHW)

General Education - Integrative: Interdomain

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

KINES 408: Kinesiology Learning Strategies

1-3 Credits/Maximum of 6

This course provides peer learning assistants with the fundamentals they will need to be effective in the laboratory and/or recitation classroom. Students will learn the fundamental skills needed to; assist in designing lesson plans; facilitate class discussions; assist in developing effective assessments; communicate learning expectations; provide helpful feedback; and maintain a safe learning environment in laboratory settings. Students enrolled in this course will be serving as an undergraduate learning assistants for course instructors and/or lab coordinators in the relevant course, who provide the instruction. Regular meetings with the course instructors will help the learning assistants adjust to their duties and solve common problems that arise in the instructional environment. Learning assistants will learn how to facilitate active learning and help other students develop sound study skills. The focus will be on evidence-based teaching strategies. Students enrolled in this course will be expected to have regular attendance, organization in and preparation for their peer learning assistant role, and clarity in how they communicate with their students

Enforced Prerequisite at Enrollment: 5th Semester standing and (KINES 100 or KINES 101)

KINES 410: Physical Growth and Motor Development

3 Credits

Study of biologically programmed growth processes and environmental influences leading to attained adult form and biomechanical function.

Enforced Prerequisite at Enrollment: KINES 101

KINES 411: Introduction to Musculoskeletal Injury and Rehabilitation

3 Credits

This course is designed to provide an overview of common musculoskeletal injuries and rehabilitation for pre-allied health and fitness professionals. KINES 411 Introduction to Musculoskeletal Injury and Rehabilitation (3) This course is designed to provide an overview of basic orthopaedic injuries and related musculoskeletal system dysfunctions as well as rehabilitation of those injuries and dysfunctions. Common orthopaedic injuries of all major musculoskeletal structures and tissues are discussed moving up the kinetic chain from the feet up the lower extremities, through the spine and out the upper extremities to the hands. Common injuries such as sprains, strains, fractures, tendinopathies, disc herniations, spinal stenosis, compartment

syndromes, neural compression, carpal tunnel syndrome and thoracic outlet syndrome will be discussed. Anatomy and function of each body region will be reviewed prior to the discussion of injuries. Mechanisms of injury, tissue pathology and the tissue healing processes are reviewed. The role of inflammation in the healing of injured tissues will be explored and the variations in healing processes between tissues explained. Common surgical procedures for major injuries like anterior cruciate ligament tears will be presented. A general rehabilitation process is discussed and rehabilitation concepts unique to specific injuries are explored. Basic principles of the major components of a rehabilitation program are explained. These major components include the protection of healing tissue, pain control, swelling resolution, restoration of range of motion, facilitation of volitional control, enhancement of muscular strength and endurance, improvement of neuromuscular control, training of functional movement patterns and return to functional activities. The RICE (Rest, Ice, Compression, Elevation) method of treating pain and limiting swelling will be presented. Manual therapy, stretching and exercise activities used to regain range of motion will be explained. Exercises used to improve muscular strength and endurance will be discussed for each region of the body. Methods of facilitating balance and neuromuscular control will be demonstrated. Finally, the benefits of functional exercise in terms of three-dimensional exercise requiring the use of groups of synergistic muscles in a coordinated manner will be presented. In addition, return to sport programs that gradually reintroduce the patient to the real life stresses placed on their injured body part will be explained. Prioritization of addressing the different components of a rehabilitation plan will be discussed and differences between surgical and non-surgical rehabilitation plans presented. Criteria used to make return to play decisions for injured athletes will also be outlined. Modifications of common exercises to accommodate for injuries and allow continued participation in exercise routines will be presented. This course is appropriate for pre-allied health professionals and fitness professionals with an interest in orthopaedic injuries, musculoskeletal system rehabilitation and the construction of exercise programs that prevent, or accommodate for, musculoskeletal problems.

Enforced Prerequisite at Enrollment: KINES 202

KINES 413W: Movement Science and Pseudoscience

3 Credits

The domains of health and fitness seem to be filled with questionable claims for products that are supposed to make us stronger, faster, fitter, and healthier. How should we make decisions about whether to accept these claims? How can we judge (often conflicting) research reports to reach these decisions? What pitfalls are we all subject to when evaluating evidence and drawing conclusions? This course does not provide ready answers about specific treatments. Instead, the primary goal of this course is to help students develop a set of critical thinking skills that they will take with them into their chosen careers. In this way students will be prepared to make decisions not only about existing treatments, techniques, and practices, but also ones that are yet to appear. Real-world examples that draw on knowledge from multiple areas within kinesiology will be the subjects of class discussions that complement the lectures. A secondary goal of this course is to demystify science and humanize scientists in order to give students a better understanding of how science is done properly and improperly. The boundaries between science and pseudoscience are discussed so that students are better prepared to identify the latter. Making this distinction can be difficult when pseudosciences seem to have many of the hallmarks of actual science without the same rigor, openness, and possibility for progress. Kinesiology 413 relies on small group discussions with the Instructor and

other students in the class. This is also a writing-intensive class, and as such there will be writing assignments focused on the development of tests for a claim, and critical evaluation of claims related to a treatment, device, etc. related to human movement and activity.

Enforced Prerequisite at Enrollment: 6th Semester standing
Writing Across the Curriculum

KINES 419: Disability Sport and Recreation

3 Credits

The purpose of this course is to provide students with an understanding of disability sports and recreation. Throughout the course students will explore the process for developing and implementing a disability sports program such as, but not limited to, identifying community need, determining budget and funding sources, assessing resources needed, and gaining experience in teaching a sport or recreation for individuals with disabilities. While exploring the development of disability sports students will gain an understanding of key historical, sociocultural, and biomedical issues that are unique to individuals with disabilities. Historical issues such as the treatment of individuals with disabilities within society and sport, and the impact that sport has had on acceptance of individuals with disabilities will be examined. Students will also compare and contrast the major international sports organizations as well as United States sport organizations that are specific to individuals with disabilities. Students will gain an understanding of cognitive, mental, and physical disabilities, and the interaction between disability type and other identities such as gender. These concepts will be emphasized with a variety of hands on experience with disability sports and sport equipment. In addition, students will utilize theory based learning to review key concepts of accessible recreation and sport programs for individuals with disabilities in the United States. Students will also gain an understanding of unique characteristics of individuals with disability, and appropriate adaptations for sport and recreational success. By the completion of the course students will be able to identify major resources and concepts for disability sport and recreation related to coaching, sport management, sports medicine, and program development in the United States. Throughout the course an emphasis will be placed on acquiring knowledge of and concern for inclusion of individuals with disabilities through sport.

Enforced Prerequisite at Enrollment: KINES 100 or RHS 100
United States Cultures (US)
General Education: Humanities (GH)
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Key Literacies
GenEd Learning Objective: Soc Resp and Ethic Reason

KINES 420: Psychosocial Dimensions of Physical Activity

3 Credits

Discussion of theoretical and empirical findings, structuring a frame of reference for exploring man's involvement in physical activity.

Enforced Prerequisite at Enrollment: KINES 321 or 3 credits in PSYCH or SOC

KINES 421: Exercise Psychology

3 Credits

Psychological antecedents and consequences of physical activity behaviors. KINES 421 Exercise Psychology (3) Exercise Psychology is designed to introduce students to the psychological antecedents and consequences of exercise behaviors. The antecedents of exercise behaviors are the psychosocial and cognitive factors (e.g., beliefs, attitudes, personality traits) that facilitate and/or inhibit exercise behaviors. The consequences of exercise behavior are the physical, psychosocial, and cognitive outcomes (e.g., self-efficacy, body image, mental health) of exercise participation. The antecedents and consequences of exercise behaviors will be presented within the context of contemporary conceptual and theoretical models in exercise psychology. This course is designed to provide students with an overview and foundation of the important psychosocial phenomena related to these antecedents and consequences of exercise behaviors. Students will have the opportunity to apply their knowledge in selected areas within exercise psychology through class discussions and assignments.

Enforced Prerequisite at Enrollment: KINES 321 and PSYCH 100

KINES 422: Physical Activity Interventions

3 Credits

Principles of designing, planning, and implementing theory- and evidence-based physical activity interventions. KINES 422 Physical Activity Interventions (3) This course is designed to acquaint undergraduate students with the application of major theories and models used to design and guide the development of contemporary physical activity interventions. Students will be familiarized with empirically-supported principles of behavior change and will gain an understanding of the basic strategies and methods used in designing, planning, implementation, and evaluation of physical activity interventions. The course will cover a variety of approaches to physical activity promotion, ranging from clinical and community-based interventions to population-based approaches, while discussing practical strategies and concrete examples of contemporary, evidence-based physical activity interventions. The goal of the course is for students to demonstrate the ability to formulate well-conceived physical activity interventions across a variety of settings and participant populations and learn how to apply theoretical principles and research findings to intervention development.

Enforced Prerequisite at Enrollment: KINES 321 and PSYCH 100

KINES 423: Psychology of Sports Injuries

3 Credits

Psychological causes and consequences of sports related injuries in athletes. KINES 423 Psychology of Sports Injuries (3) Using lectures/ whole class discussion formats, this course is intended to provide the students with the basic knowledge regarding psychological causes and consequences of sport-related injuries, including concussions. Specific course objectives include: (1) developing the proficiency in initiating interviews and observations of athletes suffering from sport-related injuries; (2) assessing psychological impact of injury on athletes; (3) developing critical-thinking skills related to the probability of developing of psychological trauma in athletes with injuries; (4) developing specific skills of psychological assessment of injured athletes; (5) stimulating thinking about temporary research questions as related to psychology of injury. Evaluation will be based on active engagement in class

discussions and administration of quizzes and written examinations according to course syllabus. This class extends but does not duplicate existing courses in the Departments of Kinesiology and Psychology.

Enforced Prerequisite at Enrollment: KINES 321

KINES 424: Women and Sport

3 Credits

An interdisciplinary approach to contemporary issues related to women and sport from historical, physiological, psychological, and sociological perspectives.

Enforced Prerequisite at Enrollment: PSYCH 100 or SOC 1 or WMNST 100 or KINES 100

Cross-listed with: WMNST 424
United States Cultures (US)

KINES 425W: Physical Activity in Diverse Populations

3 Credits

This course includes examination of issues related to race, ethnicity, geography, income status, and other social factors across the lifespan for promoting physical activity through public health strategies and will include content on both the influences on activity and health as well as the implications for intervention. Coursework will include an examination of the influences on health and physical activity behavior and will include content on federal initiatives and programs for addressing health disparities, and the influence of race, ethnicity, immigration, social class/ income status, urban/rural location, religion, veteran status, ability level, and sexual orientation on physical activity participation. For each influence, content will include interventions and strategies for addressing inequities; cultural tailoring and targeting, intervention planning for diverse populations, and evidence based strategies at the individual, institutional, community and environmental level.

Enforced Prerequisite at Enrollment: KINES 100

United States Cultures (US)
Writing Across the Curriculum

KINES 426: Physical Activity and Public Health

3 Credits

Examines the role of physical activity in public health. Includes population level strategies for promoting physical activity in communities. KINES 426 Physical Activity and Public Health (3) An examination of the role of physical activity in public health. The first half of the course will provide an introduction to public health and basic epidemiology, measurement, dose-response relationships, chronic disease prevention. We will examine the historical progression of physical activity as a part of public health, including landmark studies showing the relationships between physical activity and chronic disease morbidity and mortality. Current public health guidelines and national policies related to physical activity will be discussed in detail. Students will debate the scientific foundation for current issues in the field, including fitness vs. fatness as a predictor of health outcomes and comparing behavior vs. objectively measured variables. The role of physical activity in preventing cardiovascular disease, type 2 diabetes, obesity, and cancer, colon and prostate cancer will be discussed. We will focus on large scale epidemiologic studies that highlight prevention. The second half of the class will focus on a social ecological framework for promoting physical activity and will address population level approaches through policy and

environmental strategies, following the Centers for Disease Control and Prevention Task Force for Community Preventive Services guidelines. We will study how features of the built environment can encourage or discourage walking and biking and refer to current research in the field that examines these relationships in different populations (urban/ rural, youth/older adults). We will learn about the challenges associated with assessment and measurement at a population level. Policy level approaches to physical activity promotion; including local, state and national; will also be discussed. We will discuss various community level approaches including: point-of-decision prompts, mass media campaigns, enhancing access to physical activity opportunities and other strategies outlined in the guidelines. Lastly, we will examine how physical activity promotion is addressed in other countries through community, policy and environmental strategies in Canada, Australia, Brazil and throughout Europe.

Enforced Prerequisite at Enrollment: KINES 100

KINES 427: Developmental Sport & Exercise Psychology

3 Credits

Developmental changes in the antecedents and consequences of physical activity across the lifespan. HD FS (KINES) 427 Developmental Sport & Exercise Psychology (3) Change is constant with physical activity - our reasons for being active change across the lifespan and our experiences with physical activity change how we view ourselves and those around us. Developmental Sport & Exercise Psychology focuses on developmental changes in the psychosocial antecedents and consequences of physical activity across the lifespan. Specific course objectives include (1) describing theoretical frameworks and methods used to study physical activity-related psychosocial development across the lifespan, (2) describing how self-perceptions develop and influence behavior in movement contexts at different points in life, (3) explaining how contextual factors influence developmental processes associated with physical activity, (4) identifying age-related differences in activity-related antecedents and consequences of physical activity, and (5) developing, reviewing, and critiquing theoretically-grounded interventions to address issues related to developmental processes associated with physical activity across the lifespan. Evaluation will be based on written examinations, submission of a series of reflection papers on reading assignments, a group presentation, and the students' engagement in the class. It extends but does not duplicate existing courses in the Department of Innersole, Human Development & Family Studies, and Psychology.

Enforced Prerequisite at Enrollment: PSYCH 100 and (KINES 321 or HDFS 129 or PSYCH 212)

Cross-listed with: HDFS 427

KINES 428: Motivation and Emotion in Movement

3 Credits

Theories of motivational and emotional processes and their applications in movement settings. KINES 428 Motivation and Emotion in Movement (3) Motivation & Emotion in Movement will focus on the psychological processes underlying human motivation and emotion in movement settings. Special attention will be directed to social manipulations that can enhance motivation and emotion, and the consequences thereof. This course will be valuable for students whose career goals relate to education, personal training, rehabilitation, coaching, or psychology. Specific course objectives include (1) distinguishing between motivation and emotion, (2) understanding psychological mechanisms underlying

common motivational and emotional processes in movement settings, (3) identifying existing applications of motivation and emotion theories in movement settings, and (4) developing, reviewing, and critiquing theoretically-grounded interventions to address issues related to motivational and emotional processes in movement contexts. It extends but does not duplicate existing courses in the Departments of Kinesiology and Psychology.

Enforced Prerequisite at Enrollment: KINES 321 and PSYCH 100

KINES 429: Psychology of Sport Performance

3 Credits

Psychological theories of talent development and performance enhancement in sport. KINES 429 Psychology of Sport Performance (3) Psychology of Sport Performance will provide a psychological perspective on the phenomenon of superior motor performance. The course will cover nature of superior performance, talent development processes, sources of performance crises, and self-regulation strategies used by athletes, coaches, and psychologists to enhance performance. This course will be valuable for students whose career goals involve training athletes or other performers involved in socially-evaluative performance domains. Specific objectives include (a) distinguishing the antecedents and consequences of subjective and objective performances, (b) conceptualizing motor performance and performance problems in a psychological context, and (c) matching psychologically-based performance problems with theoretically-based intervention strategies. It extends but does not duplicate existing courses in the Departments of Kinesiology and Psychology.

Enforced Prerequisite at Enrollment: KINES 321 and PSYCH 100

KINES 430W: Groups in Physical Activity

3 Credits

During involvement in this course, students will be acquainted with how exercisers and athletes interact with the others within small group environments. Notably, athletes and exercisers are commonly structured into tight-knit, interactive, and interdependent groups such as teams, fitness classes, family units, peer groups, neighborhoods, and training groups. These small groups are fundamental to sport and exercise experiences, while also influencing whether or not youth and adults derive value from physical activity. Therefore, identifying and promoting optimal small group environments is a central goal for researchers studying the social psychology of sport. Whereas the construct of group cohesion is the most widely-studied aspect of small groups in this context, rich and emerging lines of research reveal a great deal about group structures (e.g., norms), emergent states (e.g., social identities), and group processes (e.g., teamwork), as well as the outcomes of involvement in groups. This area of research is of general theoretical interest, but is also critical to establish an enhanced practical understanding for fields ranging from coaching to health promotion, education, and psychology. To explore these group processes, the goal of the course entails establishing a foundational understanding of small group dynamics. From this foundation, class members will explore contemporary research and theory about optimizing sport groups (i.e., sport adherence and performance) and physical activity groups (i.e., physical activity maintenance, positive psychosocial perceptions). This exploration will demand that students read and discuss empirical research - demonstrating the capacity to interpret and understand this literature, along with the capacity to critically appraise empirical findings. Students' learning related to group dynamics will be cemented

through discussions and activities focused on real-life groups, as well as demonstrations of group processes using group tasks. By the completion of the course, students will have acquired strategies to optimize small group environments and developed skills to communicate group dynamics constructs and theories. Regarding communication, a critical outcome of this writing-intensive course is the capacity to interpret writing from group dynamics experts and communicating these themes through one's own effective writing.

Enforced Prerequisite at Enrollment: KINES 321 or PSYCH 100
Writing Across the Curriculum

KINES 431: Concussion in Athletics: Brain to Behavior

3 Credits

National organizations have identified mild traumatic brain injury, also known as concussion, as a major health concern for injured athletes at high school, collegiate and professional levels. These injured athletes have focused the research and clinical community's efforts into further understanding the pathophysiological underpinnings of the injury as well as its both short and long term effects. It is the overall intention of this course to elicit current understanding the pathophysiology, including its underlying mechanisms, predicting differential evolution and consequences of concussion. The central focus of this course is that symptoms following the concussion (e.g., headache, dizziness, balance, gait and locomotion, executive and neurocognitive function deficits etc.) may be exacerbated and /or triggered by compromised integrity of cortical, subcortical, and other areas of CNS. Thus, this concept will be discussed and elaborated throughout the course development.

Enforced Prerequisite at Enrollment: KINES 321

KINES 440: Philosophy and Sport

3 Credits

An examination of human nature from the perspective of our participation in sport.

Enforced Prerequisite at Enrollment: KINES 345 or 3 credits in PHIL

KINES 441: History of Sport in American Society

3 Credits

AMST 441 / KINES 441 History of Sport in American Society study of the background, establishment, and growth of sport in America from colonial times to the present, and the role of American sports in American culture and society. The course will examine the ways that sports have operated in the United States as the country has developed into a modern, mass society. Issues of national identity, commercialism, race, ethnicity, class, and gender will be discussed in relation to the popularity of sports. Another set of issues will center on language and media; students will employ methods of analysis such as ethnography and rhetorical criticism that emphasize the multiple layers of meaning inherent in sports culture.

Enforced Prerequisite at Enrollment: KINES 100 or KINES 341 or COMM 170 or RPTM 120 or HIST 113 or ENGL 234 or AFAM 114 or ASIA 101N or CAMS 142 or 6 credits of AMST or 6 credits of HIST or (3 credits in AMST and CAMS 142)
Cross-listed with: AMST 441
United States Cultures (US)

KINES 445: Alcohol and Drug Education

3 Credits

Principles of integration and coordination of alcohol and drug education programs for health education and other health related professions.

Enforced Prerequisite at Enrollment: 6 credits in KINES or BBH

KINES 446: History of Sport in the Modern World

3 Credits

History of sport in modern world, ca. A.D. 1500 to present; concentrates on role of sport in societies outside United States. KINES 446 History of Sport in the Modern World (3) (IL) The History of Sport in the Modern World introduces students to the connections between sporting practices and the broader cultural, political, intellectual and economic patterns that shape societies during the modern period in world history (ca. A.D. 1500 to the present). The course begins with a foray into the transition from traditional to modern forms of sport and society and covers the development of a wide variety of athletic games and pastimes from the sixteenth through twentieth centuries. Students will encounter a variety of historic conceptions of sport and explore the role of sport in the development of European, North American, Latin American, Asian, African and Pacific cultures. Students will learn how sports have been shaped by and have shaped by multiple factors, including modern ideas, science, class structures, gender roles, constructions of race, urbanization, nationalism, political conflicts, international relations, and economic institutions. This is a senior-level course that fills an important historical gap in the Kinesiology Department's sequence of offerings on the history of sport. Other courses in the sequence cover ancient sport, sport in American society, and the Olympic Games. While crucial American developments that impact sports in the modern world are incorporated into this course, this class offers students a global focus that concentrates on the role of sport in societies beyond the borders of the United States. This course also relates to the offerings in the philosophy of sport program by exploring the history of ideas about sport in modern thought. Additionally, the course connects to the science-based offerings in Kinesiology by providing students with an introduction to the history of the scientific study of human performance. The course introduces students to basic readings and knowledge of the history of sport in the modern world. The class provides opportunities to practice the critical reading and thinking techniques that shape the historian's approach to knowledge. This course will be taught once every year with an anticipated enrollment of 50 students. Evaluation methods that test reading and critical thinking skills are employed. No special facilities are required.

Enforced Prerequisite at Enrollment: KINES 100 or KINES 341 or COMM 170 or RPTM 120 or HIST 113 or ENGL 234 or AFAM 114 or ASIA 101N or CAMS 142 or 6 credits in HIST International Cultures (IL)

KINES 447W: Representing Sport in Popular Film

3 Credits

Critical, contextual, and theoretical analyses of sport films focusing on popular narratives of social inequalities.

Enforced Prerequisite at Enrollment: KINES 100 Writing Across the Curriculum

KINES 448: Coping with Life After Sport

1 Credits

Psychosocial concerns affecting student-athletes as they enter the transition period following sport disengagement, focusing on coping interventions. KINES 448 Coping with Life after Sport (1) KINES 448 is designed for student athletes who have exhausted their eligibility for or will no longer be participating in their respective sport due to injury or other issues. It is also relevant for students in athletic training or those who plan to pursue a career in coaching. The focus of the course is on the identification of issues and stressors affecting the transition and the development of strategies and coping skills to deal with life after sport. This can often be a very emotional and difficult time for student athletes. Discussion is focused on intervention and coping strategies, goal setting, decision making, career planning, and transferable skills. Student athletes will be able to recognize how their athletic experience has helped them to acquire numerous skills and characteristics highly valued in the workplace. Two sections of the course will be offered each semester. Students will be required to submit a weekly reaction paper, do a review of literature, and compile a comprehensive career plan. The class will be highly interactive with regular in-class assignments and projects.

Enforced Prerequisite at Enrollment: 7th semester or higher and major in KINES or 7th semester or higher and minor in KINES or 7th semester or higher and intercollegiate sport participation

KINES 449: Sport in African History

3 Credits

Recent events in sporting history have precipitated changes in perception for many in Africa relative to the historic legacies of racism and colonial rule. These events lead to pivotal questions -What are the broader social and political meanings of sport in African society? And what does the study of sport in Africa tell us about Africa's place in world history? This course uses the lens of sport to examine the social and political histories of Africa and the wider diaspora in historical perspective. From the racial and gendered hierarchies of colonialism to the use of sport to protest against social injustices, students are challenged to analyze the interdisciplinary significance of sport far beyond the playing field. One of the main intellectual goals of this course is to use sport to deepen our understanding of specific outcomes in African sport (e.g. South Africa's remarkable transformation from pariah of international sport to host of global events like the 2010 World Cup, and Kenyan running successes) from a variety of perspectives. We also consider how Americans travelled to and engaged with African societies as athletes, ambassadors, and activists. Broadly, this course explores sport and social change in Africa from the late nineteenth century to the present. It examines the sporting lives of African athletes, fans, reporters, coaches, and organizers and then connects them to shifting racial identities and power relationships on the continent as well as elsewhere around the world. These histories shed light on the pivotal role of sport in the everyday lives of people across the continent. In the process, we pay attention to primary sources, analyzing the ways in which Africans thought, talked, and represented themes discussed in assigned readings. Ultimately, this course will strengthen student skills of critical thinking, oral communication, collaboration, research, and writing.

Enforced Prerequisite at Enrollment: KINES 100 or 3 credits of AFR or 3 credits of HIST
Cross-listed with: AFR 449
International Cultures (IL)

General Education: Humanities (GH)
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Key Literacies

KINES 452: Applied Cardiovascular Physiology

3 Credits

In-depth study of cardiovascular regulation during postural, environmental, and exercise stress. KINES 452 Applied Cardiovascular Physiology (3) First, the course begins with an intensive review of hemodynamics and basic cardiovascular control mechanisms (neural, hormonal, and local regulation). Second, students compare and contrast these general principles in six important circulations: splanchnic, renal, cerebral, coronary, cutaneous, and muscle. Third, they examine the three stresses which affect the circulation: posture (gravity), environment (especially heat) and exercise. For each stress, students identify the regional circulation(s) most affected and how they contribute to an integrated (systemic) cardiovascular response that is unique for each stress. Finally, combinations of posture, heat, and exercise stress are considered to illustrate competing cardiovascular control mechanisms. At each step students are introduced to seminal research papers illustrating the concept being studied.

Enforced Prerequisite at Enrollment: KINES 350

KINES 453: Environmental Physiology

3 Credits

This course examines physiological function of humans at rest and during prolonged or maximal exercise in conjunction with environment stress (heat, cold, altitude, hyperbaria).

Enforced Prerequisite at Enrollment: KINES 350

KINES 454: Women's Health and Exercise Across the Lifespan

3 Credits

KINES 454 begins with a review of general principles of research conduct and publication, themes that will be carried throughout all material covered in this class. A review of the historical aspect of women's health research and a review of the state of knowledge in women's health in the wake of the contemporary scientific endeavors such as the Women's Health Initiative will also be explored. Students will learn physiology of puberty, menstrual function and bone health and the impact of exercise on these processes. Students will explore current concepts of exercise related to the female athlete and clinical implications of alterations in normal physiology. The impact of oral contraceptives on health and exercise performance will be also discussed. Students will learn menopausal physiology, alterations in clinical status associated with this life stage, and review current research related to the Women's Health Initiative. Finally, a discussion of the effects of gender differences on health and exercise will be discussed. This course is designed for students who wish to develop a richer understanding of the physiological role of exercise in modulating the health of girls and women during different phases of the lifespan, including but not limited to childhood, adolescence, adulthood and later adulthood. At each step, students will be exposed to relevant research methods issues and introduced to seminal research papers illustrating the concept being evaluated. Students will improve their ability to read and summarize original research literature through in depth presentation and discussion of seminal studies. Moreover, students will develop an understanding of how research has informed the state of knowledge on issues covered

in this class and students will develop "language understanding" appropriate for interpreting and reading research papers.

Enforced Prerequisite at Enrollment: KINES 101

KINES 455: Physiological Basis of Exercise as Medicine

3 Credits

KINES 455 reviews the physiological basis of exercise for enhancing health and protecting against chronic diseases. This course is designed for students interested in developing a deeper understanding of the physiological mechanisms behind exercise as medicine. Course content will consist of a mixture of selected book chapters as well as contemporary review and primary research articles. This course begins with an overview of the current exercise deficiency problem, including the societal, behavioral, and economic changes of the past century which have contributed to the modern day epidemic of chronic inactivity-related disease. After developing an appreciation for the scope of these problems, students will be introduced to the "tools" needed to critically evaluate the association between exercise and/or inactivity on health and the mechanisms by which these associations may occur, including: basic principles of epidemiology, searching/reviewing scientific literature, and experimental design. The remainder of the course will be focused on how exercise/physical activity modifies molecular/tissue-level and integrative physiological function, and describes the extent to which these modifications confer either preventative or therapeutic benefit. Students will also use the "tools" that they learned at the beginning of the semester to demonstrate and share knowledge with others; integration of this information may include a thorough analysis of a chronic condition including the pathophysiology, strength of evidence for exercise as medicine, and physiological actions of exercise in prevention or treatment. Students may also be given the opportunity to translate their knowledge from this course into educational materials (e.g., flyers, pamphlets, screensavers, fitness center displays, social media, etc) for use during "Exercise is Medicine" week.

Enforced Prerequisite at Enrollment: KINES 350

KINES 456: Physical Fitness Appraisal

4 Credits

In KINES 456, students assess the five components of health-related physical fitness through fitness testing measures: body composition, joint flexibility, muscle strength, muscle endurance and cardiorespiratory fitness. The importance of a comprehensive pre-participation health screening, including relevant medical history, physical examination findings, cardiovascular disease risk factor assessment and laboratory testing is emphasized. Several current pre-participation screening instruments are reviewed. The American College of Sports Medicine physical activity guidelines and guidelines for exercise testing and prescription are discussed and grounded in best practices in monitoring signs and symptoms of physical stress leading to test termination. Students explore the role that cardiovascular, pulmonary, renal and metabolic disease risk factors and signs and symptoms play in the development of atherosclerosis and the impact each has on fitness appraisal. Modifications and/or alternative assessments for each health-related component of physical fitness are discussed for clinical populations, children and older adults. The required laboratory allows students practical opportunities to assess these components across the lifespan utilizing both field testing and laboratory testing and interpreting results using normative data. The required laboratory experience reinforces the course content and aids in skill acquisition by

requiring that all students participate in the testing procedures as both test administrators and subjects. As EKG interpretation is a valuable skill in fitness appraisal, students receive instruction in basics of EKG interpretation to include: determination of mean electrical axis, heart rate and rhythm, EKG waveform norms, and normal and abnormal EKG responses before, during and after exercise testing. Atrial, junctional and ventricular arrhythmias, heart blocks and bundle branch blocks are included in the latter portion of the course. ACSM metabolic calculations for exercise testing and prescription are reviewed and utilized.

Enforced Prerequisite at Enrollment: KINES 350

KINES 457: Exercise Prescription and Case Studies

3 Credits

Principles of exercise prescription; application of fitness appraisal based on current practices using evaluation and discussion of case studies. KINES 457 Exercise Prescription and Case Studies (3) The major purpose of this course is to provide those students interested in allied medical careers (e.g., cardiac rehabilitation, hospital testing, wellness centers, corporate fitness centers, physical therapy) with skills and practical knowledge regarding exercise diagnostics and prescription. Particular emphasis is placed on clinical diagnostic procedures, interpretation and terminology and this course directly contributes to the knowledge base expected for future employment in this area. At the conclusion of KINES 457, the students will be able to demonstrate on written examinations and in discussions, a knowledge and understanding of basic exercise prescription principles for apparently healthy, at risk and diseased populations, with special- emphasis on the cardiac patient. Inherent in the course goals is an understanding of the chronic physiological adaptations that occur as a result of programs of endurance and resistance exercise in apparently healthy, at risk and diseased populations. This course includes lectures as well as hands-on laboratory sessions. Evaluation is based on student performance on written examinations, written and oral case study presentations, and written assignments. This course will be taken after students have completed KINES 456 and will complete the learning scheme involving fitness appraisal and subsequent prescription of exercise programs. The course is offered fall and spring semesters with an enrollment of 35 students.

Enforced Prerequisite at Enrollment: KINES 350 and KINES 456

KINES 458: Introduction to Electrocardiogram Interpretation

3 Credits

Reading and interpreting electrocardiograms are important skills for an exercise physiologist and many other allied health care practitioners. This skill features prominently in the job task analyses for industry certifications. The electrocardiograph is an instrument that measures electrical potentials on the body surface and generates a record of the electrical currents associated with heart muscle activity. The graphic record generated by the electrocardiograph is called an electrocardiogram (EKG or ECG). The EKG provides information about the rhythm and rate of contraction of heart muscle and the strength, timing and direction of electrical signals as they pass through various areas of the heart. Specific abnormalities of rate and rhythm will produce recognizable patterns in the EKG waveforms. This course will begin with cardiac anatomy and cardiac action potential production and conduction. The course material will progress through normal EKG patterns through common abnormalities in various areas of the heart as well as patterns related to infarction, acute injury and ischemia. The

hemodynamic consequences of these abnormalities will be discussed. The effects of exercise, prescription medications and other drugs on the EKG will be explored. Successful completion of this course does not grant the authority to provide a medical diagnosis based upon an EKG interpretation; only a physician can do so

Enforced Prerequisite at Enrollment: KINES 350 or BIOL 163

KINES 459: Community Engagement and Outreach in Kinesiology

3 Credits

Community outreach and engagement are two missions of the Department of Kinesiology. Towards these goals this course provides students with an opportunity to gain knowledge and master assessment skills in the teaching laboratory or classroom before providing opportunities for students to practice these skills in diverse populations across the Commonwealth and in neighboring states. The first several weeks of the course will be spent learning how to perform various fitness and health screenings, including but not limited to: tests on treadmills and stationary cycles, blood pressure auscultation, heart rate measurement techniques, fingerstick procedures for blood lipid, blood glucose and HbA1c assessments, body composition measurements, strength testing and flexibility testing. Special emphasis will be placed on measurement techniques across the lifespan including older adults and children. There are potential fees for this course to support travel; such fees are indicated in the course information in the scheduling system.

Enforced Prerequisite at Enrollment: 5th Semester standing and KINES 101

KINES 460: Movement Disorders

3 Credits

Content in this course covers the major peripheral and central movement disorders and methods of their treatment. This course addresses the neuromuscular mechanisms underlying the coordination of voluntary movements, including their changes during development and aging. Disorders of movements, including muscular, systemic neurological, developmental and those related to a spinal cord or brain injury will be covered. Motor rehabilitation and commonly used therapies will be considered.

Enforced Prerequisite at Enrollment: KINES 101

KINES 461W: Preparation for Research Project

2 Credits

Planning and preparation for research project. KINES 461W Preparation for Research Project (2) This course prepares students to conduct a research project in KINES 462W. Students will begin by critically examining different research approaches. They will explore the development and assessment of research topics paying special attention to both scientific and philosophical justifications. They will learn how to identify research populations and how a human subjects review protects those involved in research studies. They will identify and critique the various inventories and assessment tools available for the kind of research they propose. Students will complete a research proposal including review of literature and method section, and submit an application to the Institutional Review Board. These goals will be achieved through a series of writing assignments. Students are expected to demonstrate the following outcomes: 1) Communicating and writing ideas relevant to the field of Kinesiology. 2) Understanding and

describing the major issues in the field. 3) Understanding the principles of how to conduct research in wellness, fitness and/or associated practice. 4) Understanding and communicating the methods of scientific discovery. Students are evaluated on their research proposal (50% of final grade) which is drafted and revised during the semester. Further writing assignments (50%) assess and enhance student's competency in research methods and statistics. The course is offered every fall semester with a total enrollment of 25 each semester.

Enforced Prerequisite at Enrollment: KINES 260 and STAT 200 and at least 4 of the following (KINES 321 or KINES 341 or KINES 345 or KINES 350 or KINES 360 or KINES 384)

Writing Across the Curriculum

KINES 462W: Research Project

2 Credits

Completion of research topic. KINES 462W Research Project (2) During this course students will collect and analyze data for a research project. They will troubleshoot any data collection problems and learn how to use computerized programs for statistical analysis of data. They will learn about various presentation modes relevant to the written and oral presentation of research data. Students will prepare and be evaluated on a research paper that reports on their research project. In addition, they will present their work orally in showcase sessions to which fellow students and faculty members are invited. The goal is for students to produce as close as possible to publishable papers. This course is part of a two-course sequence and can only be taken upon successful completion of KINES 461W. It, along with the internship experience, are the culminating experiences in the Exercise Science - Science Emphasis. Facilitates needed will be determined based on the individual research project. This course will be offered only in the spring semester of each year. Enrollment will vary from 1 to 25.

Enforced Prerequisite at Enrollment: KINES 461W

Writing Across the Curriculum

KINES 463: Acquisition of Motor Skills

3 Credits

Examination of principles of motor learning; the application of strategic factors such as: practice types, schedules, augmented information, and motivation. KINES 463 Acquisition of Motor Skills (3) This course is intended for students interested in the principles of motor learning (learning, retention and transfer) and the application of specific learning strategies such as, practice, feedback, demonstrations, and instructions. Through lectures, discussions, and course readings in addition to writing assignments, the goal is for students to develop a unified conceptual framework for motor learning and its facilitation through intervention strategies. The evaluation for the final grade will be based upon a synthesis of assessment in three areas: a) Term Project (30% of final grade) - a report on a learning experiment or a synthesis paper on a learning principle or a learning strategy; b) Mid-Term Exam (30% of final grade) - questions requiring short 2-3 sentence answers; and, c) Final Exam (40% of final grade) - requiring essay length answers to selected questions that integrate key issues from all the course material. This course will build on the concepts outlined in KINES 171 and 360. It will represent the culminating upper level undergraduate course in motor learning. This course will be an elective available to students who have completed the required KINES 360 course. It can be used to fulfill requirements for the Kinesiology major and the Movement Science, Teacher Preparation, and Athletic Training Options. This course will be

available to students outside of the Kinesiology major who may, upon approval, substitute the KINES 360 prerequisite requirement. The course will be offered every spring semester.

Enforced Prerequisite at Enrollment: KINES 360

KINES 464: Physical Education Programming and Practicum

3 Credits

This course is designed to provide students pursuing a health and physical education teacher certification in the Kinesiology degree with the conceptual foundation necessary to develop comprehensive and developmentally appropriate instruction that aligns with the National Association of Sport and Physical Education to students in preschool through twelfth grade (P-12). It will provide students with information on physical education comprehensive programming and contemporary instructional practices. Appropriate planning, instruction, programming and assessment make-up the foundation of this course. Emphasis is placed on the student's ability to create an effective instruction/programming and deliver the content in a preschool through twelfth grade physical education class. The overarching objectives for this course are to develop students' understanding of the different physical education program/curriculum models and applications of the models in a P-12 setting, integration of technology to enhance student learning, and develop advocacy measures for physical education through understanding and communicating the value of quality physical education and its contribution toward student wellness. Students will be able to plan and design program content that targets the psychomotor, cognitive, and affective learning domains and aligns with national standards. Students will design and administer authentic student assessments that align with the cognitive, psychomotor, and affective learning domains. Students will also design curricular scope and sequence overviews that are used to guide comprehensive programming and lesson development from grades P-12.

Enforced Prerequisite at Enrollment: Students must have a grade of C or better in: EDPSY 10 and KINES 100 and KINES 101 and KINES 295B and PSYCH 100 Concurrents: KINES 366 and KINES 395A and KINES 400 and KINES 468W

KINES 465: Neurobiology of Sensorimotor Stroke Rehabilitation

3 Credits

This course is designed to expose students to the recent topics in motor stroke rehabilitation research through literature. KINES 465 Neurobiology of Sensorimotor Stroke Rehabilitation (3) This 3-credit course is designed to expose students to the most recent topics in motor stroke rehabilitation research through reading of current literature. The course addresses the neurobiological foundations of motor deficits in stroke, including contralesional and ipsilesional effects, current research on mechanisms of motor recovery, and the most current research on intervention strategies, such as constraint induced therapy, robot aided rehabilitation, virtual reality therapy, and sensory motor interventions. The purpose of the course is to provide an understanding of the neurophysiological and biomechanical foundations of motor deficits that occur with stroke, and of current treatment approaches. Stroke presents a significant social problem that is emphasized in current statistics reported by the American Heart Association indicating that each year, about 780,000 people in the United States experience a new or recurrent stroke. While stroke can produce deficits in perceptual, cognitive, and motor processes, this course is focused on sensorimotor deficits and associated rehabilitation interventions that tend to be employed by

physical and occupational therapists in the rehabilitation environment. Sensory-motor strokes often result in weakness and deficits in voluntary movement of the limbs on the opposite side of the body as the damaged hemisphere (Contralesional). These motor deficits currently receive primary focus in occupational and physical therapy treatment for stroke. However, regardless of improvements in contralesional arm function, most patients also show deficits in coordination of the ipsilesional arm that is on the same side of the body as the damaged hemisphere. For many hemiparetic patients, functional recovery relies heavily on this arm. This class will focus on understanding both ipsilesional and contralesional motor deficits in stroke. Physiological and biomechanical mechanisms of dysfunction will be emphasized. Recovery of function will be addressed through analysis of physiological and biomechanical measures that are used to track changes in neural function. In addition, current research that is focused on developing rehabilitation intervention protocols that systematically address remediation of dysfunction, and facilitation of recovery will be discussed. Students will be guided in reading, critiquing, and presenting primary scientific manuscripts and review articles. Active discussions of presented material are encouraged, and grades are based on presentations, quizzes, and participation in class.

Enforced Prerequisite at Enrollment: KINES 360 and KINES 384

KINES 467: The Science of Performance Enhancement

3 Credits

Evidence-based evaluation of performance enhancing substances and methods in sport. KINES 467 The Science of Performance Enhancement (3) Students will describe and evaluate the evidence base for substances and methods used to improve aerobic power, strength, body composition, metabolism and thermoregulation as they relate to exercise and physical activity. Students will study and develop a rating scheme to describe the quality of evidence and recommendation to use ergogenic aids. This rubric will be utilized throughout the course to evaluate recent and proposed techniques to enhance athletic performance. Topics include, but are not limited to: • Blood boosting: Enhancement of oxygen transport • Androgens, prohormones, and anabolics • Substrate manipulation to increase strength • Nutraceuticals to improve athletic performance and recovery. General pacing of these topics may be modified depending on class interest and issues that emerge in the popular press. Consideration will be given to the regulatory and ethical aspects of their use. Students will develop an understanding of the World Anti-Doping Code, administered by the World Anti-Doping Association and its subsidiaries. Prior familiarity with ethics is essential. Science of Performance Enhancement is designed to emphasize team and individual scholarship in multiple domains, with emphasis on quantitative, qualitative and analytical skills.

Enforced Prerequisite at Enrollment: KINES 345 and KINES 350

KINES 468W: Health Instruction in the School--Content and Method

3 Credits/Maximum of 3

Methods, materials, and units of instruction. KINES 468 Health Instruction in the School-Content and Method (3) This writing-intensive course is designed to provide students pursuing a health and physical education teacher certification in the Kinesiology degree with the conceptual foundation necessary to develop health instruction that aligns with the National Health Education Standards to students in preschool through twelfth grade (P-12). It will provide students with information on health education content, theory, and contemporary

instructional practices. An understanding of how to effectively plan and sequence age-appropriate health content and deliver the content using multiple instructional strategies make up the foundations of the course. Emphasis is placed on the student's ability to create an effective lesson plan and deliver the content in a preschool through twelfth grade health education classroom. The overarching objectives for this course are to develop students' health education planning skills, instructional skills, reflection skills, and writing skills. The overarching objectives for this course are to develop Pre-K-12 teacher candidates' health education skills in planning, delivery and instruction, and reflective writing. Students will learn these skills by designing comprehensive preschool through twelfth grade health instruction using interactive learning activities that lead to health literacy and reflecting on their own teaching as well as their peers' teaching abilities. The purpose of this course is to enhance students' writing and oral communication skills for success in health education. Given the importance of clear communication in health and wellness instruction, this course will provide students with the skills necessary to effectively communicate with students, parents, school administrators, and the public. The course will begin with the basics of writing a comprehensive health education lesson plan and will progress to developing increasingly complex written communications and oral presentations.

Enforced Prerequisite at Enrollment: Students must have a grade of C or better in: EDPsy 10 and KINES 100 and KINES 101 and KINES 295B and PSYCH 100 Concurrent: KINES 366 and KINES 395A and KINES 400 and KINES 464

Writing Across the Curriculum

KINES 470: Genetics and Human Physical Performance

3 Credits

Human genetic variation is ubiquitous and important functionally. How genetic profiles, such as those leading to a high proportion of fast muscle fibers, combined with individualized training environments underlie peak performances will be examined. Similarly, when genetic predispositions are known, lifestyles can be optimized for health through the lifespan. Several hundred genetic loci influence physical performance and health, while allelic variants influencing elite athlete status and/or unusual longevity are about an order of magnitude lower. Only a few individual genetic loci and alleles are associated consistently with elite athletic performance and healthful longevity; many traits important for competitive maxima and general health are multifactorial, involving numerous loci and environmental factors. Each sport has unique physical requirements. Therefore, any study of a favorable genetic background for a given sport should consider the performance components most appropriate. Athletic performance is a complex human trait, involving interaction of multiple body systems (musculoskeletal, cardiovascular, respiratory, nervous, etc.). These include morphology (height and body composition), with specific physiques naturally suited to specific sports. Endurance, strength, and power are other factors underlying athletic performance. Additional complexities affecting athletic performance include cognitive factors and injury susceptibility. Environmental factors (including training and nutrition) also influence various traits. An individual's "trainability," or response to exercise training itself also is dependent partially on genetic factors. The relative importance of environment versus genetic factors in athletic success varies widely among sports. Consequently, elite athletic performance as well as long term health result from interactions among genetically-based physical, and appropriate good environments. This course is focused on preparing

students with basic knowledge on how the field of genetics can influence sport and athletic performance, fitness outcomes and health.

Enforced Prerequisites at Enrollment: BIOL 161 and BIOL 163 and KINES 101

KINES 471: MOTOR CONTROL

3 Credits/Maximum of 3

Analysis of the mechanisms underlying the neural control and coordination of voluntary movements. Within this course, the students will get an in-depth knowledge of the mechanisms underlying the neural control and coordination of voluntary movements. The course will include content on the history of movement studies, classical research, and main current theories in the field of motor control. These will include theories based on ideas of motor programming and internal models, control with muscle activation patterns, equilibrium-point control, optimization, dynamic systems, and theory of synergies. The neural control of several everyday motor behaviors will be discussed such as vertical posture, locomotion, reaching, and prehension. Speed-accuracy and speed-difficulty trade-offs and changes in motor control and coordination with practice will be described emphasizing plasticity within the central nervous system. Changes in motor control with healthy aging and fatigue will be discussed. In addition, changes in motor control and coordination will be discussed based on the reviewed theories. The role of specific structures within the central nervous system in motor control will be reviewed with an emphasis on movement disorders associated with dysfunctions of specific structures such as spinal cord injury, stroke, disorders of the basal ganglia and of the cerebellum.

KINES 481W: Scientific Basis of Exercise for Older Adults

3 Credits

Study of age-associated physical changes and the effects of exercise on the aging process.

Enforced Prerequisite at Enrollment: KINES 350
Writing Across the Curriculum

KINES 483: Motor Patterns of Children

3 Credits

Development of motor patterns. Fundamentals of movement, basic motor skills, and adaptation of the body to external forces.

Enforced Prerequisite at Enrollment: KINES 202

KINES 484: Advanced Biomechanics

3 Credits

The use of advanced biomechanics to provide an in-depth understanding of the principles which underpin human movement.

Enforced Prerequisite at Enrollment: KINES 384

KINES 485: Science and Practice of Training Athletes

3 Credits

The primary purpose of this course is to provide students interested in applied exercise and health careers (strength and conditioning coaches, group fitness instructors, health and physical education teachers, personal trainers, wellness professionals, physical therapists) with skills

and practical knowledge to design as well as instruct safe and effective strength and conditioning techniques for athletes to improve their cardiovascular health, strength, and flexibility. Students will learn how to conduct sport-specific training sessions, demonstrate and teach proper exercise techniques, understand nutrition and performance-enhancing substances and administer exercise tests. Students will gather and apply the current literature regarding the ideal training strategies and practical tips for athletes. They will also learn how to verbally and physically cue and demonstrate the exercises. Strategies for adherence to assist in behavior modification will be a focus throughout the course. At the conclusion of KINES 485, the students will be able to demonstrate a knowledge and understanding of properly training an athlete. In the course goals is an understanding of the adaptations that occur as a result of programs of cardiorespiratory and muscular exercise in the athlete populations. Content knowledge is integrated with application of skills in fitness exercise, and instruction and will be put to use in a learning laboratory setting which students will have the opportunity to engage in hands-on instructional experiences. Additionally, this course can assist in preparing students for the nationally accredited certification exams.

Enforced Prerequisite at Enrollment: KINES 200 and KINES 202

KINES 488: Mechanics of Locomotion

3 Credits

This course examines the forces and motions characteristic of locomotion, with emphasis on walking, the most common human activity. Walking has been described as the most commonly performed human activity. Diseases or injuries that reduce the ability to walk independently and efficiently are especially likely to adversely affect quality of life. KINES 488 introduces students to the elements of normal walking and how walking motions are affected by changes in age, walking speed, and pathological conditions. Advanced topics covered in this course include other forms of locomotion, including running and cycling, and the use of mathematical models to understand phenomena related to locomotion. Students enrolled in this course learn the particulars of human locomotion, but in so doing they also gain an understanding of kinematics and kinetic analysis, joint mechanics, and the clinical treatment of movement disorders. Basic principles of mechanics are applied to establish how walking motions result from forces produced by muscles, gravity, and contact with the ground. Students planning to pursue graduate study in movement biomechanics or in clinical areas such as physical therapy are especially likely to benefit from the focus on these areas. Laboratories introduce students to current experimental methods used to measure motions, forces, and muscle activity during locomotion. Completion of several case studies during the semester gives students practical experience with the interpretation of motion analysis data, the factors that influence clinical decisions in the treatment of movement disorders, and ethical considerations in biomechanics research.

Enforced Prerequisite at Enrollment: KINES 384

KINES 491W: Research Proposal

3 Credits

This course prepares students to propose a research project in the field of Kinesiology. Students will choose to work within a sub-discipline of Kinesiology and be mentored by the course instructor with expertise in that area. Students will review and critically analyze scholarly literature to identify a critical gap in knowledge in their topic area. Students will

then develop a research question supported by a rationale and develop a plausible research approach to address the existing gap in knowledge. Students will write a research proposal that includes specific aims, introduction, hypothesis, methods, significance and innovation, and potential pitfalls and alternative approaches sections. Formal peer review sessions will be conducted throughout the semester to have students critically evaluate other research proposals. Students will need to demonstrate good command of writing skills including composition, grammar, and spelling, and demonstrate responsibility, dependability, and maturity by meeting writing deadlines, and the criteria for acceptable papers. Students will also complete an Institutional Review Boards application for their proposed research project. The course will culminate in a final written proposal and presentation.

Enforced Prerequisite at Enrollment: KINES 260 and STAT 200 and at least 4 of the following KINES 300 level courses should be taken. (KINES 321 or KINES 345 or KINES 341 or KINES 350 or KINES 360 or KINES 384)

Writing Across the Curriculum

KINES 492W: Programming for Business and Agencies

3 Credits

Fundamentals of program development applied to corporate and private physical fitness businesses. KINES 492W Programming for Business and Agencies (3) This course will use an experiential approach to acquire knowledge and skills necessary to assess, plan, implement and evaluate health/wellness/fitness programs within a business/corporate setting. Students will actively participate in a process-oriented, student-centered learning environment that includes cooperative learning, critical thinking, effective communication, assessment, and problem solving. Students will assess, plan, implement and evaluate a health-related program (i.e., wellness fair, career fair, road race, fitness programs). Students will write business letters, operating plans, mini-grants, budgets, flyers, press releases, newspaper articles, surveys, and other written communication projects relevant to the fitness/wellness business. Students will access and evaluate health/wellness resources (i.e., agencies, Internet, media, speakers). This is a writing intensive course and will follow university guidelines for such courses. Most of the assignments will involve group-based problem solving.

Enforced Prerequisite at Enrollment: 5th Semester Standing and (KINES 100 or KINES 101)

Writing Across the Curriculum

KINES 493: Principles and Ethics of Coaching

3 Credits

The Principle and Ethics of Coaching examines the challenges of today's coaching profession through societal norms and expectations from the past and present. The course begins with a study of the coaching profession covering past and current coaches who have experienced success and failure in the profession. Students learn how the profession has developed as a result of changing values, demands, emphasis and expectations in the athletic world. Students will learn how to work with Title IX, parents, high school and collegiate regulations, season structures and the various roles and responsibilities of today's coach. The course is an upper-level course providing students in Kinesiology with an in depth study of the profession that has historically been associated with careers in Kinesiology. This course relates to other courses in sport ethics, sport philosophy and history of sport as they provide the theoretical background for coaching decisions. In addition,

this course demonstrates practical implementation of theories from nutrition as well as activity courses. The course offers students an in depth study of sport and gender specific differences as they relate to the coaching profession. The students observe, question and study current coaches while examining their own backgrounds to develop set of principles to handle today's coaching issues. A coaching experience is an optional opportunity afforded to students while writing skills must be demonstrated by all students through written exams, papers and/or projects. The emphasis on class discussion and interaction with various athletic coaches introduces students to realities of today's coaching profession and the challenges of the 21st century coach. Video and power point enhance the multi media approach to this course and further enhance the learning environment. Students may only receive credit for KINES 493 or KINES 493W.

Enforced Prerequisite at Enrollment: KINES 100 and Students may only receive credit for KINES 493 or KINES 493W.

KINES 493W: Principles and Ethics of Coaching

3 Credits

The Principle and Ethics of Coaching examines the challenges of today's coaching profession through societal norms and expectations from the past and present. The course begins with a study of the coaching profession covering past and current coaches who have experienced success and failure in the profession. Students learn how the profession has developed as a result of changing values, demands, emphasis and expectations in the athletic world. Students will learn how to work with Title IX, parents, high school and collegiate regulations, season structures and the various roles and responsibilities of today's coach. The course is a senior-level course providing students in Kinesiology with an in depth study of the profession that has historically been associated with careers in Kinesiology. This course relates to other courses in sport ethics, sport philosophy and history of sport as they provide the theoretical background for coaching decisions. In addition, this course demonstrates practical implementation of theories from nutrition as well as activity courses. The course offers students an in depth study of sport and gender specific differences as they relate to the coaching profession. The students observe, question and study current coaches while examining their own backgrounds to develop a set of principles to handle today's coaching issues. The emphasis on class discussion and interaction with various athletic coaches introduces students to realities of today's coaching profession and the challenges of the 21st century coach. This course fulfills 3 credits in Writing Across the Curriculum. Students may only receive credit for KINES 493 or KINES 493W.

Enforced Prerequisite at Enrollment: KINES 100 and Students may only receive credit for KINES 493 or KINES 493W.

Writing Across the Curriculum

KINES 494H: Honors Research Project

1-6 Credits/Maximum of 6

Supervised student activities on honors research projects identified on an individual or small-group basis.

Enforced Prerequisite at Enrollment: Approval of honors thesis advisor
Honors

KINES 495: **SPECIAL TOPICS**

1-14 Credits/Maximum of 1

KINES 495A: Practicum in Student Teaching

12 Credits

The teacher candidate will be placed in either an elementary or secondary school setting for the first 7.5 weeks of the student teaching experience, followed by placement in the level not selected first for the last 7.5 weeks. The teacher candidate will be teaching both health and physical education during each placement. The teacher candidate will be assigned on-site cooperating teachers will be supervised by a university faculty member who makes a minimum of four on-site visits, plus review of teaching via two videotape. During the 15-week semester, there are four seminars of approximately 5 hours each, during which all teacher candidates meet with the coordinator of the student teaching program to discuss topics related to the multiple roles of teachers in public schools and the transition to becoming a professional teacher. In addition, some time in each seminar is devoted to experience sharing and collaborative problem solving. The following topics are covered during the seminars: legal liability and sexual harassment, electronic portfolios, resume and cover letter writing, health and physical education professionals, preparation for employment, interviewing, best teaching practices and sharing, classroom management, and technology in physical education. In addition, the student teachers are required to complete a variety of assignments including: a professional portfolio, unpaid service activity reflection, daily notebook, videotapes and reflection, and Pennsylvania teaching application and essay.

Enforced Prerequisite at Enrollment: KINES 366, 395A, 464, 468W C or better, 3.0 GPA, completion of all PA Dept of Education Entrance Criteria, demonstrated pedagogical and professional disposition competence, and recommendation by the Program Director

KINES 495B: Field and/or Research Practicum in Kinesiology

3-6 Credits

This is a required course for students in the Movement Science and Applied Exercise Health (AEH) Options within the Kinesiology curriculum. This course requires students to complete gainful leadership and experiential learning in workplaces or research settings with the expectation that these experiences will allow them the opportunity to apply and integrate content from all their courses with success and insight. Students complete practicum requirements at a variety of settings, including but not limited to research laboratories, professional fitness centers, rehabilitation facilities, senior centers, community health and wellness programs, hospitals and collegiate and professional sports venues. They learn the day-to-day requirements of being "on the job" or "in the lab," including professional management practices and ethical considerations. Practicums are evaluated on an ongoing basis with the student intern, on-site internship supervisor, and/or faculty member involved in the process. Internships can be completed either on or off-campus

Enforced Prerequisite at Enrollment: KINES 395B and 7th Semester standing and 2.00 cumulative GPA or greater cumulative GPA and 9 credits of 400-level KINES courses

KINES 495C: Exercise Science Practicum

3-6 Credits/Maximum of 6

This course places students in the work place with the expectation that the experience will allow them the opportunity to apply and integrate content from all the courses in the program. They will be placed at professional fitness centers, rehab facilities, senior centers, and wellness centers. They will learn the day-to-day requirements of being "on the job" such as time management, record keeping, client interactions, feedback delivery, fitness program establishment and implementations, business and management practices as well as ethical considerations. Their field experience will be focused on four in-class days during which students will collectively explore work place issues. Practicum work will be evaluated on an ongoing basis with the student intern, work place supervisor, and faculty member involved in the process. The course will take place off campus as work sites and no special on-campus facilities are required. It will be offered annually as the last course in the major.

Enforced Prerequisite at Enrollment: KINES 100 and KINES 101 and KINES 200 and KINES 202 and fifth semester standing

KINES 495D: Expanded Field and/or Research Practicum in Kinesiology

1-12 Credits/Maximum of 12

KINES 495D Expanded Field and/or Research Practicum in Kinesiology (1-6) This course, in combination with KINES 495B, places students in the workplaces or research settings with the expectation that these experiences will allow them the opportunity to apply and integrate content from all their courses in the program. They will be placed at a variety of sites, including but not limited to research laboratories, professional fitness centers, rehabilitation facilities, senior centers, community health and wellness programs, and hospitals. They will learn the day-to-day requirements of being 'on the job' or 'in the lab,' including professional management practices and ethical considerations. Practicum work will be evaluated on an ongoing basis with the student intern, work place supervisor, and faculty member involved in the process. The course will take place off campus at work sites and no special on-campus facilities are required. It will be offered annually as the last course in the major.

Enforced Prerequisite at Enrollment: KINES 495B

KINES 495E: Advanced Professional Development in Kinesiology

3 Credits

KINES 495E Advanced Professional Development in Kinesiology (3) This course is designed to provide undergraduate students the opportunities of fitness professional pre-certification preparation via lecture format, professional travel to acquire hands-on skills at a top caliber training facility, and an expert panel round table discussions. Throughout the course, students will have exposure to professional communication with faculty through formats including, but are not limited to the following: faculty/professional/expert discussions, lectures, training sessions, quizzes and examinations that are designed to prepare students to pass a national certification. Students will enhance skills needed to develop exercise leadership characteristics, communicate information effectively, and build a foundation of exercise testing and prescription guidelines which are safe, effective and motivating to clientele. Other class foundational principles include but are not limited to Exercise Programming; Health Risk Assessment; Serial Testing; Metabolic Calculations; Nutrition and Weight Management and Facility

Administration. Students will take practical experience and knowledge gained from this professional course and apply principles into their proposed field of study in a safe and effective manner.

Enforced Prerequisite at Enrollment: 5th Semester standing and (KINES 100 or KINES 101)

KINES 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

KINES 496F: ****SPECIAL TOPICS****

1-6 Credits

KINES 496G: ****SPECIAL TOPICS****

1-6 Credits

KINES 496H: Kinesiology Honors Independent Study

1-9 Credits/Maximum of 18

For non-thesis independent study/research by Schreyer Honors College scholars.

Honors

KINES 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

KINES 498: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

KINES 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Korean (KOR)

KOR 1: Level One Korean A

4 Credits

Listening, speaking, reading, writing Korean: an introduction for beginners; basic structures and vocabulary; cultural elements.

Bachelor of Arts: World Language (All)

KOR 2: Level One Korean B

4 Credits

Listening, speaking, reading, writing Korean: structures and vocabulary; cultural elements.

Prerequisite: KOR 001

Bachelor of Arts: World Language (All)

KOR 3: Level Two Korean A

4 Credits

Further development of listening, speaking, reading, writing skills in Korean; cultural elements.

Prerequisite: KOR 002

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

KOR 97: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

KOR 99: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

KOR 110: Level Two Korean B

4 Credits

This is the fourth semester course of sequenced Korean study at Penn State. It is the Advanced-Intermediate course. KOR 110 Level Two Korean B (4) This is the second part of intermediate Korean and a continuation of Korean 3 offered at Penn State. Classroom activities will be built around the textbook lessons and all activities will be designed such that students will have multiple opportunities to practice listening, speaking, reading, and writing. Pedagogical materials also include the use of multi-media based authentic language samples from a variety of modalities (spoken, written, and computer mediated) produced for Korean nationals (e.g., tv dramas, movies, magazines, internet sites and blogs, essays, short stories, magazine articles, advertisements). These will supplement the textbook and will provide insights into daily life in Korea, sociocultural values of the Korean people, as well as a broader representation of Korean language, history, literature, and culture. Students will also work within various genres of Korean discourse and literature and learn to recognize and accurately use the particular language styles that are associated with those genres.

Prerequisite: KOR 001 , KOR 002 ,and KOR 003 (or equivalent cumulative knowledge of Korean)

KOR 120: Introduction to Korean Culture

3 Credits

Survey of Korean culture and society in historical contexts; exploration from antiquity to the contemporary period through diverse media.

This course is designed as a multi-disciplinary introduction to Korean society. In surveying Korean culture from antiquity to the present, we will examine a wide range of primary sources from the past, including archaeological relics, written records, and works of art; as well as contemporary materials by Korean authors, directors, and other cultural producers, together with scholarly commentaries about these materials. Instruction and all materials will be in English. No preliminary knowledge of Korean history or language is required for taking this course. In the first part of the course that covers the origins of Korean 'tradition,' we will observe the formation and development of social relations, popular beliefs, and systems of thought that have shaped the Korean way of life. Our historical analysis of these texts will also locate their resonances and ramifications in modern Korea, particularly in cultural representations. In the second part of the course, we will discuss Korea's transformation through its encounter with the West, its modern experiences and national struggle under colonial rule, social upheavals after liberation, and the Korean War. Finally, by tracing the enduring impacts of the unresolved past on contemporary society, we will look at Korea today in terms of economic development and crisis, the democracy movement and its limitations, relations with North Korea and with the US, and sociocultural diversification in the age of globalization. By situating these topics within the broader contexts of East Asia and the world, we will seek to gain a richer and more nuanced view of Korea on the global map. The overall goal of this course is to develop students' abilities to engage in cross-cultural understanding. Through a comprehensive study of Korean materials from a variety of genres and media, students will not only learn about and from Korean history and culture, but also enhance their skills in reading closely, thinking critically, and writing effectively. In exploring Korean culture as a space of complex formations and dynamic interactions, students will be trained to question, analyze, and appreciate different modes of cultural production in their specific political and social contexts.

Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Key Literacies

KOR 121: Korean Popular Culture

3 Credits

Survey of contemporary Korean popular culture in various forms, including pop music, film, TV drama, advertising, comics, and literature. What do we mark as 'Korean-style'? Are the images of Korea(ns) changing with the worldwide spread of Korean popular culture known as the Korean Wave (Hallyu)? This course provides critical approaches to cultural flows from South Korea. We will employ theoretical concepts and critical vocabularies from cultural studies to deepen and sharpen our analysis of the cultural representation of Korea in relation to questions such as class, gender, ethnicity, and body politics. Using diverse texts from literature, film, TV dramas, comics, and pop music, we will examine the social codes, cultural values, and economic realities that influence Korean society, including the Korean diasporic population around the world. In directing our attention to various ways in which Korean culture is transmitted and presented in different media, we will also inquire into historical and social issues rooted in the division of Korea, as well as the international dispersion of Koreans since the colonial period. Through intellectual exercises in boundary crossing, we will ultimately develop our

ability to explore the cross-cultural production of trans/national identities in the age of globalization. Instruction and all materials will be in English. No preliminary knowledge of Korean history or language is required for taking this course.

Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Key Literacies

KOR 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

KOR 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

KOR 295: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Prerequisite: prior approval of proposed assignment by instructor

KOR 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

KOR 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

KOR 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

KOR 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

KOR 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

KOR 401: Level 3 Korean A

4 Credits

KOR 401 is the first semester of third-year Korean, which is equivalent to Advanced-Intermediate Korean I. KOR 401 Level 3 Korean A (4) (IL) Korean 401 is the first half of the 3rd year Korean (or Advanced-Intermediate Korean I). KOR 401 is designed for the learners who have background in KOR 110 or equivalent. The medium of instruction will be Korean. The students in this course will explore various topics and styles in Korean and further improve their skills of listening, reading, speaking, and writing in Korean to be able to better comprehend Korean culture and society. The objectives in this course are 1) to review, reinforce, and expand the basic grammar, 2) to expand knowledge of vocabulary and idioms, 3) to be able to speak not only in single sentences, but in dialogues to perform basic communicative functions, 4) to be able to read and understand simple essays and stories, and 5) to be able to write short compositions in Korean. As an advanced-intermediate Korean language course, it does not only strive to enable the students to interact successfully in Korean, but it also encourages them to deepen their understanding of Korean culture and society. In addition, it aims to cultivate students' knowledge and awareness of the similarities and differences between Korean and American culture, by introducing cultural values, tradition, beliefs, and customs of Korea during the course and also promoting discussion on the topics. It is expected that through enhanced Korean language proficiency and cultural knowledge of Korea, students can increase their ability to locate and evaluate information about Korea for their further academic and/or professional needs. The course is designed to be suitable for the students who have successfully completed Korean 110 (or its equivalent, through such means as study abroad). This course is designed to meet the Korean minor requirement and also count as an IL ("International Cultures").

Prerequisite: KOR 110 or equivalent
International Cultures (IL)

KOR 402: Level 3 Korean B

4 Credits

KOR 402 is the second semester of third-year Korean, which is equivalent to Advanced-Intermediate Korean II. KOR 402 Level 3 Korean B (4) (IL) Korean 402 is the second half of the 3rd year Korean (or Advanced-Intermediate Korean II). KOR 402 is designed for the learners who have background in KOR 401 or equivalent. The medium of instruction will be Korean. The students in this course will explore various topics and styles in Korean and further improve their skills of listening, reading, speaking, and writing in Korean to be able to better comprehend Korean culture and society. The objectives in this course are 1) to review, reinforce, and expand the basic grammar, 2) to expand knowledge of vocabulary and idioms, 3) to be able to speak not only in single sentences, but in dialogues to perform basic communicative functions, 4) to be able to read and understand simple essays and stories, and 5) to be able to write short compositions in Korean. As an advanced-intermediate Korean language course, it does not only strive to enable the students to interact successfully in Korean, but it also encourages them to deepen

their understanding of Korean culture and society. In addition, it aims to cultivate students' knowledge and awareness of the similarities and differences between Korean and American culture, by introducing cultural values, tradition, beliefs, and customs of Korea during the course and also promoting discussion on the topics. It is expected that through enhanced Korean language proficiency and cultural knowledge of Korea, students can increase their ability to locate and evaluate information about Korea for their further academic and/or professional needs. The course is designed to be suitable for the students who have successfully completed Korean 401 (or its equivalent, through such means as study abroad). This course is designed to meet the Korean minor requirement and also count as an IL ("International").

Prerequisite: KOR 401 or equivalent
International Cultures (IL)

KOR 403Y: Level 4 Korean A

4 Credits

This is a four-credit writing intensive course designed for students who have completed Level Three Korean B (KOR 402) or the equivalent. The course aims to further improve students' proficiency in all four language skills, with a special emphasis on writing. By exploring a wide range of topics on Korean popular culture and issues in modern Korea through selected various authentic materials, students will engage in a substantial amount of writing, editing, and revising in Korean. As a writing-focused course, this course will involve in-class and out-of-class writings entirely in Korean that aim to show students how to use writing as a form of both thinking and developing Korean proficiency, as a way to invent and/or build up new ideas, and as ways of organizing their thought in ways that allow them to communicate those ideas effectively to others entirely in Korean. Students will be assigned bi-weekly writing assignments of different genres on the topics that are covered by each lesson. The final project of the course will be a writing-based research project in Korean; the leadup to that project will involve significant discussion of academic writing style as well as the use of writing to help develop the research abilities and critical thinking. The course will cover various topics on Korean culture and issues in modern Korea that are selected from authentic materials such as newspaper articles, essays, TV programs, movies, and short stories. Thus, students will be exposed to various genres and different writing styles in Korean. This will allow students not only to develop writing proficiency in Korean in that what kinds of speech styles should be appropriately selected (among the many that have been learned) but also to gain greater knowledge of Korean culture and a deeper awareness of the role of culture and social behavior and to hone intercultural competence and critical thinking.

Prerequisites: KOR 402
Bachelor of Arts: World Language (All)
Bachelor of Arts: World Lang (12th Unit)
Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures
International Cultures (IL)
Exceeds 12th Unit of World Language
Writing Across the Curriculum

KOR 404: Level 4 Korean B

4 Credits

This is a four credit course designed for those who have completed KOR 403 (Level Four Korean A) or the equivalent. As a continuation of KOR 403, the course aims to further develop students' proficiency in

all four language skills. Students will explore a wide range of topics on Korean popular culture and issues in Korean society for content-based language learning throughout the semester to improve all aspects of proficiency for an advanced/near-superior level. Students will learn and practice via structured and authentic materials such as newspaper articles, essays, TV programs, movies, etc. The majority of reading and writing assignments will be done outside class, helping students become more independent in studying Korean. Students will be introduced to appropriate resources such as dictionaries, reference books, online dictionaries and other online resources depending on their individual needs. Class time will be used mainly for discussions of content, feedback on writing and presentations by students. This course will help students further advance their writing and speaking skills by continuously building their vocabulary, understanding the target culture, and its social issues through various sources of structured and authentic materials.

Prerequisites: KOR 403

Bachelor of Arts: World Language (All)
 Bachelor of Arts: World Lang (12th Unit)
 Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 Exceeds 12th Unit of World Language

KOR 422: Introduction to Korean Linguistics

3 Credits

This course aims to develop linguistic knowledge about the Korean language. The course will focus on understanding the Korean language in terms of history, the writing system, lexicon, phonology, morphology, syntax, dialects, sociolinguistics, and pragmatics. Students will be introduced to essential features of the Korean language, focusing on its general and salient aspects of the language in consideration of general linguistics. The primary objective of the course is to develop a deep understanding of the Korean language and to be able to analyze some of the linguistic phenomena that are unique to the Korean language. Students will be engaged in hands-on analysis of language data in major topic area in linguistics. This course will offer valuable insights into various linguistic aspects of the Korean language, by providing not only essential background knowledge but also an extensive survey and descriptions of the Korean language to the students learning Korean and the students who are interested in particularly East Asian linguistics. The course is thus suitable primarily for students who are learning (or who have learned) Korean and would like to know more about the language and connect with it on a more academic level. Secondly, it is suitable for students interested in East Asian linguistics who would like to pursue specialization in Korean or East Asian languages. Some linguistic background will be helpful, although it is not required.

Prerequisites: KOR 121; 5th Semester standing

Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)

KOR 423: Korean Media and Communication

3 Credits

This course explores historical, technological, and cultural aspects of Korean media and communication by examining both scholarly and primary sources such as film, radio, youtube, webtoons, online games, facebook, twitter, and TV dramas/variety shows. Students will

study the role of media and communication in private, interpersonal, national, global, communal, and cultural settings in order to deepen their understanding of contemporary Korean society and culture. The objectives of the course are to enable students to improve their knowledge in Korean media and communication methods and technologies; become an autonomous learner of Korean culture through making use of the newly available tools and resources; become a global citizen, with better understanding of the usage of media in a different culture and enhanced cultural sensitivity; and develop critical thinking abilities through investigating Korea-related issues reported and discussed in new media. Class activities may include: written analysis of scholarly articles and media content, class and group discussions, debates and presentations. The course content may vary depending on instructors but it covers various topics that illustrate characteristics of Korean communication media such as technologies, grassroots journalism, effects of social media, communication trend, media policy, softpower, etc.

Prerequisite: KOR 121 or 5th Semester standing

Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)

KOR 424: Transnational Korean Literature

3 Credits

Exploration of seminal Korean texts, including poetry, fiction, autobiography, and criticism, from the early twentieth century to the contemporary era. This course provides a comprehensive overview of modern Korean literature within a transnational context. As we learn how to critically analyze seminal Korean texts, we will locate them in the social, political, economic, and cultural conditions under which they were produced and received. In grappling with some of the fundamental issues they raise; including colonialism, migration, national division, war, gender relations, developmentalism, urbanization, democratization, and contemporary consumer culture; we will also seek to situate these writings in the Korean vernacular within the larger context of global modernity. Rather than take Korean literature and global modernity as given or apart from each other, we will attend to their intersections by raising such questions as: How did modern experiences, constructed through the interface with unfamiliar Others, change preexisting ways of writing and reading? How did foreign occupations affect the formation of a national literature? In what ways do Korean writers' representations of the inter/national events and phenomena on and beyond the Korean peninsula at once enrich and complicate empirical investigations into modern histories of Korea, East Asia, and the world? In an increasingly borderless world, can we draw a boundary around what is called "Korean" literature? In parallel with these questions, we will further discuss why and how to engage in literary practices in the current age of digital reproduction. Instruction and all materials will be in English. No preliminary knowledge of Korean history or language is required for taking this course.

Prerequisite: KOR 120; KOR 121; ASIA 100; ASIA 102; ASIA 83; ASIA 4; CMLIT 4; 5th Semester standing

Cross-listed with: ASIA 424, CMLIT 424

Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)

KOR 425: Global Korean Cinema

3 Credits

Exploration of Korean cinema from the early twentieth century to the present, with an emphasis on its global/local dynamics. This course offers an introductory overview of Korean cinema. As we trace its history from the colonial period to the current "Korean wave," we will also engage with film criticism, the trans/national contexts of film productions, the particular aesthetics of selected auteurs/genres, and local/global receptions of Korean cinema. Our discussion of formal elements and key issues featured in these films; modernity, colonialism, division, nation, class, gender, identity, tradition, ideology, desire, violence, and migration, among others; will be informed by readings of secondary sources and theoretical works, as well as literary materials produced during the same period. Throughout our analyses, we will seek to contextualize the cinematic texts within moments of major shifts not only in modern Korean history, but also in the transnational film industry and screen culture. In pursuing a broad and detailed perspective of Korean cinema, this course will ultimately enrich, and simultaneously complicate, our understanding of Korea, cinema, and the world. Instruction and all materials will be in English. No preliminary knowledge of Korean history or language is required for taking this course.

Prerequisite: KOR 120; KOR 121; ASIA 100; ASIA 102; ASIA 83; ASIA 4; CMLIT 4; 5th Semester standing
 Cross-listed with: ASIA 425, CMLIT 425
 Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)

KOR 450: Korean Cultures in Global Contexts

3 Credits

As Korea has gained significant economic and political power in the past few decades, people in many different parts of the world desire to know about Korean culture as a way to communicate with them. Korea has a long history and traditions that distinguish it from other nations and societies; and that still influence the ways Koreans behave in different social and cultural settings. However, Korean culture is not a unifying or clearly defined entity since foreign political, economic, and cultural forces that shaped contemporary Korean culture. It is a malleable entity that continuously evolves through Korea's close engagement with the world. This course examines the multiplicity and fluidity of Korean culture in global contexts primarily in Korean language. It is designed for students who desire to obtain knowledge about the global connection between Korea and other societies in the world in the fields of business culture, entertainment culture, tourism, diplomacy, education, art, etc. It first situates Korean culture in its relationship to others to see how global politics, economy and culture influenced the ways Korean cultures transformed; how Koreans engage with the global community in industries, politics and economy; and how the engagement can further create constructive channels between the global community and Korea. Depending on instructors, the content will vary, but it covers topics that concern students whose interests lie in the cultural understanding of work culture, Korean business, entertainment, tourism, Korean diaspora, and art from a global perspective.

Prerequisites: KOR 401
 Bachelor of Arts: World Language (All)
 Bachelor of Arts: World Lang (12th Unit)
 Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures

International Cultures (IL)

Exceeds 12th Unit of World Language

KOR 451: Food and Foodways in Korea

3 Credits

Food is an essential means to live but it is also an important element to tell us about who we are and how we live. Korean cuisine offers rich history and tradition. It is also a gateway to deeply understand and appreciate Korean culture and society in which key ideas of national and individual health and identities, social life, international relations, gender roles and relations, class, and food activism manifest in actual food and ways of preparing and consuming food. This course explores historical, social, cultural, and geographical aspects of Korean food almost entirely in Korean language. By learning Korean food and foodways, students will understand traditions of Korean food; the ways Korean food evolved; the relationship between food and national and individual identity; and ingredients and recipes for some of the representative Korean dishes. Various course materials will be used such as scholarly books and articles, cookbooks, TV cooking shows, films, youtube, culinary tour brochures, etc. Students will have an opportunity to master how to cook a few essential Korean dishes during the course and present their actual cooking process of at least one dish either in class presentation or in video-recording.

Prerequisites: KOR 401
 Bachelor of Arts: World Language (All)
 Bachelor of Arts: World Lang (12th Unit)
 Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 Exceeds 12th Unit of World Language

KOR 452: Korean Language and Culture

3 Credits

How do language, culture, and society affect one another? Through this course, students are introduced to the Korean language, culture, and society and how they are closely related to one another. We will examine essential and critical roles of the Korean language in Korean culture and society in order to gain a better understanding of the Korean society and an understanding of the Korean language in relation to its culture and society from diverse perspectives. We will examine the relationship by means of literature, history, philosophy, social structure, social/cultural values, interpersonal relationships, and social and regional varieties of Korean. We will explore a series of topics related to sociolinguistic perspective, cultural terms and figurative expressions, linguistic etiquette, language use in the media as a reflection of culture, which will allow students to develop a deeper understanding of fundamental socio-cultural nature of the Korean language (that are distinct from other languages such as English). With readings drawn from media articles, scholarly essays, popular books, and podcasts, a comparative perspective will also be taken to discuss similarities and differences between Korean and English in various aspects covered by the course. Thus, the course will provide richer insight into the Korean language, culture, and society as well as a broad awareness of different cultures and languages.

Prerequisites: KOR 401
 Bachelor of Arts: World Language (All)
 Bachelor of Arts: World Lang (12th Unit)
 Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures
International Cultures (IL)
Exceeds 12th Unit of World Language

KOR 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

KOR 494H: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Honors

KOR 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

KOR 497: Special Topics

3-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject related to Korea.

KOR 498: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

KOR 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Labor and Employment Relations (LER)

LER 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)

LER 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Social and Behavioral Sciences

LER 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)

LER 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)

LER 424: Employment Compensation

3 Credits

Development and management of employee compensation systems. LER 424 Employment Compensation (3) Employment Compensation provides an overview of compensation programs, practices, and strategies. This course examines various compensation systems, that serve as an integral component of human resource management operations. Upon completion of this course, students will have a better understanding of compensation program design and development, the criteria used to compensate employees, and challenges that compensation professionals may encounter. Requirements for this course include regular attendance and participation, completion of three case studies, three project assignments, and three examinations which will consist of short answer and multiple choice questions.

Prerequisite: LER 201 and sixth-semester standing
Bachelor of Arts: Social and Behavioral Sciences

LER 425: Employee Benefits

3 Credits

The examination of employee benefits programs used by employers to meet the welfare needs of employees and their families. LER 425 Employee Benefits (3) This course is a comprehensive survey of the programs, principles and trends in planning and administering employee benefit programs for private and public employers. The objectives for this course are to provide students with an understanding of employee benefit programs and their broad implications for the workplace, the role of employee benefits in motivating and retaining employees, and the recent trends in employee benefit offerings and cost containment approaches. Topics covered include strategic and tactical planning considerations used in implementing and changing benefit programs, discretionary and mandatory benefits, Social Security, health insurance structures, disability and life insurance programs, workers' compensation, retirement programs, executive benefits, paid-time off programs and accommodation and enhancement programs. This course builds on introductory general foundation courses in human resources and labor relations. It provides students with a working knowledge of employee benefits and its important role in human resources and labor relations careers. Students must select and write a research paper on a benefits topic of special interest. Course grades will be determined from examinations and the research paper.

Prerequisite: LER 201 and 6th semester standing

LER 445Y: Politics of Affirmative Action

3 Credits

Examines history, politics, and economics of the use of special programs to advance racial interests in the U.S. PLSC 445Y / AFAM 445Y / LER 445Y Politics of Affirmative Action (3) (US)(BA) This course meets the Bachelor of Arts degree requirements. The objectives of this course are to introduce students to the relationship between affirmative action and other policies purportedly designed to end racial inequality in the U.S. This course approaches the study of affirmative action in the context of the historic racial discrimination and inequality that Black Americans have faced since the founding of the Nation. The purpose of this course is to help students think about how contemporary and historic affirmative action policies relate to race, concepts racial inequality, the historic and continuing causes for racial inequality, public opinion, American politics and economic thought. The course materials will lead students through scholarly and popular articles, books and video presentations on the topic. It is hoped that students will become familiar with the history of affirmative action from its conception. Students will gain an intimate understanding of affirmative action economic and social outcomes on various racial groups. No prior knowledge is assumed, however a knowledge of civil rights history, quantitative methods, and constitutional law will be useful. The Politics of Affirmative Action satisfies the requirements for major and minor electives for the African American Studies, and major and minor electives for Political Science, and Labor Studies and Industrial Relations. Students are evaluated on the basis of an examination, term paper, class participation and class presentations of papers.

Prerequisite: AAA S 100 level course and PL SC001 or PL SC007

Cross-listed with: AFAM 445Y, PLSC 445Y

Bachelor of Arts: Social and Behavioral Sciences

United States Cultures (US)

Writing Across the Curriculum

LER 485: The Business Side of Human Resources

3 Credits

Students will examine the interface between HR, the business model, and other aspects of the business organization. LER 485 The Business Side of Human Resources (3) Students will have the opportunity to learn about important business issues in human resource management that will introduce them to the interface between human resources and other areas of the operation of a business. This course will focus on subject matter that will better prepare students for the broader role that human resource managers are being requested to play in terms of contributing to the profitability of their employers. In the investigation of the course material, students will be exposed to real life examples and experiences, interaction with outside human resource professionals and guest speakers that will broaden their understanding of the concepts learned in their previous course work in human resources and labor relations. Some examples of the subject matter that will be addressed in this course are: Human resource and business ethics; Basic introduction of the interrelationship of human resources and business finance and accounting; Human resource metrics; Employment process; Leadership and relationship building; Communication in the workplace; Professional networking; Business etiquette; Human resource culture in business. The course is best designed for senior and graduate students who have

serious interest in pursuing employment in human resources and/or labor relations.

Prerequisite: 6th semester standing and 6 credits of Labor Studies and Employment Relations

LER 488: Career Development Seminar I

1.5 Credits

This course features an introduction to several useful career development resources, development of a personal profile of your career-related strengths and interests, exploration of career options, creation of a career development plan, and guidance for securing prospective internships and other relevant experiences. LER 488 Career Development Seminar I (1.5) This course is the first of two 1.5-credit seminars designed to help students plan and launch their career in labor, employment relations, or human resources. This seminar features an engaging discovery-oriented approach to career development that includes exploration of the world of work, students' personal needs and preferences, and strategies for finding an optimal match in the world of work. This experiential course immerses students in the process of charting their career path and preparing for success as a professional. This seminar fosters the development of practical career management skills that can be applied throughout the students' entire career. This seminar, the first in the two-part series, will help students to chart an overall career track as a professional in labor, employment relations, or human resources. This course features an introduction to several useful career development resources, development of a personal profile of career-related strengths and interests, exploration of career options, creation of a career development plan, and guidance for securing prospective internships and other career development experiences.

Prerequisite: 4th semester standing

LER 489: Career Development Seminar II

1.5 Credits

This course is the second of two 1.5-credit seminars designed to help LER majors launch their career in labor, employment relations, or human resources. Both seminars guide students through the process of charting their career path and preparing for success as a professional. This seminar focuses on helping students to cultivate their professional brand, plan a job search strategy, market themselves as a professional in the world of work, manage a variety of interview challenges, and strengthen key work habits that are valued by employers and essential to success as a professional. LER 489 Career Development Seminar II (1.5) This course is the second of two 1.5-credit seminars designed to help LER majors launch their career. The first seminar in the series is targeted toward juniors, while the second is designed for seniors. Both seminars guide students through the process of charting their career path and preparing for success as a professional. This seminar requires students to complete specific career development activities and then complete reflection and application exercises related to those activities. Utilizing a discovery-oriented approach, this course helps students to cultivate their professional brand, plan a job search strategy, market themselves as a professional, manage a variety of interview challenges, and strengthen key work habits that are valued by employers and essential to success as a professional. The course incorporates services offered by Penn State Career Services and the Liberal Arts Career Enrichment Network.

Prerequisite: LER 488

Labor and Human Resources (LHR)

LHR 83S: First-Year Seminar in Labor and Human Resources

3 Credits

LHR 83S meets the Bachelor of Arts degree requirements. This course provides a general introduction to the field of labor, employment relations, and human resources, as well as a more in-depth examination of an issue or topic related to the field and it does so in a small class environment. It also introduces first-year students to the University as an academic community, to their responsibilities as a member of that community, and to the wide range of the opportunities and resources available to them. The course fulfills both a first-year seminar and a general education or Bachelor of Arts social/behavioral science requirement. Class sessions stress discussion of assigned readings, debates, and/or talks by guest lecturers/speakers.

Bachelor of Arts: Social and Behavioral Sciences
First-Year Seminar

General Education: Social and Behavioral Scien (GS)
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Crit and Analytical Think

LHR 100: Exploring Work and Employment

3 Credits

Work and employment are central parts of the human experience. With that in mind, this course has two main objectives. First, to help better prepare students for the role that work and employment will play in their lives. And second, to introduce students to the fields of human resource management and employment relations. The course will begin by looking at the ways in which work and employment impact people's lives financially, socially, and psychologically. It then examines a number of issues that impact the kind of experience that people have at work and that people entering the workforce need to be aware of, including the basic legal rights employees have related to employment, workplace privacy, employment discrimination, family-friendly policies at work, safety and health in the workplace, drug and alcohol testing, and the growing trend of working from home. The course then introduces students to human resource management as a field. It also discusses the various ways that students will interact with human resources professionals when they begin applying for jobs, including the search and hiring process and, once they obtain employment, on issues such as compensation, benefits, and job evaluation. As the employees in some workplaces are represented by labor unions, students will be introduced to the role that unions have historically played in American workplaces. The process for organizing a union will be addressed, as will the collective bargaining process through which employers and unions jointly determine wages and salaries, benefits such as healthcare and pensions, and processes for ensuring fair treatment and due process in the workplace. New alternatives to unions that give workers a voice in their workplace will also be discussed. The final section of the course will focus on globalization and immigration and their impact on work and employment around the world. Both the benefits of globalization (lower costs on consumer goods) and its costs (job losses in developed countries and the exploitation of workers in poorer countries through substandard pay, sweatshops, and child labor) will be discussed, as will the benefits and costs of immigration.

Bachelor of Arts: Social and Behavioral Sciences

General Education: Social and Behavioral Scien (GS)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Soc Resp and Ethic Reason

LHR 136: Race, Gender, and Employment

3 Credits

This course will ask how race and gender affect work in the contemporary United States. We will consider how race and gender shape people's work opportunities, their wages at work, and whether they participate in paid or unpaid labor (or both). We will begin with an overview of work and the changes in the workforce over time; we will move to investigate how workplace structures reproduce gender and race inequalities; will ask how race and gender inequalities are informally maintained through education systems and social networks; will consider differing dimensions of inequality across poverty, immigration, and sexuality; and will consider how studying unpaid labor helps us better understand the formal paid economy. This course meets the Bachelor of Arts degree requirements.

Cross-listed with: AFAM 136, WMNST 136
Bachelor of Arts: Social and Behavioral Sciences
United States Cultures (US)
General Education: Social and Behavioral Scien (GS)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Soc Resp and Ethic Reason

LHR 136Y: Race, Gender, and Employment

3 Credits

This course will ask how race and gender affect work in the contemporary United States. We will consider how race and gender shape people's work opportunities, their wages at work, and whether they participate in paid or unpaid labor (or both). We will begin with an overview of work and the changes in the workforce over time; we will move to investigate how workplace structures reproduce gender and race inequalities; will ask how race and gender inequalities are informally maintained through education systems and social networks; will consider differing dimensions of inequality across poverty, immigration, and sexuality; and will consider how studying unpaid labor helps us better understand the formal paid economy. The course emphasizes writing in the form of short assignments and longer papers as a means to develop comprehension of these ideas. This course is a writing intensive course designed to develop formal writing appropriate for a business context. We will use an active and engaged writing process using the course topics of diversity and employment inequality to strengthen writing skills.

Cross-listed with: AFAM 136Y, WMNST 136Y
Bachelor of Arts: Social and Behavioral Sciences
United States Cultures (US)
General Education: Social and Behavioral Scien (GS)
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Soc Resp and Ethic Reason
Writing Across the Curriculum

LHR 160N: The Virtual Transformational Leadership Development Experience

3 Credits

The Virtual Transformational Leadership Development (VTLD) Experience is designed to help develop the next generation of leaders to serve as agents of change in pursuit of a more civil, equitable, and just workplace, society, and world. A guiding principle of The VTLD Experience is that diversity is a fact, inclusion is a choice, equity is an action, and belonging is an outcome. It leverages technology, including artificial intelligence, machine learning, interactive arts and and employs high impact teaching practices including micro-lessons, rapid learning, reflective exercises, online discussions, meditation and mindfulness practices, an online journal, and synchronous individual transformational leadership development coaching sessions conducted via Zoom. Students enroll in the VTLD Experience from the University Park and the Commonwealth Campuses and have an opportunity to engage with artists curated by the Center for the Performing Arts at Penn State. This involves viewing performances from a distance and digital programming. Fundamentally, the course is an anti-racist, anti-oppression leadership development experience and aligns with the following foundations and thematic priorities of the university's 2016 - 2025 strategic plan: Foundations - Engaging Our Students - Advancing Inclusion, Equity and Diversity - Enabling a Sustainable Future Thematic Priorities - Transforming Education - Empowering Through Digital Innovation - Advancing the Arts and Humanities - Stewarding our Planet's Resources

Cross-listed with: AA 160N

Bachelor of Arts: Arts

Bachelor of Arts: Social and Behavioral Sciences

United States Cultures (US)

General Education: Arts (GA)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

LHR 165N: Work and Literature

3 Credits

If you get a job out of college, work eight hours a day, fifty weeks a year, and retire at age 65, at that point you have will spent roughly one third of your adult, waking life at work. And that is just paid work. Add in housework, childcare, and other forms of unpaid labor and the share of your waking hours devoted to work creeps closer to one half. And those calculations may actually underestimate the influence work has over your life. What you do will determine where you live, how you live, and, perhaps, whether you believe you have ultimately done something meaningful with your life. With work playing such an outsized role in a life, you may as well understand it as best you can. Hence this class. In it, we approach the question of work from the perspective of two disciplines: labor and employment relations and literature. The field of labor and employment relations asks about the social and economic forces-markets, compensation, globalization, immigration, etc.-that shape work. By contrast, the discipline of literature takes a more subjective approach to the question of work. Very broadly speaking, it shows how the forces that shape work play out in individual lives. In short, it shows how individuals feel about the work they do or, in the case of the

unemployed, they do not do. Together, the two disciplines provide a global and personal perspective on one of the most important parts of our lives. Students registering for the course will read representative selections from both domains, engage in course discussions, take exams, and write essays as they explore the variety of ways both labor and employment relations and Literature can prepare them for their work lives and help them understand the place of work in culture and society.

Cross-listed with: ENGL 165N

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

LHR 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses offered infrequently to explore, in-depth, a comparatively narrow subject that may be topical or of special interest.

LHR 201: Employment Relationship: Law and Policy

3 Credits

LHR 201 surveys U.S. employment law. It begins with an overview of general legal concepts necessary to understanding the US legal system. It next examines the employment relationship and the employment contract, cornerstones in the field of employment law. In the main body of the course, students examine major state and federal labor and employment statutes, regulations, and cases that create employer and employee rights and obligations beyond those the parties have negotiated for themselves. This part of the course covers such topics as anti-discrimination law, wage and hour regulation, benefit and leave requirements, safety and health enforcement, workers' compensation systems, and the growing use of employer-mandated arbitration of statutory employment rights. Overall, the course analyzes workplace law problems from the different policy perspectives of employees, unions, employers, and the public. As appropriate, it introduces students to the economic, political, and social forces (both historical and contemporary) that influence the content of workplace law.

Bachelor of Arts: Social and Behavioral Sciences

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Soc Resp and Ethic Reason

LHR 202: Understanding Employee Behavior

3 Credits

The course will be offered at an introductory level. It is designed to encourage students to explore individual and group behavior at work. The ability to describe, explain and analyze concepts in this course is critical to appreciating the dynamics that determine organizational outcomes. In this context, students will learn basic tools that will assist them in developing management, supervisory and leadership skills. Because the concepts from this course are the foundation of human resource management and employee relations, it is essential to master them in order to be an effective human resource management or employee relations professional. The conceptual learning in the

course will include individual differences, diversity, attitudes, fairness perceptions, motivation, decision making, leadership, teams, negotiation, organizational culture and its role in the external context.

Bachelor of Arts: Social and Behavioral Sciences
 General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Soc Resp and Ethic Reason

LHR 304: Labor and Employment Relations Fundamentals

3 Credits

The course surveys the main elements of modern labor and employment relations systems in the U.S. and beyond. The course encourages students to use a framework for evaluating workplace outcomes according to three yardsticks: efficiency; equity; and voice. Focusing primarily on employee voice, the course introduces students to a variety of mechanisms that bring democracy, worker engagement, and worker influence to the workplace. Among these mechanisms are U.S.-style collective bargaining, non-union systems of worker involvement, European works councils, and a new variety of "alt-labor" initiatives from around the world. In its single largest unit, the course focuses on U.S. workplaces, beginning with the historical and legal foundations of the modern U.S. labor relation system. This includes units examining union organizing campaigns, collective bargaining, and dispute resolution systems. Concluding weeks of the course look at issues surrounding the push for workplace flexibility, a comparative labor relations look at other country practices (include European works councils), emerging issues in global supply chains, "alt-labor" institutions and practices, the role of gender, race, and diversity initiatives at work, and the impact of automation and artificial intelligence on the future of work.

Prerequisite: LHR 100

LHR 305: Human Resources Fundamentals

3 Credits

This course will provide students with an opportunity to understand and apply important concepts concerning human resources in the workplace. Students will learn to think of the issues in the class from both the employees' and organizations' perspectives. The course begins with a description and analysis of the role human resource managers play in supporting employees' personal needs as well as an organization's strategic objectives. The discussion traces the changes in that role historically, as well as the contemporary understanding of HR's part in helping stakeholders succeed. Against this backdrop, students will study three critical variables affecting HR's involvement in management: the individual; the organization; and, the law. Each of these foci illustrates variables with which HR managers must contend. The course presents these variables through a variety of lenses: law, psychology, sociology, history and literature. Students will also spend considerable time studying the various functions HR plays in recruiting, selecting, training, evaluation, compensation, labor relations and safety. In these portions of the class, students will learn to understand the functions not only from the organization's, but also from the employees' perspective. The discussion of functional areas will end with application of the concepts studied to the global business environment in which HR increasingly operates. Throughout students will not only learn the mechanics of, for example, the selection process, but how processes support an organization's and individual's pursuit of their unique purposes.

Consistent with the liberal arts environment in which LHR students enroll, the final project requires students to apply the concepts learned concerning the HR function to their everyday lives, helping students to reflect on the difference HR processes can have on both the organization but equally important on the employee. As a Gen Ed course (GS), the course qualifies as a Bachelor of Arts (B.A.) course consistent with the B.A. Fields category.

Bachelor of Arts: Social and Behavioral Sciences
 General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Soc Resp and Ethic Reason

LHR 312: Research Methods in Labor and Employment Relations

3 Credits

The objective of this course is to enhance students' abilities to use a range of methodologies to evaluate and conduct research in the field of employment relations and human resource management. LHR 312 Employment Relations to Research Methods in Labor and Employment Relations (3)(BA) This course meets the Bachelor of Arts degree requirements. The objective of this course is to enhance students' abilities to use a range of methodologies to evaluate and conduct research in the field of employment relations and human resource management. It covers core concepts such as the scientific method, literature search, the logic of hypothesis formulation and testing, measurement, sampling and data collection methods, and basic statistical analysis. To accomplish these objectives, the course utilizes readings, lectures, class discussions, exercises and assignments, student presentations, and examinations.

Bachelor of Arts: Social and Behavioral Sciences

LHR 400: Comparative Employment Relations Systems

3 Credits

Analysis of structure and elements of employment relations systems in developed and developing areas. LHR 400 Comparative Employment Relations Systems (3) (IL)(BA) This course meets the Bachelor of Arts degree requirements. This course explores contemporary topics in employment relations in the world. The course examines seven examples of employment relations systems, each carefully chosen to illustrate important variations in employment relations practices. It also provides an overview of economic globalization and its impact on employment relations. Topics include global sweatshops, child labor, the diffusion of human resource practices, and corporate social responsibility. The first country case is Germany, which provides an example of a country with strong national unions and a highly developed system of works councils. The Swedish case exemplifies a long-tradition of centralized bargaining and tripartite relations that is now in transition. The third case, Japan, illustrates some of the initial experiences with team work, just-in-time production, and employee commitment through job security and training. China offers an example of a socialist system in transition that has become an economic powerhouse through massive export processing zones, government controlled unions, and wage competition. Brazil provides an important example of a Latin American country with a state dominated employee relations system. South Africa offers a case of highly politicized employment relations in a country in transition from extreme racial segregation to a democracy. Finally, India represents Asia's other economic powerhouse, with an English speaking workforce that is drawn to the booming call center industry and export-oriented

production. The second half of the course looks at broader themes related to the topic of globalization. Sweatshops in Mexico and child labor in India examined alongside the diffusion of high-end human resource practices in Brazil. In this section, student will also study inter-governmental institutions such as the World Trade Organization, and the International Monetary Fund. The final unit of this section examines the topic of Corporate Social Responsibility (CSR), recent attempts by corporations -at times in coordination with labor unions- to establish basic sets of rules or standards for their employees wherever units of the corporation might be located in the world today.

Prerequisite: LHR 100 or 3 other credits of LHR or 5th Semester standing Bachelor of Arts: Social and Behavioral Sciences International Cultures (IL)

LHR 401: The Law of Labor-Management Relations

3 Credits

Development of Anglo-American law regulating collective bargaining, with emphasis on American labor-management relations under Wagner, Taft-Hartley, and other acts. LHR 401 The Law of Labor - Management Relations (3)(BA) This course meets the Bachelor of Arts degree requirements. This course will examine the evolution of labor law in the United States. The N.L.R.A. itself, and the decisions of the National Labor Relations Board (N.L.R.B) and the courts, will be examined in order to gain an understanding of the current legal framework underpinning our system of labor-management relations. Major issues to be examined include the rights of employees to union representation; the formation of bargaining units; the conduct of organizing campaigns and elections; the duty to bargain; strikes, striker's rights, and lockouts; picketing, boycotts, and related activity; the enforcement of collective bargaining agreements and the duty to arbitrate; union members' rights and responsibilities, the duty of fair representation; and federal-state relationships in labor relations. Also covered in the course will be the legal framework for public sector labor-management relations, with specific attention paid to Pennsylvania Acts 111 and 195. The course will be taught from a liberal arts perspective, meaning that societal factors influencing the law-history, politics, and economics -will be emphasized. Student performance will be evaluated by means of tests, short papers, and such reports as may be required. This course is complementary to others in Labor Law, including LHR 434, Collective Bargaining and LHR 435 Labor Relations in the Public Sector. The course requires no special facilities or equipment; however, students enrolled are expected to have computer skills sufficient for communication and word processing purposes.

Prerequisite: LHR 100 or 5th Semester standing or 3 other credits of LHR Bachelor of Arts: Social and Behavioral Sciences

LHR 403: International Human Resource Studies

3 Credits

Course exploring human resource management from an international perspective. LHR 403 International Human Resource Studies (3) (IL)(BA) This course meets the Bachelor of Arts degree requirements. This course on International Human Resource Management expands beyond the traditional disciplines of HRM through a broader consideration of the impact of national contexts on these areas of organizational practice. The first question addressed is whether 'HRM' actually means the same thing in different countries, especially given that the term 'HRM' was developed from US management practice and scholars. This opens the discussion as to how institutions and culture at the national level help to shape management practice. As organizations become increasingly

global, these issues of national culture and institutions can often stand in the way of a seamless progression of HRM across national boundaries. From a national culture perspective, the course compares how people in different countries see themselves and others around them, and how expectations, values and beliefs can differ in the workplace. This understanding is drawn from frameworks of national culture which describe the culture's multiple dimensions. This enables students to identify why and how it may be different working with colleagues from other cultures, as well as understanding the implications this can have for designing appropriate HRM practices. From a national institutions perspective, the course compares how institutions such as legislation, state intervention, trade union influence, education systems, and the respective power of shareholders versus stakeholders can impact on patterns of HRM and employee relations practices in different countries. For example, comparisons are made between economies with very high levels of employment regulation, explaining local employee rights and benefits, and those in which firms have more autonomy to choose how to manage their employees. From a strategic perspective, the course looks at how multinational enterprises are managing this cultural and institutional complexity, making strategic choices in international HRM to ensure they achieve the ultimate balancing act of thinking global but acting local. It considers different strategies firms might take (from complete standardization of HRM to complete localization) and how this then translates into different roles and activities for the IHRM function. This section also explores how these firms manage their international staff (expatriates), as well as finally exploring ethical issues around outsourcing activities to lower cost countries, and the impact of a more globalized workforce on diversity and work-life balance issues.

Prerequisite: LHR 100 or 3 other credits of LHR or 5th Semester standing Bachelor of Arts: Humanities Bachelor of Arts: Social and Behavioral Sciences International Cultures (IL)

LHR 409: Leadership Development: A Life-Long Learning Perspective

3 Credits

The course examines the continuing influence of social and environmental factors in shaping leadership and leadership development. LHR (OLEAD) 409 Leadership Development: A Life-Long Learning Perspective (3)(BA) This course meets the Bachelor of Arts degree requirements. Current social conditions, such as financial crises, ineffective solutions to local, national, and international problems and corrupt leaders, call for more effective and ethical leadership on a broad scale. The positive and moral transformation of social institutions requires active participation and leadership of more authentic transformational leaders. This course will discuss authentic transformational leadership development from a life span developmental perspective. More specifically, it will focus on how an individual develops his/her leadership skills, potential, and capacity in his/her childhood, school, social organizations, colleges, and work organizations. The primary purpose of this course is to help students understand how family, educational, and other environmental factors have helped and/or will help them develop their transformational leadership potential and leadership effectiveness, in addition to gaining a better understanding of their strengths and weaknesses in respect to personality, individual difference, motivation, values, emotions, self-awareness, and identity. The fundamental objectives of this course are to help students 1) increase self-awareness; 2) to help students to know more about their sense of self, including self-identity, self-awareness, self-efficacy, and other types

of self-concepts; 3) to understand the effect of life span influences in an individual's leadership development.

Prerequisite: OLEAD 100 or 5th Semester Standing

Cross-listed with: OLEAD 409

Bachelor of Arts: Social and Behavioral Sciences

LHR 410: Employment Strategies for People with Disabilities

3 Credits

Develop knowledge, skills, and resources necessary to understand and practice effective employment strategies in working with people with disabilities. This course is designed for students to develop knowledge, skills, and necessary resources to understand and practice effective employment strategies in working with people with disabilities, including individuals from culturally diverse backgrounds. Students will develop skills on networking with employers (e.g., social media, professional organizations, interviewing employers, etc.) for building professional contacts and networks. Various forms of labor market information will be analyzed to identify both challenges and opportunities for people with disabilities in different sectors of the labor market (primary and secondary). Throughout the course, students will learn about disability issues in the workplace (e.g., laws, policy, stigma, accommodations, etc.). A strong emphasis will be on understanding how laws and policies impact employment for people with disabilities, and students will identify legal and illegal practices. Best employer practices will be identified regarding mitigating disability impact on both employees (current and future) and employers. This course will incorporate Assistive Technology (AT) applications so students will be able to identify appropriate AT devices to assist people with disabilities in obtaining and retaining employment along with applicable strategies for working with employers in developing employment opportunities in today's changing world of work. Students will understand how disability is a critical component of workforce diversity and strengths people with disabilities bring to the workplace. Students will identify how people with disabilities should prepare for the employment process including training opportunities (formal and informal), resume development, interview preparation, and initiatives to promote increased employment outcomes. Different disability populations (e.g., youth, Veterans, aging workers, etc.) will be discussed including common barriers for employment as well as how to create opportunities in different employer settings.

Prerequisite: 5th Semester standing or 3 credits of LHR or LHR 100

Cross-listed with: RHS 410

LHR 426: Staffing and Training Strategies in Organizations

3 Credits

This course focuses on the theory and practice of human resource staffing and training in organizations. It provides the conceptual framework for understanding the staffing and training function as a factor of production and service. For this we will discuss policies and practices designed to attract, retain, and motivate employees. It explains how staffing and training can be used as a competitive weapon. For this we discuss how human resource policies and practices can be targeted towards achieving business objectives. This should inspire you to think of the connection between employee effectiveness and profitability. The course also provides the government regulations that impact staffing and training practices. The course uses lectures, group discussion, and in-class exercises to impart these concepts.

Prerequisite: LHR 100 or 3 other credits of LHR or 5th Semester Standing

Bachelor of Arts: Social and Behavioral Sciences

LHR 427: Understanding Business Processes for LHR Professionals

3 Credits

This course examines human resource management (HRM) and employment relations (ER) from a strategic perspective embedded in a complex and evolving organizational system. To be effective, students must understand how different organizational strategies interface with the entire set of HR/ER practices put in place. This approach also requires an ability to connect business functions, governance, organizational metrics and financial considerations with investments in the broader HR/ER system. The goal of this course is to build business acumen by providing a foundational understanding of the components of a strategic and proactive HR/ER system. Through active learning, this course will encourage the development of analytical skills, personal competencies, and in-depth understanding of how various HRM and ER parts work together to shape organizational success. Students are more effective in their roles when they understand organizational strategic typologies, business functions, and governance structures that can affect the structure and implementation of the HRM/ER functions. Other topics include vertical and horizontal integration of the supply chain, and mergers and acquisitions, both of which are important to the work context. Basic finance and accounting concepts relevant to HRM/ER such as profit and loss statements, balance sheets, and cash flow enable students to understand how managers and leaders make resource decisions. Students gain credibility with other organizational decision makers by better understanding concepts such as earnings per share, return on assets (ROA) and return on investment (ROI). Understanding the time value of money and implications for decisions regarding investments in people enables students to be more effective in decision-making roles. The goal is to provide students with the fundamentals of the business context as relevant to their roles as HRM and ER professionals. The use of metrics and measures to provide feedback to the organization and individual employees will be examined. The criticality of understanding appropriate metrics and the importance of finding or creating valid, reliable, and bias-free metrics is explored. Learning how to create balanced score cards and associated HRM/ER scorecards can provide actionable insight to all organizational stakeholders. Finally, exposure to conceptual frameworks related to ethics and risk assessment will enable students to apply such frameworks in an organizational context. The goal is to have HRM and ER students develop a deep understanding of perspectives, practices, and tools that connect HRM and ER policies and practices to an organization's context and strategy.

Prerequisite: LHR 100 or 5th Semester standing or 3 other credits of LHR

LHR 428: Total Rewards

3 Credits

This course requires students to learn the link between company's strategy and compensation, and understand core policies necessary to develop effective compensation systems. The core policies include internal alignment, external competitiveness, and employee contribution. First, theoretical frameworks of human resource management and corporate strategies will be discussed to define the relationship between company's strategy and compensation philosophy. Students then will study how to establish internally consistent and fair pay levels for various jobs using techniques such as job analysis, job evaluation, and competency analysis. The course then will discuss how to collect and analyze salary data and covers 'pay for performance' where students

learn the concept of performance management and various incentive practices at the individual, team, and organizational levels. The course will be finalized with the discussion of employee benefits. In this section, students will discuss various benefit options that companies can provide, and various legal issues.

Prerequisite: LHR 100 or 5th Semester standing or 3 other credits of LHR

LHR 429: Conducting Workplace Investigations

3 Credits

A 400-level course that presents the incident management process in a manner that is relevant to managers, human resource professionals, and labor relations professionals. The course focus on that investigative process most critical in describing and explaining events such as, - Accidents - Harassment - Altercations (fights, etc.) - Abuse of patients/ customers The course will provide a framework for executing the various types of investigative tasks based on evidence-based best practices.

Prerequisite: LHR 100 or 5th semester standing

LHR 434: Advanced Collective Bargaining and Contract Administration

3 Credits

This course examines, at an advanced level, the theory, practice, and impact of the major phases of union organizing, collective bargaining, and contract administration. Upon completion of this course students should be able describe, explain and participate, at an advanced level, in the major phases of labor relations: union organizing campaigns; collective bargaining (including its preparation phases); grievance processing; mediation; and arbitration, as practiced in industries in the U.S. private sector subject to the National Labor Relations Act, as amended, and the Railway Labor Act. Students will also develop concrete negotiation and grievance administration skills and have the opportunity to apply those skills, with the benefit of observations and feedback. Part I of the course reviews the structure of collective bargaining, the determination of bargaining units, and theories of effective labor negotiation. Further foundational study looks at the law applying to the determination, compositions and scope of bargaining units, as well as the law of collective bargaining, grievance handling, and arbitration. The main body of the course introduces students to different schools of effective technique in the negotiation of labor disputes. Part 2 of the course examines the subjects and processes of collective bargaining in detail. In this portion of the course, the course requires small teams of students to conduct out-of-class exercises. The first asks students to resolve a dispute over bargaining unit determination. In this phase of the course, teams of students negotiate a comprehensive new collective bargaining agreement in a hypothetical (simulated) case study. Similarly, students will conduct an exercise in the processing of grievances through a grievance procedure and, in some case, ultimate arbitration. In the latter procedure (arbitration), students will role-play in union representative, management representative, and arbitrator roles, assigned to writing either advocates' briefs or an arbitration award. The course will also include an exercise in the mediation/conciliation of a labor dispute

Prerequisites: LHR 304

Bachelor of Arts: Social and Behavioral Sciences

LHR 435: Labor Relations in the Public Sector

3 Credits

Analysis of labor relations problems within different areas of public employment. LHR 435 Labor Relations in the Public Sector (3)(BA) This course meets the Bachelor of Arts degree requirements. Upon completing this course, students should be able to identify the legal frameworks that govern collective bargaining between employers and unions in federal, state and local governments. Students should also be able to explain the process of collective bargaining in the government sector and the special circumstances that make public sector bargaining different from private sector bargaining. At course end, students should be able to identify the parties involved in public sector bargaining, including those involved in dispute resolution, and explain their priorities in the labor relations process. Students should come to understand and articulate the reasons why it is important to study and more fully comprehend the public sector labor relations process. Together, we will explore the distinctions between public and private sector employers that impact labor relations in the public sector, in order to better understand those distinctions. Also, we will explore the principal historical differences between negotiations in the public and private sectors, in order that students can better articulate those differences. In addition, we will work to understand the principal arguments for and against the right to strike for public sector employees, as well as other impasse resolution processes. Finally, we will work to identify and discuss the challenges facing public sector labor relations in the near term and in the intermediate term.

Prerequisite: LHR 100 or 3 other credits of LHR or 5th Semester standing
Bachelor of Arts: Social and Behavioral Sciences

LHR 437: Workplace Dispute Resolution

3 Credits

Dispute resolution practices and procedures used in the workplace and employment law settings. LHR 437 Workplace Dispute Resolution (3)(BA) This course meets the Bachelor of Arts degree requirements. This course examines dispute resolution procedures in unionized and nonunion workplaces. The course begins with an examination of grievance procedures in unionized workplaces and the system of labor arbitration. The second major theme of the course is an examination of the design and use of nonunion workplace dispute resolution procedures. Finally, the course will look at procedures for resolving employment law disputes and the major public policy debates surrounding mandatory nonunion arbitration procedures. A key objective of the course is to enable students to both understand and think critically about different alternative dispute resolution procedures and their role in employment relations. As part of achieving this objective, the course will include simulated dispute resolution exercises to provide students with experience in using techniques such as arbitration, mediation, and peer review. This course builds on and is complementary with other coursework in Labor and Employment Relations in the areas of employment relations, employment and labor law, and human resource management. It also compliments courses in other departments in the area of dispute management and resolution, including the Minor in Dispute Management and Resolution. LHR 437 may also be taken as an elective by students in the MS in Human Resources and Employment Relations and compliments coursework in the graduate program.

Prerequisite: LHR 100 or 3 other credits of LHR or 6th 5th Semester standing
Bachelor of Arts: Social and Behavioral Sciences

LHR 444: Workplace Safety and Health: Principles and Practices

3 Credits

The role of employees, unions, employers, and government in dealing with work-related safety and health issues. LHR 444 Workplace Safety and Health: Principles and Practices (3)(BA) This course meets the Bachelor of Arts degree requirements. Workplace Safety and Health: Policies and Practices focuses on the roles of employees, unions, employers, and government in addressing work-related safety and health issues. The course will introduce students to the three interrelated fields of workplace safety, workplace health, and environmental protection. Students will be provided with an overview of key issues within these fields and gain an appreciation for their importance within the workplace. Students will also become familiar with the fundamental concepts involved in the management of workplace safety and health issues. LHR 444 satisfies requirements within the Labor Studies and Employment Relations major and may be taken as an elective. LHR 444 is complementary to other courses dealing with employee relations and legal principles within the workplace.

Prerequisite: LHR 100 or 5th Semester standing or 3 other credits of LHR Bachelor of Arts: Social and Behavioral Sciences

LHR 450: Developing a Career in Human Resources or Employment Relations

3 Credits

The overall goals for this course are to enhance student awareness of aspects of themselves that are related to career success and satisfaction, guide student exploration of the world of work, and equip students with strategies for finding an optimal career match in the world of work. More specifically, this course will help students to increase awareness of their strengths, values, interests, and personality thereby helping students to make informed decisions to select and prepare for the next step in their career. Students will research the world of work through information interviews. They will learn how to develop and deploy a personal brand, including resume, cover letters and elevator pitches. Students will apply the career planning resources available through Penn State Career Services, the Liberal Arts Career Enrichment Network, and the Labor and Human Relations Department to their job and internship searches. Students will learn about career management skills from notable and distinguished alumni. Students will improve interviewing skills and prepare for a wide range of interview challenges. Students will integrate prior self-assessment results to summarize the professional assets that each student offers to employers. They will define their unique differentiators and identify the primary motivator that drives them. They will chart five year career goals and draft a development plan for realizing those goals. These steps will help students to begin the life-long process of managing their career in a systematic and proactive manner. Students will be introduced to the various career service options available to them at Penn State including: Penn State Career Services, Liberal Arts Career Enrichment Network, Nittany Lion Careers, and the resources available to them in the School of Labor and Employment Relations. They will also participate in the Strengths Finder Assessment, which is a tool to identify skills in which they exhibit high levels of strength. The following Career Readiness Competencies will be addressed by this course: Critical thinking and problem solving. Students will also strengthen their oral and written methods of communication. The role of digital technology in a career search will be discussed. Career Development Processes will be covered in this course. Resume and cover letter writing will be addressed. Students will learn to develop a network

through avenues such as LinkedIn, networking events, information interviews, and connecting with alumni. Students will develop interview skills. Students will receive guidance on developing effective job search strategies, including job offer negotiation, skills and qualities employers are seeking, and career decision making.

Corequisites: 3 credits of LHR course

LHR 452: Human Resources and Employment Relations in Tech

3 Credits

Students will study the theory, practice, and controversies related to human resources and employment relations in the tech sector. This course will explore how organizations manage the people who produce technology and compare human resource management (HRM) practices in the tech sector to those from industries not based on knowledge resources. We further investigate the role organizational culture and leadership play and introduce students to the relevant public policy debates concerning the organization of work and HRM practices in tech. The course culminates in visits to a variety of U.S. tech companies and meetings with tech employee representatives to build and extend the insights learned in the classroom.

Prerequisites: 9 credits in LER
Bachelor of Arts: Social and Behavioral Sciences

LHR 458Y: History of Work in America

3 Credits

LHR 458Y, "History of Work in America," a writing-intensive course, studies selected problems in the history of work in the United States. This course addresses economic, technological, social, cultural, and political aspects of employment and self-employment. Major topics of concern include methods of producing goods and services, work time, working conditions, the composition of the workforce, the changing functions of managers, the role of the state in shaping labor markets and regulating employment, the formation and actions of unions and other pro-labor organizations, and the relation of work to the family and other social institutions. In addition, students will undertake original research in primary sources and secondary literature, thereby learning something of historical research methods. The essay project is treated as a process, besides regular encouragement of students to submit a paper proposal, rough drafts, and a final draft. Students are advised that the instructor will read and comment on additional drafts as they care to submit. This section of LHR 458Y is a blended course. Some activities take place in the classroom, and other activities are conducted on Canvas.

Prerequisite: 3 credits in HIST or LHR or LHR 100 or 5th Semester standing

Cross-listed with: HIST 458Y

Bachelor of Arts: Social and Behavioral Sciences
United States Cultures (US)
Writing Across the Curriculum

LHR 459: Collective Bargaining in Professional Sports

3 Credits

In this course, students will learn how collective bargaining works in professional sports and how it compares to bargaining in other industries. Students explore the process of collective bargaining in professional sports in the US and Canada. In particular, the course will examine how the application of leadership, leverage and resources by

professional sports employers and their player employees' associations impacts the collective bargaining process and outcomes in each sport. This course will also focus on how the interaction of these three attributes has produced landmark collective bargaining agreements, as well as disruptive strikes, lockouts and litigation. This course will give context to present day professional sports collective bargaining by examining the history and structure of the players associations, the laws affecting professional sports bargaining, and the role of sports agents in the process. Students will have the opportunity to learn how professional sports bargaining illustrates universal lessons about the process of collective bargaining, and also how it is unique. Guest speakers with considerable experience in professional sports collective bargaining will give students in this course real world context and will afford them the opportunity to question actual professional sports collective bargaining practitioners.

Prerequisites: LHR 100, and 4th Semester standing
Bachelor of Arts: Social and Behavioral Sciences

LHR 460: Ethics in the Workplace

3 Credits

The course will explore ethics from both a normative and behavioral perspective. A key operating assumption of this course is that every employee of an organization has a responsibility to demonstrate ethical leadership. The course will emphasize the importance and applicability of shared mutual accountability. Four interrelated and mutually reinforcing subject areas will be explored in the course at the individual, organizational and transnational levels business ethics, ethics in unionized firms, corporate social responsibility, and sustainability. Students will develop their abilities to articulate their own moral values and to recognize and resolve ethical dilemmas within an organizational setting. Students will analyze situations using ethical theories and learn to advocate for particular management and labor relations approaches, practices and policies based on ethical considerations. While no one view of ethics is identified as "best," students learn to recognize, evaluate, compare and apply different approaches. Students also will develop their abilities to identify, read, and explain academic literature related to the topic of ethical leadership from a management and employment relations perspective.

Prerequisite: LHR 100 or 5th Semester standing or 3 other credits of LHR

LHR 464: Communication Skills for Leaders in Groups and Organizations

3 Credits

Theory- and research-based communication skills for leaders dealing with work-related problems in contemporary groups and organizations. LHR 464 Communication Skills for Leaders in Groups and Organizations (3)(BA) This course meets the Bachelor of Arts degree requirements. LHR 464 Communication Skills for Leaders in Groups and Organizations is a survey of theory, research, and practice related to the communication processes by which individuals in groups and organizations exercise influence, whether or not they occupy positions of acknowledged leadership, and may be taken as part of an Labor and Industrial Relations major or minor, or as an elective by students in other disciplines. The course is offered once each academic year and has an enrollment limit of 40 students per offering. The course requires no special facilities. It extends to other courses in the major primarily in the areas of Industrial Relations and Human Resources. It is also complementary to courses focusing on groups and organizations in Sociology, Psychology, Management, and Engineering. During the course, students are exposed

to a variety of theoretical perspectives on the study of leadership, learn about research illuminating its functions, and become acquainted with communication practices derived from and/or suggested by such theories and research that contribute to the exercise of influence and, thereby, effective group and organizational performance. These terminal outcomes define the objectives of the course. Focus will be on leadership as both role-related behavior and goal-directed behavior, regardless of roles that members of groups and organizations occupy.

Prerequisite: 5th Semester Standing

Cross-listed with: OLEAD 464

Bachelor of Arts: Social and Behavioral Sciences

LHR 465: Collective Decision Making

3 Credits

Application of theories of decision making to work-related issues in groups and organizations requiring collective resolution and action. LHR 465 Collective Decision Making (3)(BA) This course meets the Bachelor of Arts degree requirements. This course presents a broad overview of theories, research, and practices in decision making as related to work-related choice making in groups and organizations and is open to students majoring or minoring in Labor and Industrial Relations, as well as to students who may wish to use the course as an elective. The course is offered once each academic year and has an enrollment limit of 40 students per offering. It requires no special facilities. LHR 465 extends to other courses in the major, primarily in the areas of Industrial Relations and Human Resources. It is also complementary to courses dealing with decision making in groups and organizations in sociology, psychology, and management. Of particular interest are decision making practices, as well as theories that account for them, in single-motive situations (in which participants in the process are pursuing a common goal) and mixed-motive situations (in which two or more of the participants are competitively related, but must cooperate to achieve their objectives). Hence, the course deals both with (1) conventional decision making, as in the case of boards, task forces, problem-solving groups, and quality circles or teams, appropriate to single-motive situations and (2) processes, such as bargaining, negotiation, and dispute management/ resolution, appropriate to mixed-motive situations. The course also deals with the influence of organizational culture on decision-making in both types of situations. Upon completing LHR 465, students will have been exposed to a broad array of theoretical perspectives on decision making in groups and organizations, will be familiar with research testing these theories, and be aware of decision making practices suggested by theory and research that are useful in situations requiring collective choice and action. These terminal outcomes of the course reflect the objectives.

Prerequisite: 5th Semester Standing

Cross-listed with: OLEAD 465

Bachelor of Arts: Social and Behavioral Sciences

LHR 466: Labor Union Structure, Administration and Governance

3 Credits

American unions have long played an important role in the American economy. However, in the last forty years, the number of workers represented by unions has declined steadily. Within this same time frame unions have been looking at ways to restructure in order to increase their strength if not to just survive. This includes organizing workers beyond their traditional membership, merging with other unions, and reorganizing union hierarchy. It also includes looking at ways to reconnect and mobilize existing members; motivating them to become

more committed to and actively involved in their unions. This course will look at the similarities and differences of union structure, internal and external rules of governance and examine best practices for effective union administration. The traditional labor movement's connection with new types of workers' organizations and non-unionized labor movements will also be explored. As they organize, structure, and govern themselves, labor unions must address and accommodate to the diversity among actual and potential members of differing economic, social, occupational, and cultural groups. As students work through the topics outlined above, they will examine whether and how the US labor movement succeeds, or sometimes fails, at creating representational structure that attracts and mobilizes workers of professional-, middle- and lower classes, skilled and unskilled occupations, immigrant and native born, and different genders and races. This course asks: how does one create the kind of union structure and governance that best achieves social justice and progress? At the conclusion of the course students will be able to: - Describe and analyze the primary ways in which unions have structured their activities at the local, national and international levels; - Describe the manner in which union members interact within the governance processes common in the labor movement; - Analyze the relationship between union administration and governance with respect to the legal framework within which unions must operate; - Develop plans to attract employees to join a union and develop tools to effectively socialize new members as effective contributors in pursuing legitimate union objectives. - Articulate the variety of ways in which leadership emerges within the labor movement and how leadership affects the labor movement's ability to successfully interact with the political, social and economic factors influence union success. Students will be able to link these concepts to related courses in the LER major and minor classes addressing collective bargaining and employment relations. They will also find connections to the College of the Liberal Arts and the Smeal College of Business. Courses in related disciplines: Management; Political Science; Psychology; History; Economics.

Prerequisite: LER 100

Bachelor of Arts: Humanities
United States Cultures (US)

LHR 468: American Labor Unions

3 Credits

This course will explore the current state of American labor unions and the historical, cultural, legal, political, and economic contexts within which they operate. In addition, we will examine alternative organizational forms through which U.S. workers organize including cooperatives, worker centers, living wage campaigns, and digital platforms. Among the subjects that students will analyze are the US public's perception of unions, the recent increase in political resistance to US public employee unions, the relationship between rising inequality and declining U.S. labor union membership, shifting union attitudes toward immigrant workers, the impact of globalization on U.S. unions, and how U.S. unions compare to those in other parts of the world. We will also analyze how divisions of class, gender, race, sexuality, and nationality shape the U.S. labor movement today. Finally, we will discuss pressing contemporary issues such as the rise of the gig economy, 2019-2020 strike wave, the Janus v. AFSCME decision, and the impact of the COVID-19 pandemic on U.S. workers. Guest speakers, who are union practitioners, will provide students with the opportunity to question elected union officers and staff and will provide real world context to the course readings. This course will give students a fundamental understanding of how U.S. unions

are structured and operate, and how those unions both impact and are impacted by the U.S. and global economies.

Prerequisites: 4th semester standing

LHR 471: Comparative Human Resource and Employment Relations
Practices: Virtual Travel to Three Continents

3 Credits

The goal of this course is to provide the information and context for understanding how the HR and ER practices differ in different contexts (countries). In addition, the course will provide a nudge for the students towards a permanent shift in their mindset, that will allow them to notice these differences more easily, and eventually expect them. In the end, even though the course will be closely focusing only on three exciting countries, the aim is that students will walk out of this course with a newly gained appreciation for global cultural differences and hence notice the nuances when it comes to employees and employment on the global stage. The course starts with general introductions to cultural and institutional differences that shape HR and ER practices. Following this introduction, the course will focus on each of the three countries for a couple of weeks at a time. Each virtual country visit will start by learning some general facts about the country, interesting and relevant bits of its history, culture, customs, legal environment, food, music, and similar. Then we'll examine the typical HR and ER practices in that country, all the while aiming to understand them, and explain them, taking into consideration the specific context of that country. Finally, the culmination of the country virtual visit will be live synchronous zoom meetings with local experts in HR and/or ER fields. These opportunities to connect with local experts will give students the opportunity to directly interact, ask questions, and gain a much clearer perspective of the specific challenges and opportunities for employers and employees around the world.

Prerequisite: LHR 100 or 5th semester standing
Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)

LHR 472: Work-Life Practices and Policies

3 Credits

Explore the causes and consequences of conflicts between work, family, and other life commitments, and how these may be resolved. LER 472 Work-Life Practices and Policies (3)(BA) This course meets the Bachelor of Arts degree requirements. The interdisciplinary field of work-family and work-life developed as a result of middle-class women's entry into the labor force, a movement that generated conflict between family and paid work commitments. Overall, the course addresses the reasons the field developed, relevant theoretical perspectives regarding the issues, and related problems as well as proposed solutions at both the public and private sector levels. The overarching objectives of the course are to expand students' understanding of conflicts between work and family commitments, and how these might be resolved through private and public sector initiatives. Specifically, the course concerns how individuals, families, and organizations interact to help hinder the achievement of balance between work and life commitments, and relevant effects on those involved. The changing demographics of the family, laws and trends around working time, father and mother time with children, the expanded need for elder care, work-life programs such as flextime, concierge services, paid parental leave, part-time careers, paid time-off banks, and the role of unions, corporations and government legislation are covered. The course attempts to link the likely future needs of students to broader trends in society and how balance could be achieved

at the level of individuals, families, other stakeholders in the community, and for society as well. Fields of research relevant to the course include labor studies, women's studies, Industrial/Organizational psychology, the sociology of work and of family, and child development. Students will be evaluated on the basis of class participation, through two in-class examinations, and through a final written or oral project providing a chronology and analysis of an adult's work-family history.

Enforced Prerequisite at Enrollment: 3 credits in LER or LHR
Cross-listed with: SOC 472, WMNST 472
Bachelor of Arts: Social and Behavioral Sciences

LHR 475H: Labor in the Global Economy

3 Credits/Maximum of 3

This course focuses on how the nature of work is changing in the global economy, and the implications for economic opportunity and inequality in both . Labor in the Global Economy (3) This seminar focuses on how the nature of work is changing in the "new economy" and the implications for economic opportunity and inequality. Sections of the course examine: theoretical approaches to understanding contemporary process of labor restructuring, including globalization, rise of multinational corporations, and growth in global supply chains; case studies of restructuring processes; and innovative labor organizing initiatives at a local, regional and global scale. This course aims to develop a framework for understanding the nature of contemporary processes of economic restructuring and its impact on the world of work. Case studies will provide a deeper understanding of how broad macro-level changes in the nature of contemporary capitalism are mediated by a variety of technological, political, and socio-economic factors in particular industries and geographic contexts. The case studies section of the course will also examine business ethics and corporate social responsibility initiatives. Finally, an in-depth look at workers' responses to these changes at different scales (local, regional, global) will help deepen our understanding of the contested nature of workplace restructuring while exploring promising strategies for improving working conditions. This is a reading-intensive course dealing with the theoretical literature on rapid economic restructuring and how this is shaping work and employment.

Prerequisite: 6.0 credits of LHR and 6th Semester standing
Honors

LHR 480: Current Issues in Human Resources

3 Credits

Identity and race, gender and heritage, centrality and marginality, self and other, as expressed in literary works from around the world. Students will study current trends that are shaping human resources management. These trends include information technology, internationalization, new organizational forms, changing demographics, and competitive landscape. Examples of topics include use of social media in human resource management, virtual work, managing an aging workforce and working across international boundaries. The course is case based and as such explores experiences of actual companies. Students will study and discuss the strategies, successes and failures of companies and how these issues and challenges relate to the human resources function. Timely readings that expose students to theoretical structures underlying these changes will be part of this course. In addition, because this is a current issues class, students will be expected to actively follow trending news in the business world through news media and critically examine how it is shaping the human resource management practices. This

course will serve as a complement to MGMT 100, 341, 441 and LER 100, 201, 401 and 434.

Prerequisite: LHR 305

LHR 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Social and Behavioral Sciences

LHR 494H: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Social and Behavioral Sciences
Honors

LHR 495: Labor Studies Internship

1-12 Credits/Maximum of 12

Supervised practicum in labor relations setting with union, management, or government agency.

Prerequisite: 3 credits of LHR and Prior approval by department
Bachelor of Arts: Social and Behavioral Sciences

LHR 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Bachelor of Arts: Social and Behavioral Sciences

LHR 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Social and Behavioral Sciences

LHR 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)

Landscape Architecture (LARCH)

LARCH 60: Cultural History of Designed Places

3 Credits/Maximum of 3

LARCH 60 is an introduction to the development of designed outdoor places from the ancient past to present day. Designed landscapes and urban spaces are expressions of cultural values and environmental influences. Underlying all of the designs is the fundamental human connection to, and manipulation of nature as people create spaces that reflect political views, religion, are entertaining or provide personal inspiration and, most recently, show concerns for the health of the earth. While there is discussion of Middle East and East Asian landscapes, the course focuses upon Western civilizations with roughly the last third focusing on North American landscapes. The act of design and art often reveals a culture's beliefs, values, and aspirations. As well, the creation of outdoor places uniquely express a relationship between humans and nature. These designs and the many spaces they provide (e.g. plazas, campuses, gardens, cities, parks, memorials, urban systems, our own backyards, etc.) are aesthetic phenomenon that speak richly of cultural values. This is true throughout history as it is today. The stories these landscapes tell go hand-in-hand with cultural histories, but are not always closely examined. Designed landscapes enrich our daily lives enormously, but are not always observed, or understood as intentional acts of design--in fact they seem effortlessly placed before us. Successful landscape architecture accommodates human and natural functions (as does good building architecture), but the best speak to larger issues: to our minds and spirits. This course addresses the art of understanding the many layers of intent in designed landscapes from the past to present-including those that surround us as we walk through the built environment.

Bachelor of Arts: Arts
International Cultures (IL)
United States Cultures (US)
General Education: Arts (GA)
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Key Literacies

LARCH 60H: History of Landscape Architecture

3 Credits

A survey of the historical development of outdoor space in relationship to allied arts from early beginnings to this century.

Honors

LARCH 65: Built Environment and Culture: Examining the Modern City

3 Credits

This interdisciplinary course is based on the premise that space is an active structuring element of human experience. Using theoretical orientations from disciplines like Landscape Architecture, Architecture, Urban Planning, Urban Studies, Geography, History, Sociology, Cultural Anthropology among others, this course investigates how social structures are spatially embedded in contemporary built environments, especially cities. We focus on cities, because we live in a rapidly urbanizing world, and since 2008, more than half the world's population have been living in urban areas. In this class we examine how social systems impact places, especially the modern city, and also how we as

human beings are impacted by and impact cities. Cities are examined in historical context, starting from the mid 19th century. We study industrial, colonial and global cities. We then focus on enduring themes pertaining to the experience of cities by different groups in society based on factors like gender, race, ethnicity, and socio-economic status. A variety of western and non-western cases are used to understand cities in a variety of contexts. This course will complement LARCH 60 and other courses related to human settlements and urbanization offered by various departments/programs like Architecture, Art History, Geography, History, and Sociology. This course meets the Bachelor of Arts degree requirement, and the intercultural requirement (US/IL).

Bachelor of Arts: Arts
International Cultures (IL)
United States Cultures (US)
General Education: Arts (GA)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Soc Resp and Ethic Reason

LARCH 97: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

LARCH 115: Design I: Intro Spatial Composition

3 Credits

Landscape Architecture Studio 1 is the first design studio in the undergraduate Landscape Architecture curriculum. This studio introduces students to foundational concepts and methods in landscape architecture with a primary focus on the principles of spatial composition. Spatial design composition is introduced through lectures and readings and design skill is developed through studio projects that explore the space-making potential of landform, plants and structures in creating human experience in the landscape. Students explore design ideas through sketching in plan, section and perspective and by modeling their ideas in three dimensions. Students are introduced to graphic layout and composition as a means of presenting their design ideas to others.

Enforced Corequisite at Enrollment: LARCH 155

LARCH 116: Design II: Spatial Design

3 Credits

Landscape Architecture Studio 2 - the second design studio in the undergraduate Landscape Architecture curriculum - introduces students to small-scale site design. Students are introduced to essential topics in site design: the importance of understanding and responding to site and program, the fundamentals of pedestrian and vehicular circulation, the necessity of designing within a broader social and natural landscape context, and creating refinement in design form. Students are introduced to fundamental concepts through lectures and readings then presented with design projects intended to provide immediate application of those concepts. At the end of each design project, students develop presentation graphics that explain their final designs and supporting information.

Enforced Prerequisite at Enrollment: Students must earn a C or better in LARCH 115 and LARCH 155 and Enforced Concurrent at Enrollment: LARCH 156

LARCH 125: Landscape Architecture Orientation Seminar

1 Credits

Introductory seminar involving readings on significant issues in landscape architecture. LARCH majors only. LARCH 125 Landscape Architecture Orientation Seminar (1) LARCH 125 is a seminar course, the first of many in an entering student's Penn State career. Seminar classes offer the opportunity to read, think, share ideas through informal discussion, and refine personal thoughts reflection. The seminar is a common and useful tool to explore important ideas and develop critical thinking skills. The design and theory sequence begins with the freshman seminar, LARCH 125, which introduces students to landscape architecture issues. In this seminar students read and discuss the challenges and opportunities faced by contemporary landscape architects. To support student explorations, the class undertakes a series of readings of seminal works in landscape architecture and allied field that students carefully consider, question, and discuss. As a major part of student evaluation, they maintain a journal of their evolving ideas about the course content. Entering landscape architecture majors sometimes have a restricted notion of the wide variety of career directions that face them within the field of landscape architecture. This class proposes that the principal role of the landscape designer and planner is to make "place"; - a combination of physical, cultural and compositional cues that imbue built and natural forms with meaning. The goal of this first-year seminar class is for students to understand the type, or types, of place that landscape can be. The course introduces students to concepts of landscape as place, and asks them to ponder, explore, and respond to ideas about various perspectives on landscape "place"; This introduces them to the broad range of issues and activities that are addressed in the seemingly simple term, landscape architecture. Course Objectives: a) To become familiar with important issues in contemporary landscape architecture. b) To exercise and hone skills in critical thinking. c) To exercise and hone skills in speaking and writing persuasively. d) To begin to explore roles as future place makers.

First-Year Seminar

LARCH 145: Ecology and Plants I

3 Credits

LARCH 145 introduces students to plants, their ecological context, threats to ecosystems and the various roles that landscape architects play in the design of healthy ecosystems. Plants are central to landscape architecture. On the one hand, plants are one of the primary form-giving components in the landscape architects' palette. At the same time, plants occupy a central place in the ecosystems with which landscape architects interact on all scales of intervention in the landscape. The course is divided into two parts. The first introduces the concepts of plant communities and ecosystems through lectures while providing an introduction to identifying specific native and ornamental, woody and herbaceous plants through field observation - most within their ecological context. The second part of the course consists of lectures introducing the essential roles that landscape architects play as they interact with ecosystems in the landscape at a variety of scales. Here, students are introduced to ecosystem disturbance, the water cycle, issues related to water in the urban landscape, restoration ecology, ecological restoration, and landscape ecology. Finally, students are presented with a series of case studies that demonstrate how landscape architects, with allied

professionals, work to apply ecological principles in build design projects. Knowledge gained in LARCH 145 will be applied throughout the remainder of the landscape architecture curriculum.

LARCH 155: Skills Lab I: Hand & Digital Graphics

2 Credits

Landscape Architecture Skills Lab 1 is the skills lab that runs concurrently with the first design studio in the undergraduate Landscape Architecture curriculum. This skills lab introduces students to the fundamentals of visual communication in landscape architecture with a primary focus on 2D and 3D raster and vector drawing. Spatial design composition is developed through experiencing a variety of approaches to visual communication. Students explore design ideas through sketching in plan, section and perspective and by modeling their ideas in three dimensions. Students are introduced to skills from hand drawing to digital visualization techniques, as well as board and page layouts and effective implementation of photographs in design communication.

Enforced Corequisite at Enrollment: LARCH 115

LARCH 156: Skills Lab II: Hand & Digital Graphics

2 Credits

Landscape Architecture Skills Lab 2 is the skills lab that runs concurrently with the second design studio in the undergraduate Landscape Architecture curriculum. This skills lab will develop students at the intermediate level of visual communication in landscape architecture with a primary focus on 2D and 3D raster and vector drawing. Spatial design composition is developed through experiencing a variety of approaches to visual communication. Students explore design ideas through sketching in plan, section and perspective and by modeling their ideas in three dimensions.

Enforced Prerequisite at Enrollment: Students must earn a C or better in LARCH 155 and LARCH 115 Concurrent at Enrollment: LARCH 116

LARCH 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

LARCH 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

LARCH 215: Design III: Site Design

4 Credits

Landscape Architecture Studio 3 - the third design studio in the undergraduate Landscape Architecture curriculum - follows LARCH 116 (Spatial Design) and further explores site design through expanded complexity of site and program. Students are presented with design projects that include more extensive and complex programs and a broader range of site scales, existing conditions and contexts. Projects also expand the extent and complexity of pedestrian and vehicular circulation. These expanded site and program considerations require students to consider a broader range of design responses while building

skill in site design. Throughout the semester, students will continue to develop skills in graphic representation and visualization to explore design ideas and develop presentation graphics. Students are expected to draw upon visualization skills developed in the concurrent LARCH 255.

Enforced Prerequisite at Enrollment: Students must earn a C or better in LARCH 116 and LARCH 156 Concurrent at Enrollment: LARCH 255

LARCH 216: Design IV: Expanded Use, Scale, and Context

4 Credits

Landscape Architecture Studio 4 - the fourth studio in the undergraduate Landscape Architecture curriculum - follows LARCH 215 and introduces students to the broader perspective of landscapes as expressions of cultural and natural processes. Theories, methods, and tools for effectively studying and analyzing larger scale landscapes will be explored through readings and studio assignments. Students will be presented with landscapes in different geographic contexts and develop skills in conducting landscape research and analysis and using appropriate tools and techniques for effectively exploring alternative land use scenarios. In support of the expanded complexity of working at a larger scale, students are expected to draw upon their knowledge of ecology and ecosystems from previous coursework (LArch 145 and 245). Students will also draw upon precedent studies they may have conducted in landscape architecture history (LArch 060) and previous design studio courses. Students enrolled in LArch 216 will be concurrently enrolled in the associated skills course (LArch 256) that will develop their knowledge and skills with the tools of landscape planning, specifically geographic information systems (GIS). In addition, students will continue to develop skills in graphic representation and written and oral communication as a means to disseminate their planning and design proposals for review and discussion.

Enforced Prerequisite at Enrollment: Students must earn a C or better in LARCH 145 and LARCH 215 and LARCH 255 Concurrent at Enrollment: LARCH 256

LARCH 221: Design Theory Seminar

1 Credits

Inquiry-based reading and discussion of design theory literature relevant to the focus and content of LARCH 211. LARCH 221 Design Theory Seminar (1) Each of the four design studios that constitute the core of the professional curriculum has a companion seminar that provides the vehicle for structured exploration of the theoretical and philosophical framework within which we design and plan. The seminar is a small group setting where directed readings, independent research and reflection are employed to explore the context of contemporary design. LARCH 221 is the first of a four-class sequence of design seminars. LARCH 221 is focused on landscape architectural design. Landscape architectural principles and issues are introduced through studies of design precedents, corollary readings in the sociological, psychological and cultural contexts of design and small-group discussions - the latter frequently related to topics under investigation in the companion studio, LARCH 211. As the curriculum progresses, the issues explored become increasingly complex and build upon prior seminars. The second-year theory seminar content is introductory in nature. The fall semester (LARCH 221) covers introductory writings addressing the broadset principles of landscape design processes, discussions of fundamental ordering principles, and philosophical positions on the interrelationships of landform, plants and structure. They introduce place-awareness through concepts such as genius loci, ordering principles

such as the golden section, and experiential responses to landscape from phenomenological viewpoints. Course Objectives:- To become familiar with important issues in contemporary landscape architecture.- To exercise and hone skills in critical thinking.- To exercise and hone skills in speaking and writing persuasively.- To begin to explore the issues that impinge upon and shape 'place.'

Enforced Prerequisite at Enrollment: LARCH 115 Enforced Concurrent at Enrollment: LARCH 116

LARCH 222: Design Theory Seminar

1 Credits

Inquiry-based reading and discussion of design theory literature relevant to the focus and content of LARCH 212. LARCH 222 Design Theory Seminar (1) LARCH 222 is the companion seminar to the design studio LARCH 212. The seminar is a small group setting where directed readings, independent research and reflection are employed to explore the context of contemporary design. Topics in LARCH 222 reflect the projects being explored in the companion studio but, in general, move beyond exploration of basic design concepts to include an emphasis on both natural and cultural elements of place and provides essential background to the processes and principles of site analysis in as much as those reflect the technological and cultural biases that are brought to design. Landscape architectural principles and issues relevant to the design topics being pursued in LARCH 212 are introduced through studies of design precedents, corollary readings in the sociological, psychological, and cultural contexts of design and small-group discussions - the latter frequently related to topics under investigation in the companion studio, LARCH 212. As the curriculum progresses, the issues explored become increasingly complex and build upon prior seminars. The second-year theory seminar content is introductory in nature. The spring semester (LARCH 222) continues to cover introductory writings addressing the broadset principles of landscape design processes, discussions of fundamental ordering principles, and philosophical positions on the interrelationships of landform, plants and structure - increasingly in the context of the design types being explored in LARCH 212. They introduce place-awareness through concepts derived from sociology, social psychology and cultural anthropology. Course Objectives: - To increase familiarity with important issues in contemporary landscape architecture. - To continue to develop skills in critical thinking. - To continue to build skills in speaking and writing persuasively. - To bring focused attention to the issues that impact the design of small, private and public spaces.

Enforced Prerequisite at Enrollment: LARCH 116 and LARCH 221 Enforced Concurrent at Enrollment: LARCH 212

LARCH 235: Design Implementation I: Grading

3 Credits

Introduction of basic principles and tools supporting landform data, site systems, grading, visualization representation and site circulation. LARCH 235 Design Implementation I: Grading (2) As an introductory design implementation course, this course provides the foundation for site design in landscape architecture. At the core of the course are four general bodies of knowledge: Geometrics, Landform Manipulation, Site Systems, and Computer Applications for Site Analysis and Design. Geometrics: In order to perform landform manipulation, students must be able to efficiently acquire and process basic physical information about a site and are required to understand a suite of measurements. This course will first provide an overview of the digital

and paper data sources available to landscape architects. Students will develop basic skills in manipulating or processing these data in order to comply with the requirements of site design. The course will also provide the basic measurements and formulae required for students to efficiently and accurately manipulate landforms. **Landform Manipulation:** One of the most critical skills landscape architects must acquire as designers is the ability to design landforms to accommodate changes in use and to translate their design ideas into dimensionally precise topographic representations of their designs. This course provides the basic knowledge for students to complete this process. Beginning with a single site element, students are expected to explore the suite of opportunities to place and modify a site to fit a single site element. Increased complexity is added to the suite throughout the remaining portions of the semester, thus enabling students to balance the opportunities and constraints presented by each individual design element and the overall site design. **Site Systems:** Building on ecological components of the curriculum, this course provides the first site specific and physical understanding of basic site systems critical to every landscape architect's design. Students will primarily focus on the major site features as related to site drainage, such as soil, topography, and surface geology, but will also be expected to recognize regional context in their designs. **Computer Applications for Site Analysis and Design:** A central component underlying the instruction of the course is providing students with a suite of computer tools. **Course objectives:** a) To assist in initial efforts in acquiring and processing site data; b) To perform calculations such as cut and fill, spot elevations, and slope calculations; c) To visualize and complete basic manipulation of landforms; d) To understand the interaction of physical site features on individual sites (e.g., soil and topography); and e) To communicate their final site designs according to professional standards

Enforced Prerequisite at Enrollment: Students must earn a C or better in LARCH 116 and LARCH 156 Concurrent at Enrollment: LARCH 215 and LARCH 255

LARCH 236: Design Implementation II: Materials

3 Credits

The landscape architect calls upon a rich array of materials to construct the built elements of landscape: walls, ground surfaces, overhead structures and furniture systems. The functional success and durability of many historical and traditional construction methods is based on a learned appreciation of the qualities and behaviors of materials in use in the landscape. Students develop understanding of the fundamental structural qualities of materials and use that knowledge to devise and illustrate their own design details. The same understanding of material behaviors will be used to investigate the qualities of novel construction materials, and will guide the development of construction details that respond to new constraints and opportunities. The main focus of 236 will be on materials and construction detailing, with emphasis on techniques appropriate for an array of design situations. Representation of design ideas using computer-aided-drafting is expected in this class.

Enforced Prerequisite at Enrollment: Students must earn a C or better in LARCH 235 and LARCH 336

LARCH 245: Ecology & Plants II

3 Credits

This course applies knowledge gained in LARCH 145 by emphasizing planning and design based upon a systems approach to plants, soil and water. The course consists of lectures, campus walks, guest lectures and

one day-long field trip to a public garden. The lectures and campus walks focus upon the identification of native plants in the landscape. Guest lectures cover additional, related topics. Students learn about specific native plants and plant communities as the basis for ecological planting design in reference to the ways these plants adapt to local climate, soil and hydrologic regimes. The use of native plant communities in planting design as practiced in this course also promotes the conservation and restoration of biodiversity and the promotion of human wellbeing. It can minimize the use of fertilizer, irrigation, and costly maintenance regimes. Students are also introduced to landscapes that have been shaped by the interactions between people and their environment. The use of native plant communities can be part of the preservation and re-creation important vernacular and historic cultural landscapes. Native plant communities express the identity and beauty of place. A primary goal of the course is to develop students' understanding of the values and uses of native plant communities toward achieving sustainable solutions to the problems of environmental degradation, resource scarcity and global climate change. Course assignments are linked directly to this goal by providing students with experience in designing landscapes where natural processes can function effectively.

Enforced Prerequisite at Enrollment: Students must earn a C or better in LARCH 145

LARCH 246: Ridge & Valley in the Field

1 Credits

LARCH 242 Ridge & Valley Field Study explores the intrinsic links between landform, geophysical and biological processes, vegetation communities, and human manipulation of the landscape through time. It comprises a series of four one-day trips to select locations across our local Ridge & Valley landform region (Appalachian Mountain section), providing the opportunity to examine phenomena at the site level, particularly plants, soils, and landscape contexts. The field experience is immediately preceded by a few skills-building preparatory activities (e.g. workshop(s), test) to establish basic competencies and fore-knowledge. An essential tenet of the course is that layered and interconnected landscape systems learning is something all landscape architects should pursue in their region of practice. Every place possesses a particular relationship between the underlying geology, climate, hydrology, landform, soils, and the plants and animals that inhabit it. Understanding this relationship and learning how to analyze and interpret landscapes is important to all spatial design work-as a source of essential information and as a source of design inspiration. The Ridge & Valley region contains an especially clear, distinct and "readable" relationship between the geophysical and the biological-between the geological underpinnings and the plants and animals that inhabit the surface. This makes the Ridge & Valley an outstanding context to learn how to observe these important, sometimes subtle, relationships. Once students understand what to look for and how to observe a landscape, they can apply this method to any landscape in the world. The conditions change from place to place, but the method is transferable.

Enforced Prerequisite at Enrollment: Students must earn a C or better in LARCH 145

LARCH 255: Skills Lab III: Digital Graphics

2 Credits

Landscape Architecture Skills Lab 3 is the skills lab that runs concurrently with the third design studio in the undergraduate Landscape Architecture curriculum. This skills lab will develop students at the

advanced level of visual communication in landscape architecture with a primary focus on 2D and 3D raster and vector drawing. Spatial design composition is developed through experiencing a variety of approaches to visual communication. Students explore design ideas through sketching in plan, section and perspective and by modeling their ideas in three dimensions.

Enforced Prerequisite at Enrollment: Students must earn a C or better in LARCH 116 and LARCH 156 Concurrent at Enrollment: LARCH 215

LARCH 256: Skills Lab IV: GIS

2 Credits

Landscape Architecture Skills Lab 4 is the skills lab that runs concurrently with the fourth design studio in the undergraduate Landscape Architecture curriculum. This skills lab will introduce geographic information system (GIS) as a primary tool in regional analysis and planning. The students will learn to integrate GIS into a broadly-based approach to managing data, developing concepts, and communicating ideas.

Enforced Prerequisite at Enrollment: Students must earn a C or better in LARCH 215 and LARCH 255 Concurrent at Enrollment: LARCH 216

LARCH 276: Human Dimensions of Design: History & Theory

3 Credits

The human dimensions of placemaking must consider the types of places people populate. New to civilization, the 21st century has been characterized as the urban century. More people live in urban areas than in rural areas, and this trend is expected to continue especially in Asia and Africa. This course will primarily focus on examining social and cultural issues in landscape architecture and planning. The course will explore rural, urban, and extra-urban sites, the inclusivity and exclusivity of American spaces, and issues of gender and diversity of landscapes. The course will balance lectures, readings, and student presentations. Students will be introduced to methods to identify socio-cultural issues in landscape design, planning, and placemaking.

Enforced Prerequisite at Enrollment: Students must earn a C or better in LARCH 60

LARCH 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

LARCH 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

LARCH 315: Design V: Expanded Use, Scale, and Context

4 Credits

Landscape Architecture Design Studio V - the fifth design studio in the undergraduate Landscape Architecture curriculum - follows LARCH 216 and introduces community and spatial design that accommodates civic and public functions while addressing social and environmental

imperatives. It also expands on site design and program that creatively reconciles community-based (i.e. residential and/or public space) agendas. In support of focused explorations of community-oriented design, students are expected to draw on their knowledge of regional and landscape systems from LARCH 216, as well as site design in LARCH 215. In designing public spaces that lie at the heart of thriving communities, students are also expected to draw on technical skills in grading, materials, and planting acquired the implementation sequence. Throughout the semester, students will continue to develop skills in graphic representation and visualization to explore design ideas and develop presentation graphics. Students are expected to draw upon visualization skills developed through the skills lab sequence.

Enforced Prerequisite at Enrollment: Students must earn a C or better in LARCH 216 and LARCH 256

LARCH 321: Design Theory Seminar

1 Credits

Inquiry-based reading and discussion of design theory literature relevant to the focus and content of LARCH 311. LARCH 321 Design Theory Seminar (1) LARCH 321 is the companion seminar to the design studio LARCH 311. The seminar is a small group setting where directed readings, independent research and reflection are employed to explore the context of contemporary design. Topics in LARCH 321 reflect the projects being explored in the companion studio. During the third year, theory references build upon the second-year experiences and expand to broader regional investigations. The fall semester (LARCH 311 and 321) covers regional context as a preamble to large-scale master planning in land-use issues. In the seminar, students read broadly about the genesis of regional context as a construct of cultural, as well as biophysical influences. The concept of 'reading' the landscape is fully explored, introducing students to the clues and cues by which the origins of the existing landscape can be discerned. Themes in the third-year theory seminars become increasingly sophisticated. The regional landscape is the setting for some of our most pressing public debates - landscape restoration vs. agro-industry; landscape as economic resource vs. spiritual renewal; landscape as repository of cultural history vs dynamic reflection of current values. These themes are explored through readings that include the fundamental influences of topography; geology; regional ecology and hydrology; the human overlays of land use; transportation; demographics; and the cultural influences and responses seen in landscape history, cultural and visual analysis, etc., are introduced. Course Objectives: - To explore the political and philosophical influences that shape the regional landscape. - To expose students to important debates on the future of the regional landscape. - To continue to develop the ability to engage in public debate of these issues. - To continue to build skills in speaking and writing persuasively.

Prerequisite: LARCH241 , LARCH212 , LARCH222; Concurrent: LARCH311

LARCH 322: Design Theory Seminar

1 Credits

Inquiry-based reading and discussion of design theory literature relevant to the focus and content of LARCH 312. LARCH 322 Design Theory Seminar (1) LARCH 322 is the companion seminar to the design studio LARCH 312. The seminar is a small group setting where directed readings, independent research and reflection are employed to explore the context of contemporary design. Topics in LARCH 322 reflect the projects being explored in the companion studio. During the third year, theory references build upon the second-year experiences and expand

to broader regional investigations. The spring semester (LARCH 312 and 322) covers site design issues within a regional context. In the seminar, students gain an understanding of communities and the complex of values that shape them, including the interrelationships of natural, cultural and economic factors on the future development of communities. Habitat management, watershed management, real-estate values, zoning and planning ordinances, individual and community rights are topics of discussions in this seminar. Students develop awareness that even small, individual site design requires an understanding of larger environmental and cultural contexts, and that success in planning at that large scale depends on implementation of wise planning at the site scale. Readings and discussion are supplemented by research and report writing that address contemporary debates on policy and planning. LARCH 322 also provides a setting for joining ideas presented in the context of both small-scale and large-scale design to engender in students a comprehensive view of the world of landscape design as an integrated whole where concepts developed at small scale become the framework and guiding principles for larger scale, vice versa. Course Objectives: - To explore students' values as they shape the designed landscape. - To expose students to important debates on the future shape of the inhabited landscape. - To continue to develop the ability to engage in public debate of these issues. - To continue to build skills in speaking and writing persuasively.

Prerequisite: LARCH311 , LARCH321; **Concurrent:** LARCH312

LARCH 335: Design Implementation III: Planting Methods

3 Credits

The third of four courses in the landscape architecture implementation sequence, this course addresses the applied principles, tools and techniques of planting design implementation, with a focus on landscape planting methods and technically proficient documentation. It relies on students having achieved foundational planting design knowledge and abilities in prior design studios and prerequisite courses. Proceeding briskly through site and contextual analysis and conceptual design, we will concentrate on methodical design development, investigation of planting implementation and management methods, and preparation of planting contract documentation. Upon completion of the course, students will have achieved proficiency in planting design implementation as integral to the overall design process and vital to realizing goals for landscape performance, aesthetics, site functionality, and broader social and environmental values.

Enforced Prerequisite at Enrollment: Students must earn a C or better in LARCH 216 and LARCH 235 and LARCH 256

LARCH 336: Design Implementation IV: Stormwater

3 Credits

This course is the fourth of four studio courses in the implementation sequence, all of which focus upon the more technical aspects of landscape architectural practice. By means of lectures, studio problems, assigned readings, and computer courseware, LArch 336 will present the principles and techniques of: Advanced Landform Design and Site Grading- integration of landform and structure through iterative grading design process; water flow and surface drainage. Site Systems and Stewardship - soil, water, and vegetation interactions and ecology; site protection; site systems management; environmental responsibilities and stewardship. Hydrology and Stormwater Management - basic site hydrology; overview of hydrology and stormwater management concepts, infiltration; surface runoff calculations, surface and subsurface drainage

systems design. Production of technical drawings using computer-aided-drafting is expected in this class.

Enforced Prerequisite at Enrollment: Students must earn a C or better in LARCH 235

LARCH 365W: Contemporary Trends in Landscape Architecture

3 Credits

LARCH 365(W), Contemporary Trends, is a writing-intensive course that enables a more thorough investigation of social, environmental and cultural issues as they relate to design. The course is grounded in three basic concepts: RESEARCH, COMMUNICATION, and theoretical CONTEXT within the discipline of landscape architecture, past and present. The course develops the skills of critical thinking and writing as pertains to contemporary issues in landscape architecture, with an understanding of precedent and evolution of design theory. The goal of this course is to introduce students to a variety of ways that contemporary landscape architects address and use these issues in their work, and to develop their skills in critical thinking, the art of critique, and communicating ideas in both verbal and written methods. The course is devoted to a wide range of relevant issues and topics confronting the profession and discipline of landscape architecture in the 21st century. It investigates the modern designed landscape as a distinct mode of cultural production-with its own materials, medium, codes, ethics, and concerns-in the context of landscape architectural theory's interconnection to evolving societal constructions of nature, social issues, environmentalism, and the city. It begins with the emergence of a modern sensibility about landscape in the late 19th century and tracks developments through modernism, postmodernism, and beyond. Information dissemination will be by lectures, readings, student research in the form of monographs and critique of built work.

Enforced Prerequisite at Enrollment: LARCH 60 Writing Across the Curriculum

LARCH 375: Human Dimensions of Design - Applied

3 Credits

Within the practice of landscape architecture, it is critical for designers to consider and integrate the human dimensions of place. Students will continue to learn to identify human dimensional issues and better understand the context of socio-cultural, sometimes controversial or emotionally charged issues in the landscape. This course will focus upon the practice of solving such issues in a contemporary context. The course will explore a variety of tools and strategies for problem solving in human dimensions of design and will teach the students that there are multiple approaches to understanding and solving complex design problems. The students will integrate theory and apply methods as they work through a series of different problems that allow them to apply design thinking to complicated socio-cultural issues. Through a series of exercises and participatory engagements, students will practice making decisions that affect community change through the perspective of design.

Enforced Prerequisite at Enrollment: LARCH 276

LARCH 386: Professional Practice

3 Credits

An investigation of current professional and business practices in the field of landscape architecture. For Landscape Architecture majors only.

LARCH 386 Professional Practice (3) LARCH 386 has a three-part role. It comprises an introduction to the variety of practice opportunities in landscape architecture, their opportunities and drawbacks; it provides an introduction to critical office management practices; and it assists students in the employment application process through coaching on interview technique and guidance on the preparation of supporting material. It is the overarching intent of this course to help students understand what it will mean to be a professional practicing a constantly changing marketplace of ideas. Topics covered include ethics, public relations, office and project-related practices, personal and professional development, and legal aspects of practice: contracts, specifications, liability insurance. Through active participation in the course, students will come to realize the diversity inherent in the profession. Course objectives: - To introduce a range of practice types, including: small, private practice, large-scale corporate practice, federal and state agencies, not-for-profit organizations, and other non-governmental organizations; - To discuss relations with other professionals, including the formation of teams and other strategic alliances, and negotiation of professional fees; - To outline and illustrate the various roles and responsibilities individuals might have both in and outside of an office, including situations of personal vs corporate responsibility; and - To investigate the inherent values or point of view of principals and others that effect how decisions are made and change occurs.

Enforced Prerequisite at Enrollment: Students must earn a C or better in LARCH 315

LARCH 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

LARCH 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

LARCH 405N: Bicycling Culture and Urban Design

3 Credits

KINES 405N, a study abroad course, based in a bicycle friendly European city, provides students with an opportunity to experience the programs, policies, infrastructure (including urban design features) and culture associated with bicycling in what is one of the most bike-friendly cities in the world. Students will have an opportunity to be immersed in the city's bicycle culture, observe bicycle infrastructure and multi-modal transportation solutions, learn from programs and policies that support bicycling and learn about the role of bicycling in sustainable, liveable communities. This course will be taught from a multi-disciplinary perspective to address the complex issues associated with bicycling. Students are expected to apply information and content to other countries and communities.

Enforced Prerequisite at Enrollment: KINES 100 or LARCH 125 or [5th Semester standing and (3 credits of CAS or 3 credits of ENGL)]

Cross-listed with: KINES 405N

International Cultures (IL)

General Education: Arts (GA)

General Education: Health and Wellness (GHW)

General Education - Integrative: Interdomain

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

LARCH 414: Design and Theory V: Advanced Landscape Architectural Design

5-15 Credits/Maximum of 15

Review of landscape architectural theories and issues; supports development of comprehensive design study and/or independent honors (Thesis-Based) design projects. LARCH Majors only. LARCH 414 Design and Theory V: Advanced Landscape Architectural Design (5-15) Fourth- and fifth-year design studios are designated 'depth' studios. Each studio is aligned with one of the department's associated research centers or pursues special topical content and continues the development of site-scale planning and design skills for landscape architecture students with larger and more complex sites and programs. Students select a topic from the range of options. Students may choose to take a given topic on a maximum of two occasions. Topics are related to issues that have been introduced in previous studios and are as varied as possible from studio to studio. This allows students to select a topic of interest to explore with great intensity and detail. The studio alternatives offered each year are based on faculty expertise and student interest, and are chosen by the department head's review of faculty proposals. To date, studio topics have ranged from historic preservation to recreational landscapes, urban ecology to community planning. The type of project is determined on an individual basis, and will be rigorous and require a high level of depth of thought and a sophisticated product. Project types include regional master planning, large-scale site planning and medium-scale community/housing design. The design issues emphasize urban form, community identity and open-space systems in the United States as a follow-up to urban patterns experienced during the student's previous study abroad. The project types may include such topics as inner-city locations with mixed-use and complex programs that progress from research and planning to site-scale design. Often, students work with an actual client, such as an urban planning commission or a city economic development entity, etc. Issues of urban form as a setting for significant practice opportunities are emphasized. Locations such as brown fields, urban entertainment districts, waterfronts, housing infill, etc., form the basis for design response in context. Course Objectives: -To develop an in-depth understanding of one or another aspect of landscape architecture. -To be exposed to the rigor and challenges of developing and implementing one's own design expertise in the context of a specific environmental concern. -To exercise the design principles, technological tools and communication strategies developed during the course of the specific design studios.

Enforced Prerequisite at Enrollment: Students must earn a C or better in LARCH 235 and LARCH 315 and LARCH 335

LARCH 424: Design Theory Seminar

3 Credits/Maximum of 9

Inquiry-based reading and discussion of design theory literature relevant to contemporary landscape architecture issues. Topics vary each semester. LARCH 424 Design Theory Seminar (1-3) LARCH 424, Design Theory Seminar, is a companion to the depth studios, LARCH 414. However, unlike the seminars offered during second and third years, LARCH 424 is not tied topically to any particular depth studio. Instead, this seminar provides a vehicle for rigorous and structured exploration of

the theoretical and philosophical issues that face landscape architectural designers and planners. The seminar is a small group setting where directed readings, independent research and reflection are employed to explore the context of contemporary design. These seminars, offered to fourth- and fifth-year students, enable professors and students to take their investigations to greater depth. Seminars are offered by different professors each semester and the content is expected to be somewhat aligned with the faculty member's research and scholarship or pursues special landscape architectural topical content of the faculty's choosing. Students select seminars from the range of options offered. This allows students to select a topic of interest to explore with great intensity and detail. Students are required to take up to three seminars to achieve a minimum of three credits. Topics are related to issues that have been introduced in previous studios and seminars and the department ensures that students have access to the widest range of topics. The seminar alternatives offered each year are based on faculty expertise and student interest, and are chosen by the department head's review of faculty proposals. Seminar topics related to our research centers include historic preservation, urban ecology, community planning and watershed stewardship. From time to time topics independent of our research centers, such as the impact of technology on design or the impact of public policy on design and planning, will be addressed. The type of seminar outcome is determined by instructors on an individual basis, and will be rigorous and require a high level of depth of thought and a sophisticated product. Course Objectives: • To further develop an in-depth understanding of the theoretical or socio-political context for one or another aspect of landscape architecture. -To challenge students to articulate their own values in the context of a specific environmental concern. -To examine the means by which designers reconcile their own, their clients', and society's values in the pursuit of particular design or planning goals.

Enforced Prerequisite at Enrollment: Students must earn a C or better in LARCH 365W

LARCH 450: Geodesign: Geospatial Technology for Design

3 Credits

Interactive geodesign and digital design studio. LARCH 450 Geodesign: Geospatial Technology for Design (3) This course addresses the role of continually evolving information technologies in landscape architectural research and practice by reference to long legacy of theoretical contributions from the field that have sought to reconcile and benefit from integrating the sciences of society and environment with art, design, and planning. This interactive digital design course is an advanced geodesign methods and principles class that applies digital tools to landscape research, modeling, analysis and design. This course presents a digital process for analyzing, managing, and ultimately designing landscape systems by allowing students to inventory, analyze and evaluate complex spatial datasets. Students will learn to critically evaluate and implement the interplay between various factors and design alternative futures. Lectures will introduce key geodesign principles and techniques. The goal is to investigate an array of geospatial software as a powerful design tool in a broad and integrated manner for all the activities of the landscape architect, designer, planner and architect. Using a variety of geospatial and digital tools, students will develop a process to study, analyze, and plan landscape systems. They will utilize activities from each lesson to develop primary and alternative strategies for their proposed project. The problem-based approach used by this course will encourage cross-cultural contexts for student projects. Geospatial design computing technology enables many alternate approaches to problem-solving, so that students will customize

their own learning experiences within the concrete structure of the course. This course brings advanced geospatial and digital analysis and evaluation into the design process, where concepts and ideas are vetted for suitability against a wide array of physical and social, place-based information. This on-the-fly suitability analysis provides a framework for design, giving landscape architects, architects, land-use planners, and others involved with design the tools to directly leverage geospatial information within their design workflows.

LARCH 494: Research Projects - Honors

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Honors

LARCH 495: Internship

1-13 Credits/Maximum of 13

Supervised off-campus, non-group instruction including individual field experiences, practicums or internships. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: Prior approval of proposed assignment by instructor

LARCH 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

LARCH 496H: Independent Studies - Honors

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Honors

LARCH 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

LARCH 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

LARCH 499A: Design Theory Seminar

1 Credits

Inquiry-based reading and discussion of design theory literature relevant to the focus and content of the associated design studio course, LARCH 499B. LARCH majors only.

Prerequisite: LARCH361W; Concurrent: LARCH499B, LARCH499C, LARCH499D

International Cultures (IL)

LARCH 499B: Design and Theory VI: Contemporary/International Landscape Architectural Design Issues

5 Credits

Study of and design for sites, programs, and social groups associated with ongoing contemporary landscape architectural concerns. LARCH majors only.

Prerequisite: LARCH312, LARCH361W; Concurrent: LARCH499A, LARCH499C, LARCH499D

International Cultures (IL)

LARCH 499D: Contemporary/International Special Topics

3 Credits

Special topics related to, and study in conjunction with 499B. Landscape Architecture majors only.

Prerequisite: LARCH361W; Concurrent: LARCH499B

International Cultures (IL)

Language and Literacy Education (LLED)

LLED 5: College Reading Improvement I

3 Credits

Improvement of basic reading skills: vocabulary development; literal and interpretative comprehension; application of these skills more efficiently to college work.

LLED 10: College Reading Improvement II

3 Credits

Development of higher level comprehension, vocabulary, and study skills incorporated into content area reading.

LLED 215N: Children's Picture Books as Multimodal Texts

3 Credits

Children's picture books are often described as fundamental in nurturing the development of young children into engaged readers and fearless writers. Many adults have a special place in their hearts for picture books they loved as children; books they read over and over again, books that spoke to their hearts and minds, and books that helped them figure out the mystery of written language. In this inter-domain course, we will take a close look at children's picture books and explore their magic through integrating humanities and the arts. We will read many, many books of different genres to examine how the written text and illustration work together to compose a work of art that we read, understand, enjoy and connect to. We will explore the criteria by which we judge the literary and artistic quality of picture books and will become acquainted with resources that can help us find exceptional books. We will also consider the significance of children's literature representing diverse perspectives and will work to deconstruct the values and biases implicit in texts written for young children. Much of the course will be organized in a

workshop format through which we will learn about the authoring and illustrating techniques and processes used by notable authors and illustrators of modern children's picture books, while also experimenting with the same techniques through drafting and developing our own picture books. Our end goal will be to thoughtfully weave linguistic and visual composition elements to craft original multimodal texts for children.

General Education: Arts (GA)

General Education: Humanities (GH)

General Education - Integrative: Interdomain

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

LLED 227: Understanding Childhood through Children's Literature: Books, Media, Toys

3 Credits

This course is transdisciplinary in nature, looking at the multiple ways children's cultures are constructed in contemporary and canonical literature for children, transmitted through films, games, and toys. It blends approaches that consider art, history, politics, popular culture, and technology, as bases of inquiry into children's cultures and childhood. It also considers other classic and contemporary texts for young people. The course opens with students' initial understanding of childhood in their unique cultural spaces and settings. It then proceeds to discuss the dominant perceptions of childhood and their possible implications for how society considers the roles of children and their cultures. It recommends critical multiculturalism as a possible theoretical lens to examine how creators of children's texts construct and imagine children, children's cultures and/or childhood. The course also offers a brief history of children's literature. The last half of the semester explores other texts side-by-side children's books from various cultures to enable students to ponder myriad childhood and children's cultures under exploration in the different texts. What patterns do they notice? How might this enable them to further understand the complex nature of children's cultures? Course assignments include designing an artifact that is representative of an aspect of children's culture from course materials.

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

LLED 235: Chinese Culture in Child Lit

3 Credits

Children's literature reveals how a culture imagines itself and offers a window into other cultures for young readers. What a child reads and what is read to the child shows the values the child's nation holds dearly. However, in this rapidly changing world, national culture is fluid, ever changing and mixing with other cultures. Being a global citizen and a potential educator for children requires some level of familiarity with a diverse array of cultures. This course will introduce you to traditional Chinese culture and explore its representations in western children's literature. The class will first delve into the works of Confucianism, Taoism, and Buddhism adapted for children. You will study the impact

of these intellectual schools in Chinese society and develop a broad and coherent understanding of Chinese cultural values. From there, the class will examine western children's literature, focusing on voices that echo with or differ from Chinese culture. For example, Ursula K Le Guinn, author of the Earthsea fantasy series, claims that her work was inspired by the Taoist ideas of balance and equilibrium. Other western authors may not claim as fans of Chinese thinking, however, their works clearly echo with Chinese values and thus have been received by Chinese parents and children warmly. For instance, Winnie-the-Pooh is a model of a western Taoist, as observed by Benjamin Hoof, the author of The Dao of Pooh, for Pooh's simplicity and non-action. The spider in Charlotte's Web exemplifies the Confucian ideal of being faithful to friends. The Little Prince plays the mystery of Buddhist nirvana. Some western ideas may seem strange in traditional China such as the idea of the Savior. However, this idea has now become well-known through Aslan the Lion created by C. S. Lewis in The Lion, the Witch and the Wardrobe. Since the early 20th century, western literature has quietly entered and enriched Chinese culture. By expanding your knowledge of traditional Chinese values, you will develop new perspectives to western children's literature. In the second half of the semester, you will write and illustrate a picture book embedded with your understanding of Chinese culture. You will design a curriculum appropriate for a preschool or early elementary classroom. Doing so, you learn how to help children appreciate different cultures, enhance their critical thinking through literature, and become aware of the connectedness among humans across the world.

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

LLED 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

LLED 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

LLED 400: Teaching Literacy in Early Childhood

3 Credits

Principles, problems, materials, and techniques involved in the development of speaking, listening, writing, and reading in early childhood in homes, schools, and communities. This course is intended to help teacher candidates become knowledgeable users of theory and language about language, literacy and culture as related to young children and to think through instructional possibilities thoroughly, using multiple sources of information to experiment with and provide justification for chosen decisions. Focusing specifically on young learners' (PK - 1) literacy development, we center a culturally responsive understanding of literacy curriculum that recognizes and supports the interconnectedness of home, community and school environments in early literacy development. We understand young children engage texts that go beyond print texts to include multimodal visual, auditory,

digital, movement, and artifactual texts. In LLED 400, candidates learn to understand how young children develop as readers, writers, users, and generators of literacies in and out of school. Literacy teaching is both an intellectual and practical matter in which teachers work with students in ways that recognize the complexities of language and its social uses, the role of play, learning and its cultural contexts, and schooling as organizational phenomena. Young children enter schools with multiple types of literacy knowledge and cultural experiences. Coming to understand these complexities requires the coordination of both theoretical awareness and applied knowledge. Developing practical strategies to teach literacy requires a dedication of head, hand, and heart to treat all people with dignity, acknowledging the contributions of all cultural groups and respecting diversity as it honors ideals of social justice. In LLED 400, teacher candidates develop a repertoire of organizational, instructional, and evaluative strategies for understanding and supporting individual young children's literacy development that are both research- and practice-based. Candidates work on projects independently and in collaborative groups. Content is presented by the instructor through a combination of lectures, weekly readings and reflections on readings, class discussion, activities and demonstrations, and viewing and analyzing video. Projects include an analysis of young children's literacy development and curriculum planning for early learners. A field experience connected to the coursework taken in conjunction with LLED 400 affords teacher candidates the opportunity to inquire about children's literacy encounters. LLED 400 is part of a block of courses in a PSU teacher education program that is unified by the basic set of principles supporting the development of a broader and more inclusive and anti-racist driven understanding of texts, children, and communities.

Prerequisites: 4th Semester standing **Corequisites:** LLED 401, LLED 402, CI 460

LLED 400H: Teaching Reading in the Elementary School

3 Credits

Introduction to the reading program; acquaintance with materials and techniques; observations of reading instruction; correlation with human growth and development.

Honors

LLED 401: Teaching Literacy in Elementary School

3 Credits

Principles, problems, materials, and techniques involved in teaching speaking, listening, writing, and reading in the elementary school. LLED 401 Teaching Literacy in Elementary School (3) is intended to acquaint teacher candidates with theories and practices of teaching literacy in the elementary grades 2 - 4 and to think through instructional possibilities thoroughly, using multiple sources of information to experiment with and provide justification for choices made. We center an understanding that text goes beyond print texts to include multimodal visual, auditory, digital, movement, and artifactual texts. In LLED 401, candidates learn to understand how children in grades 2-4 develop as readers, writers, users, and generators of literacies in and out of school. Literacy teaching is both an intellectual and practical matter in which teachers work with students in ways that recognize the complexities of language and its social uses, learning and its cultural contexts, and schooling as organizational phenomena. Children enter schools with multiple types of literacy knowledge and cultural experiences. Coming to understand these complexities requires the coordination of both

theoretical awareness and applied knowledge. Developing practical strategies to teach literacy requires a dedication of head, hand, and heart to treat all people with dignity, acknowledging the contributions of all cultural groups and respecting diversity as it honors ideals of social justice. In LLED 401, teacher candidates develop a repertoire of organizational, instructional, and evaluative strategies for understanding and supporting individual children's literacy development that are both research- and practice-based. Candidates work on projects independently and in collaborative groups. Content is presented by the instructor through a combination of lectures, weekly readings and reflections on readings, class discussion, activities and demonstrations, and viewing and analyzing video. Projects include an analysis of children's literacy and curriculum planning for early learners. A field experience connected to the coursework taken in conjunction with LLED 401 affords teacher candidates the opportunity to inquire about children's literacy encounters. LLED 401 is part of a block of courses in a PSU teacher education program that is unified by the basic set of principles supporting the development of a broader and more inclusive and anti-racist driven understanding of texts, children, and communities.

Prerequisites: 4th Semester standing

LLED 402: Teaching Children's Literature

3 Credits

The purpose of LLED 402 is to familiarize teacher candidates with different theories and practices of teaching literature. Candidates are immersed in the study and experiences of literature and strategic models of literature instruction. Understanding that belief systems inadvertently determine the models of literature instruction educators adopt. LLED 402 asks candidates to be mindful of the diverse nature of our communities, and encourages them to strive to create literary communities that respect, value, and encourage multiple modes of expressions. The basic course goals are to help candidates to understand the importance of story in all human lives; to exhibit a wide repertoire of flexible strategies for interpreting literature; to understand socio-cultural influences upon writing and literature; to know and be able to use basic reference tools and selection guides for research; to become familiar with different genres, diverse texts, and styles; to read for sequence and for secrets; to articulate responses to literature across a variety of media; to weave into the exploration of each of these goals a struggle to understand and to accept human difference; and to understand the role that literature plays in the school curriculum. The course presents theories of teaching literature and models of literature instruction that place at the center socio-cultural practices typical of democratic literary communities. This requires knowledge of how literature and texts work in real life and in a variety of social and cultural contexts. Informed by research, standards and current practices, LLED 402 exhibits the power of literature, the complexities of students' learning and experiences with texts, and the problem solving character of teaching.

Prerequisite: 4th Semester Standing

LLED 411: Teaching Language Arts In Secondary Schools I

3 Credits

Exploration of language, literacy, and culture and development of curricular designs for teaching language arts in secondary schools. LL ED 411 is designed to provide pre-service secondary English and communications teachers with the foundational experiences for inquiry into the relationships between language, literacy, and culture. Participants reflect upon personal experiences with language and

school, examine secondary education perspectives in pedagogical and philosophical terms, build supportive relationships with colleagues to develop the best curricular and instructional decisions, explore the social, psychological, political, and economic aspects of language use and literacy practices in a country with diverse cultures, explore the construction of meaning and knowledge by the use of language and other symbolic systems of representing and sharing experience. A strong emphasis is placed upon the teacher as collaborator, risk-taker, and researcher, who tries new ideas, documents the classroom experience that results, and shares reflections with colleagues to help construct the best understanding for teaching language arts in secondary schools. Course work involves extensive reading, the production of artifacts of a variety of types (written, performed, multi-media) such as journals, reviews, viewpoints, and original research, all done by both individuals and small groups to pursue the course objectives.

Prerequisites: 5th Semester standing Recommended Preparation: Entrance to SECED major or graduate certification program

LLED 412W: Teaching Language Arts in Secondary Schools II

3 Credits

Exploration of language, literacy, and culture and development of curricular designs for teaching language arts in secondary schools. LL ED 412W Teaching Language Arts in Secondary Schools II (3) This three-credit course addresses the theory, practice, and implications of teaching the English language arts at the secondary level. The course is the discipline-specific component of the Secondary Education block taken by majors in Secondary Education prior to student teaching. In this course, students explore issues in language, literacy, and culture and development of curricular designs for teaching language arts in secondary schools. Through in-class and out-of-class activities completed both independently and in collaboration, students read about, talk about, and practice teaching all of the language arts-reading, writing, speaking, listening, and thinking. Activities highlight ways of planning for instruction and ways of assessing student learning as teachers implement those plans. In addition, students will take up the professional issues facing beginning teachers of the English language arts-issues of professionalism and the teaching role, relationships with students, and how teaching can fit into a life. The course builds upon content developed in other courses in the major, including theories of reading, composition, media literacy, and pedagogy. Students engage in a variety of writing tasks both in support of developing course content and as a means of making their work public. This writing includes (but is not limited to) lesson planning, reflective writing on experiences both in the course and in related field experience, and the development of a professional portfolio. During class sessions, informal writing is used for a variety of purposes such as brainstorming, facilitating collaborative work, or framing discussion. Throughout the semester, students draft and receive feedback on a variety of portfolio components, which are revised and incorporated into a final version of the portfolio due at the end of the course. Portfolio contents vary according to instructor, but examples might include statements of educational philosophy, analysis of student writing from field experience, commentary on unit and lesson materials, reflective writing on reading and writing processes, and professional documents such as lesson plans and letters to mentors and potential employers.

Prerequisite: LL ED411 or LL ED400; Concurrent: C I 412W Writing Across the Curriculum

LLED 420: Teaching Adolescent Literature and Literacy

3 Credits

Exploration of adolescent literacy and curricular designs for teaching adolescent literature and literacy in secondary schools. LLED 420 is designed to provide the personal experiences and inquiry with adolescent literature and literacy patterns essential for pre-service teachers. Participants reflect upon personal experiences with adolescent literature, examine critical education perspectives in pedagogical and philosophical terms, build supportive relationships with colleagues to develop the best curricular and instructional decisions, explore the literary character of adolescent literature, the representation of cultural diversity in the voices of adolescent literature, and the curricular design of experiences with adolescent literature in secondary schools. A strong emphasis is placed upon the teacher as collaborator, risk-taker, and researcher, who tries new ideas, documents the classroom experience that results, and shares reflections with colleagues to help construct a better understanding of using adolescent literature in secondary schools. Course work involves extensive reading, written documents of a variety of types (journals, reviews, reports, original research) done by individuals and small groups to pursue the course objectives.

Prerequisites: 5th Semester standing Recommended Preparation: Entrance for SECED major or graduate level certification pathway.

LLED 421: Teaching Writing in Secondary Schools

3 Credits

This course will provide preparation for teaching writing in the secondary school context. Students completing this course will meet the following objectives: -Understand one's own history as a writer and as a student in relation to the student's current and future practice in the teaching of writing -Articulate principles of a process approach to writing instruction and a workshop learning environment for writing, grounded in research and theory -Know and use strategies for supporting student writers as they work through writing processes -Differentiate writing instruction for students with varying backgrounds and needs -Access, evaluate, and use professional resources for writing instruction in ways that are consistent with principles grounded in research and theory Course content will include an orientation to writing processes, the social contexts of written genres, classroom environments for teaching writing, overcoming barriers to writing in adolescents, conferring and feedback, teaching the conventions of written English, and writing assessment. In addition, students in the course will engage in professional activities appropriate to a teacher of writing at the secondary level. To achieve these aims, students will engage in significant in-class and out-of-class writing activities. They will study examples of teaching practice and student writing from real secondary school classrooms. They will read and apply research on effective writing instruction. They will develop instructional plans and classroom resources for writing instruction. Finally, they will articulate stances for practice as teachers of writing as they begin their professional careers as teachers

Prerequisites: 5th Semester standing

LLED 422: Teaching the Young Adult Literature Workshop

3 Credits

This course is designed to familiarize students with the genre and field of young adult (YA) literature and to provide a rationale and basis for practice for teaching adolescent literature in English Language Arts (ELA)

courses utilizing a Reader's Workshop format. By the end of this course, students will be able to (a) Articulate a working definition of adolescent/YA literature; (b) Respond to a variety of YA literature texts individually and in a group to increase understanding, appreciation, and enjoyment of this literary genre; (c) Describe some of the trends and dominant concerns in the field of YA literature, including: multiculturalism, new/digital literacies, critical literacy, and censorship; (d) Choose YA texts appropriate for classroom use by gaining familiarity with a range of popular and/or award-winning YA literature titles; (e) Select YA texts that will stimulate interest, foster appreciation for the written word, and increase motivation of learners to read independently for pleasure and for personal growth; (e) Make and support claims about the use of YA lit in the ELA classroom; (f) Design lessons in the context of a reader's workshop approach; (g) Explore, evaluate, and select instructional materials and professional resources for teaching with YA literature; and (h) Demonstrate an awareness of culturally responsive literature teaching and an understanding of how cultural, linguistic, and ethnic diversity impact teaching and learning as these ideas connect to YA literature. This course engages essential questions in the teaching of young adult literature in the workshop format. First, it invites students to engage the question "What is young adult literature (YA literature) or adolescent literature?" This is particularly important as the YA category grows in quantity and importance. Second, students consider, "How can we use YA literature to teach for social justice and social responsibility?," a question resonant with Standard Six of the National Council of Teachers of English's Standards for the Preparation of Teachers of English Language Arts. Students will consider in depth the advantages and the challenges of using YA literature in secondary classrooms. They will learn promising practices in adolescent literacy and teaching young adult literature as well as methods and materials that teachers can use to maximize engagement for all students. Finally, students will engage the linked questions of "How can ELA teachers motivate students to read for pleasure and personal growth?" and "How do we humanize our YA literature teaching and teach for love, justice, joy, and wisdom?"

Prerequisites: LLED 420; LLED 520

LLED 445: Teaching English in Bilingual/Dialectal Education

3 Credits

Theories, techniques, materials for teaching English speaking, reading, and writing to bilingual and nonnative speakers in elementary and secondary schools.

LLED 450: Content Area Reading

3 Credits

Study of reading skills and materials for specific content areas; diagnostic and instructional procedures for classroom teachers. LLED 450 Content Area Reading (3) LLED 450 is designed to explore the roles of texts and literacies within the daily lives of middle school age students. We will examine both in-school and out-of-school literacy practices related to meaning-making in specific communities of practice. In doing so, we will work from a broader definition of "text" that includes print, images, sound, hybrid combinations and artifacts from popular culture. In school, we examine how literacies are involved in the learning of content, emphasizing how social practices of thinking in different ways about the world have been organized into school subjects and how teachers can help students to engage productively in those practices. Out of school, we look at the ways in which this age group uses text and other forms of literacy to make sense of and in their lives. Toward that end, we look closely at the media that they use and the types of texts

that are produced for and by them. Although we honor the traditional practices of academic disciplines, we recognize how new texts and tasks ford those boundaries in order to pose and address school and everyday problems. The basic goals of this course are to help teacher candidates to use language well and thoughtfully concerning literacy, text, and culture; and to think through instructional problems thoroughly, using multiple sources of information to experiment with alternative solutions. We also expect candidates to understand the roles that culture plays in literacy practices, texts, schooling and assessments of "ability"; to learn how people function effectively in groups; and to develop a repertoire of organizational, instructional, and assessment strategies. This course considers how intermediate grades and middle schools are communities of practice that connect disciplines through the use of language and texts to make sense of the world. The communities surrounding schools influence these uses, and this course follows the students' learning outside the classroom and schools as well as within.

Prerequisites: EDPSY 014; 6th Semester standing or Graduate Status or Non Degree Graduate Status

LLED 462: The Art of the Picturebook

3 Credits

The Art of the Picturebook explores a wide range of picturebooks with the idea that illustrations are visual art evoking thoughts and feelings. Because picturebooks provide aesthetic experiences and contribute to aesthetic development, they are rich and important sources for literacy education. This course provides opportunities to extend students' repertoire of strategies for making sense of picturebooks, to deepen knowledge about picturebooks and the artists who create them, and to consider ways to help children become more sophisticated readers of picturebooks. While picturebooks are often emphasized as integral to the literacy development of young children, they can be engaging and desirable for older children as well. Course topics include picturebooks for the very young, as well as picturebooks that could appeal to elementary and middle school children. Whether picturebooks appear relatively simple and straightforward or contain innovatively complex or metafictional design elements, close readings of them with an understanding of terminology offer opportunities to express and discuss reactions and interpretations. The Art of the Picturebook provides students a forum for exploring preferences, ideas, insights, and questions about selected picturebooks, along with curricular and pedagogical considerations. Course readings include interviews with illustrators, selections about creating picture compositions, and scholarly essays presenting theoretical perspectives and ideas about picturebooks as literature and art for children's literacy development. This course emphasizes that reading and interpreting picturebooks is an active, creative process that is socially, culturally, and historically situated. Authors and illustrators are influenced by culture, so their art reflects values of that culture, consciously or unconsciously. A reader's experience with a picturebook is also influenced by cultural and social contexts in a given moment. Because engaging in aesthetic experiences is an active, creative process, reading picturebooks is, as Jane Doonan (1993), author of *Looking at Pictures in Picture Books*, asserts, a form of play. The Art of the Picturebook approaches picturebooks as sources of deep play. The course also provides opportunities to research selected illustrators, both for class discussions and an illustrator study project (e.g., a Wiki page). The culminating illustrator study project involves an in-depth investigation of a key children's book illustrator and a process of sharing works-in-progress with classmates for collaborative editing.

Prerequisites: 5th Semester standing

LLED 464: Nonfiction Literature for Children and Adolescents

3 Credits/Maximum of 3

Nonfiction Literature for Children and Adolescents explores a wide range of nonfiction literature in a variety of subject areas including social studies, math, science, and the arts. This course takes the position that reading nonfiction literature can inspire curiosity and a life-long love of learning, shape inquiry, nourish empathy and compassion, and inform agency. Topics include nonfiction as literature, resources for locating nonfiction literature, nonfiction literature in different subject areas, nonfiction literature as a catalyst for inquiry, creative nonfiction and hybrid texts, biographies and autobiographies, and nonfiction literature for agency. This course also examines techniques of writing nonfiction literature to develop an understanding of strategies that published authors use to create engaging works to inform readers and provide pleasurable reading experiences. This understanding can help adults who work with children and adolescents recognize and identify the qualities that they find desirable for selecting and sharing nonfiction literature with children and youths, whether shared for reading or serving specifically as mentor texts for writing.

Prerequisites: 5th Semester standing

LLED 465: Fantasy Literature for Children

3 Credits

Fantasy Literature for Children explores a range of fantasy literature including literary fairy tales, toy fantasies, ghosts/horror/suspense, science fiction, reworked fairy tales, low fantasy, and high fantasy. This course will consider different rationalizations for fantasy literature and will examine some of the key stories that illustrate fantasy from different perspectives, such as literary, social, and psychological angles. This course will look at, first, the beginnings of modern fantasy with the fairy tales of Hans Christian Andersen and Carlo Collodi's classic, *Pinocchio*. Then the course reading will include ghosts and other supernatural fantasy stories, and "reworked" fairy tales, a current trend in fantasy literature. Despite of some scholarly debates on science fiction, that is, whether it should be categorized into fantasy or not, this course will consider science fiction as being similar enough to fantasy for it to be included. The course will also include a study of fantasy books currently popular with school-age readers. Fantasy can be divided into two main groups: low fantasy and high fantasy. Several of the stories to be read in the course are perhaps best categorized as low fantasies, not because of what they are, but because they are not high fantasy, which has a mythic quality to it. High fantasy seems to go beyond the particulars of its story to explore the nature of good and of evil. Though high fantasies can be humorous at times, the overall tone is serious. Often characters are on quests and the stakes of success or failure usually involve saving the world from some great evil or preventing the tyranny of some powerful and evil ruler. Reading the different types of fantasy literature and the literary critiques and analyses of those works, this course will be wrestling with the overall importance of those books in the lives of children by pondering imagination and its role in the lives of children.

Prerequisites: 5th Semester standing

LLED 467: Children's Literature in the Classroom

3 Credits

Study of the theory and practice of using children's literature in the elementary school classroom.

LLED 480: Media Literacy in the Classroom

3 Credits

Exploration of media languages and literacy in classrooms, learning in an electronic age; issues, ideas, and teaching strategies.

Concurrent: LL ED 411, LL ED 420

LLED 495: School Practicum in Reading

1-18 Credits/Maximum of 18

Supervised practicum providing field experiences at any grade level, with opportunities to assume various teaching roles.

Prerequisite: LL ED400

LLED 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

LLED 496H: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Honors

LLED 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

LLED 498: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Languages (Less Commonly Taught) (LANG)

LANG 51: Elementary Intensive Less Commonly Taught Language for Graduate Students I

3 Credits

Intensive introduction to a less commonly taught language: first half of elementary sequence in reading, writing, speaking, listening, cultural contexts.

Prerequisite: graduate standing

LANG 52: Elementary Intensive Less Commonly Taught Language for Graduate Students II

3 Credits

Intensive introduction to a less commonly taught language: second half of elementary sequence in reading, writing, speaking, listening, cultural contexts.

Prerequisite: LANG 051 and graduate standing

LANG 53: Intermediate Intensive Less Commonly Taught Language for Graduate Students

3 Credits

Continued intensive study of a less commonly taught language at the intermediate level: reading, writing, speaking, listening, cultural contexts.

Prerequisite: LANG 052 or equivalent and graduate standing

LANG 99: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

LANG 196: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

LANG 196A: Elementary Intensive Turkish I

4 Credits

Intensive introduction to Turkish: first half of elementary sequence in reading, writing, speaking, listening, cultural contexts.

LANG 196B: Elementary Intensive Turkish II

4 Credits

Intensive Introduction to Turkish: second half of elementary sequence in reading, writing, speaking, listening, cultural context.

LANG 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

LANG 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

LANG 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

LANG 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

LANG 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

LANG 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

LANG 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

LANG 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

LANG 499: Foreign Studies

1-12 Credits

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Latin (LATIN)**LATIN 1: Elementary Latin**

4 Credits

Pronunciation; inflections; simple rules of syntax.

Bachelor of Arts: World Language (All)

LATIN 2: Elementary Latin

4 Credits

Advanced syntax and sentence structure.

Bachelor of Arts: World Language (All)

LATIN 3: Intermediate Latin

4 Credits

Selected readings from representative authors.

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

LATIN 51: Elementary Intensive Latin for Graduate Students I

3 Credits

Intensive introduction to Latin: first half of graduate intensive sequence in elementary reading, writing, syntax, and cultural contexts. LATIN 051 Elementary Intensive Latin for Graduate Students I (3) This is the first in a series of three courses designed to give students an intensive introduction to Latin. This is the first half of elementary sequence in reading, writing, syntax, and cultural contexts. Students will learn the Latin alphabet, vocabulary, and will learn to create simple sentences. Lessons are taught in an authentic cultural context.

Prerequisite: graduate standing**LATIN 52: Elementary Intensive Latin for Graduate Students II**

3 Credits

Intensive introduction to Latin: second half of graduate intensive sequence in elementary reading, writing, syntax, and cultural contexts. LATIN 052 Elementary Intensive Latin for Graduate Students II (3) This is the second in a series of three courses designed to give students an intensive introduction to Latin. This is the second half of elementary sequence in reading, writing, syntax, and cultural contexts. Lessons are taught in an authentic cultural context.

LATIN 53: Intermediate Intensive Latin for Graduate Students

3 Credits

Continued intensive study of Latin at the intermediate level: reading, writing, syntax, and cultural contexts. LATIN 053 Intermediate Intensive Latin for Graduate Students (3) This is the third in a series of three courses designed to give students an intensive intermediate knowledge of Latin. This is an intensive sequence in reading, writing, syntax, and cultural contexts. Lessons are taught in an authentic cultural context.

LATIN 101: Introductory Latin

4 Credits

Introduction to Latin forms, syntax, and vocabulary. LATIN 101 Introductory Latin (4) The aim of LATIN 101 is to introduce students to the fundamentals of classical Latin as soon as possible. Classical Latin is the literary dialect spoken and written by Romans from the first century BCE to the second century CE. This is the language that the classical Roman authors wrote, poets such as Catullus, Virgil, Horace, Ovid, Lucan, and Seneca and prose writers such as Caesar, Sallust, Cicero, Livy, Petronius, Tacitus, and Suetonius. The purpose of the course is to teach students the morphology, syntax, and vocabulary of classical Latin and train them to read and translate simple and complex sentences. The course consists of short weekly presentations of new grammatical and lexical content, vocabulary to be memorized, drills to practice forms and concepts, exercises in reading sentences, homework assignments translating sentences from Latin into English and English into Latin, and regular quizzes and tests to ensure retention and comprehension of

material. The goal of the course in the first semester is for students to be able to read short passages of continuous prose based on classical Latin models. The course focuses on reading, translating, and writing rather than speaking, although students will be expected to be able to read Latin aloud with correct pronunciation. LATIN 101 prepares students for Latin 102, the second semester of Introductory Latin, which in turn prepares students to take a 400-level course in Latin.

LATIN 102: Advanced Latin

4 Credits

Advanced study of Latin grammar, syntax, and vocabulary. LATIN 102 Advanced Latin (4) LATIN 102 continues from LATIN 101. Students who have taken at least three years of high school Latin may qualify to enroll in the course if they have performed well on either a Latin A.P. exam (minimum grade of 3) or a placement exam set by the instructor. LATIN 102 pursues the advanced study of the forms of syntax of classical Latin, the literary dialect spoken and written by Romans from the first century BCE to the second century CE. This is the language that the classical Roman authors wrote, poets such as Catullus, Virgil, Horace, Ovid, Lucan, and Seneca and prose writers such as Caesar, Sallust, Cicero, Livy, Petronius, Tacitus, and Suetonius. The purpose of the course is to equip students with the grammatical rules to read and write complex sentences in Latin. The course consists of short weekly presentations of new grammatical and lexical content, vocabulary to be memorized, drills to practice forms and concepts, exercises in reading sentences, homework assignments translating sentences from Latin into English and English into Latin, and regular quizzes and tests to ensure retention and comprehension of material. The goal of the course in the second semester is for students to be able to read longer passages of continuous Latin prose that has not been adapted. The course focuses on reading, translating, and writing rather than speaking, although students will be expected to be able to read Latin aloud with correct pronunciation. LATIN 102 will also continue to introduce students to Roman civilization and prepares students to take a 400-level course in Latin.

LATIN 203: Latin Reading and Composition

4 Credits

The course reviews Latin grammar, syntax, and vocabulary and introduces students to classical Latin poetry and prose. LATIN 203 Latin Reading and Composition (4) This four-credit course is at the intermediate-level and follows LATIN 003 or LATIN 102. It satisfies the 12th-credit foreign language requirement and prepares students to take 400-level Latin courses. The course is concerned with perfecting the knowledge of Latin grammar. This is accomplished by the review of grammatical rules and by the reading and explanation of Latin authors. The course reviews the forms, syntax, and vocabulary of Latin, and gives students practice exercises that improve translation skills. Equally important, students are introduced to the principles of Latin style by learning how to translate English into Latin. The review of Latin grammar and the introduction to Latin prose composition provide students with the competence to read representative Roman authors in poetry and prose. Rudimentary Latin readings, supported by school commentaries, are intended to familiarize students with famous examples of classical Roman literature while exemplifying the principles of classical Latin style. Evaluation methods include assessment of students through in-class oral and written drills, in-class translation of Latin into English and English into Latin, weekly translation assignments, regular quizzes, and midterm and final exams. These methods are intended to promote the learning of Latin vocabulary and grammar, to increase the comprehension of the

assigned readings, and to foster an appreciation of the stylistic virtuosity of Rome's greatest writers.

LATIN 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Bachelor of Arts: Humanities

LATIN 402: Republican Literature

3-12 Credits/Maximum of 12

Selected works by Plautus, Lucretius, Catullus, Cicero (content varies).

Prerequisite: LATIN 203 or LATIN 3 or permission of instructor

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

Bachelor of Arts: Humanities

Exceeds 12th Unit of World Language

LATIN 402H: Republican Literature

3-12 Credits/Maximum of 12

Selected works by Plautus, Lucretius, Catullus, Cicero (content varies).

Honors

LATIN 403: Augustan Age Literature

3-12 Credits/Maximum of 12

Selected works by Virgil, Horace, Propertius, Tibullus, Ovid, Livy (content varies).

Prerequisite: LATIN 203 or LATIN 3 or permission of instructor

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

Bachelor of Arts: Humanities

Exceeds 12th Unit of World Language

LATIN 404: Silver Age Literature

3-12 Credits/Maximum of 12

Selected works by Petronius, Seneca, Tacitus, Juvenal, Martial, Pliny the Younger (content varies).

Prerequisite: LATIN 203 or LATIN 3 or permission of instructor

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

Bachelor of Arts: Humanities

Exceeds 12th Unit of World Language

LATIN 450W: History of Latin

3 Credits

History of the Latin language and its speakers, from their origins to the 2nd century C.E.

Prerequisite: LING 102 ; LATIN401 , LATIN402 , or LATIN403

Bachelor of Arts: Humanities

Writing Across the Curriculum

LATIN 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Humanities

LATIN 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Bachelor of Arts: Humanities

LATIN 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Humanities

Latina/o Studies (LTNST)

LTNST 100: Introduction to Latina/o Studies

3 Credits

This course provides an interdisciplinary introduction to the study of Latinas/os in the U.S., beginning with a historical overview of the major events in the U.S. southwest, Mexico, and the Caribbean that led to the creation of Latina/o communities in this country. Within this historical context, the course explores a number of themes: 1) the reasons for migration and the effects on identity of movement between countries and within the U.S.; 2) the social protest movements of the 1960s, including Chicano and Puerto Rican nationalism, the farmworker movement, and Latina feminism; and 3) present-day issues as they affect the major Latina/o groups in the U.S., attending to both similarities and differences within and between the major groups.

Bachelor of Arts: Humanities

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

LTNST 127: Introduction to U.S. Latina/o History

3 Credits

This course provides an interdisciplinary introduction to the study of Latinas and Latinos in the United States. The course includes a historical overview of the major events in the U.S. Southwest, Mexico, the Caribbean, and Central and South America that led to the creation of Latina/o communities in this country. Students will examine the formation of racial and class hierarchies within U.S. Latina/o communities; the processes of (international and regional) migration; gendered hierarchies and responses to sexism; and the complexities of U.S. Latina/o identity.

Cross-listed with: AMST 127, HIST 127

Bachelor of Arts: Humanities

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

LTNST 139: Latino/a Philosophy

3 Credits

This introduction to Latino/a Philosophy covers the historical experience of Latino/a peoples and the impact that those experiences have had and can have on "American" philosophy. It also covers race, class, gender, and ethnicity in relation to the Latino/a experience, and thus ethics, political theory, legal theory, critical philosophy of race, and feminist philosophy. In the process it offers an introduction to key themes in contemporary philosophy. The course includes comparisons with African American, Asian, and Native American philosophies.

Cross-listed with: PHIL 139

Bachelor of Arts: Humanities

International Cultures (IL)

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Soc Resp and Ethic Reason

LTNST 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

LTNST 226: Latina and Latino Border Theories

3 Credits

English 226 will constitute a wide-ranging examination of contemporary texts (1960-present) central to the construction of contemporary Latino/a culture. ENGL 226 Latina and Latino Border Theories (3) (GH;US;IL)(BA) This course meets the Bachelor of Arts degree requirements. This course focuses on contemporary Latina/o cultural production, placing it in historical context and analyzing it through the framework of borders. We make connections between Latina/o groups, showing both similarities and differences. We examine the politics of representation, asking how artistic texts define community and individual identities that are coherent yet also embody the complexity of these identities. The texts cross and claim borders- cultural, sexual, gender, geographical, generational, spiritual, and institutional. We will ask how these art forms work to claim border spaces: How are cultural differences retained without constructing hierarchies of exclusion? What models of identity do these artists propose in response to structures of domination? We'll read novels, short stories, poems, history, and theoretical essays; we will also watch several films. Throughout the course, we will attend to particular histories and cultures of Latina/o groups; it is crucial to both maintain the specificity of each culture (Chicana/o, Puerto Rican, Cuban-American, and Dominican-American) and their connections to each other as Latinas/os in the U.S. Inquiring into these intersections leads one to ask the following: how can Latinos unite against the assault on immigrants and bilingual education without erasing very important differences among Latina/o populations?

How can Latinas unite against ongoing sexism and homophobia within their communities and the U.S. in general? How should we view the marketing category "Hispanic" and/or "Latino" and how do artists offer alternative conceptions of group identity?

Cross-listed with: ENGL 226
Bachelor of Arts: Humanities
International Cultures (IL)
United States Cultures (US)
General Education: Humanities (GH)

LTNST 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

LTNST 300: Latinx Gender and Sexuality Studies

3 Credits

WMNST/LTNST 300 Latinx Gender and Sexuality Studies (3) (GH/US/BA) This course examines the historical development, theoretical premises, and political, social, and artistic contributions of Latinx feminisms in the United States. It shows the connections to as well as the divergences from Latin American feminism by beginning with an analysis of how the Spanish conquest, the imposition of Catholicism, and subsequent years of colonialism shaped gender and sexual identities. It examines the contemporary effects of these historical issues and inquires into the common concerns of Latin American feminists and Latinx feminists. It asks how theories and practices have diverged given different geographies, both between the U.S. and Latin America and within the U.S. The course will examine changes in the 1960s and 1970s in the U.S., when Chicano and Puerto Rican nationalist movements also gave rise to a feminist consciousness amongst Latinas; the conjuncture of race, ethnicity, gender, and sexuality is considered, with attention to how Latinas critiqued Anglo feminism's narrow focus on gender. The course will focus on family formations, considering social science and feminist discourse on the issues of patriarchy. How have Latinx feminists valued yet also rearticulated the traditional family? What critiques have made been against heterosexism? How has the LGBTQ community formulated new kinds of families? How does migration shape family relations? The course will explore how Latinx artists in different genres have responded to and resisted traditional gender and sexual roles. Literature, film, poetry, performance art, and hip hop are all examined for their diverse representations of sexual desire.

Prerequisites: (WMNST 100 or WMNST 100U or WMNST 105N or WMNST 106N or WMNST 106Q or LTNST 100)

Cross-listed with: WMNST 300
Bachelor of Arts: Humanities
United States Cultures (US)
General Education: Humanities (GH)
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Global Learning

LTNST 315N: Spanish and Spanish-speakers in the U.S.

3 Credits

In this course, we investigate various aspects of the language(s) and language behaviors of U.S. Latinos. The course is premised on the idea that language is a crucial component in the formation of identity. To understand Latina/o identity formation in the U.S., then, one must analyze what role languages—Spanish and English—have played in identity formation. The class commences with a brief historical assessment of the various U.S. Latino communities, including Mexican-American, Cuban-American, and Puerto Rican communities. Such a historical purview proves significant in the study of the cultural traditions that persist in these communities, chief among these, the Spanish language. In exploring the Spanish language in U.S. Latino communities, we consider several major sets of questions, among them the following: In what ways do the languages of U.S. Latino communities differ from those of monolingual Spanish- (and English-) speaking communities? What factors contribute to the maintenance and loss of Spanish in these communities? How does language contribute to the creation of individual and societal identity? How is language exploited in the representation of other U.S. Latino cultural traditions? We consider these questions across a variety of genres: poetry, prose (autobiography in particular), film, art, television, and music. These texts reveal how social environments determine language use as well as how artists have used language to reshape social environments, through, for example, the development of new language practices such as Spanish-English code switching. The course also connects these cultural practices to debates on Spanish in public life and policy.

Cross-listed with: SPAN 315N
United States Cultures (US)
General Education: Humanities (GH)
General Education: Social and Behavioral Scien (GS)
General Education - Integrative: Interdomain
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Key Literacies

LTNST 326: Reading the BorderLands: Geography and Identity Along the U.S.-Mexico Border

3 Credits

This course examines representations of the U.S.-Mexico border in relation to the actual geographic space. SPAN 326 Reading the Border/Lands (3) (GH;US) This class will center on discussions of the U.S.-Mexico borderlands in cultural theory and practice. "Borderlands" is understood as a transcultural space filled with physical, cultural, economic, political, and mythical elements. The aim is to view how different artists from the Borderlands, both northern Mexican and Chicano, mediate their borderlands reality. That is to say, the goal of the class is to examine the different imaginative geographies in the borderlands. We examine a wide-ranging mix of cultural texts that includes prose, poetry, essays, and performance art, as well as film and video art. We explore how writers have historically rethought notions of citizenship, identity, and culture to create more fluid spaces of representation in cultural contact zones. We will in particular, pay close attention to the relationship between national geography and the shaping

of regional identities and popular cultures and relationships between the maps that nations draw and the cultural forms that cut across them.

Cross-listed with: SPAN 326

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

LTNST 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

LTNST 403: Latina/o Literature and Culture

3 Credits

Literary and other forms of cultural expression (film, music, art, and theater) are compared across different Latina/o communities. LTNST (CMLIT) 403 Varieties of Latina/o Cultural Expression (3) (US)(BA) This course meets the Bachelor of Arts degree requirements. This course provides students with a multi-faceted comparative view of Latina/o literature in relation to other forms of cultural expression. First, the course presents a variety of cultural expressions to students in an effort to teach them the different ways that form affects content. Each text will be studied in its historical context as well, thereby providing students with a sense of Latina/o cultural history. Second, this course compares works from within the same genre, allowing students to recognize the ways that Latina/o culture has worked to build identity, to deconstruct identity, and to challenge cultural stereotypes. Such comparison further facilitates comparison of the ways that different cultural forms have been used by diverse Latina/o communities. Third, this course compares cultural forms, allowing students to see how Latina/o poetry affects music or how Latina/o theater affects novels. Fourth, this course will include texts that represent a variety of linguistic and national contexts, including many countries in Latin America, thereby allowing students to see the relationship between history, culture, language, geography, and identity. These are all themes that are at the center of both Latina/o Studies and Comparative Literature. A comparative perspective facilitates appreciation of the vast and varied ways that Latina/o communities have used cultural expression. A particular point of contact between Latina/o Studies and Comparative Literature is the influence of hybridity. A central issue explored in this course concerns the intricate connections between multiple ways of expressing identity, in the arts, literature, music, etc., in diverse circumstances, such as locations where Latina/o cultures may be in the mainstream (such as in Latin America) and in the minority (in the U.S.). Drawing upon approaches offered by comparative literature and theories such as post-structuralism, feminism, and post-colonialism, we will examine the complex process through which Latina/o culture has been defined, disseminated, contested, and commercialized. Of particular interest from a comparative perspective are the ways that Latina/o cultures are created through hybridization, processes of mutual borrowing and differentiation, as well as through transnational processes of migration, urbanization, and cultural contact. The course's objective is to show not only how complex societies consolidate a shared culture but also how diverse Latina/o communities have produced a multiplicity of cultures that have been expressed via a broad range of cultural registers. These communities often span vast geographical areas, not only in the

U.S. but across the Americas as people continue to look to their countries of origin for artistic inspiration.

Prerequisite: 3 credits in the humanities or in any LTNST course, or 4th-semester proficiency in Spanish

Cross-listed with: CMLIT 403

Bachelor of Arts: Humanities

United States Cultures (US)

LTNST 426: Chicana and Chicano Cultural Production: Literature, Film, Music

3 Credits/Maximum of 3

An in-depth study of Chicana/Chicano literature, film, and music from the inception of the Chicano Movement (1965-1975) to the present. ENGL 426 Chicana and Chicano Cultural Production: Literature, Film, and Music (3) (US)(BA) This course meets the Bachelor of Arts degree requirements. ENGL 426 will constitute an in-depth study of Chicano/a literature, film, and music from the inception of the Chicano movement (1965-1975) to the present. In addition to primary aesthetic texts, students will read historical, political, and theoretical essays designed to situate the Chicano/a cultural texts in historical and political context. The aim of the course is to give students a better understanding of Chicano/a cultural production by situating these works of art against other U. S. artistic traditions and within wider historical and political movements. Authors and artists under consideration in this class will vary, but will likely include Luis Valdez, Tomas Rivera, Estella Portillo Trambley, Oscar Zeta Acosta, Corky Gonzales, Gloria Anzaldúa, Norma Alarcon, Cherrie Moraga, Richard Rodriguez, Dagoberto Gilb, Rolando Hinojosa, Alfredo Vea, Charlie Trujillo, Diego Vasquez Jr., Joe Rodriguez, Tomas Almaguer, Jose Esteban Munoz, Manuel Ramos, Lucha Corpi, Rudolfo Anaya, Michael Nave. This class will prepare students for advanced courses in Latin/a literatures as well as other academic courses that engage in the verbal and written analysis of complex texts. Students will be evaluated by means of essays written in and out of class, essay exams, group projects, term-long journals, and class participation. Students should expect to complete a minimum of three written assignments in the course of the term. The course may be used as ENGL major elective credit or as credit towards the ENGL minor and will be offered once a year with 40 seats per offering.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Cross-listed with: ENGL 426

Bachelor of Arts: Humanities

United States Cultures (US)

LTNST 467: Latin America and the United States

3 Credits

Historical development of policies of the United States with regard to Latin- American affairs from colonial times to the present.

Cross-listed with: HIST 467

Bachelor of Arts: Humanities

International Cultures (IL)

United States Cultures (US)

LTNST 470: Youth Cultures in Latin(a/o) America

3 Credits

Young people have been at the center of political and cultural revolutions around the world and throughout history. For example, revolutions, urban movements, ethnic/racial pride, LGBTQ+, feminist movements, music bazaars, DJs and rave parties, and "barras de futbol" are only some of the manifestations associated with young people in Latin(a/o) American literature, film, music, and journalism. Nevertheless, the concept of "youth" as an academic category only appeared in the 1960's. In this course, we will study different manifestations of youth cultures in the Hemispheric Americas, paying special attention to the Latinx communities in the U.S. and Latin America, since the 1960's and until the contemporary moment. The key question that will guide us is: How does each of these literary, artistic, and media representations of youth enter into dialogue with political events in which young people have been at the center of efforts to bring about political changes in the U.S. Latinx communities and Latin America? Using short fiction, film and documentaries, songs, blogs, and other cultural materials (YouTube clips, images, graffiti, etc.), we will identify and compare different youth cultures in Latinx communities in the U.S. and Latin America in terms of their productions, representations, and effects in the public sphere. We will enrich our analysis of primary materials with theoretical and critical readings that will help us to contextualize the different manifestations in our study.

Prerequisite: (SPAN 100A or SPAN 200) and SPAN 253W
Cross-listed with: SPAN 470

LTNST 479: U.S. Latina/o Culture en Espanol

3 Credits

This course is conducted in Spanish and will analyze some of the central themes that shape the diverse Latina/o experiences in the United States. Some of the main topics that the course will address include: the politics of labeling; definitions of displacements; the politics of language; imaginary homelands and geographic spaces; and conceptualizations of race, gender, and sexuality. These themes will be seen through the lens of Latina/o literature and film. The main objective of this course is to help students think critically about the conceptual, theoretical, historical, and social issues that inform the Latina/o experience in the United States.

Prerequisite: (SPAN 100A or SPAN 200) and SPAN 253W
Cross-listed with: SPAN 479
United States Cultures (US)
General Education: Humanities (GH)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Key Literacies

LTNST 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Learning Design and Technology (LDT)

LDT 99: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction

International Cultures (IL)

LDT 100: World Technologies and Learning

3 Credits

LDT 100 World Technologies and Learning (3) (GS;IL) explores the role of technology in learning across international contexts and the impact of these new learning technologies on world cultures. LDT 100 examines the sociocultural impacts of various learning technologies on learning, education, and culture. The course will examine several international cases of learning technologies (both contemporary and historical), as they are used for education and learning and implemented in several world cultures such as the US, UK, India, China, Africa, Europe, and Oceania. The primary objective of the course is to help students understand how learning technologies impact other cultures, and their own; how learning technologies hold the potential to bring change to education and new forms of learning; and how these changes can be predicted, understood, and planned for. The course may offer an important introduction to the area of Learning, Design, and Technology, but it is otherwise not related to specific programs of study. It contributes to the General Education requirements for undergraduates.

International Cultures (IL)

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

LDT 101: Effective Communication for Educators

3 Credits

Introduction to communication for educators, principles of pedagogical communication including educational communication technologies. LDT 101 Effective Communication for Educators (3) This course introduces future teachers to effective communication specific to educators' needs. Educators will learn skills for informational lesson planning, persuasive speaking and motivational presentations. This is an introduction to these skills such as lesson planning and effective parent communication, which are then honed later in methods courses. This course will address issues of civic engagement and broad communication for educators focused on educational issues. Included will be the design and presentation of individual communications, email, social media, new media, videos, digital photography, and other forms of emerging educational communications technologies. Assessment includes short quizzes, product review (to include lesson plans, speeches and presentations), online discussion participation, and other activities focused on building the specific skills needed for educators.

Prerequisite: CAS 100

LDT 110N: Making with Art and Learning Technologies

3 Credits

This course surveys the intersection of art and technology for making in regard to content creation for learning. Topics covered include maker spaces, DIY communities, online content creation as well as creativity, art, STEM, coding and engineering, and equity and inclusion. Examples include how people learn through creative computing, user-created art content, and livestreaming of making activities. Students will explore academic literature, popular news articles, and other media content. Activities include coding, creativity, crafting, and teaching peers. No programming or prior experience with digital or physical maker toolkits is required. Course materials are designed to be accessible to all levels. The course offers an important introduction to the area of Learning, Design, and Technology, but it is otherwise not related to specific programs of study. It contributes to the General Education requirements for undergraduates.

General Education: Arts (GA)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

LDT 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

LDT 215: Creating Designs for Learning

3 Credits

This general education course introduces students to basics of the learning design field. The course introduces theories, processes, and techniques that students need to create designs for educational and training programs for formal and informal contexts (including after school clubs, higher education, corporate settings, museums, and non-profit organizations). Students interested in how to design educational artifacts should take this course. This is a hands-on course where students will learn basic skills, ethics, and practices of the learning design field via discussions, activities, writing, and presentations. Throughout the course, students will create a series of products, which can be used in their portfolios for later job searches. There are no prerequisites or technological skills required.

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Key Literacies

LDT 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

LDT 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

LDT 401: Gaming 2 Learn

3 Credits

Explores role of gaming, video gaming, and simulations in educational contexts including K-12, corporate, informal, non-profit and higher education.

LDT 410: Advanced Learning Experience Design Lab

3 Credits

This course provides students with advanced, practice-based experience in learning experience (LX) design. Students will learn advanced strategies in LX (including requirements, design, and evaluation) as well as situate LX within broader conversations about the role of design in society. The course places a strong focus on application through a design cycle that repeats itself over three collaborative projects, each increasing in scope and sophistication. Students who complete the course will reflect on their design work in a culminating portfolio assignment.

Prerequisites: LDT 215, LDT 310

LDT 415A: Systematic Instructional Development

3 Credits

Preparation in the use of a nine-step model for systematically analyzing instructional problems and developing validated, practical solutions. LDT 415A Systematic Instructional Development (3) LDT 415A introduces the instructional design process and then focuses on each step of the model using a project-based approach. It prepares instructional designers and trainers in the corporate, higher-education, and non-profit sectors to apply the instructional design process to create instructional materials, or to modify, alter, or re-design existing materials as needed, for example, to suit a particular context or audience.

Prerequisite: Bachelor's degree or equivalent; or 5th semester standing; or permission of program

LDT 415B: Systematic Instructional Development for Teachers

3 Credits

Preparation of teachers to use a systematic model to design learning environments for K-12 classrooms. LDT 415B Systematic Instructional Development for Teachers (3) This course focuses on K-12 teachers who will learn how to use the systematic design process for creation of learning environments. This process includes goal, objective and test item writing; text selections; media selections; implementation plans; and evaluation plans for both formative and summative evaluation. Products are turned in each week for feedback and input into the next weeks' assignment. Consideration of the ID4T (Instructional Design for Teachers) model use with standards, constructivist, user-design, and learner-based classrooms is included.

Prerequisite: 6th semester standing in education or equivalent professional experience

LDT 433: Teaching and Learning Online in K-12 Settings

3 Credits/Maximum of 3

Explores uses of online technologies for K-12 settings including cybercharter and blended settings. In this course, Teaching and Learning Online for K-12 Educators, students will receive an overview of the current status of K-12 Online Education, including criticisms of the movement and how cyber charter schools are impacting the general educational movement. Students will explore the complexities of school choice movement, the place of cyber charters in that movement and the ways that this movement can help and harm general educational progress. Students will critically examine the cyber charter school money trail so that they may identify various financial implications for the cyber charter movement on public schooling and learn how funding flows from the federal level to states to districts and finally to cyber charters. Students will be guided through the process of transforming their teaching when moving from traditional face-to-face classrooms to online settings.

Prerequisite: Bachelor's degree or equivalent; or 5th semester standing; or permission of program
Cross-listed with: INSYS 433

LDT 440: Educational Technology Integration

3 Credits

Technology integration in educational settings. EDTEC 440 Educational Technology Integration (3) This course introduces educators to broad-based educational computing applications. This course introduces ideas, skills, concepts and strategies for integrating computers into classroom teaching. The focus of the course is on models for integration, but specific applications and how they can be used in the classroom will also be explored. This course is part of a graduate program of study for a Master's of Education (M.Ed.) in Instructional Systems or an M.Ed. in Educational Technology. Within educational settings, technology is not simply an independent curriculum – i.e., teaching about how to use technology. Rather it is a powerful means for addressing, and potentially redefining, everyday teaching and learning issues. The potential of technology is most effectively realized when considered in combination with views about how individuals think and learn best. The goal of this course, then, is not for you to become an expert in 'technology,' but to become more of an expert in teaching and learning. Technology can be used as a vehicle to help you to further develop this expertise. This course is divided into five units which are based on the following areas of educational computing: (1) Technology Integration Concepts; (2) Productivity Tools; (3) Communication tools; (4) Interactive multimedia; and (5) emerging technologies. Each of these units is designed not only to provide you with the information you need in order to understand what the technology is about and how it functions, but more importantly to stimulate serious reflection upon how you as a teacher can make use of this resource and how using this resource relates to student learning.

Prerequisite: 6th semester standing

LDT 441: Design, Development, and Evaluation of Internet Resources

3 Credits/Maximum of 3

Design, production, and evaluation of instructional materials for delivery on the Internet. This course is designed to provide you with a conceptual and experiential overview of the process of creating stand-alone computer or web-based instruction to facilitate your understanding of the role and potential of Internet technologies as learning systems. This

course would be useful to anyone charged with providing online learning, is appropriate as a foundational overview for multi-media developers, and also would be valuable for supervisors of instructional designers and developers. A main feature of the course is a hands-on lesson project carried on throughout the course where you will identify, design, develop, and then evaluate an online stand-alone lesson (e.g., a learning object). Emphasis will be placed on the following goals: Demonstrate research-based message design principles, including navigation, screen design, and the use of color and visuals. Demonstrate basic skills and competencies related to developing instructional materials to be delivered using Internet/intranet technologies to understand the current requirements and also limitations of these approaches. Describe the role of the instructional designer in Internet-based instruction. Describe the advantages and limitations of Internet delivery in order to make informed instructional design decisions. Apply an instructional design model during the design and development of Internet-based instructional materials.

Cross-listed with: INSYS 441

LDT 447: Instructional Design for Multimedia Technologies

3 Credits/Maximum of 3

This is an applied skill course about producing and implementing multimedia in instruction and training. By its very nature, instructional multimedia is a collage of media types, and creating this collage requires a thorough understanding of learning strategies, design principles, and technology "obtainability" (e.g., both using existing media as lesson components as well as developing new learning media objects as needed). Fairly recently, multimedia tools have proliferated on the web and at the same time learners' expectations have also shifted, for example involving the delivery form factor and source, preferred media type, short lesson length, and many others. This course introduces you to the design, development, and delivery of instructional multimedia on modern educational platforms. Specifically, you will create multimedia instructional materials within the context of larger class discussions about Instructional Systems Design, evidenced-based learning strategies, Design Principles, media features, Copyright, Open Educational Resources (OER), Massive Open Online Courses, and the changing landscape of Higher Education.

Cross-listed with: INSYS 447

LDT 449: Video in the Classroom

3 Credits/Maximum of 3

Skills and knowledge needed to direct the use of video technologies in educational settings. EDTEC 449 Video in the Classroom (3) This course introduces video and multimedia production for educators based on the premise that participants are novices. The course is intended for teachers and trainers who would like to acquire fundamental theory and skills in designing and producing video and multimedia to support teaching and learning. It introduces the tools of media production (i.e. video, audio, and lighting) and develops basic skills, including production and editing techniques, storyboarding and project planning. Participants in this course will demonstrate: a basic proficiency in the operation and handling of media production tools, including video and audio editing; an understanding of appropriate media use for classroom use; a basic knowledge of the production processes, including conceptualization, storyboarding, scripting, and project management; and a basic proficiency in producing effective educational videos.

Cross-listed with: EDTEC 449

LDT 467: Emerging Web Technologies and Learning

3 Credits

This course examines emerging Web technologies and explores their application to learning and education.

Prerequisites: 5th Semester standing or Graduate Status or Non-degree GRAD status

Cross-listed with: EDTEC 467

LDT 495: Internship in Learning, Design, and Technology

1-18 Credits/Maximum of 18

Supervised off-campus, non-group instruction including field experiences, practica, or internships. Written and oral critique of activity required.

LDT 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

LDT 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Liberal Arts (LA)

LA 83: First Year Seminar in the Liberal Arts

1 Credits

An exploration of a theme through the lens of the humanities, social sciences and diverse cultural perspectives.

Prerequisite: open only to DUS students
First-Year Seminar

LA 97: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

LA 103: Professional Development for the Liberal Arts Student

1 Credits

This course is designed to provide you with the techniques and information necessary to specify and implement post-graduation educational and career plans. This course is designed to assist students in the College of the Liberal Arts with the process of developing and implementing career plans for after graduation. It helps students understand the process of seeking and gaining employment and how to effectively transition from college to the workplace. This course will help students think about how to make their time at Penn State worthwhile and will be exposed to the various opportunities available to them at the College and University level. Students will hear from staff, alumni, and employers about a range of topics including interviewing, hiring practices,

professionalism, social media, networking, post-graduate options, and other professional development topics. Students will start and/or continue to solidify their plans for after college and take steps to create a portfolio of work for the job and internship search. Students will use tools to learn more about themselves and explore career options. They will learn about career fields for students graduating with Liberal Arts degrees and hear from employers, staff, and alumni about how to leverage their education, skills, and knowledge to be successful during the job and internship search and during their time in the workforce. Students will develop a multitude of skills from this class, including identifying abilities, interests, and values and understand how to incorporate these into career decision-making. They will be able to utilize various resources such as informational interviewing and networking to research industries and careers, and inform career decision-making. They will make use of targeted searches, and online job postings to identify potential jobs and internships. Students will spend time writing effective position-specific application materials such as resumes and cover letters and learn to implement effective interviewing techniques during phone, individual, panel, and group interviews. For students who are thinking about post-baccalaureate options, the class will help these students identify and search for graduate programs as well as successfully complete the graduate school application process. This course will help students transition successfully into the professional world, using skills and knowledge to conduct future career decision making and job searches.

LA 135N: College, Work, and Citizenship in the 21st Century

3 Credits

Concentrated on the 21st-century, this course engages students in cutting-edge information about the critical roles the humanities and social sciences play in the high-tech global economy, now and in the future. In this course, students will learn what is vital about the humanities and social sciences in the global economy and society more generally. This class helps students to understand what is meant by the knowledge and creative economies, and why the modern economy's need for the core skills and knowledge developed through a humanities and social science education opens excellent career opportunities to students. Importantly, students will explore both humanistic and social science inquiry that challenges the dominant narratives and distorted facts that relegate the humanities and social sciences as insignificant and turn students away from these majors. Students will also learn to understand and explain in concrete ways the core skills and knowledge that humanities and social science students possess that are in high demand in business and industry so they can hone these skills in college as they prepare for life after college as contributing citizens through work and public life.

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

LA 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

LA 199: Foreign Study--Liberal Arts

1-9 Credits/Maximum of 9

Study in selected foreign countries of the cultural, institutional, and/or social development of the host country.

International Cultures (IL)

LA 201W: Experiential Learning Portfolio

3 Credits

Students will learn how to assemble a portfolio that reflects their progress, knowledge, and insight into college-level study. L A 201W Experiential Learning Portfolio (3) This course will instruct students in what has become a distinctive model of performance assessment - a learning portfolio. Students will learn to assemble the components required to demonstrate their progress, articulate their knowledge, and gain insight into the qualities of learning that are expected of college-level study. Students will utilize active engagement and questioning of how we know what we know. The course is designed to assist learners in contextualizing what they have learned and provide them with the skills to contextualize what they learn in the future. By the end of the course, students will have developed an experiential learning portfolio.

Writing Across the Curriculum

LA 202: Innovation and Entrepreneurship in the Liberal Arts

3 Credits

Entrepreneurs and liberal arts graduates share a surprisingly broad array of learned traits. Both rely on well-trained habits of critical, analytical, and systems thinking, effective oral and written communication, perspective taking, coalition building, and intercultural competence to understand, challenge, and transform the limits of conventional systems and practices. For entrepreneurs, this training leads to the creation of new and innovative nonprofit and for-profit ventures; for liberal arts professionals, this training is often used to develop, expand, and alter our understanding and appreciation of the ever-shifting contours of the human experience. When integrated deliberately, this course prepares undergraduate students to imagine innovations and create ventures that add value to our understanding, experience, and expression of the liberal arts. Entrepreneurship, which cultivates self-efficacy and personal agency as professional learning behaviors, is perhaps especially salient for the liberal arts, which tend not to be prescriptively careerist. In this way, students who take this course can more intentionally pursue creative career work that extends the value and experience of their undergraduate liberal arts education.

LA 295: Undergraduate Field Experience or Practicum

1-18 Credits/Maximum of 18

Approved experience, related to student career objectives, in agencies external to the University.

LA 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

LA 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

LA 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

LA 335N: Media, Social Justice, and the Public Humanities

3 Credits/Maximum of 3

This course introduces students to the ideas and skills that comprise "public humanities," with a focus on digital media tools. It aims to develop student understanding of how public humanities work can address present-day problems, fostering empathy within and building bridges between persons, groups, and communities. It offers hands-on training in three forms of digital media: documentary film, podcasting, and web publishing. Through honest and respectful engagement with a diverse range of ideas, perspectives, and experiences, students will develop creative and critical thinking and problem-solving skills by locating, analyzing and applying information in project formation and production.

Cross-listed with: COMM 335N

General Education: Arts (GA)

General Education: Humanities (GH)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

LA 395: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Prerequisite: prior approval of proposed assignment by instructor

LA 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical of of special interest.

LA 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

LA 402: Fundraising Leadership: Building a Strong Base

3 Credits

The course will focus on the fundamentals of fundraising and leadership, including communications, management of events and people, and stewardship.

Prerequisite: 60 undergraduate credits or permission of program

LA 404: Careers in Fundraising and Development

3 Credits

This course will guide students through an introduction to the fundraising/advancement profession, including a review of the history and emergence of the profession. The course will also touch on key issues such as professional ethics and the legal environment of the field. Students will learn about the wide array of career paths and sectors in which fundraising and advancement professionals are employed. The course will review current roles within fundraising and advancement and emerging practice areas such as social media fundraising, data analytics, and talent management. Students will acquire specific knowledge and develop some of the skills required to successfully secure entry-level positions such as asking for gifts, drafting newsletter copy, and creating materials to present to a board of trustees. Students will also make connections between life experiences, such as volunteering for a nonprofit organization, and positions in the field. Students should be able to make connections between fundraising and a variety of disciplines from English to psychology to economics. By the end of this course, students will be able to: 1. Describe fundraising as a profession, including a brief history, purpose, laws, ethics, and foundational principles. 2. Describe various positions held by fundraising professionals, including duties and responsibilities, skills and characteristics for success, and various pathways to a career in each position. 3. Practice foundational principles of fundraising as they apply to various fundraising positions. 4. Identify resources for locating fundraising positions and appropriate education and training opportunities. 5. Create professional application materials that reflect the students' ability to differentiate between various roles in fundraising professions. Students enrolled in this course will need to have acquired skills and knowledge in introductory courses, have a connection to an academic discipline, and be career-oriented. As a result, only upper-level students will be eligible to enroll. If academic departments are willing, the course might be added to the list of electives made available to students majoring in various fields such as English, psychology, or economics. Given the dearth of well-educated professionals and the growing number of jobs in the field this course could serve well those students who seek a career in the profession.

Prerequisite: ENGL 15, and 6 credits in social and behavioral sciences (GS)

LA 424: Liberal Arts Venture Development

3 Credits

Students who complete this course will be able to create a nonprofit or for-profit liberal arts venture based on the iterative vetting of an original idea rooted in careful and rigorous research; examine the impact of that venture and the resulting services and/or products on themselves, employees, customers, the environment, and local, national, and/or global communities; understand how the ecologies of successful nonprofit and for-profit liberal arts ventures operate; and articulate best practices of successful liberal arts startups and organizations in relation to founder

roles and relationships, fundraising, public presentation/pitching, market analysis, product differentiation, financial projecting, sales and marketing strategies, and scaling. Every other summer, this course will be offered in San Francisco, where students will be exposed to and work in one of the most entrepreneurial cities in the world, and meet a number of founders of non-profit and for-profit organizations whose services and solutions are tied to Liberal Arts disciplines.

LA 435: Public Humanities Capstone Experience

3 Credits

This course is the Capstone Experience for Public Humanities Fellows in the Humanities Institute. The course provides students with hands-on experience applying skills and insight gained during the prerequisite course, Introduction to Public Humanities. Students will gain substantive experience in research, digital media production, and community engagement. The centerpiece of the course is an individual digital public humanities project on a topic of the student's choosing. Students will also participate in public outreach events in conjunction with the Humanities Institute, actively participating in a community engagement plan in coordination with the Institute's documentary film series, HumIn Focus.

Prerequisite: LA 335N or COMM 335N

LA 494: Research Project Courses

1-12 Credits

Supervised student activities on research projects identified on an individual or small-group basis. (No course under L A 294/494 may be offered without approval of the associate dean of liberal arts. All courses must have a specific title and letter suffix.)

LA 494H: Research Project Courses

1-12 Credits

Supervised student activities on research projects identified on an individual or small-group basis. (No course under L A 294/494 may be offered without approval of the associate dean of liberal arts. All courses must have a specific title and letter suffix.)

Honors

LA 495: Undergraduate Field Experience or Practicum

1-12 Credits/Maximum of 12

Approved experience, related to student career objectives, in agencies external to University.

LA 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

LA 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

LA 498: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

LA 499: Foreign Study--Liberal Arts

1-9 Credits/Maximum of 9

Study in selected foreign countries of the cultural, institutional, and/or social development of the host country.

International Cultures (IL)

Library Studies (LST)

LST 83: The Twenty-First Century Researcher

1 Credits

Students learn to use technology and Libraries resources to access and cite relevant information into academic research projects. L ST 083S The Twenty-First Century Researcher (1) This course will equip students with research skills for academic success at Penn State.

The class will investigate the Libraries' physical facility and scholarly, academic online resources as a single, holistic learning lab, and engage students by providing hands-on experience in how to conduct research across the disciplines and in all formats. Students will develop and use several cutting-edge communications tools, including blogs, podcasts, and personal portals. By the end of the course, students will be able to create and conduct research projects, and integrate their findings into outstanding papers and presentations in a variety of media.

First-Year Seminar

LST 250: Peer Tutoring in Research

3 Credits

LST 250 is a research-based class that prepares students to critically think about, use, and produce information. Through a library and information science lens, this class will explore, study, and interrogate the research process. During the semester, students will conduct research, learn about various process for creating, producing, and finding information, and will have the chance to express their findings and frustrations with the other students in the class. By the end of the semester, students will be savvy users of library resources and will have the skills needed to teach others about the research process. This course is well suited for students who are interested in taking a deep dive into the research process, or who have aspirations to do something in the information science field in the future.

LST 301: Information Research Methods and Systems

1 Credits

Survey of information theories, structures and resources as related to library research methods for social, behavioral sciences and the humanities.

Honors

LST 370: Research Methods for Law and Government Information Resources

3 Credits

Evaluating, retrieving and integrating Federal and Legal Information Resources into scholarly research. L ST 370 Research Methods for Law and Government Information Resources (3) This course covers basic legal research and government information skills: (1) the structure and types of federal primary and secondary legal sources; (2) the structure and types of federal government information; and (3) electronic and print databases and indices to locate legal and government information. Students will develop research methods for locating and using judicial, executive, and legislative branch information sources in scholarly and disciplinary research.

Prerequisite: 3 credits in Administration of Justice, Political Science, Communication, History or Sociology

LST 490: Archival Management

1-3 Credits/Maximum of 3

Introduction to the principles and procedures in the management of archives and historical manuscripts.

Cross-listed with: HIST 490
Bachelor of Arts: Humanities

LST 495: Internship

1-9 Credits/Maximum of 9

Directed internship in library studies, archival administration, rare books curation and/or preservation.

Prerequisite: L ST 490 or L ST 496

LST 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses. Students may not register for these courses without prior written approval of a faculty member in the department in which the courses are listed.

Linguistics (LING)

LING 1: Language, Life and Society

3 Credits

In this course, we survey essential topics in the study of language with a view toward providing an overview of the approaches, methods, and goals of linguistics. We examine fundamental questions like what are the origins of human language? How does language work? How do human languages differ and how are they alike? How do children learn languages? Why does language change? What is the link between language and culture? Why do people have such strong opinions about others' language use? What is the impact of language loss in human society? We will address these questions and others through readings, problems and discussion. The goal of this course is to provide evidence and analytical methods by which students can critically evaluate their

own and other people's views of language. The course also focuses on helping students gain proficiency in the general skill of how to use data (in this case, qualitative language data), to make a well-supported scientific argument.

Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)
United States Cultures (US)
General Education: Social and Behavioral Scien (GS)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

LING 97: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.

Bachelor of Arts: Social and Behavioral Sciences

LING 98: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.

Bachelor of Arts: Social and Behavioral Sciences

LING 100: Foundations of Linguistics

3 Credits

The course consists of a general survey of language and linguistics. A number of topics relating to human knowledge and use of language are systematically and scientifically investigated. The focus of the course is not on any specific language or languages; rather, it is on properties common to all languages and on ways in which languages may differ. The focus is on examination of speakers' knowledge of language and the idea of language as a system of human communication; the course provides students with the tools needed for the recording, investigation, and close analysis of language. Areas of study include phonetics and phonology (the details of sound analysis), morphology (word structure), syntax (sentence structure), and semantics and pragmatics (the deep investigation of meaning). Another part of the course teaches the students about aspects of language in society through topics such as sociolinguistics and/or historical linguistics. This aspect of the course is crucial to students' understanding of how language and culture reflect and affect each other. The course uses examples from English and from non-English languages and cultures in order to investigate these topics, though no previous knowledge of any language other than English is presumed. A knowledge of basic linguistics is, however, generally very helpful in the learning of foreign languages.

Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)
United States Cultures (US)
General Education: Social and Behavioral Scien (GS)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

LING 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.

Bachelor of Arts: Social and Behavioral Sciences

LING 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)

LING 294: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Social and Behavioral Sciences

LING 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.

Bachelor of Arts: Social and Behavioral Sciences

LING 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)

LING 382: Language and Culture in Africa

3 Credits

This course will provide an introduction to language in Africa from linguistic and cultural perspectives. Course topics include: the study of African language families and what they teach us about the history of the continent, the analysis of unusual linguistic structures found in indigenous African languages, multilingualism in Africa and the interaction between colonial and indigenous languages, linguistic traditions such as storytelling, ceremonies, ethnobotany, etc., and language development, including literacy practices and language and technology. The course will explore these topics in-depth through case studies focusing on four diverse geographical areas in West, North, East and Southern Africa. The capstone of the course will be a two-week trip for interested students to study linguistic practices in Benin, West Africa in both urban and rural settings.

Prerequisite: LING 100 or AFR 110

Cross-listed with: AFR 382

Bachelor of Arts: World Cultures

LING 395: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Prerequisite: prior approval of proposed assignment by instructor
Bachelor of Arts: Social and Behavioral Sciences

LING 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.

Bachelor of Arts: Social and Behavioral Sciences

LING 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)

LING 402: Syntax I

3 Credits

Principles of grammatical analysis in the generative framework; an overview of syntactic structures across languages. LING 402 Syntax I (3) (BA) This course meets the Bachelor of Arts degree requirements. The aim of this course is to provide students with the background needed to understand advances in modern generative syntactic theory and to encourage them to do creative and informed research in this area on English or other languages that they might know. The course provides a historical overview of the development of generative syntax. We explore in depth a number of topics that challenge any syntactic theory and we attempt to propose testable hypotheses concerning language structure.

Prerequisite: C or better in LING 100, or C or better in MATH 311W or C or better in CMPSC 360
Bachelor of Arts: Social and Behavioral Sciences

LING 404: Phonology I

3 Credits

LING 404 Phonology I (3)(BA) This course meets the Bachelor of Arts degree requirements. This course is about sound patterning in language. In particular, we will learn how human speech sounds are produced and how they function together as a system. We will learn the International Phonetic Alphabet applied to English. We will discuss phonological data from many different languages to seek common phonological processes that occur despite the apparent surface diversity of languages. We will do extensive work on phonological problems in order to master basic phonological analysis.

Prerequisite: LING 100
Bachelor of Arts: Social and Behavioral Sciences

LING 405: Introduction to Historical Linguistics

3 Credits

Introduction to Historical Linguistics is designed to teach the theories, methods, and data linguists used to study ancient and modern languages and language families, and the connections that can be traced through language between seemingly diverse peoples and cultures. This course will teach the methodologies used by historical linguists to seek to understand language change, and to reconstruct ancient language forms. These methodologies require students to already have a basic understanding of linguistics, in particular phonetics, phonology, morphology, syntax and semantics, as the course teaches students how to use methodologies within those subfields to investigate historical phenomena. The course will also investigate how linguistic analysis can be used to inform the study of human history. Topics include how languages change and evolve over time; language families, language change due to language contact, and the connection between language, history and archaeology. Students will thus also learn what language can teach us about the history of people groups around the world.

Prerequisite: LING 100
Bachelor of Arts: Humanities

LING 410: Morphology

3 Credits

Morphology is the scientific study of words and word structure. This course provides a detailed exploration of morphological processes from a largely comparative method. Students are also introduced various formal models that will guide our investigations. Throughout the course we will scaffold our knowledge of morphological structure and processes with the aid of these theoretical concepts.

Prerequisite: C or better in LING 100

LING 414: Phonetic Analysis: Acoustic and Auditory Phonetics

3 Credits

This course is an exploration of phonetic analysis with a focus on acoustic and auditory phonetics (the properties of sound waves, particularly speech sounds, and how hearers perceive sounds given the constraints of the human auditory system). We will focus on how acoustic and auditory phonetics can enhance our understanding of sounds in languages around the world, and how it can inform analytical methods such as those used in sociolinguistics, linguistic field methods, and laboratory-based research involving sounds. This course will include training in specialized acoustic analysis software.

Prerequisite: C or better in LING 100

LING 429: Language and Thought

3 Credits

Relations between language and cognition; cognitive implications of normal and impaired language development; cognition and bilingualism. LING (PSYCH 426) 429 Language and Thought (3)(BA) This course meets the Bachelor of Arts degree requirements. Is language a special and uniquely human ability that develops and functions independently of other cognitive processes? Do individuals who speak different languages also have different concepts about the meaning of objects and ideas? Does language development depend on exposure to spoken language? In this course we will examine the relation between language and

thought by considering evidence on language and cognition in both children and adults. Topics to be covered include the typical development and use of language as well as language and cognition in individuals whose language and/or cognition is impaired in some form. The latter include individuals with aphasia who have sustained brain damage following stroke or head injury, schizophrenics whose language reflects aspects of their disorder, children diagnosed with Williams Syndrome who appear to have good or even precocious language abilities in the face of severe cognitive impairment, and Alzheimer's patients in whom semantic memory has begun to deteriorate. The course will also discuss the acquisition of sign language among deaf individuals and the consequences of bilingualism for children raised with two languages and for adults with proficiency in more than a single language. The purpose of this course is to provide a survey of current scholarship on the relation of language and thought, including a review of recent developments in the primary literature. The necessary background is covered in introductory Psychology and Linguistics courses, which serve as alternative prerequisites. Students will learn about the consequences of typical and impaired development for relations between cognition and language ability. It is distinguished from PSYCH 457, Psychology of Language, by a focus on the implications of language, language development, and language impairment, for cognitive processes. It covers some topics also addressed by current courses in Linguistics and in Communications Sciences and Disorders, but is distinguished from those courses by its focus on perspectives and theories from cognitive psychology. This course may be used toward the 400-level PSY requirements of the PSYBA and PSYBS majors, and toward the PSY minor. Students typically will be assessed on the basis of class participation and discussion (20%), four papers (total 60%), and an in-class presentation based on reading original research literature (20%). The course typically will be offered once each year at the University Park campus with an enrollment limit of 50.

Enforced Prerequisite at Enrollment: PSYCH 100 or LING 1 or LING 100
Cross-listed with: PSYCH 426
Bachelor of Arts: Social and Behavioral Sciences

LING 446: L1 Acquisition

3 Credits

How children learn their first language; psycholinguistic aspects of lexical, syntactic, semantic, and phonological development. LING 446 (PSYCH 427) L1 Acquisition (3) (BA) This course meets the Bachelor of Arts degree requirements. This course focuses on how children learn their first language from the theoretical perspectives of imitation theories, social construction theories, and innateness theories. In addition, the course covers the various stages of language acquisition including phonological (sound system), morphological (word meaning), syntactical (grammar) and semantic (meaning) development from birth to adulthood. Other related subfields covered in the course include the acquisition of Pidgin and Creole languages, bilingual and multilingual acquisition, and language acquisition and linguistic change.

Enforced Prerequisite at Enrollment: PSYCH 100 or LING 100
Cross-listed with: PSYCH 427
Bachelor of Arts: Social and Behavioral Sciences

LING 447: Bilingualism

3 Credits

Explores the social and psychological aspects of bilingualism; topics include languages in contact, transference, maintenance, and loss.

LING 447 Bilingualism (3)(BA) This course meets the Bachelor of Arts degree requirements. This course presents a panoramic view of the major questions, research methods and results in bilingualism research. We will cover the following topics, in addition to those topics that emerge from students' research: bilingualism in society; political and social results of language contact; effects of social attitudes on bilinguals; how bilingualism affect language: transfer, code-switch, language contact and language change; the bilingual brain, psycholinguistic effects of having two grammars in sentence production, phonological perception and lexical storage; childhood bilingualism; developmental and educational consequences of bilingualism.

Bachelor of Arts: Social and Behavioral Sciences

LING 448: Sociolinguistics

3 Credits

Issues in the study of language in its sociocultural context; analysis of social dialects and speech styles. LING 448 Sociolinguistics (3) (BA) This course meets the Bachelor of Arts degree requirements. This course investigates sociolinguistics variation and linguistic change. We will be concerned with identifying the mechanisms by which changes come about and are transmitted within a linguistic system. The course contrasts traditional studies of change and variation which concentrate on linguistic internal factors to those that are based on sociolinguistic factors. Research from a wide variety of languages and cultures will be examined.

Bachelor of Arts: Social and Behavioral Sciences

LING 449: Semantics I

3 Credits

LING 449 Semantics I (3)(BA) This course meets the Bachelor of Arts degree requirements. This course examines our best understanding of how humans produce and understand utterances to have particular meanings. This course examines lexical semantics, which is concerned with word meaning, phrasal semantics, which examines phrase meanings and with pragmatics, the study of meaning in contexts. Because meanings cannot always be built up or deduced from the combined meaning of smaller elements, students will attempt to divulge the semantic principles at work in human language through a wide variety of problems, activities, and formal analyses.

Prerequisite: C or better in LING 100, or C or better in MATH 311W or C or better in CMPSC 360

Bachelor of Arts: Social and Behavioral Sciences

LING 457: Psychology of Language

3 Credits

Overview of psychological research and theory on language processes, including speech perception, word recognition, meaning representation, comprehension, and language acquisition. LING (PSYCH) 457 Psychology of Language (3)(BA) This course meets the Bachelor of Arts degree requirements. How do we process language? Why do we easily adjust to a speaker with a foreign accent? How do young children come to speak the language to which they are exposed? Why is it difficult to learn a second language as an adult? This course focuses on the cognitive processes engaged by language use. Topics to be covered include speech perception, word recognition, representation of word meaning, comprehension of sentences, spoken production of words

and sentences, and first and second language acquisition. In addition, the role of language in the study of thought and the role of biological mechanisms in theories of language learning will be discussed, as well as ways in which research on the language of special populations (e.g., deaf signers, dyslexics, aphasics) can inform theories of language processing and representation.

Enforced Prerequisite at Enrollment: PSYCH 100 or LING 100

Cross-listed with: PSYCH 457

Bachelor of Arts: Social and Behavioral Sciences

LING 493: Field Methods

3 Credits

In this course, students work directly (in groups) with a native speaker of a foreign language with which no one in the class has any prior familiarity. The students will work to uncover the set of sounds relevant to the language in question by winnowing down possible sound contrasts made in human languages. They will begin to construct a lexicon (vocabulary) built with a phonetic alphabet to discover how words and sentences are formed in the language. They will refine their techniques of questioning their research participant based on principles of linguistic field work.

Prerequisite: C or better in LING 100 Concurrent: LING 404 and LING 402 Recommended Preparation: Prior completion of Two upper-level linguistics courses. Field Methods is a capstone course for the Linguistics Major, background experience is expected.
Bachelor of Arts: Social and Behavioral Sciences

LING 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Social and Behavioral Sciences

LING 494H: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Social and Behavioral Sciences
Honors

LING 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Bachelor of Arts: Social and Behavioral Sciences

LING 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be taught in one year or semester.

Bachelor of Arts: Social and Behavioral Sciences

LING 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)

Management (MGMT)

MGMT 100: Survey of Management

3 Credits

Introduction to organizational factors relevant to management processes, including leadership, motivation, job design, technology, organizational design and environments, systems, change. May not be used to satisfy Penn State Business baccalaureate degree requirements. Not available to students who have taken B A 304 or MGMT 301.

MGMT 100W: Survey of Management

3 Credits

Introduction to organizational factors relevant to management processes, including leadership, motivation, job design, technology, organizational design and environments, systems, change. May not be used to satisfy Penn State Business baccalaureate degree requirements. Not available to students who have taken B A 304 or MGMT 301.

Writing Across the Curriculum

MGMT 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

MGMT 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

MGMT 215: Entrepreneurial Mindset

3 Credits

This course provides the opportunity to learn to think like an entrepreneur in the broader context of social entrepreneurship, intrapreneurship, creative problem solving, opportunity recognition, and innovation. MGMT 215 Entrepreneurial Mindset (3) An entrepreneurial mindset can be applied to different situations such as social entrepreneurship, intrapreneurship, creative problem solving, opportunity recognition, technology management, innovation and career development, etc. The skills and attributes of an entrepreneurial mindset can be used to expand career options and career paths for students in any major. Students will develop self-efficacy, leadership, recognition of new opportunities, resourcefulness, creativity and comfort with ambiguity. Further, this course will help students develop an appreciation for mistakes and failure as valuable learning opportunities. Through experiential exercises and problem based learning the student will be afforded the opportunity to study, apply and absorb an entrepreneurial mindset as an approach to

viewing the world, to recognizing opportunities and to developing novel solutions. After taking this course the student, regardless of a student's major or college, will have a greater understanding of how to apply entrepreneurial thinking to problems and adopt entrepreneurial solutions to those problems to transform them from problems into opportunities.

MGMT 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

MGMT 296H: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Honors

MGMT 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

MGMT 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

MGMT 301: Basic Management Concepts

3 Credits

MGMT 301 exposes undergraduate students to the fundamental principles and basic concepts of management, with emphasis on organizational design, management processes, leadership, motivation, and managing teams and individuals in a global business environment. Understanding these principles and concepts is extremely important for students preparing for and entering the business profession. Managers plan, organize, lead, and control. These functions provide a foundation for MGMT 301 and are included in all course topics and modules. Typical modules include: An Overview of Management; Strategy and Structure; Organizational Behavior; and Group/Organizational Dynamics. The overview of management focuses on the manager's role and function, decision making, ethics, and managerial oversight. Topics covered in a strategy and structure module will include culture, environmental influences, strategy, organizational structure, globalization, and innovation. Organizational Behavior focuses on how decision making is influenced by various stakeholders who have formal and informal authority and control in a business. What motivates individuals and who are leaders in an organization is discussed along with group dynamics. Understanding team processes, conflict, adaptation to change, and various levels of group and one-on-one communication is important and will be covered by reviewing traditional management strategies and structures along with discussions on current and evolving management issues. Students may earn credit towards graduation for only one of the following; BA 304, MGMT 301, MGMT 301H, or MGMT 301W.

Enforced Prereq at Enrollment: (ENGL 15 or ENGL 30H or ENGL 137H or ESL 15 or CAS 137H) and (ECON 102 or ECON 104) and (MATH 21 or a higher or a satisfactory score on the math placement exam)

MGMT 301H: Basic Management Concepts (Honors)

3 Credits

Study of fundamental principles and processes available to the understanding of management. Students will likely spend a major part of their lives working for one or, perhaps, leading one they have started. Although sound technical skills and relevant knowledge are important reasons an organization hires employees, the ability to lead and manage people is critical for future advancement. This course is focused on the social facets of organizations - as opposed to elements such as finance, marketing, operations, etc. A good grasp of how organizations work will help students succeed in their careers. This course provides a forum to critically engage with theories and concepts that attempt to explain organizational practices. It is designed to not only provide students with the basic fundamentals that may be used as tools to become better managers, but also help students question their own assumptions about how people ought to behave and how they actually do behave in organizations. This course, builds on the concepts embedded in a traditional foundation management course by researching the theories these courses are built upon and pointing out the advantages and limitations of these different approaches. The topics covered in this course will provide both the breadth and depth of understanding of various topics including organizational structure, strategy, culture, leadership styles, ethics, and staffing that fall under the domain of Management and Organization. In addition, specific challenges faced by managers in contemporary organizations such as managing teams, globalization, and diversity are also incorporated. These topics are covered using lectures, independent research, case analyses and experiential exercises that will help you develop in-depth domain knowledge as well as managerial skills. In addition, the course will facilitate the development of research and analytic skills through the inclusion of individual presentations of current topics that represent critical issues in organizations. A team project will further enhance knowledge acquisition of specific issues facing organizations and, since teams are prevalent across most organizational settings, also help develop teamwork skills. Students may earn credit towards graduation for only one of the following; BA 304, MGMT 301, MGMT 301H, or MGMT 301W.

Enforced Prereq at Enrollment: (ENGL 15 or ENGL 30H or ENGL 137H or ESL 15 or CAS 137H) and (ECON 102 or ECON 104) and (MATH 21 or a higher or a satisfactory score on the math placement exam)

Honors

MGMT 301M: Basic Management Concepts

3 Credits

Examination of fundamental principles and processes applicable to the study of management. May not be used to satisfy Smeal College baccalaureate degree requirements. Not available to students who have taken B A 304.

Honors

Writing Across the Curriculum

MGMT 301W: Basic Management Concepts

3 Credits

MGMT 301W, Basic Management Concepts, is a three credit course offered each semester across Penn State. MGMT 301W exposes undergraduate students to the fundamental principles and basic concepts of management, with emphasis on organizational design, management processes, leadership, motivation, and managing teams and individuals in a global business environment. Understanding these principles and concepts is extremely important for students preparing for and entering the business profession. Managers plan, organize, lead, and control. These functions provide a foundation for MGMT 301W and are included in all course topics and modules. Typical modules include: An Overview of Management; Strategy and Structure; Organizational Behavior; and Group/Organizational Dynamics. The overview of management focuses on the manager's role and function, decision making, ethics, and managerial oversight. Topics covered in a strategy and structure module will include culture, environmental influences, strategy, organizational structure, globalization, and innovation. Organizational Behavior focuses on how decision making is influenced by various stakeholders who have formal and informal authority and control in a business. What motivates individuals and who are leaders in an organization is discussed along with group dynamics. Understanding team processes, conflict, adaptation to change, and various levels of group and one-on-one communication is important and will be covered by reviewing traditional management strategies and structures along with discussions on current and evolving management issues. Students may earn credit towards graduation for only one of the following; BA 304, MGMT 301, MGMT 301H, or MGMT 301W.

Enforced Prereq at Enrollment: (ENGL 15 or ENGL 30H or ENGL 137H or ESL 15 or CAS 137H) and (ECON 102 or ECON 104) and (MATH 21 or a higher or a satisfactory score on the math placement exam) Writing Across the Curriculum

MGMT 320: Establishing Workforce Diversity and Inclusion

3 Credits

This course provides students with an understanding of the relevance and importance of diversity within corporate America as well as a review of global business practices. Students will examine marketing, management, and finance topics within the context of issues pertaining to persons of different orientations, gender and ethnic backgrounds. Diversity Workforce and Inclusion looks at topics that directly and indirectly impact employment opportunities, day-to-day work practices, and the civil environment in which individuals deal with as they attempt to establish themselves as successful individuals on equal footing with their colleagues. Course participants will be given the opportunity to examine their own biases and questions surrounding the topics of diversity, inclusion, and leadership in a multicultural environment. Current national and global trends in workplace diversity will be covered along with federal mandates that impact employment, education, and civil matters.

MGMT 321: Leadership and Motivation

3 Credits

Applies organizational behavior theories, concepts, and skills to leading and motivating individuals and groups.

Enforced Prerequisite at Enrollment: BA 304 or MGMT 301

MGMT 326: Organizational Behavior and Design

3 Credits

Concepts, theories, and methods of managing people and designing organizations. MGMT 326 Organizational Behavior and Design (3) This introductory course covers the concepts, theories, and methods of managing people and designing organizations. Issues and challenges of managing at different organizational levels (individual, group, project, and total organization) are discussed and illustrated with real-world examples. Students learn about the latest means of designing high-performing organizations, including how to change an organization. This course will serve as a foundation for taking advanced management courses. The primary method of evaluation is an examination after each of the four major parts of the course, but class participation and short papers may also be used for evaluation.

Enforced Prerequisite at Enrollment: BA 304 or MGMT 301

MGMT 331: Management and Organization

3 Credits

Designing organizations to effectively manage new technologies, structures, and people in changing global contexts.

Enforced Prerequisite at Enrollment: BA 304 or MGMT 301

MGMT 341: Human Resource Management

3 Credits

Introduction to the strategic planning and implementation of human resource management, including staffing, development, appraisal, and rewards.

Enforced Prerequisite at Enrollment: BA 304 or MGMT 301

MGMT 345: Cultural Intelligence in Leadership and Management

3 Credits

Globalization and technology have changed the way organizations interact with internal and external constituents. Leaders must strive to create an environment where individuals adapt in socially responsible ways in order to foster the growth of global citizens. This course explores the realm of cultural intelligence or cultural quotient (CQ) and its importance in developing an inclusive approach to leadership and management. Through an experiential learning approach, students will develop skills that will aid in their ability to appreciate, manage, lead, and work with individuals across a multitude of cultural identities.

Enforced Prerequisite at Enrollment: ECON 102 or ECON 104 International Cultures (IL)

MGMT 355: Leadership and Change in Organizations

3 Credits

This course focuses on concerns with understanding yourself as a leader in organizations-especially organizations undergoing change.

Enforced Prerequisite at Enrollment: MGMT 301

MGMT 365: Social Entrepreneurship

3 Credits

Social entrepreneurship exposes students to the power of solving social problems through market-based solutions. Entrepreneurs, in general, create opportunities through resource integration. Therefore, social entrepreneurs create socially beneficial opportunities through the integration of public and private resources. In this course, students will explore the latest regulatory, legal and macroenvironmental policies and issues related to social entrepreneurship. In contrast to existing entrepreneurship courses, social impact is the primary purpose driving firm creation. Profitability, or value capture is not required, but might provide an innovative business model choice. In order to support the creation and growth of important social opportunities, entrepreneurs should consider different business model innovations beyond financial returns alone might produce. After taking this course, students will be alert to legal and regulatory opportunities, be capable of developing relevant marketing innovations and provide measurement and impact analyses prior to and after implementation of their strategies associated with social entrepreneurship. These learning outcomes will benefit traditional entrepreneurs and social entrepreneurs in developing innovative solutions.

Enforced Prerequisite at Enrollment: MGMT 301**MGMT 395: Internship**

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: prior approval of proposed assignment by instructor.**MGMT 397: Special Topics**

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

MGMT 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

MGMT 400: Organization Development

3 Credits

A study of organizational change and methodologies related with change and improvement. Examination of planned change on processes, strategies, people and culture in organizations.

Enforced Prerequisite at Enrollment: MGMT 301**MGMT 401: Contemporary Issues in Management**

3 Credits

Advanced treatment of topics of current managerial significance. Issues examined will differ by instructor, section, and semester. Consult departmental office.

Enforced Prerequisite at Enrollment: MGMT 301**MGMT 409: Project Management for Non-business Majors**

3 Credits

Project management for non-business majors covers the technical and people skills related to project management within a variety of organizational structures. Students learn the tools and concepts needed to successfully balance schedule, budget, and scope while managing risk and resources during the project life cycle. Leadership and teamwork skills are emphasized and practiced in a hands-on approach throughout the duration of the course.

Enforced Prerequisite at Enrollment: 5th semester standing**MGMT 410: Project Management**

3 Credits

MGMT 410 Project Management (3) Project Management has been labeled by Fortune magazine as the number one career choice for the coming decade. Increasingly, organizations are adopting project management techniques and structures within their business framework. Project management offers the twin advantages of allowing organizations to create products and processes efficiently, through optimal use of resources, and rapidly, in order to respond to rapid time-to-market demands. This course would greatly aid business majors, as companies are in great need of a trained cadre of qualified project managers who can allow the business firm to operate to its highest potential. The role of the instructor in this course is to train students in the wide variety of demands and skills for which they must be qualified: the ability to exert leadership in managing project teams, an understanding of people and behavioral skills, and the ability to effectively use computer-based scheduling and tracking software to keep timetables and schedules. The course itself would be set up around semester-long projects, either developed by the instructor, or developed (in collaboration with the instructor) by students involved in business enterprises. As a result, students would have real-time experience in the challenges of creating a unified team, solving problems, tracking their projects, and presenting a final paper and presentation on the process.

Enforced Prerequisite at Enrollment: MGMT 301 and (SCM 301 or SCM 310)**MGMT 415: Project Portfolio Management and Organizations**

3 Credits

An advanced course in project management focusing on portfolio planning and control within the context of specific organizational challenges. MGMT 415 Project Portfolio Management and Organizations (3) Project Portfolio Management (PPM) is a strategically-focused course on the management of projects, programs, and portfolios in organizations. The management of individual projects is a complex, multi-level challenge involving myriad issues of planning, organizing, and controlling all project elements. Project portfolio management addresses a more strategic need; namely, the process of project

selection in order to develop a balanced portfolio of projects designed to support organizational initiatives. As a result, this course addresses the critical issues of maximizing value in a portfolio, linking projects to organizational strategy, understanding the critical organization effects of structure, environment, and culture on project success, and creating a coherent PPM framework for the firm. Because the focus is more strategic, the role of the instructor in this course is to go beyond the mechanics of planning and controlling a single project to training students how to think strategically where projects and programs are concerned; to recognize their role in creating a PPM plan for an organization, selecting projects for value, rebalancing a project portfolio, and maintaining this focus within the organization.

Enforced Prerequisite at Enrollment: SCM 301 and (MGMT 409 or MGMT 410 or BA 421)

Cross-listed with: SCM 415

MGMT 418: Project Planning and Resource Management

3 Credits

Advanced course in project management focusing on a more in-depth approach to project planning and scheduling and resource management. MGMT 418 Project Planning and Resource Management (3) Project Planning and Resource Management is a more in-depth look at some of the most important aspects of project management; the ability to accurately plan and schedule projects using the latest and most accurate methods. Further, the course addresses resource management within the context of planning, noting the important linkage between these two elements. Accurate planning can be done through a variety of techniques, including CPM, PERT, simulation, linear programming and other optimization methods. Students will learn when each of these methods are most useful, benefits and drawbacks of various planning and resource management techniques, and how to apply these techniques to their projects. In addition, students will learn about different types of project risks, and techniques for analyzing and managing these risks. Because the focus is hand-on and problem-based. The role of the instructor in this course is to demonstrate these analytical techniques through classroom exercises and assignments and software packages, including MS Project, simulation, and Analytic Hierarchical Process (AHP).

Enforced Prerequisite at Enrollment: SCM 301 and (MGMT 409 or MGMT 410 or BA 421)

MGMT 420: Negotiation and Conflict Management

3 Credits

An exploration of the sources of interpersonal conflict and strategies of resolution in the managerial context.

Enforced Prerequisite at Enrollment: MGMT 301 or BA 304

MGMT 424: Interpersonal Relationships in Organizations

3 Credits

Developing individual skills in interpersonal and group settings and experience-based and conceptual training in relating effectively to other people.

Enforced Prerequisite at Enrollment: MGMT 321 or MGMT 326

MGMT 425: New Venture Creation

3 Credits

Via problem-based learning, students define new business ventures to meet current market needs, develop business models, and present to various stakeholders. The goal of New Venture Creation is to better prepare undergraduate students to be leaders in adaptive, globally-minded, technology-savvy organizations. The course is structured so students develop skills that are of high value in any workplace: leadership skills, self-efficacy, creativity and the ability to deal with ambiguity. Upon course completion, students will have a working knowledge of traditional and non-traditional ways for identifying a new product or business opportunity, quantifying the potential, understanding the key competitive factors, researching the audience, and producing a convincing plan for financing and launch. Students who want to augment the skills and knowledge from their major with the ability to develop a new product/service/process, will find New Venture Creation a valuable course. This is a novel problem-based learning (PBL) course, where the learning is student-centered, with faculty acting primarily in the role of facilitators. Active/Experiential learning happens in this course because students develop ownership of their venture concepts and are fully responsible for the genesis of ideas.

Enforced Prerequisite at Enrollment: (ECON 102 or ECON 104 or ECON 14 or MGMT 215) and (CAS 100 or CAS 138T or EMSC 100S)

Cross-listed with: ENGR 425, IST 425

MGMT 426: Invention Commercialization

3 Credits

Working with Penn State inventions selected by the Intellectual Property Office, student teams define an optimum commercialization path each technology. ENGR 426ENGR (MGMT/IST/ENTR) 426 Invention Commercialization (3) The goal of ENGR (MGMT/IST/ENTR) 426 is to have students understand why invention commercialization is complicated and difficult by participating in the process. For example, the inventor rarely has insights into the markets for his/her invention, is often not interested in the details of commercialization, and can be secretive. In addition, the business and financial communities often do not take the time, or have the resources, to understand new technologies and perform complex due diligence. Thus lack of due diligence often leads to rejection of innovation because existing companies often discount new technologies from outside the company as NIH - 'not invented here'. Effective transfer of new invention or innovation to a commercial product requires at least three different functional communities to interface: technical, legal and business. Each uses a different language, comes from different educational and cultural backgrounds, and may have an inherent distrust of the others. These functional barriers are difficult to overcome. This course teaches how these barriers can be broken down as student teams help bridge the perceived chasm between key players in the invention commercialization process. In these teams, students bring the skills and knowledge from their major to develop an invention commercialization recommendation for the Technology Transfer Office and the inventor. For example, business students focus on finance and market opportunity assessment; engineering and IST students focus on design refinements, prototyping support, and (if appropriate) making technology suggestions to the inventor. Upon completing the course, the students will have a working knowledge of different university and corporate technology or invention commercialization processes, important intellectual property management tools for inventions (patents, license agreements, option agreements) source of funding to move

inventions toward product development, and delivering top quality presentations which outline the recommended commercialization path. Students who enjoy open-ended projects which involve the interplay of business and invention of who wants to work on interdisciplinary teams with the newest inventions will find this course a valuable course. NOTE: Because the inventions/products are based on Penn State faculty intellectual property, students must sign the Penn State Special Intellectual Property Agreement For Students - For Use When Assigning Intellectual Property to The Pennsylvania State University. The form can be viewed at <http://guru.psu.edu/policies/RAG13.html>The course will be offered both Spring and Fall semesters with an enrollment of 40 students.

Enforced Prerequisite at Enrollment: (ECON 102 or ECON 104 or ECON 14) and CAS 100
Cross-listed with: ENGR 426, IST 426

MGMT 427: Managing an Entrepreneurial Start-Up Company

3 Credits

Exploration of the tensions and experiences of starting and growing a new company. MGMT 427 Managing an Entrepreneurial Start-Up Company (3)Start-up companies have a high failure rate. Acquiring and balancing limited resources, changing direction quickly, building a coherent team, managing intellectual property, and creating new markets all test a wide range of managerial skills not usually demanded in one person within a larger organization. Whereas a large company has a strong and well-defined structure and ample resources to deal with unexpected challenges, a start-up usually has insufficient resources, or management experience and yet must deal with daily important and often unpredictable forces. It is the tenacity of an entrepreneur that can take a company through the valleys of despair to eventually succeed. Students will be exposed to these tensions and experience through problem-based learning methods what it is like to start and grow a new company. The course will provide students with knowledge and experience to increase the likelihood of success whether as a principal in a small company or an investor representative.

Enforced Prerequisite at Enrollment: (ECON 102 or ECON 104 or ECON 014) and CAS 100 and 5th semester standing.

MGMT 427W: Managing an Entrepreneurial Start-up

3 Credits

Start-up companies have a high failure rate. Acquiring and balancing limited resources, changing direction quickly, building a coherent team, developing an organization's culture from scratch, managing intellectual property, and creating new markets all test a wide range of managerial skills not usually demanded in one person within a larger organization. Whereas a large company has a strong and well-defined structure and ample resources to deal with unexpected challenges, a start-up usually has insufficient resources and/or management experience, yet it must deal on a daily basis with important and often unpredictable forces. Students will be exposed to these tensions and experience through problem-based learning methods that illustrate what it is like to start and grow a new company. The course will provide students with the knowledge and experience to increase their likelihood of success whether as a principal in a small company or an investor representative. Managing a Startup is a problem-based learning (PBL) course, where the learning is student-centered, with faculty acting primarily in the role of facilitators. Active learning happens in this course because students are engaged in the analysis of the complex situations that underlie startup companies. The course leverages the on-line course management system to define

weekly learning objectives, support electronic delivery of assignments and provide robust video content from entrepreneurs, investors and key employees, who provide additional insights into the management decisions and ethical dilemmas the leader of a startup faces. Because the course is structured around the on-line course management system, it could be offered at any Penn State location with very little revision. The particular companies and cases that are the focus of the class are easily adapted by using different case studies, companies and course mentors.

Enforced Prerequisite at Enrollment: CAS 100 and 5th Semester standing
Writing Across the Curriculum

MGMT 430: Project Risk Management

3 Credits

Risk management is indispensable for effective project management. The course provides students with proven theories, tools, and best practices in risk management in order to manage a project to its success. From the course, students will recognize that project risks are not surprises and can be effectively managed by conducting analytics and best practices in risk management planning, risk identification, qualitative and quantitative risk analyses, risk response planning, and risk monitoring and control. The course will also emphasize the applications of these concepts to practices. Case studies will be used to help students develop a practical understanding of the best practices in project risk management.

Enforced Prerequisite at Enrollment: SCM 301 and (MGMT 409 or MGMT 410)

MGMT 431: Entrepreneurship and Small Business Management

3 Credits

Entrepreneurship, new ventures, and management of small firms.

Enforced Prerequisite at Enrollment: ACCTG 211 and MGMT 301 and MKTG 301

MGMT 433: Leadership and Team Building

3 Credits

Team-based learning approach to developing conceptual knowledge, skills sets, and personal competencies needed for leading and managing organizations. MGMT 433 Leadership and Team Building (3)To lead effectively and to manage others in contemporary work contexts requires mastery not only of conceptual knowledge, but also of the intra- and inter-personal competencies and skills sets that are vital to successful performance in a work environment. This course emphasizes an experiential-based learning approach that is designed to impart skill sets and competencies in areas such as leadership, teambuilding, negotiating, communicating, valuing diversity, managing conflict, and more. The course thus uses assessment exercises, role playing techniques, group problem solving exercises, and other experiential-based learning techniques in order to provide students with a framework for better understanding their own strengths and weaknesses, to enable them to practice, enhance, and to gain confidence in their competencies in these various areas, as well as to enable students to better appreciate when and how to effectively apply these skills sets and competencies in the workplace.

Enforced Prerequisite at Enrollment: MGMT 301

MGMT 440: Advanced Human Resource Management

3 Credits

In depth study of human resource management and personnel administration functions and processes.

Enforced Prerequisite at Enrollment: MGMT 341

MGMT 441: Organizational Staffing and Development

3 Credits

This course focuses on the skills and methods managers need to manage staffing and development activities in organizations. MGMT 441 HRM Professional Seminar (Part 1): Staffing and Development (3) The purpose of this course is to give students the skills and knowledge they need to contribute to organizational staffing and development activities. Students will learn technical and organizational aspects of making hiring decisions, designing and implementing training programs, and developing career management initiatives. Topics include strategic human resource management, HR planning, the contingency workforce, HR information systems and technologies, job design, recruitment, selection, employment legislation, diversity, training, management development, career planning, and the like. This course is normally taken in the first semester of the senior year. It builds on information introduced in MGMT 341 (Human Resources Management) and moves beyond survey-level material to more specialized knowledge and skill. The course is taken concurrently with MGMT 442 (HRM Part One) and is typically taken as a precursor to MGMT 443 (HRM Proseminar, Part Two) and 444 (HRM Practicum, Part Two). These courses together constitute the core of the HRM Option for Management majors.

Enforced Prerequisite at Enrollment: MGMT 341

MGMT 443: Performance Management

3 Credits

This course focuses on skills and methods managers need to enhance the contribution of employees to organizational performance and effectiveness. MGMT 443 HRM Professional Seminar Part Two: Performance Management (3) The purpose of this course is to give students the skills and knowledge they need to enhance the contribution of employees to the performance and effectiveness of the organization. Students will learn technical and organizational aspects of performance planning, goal setting, performance and feedback, compensation and reward systems, incentive systems, high performance work organizational change, and the like. This course is normally taken in the second semester of the senior year. It builds on information introduced in MGMT 341 (Human Resources Management) and moves beyond survey-level material to more specialized knowledge and skill. The course is taken concurrently with MGMT 444 (HRM Practicum, Part Two) and is typically taken after students have completed MGMT 441 (HRM Proseminar, Part One) and MGMT 442 (HRM Practicum, Part One). These courses together constitute the core of the HRM Option for Management majors.

Enforced Prerequisite at Enrollment: MGMT 341

MGMT 445: Managing a Diverse Workforce

3 Credits

This course focuses on developing knowledge and skills for managing differences within and among organizations. It provides an in-depth look

at the sources of diversity-related conflicts in organizations, constructive approaches for managing these conflicts, and how corporations can leverage diversity for competitive advantage. The overall objective is to provide students with an understanding of the business case for diversity, the legal requirements surrounding the management of diversity in organizations, the structural dimensions of implementing diversity programs, skills for managing diversity in teams, as well as a general sensitivity to the kinds of issues that create conflicts within and between firms. Students will explore legal requirements including: EEOC, affirmative action, and the Americans with Disabilities Act and the implications of these for selection, compensation, promotion and dismissal. Examples of specific steps corporations have taken to address demographic, functional, occupational, and identity-based differences will be provided. Through the use of interactive case studies and experiential exercises, students will be given opportunities to learn about and appreciate their own and others' cultural heritages, reflect on constructive approaches for handling diversity-related conflicts (including those stemming from functional, occupational and identity-based differences as well as demographic ones) and for designing human resource management systems that capitalize on diversity and promotes inclusion.

Enforced Prerequisite at Enrollment: MGMT 301
United States Cultures (US)

MGMT 450: Labor Management Relations

3 Credits

Study of the key concepts and processes involved in current American labor/management relations.

Enforced Prerequisite at Enrollment: MGMT 301

MGMT 451: Business, Ethics, and Society

3 Credits

Advanced examination of social, ethical, legal, and economic responsibilities of those who must make and execute challenging business decisions and manage others who do. The course focuses on the knowledge, skills, and perspectives that a leader in business must have in order to navigate the intersection of business, ethics and society. This includes prescriptive frameworks for ethical decision making, an understanding of how people actually make ethical and unethical decisions, strategies for creating and sustaining ethical cultures, and practice addressing real and hypothetical challenges to responsible leadership in business.

Enforced Prerequisite at Enrollment: MGMT 215 or BA 342 or BA 243 or (BA 241 and BA 242)

MGMT 451W: Business, Ethics, and Society

3 Credits

Advanced examination of social, ethical, legal, economic, equity, environmental, public policy, and political influences on managerial DECISIONS AND STRATEGIES. MGMT 451W Business, Ethics, and Society (3) Focuses on the knowledge, skills, and perspectives that a manager must have in order to deal with the social, legal, ethical, and political demands in society. Ecological, ethical, and public policy dimensions of various managerial decisions are examined.

Enforced Prerequisite at Enrollment: (BA 241 and BA 242) or BA 243 or BA 342

Writing Across the Curriculum

MGMT 453: Creativity and Innovation

3 Credits

Analysis of the process of innovation in organizations and of how creativity and other variables influence the process. MGMT 453 Creativity and Innovation (3) Creativity and Innovation analyzes the process of innovation in modern business organizations and the variables that influence the process. The relationship between creativity and innovation is investigated and individual, organizational and environmental influences on both the creative and innovation processes are examined. Special attention is given to organizational architectures that are conducive to innovation. A major objective of the course is to help students develop the competencies necessary for managing innovative organizations.

Enforced Prerequisite at Enrollment: MGMT 301

MGMT 457W: Strategic Management of Innovation and Technologies

3 Credits

New technologies are turned into innovations and create value for consumers only when they are successfully commercialized. Brilliant technologies can sit for years or even decades in the ivory tower. A successful commercialization of certain technologies does not only require deep understanding of the features of the technologies, but also well-developed frameworks to understand the dynamics of the technologies, the industries that the technologies will be applied to, market potential responses to the technologies and other firms who are interested in collaborating or competing to commercialize the technologies. These frameworks help managers to design the optimal strategy for different types of technologies and innovations (including incremental, disruptive, radical, and sustainable innovations) under dynamic market environments. The course covers several concepts, frameworks and tools through case-based learning methods that illustrate how different innovations and technologies are strategically managed and commercialized. Analyzing the successes and failures detailed in the cases will provide students the knowledge and analytical skills needed to develop comprehensive strategies to manage new technologies. This course is writing-intensive so be prepared to hone your business writing skills along the way. Strategic Management of Innovation and Technologies is a case-based learning course, where the learning is student-centered, with faculty acting primarily in the role of facilitators. Active learning happens in this course because students are engaged in actively analyzing cases and applying newly learned frameworks to the cases. The course leverages the University's course content management system (CMS) to define weekly learning objectives, support electronic delivery of assignments and provide robust video content from managers, inventors and venture capitalists, who provide additional insights into the process of technology commercialization. Because the course is structured within the CMS system, it could be offered at any location with very little revision. The companies and cases that are the focus of the class are easily adapted by using different case studies, companies and course mentors.

Enforced Prerequisite at Enrollment: MGMT 453

Writing Across the Curriculum

MGMT 461: International Management

3 Credits

Examines issues of nations and cultures including motivation, communication, negotiation, leadership, ethics and social responsibility, and women in management.

Enforced Prerequisite at Enrollment: BA 304 or MGMT 301
International Cultures (IL)

MGMT 466: Organizational Learning and Knowledge Management

3 Credits

Examination of the social processes through which organizations continuously develop, acquire, interpret, and apply information and knowledge for performance enhancement and continuous improvement. MGMT 466 Organizational Learning and Knowledge Management (3) The primary focus of this course is to examine critically the social structures and processes through which organizations continuously acquire, develop, organize interpret, distribute and apply information and knowledge for performance enhancement and continuous improvement. Topics such as single-loop learning, double loop learning, and deuterolearning (i.e., learning how to learn) are considered, particularly as they apply to self managed work teams, process-based and network structural design, employee involvement approaches, impact of organizational culture and leadership practices. A second focus of the course is to examine the social processes and structures through which the key outcome of the learning process – organizational knowledge – usually expressed in terms of improved core competencies, and intellectual capital, can be leveraged across products, functions, business units, geographical regions, and competitive environments to improve organizational performance and competitive advantage and provide added value for customers. Particular emphasis is placed on knowledge management in support of the organization's competitive strategy, with a focus on the exchange of tacit, person-to-person knowledge that is difficult to codify and store. Additional emphasis is placed on the mechanisms available for organizational members to gain access to needed knowledge.

Enforced Prerequisite at Enrollment: MGMT 301

MGMT 471: Strategic Management

3 Credits

Issues that influence the competitive performance of the firm are identified and examined. MGMT 471 Strategic Management (3) This course focuses on the management of the firm using a strategic perspective. The strategic perspective emphasizes the firm as the unit of analysis (e.g., analyzing how a firm competes in its industry), and it addresses key decisions that have a long-term impact on the structure and performance of the organization (e.g., diversifying into a new business or changing the company's strategy). The course draws heavily on prior business courses in accounting, marketing, finance, and international management. Key topics include industry analysis, competitor analysis, company analysis, corporate-level strategy, business-level strategy, strategy implementation, and firm performance. The course is normally taught using the case methods, but the course may include a computer simulation and/or oral group presentations.

Enforced Prerequisite at Enrollment: MGMT 326 and concurrent BA 411

MGMT 471W: Strategic Management and Business Policy

3 Credits

Study of strategic management and business policy formulation and implementation processes.

Enforced Prerequisite at Enrollment: MGMT 301 and MKTG 301 and FIN 301 and SCM 301

Writing Across the Curriculum

MGMT 475W: Strategic Product Development

3 Credits

Study of an organization, industry, and evaluation of the introduction to a new product. Preparation of proposal for industry product. MGMT 475W Strategic Product Development (3) This course is the first of a two course sequence that will provide a capstone experience for the Interdisciplinary Business and Engineering BS degree. The tools of strategic management and cross-functional collaboration will be introduced and serve as a background for the design, development, and implementation of a new product within an existing corporation. Student teams will be provided with an industry concept and work toward the objectives of a firm sponsoring the product concept. During the first semester, the evaluation of the product including feasibility of the product, design, manufacture, and intellectual property will be evaluated by student teams and presented to the firm. The final document will include a complete written assessment of each of the components of feasibility.

Enforced Prerequisite at Enrollment: MGMT 301 and FIN 301 and MKTG 301 and (SCM 301 or SCM 310) and 7th semester standing. Recommended Preparation: MECH 211 or MCHT 111. Students should have successfully completed at least 6 credits in engineering. Writing Across the Curriculum

MGMT 476: Product Realization Capstone

3 Credits

Study of an organization, industry, and evaluation of the introduction of a new product. Preparation of proposal for industry product. MGMT 476 Product Realization Capstone (3) This course is the second of a two course sequence that will provide a capstone experience for the Interdisciplinary Business & Engineering BD degree. The tools of strategic management and cross-functional collaboration will be used to design, develop, and implement a new product within an existing corporation. Student teams will be provided with an industry concept and work toward the objectives of a firm sponsoring the product concept. During the second semester, the evaluation of the product including feasibility of the product, design, manufacture, and intellectual property will be used by student teams and a final presentation and written assessment will be prepared for the firm.

Enforced Prerequisite at Enrollment: MGMT 475W or 8th semester standing

MGMT 480: Business Transformation Consulting

3 Credits

This course provides key issues, concepts, and methodologies associated with business transformation and management consulting. Students will explore the professional services industry, industry best practices, and a variety of client contexts where advisory services are needed. Additionally, students will learn common consulting methods and

how to apply them in client organizations. A consulting-oriented solution development lifecycle is used as the organizing framework of the course. The primary phases of this framework include: client qualification/validation, problem identification, data gathering, requirements definition, project planning, solution design, solution development, solution implementation, and client relationship management. Students will learn to how to identify and define organization problems, highlight pain points, map work flows, explore business models, investigate strategic alignment, develop recommendations, present business cases, and prototype solutions. The course will also enable students to learn how to advise clients and present key points and recommendations in a direct, clear, and compelling manner. Course objectives are to provide students with consultative methods, skills, and tools essential to facilitating organizational change. The course is designed around real-world problems and projects involving organizational assessment, solution development, and implementation planning. In this course, each student will be assigned to a consulting team. Each consulting team will be assigned to work with a corporate client to address a real-world business problem. Students will learn how to work proactively with key stakeholders to identify and understand the choices, risks, and benefits of particular solution alternatives, prepare project proposals, develop a plan to support the needed changes, and assess the effectiveness of business transformation efforts. Depending on the project, the recommended solution may be prototyped or fully developed during the course.

Enforced Prerequisite at Enrollment: MGMT 301

MGMT 481: Global Strategic Management

3 Credits

With increasing competition around the globe, companies today confront an increasing array of choices regarding geographic markets, locations for key activities, ways of organizing businesses, operations, and processes for managing across borders. This course provides a broad exploration of new business models developed for competing in the global marketplace. It discusses the evidence, concepts and models for understanding the strategic issues facing executives nowadays and their impacts on company performance. In particular, it investigates various aspects of corporate level and business level strategy dealing with opportunities and challenges in the global competitive environment. It considers the dynamics in the global business environment and addresses key strategic decisions that influence firm growth and competitive advantages. The aim of this course is to prepare students to manage effectively in today's interconnected world by understanding this changing environment, principles of global strategy, and the relation between global strategy and organization. Students will develop strategic thinking capabilities and apply analytical tools and frameworks for understanding key factors influencing decision making in today's interconnected world. The course builds on insights from prior business courses in accounting, marketing, finance, organizational behavior, strategy, and international management. Learning will take place through lectures, in-class activities, case discussion, simulation, and group project and presentations.

Enforced Prerequisite at Enrollment: MGMT 326 or (MGMT 321 and MGMT 331)

MGMT 483: Compliance and Fairness in Organizations

3 Credits

Compliance with employment laws with respect to managing human resources and fair treatment in employer-employee relationships.

MGMT 483 Compliance and Fairness in Organizations (3) This course is intended for undergraduate students who want to learn more about the laws governing the employment practices introduced in the survey course in human resource management. This course will clarify the legal context within which businesses in general, and managers in particular, manage their employees. Students will learn about the legal rights and responsibilities of both employers and employees. Objectives of the course include learning how to comply with workplace laws and regulations, learning how to legally and effectively implement these requirements in an organization, and, as managers of human resources, knowing how to run a safe and fair workplace. To accomplish these objectives, students will evaluate and analyze federal employment laws and regulations, state employment laws (where applicable), and U.S. Supreme Court rulings. The emphasis will be on providing an informed legal context for managerial behavior. Student achievement of these learning objectives will be evaluated using several methods: students will summarize, interpret, and analyze employment law cases, write and develop a portfolio of critical essays of corporate employment practices, research and present (with team members) a project analyzing a current legal challenge to a specific company employment practice, and prepare a comprehensive written examination of material covered in the course.

Enforced Prerequisite at Enrollment: MGMT 341

MGMT 485: Entrepreneurial Opportunity Creation

3 Credits

Entrepreneurial Opportunity Creation is a process for co-creating ideas, markets and products by testing value propositions in actual market conditions. Opportunity co-creation prepares entrepreneurs to manage under conditions of extreme uncertainty. Opportunity creation is an iterative process between internal and external stakeholders focused on mutual value creation and exchange. Upon validation that a meaningful market opportunity exists, organizational resources are designed and deployed to match the learned opportunity. Unlike traditional entrepreneurial approaches, organizational formation is predicated on co-creation activities and is custom designed to fit the specific opportunity. This sequence reduces risk previously caused from efforts to predict the unpredictable, an uncertain future. This course will prepare students to learn how to create their own opportunities through active learning instead of predictive planning techniques rooted in risk analysis. Students will learn to use lean management techniques such as prototype development, sales and entrepreneurial marketing. This specific process or opportunity creation reverses conventional thinking and positions ideas, resources and experiences as outcomes of the process, not inputs.

Enforced Prerequisite at Enrollment: MGMT 453 and MGMT 425

MGMT 486: Entrepreneurial Investment and Resource Acquisition

3 Credits

As resource integrator's, entrepreneurs must first understand what resources are needed to create a new venture (through Entrepreneurial Opportunity Creation) and then solicit and organize internal and external resources (aka Venture Capital). Although venture capital is often conceptualized as formal investments made by large investment institutions seeking high growth opportunities, a more inclusive definition of venture capital more aptly considers all forms of external resource sharing to provide the creation of value, new ventures and wealth. The entrepreneurial ecosystem offers an expanding number of tools to aid new venture creation. As such, successful entrepreneurs need to be

aware of the options and understand their respective strengths and weaknesses. Today's entrepreneurs can utilize traditional investment tools such as banking, personal debt obligations and venture capital institutions as well as emerging forms of investment tools such as crowdfunding resources, angel investors and accelerators. This course will provide students with the insights into raising venture capital, more broadly defined as any necessary external assets, through business planning, networking, investment pitching and negotiating. This will require students to compile the learning outcomes gained through prerequisite material in opportunity creation into a comprehensive business plan including financial projections. Through these activities, students in this course will be prepared to engage with applicable external resources providers and/or investors.

Enforced Prerequisite at Enrollment: MGMT 485

MGMT 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

MGMT 494H: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Honors

MGMT 495: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: prior approval of proposed assignment by instructor.

Full-Time Equivalent Course

MGMT 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

MGMT 496B: ****SPECIAL TOPICS****

1-6 Credits

MGMT 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

MGMT 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Management Information Systems (MIS)

MIS 103: Microcomputer Applications in Business

3 Credits

Introduction to current business uses of the microcomputer, including spreadsheets, database management, word processing, and decision-making models.

MIS 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

MIS 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

MIS 204: Introduction to Management Information Systems

3 Credits

Introduction to Management Information Systems provides an overview of the role of information systems in business process design, the current technologies used for obtaining, storing, securing, and communicating information in support of operations and decision-making within a business organization, as well as, the concepts and principles for developing and using popular spreadsheet and database tools. Applications focus on the development of quantitative problem-solving skills applied to specific examples of business problems and issues found in business disciplines, including accounting, finance, marketing, supply chain operations, and general management. Problem solving skills will be reinforced by assigning problem sets to students to do on their own.

General Education: Quantification (GQ)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

MIS 204H: Honors Introduction to Management Information Systems

3 Credits

Introduction to the use of information systems in business organizations. MIS 204H Introduction to Management Information Systems Honors (3) This honors section of MIS 204, will provide enhanced, in depth learning for Schreyer Honor students. MIS 204 is an applications-oriented course that provides an overview of (1) the role of information systems in business process design, (2) the current technologies used for obtaining, storing, and communicating information in support of operations and decision-making within a business organizations, and (3) the concepts and principles for programming, developing, and using popular spreadsheet and database tools. Applications focus on important problems and issues found in business disciplines, including accounting, finance, marketing, supply chain operations, and general management. The responsibility to understand and recognize opportunities to use

information systems belongs to all managers in an organization, not just the information technology managers. As future business managers in diverse functional areas, our students begin their journey to understand the foundations of information systems and how managers are using these systems to increase the competitiveness of their organizations. As an introductory course, students should be able to come into the class without any prior experience. However, even students with experience will hopefully learn something new. Students will develop a general understanding of how a business functions, understand how information and technology is used within a business and develop new student IT skill sets. In summary, we aim to provide an opportunity for all undergraduate business majors to use IT in their current or future jobs in such a way to ensure the success of their organization. In addition, the Schreyer Honor students will also be exposed to business data mining, a highly intelligent application of information technology in a variety of business contexts that often lead to core competitive advantages.

Honors

MIS 250: Introduction to Problem Solving with Spreadsheet Analysis and Information Systems Management

3 Credits

Introduction to Problem Solving with Spreadsheet Analysis and Information Systems Management introduces students to the use of information technologies for business problem solving and decision-making. This course explores the application of spreadsheet engineering concepts and principles of data management, business modeling, and reporting to business problems. Students demonstrate their understanding and mastery of these concepts through their application in examinations, practical lab exercises and assignments. Concepts are contextualized in a broader discussion of information systems management including: data security, ethical issues, social media, distributed (cloud) services, and emerging trends. The structure of this course intends to provide a well-rounded level of competency in the use of spreadsheet software as a tool while exploring problem decomposition and solution planning and construction. Therefore, the focus of the course is on developing problem-solving strategies while gaining insight on the tactical use of spreadsheets.

MIS 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

MIS 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

MIS 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

MIS 301: Business Analytics

3 Credits

MIS 301 investigates use of databases, basic data mining tools, social networking software, and advanced level of spreadsheet management for analysis of large amounts of data. Learning methods emphasize active learning in the application of methods and tools to real data and the presentation of the results. Topics may include methods for analyzing not only structured data, but also unstructured data from the web, emails, blogs, social networks, click streams, etc. Finally, techniques for visualizing, presenting and communicating information in a useful way will be presented.

Enforced Prerequisite at Enrollment: (SCM 200 or STAT 200) Concurrent Courses: (MATH 110 or MATH 140) and (MIS 204 or MIS 250)

MIS 307: Object-Oriented Programming and Application Development

3 Credits

MIS 307 focuses on using object-oriented programming to develop a broader understanding of logical structures, algorithms, arithmetic facilities, and data structures to develop software that can be purposefully used to inform decisions and automate intentional processes. This is a hands-on, practical course designed to give students first-hand experience in applying object-oriented programming techniques to software development.

Enforced Prerequisite at Enrollment: IST 140 or CMPSC 101 or CMPSC 121

MIS 315: Python Programming

3 Credits

Students will learn how to program with Python, which is an interpreted, object-oriented, high-level programming language with dynamic semantics. Students will demonstrate how to easily use this for small, large, online and offline projects. Students will utilize Python for web development, simple scripting and data analysis. Students will describe how Python supports modules and packages, which encourages program modularity and code reuse. Students will develop a project with Python's interactive mode combined with the PyPI (Python Package Index). Students will become proficient with Python, which is the leading language of choice for many data scientists.

MIS 336: Database Management Systems

3 Credits

Theory and utilization of database management systems in organizations, including data modeling and applications development.

Enforced Prerequisite at Enrollment: MIS 204 or MIS 110 or CMPSC 121 or CMPSC 102

MIS 344: Introduction to Cybersecurity

3 Credits

MIS 344 is an introductory course designed to provide students the concepts of cybersecurity along with a deeper understanding of current information and the need for system protection. This course builds a foundation for understanding the critical issues associated with protecting information assets. It will include a hands-on practice that

involves protecting work with passwords and applying multiple security through research, application and certification in the field.

Enforced Prerequisite at Enrollment: MIS 204 or MIS 250

MIS 345: Introduction to Data Analytics

3 Credits

An introduction to data analytics including data preparation, data visualization, dimension reduction, modeling techniques, and applications in different domain areas.

Enforced Prerequisite at Enrollment: SCM 200 or STAT 200 or equivalent approved course

MIS 387: Website Design and Administration

3 Credits

Applied, hands-on, interdisciplinary website design/administration course. Acquired concepts, techniques and tools are exercised in individual and team projects. MIS 387 Website Design and Administration (3) This course is designed to teach students how to design, create, deploy, and administer websites. The students will have the opportunity to obtain a solid understanding of some of the tools and techniques, beyond basic HTML, used to publish on the Internet via the World Wide Web. Additionally, the students will learn how to present themselves professionally on the web to a specific target audience. The students' experiences will not be limited to the design and implementation of a website, but will include the opportunity to work within a team, to understand the benefits of working with client organizations to develop a website, and a web implementation plan.

Enforced Prerequisite at Enrollment: MIS 204

MIS 390: Foundations of Information Systems

3 Credits

MIS 390 examines concepts of IS (including hardware, software, and data storage and acquisition) and the support that IS provides for transactional, decisional, and collaborative business processes. Students will be able to understand the collection, processing, storage, distribution, and value of information and be able to make recommendations regarding IS that support and enable individuals in their daily lives as well as the management of customers and suppliers of the enterprise. These competencies include the ability to conduct a business process and systems analysis through a semester project that enables an organization to achieve strategic goals and objectives.

Enforced Prerequisite at Enrollment: MIS 204 or MIS 250

MIS 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

MIS 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

MIS 404: Introduction to ERP and Business Processes

3 Credits

A problem-based, interdisciplinary course on Enterprise Resource Planning (ERP) concepts and business processes. MIS 404 Introduction to ERP and Business Processes (3) Enterprise Resource Planning (ERP) a group of integrated software modules used to run virtually all business processes in an organization. The course explains and demonstrates how business processes such as sales logistics, production/material management, procurement, and human resources are supported in an ERP software package.

Enforced Prerequisite at Enrollment: MIS 204 or 1st Level Programming Course or with the permission of the program

MIS 405: Supply Chain Information Systems with Oracle

3 Credits

Strategic design and implementation of Oracle supply chain management information systems in an ERP environment. MIS 405 Supply Chain Information Systems with Oracle (3) This course involves extensive discussion and study in the design and understanding of supply chain information systems. The vast majority of business data is generated through the use of supply chain information systems. Successful program managers and business analysts must understand how the data is generated, and how this strategic data is used to integrate various business functions. This course will focus on the implementation and management of supply chain information systems, and will include topics in the following areas: * Inventory Management * Purchasing and Materials Management * Bills of Material and Engineering * Master Scheduling and Material Requirements Planning. This course will include a special focus on Oracle eBusiness suite applications and numerous hands-on exercises that will ensure participants understand implementation strategies, supply chain information system processes, and data analysis.

Enforced Prerequisite at Enrollment: SCM 301 and MIS 204

MIS 406: Customer Information Systems with Oracle

3 Credits

A technology-based exploration of the various Oracle Order Management and Customer Relationship Management tools. MIS 406 Customer Information Systems with Oracle (3) This course provides a detailed explanation of customer relationship and order management within the organizational supply chain. The course demonstrates how Order Management process flows, application functionality, and organizational requirements are utilized to manage and control sales order fulfillment. Additionally the course will demonstrate how Oracle's integrated Customer Relationship Management (CRM) solution provides information-driven sales, service, and marketing support to the organization. Extensive use of state-of-the-art Oracle business software technology is employed.

Enforced Prerequisite at Enrollment: MIS 405

MIS 407: Enterprise Integration with Oracle

3 Credits

This is a technology course focusing on software development in an Oracle eBusiness ERP Environment. MIS 407 Enterprise Integration with Oracle (3) The Oracle Enterprise Integration course will cover the primary functionality of core business application modules and the flow of data through the major database tables. Students will perform SQL queries of critical Oracle ERP tables. Students will develop PL SQL program units which are the foundation of Oracle business modules. The open interfaces for Oracle Inventory and Oracle Purchasing will be demonstrated via programming sessions.

Enforced Prerequisite at Enrollment: MIS 336

MIS 413: User Interface Design

3 Credits

MIS 413 explores the concepts of user interface design principles by examining user experience (UX) and usability. Topics include design considerations such as: psychological and interaction principles, requirements analysis, designing for different screens, typography, symbols, color, graphics, and other visual language components. This is an experiential learning course that provide students with real-world experience on identifying user needs, experience, and capabilities of the system users along with understanding physical and mental limitations required to meet or exceed user expectations.

Enforced Prerequisite at Enrollment: MIS 307 and MIS 390

MIS 415: Social Media Management and Analytics

3 Credits

Students gain experience and in-depth analysis of social media management, digital marketing, SEO/M, and analytics of current digital business practices. MIS 415 Social Media Management and Analytics (3) With the rise of social media as a management, marketing and analytics tool, students need to learn how to use these tools to communicate better with customers as well as analyze important data that can help marketers solve digital marketing challenges. In this course, students will learn about the changing nature of digital business practices and will be able to gain experience with social media management, digital marketing, SEO, SEM, and analytics. In-depth analysis will be given on current practices and this course will build a framework from which students can pioneer their own ideas in the growing field of digital marketing. They will also be able to understand current issues in digital marketing and have the tools they need to assess those issues and further strengthen their understanding of this important, emerging field.

MIS 417: Programming for Data Analytics

3 Credits

Students will learn how to interpret data with popular data science programming. Students will study inferential statistics to generate information about data. Students will mine data and understand the necessity of data cleansing. Students will generate predictions (ensemble modeling) and understand the need for distributive computing to handle big data (Hadoop).

Enforced Prerequisite at Enrollment: MIS 315 and (SCM 200 or STAT 200)

MIS 420: Business Process Management

3 Credits

Process modelling is a foundational skill required to be able to implement a complete business process management capability in an organization. MIS 420 examines approaches, design principles, and state-of-the-art theories in the field of Business Process Modelling used to discover, model, assess, and leverage emerging technologies improve core business processes. This covers also examines emerging technologies and their relevance to automation, rationalization of procedures, and business process redesign.

Enforced Prerequisite at Enrollment: MIS 390**MIS 425: Managing Information Systems Projects**

3 Credits

MIS 425 provides an understanding of the processes, methods, techniques, and tools that are used for managing information systems projects in organizations to ensure consistency with business strategies to achieve a competitive advantage. Topics include principles of project management; project management functions, project management processes, selecting an appropriate project management methodology, agile software development principles, and scrum. Emphasis is placed on understanding and gaining practical knowledge of key project management skills: integration management, scope management, time management, cost management, quality management, human resource management, communications management, and risk management. Emphasis is also placed on understanding the scrum process and decision criteria for choosing between planned and agile project management approaches. Students will also learn the tools, techniques, and processes to manage projects that support organizational goals and objectives along with moving from one phase to another until the closure of the project.

Enforced Prerequisite at Enrollment: MIS 307 and MIS 390**MIS 430: Systems Analysis**

3 Credits

Information analysis and the logical specification of the system.

Enforced Prerequisite or Concurrent at Enrollment: MIS 336**MIS 431: Business Data Management**

3 Credits

Management of data including large, complex sets to support business analytics, strategy, and operations. MIS 431 Business Data Management (3) Business Data Management will enable students to use various database designs to acquire the information needed to make effective business decisions. Successful students will be able to design, create and implement a relational database in MySQL and be able to write SQL statements to obtain information from a database. In addition, students will investigate the next generation approaches for storing, manipulating, and managing web data in unstructured formats. Students will gain an understanding of the advantages and disadvantages among XML, NoSQL, NewSQL, and Relational databases. After completing this course, students should have the knowledge, skills, and abilities to be able to: * have an understanding of SQL by retrieving data from a database using SQL * design a database system including an ER Model, and implement the design in an enterprise database application such as

MySQL * have an understanding of NoSQL databases such as MongoDB and Graph databases, XML native databases, NewSQL databases and the advantages and disadvantages of these databases

Enforced Prerequisite at Enrollment: MIS 301. Concurrent: SCM 301**MIS 432: Business Information System Analysis**

3 Credits

The analysis of business information systems and the requirements specifications of redesigned systems. MIS 432 Business Information System Analysis (3) Business Information Systems Analysis introduces concepts underlying computer based information systems development. The course focuses on object-oriented concepts, project management and principles of systems development using standard UML diagram methodologies. The course develops a solid understanding of information systems development through the analysis of current information systems and the requirement specifications of a redesigned system, and also provides significant hands on experience using current technologies. After completing this course, the student should have the knowledge, skills, and abilities to be able to: -define and document an existing information system; -analyze an existing information system and specify the requirements for a replacement system; -use a specific Computer-Aided Software Engineering (CASE) tool to assist in Systems Analysis; -understand alternative approaches to systems development; -understand the purpose, context and commonly expected "deliverables" of systems analysis and -create a substantial project and prepare a professional report. The evaluation of students will be based on tests, lab work, and homework. This is a prescribed course for the M I S major and a support-of-major course for Smeal students M I S 432 will be offered in the fall and spring semesters in sections ranging from 25 to 40 students.

Enforced Concurrent at Enrollment: MIS 431**MIS 433: Rapid Application Development**

3 Credits

This course provides students with a real world, hands on introduction to the current industry of Rapid Application Development (RAD) tools and techniques. RAD includes prototyping and end-user development in order to quickly create information system applications. Mendix is one of the platforms that enables employees to work in smaller cross functional-teams and deliver software at a high rate of speed, and encompasses all the tools and environments needed to build and manage applications and their development. It includes project management, modelers, UI development, public app store online support and a strong collaboration approach using the online community.

Enforced Prerequisite at Enrollment: MIS 204 and MIS 336**MIS 435: Systems Design and Implementation**

4 Credits

MIS 435 Systems Design and Implementation (3) Current systems development methods involve a use-case based, and iterative and incremental approach. This is the approach generally used on object-oriented systems development projects and is the approach taught in this course. Design aspects of the course will emphasize design patterns and their application to systems design using the standard software design notation-The Unified Modeling Language. An Agile (light-weight) approach to systems design will be emphasized. Implementation aspects

of the course will focus on object-oriented programming using a modern object-oriented programming language.

Enforced Prerequisite at Enrollment: MIS 430 and (CMPSC 122 or CMPSC 302 or MIS 315)

MIS 441: Business Intelligence for Decision Making

3 Credits

Application of Information Technology based methods and tools to analyze business data and support decision making. MIS 441 Business Intelligence for Decision Making (3) Business intelligence encompasses the IT tools for exploring, analyzing, integrating, and reporting business data for fact-based, intelligent decision making. This course primarily investigates methods and tools for exploring and analyzing large amounts of business data also called "Big Data." Learning methods emphasize active learning in the application of methods and tools to real data and the presentation of the results. Students will be exposed to a variety of methods for analyzing both structured and unstructured data and they will work with business data sets to understand the value that can be extracted from large data sets. They will also learn how to classify and associate data to discover business rules that can be used to support decision making. The course will also cover methods to analyze social media information and about tools that can facilitate such analysis and discovery. Again they will get a chance to work with data from real social networks to gain an appreciation of how value can be obtained from such networks. Finally, they will learn about techniques for visualizing, presenting and communicating information in a useful way, e.g. through dashboards and with other technologies on various platforms.

Enforced Prerequisite at Enrollment: MIS 431

MIS 445: Business Intelligence

4 Credits

Develops insights and skills related to Business Intelligence, Data Warehousing, Data Mining, Analytics, OLAP, and report generators. MIS 445 Management Reporting Systems (4) This course develops insights and skills required to analyze management reporting systems, propose improvements, create reports, extract and package data using various software tools, and design data warehouses. It prepares students for the position of a Business Intelligence Specialist who can apply insight and technical competence to the challenges of leveraging Reporting, OLAP, Data Mining, Business Intelligence (BI), and Data Warehouse technologies.

Enforced Prerequisite at Enrollment: MIS 336

MIS 446: Information Technology and Business Strategy

3 Credits

Strategic use and management of information technology in digital global economy. MIS 446 Information Technology and Business Strategy (3) This course introduces the basics on the interplay between information technology and business strategies. The course starts with the general topic of strategic use of information technology in business (as enabler, differentiator, and disruptor) using examples from a variety of industries, followed by detailed coverage of the information technology strategy in individual industries including e-logistics, e-tailing, e-marketing, e-finance. The course also covers basics on the business information technology infrastructure and environments (Internet, Web, service-

oriented computing, and security and risks). Towards the end, the course discusses the role of information technology in the global economy, business value of the explosively growing digital social networks, and other emerging trends and new technology opportunities. Topics include: - Information technology strategy. IT-business strategy alignment; IT as enabler, differentiator, and disruptor.- Internet and Web infrastructure; extranet, intranet, hosting strategies; platform independence; eBusiness technology standards; open versus proprietary technologies; interoperability.- Web Services for implementing business applications; software as a service; Services science and services oriented architectures.- Overview of E-Business models, B2B, B2C, (x2y).- E-logistics and supply chain: Analysis of Dell model; Internet auctions, eBay; e-hubs; i-mode, GPS, RFID.- E-tailing: Amazon, eBay, Walmart, recommendation systems, reputation systems.- E-marketing: search engine advertising (Google AdWords/AdSense, Yahoo Search Marketing); database marketing (precision targeting).- E-finance: online brokerage (Schwab, E*Trade), wealth management (e-strategy, technology for churn prediction and customer acquisition/retention), payment technologies (paypal), computational trading strategies.- Collaboration/Community technologies: Blogs, MySpace, Facebook, YouTube, Voice over IP, videoconferencing, RSS, etc.; Impact on business communication and media industry. - Need for security in ecommerce - threats and solutions.- Globalization and IT. Offshoring and outsourcing.- Emerging trends and technology opportunities.

Enforced Prerequisite at Enrollment: MIS 301 or MIS 390

MIS 447: Data Warehousing

3 Credits

This course focuses on fundamental principles and applications of data warehousing. Topics covered include data warehouse planning, design, and implementation. MIS 447 Data Warehousing (3) This course focuses on fundamental principles and applications of data warehousing. Issues related to data warehouse planning, design, and implementation are also covered in this course. Through case studies in various business domains, course exercises and projects, students will learn practical dimensional modeling techniques, extract/transformation/load (ETL) logic, ETL design considerations, and report generation. Essentially, students will learn how to align multiple sources of data through data warehousing architectures for deriving valuable business insights through subsequent business intelligence operations. The course begins by reviewing basic database modeling principles, and then introduces dimensional modeling in the context of the various data warehousing architectures (e.g., Kimball, Corporate Information Factory, hybrid architectures). Key concepts related to data warehousing including dimensional table characteristics, fact table characteristics and granularity, types of dimensions, types of fact tables, dimension attribute hierarchies, consolidated fact tables, slowly changing dimension techniques, and multivalued dimensions and weighting factors are covered in the course. Also, key advanced database management techniques such as views, procedures, and triggers will be introduced. Building on these core concepts, the course also covers related concepts including the role of online analytical processing (OLAP) and packaged analytic solutions, enterprise data warehouse business architecture and matrix, data warehousing lifecycle, ETL subsystems and tasks, ETL system planning, ETL design and development process and tasks, and data modeling best practices for big data. Case studies from various business domains and processes are included throughout the course. Examples of these domains include retail sales, order management, procurement, accounting, healthcare, insurance, transportation, and telecommunication. The case studies are used to illustrate the concepts

as well as provide a context for hands-on exercises. Through course assignments and group projects, students have an opportunity to gain hands-on experience with data warehouse design, development, and prototype implementation.

Enforced Prerequisite at Enrollment: MIS 336 or equivalent approved course

MIS 448: Securing Information Systems

3 Credits

MIS 448 examines practices associated with assuring secure business operations in organizations. Assuring secure operations involves the creation, operation, defense, analysis, and testing of secure computer systems. Hence secure computing is an interdisciplinary area including aspects of computing, law, policy, human factors, ethics, and risk management. The proposed competencies cover these areas, but with an IS discipline lens. This includes data security, software security, human security, societal security, and organization security.

Enforced Prerequisite at Enrollment: MIS 390

MIS 450: Information Systems Practicum

3 Credits

This course provides an intensive experience in creative problem solving and provides an opportunity for integration of knowledge from the core curriculum. This course also provides an applied synthesis of foundational courses related to exercising design and applying one or more media of construction to effect and implement an Information Systems artifact to suit client or organizational needs. The capstone places an emphasis on the application of data management, application development, IT infrastructure, and IT Project Management. This course will require students to work in teams and apply a software/systems development paradigm toward the development of a system prototype to satisfy the intentions and needs of an organizational client.

Enforced Prerequisite at Enrollment: MIS 307 and MIS 390 and MIS 431 and seventh semester standing

MIS 461: Emerging Technologies

3 Credits

MIS 461 examines emerging technologies and explores their impact on business and societal issues through both a business and theoretical lens. This course also identifies and evaluates emerging technologies based on business requirements that have a variety of ethical, environmental, and sustainability implications. Students apply these technologies to enable suitable business opportunities.

Enforced Prerequisite at Enrollment: MIS 307 and MIS 390

MIS 465: DataBase Management

3 Credits

Provides a comparison of techniques, methodology of systems, limitations, and applications of various data base management systems. MIS 465 Database Management (3), is a required course for information systems majors in the business program. The objective of the course is to present database design and development, specifically relational database management systems (RDBMS), along with project work on developing database systems. The course coverage includes conceptual

data modeling, relational data model, structured query language (SQL), data normalization, database integrity, and database administration. Advanced topics such as distributed databases and data warehousing are also discussed briefly. The course prerequisite is IST 140 or CMPSC 101 or CMPSC 121 and MIS 390. This course is centered on a group project involving the design and development of a relational DBMS. Student groups also work on case and homework problems related to database design. A suitable relational database package, like ORACLE, is used by students in the group project. Database design and development involving the creation of tables, queries, forms, and reports are the center piece of the group project. MIS 465 will be offered once per semester with multiple sections based on student enrollment and demand.

Enforced Prerequisite at Enrollment: (IST 140 or CMPSC 101 or CMPSC 121) and MIS 390

MIS 466: Business Programming for the WEB

3 Credits

Advanced programming for WEB-based applications. MIS 466 Business Programming for the Web (3) The objective of this course is to teach students how to create and maintain business applications on the WEB. Students will learn how to use tags, scripting, and a low-level programming language to support business applications. Students will be encouraged to use the afore mentioned tools to provide useful and well-designed content to the WEB community. The course assumes knowledge of an object-oriented programming language and some introduction to HTML. A state-of-the-art programming language will be used to facilitate learning for project development. Team skills and problem solving, as an important part of the development process, will be emphasized and integrated into project development activities. To be successful in such a work environment, students need to learn how to work together to design, implement and test projects. Electronic commerce, employee training and development, accounting, and finance applications are typical of application areas that will be emphasized. Specific goals of the course are to: 1) expose students to concepts and principles necessary to provide well-designed and useful content on the WEB 2) teach students how to apply programming in a WEB-based environment 3) show students how these techniques increase productivity of complex systems, and 4) further student development of team skills when programming complex systems. INFSY 435 is an elective in the Information Systems program. INFSY 307 or the equivalent, required of all Information System majors. Student performance will be evaluated by means of assignments, examinations, and team-based projects. It is expected that this changed course will be offered two times during each academic year.

Enforced Prerequisite at Enrollment: MIS 307

MIS 479W: Enterprise Information Systems

3 Credits

Management and implementation of enterprise information systems for business integration and supply chain management. MIS 479W Enterprise Information Systems (3) This course examines enterprise-wide information systems architecture for the business setting and examines current commercial systems, with a special focus on SAP R/3 development tools and techniques. Topics include: - The acquisition, installation and operation of Enterprise Information Systems (EIS), formerly referred to as Enterprise Resource Management (ERP) systems- The strategic decisions regarding approaches business organizations select for the acquisition and integration of EIS components and

how executive level support for such endeavors is obtained- The overall management and coordination techniques used in the design, development and implementation of an organization's EIS, including the role that software vendors and other third party's play in the acquisition and implementation of enterprise systems.- The coordination and control of multi-party relationships. Specific analysis and design techniques are taught, including tools and methodologies for analyzing business processes in preparation for implementation of EIS, as well as database and data warehousing requirements.- The methods of determining data communication network requirements- The practical implementation concerns are addressed, such as preparing internal organizational units for migration to a new EIS architecture and to the maintenance and operation of EIS including concerns involving security and control.- The managerial and technical issues involved in the developing and testing of applications and user interfaces and customization of commercial packages.- The career planning issues and ways of obtaining training for specialization and advancement in careers involving EIS. This course is writing intensive. As such, student evaluations will consist of, at a minimum: examinations, position papers, case studies (written and oral), and assignments. Both individual and group assignments will be used. The objective is to enhance writing ability relevant to students preparing for careers in business. Group report writing, brief technical writing, technical documentation, end-user documentation, and memo writing will be covered. The major group writing assignments will be required throughout the semester, as well as individual assignments that will be prepared in preparation for the group. Peer assessments and instructor feedback and evaluation will be provided on a regular basis. This is a prescribed course for the MIS major.

Enforced Prerequisite at Enrollment: MIS 432

Writing Across the Curriculum

MIS 481: Business Analytics

3 Credits

Advances in computational technologies, coupled with the massive amounts of data available through business activities as well as the surrounding ecosystems, have created an amazing potential for managers to leverage analytics in order to gain organizational and competitive advantages. This course takes a two-fold approach to address Analytics Methodologies. The first section of the course provides a broad understanding of business analytics and the second section demonstrates the managerial best practices for leveraging the analytics. The course covers concepts such as analytics problem framing, data understanding & preparation, as well as descriptive & predictive modeling. The course incorporates applications and real-world datasets from marketing and other business disciplines for a hands-on learning experience. Best practices derived from cases are also incorporated into the course structure in order to learn the strategies required to implement and manage analytics initiatives in businesses. Students are initially introduced to business analytics through a series of examples, use cases, and applications. Next, descriptive analytics through the use of dashboard and business reporting techniques is presented as a means for business performance management. Following this, the overall predictive analytics process is explained with emphasis on framing the analytics problem from an understanding business context. Additionally, fundamental predictive modeling concepts are covered concurrently with the introduction of exemplary modeling techniques. Students then receive an opportunity to apply these techniques through the use of different problem scenarios and real-world datasets. Related topics including overfitting, and visualizing model performance are covered as well. Students are presented an expected value framework to assist

approaching business problems with a decision-analytic perspective. The course also covers managerial aspects of integrating business analytics within the enterprise by linking business strategy to business analytics initiatives. Approaches to initiate, manage, and sustain analytics initiatives to gain a competitive advantage are discussed with cases. At the end of the course, students are expected to have the competencies required to analyze possible opportunities for leveraging analytics across the boundaries of functional business domains as well as applying key analytic techniques and interpreting results for decision-making.

Enforced Prerequisite at Enrollment: MIS 345

MIS 489: Seminar in Information Systems

3 Credits

Covers new trends and concepts in information/processing technology and their applications and impact on computer information systems. MIS 489 Seminar in Information Systems (3) INFSY 489, Seminar in Information Systems, is an elective course for information systems majors in the business program. Information Systems is a rapidly changing discipline and students must be aware of these changes. This course covers new trends and concepts in information/processing technology and their applications and impact on computer information systems. In this course, students are introduced to new methods, tools, applications and terminology. The students develop key skills in the ability to assess new technologies, and the ability to incorporate these technologies into complex information systems. Students learn how to work with business applications in the latest prevalent technology. They work both individually and in groups on problems related to the topic addressed in the seminar. Topics for the seminar can differ with each offering of the course. This course is designed to provide the flexibility to coverage current issues and trend in the Information Technology world. Such topics could be (but not limited to) : advanced networking, mobile computing, wireless infrastructure, security, ERP, SAP, and others. The course prerequisites are INFSY 307 & INFSY 445INFSY 489 will be offered once per semester based on student enrollment and demand. The topics will vary upon it offering.

Enforced Prerequisite at Enrollment: MIS 307 and MIS 465

MIS 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

MIS 494H: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Honors

MIS 495: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: prior approval of proposed assignment by instructor

Full-Time Equivalent Course

MIS 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

MIS 496A: **SPECIAL TOPICS**

1-6 Credits

MIS 496B: **SPECIAL TOPICS**

1-6 Credits

MIS 496C: **SPECIAL TOPICS**

1-6 Credits

MIS 496D: **SPECIAL TOPICS**

1-6 Credits

MIS 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

MIS 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Marketing (MKTG)

MKTG 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

MKTG 220: Introduction to Selling Techniques

3 Credits

Principles underlying the sales process and practical application of these principles to selling situations. Studies role of selling in total marketing process.

Enforced Prerequisite at Enrollment: third-semester standing

MKTG 221W: Contemporary American Marketing

3 Credits

Social and economic aspects; movement of goods and services from producers to consumers; analysis of marketing functions, systems, and institutions. May not be used to satisfy Penn State Business baccalaureate degree requirements. Not available to students who have taken B A 303 or MKTG 301.

Enforced Prerequisite at Enrollment: 3 credits in ECON Writing Across the Curriculum

MKTG 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

MKTG 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

MKTG 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

MKTG 301: Principles of Marketing

3 Credits

Principles of Marketing covers terminology and important concepts related to marketing in the business environment. Domestic and international environments that impact marketing are included, with particular emphasis on the marketing environment, segmentation, positioning and targeting. MKTG 301 course objectives include providing an overview and introduction to marketing; demonstrating the relationship of marketing to other functions and processes in a business organization on an integrated basis; providing real world examples of challenges and issues related to marketing; and explaining and discussing important concepts and analytical tools in marketing. Major themes embedded in the foundation of MKTG 301 include domestic and global economic factors influencing current marketing environments; how consumer, business and organizational customers are segmented and targeted; how marketing research and information systems are used to create and guide marketing strategies; how products are developed to serve customers, businesses and organizations; how service products are developed and managed to meet customer needs; how customers are reached through various conventional and technological channels and how these sales management processes are managed; how people in the United States and other nations are influenced by marketing in the non-profit sector; how products and services are marketed to other businesses and organizational customers; how marketing communications programs, which include advertising, publicity, sales promotion and web sites, are designed to reach domestic and international customers; how pricing strategies support corporate objectives in various economic climates; and how marketing programs adapt to shifts towards global markets. Students may earn credit towards graduation for only one of the following; BA 303, MKTG 301, MKTG 301H, or MKTG 301W.

Enforced Prereq at Enrollment: (ENGL 15 or ENGL 30H or ENGL 137H or ESL 15 or CAS 137H) and (ECON 102 or ECON 104) and (MATH 21 or a higher or a satisfactory score on the math placement exam)

MKTG 301H: Principles of Marketing (Honors)

3 Credits

Marketing begins and ends with the customer, from determining wants and needs to providing customer satisfaction. This course will emphasize fundamental marketing concepts, such as segmentation, targeting, and positioning, and the 4 P's (product, price, place, and promotion). In addition, the course will emphasize the use of marketing research to inform managerial decision-making. The overarching goal of this course is to introduce you to a) the role of marketing within business organizations and society, and b) the concepts and activities in marketing that create and deliver value to customers. At the conclusion of this course, students will be able to: 1) explain the fundamental concepts of marketing and the role of marketing in business; 2) apply marketing concepts and analysis tools to managerial decision-making; and, 3) provide real-world examples of challenges and issues in marketing. Major themes embedded in MKTG 301H include: domestic and global socioeconomic factors that influence marketing environments; the use of marketing research and information systems to create and guide marketing strategies; how consumers, businesses and organizational customers are segmented and targeted; how products are developed to serve customers, businesses and organizations; unique issues in the marketing of services versus goods; how customers are reached through conventional and technological channels; the sales function, including how sales processes are managed; how marketing communications programs (including advertising, publicity, sales promotion and new media) influence customers; how pricing strategies support corporate objectives, and how consumers respond to pricing; the roles of non-profit and social marketing; corporate social responsibility and sustainability in marketing; and the impact of marketing on society. Students may earn credit towards graduation for only one of the following; BA 303, MKTG 301, MKTG 301H, or MKTG 301W.

Enforced Prereq at Enrollment: (ENGL 15 or ENGL 30H or ENGL 137H or ESL 15 or CAS 137H) and (ECON 102 or ECON 104) and (MATH 21 or a higher or a satisfactory score on the math placement exam)

Honors

MKTG 301W: Principles of Marketing

3 Credits

Principles of Marketing is a three credit course offered each semester across Penn State and covers terminology and important concepts related to marketing in the business environment. Domestic and international environments that impact marketing are included, with particular emphasis on the marketing environment, segmentation, positioning and targeting. MKTG 301W course objectives include providing an overview and introduction to marketing; demonstrating the relationship of marketing to other functions and processes in a business organization on an integrated basis; providing real world examples of challenges and issues related to marketing; and explaining and discussing important concepts and analytical tools in marketing. Major themes embedded in the foundation of MKTG 301W include domestic and global economic factors influencing current marketing environments; how consumer, business and organizational customers are segmented and targeted; how marketing research and information systems are used to create and guide marketing strategies; how products are developed to serve customers, businesses and organizations; how service products are developed and managed to meet customer needs; how customers are reached through various conventional and technological channels and how these sales management processes

are managed; how people in the United States and other nations are influenced by marketing in the non-profit sector; how products and services are marketed to other businesses and organizational customers; how marketing communications programs, which include advertising, publicity, sales promotion and web sites, are designed to reach domestic and international customers; how pricing strategies support corporate objectives in various economic climates; and how marketing programs adapt to shifts towards global markets. Students may earn credit towards graduation for only one of the following; BA 303, MKTG 301, MKTG 301H, or MKTG 301W.

Enforced Prereq at Enrollment: (ENGL 15 or ENGL 30H or ENGL 137H or ESL 15 or CAS 137H) and (ECON 102 or ECON 104) and (MATH 21 or a higher or a satisfactory score on the math placement exam)
Writing Across the Curriculum

MKTG 302: Marketing Techniques for Electronic Commerce

3 Credits

Explores methods to implement/adapt marketing methods to the Internet; builds upon introductory marketing classes to examine what does/doesn't work. MKTG 302 Marketing Techniques for Electronic Commerce (3) This course examines the role of commerce and marketing with special focus on Internet commerce topics including: the commerce value chain, business strategies and business strategies for the global marketplace. Several Internet business models are examined. These include: business-to-business (B2B); business-to-consumer (B2C); consumer-to-consumer (C2C); and government-to-consumer (G2C); and other permutations of these models. Marketing fundamentals include market segmentation and product life cycle, and similar topics are reviewed with the emphasis on Internet implementation. Specific methods for conducting market research using the Internet as well as methods to determine who is the 'average' Internet user are examined. Advertising methods for the Internet vs. the traditional advertising mediums of TV, radio, and print, and methods to measure advertising success on the Internet are discussed. The Internet removes existing roadblocks and adds new roadblocks for businesses, thus requiring different pricing strategies. Distribution channels and methods of supply-chain management are studied. How marketers utilize e-mail, site commissions, cookies, filters, and databases is examined. Security, privacy, and ethical issues, e.g., consumers' rights to privacy and sale of consumer information, are reviewed. Finally, a market plan to migrate business functions to the Internet is developed.

Enforced Prerequisite at Enrollment: BA 303 or MKTG 301

MKTG 310: Public Relations and Marketing

3 Credits

Examination of the role of public relations in a company's efforts to manufacture and market its products and services.

Enforced Prerequisite at Enrollment: BA 303 or MKTG 301

MKTG 327: Retailing

3 Credits

Management of marketing institutions in distribution channels from producers to consumers. Emphasis on retail institutions: location, personnel, merchandising, control, promotion.

Enforced Prerequisite at Enrollment: BA 303 or MKTG 301

MKTG 330: Consumer Behavior

3 Credits

Application of behavioral science concepts to the understanding of buyer behavior as a basis for marketing management decision making.

Enforced Prerequisite at Enrollment: BA 303 or MKTG 301

MKTG 342: Marketing Research

3 Credits

Research approaches, methods, and applications studied as a formal approach to problem solving for marketing decisions.

Enforced Prerequisite at Enrollment: (BA 303 or MKTG 301) and (SCM 200 or STAT 200)

MKTG 343: Introduction to Marketing Analytics

3 Credits

Marketing Analytics helps students enhance skills and knowledge required for data-driven marketing decision process. The course introduces students to analytics for pricing, forecasting, different estimation techniques, calculating lifetime values, market segmentation, the impact of social network marketing and measuring the effectiveness of advertising. Through this course, data visualization and communicating data insights will be discussed as well strategic marketing decision making processes

Enforced Prerequisite at Enrollment: MKTG 342

MKTG 395: Sales Internship

3 Credits

A sales internship is a structured work experience conducted by an organization in cooperation with a Penn State college or campus. It is a learning experience that encompasses a set of specified tasks related to sales and requires the student to apply knowledge learned in an academic environment to the sales profession. A student may earn three academic credits for the successful completion of the internship. Internships may be completed within Fall, Spring, or Summer academic terms. All Internships require both organizational and faculty sponsors who oversee the student's internship experience. Companies are carefully screened to ensure that sales internships are a positive and beneficial experience. The organizational sponsor oversees the intern's work experience and is responsible for evaluating the student work performance. The faculty sponsor evaluates the intern's academic performance and authorizes the granting of academic credit upon completion of the internship. A sales internship provides students an important learning experience as they begin their journey into the work force.

Enforced Prerequisite at Enrollment: Prior approval of proposed internship by instructor

MKTG 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

MKTG 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

MKTG 410: Personal Selling

3 Credits

Principles underlying the selling process and practical application of these principles to selling situations.

Enforced Prerequisite at Enrollment: MKTG 301

MKTG 422: Advertising and Sales Promotion Management

3 Credits

Perspectives and models of the key decisions involved in managing advertising and sales promotion campaigns.

Enforced Prerequisite at Enrollment: MKTG 330 or MKTG 342

MKTG 422H: Advertising and Sales Promotion Management

3 Credits

Perspectives and models of the key decisions involved in managing advertising and sales promotion campaigns.

Honors

MKTG 426: Business Marketing

3 Credits

Developing marketing strategies and programs. The course emphasizes the special nature of the business and organizational markets.

Enforced Prerequisite at Enrollment: MKTG 330 and MKTG 342

MKTG 428: Advanced Sales Management

3 Credits

Approaches to planning, organizing, staffing, training, directing, and controlling the sales force in support of marketing objectives.

Enforced Prerequisite at Enrollment: MKTG 330 and MKTG 342

MKTG 437: Advanced Retailing and Merchandise Management

3 Credits

Analyzing planning and controlling the retail merchandising effort, including procurement, resource selection, vendor relations, product presentation, inventory control.

Enforced Prerequisite at Enrollment: MKTG 330 and MKTG 342

MKTG 440: Services Marketing

3 Credits

Marketing theory and methods applied to profit and nonprofit service industries such as health care, finance, transportation, tourism, arts and consulting.

Enforced Prerequisite at Enrollment: MKTG 330 and MKTG 342

MKTG 441: Sustainability in Marketing Strategy

3 Credits

This course examines sustainability in marketing strategy, including real-world applications, green solutions, and using marketing principles to solve social issues. MKTG 441 Sustainability in Marketing Strategy (3) This course will examine the growing trend of sustainability and its implications for marketing in today's world and in the future. It will explore how businesses develop and implement marketing strategies to promote sustainability, and analyze how companies are performing. Businesses are increasingly applying the concepts of sustainability to their decision-making for marketing strategy. Some firms are leaders in the sustainability movement, and are motivated by ethical conviction to do well for society and the environment. Others find themselves forced by pressure from shareholders, customers, governmental regulation, and peers. Given this increased attention to the concepts of sustainability by stakeholders, businesses are also looking for future employees with an understanding of the phenomenon.

Enforced Prerequisite at Enrollment: MKTG 301 and MKTG 342

MKTG 442: Sustainable Behavior of Consumers, Firms, and Societies

3 Credits

Sustainability is a broad domain concerning the extent to which environmental, economic, and social practices are viable for current and future generations. Consumer awareness of sustainability issues has evolved from an emerging social movement to mainstream values, but increasing sustainable behavior remains a challenge. This course is designed to provide students with the knowledge to enhance sustainable behaviors in firms, among consumers, and in society at large. In doing so, this course will include frameworks for understanding how to influence sustainable practices, consumer response to sustainability, and marketing communication issues as well as real-world examples of sustainable practices and issues, offering both a theoretical and applied approach. The course may also include a project which will entail student teams working on a real-world sustainable behavior problem in collaboration with a business or segment of the university campus when available or other course project addressing a relevant sustainability issue. Students should leave the course with an understanding of sustainability issues in the current marketplace and the knowledge and ability to influence sustainable behaviors. Students will enter their career with the knowledge and skills to be a sustainable business decision-maker and foster sustainable behavior.

Enforced Prerequisite at Enrollment: BA 342 or SUST 200 or CED 152
Cross-listed with: BA 442

MKTG 443: Sports Marketing

3 Credits

This course will focus on how companies develop, execute and measure marketing strategies and tactics to use sports teams, families,

leagues and other organizations to market their products and services domestically and internationally to consumers and business partners. The course will examine the marketing strategies employed by sports teams and leagues. MKTG 443 Sports Marketing (3)"Sports Marketing" is designed to explore how various types of businesses and other organizations market products and/or service related to sports as well as how sports are used as marketing platforms for non-sports products. Unique aspects of the sports business will be explored including how strategies and tactics related to marketing in this sector differs from other industries. The purpose of this course is to provide an overview of various aspects of sports marketing. This will include the use of sports as a marketing tool for other products, the marketing of sports products and emerging considerations that are relevant for both marketing through and the marketing of sports. Since sports involves consumers, businesses and other organizations, this courses will cover B2C as well as B2B marketing. How product, distribution, pricing and promotional programs are developed particular to this industry will be one of the primary focuses. Relationship marketing, the role of technology, sponsorships, ambush marketing, partnership leveraging, endorsements, venue naming rights, licensing and emerging legal and ethical issues will also be important focuses. A guest speaker series will provide additional professional perspectives on a variety of unique aspects of marketing particular to sports. Reading Sports Business Journal, the most highly regarded source of news by sports industry employees, will further expand this knowledge base as will current news events related to the industry. Students will be provided an opportunity to network with guest speakers and those interested in considering sports among their job search, will also be able to receive internship and career counseling from the instructional team. Students enrolled in this class will also be able to submit resumes and requests to be interviewed for internships with various sports organizations being arranged in cooperation with the Smeal Collage Corporate and Career Services Office. Students will apply what is being learned in the class to the development of a project related to sports marketing, with the added benefit of having a deliverable which can be used to further the search for jobs and/or internships in the sports business.

Enforced Prerequisite at Enrollment: BA 303 or MKTG 301

MKTG 444: Buyer Behavior and Applied Research

3 Credits

Buyer Behavior occupies the center of the customer-company interface. It informs the design of marketing strategy and planning by providing insights about the evolving consumer environment; consumer information processing and decision-making; consumer purchase and product usage patterns and influences; consumer attitude, consumer motivation. To address these diverse issues and concerns, consumer behavior analyses draws from related fields of economics, psychology, sociology, anthropology and other basic disciplines. Similarly, studying consumer behavior requires an extensive and diverse methodological tool kit of both qualitative and quantitative research techniques. Insights about consumers and consumption patterns help marketing professionals design products and marketing programs that resonate with consumers' thoughts, feelings, interests and motivations.

Enforced Prerequisite at Enrollment: MKTG 301 and MKTG 342

MKTG 445: Global Marketing

3 Credits

Role of international marketing in the global environment; political, economic, geographic, historical, cultural conditions; developing and implementing international marketing strategies. MKTG (I B) 445 Global Marketing (3) (IL) MKTG/I B 445 focuses on the wide range of issues, which face enterprises as they develop and execute marketing strategies and tactics, designed to support business activities in markets outside their home country. This course deals directly with these issues as they apply to firms, which concentrate on a few markets closer to home, or on many markets throughout the world, including via the Internet. This course also deals with the important role played by governments in shaping the global marketing environment, including through trade policies, treaties and marketing supports. Students successfully completing this course also gain a greater understanding of the cultural, technological, economic, political and social environments which international businesses and global marketers face as they seek to expand their product and/or service offerings into other nations. Understanding this important part of the challenge facing international businesses and global marketers is achieved through the text, lectures, and student group projects and presentations including some focused on specific countries, including both major trading partners of the United States and select emerging new markets. This course is designed for students who have an interest in these topics and/or who plan to enter fields such as international business or global marketing and/or who expect to work for businesses, which are active internationally. Class discussions and projects are designed to help students explore these topics in greater depth. A series of small group assignments and presentations will further help students apply what is being learned via problem-based learning. This is an interactive class. Therefore, a portion of the grade each student achieves will be based on class attendance and participation. Students are also expected to pay attention to examples of the issues discussed in class that they encounter during the semester in print broadcast, and online communications. Along with material from lectures and the text, issues discussed in class will be included in the exam.

Enforced Prerequisite at Enrollment: BA 303 or MKTG 301 International Cultures (IL)

MKTG 449: Sports Business Market Strategy

3 Credits

This course provides an overview of the business of sports, with an emphasis on marketing and market strategy. Particular topics include business strategy and competitive forces in sports, fan psychology, fan behavior, segmentation, targeting, positioning, sports brands, market research, fan satisfaction, licensing, facilities, technology, ethics, and careers in sports. It will provide practical case-study examples from the sports industry, and challenges students to explore solutions to a variety of business problems in sports. Students will apply concepts and frameworks from assigned readings and class discussions, to think critically about current and ongoing issues in business and marketing in the sports industry, and to present recommendations in a professional setting. Assignments and group presentations are intended to provide practical, hands-on experience, which students can leverage to enhance their value in the sports industry.

Enforced Prerequisite at Enrollment: MKTG 301

MKTG 450W: Marketing Strategy

3 Credits

Market-oriented problems of the firm; identification and selection of market opportunities; formulation of competitive strategies; marketing policies and programs.

Enforced Prerequisite at Enrollment: MKTG 330 and MKTG 342 Writing Across the Curriculum

MKTG 472: Strategic Brand Management

3 Credits

Brands are a potentially valuable asset to firms in Business-to-Business (B2B) and Business-to-Consumer (B2C) markets. Strong brands influence purchase and consumption by communicating value and providing differentiation in the marketplace. Effective brand management is therefore critical to maintaining the long-term profitability of products and services. This course investigates how to create profitable brand strategies by building, measuring, and managing brand equity. Theories and practical tools will address the following questions: how does branding influence purchase and consumption? how can firms build brand equity? how should brand equity be measured and managed over time? how should firms manage brands in a brand portfolio? how can firms leverage brand equity? At the conclusion of this course, students will be able to: 1) explain the fundamental concepts of branding and the role of branding in business; 2) apply branding concepts and analysis tools to managerial decision-making; and, 3) provide real-world examples of challenges and issues in branding.

Enforced Prerequisite at Enrollment: MKTG 330 and MKTG 342

MKTG 473: Digital Marketing

3 Credits

In recent years, marketing has dramatically shifted from traditional (e.g., commercial, print advertising) to digital using technologies such as the Internet, social media, augmented reality, mobile, Internet of Things, and wearables. This course will introduce students to the changing landscape of marketing through a digital marketing perspective. Major topics covered are digital marketing themes, communication platforms, content marketing, digital advertising, real-time marketing, marketing automation, search engine optimization (SEO) and search engine marketing (SEM), social media, mobile, video, digital technologies, and measurement. This course helps students understand, and evaluate the digital marketing landscape to aid in effective marketing campaigns. Students will learn the fundamentals, frameworks and useful concepts developed specifically for digital platforms. How core marketing and business principles (i.e. segmentation, marketing mix, commerce) are used or have been altered will be discussed. Case studies and examples of successful and failed campaigns will be analyzed. The course utilizes group work assignments to create and present a digital marketing plan of a company, brand or specific product/service. Last, there is a large emphasis on including guest speakers from the industry.

Enforced Prerequisite at Enrollment: MKTG 330 and MKTG 342

MKTG 474: Marketing Analytics

3 Credits

In rapidly changing markets characterized by ever more demanding customers served by global competitors, intuitive decision making, even

when honed by years of experience, is unlikely to generate superior results. Instead, successful marketers increasingly rely on Marketing Analytics, a systematic approach to applying analytical models to properly organized empirical data, with the goal of extracting true insights about the marketing environment. This course will introduce students to commonly used analytical tools in such areas as segmentation, targeting and positioning, satisfaction management, customer lifetime analysis, customer choice, product and price decisions using conjoint analysis, and text analysis and search analytics. This is a hands-on course based on the Marketing Engineering approach and Excel software, in which students will apply the tools studied to actual business situations and conduct a group project involving primary data collection and analysis. At the conclusion of this course, students will be familiar with some of the more common marketing analytics tools and be able to extract insights from marketing data using model-supported decision making.

Enforced Prerequisite at Enrollment: MKTG 330 and MKTG 342

MKTG 475: Innovation and Product Management

3 Credits

This course is an application-oriented interdisciplinary course on new product development concepts, and innovation management. MKTG 475 Innovation and Product Management (3) This course is designed to provide students the opportunity to examine and understand the new product development process. It takes the process from the strategy and ideation stage to the after-market product launch. The course blends the perspectives of marketing, management, and engineering into a single approach to product development. It provides students with an appreciation for the realities of industrial new product development practice. Therefore, case studies and other in-class assignments are designed in a way that students can apply the theoretical/abstract concepts to the real life phenomenon. The new product development projects are assigned to teams in real life, students have the opportunity to complete the case analyses and assignments in teams. Course aims to integrate micro level new product development issues (e.g., firm-level product strategy) to macro level issues (e.g., anti-trust regulations and legislations).

Enforced Prerequisite at Enrollment: MKTG 301

MKTG 476: Sales Management

3 Credits

Application of modern management principles to field sales force planning, organization, and administration; selection, training, and compensation plans.

Enforced Prerequisite at Enrollment: MKTG 301 and MGMT 301

MKTG 478: Services Marketing Management

3 Credits

Conceptual understanding of services and the analytical tools that are used in solving strategic services marketing problems.

Enforced Prerequisite at Enrollment: MKTG 301

MKTG 480: Intermediate Social Media Marketing

3 Credits

Social Media Marketing tools, techniques, and strategies to build brands and customers. MKTG 480 Intermediate Social Media Marketing (3) In today's business world, marketers must become more creative in the ways in which they present their company on an Internet based platform such as Twitter, Facebook, and Linked-In in order to present increasingly relevant products and services to a more receptive customer base. The course, Intermediate Social Media Marketing, is designed to provide hands-on experiences with the use of Social Media Marketing tools and techniques while adhering to socially acceptable and ethical standards and protocols. The technology tools and platforms include but not limited to: Facebook, LinkedIn, Twitter, YouTube, Google+, Pinterest, Foursquare, Friendster, Technorati, Blogs, Vlogs, Podcasts, Hootsuite, Radian6, various search engines, and QR codes. These social media tools can be used to find, reach, connect, and automate marketing messages to efficiently and effectively build relationships, stronger brands and loyalty. These technologies may be utilized with or without a fully realized marketing automation structure, allowing ideas to be shared on a global platform. Students will learn and apply the major categories of Social Media tools, the how's and why's of their use, and decide what venues to use to reach the social media marketing objectives of firms, which may include improving the content to increase online presence, brand awareness, fan likings, customer inquiries, and sales. During this course, students will devise a social media marketing plan for a local firm (or firms) that addresses (1) platform, (2) content, and (3) interaction. This course will achieve academic excellence by having students research the latest techniques and practices of social media, mobile, and direct marketing to build a social media marketing plan for a local firm (or firms) to expand its markets. Students will be analyzing a firm's current traditional and social media marketing practices, and short-term and long-term goals for its target markets.

Enforced Prerequisite at Enrollment: MKTG 330 or MKTG 342

MKTG 485: Business-to-Business Marketing

3 Credits

Application of marketing principles to commercial enterprises, industrial firms, government, and other non-profit institutions.

Enforced Prerequisite at Enrollment: MKTG 301

MKTG 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

MKTG 494H: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Honors

MKTG 495: Internship

1-18 Credits/Maximum of 18

Supervised off campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: Prior approval of proposed assignment by instructor

MKTG 495A: Penn State Prime Practicum: Brand Management and Campaign Strategy

3 Credits

Penn State Prime is designed to give students hands-on, practical experience between brand ("client side") and ad agency ("agency side") while taking on a real consumer marketing challenge. Teams live out the journey from client-agency initial engagement, consumer insights to campaign development. In doing so, students apply skills developed in departmental workshops, marketing-related coursework, and other relevant experiences. Unlike traditional courses, students adopt specific roles on the client or agency side, and receive mentorship from a client or agency executive, teaching assistants, and the instructor. The goal of the practicum is to enhance and refine each student's ability to excel in the future by experiencing the real-world challenges and "messiness" of brand management and advertising in a semi-guided context. While a traditional course design would focus on specific aspects of client side and agency side topics such as brand, advertising, and promotion management, Penn State Prime's project team environment gives students the opportunity to utilize real-world exposure to pull content together.

Enforced Prerequisite at Enrollment: Permission from the Instructor

MKTG 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

MKTG 496A: **SPECIAL TOPICS**

1-6 Credits

MKTG 496B: **SPECIAL TOPICS**

1-6 Credits/Maximum of 6

MKTG 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

MKTG 498: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

MKTG 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Materials Engineering Technology (MAET)

MAET 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Materials Science and Engineering (MATSE)

MATSE 81: Materials in Today's World

3 Credits

A survey of the properties, manufacture, and uses of polymers, ceramics, and metals in today's world with emphasis on modern developments and new materials. This course presents the basic science and technology of materials to non-science students. The course concentrates on 'Materials in Today's World' but frames the discussion in a relevant historical framework. Course topics are built around 'The Central Paradigm of Materials Science and Engineering,' which links processing to structures to properties to performance. First, students are introduced to the basic concepts of metals and nonmetals, and to a fundamental understanding of The Periodic Table. From these conceptual ideas, ceramics and electronic materials are rationalized on the basis of their electronic structures. The properties of materials, e.g., mechanical, thermal, electronic, and photonic, are developed directly from the structural knowledge of the materials classifications. The concept of materials design is introduced with respect to the properties of density, melting point, and hardness. Current practices for processing and manufacturing of materials are compared with methods that were employed in antiquity. This course meets the Bachelor of Arts: Natural Sciences (BA) and General Education: Natural Sciences (GN) Penn State requirements.

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

MATSE 101: Energy and the Environment

3 Credits

Energy utilization and technological development, energy resources, conversion and consequences on the local and global environment, and future energy alternatives. EGEE (MATSC) 101 Energy and the Environment (3) (GN)(BA) This course meets the Bachelor of Arts degree requirements. Energy is the life-blood of any society. The information and principles learnt in this course will allow the students to make sound judgments in the area of personal energy choices; There is

increasing concern about the influence of human activities, particularly energy use, on global climate change. This has an impact on global business aspects. Students in all walks of life need to be exposed to the basic concepts to appreciate the positions of policymakers, scientists, and industry over the interrelationship between greenhouse gas emissions and global climate change. The students will acquire knowledge, which will enable them to critically evaluate any energy-related concerns of the society. This is important for any college graduate for responsible citizenship and stewardship. The main objectives of this course are to: provide basic understanding and appreciation of energy and environmental concepts and interconnectedness; analyze energy consumption patterns; discuss various energy resources that power the modern society; examine the energy conversion processes; explore interrelationships between energy use and industrial progress and environmental consequences; discuss future energy alternatives. Student performance will be evaluated continuously through homework assignments, exams, group activities, class participation and a final examination. Position papers or term papers may be used in lieu of homework assignments in some sections. This course is a stand-alone General Education course.

Cross-listed with: EGEE 101

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

MATSE 101A: Energy and the Environment

3 Credits

Energy utilization and technological development, energy resources, conversion and consequences on the local and global environment, and future energy alternatives. EGEE (MATSC) 101A Energy and the Environment (3) (GN;IL)(BA) This course meets the Bachelor of Arts degree requirements. Energy is the life-blood of any society. The information and principles learnt in this course will allow the students to make sound judgments in the area of 'personal energy choices.' There is increasing concern about the influence of human activities, particularly energy use, on global climate change. This has an impact on global business aspects. Students in all walks of life need to be exposed to the basic concepts to appreciate the positions of policymakers, scientists, and industry over the interrelationship between greenhouse gas emissions and global climate change. The students will acquire knowledge, which will enable them to critically evaluate any energy-related concerns of the society. This is important for any college graduate for responsible citizenship and stewardship. The main objectives of this course are to: provide basic understanding and appreciation of energy and environmental concepts and interconnectedness; analyze energy consumption patterns; discuss various energy resources that power the modern society; examine the energy conversion processes; explore interrelationships between energy use and industrial progress and environmental consequences; discuss future energy alternatives. Student performance will be evaluated continuously through homework assignments, exams, group activities, class participation and a final examination. Position papers or term papers may be used in lieu of homework assignments in some sections. This course is a stand-alone General Education course. The course is currently offered in four sections every semester (Spring and Fall) with a total target enrollment of approximately 200-250 students per semester.

Cross-listed with: EGEE 101A

Bachelor of Arts: Natural Sciences

International Cultures (IL)

MATSE 112: Applied Materials Chemistry for Engineers

3 Credits

The goal of this course is to instruct students on how to apply the basic tenants of chemistry towards materials used for a variety of engineering applications as well as to provide an introduction to many of the core concepts of materials science and engineering. The course will begin with an in depth look at the fundamental intermolecular forces that pervade atoms, molecules, ions and dense materials and underlie the observed properties of materials with respect to environment. The course will then continue on to discuss crystal chemistry to teach students how to determine and interpret Miller indices and crystal structures as well as to express the relations between structure and material properties. Thermodynamics and kinetics are then discussed with regard to reactions within inorganic chemistry and properties of inorganic materials with an emphasis on theoretical calculation and understanding of important concepts such as the Gibbs free energy and Fick's laws. The course will then cover electrochemistry, focusing on the fundamentals and relation to battery development and corrosion prevention before concluding with an overview of materials synthesis processing involving many of the previously addressed concepts.

Prerequisite: CHEM 110

General Education: Natural Sciences (GN)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

MATSE 201: Introduction to Materials Science

3 Credits

Concepts of relationships between structure and thermal, optical, magnetic, electrical, and mechanical properties of metals, ceramics, glasses, and polymers.

Prerequisites: CHEM 112 or MATSE 112

MATSE 201H: Introduction to Materials Science

3 Credits

Concepts of relationships between structure and thermal, optical, magnetic, electrical, and mechanical properties of metals, ceramics, glasses, and polymers.

Honors

MATSE 202: Introduction to Polymer Materials

3 Credits

The materials science of organic or soft materials with an emphasis on synthetic and natural polymer. MATSE 202 Introduction to Polymer Materials (3) Materials made from many types of natural organic materials, (cotton, wool, hemp, leather, etc.) have been with us throughout recorded history and have played crucial roles in the rise of civilizations and the economies of tribes and nations. Over the course of the last 100 years or so the development of synthetic organic materials, particularly polymers, has transformed the way we live. Modern transportation systems, much of contemporary medicine and the entire electronics and computer industry would not be possible without these materials. In order to understand their nature and provide a basis for a more in-

depth understanding of these materials provided by courses with a more specific focus, why they are ubiquitous in modern society, this course will provide students with a basic knowledge of the structure, synthesis and properties and processing of these materials, starting with a review of atomic and molecular structure and proceeding through basic elements of the chemical synthesis, structure, mechanical properties and processing of these materials. Students will discover the commonalities and differences between synthetic polymers, such as polyesters and nylons, and natural or biological polymers, such as cotton and silk. A comparison will also be made between the mechanical properties of "hard", inorganic materials such as metals and ceramics, and "soft", organic materials such as polymers. The primary intended audience is undergraduates in Materials Science and Engineering. This course will provide a necessary overview of organic materials for those students who will focus on inorganic materials in the major and also provide an introduction to organic materials for those students who will specialize in polymers and other organic materials. It is also anticipated that students in other disciplines who want to obtain an overview of the science and engineering of organic materials would want to take this course.

Prerequisites: (CHEM 202 or CHEM 210) and (MATH 230 or MATH 231)

MATSE 203: Technical Communications

3 Credits

This course is a 3 credit general education course in technical writing, for undergraduates majoring in Materials Science and Engineering. In it, students will learn how to develop a variety of documents which they will be expected to write during the course of their college and professional careers, including technical/lab reports, posters, fellowship and internship applications, job search documents, progress reports, and formal and informal communications. Other topics would include ethics, literature surveys, critical evaluation of sources, citing of references, and proper data presentation. Embedded within each of these topics and document types will be instruction in the writing process, identifying and assessing your audience, organizing documents, adopting a professional style, learning active and passive voices, and using review and editing techniques.

Prerequisite: ENGL 15 or ENGL 30H or (ENGL 137H and ENGL 138T) and 3rd Semester or above

General Education: Writing/Speaking (GWS)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

MATSE 219: Introduction to Materials Informatics

3 Credits

The proposed course has 5 modules. In the first module, the concepts of materials informatics are presented through spreadsheet software (e.g., Microsoft Excel) to enable the students practice with the content in a familiar environment. In the second module, computer programming is introduced (e.g., Python) and students learn to replicate tasks from Module 1 using this new tool. In the third module, various flavors of regression are introduced to model materials data, with special emphasis on ways that materials data is different from other data domains. In the fourth module, students learn to access publicly available materials data such as from published literature and online databases using simple APIs. In the final module, the concepts are linked to design and analysis of materials experiments including factorial design of experiments, outlier detection, and hypothesis testing. The overall intention is to

provide students with basic skills in analyzing, modeling, and visualizing materials data using a programming language in preparation for the subsequent MATSE 419: Computational Materials Science and Engineering.

Prerequisite: MATH 141 Concurrent: MATSE 201 and MATH 220

MATSE 259: Properties and Processing of Engineering Materials

3 Credits

Relationship of structure and processing variables to the properties and service behavior of metals, polymers, and ceramics.

Prerequisite: EMCH 213 or EMCH 210

MATSE 259H: Properties and Processing of Engineering Materials

3 Credits

Relationship of structure and processing variables to the properties and service behavior of metals, polymers, and ceramics.

Honors

MATSE 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

MATSE 400: Crystal Chemistry

3 Credits

Principles of crystal chemistry applied to structures, structural defects and properties of organic, inorganic, intermetallic, and metallic crystals.

Prerequisite: MATSE 201, MATSE 202, MATH 220, MATH 231, MATH 251

MATSE 401: Thermodynamics of Materials

3 Credits

The course starts with the first law of thermodynamics and its applications to the calculations of heat involved in various materials processes such as chemical reactions and phase transformations. Second law of thermodynamics and the concept of entropy are then introduced. The application of maximum work theorem to engine efficiency is briefly discussed. Various thermodynamic potentials are defined to determine the equilibrium of a system under various thermodynamic conditions, with an emphasis on the Gibbs free energy functions at constant temperature and pressure conditions. The relationships among thermodynamic properties are derived using the Maxwell relations. Phase diagrams of single-component systems are constructed from the Gibbs free energy function, and the Clapeyron equation is applied to describe the phase boundaries. Applications of thermodynamics to the determination of chemical equilibrium and to the calculation of the voltages of electrochemical reactions are also discussed. The last part of the course is focused on the solution thermodynamics and its application to binary phase-diagrams.

Prerequisite: MATSE 201 and MATSE 202 and (MATH 251 or (MATH 250 and MATH 252))

MATSE 401H: Thermodynamics of Materials

3 Credits

Review of equilibrium thermodynamics and applications to metallurgical and material systems.

Honors

MATSE 402: Materials Process Kinetics

3 Credits

A treatment of process kinetics including chemical reaction kinetics and momentum, energy and mass transport.

Prerequisites: MATSE 201 and MATSE 202 and MATH 251

MATSE 403: Biomedical Materials

3 Credits

Describe properties of materials and composites and their in vivo interactions. BME 443 (MATSE 403) Biomedical Materials (3) Metals, polymers, and ceramics, and their composites, which are capable of emulating the functions of hard and soft tissues, are the subjects of this course. The subject matter shall be confined to implanted materials; external appliances, such as casts, braces, etc are not considered. The topical content of this course will be grouped into four areas. A general introduction to selected aspects of physiology will be presented. This will provide the background necessary to appreciate the factors which govern the selection of biomedical materials. Specific emphases will be placed on polymerization of biopolymers (polypeptides and polysaccharides) and the general relationships between conformation and biological function, the biochemistry of blood and blood surface interactions, the formation of teeth and bone and the relationships between microstructure, composition and function, the immune responses to implanted materials, the resorption of bone (osteoporosis) and the development of caries. The perspective placed on these topics will be that of materials science. The selection of ceramics for hard tissue prosthesis will be discussed. Orthopaedic and dental applications for ceramics will be discussed. Specific ceramic materials to be treated include dental porcelain, alumina- and zirconia-based ceramics, and bioglasses and pyrolytic carbons. Various classes of inorganic cements, gypsum, zinc phosphates, zinc carboxylates, silicates, and glassionomer cements will also be considered as ceramics. Hydroxyapatite, Hap-based composites and Hap-metal interactions will be discussed in particular. Relationships among physical properties, mechanical properties, and chemical interactions with biological fluids will be described. Dental and orthopedic applications of metals will be described. The fracture toughness of metals, their electrochemical responses in vivo, and the nature of the interfacial interactions with hard tissues will be treated. Dental amalgams and the noble metals for dental applications will be considered. Metals and alloys, such as Ti, Co-Cr, and vitallium, used in prosthetic applications, will be described and their properties and limitations discussed. The phenomenon of stress shielding and the immune responses associated with the accumulation of metallic and polymeric particular debris in the vicinity of an implant will be discussed in particular. Polymeric materials are important in a broad range of biomedical applications. Among these are soft tissue prostheses, hemostatic agents, dental restoratives, bone replacement materials, and surgical adhesives. In some applications it is desirable that a polymeric material biodegrade while in others property retention is desirable.

Enforced Prerequisite at Enrollment: (MATSE 201 or CHEM 112) and (MATH 230 or MATH 231)

Cross-listed with: BME 443

MATSE 404: Surfaces and the Biological Response to Materials

3 Credits

Focus is on special properties of surface as an important causative and mediating agent in the biological response to materials.

Enforced Prerequisite at Enrollment: CHEM 112 or MATSE 112

Cross-listed with: BME 444

International Cultures (IL)

MATSE 409: Nuclear Materials

3 Credits

Nuclear reactor materials: relationship between changes in material properties and microstructural evolution of nuclear cladding and fuel under irradiation. NUC E (MATSE) 409 Nuclear Materials (3) NUC E/ MATSE 409 provides a background on the types of materials used in nuclear reactors and their response to neutron irradiation. Most of the materials problems encountered in the operation of nuclear power reactors for energy production are discussed here. The objective of the course is to give nuclear engineering students a background in materials, so they understand the limitations put on reactor operations and reactor design by materials performance. In the first part of the course, we review basic concepts of physical metallurgy, to develop a mechanistic and microstructurally based view of material properties. In the second part of the course, we present the methods to calculate displacement damage to the material produced by exposure to neutron irradiation. The microstructural evolution that results from the reactor exposure (including radiation damage and defect cluster evolution, and changes) is described. The aim is to create a linkage between these changes at the atomistic level and the changes in macroscopic behavior of the material. Special attention is given to property changes that affect fuel performance and operational safety. Both mathematical methods and experimental techniques are emphasized so that theoretical modeling is instructed by experimental data. Students use the TRIM and SPECTER codes to quantitatively evaluate neutron damage, as well as learn simple analytical models that describe microstructural evolution and property changes under irradiation.

Enforced Prerequisite at Enrollment: PHYS 214

Cross-listed with: NUCE 409

MATSE 410: Phase Relations in Materials Systems

3 Credits

Phase rule; construction and interpretations of equilibrium diagrams; importance of nonequilibrium in materials. MATSE 410 Phase Relations in Materials Systems (3) This course integrates three core components of materials science and engineering: thermodynamics, kinetics, and interface crystallography in understanding processing and development of inorganic materials. It is the key course bridging the fundamentals to practical materials processing. Phase equilibria, phase diagrams, phase transformations and heat treatments are addressed in great details through nucleation, transformation kinetics, crystal interface and diffusion. The complexity of materials is discussed in hierarchy from pure elements, binaries, ternaries to multicomponents.

Prerequisite: MATSE 201, MATSE 401

MATSE 411: Processing of Ceramics

3 Credits

Principles of ceramic processing, including powder preparation and characterization, forming operations, and the basic phenomena underlying these operations. MATSE 411 Processing of Ceramics (3) This course covers the scientific and engineering principles of manufacturing of ceramic products. The course covers powder synthesis and characterization; surface and colloid chemistry; fabrication; and densification by sintering. There is an emphasis on the physical chemistry of particulate systems as relates to the various stages processing. The course is offered every fall semester and is required for BS graduates of the Ceramic Science and Engineering option in Materials Science and Engineering. The course objectives are for the student to (1) become knowledgeable of all steps involved in ceramic manufacture from powder synthesis through final densification by sintering, (2) understand the rationale and compromises for selecting a given processing route, (3) understand and be able to apply the parametric relations for manufacture of a ceramic with a specified microstructure, and (4) understand the physical chemistry fundamentals responsible for the unique properties of fine powders.

Prerequisite: MATSE 400, MATSE 402

MATSE 412: Thermal Properties of Materials

3 Credits

Generation of high temperatures, measurement of temperature, heat transfer and furnace design, thermal stability of ceramic materials, applied thermodynamics. MATSE 412 Thermal Properties of Materials (3) The fundamentals of achieving, measuring, and controlling high temperature for materials processing are addressed. The crystal physics underlying heat capacity, internal energy, phonon and photon conduction, and thermal expansion is used to rationalize the behavior of a wide variety of ceramic and metallic materials in severe thermal environments. Micro- and macroscopic thermal transport, thermal shock and fatigue behavior, and thermochemical durability are addressed insofar as their impact on the design of, and with, high performance materials in thermostructural applications. Case studies on materials selection and design using the fundamentals of inorganic crystal chemistry, physics, thermodynamics, kinetics, elastic, and mechanical properties are widely employed. Students interested in disciplines such as metallurgy, ceramic science, electronic and photonic materials, mechanical engineering, aerospace engineering, industrial engineering, engineering science, and chemical engineering will benefit significantly from this course.

Prerequisite: MATSE 201 and MATSE 401

MATSE 413: Solid-State Materials

3 Credits

The main course objective is to provide sufficient background for the understanding of fundamental phenomena in solid state materials. Mathematical description of periodic arrays and the concept of reciprocal space are introduced, lattice vibrations are discussed. An introduction to quantum mechanics is given and the solution of the stationary Schrödinger Equation for various problems relevant in nanostructured materials is presented. A semi-quantitative approach is taken how the electronic structure of isolated atoms is changed as they bond and form molecules and solids. Emphasis is placed how such bonding

influences whether the resulting material will be a metal, an insulator or a semiconductor. The goal is to master the modern framework in solid state materials that describes materials phenomena at an atomic level, such as electronic band structure and electronic transport, the vibrational properties of solid state materials and to prepare the audience for higher level quantum mechanical problems.

Prerequisites: MATSE 201 and MATH 220 and (MATH 231 or MATH 230)

MATSE 415: Introduction to Glass Science

3 Credits

Composition, melting, fabrication, properties, and uses of glass; combinations of glass with metals and other materials. MATSE 415 Introduction to Glass Science (3) This course aims to explain the unique characteristics of the glassy state, and to describe their role in the processing, application, and engineering performance of amorphous materials and glass products. The course teaches fundamental concepts of amorphous structure, and then utilizes them to establish structure-property relations in various glass systems. The viscosity, thermal expansion, chemical durability, strength behavior, and optical properties of silicate-based glasses are emphasized, although the important properties of phosphate, halide, and chalcogenide glasses are not overlooked. Also included are phenomenological descriptions of glass formation, liquid-liquid immiscibility, viscous flow, structural relaxation, stress relaxation, and crystallization in glass. Various methods for the synthesis of glass are reviewed (melting, CVD, and sol/gel), along with important manufacturing processes for commercial glass products. Throughout the course, the applications of glass and glass components in electronics, photonics, biomedicine, transportation, and energy are described to rationalize the use of glass (i.e., the materials selection), the specific glass composition, and the associated processing method.

Prerequisite: MATSE 401

MATSE 417: Electrical and Magnetic Properties

3 Credits

Electrical conductivity, dielectric properties, piezoelectric and ferroelectric phenomena; magnetic properties of ceramics. ESC 417 / MATSE 417 Electrical and Magnetic Properties (3) is designed to provide students with a fundamental understanding of the different responses a material can have to crapped electrical or magnetic fields. Important properties are introduced and correlated with knowledge of material chemistry, crystal structure, and microstructure to provide an understanding of the mechanisms responsible for controlling the observed properties, as well as the ways in which properties can be engineered. Electronic and magnetic properties encompass dielectric, ferroelectric, conductor, superconductor, and ferromagnetic materials. Material properties and structures are related to sensors, energy storage and conversion devices, biomedical devices and electronic components in telecommunications.

Enforced Concurrent at Enrollment: MATSE 400 and MATSE 413
Cross-listed with: ESC 417

MATSE 419: Computational Materials Science and Engineering

3 Credits

Introduction to computational material science and engineering. Overview of the computational methods for materials, from atomistic to the continuum scale. MATSE 419 Computational Materials Science and Engineering (3) Modeling is a critically important tool in the field of

materials. This course is designed to inform students about all areas of materials modeling, and to explore the use of modeling in different research areas. This is a hands-on undergraduate level course, mandatory for all MATSE students, covering current methods for modeling soft and hard matter, at the atomistic, meso and continuum scale levels. It consists of an overview of individual techniques of modeling from atomistic molecular dynamics and Monte Carlo, coarse-grained molecular dynamics, and multiscale modeling, to the continuum (e.g. SAFT, CALPHAD). It also includes a computer laboratory component with hands-on exercises. At the conclusion of the course, students will understand the physical basis and basic procedures of each technique. Students will be able to understand the general literature in modeling and its connection with experimental work, as well as to communicate with experts in the field. From the laboratory practices, they will learn how the individual modeling techniques contribute to knowledge in each area, and to interconnect them with experimental information.

Prerequisite: CMPSC 200 and MATSE 201 and MATSE 202 and MATH 220 and (MATH 231 or MATH 230) and MATH 251
Cross-listed with: CMPMT 419

MATSE 421: Corrosion Engineering

3 Credits/Maximum of 3

Industrial forms of corrosion and preventive methods, and their description in terms of basic thermodynamic and kinetic considerations. MATSE 421 Corrosion Engineering (3) This 3-credit course is an introduction to the corrosion field and more broadly to the principles of electrochemistry and to the electrode reactions that occur during the undesirable corrosive degradation of metal, and also in various important commercial processes such as electroplating, electroless plating, battery and fuel cell operation, aqueous extraction metallurgy and corrosion prevention techniques. The objectives of this course are to introduce the student to the (1) principles of electrode reactions, (2) nature of commercial corrosion resistant alloys and their compositions, (3) various forms of corrosion and preventative measures, and (4) design of electrochemical laboratory and field procedures for detecting corrosion processes and determining their rates. Thermodynamic and rate data are used to make engineering decisions relative to the occurrence of corrosion, to the effectiveness of the various preventative measures, and to electrochemical design. Corrosion processes and electrode reactions more generally are primarily concerned with the surface properties of materials, but the bulk properties, such as microstructure, grain size, hardness, and composition, are discussed in terms of their impact on materials degradation. In-class closed-book exams and problem sets, and homework that allow student collaboration, are used for evaluation. Computer access to the course is available and includes all lecture material, old exams with answers, home works, and syllabus on the Web. This course is offered every year with typical class size of less than 20 students.

Prerequisites: PHYS 212, MATSE 401, MATSE 402

MATSE 422: Thermochemical Processing

3 Credits

Physico-chemical aspects of high temperature extraction and processing of metals and alloys. Design and evaluation of processes and process options. MATSE 422 MATSE 422 Thermochemical Processing (3) An important goal of materials engineering is to efficiently produce metals and alloys of specific composition. Familiar examples include the tonnage production of metals and alloys, the production of ultra

high purity electronic materials such as silicon and germanium, and the deposition of thin films for various applications. In this course the students get an understanding of the physical and chemical principles underlying these operations and how these principles are applied in industrial practice. The students get ample opportunities to apply thermodynamics, kinetics, and transport phenomena to understand why the processes currently in use work. Furthermore, they learn how to marshal information for the design of projected new processes and process options. Broadly stated, the topics include solid-state reactions, production of liquid metals, and processing, all carried out at high temperatures. The topics are covered in a set of lecture notes available from the instructor. The lectures are accompanied by about fifteen problems sets in the form of home work and class work so that the students experience first-hand how the principles of thermodynamics and rate processes are applied in solving important problems in thermochemical processing.

Prerequisite: MATSE 401, MATSE 402

MATSE 425: Processing of Metals

3 Credits

Modern methods of shaping metals in liquid and solid states: casting, joining, powder and deformation processing. Design of new technology. MATSE 425 Processing of Metals (3) This course focuses on how metals and alloys may be processed into different shapes and how those processing procedures affect the metallurgical microstructure and properties. Consideration of shape, the alloy composition, and property goals are all factors in selecting an optimum processing 'window'. Such carefully selected processing conditions not only produce the desired component shape in a cost-efficient manner but also ensure acceptable properties and safe in-service performance. This course surveys the following metal processing procedures: (a) solidification processing, (b) heat

Prerequisite: MATSE 402

MATSE 426: Aqueous Processing

3 Credits

A study of the chemical and engineering principles pertinent to metal processing in aqueous systems: hydrometallurgical extraction, plating, materials preparation. MATSE (MN PR) 426 Aqueous Processing (3) This 3-credit course deals with the chemical and engineering principles underlying the aqueous processing of metals: metal extraction from primary and secondary sources, electroplating, and metal finishing, powder synthesis, energy storage and conversion, and treatment of recycling of metal-containing toxic wastes.1. Physico-Chemical Principles - Thermodynamic, chemical kinetic and transport factors which control hydrochemical processes (leaching; precipitation; adsorption; solvent extraction; ion exchange; electrowinning, electrorefining and electroplating; membrane processes; energy storage and conversion); graphical representation of homogeneous and solid/solution equilibria; chemical reagents.2. Engineering Principles - Reactor design and staged operations; ideal batch, continuous stirred-tank and plug-flow reactors; fluidized bed reactors; electrochemical reactors; multistage separation processes (solid-liquid, liquid-liquid, and gas-liquid systems).3. Process Synthesis - Design of metal separation (extraction, refining, waste treatment) materials synthesis, metal finishing, and energy storage/conversion processes and system-integration of unit operations,

industrial practice. Emphasis on closing circuits to minimize or eliminate waste effluents.

Enforced Prerequisite at Enrollment: EME 301 or MATSE 401
Cross-listed with: MNPR 426

MATSE 427: Microstructure Design of Structural Materials

3 Credits

The focus of this course is on understanding the microstructure development and design of structural ferrous metals. The course will begin with understanding the basic physical metallurgy concepts of ferrous metals and applying these principles to understanding their processing/structure/property relationships. Specifically, the alloying principles, phase transformation behavior, and transformation kinetics steels will be considered in detail. Heat treatment practices (annealing, normalizing, quenching, tempering, and precipitation hardening) and their effects on the microstructure and mechanical properties of each of these metals will also be studied.

Prerequisite: MATSE 201 or MATSE 259

MATSE 429: Non-Ferrous Structural Metals

3 Credits

The focus of this course is to understand the phases, microstructures, and mechanical properties of non ferrous structural metals; specifically the alloys of aluminum, titanium, nickel, and copper. The alloying principles, phase transformation behavior, and transformation kinetics for each metal system will be considered in detail. Heat treatment practices (annealing, normalizing, tempering, aging, and precipitation hardening) and their effects on the microstructure and mechanical properties of each of these metals will also be studied. Corrosion resistance, weldability, and sustainability will also be considered for the alloy systems.

Prerequisite: (MATSE 201 or MATSE 259) and 6th semester standing

MATSE 430: Materials Characterization

3 Credits

Elements of crystallography and the characterization of crystalline and non- crystalline materials using x-ray diffraction, electron microscopic, and other instrumental techniques. MATSE 430 Materials Characterization (3) This course will introduce students to characterization techniques for quantifying microstructure, chemistry and atomic structure of solid state materials. Elastic and inelastic interactions of radiation (e.g. electromagnetic and electrons) with solid state materials are the basis for most characterization techniques. Utilizing these interactions it is possible to obtain structural and chemical information from materials, often at small length scales. In this course, students will be introduced to the most common imaging, diffraction and spectroscopy techniques used for materials characterization. They will develop an understanding of the underlying physics behind the techniques to enable interpretation of the data. The course will be beneficial for any student interested in solid-state materials, as it provides a key component of the processing-structure-properties process.

Prerequisites: MATSE 201 and MATSE 202 and MATH 220 and (MATH 230 or MATH 231) and MATH 251

MATSE 430H: Materials Characterization

3 Credits

Elements of crystallography and the characterization of crystalline and non- crystalline materials using x-ray diffraction, electron microscopic, and other instrumental techniques.

Honors

MATSE 435: Optical Properties of Materials

3 Credits

Electromagnetic spectrum, interaction of light with materials, color, thin film optical coatings, electro-, integrated and nonlinear optics.

Prerequisite: MATSE 400

MATSE 436: Mechanical Properties of Materials

3 Credits

Fundamental relationships between structure and mechanical behavior of materials. MATSE 436 Mechanical Properties of Materials (3) The topics covered in this course are essential to students in the Materials Science and Engineering options, and these are also required for materials engineering courses nationally accredited by the professional societies. The course is taught at the 400 level because it requires the fundamental courses in mathematics and physics to be completed. The course also requires completion of an introductory course in materials science. This new course typically fits into the junior or senior year, when students in the major are understanding how the properties of materials can be changed by controlling the structure of materials. The course has also been designed such that students in other engineering majors can take this course as a technical elective. Some of the information in this course is used in laboratory courses for the major. The course is not required as a prerequisite for other courses.

Prerequisite: (MATSE 201 or MATSE 259) and MATSE 202 and MATH 220 and (MATH 231 or MATH 230) and MATH 251 and PHYS 211

MATSE 440: Nondestructive Evaluation of Flaws

3 Credits

Methods and limitations of nondestructive evaluation of mechanical flaws; optical, acoustical, electromagnetic, x-ray, radiography, thermography, and dye techniques.

Enforced Prerequisite at Enrollment: EMCH 213 or EMCH 210H or EMCH 210

Cross-listed with: EMCH 440

MATSE 441: Polymeric Materials I

3 Credits

This 3-credit course focuses on about 50 commercially most important polymers together with the discussion of synthesis routes, industrial production processes, processing methods, physical and chemical properties, and applications. They are classified into 10 families of polymeric materials, which are taught along with introduction of polymeric materials and synthesis of polymers in the beginning of the class.

Prerequisite: (CHEM 202 or CHEM 210) and MATSE 202 and (MATH 231 or MATH 230)

MATSE 445: Thermodynamics, Microstructure, and Characterization of Polymers

3 Credits

The properties of individual polymer chains will be studied and characterized, including theoretical and experimental techniques pertaining to the characterization of polymeric microstructure. This course develops fundamental understanding of microstructures and chain conformations of polymers. Polymer synthesis, including step-growth and chain polymerizations. The kinetics of polymerization will be considered along with the thermodynamics of polymer solutions and blends.

Prerequisite: MATSE 202

MATSE 446: Mechanical and Electrical Properties of Polymers and Composites

3 Credits

This course is an introduction to the mechanical and electrical properties of polymers and polymer-based composites: The main focus is on the importance of molecular structure, rubber elasticity, mechanisms of yielding, viscoelasticity, and the manifestation of the static and ac dielectric properties, as well as conduction. The course topics include polymer chain structures and characterization methods, the amorphous state (glass transition), the crystalline state (including X-ray diffraction, degree of crystallinity, and kinetics), polymer networks and gels, mechanical properties, and electrical properties.

Prerequisite: MATSE 202

MATSE 447: Rheology and Processing of Polymers

3 Credits

Fluid Mechanics: Stress, strain, tensors, viscosity, modulus, conservation of mass, momentum transfer, Navier-Stokes equations, Reynolds number, creeping flow, Poiseuille flow, Couette flow, dimensional analysis and scaling. Rheology: Linear viscoelasticity, stress relaxation, oscillatory shear, creep and creep recovery, Boltzmann superposition, nonlinear viscoelasticity, steady shear, normal stresses, transient shear flows, rotational rheometers, capillary/slit rheometers, simple nonlinear viscosity models, time-temperature superposition, molecular models, entanglement, crosslinking reactions (gelation), extensional flows. Processing: Extrusion, pumping, mixing, screw design, die design, die swell, injection molding, mold filling, computer-aided mold design, weld lines, compression molding, sheet extrusion, thermoforming, pipe extrusion, blow molding, film blowing, rotational molding, fiber spinning, profile extrusion, coating reaction injection molding.

Prerequisite: MATSE 202

MATSE 449: Fundamentals of Composite Materials Science and Engineering

3 Credits

MATSE449 Fundamentals of Composite Materials Science and Engineering covers the fundamental science and engineering of multicomponent materials, with special emphasis on Polymer Matrix Composites. Topics include the design, materials selection, interfaces/

interphases, processing, life cycle analysis (of environmental impacts), and properties of these materials. The course works up from atomic and molecular forces, through interfacial interactions, towards stress transfer at interfaces and mechanical properties of composites. Advanced Topics are a major part of the course and are selected from current industrial and commercial examples of composites, such as nanocomposites and nanofillers in composites, non-thermoplastic (rubber/ceramic/metal) matrix composites, life cycle analysis of specific systems, biomimetic and biopolymer composites, etc.

Enforced Prerequisite at Enrollment: MATSE 201 and MATSE 202 (or equivalent introductory course on materials)

MATSE 450: Synthesis and Processing of Electronic and Photonic Materials

3 Credits

The materials science of applying thin film coatings, etching, and bulk crystal growth; includes materials transport, accumulation, epitaxy, and defects.

Enforced Prerequisite at Enrollment: (MATSE 201 or ESC 414M) and Sixth Semester standing

Cross-listed with: ESC 450

MATSE 455: Properties and Characterization of Electronic and Photonic Materials

3 Credits

Materials characterization in general; electrical properties of crystals, contacts, films; optical properties of single phase materials, waveguide, and multilayer stacks.

Prerequisite: MATSE 201 or ESC 414M, ESC 314

MATSE 460: Introductory Laboratory in Materials

1 Credits

An introduction to comparative physical properties and characteristics of various materials including mechanical, electrical thermal, and structure/morphology. MATSE 460 Introductory Laboratory in Materials (1) This is a lab course whose goal is to provide an integrated approach to materials science and engineering. Any individual lab will consist of a number of elements, initially students will be provided with a presentation summary of the proposed lab. This could be film, video, web delivery, hard copy or live presentation. Presentation time will be limited but should be reviewed before students attempt the hands-on lab. All labs will examine a variety of different materials including metal, ceramics and polymers. Labs will be integrative in the sense that they will include use of spreadsheets, data plotting, and presentation of results as written reports and/or as a "PowerPoint" presentation. The labs selected have been chosen specifically because they cut across all current basic materials disciplines. These labs are intended to provide students with a broad appreciation of the range and contrast of material structures and properties, in order that students more fully appreciate the breadth of material science and engineering.

Prerequisite: MATSE 201 and MATSE 202

MATSE 462: General Properties Laboratory in Materials

1 Credits

An introduction to comparative physical properties of various materials including mechanical, thermal electrical properties and the measurement of said properties. MATSE 462 General Properties Laboratory in Materials (1) This is a lab course whose goal is to provide an integrated approach to physical property measurements in materials science and engineering. Any individual lab will consist of a number of elements, initially students will be provided with a presentation summary of the proposed lab. This could be film, video, web delivery, hard copy or live presentation. Presentation time will be limited but should be reviewed before students attempt the hands-on lab. All labs will examine a variety of different materials including metal, ceramics, polymers and composites. Labs will be integrative in the sense that they will include use of spreadsheets, data plotting, and presentation of results as written reports and/or as a 'PowerPoint' presentation. The labs selected have been chosen specifically because they cut across all current basic materials disciplines. These labs are intended to provide students with a broad appreciation of the range and contrast of material properties and the measurement of such properties, in order that students more fully appreciate the breadth of material science and engineering.

Prerequisite: MATSE 460**MATSE 463: Characterization and Processing of Electronic and Photonic Materials Laboratory**

1 Credits/Maximum of 1

Provides experience with key processing methods for EPM materials and advanced characterization methods for EPM materials and simple device structures.

Prerequisite: MATSE 400, MATSE 430, MATSE 450, MATSE 455, MATSE 460; Concurrent: MATSE 450, MATSE 455**MATSE 468: Ceramics Laboratory III**

1 Credits

Ceramic processing and powder characteristics. MATSE 468 Ceramics Laboratory III (1) This course will demonstrate to students the experimental techniques by which the key powder characteristics and powder processes are determined, how to analyze the data from the measurements, and to reveal the interaction between properties, processing and structure. The course concentrates on the importance of powder characterization, forming techniques, sintering and microstructure characterization in the processing of ceramics.

Prerequisite: MATSE 462 Concurrent Courses: MATSE 411**MATSE 471: Metallurgy Processing Laboratory**

1 Credits

A laboratory integrating experimental aspects of the material contained in MATSE 425, casting, solidification micro-structures heat treating, welding, etc. MATSE 471 Metallurgy Laboratory I (1) This course is largely a metals processing laboratory focused on casting, metal deformation, heat treating, and welding. Understanding how these processes affect microstructure and properties will be studied.

Prerequisite: MATSE 462 Enforced Concurrent at Enrollment: MATSE 425**MATSE 473: Polymeric Materials Laboratory**

1 Credits

Principles and practices of polymerization, including condensation, free radical (bulk, solution, suspension, emulsion), ionic, and Zeigler-Natta procedures. MATSE 473 Polymeric Materials Laboratory--Synthesis (1) This laboratory course provides students exposure to a variety of synthetic techniques basic to Polymer Science. From the polymerization of styrene to the preparation of urethane foams, students will see the role varied synthetic methods and chemistries play in determining the final form and properties of a given polymer. Students also learn the polymer structure characterization by examining the produced polymers with proper tools and instruments.

Prerequisite: MATSE 202 and MATSE 462**MATSE 475: Particulate Materials Processing**

3 Credits

Fundamentals of processing particulate materials including production, characterization, handling, compaction, and sintering of metal, carbide, intermetallic, and composite powders.

Enforced Prerequisite at Enrollment: EMCH 315 or ESC 414M or MATSE 259

Cross-listed with: ESC 475

MATSE 483: Simulation and Design of Nanostructures

3 Credits

Introduction to computer simulation techniques and their applications at the physical/life sciences interface. E SC (MATSE) 483 Simulation and Design of Nanostructures (3) Students will learn the simulation techniques and the design rules of nanostructures. Basic concepts of computer modeling will be introduced using quantum and classical approaches. Fundamental physical phenomena encountered in the molecular fields of computational physics, chemistry, and biology will be studied. Applications are drawn from a broad range of fields including soft and condensed matter to build an understanding of nanostructures. The course will assume knowledge and skill developed in the prerequisite courses of PHYS 214 and MATH 230. Students are expected to combine knowledge from other courses with information presented here to develop sophisticated interpretations and understanding of physical and chemical principles of nanostructures and their design rules. Evaluation methods to be used in this course will be two in-class examinations and one final period examination. The course contains a computer code generation and implementation component. Students will use commercial or educational computer codes (e.g. Matlab, Mathematica, AMBER, CHARMM, VASP, etc.) which are available at our high performance computing clusters (<http://gears.aset.psu.edu/hpc/>) Students will use the computing clusters to perform simulations which are accessible from any classroom or laboratory at Penn State. The principal objectives of the course is to learn the fundamental physics of nanostructures and to design them with computer simulations. This approach starts from classical molecular dynamics that apply on the large scale biological and synthetic assemblies and encompasses quantum mechanics for the molecular and atomic sizes. This course will give a broad scientific picture of simulation techniques in the area of nano-science and technology.

Prerequisite: PHYS 214 or ESC 312, MATH 230

Cross-listed with: ESC 483

MATSE 492W: Materials Engineering Methodology and Design

3 Credits

Designed to familiarize students with the literature and technology developments in the use of, and design with, materials in industrial applications. MATSE 492 Materials Engineering Methodology and Design (3) The objective of this course is to teach students the skills to solve realistic problems related to the use of materials in industrial practice. This will be accomplished by considering alternatives for materials design or selection and proposing the most effective scientific or engineering solutions. The methodology will take into account other forces acting on the design process, such as economic, environmental, sustainability, manufacturability, ethical, health and safety, social and political concerns. Students will develop these design skills by working in teams on projects defined by industry, and will learn to communicate their solutions in verbal and written form. Students will also learn the key features needed in developing a team approach to solving problems. Typically, evaluation is based on written reports, performance in presentations, and instructors's assessment of the student's participation in design team activities. At the conclusion of the course, each student will select a design or independent research topic for their capstone senior-year design project.

Prerequisite: MATSE 201, MATSE 202, MATSE 436, sixth semester standing in Materials Science and Engineering
Writing Across the Curriculum

MATSE 493W: Materials Science and Engineering Multidisciplinary Capstone Design Project

3 Credits

This course focuses on multidisciplinary industry-sponsored and community service-based design projects offered in conjunction with the College of Engineering's Learning Factory. MATSE 493W Materials Science and Engineering Multidisciplinary Capstone Design Project (3) This course will provide students with the opportunity to learn the design process in the context of an industry-sponsored or community service-based design project that demands they produce a working solution. The design projects in this course will be structured for students from two or more different engineering majors, as defined by the project sponsors in collaboration with the instructor and departmental project coordinators. The project sponsor will provide the technical expertise for the project, a clear definition of all project deliverables that are expected, and the financial support to cover needed materials and supplies and travel costs. Project sponsors will be invited to attend the Project Kickoff at the start of the semester to present their ideas and answer questions from the students as well as the Design Showcase at the end of the semester where teams display their results to the project sponsors and the public. The Center for Engineering Design and Entrepreneurship (CEDE) in Hammond Building and the Bernard M. Gordon Learning Factory will provide the facilities where the design teams can work together to develop the design concept and prototype solutions. Faculty members in the School of Engineering Design, Technology, and Professional Programs (SEDAPP) will administer the course, including reading, evaluating, and grading the final project report, provide lectures on topics including on project management, design, product manufacturing, intellectual property, engineering ethics, societal/global/contemporary/professional issues, and related technical topics, and organize invited technical lectures related to industry projects. In accordance with standard Learning Factory procedures, specific multidisciplinary projects will

be selected for this course to provide challenging senior-year design experiences for all students, and the Director of the Learning Factory will coordinate the selection of these projects with the course instructor prior to the start of each semester of the course offering. Multidisciplinary teams will be formed based on specific project needs (i.e., expertise from two or more disciplines based on the project scope).

Prerequisite: MATSE 492W
Writing Across the Curriculum

MATSE 494M: Research and Design Senior Project

1-3 Credits/Maximum of 3

Continuation of a research problem in materials culminating in a bound thesis describing the work.

Honors
Writing Across the Curriculum

MATSE 494W: Research and Design Senior Project

1-3 Credits/Maximum of 3

MATSE 494W Research and Design Senior Project (2) This course continues the senior thesis research topic addressed by the student in MATSE 493W. This is a capstone research/design project which integrates: a) background literature search with articulation of a research hypothesis, b) design and implementation of an experimental plan to test the hypothesis, and c) conclusions regarding the validity of the hypothesis based on the experimental data obtained in the course of the research. The main characteristic of this course is the performance of the research plan articulated in MATSE 493W, followed by interpretation of the data in the context of the original hypothesis(es). Laboratory research is generally performed in collaboration with faculty and graduate research assistants, using equipment and facilities in a wide range of laboratories throughout campus. Occasionally, the nature of the research may require the student to collaborate with researchers outside of Penn State, perhaps even spending some time in residence at other facilities. The course culminates in the preparation of a bound thesis detailing the relevance and findings of the research. Assessment of the student's progress is via grading of all components of the thesis (literature review/background, statement of the problem, design of the experimental plan, results and discussion, conclusions, recommendations for future work, and references/appendices), as well as the diligence of the student in performing the experimental research in a professional and timely fashion. The course is offered each semester to allow for differing schedules for students following the conventional MATSE curriculum versus those who have elected to participate in the Cooperative Education program.

Writing Across the Curriculum

MATSE 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

MATSE 496H: Independent Studies

1-3 Credits/Maximum of 3

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Honors

MATSE 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Mathematics (MATH)

MATH 2: Elementary Geometry With Problem Solving

4 Credits

Geometric congruence, similarity, area, surface area, volume, introductory trigonometry; emphasis on logical reasoning skills and the solution of applied problems. This course may not be used to satisfy the basic minimum requirements for graduation in any baccalaureate degree program.

MATH 3: Basic Skills

3 Credits

Natural numbers; integers; rational numbers; decimals; ratio, proportion; percent; graphs; applications. Students who have passed MATH 001 may not schedule this course for credit. This course may not be used to satisfy the basic minimum requirements for graduation in any baccalaureate degree program.

Enforced Prerequisite at Enrollment: Satisfactory performance on the mathematics placement examination.

MATH 4: Intermediate Algebra

3 Credits

Algebraic expressions; linear, absolute value equations and inequalities; lines; systems of linear equations; integral exponents; polynomials; factoring. This course may not be used to satisfy the basic minimum requirements for graduation in any baccalaureate degree program.

Enforced Prerequisite at Enrollment: MATH 3 or satisfactory performance on the mathematics placement examination.

MATH 10: Preparation Skills for Success in Mathematics

1 Credits/Maximum of 4

A foundation course that emphasizes study skills and reviews basic mathematical principles.

Concurrent: math 003-201**MATH 21: College Algebra with Analytic Geometry with Applications I**

3 Credits

This course satisfies the General Education Qualification. Topics covered include visualizing and graphing data; evaluating the average rate of change; solving linear equations and inequalities; solving linear absolute value equations and inequalities; modeling with linear functions and discussion of interpolation; solving quadratic equations using different solution methods; solving quadratic inequalities; modeling with quadratic functions.

Enforced Prerequisite at Enrollment: MATH 4 or satisfactory performance on the mathematics placement examination.

Bachelor of Arts: Quantification

General Education: Quantification (GQ)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

MATH 22: College Algebra With Analytic Geometry and Applications II

3 Credits

This course covers topics that include functions and their representations; distinguishing between types of functions; evaluating the average rate of change; factoring polynomials of general degree; solving polynomial inequalities; solving rational equations and inequalities; solving radical equations; modeling with polynomial and rational functions; finding and interpreting the meaning of inverse functions; solving exponential and logarithmic equations; modeling with exponential and logarithmic functions.

Enforced Prerequisite at Enrollment: MATH 21 or satisfactory performance on the mathematics placement examination.

Bachelor of Arts: Quantification

General Education: Quantification (GQ)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

MATH 26: Plane Trigonometry and Applications of Trigonometry

3 Credits

This course satisfies the General Education Qualification. Topics covered include angles and their measures; right triangle trigonometry; all six trigonometric functions and their representations; angle addition/subtraction and double angle identities; modeling with sine and cosine; applications of trigonometric functions; simple harmonic motions and other applications of trigonometric functions; inverse trigonometric functions; solving trigonometric equations; verifying identities; law of sines and law of cosines; vectors; polar equations; trigonometric form of complex numbers; other related topics as time permits.

Enforced Prerequisite at Enrollment: MATH 21 or satisfactory performance on the mathematics placement examination.

Bachelor of Arts: Quantification

General Education: Quantification (GQ)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

MATH 26H: Plane Trigonometry

3 Credits

Trigonometric functions; solutions of triangles; trigonometric equations; identities.

General Education: Quantification (GQ)

Honors

MATH 30: Problem Solving

3 Credits

Concepts in problem solving; reducing new problems to old ones; techniques for attacking problems; building mathematical models.

Bachelor of Arts: Quantification

MATH 32: Math for Allied Health Professions

3 Credits

This course is intended to build the specific quantitative reasoning skills needed by workers in Allied Health Professions, such as nurses or therapists. Students will become fluent in proportional reasoning in a variety of contexts, including unit conversion, drug dosage calculations, probability, and logarithmic scales. Students gain the tools to communicate and reason about covariation in scenarios such as exponential growth and decay. Student will also apply tools of probability and descriptive statistics to gain literacy in risk and uncertainty in health settings, such as making sense of effect sizes in research literature.

Enforced Prerequisite at Enrollment: MATH 4 or satisfactory performance on the math placement exam

General Education: Quantification (GQ)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Key Literacies

MATH 33: Mathematics for Sustainability

3 Credits

Mathematical analysis of sustainability: measurement, flows, networks, rates of change, uncertainty and risk, applying analysis in decision making; using quantitative evidence to support arguments; examples.

MATH 033 Mathematics for Sustainability (3) (GQ) This course is one of several offered by the mathematics department with the goal of helping students from non-technical majors partially satisfy their general education quantification requirement. It is designed to provide an introduction to various mathematical modeling techniques, with an emphasis on examples related to environmental and economic sustainability. The course may be used to fulfill three credits of the GQ requirement for some majors, but it does not serve as a prerequisite for any mathematics courses and should be treated as a terminal course. The course provides students with the mathematical background and quantitative reasoning skills necessary to engage as informed citizens in discussions of sustainability related to climate change, resources, pollution, recycling, economic change, and similar matters of public interest. Students apply these skills through writing projects that require quantitative evidence to support an argument. The mathematical content

of the course spans six key areas: "measuring" (representing information by numbers, problems of measurement, units, estimation skills); "flowing" (building and analyzing stock-flow models, calculations using units of energy and power, dynamic equilibria in stock-flow systems, the energy balance of the earth-sun system and the greenhouse effect); "connecting" (networks, the bystander effect, feedbacks in stock-flow models); "changing" (out-of-equilibrium stock-flow systems, exponential models, stability of equilibria in stock-flow systems, sensitivity of equilibria to changes in a parameter, tipping points in stock-flow models); "risking" (probability, expectation, bayesian inference, risk vs uncertainty); "deciding" (discounting, uses and limitations of cost-benefit analysis, introduction to game theory and the tragedy of the commons, market-based mechanisms for pollution abatement, ethical considerations).

RECOMMENDED PREPARATIONS: ENGL 15

Bachelor of Arts: Quantification

General Education: Quantification (GQ)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

MATH 34: The Mathematics of Money

3 Credits

This course will provide students with the mathematical background and quantitative skills needed to make sound financial decisions. This course introduces personal finance topics including simple interest, simple discount, compound interest, annuities, investments, retirement plans, inflation, depreciation, taxes, credit cards, mortgages, and car leasing. Students will learn how to use linear equations, exponential and logarithmic equations, and arithmetic and geometric sequences to solve real world financial problems. Students will answer questions such as, What is the most they can afford to pay for a car? How much do they need to invest in their 401(k) account each month to retire comfortably? What credit card is the best option? In a society where consumers are presented with a vast array of financial products and providers, students are enabled to evaluate options and make informed, strategic decisions. This course may be used by students from non-technical majors to satisfy 3 credits of their General Education Quantification (GQ) requirement. This course does not serve as a prerequisite for any mathematics courses and should be treated as a terminal course.

Enforced Prerequisite at Enrollment: MATH 4 or satisfactory performance on the mathematics placement exam

Bachelor of Arts: Quantification

General Education: Quantification (GQ)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

MATH 35: General View of Mathematics

3 Credits

This course presents a general view of a number of mathematical topics to a non-technical audience, often relating the mathematical topics to a historical context, and providing students with an opportunity to engage with the mathematics at an introductory level. Although some variation in topics covered may take place among different instructors at different campuses, an example of such a course focuses on a number theory theme throughout the course, beginning with the Greeks' view of integers,

the concept of divisors, the calculation of greatest common divisors (which originates with Euclid), the significance of the prime numbers, the infinitude of the set of prime numbers (also known to the ancient Greeks), work on perfect numbers (which continues to be a topic of research today), and the work of Pythagoras and his famous Theorem. The course then transitions to the work of European mathematicians such as Euler and Gauss, including work on sums of two squares (which generalizes the Pythagorean Theorem), and then considering Euler's phi function, congruences, and applications to cryptography.

Bachelor of Arts: Quantification
General Education: Quantification (GQ)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

MATH 36: Insights Into Mathematics

3 Credits

This course will provide students the mathematical background and quantitative skills in various mathematical applications in such areas which are related to voting, fair divisions which includes apportionment methods, and the understanding and application of basic graph theory such as Euler and Hamilton circuits. This course may be used by students from non-technical majors to satisfy 3 credits of their General Education Quantification (GQ) requirement. This course does not serve as a prerequisite for any mathematics courses and should be treated as a terminal course.

Prerequisite: one unit of algebra or MATH 004
Bachelor of Arts: Quantification
General Education: Quantification (GQ)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

MATH 37: Finite Mathematics

3 Credits

Finite math includes topics of mathematics which deal with finite sets. Sets and formal logic are modern concepts created by mathematicians in the mid 19th and early 20th centuries to provide a foundation for mathematical reasoning. Sets and formal logic have led to profound mathematical discoveries and have helped to create the field of computer science in the 20th century. Today, sets and formal logic are taught as core concepts upon which all mathematics can be built. In this course, students learn the elementary mathematics of logic and sets. Logic is the symbolic, algebraic way of representing and analyzing statements and sentences. While students will get just a brief introduction to logic, the mathematics used in logic are found at the heart of computer programming and in designing electrical circuits. Problems of counting various kinds of sets lead to the study of combinatorics, the art of advanced counting. For example, if a room has twenty chairs and twelve people, in how many ways can these people occupy the chairs? And are you accounting for differences in who sits in particular chairs, or does it only matter whether a chair has a body in it? These kinds of counting problems are the basis for probability. In order to calculate the chance of a particular event occurring you must be able to count all the possible outcomes. MATH 37 is intended for students seeking core knowledge in combinatorics, probability and mathematical logic but not requiring further course work in mathematics. Students entering the class will benefit from having some experience with basic algebra and solving

word problems. The course may be used to fulfill three credits of the quantification portion of the general education requirement for some majors, but does not serve as a prerequisite for any mathematics courses and should be treated as a terminal course. Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

Bachelor of Arts: Quantification
General Education: Quantification (GQ)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

MATH 38: Elementary Linear Algebra

3 Credits

Many problems we have to solve in day-to-day practice require the simultaneous determination of several different but interrelated unknowns. Although many problems of this form have been studied throughout the long history of mathematics, only in the early 20th century did the systematic approach we now refer to as linear algebra emerge. Matrices and linear algebra are now accepted as the single most essential tool need for the solution of these problems. In addition, linear algebra provides students their first introduction to the concept of dimension in an abstract setting where things with 4, 5, or even more dimensions are often encountered. In the simplest situations, many of these problems can be represented as $Ax = b$, where x is our vector of unknowns, A is a matrix, and b is a vector of constants. MATH 38 is intended for students requiring some understanding of the concepts of linear algebra for their major, but not requiring any calculus course work. Students who are also required to take calculus course work should instead take MATH 220 after completion of an appropriate prerequisite.

Prerequisite: 2 units of high school mathematics
Bachelor of Arts: Quantification
General Education: Quantification (GQ)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

MATH 40: Algebra, Trigonometry, and Analytic Geometry

5 Credits

Concepts of algebra; equations; inequalities; functions; graphs; polynomial and rational functions; exponential and logarithmic functions; trigonometry; analytic geometry; complex numbers.

Enforced Prerequisite at Enrollment: Satisfactory performance on the mathematics placement examination.
Bachelor of Arts: Quantification
General Education: Quantification (GQ)

MATH 41: Trigonometry and Analytic Geometry

4 Credits

Topics covered include functions and their representations; distinguishing between types of functions; evaluating the average rate of change; graphs and rate of change; end behavior of graphs; modeling with polynomial and rational functions and discussing extrema; finding and interpreting the meaning of inverse functions; solving exponential and logarithmic equations; modeling with exponential and logarithmic functions; angles and their measures; right triangle trigonometry; all six

trigonometric functions and their representations; modeling with sine and cosine; applications of trigonometric functions; simple harmonic motion and other applications of trigonometric functions; inverse trigonometric functions; solving trigonometric equations; verifying identities; law of sines and law of cosines; and further topics, such as elementary limits, as time permits.

Enforced Prerequisite at Enrollment: MATH 21 or satisfactory performance on the mathematics placement examination.

Bachelor of Arts: Quantification
General Education: Quantification (GQ)
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Key Literacies

MATH 81: Technical Mathematics I

3 Credits

Math 81 is the first course in an applied mathematics sequence. The course includes a review of algebra, study of functions, study of systems of linear equations, and an introduction to trigonometry. It addresses the needs of engineering technology majors, and emphasizes technology and applications.

Prerequisite: MATH 004 or satisfactory performance on the mathematics placement examination

Bachelor of Arts: Quantification
General Education: Quantification (GQ)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Key Literacies

MATH 82: Technical Mathematics II

3 Credits

Exponents, radicals, complex numbers, theory of equations, inequalities, half angle and double angle formulas, inverse trigonometric functions, exponential, logarithm, conic sections.

Enforced Prerequisite at Enrollment: MATH 81

Bachelor of Arts: Quantification
General Education: Quantification (GQ)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Key Literacies

MATH 83: Technical Calculus

4 Credits

Math 83 is the third course in an applied mathematics sequence. Math 81; Math 82; Math 83; Math 210; Math 211. It addresses the needs of engineering technology majors, and emphasizes technology and applications. Math 83 is an introduction to differential and integral calculus, with some differential equations. Specific course topics include: limits: derivatives; implicit differentiation; related rates and extrema problems; curve sketching; numerical and symbolic integration; applications of differentiation; and differential equations.

Enforced Prerequisite at Enrollment: MATH 82 or MATH 41

Bachelor of Arts: Quantification
General Education: Quantification (GQ)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Key Literacies

MATH 97: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

MATH 97N: Special Topics - InterDomain

1-9 Credits/Maximum of 9

Formal course given on a topical or special interest subject offered infrequently; several different topics may be taught in one year or semester. This Special Topics is an GenEd course.

MATH 102: Bridge to Calculus

3-4 Credits

This summer course aims to provide incoming students with the tools needed to be successful wherever they place in the calculus sequence. Specific content is tailored to individual students, based on their existing skill set and expected entry point in the calculus sequence, but ranges from algebra and trigonometry to the real analysis which underlies calculus. The course emphasizes teamwork, communication skills, growth mindset, self-assessment (e.g., metacognition) and building a community of scholars. This is achieved through evidence-based, student-centered pedagogical practices such as collaborative and active learning, scaffolded instruction, extensive group work, metacognitive reflections, and exploratory projects and presentations.

MATH 110: Techniques of Calculus I

4 Credits

Business Calculus is a critical component in the education of any business, financial, or economics professional who uses quantitative analysis. This course introduces and develops the mathematical skills required for analyzing change, and the underlying mathematical behaviors that model real-life economics and financial applications. The primary goal of our business calculus courses is to develop the students' knowledge of calculus techniques, and to use a calculus framework to develop critical thinking and problem solving skills. The concept of a limit of a function/model is central to differential calculus; MATH 110 begins with a study of this concept, its geometric and analytical interpretation, and its use in the definition of the derivative. Differential calculus topics include: derivatives and their applications to rates of change, related rates, optimization, and graphing techniques. Target applications focus mainly on business applications, e.g. supply/demand models, elasticity, logistical growth, and marginal analysis within Cost, Revenue, and Profit models. Integral Calculus begins with the Fundamental Theorem of Calculus, integrating the fields of differential and integral calculus. Antidifferentiation techniques are used in applications focused on finding areas enclosed by functions, consumer and producer surplus, present and future values of income streams, annuities, and perpetuities, and the resolution of initial value problems within a business context. Students may only take one course for credit from MATH 110, 140, 140A, 140B, and 140H.

Enforced Prerequisite at Enrollment: MATH 22 or MATH 40 or MATH 41 or satisfactory performance on the mathematics placement examination.

Bachelor of Arts: Quantification

General Education: Quantification (GQ)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

MATH 111: Techniques of Calculus II

2 Credits

MATH 111 is the second course in a sequence of calculus content tailored primarily to first year business students with an emphasis on economics, business, social science, and/or ecology applications. Although it provides standalone instruction in the core elements of differential and integral calculus, applications are chosen to dovetail with typical models discussed in first year finance, economics, social science and/or ecology coursework.

Enforced Prerequisite at Enrollment: MATH 110

Bachelor of Arts: Quantification

General Education: Quantification (GQ)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

MATH 140: Calculus With Analytic Geometry I

4 Credits

Calculus is an important building block in the education of any professional who uses quantitative analysis. This course introduces and develops the mathematical skills required for analyzing change and creating mathematical models that replicate real-life phenomena. The goals of our calculus courses include to develop the students' knowledge of calculus techniques and to use the calculus environment to develop critical thinking and problem solving skills. The concept of limit is central to calculus; MATH 140 begins with a study of this concept. Differential calculus topics include derivatives and their applications to rates of change, related rates, linearization, optimization, and graphing techniques. The Fundamental Theorem of Calculus, relating differential and integral calculus begins the study of Integral Calculus. Antidifferentiation and the technique of substitution is used in integration applications of finding areas of plane figures and volumes of solids of revolution. Trigonometric functions are included in every topic. Students may only take one course for credit from MATH 110, 140, 140A, 140B, and 140H.

Enforced Prerequisite at Enrollment: Math 22 and Math 26 or Math 26 and satisfactory performance on the mathematics placement examination or Math 40 or Math 41 or satisfactory performance on the mathematics placement examination.

Bachelor of Arts: Quantification

General Education: Quantification (GQ)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

MATH 140B: Calculus and Biology I

4 Credits

Calculus is an important building block in the education of any professional who uses quantitative analysis. This course introduces and develops the mathematical skills required for analyzing change

and creating mathematical models that replicate real-life phenomena. The goals of our calculus courses include to develop the students' knowledge of calculus techniques and to use the calculus environment to develop critical thinking and problem solving skills. The concept of limit is central to calculus; this concept is studied early in the course. Differential calculus topics include derivatives and their applications to rates of change, related rates, linearization, optimization, and graphing techniques. The Fundamental Theorem of Calculus, relating differential and integral calculus begins the study of Integral Calculus. Antidifferentiation and the technique of substitution is used in integration applications of finding areas of plane figures and volumes of solids of revolution. Trigonometric functions are included in every topic. Students may only take one course for credit from MATH 110, 140, 140A, 140B, and 140H.

Enforced Prerequisite at Enrollment: Math 22 and Math 26 or Math 26 and satisfactory performance on the mathematics placement examination or Math 40 or Math 41 or satisfactory performance on the mathematics placement examination.

Bachelor of Arts: Quantification

General Education: Quantification (GQ)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

MATH 140E: Calculus with Engineering Applications I

4 Credits

Calculus is an important building block in the education of any professional who uses quantitative analysis. This course introduces and develops the mathematical skills required for analyzing change and creating mathematical models that replicate real-life phenomena. The goals of our calculus courses include to develop the students' knowledge of calculus techniques and to use the calculus environment to develop critical thinking and problem solving skills. The concept of limit is central to calculus; MATH 140E begins with a study of this concept. Differential calculus topics include derivatives and their applications to rates of change, related rates, linearization, optimization, and graphing techniques. The Fundamental Theorem of Calculus, relating differential and integral calculus begins the study of Integral Calculus. Antidifferentiation and the technique of substitution is used in integration applications of finding areas of plane figures and volumes of solids of revolution. Trigonometric functions are included in every topic.

Enforced Prerequisite at Enrollment: Math 22 and Math 26 or Math 26 and satisfactory performance on the mathematics placement examination or Math 40 or Math 41 or satisfactory performance on the mathematics placement examination.

Bachelor of Arts: Quantification

General Education: Quantification (GQ)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

MATH 140G: Calculus with Earth and Mineral Sciences Applications I

4 Credits

This course is the first in a sequence of three calculus courses designed for students in the earth and mineral sciences and related fields. Topics include limits of functions, continuity; the definition of the derivative, various rules for computing derivatives (such as the product rule, quotient rule, and chain rule), implicit differentiation, higher-

order derivatives, solving related rate problems, and applications of differentiation such as curve sketching, optimization problems, and Newton's method; the definition of the definite integral, computation of areas, the Fundamental Theorem of Calculus, integration by substitution, and various applications of integration such as computation of areas between two curves, volumes of solids, and work.

Enforced Prerequisite at Enrollment: Math 22 and Math 26 or Math 26 and satisfactory performance on the mathematics placement examination or Math 40 or Math 41 or satisfactory performance on the mathematics placement examination.

Bachelor of Arts: Quantification

General Education: Quantification (GQ)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

MATH 140H: Honors Calculus with Analytic Geometry I

4 Credits

Calculus is an important building block in the education of any professional who uses quantitative analysis. This course introduces and develops the mathematical skills required for analyzing change and creating mathematical models that replicate real-life phenomena. The goals of our calculus courses include to develop the students' knowledge of calculus techniques and to use the calculus environment to develop critical thinking and problem solving skills. The concept of limit is central to calculus; MATH 140 begins with a study of this concept. Differential calculus topics include derivatives and their applications to rates of change, related rates, linearization, optimization, and graphing techniques. The Fundamental Theorem of Calculus, relating differential and integral calculus begins the study of Integral Calculus. Antidifferentiation and the technique of substitution is used in integration applications of finding areas of plane figures and volumes of solids of revolution. Trigonometric functions are included in every topic. Students may only take one course for credit from MATH 110, 140, 140A, 140B, and 140H.

Enforced Prerequisite at Enrollment: Math 22 and Math 26 or Math 26 and satisfactory performance on the mathematics placement examination or Math 40 or Math 41 or satisfactory performance on the mathematics placement examination.

Bachelor of Arts: Quantification

General Education: Quantification (GQ)

Honors

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

MATH 141: Calculus with Analytic Geometry II

4 Credits

MATH 141 is the second course in a two- or three-course calculus sequence for students in science, engineering and related fields. Calculus is an important building block in the education of any professional who uses quantitative analysis. This course further introduces and develops the mathematical skills required for analyzing growth and change and creating mathematical models that replicate real-life phenomena. The goals of our calculus courses include to develop the students' knowledge of calculus techniques and to use the calculus environment to develop critical thinking and problem solving skills. This course covers the following topics: logarithms, exponentials, and inverse trigonometric

functions; applications of the definite integral and techniques of integration; sequences and series; power series and Taylor polynomials; parametric equations and polar functions. Students may take only one course for credit from MATH 141, 141B, and 141H.

Enforced Prerequisite at Enrollment: MATH 140 or MATH 140A or MATH 140B or MATH 140E or MATH 140G or MATH 140H.

Bachelor of Arts: Quantification

General Education: Quantification (GQ)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

MATH 141B: Calculus and Biology II

4 Credits

Techniques of integration and applications to biology; elementary matrix theory, limits of matrices, Markov chains, applications to biology and the natural sciences; elementary and separable differential equations, linear first-order differential equations, linear systems of differential equations, the Lotka-Volterra equations. Students may take only one course for credit from MATH 141, 141B, and 141H.

Enforced Prerequisite at Enrollment: MATH 140 or MATH 140A or MATH 140B or MATH 140E or MATH 140G or MATH 140H.

Bachelor of Arts: Quantification

General Education: Quantification (GQ)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

MATH 141E: Calculus with Engineering Applications II

4 Credits

MATH 141E is the second course in a two- or three-course calculus sequence for students in science, engineering and related fields. Calculus is an important building block in the education of any professional who uses quantitative analysis. This course further introduces and develops the mathematical skills required for analyzing growth and change and creating mathematical models that replicate real-life phenomena. The goals of our calculus courses include to develop the students' knowledge of calculus techniques and to use the calculus environment to develop critical thinking and problem solving skills. This course covers the following topics: logarithms, exponentials, and inverse trigonometric functions; applications of the definite integral and techniques of integration; sequences and series; power series and Taylor polynomials; parametric equations and polar functions.

Enforced Prerequisite at Enrollment: MATH 140 or MATH 140A or MATH 140B or MATH 140E or MATH 140G or MATH 140H.

Bachelor of Arts: Quantification

General Education: Quantification (GQ)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

MATH 141G: Calculus with Earth and Mineral Sciences Applications II

4 Credits

This course is the second in a sequence of three calculus courses designed for students in the earth and mineral sciences and related fields. Topics include inverse functions of exponential, logarithmic, and trigonometric functions; indeterminate forms and L'Hopital's rule; various

techniques of integration, including integration by parts, trigonometric integrals, trigonometric substitution, and partial fractions; improper integration; infinite sequences and series, tests for convergence and divergence of infinite series, including the integral test, comparison tests, ratio test, root test; power series, Taylor and MacLaurin Series.

Enforced Prerequisite at Enrollment: MATH 140 or MATH 140A or MATH 140B or MATH 140E or MATH 140G or MATH 140H.

Bachelor of Arts: Quantification

General Education: Quantification (GQ)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

MATH 141H: Honors Calculus with Analytic Geometry II

4 Credits

MATH 141 is the second course in a two- or three-course calculus sequence for students in science, engineering and related fields. Calculus is an important building block in the education of any professional who uses quantitative analysis. This course further introduces and develops the mathematical skills required for analyzing growth and change and creating mathematical models that replicate real-life phenomena. The goals of our calculus courses include to develop the students' knowledge of calculus techniques and to use the calculus environment to develop critical thinking and problem solving skills. This course covers the following topics: logarithms, exponentials, and inverse trigonometric functions; applications of the definite integral and techniques of integration; sequences and series; power series and Taylor polynomials; parametric equations and polar functions. Students may take only one course for credit from MATH 141, 141B, and 141H.

Enforced Prerequisite at Enrollment: MATH 140 or MATH 140A or MATH 140B or MATH 140E or MATH 140G or MATH 140H.

Bachelor of Arts: Quantification

General Education: Quantification (GQ)

Honors

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

MATH 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Quantification

MATH 197N: Special Topics - InterDomain

1-9 Credits/Maximum of 9

Formal course given on a topical or special interest subject offered infrequently; several different topics may be taught in one year or semester. This Special Topics is an Inter-Domain GenEd course.

MATH 198: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

MATH 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Quantification

International Cultures (IL)

MATH 200: Problem Solving in Mathematics

3 Credits

Fundamental concepts of arithmetic and geometry, including problem solving, number systems, and elementary number theory. For elementary and special education teacher certification candidates only. A student who has passed EDMTH 444 may not take MATH 200 for credit.

MATH 200 Problem Solving in Mathematics (3) (GQ) This is a course in mathematics content for prospective elementary school teachers. Students are assumed to have successfully completed two years of high school algebra and one year of high school geometry. Students are expected to have reasonable arithmetic skills. The content and processes of mathematics are presented in this course to develop mathematical knowledge and skills and to develop positive attitudes toward mathematics. Problem solving is incorporated throughout the topics of number systems, number theory, probability, and geometry, giving future elementary school teachers tools to further explore mathematical content required to convey the usefulness, beauty and power of mathematics to their own students.

Bachelor of Arts: Quantification

General Education: Quantification (GQ)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

MATH 201: Problem Solving in Mathematics II

3 Credits

This course studies the foundations of elementary school mathematics with an emphasis on problem solving. MATH 201 Problem Solving in Mathematics II (3) (GQ) Problem Solving in Mathematics II studies the foundations of elementary school mathematics with an emphasis on problem solving. Mathematical ways of thinking are integrated throughout the study of probability, statistics, graphing, geometric shapes, and measurement. This course is designed for prospective teachers not only to gain the ability to explain the mathematics in elementary school courses, but also to help them comprehend the underlying mathematical concepts. Gaining a deeper understanding will enable them to assist their young students in the classroom since effective mathematical teaching requires understanding what students know, what they need to learn, and then helping them to learn it well.

General Education: Quantification (GQ)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

MATH 210: Calculus with Engineering Technology Applications

3 Credits

Topics in calculus with an emphasis on applications in engineering technology. MATH 210 Calculus with Engineering Technology

Applications (3) is a three-credit course to be taken either after the MATH 81, MATH 82, MATH 83 sequence or after a semester of college-level calculus. The content of the course is geared toward the needs of engineering technology majors and places a large emphasis on technology and applications. The course provides mathematical tools required in the upper division engineering technology courses. A primary goal is to have students use technology to solve more realistic problems than the standard simplistic ones that can be solved by "pencil and paper." Student evaluation will be performed through exams, quizzes, graded assignments, and a cumulative final exam. It is expected that MTHBD 210 will be offered every semester with an enrollment of 44-80 students.

Enforced Prerequisite at Enrollment: MATH 83 or MATH 140

Bachelor of Arts: Quantification

General Education: Quantification (GQ)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

MATH 211: Intermediate Calculus and Differential Equations with Applications

3 Credits

Topics in ordinary differential equations, linear algebra, complex numbers, Eigenvalue solutions and Laplace transform methods. MATH 211 Intermediate Calculus and Differential Equations with Applications (4) MATH 211 is a three-credit course to be taken after MATH 210. The content of the course is geared toward the needs of engineering technology majors and places a large emphasis on technology and applications. The course provides mathematical tools required in the engineering technology courses at the sixth semester and above. A primary goal is to have students use technology to solve more realistic problems than the standard simplistic ones that can be solved by "pencil and paper." Student evaluation will be performed through exams, quizzes, graded assignments, and a cumulative final exam.

Enforced Prerequisite at Enrollment: MATH 210

Bachelor of Arts: Quantification

General Education: Quantification (GQ)

MATH 220: Matrices

2-3 Credits

Systems of linear equations; matrix algebra; eigenvalues and eigenvectors; linear systems of differential equations. MATH 220 Matrices (2-3) (GQ) (BA) This course meets the Bachelor of Arts degree requirements. Systems of linear equations appear everywhere in mathematics and its applications. MATH 220 will give students the basic tools necessary to analyze and understand such systems. The initial portion of the course teaches the fundamentals of solving linear systems. This requires the language and notation of matrices and fundamental techniques for working with matrices such as row and column operations, echelon form, and invertibility. The determinant of a matrix is also introduced; it gives a test for invertibility. In the second part of the course the key ideas of eigenvector and eigenvalue are developed. These allow one to analyze a complicated matrix problem into simpler components and appear in many disguises in physical problems. The course also introduces the concept of a vector space, a crucial element in future linear algebra courses. This course is completed by a wide

variety of students across the university, including students majoring in engineering programs, the sciences, and mathematics. (In case of many of these students, MATH 220 is a required course in their degree program.)

Enforced Prerequisite at Enrollment: MATH 110 or MATH 140 or MATH 140B or MATH 140E or MATH 140G or MATH 140H

Bachelor of Arts: Quantification

General Education: Quantification (GQ)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

MATH 220H: Honors Matrices

2-3 Credits

Honors course in systems of linear equations; matrix algebra; eigenvalues and eigenvectors; linear systems of differential equations. MATH 220H Honors Matrices (2) (GQ)(BA) This course meets the Bachelor of Arts degree requirements. This course is intended as an introduction to linear algebra with a focus on solving systems for linear equations. Topics include systems of linear equations, row reduction and echelon forms, linear independence, introduction to linear transformations, matrix operations, inverse matrices, dimension and rank, determinants, eigenvalues, eigenvectors, diagonalization, and orthogonality. The typical delivery format for the course is two 50-minute lectures per week, with typical assessment tools including examinations, quizzes, homework, and writing assignments. In contrast to the non-honors version of this course, the honors version is typically more theoretical and will often include more sophisticated problems. Moreover, certain topics are often discussed in more depth and are sometimes expanded to include applications which are not visited in the non-honors version of the course.

Enforced Prerequisite at Enrollment: MATH 110 or MATH 140 or MATH 140B or MATH 140E or MATH 140G or MATH 140H

Bachelor of Arts: Quantification

General Education: Quantification (GQ)

Honors

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

MATH 230: Calculus and Vector Analysis

4 Credits

Three-dimensional analytic geometry; vectors in space; partial differentiation; double and triple integrals; integral vector calculus. Students who have passed either Math 231 or MATH 232 may not schedule Math 230 or MATH 230H for credit.

Enforced Prerequisite at Enrollment: MATH 141 or MATH 141B or MATH 141E or MATH 141G or MATH 141H

Bachelor of Arts: Quantification

MATH 230H: Honors Calculus and Vector Analysis

4 Credits

Honors course in three-dimensional analytic geometry; vectors in space; partial differentiation; double and triple integrals; integral vector calculus. Students who have passed either MATH 231 or MATH 232 may not schedule MATH 230 or MATH 230H for credit. MATH 230H Honors Calculus and Vector Analysis (4) This course is the third in a

sequence of three calculus courses designed for students in engineering, science, and related fields. Topics include vectors in space, dot products, cross products; vector-valued functions, modeling motion, arc length, curvature; functions of several variables, limits, continuity, partial derivatives, directional derivatives, gradient vectors, Lagrange multipliers; double integrals, triple integrals; line integrals, Green's Theorem, Stokes' Theorem, the Divergence Theorem. The typical delivery format for the course is four 50-minute lectures per week, with typical assessment tools including examinations, quizzes, homework, and writing assignments. In contrast to the non-honors version of this course, the honors version is typically more theoretical and will often include more sophisticated problems. Moreover, certain topics are often discussed in more depth and are sometimes expanded to include applications which are not visited in the non-honors version of the course.

Enforced Prerequisite at Enrollment: MATH 141 or MATH 141B or MATH 141E or MATH 141G or MATH 141H
Bachelor of Arts: Quantification
Honors

MATH 231: Calculus of Several Variables

2 Credits

Analytic geometry in space; partial differentiation and applications. Students who have passed MATH 230 or MATH 230H may not schedule this course.

Enforced Prerequisite at Enrollment: MATH 141 or MATH 141B or MATH 141E or MATH 141G or MATH 141H
Bachelor of Arts: Quantification

MATH 231H: Honors Calculus of Several Variables

2 Credits

Honors course in analytic geometry in space; partial differentiation and applications. Students who have passed MATH 230 or MATH 230H may not schedule this course. MATH 231H Honors Calculus of Several Variables (2) This course covers a subset of the material found in MATH 230. Topics include vectors in space, dot products, cross products; vector-valued functions, modeling motion, arc length, curvature; functions of several variables, limits, continuity, partial derivatives, directional derivatives, gradient vectors, Lagrange multipliers. The typical delivery format for the course is two 50-minute lectures per week, with typical assessment tools including examinations, quizzes, homework, and writing assignments. In contrast to the non-honors version of this course, the honors version is typically more theoretical and will often include more sophisticated problems. Moreover, certain topics are often discussed in more depth and are sometimes expanded to include applications which are not visited in the non-honors version of the course.

Enforced Prerequisite at Enrollment: MATH 141 or MATH 141B or MATH 141E or MATH 141G or MATH 141H
Bachelor of Arts: Quantification
Honors

MATH 232: Integral Vector Calculus

2 Credits

Multidimensional analytic geometry, double and triple integrals; potential fields; flux; Green's, divergence and Stokes' theorems. Students who have passed MATH 230 may not schedule this course for credit.

Enforced Prerequisite at Enrollment: MATH 231 or MATH 231H
Bachelor of Arts: Quantification

MATH 240: Mathematical Methods for Biology and the Life Sciences

4 Credits

This course will cover systems of differential equations, multivariable calculus, and applications to biology and the life sciences. Students will learn about complex numbers, and their relation to oscillations. Analysis of biologically relevant mathematical models will include the linear stability of coupled nonlinear systems, and the method of separation of timescales. The course will also introduce probability theory in a biological context, including conditional probability, Bayes Theorem, probability distributions, and stochastic modeling in the life sciences.

Enforced Prerequisites at Enrollment: MATH 141B or instructor approval

MATH 250: Ordinary Differential Equations

3 Credits

First- and second-order equations; special functions; Laplace transform solutions; higher order equations. Students who have passed MATH 251 may not schedule this course for credit.

Enforced Prerequisite at Enrollment: MATH 141 or MATH 141B or MATH 141E or MATH 141G or MATH 141H
Bachelor of Arts: Quantification

MATH 251: Ordinary and Partial Differential Equations

4 Credits

First- and second-order equations; special functions; Laplace transform solutions; higher order equations; Fourier series; partial differential equations.

Enforced Prerequisite at Enrollment: MATH 141 or MATH 141B or MATH 141E or MATH 141G or MATH 141H
Bachelor of Arts: Quantification

MATH 251H: Honors Ordinary and Partial Differential Equations

4 Credits

Honors course in first- and second-order equations; special functions; Laplace transform solutions; higher order equations; Fourier series; partial differential equations. MATH 251H Honors Ordinary and Partial Differential Equations (4) This course serves as an introduction to ordinary and partial differential equations. Topics include various techniques for solving first and second order ordinary differential equations, an introduction to numerical methods, solving systems of two ordinary differential equations, nonlinear differential equations and stability, Laplace transforms, Fourier series, and partial differential equations. The typical delivery format for the course is four 50-minute lectures per week, with typical assessment tools including examinations, quizzes, homework, and writing assignments. In contrast to the non-honors version of this course, the honors version is typically more

theoretical and will often include more sophisticated problems. Moreover, certain topics are often discussed in more depth and are sometimes expanded to include applications which are not visited in the non-honors version of the course.

Enforced Prerequisite at Enrollment: MATH 141 or MATH 141B or MATH 141E or MATH 141G or MATH 141H
Bachelor of Arts: Quantification
Honors

MATH 252: Partial Differential Equations

1 Credits

Fourier series; partial differential equations. Students who have passed MATH 251 may not schedule this course for credit. This course serves as the continuation of MATH 250 (Ordinary Differential Equations) and provides an elementary treatment of partial differential equations and Fourier series. Once a student completes both MATH 250 (3 credits) and MATH 252 (1 credit), the student will have completed all of the material in MATH 251 (4 credits). In particular, the student will be able to find solutions to given partial differential equations and will be able to utilize the tools from the field of Fourier series in the process.

MATH 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including nonthesis research, which are supervised on an individual basis and which fall outside the scope of formal courses.

Bachelor of Arts: Quantification

MATH 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Quantification

MATH 310: Elementary Combinatorics

3 Credits

Fundamental techniques of enumeration and construction of combinatorial structures, permutations, recurrences, inclusion-exclusion, permanents, 0, 1- matrices, Latin squares, combinatorial designs.

Enforced Prerequisite at Enrollment: MATH 220 or MATH 220H
Bachelor of Arts: Quantification

MATH 310H: Honors Concepts of Combinatorics

3 Credits

Honors version of elementary and enumerative combinatorics.

Prerequisite: MATH 220
Bachelor of Arts: Quantification
Honors

MATH 311M: Honors Concepts of Discrete Mathematics

3 Credits

Basic methods of mathematical thinking and fundamental mathematical structures, primarily in the context of numbers, groups, and symmetries.

Bachelor of Arts: Quantification
Honors
Writing Across the Curriculum

MATH 311W: Concepts of Discrete Mathematics

3-4 Credits

Introduction to mathematical proofs; elementary number theory and group theory. Students who have passed CMPSC 360 may not schedule this course for credit.

Enforced Prerequisite at Enrollment: MATH 141 or MATH 141B or MATH 141E or MATH 141G or MATH 141H
Bachelor of Arts: Quantification
Writing Across the Curriculum

MATH 312: Concepts of Real Analysis

3 Credits

An introduction to rigorous analytic proofs involving properties of real numbers, continuity, differentiation, integration, and infinite sequences and series.

Enforced Prerequisite at Enrollment: MATH 141 or MATH 141B or MATH 141E or MATH 141G or MATH 141H
Bachelor of Arts: Quantification

MATH 312H: Honors Concepts of Real Analysis

3 Credits

Basic methods of mathematical thinking and fundamental structures, primarily in the context of infinite sets, real numbers, and metric spaces.

Enforced Prerequisite at Enrollment: MATH 141 or MATH 141B or MATH 141E or MATH 141G or MATH 141H
Bachelor of Arts: Quantification
Honors

MATH 313H: Concepts of Geometry

3 Credits

Development thorough understanding and technical mastery of foundations of modern geometry. MATH 313H Concepts of Geometry (3) The central aim of this course is to develop thorough understanding and technical mastery of foundations of modern geometry. Basic high school geometry is assumed; axioms are mentioned, but not used to deduce theorems. Approach in development of the Euclidean geometry of the plane and the 3-dimensional space is mostly synthetic with an emphasis on groups of transformations. Linear algebra is invoked to clarify and generalize the results in dimension 2 and 3 to any dimension. It culminates in the last part of the course where six 2-dimensional geometries and their symmetry groups are discussed. This course is a part of a new "pre-MASS" program (PMASS) aimed at freshman/ sophomore level students, which will operate in steady state in the spring semesters. This course is directly linked with a proposed course Math 313R, its 1-credit recitation component. It is highly recommended to all

mathematics, physics and natural sciences majors who are graduate school bound, and is a great opportunity for all Schreyer Scholars. The following topics will be covered: Euclidean geometry of the plane (distance, isometries, scalar product of vectors, examples of isometries: rotations, reflections, translations, orientation, symmetries of planar figures, review of basic notions of group theory, cyclic and dihedral groups, classification of isometries of Euclidean plane, discrete groups of isometries and crystallographic restrictions. similarity transformations, selected results from classical Euclidean geometry); Euclidean geometry of the 3-dimensional space and the sphere (distance, isometries, scalar product of vectors, planes and lines in the 3-dimensional space, normal vectors to planes, classification of pairs of lines, isometries with a fixed point: rotations and reflections, orientation, isometries of the sphere, classification of orientation-reversing isometries with a fixed point, finite groups of isometries of the 3-dimensional space, existence of a fixed point, examples: cyclic, dihedral, and groups of symmetries of Platonic solids, classification of isometries without fixed point: translations and screw-motions, intrinsic geometry of the sphere, elliptic plane: a first example of non-Euclidean geometry); Elements of linear algebra and its application to geometry in 2, 3, and n dimension (real and complex vector spaces. linear independence of vectors, basis and dimension, eigenvalues and eigenvectors, diagonalizable matrices, classification of matrices in dimension 2: elliptic, hyperbolic and parabolic matrices, orthogonal matrices and isometries of the n-dimensional space); Six 2-dimensional geometries (Projective geometry, affine geometry, inversions and conformal geometry, Euclidean geometry revisited, geometry of elliptic plane, hyperbolic geometry). The achievement of educational objectives will be assessed through weekly homework, class participation, and midterm and final exams.

Enforced Prerequisite at Enrollment: MATH 140H and MATH 311M or Concurrent: MATH 312H
Honors

MATH 316: Upperclass Seminar: Careers, Graduate Study, and Opportunities in Mathematics

1 Credits

This course is designed to prepare sophomore, junior and senior mathematics majors to take advantage of opportunities provided by the mathematics department and university in selecting and pursuing a career path. Some class sessions will involve professional development activities and information about career-related resources; others will consist of presentations and discussions with guest lecturers chosen to represent possible career pathways in mathematics and related fields.

Enforced Prerequisite at Enrollment: thirds-semester standing

MATH 318: Elementary Probability

3 Credits

Combinatorial analysis, axioms of probability, conditional probability and independence, discrete and continuous random variables, expectation, limit theorems, additional topics. Students who have passed either MATH(STAT) 414 or 418 may not schedule this course for credit.

Enforced Prerequisite at Enrollment: MATH 141

Cross-listed with: STAT 318

Bachelor of Arts: Quantification

MATH 319: Elementary Mathematical Statistics

3 Credits

Statistical inference: principles and methods, estimation and testing hypotheses, regression and correlation analysis, analysis of variance, computer analysis. Students who have passed STAT (MATH) 415 may not schedule this course for credit.

Enforced Prerequisite at Enrollment: MATH 318 or STAT 318 or MATH 414 or STAT 414 or STAT 418 or MATH 418

Cross-listed with: STAT 319

Bachelor of Arts: Quantification

MATH 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Quantification

MATH 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Quantification

International Cultures (IL)

MATH 400: Teaching in Mathematics

1-2 Credits/Maximum of 6

Mathematics Learning Assistants will participate in the instruction of undergraduate mathematics courses. In MATH 400 Teaching in Mathematics (1-2), students will learn about and gain experience in leading and facilitating in-class and out-of-class group discussions and group problem-solving sessions. Students will be members of a teaching community, interact with a supervising mathematics faculty member, and learn teaching strategies on how to facilitate and help engage undergraduate students in discussions and group work.

Enforced Prerequisite at Enrollment: 4 credits in mathematics and permission of the department Concurrent Course: SC 220

MATH 401: Introduction to Analysis I

3 Credits

Review of calculus, properties of real numbers, infinite series, uniform convergence, power series. Students who have passed Math. 403 may not schedule this course.

Enforced Prerequisite at Enrollment: MATH 230 or MATH 231

Bachelor of Arts: Quantification

MATH 403: Classical Analysis I

3 Credits

Topology of R^n , compactness, continuity of functions, uniform convergence, Arzela-Ascoli theorem in the plane, Stone-Wierstrass theorem.

Enforced Prerequisite at Enrollment: MATH 312

Bachelor of Arts: Quantification

MATH 403H: Honors Classical Analysis I

3 Credits

Development of a thorough understanding and technical mastery of foundations of classical analysis in the framework of metric spaces. MATH 403H Honors Classical Analysis I (3) The central aim of this course is to develop thorough understanding and technical mastery of foundations of classical analysis in the framework of metric spaces rather than multidimensional Euclidean spaces. This level of abstraction is essential since it is in the background of functional analysis, a fundamental tool for modern mathematics and physics. Another motivation for studying analysis in this wider context is that many general results about functions of one or several real variables are more easily grasped at this more abstract level, and, besides, the same methods and techniques are applicable to a wider class of problems, e.g. to the study of function spaces. This approach also brings to high relief some of the fundamental connections between analysis on one hand and (higher) algebra and geometry on the other. This course is a sequel to Math 312H; it is highly recommended to all mathematics, physics and natural sciences majors who are graduate school bound, and is a great opportunity for all Schreyer Scholars. The following topics will be covered: Metric spaces (topology, convergence, Cauchy sequences and completeness); Maps between metric spaces (continuous maps and homeomorphisms, stronger continuity properties: uniform continuity, Hoelder and Lipschitz continuity, contraction mapping principle, points of discontinuity and the Baire Category Theorem); Compact metric spaces (continuity and compactness, connectedness, total boundedness, coverings and Lebesgue number, perfect metric spaces, characterization of Cantor sets, fractals); Function spaces (spaces of continuous maps, uniform continuity and equicontinuity, Arzela-Ascoli Theorem, uniform approximation by polynomials. Stone-Weierstrass Theorem).

Enforced Prerequisite at Enrollment: MATH 311M and MATH 312H

Bachelor of Arts: Quantification
Honors

MATH 404: Classical Analysis II

3 Credits

Differentiation of functions from \mathbb{R}^n to \mathbb{R}^m , implicit function theorem, Riemann integration, Fubini's theorem, Fourier analysis.

Enforced Prerequisite at Enrollment: MATH 403

Bachelor of Arts: Quantification

MATH 405: Advanced Calculus for Engineers and Scientists I

3 Credits

Vector calculus, linear algebra, ordinary and partial differential equations. Students who have passed MATH 411 or 412 may not take this course for credit.

Enforced Prerequisite at Enrollment: (MATH 230 or MATH 231) and (MATH 250 or MATH 251)

Bachelor of Arts: Quantification

MATH 406: Advanced Calculus for Engineers and Scientists II

3 Credits

Complex analytic functions, sequences and series, residues, Fourier and Laplace transforms. Students who have passed MATH 421 may not take this course for credit.

Enforced Prerequisite at Enrollment: MATH 405

Bachelor of Arts: Quantification

MATH 410: Complex Analysis for Mathematics and Engineering

3 Credits

Complex analytic functions; Cauchy-Riemann equations; complex contour integrals; Cauchy's integral formula; Taylor and Laurent series; residue theory; applications in engineering. MATH 410 Complex Analysis for Mathematics and Engineering (3) A succinct stand-alone course description (up to 400 words) to be made available to students through the on-line Bulletin and Schedule of Courses. This is a complex analysis course designed for students in mathematics, applied mathematics, engineering, science, and related fields. Topics include complex numbers; analytic functions, complex differentiability, and the Cauchy-Riemann equations; complex exponential, logarithmic, power, and trigonometric functions; complex contour integrals; Cauchy's theorem; Cauchy's integral formula; Taylor and Laurent series; residue theory; and various applications in areas of science and engineering. This course focuses on the definitions, concepts, calculation techniques, supporting theory, and examples of applications suited to the usage of complex analysis in mathematics, applied mathematics, science, and engineering. Students who have passed MATH 406 or MATH 421 may not take this course for credit.

Enforced Prerequisite at Enrollment: MATH 230 or MATH 232

MATH 411: Ordinary Differential Equations

3 Credits

Linear ordinary differential equations; existence and uniqueness questions; series solutions; special functions; eigenvalue problems; Laplace transforms; additional topics and applications.

Enforced Prerequisite at Enrollment: (MATH 230 or MATH 231) and (MATH 250 or MATH 251)

Bachelor of Arts: Quantification

MATH 412: Fourier Series and Partial Differential Equations

3 Credits

Orthogonal systems and Fourier series; derivation and classification of partial differential equations; eigenvalue function method and its applications; additional topics. MATH 412 Fourier Series and Partial Differential Equations (3) (BA) This course meets the Bachelor of Arts degree requirements. The purpose of MATH 412 is to introduce students to the origins, theory, and applications of partial differential equations. Several basic physical phenomena are considered - including flows, vibrations, and diffusions - and used to derive the relevant equations. The fundamentals of the mathematical theory of partial differential equations are motivated and developed for the students through the systematic exploration of these classic physical systems and their corresponding equations: the Laplace, wave, and heat equations. In addition to treating the physical origins of the equations, this course focuses on solving evolution equations as initial value problems on unbounded domains

(the Cauchy problem), and also on solving partial differential equations on bounded domains (boundary value problems). There is not one but many techniques for solving these equations, and the course presents some aspect of the expansion in orthogonal functions (including Fourier series), eigenvalue theory, functional analysis, and the use of separation of variables, Fourier transforms, and Laplace transforms to solve PDEs by converting them to ordinary differential equations. This course currently serves a cross-section of students at the university with interests or the need for this advanced subject mathematics, including students majoring in the engineering program, meteorology, physics, and mathematics. This typically includes the most advanced physics, engineering, and meteorology students, as well as mathematics majors with interests in applied mathematics.

Enforced Prerequisite at Enrollment: MATH 230 and (MATH 250 or MATH 251)

Bachelor of Arts: Quantification

MATH 414: Introduction to Probability Theory

3 Credits

STAT(MATH) 414 is an introduction to the theory of probability for students in statistics, mathematics, engineering, computer science, and related fields. The course presents students with calculus-based probability concepts and those concepts can be used to describe the uncertainties present in real applications. Topics include probability spaces, discrete and continuous random variables, transformations, expectations, generating functions, conditional distributions, law of large numbers, central limit theorems. Students may take only one course from STAT(MATH) 414 and 418.

Enforced Prerequisite at Enrollment: MATH 230 or Concurrent: MATH 232 or (MATH 231 and RM 214)

Cross-listed with: STAT 414

MATH 415: Introduction to Mathematical Statistics

3 Credits

A theoretical treatment of statistical inference, including sufficiency, estimation, testing, regression, analysis of variance, and chi-square tests.

Enforced Prerequisite at Enrollment: MATH 414 or STAT 414

Cross-listed with: STAT 415

MATH 416: Stochastic Modeling

3 Credits

Review of distribution models, probability generating functions, transforms, convolutions, Markov chains, equilibrium distributions, Poisson process, birth and death processes, estimation.

Enforced Prerequisite at Enrollment: (STAT 318 or MATH 318 or STAT 414 or MATH 414) and (MATH 230 or MATH 232)

Cross-listed with: STAT 416

MATH 417: Qualitative Theory of Differential Equations

3 Credits

Linear differential equations, stability of stationary solutions, ordinary bifurcation, exchange of stability, Hopf bifurcation, stability of periodic solutions, applications. MATH 417 Qualitative Theory of Differential Equations (3) (BA) This course meets the Bachelor of Arts degree

requirements. The main objective of the course is the qualitative theory of ordinary differential equations such as existence and uniqueness of solutions, dependence on initial data and parameters, and basic stability of solutions for both linear and nonlinear equations. It is designed to introduce students to modern concepts including the bifurcation theory, intermittent (transitional) and chaotic behavior of solutions and dynamical system approach to differential equations. Along the way, a number of applications are discussed and students get familiar with some basic examples illustrating main principles of the theory, such as Lorenz attractor, predator-prey models, etc. The course is completed by students majoring in engineering programs, the sciences, and mathematics.

Enforced Prerequisite at Enrollment: MATH 220 and (MATH 250 or MATH 251)

Bachelor of Arts: Quantification

MATH 418: Introduction to Probability and Stochastic Processes for Engineering

3 Credits

Introduction to probability axioms, combinatorics, random variables, limit laws, and stochastic processes. Students may take only one course from MATH414 / STAT 414 and MATH 418 / STAT 418 for credit. STAT 418 / MATH 418 Introduction to Probability and Stochastic Processing for Engineering (3) This course gives an introduction to probability and random processes. The topics are not covered as deeply as in a semester-long course in probability only or in a semester-long course in stochastic processes only. It is intended as a service course primarily for engineering students, though no engineering background is required or assumed. The topics covered include probability axioms, conditional probability, and combinatorics; discrete random variables; random variables with continuous distributions; jointly distributed random variables and random vectors; sums of random variables and moment generating functions; and stochastic processes, including Poisson, Brownian motion, and Gaussian processes.

Enforced Prerequisite at Enrollment: MATH 230 or MATH 231

Cross-listed with: STAT 418

MATH 418H: Probability

3 Credits

Fundamentals and axioms, combinatorial probability, conditional probability and independence, probability laws, random variables, expectation; Chebyshev's inequality. Students may take only one course from MATH(STAT) 414 and 418 for credit.

Cross-Listed

Honors

MATH 419: Theoretical Mechanics

3 Credits

Principles of Newtonian, Lagrangian, and Hamiltonian mechanics of particles with applications to vibrations, rotations, orbital motion, and collisions. PHYS 419 / MATH 419 Theoretical Mechanics (3) A second course in classical mechanics, required of all physics majors who typically take it in their 5th or 6th semester. The course includes a review of relevant mathematics, detailed discussions of advanced topics in Newtonian mechanics, introductions to Lagrangian and Hamiltonian dynamics, and applications to such forced oscillations, orbital motion,

vibrational motion and normal modes, rigid body motion, and collisions. It is a prerequisite for Physics 461, which is a second semester extension. It is also a valuable background for most 400-level physics courses, especially Physics 410.

Enforced Prerequisite at Enrollment: (MATH 230 or MATH 231) and (MATH 250 or MATH 251) and PHYS 212 and PHYS 213 and PHYS 214
Cross-listed with: PHYS 419

MATH 421: Complex Analysis

3 Credits

Infinite sequences and series; algebra and geometry of complex numbers; analytic functions; integration; power series; residue calculus; conformal mapping, applications.

Enforced Prerequisite at Enrollment: (MATH 230 or MATH 232 or MATH 405) and (MATH 401 or MATH 403)
Bachelor of Arts: Quantification

MATH 422: Wavelets and Fourier Analysis: Theory and Applications

3 Credits

Fundamental mathematical issues of the theory of wavelets for senior undergraduate and graduate students in mathematics, engineering, physics, and computer science.

Bachelor of Arts: Quantification

MATH 425: Introduction to Operations Research

3 Credits

Nature of operations research, problem formulation, model construction, deriving solution from models, allocation problems, general linear allocation problem, inventory problems.

Enforced Prerequisite at Enrollment: MATH 141 and MATH 220
Bachelor of Arts: Quantification

MATH 426: Introduction to Modern Geometry

3 Credits

Plane and space curves; space surfaces; curvature; intrinsic geometry of surfaces; Gauss-Bonnet theorem; covariant differentiation; tensor analysis.

Enforced Prerequisite at Enrollment: MATH 401 or MATH 403
Bachelor of Arts: Quantification

MATH 427: Foundations of Geometry

3 Credits

Euclidean and various non-Euclidean geometries and their development from postulate systems. Students who have passed MATH 427 may not schedule MATH 471.

Enforced Prerequisite at Enrollment: MATH 230 or MATH 231
Bachelor of Arts: Quantification

MATH 428: Geometry for Teachers

1 Credits

Research in mathematics education using ideas from Euclidean and non-Euclidean geometry. Students who have passed MATH 471 may not schedule MATH 427. MATH 428 Geometry for Teachers (1) MATH 428 is designed to introduce students to mathematics education and research in education. The student will present topics in written and verbal classroom reports. Students will be evaluated on research papers and classroom presentations of those papers, classroom technology demonstration of geometry topics, and classroom demonstration of teaching geometry. This course supplements MATH 427 by providing the education component that is required by the state of Pennsylvania for obtaining certification in teaching mathematics. This course is offered only at Penn State Erie, The Behrend College.

Enforced Prerequisite at Enrollment: MATH 311W . Prerequisite or concurrent: MATH 427
Bachelor of Arts: Quantification

MATH 429: Introduction to Topology

3 Credits

Metric spaces, topological spaces, separation axioms, product spaces, identification spaces, compactness, connectedness, fundamental group.

Enforced Prerequisite at Enrollment: MATH 311W
Bachelor of Arts: Quantification

MATH 430: Linear Algebra and Discrete Models I

3 Credits

Vector spaces, linear transformations, matrices determinants, characteristic values and vectors, systems of linear equations, applications to discrete models.

Enforced Prerequisite at Enrollment: MATH 220
Bachelor of Arts: Quantification

MATH 435: Basic Abstract Algebra

3 Credits

Elementary theory of groups, rings, and fields. Students who have passed MATH 435 may not schedule MATH 470.

Enforced Prerequisite at Enrollment: MATH 311W or MATH 315
Bachelor of Arts: Quantification

MATH 436: Linear Algebra

3 Credits

Vector spaces and linear transformations, canonical forms of matrices, elementary divisors, invariant factors; applications. Students who have passed MATH 436 may not schedule MATH 441.

Enforced Prerequisite at Enrollment: MATH 311W
Bachelor of Arts: Quantification

MATH 436H: Linear Algebra

3 Credits

Vector spaces and linear transformations, canonical forms of matrices, elementary divisors, invariant factors; applications.

Honors

MATH 437: Algebraic Geometry

3 Credits

Study of curves in the plane defined by polynomial equations $p(x,y)=0$. Projective equivalence, singular points, classification of cubics. MATH 437 Algebraic Geometry (3)(BA) This course meets the Bachelor of Arts degree requirements. The geometric study of algebraic equations is one of the oldest and deepest parts of mathematics, and it lies at the heart of modern developments in geometry, algebra, number theory and physics. Students completing MATH 437 will understand many new algebraic and geometric ideas by studying examples of curves defined by equations of degrees 2 and 3 in the plane. First come conics (given by equations of degree 2 in two variables). Rigid motions, similarities, and affine transformations give different classifications of them. New ideas then show how to get a conic through any five points and prove Pascal's theorem about six points on a conic. Special cases suggest extension of the usual plane to the projective plane, with "points at infinity," homogeneous coordinates, and projective transformations. The main part of the course turns to equations of degree 3 and their singularities, flex points, tangents, and degeneracies. Several new ideas, both algebraic and analytic, are brought in to prove the existence of complex flex points on singular cubics and then real flex points on nonsingular real cubics. There is then a classification on complex projective cubics by a single parameter and finally a full classification of all real projective cubics. As time permits, relations to further topics are sketched: addition of points on a nonsingular cubic, Mordell's theorem, doubly periodic functions, and Fermat's last theorem. The course is typically taken by mathematics majors.

Enforced Prerequisite at Enrollment: (MATH 230 or MATH 231) and MATH 311W

Bachelor of Arts: Quantification

MATH 441: Matrix Algebra

3 Credits

Determinants, matrices, linear equations, characteristic roots, quadratic forms, vector spaces. Students who have passed Math 436 may not schedule this course.

Enforced Prerequisite at Enrollment: MATH 220

Bachelor of Arts: Quantification

MATH 448: Mathematics of Finance

3 Credits

The course provides a foundational knowledge of the mathematics and mathematical models of finance, primarily of option pricing, hedging, and portfolio optimization. The topics include the definition of various financial securities and instruments (e.g. bonds, stocks, forward contracts, and options), the theory of interest, the No-Arbitrage Principle, measures of return and volatility, the Markowitz model of portfolio theory, the Capital Asset Pricing Model, the pricing of forward contracts, option

trading strategies, the pricing of options via binomial models and the Black-Scholes model, and principles of hedging.

Enforced Prerequisite at Enrollment: MATH 141 and (STAT 200 or STAT 301 or MATH 318 or STAT 318 or STAT 401 or MATH 414 or STAT 414)

MATH 449: Applied Ordinary Differential Equations

3 Credits

Differential and difference equations and their application to biology, chemistry, and physics; techniques in dynamical systems theory. MATH 449 Mathematical Modeling (3) Many phenomena that arise in the natural sciences, such as the motion of pendulum or signal conduction in neurons or oscillations in certain chemical reactions, can be modeled using nonlinear differential equations. This course will develop the mathematical techniques needed to investigate such differential equations. These techniques include the study of equilibria, stability, phase plane analysis, bifurcation analysis and chaos. The course will assume prior knowledge of ordinary differential equations at the MATH 250/251 level; this is the only prerequisite for the course. We will focus on understanding and interpreting the behavior of the solutions to the differential equation models rather than on deriving the model equations themselves. Evaluation will be based on midterm exams, a final exam, graded homework, and graded longer projects which may involve computer work. The course should be of interest to any science or engineering major and some models will be chosen to reflect the fields of interest of the class. The goal is for the students to be able to apply the techniques learned in the course to mathematical models that they will encounter in other classes or situations. The class will be offered every other year with an expected enrollment of 10-15 students.

Enforced Prerequisite at Enrollment: MATH 250 or MATH 251

Bachelor of Arts: Quantification

MATH 450: Mathematical Modeling

3 Credits

Constructing mathematical models of physical phenomena; topics include pendulum motion, polymer fluids, chemical reactions, waves, flight, and chaos. MATH 450 Mathematical Modeling (3) The purpose of the course is to introduce mathematical modeling, i.e., the construction of mathematical structures which capture relevant physical phenomena. The course will systematically explore mathematical ideas and tools used to study the natural world. Particular emphasis will be placed on the process of creating a mathematical model starting from a physical scenario. Typically this process will begin with an experiment either demonstrated in the W. G. Pritchard Lab or performed by the students in class. Once a particular model has been developed, students will use mathematical analysis and experimentation to determine the properties and relevance of the model, and to make predictions. Often the model can be satisfactory; however, many times one also finds new features of the system that are not adequately accounted for in the model, and the process begins again. It is this cycle the course will focus on. For a given phenomenon (e.g., flow of viscous fluid, pendulum motion) several models may be compared and contrasted, and possible simplifications will be discussed. A significant aspect of the course is its laboratory component, in which the students will perform experiments or observe demonstrations. However, the main emphasis will be placed on creating and rigorously analyzing the mathematical aspects of the models. Instead of presenting a finely tuned model for a given phenomenon, this course will try to convey some of the heuristic, intuitive, and mathematical ideas employed in modeling. Examples

of physical systems to be considered include: simple and compound pendulum motion, chemical oscillations, water waves, and elastic behavior of polymer solutions. The course is open to a wide range of undergraduate as well as graduate students with majors in mathematics, biology, chemistry, engineering, and physics. The course should be accessible to students with some basic knowledge of mathematical analysis and differential equations. Main topics include: modeling with ordinary differential equations; bifurcation theory and stability; traveling waves in epidemics, chemical reactions, free fluid surfaces, and polymer solutions; fluctuations in nature, stochastic differential equations and chaos.

Enforced Prerequisite at Enrollment: (MATH 315 and MATH 430) or MATH 405 or MATH 412
Bachelor of Arts: Quantification

MATH 451: Numerical Computations

3 Credits

ALGORITHMS FOR INTERPOLATION, APPROXIMATION, INTEGRATION, NONLINEAR EQUATIONS, LINEAR SYSTEMS, FAST FOURIER TRANSFORM, AND DIFFERENTIAL EQUATIONS EMPHASIZING COMPUTATIONAL PROPERTIES AND IMPLEMENTATION. STUDENTS MAY TAKE ONLY ONE COURSE FOR CREDIT FROM MATH 451 AND 455.

Enforced Prerequisite at Enrollment: (CMPSC 101 or CMPSC 121 or CMPSC 131 or CMPSC 200 or CMPSC 201) and (MATH 230 or MATH 231)
Cross-listed with: CMPSC 451
Bachelor of Arts: Quantification

MATH 452: Deep Learning Algorithms and Analysis

3 Credits

This is an undergraduate course on the introduction of basic mathematical, numerical and practical aspects of deep learning techniques. It will provide students with the mathematical background and also practical tools needed to understand, to analyze and to further develop numerical methods for deep learning and applications. The course is simultaneously geared towards math students who want to learn about the emerging technology of deep learning and also towards students from other fields who are interested in deep learning application but would like to strengthen their theoretical foundation and mathematical understanding. This course will allow students to fulfill 400-level math course requirement for Math Majors/Minors (or for other Majors as approved by student advisor). The course will cover some basic deep learning models such as the basic deep neural networks, convolutional neural networks, training algorithms such as stochastic gradient descent methods, popular data bases such as MNIST and CIFAR and specific applications such as image classifications. Traditional numerical methods such as finite element and multigrid method will also be introduced to motivate and to understand how and why deep neural networks work.

Enforced Prerequisite at Enrollment: MATH 220 and (MATH 230 or MATH 231) and (CMPSC 101 or CMPSC 121 or CMPSC 131 or CMPSC 200 or CMPSC 201)

MATH 455: Introduction to Numerical Analysis I

3 Credits

Floating point computation, numerical rootfinding, interpolation, numerical quadrature, direct methods for linear systems. Students may take only one course for credit from MATH 451 and MATH 455.

Enforced Prerequisite at Enrollment: (CMPSC 201 or CMPSC 202 or CMPSC 121 or CMPSC 131) and MATH 220 and (MATH 230 or MATH 231)

Cross-listed with: CMPSC 455

Bachelor of Arts: Quantification

MATH 455H: Introduction To Numerical Analysis I

3 Credits

FLOATING POINT COMPUTATION, NUMERICAL ROOTFINDING, INTERPOLATION, NUMERICAL QUADRATURE, DIRECT METHODS FOR LINEAR SYSTEMS. STUDENTS MAY TAKE ONLY ONE COURSE FOR CREDIT FROM MATH 451 AND MATH 455.

Cross-Listed

Honors

MATH 456: Introduction to Numerical Analysis II

3 Credits

Polynomial and piecewise polynomial approximation, matrix least squares problems, numerical solution of eigenvalue problems, numerical solution of ordinary differential equations.

Enforced Prerequisite at Enrollment: MATH 455

Cross-listed with: CMPSC 456

Bachelor of Arts: Quantification

MATH 457: Introduction to Mathematical Logic

3 Credits

Propositional logic, first-order predicate logic, axioms and rules of inference, structures, models, definability, completeness, compactness. Logic forms the foundation of all mathematical reasoning. To prove a mathematical theorem, one deduces them step by step from basic principles, called axioms, or from other statements previously deduced. Each step of a proof has to be a logically valid rule, such as, for example, the modus ponens: "If A holds, and A implies B, then B holds." In Math 457, students will learn how concepts such as axiom, theorem, proof, and truth can be formulated as a mathematical theory, that is, logical reasoning will be studied as a mathematical subject. The simplest kind of logical system is propositional logic. Here, the basic components are whole statements which are either true or false, and which can be combined using logical connectives such AND, OR, or NOT to form new statements. Its simple nature makes propositional logic a good system to introduce many of the basic ideas: syntax and semantics, proof systems, completeness and compactness. However, propositional logic does not capture mathematical reasoning adequately. Therefore, one considers (first-order) predicate logic. Students will learn how formulas are formed according to syntactical rules. They will also study how a mathematical theory is defined as a set of formulas, how a proof is formally defined, and what constitutes a proof system. The syntactical notions above are contrasted with mathematical semantics, which considers structures over which formulas can be interpreted. This way, one can rigorously define whether a formal statement is true in a given mathematical

structure, in which case we say the structure is a model of the statement. For example, the integers with addition are a model of the statement "for every x there exists a y such that $x+y=0$ ". A central goal of mathematical logic is to explore how the syntactical side (formulas, axioms, proof systems) and the semantical side (mathematical structures such as the additive group of integers) interact. Two fundamental results in this regard will be covered: the completeness theorem says that one can prove a statement from a set of axioms if and only if the statement is true in any structure satisfying all axioms. The compactness theorem, in turn, is an important consequence of the completeness theorem. It has profound implications for the existence and construction of mathematical structures. Students who would like to enroll in Math 457 are required to have some knowledge of mathematical proofs as provided in Math 311W.

Bachelor of Arts: Quantification

MATH 465: Number Theory

3 Credits

Elements, divisibility of numbers, congruences, residues, and forms. MATH 465 Number Theory (3) (BA) This course meets the Bachelor of Arts degree requirements. This course serves as an upper-level introduction to the fundamentals of elementary number theory. A major emphasis in the course is placed on the role that the prime numbers play in the study of properties of the integers along with the related topics of divisibility and factorization of integers. Additional topics covered in the course include congruences (and the theorems of Euler and Fermat which are classics in this area), properties of arithmetic functions including those which are multiplicative, and other topics such as Pythagorean triples and representations of numbers as sums of squares. This course is completed by a wide variety of students across the university, especially those majoring in mathematics. (In many of the options in the MTHBS degree, MATH 465 can be used to satisfy one of the major requirements.) The course is also taken quite frequently by non-mathematics majors who wish to use the course to satisfy an upper-level requirement for the mathematics minor.

Enforced Prerequisite at Enrollment: MATH 311W

Bachelor of Arts: Quantification

MATH 467: Factorization and Primality Testing

3 Credits

Prime sieves, factoring, computer numeration systems, congruences, multiplicative functions, primitive roots, cryptography, quadratic residues. Students who have passed MATH 465 may not schedule this course.

Enforced Prerequisite at Enrollment: CMPSC 360 or MATH 311W

Cross-listed with: CMPSC 467

Bachelor of Arts: Quantification

MATH 467H: Factorization and Primality Testing

3 Credits

Prime sieves, factoring, computer numeration systems, congruences, multiplicative functions, primitive roots, cryptography, quadratic residues. Students who have passed MATH 465 may not schedule this course.

Honors

MATH 468: Mathematical Coding Theory

3 Credits

Shannon's theorem, block codes, linear codes, Hamming codes, Hadamard codes, Golay codes, Reed-Muller codes, bounds on codes, cyclic codes.

Enforced Prerequisite at Enrollment: MATH 311W

Bachelor of Arts: Quantification

MATH 470: Algebra for Teachers

3 Credits

An introduction to algebraic structures and to the axiomatic approach, including the elements of linear algebra. Designed for teachers and prospective teachers. Students who have passed Math 435 may not schedule this course.

Enforced Prerequisite at Enrollment: MATH 311W

Bachelor of Arts: Quantification

MATH 471: Geometry for Teachers

4 Credits

Problem solving oriented introduction to Euclidean and non-Euclidean geometries; construction problems and geometrical transformations via "Geometer's Sketchpad" software. Intended primarily for those seeking teacher certification in secondary mathematics. Students who have passed MATH 427 may not schedule this course.

Enforced Prerequisite at Enrollment: MATH 311W

Bachelor of Arts: Quantification

MATH 475Y: History of Mathematics

3 Credits

A global survey of the history of mathematics as viewed as a human response to cultural, political, economic, and societal pressures. MATH 475W Introduction to the History of Mathematics (3) (DF) The primary goal of this course is to explore where mathematics comes from, how it was labored on, how ideas were perceived, and how theories developed. Development in algebra, geometry, arithmetic and calculus will be discussed. A second goal is to help students understand the importance of written communication in mathematics and to provide opportunities for students to improve the quality of their writing. The primary means for accomplishing this goal will be four papers, 4-8 pages in length. These will be written for an audience of mathematically-knowledgeable readers. In addition, each quiz will contain at least one essay question. Students will be evaluated on quizzes, homework, papers, and a final exam. Quizzes will total 250 points, the papers 200 points, and the final exam 150 points. This course is a required course in the Mathematical Science (MA SC) BS curriculum. This course is also available as an elective for students in the Computer Science (COMP) program. No special facilities are required for this course. This course will be offered once per year, with an expected enrollment of 25-40 students.

Enforced Prerequisite at Enrollment: MATH 315 or MATH 311W

Bachelor of Arts: Quantification

International Cultures (IL)

United States Cultures (US)

Writing Across the Curriculum

MATH 479: Special and General Relativity

3 Credits

Mathematical description, physical concepts, and experimental tests of special and general relativity. MATH 479 / PHYS 479 Special and General Relativity (3) This course is intended as an elective course (within the undergraduate Physics program) for Physics majors to be taken in their senior year. Intended to be cross-listed with MATH, it can also be used in support of a Mathematics minor and, in some options, within the Math program as a program elective as well. The course significantly expands upon the introduction to Special Relativity (SR) seen in PHYS 237, including discussions of experimental tests of SR and applications to relativistic mechanics. It then introduces students to the mathematical machinery required to understand General Relativity (GR), starting with the description of curved spacetimes and geodesics. It discusses solutions to the Einstein equations and surveys the classic tests which established the validity of General Relativity. It concludes with applications of GR in such areas as black hole physics, the generation and detection of gravitational waves, other topics (such as cosmology, relativistic astrophysics, etc.).

Enforced Prerequisite at Enrollment: PHYS 237 and PHYS 400 and PHYS 419 and (MATH 250 or MATH 251) and (MATH 230 or MATH 231)

Cross-listed with: PHYS 479

Bachelor of Arts: Quantification

MATH 482: Mathematical Methods of Operations Research

3 Credits

Survey of linear and nonlinear programming; mathematics of optimization; queues; simulation.

Enforced Prerequisite at Enrollment: MATH 220 and MATH 230 and STAT 301

Bachelor of Arts: Quantification

MATH 484: Linear Programs and Related Problems

3 Credits

Introduction to theory and applications of linear programming; the simplex algorithm and newer methods of solution; duality theory.

Enforced Prerequisite at Enrollment: MATH 220 and (MATH 230 or MATH 231)

Bachelor of Arts: Quantification

MATH 485: Graph Theory

3 Credits

Introduction to the theory and applications of graphs and directed graphs. Emphasis on the fundamental theorems and their proofs.

Enforced Prerequisite at Enrollment: MATH 311W

Bachelor of Arts: Quantification

MATH 486: Mathematical Theory of Games

3 Credits

Basic theorems, concepts, and methods in the mathematical study of games of strategy; determination of optimal play when possible. MATH 486 Mathematical Theory of Games (3) This course covers several major classes of models and methods for analyzing multi-party strategic

interactions, i.e. games. Specific topics include extensive and strategic form games, continuous games, cooperative games, strictly competitive games, repeated games and adaptive learning, and evolutionary models. The effects on outcomes of information, communication, and other modeling assumptions are discussed. Real-world examples drawn from economics, biology, anthropology, management and everyday life are discussed in detail. When appropriate, computer algebra systems are incorporated in the course. The course typically meets during either two 75-minute periods each week or three 50-minute periods each week. Evaluation methods may vary by instructor, but will typically include a combination of examinations, quizzes, homework, and projects.

Enforced Prerequisite at Enrollment: MATH 220

Bachelor of Arts: Quantification

MATH 490H: Honors Student Colloquium

1 Credits/Maximum of 6

The course comprises colloquium style weekly lectures by visitors and by Penn State faculty covering select topics in classical and contemporary mathematics. Some talks will describe math-intense jobs outside of academia and help the students to plan for their future career. The topics of the lectures will be quite advanced, distinguishing it as an honors course. In addition to attending the talks, toward the end of semester, the students will either give a presentation or write an essay on a mathematical topic of their choice or a topic covered in one of the colloquium talks.

Enforced Prerequisite at Enrollment: MATH 220 and MATH 230 and (MATH 250 or MATH 251) and (MATH 311W or MATH 311M)

Honors

MATH 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Quantification

MATH 494H: Thesis Project

3 Credits/Maximum of 6

The honors thesis proposal must be approved by the thesis supervisor and the honors adviser and submitted to the Schreyer Honors College prior to scheduling this course. Honors students in Mathematics should register for Math 494H in one or both of their last two semesters. All Schreyer Scholars are required to complete an undergraduate honors thesis. This work represents the culmination of a student's honors experience. Through the thesis, the student demonstrates a command of relevant scholastic work and a personal contribution to that scholarship. The thesis document should capture the relevant background, methods and techniques, as well as describe the details of the completion of the individual project.

Bachelor of Arts: Quantification

Honors

MATH 495: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Prerequisite: prior approval of proposed assignment by instructor
Bachelor of Arts: Quantification

MATH 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Bachelor of Arts: Quantification

MATH 496A: **SPECIAL TOPICS**

1-6 Credits

Bachelor of Arts: Quantification

MATH 496H: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Honors

MATH 497: Special Topics

1-9 Credits/Maximum of 999

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Quantification

MATH 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Quantification
International Cultures (IL)

Mathematics Education (MTHED)

MTHED 197: Special Topics

1-9 Credits/Maximum of 18

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest

MTHED 240: Mathematics in Elementary School

3 Credits

This course focuses on the development of content and pedagogy for teaching mathematics to children in elementary school. In this course, future educators consider mathematics from the learner and teacher perspectives. It is intended to help them become knowledgeable of

relevant mathematics concepts. Grounded in contemporary education research, the course will use a variety of instructional strategies, practices, methods, and models to teach and learn mathematics that is appropriate for diverse students with multiple and varied needs. Students engage in mathematical problem solving to support understandings of selected topics of arithmetic, algebra, and geometry, providing future educators the foundation for understanding current curricula and standards. This course is designed to improve mathematical thinking and understanding; make sense of student work and thinking; recognize the challenges diverse children face when learning mathematics; and foster an inquiry stance toward the learning and teaching of mathematics.

MTHED 297: Special Topics

1-6 Credits

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

MTHED 298: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

MTHED 411: Teaching Secondary Mathematics I

3 Credits

Conditions for learning mathematics; problem solving; subject matter types; curriculum; learning goals; nature and history of mathematics at secondary level MTHED 411 Teaching Secondary Mathematics I (3) This is the first of two secondary mathematics methods courses. In this course, participants look at mathematics teaching and learning from a teacher's perspective as well as from a student's perspective. Course participants engage in mathematical problem solving and in the study of the history and nature of mathematics as the foundation for understanding current curriculum and standards. Lesson planning follows from the consideration of different types of mathematical content, including skills and concepts. Looking specifically at the learning of mathematics and questioning to promote higher-level thinking prepares students for field experiences in subsequent semesters. The goals for the course are: - To improve understanding of some of the mathematical concepts which are important in secondary school mathematics. - To improve understanding of the nature of mathematics: what is important, how it is practiced, how mathematical validity is determined. - To improve understanding of the historical development of selected topics from secondary school mathematics. - To develop a vision of good school mathematics. - To see mathematics, mathematics learning, and mathematics teaching as problematic and to develop an inquiry approach to and an ability to reflect on these domains. - To increase understanding of secondary school students' mathematical thinking and understanding. - To increase ability to specify subject matter involved in a specific mathematics topic and make distinctions among them. - To improve understanding of various teaching strategies and their strengths and weaknesses. - To increase ability to choose among lessons and curriculum materials based on the intended mathematical subject matter and the current understandings of the students. - To increase insight into creating a thriving, supportive mathematics classroom culture. Students are evaluated through written assignments, examinations, classroom performance, presentations, and lesson plans.

Prerequisites: Acceptance into SECED and CI 295, CMPSC 101, MATH 140, MATH 141, MATH 220, MATH 311W Corequisite: MTHED 427

MTHED 412W: Teaching Secondary Mathematics II

3 Credits

Assessing learning and instruction; methods of evaluation and grading; long-term planning; accommodating needs of diverse learners; connecting theory and practice. MTHED 412 Teaching Secondary Mathematics II (3) MTHED 412 is an inherently cumulative experience. This course builds upon ideas developed in MTHED 411 and MTHED 427. In particular, students continue to consider types of subject matter, problem solving, lesson planning, technology use, questioning, history and nature of mathematics, and curriculum and standards. MTHED 412 then links understanding of mathematics education with other education courses and with field experiences as well as with understanding of K-16 mathematics. Students focus on lesson and unit development and implementation, assessment and evaluation, classroom management and organization within school communities, and continued professional growth as reflective practitioners. Students are encouraged to draw whenever possible on education psychology, adolescent psychology, educational theory and policy, mathematics, and other bodies of knowledge. In other words, course participants live as teachers with a wealth of knowledge and responsibility to draw on that knowledge in the service of their students. Student goals are to: * Develop an expanded view of the process of teaching mathematics; * Develop a deeper understanding of what it means to learn mathematics and the processes by which mathematics is learned; * Be able to reflect on the instruction and one's learning in MTHED 412 and to relate it to students' learning of secondary mathematics; * Be able to plan and teach appropriate mathematics lessons and reflect on one's teaching; * Be familiar with and be able to draw on a variety of teaching resources; * Investigate current issues influencing evaluation in the secondary mathematics curriculum; * Choose goals and content for middle school and high school mathematics courses; * Develop strategies for assessing and evaluating what students have learned * Create and implement assessment instruments for middle school and high school mathematics courses; * Develop insights into student understanding, especially in relationship to exceptional students as well as to mathematically talented and challenged students; * Identify the needs of diverse learners and to develop strategies to address these needs; * Create classroom environments that are conducive to learning; and * Incorporate appropriate technology in the teaching and learning of mathematics. Students are evaluated through written assignments, examinations, classroom performance, unit lesson and evaluation plans. Throughout the course writing is a process to help students learn course content as well as to help students learn ways of writing needed in the work of the secondary mathematics teacher. The course is offered each Fall and Spring semester with typical enrollment of 20-25 students in each of 1 or 2 sections. Through co-requisite course, CI 495C, students spend approximately five full weeks in secondary school classrooms.

Prerequisites: MTHED 411 Corequisites: CI 495C Recommended Preparation: Recommend Grade of C or better in MTHED 411 Writing Across the Curriculum

MTHED 420: Teaching Mathematics In The Elementary Schools

3 Credits

MTHED 420 is designed to help teacher candidates: 1) to come to see mathematics, mathematics learning, and mathematics teaching as complex and to develop an inquiry approach to these domains; 2)

to improve their understanding of the mathematical concepts and procedures they will teach, and to improve their understanding of children's mathematical learning and thinking about these concepts and procedures; 3) to increase their ability to choose among tasks, lessons, and curriculum materials from a variety of print and electronic sources based on intended mathematical understandings; 4) to develop a productive mathematics culture in the classroom; and 5) to explore key educational issues, such as equity, assessment, and technology, with respect to mathematics teaching and learning. In the course, teacher candidates explore important mathematical ideas and their development. They will become familiar with important pedagogical principles and questions. To help candidates develop an inquiry approach toward teaching mathematics, course assignments engage them in reflecting on readings and class discussions, their previous experiences as a learner of mathematics, and their ongoing experiences observing and teaching in classroom settings. MTHED 420 is a part of a block of courses in a PSU teacher education program that is unified by a basic set of principles and a field experience component.

Prerequisites: 4th Semester standing and MATH 200

MTHED 427: Teaching Mathematics in Technology-Intensive Environments

3 Credits

Interaction among pedagogy, content, and technology in mathematics teaching and learning in technology-intensive environments; secondary, early college curricula; laboratory experience. MTHED 427 Teaching Mathematics in Technology-Intensive Environments (3) Students should expect to learn something about each of several common types of mathematics software, new things about secondary school mathematics, and a lot about how to make decisions about how to use technology as an effective mathematics teacher. Students will also use communication software (e.g., word processors, e-mail, PowerPoint) not as objects of our discussion but in simple ways to generate and share products, assignments, and ideas. The course has a significant lab component. Students will be assessed based on written assignments, lesson plans, oral presentations, class participation, and examinations. The course is offered each fall and spring semester with an approximate enrollment of 20 students per semester. Students must enroll concurrently in MTHED 411.

Prerequisites: Acceptance into SECED and CI 295, CMPSC 101, MATH 140, MATH 141, MATH 220, MATH 311 Corequisite: MTHED 411

MTHED 428: Fundamentals of Middle Grades Mathematics 1

3 Credits

This course develops essential understanding of number and algebra for teaching middle grades mathematics and builds on earlier mathematics courses. MTHED 428 Fundamentals of Middle Grades Mathematics 1 (3) MTHED 428 builds upon experiences in early undergraduate courses to enhance prospective and/or practicing teachers' mathematical knowledge by supporting them to build deep and connected understandings of rational number, ratio, proportion, variable, expressions, and equations and be able to call upon those understandings in order to interpret grades 4-8 students' mathematical understandings. In particular, students in this course will learn that rational number arise as an extension of whole numbers and can be represented in many forms and interpreted as ratios, measures, quotients, operators, and part-whole relationships. Students will also build understandings of equivalence and the mathematical concepts and

relationships that underlie previously learned computational algorithms. Students will understand that ratios involve coordinating two quantities and multiplicative relationships, and that a proportion is a statement of equality between two ratios. Students will learn how number concepts in prekindergarten-grade 4 connect to algebra topics in grades 4-8. Topics in this area include different views and uses of variable, the nature of and use of algebraic expressions and how expressions and equations differ, multiple strategies for manipulating and representing algebraic expressions and equations, and how expressions and equations can be used to represent real-world situations. Students will also learn what research has documented about how the concepts of rational number, ratio, proportion, variable, expressions, and equations develop in grades 4-8; the challenges that grades 4-8 learners face in learning this content; connections to previously-learned mathematical content from grades PreK-3; and how grades 4-8 students' understandings of the targeted concepts form essential foundational understandings for mathematical learning in grades 9-12. Students will engage in mathematical reasoning and justification and utilize technological tools appropriate for use in grades 4-8 mathematics.

Prerequisites: 4th semester standing

MTHED 429: Fundamentals of Middle Grades Mathematics 2

3 Credits

This course develops essential understanding of geometry and probability for teaching middle grades mathematics and builds on earlier mathematics courses.

Prerequisites: 4th semester standing

MTHED 430: Students' Mathematical Thinking

3-6 Credits

Develop abilities in planning, conducting, and interpreting mathematics interviews to gain an understanding of students' thinking processes and current knowledge.

Prerequisites: 7th Semester standing Recommended Preparations: Prior or current teaching experience is recommended

MTHED 431: Data Analysis in Secondary School Mathematics

3 Credits

Intense development of foundations of data analysis for secondary mathematics as a process using statistical concepts for predictions and inferences. MTHED 431 Data Analysis in Secondary School Mathematics (3) As prospective secondary mathematics teachers, students will develop broad and deep understanding of measures of and representations for center, measures of spread, distribution, and correlation. They will become fluent in using dynamic statistics programs, various physical models, and representations to convey the essence of these statistical concepts to secondary school students. They will compare various statistical methods and measures and make and defend claims both in terms of the discipline and in terms of how these ideas unfold for learners in school mathematics. They will connect these statistical concepts to the broader study of secondary school mathematics. In particular, students will see data analysis as a process. It involves the systematic application of statistical techniques, as well as logical techniques, to summarize, interpret, and compare data. Although the emphasis of the course will be on statistical concepts, one of the main themes of the course will involve understandings the mathematical

structure of these statistical concepts. For example, students should be able to answer, from a mathematical perspective, why some data analysis techniques are more useful than other techniques. Intended as an elective for students in Secondary Education/Mathematics Education, the course helps students both to enrich and apply the pedagogical ideas and technology uses from their methods courses and to connect their collegiate mathematics experiences to school curricula. In particular, it helps to build prospective teachers' understanding of statistics as a vital part of secondary mathematics. Class activities involve use of physical manipulatives and mathematics technology (e.g., spreadsheets, dynamic statistics environments, and graphing calculators), as appropriate. Students in this course would be expected to complete weekly assignments and exams and to participate in classroom investigations of statistical concepts. Course grades depend on students' performance on all of these measures.

Prerequisites: Acceptance into SECED or MLVED, MATH 140, MATH 141

MTHED 432: Mathematical Modeling in Secondary School Mathematics

3 Credits

Students work from teaching and curricular perspective to explore and apply school and undergraduate mathematics to model real-world phenomena. MTHED 432 Mathematical Modeling in Secondary School Mathematics (3) Given the attention to mathematical modeling and applications in secondary school mathematics, prospective teachers need to be able to recognize situations that allow secondary school students to use relevant mathematics to apply mathematics and to model real-world phenomena as a means to learn about various mathematical topics. This course provides experiences in generating, interpreting, and evaluating geometric, discrete, stochastic, and function models. The course also helps prospective teachers develop an understanding of how mathematical modeling arises in school mathematics and how students learn mathematics through modeling. Intended as an elective for students in Secondary Education/Mathematics Education, the course helps students both to enrich and apply the pedagogical ideas and technology uses from their methods courses and to connect their collegiate mathematics experiences to school curricula. Class activities involve use of physical manipulatives and mathematics technology (e.g., spreadsheets, geometry construction environments, and graphing calculators), as appropriate. Students in this course would be expected to complete a major modeling project and paper in addition to weekly assignments, exams, quizzes, and written reflections of classroom participation. Course grades depend on students' performance on all of these measures.

Prerequisites: Acceptance into SECED or MLVED, MATH 140, MATH 141

MTHED 433: Function Concept in Secondary School Mathematics

3 Credits

This course develops the concept of function as an essential topic that underlies and connects school and collegiate mathematics. MTHED 433 Function Concept in Secondary School Mathematics (3) Prospective teachers as students need to understand the concept of function deeply as an essential topic of school and collegiate mathematics. In this course, they develop greater facility in using multiple representations and encounter function ideas as they unfold in multiple areas of mathematics, thus extending their understanding of collegiate mathematics and its connection to school mathematics. The students become conversant in current state and national expectations about functions as a mathematical entity. They plan appropriate instruction to develop

secondary school student's understanding of function. Intended as an elective for students in Secondary Education/Mathematics Education, the course helps students both to enrich and apply the pedagogical ideas and technology uses from their methods courses and to connect their collegiate mathematics experiences to school curricula. In particular, it helps to build prospective teacher's conceptual understanding of function so that they may draw more strongly on this understanding to engage secondary students in mathematics. Class activities involve use of physical manipulatives and mathematics technology (e.g., spreadsheets, geometry construction environments, and graphing calculators), as appropriate. Students in this course would be expected to complete a major project and paper in addition to weekly assignments, exams, quizzes, and written reflections of classroom participation. Course grades depend on students' performance on all of these measures.

Prerequisites: Acceptance into SECED or MLVED, MATH 140, MATH 141

MTHED 460: Trends and Issues in Science, Technology, Engineering, and Mathematics (STEM) Education

3 Credits/Maximum of 3

Develops understandings of Science, Technology, Engineering, and Mathematics (STEM) education research and practices for PreK-12 teaching and learning

Prerequisite: 7th Semester Standing
Cross-listed with: SCIED 460

MTHED 481: Building Relationships and Resources to Address Inequities in Mathematics Teaching and Learning

1 Credits

To teach mathematics in equitable ways requires teachers to value students' out-of-school life and be partners with families and communities in supporting students' identity development and mathematics learning. We start the course with acknowledging and challenging our own biases about communities and cultures. We then see how we can build caring relationships with students and enact care for students through effective and equitable mathematics pedagogy that values students' cultures and interests. We consider families and communities as partners with knowledge and resources that support students' learning and help students to build positive mathematics identities as learners. We learn ways to act beyond our classrooms to challenge a history of power, privilege, and oppression in mathematics education. Readings for this course integrate topics beyond mathematics teaching and learning. For example, we learn about the nuanced roles of community in rural and urban areas, the nature of caring relationships with adults that encourage and guide students, and the ways in which people in a community engage in democratic citizenship. The readings include both theory and lived examples from educators. To complement readings, we invite classroom teachers and other educators via virtual visits to share specific events or practices through which they have developed supportive relationships with parents and families. We also ask them to share how they engage in their local communities to form productive relationships as they come to see families and communities as resources and partners in supporting students. Drawing on theory, empirical findings, and practice, we work to answer such questions as: What do you do to communicate with your students in a way that shows you care about their lives both as mathematicians and as individuals outside the classroom? How do you engage with parents and families of your students in ways that support students' learning and well-being? How do you work as a member of your students' community? What

are strategies and tools that teachers use to connect with parents and communities?

Prerequisite: 5th Semester standing Recommended Preparation: Introductory courses in education (e.g., CI 280, CI 295, EDPSY 14, EDTHP 115)

MTHED 482: Using Content in Context to Address Inequities While Teaching Mathematics

1 Credits

We start with a look at how context is used in developing course material, starting with mathematics word problems. We first draw attention to attempts to add context to content. We turn then to activities that are based on content in rich cultural contexts. The focus then moves to mathematical practices, especially justification and mathematical modeling. We end with using mathematical modeling as a tool by which students and we can explore social justice issues and formulate action. We will learn about authentic examples of both mathematics problems and projects for students. We will also consider what it means to have students join with us in choosing contexts and creating mathematics problems. Readings about actual examples created and used by educators in learning spaces are complemented by related research and opportunities to design materials. We call upon educators to share their practice as they write and talk about the activities that they developed and how they have used those activities with students. We will find opportunities to learn powerful ways of using real-world settings in mathematics teaching, to develop mathematics problems and activities that embrace local community and cultures, and to review or preview ideas that are elaborated in your other education and mathematics courses. This course will address key questions about curriculum materials to use in teaching mathematics, such as: How do seemingly uneventful curriculum materials embody cultural biases and give students the message they are not people who do math? How can each and every student see mathematics as relevant to their lives? How can mathematics be used as a tool to understand and address social injustices? How can problems such as these coexist with the prescribed content of school mathematics?

Prerequisite: 5th Semester standing Recommended Preparation: Introductory courses in education (e.g., CI 280, CI 295, EDPSY 14, EDTHP 115)

MTHED 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

MTHED 496H: Independent Studies (Honors)

1 Credits/Maximum of 1

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Honors

MTHED 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

MTHED 498: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Mechanical Engineering (ME)

ME 97: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

ME 101: Toy Fundamentals: First-Year Seminar

1 Credits

First-Year Seminar focusing on toy design and manufacture. M E 101S Toy Fundamentals (1)(FYS) Toy Fundamentals is a First-Year Seminar intending to be an introduction to engineering design and prototyping through a product type everyone has used: toys! This five-week class explores the history of toys, marketing, toy design for different ages, and includes toy dissection, design, prototyping and field testing. It will run in the first 5 weeks of the semester.

First-Year Seminar

ME 102: Smart Lego Robots & Design

1 Credits

First-Year Seminar focusing on the development of technology exploration kits for middle-school-aged children. M E 102S Toys for Technology Exploration: First-Year Seminar (1) This is a First-Year Seminar that focuses on an important sub-group of toys. 'Learning-by-doing' is a recognized method for improving student's learning in grades K-12 (and in college!). As part of 'Toys for Technology Exploration', existing hands-on kits used for science and math education for ages 10-14 will be reviewed. The new standards for science and technology education in Pennsylvania are used to guide new hands-on kit designs, and these designs will be prototyped and field-tested with public school students. Note: Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

First-Year Seminar

ME 103: HYBRID ELECTRIC VEHICLES

1 Credits

Students in this first-year seminar will be exposed to the design, fabrication, and testing of advanced powertrain vehicles and other cutting-edge automotive technologies. This project-based, group-based course gives students the opportunity to become a member of one of the technical departments within the overall Penn State Advanced Vehicle student team and encourages students to interact with upper-class

members of that department. In addition to technical skills, emphasis is placed on soft skills required of today's professional engineers including: presentation creation, public speaking, and technical writing.

First-Year Seminar

ME 109S: Explore Mechanical Engineering Research

1 Credits

Students will discuss the wide breadth of research topics in mechanical engineering and how to prepare for a research position. Throughout the course students will participate in tours of state-of-the-art research labs in the Mechanical and Nuclear Engineering department, interact with undergraduate students currently involved in conducting research in the Mechanical and Nuclear Engineering department, practice writing correspondence and making presentations.

First-Year Seminar

ME 190: Special Topics in Mechanical Engineering: First-Year Seminar

1 Credits

A First-Year Seminar focusing on issues related to Mechanical Engineering. M E 190S M E 190S Special Topics in Mechanical Engineering: First-Year Seminar (1) (FYS) In this First-Year Seminar, students will explore the Mechanical Engineering profession by means of treatment of a particular topic in M E. Students will be assigned pertinent readings and the professor will lead discussions on the ethical, professional, and societal aspects of the topic area. The seminar will also feature group activities and encourage participation in the classroom setting.

First-Year Seminar

ME 201: Introduction to Thermal Science

3 Credits

Application of the basic concepts of thermodynamics, fluid dynamics, and heat transfer to the solution of engineering problems.

Enforced Prerequisite at Enrollment: CHEM 110

ME 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

ME 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

ME 300: Engineering Thermodynamics I

3 Credits

Basic thermodynamics concepts, properties of pure substances, first and second law analysis of systems and control volumes. M E 300 Engineering Thermodynamics I (3) This course is designed to develop an understanding of thermodynamic concepts and their application for

the student by providing an integrative modeling and analysis approach to thermal-fluids systems. The course emphasizes the integration and application of fundamental principles of mass and energy conservation and fundamental ideal gas and non-ideal working fluids concepts to fundamental engineering systems. These systems include basic spark-ignition engines and turbojet engines as well as basic and extended Rankine and refrigeration cycles. Emphasis is on creating engineering models of these systems and indicating how the idealized versions of these systems can be extended to more realistic descriptions. Besides these mass and energy conservation concepts the course introduces the basic concepts of heat transfer and mass flow, providing a foundation in these subjects to be further expanded in later courses. The course aims to develop knowledge and initiate skills for "thinking like an engineer."

Enforced Prerequisite at Enrollment: CHEM 110 Enforced Concurrent at Enrollment: MATH 141

ME 308: Fluid Flow and Heat Transfer Laboratory

1 Credits

Experimental work to enhance understanding of thermodynamics, fluid dynamics, and heat transfer.

Enforced Prerequisite at Enrollment: ME 320 Enforced Concurrent at Enrollment: ME 410

ME 315: Heat Transfer Laboratory

1 Credits

This one-credit laboratory course is structured to reinforce the various principles taught in the corresponding 3-credit lecture course - M E 410, Heat Transfer. The laboratory includes several different experiments whose objective is to reintroduce and reinforce the various principles associated with conduction, convection, radiation and heat exchangers. Each laboratory session begins with a thorough review of the relevant material covered in the lecture course, including the use of energy conservation on control volumes related to the experiment and related simplifications. Prior to conducting any experiment, the students are informed about the particular safety issues that vary from one experiment to another. The students are then briefed about the setup of the data acquisition systems, what type of data the need to be collected, and how the data then is coupled to the review of the specific laboratory topic. At the end of the semester, the students should be able to interface a typical data acquisition system with those used in industry and elsewhere. The students generally work in groups to collect data, with reports prepared individually after an experiment is completed.

Enforced Concurrent at Enrollment: (ME 345 or ME 348) and ME 410

ME 320: Fluid Flow

3 Credits

This course is an introduction to fluid mechanics, and emphasizes fundamental concepts and problem-solving techniques. Topics to be covered include fluid properties (density, viscosity, vapor pressure, surface tension); fluid statics (hydrostatic pressure, pressure forces on planar and curved surfaces); fluid kinematics (flow visualization, vorticity, Reynolds transport theorem); control volume analysis (conservation laws of mass, momentum, and energy, Bernoulli equation); dimensional analysis (dimensional homogeneity, method of repeating variables, experimental testing, similarity); internal flows (pipe flows, major and minor losses, piping networks, matching pumps to systems); differential

analysis (Navier-Stokes equation, creeping flow, potential flow, boundary layers); external flows (lift and drag, pressure vs. friction drag); and compressible flow (isentropic flow through nozzles, shock waves). Brief introductions to computational fluid dynamics (CFD), and turbomachinery (pumps and turbines) will also be provided.

Enforced Prerequisite at Enrollment: EMCH 212 and MATH 251 and (ME 201 or ME 300) and (MATH 230 or MATH 231)

ME 325: Fluids Laboratory

1 Credits

The course is designed for students to understand basic concepts of fluid mechanics through analysis of experimental data from various sources. The course emphasizes hands-on experience to take measurements, analyze and interpret experimental data. An important component of this course fosters an ability to write laboratory reports and to creatively generate independent ideas that involve the study of fluid mechanics through development and execution of final project. The course aims to develop teamwork (no hyphen needed, this is one word) skills and advanced proficiency in professional communications and interactions.

Enforced Prerequisite at Enrollment: ME 320 and (ME 345 or ME 348)

ME 330: Computational Tools

3 Credits

This course gives students physical insights as well as introductory skills on the use of modern computational tools in solving mechanical engineering problems. The course has two main thrusts: 1) finite element analysis for structural/thermal mechanics and 2) computational fluid dynamics for fluid flows. Students will use commercial codes to solve fundamental problems associated with statics, dynamics, mechanics of materials, heat transfer, and fluid dynamics. Particular emphasis will be placed on comparing simulation results to analytical solutions. Students will also use the computational tools to parametrically study the solution space that enable informed design strategies. This class will prepare mechanical engineering students to solve technical problems in their courses, summer internships, and ultimately in their engineering career.

Enforced Prerequisite at Enrollment: EMCH 212 and EMCH 213 and MATH 251 and PHYS 212

ME 340: Mechanical Engineering Design Methodology

3 Credits

The design process; problem definition, conceptual design, system design, detail design, evaluation and test, implementation, documentation and communication. M E 340 Mechanical Engineering Design Methodology (3) This course is intended to provide mechanical engineering students with the fundamental tools to produce an effective design solution in a realistic professional environment with conflicting customer needs and technical capabilities. The students will identify the system design targets through interaction with the 'customer', develop multiple conceptual designs, select the best design solution and produce a functional prototype. The course is project driven with significant input from the students in defining the work objectives and goals. Initially several mini-projects will be assigned with specific objectives such as identifying customer needs, quantifying technical design specifications and decision making. The course culminates with a student team based

design competition. The competition provides an opportunity to apply the design process to an open-ended mechanical engineering problem.

Enforced Prerequisite at Enrollment: EDSGN 100 and Concurrent at Enrollment: (ME 320 or BME 409) and ME 360

ME 345: Instrumentation, Measurements, and Statistics

4 Credits

Fundamentals of statistics, sensors, instrumentation, and measurement of mechanical phenomena such as temperature, flow, pressure, force, stress, displacement, and acceleration. M E 345 Instrumentation, Measurements, and Statistics (4) This course is required for all mechanical engineering students. It serves as an introduction to the fundamental principles of instrumentation and measurement, along with statistics, and integrates and applies what the students have learned in their electrical engineering course. The course includes a 3-hour-per-week hands-on laboratory where students apply the material learned in the lecture. For many students this is the first time they have actual hands-on experience with electronics and measurement equipment, such as oscilloscopes, breadboards, function generators, digital data acquisition systems, integrated circuits strain gages, displacement meters, thermocouples, tachometers, dynamometers, filters, volume flow meters, velocity meters, pressure transducers, etc. Students learn not only how to use these devices in the lab, but also the fundamental principles of their operation. Statistical analysis is integrated into the course, especially in the hands-on laboratories, where statistics is used to analyze and interpret acquired data.

Enforced Prerequisite at Enrollment: EE 211 or EE 212 or EE 210

ME 345W: Instrumentation, Measurements, and Statistics

4 Credits

Measurement concepts, probability and statistics, error analysis; electro- mechanical transducers, applied electrical and mechanical measurements, electrical and electronics instruments, data acquisition and instrumentation systems.

Enforced Concurrent at Enrollment: EE 212 or EE 211 or equivalent Writing Across the Curriculum

ME 348: Circuit Analysis, Instrumentation, and Statistics

3 Credits

ME 348 Circuit Analysis, Instrumentation, and Statistics (4) This course is required for all mechanical engineering students, and is taken in the junior year. It serves as an introduction to the fundamental principles of circuit analysis, instrumentation and measurement, as well as statistics. The course includes a 3-hour-per-week, hands-on laboratory where students explore the concepts taught in the lecture. For many students this is the first time they have actual hands-on experience with electronics and measurement equipment, such as oscilloscopes, breadboards, function generators, digital data acquisition systems, integrated circuits strain gages, displacement meters, thermocouples, tachometers, dynamometers, filters, volume flow meters, velocity meters, pressure transducers, etc. Students learn not only how to use these devices in the lab, but also the fundamental principles of their operation. Statistical analysis is integrated into the course, especially in the hands-on laboratories, where statistics is used to analyze and interpret acquired data.

Enforced Prerequisite at Enrollment: MATH 251 and PHYS 212

ME 349: Intermediate Mechanics of Materials

3 Credits

Intermediate topics in mechanics of materials with computer applications. M E 349 Intermediate Mechanics of Materials (3) This course introduces students to intermediate and applied topics in mechanical behavior of materials with an emphasis on design and computation. This course will give students the tools to do practical analysis and the foundation needed to prepare them for other mechanical engineering courses in design and other elective courses. Subjects covered include stress analysis, deformation & deflection, material failure and finite element analysis. Stress analysis includes the study of stress concentrations, stress transformations and principal stresses. Stress-based static failure theories for brittle and ductile materials are investigated. Two-way bending of beams is covered as well as torsional deformation of non-circular cross sections. Buckling and pressure vessels are introduced as separate topics while the finite element analysis is introduced as a computational tool to study stress and deformation. Throughout the course students will use a commercial finite element program to verify and visualize results from analysis of the various topics. During the course, students are introduced to the basic theory of the finite element method.

Enforced Prerequisite at Enrollment: EMCH 213 and EDSGN100S
Enforced Concurrent at Enrollment: CMPSC 200 and MATH 220

ME 355: Dynamic Systems Laboratory

1 Credits

Experimental investigation of simple position, velocity, and temperature control systems with analog and digital controllers. M E 355 Dynamic Systems Laboratory (1) The objective of the Dynamic Systems Laboratory is to enable students to experimentally investigate the calibration, response characteristics, modeling, and control of mechanical and fluid systems. This course is intended to allow students to develop some hands-on experience and working knowledge of basic dynamic and control systems. Specifically, to 1. Identify the actuators, sensors, plants, and controllers of physical control systems.2. Calibrate encoders, temperature, laser displacement, and flow sensors.3. Measure steady state, step, and frequency response of thermal, fluid, and mechanical systems.4. Compare simulation and experimental results to validate theoretical model.5. Design PID controllers for thermal, fluid, and mechanical systems.6. Implement and test PID controllers for thermal, fluid, and mechanical systems.

Enforced Prerequisite at Enrollment: ME 345 or ME 348 Enforced Concurrent at Enrollment: (ME 357 or ME 450)

ME 357: System Dynamics

3 Credits

Mathematical modeling and analysis of linear dynamic systems; performance and design of simple controllers. M E 357 System Dynamics (3) This course is to explore the modeling of linear systems via transfer functions and state-space models; analysis of systems in the time and frequency domain using transfer functions and state-space models; development of control techniques based on PID. The use of software Matlab and Simulink is another emphasis. Students are evaluated through the use of written exams during the semester, a comprehensive written final, weekly homework assignments, and a design project. This

course is required in the ME BD program at Behrend, integrates material from a number of previous courses, and provides the student with tools that will be used in a number of subsequent courses.

Enforced Prerequisite at Enrollment: CMPSC 200 and (EE 211 or EE 212) and MATH 251

ME 360: Mechanical Design

3 Credits

Specification of components such as shafts, bearings, and power transformers; optimal designs for operational, environmental, and manufacturing requirements. ME 360 Mechanical Design (3) This course is required for all mechanical engineering students. It is an introduction to analysis and design of mechanical components. It helps provide practical insight into theory provided by prerequisites in engineering mechanics and materials science. Students initially perform yielding and fatigue failure predictions for general structural elements and then focus on specific mechanical components such as gears, fluid film bearing, rolling element bearings, screws, shafts, and springs. Use and interpretation of finite element analyses (FEA) are also introduced. The overall goals are for students to learn to make basic design decisions regarding the suitability of different materials in mechanical components (e.g. steel versus aluminum), and to make basic design decisions regarding the suitability of different components in a mechanical system (e.g. ball bearings versus fluid film bearings).

Enforced Prerequisite at Enrollment: EMCH 213 Enforced Concurrent at Enrollment: CMPSC 200 or CMPSC 201

ME 360H: Mechanical Design

3 Credits

Specification of components such as shafts, bearings, and power transformers; optimal designs for operational, environmental, and manufacturing requirements.

Honors

ME 365: Materials Testing Laboratory

1 Credits

Laboratory for materials testing, property identification and modification, failure analysis, and metallurgical testing. ME 365 Materials Testing Laboratory (1) This laboratory course provides an integrated approach to materials science and engineering. The laboratory examines the important relationships between processing, microstructure, and the properties of materials. The course provides an introduction to basic characterization techniques for materials, such as microscopy, hardness testing, fracture testing and analysis, fatigue testing, and impact testing. In addition, material selection and heat treatment topics are covered. The course requires hands-on involvement by the students in the planning of experiments as well as data manipulation and analysis of results. The laboratory exercises are intended to provide students with a broad appreciation of the breadth of material science and engineering and the principles behind material characterization and property modification. Students work in groups, and written reports are the primary basis for grading.

Enforced Concurrent at Enrollment: MATSE 259

ME 367: Machine Design

3 Credits

Design and selection of machine components and connections. Stress analysis and modes of failure of materials used in machine components. ME 367 Machine Design (3) This course introduces students to the process for selection, design and failure analysis of various common machine elements. This course will give students the foundation to design mechanical systems and the tools to design, select, or analyze machine components for practical applications necessary for their design projects and other mechanical engineering electives. Subjects include the reliability, safety factors, and the design of machine elements including shafts, roller bearings, brakes, clutches, gears, belt and chain drives, and additional topics such as screws, springs, journal bearings, and connections. Both static and cyclic loading are considered as part of the design and analysis process. Extensive use is made of material properties, design tables, figures and graphs to assist in the design and analysis process. The course includes a comprehensive project that incorporates several of the topics covered in the course in the design of a mechanical system. The goal of the project is for students to learn how various machine

Enforced Prerequisite at Enrollment: ME 349 Enforced Concurrent at Enrollment: MATSE 259

ME 370: Vibration of Mechanical Systems

3 Credits

Modeling and analysis of vibration characteristics of mechanical systems with single degree and multiple degrees of freedom. Vibration control by isolation, absorption and balancing. ME 370 Vibration of Mechanical Systems (3) The course studies vibration characteristics of mechanical systems and vibration control. It is divided into four main topics. Fundamental aspects of mechanical vibrations are studied first. Types and causes of various vibratory motions are described. The concepts of mathematical modeling of the vibratory systems are presented. Model elements including mass/inertia, spring and damper elements and their corresponding describing equations are studied. Single degree-of-freedom vibrations are modeled and analyzed. Equations describing free vibrations of undamped and damped systems are derived. Natural frequency and damping ratio are defined and their physical significance discussed. Harmonically excited vibrations are studied with many practical application problems; resonance and its physical significance are emphasized. The theoretical aspects of general periodic vibrations and non-periodic vibrations are formulated by means of Fourier analysis and convolution integral. Vibrations of multiple degrees-of-freedom systems are studied. Mathematical models governing free vibrations are formulated. Equations determining the natural frequencies and mode shapes of the system are derived with relation to eigenvalue problems. Harmonically excited vibrations are analyzed with practical applications. Vibration control in relation to engineering design is the last topic studied. Various vibration control concepts and techniques are presented including vibration isolation, vibration absorption and balancing to reduce the intensity of the source of excitation.

Enforced Prerequisite at Enrollment: EMCH 212 and (CMPSC 200 or CMPSC 201) and MATH 220 and MATH 251

ME 375: Vibrations Laboratory

1 Credits

Experimental measurement and analysis of mechanical system dynamics. This laboratory course provides an opportunity to apply the fundamental vibrations theory taught in ME 370 to actual mechanical hardware. The experiments illustrate fundamental concepts from an experimental vibration perspective. Experimental vibration measurement methods are applied to estimate simplified dynamic models for vibrating mechanical systems. The students compare analytical to experimental results to gain a sense of the limitations of both modeling and experimentation. Experiments include: free vibration of linear and nonlinear systems, response, measurement of translational and rotational, forced harmonic vibration, spectral analysis of vibration signals, experimental data uncertainty and comparison of finite element model dynamic results to experimental data. Throughout the course the students will: 1. Plan, implement and debug instrumentation to measure vibrations of mechanical systems. 2. Implement experimental test systems using vibration transducers and data acquisition to maximize measurement quality. 3. Recognize the dominant behavior seen in many larger, more complicated engineering systems. 4. Estimate the system vibration parameters 5. Use software to compare measured and predicted dynamic behavior. 6. Recognize dominant nonlinear behavior and implement a nonlinear simulation using software. 7. Verify the results of computer analyses of dynamic systems by various methods including experimental measurement and analytical modeling.

Enforced Concurrent at Enrollment: ME 370 and (ME 345 or ME 348)

ME 380: Machine Dynamics

3 Credits

Kinematic analysis of mechanisms such as linkages, flywheels, cams and gears. Dynamic forces and vibrations of mechanisms. ME 380 Machine Dynamics (3) In this course students learn how to apply the techniques of dynamics to analyze both the motion and forces associated with planar mechanisms. Students learn how to model and solve for the position, velocity, acceleration and forces on linkages using vectors. They also study the kinematics of gears, flywheels and cams. Machine vibrations is introduced as an integral part of Machine Dynamics. Students learn how to model simple mechanical systems as vibrating systems and then analyze the vibratory response of these systems. Once these analytical skills have been developed, the students can apply these skills to the design of linkages, internal combustion engines, gears, shafts and cams. Several in-class exams are used to evaluate students' performance. Computer problems are assigned so students can experience the solution methods to some of the more complex problems. This required course integrates material from calculus and dynamics to provide the student with tools that can be used to analyze the motion of machinery and can be used in the design of machinery and machine components. It is offered annually in the Fall semester and occasionally in the Spring semester.

Enforced Prerequisite at Enrollment: EMCH 212 and MATH 251

ME 390: Academic and Career Development for Mechanical Engineers

0.5 Credits

ME 390 Academic and Career Development for Mechanical Engineers (0.5) guides students through the process of tailoring their academic studies to suit their individual career goals. Students will look at career

opportunities within mechanical engineering as well as the many other professions that are available to BSME degree holders. Students will be prepared to participate successfully in recruiting events such as the Penn State career fairs

Enforced Prerequisite at Enrollment: Fifth Semester standing in Mechanical Engineering

ME 395: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: Prior approval of proposed assignment by instructor
Full-Time Equivalent Course

ME 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

ME 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

ME 400: Thermodynamics of Propulsion and Power Systems

3 Credits

Analysis and modeling of propulsion and power systems, including combustion, compressible flow through nozzles, chemical equilibrium, and moist air systems. ME 400 Thermodynamics of Propulsion and Power Systems (3) This course is specifically designed to provide an integrative modeling and analysis approach to thermal-fluids systems. The course emphasizes the integration and application of fundamental principles of mass, momentum, and energy conservation to relatively complex systems. These systems include spark-ignition and diesel engines, gas-turbine engines for power production, and turbojet engines. The integration of the topics of combustion, compressible flow, and psychrometrics allow these systems to be analyzed in their totality. Emphasis is on creating engineering models of these systems. The course aims to integrate previous knowledge and develop skill in 'thinking like an engineer.'

Enforced Concurrent at Enrollment: ME 410

ME 401: Refrigeration and Air Conditioning

3 Credits

Theoretical principles, design, performance, and selection of various refrigeration and air-conditioning systems; building heat and cooling loads; solar heating.

Enforced Prerequisite at Enrollment: ME 410

ME 402: Power Plants

3 Credits

A study of fossil-fuel steam generation and utility plants, including cogeneration, gas turbine, and combined cycles. M E 402 Power Plants (3) This course serves as an introduction to fossil-fuel plants for both steam generation and electricity production. Following an overview of an entire plant and an introduction to combustion processes, each subsystem of a fossil-fuel plant will be considered. The subsystems include fuel preparation and handling, boiler types and the fundamentals of steam generation, water systems (condensate-feedwater, makeup, cooling, and waste), and turbomachinery. Consideration will be given to environmental aspects of steam and power generation as well as operations, maintenance, and controls issues. Students will spend time at the West Campus Steam Plant (WCSP) to observe the various systems discussed in class. Data taken from the WCSP will be used in problem solving and in an assessment of the plant. Course Objectives: To acquaint students with both steam generation and electricity production and to present some of the engineering calculations encountered in practice. Objectives that students will meet at the end of the course: 1. list the subsystems of a plant, indicating the function of each subsystem 2. sketch typical subsystems of a power plant (example: sketch the coal and ash handling system) 3. perform basic analyses associated with each subsystem 4. sketch the flow of water-steam, fuel, and air through a plant 5. analyze a heat balance, perform an availability analysis, and interpret the results of those analyses 6. select the type of plant appropriate for a given application 7. perform an energy audit on the auxiliary systems 8. perform a water audit on the plant 9. use DoE Best Practices (or equivalent program) to assess a steam plant Students will be required to draw on material from core undergraduate courses in thermodynamics (M E 030 and M E 031), fluid mechanics (M E 033), and heat transfer (M E 412). Students must be able to: ♦ sketch the configuration and draw a T-s diagram for a Rankine cycle and a Brayton cycle ♦ indicate the general trends for the ideal cycles (example: for a Brayton cycle, how does the efficiency depend on the pressure ratio, inlet temperature, etc.) ♦ define the basic modifications to the simple Rankine cycle and simple Brayton cycle ♦ discuss the significance of the modifications ♦ state the definition of the adiabatic efficiency for turbines and pumps ♦ perform an energy balance given a particular cycle ♦ use the Darcy-Weisbach equation to determine the friction losses in pipes and ducts ♦ perform simple analysis of a heat exchanger

Enforced Prerequisite at Enrollment: ME 410

ME 403: Polymer Electrolyte Fuel Cell Engines

3 Credits

Introduction to Fundamentals of Polymer Electrolyte Fuel Cells (PEFCs). Includes fundamentals of electrochemistry, thermodynamics, fluid mechanics, heat transfer materials, and manufacturing issues of PEFCs. A brief survey of other fuel cell types is also included. M E 403 Polymer Electrolyte Fuel Cell Engines (3) This course is intended for the engineering student interested in obtaining a fundamental background required for polymer electrolyte fuel cell (PEFC) modeling and diagnosis. Those students with interest in the basic design, operation, and characteristics of PEFC systems should also benefit. This course serves as an introduction to the fundamental principles of electrochemistry, thermodynamics, heat and mass transfer, materials and manufacturing issues related to PEFC engines. The various types of PEFC components and technologies are dissected in detail, including direct inject alternative fuel systems. A survey of cutting-edge issues in fuel cell technology

including the future direction of PEFC technology will be presented as time permits. The student will also participate in an experimental lab study to aide in the understanding of these systems, a computer-based simulation project, and a group-based fuel cell system design project. Issues of specific interest to mechanical engineers, including water management and heat and mass transfer in thin film porous media, will be dealt with in depth. A brief survey of other fuel cell types is also presented.

Enforced Concurrent at Enrollment: ME 410

ME 404: Gas Turbines

3 Credits

This course enables students with the proper background to gain specialized knowledge as a step towards becoming practitioners in the field of gas turbines. The information imparted covers from basic cycles to properties of materials required to put together these impressive machines. Competent course performance requires knowledge of basic thermodynamics, fluids and heat transfer. The homework is carefully graduated in order to highlight key aspects already covered in the lectures, with new thinking an unavoidable part. As an optional part of the course, students can run and acquire data in an actual gas turbine. Additionally, those with a strong background in fluids can design blades and study the flow around them with CFD. Course Objectives: Upon completion of this course, students should be able to: 1. Analyze cogeneration plants. 2. Analyze turbofans, jets and turbojets. 3. Specify a typical gas turbine installation, including auxiliaries. 4. Carry out conceptual design of gas turbine engines for different applications. 5. Specify construction materials to withstand typical operating conditions. 6. Demonstrate professionalism in interactions with colleagues, faculty, and staff. Program Objectives: This course covers the following program objectives: 1. demonstrate ability to solve differential equations 2. demonstrate familiarity with linear algebra 3. perform analysis of thermal/fluids components 4. perform analysis of thermal/fluids systems 5. work effectively on multidisciplinary teams 6. demonstrate ability to communicate effectively with the written word 7. demonstrate ability to communicate effectively in oral communications 8. demonstrate professionalism in interactions with colleagues, faculty, and staff

Enforced Prerequisite at Enrollment: ME 300

ME 405: Indoor Air Quality Engineering

3 Credits

Prediction of the motion of contaminants (both gaseous particulate) in gas streams; analysis of ventilation systems and air pollution control systems; comparison of experimental sampling techniques. M E 405 Indoor Air Quality Engineering (3) This course serves as an introduction to environmental health engineering, which presents the quantitative relationships describing generation, movement, and control of pollutants inside the workplace. Although some aspects of the course can be applied to outdoor air pollution, the course concentrates on applications related to indoor air quality. In particular, students are taught how to measure and predict concentrations of air pollutants, both gaseous and particulate, in rooms. In addition, they are taught how to design both local and general ventilation systems to maintain acceptable indoor air quality. In addition, the design of air pollution control systems that remove both gaseous and particulate contaminants from the air is discussed. The relationships are described by mass and energy balances that relate pollutant generation and movement to process parameters. The course is designed for seniors and graduate students in Mechanical,

Chemical, Environmental and Civil Engineering, and Meteorology. To work effectively in environmental health engineering, students must be proficient in applying the thermal sciences. The course uses principles of mathematics and thermal sciences included in accredited programs of engineering. Most students will have mastered some of these principles, but few will have mastered them all. The course reviews all the necessary thermal science principles before using them, but some students will need to review this material in more detail than others. This course is offered once per year. Course Objectives: a. Demonstrate the ability to analyze and compare risks associated with various activities and with exposure to hazardous chemicals. b. Demonstrate a working knowledge of the physiology and function of the respiratory system, including diseases of the lung. c. Demonstrate the ability to estimate pollutant emission rates using emission factors and fundamental mass balance techniques. d. Analyze practical problems of general and local ventilation requirements. e. Design local ventilation systems using standard guidelines from ACGIH and ASHRAE. f. Predict the motion of particles in air, and analyze pollution control devices which remove particles from the air. g. Demonstrate professionalism in interactions with colleagues, faculty, and staff. Program Objectives: a. demonstrate knowledge of chemistry. b. demonstrate ability to solve differential equations. c. demonstrate familiarity with statistics. d. perform analysis of thermal/fluids components and thermal/fluids systems. e. demonstrate an appreciation of the economic, global, social, and ethical context of their work. f. demonstrate professionalism in interactions with colleagues, faculty, and staff. g. make effective use of spreadsheets as an analysis and design tool. h. use software such as Matlab and MathCAD to solve engineering problems including ODE'S, systems of linear equations, and numerical integration

Enforced Prerequisite at Enrollment: ME 320

ME 406: Introduction to Statistical Thermodynamics

3 Credits

Statistical description of systems composed of large numbers of particles in the context of classical and quantum mechanics; basic concepts of probability theory and thermodynamics as they relate to statistical mechanics. ME (NUCE) 406 Introduction to Statistical Thermodynamics (3) This course is an introduction to probabilistic and statistical concepts in the physical sciences, which we refer to as 'statistical thermodynamics'. In areas such as design and processing of electronic devices, materials engineering, chemical engineering, and combustion engineering, the science of statistical mechanics is a particularly necessary, powerful, and important tool for the engineer. The underlying foundation of statistical mechanics is developed by (1) reviewing the basic ideas from probability theory, (2) deriving the binomial, Poisson, and Gaussian probability distributions, and (3) using these models to analyze several examples taken from science and engineering. To make a connection between macroscopic quantities and the corresponding probabilistic representation, classical thermodynamics is reviewed using the internal energy, entropy, and free energy functions in the context of the first and second laws. Statistical mechanics for classical and quantum-mechanical systems is presented via the micro-canonical, canonical, and grand canonical ensembles using the associated partition functions. During the syntheses of ideas, applications from various branches of science are presented. Some examples of applications are the Einstein crystal, the Debye crystal, the ideal gas, and black body radiation. This course covers the following program objectives: 1. Demonstrate knowledge of basic chemistry and physics. 2. Demonstrate a knowledge of atomic and nuclear physics. 3. Demonstrate a knowledge of thermodynamics, heat transfer, and fluid

flow. 4. Understand and apply the basic concepts of particle transport. 5. Understand and apply thermodynamics and heat transfer principles to the analysis of nuclear power components and systems.

Enforced Prerequisite at Enrollment: (ME 300 or ME 201) and (MATH 230 or MATH 231)

Cross-listed with: NUCE 406

ME 408: Energy Systems

3 Credits

Theory, analysis, design, selection, and application of energy conversion systems. This course is intended for mechanical engineering students to reinforce the topics taught in thermodynamics, fluid mechanics, and heat and mass transfer; gives students familiarity with energy conversion systems using traditional and renewable energy sources which are typically encountered by mechanical engineers, and improves students' analytical and design skills. Coverage of materials include heat exchanger analysis, selection, and design with respect to heat transfer, pressure drop, and fluid pumping requirements; analysis and design of power cycles based on thermodynamic principles; fundamentals of combustion processes; introduction to wind energy and wind turbine aerodynamic analysis; fuel cell fundamentals and analysis of fuel cell problems and systems based on thermodynamics and heat transfer principles. Students will be evaluated by homework assignments; individual and small team projects; and exams.

Enforced Prerequisite at Enrollment: ME 410

ME 410: Heat Transfer

3 Credits

Thermal energy transfer mechanisms: conduction (steady, transient), convection (internal, external), radiation; lumped parameter method; heat exchangers; introduction to numerical methods. ME 410, Heat Transfer, is a required course for mechanical and nuclear engineering students. The course presents the three modes of heat transfer: conduction, convection, and radiation. One-dimensional steady and transient conduction is studied for planar, cylindrical, and spherical geometries. The lumped capacitance analysis is used for transient conduction when appropriate. Analytical and numerical methods are presented for two-dimensional conduction problems, including the analysis of extended surfaces. Convection heat transfer is studied in both internal and external geometries and under laminar and turbulent flow regimes. External flows include cooling on flat plates due to laminar and turbulent boundary layer flows, and cooling of cylinders due to cross flow. The convection heat transfer analysis in internal flows considers laminar and turbulent pipe flows. Free convection is also considered where heat transfer is due to flow induced by fluid buoyancy. Boiling and condensation considers the effect of two-phase flows on surface heat transfer. Radiation heat transfer is studied by considering both the general characteristics of radiation as well as the properties of radiating surfaces and radiation heat transfer between surfaces. Methods for solving multi-mode heat transfer are presented throughout the course. Heat exchangers and heat transfer from extended surfaces are two applications studied in the course

Enforced Prerequisite at Enrollment: (ME 320 or BME 409) and (CMPSC 200 or CMPSC 201) and (MATH 220 or NUCE 309)

ME 410H: Heat Transfer

3 Credits

Transient heat conduction; convection in laminar and turbulent flow; heat exchanger devices; boiling and condensation; radiation.

Honors

ME 411: Heat-Exchanger Design

3 Credits

Thermal design and application of different heat-exchanger types, including surface selection and design optimization.

Enforced Prerequisite at Enrollment: ME 410

ME 420: Compressible Flow I

3 Credits

This course is a technical elective. We cover several unique concepts and applications of compressible flow, including: speed of sound and Mach number, isentropic 1-D flow in variable area ducts, converging nozzles, choking, converging-diverging nozzles, moving shocks, blast waves, shock tubes, Rayleigh flow (duct flow with heat transfer), Fanno flow (duct flow with friction), normal and oblique shock waves, expansion fans, and other topics to be announced, time permitting. Course Objectives: Upon completion of this course, students should be able to: 1. Solve a range of compressible-flow problems often encountered in engineering practice, including adiabatic isentropic flow in ducts and normal and oblique shock wave analysis. 2. Apply physical thinking and problem-solving techniques to practical problems using fluid mechanics and thermodynamics. 3. Integrate previous course material in fluids and thermodynamics into the study of compressible flow. 4. Apply computer programs (Matlab, Excel, EES, Javascript calculators, etc.) to compressible-flow problems. 5. Identify and utilize the strong visual nature of flow patterns in engineering practice in the thermal sciences. 6. Demonstrate practical design skills such as design of supersonic nozzles and wind tunnels. 7. Demonstrate professionalism and respectful interaction with faculty and colleagues.

Enforced Prerequisite at Enrollment: ME 320

ME 421: Viscous Flow Analysis and Computation

3 Credits

Apply analytical and computational methods to solve the differential equations describing fluid flow. Incompressible external flows past objects and internal flows in pipes and ducts are some problems considered. M E 421 Viscous Flow Analysis and Computation (3) M E 421 is an intermediate course in fluids mechanics that bridges between the required undergraduate fluid mechanics course and the graduate fluid mechanics courses. Steady and unsteady flows are considered past objects and in pipes, ducts, and annuli. Analytical and numerical methods are used to solve the boundary layer and Navier-Stokes equations that describe fluid motion. Analytical methods include solutions for steady and unsteady internal flows with heat transfer. Similarity equations for boundary layer flows are derived and then solved numerically using the Runge-Kutta method. Finite difference methods for viscous flows are introduced and applied. Turbulence modeling is presented and applied in a boundary layer code. The stages of transition from laminar to turbulent flow and methods for the prediction of transition are introduced. Topics in M E 421 include: 1. Analytical solutions for one-dimensional viscous flows

in Cartesian and cylindrical coordinates with heat transfer. 2. Unsteady viscous flow solutions using Separation of Variables. 3. Boundary layer similarity solutions using the Runge-Kutta method. 4. Panel method for incompressible inviscid flows. 5. Finite-differenced equations for viscous flows and the accuracy and stability of the schemes. 6. Using a commercial CFD code for a simple geometry. 7. Algebraic turbulence models and the approximations of each. 8. Higher-order turbulence models and the approximations used. 9. Stages of transition from laminar to turbulent flow. 10. Methods to predict boundary layer stability and transition.

Enforced Prerequisite at Enrollment: (ME 201 or ME 320 or AERSP 308 or AERSP 311) and (CMPSC 200 or CMPSC 201) and MATH 220 and (MATH 250 or MATH 251)

ME 422: Principles of Turbomachinery

3 Credits

Conservation laws pertinent to energy conversion and fluid mechanics are applied to pumps, centrifugal compressors, axial compressors and turbines, hydro turbines and wind turbines. Ideal performance is established, and conventional loss correlations are applied to define potential performance of turbomachinery. The applications of similarity and dimensionless parameters towards characterizing turbomachines are outlined. The course objectives are; 1. Review/acquire thermofluids concepts applicable to turbomachinery such as Reynolds transport theorem, First and Second laws, isentropic efficiencies, potential flow, dissipative flows. 2. Develop an understanding of working principles applicable to centrifugal, axial and mixed flow machinery. Extend concepts applicable to hydro and wind turbines. Develop approximations for both compressible and incompressible flows. 3. Gain an understanding of loss calculations.

Enforced Prerequisite at Enrollment: ME 320

ME 423: Introduction to Numerical Methods in Fluid Dynamics

3 Credits

This course provides an introduction to the important and growing field of Computational Fluid Dynamics (CFD). The student will become familiar with a short history and relevance of CFD, the basic differential models of fluid dynamics, discretization and linearization practices, and solution strategies of CFD. Fundamentals of algorithm classification, error and stability analysis will be covered. Also, several advanced topics of relevance to modern CFD analysis will be covered. A term project will involve coding a CFD model of one of several choices including: 2D shallow wave equations for application to a tsunami, unsteady conjugate flow+heat transfer analysis of a pin array, and others per the instructor's discretion.

Enforced Prerequisite at Enrollment: (AERSP 312 or ME 320) and (MATH 250 or MATH 251) and (CMPSC 200 or CMPSC 201)

Cross-listed with: AERSP 423

ME 424: Additive Manufacturing Lab

1 Credits

Explore various aspects of 3D printing. Topics will vary by semester, depending on the current technology and advancements in the field. This laboratory course provides an integrated approach to additive manufacturing and reverse engineering. The course introduces basic operating procedures for Fused Deposition Modeling (FDM) printers

and gives instruction on repair, troubleshooting, and print optimization techniques. The laboratory examines the important relationships between 3D printing parameters and the final object's material properties. In addition, reverse engineering and rapid prototyping topics are covered. The laboratory exercises provide students with a broad appreciation of the current technological capabilities of FDM 3D printing and an understanding of when to implement the technology over a traditional manufacturing technique. Written technical and research reports and proposals, Inventor models, and 3D printed models are the primary basis for grading.

Enforced Prerequisite at Enrollment: ME 349

ME 427: Aerodynamics for Mechanical Engineers

3 Credits

The primary objective of this course is to teach students how to apply concepts relating to incompressible flows to solve aerodynamic design problems. In incompressible aerodynamics, fundamental concepts such as lift, drag, aerodynamic moment, induced drag, viscous drag, pressure drag, separation, stall, circulation, downwash, camber, thickness ratio, and lift distribution are discussed. Students use these concepts primarily to determine aerodynamic lift and drag using a variety of techniques, including potential flow theory and wind tunnel testing. Based on instructor preference and expertise, additional topics relating to incompressible and/or compressible aerodynamics may be also discussed. Students will be evaluated through the use of written exams during the semester, a comprehensive written final, and weekly homework assignments. This course is a technical elective in the ME programs at the Behrend, Berks and Harrisburg campuses and allows students who have completed ME 320, Elementary Fluid Mechanics, to improve their understanding of fluids and thermodynamics by covering the subject in more detail and applying it specifically to aerodynamic problems. It will usually be offered annually.

Enforced Prerequisite at Enrollment: ME 320

ME 428: Applied Computational Fluid Dynamics

3 Credits

Introduction to theory and application of computational techniques for solving fluid flow and heat transfer. ME 428 Applied Computational Fluid Dynamics (3) The purpose of this course is to teach students how to use a commercial CFD code to solve real-world engineering fluid flow problems. The definition of appropriate problem domain, set of governing equations, boundary conditions, and fluid properties is discussed. Sufficient theory of CFD is covered so that students are able to select appropriate elements or interpolation techniques and options, mesh size, pressure-correction technique and solution technique. Students are also taught how to interpret the results of a CFD simulation, including determination that the solution is physically realistic, conforms to the governing equations, is converged and grid independent, and determination of important engineering quantities such as net force, pressure drop and flow rate. Students are evaluated through the use of written exams during the semester, a comprehensive written final, weekly homework assignments, and a semester project. This course is a technical elective in the Mechanical Engineering program and allows students who are interested in fluid mechanics and heat transfer to further their study. It is offered periodically.

Enforced Prerequisite at Enrollment: ME 320 and ME 410

ME 430: Introduction to Combustion

3 Credits

Concepts related to laminar and turbulent premixed and nonpremixed combustion with applications to propulsion and stationary systems. EGEE (M E) 430 Introduction to Combustion (3) This course provides an introductory treatment of combustion science. The objectives of the course are to develop in the students an understanding of combustion kinetics, combustion thermochemistry, flame dynamics, flame stability, and pollutant formation. Coverage includes laminar and turbulent flames, premixed and diffusion flames, and detonations. Emphasis is placed on the role that Kinetics, heat transfer, mass transfer, and fluid dynamics have on flame structure and flame stability. The course includes some laboratory demonstrations of flat flame and diffusion flame burners, and incorporates numerical calculations of thermodynamic and kinetic combustion phenomena. The course begins with a review of transport phenomena, physical gas dynamics, and thermochemistry. Then, the concept of the laminar flame speed is introduced in the context of a one-dimensional flame and a propagating chemical wave. Issues of premixed flame structure and stability are presented along with a discussion of flammability limits. Next, laminar diffusion flames are presented via the Burke-Schumann analysis. From laminar flames, the emphasis shifts to turbulent premixed and diffusion flames, and the concepts of flame stretch and strain. Detonations are considered, with emphasis on thermodynamic analysis of the detonation and the structure of the detonation wave. Details of chemical kinetics for the hydrogen-oxygen and hydrocarbon-air reaction systems are presented, with linkage back to earlier topics such as flame stabilization and flammability limits. After kinetic phenomena, the course then considers pollutant formation focusing on soot and NOx. The fundamental aspects of combustion are applied to analysis of the combustion process and pollutant formation in internal combustion engines and catalytic combustors. The course wraps up with discussion of atmospheric chemistry, the fate of pollutants, and the formation of secondary pollutants.

Enforced Prerequisite at Enrollment: ME 201 or ME 300 or EME 301

Cross-listed with: EGEE 430

ME 431: Internal Combustion Engines

3 Credits

This course is specifically designed to provide an integrative modeling and analysis approach to thermal-fluids systems. The course emphasizes the integration and application of fundamental principles of mass, momentum, and energy conservation to relatively complex systems. These systems include spark-ignition and diesel engines, gas-turbine engines for power production, and turbojet engines. The integration of the topics of combustion, compressible flow, and psychrometrics allow these systems to be analyzed in their totality. Emphasis is on creating engineering models of these systems. The course aims to integrate previous knowledge and develop skill in "thinking like an engineer."

Enforced Prerequisite at Enrollment: ME 300 and ME 320

ME 432: Rocket Propulsion

3 Credits

Overview of underlying theories and design practices of chemical and non-chemical rocket propulsion systems. The topical areas include basic thermodynamics and gas dynamics, propellant formulation and characterization, component and system designs, and test evaluation. At

the conclusion of this course, students will have obtained fundamental knowledge and design rules of various rocket propulsion systems, including solid, liquid, and hybrid rockets, as well as electric propulsion engines.

Enforced Prerequisite at Enrollment: ME 410

ME 433: Fundamentals of Air Pollution

3 Credits

Natural and man-made sources of pollution; atmospheric dispersion; biological and health effects; control systems; legislation and regulations. This course is an introduction to air pollution, with an emphasis on outdoor rather than indoor air pollution. Topics to be covered include sources (emissions) of air pollution, both gaseous and particulate, interaction of air pollution with our bodies and the environment, and methods of measuring, quantifying, analyzing, and controlling air pollution. A brief introduction to government regulations related to air pollution will also be provided. Students are expected to be proficient in applying mathematics (e.g., integration, differentiation, and application of differential equations), and some basic chemistry, statistics, thermodynamics, and fluid mechanics.

Enforced Prerequisite at Enrollment: ME 201 or ME 300

ME 435: Mechanical Engineering Systems Lab

3 Credits

This course studies fundamental mechanical engineering subjects, including mechanics, dynamics, heat transfer, fluid mechanics, material science, and control in a holistic approach, through real-world systems in topics, such as energy and sustainability, autonomy and robotics, and big data. Students will analyze and divide complex thermal and mechanical problems into manageable subtasks, devise, and conduct hands-on experiments to solve engineering problems. This course will give students experience with data acquisition and analysis, evaluating the strength and limitations of theoretical predictions using computational tools, and interpreting data to support a conclusion. In particular, the course emphasizes helping students develop skills in observation, problem-solving, analysis, and critical thinking. This course has weekly laboratory sessions as well as two weekly lectures to provide project background, reinforce knowledge, reflect and discuss experimental observations, and train communication, documentation, and presentation skills.

Enforced Prerequisite at Enrollment: (ME 345 or ME 348) and ME 330 and ME 320 Enforced Concurrent at Enrollment: ME 370

ME 440W: Mechanical Systems Design Project

3 Credits

Design and analysis of mechanical components and systems. Application of fundamental design and analysis methods to open ended engineering problems. Students develop and practice skills and techniques for managing and executing engineering design projects. These skills are applied to an industry-sponsored project. Project teams perform all facets of product and process design. This includes problem identification, planning of the project, formulation of design specifications, the development and evaluation of alternative conceptual designs, the development of detailed designs, the specification of manufacturing processes, prototyping of manufacturing processes and parts, and analysis and documentation of results. Students will

visit industrial sites to gain an understanding of existing processes and problems and to assess the customer's needs. Students will present their design process and final design in several formats: oral presentations, poster presentations, web pages, and reports.

Enforced Prerequisite at Enrollment: ME 340 and Enforced Concurrent at Enrollment: IE 312 and ENGL 202C

Writing Across the Curriculum

ME 441W: Thermal Systems Design Project

3 Credits

Design of thermal systems through component design and/or selection, system simulation and optimization. Assessment of system economics and energy efficiency. ME 441 Thermal Systems Design Project (3) Students develop and practice skills and techniques for managing and executing engineering design projects related more to thermal design but not excluding mechanical design. These skills are applied to projects mostly sponsored by the industry. Project teams perform all facets of product and process design either on paper via use of computer models and/or as a physical product. This includes problem identification, planning of the project, formulation of design specifications, the development and evaluation of alternative conceptual designs, the development of detailed designs, the specification of manufacturing processes, prototyping of manufacturing processes and parts, design computations, drawings and performance via use of CFD and analysis and documentation of results. Students will visit industrial sites when possible to gain an understanding of existing processes and problems and to assess the customer's needs. Students will present their design process and final design in several formats: oral presentations, poster presentations, web pages and reports.

Enforced Prerequisite at Enrollment: ME 340 and ME 410 Enforced Concurrent at Enrollment: ENGL 202C

Writing Across the Curriculum

ME 442W: Advanced Vehicle Design I

2 Credits

Part one of a two course sequence; applications of design and analysis methods to open-ended advanced transportation vehicles. Two semester course; satisfies Senior Design or ME Technical Elective requirements (when combined with ME 443W). Students develop and practice skills and techniques for managing and executing engineering design projects. This is done in the context of an international University-level engineering design competition that is sponsored by government agencies and/or by industry. The competitions are structured to span a full calendar year, with the competition itself taking place in late Spring. For that reason, the course is spread over two semesters. In the Fall semester, there is approximately equal emphasis on classroom lectures and hands-on laboratory activities; in the Spring semester, the emphasis is on hands-on laboratory activities. The focus is advanced powertrain technology for personal transportation vehicles. Broader aspects of energy efficiency, security, and sustainability also will be discussed. The specific technologies that are targeted will evolve with time to remain ahead of what is available in current production vehicles. Project teams perform all facets of product and process design. This includes problem identification, planning of the project, formulation of design specifications, the development and evaluation of alternative conceptual designs, the development of detailed designs, the specification of manufacturing processes, prototyping of manufacturing processes and parts, and analysis and documentation of results. Students also

will participate in broader aspects of the design competition. This may include securing sponsorship and funding, participating in outreach and public relations events, developing a business plan, developing a web site, and traveling to competition workshops and to the annual competition. Students will present their design process and final design in several formats: oral presentations, poster presentations, web pages, and reports.

Enforced Prerequisite at Enrollment: ME 340 Enforced Concurrent at Enrollment: IE 312 and ENGL 202C Writing Across the Curriculum

ME 443W: Advanced Vehicle Design II

1 Credits

Part two of a two course sequence; applications of design and analysis methods to open-ended advanced transportation vehicles. Two semester course; satisfies Senior Design or ME Technical Elective requirements (when combined with ME 442). ME 443 Advanced Vehicle Design II (1) Students develop and practice skills and techniques for managing and executing engineering design projects. This is done in the context of an international University-level engineering design competition that is sponsored by government agencies and/or by industry. The competitions are structured to span a full calendar year, with the competition itself taking place in late Spring. For that reason, the course is spread over two semesters. In the Fall semester, there is approximately equal emphasis on classroom lectures and hands-on laboratory activities; in the Spring semester, the emphasis is on hands-on laboratory activities. The focus is advanced powertrain technology for personal transportation vehicles. Broader aspects of energy efficiency, security, and sustainability also will be discussed. The specific technologies that are targeted will evolve with time to remain ahead of what is available in current production vehicles. Project teams perform all facets of product and process design. This includes problem identification, planning of the project, formulation of design specifications, the development and evaluation of alternative conceptual designs, the development of detailed designs, the specification of manufacturing processes, prototyping of manufacturing processes and parts, and analysis and documentation of results. Students also will participate in broader aspects of the design competition. This may include securing sponsorship and funding, participating in outreach and public relations events, developing a business plan, developing a web site, and traveling to competition workshops and to the annual competition. Students will present their design process and final design in several formats: oral presentations, poster presentations, web pages, and reports.

Enforced Prerequisite at Enrollment: ME 340 Enforced Concurrent at Enrollment: ENGL 202C and IE 312 Writing Across the Curriculum

ME 444: Engineering Optimization

3 Credits

Problem formulation, algorithms and computer solution of various engineering optimization problems. M E 444 Engineering Optimization (3) Students will learn to formulate and solve a variety of engineering optimization problems. Basic concepts, problem formulation, scaling, use of different optimizers, effect of tuning parameters and starting points and solution interpretation will be taught. Example problems will be taken from mechanical, aerospace, nuclear, civil, chemical, electrical and other engineering disciplines. This course will complement other engineering design courses, such as capstone design. Students will learn how

optimization can reduce product turnaround time, and to make decisions involving weight, stiffness, strength, performance, energy utilization, and other attributes. Pedagogy will focus on hands-on experience through computational problem-solving and graphical understanding. Technology classrooms and computer labs for instruction will be used. A by-product of this course is increased math and computer skills.

Enforced Prerequisite at Enrollment: MATH 220 and (MATH 230 or MATH 231) and (CMPSC 201 or CMPSC 200)

ME 445: Microcomputer Interfacing for Mechanical Engineers

4 Credits

Interfacing of electro-mechanical systems to microcomputers for data acquisition, data analysis and digital control.

Enforced Prerequisite at Enrollment: (ME 345 or ME 348) and seventh-semester standing

ME 446: Reliability and Risk Concepts in Design

3 Credits

Introduction to reliability mathematics. Failure data collection and analysis. Components and systems reliability prediction. Effects of maintenance on reliability. Risk Analysis. Case studies in engineering applications. ME 446 / NUCE 446 Reliability and Risk Concepts in Design (3) The course covers materials reliability in design including mechanical, electrical and system aspects. Five main topics will be studied. The course starts by introducing engineering risk and reliability, highlighting its interdisciplinary nature and its significance in system design. The concept of reliability as a probability is introduced and the basic laws of probability are reviewed. The discussion centers on the mathematics needed to understand and analyze complex systems including components in series and parallel. The topics include the independence, mutual exclusivity, truth tables and Venn diagrams. These concepts are then applied to simple systems consisting of one, two and three components in various configurations. The equivalency of the various methods is discussed. The effect of maintenance on a system's reliability is presented along with discussions of various maintenance strategies. Then, the failure modes and effects analysis is introduced and examples discussed. The concept of fault trees and event trees and their application to reliability analysis are presented. Risk analysis is then introduced as a case study in the application of reliability analysis. A nuclear power plant system is analyzed to quantify the risk to the public from its operation.

Enforced Prerequisite at Enrollment: (MATH 250 or MATH 251) and (ME 345 or ME 348 or NUCE 309)
Cross-listed with: NUCE 446

ME 448: Engineering Design Concepts

3 Credits

Engineering design and modelling, engineering economic analysis techniques, technical communication skills, project planning and design. M E 448 Engineering Design Concepts (3) This course is the first of a two-part sequence of courses that make up the capstone design experience in the ME BD major (the second course is M E 449, Mechanical Design Projects). In this course students study the engineering design process, begin working on their design project, and learn about professional topics related to industry. Topics in the engineering design process include customer needs identification, development of engineering specifications,

concept generation, concept selection, costing, and project planning. Professional topics include communication, team work, ethics, safety, sustainability, globalization, and engineering economics. Students are evaluated on the design process and professional topics through assignments and quizzes. A major component of the course is to begin work on a capstone design project. Students work in teams of 3 to 4 on an industrially-sponsored project or other project approved by the faculty. The student teams work with the sponsor to develop specifications and a project plan, perform background research necessary to fully understand the project, begin to solve the problem, and make two presentations during the semester. The first presentation is a formal project proposal; the second presentation at the end of the semester is a progress report. Students are evaluated on both their technical and presentation skills, as well as their ability to function as a team. This course is required in the Behrend Mechanical Engineering (ME BD) program, and integrates material from a number of previous courses.

Enforced Prerequisite at Enrollment: ME 380 and seventh-semester standing. **Enforced Concurrent at Enrollment:** ME 367 and ME 410

ME 449: Mechanical Design Projects

3 Credits

Group or individual design projects in the areas of mechanical engineering.

Enforced Prerequisite at Enrollment: ME 448 and eighth-semester standing

ME 450: Modeling of Dynamic Systems

3 Credits

Modeling and analysis of dynamic interactions in engineering systems. Classical and state variable methods; digital simulation; stability and dynamic response. M E 450 Modeling of Dynamics Systems (3) This course covers modeling, analysis, and control of single and multiple degree-of-freedom dynamical systems, including mechanical, electrical, thermal, fluid systems and their combinations (mixed systems). The processes of energy storage and dissipation, which are common for different kinds of dynamic systems, will be emphasized in investigating general principles for modeling various dynamic systems. Basic concepts in system theory such as state variables and stability notions will be introduced. Most of the content will be restricted to linear-time-invariant systems (LTIs); however, local linearization around nominal operating points will be taught to analyze nonlinear systems. Introduction to classical control analysis and design methods will also be given.

Enforced Prerequisite at Enrollment: ME 370 Enforced Concurrent at Enrollment: ME 345 or ME 348

ME 452: Vehicle Road Dynamics

3 Credits

This course conducts investigations of one-dimensional, two-dimensional, and three-dimensional dynamics, kinematics and design integrated into the study of vehicle dynamics. Topics include body kinematics, steady state body dynamics, transient stability, tire forces, suspension, automatic control, and driver interaction. The emphasis is on the analysis of a vehicle as a complex system, recognizing how to abstract observed behaviors into appropriate mathematical models, how to decompose behaviors into subsystems, how to construct and perform numerical simulations, and how to design and analyze experiments

to test models and simulations to gain insights into design goals and tradeoffs.

Enforced Concurrent at Enrollment: ME 450

ME 453: Powertrain System Modeling, Simulation, and Control

3 Credits

This course introduces students to the control-oriented state-space and transfer function modeling of powertrain components and systems. Relevant application domains include conventional automotive powertrains, hybrid powertrains, locomotive propulsion systems, marine and submarine propulsion systems, and stationary power generation systems. The course introduces students to the use of fundamental principles from thermodynamics, fluid mechanics, and rigid body mechanics for powertrain modeling. Simple, control-oriented models are emphasized. Model integration and simulation topics, including numerical stiffness, solver selection, and integration step size selection are emphasized. Applications of powertrain modeling and control covered in the course include servo-control problems (e.g., air-fuel ratio control) and supervisory power management in hybrid powertrains.

Enforced Prerequisite at Enrollment: ME 370 Enforced Concurrent at Enrollment: ME 357 or ME 450

ME 454: Mechatronics

3 Credits

Interfacing of electro-mechanical hardware to microcomputers and microcontrollers for data acquisition, data analysis, and digital control. The course addresses the need for today's mechanical engineer to understand the architecture of engineering systems and not just the mechanical hardware. The course has a significant lab component in the form of weekly, two-hour labs. Examples of lab topics include the design and building of a complete autonomous vehicle including the drive system, steering, sensors, obstacle avoidance, and computer control.

Enforced Prerequisite at Enrollment: ME 345 or ME 348

ME 455: Automatic Control Systems

3 Credits

This course covers the characterization and feedback control of linear time invariant (LTI) dynamic systems, classical feedback control theories will be emphasized. Basic concepts of analyzing, predicting and specifying the performance of dynamic systems, including transfer functions, dynamic response, block diagram, stability notions and sensitivity will be introduced. A thorough treatment of feedback controller design via Root-Locus method will be provided, which includes the design of lead/lag compensation and PID controller. Frequency domain controller design will also be introduced thoroughly, from the characterization of open-loop frequency response using Bode plot to the analysis of closed-loop frequency response. In this process, the notions of gain-phase relationship, Nyquist stability criterion, and stability margin will be discussed. Finally, the method of adding dynamic compensation to adjust the frequency response and improve the stability and performance of the system will be introduced.

Enforced Prerequisite at Enrollment: ME 320 and (ME 450 or ME 357)

ME 456: Introduction to Robotics

3 Credits

This course is a technical elective where students learn about the present and future status of robot applications, and are required to apply fundamental knowledge of physics, mechanics, and mathematics to develop software to analyze and control robots. The course deals with mechanics and control of mobile robots, flying robots and robot manipulators. First, students are taught to describe position and orientation of a rigid body, including rotation matrix, roll-pitch-yaw angles and Euler angles. In addition, a brief introduction to feedback control system is provided. After these background materials, students learn about the following topics: a. kinematics and control of wheeled mobile robots, car-like mobile robots and quadrotor and b. 3-D kinematics, statics, dynamics and control of robot manipulators. Sensors, actuators and software used in industrial robots are discussed.

Enforced Prerequisite at Enrollment: EMCH 212 and (ME 360 or ME 367)

ME 460: Advanced Machine Design Problems

3 Credits

This course is designed to approach and analyze fundamental problems in the design of advanced level machine components and systems. It integrates advanced concepts in fatigue, vibrations, mechanics of materials and tribology for component and system level reliability. The course emphasizes elements of power transmission through detailed discussion on kinematics and reliability-based design of cams, flywheels, transmission couplings and gear chains. Example cases involve single and multiple cylinder automotive engine system with analysis of dynamics and balancing, power transmission through both flexible and rigid elements as well as different kinds of differentials built of spur, helical, bevel and worm gears. Another thrust is the application of tribology on machine design with special focus on hydrostatic and hydrodynamic bearings. Through case studies drawn from design and failure from real life systems, the course develops knowledge and skills for translating design concepts from components to system level.

ME 461: Finite Elements in Engineering

3 Credits

Computer modeling and fundamental analysis of solid, fluid, and heat flow problems using existing computer codes. E MCH (M E) 461 Finite Elements in Engineering (3) This is an introductory course in the Finite Element Method. Through this course, students gain knowledge in finite element theory and problem modeling. The mathematical formulation of the method is presented and then applied to problems in elasticity and heat transfer. Projects are assigned to demonstrate the finite element method in simplified problems using hand- calculations and computer programs such as Matlab. The use of commercial FEA programs is introduced and problems of increased complexity are assigned to demonstrate their use in a computer lab. Finally, problems of realistic complexity are assigned such that students can practice solving, documenting and presenting their use of commercial FEA programs.

Enforced Prerequisite at Enrollment: (EMCH 213 or EMCH 210H or EMCH 210) and (CMPSC 201 or CMPSC 200)

Cross-listed with: EMCH 461

ME 462: Lubrication in Machine Design

3 Credits

Lubricants and lubrication with applications to design aspects of machines and mechanisms including bearings, gears, cams, and automotive engines. M E 462 Lubrication in Machine Design (3) The course covers interdisciplinary materials on lubrication in machine design including mechanical, mechanics and chemistry aspects. Six main topics will be studied. The course starts by introducing engineering tribology, highlighting its interdisciplinary nature and its significance in machine design. Surfaces of machine components in contact are studied, including surface physiochemistry, surface topography, topographical measurements and characterization and classification of regimes of lubrication. Lubricants used in machine design are discussed in length, including types of industrial lubricants, properties of lubricating oils: compositions, viscosity and additives, synthetic lubricants and engine oils. The course will develop the theory of fluid-film lubrication, including the mechanisms of pressure generation, configuration of tribo-contacts and the Reynolds equation. Hydrodynamic lubrication is studied. The topics include the machine components with hydrodynamic lubrication, thrust bearings, journal bearings and design considerations of these devices. The last topic to be covered is the theory and application of Elastohydrodynamic lubrication (EHL). First, the machine components with concentrated contacts are introduced. Then, the Hertz theory of contact is studied and the governing equations for EHL are derived. Thermal EHL and traction are studied, and design calculations for rolling bearings, cams and gears are developed in relation to the geometrical and kinematic features of these components.

Enforced Prerequisite at Enrollment: MATH 251 and ME 360

ME 465: Introduction to Manufacturing Laboratory

1 Credits

A laboratory-based introduction to manufacturing processes including material removal, forming, casting and joining for metals and non-metals. M E 465 Introduction to Manufacturing Laboratory (1) This laboratory course provides an integrated approach to Manufacturing Science and Engineering. The laboratory examines common techniques for fabricating parts; providing an introduction to several basic processes for creating both metallic and polymeric parts. As a part of this course, students will be exposed to compressive, tensile, sheet, bending, casting and powder metal processes. Using basic material science principles, students will examine concepts such as material flow, springback, and cold working. The course requires hands-on involvement by the students in the planning of experiments as well as data manipulation and analysis of results. The laboratory exercises are intended to provide students with a broad appreciation of the breadth of Manufacturing Science and Engineering. Students work in groups. Written reports and in-class exercises are the primary basis for grading. This course is a technical elective.

Enforced Concurrent at Enrollment: ME 468

ME 467: Applied Finite Element Analysis

3 Credits

Review of matrix algebra; discretization; finite element formulation; application of finite element computer codes.

Enforced Prerequisite at Enrollment: ME 349 Enforced Concurrent at Enrollment: ME 410

ME 468: Engineering for Manufacturing

3 Credits

Manufacturability, the selection of the most effective materials and processes, and quality assurance. M E 468 Engineering for Manufacturing (3) This course will present an overview of the various manufacturing techniques that are currently used within industry. The advantages and disadvantages of each manufacturing technique will be discussed along with common defects that occur with each process. The start-up, operating, maintenance, and labor costs of each process will be presented along with general manufacturing economical concerns. Statistics and Quality assurance topics will also be covered, along with manufacturability and design for manufacturing concepts.

Enforced Prerequisite at Enrollment: MATSE 259

ME 468H: Engineering for Manufacturing

3 Credits

Manufacturability, the selection of the most effective materials and processes, and quality assurance. M E 468 Engineering for Manufacturing (3) This course will present an overview of the various manufacturing techniques that are currently used within industry. The advantages and disadvantages of each manufacturing technique will be discussed along with common defects that occur with each process. The start-up, operating, maintenance, and labor costs of each process will be presented along with general manufacturing economical concerns. Statistics and Quality assurance topics will also be covered, along with manufacturability and design for manufacturing concepts.

ME 469: Metallic Manufacturing Processes

3 Credits

Principles of metal working and introduction to current theories; analysis of deformation, joining, and metal removal processes. M E 469 Metallic Manufacturing Processes (3) In this integrated lecture/laboratory course students will learn a) metal deformations techniques such as: forging, rolling, extrusion and drawing, b) metal removal techniques for single, multi and infinite point cutting, and c) metal fastening techniques, including bolts, rivets and welds. As a part of the learning process, students will directly compare existing standards and theories to actual laboratory results. Students will learn how to assess the accuracy of both theoretical derivations and experimental procedures by first deriving theoretical equations in the classroom and then directly examining the ability of the equations to predict the given behavior by actually performing the manufacturing operation in the laboratory. Based on in-depth discussions regarding assumptions, approximations, and experimental error, students will assess the ability of the current state-of-the-art techniques to accurately predict the forces generated/required during various manufacturing metal working operations. In addition, students will derive their own theories by removing/improving some assumptions within the existing theories. For processes where multiple theories exist, students will compare and contrast the predictive abilities of the various techniques to those found through controlled laboratory experiments. Similar comparisons will also be made for processes where both engineering standards and theoretical techniques exist.

Enforced Prerequisite at Enrollment: ME 349 Enforced Concurrent at Enrollment: ME 468

ME 470: Analysis and Design in Vibration Engineering

3 Credits

Application of Lagrange's equations to mechanical system modeling, multiple-degree-of-freedom systems, experimental and computer methods; some emphasis on design applications. In this course, students will learn basic techniques for modeling and analyzing linear multidegree-of-freedom (MDOF) mechanical systems, and will learn how to use these techniques for mechanical design. Students will learn to obtain equations of motion using energy methods (Lagrange's equations), with emphasis on the efficient formulation and reduction to the linear case. The basic theory of MDOF systems will be presented, including: eigenvalue problems; natural frequencies and normal modes; superposition and modal analysis; and frequency response. Numerical methods for solving static, dynamic and eigenvalue problems will be presented. Introductions to the theory of linear continuous systems and experimental methods of vibrations will be presented. A substantial portion of the course will be spent discussing design applications of the basic theory, such as: finite element numerical analysis and experimental modal analysis of beams and plates; vehicle suspension design; and vibration isolation and absorption.

Enforced Prerequisite at Enrollment: (EMCH 212 or EMCH 212H) and (ME 370 or ESC 407 or EMCH 407)
Cross-listed with: EMCH 470

ME 471: Noise Control in Machinery

3 Credits

Nature of noise sources in machine elements and systems. Propagation and reduction of noise. Effects of noise on man. M E 471 Noise Control in Machinery (3) Course Objectives: This course prepares students to perform effectively as noise control engineers in industries with noise and vibration applications, e.g., during the early stages in product design or environmental noise control in industrial settings. Much of the material presented builds on second and third year courses covering such topics as dynamics, vibration, fluid mechanics and electrical components. Hands-on laboratory experiments (both programmed and open-ended) coordinated with focused lectures provide students with a working knowledge of the disciplines associated with noise and vibration and their practical applications for identifying, analyzing, and solving real world problems. The first part of the course centers on learning modules that cover the fundamentals of acoustics and noise control. Each module consists of two lectures followed with a laboratory experiment that demonstrates the relevant principles. These take place in small group settings (8 students maximum). Students are required to write individual reports based on the results of each of the laboratory experiments. The modules are followed with a laboratory project competition wherein each small group is given a noisy, small machine with the challenge to reduce its noise and vibration signatures. The course concludes with formal Power Point presentations of the results from each small group to an assessment team consisting of the industrial sponsors and selected professors and graduate students. This course is offered annually during the fall semester with an enrollment limited to 32 students (8/laboratory group).

Enforced Prerequisite at Enrollment: ME 320 and ME 370

ME 480: Mechanism Design and Analysis

3 Credits

Design and analysis of mechanical linkages including kinematic synthesis and dynamic analysis. Linkages for a variety of applications are considered. M E 480 Mechanism Design and Analysis (3) The student who takes this course will develop a basic understanding of the analysis and synthesis of planar linkage mechanisms. Students will develop the ability to model real linkage mechanisms using kinematic diagrams, including identification of links and joints. They will also learn to use Gruebler's equation to calculate the mobility or number of degrees of freedom of linkages based on the kinematic diagram. Students will also become familiar with real mechanism applications in the context of mechanism synthesis, where they will learn to determine the required dimensions of a mechanism for a specific application. Students will apply these dimensional synthesis methods in a design project which includes building a simple linkage prototype. They will learn kinematic analysis methods, i.e., analysis of position, velocity, and acceleration of planar linkages. These methods consist of graphical, algebraic, and complex number approaches. Students will also learn to use commercial software packages, e.g. Working Model, to predict position, velocity, and acceleration of planar linkages, and will compare their predictions to those using analytical approaches. Finally, students will learn to do dynamic force analysis of planar linkages to predict joint forces and motor torques. They will use commercial software packages to predict joint forces and motor torques of planar linkages, and will compare their predictions to those using analytical approaches.

Enforced Prerequisite at Enrollment: (EMCH 212 or EMCH 212H) and (CMPSC 201 or CMPSC 200 or ESC 261)
Cross-listed with: EMCH 480

ME 481: Introduction to Computer-Aided Analysis of Machine Dynamics

3 Credits

Techniques and formulations for computer based kinematic and dynamic analyses of machines. M E 481 Introduction to Computer-Aided Analysis of Machine Dynamics (3) This course addresses computer methods for kinematic and dynamic analyses of two-dimensional (2D) multi-body machines at the advanced undergraduate and introductory graduate level. The course introduces the formalism of kinematic mobility and topology to help students recognize constrained kinematic chains embedded in larger engineering systems. Classic kinematic and Newtonian dynamic methods are reformulated using modern matrix methods. The latter half of the course focuses on underlying algorithms and theory behind commercially available mechanism analysis software packages that employ differential-algebraic equation (DAE) solvers. Students program their own numerical integration methods for time domain simulation of forward dynamics of a simple system to reinforce the theory. The overall goals are for students to be able to identify forward versus inverse dynamic problems; and to be able to plan, implement and debug an appropriate computer-based design tool to analyze kinematics and dynamics of 2D constrained mechanisms.

Enforced Prerequisite at Enrollment: EMCH 212 Enforced Concurrent at Enrollment: CMPSC 200 or CMPSC 201

ME 490: Professional Development for Mechanical Engineers

0.5 Credits

ME 490 Professional Development for Mechanical Engineers (0.5) provides a look at foundational business issues of importance to new engineers: creating value, organizational models, financial statements, and intellectual property. Students will get a preview of their role in today's global workplace and how they can position themselves for success. Strategies for recognizing opportunities and continually growing skills and knowledge is emphasized. The course meets once weekly for 8 weeks.

Enforced Prerequisite at Enrollment: ME 390

ME 491: Bioengineering Applications of Mechanical Engineering

3 Credits

Application of mechanical engineering knowledge in the context of life sciences. M E 491 Bioengineering Applications of Mechanical Engineering (3)The primary objective of this course is to teach students how to apply mechanical engineering knowledge in the context of life sciences. Fundamental mechanical engineering knowledge such as solid mechanics, fluid mechanics and system dynamics will be reviewed first. Then, different topics in bioengineering, such as motion biomechanics, physiological fluid mechanics, modeling of physiological systems, and rehabilitation engineering will be discussed. Throughout the semester, students also work in groups to solve several simplified real-life bioengineering projects. Students will be evaluated through these projects plus a final project presentation, an application presentation and several homework assignments. This course is a technical elective in the ME BD program and allows students who have completed their third-year to learn the application of mechanical engineering knowledge in the life science context.

Enforced Prerequisite at Enrollment: EE 211 and ME 320 and ME 357 and EMCH 213 and ME 349 or permission of program

ME 493: ME Honors Thesis Writing Preparation

1 Credits

The goal of this course is to prepare mechanical engineering Schreyer honors scholars for their final honors thesis. The course helps students identify a thesis supervisor if the student has not already found a thesis supervisor and project. The main body of the course focuses on writing the literature review. Identifying different types of literature and their uses, finding appropriate literature online and on databases, and writing about the literature are all covered extensively. Students are given detailed feedback on outlines and drafts of their literature review throughout the semester, resulting in a final literature review for their honors thesis at the end. In addition to the literature review, two presentations - one elevator pitch and one final presentation - are required to practice oral communication of research topics. Finally, the topics of research ethics, research in teams, and career planning are discussed throughout the course to prepare students for future research and career opportunities. Class meets once per week and class times are highly interactive, with activities to practice the skills learned in the course with the help of peers and faculty. The grade is comprised of several assignments, including pre-class assignments, in-class assignments, and thesis-related assignments.

Honors

ME 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

ME 494H: Senior Thesis

1-9 Credits/Maximum of 9

Students must have approval of a thesis adviser before scheduling this course. M E 494H Senior Thesis (1-9) All Schreyer Scholars are required to complete an undergraduate honors thesis. This work represents the culmination of a student's honors experience. Through the thesis, the student demonstrates a command of relevant scholastic work and a personal contribution to that scholarship. The thesis project can take many forms - from laboratory experiments all the way to artistic creations. The thesis document captures the relevant background, methods and techniques, as well as describing the details of the completion of the individual project. Two Penn State faculty members judge the merits of this Scholar's honors thesis, the student's self-selected thesis supervisor and the department-selected honors adviser in the student's area of honors.

Honors

ME 495: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: Prior approval of proposed assignment by instructor

ME 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including nonthesis research, which are supervised on an individual basis and which fall outside the scope of formal courses.

ME 496A: **SPECIAL TOPICS**

1-6 Credits

ME 496H: Honors Research

1-6 Credits

Honors research that fulfills Shreyer's Honor College requirements. This research will serve as a basis for my honors thesis. Research regarding the development and manufacturing of micro fuel cells. Course will be graded on a scale similar to a traditional class.

Honors

ME 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

ME 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Mechanical Engineering Technology (MET)

MET 97: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

MET 105: Mechanical Systems

3 Credits

Mechanical Systems with Laboratory is an introductory course for Engineering Technology major students to broadly introduce Mechanical Engineering Technology. MET 105 Mechanical Systems (3) MET 105 includes mechanical engineering technology profession, United States Customary System and Metric System, communication skills; structures and mechanics including the resultant of a system of forces, moment of a force, and the requirements for equilibrium; Materials and Stress including a stress-strain curve, the material properties for metals and their alloys, ceramics, polymers, and composite materials, a factor of safety; Fluids Engineering including the application of fluids engineering, a fluid's density and viscosity properties, laminar and turbulent fluid flows, buoyancy, drag, and lift, the volumetric flow rate and pressure drop of fluids through pipes. Thermal and Energy system including various energy, heat, work, and power quantities in the SI and USCS, the principle of energy conversion, the basic operating principles of various engines; Motion and Power Transmission including the design and operation of power-transmission equipment, rotational velocity, work, power, belts, and gears.

MET 107: Computer Applications for Technologists

3 Credits

Programming spreadsheets, data bases and presentation software for solutions of technical problems; introduction to languages allowing creation of program macros.

Enforced Concurrent at Enrollment: MATH 81 or MATH 22 or MATH 26

MET 111: Mechanics for Technology: Statics

3 Credits

Forces; moments; resultants; two- and three-dimensional equilibrium of force systems; friction; centroids and moments of inertial of areas. MET 111 Mechanics for Technology: Statics (3) MET 111 will provide practical and compressive coverage of elementary statics. In addition to the theoretical approach, the course will demonstrate the practical applications of statics concepts. Students entering this course should have basic knowledge of algebra as well as geometry and trigonometry. Course will introduce the definition of scalar and vector quantities. This will be followed by vector addition, vector subtraction, resolution of vectors, addition of systems of coplanar forces, rectangular components

of a vector, etc. Course will also introduce the concept of moments and couples. This will be followed by introducing free-body diagrams as a tool for solving statics problems. Emphasis will be placed on equations of equilibrium for particles and rigid bodies. Students will be exposed to 2D and 3D equilibrium. Course will put emphasis on truss and frame analysis as well as pulleys. Distributed loads will also be discussed. Course will also introduce the concept of friction, angle of friction, wedges, etc. Belt friction and rolling resistance as well as friction in bearings will also be discussed. Course will also introduce the concept of centroids, center of gravity, and moment of inertia of an area. Emphasis will be put on calculating centroidal moment of inertia of composite areas. Polar moment of inertia and mass moment of inertia will also be introduced. Student will learn not only problem solving strategy but also develop ability to present results in clear manner.

Enforced Prerequisite at Enrollment: MATH 26 or MATH 81

MET 112: Statics Laboratory

1 Credits

Laboratory experimentation associated with basic engineering mechanics principles and concepts including forces, moments, equilibrium, trusses, frames, friction, and centroids. MET 112 Statics Laboratory (1) MET 112 facilitates the basic understanding of certain principles and concepts of elementary engineering mechanics. The course provides the hands-on experience essential to learn the fundamental engineering mechanics topics including forces, moments, equilibrium, frames, trusses, friction, and centroids. Laboratory experiments will be supported by lectures presented in MET 111 (taken concurrently), demonstrations, and associated computer software utilization.

Enforced Prerequisite at Enrollment: MATH 26 or MATH 81
Enforced Concurrent at Enrollment: MET 111

MET 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

MET 206: Dynamics

3 Credits

Kinematics (particles and rigid bodies), kinetics, work-energy, impulse-momentum, and mechanisms. MET 206 Dynamics (3) Instructional, Educational, and Course Objectives - To introduce students to the basic principles of dynamics as applied to practical problems which include such topics as friction, kinetics of particles and rigid bodies, laws of force and motion, using methods of work-energy and impulse-momentum. Further, students will consider mechanisms which are typical in manufacturing industries and mechanical design. These goals serve to satisfy the following course objectives: -Students should be able to demonstrate proficiency in applied design, manufacturing processes, and mechanics. -Students should be able to apply concepts of applied mathematics and science in solving technical problems.

Enforced Prerequisite at Enrollment: MET 111 and (MATH 82 or MATH 22)

MET 210W: Machine Design

3 Credits

Design machine elements including bearings, springs, levers, shafts, gears, belts, and small mechanical devices; writing skills and computer applications. MET 210W Machine Design (3) MET 210W is designed to provide students with the necessary concepts and procedures to properly design machine elements in mechanical systems. The course starts with the study of the properties of various engineering materials, including various types of steel, aluminum, and plastics. Heat treating of steels is also covered. Machine design criteria are presented along with discussions of various types of stresses, concepts of principle stress, combined stresses, and methods of stress analysis. Failure theories and their application to brittle and ductile materials are covered along with the relationship of these concepts to design factors. The influence of dynamic loads on design and design margins is also covered. Welded and bolted connections and their design requirements are also studied, along with the application of buckling and beam deflection analysis to the design of support columns and beams. The course also examines the design of various types of springs and gears, the calculation of shaft stresses, and the design of clutches, brakes, belts, and chains. The writing component of the MET 210W course is satisfied by having students choose a design project which is completed over the course of the semester. Instructors introduce the design project early in the semester and discuss how writing exercises will be used to complete the project. Students write an initial proposal that is graded and returned. Subsequently, students prepare and present progress reports at various times through the semester. These are also graded. The project ends with students preparing a draft final project report, which is critiqued and returned. Based on the critique, a final design report is prepared and is a significant component of the final course grade. Both the progress reports and the final design report activities involve both written and oral exercises.

Enforced Prerequisite at Enrollment: (MET 206 or EMCH 212 or PHYS 150 or PHYS 250 or PHYS 211) and (MET 213 or EMCH 213 or ET 322)
Writing Across the Curriculum

MET 213: Strength and Properties of Materials

3 Credits

Axial stress and strain; shear; torsion; beam stresses and deflections; combined axial and bending stresses; columns, ductility, resilience, and toughness. MET 213 Strength and Properties of Materials (3) MET 213 includes analysis and computations of axial stress and strain, shear and bearing stress; stress-strain diagrams, mechanical properties of materials including yield strength, ultimate strength, modulus of elasticity, percent elongation, poisson's ratio; stress concentration, axial deformations, statically-indeterminate axially loaded members, thermal stress and strain; torsion analysis including shear stress, angle of twist, power, rotational speed; beam bending analysis including shear force and bending moment diagrams, flexure stress, beam shear stress, beam deflections; combined axial and bending stresses; columns.

Enforced Prerequisite at Enrollment: MET 111 and (MATH 26 or MATH 81)

MET 214: Strength and Properties of Materials Laboratory

1 Credits

Measurement of mechanical properties of materials; structural testing, data acquisition and analysis; technical laboratory report writing.

Enforced Concurrent at Enrollment: MET 213 or EMET 222

MET 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

MET 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

MET 306: Computer-Aided Design

3 Credits

Computer-aided drafting and design; computer software solutions to mechanical engineering technology design problems. MET 306 Computer-Aided Design (3) This course is designed to be the third CAD course in a Mechanical Engineering Technology program. Students will be exposed to modeling industry specific geometry using solid and surface modeling techniques. Sheet metal modeling, tool path generation and material removal simulation for CNC operations as well as mechanism analysis are taught, Automation and optimization techniques using CAD packages are also covered in lab assignments. Students are expected to document their designs by producing industrial quality working drawings. Lecture material is directly related to the laboratory assignments and topics in understanding hardware and CAD software bench marking as well as associated costs and their relationship to the engineering design process are also covered. Experience in basic CAD modeling is required as well as a working knowledge of Statics, Dynamics and Strength of Materials. Evaluation is based on laboratory assignments, homework assignments, quizzes and a final project.

Enforced Prerequisite at Enrollment: (MET 107 and EGT 121) or (EGT 201 and EGT 205)

MET 308: Computer Aided Solid Modeling and Analysis

3 Credits

Basic techniques necessary to perform Computer Aided Design and Analysis in three dimensions for machine components. MET 308 Computer Aided Solid Modeling and Analysis (3) To introduce students to the theory and practice of creating computer aided design files for mechanical components, drawings, layout of multiview drawings, detailing design projects, assemble parts, and create assembly drawings and sections. Although it is highly recommended that the students have basic knowledge of finite element analysis FEA theory, the very user friendly interfaces and CAD interactive modes available in the market together with appropriate introductory training will enable students to perform reasonable and reliable structural, thermal, and motion analysis. This analysis is at the core of every day assignments for design engineers working in modern industrial firms with concurrent engineering

culture. With the advent of very powerful desktop workstations, FEA is now available at a practical cost to virtually all engineers and designers.

MET 320: Strength of Materials II

3 Credits

Principles of stress and strain in 3D, indeterminate structures, failure theory, and energy methods in solid mechanics. MET 320 Strength of Materials II (3) This course consists of three main subject areas; a study of statically indeterminate structures, a study of stresses and strains in three dimensions, and a study of energy methods in solid mechanics. Statically indeterminate structures are studied for stresses and deformations. The types of indeterminate structures studied are axially loaded members, including temperature changes; torsionally loaded members, including geared connections; and bending members. Stresses and strains are studied in three dimensions with Mohr's Circle to identify principal stresses and absolute maximum shear stress, to understand Hooke's Law and other material property relationships, and to apply various failure or yield theories. Energy methods are studied so that stresses and deformations from impact loading of structures can be analyzed and included in the design of axial, torsion, and bending structures. Energy methods are also used to determine the static deformation of complicated structures. Other miscellaneous topics may include unsymmetric bending, bending of multi-material beams including reinforced concrete, bending of curved beams, shear center, combined loadings, torsion of non-circular members, columns, and true stress and true strain.

Enforced Prerequisite at Enrollment: EMCH 213 or MET 213

MET 321: Analytical Techniques

2 Credits

A study of engineering methods of problem formulation and solution; includes differential methods, dimensional analysis, and graphical analysis.

Enforced Prerequisite at Enrollment: MATH 140 and (ET 321 or EMCH 212 or MET 206)

MET 330: Thermodynamics

3 Credits

Introduction for technologists to the basic concepts and applications of thermodynamics. MET 330 Thermodynamics (3) This course is designed as the first thermal sciences course in a series of three. Students are introduced to the basic thermodynamic units and concepts, the properties of pure substances, first law of thermodynamics for open and closed systems, second law of thermodynamics, ideal cycles, performance and efficiency, entropy, power and refrigeration cycles. Evaluation is based on homework assignments, quizzes and examinations. Students need a background that includes inorganic chemistry and calculus to succeed in this course.

Enforced Prerequisite at Enrollment: PHYS 250 or PHYS 211 or PHYS 150
Enforced Concurrent at Enrollment: CHEM 110 and (MATH 83 or MATH 140)

MET 331W: Heat Transfer

4 Credits

Introduction for technologists to the basic concepts and applications of heat transfer. Includes a thermodynamics and heat transfer laboratory.

Enforced Prerequisite at Enrollment: ME 300 or MET 330 Enforced Concurrent at Enrollment: MET 341 Writing Across the Curriculum

MET 332: Thermal Engineering A

3 Credits

Basic thermodynamic units, concepts, properties of ideal gases and vapors, first and second laws, gaseous mixtures, one-dimensional compressible flow.

Enforced Prerequisite at Enrollment: MATH 140 and CHEM 110

MET 336: Engineering Fluid Mechanics

3 Credits

This course introduces mechanical engineering technology students to the development of basic fluid mechanics relationships. Course topics include such as fluid properties, pressure measurement, hydrostatic forces on plane and curved surfaces, buoyancy and stability, conservation of mass, conservation of momentum, and conservation of energy. Specific, Bernoulli's equation, internal and external flow, friction in pipes and fittings, Reynold's number, laminar and turbulent flow, boundary layer theory, Minor losses, Major losses, and Drag forces are discussed. Students use differential and integral calculus and draw free body diagrams to solve applied fluid flow problems.

Enforced Prerequisite at Enrollment: ET 321

MET 338: Thermal/Fluids Laboratory

1 Credits

The objective of the Thermal/Fluids Lab course is to provide Mechanical Engineering Technology students with practical experience in thermal-fluid applications. Students will develop experience in making fluid velocity, flow rate, temperature, and power measurements. Exercises will cover a range of applications and may include: power generation, refrigeration cycles, duct flows, and other thermal-fluid phenomena. Laboratory experiments will be performed in groups. Typically, students will prepare individual written lab reports to present their findings and demonstrate their understanding of each laboratory experiment.

Enforced Corequisite at Enrollment: MET 332 and MET 336

MET 341: Mechanical Measurements and Instrumentation

3 Credits

Measurement concepts, transducers, electronic-aided measurement, mechanical and electrical measurements. Intended for mechanical engineering technologists. MET 341 Mechanical Measurements and Instrumentation (3) This course serves as an introduction to the fundamental principles of instrumentation and measurements. Subjects covered in this course may include the responses of first and second order systems, the concept of time constant and rise time, calibration, standards, design of experiment, and lectures on the design and function of different types of sensors and instruments. Topics may be added or

removed, as needed to meet Program Outcomes. The course includes lectures alternating with hands-on laboratory where students apply the material learned in the lectures. For many students this is the first time they have actual hands-on experience with electronic and measurement equipment, such as oscilloscopes, breadboards, function generators, digital data acquisition systems, integrated circuits, strain gauges, displacement sensors, thermocouples, tachometers, force sensors, accelerometers, velocity meters, pressure transducers, flow measurements, etc. Students learn not only how to use these devices in the lab, but also the fundamental principles of their operation.

Enforced Prerequisite at Enrollment: EET 105 or EET 100 or EE 211 or EET 320 Enforced Concurrent at Enrollment: PHYS 151 or PHYS 212 or PHYS 251

MET 358: Process Design Engineering

3 Credits

Introduction to process design for production applications from job shop to world-class manufacturing environments. MET 358 Process Design Engineering (3) Process design engineering includes the theory and application of principles and practices for economical tool design. Students will learn and demonstrate the use of basic engineering metrology tools. Students will learn and apply the principles of geometric dimensioning and tolerancing to datum systems. Students will learn the elements of process design for a variety of manufacturing processes currently used in industry with a focus on material removal methods including computer numerical control machining. Students will learn the fundamentals of process specification, planning, and fixture design for high-volume material removal operations. Students will participate in a team project to design and build a production machining fixture. The project teams will document and present their designs. This course is the second of a three-course sequence with a focus on manufacturing. The first two courses, Introduction to Manufacturing Processes and Process Design Engineering, are required in the Mechanical Engineering Technology program at Penn State Capital College. The third course, Manufacturing Engineering, is a senior-level technical elective. The course in this proposal will be offered every spring semester with a projected enrollment of 30. All lab work will be done in the Engineering Lab Building. Students are evaluated based on their individual performance as well as their participation as a team member. Evaluation opportunities are both lecture and lab-related. There are two exams and a couple of short projects that each student will complete. Student teams will conduct a machining experiment, which each student will analyze in a formal lab report. Project teams will document their fixture designs with drawings and supporting descriptions. Also, each team will prepare a formal presentation showcasing their fixtures and present it to the class.

Enforced Prerequisite at Enrollment: IET 321 or (IET 215 and IET 216)

MET 365: Design of Machine Elements

3 Credits

Design of structural and mechanical elements with emphasis on theories of fatigue failure. MET 365 Design of Machine Elements (3) Design of Machine Elements covers a wide array of mechanical engineering principles. The course draws heavily on the knowledge gained in the strength of materials lecture and laboratory courses. Failure Theory is covered for both static and dynamic loading conditions. The study of failure under 'low stress' cyclic loading, also called fatigue, is a feature of failure theory study. Finally, the theories are applied to the design of

machine and structural elements that include beams, columns, pressure vessels, shafts, keys, couplings, belt and chain drives, fasteners, springs, gears, brakes, and clutches. The effects of wear and lubrication on machine design are also examined.

Enforced Prerequisite at Enrollment: ET 322 or EMCH 213 or MET 213

MET 370: Engineering Materials Laboratory

1 Credits

Materials Science and Engineering is an organized investigation of engineering materials, including their classification, properties, and means of testing to determine their properties. In materials courses different topics such as atomic bonding, crystalline structure of materials, structural imperfections, solid state diffusion, plastic deformation, mechanical properties of engineering materials, systematic analysis of materials failure, phase diagrams and kinetics are discussed. The application of materials in manufactured products and construction, and the effects of both manufacturing processes and in-service stress on materials are considered. The laboratory subjects combine hands-on experiments with the materials which will be discussed in the lecture. Sample preparation, tension tests, hardness test, impact resistance, heat treatment, fatigue testing, torsion, shear, bending, etc. are some of the experiments which may be performed in the lab sessions. The report for the lab session is a necessary component which is a practice for written technical communication.

Enforced Corequisite at Enrollment: IET 311 or IET 101

MET 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

MET 403: Advanced Mechanical Design

3 Credits

Continuation of strength of materials and machine design, with emphasis on advanced methods of design and analysis of machine elements.

Enforced Prerequisite at Enrollment: MET 365

MET 415: Finite Element Analysis Applications I

3 Credits

Solutions of advanced engineering design problems using finite elements. Intended for engineering technologists. MET 415 Finite Element Analysis Applications I (3) Finite Element Analysis Applications I is a required course for junior or senior-level students in the Mechanical Engineering Technology (METBD) baccalaureate degree program. Finite element analysis (FEA) is a computer-simulation tool which is frequently used in engineering practice. Students study fundamental topics in static, structural FEA with the goal of mastering the usage of this software tool to become efficient and effective users of FEA technology in their engineering careers. Emphasis is placed on appropriate modeling (symmetry, simplifying assumptions, etc.), clear communication of analysis findings, and verification of results.

Enforced Prerequisite at Enrollment: MET 320 and (EGT 121 or EGT 205)

MET 417: Finite Element Analysis

3 Credits

Formulation and computer implementation of finite element models for solving problems in heat transfer, fluid flow, and solid mechanics.

Enforced Prerequisite at Enrollment: MET 365

MET 418: Finite Element Analysis for Plastics Design

3 Credits

Solutions of advanced engineering problems using finite element and finite difference techniques; advanced topics in computer-aided manufacturing; problems in optimization and design.

Enforced Prerequisite at Enrollment: EGT 120 and PLET 232 and MET 213

MET 425: Finite Element Analysis Applications II

3 Credits

Solutions of advanced engineering design problems using finite element methods. MET 425 Finite Element Analysis Applications II (3) Students study advanced topics in finite element analysis (FEA), including CAD interfaces, non-linear behavior, heat transfer analysis, dynamic analysis, optimization and/or design of experiments (DOE), and design and analysis to code. Emphasis is placed on efficient models (symmetry, simplifying assumptions, etc.) and verification of results.

Enforced Prerequisite at Enrollment: MET 415

MET 431: Heat Transfer

3 Credits

Basic principles of conduction, convection, and radiation with applications.

Enforced Prerequisite at Enrollment: MET 332

MET 432: Fluid Power

3 Credits

Principles of fluid flow, hydraulic components, and hydraulic circuits having application to industry. MET 432 Fluid Power (3) This course studies fluid motion, flow, and energy losses, as well as, fluid storage and distribution. Specific devices are examined, including hydraulic pumps and air compressors; hydraulic and pneumatic actuators such as motors and cylinders; and fluid power circuit valves and other ancillary devices. Heat transfer in fluid power circuits is evaluated. Fluid power circuit design is presented using electrical and electronic controls with ladder logic programming.

Enforced Prerequisite at Enrollment: ME 300 or MET 330 or MET 332
Enforced Concurrent at Enrollment: MET 331W or MET 431

MET 435: Building Energy Systems

3 Credits

Analysis and design of components and systems for building heating and cooling; emphasis on applying the thermal sciences.

Enforced Prerequisite at Enrollment: MET 332 and MET 336

MET 436: Energy Conservation Systems

3 Credits

Analysis of processes and systems for energy conversion, including power, refrigeration and air conditioning cycles, thermoelectric etc.

Enforced Prerequisite at Enrollment: ME 300 or MET 330 or MET 332

MET 438: Thermal Engineering B

3 Credits

Applied thermodynamics of power cycles; refrigeration and air conditioning cycles; combustion; psychometrics; and gas mixtures.

Enforced Prerequisite at Enrollment: MET 332

MET 440: Vibrations for Technologists

3 Credits

Principles of basic vibration theory, vibration measurement, data acquisition and analysis, and the effective presentation of vibration data. MET 440 Vibrations for Technologists (3) This course will introduce students to basic vibration theory. The theoretical topics will include lumped parameter, single degree-of-freedom and multi degree-of-freedom systems with descriptions of damping models, transmissibility, and transient behavior. Simple continuous systems will also be described. The focus of the course will be on data acquisition and data analysis and on practical vibration solutions. Students learn how to install various measurement devices and how to discriminatively process vibration signals. They also learn effective ways of presenting data to engineering and management. The practical vibration solutions presented will allow the student to understand and solve general problems typically encountered by a technologist in industry. Student performance will be evaluated by exams, graded homework, assignments, and laboratory reports.

Enforced Prerequisite at Enrollment: (MET 206 or EMCH 212) and (MATH 211 or MATH 250) and MET 341 Enforced Concurrent at Enrollment: MET 415

MET 452: Rapid Prototyping

3 Credits

Introduction to the production of prototypes directly from computer models.

Enforced Prerequisite at Enrollment: IET 216 and MET 306

MET 454: Automatic Controls

3 Credits

An introduction to basic automatic control theory, practical applications of automatic controls to typical industrial machinery, HVAC equipment, etc. MET 454 Automatic Controls (3) This course is intended for mechanical engineering technology students. It provides the student with a spectrum of knowledge about process controls and control systems. The course will cover some of the theoretical and practical concepts that underline the analysis and response of linear control systems. A brief coverage of industrial and electronic components used in modern control engineering is also necessary. Examples include microprocessors, Operational amplifiers, Solid state switches, relays, filters, PLC's, motors, etc. Principles of closed-loop control systems and stability analysis using

the Laplace transform are also discussed. Laboratory demonstration on PLC's and the use of computer simulation for modeling control systems are available.

Enforced Prerequisite at Enrollment: (EMCH 212 or ET 321 or MET 206) and MET 321

MET 455: Mechatronics

3 Credits

Integration of mechanical and electronic systems implemented using data acquisition systems, sensors, actuators, signal conditioning, feedback controls, and programmable logic controllers. MET 455 Mechatronics (3) Mechatronics is essential to the design and manufacture of modern products and processes. Mechatronics design is an approach where mechanical, electronic, computer, and control subsystems are designed simultaneously to function as an integrated system forcing the designer to be familiar with several disciplines. The course offers an integrated approach to engineering, incorporating product design, microprocessor-based control, manufacturing systems, modeling, and simulation. Mechatronic systems depend for their unique functionality on computer software; whether PC or PLC. This course studies mechatronics at both the theoretical and practical level using in-class lectures with formal concepts and laboratory simulations to prove out design concepts. Emphasis in the course is placed on physical understanding of the system rather than on mathematical formalities. Lecture topics include the fundamental aspects such as automation safety, logic functions, Boolean algebra, system input and output sources, flow charting, PLC programming and system design. Each of the lecture topics are reinforced using lab assignments based on software simulations or physical hardware configurations designed to stimulate the student's involvement and interest.

Enforced Prerequisite at Enrollment: (EET 100 or EET 105 or EET 101 or EE 211) and (MET 210W or ME 367) and (MET 341 or ME 345W) and (MET 432 or ME 320)

MET 457: Lean Manufacturing

3 Credits

Principles and methods of Lean Manufacturing currently used in modern industries. MET 457 Lean Manufacturing (3) This course introduces the students to the methods of Lean Manufacturing used currently in the manufacturing industry. The basic Lean Manufacturing topics covered in the lecture include its history, the commitment required by a company to start and sustain Lean Mfg, team building, and the training required by both management and the employees. To aid in the organization of the many Lean topics lectured on and to give the students a structured guideline for analyzing a process, the method of Value Stream Management is used. This method, when used on either a manufacturing or office environment, maps the manufacturing process and analyzes it for opportunities to reduce waste. Once the process mapping has been accomplished, the more advanced Lean topics are then covered which introduces the student to methods of reducing or eliminating waste in the manufacturing process. These topics include fast setup (SMED), plant floor organization (5S), improving equipment uptime (TPM), improving product quality, error proofing a process (Poka-Yoke), work balancing and cellular layout. Additionally, the most advanced topics of automation, just-in-time (JIT), flexible or agile manufacturing, and Kanban are covered. In order for the student to fully comprehend the material presented, the students are placed into teams that are sponsored by local industries to work on a manufacturing process. The

students are given the opportunity to explore a manufacturing process and develop ways to eliminate problems, issues, and waste in an actual situation rather than a simulation.

Enforced Prerequisite at Enrollment: Seventh semester standing and (IET 215 or ME 468) or permission of program

MET 458: Controls Laboratory

1 Credits

Introduction to open loop, closed loop, error analysis, and main components of a control loop. Analysis concepts cover first and second-order systems, stability criterion, and transfer functions. Application of electronics, analog/digital convertors, and electrical circuits. Properties of systems, time constant, process gain, natural and damped frequency, transient and steady state responses. Design of proportional, derivative and integral controllers based on closed-loop specifications. Microprocessor selection, programming and interfacing for system automation and control. Software design and implementation for process monitoring and logic control. Examples of mechanical systems utilizing sensors and actuator technologies, including amplifiers. Laboratory experiments give hands-on experience with components and equipment used in the design of mechatronics product. Emphasis on interpretation of experimental data, group dynamics, experimental design, and report writing.

Enforced Corequisite at Enrollment: MET 454

MET 461: Advanced Machine Design

3 Credits

Stress analysis, material selection, design of machine elements, design of connections, and computer-aided design.

Enforced Prerequisite at Enrollment: MET 210W and MET 415

MET 462: Internal Combustion Engine Design

3 Credits

The effect of operation requirements on design and construction of internal combustion engines; study of support systems and emissions control.

Enforced Prerequisite at Enrollment: MET 332

MET 470: Materials Engineering

3 Credits

Study of material selection, material properties, material test methods, and special topics.

Enforced Prerequisite at Enrollment: CHEM 110 and CHEM 111 Enforced Concurrent at Enrollment: MET 415

MET 480: Senior Capstone

1 Credits

Career and professional topics; development of year-long senior project with industry. MET 480 Senior Capstone (1) Senior Capstone is a required course for senior-level students in the Mechanical Engineering Technology (METBD) baccalaureate degree program. The purpose of the course is to introduce students to the practices associated with

managing an industrial-based project. Student teams begin working on a capstone project. Project definition, specification development, scheduling, engineering constraints, and budgeting of both time and money are discussed. Other issues of career development are presented, such as interviewing, resume preparation, and career opportunities. Ethical issues related to the discipline are discussed. Engineering economy, OSHA, and safety are introduced.

Enforced Prerequisite at Enrollment: IET 216 and MET 210W and MET 306 and (ME 300 or MET 330) Enforced Concurrent at Enrollment: MET 415 and MET 470

MET 481: Project Design

3 Credits

This course is the first of a two-part course sequence that comprises the capstone design experience in the MET major (the second course is MET 486, Project Design). In this course students study the engineering design process, begin working on their senior design project, and learn about professional topics related to industry. Topics in the engineering design process include needs identification, concept generation, concept selection, costing, and project planning. Professional topics include communication, team work, ethics, safety, and sustainability. Engineering economics and its application to the capstone design project is a featured topic. Students are evaluated through assignments and quizzes. One major component of the course is to begin work on a capstone design project. Students typically work in teams of 3 to 4 on an industrially-sponsored project or other project approved by the faculty. The student teams work with the sponsor to develop a project scope and plan, perform background research, begin to solve the problem, and present their project proposal orally and in written form. Students are evaluated on both their technical and presentation skills, as well as their ability to function as a team. This capstone course is required in the Mechanical Engineering Technology (MET) program.

Enforced Prerequisite at Enrollment: MET 365 or MET 210W

MET 485: Senior Industrial Project

3 Credits

Individual or group design projects in mechanical design or materials.

Enforced Prerequisite at Enrollment: MET 331W and MET 470 and MET 480 Enforced Concurrent at Enrollment: MET 425

MET 486: Project Design

3 Credits

Design of system or machine, including decision making, engineering analysis, layout, detail drawings, specifications, construction.

Enforced Prerequisite at Enrollment: MET 481

MET 495: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica or internships. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: Prior approval of proposed assignment by instructor
Full-Time Equivalent Course

MET 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

MET 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Medieval Studies (MEDVL)

MEDVL 107: Medieval Europe

3 Credits

HIST 107 / MEDVL 107 examines the history of Europe from c. 300-c. 1400 CE. The many themes of this course include: the development of political, judicial and diplomatic institutions; the role of religion, especially that of Christianity in all its forms - orthodox, heretical, and popular - as a significant element of medieval society; the development of royal houses; and changes in economic and social life of medieval Europe. Within these primary themes, the course addresses many subjects, including the development of both secular and ecclesiastical authority, various efforts to control or wield violence, and the importance of a number of agricultural and economic changes that transformed Europe.

Cross-listed with: HIST 107

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

MEDVL 108: Medieval Civilization

3 Credits

MEDVL 108 offers an interdisciplinary introduction to the culture and society of medieval Europe from c. 400-1500 CE. The course examines the literature, history, art, and thought of medieval society, focusing on a geographical area that includes Europe, the Mediterranean, the Levant, and North America. Many modern concepts—such as those involving love, honor, town planning, literature, warfare, religion, and science—have their origins in medieval Europe. This course begins with a brief look at the chronological progression of events in the Middle Ages, particularly the connection of political events with cultural ideals and scientific progress, and then proceeds to broader elements of medieval society; these themes are focused on everyday life, art and literature, religious thought, and the organization of society.

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

MEDVL 108H: Medieval Civilization

3 Credits

An interdisciplinary introduction to literature, art, and thought of the Middle Ages.

Honors

MEDVL 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Bachelor of Arts: Humanities

MEDVL 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Humanities

International Cultures (IL)

MEDVL 294: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Humanities

MEDVL 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Humanities

International Cultures (IL)

MEDVL 395: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Prerequisite: prior approval of proposed assignment by instructor

Bachelor of Arts: Humanities

MEDVL 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Humanities

International Cultures (IL)

MEDVL 411: Medieval Britain

3 Credits

Political, cultural, and economic history of Britain from circa 400 to 1485 with an emphasis on the kingdom of England.

Prerequisite: 6 credits in European history or medieval studies

Cross-listed with: HIST 411

Bachelor of Arts: Humanities

International Cultures (IL)

MEDVL 413: Medieval Celtic Studies

3 Credits

Celtic civilization from antiquity to the end of the middle ages.

Prerequisite: 3 credits in medieval studies, or in language, literature, or European history of the medieval period

Cross-listed with: HIST 413

Bachelor of Arts: Humanities

International Cultures (IL)

MEDVL 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Humanities

MEDVL 494H: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Humanities

Honors

MEDVL 495: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Prerequisite: prior approval of proposed assignments by instructor

Bachelor of Arts: Humanities

MEDVL 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Bachelor of Arts: Humanities

MEDVL 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Bachelor of Arts: Humanities

MEDVL 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Humanities

International Cultures (IL)

Meteorology (METEO)

METEO 3: Weather Revealed: Introductory Meteorology

3 Credits

Nontechnical treatment of fundamentals of modern meteorology and the effects of weather and climate. Weather Revealed: Introductory Meteorology meets the Bachelor of Arts degree requirements. The objectives of the course are for students to gain a better understanding of atmospheric structure and processes so they can better apply the weather information they encounter - in essence, to help students become better weather consumers. Students will learn to read the sky so they can make their own short-term forecasts and adjust their behavior accordingly. When presented with a weather forecast containing caveats, students will have a better feeling for what controls the evolution of a developing system so they can understand why a certain degree of hedging is necessary. Students will acquire the foundation to evaluate, in a scientifically rigorous way, the veracity of many claims about weather and climate that they might see on television or the internet.

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

METEO 4: Weather and Risk

3 Credits

Non-technical introduction to the science and historical development of meteorology, and the role of weather forecasting as a tool for risk management by individuals, businesses, and societies. METEO 4 traces the development of weather forecasting as both a scientific discipline and as a tool for risk management. Beginning from the pre-modern history of weather forecasting as a diverse set of folkloric and ritualistic practices, the emergence of meteorology as a genuine science has enabled the development of powerful tools for managing risks faced by individuals, businesses and societies. Students will learn about the fundamental principles that govern the global atmospheric circulation, and how this circulation shapes weather and climate. They will learn how this scientific understanding has served as the foundation of a global system of weather observation and forecasting, encompassing a worldwide network of atmospheric observing instruments, powerful computer modeling systems, and a highly elaborate system for disseminating information to diverse users. Demand for weather forecasts is driven by the need to manage weather risks confronting agriculture, transportation, the military, insurance, humanitarian relief, and virtually every other sector of society. Examples will be given of how forecasts are incorporated into the decision-making of businesses. This topic leads to a discussion of the economic value of weather information, and the role of public and private providers of information. The treatment

is organized around three themes. First, the possibility of generating a forecast of future conditions requires the adoption of the perspective that the natural world has an underlying regularity, and that this regularity can be discovered and organized through research. The second theme is the critical role of instrumentation in providing the quantitative basis for formal scientific forecasting models. Third, developments in weather forecasting have not proceeded solely from improvements in scientific knowledge: rather, society's demand for risk management tools has acted as a constant spur on efforts to improve forecasting techniques, as part of a feedback loop between the producers and consumers of forecasts.

General Education: Natural Sciences (GN)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

METEO 5: Severe and Unusual Weather

3 Credits

Non-technical introduction to the physical processes important in the formation of various severe and unusual weather phenomena. METEO 5 provides a current, relevant, and scientifically accurate discussion of a wide range of severe and unusual weather. Severe weather has made a major imprint on the world's cultures and economies throughout history (e.g., the drought of the 1930s led to westward migration and changes in agriculture practices in the U.S., utilities in East Coast cities were placed underground after the Blizzard of 1888, and the severe winter of 1941-1942 helped change the momentum of World War II), and also has been prominent in our literature and entertainment (e.g., *The Wizard of Oz*, *The Grapes of Wrath*, *Twister*, *The Perfect Storm*). Students will learn about the fundamental principles that govern severe and unusual weather. Concepts are taught in a descriptive manner without relying heavily on mathematics; thus, the material is highly accessible to students with a wide variety of backgrounds. It is believed that learning about weather is enhanced by experiencing weather. For this reason, the class frequently draws upon examples of significant historical and recent severe weather events. Students will be able to apply what they have learned immediately to weather events occurring near their homes or around the world. The course has four major themes. The unit on hazardous cold-season phenomena treats the formation of freezing and frozen precipitation, lake-effect snowstorms, and blizzards. The unit on hazardous warm-season weather treats thunderstorms and larger-scale conglomerations of thunderstorms known as convective systems, including hurricanes. Students also will learn about flash floods, lightning, tornadoes, downbursts, and hailstorms. The unit on hazardous weather triggered by mountainous terrain deals with topographically-forced gravity waves, downslope windstorms, and rotors. The final unit treats a wide variety of unusual atmospheric optical phenomena resulting from the interaction of light with raindrops or ice crystals, such as rainbows, glories, and haloes.

General Education: Natural Sciences (GN)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

METEO 6N: History and Weather: How Weather Played an Instrumental Role in Great World Events

3 Credits

In HIST 6N / METEO 6N, we'll survey how weather and history are integrated throughout time. Moving from past to present, the course will use case studies to navigate historical moments where weather shaped the outcome. Each case study will have a historical, cultural, and meteorological analysis of the event so students gain a deeper understanding of the national or international event and the integration of science and history. Weather has shaped the outcome of major world events. For example, a weather forecast led to the delay of the Allied invasion of Normandy (D-Day), record cold weather in Florida led to the Challenger Space Shuttle explosion, General George Washington used fog to conceal the withdrawal of his troops at the Battle of Long Island, and the list goes on. The case studies range from the Revolutionary War through present day, and this period of history has been selected because there are firsthand accounts of the weather and/or recorded weather data for each event. The meteorological study examines the event's atmospheric conditions. How or why did they occur? How did they affect the event? Therefore, students will learn basic meteorology and climatology. They will also analyze weather maps and scientific data. The historical study provides context for the event. What led to the event? What happened during the event? What are the event's lasting impacts? To better understand the decisions that leaders faced, students will be asked to assess risk and make decisions based on the same weather data or information leaders at the time had. Students will also explain the context, cause, and effects of major historical moments in everyday language to an audience of their peers through discussions and/or projects. The cultural study examines each event from a psychological and sociological point of view. What were the mindsets of the people and cultures involved in the event? How does the event connect to or parallel things in today's society? How would a present day culture react? This study will give students a better understanding of cultural differences in the world and how those cultural differences can alter the course of history. Time in the course is equally split between United States and international topics, and there will be frequent discussion of current events.

Cross-listed with: HIST 6N

International Cultures (IL)

United States Cultures (US)

General Education: Humanities (GH)

General Education: Natural Sciences (GN)

General Education - Integrative: Interdomain

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

METEO 7: An Introduction to Climate Sciences: Climate change, Variability, and Society

3 Credits

This course provides an overview of factors that serve as the basis for understanding climate change and climate variability. METEO 007: An Introduction to Climate Science: Climate Change, Climate Variability, and Society use an interdisciplinary scientific approach to provide a foundation for understanding the climate system. This course considers changes in the physical climate system over Earth System. It provides

insights on past and present climate variability; anthropogenic forcing and their sources; climate feedbacks; climate model projections during the 21st century; impacts of climate change on society; environmental and climate justice; treaties, protocols and policies to address adaptation, mitigation of greenhouse gases and geoengineering.

General Education: Natural Sciences (GN)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

METEO 51N: Meteorology and Visual Arts: To Know is to See

3 Credits

This course examines the inter-relationship between what we know and what we see, through an introductory exploration of art and science. Engaging students in the study of weather formation, mainly clouds, artistic depictions within the genre of landscape, and the expressed practice of painting; fosters the development of observational skills necessary for reading the landscape and interpreting collected data. What we know and what we see is an on-going evolution of development; syncing the old with the new. Therefore, observation and interpretation are essential to critical thinking, making the intersection between art and science a fertile ground for discovery and learning. The exciting part of the course is the large amount of overlap in the general ideas and thought processes used in meteorology and art, especially when using clouds as the connective tissue. Scientists and artists are both detail oriented and worry about the quality of their work. Both involve collecting data to find the best approaches to a problem, and reasoning through challenges that arise. Students will be challenged throughout the course to seek these connections and how perspectives from each discipline inform the other. Meteorology and art have long been aligned in a common quest to understand how the world works, each seeking interpretations and explanations using a range of complementary and contrasting practices and perspectives. Clouds come in a vast array of sizes and shapes, and are depicted in art using a variety of techniques, creating a shared focus for a deeper understanding of both areas of endeavor. Students will learn about the concept of mixing, which is important to cloud formation and to painting. Students will conduct experiments to learn about cloud processes, and will learn and practice artistic techniques to convey atmospheric conditions. Ideas from both perspectives will be integrated in analysis and discussion. Data from instruments and the individual artist will be collected, shared, and analyzed. Learning how clouds form will help with painting, and questions and perspectives that arise from painting will increase the understanding of cloud processes. The common threads in this approach are a curious mind, a strong detail-oriented focus, effective communication, and respect for the creative tension between ambiguity and assurance in the search for a better sense of causes, connections, and incessant changes.

Cross-listed with: ART 51N

General Education: Arts (GA)

General Education: Natural Sciences (GN)

General Education - Integrative: Interdomain

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

METEO 97: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

METEO 101: Understanding Weather Forecasting

3 Credits

Fundamental principles of synoptic and physical meteorology, satellite and radar imagery, and data analysis in the setting of mid-latitude weather forecasting. METEO 101 Introduction to Weather Forecasting (3) (BA) This course meets the Bachelor of Arts degree requirements. Never before has the quantity of available weather information so far exceeded the quality of the public's understanding of atmospheric science. Meteorology 101: Understanding Weather Forecasting aims to help correct this imbalance by helping students develop the knowledge and skills they need to become critical consumers of weather information. Students who successfully complete Meteorology 101 will be able to apply knowledge of fundamental concepts of atmospheric science to discriminate between reliable and unreliable weather forecasts, and to explain what makes one forecast better than another. To ensure that students develop the knowledge and skills required to critically assess public weather forecasts, Meteorology 101 will provide an apprentice-training environment that will encourage students to learn forecast mid-latitude weather themselves. They will discover that weather forecasting involves sophisticated data analysis techniques, a thorough understanding of atmospheric science, and strong verbal and graphic communication skills. As it develops these competencies, METEO 101 will fulfill the goals established for Penn State General Education courses in the Natural Science knowledge domain. The intended audience includes undergraduate students at University Park and other Penn State campuses, as well as adult learners in the weather information industry and weather hobbyists worldwide. To reach this diverse audience, METEO 101 will be offered through the University's World Campus in a Web-based, instructor-led format. Currently in development in collaboration between the Department of Meteorology, the EMS e-Education Institute, and the World Campus, METEO 101 will combine digital video, audio, simulation models, virtual field trips to on-line weather data resources, text, and interactive quizzes that provide instantaneous feedback. The course will provide unprecedented access to one of the world's most distinguished meteorology programs. METEO 101 will be offered three times each year during the spring, summer, and fall semesters to an expected audience of about 300 annually.

Bachelor of Arts: Natural Sciences

METEO 122: Atmospheric Environment: Growing in the Wind

3 Credits

Atmospheric Environment: Growing in the Wind is for students who are interested in learning about the dynamic effects of weather on plants and animals. It is about how processes at the ground surface and in the air govern weather conditions on Earth. Growing in the Wind focuses on five major weather elements: energy, temperature, moisture, pressure and wind and how these factors influence ecosystems and habitation of our planet. Emphasis is also given to human impacts on weather and climate, and current environmental issues involving the atmosphere. The lectures are organized around the central theme that the unequal

distribution of incoming solar energy (both spatially and temporally) produce temperature and pressure contrasts at the Earth's surface and in the atmosphere that in turn cause storms and control the weather and climate.

Cross-listed with: AGECE 122

General Education: Natural Sciences (GN)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Soc Resp and Ethic Reason

METEEO 133N: Ethics of Climate Change

3 Credits

Climate change is not only a political, economic, and social crisis, it presents one of the great moral problems of our time. This course will cover the science, policy, and ethics of climate change. It fulfills general science requirements by giving an overview of the role played by such diverse scientific disciplines as chemistry, earth systems, ecology, and geology in understanding our changing climate while also exploring mitigation and adaptation strategies being developed in the fields of engineering, forestry, agriculture, and others. It fulfills humanities requirements by delving into the ethical dimensions of climate change, including religious and humanistic theories of human flourishing, deontological and teleological theories of ethics, and analysis of specific choices addressed by international negotiators. A hallmark of this course is using Penn State as a 'living laboratory' by taking advantage of both faculty expertise and the realworld activities of the Office of Physical Plant. Every week, students will interact with experts from various quarters of the University in order to see how climate change is being approached in a multi-disciplinary fashion. The first third of the course will feature guest lectures by EMS faculty working on paleoclimate, modeling, carbon sinks, ocean acidification and other aspects of climate science. The second portion will engage humanists, economists, historians, and artists at Penn State. The third will include tours of Penn State facilities, such as the East Campus Power Plant, and interviews with researchers developing new energy and sequestration technologies. In addition to exams and papers, students will prepare for a mock negotiation by learning about the energy profile and history of assigned countries. They will then have to set specific CO2 and temperature goals and come up with solutions to achieve these. The goal is to understand the role placed by ethical ideals in the pragmatic process of producing an equitable solution. In short, this course will give students the tools to understand the basic science of climate change and its ethical implications. Students will come away with a better sense of the moral dimensions of this phenomenon and the implications for human civilization and for the biosphere.

Cross-listed with: PHIL 133N, RLST 133N

General Education: Humanities (GH)

General Education: Natural Sciences (GN)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

METEEO 201: Introduction to Weather Analysis

3 Credits

Introduction to the collection, display, and application of weather observations and numerical forecasts used by the operational meteorologists. Students who have passed both METEO 200A and 200B may not schedule this course for credit.

METEEO 215: Weather Forecast Preparation Laboratory

0.5 Credits/Maximum of 4

Forecast methods/data discussed prior to nightly weather forecast entry. Satisfactory performance will be determined by attendance and forecast accuracy. METEO 215 Weather Forecast Preparation Laboratory (0.5 per semester/maximum of 4) Students will learn basic weather forecasting techniques and identify appropriate sources of weather information that will assist them in weather forecast preparation. Forecast accuracy will be judged against peer groups at Penn State and several other institutions of higher learning across the U.S. and Canada through WxChallenge (or a similarly run program), a national weather forecasting contest. The bulk of the class time will be spent preparing weather forecasts for five different U.S. cities, each for two consecutive weeks. Cities from different climate regimes will help familiarize students with forecasting challenges from across the country. In addition, the previous day's weather forecast difficulties and ways to improve forecast accuracy will be discussed. The remaining weeks of the semester will be devoted to in-depth analysis of forecast errors and ways to keep improving forecast quality. Satisfactory performance is determined through attendance records and weather forecast contest results. The course should be taken in BOTH the fall and spring semesters each year for maximum learning potential. METEO 215 may be repeated up to 8 times.

Concurrent: METEO101, METEO200A and METEO200B , or METEO201

METEEO 241: Fundamentals of Tropical Forecasting

3 Credits

Applying atmospheric principles to the tropics, with an emphasis on the development, structure, prediction and destructive impact of hurricanes. METEO 241 Fundamentals of Tropical Forecasting (3) Worldwide, approximately 80 tropical cyclones develop each year. This global annual average of tropical cyclones is small in comparison to the thousands of low-pressure systems that routinely parade across the middle latitudes each year. Yet tropical storms and hurricanes garner far greater attention from meteorologists and the media. The obvious reason for this lopsided focus is that tropical cyclones can inflict great devastation to life and property. One of the primary goals of Meteorology 241: Fundamentals of Tropical Forecasting is to give students a working knowledge of hurricanes and tropical storms so that they can become critical weather consumers. For example, when a hurricane bears down on the coast of the United States, the media often portray the storm as a monster capable of laying waste to anything in its path. In METEO 241, students will understand that the initial fury of a land-falling hurricane is focused within a swath of coastal area approximately 30 miles long or less. To ensure that students develop the knowledge and skills required to critically assess weather forecasts issued by the National Hurricane Center, METEO 241 will provide, like METEO 101, an apprentice-training environment. Under the tutelage of professional weather forecasters, students, in their role as apprentices, will also work toward the goal of creating their own tropical-weather forecasts. In the process, students

in METEO 241 will learn about the pitfalls of forecasting the tracks and intensities of tropical storms and hurricanes as they actively work with output from sophisticated numerical models available on the Internet. Moreover, successful students will apply their knowledge of the fundamental concepts of atmospheric science in order to competently evaluate forecasts issued by the National Hurricane Center in Miami and the Joint Typhoon Warning Center in Honolulu. Students will also gain a broad perspective of the general weather and oceanic patterns in the tropics. For example, students will learn about El Niño and La Niña. In the process, they will discover that El Niño and La Niña are not to blame for every unusual weather event that occurs anywhere in the world. It should be noted here that METEO 241 will be one of four courses required for students to earn a Certificate of achievement in Weather Forecasting, a unique online program offered through Penn State's World Campus. The three other courses that will comprise this online program are METEO 101: Understanding Weather Forecasting, METEO 361: Fundamentals of Mesoscale Weather Forecasting and METEO 410: Advanced Topics in Weather Forecasting. To facilitate the learning objectives, METEO 241 will include the use of digital video, audio, simulation models, virtual field trips to on-line resources for weather data, text, and interactive quizzes that provide timely feedback. To demonstrate their mastery of the learning objectives, students will complete automated online quizzes, actively engage in online discussion groups focusing on real-time weather, and publish, to a personal 'e-portfolio', four comprehensive projects that will explore timely case studies related to weather forecasting. The e-portfolio will take the form of a Web site that students initially create during the second course of the program (METEO 241 or METEO 361). Students will augment their e-portfolio as part of the requirements for METEO 241, METEO 361 and METEO 410. They will also use the space to reflect on their learning. At the end of the program, students will make a final e-portfolio entry that highlights their program accomplishments. In this way, the e-portfolio will serve both as a showcase of a student's work for the purpose of course assessment and as a chronicle of a student's achievements during the program. By using their Penn State personal Web space to host their e-portfolios, students will be able to share their work not only with program faculty and students, but also with external audiences, including potential employers. Upon successful completion of the program, graduates will receive a copy of their final e-portfolio on CD-ROM.

Prerequisite: METEO101

METEO 273: Introduction to Programming Techniques for Meteorology

3 Credits/Maximum of 3

Algorithm design and implementation for meteorological analysis and forecasting. Algorithm design and implementation for meteorological analysis and forecasting, including access to datasets in meteorological common data formats. The objectives of this course are to introduce the student to fundamental programming concepts, such as variables, flow control, and syntax, to apply those concepts to solve meteorological problems couched in the analysis of datasets in meteorologically-relevant common data formats, and to familiarize students with appropriate programming languages and their application to meteorological analysis or forecasting problems on regional and/or global scales.

Prerequisite: METEO 101 or 201

METEO 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

METEO 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

METEO 300: Fundamentals of Atmospheric Science

4 Credits

An introduction to the fundamentals of atmospheric dynamics, physics, and chemistry. METEO 300 Fundamentals of Atmospheric Science (4) This course prepares students for their 400-level meteorology courses by laying a solid foundation in the application of physical, chemical, and mathematical principles to a broad range of atmospheric phenomena. Students are introduced to fundamental concepts and applications of atmospheric thermodynamics, radiative transfer, atmospheric chemistry, cloud microphysics, atmospheric dynamics, and the atmospheric boundary layer. These topics are covered broadly but in enough depth to introduce students to the methods atmospheric scientists use to describe and predict atmospheric phenomena. The course is designed to be taken by sophomore meteorology students as well as by students in related disciplines who have an adequate mathematical and physical background.

Prerequisite: CHEM 110, MATH 141, PHYS 211; Concurrent: MATH 230 or MATH 231

METEO 332N: Science and policy of global greenhouse gas emissions and management

3 Credits

This interdomain course introduces students to the science and policy of greenhouse gas emissions. The course focuses on emissions from natural sources, energy production and food production. Policy components will introduce students to the fundamentals of environmental policy and examine key policy options for mitigating and managing emissions. Global in scope, the course will also address how emissions and policy options differ in developed and developing countries. Topics will include overviews of the global carbon cycle, agriculture and land use change emissions, history of global energy use and production, overview of global climate change policy, frontiers in climate, energy and agriculture policy, amongst others.

Enforced Prerequisite at Enrollment: ENGL 15

Cross-listed with: ANSC 332N, GEOG 332N

General Education: Natural Sciences (GN)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

METEO 361: Fundamentals of Mesoscale Weather Forecasting

3 Credits

Applying atmospheric principles to small-scale weather systems, with an emphasis on the conceptual modeling and short-range prediction of severe thunderstorms. METEO 361 Fundamentals of Mesoscale Weather Forecasting (3) When outbreaks of severe weather occur, dire warnings for tornadoes, large hail or damaging straight-line winds urgently scroll across the bottoms of television screens. Simultaneously, television weathercasters warn viewers to "take cover immediately". Yet, because of the limited spatial and time scales of severe thunderstorms, the areas affected by tornadoes, large hail and damaging straight-line winds often turns out to be relatively small (sometimes as small a tenth of one percent of the original "watch area"). There is no doubt that people should be prepared to take definitive action to protect their lives and the lives of their families when outbreaks of severe weather occur. But the overall impression that entire counties or cities will be destroyed by severe weather can be, and frequently is, misleading. One of the primary goals of METEO 361: Fundamentals of Mesoscale Weather Forecasting is to give students a scientifically grounded perspective of the spatial and time scales of typical outbreaks of severe weather. In the process, students will become better weather consumers. To gain such insights, students will learn conceptual models of the life cycles of severe thunderstorms and will then apply them in real-time outbreaks of severe weather. In the final analysis, students will be able to more accurately weigh the information being disseminated by the media and the Storm Prediction Center in Norman, Oklahoma. To ensure that students develop the knowledge and skills required to critically assess public weather forecasts, METEO 361 will provide, like METEO 101, an apprentice-training environment that will guide students, under the tutelage of professional weather forecasters, to actively learn how to create their own mesoscale-weather forecasts. In the process, METEO 361 will reinforce the notion that weather forecasting involves sophisticated techniques of data analysis and a thorough understanding of atmospheric science. METEO 361 will also stress that the clear communication of the forecast requires strong verbal and graphic communication skills. Using conceptual models and real-time radar and satellite imagery in concert with output from numerical models designed specifically for mesoscale forecasting, students will predict severe weather on time scales of a few hours to one day. For example, students will be given a litany of web-based tools and asked to place their own "watch box" for severe weather. Students will then be asked to verify and discuss the outcomes of their forecasts. For more general outlooks of severe weather (time scales of one to two days), students will use output from the numerical models that were introduced in METEO 101 to identify the areas likely to be at risk for severe weather. It should be noted here that METEO 361 will be one of four courses required for students to earn a Certificate of Achievement in Weather Forecasting, a unique online program offered through Penn State's World Campus. The three other courses that will comprise this online program are METEO 101: Understanding Weather Forecasting, METEO 241: Fundamentals of Tropical Forecasting and METEO 410: Advanced Topics in Weather Forecasting. To facilitate the learning objectives, METEO 361 will include the use of digital video, audio, simulation models, virtual field trips to online resources for weather data, text, and interactive quizzes that provide timely feedback. To demonstrate their mastery of the learning objectives, students will complete automated online quizzes, actively engage in online discussion groups focusing on real-time weather, and publish, to a personal 'e-portfolio', four comprehensive projects that will explore timely case studies related to weather forecasting. The e-portfolio will take the form of a Web site that students initially create during the second course

of the program (METEO 241 or METEO 361). Students will augment their e-portfolio as part of the requirements for METEO 241, METEO 361 and METEO 410. They will also use the space to reflect on their learning. At the end of the program, students will make a final e-portfolio entry that highlights their program accomplishments. In this way, the e-portfolio will serve both as a showcase of a student's work for the purpose of course assessment and as a chronicle of a student's achievements during the program. By using their Penn State personal Web space to host their e-portfolios, students will be able to share their work not only with program faculty and students, but also with external audiences, including potential employers. Upon successful completion of the program, graduates will receive a copy of their final e-portfolio on CD-ROM.

Prerequisite: METEO101

METEO 395: **SPECIAL TOPICS**

3 Credits/Maximum of 6

METEO 395A: Internship in Meteorological Communication

3 Credits/Maximum of 6

METEO 395A Internship in Meteorological Communication (3 per semester/maximum of 6) A student participates for at least 100 hours in an internship with an agency or company that focuses on communication of weather forecasts or other atmospheric information. This internship is normally completed after the sophomore year. Given the focus of this internship and the paper requirement to relate the internship experience to meteorology coursework, students must have completed the first two required courses covering weather analysis or forecasting and fundamentals of atmospheric science. After the internship has been completed, the student writes a paper based on the contract posted on the Department of Meteorology website. This paper normally is evaluated by the student's Meteorology Department academic advisor. The course grade depends on this evaluation combined with the assessment provided to the advisor by the student's internship supervisor.

Prerequisite: METEO101 , or METEO200A and METEO200B , or METEO201 , and METEO300

METEO 395B: Private Sector Meteorology Internship

3 Credits/Maximum of 6

METEO 395B Private Sector Meteorology Internship (3) A student participates for at least 100 hours in an internship with a private sector company that focuses on problems or applications that use meteorological information. This internship is normally completed after the sophomore year. Given the focus of this internship and the paper requirement to relate the internship experience to meteorology coursework, students must have completed the first two required courses covering weather analysis or forecasting and fundamentals of atmospheric science. After the internship has been completed, the student writes a paper based on the contract posted on the Department of Meteorology website. This paper normally is evaluated by the student's Meteorology Department academic advisor. The course grade depends on this evaluation combined with the assessment provided to the advisor by the student's internship supervisor.

Prerequisite: METEO101 , or METEO200A and METEO200B , or METEO201 , and METEO300

METEO 395C: Internship in Meteorological Operations

3 Credits/Maximum of 6

METEO 395C Internship in Meteorological Operations (3 per semester/maximum of 6)A student participates for at least 100 hours in an internship in an operational setting that focuses on the creation of time-sensitive meteorological products such as weather or climate forecasts. This internship is normally completed after the sophomore year. Given the focus of this internship and the paper requirement to relate the internship experience to meteorology coursework, students must have completed the first two required courses covering weather analysis or forecasting and fundamentals of atmospheric science. After the internship has been completed, the student writes a paper based on the contract posted on the Department of Meteorology website. This paper normally is evaluated by the student's Meteorology Department academic advisor. The course grade depends on this evaluation combined with the assessment provided to the advisor by the student's internship supervisor.

Prerequisite: METEO101 , or METEO200A and METEO200B , or METEO201 , and METEO300

METEO 395D: International Meteorological Internship

3 Credits/Maximum of 6

METEO 395D International Meteorological Internship (3)A student participates for at least 100 hours in an internship in an international setting that focuses on applying meteorological knowledge. This internship is normally completed after the sophomore year. Given the focus of this internship and the paper requirement to relate the internship experience to meteorology coursework, students must have completed the first two required courses covering weather analysis or forecasting and fundamentals of atmospheric science. After the internship has been completed, the student writes a paper based on the contract posted on the Department of Meteorology website. This paper normally is evaluated by the student's Meteorology Department academic advisor. The course grade depends on this evaluation combined with the assessment provided to the advisor by the student's internship supervisor.

Prerequisite: METEO101 , or METEO200A and METEO200B , or METEO201 , and METEO300

METEO 395E: Off-Campus Meteorological Research Internship

3 Credits/Maximum of 6

METEO 395E Off-Campus Meteorological Research Internship (3 per semester/maximum of 6)A student participates for at least 100 hours in an internship whose focus is a research project requiring applications of meteorological knowledge. This internship is normally completed after the sophomore year. Given the focus of this internship and the paper requirement to relate the internship experience to meteorology coursework, students must have completed the first two required courses covering weather analysis or forecasting and fundamentals of atmospheric science. After the internship has been completed, the student writes a paper based on the contract posted on the Department of Meteorology website. This paper normally is evaluated by the student's Meteorology Department academic advisor. The course grade depends on this evaluation combined with the assessment provided to the advisor by the student's internship supervisor.

Prerequisite: METEO101 , METEO200A and METEO200B , or METEO201 , and METEO300

METEO 410: Advanced Topics in Weather Forecasting

3 Credits

Exploring highly specialized topics and techniques in weather forecasting that span from mesoscale to planetary spatial scales and short-term to long-range time scales. METEO 410 Advanced Topics in Weather Forecasting (3) T.H. Huxley's passage from Biogenesis and Abiogenesis – 'The great tragedy of Science - the slaying of a beautiful hypothesis by an ugly fact' (1870) – will serve as the springboard for learning in METEO 410. In the spirit of a 'beautiful hypothesis,' forecasters' diagnoses of the present state of the atmosphere and their prognoses for how the atmosphere will evolve with time may be scientifically sound. Yet, local weather can turn out dramatically different than the intent of the forecast (the ugly fact). To compound this 'great tragedy of Science,' weather forecasters routinely spend most of their preparation time on local details, particularly when the weather tends to get more interesting. Nonetheless, there are 'master forecasters' who regularly avoid great tragedies in weather forecasting. Master forecasters will prudently weigh the length of the forecast time as well as interactions between weather features on the hemispheric, synoptic, meso and local scales while, at the same time, they will adroitly use an array of forecasting tools to arrive at a high-quality local forecast. With the prudent and seasoned approach of the master forecaster in mind, METEO 410 will provide students with a master apprenticeship in weather forecasting. As master apprentices, students will learn highly specialized tools and techniques that will help them to hone and expand their overall forecasting skills. For example, students will learn a new technique for forecasting rare and extreme weather that is based on assessing departures of specific meteorological fields from climatological norms. In the process, students will study rare historic events, such as the great ice storm across northern New England and eastern Canada in 1998. Along the way, students will learn some basic statistics, including climatological means and standard deviations. As master apprentices, students will also learn about medium-range forecasting (three to seven days into the future) and medium-range computer models. Students will learn how to implement modern prediction techniques, such as ensemble forecasts from computer models. Master forecasters increasingly take advantage of this avant-garde technique in short to medium-range forecasting. Unique learning modules, which run the gamut from forecasting wildfires to learning about the influence of the North Atlantic Oscillation on long-range forecasts (seven days or more), will provide students with the tools to understand the bases for all the forecasts they see on television, hear on the radio, read in publications such as *Weatherwise*, or access on the World Wide Web. For example, students will learn about the forecasting products issued by the Climate Prediction Center, which include seasonal outlooks that focus on the seasonal impacts of La Nina and El Nino. To facilitate the learning objectives, METEO 410 will include the use of digital video, audio, simulation models, virtual field trips to on-line resources for weather data, text, and interactive quizzes that provide timely feedback. It should be noted here that METEO 410 will be one of four courses required for students to earn a Certificate of Achievement in Weather Forecasting, a unique online program offered through Penn State's World Campus. The three other courses that will comprise this online program are METEO 101: Understanding Weather Forecasting, METEO 241: Fundamentals of Tropical Forecasting and METEO 361: Fundamentals of Mesoscale Weather Forecasting. To demonstrate their mastery of the learning objectives, students will complete automated online quizzes, actively engage in online discussion groups focusing on real-time weather, and publish, to a personal 'e-portfolio,' four comprehensive projects that will explore timely case studies related to weather forecasting. The e-portfolio will take the form

of a Web site that students initially create during the second course of the program (METEO 241 or METEO 361). Students will augment their e-portfolio as part of the requirements for METEO 241, METEO 361 and METEO 410. They will also use the space to reflect on their learning. At the end of the program, students will make a final e-portfolio entry that highlights their program accomplishments. In this way, the e-portfolio will serve both as a showcase of a student's work for the purpose of course assessment and as a chronicle of a student's achievements during the program. By using their Penn State personal Web space to host their e-portfolios, students will be able to share their work not only with program faculty and students, but also with external audiences, including potential employers. Upon successful completion of the program, graduates will receive a copy of their final e-portfolio on CD-ROM.

Prerequisite: METEO101 , METEO241 , METEO361

METEO 411: Synoptic Meteorology Laboratory

4 Credits

Meteo 411 focuses on the description, analysis, evolution, and prediction of large-scale weather systems such as extratropical cyclones, jet streams, and fronts, with an emphasis on techniques for analyzing synoptic-scale weather situations in three dimensions. Students will develop an understanding of the fundamental underlying processes that lead to the large-scale motions that modulate weather on synoptic scales. Though not intended as a course in weather forecasting, Meteo 411 provides a solid foundation for future forecasting courses. A fundamental goal of Meteo 411 is to provide students with a framework for visualizing the vertical motion field in the atmosphere, both qualitatively and quantitatively. The vertical motion field ultimately determines, depending on the availability of water vapor, where clouds and precipitation form. To that end, students become familiar with the Norwegian cyclone model as a conceptual framework for understanding synoptic-scale weather systems, as well as the role of the upper-level flow in the development and evolution of extratropical cyclones. The principles of conservation of mass, energy, and momentum are also applied as instruments for assessing synoptic-scale motions. Finally, students will develop an understanding of quasi-geostrophy and how this framework can be used to explain the evolution of synoptic-scale weather systems. The course begins with a review of the fundamental assumptions that are commonly invoked on the synoptic scale, including the hydrostatic and geostrophic approximations. The topic of numerical weather prediction is revisited from both the theoretical and the operational standpoints, comparing and contrasting the deterministic and ensemble frameworks. To visualize the structure of synoptic-scale weather systems, a variety of analysis techniques are employed, including cross sections, plan views, three-dimensional models, and satellite and radar imagery. Pattern recognition techniques for identifying synoptic-scale regimes are explored and quantified using various zonal indices and global teleconnection patterns. These techniques are employed in each lab period where students lead a daily weather briefing that includes both an analysis of the current weather situation and a forecast of its future. Students will be able to link the mathematical descriptions of atmospheric motion with a qualitative understanding of physical processes, and apply them to the analysis and prediction of the atmosphere. Within the course framework, the following topics are also covered: thickness and its applications, thermal wind balance, potential temperature, pressure tendency equation, frontogenesis equation, ageostrophic processes, gradient wind, jet streaks, vorticity and vorticity advection, conveyor belts, self-development, quasi-geostrophic theory,

potential vorticity and its applications, and the synoptic setup for severe weather.

Prerequisite: METEO 101 or METEO 201; Concurrent: METEO 421 and METEO 431

METEO 413: Map Analysis

3 Credits

Analysis of actual surface weather observations, with emphasis on the Norwegian cyclone model, missing or bad data, and mesoscale phenomena. METEO 413 Map Analysis (3) METEO 413, Map Analysis, is designed as a professional elective for Meteorology majors and as such it is primarily taken by fourth-year students. Third-year students who have completed METEO 411 may also register for Map Analysis. The course encourages students to tie together concepts learned in prior meteorology courses through analysis of numerous weather maps from across the northern hemisphere both at the surface and above. This is accomplished by improving the student's understanding of the cyclone model and applying that knowledge to 'real-life' analyses where data quality may be compromised and topographic and other mesoscale factors may be important. Grades are based upon the best 13 of 14 lab assignments, 2 or more quizzes, and in-class assignments. Class participation is rewarded on an extra-credit basis. METEO 413 is offered each spring; enrollment is limited to 15 students.

Prerequisite: METEO411

METEO 414: Mesoscale Meteorology

4 Credits

A survey of conceptual models and analysis techniques for mesoscale atmospheric features.

Prerequisite: METEO411

METEO 415: Forecasting Practicum

3 Credits

Modern techniques in weather analysis and forecasting.

Prerequisite: METEO411

METEO 416: Advanced Forecasting

3 Credits

Competitive, simulated, operational, real-time forecasting is covered.

Prerequisite: METEO 415; Concurrent METEO 414

METEO 419: Air Quality Forecasting

3 Credits

Issues relating to the prediction and dispersion of air pollutants are discussed. METEO 419 Air Quality Forecasting (3) Prediction of air quality is discussed from the perspective of operational weather forecasting. The chemical properties of pollutants for which public forecasts are currently made, fine-scale particulate matter and ozone, are summarized to provide the physical background for making forecasts. The impacts of weather on pollutant concentrations are discussed. Current techniques for forecasting air quality are presented and used by the students to create their own air quality forecasts. Students present air quality weather

briefings and post-analysis of significant historical air quality events. To take this course, students must have the background provided in a basic course in chemistry and a basic course in meteorology that covers weather systems governing the transport of air pollution.

Prerequisite: CHEM 110 and METEO 003 , or METEO101 , or METEO 200A and METEO 200B , or METEO 201

METEO 421: Atmospheric Dynamics

4 Credits

Balanced and unbalanced flows, vorticity, circulation and potential vorticity, an introduction to wave dynamics and stability analysis, and a quantitative discussion of the general circulation. Meteo 421 Atmospheric Dynamics (4) This course builds on the foundation laid in METEO 300, Fundamentals of Atmospheric Science, by presenting applications of the equations of motion to the description of a variety of atmospheric motions. The intrinsically rotational aspects of large-scale atmospheric motions are presented through a discussion of vorticity dynamics (including both relative and planetary vorticity) and the related circulation theorems of Kelvin and Bjerknes that culminate in potential vorticity thinking. The contrast between oscillating and unstable atmospheric systems is highlighted using the examples of gravitational, inertial, and shear instability, and the parcel and perturbation methods are introduced for studying these systems. An introduction to wave dynamics presents the concepts of phase and group velocity with applications to gravity, inertial, and Rossby waves, and to geostrophic adjustment. Finally, the general circulation, including the major zonal wind systems (e.g., the mid-latitude westerlies) and the major overturning cells (Hadley and Ferrel cells) is discussed quantitatively to provide a description of planetary-scale motions.

Prerequisite: METEO 300, PHYS 212, MATH 230 or MATH 231 and MATH 232; Concurrent: METEO 431, MATH 251

METEO 422: Advanced Atmospheric Dynamics

3 Credits

Survey of advanced dynamical topics including instabilities, numerical modeling, and others of current interest. METEO 422 Advanced Atmospheric Dynamics (3) This course in atmospheric dynamics covers advanced topics, including instabilities that lead to the development of various atmospheric phenomena at the synoptic and smaller scales, numerical modeling principles and applications, topographic gravity and Rossby waves, understanding of the general circulation that can be used for extended-range forecasting, and frontal structure and frontogenesis. Some additional topics will vary at the discretion of the instructor.

Prerequisite: METEO421

METEO 422H: Dynamic Meteorology II

4 Credits

Generalized vertical coordinate systems, vorticity and theory applications, conservation principles and energetics, quasi-geostrophic processes, boundary layer dynamics.

Honors

METEO 426: Inside Numerical Weather Prediction Models

3 Credits

METEO 426 will provide students with a practical understanding of the structure of numerical weather prediction (NWP) models in the context of their application to real world precipitation forecasting. The course combines lecture material on the inner workings of NWP models with a forecasting module that applies the lecture material to daily precipitation forecasts. The course begins with a full description of the mathematical backbone of NWP models - the primitive, or governing, equations. The primitive equations that describe the future state of the atmosphere, given some initial state, are a set of non-linear, partial differential equations that are only solvable by numerical methods. The sophistication of numerical methods, in turn, depends on available computing capacity. A discussion of the historical development of simplified NWP models in the context of limited computing resources follows. While the advent of modern computers allowed for the explicit computation of the primitive equations, their use in operational forecast settings uncovered additional important theoretical limitations on forecast skill. In particular, the future state of the atmosphere is extremely sensitive to initial conditions yet there are insufficient observations to fully initialize an NWP model. Techniques for initializing NWP models - called data assimilation - were and continue to be a key source of model error. As a result, we cover these methods in detail. Beyond initial condition uncertainty, there are fundamental limits on the predictive skill of NWP models. These limits, a consequence of the fundamentally non-linear dynamics of the atmosphere, were first described by Edward Lorenz and usually referred to as "chaos theory." For operational weather forecasting, the implication is that single, deterministic models are necessarily limited in skill, even with near-perfect initial conditions. As a result, operational forecast centers have moved towards ensemble-based forecasting. The development and use of ensemble models are discussed in detail in this class. Next, the model must be moved forward in time. Basic numerical methods used to advance the model in time, typically using finite difference techniques, are described and the recent shift to finite volume methods are introduced and discussed in the context of the latest NWP models. We then describe parameterization schemes that NWP models use to account for phenomena not directly resolved by the model. We discuss several important schemes relevant to precipitation, including convective parameterizations and microphysics, and the planetary boundary layer. The course concludes with a review of one of the latest operational NWP models.

Prerequisite: METEO 411, METEO 421

METEO 431: Atmospheric Thermodynamics

3 Credits

Classical thermodynamics applied to both the dry and the moist atmosphere.

Prerequisite: METEO 101 or METEO 201, PHYS 212; Concurrent: METEO 300

METEO 434: Radar Meteorology

3 Credits

In METEO 434, students will learn the basic operating principles and applications of weather radar, a primary observing platform for both operational and research meteorologists. In particular, students will

learn the fundamentals of radar data acquisition, signal processing, and interpretation for measurements of weather phenomena. In order to successfully achieve these skills, students will master the following concepts: the basics of radar engineering, design, and operation; the physics of electromagnetic radiation, its propagation through the stratified atmosphere, polarization and phase shifts, and scattering from various hydrometeors; the physical properties of atmospheric scatterers, and how the physical properties of hydrometeors (e.g., size, shape, dielectric constant, orientation) affect the scattering signal. Lectures will frequently involve real-world data examples, theoretical considerations, and practice problems. In addition, several lectures will be devoted to recent technological or scientific advances published within the last 1-2 years, in order to provide students with an updated and working knowledge of the field. When practical, the course will include a field trip to a National Weather Service Doppler radar facility, most likely the system in Moshannon State Forest in central Pennsylvania. With this knowledge and these tools in hand, the remainder of the class will heavily focus on the interpretation of radar signals in weather phenomena, with particular emphasis on the interpretation and applications of dual-polarization weather radar data. To this end, one class per week will involve the discussion and interpretation of student-provided radar images. As the semester progresses, the students are expected to incorporate additional depth of understanding and newly discussed radar variables into these discussions. Students will actively participate in the course through bringing real-world examples of radar observations to class for presentation and discussion. They will be required to access data from the internet or smart phone app, organize it for a computer-based presentation, write a brief description, give the in-class presentation, and lead the subsequent discussion. In addition, the students will work towards a term project that is a case study of a high-impact weather event of their choosing. This project provides students the opportunity to master ordering data from the internet, downloading it, processing it, reading it into common coding languages, and creating graphics for display. In addition, part of the project will involve quantitative data analysis or manipulation, emphasizing computer coding and data handling skills. The semester-long project will culminate in a final presentation and report synthesizing their newly acquired knowledge and skillsets.

Concurrent: MATH 251 and METEO 414

METEO 436: Radiation and Climate

3 Credits

Elements of earth-sun geometry, radiative transfer, photochemistry, remote sensing of the atmosphere, physical climatology, climate forcing. METEO 436 Radiation and Climate (3) This course covers radiation and how it interacts with the atmosphere and earth's surface to drive motions in the atmosphere. The fundamentals of radiative transfer at the molecular level, including absorption, scattering, transmission, and emission of radiation by matter, are discussed and applied to help describe the earth's energy budget. Crucial to understanding these processes in the atmosphere are the interactions of radiation with water in the vapor, liquid, and solid states. Applications of radiative transfer to the understanding of seasons and of climate and climate change are presented as well.

Prerequisite: METEO300; **Concurrent:** METEO431

METEO 437: Atmospheric Chemistry and Cloud Physics

3 Credits

Properties of aerosols and clouds, cloud nucleation and precipitation processes, atmospheric electricity, cloud and precipitation chemistry, biogeochemical cycles. METEO 437 Atmospheric Chemistry and Cloud Physics (3) This course develops an understanding of how the physical and chemical properties of the atmosphere influence cloud and precipitation formation, as well as how clouds in turn affect the properties of the atmosphere. The roles that chemistry and clouds play in modulating weather, climate, and atmospheric electricity are also treated.

Prerequisite: METEO300 and METEO431

METEO 440W: Principles of Atmospheric Measurements

3 Credits

Theory and practices used in measurement and analysis of meteorological variables. METEO 440W Principles of Atmospheric Measurements (3) The standard theories and practices used in measurement and analysis of atmospheric variables are surveyed in the lecture portion of the course. The laboratory portion of the course provides students hands-on experience with using standard and self-produced instruments to make reliable measurements and with analyzing meteorological observations to determine their significance. In the laboratory reports, students learn the fundamentals of appropriate scientific writing to summarize the objectives of the lab exercise, to provide an analysis of the observations, and to critique the results. The initial drafts of these reports are evaluated critically by the instructors and teaching assistants and then are revised by the students based on these evaluations. Discussion of scientific writing and of proper report protocols are presented in the course as well.

Prerequisite: METEO300 , METEO431 , STAT 301 or STAT 401 or E B F472 Writing Across the Curriculum

METEO 451: Introduction to Physical Oceanography

3 Credits

Air-sea interaction, wind-driven and thermohaline circulations, upwelling, El Nino, waves, and tides. METEO 451 Elements of Physical Oceanography (3) The primary objective of this course is to describe the circulation of the ocean and present a theoretical basis for understanding it. The focus is on the large-scale, basin-wide features of the ocean circulation, such as: 1) the subtropical ocean gyres that contain the wind-driven western boundary currents like the Gulf Stream, 2) the equatorial oceans that respond rapidly to external forcing to produce phenomena like El Nino, and 3) the thermohaline circulation that acts as a slow regulator of the earth's climate. A main goal is to demonstrate to meteorology students that the ocean is not a static, passive lower boundary to the atmosphere but a dynamic, evolving entity that is intimately coupled to the atmosphere through the exchange of heat, momentum, and water. Thus the oceans affect weather and climate. Students are evaluated on their comprehension of the relevant physical processes (as determined by written examinations) and by term papers and laboratory reports or a combination of the two. This course will be offered annually with an enrollment of about 12 students. Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

Prerequisite: METEO421

METEO 452: Tropical Meteorology

3 Credits

Atmospheric processes in the tropics; mass, heat, energy, momentum, and water vapor budgets, cumulus convection, hurricanes and other disturbances.

Prerequisite: METEO411 , METEO421

METEO 454: Introduction to Micrometeorology

3 Credits

Physical processes and their measurement in the lowest layers of the atmosphere; application to hydrology, plant systems, and air pollution. METEO 454 Introduction to Micrometeorology (3) Students will learn the basic fluid mechanics and thermodynamics of the atmospheric boundary layer (ABL), the lowest few hundred meters to few kilometers of the atmosphere. Specific topics covered include: 1. Introduction to micrometeorology 2. The surface energy budget 3. Radiation balance near the surface 4. Soil heat transfer 5. Air temperature and humidity in the boundary layer 6. Wind distribution in the boundary layer 7. Introduction to viscous flows 8. Introduction to turbulence in the boundary layer 9. Semi-empirical theories of turbulence

Prerequisite: METEO421 and METEO431 or EME 301

METEO 455: Atmospheric Dispersion

3 Credits

The basic principles of atmospheric flow, introduction to the modeling of turbulent diffusion, and the use of EPA dispersion models. METEO 455 Atmospheric Dispersion (3) Students will learn both the theory and current practice of numerical modeling of the turbulent dispersion of effluents from sources in the atmospheric boundary layer. Lab sessions involve hands-on experience with the numerical models used in the applied dispersion community. Classroom sessions cover the boundary-layer meteorology and dispersion theory on which these models are based. In laboratory sessions, students become acquainted with the present practice of short-range atmospheric dispersion modeling through: * exploring the air-quality resources available on the World Wide Web * examining the design of the air-quality models used today in permitting and hazardous-release applications *discussing the input data needed by the models, the nature and reliability of their predictions and the advantages of improved models including AERMOD * running the models SCREEN3 and ISC (the U.S. EPA's Industrial Source Complex model). Lectures on boundary-layer meteorology include: * the atmospheric boundary layer, turbulence, and the surface energy budget * buoyancy, stability and their influence on the atmospheric boundary layer * mass conservation in fluid motion, turbulent and molecular fluxes and their roles in atmospheric dispersion * the contrast between instantaneous and average properties of turbulent flow, the convergence of averages and implications for dispersion models.

Prerequisite: EME 301 , C E 360 , M E 320 , METEO454 or EGEE 470

METEO 460: Weather Risk and Financial Markets

3 Credits

This course will introduce the role that weather plays as a source of financial and operational risk for businesses, market and other institutions. METEO 460 Weather Risk and Financial Markets (3)The course introduces students to the role that weather plays as a source

of financial and operational risk for business, markets, and other institutions. It also introduces the tools and concepts for weather risk management-the insurance products, financial instruments, and decision tools that organizations use to manage, reduce, and transfer their weather-related risks. Major topics include: (i) The concept of risk and the role of weather as a driver of economic risk; (ii) Probabilistic approaches to weather forecasting; (iii) Techniques for valuation of weather derivatives; (iv) Links between weather and markets for energy and agricultural commodities; and (v) Management of catastrophic hurricane risks. Weekly assignments culminate in a major student project on weather risk management.

Prerequisite: METEO411 ; E B F472 or STAT 301 or STAT 401 ; E B F301 or E B F473

METEO 465: Middle Atmosphere Meteorology

3 Credits

A topical survey of physical, chemical, and dynamical processes at work in the stratosphere and mesosphere (middle atmosphere).

Prerequisite: METEO421 , METEO431

METEO 466: Planetary Atmospheres

3 Credits

A survey of planetary atmospheres and the chemical and physical processes by which they form and evolve.

Prerequisite: MATH 141 , PHYS 211

METEO 469: From Meteorology to Mitigation: Understanding Global Warming

3 Credits

Examination of global warming and climate change: the basic science, projects, impacts, and approaches to mitigation. METEO 469 From Meteorology to Mitigation: Understanding Global Warming (3) Human-caused climate change represents one of the great environmental challenges of our time. As it is inextricably linked with issues of energy policy, a familiarity with the fundamentals of climate change is therefore critical for those looking to careers in the energy field. To appreciate the societal, environmental, and economic implications of policies governing greenhouse gas emissions, one must further understand the basic underlying science. METEO 469 serves to lay down the fundamental scientific principles behind climate change and global warming. A firm grounding in the science is then used as a launching point for exploring issues involving climate change impacts and mitigation. METEO 469 will introduce students to the basic information necessary for understanding Earth's climate, including the relevant atmospheric processes, and aspects of other key components of the climate system such as the cryosphere, hydrosphere, and biosphere. Students will learn how to do basic computations and to use theoretical models of the climate system of varying complexity to address questions regarding future climate change. Students, further, will explore the impacts of various alternative greenhouse gas emissions scenarios and investigate policies that would allow for appropriate stabilization of future greenhouse gas concentrations. The structure of the course roughly parallels the treatment of the subject matter by the reports of the Intergovernmental Panel on Climate Change (IPCC), focusing first on the basic science, then the future projections and their potential impacts, and finally issues involving adaptation, vulnerability, and mitigation. METEO 469

will combine digital video, audio, simulation models, virtual field trips to on-line data resources, text, and interactive quizzes that provide instantaneous feedback.

Prerequisite: STAT 200 or MATH 110 or MATH 140

METEO 470: Climate Dynamics

3 Credits

The fundamental principles that govern Earth's climate and their relevance to past and future climate change. METEO 470 Climate Dynamics (3) Climate Dynamics delves into the fundamental processes that control the earth's climate of the past, present, and future. Fundamentals are developed from concepts of basic dynamic meteorology, radiative transfer, and thermodynamics. Basic atmospheric radioactive transfer, the surface energy and hydrologic budgets, and the atmospheric and oceanic circulation are covered. A survey of the earth's climate through geologic history is also covered, including extinction events and the impacts on climate. The concepts developed in this course are applied to the topic of anthropogenic climate change and how various aspects of the system could be influenced by global warming.

Prerequisite: METEO300 , METEO421 , METEO431

METEO 471W: Atmospheric Optics

3 Credits

This upper-level undergraduate course will cover the fundamental physics of light and scattering of light by atmospheric particles. Knowledge of these processes will be applied to understand how they result in optical displays in the sky, including colors in the sky, phenomena associated with refraction of light, scattering by liquid drops and ice crystals, and electrification. The course will guide students to observe, document, and understand these beautiful and sometimes bizarre atmospheric optical phenomena. Students will make their own observations using their eyes, optical cameras, and polarization filters. The students will document their observations through regular written sky journal entries to hone their writing skills. By working together through hands-on activities and discussions, students will unlock the mysteries of these phenomena through applying the fundamental physical principles that underly all topics covered in the course. Throughout the semester, students will research a phenomenon of interest to them, culminating in a final paper on this topic. Students who have completed this course will understand the physical concepts associated with atmospheric optical phenomena and where/how to look for them, observe them, and document them.

Prerequisites: METEO 411 Recommended Preparation: METEO 436; METEO 437; METEO 454 Writing Across the Curriculum

METEO 473: Application of Computers to Meteorology

3 Credits

Application of statistical and numerical methods to practical problems in meteorology.

Prerequisite: CMPSC 101, CMPSC 201, CMPSC 202 or METEO 273

METEO 473H: Application of Computers to Meteorology

3 Credits

APPLICATION OF STATISTICAL AND NUMERICAL METHODS TO PRACTICAL PROBLEMS IN METEOROLOGY.

Honors

METEO 474: Computer Methods of Meteorological Analysis and Forecasting

3 Credits

Distribution of scalars and vectors; sampling; regression and correlation in two and three dimensions; time series, statistical forecasting; forecast verification. METEO 474 Computer Methods of Meteorological Analysis and Forecasting (3) Meteorology 474: Computer Methods of Meteorological Analysis and Forecasting explores the computationally intensive statistical methods used in the development of automated weather analysis and forecasting systems. The focus of the course is on learning to develop and use artificially intelligent automated systems to perform data quality control, quantitative analysis of large meteorological data sets, and weather forecasting. Coverage will include the relevant statistical, mathematical, and computational methods including matrix operations, data quality control, regression analysis, neural network construction, decision tree growth, and forecast system verification. Students will leave the course with an understanding of how to efficiently develop accurate and robust statistical weather analysis and prediction systems. Thus, the course serves as a professional elective for those students wishing to pursue careers in statistical weather forecasting, meteorological data analysis, and associated fields. Meteorology 474 uses a project oriented lecture/lab format to provide students with hands-on experience in developing and testing weather analysis and forecast systems. Students will both code their own forecast system development programs and use off-the-shelf software designed for rapid development and testing of forecast systems. To tackle these assignments, students will team up in pairs using the computer laboratory facilities of the Meteorology Department and meteorological data sets of current interest. A key element of the resulting project reports will be an investigation into the origin of the observed forecast system errors. One section of Meteorology 474 will be offered each year with a capacity of approximately 20 students. The class size is tailored to in-class training with the software tools and open discussion with the instructor and classmates. Grading will be based on the team assignments and on a mid-term and final examination.

Prerequisite: STAT 301 or STAT 401 or E B F472

METEO 477: Fundamentals of Remote Sensing Systems

3 Credits

The review of fundamental physical properties leads into discussions of various techniques, including imaging, spectroscopy, radiometry, and active sensing.

Enforced Prerequisite at Enrollment: (C or better in EE 330) or METEO 436 Cross-listed with: EE 477

METEO 480M: Undergraduate Research

3 Credits

Undergraduate Research METEO 480M Undergraduate Research (3) The lecture portion of the course, which accounts for one-third of the course

grade, covers topics such as the elements of good scientific writing, the structure of scientific manuscripts, the mechanics of oral and poster presentations at science meetings, scientific peer review, and ethics in science. For the remaining two-thirds of the course grade, students perform research under the guidance of a faculty member. Students select the faculty member based on matching general research interests. A student's academic adviser typically assists in the process of matching a student to a research project supervisor. In consultation with their research project supervisor, students then decide on a specific research topic.

Prerequisite: junior or senior standing as a Meteorology Major Honors
Writing Across the Curriculum

METEO 480W: Undergraduate Research

3 Credits

A research thesis will be prepared. A written and oral presentation required.

Prerequisite: junior or senior standing as a Meteorology Major
Writing Across the Curriculum

METEO 481: Weather Communications I

3 Credits

Multi-instructor weather communications survey including forecasting, science teaching and writing, television and radio broadcasting, climate studies, forensics, industrial applications.

Prerequisite: METEO201 or METEO101

METEO 482: Weather Communications II

3 Credits

Multi-instructor workshop designed to mimic real-life applications of weather communications in industry, broadcasting, the courtroom, and the classroom.

Prerequisite: METEO481

METEO 483: Weather Communications III

3 Credits

Individualized course designed for in-depth study of weather communications in industry, broadcasting, the courtroom and/or the classroom.

Prerequisite: METEO411 , METEO482

METEO 486: Pennsylvania Climate Studies

1-2 Credits/Maximum of 3

An overview of the Pennsylvania State Climate Office and an introduction to various aspects of its operations. METEO 486 Pennsylvania Climate Studies (1-2) Those interested in climate topics will become thoroughly acquainted with the important process of acquiring and assessing the quality of climate observations. Students will be introduced to the various observational networks and data formats. They will learn to manipulate large climate data fields using both flat and relational database management systems. Each student will contribute to the

state climate web page and will conduct a research project during the second half of the semester. This course will be offered in fall and spring semesters.

Prerequisite: METEO101 , or METEO200A and METEO200B , or METEO201

METEO 491: Professional Development

1 Credits

Geared towards rising juniors and seniors, this one-credit course will offer practical advice and ample opportunities for reflection about one's future career within Meteorology and Atmospheric Science. The course will help to develop you professionally for a career in the atmospheric sciences and help to put you in the best possible position for your next step after graduation, be it a job or graduate school. You will develop a better understanding of the range of diversities and commonalities in the atmospheric sciences, the value of improving presentation and writing skills, the importance of developing professional references and networks, and strategies for applying to graduate schools and searching for a job. There will be guest speakers, including alumni and university staff whose participation will enhance the value of the class.

Prerequisite: 5th Semester standing

METEO 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

METEO 494H: Research Project

1-12 Credits/Maximum of 999

Supervised student activities on research projects identified on an individual or small-group basis.

Honors

METEO 494M: Thesis Research

3 Credits

METEO 494M Thesis Research (3). In this course, students will write a professionally structured thesis that is grounded in a solid research foundation. In the process, students will learn the elements of excellent technical science writing and effective oral presentation. This course continues the thesis research topic developed in Meteo 494H. This capstone course integrates the key elements of any well-conceived research project: a) a thorough background literature search that identifies the current understanding of a question or topic; b) the articulation of a research hypothesis that is informed by the literature search; c) the design and implementation of a plan to test the hypothesis using theoretical, experimental, and/or computational approaches; and d) conclusions regarding the validity of the hypothesis based on the data obtained in the course of the research. The main characteristic of this course is the execution of the research plan articulated in METEO 494H, interpretation of the data generated by the research in the context of the original hypothesis, and the preparation of the thesis. Research is generally performed in collaboration with faculty and graduate research assistants, using equipment and facilities in the Meteorology and Atmospheric Science department or other departments involved in the research endeavor. Occasionally, the nature of the research may

require the student to collaborate with researchers outside of Penn State, perhaps even spending some time in residence at other facilities. The course culminates in the preparation of a thesis detailing the relevance and findings of the research and, at the discretion of the thesis advisor, an oral presentation about the research findings. Close coordination with the thesis advisor is a key to success in METEO 494M. Ideally, a student should meet with the advisor regularly and drafts of parts of the thesis should be shared with the advisor for feedback. Assessment of the student's progress is via grading of all components of the thesis which include the literature review and background, the statement of the problem, the design of the experimental plan, the results and discussion, the conclusions, any recommendations for future work, the reference list, and any appendices and figures. The diligence of the student in performing the research in a professional and timely fashion will also be considered.

Prerequisite: METEO 494H; junior or senior standing as a Meteorology and Atmospheric Science major
Honors
Writing Across the Curriculum

METEO 495: ****SPECIAL TOPICS****

3 Credits/Maximum of 6

METEO 495A: Meteorology Communications Internship

3 Credits/Maximum of 6

METEO 495A Meteorology Communications Internship (3 per semester, maximum of 6) A student participates for at least 100 hours in an internship with an agency or company that focuses on communication of weather forecasts or other meteorological information. This internship is normally completed after the junior year. Given the focus of this internship and the paper requirement to relate the internship experience to a 400-level meteorology course, students must have completed the required course on synoptic meteorology. After the internship has been completed, the student writes a paper based on the contract posted on the Department of Meteorology website. This paper normally is evaluated by the student's Meteorology Department academic advisor. The course grade depends on this evaluation combined with the assessment provided to the advisor by the student's internship supervisor.

Prerequisite: METEO411

METEO 495B: Meteorology Private Sector Internship

3 Credits/Maximum of 6

METEO 495B Meteorology Private Sector Internship (3 per semester/ maximum of 6) A student participates for at least 100 hours in an internship with a private sector company that focuses on problems or applications that use meteorological information. This internship is normally completed after the junior year. Given the focus of this internship and the paper requirement to relate the internship experience to a 400-level meteorology course, students must have completed the required course on synoptic meteorology. After the internship has been completed, the student writes a paper based on the contract posted on the Department of Meteorology website. This paper normally is evaluated by the student's Meteorology Department academic advisor. The course grade depends on this evaluation combined with the assessment provided to the advisor by the student's internship supervisor.

Prerequisite: METEO411

METEO 495C: Meteorological Operations Internship

3 Credits/Maximum of 6

METEO 495C Meteorological Operations Internship (3 per semester/ maximum of 6) A student participates for at least 100 hours in an internship in an operational setting that focuses on the creation of time-sensitive meteorological products such as weather or climate forecasts. This internship is normally completed after the junior year. Given the focus of this internship and the paper requirement to relate the internship experience to a 400-level meteorology course, students must have completed the required course on synoptic meteorology. After the internship has been completed, the student writes a paper based on the contract posted on the Department of Meteorology website. This paper normally is evaluated by the student's Meteorology Department academic advisor. The course grade depends on this evaluation combined with the assessment provided to the advisor by the student's internship supervisor.

Prerequisite: METEO411

METEO 495D: Meteorological International Internship

3 Credits/Maximum of 6

METEO 495D Meteorological International Internship (3 per semester/ maximum of 6) A student participates for at least 100 hours in an internship in an international setting that focuses on applying meteorological knowledge. This internship is normally completed after the junior year. Given the focus of this internship and the paper requirement to relate the internship experience to 400-level meteorology coursework, students must have completed at least six credits of Meteorology courses. After the internship has been completed, the student writes a paper based on the contract posted on the Department of Meteorology website. This paper normally is evaluated by the student's Meteorology Department academic advisor. The course grade depends on this evaluation combined with the assessment provided to the advisor by the student's internship supervisor.

Prerequisite: 6 credits of 400-level Meteorology coursework

METEO 495E: Meteorological Off-Campus Research Internship

3 Credits/Maximum of 6

METEO 495E Meteorological Off-Campus Research Internship (3 per semester/maximum of 6) A student participates for at least 100 hours in an internship whose focus is a research project requiring applications of meteorological knowledge. This internship is normally completed after the junior year. To provide sufficient background for performing atmospheric research successfully, students must have completed at least nine credits of 400-level Meteorology courses. After the internship has been completed, the student writes a paper based on the contract posted on the Department of Meteorology website. This paper normally is evaluated by the student's Meteorology Department academic advisor. The course grade depends on this evaluation combined with the assessment provided to the advisor by the student's internship supervisor.

Prerequisite: 9 credits of 400-level Meteorology coursework

METEO 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

METEO 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

METEO 498: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Microbiology (MICRB)

MICRB 106: Elementary Microbiology

3 Credits

A survey course in microbiology for non-majors, this course focuses on the roles of microbes in human health and disease, agriculture, biotechnology, and other areas of societal impact. Topics include the mechanisms and natural history of microbial evolution; microbial growth and the control of microbial growth; the staggering diversity of microbial diversity, microbial metabolism, and microbial genetics; the unique biology of viruses; biotechnology its social impacts; pathogenesis and immunity; and explicit connections between each of these topics and their public health impacts.

Bachelor of Arts: Natural Sciences
General Education: Natural Sciences (GN)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

MICRB 107: Elementary Microbiology Laboratory

1 Credits

MICRB 107 is an introductory laboratory course designed for students who do not intend to pursue further study in the field. The course demonstrates the use and practice importance of microbes in everyday life. Instruction begins with the proper handling and visualization of microorganisms. Almost by definition, the vast majority of microorganisms are too small to be seen with the naked eye. Therefore, students must learn the correct use of the light microscope. Instruction in the proper care and maintenance of the microscope is provided. Students prepare and stain specimens using a number of methods designed to characterize microorganisms. The importance of working safely in a laboratory setting is emphasized throughout the course. Many skills are developed in this laboratory course. Aseptic technique skills allow for the transfer organisms properly from one culture medium to another. A variety of media are used and the reasons for their use are explained. Students also learn how to quantify the number of bacteria in specimens such as water, soil or food. The course demonstrates ways to control microbial growth by various means for example, temperature, osmotic pressure, pH, exposure to ultraviolet light and use of disinfectants.

Students learn the importance of controlling microbial growth on their person and how failure to do so can lead to the spread of disease, especially in hospital settings. Other experiments illustrate methods used to preserve food products and test water for contamination and may include molecular techniques to study microbial genomes. While students learn to isolate and identify organisms from their own body, other common bacteria found in or on the human body are also studied. A variety of diagnostic cultural and physiological tests are employed to identify organisms students have isolated. This simulates in a very real way the process physicians depend on for diagnosis of infectious diseases. A related experiment demonstrates how antibiotics that are likely to be effective in treating an infection are selected. Taken together, most of the experiments conducted in MICRB 107 are designed to encourage students to investigate the many important roles microorganisms play in the living world. The specific examples covered each semester may vary based on student and instructor interest. As a course that meets general education (GN) requirements, students will increase their scientific literacy in the field of microbiology and develop critical and analytical thinking skills.

Enforced Prerequisite or concurrent at Enrollment: MICRB 106

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

MICRB 150: Introductory Medical Laboratory Technology

4 Credits

Introduction to basic principles and procedures of clinical laboratory work. Practicum emphasizes proper collection, handling, and preparation of biological samples.

Enforced Prerequisite at Enrollment: Admission to 2MLT program

MICRB 151A: Clinical Chemistry for Medical Laboratory Technicians

5 Credits

Basic principles and procedures for measuring chemical components of blood and other body fluids. MICRB 151A Clinical Chemistry for Medical Laboratory Technicians (5) This course is taken with (or before) MICRB 151D - Clinical Chemistry Practicum. Topics include: laboratory safety; phlebotomy; quality assurance; lab math; instrumentation in clinical chemistry; measurement of carbohydrates, proteins, electrolytes, lipids, hormones, enzymes, tests of kidney and liver function, and their clinical significance. Laboratory sessions focus on basic measurement techniques, using spectrophotometry.

Enforced Prerequisite at Enrollment: [(BIOL 163 and BIOL 164) or BIOL 240] and all of the following: CHEM 202 and MICBR 150 and MICRB 201 and MICRB 202

MICRB 151B: Hematology for Medical Laboratory Technicians

5 Credits

Blood cell identification and analysis. Related procedures for diagnosing normal or disease states of blood cells and coagulation. MICRB 151B Hematology for Medical Laboratory Technicians (5) This course is taken with (or before) MICRB 151E - Hematology Practicum. Topics include: hematopoiesis; measurement of red cells, white blood cells, and platelets; significance of hematology results in the diagnosis of hematological diseases; principles of coagulation and related disease states, with

emphasis on common factor deficiencies and platelet abnormalities. Laboratory sessions focus on manual techniques, and microscopic identification of blood cells. A capstone project requires the student to research and present a patient case study to the class.

Enforced Prerequisite at Enrollment: [(BIOL 163 and BIOL 164) or BIOL 240] and all of the following: CHEM 202 and MICBR 150 and MICRB 201 and MICRB 202

MICRB 151C: Immunohematology and Serology for Medical Laboratory Technicians

4 Credits

Antigen-antibody interactions of diagnostic importance. Immunologic principles and procedures necessary for the transfusion of blood products. This course is taken with (or before) MICRB 151F - Immunohematology Practicum. Topics include: principles of normal immune function, with emphasis on humoral immunity; common serology tests used to diagnose infection and disorders of the immune system; selection and testing of donors and preparation of blood components; testing required to determine blood types and detect unexpected antibodies that impact selection of blood products; transfusion practice, transfusion reactions; hemolytic disease of the fetus and newborn. Laboratory sessions focus on manual techniques, ABO and Rh testing, antibody identification.

Enforced Prerequisite at Enrollment: [(BIOL 163 and BIOL 164) or BIOL 240] and all of the following: CHEM 202 and MICBR 150 and MICRB 201 and MICRB 202

MICRB 151D: Clinical Chemistry Practicum

2 Credits

Supervised experience at affiliated clinical laboratory. Focus is on the practical application of clinical chemistry procedures. Phlebotomy. MICRB 151D Clinical Chemistry Practicum (2) This clinical practicum enables the 2MLT student to gain experience in clinical chemistry, and includes approx. 110 hours of supervised experience in an affiliated clinical laboratory. The course is taken concurrently or after the lecture course Micrb 151A - Clinical Chemistry for Medical Laboratory Technicians. Topics include: specimen handling; common chemical analyses of blood and other body fluids; principles of operation, use, maintenance, and troubleshooting of clinical chemistry analyzers; quality control; safety; phlebotomy. Upon completion of Micrb 151D, the student will be able to:1. Demonstrate mathematical calculations necessary to prepare reagents, gather data, calculate results, and analyze specimens in the clinical chemistry department.2. Recognize errors in the collection of specimens for chemical analysis.3. Demonstrate the use of basic chemistry instruments; participate in the maintenance, and troubleshooting of these instruments.4. Interpret the clinical significance of common chemical analyses.5. Assess the validity of patient results by correlating laboratory data with quality control results.6. Perform phlebotomy and routine chemistry procedures at appropriate mastery levels.7. Demonstrate methods of maintaining a safe working environment in the chemistry department of the clinical laboratory.8. Achieve specific standards of attitude and work habits at the clinical bench.

Enforced Prerequisite or concurrent at Enrollment: MICRB 151A

MICRB 151E: Hematology Practicum

2 Credits

Supervised experience at affiliated clinical laboratory. Focus is on the practical application of hematology and coagulation procedures. MICRB 151E Hematology Practicum (2) This clinical practicum enables the 2MLT student to gain experience in hematology and coagulation, and includes approx. 120 hours of supervised experience in an affiliated clinical laboratory. The course is taken concurrently or after the lecture course Micrb 151B - Hematology for Medical Laboratory Technicians. Topics include: hematopoiesis; hemostasis; common hematology and coagulation methods; the principles of operation, use, maintenance, and troubleshooting of hematology analyzers; microscopic examination of blood smears; quality control. Upon completion of Micrb 151E, the student will be able to:1. Recognize pre-analytical factors affecting hematology and coagulation results.2. Perform routine hematology and coagulation procedures at specific mastery levels.3. Demonstrate the use of common hematology and coagulation analyzers, and participate in the maintenance and troubleshooting of these instruments.4. Interpret the clinical significance of hematology and coagulation results.5. Demonstrate methods of maintaining a safe working environment in the hematology department of the clinical laboratory.6. Identify normal and abnormal red cell, white cell, and platelet morphology in peripheral blood smears.7. Follow protocol when reporting patient results.8. Assess the validity of patient results by correlating laboratory data with quality control results.9. Achieve specified standards of attitude and work habits at the clinical bench.

Enforced Prerequisite or concurrent at Enrollment: MICRB 151B

MICRB 151F: Immunohematology Practicum

2 Credits

Supervised experience at affiliated clinical laboratory. Focus is on the practical application of immunohematology procedures. MICRB 151F Immunohematology Practicum (2) This clinical practicum enables the 2MLT student to gain experience in pre-transfusion testing and serology, and includes approx. 110 hours of supervised experience in an affiliated clinical laboratory. The course is taken concurrently or after the lecture course Micrb 151C - Immunohematology and Serology for Medical Laboratory Technicians. Topics include: routine procedures for determining ABO and Rh blood type; antibody identification; crossmatching techniques; handling and storage of donor products; common serology tests; quality control. Upon completion of Micrb 151F, the student will be able to:1. Perform routine immunohematology and serology procedures at specific mastery levels.2. Follow protocol required for the handling, storage and the issue of blood products.3. Interpret the clinical significance of common serology and immunology tests.4. Maintain a safe working environment in the immunohematology and serology departments in the clinical laboratory.5. Assess the validity of patient results by correlating laboratory data with quality control results.6. Achieve specified standards of attitude and work habits at the clinical bench.

Enforced Prerequisite or concurrent at Enrollment: MICRB 151C

MICRB 151G: Clinical Microbiology and Body Fluids Practicum

2 Credits

Supervised experience at affiliated clinical laboratory. Focus is on the practical application of microbiology procedures and body fluid analysis.

MICRB 151G Clinical Microbiology and Body Fluids Practicum (2) This clinical practicum enables the 2MLT student to gain experience in clinical microbiology and body fluid analysis, and includes approx. 150 hours of supervised experience in an affiliated clinical laboratory. The course is taken concurrently or after the lecture course Micrb 151W. Topics include: specimen handling; cultivation and identification of bacteria with a minor emphasis on parasitology and mycology; antibiotic sensitivity techniques; chemical and microscopic analysis of urine and body fluids; toxicology and therapeutic drug monitoring. Upon completion of Micrb 151G, the student will be able to: 1. Demonstrate methods of maintaining a safe working environment in the microbiology and urinalysis departments of the clinical laboratory. 2. Select and inoculate appropriate media for the culture of patient specimens. 3. Perform common biochemical, microscopic, serological, and molecular-based methods to identify microorganisms, at specified mastery levels. 4. Identify normal and abnormal physical properties of urine and other body fluids. 5. Recognize discrepant results when reviewing urinalysis findings. 6. Perform routine urinalysis and body fluid analysis at specified mastery levels. 7. Perform therapeutic drug monitoring and common tests for drugs of abuse. 8. Assess the validity of patient results by correlating laboratory data with quality control results. 9. Achieve specified standards of attitude and work habits in the clinical laboratory.

Enforced Prerequisite or concurrent at Enrollment: MICRB 151W

MICRB 151W: Clinical Microbiology and Body Fluid Analysis for Medical Laboratory Technicians

5 Credits

This course is taken with (or before) MICRB 151G - Clinical Microbiology and Body Fluids Practicum. Topics include: analysis of urine and body fluids; tests of renal function; collection of patient specimens; cultivation, identification and clinical significance of bacteria, with a minor emphasis on parasitology, mycology and virology; techniques to determine antibiotic susceptibility. Laboratory sessions include specimen collection, urine and spinal fluid testing, manual identification of common pathogenic and non-pathogenic bacteria, and concentration of ova and parasites. The student prepares a research paper on a topic related to clinical microbiology; this semester-long process includes instruction on library research techniques, and the writing of several documents in preparation for writing the research paper. This course is writing-intensive.

Enforced Prerequisite at Enrollment: [(BIOL 163 and BIOL 164) or BIOL 240] and all of the following CHEM 202 and MICRB 150 and MICRB 201 and MICRB 202

Writing Across the Curriculum

MICRB 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

MICRB 201: Introductory Microbiology

3 Credits

Elementary principles of microbial and viral structure, reproduction, genetics and physiology; relationship to food, water, soil, industrial and disease processes. MICRB 201 Introductory Microbiology (3) MICRB 201, Introductory Microbiology, is a survey course that touches

on the full range of topics generally considered to fall within the scope of microbiology. After a short overview of the origins of microbiology and the ways in which forms of life too small to be seen with the naked eye can be studied, the course launches into the following basic topics: 1) structure and function of the bacterial cell as compared with plant and animal cells 2) care, feeding, and controlling the growth of bacteria 3) how bacteria acquire and use energy 4) how energy and nutrients are used to make cell components and carry out life processes 5) how bacteria organize, replicate and control the expression of genetic information 6) how viruses differ organizationally and reproductively from bacteria, and finally 7) how bacteria are classified and why various classification schemes are important. The remainder of the course is concerned with specific roles bacteria and viruses play in nature. Issues addressed include: 1) role of bacteria in the cycling of elements in the terrestrial environment 2) importance of bacteria in aquatic environments, including the safety of drinking water and treatment of waste water 3) the role of bacteria and viruses in human health and disease. Bacteria existed long before higher life forms, so animals, including humans, evolved means to protect themselves from harmful bacteria while forming relationships with bacteria that are beneficial. These harmful and beneficial relationships are intimately connected to immunology, a field that has long been included in the study of microbiology. The study of disease-causing microbes includes the topics of how these organisms are spread and how they can be controlled using anti-bacterial and anti-viral agents. Selected diseases are used to explain the various mechanisms by which microbes are able to cause illness. Finally, the course also covers the role microorganisms play in the spoilage of foods and, more importantly, the myriad ways in which bacteria, yeast and fungi are used to manufacture such popular foods as breads, cheeses, wines, beers and many other fermented food and dairy products. At some point in the course, there is discussion of how microbes are used in the rapidly-expanding area of biotechnology and their potential for yielding products of benefit to agriculture and humankind. This topic also treats the controversial issues connected with biotechnology, including ethical, theoretical and practical issues that are or will eventually need to be addressed by society.

Enforced Prerequisite at Enrollment: CHEM 110 or CHEM 110H

MICRB 201H: Introductory Microbiology

3 Credits

Elementary principles of microbial and viral structure, reproduction, genetics and physiology; relationship to food, water, soil, industrial and disease processes. MICRB 201H Introductory Microbiology (3) MICRB 201H, Introductory Honors Microbiology, is a survey course that touches on the full range of topics generally considered to fall within the scope of microbiology. After a short overview of the origins of microbiology as a science and the ways in which forms of life too small to be seen with the naked eye can be studied, the course covers the following basic topics: 1) the tree of life and the position of microbes in the biological world, 2) structure and function of the bacterial cell as compared with plant and animal cells, 3) microbial nutrition and growth, 4) molecular biology and gene regulation in microbes, 5) microbial genetics, 6) an overview of microbial classification and diversity, and 7) the principles of how microbes interact with their environment. Unlike the standard sections of MICRB 201, the honors course then moves on to an integrated description of microbial diversity and ecology in association with topics such as carbon metabolism, energy acquisition and utilization including photosynthesis, and the environmental impacts of microbial utilization of inorganic chemicals. This is followed by a section concerning eukaryotic or non-bacterial microbes, a section

concerning the use of microbes in industry, and then a basic overview of viruses and how they work. The last part of the course deals with microbial interactions with other organisms with an emphasis on their interactions with man. This starts with a discussion of how microbial growth can be controlled, and then the various kinds of relationships that can exist between microbes and other organisms are covered. This is followed by a section on immunology or the mechanisms animals possess to defend themselves against potentially harmful microbes. The final section concerning a broad range of microbially-caused diseases is preceded by a description of microbial analysis in the clinical or medical laboratory as well as a discussion of how disease-causing microbes are spread in animal populations. MICRB 201H is taught so as to emphasize the impact of microbes on our everyday lives. One way this is accomplished is by class presentations made by small groups of students on topics of current interest in the community at large. Students also write a term paper that can involve any aspect of microbiology using an article from the popular press as their starting point. All students are also required to make a short in-class presentation in which they provide an overview of their term paper. While much of the instruction involves the standard lecture format, classroom discussion is encouraged at all times.

Enforced Prerequisite at Enrollment: CHEM 110 or CHEM 110H Honors

MICRB 202: Introductory Microbiology Laboratory

2 Credits

The goal of MICRB 202 is to inspire excitement and enthusiasm for the important science of microbiology, and to provide students with foundational knowledge of how microbiology techniques can be used to study key aspects of microbial biology such as antibiotic resistance, metabolism, cell structure, and genetics. Specifically, this course will introduce students to the techniques used in microbiology labs to isolate, stain, characterize, identify and control microorganisms. Through the exercises performed in this lab course, students will learn microbiology methods which have many uses and applications in science, medicine and industry. In addition, the exercises performed will help students appreciate the important role microbes play in the lives of all individuals.

Enforced Concurrent at Enrollment: MICRB 201 or MICRB 201H

MICRB 203: Inquiry-based Microbiology Laboratory

2 Credits

In this course, students learn the scientific method and important microbiological concepts and techniques by designing and executing experiments. Through a series of experimental modules, students will practice and hone their skills at formulating interesting questions, developing testable hypotheses, designing experiments, and analyzing results. Module topics will cover identification and characterization of microbes, interactions between microbes and their environment, pathogenesis, and microbial communities. At the end of the course, students will be prepared to participate in engaged scholarship opportunities, such as performing independent research.

MICRB 251: Molecular and Cell Biology I

3 Credits

BMB 251 Molecular and Cell Biology I (3) is an introduction to the fundamental principles of molecular and cellular biology, with a primary focus on eukaryotic cells. Topics covered will include elementary

biochemistry; structure and function of biological macromolecules, the cell and its organelles; the role of biological membranes in bioenergetics and sub-cellular compartments. There will be a particular emphasis on the molecular mechanism of heredity; the organization and expression of genetic information; experimental methods used in the analysis of gene expression and the relationship between gene/protein structure and function.

Enforced Prerequisite at Enrollment: CHEM 112 or CHEM 112H
Recommended preparations MICRB 201 or MICRB 201H
Cross-listed with: BMB 251

MICRB 252: Molecular and Cell Biology II

3 Credits

Continuation of BMB 251 / MICRB 251 ; cytoskeleton, cell growth, division, adhesion, signalling, germ cells, differentiation, immune system, nervous system, plant cells. BMB 252 / MICRB 252 Molecular and Cell Biology II (3) focuses on the internal organization on eukaryotic cells and their organization in multi-cellular organisms. Topics covered include cell communication, the cytoskeleton, cell cycle, fertilization and development of multi-cellular organisms, genesis of tissues, and the molecular mechanisms of cancer and immunity.

Enforced Prerequisite at Enrollment: BMB 251 or MICRB 251 or BMB 251H or BIOL 230W or BIOL 230M
Cross-listed with: BMB 252

MICRB 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

MICRB 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

MICRB 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

MICRB 401: Microbial Physiology and Structure

3 Credits

Physiology and structure of bacteria important in microbiological research. Designed for science majors.

Enforced Prerequisite at Enrollment: (CHEM 202 or CHEM 202H or CHEM 210 or CHEM 210H) and (MICRB 201 or MICRB 201H) and (MICRB 202 or MICRB 203). Recommended Preparation: BMB 401 or BMB 401H

MICRB 405A: Seminar and Practicum in Medical Technology

8 Credits

Chemistry. Fundamental principles and the quantitative measurement of chemical components in the blood and other body fluids.

MICRB 405B: Seminar and Practicum in Medical Technology

1 Credits

Urinalysis. Identification of cellular and noncellular urinary sediments. Qualitative chemical analysis of urine.

MICRB 405C: Seminar and Practicum in Medical Technology

6 Credits

Hematology. Principles of red and white blood cell development. Identification of normal and pathological conditions.

MICRB 405D: Seminar and Practicum in Medical Technology

5 Credits

Immunohematology. Immunologic and genetic principles governing the transfusion of blood and blood products.

MICRB 405E: Seminar and Practicum in Medical Technology

7 Credits

Microbiology. Identification of normal and abnormal microbial flora from various locations on and within the human body.

MICRB 405F: Seminar and Practicum in Medical Technology

3 Credits

Serology-Immunology. Immunological principles and their application in the identification of present or past disease states of the human.

MICRB 408: Laboratory Instructional Practice

1-2 Credits/Maximum of 2

Participation in the instruction of undergraduate laboratory courses, including classroom preparation; discussion of principles and objectives of each exercise.

Enforced Prerequisite at Enrollment: 8 credits in microbiology and permission of department head

MICRB 410: Principles of Immunology

3 Credits

The MICRB 410 / VBSC 410 Theories of immunity (3cr.) course provides a basic foundation in immunology with a focus on the progression from antigen recognition and innate immune responses to the development of acquired immunity. During the course, students will have the opportunity to learn about key topics that lead to an understanding of the how the human immune system functions. Such topics include the primary cells and anatomical sites of the immune system as well as the activation and processes of innate immunity. In addition, students will learn about the organization and generation of lymphocyte antigen receptors, major histocompatibility complexes, and antigen presentation. Topics will also be presented that allow students to build an understanding of

how antigen recognition and presentation leads to the development, selection, and survival of B and T lymphocytes. T-cell mediated immunity, humoral immunity, and the dynamics of the immune response will also be discussed in depth. Topics such as the immunobiology of allergy, transplantation, autoimmunity, immunodeficiency, diseases, vaccines, and/or cancer will also be presented in order to help students build an understanding of the interplay between the immune system and health and disease will be discussed throughout the semester.

Enforced Prerequisite at Enrollment: (MICRB 201 or MICRB 201H) and (BMB 251 or MICRB 251 or BMB 251H or BIOL 230W or BIOL 230M)
Cross-listed with: VBSC 410

MICRB 411: Survey of Microbiology Literature

1 Credits/Maximum of 99

An introduction to readings and oral presentations in microbiology.

Enforced Prerequisite at Enrollment: 8 credits in MICRB courses

MICRB 412: Medical Microbiology

3 Credits

Characteristics, methods of identification, and pathogenesis of bacteria that cause human disease; principles of disease dynamics and control.

Enforced Prerequisite at Enrollment: MICRB 201 or MICRB 201H

MICRB 415: General Virology: Bacterial and Animal Viruses

3 Credits

The interaction of different types of viruses with bacterial and animal cells, including mechanisms of infection and viral synthesis. MICRB 415 General Virology: Bacterial and Animal Viruses (3) General Virology: Bacterial and Animal Viruses covers the interactions of different types of viruses with animal and bacterial cells, emphasizing molecular and genetic concepts of viral infection and viral replication. Students are expected to apply basic concepts of microbiology as well as molecular and cell biology to understanding selected viral life cycles, particularly at the molecular level. Lectures are augmented by in-class discussion and homework assignments. Typically, students are evaluated by two hourly exams and a final exam that assess their knowledge of virology and their ability to apply basic concepts of gene expression and cell biology to explaining viral life cycles. This course builds on the common requirements of MICRB 201 and BMB 251/ MICRB 251 BMB 252 / MICRB 252. The instruction expands into the cellular and molecular bases of viral life cycles with regular reference to and comparison with cellular and molecular biology of uninfected cells. The content of this course complements those on the basic mechanisms of gene expression (BMB 400) and prepares the student for understanding the molecular basis of viral pathogenesis covered in BMB 435 / MICRB 435 / VBSC 435.

Enforced Prerequisite at Enrollment: (BMB 252 or MICRB 252 or BMB 252H or BIOL 230W or BIOL 230M) and (MICRB 201 or MICRB 201H)

MICRB 416: Microbial Biotechnology

3 Credits

The overall goal of Microbial Biotechnology (3 cr.) is to provide students with an opportunity to apply their knowledge of microbiology and biotechnology to the synthesis of biologically important and industrially useful products. The course will focus on the application of the tools of

Microbiology, Molecular Biology, Biochemistry, Forensics, Environmental Biology and Bioinformatics to exploit microbes as "vessels" to create an array of products to benefit humans, animals and the environment. For example, discussions may address the use of microbes in the cleanup of polluted environments (bioremediation) as well as their role in producing drugs (vaccines, antibiotics, etc.), industrially important enzymes (rennet, meat tenderizers, indigo production etc.), and biodegradable plastics. Furthermore, ethics and regulations surrounding the production, marketing, and distribution of these biologics will be discussed. Students in the course will also participate in a project wherein they conceive of an idea for a value-added product, research steps necessary to bring said product to market, investigate aspects related to intellectual property, and develop a marketing plan. The student project will culminate in a class competition where students will choose to invest their "biotech bucks" in a fellow student's proposed company. Throughout the entirety of the course, the concepts of entrepreneurship and innovation will be at the forefront of class discussions.

Enforced Prerequisite at Enrollment: (BMB 442 or BIOTC 459 or HORT 459 pr BIOL 459) and (MICRB 201 or MICRB 201H) and (MICRB 202 or MICRB 203)

Cross-listed with: BIOTC 416

MICRB 421M: Laboratory of General and Applied Microbiology

3 Credits

Laboratory exercises demonstrating fundamental techniques and principles of experimentation of general and applied microbiology.

Honors

Writing Across the Curriculum

MICRB 421W: Laboratory of General and Applied Microbiology

3 Credits

Laboratory exercises demonstrating fundamental techniques and principles of experimentation of general and applied microbiology.

Enforced Prerequisite at Enrollment: (MICRB 201 or MICRB 201H) and (MICRB 202 or MICRB 203)

Writing Across the Curriculum

MICRB 422: Medical Microbiology Laboratory

2 Credits

Advanced level microbiology laboratory course centered on medically important microorganisms including bacteria, fungi and parasites. Course content covers pathology and current techniques for identification of each microorganism, as well as the underlying concepts, such as physiological and biochemical properties.

Enforced Prerequisite at Enrollment: MICRB 202 or MICRB 203

Concurrent Courses: MICRB 412

MICRB 432: Advanced Immunology: Signaling in the Immune System

3 Credits

The study of signaling pathways that regulate the immune response. BMB 432 / MICRB 432 / VBSC 432 Advanced Immunology: Signaling in the Immune System (3) This course will use the immune system as a model in which to study how cells communicate in order to coordinate an immune response. We will focus on signaling mechanisms

that regulate such immune responses as T cell activation, Th1/Th2 differentiation, macrophage activation, and migration of immune cells to sites of inflammation. All lectures are based on recent reviews by key investigators in each field, as well as primary articles to present students with the most recent advances, techniques, and approaches used. The goal of the course will be to convey a basis understanding of intracellular signaling mechanisms that will pertain to all areas of biology, an appreciation for current questions and future directions in the field, and an in depth understanding of the signals that govern immune responses. The material presented will build on the basic concepts learned in BMB 400 and MICRB 410, and will lay the foundation for more advanced courses at the graduate level.

Enforced Prerequisite at Enrollment: (BMB 251 or MICRB 251 or BIOL 230W or BMB 251H or BIOL 230M) and (MICRB 410 or VBSC 410)
Cross-listed with: BMB 432, VBSC 432

MICRB 435: Viral Pathogenesis

3 Credits

Viral Pathogenesis provides students with a general knowledge of medically relevant viruses, with a specific focus on important human viral pathogens. The course is meant to help students understand how viruses cause diseases in humans and animals. Lectures and in-class discussions will focus both on the fundamentals of viral infection and disease mechanisms, and on contemporary virology-related topics in the scientific literature. Topics discussed can be divided into two main areas: (1) general concepts related to viral pathogenesis and the control of viral infections; and (2) specific viruses that cause human disease including HIV-1, herpes viruses, papillomaviruses, influenza virus, West Nile virus, Ebola virus, and SARS virus. Although prior knowledge of virology is not required for taking this course, a working knowledge of molecular biology, cell biology, immunology, and some microbiology is helpful.

Enforced Prerequisite at Enrollment: (MICRB 201 or MICRB 201H) and (BMB 252 or MICRB 252 or BMB 252H) or (BIOL 230W or BIOL 230M)

Cross-listed with: BMB 435, VBSC 435

MICRB 447: Laboratory in Molecular Immunology

1 Credits

Immunology laboratory course that centers on current molecular techniques that utilize immunological components. Students will learn to purify and label antibodies, detect antigens and titer antibodies. Example techniques taught in this course are Dot Blot, Western Blot and ELISA. Most techniques will be taught in a diagnostics or inquiry-based context.

RECOMMENDED PREPARATIONS: MICRB 410 or VBSC 410

MICRB 450: Bacterial Genetics

3 Credits

Emphasis will be on the role of mutations in the analysis of gene function; a detailed analysis of replication, transcription, translation, recombination and DNA repair. The course will also delve into the mechanisms involved in the regulation of gene expression both at the individual gene level as well as on a "global" scale. The course will examine the structure, replication and utilization of plasmids, transposons and bacteriophages, particularly focusing on their roles in the horizontal transfer of DNA between bacteria. The course will include both formal lecture presentations by the instructor as well as

presentations of published research related to the field of bacterial genetics whenever possible.

Enforced Prerequisite At Enrollment: (BMB 251 or MICRB 251 or BMB 251H or BIOL 230W or BIOL 230M) and (MICRB 201 or MICRB 201H)
Cross-listed with: BMB 450

MICRB 460: Cell Growth and Differentiation

3 Credits

Mechanisms and regulation of protein trafficking, organelle biosynthesis, cell development, signaling and cell cycle control. Emphasizes experimental design and analysis. BMB 460 / MICRB 460 Cell Growth and Differentiation (3) is a unique course that uses the primary literature to teach significant content in advanced cell biology while simultaneously exposing students to the scientific craft of experimental design and analysis. In addition to exploring historical and current cell biology research articles, students will develop two vital scientific skills; critical thinking as applied to experimental data and creative thinking about solving unresolved questions in cell biology. In this course students will read from journals to explore questions about cell biology and how cell biologists decipher cell functions. Instead of a general survey of cell biology, we delve into specific issues, often looking at "classic" papers describing how a specific phenomenon was first investigated to place current questions in context before progressing to the latest publications exploring how innovative techniques have been applied to deciphering cell function. The course is divided into units, each of which emphasizes content in a different area. Actual content may vary from year to year as the course is updated to reflect progress in a field of research. We have previously explored the general areas of cell membrane dynamics, intracellular protein trafficking, cell cycle regulation, cell signaling pathways and cancer cell biology. Finally, the course ends with a unit on stem cells and therapeutic cloning technology. A portion of the final unit is also devoted to discussing the ethical implications of stem cell research with an emphasis on how to make personal decisions about how our society should approach these issues. Reading guides are provided for each assignment to help students find and understand important points in reading assignments. Class periods are devoted to explanations and instructor-led discussions about the readings with an emphasis on understanding the questions, the methods used to approach the questions, the experimental results and the interpretations of the results. Furthermore, periodic class periods are dedicated to experimental approach exercises where students work in groups to practice posing new questions as suggested by our readings and proposing experiments to answer these questions. These skills are vital part of what cell biologists do daily, and these exercises provide practice in thinking like a scientist. Students have previously reported that by taking this course they acquired the ability to read and understand the primary literature and have gained an in-depth understanding about how to use various experimental techniques.

Enforced Prerequisite at Enrollment: BMB 252 or MICRB 252 or BMB 252H or BIOL 230W or BIOL 230M
Cross-listed with: BMB 460

MICRB 480: Cancer Development and Progression

3 Credits

BMB 480 / MICRB 480 Cancer Development and Progression (3) explores how cancer initiates and progresses with a focus on the interactions between tumor cells and normal tissues in the body. The goal of the course is to build fundamental knowledge of the mechanisms that drive

cancer, and the current advances and challenges in cancer treatment. Genetic, biochemical, mechanical, and metabolic aspects of cancer will all be discussed along with relevant experimental techniques. RNA and DNA viruses that cause cancer will be highlighted as agents leading to the discovery of oncogene and tumor suppressor signaling pathways, and as ongoing contributors to cancer-related death. Significant attention will be given to the role of the immune system in cancer development, prevention, and treatment. By understanding mechanisms leading to the disruption of signaling pathways in cancer, students will develop a framework of how hallmark features of cancer arise and what corresponding therapeutic strategies have been developed to target them. Students are expected to participate in lectures and take part in discussion and analysis of scientific literature. This course applies core concepts from genetics, biochemistry, and cell biology to the study of cancer and provides a useful foundation for students interested in pursuing related graduate research or medical studies

Enforced Prerequisite at Enrollment: (BMB 252 or MICRB 252 or BMB 252H or BIOL 230W or BIOL 230M) and (BIOL 222 or BIOL 322)
RECOMMENDED PREPARATIONS MICRB 410 and BMB 460 and MICRB 415

Cross-listed with: BMB 480

MICRB 496: Independent Studies

1-18 Credits/Maximum of 18

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

MICRB 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

MICRB 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Mineral Processing (MNPR)

MNPR 301: Elements of Mineral Processing

3 Credits

Introduction to mineral process engineering. Sampling, sizing, comminution, physical and chemical processes, applications to industrial practice. Pollution control.

Enforced Prerequisite at Enrollment: (CHEM 110 or CHEM 106) and MATH 141

MNPR 401: Mineral Process Engineering

3 Credits

Unit operations for processing particulate materials: comminution, screening, classification, slurry pumping, thickening, filtration, etc.; application to mineral processing plant design.

Enforced Prerequisite at Enrollment: MNPR 301 and (MATH 250 or MATH 251)

MNPR 401H: Mineral Process Engineering

3 Credits

Unit operations for processing particulate materials: comminution, screening, classification, slurry pumping, thickening, filtration, etc.; application to mineral processing plant design.

Honors

MNPR 413: Mineral Processing Laboratory

1 Credits

A laboratory study of the chemical and physical principles involved in practical mineral processing operations.

Enforced Prerequisite or Concurrent at Enrollment: MNPR 301

MNPR 426: Aqueous Processing

3 Credits

A study of the chemical and engineering principles pertinent to metal processing in aqueous systems: hydrometallurgical extraction, plating, materials preparation. MATSE (MN PR) 426 Aqueous Processing (3) This 3-credit course deals with the chemical and engineering principles underlying the aqueous processing of metals: metal extraction from primary and secondary sources, electroplating, and metal finishing, powder synthesis, energy storage and conversion, and treatment of recycling of metal-containing toxic wastes.1. Physico-Chemical Principles - Thermodynamic, chemical kinetic and transport factors which control hydrochemical processes (leaching; precipitation; adsorption; solvent extraction; ion exchange; electrowinning, electrorefining and electroplating; membrane processes; energy storage and conversion); graphical representation of homogeneous and solid/solution equilibria; chemical reagents.2. Engineering Principles - Reactor design and staged operations; ideal batch, continuous stirred-tank and plug-flow reactors; fluidized bed reactors; electrochemical reactors; multistage separation processes (solid-liquid, liquid-liquid, and gas-liquid systems).3. Process Synthesis - Design of metal separation (extraction, refining, waste treatment) materials synthesis, metal finishing, and energy storage/conversion processes and system-integration of unit operations, industrial practice. Emphasis on closing circuits to minimize or eliminate waste effluents.

Enforced Prerequisite at Enrollment: EME 301 or MATSE 401

Cross-listed with: MATSE 426

MNPR 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

MNPR 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Mining (MNG)

MNG 223: Mineral Land and Mine Surveying

2 Credits

Surveying theory and practice applied to mineral lands and mines, traversing, leveling, mapping, underground surveying, microcomputer drafting and graphics. MNG 223 Mineral Land and Mine Surveying (2) The objective of this course is to introduce students to mine surveying principles, techniques, and products. Topics covered include a brief history of surveying; a brief review of trigonometry and related math needed in applications; review and application of AutoCAD needed for completing assignments; review of coordinate systems in the U.S.; discussion of types of measurements, units, and conversions that will be done; methods for doing the different types of measurements; introduction of surveying equipment and how to operate them; and use of GPS, laser scanning, 3-D imaging and photogrammetric systems. Laboratory assignments emphasize learning by doing, where students perform basic surveying functions by performing field surveying on campus and at a nearby mine, and then perform necessary calculations and plotting. Students will learn about various measurement methods and devices, error calculations, performing field surveying for topographic mapping, construction control, and volume/area measurement in surface and underground environment.

Prerequisite: 2nd semester standing; 1/2 unit of secondary school trigonometry

MNG 230: Introduction to Mining Engineering

3 Credits

Examination, development, and exploitation of mineral deposits; mining methods; unit operations; mining equipment; fundamentals of explosives.

MNG 302: Mine Electrical Systems

3 Credits

The infrastructure of mines includes power systems, communication and tracking systems, and monitoring systems. Larger surface and underground mines often have power systems of similar size and complexity to a large town, but with additional engineering challenges created by the need to move the power system as mining advances, the confined spaces of underground mines, and the possible presence of combustible ores or explosive gases. Specialized communication systems are required in many underground mines because radio waves propagate poorly in these spaces. Personnel tracking systems are sometimes used to provide location information for all miners. Mine-wide monitoring systems are becoming increasingly common to improve personnel safety and equipment maintainability. In total, these mine electrical systems are a vital component of modern mines. Mining engineers take the lead role in the design and specification of these systems, just as they would for the materials handling, ventilation, and other ancillary systems of the mine. The goal of this course is to develop the necessary knowledge and engineering skills so that this work can be performed in a competent and safe manner. Circuit laws and network theorems are reviewed and the analysis of circuits is presented. The use of phasors and impedance diagrams, and the concepts of complex power and the power triangle are introduced. Models for two and three-winding transformers are presented, and the fundamental electromechanical concepts for motors and generators are given. The analysis of balanced three-phase is studied. Next, the basic concepts of power system

protection are addressed. Grounding, ground bed design, and related topics are presented. Shock, fire, and explosion hazards are an everyday concern in mines, and the basic approaches for mitigating these hazards are covered. Distribution and utilization system arrangements, and the typical equipment for providing power within mines, are studied. Case studies from surface and underground mines are used to illustrate the concepts. The role of load flow and fault analyses in the design and operation of mine power systems is explained, and these concepts are applied using software tools. The application fundamentals of communications, tracking, and monitoring systems are presented, along with their operational advantages and limitations. The course culminates in a final project in which the mine electrical systems for a specific mine are designed.

Enforced Prerequisite at Enrollment: PHYS 212

MNG 331: Rock Mechanics

3 Credits

Ground stresses, laboratory rock properties, laboratory and field instrumentation, rock mass characteristics, subsidence, slope stability, design of mine workings. MNG 331 Rock Mechanics (3) This course was designed to introduce the student to the subject of rock mechanics. It includes an introduction to experimental stress analysis, the physical properties of rock, underground stresses, laboratory and field instrumentation, model studies, rock mass properties, and the discussion of a number of rock mechanics field applications associated with mining, petroleum and civil engineering, and geoscience. A technical paper written on some field related to the laboratory and/or theoretical aspect of rock mechanics is required. A series of eight laboratory sessions are included. These give the students hands-on experience relative to the concepts and instrumentation problems discussed in lectures.

Enforced Prerequisite at Enrollment: EMCH 210

MNG 401: Introduction to Mining Operations

1 Credits

The mining industry consists of various stages of prospecting, exploration, beneficiation, development, and processing of naturally occurred solid minerals. These minerals include both metals (copper, iron, zinc, etc.) and nonmetals (coal, potash, limestone etc.), and all of these minerals are closely related to our daily life. For example, the coal still accounts for more than 50% of the electrical energy production. Both surface and underground mining has a long history globally. Modern techniques and large equipment have been applied in mining industry to increase the production effectiveness and create a healthy and safety environment in mining industry. This course offers an introduction to mining operations and related issues. The course will start with the role of minerals and mining in our daily lives and modern society. How should we classify and recognize different types of minerals beneath the earth? The course examines various stages of mining including prospecting, exploration, development, exploitation, and reclamation. From a mining engineer perspective, how to design a mining system form the beginning to the end. Common unit operations in mining, mining equipment, and some of the auxiliary processes are covered. Surface mining methods and surface mine development will be presented, as well the underground mining methods and the development of underground mines. The objective of this course is to introduce students to mining operations through study of basic concepts and equipment that facilitate the extraction of mineral resources. This includes learning about the stages of a mining project and life cycle of a mine, understanding

the concepts of ore grades and reserves, mine development, mining methods, and unit operations that are essential to the operation of a mine. Through this course, students should build up the basic structure of mining industry, master the primary stages of developing a surface and underground mine, and enable to select a proper mining method based on the information of geology, deposit condition, mineral properties and so on. Equipment selection and capacity calculation at different mining stages is expected through learning in this course as well.

Enforced Prerequisite at Enrollment: MATH 141

MNG 404: Mine Materials Handling Systems

2 Credits/Maximum of 2

The objective of this course is to provide students with the basic principles and methodology involved in design of material handling systems used in the mining industry. The course will cover various types of material handling methods and equipment including continuous and cyclic loading and transportation systems. The course will review surface mining equipment including loaders, shovels, draglines, trucks, rail, dozers and scrapers. It will also discuss underground mining and various equipment such as loaders, rail, shuttle cars and coal haulers, panel conveyance and vertical transportation including hoisting and vertical conveyor. The design approaches will be discussed including the calculation of cycles, capacity of the system and equipment selection.

Enforced Concurrent at Enrollment: MNG 230

MNG 410: Underground Mining

3 Credits

Underground mine design; extraction techniques; description of auxiliary operations as they relate to the mining methods. MNG 410 Underground Mining (3) The purpose of this course is to describe the logic and discuss the steps taken in the planning and design of an underground mine. Since every underground mine incorporates a unique combination of technological, economic, legal, social, and environmental factors, the course will stress the auxiliary operations (ventilation, ground control, etc.) which must be accommodated, as well as the unit operations and equipment dealing with resource extraction.

Enforced Prerequisite at Enrollment: MNG 404 and MNG 422 and MNG 331

MNG 410H: Underground Coal Extraction

2 Credits

Underground coal-mine design; extraction techniques; description of the various auxiliary operations as they relate to the mining methods.

Honors

MNG 411: Mine Systems Engineering

2 Credits

This course is aimed at applying operations research and systems methods for decision making in mine operations to improve productivity. The course is designed to introduce the student to the subject of applied operations research and systems methods for efficiently solving various problems in mine design and operations analysis. The major topics include linear programming, the simplex method, transportation problem, network models, critical path method, engineering statistics,

regression analysis, simulation techniques. The course uses various mining production and optimization case studies to demonstrate the importance of operation research in the mining production management. The course also use introduce the concept of time study for the multi-process mining operation and use the statistical method for the data analysis.

Enforced Prerequisite at Enrollment: MNG 230 and MNG 404

MNG 412: Mineral Property Evaluation

3 Credits

Ore reserve estimation using statistics and geostatistics, mine cost estimation, engineering economy concepts applied to mineral deposits. Students are prepared for a comprehensive understanding of how a resource or reserve is assessed in the mining industry. The students learn the following topics: background of mineral exploration (requirements for exploration and data collection, as well as exploration tools and techniques), manual techniques for ore reserve evaluation, computer methods for geostatistics (inverse distance, kriging, and block modeling concepts), reporting (scoping, prefeasibility study, and feasibility study), the time value of money (present, annual, and future value; and rate or return), project evaluation (mutually exclusive and non-mutually exclusive projects), depreciation, depletion, amortization, after tax cash flow, discounted cash flow analysis, after tax investment decision, and uncertainty and risk analysis.

Enforced Prerequisite at Enrollment: STAT 401 Enforced Concurrent at Enrollment: MNG 230

MNG 422: Mine Ventilation and Air Conditioning

3 Credits

The objective of this course is to develop for students a thorough understanding and working knowledge of the health, safety, legal, economic, and reliability aspects of mine ventilation and air conditioning systems and their design and analysis. Strong emphasis is placed on engineering design of mine ventilation systems for underground mines. Mining Engineers working in underground mines must have the skills to design, implement, monitor and maintain the ventilation systems in place to ensure a comfortable working environment. The course provides you with the knowledge necessary to do so. This course also includes an overview of basics of thermodynamics. After completing this course, you will be able to decide on fan size, airway geometry, monitor ventilation performance, determine heat loads and design future ventilation plans. The following topics are covered in this course: (1) The Mechanics of Mine Ventilation: Introduction and history of the subject; airflow systems, forcing, exhausting and push-pull configuration; determination of air quantity requirements and measurement of airflow in mine openings; laws of airflow; airway and circuit resistance; ventilation economics; (2) Airflow Planning: Air quantity surveys; pressure surveys, gauge and tube, barometer techniques; ventilation network analysis, numerical methods; simulation programs; (3) Thermodynamics of Mine Ventilation: Basics of thermodynamics, steady-flow relationships; laws of thermodynamics; frictional flow, isothermal, isentropic and polytropic processes; thermodynamics cycles in mine circuits, downcast and upcast shafts, workings, natural ventilation and natural/fan ventilation combined.

Enforced Prerequisite at Enrollment: (CE 360 or EME 303) and MNG 230

MNG 441: Surface Mining Systems and Design

3 Credits

Design of surface mining for non-coal and coal minerals, emphasis on open pit, quarry and strip mining planning parameters: unit operations, systems, haul roads, draglines, spoil stability, reclamation, legal requirements, and health and safety. The objective of this course is to provide students with the basic principles and methodology involved in surface mining and design. The topics covered in this course include: 1- surface mining methods, 2- mine design and planning including slope stability, road design and construction, stripping ratio calculations, pit limits, production planning, 3- surface mining operations including overburden removal, drilling and blasting, loading and hauling operation, 4- mine reclamation, environmental consideration, legal requirements, health and safety. The students learn how to utilize software packages for mine design and planning.

Enforced Prerequisite at Enrollment: MNG 230 and MNG 404

MNG 451W: Mining Engineering Project

1-5 Credits/Maximum of 5

Independent and integrative design and report of specific mine evaluation, layout, equipment selection, environmental control, permitting, and financial analysis.

Enforced Prerequisite at Enrollment: MNG 331 and MNG 404 and MNG 412 and MNG 422 Enforced Concurrent at Enrollment: MNG 410 and MNG 441

Writing Across the Curriculum

MNG 494H: Thesis Research

1-6 Credits/Maximum of 6

Independent research under the supervision of the Mining Engineering program.

Enforced Prerequisite at Enrollment: Prior approval of program Honors

MNG 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

MNG 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given on a topical or special interest subject which may be offered infrequently; several different topics may be taught in one year or term.

Mining Technology (MNGT)

MNGT 100: Mining Technology Orientation

1 Credits

Introduction to the underground mining industry including history, terminology, current mining equipment and methods, regulations, organization. MNG T 100 Mining Technology Orientation (1) *Mining

Technology Orientation' is a first semester introduction to the underground mining industry from past to present. The student will be introduced to basic mining systems and their evolution over the last century. Mining terminology and its unique application will be discussed. The impact of mining regulations will be reviewed. Possible career paths and the organization of mining companies will be included in this orientation. Visits producing coal mines will be required. Students who successfully complete this course will be able to: a. Discuss changes in mining methods over the years. b. Demonstrate knowledge of terminology used in mining industry. c. Explain how state and federal regulations impact mine operation. d. List several career options in mining, and the skills required by each.

MNGT 110: Mining Administration and Law

3 Credits

Introduction to mine organization and management structure, and government regulations regarding permitting, reporting and recordkeeping. MNG T 110 Mining Administration and Law (3) 'Mining Administration and Law' is a second semester course that provides a framework for the student to understand the mine organization and management structure and organization. It will also introduce the student to the state and federal regulations regarding permitting, and reporting, and record keeping. This course provides a background for and is a prerequisite for MNG T 216. Students who successfully complete this course will be able to: a. Explain the basic organization of a mining operation from the general superintendent to the laborer. b. Know and understand the basic concepts of a safety program. c. Use and apply accident analysis statistics to further improve a safety program. d. Discuss the development of rules and regulations with focus on those that impact the first line supervisor. e. Understand the process for promulgating new rules and regulations. f. Demonstrate basic management techniques that a first line supervisor will use in performance of his/her job.

MNGT 202: Mining Ventilation

3 Credits/Maximum of 3

Introduction to mine ventilation systems at mine face, mine gases and use of gas detection equipment, state and federal regulations. MNG T 202 Mining Ventilation (3) 'Mining Ventilation' is an introduction course in mine ventilation systems, equipment and mine gases for students in the productions emphasis only. The course will emphasize ventilation systems used in mining sections at the mine faces. Gas detection devices will be demonstrated and students will become proficient in their uses. The requirements of both state and federal regulations will be discussed and reviewed. General complete mine ventilation will be discussed. CHEM 011 provides a background in combustion and gas reactions, while PHYS 150 provides a background on the static and dynamic forces of moving air. This course requires MNG T 030 as a prerequisite to ensure that students have a basic understanding of background mining methods and equipment. Students who successfully complete this course will be able to: a. Explain role of ventilation in the mining environment. b. Explain and understand section ventilation and long-wall ventilation systems. c. Demonstrate proper use of instruments to measure air pressure, flow rate and air quality, and interpret measured results. d. Describe and interpret federal and state regulations related to mine ventilation. e. Understand ventilation mapping and explain how flow is affected by various mining methods. f. Explain ventilation flow through a mine complex. g. Know all of the mine gases.

Prerequisite: CHEM 101 , PHYS 150 , MNG T030

MNGT 204: Mine Plant Technology

3 Credits

Electrical, transportation, ventilation, and other systems required to operate underground coal mine, and to transport and process coal.

Prerequisite: PHYS 150

MNGT 205W: Mining Systems Technology

3 Credits

Comparison of mining methods with focus on preventative maintenance, coal transport, and estimating production and manpower needs. MNG T 205W Mining Systems Technology (3) Review of the impact of various methods of room & pillar and longwall mining on the mining operation, the systems required to transport coal from the mine, and the needs for preventative maintenance for each. Quantitative methods for evaluating the production capabilities and manpower requirements of each will also be explored.

Prerequisite: MNG T030

Writing Across the Curriculum

MNGT 207: Electric Mine Machine Circuits

3 Credits

Application of electric power and safety issues related to the installation and maintenance of circuits and various power control devices. MNG T 207 Electric Mine Machine Circuits (3) 'Electric Mine Machine Circuits' is a fourth semester course for students in the maintenance emphasis only and provides a basic foundation in the application of electric power and safety issues related to the installation and maintenance of circuits and various power control devices from the transformer to the mine face. MNG T 204 is a prerequisite to ensure students have a basic understanding of mine plant equipment. Students who successfully complete this course will be able to: a. Explain the application of AC and DC power in mining, their effect on motors, and the advantages and disadvantages of each. b. Use electrical equations to determine AC and DC power requirements, voltage, amperage, and power factor. c. Understand and use of electrical cables and battery power in the mining industry, the maintenance requirements of each, and the advantages and disadvantages of each. d. Read electrical wiring schematics and identify symbols. Be able to identify differences between schematic and actual wiring. e. Determine the maintenance and record keeping required for electrical face equipment to maintain permissible condition and regulatory compliance.

Prerequisite: MNG T204

MNGT 208: Mine Power Distribution

3 Credits

Topics of high voltage circuits, underground transmission, power stations, power conversion, safety regulations and power devices. MNG T 208 Mine Power Distribution (3) 'Mine Power Distribution' is a fourth semester course for students in the maintenance emphasis only and provides a background into how to distribute and adequately protect the high voltage electricity supply throughout the mining environment to serve the underground transformer for distribution to the variety of electrical systems used. MNG T 204 is a prerequisite to ensure students

have a basic understanding of mine plant equipment. Students who successfully complete this course will be able to: a. Explain state and federal safety requirements in relation to high-voltage mine power systems. b. Calculate total power requirements for given section of connected equipment, including recommended sectionalizing equipment and overload settings. c. Demonstrate knowledge of typical mine power distribution systems, identify the key components and how they function. d. Examine the requirements for splicing and terminating high-voltage mine power cables, and effects of improperly made repairs.

Prerequisite: MNG T204

MNGT 209: Mine Machinery Control Methods

2 Credits

Basic principles and applications of solid state, variable frequency, PLC, electro hydraulic and networked controls in mine machinery. MNG T 209 Mine Machinery Control Methods (2) 'Mine Machinery Control Methods' is a third semester course for students in the Maintenance emphasis and provides information on the current methods used to operate and control the various driven functions of speed in rotating mining equipment. The interface between motors and computer controls, including the safety and automated interlocks will be covered. MNG T 030 is a required prerequisite to provide a technical functional understanding of the operation of the equipment being controlled. MATH 082 and PHYS 150 are required prerequisites to ensure that the students can perform the required performance calculations. Students who successfully complete this course will be able to: a. Investigate various types of networked controls, their function and capability, and list the advantages and disadvantages of each. b. Explain the applicable state and federal regulations related to low, medium, and high voltage systems. c. Troubleshoot various types of control circuits to identify faulty wiring, components, or software. d. Demonstrate ability to install software, set operating parameters, default values, and recommend adjustments to optimize system reliability. e. Investigate the ramification of automated systems in the underground environment, both positive and negative.

Prerequisite: PHYS 150 , MNG T030 , MATH 082

MNGT 210: Mine Machine Dynamics

3 Credits

Operation and interaction of mechanized equipment used at the coal face including common electrical, hydraulic and mechanical systems.

Prerequisite: PHYS 150

MNGT 211: Practicum in Mining Technology

3 Credits

Field and shop techniques in procedures of electrical, mechanical and ventilation phases of mine maintenance MNG T 211 Practicum in Mining Technology (3) 'Practicum in Mining Technology' is a fourth semester course that provides students with the practical application of modern equipment and techniques used during the installation, relocation, and repair of complex mining equipment and systems as they are applied in the underground environment. MNG T 204 is a prerequisite to ensure students have a basic understanding of mine plant equipment. Students who successfully complete this course will be able to: a. Plan the installation of all equipment required to successfully install a complete continuous miner section. b. Plan the successful relocation of a modern long-wall mining section from a completed panel to a new panel. c.

Demonstrate an ability to conduct or supervise the safe repair of low, medium, and high-voltage equipment in compliance with all regulatory requirements. d. Explain and demonstrate how to safely troubleshoot and/or repair high-pressure mine hydraulic systems. e. Discuss and demonstrate the steps required to conduct ox-acetylene and electric arc-welding repair of equipment in compliance with regulatory requirements. f. Practice the application and safe operation of manual lifting aides and devices used to facilitate the repair of large mining components.

Prerequisite: MNG T204

MNGT 213: Strata Control Methods

3 Credits

Introduce pillar-design parameters, roof control planning, roof bolting, standing supports, rib stability, floor condition problems, and longwall strata control. MNGT 213 Strata Control Methods (3) Strata Control Methods is designed to introduce pillar-design parameters, roof control planning, roof bolting, standing supports, rib stability, floor condition problems, and longwall strata control in the Mining Environment. Pillar-design parameters, take into account the structural geology features related to mining. The impact of Geologic Data being extremely useful in assessing mining conditions and aiding in indicating necessary control measures to be taken with increased width, destructive stresses resulting in failure may be produced in the mine roof, bottom, and pillars causing serious limitations on pillar width. The effects of pillar design by incorporating Pillar Collapse through Failure Characteristics, Failure Mechanisms, and Failure Prevention, and the impact that may be contributed to Coal Bumps and Gas Outbursts. A review of the basic strata control theories and applications which incorporates Environmental Impacts of both Subsidence and Reclamation. Roof Control Planning reviews the strata control theories and applications by introducing the inter-related system of the mines roof, ribs and floor. The introduction of roof control theory and fundamentals with emphasis placed on ground control being a three part process of proper sizing of openings, proper sizing of pillars and selection of proper artificial supports. Also, within the element of roof control planning, MSHA requirements are introduced and incorporated. Roof Bolting and Standing Supports are brought to the forefront while maintaining an understanding of the three mechanisms of roof bolting which are: Beam Building, Suspension and Keying. Depending on conditions and applications, bolting may range from resin-anchored combination bolts, tensioned rebar, mechanically-anchored resin-assisted systems, cable bolts, and other specialty supplemental supports. The applications of standing supports are discussed in roof support planning as they are used either as remedial measures or throughout gate roads where bolting systems must be coupled with roof-to-floor supports. Rib Stability and Floor Condition Problems are addressed through rib stabilization methods and proper support installation along with floor condition problems, prevention and control. With the sources of Roof/Rib Hazards in Underground coal mines being associated with the two broad categories being Natural and Mining Related, Geologic hazards and high stresses associated with deep cover are addressed allowing for appropriate action to be identified and proper supports to be utilized. Longwall Strata Control theories and methods are discussed as they require special precautions to be taken in response to the elevated stress levels encountered. This is done through properly designed gate entry chain pillars to achieve roof/floor stability and mitigate bumps. Also, included are shields as roof support mechanisms and guarding installation on longwall equipment.

Prerequisite: GEOSC020

MNGT 214: Mining Management I

3 Credits

Leadership skill development for supervisors, managing change, tools to plan, organize, control, communicate and monitor effectively. MNG T 214 Mining Management I (3) 'Mine Management I' will provide students with the introductory skills for individual, group and one-on-one leadership skills to keep up with evolving management roles and responsibilities. This course will explore how supervisors can maintain technical expertise while demonstrating effective leadership. This process includes the tools supervisors use to plan, organize, control communicate and monitor effectively. This course serves as a prerequisite to MNG T 215. Students who successfully complete this course will be able to: a. Succeed in a rapidly changing environment b. Plan, organize, communicate and monitor c. Apply the most appropriate supervisory style to individuals and situations d. Apply appropriate motivational techniques e. Use delegation for effective employee performance and development, time management and motivation f. Create an action plan g. Develop interpersonal skills that help communicate, listen, and handle conflicts h. Analyze their own behavior style and recognize strengths and weaknesses i. Given a labor situation, describe a plan of action toward resolution j. Identify the characteristics of A & B personalities and explain how they might be managed differently k. Explain a given organizational chart and the focus and function at different management levels l. Given an emergency situation at a mining operation, recommend a hypothetical course of action to avoid loss of life and personal injury, and minimize impact on production capability and reserves

MNGT 215: Mining Management II

3 Credits

Financial management, effective meeting management, critical thinking, project management and cost and risk control. MNG T 215 Mining Management II (3) 'Mine Management II' is a follow-up to Mine Management I (Mining Technology 214) for students in production emphasis only. The primary goals of the course are to further explore and develop management skills to be an effective leader in an ever-changing industry. This process includes financial management, effective meeting management, critical thinking, project management and cost and risk control. Students who successfully complete this course will be able to: a. Get a firm grasp of the financial side of the job. b. Understand the business dynamics of dollars and cents. c. Set and meet goals for your projects. d. Understand the principles of process management. e. Apply process management to process issues and customer satisfaction. f. Reduce the need for crisis supplies. g. Identify the actions/approaches you can take to avoid or mitigate risk. h. Build the trust and rapport necessary for effective coaching. i. Effectively conduct meetings. j. Interpret typical income and expense balance sheets. k. Produce preliminary cost estimate (+/- 10%) for given application. l. Demonstrate appropriate oral and written communication skills. m. Prepare hypothetical request for capital improvements required to maintain or improve productivity, complete with financial justification.

Prerequisite: MNG T214

MNGT 216: Mine Regulations and Laws

3 Credits

State and federal mining regulations and application to underground coal mines. Relationship with company policies and consequences of non-compliance. MNG T 216 'Mine Regulations and Laws' (3) 'Mine Regulations and Laws' is a fourth semester course that builds on the knowledge gained in the prerequisite, MNG T 110, by providing more advanced study into state and federal regulations and company policies regarding equipment and electrical inspection, personnel safety and egress, and measurement of related environmental conditions within the mine. This class includes discussions on the interaction of state and federal regulation and the conflicts created by applying each. The consequences of non-compliance are also discussed. Students who successfully complete this course will be able to: a. This course is designed to familiarize the student with the applicable underground coal mining regulations and how they are interpreted and enforced. b. For a specified situation, find and interpret appropriate sections of PA Bituminous Coal Mining Act. c. Develop and evaluate alternative solutions to a proposed regulatory issue. d. Conduct a discussion with a mining inspector, in regards to a violation and potential monetary penalty.

Prerequisite: MNG T110

Music (MUSIC)

MUSIC 4: Film Music

3 Credits

An introductory examination of music's role in Hollywood narrative film from the classic era (1930s and 1940s) to the present. MUSIC 4 Film Music (3) (GA)The course examines the role of music in narrative film, the premier art form of the twentieth and twenty-first centuries. The popularity, significance, and value of film art would not be what it is today if music had not become an integral—indeed, indispensable—part of motion pictures from the outset. Preliminary objectives will include basic musical information (the fundamental elements of music; the broad stylistic eras of western music and their associated characteristics; the culturally encoded language of tonal music and associated musical meaning) and the main techniques of narrative film. The main objectives of the course are: to identify and recognize the principles of nondiegetic music in narrative film; to identify and recognize the purpose and functions of music in narrative film; to recognize some of the historic eras/genres/trends in Hollywood film making; to identify and recognize selected films, directors and composers; to analyze and articulate the role of music in a given scene and in a given film; and to recognize underlying assumptions and values of the culture conveyed through the diegesis. These objectives will be met by addressing such questions as: What are the underlying principles of music in film? What are the functions of music/sound within a particular scene and how does it achieve those functions? What do we see of what we hear, and what do we hear of what we see—and why? What secrets does music tell? To what extent does music influence—even control—our interpretation of a film? More broadly, to what extent do films reflect our culture, past and present—our interests, our values?

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

MUSIC 5: An Introduction to Western Music

3 Credits

MUSIC 5 is a course on listening, with emphasis on the relationship between musical style and historical context. Students will learn the basic skills of informed music-listening: how to hear and describe melody (phrase structure; motive; developmental strategies), harmony (the basic principles of the tonal system), rhythm (meter, tempo, and their application), timbre (including a full knowledge of the instrumental families [strings, winds, brass, percussion] and voice types), and texture (monophony, homophony, polyphony). Students will also become familiar with the eras of western musical history, and to consider relationships between musical style and non-musical developments (e.g. the intellectual environment of the Enlightenment and the Classical style in music). The course begins with an introduction to the elements of music. The goal of this section is to give all students, whether or not they have previous experience as performers, the basic skills necessary to approach any musical work as informed listeners. This activity takes four weeks. The remaining portion of the course is spent surveying the history of western music, with that history treated as a series of case studies: particular works are considered stylistically but also with regard to the historical circumstances of their production and consumption. From this activity students gain experience considering artworks in discipline-specific terms, even as they learn to relate particular artistic features to non-musical factors of culture and society. Two methods of evaluation are used. Examinations (the number determined by the instructor) test the students' mastery of the course material. Concert reports (again in a number determined by the instructor) give students the opportunity to apply that knowledge to the act of listening in an authentic performance setting. Ample time is provided in lectures for questions and discussion of the course material and of repertoire and issues suggested by the students.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

MUSIC 7: Evolution of Jazz

3 Credits

Study of the origins and development of jazz as an art form. MUSIC 7 Evolution of Jazz (3) (GA;US)(BA) This course meets the Bachelor of Arts degree requirements. Evolution of Jazz is a course designed to examine the historical and sociological aspects of the American art form: jazz. This general education course is for non-music majors. The material covered in this course begins with the precursors of jazz and then emphasizes the African American musical traditions and white American (initially European) influences that have shaped jazz as an American art form. This is followed by period studies of the various jazz styles: New Orleans Dixieland, Chicago Style, Swing, Bebop, Cool, Hard Bop, Modal Jazz, Free Jazz, Fusion Jazz, Neo-Bop, Latin Jazz, and the globalization of jazz. The various jazz styles are examined from musical, sociological, and economical perspectives. The major innovators and performers are identified and studied. As new styles are presented, a careful comparison to the previous style is done to help with classification. A major component of the course is listening. Early

in the course listening skills are taught. Students learn how to recognize certain instruments, hear the various sections within a group, and identify forms. Evaluation methods may include quizzes, tests, open forums, discussion boards, a live jazz concert review, and a reflection paper. Students will receive GA credit for this course, as well as US designation. The course will not satisfy any requirements for the major or minor in music. For in-class sections of MUSIC 7, the course requires high-quality audio playback equipment, computer/projection, and keyboard/piano availability. For those sections of MUSIC 7 offered online, all pieces, excerpts, examples, videos, and texts will be made available to students online.

Bachelor of Arts: Arts

United States Cultures (US)

General Education: Arts (GA)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

MUSIC 8: Rudiments of Music

3 Credits

Introduction to the elements of music: notation, scales, meter, rhythm, intervals; basic chord structure, cadences. MUSIC 8 Rudiments of Music (3) (GA)(BA) This course meets the Bachelor of Arts degree requirements. Learning the rudiments of music can be compared to the learning of a language. Students must learn to hear melodic, harmonic, and rhythmic patterns (audiation) before they sing, play or write in notation. In this introductory class, students are introduced to melodic, harmonic and rhythmic patterns by imitating the instructor who establishes these patterns at the piano, or by singing or as in the case of rhythm by striking a drum head. Eventually students will take turns "tossing" these patterns to teach other. Basic skills of improvisation can also be taught at this level of audiation by having students expand upon the basic patterns. As a result of these creative and aesthetic experiences, students will be able to translate the audiation of patterns into musical notation - moving from the smallest unit of a rhythmic motive towards the creation of a coherent rhythmic phrase. Similarly, at the melodic level, the student will begin with intervallic patterns and move towards the creation of a coherent melodic phrase. Intervals are then combined vertically to form harmonies. At the next stage of learning, students will learn to identify and to write that which they are hearing in dictation. This course in "musical literacy" enables students: (1) to deepen their appreciation of music (2) to begin studying a musical instrument and (3) to enter the rigorous study of music theory required of music majors.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

MUSIC 8H: Rudiments of Music

3 Credits

Introduction to the elements of music: notation, scales, meter, rhythm, intervals; basic chord structure.

Bachelor of Arts: Arts

Honors

MUSIC 9: Introduction to World Musics

3 Credits

This course introduces students to the study of world music as a cultural phenomenon through an examination of the music of Asia, Africa, West Asia, the Americas, and European folk. The course begins with an introduction to methods of examining world music and reframes the study of music as a cultural phenomenon, comprised not only of the music itself but also behavior and conception. This approach helps students move beyond their preconceived understanding of music in order to open their ears and minds to a wide variety of music and cultural concepts, forming the basis for the case studies that follow. The remainder of the course focuses on cultural conceptions of music, examined through the lens of a selection of case studies, including, but not limited to, the music of the Celtic nations, the African continent, Central and West Asia, India, Indonesia, Japan, and the Native American culture groups. The music of these cultures is explored both as a product and reflection of culture and as an aesthetic art form. Through this approach, students not only develop a basic fluency in the characteristics of selected world musics but also gain a broader understanding of the general classifications and geographical divisions of world music and the ways in which music relates to and is a part of all world cultures.

Assigned analyses and a final project provide students with the opportunity to explore particular types of world music not covered in the lessons in greater depth, examining both the music itself and the social context in which it is found. These analyses require students to think actively about contemporary musical developments around the world, including how they are affected by current socio-political events and cultural trends. World musics are best understood when students engage in the music and in discussions of the music and culture; thus there is also a class participation/discussion component for the purposes of evaluation. The course utilizes an interactive, multimedia online curriculum, including video-recorded performances, audio examples, and music notation files. The text and all musical examples are available to students online. The course is available for GA credit and also meets the definition of an International Cultures course. It does not satisfy any requirements for the major or minor in music.

Bachelor of Arts: Arts
International Cultures (IL)
General Education: Arts (GA)
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Key Literacies

MUSIC 11: Under the Hood: How Classical Music Works

3 Credits

This course examines selected works from twenty of the greatest composers of western art music, with emphasis on the baroque, classical and romantic eras. The curriculum combines aspects of two existing courses, Rudiments of Music (MUSIC 8) and Introduction to Western Music (MUSIC 5). Preliminary objectives will include basic musical information associated with tonality (the fundamental elements of music; the broad stylistic eras of western music and their associated characteristics). The main objectives of the course are: to explore techniques of tonal composition in detail, with an emphasis on conceptual understanding; to hear and recognize musical sounds and compositional devices within such comparative contexts as scales v. modes, diatonic v. chromatic, consonance v. dissonance, polyphony v.

homophony; to hear and recognize fundamental harmonic relationships between tonic and dominant, as well as their importance in the formal design of tonal music; to enhance appreciation for classical music and to encourage attendance of live performances. While students will necessarily acquire knowledge of fundamental elements of music, they will not be required to learn to read or write notated music to the same extent that is required of students in MUSIC 8. And while students will necessarily acquire knowledge of western music history, they will not study as many composers nor as many pieces as is customary in MUSIC 5. Instead, students will be drawn closer to a smaller number of works, and closer to the performances and the performers. Specific compositional devices (e.g., suspension, sequence, textures, rhythms, harmonies) will be highlighted in detail. These objectives will be met by utilizing an interactive, multimedia online curriculum, including demonstration videos by the author, a virtual keyboard and music notation files (e.g., Sibelius). An essential component of the online curriculum will be the inclusion of selected video-recorded performances, along with commentary from the performers. Twelve members of our performance faculty have been video-recorded in studio performance, allowing students a close-up view of a substantial portion of the repertoire to be examined. The course will be available for GA credit. It will not satisfy any requirements for the major or minor in music. All musical pieces and excerpts will be made available to students online.

Bachelor of Arts: Arts
General Education: Arts (GA)
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

MUSIC 40: First-Year Seminar in Music Education

1 Credits

Introduction to the University, the School of Music, the music education degree program, and the music teaching profession. MUSIC 040S First-Year Seminar in Music Education (1)(BA) This course meets the Bachelor of Arts degree requirements. This course is offered to music majors during their first semester who are intending to apply to the Teacher Certification Degree Program in Music Education. It provides prospective music teachers with an opportunity to: - learn about aspects of and opportunities available at the University in general. - learn about aspects of and opportunities available specifically at the PSU School of Music. - learn about the PSU music education curriculum and program. - gain a general understanding of the music teaching profession. - begin and develop a professional relationship with his/her advisor.

Bachelor of Arts: Arts
First-Year Seminar

MUSIC 50: Beginning Piano: Non-Music Major

1 Credits

Introduction to the keyboard, notation, chord progressions, transposition, improvisation, and simple accompanying techniques for the non-music major. An additional fee is required for this course. MUSIC 050 Beginning Piano: Non-Music Major (1) (GA)(BA) This course meets the Bachelor of Arts degree requirements. MUSIC 050 is a course designed to provide the beginning non-music major student with strategies for developing some of the basic skills required for playing the piano. No knowledge of music or piano is assumed and there are no prerequisites for the course. The course emphasizes strategies for learning to read and interpret

musical notation from two clefs and musically realize the notation in real time with a healthy physical approach to the keyboard. Practice of these strategies outside the class is expected and checked. Objectives include learning to accurately sight-play a single voice divided between the hands with some extensions and shifts beyond a five-finger position. Special facilities required to teach the course include a 17-keyboard Midi piano lab with visual displays for teacher demonstrations. The course is offered Fall and Spring semesters, often with multiple sections.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

MUSIC 51: Intermediate Class Piano: Non-Music Major

1 Credits

Music 51 is course designed to provide the intermediate non-music major student with strategies for developing some of the advanced skills required for playing the piano. Some knowledge of music or piano is assumed and Music 50 or a placement audition is a prerequisite for this course. The course emphasizes strategies for learning to read and interpret musical notation from two clefs and musically realize the notation in real time with a healthy physical approach to the keyboard. Practice of these strategies outside the class is expected and checked. Objectives include learning to accurately sight-play a multiple voice musical texture with many extensions and shifts beyond a five-finger position. Special facilities required to teach the course include a 17-keyboard midi piano lab with visual displays for teacher demonstrations. The course is offered every Fall and Spring semester.

Enforced Prerequisite at Enrollment: MUSIC 50

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

MUSIC 52: Voice Class: Non-Music Major

1 Credits

Group study emphasizing development of rudimentary skills and their recreational use in a range of popular and art music. MUSIC 052 Voice Class: Non-Music Major (1) (GA)(BA) This course meets the Bachelor of Arts degree requirements. This course is designed to present and apply basic principles of singing. Students learn songs, and address topics such as posture, breathing, tone production, expressiveness, and vocal health. Objectives are proficiency of breath management, a resonant vocal timbre, and effective communication in song. Evaluation is based on accuracy of music learning, improvement in technique and expressiveness, possible writing or listening assignments, and possible written quizzes. The course is offered every spring semester. The maximum enrollment is fifteen.

Bachelor of Arts: Arts

General Education: Arts (GA)

MUSIC 53: Class Voice Practicum

1 Credits

Voice study in group and individual formats, consisting of in-class lessons and discussions, enhanced by individual applied instruction from advanced voice pedagogy students. MUSIC 53 Class Voice Practicum (1) (GA)(BA) This course meets the Bachelor of Arts degree requirements. MUSIC 53 is a voice class experience that affords the enrolled student instruction in a class setting and in individual lessons. The weekly class meetings feature demonstration lessons between the enrolled student and his or her teacher (an advanced voice pedagogy student from the voice pedagogy curriculum). These lessons give the course instructor the opportunity to monitor the progress of the enrolled students, supervise and evaluate the teaching of the advanced voice pedagogy students, and make suggestions for further growth. Enrolled students and advanced voice pedagogy students also have the opportunity to learn by observing the demonstration lessons of others in the class. Lesson evaluation forms are completed and turned in at the end of each meeting. Class concerts typically occur at mid-term and at the end of the semester. These performances give the enrolled students the opportunity to display their vocal and musical progress. Individual lessons that enrolled students may receive out-of-class with the advanced voice pedagogy students give them an occasion for concentrated work in a more relaxed atmosphere. It may be of interest that this is the only course offering individual voice instruction in the School of Music that does not carry an additional applied music fee. In addition to the vocal and musical advancement for students enrolled in MUSIC 53, this course also serves as a progressive training ground in teaching for advanced voice pedagogy students. They gain important teaching experience in a closely supervised forum.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

MUSIC 54: Beginning Class Guitar: Non-Music Major

1 Credits

Class instruction in guitar for non-music majors. MUSIC 54 Beginning Class Guitar: Non-Music Major (1) (GA)(BA) This course meets the Bachelor of Arts degree requirements. This course provides opportunity to explore various styles of music while developing basic skills for playing guitar. Students will learn to play solo guitar, to perform basic accompaniment techniques, and to read music notation, tablature, and chord symbols. Meter, tonality, harmonic progressions, texture, and form as well as stylistic features of various strumming techniques comprise the core knowledge that is developed through the process of playing guitar. The course assumes no previous formal study of music. Assessments are performance-based with students demonstrating knowledge and skill acquired through individual playing tests scheduled throughout the semester.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

MUSIC 76: Chamber Orchestra

1 Credits/Maximum of 8

Chamber orchestra rehearsal and performance.

Bachelor of Arts: Arts

MUSIC 77: Philharmonic Orchestra

1 Credits/Maximum of 8

Orchestra rehearsal and performance. MUSIC 77 Philharmonic Orchestra (1 per semester/maximum of 8 (GA)(BA) This course meets the Bachelor of Arts degree requirements. The Philharmonic Orchestra is an auditioned instrumental ensemble that rehearses two times per week to develop student instrumental and musicianship skills as well as to develop individual and ensemble musicality and expression. Repertoire includes the standard literature from the 19th and 20th centuries as well as new music written for symphony orchestra. The ensemble presents at least two on-campus performances per semester, and off-campus performances are scheduled each year. The goals of this course are to develop the instrumental performing skills, music reading abilities, and interpretive capabilities of the class members within a large symphonic orchestra context. Students will be assessed by the use of performance evaluation and assessment of participation and contribution to established goals of the ensemble. The course is for students who have advanced performance skills on standard orchestral string, wind, and percussion instruments. An audition is required.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

MUSIC 78: Symphonic Wind Ensemble

1 Credits/Maximum of 8

Rehearsal and performance of wind repertoire and concert band literature. MUSIC 78 Symphonic Wind Ensemble (1 per semester/maximum of 8) (GA)(BA) This course meets the Bachelor of Arts degree requirements. The goals of this course are to develop the instrumental performance skills, music reading abilities, and interpretive capabilities of the class members within a wind ensemble (one player per part) concert band setting. The repertoire includes original concert band literature, transcriptions, and concert marches. The available literature covers a range of historical time periods from pre-Baroque to the present. Students are assessed by the use of performance evaluations, assessment of participation and contribution to established goals of the ensemble, and attendance at rehearsals and concerts. The course is designed for those students who have advanced performance skills on standard wind and percussion instruments. The Symphonic Wind Ensemble has performed at the Eastern Division Conference of the College Band Directors National Association, the Pennsylvania Music Educators Association In-Service Conference and the National Association for Music Educators Eastern Division Conference. It was also invited to open the 2005 Flicorno D'Oro international band festival in Riva del Garda, Italy, the first American band to be so honored. The ensemble has concertized in some of the country's most prestigious performing venues, including Heinz Hall (Pittsburgh), the John F. Kennedy Center for the Performing Arts (Washington D.C.), the Kimmel Center (Philadelphia),

The Music Center at Strathmore (North Bethesda, MD) and Lincoln Center (New York). An audition is required.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

MUSIC 79: Pep Band

1 Credits/Maximum of 8

Rehearsal and performance of appropriate music and choreography for athletic events. MUSIC 79 Pep Band (1 per semester/maximum of 8) (GA) This course develops the instrumental performance skills of class members within the pep band setting. Objectives are to combine high level musical and visual performance to create interesting and entertaining performances that are suitable for athletic/indoor venues. This course is open to students in all majors. Evaluation is based upon participation, the achievement of individual music, and contribution to the group performance goals. Class meetings occur in the rehearsal space and at various athletic buildings across campus.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

MUSIC 80: Symphonic Band

1 Credits/Maximum of 8

Rehearsal and performance of wind repertoire and concert band literature. MUSIC 80 Symphonic Band (1 per semester/maximum of 8) (GA)(BA) This course meets the Bachelor of Arts degree requirements. The goals of this course are to develop the instrumental performance skills, music reading abilities, and interpretive capabilities of the class members within a full concert band setting. The repertoire includes original concert band literature, transcriptions, and concert marches. The available literature covers a range of historical time periods from pre-Baroque to contemporary music written by living composers. Students are assessed by the use of performance evaluations, assessment of participation and contribution to established goals of the ensemble, and attendance at rehearsal and concerts. The course is designed for those students who have advanced performance skills on standard wind and percussion instruments. An audition is required.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

MUSIC 81: Marching Blue Band

1 Credits/Maximum of 4

Rehearsal and performance of appropriate music and maneuvers for football games and related events. MUSIC 81 Marching Blue Band (1 per semester/maximum of 4) (GA)(BA) This course meets the Bachelor of Arts degree requirements. This course develops the instrumental

performance skills and marching skills of class members within the marching band setting. Objectives are to combine high level musical and visual performance with uniform marching style to create interesting and entertaining maneuvers suitable for parades, football games, and other athletic/outdoor venues. This course is open to students in all majors. Evaluation is based upon participation, achievement of individual music and marching performance requirements, and contribution to group performance goals. An audition is required for participation.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

MUSIC 82: Concert Band

1 Credits/Maximum of 8

Rehearsal and performance of concert band literature. MUSIC 82 Concert Band (1 per semester/maximum of 8) (GA)(BA) This course meets the Bachelor of Arts degree requirements. The goals of the course are to develop the instrumental performance skills, music reading abilities, and interpretive capabilities of the class members within a moderately advanced large concert band setting. The repertoire includes original concert band literature, transcriptions, and concert marches. The available literature covers a range of historical time periods from pre-Baroque to the present. Students are assessed by the use of performance evaluations, assessment of participation and contribution to established goals of the ensemble, and attendance at rehearsals and concerts. The course is designed for those students who have moderate performance skills on standard wind and percussion instruments. An audition is required.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

MUSIC 83: Campus Band

1 Credits/Maximum of 8

Rehearsal and performance of concert band literature. MUSIC 83 Campus Band (1 per semester/maximum of 8) (GA)(BA) This course meets the Bachelor of Arts degree requirements. The goals of the course are to develop the instrumental performance skills, music reading abilities, and interpretive capabilities of the class members within a modestly advanced large concert band setting. The repertoire includes original concert band literature, transcriptions, and concert marches. The available literature covers a range of historical time periods from pre-Baroque to the present. Students are assessed by the use of performance evaluations, assessment of participation and contribution to established goals of the ensemble, and attendance at rehearsals and concerts. The course is designed for those students who have had only limited experience in instrumental music but who have had previous instruction on their instruments. No audition is required, although basic music literacy is.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

MUSIC 84: Jazz Ensemble

1 Credits/Maximum of 8

Survey and performance of historic and contemporary big band styles. MUSIC 84 Jazz Ensemble (1 per semester/maximum of 8) (GA)(BA) This course meets the Bachelor of Arts degree requirements. MUSIC 84, Jazz Ensemble may include as many as three sections at some campuses. For example, at a large campus there could be: Centre Dimensions (001), Inner Dimensions (002), and Outer Dimension (003). Each section of MUSIC 84 will consist of a performance groups of 16 to 20 members. Admission to the groups may be by audition. Students may be placed into sections by ability level. The course consists of the study and performance of big band jazz from the mid 1920s to the present. Important composers of the idiom are routinely represented as well as newer contributors. There is a focus on ensemble group sound as well as individual solo improvisation. Part of the learning process includes working on the fundamentals of jazz playing, rhythm, articulation, and harmony. Each learning segment, or unit, is concluded with public performance of the music studied and learned. At some campuses that may mean one performance at the end of the semester. In addition, at a campus with a School of Music, an ensemble such as Centre Dimensions may represent the School of Music at collegiate jazz festivals as an advanced enhancement of the learning experience. Members are expected to learn their individual parts, attend sectionals and rehearsals, and participate in the performances. Music 84 is offered each fall and spring semester at some campuses; at others, less frequently. Details will vary by campus.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

MUSIC 86: Percussion Ensemble

1 Credits/Maximum of 8

Study and performance of percussion chamber music in various instrumental combinations, focusing on the classical and contemporary repertoire. MUSIC 86 Percussion Ensemble (1 per semester/maximum of 8) (GA)(BA) This course meets the Bachelor of Arts degree requirements. Percussion Ensemble involves the rehearsal and performance of works for various combinations of percussion instruments in a chamber music setting. It also involves the group study of the various percussion instruments and techniques as described by or demonstrated by the conductor of the ensemble (percussion faculty member). The objectives of the course are to teach the art of ensemble performing (i.e., performing music well in a collaborative sense rather than just individually), to augment the understanding of the role of percussion within the discipline of music, and to foster the skills of organization and cooperation through rehearsal and performance of music requiring (generally) three to twelve players. Due to the nature of this type of musical organization and given the wide variety and large number of instruments which may be involved at any given time, there is also an inherent study of logistics involved when setting up or moving the instruments from one venue to another. Students performing in Percussion Ensemble are generally also involved in performing in other larger heterogeneous instrumental

performing groups such as the bands and orchestras. Skills learned in the Percussion Ensemble setting directly affect the ability of these students to contribute a highly developed sense of musical unity in the larger performing groups. They also learn specific skills which are necessary for successfully entry and acceptance into professional music performance circles. The course is offered each semester and the enrollment is generally between six and twelve performers.

Bachelor of Arts: Arts
 General Education: Arts (GA)
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

MUSIC 87: Mallet Ensemble

1 Credits/Maximum of 8

Study and performance of music for keyboard percussion instruments.

Enforced Prerequisite at Enrollment: Permission of Instructor
 Bachelor of Arts: Arts

MUSIC 88: Campus Choir

1 Credits/Maximum of 8

Building skills needed for successful choral singing including vocal production, sight singing, ear training, and music fundamentals. MUSIC 88 Campus Choir (1) (GA)(BA) This course meets the Bachelor of Arts degree requirements. The goals of this course are to develop the vocal skills and sight-reading abilities of the class members within a choral context. The choral repertoire will include standard vocal and choral selections. Depending on the campus, students may be assessed by the use of periodic quizzes and vocal performance examinations. Audition requirements may vary depending on the campus.

Bachelor of Arts: Arts
 General Education: Arts (GA)
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

MUSIC 88H: Campus Choir

1 Credits/Maximum of 8

Building skills needed for successful choral singing including vocal production, sight singing, ear training, and music fundamentals. MUSIC 088 Campus Choir (1) (GA)(BA) This course meets the Bachelor of Arts degree requirements. The goals of this course are to develop the vocal skills and sight-reading abilities of the class members within a choral context. The choral repertoire will include standard vocal and choral selections. Students will be assessed by the use of periodic quizzes and vocal performance examinations. The course is designed for those students who have an interest in choral singing but who have limited background. There is no audition necessary.

Bachelor of Arts: Arts
 General Education: Arts (GA)
 Honors

MUSIC 89: University Choir

1 Credits/Maximum of 8

Rehearsal and performance of choral repertoire appropriate to mixed-voice ensemble. MUSIC 89 University Choir (1 per semester/maximum of 8) (GA)(BA) meets the Bachelor of Arts degree requirements. The choir participates in 1-2 campus performances per semester. Membership is determined by audition and is open to both undergraduate and graduate students. The goal of the ensemble is to provide artistic, meaningful, and successful choral performances. To achieve this goal, the learning objectives for individual students include attention toward individual vocal development, increased musicianship skill, and the discovery of new means of artistic expression. In addition to these individual objectives, the conductor of the ensemble also teaches directly toward the objectives of ensemble tone, blend, balance, intonation, dynamics, diction, phrasing, etc.

Bachelor of Arts: Arts
 General Education: Arts (GA)
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

MUSIC 90: Glee Club

1 Credits/Maximum of 8

Rehearsal and performance of music composed for lower voices from the sixteenth to the twentieth centuries, including sacred and secular compositions. MUSIC 90 Glee Club (1 per semester/maximum of 8) (GA)(BA) This course meets the Bachelor of Arts degree requirements. The Glee Club is an auditioned ensemble of 50-65 tenor/bass voices singing music from medieval chant to commissioned twenty-first century choral works. The Glee Club performs on campus at least once per semester, tours yearly and has performed throughout Pennsylvania, the United States, Europe and New Zealand. The goal of the ensemble is to provide artistic, meaningful, and successful choral performances. To achieve this goal, the learning objectives for individual students include attention toward individual vocal development, increased musicianship skill, and the discovery of new means of artistic expression. In addition to these individual objectives, the conductor of the ensemble also teaches directly toward the objectives of ensemble tone, blend, balance, intonation, dynamics, diction, phrasing, etc. Grades are determined by a combination of vocal and musicianship assessments (both written and aural) and attendance at rehearsals and performances.

Bachelor of Arts: Arts
 General Education: Arts (GA)
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

MUSIC 91: Oriana Singers

1 Credits/Maximum of 8

Rehearsal and performance of choral repertoire for treble voices from the sixteenth to twentieth centuries, including sacred and secular compositions. MUSIC 091 Oriana Singers (1.0 per semester/maximum of 8) (GA)(BA) This course meets the Bachelor of Arts degree requirements. Oriana Singers was founded in 1994 to serve the musical needs of highly

talented undergraduate and graduate women. The 65-voice ensemble performs repertoire representing every musical period, genre and style in its two campus concerts per semester. The choir has been invited to perform at prestigious regional and national music conferences and has participated in tours within the state of Pennsylvania. Membership is determined by audition. The goal of the ensemble is to provide artistic, meaningful, and successful choral performances. To achieve this goal, the learning objectives for individual students include attention toward individual vocal development, increased musicianship skill, and the discovery of new means of artistic expression. In addition to these individual objectives, the conductor of the ensemble also teaches directly toward the objectives of ensemble tone, blend, balance, intonation, dynamics, diction, phrasing, etc. Grades are determined by a combination of vocal and musicianship assessments (both written and aural) and attendance at rehearsals and performances.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

MUSIC 92: Chamber Music for Voices

1 Credits/Maximum of 8

Select groups of singers performing choral chamber music. MUSIC 92 Chamber Music for Voices (3) (GA)(BA) This course meets the Bachelor of Arts degree requirements. Chamber Music for Voices is a course which includes three small auditioned chamber choirs comprising of members of four large ensembles. The repertoire of these 9-16 member ensembles is selected from a wide range of choral literature. Membership in Section 1 is open to University Choir members. The goal of the ensembles is to provide artistic, meaningful, and successful choral performances. To achieve this goal, the learning objectives for individual students include attention toward individual vocal development, increased musicianship skill, discovery of new means of artistic expression, and the specific skills necessary to sing in a small ensemble with only two or three singers per voice part. In addition to these individual objectives, the conductor of the ensemble also teaches directly toward the objectives of ensemble tone, blend, balance, intonation, dynamics, diction, phrasing, etc. Grades are determined by a combination of vocal and musicianship assessments (both written and aural) and attendance at rehearsals and performances.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

MUSIC 93: Essence of Joy

1 Credits/Maximum of 8

Rehearsal and performance of choral repertoire from the African/American tradition. MUSIC 093 Essence of Joy (3) (GA;US;IL)(BA) This course meets the Bachelor of Arts degree requirements. Essence of Joy is a highly selective mixed choral ensemble that specializes in repertoire written by African-Americans. The repertoire of the 45-voiced ensemble includes all art, folk, and sacred genres within this large field of study. Essence of Joy has performed at numerous prestigious national and regional meetings of music educators and choral conductors. In

addition, the choir tours extensively and has presented performances throughout Pennsylvania, the eastern region, the southern region, and eastern Europe. Membership is open to undergraduate and graduate students. The goal of the ensemble is to provide artistic, meaningful, and successful choral performances of African-American choral music. To achieve this goal, the learning objectives for individual students include attention toward individual vocal development, increased musicianship skill, and the discovery of new means of artistic expression. In addition to these individual objectives, the conductor of the ensemble also teaches directly toward the objectives of ensemble tone, blend, balance, intonation, dynamics, diction, phrasing, etc. Grades are determined by a combination of vocal and musicianship assessments (both written and aural) and attendance at rehearsals and performances.

Bachelor of Arts: Arts

International Cultures (IL)

United States Cultures (US)

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

MUSIC 94: Women's Chorale

1 Credits/Maximum of 8

Rehearsal and performance of treble choral literature. MUSIC 094 Women's Chorale (1.0 per semester/maximum of 8) (GA)(BA) This course meets the Bachelor of Arts degree requirements. Women's Chorale is the largest treble ensemble on the University Park campus. Membership is determined by audition and is open to both undergraduate and graduate students. The choir participates in two campus performances per semester. The goal of the ensemble is to provide artistic, meaningful, and successful choral performances. To achieve this goal, the learning objectives for individual students include attention toward individual vocal development, increased musicianship skill, and the discovery of new means of artistic expression. In addition to these individual objectives, the conductor of the ensemble also teaches directly toward the objectives of ensemble tone, blend, balance, intonation, dynamics, diction, phrasing, etc. Grades are determined by a combination of vocal and musicianship assessment (both written and aural) and attendance at rehearsals and performances.

Bachelor of Arts: Arts

MUSIC 98: Special Topics

1 Credits/Maximum of 8

Vocal Dimensions is a vocal jazz ensemble that performs challenging modern and classic jazz repertoire, both a cappella and accompanied by a rhythm section.

MUSIC 100: Campus Orchestra

1 Credits/Maximum of 10

Rehearsal and performance orchestral literature. MUSIC 100 Campus Orchestra (1-10) (BA) This course meets the Bachelor of Arts degree requirements. The goals of this course are to develop the instrumental performing skills, music reading abilities, and interpretive capabilities of the class members within a large symphonic orchestra context. The repertoire includes the standard literature from the 18th through 21st centuries as well as new music written for symphony orchestra. Students will be assessed by the use of performance evaluation and assessment

of participation and contribution to established goals of the ensemble. The course is for students who have performance skills on standard orchestral string, wind, and percussion instruments. An audition is required.

Bachelor of Arts: Arts

MUSIC 101: Music Common Hour

1 Credits

Student and faculty recitals, master classes, lectures by faculty and guests, and Common Hour attendance.

Bachelor of Arts: Arts

MUSIC 103: Concert Choir

1 Credits/Maximum of 8

Rehearsal and performance of choral repertoire appropriate to mixed-voice ensemble of approximately forty-five voices. MUSIC 103 Concert Choir (1 per semester/maximum of 8) (GA)(BA) This course meets the Bachelor of Arts degree requirements. Repertoire is selected from a wide range of choral literature from medieval chant to commissioned twenty-first century choral works. Membership is open to undergraduate and graduate students. The goal of the ensemble is to provide artistic, meaningful, and successful choral performances. To achieve this goal, the learning objectives for individual students include attention toward individual vocal development, increased musicianship skill, and the discovery of new means of artistic expression. In addition to these individual objectives, the conductor of the ensemble also teaches directly toward the objectives of ensemble tone, blend, balance, intonation, dynamics, diction, phrasing, etc. Grades are determined by a combination of vocal and musicianship assessments (both written and aural) and attendance at rehearsals and performances.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

MUSIC 104: Chamber Singers

1 Credits/Maximum of 8

Rehearsal and performance of choral repertoire appropriate to mixed-voice ensemble of approximately twenty-four voices. MUSIC 104 Chamber Singers (1 per semester/maximum of 8) (GA)(BA) This course meets the Bachelor of Arts degree requirements. Chamber Singers is a premier chamber choir at the University. The repertoire of the 14-voiced ensemble is selected from a wide range of choral literature from medieval chant to commissioned twenty-first century choral works. Membership is open to undergraduate and graduate students. The goal of the ensemble is to provide artistic, meaningful, and successful choral performances. To achieve this goal, the learning objectives for individual students include attention toward individual vocal development, increased musicianship skill, and the discovery of new means of artistic expression. In addition to these individual objectives, the conductor of the ensemble also teaches directly toward the objectives of ensemble tone, blend, balance, intonation, dynamics, diction, phrasing, etc. Grades are determined by a

combination of vocal and musicianship assessments (both written and aural) and attendance at rehearsals and performances.

Bachelor of Arts: Arts

General Education: Arts (GA)

MUSIC 106: Early Music Ensemble

1 Credits/Maximum of 8

Ensemble for the performance and study of Baroque or early music on instruments of the era. MUSIC 106 Early Music Ensemble (1 per semester/maximum of 8) (GA)(BA) This course meets the Bachelor of Arts degree requirements. The Early Music Ensemble will meet for a single two-hour rehearsal each week. Extra rehearsals may be scheduled when circumstances warrant them, i.e., when visiting ensembles come to Penn State. Membership of the ensemble will remain essentially constant from one semester to the next. Vacancies arising when a student leaves or graduates will be filled as needed. It is integral to the ensemble's activities that faculty and students perform along side each other; thereby providing a unique learning opportunity for the students. A constant membership encourages performers' understanding of early music performance practice. The ensemble will give concerts on campus. Off-campus performances may be considered outreach opportunities and as valuable experiences for the students.

Bachelor of Arts: Arts

MUSIC 109: The Music of the Beatles

3 Credits

The Beatles are the most significant musical group in the history of popular music. Their songs are derived from diverse sources, such as rhythm and blues, country and western, rockabilly, rock and roll, Motown, soul, folk rock, the British music hall, and the classical music traditions of Europe and India. MUSIC 109: The Music of the Beatles, an online course, will consider the music of the Fab Four by examining how John Lennon, Paul McCartney, and George Harrison developed as songwriters. Besides an exploration of the Beatles' music, including the artists and styles of music that influenced them, this online course will include a study of the socio-cultural contexts from which the Fab Four emerged and in which they thrived. Finally, the course will introduce students to the fundamentals of music, as well as ways to integrate that knowledge with the interpretation of song texts.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

MUSIC 110: Keyboard Skills I: Music Major

1 Credits

Introduction to the keyboard, chord progressions, transposition, improvisation, and simple accompanying techniques.

Bachelor of Arts: Arts

MUSIC 112: Guitar Techniques I

0.5 Credits

Performance and teaching techniques for guitar. MUSIC 112 Guitar Techniques I (.5)(BA) This course meets the Bachelor of Arts degree requirements. MUSIC 112 is offered for students who are tracking acceptance into the Teacher Education Degree Program in Music. The focus of the course is learning to play the guitar in order to accompany and learning techniques on how to teach the guitar in classroom settings. Topics include: beginning level guitar pedagogy, instrument care and maintenance, classroom structure and materials. The instructional format includes: performance, lecture, large and small group discussion, readings, and musical and teaching examples. Students complete several practical assignments, and present summations of small group discussions. Two practice performances and a final playing and written exam are given.

Bachelor of Arts: Arts

MUSIC 113: Music Theatre–Class Voice I

1 Credits

Group study emphasizing development of sound vocal and musicianship skills fundamental for music theatre. This class is designed for freshman BFA Musical Theatre majors and freshman BFA Acting majors and is the start of a year long exploration of vocal musical production for the stage. The purpose of this class is to lay introductory foundations in singing techniques and skills currently required for a career in the theatre. Students become familiar with the basic concepts of voice production, as well developing an understanding and awareness of vocal health issues. Additionally, students are exposed to a variety of musical theatre and classical sung repertory while they are encouraged to develop perceptive listening skills by interacting and responding to their peers in class and other performers. In MUSIC 113, students are encouraged and required to develop an appreciation of all genres of sung performance from classical to contemporary. Another important element of the course is helping students develop the necessary vocabulary to respond in writing to vocal performance. Toward that goal, attendance at vocal events scheduled around campus and the community is required. These vocal events will include performances by professionals in many genres. Faculty will provide students with lists of approved events. To help students develop their music performance vocabulary, students are required to respond to some vocal events with written critiques. Aesthetically, students are encouraged to appreciate and practice vocal performance in a variety of stage genres. On the practical side, students learn effective practice skills, music reading, and appreciation of all areas of vocal performance. Students are evaluated based on readings, short writing assignments, evaluations of a number of memorized song performances, and classroom attendance and participation.

Bachelor of Arts: Arts

MUSIC 114: Music Theatre–Class Voice II

1 Credits

Group study emphasizing development of sound vocal and musicianship skills fundamental for music theatre.

Bachelor of Arts: Arts

MUSIC 115: Beginning Voice Class

1 Credits

Class voice emphasizing the fundamentals of healthy singing technique. For Music Majors only. MUSIC 115 Beginning Voice Class (1) Intended for instrumental music education majors. Introduces instrumental music education majors to the basic skills of singing in preparation for MUSIC 116. Focus will be on intonation, tone production, breathing and posture, as well as rudimentary presentation and interpretation skills. Enrollment dependent upon the results of the voice proficiency exam and the recommendation of the music education and voice area faculties. Strongly suggested for the first semester of the music education degree.

Bachelor of Arts: Arts

MUSIC 116: Intermediate Voice Class

1 Credits/Maximum of 4

Class voice, emphasizing pedagogical experiences and techniques for public school music classrooms. For Music Majors only.

Bachelor of Arts: Arts

MUSIC 119: First-Year Music Seminar

2 Credits

Individual applied instruction and group activities; orientation, area recitals, and studio classes as required by instructor.

Bachelor of Arts: Arts

First-Year Seminar

MUSIC 121: Basic Musicianship I

1 Credits

Elementary sight singing and dictation.

Bachelor of Arts: Arts

MUSIC 122: Basic Musicianship II

1 Credits

Continuation of Music 121.

Enforced Prerequisite at Enrollment: MUSIC 121 Enforced Concurrent at Enrollment: MUSIC 132

Bachelor of Arts: Arts

MUSIC 127: Introduction to Music Technology

1 Credits

Course Content and Expectations: Introduction to Music Technology is a course designed for freshman or first-year students in the BA Music Technology, BFA Sound Design, or BM Music Composition degree programs at Penn State. This course will provide an introduction and overview to the use of technology in creative music making, live sound, and recording engineering. At the completion of this course, students will have a working fundamental knowledge of audio recording hardware and software, concepts in live sound reinforcement, MIDI sequencing, and an understanding of the various ways technology is used in creative music making. These skills will provide students with a foundation for success in future music technology courses. Course Goals and Objectives:

Students will complete 13 weekly assignments and one final project. Weekly assignments are sequential and design to gradual build upon the students' knowledge and experience in the field of music technology. These include live sound, recording, mixing, editing, and MIDI sequencing. The final project will demonstrate the students' ability to combine these skills to create a short original composition/recording.

MUSIC 129S: First-Year Performance Seminar

3 Credits

Individual applied instruction and group activities; orientation, area recitals, and studio classes as required by instructor.

Bachelor of Arts: Arts
First-Year Seminar

MUSIC 131: Music Theory I

2 Credits

Review of rudiments; introduction to the fundamental linear and vertical features of tonal music, integration of written and aural skills.

Bachelor of Arts: Arts

MUSIC 131H: Music Theory I

2 Credits

Review of rudiments; introduction to the fundamental linear and vertical features of tonal music, integration of written and aural skills.

Honors

MUSIC 132: Music Theory II

2 Credits

Continuation of Music 131.

Enforced Prerequisite at Enrollment: MUSIC 131 Enforced Concurrent at Enrollment: MUSIC 122
Bachelor of Arts: Arts

MUSIC 151: Brass Techniques I

1 Credits

Introduction to basic performance techniques on brass instruments; teaching strategies and materials for use in a heterogeneous instrument setting. MUSIC 151 Brass Techniques I (1)(BA) This course meets the Bachelor of Arts degree requirements. Introduction to basic brass instrument performance techniques taught in a heterogeneous (mixed group of brass instruments) class setting. The course will provide students with basic introduction to embouchure formation, tone production, and executive skills on two brass instruments. Instructor and student modeled teaching strategies and methods for use in elementary school mixed instrument classes will be demonstrated. Published heterogeneous method books will be investigated and procedures for applying research-based tonal and rhythmic development activities to beginning instrumental instruction will be applied.

Bachelor of Arts: Arts

MUSIC 152: Percussion Techniques I

1 Credits

Introduction to basic performance techniques on percussion instruments; teaching strategies and materials for use in a heterogeneous instrument setting. MUSIC 152 Percussion Techniques I (1)(BA) This course meets the Bachelor of Arts degree requirements. Introduction to basic percussion instrument performance techniques. The course will provide students with a basic introduction to playing techniques for a variety of percussion instruments. Instructor and student modeled teaching strategies and methods for use in elementary and secondary school mixed instrument classes will be demonstrated. Published method books will be investigated.

Bachelor of Arts: Arts

MUSIC 153: String Techniques I

1 Credits

Performance techniques on stringed instruments for music education majors. MUSIC 153 String Techniques I (1)(BA) This course meets the Bachelor of Arts degree requirements. This course is required for students working toward entrance to the Bachelor of Music Education degree program. The purpose of the course is to allow students to develop proper performance techniques on two of the four orchestral bowed stringed instruments (violin, viola, cello, and double bass) at a sufficient level so that they can provide a desirable aural model for beginning and intermediate string students. Grades will be based on students' musical achievement on the instruments. There will be two performance assessments (one midterm and one final) for each instrument during the course. Required repertoire lists and evaluation tools will be provided prior to all assessments. Students must receive a passing grade for both instruments in order to receive an overall passing grade for the course.

Bachelor of Arts: Arts

MUSIC 154: Woodwind Techniques I

1 Credits

Performance and teaching techniques for woodwind instruments. MUSIC 154 Woodwind Techniques I (1)(BA) This course meets the Bachelor of Arts degree requirements. This course is designed for students pursuing a degree in music education. Principles of teaching public school students to begin to play woodwind instruments will be covered and applied to the five woodwind instruments. Students will have the opportunity to perform on each instrument, and teach their peers using the principles of woodwind pedagogy and instrument-specific techniques. This course is part of a block of courses covering all band and orchestra instruments traditionally offered in public school music programs. Students can elect to take more courses with more in-depth instruction on each instrument in order to further prepare them to teach the instruments in the public schools. Students will be advised to take such courses if their career goals include teaching band and/or orchestra in the public schools. Students will observe teaching techniques for teaching instrument-specific pedagogy through being students themselves. They will keep a journal of observed teaching techniques and instrument resources for future reference as a teacher. They will perform playing tests on their instrument to demonstrate proficiency on the instrument, and engage in peer-teaching activities to demonstrate understanding of pedagogical techniques. Music education

majors will take this course as part of a sequence of music education courses. This course is offered as one of the early music education courses, and serves as a model and introduction for the pedagogical techniques and concepts the students will master in future courses.

Bachelor of Arts: Arts

MUSIC 162: Introduction to Music History

2 Credits

An introduction to the discipline of music history through the study of representative works. MUSIC 162 Introduction to Music History (2) This course introduces students to the discipline of music history, through study of the core repertoire from the common-practice era: the music of the High Baroque (especially Bach and Handel) through the end of the Classical period and the beginnings of Romanticism (Beethoven). The course objectives focus on acquisition of skills necessary for thinking historically about music. Students learn 1) to describe the main stylistic features of a work (melodic, harmonic, rhythmic, textural, timbral, formal); 2) to associate these features with particular composers and eras; 3) to compare and contrast works from the same period and from different periods; and 4) to relate stylistic features to historical context, social function, performance conditions, and listeners' experience. The course thus emphasizes agents—the people who created, performed, listened to, and paid for the music—in order to illuminate both the musical works and the historical and social factors that shaped those works' distinctive features.

Enforced Concurrent at Enrollment: MUSIC 132

MUSIC 170: Keyboard Skills II: Music Major

1 Credits

Instruction in secondary chord progressions, transposition, improvisation, accompanying techniques, simple score reading.

Bachelor of Arts: Arts

MUSIC 173: First-Year Composition Seminar

2 Credits

Individual composition instruction for freshman composition majors (Fall semester) and group activities.

Bachelor of Arts: Arts

First-Year Seminar

MUSIC 174: Composition II

2 Credits

Composition instruction for first-year composition majors.

Bachelor of Arts: Arts

MUSIC 177: ROARS lab

1-3 Credits/Maximum of 9

ROARS (Research of the Arts, Recording, and Sound) lab is a place to do individualized work with students on their areas of focus in music technology and for music technology students as a whole to learn from one another, in a consistent way over time. The learning style will be mixed, resembling at times a masterclass, an engineering lab, an applied

lesson, a mathematics lecture, a prototype demonstration, an ensemble performance, or a software tutorial. Students will normally take ROARS lab for 1 credit, but in the event that transfer students need to do extra work to make up for class time, they can work with the instructor within or outside of class to accomplish this & have their work reflected in greater credit hours earned.

MUSIC 181: Jazz Improvisation I

2 Credits

A study of the fundamentals of jazz theory, harmonic functions, and their applications to jazz improvisation.

Bachelor of Arts: Arts

MUSIC 182: Jazz Improvisation II

2 Credits

A study of advanced harmonic concepts and their application to jazz improvisation.

Enforced Prerequisite at Enrollment: MUSIC 181

Bachelor of Arts: Arts

MUSIC 188: Chamber Music for Mixed Ensemble

1 Credits/Maximum of 8

MUSIC 188 Chamber Music for Mixed Ensemble (maximum of 8) (BA). This course is designed to prepare and perform mixed ensemble music from all periods and styles (e.g., piano quintet, rock ensemble, early music ensemble, new music ensemble, open music ensemble, etc.). Course objectives include, but are not limited to, the development of rehearsal and ensemble skills, increased awareness of musical styles, public performance(s) of works prepared, and the development of the interpersonal skills necessary for the players to collaborate in a small ensemble setting. Chamber music is an integral part of instrumental musical training. Evaluation of student work is based on participation in rehearsals, the progress made by the ensemble, and the quality of the ensemble's performances.

Bachelor of Arts: Arts

MUSIC 189: Studio Ensemble

1 Credits/Maximum of 8

Preparation and performance of music for like-instrument ensembles such as Clarinet Ensemble, Saxophone Ensemble, Cello Choir, Horn Ensemble, etc. Development of rehearsal and ensemble skills, an increased awareness of musical styles, public performance(s) of works prepared, and the development of the interpersonal skills necessary for the players to operate as a unit. Time allocated to each of these topics will vary depending on the performance level, experience and needs of the ensemble.

Enforced Prerequisite at Enrollment: Permission of program

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

MUSIC 190: Chamber Music for Strings

1 Credits/Maximum of 8

Preparation for performance of chamber music literature involving string instruments. MUSIC 190 Chamber Music for Strings (1 per semester/maximum of 8) (GA)(BA) This course meets the Bachelor of Arts degree requirements. Chamber Music for Strings meets at least two hours per week - once with the instructor for coaching and at least once for an additional rehearsal without the instructor's presence. Course objectives include, but are not limited to, the development of rehearsal and ensemble skills, an increased awareness of musical styles, public performance(s) of works prepared, and the development of the interpersonal skills necessary for the players to operate as a unit. Chamber music is an integral part of instrumental musical training. It is an important partner with conducted ensembles in the performance preparation of musicians. Evaluation of student work is based on participation in rehearsals, the progress made by the ensemble, and the quality of the ensemble's performances. The course is offered during fall and spring semesters.

Bachelor of Arts: Arts
General Education: Arts (GA)
GenEd Learning Objective: Creative Thinking
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

MUSIC 191: Chamber Music for Woodwinds

1 Credits/Maximum of 8

Preparation for performance of chamber music literature involving woodwind instruments. MUSIC 191 Chamber Music for Woodwinds (1 per semester/maximum of 8) (GA)(BA) This course meets the Bachelor of Arts degree requirements. Chamber Music for Woodwinds meets at least two hours per week - once with the instructor for coaching and at least once for an additional rehearsal without the instructor's presence. Course objectives include, but are not limited to, the development of rehearsal and ensemble skills, an increased awareness of musical styles, public performance(s) of works prepared, and the development of the interpersonal skills necessary for the players to operate as a unit. Chamber music is an integral part of instrumental musical training. It is an important partner with conducted ensembles in the performance preparation of musicians. Evaluation of student work is based on participation in rehearsals, the progress made by the ensemble, and the quality of the ensemble's performances. The course is offered during fall and spring semesters.

Bachelor of Arts: Arts
General Education: Arts (GA)
GenEd Learning Objective: Creative Thinking
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

MUSIC 192: Chamber Music for Brass

1 Credits/Maximum of 8

Preparation for performance of chamber music literature involving primarily brass instruments. MUSIC 192 Chamber Music for Brass (1 per semester/maximum of 8) (GA)(BA) This course meets the Bachelor of Arts degree requirements. Chamber Music for Brass meets at least

two hours per week - once with the instructor for coaching and at least once for an additional rehearsal without the instructor's presence. Course objectives include, but are not limited to, the development of rehearsal and ensemble skills, an increased awareness of musical styles, public performance(s) of works prepared, and the development of the interpersonal skills necessary for the players to operate as a unit. Chamber music is an integral part of instrumental musical training. It is an important partner with conducted ensembles in the performance preparation of musicians. Evaluation of student work is based on participation in rehearsals, the progress made by the ensemble, and the quality of the ensemble's performances. The course is offered during fall and spring semesters.

Bachelor of Arts: Arts
General Education: Arts (GA)
GenEd Learning Objective: Creative Thinking
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

MUSIC 193: Sonata Duos

1 Credits/Maximum of 8

Preparation for performance of advanced sonata literature for various individual instruments with keyboard.

Bachelor of Arts: Arts

MUSIC 194: Studio and Recital Accompanying

1 Credits/Maximum of 8

Keyboard accompaniment of student soloists in the studio and in public performance under faculty supervision.

Enforced Prerequisite at Enrollment: KEYBD 120 or KEYBD 130 or consent of supervising faculty member
Bachelor of Arts: Arts

MUSIC 197: **SPECIAL TOPICS**

1 Credits

MUSIC 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

MUSIC 207N: Jazz and the African American Experience

3 Credits

The history and evolution of jazz is a significant cultural manifestation of the African American experience. The music and its artists provide a lens through which to examine questions surrounding the African American experience and what it means to be Black in America, engaging with questions about identity, authenticity, freedom, activism, gender, and sexuality, as well as the role of music in African American life. Drawing upon curricular elements from MUSIC 7, Evolution of Jazz, and AFAM 100, Living While Black: Themes in African American Thought and Experience, this course traces the history of jazz through an examination of the lives and art of thirty great jazz artists, juxtaposed with an examination of seminal writings of twenty African American

poets, playwrights, novelists, critics, activists, philosophers, and scholars. Preliminary objectives will include basic musical information associated with tonality and with jazz. The main objectives of the course are: to explore the antecedents of jazz and the social-historical contexts in which they developed; to explore the pioneering artistry of selected twentieth-century jazz musicians, tracing the evolution of jazz styles in the process; to delve into the lives of these jazz artists and the social-historical contexts in which they lived; to explore the writings of historically contemporary African Americans, which articulate many of the major issues that have shaped black life in America; to enhance appreciation for the art of jazz and for the musical and literary contributions of African Americans; to encourage reflection, empathy, and a greater understanding of the cultural-historical circumstances that have informed the lives and art of African Americans. The narrowing of scope allows for a more detailed examination of the selected jazz artists, their music, and their lives. Similarly, the selected writings will allow students to reflect on the relationships and connections between these writings and the artistry and life experiences of the selected jazz artists. These objectives will be met by utilizing an interactive, multimedia online curriculum, including demonstration videos, a virtual keyboard, music notation files (e.g., Sibelius), audio recordings, audio-video recordings, selected readings, open forums, and discussion boards. Evaluation methods will include quizzes, tests, open forums, discussion boards, and reflection papers. Students will receive GA and GS credit for this course, as well as US designation. The course will not satisfy any requirements for the major or minor in music. All pieces, excerpts, examples, videos, and texts will be made available to students online.

Cross-listed with: AFAM 207N

Bachelor of Arts: Arts

United States Cultures (US)

General Education: Arts (GA)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Soc Resp and Ethic Reason

MUSIC 209N: The Music of the Beatles and American Popular Culture

3 Credits

The Beatles are the most significant musical group in the history of popular music. Their songs are derived from diverse sources, such as rhythm 'n' blues, rock 'n' roll, country 'n' western, Motown, soul, folk music, folk rock, the British Music Hall, and European and Indian classical music traditions. Two ideas define their work: an emphasis on freedom, and how song texts can be interpreted in different ways. The Beatles had a great impact not only on American popular music during their heyday in the 1960s but also on the country's popular culture in which they were considered philosopher kings. Beatle albums mirrored changing trends in the culture, from the pre-Vietnam War youthfulness of A Hard Day's Night, to the psychedelia of Revolver and Sgt. Pepper, to the countercultural mindset of The White Album. This inter-domain course will focus on how the Beatles influenced American popular culture from the 1960s to the present day. It will examine how the Beatles were a part of a mid-twentieth-century British youth subculture that was shaped by the cultural attitudes of American rock 'n' roll. The course will then turn its attention to the seismic shift initiated by the Fab Four in both music and pop culture in the US from 1964 to 1970, demonstrating how it has permeated the popular culture of the 1970s to the present day. The course will enhance the appreciation of the Beatles and their music

through its interdisciplinary focus, contextualizing the Fab Four's work in order to show how both popular music and culture can influence one another. One way the course will facilitate this goal is through the inclusion of selected readings from English literature and popular culture upon which students will write reflection essays.

Cross-listed with: ENGL 208N

United States Cultures (US)

General Education: Arts (GA)

General Education: Humanities (GH)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

MUSIC 210: Keyboard Skills III: Music Major

1 Credits

Playing accompaniments from chord symbols and full notation, transposition, improvisation, modulation, score-reading, and standard literature.

Bachelor of Arts: Arts

MUSIC 212: Guitar Techniques II

1 Credits

Intermediate performance and teaching techniques for guitar. MUSIC 212 Guitar Techniques II (1) MUSIC 212 is offered as an Individual Emphasis course for students who have been accepted into the Teacher Education Degree Program in Music. The focus of the course is on learning to play the guitar in a group class setting in order to accompany oneself and learning techniques for how to teach the guitar in classroom settings. Topics include: intermediate level guitar pedagogy, instrument care and maintenance, classroom structure and materials. The instructional format includes: performance, lecture, large and small group discussion, readings, and musical and teaching examples. Students complete several practical assignments and present summations of small group discussions. Two practice performances, a final playing and written exam are given, and a formal concert is performed.

Enforced Prerequisite at Enrollment: MUSIC 112

MUSIC 215: The Craft of Singing

3 Credits

Vocal/respiratory anatomy and function, vocal health, voice classification, and techniques that enhance and develop acting and movement from the singer perspective. Anatomy of the larynx and respiratory system are studied and strengthened through in-class work on vocal and breathing exercises. Focus is placed on good tone production and resonance. Basic differences between Classical and Musical Theatre vocal styles are introduced. Techniques that enhance and develop acting and movement choices are also studied through individual and group exercises and through the performance of songs. This course is designed for students in the INART major, and also for students who are interested in singing but are not MUSIC or THEATRE majors.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Integrative Thinking

MUSIC 216: Care and Nurture of Young Singing Voices

0.5 Credits

The nature of singing voices in children from birth through adolescence; strategies for helping all children become successful singers. MUSIC 216 Care and Nurture of Young Singing Voices (.5) The focus of this course is the nature of child and adolescent singing voices and strategies for assisting all children in learning to sing. Aural identification of various stages of vocal development or children and adolescents will be highlighted as well as strategies for nurturing the young singing voice in a classroom and rehearsal setting. Observations of teachers working with children will be included in the course experiences. This course is for music majors intending to apply to the Teacher Education Degree Program in Music and must be taken prior to entrance to the Degree program, typically during the sophomore year.

MUSIC 221: Basic Musicianship III

1 Credits

Intermediate sight singing and dictation.

Enforced Prerequisite at Enrollment: MUSIC 122

Bachelor of Arts: Arts

MUSIC 222: Basic Musicianship IV

1 Credits

Continuation of Music 221.

Enforced Prerequisite at Enrollment: MUSIC 221

Bachelor of Arts: Arts

MUSIC 231: Music Theory III

2 Credits

Intermediate concepts of tonal theory.

Enforced Prerequisite at Enrollment: MUSIC 132

Bachelor of Arts: Arts

MUSIC 231H: Music Theory III

2 Credits

Intermediate concepts of tonal theory.

Bachelor of Arts: Arts

Honors

MUSIC 240: Introduction to Music Education

2 Credits

MUSIC 240 Introduction to Music Education (2)(BA) This course meets the Bachelor of Music Education degree requirements. MUSIC 240 is offered every fall semester for students who are considering the Teacher Certification program in Music Education. This course provides prospective music teachers with an opportunity to develop basic music teaching skills; identify behaviors of effective music teachers; identify their own strengths and weaknesses as a teacher, set goals based on those traits, and apply strategies to improve; develop their ability to reflect on their own teaching; and to understand and apply educational

and music education theory to a variety of musical developmental levels. Students complete several practical assignments, present summations of small group discussions, and present micro-teaching lessons with peers in class. A midterm and final exam are typically given.

Bachelor of Arts: Arts

MUSIC 241: Music for Classroom Teachers

3 Credits

Development of competencies for guiding musical experiences of children in the elementary classroom.

Bachelor of Arts: Arts

MUSIC 251A: Brass Techniques II: Trumpet

0.5 Credits

A class setting in which trumpet performance techniques, teaching/diagnostic strategies, instructional materials, and literature are taught, practiced, and developed. MUSIC 251A Brass Techniques II: Trumpet (.5) This course develops proper performance techniques on the trumpet in a class setting. Teaching techniques and materials specific to the trumpet are demonstrated and applied. Students will develop a performance level that will enable them to provide a desirable aural model for intermediate and advanced trumpet students. Students are introduced to appropriate trumpet teaching techniques; standard trumpet teaching materials including method books, etudes, and solo literature; effective strategies for diagnosing problems in student performances; and recommended instruments and equipment for all levels of trumpet study. Class meetings will occur twice per week for 1/2 semester. Students will be expected to practice outside of class meeting times. Grades will be based on students' musical achievement on the trumpet and understanding of material presented. There will be multiple performance assessments throughout the course. This course is recommended for students working toward entrance to the Teacher Education Program in Music and the Bachelor of Music Education degree.

Enforced Prerequisite at Enrollment: MUSIC 151

MUSIC 251B: Brass Techniques II: Horn

0.5 Credits

A class setting in which horn performance techniques, teaching/diagnostic strategies, instructional materials, and literature are taught, practiced, and developed. MUSIC 251B Brass Techniques II: Horn (.5) This course develops proper performance techniques on the horn in a class setting. Teaching techniques and materials specific to the horn are demonstrated and applied. Students will develop a performance level that will enable them to provide a desirable aural model for intermediate and advanced horn students. Students are introduced to appropriate horn teaching techniques; standard horn teaching materials including method books, etudes, and solo literature; effective strategies for diagnosing problems in student performances; and recommended instruments and equipment for all levels of horn study. Class meetings will occur twice per week for 1/2 semester. Students will be expected to practice outside of class meeting times. Grades will be based on students' musical achievement on the horn and understanding of material presented. There will be multiple performance assessments throughout the course. This course is recommended for students working toward entrance to

the Teacher Education Program in Music and the Bachelor of Music Education degree.

Enforced Prerequisite at Enrollment: MUSIC 151

MUSIC 251C: Brass Techniques II: Trombone

0.5 Credits

A class setting in which trombone performance techniques, teaching/diagnostic strategies, instructional materials, and literature are taught, practiced, and developed. MUSIC 251C Brass Techniques II: Trombone (.5) This course develops proper performance techniques on the trombone in a class setting. Teaching techniques and materials specific to the trombone are demonstrated and applied. Students will develop a performance level that will enable them to provide a desirable aural model for intermediate and advanced trombone students. Students are introduced to appropriate trombone teaching techniques; standard trombone teaching materials including method books, etudes, and solo literature; effective strategies for diagnosing problems in student performances; and recommended instruments and equipment for all levels of trombone study. Class meetings will occur twice per week for 1/2 semester. Students will be expected to practice outside of class meeting times. Grades will be based on students' musical achievement on the trombone and understanding of material presented. There will be multiple performance assessments throughout the course. This course is recommended for students working toward entrance to the Teacher Education Program in Music and the Bachelor of Music Education degree.

Enforced Prerequisite at Enrollment: MUSIC 151

MUSIC 251D: Brass Techniques II: Euphonium/Tuba

0.5 Credits

A class setting in which euphonium and tuba performance techniques, teaching/diagnostic strategies, instructional materials, and literature are taught, practiced, and developed. MUSIC 251D Brass Techniques II: Euphonium/Tuba (.5) This course develops proper performance techniques on the euphonium and tuba in a class setting. Teaching techniques and materials specific to the euphonium and tuba are demonstrated and applied. Students will develop a performance level that will enable them to provide a desirable aural model for intermediate and advanced euphonium and tuba students. Students are introduced to appropriate euphonium and tuba teaching techniques; standard euphonium and tuba teaching materials including method books, etudes, and solo literature; effective strategies for diagnosing problems in student performances; and recommended instruments and equipment for all levels of euphonium and tuba study. Class meetings will occur twice per week for 1/2 semester. Students will be expected to practice outside of class meeting times. Grades will be based on students' musical achievement on the euphonium and/or tuba and understanding of material presented. There will be multiple performance assessments throughout the course. This course is recommended for students working toward entrance to the Teacher Education Program in Music and the Bachelor of Music Education degree.

Enforced Prerequisite at Enrollment: MUSIC 151

MUSIC 253: String Techniques II

0.5-1 Credits/Maximum of 2

Performance techniques on violin, viola, cello or string bass for music education majors. MUSIC 253 String Techniques II (0.5 - 1 per semester/

maximum of 2) This course is recommended for students working toward the Bachelor of Music Education degree program, and who hope to teach string/orchestra classes. The purpose of the course is to allow students to develop proper performance techniques on the violin, viola, cello, or string bass at a sufficient level so that they can provide a desirable aural model for intermediate and advanced string students. Grades will be based on students' musical achievement on the instrument(s). There will be multiple performance assessments throughout the course. Required repertoire lists and evaluation tools will be provided prior to all assessments.

Enforced Prerequisite at Enrollment: MUSIC 153

MUSIC 254A: Woodwind Techniques II: Flute

0.5 Credits

Performance and teaching techniques and materials selection for flute. MUSIC 254A Woodwind Techniques II: Flute (.5) This course is intended for music majors working toward the Teacher Education Degree Program in Music. This course may serve as a music education elective, and is best taken during the junior year. It should only be taken following successful completion of MUSIC 154 Woodwind Techniques I. The purpose of the course is to allow students to develop proper performance techniques in order to produce a characteristic sound on the flute at a sufficient level so that they can provide a desirable aural model for beginning and intermediate string students. Grades will be based largely on the performance achievement on the flute, in addition to development of resources for flute pedagogy and demonstration of appropriate diagnosis and prescription for flute performance problems. There will be two performance assessments during the course. There will be one midterm and one final assessment, weighted as listed: Midterm Assessment (performance and diagnosis) 30% Final Assessment (performance and diagnosis) 50% Resource journal 10% The required repertoire list will be provided approximately two weeks prior to each assessment. Students will also be provided with a copy of the measurement tool to be used in evaluating their performance. Students must receive a passing grade for both assessments in order to receive an overall passing grade for the course.

Enforced Prerequisite at Enrollment: MUSIC 154

MUSIC 254B: Woodwind Techniques II: Oboe

0.5 Credits

Performance and teaching techniques and materials selection for oboe. MUSIC 254B Woodwind Techniques II: Oboe (.5) This course is intended for music majors working toward the Teacher Education Degree Program in Music. This course may serve as a music education elective, and is best taken during the junior year. It should only be taken following successful completion of MUSIC 154 Woodwind Techniques I. The purpose of the course is to allow students to develop proper performance techniques in order to produce a characteristic sound on the oboe at a sufficient level so that they can provide a desirable aural model for beginning and intermediate string students. Grades will be based largely on the performance achievement on the oboe, in addition to development of resources for oboe pedagogy and demonstration of appropriate diagnosis and prescription for oboe performance problems. There will be two performance assessments during the course. There will be one midterm and one final assessment, weighted as listed: Midterm Assessment (performance and diagnosis) 30% Final Assessment (performance and diagnosis) 50% Resource journal 10% The required repertoire list will be provided approximately two weeks prior

to each assessment. Students will also be provided with a copy of the measurement tool to be used in evaluating their performance. Students must receive a passing grade for both assessments in order to receive an overall passing grade for the course.

Enforced Prerequisite at Enrollment: MUSIC 154

MUSIC 254C: Woodwind Techniques II: Clarinet

0.5 Credits

Performance and teaching techniques and materials selection for clarinet. MUSIC 254C Woodwind Techniques II: Clarinet (.5) This course is intended for music majors working toward the Teacher Education Degree Program in Music. This course may serve as a music education elective, and is best taken during the junior year. It should only be taken following successful completion of MUSIC 154 Woodwind Techniques I. The purpose of the course is to allow students to develop proper performance techniques in order to produce a characteristic sound on the clarinet at a sufficient level so that they can provide a desirable aural model for beginning and intermediate string students. Grades will be based largely on the performance achievement on the clarinet, in addition to development of resources for clarinet pedagogy and demonstration of appropriate diagnosis and prescription for clarinet performance problems. There will be two performance assessments during the course. There will be one midterm and one final assessment, weighted as listed: Midterm Assessment (performance and diagnosis) 30% Final Assessment (performance and diagnosis) 50% Resource journal 10% The required repertoire list will be provided approximately two weeks prior to each assessment. Students will also be provided with a copy of the measurement tool to be used in evaluating their performance. Students must receive a passing grade for both assessments in order to receive an overall passing grade for the course.

Enforced Prerequisite at Enrollment: MUSIC 154

MUSIC 254D: Woodwind Techniques II: Saxophone

0.5 Credits

Performance and teaching techniques and materials selection for saxophone. MUSIC 254D Woodwind Techniques II: Saxophone (.5) This course is intended for music majors working toward the Teacher Education Degree Program in Music. This course may serve as a music education elective, and is best taken during the junior year. It should only be taken following successful completion of MUSIC 154 Woodwind Techniques I. The purpose of the course is to allow students to develop proper performance techniques in order to produce a characteristic sound on the saxophone at a sufficient level so that they can provide a desirable aural model for beginning and intermediate string students. Grades will be based largely on the performance achievement on the saxophone, in addition to development of resources for saxophone pedagogy and demonstration of appropriate diagnosis and prescription for saxophone performance problems. There will be two performance assessments during the course. There will be one midterm and one final assessment, weighted as listed: Midterm Assessment (performance and diagnosis) 30% Final Assessment (performance and diagnosis) 50% Resource journal 10% The required repertoire list will be provided approximately two weeks prior to each assessment. Students will also be provided with a copy of the measurement tool to be used in evaluating their performance. Students must receive a passing grade for both assessments in order to receive an overall passing grade for the course.

Enforced Prerequisite at Enrollment: MUSIC 154

MUSIC 254E: Woodwind Techniques II: Bassoon

0.5 Credits

Performance and teaching techniques and materials selection for bassoon. MUSIC 254E Woodwind Techniques II: Bassoon (.5) This course is intended for music majors working toward the Teacher Education Degree Program in Music. This course may serve as a music education elective, and is best taken during the junior year. It should only be taken following successful completion of MUSIC 154 Woodwind Techniques I. The purpose of the course is to allow students to develop proper performance techniques in order to produce a characteristic sound on the bassoon at a sufficient level so that they can provide a desirable aural model for beginning and intermediate string students. Grades will be based largely on the performance achievement on the bassoon, in addition to development of resources for bassoon pedagogy and demonstration of appropriate diagnosis and prescription for bassoon performance problems. There will be two performance assessments during the course. There will be one midterm and one final assessment, weighted as listed: Midterm Assessment (performance) 33% Final Assessment (performance and written exam) 66%

Enforced Prerequisite at Enrollment: MUSIC 154

MUSIC 255: Intermediate Theory I

3 Credits

Continuation of Music 244 with emphasis on keyboard, harmony, chromaticism, analysis, sight-singing and dictation.

MUSIC 261: Survey of Music History I

3 Credits

The course is a survey of music history from antiquity through the Baroque period, with readings, listening, and lecture. The principal objectives are: to acquaint students with important musical works from this period of European and American history; to place these works in their larger social, cultural, economic, and intellectual contexts; and to introduce analytical methods useful for describing technical musical features and relating those features to extra-musical concerns. As the second course in the music history sequence designed for music majors and minors, Music 261 forms a part of the core music curriculum required for advanced (400-level) study in the discipline. Assignments and evaluation methods are designed to help students develop their critical faculties and communication skills, through listening, reading, in-class discussion, examinations, and writing. There is significant emphasis on intercultural and international competence through study of music from a range of European countries. Musical analysis is integrated with consideration of the historical, social, cultural, religious, and economic circumstances of the works' production. The course stresses development of criteria of aesthetic judgment, with respect to musical style (deployment of the various musical elements: melody, harmony, rhythm, texture, timbre) and the relationship of style to non-musical historical factors.

Enforced Prerequisite at Enrollment: MUSIC 131 and MUSIC 162

Bachelor of Arts: Arts

International Cultures (IL)

General Education: Arts (GA)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

MUSIC 262: Survey of Music History II

3 Credits

The course is a survey of music history from ca. 1750 to the present, with readings, listening, and lecture. The principal objectives are: to acquaint students with important musical works from this period of European and American history; to place these works in their larger social, cultural, economic, and intellectual contexts; and to introduce analytical methods useful for describing technical musical features and relating those features to extra-musical concerns. As the third course in the music history sequence designed for music majors and minors, Music 262 forms a part of the core music curriculum required for advanced (400-level) study in the discipline. Assignments and evaluation methods are designed to help students develop their critical faculties and communication skills, through listening, reading, in-class discussion, examinations, and writing. There is significant emphasis on intercultural and international competence through study of music from a range of European countries and the United States. Musical analysis is integrated with consideration of the historical, social, cultural, religious, and economic circumstances of the works' production. The course stresses development of criteria of aesthetic judgment, with respect to musical style (deployment of the various musical elements: melody, harmony, rhythm, texture, timbre) and the relationship of style to non-musical historical factors.

Enforced Prerequisite at Enrollment: MUSIC 132 and MUSIC 162

Bachelor of Arts: Arts

International Cultures (IL)

General Education: Arts (GA)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

MUSIC 262H: Survey of Music History II

3 Credits

A survey of music history from 1750 to the present, with readings, listening, and lecture.

Honors

MUSIC 266: Basic Conducting

1 Credits

Basic instruction and practicum in conducting, both choral and instrumental.

Enforced Prerequisite at Enrollment: MUSIC 221 and MUSIC 231

Bachelor of Arts: Arts

MUSIC 267: Techniques of Composition

2 Credits

Basic instruction in the techniques of composition in all idioms.

Enforced Prerequisite at Enrollment: MUSIC 231

Bachelor of Arts: Arts

MUSIC 270: Keyboard Skills IV: Music Major

1 Credits

Instruction in secondary chord progressions, transposition, improvisation, accompanying techniques, score reading.

Bachelor of Arts: Arts

MUSIC 273: Composition III

2 Credits

Composition instruction for second-year composition majors.

Bachelor of Arts: Arts

MUSIC 274: Composition IV

2 Credits

Composition instruction for second-year composition majors.

Bachelor of Arts: Arts

MUSIC 295A: Early Field Experience in Music Education

1 Credits/Maximum of 1

MUSIC 295A Early Field Experience in Music Education (1)(BA) This course meets the Bachelor of Arts degree requirements. This course is offered to music majors during their fourth semester who are intending to apply to the Teacher Education Degree Program in Music. It provides prospective music teachers with an opportunity to observe various components involved in the music teaching process; develop basic music teaching skills; identify behaviors of effective music teachers; identify their own strengths and weaknesses as a teacher, set goals based on those traits, and apply strategies to improve; develop their ability to reflect on their own teaching; observe and interact with children of varying races, religious beliefs, national origins and socioeconomic backgrounds, particularly children for whom English is a second language and who are considered in need of early intervention; continue developing their own sight-singing and piano skills.

Enforced Prerequisite at Enrollment: MUSIC 240 and 4th semester standing

Bachelor of Arts: Arts

MUSIC 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Bachelor of Arts: Arts

MUSIC 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Arts

MUSIC 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (1L)

MUSIC 312: Performance of Diverse Musical Styles

1 Credits

Exploration of world instruments and singing through performance and study. MUSIC 312 Performance of Diverse Musical Styles (1) The focus of the course is participation in a non-Western based music ensemble to gain knowledge of global music traditions and how to apply world music ensemble practices into K-12 teaching. Topics include: cultural knowledge and significance, playing technique and pedagogy, and applications for teaching. The instructional format includes: performance, lecture, small group discussion, readings, and musical examples. Students complete several practical assignments and present summations of small group discussions. A final playing and written exam are given, and a formal concert is performed.

MUSIC 325: Music Entrepreneurship

3 Credits

This course teaches students how to use entrepreneurship as a tool in service to their career goal of becoming a music professional. For students who create their own music in some capacity (composing, arranging, performing) or non-creators who desire to support the production and consumption of music in some way, this course provides a solid understanding of entrepreneurial theory and shows how to apply it to the specific goals and interests of each student. This course takes an in-depth look at how the music industry works and helps you, the student, to create a career in music.

MUSIC 331: Tonal Analysis

2 Credits

Introduction to standard procedures of tonal analysis, including concepts of form and structure.

Enforced Prerequisite at Enrollment: MUSIC 221 and MUSIC 231
Bachelor of Arts: Arts

MUSIC 332: Analysis of Twentieth Century Music

2 Credits

Application of analytical techniques and compositional theories to music of the twentieth century.

Enforced Prerequisite at Enrollment: MUSIC 231
Bachelor of Arts: Arts

MUSIC 336: Orchestration

2 Credits

Scoring for the orchestra.

Enforced Prerequisite at Enrollment: MUSIC 222 and MUSIC 332
Bachelor of Arts: Arts

MUSIC 341: Instructional Materials in Music

2 Credits

Exploration of instructional materials and repertoire for use in K-12 music settings. Limited to Music Education majors who have been accepted into the Teacher Education Degree Program in Music. MUSIC 341 Instructional Materials in Music (2) MUSIC 341 is offered to students who have been accepted into the Teacher Education Degree Program in Music. The focus of this course is to gain knowledge through exploration of the process for selecting instructional materials and repertoire for K-12 music across all settings, choral, general, and instrumental settings. Topics include: the exploration of instructional materials, the criteria for selection of materials, and strategies for arranging musical materials to meet the needs of students. The instructional format includes: lecture, large and small group discussion, readings, and musical examples. Students complete several practical assignments and present summations of small group discussions. A written midterm and final evaluation will be given to assess student learning.

Enforced Prerequisite at Enrollment: MUSIC 240 and MUSIC 295A

MUSIC 341B: Instructional Practices in General Music

1.5 Credits

This course provides students with the opportunity to explore instructional materials and repertoire through in-class sessions and observation of Pre- K-12 teachers. Topics include: singing voices of children/youth, music literacy, classroom instruments, musical movement, and issues of curriculum, planning, and assessment. The instructional format includes: large and small group discussion, readings, and musical and teaching examples and experiences. Students complete several practical assignments including off campus observations and development of materials for use in teaching.

MUSIC 345: Instructional Practices in Music

2 Credits

For music education students to learn about instructional techniques and practices for music performance and general music classes. MUSIC 345 Instructional Practices in Music (2) This course is designed to cover general principles in planning and delivery of instruction for, and assessment of the learning of, students in public school K-12 music rehearsals and classrooms. Further, this course will focus on application and implementation of strategies to specific settings in which students will be certified to teach. Course objectives enable students to develop an understanding of the interaction of planning and delivery of instruction and the assessment of student learning; develop an understanding of principles of presenting and leading students in music activities and performance experiences; develop strategies for planning music lessons and rehearsals; and develop strategies for assessing student learning. Students in the course will select appropriate instructional strategies reflecting technical and musical objectives and needs of the students; plan music lessons and rehearsals reflecting technical and musical objectives and needs of the students; and develop valid tools and procedures for assessing students' music learning. The students in this course will be evaluated on their effectiveness in writing task analyses, lesson and rehearsal plans, designing assessment tools, and implementing plans and assessments in a variety of music settings in peer-teaching situations. Music education majors will take this course as part of a sequence of music education courses. This course is preceded by courses concerning musical development, teaching experiences, and

courses in selection and design of instructional materials, and this course precedes a capstone course (MUSIC 441W, MUSIC 442W, MUSIC 443W, MUSIC 444W, MUSIC 445W, or MUSIC 446W) in which students study one instructional setting and curriculum level (choral, band, orchestra, general music; elementary middle school, high school) in greater depth, depending on their future career goals. Approximately 25 students will be enrolled.

Enforced Prerequisite at Enrollment: MUSIC 240 and MUSIC 341.
Enforced Concurrent at Enrollment: MUSIC 395B

MUSIC 366: Intermediate Conducting

1 Credits

Intermediate instruction in conducting; conducting techniques specific to instrumental or choral music; introduction to rehearsal technique. MUSIC 366 Intermediate Conducting (1)(BA) This course meets the Bachelor of Arts degree requirements. MUSIC 366 focuses on the development of more advanced physical skills and gestures appropriate for conducting expressive performances and rehearsals of music ensembles. The instructional format includes instructor demonstrations, student conducting of the class ensemble, and active participation as a performer and observer for peer conductors. Outside of class, students are expected to practice conducting gestures and use basic score study skills as preparation for conducting assigned music. Students prepare several music scores and conduct the class ensemble in practice episodes and instructor-evaluated performances. Students receive feedback and peer feedback on their performances in both practice and evaluated conducting episodes. Students are graded through instructor evaluation of conducting performances, completion of self-assessments involving review of a video of their performances, and participation in providing feedback for peers.

Enforced Prerequisite at Enrollment: MUSIC 266 and MUSIC 332
 Bachelor of Arts: Arts

MUSIC 373: Composition V

3 Credits

Composition instruction for third-year position majors.

Bachelor of Arts: Arts

MUSIC 374: Composition VI

3 Credits

Composition instruction for third-year composition majors.

Bachelor of Arts: Arts

MUSIC 387: Language Diction for Singers: Italian and English

1 Credits

Intensive drill in the pronunciation, phonetic transcription, and singing of Italian and English.

Bachelor of Arts: Arts

MUSIC 388: Language Diction for Singers: French

1 Credits

Intensive drill in the pronunciation, phonetic transcription, and singing of French.

Bachelor of Arts: Arts

MUSIC 389: Language Diction for Singers: German

1 Credits

Intensive drill in the pronunciation, phonetic transcription, and singing of German.

Bachelor of Arts: Arts

MUSIC 395: **SPECIAL TOPICS**

0.5-1 Credits

Bachelor of Arts: Arts

MUSIC 395A: Cohort Practicum I

1 Credits/Maximum of 1

MUSIC 395A Cohort Practicum I (1)(BA) This course meets the Bachelor of Arts degree requirements. MUSIC 395A is offered for students who are tracking acceptance into the Teacher Education Degree Program in Music. Students will enroll concurrently with the proposed course MUSIC 341 and the revised course MUSIC 340. The focus of the course is to provide students with opportunity to explore instructional materials and repertoire through interviews and observation of K-12 teachers. Topics include: the design and implementation of observational tools, and the leading and teaching of songs in a variety of settings. The instructional format includes: large and small group discussion, readings, and musical and teaching examples and experiences. Students complete several practical assignments including off campus observations, and present summations of small group discussions.

Enforced Prerequisite at Enrollment: MUSIC 240 Enforced Concurrent at Enrollment: MUSIC 341

Bachelor of Arts: Arts

MUSIC 395B: Cohort Practicum II

1 Credits/Maximum of 1

Observation and teaching experiences in a variety of musical instruction settings.

Enforced Prerequisite at Enrollment: MUSIC 341 and MUSIC 395A

Bachelor of Arts: Arts

MUSIC 395C: Practicum in Music Teaching

1-5 Credits/Maximum of 5

Field experiences in music teaching for undergraduate music education majors.

Bachelor of Arts: Arts

MUSIC 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

MUSIC 400: Solo Recital

1 Credits

Required recital for Performer's Certificate.

Bachelor of Arts: Arts

MUSIC 404: Adv Chamber Singer

3 Credits/Maximum of 9

This course enables the participation of non-music majors in a choral ensemble at the 400 level. The course will meet concurrently with EITHER Music 089 or Music 104. The repertoire of the ensemble is selected from a wide range of choral literature from medieval chant to commissioned twenty-first century choral works. The goal of the ensemble is to provide artistic, meaningful, and successful choral performances. To achieve this goal, the learning objectives for individual students include attention toward individual vocal development, increased musicianship skill, and the discovery of new means of artistic expression. In addition to these individual objectives, the conductor of the ensemble also teaches directly toward the objectives of ensemble tone, blend, balance, intonation, dynamics, diction, phrasing, etc. Music 404 students are also required to engage in significant research and/or performance projects, the subject matter of which will be catered towards the students' individual research interests and/or the repertoire being studied each semester. These projects may include the study of the art of choral conducting that will culminate in leading the choir in a concert, the study of a specific composer, composition, performance practice or musical style that is featured in the semester's repertoire that will culminate in a major research paper, class presentations, and program notes on the choir's concerts, or other subject matter approved by the instructor. In addition to this requirement, Music 404 students will analyze and summarize bi-weekly scholarly articles chosen by the instructor, the information in which will be presented in class presentations. In addition, Music 404 students must take on a leadership role within the group by choosing and leading warm-ups and technical exercises under the supervision of the instructor, serving as section leaders, and/or serving as vocal soloists in the repertoire.

Enforced Prerequisite at Enrollment: MUSIC 89 or MUSIC 104

MUSIC 412: Jazz Pedagogy

2 Credits

The development of advanced skills in pedagogy for teaching jazz bands.

Bachelor of Arts: Arts

MUSIC 414: String Pedagogy

1-2 Credits/Maximum of 2

The development of skills in pedagogy for teaching strings.

Enforced Concurrent at Enrollment: STRNG 320 or STRNG 321 or STRNG 322 or STRNG 323 or STRNG 324 or STRNG 330 or STRNG 331 or STRNG 332 or STRNG 333 or STRNG 334

Bachelor of Arts: Arts

MUSIC 415: Woodwind Pedagogy

1-2 Credits/Maximum of 2

The development of skills in pedagogy for teaching woodwinds.

Enforced Concurrent at Enrollment: WWNDS 320 or WWNDS 321 or WWNDS 322 or WWNDS 323 or WWNDS 324 or WWNDS 330 or WWNDS 331 or WWNDS 332 or WWNDS 333 or WWNDS 334

Bachelor of Arts: Arts

MUSIC 416: Brass Pedagogy

1-2 Credits/Maximum of 2

The development of skills in pedagogy for teaching brass.

Enforced Concurrent at Enrollment: BRASS 320 or BRASS 321 or BRASS 322 or BRASS 323 or BRASS 324 or BRASS 330 or BRASS 331 or BRASS 332 or BRASS 333 or BRASS 334

Bachelor of Arts: Arts

MUSIC 417: Percussion Pedagogy

1-2 Credits/Maximum of 2

The development of advanced skills in pedagogy for teaching percussion.

Enforced Prerequisite at Enrollment: MUSIC152 or PERCN 320 or PERCN 330 or permission of instructor

Bachelor of Arts: Arts

MUSIC 418: Voice Pedagogy

2 Credits

Analysis of techniques of teaching voice and studies of related music literature and pedagogical writings.

Enforced Prerequisite at Enrollment: VOICE 270 or VOICE 280 or permission of instructor

Bachelor of Arts: Arts

MUSIC 419: Piano Pedagogy I

2 Credits

Analysis of beginning teaching methods and teaching strategies for children.

Enforced Prerequisite at Enrollment: KEYBD 270 or KEYBD 280 or MUSIC 332

Bachelor of Arts: Arts

MUSIC 420: Song Writing and Recording

3 Credits

Song composition, arranging and recording in a variety of style genres. MUSIC 420 Song Writing and Recording (3) This course will take the student through the process of composing and producing a recorded song. The class will consist of a combination of class meetings and individual instruction. Topics will include form, lyric writing, arranging,

audio/MIDI recording and sequencing. Familiarity with basic audio sequencing software and music theory concepts is essential. The focus of the class is vernacular song as opposed to classical art song, but all the basic concepts discussed in the class apply to either genre. The course requires the composition of original songs and the creation of high-quality recordings of them and their conversion to MP3 format. The student are expected to enter the class with a basic knowledge of digital audio and MIDI (MUSIC/INART 258 or equivalent).

Enforced Prerequisite at Enrollment: INART 258A or INART 258B

MUSIC 420H: Vocal Accompanying Techniques

2 Credits/Maximum of 4

Instruction focusing on the accompanist's problems of balance, interpretation, and musical communication.

Honors

MUSIC 421: Jazz Combo Class

1 Credits/Maximum of 8

Study and performance of small group jazz.

Bachelor of Arts: Arts

MUSIC 422: Jazz Harmony and Arranging

3 Credits

Analysis and composition of jazz tunes and chord progressions; instrumental and vocal arranging in the jazz idiom.

Enforced Prerequisite at Enrollment: MUSIC 222 and MUSIC 332

Bachelor of Arts: Arts

MUSIC 424: Piano Pedagogy II

2 Credits

Analysis of techniques of teaching intermediate-early advanced level piano and studies of music literature and pedagogical writings.

Enforced Prerequisite at Enrollment: KEYBD 270 or KEYBD 280 or MUSIC 332

Bachelor of Arts: Arts

MUSIC 425: Advanced Voice Pedagogy

2 Credits

Analysis of techniques of teaching voice, supervised teaching, studies of studio materials and related topics.

Enforced Prerequisite at Enrollment: MUSIC 418

Bachelor of Arts: Arts

MUSIC 429: Aural Review for Graduate Students

1 Credits

An intensive review of the aural skills required for a theoretical understanding of 18th- and 19th-century music.

Bachelor of Arts: Arts

MUSIC 431: Advanced Tonal Analysis

2-3 Credits

Advanced techniques of musical analysis.

Enforced Prerequisite at Enrollment: MUSIC 332

Bachelor of Arts: Arts

MUSIC 432: Graduate Review of Twentieth-Century Analysis

2-3 Credits/Maximum of 3

The theory and analysis of style in music of the twentieth century.

Enforced Prerequisite at Enrollment: MUSIC 262 and MUSIC 332

Bachelor of Arts: Arts

MUSIC 433: Advanced Analysis of Twentieth-Century Music

2-3 Credits

In-depth studies of selected twentieth-century repertoires and/or analytical models.

Enforced Prerequisite at Enrollment: MUSIC 262 and MUSIC 332

Bachelor of Arts: Arts

MUSIC 434: History of Electroacoustic Music

3 Credits/Maximum of 3

A HISTORY OF ELECTROACOUSTIC MUSIC AS A CONSEQUENCE OF DEVELOPMENTS IN CULTURE AND TECHNOLOGY FROM 1880 to PRESENT. HISTORY OF ELECTROACOUSTIC MUSIC (3) is an introduction to the development of music based in electronics, beginning with the invention of the phonograph and ending with current electronic dance music. The course traces interrelated developments in technology, art, culture, and music, and investigates music through written listening analyses.

Enforced Prerequisite at Enrollment: INART 258A or INART 258B

MUSIC 435: Score Reading

1 Credits

Introduction in score reading at the keyboard.

Enforced Prerequisite at Enrollment: MUSIC 332

Bachelor of Arts: Arts

MUSIC 437: Music Information Retrieval and Computer-Assisted Music

3 Credits

Music Information Retrieval and Computer-Assisted Music have become quite important to electronic musicians recently and will increase in importance over time. The common threads that run through the topics of this course are, first, the mathematics & software that have entered the popular imagination as "big data" & "modeling" and, second, music. An application of these ideas might look like software in which one can search all of Beethoven's works to determine exactly how often he followed a V7 chord with a vi chord; this would be called Music Information Retrieval (MIR). Using a computer to calculate the possible solutions to a species counterpoint exercise might be computer-assisted

music theory. The course will have a seminar-like format in which current research is reviewed and students undertake projects in MIR or CAM.

Recommended Preparations: INART 50Z

MUSIC 438: The Business of Music

1 Credits/Maximum of 1

This course is a survey of topics related to a career in classical music performance, private teaching, and educational institution teaching. These are the principal means by which the freelance musician earns a living. Topics include résumé writing, biography writing, repertoire list writing, press release writing, website and flyer design, audio and video recordings, auditions, competitions, performance opportunities, networking, professional finances, fundraising, managing all aspects of a private teaching enterprise, and applying for institutional teaching positions. Panel discussions with professional musicians will be scheduled.

Enforced Prerequisite at Enrollment: 5th semester standing

MUSIC 441W: Emphasis in Elementary General Music

3 Credits

This course is intended for Music Education majors in their senior year who have particular interest in working with elementary school children in a general music or choral setting and will involve off-site practicum experiences. Students in this course will develop teaching skills as applied to the elementary general music classroom including the teaching of singing, movement, classroom instruments, creative endeavors, and rhythmic and melodic literacy.

Enforced Prerequisite at Enrollment: MUSIC 345 and MUSIC 395B
Writing Across the Curriculum

MUSIC 442W: Emphasis in Secondary General Music

3 Credits

Emphasis in teaching in secondary general music settings. MUSIC 442W Emphasis in Secondary General Music (3) MUSIC 442W is offered to students who have been accepted into the Teacher Certification program in Music Education. The focus of this course is to provide students with opportunity to explore secondary general music settings under the close supervision of a faculty member. Topics include: the design and implementation of curriculum in secondary general music, the leading and teaching of songs in these settings, and specific grade-level appropriate pedagogy. The instructional format includes: lecture, small group discussion, readings, musical and teaching examples, and off campus observation and teaching in middle and high school classrooms. Students complete several practical assignments including off campus observations, presentation of the summations of small group discussions, curriculum planning and models, and teaching within public schools in grades 5-12. This is a writing intensive course with focus on a detailed, multi-drafted topic paper relating to specific elements of teaching choral and general music at the secondary level.

Enforced Prerequisite at Enrollment: MUSIC 345 and MUSIC 395B
Bachelor of Arts: Arts
Writing Across the Curriculum

MUSIC 443W: Choral Emphasis in Secondary Music Education

3 Credits

MUSIC 443W Choral Emphasis in Secondary Music Education (3). This course meets the Bachelor of Music (Music Education) degree requirements. The course is intended to prepare pre-service teachers to teach secondary choral (vocal) music. Preparation will include observation of current public school teachers and teaching techniques and methods, preparation and implementation of appropriate lessons including assessments, in-depth analysis (case study) of a student currently in the public schools, development of a written philosophy of music education and choir instruction, and consideration of practical matters associated with teaching in the public schools such as scheduling, recruitment and parent interaction. The course serves as a capstone to the prior courses in the music education curriculum. Previous courses in instructional planning, instructional materials, instrument techniques, conducting, piano and vocal technique will have developed necessary prior skills. Skills and concepts from these classes will be applied in this authentic context in the collegiate and public school classrooms. The students will be assessed according to their effectiveness in observation, teaching preparation, teaching and research. Evaluation will be in the form of written and verbal feedback, and completion of rubrics by the instructor and the students themselves (self- and peer-evaluation). Students will complete a field experience component in local middle or high schools.

Enforced Prerequisite at Enrollment: MUSIC 345 and MUSIC 387 and MUSIC 395B
Writing Across the Curriculum

MUSIC 444W: Emphasis in Elementary and Intermediate Band

3 Credits

Examination and application of teaching strategies and materials for students planning to teach band in the elementary and middle schools. MUSIC 444W Capstone Experiences in Elementary and Intermediate Band (3)(BA) This course meets the Bachelor of Arts degree requirements. The course is intended to prepare pre-service teachers to teach beginning through intermediate instrumental (band) music. Preparation will include observation of current public school teachers and teaching techniques and methods, preparation and implementation of appropriate lessons including assessments, in-depth analysis (case study) of a student currently in the public schools, development of a written philosophy of music education and band instruction, and consideration of practical matters associated with teaching in the public schools such as scheduling, recruitment and parent interaction. The course serves as a capstone to the prior courses in the music education curriculum. Previous courses in instructional planning, instructional materials, instrument techniques, conducting piano and voice use will have developed necessary prior skills. Skills and concepts from these classes will be applied in this authentic context in the collegiate and public school classrooms. The students will be assessed according to their effectiveness in observation, teaching preparation, teaching and research. Evaluation will be in the form of written and verbal feedback, and completion of rubrics by the instructor and the students themselves (self- and peer-evaluation). Enrollment will likely be approximately 5 students each time the course is offered. The students will be spending considerable class time in local elementary and middle schools for field work.

Enforced Prerequisite at Enrollment: MUSIC 395B and MUSIC 345

Writing Across the Curriculum

MUSIC 445W: Emphasis in High School Band

3 Credits

Examination and application of teaching strategies and materials for students planning to teach high school bands. MUSIC 445W Capstone Experiences in High School Band (3) This course is intended to prepare pre-service teachers to teach high school band. Students will observe, analyze, and discuss the teaching techniques, methods, and materials used by public school teachers in high school band instructional settings. Students will prepare and implement rehearsal plans including assessments, in-depth investigation of appropriate repertoire for use in high school bands and concert programming. Students will develop score analysis skills necessary to plan and guide music making and learning in the band rehearsal. Students will develop materials and strategies that strengthen the connection of instrumental performance to the public school curriculum. Students will develop a written philosophy of music education and the role instrumental performance in band within the music education of high school students. Students will consider practical matters associated with teaching in the public schools such as: scheduling, interaction with parents/teachers/administrators, parental support organizations (music boosters), advocacy, community/school support, and long-range instrumental music program development plans.

Enforced Prerequisite at Enrollment: MUSIC 395B and MUSIC 345 Writing Across the Curriculum

MUSIC 446W: Emphasis in Strings and Orchestra

3 Credits

Development of teaching techniques for instructing elementary and secondary string/orchestra student musicians for music education majors. MUSIC 446W Capstone Experiences in Strings and Orchestra (3) This course is intended to prepare pre-service teachers to teach elementary and secondary string instrumental (orchestra) music. Preparation will include observation of current public school teachers and teaching techniques and methods, preparation and implementation of appropriate lessons including assessments, in-depth analysis (case study) of a student currently in the public schools, development of a written philosophy of music education and string/orchestra instruction, and consideration of practical matters associated with teaching in the public schools such as scheduling, recruitment and parent interaction. The course serves as a capstone to the prior courses in the music education curriculum. Previous courses in instructional planning, instructional materials, instrument techniques, conducting, piano and voice use will have developed necessary prior skills. Skills and concepts from these classes will be applied in this authentic context in the collegiate and public school classrooms. The students will be assessed according to their effectiveness in observation, teaching preparation, teaching, and research. Evaluation will be in the form of written and verbal feedback, and completion of rubrics by the instructor and the students themselves (self- and peer-evaluation). Enrollment will likely be approximately 5 students each fall semester. Students will spend considerable class time in local public schools for fieldwork.

Enforced Prerequisite at Enrollment: MUSIC 345 and MUSIC 395B Writing Across the Curriculum

MUSIC 450: Teaching Marching Band

2 Credits

Traditional and contemporary drill design principles, show development strategies, instructional techniques, and organizational procedures involved in teaching marching band. MUSIC 450 Teaching Marching Band (2)(BA) This course meets the Bachelor of Arts degree requirements. MUSIC 450 is a marching band technique course for music education majors, band directors, and experienced marching band members. This course develops knowledge and skills required to organize and teach marching band with an emphasis on traditional and contemporary drill design and charting. Students are taught an eclectic understanding of drill systems, contemporary drill design, and visual design theory with opportunities to apply drill design computer software (Pyware Java 3D) in developing effective movements for marching units. Course topics include philosophy and role of marching band in the music program, historical perspectives, marching band styles, administration and organization of the marching band and auxiliary units and teaching techniques.

Enforced Prerequisite at Enrollment: MUSIC 345 or permission of program
Bachelor of Arts: Arts

MUSIC 451: Computer Programming for Musicians

3 Credits/Maximum of 12

In-depth study of music programming techniques. MUSIC 451 Computer Programming for Musicians (3 per semester/maximum of 12) This is an in-depth study of a given music programming language or environment. The language/environment will vary from semester to semester, to include languages such as SuperCollider and Max/MSP. Students will be expected to work independently on a series of projects that require increasing levels of difficulty in programming methodology. The course may be repeated for credit. Students will be acquainted with the basics of how the programming environment treats fundamental matters such as signal flow, defining functions, variables and arguments, and music synthesis techniques. These principles will be expanded, with added layers of complexity to the types of problems presented. More complex instruments, processing, and filtering will be covered, along with real-time capabilities (ability of the program to respond to input from audio input or data from an external controller) and the creation of graphical user interfaces (GUIs). Advanced topics will include algorithmic composition and the creation of plug-ins that may be used by other programs. As this is an upper division class, students will be expected to be self-motivated and work independently. Assignments will present problems that may be approached in a number of ways - there is no single right answer; putting it another way, the correct answer is the one that works. Students pursuing the minor in Music Technology (MUTEC) are required to complete two elective courses, one of them upper division. This course will serve those students wishing to apply the minor to areas of software development. Along with MUSIC 455 Technology in Music, this course may also serve as the second part of an elective music technology cognate for students in the graduate and IUG programs in music theory.

Enforced Prerequisite at Enrollment: INART 258A or permission of program

MUSIC 452: Computer Music Synthesis

3 Credits

Use of sound synthesis software for music creation.

Enforced Prerequisite at Enrollment: INART 258A and INART 50Z
Bachelor of Arts: Arts

MUSIC 453: Recording Studio Training

1 Credits

Training in how to use a professional multi-track recording studio. MUSIC 453 Recording Studio Training (1)(BA) This course meets the Bachelor of Arts degree requirements. This is a course in recording studio engineering, directed at students who wish to learn how to operate a professional level multi-track recording studio. Topics include microphone theory, signal flow, audio mixing and mastering, and maintenance issues.

Bachelor of Arts: Arts

MUSIC 455: Technology in Music

1-3 Credits/Maximum of 3

Survey of how musical information is stored and processed in computer systems. MUSIC 455 Technology in Music (3)(BA) This course meets the Bachelor of Arts degree requirements. This course provides a survey of how musical information is stored and transmitted in digital devices. It will be divided into three sections. Weeks 1 and 2 are an introduction to acoustical principles such as the nature of sound transmission and measurements of frequency, sound power level, phase, timbre, and localization. Computer basics will also be covered, with topics to include binary number representation and basic computer operation. Weeks 3 through 8 cover the MIDI transmission protocol that enables musical information to be stored and transmitted efficiently. Topics include the nature of the MIDI data structure, the types of messages that may be passed, and the suitability of MIDI for expressive performance. MIDI software is discussed, including notation software, editor/librarian software, and sequencers. The bulk of the course's project component involves working with sequencing programs. Students are also exposed to using MIDI on the web, downloading files and importing them into various applications. Weeks 9 through 15 cover digital audio so that students may understand how instruments capable of understanding MIDI messages are able to translate the instructions into audio signals. Topics include sampling theory, digital vs. analog recording, filters, signal processing, and editing sound files. Projects involving digital audio also use a sequencing program that is able to combine MIDI and audio data. The students are expected to work independently to complete reading assignments according to the schedule outlined in the course syllabus. While due attention will be given to discussion of this material in class, the primary focus of class sessions will be hands-on application, to ensure that students master a set of skills on the computer.

Enforced Prerequisite at Enrollment: INART 258A
Bachelor of Arts: Arts

MUSIC 458: Electronic Music Composition I

3 Credits

An introduction to the art of composition in the electronic audio medium. MUSIC 458 Electronic Music Composition (3)(BA) This course meets the Bachelor of Arts degree requirements. Music 458 will focus on the

creative craft of musical composition in the medium of electronic audio. Topics covered will include but not be limited to: recording, MIDI and digital audio techniques, study of literature and the investigation of the creative process in musical composition. Students are expected to enter the class with strong fundamentals in both music theory and MIDI and digital audio. The student will be expected to complete several projects that demonstrate both their creativity and their technical competence in the medium.

Enforced Prerequisite at Enrollment: INART 258A
Bachelor of Arts: Arts

MUSIC 459: Electronic Music Composition II

3 Credits

Electronic Music Composition II is the second course of a two-semester sequence focused on composition for electronic media. The projects in this course focus on spatial and interactive aspects of computer music, in addition to how these works are realized through the course of performance. The pieces created by students in the course will range from interactive electro-acoustic works realized in real-time to a work for electronic instrument ensemble. Students will become familiar with a variety of software tools and programming languages. The aim of the course is to focus equally on the artistic/compositional merits of your work and provide each student with a thorough knowledge of the technical skills needed to create unique work-specific programs. We will explore a ground-up approach and each student will design distinctive computer tools that support their individual voice as a composer.

MUSIC 460: Teaching Musical Cultures

2 Credits

Exploration of the world's musical cultures and the implication of and procedures for teaching multicultural music. Limited to upper division music majors or permission of program.

Enforced Prerequisite at Enrollment: MUSIC 262 or permission of program

MUSIC 461W: Studies in Music History: Antiquity to 1600

3 Credits/Maximum of 6

In-depth study of selected aspects of music and culture from antiquity to 1600, with emphasis on writing and research.

Enforced Prerequisite at Enrollment: MUSIC 261 and MUSIC 332
Bachelor of Arts: Arts
Writing Across the Curriculum

MUSIC 462W: Studies in Music History: 1550-1750

3 Credits/Maximum of 6

In-depth study of selected aspects of music and culture from 1550-1750, with emphasis on writing and research.

Enforced Prerequisite at Enrollment: MUSIC 261 and MUSIC 332
Bachelor of Arts: Arts
Writing Across the Curriculum

MUSIC 463W: Studies in Music History: 1700-1900

3 Credits/Maximum of 6

In-depth study of selected aspects of music and culture from 1700-1900, with emphasis on writing and research.

Enforced Prerequisite at Enrollment: MUSIC 261 and MUSIC 332

Bachelor of Arts: Arts

Writing Across the Curriculum

MUSIC 464W: Studies in Music History: 1850-Present

3 Credits/Maximum of 6

In-depth study of selected aspects of music and culture from 1850 to the present, with emphasis on writing and research.

Enforced Prerequisite at Enrollment: MUSIC 262 and MUSIC 332

Bachelor of Arts: Arts

Writing Across the Curriculum

MUSIC 465: Advanced Conducting I

2 Credits

Advanced instruction in conducting; conducting techniques specific to instrumental or choral music; emphasis on score study and rehearsal technique.

Enforced Prerequisite at Enrollment: MUSIC 366

Bachelor of Arts: Arts

MUSIC 466: Advanced Conducting II

2 Credits/Maximum of 8

Standard scores of symphonies, tone poems, operas, oratorios, and shorter vocal and instrumental works studied from the viewpoint of the conductor.

Enforced Prerequisite at Enrollment: MUSIC 366

Bachelor of Arts: Arts

MUSIC 467: Opera Workshop

1-3 Credits/Maximum of 6

History, analysis, and production of operas from sixteenth century to present.

Bachelor of Arts: Arts

MUSIC 468: Acting for Singers

2 Credits/Maximum of 4

To help students develop authentic and specific characters/portrayals on stage through physical and emotional awareness. MUSIC 468 Acting for Singers (2) This is a course teaching singers the fundamentals of acting. All types of stage work related to vocal music will be explored from performing in recitals and concerts to the opera and excerpted scenes. The objective of the course is to make singers more comfortable on stage and more realistic/believable in their performances/presentations. This course differs from acting courses offered in other areas because the singer has restrictions placed upon him due to the requirements of the music, especially in regard to timing and the sense of time, and the use of texts which are often in foreign languages. The course is an

elective 2 credit course which students may repeat for a maximum of 4 credits. An accompanist will be present to accompany students in their song/aria presentations. Every class meeting will begin with warm-up exercises and then continue with further exercises focusing on helping students develop a sense of timing and enabling them to explore the 'beats' (or central topic) of a scene. Emphasis will be placed on learning how to prepare for a scene, analyze it, and determining the goal(s) of the character. The students will be encouraged to learn how to be specific in their acting and to learn what will 'read' to an audience while accurately reflecting the portrayed emotion. Some work will be solo work, but there will also be opportunities to work with partners. Improvisation will also be incorporated.

MUSIC 471: Structural and Sixteenth-Century Counterpoint

2 Credits

Advanced species counterpoint and its application to the sixteenth-century style.

Enforced Prerequisite at Enrollment: MUSIC 222 and MUSIC 332

Bachelor of Arts: Arts

MUSIC 472: Eighteenth-Century Counterpoint

2 Credits

Imitative and nonimitative counterpoint in the style of Bach.

Enforced Prerequisite at Enrollment: MUSIC 221 and MUSIC 231

Bachelor of Arts: Arts

MUSIC 473: Composition VII

3 Credits

Composition instruction for fourth-year composition majors.

Bachelor of Arts: Arts

MUSIC 474: Composition VIII

3 Credits

Composition instruction for fourth-year composition majors.

Bachelor of Arts: Arts

MUSIC 476W: B.A. Senior Project

3 Credits

A semester project appropriate to student's option in B.A. program (e.g., research paper, performance with program notes, or related paper).

Enforced Prerequisite at Enrollment: Seventh-semester standing

Bachelor of Arts: Arts

Writing Across the Curriculum

MUSIC 478: Vocal Literature

3 Credits

Introduction to the literature for solo voice in opera, oratorio, cantata, art song, and chamber music from the baroque to the present.

Enforced Prerequisite at Enrollment: MUSIC 262 and MUSIC 332

Bachelor of Arts: Arts

MUSIC 480: Opera Literature

3 Credits

Studies in the development of the opera from 1600 to the present, treating both libretto and music.

Enforced Prerequisite at Enrollment: MUSIC 231 and MUSIC 262
Bachelor of Arts: Arts

MUSIC 481: Keyboard Literature

3 Credits

Studies in the development of keyboard music and instruments; a survey of all eras using listening, analysis, and performance.

Enforced Prerequisite at Enrollment: MUSIC 262 and MUSIC 332
Bachelor of Arts: Arts

MUSIC 483: Seminar in Voice Pedagogy

2 Credits

Survey of literature relevant to the teaching of voice from historical sources through recent pedagogical scholarship.

Enforced Prerequisite at Enrollment: MUSIC 418
Bachelor of Arts: Arts

MUSIC 485: Chamber Music Literature

3 Credits

Survey of chamber music for strings, winds, and brass instruments from the mid-16th century to the present day.

Enforced Prerequisite at Enrollment: MUSIC 262 and MUSIC 332
Bachelor of Arts: Arts

MUSIC 487: Orchestral Literature

3 Credits

Survey of orchestral literature.

Enforced Prerequisite at Enrollment: MUSIC 262 and MUSIC 332
Bachelor of Arts: Arts

MUSIC 488: Studies in the Major Performance Area

1-2 Credits

Selected studies in music literature specific to the student's major performance area. Will include research, analysis and performance. MUSIC 488 Studies in the Major Performance Area (1-2) The objective of Music 488 is to create a thorough knowledge of the literature and resources in the students' major performance area. The course will be taught in a seminar format. Students will be grouped according by general performance area: i.e., keyboard, strings, woodwinds, brass, percussion, voice. The course will include lectures, research, class presentations and performance. The course will be offered for variable credit in order to meet varying conditions of scheduling and credit requirements. Specific evaluation methods will be determined by the instructor, to include class presentations, class participation, exams and/or written work.

MUSIC 489: Studio and Recital Accompaniment

1 Credits/Maximum of 4

Advanced keyboard accompaniment of student soloists in the studio and in public performance under faculty supervision.

Enforced Prerequisite at Enrollment: MUSIC 194 or permission of instructor
Bachelor of Arts: Arts

MUSIC 491: Advanced Chamber Ensemble

1 Credits/Maximum of 4

Preparation and performance of advanced chamber music. MUSIC 491 Advanced Chamber Ensemble (1 per semester/maximum of 4) Advanced Chamber Ensemble meets at least two hours per week - once with the instructor for coaching and at least once for an additional rehearsal without the instructor's presence. Course objectives include, but are not limited to, the development of rehearsal and ensemble skills, an increased awareness of musical styles, public performance(s) of works prepared, and the development of the interpersonal skills necessary for the players to operate as a unit. Chamber music is an integral part of instrumental musical training. It is an important partner with conducted ensembles in the performance preparation of musicians. Evaluation of student work is based on participation in rehearsals, the progress made by the ensemble, and the quality of the ensemble's performances. The course is offered during fall and spring semesters.

Enforced Prerequisite at Enrollment: (MUSIC 190 or MUSIC 191 or MUSIC 192) and 5th semester standing

MUSIC 493: Sonata Duos

1 Credits/Maximum of 4

Preparation for performance of advanced sonata literature for various individual instruments with keyboard.

Enforced Prerequisite at Enrollment: MUSIC 193 or equivalent or permission of instructor
Bachelor of Arts: Arts

MUSIC 494: Research Topics

1-3 Credits/Maximum of 6

Supervised research leading to senior thesis or project.

Bachelor of Arts: Arts

MUSIC 494H: Research Topics

1-3 Credits/Maximum of 6

Supervised research leading to senior thesis or project.

Bachelor of Arts: Arts
Honors

MUSIC 495: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Bachelor of Arts: Arts

MUSIC 495A: Student Teaching: General Music

5-7 Credits/Maximum of 7

MUSIC 495A Student Teaching: General Music (6-8)(BA) This course meets the Bachelor of Arts degree requirements. As required by the Pennsylvania Department of Education, all music education students seeking certification must enroll in a culminating student teaching experience which closely approximates a full-time working experience in the public schools of Pennsylvania. The objective of this course is to offer a transition between student life and professional life directly prior to graduation. This total immersion in the field of GENERAL MUSIC allows the student to learn from and work with a mentor teacher in an off-campus setting. During the semester prior to the course, cooperating music teachers and school districts are contacted requesting their participation and music education students interview with the teachers. The students then move to the community in which they will be student teaching and adopt the practices of that mentor teacher within that specific school district. Students are evaluated by both the mentor teacher and a Penn State supervisor who visits a minimum of four times per semester. This course is offered every semester.

Enforced Prerequisite at Enrollment: MUSIC 441W or MUSIC 442W or MUSIC 443W or MUSIC 444W or MUSIC 445W or MUSIC 446W
Bachelor of Arts: Arts

MUSIC 495B: Student Teaching: Choral Music

5-7 Credits/Maximum of 7

MUSIC 495B Student Teaching: Choral Music (5-7)(BA) This course meets the Bachelor of Arts degree requirements. As required by the Pennsylvania Department of Education, all music education students seeking certification must enroll in a culminating student teaching experience which closely approximates a full-time working experience in the public schools of Pennsylvania. The objective of this course is to offer a transition between student life and professional life directly prior to graduation. This total immersion in the field of CHORAL MUSIC allows the student to learn from and work with a mentor teacher in an off-campus setting. During the semester prior to the course, cooperating music teachers and school districts are contacted requesting their participation and music education students interview with the teachers. The students then move to the community in which they will be student teaching and adopt the practices of that mentor teacher within that specific school district. Students are evaluated by both the mentor teacher and a Penn State supervisor who visits a minimum of four times per semester. This course is offered every semester.

Enforced Prerequisite at Enrollment: MUSIC 441W or MUSIC 442W or MUSIC 443W or MUSIC 444W or MUSIC 445W or MUSIC 446W
Bachelor of Arts: Arts

MUSIC 495C: Student Teaching: Instrumental Music

5-7 Credits/Maximum of 7

MUSIC 495C Student Teaching: Instrumental Music (5-7)(BA) This course meets the Bachelor of Arts degree requirements. As required by the Pennsylvania Department of Education, all music education students seeking certification must enroll in a culminating student teaching experience which closely approximates a full-time working experience in the public schools of Pennsylvania. The objective of this course is to offer a transition between student life and professional life directly prior

to graduation. This total immersion in the field of INSTRUMENTAL MUSIC allows the student to learn from and work with a mentor teacher in an off-campus setting. During the semester prior to the course, cooperating music teachers and school districts are contacted requesting their participation and music education students interview with the teachers. The students then move to the community in which they will be student teaching and adopt the practices of that mentor teacher within that specific school district. Students are evaluated by both the mentor teacher and a Penn State supervisor who visits a minimum of four times per semester. This course is offered every semester.

Enforced Prerequisite at Enrollment: MUSIC 441W or MUSIC 442W or MUSIC 443W or MUSIC 444W or MUSIC 445W or MUSIC 446W
Bachelor of Arts: Arts

MUSIC 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Bachelor of Arts: Arts

MUSIC 496H: Independent Studies - Honors

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Bachelor of Arts: Arts
Honors

MUSIC 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Arts

MUSIC 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Music-Brass (BRASS)

BRASS 100: Trumpet: Secondary

1 Credits/Maximum of 8

Individual instruction in trumpet one-half hour per week. BRASS 100 Trumpet: Secondary (1 per semester/maximum of 8) (GA)(BA) This course meets the Bachelor of Arts degree requirements. The goals of this course are to introduce, define, and develop the musical and technical skills required to play the trumpet well in a variety of musical settings. The instrument is active in orchestral, band, jazz, chamber, and solo settings. Therefore, the basic goal for serious trumpet students as well as amateur trumpet students is to be proficient and versatile. The repertoire studied includes a variety of musical genre including the use

of technical etudes, lyrical studies and standard solo works in a variety of styles. This course directly affects the student's ability to participate and contribute in the various ensembles on campus. The teacher and the student evaluate the student's progress and performance. Suggestions for improvement are agreed upon and developed. The course is offered to both music majors and non-majors. Students receive a one-half hour lesson per week, presuming at least 5 hours of practice.

Bachelor of Arts: Arts
 General Education: Arts (GA)
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

BRASS 101: French Horn: Secondary

1 Credits/Maximum of 8

Individual instruction in French horn one-half hour per week. For students who qualify. BRASS 101 French Horn: Secondary (1 per semester/maximum of 8) (GA)(BA) This course meets the Bachelor of Arts degree requirements. The goals of this course are to introduce, define, and develop the musical and technical skills required to play the French horn well in a variety of musical settings. The instrument is active in orchestral, band, chamber, and solo settings. Therefore, the basic goal for serious horn students as well as amateur horn students is to be proficient and versatile. The repertoire studied includes a variety of musical genre including the use of technical etudes, lyrical studies and standard solo works in a variety of styles. This course directly affects the student's ability to participate and contribute in the various ensembles on campus. The teacher and the student evaluate the student's progress and performance. Suggestions for improvement are agreed upon and developed. The course is offered to both music majors and non-majors. Students receive a one-half hour lesson per week, assuming at least 5 hours of practice. Enrollment can range from 5-8 per semester depending on the availability of staffing.

Bachelor of Arts: Arts
 General Education: Arts (GA)
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

BRASS 102: Trombone: Secondary

1 Credits/Maximum of 8

Individual instruction in trombone one-half hour per week. BRASS 102 Trombone: Secondary (1 per semester/maximum of 8) (GA)(BA) This course meets the Bachelor of Arts degree requirements. The goals of this course are to introduce, define, and develop the musical and technical skills required to play the trombone well in a variety of musical settings. The instrument is active in orchestral, band, jazz, chamber, and solo settings. Therefore, the basic goal for serious trombonists as well as amateur trombonists is to be proficient and versatile. The repertoire studied includes a variety of musical genre including the use of technical etudes, lyrical studies and standard solo works in a variety of styles. This course directly affects the student's ability to participate and contribute in the various ensembles on campus. The teacher and the student evaluate the student's progress and performance. Suggestions for improvement are agreed upon and developed. The course is offered to both music majors and non-majors. Students receive a one-half hour

lesson per week, presuming at least 5 hours of practice. Enrollment can range from 10-15 per semester depending on the availability of staffing.

Bachelor of Arts: Arts
 General Education: Arts (GA)
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

BRASS 103: Euphonium: Secondary

1 Credits/Maximum of 8

Individual instruction in euphonium/baritone one-half hour per week. BRASS 103 Euphonium: Secondary (1 per semester/maximum of 8) (GA) (BA) This course meets the Bachelor of Arts degree requirements. The goals of this course are to introduce, define, and develop the musical and technical skills required to play the euphonium well in a variety of musical settings. The instrument is active in orchestral, band, chamber, and solo settings. Therefore, the basic goal for serious euphonium students as well as amateur euphonium students is to be proficient and versatile. The repertoire studied includes a variety of musical genre including the use of technical etudes, lyrical studies and standard solo works in a variety of styles. This course directly affects the student's ability to participate and contribute in the various ensembles on campus. The teacher and the student evaluate the student's progress and performance. Suggestions for improvement are agreed upon and developed. The course is offered to both music majors and non-majors. Students receive a one-half hour lesson per week, presuming at least 5 hours of practice. Enrollment can range from 12-15 per semester depending on the availability of staffing.

Bachelor of Arts: Arts
 General Education: Arts (GA)
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

BRASS 104: Tuba: Secondary

1 Credits/Maximum of 8

Individual instruction in tuba one-half hour per week. BRASS 104 Tuba: Secondary (1 per semester/maximum of 8) (GA)(BA) This course meets the Bachelor of Arts degree requirements. The goals of this course are to introduce, define, and develop the musical and technical skills required to play the tuba well in a variety of musical settings. The instrument is active in orchestral, band, chamber, and solo settings. Therefore, the basic goal for serious tuba students as well as amateur tuba students is to be proficient and versatile. The repertoire studied includes a variety of musical genre including the use of technical etudes, lyrical studies and standard solo works in a variety of styles. This course directly affects the student's ability to participate and contribute in the various ensembles on campus. The teacher and the student evaluate the student's progress and performance. Suggestions for improvement are agreed upon and developed. The course is offered to both music majors and non-majors. Students receive a one-half hour lesson per week, presuming at least 5 hours of practice per week. Enrollment can range from 8-10 per semester depending on the availability of staffing.

Bachelor of Arts: Arts
 General Education: Arts (GA)
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

BRASS 110: Trumpet: Secondary

2 Credits/Maximum of 16

Individual instruction in trumpet one hour per week. BRASS 110 Trumpet: Secondary (2 per semester/maximum of 16) (GA)(BA) This course meets the Bachelor of Arts degree requirements. The goals of this course are to introduce, define, and develop the musical and technical skills required to play the trumpet well in a variety of musical settings. The instrument is active in orchestral, band, jazz, chamber, and solo settings. Therefore, the basic goal for serious trumpet students as well as amateur trumpet students is to be proficient and versatile. The repertoire studied includes a variety of musical genre including the use of technical etudes, lyrical studies and standard solo works in a variety of styles. This course directly affects the student's ability to participate and contribute in the various ensembles on campus. The teacher and the student evaluate the student's progress and performance. Suggestions for improvement are agreed upon and developed. The course is offered to both music majors and non-majors. Students receive a one-hour lesson per week, presuming at least 10 hours of practice.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

BRASS 111: French Horn: Secondary

2 Credits/Maximum of 16

Individual instruction in French horn one hour per week. For students who qualify. BRASS 111 French Horn: Secondary (2 per semester/maximum of 16) (GA)(BA) This course meets the Bachelor of Arts degree requirements. The goals of this course are to introduce, define, and develop the musical and technical skills required to play the horn well in a variety of musical settings. The instrument is active in orchestral, band, chamber, and solo settings. Therefore, the basic goal for serious horn students as well as amateur horn students is to be proficient and versatile. The repertoire studied includes a variety of musical genre including the use of technical etudes, lyrical studies and standard solo works in a variety of styles. This course directly affects the student's ability to participate and contribute in the various ensembles on campus. The teacher and the student evaluate the student's progress and performance. Suggestions for improvement are agreed upon and developed. The course is offered to both music majors and non-majors. Students receive a one-hour lesson per week, presuming at least 10 hours of practice. Enrollment can range from 5-8 per semester depending on the availability of staffing.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

BRASS 112: Trombone: Secondary

2 Credits/Maximum of 16

Individual instruction in trombone one hour per week. BRASS 112 Trombone: Secondary (2 per semester/maximum of 16) (GA)(BA) This course meets the Bachelor of Arts degree requirements. The goals of this course are to introduce, define, and develop the musical and technical skills required to play the trombone well in a variety of musical settings. The instrument is active in orchestral, band, jazz, chamber, and solo settings. Therefore, the basic goal for serious trombonists as well as amateur trombonists is to be proficient and versatile. The repertoire studied includes a variety of musical genre including the use of technical etudes, lyrical studies and standard solo works in a variety of styles. This course directly affects the student's ability to participate and contribute in the various ensembles on campus. The teacher and the student evaluate the student's progress and performance. Suggestions for improvement are agreed upon and developed. The course is offered to both music majors and non-majors. Students receive a one-hour lesson per week, presuming at least 10 hours of practice. Enrollment can range from 10-15 per semester depending on the availability of staffing.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

BRASS 113: Euphonium: Secondary

2 Credits/Maximum of 16

Individual instruction in euphonium/baritone one hour per week. BRASS 113 Euphonium: Secondary (2 per semester/maximum of 16) (GA)(BA) This course meets the Bachelor of Arts degree requirements. The goals of this course are to introduce, define, and develop the musical and I skills required to play the euphonium well in a variety of musical settings. The instrument is active in orchestral, band, chamber, and solo settings. Therefore, goal for serious euphonium students as well as amateur euphonium students is to be proficient and versatile. The repertoire studied includes a variety of musical genre including the use of technical etudes, lyrical studies and standard solo works in a variety of styles. This course directly affects the student's ability to participate and contribute in the various ensembles on campus. The teacher and the student evaluate the student's progress and performance. Suggestions for improvement are agreed upon and developed. The course is offered to both music majors and non-majors. Students receive a one-hour lesson per week, presuming at least 10 hours of practice. Enrollment can range from 12-15 per semester depending on the availability of staffing.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

BRASS 114: Tuba: Secondary

2 Credits/Maximum of 16

Individual instruction in tuba one hour per week. BRASS 114 Tuba: Secondary (2 per semester/maximum of 16) (GA)(BA) This course meets

the Bachelor of Arts degree requirements. The goals of this course are to introduce, define, and develop the musical and technical skills required to play the tuba well in a variety of musical settings. The instrument is active in orchestral, band, chamber, and solo settings. Therefore, the basic goal for serious tuba students as well as amateur tuba students is to be proficient and versatile. The repertoire studied includes a variety of musical genre including the use of technical etudes, lyrical studies and standard solo works in a variety of styles. This course directly affects the student's ability to participate and contribute in the various ensembles on campus. The teacher and the student evaluate the student's progress and performance. Suggestions for improvement are agreed upon and developed. The course is offered to both music majors and non-majors. Students receive a one-hour lesson per week, presuming at least 10 hours of practice. Enrollment can range from 8-10 per semester depending on the availability of staffing.

Bachelor of Arts: Arts
 General Education: Arts (GA)
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

BRASS 120: Trumpet: Primary I

2 Credits/Maximum of 2

Individual instruction in trumpet one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

BRASS 121: French Horn: Primary I

2 Credits/Maximum of 2

Individual instruction in French horn one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

BRASS 121H: French Horn: Primary I

2 Credits/Maximum of 2

Individual instruction in French horn one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

BRASS 122: Trombone: Primary I

2 Credits/Maximum of 2

Individual instruction in trombone one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

BRASS 123: Euphonium: Primary I

2 Credits/Maximum of 2

Individual instruction in euphonium/baritone one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

BRASS 124: Tuba: Primary I

2 Credits/Maximum of 2

Individual instruction in tuba one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

BRASS 130: Trumpet: Performance I

3 Credits/Maximum of 3

Individual instruction in trumpet one hour per week. For B.Mus. trumpet performance majors.

BRASS 131: French Horn: Performance I

3 Credits/Maximum of 3

Individual instruction in French horn one hour per week. For B.Mus. French horn performance majors.

BRASS 132: Trombone: Performance I

3 Credits/Maximum of 3

Individual instruction in trombone one hour per week. For B.Mus. trombone majors.

BRASS 133: Euphonium: Performance I

3 Credits/Maximum of 3

Individual instruction in euphonium/baritone one hour per week. For B.Mus. euphonium/baritone majors.

BRASS 134: Tuba: Performance I

3 Credits/Maximum of 3

Individual instruction in tuba one hour per week. For B.Mus. tuba majors.

BRASS 170: Trumpet: Primary II

2 Credits/Maximum of 2

Individual instruction in trumpet one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

BRASS 171: French Horn: Primary II

2 Credits/Maximum of 2

Individual instruction in French horn one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

BRASS 172: Trombone: Primary II

2 Credits/Maximum of 2

Individual instruction in trombone one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

BRASS 173: Euphonium: Primary II

2 Credits/Maximum of 2

Individual instruction in euphonium/baritone one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

BRASS 174: Tuba: Primary II

2 Credits/Maximum of 2

Individual instruction in tuba one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

BRASS 180: Trumpet: Performance II

3 Credits/Maximum of 3

Individual instruction in trumpet one hour per week. For B.Mus. trumpet performance majors.

BRASS 181: French Horn: Performance II

3 Credits/Maximum of 3

Individual instruction in French horn one hour per week. For B.Mus. French horn performance majors.

BRASS 182: Trombone: Performance II

3 Credits/Maximum of 3

Individual instruction in trombone one hour per week. For B.Mus. trombone majors.

BRASS 183: Euphonium: Performance II

3 Credits/Maximum of 3

Individual instruction in euphonium/baritone one hour per week. For B.Mus. euphonium/baritone majors.

BRASS 184: Tuba: Performance II

3 Credits/Maximum of 3

Individual instruction in tuba one hour per week. For B.Mus. tuba majors.

BRASS 220: Trumpet: Primary III

2 Credits/Maximum of 2

Individual instruction in trumpet one hour per week. For School of Music B.A. and B.S. majors.

BRASS 221: French Horn: Primary III

2 Credits/Maximum of 2

Individual instruction in French horn one hour per week. For School of Music B.A. and B.S. majors.

BRASS 222: Trombone: Primary III

2 Credits/Maximum of 2

Individual instruction in trombone one hour per week. For School of Music B.A. and B.S. majors.

BRASS 223: Euphonium: Primary III

2 Credits/Maximum of 2

Individual instruction in euphonium/baritone one hour per week. For School of Music B.A. and B.S. majors.

BRASS 224: Tuba: Primary III

2 Credits/Maximum of 2

Individual instruction in tuba one hour per week. For School of Music B.A. and B. S. majors.

BRASS 230: Trumpet: Performance III

3 Credits/Maximum of 3

Individual instruction in trumpet one hour per week. For B.Mus. trumpet performance majors.

BRASS 231: French Horn: Performance III

3 Credits/Maximum of 3

Individual instruction in French horn one hour per week. For B.Mus. French horn performance majors.

BRASS 232: Trombone: Performance III

3 Credits/Maximum of 3

Individual instruction in trombone one hour per week. For B.Mus. trombone majors.

BRASS 233: Euphonium: Performance III

3 Credits/Maximum of 3

Individual instruction in euphonium/baritone one hour per week. For B.Mus. euphonium/baritone majors.

BRASS 234: Tuba: Performance III

3 Credits/Maximum of 3

Individual instruction in tuba one hour per week. For B.Mus. tuba majors.

BRASS 270: Trumpet: Primary IV

2 Credits/Maximum of 2

Individual instruction in trumpet one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

BRASS 271: French Horn: Primary IV

2 Credits/Maximum of 2

Individual instruction in French horn one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

BRASS 272: Trombone: Primary IV

2 Credits/Maximum of 2

Individual instruction in trombone one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

BRASS 273: Euphonium: Primary IV

2 Credits/Maximum of 2

Individual instruction in euphonium/baritone one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

BRASS 274: Tuba: Primary IV

2 Credits/Maximum of 2

Individual instruction in tuba one hour per week. For School of Music B.A. and B.S. majors.

BRASS 280: Trumpet: Performance IV

3 Credits/Maximum of 3

Individual instruction in trumpet one hour per week. For B.Mus. trumpet performance majors.

BRASS 281: French Horn: Performance IV

3 Credits/Maximum of 3

Individual instruction in French Horn one hour per week. For B.Mus. French Horn performance majors.

BRASS 282: Trombone: Performance IV

3 Credits/Maximum of 3

Individual instruction in trombone one hour per week. For B.Mus. trombone majors.

BRASS 283: Euphonium: Performance IV

3 Credits/Maximum of 3

Individual instruction in euphonium/baritone one hour per week. For B.Mus euphonium/baritone majors.

BRASS 284: Tuba: Performance IV

3 Credits/Maximum of 3

Individual instruction in tuba one hour per week. For B.Mus. tuba majors.

BRASS 320: Trumpet: Primary V

2 Credits/Maximum of 2

Individual instruction in trumpet one hour per week. For School of Music B.A. and B.S. majors.

BRASS 321: French Horn: Primary V

2 Credits/Maximum of 2

Individual instruction in French Horn one hour per week. For School of Music B.A. and B.S. majors.

BRASS 322: Trombone: Primary V

2 Credits/Maximum of 2

Individual instruction in trombone one hour per week. For School of Music B.A. and B.S. majors.

BRASS 323: Euphonium: Primary V

2 Credits/Maximum of 2

Individual instruction in euphonium/baritone one hour per week. For School of Music B.A. and B.S. majors.

BRASS 324: Tuba: Primary V

2 Credits/Maximum of 2

Individual instruction in tuba one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

BRASS 330: Trumpet: Performance V

3 Credits/Maximum of 3

Individual instruction in trumpet one hour per week. For B.Mus. trumpet performance majors.

BRASS 331: French Horn: Performance V

3 Credits/Maximum of 3

Individual instruction in French horn one hour per week. For B.Mus. French horn performance majors.

BRASS 332: Trombone: Performance V

3 Credits/Maximum of 3

Individual instruction in trombone one hour per week. For B.Mus. trombone majors.

BRASS 333: Euphonium: Performance V

3 Credits/Maximum of 3

Individual instruction in euphonium/baritone one hour per week. For B.Mus. euphonium/baritone majors.

BRASS 334: Tuba: Performance V

3 Credits/Maximum of 3

Individual instruction in tuba one hour per week. For B.Mus. tuba majors.

BRASS 370: Trumpet: Primary VI

2 Credits/Maximum of 2

Individual instruction in trumpet one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

BRASS 371: French Horn: Primary VI

2 Credits/Maximum of 2

Individual instruction in French horn one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

BRASS 372: Trombone: Primary VI

2 Credits/Maximum of 2

Individual instruction in trombone one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

BRASS 373: Euphonium: Primary VI

2 Credits/Maximum of 2

Individual instruction in euphonium/baritone one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

BRASS 374: Tuba: Primary VI

2 Credits/Maximum of 2

Individual instruction in tuba one hour per week. For School of Music B.A. and B.S. majors.

BRASS 380: Trumpet: Performance VI

3 Credits/Maximum of 3

Individual instruction in trumpet one hour per week. For B.Mus. trumpet performance majors.

BRASS 381: French Horn: Performance VI

3 Credits/Maximum of 3

Individual instruction of French horn one hour per week. For B.Mus. French horn performance majors.

BRASS 382: Trombone: Performance VI

3 Credits/Maximum of 3

Individual instruction in trombone one hour per week. For B.Mus. trombone majors.

BRASS 383: Euphonium: Performance VI

3 Credits/Maximum of 3

Individual instruction in euphonium/baritone one hour per week. For B.Mus. euphonium/baritone majors.

BRASS 384: Tuba: Performance VI

3 Credits/Maximum of 3

Individual instruction in tuba one hour per week. For B.Mus. tuba majors.

BRASS 420: Trumpet: Primary VII

2 Credits/Maximum of 2

Individual instruction in trumpet one hour per week. For School of Music B.A. and B.S. majors.

BRASS 421: French Horn: Primary VII

2 Credits/Maximum of 2

Individual instruction in French horn one hour per week. For School of Music B.A. and B.S. majors.

BRASS 422: Trombone: Primary VII

2 Credits/Maximum of 2

Individual instruction in trombone one hour per week. For School of Music B.A. and B.S. majors.

BRASS 423: Euphonium: Primary VII

2 Credits/Maximum of 2

Individual instruction in euphonium/baritone one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

BRASS 424: Tuba: Primary VII

2 Credits/Maximum of 2

Individual instruction in tuba one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

BRASS 430: Trumpet: Performance VII

3 Credits/Maximum of 3

Individual instruction in trumpet one hour per week. For B.Mus. trumpet performance majors.

BRASS 431: French Horn: Performance VII

3 Credits/Maximum of 3

Individual instruction in French horn one hour per week. For B.Mus. French horn performance majors.

BRASS 432: Trombone: Performance VII

3 Credits/Maximum of 3

Individual instruction in trombone one hour per week. For B.Mus. trombone majors.

BRASS 433: Euphonium: Performance VII

3 Credits/Maximum of 3

Individual instruction in euphonium/baritone one hour per week. For B.Mus. euphonium/baritone majors.

BRASS 434: Tuba: Performance VII

3 Credits/Maximum of 3

Individual instruction in tuba one hour per week. For B.Mus. tuba majors.

BRASS 470: Trumpet: Primary VIII

2 Credits/Maximum of 2

Individual instruction in trumpet one hour per week. For School of Music B.A. and B.S. majors.

BRASS 471: French Horn: Primary VIII

2 Credits/Maximum of 2

Individual instruction in French horn one hour per week. For School of Music B.A. and B.S. majors.

BRASS 472: Trombone: Primary VIII

2 Credits/Maximum of 2

Individual instruction in trombone one hour per week. For School of Music B.A. and B.S. majors.

BRASS 473: Euphonium: Primary VIII

2 Credits/Maximum of 2

Individual instruction in euphonium/baritone one hour per week. For School of Music B.A. and B.S. majors.

BRASS 474: Tuba: Primary VIII

2 Credits/Maximum of 2

Individual instruction in tuba one hour per week. For School of Music B.A. and B.S. majors.

BRASS 480: Trumpet: Performance VIII

3 Credits/Maximum of 3

Individual instruction in trumpet one hour per week. For B.Mus. trumpet performance majors.

BRASS 481: French Horn: Performance VIII

3 Credits/Maximum of 3

Individual instruction in French horn one hour per week. For B.Mus. French horn performance majors.

BRASS 482: Trombone: Performance VIII

3 Credits/Maximum of 3

Individual instruction in trombone one hour per week. For B.Mus. trombone majors.

BRASS 483: Euphonium: Performance VIII

3 Credits/Maximum of 3

Individual instruction in euphonium/baritone one hour per week. For B.Mus. euphonium/baritone majors.

BRASS 484: Tuba: Performance VIII

3 Credits/Maximum of 3

Individual instruction in tuba one hour per week. For B.Mus. tuba majors.

Music-Jazz (JAZZ)

JAZZ 100: Jazz Performance Studies

1 Credits/Maximum of 8

Jazz Performance provides individual instruction for vocal and instrumental musicians to develop theoretical, technical, and aural skills required by selected jazz performance styles. The style(s) to be studied are agreed upon between the student and instructor; these are drawn from Blues, Dixieland, Swing, Bebop, Cool Jazz, Modal Jazz, Jazz-Rock Fusion. The initial third of the semester is devoted to studying the technical norms of a given style: melodic materials (scales, modes), harmonic structure (vocabulary, norms of harmonic motion), characteristic rhythmic practices (with particular attention to syncopation), special aural requirements (the ability to connect musical hearing and musical thought) and typical frameworks of contrapuntal organization in the appropriate types of ensemble. The final two thirds of the course then deal with applications of these materials in improvisational contexts, with a short section during the last two weeks devoted to developing keyboard skills, an important area of musical competence for any jazz performer. This course is appropriate for any music major or minor with an interest in jazz. Instruction will be delivered in one half-hour lesson per week. Occasional performance in a combo will be a regular part of the course. Applied music fees are required for individualized instruction: \$175 for 1-credit course; \$250 for a 2-credit course

JAZZ 110: Jazz Performance Studies

2 Credits/Maximum of 16

Jazz Performance provides individual instruction for vocal and instrumental musicians to develop theoretical, technical, and aural skills required by selected jazz performance styles. The style(s) to be studied are agreed upon between the student and instructor; these are drawn from Blues, Dixieland, Swing, Bebop, Cool Jazz, Modal Jazz, Jazz-Rock Fusion. The initial third of the semester is devoted to studying the technical norms of a given style: melodic materials (scales, modes), harmonic structure (vocabulary, norms of harmonic motion), characteristic rhythmic practices (with particular attention to syncopation), special aural requirements (the ability to connect musical hearing and musical thought) and typical frameworks of contrapuntal organization in the appropriate types of ensemble. The final two thirds of the course then deal with applications of these materials in improvisational contexts, with a short section during the last two weeks devoted to developing keyboard skills, an important area of musical competence for any jazz performer. This course is appropriate for any music major or minor with an interest in jazz. Instruction will be delivered in one hour-long lesson per week. Occasional performance in a combo will be a regular part of the course. Applied music fees are required for individualized instruction: \$175 for a 1-credit course; \$250 for a 2-credit course

Music-Keyboard (KEYBD)

KEYBD 100: Piano: Secondary

1 Credits/Maximum of 8

Individual instruction in piano one-half hour per week. KEYBD 100 Piano: Secondary (1 per semester/maximum of 8) (GA)(BA) This course meets the Bachelor of Arts degree requirements. KEYBD 100 is designed to provide the intermediate non-music major and/or music major student with strategies for developing some of the advanced skills required for playing the piano. Some knowledge of music or piano is assumed. Admission to the course is controlled by the piano faculty. Music 50, 51 (for non-music majors), completion of the piano proficiency (for music majors), or permission of the instructor is a prerequisite for this course. Students learn repertoire, sight-playing, score analysis, interpretive techniques, how to practice to the fullest possible communication of the composer's intent, scales, and a proper and healthy physical approach to the keyboard. Practice of these elements outside the class is expected. Objectives include learning score analysis and interpretive rendering of great masterworks of the piano. Evaluation is based on accuracy of music learning, improvement in technique and expressiveness, possible listening assignments, attendance at studio class and specific concerts. Special facilities required to teach the course are two well-maintained grand pianos for student performance and teacher demonstration. The course is offered every semester.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

KEYBD 101: Organ: Secondary

1 Credits/Maximum of 8

Individual instruction in pipe organ one-half hour per week. KEYBD 101J Organ: Secondary (1 per semester/maximum of 8) (GA)(BA) This course meets the Bachelor of Arts degree requirements. Keyboard 101J is designed to provide the intermediate non-music major and/or music major student with strategies for developing some of the advanced skills required for playing the organ. Some knowledge of music or piano is assumed. Admission to the course is controlled by the keyboard faculty. Students learn repertoire, sight-playing, score analysis, interpretive techniques, how to practice to the fullest possible communication of the composer's intent, scales, and a proper and healthy physical approach to the keyboard and pedals. Practice of these elements outside the class is expected. Objectives include learning score analysis and interpretive rendering of great masterworks of the organ. Evaluation is based on accuracy of music learning, improvement in technique and expressiveness, possible listening assignments, attendance at studio class and specific concerts. Special facilities required to teach the course is a well-maintained pipe organ for student performance and teacher demonstration. The course is offered every semester.

Bachelor of Arts: Arts

KEYBD 110: Piano: Secondary

2 Credits/Maximum of 16

Individual instruction in piano one hour per week. KEYBD 110 Piano: Secondary (2 per semester/maximum of 16) (GA)(BA) This course meets the Bachelor of Arts degree requirements. Keyboard 110 is designed to provide the intermediate non-music major and/or music major student with strategies for developing some of the advanced skills required for playing the piano. Some knowledge of music or piano is assumed. Admission to the course is controlled by the piano faculty through interview and/or audition. Music 50, 51 (for non-music majors), completion of the piano proficiency (for music majors), or permission of the instructor is a prerequisite for this course. Students learn repertoire, sight-playing, score analysis, interpretive techniques, how to practice for the fullest possible communication of the composer's intent, scales, a proper and healthy physical approach to the keyboard. Practice of these elements outside the class is expected. Objectives include learning score analysis and interpretive rendering of great masterworks of the piano. Evaluation is based on accuracy of music learning, improvement in technique and expressiveness, possible listening assignments, attendance at studio class and specific concerts. Special facilities required to teach the course are two well-maintained grand pianos for student performance and teacher demonstration. The course is offered every semester.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

KEYBD 111: Organ: Secondary

2 Credits/Maximum of 16

Individual instruction in pipe organ one hour per week. KEYBD 111J Organ: Secondary (2 per semester/maximum of 16) (GA)(BA) This course meets the Bachelor of Arts degree requirements. Keyboard 111J is

designed to provide the intermediate non-music major and/or music major student with strategies for developing some of the advanced skills required for playing the organ. Some knowledge of music or piano is assumed. Admission to the course is controlled by the keyboard faculty. Students learn repertoire, sight-playing, score analysis, interpretive techniques, how to practice to the fullest possible communication of the composer's intent, scales, a proper and healthy physical approach to the keyboard and pedals. Practice of these elements outside the class is expected. Objectives include learning score analysis and interpretive rendering of great masterworks of the organ, Evaluation is based on accuracy of music learning, improvement in technique and expressiveness, possible listening assignments, attendance at studio class and specific concerts. Special facilities required to teach the course is a well-maintained pipe organ for student performance and teacher demonstration. The course is offered every semester.

Bachelor of Arts: Arts

KEYBD 120: Piano: Primary I

2 Credits

Individual instruction in piano one hour per week. For School of Music B.A. and B.S. majors.

KEYBD 130: Piano: Performance I

3 Credits

Individual instruction in piano one hour per week. For B.Mus. performance majors.

KEYBD 170: Piano: Primary II

2 Credits

Individual instruction in piano one hour per week. For School of Music B.A. and B.S. majors.

KEYBD 180: Piano: Performance II

3 Credits

Individual instruction in piano one hour per week. For B.Mus. piano performance majors.

KEYBD 220: Piano: Primary III

2 Credits

Individual instruction in piano one hour per week. For School of Music B.A. and B.S. majors.

KEYBD 230: Piano: Performance III

3 Credits

Individual instruction in piano one hour per week. For B.Mus. piano performance majors.

KEYBD 270: Piano: Primary IV

2 Credits

Individual instruction in piano one hour per week. For School of Music B.A. and B.S. majors.

KEYBD 280: Piano: Performance IV

3 Credits

Individual instruction in piano one hour per week. For B.Mus. piano performance majors.

KEYBD 320: Piano: Primary V

2 Credits

Individual instruction in piano one hour per week. For School of Music B.A. and B.S. majors.

KEYBD 330: Piano: Performance V

3 Credits

Individual instruction in piano one hour per week. For B.Mus. piano performance majors.

KEYBD 370: Piano: Primary VI

2 Credits

Individual instruction in piano one hour per week. For School of Music B.A. and B.S. majors.

KEYBD 380: Piano: Performance VI

3 Credits

Individual instruction in piano one hour per week. For B.Mus. piano performance majors.

KEYBD 420: Piano: Primary VII

2 Credits

Individual instruction in piano one hour per week. For School of Music B.A. and B.S. majors.

KEYBD 430: Piano: Performance VII

3 Credits

Individual instruction in piano one hour per week. For B.Mus. piano performance majors.

KEYBD 470: Piano: Primary VIII

2 Credits

Individual instruction in piano one hour per week. For School of Music B.A. and B.S. majors.

KEYBD 480: Piano: Performance VIII

3 Credits

Individual instruction in piano one hour per week. For B.Mus. piano performance majors.

Music-Percussion (PERCN)

PERCN 100: Percussion: Secondary

1 Credits/Maximum of 8

Individual instruction in percussion one-half hour per week. For both music and non-music majors. PERCN 100 Percussion: Secondary (1 per semester/maximum of 8) (GA)(BA) This course meets the Bachelor of Arts degree requirements. This course consists of private instruction in selected areas of percussion performance. Individualized instruction will guide the student toward competence playing the instrument(s), the study of appropriate repertoire, developing interpretive insights, acquisition of music reading skills, and acquiring both tonal and technical command. Skill building will enable the student to be active as a performer, participating in Penn State music ensembles by competitive audition. Evaluation of the student's progress will be graded by the instructor according to the criteria stated in the course syllabus and will include: preparation of weekly assignments; solo and/or ensemble performances as assigned; attendance at recitals, concerts, and masterclasses, as assigned; acquisition of assigned material (music, etude books, etc.), essential accessories (metronome, practice pad, etc.), and appropriate instrumental needs (sticks, mallets, small instruments, etc.); attendance at lessons (as stipulated in the course syllabus). The course is offered fall and spring semesters by permission of the instructor, depending on studio enrollments and availability of staff.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

PERCN 110: Percussion: Secondary

2 Credits/Maximum of 16

Individual instruction in percussion one hour per week. For both music and non-music majors. PERCN 110 Percussion: Secondary (2 per semester/maximum of 16) (GA)(BA) This course meets the Bachelor of Arts degree requirements. Individualized instruction will guide the student toward competence playing the instrument, the study of appropriate repertoire, developing interpretive insights, acquisition of music reading skills, and acquiring both tonal and technical command. Skill building will enable the student to be active as a performer, participating in Penn State music ensembles by competitive audition. Evaluation of the student's progress will be graded by the instructor according to the criteria stated in the course syllabus and will include: preparation of weekly assignments; solo and/or ensemble performances as assigned; attendance at recitals, concerts, and masterclasses, as assigned; acquisition of assigned material (music, etude books, etc.), essential accessories (metronome, practice pad, etc.), and appropriate instrumental needs (sticks, mallets, small instruments, etc.); attendance at lessons (as stipulated in the course syllabus). The course is offered fall and spring semesters by permission of the instructor, depending on studio enrollments and availability of staff.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

PERCN 120: Percussion: Primary I

2 Credits

Individual instruction in percussion one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

PERCN 130: Percussion: Performance I

3 Credits

Individual instruction in percussion one hour per week. For B.Mus. percussion majors.

PERCN 170: Percussion: Primary II

2 Credits

Individual instruction in percussion one hour per week. For School of Music B.A. and B.S. majors.

PERCN 180: Percussion: Performance II

3 Credits

Individual instruction in percussion one hour per week. For B.Mus. percussion majors.

PERCN 220: Percussion: Primary III

2 Credits

Individual instruction in percussion one hour per week. For School of Music B.A. and B.S. majors.

PERCN 230: Percussion: Performance III

3 Credits

Individual instruction in percussion one hour per week. For B.Mus. percussion majors.

PERCN 270: Percussion: Primary IV

2 Credits

Individual instruction in percussion one hour per week. For School of Music B.A. and B.S. majors.

PERCN 280: Percussion: Performance IV

3 Credits

Individual instruction in percussion one hour per week. For B.Mus. percussion majors.

PERCN 320: Percussion: Primary V

2 Credits

Individual instruction in percussion one hour per week. For School of Music B.A. and B.S. majors.

PERCN 330: Percussion: Performance V

3 Credits

Individual instruction in percussion one hour per week. For B.Mus. percussion majors.

PERCN 370: Percussion: Primary VI

2 Credits

Individual instruction in percussion one hour per week. For School of Music B.A. and B.S. majors.

PERCN 380: Percussion: Performance VI

3 Credits

Individual instruction in percussion one hour per week. For B.Mus. percussion majors.

PERCN 420: Percussion: Primary VII

2 Credits

Individual instruction in percussion one hour per week. For School of Music B.A. and B.S. majors.

PERCN 430: Percussion: Performance VII

3 Credits

Individual instruction in percussion one hour per week. For B.Mus. percussion majors.

PERCN 470: Percussion: Primary VIII

2 Credits

Individual instruction in percussion one hour per week. For School of Music B.A. and B.S. majors.

PERCN 480: Percussion: Performance VIII

3 Credits

Individual instruction in percussion one hour per week. For B.Mus. percussion majors.

Music-Strings (STRNG)

STRNG 100: Violin: Secondary

1 Credits/Maximum of 8

Individual instruction in violin one-half hour per week. STRNG 100 Violin: Secondary (1 per semester/maximum of 8) (GA)(BA) This course meets the Bachelor of Arts degree requirements. This course is designed to introduce, define, and develop the musical and technical skills required to play the violin in a variety of musical contexts. Fundamentals of technique are addressed through the study of scales and other technical studies or etudes. These are then applied in various musical settings, including solo, chamber, and orchestral works. Students receive one-half hour of private instruction per week. The course is open to Music majors and nonmajors and is offered every semester. Enrollment can range from 10-20 students per semester.

Bachelor of Arts: Arts
 General Education: Arts (GA)
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

STRNG 101: Viola: Secondary

1 Credits/Maximum of 8

Individual instruction in viola one-half hour per week. STRNG 101 Viola: Secondary (1 per semester/maximum of 8) (GA)(BA) This course meets the Bachelor of Arts degree requirements. This course is designed to introduce, define, and develop the musical and technical skills required to play the viola in a variety of musical contexts. Fundamentals of technique are addressed through the study of scales and other technical studies or etudes. These are then applied in various musical settings, including solo, chamber, and orchestral works. Students receive one-half hour of private instruction per week. The course is open to Music majors and non-majors and is offered every semester. Enrollment can range from 1-10 students per semester.

Bachelor of Arts: Arts
 General Education: Arts (GA)
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

STRNG 102: Violoncello: Secondary

1 Credits/Maximum of 8

Individual instruction in violoncello one-half hour per week. STRNG 102 Violoncello: Secondary (1 per semester/maximum of 8) (GA)(BA) This course meets the Bachelor of Arts degree requirements. This course is designed to introduce, define, and develop the musical and technical skills required to play the violoncello in a variety of musical contexts. Fundamentals of technique are addressed through the study of scales and other technical studies or etudes. These are then applied in various musical settings, including solo, chamber, and orchestral works. Students receive one-half hour of private instruction per week. The course is open to Music majors and non-majors and is offered every semester. Enrollment can range from 1-10 students per semester.

Bachelor of Arts: Arts
 General Education: Arts (GA)
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

STRNG 103: Double Bass: Secondary

1 Credits/Maximum of 8

Individual instruction in double bass one-half hour per week. STRNG 103 Double Bass: Secondary (1 per semester/maximum of 8) (GA)(BA) This course meets the Bachelor of Arts degree requirements. This course is designed to introduce, define, and develop the musical and technical skills required to play the double bass in a variety of musical contexts. Fundamentals of technique are addressed through the study of scales and other technical studies or etudes. These are then applied in various musical settings, including solo, chamber, and orchestral works. Students receive one-half hour of private instruction per week. The course is

open to Music majors and non-majors and is offered every semester. Enrollment can range from 1-5 students per semester.

Bachelor of Arts: Arts
 General Education: Arts (GA)
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

STRNG 104: Guitar: Secondary

1 Credits/Maximum of 8

Individual instruction in guitar 1/2 hour per week. For School of Music majors whose primary instrument is not guitar; other qualified students. STRNG 104 Guitar: Secondary (1 per semester/maximum of 8) Individual instruction in guitar 1/2 hour per week. For music majors whose primary instrument is not guitar; other qualified students.

Bachelor of Arts: Arts
 General Education: Arts (GA)
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

STRNG 105: Harp: Secondary

1 Credits/Maximum of 8

Individual instruction in harp one-half hour per week. For both music and non-music students. STRNG105 Harp: Secondary (1 per semester/maximum of 8) (GA)(BA) This course meets the Bachelor of Arts degree requirements. Individualized instruction will guide the student toward mastery of the instrument, the study of repertoire, development of interpretive insights, and acquisition of both tonal and technical command. Skill building will enable the student to be active as a performer, participating in Penn State ensembles by competitive audition. Evaluation of the student's progress will be graded by the instructor according to the criteria stated in the course syllabus and will include: preparation of weekly assignments; solo and/or ensemble performances as assigned; attendance at recitals, concerts, and masterclasses, as assigned; acquisition of assigned materials (music, books, etc.), essential accessories (metronome, tuner, etc.); attendance at lessons (as stipulated in the course syllabus). The course is offered fall and spring semesters by permission of the instructor, depending on studio enrollments and availability of staff.

Prerequisite: Permission of program
 Bachelor of Arts: Arts
 General Education: Arts (GA)
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

STRNG 110: Violin: Secondary

2 Credits/Maximum of 16

Individual instruction in violin one hour per week. STRNG 110 Violin: Secondary (2 per semester/maximum of 16) (GA)(BA) This course meets the Bachelor of Arts degree requirements. This course is designed to introduce, define, and develop the musical and technical skills required to play the violin in a variety of musical contexts. Fundamentals of

technique are addressed through the study of scales and other technical studies or etudes. These are then applied in various musical settings, including solo, chamber, and orchestral works. The course is open to Music majors and non-majors and is offered every semester. Enrollment can range from 1-10 students per semester.

Bachelor of Arts: Arts
 General Education: Arts (GA)
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

STRNG 111: Viola: Secondary

2 Credits/Maximum of 16

Individual instruction in viola one hour per week. STRNG 111 Viola: Secondary (2 per semester/maximum of 16) (GA)(BA) This course meets the Bachelor of Arts degree requirements. This course is designed to introduce, define, and develop the musical and technical skills required to play the viola in a variety of musical contexts. Fundamentals of technique are addressed through the study of scales and other technical studies or etudes. These are then applied in various musical settings, including solo, chamber, and orchestral works. The course is open to Music majors and non-majors and is offered every semester. Enrollment can range from 1-7 students per semester.

Bachelor of Arts: Arts
 General Education: Arts (GA)
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

STRNG 112: Violoncello: Secondary

2 Credits/Maximum of 16

Individual instruction in violoncello one hour per week. STRNG 112 Violoncello: Secondary (2 per semester/maximum of 16) (GA)(BA) This course meets the Bachelor of Arts degree requirements. This course is designed to introduce, define, and develop the musical and technical skills required to play the violoncello in a variety of musical contexts. Fundamentals of technique are addressed through the study of scales and other technical studies or etudes. These are then applied in various musical settings, including solo, chamber, and orchestral works. The course is open to Music majors and non-majors and is offered every semester. Enrollment can range from 1-10 students per semester.

Bachelor of Arts: Arts
 General Education: Arts (GA)
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

STRNG 113: Double Bass: Secondary

2 Credits/Maximum of 16

Individual instruction in double bass one hour per week. STRNG 113 Double Bass: Secondary (2 per semester/maximum of 16) (GA)(BA) This course meets the Bachelor of Arts degree requirements. This course is designed to introduce, define, and develop the musical and technical skills required to play the double bass in a variety of musical contexts.

Fundamentals of technique are addressed through the study of scales and other technical studies or etudes. These are then applied in various musical settings, including solo, chamber, and orchestral works. The course is open to Music majors and non-majors and is offered every semester. Enrollment can range from 1-5 students per semester.

Bachelor of Arts: Arts
 General Education: Arts (GA)
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

STRNG 114: Guitar: Secondary

2 Credits/Maximum of 16

Individual instruction in guitar one hour per week. For School of Music majors whose primary instrument is not guitar; other qualified students. STRNG 114 Guitar: Secondary (2 per semester/maximum of 16) Individual instruction in guitar one hour per week. For music majors whose primary instrument is not guitar; other qualified students. Every semester. 1-5 students enrolled in individual instruction.

Bachelor of Arts: Arts
 General Education: Arts (GA)
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

STRNG 115: Harp: Secondary

2 Credits/Maximum of 16

Individual instruction in harp one hour per week. For both music and non-music students. STRNG115 Harp: Secondary (1 per semester/maximum of 8) (GA)(BA) This course meets the Bachelor of Arts degree requirements. Individualized instruction will guide the student toward mastery of the instrument, the study of repertoire, development of interpretive insights, and acquisition of both tonal and technical command. Skill building will enable the student to be active as a performer, participating in Penn State ensembles by competitive audition. Evaluation of the student's progress will be graded by the instructor according to the criteria stated in the course syllabus and will include: preparation of weekly assignments; solo and/or ensemble performances as assigned; attendance at recitals, concerts, and masterclasses, as assigned; acquisition of assigned materials (music, books, etc.), essential accessories (metronome, tuner, etc.); attendance at lessons (as stipulated in the course syllabus). The course is offered fall and spring semesters by permission of the instructor, depending on studio enrollments and availability of staff.

Prerequisites: Permission of Program
 Bachelor of Arts: Arts
 General Education: Arts (GA)
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

STRNG 120: Violin: Primary I

2 Credits

Individual instruction in violin one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

STRNG 121: Viola: Primary I

2 Credits

Individual instruction in viola one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

STRNG 122: Violoncello: Primary I

2 Credits

Individualized instruction in violoncello one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

STRNG 123: Double Bass: Primary I

2 Credits

Individual instruction in double bass one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

STRNG 124: Guitar: Primary I

2 Credits

Individual instruction in guitar one hour per week. For School of Music B.A. majors; other qualified students. STRNG 124J Guitar: Primary I (2)
Individual instruction in guitar one hour per week. For music majors in the BA program.

STRNG 125: Harp: Primary I

2 Credits

Individual instruction in harp one hour per week. STRNG125 Harp: Primary(1 per semester/maximum of 8) Individualized instruction will guide the student toward mastery of the instrument, the study of repertoire, development of interpretive insights, and acquisition of both tonal and technical command. Skill building will enable the student to be active as a performer, participating in Penn State ensembles by competitive audition. Evaluation of the student's progress will be graded by the instructor according to the criteria stated in the course syllabus and will include: preparation of weekly assignments; solo and/or ensemble performances as assigned; attendance at recitals, concerts, and masterclasses, as assigned; acquisition of assigned materials (music, books, etc.), essential accessories (metronome, tuner, etc.); attendance at lessons (as stipulated in the course syllabus) and a performance jury exam at the end of the semester. The course is offered fall and spring semesters by permission of the instructor, depending on studio enrollments and availability of staff.

Prerequisite: Permission of Program

STRNG 130: Violin: Performance I

3 Credits

Individual instruction in violin one hour per week. For B.Mus. violin performance majors.

STRNG 131: Viola: Performance I

3 Credits

Individual instruction in viola one hour per week. For B.Mus. guitar performance majors.

STRNG 132: Violoncello: Performance I

3 Credits

Individual instruction in violoncello one hour per week. For B.Mus. violoncello performance majors.

STRNG 133: Double Bass: Performance I

3 Credits

Individual instruction in double bass one hour per week. For B.Mus. double bass performance majors.

STRNG 134: Guitar: Performance I

3 Credits

Individual instruction in guitar one hour per week. For B.Mus. guitar performance majors. The study of technique and musical interpretation on the guitar. Grounded in classical guitar pedagogy, yet delving into Jazz & Latin styles as well.

STRNG 170: Violin: Primary II

2 Credits

Individual instruction in violin one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

STRNG 171: Viola: Primary II

2 Credits

Individual instruction in viola one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

STRNG 172: Violoncello: Primary II

2 Credits

Individual instruction in violoncello one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

STRNG 173: Double Bass: Primary II

2 Credits

Individual instruction in double bass one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

STRNG 174: Guitar: Primary II

2 Credits

Individual instruction in guitar one hour per week. For School of Music B.A. majors; other qualified students. STRNG 174J Guitar: Primary II (2)
Individual instruction in guitar one hour per week. For music majors in the BA program.

STRNG 180: Violin: Performance II

3 Credits

Individual instruction in violin one hour per week. For B.Mus. violin performance major.

STRNG 181: Viola: Performance II

3 Credits

Individual instruction in viola one hour per week. For B.Mus. viola performance majors.

STRNG 182: Violoncello: Performance II

3 Credits

Individual instruction in violoncello one hour per week. For B.Mus. violoncello performance majors.

STRNG 183: Double Bass: Performance II

3 Credits

Individual instruction in double bass one hour per week. For B.Mus. double bass performance majors.

STRNG 184: Guitar: Performance II

3 Credits

Individual instruction in guitar one hour per week. For B.Mus. guitar performance majors. The study of technique and musical interpretation on the guitar. Grounded in classical guitar pedagogy, yet delving into Jazz & Latin styles as well.

Prerequisite: Acceptance into program by faculty jury permission

STRNG 220: Violin: Primary III

2 Credits

Individual instruction in violin one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

STRNG 221: Viola: Primary III

2 Credits

Individual instruction in viola one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

STRNG 222: Violoncello: Primary III

2 Credits

Individual instruction in violoncello one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

STRNG 223: Double Bass: Primary III

2 Credits

Individual instruction in double bass one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

STRNG 224: Guitar: Primary III

2 Credits

Individual instruction in guitar one hour per week. For School of Music B.A. majors; other qualified students. STRNG 224 Guitar: Primary III Individual instruction in guitar one hour per week. For music majors in the BA program.

STRNG 230: Violin: Performance III

3 Credits

Individual instruction in violin one hour per week. For B.Mus. violin performance majors.

STRNG 231: Viola: Performance III

3 Credits

Individual instruction in viola one hour per week. For B.Mus. viola performance majors.

STRNG 232: Violoncello: Performance III

3 Credits

Individual instruction in violoncello one hour per week. For B.Mus. violoncello performance majors.

STRNG 233: Double Bass: Performance III

3 Credits

Individual instruction in double bass one hour per week. For B.Mus. double bass majors.

STRNG 234: Guitar: Performance III

3 Credits

Individual instruction in guitar one hour per week. For B.Mus. guitar performance majors. The study of technique and musical interpretation on the guitar. Grounded in classical guitar pedagogy, yet delving into Jazz & Latin styles as well.

Prerequisite: Acceptance into program by faculty jury permission and STRNG 184 Guitar Performance II

STRNG 270: Violin: Primary IV

2 Credits

Individual instruction in violin one hour per week. For School of Music B.A. and B.S. majors; other qualified students .

STRNG 271: Viola: Primary IV

2 Credits

Individual instruction in viola one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

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STRNG 272: Violoncello: Primary IV

2 Credits

Individual instruction in violoncello one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

STRNG 273: Double Bass: Primary IV

2 Credits

Individual instruction in double bass one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

STRNG 274: Guitar: Primary IV

2 Credits

Individual instruction in guitar one hour per week. For School of Music B.A. majors; other qualified students. STRNG 274 Guitar: Primary IV (2) Individual instruction in guitar one hour per week. For music majors in the BA program.

Prerequisite: STRNG224J and permission of faculty jury

STRNG 280: Violin: Performance IV

3 Credits

Individual instruction in violin one hour per week. For B.Mus. violin performance majors.

STRNG 281: Viola: Performance IV

3 Credits

Individual instruction in viola one hour per week. For B.Mus. viola performance majors.

STRNG 282: Violoncello: Performance IV

3 Credits

Individual instruction in violoncello one hour per week. For B.Mus. violoncello performance majors.

STRNG 283: Double Bass: Performance IV

3 Credits

Individual instruction in double bass one hour per week. For B.Mus. double bass performance majors.

STRNG 284: Guitar: Performance IV

3 Credits

Individual instruction in guitar one hour per week. For B.Mus. guitar performance majors. The study of technique and musical interpretation on the guitar. Grounded in classical guitar pedagogy, yet delving into Jazz & Latin styles as well.

Prerequisite: Acceptance into program by faculty jury permission and STRNG 234 Guitar: Performance III

STRNG 320: Violin: Primary V

2 Credits

Individual instruction in violin one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

STRNG 321: Viola: Primary V

2 Credits

Individual instruction in viola one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

STRNG 322: Violoncello: Primary V

2 Credits

Individual instruction in violoncello one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

STRNG 323: Double Bass: Primary V

2 Credits

Individual instruction in double bass one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

STRNG 324: Guitar: Primary V

2 Credits

Individual instruction in guitar one hour per week. For School of Music B.A. majors; other qualified students. STRNG 324J Guitar: Primary V (2) Individual instruction in guitar one hour per week. For music majors in the BA program.

STRNG 330: Violin: Performance V

3 Credits

Individual instruction in violin one hour per week. For B.Mus. violin performance majors.

STRNG 331: Viola: Performance V

3 Credits

Individual instruction in viola one hour per week. For B.Mus. viola performance majors.

STRNG 332: Violoncello: Performance V

3 Credits

Individual instruction in violoncello one hour per week. For B.Mus. violoncello performance majors.

STRNG 333: Double Bass: Performance V

3 Credits

Individual instruction in double bass one hour per week. For B.Mus. double bass performance majors.

STRNG 334: Guitar: Performance V

3 Credits

Individual instruction in guitar one hour per week. For B.Mus. guitar performance majors. The study of technique and musical interpretation on the guitar. Grounded in classical guitar pedagogy, yet delving into Jazz & Latin styles as well.

Prerequisite: Acceptance into program by faculty jury permission and STRNG 284 Guitar: Performance IV

STRNG 370: Violin: Primary VI

2 Credits

Individual instruction in violin one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

STRNG 371: Viola: Primary VI

2 Credits

Individual instruction in viola one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

STRNG 372: Violoncello: Primary VI

2 Credits

Individual instruction in violoncello one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

STRNG 373: Double Bass: Primary VI

2 Credits

Individual instruction in double bass one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

STRNG 374: Guitar: Primary VI

2 Credits

Individual instruction in guitar one hour per week. For School of Music B.A. majors; other qualified students. STRNG 374 Guitar: Primary VI (2)
Individual instruction in guitar one hour per week. For music majors in the BA program.

STRNG 380: Violin: Performance VI

3 Credits

Individual instruction in violin one hour per week. For B.Mus. violin performance majors.

STRNG 381: Viola: Performance VI

3 Credits

Individual instruction in viola one hour per week. For B.Mus. viola performance majors.

STRNG 382: Violoncello: Performance VI

3 Credits

Individual instruction in violoncello one hour per week. For B.Mus. violoncello performance majors.

STRNG 383: Double Bass: Performance VI

3 Credits

Individual instruction in double bass one hour per week. For B.Mus. double bass performance majors.

STRNG 384: Guitar: Performance VI

3 Credits

Individual instruction in guitar one hour per week. For B.Mus. guitar performance majors. The study of technique and musical interpretation on the guitar. Grounded in classical guitar pedagogy, yet delving into Jazz & Latin styles as well.

Prerequisite: Acceptance into program by faculty jury permission and STRNG 334 Guitar: Performance V

STRNG 420: Violin: Primary VII

2 Credits

Individual instruction in violin one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

STRNG 421: Viola: Primary VII

2 Credits

Individual instruction in viola one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

STRNG 422: Violoncello: Primary VII

2 Credits

Individual instruction in violoncello one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

STRNG 423: Double Bass: Primary VII

2 Credits

Individual instruction in double bass one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

STRNG 424: Guitar: Primary VII

2 Credits

Individual instruction in guitar one hour per week. For School of Music B.A. majors; other qualified students. STRNG 424J Guitar: Primary VII (2)
Individual instruction in guitar one hour per week. For music majors in the BA program.

STRNG 430: Violin: Performance VII

3 Credits

Individual instruction in violin one hour per week. For B.Mus. violin performance majors.

STRNG 431: Viola: Performance VII

3 Credits

Individual instruction in viola one hour per week. For B.Mus. viola performance majors.

STRNG 432: Violoncello: Performance VII

3 Credits

Individual instruction in violoncello one hour per week. For B.Mus. violoncello performance majors.

STRNG 433: Double Bass: Performance VII

3 Credits

Individual instruction in double bass one hour per week. For B.Mus. double bass performance majors.

STRNG 434: Guitar: Performance VII

3 Credits

Individual instruction in guitar one hour per week. For B.Mus. guitar performance majors. The study of technique and musical interpretation on the guitar. Grounded in classical guitar pedagogy, yet delving into Jazz & Latin styles as well.

Prerequisite: Acceptance into program by faculty jury permission and STRNG 384 Guitar: Performance VI

STRNG 470: Violin: Primary VIII

2 Credits

Individual instruction in violin one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

STRNG 471: Viola: Primary VIII

2 Credits

Individual instruction in viola one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

STRNG 472: Violoncello: Primary VIII

2 Credits

Individual instruction in violoncello one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

STRNG 473: Double Bass: Primary VIII

2 Credits

Individual instruction in double bass one hour per week. For School of Music B.A. and B.S. majors; other qualified students.

STRNG 480: Violin: Performance VIII

3 Credits

Individual instruction in violin one hour per week. For B.Mus. violin performance majors.

STRNG 481: Viola: Performance VIII

3 Credits

Individual instruction in viola one hour per week. For B.Mus. viola performance majors.

STRNG 482: Violoncello: Performance VIII

3 Credits

Individual instruction in violoncello one hour per week. For B.Mus. violoncello performance majors.

STRNG 483: Double Bass: Performance VIII

3 Credits

Individual instruction in double bass one hour per week. For B.Mus. double bass performance majors.

STRNG 484: Guitar: Performance VIII

3 Credits

Individual instruction in guitar one hour per week. For B.Mus. guitar performance majors. The study of technique and musical interpretation on the guitar. Grounded in classical guitar pedagogy, yet delving into Jazz & Latin styles as well.

Prerequisite: Acceptance into program by faculty jury permission and STRNG 434 Guitar: Performance VII

Music-Voice (VOICE)

VOICE 100: Voice: Secondary

1 Credits/Maximum of 8

Individual instruction in voice one-half hour per week. VOICE 100 Voice: Secondary (1 per semester/maximum of 8) (GA)(BA) This course meets the Bachelor of Arts degree requirements. This course is designed to present and apply basic principles of singing. Students learn songs, and address topics such as posture, breathing, tone production, expressiveness, and vocal health. Objectives are proficiency of breath management, a resonant vocal timbre, and effective communication in song. Evaluation is based on accuracy of music learning, improvement in technique and expressiveness, possible writing or listening assignments, and a possible studio recital. The course is offered every semester. The maximum enrollment is 30 per semester.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

VOICE 110: Voice: Secondary

2 Credits/Maximum of 16

Individual instruction in voice one hour per week. VOICE 110 Voice: Secondary (2 per semester/maximum of 16) (GA)(BA) This course meets the Bachelor of Arts degree requirements. This course is designed to present and apply basic principles of singing. Students learn songs, and address topics such as posture, breathing, tone production, expressiveness, and vocal health. Objectives are proficiency of breath management, a resonant vocal timbre, and effective communication in song. Evaluation is based on accuracy of music learning, improvement in technique and expressiveness, possible writing or listening assignments, and a possible studio recital. The course is offered every semester. The maximum enrollment is 3 per semester.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

VOICE 120: Voice: Primary I

2 Credits

Individual instruction in voice one hour per week. For School of Music B.A. and B.S. majors.

VOICE 130: Voice: Performance I

3 Credits

Individual instruction in voice one hour per week. For B.Mus voice performance majors.

VOICE 170: Voice: Primary II

2 Credits

Individual instruction in voice one hour per week. For School of Music B.A. and B.S. majors.

VOICE 180: Voice: Performance II

3 Credits

Individual instruction in voice one hour per week. For B.Mus voice performance majors.

VOICE 220: Voice: Primary III

2 Credits

Individual instruction in voice one hour per week. For School of Music B.A. and B.S. majors.

VOICE 230: Voice: Performance III

3 Credits

Individual instruction in voice one hour per week. For B.Music voice performance majors.

VOICE 270: Voice: Primary IV

2 Credits

Individual instruction in voice one hour per week. For School of Music B.A. and B.S. majors.

VOICE 280: Voice: Performance IV

3 Credits

Individual instruction in voice one hour per week. For B.Mus. voice performance majors.

VOICE 320: Voice: Primary V

2 Credits

Individual instruction in voice one hour per week. For School of Music B.A. and B.S. majors.

VOICE 330: Voice: Performance V

3 Credits

Individual instruction in voice one hour per week. For B.Mus. voice performance majors.

VOICE 370: Voice: Primary VI

2 Credits

Individual instruction in voice one hour per week. For School of Music B.A. and B.S. majors.

VOICE 380: Voice: Performance VI

3 Credits

Individual instruction in voice one hour per week. For B.Mus. voice performance majors.

VOICE 412: Musical Theatre Voice V

2 Credits

Individual instruction in voice. Intended for Theatre BFA in Music Theatre students. VOICE 412J Musical Theatre Voice V (2) VOICE 412J continues to develop a vocal approach and technique to musical theatre repertoire. It is required of fourth-year musical theatre students. All aspects of vocal production are explored. The voice sequence is a required element of the B.F.A. musical theatre training program. Grading will be based on attendance, preparation, and attitude. These are all critical factors for entering the profession and for successfully completing this course. Deadlines and appointments must be kept. Students must do adequate outside preparation. VOICE 412J is a requirement for the B.F.A. in musical theatre. It is offered every fall semester with an enrollment of approximately 15 students.

VOICE 420: Voice: Primary VII

2 Credits

Individual instruction in voice one hour per week. For School of Music B.A. and B.S. majors.

VOICE 430: Voice: Performance VII

3 Credits

Individual instruction in voice one hour per week. For B.Mus. voice performance majors.

VOICE 462: Musical Theatre Voice VI

2 Credits

Individual instruction in voice. Intended for Theatre BFA in Music Theatre students. VOICE 462J Musical Theatre Voice VI (2) VOICE 462J continues to develop a vocal approach and technique to musical theatre repertoire studied in Musical Theatre Voice V. It is required of fourth-year musical theatre students. All aspects of vocal production are explored. The voice sequence is a required element of the B.F.A musical theatre training program. Grading will be based on attendance, preparation, and attitude. These are all critical factors for entering the profession and for successfully completing this course. Deadlines and appointments must be kept. Students must do adequate outside preparation. This course is a requirement for the B.F.A. in musical theatre. It is offered every spring semester with an enrollment of approximately 15.

VOICE 470: Voice: Primary VIII

2 Credits

Individual instruction in voice one hour per week. For School of Music B.A. and B.S. majors.

VOICE 480: Voice: Performance VIII

3 Credits

Individual instruction in voice one hour per week. For B.Mus. voice performance majors.

Music-Woodwinds (WWNDS)

WWNDS 100: Flute: Secondary

1 Credits/Maximum of 8

Individual instruction in flute one-half hour per week. For both music and non-music majors. WWNDS 100 Flute: Secondary (1 per semester/maximum of 8) (GA)(BA) This course meets the Bachelor of Arts degree requirements. Individualized instruction will guide the student toward mastery of the instrument, the study of repertoire, the development of interpretive insights, and acquisition of both tonal and technical command. Skill building will enable the student to be active as a performer, participating in Penn State ensembles by competitive audition. Evaluation of the student's progress will be graded by the instructor according to the criteria stated in the course syllabus and will include: preparation of weekly assignments; solo and/or ensemble performances as assigned; attendance at recitals, concerts, and masterclasses, as assigned; acquisition of assigned materials (music, books, etc.), essential accessories (metronome, tuner, etc.); attendance at lessons (as stipulated in the course syllabus). The course is offered fall and spring semesters by permission of the instructor, depending on studio enrollments and availability of staff.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

WWNDS 101: Oboe: Secondary

1 Credits/Maximum of 8

Individual instruction in oboe one-half hour per week. For both music and non-music students. WWNDS 101 OBOE: Secondary (1 per semester/maximum of 8) (GA)(BA) This course meets the Bachelor of Arts degree requirements. Individualized instruction will guide the student toward mastery of the instrument, the study of repertoire, development of interpretive insights, and acquisition of both tonal and technical command. Skill building will enable the student to be active as a performer, participating in Penn State ensembles by competitive audition. Evaluation of the student's progress will be graded by the instructor according to the criteria stated in the course syllabus and will include: preparation of weekly assignments; solo and/or ensemble performances as assigned; attendance at recitals, concerts, and masterclasses, as assigned; acquisition of assigned materials (music, books, etc.), essential accessories (metronome, tuner, etc.); attendance at lessons (as stipulated in the course syllabus). The course is offered fall and spring semesters by permission of the instructor, depending on studio enrollments and availability of staff.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

WWNDS 102: Clarinet: Secondary

1 Credits/Maximum of 8

Individual instruction in clarinet one-half hour per week. For both music and non-music students. WWNDS 102 Clarinet: Secondary (1 per semester/maximum of 8) (GA)(BA) This course meets the Bachelor of Arts degree requirements. Individualized instruction will guide the student toward mastery of the instrument, the study of repertoire, development of interpretive insights, and acquisition of both tonal and technical command. Skill building will enable the student to be active as a performer, participating in Penn State ensembles by competitive audition. Evaluation of the student's progress will be graded by the instructor according to the criteria stated in the course syllabus and will include: preparation of weekly assignments; solo and/or ensemble performances as assigned; attendance at recitals, concerts, and masterclasses, as assigned; acquisition of assigned materials (music, books, etc.), essential accessories (metronome, tuner, etc.); attendance at lessons (as stipulated in the course syllabus). The course is offered fall and spring semesters by permission of the instructor, depending on studio enrollments and availability of staff.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

WWNDS 103: Bassoon: Secondary

1 Credits/Maximum of 8

Individual instruction in bassoon one-half hour per week. For both music and non-music majors. WWNDS 103 Bassoon: Secondary (1 per semester/maximum of 8) (GA)(BA) This course meets the Bachelor of Arts degree requirements. Individualized instruction will guide the student toward mastery of the instrument, the study of repertoire, development of interpretive insights, and acquisition of both tonal and technical command. Skill building will enable the student to be active as a performer, participating in Penn State ensembles by competitive audition. Evaluation of the student's progress will be graded by the instructor according to the criteria stated in the course syllabus and will include: preparation of weekly assignments; solo and/or ensemble performances as assigned; attendance at recitals, concerts, and masterclasses, as assigned; acquisition of assigned materials (music, books, etc.), essential accessories (metronome, tuner, etc.); attendance at lessons (as stipulated in the course syllabus). The course is offered fall and spring semesters by permission.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

WWNDS 104: Saxophone: Secondary

1 Credits/Maximum of 8

Individual instruction in saxophone one-half hour per week. For both music and non-music majors. WWNDS 104 Saxophone: Secondary (1 per semester/maximum of 8) (GA)(BA) This course meets the Bachelor of Arts degree requirements. Individualized instruction will guide the student toward mastery of the instrument, the study of repertoire, development of interpretive insights, and acquisition of both tonal and technical command. Skill building will enable the student to be active as a performer, participating in Penn State ensembles by competitive audition. Evaluation of the student's progress will be graded by the instructor according to the criteria stated in the course syllabus and will include: preparation of weekly assignments; solo and/or ensemble performances as assigned; attendance at recitals, concerts, and masterclasses, as assigned; acquisition of assigned materials (music, books, etc.), essential accessories (metronome, tuner, etc.); attendance at lessons (as stipulated in the course syllabus). The course is offered fall and spring semesters by permission of the instructor, depending on studio enrollments and availability of staff.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

WWNDS 110: Flute: Secondary

2 Credits/Maximum of 16

Individual instruction in flute one hour per week. For both music and non-music majors. WWNDS 110 Flute: Secondary (2 per semester/maximum of 16) (GA)(BA) This course meets the Bachelor of Arts

degree requirements. Individualized instruction will guide the student toward mastery of the instrument, the study of repertoire, development of interpretive insights, and acquisition of both tonal and technical command. Skill building will enable the student to be active as a performer, participating in Penn State ensembles by competitive audition. Evaluation of the student's progress will be graded by the instructor according to the criteria stated in the course syllabus and will include: preparation of weekly assignments; solo and/or ensemble performances as assigned; attendance at recitals, concerts, and masterclasses, as assigned; acquisition of assigned materials (music, books, etc.), essential accessories (metronome, tuner, etc.); attendance at lessons (as stipulated in the course syllabus). The course is offered fall and spring semesters by permission of the instructor, depending on studio enrollments and availability of staff.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

WWNDS 111: Oboe: Secondary

2 Credits/Maximum of 16

Individual instruction in oboe one hour per week. For both music and non-music students. WWNDS 111 OBOE: Secondary (2 per semester/maximum of 16) (GA)(BA) This course meets the Bachelor of Arts degree requirements. Individualized instruction will guide the student toward the mastery of the instrument, the study of repertoire, development of interpretive insights, and acquisition of both tonal and technical command. Skill building will enable the student to be active as a performer, participating in Penn State ensembles by competitive audition. Evaluation of the student's progress will be graded by the instructor according to the criteria stated in the course syllabus and will include: preparation of weekly assignments; solo and/or ensemble performances as assigned; attendance at recitals, concerts, and masterclasses, as assigned; acquisition of assigned materials (music, books, etc.), essential accessories (metronome, tuner, etc.); attendance at lessons (as stipulated in the course syllabus). The course is offered fall and spring semesters by permission of the instructor, depending on studio enrollments and availability of staff.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

WWNDS 112: Clarinet: Secondary

2 Credits/Maximum of 16

Individual instruction in clarinet one hour per week. For both music and non-music students. WWNDS 112 Clarinet: Secondary (2 per semester/maximum of 16) (GA)(BA) This course meets the Bachelor of Arts degree requirements. Individualized instruction will guide the student toward mastery of the instrument, the study of repertoire, development of interpretive insights, and acquisition of both tonal and technical command. Skill building will enable the student to be active as a performer, participating in Penn State ensembles by competitive audition. Evaluation of the student's progress will be graded by the instructor

according to the criteria stated in the course syllabus and will include: preparation of weekly assignments; solo and/or ensemble performances as assigned; attendance at recitals, concerts, and masterclasses, as assigned; acquisition of assigned materials (music, books, etc.), essential accessories (metronome, tuner, etc.); attendance at lessons (as stipulated in the course syllabus). The course is offered fall and spring semesters by permission of the instructor, depending on studio enrollments and availability of staff.

Bachelor of Arts: Arts
General Education: Arts (GA)
GenEd Learning Objective: Creative Thinking
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

WWNDS 113: Bassoon: Secondary

2 Credits/Maximum of 16

Individual instruction in bassoon one hour per week. For both music and non-music majors. WWNDS 113 Bassoon: Secondary (2 per semester/maximum of 16) (GA)(BA) This course meets the Bachelor of Arts degree requirements. Individualized instruction will guide the student toward mastery of the instrument, the study of repertoire, development of interpretive insights, and acquisition of both tonal and technical command. Skill building will enable the student to be active as a performer, participating in Penn State ensembles by competitive audition. Evaluation of the student's progress will be graded by the instructor according to the criteria stated in the course syllabus and will include: preparation of weekly assignments; solo and/or ensemble performances as assigned; attendance at recitals, concerts, and masterclasses, as assigned; acquisition of assigned materials (music, books, etc.), essential accessories (metronome, tuner, etc.); attendance at lessons (as stipulated in the course syllabus). The course is offered fall and spring semesters by permission.

Bachelor of Arts: Arts
General Education: Arts (GA)
GenEd Learning Objective: Creative Thinking
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

WWNDS 114: Saxophone: Secondary

2 Credits/Maximum of 16

Individual instruction in saxophone one hour per week. For both music and non-music majors. WWNDS 114 Saxophone: Secondary (2 per semester/maximum of 16) (GA)(BA) This course meets the Bachelor of Arts degree requirements. Individualized instruction will guide the student toward mastery of the instrument, the study of repertoire, development of interpretive insights, and acquisition of both tonal and technical command. Skill building will enable the student to be active as a performer, participating in Penn State ensembles by competitive audition. Evaluation of the student's progress will be graded by the instructor according to the criteria stated in the course syllabus and will include: preparation of weekly assignments; solo and/or ensemble performances as assigned; attendance at recitals, concerts, and masterclasses, as assigned; acquisition of assigned materials (music, books, etc.), essential accessories (metronome, tuner, etc.); attendance at lessons (as stipulated in the course syllabus). The course is offered

fall and spring semesters by permission of the instructor, depending on studio enrollments and availability of staff.

Bachelor of Arts: Arts
General Education: Arts (GA)
GenEd Learning Objective: Creative Thinking
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

WWNDS 120: Flute: Primary I

2 Credits

Individual instruction in flute one hour per week. For School of Music B.A. and B.S. majors.

WWNDS 121: Oboe: Primary I

2 Credits

Individual instruction in oboe one hour per week. For School of Music B.A. and B.S. majors.

WWNDS 122: Clarinet: Primary I

2 Credits

Individual instruction in clarinet one hour per week. For School of Music B.A. and B.S. majors.

WWNDS 123: Bassoon: Primary I

2 Credits

Individual instruction in bassoon one hour per week. For School of Music B.A. and B.S. majors.

WWNDS 124: Saxophone Primary I

2 Credits

Individual instruction in saxophone one hour per week. For School of Music B.A. and B.S. majors.

WWNDS 130: Flute: Performance I

3 Credits

Individual instruction in flute one hour per week. For B.Mus. flute performance majors.

WWNDS 131: Oboe: Performance I

3 Credits

Individual instruction in oboe one hour per week. For B.Mus. oboe majors.

WWNDS 132: Clarinet: Performance I

3 Credits

Individual instruction in clarinet one hour per week. For B.Mus. clarinet majors.

WWNDS 133: Bassoon: Performance I

3 Credits

Individual instruction in bassoon one hour per week. For B.Mus. bassoon performance majors.

WWNDS 134: Saxophone: Performance I

3 Credits

Individual instruction in saxophone one hour per week. For B.Mus. saxophone performance majors.

WWNDS 170: Flute: Primary II

2 Credits

Individual instruction in flute one hour per week. For School of Music B.A. and B.S. majors.

WWNDS 171: Oboe: Primary II

2 Credits

Individual instruction in oboe one hour per week. For School of Music B.A. and B.S. majors.

WWNDS 172: Clarinet: Primary II

2 Credits

Individual instruction in clarinet one hour per week. For School of Music B.A. and B.S. majors.

WWNDS 173: Bassoon: Primary II

2 Credits

Individual instruction in bassoon one hour per week. For School of Music B.A. and B.S. majors.

WWNDS 174: Saxophone: Primary II

2 Credits

Individual instruction in saxophone one hour per week. For School of Music B.A. and B.S. majors.

WWNDS 180: Flute: Performance II

3 Credits

Individual instruction in flute one hour per week. For B.Mus. flute performance majors.

WWNDS 181: Oboe: Performance II

3 Credits

Individual instruction in oboe one hour per week. For B.Mus. oboe majors.

WWNDS 182: Clarinet: Performance II

3 Credits

Individual instruction in clarinet one hour per week. For B.Mus. clarinetmajors.

WWNDS 183: Bassoon: Performance II

3 Credits

Individual instruction in bassoon one hour per week. For B.Mus. bassoon performance majors.

WWNDS 184: Saxophone: Performance II

3 Credits

Individual instruction in saxophone one hour per week. For B.Mus. saxophone performance majors.

WWNDS 220: Flute: Primary III

2 Credits

Individual instruction in flute one hour per week. For School of Music B.A. and B.S. majors.

WWNDS 221: Oboe: Primary III

2 Credits

Individual instruction in oboe one hour per week. For School of Music B.A. and B.S. majors.

WWNDS 222: Clarinet: Primary III

2 Credits

Individual instruction in clarinet one hour per week. For School of Music B.A. and B.S. majors.

WWNDS 223: Bassoon: Primary III

2 Credits

Individual instruction in bassoon one hour per week. For School of Music B.A. and B.S. majors.

WWNDS 224: Saxophone: Primary III

2 Credits

Individual instruction in saxophone one hour per week. For School of Music B.A. and B.S. majors.

WWNDS 230: Flute: Performance III

3 Credits

Individual instruction in flute one hour per week. For B.Mus. flute performance majors.

WWNDS 231: Oboe: Performance III

3 Credits

Individual instruction in oboe one hour per week. For B.Mus. oboe majors.

WWNDS 232: Clarinet: Performance III

3 Credits

Individual instruction in clarinet one hour per week. For B.Mus. clarinetmajors.

WWNDS 233: Bassoon: Performance III

3 Credits

Individual instruction in bassoon one hour per week. For B.Mus. bassoon performance majors.

WWNDS 234: Saxophone: Performance III

3 Credits

Individual instruction in saxophone one hour per week. For B.Mus. saxophone performance majors.

WWNDS 270: Flute: Primary IV

2 Credits

Individual instruction in flute one hour per week. For School of Music B.A. and B.S. majors.

WWNDS 271: Oboe: Primary IV

2 Credits

Individual instruction in oboe one hour per week. For School of Music B.A. and B.S. majors.

WWNDS 272: Clarinet: Primary IV

2 Credits

Individual instruction in clarinet one hour per week. For School of Music B.A. and B.S. majors.

WWNDS 273: Bassoon: Primary IV

2 Credits

Individual instruction in bassoon one hour per week. For School of Music B.A. and B.S. majors.

WWNDS 274: Saxophone: Primary IV

2 Credits

Individual instruction in saxophone one hour per week. For School of Music B.A. and B.S. majors.

WWNDS 280: Flute: Performance IV

3 Credits

Individual instruction in flute one hour per week. For B.Mus. flute performance majors.

WWNDS 281: Oboe: Performance IV

3 Credits

Individual instruction in oboe one hour per week. For B.Mus. oboe majors.

WWNDS 282: Clarinet: Performance IV

3 Credits

Individual instruction in clarinet one hour per week. For B.Mus. clarinet majors.

WWNDS 283: Bassoon: Performance IV

3 Credits

Individual instruction in bassoon one hour per week. For B.Mus. bassoon performance majors.

WWNDS 284: Saxophone: Performance IV

3 Credits

Individual instruction in saxophone one hour per week. For B.Mus. saxophone performance majors.

WWNDS 320: Flute: Primary V

2 Credits

Individual instruction in flute one hour per week. For School of Music B.A. and B.S. majors.

WWNDS 321: Oboe: Primary V

2 Credits

Individual instruction in oboe one hour per week. For School of Music B.A. and B.S. majors.

WWNDS 322: Clarinet: Primary V

2 Credits

Individual instruction in clarinet one hour per week. For School of Music B.A. and B.S. majors.

WWNDS 323: Bassoon: Primary V

2 Credits

Individual instruction in bassoon one hour per week. For School of Music B.A. and B.S. majors.

WWNDS 324: Saxophone: Primary V

2 Credits

Individual instruction in saxophone one hour per week. For School of Music B.A. and B.S. majors.

WWNDS 330: Flute: Performance V

3 Credits

Individual instruction in flute one hour per week. For B.Mus. flute performance majors.

WWNDS 331: Oboe: Performance V

3 Credits

Individual instruction in oboe one hour per week. For B.Mus. oboe majors.

WWNDS 332: Clarinet: Performance V

3 Credits

Individual instruction in clarinet one hour per week. For B.Mus. clarinetmajors.

WWNDS 333: Bassoon: Performance V

3 Credits

Individual instruction in bassoon one hour per week. For B.Mus. bassoon performance majors.

WWNDS 334: Saxophone: Performance V

3 Credits

Individual instruction in saxophone one hour per week. For B.Mus. saxophone performance majors.

WWNDS 370: Flute: Primary VI

2 Credits

Individual instruction in flute one hour per week. For School of Music B.A. and B.S. majors.

WWNDS 371: Oboe: Primary VI

2 Credits

Individual instruction in oboe one hour per week. For School of Music B.A. and B.S. majors.

WWNDS 372: Clarinet: Primary VI

2 Credits

Individual instruction in clarinet one hour per week. For School of Music B.A. and B.S. majors.

WWNDS 373: Bassoon: Primary VI

2 Credits

Individual instruction in bassoon one hour per week. For School of Music B.A. and B.S. majors.

WWNDS 374: Saxophone: Primary VI

2 Credits

Individual instruction in saxophone one hour per week. For School of Music B.A. and B.S. majors.

WWNDS 380: Flute: Performance VI

3 Credits

Individual instruction in flute one hour per week. For B.Mus. flute performance majors.

WWNDS 381: Oboe: Performance VI

3 Credits

Individual instruction in oboe one hour per week. For B.Mus. oboe majors.

WWNDS 382: Clarinet: Performance VI

3 Credits

Individual instruction in clarinet one hour per week. For B.Mus. clarinet majors.

WWNDS 383: Bassoon: Performance VI

3 Credits

Individual instruction in bassoon one hour per week. For B.Mus. bassoon performance majors.

WWNDS 384: Saxophone: Performance VI

3 Credits

Individual instruction in saxophone one hour per week. For B.Mus. saxophone performance majors.

WWNDS 420: Flute: Primary VII

2 Credits

Individual instruction in flute one hour per week. For School of Music B.A. and B.S. majors.

WWNDS 421: Oboe: Primary VII

2 Credits

Individual instruction in oboe one hour per week. For School of Music B.A. and B.S. majors.

WWNDS 422: Clarinet: Primary VII

2 Credits

Individual instruction in clarinet one hour per week. For School of Music B.A. and B.S. majors.

WWNDS 423: Bassoon: Primary VII

2 Credits

Individual instruction in bassoon one hour per week. For School of Music B.A. and B.S. majors.

WWNDS 424: Saxophone: Primary VII

2 Credits

Individual instruction in saxophone one hour per week. For School of Music B.A. and B.S. majors.

WWNDS 430: Flute: Performance VII

3 Credits

Individual instruction in flute one hour per week. For B.Mus. flute performance majors.

WWNDS 431: Oboe: Performance VII

3 Credits

Individual instruction in oboe one hour per week. For B.Mus. oboe majors.

WWNDS 432: Clarinet: Performance VII

3 Credits

Individual instruction in clarinet one hour per week. For B.Mus. clarinet majors.

WWNDS 433: Bassoon: Performance VII

3 Credits

Individual instruction in bassoon one hour per week. For B.Mus. bassoon performance majors.

WWNDS 434: Saxophone: Performance VII

3 Credits

Individual instruction in saxophone one hour per week. For B.Mus. saxophone performance majors.

WWNDS 470: Flute: Primary VIII

2 Credits

Individual instruction in flute one hour per week. For School of Music B.A. and B.S. majors.

WWNDS 471: Oboe: Primary VIII

2 Credits

Individual instruction in oboe one hour per week. For School of Music B.A. and B.S. majors.

WWNDS 472: Clarinet: Primary VIII

2 Credits

Individual instruction in clarinet one hour per week. For School of Music B.A. and B.S. majors.

WWNDS 473: Bassoon: Primary VIII

2 Credits

Individual instruction in bassoon one hour per week. For School of Music B.A. and B.S. majors.

WWNDS 474: Saxophone: Primary VIII

2 Credits

Individual instruction in saxophone one hour per week. For School of Music B.A. and B.S. majors.

WWNDS 480: Flute: Performance VIII

3 Credits

Individual instruction in flute one hour per week. For B.Mus. flute performance majors.

WWNDS 481: Oboe: Performance VIII

3 Credits

Individual instruction in oboe one hour per week. For B.Mus. oboe majors.

WWNDS 482: Clarinet: Performance VIII

3 Credits

Individual instruction in clarinet one hour per week. For B.Mus. clarinet majors.

WWNDS 483: Bassoon: Performance VIII

3 Credits

Individual instruction in bassoon one hour per week. For B.Mus. bassoon performance majors.

WWNDS 484: Saxophone: Performance VIII

3 Credits

Individual instruction in saxophone one hour per week. For B.Mus. saxophone performance majors.

Naval Science (NAVSC)

NAVSC 101: Introduction to Naval Science

3 Credits

Introduction to naval organization, customs, military law, ships, aircraft, and Marine Corps and Navy career paths. NAVSC 101 Introduction to Naval Science (3) The curriculum for Introduction to Naval Science is designed to provide midshipmen and interested university students a broad overview of the United States Navy and Marine Corps, their missions, organization, customs, traditions and the duties required of today's junior officers. It also provides each student with basic information concerning shipboard procedures, safety, damage control and organization. In addition, this course teaches Department of Defense and Navy policies providing students the start-point to succeed as future naval officers.

NAVSC 102: Sea Power and Maritime Affairs

3 Credits

Historical evolution of sea power and its effects on world history; current U.S. maritime strategy for employment of naval forces. NAVSC 201 Sea Power and Maritime Affairs (3) The curriculum for Sea Power and Maritime Affairs provides a U.S. Naval history survey emphasizing major developments in strategy, tactics, technology and the effects of political climate thereon. Primary topics include: significant naval engagements and milestones, prominent leaders and their contributions, the role of sea power in national policy and diplomacy in both peacetime and war through the present day. The course also studies Mahan's naval strategy along with the effects of maritime policy on global stability and the importance of Joint Warfare and power projection.

NAVSC 200: Leadership and Management

3 Credits

Managerial thought and behavioral theories, with emphasis on how they apply to the naval organization. NAVSC 103 Leadership and Management (3) The curriculum for Leadership and Management provides the basis for the development of effective leadership and managerial competence. Underscoring interactive learning and designed to be taught by experienced, commissioned officers of the U.S. Navy and Marine Corps in order to provide Fleet-based examples, this course examines fundamental tenets of leadership and management in the context of the theories and principles of individual and group leadership with emphasis on how they apply to naval forces. Topics include self-leadership, self-management and team leadership while students refine and further develop their understanding of personal strengths, values and growth opportunities in the context of team, group and organizational leadership,

as well as through the creation of a leadership vision and professional development plan. Students will develop knowledge, abilities and skills that will assist them as future officers to successfully operate in the context of complex military environments around the globe

NAVSC 202: Naval Ships Systems I–Naval Engineering

3 Credits

Principles and applications of engineering concepts to ship construction, stability, and propulsion and auxiliary systems. NAVSC 202 Naval Ships Systems I-Naval Engineering (3) The Naval Ships Systems I: Naval Engineering curriculum educates students on the construction and operation of naval ships, submarines, and aircraft exploring and discussing principles and applications of engineering concepts with regards to construction, stability, propulsion and auxiliary systems. Taught by an experienced naval officer, this course is designed to assist in the professional development of future leaders in the U.S. Navy. A background in calculus and physics is recommended as the student will perform various assignments in thermodynamics, fluid dynamics and nuclear fundamentals. Emphasis on theory-to-practice will be demonstrated throughout the curriculum and students will receive live demonstrations of engineering examples.

NAVSC 301: Naval Ships Systems II–Weapons

3 Credits

An analysis of electromagnetic wave theory, principles of underwater sound propagation, electro-optic theory, and weapons control systems. NAVSC 301 Naval Ships Systems II-Weapons (3) A continuation of Naval Ships Systems I: Naval Engineering, Naval Ships Systems II: Weapons educates students on the employment and basic operation of military weaponry and fire control technology. An analysis of electromagnetic wave theory, principles of underwater sound propagation, electro-optic theory and weapons control systems establishes the student's basic understanding and prepares them for a future career as a naval officer. Students will routinely participate in small group discussions over practical application of weapon technology and trends in future design. The course will culminate with a final project of the student's choosing over a germane topic.

Prerequisite: NAVSC 202

NAVSC 302: Navigation

3 Credits

Theory and principles of all types of piloting and navigation, including a practicum emphasizing correct documentation and plotting. NAVSC 302 Navigation (3) The curriculum for Navigation provides the basis for maritime focused ship piloting. Designed to be taught by a commissioned officer in the U.S. Navy with a Surface Warfare background, the course focuses on the theory and principles of various types of piloting and navigation while employing numerous practical exercises and case studies to aid learning. Primary topics of study include: Precision visual and electronic piloting, tides and currents, maneuvering boards and relative motion theory, international piloting laws and best practices.

NAVSC 313: Fundamentals of Maneuver Warfare

3 Credits

The purpose of this course is to introduce the student to the foundational concepts and history of the United States Marine Corps and its place in

history as a Maneuver Warfighting Organization. It is a theoretical class that utilizes both historical examples from previous military operations as well as current doctrine, developing an individual who is both a critical thinker and scholar in the profession of arms. The goal is to educate the student to read military history analytically, not to memorize facts. The foundation for the course occurs in Module One - Fundamental concepts and Themes. Module Two lays out the doctrine of maneuver warfare and Module Three describes the future of the Marine Corps and how it will continue to apply and advance the maneuver warfare philosophy and concept. While it is important for the students to read and understand historical case studies, it is more important that they comprehend and be able to assess the foundational principles therein. The ultimate aim of this class is to bolster the student's professional development; creating officers that can think in a dynamic, rapidly deteriorating situation while maintaining an analytical approach to problem solving.

NAVSC 401: Naval Operations and Seamanship

3 Credits

Introduction to naval operations; the theory and principles of the rules of the road; use of the maneuvering board. NAVSC 401 Naval Operations and Seamanship (3) The curriculum for Naval Operations and Seamanship provides for an in-depth study of shipboard procedures in the United States Navy. Designed to be taught by a warfare qualified commissioned officer in the U.S. Navy, the course focuses on advanced navigational practices, communications, naval warfare doctrine, joint operations and advanced shipboard evolutions. The course is primarily lecture based, but also employs practical laboratories and case studies to reinforce advanced topics.

Prerequisite: NAVSC 302

NAVSC 402: Leadership and Ethics

3 Credits

The Navy's Resource Management Program (personnel management), counseling techniques, military justice, prevention of substance abuse, and naval correspondence and publications. NAVSC 402 Leadership and Ethics II (3) NAVSCI 402 Leadership and Ethics (3) - A capstone course building upon the foundation of previous Naval Science courses, Leadership and Ethics ensures students have a solid understanding of and an appreciation for ethical standards and decision making. It provides midshipmen with the ethical foundation and basic leadership tools needed to be effective junior officers and provide the high quality leadership our country and Department of Defense will need in the 21st Century. The curriculum is divided into two distinct but overlapping sections; the first focused on ethical theory and major Western ethical philosophy followed by the practical application of leadership as it pertains to a junior officer's duties and responsibilities. Ethical theory is introduced in an academic, discussion-oriented format in order to provide midshipmen with a solid foundation and understanding of various moral, ethical and leadership philosophies. This serves to guide, refine and strengthen a junior officer's character and increase one's awareness of different ethical decision-making tools. The latter portion of the course challenges the midshipmen to apply the first part of the course (i.e. ethical leadership theory) in discussions and practical application exercises of their future duties, responsibilities and expectations of a junior officer in the United States Navy or Marine Corps. Extensive use of case studies throughout the curriculum reinforces the importance of ethical decision-making by naval leaders.

Prerequisite: NAVSC 200 and (NAVSC 401 or 411)

NAVSC 411: Evolution of Warfare

3 Credits

The purpose of the Evolution of Warfare course is to provide the Marine student with a basic understanding of the art, science, and concepts of warfare. The flow of the course starts with USMC warfare theory foundations (MCDP-1 Warfighting) to ensure students are introduced to concepts that are integral to being a Marine Corps officer. Next, the course presents historical battles that present a notable progression in warfare. These periods illuminate the effects of both innovative and stale leadership and the resulting major transformations in warfare. Each battle study relates doctrine (tactics, techniques, and procedures - TTPs), organization, training, material (equipment), leadership, and personnel; to the leadership decisions made by the commanders. Each student will be challenged to view warfare not through the lens of a historian but as a military professional. Furthermore, the curriculum laces modern day shifts in warfare with sections for irregular and cyber warfare. The course then proceeds to relate these teachings to today's USMC doctrine, thus coming full circle with the introductory section. Moving forward, the courseware then shifts to cover the basics of Marine Corps amphibious doctrine. This doctrine is then used as a lens to analyze amphibious case studies from ancient through modern times. Finally, the course conducts an in-depth analysis of OIF bringing the course to a fitting, contemporary conclusion that uses everything learned in the course thus far thereby ensuring the student's mastery of the material.

Prerequisite: 6 credits of Navy ROTC courses

Nuclear Engineering (NUCE)

NUCE 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

NUCE 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

NUCE 301: Fundamentals of Reactor Physics

4 Credits

Nuclear reactions and interactions relevant to nuclear engineering including fission, cross-sections, reaction rate calculations, energy deposition rates, and radioactive decay. This course is designed to acquaint junior-level undergraduate students with knowledge essential to the reactor physics and nuclear reactor systems. Students will learn nuclear reactions including radioactive decay, fission and fusion, reaction rates, energy deposition rates, various nuclear systems, and introductory diffusion theory.

Enforced Prerequisite at Enrollment: MATH 251 Enforced Concurrent at Enrollment: (MATH 230 or MATH 232) and PHYS 214

NUCE 302: Introduction to Reactor Design

4 Credits

Static and dynamic reactor theory applied to basic reactor design problems.

Enforced Prerequisite at Enrollment: NUCE 301 and NUCE 309

NUCE 309: Analytical Techniques for Nuclear Concept

3 Credits

This course is structured to provide students with the necessary analytical techniques and terminology for radiation science, nuclear reactor design, and power system simulation. Students will be taught the basic mathematical methods needed for such topics as simplified reactor physics, fluid mechanics, heat and mass transfer, control theory, shielding, radiation detection, fission product decay, and risk assessment. The course will cover four general mathematical areas: partial differential equations, linear algebra, systems of ordinary differential equations, and probability and statistics. Linear ordinary differential equations are solved using Reduction to Separable Form, Superposition of Solutions, Laplace Transforms, and Numerical Methods. Linear partial differential equations are solved using Separation of Variables. Linear algebra is used to solve sets of linear equations, Least Squares Fit, and Finite Difference Methods. Eigenvalues and Eigenvectors found for a matrix are used to rotate a function to principle coordinates and to solve systems of ordinary differential equations. Probability and statistics includes sampling, permutations and combinations, binomial, Poisson, hypergeometric, and normal distributions. These statistical methods are then applied to radiation counting statistics.

Enforced Prerequisite at Enrollment: MATH 251 Enforced Concurrent at Enrollment: MATH 230 or MATH 232

NUCE 310W: Issues in Nuclear Engineering

2 Credits

Societal and technical issues facing nuclear engineers, including safety, operations, waste, regulation, public acceptance, economics, ethics, and radiation.

Enforced Prerequisite at Enrollment: Fifth-semester standing Writing Across the Curriculum

NUCE 321: Introduction to Thermal-Fluid Sciences for Nuclear Engineers - I

3 Credits

This course is intended to provide nuclear engineers with fundamentals in thermal-fluid sciences. This course is designed to develop an understanding of thermodynamic concepts and their application to nuclear thermal-fluid systems such as nuclear reactors and power plants. The course also emphasizes the study of fundamental principles of fluid mechanics including mass, energy and momentum conservation and their applications in nuclear engineering systems.

Enforced Prerequisite at Enrollment: CHEM 110 Enforced Concurrent at Enrollment: EMCH 212 and MATH 251 and (MATH 230 or MATH 231)

NUCE 322: Introduction to Thermal-Fluid Sciences for Nuclear Engineers - II

3 Credits

This course is intended to provide nuclear engineers with fundamentals in thermal-fluids sciences. The course starts with an introduction of Similitude and Dimensional analysis (Buckingham Pi Theorem) and its application of fluid dynamics and heat transfer. Internal and external flows are reviewed, including the evaluation of friction losses. Finally, the course covers the fundamentals of heat transfer. While maintaining generality, throughout the course topics of greater importance in nuclear engineering are emphasized. These include in particular: pressure drop in internal flows, conduction in cylindrical geometries, convection heat transfer and heat exchanger design. Moreover, the connection to nuclear engineering applications is emphasized.

Enforced Prerequisite at Enrollment: NUCE 321 or ME 320

NUCE 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

NUCE 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

NUCE 401: Introduction to Nuclear Engineering

3 Credits

Fundamental concepts of nuclear engineering, including fission, reactor theory, shielding, and radioisotopes; intended for other than nuclear engineering students.

Enforced Prerequisite at Enrollment: MATH 250 or MATH 251

NUCE 403: Advanced Reactor Design

3 Credits

Physical principles and computational methods for reactor analysis and design. Multigroup diffusion theory; determination of fast and thermal group constants; cell calculations for heterogeneous core lattices.

Enforced Prerequisite at Enrollment: NUCE 302

NUCE 403H: Advanced Reactor Design

3 Credits

Physical principles and computational methods for reactor analysis and design. Multigroup diffusion theory; determination of fast and thermal group constants; cell calculations for heterogeneous core lattices.

Honors

NUCE 405: Nuclear and Radiochemistry

3 Credits

Theory of radioactive decay processes, nuclear properties and structure, nuclear reactions, interactions of radiation with matter, biological effects of radiation. CHEM 406 Nuclear and Radiochemistry (3) CHEM 406 provides a basic introduction to many of the important physical phenomena in nuclear and radiochemistry and the theories that describe them. The exposition of both experimental phenomena and theory complements the content of other upper-level courses in physical chemistry such as CHEM 450 and 452. Specifically, the types of radioactive decay are described, and, using this information, the equations that relate the growth and decay, i. e., the kinetics, of radioactive nuclei are derived. In parallel, a variety of types of nuclear reactions, such as neutron capture are introduced and used to develop the equations that governing the kinetics of nuclear reactions, including the concept of cross section. To describe the nature of nuclear matter, the relationships between energy, binding energy, and mass, are developed and augmented with the introduction of related quantities including the nuclear magnetic-dipole moment, total angular momentum of the nucleus, and Fermi-Dirac and Bose-Einstein statistics. A basic introduction to quantum mechanics, including several problems of increasing complexity, namely, the one-dimensional particle-in-a-box, the three-dimensional particle-in-a-cubic-box, and the particle-in-a-spherical box is then provided. The latter problem forms the basis for developing the single-particle shell-model of the nucleus, which is compared to the single-particle shell-model of the atom, namely, the hydrogen-atom problem. The barrier-penetration theory of alpha-decay, Fermi's phase-space theory of beta-decay, and the selection rules for gamma-ray decay are then presented. Final topics include the interactions of radiation with matter and the biological effects of radiation.

Enforced Prerequisite at Enrollment: CHEM 452 or PHYS 237 or NUCE 301

Cross-listed with: CHEM 406

NUCE 406: Introduction to Statistical Thermodynamics

3 Credits

Statistical description of systems composed of large numbers of particles in the context of classical and quantum mechanics; basic concepts of probability theory and thermodynamics as they relate to statistical mechanics. M E (NUC E) 406 Introduction to Statistical Thermodynamics (3) This course is an introduction to probabilistic and statistical concepts in the physical sciences, which we refer to as 'statistical thermodynamics.' In areas such as design and processing of electronic devices, materials engineering, chemical engineering, and combustion engineering, the science of statistical mechanics is a particularly necessary, powerful, and important tool for the engineer. The underlying foundation of statistical mechanics is developed by (1) reviewing the basic ideas from probability theory, (2) deriving the binomial, Poisson, and Gaussian probability distributions, and (3) using these models to analyze several examples taken from science and engineering. To make a connection between macroscopic quantities and the corresponding probabilistic representation, classical thermodynamics is reviewed using the internal energy, entropy, and free energy functions in the context of the first and second laws. Statistical mechanics for classical and quantum-mechanical systems is presented via the micro-canonical, canonical, and grand canonical ensembles using the associated partition functions. During the syntheses of ideas, applications from various branches of science are presented. Some

examples of applications are the Einstein crystal, the Debye crystal, the ideal gas, and black body radiation. This course covers the following program objectives: 1. Demonstrate knowledge of basic chemistry and physics. 2. Demonstrate a knowledge of atomic and nuclear physics. 3. Demonstrate a knowledge of thermodynamics, heat transfer, and fluid flow. 4. Understand and apply the basic concepts of particle transport. 5. Understand and apply thermodynamics and heat transfer principles to the analysis of nuclear power components and systems.

Enforced Prerequisite at Enrollment: (ME 300 or ME 201) and (MATH 230 or MATH 231)

Cross-listed with: ME 406

NUCE 408: Radiation Shielding

3 Credits

Radiation sources in reactor systems; attenuation of gamma rays and neutrons; point kernel methods; deep penetration theories; Monte Carlo methods.

Enforced Prerequisite at Enrollment: NUCE 301

NUCE 409: Nuclear Materials

3 Credits

Nuclear reactor materials: relationship between changes in material properties and microstructural evolution of nuclear cladding and fuel under irradiation. NUC E (MATSE) 409 Nuclear Materials (3) NUC E/ MATSE 409 provides a background on the types of materials used in nuclear reactors and their response to neutron irradiation. Most of the materials problems encountered in the operation of nuclear power reactors for energy production are discussed here. The objective of the course is to give nuclear engineering students a background in materials, so they understand the limitations put on reactor operations and reactor design by materials performance. In the first part of the course, we review basic concepts of physical metallurgy, to develop a mechanistic and microstructurally based view of material properties. In the second part of the course, we present the methods to calculate displacement damage to the material produced by exposure to neutron irradiation. The microstructural evolution that results from the reactor exposure (including radiation damage and defect cluster evolution, and changes) is described. The aim is to create a linkage between these changes at the atomistic level and the changes in macroscopic behavior of the material. Special attention is given to property changes that affect fuel performance and operational safety. Both mathematical methods and experimental techniques are emphasized so that theoretical modeling is instructed by experimental data. Students use the TRIM and SPECTER codes to quantitatively evaluate neutron damage, as well as learn simple analytical models that describe microstructural evolution and property changes under irradiation.

Enforced Prerequisite at Enrollment: PHYS 214

Cross-listed with: MATSE 409

NUCE 420: Radiological Safety

3 Credits

Ionizing radiation, biological effects, radiation measurement, dose computational techniques, local and federal regulations, exposure control.

Enforced Prerequisite at Enrollment: NUCE 301 or NUCE 405

NUCE 428: Radioactive Waste Control

3 Credits

Nature, sources, and control of radioactive wastes; theory and practice of disposal processes.

Enforced Prerequisite at Enrollment: NUCE 301 or NUCE 405

NUCE 430: Design Principles of Reactor Systems

3 Credits

Nuclear power cycles; heat removal problems; kinetic behavior of nuclear systems; material and structural design problems. NUC E 430 Design Principles of Reactor Systems (3) This course is designed to provide students in Nuclear Engineering with sufficient background to (a) understand the design of nuclear power reactors, how they work and why, (b) understand and apply design criteria which determine the power level and system efficiency in power reactor cores, (c) become familiar with and understand appropriate power reactor terminology and use, (d) learn how to perform thermal/hydraulic analysis for various reactor operation conditions, (e) learn the different accident classifications and reactor operating limits, and (f) become familiar with basic concepts on the analysis of two-phase flow.

Enforced Prerequisite at Enrollment: NUCE 302 Enforced Concurrent at Enrollment: ME 410

NUCE 431W: Nuclear Reactor Core Design Synthesis

4 Credits

Technical and economic optimization of nuclear systems. NUC E 431W Nuclear Reactor Core Design Synthesis (4) This course provides a capstone design experience that will give the student an understanding of the design methodology and considerations applied to systems or components used in nuclear power reactors and/or in nuclear science. Students will learn design principles, understand and apply design criteria to create a synthesized design product, become familiar with and understand appropriate technical and design terminology and its use, and learn how to prepare technical reports and make technical presentations.

Enforced Prerequisite at Enrollment: NUCE 403 and NUCE 430 Enforced Concurrent at Enrollment: ENGL 202C Writing Across the Curriculum

NUCE 441: Nuclear Security Threat Analysis and Assessments

3 Credits

Nuclear threat assessment and analysis for non-state actors to nuclear and radiological facilities and supply lines. NUC E 441 Nuclear Security Threat Analysis and Assessments (3) The primary goal of this course is to educate the student in such a manner that on completion they are able to conduct a threat assessment and analysis for non-state actors (i.e., terrorist and criminal organizations) and the threat which they present to nuclear and radiological facilities and supply lines. Approaching the subject matter in this way forces a student to efficiently and effectively identify security threats and ultimately craft and articulate plausible policy responses to such threats. Specifically, students will focus on threats emanating from nuclear weapons, radiological material, and related technology. After completing this course, the student should be able to: - Analyze current and future nuclear threats from countries and nonstate or sub-state actors and provide recommendations on how to address these security issues.- Define and analyze the various types

of transnational threats and targets in order to craft effective policy responses.- Describe nuclear weapons proliferation, including incentives and disincentives for proliferation.- Analyze smuggling methods and counter-proliferation strategies.- Identify materials of concern and the physical characteristics of these materials. Also prioritize these materials based on their attractiveness, location, and the threat they pose.- Understand the history of terrorism, including its causes, motivations, strategies, and tactics, particularly regarding nuclear terrorism.- Explain counterterrorism strategies and policies and the role of intelligence in counterterrorism, with a particular emphasis on the efforts of the United States Government.

Enforced Prerequisite at Enrollment: NUCE 301

NUCE 442: Nuclear Security System Design

3 Credits

Science and engineering associated with the design, evaluation, and implementation of systems to secure nuclear and radiological materials. NUC E 442 Nuclear Security System Design (3) The primary goal of this course is to educate the student to think with a security perspective such that they can design and evaluate systems to deter, detect, interdict, and respond to threats to the security of nuclear and radiological materials. After completing this course, the student should be able to: -Analyze motivations and capabilities of adversaries (terrorists, criminal groups, protesters, etc.) and be able to characterize a Design Basis Threat (DBT) that can be used to perform a threat-informed security evaluation. - Describe and explain the operation of detection, delay, and response technologies. Understand how to complete a performance evaluation of these technologies. -Evaluate insider threats to nuclear and radiological facilities and incorporate the insider threat in a DBT. -Formulate different response strategies (including deterrence, denial, containment, pursuit, and recapture) for different facilities and considering on-site and/or off-site response. -Use nuclear or radiological material facility characteristics and a DBT to design a performance-based security system for a facility that will be threat-informed, provide defense in depth, and achieve balanced protection while minimizing risk to an acceptable level. - Apply engineering principles to produce a cost benefit analysis for upgrade options for an existing nuclear facility. -Understand the unique security characteristics associated with transportation of nuclear materials, smuggling of nuclear materials, and protection of major public events and be able to apply a risk- and performance-based engineering approach to security systems for these scenarios. -Understand nuclear forensics as a component of a nuclear security system and be able to use nuclear forensics interpretation of measured data to predict infer actor involvement in a nuclear security incident. -Discuss and critique the deterrence characteristics of nuclear security systems.

Enforced Prerequisite at Enrollment: NUCE 302

NUCE 446: Reliability and Risk Concepts in Design

3 Credits

Introduction to reliability mathematics. Failure data collection and analysis. Components and systems reliability prediction. Effects of maintenance on reliability. Risk Analysis. Case studies in engineering applications. ME 446 / NUCE 446 Reliability and Risk Concepts in Design (3) The course covers materials reliability in design including mechanical, electrical and system aspects. Five main topics will be studied. The course starts by introducing engineering risk and reliability, highlighting its interdisciplinary nature and its significance in system design. The concept of reliability as a probability is introduced and the

basic laws of probability are reviewed. The discussion centers on the mathematics needed to understand and analyze complex systems including components in series and parallel. The topics include the independence, mutual exclusivity, truth tables and Venn diagrams. These concepts are then applied to simple systems consisting of one, two and three components in various configurations. The equivalency of the various methods is discussed. The effect of maintenance on a system's reliability is presented along with discussions of various maintenance strategies. Then, the failure modes and effects analysis is introduced and examples discussed. The concept of fault trees and event trees and their application to reliability analysis are presented. Risk analysis is then introduced as a case study in the application of reliability analysis. A nuclear power plant system is analyzed to quantify the risk to the public from its operation.

Enforced Prerequisite at Enrollment: (MATH 250 or MATH 251) and (ME 345 or ME 348 or NUCE 309)

Cross-listed with: ME 446

NUCE 450: Radiation Detection and Measurement

3 Credits

Theory and laboratory applications of radiation detectors, including proton, neutron, charged particle detectors, NIM devices, and pulse-height analysis.

Enforced Prerequisite at Enrollment: (NUCE 301 or NUCE 405) and NUCE 309

NUCE 451: Experiments in Reactor Physics

3 Credits

Acquisition and processing of nuclear and atomic data; application to nucleonic phenomena of importance in nuclear engineering.

Enforced Prerequisite at Enrollment: EE 212 and NUCE 450

NUCE 470: Power Plant Simulation

3 Credits

Basic knowledge necessary for intelligent simulation and interpretation of simulations of transients in nuclear power plants.

Enforced Prerequisite at Enrollment: ME 320 and MATH 251 and NUCE 302

NUCE 480: Foundations of Nuclear Engineering

3 Credits

This course is designed as an intensive course providing an introduction to nuclear engineering for graduate students with a non-nuclear background. The course starts with an introduction to fundamental concepts of atomic and nuclear physics and the interaction of radiation with matter which are then used to develop static and dynamic reactor theory applied to basic reactor design problems.

Enforced Prerequisite at Enrollment: MATH 251 and Grad Standing. Enforced Concurrent at Enrollment: (MATH 230 or MATH 232) and PHYS 214

NUCE 490: Introduction to Plasmas

3 Credits

This course provides the education on models that are used for description of plasma phenomena as applicable to plasma confinement, plasma assisted materials processing, astrophysical plasmas and plasmas in the near Earth's space environment. It provides practical training in solution of problems involving collisional and collisionless plasmas. In particular, it investigates dynamics of charged particles in specified uniform, non-uniform and time varying electric and magnetic fields. It explores collective behavior of plasmas, including various electrostatic and electromagnetic waves that can be excited and propagate in plasmas parallel and perpendicular to the externally applied magnetic field. The course considers non-linear effects in plasmas, as typically occurring in the sheath regions near the plasma confining walls. It discusses concepts of equilibrium and stability of plasmas, and various models of unstable plasma motions, especially in relation to plasma confinement.

Enforced Prerequisite at Enrollment: (C or better in EE 330) or PHYS 400
Cross-listed with: AERSP 490, EE 471

NUCE 494: Senior Thesis

1-9 Credits/Maximum of 9

Students must have approval of a thesis adviser before scheduling this course. NUC E 494H Senior Thesis (1-9) All Schreyer Scholars are required to complete an undergraduate honors thesis. This work represents the culmination of a student's honors experience. Through the thesis, the student demonstrates a command of relevant scholastic work and a personal contribution to that scholarship. The thesis project can take many forms - from laboratory experiments all the way to artistic creations. The thesis document captures the relevant background, methods and techniques, as well as describing the details of the completion of the individual project. Two Penn State faculty members judge the merits of this Scholar's honors thesis, the student's self-selected thesis supervisor and the department-selected honors adviser in the student's area of honors.

Enforced Prerequisite at Enrollment: Junior or senior status in the University Scholars Program Honors

NUCE 496: Independent studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

NUCE 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

NUCE 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Nursing (NURS)

NURS 100: First Year Seminar in Nursing

1 Credits

First year seminars in Nursing will introduce the student to the University and the College of Nursing. The primary focus will be engaging students in learning and orienting them to the scholarly community from the outset of their undergraduate studies in a way that will bridge to later experiences in the nursing major and facilitate the high expectations, demanding workload and other aspects of transition to college life. The course content will focus on enhancing opportunities that enable students to provide a holistic focus on the promotion of human health and initiatives that enhance quality of life.

First-Year Seminar

NURS 115: Medications and the Elderly Client

1 Credits

Nursing implications of medication therapy with the elderly client.

NURS 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

NURS 200M: Principles of Nursing Research and Evidence-Based Practice-Honors

3 Credits

NURS 200M is an introduction to principles and methods of nursing research and application of research evidence to practice. The course is a writing intensive Honors course. Students will work individually and in cooperative learning groups to analyze and discuss nursing research from multiple viewpoints with a focus on integrity, global perspectives and leadership in nursing research. Each honor student will identify an evidence-based practice topic that could potentially lead to an undergraduate thesis to study in depth. Every in-class and out-of-class assignment is tailored to their topic. The students though, a series of writing intensive assignments, will be taught how to conduct a written peer review; will practice this in formative written review sessions on their peer's projects. NURS 200M will culminate with the development of evidenced based practice paper, which will be delivered to their peers as they would at a scientific meeting. This paper will also serve as the first draft of their thesis proposal. Upon completion of the course students will be able to: Discuss the roles and responsibilities of the nurse related to research and evidence-based practice (EBP); compare and contrast the research process and EBP process; explain the interrelationship among nursing theory, practice, and research; identify sources of evidence as a basis for EBP; describe the process in formulating EBP questions; formulate EBP questions; describe basic concepts and steps of research process; interpret research findings; appraise current issue relevant to nursing; and critically appraise published research studies.

Recommended preparation: (STAT 200 or STAT 250) and NURS 225 and NURS 390

Honors

Writing Across the Curriculum

NURS 200W: Principles of Nursing Research and Evidence-Based Practice

3 Credits

Introduction to principles and methods of nursing research and application of , research evidence to practice. , NURS 200W is the introduction to principles and methods of nursing research and the application of research evidence to practice. The course is a writing intensive course with the goal to help the student communicate clearly and effectively while learning the basics of nursing research and its application to developing evidence based practice. Upon completion of this course the student will be able to: Discuss the roles and responsibilities of the nurse related to research and evidence-based practice (EBP); Compare and contrast the research process and the EBP process; Explain the interrelationships among nursing theory, practice, and research; Identify sources of evidence as a basis for EBP; Describe the process by which an EBP question is formulated; Formulate EBP questions that relate to relevant clinical problems and demonstrate critical thinking; Describe basic concepts and steps of the research process in nursing; Interpret research findings to determine statistical and clinical significance; Appraise current issues relevant to nursing research (such as cultural diversity issues and ethical conduct of research); Critically appraise published research studies.

Recommended preparation: (STAT 200 or STAT 250) and NURS 225 and NURS 390

Writing Across the Curriculum

NURS 203: First Aid and CPR

3 Credits

NURS 203 An introductory first aid course designed to provide the basic knowledge and skills to assist someone who is injured or ill. The course covers safety precautions of the responders including legal and ethical issues, teaches one-person CPR and airway obstruction, common injuries resulting in bleeding and how to control bleeding, common medical emergencies i.e. bleeding, water, ice, shock, thermal injuries. Heart attack, stroke and head injuries are a focus and the proper way to transfer individuals with injuries. Environmental emergencies includes disaster preparation, terrorism and triage.

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

NURS 225: Pathophysiology

3 Credits

Designed to explore the illness component of health with emphasis on the pathophysiological and psychosocial aspects. NURS 225 NURS 225 Pathophysiology (3) NURS 225 is designed to explore the illness component of health, with emphasis on the pathophysiological and psychosocial aspects. The required 3-credit course is a foundational course for all succeeding nursing courses. Upon completion of this course, the student will be able to identify knowledge from nursing and contributing disciplines as a foundation for the understanding of illness; describe selected theories of stress and adaptation; identify basic pathophysiological and psychosocial aspects of illness; relate common manifestations of illness to the underlying pathophysiological and psychosocial processes; identify physical environmental factors associated with the development of illness; recognize the significance

of research to the evidence base of nursing practice related to illness; recognize the different pathological changes related to human variation and lifespan. Teaching strategies include lecture, audiovisual, case studies/discussion. Enrollment is limited to sophomore level nursing students. The course is offered each spring semester and successful completion is required prior to advancing to the Junior level nursing courses.

Enforced Prerequisite at Enrollment: NURS 250 and NURS 251

NURS 230: Introduction to the Fundamentals of Nursing

4 Credits

Introduction to the nursing process, clinical competencies and psychosocial skills. NURS 230 NURS 230 Introduction to Fundamentals of Nursing (4) NURS 230 incorporates the analysis of the nursing process and introduction to clinical competencies and psychosocial skills. Students demonstrate beginning skills in utilizing the nursing process in the clinical setting to meet basic physical and psychosocial individual client needs. Upon completion of the course, students will be able to describe the characteristics of each step of the nursing process; demonstrate beginning skills in utilizing the nursing process in the clinical setting to meet basic physical and psychosocial individual client needs; demonstrate safe and competent performance of basic psychomotor nursing skills; demonstrate the ability to practice the principles of health and safety; perform basic interviewing techniques in collecting health status data; demonstrate communication skills that enable the student to establish appropriate interpersonal relationships; recognize variables influencing health status; recognize the psychosocial needs of individuals including basic needs related to loss, grief and the death experience; demonstrate a personal professional philosophy which addresses the individuality, dignity, values, beliefs, and culture of all clients; recognize the significance of evidence based practice as the basis for the use of the nursing process; recognize the importance of health teaching and health promotion across the life span; identify purposes and functions of appropriate community resources. Teaching strategies include lecture, discussion, audiovisuals, clinical experience, simulation laboratory demonstration and practice, self-learning medication and math mathematics packet. The course is offered each spring semester with an enrollment of approximately 120 nursing students divided into clinical sections limited to 10 students each.

Enforced Prerequisite at Enrollment: NURS 250 and NURS 251 and
Enforced Concurrent: NURS 225

NURS 230H: Introduction to the Fundamentals of Nursing

4 Credits

Introduction to the nursing process, clinical competencies and psychosocial skills.

Honors

NURS 240: Medication Calculations for Nurses

1 Credits

Application of mathematical methods for drug calculations that support safe administration of the correctly calculated dosages of medications. This course is designed to help prepare student nurses for safe medication administration, successful completion of math

competency exam throughout the curriculum, and build confidence in mathematical skills.

Enforced Prerequisite at Enrollment: Enrollment in GNURS or SCND Option of the Baccalaureate Nursing Program

NURS 245: Violence and the Impact on Society

3 Credits

The NURS 245 goal is to facilitate an interdisciplinary and cross-theoretical approach to (1) raise awareness to the prevalence, causes, consequences of the different types of violence impacting societies; (2) to help students learn how to apply knowledge of human behavior and social change strategies; (3) to encourage students to inform and communicate professional judgement and participate in prevention of violence for the safety and security of vulnerable individuals, families and populations.

General Education: Social and Behavioral Scien (GS)
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Soc Resp and Ethic Reason

NURS 250: Professional Role Dev I: Intro to Professional Issues in Nursing Practice and Nursing Informatics

2 Credits

NURS 250 Professional Role Dev I: Intro to Professional Issues in Nursing Practice and Nursing Informatics (2) (US)NURS 250US is the first course in the baccalaureate nursing program and introduces the students to the profession of nursing, the science of nursing and the use of information technology in health care. Designed to explore the wellness component of health and the role that informatics plays in the planning and delivery of health care. Upon completion of the course, the student will be able to Identify concepts of health and wellness that contribute to a foundation for nursing practice, Discuss the importance of cultural competency in the health care delivery systems and utilization of services, Identify the roles of the professional nurse in the delivery of health care to patients, families, communities and populations, Define elements that contribute to professional, evidence-based nursing practice. Describe nursing theory's relationship to the development of clinical judgment, Describe current and future nursing informatics' applications in the planning and delivery of health care and Apply ethical and legal concepts to the use of information technology/nursing informatics in health care. The concepts of diversity and cultural competence are emphasized and integrated within each major topic discussed. Teaching strategies emphasize inquiry-based learning, competency in informatics and promote critical thinking and include lecture, selected readings, exploration of internet sites on health and nursing, case studies, small group activities, group discussions, audiovisuals, role playing, journaling, self-reflection, and field trips. Enrollment is limited to sophomore level nursing students. The course is offered fall semester.

Enforced Prerequisite at Enrollment: BIOL 161 and BIOL 163 United States Cultures (US)

NURS 251: Health Assessment

3 Credits

Designed to broaden the student's knowledge and skills in health assessment and physical examination across the lifespan. NURS 251 Health Assessment (3) NURS 251 is designed to broaden the student's

knowledge and skills in health assessment. The course enables the student to learn the methods of interviewing patients for completing a health history and the tools and techniques necessary to conduct a physical examination. Upon completion of this course, the student will be able to identify psychosocial, cultural and developmental factors affecting the health assessment process; demonstrate appropriate communication and interviewing techniques (including the use of new technology) with clients of all ages to facilitate the health assessment; demonstrate the ability to obtain a holistic, systematic and comprehensive health history and assessment; promote an environment of safety and caring to maximize client care outcomes; participate in education and activities that would promote cultural competency in nursing assessment; document the health history and current health status and the physical exam according to accepted standards; demonstrate competency in the use of inspection, palpation, percussion and auscultation when performing physical examination; demonstrate the ability to recognize and interpret signs of normal and abnormal health assessment findings; demonstrate critical thinking in the analysis of physical findings; demonstrate the ability to assess risk and promote security and safety in the clinical environment; recognize and document health assessment variations in clients throughout the life span. Teaching strategies include lecture, discussion, demonstration, hands-on practice, audiovisuals, simulation laboratory experiences. NURS 251 is the first required clinical course; is offered each fall semester; and is limited to nursing students. Clinical experience with sections of 14 students is conducted in the Simulation Laboratory where students receive the individualized attention to facilitate learning the techniques of physical assessment. Annual enrollment is approximately 120 students who must successfully complete the course to progress in the nursing program.

Enforced Prerequisite at Enrollment: BIOL 161 and BIOL 163

NURS 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

NURS 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

NURS 300: Honors Seminar in Nursing

3 Credits

Seminar activities on selected topics in nursing. NURS 300H Honors Seminar in Nursing (3) NURS 300H is designed to follow the introduction to nursing research course for honor students only. Each class session focuses on a different element of the honors thesis proposal. Objectives for the course include: Appraise strengths and opportunities for improvement in proposals for nursing research studies and systematic reviews; Apply strategies for establishing and sustaining effective mentor-mentee relationships; Describe the ethical issues involved in clinical research, with emphasis on investigators' responsibilities and participants' rights; Discuss current priority focus areas in nursing science; Compare and contrast thesis alternatives; Discuss selected research designs used for clinical research; Analyze opportunities for replication of clinical studies; Develop a three-chapter written

proposal that lays the foundation for and establishes the approach to a relevant scholastic project for the honors thesis; Identify key factors to consider when planning for research dissemination The course is taught in the spring semester only and is open only to nursing honor students. Teaching strategies include lecture, student presentations, handouts, individual conferences, and written research consent forms and proposals. Evaluation criteria of the course include a critique, protection of human subject packet preparation, class participation, and at the end of this course, students will be expected to have a fully developed honors thesis proposal. Proposals will be evaluated on how convincing the argument is for the proposed research (literature review and identified knowledge gaps), the logical procession of the thinking, the clarity of the writing, and the significance of the proposed research to nursing.

Enforced Prerequisite at Enrollment: NURS 200M and NURS 225 and Admission to the Honors Program
Honors

NURS 301: Nursing Care of the Adult Client Requiring Medical-Surgical Intervention

4 Credits

Therapeutic nursing care of the adult client in a variety of primarily medical-surgical settings. NURS 301 Nursing Care of the Adult Client Requiring Medical-Surgical Intervention (4) NURS 301 focuses on nursing care of adult client requiring medical-surgical intervention including. The course is placed in the junior year and is considered a beginning level medical-surgical course. Upon completion of this course, the student will be able to assess risks and promote the health and safety of the adult client throughout the lifespan; formulate nursing actions that are based on scientific principles and concepts from contributing disciplines in caring for the adult client to maximize outcomes; recognize pathophysiological and pharmacological aspects related to the nursing care of the adult medical surgical client; recognize the impact of stress on the adult client to incorporate health promotional and health educational activities; demonstrate the ability to communicate effectively across the health care delivery system; promote factors that create a culture of safety and caring for the adult medical-surgical client; utilize assessment data and technology to plan, implement and evaluate interventions specific to the health of the adult client; practice legal, ethical and professional accountability in the delivery of care to the adult client; demonstrate the ability to practice in a holistic, culturally competent and caring manner; demonstrate the ability to utilize evidence based practice and technology to assess and critically respond to the needs of the adult client; demonstrate with guidance the role of the professional nurse in caring for the adult client. Teaching strategies include lectures, discussions, audiovisuals, clinical experiences, and simulation laboratory. Clinical sections of 8-10 students spend 90 hours (2 credits) caring for medical surgical adult clients. Enrollment is approximately 120 nursing students split between University Park and Hershey Medical Center Campus and is offered fall semester of the junior year.

Enforced Prerequisite at Enrollment: NURS 225 and NURS 230.
Recommended Corequisite: NURS 305 and NURS 310

NURS 302: Clinical Judgement in Nursing

1 Credits

NURS 302 is a one-credit - 45 hour faculty supervised clinical experience that focuses on the care of the adult medical surgical patient population.

Upon completion of the course, the student will be able to analyze pathophysiological and pharmacological concepts when the planning the care and education of adult medical-surgical clients, demonstrate the continued ability to systematically approach the care and treatment of adult medical-surgical clients through a variety of methods, evaluate client outcomes of care and create new goals and interventions to promote positive client outcomes, incorporate the concepts of delegation and prioritization in the care of adult medical-surgical clients, and demonstrate effective intra-professional and inter-professional communication in planning and delivering safe and effective care of adult medical-surgical clients. Overall, course provides the concepts necessary for the student to better understand the clinical judgment and clinical reasoning needed to deliver safe, competent and comprehensive care to adult medical-surgical patients. The course is offered each spring semester.

Enforced Prerequisite at Enrollment: 6th semester standing and NURS 225 and NURS 301 and NURS 305

NURS 303: Clinical Application of Laboratory Tests

1 Credits

A study of the background, meaning, and nursing implications of laboratory test results. NURS 303 Clinical Application of Laboratory Tests (1) NURS 303 is a study of the background, meaning, and nursing implications of laboratory test results. It is designed to assist the nursing student in comprehending the patient's laboratory results in a clinical setting. Lab values are correlated to patient's condition and physiology of the disease process. Physical assessment data are compared to the various blood and urine lab test results also. Students are evaluated through written examination and the interpretation of case study scenarios. The course is offered in the spring semester and is open to all nursing students who have completed the introductory nursing course at the 200 level. Enrollment is not limited. The course objectives follow. Upon completion of this course, the student will be able to: a. Identify important clinical implications associated with a wide variety of blood and urine tests. b. Correlate lab data with physical assessment findings and other indicators of patient status. c. Recognize constellations of changes that may precede deterioration in clinical status. d. Discriminate between changes in lab values that require immediate reporting to the physician and those changes that do not require immediate reporting. e. Synthesize laboratory test results with assessment findings and pathophysiology and identify appropriate nursing actions.

Recommended Preparation: NURS 250, NURS 225, NURS 230, and NURS 251

NURS 305: Introduction to Pharmacological Concepts

3 Credits

Study of basic concepts of pharmacology and relevant nursing implications. NURS 305 Introduction to Pharmacological Concepts (3) NURS 305 is the introduction to pharmacological concepts and identifies the pharmacodynamics of major classifications of drugs. Prototypes or original drug models from which subsequent types arise are summarized. This course is closely linked to pathophysiology (a prerequisite) as most medications are administered based on a pathophysiologic condition. Pharmacologic principles covered in the course have practical application for students administering medications to clients in the clinical setting during the junior and senior years. Upon completion of this course, the student will be able to identify the measures taken in the United States to ensure drug safety; describe the process of drug development and

evaluation; describe the methods of drug standardization; differentiate official and unofficial drug information sources; recognize the legal aspects and nursing responsibilities relative to the administration of drugs to ensure client safety; identify the pharmacodynamics of major classifications of drugs; recognize characteristics and nursing implications of the various types of pharmaceutical preparations and identify research related to pharmacology which influences nursing practice. Teaching strategies include videos, lectures, handouts and power point slides. Enrollment is limited to junior level nursing students or special permission from the instructor for non-nursing majors. The course is offered yearly during the fall semester.

Enforced Prerequisite at Enrollment: (NURS 225 and NURS 230) or approval of program. Recommended Corequisites: NURS 301 and NURS 310

NURS 306: Nursing Care of Children and Adolescents

3 Credits

Common health problems and nursing intervention for children and adolescents. NURS 306 Nursing Care of Children and Adolescents (3) NURS 306 focuses on common health problems and nursing intervention for children and adolescents. Upon completion of this course, the student will be able to formulate nursing actions that are based on scientific principles and concepts from contributing disciplines in caring for children and adolescents to maximize client care outcomes; develop interpersonal skills in responding in a humanistic manner to the unique needs of children, adolescents, and their families; recognize pathophysiological and pharmacological aspects related to the nursing care of the adult medical surgical client; assess the health needs of diverse populations of children and adolescents based on an understanding of the developmental, psychosocial, environmental, and cultural variables with an emphasis on health promotion; evaluate nursing care in a variety of settings to meet the health needs of children of various ages; utilize assessment data and technology to plan, implement, and evaluate interventions specific to the health care needs relevant to the characteristics of the child and adolescent client in interaction with the personal and suprapersonal environments; evaluate nursing care in a variety of settings to meet the health needs of children of various ages and promote healthy lifestyles; collaborate with colleagues in nursing and other health professions to promote the well being of children and adolescents in a variety of settings including the community; relate relevant research findings to child health nursing practice; practice legal, ethical and professional accountability in the delivery of child health care; participate in activities that advance personal and professional development, cultural competency, and the professional specialty of pediatric nursing and promote factors that create a culture of safety and caring for children and adolescents. Teaching strategies include lecture, discussion, audiovisuals, hands-on clinical care, laboratory simulation experiences. Emphasis is placed on delivery of safe and competent nursing care. Clinical sections of 8-10 students spend 45 hours caring for child/adolescent clients in a variety of settings (clinics, day care centers, elementary schools, and hospitals). Enrollment is approximately 120 nursing students (split between UP and HMC) and the course is offered each spring semester of the junior year.

Enforced Prerequisite at Enrollment: NURS 305 and NURS 225 and NURS 230

NURS 310: Therapeutic Nursing Care of the Older Adult Client in a Variety of Settings

3 Credits

Nursing concerns and intervention in promoting the health of the older adult. NURS 310 NURS 310 Therapeutic Nursing Care of the Older Adult Client in a Variety of Settings (3) NURS 310 focuses on nursing concerns and interventions in promoting the health of older clients. Upon completion of the course, the student will be able to utilize knowledge about aging from nursing and contributing disciplines as a foundation for nursing practice with the older adult client; recognize pathophysiological and pharmacological aspects related to the nursing care of the older adult client; demonstrate progressive development of communication skills including technology which supports the health care needs of the older adult client; promote factors that create a culture of safety and caring for the older adult client; utilize assessment data and technology to plan, implement, and evaluate interventions specific to the health of the older adult client; evaluate nursing care in a variety of settings to meet the health needs of the older adult client and promote healthy lifestyles; communicate pertinent client information, plan of care, and evaluation of goals to staff, instructors and other members of the health team; apply evidence based practice to maximize client outcomes in health promotional and educational activities for the older adult client; demonstrate with guidance the role of the professional nurse in caring for the older adult client; participate in activities that advance the personal and professional development, cultural competency in the professional specialty of gerontological nursing; practice legal, ethical and professional accountability in the delivery of care to the older adult client; recognize the importance of interdisciplinary care in meeting the bio-psycho-social needs of patients and families receiving end-of-life care. Teaching strategies include lecture, discussion, hands-on clinical care and simulation laboratory experiences. Clinical sections of 8-10 students spend 45 hours caring for clients in nursing homes and community settings with the focus on environmental assessment, individual health teaching and group health teaching. The course is offered fall semester and enrollment is approximately 120 nursing student (60 at UP and 60 at HMC).

Enforced Prerequisite at Enrollment: NURS 225 and NURS 230. Recommended Corequisites: NURS 301 and NURS 305

NURS 320: Nursing Care of the Childbearing Family and Gynecological Client

3 Credits

Therapeutic nursing care of the childbearing family and gynecological client. NURS 320 NURS 320 Nursing Care of the Child Bearing Family and Gynecological Client (3) NURS 320 focuses on providing therapeutic nursing care of child-bearing family and gynecological client. Upon completion of this course, the student will be able to utilize knowledge from nursing and contributing disciplines related to reproductive health concerns, life events and health alterations of the child bearing family and gynecological client to maximize client care outcomes; recognize pathophysiological and pharmacological aspects related to the nursing care of the child bearing and gynecological client; demonstrate progressive development of communication skills including technology which supports the child bearing family and gynecological client; promote factors that create a culture of safety and caring for the child bearing family and gynecological client; assess the reproductive health of the child bearing family and gynecological client within the context of the developmental process and the personal and suprapersonal

environments; utilize assessment data and technology to plan, implement, and evaluate interventions specific to the health of the child bearing family and gynecological client; evaluate nursing care in a variety of settings to meet the health needs of the child bearing family and promote healthy lifestyles; communicate pertinent client information, plan of care, and evaluation of goals to staff, instructors and other members of the health team; apply evidence based practice to maximize client outcomes in health promotional and educational activities for the child bearing family and gynecological client; demonstrate with guidance the role of the professional nurse in caring for child bearing families and gynecological client; participate in activities that advance the personal and professional development and cultural competency in the professional specialty of obstetric and gynecological nursing; practice legal, ethical and professional accountability in the delivery of care to the child bearing family and gynecological patient. Teaching strategies include lecture, clinical experiences and laboratory simulation, discussion, post clinical conferences, audiovisuals-slides and case studies. The course is offered spring semester of the junior year with an approximate enrollment of 120 nursing students (split between UP and HMC) and with clinical sections limited to 10 students per section.

Enforced Prerequisite at Enrollment: NURS 305

NURS 325N: Health and Environmental Sustainability

3 Credits

NURS / SUST 325N: Health in Environmental Sustainability; 3 credits. (Inter-Domain), (GHW), (GN). People live in constant contact with the environment: the built environment of homes, offices, and industrial facilities, as well as in cities or less developed areas such as farms or in nature / the outdoors. How do the air we breathe, the water we drink, the land we live on, the food we eat, and the materials and chemicals we use in these environments impact our health? At a time when nations are spending up to 1/6th of their budgets on healthcare, it is critical to understand how we impact the environment and how it impacts us back. This course covers the importance of environmental health on individual and community health, the effects of environmental hazards on diverse populations and the impact of climate change on disease. It also reviews best practices for environmental health, for building healthy communities, and introduces students to environmental health advocacy. A beneficial environment sustains human health and the well-being of all species on the planet.

Cross-listed with: SUST 325N

General Education: Health and Wellness (GHW)

General Education: Natural Sciences (GN)

General Education - Integrative: Interdomain

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

NURS 350: Professional Role Development II: Ethics, Legal and Genomic Issues

2 Credits

The study of the interaction of ethical, legal, and genomic concepts as they apply to current health care practice. NURS 350 Professional Role Development II: Ethics, Legal and Genomic Issues (2) NURS 350 is the second of three professional role development courses and addresses the interaction of ethical, legal and genomic concepts as they apply

to current health care practice. Upon completion of the course the student will be able to define the fundamental ethical theories; define and integrate into evidence based practice the basic ethical concepts as they relate to nursing; state the American Nurses' Association Code of Ethics for Nurses; demonstrate ethical behaviors such as honesty, integrity, responsibility, and dependability in clinical practice and everyday life; define and describe the concepts of standards of care and scope of practice; analyze nurse practice acts as they pertain to licensure and scope of practice; define the concepts of negligence verses malpractice; define and distinguish between the concepts of informed consent, patient selfdetermination, right of refusal, and advance directives (such as living wills, durable power of attorney, and do not resuscitate orders); analyze the role of advocacy from an ethical and legal perspective; communicate effectively (including the use of new technologies) with patients and families regarding legal, ethical, and genomic issues; describe the concept of confidentiality from ethical and legal perspectives; identify the impact genomics has played in the practice of health care; describe the historical to current research findings in genomics that have or may change health care practice guidelines; identify the role ethics, legal issues, and genomics plays in providing health care to culturally sensitive populations; analyze and discuss historical and current biomedical dilemmas utilizing various ethical, legal and genomic perspectives. Teaching strategies include lecture, discussion, audiovisuals, small group activities, role- playing and group presentations. The course is offered fall semester and enrollment is limited to nursing majors.

Enforced Prerequisite at Enrollment: (NURS 225 and NURS 230)

NURS 352: Advanced Health Assessment for the Registered Nurse

3 Credits

RECOMMENDED PREPARATION: NURS MAJOR CONTROL NURS 352 is a course designed to extend the RN student's knowledge and skills in health assessment and physical examination across the lifespan. The course includes 45 hours of clinical and is intended for students who are already nurses and who have relevant basic education of health and physical assessment. This course enhances the RN student's knowledge base with more advanced techniques of interview and examination. The course demands higher-level thinking about complex health assessment challenges and prepares RN students for health assessment study at the graduate level.

Recommended Preparation: NURS Major

NURS 357: Introduction to Nursing Informatics

3 Credits

NURS 357 is an introduction to nursing informatics focusing on technology applications to the nursing profession. This course provides a broad overview of nursing informatics and the various applications of informatics principles in the healthcare setting. Students will explore the data-information-knowledge-wisdom paradigm of informatics and gain an appreciation of how informatics principles contribute to nursing knowledge and practice. Students will assess personal informatics competencies and set goals for building informatics skills, and explore future trends in healthcare technologies.

Recommended Preparation: NURS major and NURS 301 and NURS 310 and NURS 306 and NURS 320

NURS 390: Transition and the Professional Nursing Role

3 Credits

Transition to baccalaureate education and professional nursing practice, emphasizing leadership, management, and issues influencing nursing education and practice. NURS 390 Transition and the Professional Nursing Role (3) (US) NURS 390 is the first nursing course that the registered nurse (RN) student completes. The course's intent is to set the groundwork for transition of the RN to baccalaureate education and professional nursing practice. With the emphasis being on leadership, management, and issues influencing nursing education and practice, the RN has the foundation on which to build nursing expertise as nursing courses progress. The course prerequisite is a current and valid RN license. Teaching strategies include: lecture, discussion, audiovisuals, self-assessment, reflective analysis, critical thinking/problem solving, computer assignments and active/collaborative learning. Evaluation of the course is by grading of written assignments, presentations, and testing. The course is offered in fall, spring or summer semesters of the junior year with a projected enrollment of 10 - 15 students, and is a prerequisite to other nursing courses. Upon completion of this course, the student will be able to: 1. Explain the processes inherent in successful transition to the role of the baccalaureate prepared nurse. 2. Analyze the influences that impact role development and nursing practice, especially self-regulation and accountability. 3. Appraise the health care environment as it relates to nursing roles and nursing practice. 4. Measure the impact of nursing theory and research on baccalaureate level nursing practice. 5. Evaluate the importance of nursing research to nursing practice and the legislative arena. 6. Critically analyze issues that influence nursing education and practice today and in the future.

Recommended Preparation: NURS Major
United States Cultures (US)

NURS 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

NURS 401: Concepts of Health

3 Credits

Exploration of current and ancient concepts of health and their respective modes of intervention.

Recommended Preparation: PSYCH 100 or SOC 001
International Cultures (IL)

NURS 402: Holistic Health

3 Credits

Examination of emerging conceptualizations of health and therapy based on a holistic view of human beings.

Recommended Preparation: NURS 401
International Cultures (IL)
United States Cultures (US)

NURS 403: School Health and Emergency Care of Children and Adolescents

3 Credits

Techniques for higher-level care for school health and emergency situations and application-based education. NURS 403 School Health and Emergency Care of Children and Adolescents (3) This course is a part of the school nurse series and will provide participants with advanced techniques for school health professionals that respond to health and emergency situations. The topics covered will include abdominal, genitourinary, head, musculoskeletal, and sports-related injuries. Students also will review shock, respiratory, neurologic, psychological and behavioral emergencies, and a wide array of issues facing students with special needs. Additionally, the participant will review disaster planning, preparation, and response activities. The course will review major medical and accidental situations facing the school nurse including the inter-agency coordination with emergency response systems and community entities. Students will learn what to include in a report for the communication center and emergency medical services. Skills stations for orthopedic injuries, trauma, and medical situations will allow students to practice skills and receive immediate feedback. Students will participate in application based education that utilizes case studies to pull the concepts together. Students will be asked to provide return demonstration for skills reviewed in this course.

Recommended Preparations: (BIOL 161, BIOL 163)

NURS 404: Cardiac Dysrhythmias: Interpretation, Treatment, and Nursing Management

1 Credits

An introductory course with a focus on dysrhythmia recognition and interpretation of abnormal 12-lead electrocardiograms (EKG, ECG). NURS 404 Cardiac Dysrhythmias: Interpretation, Treatment, and Nursing Management NURS 404 (Cardiac Dysrhythmias: Interpretation, Treatment, and Nursing Management) is an introductory course in dysrhythmia recognition and interpretation of normal and abnormal rhythm strips and 12-lead electrocardiograms. The course involves integration of electrophysiology principles, anatomy, physiology, and arrhythmogenesis in interpretation of dysrhythmias. The diagnosis, medical treatment, and nursing management will be incorporated through case study analysis. Evaluation of course content will be done through exams, in class worksheets, and case study analysis. The class is open to nursing and non-nursing majors desiring introductory understanding of cardiac dysrhythmias. NURS 404 is a good course for nursing majors interested in critical care and non-nursing majors interested in emergency medical services associated with any major (e.g., Kinesiology). The class is offered fall and/or spring semester with enrollment limited (20 students) to allow interactive hands-on interpretation of dysrhythmias.

Recommended Preparations: (BIOL 161, BIOL 163)

NURS 405A: Nursing Care of the Adult Client with Complex Health Problems: Part A

4 Credits

In-depth study of care of patients with acute and complex health problems, utilizing evidence based practice. NURS 405A - Nursing Care of the Adult Client with Complex Health Problems: Part A (4) NURS 405A focuses on nursing care of adult clients with acute and complex health problems related to all major systems of the body. Upon completion

of this course, the student will be able to synthesize knowledge from nursing and contributing discipline to maximize client care outcomes; recognize pathophysiological and pharmacological aspects related to the nursing care of the adult client; demonstrate the ability to communicate effectively including the use of technology with patients, families and the health care team; promote factors that create a culture of safety and caring for the adult client; demonstrate the ability to perform a comprehensive and systematic assessment and take appropriate nursing actions for the client with complex health problems; collaborate with colleagues from nursing and related disciplines using empirical and theoretical resources when defining nursing care priorities and determining nursing actions; utilize assessment data and technology to plan, implement, and evaluate interventions specific to the complex health problems of the adult client; participate in activities that advance the personal and professional developmental and cultural competency in the professional specialty of adult medical-surgical nursing; practice legal, ethical and professional accountability in the delivery of care to the adult medical-surgical client; apply evidence based practice to maximize client outcomes in health promotional and educational activities for the complex health needs of the adult client; demonstrate current and relevant knowledge of the social, health, behavioral and psychological sciences that can be applied to nursing practice for the adult client; demonstrate increasing self direction and confidence in providing nursing care for the adult client with complex health needs; demonstrate the role of professional nurse as a client advocate; demonstrate the ability to assess risk and actively promote the well being, safety, and security (patients and coworkers) in the work environment; demonstrate the ability with guidance to lead and coordinate a team, delegating care appropriately and safely; demonstrate the ability to respond appropriately to the emotional, psychological and spiritual needs of the adult client with complex care needs. Teaching strategies include lecture, discussion, laboratory simulation and clinical experiences. Evaluation methods include examinations, scholarly papers, simulation laboratory experiences, preclinical preparatory written work, and mid-course and final clinical performance evaluations.

Enforced Prerequisite at Enrollment: NURS 305

NURS 405B: Nursing Care of the Adult Client with Complex Health Problems: Part B

4 Credits

In-depth study of care of patients with acute and complex health problems, utilizing evidence based practice. NURS 405B - Nursing Care of the Adult Client with Complex Health Problems: Part B (4) NURS 405B focuses on nursing care of adult clients with acute and complex health problems related to all major systems of the body. The emphasis is on enhancing critical thinking skills necessary for making sound nursing judgments and the demonstration of self-direction in providing nursing care for clients with complex medical surgical problems.

Upon completion of this course, the student will be able to: Synthesize knowledge from nursing and contributing discipline to maximize client care outcomes; Recognize pathophysiological and pharmacological aspects related to the nursing care of the adult client; Demonstrate the ability to communicate effectively including the use of technology with patients, families and the health care team; Promote factors that create a culture of safety and caring for the adult client; Demonstrate the ability to perform a comprehensive and systematic assessment and take appropriate nursing actions for the client with complex health problems; Collaborate with colleagues from nursing and related disciplines using empirical and theoretical resources when defining nursing care priorities and determining nursing actions; Utilize assessment data and technology

to plan, implement, and evaluate interventions specific to the complex health problems of the adult client; Participate in activities that advance the personal and professional specialty of adult medical-surgical nursing; Practice legal, ethical and professional accountability in the delivery of care to the adult medical-surgical client; Apply evidence based practice to maximize client outcomes in health promotional and educational activities for the complex health needs of the adult client; Demonstrate current and relevant knowledge of the social, health, behavioral and psychological sciences that can be applied to nursing practice for the adult client; Demonstrate increasing self direction and confidence in providing nursing care for the adult client with complex health needs; Demonstrate the role of professional nurse as a client advocate; Demonstrate the ability to assess risk and actively promote the well being, safety, and security (patients and coworkers) in the work environment; Demonstrate the ability with guidance to lead and coordinate a team, delegating care appropriately and safely; Demonstrate the ability to respond appropriately to the emotional, psychological and spiritual needs of the adult client with complex care needs. Teaching strategies include lecture, discussion, laboratory simulation and clinical experiences. The course is offered fall semester with approximately 120 students enrolled (60 at UP and 60 at HMC) with clinical sections limited to 10 students per section.

Enforced Prerequisite at Enrollment: NURS 305 and NURS 350

NURS 407: Drugs of Abuse and Mental Health Issues

3 Credits

RECOMMENDED PREPARATION FOR NURS 407 IS BB H 143 OR PSYCH 100. NURS 407 examines the issue of substance abuse in today's society. It looks closely into the health care needs across the lifespan of clients who have an alcohol or other drug disorder in combination with a psychiatric disorder. Pharmacological, behavioral, biological, and sociocultural characteristics, along with factors and patterns of addiction, are discussed and then how these factors and characteristics relate to mental illnesses are further explored. The different classes of habit-forming drugs (alcohol, stimulants, marijuana, hallucinogens, inhalants and prescription drugs) are covered and various treatment options are examined.

Recommended Preparation: BBH 143 or PSYCH 100

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Soc Resp and Ethic Reason

NURS 408: Clinical Application of Pharmacological Concepts

1 Credits

Study of the application of pharmacological concepts to the clinical setting. NURS 408 Clinical Application of Pharmacological Concepts (1) NURS 408 is an elective course designed to provide the interested student an in-depth review of pharmacology. The application of pharmacological concepts in relation to the clinical setting is a primary focus of the course. The various drug classes are discussed with emphasis placed on care of the patient while administering different types of medications. Discussion of pharmacological principles and patient care requires knowledge and integration of anatomy, physiology, pathophysiology, and medical and nursing treatments for various disorders. NURS 408 provides an excellent review of medication classes as related to medical condition in preparation of the nursing student

taking the NCLEX licensure examination upon graduation. The student is evaluated by written examination and/or case study interpretation. NURS 408 is placed in the spring semester and is open to all nursing students who have successfully completed administering medications in the 300 level nursing courses and are concurrently enrolled in the 400 level nursing courses. Enrollment is not limited in numbers. Course objectives are as follows. Upon completion of this course, the student will be able to: a. Categorize commonly used medications by major classifications of drugs. b. Predict classifications of medications given to specific clinical conditions. c. Develop patient teaching plans relevant to medication administration. d. Discuss research related to pharmacology which influences nursing practice.

Recommended Preparation: NURS 305

NURS 409: Introduction to Forensic Nursing

3 Credits

Provides an introduction to the forensic health sciences, forensic nursing, and the nursing role in the scientific investigation of violence. RECOMMENDED PREPARATION FOR NURS 409 IS NURS225, NURS 230, NURS 250. NURS 409 is an elective course and the first of three courses in a forensic nursing certificate. The course is designed to provide an introduction to the forensic health sciences, forensic nursing, and the nursing role in the scientific investigation of violence. The course focus is on the principles and philosophy of forensic nursing in acute care and community settings and the roles of the forensic science professional. The responsibilities of the advanced practice forensic nurse are explored. The course requires that the student have a basic understanding of the professional healthcare role, specifically that of the nurse. The course is appropriate for non-nursing majors interested in forensic health sciences.

Recommended Preparation: NURS 250, NURS 225, and NURS 230

NURS 410: Forensic Evidence Collection and Preservation

3 Credits/Maximum of 3

Examines nurses' role of recognizing patterns of injury. Evidence collection procedures are examined from collection to courtroom presentation, includes autopsy. Forensic Evidence Collection and Preservation examines the forensic nurse's role recognizing injuries/patterns of injury. Evidence collection procedures are examined from collection to courtroom presentation. NURS 410 will guide the student through a prerecorded autopsy, teaching general evidence identification, collection, preservation, and documentation techniques as well as a complete sexual assault kit evaluation. Students will be immersed in a case study allowing them to learn and then demonstrate their understanding of forensic procedures and protocols. Students follow actual forensic protocol used in practice including policies, procedures, and documentation tools. The final course evaluation includes an interactive assessment that draws upon the techniques taught in the course and prepares the student for employment in a forensic role.

Recommended preparation or concurrent: NURS 245 and NURS 409

NURS 411: Seminar in Forensic Nursing

3 Credits

Seminar to discuss current topics, trends and research related to forensic nursing.

Recommended preparation or concurrent: NURS 410

NURS 415: Community and Family Health Nursing

4 Credits

NURS 415 Community and Family Health Nursing - Concepts and Applications (4) (US;IL) NURS 415 US;IL focuses on nursing care of clients in the community and the family. This course allows students to work independently providing and improving health care of population groups within a diverse society. Upon completion of this course, the student will be able to synthesize knowledge from nursing, public health, family, and community theory as a foundation for culturally congruent community health nursing practice; utilize the nursing process and principles of primary, secondary, and tertiary prevention that are culturally appropriate in the care of community based clients who differ in terms of age, developmental stage, health beliefs values and practices; demonstrate interpersonal skills necessary for collaboration with and among culturally diverse consumers, community agencies, health professionals, and health related resources in the community; demonstrate the management and safety of client, family, and community care through appropriate use of concepts of leadership, case management, and group process; demonstrate understanding of epidemiological methods in gathering, analyzing, and utilizing data and be able to apply to diverse populations in the community; use coherent comprehensive, culturally sensitive and age appropriate communication in oral and written form; analyze biostatistical/epidemiological data and nursing evidence-based research findings to improve/enhance the delivery of nursing care to diverse populations in the community; identify recommended health screenings and immunizations and health promotional strategies throughout the life span; analyze the impact of culture as a significant influence on the health perceptions, interpretations, and behaviors of diverse groups; demonstrate the ability to perform comprehensive and risk assessments, to make critical decisions, and to take appropriate nursing actions in the area of community health; demonstrates the ability to practice the principles of health and safety in a caring manner to maximize client care outcomes across the lifespan. Teaching strategies include lecture, audiovisuals, student presentations, discussion, clinical experiences, guest speakers, laboratory simulation and clinical experiences in varied clinical settings where the students are responsible for assessing, planning, implementing, and evaluating the care of families within the context of a community. Students have the opportunity to analyze the impact of culture on health perceptions, interpretations, and behaviors of diverse groups.

Enforced Prerequisite at Enrollment: NURS 305

International Cultures (IL)

United States Cultures (US)

NURS 417: Family and Community Health Concepts

4 Credits

Study of the concepts of family and community based nursing care emphasizing multicultural influences on health practices. NURS 417 Family and Community Health Concepts (4) (US;IL) Upon completion of the course the student will be able to (a) Synthesize knowledge from nursing, public health, family, and community theory as a foundation for culturally congruent community health nursing practice that is sensitive to race, religion, gender, disability and sexual orientation; (b) Utilize the nursing process and principles of primary, secondary and tertiary prevention that are culturally appropriate in the care of community based clients who differ in terms of health beliefs, values, and practices; (c) Develop skill in the use of independent/interdependent nursing actions

to deliver care to clients across the life span; (d) Demonstrate the management of client, family, and community care through appropriate use of concepts of leadership, case management and group process; (e) Describe collaboration at the collegial level with nurses and other members of the health care team to provide continuity of care through culturally appropriate communication, consultation, and referral; (f) Use coherent, comprehensive and culturally sensitive communication in oral and written form; (g) Analyze biostatistical/epidemiological data and nursing research findings to improve/enhance the delivery of nursing care to diverse populations in the community; (h) Analyze the impact of culture as a significant influence on the health perceptions, interpretations, and behaviors of diverse groups. Students will spend 40 hours practicing in a clinical setting. In that setting they will be responsible for assessing, planning, implementing and evaluating the care of families within the context of a community. Students will have the opportunity to analyze the impact of culture on health perceptions, interpretations, and behaviors of diverse groups. Evaluation methods: Students will be evaluated both theoretically and clinically by use of the following: (a) Guided study of complex family and community health patterns using collaboration case analysis; (b) Case findings and analysis; (c) Direct care to culturally diverse families in the community setting. Relationship/linkage of course to other courses: This course applies and integrates family and community nursing concepts to culturally diverse clients in the community. It is offered at the senior level and incorporates previously learned theoretical and clinical nursing knowledge with an appreciation for how diversity influences the health care behaviors of families and communities as they relate to the health care system. Relationship of course to major: This senior level nursing course is one of the components of the Advanced Standing Option. It is a required course that provides students with the opportunity to develop skill in delivery of health services to globally diverse populations across the life span. It is also designed to increase the student's knowledge base related to the community based client including relationships, lifestyle and kinship patterns. Lastly, it provides an arena for community health planning for diverse populations. Special facilities required to teach the course: The clinical arena which will be used to teach this course includes but is not limited to high risk populations in the community, senior or special housing projects, prisons and missions. Frequency of offering an enrollment: The course will be offered every semester and enrollment varies from 10 to 20 students.

Recommended Preparation: NURS major and NURS 390 and NURS 357 International Cultures (IL)
United States Cultures (US)

NURS 420: Mental Health Nursing

4 Credits

Emphasizes clinical application of mental health theory in nursing care of patients with acute and chronic mental health problems. NURS 420 NURS 420 Mental Health Nursing (4) NURS 420 focuses on care of clients experiencing mental health problems and emphasizes the clinical application of mental health theory in nursing care of patients with acute and chronic mental health problems. Upon completion of this course, the student will be able to synthesize knowledge from nursing and the social, health and behavioral sciences to describe the nature of mental adaptations throughout the lifespan; demonstrate effective therapeutic communication skills when dealing with clients, groups and families experiencing maladaptive responses to stress; assess the strengths and weaknesses of the client and family in the context of a group and community environment; demonstrate the ability to perform comprehensive and risk assessments, to make critical decisions, and to

take appropriate nursing actions in the area of psychiatric mental health; utilize the nursing process as related to the Standards of Psychiatric and Mental Health Nursing practice; collaborate with nursing colleagues, mental health professionals and consumers in the practice of psychiatric mental health nursing; analyze individual and societal forces that effect nursing research and evidence based practice in the area of psychiatric mental health nursing; demonstrate the knowledge of self needed to be an effective therapeutic agent and a client advocate; demonstrate culturally competency and the ability to provide holistic psychiatric mental health nursing care; perform the principles of psychiatric mental health and safety in a caring, nonjudgmental manner; demonstrate a current and relevant knowledge base of legal and ethical issues that can be applied to psychiatric mental health nursing; identify and support mental health promotion and mental health educational activities to maximize client care outcomes and evaluate psychiatric mental health nursing as a professional specialty. Teaching Strategies include lecture, process recordings, discussion, selected readings, audiovisuals, laboratory simulation and clinical experiences. NURS 420 is offered fall and spring semesters with an annual enrollment of approximately 120 students (60 at UP and 60 at HMC) with clinical sections limited to 10 students each.

Enforced Prerequisite at Enrollment: NURS 305 and NURS 350

NURS 430: Organization and Administration for the Nurse Manager

3 Credits

Introduction to organizational theory and principles of practice in the administration of nursing services and patient care. NURS 430 Organization and Administration for the Nurse Manager (3) NURS 430 is the first of four courses included in the nursing management series, which focuses on leadership and management in nursing. NURS 430 includes a study of the history of American management and the influences on management styles and approaches. Topics covered in the course includes: Leadership theory, Change theory, Health care organizational structure and functions, Legal and Ethical issues, Nursing Management structure, function, and roles, Power and politics; Communication; and Nursing care delivery systems.

NURS 431: Data Management for Nurse Managers

3 Credits

Analysis of information systems to manage nursing service organizations; includes financial management, the budgeting processes, and productivity measurement. NURS 431 NURS 431 Data Management for Nurse Managers (3) NURS 431 is the second of four courses included in the nursing management series, which focuses on leadership and management in nursing. NURS 431 includes a study of information systems and financial aspects of managing health care organizations and patient care delivery. Topics covered in the course include: Information systems in health care, Electronic medical record, Security and portability of health care information. Topics related to budget and finance include, operating and capital budget management, nurse staffing systems and productivity. Lab activities enable students to develop proficiencies with spreadsheet software. The course is offered in traditional classroom instruction, on-line through ANGEL at selected campus sites and through World Campus. Course evaluation criteria may include examination, case studies, and student projects or presentations as assigned by the faculty. Upon completion of all 4 courses, students receive a certificate of completion of the Nursing Management Series from the school of nursing.

Recommended Preparation or Concurrent: NURS 430

NURS 432: Nursing Management of Human Resources

3 Credits

Human resource management and related factors in nursing service organizations. NURS 432 NURS 432 Nursing Management of Human Resources (3) NURS 432 is the third of four courses included in the nursing management series, which focuses on leadership and management in nursing. NURS 432 includes a study of human resource management with an emphasis on application to nursing and health care organizations. Topics covered in the course include: Employment laws, hiring, termination and managing staff turnover, conflict management, staff development and productivity, organized labor and unions, the impaired nurse, and discussion of nursing standards, ethics, delegation and the nursing shortage. The course is offered in traditional classroom instruction, on-line through ANGEL at selected campus sites and through World Campus. Course evaluation criteria may include examinations, case studies, and student projects or presentations as assigned by the faculty. Upon completion of all 4 courses, students receive a certificate of completion of the Nursing Management Series from the school of nursing.

Recommended Preparations: NURS 430

NURS 433: Seminar for Nurse Managers

3 Credits

Course focuses on the application of management principles in the role of the nurse manager. NURS 433 NURS 433 Seminar for Nurse Managers (3) NURS 433 is the fourth of four courses included in the nursing management series, which focuses on leadership and management in nursing. NURS 433 is designed to allow the student to explore issues that challenges individuals in the nurse manager role. Designed with a seminar approach the student will study the following topics: The future of nursing leadership, mentoring, networking, stress management for the nurse manager and avoiding burnout, managing patient care quality and regulatory compliance, and implementing change. Students also complete a field observational study with a nurse manager or nurse executive in a health care organization. It is recommended that students complete at least one of the previous nursing management (NURS 430, NURS 431, NURS 432) courses prior to enrolling in this course. The course is offered in traditional classroom instruction, on-line through ANGEL at selected campus sites and through World Campus. Course evaluation criteria may include examinations, case studies, and student projects or presentations as assigned by the faculty. Upon completion of all 4 courses, students receive a certificate of completion of the Nursing Management Series from the school of nursing.

Enforced Prerequisite at Enrollment: NURS 430

NURS 440: Trauma/Critical Care Nursing

3 Credits

Focuses on the impact of and the nursing care of persons experiencing acute trauma and/or critical illness. NURS 440 NURS 440 Trauma/Critical Care Nursing (3) NURS 440 is designed as an introductory study of the impact of like-threatening physical problems across the life-span utilizing the nursing process. The course focuses on problems encountered in the hospital critical care setting and is a nursing elective. Upon completion of this course, the student will be able to meet the following objectives: Integrate knowledge from nursing and related

disciplines into case study format for persons with life-threatening illnesses; Explore practice, ethical, legal and interpersonal dimensions within the critical care setting. Identify problems for nursing critical care research. Study the most common illnesses in the critical care setting for the neurological, respiratory, cardiac, renal, gastro-intestinal, trauma and multiple system organ failure systems. Students incorporate academic learning with some case study review to simulate the critical care setting. Success in the course is evaluated by in-class examinations, assigned research readings, and written critiques. NURS 440 is offered in the spring semester only, with an average enrollment of 40 students.

Enforced Prerequisite at Enrollment: NURS 305 or NURS major

NURS 441: Nursing Care of America's Veterans: An Introduction Into the Care of Military Veterans

3 Credits

This course offers information on caring for the unique population of United States military veterans. NURS 441 Nursing Care of America's Veterans: An Introduction Into the Care of Military Veterans (3) This course provides in-depth information on the American Veteran population from a nursing perspective. Nursing education focusing on the needs of this specific culture will result in improved patient care and outcomes for veterans. Health care needs are reviewed from the physical, emotional, social, and cultural aspects of care. The history of the Veterans Health Administration (VHA)/Veterans Administration (VA) system will be discussed as well as the benefits available for eligible veterans. Through addressing current events surrounding the VA quality care issues and access to care, nursing students will gain insight into the health care and health maintenance challenges experienced by many veterans in the United States.

Recommended Preparation: PSYCH 100 or SOC 1 or HDFS 129 or (NURS 230 and NURS 251)

NURS 442: Introduction to Perioperative Nursing

1 Credits

Perioperative nursing is a growing field with significant career opportunities for professional nurses. This course is designed to introduce undergraduate nursing students to the specialty of perioperative nursing through didactic teaching and simulation experiences. Throughout this course, students will experience the roles and responsibilities of the circulating and scrub nurse and the other members of the surgical team while applying the nursing process. Students will integrate knowledge from the sciences along with universal nursing principals to assure safe and effective nursing care in this clinical setting. In addition, students will have opportunities to explore the career opportunities found within the specialty while supporting the development of more specialized knowledge and skills required in the care of the surgical client.

Enforced Prerequisite at Enrollment: NURS 230

NURS 450A: Professional Role Development III: Leadership and Management

2 Credits

Study of leadership roles and various styles of nursing management and their implications for the professional nurse. NURS 450A - Professional Role Development III: Leadership and Management (2) NURS 450A is the senior level professional role development course that focuses on

delegation of care, leadership and management. Upon completion of the course, the student will be able to analyze influences which impact on role development and nursing practice; recognize the significance of professional, ethical, regulatory and legal codes within the context of nursing practice; recognize nursing skills necessary to respond to the client's needs throughout the life span including end of life issues; recognize current and relevant knowledge of leadership and management theory as it relates to the health care environment; recognize current and relevant knowledge of ethical, legal, national and international policies as it relates to the health care environment; demonstrates current knowledge of nursing research and modern technologies to recognize nursing care that is rigorous and evidence based; assess the nursing profession's responsibility for self-regulation and accountability in order to maximize client care outcomes; demonstrates the ability to promote, support, and facilitate the health, well being, and comfort of vulnerable populations as to enhance the quality of service delivery; recognize the principles of leadership, accountability and delegation that promote the well being, safety and security of patients and coworkers; recognize and promote the ability to communicate effectively (including the use of technology) with patients, families, social groups and the health care team; demonstrates increased awareness of the nurse generalist role and the value of life-long learning. Teaching strategies include lecture, audiovisuals, student presentations, discussion, guest speakers, simulation and role-playing. The course is offered each fall semester with approximately 120 students enrolled.

Enforced Prerequisite at Enrollment: NURS 305 and NURS 350

NURS 450B: Professional Role Development III: Clinical Capstone

3 Credits

Senior level clinical capstone course that emphasizes the integration and application of theory and evidence based practice. NURS 450B is the clinical capstone course for the Nursing Program and provides a total of 135 clinical hours. Ninety (90) clinical hours will be spent with a preceptor in a clinical setting, where the student will be responsible for assessing, planning, implementing and evaluating the care of clients and will have the opportunity to employ management and delegation skills in the care of clients. The remaining 45 clinical hours will be obtained from simulation, case studies and other course work such as NCLEX review. All clinical hours focus on preparing the student to transition into the Registered Nurse role. Upon completion of this course, the student will be able to demonstrate the ability to practice in a holistic, culturally competent and caring manner; demonstrate the ability to practice within the context of professional, ethical, regulatory and legal codes of nursing practice; demonstrate the ability to promote, support, and facilitate the health, well-being, and comfort of vulnerable populations so as to enhance the quality of service delivery; demonstrate the ability to perform comprehensive and systematic assessments and take appropriate actions; demonstrate the ability to utilize evidence based practice and modern technologies to assess and respond appropriately to patient needs; utilize nursing skills to provide optimum care and to practice principles of health and safety in a caring, nonjudgmental manner; utilize nursing skills to respond to a person's needs throughout the life span, i.e. life choices, disability, and end of life issues; demonstrate current and relevant knowledge of the social, health, and behavioral sciences that can be applied to nursing practice; demonstrate current and relevant knowledge of ethical, legal, national, and international policies that can be applied to nursing practice; demonstrate current knowledge of nursing research to provide nursing care that is rigorous and evidence based; demonstrate the ability to communicate effectively (including the use of technology) with patients, families, social groups and the

health care team; identify, manages and support health promotion and health educational activities to optimize patient safety and well-being; demonstrate the ability to lead and coordinate a team, delegating care appropriately; demonstrate the ability to assess risk and actively promote the well-being, safety, and security (patients and coworkers) in the work environment; demonstrate increased confidence in the nurse generalist role and in the value of life-long learning.

Enforced Prerequisite at Enrollment: NURS 305 and NURS 350

NURS 452: Women's Health Issues

3 Credits

The course provides the opportunity to explore priority health issues impacting the well being of women through a holistic lens including the physiologic, psychological, social, economic, political and cultural considerations. Issues affecting women in the United States and globally will be discussed. The lifespan from adolescence throughout later adulthood will be included. In depth exploration and critical analysis of key topics related to women's health will be incorporated into the course work and assignments. Students will be challenged to consider the health disparities influencing women and the impact these disparities have on the health of families and communities.

Recommended Preparation: BIOL 141 or PSYCH 100 or WMNST 100

Cross-listed with: BBH 452

United States Cultures (US)

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

NURS 452H: Women's Health Issues

3 Credits

Exploration of major health issues concerning women today, with an emphasis on social, cultural, and medical influences.

Cross-Listed

Honors

NURS 458: Ethical Challenges in Healthcare Informatics

3 Credits

A case based laboratory designed for the exploration and analysis of the ethical dilemmas facing healthcare informatics practitioners. NURS 458 focuses on the challenges associated with managing private healthcare information as health informatics technologies evolve. Students explore and apply principles of ethical decision-making and professional codes of conduct and laws governing information privacy to selected case scenarios and then compare and contrast their reasoning with expert opinions. Students gain an appreciation for the benefits of healthcare technologies and the potential for inadvertent and negligent breaches in information security.

NURS 460: Advanced Concepts in Clinical Nursing Informatics

3 Credits

An exploration of clinical informatics tools to support informatics practice. NURS 460 Advanced Concepts in Clinical Nursing Informatics (3) Advanced Concepts in Clinical Nursing Informatics prepares nurses to support, promote, and assist in the implementation and efficient and

safe use of informatics tools in the fast-paced, technology rich clinical healthcare environment. Students will explore electronic health records, clinical decision support tools, database management and data mining, patient safety technologies, and the clinical workflow implications and meaningful use of each. Students will learn principles of health care organizational culture, change theory, and the System Development Life Cycle (SDLC) to prepare them to assist with project management as informatics tools are introduced in the clinical environment. The use of informatics tools to support knowledge management in an organization is also emphasized. Students will discover the benefits and barriers of Health Information Exchange (HIE) in the promotion of public health. Finally, students will discover the competencies, skills, roles, and standards of informatics nursing practice.

Enforced Prerequisite at Enrollment: NURS 357. Recommended Concurrent: NURS 458

NURS 463: Compassionate Counseling for Children/Adolescents Dealing with Dying, Death, Other Life Crises

3 Credits

Explores issues involving dying, death and life crises which occur in today's world and affect school communities. RECOMMENDED PREPARATION FOR NURS 463 IS PSYCH 100 OR SOC 001 OR HD FS 129. NURS 463 explores the complex issues involving death in today's world as faced by children and adolescents. Content includes: counseling skills for nurses; child and adolescent development in the understanding of dying, death, and other life crises; exploring dying, death, and crises that are present in the lives of children and adolescents in the modern world; discussions of risks of death in the modern world including suicide, accidents, disasters, violence, war, and communicable diseases; description of death rituals and how societies cope with dying and death; identifying effective strategies to assist children and adolescents in coping with dying, death, and other life crises. The societal and school issues that affect not only an individual student but the milieu of the school and other students, parents, teachers, advisers, and administrators are inherent in the content. This course expands knowledge and interventions for those working with children and adolescents in the school setting.

Recommended Preparation: PSYCH 100 or SOC 1 or HDFS 129

NURS 464: Dying and Death

3 Credits

NURS 464 focuses on the exploration of attitudes toward death and dying, concept of grief, responsibilities to the dying person and the family across cultures. The student will explore theories and research related to death and dying, identify one's individual attitudes and beliefs about death, identify effective strategies to assist individuals and families to cope with death. Course topics include thanatology, expressions of attitudes toward death, factors affecting familiarity with death, learning about death, socialization, understanding death through the lifespan, a mature concept of death, death of a companion animal, social and cultural influences, cross-cultural and historical perspectives and inter faith dimensions and religious rituals, including traditional culture, western culture and cultural viewpoints and diversity. The course focuses on an overall understanding of the experience of loss, bereavement, grief and mourning as it relates to different populations and different methods of death including suicide, war, illness and violence.

Recommended Preparation: PSYCH 100 or SOC 1
International Cultures (IL)
United States Cultures (US)
General Education: Health and Wellness (GHW)
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Soc Resp and Ethic Reason

NURS 465: Health Concepts for Adults with Complex Health Care Needs

3 Credits

In-depth study and application of the theoretical principles and roles of adult clients and families with complex healthcare needs. NURS 465 focuses on the application of concepts that relate to the adult high-risk client, family, or significant other in a complex health care setting. Upon completion of this course, the student will be able to: integrate theory and knowledge of nursing and related disciplines as a basis for professional nursing practice with adult high-risk clients; demonstrate interpersonal skills to support and guide clients/families/significant others in the selection of appropriate health patterns; utilize the nursing process to analyze complex adult high-risk situations occurring in acute care, transitional care, and/or community settings; apply critical thinking skills to clinical nursing practice situations involving the high-risk client/families/significant others; collaborate with colleagues in the design, implementation, and evaluation of nursing interventions; demonstrate in the clinical nursing practice setting the role of the professional nurse as case manager, change agent, advocate and researcher with the adult high-risk client/families/ significant others; demonstrate a comprehensive understanding of opportunities for clinical nursing research with the adult high-risk client/families/significant others; and demonstrate nursing practice within the professional legal and ethical guidelines. The RN student selects a clinical nursing practice experience related to complex health care of the adult high-risk client and, based on course objectives, develops clinical practice objectives in collaboration with the course faculty.

Recommended Preparation: NURS major and NURS 390 and NURS 357

NURS 466: Systems and Community Responses

3 Credits

An exploration of the multidisciplinary response to child maltreatment. CMAS 466 / NURS 466 Systems and Community Responses (3) An exploration of the multidisciplinary response to child maltreatment. The roles, responsibilities, and interconnected relationships between the systems that interact when responding to child maltreatment issues will be analyzed. The forensic medical response, challenges, and multidisciplinary team best practices to child maltreatment case are examined. Students will explore responses and best practices within the health care, judicial, child protection, social service, educational, mental health, human service, and community systems. This course provides students with the opportunity to work with a variety of majors and understand more clearly the interdisciplinary nature of child maltreatment prevention, advocacy, and response.

Recommended Preparation: CMAS 258
Cross-listed with: CMAS 466

NURS 468: Client Education Strategies for Nurses and Other Health Care Providers

3 Credits

Explores current and emerging roles of client education in the knowledge era. RECOMMENDED PREPARATION FOR NURS 468 IS PSYCH 100 OR SOC 001 OR HD FS 129. NURS 468 explores current and emerging roles of client (patient) education in the knowledge era. Emphasis is placed on the application of teaching and learning strategies that deliver empowering and engaging health education to promote wellness, prevent health problems, and manage chronic illness. Upon completion of this course, the student will be able to: assess the challenges and issues facing nurses and health care providers enacting the role of client educator in the knowledge era; explore the promotion of client health at all levels of prevention: primary, secondary, tertiary; integrate the client education process for individuals, families, groups, and communities; assess learner motivation, readiness, and situational impacts such as psychosocial factors and cultural beliefs that affect the client education process; implement sound, effective teaching and learning strategies in selected clinical settings with special populations; develop teaching plans using taxonomies of educational objectives; select specific teaching strategies and delivery systems, including technology, appropriate for the developmental stage and needs of the learner; describe methods for evaluation of teaching; identify appropriate communication and documentation of the process and outcomes; and list topics in client education which can be further explored through research. This course may be used as a nursing elective or by nurses or other health care workers to increase knowledge and promote successful health teaching to clients.

Recommended Preparation: PSYCH 100 or SOC 1 or HDFS 129**NURS 472: Relational Aggression in the Healthcare Setting**

3 Credits

An exploration of research and interventions for relational aggression in the healthcare setting. RECOMMENDED PREPARATION FOR NURS 472 IS NURN MAJOR OR NURS 350. NURS 472 focuses on the problem of workplace bullying, also known as relational aggression. The course addresses the problem as it occurs within the healthcare professions, with a primary focus on the nursing profession and the nursing education process. The history, roles, and cultural influences of relational aggression will be explored. Students will also learn about related concepts such as horizontal violence and lateral violence. The psychological and physiological impact on the recipients of relational aggression will be reviewed. The consequences of relational aggression on patient care quality, safety, and the recruitment and retention of staff will be explored. Strategies and interventions designed for use by an individual, the work group, and management will be presented. Factors, such as education, mentoring, and leadership in combating relational aggression, will be emphasized.

Recommended Preparation: NURS major or NURS 350**NURS 475: Integrated Concepts in Nursing Practice**

3 Credits

Project-based capstone course for application of nursing concepts to health promotion/disease prevention in populations. RECOMMENDED CONCURRENT FOR NURS 475 IS NURS 417 OR NURS 465. NURN MAJOR CONTROL. NURS 475 is a project-based capstone clinical course for

the RN student with a focus on the application of nursing concepts and the RN's development of future career goals. The course is designed to provide opportunity for students to synthesize and apply the art and science of nursing to health promotion and disease prevention in culturally diverse populations in varied clinical settings of the global community. Upon completion of this course, the student will be able to synthesize knowledge from nursing and related sciences for application to evidence based nursing practice; interpret legislative and regulatory processes relevant to the capstone project; collaborate with members of the health team to provide continuity of care through appropriate communication, consultation, and referral; communicate effectively using written, verbal, nonverbal and emerging technology methods; apply biostatistical, epidemiological, and research findings to enhance the delivery of evidence based nursing care; provide evidence based nursing care that contributes to safe and high quality patient outcomes within healthcare Microsystems; participate in the development and implementation of theory-based and a population-focused health promotion project; facilitate change in the healthcare microsystems affecting the provision of nursing care to diverse populations throughout the lifespan; demonstrate accountability in the delivery of professional nursing care; and integrate the concept of life-long learning into professional nursing practice.

Recommended Preparation: NURS major and concurrent NURS 417 or NURS 465**NURS 480: NCLEX Prep**

2 Credits

This course is designed to prepare nursing majors who are in their final semester to take the National Council Licensure Exam (NCLEX®) exam. Passing this exam is required to obtain licensure as a registered nurse (RN) in all US states and territories. Major topics include the structure and format of the exam, the NCLEX® test plan, test taking strategies, and review of key nursing concepts from across the curriculum that will be tested on the exam. The course is intended to be interactive and students are given extensive practice answering NCLEX®-style questions. Students are encouraged to identify areas in which they need further study to prepare for the exam. At the end of the course students are expected to develop a personal study plan to guide their preparation for the exam.

Enforced Prerequisite at Enrollment: NURS 405A and enforced concurrent NURS 405B**NURS 492: Emergency Care and Safety**

3 Credits

NURS 492 is a comprehensive emergency care and safety course that incorporates basic first aid skills and knowledge and advanced topics such as oxygen therapy, hazardous materials, farm/rural incidents, disaster planning, incident command, triage, and mass casualty incidents. The course includes discussion of infectious diseases and the standard precautions utilized by rescuers to prevent the transmission of disease. Critical thinking and decision-making skills are enhanced through practical exercises using various scenarios to improve the rescuers response in emergency situations. Students successfully passing the practical skill testing receives cards in First Aid/Emergency Care and CPR for the Healthcare Provider/Professional CPR. NURS 492 is a complimentary course to NURS 203, which is a basic first aid/community CPR general education elective course designed for the non-nursing major who is required to have first aid/CPR certification for their

course of study. NURS 492 provides emergency care at a higher level of training and is an excellent course for nursing students with advanced health care knowledge, community health care providers (i.e., school nurses), and any non-nursing major interested in emergency medical services (i.e., Kinesiology).

Recommended Preparations: BIOL 161 BIOL 163

NURS 494: Honors Thesis

1-6 Credits/Maximum of 6

Independent honors research project related to student's interests directed by faculty supervisor and culminating in production of thesis. NURS 494H is the vehicle by which scholars in the Schreyer Honors College who are conducting honors research with a faculty member in the College of Nursing will register for the senior honors thesis credits. The course facilitates the development of an independent honors research project related to student's interests directed by faculty supervisor and culminating in production of thesis.

Honors

NURS 495: Nursing Study in Specialized Setting

1-12 Credits/Maximum of 12

Designed to provide student with in-depth study and practice in clinical specialty area of choice. COURSE CONTROL. NURS 495 is designed to provide students with in-depth study and practice in clinical specialty area of choice. Students work with a faculty member in the development of course objectives and goals and with a clinical preceptor to accomplish them. Student evaluation is provided by both the faculty and clinical preceptor. All clinical hours focus on increasing the student's self-confidence in transitioning into the Registered Nurse role and in the value of life-long learning that supports high quality care and evidence-based practice.

NURS 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

NURS 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

NURS 498: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

NURS 499: Foreign Study–Nursing

1-9 Credits/Maximum of 9

Study of nursing issues in a foreign country.

International Cultures (IL)

Nutrition (NUTR)

NUTR 100: Nutrition Applications for a Healthy Lifestyle

3 Credits

This course introduces students to nutrition principles necessary to promote a healthy lifestyle through assessment and application. Students will be better prepared to evaluate nutrition-related issues presented in the media and to make informed choices about their diet in order to promote health throughout their lives. Information about nutrients (proteins, carbohydrates, fat, vitamins, water, and minerals) and the physiological processes used to digest, absorb, and utilize them is presented and related to such topics as maintenance of ideal body weight, improvement in physical performance, and the role of nutrients in various disease states such as heart disease, diabetes, cancer, and osteoporosis. Topical issues such as alcohol ingestion, food insecurity, and consumer concerns will be utilized to integrate and critically analyze information presented by various media outlets. This course is intended for non-nutrition major students and will fulfill 3 credits of the GHW requirement of general education. Students who have earned credit for NUTR 251 may not schedule this course.

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

NUTR 119: Elementary Foods

3 Credits

Basic principles and fundamental processes underlying food preparation. For non-nutrition majors only.

NUTR 120H: Food Preparation

3 Credits

Scientific principles of basic food preparation, with an emphasis on the physical and chemical aspects.

Honors

NUTR 123S: First Year Seminar in Nutritional Sciences

1 Credits

The course will meet once weekly to provide first year students with a basic understanding of why nutrition is important and how to improve their own diet and that of their friends and families. The course will explain the 3 options in nutritional sciences, promote discussions and learning about popular diets that may or may not offer health benefits, and explore important discoveries and advances in the nutritional sciences that underpin the current state of knowledge.

Enforced Corequisite at Enrollment: PSU 14 co-required (linked) course First-Year Seminar

NUTR 144: Our Plates: Exploring Food and Healthy Eating Patterns Through Cooking

3 Credits

This class teaches students how to plan and prepare recipes and meals through the lens of the Dietary Guidelines for Americans (DGFA) and the dietary guidelines of other countries and cultures. Students will explore the relationship between diet and health, with an emphasis on the food groups that make up the MyPlate, Mediterranean diet and Vegetarian eating patterns, as well as other established eating patterns in the US and other countries. Current US eating practices will be evaluated and compared with the guidelines to understand how well Americans and students are meeting current recommendations. Students will also attend a cooking lab where they will learn basic cooking skills and apply the concepts covered in the course through recipe analysis, meal plan creation, and hands-on cooking sessions.

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Key Literacies

NUTR 170: Careers in Nutrition

1 Credits

Nutrition professionals describe career paths and opportunities for graduates in applied and science options; strategies for making effective career decisions.

NUTR 175N: Healthy Food for All: Factors that Influence What we Eat in the US

3 Credits

This course explores factors that influence food intake, how individuals make food choices within their communities, and how these choices impact health and wellness. Topics include an overview of what Americans tend to eat, factors that influence food intake (e.g., economics, food environment, advertising/marketing), and the impact of poverty on food security, hunger, and health outcomes including obesity. This course also discusses how nutrition-policy influences food intake and health and food assistance programs. Students will be encouraged to examine their beliefs and understanding of how ethnic status, race, and socio-economic status, etc., affects individuals and their family's access to low-cost, healthy food. Students will enhance their understanding of the nature of social justice and equity by examining whether access to healthy food through federally funded programs is a right or a privilege and how a country capable of feeding the world has hungry citizens. This course includes hands-on interactive learning activities in the foods laboratory that teach food budgeting skills across income levels that provide perspective to eating healthy on a budget.

United States Cultures (US)

General Education: Health and Wellness (GHW)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

NUTR 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

NUTR 211R: Applying Biochemistry to Nutrition

1 Credits

The course provides the student with a beginning understanding of how the biochemistry and metabolism under instruction applies to the human body. This includes the localization of biochemical processes within tissues and organs, the organ specific utilization of macronutrients as fuel sources, organ-specific specialization of macronutrient metabolism, and the anatomical features that accommodate and facilitate these functions. This course is supplemental to BMB 211: Elementary Biochemistry, and helps the student apply the biochemical activities taught in BMB 211 in the context of human physiology and nutrition. The beginning level coverage offered in both BMB 211 and NUTR 211R will prepare students for NUTR 445, Energy and Macronutrient Metabolism.

Enforced Prerequisite at Enrollment: (CHEM 202 or CHEM 202H or CHEM 210 or CHEM 210H) Corequisites: BMB 211

NUTR 251: Introductory Principles of Nutrition

3 Credits

NUTR 251 Introductory Principles of Nutrition (GHW) is a 3-credit course. This course is designed for nutrition majors and non-majors to provide a broad understanding of general principles of nutrition. Concepts covered include the essential nutrients, digestion, absorption, transport, and food sources. Additionally, major health issues related to some nutrients that are of public health concern in the United States are discussed in more detail giving insight into cause, treatment and prevention. Of major importance to students' lives are health and nutrition implications of overweight and obesity, heart disease, diabetes, bone health, and energy balance as affected by diet and physical activity. Lastly, understanding of nutritional needs throughout the life span is introduced, with emphasis on pregnancy, lactation, and infant nutrition. All of these concepts at this introductory level are important for students in the major so that they are prepared for upper division courses.

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

NUTR 251H: Introd Prin Nutrition (honors)

3 Credits

NUTR 251H, Introductory Principles of Nutrition (GHW) is a 3-credit General Education honors course. This course is designed for honors-seeking nutrition majors and non-majors in the pre-health fields to provide a broad understanding of general principles of nutrition. Concepts covered include the essential nutrients, digestion, absorption, transport, and food sources. Additionally, major health issues related to some nutrients that are of public health concern in the United States are discussed in more detail giving insight into cause, treatment and prevention. Of major importance to students' lives are health and nutrition

implications of overweight and obesity, heart disease, diabetes, bone health, and energy balance as affected by diet and physical activity. Lastly, understanding of nutritional needs throughout the life span is introduced, with emphasis on pregnancy, lactation, and infant nutrition. All of these concepts at this introductory level are important for students in the major so that they are prepared for upper division courses. All of these concepts at this introductory level are important for students in the major so that they are prepared for upper division courses and are relevant to preparation for medicine, dentistry, and other allied health fields.

General Education: Health and Wellness (GHW)

Honors

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

NUTR 291N: Drugs and Nutrition: Social and Scientific Interactions

3 Credits

Drugs and Nutrition: Social and Scientific Interactions is a General Education Integrative Studies (N) course intended for all undergraduates looking to learn more about nutrition in the context of drugs. In this survey course, learners will explore relevant terminology and connections between nutrition and drugs, as well as, the historical context and cultural significance of plant medicines, drugs and nutrition. Learners will also acquire requisite knowledge about current perspectives surrounding plant medicines, harm reduction and health equity. Common themes across drug-nutrition interactions including historical context, cultural significance, nutritional impacts and concerns, harm reduction and health equity as well as considerations for special populations will be covered.

General Education: Natural Sciences (GN)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

NUTR 294: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

NUTR 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

NUTR 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

NUTR 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

NUTR 320: Science and Methods of Food Preparation

4 Credits

The purpose of this course is to teach students the science of food preparation, to develop culinary skills, to learn how to preserve the nutritional content of plant and animal foods, and how to apply food safety principles during food preparation. Additionally, for each food preparation method, students will learn the underlying chemical and physical principles responsible for the recipe outcome and apply these principles in the cooking lab. Students will gain an understanding of production methods used by food manufacturers and the source of food additives used to make processed foods. Students will apply scientific principles of food preparation by modifying recipes to improve the nutritional quality of prepared foods while maintaining product quality. During the lab sessions, students will learn basic culinary techniques and apply these techniques by reading recipes, preparing foods, and using sensory evaluation to analyze the prepared foods.

Enforced Prerequisites at Enrollment: (NUTR 251 and CHEM 202) or (NUTR 251 and CHEM 210)

NUTR 358: Assessment of Nutritional Status

3 Credits

NUTR 358 is an introduction to the purpose, methods, and scientific basis for assessment of nutritional status in total health care for individuals and groups. Students will learn the role of nutritional assessment within the Nutrition Care Process model. Information is presented regarding current standards of food and nutrient intake adequacies and the use of these reference standards in nutritional assessment. Laboratory and case study assignments are included in the course to apply nutrition assessment principles and understand the role of anthropometric, biochemical, clinical, and dietary intake measurements as part of the nutritional assessment. Students will learn to measure, calculate, and interpret personal anthropometric and dietary intake variables. The course will teach students to collect and interpret personal nutritional assessment data and assess nutritional status.

Enforced Prerequisite at Enrollment: NUTR 251

NUTR 360: Nutrition Education and Behavior Change Theory

3 Credits

This course covers a range of topics related to providing evidence-based nutrition information to individuals as well as population-level health. It is designed to be an introductory course in nutrition education and theory within the Nutritional Sciences major. Students will explore the tenets of communication, education, and behavioral theories and models pertinent to the development and dissemination of nutrition information. Exploration of the fundamentals of food behavior, basic communication strategies essential to the nutrition counseling relationship, group facilitation, and working with diverse population groups will be examined through didactic lecture, individual practice, and project-based learning. Using current technologies to locate and understand evidence-based research, guidelines and protocols will be emphasized. Students will

apply information discussed to the development of culturally sensitive nutrition education materials that are appropriate for the target population that is being addressed.

Enforced Prerequisite at Enrollment: NUTR 251

NUTR 361: Community and Public Health Nutrition

3 Credits

This course covers a range of topics around nutritional issues related to population-level health. Community or public health work appeals to many graduates of Nutritional Sciences because it allows them to directly affect the nutritional status of large groups of people. Many nutritionists are drawn to community and public health work because it allows them to practice a variety of skills, such as assessing the nutritional needs, planning interventions, designing educational programs, and conducting program evaluation. In this course, students learn the theory behind community assessment, policy development, intervention planning, and program management and will have an opportunity to practice the skills necessary to carry out these activities through in-class activities and assignments. By the end of this course, students will have a deeper understanding of which population groups in the US benefit from federal food and nutrition assistance programs; what these programs are; what laws and policies regulate them; and how they operate.

Enforced Prerequisite at Enrollment: NUTR 251 Concurrent Courses:
NUTR 360
United States Cultures (US)

NUTR 372: Nutrient Metabolism

3 Credits

NUTR 372 provides a foundation in principles involved in human nutrient metabolism. Particular focus will be placed on macronutrients (protein, carbohydrates, and fats) and relevant micronutrients (e.g., water- and fat-soluble vitamins, and minerals). Language around nutritional biochemistry and physiology: digestion, absorption, distribution, metabolism and excretion will be covered for all relevant nutrients. This course will prepare students for advanced courses in nutritional sciences.

Enforced Prerequisite at Enrollment: NUTR 251 and (CHEM 110 or CHEM 130)

NUTR 386: Managing Quality in Food and Nutrition Services

3 Credits

NUTR 386 Managing Quality in Food and Nutrition Services (3) This course is designed to foster the integration of management principles in the profession of nutrition and dietetics. Topics include strategic application of principles of management and systems in the provision of food and nutrition services to individuals and organizations, quality management, health care systems, leadership theory, corporate culture and communication, fiscal management in food and nutrition services, employee staffing, counseling and retention, and marketing. A business plan is also developed incorporating key operating indicators for organizational structure, marketing and financial objectives.

Enforced Concurrent at Enrollment: HM 230

NUTR 390: Nutritional Biochemistry and Physiology

4 Credits

NUTR 390 is an upper-level undergraduate course that provides a solid foundation in principles of biochemistry, anatomy, physiology in the context of nutrition. Particular focus will be placed on macronutrients (protein, carbohydrate and fats), in conjunction with relevant micronutrients. Gene regulation related to nutrition will be covered. Concepts from pharmacology and toxicology are introduced as a way to build language around nutritional biochemistry. Absorption, distribution, metabolism and excretion will be covered for all relevant nutrients. NUTR 390 does not meet degree requirements for the Nutritional Sciences major or minor.

Enforced Prerequisite at Enrollment: CHEM 202 and NUTR 251

NUTR 391: Professional Preparation in Nutrition and Dietetics

2 Credits

This course provides students with an introduction to current issues in public health, the healthcare industry, professional practice and consumer trends that impact nutrition and health careers. Students will participate in activities during class to explore current topics in public health and issues related to improving access, quality of care and affordability in health care. Ethics scenarios will be presented and discussed that are relevant to nutrition and other healthcare practitioners. This course also prepares students to develop a set of professional skills necessary to initiate a career in the field of dietetics and their required field experience. This course is designed to help students increase self-awareness, become cognizant of strengths and weaknesses, and develop more effective communication skills. Students will use these skills to obtain and successfully complete an advanced field experience in nutrition (NUTR 495).

Enforced Prerequisite at Enrollment: NUTR 360 Concurrent at Enrollment:
NUTR 361 and NUTR 358

NUTR 393: Dietetic Internship Application Development

1 Credits

This course is designed to assist students with the critical thinking skills required to prepare and implement post-graduate educational plans required to progress in the field of nutrition and dietetics. Students wishing to become a Registered Dietitian Nutritionist (RDN) must apply to and be selected for a post-baccalaureate professional supervised learning experience, also known as a dietetic internship, following graduation. The process is competitive, complex and requires self-awareness of professional strengths and weaknesses as well as knowledge of the individual characteristics and objectives of specific dietetic internships. This course will introduce students to this process and help them with the skills needed to clarify their goals and complete the materials needed for a dietetic internship application.

Enforced Prerequisite at Enrollment: NUTR 391

NUTR 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

NUTR 400: Introduction to Nutrition Counseling

2 Credits

This course introduces students to the principles and issues present in the nutrition counseling relationship. Topics will include techniques designed to promote and support nutrition behavior change such as motivational interviewing, cognitive behavior change, working with resistance, transference, countertransference, how to conduct a nutrition counseling session, ADIME charting, coding, and billing issues. Students will learn how to give advice effectively, improve their listening and self-reflection skills as they progress through the course. Challenging situations such as eating disorders, dual diagnosis, and obesity will be explored through role-playing and simulation. The dietitian's role within the healthcare team, skill development through practical application and an introduction to Interprofessional interactions will be emphasized.

Enforced Prerequisite at Enrollment: NUTR 358 Concurrent Courses: NUTR 446

NUTR 407: Nutrition for Exercise and Sports

3 Credits

Interactions between nutrition, food selection, and timing of eating as they apply to exercise training and recreational physical activity.

Enforced Prerequisite at Enrollment: NUTR 251

NUTR 409: Addressing and intervening on social determinants of nutrition inequity

3 Credits

This course will ask students to look above and beyond the individual level for societal factors influencing population- and individual-level nutritional status. It will discuss people's nutrition behaviors, dietary choices, and nutritional status in the context of the larger social environments wherein they live and work every day. Approaches that consider policy, systems, and environmental change for improving nutrition will be introduced using both domestic and international case studies. Students will be asked to understand, apply, and make connections among the social gradients that characterize health and nutrition in both clinical and public health programs or interventions. Students will be taught how to develop tailored nutrition programs or interventions using social and behavioral information underlying a nutrition situation, as well as evidence-based characteristics of effective campaigns.

Enforced Prerequisite at Enrollment: NUTR 251 and (NUTR 360 or BBH 316 or HDFS/SOC 210)

NUTR 410: Eating and Weight Disorders

3 Credits

Eating behaviors vary widely across individuals, but only the extremes of these behaviors are considered pathological. This course provides an opportunity for students to attain a theoretical overview of eating and weight-related disorders, including anorexia nervosa, binge eating disorder, bulimia nervosa, obesity, and dieting. The course will discuss theories and current literature on the causes, diagnosis, symptoms, and treatment of eating and weight-related disorders. In addition, the course will also provide an overview of the differences in the prevalence, manifestations, and treatment of disordered eating in special populations, including men, children, athletes, and minorities. For each

topic discussed, students will have related readings to provide insight on the history, theory, research and challenges related to this topic. At the end of this course, students will have an understanding of the history, definition, causes and controversies in eating and weight disorders. In addition, students will be able to define the various eating disorders and critically discuss research regarding their causes, consequences, treatment, and prevention.

Enforced Prerequisite at Enrollment: 5th semester standing NUTR 358

NUTR 421: Biocultural Perspectives on Public Health Nutrition

3 Credits

NUTR 421 (3) (1L) takes a public health perspective whereby the biocultural influences on health and nutrition are examined across global contexts. It will challenge students to consider the extent to which social and cultural factors contribute to food behaviors and nutritional status, particularly among vulnerable populations in low- and middle-income settings. The application of the social sciences, including key principles from nutritional anthropology, are a critical yet often overlooked aspect of public health nutrition interventions; this course will ask students to critique both over- and under-nutrition interventions through both biomedical and ethnomedical lenses. Students will describe key considerations for culturally-appropriate nutrition intervention development, implementation, and evaluation within the public health sphere.

Enforced Prerequisite at Enrollment: NUTR 251 International Cultures (1L)

NUTR 425: Global Nutrition Problems: Health, Science, and Ethics

3 Credits

This course is a survey of topics with a focus on an examination of the underlying reasons for malnutrition in developing countries and the nutrition-related health problems facing developing country populations, particularly women and children. The topics will range from climate change, clean water supply, and health, to micronutrient deficiencies during pregnancy and child development. Identification of ethical issues and the underlying values/principles of situations relevant to the lives of poor people in developing countries will be discussed, including the right to food in the context of humanitarian aid. Discussion of interventions and current solutions involving multi-country cooperation and agencies meant to alleviate these problems will be explored.

Enforced Prerequisite at Enrollment: NUTR 175Z or NUTR 175 International Cultures (1L)

NUTR 445: Energy and Macronutrient Metabolism

3 Credits

This course is designed to provide a foundation in the chemistry and metabolism of the macronutrients. Building on a knowledge base in biochemistry, physiology, and nutrition, this course will focus on the metabolism of proteins, carbohydrates, and lipids, and the integration of these metabolic pathways. The course provides the student with a sufficient application of biochemical processes, cellular molecules and their metabolism to serve as a basis for an advanced study of nutrition.

Enforced Prerequisite at Enrollment: BMB 211 and NUTR 251 and NUTR 211R and BIOL 161 and BIOL 162 and BIOL 163 and BIOL 164

NUTR 445H: Nutrient Metabolism I

3 Credits

Nutrients, their sources, metabolism, interrelationships and requirements with focus on carbohydrates, lipids, and proteins.

Honors

NUTR 446: Micronutrient Metabolism

3 Credits

Nutrition 446 is designed to provide a foundation in integrated metabolism, metabolic functions, biochemistry, as well as cellular and molecular biology of the micronutrients (vitamins and minerals). It is an advanced nutrition course that will build upon your basic knowledge in physiology, biology, chemistry and nutrition. Students need to have a solid understanding of macronutrient metabolism (NUTR 445) in order to fully understand the micronutrient metabolism material presented in this course.

Enforced Prerequisite at Enrollment: NUTR 445**NUTR 451: Nutrition throughout the Life Cycle**

3 Credits

This course will take a lifecycle approach to the study of nutritional needs, status, conditions, and interventions. The same nutrients are needed from birth to older age, but the requirements change along with a plethora of other factors including food preferences, chewing ability, digestion, absorption, metabolism, growth, behaviors, and barriers to healthy eating. The course will be divided into nine life stages and will cover what is nutritionally important at each stage. The student will also learn how nutritional status at one stage can impact health in later stages. By the end of this course, the student will have in-depth knowledge of nutritional needs and issues at each stage of life.

Enforced Prerequisite at Enrollment: NUTR 358 Concurrent Courses: NUTR 446**NUTR 452: Nutritional Aspects of Disease**

3 Credits

This course will review the underlying nutritional components and pathophysiology of common human diseases/disorders. The focus is on the metabolic disturbances and nutritional interventions for the prevention of these diseases. Topics include nutritional aspects of obesity, diabetes, cardiovascular disease, GI and renal diseases, immunity and viral diseases, and cancer. The overall goal of this course is to expose students to the integrated nature of the disease process with a focus on nutritionally based or related diseases.

Enforced Prerequisite at Enrollment: NUTR 445 PreRequisite or Concurrent Courses: NUTR 446**NUTR 453: Medical Nutrition Therapy**

3 Credits

This Medical Nutrition Therapy course provides students with a strong understanding of how to best prescribe diets for patients, depending on the specific disease profile of the individual. This understanding comes from integrating knowledge of disease pathophysiology with nutrient roles and requirements. This knowledge of disease process informs

dietary recommendations. In each case, students use the Nutrition Care Process to assess individual patient needs to determine best practice. Strong assessment skills will allow students to prioritize treatment for best outcomes at an individual level. This course covers prescribed medical nutrition therapy for major disease states encountered in clinical practice. Background pathophysiology lays the foundation for interpreting research and prescribing best practice diets for diseases including obesity, diabetes mellitus, cardiovascular disease, renal failure, and liver disease among others. Additionally, planning and usage of enteral and parenteral nutrition is covered. In each unit, students use their understanding of disease states to provide nutrition recommendations in case study examples. Prescriptive diets must reflect physiological states as well as individual patient preferences.

Enforced Concurrent at Enrollment: NUTR 452**NUTR 460: Nutritional Neuroscience**

3 Credits

This course explores how food affects behavior and the brain, and vice versa: how neural circuits and gut hormones control eating and other behaviors. Throughout the course we will dissect the proverb “You are what you eat,” and examine the effect of diet and body weight on behavior and cognition. Links between pathology and dysfunction in the gut and neurological and psychiatric diseases, including addiction, autism or Alzheimer’s will also be explored. This course will cover current nutritional neuroscience findings from both animal models and human studies. We will also emphasize critical evaluation of nutritional neuroscience topics.

Enforced Prerequisite at Enrollment: (NUTR 251 or BIOL 161) and (BIOL 163 or BIOL 141 or PSYCH 260 or PSYCH 260A) Recommended Preparation: At least 4 semesters of nutrition or physiology or neuroscience or psychology courses.**NUTR 487: Advanced Performance Nutrition**

3 Credits

This course will provide a review of metabolism as it relates to performance nutrition, and go greater in-depth on substrate utilization including supplements, hormones, and hydration during performance, recovery, and rest. Students will learn about the nutritional considerations for special populations (e.g., those with eating disorders, celiac disease/ other autoimmune diseases, tactical groups, specific sports, etc). Students will be asked to apply the Nutrition Care Process to these populations. Students will have the opportunity to also apply nutrition timing, periodization, and menu planning for specific performance needs as they apply performance nutrition to specific populations. Students in this course may help provide meals, snacks, and/or taste tests to student athletes.

Enforced Prerequisite at Enrollment: NUTR 407**NUTR 490W: Nutrition Seminar**

3 Credits

It is essential for nutrition professionals to keep up with the latest discoveries in the field. In this course, students will learn how to review published literature, integrate and evaluate the information, and disseminate their findings to others both verbally and in writing. A major focus of the course is the preparation of the paper in which students will critically evaluate original research papers and other evidenced-based

documents, summarize the findings, and provide conclusions based on a careful analysis of the cited literature. From these exercises, students will acquire skills in interpreting research results and communicate their findings of a nutrition-related topic in a professional manner in both written and oral formats. The overall goal of this class is to empower students to sort fact from fiction in nutrition information and to be able to communicate their findings effectively.

Enforced Concurrent at Enrollment: NUTR 452 Recommended
Preparations: ENGL 202A or ENGL 202C
Writing Across the Curriculum

NUTR 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

NUTR 494H: Honors Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research identified on an individual or small-group basis.

Honors

NUTR 495: Advanced Field Experience in Nutrition

3 Credits

NUTR 495 is intended for students to earn academic credit through a supervised field experience in a dietetics or nutrition-related field. Students will complete 240 hours at a site agreed upon between the student, the field experience preceptor, and NUTR faculty member as a result of the Field Experience Proposal developed in NUTR 391. The primary focus of the field experience is both observational and participatory experiential learning accompanied by onsite supervision, as well as University-based instruction.

Enforced Prerequisite at Enrollment: NUTR 391

NUTR 495B: Advanced Field Experience in Nutrition

3 Credits

NUTR 495B: Advanced Field Experience in Nutrition is intended for students to earn academic credit through a supervised field experience in a dietetics or nutrition-related field. Students will complete 120 to 160 supervised practice hours at a site agreed upon between the student, the field experience preceptor, and Nutritional Sciences faculty member. The primary focus of the field experience is both observational and participatory experiential learning accompanied by onsite supervision, as well as University-based instruction.

NUTR 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

NUTR 496H: Independent Studies

3 Credits

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Honors

NUTR 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

NUTR 498: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

NUTR 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Occupational Science (OS)

OS 410: Foundations of Occupational Science and Therapy

4 Credits

Foundations of occupational science including the human drive to remain occupied, creation of identity through meaningful activity and enhancing health through occupation will be explored. Understanding engagement in daily occupations from the lens of occupational science dovetailed with practice will be the focus of the course.

Prerequisite: 6 credits in any psychology course and 3 credits in any sociology or anthropology course.

OS 420: Occupational Constructs: Habits, Routines, Roles & Rituals

3 Credits

Habits, routines, roles, and rituals are occupational constructs for occupational science and occupational therapy practice. These will be examined as catalysts or deterrents in daily living for people, communities, and society. Occupational constructs will be explored across time, place, and cultures. Exploration and practical application of how occupational constructs inform transformation of habits, routines, roles, and rituals as related to identity, health, and well-being across the lifespan will be addressed.

Prerequisite: 6 credits in any psychology course and 3 credits in either sociology or anthropology

OS 430: Perspectives of Culture, Equity & Spirituality

3 Credits

Exploration of ways individuals and groups create, manage, and shift identities through their choice of and participation in occupations within

society. This course specifically considers identity through occupations by examining through the lens of equity, inclusion, and discourse, while considering the intersection of notions and constructs of cultural values and beliefs in constructing the self.

Prerequisite: 6 credits of psychology courses and 3 credits of sociology or anthropology

OS 440: Human Behavior: Creativity and Flow

3 Credits

This course delves into the complex nature of occupation and how it contributes to the experience of being human. Drawing on a wide range of material, from scientific research to literary analysis, students will study three major themes: factors that impact occupation, understanding the influence of creativity and flow on behavior and occupations, and the function of occupations on well-being. This course enables self-discovery as well as expanding knowledge about the power and importance of creativity on occupations.

Prerequisite: 6 credits of psychology and 3 credits of either sociology or anthropology

OS 450: Applied Occupational Science Capstone

5 Credits

The capstone Occupational Science course will offer the student time to enhance skills in advanced scholarship, leadership, advocacy, program and policy development, education, or theory development in occupational science and occupational therapy practice. Topic and design will be driven by student with guidance from capstone advisor.

Prerequisite: 9 credits in psychology courses and 3 credits of either sociology or anthropology courses.

Occupational Therapy (OT)

OT 97: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

OT 100: Structural Foundations of Occupational Therapy

1 Credits

An overview of the structural foundations of the occupational therapy profession.

First-Year Seminar

OT 101: Conceptual Foundations of Occupational Therapy Practice

2 Credits

An overview of the conceptual foundations of occupational therapy practice. Observation of therapists in treatment settings. O T 101 Conceptual Foundations of Occupational Therapy Practice (3) The focus of the course is to provide students with the conceptual foundations of occupational therapy. These foundations form the basis for subsequent occupational therapy courses and are expanded upon in those courses. Topics will include: clinical reasoning, diversity issues, ethics and conflict management, occupation, models of O T, the Practice Framework,

principles of management, and occupational therapy literature.

Upon successful completion of OT 101 the student will be able to:

1. Describe occupation from the perspective of an occupational therapy practitioner. 2. Identify the critical differences between the models of OT theory: cognitive, biomechanical, Person Environment Occupation, and sensory integration. 3. Identify cultural, contextual, and diversity issues which impact the practice of occupational therapy in a variety of practice settings and describe their impact. 4. Identify and define types of clinical reasoning utilized in occupational therapy. 5. Identify professional literature appropriate to the practice of occupational therapy; read and summarize selected articles. 6. Demonstrate knowledge of liability issues related to OT and the AOTA Code of Ethics and apply the code to given situations which present ethical dilemmas. 7. Identify issues common to the management of occupational therapy departments and the role of the OTA in these issues.

Enforced Prerequisite or Concurrent at Enrollment: OT 100S

OT 103: Occupational Performance Across the Life Span

3 Credits

Analysis of occupations from birth to death including descriptions of occupational performance and factors which influence performance. O T 103 Occupational Performance Across the Life Span (3) The focus of this course is an in-depth understanding of occupations across the life span. Students engage in an analysis of occupations including: activities of daily living, instrumental activities of daily living, education, work, play, leisure, and social participation. Specific descriptors are used to discuss occupational performance from the perspective of the Occupational Therapy Practice Framework. Areas which influence performance skills and patterns are studied and applied. Topics include: areas of occupations engaged in by individuals from birth to death; performance skills and patterns, context, activity demands, and client factors which impact occupational performance, definitions of grading, adapting, and analyzing occupational performance to support meaningful and socially relevant participation in day-to-day occupations. This course is required in the accredited 20T major and provides the foundation for understanding and applying the concepts related to occupations within the occupational therapy assistant intervention courses which follow. Evaluation methods include: written examination, and graded written/oral assignments. Enrollment is limited to students admitted to the 20T major.

Enforced Prerequisite at Enrollment: OT 100S and OT 101 United States Cultures (US)

OT 195E: Fieldwork Level I Experience in Occupational Therapy

1 Credits

This is the first fieldwork level I experience. It involves observation and engagement with individuals and/or groups to develop a better understanding of occupational performance, challenges and occupation-based interventions. The purpose is to process the information learned in didactic coursework as related practice. An emphasis is placed on peer collaboration, professionalism and interactions with clients, on-site providers, and/or family members.

OT 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

OT 205: Group Process Across The Lifespan

3 Credits

The course addresses concepts & theories related to group processes and dynamics within the OT therapeutic context. Topics addressed in the course, include but are not limited to: types of groups, group roles, leadership styles, theory of group development & implementation, group norms, and the selection of appropriate activities based on age and occupational performance areas or components, safety, management of the environment, and time management.

Enforced Prerequisite at Enrollment: OT 103 and BIOL 161 and BIOL 162 and BIOL 163 and BIOL 164 and Concurrent Courses: OT 207 and OT 209

OT 207: Assistive Technologies and Methods of Adaptation

3 Credits

Addresses a variety of assistive technology and assistive devices people use to assist them in completing daily and life occupations. Students engage several assistive technologies and learn to identify, create, and practice implementation of adaptations for clients that optimize occupational performance. Students will be expected to identify, describe, explain, and demonstrate knowledge and skills related to assistive technology and methods of adaptation along with client and caregiver safety.

Enforced Prerequisite at Enrollment: OT 103 and BIOL 161 and BIOL 162 and BIOL 163 and BIOL 164 and Concurrent Courses: OT 205 and OT 209

OT 209: Management, Leadership and Ethics in Occupational Therapy

3 Credits

Focus on management, leadership and ethics in occupational therapy practice will be addressed. Importance of intraprofessional and interprofessional collaboration, as well as, reimbursement and policies related to the delivery of services will be emphasized. A keen understanding of the occupational therapy practitioner-client relationship driven by therapeutic use of self will be applied to all aspects the teaching-learning process. Interprofessional and intraprofessional collaborative practice will be addressed, as well as, the essentials of advocacy and professionalism.

Enforced Prerequisite at Enrollment: OT 103 and BIOL 161 and BIOL 162 and BIOL 163 and BIOL 164 and Concurrent Courses: OT 205 and OT 207

OT 210W: Clinical Reasoning and Documentation in Occupational Therapy

3 Credits

This courses entails a broad scope experience in clinical reasoning strategies, proficient writing and documentation skills required by the occupational therapy assistant across a wide variety of practice settings. The objective of this course is to provide intensive & rigorous teaching-learning opportunities for students to utilize verbal and written clinical reasoning to facilitate occupation-based assessments, interventions and discharge planning. Additionally, student will be able to demonstrate knowledge of the use of technology in practice for electronic documentation, virtual environments, and telehealth platforms.

Enforced Prerequisite at Enrollment: OT 205 and OT 207 and OT 209 and OT 195E Concurrent Courses: OT 212 and OT 214 and OT 216 and OT 295E

Writing Across the Curriculum

OT 212: Occupational Therapy for Child & Adolescent Health

4 Credits

Students will utilize clinical reasoning to facilitate occupation-based interventions that address client factors as related to conditions associated or the prevention of such with children and adolescents. Focused interventions will include areas of Course Justification occupation, performance skills, performance patterns, contexts and environments. Students learn about and gain skills related to occupational therapy evaluation, intervention, and documentation related to conditions associated with children & adolescents.

Enforced Prerequisite at Enrollment: OT 205 and OT 207 and OT 209 and OT 195E Concurrent Courses: OT 210W and OT 214 and OT 216 and OT 295E

OT 214: Occupational Therapy for Psychosocial and Behavioral Health

4 Credits

Students will utilize clinical reasoning to facilitate occupation-based interventions that address client factors as related to psychosocial and behavioral health. Focused interventions will include areas of occupation, performance skills, performance patterns, contexts and environments. In-depth work will be engaged, as related to psychosocial and behavioral health interventions and programming in various clinical and community settings with individuals and groups. Overall, students will learn about and gain skills related to occupational therapy evaluation, intervention, doc

Enforced Prerequisite at Enrollment: OT 205 and OT 207 and OT 209 and OT 195E Concurrent Courses: OT 210W and OT 212 and OT 216 and OT 295E

OT 216: Occupational Therapy for Physical Health and Rehabilitation

4 Credits

Students will utilize clinical reasoning to facilitate occupation-based interventions that address client factors as related to physical health and rehabilitation. Focused interventions will include areas of occupation, performance skills, performance patterns, contexts and environments. Students learn about and gain skills related to occupational therapy evaluation, intervention, and documentation related to physical health and rehabilitation. Students will be expected to identify, describe, explain, and demonstrate knowledge and skills related to physical health and rehabilitation along with client and caregiver safety.

Enforced Prerequisite at Enrollment: OT 205 and OT 207 and OT 209 and OT 195E Concurrent Courses: OT 210W and OT 212 and OT 214 and OT 295E

OT 295: **SPECIAL TOPICS**

1-12 Credits/Maximum of 6

OT 295B: Field Experience in Occupational Therapy II

1-6 Credits

Part II of supervised experience in select occupational therapy settings in the role of an occupational therapy assistant; seminars included.

Enforced Prerequisite at Enrollment: successful completion of all didactic course work and successful completion of OT 295A

OT 295E: Fieldwork Level I Experience in Occupational Therapy

2 Credits

This is the second fieldwork level I experience taken alongside of coursework during the 4th semester. It involves observation and engagement with individuals and/or groups to develop a better understanding of occupational performance, challenges and occupation-based interventions. The purpose is to apply knowledge and skills learned in didactic coursework to practice. An emphasis is placed on peer collaboration, professionalism and interactions with clients, on-site providers, and/or family members.

Enforced Prerequisite at Enrollment: OT 195E Concurrent Courses: OT 210W and OT 212 and OT 214 and OT 216

OT 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

OT 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

OT 395A: Fieldwork Level II Experience in Occupational Therapy

1-6 Credits

This is the first 8-week supervised fieldwork experience in a community or clinical based setting. Level II fieldwork may be completed in acute care facilities, rehabilitation facilities, out-patient centers, behavioral/mental health facilities, school systems, home health agencies, outpatient centers, or skilled nursing facilities. Level II fieldwork includes hands-on experience with individuals and/or groups. Knowledge of the occupational therapy processes, professional conduct, and effective communication between supervisor and student is essential to accomplish fieldwork goals and objectives. The goal of Level II Fieldwork is to develop competent, entry-level, generalist occupational therapy assistants.

OT 395B: Fieldwork Level II Experience in Occupational Therapy

1-6 Credits

This is the second 8-week supervised fieldwork experience in a community or clinical based setting. Level II fieldwork may be completed in acute care facilities, rehabilitation facilities, out-patient centers, behavioral/mental health facilities, school systems, home health agencies, outpatient centers, or skilled nursing facilities. Level II fieldwork includes hands-on experience with individuals and/or groups. Knowledge of the occupational therapy processes, professional conduct, and effective communication between supervisor and student is essential to accomplish fieldwork goals and objectives. The goal of Level II Fieldwork is to develop competent, entry-level, generalist occupational therapy assistants.

Enforced Prerequisite at Enrollment: OT 395A

OT 495: **SPECIAL TOPICS**

1-6 Credits/Maximum of 6

OT 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

OT 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Organizational Leadership (OLEAD)

OLEAD 100: Introduction to Leadership

3 Credits

The ability to lead others is increasingly valued in today's world of work, and this course introduces key leadership concepts and practices based on current theory and research from both a social science and humanities perspective to prepare students for either the Bachelor of Science or the Bachelor of Arts as well as serve as a general education social science requirement. Whether or not a person is in a formal position of leadership, Introduction to Leadership will help students to discover the knowledge and skills necessary for effective leadership. The course will view leadership from an interactional framework that analyzes leadership from the perspective of the leader, the followers, and the situation. In particular, the unit on the leader will introduce traits, behaviors, gender, leadership development, personal strengths, developing leadership skills, creating a vision, addressing ethics, power, influence, and character. The unit on the leader-follower dynamic will introduce the concepts of followership, motivation, job performance, job satisfaction, engagement, embracing diversity and inclusion, listening to out-group members, managing conflict, overcoming obstacles, as well as leading group and teams. The final unit will focus the impact of the situation on leadership and will introduce students to organizational culture and climate, contingency theories of leadership, change, innovation, and will revisit the interactional framework in total to have students reflect on what they have learned.

Bachelor of Arts: Humanities

Bachelor of Arts: Social and Behavioral Sciences

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

OLEAD 201: Organizational Theory and Functions for Leaders

3 Credits

Organizational theory and functions will explore the various functions of organizations in order to prepare students for future coursework. In particular the nature of organizations themselves will be examined along with various functions such as leadership, financial, communications, technology, production, sales, etc. Students will then use organizational

theory to see how the various functions interconnect and support the overall goals of the organization.

General Education: Social and Behavioral Scien (GS)
GenEd Learning Objective: Creative Thinking
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Key Literacies

OLEAD 210: Evidence-Based Leadership

3 Credits

In evidenced-based leadership, students will learn how to use strong information and facts to increase the likelihood of success of leadership in organizations. In particular, this course starts by examining different kinds of evidence and analyzing their quality and usefulness. From there students will learn how to use that evidence to improve their leadership. Also covered will be convincing others to use strong evidence as well as implementing strategies based on that evidence to improve organizational effectiveness and success.

General Education: Social and Behavioral Scien (GS)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Key Literacies

OLEAD 220: Emotional, Social, and Cultural Intelligences and the Implications for Leadership

3 Credits

This course focuses on emotional intelligence, social, cultural intelligence competencies used to develop the leadership capacity to be self-aware, understand oneself and others, and to work across cultural differences to effectively meet the demands of work. Relevant theoretical models, key concepts, and scientific research are explored. The growing body of research relating emotional, social, and cultural intelligences to high work performance and leadership effectiveness will be explored as well as neuroscience research explaining how these competencies can be developed through practices to focus attention enhanced by awareness. The course relates theory and research to practical application by focusing on the development of competencies and their effective use in increasing self-knowledge, motivating and influencing others, demonstrating empathy, effective problem solving, applying decision-making skills, stress management strategies, enhanced well-being as well as leading across cultural differences.

General Education: Social and Behavioral Scien (GS)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Integrative Thinking

OLEAD 230: Leadership Across Industries

3 Credits

Leadership across industries compares and contrasts leadership in different types of industries. In this course students will learn about the various types of organizations and examine why leadership in those organizations have some leadership characteristics that are similar and others that are different. Industries such as private sector, government, education, healthcare, military, law enforcement, small business, and others will be used as examples to demonstrate those similarities and differences. This comparative analysis will help students learn

about other styles of leadership that they may access for their own organizations as well as allow for some career exploration.

OLEAD 409: Leadership Development: A Life-Long Learning Perspective

3 Credits

The course examines the continuing influence of social and environmental factors in shaping leadership and leadership development. OLEAD (LER) 409 Leadership Development: A Life-Long Learning Perspective (3)(BA) This course meets the Bachelor of Arts degree requirements. Current social conditions, such as financial crises, ineffective solutions to local, national, and international problems and corrupt leaders, call for more effective and ethical leadership on a broad scale. The positive and moral transformation of social institutions requires active participation and leadership of more authentic transformational leaders. This course will discuss authentic transformational leadership development from a life span developmental perspective. More specifically, it will focus on how an individual develops his/her leadership skills, potential, and capacity in his/her childhood, school, social organizations, colleges, and work organizations. The primary purpose of this course is to help students understand how family, educational, and other environmental factors have helped and/or will help them develop their transformational leadership potential and leadership effectiveness, in addition to gaining a better understanding of their strengths and weaknesses in respect to personality, individual difference, motivation, values, emotions, self-awareness, and identity. The fundamental objectives of this course are to help students 1) increase self-awareness; 2) to help students to know more about their sense of self, including self-identity, self-awareness, self-efficacy, and other types of self-concepts; 3) to understand the effect of life span influences in an individual's leadership development.

Prerequisite: 6th semester standing
Cross-Listed
Bachelor of Arts: Social and Behavioral Sciences

OLEAD 410: Leadership in a Global Context

3 Credits

This course explores the science and practice of leadership around the globe through pertinent scholarly literature and related instructional resources. OLEAD 410 Leadership in a Global Context (3) (IL)(BA) This course meets the Bachelor of Arts degree requirements. This course will explore the science and practice of leadership across the globe. In particular, cross-cultural differences in leadership styles and methods from around the planet will be examined. Emphasis will be made on gaining knowledge of various cultural perspectives from around the world. That knowledge will then be used to examine successful leadership interactions between diverse cultures. Upon completion of Leadership in a Global Context, students will be able to understand differences within and between cultures, understand how diversity can impact an organization; recognize there are various sources of information to learn about culture; utilize various sources of information to gain knowledge of culture; develop the ability to recognize cultural differences in leadership situations, and think about developing leadership in global situations based on culture.

Prerequisites: OLEAD 100; or 6th Semester standing
Bachelor of Arts: World Cultures
International Cultures (IL)

OLEAD 411: Women and Leadership

3 Credits/Maximum of 3

Skills and competencies needed for effective leadership may change/vary from one era to another, one culture to another and one industry to another. Researchers and leaders themselves do not agree on a definition of "leader" or the skills/competencies that establish an effective leader. One might say that "what it takes to be an effective leader" is relative to the situation. Through the review of literature and research on leadership in general; review of literature and research on women in leadership; problem-solving in leadership scenarios; and self-assessment, students will develop a working definition of leadership and identify and develop leadership traits/competencies to encourage more women to be successful future leaders.

Prerequisites: OLEAD 100; or 6th Semester standing

OLEAD 464: Communication Skills for Leaders in Groups and Organizations

3 Credits

Theory- and research-based communication skills for leaders dealing with work-related problems in contemporary groups and organizations. LHR 464 Communication Skills for Leaders in Groups and Organizations (3)(BA) This course meets the Bachelor of Arts degree requirements. LHR 464 Communication Skills for Leaders in Groups and Organizations is a survey of theory, research, and practice related to the communication processes by which individuals in groups and organizations exercise influence, whether or not they occupy positions of acknowledged leadership, and may be taken as part of an Labor and Industrial Relations major or minor, or as an elective by students in other disciplines. The course is offered once each academic year and has an enrollment limit of 40 students per offering. The course requires no special facilities. It extends to other courses in the major primarily in the areas of Industrial Relations and Human Resources. It is also complementary to courses focusing on groups and organizations in Sociology, Psychology, Management, and Engineering. During the course, students are exposed to a variety of theoretical perspectives on the study of leadership, learn about research illuminating its functions, and become acquainted with communication practices derived from and/or suggested by such theories and research that contribute to the exercise of influence and, thereby, effective group and organizational performance. These terminal outcomes define the objectives of the course. Focus will be on leadership as both role-related behavior and goal-directed behavior, regardless of roles that members of groups and organizations occupy.

Prerequisite: 5th Semester Standing

Cross-listed with: LHR 464

Bachelor of Arts: Social and Behavioral Sciences

OLEAD 465: Collective Decision Making

3 Credits

Application of theories of decision making to work-related issues in groups and organizations requiring collective resolution and action. LHR 465 Collective Decision Making (3)(BA) This course meets the Bachelor of Arts degree requirements. This course presents a broad overview of theories, research, and practices in decision making as related to work-related choice making in groups and organizations and is open to students majoring or minoring in Labor and Industrial Relations, as well as to students who may wish to use the course as an elective. The

course is offered once each academic year and has an enrollment limit of 40 students per offering. It requires no special facilities. LHR 465 extends to other courses in the major, primarily in the areas of Industrial Relations and Human Resources. It is also complementary to courses dealing with decision making in groups and organizations in sociology, psychology, and management. Of particular interest are decision making practices, as well as theories that account for them, in single-motive situations (in which participants in the process are pursuing a common goal) and mixed-motive situations (in which two or more of the participants are competitively related, but must cooperate to achieve their objectives). Hence, the course deals both with (1) conventional decision making, as in the case of boards, task forces, problem-solving groups, and quality circles or teams, appropriate to single-motive situations and (2) processes, such as bargaining, negotiation, and dispute management/resolution, appropriate to mixed-motive situations. The course also deals with the influence of organizational culture on decision-making in both types of situations. Upon completing LHR 465, students will have been exposed to a broad array of theoretical perspectives on decision making in groups and organizations, will be familiar with research testing these theories, and be aware of decision making practices suggested by theory and research that are useful in situations requiring collective choice and action. These terminal outcomes of the course reflect the objectives.

Prerequisite: 5th Semester Standing

Cross-listed with: LHR 465

Bachelor of Arts: Social and Behavioral Sciences

OLEAD 495: OLEAD Internship

1-12 Credits/Maximum of 12

Supervised practicum in organizational leadership.

OLEAD 496: Independent Study

1-18 Credits

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Prerequisite: OLEAD100

OLEAD 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

Prerequisite: OLEAD100

Petroleum and Natural Gas Engineering (PNG)

PNG 301: Introduction to Petroleum and Natural Gas Engineering

3 Credits/Maximum of 3

The first part of the course will introduce the student to the design and implementation of the systems used in the extraction of oil and gas, including terminology and basic calculations in drilling engineering, geology, production, reservoir, and facilities engineering. The course will give an initial overview of the history of the oil industry and the origins of petroleum and natural gas reservoirs, followed by a description of the conventional and unconventional reservoir types. All aspects of

petroleum engineering from upstream to downstream will be included in this discussion, including transportation, marketing, and environmental impacts. The remainder of the course will present the various key disciplines in petroleum and natural gas engineering in the chronological order of how the disciplines interact. Key problems in each of these disciplines will be reviewed and solved, using Excel and introductory statistics/computer programming (using Matlab). First, the discipline of drilling engineering will be presented. This will focus on the different types of wells, bits, casing designs, and completion techniques. Topics in the discipline of reservoir engineering will be presented next and will include basic petrophysics, reservoir types and fluids, as well as basic extraction methods. The life cycle of a reservoir and its efficient and environmental friendly management will be discussed, including enhanced oil recovery methods, such as carbon dioxide injection and surfactant flooding. Topics in production engineering will be presented next, and will center on tubing design, artificial lift, stimulation using acids and fracturing, and cased-hole logging. Topics in facility engineering, the last discipline to be discussed, will focus on surface facilities such as separators, gas and water gathering systems, pipelines, stock tanks, chokes, and recycle plants. Finally, differences between unconventional and conventional extractions and systems will be described as this is now critical to the energy security of the United States. Focus here will be on shale properties, fluid property changes owing to tiny pores, diffusion, absorption, and hydraulic fracturing. The course will explain how fracturing in shale reservoirs differs from conventional ones. Transport of oil or gas from these tight rock matrixes by diffusion through the fracture network will be presented. Environmental considerations will also be discussed.

Enforced Prerequisite at Enrollment: (PHYS 211 or PHYS 250) Enforced Concurrent at Enrollment: GEOSC 1

PNG 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

PNG 405: Rock and Fluid Properties

3 Credits

Reservoir rock properties, rock and fluid properties (interaction between rock and fluids), flow behavior in reservoir, and fluid properties. The objective of this course is to introduce students to basic reservoir rock and fluid properties. The course is divided into three sections: rock properties, rock and fluid properties (interaction between rock and fluids), and fluid properties. In the rock properties, Lithology of Reservoirs, Porosity and Permeability of Rocks, Darcy's Law, and Distribution of Rock Properties are discussed. In Rock and Fluid Properties Section, Existence of Multi-phases, Saturation, Wettability, Capillary Pressure, Effective and Relative Permeability, concepts are covered. Fluid properties topics include Phase Behavior of Single and Multi Component Systems, Compositional and Black-Oil models, Solution Gas-Oil Ratios, Formation Volume Factor, Compressibility, Density, Viscosity, and Interfacial Tension. This is also the first course that Petroleum and Natural Gas Engineering students take in the major. Therefore, an introduction to petroleum and natural gas engineering is also made. This course is a pre-requisite for most of the Petroleum and Natural Gas Engineering major courses. It is an elective course for majors such as Environmental Systems Engineering. It is offered every Fall semester.

Enforced Prerequisite at Enrollment: PHYS 211 and PNG 301

PNG 406: Rock and Fluid Laboratory

1 Credits

Systematic study of oil reservoir rocks and fluids; their interrelation applied to petroleum engineering.

Enforced Prerequisite at Enrollment: PHYS 211 Enforced Concurrent at Enrollment: PNG 405

PNG 410: Applied Reservoir Engineering

3 Credits

The broad course objectives are to introduce and implement techniques for analysis and prediction of reservoir performance by use of material balance and steady and non-steady state flow equations. Some specific objectives are: To introduce students to concept of material balance in oil and gas reservoirs. To learn to identify primary drive mechanisms in oil and gas reservoirs. To recognize important differences between production from conventional and unconventional shale reservoirs. To understand and apply concepts in single-phase transient flow in reservoirs. The course will commence with a discussion of rock and fluid properties including the properties of unconventional shale reservoirs and then move on to the analysis of the performance of dry gas reservoirs. After talking about the behavior of dry gas reservoirs with water influx, the topic of performance of gas condensate reservoirs will be discussed. Various schemes for analyzing the performance of gas condensate reservoirs using data from the field as well as based on laboratory experiments will be presented. This will be followed by a detailed exposition of material balance analysis of undersaturated oil reservoirs. Combination drives including water influx and gas cap expansion will be discussed. Laboratory analysis of pressure-volume-temperature relationships of saturated oils will be discussed. Prior to introducing models for water influx into reservoirs, essential concepts from the dynamics of fluid flow in reservoirs will be presented. This will enable students to better understand the concept of linear superposition that is essential to apply the water influx models.

Enforced Prerequisite at Enrollment: PNG 405 and PNG 406 Enforced Concurrent at Enrollment: EME 301 and EME 303

PNG 411: Introduction to Petroleum and Natural Gas Extraction

1 Credits

Introduction to the design and implementation of the systems used in the extraction of oil and gas. Not intended for petroleum and natural gas engineering majors.

Enforced Prerequisite at Enrollment: PHYS 211

PNG 420: Applied Reservoir Analysis and Secondary Recovery

3 Credits/Maximum of 999

P N G 420 Applied Reservoir Analysis and Secondary Recovery (3) This course addresses two major issues in petroleum engineering: water influx and water flooding. The displacement of oil or gas by water is a complicated physical process that has a great impact on recovery efficiencies. The first objective of the course is to merge the material balance method and transient flow solutions for the aquifer into one analysis tool for understanding and predicting water influx cases. Several analytical and numerical methods are presented including: linear and

radial diffusion equation solutions, super position, Hurst simplified, Schilthuis and Hurst modified. The second objective of the course is to understand the fundamentals of displacement theory and practice. The extension of the Buckley and Leverett water flooding theory is presented for three-phase flow. Three-phase relative permeabilities are determined from experimental data. Several geometrical patterns are discussed in the course including: five spots, staggered line drive, direct line drive, four spots, seven spots, and nine spots. The efficiency of each pattern is determined. Strategies for selecting a pattern for special cases are presented. The behavior of each pattern with time, including oil recover, is an integral part of the course. The students use our computational facility throughout the course. They write material balance models and use large reservoir simulators for studying water influx cases.

Enforced Prerequisite at Enrollment: [MATH 251 or (MATH 250 and MATH 252)] and PNG 410 and (CMPSC 200 or CMPSC 201)

PNG 420H: Applied Reservoir Analysis

2 Credits

Water influx theory. Application of principles of reservoir analysis to the determination of reservoir behavior and education.

Honors

PNG 425: Principles of Well Testing and Evaluation

3 Credits

This course examines the mathematical basis for pressure analysis. Both theory and the practice of pressure testing techniques are considered. The objectives are to: 1) Understand fundamentals of pressure transient analysis (well testing) for estimation of key formation parameters for a variety of flow models, including the line source solution, finite wellbore radius with wellbore storage and skin, naturally fractured reservoirs, and infinite and finite conductivity fractures; 2) Solve pressure transient problems using analytical solutions, computer programs, classical graphical methods, and modern well test software; 3) Understand sources of error and assumptions made; and 4) Learn about practical well test evaluation and well configurations for both tight and conventional reservoirs.

Enforced Prerequisite at Enrollment: [MATH 251 or (MATH 250 and MATH 252)] and PNG 420

PNG 430: Reservoir Modeling

3 Credits

PNG 430 is a senior-level undergraduate class where the student explores the fundamentals of hydrocarbon reservoir simulation as the area of reservoir engineering in which computer power becomes essential for predicting complex processes and fluid behavior involved in fluid transport in porous media. In this class, numerical models are built on the basis of finite-difference and finite-volume approximations of governing equations of fluid flow in porous media, which integrate conservation of mass, isothermal fluid PVT behavior, and Darcy's flow approximations. Topics include the use of Taylor Series, volume integrals, grid types, treatment of external (reservoir limit) and internal (wellbore) boundary conditions, generalized transmissibility calculations, matrix solution methods and solution of systems of simultaneous algebraic equations, treatment of space and time-derivatives, explicit and implicit schemes, stability analysis, and applications to single-phase (incompressible, slightly-compressible and compressible fluid) numerical

simulation. More advanced topics such as black-oil multiphase modeling and compositional modeling are introduced, including multiphase transmissibility calculations and multiphase solution techniques such as IMPES (Implicit-Pressure, Explicit Saturation) and multivariate Newton-Raphson.

Enforced Prerequisite at Enrollment: [MATH 251 or (MATH 250 and MATH 252)] and PNG 410 and (CMPSC 200 or CMPSC 201)

PNG 440W: Formation Evaluation

3 Credits

Formation Evaluation covers the characterization of oil and gas reservoir formations and methods for quantifying the volume of hydrocarbon resources therein. The course focuses on the petrophysical interpretation of wireline logs to meet these objectives, and also covers the operation and underlying physical principles of those tools. Topics covered include: the basic procedure of open hole logging, calculation of a geothermal gradient, understanding raster and digital well log files, quick look interpretation, reservoir volumetrics, understanding the physics of and cultivating the ability to interpret data from the traditional logging suite (gamma ray, spontaneous potential, resistivity devices, density, neutron, and sonic logs), coring, wireline formation testing, nuclear magnetic resonance logging, and interpretation in unconventional reservoirs. Best practices and limitations of the various well log tools are also discussed. Students are expected to perform complex engineering calculations using raw field data gathered from these tools, both from raster and digital well log files. As a "writing across the curriculum" course, students develop their technical writing skills through homework assignments that present their analyses in written reports.

Enforced Concurrent at Enrollment: PNG 405 and PNG 406
Writing Across the Curriculum

PNG 450: Drilling Engineering

3 Credits

PNG 450: Drilling Engineering covers the design and analysis of oil-field drilling operations and equipment. This course addresses a critical issue in petroleum and natural gas engineering: how to drill and complete oil and gas wells in a sound, economical, and environmentally safe manner. Drilling technology has advanced greatly since the first commercial oil well in the U.S. was drilled in northwest Pennsylvania in 1859. The true vertical depth of the well has grown from 69.5 feet from then to more than 15,000 ft, with the deepest at more than 40,000 feet, today. The horizontal length of a well has grown from theoretically zero to more than 10,000 feet, with the longest at 40,000 feet. The temperature and pressure of the formation that petroleum engineers need to drill through could easily reach 350 F and 20,000 psi or higher, and the formation and fracture gradient window becomes narrower, all making drilling and completion more challenging. In summary, it is becoming increasingly more challenging to drill wells. Thus, engineering design becomes more critical. The objectives of this course are to introduce the students to the science of drilling and completion. This includes learning the fundamentals of drilling fluids and drilling fluid design, and applying fluid mechanics and quantifying drilling hydraulics for complex fluid flow through drilling string and annular spaces. The course will also discuss the concepts and quantify the formation pressure and fracture pressure gradients for different methods of drilling. A key task for students will be to learn the methods for characterization, selection and optimization of casing design, and optimized bit design, and finally the course will discuss how to design directional and horizontal

wells to optimize production and recovery from mature fields and unconventional resources, such as coalbed methane, shale gas, and tight oil in Pennsylvania. This course is a prerequisite for petroleum and natural gas engineering major courses. It is an elective course for majors such as chemical engineering, mechanical engineering, civil engineering, etc. The knowledge, methods, and practical skills in this course could also be used in various other industries including geothermal HVAC, ground water drilling, mineral exploration, and scientific research.

Enforced Prerequisite at Enrollment: (EME 303 or CE 360 or ME 320) and [EMCH 210 or (EMCH 211 and EMCH 213)]

PNG 451: Drilling Laboratory

1 Credits

PNG 451: Drilling Laboratory covers common practices in well-control procedures and measurement of drilling fluid properties. This course serves as the laboratory component for PNG 450. Students will apply the concepts and skills gained from lectures and discussions in PNG 450. The aim is for students to become familiar with drilling fluids and how to quantify the fluid properties analytically. Students will also receive practical experience with drilling equipment, and will practice solving practical well-control problems in the laboratory. Students in this course will gain experience using our state-of-the-art rig floor simulator and drilling fluid and cement laboratory, which are equipped with the advanced facilities currently used in the oil and gas industry.

Enforced Prerequisite at Enrollment: (EME 303 or CE 360 or ME 320) and [EMCH 210 or (EMCH 211 and EMCH 213)] Enforced Concurrent at Enrollment: PNG 450

PNG 456: Hydraulic Fracturing Analysis

1 Credits/Maximum of 1

Industry professionals teach hydraulic fracture design and analysis.

PNG 457: Pump Systems for Oil and Gas Production

1 Credits/Maximum of 1

Industry professionals teach about sucker-rod pump technology.

PNG 458: Assessment, Classification, and Reporting of Reserves and Resources

1 Credits/Maximum of 1

Industry professionals teach how to define and estimate reserves.

PNG 459: Well Control Certification

1 Credits/Maximum of 1

Using the most advanced simulator system, industry professionals teach students how to avoid and resolve operational difficulties. Students who successfully complete the course receive a certificate.

PNG 475: Production and Completions Engineering

3 Credits

This course starts with the single phase flow in porous media and then followed with the multi-phase flow in porous media and pipes. Hence a basic understanding of the fluid flow and different flow regimes are required to follow the course. While discussing these issues in the class,

students will learn the role of compressibility on fluid flow in the rock, understanding the concept of compressibility requires some background in strength of materials. Additionally, while discussing tubing and casing design requirements in the course, students need to check burst and collapse loads which cannot be done without any previous knowledge about stress analysis taught in Strength of Materials. Therefore, the instructor is expecting that students have basic understanding of fluid flow and stress concepts and based on this foundation, new concepts about multiphase flow and well construction will be taught. Similarly, textbooks in this subject are prepared by assuming that the reader has a basic knowledge in fluid mechanics and strength of materials.

Enforced Prerequisite at Enrollment: EMCH 210 and Enforced Concurrent at Enrollment: PNG 410

PNG 480: Surface Production Engineering

3 Credits

Analysis and evaluation of surface production processes, fluid separation, storage, measurement, treating, custody transfer, transmission, disposal, corrosion, and other operations. P N G 480 Production Process Engineering (3) Surface production engineering involves the extraction of reservoir fluids, their treatment at the surface and movement to a commercial market via a common carrier. It is the primary objective of this course to provide the fundamentals of surface production operations and underlying operational principles and design criteria for equipment utilized in the surface handling of petroleum production fluids. Surface production facilities are described in detailed as systems in charge of the separation of the wellstream fluids into three single-phase components (oil, gas, water) and of their transport and processing into marketable products or their disposal in an environmentally acceptable manner. A detailed overview of hydrocarbon fluid behavior, analysis of hydrocarbon and water separation processes, analysis and design of surface transportation systems and flow assurance problems is provided along with a comprehensive look at the engineering aspects involved in surface production operations. Topics include purpose and description of onshore and offshore surface production facilities and the function of the equipment used in these processes, including wellheads and Christmas trees, gathering systems, production manifolds, field processing of crude oil, field processing of natural gas, phase separation of gas, oil and water, water-in-crude oil emulsification, heater-treaters and dehydration of crude oil, natural gas dehydration, stock tank batteries and transportation. Discussion includes oil and gas quality checks, oil and gas metering, typical contractual hydrocarbon sales specifications, and typical specifications for produced waters and other by-products. Hydrocarbon fluid behavior topics includes an overview of hydrocarbon thermodynamics, hydrocarbon PVT behavior, thermodynamics of liquid and vapor separation, and fluid behavior prediction models including modern cubic equations of state. In the context of surface facility design, a process simulation or compositional simulation is implemented to predict how the components the make up the well fluids react to changes in pressure and temperature as they are processed through the facility through a succession of phase changes where liquids flash to vapor or vapors condense into liquid. Equipment design topics comprise design of 2-phase and 3-phase vertical and horizontal separators, derivation of design equations, design of crude and condensate stabilization trains, design and operation of glycol dehydrator towers, and flow assurance topics such as hydrate, corrosion, and wax prevention. The ultimate purpose of surface equipment design is to recommend the most suitable and cost-effective equipment type and size that meets the specified service and system condition, contractual

obligations, and industrial health and safety and environmental regulations.

Enforced Prerequisite at Enrollment: EME 301 and EME 303

PNG 482: Production Engineering Laboratory

1 Credits

Measurement and analyses of the physical and chemical properties of hydrocarbon fluid systems in a production environment. P N G 482 Production Engineering Laboratory (1) The task of production engineers is to optimize the extraction, treatment and delivery rate of hydrocarbons. For this optimization to be realistic, quantitative values of some relevant parameters and properties that characterize the system should be known preferably by way of measurements. It is the primary objective of this laboratory course to give the student an understanding of the available measurement techniques; an opportunity to gain hands-on experience in carrying out the experiments as well as operating the apparatus and some practice in the art of technical report writing. The Production Engineering Laboratory has been designed to expose the student to the principles and procedures of production engineering for oil and gas analysis (physicochemical characterization and quality control) and the transport of fluids in pipes and conduits. The main objective is to familiarize students with the basic measurements that must be taken in production monitoring and control, as well as basic production engineering principles. It is also aimed to enhance the error analysis, critical evaluation and technical report writing skills of the student. Major pieces of equipment in this laboratory include: viscosimeters, oxygen bomb calorimeters, gas chromatograph, densitometers, centrifuges, dead weight testers, dew point testers, and a meter run setup. Laboratory experiences include, but are not limited to, the determination of density of clear organic substances and petroleum distillates that can be handled as liquids at test temperatures between 10 and 40 °C using digital density meters, the determination of the API gravity (or specific gravity) of crude oil, petroleum products normally handled as liquids (e.g. stabilized crude oil, stabilized gasoline, naphane, kerosene, gas oils, lubricating oils, and non-waxy fuel oils) and alcohols using hydrometer and pycnometer methods, the calibration of Bourdon type pressure gauges by means of a dead weight testers and constructing of calibration charts for gauges that are not adjustable, the determination of water and sediment in crude oils by means of the centrifuge procedure, the determination of the heat of combustion of organic substances ranging in volatility including oil samples with volatiles ranging from that of distillates to that of residuals, the measurement of viscosity of crude oil and liquid petroleum products by means of measuring the time for a volume of liquid to flow under gravity through a calibrated glass capillary viscosimeter, the determination of water vapor content of gases by measurement of the dew point temperature and the calculation there from of the water vapor content, and the determination of a gas flow rates in pipelines by means of orifice plates and axial full-flow turbine meters.

Enforced Prerequisite at Enrollment: EME 301 and EME 303. **Enforced Concurrent at Enrollment:** PNG 480

PNG 488: Unconventional Wells

3 Credits/Maximum of 3

The course starts with a general overview of different types of unconventional reservoirs and their geological and petrophysical properties. Then, due to the significance of natural fractures in economic production from these reservoirs, special attention will be given to

natural fracture characterization. In the next step, drilling and completion techniques adopted for these formations will be discussed. In the second part of the course, the emphasis will be on hydraulic fracturing design and collecting data (such as in situ stresses and rock mechanical properties) for a proper fracture design. Injection tests and Nolte-Smith analysis will be introduced toward the end of the course for fracture assessment purposes. The course will be finished with an overview of fractured well productivity analysis and decline curve analysis in unconventional oil and gas reservoirs.

Enforced Prerequisite at Enrollment: EME 303 and **Enforced Concurrent:** EMCH 210

PNG 490: Introduction to Petroleum Engineering Design

1 Credits

P N G 490 Introduction to Petroleum Engineering Design (1) The objective of this course is to introduce to the students the principles of engineering design as applied to petroleum and natural gas projects. The course focuses on the analysis of physical data with respect to error and use of this data in design. Other topics to be visited include a definition of what is a project deliverable and establishment of timelines for their implementation. The salient points of the course are as follows: (1) This course is the first capstone engineering design course in the sequence of three courses. In this portion of the course students' principal goal is to characterize the reservoir. In this process necessary basic sciences and engineering skills are utilized. (2) In reservoir characterization, students typically collect and analyze the data available in the literature and other related data provided by the operators. (3) In making a preliminary assessment towards field development students consider factors involving economic, environmental, social, ethical, health and safety considerations. (4) In this course, students work in teams. In each team, team members assume responsibilities as petrophysicist, drilling engineer, geologist, geophysicist production engineer, reservoir engineer and implement the necessary technical skill to fulfill their obligations. (5) This project starts from the ground level and ends with a complete field development plan. Within the context of the project (reservoir characterization) students have the opportunity to use the necessary skills to identify and formulate and solve the engineering problems and challenges that are faced. (6) In selecting the lease area the potential impact of project on the social and physical environments is considered and all the ethical responsibilities are studied in depth. (7) During every phase of the project the impact of decisions are considered within the framework of global, economic, environmental and societal context. (8) In this course the main contemporary issue the need for unconventional energy resources is the driving force behind the project. (9) In every phase of the project students are exposed to contemporary methodologies and engineering tools including forecasting, scenario planning and reservoir simulation. Also, whenever applicable the necessary engineering software is also incorporated in the development of the project.

Enforced Prerequisite at Enrollment: PNG 405 and PNG 406

PNG 491: Capstone Design in Drilling and Completions

1 Credits

Application of the concepts of reservoir, production, drilling and completions, and economics to petroleum engineering design projects. Engineering design by definition is the integration of knowledge and skills acquired through experience, reading and formal instruction into a final product, the design. To that end, this course is the second course

of a 3-course, 3-semester, sequence that will result in a comprehensive capstone-engineering project. As such, PNG 491 will utilize the knowledge gained from PNG 450, 451, and 475 to the project design initiated in PNG 490. The class will be divided into teams and students will be evaluated on the basis of their contribution to the team effort. All reports and presentations will be presented as a product of the team.

Enforced Prerequisite at Enrollment: PNG 450 and PNG 475 and PNG 490

PNG 492: Petroleum Engineering Capstone Design

1 Credits

Integration of petroleum and natural gas engineering concepts to project design. Engineering design by definition is the integration of knowledge and skills acquired through experience, reading and formal instruction into a final product, the design. To that end, this course is the third course of a 3-course, 3-semester, sequence that will result in a comprehensive capstone-engineering project. As such, P N G 492 will utilize the knowledge gained from three semesters of formal instruction to the project design initiated in P N G 490 and continued on in P N G 491. Course material will include the application of spreadsheet programming to petroleum and natural gas project design and its use in project economic analysis and risk analysis. The class will be divided into teams and students will be evaluated on the basis of their contribution to the team effort. All reports and presentations will be presented to the class as a product of the team.

Enforced Prerequisite at Enrollment: PNG 491 and EME 460

PNG 492H: Petroleum Engineering Capstone Design

1 Credits

Integration of petroleum and natural gas engineering concepts to project design. P N G 492 Petroleum Engineering Capstone Design (1) Engineering design by definition is the integration of knowledge and skills acquired through experience, reading and formal instruction into a final product, the design. To that end, this course is the third course of a 3-course, 3-semester, sequence that will result in a comprehensive capstone-engineering project. As such, P N G 492 will utilize the knowledge gained from three semesters of formal instruction to the project design initiated in P N G 490 and continued on in P N G 491. Course material will include the application of spreadsheet programming to petroleum and natural gas project design and its use in project economic analysis and risk analysis. The class will be divided into teams and students will be evaluated on the basis of their contribution to the team effort. All reports and presentations will be presented to the class as a product of the team.

Honors

PNG 494: Thesis

1-6 Credits/Maximum of 6

A problem in petroleum engineering involving review of the literature and experimental data obtained in the field or laboratory.

PNG 494H: Thesis

1-6 Credits/Maximum of 6

A problem in petroleum engineering involving review of the literature and experimental data obtained in the field or laboratory.

Honors

PNG 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

PNG 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Philosophy (PHIL)

PHIL 1: The Big Questions

3 Credits

This course plunges students into the deepest philosophical questions: Why is there something rather than nothing? Can I be sure about anything? What is the purpose of life? Is morality real or conventional? Can the existence of God be proven or disproven? Can science explain everything? Students will meet a range of historical and contemporary formulations of philosophical questions such as these, study various types of response, and acquire the analytical and expository skills to develop and defend their own perspectives. The course proceeds through discussion, reading, writing, and other assignments

Bachelor of Arts: Humanities

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

PHIL 2: Individuals in Society

3 Credits

This course provides a philosophical introduction to pressing social and political issues. We will ask, for example, what justifies having a government; whether inequality is ever justified; what obligations citizens have toward each other and toward non-citizens; what exactly is wrong with racism, sexism, and other injustices and what we should do about them; the limits and benefits of privacy; and the role of families, schools, churches, clubs, and employers in public life. We study prominent philosophers and theorists on these questions, and address recent events or policies. Students will develop an appreciation for thinking about values in the context of conflicting political visions, and the analytical and expository skills for examining and discussing them.

Bachelor of Arts: Humanities

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Soc Resp and Ethic Reason

PHIL 3: Ethical Life

3 Credits

This course offers students an overview of ethical issues, moral reasoning, and questions concerning the good and flourishing life for

individuals and groups. It engages the work and critical interpretation of major figures in moral thinking, and enters into the full complexity of contemporary moral problems. Students will study and evaluate competing accounts of the right way to live, including their overall plausibility, their background assumptions, and their practical implementation.

Bachelor of Arts: Humanities
General Education: Humanities (GH)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Soc Resp and Ethic Reason

PHIL 4: The Human Condition

3 Credits

This course introduces central philosophical questions about the lives we humans live: Can our lives have meaning, and does their value depend on it? Does each of us have a true self to be discovered, or a shared human nature we cannot escape? What do we mean by "authenticity," is it worth striving for, and can it be achieved? What difference does recognizing your mortality make to anything? We explore these questions in conversation with influential historical perspectives and contemporary theories, while approaching them from everyday concerns. Doing so provides a path for introducing philosophical ideas and evaluations into ordinary life.

Bachelor of Arts: Humanities
General Education: Humanities (GH)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

PHIL 5: Film and Philosophy

3 Credits

This course serves both as an introduction to philosophy through critical viewing of film, and as an introduction to film aesthetics and the discussion of art experience, the nature of creativity and beauty, and the role of film and moving images in cultural critique. It offers an examination of historical and contemporary thought through films and videos, in-class presentations, readings, discussions, and student writings. These activities allow students to gain an understanding of diverse, often competing, perspectives on basic human problems and the influence of film and images in contemporary life.

Bachelor of Arts: Humanities
General Education: Humanities (GH)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

PHIL 6: Literature and Philosophy

3 Credits

This course serves as an introduction to philosophy through the critical and analytic reading of popular, classic, and insightful literature - novels, plays, poetry, and creative non-fiction - from both Western and Non-western authors and cultures. We ask questions about the experience, purpose, and value of reading these works: Why do we sympathize with fictional characters? What do "coming of age" books contribute to our own maturity? Does literature give us insight into other people, and even into ourselves, unavailable in any other way? What is happening when

someone says that a work belongs to the "canon"? What does a literary artist need to know to create the works of great insight she or he creates?

Cross-listed with: CMLIT 6
Bachelor of Arts: Humanities
International Cultures (IL)
General Education: Humanities (GH)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

PHIL 7: Asian Philosophy

3 Credits

This class is an introduction to the major intellectual philosophical traditions of Asia: Hinduism, Buddhism and Zen Buddhism, Jainism, Confucianism and Neo-Confucianism, and Taoism. It proceeds through careful study of major, representative texts and authors of each of these traditions, and may range from foundational works to modern and contemporary developments.

Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures
International Cultures (IL)
General Education: Humanities (GH)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Integrative Thinking

PHIL 8: Gender Matters

3 Credits

Feminism is one approach to addressing systematic oppressions of both women and men. This course examines various feminist philosophical approaches to issues such as the construction of gender, sex, and sexuality, the nature of gender injustice, and the intersectionality of oppressions. It also addresses contemporary issues, including sexual harassment and assault, abortion, explicit and implicit bias, and discrimination and exclusion.

Cross-listed with: WMNST 8
Bachelor of Arts: Humanities
General Education: Humanities (GH)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Soc Resp and Ethic Reason

PHIL 9: Race, Racism, and Diversity

3 Credits

This course offers a critical examination of the ways we today often think about race and racism, the latter considered in its cultural, institutional, and systemic forms, as well as in its individual manifestations as slurs, beliefs, and attitudes. This course also takes up the philosophical issues raised by the concept of race in intersection with class, gender, and related concepts. It aims to promote diversity by fostering an appreciation and respect of differences especially in respect of race, ethnicity, gender, and religious affiliation.

Bachelor of Arts: Humanities
United States Cultures (US)
General Education: Humanities (GH)
GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

PHIL 10: Critical Thinking

3 Credits

This course provides a critical awareness of the function, nature, strengths, and weaknesses of argumentation in its various real-world and academic forms and contexts. Students examine the construction of persuasive arguments, discover types of fallacy, and learn how to evaluate reasoning for validity and soundness (that is, logic and truth).

Bachelor of Arts: Humanities

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

PHIL 11: Science and Truth

3 Credits

This course investigates the nature of science, scientific reasoning, and the "scientific method." The value of objectivity and explanation will be considered in relation to our knowledge of the world and ourselves. Students will compare scientific truth claims to others, such as those from common sense, religion, the humanities, and pseudo-science. Key concepts include hypothesis, falsification, evidence, models, and theory. We ask: How do facts relate to proofs? What is the role of subjectivity in interpreting data? Does science progress? Are there questions science cannot answer? The goal of the course is for students to understand better the meaning, value, and limitations of the scientific enterprise.

Bachelor of Arts: Humanities

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

PHIL 12: Symbolic Logic

3 Credits

This course is an introduction to symbolic logic. Logic is the science of correct reasoning, and symbolic logic is a particular branch of logic that studies correct reasoning using a formal or artificial language. In this course, students will first learn basic vocabulary for argument analysis, standards for evaluating arguments that are expressed in English, and basic methods for testing these arguments along with the shortcomings of said methods. The deficiencies of the more natural approach to evaluating and testing arguments motivates a turn to learning symbolic logic as it purports to provide a more precise way of evaluating arguments. To this end, students will learn the symbols, syntax, and semantics of two different logical (formal, symbolic) languages (propositional and first-order predicate logic) and how to translate sentences from English into these formal languages. Once the languages are formulated, students will learn how to make use of mechanical tests (truth tables and/or truth trees) that allow for evaluating arguments for validity as well as testing propositions and sets of propositions for other logical properties (e.g. consistency, tautology, etc.). In addition to mechanical tests, students will learn how to solve proofs in two different languages. That is, they will learn a set of inference,

derivation, or "proof" rules and use these rules to show that a conclusion follows from a set of premises.

Bachelor of Arts: Quantification

General Education: Quantification (GQ)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

PHIL 13: Nature and Environment

3 Credits

What is nature, and what is the appropriate human relationship with it? What are our obligations toward non-human animals, endangered species, or ecosystems? Is contemporary industrial society alienated from nature, and, if so, what should be done about this? What alternatives for living differently are genuinely available to us today? These questions are addressed through discussion of current environmental issues (e.g., consumerism, agriculture, wilderness protection, environmental justice, climate change, environmental activism) as well as influential historical and contemporary philosophical approaches, such as deep ecology, social ecology, ecofeminism, bioregionalism, and eco-phenomenology.

Bachelor of Arts: Humanities

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Soc Resp and Ethic Reason

PHIL 14: Love and Sex

3 Credits

This course examines the dominant philosophical and theological theories of love and sexuality in the Western world; historical and recent critiques of those theories; and the relevance of gender, race/ethnicity, and sexual orientation to all such thinking about love and sex. Related ethical issues include monogamy, same-sex marriage, cultural differences, pornography, and consent, especially in contemporary US context.

Bachelor of Arts: Humanities

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

PHIL 15: How to Live

3 Credits

Philosophy considers how best to live. This is valuable, since there is a lot that is uncertain. Should one mostly eliminate superstition and fear and practice mental tranquility? Or control bodily desires and practice endurance? Or examine one's beliefs and practice modesty? Or think about your every action and practice justice? Or change how others think and practice institutional change? Different philosophical and reflective cultures have focused on one or another of these possibilities, or proposed yet others. This course studies a range of cultures that have formulated the question, "How should I/we live?" and have developed a set of candidate answers. Ancient or medieval cultures studied - for 1-3 weeks each - include those from ancient Greece, Rome, other areas around the Mediterranean, Indian, and Chinese. Modern cultures studied, as comparison cases, vary by instructor. Class-time focuses on historical

context, literary content, and philosophical argument. Outside-of-class work includes reading, for instance Socratic dialogues, Stoic handbooks, meditation mantras, existential dramas, political manifestos, nature journals, or book reviews. It also includes, as the distinctive element of this course, a practical experience for each unit. Students track, process, and evaluate their experiences through journaling and discussion with other students. At the semester's end, students develop their own philosophical "best way of life," formulating and justifying rules, models, or virtues to live by, and engage in conversation with other students on this topic. Students should leave the class recognizing the diversity and challenge of a range of way-of-life ideals, their historical context and contemporary promise, how to decide on their appropriateness for themselves, and what it would mean to adopt, refine, and support their own "philosophy" of life.

Cross-listed with: CAMS 16

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

PHIL 60N: Philosophy and 1960s Counterculture

3 Credits

Explores some of the central philosophical ideas, values, and social scientific theories that motivated, attended, and/or were presupposed by signature events, projects, and persons typically associated with the 1960s Counterculture. Close attention is given to the relationship of individuals to society, the conditions and ideals of the good life, and the nature of dominance and social control.

Bachelor of Arts: Humanities

Bachelor of Arts: Social and Behavioral Sciences

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

PHIL 83: First-Year Seminar in Philosophy

3 Credits

First-year seminars in philosophy provide critical introductions to fundamental philosophical issues and problems. Each first-year seminar develops a broad overview of historical and contemporary thought through readings, discussions, and student writings. In this way, students will gain an understanding of important figures, ideas, problems, and theories that have shaped and continued to influence thought and practice around the world. Students will examine diverse viewpoints that will allow them to understand a wide range of views and challenge them to defend their own positions. First-year seminars involve active use of writing, speaking, and group projects. They provide opportunities for gathering information, analyzing problems, and synthesizing diverse perspectives. Finally, each first year seminar in philosophy allows students to link theory to their own lives.

Bachelor of Arts: Humanities

First-Year Seminar

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

PHIL 98: Special topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Bachelor of Arts: Humanities

PHIL 102: Existentialism

3 Credits

This course introduces students to the evolution of Existentialism, with its kernel in mid-nineteenth century reflection on Christianity's loosening grip on culture, its influence by the early-twentieth century experience of war's utter and widespread destructiveness, and its development in mid-twentieth century industrial and capitalist modernity. It concerns especially what it means to define one's own life in light of social pressures, interpersonal conflict, and economic forces, with or without the aid of traditional or religious guidance. This that means the course focuses on metaphysical, moral, and social issues concerning reality, the nature of the self, the basis of values, and the relations between individuality and community, and studies philosophical treatises, imaginative literature, and other genres of writing. Representative authors include Kierkegaard, Nietzsche, Marcel, Wright, Ellison, Jaspers, Fanon, Camus, Beauvoir, Sartre, and Lorraine Hansberry.

Bachelor of Arts: Humanities

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

PHIL 103: Ethics

3 Credits

Through reading and discussion of classical and contemporary sources, this course provides an introduction to the basic questions of ethics, the major currents in traditional ethical theory (virtue ethics, deontology, consequentialism), and more recent developments (e.g., care ethics). These schools of thought offer distinct answers about how we should decide what to do and about what makes a character, a decision, an action good or bad, right or wrong. Students will gain a basic understanding of concepts such as agency, autonomy, and moral responsibility, while also reflecting on the foundations, scope, and limits of moral reasoning: Are ethical norms universal, particular, or culturally relative? How is the moral life of the individual related to political life? Are there moral solutions to social problems or vice versa?

Bachelor of Arts: Humanities

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Soc Resp and Ethic Reason

PHIL 103H: Honors Ethics

3 Credits

Through reading and discussion of classical and contemporary sources, this Honors course provides an introduction to the basic questions of ethics, the major currents in traditional ethical theory (virtue ethics, deontology, consequentialism), and more recent developments (e.g., care ethics). These schools of thought offer distinct answers about how we should decide what to do and about what makes a character, a decision, an action good or bad, right or wrong. Students will gain a basic understanding of concepts such as agency, autonomy, and moral responsibility, while also reflecting on the foundations, scope, and limits of moral reasoning: Are ethical norms universal, particular, or culturally relative? How is the moral life of the individual related to political life? Are there moral solutions to social problems or vice versa?

Bachelor of Arts: Humanities

General Education: Humanities (GH)

Honors

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Soc Resp and Ethic Reason

PHIL 103W: Ethics

3 Credits/Maximum of 3

Through reading and discussion of classical and contemporary sources, this WAC course provides an introduction to the basic questions of ethics, the major currents in traditional ethical theory (virtue ethics, deontology, consequentialism), and more recent developments (e.g., care ethics). These schools of thought offer distinct answers about how we should decide what to do and about what makes a character, a decision, an action good or bad, right or wrong. Students will gain a basic understanding of concepts such as agency, autonomy, and moral responsibility, while also reflecting on the foundations, scope, and limits of moral reasoning: Are ethical norms universal, particular, or culturally relative? How is the moral life of the individual related to political life? Are there moral solutions to social problems or vice versa?

Prerequisite: ENGL 015 or ENGL 030H

Bachelor of Arts: Humanities

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Soc Resp and Ethic Reason

Writing Across the Curriculum

PHIL 105: Philosophy of Law

3 Credits

This course surveys philosophical questions concerning any legal system. What counts as a law? Do judges interpret or create new law? How can laws be unfair? What kinds of punishment, if any, are appropriate? When is civil disobedience justified? Could there be international law, and how can rights be enforced? These questions will often be asked in the context of the American system of common law and statutes, and thus will overlap with questions of federalism, constitutionalism, democracy, the police and prison systems, and social and economic structures. They will also require investigating the views of human nature underlying various philosophical positions. In general, the course examines the relations between human values, ethics, and

law and the way these relations affect the organization of broader social, political, and religious institutions.

Bachelor of Arts: Humanities

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Soc Resp and Ethic Reason

PHIL 105H: Honors Philosophy of Law

3 Credits

This course surveys philosophical questions concerning any legal system. What counts as a law? Do judges interpret or create new law? How can laws be unfair? What kinds of punishment, if any, are appropriate? When is civil disobedience justified? Could there be international law, and how can rights be enforced? These questions will often be asked in the context of the American system of common law and statutes, and thus will overlap with questions of federalism, constitutionalism, democracy, the police and prison systems, and social and economic structures. They will also require investigating the views of human nature underlying various philosophical positions. In general, the course examines the relations between human values, ethics, and law and the way these relations affect the organization of broader social, political, and religious institutions.

Bachelor of Arts: Humanities

General Education: Humanities (GH)

Honors

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Soc Resp and Ethic Reason

PHIL 106: Business Ethics

3 Credits

Business ethics is not just about CEOs behaving badly. Even if sweatshops treat humans poorly, do they deserve thanks for their labor market expansion? Must corporate trustees seek only profit for their shareholders, or also benefit their surrounding communities? Who picks up the cost of environmental degradation by airlines, factories, and farms? What exactly does 'truth in advertising' mean, and how limited should marketing be to children, or about alcohol and pharmaceuticals? How should the imperatives of the 'free market' or 'capitalism' be treated in democratic decision-making? The course will develop a student's critical skills in evaluating the philosophical foundations and justifications for business and economic systems, the relation between morality and contemporary business practices, and central positions and figures in the history of philosophical analysis of these questions.

Bachelor of Arts: Humanities

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Soc Resp and Ethic Reason

PHIL 107: Philosophy of Technology

3 Credits

This course surveys different views about technology: what counts as technology, what role it plays in society and human development, what benefits it might promote, and what obvious or hidden effects deserve criticism. The course's readings and discussions prompt reflection on

the purpose and consequences of technology for your own life, what possibilities it opens and forecloses, and how it modifies, sometimes irreversibly, your environment. Required readings may include current news articles and blog posts, science fiction, historical analyses of technological change, and philosophical investigations of the concept of technology.

Bachelor of Arts: Humanities

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Soc Resp and Ethic Reason

PHIL 108: Social and Political Philosophy

3 Credits

This course studies philosophical views about large-scale human relations: in groups, communities, populations, nations, and countries. By studying prominent philosophers and positions it investigates the following kinds of questions: Why might anarchy give way to government? How do political arrangements differ from domestic, friendship, or business obligations? Ought people organize to pursue a common good or goal? What does fundamental opposition about religion, morality, financial interest, and human sentiment mean for integration into a public realm? Is the personal always political, and what deserves to be kept private? Such questions have animated philosophy since its origins, is of vibrant contemporary interest, requires development of a view of human nature, and relates to ethics, psychology, sociology, law and criminology, economics, and political science. By the course's end, students should have a greater critical understanding of the nature of social and political organization, influences on human values, and the traditional philosophical problem concerning the good society.

Bachelor of Arts: Humanities

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Soc Resp and Ethic Reason

PHIL 108H: Honors Social and Political Philosophy

3 Credits

This course studies philosophical views about large-scale human relations: in groups, communities, populations, nations, and countries. By studying prominent philosophers and positions it investigates the following kinds of questions: Why might anarchy give way to government? How do political arrangements differ from domestic, friendship, or business obligations? Ought people organize to pursue a common good or goal? What does fundamental opposition about religion, morality, financial interest, and human sentiment mean for integration into a public realm? Is the personal always political, and what deserves to be kept private? Such questions have animated philosophy since its origins, is of vibrant contemporary interest, requires development of a view of human nature, and relates to ethics, psychology, sociology, law and criminology, economics, and political science. By the course's end, students should have a greater critical understanding of the nature of social and political organization, influences on human values, and the traditional philosophical problem concerning the good society.

Bachelor of Arts: Humanities

General Education: Humanities (GH)

Honors

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Soc Resp and Ethic Reason

PHIL 108W: Social and Political Philosophy

3 Credits

This WAC course studies philosophical views about large-scale human relations: in groups, communities, populations, nations, and countries. By studying prominent philosophers and positions it investigates the following kinds of questions: Why might anarchy give way to government? How do political arrangements differ from domestic, friendship, or business obligations? Ought people organize to pursue a common good or goal? What does fundamental opposition about religion, morality, financial interest, and human sentiment mean for integration into a public realm? Is the personal always political, and what deserves to be kept private? Such questions have animated philosophy since its origins, is of vibrant contemporary interest, requires development of a view of human nature, and relates to ethics, psychology, sociology, law and criminology, economics, and political science. By the course's end, students should have a greater critical understanding of the nature of social and political organization, influences on human values, and the traditional philosophical problem concerning the good society.

Prerequisite: ENGL 015 or ENGL 030H

Bachelor of Arts: Humanities

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Soc Resp and Ethic Reason

Writing Across the Curriculum

PHIL 109: Aesthetics

3 Credits

Aesthetics is the philosophical study of our experience of certain natural and artistic objects that incite pleasure or displeasure in us, and which we judge to be beautiful, ugly, or sublime. Aesthetics asks: What makes something beautiful? Are our judgments of beauty universal? What counts as art? What are the relations between beauty, morality, and truth? The objective of this course will be to provide students with a survey of historical and contemporary perspectives on these questions. The students should leave the course with a good grounding in aesthetic theory as well as an understanding of how the theoretical considerations apply in art criticism.

Bachelor of Arts: Humanities

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

PHIL 110: Philosophy of Science

3 Credits

This course examines core philosophical questions about science, scientific reasoning and scientific practice. What is scientific method, and what role do deduction, induction and abduction play in it? How does scientific method differ from one science to another? What role do mathematics, mathematical models and computation play in the various sciences? How does reductionism (the claim that parts determine the whole according to specified laws) help science develop but also limits it? Why must philosophical reflection on science also encompass the history of science? If we pay close attention to the role of science in culture, we

find that it has ethical as well as epistemological aspects, as it interacts with religion and politics.

Bachelor of Arts: Humanities
 General Education: Humanities (GH)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking

PHIL 113: Philosophy of Literature

3 Credits

This course investigates the expression of philosophical ideas in literary form and, likewise, literature's contributions to a philosophical inquiry into fundamental questions of human existence. Its central themes may include the nature of love and desire, personal identity and relationships with others, and ethical concerns of good and evil. Readings are drawn from the history of world literature and philosophy, from Classical Greek texts to contemporary science fiction.

Bachelor of Arts: Humanities
 General Education: Humanities (GH)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

PHIL 114: Feminist Philosophy

3 Credits

This course familiarizes students with concepts and challenges in feminist philosophies. Students will investigate the intersections of gender, race, sexuality, class, and other dimensions of identity through feminist analysis of epistemological and metaphysical assumptions (e.g., What is a woman? Does one's sex and/or gender provide special access to certain types of knowledge?), social structures, language, and the character of power.

Bachelor of Arts: Humanities
 General Education: Humanities (GH)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Soc Resp and Ethic Reason

PHIL 115: Philosophy and Education

3 Credits

This course surveys the core philosophical questions that arise when thinking about education and teaching: What ought people to learn? How are instruction and experience related? What counts as knowledge and truth? How do we discover the human nature that underlies our educational theories? What are the moral implications of leading young people out of innocence or ignorance? What is there to education beyond classrooms, schooling, and reading? How much education ought a society to require or expect of its population? How important is intellectual and moral maturity? The course also considers the historical contexts from which philosophical theories about education have arisen and their ideological, political, social, and economic implications.

Bachelor of Arts: Humanities
 General Education: Humanities (GH)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Soc Resp and Ethic Reason

PHIL 118: Environmental Philosophy

3 Credits

This course explores current environmental problems and human development in the context of historical and contemporary views of the relation of humans and nature. It examines differing conceptions of nature's value, human values, and the human condition more generally. It also investigates how distinct social, economic, and political ideologies and systems affect the human relation to nature, and how the ethical problems that arise from such systems may be critically evaluated and potentially resolved.

Bachelor of Arts: Humanities
 General Education: Humanities (GH)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Soc Resp and Ethic Reason

PHIL 119: Ethical Leadership

3 Credits

Leaders, in whatever context, make difficult decisions, distribute scarce resources, direct and influence the conduct of others, and represent the goals of the enterprise they lead. Thus they ought to exemplify prudence, fairness, integrity, honesty, trustworthiness, sincerity, and morally upright behavior. This course investigates these concepts and the moral dilemmas that arise in developing or applying them. It also explores, philosophically as well as practically, the ways leaders might identify ethical challenges, analyze them, imagine possible solutions, and be motivated to do the right thing. Students may read a variety of literature, from classic plays and novels, to prominent philosophical texts, to recent studies of ethics and leadership.

Bachelor of Arts: Humanities
 General Education: Humanities (GH)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies
 GenEd Learning Objective: Soc Resp and Ethic Reason

PHIL 120N: Knowing Right from Wrong

3 Credits

"Knowing Right from Wrong" provides a comprehensive understanding of the nature of moral ideas, beliefs, and behaviors in contemporary contexts. What roles do nature and nurture play in the development of moral sensibilities? How do moral emotions and moral reasoning interact to produce moral behavior? What defines moral character and how does it influence what we do? Is it possible to derive what ought to be done from what is known about the world? How do we respond when moral demands compete with another? How do our moral convictions color our perceptions of world events? Can individuals and groups with differing moral commitments communicate with one another and live together peacefully? The course integrates perspectives from philosophy, psychology, and sociology, and prepares students to think about (and act in) a world in which morality (and its linked concepts, such as judgment of others) plays an increasingly important social and political role. The course treats morality as both an aspirational concept and as an actual social practice, and focuses on three major themes: (1) the origins and development of moral reasoning and ethical systems, (2) the influence of moral emotions and moral intuitions on moral reasoning and behavior,

and (3) the influence of social and contextual factors on moral behavior and expression. Integrating the philosopher's interest in ethics, with the psychologist's interest in the mind and body, and the sociologist's interest in groups, the course provides a comprehensive introduction to morality in contemporary society, and the ways in which it shapes the lives of people in everyday situations.

Cross-listed with: PSYCH 120N, SOC 120N
 Bachelor of Arts: Humanities
 Bachelor of Arts: Social and Behavioral Sciences
 General Education: Humanities (GH)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Soc Resp and Ethic Reason

PHIL 122: Philosophy of History

3 Credits

This course surveys the core questions that arise when thinking about history, the relevance of the past, and the writing of history: How can we know history? What does it explain and what does it teach? Are those who don't know it doomed to repeat it? Is it objective? How is it related to human nature and progress? And what exactly is history – is it simply everything that has happened, or specific sequence of events, or a narrative we apply to make sense of some aspect of the past or present? In addressing these questions, the course emphasizes the thought of influential figures, including Hume, Vico, Hegel, Marx, Mill, Rickert, Dilthey, Croce, Collingwood, and Hempel. In general this course helps students think philosophically about the fact that humans live essentially through time and across generations. It also contributes to understanding the practice of studying, research, writing, and talking about history.

Bachelor of Arts: Humanities
 General Education: Humanities (GH)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

PHIL 123: Media Ethics

3 Credits

This course surveys the core philosophical questions connected with mass media: What is newsworthy? What is the whole story, and what makes it true? How ought media's form influence the power of its content? What authorizes journalists to interpret the facts? How much does individual self-understanding and social organization depend on media images and tropes? Does it make sense to speak of "the media" as a unified phenomenon? As we work to formulate and answer these questions, students will acquire ethical understanding, media literacy, and an appreciation for the role media plays in the formation of cultural expectations about knowledge, values, and technology.

Bachelor of Arts: Humanities
 General Education: Humanities (GH)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies
 GenEd Learning Objective: Soc Resp and Ethic Reason

PHIL 124: Philosophy of Religion

3 Credits

This course surveys perennial philosophical questions connected with religion: What is God, deity, or divinity? What is the nature and significance of religious experience? Is it rational to hold religious beliefs? How persuasive are arguments about the existence of God? How compatible is religion with modern science? What are the meanings of miracles, immortality, and creation? In what ways might morality depend on religion? What role ought religion to play in society and the public sphere? What lesson should we draw from profound religious experiences? Ought religious tolerance to be limited at all? Through the reading and discussion of relevant historical and contemporary texts, students will be encouraged to reflect on such questions from a variety of perspectives.

Prerequisite: third-semester standing

Cross-listed with: RLST 129
 Bachelor of Arts: Humanities
 General Education: Humanities (GH)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Soc Resp and Ethic Reason

PHIL 125: Theories of Knowledge

3 Credits

This course surveys the core questions in epistemology: What do we mean when we claim to know something, as opposed to merely having an opinion about it? What sorts of things, if anything, are ultimately knowable? What role ought sensation, perception, observation, experience, authority, testimony, or reason play in forming, changing, justifying, or defending claims to knowledge? Are such claims to knowledge always conditioned by the social and historical situation, and limited by the knowers' standpoint, or are there universal standards to establish them? Through analysis and discussion of classical historical and contemporary texts, the course introduces students to these and related problems of knowledge and acquaints them with the most influential strategies that philosophers have developed in response to them.

Bachelor of Arts: Humanities
 General Education: Humanities (GH)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

PHIL 125W: Theories of Knowledge

3 Credits

This WAC course surveys the core questions in epistemology: What do we mean when we claim to know something, as opposed to merely having an opinion about it? What sorts of things, if anything, are ultimately knowable? What role ought sensation, perception, observation, experience, authority, testimony, or reason play in forming, changing, justifying, or defending claims to knowledge? Are such claims to knowledge always conditioned by the social and historical situation, and limited by the knowers' standpoint, or are there universal standards to establish them? Through analysis and discussion of classical historical and contemporary texts, the course introduces students to these and related problems of knowledge and acquaints them with the most

influential strategies that philosophers have developed in response to them.

Prerequisite: ENGL 015 or ENGL 030H

Bachelor of Arts: Humanities

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

Writing Across the Curriculum

PHIL 126: Metaphysics

3 Credits

This course considers key concepts, problems, and figures in metaphysics, the investigation into the nature of reality. We will ask the deepest questions about what exists and how things relate to one another on a fundamental level. For example: Does everything ultimately reduce to simple substances, or is reality organized into types? Does time exist objectively, or is it dependent on the mind? Does effect follow cause as a matter of universal law or only as a statistical probability? What factors determine whether a thing is the same over time or differs at every instance? We will also query the most basic assumptions about reality, that a pencil will not fall through a desktop, the sun will rise tomorrow, and the world was not created a minute ago. Students will develop skills in reading difficult texts, evaluating arguments, and formulating their own philosophical views through discussion and in writing.

Bachelor of Arts: Humanities

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

PHIL 126W: Metaphysics

3 Credits

This WAC course considers key concepts, problems, and figures in metaphysics, the investigation into the nature of reality. We will ask the deepest questions about what exists and how things relate to one another on a fundamental level. For example: Does everything ultimately reduce to simple substances, or is reality organized into types? Does time exist objectively, or is it dependent on the mind? Does effect follow cause as a matter of universal law or only as a statistical probability? What factors determine whether a thing is the same over time or differs at every instance? We will also query the most basic assumptions about reality, that a pencil will not fall through a desktop, the sun will rise tomorrow, and the world was not created a minute ago. Students will develop skills in reading difficult texts, evaluating arguments, and formulating their own philosophical views through discussion and in writing.

Prerequisite: ENGL 015 or ENGL 030H

Bachelor of Arts: Humanities

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

Writing Across the Curriculum

PHIL 127: Philosophy of Mind

3 Credits

The course wonders, "What is a mind?" - especially in its relationship to the brain, the person, and the world. We study whether consciousness defines a mind, what limitations if any subjectivity places on the scientific investigation of the mind, and how to build a robot with a mind. Readings may include texts from the history of philosophy and contemporary philosophy, as well as neuroscience and psychology. Students will learn a broad range of skills needed to understand and synthesize the variety of information relevant to the mind.

Bachelor of Arts: Humanities

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

PHIL 129: Philosophy of Language

3 Credits

Philosophy of language asks the following sorts of questions: What makes a system of symbols a language? What is meaning? How does a term or a symbol refer to an object? In what way is speech also an action? How does language affect the way we see the world? This course offers a critical survey of key concepts, topics, and texts from Classical authors (e.g., Plato and Aristotle) and more recent thinkers, in the post-Fregean analytic tradition, the Peircean pragmatic tradition, and the post-Husserlian or Saussurean continental tradition. It shows how the debates about language and its relation to the world shed light on other major problems of philosophy. Due to the formal nature of its subject-matter, the course helps students develop skill in the logical analysis of sentences and descriptions.

Bachelor of Arts: Humanities

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

PHIL 131N: BS: Identifying Bias and Falsehood

3 Credits

The course will consider the ways statements are used for aims other than to convey accurate information. This disregard for truth results in the increasingly difficult task of identifying bias and falsehood in the age of information. There are three areas most corrosive to knowledge: language, science, and statistics. The course will examine the appeal of rhetorical arguments and the role of bias in assessing claims; various ways evidence fails to support a conclusion; and the manipulation of data to make information appear more compelling than it is. Students will learn to evaluate the truth of arguments based on philosophical and scientific criteria, and use a variety of skills to identify bias and falsehood in the media.

Cross-listed with: SC 205N

Bachelor of Arts: Humanities

Bachelor of Arts: Natural Sciences

General Education: Humanities (GH)

General Education: Natural Sciences (GN)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

PHIL 132: Bioethics

3 Credits

This course surveys core topics in recent bioethics - the study of ethical problems issuing from the use and treatment of human and non-human animals in the research and practice of medicine and biotechnology. It aims to help students think more critically and argue from specific moral theories when evaluating issues concerning human body and its enhancement, the value of life and death, abortion and euthanasia, the distinction between biological and moral conceptions of human, the nature of health, illness and disabilities, the allocation of resources for health-care, doctor-patient relationships, and our moral conduct toward animals in medical and industrial contexts.

Cross-listed with: BIOET 100

Bachelor of Arts: Humanities

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Soc Resp and Ethic Reason

PHIL 133N: Ethics of Climate Change

3 Credits

Climate change is not only a political, economic, and social crisis, it presents one of the great moral problems of our time. This course will cover the science, policy, and ethics of climate change. It fulfills general science requirements by giving an overview of the role played by such diverse scientific disciplines as chemistry, earth systems, ecology, and geology in understanding our changing climate while also exploring mitigation and adaptation strategies being developed in the fields of engineering, forestry, agriculture, and others. It fulfills humanities requirements by delving into the ethical dimensions of climate change, including religious and humanistic theories of human flourishing, deontological and teleological theories of ethics, and analysis of specific choices addressed by international negotiators. A hallmark of this course is using Penn State as a 'living laboratory' by taking advantage of both faculty expertise and the realworld activities of the Office of Physical Plant. Every week, students will interact with experts from various quarters of the University in order to see how climate change is being approached in a multi-disciplinary fashion. The first third of the course will feature guest lectures by EMS faculty working on paleoclimate, modeling, carbon sinks, ocean acidification and other aspects of climate science. The second portion will engage humanists, economists, historians, and artists at Penn State. The third will include tours of Penn State facilities, such as the East Campus Power Plant, and interviews with researchers developing new energy and sequestration technologies. In addition to exams and papers, students will prepare for a mock negotiation by learning about the energy profile and history of assigned countries. They will then have to set specific CO2 and temperature goals and come up with solutions to achieve these. The goal is to understand the role placed by ethical ideals in the pragmatic process of producing an equitable solution. In short, this course will give students the tools to understand the basic science of climate change and its ethical implications. Students will come away with a better sense of the moral dimensions of this phenomenon and the implications for human civilization and for the biosphere.

Cross-listed with: METEO 133N, RLST 133N

General Education: Humanities (GH)

General Education: Natural Sciences (GN)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

PHIL 134: Food, Values, and Health

3 Credits/Maximum of 3

This course studies the ethical and social issues connected to food, personal and cultural eating habits, body image and ideas of health, and agricultural practices and industrialized food production. We will discuss the following sorts of questions: In what ways are cooking and eating central to our human identity? What do judgments about being anorexic, overweight, or eating unhealthily mean and do? How strong are the arguments for vegetarianism, veganism, or raw-food-ism? Ought we to eat as our Paleolithic ancestors did? If the future holds engineered meat, GMO fruit, and Soylent shakes, what are we to think? Should food-companies be allowed to advertise to children? Is alcohol more like food, like medicine, or like drugs? Students will pursue answers to such food-ethical questions by learning relevant moral and social theory, discussing past and contemporary approaches to these issues, and analyzing case studies. We will pay particular attention to food as a symbol with psychological, social, and spiritual meanings and effects.

Cross-listed with: FDSC 134

Bachelor of Arts: Humanities

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Soc Resp and Ethic Reason

PHIL 135: Ethics in Jewish Tradition and Thought

3 Credits

This course takes as its starting point the idea that modern ethical frameworks are deeply rooted in the soil of older traditions. By examining the development of Jewish intellectual traditions and their roots in the Bible, it provides students with an opportunity to study ethics in a philosophically textured, culturally rich, and historically informed way. And by focusing on Jewish engagement with the Bible, the course illuminates other traditions that derive from biblical monotheism: for example, those associated with Christianity, Islam, and the Enlightenment. The first part of the course takes up the idea of tradition and includes a study of biblical texts that serve as the foundation for key moral concepts. Following the traditional division of the scriptures, it examines questions of human identity and responsibility in the Torah, social ethics in the Prophets, and the quest for wisdom in the Writings. The final topic in this unit is the development of ethical tradition among the great sages of Jewish antiquity. The second unit shifts focus to the appropriation of tradition in modern Jewish thought. After reviewing important developments in Jewish thought in the medieval and early modern periods, it turns attention to the ways that some recent figures have addressed perennial concerns in light of commitments and ways of being that are integral to Jewish identity. By reading closely the works of such seminal thinkers as James Kugel, Joseph Soloveitchik, and Abraham Heschel, we will gain a deep acquaintance not only with important vocabulary but also with the ways that traditional words and

concepts may be used dynamically to produce fresh ways of looking at questions in moral philosophy.

Cross-listed with: JST 135, RLST 135

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Soc Resp and Ethic Reason

PHIL 136N: Art and Philosophy in Ancient Greece

3 Credits

Ancient Greece provided Western Civilization much in terms of art and philosophy. The influence of the Greeks can be seen in such areas as architecture, sculpture, concepts of beauty, literature, etc. These are independent domains, but there is often integration between the two disciplines. This course will uncover the ways in which philosophy informed Greek ideals and the role played by both visual art and literary art. To that end, sections will focus on each of those two disciplines. Study will also display how the disciplines come together in the following areas: 1) Beauty and 2) The interrelation of art, religion, philosophy and the state. Early in the course, students will thoroughly examine the concept of Beauty, with an emphasis on Ideal Beauty. Students will explore objective and subjective definitions by developing models of each and then synthesizing competing ideas in their own unconventional definitions of Beauty. Foundational work will include study of specific Greek artists/thinkers, and involve students in working toward identifying traces of early thinking in contemporary society. This will include both written and visual work. Analyses will target philosophical thought, sculpture and architecture primarily from Early Classical and High Classical/Golden Age works as students explore the Greek search for perfection. The periods and styles that will be covered include: Geometric which includes the Orientalizing period; Archaic; Classical (Early, High, and Late); and Hellenistic. Next students will examine and discuss different philosophical topics such as metaphysics, epistemology, aesthetics, etc. An emphasis will be placed on Plato and Aristotle but the Pre-Socratics may also be considered. Art and philosophy are also integrated in Ancient Greece. Plato considered beauty, art, the artist and tragedy in works such as *The Republic*, *Philebus*, *Ion* and *Hippias Major*. Aristotle's major contribution to aesthetics is in the *Poetics*. The last section will consider the relationship between literary art (plays) and the Greek understanding of authority, particularly the gods, the state and the individual. Much of the art in the Greek culture (as it is in most cultures) is best understood in terms of the dominant religion. The themes developed gave rise to a great deal of philosophical reflection in terms of the place of religion, and how the individual saw themselves in relation to the gods and the state. Through an examination of plays and philosophical texts, students will explore this relation between the individual and an authority (gods or rulers).

General Education: Arts (GA)

General Education: Humanities (GH)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

PHIL 137N: Introduction to Philosophy through Health and Sport

3 Credits/Maximum of 3

Introduction to Philosophy through Health and Sport (PHIL137N). 3 credits. (Inter-Domain), (GH), (GHW) is a general education interdomain course that introduces students to the major branches, ideas, theories, and arguments of philosophy. This introduction is contextual insofar as it provides an overview of core philosophical ideas by relating them to a multidimensional conception of health, specifically focusing on positive health (wellness) and thinking about both philosophy and health in relation to sport. This is an Inter-Domain ("N") course containing two general education domains (GH/GHW). Successful completion of the course fulfills 3 credits of Integrative Studies in General Education.

General Education: Humanities (GH)

General Education: Health and Wellness (GHW)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

PHIL 139: Latino/a Philosophy

3 Credits

This introduction to Latino/a Philosophy covers the historical experience of Latino/a peoples and the impact that those experiences have had and can have on "American" philosophy. It also covers race, class, gender, and ethnicity in relation to the Latino/a experience, and thus ethics, political theory, legal theory, critical philosophy of race, and feminist philosophy. In the process it offers an introduction to key themes in contemporary philosophy. The course includes comparisons with African American, Asian, and Native American philosophies.

Cross-listed with: LTNST 139

Bachelor of Arts: Humanities

International Cultures (IL)

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Soc Resp and Ethic Reason

PHIL 197: Special topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Bachelor of Arts: Humanities

PHIL 198: Special topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Bachelor of Arts: Humanities

PHIL 199: Foreign Study--Philosophy

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Humanities
International Cultures (IL)

PHIL 200: Ancient Philosophy

3 Credits

This course examines key themes, texts, and persons in ancient Greek philosophy, with the works of Plato and Aristotle at the core. We ask: What did Socrates mean when he said "the unexamined life is not livable by humans"? Or when Thales said "All begins in water"? Or when Epicurus said "Only pleasure is valuable"? Or when Parmenides said "You cannot speak of what is not"? To answer these questions, we examine the cultural background of philosophical thinking (Homer and Hesiod; Near Eastern traditions; trade and empire), and we survey views about, for example, the universe's structure and origin, the nature of reality and change, the status of knowledge and opinion, the best way of life for individuals and for societies, and the value of reason, persuasion, argument, and logic. We also give close attention to the formation, meaning, and purpose of philosophy, wisdom, and sophistry. This includes analysis of the "myth reason" hypothesis, Milesian inquiry into basic principles (archai), physical vs. ethical inquiry, and the development of doctrine, discipline, and disagreement. In addition to the figures mentioned above, figures studied may come from the periods of the Presocratics (e.g., Pythagoras, Heraclitus, Xenophanes), Hellenism (Stoic, Epicurean, Cynic, and Skeptic), the Romans (e.g., Cicero, Seneca), and the Neoplatonists (e.g., Plotinus).

Cross-listed with: CAMS 200

Bachelor of Arts: Humanities

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

PHIL 201: Medieval Philosophy

3 Credits

This course examines key themes developed by the philosophers from the long millennium between the fall of Rome and the rise of the Renaissance, many of whom responded to ancient Greek philosophy in the context of their theological commitments (Christian, Jewish, Muslim). The works of Augustine and Aquinas are at the core; readings may also include works by Boethius, Anselm, Abelard, Occam, Scotus, Avicenna, Al-Kindi, Maimonides, and Averroes. We ask: What is the fundamental nature of reality, and where do humans fit in? How ought we to understand essence and existence? Do abstract concepts correspond to real "universals" or are they mere names? What does a belief in free will and evil commit us to? What should we make of the arguments for God's existence? What are laws of nature, and in what respect might natural law govern our lives? To answer these questions, we examine the cultural and Greek/Roman background of medieval philosophy, and give close study to the significant philosophical and related texts of the tradition.

Bachelor of Arts: Humanities

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

PHIL 202: Modern Philosophy: 1600-1800

3 Credits

This course surveys major philosophical issues of the seventeenth and eighteenth centuries, a vibrant era of scientific revolution, religious and political upheaval, and Europe's rise to global power. In its quest for a method of scientific discovery, philosophy breaks with the Aristotelian tradition that had dominated it for centuries; it ends up confronting remarkably new questions and modes of explanation. We focus on the works of the major thinkers of this era, such as Descartes, Spinoza, Leibniz, Locke, Berkeley, Hume, and Kant. Although with different priorities and conclusions, each takes up the implications of the new, mechanistic conception of nature. We study their investigations into the following types of questions: What is "substance" and what are the genuine qualities of things? What is the nature of the mind, and how is it related to the "material body"? How do we acquire knowledge of reality, and can we ever be certain of this knowledge? Are natural phenomena determined by causal laws? Does God exist and, if so, what is his role in relation to a material world governed by causal laws? The lively debates over these questions gave birth to two rival schools of thought, one seeking answers in the innate principles of the mind (rationalism), the other in our experience of the world (empiricism).

Bachelor of Arts: Humanities

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

PHIL 203: Nineteenth Century Philosophy

3 Credits

The nineteenth century is a period of political upheaval and ongoing social, cultural, and scientific transformation, shaped in equal parts by the French Revolution and the Industrial Revolution. This transformative character is reflected by the epoch's most influential philosophers. Kant's "critical" philosophy emphasizes the primacy of practice and the subject's active role in constructing reality. Hegel focuses on the rationality implicit in the historical growth of religion and the political institutions of the state. As the century wears on, escalating social and political conflicts lend credibility to outspoken critics of such optimistic rationalism. Schopenhauer's pessimism, Kierkegaard's existentialist focus on the irrationality of faith, Marx's historical materialism and emphasis on class struggle, Nietzsche's "genealogical" anti-realism and philosophy of power are prominent examples. The embrace of new paradigms in morality (Mill), natural science (Bergson), and psychology (Freud, James) round out the picture of a century in transition from "classical" European modes of thought to the self-conscious secularism and dynamism of the 20th century. By reading a broad selection of representative texts, students will learn about the major figures and streams of thought that shaped the course of this eventful period in the history of Western philosophy.

Bachelor of Arts: Humanities

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

PHIL 204: Twentieth Century Philosophy

3 Credits

The 20th century can be characterized as a crisis of foundations, doubt about the ultimate grounding or demonstrability of our beliefs concerning the world and ourselves. So-called continental philosophy sought a ground of knowledge in phenomenology, the view that human subjective experience ("phenomena") reveals essences, how things actually are. By mid-century, deconstructionist critique shattered confidence about the underlying distinctions assumed here. So-called analytic philosophy began the century with a commitment to eliminating metaphysical speculation in favor of narrowly empirical truths, on the model of scientific investigation; but the eventual unconvincingness of this view led to theories of knowledge and metaphysics that allowed for the absence of foundations. Rooted in this and earlier rejections of foundations, so-called pragmatism began as way to assess competing ideas by the difference they make in human action. A crisis in political foundations generated the social and philosophical movements of Marxism, critical race theory, and feminism. The ramifications of these crises continue to be acutely felt in contemporary philosophy, making the 20th century a period of particularly diverse and relevant resources. This course satisfies BA and GH requirements.

Bachelor of Arts: Humanities
 General Education: Humanities (GH)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Soc Resp and Ethic Reason

PHIL 205: American Philosophy: 1840-Present

3 Credits

American philosophy comes into its own in the mid-nineteenth century, emancipating itself both from its origins in Protestant religion and from the tutelage of European role-models. The 1840s see the rise of the New England Transcendentalists (Emerson, Thoreau), who emphasized imagination, individualism, equality, and moral progress. During the decades of national reconsolidation following the Civil War, Pragmatism arises (Peirce, James, Dewey, Royce). Its practitioners innovations help set the tone for many twentieth-century intellectual developments: the emphasis on history, practice, and pluralism; the break with metaphysics and intellectualistic approaches to science, morality, and society; and the commitment to a "radical empiricism" broad enough to embrace scientific observation, religious experience, and social experimentation. Fuller's early feminism, Addams's social progressivism, and Du Bois's reflections on racial inequality constitute uniquely American moments in the history of philosophy. Certain more recent philosophers (Putnam, Rorty, Cavell, and Brandom) have renewed and extended the pragmatist legacy. The course evaluates the problems raised by these philosophers and traces their influences on American society, politics, and culture. One of the principal goals is to enable students to understand better this rich philosophical tradition and its importance-both critical and constructive-in the contemporary American landscape.

Bachelor of Arts: Humanities
 General Education: Humanities (GH)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

PHIL 208: Contemporary Philosophy

3 Credits

Treating contemporary philosophy as history encourages us to ask what current ideas are likely to resonate in the future. The course focuses on philosophical work that crosses disciplinary boundaries, addresses new social and political problems, introduces experimental styles, and opens novel areas of investigation. By engaging with the ideas of philosophers who are writing and thinking right now, students gain the opportunity to consider how well philosophy addresses issues of concern to a world that they themselves belong to. Examples include climate change, racism, posthumanism, globalization, gender and sexual identity, and the science of the mind. Working with living philosophers also affords the opportunity to see the authors speak about their work on video or, when practical, in person.

Bachelor of Arts: Humanities
 General Education: Humanities (GH)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Soc Resp and Ethic Reason

PHIL 233: Ethics and the Design of Technology

3 Credits

Humans have always created artifacts and artificial environments to aid us in our survival and to help fulfill our needs and desires. Moreover, today technology is all pervasive, transforming and conditioning our social and political relations, our cultural understanding of ourselves, and our relationship with other animals and the natural environment. Designers make important choices concerning the creation, development, and deployment of many if not most technological innovations. Consequently, the task of the designer is an ethical one. It is therefore important to give future designers the opportunity to reflect upon the meaning of technology, particularly in its moral dimensions. Two means will be used to achieve our course goals. Much of the time will be spent thinking about and discussing the various impacts that particular technologies have upon the social, cultural, and political lives of human beings and upon the natural environment. To facilitate thoughtful discussion, we will read a number of authors, writing short papers in preparation for critical discussion in class. The second means is aimed at putting our ideas into practice by working in teams on several design projects. These design projects will require the integration of readings, discussion, and research and their synthesis to resolve the moral aspect of a design problem. Student teams will work cooperatively on these projects and make oral progress reports as well as final written and oral reports.

Cross-listed with: STS 233
 Bachelor of Arts: Humanities
 General Education: Humanities (GH)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Soc Resp and Ethic Reason

PHIL 242N: Happiness and Well-Being

3 Credits

PHIL 242N : Happiness and Well-Being. 3 credits. (Inter-Domain), (GH), (GS), (BA). This course provides a general introduction to the topics of

human happiness and well-being as these topics are both approached from the humanities discipline of philosophy and the social and behavioral science discipline of psychology. The course will introduce the distinct methods of inquiry into the topic of well-being in philosophy and psychology and highlight the disciplinary commitments of the two fields more generally. Students will understand and evaluate the empirical research into well-being and positive psychology in psychology. Students will understand and evaluate the three major theories of well-being in philosophy: hedonism, the desire satisfaction theory, and the objective theory. We will appraise whether the empirical results affect the viability of the philosophical theories. We will appraise whether the philosophical theories affect the significance of the empirical results. We will consider such questions as: What are the strengths, weaknesses, and complementarities of the philosophical and psychological approaches to well-being? Are psychologists and philosophers talking past each other, or can the two disciplines learn from each other's research results and philosophical theories? What implications do the results and theories studied have for concrete choices I should make in order to increase my well-being? Are there implications for choices of social policies aiming to increase well-being?

Prerequisites: ENGL 15; or any PHIL course

Bachelor of Arts: Humanities

Bachelor of Arts: Social and Behavioral Sciences

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

PHIL 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Bachelor of Arts: Humanities

PHIL 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Humanities

PHIL 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Humanities

International Cultures (IL)

PHIL 401: American Philosophy

3 Credits

A distinctively American school of philosophy emerged in the early part of the nineteenth century and remains influential in the present day. American transcendentalism, philosophical applications of evolutionary theory (e.g., social Darwinism), the abolition of slavery (Garrison, Douglass), and equality for women (e.g. Grimké, Stanton,

Fuller) dominated the early part of the nineteenth century. By far the most well-known philosophical movement in the later nineteenth and early twentieth century was pragmatism (Peirce, James, Dewey). Its proponents developed new approaches to a range of traditional philosophical topics, including truth and knowledge, ethics, the nature of reality and the mind, religion, and education. "American philosophy" is characterized by its emphasis on the decisive value of practice and its guiding role in relation to theory; by its metaphysical pluralism, anti-Cartesian fallibilism, and rejection of intellectualism; its constructive criticism of racial and gender inequalities (e.g. Du Bois, Addams, Ladd-Franklin), and its commitment to a conception of experience ("radical empiricism") broad enough to embrace both science and religion. In more recent times, influential neopragmatists such as Richard Rorty and Robert Brandom have further advanced the tradition and demonstrated its continuing philosophical and social relevance. This course builds on its precursor (Phil 205), focusing on specific topics, works, or figures.

Prerequisites: 9 credits of philosophy; or 6 credits of philosophy where three are from PHIL 205; or 6 credits in philosophy where all are at the 200-level.

Bachelor of Arts: Humanities

PHIL 402: Seminar in European Philosophy

3 Credits/Maximum of 6

Among the most important movements to emerge in the decades around 1900 are phenomenology (Husserl, Merleau-Ponty) and neoKantianism (Natorp, Cassirer), which make important contributions in metaphysics, epistemology, and to research in the foundations of logic, mathematics, and science. Hermeneutical thought (Dilthey), by contrast, emphasized "historicity" over the ostensibly timeless objects of traditional philosophical thought, insisting that interpretive "understanding" of historically situated subjectivity was a kind of knowledge distinct from the "explanation" of purely objective phenomena, while Marxism urged attention to historical development in the name of social critique and political change. These productive tensions are evident in the major movements that dominate mid-twentieth century Continental philosophy: existentialism (Heidegger, Sartre), critical theory (Adorno, Horkheimer), and structuralism (Jacobson, Lacan, Althusser). Beginning in the 1960s, French Continental philosophy enters a phase of self-criticism that gives rise to innovative and challenging forms of discourse, often referred to collectively as post-structuralism (Derrida, Foucault, Deleuze). These thinkers challenge basic assumptions of classical Continental philosophy, e.g., the centrality of subjectivity; the privileging of identity over difference; the non-violent sovereignty of reason; the unity, continuity, and progressive character of history; the possibility and desirability of totalizing "structures" of collective power, action, and intelligibility. At the same time, secondgeneration critical theorists (e.g., Habermas) seek to revise their teachers' overly rigid commitment to Marxism and outmoded psychological and sociological conceptions in favor of more nuanced theory of "communicative action" and the structural transformation of the public sphere. Building on its survey-oriented precursor (PHIL 102), this course provides an opportunity for more focused engagement with selected authors and works, or with particular topics or streams of thought pursued through attention to a variety of authors and works.

Prerequisites: 9 credits of philosophy; or 6 credits of philosophy where at least three are from PHIL 102 or 204; or 6 credits in philosophy where all are at the 200-level.

Bachelor of Arts: Humanities

PHIL 403: Seminar in Environmental Ethics

3 Credits

How do and should human beings relate to the natural world - and what is the natural world? What moral obligations or considerations for non-human animals, plants, and other parts or features of nature? What do we owe to other human beings, and future humans, with respect to the environment? This course examines such questions in light of current ethical and social-political theories and uses such questions to assess the adequacy of those theories (which were often formulated without explicit concern to answer such questions about the environment). We can then assess the pressing environmental issues of today - climate change, conservation, pollution, sustainability, and population - in light of those theoretical perspectives.

Prerequisites: PHIL 118
Bachelor of Arts: Humanities

PHIL 405: Seminar in Philosophy of Law

3 Credits

This course gives close attention to key themes in the philosophical analysis of legal systems, either historical or contemporary. Relevant issues may include the nature of law and its relation to morality, custom, and politics; the nature of constitutional interpretation and the role of judges; the purpose and limits of punishment; the possibility of international law and rights-enforcement; the connection between legal arrangements and social or economic inequality; the differences between types of legal system (e.g., common law, statutory, ecclesiastical); and the idea of progress in law. Students will gain a deeper understanding of select issues they may have studied in PHIL 105; develop skills of reading, comprehension, critique, and expression; and continue to appreciate the value of philosophical approaches to (at times problematic) human institutions.

Prerequisites: 9 credits of philosophy; or 6 credits of philosophy where three are PHIL 105; or 6 credits in philosophy where all are at the 200-level
Bachelor of Arts: Humanities

PHIL 407: Seminar in Philosophy of Technology

3 Credits

The human condition may very well be a technological condition. Developing and refining technology have proven central to cultural and perhaps even evolutionary history, the development of science, our economic practices, and-most importantly-our selfunderstanding. Should we understand the co-development of humanity and technology as a continuous history? Or have the past two centuries-with the development of industrial mechanization, the computer, and now the Internet-marked a radical shift of some kind? This course will explore the philosophy of technology in more focused and rigorous ways than the department's lower-division course, PHIL 107, seeking to understand the way in which technology is transforming our relationships to ourselves, to other people, and to our world. Guiding questions for the course include: What is technology? How does it inform and inflect human flourishing and the human condition? What are its ramifications for ethical thought?

Prerequisites: 9 credits of philosophy; or 6 credits of philosophy where three are from PHIL 107; or 6 credits in philosophy where all are at the 200-level

Bachelor of Arts: Humanities

PHIL 408W: Seminar in Social and Political Philosophy

3 Credits

This course builds on lower level courses in social and political philosophy (e.g., 108) to provide an in-depth examination of philosophical issues relating to political institutions and social practices. These issues may include questions concerning the justification of government; the nature of equality, freedom, democracy and other modes of political organization; or issues concerning the evaluation of social life such as race and racism, cultural identity, power, and violence. Assigned readings will typically include historical and contemporary philosophical work on these questions as well as material on current events, social controversies, historical material, and other works that expand and reflect upon these core issues.

Prerequisites: 9 credits of philosophy; or 6 credits of philosophy where at least three are from PHIL 002 or 108; or 6 credits in philosophy where all are at the 200-level
Bachelor of Arts: Humanities
Writing Across the Curriculum

PHIL 409: Seminar in Aesthetics

3 Credits

Aesthetics examines questions related to the nature of art and beauty as well as the nature of aesthetic judgment and experience. Building on its precursor (PHIL 109), this course explores selected topics in traditional or contemporary aesthetics in greater depth. Typical issues include the distinction between beauty, sublimity, and ugliness; the nature of aesthetic experience and artistic value and their relation to knowledge; the basis and validity of aesthetic judgments; the relationship between art, morality, and society; and the influence of social identities (race, class, gender, sexuality, ability, etc.) on the production and reception of art. In addition to familiarizing themselves with theoretical approaches, students will typically also engage in the discussion and critical interpretation of specific artworks (e.g. paintings, sculptures, photographs, films, musical compositions or performances, literary works), both as a way of exemplifying particular aesthetic issues and approaches, and with a view to enhancing students' aesthetic perception and experience.

Prerequisite: 9 credits of philosophy, including PHIL 109 or 6 credits of philosophy at the 200 level, or 3 credits of art or 5th semester standing
Bachelor of Arts: Humanities

PHIL 410: Seminar in Philosophy of Science

3 Credits

This course reviews the development of philosophy of science in the past century and studies its development once it turns its attention to modern cosmology and biology in this century. We begin with the Vienna School, which took physics to be the most important science, and analyzed deductive thought by means of predicate logic. Then we will look at the work of Thomas Kuhn, who insists on the importance of the history of science for philosophy: we must look at how the sciences develop over time. This makes biology especially interesting: we begin with Darwin, and trace developments to the discovery of DNA and the importance of genetics, and consider the way biology combines the microscopic, the macroscopic, and the study of biological systems. This leads science to interact with politics, as the issue of global warming becomes apparent.

How does theory intersect with practical deliberation? The development of modern cosmology also reminds us that the whole universe has a history, and changes our sense of our environment. So it seems that the philosophy of science must include not just deductive thought, but also historical thought and practical deliberation.

Prerequisites: 9 credits of philosophy; or 6 credits of philosophy where at least 3 credits are from PHIL 011 or 110; or 6 credits in philosophy where all are at the 200-level.

Bachelor of Arts: Humanities

PHIL 413: Seminar in Philosophy of Literature

3 Credits

This course builds on its precursor (PHIL 113) to provide a deeper, more focused perspective on specific topics and issues, for example the nature of fiction and its relation to fact, the value of literary works of art (aesthetic, cognitive, educational, and social), and the nature and proper norms of literary interpretation, translation, analysis, and historiography. Assigned readings will typically be philosophical or (more broadly) theoretical in character, though the instructor may incorporate works of literature into the syllabus. In addition to skills in both the writing and the critical analysis of texts, students will deepen their appreciation of the value of literary representation and its relation to the distinct but closely related field of philosophical reflection.

Prerequisites: 9 credits of philosophy; or 6 credits in philosophy where three credits are from PHIL 006 or 109 or 113; or 6 credits in philosophy where all six are at the 200-level

Bachelor of Arts: Humanities

PHIL 416: Philosophy of Social Science

3 Credits

This course focuses on the methods and epistemological bases for work in the social sciences, which include any field that focuses on explanations of human behavior, psychology or social activity. Topics include questions of objectivity, meaning and interpretation, and the grounds for knowledge of the human condition. Issues may also include whether such sciences are best seen as empirical (even quantitative) accounts of human behavior or interpretive and qualitative understandings of those phenomena.

Prerequisites: 9 credits of philosophy; or 6 credits in philosophy where three credits are from PHIL 108; or 6 credits in philosophy where all six are at the 200-level.

Bachelor of Arts: Humanities

PHIL 418: Seminar in Ethical Theory

3 Credits

This course builds on lower level courses in ethics and value theory (e.g., PHIL 103). It goes deeper into questions of the meaning, justification, and motivational grounding of ethical judgments. Topics may include "normative ethical systems" such as utilitarianism, Kantian ethics, Aristotelian virtue theory, and feminist care ethics. Also included are more abstract issues in "meta-ethics" such as whether ethical statements can be true or false, whether they stand in logical relation to each other as do other propositions, what connection do such judgments have to the psychological make-up of human beings, and the like. Also considered are questions such as the objectivity (or relativity) of ethical judgments

and their relation to the meaning and evaluation of social practices and institutions.

Prerequisites: 9 credits of philosophy; or 6 credits of philosophy, to include either PHIL 003 or 103; or 6 credits in philosophy at the 200-level
Bachelor of Arts: Humanities

PHIL 418W: Seminar in Ethical Theory

3 Credits/Maximum of 6

This course builds on lower level courses in ethics and value theory (e.g., PHIL 103). This class goes deeper into questions of the meaning, justification, and motivational grounding of ethical judgments. Topics may include "normative ethical systems" such as utilitarianism, Kantian ethics, Aristotelian virtue theory, and feminist care ethics. Also included are more abstract issues in "meta-ethics" such as whether ethical statements can be true or false, whether they stand in logical relation to each other as do other propositions, what connection do such judgments have to the psychological make-up of human beings, and the like. Also considered are questions such as the objectivity (or relativity) of ethical judgments and their relation to the meaning and evaluation of social practices and institutions.

Prerequisite: 9 credits of philosophy, including PHIL 103 or 6 credits of philosophy at the 200 level
Bachelor of Arts: Humanities

Writing Across the Curriculum

PHIL 424: Seminar in Philosophy of Religion

3 Credits

This course builds on its precursor (PHIL 124) to provide a deeper perspective on specific topics and issues, typically through discussion of classical or contemporary writings by recognized philosophers of religion. Though the course will typically focus on one or a few selected questions, these may range as broadly as the field itself, for example: how and to what extent is religious faith compatible with reason, scientific rationality, and our knowledge of history? Are there universal types of religious experience and what is their human value and objective significance? Are religion and morality mutually independent or does one rest on or constrain the other? Arguments concerning the existence of God, the interaction between religion, society, and politics, and religious pluralism are further possible topics. Beyond gaining familiarity with canonical texts and honing their skills as critical readers and writers, students will find opportunities to reflect both on religion's historical, social, and moral significance as a dimension of human life, and on the specific challenges it raises.

Prerequisite: 9 credits of philosophy, including PHIL 124 or 6 credits of philosophy at the 200 level or 5th semester standing
Bachelor of Arts: Humanities

PHIL 425W: Seminar in Epistemology

3 Credits

The nature of cognition and perception, the conditions of experience, and the justification and truth of belief.

Prerequisite: 9 credits of philosophy, including PHIL 125 or 6 credits of philosophy at the 200 level; in addition to ENGL 15 or ENGL 30H
Bachelor of Arts: Humanities
Writing Across the Curriculum

PHIL 426W: Seminar in Metaphysics

3 Credits/Maximum of 6

Examines the nature of reality, the existence of freedom, and the nature of matter, mind, and values.

Prerequisite: 9 credits in philosophy, including PHIL 126 or 6 credits of philosophy at the 200 level
Bachelor of Arts: Humanities
Writing Across the Curriculum

PHIL 427: Seminar in Philosophy of Mind

3 Credits

The nature of the mind and its relation to the physical world is the focus of this course, which builds on its precursor (PHIL 127). Topics include the definition of consciousness, what constitutes a self, and whether artificial constructions like robots could have minds. Views on these topics, as formulated by a range of (largely twentieth-century) movements - logical behaviorism, functionalism, (physicalist) reductionism, eliminativism, dualism, mind-brain identity theory, and enactivism - have significant metaphysical and ethical consequences. If consciousness is separate from the body, physical theories of causation cannot explain the effect of thought on action. If robots can have minds, there are reasons to be concerned about exploitation of robots as well as the possibility of robot domination. Students will investigate these topics in greater depth, typically either by selecting one or two for careful study or by focusing on the thought of one or two selected authors, e.g., Ryle, Smart, Millikan, Fodor, Block, Churchland, and Chalmers. Texts will challenge students to read and analyze contemporary and historical scholarly work on the topic. The issues discussed will encourage reflection on the assumptions students have about themselves and how their minds shape and are shaped by the world.

Prerequisites: 9 credits of philosophy; or 6 credits in philosophy where three credits are from PHIL 127; or 6 credits in philosophy where both are at the 200-level
Bachelor of Arts: Humanities

PHIL 432: Medical and Health Care Ethics

3 Credits

This course examines ethical, social, legal, and policy issues related to the research, implementation, and practice of medicine, medical technologies, and healthcare. It uses secular ethical theories, frameworks, and concepts, as well as health/medical humanities methodologies.

Enforced Prerequisite at Enrollment: fifth-semester standing
Cross-listed with: BIOET 432
Bachelor of Arts: Humanities

PHIL 433: Ethics in Science and Engineering

3 Credits

Ethical issues arising in the practice of science and engineering and their philosophical analysis.

Cross-listed with: STS 433
Bachelor of Arts: Humanities
Bachelor of Arts: Social and Behavioral Sciences

PHIL 435: Science and Religion

3 Credits

This course offers an intensive examination of the complex relationship between religion, science, and philosophy in different traditions and historical periods. How did science and religion emerge as distinct ways of understanding the universe? Were the two always in conflict? What is the nature of this conflict - is it historical, cultural, conceptual, linguistic, or methodological? Are there ways to make them compatible? Do they constitute separate realms with clear-cut borders and jurisdictions? In pursuit of wellinformed answers to these questions, the specific topics of this course will typically include modern scientific conceptions of the natural world and human life (e.g., cosmology, the origin and value of life, evolution) and the contemporary impact of these conceptions on religious belief; ethical questions stemming from scientific methods and biotechnology (e.g., cloning and genetic engineering and the religious responses to such acts of "playing God"), and examples of contemporary scientific approaches to explaining religious experience (e.g., cognitive science, neuroscience, and evolutionary psychology). The instructor may use discretion in selecting representative texts by religious studies scholars, philosophers, scientists, and historians of science with a view to offering a diverse set of authoritative and sometimes controversial approaches to the subject.

Prerequisites: 9 credits of philosophy; or 6 credits of philosophy including either PHIL 011 or PHIL 110 or PHIL 124; or 6 credits of philosophy where all are from 200-level courses.
Bachelor of Arts: Humanities

PHIL 437: World Philosophies

3 Credits/Maximum of 6

Philosophical traditions, problems, and authors in African, Asian, Middle-Eastern, Native American, or other non-Western cultures and intellectual traditions.

Prerequisite: 9 credits of philosophy, including 6 credits of philosophy at the 200 level or 5th semester standing
Bachelor of Arts: Humanities
International Cultures (IL)

PHIL 438: Seminar in Feminist Philosophy

3 Credits

This course will explore some of the influential theories and texts in the field of feminist philosophy. Feminist philosophy encompasses a broad range of inquiry, from political and ethical issues to foundational metaphysical and epistemological problems - e.g., What is a woman? What is the relationship between knowledge, epistemology, and power? Feminist philosophical approaches are diverse and include thinkers from all approaches to philosophy and are often richly influenced by work in women of color feminisms (e.g., intersectionality, Latinx), approaches to sexuality studies (e.g., LBGT studies and Queer Theory), post- and decolonial studies, and disability studies. Assigned readings will typically offer a range of approaches to feminist philosophy. While a majority of the readings will cover issues discussed by contemporary thinkers, a few historically significant feminist philosophers will often be included. Through reading and discussion, this course will introduce students to some of the central approaches to feminism, some of the most pressing issues, as well as the central controversies of feminist philosophy. Students will develop their interpretative and philosophical skills, while

gaining a deeper understanding of the importance of feminist philosophy to the tradition of philosophy as well as to the general betterment of society.

Prerequisites: 9 credits of philosophy; or 6 credits in philosophy where three credits are from PHIL 008 or 114; or 6 credits in philosophy where all six are at the 200-level

Cross-listed with: WMNST 438

Bachelor of Arts: Humanities

PHIL 439: Seminar in Asian Philosophy

3 Credits/Maximum of 6

Exploration of the traditions, problems, and authors of one or more of the philosophical systems of Buddhism, Hinduism, Taoism, and Confucianism.

Prerequisite: 9 credits in PHIL; or 3 credits of PHIL 7 plus any 3 additional credits of PHIL; or 9 credits of ASIA

International Cultures (IL)

PHIL 441: Capstone Course in Philosophy

3 Credits

This course is intended as the Capstone Course for Philosophy majors and is to be taken during their senior year or during the last semester of their junior year.

Prerequisite: 6th semester standing and up

PHIL 453: Seminar in Ancient Philosophy

3 Credits/Maximum of 6

This course allows intensive study of select authors, traditions, works, or questions from ancient Greek and Roman philosophy. Focal authors may include, for instance, the Presocratics, Socrates, Plato, Aristotle, Epicurus, Lucretius, Cicero, Seneca, Augustine, or Plotinus. Key traditions may include Stoicism, Hedonism, Platonism, Skepticism, Jewish, Roman, and Christian reception, or Neoplatonism and Neopythagoreanism. Focal works may include Nicomachean Ethics, On the Nature of Things, Confessions, or Enneads. Focal themes may include ethics (e.g., virtue, human flourishing, and pleasure), psychology (e.g., emotion, character, immortality of the soul), epistemology (e.g., imagination, knowledge, wisdom), metaphysics (e.g., atomism, teleology, dualism), theology, logic, aesthetics, or history. This course may also include intellectual and cultural context for claims or trends in ancient philosophy. Students will develop in-depth experience with parts of ancient philosophy that go beyond what they receive in Philosophy/CAMS 200: Ancient Philosophy. They will also hone reading, interpretative, argumentative, and creative philosophical skills on the relevant texts, which are among the most fascinating, puzzling, and frequently referenced of the Western philosophical tradition.

Prerequisite: 9 credits of philosophy, including either PHIL 200 or 6 credits of philosophy at the 200 level; or 9 credits of any combination of CAMS/GREEK/LATIN (or 6 credits if three come from CAMS 200

Cross-listed with: CAMS 453

Bachelor of Arts: Humanities

International Cultures (IL)

PHIL 455: Seminar in Modern Philosophy

3 Credits/Maximum of 6

This course builds on its precursor (PHIL 202) to focus on specific topics in philosophy between 1600 and 1800. This includes the nature of substance; the mind-body problem; the method of knowledge acquisition; and the tensions between freedom, causal determinism, and a teleological conception of nature. Assigned readings typically include selections from the canonical texts of major figures such as Descartes, Spinoza, Leibniz, Locke, Berkeley, and Hume. The instructor may also choose to incorporate less studied figures such as Malebranche, Gassendi, Bacon, or women philosophers of the era, such as Lady Conway, Wollstonecraft, and Princess Elizabeth. Students will improve their skills in reading historical texts, reconstructing the arguments in writing, and deepen their appreciation of history of philosophy as a method of analyzing philosophical concepts and problems.

Prerequisites: 9 credits of philosophy, which is to include either PHIL 202 or 6 credits of philosophy at the 200 level

Bachelor of Arts: Humanities

PHIL 456: Seminar in Nineteenth Century Philosophy

3 Credits/Maximum of 6

This course builds on its precursor (PHIL 203: Nineteenth Century Philosophy) to focus on specific topics and issues of the nineteenth century. These may typically include the moral and practical implications of Kant's critical philosophy; Hegel's conception of history, religion and society; the socially progressive and socially conservative appropriations of Hegelian philosophy (e.g., Feuerbach's "projection theory" of religion, Marx's historical materialism and labor theory of value, and Kierkegaard's radical separation of faith and reason); Nietzsche's critique of realism, rationalism, and classical theories of the origin and value of morality; Mill's utilitarianism and liberalist conception of freedom; and Freud's theory of the unconscious. The instructor may choose a selection of representative texts or excerpts, for example Kant's Critique of Pure Reason, Hegel's Phenomenology of Spirit, Marx's Economic and Philosophic Manuscripts of 1844 and Capital, Kierkegaard's Concluding Unscientific Postscript, Nietzsche's Birth of Tragedy or Genealogy of Morals, and Mill's On Liberty.

Prerequisites: 9 credits of philosophy, which include either PHIL 203 or 6 credits of philosophy at the 200 level

Bachelor of Arts: Humanities

PHIL 457: Seminar in Twentieth Century Philosophy

3 Credits/Maximum of 6

This course builds on its precursor (PHIL 204: Twentieth Century Philosophy) to provide a more focused understanding of selected trends, topics, and questions specific to the period. The twentieth century is marked by a parting of the ways among rival (and often mutually hostile) approaches with distinct questions, styles, and agendas. Analytic philosophy of language emerges as a synthesis of Frege's formal logic with an empiricist theory of meaning; its early proponents (e.g., Russell, Moore, Carnap) aim to expose much of traditional philosophy as futile engagement with "pseudo-problems" and replace it a logically perfect language in which genuine problems can be posed and scientifically resolved. Phenomenology (e.g., Husserl, Merleau-Ponty) and existentialism (e.g. Heidegger, Sartre) revolt against the nineteenth century's overblown metaphysical systems and assert

the importance of returning to an intuitive engagement with "things themselves" and with the lived experience of the human condition. Critical theory (e.g. Benjamin, Adorno) emerges as a synthesis of Marxism, aesthetic criticism, psychoanalytically informed sociology. Around mid-century, each of these streams of thought undergoes a period of crisis and renewal, associated with names such Wittgenstein and Quine in the case of analytic philosophy, Derrida, Foucault, and Deleuze in that of phenomenology and existentialism. Newly emergent critical philosophies such as feminism and decolonial thought heighten the sense of intellectual ferment. Students will emerge from the course both with a deepened understanding of one or more of twentieth century philosophy's key concerns (e.g., language and logic, history, power, the structure of reality, the nature of value and normativity, the relation of theory and practice, art and aesthetic experience, gender and identity) and canonical authors, and a sense of how they relate to the rival schools of thought.

Prerequisites: 9 credits of philosophy, which includes either PHIL 204 or 6 credits of philosophy at the 200 level
Bachelor of Arts: Humanities

PHIL 458: Seminar in Contemporary Philosophy

3 Credits/Maximum of 6

This course will explore some of the influential theories and texts in contemporary philosophy. Contemporary philosophy encompasses a broad range of inquiry, from attention to the treatment of knowledge, reason, and the subject; to ethical and political issues; and to aesthetics and metaphysical problems. Themes may include such questions as: What is the status of the human subject in relation to the world? What is the status of truth once we recognize the radical contingency of our historically-bound existence? What is the relation between aesthetic value and ethical value? What does it mean to exist as a temporal agent? What forms does the exercise of power assume in late-modern societies and what resources does philosophy provide for a critique of societies of control? What resources are there in recent developments in philosophy for revitalizing the ancient ideal of philosophy as a way of life, including the concern with the flourishing life? Through reading and discussion, this course will introduce students to some of the central approaches to contemporary philosophy, some of the most pressing issues, as well as the central controversies of contemporary philosophy. Students will develop their interpretative and philosophical skills, while gaining a deeper understanding of central themes and figures in philosophy over the past century.

Prerequisites: 9 credits of philosophy, which are to include either PHIL 208 or 6 credits of philosophy at the 200 level
Bachelor of Arts: Humanities

PHIL 460: African American Philosophy

3 Credits

This course will explore central questions and themes guiding the evolution of African American philosophy in the 19th and 20th centuries. Our course will study three different movements from the era. We begin with slavery and questions of reason, civility, and nationality. We move on to philosophies of value and culture in the early twentieth century, with the focus on secularization and the historical nature of philosophical truth. Finally, we will read the work of black political philosophers, and the turn to Marxism and Hegelianism. Issues to be discussed include the foundation and source of race as knowledge of the world, the nature of blackness and identity, the nation as a locus of consciousness

and action, God's role in the universe, and the possibility of an Afro-Pessimism about these things.

Prerequisites: AFAM 100 or PHIL 009 and 5th semester standing
Cross-listed with: AFAM 460
International Cultures (IL)
United States Cultures (US)

PHIL 461: Plato

3 Credits/Maximum of 6

Plato has had, along with his student Aristotle, the greatest influence on the history of Western philosophy of any writer. He synthesized politics and ethics, pedagogy and dialectics, psychology and epistemology, metaphysics and ontology, and even cosmology and theology. He founded Europe's first research institute, which cultivated mathematicians, astronomers, psychologists, rhetoricians, literary scholars, and of course philosophers. He lived at a time of profound political upheaval, in a democratic Athens that had just lost a war of imperial expansion. He wrote dozens of dramatic dialogues, among the greatest works of prose ever, celebrating his teacher Socrates, stunning his readers into puzzlement, and posing problems of self-understanding that would set the philosophical agenda for centuries to come. His works have appealed to skeptics and mystics, formal theorists and creative writers, Jews, Christians, and Muslims, and philosophers of a wide range of sensibilities. This course studies a variable range of his dialogues, with the goal of getting a broad and deep understanding of this author, his intellectual context, and his philosophical reception. Students will also learn about the features of Plato's thought and world that remain culturally salient - the Academy, the Forms, Platonic love, Socratic ignorance, the dialogue form, Platonism and Neoplatonism, and the distinctiveness of Greek philosophy.

Prerequisite: 9 credits of philosophy, where 3 of those credits are PHIL 200 or 6 of those credits are PHIL 200-level courses or 9 credits of any combination of CAMS/GREEK/LATIN courses.

Cross-listed with: CAMS 461
Bachelor of Arts: Humanities

PHIL 468: Jewish Philosophy

3 Credits

This course explores the rich history of Jewish philosophy since the Medieval Ages through to the 20th-century. Attention will be paid to debates about the relation between Judaism and Christianity, ethics and religion, what is specific about Jewish identity and religious experience, the challenges of secularism, and the issue of Zionism. Authors studied in the course include Maimonides, Mendelssohn, Heine, Cohen, Rosenzweig, Benjamin, Buber, Levinas, and Derrida.

Prerequisites: 9 credits of philosophy, including PHIL 135 or 6 credits at the 200 level

Cross-Listed
Bachelor of Arts: Humanities
International Cultures (IL)

PHIL 472: Islamic Philosophy

3 Credits

A survey of major texts from the Islamic philosophical tradition, focusing primarily on the classical period (ninth to twelfth centuries) and its influence on modern thinkers.

Prerequisites: 9 credits in RLST and/or PHIL, or 6 credits of PHIL at the 200-level

Cross-listed with: RLST 472

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

PHIL 473: German Idealism

3 Credits/Maximum of 6

Critically examines the philosophy of central German idealists, including Kant, Fichte, Schelling, and Hegel, and its impact on later philosophy.

Prerequisite: 9 credits of philosophy, including either PHIL 202 or PHIL 203, or 6 credits of philosophy at the 200 level

Bachelor of Arts: Humanities

PHIL 474: Kant

3-6 Credits/Maximum of 6

Critical examination of the metaphysics, epistemology, aesthetics, legal and moral philosophy, and influence of Immanuel Kant.

Prerequisite: 9 credits in philosophy, including PHIL 202 or 6 credits of philosophy at the 200 level

Bachelor of Arts: Humanities

PHIL 476: Hegel

3-6 Credits/Maximum of 6

Critical examination of the metaphysics, moral theory, epistemology, and philosophy of history of this central figure of 19th-century philosophy.

Prerequisite: 9 credits of philosophy, including PHIL 203 or 6 credits of philosophy at the 200 level

Bachelor of Arts: Humanities

PHIL 478: Ethics After the Holocaust

3 Credits

The aim of this course is to explore various ways in which philosophers have responded to Auschwitz (a signifier, or name, which is in turn not without controversy and complexity). It will examine, in particular, the promise and failure of post-Holocaust ethical theory, with attention to evil, suffering, goodness, witnessing, testimony, trauma, and human rights. Authors include Levi, Agamben, Arendt, Adorno, Levinas, Jonas, and Jankelevitch. Through reading and discussion of primary sources, this course introduces students to these philosophers' leading questions, methods, and conclusions, with reference to their historical context and their impact on later philosophy. The course will make these writings accessible to students without unduly presupposing prior knowledge, while also encouraging students to rise to the challenge with their own critical analysis and creative interpretations.

Prerequisite: One course in either JST or PHIL

Cross-listed with: JST 478, RLST 478

Bachelor of Arts: Humanities

PHIL 479: Critical Theory

3 Credits/Maximum of 6

In this course, the term Critical Theory refers to a distinctive approach to social, cultural, and political theory associated with the Institute for Social Research in Frankfurt am Main, Germany, which was founded in 1923. Members of what came to be called the Frankfurt School were sharply critical of the political structures, social institutions, and culture of late capitalist societies such as Germany and the United States (where they lived and worked in exile during the Second World War). They were heavily influenced by the post-Kantian German philosophical tradition, especially the work of Hegel, Marx, Nietzsche, and Freud. This course will focus on the historical development of Critical Theory, with an emphasis on the major figures of the early Frankfurt School: Theodor Adorno, Max Horkheimer, Walter Benjamin, and Herbert Marcuse. However, since Critical Theory is also an ongoing theoretical project, we will also study some contemporary representatives of this tradition, as well as some of its trenchant critics. After some introductory material, including discussion of the Marxist background of early Critical Theory, the course will focus on the following themes: Modernity, History, and Progress; Psychoanalysis and Critique; Culture and Art; and Race, Antisemitism, and Imperialism. In addition to the authors mentioned above, we will discuss work by such thinkers as Jürgen Habermas, Axel Honneth, Nancy Fraser, Seyla Benhabib, Enrique Dussel, and Angela Davis.

Prerequisite: 9 credits of philosophy, including either PHIL 203 or 6 credits of philosophy at the 200 level

Bachelor of Arts: Humanities

PHIL 485: Heidegger

3 Credits/Maximum of 6

Martin Heidegger's masterpiece, *Being and Time*, is among the fundamental philosophical texts of the 20th century, taking up questions of metaphysics, religion, temporality, ontology, the history of philosophy, language, technology, and aesthetics. His thinking there influenced the development of hermeneutics, existentialism, and postmodernism, and continues to inform contemporary approaches to these topics. This course thus gives pride of place to *Being and Time*, potentially including also the related *The Concept of Time* (1924) and *The Basic Problems of Phenomenology* (1927). Major topics studied will be the primacy of the question of the meaning of being, the ontological difference, the phenomenological method, the critique against Cartesian subjectivity, and the existential characteristics of humans such as "being-in-the-world," temporality, spatiality, historicity, sociality, thrownness, authenticity, inauthenticity, everydayness, and death. Further themes of the course may include the relationship between Heidegger's "early" and "later" works; the political question in Heidegger, especially after the publication of the *Black Notebooks*; Heidegger's refusal to apologize for his allegiance to National Socialism; the problematic of ethics within the Heideggerian existential phenomenological account; Heidegger's critique of the metaphysics of presence; Heidegger's critique of technology; the Heideggerian conception of art; Heidegger's understanding of the poetic; and historical and contemporary critiques of Heidegger's thought.

Prerequisites: 9 credits of philosophy, including PHIL 102 or 204 or 402 or 457

Bachelor of Arts: Humanities

PHIL 486: Wittgenstein

3-6 Credits/Maximum of 6

Examines Wittgenstein's early and late work, including logical atomism, meaning, language games, forms of life, and the private-language argument.

Prerequisite: 9 credits of philosophy, including PHIL 204 or 6 credits of philosophy at the 200 level
Bachelor of Arts: Humanities

PHIL 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Humanities

PHIL 494H: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Humanities
Honors

PHIL 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Bachelor of Arts: Humanities

PHIL 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Humanities

PHIL 499: Foreign Study--Philosophy

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Humanities
International Cultures (IL)

Photography (PHOTO)

PHOTO 99: Foreign Studies--Photo

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

PHOTO 100: Introduction to Photography

3 Credits

An introduction to the aesthetics, history, and science of photography including practical and critical approaches to the art of photography. PHOTO 100 Introduction to Photography (3) (GA) PHOTO 100 is an introduction to the aesthetics, history, and science of photography including practical and critical approaches to the art of photography for beginning students. The course will introduce students to photography as an art form and as an important medium in commercial applications, news and journalism, science, and industry. The course will look at photography in a social/historical context and showcase the work of important photographers. The course will examine the impact of technological, economic, and cultural forces on photography and, in turn, the role that it plays in our daily life, culture, and society. The course will also expose students to the various styles and techniques used in making photographs and give them the opportunity to gain experience and practical know-how in creating their own photographs. Through the process of assembling and critically examining their own work and the work of others, they will be encouraged to develop a more informed critical point of view about photography as an art and important form of human expression. Students will be required to have access to a digital camera and the internet.

Bachelor of Arts: Arts
General Education: Arts (GA)
GenEd Learning Objective: Creative Thinking
GenEd Learning Objective: Key Literacies

PHOTO 101: Culture of Photography

3 Credits

This is a non-technical introductory photography course where students photographically and intellectually examine the role of photography in modern culture. PHOTO 101 expands students' depth of appreciation, knowledge, and understanding of the medium by providing them with a creative and intellectual background to realize its broad cultural scope. The course accomplishes this through photographic and written explorations of social, political and ethical issues relevant to photography. Photography wields unprecedented influence as a primary visual medium and students constantly use photography in their personal lives as both a communications tool and as a creative outlet. The ubiquitous smart phones with built in cameras are responsible for much of this explosive popularity with social media providing appealing venues for publicly displaying photography. Over the first decade of the new millennium, social media sites saw the volume of photo uploads increase dramatically, eventually exceeding 10 billion per month. In light of photography being a key medium students use to share and communicate information about themselves to the world at large, the course is designed to help them to think critically and ethically about the photographs they take, share, view and use. The major course teaching topics will address a broad range of contemporary issues relevant to how photography and culture affect one another. Students will become aware of photography as a constantly evolving medium, whose relatively short historical trajectory has culminated in the development of an easily accessible egalitarian art form that bridged the digital divide to interact intimately with personal computing, cell phone communications, the Internet, and social media. In the course, students will take photographs to fulfill photographic assignments, share them with peer audiences, and then engage in critical conversations regarding the aesthetic and

communicative meaning and effectiveness of the photos. They will also engage in written assignments where the course presents them with case studies regarding current issues in photography such as, the impact of technological developments in the medium, ethical uses of photography, photography as free speech, and photography as social media. Students will conduct research on the topics and develop informed written position statements, which they will share with their classmates for peer evaluation and feedback. In addition, students will engage with selected readings regarding aspects of photography addressed in the major teaching topics.

General Education: Arts (GA)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

PHOTO 199: Foreign Studies--Photo

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

PHOTO 200: Photo Studio I

3 Credits

A beginning level course that explores the fundamentals of photography. PHOTO 200 Photo Studio I (3) PHOTO 200 is a beginning level course focused on the aesthetics and practical application of photography. Employing lectures, demonstrations and hands-on photographic assignments, it concentrates on teaching basic photographic techniques. Digital and film camera use, imaging software, basic digital scanning, digital printing methods, and basic darkroom practice are covered. A digital camera and access to a 35mm film camera is required. Grading is based on the quality of work in required creative projects (70%) and tests/quizzes (30%). PHOTO 200 will be offered fall and spring semesters. PHOTO 100 is the prerequisite for PHOTO 200.

Enforced Prerequisite at Enrollment: PHOTO 100

PHOTO 201: A Chronological Survey of Photography

3 Credits

A survey of photography's place and influence in a social, cultural, and historical context. ART H 250 A Chronological Survey of Photography (3) This course explores the role played by photography over time in providing understanding and insight in a social, cultural, and historical context of the impact of the development of the photographic medium and its effect on social, political, cultural and technological events. Emphasis will be given to understanding the context that surrounds the scientific and aesthetic development of photography. This is a survey of the chronology of events in western culture that transpires from the inception of photography until the year 2000. It includes the influences and outcomes of photographers and those associated with the medium on our culture. Emphasis will be placed on the influence of photography on the world around it, and significant events and individuals in the development of the medium as a vital art form. The structure of the course will consist of research and discussion of events and individuals that characterized years selected for examination. Each week one or two decades of western culture will be highlighted. Although the thrust of research will relate to photographic subject matter, the events studied will span the culture. We will explore the development of art, literature, music,

and photography, as well as, historic landmarks, and the events that have shaped present society. Each week a selection of visual material will be presented highlighting selected events, students will read literature from the period of discussion, significant pieces of music will be introduced, and accounts of periodic events will be surveyed. Each week, a group of students will be assigned to research at least one decade. Each student will gather information about a significant figure or event that occurred in the course of a given period. The student will be expected to prepare a short paper and give a five-minute oral presentation about his/her assigned year, historical figure or event. As each student presents, the chronology of events becomes clear and the multiple threads of history weaves a brilliant tapestry of our culture. For the final presentation the student will prepare a ten-page research paper about a historical figure or event. Students will be graded on the quality of the weekly oral presentations and the demonstrated level of commitment to research. Another significant part of their grade will be derived from the length of committed scholarship given to the ten-page term paper. Students must exhibit a level of originality, clarity, and insight. The student must demonstrate the capacity for the assimilation of facts and events relative to their subject and demonstrate how their subject relates to other events that occurred around the same time of their event. Toward this end students will be encouraged to work together to illustrate the interconnection of the chronology.

Cross-listed with: ARTH 250

PHOTO 202: Fundamentals of Professional Photography

3 Credits

This professionally oriented photography course gives students a foundation in the techniques and other competencies relevant to professional photography. PHOTO 202 Fundamentals of Professional Photography is a professionally oriented problem based learning class where students are introduced to the fundamental technical and creative aspects of client centered photography relevant to careers in photography and photography related or dependent fields. Students will be introduced to the photographic techniques; professional practices; creative sensibilities; and cultural knowledge significant to the work of a professional photographer and fields reliant on or related to professional photography. The course content focuses student attention on mastering the technical fundamentals of professional photography in the context of the photographer/client relationship. The learning problems place emphasis on the communication, collaboration, and cooperation necessary to solve visual photographic problems in a professionally oriented setting. Under these conditions, students must collaborate with their clients to foster creatively productive relationships and meet their photographic needs. This problem requires developing communication and interpersonal relation skills, which require clearly understanding the clients' needs and educating them about the creative possibilities and limitations. Under this teaching and learning model, students must learn to merge their own creative vision with the needs and desires of their professional clients. These skills are directly applicable to the real world problems students will encounter in professionally oriented circumstances after they graduate. In the learning problems student peers, with the instructor's guidance, will play dual roles of clients and photographers with the goal of concentrating the photographers' attentions on communicating with their clients to create effective and creative purpose-driven images. Consequently, the course places a greater emphasis on communication, collaboration, and cooperation than it does on personally and individually motivated expression. Since the advent of digital photography, the medium has undergone

an unprecedented period of technological, creative, and cultural flux. Digital photography, computer technology, and social media have had dramatic impact on the medium, which we expect will continue into the future. Consequently, we have used a problem based learning approach to ensure we can continuously address the most relevant and current topics and information. We have also chosen major teaching and learning topics, which will continue to meet the fundamental needs of the students even as technology continues to shift. At the beginning of each semester, students and the instructors will work collaboratively to develop five student learning-problems. These problems or projects will address the major teaching and learning topics under a variety of conditions designed to reinforce the subject matter, encourage flexibly creative thinking, and allow students to pursue the subject with greater critical depth and awareness.

Bachelor of Arts: Arts
 General Education: Arts (GA)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Creative Thinking

PHOTO 210: Introduction to Architectural Photography

2 Credits

Exploration of approaches to photographing architectural interiors, exteriors, and architectural models.

Enforced Prerequisite at Enrollment: Students in ARCBS_BS or BARCH majors or by permission of the program.

PHOTO 295: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

PHOTO 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

PHOTO 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

PHOTO 299: Foreign Studies--Photo

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

PHOTO 300: Photo Studio II

4 Credits

An intermediate course that explores advanced processes and applications in digital photography, digital image processing, and photographic inkjet printing. PHOTO 300 Photo Studio II (4) PHOTO 300 is an intermediate course in the aesthetics, processes, and practical

applications of digital photography, digital image processing, and photographic inkjet printing. A digital camera is required. Students will employ digital photographic applications and techniques to create images and expand their personal photographic vision. The course will help students to: 1. Gain a deeper understanding of the medium of digital photography artistically, critically, and as a technical process. 2. Explore the potential of the medium's ability to express ideas in new ways. 3. Understand advanced digital camera methods. 4. Learn advanced skills in the use and application of Adobe Photoshop. 5. Learn high quality film and object scanning procedures. 6. Learn to make photographic quality color archival inkjet prints and develop critical color awareness. Grading is based on the quality of work in required creative projects (80%) and presentations / participation in formal critique sessions / tests-quizzes (20%). The final course grade will be dropped one full grade for each absence or late submission beginning with the second late submission or absence. The prerequisite for PHOTO 300 is PHOTO 200. PHOTO 300 will be offered fall and spring semesters.

Enforced Prerequisite at Enrollment: PHOTO 200

PHOTO 301: Beyond Photoshop: Techniques in Digital Photographic Imaging

3 Credits/Maximum of 6

Students will learn aspects of photographic image making by capturing, processing, editing, retouching, digital printing, archiving, using digital images in the traditional darkroom, and manipulating of digital photographs with the emphasis on learning specialized software techniques beyond the usual Photoshop fare. Through a series of learning problems, students will focus on developing new skills and knowledge needed to accomplish techniques used in the creation of photo-based digital imagery. These skills include previsualization of images, camera techniques for images that require post-processing (such as stacking), shooting practices for enhanced digital workflow and choosing the image post-processing techniques most appropriate for the end-use of images, color management, digital printing and the use of digital images in the traditional darkroom. With awareness and knowledge of the total process, they will synthesize photographic shooting practices with computer-based image post-processing for creative, and professionally oriented image-making results. They will develop creative, critical and conceptual sensibilities needed to discuss and evaluate their work and the work of others using these methods. Students will identify, research, and analyze effective professional and creative practices in the field of photography with emphasis on developing skillful digital post-processing techniques. The shift to digital imaging has raised ethical challenges in photography-reliant fields such as the arts, sciences, advertising, and journalism. Students will analyze and assess factors necessary to recognize in making ethical image-making decisions. In the darkroom, students will learn to integrate their digital photography with traditional and historic photographic processes blending digital and analog techniques.

Enforced Prerequisite at Enrollment: PHOTO 202

PHOTO 303: Professional Photography: Studio Technique and Photocomposition

3 Credits/Maximum of 6

PHOTO 303 Professional Photography: Studio Technique and Photocomposition is an intermediate-level problem-based learning class where students acquire practical skills, and learn creative techniques relevant to professional photographic image making.

The course focuses on building and synthesizing career oriented competencies in the areas of intermediate to advanced digital photography, photocomposition, studio lighting, and image processing related to professional photography. This is a technically oriented course, which emphasizes image making for professional purposes such as for clients or specific audiences. Using this approach, students will practice methods to tailor their own creative vision to the needs of collaborators such as art directors or other professionals. Students will focus on using lighting, cameras & lenses, and creative design techniques as tools to achieve professional quality photographs appropriate for creative artist portfolios used for photography and related careers. Students will develop the skills necessary to recognize and deconstruct lighting, camera, and design techniques in professional photography they may encounter in advertising, magazines, websites and other places where professional photography is used. After they graduate, students will be able to continue using these critical skills to learn and experiment with new techniques, which drive the constantly changing styles in photographic design and thus keep their work looking fresh and current. They will additionally develop and hone visual and verbal skills necessary to critically analyze their own photos and the photos of their peers. The course will culminate with students producing professional portfolios of their work suitable for career purposes.

Enforced Prerequisite at Enrollment: PHOTO 200 or PHOTO 202

PHOTO 321N: Flow Visualization: The Art and Physics of Fluid Motion

3 Credits/Maximum of 3

In this course, student will explore techniques for the visualization of the physics of fluid flows including seeding with dyes and particles. Students will also gain technical expertise in a range of flow visualization and photographic techniques drawn from the course topics, such as photographing atmospheric clouds. Assignments are student-driven, to individuals and mixed teams of undergrad students from different majors. This course will reveal the techniques of making laboratory and everyday fluid flows visible for both scientific and aesthetic purposes. Students will create images using photographic techniques, and document their work in written reports. Questions such as "what makes an image scientific?" and "what makes an image art?" will be explored.

General Education: Arts (GA)

General Education: Natural Sciences (GN)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Integrative Thinking

PHOTO 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

PHOTO 399: Foreign Studies--Photo

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

PHOTO 400: Digital Photography in the Studio

4 Credits

Concepts and technology of the digital photography studio; large format digital cameras, electronic studio lighting and digital printing. PHOTO 400 Digital Photography in the Studio (4) PHOTO 400 is a wholly digital, in-depth course in photography that explores the visual, technical, and creative application of digital photographic technologies in a studio setting. Students will employ digital photographic applications and techniques to create images and expand their personal photographic vision. The course will help students to: 1. Gain a deeper understanding of the medium of digital photography artistically, critically, and as a technical process. 2. Explore the potential of the medium's ability to express ideas in new ways 3. Master the fundamental studio practices and technologies of digital photography o Professional large format digital view cameras o Professional electronic studio lighting o Adobe Photoshop o Digital printing o DVD-CD-Rom storage o Presentation and distribution utilizing the World Wide Web PHOTO 400 follows a workshop/critique format. A collaborative team approach is utilized to enhance students' abilities in working together to solve creative problems. Students will have to think critically, develop strategies to solve problems, and engage in class critiques as a normal expectation of the course. Grading is based on the quality of work in required creative projects (80%) and participation in formal critique sessions (20%). The final course grade will be dropped one full grade for each absence or late submission beginning with the second late submission or absence. PHOTO 400 will be offered spring semesters.

Enforced Prerequisite at Enrollment: PHOTO 200

Bachelor of Arts: Arts

PHOTO 401: Fashion Photography

3 Credits/Maximum of 6

Students will learn the primary technical, aesthetic, and stylistic photographic techniques and knowledge required for the creation, presentation, and marketing of professional fashion photographs. The course will additionally address the relevant business practices associated with the field. Other essential material covered in the course will involve student research culminating in presentation projects relating to the history, aesthetics, and ethics of fashion photography. The course features a problem based learning approach where students and instructors work collaboratively to develop five student learning-problems. These problems or projects will address the major teaching and learning topics under a variety of conditions designed to reinforce the subject matter, encourage flexibly creative thinking, and allow students to pursue the subject with greater critical depth and awareness. Like fashion itself, fashion photography is subject to constant aesthetic, stylistic, and cultural change. To address these problems practitioners need to develop an awareness of style and trends in both the fashion industry and the fashion publishing industry, which are dependent on photography for marketing and advertising. Photography additionally adds historic value as a stylistic and creative archive for these industries. Fashion photographers must have the skills and mindset necessary to constantly learn and experiment with new techniques, which keep their work technically proficient and stylistically innovative and fresh. This problem based learning approach will allow the course to remain dynamic and address, in real-time, changing issues relevant to the industry and our students.

Enforced Prerequisite at Enrollment: PHOTO 200 or PHOTO 202

PHOTO 402: Photographic Narratives

4 Credits/Maximum of 8

The development of a photographic project that leads to the creation of narrative visual stories. PHOTO 402 Photographic Narratives (4) PHOTO 402 is a project course in photography focused on the construction of visual narratives that feature a student's photographs as the central content. The course gives the student the opportunity to choose a subject and explore it through photographic means over an extended period of time, in this case, an entire semester. Emphasis is placed on the quality of photography and the organization of those photographs into print and digital forms of display. Students will be evaluated on their abilities to understand the medium through classroom instruction. Evaluation will also be determined by a student's imaginative capabilities through visualization and through the completion of a series of finished pieces.

Enforced Prerequisite at Enrollment: PHOTO 200 or PHOTO 202
Bachelor of Arts: Arts

PHOTO 402H: Photographic Narratives

4 Credits/Maximum of 8

The development of a photographic project that leads to the creation of a handmade book. PHOTO 402 Photographic Narratives (4 per semester/maximum of 8) PHOTO 402 is a project course in photography focused on the construction of a handmade book that features a student's photographs as the central content of that book. The course gives the student the opportunity to choose a subject and explore it through photographic means over an extended period of time, in this case, an entire semester. Emphasis is placed on the quality of photography and the organization of those photographs in a book for their display. Students will be evaluated on their abilities to understand the medium through classroom instruction. Evaluation will also be determined by a student's imaginative capabilities through visualization and through the completion of a series of finished pieces. The prerequisite to PHOTO 402 is PHOTO 200. PHOTO 402 will be offered fall and spring semesters.

Bachelor of Arts: Arts

PHOTO 404: Professional Photography Capstone Seminar: Self-Marketing and Professional Presence

4 Credits

PHOTO 404: Professional Photography Capstone: Self-Marketing and Professional Presence is a culminating problem based learning course where students analyze, synthesize, and organize their creative, academic, co-curricular, internship and photographic experiences to present to audiences of potential clients and employers in preparation for careers in professional photography or related fields. Trends in effective self-marketing and professional presence change over time with shifts in cultures, styles, and technologies. The Internet has given rise to global niche markets as well, which photographers often accommodate. As a result, there is no clear one-size-fits-all approach to this inconstant problem. We have chosen to apply a problem-based learning approach to this course with the intent that students will work with their instructors and peers to tailor the course learning problems to be relevant to each individual student and still meet the course learning objectives. To achieve that, in collaboration with their instructor and peers, every student will design five individualized capstone projects specifically

pertinent to his or her situation. Each project will directly address at least two of the course major teaching topics. Much of the work of the capstone course will focus on reflection, refinement, and synthesis.

Enforced Prerequisite at Enrollment: PHOTO 300 or PHOTO 303

PHOTO 405: Creative Projects in Photography

4 Credits/Maximum of 8

Special individual problems related to photographic vision. PHOTO 405 Creative Projects in Photography (4 per semester/maximum of 8) PHOTO 405 is a project course in photography designed to challenge students and engage them in photographic assignments that expand their personal and individual vision. Projects may be developed using either digital or photochemical process (or a combination of the two) and may be organized as either group or individual assignments. PHOTO 405 will be offered fall and spring semesters.

Enforced Prerequisite at Enrollment: PHOTO 202
Bachelor of Arts: Arts

PHOTO 406: Product Photography

2 Credits/Maximum of 4

This advanced level course will explore the practices of photographing products for print and product advertising. PHOTO 406 Product Photography (2) This advanced level course will introduce the practice of photographing products with a focus on advertising. The development of the photographers' problem solving abilities, when lighting varied surfaces, will be considered. The importance of lighting for scale will be examined along with how or when to contribute to the context of a product by introducing appropriate set propping. Aesthetic and intellectual concepts of rendering of products for specific end uses will be explored. Theory will be applied and practiced by the student in a studio environment. As a practical course, lectures and studio demonstrations are major elements of the instruction. The lecture time will modify throughout the course to allow each student the flexibility to practice learned skills. Students will be responsible for scheduling individual studio time with the Integrative Arts Photo Services unit. A digital camera and a laptop computer with a copy of Adobe Photoshop installed are required.

Enforced Prerequisite at Enrollment: PHOTO 200 or PHOTO 202

PHOTO 407: Portrait Photography

2 Credits/Maximum of 4

This advanced level course investigates contemporary portrait photography and traditional and modern styles of photographic lighting. PHOTO 407 Portrait Photography (2) This advanced level course will investigate what portrait photography is and how portrait lighting evolved from the influences of early painting. Throughout the course there will be an ongoing investigation of the successes of historic, contemporary & influential photographers. Styles of photographic lighting will be explored as well as natural and artificial light sources. Why posing is important to portrait photography will be considered as well as how or when to suggest or direct a subject to acquire a pleasing pose will be examined and practiced. Theory will be applied and practiced by the student in environmental and studio locations. Through the study of character and expression, the student Portrait Photographer will introduce their style to portrait making. The course will enable the student to make intellectual and aesthetic choices when choosing appropriate equipment

and technique, command the application of skillful lighting, develop sensitivities of interaction in prelude to the direction of the photo session and understand the incorporation of space or environment and it's relationship to the individual subject. A digital camera and a laptop computer with a copy of Adobe Photoshop installed are required.

Enforced Prerequisite at Enrollment: PHOTO 200 or PHOTO 202

PHOTO 410: Photographing Motion and Athletic Events

2 Credits/Maximum of 4

A practicum course in photographing sports and athletic events.

Enforced Prerequisite at Enrollment: PHOTO 200 or PHOTO 202

PHOTO 495: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

PHOTO 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

PHOTO 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

PHOTO 499: Foreign Studies--Photo

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Physical Therapy (PT)

PT 100: Physical Therapist Assistant--Introduction

3 Credits

This course is a general introduction into the field of physical therapy. The definition, role and function of physical therapists (PTs), physical therapist assistants (PTAs), and other health care providers as members of the health care team will be covered. The history of physical therapy and the PTA will be presented. The organizational structure and operation of physical therapy service in a variety of settings will be studied. Students will become familiar with values-based behaviors that are essential for PTAs as well as the components of legal, ethical, and safe physical therapy practice. Medical terminology and abbreviations commonly used in physical therapy will be studied and an overview of the diseases/disorders specific to each body system will be presented. Students will become acquainted with the responsibilities of the PTA, including communication, interventions, documentation, and billing. Laboratory topics include basic patient care, infection control procedures, data collection techniques, and mobility and guarding techniques. There are lecture and laboratory components in this class, and students

will be expected to pass both written examinations and lab practical examinations. Enrollment is limited to students accepted into the PTA major.

PT 100S: Physical Therapist Assistant-Introduction

3 Credits

This course is a general introduction into the field of physical therapy. The definition, role and function of physical therapists (PTs), physical therapist assistants (PTAs), and other health care providers as members of the health care team will be covered. The history of physical therapy and the PTA will be presented. The organization of physical therapy departments and health care teams will be studied. Students will become familiar with values-based behaviors that are essential for PTAs as well as the components of legal, ethical, and safe physical therapy practice. Medical terminology and abbreviations commonly used in physical therapy will be studied and an overview of the diseases/disorders specific to each body system will be presented. Students will become acquainted with the responsibilities of the PTA, including communication, interventions, documentation, and billing. Laboratory topics include basic patient care, infection control procedures, as well as mobility and guarding techniques. The course will include an introduction to campus resources and personnel to help students adjust to student life. This course should help students develop strategies to lead to success in the PTA major. Enrollment is limited to students accepted into the PTA major.

First-Year Seminar

PT 101: Introduction to Computer Skills for the PTA

1 Credits

Introduction to basic computer skills for the physical therapist assistant.

First-Year Seminar

PT 120: Human Musculature and Functional Anatomy

2 Credits

This course is designed to give the learner a clear understanding of the locations, actions, and innervations of muscles in the human body and provide a foundation for learning and applying the principles of muscle strength testing. Course objectives include: demonstrating knowledge in the properties of muscle tissue and the basic mechanisms for muscle contraction; identifying and naming attachments and innervations of the muscles of the trunk and extremities; demonstrating competence in identifying muscle strength and weakness through manual muscle testing of trunk and skeletal musculature; and identifying different types of muscle contraction and interaction. The specific muscles involved in movement and stability of the appendicular and axial skeleton will be studied in detail. The information in this course is foundational to the application of physical therapy modalities and exercise, which are included in the PTA curriculum. The course will include lecture and laboratory components. Course content will be delivered in lecture and on-line materials. Enrollment is limited to students admitted to the 2PTA major.

Enforced Concurrent at Enrollment: (PT 100 or PT 100S) and BIOL 161 and BIOL 162

PT 150: Physical Therapist Assistant Procedures I

2 Credits/Maximum of 2

This course is an introductory study of the general principles for physical therapy interventions including massage, thermal modalities, therapeutic light, ultrasound, and compression therapies. Introductory information regarding modalities and relevant information regarding inflammation and healing will also be covered. The course is designed to give the PTA student a working knowledge in the application and theory of physical agents in order to enhance the rehabilitation process. Interventions will be discussed and practiced in relation to the overall clinical management of patients and their specific disorders. Data collection skills associated with the interventions covered in this course will also be included.

By the completion of this course, students should be able to discuss the rationale for and demonstrate the application of various thermal modalities, ultrasound, light therapies, compressive therapies and massage. Course content will be delivered in lecture, laboratory, and on-line materials. This course is available only to students enrolled in the 2 PTA major.

Enforced Prerequisite at Enrollment: Grade of C or better required in (PT 100 or PT 100S) and PT 120 **Enforced Concurrent at Enrollment:** PT 384 and (PT 270 or PT 270W or PT 271 or PT 271W)

PT 160: Therapeutic Exercise I

3 Credits

This course provides an introduction to the principles of exercise in the management of disease and injury which will help prepare the student for the application of therapeutic exercise during Physical Therapy clinical affiliations which follow the completion of this course. Course content will include, but is not limited to, some or all of the following topics: introduction to therapeutic exercise, range of motion, stretching, manual therapy and peripheral joint mobilization, resistance training, therapeutic protocols for specific conditions, balance and coordination training, interventions for cardiovascular and cardiopulmonary conditions, bony and soft tissue disorders, and specific data collection techniques associated with conditions discussed in this course. Indications and contraindications for the various forms of exercises and equipment will be incorporated in content of this course. This course includes both lecture and lab components. Students will be expected to demonstrate competence in both written and practical examinations. A variety of evaluation tools will be used to assess student performance in this course. Written examinations, quizzes, written assignments, including homework may be utilized to assess cognitive understanding of course content. For assessment of psychomotor skills, lab practical examinations, skill evaluations, and oral questioning may be used. Group projects and peer assessment might also be included at some campuses. Enrollment is limited to students admitted to the 2PTA major.

Enforced Prerequisite at Enrollment: Grade of C or better in (PT 100 or PT 100S) and PT 120 **Enforced Concurrent at Enrollment:** PT 384

PT 201: Licensure Preparation for the PTA

1 Credits

Preparation for the national PTA licensure examination. P T 201 Licensure Preparation for the PTA (1) This course is an elective course for PTA students, in preparation for the national licensure examination. The course will consist of a review of the entire PTA curriculum through the use of licensure examination practice tests. The course will also include

practice sessions with the computerized licensure tests. A review of strategies for succeeding on multiple choice tests will be presented. Prerequisites for this course are a C or better in the P T 100 and P T 384 courses. Class size, frequency of offering, and evaluation methods will vary by location and instructor, For these details, check the specific course syllabus.

Enforced Prerequisite or Concurrent at Enrollment: PT 250 and PT 260 and PT 395E and [PT 280 or PT 280W or (PT 281 and PT 282) or (PT 281 and PT 282W)]

PT 202: Pediatric PT

1 Credits

A study of physical therapy as it applies to pediatric patients. P T 202 Pediatric PT (1) This course is an elective course for those Physical Therapists Assistant students interested in further study in pediatric physical therapy. The course will focus on various conditions affecting children, which may include cerebral palsy, spina bifida, and Down syndrome. The students will be given the opportunity to learn about pediatric physical therapy in lecture/discussion sessions and/or laboratory settings, some of which will take place at PSMA and some which may take place at other locations where they will observe children with various disabilities.

Enforced Prerequisite at Enrollment: Grade of C or better in PT 384 and (PT 270 or PT 270A or PT 270W). **Enforced Prerequisite or Concurrent:** PT 280 or PT 280W or (PT 281 and PT 282) or (PT 281 and PT 282W) and PT 260

PT 204: Seminar in Physical Therapy

1 Credits

Specialized physical therapy topics investigated in the framework of clinic visitations and presentations by clinical experts. P T 204 Seminar in Physical Therapy (1) The purpose of P T 204 is to provide Physical Therapist Assistant students with an opportunity to explore special topics in physical therapy. The format of the course will be seminar based. The course will consist of a series of presentations led by faculty or outside lecturers and may involve travel to hospitals and clinics. Evaluation of student performance will be based on attendance, completion of all criterion and assignments. This course will typically be offered in the last semester of classroom instruction, before the students begin their final clinical affiliations. This class will be limited to 12-16 students per section. This is an optional PTA course, which may be taken to satisfy the elective requirements of the PTA program. Prerequisites for this course are a C or better in the P T 100 and P T 384 courses. Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details, check the specific course syllabus.

Enforced Prerequisite at Enrollment: Grade of C or better in PT 384 and (PT 270 or PT 270A or PT 270W). **Enforced Prerequisite or Concurrent:** PT 280 or PT 280W or (PT 281 and PT 282) or (PT 281 and PT 282W) and PT 260

PT 205: Human Musculature

1-2 Credits

Comprehensive review of Human Musculature. P T 205 Human Musculature (1) This course is an elective course for those PTA students interested in a review of human musculature. The course is designed to provide advanced students with a comprehensive review of the human

muscles including identification of the muscles, their actions, insertions, origins, and innervations. Students will be graded on preparation, participation, class attendance, and completion of self-assessments. Prerequisites for this course are a C or better in the P T 100, P T 384 and BIOL 129 courses. Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details, check the specific course syllabus.

Enforced Prerequisite at Enrollment: Grade of C or better in BIOL 129

PT 250: Physical Therapist Assistant--Procedures II

3 Credits

The student will be introduced to the basic concepts and principles of spinal traction, neuromuscular excitation, nociception, electrical currents, and electromagnetic fields. The student will develop satisfactory skills in applying electrical stimulation systems, electromyographic biofeedback, iontophoresis, and supine/prone pelvic and cervical traction techniques. Wound care interventions, including the use of electrical stimulation, products and dressings will be addressed. Treatment methods will be discussed and practiced in relation to the overall clinical management of patients and their specific disorders. Data collection skills associated with the interventions covered in this course will also be included. By the completion of this course, students should be able to articulate the basic concepts behind the use of selected physical therapy modalities and demonstrate the safe and effective use of the modalities. In addition, they should be able to discuss and demonstrate appropriate interventions for the PTA regarding wound care. Course content will be delivered in lecture, laboratory, and on-line materials. Enrollment is limited to students accepted in the 2PTA major.

Enforced Prerequisite at Enrollment: Grade of C or better in PT 150

PT 260: Therapeutic Exercise--II

3 Credits

Advanced principles and application of exercise in the treatment of disease and injury will be explored. Students will learn concepts and skills necessary to promote healing through exercise and will be able to apply these skills appropriately for a variety of populations. Topics of instruction may include but are not limited to: pre/post-surgical interventions for specific conditions, exercise as a conservative intervention for orthopedic conditions, women's health, cardiovascular endurance exercise, postural dysfunction, industrial medicine, exercise and interventions for respiratory problems, and aquatic exercise. Specific objectives for this course include students' gaining competence in performing therapeutic skill and discussing the relevance of, indications, contraindications and precautions for interventions in the following areas: soft tissue injuries and disorders, bony and joint disorders, neck and back pain and postural dysfunction, disorders of the peripheral nervous system, respiratory dysfunction, cardiovascular dysfunction, women's health issues, aquatic exercise, industrial medicine, and data collection. This course includes both lecture and lab components and students will be expected to demonstrate competence in both written and practical examinations. Enrollment is limited to students admitted to the 2PTA major.

Enforced Prerequisite at Enrollment: Grade of C or better in PT 160

PT 270: Pathophysiology

5 Credits

This course is designed to give the PTA student a working knowledge of the physiology of disease and conditions commonly seen in physical therapy. Basic signs, symptoms, causes, and processes of disease and conditions will be covered. Diagnostic criteria, progression, and interventions, including physical therapy interventions, medical and surgical interventions, and pharmaceutical interventions will be addressed. Areas of study in the course may include, but are not limited to, inflammation and healing, inflection, immunity and immune disorders, and disorders of the following systems: cardiovascular, respiratory, musculoskeletal, integumentary, endocrine, lymphatic, neurological, hematologic, hepatic, gastrointestinal, hepatic and biliary, renal and urological, genital and reproductive. Genetic disorders, cancer, and mental health will also be addressed.. By the completion of this course, a student should be able to: (1) Define and apply terminology used in Pathophysiology and the ICF Disablement Model (2) Discuss inflammation and healing, (3) Discuss the immune system in terms of its function and possible disorders (4) Identify infectious conditions and describe their transmission and progression (5) List and describe conditions affecting the integumentary system and discuss the role of physical therapy in treating skin conditions (6) Discuss conditions of and applications for physical therapy for the following systems: cardiovascular, respiratory, lymphatic, musculoskeletal, neurological, and endocrine. (7) Identify conditions, diseases, and problems with the body systems, including the neurological, hematologic, gastrointestinal, hepatic, biliary, renal and urological, genital and reproductive. (8) Discuss cancer in terms of pathophysiology, risk factors, and various types of cancer. (9) Discuss special considerations for the PTA when working with patients who are geriatric, in specialized acute care units, and with various comorbidities. (10) Identify mental health issues and appropriate interactions and interventions with patients with mental or emotional health issues. Course content will be delivered in lecture and on-line materials. Enrollment is limited to students accepted in the 2PTA major.

Enforced Prerequisite at Enrollment: Grade of C or better in: (PT 100 or PT 100S) and BIOL 161 and BIOL 162 and BIOL 163 and BIOL 164

PT 270W: Pathophysiology

5 Credits

This course is designed to give the PTA student a working knowledge of the physiology of disease and conditions commonly seen in physical therapy. Basic signs, symptoms, causes, and processes of disease and conditions will be covered. Diagnostic criteria, progression, and interventions, including physical therapy interventions, medical and surgical interventions, and pharmaceutical interventions will be addressed. Areas of study in the course may include, but are not limited to, inflammation and healing, inflection, immunity and immune disorders, and disorders of the following systems: cardiovascular, respiratory, musculoskeletal, integumentary, endocrine, lymphatic, neurological, hematologic, hepatic, gastrointestinal, hepatic and biliary, renal and urological, genital and reproductive. Genetic disorders, cancer, and mental health will also be addressed.. By the completion of this course, a student should be able to: (1) Define and apply terminology used in Pathophysiology and the ICF Disablement Model (2) Discuss inflammation and healing, (3) Discuss the immune system in terms of its function and possible disorders (4) Identify infectious conditions and describe their transmission and progression (5) List and describe conditions affecting the integumentary system and discuss the role

of physical therapy in treating skin conditions (6) Discuss conditions of and applications for physical therapy for the following systems: cardiovascular, respiratory, lymphatic, musculoskeletal, neurological, and endocrine. (7) Identify conditions, diseases, and problems with the body systems, including the neurological, hematologic, gastrointestinal, hepatic, biliary, renal and urological, genital and reproductive. (8) Discuss cancer in terms of pathophysiology, risk factors, and various types of cancer. (9) Discuss special considerations for the PTA when working with patients who are geriatric, in specialized acute care units, and with various comorbidities. (10) Identify mental health issues and appropriate interactions and interventions with patients with mental or emotional health issues. This is a writing intensive course that will include instructor written evaluation and feedback of student's writing. The student writing will be specific to the Physical Therapy discipline and include multiple and varied assignments. Writing will be a factor in the final grade for this course. Course content will be delivered in lecture and on-line materials. Assessment of mastery of content will be determined through any or all of the following methods: written tests and quizzes, papers, individual or group projects, homework, in-class assignments. Enrollment is limited to students accepted in the 2PTA major.

Enforced Prerequisite at Enrollment: Grade of C or better in: (PT 100 or PT 100S) and BIOL 161 and BIOL 162 and BIOL 163 and BIOL 164 Writing Across the Curriculum

PT 271: Pathophysiology I

3 Credits

This course is designed to give the PTA student a working knowledge of the physiology of disease and conditions commonly seen in physical therapy. Basic signs, symptoms, causes, and processes of disease and conditions will be covered. Diagnostic criteria, progression, and interventions, including physical therapy interventions, medical and surgical interventions, and pharmaceutical interventions will be addressed. Areas of study in the course may include, but are not limited to, inflammation and healing, inflection, immunity and immune disorders, and disorders of the following systems: cardiovascular, respiratory, musculoskeletal, integumentary, endocrine, lymphatic, and neurological. By the completion of this course, a student should be able to: (1) Define and apply terminology used in Pathophysiology and the ICF Disablement Model (2) Discuss inflammation and healing, (3) Discuss the immune system in terms of its function and possible disorders (4) Identify infectious conditions and describe their transmission and progression (5) List and describe conditions affecting the integumentary system and discuss the role of physical therapy in treating skin conditions (6) Discuss conditions of and applications for physical therapy for the following systems: cardiovascular, respiratory, lymphatic, musculoskeletal, neurological, and endocrine. This course is available to students enrolled in the PTA major. Course content will be delivered in lecture and on-line materials.

Enforced Prerequisite at Enrollment: Grade of C or better in: (PT 100 or PT 100S) and BIOL 161 and BIOL 162 and BIOL 163 and BIOL 164

PT 271W: Pathophysiology I

3 Credits

This course is designed to give the PTA student a working knowledge of the physiology of disease and conditions commonly seen in physical therapy. Basic signs, symptoms, causes, and processes of disease and conditions will be covered. Diagnostic criteria, progression, and interventions, including physical therapy interventions, medical and

surgical interventions, and pharmaceutical interventions will be addressed. Areas of study in the course may include, but are not limited to, inflammation and healing, inflection, immunity and immune disorders, and disorders of the following systems: cardiovascular, respiratory, musculoskeletal, integumentary, endocrine, lymphatic, and neurological. By the completion of this course, a student should be able to: (1) Define and apply terminology used in Pathophysiology and the ICF Disablement Model (2) Discuss inflammation and healing, (3) Discuss the immune system in terms of its function and possible disorders (4) Identify infectious conditions and describe their transmission and progression (5) List and describe conditions affecting the integumentary system and discuss the role of physical therapy in treating skin conditions (6) Discuss conditions of and applications for physical therapy for the following systems: cardiovascular, respiratory, lymphatic, musculoskeletal, neurological, and endocrine. This is a writing-intensive course that will include instructor written evaluation and feedback of student writing. Writing assignments will be specific to the Physical Therapy discipline and include multiple and varied assignments. Writing will be a factor in the final grade for this course. Course content will be delivered in lecture and on-line materials. Assessment of mastery of content will be determined through any or all of the following methods: written tests and quizzes, papers, individual or group projects, homework, in-class assignments. This course is available to students enrolled in the PTA major.

Enforced Prerequisite at Enrollment: Grade of C or better in: (PT 100 or PT 100S) and BIOL 161 and BIOL 162 and BIOL 163 and BIOL 164 Writing Across the Curriculum

PT 272: Pathophysiology II

2 Credits

This course is designed to give the PTA student a working knowledge of the physiology of disease states and conditions commonly seen in physical therapy. Basic signs, symptoms, causes, and processes of disease and conditions will be covered. Diagnostic criteria, progression, and interventions, including physical therapy interventions, medical and surgical interventions, and pharmaceutical interventions will be addressed. Areas of study in the course may include, but are not limited to, disorders of the following systems: neurological, hematologic, hepatic, gastrointestinal, hepatic and biliary, renal and urological, genital and reproductive. Genetic disorders, cancer, and mental health will also be addressed. By the completion of this course, students should be able to: (1) Identify conditions, diseases, and problems with the body systems, including the neurological, hematologic, gastrointestinal, hepatic, biliary, renal and urological, genital and reproductive. (2) Discuss cancer in terms of pathophysiology, risk factors, and various types of cancer. (3) Discuss special considerations for the PTA when working with patients who are geriatric, in specialized acute care units, and with various comorbidities. (4) Identify mental health issues and appropriate interactions and interventions with patients with mental or emotional health issues. Course content will be delivered in lecture and on-line materials. This course is available to students enrolled in the PTA major.

Enforced Prerequisite at Enrollment: Grade of C or better in: PT 271 or PT 271W

PT 280: Rehabilitation

5 Credits

This course introduces the basic principles, diagnoses, impairments, and treatment interventions utilized by the PTA in the rehabilitation setting.

Participants will review basic skills necessary for treating rehabilitation patients safely and overview common mobility equipment used in a rehabilitation setting. The following topics will be addressed in lecture and/or lab sessions: basic principles of normal movement and neuro-rehabilitation, teaching and learning theories, and motor relearning; data collection techniques and tools associated with neurological rehabilitation; functional mobility and motor function training techniques for patients with varying levels of disability; wheelchair mobility training and appropriate fitting and adaptations; environmental assessment and ADA considerations; gait deviations and training with and without assistive devices; orthotics; amputations and prosthetics; selected diagnoses in neuro-rehabilitation. This course will address rehabilitation techniques for patients with selected conditions seen in physical therapy neurological and rehabilitation settings. Selected neurological conditions will be covered, including etiology, clinical presentation, medical management, and physical therapy interventions. Neurologic conditions and developmental delays associated with pediatric clients will also be included. In this course, neuroanatomy and neurophysiology will be reviewed and principles of specific neuro-rehabilitation techniques, and neuromotor development will be explored. By the completion of this course, students should be able to recognize and verbalize general signs and symptoms of neurological deficit and demonstrate basic skills used in physical therapy for patients with selected neurological disorders and amputations. Students should also be able to identify specific areas in the brain, spinal cord, and peripheral nervous system associated with neurological signs, symptoms, and conditions; perform and discuss the value and use of various data collection tools associated with neuro-rehabilitation; demonstrate safe and effective physical therapy interventions as applied to patients with neurological disorders; discuss and demonstrate basic physical therapy interventions for patients with vestibular dysfunction; discuss the basic developmental milestones associated with human growth and development; and demonstrate and discuss safe and effective handling and positioning principles used with pediatric patients. Gait deviations and interventions, wheelchair fitting and use, and specific physical therapy interventions for various diagnoses will be covered. Using extensive examples, exercises, and real life scenarios, this course teaches students skills to assess, treat and document functional outcomes in a clear and logical progression. Lecture, lab activities, and written assignments will be used to discuss clinical decision-making and intervention strategies for related impairments. Enrollment is limited to students admitted to the 2PTA major.

Enforced Prerequisite at Enrollment: Grade of C or better in (PT 100 or PT 100S) and PT 120. Concurrent Courses: PT 384 and (PT 270 or PT 270W or PT 271W)

PT 280W: Rehabilitation

5 Credits

This course introduces the basic principles, diagnoses, impairments, and treatment interventions utilized by the PTA in the rehabilitation setting. Participants will review basic skills necessary for treating rehabilitation patients safely and overview common mobility equipment used in a rehabilitation setting. The following topics will be addressed in lecture and/or lab sessions: basic principles of normal movement and neuro-rehabilitation, teaching and learning theories, and motor relearning; data collection techniques and tools associated with neurological rehabilitation; functional mobility and motor function training techniques for patients with varying levels of disability; wheelchair mobility training and appropriate fitting and adaptations; environmental assessment and ADA considerations; gait deviations and training with and without

assistive devices; orthotics; amputations and prosthetics; selected diagnoses in neuro-rehabilitation. This course will address rehabilitation techniques for patients with selected conditions seen in physical therapy neurological and rehabilitation settings. Selected neurological conditions will be covered, including etiology, clinical presentation, medical management, and physical therapy interventions. Neurologic conditions and developmental delays associated with pediatric clients will also be included. In this course, neuroanatomy and neurophysiology will be reviewed and principles of specific neuro-rehabilitation techniques, and neuromotor development will be explored. By the completion of this course, students should be able to recognize and verbalize general signs and symptoms of neurological deficit and demonstrate basic skills used in physical therapy for patients with selected neurological disorders and amputations. Students should also be able to identify specific areas in the brain, spinal cord, and peripheral nervous system associated with neurological signs, symptoms, and conditions; perform and discuss the value and use of various data collection tools associated with neuro-rehabilitation; demonstrate safe and effective physical therapy interventions as applied to patients with neurological disorders; discuss and demonstrate basic physical therapy interventions for patients with vestibular dysfunction; discuss the basic developmental milestones associated with human growth and development; and demonstrate and discuss safe and effective handling and positioning principles used with pediatric patients. Gait deviations and interventions, wheelchair fitting and use, and specific physical therapy interventions for various diagnoses will be covered. Using extensive examples, exercises, and real life scenarios, this course teaches students skills to assess, treat and document functional outcomes in a clear and logical progression. Lecture, lab activities, and written assignments will be used to discuss clinical decision-making and intervention strategies for related impairments. This is a writing-intensive course that will include instructor written evaluation and feedback of student writing. Writing assignments will be specific to the Physical Therapy discipline and include multiple and varied assignments. Writing will be a factor in the final grade for this course. Course content will be delivered in lecture and/or on-line materials. A variety of evaluation tools will be used to assess student performance in this course. Written examinations, quizzes, written assignments, including homework may be utilized to assess cognitive understanding of course content. For assessment of psychomotor skills, lab practical examinations, skill evaluations, and oral questioning may be used. Group projects and peer assessment might also be included at some campuses. Enrollment is limited to students admitted to the 2PTA major.

Enforced Prerequisite at Enrollment: Grade of C or better in (PT 100 or PT 100S) and PT 120. Concurrent Courses: PT 384 and (PT 270 or PT 271)

Writing Across the Curriculum

PT 281: Rehabilitation-1

2 Credits

This course introduces the basic principles, diagnoses, impairments, and treatment interventions utilized by the PTA in the rehabilitation setting. Participants will review basic skills necessary for treating rehabilitation patients safely and overview common mobility equipment used in a rehabilitation setting. The following topics will be addressed in lecture and/or lab sessions: basic principles of normal movement and neuro-rehabilitation, teaching and learning theories, and motor relearning; data collection techniques and tools associated with neurological rehabilitation; functional mobility and motor function training techniques for patients with varying levels of disability; wheelchair mobility training

and appropriate fitting and adaptations; environmental assessment and ADA considerations; gait deviations and training with and without assistive devices; orthotics; amputations and prosthetics; selected diagnoses in neuro-rehabilitation. By the completion of this course, students should be able to recognize and verbalize general signs and symptoms of neurological deficit and demonstrate basic skills used in physical therapy for patients with selected neurological disorders and amputations. This course includes both lecture and lab components and students will be expected to demonstrate competence in both written and practical examinations. Enrollment is limited to students admitted to the 2PTA major.

Enforced Prerequisite at Enrollment: Grade of C or better in (PT 100 or PT 100S) and PT 120 Concurrent Courses: PT 384 and (PT 270 or PT 270W or PT 271 or PT 271W)

PT 282: Rehabilitation-2

3 Credits

In this course, neuroanatomy and neurophysiology will be reviewed and principles of specific neuro-rehabilitation techniques, and neuromotor development will be explored. This course will address rehabilitation techniques for patients with selected conditions seen in physical therapy neurological and rehabilitation settings. Selected neurological conditions will be covered, including etiology, clinical presentation, medical management, and physical therapy interventions. Neurologic conditions and developmental delays associated with pediatric clients will also be included. By the completion of this course, students should be able to identify specific areas in the brain, spinal cord, and peripheral nervous system associated with neurological signs, symptoms, and conditions; perform and discuss the value and use of various data collection tools associated with neuro-rehabilitation; demonstrate safe and effective physical therapy interventions as applied to patients with neurological disorders; discuss and demonstrate basic physical therapy interventions for patients with vestibular dysfunction; discuss the basic developmental milestones associated with human growth and development; and demonstrate and discuss safe and effective handling and positioning principles used with pediatric patients. Gait deviations and interventions, wheelchair fitting and use, and specific physical therapy interventions for various diagnoses will be covered. Using extensive examples, exercises, and real life scenarios, this course teaches students skills to assess, treat and document functional outcomes in a clear and logical progression. Lecture, lab activities, and written assignments will be used to discuss clinical decision-making and intervention strategies for related impairments. Enrollment is limited to students admitted to the 2PTA major.

Enforced Prerequisite at Enrollment: Grade of C or better in: PT 281 and (PT 270W or PT 271W)

PT 282W: Rehabilitation-2W

3 Credits

In this course, neuroanatomy and neurophysiology will be reviewed and principles of specific neuro-rehabilitation techniques, and neuromotor development will be explored. This course will address rehabilitation techniques for patients with selected conditions seen in physical therapy neurological and rehabilitation settings. Selected neurological conditions will be covered, including etiology, clinical presentation, medical management, and physical therapy interventions. Neurologic conditions and developmental delays associated with pediatric clients will also be included. By the completion of this course, students should be able to

identify specific areas in the brain, spinal cord, and peripheral nervous system associated with neurological signs, symptoms, and conditions; perform and discuss the value and use of various data collection tools associated with neuro-rehabilitation; demonstrate safe and effective physical therapy interventions as applied to patients with neurological disorders; discuss and demonstrate basic physical therapy interventions for patients with vestibular dysfunction; discuss the basic developmental milestones associated with human growth and development; and demonstrate and discuss safe and effective handling and positioning principles used with pediatric patients. Gait deviations and interventions, wheelchair fitting and use, and specific physical therapy interventions for various diagnoses will be covered. Using extensive examples, exercises, and real life scenarios, this course teaches students skills to assess, treat and document functional outcomes in a clear and logical progression. Lecture, lab activities, and written assignments will be used to discuss clinical decision-making and intervention strategies for related impairments. This is a writing-intensive course that will include instructor written evaluation and feedback of student writing. Writing assignments will be specific to the Physical Therapy discipline and include multiple and varied assignments. Writing will be a factor in the final grade for this course. Course content will be delivered in lecture and on-line materials. A variety of evaluation tools will be used to assess student performance in this course. Written examinations, quizzes, written assignments, including homework may be utilized to assess cognitive understanding of course content. For assessment of psychomotor skills, lab practical examinations, skill evaluations, and oral questioning may be used. Group projects and peer assessment might also be included at some campuses. Enrollment is limited to students admitted to the 2PTA major.

Enforced Prerequisite at Enrollment: Grade of C or better in PT 281 and (PT 270 or PT 271) and Concurrent Courses: PT 272 Writing Across the Curriculum

PT 285: Clinical Reasoning for the PTA

2 Credits

This course will provide PTA students with opportunities to synthesize, prioritize, and apply rehabilitation principles from many different PTA courses. Students will learn strategies to combine data collection skills, interventions, and techniques in an integrated manner. Communication, documentation skills and therapeutic intervention skills will be developed through activities and class assignments. Patient scenarios will be utilized to afford students opportunities to develop their skills in choosing and applying effective treatment strategies for patients with complex diagnoses and/or cultural or intellectual differences, all while simultaneously addressing their patient's comorbidities, past medical history, family dynamics and anticipated discharge destination. Using extensive examples, exercises, and real life scenarios, this course teaches students skills to assess, treat and document functional outcomes in a clear and logical progression. Additionally, concepts, principles, skills and techniques will be reviewed in preparation for the final clinical experiences and the PTA licensure examination. This course is available to students enrolled in the PTA major.

Enforced Prerequisite at Enrollment: C or better is required: PT 150 and PT 160 and PT 290 and one of the following: PT 270 or PT 270W or PT 271 or PT 271W or PT 272 Concurrent: PT 395E and PT 250 and PT 260 and PT 280 or PT 280W or PT 282 or PT 282W

PT 290: Professional Issues in Clinical Practice

2 Credits

This course is an introduction to the professional issues related to the physical therapist assistant's role in the current health care environment. The course is designed to foster professional development of the physical therapist assistant student and to prepare the student to complete essential competencies and behaviors of health care related to the field of physical therapy. The course will guide the student in preparing the necessary documents for clinical practicum. Areas of study in the course may include but are not limited to, the role of the physical therapist assistant as defined by the American Physical Therapy Association and state practice acts, Values-Based Behaviors for the Physical Therapist Assistant, Standards of Ethical Conduct for the Physical Therapist Assistant, ethical problem solving in healthcare including recognizing and discussing legal and ethical issues in physical therapy, cultural diversity and cultural competence, lifelong learning and continuing competence, professional communication in clinical situations including HIPAA, billing and reimbursement in physical therapy, and medical documentation including the value and necessity of thorough documentation, recognition of the PTA role in documentation, completion of appropriate medical documentation and appropriate use of medical abbreviations. Enrollment is limited to students admitted to the 2PTA major.

Enforced Prerequisite at Enrollment: Grade of C or better in PT 100 or PT 100S and Concurrent Courses: PT 150 and PT 160 and (PT 270 or PT 270W or PT 271 or PT 271W)

PT 290W: Professional Issues in Clinical Practice

3 Credits

This course is an introduction to the professional issues related to the physical therapist assistant's role in the current health care environment. The course is designed to foster professional development of the physical therapist assistant student and to prepare the student to complete essential competencies and behaviors of health care related to the field of physical therapy. The course will guide the student in preparing the necessary documents for clinical practicum. Areas of study in the course may include but are not limited to, the role of the physical therapist assistant as defined by the American Physical Therapy Association and state practice acts, Values-Based Behaviors for the Physical Therapist Assistant, Standards of Ethical Conduct for the Physical Therapist Assistant, ethical problem solving in healthcare including recognizing and discussing legal and ethical issues in physical therapy, cultural diversity and cultural competence, lifelong learning and continuing competence, professional communication in clinical situations including HIPAA, billing and reimbursement in physical therapy, and medical documentation including the value and necessity of thorough documentation, recognition of the PTA role in documentation, completion of appropriate medical documentation and appropriate use of medical abbreviations. Since this course is a writing-intensive ("W") course, students will be expected to successfully complete written assignments, focusing on appropriate medical documentation for clinical situations. Written work will constitute 25% or more of a student's final grade in the course. Enrollment is limited to students admitted to the 2PTA major.

Enforced Prerequisite at Enrollment: PT 100 or PT 100S (grade of C or better required) **Enforced Concurrent at Enrollment:** PT 150, PT 160, PT 270 or PT 271 or PT 271W **Recommended Preparation:** PT 120, PT 384

Writing Across the Curriculum

PT 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

PT 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

PT 384: Applied Kinesiology

3 Credits

The focus of PT 384, Applied Kinesiology, is to incorporate anatomical structure of the human body, principles of biomechanics, kinetics, and kinematics with the study of human motion and mobility. Areas of instruction include: joint structure and function; arthro- and osteokinematics; muscular kinesiology; posture; normal gait; leverage systems and the forces involved in moving the human body; and joint motion assessment through goniometry and functional measures. This course prepares PTA students for integration of kinesiological concepts into the application of physical therapy interventions. Course objectives include: defining key kinesiological and biomechanical terms and applying concepts to human movement scenarios; demonstrating understanding of: joint configuration and movement; joint motion measurement; muscular kinesiology; posture; and gait. Course content will be delivered in the classroom, laboratory and on-line. The course will include lecture and laboratory components and students will be expected to demonstrate competence in both written and practical examinations. Enrollment is limited to students admitted to the 2PTA major.

Enforced Prerequisite at Enrollment: Grade of C or better in BIOL 161 and BIOL 162 and Concurrent Course: PT 120

PT 395E: Physical Therapist Assistant--Practicum I

3 Credits

PT 395E is the beginner level practice of physical therapist assistant skills in a clinical setting under the direction and supervision of a licensed physical therapist and/or physical therapist/physical therapist assistant team. Course expectations include, but are not limited to: understanding and adhering to the Standards of Ethical Conduct for the Physical Therapist Assistant and the Values-Based Behaviors for the Physical Therapist Assistant, demonstration of appropriate verbal, non-verbal and written beginner level communication, safe implementation of beginner level therapeutic interventions and data collection skills with non-complex patients as outlined in the plan of care established by the physical therapist. This course includes both clinical experience and online learning activities that students will be expected to complete. Enrollment is limited to 2PTA major.

Enforced Prerequisite at Enrollment: Grade of C or better in (PT 100 or PT 100S) and PT 120 and Concurrent Courses: PT 150 and PT 160 and PT 384 and PT 290 and (PT 270 or PT 270W or PT 271 or PT 271W)

PT 395F: Physical Therapist Assistant–Practicum II

4 Credits

PT 395F is the intermediate level practice of physical therapist assistant skills in a clinical setting under the direction and supervision of a licensed physical therapist and/or physical therapist/physical therapist assistant team. Course expectations include, but are not limited to: understanding and adhering to the Standards of Ethical Conduct for the Physical Therapist Assistant and the Values-Based Behaviors for the Physical Therapist Assistant, demonstration of appropriate verbal, non-verbal and written communication, safe and effective implementation at an intermediate skill level with associated therapeutic interventions and data collection with patients of varying complexities as outlined in the plan of care established by the physical therapist. Students will be guided to apply current knowledge, theory and clinical judgement to progress or modify patient treatment within the established plan of care. This course includes both clinical experience and online learning activities that students will be expected to complete. Enrollment is limited to 2PTA major.

Enforced Prerequisite at Enrollment: Grade of C or better in PT 250 and PT 260 and (PT 280 or PT 280W or PT 282 or PT 282W) and (PT 270 or PT 270W or PT 272) and PT 285 and PT 395E

PT 395G: Physical Therapist Assistant–Practicum III

4 Credits

PT 395G is the terminal clinical experience of the practice of physical therapist assistant skills under the direction and supervision of a licensed physical therapist and/or physical therapist/physical therapist assistant team culminating in entry level practice. Course expectations include, but are not limited to: understanding and adhering to the Standards of Ethical Conduct for the Physical Therapist Assistant and the Values-Based Behaviors for the Physical Therapist Assistant, demonstration of appropriate verbal, non-verbal and written communication, safe, effective and efficient implementation of therapeutic interventions and data collection with patients of varying complexities as outlined in the plan of care established by the physical therapist. Students will be expected to apply current knowledge, theory and clinical judgement to progress or modify patient treatment within the established plan of care. Essential skills for clinical practice will be emphasized in preparation for career entry into the current healthcare environment. This course includes both clinical experience and online learning activities that students will be expected to complete. Enrollment is limited to 2PTA major.

Enforced Prerequisite at Enrollment: A grade of C or better in PT 395F or (PT 395H and PT 395I)

PT 395H: Physical Therapist Assistant–Practicum II Part 1

2 Credits

PT 395H is the intermediate level practice of physical therapist assistant skills in a clinical setting under the direction and supervision of a licensed physical therapist and/or physical therapist/physical therapist assistant team. Course expectations include, but are not limited to: understanding and adhering to the Standards of Ethical Conduct for the Physical Therapist Assistant and the Values-Based Behaviors for the Physical Therapist Assistant, demonstration of appropriate verbal, non-verbal and written communication, safe and effective implementation at an intermediate skill level with associated therapeutic interventions and data collection with patients of varying complexities as outlined in the

plan of care established by the physical therapist. Students will be guided to apply current knowledge, theory and clinical judgement to progress or modify patient treatment within the established plan of care. This course includes both clinical experience and online learning activities that students will be expected to complete. Enrollment is limited to 2PTA major.

Prerequisites: Grade of C or higher in PT 290 PT 395E; Concurrent Courses: PT 250 PT 260 PT 270; or PT 270W; or PT 272 PT 280; or PT 280W or PT 282; or PT 282W PT 285

PT 395I: Physical Therapist Assistant–Practicum II Part 2

2 Credits

PT 395 I is the advanced intermediate level practice of physical therapist assistant skills in a clinical setting under the direction and supervision of a licensed physical therapist and/or physical therapist/physical therapist assistant team. Course expectations include, but are not limited to: understanding and adhering to the Standards of Ethical Conduct for the Physical Therapist Assistant and the Core Values of the PT and PTA, demonstration of appropriate verbal, non-verbal and written communication, safe and effective implementation at an intermediate skill level with associated therapeutic interventions and data collection with patients of varying complexities as outlined in the plan of care established by the physical therapist. Students will be guided to apply current knowledge, theory and clinical judgement to progress or modify patient treatment within the established plan of care. This course includes both clinical experience and online learning activities that students will be expected to complete. Enrollment is limited to 2PTA major.

Prerequisites: Grade of C or higher in PT 395H

Physics (PHYS)

PHYS 1: The Science of Physics

3 Credits

PHYS 1 The Science of Physics (3) (GN)(BA) This course meets the Bachelor of Arts degree requirements. Introduction to the basic concepts of physics at a conceptual level for students in non-technical majors. This course provides a broad survey of the history, concepts, and applications of physics including topics such as classical mechanics in one- and two-dimensions, Newton's laws of motion, work and energy, momentum, rotational motion, vibration, sound, waves, heat and the laws of thermodynamics, electricity and magnetism (including simple electrical circuits), and topics in 20th century physics, including relativity and quantum mechanics. Course objectives include the development of an understanding of the scientific method, and its application to physics problems of historical interest, and modern physics applications; providing an appreciation of the historical role played by physics in the development of modern science, its role in important cultural and societal issues, and in understanding the basic laws of nature, as applied to everyday experience, natural phenomena, or applications technologies (old and new); the development of scientific literacy, to help motivate the many connections of physics to other fundamental scientific fields and applications disciplines; providing experience in problem solving and the conceptual understanding of physics, and emphasizing the recurring role of a few important concepts, cutting across many scientific disciplines, such as the fundamental laws of classical mechanics, the basic laws of thermodynamics (including conservation of energy), and applications of

modern quantum theory. PHYS 001 The Science of Physics (3) (GN)(BA)
 This course meets the Bachelor of Arts degree requirements. Introduction to the basic concepts of physics at a conceptual level for students in non-technical majors. Provides a broad survey of the history, concepts, and applications of physics including topics such as classical mechanics in one- and two-dimensions, Newton's laws of motion, work and energy, momentum, rotational motion, vibration, sound, and waves, heat and the laws of thermodynamics, electricity and magnetism, including simple electrical circuits, and topics in 20th century physics, including relativity and quantum mechanics. Course objectives include the development of an understanding of the scientific method, its application to physics problems of historical interest, as well as to modern applications; providing an appreciation of the historical role played by physics in the development of modern science, its role in important cultural and societal issues, and in understanding the basic laws of nature, as applied to everyday experience, natural phenomena, or applications technologies (old and new); the development of scientific literacy, to help motivate the many connections of physics to other fundamental scientific fields and applications disciplines; providing experience in problem solving and the conceptual understanding of physics, and emphasizing the recurring role of a few important concepts, cutting across many scientific disciplines, such as the fundamental laws of classical mechanics, the basic laws of thermodynamics (including conservation of energy), as well as applications of modern quantum theory.

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

PHYS 10: Physics Behind the Headlines

3 Credits

Select topics in modern physics with emphasis on understanding science related articles in the news (For students in non-mathematical fields.) PHYS 10 Physics Behind the Headlines (3) (GN) Introduction for non-science majors to select topics in the modern physics of quantum mechanics and relativity with the goal of understanding recent technological advances, scientific breakthroughs and social events related to science as they appear in the news. These range from the discovery of the Higgs boson and dark energy to developments in lasers or superconductors. Social events in the news where science played a large role such as the Roswell "UFO" event in 1947 or the Fukushima nuclear crisis in 2011 will also be discussed. Course objectives include the understanding of the scientific method and scientific reporting; learning the conceptual aspects of the structure of matter from atoms to quarks, waves, energy and light; quantum mechanics and its applications to high tech such as computers and lasers; relativity $E=mc^2$, nuclear forces, gravity and the Big-Bang theory. Particular emphasis will be put on learning the scientific standards for a hypothesis to be truly established as a working theory and how the simple laws of physics apply broadly to many different systems. This class will emphasize conceptual aspects and there is no mathematics prerequisite.

General Education: Natural Sciences (GN)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

PHYS 97: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

PHYS 114: Sound and Light for Educators

4 Credits/Maximum of 4

Waves, sound, and light concepts highlighted by evidence-based explanations and scientific discourse in preparation for K-6 science teaching. This course has two main focus areas: physics content typically addressed in elementary science curriculum and effective pedagogy for supporting children's meaningful science learning. An introduction to waves is used to construct an initial model, which is applied to sound phenomena and elaborated. The more robust model is then applied to understanding light phenomena and again elaborated. As the model develops across units of instruction, students are engaged in constructing explanations from evidence, model-based reasoning, and scientific discourse. Instructional approaches that are grounded in research on children's learning are used to engage education majors in their own learning, while teaching applications provide opportunities for them to unpack their experiences and apply them to school science teaching.

Cross-listed with: SCIED 114

PHYS 150: Technical Physics I

3 Credits/Maximum of 3

Elementary treatment of topics in mechanics, heat, wave motion, and sound leading toward an understanding of technical applications. PHYS 150 Technical Physics I (3) (GN) (BA) This course meets the Bachelor of Arts degree requirements. Technical Physics provides an algebra-based introduction to mechanics, heat, wave motion, and sound exemplifying scientific method and leading toward an understanding of technical applications. PHYS 150 is the first course in a two-course sequence with PHYS 151 surveying all of physics. It includes topics such as measurement, dimensional analysis, systems of units, describing motion in one dimension, scalars and vectors, describing motion in two and three dimensions, projectile motion, circular motion, particle dynamics via Newton's Laws of Motion, forces, work and energy, momentum, systems of particles, collisions, rotational motion of rigid bodies, torque, moment of inertia, static equilibrium, mechanical advantage, mechanical properties of materials, fluids, vibrations, wave motion, sound, temperature, heat, thermodynamics, and heat transfer. Students attend two lecture/recitation classes and one two-hour laboratory/activity period per week. Classes emphasize conceptualizing the basic ideas, terminology, and principles of the physical phenomena of nature; their quantitative expression through algebra and trigonometry; their relation to applications in science and technology; and their use in quantitative problem solving. Both computer-based and traditional lab exercises and activities illustrate class material and scientific method while giving students experience with a variety of measuring tools and the general principles of measurement, including the analysis of error. Students work collaboratively in small groups to plan their measurements, collect and analyze data, make judgments based on their results, and communicate their efforts and conclusions in a written lab/activity report. This course requires some algebra as a prerequisite. It is a prerequisite for PHYS 151 and is a required course for many engineering

technology programs. It is offered at least once per academic year at all Penn State locations with engineering technology programs. Course evaluation is based on a combination of assessment including homework assignments and/or quizzes, written lab/activity reports, and exams.

Prerequisite: 1 1/2 units of algebra. Prerequisite or concurrent: MATH 021 or MATH 081

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

PHYS 151: Technical Physics II

3 Credits/Maximum of 3

PHYS 151 Technical Physics II (3) (GN) provides an algebra-based introduction to electricity, light, and modern physics exemplifying scientific method and leading toward an understanding of technical applications. It is the second course in a two-course sequence with PHYS 150 surveying all of physics. It includes topics such as electric charge, electric force, electric field, electric potential difference, capacitance, cathode-ray tube, electric current, Ohm's Law, batteries, direct current circuits, resistors, ammeters, voltmeters, magnetic force, magnetic field, electromagnetic induction, motors, generators, transformers, inductors, alternating current circuits, electromagnetic waves, light, reflection, refraction, interference, diffraction, atomic physics, atoms in combination, and the nucleus. Students attend two lecture/recitation classes and one two-hour laboratory/activity period per week. Classes emphasize conceptualizing the basic ideas, terminology, and principles of the physical phenomena of nature; their quantitative expression through algebra and trigonometry; their relation to applications in science and technology; and their use in quantitative problem solving. Both computer-based and traditional lab exercises and activities illustrate class material and scientific method while giving students experience with a variety of measuring tools and the general principles of measurement, including the analysis of error. Students work collaboratively in small groups to plan their measurements, collect and analyze data (often using modern computer hardware and software), make judgments based on their results, and communicate their efforts and conclusions in a written lab/activity report. The prerequisite for this course is PHYS 150. It is a required course for many engineering technology programs. It is offered at least once per academic year at all Penn State locations with engineering technology programs. Course evaluation is based on a combination of regular homework assignments and/or quizzes, written lab/activity reports, two or three exams, and a final exam.

Enforced Prerequisite at Enrollment: PHYS 150

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

PHYS 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

PHYS 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

PHYS 211: General Physics: Mechanics

4 Credits

PHYS 211 General Physics: Mechanics (4) (GN)(BA) This course meets the Bachelor of Arts degree requirements. Calculus-based introduction to classical mechanics, including such topics as: measurement, dimensional analysis, motion in one-dimension, vectors, motion in 2 and 3 dimensions, relative and circular motion, force and dynamics, Newton's Laws, friction, kinetic energy, work, potential energy, energy conservation, systems of particles, center of mass and momentum, elastic and inelastic collisions, rotation (moments of inertia), rolling motion, torque, angular momentum, static equilibrium, gravitational force and Kepler's laws, gravitational potential energy, oscillations, waves (transverse and longitudinal, superposition of waves). This course is designed to provide students with a working knowledge of the elementary physics principles mentioned above, as well as their applications, and to enhance their conceptual understanding of physical laws. The exact model of instruction varies at different campuses due to different resources and class sizes. Students attend several class meetings including at least one lab or activity period per week. Use of a combination of computer-based and traditional lab exercises is expected and collaborative learning exercises will be used in both small class sessions. The introduction of data acquisition and analysis methods (often making use of modern computer tools) will be stressed in the laboratory/activity period. Course evaluation is based on a combination assessments such as homework, quizzes, lab reports, midterm and final exams, and other evaluative tools. The course is an important prerequisite for later work in many science and engineering disciplines.

Enforced Concurrent at Enrollment: MATH 140

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

PHYS 211H: General Physics: Mechanics

4 Credits

Calculus-based introduction to classical mechanics, including such topics as: measurement, dimensional analysis, motion in one-dimension, vectors, motion in 2 and 3 dimensions, relative and circular motion, force and dynamics, Newton's Laws, friction, kinetic energy, work, potential energy, energy conservation, systems of particles, center of mass and momentum, elastic and inelastic collisions, rotation (moments of inertia), rolling motion, torque, angular momentum, static equilibrium, gravitational force and Kepler's laws, gravitational potential energy, oscillations, waves (transverse and longitudinal, superposition of waves). This course is designed to provide students with a working knowledge of the elementary physics principles mentioned above, as well as their applications, and to enhance their conceptual understanding of physical laws. The exact model varies at different campuses due to different resources and class sizes. Students attend several class

meetings including at least one lab or activity period per week. Use of a combination of computer-based and traditional lab exercises is expected and collaborative learning exercises will be used in both small class sessions. The introduction of data acquisition and analysis methods (often making use of modern computer tools) will be stressed in the laboratory/activity period. As an honors course, compared to PHYS 211, in this course examples from the current research literature and more applications to physics research/applications can be made. The course is an important prerequisite for later work in many science and engineering disciplines.

Enforced Concurrent at Enrollment: MATH 140

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

Honors

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

PHYS 212: General Physics: Electricity and Magnetism

4 Credits

PHYS 212 General Physics: Electricity and Magnetism (4) (GN)(BA)
This course meets the Bachelor of Arts degree requirements. Calculus-based introduction to classical electricity and magnetism, including such topics as, electric charge and electric fields, Gauss's law, electric potential, capacitance, current, resistance, and circuits, magnetic fields, and fields due to currents, induction and inductance, magnetism of matter, Maxwell's equations, and electromagnetic oscillations. This course is designed to provide students with a working knowledge of the elementary physics principles mentioned above, as well as their applications, and to enhance their conceptual understanding of physical laws. The exact model of instruction varies at different campuses due to different resources and class sizes. Students attend several class meetings including at least one lab or activity period per week. Use of a combination of computer-based and traditional lab exercises is expected and collaborative learning exercises will be used in both small class session. Use of a combination of computer-based and traditional lab exercises is expected and collaborative learning exercises will be used in both small class settings. The introduction of data acquisition and analysis methods (often making use of modern computer tools) will be stressed in the laboratory/activity period. Course evaluation is based on a combination assessments such as homework, quizzes, lab reports, midterm and final exams, and other evaluative tools. The course is an important prerequisite for later work in many science and engineering disciplines.

Enforced Prerequisite at Enrollment: MATH 140 and PHYS 211

Concurrent Courses: MATH 141

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

PHYS 212H: General Physics: Electricity and Magnetism

4 Credits/Maximum of 4

Calculus-based introduction to classical electricity and magnetism, including such topics as, electric charge and electric fields, Gauss's

law, electric potential, capacitance, current, resistance, and circuits, magnetic fields, and fields due to currents, induction and inductance, magnetism of matter, Maxwell's equations, and electromagnetic oscillations. This course is designed to provide students with a working knowledge of the elementary physics principles mentioned above, as well as their applications, and to enhance their conceptual understanding of physical laws. The exact model varies at different campuses due to different resources and class sizes. Students attend several class meetings including at least one lab or activity period per week. Use of a combination of computer-based and traditional lab exercises is expected and collaborative learning exercises will be used in both small class session. Use of a combination of computer-based and traditional lab exercises is expected and collaborative learning exercises will be used in both small class settings. The introduction of data acquisition and analysis methods (often making use of modern computer tools) will be stressed in the laboratory/activity period. As an honors course, compared to PHYS 212, in this course, examples from the current research literature and more applications to physics research/applications can be made. The course is an important prerequisite for later work in many science and engineering disciplines.

Enforced Prerequisite at Enrollment: MATH 140 and PHYS 211

Concurrent Courses: MATH 141

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

Honors

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

PHYS 213: General Physics: Fluids and Thermal Physics

2 Credits

Calculus-based study of the basic concepts of fluids and sound, heat, kinetic theory, and entropy. PHYS 213 General Physics: Fluids and Thermal Physics (2) (GN)(BA) This course meets the Bachelor of Arts degree requirements. Calculus-based introduction to the basic concepts of fluids and sound, heat, kinetic theory, and entropy, including such topics as: fluid mechanics and motion, sound Waves: speed, harmonic waves, intensity, temperature and heat: thermal expansion, heat capacity, conduction and radiation, kinetic theory of gases: First Law of Thermodynamics, internal energy of a gas, heat capacities, adiabatic expansion, entropy and the Second Law: concept of equilibrium and entropy, heat engines, efficiency of heat engines and refrigerators, introduction to statistical mechanics. This course is designed to provide students with a working knowledge of the elementary physics principles mentioned above, as well as their applications, and to enhance their conceptual understanding of physical laws. The exact model of course instruction varies at different campuses due to different resources and class sizes. Students attend several class meetings including at least one lab or activity period per week. Use of a combination of computer-based and traditional lab exercises is expected and collaborative learning exercises will be used in small class settings. The introduction of data acquisition and analysis methods (often making use of modern computer tools) will be stressed in the laboratory/activity period. Course evaluation is based on a combination assessments such as homework, quizzes, lab reports, midterm and final exams, and other evaluative tools. The course is an important prerequisite for later work in many science and engineering disciplines.

Enforced Prerequisite at Enrollment: MATH 140 and PHYS 211

Concurrent Courses: MATH 141

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

PHYS 214: General Physics: Wave Motion and Quantum Physics

2 Credits

Calculus-based study of the basic concepts of wave motion, geometrical optics, interference phenomena, photons, wave mechanics, and the structure of matter. PHYS 214 General Physics: Wave Motion and Quantum Physics (2) (GN)(BA) This course meets the Bachelor of Arts degree requirements. Calculus-based introduction to the basic concepts of wave motion, geometrical optics, interference phenomena, photons, wave mechanics, and the structure of matter, including such topics as: electromagnetic waves: Poynting Vector, polarization and reflection, geometrical optics: mirrors, refraction, lenses, optical instruments, interference and diffraction, photons and matter waves, energy quantization, structure of matter: hydrogen atom, conduction of electrons in solids, and nuclear physics and nuclear energy. This course is designed to provide students with a working knowledge of the elementary physics principles mentioned above, as well as their applications, and to enhance their conceptual understanding of physical laws. The exact model of course instruction varies at different campuses due to different resources and class sizes. Students attend several class meetings including at least one lab or activity period per week. Use of a combination of computer-based and traditional lab exercises is expected and collaborative learning exercises will be used in small class settings. The introduction of data acquisition and analysis methods (often making use of modern computer tools) will be stressed in the laboratory/activity period. The course is an important prerequisite for later work in many science and engineering disciplines.

Enforced Prerequisite at Enrollment: MATH 141 and PHYS 211 and PHYS 212

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

PHYS 230: Introduction to Relativity

3 Credits

Introduction to special and general relativity including space-time diagrams and relativistic kinematics, length contraction, time dilation, equivalence principles, curved space and cosmology. PHYS 230 Introduction to Relativity (3) This course is designed for science or engineering students who have successfully completed calculus-based physics courses through electricity and magnetism (PHYS 212), and differential and integral calculus (MATH 140 and MATH 141). Concurrent courses of linear algebra (MATH 220) and vector calculus (MATH 230 or MATH 231) are required. This course should provide the student with a mathematical and physical understanding of relativity theory beyond that which one encounters in semi-popular treatments of the subject. The mathematical skills which this course will develop, e.g. tensors and tensor analysis, should be especially useful to students in a wide range

of science and engineering fields from computer science to physics and electrical engineering.

Enforced Prerequisite at Enrollment: PHYS 212 and MATH 141

Prerequisite or concurrent: MATH 220 and (MATH 230 or MATH 231)

PHYS 237: Introduction to Modern Physics

3-4 Credits

Relativity and quantum theory with applications to selected topics in atomic, molecular, solid state, or nuclear physics. This course covers much of the modern physics curriculum focusing on special relativity, the concepts and mathematical formalism of quantum mechanics in one- and three-dimensional model systems, and some applications of quantum theory to modern topics such as atomic/molecular, nuclear, particle, condensed matter physics or astrophysics as time permits. The course is a prerequisite for upper level courses in physics and astronomy majors, and in particular quantum mechanics.

Enforced Prerequisite at Enrollment: PHYS 212 or Concurrent: PHYS 214

PHYS 237H: Introduction to Modern Physics

3 Credits

Relativity and quantum theory applied to selected topics in atomic, molecular, solid state, and nuclear physics. PHYS 237H Introduction to Modern Physics (3) The course covers much of the modern physics curriculum including topics such as special relativity, the concepts and mathematical formalism of quantum mechanics, both in one- and three-dimensional model systems, and the applications of quantum theory to topics ranging from atomic/molecular, nuclear, particle, and condensed matter physics to astrophysics. In contrast to the non-honors version, PHYS 237H typically makes more frequent use of higher level mathematical concepts and involves the solution of more sophisticated problems. A number of topics are considered in more depth, and these often focus on connections of the material to real-life science research applications.

Prerequisite: PHYS 212

Honors

PHYS 250: Introductory Physics I

4 Credits

PHYS 250 Introductory Physics I (4) (GN)(BA) This course meets the Bachelor of Arts degree requirements. Algebra-based introduction to classical mechanics, including such topics as one- and two-dimensional motion, vectors, relative and circular motion, force and dynamics, Newton's laws of motion, work and kinetic energy, potential energy and energy conservation, momentum, rotational motion and angular velocity, static equilibrium and properties of materials, static and moving fluids, vibrations, simple harmonic motion, general properties of waves, sound and human hearing, temperature and kinetic theory, heat and calorimetry, and the basic laws of thermodynamics. This course is designed to provide students with a working knowledge of the elementary physics principles mentioned above, as well as their applications to everyday phenomena and to the life sciences, to enhance their conceptual understanding of physical laws, and to increase their problem solving abilities especially as applied to physical systems. The mathematical prerequisites for this course (and the subsequent PHYS 251) are mathematics at the level of algebra and trigonometry, demonstrated by suitable coursework

or demonstration of satisfactory performance on the mathematical proficiency exam. The exact model of course instruction varies at different campuses due to different resources and class sizes. Students attend several class meetings including at least one lab or activity period per week. Students perform laboratory experiments, discuss their results, and write up their conclusions in weekly lab reports. The course is a prerequisite for the second semester continuation, PHYS 251.

Enforced Prerequisite at Enrollment: (MATH 22 and MATH 26) or MATH 40 or MATH 41 or MATH 81 or MATH 82 or MATH 140 or satisfactory performance on the mathematics proficiency examination.

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

PHYS 251: Introductory Physics II

4 Credits

Selected topics in light, electricity, and magnetism. PHYS 251 Introductory Physics II (4) (GN)(BA) This course meets the Bachelor of Arts degree requirements. Algebra-based introduction to classical electricity and magnetism, optics, and areas of modern physics, including such topics as electric charge and fields, electrical potential and energy, electric currents and resistance, direct current (DC) circuits, magnetism, electromagnetic induction and applications to devices, electromagnetic waves, light and geometrical optics, wave nature of light, basic optical instruments (microscopes, telescopes, etc.), basics of quantum mechanics, applications of quantum theory to atoms, molecules, and solids, nuclear physics and radioactivity, applications of nuclear energy and radiation. This course is designed to provide students with a working knowledge of the elementary physics principles mentioned above, as well as their applications to everyday phenomena and to the life sciences, to enhance their conceptual understanding of physical laws, and to increase their problem solving abilities, especially as applied to physical systems. The mathematical prerequisites for this course (and the prerequisite PHYS 250) are mathematics at the level of algebra and trigonometry, demonstrated by suitable coursework or demonstration of satisfactory performance on the mathematical proficiency exam. The exact model of instruction varies at different campuses due to different resources and class sizes. Students attend several class meetings including at least one lab or activity period per week. Students perform laboratory experiments, discuss their results, and write up their conclusions in weekly lab reports. The course is a continuation of the first-semester course PHYS 250.

Enforced Prerequisite at Enrollment: PHYS 250 or PHYS 211

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

PHYS 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

PHYS 296H: Study of the Historical Background, Formulation and Consequences of Einstein's Theory of Relativity

1 Credits

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Honors

PHYS 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

PHYS 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

PHYS 337: Introduction to Quantum Information Science and Engineering

3 Credits

This course will introduce quantum mechanics from the perspective of quantum information science and engineering, focusing on two-level systems and the concepts of entanglement and decoherence. It will educate students on how quantum information can be used in quantum communication and quantum computing, both in theory and experiment. The course covers basic concepts such as two-level systems, Schrodinger equation, Bloch sphere, superposition, entanglement, quantum bits, quantum gates, Bell's inequalities, and mixed states. Covering these basic concepts prepare the students for more advanced courses in the minor where they learn in depth about quantum algorithms, physical implementation of different quantum systems, and how to compute with existing quantum computers.

Enforced Prerequisite at Enrollment: MATH 220 and PHYS 214

Cross-listed with: EE 337, ESC 337

PHYS 400: Intermediate Electricity and Magnetism

3-4 Credits

Electrostatics and magnetostatics in vacuum; electrical and magnetic properties of matter; electrodynamics, Maxwell's equations, conservation laws, electromagnetic waves and radiation. PHYS 400 Intermediate Electricity and Magnetism I (3-4) A second undergraduate course in electricity and magnetism, required of all physics majors who typically take it in their fifth or sixth semester. The course includes a review of vector calculus, and in-depth discussions of electrostatics, magnetostatics, in vacuum and in matter, time-varying electric and magnetic fields and electrodynamics, leading to Maxwell's equations. Discussions of conservation laws for charge, energy, and momentum, electromagnetic waves (in vacuum and in matter and at boundaries), electromagnetic vector and scalar potentials and fields, and an introduction to radiation are included.

Enforced Prerequisite at Enrollment: PHYS 212 and PHYS 213 and PHYS 214 and (MATH 250 or MATH 251) and (MATH 230 or MATH 231)

PHYS 400H: Intermediate Electricity and Magnetism I

3 Credits

Electrostatics, steady-state magnetic field; electrical and magnetic properties of matter; Maxwell's equations, boundary-value problems, and wave propagation.

Honors

PHYS 402: Electronics for Scientists

4 Credits

Circuit and network theory; active devices; amplifiers; introduction to digital electronics; noise theory. PHYS 402 Electronics for Scientists (4) A junior-senior theory/laboratory course providing a survey of modern electronics from a data acquisition and analysis point of view. One of several possible lab-based courses taken by physics majors in several options to satisfy a lab requirement, typically taken by physics majors in their senior year. This course is very useful for students interested in experimental research work and includes examples such as digital data acquisition, the lab study of various electronic devices, fast Fourier transform methods and other topics.

Enforced Prerequisite at Enrollment: (MATH 250 or MATH 251) and PHYS 212 and PHYS 213 and PHYS 214

PHYS 406: Subatomic Physics

3 Credits

Introductory treatment of elementary particles, fundamental strong and electroweak interactions, nuclear structure, accelerators, particle detection, nuclear astrophysics.

Enforced Prerequisite at Enrollment: PHYS 410

PHYS 410: Introduction to Quantum Mechanics I

3-4 Credits

Basic postulates; Schrodinger wave equation; stationary states; variational method; scattering in one dimension; orbital angular momentum; hydrogen atom; numerical methods.

Enforced Prerequisite at Enrollment: (MATH 250 or MATH 251) and (MATH 230 or MATH 231) and PHYS 237

PHYS 410H: Introduction to Quantum Mechanics I

4 Credits

Basic postulates; Schrodinger wave equation; stationary states; variational method; scattering in one dimension; orbital angular momentum; hydrogen atom; numerical methods.

Honors

PHYS 411: Introduction to Quantum Mechanics II

3 Credits

General theory of angular momentum; approximation methods; scattering theory; radiation theory; applications to atomic, molecular, condensed matter, nuclear and particle physics.

Enforced Prerequisite at Enrollment: PHYS 410

PHYS 412: Solid State Physics I

3 Credits

This course provides an introduction to solid-state physics, which is the study of quantum, thermal, electrical, magnetic and structural properties of solids. Specific topics include crystal symmetry, X-ray structure analysis, lattice vibrations, thermal properties and phonons, free electron transport theory, elementary one-electron quantum theory of solids.

Enforced Prerequisite at Enrollment: MATH 230 or MATH 231 Concurrent at Enrollment: PHYS 410

PHYS 412H: Solid State Physics I

3 Credits

Crystal symmetry, x-ray structure analysis, lattice vibrations, thermal properties, free electron transport theory, elementary one-electron quantum theory of solids.

Honors

PHYS 414: Solid State Physics

3 Credits

Crystal structure; reciprocal lattice; X-ray diffraction; lattice vibrations; thermal properties; free electron gas model; energy bands; semiconductors; magnetism.

Enforced Prerequisite at Enrollment: MATH 230 and PHYS 237

PHYS 419: Theoretical Mechanics

3 Credits

Principles of Newtonian, Lagrangian, and Hamiltonian mechanics of particles with applications to vibrations, rotations, orbital motion, and collisions. PHYS 419 / MATH 419 Theoretical Mechanics (3) A second course in classical mechanics, required of all physics majors who typically take it in their 5th or 6th semester. The course includes a review of relevant mathematics, detailed discussions of advanced topics in Newtonian mechanics, introductions to Lagrangian and Hamiltonian dynamics, and applications to such forced oscillations, orbital motion, vibrational motion and normal modes, rigid body motion, and collisions. It is a prerequisite for Physics 461, which is a second semester extension. It is also a valuable background for most 400-level physics courses, especially Physics 410.

Enforced Prerequisite at Enrollment: (MATH 230 or MATH 231) and (MATH 250 or MATH 251) and PHYS 212 and PHYS 213 and PHYS 214
Cross-listed with: MATH 419

PHYS 419H: Theoretical Mechanics

3 Credits

Principles of Newtonian, Lagrangian, and Hamiltonian mechanics of particles with applications to vibrations, rotations, orbital motion, and collisions.

Cross-Listed
Honors

PHYS 420: Thermal Physics

3 Credits

Basic postulates of statistical mechanics and thermodynamics, microscopic quantum states and macroscopic parameters; partition functions; Maxwell-Boltzmann and quantum statistics.

Enforced Prerequisite at Enrollment: (MATH 250 or MATH 251) and (MATH 230 or MATH 231) and PHYS 237

PHYS 421W: Research Methods in Physics

3 Credits

Methodology focusing on the theory of measurement and experiment design.

Enforced Prerequisite at Enrollment: PHYS 237
Writing Across the Curriculum

PHYS 430: Introduction to Computational Physics

3 Credits

This course will cover basic techniques for writing computational simulations of systems of interest to physicists. The course will aim to provide tools and techniques necessary for simulating initial value problems, chaotic systems, particle distributions on a grid or in the continuum, random processes (Monte Carlo), phase transitions, and numerical solution of equations. Numerical techniques which will also be covered include numerical differentiation (ordinary and partial differential equations), numerical integration, Fourier transforms, linear and nonlinear fitting, root finding, plotting and data presentation. Physical systems to study can include chaotic pendulum motion, diffusion driven motion, the Ising spin model, and dilute gas molecular dynamics. Students will learn to simulate multiple physical systems, and analyze their simulated data using multiple numerical techniques in order to compare their results to expected theoretical behavior. Students' competency in simulation, analysis and presentation of simulated results will be assessed through independently designed programming projects using learned techniques.

Enforced Prerequisite at Enrollment: (CMPSC 200 or CMPSC 201 or CMPSC 121 or CMPSC 131) and (MATH 230 or MATH 231) and (MATH 250 or MATH 251) and PHYS 237 Corequisite or prerequisite: PHYS 420

PHYS 437: Physical implementation of qubits

3 Credits

Introduction to the physical implementation of quantum bits (qubits) based on state-of-the-art technologies. The course will consider issues in quantum information technology from an experimental point of view. The various types of qubits that will be discussed include those made with superconducting circuits, atoms (including ions, atoms and molecules), electron spins, and photons. In each case, the goal will be to develop a physical understanding of the various approaches, to get a sense of their strengths and weaknesses, and to learn about the state of the art and future prospects.

Enforced Prerequisite at Enrollment: PHYS 337
Cross-listed with: EE 437, ESC 437

PHYS 444: Topics in Contemporary Physics

2 Credits

Modern research topics and career opportunities in physics; employment, graduate education, and tailoring the physics curriculum to meet career goals. PHYS 444 Topics in Contemporary Physics (2) A course required of all Physics majors, designed to be taken in the Spring semester of the junior year. Introduces students to modern research areas in physics at Penn State and elsewhere. Provides background on career choices available with an undergraduate physics degree, including employment opportunities, planning for graduate study, and tailoring the physics curriculum to meet career goals. The course structure is typically comprised of talks by Penn State faculty, outside visitors, students panels, and other information speakers, with students writing short and long reports using the class presentations discussions, and research from outside sources (research journals, internet, etc.) as background material.

Prerequisite: PHYS 237 and 3 credits of physics at the 400 level

PHYS 457W: Experimental Physics

3 Credits

Selected experiments in various fields in physics. PHYS 457W PHYS 457W Experimental Physics (3) An intermediate laboratory course, required of all Physics majors and taken by other students, typically in their junior/senior years, this course provides an introduction to modern laboratory techniques and instrumentation used in research labs. Typical 'short' experiments include X-ray diffraction, Compton scattering, velocity of light determination, high-temperature superconductors, Raman scattering, Hall effect, scanning tunneling microscopy (STM), and many others, as well as long experiments. This three-credit course also serves as the writing-intensive course at the 400-level for most Physics majors. One- and two-credit versions of Physics 457 (without the writing-intensive component) are taken by science and education students outside of Physics.

Enforced Prerequisite at Enrollment: PHYS 212 and PHYS 213 and PHYS 214 and PHYS 237
Writing Across the Curriculum

PHYS 458: Intermediate Optics

4 Credits

Geometrical and physical optics: theory of lens systems, aberrations, apertures, interference, diffraction, polarization. PHYS 458 Intermediate Optics (4) An intermediate optics course which builds on the wave and optics used in the 200-level introductory course, this course (which includes a lab component) focuses on physical and geometrical optics, propagation of light and its interaction with matter, polarization, interference, and diffraction. Optical components such as lenses, mirrors, prisms, fiber optics, spectrometers, and interferometers are discussed and employed. The laboratory component includes a number of 1-2 period experiments designed to illustrate the principles of applied geometrical and physical optics. Longer (5 period) experiments are also included which utilize modern, computer-controlled multi-channel detection systems and are applied to such systems as thin-film optics and the optics of semi-conductors.

Enforced Prerequisite at Enrollment: PHYS 212 and PHYS 213 and PHYS 214 and (MATH 250 or MATH 251) and (MATH 230 or MATH 231)

PHYS 462: Applications of Physics in Medicine

3 Credits

Recommended Preparations: (PHYS 212, PHYS 213, PHYS 214,) PHYS 251; Applications of physics in human physiology and in instrumentation for medical diagnosis and treatment. PHYS 462 Applications of Physics in Medicine (3) This course is a general survey of applications of physics in understanding the physiology of the human body and the physical principles behind diagnostic medical measurement, including imaging modalities: X-ray, nuclear, magnetic resonance, and ultrasound. Treatment applications such as laser surgery and radiation therapy are also covered. The course is appropriate for students intending work in a health profession.

Enforced Prerequisite at Enrollment: PHYS 211 or PHYS 250

PHYS 465: Network analysis of biological systems

3 Credits/Maximum of 3

The survival of a cell, organism or population in a variable environment depends on mounting specific responses to external stimuli. Each of these responses is governed by the coordinated action of multiple (potentially numerous) individual functional components. Understanding the collective behavior of such a complex interacting system is enabled by representing the system as a network, where we denote the components of the system with nodes and their interactions by edges. The properties of these interaction networks can then be analyzed by computational methods. This analysis can lead to important conclusions and predictions about the possible collective, dynamical behaviors of the system. The course will cover examples of network analysis and modeling in biology and medicine, focusing on systems at the molecular and cellular level. After taking this course students will be able to integrate information to construct a network model corresponding to a biological system, to use graph theoretical measures to describe this network, and to use mathematical or computational methods to model the dynamic processes that take place in this system. These skills are important for careers in life science and medical research, in bioengineering and biotechnology.

Enforced Prerequisite at Enrollment: MATH 140 or BIOL 230W or BMB 251 or BME 201. Recommended Preparation: MATH 140B or MATH 141B or MATH 297.
Cross-listed with: BIOL 465

PHYS 472: Elements of Nuclear Physics and its Applications to Medical Imaging and Treatments

3 Credits

Introduction to the theory of nuclei, interactions with fast particles, and applications to medical imaging and radiation oncology. PHYS 472 Elements of Nuclear Physics and its Applications to Medical Imaging and Treatments (3) Modern physics tools are used now in numerous medical diagnostic methods, for various treatments of tumors, and so on. The class will focus several aspects of modern physics relevant to medical applications: (i) mechanisms of interaction of high energy particles, i.e. photons, electrons, protons, neutrons, and nuclei, with materials and methods of generating beams of such particles, (ii) applications of such beams for obtaining images of the body, (iii) radioactive decays of nuclei and use of the nuclear decays for imaging of dynamical processes in the body, (iv) shell structure of nuclei and applications of nuclear magnetic resonance in imaging. The course will allow students to understand

the physics underlying the medical application of modern physics and physics of a wide range of new tools used in medicine, including computer tomography, positron emission tomography, and magnetic resonance imaging, as well as use of photon, proton and nuclear beams for tumor treatments.

Enforced Prerequisite at Enrollment: PHYS 211 and PHYS 212 and PHYS 213 and PHYS 214 and PHYS 237

PHYS 479: Special and General Relativity

3 Credits

Mathematical description, physical concepts, and experimental tests of special and general relativity. MATH 479 / PHYS 479 Special and General Relativity (3) This course is intended as an elective course (within the undergraduate Physics program) for Physics majors to be taken in their senior year. Intended to be cross-listed with MATH, it can also be used in support of a Mathematics minor and, in some options, within the Math program as a program elective as well. The course significantly expands upon the introduction to Special Relativity (SR) seen in PHYS 237, including discussions of experimental tests of SR and applications to relativistic mechanics. It then introduces students to the mathematical machinery required to understand General Relativity (GR), starting with the description of curved spacetimes and geodesics. It discusses solutions to the Einstein equations and surveys the classic tests which established the validity of General Relativity. It concludes with applications of GR in such areas as black hole physics, the generation and detection of gravitational waves, other topics (such as cosmology, relativistic astrophysics, etc.).

Enforced Prerequisite at Enrollment: PHYS 237 and PHYS 400 and PHYS 419 and (MATH 250 or MATH 251) and (MATH 230 or MATH 231)
Cross-listed with: MATH 479
Bachelor of Arts: Quantification

PHYS 494: Physics Research Project

1-12 Credits/Maximum of 12

Investigation of an original research problem, including a literature search. Preparation of a formal thesis is optional.

PHYS 494H: Physics Research Project

1-12 Credits/Maximum of 12

Investigation of an original research problem, including a literature search. Preparation of a formal thesis is optional.

Honors

PHYS 495: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Prerequisite: prior approval of proposed assignment by instructor

PHYS 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

PHYS 496H: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Honors

PHYS 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

PHYS 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Plant (PLANT)

PLANT 129N: Chocolate Worlds

3 Credits

This course will examine the "world" of chocolate throughout human history. First cultivated by the ancient peoples of the Americas and then manufactured by Europeans and Pennsylvanians alike, chocolate has played a privileged role as a luxury good. An interdomain course, "Chocolate Worlds" is interdisciplinary, taught by faculty in the departments of Plant Science, Anthropology, and History. As a team we investigate the how diverse societies have differentially interacted with this crop. Rather than be organized chronologically, this course will be divided into course Units, such as the history of cocoa uses and cultivation, cocoa plant science and farming issues, chocolate making and markets, and the state of the global chocolate industry. The course's lectures and assigned readings work in concert equally directed by scientific inquiry and the queries of the social sciences and humanities. Assignments will address real world questions relating to contemporary cocoa cultivation and production, and its role in international development and social justice. As a class we will take field trips to sites such as local chocolate manufacturing facilities and cocoa research sites and laboratories. The learning objectives of this course include students' broad knowledge of cacao production, its history, and ethnical issues surrounding its cultivation in today's global economy. Additionally, students will gain an historical appreciation for the role this crop has played in diverse human societies and a scientific understanding of its genetic structure.

Cross-listed with: ANTH 129N, HIST 129N

Bachelor of Arts: Humanities

Bachelor of Arts: Natural Sciences

Bachelor of Arts: World Cultures

General Education: Humanities (GH)

General Education: Natural Sciences (GN)

General Education - Integrative: Interdomain

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

PLANT 150S: Plant Science First Year Seminar

2 Credits

Plant 150S is the First Year Engagement course for first-year students in the Department of Plant Science majors of Plant Sciences, Turfgrass Science, and Landscape Contracting at University Park campus. First Year DUS students may enroll. Students will explore the various academic fields of the plant sciences (horticulture and agronomy), turfgrass science and management, and landscape contracting through literature review, library searches, field studies, critical thinking, exercises, and exposure to appropriate Penn State faculty and staff. Students will also be introduced to the breadth of University resources at their disposal.

First-Year Seminar

PLANT 200: Introduction to Agricultural Crop Growth, Form, and Function

3 Credits

About 12,000 years ago, humans began harvesting their food from the natural biological diversity that surrounded them, resulting eventually to domesticated agricultural crops. Over thousands of years farmers selected for desirable traits in crops, and thus improved the plants for agricultural purposes. Agricultural Crop Growth, Form, and Function is a required introductory course for options in the Plant Science major. This course provides fundamental information on agricultural crop growth needed for understanding course content of upper level courses within the major. The major focus areas will include general crop growth and function, environmental and plant interactions in agriculture, Pests of agricultural crops, and breeding and genetics of agriculturally important crops. Upon successful completion of the course students should have a better understanding of the following topics: structural components of cells and plants; growth of tissue systems; plant interactions with their environment; physiological processes in plant growth; basic components of plant genetics; and the impact of human selection, genetic engineering, and climate modifications on plant development and food production.

Enforced Prerequisite at Enrollment: BIOL 110 or SOILS 101

General Education: Natural Sciences (GN)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

PLANT 217: Landscape Soil and Water Management

3 Credits

PLANT 217 Landscape Soil and Water Management (3) PLANT 217 is a course developed to meet the needs of the Landscape Contractors program. This course covers the following topics: Influence of weather on irrigation management; design, layout and management of residential and commercial landscape irrigation systems; sprinkler selection, scheduling and irrigation system management; irrigation uniformity and control systems; the importance of drip and subsurface irrigation; the effects of rainfall and irrigation on soil erosion and sedimentation on landscape sites especially under construction. The course also includes

short field trips to various local industry-related facilities for educational evaluation.

PLANT 220: Gardening for Fun and Profit

3 Credits

The objective of PLANT 220 (GN), Gardening for Fun and Profit is to provide students with science-based fundamentals of establishing and maintaining residential landscapes and gardens. The course provides information that is especially useful to those with minimal to intermediate knowledge of horticultural plants. A background in gardening or landscaping is not needed. Class topics are presented by guest speakers who are scientists and experts in the topic area. Major topics include proper plant selection, soil preparation for establishing plantings, the basics of seeding, growing transplants and planting, the basics of planting and maintaining trees and shrubs, avoiding common mistakes in the garden and landscape, gardening resources, storage and processing fruits and vegetables for home use and ideas for making profit from gardening activities. This course includes a weekly laboratory session where students gain practical skills needed for developing and maintaining residential landscapes and edible gardens through hands-on activities and field trips.

General Education: Natural Sciences (GN)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

PLANT 240: Fundamentals of Cannabis: An Introduction to the Botany, Cultivation, and Harvesting of Hemp

3 Credits

Fundamentals of Cannabis provides a broad overview of hemp's natural ecosystem, biology, domestication, phenotypic plasticity, industrial cultivation, and business models within the hemp industry that foster bioeconomic empowerment for growers. The course starts with the basic biology of Cannabis species the effects of light on the production of cannabinoids, the various uses in the economic fabric of industrialized nations, and concludes with what makes hemp (THC < 0.3%) a unique plant for industrial production. Despite the legalization of hemp, optimal conditions for indoor and outdoor cultivation of cannabis remain not well understood. The purpose of this course is to introduce students to basic principles, best horticultural practices, and specific concepts for getting started in industrial hemp production. Throughout this course, potential business opportunities are emphasized for various aspects of the hemp industry.

Enforced Prerequisite at Enrollment: HORT 101 or PLANT 200

General Education: Natural Sciences (GN)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

PLANT 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

PLANT 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

PLANT 427: Pennsylvania Pesticide Applicator Exam Preparation

1 Credits

Graduates from the Crop Production option within the Plant Sciences Major may desire to have professional licenses related to their anticipated area of employment. This course will assist students as they prepare for the licensing exam which will allow them to legally apply pesticides. Professionals in the field will provide study materials and guide students as they study and prepare to take the licensing exam. Students will be guided through the technical material and requirements necessary to successfully complete the exam. This course and successful passing of the exam will make the graduate more employable than students that have not obtained this professional license. The course is intended for students in the Crop Production option, but students outside the option and with the necessary prerequisite may take the course. Upon completion of this course, students will be prepared to take the exam for the Pesticide Applicators License offered by the Pennsylvania Department of Agriculture.

Enforced Prerequisite at Enrollment: AGRO 28

PLANT 428: Certified Crop Advisor Exam Preparation

1 Credits

Graduates from the Crop Production option within the Plant Sciences Major may desire to have professional certifications and licenses related to their anticipated area of employment. This course will assist students as they prepare for the exam to become Certified Crop Advisors. Professionals in the field will provide study materials and guide students as they study and prepare for the exam. Students will be guided through the technical material and requirements necessary to successfully complete the exam. This course and successful completion of the exam will make the graduate more employable than students that have not obtained this professional certificate. The course is intended for students in the Crop Production option, but students outside the option and with the necessary prerequisites may take the course. Upon completion of this course, students can take the licensing exam offered by the American Society of Agronomy to become a Certified Crop Advisor.

Enforced Concurrent at Enrollment: AGRO 423 and AGRO 425 and AGRO 438

PLANT 461: Emerging Issues in Plant Sciences

3 Credits

Emerging Issues in Plant Sciences is a capstone course designed for the Plant Sciences, and is also available to students from other majors. This highly participatory course emphasizes many of the interdisciplinary topics in the plant sciences today, with a focus on balancing plant production with environmental conservation. Topics include: conservation cropping systems and tillage, soil health; transgenic crops; managing landscapes for ecosystem services, climate change, pest and nutrient management alternatives; biofuels; urbanization and regional food systems. It is a team taught course with guest lectures by experts on specific topics and includes student analysis and discussion with the guidance of the instructors. Students

will read and write about publications from the peer reviewed literature and research and present about an emerging issue.

Enforced Prerequisite at Enrollment: 6th Semester standing and (AGRO 28 or HORT 101) and (AGECO 201 or PLANT 200 or HORT 202) and ENT 313 and SOILS 101

PLANT 494: Undergraduate Research

1-6 Credits/Maximum of 6

Independent study directed by faculty supervisor a Plant Science faculty member.

Enforced Prerequisite at Enrollment: Junior or senior status, approval of a Plant Science faculty supervisor, and approval of the Undergraduate Program Coordinator

PLANT 494H: Honors Thesis Research

1-6 Credits/Maximum of 6

Independent study directed by faculty supervisor culminating in a Plant Science honors thesis.

Enforced Prerequisite at Enrollment: Junior or senior status in the Schreyer Honors College and permission of a Plant Science honors advisor
Honors

PLANT 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Plant Pathology and Environmental Microbiology (PPEM)

PPEM 120: The Fungal Jungle: A Mycological Safari From Truffles to Slime Molds

3 Credits

This course is an introduction to the world of fungi and their impact on humans and the environment around us. Fungi represent one of five or one of sixteen Kingdoms of biological organisms depending on the system used. Either way the Fungi are an integral and essential component of the biological world worthy of study by scientists and non-scientists alike. However, despite their importance to the ecosystem and to human affairs Fungi are among the least studied groups of biological organisms. This is unfortunate since Fungi are often quite beautiful and impact everyone's life. The goal of the proposed course is to provide a framework and context for students to become familiar with the Fungi and their importance to other life forms including humans. For example, food production is both positively and negatively impacted by Fungi in quite profound ways from serving a source of highly sought-after products such as truffles to plant pathogens such as wheat rust destroying crops. This course explores questions such as: What are Fungi? Why are they important? How do they work in the ecosystem? How have humans harnessed the unique capabilities of Fungi? How are Fungi portrayed in the media, and are these accounts accurate? Students will also practice using their fungal knowledge to evaluate the potential efficacy of consumer products aimed at control of Fungi. Some

course concepts will be explored through hands on activities and visits to relevant campus locations. At course conclusion students will have a deeper understanding of the fascinating Kingdom Fungi, and a greater appreciation for their importance, diversity, and beauty.

General Education: Natural Sciences (GN)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

PPEM 170N: Plant and Microbial Art

3 Credits

This inter-domain general education course provides a cross-disciplinary platform for plant- and microbe-facilitated creative production and art-mediated scientific learning. The course balances studio art activities with lecture- and discussion-based learning about integrated science and art topics. Students use the media of plant and microbial pigments, growth, and biology in a hybrid studio-lab environment. The biology, chemistry, and physics of these living and life-derived media are expected to form integral parts of student presentations. Lectures will provide information about broad scientific principles and in-depth learning about specific phenomena underlying the biologically-based media as well as relevant bio-art issues and contexts in which work is produced. Student projects will represent an integration of natural science understanding with artistic expression. Students will be encouraged to go in various directions with their creative efforts, including visual mechanics (light, color, composition), mark making (painting, drawing), meaning making (metaphors, allegories, cultural appropriations), storytelling, sensing (ways of seeing, phenomenology), and new media issues (e.g., post-humanism). Some example types of bio-media and their scientific connections include: plant pigments, which facilitate discussion of light, photosynthesis, basic chemistry and chromatography; bacterial cultures, which facilitate discussion of microbiology, cell biology, and cellular movements; and fluorescent proteins, which facilitate discussion of DNA, RNA, protein structure, mutations, species concepts, and genetic engineering. Student projects integrate the scientific basis of the bio-art media used such that the media become part of the message of the art.

Cross-listed with: ART 170N

General Education: Arts (GA)

General Education: Natural Sciences (GN)

General Education - Integrative: Interdomain

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Integrative Thinking

PPEM 225: Mushroom Cultivation

3 Credits

Students will learn about commercial production of edible mushrooms and how to cultivate them on both a small and commercial scale. PPEM 225 Mushroom Cultivation (3) Pennsylvania's growers account for nearly 2/3 of the US total mushroom production. The production of the button mushroom, *Agaricus bisporus*, is a technically challenging process that requires a thorough understanding of substrate preparation and pasteurization (Phase I and Phase II composting) to be successful. The class will follow an *Agaricus bisporus* crop, at the Mushroom Research Center on campus, for the 11 week cropping cycle, participating in all aspects of button mushroom production. The course will also cover specialty mushroom production (including shiitake, oyster, maitake, enoki), which can be achieved on a small scale with some basic training and understanding of the different nutritional and substrate preparation

techniques. Because cultivation of many specialty mushrooms is easier than button mushroom production, we will cultivate shiitake mushrooms both on sawdust logs as well as traditional oak logs. The class will have the opportunity to cultivate at least one other specialty mushroom, such as the oyster or lion's mane, in lab as well. We will schedule one Saturday field trip to visit several commercial mushroom farms in southeast Pennsylvania. Though this trip is not mandatory, it will be a good chance to view all aspects of commercial mushroom farming.

PPEM 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

PPEM 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

PPEM 300: Horticultural Crop Diseases

3 Credits

The concepts of plant pathology are introduced to describe how plants, the environment, and biotic and abiotic plant pathogens interact over time to cause disease. Understanding these relationships can help to prevent disease problems or increase management and control options. Students learn how plant pathogens survive, reproduce, and spread. The role that plant pathogen distribution and regulation have played in shaping history and their influence on our economics, trade, and the environment is discussed. Common and significant plant diseases are illustrated to explain their causes, diagnosis, management, and national and international importance. All information is presented in online modules and all assessments are submitted online. Students should be able to recognize common garden plants in the NE United States such as maples, oaks, roses, crabapples, lilacs, peony, pachysandra, etc. Internet access and a digital camera are required (phone cameras are usually fine). Weekly assignments, quizzes, and labs are all submitted online. Several diagnosis exercises reinforce the practical aspects of identifying and controlling plant pathogens and the Plant Disease Assessment Report provides experience in plant disease site evaluation and management. Students customize many assignments to use their favorite plant materials and locations. The online modules supply course content but students apply the lessons in their own local area. Original student photographs are needed for diagnoses and the Plant Disease Assessment Report. Plant diseases have significant influences on plant aesthetics, economics, edibility, and viability. They have had profound influences on world history, and roles in modern national and international trade and bio-security. Students will gain an appreciation of the impact that horticultural crop diseases can have on society and the environment, including how the global trade of horticultural crops has resulted in the spread of pathogens important to agricultural crops and native plants.

Recommended Preparation: 3 credits of high school biology are recommended

General Education: Natural Sciences (GN)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Soc Resp and Ethic Reason

PPEM 318: Diseases of Forest and Shade Trees

2 Credits

Introduction to diagnosis and management of forest and shade tree diseases. PPEM 318 Diseases of Forest and Shade Trees (2) Diseases of Forest and Shade Trees, is a practical, hands-on, lab and lecture course designed primarily for forestry and landscape-contracting students. However, the course is also appropriate for any student interested in tree diseases, or for any student who simply wants to know "What is wrong with my tree?" The course content covers the important tree diseases of Pennsylvania, with emphasis on tree diseases that also have national and international implications. New and emerging tree diseases are discussed during the last two weeks of the semester.

PPEM 318H: Diseases of Forest and Shade Trees

2 Credits

Introduction to diagnosis and management of forest and shade tree diseases. PPEM 318 Diseases of Forest and Shade Trees (2) Diseases of Forest and Shade Trees, is a practical, hands-on, lab and lecture course designed primarily for forestry and landscape-contracting students. However, the course is also appropriate for any student interested in tree diseases, or for any student who simply wants to know "What is wrong with my tree?" The course content covers the important tree diseases of Pennsylvania, with emphasis on tree diseases that also have national and international implications. New and emerging tree diseases are discussed during the last two weeks of the semester.

Honors

PPEM 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

PPEM 405: Microbe-Plant Interactions: Plant Disease and Biological Control

3 Credits

Survey of microbe-plant interactions causing plant disease, mechanisms of pathogenesis, disease management, and microbial and molecular biological control strategies. PPEM 405 Microbe-Plant Interactions: Plant Disease and Biological Control (3) Plant health in both natural and agricultural ecosystems is essential for sustaining human society and all other life forms on Earth. Plant disease epidemics are common and diverse and can have devastating effects on our population and economy by debilitating the ecosystems on which we depend. This course focuses on biological and environmental factors that influence microbe-plant interactions which in turn determine plant health and initiate plant disease epidemics. Developing strategies for maintaining healthy plants in both natural and agricultural ecosystems requires an understanding of pathogen and host biology, as well as the role of the environment in disease epidemiology. Students will learn about the survival and spread of important plant-infecting fungi, bacteria, phytoplasma, and viruses and how mechanisms for microbial pathogenicity are influenced by the environment. The final section of the course will focus on the use of beneficial microorganisms to maintain and improve plant health. Grades

will be based on student performance on a wide variety of activities including labs, quizzes, seminar reports, and exams.

Enforced Prerequisite at Enrollment: BIOL 110

PPEM 412: Turfgrass Disease Management

3 Credits

PPEM 412 Turfgrass Disease Management (3) This course will provide an introduction to concepts of disease processes in plants and biology of plant pathogens, principles of turfgrass disease diagnosis based on symptom development, recognition of signs and microscopic structures of the pathogens, environmental and cultural management factors influencing disease development, significance of pathogen life cycle in disease epidemic development, and integrated turfgrass disease management practices for root and foliar disease. Disease of various turf types for golf courses, residential lawns, landscapes, and athletic fields will be discussed. Disease topics will include diseases that commonly occur in winter, disease that develop in spring and persist into summer, and disease that initiate in summer and remain active until late fall in most regions of North America. A number of non-infectious disorders of turf caused by extreme environmental conditions and improper cultural practices will also be discussed.

Enforced Prerequisite at Enrollment: TURF 235

PPEM 416: Plant Virology: Molecules to Populations

3 Credits

An exploration of the molecular biology and population dynamics of the virus-plant interaction. PPEM 416 Plant Virology: Molecules to Populations (3) This will be the departmental foundation course for plant viruses, one of the four major pathogen groups. The course will entail an exploration of the history, nature, cause, socioeconomics, symptomatology, physiology, diagnosis, ecology, epidemiology, and control of viral diseases on plants. Special emphases will be placed on replication, and evolution of plant viruses, molecular biology of the virus-plant interaction, replication, virus-like agents (viroids & prions), natural and genetically engineered disease resistance, virus-vector relationship, and population dynamics.

Enforced Prerequisite at Enrollment: BIOL 110 and SC 120N

PPEM 417W: Mechanisms of Bacterial Pathogenesis in Plants

3 Credits

This course covers the mechanisms that certain bacteria use to infect and cause disease in plants. We will consider the molecular, genetic, biochemical, and physiological systems that are used by plant-pathogenic bacteria to move about and infect plants, cause disease symptoms, evade plant immune responses, and derive nutrition from the plant. We will cover these topics through a combination of lectures and close readings of current and classic primary research articles. The course also has a major, hands-on laboratory component that includes experiments on bacterial genetics related to disease, bacterial physiology and behavior, and the stimulation of plant immune responses during bacterial infection. Students taking this class can expect to gain experience reading primary plant bacteriology research literature and designing and implementing experiments in plant-bacterial interaction.

Enforced Prerequisite at Enrollment: BIOL 110
Writing Across the Curriculum

PPEM 425: Biology of Fungi

4 Credits

BIOL 425 / PPEM 425 (4 cr.) is a lecture and laboratory survey of the diversity of Fungi, consisting of two 75-minute lecture and two 180-minute laboratory/field activity periods per week. The course moves from branch to branch in the Fungal tree of life, covering aspects of ecology, morphology, physiology and life history, as well as current and historical importance to human affairs in medicine, agriculture and industry. Topics covered as students move through the Fungal tree include: 1) Macrofungi seen in the field; 2) Fungal evolution; 3) Fungal reproduction and dispersal; 4) Fungal growth, development and structure; 5) Fungal genetics and genomics; 6) Fungi as mutualistic symbionts of plants, animals and other organisms; 7) Fungal diseases of plants, animals and humans; 8) Fungi as toxin producers; 9) Fungi as sources of food, pharmaceuticals and enzymes; and 10) Fungi as research organisms used to understand basic biological processes. Some laboratory sessions consist of field trips to local forests to observe and collect Fungi for observation in the laboratory.

Enforced Prerequisite at Enrollment: BIOL 110 and (AGECO 201 or BIOL 127 or BIOL 220W or BIOL 220M or BIOL 222 or BIOL 230W or BIOL 230M or BIOL 240W or BIOL 240M or MICRB 251 or HORT 232 or PPEM 120 or PPEM 225 or PPEM 405)

Cross-listed with: BIOL 425

PPEM 427: Mycotoxins: Effects of Fungal Toxins on Human and Animal Health

3 Credits

Description and history of mycotoxicoses. Mycotoxin formation, occurrence, control, economic and social impacts, and regulatory issues. PPEM 427 Mycotoxins: Effects of Fungal Toxins on Human and Animal Health (3) This course will provide a comprehensive overview of the multi-disciplinary subject of mycotoxicology. Mycotoxins are chemicals produced by fungi that are toxic to humans and animals. Students will become familiar with the history and description of mycotoxins and mycotoxicoses, formation of mycotoxins, biology of mycotoxigenic fungi, methods of mycotoxin analysis, fate of mycotoxins in food processing, management and prevention of mycotoxins, regulations, and economic and social impacts. This course is appropriate for students who wish to learn more about fungi beyond the introductory level, as well as for those with interests in animal science and husbandry. The subject of mycotoxicology involves most aspects of the agriculture-food system so students of food science, crop and soil science, entomology and plant pathology will find relevant topics in mycotoxicology. Biology and microbiology students especially those with interests in plant-associated microbes and ecology will also benefit from this course. Course format will be two lectures per week and one period of discussion that will include laboratory activities, field trips, case study discussions, and student presentations.

Enforced Prerequisite at Enrollment: BIOL 110 or (BIOL 11 and BIOL 12) or (CHEM 112 and CHEM 113)

PPEM 430: Air Pollution Impacts to Terrestrial Ecosystems

3 Credits

This course introduces student to air pollutant sources, transport, meteorology, and temporal and spatial trends of pollution dispersion and deposition. An overview is presented of the direct and indirect

effects of air pollutants on terrestrial ecosystems with an emphasis on plant life. The effects of ozone, sulfur dioxide, nitrogen oxides, particulate matter, halogens, and combined pollutants leading to acidic atmospheric depositions are presented. Emphasis is placed on air pollutants as plant pathogens leading to symptoms and eventual long-term accumulative effects to entire ecosystems. Methods of diagnostics, factors affecting plant response, ecosystem decline and resiliency, pest interactions, assessment of loss and cost/benefit analysis leading to abatement follows. Final parts of the course include perspectives of public awareness, development of National Ambient Air Quality Standards, compliance prevention of significant deterioration, and the Clean Air Act reforms of 1990.

Enforced Prerequisite at Enrollment: (BIOL 110 or FOR 308) and 5th Semester standing or higher
Cross-listed with: ERM 430

PPEM 440: Introduction to Microbiome Analysis

3 Credits

The development of next-generation sequencing (NGS) technologies was initially spurred by the desire for a human genome sequence, but these tools are now essential to all areas of biology. The amount of data produced by NGS allows us to ask questions about processes that occur across genomes, communities, and even landscapes. In particular, NGS has revolutionized the study of environmental microbiology, allowing us to investigate the thousands of microbial "species" that co-occur in a given environment, even though most of these microorganisms have not been captured or observed in culture. The entire complement of microorganisms (and their genes) that occur in a particular environment is frequently referred to as the "microbiome" of that environment. The field of microbiome research is evolving rapidly, which means that there are many opportunities to contribute to exciting new discoveries. However, this fast pace of change has made it difficult to properly prepare students for microbiome-focused graduate work. In this course, students will learn about the development of NGS techniques, as well as recent applications of NGS to natural and agricultural soil systems, including how these tools can be used to understand both targeted and unintentional human-induced changes to microbiomes. Students will also develop the ability to interpret microbiome-related literature and to work with NGS data using freely available software. In the second assignment, students will explore additional software not used in class, in order to learn how to learn to use unfamiliar bioinformatics tools. This course is intended for students with very little background in programming or bioinformatics, but with a strong understanding of microbiology, molecular biology, and/or ecology. At the conclusion of this course, students will be able to: - Interpret microbiome terminology and figures. - Understand and present a summary of a microbiome-based journal article. - Analyze microbiome-based high-throughput sequencing data using freely available software. - Apply microbiome analysis tools to unknown data. - Express their interpretation of microbiome data in oral, written, and graphical contexts.

Enforced Prerequisite at Enrollment: BIOL 220W and MICRB 201
Recommended Preparations: BIOL 463 or MICRB 413

PPEM 454: Virus Ecology

3 Credits

Virus ecology describes how viruses interact with their hosts, and how those interactions modulate the hosts' interactions with their environment. PPEM 454 Virus Ecology (3) In this course students will

learn about the interplay among viruses, hosts and the environment. The diversity of viruses, which infect all known life forms, will be explored. The important role viruses play in the ecology of the planet, including carbon cycles, host adaptation to extreme environments, host health or disease, and host evolution will be discussed in depth using specific examples. Students also will learn to critically read the scientific literature. Learning will be assessed through a combination of written and oral assignments and exams.

Enforced Prerequisite at Enrollment: BIOL 110 or equivalent

PPEM 456: Applied Microbial Ecology

3 Credits

This is a lecture based course that will broaden students' understanding of the diverse biotic and abiotic interactions relevant to microbes in diverse environments. In particular, this course focuses on ecological interactions between microbes in a common environment or between microbes and their eukaryotic hosts (e.g. plants and animals). In addition to learning about ecological theory as it applies to microbes, students will learn about historical and contemporary approaches to studying microbes in different environments. This will include substantial focus on cutting edge 'omics', microscopic, and direct functional analytical approaches to understand both the distribution of microbial taxa (i.e. who's there) and what processes they carry out in their natural environments (i.e. what they're doing). In the latter portions of the class, students will apply the theory and techniques to understanding the ecology of specific environments, including environmental, agricultural, and food environments. The objectives of this course include: provide students with a firm understanding of contemporary microbial ecology and environmental microbiology; conceptually link processes that occur in disparate environments, such as plant roots, termite guts, and cheese rinds; provide students with the language to discuss these concepts and processes; make students familiar with and conversant in 'omic' and other cutting edge functional techniques used to study microbes in their natural environments; provide select examples of how humans take advantage of microbial ecology for our benefit (such as suppression of pathogens or promotion of waste decomposition). The course will conclude with a research and writing project where students will review the microbial ecology of a specific environment. This course expects students to have an understanding of basic microbiological concepts.

Enforced Prerequisite at Enrollment: MICRB 201 or MICRB 201H

PPEM 494: RESEARCH PROJECT

1-6 Credits/Maximum of 6

Supervised student activities on research projects identified on an individual or small-group basis.

PPEM 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

PPEM 496H: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Honors

PPEM 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Plastics Engineering Technology - BC (PLET)

PLET 50: Computer Applications for Plastics Engineering Technology

2 Credits

Programming, spreadsheets for the solution of technical problems, internet access for background and support information, formatting professional reports, creating presentations. PL ET 050 Computer Applications for Plastics Engineering Technology (3) This course will acquaint first semester students with a variety of computer software programs that will be used in upper level classes. Extensive hands-on laboratory problems are designed to reinforce the lecture. After completing this course, the students should be able to access plastic related information on the Internet, prepare a formal report complete with footnotes or endnotes, create a computer generated technical presentation, import and export data between different software packages, and program technical spreadsheets for solving engineering problems. Student competency will be assessed by graded quizzes, examinations, homework, and special assignments. The course is offered once per year with an enrollment of 40 to 50 students.

PLET 205: Introduction to Plastics

3 Credits

Introduction to the plastics industry including fundamental aspects of plastic materials and processing; introduces the chemical influence on mechanical and flow properties of plastic materials. PL ET 205 Introduction to Plastics (3) Introduction to the plastics industry including fundamental aspects of plastic materials and processing; introduces the chemical influence on mechanical and flow properties of plastic materials.

Enforced Prerequisite at Enrollment: (MATH 081 and MATH 041) or MATH 140 or Prerequisite or concurrent: CHEM 110

PLET 206M: Plastic Materials and Properties

3 Credits

Coverage of the most common commercial plastics including their additives, fillers, and fibers; includes common physical tests used to determine material characteristics.

Honors

Writing Across the Curriculum

PLET 206W: Plastic Materials and Properties

3 Credits

Coverage of the most common commercial plastics including their additives, fillers, and fibers; includes common physical tests used to determine material characteristics; writing intensive.

Enforced Prerequisite at Enrollment: PLET 205
Writing Across the Curriculum

PLET 222: Introduction to Plastics Processing

4 Credits

Introduction to plastic processing methods, materials, tooling, design, and equipment. Safe operation and practices are emphasized. PL ET 222 Introduction to Plastics Processing (4) This course provides an introduction to plastics processing and is intended to provide broad foundational knowledge of the different types of plastics processing methods, equipment, and materials. The educational objectives are to develop competency in the determination of potential methods for manufacturing various component designs and the determination of cost effectiveness for the possible process alternatives selected. After completing this course, the student should have a basic understanding of a multitude of plastic processing methods and have knowledge of the interrelationship of part and tool design as it impacts manufacturing. The student should also understand materials and material flow phenomena as it affects processing and should understand the processing and troubleshooting techniques typically found in the industry.

Enforced Concurrent at Enrollment: PLET 205

PLET 227: Plastics Processing & Statistical Methods

4 Credits

Study of advanced issues in plastics processing, such as design of experiments and SPC/SQC will be covered. PL ET 227 Plastics Processing & Statistical Methods (4) The course is intended to give the students the basic tools needed to identify and troubleshoot plastic processing problems. Injection molding will be the primary focus. The course objectives are: to introduce the student to the root cause of injection molding problems both at the start-up of a new mold and during production runs, to identify when a process has changed and to monitor the effects of attempts to improve the process using statistical process control and other statistical methods, to identify and minimize the sources of process variation; to ascertain the capability of measurement systems, and to gain understanding in the use of designed experiments techniques for developing cause and effect information. During the course, students will build upon knowledge gained in earlier courses in plastics materials and plastics processing.

Enforced Prerequisite at Enrollment: (PLET 50 or EDSGN 100S) and PLET 205 and PLET 222

PLET 232: Introduction to Part and Tool Design

3 Credits

CAD techniques for designing plastic products and related tooling. PL ET 232 Introduction to Part and Tool Design (3) This is the introductory course for designing plastic parts using CAD solids modeling techniques. This course builds upon fundamental CAD modeling skills developed during earlier courses and initially focuses on the fundamental techniques needed to construct solids models for thin walled plastic parts. Focus then shifts toward using similar solids and surface modeling techniques for designing molds for plastic parts. The course objective is to provide the basic knowledge to construct solid models of plastic parts and related tooling and to lay the foundation for more advanced plastic part and mold design courses.

Enforced Prerequisite at Enrollment: PLET 222 or Prerequisite or concurrent: EGT 121

PLET 235: Tool Design & Machining

2 Credits

Study of the methods used to create the tooling used in plastics fabrication and the methods of maintaining tooling. PL ET 235 Tool Design & Machining (2) This course will provide the students with an understanding of the construction methods and materials used in the creation of plastics tooling. Various methods of mold manufacture are introduced along with the fabrication practices needed to permit successful mold operation. The course concludes with a study of the materials used in mold construction and plastics tooling preventative maintenance practices. The course objective is to provide the knowledge needed to properly design parts for manufacturability. Students will also learn how to set up a system to maintain tooling to reduce catastrophic failures. Through the lab portion of this class, the students will obtain hands-on experience in the actual construction methods. This course uses knowledge gained in earlier plastics materials and processing courses to guide tooling design and fabrication decisions.

Enforced Prerequisite at Enrollment: Prerequisite or concurrent: PLET 232

PLET 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

PLET 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

PLET 304: Plastic Material Properties and Applications

3 Credits

Synthesis, polymerization, and characterization of thermoplastic and thermoset polymeric materials. PL ET 304 Plastic Material Properties and Applications (3) This course studies the fabrication of polymers and macromolecules. Current commercial techniques are covered in detail and encompass the reactions and processes currently being used in the plastics industry today. Also covered is the technology for creating different grades of polymers by using various fillers, additives, and blends to create variations within the known polymers. This is supplemented by laboratory exercises that draw together theory and practice. Polymer synthesis is a key link between the atoms present before they become a part of a polymer molecule and the molded article, the end produce of the molding operation. The course objective is to establish a basic knowledge of these processes to enable a deeper understanding of the capabilities of molding, designing, and the performance of polymer articles. Students will be able to start with a handful of carbon atoms, a synthesis procedure, and an injection molding machine, and understand what affects the polymer at each stage, rather than being limited to understanding a given molding process. It will allow students to adapt to industrial needs and the push towards a scientific approach to problem solving, rather than acting as traditional molding machine processors. Students will also be able to correlate the polymerization process to the performance derived in plastics processes and molded articles. Student

competency is assessed by graded quizzes, examinations, homework, and special assignments. The course is offered once per year with an enrollment of 40 to 50 students.

Enforced Prerequisite at Enrollment: PLET 206W

PLET 323: Packaging Processes

3 Credits

In-depth studies and laboratory experiments will be conducted on processes such as blow molding, thermoforming, extrusion, and rotational molding, and other packaging processes. PLET 323 Packaging Processes (3) In this course the student will learn about plastic packaging processes of blow molding, thermoforming, extrusion. Other minor processes will be presented. The course objectives are to develop student proficiencies in identifying the polymer material requirements for each process, in identifying the mold design and construction techniques for each process, and knowing how plastic packaging processes differ from injection molding. The laboratory will include experiments that show the advantages of each process and to develop student competency in running equipment for each process explored. The students shall also develop competency in conducting elementary process troubleshooting for each process. Student competency is assessed by graded lab reports and projects.

Enforced Prerequisite at Enrollment: PLET 227 and PLET 304 Enforced Concurrent at Enrollment: PLET 350 and MET 418

PLET 330: Advanced Tooling & Rheology

4 Credits

Tooling design strategies are developed considering a material's physical and rheological influences on processing and part formation. PL ET 330 Advanced Tooling & Rheology (4) This course is intended to allow the student to develop an understanding of the critical relationship between the physical and rheological properties of plastic materials and their influence upon processing and part formation. The course objective is to establish this relationship since it is the basis of establishing tooling design strategies for optimizing part quality, moldability, and productivity. Upon completing the course, the student will have proficiency in the use of injection molding analysis software (Moldflow) and be able to develop strategies for its efficient and effective application. The software is used as a means to accelerate and enhance the students understanding of the injection molding process. Students will learn how software usage can be interwoven with knowledge of polymer melt rheology, shrinkage, warpage, residual stresses and their relationship to tooling to enable proper process and molded part design. Student competency is assessed by graded quizzes, examinations, homework, and special assignments. The course is offered once per year with an enrollment of 40 to 50 students.

Enforced Prerequisite at Enrollment: PLET 206W and PLET 227 and PLET 232 and PLET 235 and PHYS 250

PLET 345: Heat Transfer

3 Credits

Fundamentals of heat transfer including conduction, convection, and radiation. PL ET 345 Heat Transfer (2) The course is intended to allow the student to develop the ability to conceptually evaluate heat transfer problems, and solve practical problems that might be encountered in the plastics industry including those that relate to energy management in plastic materials or processes. The course objectives are accomplished

by establishing the concepts of the three principle mechanisms of heat transfer, solving plastics related problems illustrative of each mechanism, and reinforcing theoretical concepts learned through the use of simulation software and hands-on laboratory experiments. During this course students will build upon the knowledge gained in an earlier course in the thermal and fluid sciences. Student competency is assessed by graded quizzes, examinations, homework, and special assignments. The course is offered once per year with an enrollment of 40 to 50 students.

Enforced Prerequisite at Enrollment: PLET 366

PLET 350: Design of Plastic Parts

4 Credits

Designing plastic parts utilizing CAD, FEA, and CAE technologies for the design and for structural, dimensional, and process evaluation and optimization. PL ET 350 Design of Plastic Parts (4) The educational object of this course is to develop knowledge in the process of designing plastic parts and products. The course focuses on the critical relationship between the part design and the plastic material, tooling and the specific manufacturing methods used to produce the part. Use of CAE technologies are used for enhancing concurrent engineering strategies and evaluating manufacturability of a design. The course develops special design guidelines to accommodate plastic material characteristics and production requirements. The course also addresses issues of assembly and decoration of plastic parts. Upon completing the course students will demonstrate competency in relating how engineering properties of plastic materials and their unique characteristics relate to product design. This includes understanding viscoelasticity and the effects of time, strain, rate, temperature and environment on plastic materials and the product. During this course students will build upon the knowledge gained in previous courses on strength of materials, plastic materials, part and tool design and finite element methods. Student competency is assessed by graded quizzes, examinations, homework, and special assignments. The course is offered once per year with an enrollment of 40-50 students.

Enforced Prerequisite at Enrollment: MET 213 and PLET232 and PLET304 and PLET330. Prerequisite or concurrent: MET 418

PLET 366: Fluid and Thermal Sciences

3 Credits

Fundamentals of thermodynamic principles, fluid statics, and fluid dynamics. PL ET 366 Fluid and Thermal Sciences (3) This course is intended to develop the student's ability to conceptually evaluate thermal or fluid problems, and solve practical problems that might be encountered in the plastics industry. The course objectives are: to introduce the fundamentals of thermodynamic behavior by defining pertinent material properties that define an equilibrium state based on temperature and pressure, to study internal energy, enthalpy, and the specific heats of liquids, solids, and gases, including ideal gas behavior and changes in energy level as a result of phase changes, and to introduce mechanical and electrical work leading to applications of the First Law of Thermodynamics. Other objectives are to study fluid static principles involving submerged body behavior by investigating topics of buoyancy and centers of pressure. Fluid dynamics studies explore the Bernoulli and Energy equations, head losses, and calculation of pump requirements from pressure drop and volumetric flow data. Criteria for determining laminar and turbulent flow are established. Viscosity of fluids and fluid rheology topics are also introduced. Students will apply the lessons learned in a subsequent course on heat transfer. Student

competency is assessed by graded quizzes, examinations, homework, and special assignments. The course is offered once per year with an enrollment of 40 to 50 students.

Enforced Prerequisite at Enrollment: MATH 083 and PHYS 250 and PLET 222 and PLET 227. Prerequisite or concurrent: PLET 330

PLET 380: Introduction to Plastic Medical Devices

1 Credits

Introduction to plastic medical devices and their manufacture. Also covers the regulatory requirements of plastic medical devices. PL ET 380 Introduction to Plastic Medical Devices (1) This course serves as the introductory course required for the new Certificate in Medical Plastics. It will provide students with an overview of the medical plastics industry. This will be accomplished by providing students with an understanding of the medical device regulatory environment and its impact on medical plastics design, manufacture and material selection.

Enforced Prerequisite at Enrollment: PLET 205 and PLET 222

PLET 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

PLET 464: Plastics Failure Analysis

3 Credits

Fundamentals of Plastics Materials Process and Design Failure Analysis. PL ET 464 Plastics Failure Analysis (3) This course is intended to give the student an introduction to failure analysis for plastic articles. Course objectives are to: provide methods for the identification of common failure problems associated with modern molded plastic parts, perform a causal analysis for each failure type, provide an introduction, instruction, and allow operation of several analytical tools used to establish failure mechanisms, and review the relevant polymer physics and chemistry concepts involved in failure analysis. During the course students will be using concepts studied earlier in plastic material properties and applications. Student competency is assessed by graded quizzes, examinations, homework, and special assignments. The course is offered once per year as a technical elective with an enrollment of 15 to 20 students.

Enforced Prerequisite at Enrollment PLET 350 and MET 418

PLET 466: Thermoplastic Composites

3 Credits

This class will explore both well-established and emerging composite plastic systems, including the basic chemistries and driving forces to explain composite material properties from micro to nanoscale composite systems. Microcomposites are discussed in terms of both common commercial materials (Glass/nylon, polypropylene/talc, for examples) as well as for cutting-edge composite systems that are explained through the use of current technical literature. The common theme of chemistry to promote interfacial adhesion is developed for each system. Characterization techniques that are common to composite evaluation are taught. Nanocomposites are considered in light of the

greatly enhanced surface area of the filler relative to the microcomposite analogue.

Prerequisites: PLET 304

PLET 468: Rapid Commercialization

3 Credits

Techniques to help get plastic products to market quicker and to build solids and surface modeling skills. PL ET 468 Rapid Commercialization (3) The educational objective of this course is to develop the student's ability in using techniques to reduce the time to design a product and get it into production. The course objectives are to enable students to understand how to evaluate the differing points of view of each group during the concurrent engineering of plastic products and to analyze various rapid prototyping and tooling methods to determine their applicability to plastic products. Several simulations packages will be used to show their use in the preliminary design stages. During the course students will be using concepts studied earlier in plastic part design. Student competency is assessed by graded quizzes, examinations, homework, and special assignments. The course is offered once per year as a technical elective with an enrollment of 15 to 20 students.

Enforced Prerequisite at Enrollment: PLET 350

PLET 481: Plastic Product Development

3 Credits

This course provides students with an in-depth overview of the integrated new product development process. PL ET 481 Plastic Product Development (3) Current product development trends have moved toward an integrated and interdisciplinary development process that includes team members from all aspects of the corporation. This course serves as an overview of that integrated product development process. Prior to this course, students will have studied methods and processes for the detailed and structural design requirements for plastic components. In this course, the students will be taught how their detailed design process fits into the remainder of the overall product development process. This will be accomplished by traditional lectures on the process and is underscored by a semester long project in which the students will form teams, invent a product idea, and develop that idea to a prototype state. Among the topics addressed are: -Concept development and selection -Working in a interdisciplinary team environment -Gathering and organizing customer needs -Translating customer needs into product specifications -Product development economics -Prototyping methods and purpose -Industrial design -Intellectual property

Enforced Prerequisite at Enrollment: PLET 350

PLET 482: Medical Product Development

1 Credits

This course provides students with medical device development requirements and processes. The course is to be taken in conjunction with PL ET 481 as both courses will utilize a semester project to invent and design a new product. Over the course of the semester students will review the FDA classifications, filing requirements, and recommended practices for medical device development. This knowledge will be applied and practiced through the semester projects. Students will learn techniques for Failure Modes and Effects Analysis and how to properly document and manage product change through the development

process. PL ET 482 Medical Product Development (1) This course provides students with medical device development requirements and processes. The course is to be taken in conjunction with PL ET 481 as both courses will utilize a semester project to invent and design a new product. Over the course of the semester students will review the FDA classifications, filing requirements, and recommended practices for medical device development. This knowledge will be applied and practiced through the semester project. Students will learn techniques for Failure Modes and Effects Analysis and how to properly document and manage product change through the development process.

Enforced Prerequisite at Enrollment: PLET 380 and PLET 350 or Concurrent: PLET 481

PLET 483: Plastics in Medical Applications

3 Credits

This course focuses on plastics materials and properties and how they meet the unique medical application and device requirements. PL ET 483 Plastics in Medical Applications (3) This course studies plastics materials in medical applications and devices. The course focuses on the properties that are important to medical devices such as chemical resistance, sterilization and biocompatibility. A broad range of polymers will be reviewed including commodity resins, such as polyolefins, engineering resins such as polycarbonates, acrylics, nylons and advanced polymers including polysulfones, polyetherether ketones and aramids. The synthesis, production and structure property relationships will be studied with particular emphasis on the effect on sterilization, biocompatibility and FDA regulatory requirements. The effect of additives, stabilizers, fillers and blends will also be reviewed.

Enforced Prerequisite at Enrollment: PLET 304 and PLET 380

PLET 484: Medical Manufacturing Methods

3 Credits

This course provides instruction in the methods and practices used in the manufacturing of plastic devices in the medical industry. PL ET 484 Medical Manufacturing Methods (3) This course provides instruction in the methods and practices used in the manufacturing of plastic devices in the medical industry. The course includes both manufacturing and regulatory requirements. A large portion of the class will involve a simulated process validation exercise. The concepts will be introduced in lecture, parts will be manufactured and measured in the processing lab, and data analysis will be completed in a computer lab. Injection molding will be emphasized as the major plastic part production method, but other processes will be used as needed. Clean room requirements, sterilization and material handling, and common assembly methods will also be covered.

Enforced Prerequisite at Enrollment: PLET 380

PLET 494: **SPECIAL TOPICS**

1-12 Credits/Maximum of 12

PLET 494A: Plastics Projects

1-12 Credits/Maximum of 12

Supervised student activities on research and/or design projects identified on an individual or small group basis. A specific title may be used in each instance and will be entered on the student's transcript.

Enforced Prerequisite at Enrollment or Concurrent: MET 418 and PLET 350 and PLET 323

PLET 495: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica or internships. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: Prior approval of proposed assignment by instructor
Full-Time Equivalent Course

PLET 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

PLET 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

PLET 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Polish (POL)

POL 1: Level One Polish A

4 Credits

This course will provide an introduction to and basic understanding of Polish language. The objective of the course is to provide a comprehensive introduction to Polish language. Students are able to command a functional vocabulary of at least 500 words by end of semester; read basic Polish texts with understanding; engage in simple everyday dialogues; and write in elementary Polish by the end of semester. Adopting the communicative approach, instruction begins with simple in-classroom phrases to enable interaction exclusively in Polish from day one; and proceeds through building situational vocabulary and grammar, as well as activities and authentic materials that put it to immediate use. Students will be introduced to listening, speaking, reading, and writing in the Polish language, with equal emphasis on all the skills. Along with special Polish characters in the alphabet and Polish grammar, basic conversation involving real-life situational dialogues will be presented. Students will be exposed to some aspects of Polish culture via e.g. level-appropriate films and canonical children's poems. Because learning a new language requires not just regular attendance in class, but also considerable effort and preparation outside the classroom, students will be encouraged to practice vocabulary skills, pronunciation, and grammar on a regular basis as an aid to language acquisition.

Bachelor of Arts: World Language (All)

POL 2: Level One Polish B

4 Credits

The course will build on the basic knowledge of reading, grammar and vocabulary acquired in the introductory course to impart fluency and command over written and oral expression; and to introduce further points of basic grammar and idiomatic usage. Students will practice reading, writing, listening and speaking in Polish through a series of structured exercises involving stories, news, grammar books, songs, games, situational dialogues and role-playing in an interactive classroom environment in which everyone feels comfortable to practice their language skills without hesitation. The objective of the course is to impart functional literacy to students: at the end of the semester, students should be able to read and understand instructions in Polish, carry on everyday conversations such as those involving ordering food, seeking directions, handling a medical emergency and common social situations. Students should be able to participate with understanding in conversations involving idiomatic expressions. Accordingly, an important element of classroom practice is skill with listening comprehension. The course will emphasize the progress on students' oral and written language competencies through constant practice.

Recommended Preparations: Consultation with instructor and prior study of elementary Polish is recommended.
Bachelor of Arts: World Language (All)

POL 3: Level Two Polish A

4 Credits

The course lays equal emphasis on reading, writing, listening and speaking. Nuanced points of grammar and syntax are introduced. More complex reading and cultural exposure includes folk tales, poems, and essays selected from Polish literature and media. Writing and oral assignments focus on the use of culturally appropriate language, in a wide range of expressive settings, ranging from everyday conversation to more formal persuasive or descriptive essays. To encourage oral expression of ideas, class activities and debates are organized. Listening comprehension exercises introduce different styles of speaking popular in media and news.

Recommended Preparations: Equivalent of one year of Polish study - recommended consultation with instructor
Bachelor of Arts: World Language (All)
Bachelor of Arts: World Lang (12th Unit)

POL 197: Special topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

POL 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

POL 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Political Science (PLSC)

PLSC 1: American Politics: Principles, Processes and Powers

3 Credits

This course examines the American democracy by looking at the dynamic interaction between the founding ideals of the United States government, the institutions established by the Constitution, and the ongoing contest for power within and through those institutions. Students will learn how Congress, the Presidency and the Supreme Court shape law and public policy; how the electoral process influences the decisions of voters and political parties; and how the media, interest groups, political action committees, and public opinion impact political outcomes. Through these topics the course takes up questions such as, Who has a voice in American politics and why are some political actors more influential than others? Do the electoral and policy making processes uphold democratic values? How responsive is the United States government to public wants? How does the media influence citizens' political preferences and behavior? The course both provides a foundation for further study of politics and equips students with the capacity to act politically on their own behalf and in concert with their communities. Students are empowered to interpret and pursue their interests, rights, and opportunities within the US political system in relation to the values of democratic equality and liberty the system was organized to secure, and to influence the process through which policies that shape their lives in critical ways are made.

Bachelor of Arts: Social and Behavioral Sciences

United States Cultures (US)

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

PLSC 1H: American Politics: Principles, Processes and Powers

3 Credits

This course examines the American democracy by looking at the dynamic interaction between the founding ideals of the United States government, the institutions established by the Constitution, and the ongoing contest for power within and through those institutions. Students will learn how Congress, the Presidency and the Supreme Court shape law and public policy; how the electoral process influences the decisions of voters and political parties; and how the media, interest groups, political action committees, and public opinion impact political outcomes. Through these topics the course takes up questions such as, Who has a voice in American politics and why are some political actors more influential than others? Do the electoral and policy making processes uphold democratic values? How responsive is the United States government to public wants? How does the media influence citizens' political preferences and behavior? The course both provides a foundation for further study of politics and equips students with the capacity to act politically on their own behalf and in concert with their communities. Students are empowered to interpret and pursue their interests, rights,

and opportunities within the US political system in relation to the values of democratic equality and liberty the system was organized to secure, and to influence the process through which policies that shape their lives in critical ways are made. The course supports honors students in their progress toward independent research by focusing on what political scientists studying American politics do, the types of questions they ask, and the methods they employ to answer those questions. Engagement with scholarly literature prepares students to draw on existing research to frame their own research questions about American politics.

Bachelor of Arts: Social and Behavioral Sciences

United States Cultures (US)

General Education: Social and Behavioral Scien (GS)

Honors

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

PLSC 1S: American Politics: Principles, Processes and Powers

3 Credits

This course examines the American democracy by looking at the dynamic interaction between the founding ideals of the United States government, the institutions established by the Constitution, and the ongoing contest for power within and through those institutions. Students will learn how Congress, the Presidency and the Supreme Court shape law and public policy; how the electoral process influences the decisions of voters and political parties; and how the media, interest groups, political action committees, and public opinion impact political outcomes. Through these topics the course takes up questions such as, Who has a voice in American politics and why are some political actors more influential than others? Do the electoral and policy making processes uphold democratic values? How responsive is the United States government to public wants? How does the media influence citizens' political preferences and behavior? The course both provides a foundation for further study of politics and equips students with the capacity to act politically on their own behalf and in concert with their communities. Students are empowered to interpret and pursue their interests, rights, and opportunities within the US political system in relation to the values of democratic equality and liberty the system was organized to secure, and to influence the process through which policies that shape their lives in critical ways are made. As part of First Year Seminar requirements, students will receive brief research assignments to learn how to use library and online resources and will participated in required advising sessions to learn about Penn State degree requirements, career exploration, internships, Penn State study abroad programs, study skills, and the variety of subfields and research interests in political science.

Bachelor of Arts: Social and Behavioral Sciences

United States Cultures (US)

First-Year Seminar

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

PLSC 3: Comparing Politics around the Globe

3 Credits

This course examines the variety of ways that people seek and wield power around the world. Through cross national comparison and individual country analysis, the course considers different forms of

democratic and authoritarian regimes, sources of stability and change in different regime types, and the relationship between cultural, economic, and social factors and political processes. Students are introduced to the central questions in comparative politics, including What is the state and where did it come from? What is democracy? Why are some countries democracies whereas others are dictatorships? Does the kind of regime a country has affect the prosperity and well-being of its citizens? Why are ethnic groups politicized in some countries but not in others? Why do some countries have many parties whereas some have only a few? How do governments form, and what determines the type of government that takes office? What are the material and normative implications associated with different types of government? The course examines competing answers to questions such as these and evaluates the explanations for their logical consistency and empirical accuracy. Students learn to compare political phenomena across disparate contexts and how to use such comparisons to test claims about the political world. In doing so, they learn about the similarities and differences among countries and a range of approaches to analyzing the political world.

Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)
General Education: Social and Behavioral Scien (GS)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Key Literacies

PLSC 3H: Comparing Politics around the Globe

3 Credits

This course examines the variety of ways that people seek and wield power around the world. Through cross national comparison and individual country analysis, the course considers different forms of democratic and authoritarian regimes, sources of stability and change in different regime types, and the relationship between cultural, economic, and social factors and political processes. Students are introduced to the central questions in comparative politics, including What is the state and where did it come from? What is democracy? Why are some countries democracies whereas others are dictatorships? Does the kind of regime a country has affect the prosperity and well-being of its citizens? Why are ethnic groups politicized in some countries but not in others? Why do some countries have many parties whereas some have only a few? How do governments form, and what determines the type of government that takes office? What are the material and normative implications associated with different types of government? The course examines competing answers to questions such as these and evaluates the explanations for their logical consistency and empirical accuracy. Students learn to compare political phenomena across disparate contexts and how to use such comparisons to test claims about the political world. In doing so, they learn about the similarities and differences among countries and a range of approaches to analyzing the political world. The course supports honors students in their progress toward independent research by focusing on what political scientists studying Comparative Politics do, the types of questions they ask, and the methods they employ to answer those questions, including game theory and statistical analysis. Engagement with scholarly literature prepares students to draw on existing research to frame their own research questions about Comparative Politics.

Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)

General Education: Social and Behavioral Scien (GS)
Honors
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Key Literacies

PLSC 7N: Contemporary Political Ideologies

3 Credits

This course provides a comparative analysis of the beliefs, values and ideas that constitute the major political ideologies in contemporary politics, such as liberalism, conservatism, socialism, anarchism, fascism and environmentalism. The course focuses on ideologies as traditions of thought developed through contentious political action with attention both to the unique features of each ideology and the ways that they overlap in theory and practice. It considers what ideologies are, what they do, and how we can study them. Each ideology is examined with respect to its historical origin; the major ideas, thinkers, events and political activists associated with its genesis; and how it has developed and changed in response to new circumstances. Students learn to think about ideologies as distinct from parties, regimes and political actors, and to establish criteria for classifying them in order to observe their influence on and through political action and organization. As the belief systems that underlie or justify political action, ideologies include views about human nature, history, and the scope and purpose of government. Ideologies implicitly or explicitly suggest an ideal form of socio-political organization that articulates who owes what to whom and establishes criteria for evaluating the status quo. The course will investigate how different ideologies understand the political community, the role of government, access to knowledge, institutional legitimacy and change. Students will learn to identify the value commitments various ideologies entail, as well as how those values shape the perception of political problems and the actions they necessitate.

Bachelor of Arts: Humanities
Bachelor of Arts: Social and Behavioral Sciences
General Education: Humanities (GH)
General Education: Social and Behavioral Scien (GS)
General Education - Integrative: Interdomain
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Soc Resp and Ethic Reason

PLSC 10: Scientific Study of Politics

3 Credits

This course introduces students to both the scientific study of politics, and the way that a scientific approach to political phenomena advances our understanding of political actors, events, processes, and institutions. It provides information about the elements of scientific reasoning, and introduces systematic approaches to studying politics through the lens of important puzzles and questions about international relations, comparative politics, and American politics. Students learn about relevant data sources, as well as how to interpret data appearing in graphs and tables. The course consists of three parts. The first part of the course offers an overview of the elements of scientific inquiry including causal explanation, empirical verification, theories and hypotheses, and dependent and independent variables. The second part of the course examines dominant approaches to studying politics, including experiments; observational methods such as surveys and

elite interviewing; formal models; archival research; and computational methods such as text analysis. Each approach will be presented using a similar format. Students will be introduced to the approach through a combination of lectures and assigned readings. They will then look at and learn about data sources suited to and consider questions or puzzles that can be addressed by each approach. Careers that make use of the analytic skills associated with each approach also will be discussed. The final part of the course considers the benefits of scientific approaches over less systematic analysis and the challenges inherent in trying to explain complex political behavior, institutions, and events. By the end of the course, students will understand what it means to "do" political science: i.e., to ask questions about political phenomena, form theories related to those questions, collect data, pick an approach to analyze the data, and draw inferences from the analysis.

Bachelor of Arts: Social and Behavioral Sciences
 General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think

PLSC 14: International Relations

3 Credits

What causes war and what makes it stop? When is international aid or military intervention effective? Why are some states wealthy and others plagued by poverty and underdevelopment? How does international trade affect developing countries? What can and should states do to protect human rights around the world? This course provides students with the background and conceptual tools to answer these and similar questions. It teaches students to think systematically about the complex relationships that constitute world politics and to critically engage prevailing academic and policy arguments about global affairs. Students are introduced to the international political system as the arena in which states develop foreign policies of cooperation and competition to pursue power, enhance security and develop economically. They explore how various non-state actors (NGOs, social movements, corporations) and international governmental organizations (UN, IMF, World Bank, WHO) influence interactions among states and between states and their citizens in matters such as interstate and civil wars, terrorism, ethnic conflict, human rights, inequality, global trade, resource scarcity and climate change.

Bachelor of Arts: Social and Behavioral Sciences
 International Cultures (IL)
 General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Key Literacies

PLSC 14H: International Relations Honors

3 Credits

What causes war and what makes it stop? When is international aid or military intervention effective? Why are some states wealthy and others plagued by poverty and underdevelopment? How does international trade affect developing countries? What can and should states do to protect human rights around the world? This course provides students with the background and conceptual tools to answer these and similar questions. It teaches students to think systematically about the complex relationships that constitute world politics and to critically engage

prevailing academic and policy arguments about global affairs. Students are introduced to the international political system as the arena in which states develop foreign policies of cooperation and competition with other states to pursue power, enhance security and develop economically. They explore how various non-state actors (NGOs, social movements, corporations) and international governmental organizations (UN, IMF, World Bank, WHO) influence interactions among states and between states and their citizens in matters such as interstate and civil wars, terrorism, ethnic conflict, human rights, inequality, global trade, resource scarcity and climate change. The course supports honors students in their progress toward independent research by focusing on what political scientists studying International Relations do, the types of questions they ask, and the methods they employ to answer those questions, including game theory, statistical analysis and historical and contemporary case studies. Engagement with scholarly literature prepares student to draw on existing research to frame their own research questions about international relations.

Bachelor of Arts: Social and Behavioral Sciences
 International Cultures (IL)
 General Education: Social and Behavioral Scien (GS)
 Honors
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Key Literacies

PLSC 17N: Introduction to Political Theory

3 Credits

This course focuses on the concepts, principles and values used to explain, justify and challenge the organization and use of collective power. It introduces the field of political theory as an intellectual tradition that combines reflection on what political life is and what it should accomplish with investigation of the values manifest through existing political institutions and how those institutions can be best organized to achieve desired outcomes. Through analysis of selected works of major thinkers, beginning with the Ancient Greeks and extending through the contemporary period, students consider questions and problems that philosophers, political leaders and citizens have grappled with for millennia: What is a political community? What is justice? Who is included in the realm of justice? What is the best form of government? What do I owe to the state? What does the state owe to me? What is the proper purpose and scope of government? Students learn to critically engage arguments in canonical texts to understand both how they contributed to debates in their own time and how subsequent theorists and activists have interpreted them to articulate and challenge various forms of exclusion and oppression. Ultimately, students are invited to see political theory as a conversation across time to clarify concepts that are fundamental to the study and practice of politics yet remain contested, such as freedom, equality, democracy and justice, and to distinguish between the legitimate purposes of government and the arbitrary use of power. Through the course students will learn to employ and evaluate political concepts with care and precision so they can participate in that conversation productively as democratic citizens as well as in further study of political theory. Students may not get credit for both PLSC 17N and PLSC 17W

Bachelor of Arts: Humanities
 Bachelor of Arts: Social and Behavioral Sciences
 General Education: Humanities (GH)
 General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Soc Resp and Ethic Reason

PLSC 17W: Introduction to Political Theory

3 Credits

This WAC course focuses on the concepts, principles and values used to explain, justify and challenge the organization and use of collective power. It introduces the field of political theory as an intellectual tradition that combines reflection on what political life is and what it should accomplish with investigation of the values manifest through existing political institutions and how those institutions can be best organized to achieve desired outcomes. Through analysis of selected works of major thinkers, beginning with the Ancient Greeks and extending through the contemporary period, students consider questions and problems that philosophers, political leaders and citizens have grappled with for millennia: What is a political community? What is justice? Who is included in the realm of justice? What is the best form of government? What do I owe to the state? What does the state owe to me? What is the proper purpose and scope of government? Students learn to critically engage arguments in canonical texts to understand both how they contributed to debates in their own time and how subsequent theorists and activists have interpreted them to articulate and challenge various forms of exclusion and oppression. Ultimately, students are invited to see political theory as a conversation across time to clarify concepts that are fundamental to the study and practice of politics yet remain contested, such as freedom, equality, democracy and justice, and to distinguish between the legitimate purposes of government and the arbitrary use of power. Through the course students will learn to employ and evaluate political concepts with care and precision so they can participate in that conversation productively as democratic citizens as well as in further study of political theory. Students may not get credit for both PLSC 17N and PLSC 17W

Bachelor of Arts: Humanities
 Bachelor of Arts: Social and Behavioral Sciences
 General Education: Humanities (GH)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Soc Resp and Ethic Reason
 Writing Across the Curriculum

PLSC 60N: Society and Cultures in Modern Israel

3 Credits

Israel is often portrayed in media and popular society in incomplete or distorted terms. In some cases, it is presented as a troubled, violent, dangerous place, as a place permeated by long-standing hatred between Jews and Muslims, Israelis and Arabs, Israelis and Palestinians. In others, the focus is on the state's role as the center of Judaism—a home of the "chosen people" and the source of inspiration for one of the world's great monotheistic religions. Some present it as a model for how a democracy can succeed under trying demographic, historic, and geopolitical circumstances. Others frame Israel as a place of conflagration (armageddon) that will usher in a messianic period or as a nation-state with a discriminatory regime that privileges its majority

population over its minority and administers oppressive policies over Palestinians in the occupied territories it captured in the 1967 War. While there are elements of truth in each of these presentations, the full picture of Israeli society is much richer and more complex. This course teaches students to cut through the mythology, and develop a more accurate understanding of what Israel is in the 21st century. Since Israel is a culturally, ethnically, and religiously diverse society, it is only possible to understand the true nature of modern Israel through exploring the many sub-groups that comprise the Israeli citizenry. The course looks at Ashkenazi and Mizrahi Jews (both religious and secular), Muslim and Christian Palestinian Arab citizens of Israel, Ethiopian-Israelis, Russian-Israelis, Bedouins, and Druze. For each group, it looks at demographics, background histories, migration patterns, institutions, cultural norms, values, and practices. We will look at what is important to each group, how they see and organize themselves, and how they understand and experience the world around them. The course aims to convey an understanding of the geographic, demographic, and social-historical context in which Israelis live as well as the diversity of Israeli culture. Students will be challenged to be critical readers of Israeli society and the way it is represented and to strive for measured, evidence-based analyses.

Cross-listed with: ANTH 60N, JST 60N, SOC 60N
 International Cultures (IL)
 General Education: Humanities (GH)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

PLSC 83S: First-Year Seminar in Political Science

3 Credits

Exploration of current topics of interest in political science, international relations, and/or political theory. Every first-year seminar in Political Science focuses on several of the major questions of the field. Many of these questions concern the constitutional arrangements of governments: What is it that we want governments to do, and what is the ideal government arrangement? Why does every nation (and every state and city) have somewhat different constitutional provisions for legislation, judicial, military and executive functions of government? What can we learn from careful comparisons of different types of government? What is unique to the American system and what are the consequences of this uniqueness? Other questions concern power: To what extent do wealthy individuals and wealthy organizations have disproportionate power in society? Is this appropriate or not? What is the impact of governmental attempts to limit the influence of the wealthy? We are also very much interested in the international system: What types of foreign policies and diplomatic strategies reduce the likelihood of war? What is the role of international organizations (such as the UN or World Bank) and multinational corporations in shaping conflicts between nations? Finally, we are interested in ordinary citizens: Do citizens know enough to formulate rational opinions on public issues? Why are many citizens apathetic? What motivates citizens to support one candidate over another or to favor particular policies and philosophies? Each first-year seminar will select a special topic of interest and use that topic to explore a subset of these questions in order to provide a challenging introduction to political science. In the course of doing so, each first-year seminar in political science will also introduce students to specialized materials (such as government documents), library resources, and

appropriate electronic media. In addition, each seminar will emphasize the standards of evidence, logic, and critical thinking required to develop effective and persuasive reports and oral presentations. Students will write essay exams and one or more written reports on the relevant topic of their own choices. Class participation is required. The course fulfills both a first-year seminar and a general education or Bachelor of Arts social/behavioral science requirement. The course will be offered three times per year with a maximum of 20 seats per offering. In addition to the academic topic and issues of this course, students can expect to gain a general introduction to the University as an academic community and have the opportunity to explore their responsibilities as members of that community. Students will develop an understanding of the learning tools and resources available to them, including the opportunity to develop relationships with faculty and other students who share their academic interests.

Bachelor of Arts: Social and Behavioral Sciences
First-Year Seminar

General Education: Social and Behavioral Science (GS)
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Critical and Analytical Thinking
GenEd Learning Objective: Key Literacies

PLSC 90: Introduction to Security

3 Credits

The study of security issues is more critical than ever, considering a series of global trends. Those reach from violent radicalization to arctic transformation, as well as include technology trends. All of those have an impact on security in our daily lives, in the public sector, and in the private sector. Together, both states and individuals are confronted with many pressing and often competing local, national, and global security challenges that demand thoughtful responses and solutions. Particularly challenging is the need to put in place security measures while ensuring that they do not infringe on the values they aim to protect. The multifaceted security crises of our time is rooted in a broad spectrum of hazards. It among other things stretches across lone wolf terrorists, natural disasters, public health emergencies, transnational organized crime, and cyber attacks; and it includes global counterterrorism, counterproliferation, and environmental change. All of those represent significant problems facing our world today. At the same time, they provide opportunities for us to bring about changes that will significantly increase the ongoing quality of life around the world. In order to do so, it is essential to develop analytical skills for risk assessment, policy analysis and strategy development. Critical thinking skills are also crucial since we need to be able to identify security gaps, unreasonable securitization trends, and point out fallacies of reasoning and misrepresentation of facts that may occur when responding to security threats. In this course, we will review the historical evolution of security studies, national and international security policies and strategies, human security and security management in business and industry. Further, in the rapidly changing world of security studies, it is important to understand the critical differences between concepts like strategic security, counterterrorism, protection, intelligence, homeland security, criminal justice, conflict studies, emergency management, threat assessment, human security, crisis management, disaster management, and related terms. Based on this, students will learn how security issues relate to their chosen academic discipline and professional goals. Using real-world examples, students will develop understanding of the academic, historical, and technological evolutions that gave rise to the

field of security studies, and go in-depth to examine the main areas in which security strategists, analysts, and practitioners work.

General Education: Social and Behavioral Science (GS)
GenEd Learning Objective: Critical and Analytical Thinking
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Social Responsibility and Ethical Reasoning

PLSC 111: Debating the Purpose of Government

3 Credits

Students will become acquainted with a variety of political theories and debate their usefulness in considering contemporary political controversies in the US. and another country. PLSC 111 Debating the Purpose of Government (3) (GH)(BA) This course meets the Bachelor of Arts degree requirements. Although governments must always attend to urgent matters that cannot be put off, government attention is, and perhaps should be, directed as well toward matters that are of fundamental importance. However, there is substantial disagreement about what those matters are. In this course, through brief summarizing readings and through lectures, students will encounter the arguments of various political philosophers making the case that one or another purpose is most essential to government. Among the candidates for the status of primary purpose of government will be civic and moral education, the defense of life and property, the dismantling of the economic foundations of inequality, and the institution of justice in accordance with universal moral principles. The compatibility of the various conceptions of the purpose of government with the experiences and aspirations of women will receive special attention. After a brief exposure to each perspective, teams of two students each will research and debate the pros and cons of each perspective in light of what it can contribute to our understanding of contemporary political events and controversies (if there are more than twenty- six students enrolled, some time will be taken from lectures to accommodate debates). Each student will take a turn as debater and a turn at researching, composing, and organizing the content of the team's opening statement. Approximately twenty minutes after each debate will be allocated to questions and comments from students who were not part of either team that day.

Bachelor of Arts: Humanities
General Education: Humanities (GH)
GenEd Learning Objective: Critical and Analytical Thinking
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Social Responsibility and Ethical Reasoning

PLSC 112N: Ethics in Citizenship, Politics, and Government

3 Credits

This course meets the Bachelor of Arts degree requirements. It is often said that politics is a dirty business, meaning that unethical behavior is prevalent in politics. But this is often said with a twinge of disappointment, sometimes with bitterness or anger. We wish that it were not so. One part of an effort to improve the ethical character of politics is to strive for a clear understanding of what ethical political action is. This course endeavors to arrive at that understanding by considering some of the most profound and influential ways of understanding ethical action. One example is that which is derived from Aristotle and supplemented by Martha Nussbaum. Another example is that which is derived from the writings of Immanuel Kant. We will use perspectives written at this level

of generality in the analysis of detailed case studies of ethical choices made by citizens, government employees, and elected officials.

Bachelor of Arts: Humanities

Bachelor of Arts: Social and Behavioral Sciences

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

PLSC 114: Winning Political Support Through Persuasion

3 Credits/Maximum of 3

The purposes of this course are to introduce students to the comparative study of political systems, some of their parts, and the functioning of those parts, and to develop a capacity for effective, ethical citizenship. Real-world attempts to convince various audiences will be analyzed with respect to their appeals to the emotions of their respective audiences, often through framing the candidacy or policy under consideration in ways intended to stimulate fear, hope, or anxiety in order to command the attention of audiences. The use of words, other symbols, and non-verbal stimuli with strong emotional and normative content will be highlighted. The class will also evaluate efforts to establish credibility with audiences through references to endorsements, demonstrations or claims of expertise, goodwill, and good sense. Lastly, the logical validity of inferences and deductions made in the attempts to convince will be considered so that flattery, manipulation, bargaining, deception, and intimidation can be distinguished from genuine persuasion. So that students might see how characterizations of attempts to convince might be placed into a provisional context, the study is comparative. It will look at attempts in the U.S. as well as some other country. In general, so that the attempts at winning over audiences might be as comparable and as comprehensible as possible, the issue should be as similar as possible and the other country should be Anglophone. Although systems of elections and governance and controversial issues inevitably vary within and between countries, it is possible to find elections and policy controversies with sufficient similarities to make cross-national comparisons of attempts at convincing their respective audiences a fruitful exercise. For example, one might build the course around the televised debates and campaign ads for the mayoral elections in Vancouver and Seattle and the efforts to generate support and opposition to oil pipelines in the two countries. By looking at the different strategies used in attempts to convince elites, the citizenry and parts of the citizenry in the two countries, it is possible to raise questions about the workings of the political systems in the two countries. Specifically, students can examine some of the ways that historical geopolitical, constitutional, economic, and demographic differences between and within the two countries are manifested in the political processes of the two countries. By leading students to consider such questions, this course can induce them to undertake further study that will equip them with the methodological tools to investigate these issues in greater depth. Moreover, by providing students with the basic outlines of well-supported valid inference and challenging them to detect of the most common informal fallacies in efforts to convince and create an outline for their own attempt at political persuasion, PLSC 114 (GS) will help build capabilities that are necessary for responsible and effective and ethical citizenship.

Concurrent: PHIL 10

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Soc Resp and Ethic Reason

PLSC 120N: State, Society, and Public Policy

3 Credits

Alexis de Tocqueville called association the “mother science” of politics and saw voluntary associations as a pillar of American democracy. These associations must compete in what might be called a moral economy of public policy that preserves the value of equality. This course brings together ideas from political philosophy, history, political science, communication, sociology and economics to address an important question: How have voluntary, nongovernmental associations come to shape and implement public policy? The class begins with the core concepts in political thought and traces them through to contemporary ideas about civil society that span the political spectrum. After critically assessing these ideas, we integrate them into a framework for understanding the process of making public policy.

Recommended Preparations: Any humanities or social sciences course, prior or current registration

Cross-listed with: PUBPL 120N, SOC 180N

Bachelor of Arts: Social and Behavioral Sciences

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

PLSC 125: Pennsylvania Government and Politics

3 Credits

Pennsylvania political processes; executive, legislative, judicial decision-making, and electoral behavior; selected public policies.

Bachelor of Arts: Social and Behavioral Sciences

PLSC 132: The Politics of International Intolerance

3 Credits

Introductory course emphasizing psychological, historical, and political aspects of global intolerance towards minorities. PLSC 132 The Politics of International Intolerance (3) (GS;IL)(BA) This course meets the Bachelor of Arts degree requirements. PLSC 132 is an introductory survey concerning the social phenomenon of “intolerance” i. e., attitudes or behaviors that seek to exclude or eliminate groups perceived to be different. Here “differences” encompasses such features as nationality, belief, race, gender, or sexual orientation. Often these aspects of the human condition are the targets of majority discrimination or collective violence. The course presumes the following assumptions: (1) Intolerant attitudes are not just “another point of view” but also an utterly destructive form of behavior inimical to civilized values. (2) Few, if any, societies have existed without some forms of intolerance. (3) The causes of intolerance are usually multi-causal (economic, political, and psychological) and are understood through social science. (4) “Politics” implies both the ideology and organization of intolerant movements

and the relation of such movements to public authorities. Students should expect fairly extensive readings involving primary source material, analyses of intolerant behavior drawn from different disciplines, and comparison of intolerance phenomena from a global perspective.

Bachelor of Arts: World Cultures

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

PLSC 140: Contemporary Controversies in International Relations

3 Credits

An overview of contemporary topics in international relations. PLSC 140 Contemporary Controversies in International Relations (3) (GS) PLSC 140 investigates changes in the international system by focusing on critical ongoing situations. After a brief introduction to key theories international relations, including the concept of one state as a dominant or hegemonic power, we will cover a range of related topics such as drug trafficking, international terrorism, international trade, nuclear weapons proliferation and the role of international organizations such as the United Nations and MF and World Bank.

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

PLSC 155: Understanding Tyranny

3 Credits

Exploration of the rationales, methods, and consequences of highly repressive political regimes through novels, films, and memoirs.

Bachelor of Arts: Social and Behavioral Sciences

PLSC 177N: Politics and Government in Washington DC

1-3 Credits

The course centers on a Spring Break trip to Washington DC, with students meeting on campus before and after the trip. PLSC 177N Politics and Government in Washington DC (1-3) This course centers on a Spring Break trip to Washington DC, where students will meet with their members of Congress, get briefings at foreign embassies and international organizations, meet with leaders of federal government agencies, participate in seminars led by interest groups and political party officials and consultants, and tour government offices and facilities. The class will meet before the trip to discuss the history, culture, and context of politics and government in the capital city of the United States and will continue to meet after the trip so that students can analyze what they have learned about politics and government in Washington as a result of their experiences during the trip. The course is open to and appropriate for students in all majors.

Bachelor of Arts: Humanities

Bachelor of Arts: Social and Behavioral Sciences

United States Cultures (US)

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

PLSC 178: Organized Crime, Law, and Politics

3 Credits

This course will address laws, politics, and policies related to organized crime issues. PL SC 178 Organized Crime, Law, and Politics (3) This course addresses the role and impact of organized crime in US laws, politics, and policies over the past century, with particular attention to modern organized crime groups. The course will look at how organized crime syndicates influenced and often cooperated with some political leaders and law enforcement agencies in the twentieth century, while other political leaders became famous for prosecutions of organized crime figures. Modern legal tools in the fight against organized crime will be discussed, such as RICO and witness protection programs. And the course will look at many examples of modern organized crime groups that originated in Europe, Asia, or Latin America, but which now have an impact on US society, and the policies that attempt to limit the influence of modern organized crime. Included in the examination of modern organized crime will be the connection to modern terrorist activities.

PLSC 183N: The Cold War in Literature, Politics, and History

3 Credits

The course will focus on the history and politics of the Cold War and its depiction in literature and film, especially in British and American literature, but also in that of other countries. Students will read political science and history texts, novels, short stories, and poetry, and view films. Students will analyze the reasons that the Cold War has been and continues to be a major inspiration for literary production and a transformative influence on literary style. Students will be encouraged to explore alternative methodologies for research on cold war topics including the use of primary sources, for ex. documents from the intelligence community archives that have since been declassified. In addition to a class field trip, students will be encouraged to make additional site visits to appropriate institutions in U.S. intelligence history. They'll be making a series of visits to relevant sites.

Cross-listed with: ENGL 183N

Bachelor of Arts: Humanities

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

PLSC 197: Special topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Bachelor of Arts: Social and Behavioral Sciences

PLSC 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)

PLSC 200N: Government and Politics of Europe

3 Credits

This course introduces students to the politics and governing institutions of European countries through an historical and comparative perspective. It examines the development of the political systems in Europe during the 20th Century by applying the tools of political science to significant historical events, such as the rise of Nazism, transitions to democracy in Southern Europe, and the collapse of state socialism in Eastern Europe. Students will learn the structure, rules and key actors in different contemporary systems across Europe and in the European Union. They will explore how the design of democratic institutions impacts political representation and a government's accountability to citizens. They will discuss theories of voting, the development of the party system, and non-electoral politics such as protest and social movements. Cross national comparisons enable students to understand differences in voting patterns, types and consequences of collective action, social and economic policy, orientation toward Europe, and business and legal environments among European countries as well as to see the political issues that are relevant to Europe as a whole. The course is a good choice for any student preparing to live and work in a globally interconnected world. It will be particularly appealing to students interested in the organization, development and breakdown of democratic systems and politics – including US politics as a fruitful point of comparison. For majors, the specific focus on the European context is an effective follow up to PLSC 3, PLSC 14 or PLSC 7.

Bachelor of Arts: Humanities
Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)
General Education: Humanities (GH)
General Education: Social and Behavioral Scien (GS)
General Education - Integrative: Interdomain
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Integrative Thinking

PLSC 201N: Politics & Religion: Controversies Around the World

3 Credits

Exposes students to the relationship between religion and politics around the world and examines trends in the influence of religion and religious parties on governments and public policy. The relationship and trends will be informed by multiple perspectives from political science, sociology, philosophy, and religion. Students will familiarize themselves with the basic tenets, historical backgrounds, and comparative differences of the main religions that are involved in the political conflicts that will be examined in the course. Students will first examine the principles and values of Christianity (Catholic, Protestant, and Orthodox); Islam; Judaism; Hinduism; and Buddhism. The different religions will be discussed in terms of their beliefs as well as their function in national identities. Discussion of religion will also examine secular critique

of religion, from the Enlightenment and the French Revolution to the present. This will include a comparative look at the ways in which science and rational thought have challenged religions' place in different societies and how religions have sought to counter this challenge. Students will then examine political parties, movements, and actors and their role in affecting public policies in different countries in the twentieth and twenty-first centuries. Students will analyze instances where religious disagreements led to internal policy clashes between members of the same religion as well as conflicts between adherents of different religions within the same country. The power of religious parties' and their secular political rivals will be a central part of this discussion. Students will explore instances in a variety of countries, including but not limited to Turkey, Israel, India, Myanmar, Latin America, France, Eastern Europe, and the United States. These examples will serve to elucidate clashes between religious and secular powers within different countries and between majority and minority religions. The discussion will also include the topic of how religion affects policies concerned with gender equality.

Recommended Preparation: PLSC 3

Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures
Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)
General Education: Humanities (GH)
General Education: Social and Behavioral Scien (GS)
General Education - Integrative: Interdomain
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Soc Resp and Ethic Reason

PLSC 202: American Public Policy

3 Credits

This course will examine how policy decisions are made in American politics, including factors that affect policy choices, the policymaking process, and evaluation of existing policies. Instructors will choose several different policy areas for more in depth discussion and analysis of current policies and policy choices. Possible areas of focus include economic and budgetary policies; social welfare policies; environmental and energy policies; civil liberties and civil rights policies; criminal justice policies; education policies; food, drug, and agriculture policies; labor policies; medical and technological policies; regulatory policies; health care policies; security policies; and trade policies.

Prerequisite: PLSC 1 or PLSC 1H or PLSC 1S

Bachelor of Arts: Social and Behavioral Sciences
United States Cultures (US)
General Education: Social and Behavioral Scien (GS)
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Integrative Thinking

PLSC 209: Democratic Leadership

1 Credits

Penn State has a special opportunity to create new leaders who learn deliberative approaches to politics and public life. This one-credit course provides a background for this approach to democratic leadership, and it also prepares students for the Nevins Fellows paid internship program. Those who complete this course will have first priority when

awarding these internships each year. The centerpiece of this course are day-long workshops that introduce students to effective civic leaders in government or the non-profit sector. Bracketing these workshops are a handful of seminars, which introduce ideas, discuss reading assignments, and reflect on the workshops. In addition to short reaction papers, students will produce a narrative essay at the end of the course that describes how they could see themselves advancing democracy in the United States (or elsewhere) and what kind of internship experience will help them prepare for such a career. For those who opt to seek an internship, this essay will supplement their formal application. Credit for the course requires attendance at every class meeting and workshop, or equivalent makeup assignments, if permitted.

Cross-listed with: CAS 209
Honors

PLSC 210N: Rights in America

3 Credits

This course is an introduction to the emergence and enforcement of rights in the United States. The course provides an overview of how rights have been codified into law and interpreted by the courts. The primary focus is how and why the conception of rights has changed over time. Emphasis is placed on the rights of groups that were denied equal citizenship when the Constitution was ratified. We will examine how these marginalized groups have engaged in a continual struggle for basic rights since the American founding. The course begins with an overview of different types of rights and the role of the legal system in articulating and enforcing them. Students are introduced to debates about the sources of rights, including the implications of conceptions of rights as grounded in natural law and as arising from positive law. They look specifically at the role of rights in the founding documents of United States and how civil rights are interpreted through pivotal Supreme Court cases as ascribing - or denying - particular powers and responsibilities to individuals and groups. The second section of the course focuses on the rights of African Americans and women. It progresses chronologically from slavery to the modern civil rights movement, from coverture to women's rights. Particular attention is given to the NAACP's campaign against racial discrimination in housing, education, and in the criminal justice system. The final part of the course emphasizes campaigns for rights recognition in modern times, including LGBTQ rights and disability rights. The course concludes with a discussion of how context impacts rights, including students' rights and rights during wartime, and examination of the potential and limitations of rights as a basis for political protection. Throughout the course students are introduced to the interdependent political, legal and philosophical dimension of rights and how rights in the United States have come to be recognized and enforced through political action, legal codification, and judicial interpretation.

Bachelor of Arts: Humanities
Bachelor of Arts: Social and Behavioral Sciences
United States Cultures (US)
General Education: Humanities (GH)
General Education: Social and Behavioral Scien (GS)
General Education - Integrative: Interdomain
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Soc Resp and Ethic Reason

PLSC 220: Politics of the Developing World

3 Credits

The developing world refers to countries with a weak or emerging industrial economy; low per capita income; and low scores on measures of human well-being such as health, education, and human rights security. The developing world includes countries in Africa, Asia, Latin America, and the Middle East. It encompasses a large portion of the world's population and considerable diversity with respect to economic development, political systems, and social conditions. Developing countries often share a history of colonization and problems of poverty, inequality, authoritarianism, corruption, and political instability. This course focuses on the common patterns and differences among these countries in an effort to answer questions such as, Why do some countries develop robust economies and stable democracies while others do not? What is the connection between economic development and democracy? How do ethnic, religious, and cultural divisions interact with development? The course begins by introducing different ways of conceptualizing development. It describes the most prominent explanations of the differences between developing and developed countries and among developing countries. Students will learn the key domestic and international institutions and processes shaping political and economic development. They will explore the sources and consequences of democratization and authoritarianism, and consider the relationship between development and factors such as religion, ethnicity, and gender.

Bachelor of Arts: World Cultures
Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)
General Education: Social and Behavioral Scien (GS)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Integrative Thinking

PLSC 222N: Science and Politics of the Female Athlete

3 Credits

The purpose of this course is to explore gender differences in sport and politics that emerge from physiology, culture, history, politics, and policy. The engagement of women in sport has unique physiological considerations and ethical dilemmas as well as a rich history of defining moments and important ties to feminism and politics. In this course, students will learn how physiology differences affect female athletic performance and the effects of exercise on the female body, as well as how cultural, historical, and political forces shaped women's participation in sport. Students will also see how similar historical, cultural, and political forces affect women's involvement in politics. Combined, students will understand how similar forces shape gender norms and participation two different, yet related, aspects of society. Additionally, students will learn about the push for evidence-based policymaking and apply that knowledge to topics including doping, pregnancy, and gender verification. Students will integrate physiology and policy in a final assignment advocating for evidence-based sport policy. They will also educate their peers through a public education project.

Cross-listed with: KINES 222N, PUBPL 222N
General Education: Health and Wellness (GHW)
General Education: Social and Behavioral Scien (GS)
General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Soc Resp and Ethic Reason

PLSC 223N: Ethnic and Racial Politics

3 Credits

This course explores the roles race and ethnicity play in politics and government. Students will learn how social groups organize to achieve political goals, how and why opposition to those goals arises in plural societies, and what policies governments can pursue to defuse tensions between groups. Students will be introduced to research explaining the historical and cultural basis of ethnic identities. Additionally, students will examine and compare case studies of political disputes that arise when groups differentiate themselves from one another. Ethnic and racial politics in the United States will be compared to ethnic and racial politics in other countries, such as Canada, Indonesia, Bosnia, Switzerland, Rwanda, and South Africa, with attention to political movements and government policies. The course will also explore the complex relationship between government and social groups by looking at immigration policy, the role of ethnic groups in shaping foreign policy, and the legacy of settlement and conquest. Through individual cases and cross national comparison, students will critically assess the sources of inter-group conflict, coexistence, and integration to identify best practices in order to achieve peaceful and inclusive plural societies. The course draws upon resources from a variety of disciplines, including political science, anthropology, sociology, economics, history, linguistics, and religious studies.

Prerequisites: PLSC 1 or PLSC 3

Bachelor of Arts: Humanities
 Bachelor of Arts: Social and Behavioral Sciences
 International Cultures (IL)
 United States Cultures (US)
 General Education: Humanities (GH)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Soc Resp and Ethic Reason

PLSC 230: American Political Campaigns and Elections

3 Credits

Campaigns and elections are the mechanisms used to place people into office in American government. Electoral outcomes are the product of rules that govern who can run and participate in voting, the choices made by candidates and their campaigns, and the individual decisions rendered by voters at the ballot box. This course explores each of these items to provide a comprehensive understanding of how campaigns and elections operate in the United States. The topics covered include how candidates are selected and elected, ballot propositions, election laws and administration, how voters choose among candidates, campaign strategies and advertising, campaign fundraising and spending, and proposed reforms to the American election process. Students are introduced to different types of election systems in the United States and in democratic countries around the world. They will discuss alternatives to the election systems currently used in Pennsylvania and in most

places in the United States. The electoral college method of selecting a president will be examined in depth. Various laws that either make it easier or more difficult to vote will be addressed. Students will examine some recent examples of the ballot initiative process and discuss its role in democratic governance. A substantial portion of the course will address which political parties various voter groups tend to prefer and why, how party bases have changed in American history, and why parties other than Democrats and Republicans have had limited success in the past century. Key components of campaign strategies and how candidates raise money, as well as famous political advertisements, will be presented.

Prerequisites: PLSC 1

Bachelor of Arts: Social and Behavioral Sciences
 United States Cultures (US)
 General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think

PLSC 235: Environmental Politics

3 Credits

This course explores the political implications of climate change and the increasing scarcity of many of the world's resources. It provides students with an understanding of the actors and issues driving debates over decision-making and the use of natural and economic resources, with a focus on the American political process. The first part of the course presents the frameworks, actions and interests of various policy actors who affect environmental decision-making and the formation and implementation of environmental policies. The second part develops specific environmental issues, including climate change, resource scarcity and waste management. Much of the reading assumes that our civilization faces the twin problems of increasingly serious shortages of resources and a growing ecological crisis that threatens the basis of life. Further, it argues that these twin crises feed upon each other, and that together they pose serious short and long run challenges to survival. Some readings attribute these problems to the dominant values that characterize modern Western society. The course does consider some dissents from this perspective, arguments that things will be just fine. However, it concentrates on problems and predictions of trouble. It recognizes that most of what we learn, read, and see supports the status quo and assumes our civilization and energy-dependent way of life will continue. Consequently, it emphasizes the less frequently argued position that we may be headed for disaster. The class aspires to appeal to students regardless of major or college – to scientists, engineers, students of the humanities, and even economists and political scientists. It fulfills the University-wide general education requirement in Social Science. Although it discusses the role of politics in general and the role of the American political system in particular in discussing the "twin crises," it mostly grapples with fundamental questions of value that underlie and guide the play of power in our political system and with how the massive changes now taking place globally both affect and are affected by politics.

Cross-listed with: STS 235

Bachelor of Arts: Social and Behavioral Sciences
 General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Soc Resp and Ethic Reason

PLSC 267N: Government and Politics of the Middle East

3 Credits

This course provides an introductory overview of the politics of the Middle East. It introduces students to the political development of Middle Eastern countries and the construction of the Middle Eastern state system through a historical examination of the period of Islamic Empires through Colonialism and Independence. It discusses the major political ideological factors that have influenced political development in the Middle East. It examines the political economy of Middle Eastern states as well as the political economy of development of the region. The course studies the politics of gender, ethnicity and other identities in the region. It also covers major political conflicts within the Middle East and between Middle Eastern countries and the outside world.

Bachelor of Arts: Arts

International Cultures (IL)

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

PLSC 290N: Comparative Violence: Political and Criminological Perspectives

3 Credits

This course will cater to the interests of anyone who has ever asked oneself: what are the origins of individual and mass violence and why some parts of the world or one's own country have more of it than others? This course is designed to critically approach this question, based on the broad, cross-disciplinary perspective of security research and new security studies. This course will enable students to understand the distinctions and overlaps between political and criminal violence, analyze the levels from individual to mass violent behaviors, and assess theoretical approaches to studying violence. Students will engage in comparative exploration of different disciplinary perspectives on the origins and types of violent behaviors, including political science, criminal justice, international relations, and others. The course will provide the critical basis (theoretical and empirical) for students to evaluate the puzzle from multiple angles.

RECOMMENDED PREPARATIONS: CRIMJ 12 PLSC 3 CRIMJ 100

Bachelor of Arts: Humanities

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

United States Cultures (US)

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

PLSC 291: Introduction to Peace and Conflict Studies

3 Credits

This course is an examination of how human beings get into and out of violent conflicts, and how conflicts transform. It sizes up the costs of war, examines the processes and challenges of peace, and reflects on the characteristics of human conflicts at all levels. The course is interdisciplinary, drawing together perspectives from political science, global and international studies, cultural anthropology, psychology, sociology, economics, military history, war game theory, and studies of literature and expressive culture. Course modules engage with diplomacy, nonviolence, failed states, ethnic struggle, gender mainstreaming, psychology and sociology of human aggression, economics of war and peace, globalization and conflict, and cyber warfare.

Bachelor of Arts: Social and Behavioral Sciences

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Soc Resp and Ethic Reason

PLSC 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Bachelor of Arts: Social and Behavioral Sciences

PLSC 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Social and Behavioral Sciences

PLSC 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

PLSC 300: Introduction to Independent Thesis Research

1-3 Credits

Introduction to research design, principles of social science research, and development on honors theses research proposal.

Bachelor of Arts: Social and Behavioral Sciences

Honors

PLSC 306: Senior Thesis Writing Workshop

1-3 Credits/Maximum of 3

This seminar supports the writing and editing of senior honors theses. PL SC 306H Senior Thesis Writing Workshop (1-3)(BA) This course meets the Bachelor of Arts degree requirements. This is a workshop for honors students in their senior year writing their thesis in political science.

There are no assigned readings or written assignments outside of those necessary for the completion of your thesis. Participants are expected to make progress on their own thesis and to contribute to the collaborative enterprise of discussing thesis progress and problems while critiquing one another's work. Each participant is expected to make progress on their thesis, to collectively discuss and consider the research process during workshop sessions, and come prepared to offer useful feedback and criticism on other participants' research.

Bachelor of Arts: Social and Behavioral Sciences
Honors

PLSC 308: Introduction to Political Research

3 Credits

Introduction to conceptualization, research design, and measurement in political research. PL SC 308 Introduction to Political Research (3) This course introduces students to the research process in political science. The course can be taken by itself or as the first in a two course sequence with PL SC 309. It is intended to give political science majors the skills needed to conduct research in political science, or in related fields such as public policy. The course introduces students to the scientific approach to accumulating knowledge, it examines conceptual and theoretical thinking about politics (e.g. understanding what concepts, variables and hypotheses are), it covers different methods of collecting social science data (interviews, surveys, observation, experiments, analysis of documents, etc.) and it provides an introduction to the interpretation of that data. Ethical issues in research are discussed, and students are also introduced to basic statistical concepts. The course typically includes multiple take home and/or in-class assignments that require students to utilize different data collection methods and practice the generation and interpretation of those data.

Prerequisite: any 3 credits in Political Science

PLSC 309: Quantitative Political Analysis

3 Credits

Data analysis and statistical applications in political research, including data processing; inferential statistics; contingency analysis; correlation and regression; multivariate analysis. PL SC 309 Quantitative Political Analysis (3) This course introduces students to the basic statistical techniques used to study politics quantitatively. It can be taken by itself or as the second course in a two course sequence with PL SC 308. It is required for all Liberal Arts Fellows. Students in 309 learn about developing questions suited to empirical research; constructing hypotheses; measuring political concepts; and conducting basic univariate and multivariate analyses. The course includes sections on the basic principles of probability, sampling, and statistical inference so that students can understand and implement statistical techniques for describing and explaining political phenomena. There is also extensive coverage of the use and application of various statistical techniques. Exercises both in and out of class will require students to engage with and apply various social science concepts, and to undertake quantitative analyses of political and policy-relevant data.

Prerequisite: any 3 credits in political science
Bachelor of Arts: Social and Behavioral Sciences

PLSC 309H: Quantitative Political Analysis

3 Credits

This course introduces students to research design and quantitative analysis techniques used in political science with an aim toward developing transferrable skills for future coursework in the political science major, especially the senior thesis process. Students will learn how to construct theories and design studies, how to quantify concepts, and how to test theories using a variety of statistical techniques, including descriptive analysis, correlation, hypothesis testing, and regression analysis. The course will include classroom lectures and computer lab time to enable students to work hands-on with datasets. This course is the first in a three-course sequence for students interested in writing an honors thesis in political science.

Prerequisite: ANY 3 CREDITS IN POLITICAL SCIENCE

Bachelor of Arts: Social and Behavioral Sciences
Honors

PLSC 395: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Prerequisite: prior approval of proposed assignment by instructor

Bachelor of Arts: Social and Behavioral Sciences

PLSC 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Bachelor of Arts: Social and Behavioral Sciences

PLSC 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)

PLSC 403: The Legislative Process

3 Credits

Analysis of the policy process within the legislative system; the effects of environmental factors on policy alternatives and legislative decision making.

Prerequisite: PL SC001 or PL SC003

Bachelor of Arts: Social and Behavioral Sciences

PLSC 404: Analyzing Public Policy in the American States

3 Credits

This course provides students with the tools to empirically evaluate policy proposals and outcomes in the American states. PL SC 404 Analyzing Public Policy in the American States (3) Developing public policies is the proximate goal of any government. In the United States national, state, and local lawmakers steeped in their own traditions,

procedures, and political environments establish rules that determine their citizen's quality of life. In the states specifically, laws affect citizens's access to and their ability to afford an education; the quality of the roads they travel on; the wages they earn; whether and to what extent they qualify for subsidized health care; how they cast their ballot in elections; and myriad other aspects of their lives. This course focuses on policymaking in the American states and how those policies can be evaluated using social science methods. The course begins with a discussion of what makes states distinct from one another & their populations, governmental institutions, and political values. The focus then shifts to how statistical techniques can be used to describe variation in state policy; to develop causal arguments to explain variation; and to assess the efficacy and value of different approaches to the same social problems. Students learn how to measure and gather data relevant to public policy debates, to describe and categorize policy, to model policy outcomes, and to draw conclusions about alternative approaches to solving the policy problems being addressed. Students then apply this knowledge to major policy debates in state government. The course concludes by with an exploration of the ethical implications of using data to make policy decisions and with attention to how technical and statistical information can be effectively communicated to professional and nonprofessional audiences. Students are required to have an understanding of introductory statistics (equivalent to the knowledge they would gain from PL SC 309 or STAT 200) prior to taking this course.

Prerequisite: PL SC001 , PL SC309
Bachelor of Arts: Social and Behavioral Sciences

PLSC 405: The American Presidency

3 Credits

An examination of the selection methods for, and powers of, the American presidency, as well as other chief executives.

Prerequisite: PL SC001
Bachelor of Arts: Social and Behavioral Sciences

PLSC 405H: The American Presidency

3 Credits

An examination of the selection methods for, and powers of, the American presidency, as well as other chief executives.

Honors

PLSC 408: Democracy and Its Impacts

3 Credits/Maximum of 3

This course examines advances in democratization around the globe, and compares the performance of democratic and authoritarian governments. This course examines the impacts of international democracy aid around the globe, and compares the performance of democratic and authoritarian governments in promoting citizens' well-being. Democracy assistance for activities such as conducting elections and strengthening civil society has become a key component of foreign aid provided by longstanding democracies. Its use is based on a widespread belief that democracies perform better than autocracies in a number of policy domains. The course focuses on how such aid affects recipient countries, and how performance of democratic and authoritarian regimes actually differs. It traces the expansion of international democracy aid, explores the different types of assistance that donor countries provide, and reviews empirical research on the impacts in recipient countries. It then

turns to a comparison of the performance of democratic vs. authoritarian regime type in generating public goods such as economic prosperity, socioeconomic equality, and civic peace.

Prerequisite: PL SC 001; PL SC 003; PL SC 014; or PL SC 022

PLSC 409: Democratic Deliberation

3 Credits

Explores the theory and practice of democratic deliberation in elections, town meetings, juries, legislatures, and other public institutions. CAS (PL SC) 409 Democratic Deliberation (3) Many modern democracies have made strides to become more deliberative in how they make decisions. This course looks closely at the most promising innovations in self-government while also reviewing the persistent anti-deliberative and undemocratic features of modern societies and governments. Topics covered in the course include deliberative democratic theory, political conversation, common forms of public meetings, mediated deliberation, campaigns and elections, the jury system, and deliberative democracy on larger social scales.

Enforced Prerequisite at Enrollment: PLSC 1 or PLSC 7 or CAS 101N or CAS 137H or ENGL 137H or CAS 215 or CAS 303
Cross-listed with: CAS 409

PLSC 410: Strategy and Politics

3 Credits

This course examines political behavior using social choice theory and game theory. PL SC 410 Strategy and Politics (3)(BA) This course meets the Bachelor of Arts degree requirements. Strategic behavior is central to politics. It is common for political outcomes to be determined by the interaction of individuals seeking goals in an environment in which goal attainment is complicated by the choices of other actors. This course introduces various methods for analyzing strategic behavior using social choice and game theories. We will employ these approaches to better understand a wide range of political phenomena in international politics, comparative politics, and American politics, such as war, terrorism, voting, electoral competition, government formation, and democratic transitions. By the end of the course, students will, among other things, have experience using games to analyze a range of political behaviors and institutions. The course assumes no prior knowledge of social choice theory or game theory.

Prerequisite: PL SC001 , PL SC003 , or PL SC014
Bachelor of Arts: Social and Behavioral Sciences

PLSC 412: International Political Economy

3 Credits

The transnational politics of trade, investment, aid, raw materials, and the environment; nation-states, multinational corporations, and the U.N. PL SC 412 International Political Economy (3)(BA) This course meets the Bachelor of Arts degree requirements. This course is an introduction to the scientific study of international political economy (IPE), an interdisciplinary field related to international politics and international economics. Some exemplary issues IPE addresses include the collective action problem among nation states, the management and openness of international economy, the determinants of foreign economic policies, and the causes and consequences of economic globalization. IPE examines the interaction between politics and economics at the international level as well as between the international

and domestic levels, involving various political and economic actors (governments, MNSs, interest groups, as well as individuals). The course aims to develop the analytical skills of students in explaining theoretically international political and economic events.

Prerequisite: ECON 102 , ECON 104 , ECON 014 , I B 303 , or BUS 364
Bachelor of Arts: Social and Behavioral Sciences

PLSC 413: The Rise and Fall of the Soviet Union

3 Credits

Background, organization, and operation of the Communist Party and the government of the Soviet Union.

Prerequisite: 3 credits from: PL SC003 , PL SC014 , PL SC155 , or RUS 100
Bachelor of Arts: Social and Behavioral Sciences

PLSC 414: Dictators and Their Demise

3 Credits/Maximum of 3

Dictators and Their Demise examines the political economy of authoritarian rule. PL SC 414 Dictators and Their Demise (3) Dictators and Their Demise provides a broad exploration about how non-democratic governments throughout the world rule. We examine: the conditions that give rise to authoritarianism; the variety of authoritarian regimes; the strategies authoritarian leaders use to stay in power; the consequences of different types of authoritarianism for outcomes such as economic growth and human development; and the domestic and international sources of authoritarian demise. The course covers cases of authoritarian rule in: Chile, the Dominican Republic, Egypt, Malaysia, Mexico, and the former Zaire (now the Democratic Republic of the Congo or DRC). The course builds knowledge about the governments under which most people in the Global South lived during the 20th century. Even today, roughly half of the world's population lives under some form of non-democratic government. Yet almost all courses currently in the curriculum, particularly in the field of comparative politics, focus exclusively on democratic forms of government. This course therefore examines a new topic not currently offered in the curriculum. In addition to learning about different types of authoritarian rule, students form an understanding of how common foreign policy tools, such as economic sanctions, foreign aid, and human rights shaming, are likely to affect domestic politics in these countries. This knowledge helps students critically evaluate foreign policy relationships between democracies, such as the United States, and dictatorships. Course materials cover theoretical approaches to the study of authoritarian rule, in-depth case studies (including novels, biographies, and documentary), and empirical research. This course requires student presentations, weekly reading assignments, descriptive analysis of quantitative data in graphs, multiple written assignments, and a final take-home essay exam. Students develop analytic skills through the weekly written homework assignments in which they apply the broad theoretical concepts to analyze counterfactual situations from specific cases of authoritarian rule. Oral presentations develop inter-personal skills and require students to research specific cases of authoritarian rule currently in the news. This helps students critically evaluate current events. Finally, the written assignments require students to develop skills working with real data. Students collect and graphically present basic descriptive data about economic and human development in non-democratic countries: economic data, infant mortality, literacy, and indicators of women's well-being. Using real world data to make international comparisons helps

students develop skills to form and articulate complex arguments, and teaches them the basics of research design.

Bachelor of Arts: Social and Behavioral Sciences

PLSC 418: International Relations Theory

3 Credits

A survey of traditional and contemporary conceptual frameworks and theoretical approaches for the analysis of international relations.

Prerequisite: PL SC014

Bachelor of Arts: Social and Behavioral Sciences

PLSC 418H: International Relations Theory

3 Credits

A survey of traditional and contemporary conceptual frameworks and theoretical approaches for the analysis of international relations.

Bachelor of Arts: Social and Behavioral Sciences
Honors

PLSC 418W: International Relations Theory

3 Credits

A survey of traditional and contemporary conceptual frameworks and theoretical approaches for the analysis of international relations.

Prerequisite: PL SC014

Bachelor of Arts: Social and Behavioral Sciences
Writing Across the Curriculum

PLSC 419: The Bureaucratic State

3 Credits

Overview of structural, technological, decision-making, behavioral, and political subsystems of bureaucracy; emphasis on bureaucratic dynamics within larger environmental, interorganizational contexts.

Prerequisite: PL SC001 , PL SC002 , or PUBPL304W

Bachelor of Arts: Social and Behavioral Sciences

PLSC 420: State Making

3 Credits

Students learn about how national states arise, expand the territory and population they control, and persist or fail.

Prerequisite: PL SC003 or PL SC014

PLSC 421: Analysis of International Political Economy

3 Credits

Why and how do governments regulate cross-border flows of goods, capital, and people? What are the benefits and costs of globalization? What are the social tensions resulting from countries' integration into the world economy? This course examines the complex interplay between politics and the global economy using data and empirical analysis. It has two objectives. First, it will introduce students to topics on international trade, foreign investment and multinational corporations, international finance, economic development, etc. Second, it will teach students

quantitative methods to analyze issues related to globalization. The goal of this course is to provide students with substantive knowledge and analytical skills that are necessary to understand the politics of globalization.

Prerequisite: PLSC 309

PLSC 422: Comparative Urban Politics

3 Credits

Relationships between structure and evolution of city systems and patterns of political behavior.

Prerequisite: PL SC003 , PL SC020 , PL SC022 , or PL SC417
Bachelor of Arts: Social and Behavioral Sciences

PLSC 423: Post-Soviet Politics

3 Credits

Aspects of political transition and institutions of the fifteen Soviet successor republics; emphasis on Russia and republican confederation.

Prerequisite: PL SC003 , PL SC155 , or RUS 100
Bachelor of Arts: Social and Behavioral Sciences

PLSC 424: Topics in Comparative Government and Institutions

3 Credits

Topics in the comparative analysis of representative contemporary Western and non-Western governmental institutions.

Prerequisite: 3 credits from PL SC003 , PL SC020 , PL SC022
Bachelor of Arts: Social and Behavioral Sciences

PLSC 425: Government and Politics of the American States

3 Credits

Comparative analysis of political processes; executive, legislative, and judicial decision making and behavior; examination of systems functioning; selected public policies.

Prerequisite: PL SC001
Bachelor of Arts: Social and Behavioral Sciences

PLSC 426: Political Parties and Interest Groups

3 Credits

Interest group basis of American politics, analysis of party and group behavior in electoral politics and the policy process.

Prerequisite: PL SC001
Bachelor of Arts: Social and Behavioral Sciences

PLSC 427: Political Opinion

3 Credits

Nature and development of mass attitudes and opinions; political socialization; voting behavior; relation between opinions and public policy.

Prerequisite: PL SC001
Bachelor of Arts: Social and Behavioral Sciences

PLSC 428: Gender and Politics

3 Credits

Gender in politics in the United States and around the world; major areas of women and politics research. PL SC (WMNST) 428 Gender and Politics (3) (US;IL)(BA) This course meets the Bachelor of Arts degree requirements. This course is designed as an overview to the field of women and politics. It examines the role that women play in politics in the United States and around the world. Students will begin by examining how women are socialized differently from men and how that socialization effects women's political attitudes and participation. Then students will focus on women in different political offices and how their behavior compares to that of their male counterparts. Students will then analyze the women's movement in the United States. Finally, students will turn to different theories of the ideal position of women and men in politics and use those theories to explore the issue of pornography. Students will be evaluated on a final exam, short essays (4 3-5 page essays), class participation, and a research paper (15 pages). This is an advanced course with 6 credits prerequisite in Women's Studies or Political Science. This course fulfills the American Politics and Comparative Politics distribution as well as the advanced course requirement for the Political Science major. It is an elective for a Women's Studies major. It also fulfills an International/Intercultural competency requirement. This course will be offered once a year with 35 seats per offering.

Prerequisite: 3 credits in political science or women's studies

Cross-listed with: WMNST 428

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

United States Cultures (US)

PLSC 429: Analysis of Electoral Politics

3 Credits

The new politics, its technology, and the strategic perspectives that underlie it. PL SC 429 Analysis of Electoral Politics (3)(BA) This course meets the Bachelor of Arts degree requirements. This course engages students in the empirical study of electoral politics in the United States. Elections in the U.S. are about voters, candidates and the rules that determine what these actors do to structure the course of the election and that lead to the final outcome. In empirical political science, analysis involves the systematic examination and evaluation of relevant data to solve a problem or answer a question. In this course, then, students use data about voters to systematically analyze their actions and decisions in U.S. presidential elections, with an emphasis on understanding why they make the choices they do to produce the resulting election outcomes. Throughout the course, students will draw on a range of publicly available data and use statistical analyses to investigate the "cost" of voting; evaluate competing theories of voter choice; examine how candidate evaluations, candidates' issue stances and retrospective evaluations of candidates influence voter choice; assess how vote choice is shaped by an individual's partisan identification; and evaluate how social demographic trends shape election outcomes. At the conclusion of the course, students will have the substantive knowledge and analytic skills to evaluate the assertions and conclusions of politicians, pundits, and political scientists as they contemplate campaigns and election outcomes. Students are required to have an understanding of introductory statistics (equivalent to the knowledge they would gain from PL SC 309 or STAT 200) prior to taking this course.

Prerequisite: PL SC001 , and PL SC309

Bachelor of Arts: Social and Behavioral Sciences

PLSC 430: Selected Works in the History of Political Theory

3 Credits

Detailed examination and analysis of a selected major work, thinker, or tradition in the history of political theory.

Prerequisite: PL SC017 or PL SC007

Bachelor of Arts: Social and Behavioral Sciences

PLSC 430W: Selected Works in the History of Political Theory

3 Credits

Detailed examination and analysis of a selected major work, thinker, or tradition in the history of political theory. PL SC 430W Selected Works in the History of Political Theory (3)The course will examine the tradition of 'liberal' political philosophy, focusing principally on the social contract tradition in Western political philosophy. We will examine the work of the 'classic' social contract theorists -Hobbes, Locke, Rousseau, and Kant - and discuss some more recent variants. We will then consider broad contemporary critiques of this tradition. In particular, we will consider charges of exclusion, parochialism, and biased conceptions of the self allegedly manifested in liberal theories, especially as those charges that center on considerations of race and gender.

Prerequisite: PL SC017 or PL SC007

Bachelor of Arts: Social and Behavioral Sciences

Writing Across the Curriculum

PLSC 431: Ancient, Medieval, and Renaissance Political Theories

3 Credits

Political theories of Plato and Aristotle; selected Greek, Roman, medieval, and Renaissance theorists through Machiavelli.

Prerequisite: PL SC017 or PL SC007

Bachelor of Arts: Social and Behavioral Sciences

PLSC 432: Modern and Contemporary Political Theories

3 Credits

Political theories of the seventeenth through the twentieth centuries, including Hobbes, Locke, Rousseau, Marx, Mill, Mosca, Weber, and selected theorists.

Prerequisite: PL SC017 or PL SC007

Bachelor of Arts: Social and Behavioral Sciences

PLSC 433: Political Foundations of the Early American Republic

3 Credits

The course introduces students to the major political and philosophical movements that influenced the founders of the early American republic. PL SC 433 Political Foundations of the Early American Republic (3)The course introduces students to the major political and philosophical movements that influenced the founders of the early American republic. The first section of the course, set in the ancient world, will examine the earliest experiments in democratic government in both Greece and the Roman Republic. In addition to studying the structure and traditions of ancient governments, students will consider competing theories for why these early democratic experiments ultimately failed. The second section

of the course traces the gradual evolution of representative democracy in Britain from the signing of Magna Carta to the quiet subjugation of the monarchy in the 19th Century. Recognizing that the theoretical structures of political power remain somewhat fixed in this period, students will consider how legal precedent can gradually transform seemingly static political institutions. The third section of the course examines American efforts to establish stable representative institutions in the aftermath of the Revolutionary War. Looking back at both ancient and modern constitutional traditions, students will examine how prior democratic experiments heavily influenced the deliberations of the founders both at the Constitutional Convention and in the establishment of the new federal republic.

Prerequisite: PL SC001 or HIST 020 or PL SC017

PLSC 434: War and Development in Africa

3 Credits

This course will examine the relationship between war and development in sub-Saharan Africa in the post colonial era. PLSC 434 / AFR 434 War and Development in Africa (3) (IL) This course will examine the relationship between development and war in sub-Saharan Africa in the modern era. Specifically, it will analyze the extent to which the processes of state building, nation building, and international intervention have contributed to the incidence of both civil war and international conflict in Africa. We will begin with a review of several theoretical arguments on the causes of warfare in Africa and then turn to a discussion of theses on African political development. This course complements present offerings in international relations and comparative politics in the PLSC department and can serve as an advanced undergraduate offering in the African Studies concentration in AFR. The course directly complements our present offerings in international conflict given that we don't have a regularly offered course that focuses on conflict in a specific region. In addition, it will augment our comparative politics offerings with an examination of prominent issues in comparative politics such as political development, democracy, and modernization. The course will fulfill the IL requirement and encourage students understanding of the historical background as well as the political, economic, and cultural factors that influence African politics. African conflicts are often viewed as "ethnic conflicts" and in this class students have an opportunity to assess the extent to which ethnic, linguistic, or religious factors influence the likelihood of conflict and contribute to development in African states. Students will also be required to write essays evaluating the contribution of a range of theoretical arguments on Africa's conflicts in order to assess the degree to which cultural more than political or economic factors contribute to their onset. Students will then have the opportunity to conduct more extensive research on a specific African case to develop their analyses further. These exercises will often require that students reevaluate their beliefs about social identities such as race (e.g. in Rwanda the difference between Tutsi and Hutu is often viewed as a "racial" difference between black Africans, which is at odds with most Western conceptions of race). They also require students to challenge stereotypes regarding the subordination of African values in conflicts to a simple concern with "tribe". Students will gain a broader knowledge and appreciation of the different values, traditions, and cultures evident in Africa and understand how these can both exacerbate and mitigate conflict. Evaluation in the course will consist largely of examination of the students' brief expository essays and larger case studies for which students will be encouraged to conduct original research. The course should be offered biannually with a class limit of about 40 students.

Prerequisite: PL SC014 , PL SC003 , AFR 110

Cross-listed with: AFR 434

Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)

PLSC 435: Foundations of American Political Theory

3 Credits

Political theories of colonial, revolutionary, and constitutional periods presented through works of selected thinkers and analysis of particular political problems.

Prerequisite: PL SC001 , PL SC017 , or PL SC007
Bachelor of Arts: Social and Behavioral Sciences

PLSC 436: Civil Wars

3 Credits

This course examines factors influencing the onset, duration, severity, termination, recurrence, and consequences of civil wars around the world. PL SC 436 Civil Wars (3) This course provides a broad exploration of the causes, characteristics, and consequences of civil wars. In particular, it investigates what makes civil wars more likely to occur, what influences how long they last, how severe they are, and how likely they are to recur, while also considering their consequences for the states that experience them. It considers the scholarly research on this topic over the past decade or more, and builds an awareness both for what are the known regularities as well as what are the continuing uncertainties about the place of civil war in the contemporary international system. It does this specifically within the context of scientific research about civil wars, and thus also advances student knowledge about how social scientists learn what they know about how the world works. Building on this perspective, and after absorbing the lessons to be learned from the literature, students will gain even greater appreciation for the quality of knowledge about civil wars by conducting their own detailed analysis of a civil war (each student will study one civil war of their choosing) asking how well the civil war they study fits patterns identified by the literature. This course complements, without duplicating, existing political science courses about militarized political conflict, and qualifies as one course majors can take to satisfy their 400-level course hours requirement. In addition to political science majors, it should be of interest to international politics majors, students in other social science majors, and perhaps Masters students in the School of International Affairs as well.

Prerequisite: PL SC003 or PL SC014

PLSC 437: War in World Politics

3 Credits

Causes, resolution, and consequences of crises and wars; testing theories of conflict using both case and statistical studies.

Prerequisite: PL SC014
Bachelor of Arts: Social and Behavioral Sciences

PLSC 438: National Security Policies

3 Credits

Impact of national security on U.S. government and foreign policy; roles and interaction of President, Congress, government agencies, interest groups.

Prerequisite: PL SC001 or PL SC014

Bachelor of Arts: Social and Behavioral Sciences

PLSC 439: The Politics of Terrorism

3 Credits

Analysis of political terrorism as a violent alternative for peaceful change and traditional warfare in the nuclear age.

Prerequisite: CRIMJ100 or PL SC014 , or permission of program
Cross-listed with: CRIMJ 439
Bachelor of Arts: Social and Behavioral Sciences

PLSC 439H: The Politics of Terrorism

3 Credits

Analysis of political terrorism as a violent alternative for peaceful change and traditional warfare in the nuclear age.

Cross-Listed
Honors

PLSC 440: Globalization and Its Implications

3 Credits

This course explores the socioeconomic implications of globalization.

Enforced Prerequisite at Enrollment: AFAM 100N or AFR 110 or PLSC 3 or PLSC 14 or PLSC 200N or PLSC 220
Cross-listed with: AFR 440, IB 440
Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)
United States Cultures (US)

PLSC 442: American Foreign Policy

3 Credits

Principles of American foreign policy; processes of policy formulation; roles of the President, Congress, the State Department, and other government agencies.

Prerequisite: PL SC014
Bachelor of Arts: Social and Behavioral Sciences

PLSC 443: Ethnic Conflict in Africa

3 Credits

This course explores the various causes and impacts of ethnic conflicts in the African context.

Prerequisite: AFR 110N; PLSC 1; PLSC 3; PLSC 7N; PLSC 14; PLSC 17N; PLSC 20
Cross-listed with: AFR 443
Bachelor of Arts: World Cultures
Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)

PLSC 444: Government and the Economy

3 Credits

Interactions of governmental and economic activity in American life. Survey of governmental (national, state, local) promotional, regulatory, and ownership policies.

Prerequisite: 3 credits in political science or economics
Bachelor of Arts: Social and Behavioral Sciences

PLSC 445Y: Politics of Affirmative Action

3 Credits

Examines history, politics, and economics of the use of special programs to advance racial interests in the U.S. PLSC 445Y / AFAM 445Y / LER 445Y Politics of Affirmative Action (3) (US)(BA) This course meets the Bachelor of Arts degree requirements. The objectives of this course are to introduce students to the relationship between affirmative action and other policies purportedly designed to end racial inequality in the U.S. This course approaches the study of affirmative action in the context of the historic racial discrimination and inequality that Black Americans have faced since the founding of the Nation. The purpose of this course is to help students think about how contemporary and historic affirmative action policies relate to race, concepts racial inequality, the historic and continuing causes for racial inequality, public opinion, American politics and economic thought. The course materials will lead students through scholarly and popular articles, books and video presentations on the topic. It is hoped that students will become familiar with the history of affirmative action from its conception. Students will gain an intimate understanding of affirmative action economic and social outcomes on various racial groups. No prior knowledge is assumed, however a knowledge of civil rights history, quantitative methods, and constitutional law will be useful. The Politics of Affirmative Action satisfies the requirements for major and minor electives for the African American Studies, and major and minor electives for Political Science, and Labor Studies and Industrial Relations. Students are evaluated on the basis of an examination, term paper, class participation and class presentations of papers.

Prerequisite: AAA S 100 level course and PL SC001 or PL SC007

Cross-listed with: AFAM 445Y, LER 445Y

Bachelor of Arts: Social and Behavioral Sciences

United States Cultures (US)

Writing Across the Curriculum

PLSC 446: Business and Government Relations

3 Credits

An examination of the interaction between business and government across different types of political systems. PL SC 446 Business and Government Relations (3) This course examines the interaction between business and government across different types of political systems. Intellectual approaches from various disciplines will be used to understand different dimensions of business and government interactions. Models of interaction to be covered in the course include pluralism, corporatism, business as capital, business as firm models, sectoral models, network models, and clientalism. Particular attention will be given to the interactions of business and government during the policy process, from formation to implementation. Case studies from developed and developing countries, and examples of specific policy proposals will be utilized to help students analyze business interactions

with government, and political interactions with business. Specifically, students will analyze variation in the structure of business-government relations across countries' different political systems, economic systems, and development levels. Through this course, students will be able to construct an appropriate framework to evaluate the business and political implications of adopting different business-government models, and construct analytical frameworks to understand the policy implications of adopting different models for the same policy.

Prerequisite: PL SC001 ; PL SC003 ; or PL SC014

PLSC 447: Analysis of Public Opinion and Political Attitudes

3 Credits

This course engages students in the empirical study of public opinion. PL SC 447 Analysis of Public Opinion and Political Attitudes (3) The essence of democracy is popular sovereignty. The voice of the people must be freely expressed and send a clear message to elected officials. In turn, those officials must be responsive to citizens. This class focuses on the voice of the people with particular attention to several analytic questions: How do we measure public opinion? Do public opinion polls and other methods provide an accurate measure of public sentiment? How can we know if public opinion has changed? How can we utilize public opinion data to assess political polarization, civic competence, and levels of the public's trust in government? In this course, students will learn how to answer questions like these using the same data reported by the press, utilized by government officials, and examined by political scientists to assess the success of democracy in the United States and throughout the world. The course is organized around a series of contemporary policy topics (such as foreign policy, welfare or education) integrated with specific analytic techniques. By the end of the semester, students will be familiar with public opinion on many contemporary policy debates and they will learn a series of data analytic skills that can be applied to any topic. Students are required to have an understanding of introductory statistics (equivalent to the knowledge they would gain from PL SC 309 or STAT 200) prior to taking this course.

Prerequisite: PL SC001 and PL SC309

PLSC 449: Psychology of Terrorism

3 Credits

This course examines the fundamental attributes of terrorist psychology, including the motivations, strategies and behaviors of terrorists; the efforts to counter them; and the psychological impact of terrorism on the public. The course operates from a multidisciplinary perspective to consider a variety of topics, including: terrorist ideologies; how people come to join terrorist groups; the making and characteristics of a terrorist; recruitment methods; the leadership of terrorist groups; terrorism tactics, including the use of media and technology; the psychological consequences of terrorism on individuals, communities and global societies; psychological counterterrorism; blowback from counterterrorism; prevention tactics; and disengagement from terrorism. Prior course work in Psychology is not required. This course does not count toward the requirements of the Psychology major or minor.

Prerequisite: PLSC 14

PLSC 450H: Genocide and Tyranny

3 Credits

This course focuses on the conceptualization and socio-political determinants of genocide and tyrannical regimes, with an emphasis on the Holocaust.

Prerequisite: PL SC003 , PL SC007 or PL SC014 or HIST 121

Cross-listed with: JST 450H

Honors

PLSC 451: The Politics of Human Rights

3 Credits

This course examines the politics of human rights and repression, focusing on the causes and consequences of state sponsored violence and human rights violations.

Prerequisite: PL SC001 , PL SC003 , or PL SC014

Bachelor of Arts: Social and Behavioral Sciences

PLSC 452: Government and Politics of Central Europe

3 Credits

Politics and society in the Communist Era, the revolutions of 1989, and problems of adjustment to democracy and market.

Prerequisite: PL SC003 , PL SC020 , PL SC022 , or PL SC155

Bachelor of Arts: Social and Behavioral Sciences

PLSC 453: Political Processes in Underdeveloped Systems

3 Credits

Comparative analysis of the political, social, and economic problems characteristic of underdeveloped systems.

Prerequisite: PL SC003 , PL SC020 , or PL SC022

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

PLSC 454: Government and Politics of Africa

3 Credits

Contemporary African politics, institutions, and ideologies; patterns of change, social forces, and nation building in selected African states. PLSC 454 / AFR 454 Government and Politics of Africa (3) (IL)(BA)
This course meets the Bachelor of Arts degree requirements. In this course, we will discuss the current democratization trend in Africa by focusing on the experiences of African countries. The course is divided into three sections. Part One considers a range of factors that affect politics in Africa. We will discuss in depth the following factors: colonialism, nationalism, the relationship between state and society, ruler-ship, the military, political parties, and economic development. Then, we will consider the experiences of our four cases, to gain a historical background. In part two, we will focus on democratic transitions. We will discuss the factors that enable transitions to occur, as well as the process that transitions follow. Then, we will consider four transitions: two that resulted in the installation of a democratic government (Nigeria in 1979, Sudan in 1986) and two that ended in continued authoritarianism (Angola in 1992, Kenya in 1978). Part three considers the prospects of democracy. We will discuss the probability of a democratic transition occurring in the near future. The goals of this class are four fold. First,

students will gain detailed knowledge about four African countries. Second, we will learn how to compare countries. Third, students will have a better understanding of the democratization process in general, and will be able to explain or predict democratization beyond the four cases discussed in this class. Finally, the experiences of these four countries offer a deeper understanding of what democracy is and provide students with greater flexibility to fulfill requirements in either the African and African American Studies major or the Political Science/International Politics major. PLSC 454 / AFR 454 will be offered once per year with 35-50 seats per offering.

Prerequisite: 3 credits from: AFR 110 , PL SC003 , PL SC020 , or PL SC022

Cross-listed with: AFR 454

Bachelor of Arts: World Cultures

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

PLSC 455: Governments and Politics of Western Europe

3 Credits

Comparative analysis of political and governmental structures of major West European nations; main functions and processes of such structures.

Prerequisite: PL SC003 or PL SC020

Bachelor of Arts: Social and Behavioral Sciences

PLSC 456: Politics and Institutions of Latin-American Nations

3 Credits

Social forces and processes, governmental institutions, foreign policies of major states of Latin America.

Prerequisite: HIST 179 , PL SC003 , PL SC020 , or PL SC022

Bachelor of Arts: Social and Behavioral Sciences

PLSC 458: Government and Politics of East Asia

3 Credits/Maximum of 3

This course examines the political systems, institutions, and leadership of East Asian countries. This course examines the political systems, institutions, and leadership of East Asian countries. Students will learn about the nature and extent of political change that has occurred across East Asia, with particular attention to the history of the region, and the regime changes that have occurred in East Asian countries. Students also will compare the political development and experiences of different countries in the region, and consider how their development and experiences compare to countries beyond East Asia. Upon completion of the course, students will have knowledge of the government and politics of East Asian regimes, and the region's role in global politics.

Prerequisite: 3 credits from PL SC003 , PL SC020 , PL SC022

Bachelor of Arts: World Cultures

Bachelor of Arts: Social and Behavioral Sciences

PLSC 459: Culture and World Politics

3 Credits

Role of culture in world politics.

Prerequisite: PL SC014

Cross-listed with: AFR 459

Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)

PLSC 460: Science, Technology, and Public Policy

3 Credits

The all-pervasive importance of science and technology policy in modern societies and mechanisms and processes by which it is made.

Prerequisite: 3 credits in natural sciences or engineering, 3 credits in social and behavioral sciences

Cross-listed with: STS 460

Bachelor of Arts: Social and Behavioral Sciences

PLSC 461: Politics of the European Union

3 Credits

This course introduces students to the history, institutions and politics of the European Union. PL SC 461 Politics of the European Union (3) (IL) This course introduces students to the history, institutions and politics of the European Union. We will survey the central theories of political and economic integration, and compare them to how European integration has unfolded. We will analyze the EU's institutions and political processes, and review major EU policy areas.

Prerequisite: PL SC003 or PL SC020
International Cultures (IL)

PLSC 462: Marxist and Socialist Political Theory

3 Credits

Analysis of major problems and key works in the Marxist and Socialist tradition; dialectical materialism, alienation, class warfare, etc.

Prerequisite: PL SC017 , PL SC007 , PL SC413 , or PL SC452
Bachelor of Arts: Social and Behavioral Sciences

PLSC 464: Extractive Industries in Africa

3 Credits

Socioeconomic and environmental impacts of extractive industries in Africa.

Prerequisite: AFR 110 or at least one of the following: PL SC003 or PL SC014 or PL SC022

Cross-listed with: AFR 464
International Cultures (IL)

PLSC 465Y: Democratization in Asia

3 Credits

A course which identifies components of democracy, such as definitions, measures, datasets, and the democratization process. PL SC (ASIA) 465Y Democratization in Asia (3) (IL) This class is an upper-level seminar on democratization in Asia. How do countries move from having an authoritarian regime to a democratic government? Why are some democratic governments stable while others are not? In this class, we will focus on democratization theory and how it applies to countries in Asia. This course is organized into two parts. In the first part of the course, we will discuss democracy and democratization theory. We will cover such components as: definitions, measures, datasets, and the different stages of the democratization process. In the second part

of the course, we will apply these concepts and measures to specific Asian countries. Course topics will be explored through readings from textbooks, articles, datasets, and media sources. By the end of the course, students will have a deep knowledge about a wide range of Asian countries. Students will develop the skills to compare countries, will understand the democratization process within Asia, and will be able to generalize from their knowledge to evaluate democratization events around the world. Finally, students will gain a deeper understanding of what is democracy and how easy or difficult it is to install and maintain. This course fulfills the distribution requirement for comparative politics, as well as the advanced and related course requirements for Political Science majors. In addition, the course fulfills the supporting course requirement for International Politics majors and the related areas requirement for Asian Studies majors. Finally, the course fulfills the requirements for writing across the curriculum and other cultures.

Cross-listed with: ASIA 465Y

International Cultures (IL)

Writing Across the Curriculum

PLSC 466: Political Psychology

3 Credits

An interdisciplinary investigation of the major topics and debates characterizing the subfield of political psychology. PL SC 466 Political Psychology (3) This course offers an interdisciplinary investigation of the major topics and debates characterizing the subfield of political psychology. It draws on research being done in a variety of disciplines and disciplinary subfields including social, developmental and clinical psychology; the cognitive neurosciences; biological anthropology; genetics; evolution; and behavioral economics to examine political behavior. Specifically, the course will examine the thinking and actions of both political elites and the mass public, and consider the reasoning processes they employ in order to make sense of the political world. Topics to be covered include how emotions (e.g., fear, lust) shape human reasoning; how preferences develop; how differences in cognition, emotion and personality inform political judgment and shape political leadership; how prejudices develop and affect war and other conflicts; how political and social identities develop and how they affect individuals' political judgments and decisions; how neurobiological influences operate in conjunction with social and cultural factors to affect how individuals process information; and how genetics and hormones affect individuals political development and behavior. Through these and other topics covered in the course, students will develop an understanding of how political elites and ordinary citizens process information, develop preferences and make decisions, and why, as a consequence, they act as they do. This course fulfills the distribution requirement for American politics and comparative politics, as well as the advanced and related course requirements for Political Science majors. The course also fulfills the supporting course requirement for International Politics majors.

Prerequisite: PL SC001 , PL SC003 , PL SC014 , or PSYCH100
Bachelor of Arts: Social and Behavioral Sciences

PLSC 467: International Relations of the Middle East

3 Credits

The international relations of the Middle East, stressing national security policies of regional and outside actors, and major contemporary conflicts.

Prerequisite: PL SC014 or HIST 181

Bachelor of Arts: Social and Behavioral Sciences

PLSC 468: Politics and the Media

3 Credits

An examination of how politics and public policy affect and are shaped by the news media, as a political institution, in America.

Prerequisite: PL SC001 , PL SC003 , PL SC022 , PL SC409 , CAS 409 , CAS 175 , CAS 201 , CAS 272 , COMM 100 or COMM 110

Bachelor of Arts: World Cultures

Bachelor of Arts: Social and Behavioral Sciences

PLSC 469: Government and Politics of South Asia

3 Credits

This course offers an overview of the politics of modern South Asia with specific focus on Afghanistan, India and Pakistan. ASIA (PL SC) 469 Government and Politics of South Asia (3) (IL) This course provides an overview of the politics of modern South Asia with particular attention to the experiences of Afghanistan, India and Pakistan. It examines theories of political and economic development and ethnic politics, the impact of the British colonial experience on South Asia, the rise of nationalism, and the emergence of independent nation states in the region. Three important themes are explored throughout the course: (1) the state of economic development in the three countries; (2) the relationship between identity politics and violence; and (3) the international relations of these countries, with particular attention to terrorism and nuclear policy. Course topics will be explored through readings from textbooks and assigned articles, articles from current news sources and, documentary films from the three countries. By the end of the course, students will have knowledge of the politics of Afghanistan, India and Pakistan and the political factors that have shaped their development over the past century. Students will acquire the tools necessary to evaluate critically the impact of war, the legacy of colonialism, and the challenge in building durable democratic institutions. This course fulfills the distribution requirement for comparative politics, as well as the advanced and related course requirements for Political Science majors. The course also fulfills the supporting course requirement for International Politics majors and the related areas requirement for Asian Studies majors.

Prerequisite: PL SC003 , PL SC014 , PL SC022 or ASIA 100

Cross-listed with: ASIA 469

International Cultures (IL)

PLSC 471: American Constitutional Law

3 Credits

The origins of judicial review, landmark decisions of the Supreme Court, and their impact on the American form of government.

Prerequisite: PL SC001

Bachelor of Arts: Social and Behavioral Sciences

PLSC 471H: American Constitutional Law

3 Credits

The origins of judicial review, landmark decisions of the Supreme Court, and their impact on the American form of government.

Bachelor of Arts: Social and Behavioral Sciences

PLSC 472: The American Legal Process

3 Credits

Analysis of the roles, procedures, and policies characterizing the American legal system.

Prerequisite: PL SC001

Bachelor of Arts: Social and Behavioral Sciences

PLSC 473: American Judicial Behavior

3 Credits

Analyzes behavior of judges and other participants in the legal process; examines how and why courts function as policymaking bodies.

Prerequisite: PL SC001

Bachelor of Arts: Social and Behavioral Sciences

PLSC 474: Civil Liberties and Due Process

3 Credits

Fundamental problems relating to civil liberties and due process.

Prerequisite: PL SC001

Bachelor of Arts: Social and Behavioral Sciences

PLSC 476: Empirical Legal Studies

3 Credits

This course engages students in the empirical study of law and the courts. PL SC 476 Empirical Legal Studies (3) The tools of social science affect both how scholars understand the workings of the judicial system and how lawyers practice law. This course engages students in the empirical study of law and the courts. It provides them with the substantive knowledge, and statistical and analytic skills they need to understand both (1) how social scientists use empirical evidence to make inferences about laws, judges, and legal institutions and (2) how statistical methods are used in legal practice. Through the course, students will undertake statistical analyses and learn how to present these analyses to nontechnical audiences, such as jurors, employers, and the general public. The course begins with an overview of the social scientific study of law and the courts, and then investigates a series of topics, including how social science and empirical evidence are used to make legal claims and establish legal standards, to provide a context for judicial decisions, and to litigate cases.

Prerequisite: PL SC001 , and PL SC309

PLSC 477: Sex, Race, & Justice: The U.S. Supreme Court and Equality

3 Credits

The American judicial system has played an active role in policing the rights of disadvantaged groups in American history. In this course, we will draw upon political science and legal approaches to examine the judiciary's approach to ensuring equality through an examination of cases involving same-sex rights, affirmative action, and voting rights. We will explore difficult questions such as: How does the Court define equality? Are justices' decisions driven by law, ideology, or both? Is the current Supreme Court particularly activist? Readings include court

cases, newspaper articles, and essays from political science and law journals.

Prerequisite: PLSC 1
United States Cultures (US)

PLSC 478: China and the World

3 Credits

This course examines China's economic reform and development and its engagement with the world since 1978. It pays close attention to the interplay of politics and economics. The course first examines the initiation and process of China's economic reform. This part of course covers topics including state-owned enterprise reform, township and village enterprises, fiscal decentralization, and tax reform. Then the course explores China's interactions with the world, paying special attention to trade, foreign investment, and development aid. Finally, the course addresses the issues and challenges that China faces for sustainable development, including corruption, income inequality, and environmental deterioration. The goal of this course is to give students a comprehensive view of the political economy of contemporary China and its relationship with the world and to develop students' understanding of economic reform and development in the developing world.

Prerequisite: PLSC 3 or PLSC 14 or ASIA 100Z
Cross-listed with: ASIA 478, GLIS 478
International Cultures (IL)

PLSC 479: Nuclear Weapons in International Relations

3 Credits

This course introduces students to the role of nuclear weapons in international relations. It covers the origins of nuclear weapons; the reasons for nuclear proliferation; nuclear deterrence; nuclear strategy; the consequences of nuclear weapons for global stability and security; and counterproliferation and disarmament efforts. In addressing these issues, we will study a variety of countries that have pursued or attained nuclear weapons. The objective of the course is to give students a comprehensive understanding of how nuclear weapons have affected international relations since their development and to enable students to analyze current debates about nuclear issues in a critical and informed way.

Prerequisite: PLSC 14
Bachelor of Arts: Social and Behavioral Sciences

PLSC 480W: Congress and the Presidency

3 Credits

Basic characteristics and processes of the national legislature and executive; roles and interaction of these institutions in the policy process.

Prerequisite: PL SC001
Bachelor of Arts: Social and Behavioral Sciences
Writing Across the Curriculum

PLSC 481: Global Political Economy

3 Credits

This course examines states, markets, power, production, and the relations between the various transnational agents who act in these areas. Students may not receive credit for PL SC 481 and PL SC 412.

PL SC 481 Global Political Economy (3) Changes in the international system in the 1970s led to increased interest on the part of students of international relations in the political economic processes underlying change. Important debates among scholars in both mainstream theoretical traditions and in critical theory gave rise to International Political Economy as an increasingly visible sub-field in International Relations. This seminar tracks the historical relations between the development of capitalism as an economic system and the emergence and transformation of global politics, using concepts developed in the study of political economy. Seminar discussion, examinations, and a short research paper will be used to evaluate students' learning.

Prerequisite: PL SC014 or INTST100
Bachelor of Arts: Social and Behavioral Sciences

PLSC 482: American State and Urban Politics

3 Credits

Explores basic characteristics and processes of American state and urban politics; nature of intergovernmental relations involving these governmental levels.

Prerequisite: PL SC001
Bachelor of Arts: Social and Behavioral Sciences

PLSC 483: Seminar in National Security Policy

3 Credits

This course provides a comprehensive overview of the process of U.S. national security policy - the principles, practices, and participants in the development and implementation of security strategy and policy. It applies theories and models to the bureaucratic policy making structure of the Executive Branch, looks at the roles of other governmental participants, and evaluates the many factors that constrain decision making. It assesses the impact of non-governmental entities such as the media, interest groups, and public opinion, and considers the effect of changing domestic factors on the process. Finally, it prepares students to be knowledgeable and effective participants in the process and presents them with a practitioner's framework for policymaking. The main themes of this course are that the U.S. Constitution established a federal government of separate institutions sharing powers within an intentionally inefficient system of checks and balances that has evolved by virtue of a dynamic process of Constitutional Amendments, legislative statutes, judicial decisions, and executive actions; and, that national security decisions are best understood by considering the bureaucratic context in which they are made within the Executive Branch, and as a result of the interaction of other governmental and non-governmental participants.

Prerequisite: seventh-semester standing
Cross-listed with: HLS 483, PUBPL 483

PLSC 484W: The Foreign Policy of Soviet Successor States

3 Credits

Relations between Russia and The Newly Independent States (NIS); Russia's relations with selected foreign states and political Institutions; regional impact of the NIS in Baltic, Asian, and Central Asian areas.

Prerequisite: PL SC003
Bachelor of Arts: Social and Behavioral Sciences
Writing Across the Curriculum

PLSC 485: International Migration

3 Credits

International migration relates to the mobility of humans across international borders for protection, settlement, and/or labor. Over the late 20th century, international migration (both viewed as immigration and emigration) has become a salient issue of national politics across most countries in the world, and different regional and global forums of governance. This course sets to contextualize the political discussion of migration by systematically analyzing the history, theories, and categories of migration. It presents a survey of the many subtopics discussed by the interdisciplinary migration literature that directly relates to broader political issues, including issues of development, immigration, and border control politics, citizenship and integration, the Migration state, migrants' agency, environmental and climate change-induced migration, etc. While covering important aspects of immigration in the United States, and more broadly in the West, it also intentionally looks at migration in the global South, where most migration and displacement occurs. This course also addresses directly ethical and methodological issues related to the study and representation of migration.

Prerequisites: PLSC 14 or PLSC 3

PLSC 486: International Culture in East Asia

3 Credits

Study of the role of culture in East Asian regional and East-West international relations. ASIA 400 (PL SC 486/HIST 489) International Culture in East Asia (3) (IL)(BA) This course meets the Bachelor of Arts degree requirements. This course will examine the place of culture in international history through a comparative look at the role of cultural circulation and exchange in relations among China, Korea, and Japan (and between East Asia and the West) from the propagation of Buddhism in the first century A.D. to present-day circulation of popular music, movies, and comics. We will explore the international politics of culture and the politics of international culture, considering questions of what constitutes culture, whether it is ever entirely separate from politics, and how that separation has evolved over time. These larger themes of the course will be tackled by following the historical movement of concrete objects and people throughout the region. This is a course in international history, but it also seeks to explore aspects of international relations. The goals of the class are not only to gain an understanding of the uses and impact of culture in international relations, but also to develop the skill of building such an understanding through primary and secondary sources, both written and visual. Students in this class will think critically about assigned texts to develop their own interpretations of their meanings. Through readings, discussions, presentations, and the final project, students will enhance their ability to think critically and to express their ideas clearly in both speech and writing. Class work includes some lecture but emphasizes guided discussions, group work, writing exercises, and some student presentations. This participatory approach is intended to deepen students' appreciation of the assigned readings, to help them understand value systems that may differ from those predominant in western cultures, and to assist students in developing both analytic and expressive abilities.

Prerequisite: ASIA 100; ASIA 101; ASIA 102; ASIA 103; ASIA 104; ASIA 172; ASIA 174; ASIA 175; ASIA 197; JAPNS 120; JAPNS 121; CHNS 120; CHNS 121; KOR 120; KOR 121
Cross-listed with: ASIA 400
Bachelor of Arts: World Cultures

International Cultures (IL)

PLSC 487: International Law and Organizations

3 Credits

Major topics and issues of international law with special attention to institutional arrangements (international organizations) through which that law operates. PL SC 487 International Law and Organizations (3) The course is useful in two distinct ways. First, it aids in the understanding of how countries conduct their relations with one another. Second, studying international law-it is a distinct system of law-- helps students to assess whether they might be suited for law school. The course introduces international law and international governmental organizations (the two are closely linked) and their role in the management of peaceful relations among countries as well as during international conflict. Both the contributions and limitations of international law will be analyzed. International law is viewed both as a body of norms countries feel an obligation to follow and as a means of communication among countries. Major topics covered include sources of international law, human rights law, environmental law, economic law, law of the sea, and the use of force. There are several hundred major intergovernmental organizations. Several of the most prominent will be discussed including the UN, the WTO, the European Union, the International Labor Organization, and the International Court of Justice. Examinations are principally of the essay variety although a command of factual information is essential to success in the course. Students also prepare critiques of important international legal cases (many of which have been decided by national courts) and of treaties (the principal modern manifestation of international law).

Prerequisite: PL SC003 or PL SC014

Bachelor of Arts: Social and Behavioral Sciences

PLSC 488: Comparative Public Policy

3 Credits

Comparative methodology and public policy implementation in postindustrial societies; selected case studies of policy output. PL SC 488 Comparative Public Policy (3) Comparative Public Policy is an upper level political science course that includes components of comparative politics, public administration, and descriptive economics. The course presumes that developed industrial democracies confront common challenges in meeting human needs and that policy comparison is worthwhile despite distinctive societies and political cultures. For example, government involvement in the provision of health care varies widely from Britain's National Health Service to the largely private approach of the United States. Nevertheless all health care systems confront rising technology costs, an ageing population, and rising performance expectations. A primary purpose of the course is to consider the origin and development of individual country programs while assessing the common challenges. Cross national comparison becomes relevant to the course by including some available data on costs, implementation and outcomes. Because the course includes about six distinct areas, e.g., education, taxation, urban planning income support, and overall macroeconomic policy, the course will depict profiles of policymaking in Europe, North America and Japan. Ideally comparison should help students to evaluate the effectiveness of policy choices of a particular country and government. A second objective of the course will be to examine the national approaches to the relationship between the state and private economic activity. Not only does government expenditure amount to nearly half of some country's total output, government choices create distinctive legal environments for business

activity. Antitrust, health, wage, and consumer regulation offer an excellent point of comparing different incentives for economic activity in the United States and Europe. Apart from policy choices mentioned in the first paragraph, the regulation of economic activity has cumulative results for employment and the distribution of income. This portion of the course is intended to be somewhat more elementary than the first because of the probability that students will be less familiar with its content. The primary objective will be to help students understand the variations among market economies and reasons for their description as "neoliberal," "social market," or "corporatist." Finally, the course will examine some current ideas about recent changes in the global economy and their consequences for national policy. Clearly "globalization" has become a matter of political concern owing to its consequences for the creation of wealth, employment, growth and distribution. While the course cannot devote detailed or exclusive to the European Union, Europe's response to rapid movements in short term capital and investment presents an interesting point of comparison with the United States and Japan. The course should enable students to understand the meaning and criticism of "globalization" as a factor in shaping some national policies.

Prerequisite: PL SC003

Bachelor of Arts: Social and Behavioral Sciences

PLSC 489: Public Administration

3 Credits

A survey of the major approaches to the management of most governmental agencies. PL SC 489 Public Administration (3) Government Management is a three-credit Political Science course that teaches the role and function of bureaucracy. Although some investigation is made about state and local government functions, the primary focus of the course is on the federal bureaucracy. In particular, the course illustrates how the interrelationship between the three branches of government exists using the various federal agencies as functionaries. The course first examines the basic functions of bureaucratic agencies in the modern world; primarily their distributive, re-distributive and regulatory activities. In addition to these functions, the various external and internal political forces that form the mission of the agencies are examined. Next the internal function of a bureaucracy is examined by highlighting the various roles of the people who comprise a typical large agency. The roles of the political appointee, the career professional, the general civil servant and the union laborer are examined, with the GS system of the federal government used as a guide to show the hierarchy that exists in a large agency. By highlighting both the functions of a typical agency and examining its role in the larger government structure, and by looking inside the bureaucracy to see the various short and long term roles of the people who comprise those agencies, the student appreciates how large bureaucracies are at the same time always changing, and always staying the same.

Prerequisite: PL SC001

Bachelor of Arts: Social and Behavioral Sciences

PLSC 490: Policy Making and Evaluation

3 Credits

Advanced analysis of public policy, emphasizing policy evaluation and the factors that determine policy success and failure.

Prerequisite: PL SC001 , PL SC002 , or PUBPL304W

Bachelor of Arts: Social and Behavioral Sciences

PLSC 491: Peace and Conflict Studies Seminar

3 Credits

Advanced study of major contemporary issues of peace and conflict; includes anthropological, technological, psychological, and economic perspectives.

Prerequisite: PL SC014 , PL SC091

Bachelor of Arts: Social and Behavioral Sciences

PLSC 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Social and Behavioral Sciences

PLSC 494H: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Social and Behavioral Sciences

Honors

PLSC 495: Political Science Internship

1-6 Credits/Maximum of 6

Combining experience in government offices, related agencies, or law firms, with appropriate readings and a research paper/report.

Prerequisite: prior consent of supervisor, adviser, or department head; applicable departmental internship requirements such as satisfactory completion of required 300- or 400-level courses appropriate for the internship program selected

Bachelor of Arts: Social and Behavioral Sciences

PLSC 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Bachelor of Arts: Social and Behavioral Sciences

PLSC 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Social and Behavioral Sciences

PLSC 498: Special Topics

1-9 Credits/Maximum of 9

Formal courses offered infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

PLSC 499: Foreign Study--Government

1-12 Credits/Maximum of 12

Study, in selected foreign countries, of political institutions.

Prerequisite: PL SC003 , 3 credits in economics, history, political science, or sociology

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

Polymer Engineering Science (PES)

PES 213: Polymer Chemistry Lab

2 Credits

This lab is designed to provide a practical and theoretical understanding of polymer synthesis and the analysis of those polymers. Students will prepare different classes of polymers learning techniques of addition and condensation reactions. These will include solution and melt polymerization processes. Syntheses will provide direct exposure to concepts such as reaction initiation, propagation and termination as well as reaction kinetics. The effects of time, temperature, pressure, catalysts, stoichiometric ratio and agitation rates will be studied to understand the different polymerization processes. Students will learn polymer analyses and techniques -thermal (Differential Scanning Calorimetry, Thermal Gravimetric Analysis), molecular weight, viscosity/rheology tests, Fourier Transformation Infrared spectroscopy- to understand both the process and the polymers prepared.

Enforced Prerequisite at Enrollment: CHEM 210 Enforced Corequisite at Enrollment: MATSE 202

PES 305: Fluids/Heat Transfer

3 Credits

This course covers fluid mechanics and heat transfer topics that the Plastic Engineering Science students are most likely to need in their professional lives. Students can gain a basic understanding of energy and energy interactions, various mechanisms of heat transfer, and fundamentals of fluid flow. The course was designed to present the basic principles of fluid mechanics and heat transfer as well as illustrate numerous and diverse real-world engineering examples to give students a feel for how thermal-fluid sciences are applied in engineering practice. The course was also designed to develop an intuitive understanding of thermal-fluid sciences by emphasizing the physics and physical arguments. Such a course can also instill in students the confidence and the background to do further reading of their own and to be able to communicate effectively with specialists in thermal-fluid sciences.

Enforced Prerequisite at Enrollment: MATSE 445

PES 320: Polymer Sustainability

3 Credits

This course will address the problem of environmentally-persistent plastic pollution. The environmental science of plastic pollution, including quantification techniques, consequences for specific ecosystems, and the incorporation of microplastics in the environment will be taught. Commercial and new biobased and biodegradable polymers will be taught, with a focus on the environmental requirements for total degradation, and the potential impacts of degradation products. Finally,

life cycle analysis and the concept of designing plastic materials and components for a circular economy will be introduced through case-study analysis.

Enforced Corequisite at Enrollment: PES 340

PES 323: Rheology Lab

2 Credits

This lab is designed to provide a practical and theoretical understanding of the rheological behaviors of thermoplastic polymers, curing kinetics of chemical and physical crosslink polymers, as well as the crystallization kinetics of semi-crystalline polymers. Evaluation and characterization of phase separation in binary miscible polymer blends and order-disorder transition in block copolymer will be studied rheologically for different blends and block copolymers, respectively. In addition, the students will learn the practical and fundamental aspects of rheology in the linear and non-linear viscoelastic regimes under wide range of temperature, shear rate, and strain amplitude. Student will be trained to operate, calibrate and maintain a number of rheometers, such as rotational rheometer and capillary rheometer. Selection of the right geometry (e.g. parallel plate, cone-plate, concentric cylinders, rectangular torsion, three-point bending, etc.) for specific rheological measurements is very crucial and will have significant effect on the accuracy of the data. The selection of geometry is also related to the different states of the material (e.g. solid, liquid, and gel). The advantages and disadvantages or limitation of each geometry will be studied. Analysis and theoretical fitting to the experimental data will be an essential part of this lab course. Several rheological principles and models will be studied in this course, such as WLF or Time-Temperature Superposition Principle, Cox-Merz Rule, classical theories of Maxwell, Rouse, and Doi-Edwards as well as Cross, Carreau-Yasuda, and Palierne models.

Enforced Prerequisite at Enrollment: MATSE 445 Enforced Concurrent at Enrollment: MATSE 447

PES 340: Polymer Characterization

2 Credits

The standard techniques used to investigate and identify polymer systems will be discussed in detail. The fundamental theory that drive each technique will be taught, including Bragg's law and the use of Fourier transforms in data analysis. Lectures and demonstrations using molecular level characterization methods will teach the students the state of the art in determining molecular weight and molecular weight distributions, defining end groups, and assessing additives in a polymer formulation. Microstructural level analysis instruction will enable the students to select the proper technique to assess polymer microstructural features such as crystalline content and phase identification, local (micro, nano) properties such as hardness, the distribution of nanoparticles in a composite material, and the hierarchy of structure that can develop in complex polymer blend systems such as phase separation and interphase development. Thermal analysis techniques will emphasize the relationships between heating/cooling rates to final morphology formed during processing as well as more traditional aspects such as identifying the glass transition and melting enthalpy of polymers. X-Ray techniques will be introduced as a means to explore the micro, nanostructure, and orientation of semicrystalline polymers.

Enforced Prerequisite at Enrollment: PES 213 Enforced Corequisite at Enrollment: PES 341

PES 341: Polymer Characterization Lab

1 Credits

This lab will parallel the content taught in PES 340, Materials Characterization. Focus on sample preparation, variables in characterization techniques, and results interpretation will be emphasized. Both neat (unfilled) polymers and polymer composites will be used to teach several important polymer characterization techniques. Molecular/atomic characterization techniques will include nuclear magnetic resonance, chromatography, and Fourier transform infrared and mass spectroscopy. Microstructural characterization techniques include visible and polarized light microscopy for the characterization of semicrystalline microstructure and composite dispersion, environmental scanning electron microscopy, thermal analysis including differential scanning and fast scanning calorimetry, thermogravimetric analysis and dynamic mechanical analysis. Data interpretation from X-Ray diffraction techniques will also be completed.

Enforced Prerequisite at Enrollment: PES 213 Enforced Corequisite at Enrollment: PES 340

PES 351: Polymer Processing Lab

1 Credits

This lab covers basic melt processing techniques including injection molding, extrusion, blow molding, thermoforming, compression molding and twin screw extrusion. The course will focus on the relationship between processing parameters and the quality of the polymer sample produced from all fabrication techniques. After fabricating samples (tensile bars, impact bars) mechanical properties and material degradation as a result of processing will be assessed. Twin screw compounding will be used to produce experimental polymer composite material that will then be injection molded, and the physical properties of these materials assessed and compared as a function of both material composition and compounding conditions.

Enforced Prerequisite at Enrollment: MATSE 202 Enforced Corequisite at Enrollment: MATSE 445 and PES 365

PES 365: Processing for Polymer Product Performance

3 Credits

This course is designed to complement the fundamental understanding of viscoelastic polymer behavior both in the melt and in the solid state, with an emphasis on properly considering these properties in quality plastic part design. The student will be introduced to plastic part design, plastic mold and die design, and polymer flow simulation as it relates to injection molding. Part design will emphasize the importance of designing to accommodate the ultimate manufacturing technique; concepts such as gating location and part draft will be introduced. Mold design will be introduced in order that students will understand the importance of proper cooling line placement, runner design, and realistic gating location and melt delivery options. Flow simulation is introduced as a tool to anticipate the influence of the molding process on the final part properties, including dimensional stability. Solid part models will be considered in both flow analysis and subsequent finite element analysis for the prediction of mechanical properties, which are ultimately a product of part design, processing conditions, and material properties. Finally, the course will introduce the students to the influence

of part geometry and processing conditions on final part properties by conducting a series of labs where the students test and compare the mechanical properties of a complex molded sample (such as a bearing cage or a drill housing) to a standard test specimen, highlighting the deviation from "data sheet" properties that results from processing and geometric effects.

Enforced Prerequisite at Enrollment: PES 213

PES 440: Failure Analysis and Characterization

3 Credits

This course will teach a responsible, thorough approach to failure analysis of polymer materials and products. In polymer product failure, the root cause analysis requires the engineer to consider material science (composition and degradation), mechanical design and loading, processing history, and user interaction with the product. This requires a disciplined and interdisciplinary approach to problem solving. In this course, techniques such as microscopy, FTIR, and mechanical testing will be used strategically to develop data-driven approach to failure analysis. Real case studies will be used (obtained from the literature or industry) to augment theoretical learning, and these case studies will be analyzed with regard to the quality of the investigative approach. Strong emphasis will be placed on teaching the importance of adopting proper accelerated aging theory.

Enforced Prerequisite at Enrollment: MATSE 447 and PES 365 Enforced Corequisite at Enrollment: PES 460

PES 441: Failure Analysis Lab

1 Credits

This course will cover the laboratory techniques required to carry out responsible, thorough approach to failure analysis of polymer materials and products. In polymer product failure, the root cause analysis requires the engineer to consider material science (composition and degradation), mechanical design and loading, processing history, and user interaction with the product. This requires a disciplined and interdisciplinary approach to problem solving. In this course, techniques such as microscopy, FTIR, and mechanical testing will be used strategically to develop data-driven approach to failure analysis. Real product failures, including recycled materials and degraded natural products, will be used to ensure the student develops relevant experience applying laboratory techniques to real-life failure analysis.

Enforced Corequisite at Enrollment: PES 440

PES 446W: Senior Project 1

1 Credits

Supervised student activities on research and/or design projects identified on an individual or small group basis. The combination of PES 446W, PES 447W and PES 448W fulfills the degree requirement for Writing Across the Curriculum as well as constituting the required Capstone Experience for students in Polymer Engineering and Science. Writing Across the Curriculum courses include writing assignments that relate clearly to the course objectives and serve as effective instruments for learning the subject matter of the course. In writing-intensive courses, assignments are designed to help students investigate the course subject matter, gain experience in interpreting data or the results of research, shape writing for a particular audience, or practice the type of writing associated with a given profession or discipline. Therefore,

in this course, and the two subsequent Senior Design Courses, each written assignment will be evaluated, and feedback will be provided to the student, either in written or verbal form. In all instances, students will provide draft copies of reporting assignments and will be given the opportunity to revise their work to incorporate revisions and receive additional points. This iterative process is designed to provide the student with continuous feedback on quality and effectiveness of written communication. In PES 446, students are required to complete a comprehensive review of published literature that pertains to their senior project. This activity will support the formulation and succinct statement of a project hypothesis that will then be justified and defended (Justification) in the project report. Based on these activities a project plan, represented by a Gantt Chart with anticipated milestones and deliverables will be developed. The draft literature review provided at the beginning of the course will be updated prior to the final presentation, to be delivered at the end of the semester. Report sections will be due in draft form on an approximately bi-weekly basis. Preliminary grading will be provided along with critique of written communication. Revised versions will be due for final grading approximately one week after faculty feedback.

Prerequisites: PES 365
Writing Across the Curriculum

PES 447W: Senior Project 2

1 Credits

Supervised student activities on research and/or design projects identified on an individual or small group basis. The combination of PES 446W, PES 447W and PES 448W fulfills the degree requirement for Writing Across the Curriculum. Writing Across the Curriculum courses include writing assignments that relate clearly to the course objectives and serve as effective instruments for learning the subject matter of the course. In writing-intensive courses, assignments are designed to help students investigate the course subject matter, gain experience in interpreting data or the results of research, shape writing for a particular audience, or practice the type of writing associated with a given profession or discipline. Therefore, in this course, and the two subsequent Senior Design Courses, each written assignment will be evaluated, and feedback will be provided to the student, either in written or verbal form. In all instances, students will provide draft copies of reporting assignments and will be given the opportunity to revise their work to incorporate revisions and receive additional points. This iterative process is designed to provide the student with continuous feedback on quality and effectiveness of written communication. In PES 447W, students are required to update a comprehensive literature review initiated in PES 446W pertaining to their senior project. The primary focus of this course will be on establishing and maintaining an effective program of research activity that makes consistent progress toward verification or invalidation of the project hypothesis. Students will be instructed on best practices of research writing, with an emphasis on development of appropriate representation of research data, contextualization of results and evolution and/or adaptation of the program of investigation based on developed experimental data. Preliminary grading will be provided along with critique of written communication. Cumulative findings will be submitted in an end of semester report. Report sections will be due in draft form on an approximately bi-weekly basis. Preliminary grading will be provided along with critique of written communication. Revised versions will be due for final grading approximately one week after faculty feedback.

Prerequisites: PES 365 PES 446W

Writing Across the Curriculum

PES 448W: Senior Project 3

1 Credits

Supervised student activities on research and/or design projects identified on an individual or small group basis. The combination of PES 446W, PES 447W and PES 448W fulfills the degree requirement for Writing Across the Curriculum. Writing Across the Curriculum courses include writing assignments that relate clearly to the course objectives and serve as effective instruments for learning the subject matter of the course. In writing-intensive courses, assignments are designed to help students investigate the course subject matter, gain experience in interpreting data or the results of research, shape writing for a particular audience, or practice the type of writing associated with a given profession or discipline. Therefore, in this course, and the two subsequent Senior Design Courses, each written assignment will be evaluated, and feedback will be provided to the student, either in written or verbal form. In all instances, students will provide draft copies of reporting assignments and will be given the opportunity to revise their work to incorporate revisions and receive additional points. This iterative process is designed to provide the student with continuous feedback on quality and effectiveness of written communication. In PES 448W, students are required to update a comprehensive literature pertaining to their project that was initiated in PES 446W and further expanded in PES 447W. The primary focus of this course will be on synthesizing the accumulated results from all three courses that constitute the senior design project and presenting data and findings in a comprehensive final report. Students will be instructed on best practices of drafting, editing and finalizing a project report, with clear statements of hypotheses, objectives, methods, analysis and conclusions. The ultimate goal is to provide the students an opportunity to produce a publication-worthy scholarly work. Cumulative findings will be submitted in an end of project report. Report sections will be due in draft form on an approximately bi-weekly basis. Preliminary grading will be provided along with critique of written communication. Revised versions will be due for final grading approximately one week after faculty feedback.

Prerequisites: PES 365 PES 447W
Writing Across the Curriculum

PES 460: Polymer Formulation for Processing and Design

3 Credits

This course is designed for senior-level PES students that are prepared to learn the inter-relationships between part design and specifications, processing constraints, and final material formulation requirements. This course requires the student to critically examine a commercial part of complex geometry intended for a challenging application environment, and then formulate a polymer system that can be used to produce an injection molded part that will meet specifications. The course is not limited to theoretical discussion; the students are expected to produce and test their material formulation, using twin screw extrusion, injection molding and a variety of testing capabilities available in the Penn State Plastics Laboratory. Real material properties will be assessed and applied to FEA analysis, and the simulated performance (tensile and compression strength) of the part will be compared to the actual molded properties as assessed in the lab. This lab requires faculty to select and work with an existing but retired industrial injection mold and geometry in order to provide students with a realistic level of complexity in their study.

Enforced Prerequisite at Enrollment: MATSE 447 and PES 365

Portuguese (PORT)

PORT 1: Elementary Portuguese I

4 Credits

For beginners. Grammar, with reading and writing of simple Portuguese; oral and aural work stressed.

Bachelor of Arts: World Language (All)

PORT 2: Elementary Portuguese II

4 Credits

Grammar, reading, and conversation continued; special emphasis on the language, literature, and life of Brazil.

Prerequisite: PORT 001

Bachelor of Arts: World Language (All)

PORT 3: Intermediate Portuguese

4 Credits

Grammar, reading, composition, and conversation.

Prerequisite: PORT 002

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

PORT 51: Elementary Intensive Portuguese for Graduate Students I

3 Credits

Intensive introduction to Portuguese: first half of graduate intensive sequence in elementary reading, writing, speaking, listening, cultural contexts. PORT 051 Elementary Intensive Portuguese for Graduate Students I (3) This is the first in a series of three courses designed to give students an intensive introduction to Portuguese. This is the first half of elementary sequence in reading, writing, speaking, listening, and cultural contexts. Students will learn the Portuguese vocabulary and will learn to create simple sentences. Lessons are taught in an authentic cultural context.

Prerequisite: graduate standing

PORT 52: Elementary Intensive Portuguese for Graduate Students II

3 Credits

Intensive introduction to Portuguese: second half of graduate intensive sequence in elementary reading, writing, speaking, listening, cultural contexts. PORT 052 Elementary Intensive Portuguese for Graduate Students II (3) This is the second in a series of three courses designed to give students an intensive introduction to Portuguese. This is the second half of graduate intensive sequence in elementary reading, writing, speaking, listening, and cultural contexts. Students will learn the Portuguese vocabulary. Lessons are taught in an authentic cultural context.

Prerequisite: PORT 051 and graduate standing

PORT 53: Intermediate Intensive Portuguese for Graduate Students

3 Credits

Continued intensive study of Portuguese at the intermediate level: reading, writing, speaking, listening, cultural contexts. PORT 053 Intermediate Intensive Portuguese for Graduate Students (3) This is the third in a series of three courses designed to give students an intermediate intensive knowledge of Portuguese. Continued intensive study of Portuguese at the intermediate level: reading, writing, speaking, listening, and cultural contexts. Lessons are taught in an authentic cultural context.

Prerequisite: PORT 052 or equivalent, and graduate standing

PORT 123: Portuguese for Romance-language Speakers

2-3 Credits

This course offers an introduction to Brazilian Portuguese for students who already have a good grasp of grammar and vocabulary in Spanish, French, Italian, or Latin. This course will cover the topics of the basic language sequence (PORT 1, 2, 3) in one semester to prepare you for advanced Portuguese courses, study abroad, or research. Our focus will be on acquiring linguistic fluency and developing speaking, listening, reading, and writing skills. Along the way we will also gain insight into aspects of Brazilian culture through our analysis of song lyrics, journalistic texts, and TV shows. Register for this course if: your parents or other family members speak Portuguese and you have some ability in the language but have never formally studied the grammar or writing; you grew up speaking Spanish or another Romance language; or you have taken Spanish, French, Italian, or Latin 3 or higher. This class counts for the 2nd foreign/world language and the 12th unit of foreign/world language. This course counts as 3 credits for undergraduate students and 2 credits for graduate students in the M.A. programs in Spanish literature and Spanish linguistics. Students are asked to register accordingly with the appropriate number of credits.

Recommended Preparation: Students should have a high level of proficiency in, or be native or heritage speakers of, a Romance language
Bachelor of Arts: World Language (All)
Bachelor of Arts: World Lang (12th Unit)
Exceeds 12th Unit of World Language

PORT 197: Special topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Bachelor of Arts: Humanities

PORT 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Humanities
International Cultures (IL)

PORT 200: Advanced Portuguese via the Arts

3 Credits

This course provides a more detailed study of the Portuguese language that builds upon the grammar, vocabulary, and communicative abilities developed in the basic language sequence. Students will review and extend their abilities in all four language skills (listening, speaking, reading, and writing) as they learn more about the linguistic and cultural diversity of the Portuguese-speaking world. The course uses a textbook paired with written, audio, and video workbook activities and supplemented by authentic language materials and artistic works that generate communicative exercises that allow students to practice and refine their spoken and written Portuguese. As students improve their understanding of the Portuguese language, they also gain insight into Luso-Afro-Brazilian cultures by analyzing music, films, videos, paintings, photos, essays, chronicles, news articles, short stories, and poems. Students learn about the distinct contexts in which Portuguese is spoken as they examine artistic works and linguistic variations that develop within specific countries and region. This class serves as a transition course between basic and intermediate language classes and more advanced composition, literature, and culture courses taught at the 300 and 400-level. The class is conducted entirely in Portuguese. Students must have taken Portuguese 3 or 123, or received permission of the instructor, in order to enroll in this course.

Prerequisites: PORT 3; PORT 123;
Bachelor of Arts: World Language (All)
Bachelor of Arts: World Lang (12th Unit)
Exceeds 12th Unit of World Language

PORT 210N: Multilingual and Intercultural Communication

3 Credits/Maximum of 6

SPAN 210N Multilingual and Intercultural Communication course will showcase the fundamental components of the intersection of language and culture through humanities and social science. The purpose of this course is to teach the underlying mechanisms of multilingualism through language science principles and develop an understanding of intercultural communication through humanistic approaches. The content of this course focuses on linguistic strategies for succeeding in multilingual environments (e.g. dialect variation, second language acquisition strategies) as well as intercultural communication practices for navigating new environments (e.g. understanding cultural norms, skills for global leadership). The course requires an introductory level understanding of language. Students will learn how language and culture inform each other through the examination of cultures within the United States and internationally, including non-Western cultures.

Prerequisites: SPAN 3 or SPAN 3H or SPAN 20 or IT 3 or IT 20 or PORT 3 or PORT 123
Cross-listed with: IT 210N, SPAN 210N
Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures
Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)
United States Cultures (US)
General Education: Humanities (GH)
General Education: Social and Behavioral Scien (GS)
General Education - Integrative: Interdomain
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

PORT 297: SPECIAL TOPICS

1-9 Credits

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

PORT 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Humanities
International Cultures (IL)

PORT 365: Imagining Brazilian Cities

3 Credits

This course traces the transformation of Brazilian cities, as represented in literature and the arts, from the modernization projects of the late 19th century through the exponential growth of urban areas in recent decades. Studying these urban transformations will provide students with insight into how contemporary Brazil developed into an urban nation with seventeen of its cities featuring populations of one million or more. This class focuses primarily on artistic representations of the global metropolises of Rio de Janeiro and São Paulo, the modernist capital of Brasília, and the northeastern city of Recife. Readings will highlight the diverse experiences and expressions of urban life in essays, poems, short stories, and avant-garde novels. Music, film, and photography will complement students' literary tour of an urban Brazil. Critical readings from urban studies, architecture, anthropology, history, and other interdisciplinary fields will allow us to further explore the question of the city in Brazil. This course will be conducted in Portuguese. Students must be able to complete the readings, informal and formal written assignments, and in-class discussion and activities in Portuguese.

Prerequisite: PORT 200 or PORT 405 Concurrent: PORT 405
Bachelor of Arts: World Language (All)
Bachelor of Arts: World Lang (12th Unit)
Bachelor of Arts: Humanities
Exceeds 12th Unit of World Language

PORT 397: SPECIAL TOPICS

1-9 Credits

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

PORT 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Humanities
International Cultures (IL)

PORT 405: Advanced Composition and Conversation

3 Credits

The course uses essays, news articles, short stories, music, films, and other cultural materials to review key grammatical concepts, to expand vocabulary, and to deepen understanding of the language. Through these activities, students will improve their ability to speak and to write about a variety of topics in Portuguese at an advanced level. Time is divided between the four language skills (writing, speaking, reading, listening) with a particular emphasis on conversation and composition. These skills are addressed every week throughout the semester with more complexity and nuance.

Prerequisite: PORT 3 or PORT 123

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

Bachelor of Arts: Humanities

Exceeds 12th Unit of World Language

PORT 473: Luso-Brazilian Cinema

3 Credits

This course studies social, political, economic, and cultural issues in the Portuguese-speaking world through the lens of film. This course meets the Bachelor of Arts degree attributes in Humanities and the International Cultures requirement. Through examinations of feature films and documentaries, the class explores how cinema approaches social, cultural, political, and economic realities in Brazil, Portugal, and Lusophone Africa. Students will learn about national histories, political struggles, social movements, and cultural practices of the Luso-Afro-Brazilian world as they gain the skills and appropriate vocabulary to analyze and discuss film. The course materials will invite students to consider how films examine legacies of imperialism, colonialism, and dictatorial regimes, as well as ongoing divisions and injustices on the basis of race, class, gender, and sexuality. Questions to be considered in this course include: How do filmmakers grapple with traumas of the past, questions of memory, and debates around truth and reconciliation? How do forms of fiction and documentary intersect, serve as complements, or contradict each other in film? How does film represent the convergences and divergences between different parts of the Portuguese-speaking world? What are the possibilities and limitations of studying these works in a comparative Lusophone framework? Readings on film, history, and Luso-Afro-Brazilian culture, and interviews with filmmakers will complement our studies of the films. The course will be conducted in English. No prior knowledge of Portuguese is necessary, as the films will have subtitles and required readings will all be in English. Students pursuing the Portuguese minor may receive credit for the minor if they complete all of their written assignments in Portuguese.

Prerequisite: Minimum 4th semester standing. Students counting this course toward their Portuguese minor must have taken or be concurrently enrolled in PORT 200 or PORT 405

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

PORT 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Humanities

PORT 494H: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Humanities

Honors

PORT 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Bachelor of Arts: Humanities

PORT 496A: **SPECIAL TOPICS**

3-4 Credits

Bachelor of Arts: Humanities

PORT 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Humanities

PORT 497N: Special Topics - Inter Domain

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest. This Special Topics is an Inter-Domain GenEd course

PSU First-Year Seminar (PSU)

PSU 1: First-Year Seminar Abington

1 Credits

Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.

First-Year Seminar

PSU 3: First-Year Seminar Altoona

1 Credits

Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.

First-Year Seminar

PSU 5: First-Year Seminar Berks

1 Credits

Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.

First-Year Seminar

PSU 6: First-Year Seminar Business

1-3 Credits

Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life. PSU 006 First Year Seminar in Business Administration (1-3 credits) This course is designed to assist students in examining several areas of the college transition: awareness of self and others; career exploration; majors offered in the Smeal College; and current issues in business. The skills learned in this course will be presented as life-long skills, applicable in the university setting and the corporate environment. The nature of the course requires cooperation, participation, and interaction. This course facilitates learning through experience, lectures and class discussion. The course contains assignments dealing with: 1). Leadership 2). Ethics 3). Celebrating Diversity 4). Diversity in the Workplace 5). Community Service 6). Major and Career Exploration 7). Time Management and Goal Setting 8). Business Case Study

First-Year Seminar

PSU 6T: First-Year Seminar Business

1-3 Credits

Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.

First-Year Seminar

Honors

PSU 7: First-Year Seminar Behrend

1 Credits

Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.

First-Year Seminar

PSU 8: First-Year Seminar University College

1-3 Credits

Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life. PSU 008 First-Year Seminar University College (1-3) From a practical perspective this course will provide an advanced introduction to university life at Penn State, highlighting the many resources available to help students succeed. Topics covered will include the challenges of balancing life and school, academic success strategies, dealing with financial aid, choosing a major, as well as understanding academic discourse and university policy and procedure. In addition, we will read and discuss some of the latest research on the experiences of

first year college students. We will think about the particular challenges first year students face, and consider what steps could be taken to address those challenges at the level of university and governmental policy. This is a student-led, discussion-oriented course where we talk about a range of issues in a small, informal setting, and our goal will be to create a collaborative environment in which everyone is comfortable participating. In addition to discussions, we will explore university resources and the pragmatic issues of college through lectures, guest speakers, and hands-on practice.

First-Year Seminar

PSU 8T: First-Year Seminar University College

1-3 Credits

Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life. PSU 008T First-Year Seminar University College (1-3) Proposed PSU 008 as variable 1-3 credit course is designed to introduce the entering college student to the academic side of college life for honors students, and to help prepare students to negotiate the academic environment from their standpoint. In addition, its purpose is for honor students to look beyond college life to wider communities, gear up skills to focus on Honors level students, societal issues, and toward a considered discernment of one's potential contribution in our complex global society. Accordingly, this course emphasizes academic proficiency; the mission and the values of Penn State University; the application of acquired knowledge; higher level thinking; and social awareness. This is a personal development course focusing on strategies of academic success and the development of related living skills, which go beyond the academic environment. From a practical perspective this course will provide a major focus on in-depth career exploration, also an advanced introduction to university life at Penn State, highlighting the many resources available to help honor students succeed. Topics covered will include the challenges of balancing life and school, academic success strategies, dealing with financial aid, choosing a major, as well as understanding academic discourse and university policy and procedure. Furthermore, we will read and discuss some of the latest research on the experiences of first year honors college students. We will think about the particular challenges first year honors students face, and consider what steps could be taken to address those challenges at the level of university and governmental policy. This is a student-led, discussion-oriented course where we talk about a range of issues in a small, informal setting, and our goal will be to create a collaborative environment in which everyone is comfortable participating. In addition to discussions, we will explore university resources and the pragmatic issues of college through lectures, guest speakers, and hands-on practices.

First-Year Seminar

Honors

PSU 9: First-Year Seminar Communications

1 Credits

Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.

First-Year Seminar

PSU 12: First-Year Seminar Engineering

1 Credits

Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.

First-Year Seminar

PSU 14: First-Year Seminar Health and Human Development

1 Credits

Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.

First-Year Seminar

PSU 15: First-Year Seminar Liberal Arts

1 Credits

Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.

First-Year Seminar

PSU 16: First-Year Seminar Science

1 Credits

Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life.

First-Year Seminar

PSU 17: First-Year Seminar College of Information Sciences and Technology

1 Credits

Facilitate student's adjustment to the high expectations, demanding workload, increased academic liberties, and other aspects of the transition to college life. PSU 017 First-Year Seminar College of Information Sciences and Technology (1) This course will help students be successful in the College of Information Sciences and Technology (IST) at Penn State University. It involves two elements: how to be a successful learner in general; and how to explore the academic challenges of the information sciences and related technologies. Through lectures, class discussions, assignments, and guest presentations students learn what it takes to be successful in college. Through a group project they learn what IST is about, the majors in the College, the learning formats that they will encounter, and what is expected of them as students and citizens in the College. More broadly, this course is centered on learning: learning about learning and learning about what it means to be a student in IST.

First-Year Seminar

PSU 18: PSU 18 First-Year Seminar Interdisciplinary and Exploratory

1 Credits

First year seminar for interdisciplinary and exploratory topics.

First-Year Seminar

PSU 97: Special Topics

1-3 Credits

Formal courses given infrequently to explore a topical of special interest in the context of transitioning to university life.

First-Year Seminar

Psychology (PSYCH)

PSYCH 83S: First-Year Seminar in Psychology

3 Credits

Implications of contemporary psychological research and theory. PSYCH 83S First-Year Seminar in Psychology (3) (GS;FYS) (BA) This course meets the Bachelor of Arts degree requirements. Modern science provides perspectives on human beings that may conflict with our intuitive and conventional views of ourselves as individuals capable of free choice and responsibility. These perspectives raise important questions for how we understand ourselves and others. The goal of this course is to help students to understand the basis of these contemporary scientific views of human beings, and to think critically about the ways in which these views shape human experience. The specific research and theories discussed will vary by section. Students will read selections from the scholarly literature in psychology, as well as popular or media selections related to the topic. The class format will be open discussion, and students will be expected to come to class prepared to discuss the assigned readings. Evaluation will be based on short writing assignments, exams, in-class presentations, and class participation. Writing assignments will generally require that students apply concepts discussed in class to particular topics, or that they use library and Web resources to find relevant material. In addition to the academic topic and issues of this course, students can expect to gain a general introduction to the University as an academic community and have the opportunity to explore their responsibilities as members of that community. Students will develop an understanding of the learning tools and resources available to them including the opportunity to develop relationships with faculty and other students who share their academic interests. This course fulfills the first-year seminar requirement as well as a general education or Bachelor of Arts social/behavioral science requirement.

Bachelor of Arts: Social and Behavioral Sciences

First-Year Seminar

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

PSYCH 97: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

PSYCH 100: Introductory Psychology

3 Credits

This course is required and foundational for students who are majoring or minoring in psychology and it is a prerequisite for other psychology courses. Psychology is a scholarly discipline, a scientific field, and a professional activity. Its overall focus is the scientific study of behavior and experience, and of associated mental and physiological processes. As a scholarly discipline, psychology represents a major field of study in academic settings, with an emphasis on theories and principles of behavior and experience. As a science, psychology is a domain of research in which investigators analytically and systematically study behavior and experience to develop theories and principles and to understand their application to real-world situations. As a profession, psychology involves the practical application of knowledge, skills, and techniques for enhancing well-being and quality of life, as well as solving or preventing individual and social problems. This course provides an overview of the field of psychology, including research, theory, and application. Specific topics include the biological bases of behavior, sensation and perception, learning, cognition, motivation and emotion, development, social cognition and social influence, personality and individual differences, and mental disorders and therapy. Content is presented through a combination of lectures, readings, and demonstrations. Evaluation is primarily based on objective exams. A major goal of the course is to show how questions within these areas are addressed through empirical research. The course introduces students to theories, research, and procedures used in psychological research and practice and encourages them to apply this knowledge to enhance their lives. After taking this course, students should be able to make informed decisions about participation in future psychology courses and have a better understanding of psychology as a science and of human behavior.

Bachelor of Arts: Social and Behavioral Sciences
 General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Soc Resp and Ethic Reason

PSYCH 100H: Honors Introductory Psychology

3 Credits

Psychology is a scholarly discipline, a scientific field, and a professional activity. Its overall focus is the scientific study of behavior and experience, and of associated mental and physiological processes. As a scholarly discipline, psychology represents a major field of study in academic settings, with an emphasis on theories and principles of behavior and experience. As a science, psychology is a domain of research in which investigators analytically and systematically study behavior and experience to develop theories and principles and to understand their application to real-world situations. As a profession, psychology involves the practical application of knowledge, skills, and techniques for enhancing well-being and quality of life, as well as solving or preventing individual and social problems. This course, which serves

as a prerequisite for most upper-level psychology courses, provides an overview of the field of psychology, including research, theory, and application, and promotes thinking about how students can apply psychology to enhance their lives. Specific topics include the biological bases of behavior, sensation and perception, learning, cognition, motivation and emotion, development, social cognition and social influence, personality and individual differences, and mental disorders and therapy. Evaluation is primarily through exams, papers, projects, or presentations and assesses psychological knowledge, skills, conceptual thinking, and critical analysis. After taking this course, students should be able to make more-informed decisions about participating in future psychology courses and have a better understanding of both psychology as a science and human behavior. Introductory Psychology is required for the Psychology major and minor. This honors version of the course is designed to provide the opportunity for students to engage with the material at greater depth and with greater emphasis on the scientific basis for the content.

General Education: Social and Behavioral Scien (GS)
 Honors
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Soc Resp and Ethic Reason

PSYCH 100S: Introductory Psychology

3 Credits

Introduction to general psychology; principles of human behavior and their applications.

Bachelor of Arts: Social and Behavioral Sciences
 First-Year Seminar
 General Education: Social and Behavioral Scien (GS)

PSYCH 105: Psychology as a Science and Profession

3 Credits

Overview of history and methods of psychology as a science and profession; applications and ethical issues in psychology. PSYCH 105 Psychology as a Science and Profession (3)(BA) This course meets the Bachelor of Arts degree requirements. The purpose of this course is to introduce Psychology majors and prospective majors to basic principles of research and practice in scientific psychology. The course provides a survey of the subfields of psychology, their history, and their current importance in both academic and applied settings. The focus is on common principles and issues important across these subfields. Students will learn how psychological research is conducted, survey applications of psychological research, consider ethical issues in psychological research and practice, and learn about careers in a variety of subfields in psychology. Students will be evaluated on the basis of multiple-choice exams (75%), in-class activities (10%), and short writing assignments (15%). The course will be required for the Psychology B.A. and Psychology B.S. (all options) majors, but will not be a prerequisite for any other course. The course will be offered each fall and spring semester in large sections of 300-350 students.

Enforced Prerequisite at Enrollment: PSYCH 100
 Bachelor of Arts: Social and Behavioral Sciences

PSYCH 109N: The Psychology of Artistic Creativity

3 Credits

Creativity is an essential component of people's lives. It plays a critical part in advancing our society via art, design, and science. However, what is creativity? What contributes to it? Moreover, how can one become more creative? The goal of this introductory course is to answer these questions by integrating art and psychology. The course begins with a discussion of what is creativity. In the process, the class will discuss how context, culture, and narrative play a key role in answering this question. Next, the course will examine who is creative. Here, the class will discuss what, if anything, contributes toward a creative personality, what role developmental factors play in the creative process, and if there is a link between mental illness and creativity. Lastly, the course will discuss the creative process. Here, students will learn how the brain and body help people process, understand, and create information, how emotions influence thought and are conveyed to others, how motivational processes can both encourage and hinder creative endeavors, and how inter- and intra-personal processes can facilitate and destroy creative expression. Students will learn about these processes by examining creativity via two perspectives: the perspectives of various artists, art scholars, and art educators and from the perspectives of various disciplines within psychology, including personality, clinical, development, and social psychology. Students also will complete exercises that encourage critically evaluating these perspectives and actively applying their potential insights to their own artistic endeavors. Thus, a key element of this course is not only to understand more about creativity, but to be able to apply artistic and psychological practices and knowledge to better understand and improve one's own and other's creative potential.

General Education: Arts (GA)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

PSYCH 120N: Knowing Right from Wrong

3 Credits

"Knowing Right from Wrong" provides a comprehensive understanding of the nature of moral ideas, beliefs, and behaviors in contemporary contexts. What roles do nature and nurture play in the development of moral sensibilities? How do moral emotions and moral reasoning interact to produce moral behavior? What defines moral character and how does it influence what we do? Is it possible to derive what ought to be done from what is known about the world? How do we respond when moral demands compete with another? How do our moral convictions color our perceptions of world events? Can individuals and groups with differing moral commitments communicate with one another and live together peacefully? The course integrates perspectives from philosophy, psychology, and sociology, and prepares students to think about (and act in) a world in which morality (and its linked concepts, such as judgment of others) plays an increasingly important social and political role. The course treats morality as both an aspirational concept and as an actual social practice, and focuses on three major themes: (1) the origins and development of moral reasoning and ethical systems, (2) the influence of moral emotions and moral intuitions on moral reasoning and behavior, and (3) the influence of social and contextual factors on moral behavior and expression. Integrating the philosopher's interest in ethics, with the

psychologist's interest in the mind and body, and the sociologist's interest in groups, the course provides a comprehensive introduction to morality in contemporary society, and the ways in which it shapes the lives of people in everyday situations.

Cross-listed with: PHIL 120N, SOC 120N

Bachelor of Arts: Humanities

Bachelor of Arts: Social and Behavioral Sciences

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

PSYCH 144: Climate Change: Individual Behaviors and Group Attitudes

3 Credits

PSYCH 144: Climate Change - Individual Behaviors and Group Attitudes is intended to be an introduction to environmental attitudes and behavior research within the social sciences, especially the fields of social and environmental psychology. This course allows students to understand the varied psychological processes, including individual attitudes, societal values, and personality traits, that shape a person's interactions with and feelings toward the physical environment within the context of global climate change. Drawing on methodology and theory in the areas of attitude change, social cognition, environmental perception, pro-social behavior, and emotions, this course will provide students with insight into how individual and group actions and mental processes can impact beliefs and actions toward global climate change while also providing a foundation for ways to alter those behaviors in meaningful ways.

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

PSYCH 150N: Human Nature: The Science of Extreme Altruism and Violence

3 Credits

Why do humans so readily help strangers in some circumstances and not others? Why does our species have a tragic history of war, genocide, and violence? Just how flexible is our tendency for altruism and violence? Human Nature: The science of extreme altruism and violence surveys and synthesizes two of the most fascinating and unusual features of humans: our extremely high levels of altruism alongside our tragic propensity for violence. Treating humans as both biological and cultural creatures, we use the tools of anthropology, biology, and psychology to explore some of the most vexing questions in the social sciences and humanities. We will consider the role of the brain, hormones, genetics, social context, and evolution in producing the best and worst our species is capable of. While there are no prerequisites, you will gain a foundation in basic neurobiology and behavioral endocrinology alongside familiarity with leading theories of violence and altruism. We will use a combination of lectures, readings, and discussions to understand the science of altruism and violence. Throughout the course, we will use well-known current events and cross-culture case studies to anchor theory in real social contexts. By the end of this course, you will have the tools to evaluate behavior as the product of a complex interaction between biological,

physiological, and social structures. You will never look at the world the same again!

Cross-listed with: ANTH 150N
 Bachelor of Arts: Natural Sciences
 Bachelor of Arts: Social and Behavioral Sciences
 General Education: Natural Sciences (GN)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking

PSYCH 150Q: Human Nature: The Science of Extreme Altruism and Violence

3 Credits

Why do humans so readily help strangers in some circumstances and not others? Why does our species have a tragic history of war, genocide, and violence? Just how flexible is our tendency for altruism and violence? Human Nature: The science of extreme altruism and violence surveys and synthesizes two of the most fascinating and unusual features of humans: our extremely high levels of altruism alongside our tragic propensity for violence. Treating humans as both biological and cultural creatures, we use the tools of anthropology, biology, and psychology to explore some of the most vexing questions in the social sciences and humanities. We will consider the role of the brain, hormones, genetics, social context, and evolution in producing the best and worst our species is capable of. While there are no prerequisites, you will gain a foundation in basic neurobiology and behavioral endocrinology alongside familiarity with leading theories of violence and altruism. We will use a combination of lectures, readings, and discussions to understand the science of altruism and violence. Throughout the course, we will use well-known current events and cross-culture case studies to anchor theory in real social contexts. By the end of this course, you will have the tools to evaluate behavior as the product of a complex interaction between biological, physiological, and social structures. You will never look at the world the same again!

Cross-listed with: ANTH 150Q
 Bachelor of Arts: Natural Sciences
 Bachelor of Arts: Social and Behavioral Sciences
 General Education: Natural Sciences (GN)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 Honors
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking

PSYCH 169N: What it means to be human

3 Credits

This course will investigate the distinctiveness of Homo sapiens, using fossil and non-human animal comparisons to highlight how modern humans are both similar to and different from other species. Basic elements from the fields of biology, genetics, anatomy, physiology, ecology, cognition, neuroscience, social psychology, and anthropology will be integrated for a complete and robust picture of humans and their place in the animal world. Furthermore, students will expand upon this

integration of fields to make inferences about how an individual's or society's perspective on human uniqueness, or the lack thereof, impacts decisions and behaviors relevant to research ethics, environmental policy, educational policy, religion, and/or social issues.

Cross-listed with: BIOL 169N
 General Education: Natural Sciences (GN)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Soc Resp and Ethic Reason

PSYCH 175N: Mental Illness and the Movies

3 Credits

This course serves as an introduction to the integration of psychology and film analysis, with a focus upon mental health. PSYCH 175N / COMM 175N seeks to help students understand the extent to which cinema can influence our perceptions of mental illness, and how the experience of mental illness can influence cinema. Students will be guided to critically analyze and discover how cinema can build or break the stigma and stereotypes regarding various types of mental illnesses and their treatments. The course is designed to familiarize students with various mental disorders (e.g., autism, schizophrenia, bipolar disorder, dissociative identity disorder, anxiety disorders, substance abuse, and dementia), aspects of their treatment (e.g., psychotherapy, medication, and ECT), and the creative ways in which filmmakers can choose to portray mental illness and its treatment (e.g., camera angles, lighting, music, costuming, casting, editing, method acting, and marketing) across cinema formats (e.g., in feature, independent, and documentary films). Students will be guided to consider how the cinema has shaped their own perceptions of mental illness, and how they could guide a filmmaker to generate a creative, compelling, and accurate portrayal of various types of mental illness and their treatments. PSYCH 175N / COMM 175N emphasizes integrative thinking, and seeks to help students develop critical reading, viewing, and thinking skills. The course incorporates lectures and assigned readings with the viewing of feature films during a weekly practicum period. Most lectures incorporate case examples and video clips to help students exercise their critical thinking skills. Introductory lectures provide a critical social and historical context for each week's film screening. Follow-up lectures and discussions offer critical and integrative analysis. Course assessment includes both objective measures and essay exams. PSYCH 175N / COMM 175N is an Interdomain General Education course that incorporates student learning criteria from both the arts (GA) and the social sciences (GS). It assumes to prior exposure to psychology or to film studies. As such, the course is designed to have broad accessibility, primarily for introductory level students.

Cross-listed with: COMM 175N
 General Education: Arts (GA)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Crit and Analytical Think

PSYCH 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

PSYCH 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)

PSYCH 200: Elementary Statistics in Psychology

4 Credits

This course provides an introduction to the descriptive and inferential statistics commonly used in psychology, and to hypothesis testing as a method of scientific investigation. It also explores the ways in which the assumptions of statistical tests place constraints on experimental design and, conversely, how the design of experiments can dictate the statistical test appropriate for data analysis. The ability to understand and perform statistical analyses, and to evaluate the match between statistical analysis and experimental procedures, is critical to reading and understanding the empirical research that psychology is based upon, and that will be covered in upper-level psychology courses such as PSYCH 301W, for which PSYCH 200 is a pre-requisite, most 400-level courses, and certain lower-level psychology courses. In addition to performing some statistical tests by hand, students may also conduct statistical tests via statistical software packages commonly used by psychologists, such as SPSS or R. Finally, this course will include material on the responsible and effective communication of statistical results to a scientific audience according to APA guidelines. Specific topics covered include probability theory, scales of measurement, measures of variability and central tendency, normal curves, graphical displays (e.g., histograms, bar charts), the relation between samples and populations, correlations, simple regression, basic mean differences tests (e.g., t-tests), effect sizes, and confidence intervals. Classes may also cover z-tests, simple and factorial ANOVA, non-parametric tests (e.g., Chi Square, Mann-Whitney U, Wilcoxon), statistical power, or other statistical techniques commonly used in psychology.

Enforced Prerequisite at Enrollment: PSYCH 100 and MATH 42

General Education: Quantification (GQ)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

PSYCH 212: Introduction to Developmental Psychology

3 Credits

Developmental psychology involves the scientific study of the social, emotional, and intellectual changes that enable progression from infancy to adulthood. As part of a scholarly discipline, scientific field, and professional activity, the overall focus of developmental psychology is the scientific study of age-related changes in emotions, cognitions, language, personality and social relations and the relationships of these changes to familial, peer, and cultural experiences, biological development, and personal efforts to make sense of the social and object worlds. As an

important area of psychological science, developmental psychology is a domain of research in which investigators analytically and systematically study behavior and experience to develop theories and principles and to understand their application to real-world situations. As part of a profession, developmental psychology involves the practical application of knowledge, skills, and techniques for enhancing the well-being and quality of life of children, adolescents, and their families, as well as the development of age-relevant solutions to and strategies for the prevention of individual and social problems. This course provides an overview of the field of developmental psychology, including its history, research methodologies, theories, and applications. Specific topics include but are not limited to the biological bases of development, parent-infant attachment, the development of sensation and perception, cognition and linguistic development, emotional development, moral development, and identity development. Content is presented through a combination of lectures, readings, activities, and demonstrations. Evaluation is primarily on the basis of objective exams.

Enforced Prerequisite at Enrollment: PSYCH 100

Bachelor of Arts: Social and Behavioral Sciences

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

PSYCH 217N: The Science of Human Resilience

3 Credits/Maximum of 3

This course provides a comprehensive understanding of resilience from both a biological and psychological perspective. It provides students with an integrative approach to understand the dynamic interplay between nature and nurture in understanding children's at-risk behaviors as well as understanding children's resilient behaviors. The study of resilience will be examined with a systems approach using a strengths-based framework of positive youth development. Topics will include brain development, the biology of stress, environmental factors influencing resilience, children's mental health, growth mindset, and the science of resiliency. Specific attention will be directed towards understanding the neuroplasticity of resilience. Content will be presented using interactive lectures, in-class activities, readings, and small group discussions. After taking this course, students will increase their understanding of how specific environmental factors interact with biological underpinnings to affect children's levels of resilient and at-risk behaviors (e.g., depression). Strategies to optimize children's positive developmental outcomes will be emphasized throughout. This course includes a service learning component where students have the opportunity to apply newly acquired skills to mentor children in supervised school/community settings.

Enforced Prerequisite at Enrollment: PSYCH 100 Recommended

Preparation: Due to the service learning component of this course, students will have to complete their clearances.

General Education: Natural Sciences (GN)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

PSYCH 220: Community Psychology

3 Credits

The purpose of this course is to provide an overview of the history and development of Community Psychology as field. In addition, you will be exposed to key concepts and values associated with Community Psychology, as well as examples of Community Psychology in action. You will learn about multiple levels of intervention, including the individual, small group, community, and societal levels, as well as the interrelationship between these levels. You will also learn to examine psychological phenomena in context. Course Goals: In this course, you will: 1. understand what Community Psychology is, including being able to explain the seven core values of Community Psychology; 2. develop a deeper understanding of what working with communities entails; 3. analyze what kinds of issues Community Psychologists must be aware of when working with diverse populations; 4. analyze how human diversity impacts our everyday life; 5. evaluate problems that might arise around human diversity and pose possible solutions to problems.

Enforced Prerequisite at Enrollment: PSYCH 100 Recommended Preparations: PSYCH 270

PSYCH 221: Introduction to Social Psychology

3 Credits

Introduction to Social Psychology discusses how people's thoughts, feelings, and behaviors are influenced by other people (real or imagined). The course will provide an overview of the field, potentially covering such topics as: attitudes, persuasion, person perception, automatic vs. conscious thought, the self, prosocial behavior, aggression, interpersonal attribution, conformity, obedience, culture, groups, prejudice and discrimination from a psychological perspective.

Enforced Prerequisite at Enrollment: PSYCH 100
Bachelor of Arts: Social and Behavioral Sciences
General Education: Social and Behavioral Scien (GS)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Integrative Thinking

PSYCH 230: Introduction to Psychologies of Religion

3 Credits

This course will act as an overview of the many ways that religious and spiritual beliefs can and do influence our daily lives, including an individual's attitudes, motivations, cognitions, emotions, and behaviors (and vice versa). We will explore concepts of religion and various religious perspectives as they relate to psychology, and the social and cultural implications of religion. The focus of this course will not be on any religious affiliation in particular, but instead on how people view religion and spirituality and use those beliefs in both positive and negative ways. Do not expect that we will answer such questions as "Does God exist" or "Which religion is right?" This is not what the course is about. We will, however, explore the psychological factors related to believing, or not believing, in "God" and to following particular religious traditions. The course mostly involves mini-lectures, presentations, quizzes, readings, and seminar-based classroom discussions, and some videos. You will be strongly encouraged to think about and share your opinions, beliefs, and experiences. By the end of the course you will have an increased understanding of the complexity, richness and psychological basis for religious beliefs and behaviors, be better able to understand your own

religious life, explore the importance of religious phenomena for the field of psychology, analyze the strengths and weaknesses of a psychological approach to studying and interpreting religion, and understand the interaction of personal and social dimensions of religion. Hopefully students will also think more critically about how religious and spiritual beliefs influence actions in their everyday lives.

Enforced Prerequisite at Enrollment: PSYCH 100
Bachelor of Arts: Social and Behavioral Sciences
General Education: Social and Behavioral Scien (GS)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Integrative Thinking

PSYCH 231: Introduction to the Psychology of Gender

3 Credits

The focus of this course in general is on the psychological study of gender in historical and contemporary perspective. The historical roots of gender studies in women's studies, as a correction to a traditional focus on male and masculine perspectives, will be covered. Through both traditional and feminist research methods, psychologists have sought to clarify what is general among genders, and what may be individualized to specific persons or groups. Conceptions of gender and gender identity are examined in relation to other social identities in the United States, and beyond the US with cross-cultural comparisons. Historical changes in the US and outside the US are also discussed. Major topics include the role of gender in development, self-concept, social relations, and mental health. Relevant major theories of gender development and behavior are covered, such as gender schema theory. Emphasis of study is upon those experiences that are specifically related to gender, such as stereotypes and expectations of femininity and masculinity, violence against women, economic and work-related constraints, and pregnancy and childbirth.

Enforced Prerequisite at Enrollment: PSYCH 100
Bachelor of Arts: Social and Behavioral Sciences
United States Cultures (US)
General Education: Social and Behavioral Scien (GS)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Soc Resp and Ethic Reason

PSYCH 232: Cross-Cultural Psychology

3 Credits

PSYCH 232 provides a comprehensive overview of cross-cultural research in a broad range of areas including human development, perception, emotion, motivation, social behavior, personality, cognition, and abnormal behavior. It investigates the similarities and differences in individual psychological functioning among various cultural groups and explores the interaction of psychological, socio-cultural, and biological influences on human thought and behavior. In addition, the course addresses important international applications to acculturation, ethnic and minority groups, work, and communication. By studying psychology from a cross-cultural perspective, you should become more aware of the diversity of the international community and develop an increased understanding and tolerance of attitudes and viewpoints different from your own.

Enforced Prerequisite at Enrollment: PSYCH 100
Bachelor of Arts: World Cultures
Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)

United States Cultures (US)

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

PSYCH 238: Introduction to Personality Psychology

3 Credits

Personality psychology involves examining theories of human nature and evaluating them in an empirical fashion. Personality psychology begins with the observation that each person is (to paraphrase Harvard psychologists Kluckhohn and Murray) in certain respects (a) like all other persons, (b) like some other persons, and (c) like no other person. In other words, personality psychology concerns itself with the study of (a) universal aspects of human nature, (b) psychological traits and types, and (c) individual uniqueness. Principal goals of the discipline include constructing descriptive taxonomies of personality, inquiring into the evolutionary and developmental origins of human universals and individual differences, and assessing the impact of personality on the life course. This course aims to cultivate in students a breadth of understanding through an analysis of some of the major intellectual statements concerning human nature. Psychoanalysis, humanism, existentialism, symbolic interactionism, biological, and neuropsychological are primary perspectives that may be examined. Questions considered within the course include: How can we determine what might be a part of fundamental human nature? What are the relative contributions of conscious rationality and unconscious irrationality to human behavior? Can human behavior be explained by a finite set of motives? Do explanations in psychology differ in kind from explanations in the natural sciences? Can personality be quantified? Short-answer examinations and class participation are used to evaluate the degree to which students have successfully comprehended course material. Students should understand why it is difficult for a theorist to create a view of human nature that transcends the theorist's own personality and cultural/historical context, and how empirical research can help overcome these obstacles. Students are to learn how to identify and evaluate the assumptions (either implicit or explicit) about human nature and individual differences that underlie any social or behavioral science. By the end of the course, students should be able to describe the basic tenets of the major theories, to be able to compare and contrast the theories, and to be able to evaluate the strengths and weaknesses of each theory. A good understanding of the course material will prepare students for advanced study in personality theory and measurement, as well providing a useful context for courses in abnormal, clinical, developmental, health, historical/philosophical, industrial/organizational, and social psychology, as well as for courses in other social sciences, certain humanities, and some applied fields such as business which at least tacitly presuppose some view of personality.

Enforced Prerequisite at Enrollment: PSYCH 100

Bachelor of Arts: Social and Behavioral Sciences

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

PSYCH 243: Introduction to Well-being and Positive Psychology

3 Credits

The introduction to well-being and positive psychology involves the application of empirically derived principles of psychology to address everyday experiences and focuses on ways to enhance one's life. More specifically, students will be introduced to the field and learn that positive psychology encompasses much more than the study of happiness, a common misconception. Students will learn to embrace strengths, fosters personal growth, and enhance well-being based on scientific research. As part of a scholarly discipline, scientific field, and professional activity, the overall focus of the course is the study of the psychological processes that relate to enhancing one's life. As an important area of psychological science, positive psychology is an area of research in which investigators develop and systematically test theories about the "good life." As part of a profession, it involves the application of this empirically gained knowledge to enable people to cultivate areas of their lives that will lead to greater contentment and fulfillment. This course provides an overview of the field of positive psychology. It introduces the field by exploring its history and considers its place in the field of psychology more generally. Topics discussed include but are not limited to positive emotions, positive thinking, character strengths, values, relationships (intimate and friendships), and the meaning of life. Cultural considerations within the field are also explored. Content is presented through a combination of lectures, readings, active learning activities, and demonstrations. Assessment is based on objective exams and writing assignments (which includes the use of scientific research to support personal experiences). Discussion and questions are encouraged in all sections to facilitate students' understanding of the material. After taking this course, students should have a better understanding of the field of positive psychology and what it encompasses and will acquire tools for applying the concepts learned to their own lives.

Enforced Prerequisite at Enrollment: PSYCH 100

Bachelor of Arts: Social and Behavioral Sciences

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Integrative Thinking

PSYCH 244: Introduction to the Psychology of Human Factors Engineering

3 Credits

Human Factors Psychology is an area of psychology where the overall focus is the scientific study of human behavior and how it can be applied to the use, design and development of products and systems. Students will learn basic principles of how people process information, perceive and interact with the world in various circumstances. They will learn how psychologists conduct research on human thought and behavior in an effort to measure peoples' perceptions, attitudes, and behaviors. These basic principles will be illustrated and explored with a series of hands-on activities that relate the material to everyday life. Topics to be covered include research design and methods, sensation and perception, memory and language, and social psychology. Psychological principles from these areas will be used to discuss ways to improve the safety of tools and systems, reduce human error and increase user satisfaction. Students will also gain a better understanding of the influence of stress and workload on human performance. A major topic will be ways to develop

reliable and valid evaluation techniques for assessing performance, safety and ease of use of systems. In order to design effective systems, individual differences in age, gender and culture must be taken into account. People in different regions of the world have cultural differences that influence the way they perceive the world and process information. These individual differences will be addressed throughout the semester. Topics are presented through a combination of lectures, readings, demonstrations, and in-class activities. Active learning elements such as library/internet research, writing activities, and collaborate learning experiences will be applied. Evaluation is on the basis of content-based quizzes, objective exams, brief written reports of hands-on exercises, and collaborative assignments.

Prerequisite: PSYCH100 or 3 credits of GS
 General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

PSYCH 246N: Human Factors in Design & Art

3 Credits

Within human factors engineering, a critical component to the design of products is understanding the physical and cognitive elements of the human. Within artistic design are fundamental elements to all visual expression. Thus, every artist, designer and visual communicator needs an awareness of formal elements and principles, variations within forms, relationships among forms. We must be aware of the impact evoked within viewers and users by formal conditions. This course and topics within it are inherently interdisciplinary in nature and could not be accomplished as effectively on their own. Without art, we cannot understand the design process effectively. Without human factors psychology, we cannot understand the human behavior effectively. Human factors is a discipline within psychology that deals with how humans interact and understand their world. This is necessary in product design. Art focuses on the creative process of design and is essential as well.

General Education: Arts (GA)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

PSYCH 253: Introduction to Psychology of Perception

3 Credits

The goal of this course is to give students a detailed introduction to the basic questions in the study of how the energies and information in the external world become part of our immediate experience. This includes questions about how patterned energies (such as light, sound, etc.) are coded by our sensory systems and how those codes are used to support psychological experience. These are fundamental and fascinating questions and concern the most basic ways in which we interact with and experience the physical world. Students will consider these questions in detail with respect to the visual and auditory systems, and time permitting, with other sensory systems. Because these questions are such fundamental questions, they have long intellectual histories.

Philosophers and scientists have been working on these questions for centuries, and the scientific study of them forms the basis for much of contemporary scientific psychology. We will be examining some of this intellectual history and be discussing the connection between the scientific study of sensation and perception and the other natural sciences, including biology, chemistry, physics, and mathematics (including computer science). The class will also focus on some of the tools and techniques that have been developed for the study of sensation and perception. The course will show that these tools and techniques are very general and have application to a broad range of issues in human psychology. Students will learn the basic procedures for data collection and analysis, and the procedures for evaluating inferences on the basis of that data. The study of perception requires the integration of techniques, methods, and tools from a variety of other sciences, including mathematics. Physics, algebra, and geometry are involved in understanding light as a source of information. Chemistry is involved in the absorption of light by photoreceptors as well as the mechanisms of neural communication in all sensory systems. Probability and electrical engineering contribute the tools used to conduct signal detection analyses of perceptual performance. It is not assumed that students are experts in any of these fields, nor do we expect that students will be when the course is complete, however, we do expect students to be willing to consider their importance to perceptual psychology.

Enforced Prerequisite at Enrollment: PSYCH 100
 Bachelor of Arts: Social and Behavioral Sciences
 General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking

PSYCH 256: Introduction to Cognitive Psychology

3 Credits

This course is an introduction to cognition, an area of psychology that investigates the ways in which we acquire, store, create and use knowledge. Cognition includes a wide range of mental processes that are used every day in almost all human activities. These include neuroscience, attention, perception, memory, imagery, language, problem solving, creativity, and reasoning. Cognition refers to a theoretical approach in psychology that emphasizes the role of people's knowledge, reasoning, and expectations and this approach has had a broad influence on all areas of psychology. It also involves developing sophisticated methodologies to study processes that are not always observable. Cognitive research can be applied in order to improve mental functioning, e.g., developing programs for improving memory or cognitive rehabilitation for brain injury. It can also be used to address serious societal issues and problems such as understanding how people develop and use stereotypes, or why distraction by a cell phone is dangerous. Cognitive psychology has applications to many fields including medicine, the legal system, education, and understanding mental disorders. In addition, cognitive psychology is part of the active interdisciplinary field of cognitive science that also includes disciplines such as philosophy, neuroscience and artificial intelligence. This course provides an overview of the field of cognitive psychology, including its research, theory, and application. Content is presented through a combination of lectures, readings, activities, and demonstrations. A major goal of the course is to show how the major questions in cognition are addressed through empirical research. It also promotes critical thinking and encourages students to apply this knowledge to enhance their lives.

Enforced Prerequisite at Enrollment: PSYCH 100

Bachelor of Arts: Social and Behavioral Sciences
 General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking

PSYCH 260: Neurological Bases of Human Behavior

3 Credits

An introduction to biopsychology, emphasizing the structure and function of the human brain. BB H (PSYCH 260) 203 Neurological Bases of Human Behavior (3) The nervous system provides the biological underpinning of behavior, and several scientific fields are concerned with the relationship between the nervous system and behavior. The goal of this course is to introduce the principle methods, findings, and theories of these scientific fields. Topics include (a) the anatomy and physiology of the nervous system, (b) how the nervous system gives rise to perception, action, language, memory, emotion and reproductive behavior, and (c) how drugs and mental illnesses affect the nervous system and alter normal perceptual, cognitive, and emotional behavior. The course prepares students for a number of more advanced courses in Psychology and Biobehavioral Health that address specialized topics in neuroscience, and may satisfy a requirement of these majors.

Cross-listed with: BBH 203

PSYCH 260A: Neurological Bases of Human Behavior

3 Credits

Biological Psychology is an area of psychology where the overall focus is the scientific study of behavior and experience, and underlying associated neurological and physiological processes. This course provides an overview of the biological bases of behavior and includes a presentation of the research, theory, and application of this knowledge. Specific topics include the basic anatomy and physiology of the central and peripheral nervous system, neural transmission and the function of various neurotransmitters. The majority of the course will focus on how these basic processes contribute to the processing of information from the senses, simple and complex learning, and cognitive processes such as memory, and language. Topics will include cover brain development, developmental and acquired neuropsychological disorders and therapeutic techniques. Content is presented through a combination of lectures, readings, demonstrations, and in-class activities. A major goal of the course is to show how questions relating brain and neural function to behavior are addressed through empirical research. The course introduces students to theories, research, and procedures used in psychological research and practice. It also promotes thinking about how students can apply this knowledge to enhance their lives. After taking this course students will be able to explain the relationship between brain and behavior. They will make more informed decisions about participating in future psychology courses and gain a better appreciation of the science and profession of psychology.

Enforced Prerequisite at Enrollment: PSYCH 100
 Bachelor of Arts: Social and Behavioral Sciences
 General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

PSYCH 261: Introduction to Psychology of Learning

3 Credits

This course provides a general survey of the study of learning and behavior. It will focus on investigating historical and current learning perspectives, their respective research methods, and how each contributes to our understanding of both human and animal behavior. The course also provides an investigation of human and animal experiments and how those studies inform our understanding of learning principles. Students should expect to learn about the processes of classical and operant conditioning and other related phenomena. The course provides a foundation for further understanding of learning principles and prepares students to analyze and distinguish between different types of learning they will witness in their everyday life. Questions discussed would include, How are behaviors and habits formed or changed? How are many of our social behaviors reinforced or weakened? What are the limits of learning, if any? How do learning principles help us with devising clinical interventions and treatments? Students will be able to encounter new situations, both social and otherwise, apply learning principles they have studied, and have an enriched experience because of the application of that knowledge.

Enforced Prerequisite at Enrollment: PSYCH 100
 Bachelor of Arts: Social and Behavioral Sciences
 General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Soc Resp and Ethic Reason

PSYCH 263N: Science of Learning

3 Credits

This course is an introduction to the field of cognitive and learning sciences. It provides an integrative approach to how we learn and remember with particular emphases on the scientific approach to the concepts and application of the theory to education. Learning science is an interdisciplinary field that examines learning from many perspectives and applies the knowledge gained from such studies to improving learning, instruction, and learning environments. This field draws upon contributions from areas of psychology (cognitive, developmental, educational and biological psychology), neuroscience, computer science, as well as sociology and anthropology. Learning scientists use a scientific approach to understand learning, those who do the learning, and the context in which learning occurs. Many learning scientists also seek to apply this information to improve the learning environment, educational practices, and inform educational policies. In this course, students will learn the foundations of learning theory, the important neurological bases of learning, and current information on relevant aspects of cognition. Material will demonstrate the application of this information to educational settings. Course content will be presented in lectures, readings, activities, and demonstrations. As a science-based laboratory course, students will study the scientific method and complete a series of laboratory exercises. This course is designed for primarily for education and psychology majors. It will fulfill the laboratory requirement for education majors. For psychology majors at Penn State Erie it may fulfill category 3. cognitive/experimental or be applied to the Science Option in the BS Major, it may fulfill Category B. developmental, cognitive, learning at Berks Lehigh Valley college and the Commonwealth College. It may be used to fulfill the Social

Behavior sciences requirements. Evaluation will be through examinations, laboratory reports, and additional activity assignments. This course will be offered once a year at Penn State Erie. As a laboratory course, sections will be capped at 25.

Recommended Preparation: EDPSY 14 or PSYCH 100

General Education: Natural Sciences (GN)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

PSYCH 268: Animal Minds

3 Credits

This course considers the cognitive and communicative abilities of animals, especially primates, as compared with humans. PSYCH 268 Animal Minds (3) This course covers select topics in animal cognition and communication. This course will focus mostly on the behavioral level. It will focus on observations and controlled behavioral experiments rather than on neurophysiological experiments (though it will cover some mechanisms that are implicated through behavioral research). One of the main goals of this course is to discuss how we can scientifically approach the study of animal minds. One of the recurring themes of the course will be methodological: how can we pose a question to a being that does not have language? Another goal of the course is to teach critical thinking about experiments in this field. It will discuss how to run a well-controlled experiment and closely examine the claims that are made by each experimenter. Through a class project, students will gain some experience trying to observe behavior and designing experiments. This course addresses an active research area in psychology, of broad interest to students in Psychology and other disciplines. Because of this broad appeal, no background in psychology is assumed, and no prerequisite is required. The course will fulfill a 200-level requirement for students in the PSY majors and minors. Students typically will be evaluated by two midterm exams (25% each), a final exam (35%), and a research project (15%). The course will typically be offered once each academic year with an enrollment limit of 50.

PSYCH 269: Evolutionary Psychology

3 Credits

Survey of evolutionary perspectives in current psychological research. PSYCH 269 Evolutionary Psychology (3) (BA) This course meets the Bachelor of Arts degree requirements. This course demonstrates how knowledge and principles from evolutionary biology are used to conduct research on the design of the human mind. The course explains how evolutionary psychologists identify adaptive problems faced by our ancestors and test hypotheses about psychological mechanisms designed by natural selection to solve these adaptive problems. The psychological mechanisms discussed are involved in phenomena such as perception and the control of activity, learning and cognition, mate selection and courting, development and parenting, altruism, aggression, and social structure. Evolutionary psychology is thus not a topic area such as perception, learning, or motivation, but rather a way of thinking that can be applied to any topic within psychology. The course, therefore, shows how evolutionary psychology is (1) changing how scientists approach old topics, (2) opening up new areas of research, and (3) beginning to provide a unifying framework for integrating the various subdisciplines of psychology. Students will learn to understand and evaluate evolutionary hypotheses about a range of topics in psychology

and related social sciences. Evaluation will be based on a combination of methods, including for example traditional exams, written homework, papers, and participation in class and group discussions. The course is offered as a perspective that can be used to think about the subject matter in any particular content course in psychology. Students may choose this course to fulfill a requirement in the major.

Enforced Prerequisite at Enrollment: PSYCH 100 and (ANTH 21 or BISC 2 or BIOL 133 or BIOL 222)

Bachelor of Arts: Social and Behavioral Sciences

PSYCH 270: Introduction to Abnormal Psychology

3 Credits

Overview of assessment, causes, and treatments of psychological disorders. PSYCH 270 Introduction to Abnormal Psychology (3)(BA) This course meets the Bachelor of Arts degree requirements. This course focuses on some of the topics and questions people most commonly ask about psychology: What are the different psychological disorders, and what are they like? How do clinicians diagnose someone with a disorder? What do therapists actually do in therapy? Course objectives include: (a) examine historical and current conceptions of normal and abnormal behavior; (b) survey the origins, symptoms, and characteristics of several adult psychological disorders; and (c) introduce the main treatment approaches for psychological disorders. The course is designed to be accessible to both Psychology majors and others. Psychology B.A. and Psychology B.S. majors may use the course toward the 200-level breadth requirement of the major. Students will be assessed primarily with objective exams.

Enforced Prerequisite at Enrollment: PSYCH 100

Bachelor of Arts: Social and Behavioral Sciences

PSYCH 281: Introduction to Industrial-Organizational Psychology

3 Credits

This course introduces the concepts and methods used to study people within and as they relate to the world of work. This is a survey course that provides an introduction to many topics ranging from determining what individuals do in their jobs, to the design and operation of organizations. Topics include (but are not necessarily limited to): recruitment, selection, training, teamwork, employee motivation, leadership, and organizational culture.

Enforced Prerequisite at Enrollment: PSYCH 100

Bachelor of Arts: Social and Behavioral Sciences

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

PSYCH 294: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Social and Behavioral Sciences

PSYCH 295: Internship

1-18 Credits/Maximum of 18

Supervised off-campus nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Bachelor of Arts: Social and Behavioral Sciences

PSYCH 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

PSYCH 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Social and Behavioral Sciences

PSYCH 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)

PSYCH 300: Honors Course in Psychology

1-6 Credits/Maximum of 6

Individual study and seminar in selected phases of psychology.

Enforced Prerequisite at Enrollment: Invitation of Program Honors Committee

Bachelor of Arts: Social and Behavioral Sciences
Honors

PSYCH 301M: Honors Research Methods in Psychology

4 Credits

This is an advanced undergraduate-level research methods course for honors students. The course will emphasize the basics of research (generating researchable ideas, hypothesis testing, scientific writing, reliability and validity) and major types of research. It is assumed that students have had an introductory class in statistical methods (or quantitative methods) and introductory psychology courses prior to their participation in this course. The primary goals of this course are for students to (1) learn how to critique and generate research, (2) develop critical thinking and communication skills, and (3) generate and develop independent research projects. Attempts to achieve these goals require knowledge of basic concepts, techniques, language and logic of research methods and data analyses in psychology. This course is structured around the belief that one of the best ways to obtain these objectives is through active participation in the research process. The course is designed incrementally, so that skills learned early in the course are critical for success at subsequent assignments. In the end, a successful student will be (a) able to communicate and think critically about research, (b) have experience designing research and analyzing data,

and (c) will have confidence in one's ability to generate interesting and testable research ideas. As a result, the successful student will be well prepared for advanced psychology courses and prepared to complete one's honors thesis.

Enforced Prerequisite at Enrollment: PSYCH 100 and (PSYCH 200 or STAT 200)

Honors
Writing Across the Curriculum

PSYCH 301W: Basic Research Methods in Psychology

4 Credits

Introduction to methods of psychological research, with special attention to hypothesis formation and testing, threats to validity, and data presentation.

Enforced Prerequisite at Enrollment: PSYCH 100 and (PSYCH 200 or STAT 200)

Bachelor of Arts: Social and Behavioral Sciences
Writing Across the Curriculum

PSYCH 370: Psychology of the Differently-Abled

3 Credits

This course familiarizes students with the needs and abilities of people with varying physical challenges through academic and experimental exercises. PSYCH 370 Psychology of Differently-Abled (3) (US) In 1991 President Bush signed the Americans with Disabilities Act (ADA) which recognized that the hundreds of thousands of Americans living with disabling conditions form a class which should receive protection under the law. Many people look at the ADA as civil rights legislation which is intended to offer disabled Americans the same legal rights to access as the Civil Rights legislation of the 60s offered to Americans of color. While discrimination in the workplace, in housing, and in other areas based on race is no longer openly practiced, people with different physical abilities are still fighting an uphill battle. Often the barriers they face are due to ignorance of their needs. The intent of this course is to increase awareness and sensitivity to the needs of people who are different in the physical dimension. Additionally, policy and economic implications will be studied. The content will include multiple modalities, such as mobility and visual differences. The focus will be positive, emphasizing how differences in one area are overshadowed by similarities in most areas. Language in the course will focus on the positive as well, hence Psychology of the 'Differently-Abled' rather than 'Disabled'. Accomplishments of people such as FDR and Mozart will be discussed in the context of significant contributions made by people who were physically different. Finally direct experience with people will be obtained through a community service component of the course. The objectives of this course are to first familiarize students with the causes and consequences of different physical challenges. The long term objective is to increase sensitivity to the needs of people who are different from most of us in some ways, but very similar to us in most ways. Research has shown that familiarity is a critical tool in raising comfort levels and decreasing discriminatory and hurtful acts. Evaluation Methods: Examinations 40%, mid-term and final Community Service 30%, this will be assigned through the same form Internship supervisors use to evaluate students for PSYCH 395 Research Paper 25% Oral Presentation 5%, 15 minute presentation to class regarding their community service experience. This course will draw on materials covered in General Psychology. No other course preparation will be needed. The course is

an Intercultural and International Competence (GI) course, focusing on intercultural aspects only.

Enforced Prerequisite at Enrollment: PSYCH 100
United States Cultures (US)

PSYCH 395: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: Prior approval of proposed assignment by instructor

PSYCH 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

PSYCH 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)

PSYCH 404: Principles of Measurement

3 Credits

This is an introductory course about properties of test scores such as reliability and validity. In addition, the course focuses on the construction and evaluation of measurement instruments used in educational and psychological settings and may include topics such as test development, score reporting, and interpretation. Basic statistics are introduced throughout the course to interpret the psychometric properties of scores.

Enforced Prerequisite at Enrollment: PSYCH 100 or STAT 200 or PSYCH 200 or EDPSY 101 or Graduate Status

Cross-listed with: EDPSY 450

Bachelor of Arts: Social and Behavioral Sciences

PSYCH 406W: Advanced Research Projects in Psychology

4 Credits

Advanced methodology focusing on the logic and practice of research culminating in the completion of a student designed research project.

Enforced Prerequisite at Enrollment: PSYCH 301W
Writing Across the Curriculum

PSYCH 407: Advanced Research Methods in Psychology

3 Credits

Advanced methodology focusing on the logic and practice of research in a selected content area of psychology.

Enforced Prerequisite at Enrollment: PSYCH 100 and (PSYCH 200 or STAT 200) and PSYCH 301W

Bachelor of Arts: Social and Behavioral Sciences

PSYCH 408: Program Evaluation

3 Credits

Examination of the theories and practice of program evaluation; emphasis on applied work utilizing a wide range of evaluation approaches. PSYCH 408 Program Evaluation (3) This course will introduce the student to the basic procedures and design methodologies of program evaluation. The student will learn about the purposes of evaluation, types, applications, and ethical issues involved in evaluation. A history of programmatic theory design will be reviewed with the purpose of clarifying the linkages between goals, objectives, and the hypothesized relationships between specific programmatic elements and desired outcomes. The student will be challenged to identify and understand the normative assumptions specific to organizations about their basic program design, implementation, and assessment processes. Students will be evaluated by a combination of the following: evaluation proposal, short written assignments, exams, oral presentation, and attendance. The prerequisites for this course include satisfactory completion of PSYCH 100, SOC 001, PSYCH 200, STAT 200, and PSY 201. This course presupposes critical thinking skills and basic competencies in statistics and research methods. For the Psychology major (PSHBS or PSHBA) at Penn State Erie, this course is important for students who will be entering graduate school or going into practice in the areas including, but not limited to: community psychology, social psychology, industrial-organizational psychology, sports psychology, or the general social services field. This course can count towards: a) the advanced course requirement, b) the special interest course requirement, or c) elective credit. Psychology minors at Penn State Erie can apply this course toward the 15 credits in psychology beyond the PSYCH 100 requirement. Students in other majors should consult with their academic advisers to determine how this course fits into their program of study. This course will be offered once annually (fall semester).

Enforced Prerequisite at Enrollment: (PSYCH 100 or SOC 1) and (PSYCH 200 or STAT 200) and PSYCH 301W

PSYCH 410: Child Development

3 Credits

Study of the psychology of the growing person from conception through adolescence, focusing more on periods up to middle childhood. PSYCH 410 Child Development (3) PSYCH 410 Child Development is intended for undergraduate students majoring in psychology, education and related disciplines. The purpose of this course is to introduce students to the theories and the influences on child development from conception through adolescence. Students will be introduced to research concerns in developmental psychology, including descriptions of research designs and ethical considerations in research with children and adolescents. Course content will include an in depth review of prevailing theories and influences on development from conception through adolescence. Application of the principles and influences will be applied to the physical, cognitive, and social development of children. Requirements for the course will include objective examinations, as well as written assignments. Written assignments will involve comparisons and critiques of major developmental theories. Examples of such assignments include descriptions of the key points of a major developmental theory or process of child development, detailed description of an observation of a child and how the child's behavior relates to a major developmental theory, descriptions of how application of developmental theory apply to the student's chosen major or occupation, or comparisons and critiques of developmental theory.

Enforced Prerequisite at Enrollment: PSYCH 100 and 6 credits of PSYCH

PSYCH 412: Adolescence

3 Credits

Physical, cognitive, and personality development during adolescence.

Enforced Prerequisite at Enrollment: PSYCH 100

PSYCH 413: Cognitive Development

3 Credits

Development of reasoning and related cognitive skills, such as perception and language.

Enforced Prerequisite at Enrollment: PSYCH 100 and PSYCH 212

PSYCH 414: Social and Personality Development

3 Credits

Development of social and personality attributes.

Enforced Prerequisite at Enrollment: PSYCH 100 and PSYCH 212

PSYCH 414H: Social and Personality Development

3 Credits

Development of social and personality attributes.

Honors

PSYCH 415: Topics in Developmental Psychology

3 Credits

Special topics in developmental psychology.

Enforced Prerequisite at Enrollment: PSYCH 413 or PSYCH 414

Bachelor of Arts: Social and Behavioral Sciences

PSYCH 416: Development Throughout Adulthood

3 Credits

Processes of development and change of behavior from early adulthood through old age, emphasizing theory, method, and empirical research.

Enforced Prerequisite at Enrollment: HDFS 249 and (HDFS 312W or PSYCH 301W) and (PSYCH 200 or STAT 200 or 3 credits in STAT) and (6 credits in HDFS or PSYCH or SOC)

Cross-listed with: HDFS 445

Bachelor of Arts: Social and Behavioral Sciences

PSYCH 419: Psychology and a Sustainable World

3 Credits

Students study relationships between humans and the natural world and psychological factors contributing to environmental problems and sustainable solutions. PSYCH 419 Psychology and a Sustainable World (3) This course examines psychological dimensions of humans' connection to the natural world, causes of human contributions to environmental problems, and psychological approaches for encouraging sustainable behavior. The course draws on the new field of conservation psychology and responds to the University's commitment to becoming a

leader in sustainability education. This course is designed for upper-level undergraduate students to satisfy requirements for Psychology degree programs, the Psychology minor, and the Sustainability Leadership minor. Major topics covered include psychological foundations of environmental problems (psychological understanding of unsustainable behavior, psychological perspectives on ethical dimensions of environmental problems, people's place in nature, psychological approaches to promoting sustainable behavior), and the application of psychological principles to specific environmental topics (consumerism and sustainable lifestyles, population overshoot, climate change, land use, water use, energy use, food production and consumption, pollution and waste). Students will be able to apply concepts, theories, and findings to change cognition, motivation, and behavior, with the goal of reducing negative human impacts on the environment. They will be able to write and communicate about their work in the form of a final paper and a class presentation that conform to the standards of psychological research. Assessment methods include weekly journal assignments that document students' application of lecture and reading material to their experiences with nature, their observations about their own negative impacts on the environment, and their actions to reduce negative impacts on the environment. In addition, students will develop a conservation intervention program that targets a specific problem on campus or in a community, for which students review relevant literature, design an intervention program, give a presentation of the program, and submit a final paper on the program.

Enforced Prerequisite at Enrollment: PSYCH 100 and PSYCH 221

PSYCH 420: Advanced Social Psychology

3 Credits

In depth study of selected research areas in human social behavior.

Enforced Prerequisite at Enrollment: PSYCH 100 and PSYCH 221

PSYCH 421: Self and Social Judgment

3 Credits

Individual's perceptions, evaluations, and decision-making strategies about themselves, others, and social situations or issues.

Enforced Prerequisite at Enrollment: PSYCH 100 and PSYCH 221

Bachelor of Arts: Social and Behavioral Sciences

PSYCH 422: Human Sexuality

3 Credits

Psychological influences on human sexual behavior such as love, sexual orientation, gender, intercourse, contraception, sexually transmitted diseases, dysfunctions, and paraphilias. PSYCH 422 Human Sexuality (3) PSYCH 422, Human Sexuality, is intended to examine the influence of psychological factors on human sexual behavior. Information on male & female anatomy, on the roles/influences of hormones, and on conception/pregnancy will be covered as well as information on gender, sexual orientation, communication, love, sexual harassment, paraphilias, sexually explicit material, and sexual dysfunction. Evaluation will be by means of exams (60% of grade), papers (15% of grade), small group projects (10% of grade), and a poster presentation (15% of grade). The prerequisite for this course is satisfactory completion of PSYCH 100. As the course presupposes critical thinking skills and an awareness of research methods in psychology, it is an advanced undergraduate level course requiring junior/senior level standing. For the Psychology

major (PSHBS or PSHBA) at Penn State Erie, this course can count either toward (a) the diversity basic course requirement, (b) the advanced course requirement, (c) the special interest course requirement, or (d) elective credit. Psychology minors at Penn State Erie can apply this course toward the 15 credits in psychology beyond PSYCH 100 requirement. Students in other majors should consult with their academic advisors to determine how this course fits into their program of study. No special facilities are required for this course, though students will need to prepare a poster for presentation. This course is expected to be offered at least once every four semesters.

Enforced Prerequisite at Enrollment: PSYCH 100 and (PSYCH 212 or PSYCH 221 or PSYCH 231 or PSYCH 238 or PSYCH 243 or PSYCH 270)

PSYCH 423: Social Psychology of Interpersonal/Intergroup Relationships

3 Credits

In-depth study of relationships among individuals (e.g., intimate relationships) or groups (e.g., prejudice, cooperation, competition, aggression, and negotiation).

Enforced Prerequisite at Enrollment: PSYCH 100 and PSYCH 221
Bachelor of Arts: Social and Behavioral Sciences

PSYCH 424: Applied Social Psychology

3 Credits

Application of social psychological theories and research methods to field settings and to the study of social issues.

Enforced Prerequisite at Enrollment: PSYCH 100 and PSYCH 221
Bachelor of Arts: Social and Behavioral Sciences

PSYCH 425: Psychology of Human Emotion

3 Credits

Reviews, critiques, and applies major historical and contemporary psychological theories of emotion experience, understanding, and expression.

Enforced Prerequisite at Enrollment: PSYCH 100 and (PSYCH 221 or PSYCH 232 or PSYCH 238 or PSYCH 243 or PSYCH 260)
Bachelor of Arts: Social and Behavioral Sciences

PSYCH 426: Language and Thought

3 Credits

Relations between language and cognition; cognitive implications of normal and impaired language development; cognition and bilingualism. LING (PSYCH 426) 429 Language and Thought (3)(BA) This course meets the Bachelor of Arts degree requirements. Is language a special and uniquely human ability that develops and functions independently of other cognitive processes? Do individuals who speak different languages also have different concepts about the meaning of objects and ideas? Does language development depend on exposure to spoken language? In this course we will examine the relation between language and thought by considering evidence on language and cognition in both children and adults. Topics to be covered include the typical development and use of language as well as language and cognition in individuals whose language and/or cognition is impaired in some form. The latter include individuals with aphasia who have sustained brain damage following stroke or head injury, schizophrenics whose language reflects

aspects of their disorder, children diagnosed with Williams Syndrome who appear to have good or even precocious language abilities in the face of severe cognitive impairment, and Alzheimer's patients in whom semantic memory has begun to deteriorate. The course will also discuss the acquisition of sign language among deaf individuals and the consequences of bilingualism for children raised with two languages and for adults with proficiency in more than a single language. The purpose of this course is to provide a survey of current scholarship on the relation of language and thought, including a review of recent developments in the primary literature. The necessary background is covered in introductory Psychology and Linguistics courses, which serve as alternative prerequisites. Students will learn about the consequences of typical and impaired development for relations between cognition and language ability. It is distinguished from PSYCH 457, Psychology of Language, by a focus on the implications of language, language development, and language impairment, for cognitive processes. It covers some topics also addressed by current courses in Linguistics and in Communications Sciences and Disorders, but is distinguished from those courses by its focus on perspectives and theories from cognitive psychology. This course may be used toward the 400-level PSY requirements of the PSYBA and PSYBS majors, and toward the PSY minor. Students typically will be assessed on the basis of class participation and discussion (20%), four papers (total 60%), and an in-class presentation based on reading original research literature (20%). The course typically will be offered once each year at the University Park campus with an enrollment limit of 50.

Enforced Prerequisite at Enrollment: PSYCH 100 or LING 1 or LING 100
Cross-listed with: LING 429
Bachelor of Arts: Social and Behavioral Sciences

PSYCH 427: L1 Acquisition

3 Credits

How children learn their first language; psycholinguistic aspects of lexical, syntactic, semantic, and phonological development. LING 446 (PSYCH 427) L1 Acquisition (3) (BA) This course meets the Bachelor of Arts degree requirements. This course focuses on how children learn their first language from the theoretical perspectives of imitation theories, social construction theories, and innateness theories. In addition, the course covers the various stages of language acquisition including phonological (sound system), morphological (word meaning), syntactical (grammar) and semantic (meaning) development from birth to adulthood. Other related subfields covered in the course include the acquisition of Pidgin and Creole languages, bilingual and multilingual acquisition, and language acquisition and linguistic change.

Enforced Prerequisite at Enrollment: PSYCH 100 or LING 100
Cross-listed with: LING 446
Bachelor of Arts: Social and Behavioral Sciences

PSYCH 432: Multicultural Psychology in America

3 Credits

This course focuses on the central role of culture, race, and ethnicity in the human condition.

Enforced Prerequisite at Enrollment: PSYCH 100 and (PSYCH 212 or PSYCH 221 or PSYCH 232 or PSYCH 238 or PSYCH 243 or PSYCH 270)
Bachelor of Arts: Social and Behavioral Sciences
United States Cultures (US)

PSYCH 434: Psychology of Gaming

3 Credits

Upper level course examining the core psychological principles as they apply to the topic of games. GAME 434 / PSYCH 434 Psychology of Gaming (3) This course looks at how the field of psychology can be applied to understand and improve the world of games. This requires the application of theories and research based in experimental, cognitive and several other disciplines within psychology, including but not limited to cognitive, social, motivation & emotion, and experimental psychology. By applying different theories within these disciplines we can start to understand how humans interact with games and in turn how games have evolved as a result. This course addresses an active research area in psychology, of broad interest to students in Psychology and other disciplines. The course will fulfill a 400-level requirement for students in the PSYCH majors and minors as well as those in the GAME minor. Students typically will be evaluated by exams, research project, in-class activities, homework, and article discussions.

Enforced Prerequisite at Enrollment: PSYCH 100
Cross-listed with: GAME 434

PSYCH 436: Humanistic, Existential, and Religious Approaches to Psychology

3 Credits

Existential, humanistic, and religious approaches to the psychology of experience, consciousness and will.

Enforced Prerequisite at Enrollment: PSYCH 100 or RLST 1
Bachelor of Arts: Social and Behavioral Sciences

PSYCH 438: Personality Theory

3 Credits

Personality theories and their application to social and personality development and personality dynamics.

Enforced Prerequisite at Enrollment: PSYCH 100 and (PSYCH 212 or PSYCH 221 or PSYCH 238 or PSYCH 243 or PSYCH 269 or PSYCH 270)

PSYCH 439: History and Systems of Psychology

3 Credits

Historical antecedents to scientific psychology; development of contemporary psychological theories and research areas from the formal establishment of psychology.

Enforced Prerequisite at Enrollment: PSYCH 100

PSYCH 441: Health Psychology

3 Credits

Overview of the field with an emphasis on how psychological research contributes to an understanding of health and behavior.

Enforced Prerequisite at Enrollment: PSYCH 100 and (PSYCH 212 or PSYCH 221 or PSYCH 232 or PSYCH 238 or PSYCH 243 or PSYCH 261 or PSYCH 270)
Bachelor of Arts: Social and Behavioral Sciences

PSYCH 442: Trauma and Resiliency

3 Credits

This course will provide an overview of the current state of knowledge and research on traumatic stress, resiliency, and treatment.

Enforced Prerequisite at Enrollment: PSYCH 100 and (PSYCH 212 or PSYCH 238 or PSYCH 243 or PSYCH 270)

PSYCH 443: Treatment and Education in Developmental Disabilities

3 Credits

Covers etiology, classification, intervention (treatment and education), ethical and legal issues related to individuals with developmental disabilities.

Enforced Prerequisite at Enrollment: PSYCH 100 and (PSYCH 212 or PSYCH 238 or PSYCH 243 or PSYCH 270)

PSYCH 444: Engineering Psychology

3 Credits

Methods and results of experimental psychology pertinent to problems which involve man-machine relationships.

Enforced Prerequisite at Enrollment: PSYCH 100 and (PSYCH 200 or PSYCH 253 or PSYCH 256 or STAT 200)
Bachelor of Arts: Social and Behavioral Sciences

PSYCH 445: Forensic Psychology

3 Credits

Relations between psychological theory and research and the law, legal processes, and social policy. PSYCH 445 Forensic Psychology (3)(BA) This course meets the Bachelor of Arts degree requirements. This course focuses on the interplay between psychological theory and research and the law, legal processes, and social policy. Students will be exposed to the dilemmas faced in the law and how overlap with the knowledge base and expertise of psychologists. Students will learn about the roles psychologists might play in the court system and the history of their involvement. This will include roles of consultant, policy evaluator, expert witness, assessor, and advocate. Legal issues that emerge in psychological practice will also be covered (e.g., limits to confidentiality, duty to warn, consent issues). Students will gain an understanding of the basic theories of the law and how psychological theories may intersect with these. The emphasis of discussion will be on those affecting children, youth and families. These will include topics such as divorce, child maltreatment, juvenile delinquency, domestic violence, and social welfare. Other topics of the law will also be highlighted (insanity plea, civil commitment). Particular attention will be paid to issues dealing with race, ethnicity, and social class and law and social policy. This course expands the PSY curriculum at the 400-level to include a popular and socially significant topic, and will fulfill a 400-level PSY requirement for Psychology majors and minors. It addresses in detail legal and social policy implications of topics covered in other psychology courses. Significant background in psychology is assumed; thus PSYCH 270 (Introduction to Abnormal Psychology) is a prerequisite. Students typically will be assessed on the basis of three exams (20% each), a paper (30%), and class participation (10%).

Enforced Prerequisite at Enrollment: PSYCH 100 and (PSYCH 238 or PSYCH 243 or PSYCH 270)

Bachelor of Arts: Social and Behavioral Sciences

PSYCH 448: Psychology of Female Serial Killers

3 Credits

In this course, students will examine means, motives, and makings of female serial killers. We will discuss perpetrators, crimes, and victims to delve into the psychology of the female perpetrator of serial homicide. Factors discussed include traumagenic experiences, mental illness, substance use, brain and neurological considerations, evolutionary psychology, and historical, gender, and cultural influences. We will also compare the backgrounds and crimes of female serial killers to those of male serial killers to elucidate similarities and differences. Course work is based on scientific readings, valid, nonbiased media reports, court documents, and other well-referenced resources.

Prerequisite: PSYCH 100 and PSYCH 301W and fourth-semester standing

PSYCH 449: Basic Counseling Skills

3 Credits

This course provides an introduction to specific counseling and helping skills used by various counseling/psychotherapy models across the major theoretical orientations. During the course, an emphasis will be placed on the skills and techniques that a counselor uses to establish and maintain an effective counseling relationship. In both content and process, the focus is on integration of theory with practice through experiential learning. Students will learn and apply skills that range from basic attending and listening skills to interviewing skills. In order to facilitate learning, a variety of instructional strategies are to be used including: 1) Lectures and demonstration by the instructor, 2) video-taping of students as they are practicing their skills and providing feedback, 3) small group work for the purpose of practicing skills, analyzing other students' performances, and sharing reactions to the counseling process, and 4) completion of exercises/worksheets handed out in class. Upon successfully completing this course, the learner is expected to be able to engage in basic counseling and interviewing, demonstrate ethical counseling principles relevant to the content of the course, describe a model that represents the counseling process, including the stages of counseling, assess the role of nonverbal communication in counseling, identify and demonstrate basic listening skills, probing, interpretation skills, challenging skills, summarizing skills, and informing skills, assess the use of each basic skill in a multicultural environment, evaluate personal and peer mastery of basic skills, and conduct a brief one-session counseling intervention that facilitates client development and change.

Enforced Prerequisite at Enrollment: PSYCH 100

PSYCH 451: Psychology of Action

3 Credits

Basic and applied science of action, from psychological, computational, and physiological perspectives. PSYCH 451 Psychology of Action (3) In all walks of life, people must adaptively control their physical movements. Whether in industrial settings, on the highway, in the kitchen, in the studio, in the concert hall, or on the football field, skillful physical action is essential. This course will focus on the means by which skilled physical behaviors are learned, planned, and controlled. The course will focus on a broad range of basic behaviors (e.g., reaching, walking, looking, speaking, and typewriting) as analyzed from several perspectives (physiologically, psycho-logically, and computationally). Basic science as well as practical

applications will be emphasized, as will links between movement control and other, related topics such as perception, cognitive development, and robotics. This course addresses topics in an active research area in cognitive psychology. It assumes some prior knowledge of cognitive psychology, requiring PSYCH 100 and PSYCH 256 as a prerequisite. The course will cover some topics addressed in several Kinesiology courses, but does so from the perspective of cognitive psychology. It will fulfill a 400-level PSY requirement for Psychology majors and minors. Students typically will be assessed on the basis of midterm (25%) and final (35%) exams, brief writing assignments and in-class activities (15%) and research papers or projects (25%). The course will normally be offered once each academic year.

Enforced Prerequisite at Enrollment: PSYCH 100 and PSYCH 256

PSYCH 452: Learning and Memory

3 Credits

General survey of learning and memory processes as revealed in experimental work with animals and humans.

Enforced Prerequisite at Enrollment: PSYCH 100 and PSYCH 256

PSYCH 455: Cognitive Neuroscience

3 Credits

Cognitive Neuroscience strives to understand the brain bases of cognition. This course is intended to provide an overview of the cognitive and neural processes that support major components of cognition such as attention, vision, language, motor control, navigation, and memory. The course will introduce students to basic neuroanatomy, functional imaging techniques including electrophysiology and functional Magnetic Resonance Imaging (fMRI), as well as behavioral measures of cognition. We will discuss the experimental techniques and the ways in which inferences about the brain bases of cognition are made. We will consider evidence from healthy adults, as well as from patients with neurological diseases such as Alzheimer's disease, Parkinson's disease, Huntington's disease, amnesia, and stroke.

Enforced Prerequisite at Enrollment: PSYCH 256 or PSYCH 260A

Recommended Preparation: PSYCH 200 or STAT 200

PSYCH 456: Advanced Cognitive Psychology

3 Credits

In depth study of complex mental processes: thinking, problem-solving, imagery, symbolic behavior, information-processing, attention, artificial intelligence, and language.

Enforced Prerequisite at Enrollment: PSYCH 100 and (PSYCH 253 or PSYCH 256 or PSYCH 260)

PSYCH 457: Psychology of Language

3 Credits

Overview of psychological research and theory on language processes, including speech perception, word recognition, meaning representation, comprehension, and language acquisition. LING (PSYCH) 457 Psychology of Language (3)(BA) This course meets the Bachelor of Arts degree requirements. How do we process language? Why do we easily adjust to a speaker with a foreign accent? How do young children come to speak the language to which they are exposed? Why is it difficult to

learn a second language as an adult? This course focuses on the cognitive processes engaged by language use. Topics to be covered include speech perception, word recognition, representation of word meaning, comprehension of sentences, spoken production of words and sentences, and first and second language acquisition. In addition, the role of language in the study of thought and the role of biological mechanisms in theories of language learning will be discussed, as well as ways in which research on the language of special populations (e.g., deaf signers, dyslexics, aphasics) can inform theories of language processing and representation.

Enforced Prerequisite at Enrollment: PSYCH 100 or LING 100

Cross-listed with: LING 457

Bachelor of Arts: Social and Behavioral Sciences

PSYCH 458: Visual Cognition

3 Credits

Overview of concepts and methods in cognitive visual-spatial processing.

Enforced Prerequisite at Enrollment: PSYCH 100 and (PSYCH 253 or PSYCH 256 or PSYCH 260)

Bachelor of Arts: Social and Behavioral Sciences

PSYCH 460: Comparative Psychology

3 Credits

Behavior from standpoint of phylogenetic growth and development; biological implications; comparison of different types of animals, including man.

Enforced Prerequisite at Enrollment: PSYCH 100 or PSYCH 260

Bachelor of Arts: Social and Behavioral Sciences

PSYCH 461: Advanced Conditioning and Learning

3 Credits

An examination of basic learning processes that have been determined within the context of classical, instrumental, and operant learning situations.

Enforced Prerequisite at Enrollment: PSYCH 100 and (PSYCH 253 or PSYCH 256 or PSYCH 261)

PSYCH 462: Physiological Psychology

3 Credits

Study of the biological bases of behavior and experience, including the anatomy and physiology of the brain and nervous system.

Enforced Prerequisite at Enrollment: PSYCH 100 and (PSYCH 260 or BIOL 110)

PSYCH 464: Behavior Genetics

3 Credits

Survey of gene mechanisms and gene-environment interactions in the determination of behavior; emphasis on deviant human behavior.

Enforced Prerequisite at Enrollment: PSYCH 100 and (ANTH 21 or BISC 2 or BIOL 133 or BIOL 222)

Bachelor of Arts: Social and Behavioral Sciences

PSYCH 466: The Psychology of Evil

3 Credits

This seminar will provide a critical study of evil from a psychological science perspective: how to define evil; popular perceptions about evil; the motivations people have to commit evil acts; the situational and personal factors that remove restraints to commit evil acts; and, the process of healing (forgiveness/reconciliation) after evil. By reading primary and secondary literature, we will critically think about these important, empirical questions about human nature. This course will wrestle with provocative questions about human nature. Are humans basically motivated to be good, evil, or both? Who should we trust more in recounting evil actions: victims or perpetrators (or neither)? Does "pure evil" exist? Can we ever completely stop evil from happening? How do we heal after experiencing evil?

Enforced Prerequisite at Enrollment: PSYCH 100 Recommended

Preparation: PSYCH 200 and PSYCH 301W

PSYCH 467: Psychology of Serial and Mass Murderers

3 Credits

It is essential in understanding human behavior for students to include the darker side, murder - without conscience. This course will enable students to understand the definition of murder, within various classifications of it used in the United States, in particular the phenomenon of serial and mass murder. Students will be able to examine and understand within a historical context the cultural development of monsters, demons and evil and this relationship to serial and mass murder. Importantly, students will explore the biological and genetic foundations of human behavior, develop an understanding of the Diagnostic and Statistical manual (DSM-V) spectrum of personality disorders and how these disorders relate to violent behavior. Hare's PCL-R (Psychopathy Check List- Revised) factors will be examined alongside the examination of serial murder committed by legally insane offenders. Some, but not all serial killers have documented cases of mental illness (e.g. schizophrenia), personality disorders (e.g. borderline and antisocial), and psychopathy, albeit most mass murderers suffer from various psychoses. In addition, students will be able to understand sociological theories as they pertain to violent behavior and include factors such as, the role of the family, sexual and physical abuse, and maladaptive childhood behaviors. Often serial murders are preceded by perpetrators' (i.e., males) use of various types of criminal paraphilia (violent or non-violent). These are examined by students to understand the roles these play in the sexual fantasy development of (i.e., males) perpetrators and specific types of sex crimes. The healthcare industry, a hidden, but important environment for serial murderers, is examined by students in order to understand how occupations are important to serial murderers, as by way of their employment, many have easy access to victims. There are numerous differences between male and female serial killers, and team killers. These differences are explored by students by reviewing case studies of each, which include their profiles, mobility and techniques. Finally, global mass and serial murder is to be explored by students, which compare methods, motives and demographics. Numerous case studies of serial and mass murderers will be reviewed to link the psychological, biological and sociological factors to enable students to construct their own profile of a serial or mass murder by researching particular murderers and their psychological, biological and sociological factors.

Enforced Prerequisite at Enrollment: PSYCH 100 Recommended
Preparation: PSYCH 270

PSYCH 470: Abnormal Psychology

3 Credits

Causes, dynamics, symptoms, and treatment of neuroses, psychoses, personality disorders, and other psychological disorders of adulthood.

Enforced Prerequisite at Enrollment: PSYCH 100 and (PSYCH 238 or PSYCH 243 or PSYCH 270)

PSYCH 471: Psychology of Adjustment and Social Relationships

3 Credits

Theory and application of psychological principles to problems in personal and social adjustment.

Enforced Prerequisite at Enrollment: PSYCH 100 and (PSYCH 212 or PSYCH 221 or PSYCH 238 or PSYCH 243 or PSYCH 269 or PSYCH 270)

PSYCH 472: Human Development, Health, & Education From A Global Perspective

3 Credits/Maximum of 3

Intended to address the University's global community objectives and provide scholarly background on human development in other cultures.

Prerequisites: PSYCH 110
Cross-listed with: SPSY 472
International Cultures (IL)

PSYCH 473: Behavior Modification

3 Credits

Principles of advanced behavior modification techniques.

Enforced Prerequisite at Enrollment: PSYCH 100 and PSYCH 261

PSYCH 474: Psychological Intervention in Childhood

3 Credits

Psychology of personal relationships in school situations.

Enforced Prerequisite at Enrollment: PSYCH100 and (PSYCH 212 or PSYCH 238 or PSYCH 243 or PSYCH 270)
Bachelor of Arts: Social and Behavioral Sciences

PSYCH 475: Psychology of Fear and Stress

3 Credits

Description and evaluation of major trends in research on stress and fear in humans and other animals.

Enforced Prerequisite at Enrollment: PSYCH 100 and PSYCH 260
Bachelor of Arts: Social and Behavioral Sciences

PSYCH 476: Child Psychopathology

3 Credits

Etiology, diagnosis, and facilitation of adjustment of the intellectually disabled, gifted, physically handicapped, and emotionally disturbed child.

Enforced Prerequisite at Enrollment: PSYCH 100 and (PSYCH 212 or PSYCH 238 or PSYCH 243 or PSYCH 270)
Bachelor of Arts: Social and Behavioral Sciences

PSYCH 477: Mental Health Practicum with Children

3 Credits

Overview of interventions for children at risk for mental health disorders; emphasis on intervention strategies, program evaluation, and applied skills.

Enforced Prerequisite at Enrollment: PSYCH 100
Bachelor of Arts: Social and Behavioral Sciences

PSYCH 478: Clinical Neuropsychology

3 Credits

Overview of functional human neuroanatomy and clinical neuropsychology, with emphasis on origin, assessment, and treatment of human brain damage.

Enforced Prerequisite at Enrollment: PSYCH 100 and PSYCH 260
Bachelor of Arts: Social and Behavioral Sciences

PSYCH 479: The Psychology of Gender

3 Credits

Theories and research on gender differences and gender roles. Emphasis on women's and men's current positions in society.

Enforced Prerequisite at Enrollment: PSYCH 100 and PSYCH 221
Cross-listed with: WMNST 471
United States Cultures (US)

PSYCH 480: Advanced Mental Health Practicum with Children

3 Credits

This course involves a continuation and extension of the training and practicum work initiated in PSYCH 477 Mental Health Practicum with Children. The advanced training provided in this course extends understanding of intervention and prevention program logic models and implementation strategies, and includes a focus on tailoring interventions to account for individual, contextual, and cultural factors. Students began their practicum working with children in PSYCH 477 and continue to receive training and supervision for ongoing, linked practicum work in this course. The key goals of this course are to help students: 1) build up a "toolbox" of therapeutic skills, techniques, and intervention approaches to use in the accompanying practicum and to use in future work with high-risk children, 2) understand how therapeutic group interventions with high-risk children are organized and conducted, and identify the key mechanisms of action that inform intervention design and drive positive child benefits, and 3) become familiar with the resource-base of evidence-based prevention programs and implementation supports to foster dissemination in communities. Lectures, class discussions, and presentations are included, along with practicum work review and supervision; accompanying practicum work with children is required. The

class requires a commitment of 9 hours per week, which includes class sessions, practicum work, and assignments.

Enforced Prerequisite at Enrollment: PSYCH 477

PSYCH 481: Introduction to Clinical Psychology

3 Credits

Diagnostic procedures, treatment approaches, occupational settings, and ethical considerations relevant to the profession of the clinical psychologist.

Enforced Prerequisite at Enrollment: PSYCH 100 and (PSYCH 238 or PSYCH 243 or PSYCH 270)

PSYCH 482: Selection and Assessment in Organizations

3 Credits

Background in personnel testing, performance measurement, selection strategies, with emphasis on validity and measurement reliability.

Enforced Prerequisite at Enrollment: PSYCH 100 and (PSYCH 200 or STAT 200) and PSYCH 281

Bachelor of Arts: Social and Behavioral Sciences

PSYCH 484: Work Attitudes and Motivation

3 Credits

Survey of theory and research with respect to attitudes, morale, and motivation of employees and management.

Enforced Prerequisite at Enrollment: PSYCH 100 and (PSYCH 200 or STAT 200)

Bachelor of Arts: Social and Behavioral Sciences

PSYCH 485: Leadership in Work Settings

3 Credits

Review of research and application of behavior principles in the areas of management and supervision.

Enforced Prerequisite at Enrollment: PSYCH 100 and PSYCH 281

Bachelor of Arts: Social and Behavioral Sciences

PSYCH 489: Professional Development in Psychology

1 Credits

Develop post-graduation plan for use of psychology major; develop professional presentation style.

Enforced Prerequisite at Enrollment: PSYCH 301W Enforced Concurrent at Enrollment: PSYCH 406W or PSYCH 490

PSYCH 490: Senior Seminar in Psychology

3 Credits

Capstone experience for senior psychology majors; review of current research literature; topics vary.

Enforced Prerequisite at Enrollment: PSYCH 301W

Bachelor of Arts: Social and Behavioral Sciences

PSYCH 491: Honors Thesis

3 Credits/Maximum of 3

An opportunity to pursue an advanced research thesis or project to integrate studies within psychology.

Enforced Prerequisite at Enrollment: PSYCH 300 or PSYCH 301W Honors

PSYCH 492: Current Topics in Psychology

3 Credits

Current topics addressing significant contemporary developments in psychology.

Enforced Prerequisite at Enrollment: PSYCH 100

PSYCH 493: Senior Thesis

3-6 Credits/Maximum of 6

Supervised senior thesis research in psychology.

Enforced Prerequisite at Enrollment: PSYCH 300 or PSYCH 301W Bachelor of Arts: Social and Behavioral Sciences

PSYCH 494: Research Projects

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Social and Behavioral Sciences

PSYCH 494H: Research Projects

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Social and Behavioral Sciences Honors

PSYCH 495: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: PSYCH 100

PSYCH 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

PSYCH 496A: **SPECIAL TOPICS**

1-6 Credits

PSYCH 496B: **SPECIAL TOPICS**

3 Credits

PSYCH 496F: **SPECIAL TOPICS**

1-6 Credits

PSYCH 496H: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Honors

PSYCH 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

PSYCH 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)

Public Policy (PUBPL)

PUBPL 120N: State, Society, and Public Policy

3 Credits

Alexis de Tocqueville called association the “mother science” of politics and saw voluntary associations as a pillar of American democracy. These associations must compete in what might be called a moral economy of public policy that preserves the value of equality. This course brings together ideas from political philosophy, history, political science, communication, sociology and economics to address an important question: How have voluntary, nongovernmental associations come to shape and implement public policy? The class begins with the core concepts in political thought and traces them through to contemporary ideas about civil society that span the political spectrum. After critically assessing these ideas, we integrate them into a framework for understanding the process of making public policy.

Recommended Preparations: Any humanities or social sciences course, prior or current registration

Cross-listed with: PLSC 120N, SOC 180N

Bachelor of Arts: Social and Behavioral Sciences

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

PUBPL 197: Special Topics

1-9 Credits

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

PUBPL 201: Introduction to Homeland Security

3 Credits

An introduction to homeland security, and defense, with a focus on policy, legal issues, organization, and administration. PUBPL 201 Introduction to Homeland Security (3) Introduction to Homeland Security provides a baseline of common knowledge for understanding the nature of homeland security. The course achieves this goal by focusing on homeland security, the motivation and nature of terrorists, the policies established by governments, pertinent governmental plans to meet homeland security goals, who the key players are in homeland security, and the relevant legal issues framing efforts to defend the nation's security. As an introduction to the broad area of study, this course serves as a basis for specialized study such as critical infrastructure protection, emergency response management (including natural disasters), border security, security administration, national security, and terrorism. Understanding key principles of homeland security will be expected from students who complete this course.

Cross-listed with: HLS 201

PUBPL 222N: Science and Politics of the Female Athlete

3 Credits

The purpose of this course is to explore gender differences in sport and politics that emerge from physiology, culture, history, politics, and policy. The engagement of women in sport has unique physiological considerations and ethical dilemmas as well as a rich history of defining moments and important ties to feminism and politics. In this course, students will learn how physiology differences affect female athletic performance and the effects of exercise on the female body, as well as how cultural, historical, and political forces shaped women's participation in sport. Students will also see how similar historical, cultural, and political forces affect women's involvement in politics. Combined, students will understand how similar forces shape gender norms and participation two different, yet related, aspects of society. Additionally, students will learn about the push for evidence-based policymaking and apply that knowledge to topics including doping, pregnancy, and gender verification. Students will integrate physiology and policy in a final assignment advocating for evidence-based sport policy. They will also educate their peers through a public education project.

Cross-listed with: KINES 222N, PLSC 222N

General Education: Health and Wellness (GHW)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

PUBPL 241: Computer Applications in Public Affairs/Criminal Justice

3 Credits

Introduction to computer applications for criminal justice and public affairs agencies. CRIMJ 241 CRIMJ (PUBPL) 241 Computer Applications in Public Affairs (3) The student will gain a working knowledge of microcomputer and Internet applications to utilize them in course and/or job functions. The class will be treated primarily as a lab. The purpose is to make the student familiar with popular computer applications in current use. Applications covered include: Word Processing (Microsoft Word); Spreadsheet (Microsoft Excel); Presentation Package (Microsoft PowerPoint); Database (Microsoft Access). Internet Applications include: email - Webmail; World Wide Web Browser - Netscape Communicator and Internet Explorer; and creating a Homepage.

Cross-listed with: CRIMJ 241

PUBPL 304W: Public Policy Analysis

3 Credits

The use of analytic models for describing and explaining the forces shaping policy and the consequence of policy decisions. PUBPL 304W Public Policy Analysis (3) This course provides an overview of the policy process and an examination of specific policy areas in the American political system. We will focus on what constitutes public policy and basic aspects of the policy process, including agenda setting, implementation, and policy evaluation. The course covers important contemporary policies such as health care, education, energy, welfare reform, and defense. It also will provide us with an opportunity to consider the utility of policy studies, and the various ways knowledge about particular issues is put to use by academics, partisan political figures, journalists, policy advocates, and policy makers.

Cross-Listed

Writing Across the Curriculum

PUBPL 305: Leadership Studies

3 Credits

Exposure to a wide range of leadership issues that will bring students to a new understanding of leadership as responsibility.

Prerequisite: fourth-semester standing

PUBPL 306: Introduction to Crisis and Emergency Management

3 Credits

An introduction to emergency management in mitigating, preparing for, responding to and recovering from hazards. PUBPL 306 Introduction to Crisis and Emergency Management (3) The course offers an overview of the field of emergency management in dealing with routine emergencies, crises or disasters, and mega disasters. Specific topics emphasized include: the roles and interactions of the public, nonprofit, and private sectors in emergency management; the legal and organizational structure of the national emergency management system; and the problems and policy issues associated with emergency management. This is done by examining the four phases of emergency management: mitigation, preparedness, response and recovery as they relate to resilience, the attempt to; and an overview, including case studies, of various human-made and, technological disasters as well as disasters related to natural hazards. Emergency management as conducted within the U.S. integrated emergency management system (IEMS) by local state

and national emergency management agencies, not terrorist incidents, is the course focus rather than the emerging field of homeland security and terrorist events.

Cross-listed with: HLS 306

PUBPL 419: Race and Public Policy

3 Credits

Seminar format course in which sociological theory and research are applied to current race policy issues. The course examines a number of different aspects of race relations and public policy, including the social and biological constructs of race, historical race policy, modern race policy, affirmative action, criminal justice and other issues regarding race.

Enforced Prerequisite at Enrollment: 3 credits in SOC

Cross-listed with: SOC 419

Bachelor of Arts: Social and Behavioral Sciences

United States Cultures (US)

PUBPL 471: Economic Inequality and Public Policy

3 Credits

Why is the United States among the most unequal affluent democracies and what role does public policy play in this? What policies successfully reduce wealth and income inequalities? How does economic inequality feed back into the policy process to shape subsequent responses to inequality? These are among the questions that we will examine in this course, which will look at the interrelationship between public policy, economic inequality and power differentials in the policy process. We will focus mostly on affluent democracies, and especially the United States.

Concurrent: PUBPL 304W

PUBPL 475: Critical Infrastructure Protection

3 Credits

This course provides knowledge about protection of critical infrastructure as an aspect of homeland security. PUBPL 475 Critical Infrastructure Protection (3) Critical Infrastructure Protection provides a definition of critical infrastructure and examines the importance of protecting it in the post-9/11 era. The course focuses on policies and programs designed to prevent catastrophic events and to protect and maintain the nation's critical infrastructure. It examines such activity through an understanding of the network of organizations at all levels of government and in the private sector responsible for protecting infrastructure. Case examples are provided of catastrophic events to provide an understanding of risks involved in infrastructure protection. Understanding key principles will be measured through preparation of a written analysis of a key homeland security/defense issue with alternative strategies consistent with current policy and legal constraints.

Prerequisite: PLSC 201; HLS 404

Cross-listed with: HLS 475

PUBPL 476: Homeland Security Intelligence

3 Credits/Maximum of 3

The Homeland Security Intelligence course provides a depth of knowledge of key intelligence issues for homeland security professionals.

Prerequisite: PLSC 201; HLS 404

Cross-listed with: HLS 476

PUBPL 481: Seminar in Environmental Policy

3 Credits

Fundamentals of evolution; impacts on natural resources; interaction of environmental issues, current decision-making process policy, enforcement mechanisms; future actions.

Prerequisite: seventh-semester standing

PUBPL 482: Seminar in Health Policy

3 Credits

Introduction to policy analysis of issues of current interest and importance to public administrators in the health industry.

Prerequisite: seventh-semester standing

PUBPL 483: Seminar in National Security Policy

3 Credits

This course provides a comprehensive overview of the process of U.S. national security policy - the principles, practices, and participants in the development and implementation of security strategy and policy. It applies theories and models to the bureaucratic policy making structure of the Executive Branch, looks at the roles of other governmental participants, and evaluates the many factors that constrain decision making. It assesses the impact of non-governmental entities such as the media, interest groups, and public opinion, and considers the effect of changing domestic factors on the process. Finally, it prepares students to be knowledgeable and effective participants in the process and presents them with a practitioner's framework for policymaking. The main themes of this course are that the U.S. Constitution established a federal government of separate institutions sharing powers within an intentionally inefficient system of checks and balances that has evolved by virtue of a dynamic process of Constitutional Amendments, legislative statutes, judicial decisions, and executive actions; and, that national security decisions are best understood by considering the bureaucratic context in which they are made within the Executive Branch, and as a result of the interaction of other governmental and non-governmental participants.

Prerequisite: seventh-semester standing

Cross-listed with: HLS 483, PLSC 483

PUBPL 490: Seminar in Public Policy

3 Credits/Maximum of 99

A survey of the major policy issues, actors and institutions involved in the policy-making system of contemporary society. (May be repeated for credit.)

Prerequisite: seventh-semester standing

PUBPL 495: Internship

1-12 Credits/Maximum of 12

Experience in a public service agency related to knowledge gained through academic course work, reading, and discussion.

Prerequisite: fifth-semester standing

PUBPL 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

PUBPL 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Radiological Sciences (RADSC)

RADSC 101: Radiographic Introduction and Procedures/Lab I

4 Credits

Radiology history, basic radiation protection principles, medical terminology, introduction to radiography and radiographic procedures/lab. As is consistent with the core courses in the Radiography program, a passing grade for enrolled radiography students is 75%.

Enforced Co-requisite at Enrollment: BIOL 161 and BIOL 162

RADSC 102: Radiographic Procedures/Lab II

4 Credits

Continuation of Radiographic Procedures/Lab I to include finish appendicular skeleton, axial skeleton and introduction to skull anatomy and positioning.

Enforced Prerequisite at Enrollment: RADSC 101 and RADSC 110 Co-requisites: BIOL 163 and BIOL 164 and RADSC 295B

RADSC 103: Radiographic Procedures/Lab III

3 Credits

Continuation of Radiographic Procedures/Lab II to include digestive, urinary, and biliary systems and facial bone work.

Enforced Prerequisite at Enrollment: RADSC 102 Co-requisites: RADSC 295C

RADSC 110: Patient Care in Radiologic Sciences

3 Credits

This course includes the basic concepts of patient care, including consideration for the physical and psychological needs of the patient and the family. Routine and emergency patient care procedures are addressed from the radiographer's perspective. Students will learn proper infection control techniques and will prove competency in CPR for healthcare workers. Students will learn drug nomenclature, legend drugs and different types of contrast used for procedures. As is consistent with the core courses in Radiological Sciences, students must achieve a grade of "C" or better

Enforced Co-requisite at Enrollment: RADSC 101 Concurrent Courses: BIOL 161 and BIOL 162. Recommended Preparation: Clinical orientation on campus

RADSC 204: Radiographic Exposure I

3 Credits

This course establishes a knowledge base in factors that govern and influence the production and recording of radiographic images. Topics include the importance of imaging standards, discussion of technique problem-solving for image evaluation and the factors that affect image quality. As is consistent with the core courses in Radiological Sciences students must achieve a grade of "C" (minimum of 75% average) or better for successful completion of the course.

Enforced Prerequisite at Enrollment: RADSC 103**RADSC 205: Radiographic Exposure II**

3 Credits

This course is a continuation of Radiographic Exposure I, with emphasis on electronic imaging, image formation, quality assurance, & related areas. As is consistent with the core courses in Radiological Sciences, students must achieve a grade of "C" or better.

Enforced Prerequisite at Enrollment: RADSC 204**RADSC 206: Advanced Radiographic Procedures**

3 Credits

Emphasis on specialized positioning and advanced radiographic procedures; includes introduction to cross-sectional anatomy. As is consistent with the core courses in the Radiography program, a passing grade for enrolled radiography students is 75%.

Enforced Prerequisite at Enrollment: BIOL 161 and BIOL 162 and BIOL 163 and BIOL 164 Co-requisites: RADSC 295E**RADSC 207: Registry Review**

2-4 Credits/Maximum of 4

Registry Review includes material from all radiological science courses, with emphasis on National Certification Examination, and career planning.

Enforced Concurrent at Enrollment: RADSC 206**RADSC 210W: Radiographic Pathology**

3 Credits

RADSC 210W Radiographic Pathology (3) A writing-intensive study of the basic fundamentals of pathology (disease process) with emphasis placed on radiographic presentation. Material covered includes the basic concepts of disease and terms related to pathology, systemic classifications of disease including etiology, examples, complications and prognosis, radiographic procedures and presentation, and the health process. Writing requirements include shorter and longer sequenced papers. All papers will receive instructor feedback and subsequent submission of a final revised paper. An informal writing assignment with peer review is also required. The writing process evolves throughout the course as the student applies knowledge learned to current assignments. This course is a requirement of the radiography (radiological sciences) curriculum and could be utilized as an option for students interested in a visual study of disease process such as health science and biology majors or for students in need of a writing-intensive course. As is

consistent with the core courses in the Radiography program, a passing grade of a C or higher is required for all RADSC majors.

Enforced Prerequisite at Enrollment: BIOL 161 and BIOL 162 and BIOL 163 and BIOL 164

Writing Across the Curriculum

RADSC 220: Radiation Biology and Protection

3 Credits

Study the principles of interaction of radiation with living systems, effects on cells and tissues, biological response, and radiation protection. The content of this course includes the basic fundamentals of radiation interactions, basic biology with emphasis placed on effects of radiation exposure on cells and on radiation protection mandates and techniques. This course is a requirement of the radiography (radiologic technology) curriculum and could be utilized as an option for other students interested in radiation effects such as health science, biomedical engineering, health physics or physics and biology majors. As is consistent with the core courses in the Radiography program, a passing grade for enrolled radiography students is 75%.

Enforced Prerequisite at Enrollment: RADSC 101**RADSC 230: Radiographic Physics**

3 Credits

Basic knowledge of atomic structure, characteristics of radiation, x-ray production, photon interactions, circuitry, imaging equipment and quality control. This course is a requirement of the radiography curriculum and could be utilized as an option for other students interested in radiation interactions and imaging equipment such as health science, biomedical engineering, health physics or physics majors. As is consistent with the core courses in the radiography program, a passing grade for enrolled radiography students is 75%.

RADSC 295: **SPECIAL TOPICS**

1-2 Credits/Maximum of 2

RADSC 295A: Radiologic Science Clinical Internship I

1.5 Credits/Maximum of 1.5

Supervised off-campus, non-group instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Prerequisite: admission to 2RCC program; Concurrent: RADSC 101 and RADSC 110**RADSC 295B: Radiological Sciences Clinical Internship II**

1 Credits/Maximum of 1

Supervised off-campus, non-group instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: RADSC 295A Co-requisites: RADSC 102

RADSC 295C: Radiological Sciences Clinical Internship III

1.5 Credits

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: RADSC 102 and RADSC 295B

RADSC 295D: Radiologic Science Clinical Internship IV

1 Credits/Maximum of 1

Supervised off-campus group instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: RADSC 103 and RADSC 295C

RADSC 295E: Radiologic Science Clinical Internship V

1.5 Credits

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: RADSC 295D Co-requisites: RADSC 206

RADSC 295F: Radiologic Science Clinical Internship VI

1.5 Credits

Supervised off-campus, non-group instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: RADSC 295E

RADSC 295G: Radiologic Science Clinical Internship VI-A

1 Credits

Supervised clinical education activities under the direction of registered radiologic technologists.

Enforced Prerequisite at Enrollment: RADSC 295E

Railroad Transportation Engineering (RTE)

RTE 294: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

RTE 301: Railroad Industry Overview and Economic Regulation

3 Credits

This course explores the relationship between railroads and customers, competitors, and the political, regulatory, and economic environment.

Prerequisite: ECON 102; Concurrent: RTE 303

RTE 302: Railroad Track Location, Construction and Maintenance

3 Credits

Principles of railroad track location, alignment, elements and safety regulations.

Prerequisite: C E 310 , C E 336; Concurrent: C E 335, C E 360

RTE 303: Railroad Operation and Safety

3 Credits

Basics of rail operations, including the role of terminals and safety principles.

Concurrent: RTE 301

RTE 305: Railroad Communications and Signals

3 Credits

Principles of the separation of trains, including signals, interlocking, and communications.

Prerequisite: PHYS 212 , CMPSC201 or CMPSC202; Concurrent: RTE 303

RTE 402: Railroad Operations Practicum

3 Credits

Practicum (lectures, supervised field work, laboratories) exploring practical problems in rail operations and safety.

Prerequisite: RTE 303 , RTE 305

RTE 403: Railroad Track Practicum

3 Credits

Practicum (lectures, labs, supervised field experiences) exploring the construction and repair of track.

Prerequisite: RTE 302 , C E 310; Concurrent: C E 333W, C E 335

RTE 404: Railroad Mechanical Practicum

3 Credits

Practicum (lectures, labs, supervised field experiences) examining the repair of locomotives and cars.

Prerequisite: RTE 303 , PHYS 211 , PHYS 212 , E MCH213

RTE 406: Railroad Capstone Project

4 Credits

Capstone project to integrate course knowledge in a team-based project.

Prerequisite: C E 333W , RTE 305 , RTE 402 , RTE 403 , RTE 404 , C E 332 , 7th semester standing

RTE 495: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

RTE 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

RTE 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Recreation, Park, and Tourism Management (RPTM)

RPTM 1: Introduction to Outdoor Pursuits

1.5-3 Credits/Maximum of 12

Introduction to Outdoor Pursuits (KINES 1/ RPTM 1) is a course that is designed to introduce the student to selected outdoor pursuit activities. The selected activities will depend on the time of the year and availability of resources. The activities could include but are not limited trail day hiking, mountain biking, backpacking, orienteering, kayaking, canoeing, cross country skiing, or to rock climbing experiences. All selected activities will follow the same basic format of skill development and training procedures, history and philosophical underpinnings of the activity, available written resources and professional organizations related to the activity, logistical equipment preparation, appreciation of environmental impact of partaking in the selected activity, safety management / risk assessment and future opportunities to participate in the activity. It is a purpose of this course to allow the student to explore different outdoor pursuit activities and then to make a more informed decision as to which activities they might choose to further develop their skill base and competency necessary to partake in the activity at a more advanced level on a life long basis. Through opportunities to develop camaraderie through collaborative work/ teamwork, students practice safe participation in the selected activities with attention to environmental impact. Students will experience a common skill base from which to engage in the activities. After completion of the course, students are encouraged to engage in adventure recreation programs, and other appropriate courses to help with the continued development of life skills. This course fulfills credits toward the GHW General Education requirement.

Cross-listed with: KINES 1

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

RPTM 98: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest

RPTM 100A: PGA Tournament Golf A

3 Credits/Maximum of 12

For students enrolled in the PGA Accredited Golf Management Option in RPTM This is a course that will be offered in the fall semester only for students pursuing Professional Golf Management which seeks to provide students with the knowledge and skills necessary to play golf at a high enough level to become a PGA Professional. The primary focus of the course will be on golf movement skills, on-course performance, and mental training for performance. At the completion of this course, students will be equipped to better evaluate each aspect of their golf game and design effective practice strategies that ultimately lead to his/her tournament performance. In addition, students will have the necessary knowledge of how to track his/her performance, and also how to most effectively implement proper practice and training programs that result in improved performance. There are a couple of other unique features of this course. The PGA requires this course to have an 8 to 1 student to PGA instructor ratio. Because of this, the students work with the faculty members and PGA Professionals from the Professional Golf Management Program and also the PGA Professionals from the Penn State Golf Courses. Additionally, students have regular access to the Golf Teaching and Research Center and the Penn State Golf Courses and their practice facilities, also a PGA accreditation requirement.

RPTM 100B: PGA Tournament Golf B

3 Credits/Maximum of 12

For students enrolled in the PGA Accredited Golf Management Option in RPTM This is a course that will be offered in the spring semester only for students pursuing Professional Golf Management which seeks to provide students with the knowledge and skills necessary to play golf at a level high enough to become a PGA Professional. The primary focus of the course will be on golf movement skills, on-course performance, and mental training for performance. At the completion of this course, students will be equipped to better evaluate each aspect of their golf game and design effective practice strategies that ultimately lead to his/her tournament performance. In addition, students will have the necessary knowledge of how to track his/her performance, and also how to most effectively implement proper practice and training programs that result in improved performance. There are a couple of other unique features of this course. The PGA requires this course to have an 8 to 1 student to PGA instructor ratio. Because of this, the students work with the faculty members and PGA Professionals from the Professional Golf Management program and also the PGA Professionals from the Penn State Golf Courses. Additionally students have regular access to the Golf Teaching and Research Center and the Penn State Golf Courses and their practice facilities, also a PGA accreditation requirement.

RPTM 100S: Introduction to Golf Management

2 Credits

First year seminar for students enrolled in the Professional Golf Management option of RPTM. RPTM 100S Introduction to Golf Management (2) This course is designed to provide 1st year students enrolled in RPTM - Professional Golf Management Option, an introduction to the University, to their major / option, and to the Professional Golfers' Association of America. The course objectives are to introduce students to active learning as a way to make the transition to a more demanding academic environment. Students in the class will participate in collaborative group projects, which should also provide opportunities for them to establish relationships with faculty and peers. Students will

investigate career opportunities within their field, as well as develop cover letters, resumes and reference sheets that will be necessary in obtaining internships for the summer session following their first year. Course content will also include information to help students become better students, by introducing them to available resources at the University, as well as develop skills in areas such as time management, study skills, note-taking etc. In addition, information will be introduced to help students become responsible members of the University community.

Enforced Corequisite At Enrollment: PSU 14
First-Year Seminar

RPTM 101: Introduction to Recreation Services

3 Credits

Introduction to discipline and exploration of professional career models/ paths, historical development of profession, expectations and opportunities in recreation services. The primary objective of this course is to provide students with an understanding of the historical and contemporary perspectives of the recreation and park profession. In addition, the course will provide an exploration of careers in leisure, recreation and parks, or related services with emphasis on the various leisure delivery systems. Main topics typically include: understanding of the roles and significance of leisure and recreation in past and present societies; awareness of the factors contributing to the emergence of specific movements, delivery systems, and agencies within the recreation and parks movement; knowledge of the specific roles assumed by public, private, nonprofit, community and commercial agencies in providing resources and contributing to contemporary participation patterns and lifestyles; awareness of professional career models, expectations, and opportunities; and, an understanding of issues and trends currently affecting the delivery of leisure services. This is a required course for the Recreation, Park and Tourism Management major, usually taken during the freshman or sophomore year. Students in other majors who are exploring Recreation, Park and Tourism Management are encouraged to enroll.

RPTM 102A: PGA Golf Operations Best Practices

3 Credits/Maximum of 12

RPTM 102A is a course designed to take a deep look into the success of some of the world's best golf operations, including but not limited to facility design and management, business planning, customer experiences, sales and merchandising, tournament operations, and golf tourism. The travel component for this course takes place over the spring break week each year and provides students with the opportunity to experience the facilities, region, and cultures first-hand, while also meeting with the management and staff of each facility. The out-of-class travel option will give the students an opportunity to experience different cultures, and to apply what was learned in class.

RPTM 115: Leadership Development in Snowsports

3 Credits

Leadership Development in Snowsports develops students understanding and skills in becoming a Snowsports industry professional. The course focuses on integrating knowledge across core business areas in Snowsport area management. Students will learn to identify and understand content, proficiencies and skills relevant to Snowsport operations by drawing on multidisciplinary aspects from hospitality and guest experience to physiology and sports training principles. The

course will provide students the opportunity to evaluate information and learn to guide decisions using critical analysis and problem solving skills based on students experiences. Case studies will be utilized to promote dialogue and develop reflective capacities. The course prepares students to work in the Snowsports industry and to understand the complexity of resort staffing and structures.

Recommended Preparation: Experience or current in snowsports, consider RPTM 120 and/or RPTM 215 Snowsports Education

RPTM 120: Leisure and Human Behavior

3 Credits

Leisure and Human Development introduces global concepts regarding leisure and health, from historical and contemporary perspectives, including forces shaping leisure behavior, and relationships among leisure, the environment, social institutions, and holistic well-being. Special attention is given to the role of leisure in individual and societal health and wellness, with applied examples from a U.S. context as well as international perspective. Main topics include: the role of leisure in past and present societies; the ways in which leisure, recreation, and play relate to personal health and wellness, the economy, personal identity, work, religion, sexuality, race, class, socio-economic status, time use patterns, and education; leisure's contribution to human development throughout the life course; the role of leisure in one's life, specialization in leisure activities, leisure careers, serious forms of leisure, and leisure and addiction; and trends in the world economy and culture, technology, urbanization and suburbanization, governance, and demography and how they may influence leisure behavior. Student performance is evaluated through exams and concept maps undertaken in class. Students also examine their own leisure by analyzing their use of time through various reflective writing assignments.

International Cultures (IL)

United States Cultures (US)

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

RPTM 120S: Leisure and Human Behavior

3 Credits

Leisure and Human Development introduces global concepts regarding leisure and health, from historical and contemporary perspectives, including forces shaping leisure behavior, and relationships among leisure, the environment, social institutions, and holistic well-being. Special attention is given to the role of leisure globally, in individual and societal health and wellness, with applied examples from a U.S. context as well as international perspective. Main topics include: the role of leisure in past and present societies; the ways in which leisure, recreation, and play relate to personal health and wellness, the economy, personal identity, work, religion, sexuality, race, class, socio-economic status, time use patterns, and education; leisure's contribution to human development throughout the life course; the role of leisure in one's life, specialization in leisure activities, leisure careers, serious forms of leisure, and leisure and addiction; and trends in the world economy and culture, technology, urbanization and suburbanization, governance, and demography and how they may influence leisure behavior. Student performance is evaluated through exams and concept maps undertaken in class. Students also

examine their own leisure by analyzing their use of time through various reflective writing assignments.

Enforced Corequisite at Enrollment: PSU 14

International Cultures (IL)

United States Cultures (US)

First-Year Seminar

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

RPTM 140: Outdoor School Field Experience

2 Credits/Maximum of 6

To provide students with educational leadership skills and teaching opportunities working with children in an outdoor residential camp setting. RPTM 140 Outdoor School Field Experience (2 per semester/ maximum of 4) is cross listed as SCIED 140. The Outdoor School Field Experience course allows students to observe, learn, and apply leadership techniques and teaching methodologies in an experiential, residential education program that occurs off campus. This field-based experience provides students with numerous opportunities to practice and refine their leadership and teaching skills through active participation in one week of Outdoor School Field Experience. Students are provided with the opportunity to explore personal values related to the natural environment, sustainable practices, health and wellness and technology, and to practice behavioral changes as they role model those values to the residential campers.

Enforced Prerequisite at Enrollment: Students must apply for and be accepted into the Outdoor School Field Experience.

Cross-listed with: SCIED 140

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

RPTM 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest

RPTM 198: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

RPTM 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

RPTM 201: Introduction to Community Recreation

3 Credits

This course introduces students to the role of community and non-profit recreation agencies in generating benefits for individuals and

communities. Using experience industry design/management and social justice perspectives, this course focuses on designing meaningful experiences that serve people from a variety of backgrounds and circumstances. Topics covered in this course include: the history of community and non profit recreation; environmental, economic, health, social and human development benefits of recreation; access and equity issues in recreation and community sport; engaging communities in decision making; the experience industry; and designing community recreation programs and spaces for meaningful experiences. Students will develop their ability to describe the benefits of community and non-profit recreation to individuals and society; identify disparities in access to recreation and the role of community and non-profit recreation in addressing these; describe methods and techniques for engaging community members in decision making; explain how theory informs the design of meaningful experiences; describe ways in which programs and places can be designed to facilitate meaningful experiences; and explain how individual and group characteristics should influence design to result in greater benefits.

RPTM 210: Introduction to Commercial Recreation and Tourism

3 Credits

Introduction to Commercial Recreation and Tourism is designed to introduce students to the historical and contemporary perspectives of the field of commercial recreation and tourism, and to serve as an introduction to the 'Commercial Recreation and Tourism' option within the Recreation, Park, and Tourism Management curriculum. The course will begin by offering a broad overview of this multifaceted field, highlighting the various roles that commercial recreation and tourism play locally, regionally, nationally, and globally. The course then shifts to focus on managerial considerations for practitioners in the field, preparing students to pursue a career in this expansive and exciting field.

RPTM 215: Snowsports Education

3 Credits

Snowsports Education is designed to guide students to become a certified snowsports educator. The course introduces students to materials and experiences which help to prepare them to undertake the Level I certification in any discipline of the Professional Ski Instructors of America & American Association of Snowboard Instructors (PSIA-AASI). The course is composed of three segments: 1) Introducing snowsports education, 2) Instructor certification process, and 3) Planning for continued professional development. The major topics of the first segment focus on the fundamentals of snowsports instruction, The Learning Connection Model, and on how to facilitate a learning experience for beginner and novice skiers and snowboarders. The second segment entails independent preparation for the PSIA-AASI Level I certification assessment and successful completion of the assessment. The final part of the course helps students interpret and reflect on their assessment feedback and prepare next steps as snowsports educators. Course activities include preparing written summaries and analyses of course topics, self-assessments and reflections of student's own instructing and professional experiences, and completing the PSIA-AASI Level I certification assessment. Students will need to join PSIA-AASI and pay for their level I assessment in addition to tuition fees. Membership with PSIA-AASI includes digital access to required course materials.

Recommended Preparation: Experience or current employment in snowsports is recommended. Students may also wish to complete

RPTM 120 and/or RPTM 115, Leadership Development in Snowsports for successful completion of the course.

RPTM 220: Sustainability, Society, and Well-being

3 Credits

We live in a world increasingly connected via global trade, political alliances and frameworks, transportation, vast and rapid digital, telecommunication, and traditional social and communication networks. Human health and well-being and ecological integrity face the challenging demands of exponential human growth that tax our planet's finite environmental resources. These challenges, framed as "the great acceleration of the Anthropocene" that pushes on planetary boundaries, demands sustainability become more of an imperative each day. But what exactly is sustainability? How does it relate to a career in Recreation, Park and Tourism Management (RPTM) or to your studies in other departments at Penn State? How does sustainability play into this career in the United States, on different continents and in different cultures? This course is designed to provide students with strong foundational knowledge about sustainability and how it relates to their career in RPTM. To develop students' understanding of the concept of sustainability, the course explores how interconnected social, economic, and environmental systems have resulted in the contemporary sustainability challenges we face at multiple scales and in multiple contexts, from the local to the national to the global. Each week students are presented with the large-scale, global status of a particular issue related to sustainability before then exploring these challenges in increasingly local contexts, including African and Asian nation, the U.S. and Pennsylvania, and a career path in RPTM. In contemplating the broad scope of sustainability, students will become better informed about the many ways that their career in RPTM is influenced by this multiscalar context of challenges to social, environmental, and economic sustainability and partnerships among organizations that face sustainability challenges. In exploring how RPTM activities exert an influence on sustainability goals articulated through the targets and indicators of the United Nations Agenda 2030: The Sustainable Development Goals and other frameworks, students will be better equipped to address sustainability challenges within the organizations in which they work and the communities where they work, live, and play.

International Cultures (IL)

United States Cultures (US)

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

RPTM 230: Teambuilding Facilitation

3 Credits

Learn leadership and teambuilding skills to facilitate group dynamics and adventure, team activities. RPTM 230 Teambuilding Facilitation (3)Through hands-on experience, discussion, and observation students will develop a sound background to the basics of teambuilding. This course will focus on the philosophy of team activities and experiential education, and the skills required to lead and facilitate teambuilding events. In addition to learning skills, the students will be asked to apply their knowledge of teambuilding to lead actual activities for their peers. Finally, students will be exposed to information about career opportunities in the field of teambuilding and adventure education.

Main topics include: An introduction to teambuilding philosophy and its relation to the outdoor education field. General concepts to be covered include: challenge by choice, full value contracts, the experiential learning cycle and the adventure wave. Activity understanding to include icebreakers, problem solving activities and trust events; Programming and activity sequencing; Leadership skills and the role of the facilitator; Stages of group development; Debriefing activities, transfer of learning and metaphoric transfer; Activity safety: emotional and physical; Risk Management and the elements of good judgment; Group assessment and program creation; Program evaluation. This course is one of the selections for RPTM majors in the adventure-based programming emphasis of the Outdoor Recreation Option. Students in other majors are welcome after RPTM majors have scheduled.

RPTM 236: Leadership and Group Dynamics in Recreation Services

3 Credits

Supervision in recreation services, including theories, strategies, group dynamics, applied leadership and decision-making skills. RPTM 236 Leadership and Group Dynamics in Recreation Services (3)The primary objectives of RPTM 236 are for students to examine both leadership and group dynamics as a function of leisure and recreation services. Students in RPTM 236 will be given a variety of leadership opportunities, both in and out of class, to begin to develop leadership skills as well as observe others in recreation leadership positions. Information on leadership theory and group dynamics (group development, roles in groups, group decision making) will be provided through group exercises and hands on experiences. Main topics include: Leadership theory; Approaches to leadership; leadership styles; Definition of group including characteristics and effective group management; Group decision making and problem solving; Recreation leadership skills including behavior management, interpersonal skills and motivation; Teaching as a leadership skill; learning theory; Communication as a leadership skill; Teambuilding RPTM 236 is a required course for RPTM majors. Students in other majors are welcome. It is strongly suggested that RPTM 236 be taken prior to, not concurrent with RPTM 356.

RPTM 240: Instruction and Leadership in Environmental Education

3 Credits

Outdoor School is a residential outdoor environmental education program attended by upper elementary-aged school children from school districts throughout central Pennsylvania. While serving as Outdoor School Leaders, RPTM 240 provides students with experience in two main areas, leadership/mentorship as well as residential outdoor environmental education lesson planning and delivery. They are approached in the following manner: - Group management and leadership techniques will be examined regarding working with peers (students taking RPTM 140 who are serving as Outdoor School Counselors) and effectively guiding youth participants in an outdoor setting. Outdoor School Leaders will explore what effective mentorship looks like, working with the Counselors to help them work towards their personal developmental goals by the end of the week. Outdoor School Leaders will also explore the intricacies of teaching outdoors, using the environment to keep the group focused and engaged in the learning process. By stepping into this broader leadership role, students taking this course expand the breadth of their responsibilities compared to RPTM 140. - Students will enhance their residential outdoor environmental education skills by designing lesson plans on natural history topics and implementing these lesson plans in an outdoor setting. Class sessions and assignments are designed to develop skills prior to the immersive field experience of applying these

techniques as an Outdoor School Leader. Outdoor School lesson plans include topics such as ecosystem science, sensory experiences in the outdoors, teambuilding, and the basic biology of native Pennsylvania fauna (sometimes taught using live animals). Students build upon the initial teaching experience provided in RPTM 140 by extending the creative process, granting students flexibility in how they plan and deliver lesson content as they develop a personal teaching style. While working towards mastery in the previous two areas, Outdoor School Leaders are also expected to contribute to the daily operations and logistics of their Outdoor School week. This includes items such as understanding relevant emergency protocols, applying sound risk assessment methodologies, and helping general programming run smoothly and safely.

Enforced Prerequisite at Enrollment: RPTM 140

RPTM 250: PGA Facility Management 1

2 Credits

For students enrolled in the PGA Accredited Golf Management Option in RPTM The PGA of America promotes its members as experts in the game and business of golf. Based on our current PGA Accreditation, RPTM 250 (PGA Facility Management) is a course designed to explore the various responsibilities and tasks associated with administering a full-service golf facility. Students will explore and apply management strategies to Business Planning, Customer Relations, Merchandising & Inventory Management, Tournament Operations, Rules of Golf, Golf Car Fleet Management, and Turfgrass Management. The course focuses on managing the golf operation in a way that delivers upon the business plan, offering the desired level of service to customers while also maintaining a viable, sustainable business. Students learn about the PGA Business Planning Model and use case studies to apply business planning concepts. The course also utilizes the PGA Work Experience Portfolio to document relevant training and experience. Students learn the business value of customer service and describe the components of the PGA Customer Relations Model. The course highlights the information about the importance of the golf car to the customer, the golf professional, and the facility. The course utilizes policies and procedures necessary for the operation of a safe and efficient golf car program. Students learn how golf shop design affects merchandise sales. Students will also learn the key terms used in the Rules of Golf and locate and apply Rules to frequently encountered situations. We will examine staff requirements for tournament operations, how to prepare for an event, and communicate tasks required for tournament execution. Students will also learn the types of grasses and soils, nutrient needs and the impact of climate and traffic stress. The course will also focus on common practices for maintaining healthy turfgrass including mowing, watering, fertilizing, aerating, pest control, and disease management.

RPTM 254: PGA Teaching and Coaching 2

2 Credits

RPTM 254 is the second course in the PGA of America's education program in the subjects of golf teaching and coaching. This is a required course for program accreditation. Upon successful completion of the course, students will understand how various types of feedback function and influence performance, the effects of various communication styles, design appropriate practice conditions including the use of various swing methodologies, assess physical capabilities of golfers, and make necessary basic golf equipment adjustments. Students will have the knowledge to proficiently teach the game of golf to a variety of populations, knowledge required of all Professional Golf Management

graduates. The final major topic, player development programs, teaches students how to identify the components of comprehensive player development programs and understand the needs and interests of diverse populations. This course continues to build upon the learning objectives of the PGA Teaching and Coaching 1 course (KINES 93), and is followed up by the PGA Teaching and Coaching 3 course (RPTM 354).

Enforced Prerequisite at Enrollment: KINES 93 Recommended

Preparation: For students enrolled in the PGA accredited Golf Management option in Recreation, Park, and Tourism Management

RPTM 277: Inclusive Leisure Services

3 Credits

The course provides a review of leisure services and programs designed to be inclusive of individuals from underrepresented groups and an overview of professional, legal, and ethical issues. Students receive information about the history of social movements toward inclusive leisure services and acquire knowledge about people who experience oppression, marginalization, and are disenfranchised as well as strategies to enhance their leisure. The course highlights information about the psychological and sociological significance of discretionary time, recreation, and leisure for all people. In addition, the course provides details on social, psychological and physical circumstances that create barriers to leisure engagement. The course addresses current issues related to inclusive leisure services and ethical and professional behavior in the reduction of barriers and subsequent delivery of such services. The course focuses on increasing students' awareness of the needs and interests of diverse populations as well as promotes understanding of principles and procedures for effective social, cultural and environmental design of leisure services, areas, and facilities that facilitate inclusion. Students learn about legal foundations and responsibilities of leisure service providers in serving all people and develop an understanding of ways to comply with professional, legal, and regulatory standards. The course provides students with guidelines to follow so that they help people experience the psychological, social, and physical benefits of leisure. Students receive information on ways to endorse people's culture, with culture used broadly to include characteristics such as ethnicity, religion, sexual orientation, and race. In this course, students explore various characteristics such as people's abilities, age, gender, economic resources, and family and the influence that these aspects of their lives have on their leisure and how to design community leisure services that address challenges in any of these areas. The course is based on ethical principles including the belief that everyone is deserving of respect and has right to be self-determined and that no one can be reduced to a single characteristic. Another cluster of ethical principles focus on the notion that inclusion is good and diversity enriches our world. Finally, since service providers have substantial power and responsibility, they are encouraged to have ethical beliefs drive their behaviors as they consider perspectives other than their own and engage in critical and constructive thinking to contribute to a more just society. Students are exposed to the historical background, development, and current configurations of various groups in our pluralistic American culture. Such exposure will promote an understanding of complex issues of inter-group relations and many kinds of cultural contributions that have shaped our nation. The course strives to increase students' understanding of contemporary United States society.

United States Cultures (US)

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Soc Resp and Ethic Reason

RPTM 280: Wilderness First Aid

1 Credits

Wilderness First Aid focuses on the basic skills of Response and Assessment, Musculoskeletal Injuries, Environmental Emergencies, Survival Skills, Soft Tissue Injuries, and Medical Emergencies. Successful completion of this course includes a certification in Wilderness First Aid by an outside, certifying organization.

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

RPTM 294: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

RPTM 295: ****SPECIAL TOPICS****

1-4 Credits

RPTM 295A Introduction to Golf Management (1)The primary objective of this course is to complete a 40-hour per week internship at an approved golf property. While on internship the student will complete assignments involving the United States Golf Association's rules of golf. The student will also complete a variety of assignments associated with tournament operations and the teaching of the game of golf to both adults and juniors. Another primary objective involves golfer development programs. Main topics include: *Rules of Golf: officiating, rules clinic, newsletters, tips, and course clinic * Tournament Operations: budgeting, staffing, publicity, course preparation, health and safety issues, tournament operations software, and evaluation * Introduction to Teaching Golf: research teaching styles, lesson observation, and conducting a series of lessons * Development of Golfer Programs: program design, planning, budgeting, scheduling, problem solving, and program evaluation This is a required course for all students in the Golf Management Option that are majoring in Recreation, Park and Tourism Management. The internship is not open to students of other majors.

RPTM 295A: Introduction to Golf Management

1-4 Credits/Maximum of 4

Introduction to various phases of golf operations in public, private, municipal, or military settings.

Enforced Prerequisite at Enrollment: 2.00 cumulative grade point average Full-Time Equivalent Course

RPTM 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

RPTM 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

RPTM 299: Foreign Studies

1-12 Credits/Maximum of 12

Foreign Studies in RPTM.

Enforced Prerequisite at Enrollment: RPTM 199 International Cultures (IL)

RPTM 300Y: Tourism and Leisure Behavior

3 Credits

Examination of the impact of recreational sociocultural, governmental, economic, and physical environment on the leisure traveler within the tourism industry. RPTM 300 Tourism and Leisure Behavior (3) (IL)The objective of this course is to help students understand the tourism concept from a national and international perspective. The students will debate the motivations that lead people to engage in tourism and in hosting tourists. They will also examine the social, economic and ecological impacts that tourism development can bring to host communities and to tourists. The students will finally apply all the learned materials to conceptualize sustainable development strategies that aim at improving the quality of live of host communities, provide quality experiences to visitors, and protect the existing cultural and ecological resources of the destination. Main topics typically include:; History - How people engage in tourism throughout all periods of history and the influence of major historic events on modern tourism; Socio-cultural impacts - How host cultures are transformed through tourism; Economic impacts - Revenues and costs to host economies due to tourism; Ecological impacts - Ways in which tourism helps and hurts the environment; International terrorism and peace - Why tourism is called the peace industry and how it is affected by terrorism and political instability; Sex tourism - Why tourism can alleviate or aggravate the exploitation of vulnerable segments of society; Tourism planning and policy - How to plan and manage tourism in ways that it produces sustainable benefits to the host community This is a required course for RPTM majors in the Community and Commercial Recreation option. Students in other majors are welcome.

International Cultures (IL)

Writing Across the Curriculum

RPTM 310: Experience Design and Event Management

3 Credits

The Experience Design and Events Management course prepares students to practice strategic event management, project management, and program budgeting and develop a knowledge base in event technologies. Students will also focus on experience design, learning and applying human-centered design processes (e.g., elements of experience and experience mapping and creating personas) that lead to purposeful audience-centered experiences. Finally, students participate in a global and cultural engagement experience to explore these ideas in and outside the classroom. Using the latest communication and social media tools, students engage with event/programmed experiences in locations and with people who offer diverse perspectives on events and experiences.

RPTM 320: Recreation Resource Planning and Management

3 Credits

Relationship between leisure behavior and natural environment. Exploration of natural resources which enhance leisure. RPTM 320 Recreation Resource Planning and Management (3) This course is an introduction to managing the recreational use of U.S. lands, waters, and wildlife. Course objectives include providing students with an awareness of the scope of outdoor recreation resources and major outdoor activities; knowledge about outdoor recreation resource agencies, their mandates, and their resources; an understanding of key outdoor recreation issues and impacts and their relationships to activity type and visitor behavior; knowledge about appropriate management tools for addressing impacts; and an understanding of the contribution of planning to effective recreation resource management. Main topics typically include: Introduction to the scope of outdoor recreation in the U.S., key characteristics of major user groups, visitor motivations and benefits, and phases of the recreation experience; The recreation resource base; Federal, state, local, and private recreation resource providers; Ecological impacts of outdoor recreation; Conflict, crowding, and equal access in outdoor recreation; Recreation carrying capacity, direct and indirect management techniques, and concentrating versus dispersing; visitor use; Facilities and design of recreation sites; Visitor use limits, permits, and fees; Information, education, and programs for visitors; Visitor use monitoring; Planning frameworks for outdoor recreation. This is a required course for RPTM majors in the Outdoor Recreation Option. The course is open to students in all majors.

RPTM 325: Principles of Environmental Interpretation

3 Credits

Introduction, history, practice, and principles of contemporary interpretive activities common to natural and cultural history program sites. RPTM 325 Principles of Environmental Interpretation (3) The primary objective of this course is to provide students with an overview of the field of environmental interpretation with special emphasis in understanding and applying the principles inherent in effective programs and presentations. The second objective is to provide information about career opportunities in the interpretive profession. The third objective is to provide students with a variety of service learning opportunities to help them refine their career aspirations. Main topics typically include: Becoming aware of the history, professional resources and best practices in the field of environmental interpretation; Creating and using effective interpretive materials including exhibits and visual aids in non-formal programs; Demonstrating sound interpretive methods and techniques by conducting short presentations; Gaining an awareness of the operation of a visitor center and the experience of using live animals in interpretive programming; Demonstrating a competency in program development by participating in the planning, presenting and evaluation of the Children's Halloween Trail at Shaver's Creek Environment Center. This course is one of the selections for RPTM majors in the Environmental Interpretation emphasis and the Adventure-based Programming emphasis of the Outdoor Recreation Option. Students in other majors are welcome. This course is a pre-requisite for RPTM 326, 327, 425, and 430.

RPTM 326: Natural History Interpretation

3 Credits

Methods, techniques, resources to acquire knowledge of natural history. Field identification, projects of an applied nature, and seasonal application. RPTM 326 Natural History Interpretation (3) The primary

objective of this course is to give students the basic skills and resources to research and interpret the natural history of a given park or natural area. Building on the prerequisite course (RPTM 325: Principles of Environmental Interpretation), students continue to apply and practice principles that help create effective outdoor programming. The second objective is to provide students with a variety of service learning opportunities to help them refine their career aspirations. Main topics typically include: *Learning the skills and available resources to identify common fauna and flora found in Central PA including birds, mammals, amphibians, trees and wildflowers *Imparting a basic understanding of the ecology of the Eastern Forest landscape and the ability to interpret that understanding to a general audience. *Writing a short natural history interpretive article for a general audience. *Demonstrating sound interpretive methods and techniques by conducting short presentations. *Gaining an awareness of the operation of a visitor center and the experience of using live birds of prey in interpretive programming. *Demonstrating a competency in program development by planning, researching, and presenting a natural history program in an outdoor setting to their peers. This course is one of the selections for RPTM majors in the Environmental Interpretation emphasis of the Outdoor Recreation Option. Students in other majors are welcome providing they have met the pre-requisite (RPTM 325).

Enforced Prerequisite at Enrollment: RPTM 325**RPTM 327: Cultural History Interpretation**

3 Credits

Methods, skills, and techniques necessary for the programming of historical sites and areas. RPTM 327 Cultural History Interpretation (3) The purpose of this course is to provide students with an understanding of the cultural resources within central Pennsylvania and to learn how to effectively interpret these resources through interactive programs and experiences. Building on the prerequisite course (RPTM 325: Principles of Environmental Interpretation), students continue to apply and practice principles that help create effective outdoor programming. Main topics typically include: *Demonstrating sound interpretive methods and techniques by conducting short presentations *Demonstrating a competency in program development by planning, researching, and presenting two different 1st Person Interpretation -living history programs in an outdoor setting to the general public and to school groups. *Participation, planning and presenting a Maple Sugaring Lesson at the community attended Maple Harvest Festival. *Engaging in research and writing of a Historical Character Paper. Learning how and where to conduct cultural history research in any community by utilizing historical societies, historical sites, libraries, and personal interviews. *Observation of professional cultural history interpreters. This course is one of three selections for RPTM majors in the environmental interpretation emphasis of the Outdoor Recreation Option. It is included as part of the 'Discovery Semester' block of courses taught by faculty at the Shaver's Creek Environmental Center.

Enforced Prerequisite at Enrollment: RPTM 325**RPTM 330: Adventure-Based Program Leadership**

3 Credits

Both theoretical and experiential components are included as the role of the leader in adventure-based programs is examined. This course will focus on the philosophy, leadership techniques, ethics, and current practices in the area of adventure-based programming. Focus of instruction will be upon developing skills for facilitating personal

growth and providing leadership for outdoor pursuits within a plethora of different outdoor pursuits. Main topics to be covered: outdoor leadership skills and behavioral styles and they pertain to leading groups, creating community through team building and debriefing activities, understanding the value of balancing technical with interpersonal and judgement skills, decision making, conflict management, and assessing and planning for risk in the field. A one-night retreat is included in the course curriculum. RPTM 330 is one of the selections for RPTM majors in the Adventure Recreation Pathway of the Outdoor Recreation Option. The course is open to students from all majors.

RPTM 334: Non-profit Recreation Agency Operations

3 Credits

Recreation agencies in voluntary and semiprivate sectors will be investigated through membership strategies, fund raising, volunteer management, etc. case studies. RPTM 334 Non-Profit Recreation Agency Operations (3) The primary objective of this course is to expose students to the operational practices and missions of nonprofit recreation and tourism organizations. In particular, this course will allow students to investigate voluntary and semi-private sectors through membership strategies, fundraising and development roles, and volunteer management. Primary topics taught in this course will typically include the following: *The role of non-profit organizations in providing park, recreation and tourism opportunities *Missions, governance procedures, and societal roles associated with non-profit organizations *Program support functions and non-profit fundraising strategies *Skills and roles of professional staff in non-profit organizations This course is a requirement for RPTM majors in the park management emphasis of the Outdoor Recreation Option. This is also a supporting course (i.e., department list) for RPTM majors in the Commercial and Community Recreation Management Option. Students in other majors are welcome after all RPTM majors have been scheduled.

RPTM 335: Outdoor Recreation Consortium

3 Credits

The purpose of the Outdoor Recreation Consortium is to provide students with hands-on exposure to outdoor recreation resources management in a National Park. It is designed to increase students' understanding and appreciation of outdoor recreation resources, the agencies managing those resources, the management strategies used, and the factors affecting management, including issues related to the nearby "gateway communities" and the park's broader environment. The course format is one which focuses on problem solving, encourages a high level of interaction among participating students, faculty, managers, and gives participants an opportunity to connect with nature.

RPTM 336: Accounting in Recreation, Park, and Tourism Management

3 Credits

This course provides the student with the core knowledge needed to understand the kinds of data generated by the financial systems of recreation operations, prepare budgets, perform forecasting and breakeven analysis, and provide control over the financial aspects of the recreation/park/tourism business. Main topics typically include: Introduction to managerial decision-making; Cost behavior analysis; Cost, volume and profit analysis; Pricing decisions; Preparation of operational budgets; Calculation and interpretation of cost and revenue variances; Preparation of cash budgets and control over cash; Preparation of the

statement of cash flows; and Preparation of financial statements in the recreation/park/tourism industry.

RPTM 345: Guest Activities Practicum

3-6 Credits/Maximum of 6

The purpose of the Guest Activities Practicum is to provide students with hands-on exposure to the guest experiences industry within commercial recreation settings. Students interact with faculty, other students and professionals from industry in the collaboration and sharing of ideas. The course is designed to increase students' understanding and appreciation of the guest experience, the issues related to delivering recreation services in commercial recreation settings, principles of tourism, management strategies, and the factors affecting guest services. The course format is one that focuses on problem solving, encourages a high level of interaction among participating students, faculty, industry partners, and gives participants an opportunity to actively engage with customers. The course includes an embedded travel component in which students and faculty visit a guest experiences focused commercial recreation such as a resort or cruise ship and then work with industry partners on a designated project with student recommendations that might be implemented on site. The course includes course fees for travel.

Enforced Prerequisite at Enrollment: RPTM 120, Permission of program through application Recommended Preparation: Permission of program through application.

RPTM 350: PGA Facility Management Level 3

2 Credits

Based on our current PGA Accreditation Standards and Criteria, RPTM 350 (PGA Facility Management Level 3) is a course designed to continue to explore the various responsibilities and tasks associated with administering a full-service golf facility. Students will explore and apply management strategies to business planning, golf operations, merchandising and inventory management, golf car fleet management, supervising and delegating, turfgrass management, food and beverage control, and career enhancement. The course focuses on managing the golf operation in a way that delivers upon the business plan, implementing operational policies and procedures while maintaining a viable, sustainable business. Students learn about assessing the current state of business and analyze financial history to create a financial forecast and operating budget. The course aligns and implements operational policies and procedures and technology systems to support the business plan. Students will learn about merchandise assortment plans, ordering and receiving merchandise, and promotional campaigns and events to sell through merchandise. Students will also learn to project golf car fleet revenue, cost, and profit, and identify how budgeting changes will impact the bottom line. Students will learn how to describe the performance system for supervising and delegating and use elements to the performance system to delegate assignments and how performance problems are managed appropriately. The course will also examine practices that improve the golf course while protecting the environment and students will learn about the process to design a new golf course or renovate an existing course. We will examine the features and benefits of a successful food and beverage operation and identify areas where food services and the golf operations should coordinate efforts. Students will also learn the components of an employment agreement or contract, negotiation strategies for compensation packages, and how to access PGA employment resources.

Enforced Prerequisite at Enrollment: RPTM 250 Recommended

Preparation: For students enrolled in the PGA Accredited Golf Management Option in RPTM

RPTM 354: PGA Teaching and Coaching 3

2 Credits

Based on our current PGA accreditation standards and criteria, RPTM 354 is the final course in the PGA of America's education program in the subject of golf instruction. This is a required course for program accreditation. Upon successful completion of the course, students will be able to explain how learning occurs in the process of golf skill development as well as the theories and factors that influence the transfer of learning. Students will be able to use a variety of techniques to measure performance levels of golfers and also understand the effects of golf club fitting on ball flight and golfer performance. The final major topic, player development programs, teaches students how player development programs contribute to facility operations and will be able to develop, market, and promote comprehensive player development programs.

Enforced Prerequisite at Enrollment: RPTM 254 Recommended

Preparation: For students enrolled in the PGA Accredited Golf Management Option in RPTM

RPTM 360: Golf Operations Management

3 Credits

The course will focus on business planning, budgeting, inventory management, and financial controls within golf operations. RPTM 360 Golf Operations Management (3) The primary purpose of this course is to prepare a student in the fundamentals of retail management pertaining to effectively operating a golf shop. Although successful retail management of a golf shop requires many different considerations, this course specifically emphasizes the planning and controlling of both the operational and merchandising effort. The first objective is to teach the student about the planning process that is necessary to effectively manage a retail business. The second objective is to provide a student with an understanding of the practices and procedures in operating a golf shop. The third objective is to teach the student effective merchandising and pricing techniques. Main topics typically include: Types of plans that are needed in order to operate a retail business effectively; Developing strategic plans and business plans; Effective merchandising techniques for purchasing, pricing and selling; Planning techniques concerning both the purchasing and selling process; Quantitative open-to-buy planning as well as effective assortment planning procedures; Vendor selection and relations as well as negotiable terms of sale; Techniques regarding pricing, merchandise presentation and promotion. This is a required course for RPTM majors in the Golf Management Option. It is usually scheduled during the student's sixth semester. Students from other majors may enroll after RPTM majors have registered.

Enforced Prerequisite at Enrollment: BA 304

RPTM 370: Introduction to Arena Management

3 Credits

Introduction to arena and facilities management including operations, budgeting, marketing and staffing. Course is taught on site at a sports/ entertainment arena (ex: the Bryce Jordan Center). RPTM 370 Introduction to Arena Management (3) Introduction to Arena Management introduces students to the complex skills and duties

required to manage a sports/entertainment arena. The course is taught on-site at the Bryce Jordan Center at University Park. Main topics include: facility design and facility law; event planning and production; history of the touring industry; entertainment and sports booking; ticketing; marketing and public relations; crowd management, safety and implications of the Americans with Disabilities Act; technology and ticketing systems; professional and collegiate sports management; and partner agencies i.e. food and beverage. Student performance is evaluated through exams and special projects, including a formal small group presentation. Students are provided with exposure to a variety of experiential learning opportunities in service departments throughout the arena. Assignments are targeted to current events in the arena management industry.

Enforced Prerequisite at Enrollment: RPTM 120

RPTM 390: Political and Legal Aspects of Recreation Services

3 Credits

The primary objective of this course is to examine the governmental systems that influence the delivery of recreational services. The formal structure of government is considered along with the day-to-day political processes that determine public policy. All three levels of government- federal, state, and local are studied. Particular attention is given to the judicial systems of these governments. The course also gives considerable attention to tort liability by examining case law as it relates to recreation facilities and services. The course also explores federal and state laws pertaining to employer/employee relations and administrative responsibilities. Main topics include: The Court Systems, legislative branches; planning and development: historical perspective, land use, zoning, mandatory dedication, easements, building codes; liability: elements of negligence, situations giving rise to law suit, product liability, defenses & risk management, review; personnel laws; Federal laws, State Human Relations Acts, Civil Service, Hatch Act, FLSA, finance, garnishment & bankruptcy; the Americans with Disabilities Act; Public Relations Law: copyright, photography, lotteries, libel, slander, privacy; Administrative Law: purchasing, entrepreneurship, Federal Tax laws. This is a required course for all students majoring in Recreation, Park and Tourism Management. It is open to students of other majors, providing they have met the pre-requisite.

Enforced Prerequisite at Enrollment: RPTM 120

RPTM 394: Orientation to Internship

1 Credits

Plan and prepare for internship in Recreation Services. Analyze career opportunities, internship process, and associated requirements. For RPTM majors only. RPTM 394 Orientation to Internship (1) The primary objective of this course is to assist students with planning and preparing for their professional Practicum experience. The supporting objectives are: to provide awareness of the role and significance of the Practicum experience, including its relationship with professional practice; assist students in their understanding of the placement process, including prerequisites for placement; provide students with a working knowledge of their requirements while on Practicum, including contractual arrangements, on-site professional conduct, written assignments, evaluation procedures and evaluation criteria; and to provide the students with knowledge of post-practicum concerns, including resources for professional employment and professional certifications. Main topics typically include: ♦ Introduction to the practicum experience and pre-requisite requirements ♦ Personal and professional needs assessments

and the importance of determining deficit skill and competency areas as related to the student's intended career. ♦ Development of career and practicum goals and their relative importance to practicum site research and selection. ♦ Preparation of a professional cover letter and resume. ♦ Searching for and selecting possible practicum sites ♦ Professional approaches to contacting, communicating and following-up with prospective practicum agencies. ♦ Interviewing skills, including various interview formats, commonly asked questions, appropriate body language, and professionalism. ♦ Practicum requirements, including assignments, communication with the university and agency supervisor, and academic and performance evaluation. ♦ Post-practicum concerns, including graduation, employment, and professional certifications. This course is required of RPTM majors (except Golf Management Option), and is usually taken two semesters prior to the semester that a student plans to participate in RPTM 495A (Internship in Recreation Services). The course is not open to students from other majors. Students are evaluated by performance on written assignments and quizzes. This course is offered both spring and fall semesters with typical enrollments of 70-90 in the fall and 50-70 in the spring.

Enforced Prerequisite at Enrollment: 5th semester standing

RPTM 395A: Internship in recreational services

1-3 Credits

The internship provides a paraprofessional experience in which students simultaneously acquire skills in the field while using classroom knowledge to solve problems and generate new ideas in a commercial recreation, event or tourism setting. Under the guidance of the agency supervisor and the faculty coordinator, students will develop management and leadership skills as well as be exposed to strategic planning. The internships provide opportunities to increase knowledge and develop skills in event and program design, site and program management and approaches to assessments and evaluation. In addition, students will practice the art of customer service and stakeholder management. In addition to developing professional knowledge, students have the opportunity to develop professional performance (e.g. goal setting and achieving, time management, problem-solving), professional demeanor (e.g. professional courtesy, appearance, interpersonal communication) and professional attitudes (e.g. professional curiosity, respecting departmental policies, accepting direction and constructive criticism, and maintaining productivity and efficiency in age of distraction).

RPTM 395B: Participation in Golf Management

1-4 Credits/Maximum of 4

RPTM 395B Participation in Golf Management (1-4) The primary objective of this course is to complete a 40-hour per week internship at an approved golf property. While on internship the student will complete assignments involving: turfgrass management, analysis of the golf swing, and pre-work in merchandising and inventory management. Main topics include: Turfgrass Management: routine and non-routine maintenance, practices, traffic management, environmental issues, pest control, communications with superintendent. Analysis of the Golf Swing: video lessons, business plan for teaching, clubfitting systems. Merchandising and Inventory Management (pre-work): explore OTB practices, compare product lines, profile vendors, pricing methods, and evaluation of merchandise displays This is a required course for RPTM majors in the Golf Management Option. The internship is not open to students in other majors.

Enforced Prerequisite at Enrollment: RPTM 295A or 2.00 cumulative grade point average
Full-Time Equivalent Course

RPTM 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

RPTM 399: Foreign Studies

1-12 Credits

Foreign Studies in RPTM.

International Cultures (IL)

RPTM 410: Marketing of Recreation Services

3 Credits

Theoretical/practical application of marketing/advertising strategies in the development/delivery of recreation services. RPTM 410 Marketing of Recreation Services (3) The primary objective of this course is to provide students with an overview of marketing in general and recreation/tourism marketing in particular. Supplemental objectives are to (a) provide students with a review of different marketing theories and practices and (b) help students apply marketing principles to practical recreation/tourism situations. Main topics typically include: Introduction to marketing and its evolution; Parameters of the recreation/tourism experience and how this affects marketing practices; Defining and segmenting the consumer market; The marketing mix; Conducting marketing research in an effort to develop effective marketing strategy; Service quality and its impact on marketing strategy; Customer loyalty and its impact on marketing strategy; Recognizing and responding to the changing needs of consumer markets. This is a required course for RPTM majors, generally taken after completion of the introductory courses in the major. Students in other majors, including those pursuing the Liberal Arts Business minor, are welcome after RPTM majors have scheduled.

Enforced Prerequisite at Enrollment: 5th semester standing

RPTM 415: Commercial Recreation Management

3 Credits

Planning, developing, and managing profit-oriented recreation opportunities. RPTM 415 Commercial Recreation Management (3) Building upon subject matter presented in many of the core RPTM courses, the primary objective of this course is to provide students with an understanding of strategic management processes and how they apply to recreation/tourism businesses. A second objective is to develop students' decision-making and analytical abilities. Main topics typically include: An overview of the strategic management process; Having the mindset of an entrepreneur/intrapreneur; The "ins and outs" of conducting feasibility studies; The pros and cons of different forms of business; Generating and setting short- and long-term goals and objectives for recreation/tourism businesses; Capitalizing, financing and budgeting for recreation/tourism businesses; Planning, organizing, managing and controlling recreation/tourism businesses; Regulations, taxation and licensure of recreation/tourism businesses; Recognizing the importance of developing and maintaining relationships with various constituencies; Options for strategic growth This course is required of RPTM majors in the Commercial and Community Recreation

Management option. Students take this course after or concurrent with RPTM 410. Students in other majors who have met the pre-requisites, including those pursuing the Liberal Arts Business minor, are welcome after RPTM majors have scheduled.

Enforced Prerequisite at Enrollment: RPTM 210 and RPTM 410 and 5th Semester standing

RPTM 425: Principles of Interpretive Materials

3 Credits

Principles, practices, application of non-personal interpretive activities common to natural/cultural history, including exhibits, audio-visual and illustrative materials. RPTM 425 Principles of Interpretive Materials (3) The primary objective of this course is for students to follow the exhibit creation process from conceptualization through construction to completion. Along the way, students will present their works-in-progress to fellow students and instructors for modification and improvement. Their final products will be used in a practical environment in the exhibit room at Shaver's Creek Environmental Center and at various educational functions around the state - PA State Farm Show, Central PA Festival of the Arts, Penn State's Ag Progress Days, etc. Main topics to be covered: *Topics vs. Themes: narrowing the unifying concepts in exhibit design *Flow in an exhibit and museum space: how to guide logical progression of thought in both an exhibit and exhibition area *Color Schemes *Computer aided design techniques *Woodworking skills This course is one of the selections for RPTM majors in the environmental interpretation emphasis of the Outdoor Recreation option. Students from other majors may enroll in this course if they have met the pre-requisite (RPTM 325).

Enforced Prerequisite at Enrollment: RPTM 325

RPTM 430: Environmental Education Methods and Materials

3 Credits

Methods and materials for developing, implementing, and evaluating environmental education programs within formal and non-formal educational settings. RPTM (AEE) 430 Environmental Education Methods and Materials (3) The primary objective of this course is to provide students with an introduction to Environmental Education (EE) methods (pedagogy) and materials for both formal and non-formal settings. A second objective is to provide the student with an opportunity to apply specific methods and materials to practical situations at Shaver's Creek Environmental Center. These opportunities include Outdoor School, School Day Programs, Maple Harvest Festival, and Scout Programs. A third objective is to provide information about gaining access to EE materials through web-based, written, and personal contacts. Main topics typically include: Introduction to the history, definition, and philosophy of Environmental Education (EE); Differences between formal and non-formal EE settings; PDE Environment & Ecology Standards; Models of EE pedagogy; Place-based-education labs covering: The Land, Water Resources, Fauna, and Flora; Keystone Aquatic Resource Education; teacher resource workshop (or other national curricula- i.e. P WILD, PLT, Project WET, etc.); EE Resources available at SCEC, the web, and other EE centers. This course is one of the selections for RPTM majors in the environmental interpretation emphasis and adventure-based programming emphasis within the Outdoor Recreation option. Students from other majors may enroll in this course if they have met the pre-requisite (RPTM 325).

Enforced Prerequisite at Enrollment: RPTM 325

RPTM 433W: Program Evaluation and Research in Recreation Services

3 Credits

Systematic, structured problem-solving process for decision making in recreation and parks. Research techniques/evaluation procedures; quantitative, qualitative methodologies; deductive, inductive reasoning. RPTM 433 Program Evaluation and Research Services (3) The goal of this course is to provide students with the background necessary to understand and evaluate research reports and to conduct research projects of moderate complexity in the field of recreation, parks, and tourism management. The research focus of the class is on evaluation and assessment. Class topics include introductions to the philosophy of science, including the nature of theories, hypotheses, concepts and constructs, to measurement theory, to applied sampling techniques, and to methods of scale construction. Both quantitative and qualitative research methods are addressed. In-class activities include the conceptualization and execution of an applied evaluation project. This project involves practice in interviewing, in-class focus groups, survey questionnaire development, data collection, and data analysis. The course will provide students with a conceptual map of how research is conducted, the resources available to them, the vocabulary of research, and guidance in writing a research report. Additionally, this is a Writing Across the Curriculum class. Students will prepare several short writing projects, some based on interviews or observational studies that they have conducted, as well as a final report based on the evaluation research conducted by the entire class. The course material is divided into units of study with topical areas within each unit sequentially presented to parallel the research process itself. Students are expected to have read assigned materials and to attend class prepared to discuss them. Classes involve lectures, discussions, and in-class activities such as focus groups, survey questionnaire development and presentations of research results. This class is required of all undergraduate majors in Recreation, Park and Tourism Management. RPTM 356 and a 3-credit course in statistics are prerequisites for this course. Students from other majors are welcome in this course, providing they have met the pre-requisites.

Enforced Prerequisite at Enrollment: 5th semester standing Writing Across the Curriculum

RPTM 435: Recreation Facilities Planning and Management

3 Credits

Planning and management of selected facilities with emphasis upon maintenance, activity, and support provisions. RPTM 435 Recreation Facilities Planning and Management (3) The purpose of this course is to introduce students to planning, design, and maintenance practices at recreation and park facilities. This course will emphasize the activity and support provisions of recreation facilities and will identify standards of design and maintenance. Compliance with accepted risk management practices and the Americans with Disabilities Act (ADA) will also be stressed in this course. Specific topics covered in this course include: Maintenance management practices and risk management procedures; Monitoring and reporting recreation and park facility use; General planning considerations of selected recreation facilities, parks and tourism attractions; Special materials and apparatus required for specific park and recreation facilities; Support facilities necessary to complement developments that offer these activities (e.g., vehicular circulation and parking, lighting, emergency provisions, etc.). This is a required course for RPTM majors in the park management emphasis within the Outdoor Recreation Option. The course is also on the department list of the

Commercial and Community Recreation Option. Students in other majors are welcome providing there are seats available after RPTM majors have been scheduled.

Enforced Prerequisite at Enrollment: 5th semester standing

RPTM 440: Theories, Policies and Practices of Outdoor Experiential Leadership

3 Credits

The first objective of this course is to promote understanding of the history and evolution of adventure-based programming and to look at how this process has impacted the state of programming today in USA and beyond. This leads to the second objective- to be able to articulate the range of theories that influence practices of adventure based programming and place that understanding within socio cultural historical contexts. Third, students will be able to identify schools of thought in theories of ethics, how these apply in different outdoor contexts for different groups and have an understanding of adventure education as a moral endeavor. Fourth, students are expected to critically analyze various topics related to current issues in the field, discussed and consider various positions prior to looking at the future trends of adventure-based programming. In all aspects of the course students will familiarize themselves with seminal and current literature in relation to theory, practice and policy. Main topics to be covered - Indicative Content: History of Experiential Education/Adventure-based Programming; organization level risk management; Programming for various audiences: youth at risk, elderly people with disabilities, women, college student orientation programs, and experiential education in the classroom; Ethical issues and ethical principles; Current Issues: controversial issues, and budgets/strategic planning. RPTM 440 is a selection for RPTM majors in the outdoor experiential learning emphasis of the Outdoor Recreation option. The pre-requisite for this course is RPTM 330.

Enforced Prerequisite or Concurrent at Enrollment: RPTM 330

RPTM 456: Programming in Recreation Services

3 Credits

This course is designed to provide students with information and practical experience required to successfully design, promote, implement, and evaluate programs and special events. There are several course objectives, including: (a) increasing students' knowledge of key concepts in program planning and an understanding how they impact programming decisions; (b) increasing students' knowledge of decision factors involved in analyzing and designing a recreation program or special event; and (c) increasing students' skills associated with key management functions required to implement a recreational program or special event. Students are required to work in teams to design, promote, implement and evaluate a special event that will benefit participants and the sponsoring agency objectives. The course serves as a capstone course in the RPTM major. Main topics covered in the course include programming concepts, including programmer, program contexts, benefits-based programming, programming approaches, comprehensive programming cycle, and program formats; management structures, including organization of teams into committee structures with clear roles, responsibilities, and reporting structure; program design, including program concept, program purpose, goals and objectives, and development of themed events; situation analysis, including analysis of internal and external factors/ resources, potential participants; needs and interests, and program-related research; budget development and sponsorship, including direct fixed and variable costs associated with event, differential pricing,

and sponsorship; promotion, including purposes for promotion, types of promotional tools, and development of a promotional plan; Event logistics, including development of a schedule of events, equipment and supplies, volunteers and staffing, registration, site layout, and event logistics; Risk management, including safety check, policies and procedures, staff/volunteer orientation, and overall risk management plan; program evaluation, including summative and formative, process and outcome evaluation. This is a required course for majors in Recreation, Park, and Tourism Management. Students from other majors may enroll in this course, providing they have met the pre-requisites.

Enforced Prerequisite at Enrollment: RPTM 236 and RPTM 120 and 5th Semester standing

RPTM 457: Peer Mentoring

2 Credits

The purpose of the peer-mentoring course is to provide students who have successfully completed and demonstrated leadership ability in RPTM 456 with an opportunity to gain additional leadership and event planning skills by mentoring a group of students currently enrolled in the class. Peer mentors serve as facilitators to teams of students in RPTM 456 who are charged with planning, promoting, implementing and evaluating a special event for a community or campus-based organization. Peer mentors are expected to help teach a minimum of 2 classes during the semester. Peer mentors take a leadership role in helping students understand and apply course content. Additionally, peer mentors serve as a liaison between the course instructor, the agency supervisor they are working with, and their assigned team.

Enforced Prerequisite at Enrollment: RPTM 236 and RPTM 456

RPTM 470: Recreation and Park Management

3 Credits

Management of recreation and park services in public/non-profit settings; planning, budgeting fiscal development, resources allocation, decision- , making, computer applications. RPTM 470 Recreation and Park Management (3)The primary objective of this course is to provide advanced standing RPTM students with an understanding of management and administration procedures that are essential to operating and managing park facilities and recreation programs. Secondly, students will be given an opportunity to be exposed to park and recreation governance processes and will be asked to synthesize the roles that key stakeholders play in the management of public-sector park and recreation organizations. Key topics covered in this course include: *A historical account of park and recreation operating environment as well as trends in park support and positioning of the field *Inter-organizational partnerships and collaborations in the park and recreation field *Financing, budgeting and fiscal control processes *Human resource management principles and policies *Creating effective working relationships with community stakeholders and park and recreation board members *Comprehensive recreation, park and open space planning This course is required for RPTM majors in the park management emphasis within the Outdoor Recreation Option. Students in other majors are welcome providing there are seats available after RPTM majors have been scheduled.

Enforced Prerequisite at Enrollment: RPTM 320

RPTM 475: Advanced Arena Management

3 Credits

Advanced Arena Management develops advanced skills and understanding in arena and live entertainment management fields including operations, budgeting, marketing and staffing. Course is taught on site at a sports/ entertainment arena and also includes off-campus site visits to at least two (2) major live entertainment venues. Off campus travel with the class group is required for this course. Topics include; developing events from inception to delivery; booking, contract negotiation, scheduling, ticketing, food/beverage and alcohol service, safety and security, fan experience, risk management, and business management. Students are provided with management level exposure to a variety of departments throughout the arena and are given the opportunity to learn directly from department managers.

Enforced Prerequisite at Enrollment: RPTM 370

RPTM 494: Research Project

1-6 Credits/Maximum of 6

Research Project

RPTM 494H: Senior Honors Thesis

1-6 Credits/Maximum of 6

Senior Honors Thesis

Honors

RPTM 495A: Internship in Recreation Services

3-12 Credits/Maximum of 12

The Recreation, Park and Tourism Management's Internship provides students with the opportunity to gain experience in the field while under the supervision of both the on-site supervisor and a faculty supervisor. The primary purpose of the RPTM Internship is to enable each student to meet his or her educational objectives through participation in a well-planned and organized practical experience. Students will gain access to direct recreation service delivery; program, personnel and facilities management; risk management; event planning; marketing and program evaluation. In most instances, students are engaged in an off-campus learning experience that aligns with their specific field of study within the field of Recreation, Park, Tourism and Event Management.

Enforced Prerequisite at Enrollment: RPTM 394 and RPTM 456 and 7th sem standing and 2.0 GPA. Recommended Preparation: 300 hrs practical experience and current and valid certification in advanced first aid and CPR or Wilderness First Aid/First Responder.

RPTM 495B: Internship in Golf Management

1-4 Credits/Maximum of 12

Observation and participation under supervision in golf operations in public, private, municipal, or military settings.

Enforced Prerequisite at Enrollment: RPTM 395B and 2.00 cumulative grade point average
Full-Time Equivalent Course

RPTM 495C: Internship in Golf Management

1-4 Credits/Maximum of 4

Observation and participation under supervision in golf operations in public, private, municipal, or military settings.

Enforced Prerequisite at Enrollment: RPTM 495B or 2.00 cumulative grade point average
Full-Time Equivalent Course

RPTM 495D: Internship in Golf Management

1-4 Credits/Maximum of 4

Observation and participation under supervision in golf operations in public, private, municipal, or military settings.

Enforced Prerequisite at Enrollment: RPTM 495C or 2.00 cumulative grade point average
Full-Time Equivalent Course

RPTM 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

RPTM 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

RPTM 497P: **SPECIAL TOPICS**

3 Credits/Maximum of 9

RPTM Practicum Special Topics

RPTM 498: Special Topics

1-9 Credits

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

RPTM 499: Foreign Studies

1-12 Credits/Maximum of 12

Foreign Studies in RPTM.

Enforced Prerequisite at Enrollment: RPTM 199
International Cultures (IL)

Rehabilitation and Human Services (RHS)

RHS 93: WorkLink Seminar I

1-6 Credits/Maximum of 12

This variable credit, repeatable seminar is taken as part of the WorkLink Strategies and Employability Certificate. WorkLink is a 2-year certificate program in career and inclusive education created for students with

intellectual disabilities (ID). Students will complete 24 credit hours in the WorkLink Seminar I and II (e.g., career development, life skills, financial literacy, person-centered career planning), and audit up to 24 additional credits as electives from the Penn State General Education course offering. Students will spend at least 50% of their time in the program pursuing inclusive coursework (non WorkLink Seminar courses). WorkLink Seminar I provides a broad exploration of several topics related to career preparation, academic success, personal health and wellness, independent living skills, and safety. Students will engage with peers, mentors, and WorkLink staff to increase their awareness of career and independent living skills and how these interact with opportunities and responsibilities associated with being a Penn State student. Students will recognize their own skills and learning and support needs related to academic, independent living, career, and wellness goals, and apply content to develop personalized plans for growth in these areas. This two-semester seminar partially fulfills the first-year requirements for the WorkLink Certificate. Upon instructor approval, students not in the WorkLink Certificate program may take WorkLink Seminar I credits to gain knowledge and skill in various topic areas covered.

Prerequisite: Permission of instructor

RHS 97: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

RHS 99: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

RHS 100: Introduction to Disability Culture

3 Credits

This course is designed to increase student awareness of personal, interpersonal, and societal aspects of disability, including how disability can be defined and understood differently in varied individual, institutional, and cultural contexts. Students will learn models of disability that will help them to (a) clearly distinguish different ways of conceptualizing disability and (b) critically think about how disability is represented and understood in varied cultural contexts, including in the US and in other countries. Through discussion of class readings and completion of class assignments, students will examine the ethical, economic, and social implications of disability and the dynamics of group and individual behavior that impact social interactions among people with and without disabilities. A strong emphasis will also be placed on understanding disability from a variety of cultural perspectives and assessing the impact of racial, ethnic, gender, socioeconomic, and socio-political factors, both domestically and internationally, on disability status.

International Cultures (IL)

United States Cultures (US)

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

RHS 193: WorkLink Seminar II

1-6 Credits/Maximum of 12

This course is intended for students enrolled in the WorkLink Certificate program. WorkLink Seminar II (RHS 193) provides a broad exploration of several topics related to career preparation, job searching, work readiness, and internships through experiential learning. Students will engage with peers, mentors, and WorkLink staff and community employers to increase their awareness of workplace self-advocacy, job accommodations, career development, skills necessary for employment in today's job market, job search strategies, and networking. Students will recognize their own skills related to job and career goals, and apply content to develop personalized plans for growth in these areas. This two-semester seminar fulfills the second year requirements for the WorkLink Certificate. Upon instructor approval, students not in the WorkLink Certificate program may take WorkLink Seminar II credits to gain knowledge and skill in various topic areas covered.

Prerequisite: RHS 93

RHS 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

RHS 226: College Student Mental Health and Wellness

3 Credits

Have you ever wanted to learn more about yourself, your friends, your roommates, or other people in college? If so, then this course is for you. In this class, we will explore factors that affect the mental health and wellbeing of college students, including sleep, substance use, social anxiety, discrimination, academic stress, the campus climate, resilience, peer relationships, values, and suicide. The course will address both how to prevent problems from developing as well as interventions for improving college students' mental health and wellbeing. We will use lectures, guest speakers, films, discussion, and weekly readings to learn about college students and their mental health. The class will be especially relevant to your career if you are considering a mental health profession (e.g., psychology, counseling, social work, rehabilitation), but it will appeal to students in any major who are interested in learning more about college students' mental health, including their own. Cultural factors that affect college students' well-being will be considered throughout the course. Culture will be defined broadly to include ethnicity, sexual orientation, religion, gender, class, ability, race, and age. Students will be encouraged to think critically about course material through the lenses of their own lived experiences and worldviews. Prevalence, characteristics, causes, implications, prevention, and treatment of common mental health conditions among college students will be addressed, as well as campus resources for addressing such conditions. The course also will focus on factors that promote the psychological well-being of college students, such as friendships, identity, romantic relationships, meaning, and career preparation. The primary goal for the course is that you deepen your understanding of psychological wellness and mental health problems commonly faced by college students. A secondary aim is for you to learn about yourself so that you can optimize your psychological well-being, prevent mental health problems from developing, recognize when you or a friend might need help, improve

the wellness of campus communities to which you belong, and become familiar with local resources that can provide assistance.

General Education: Health and Wellness (GHW)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

RHS 295: Internship

1-12 Credits/Maximum of 12

N/A

RHS 295A: WorkLink Internship

1-9 Credits/Maximum of 12

Full or part-time, supervised non-group instruction including field experiences, or internships for students in the WorkLink certificate program or by approval of the instructor. Students will complete these internships on campus or in the community.

Prerequisite: RHS 93 Concurrent: RHS 193

RHS 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

RHS 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

RHS 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

RHS 300: Introduction to Rehabilitation and Human Services

3 Credits

This course serves as an introduction to Rehabilitation and Human Services practice settings. The course reviews the human services profession, including introductory information about social problems within a socio-political context to show how culture and ideology influence experiences and perspectives. The foundation of the human services profession is explored by examining educational standards and professional requirements: its roots as a helping profession within the history of social welfare provision, its ethical standards, theoretical underpinnings, and the nature of the generalist practice model, with an emphasis on helping people with disabilities.

RHS 301: Introduction to Counseling as a Profession

3 Credits

Overview of the counseling theories that are often used in human service and rehabilitation practices.

RHS 302: Client Assessment in Rehabilitation and Human Services

3 Credits

The purpose of this course is to give students an overview of a range of rehabilitation and health related assessments for use in clinical practice. The primary focus of the class is to gain an understanding of the range of formal tests and assessments used to support the overall goal of maintaining functioning across multiple life domains for people with disabilities. Students will learn about the multicultural concerns impacting test bias, test fairness, and ethical considerations in test selection and interpretation. Students will gain an understanding of important concepts related to the psychometrics of tests and assessments, including basic statistical concepts. Students will learn how to evaluate the quality of assessments, and how to select appropriate assessments for clients on an individual and best practice basis.

Concurrents: EDPSY 101; STAT 100; STAT 200

RHS 303: Group Work in Rehabilitation Practice and Human Services

3 Credits

Students will learn about basic issues and key concepts regarding Group Work in Rehabilitation Practice and Human Services. An overview of essential elements and dynamics for conducting groups and various team-related activities will be the major focus. The purpose of this course is to provide students with a foundational understanding of group work and experiences within Rehabilitation and Human Services settings.

Recommended Preparations: 6 credits in psychology, sociology, human development and family studies and/or crime, law and justice

RHS 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

RHS 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

RHS 400W: Case Management and Communication Skills

3 Credits

Principles and practices of obtaining, recording, evaluating, and utilizing case data in rehabilitation planning; implementation of rehabilitation plans.

Prerequisite: RHS 300
Writing Across the Curriculum

RHS 401: Community Mental Health Practice and Services

3 Credits

This course introduces issues specific to therapeutic helping in community mental health settings. Practical skills, knowledge, information, and suggestions unique to community mental health are

provided. Topics such as roles of community practitioners, mental health services, psychiatric rehabilitation principles, recovery, ethics, diversity, certified peer specialists, evidence-based practices, advocacy, funding, and community change are addressed.

Prerequisites: 4th semester standing or Graduate Status Recommended Preparation: 6 credits in psychology, sociology, human development and family studies and/or crime, law and justice

RHS 402: Children and Families in Rehabilitation Settings and Human Services

3 Credits

Contemporary family issues, child development, legal considerations, cultural and familial factors within rehabilitation and human services practice will be addressed.

Prerequisite: RHS 301

RHS 403: Medical Aspects of Disability

3 Credits

The purpose of this course is to give students an overview of many chronic illnesses and disabilities, and their impact in the lives of the individuals who live with them. This course is designed for non-medical professionals and students interested in working with individuals with disabilities and chronic illnesses. The primary focus of the class is to gain an understanding of the experience of disability. Specifically, the course covers the body systems and their functions, how disabilities and illnesses impact many aspects of life across the lifespan (work, family, identity), the personal, environmental, and cultural factors that contribute to the experience of disability, as well as appropriate rehabilitation goals and accommodations associated with the illnesses and disabilities covered in class. Students will learn how to use disability related principles, practices, and models for conceptualizing diverse clients living with a range of disabilities across the lifespan, including how disability impacts family members. An understanding of diagnostic criteria, appropriate treatments and interventions, supports, assistive technology, and referrals will be covered for each category of disability discussed in class and for each case study assignment.

Prerequisites: 4th semester standing or Graduate Status Recommended Preparation: 6 credits in psychology, sociology, human development and family studies and/or crime, law and justice

RHS 404: Rehabilitation Services for Transition Age Youth with Disabilities: Theory and Practice

3 Credits

Stark educational and employment disparities exist between youth and young adults with disabilities and their typically developing peers. Difficulty with obtaining and maintaining employment post-high school poses a threat to lifelong earnings and self-sufficiency. This course is intended for students who plan to work as a human services professional who supports these youth and young adults as they transition from high school to employment and educational opportunities. Students in this course will develop the knowledge, skills, and resources necessary to understand and practice effective strategies to work with transition age youth with disabilities (14-24 years) in different rehabilitation settings including, but not limited to: vocational rehabilitation (SVR) systems, career and technical education, and/or educational settings. This course will incorporate perspectives and legislation from special education

and career and technical education to provide an understanding of the requirements and standards for transition and employment services for youth and young adults with disabilities. Developmental models of career, self-determination, independent living, and social maturation will be provided as context for the material. In this course, students will be exposed to current issues and topics that affect service delivery for this population in different settings. The course will also address topics pertaining to case management practices, policies and procedures involved with client service delivery. In this course students will gain an understanding of the historical context and development of transition services, including supported employment, rehabilitation philosophy, and approach to transition. Students will learn about the roles and functions of professionals supporting transition age youth, methods for engaging youth/young adults and their families as well as models and evidence based practices in transition services and how to use person-centered planning. We will also cover topics related to case management practices, relevant legislative mandates; policies and practices guiding service delivery.

Prerequisite: 4th Semester Standing or Graduate Status

RHS 410: Employment Strategies for People with Disabilities

3 Credits

Develop knowledge, skills, and resources necessary to understand and practice effective employment strategies in working with people with disabilities. This course is designed for students to develop knowledge, skills, and necessary resources to understand and practice effective employment strategies in working with people with disabilities, including individuals from culturally diverse backgrounds. Students will develop skills on networking with employers (e.g., social media, professional organizations, interviewing employers, etc.) for building professional contacts and networks. Various forms of labor market information will be analyzed to identify both challenges and opportunities for people with disabilities in different sectors of the labor market (primary and secondary). Throughout the course, students will learn about disability issues in the workplace (e.g., laws, policy, stigma, accommodations, etc.). A strong emphasis will be on understanding how laws and policies impact employment for people with disabilities, and students will identify legal and illegal practices. Best employer practices will be identified regarding mitigating disability impact on both employees (current and future) and employers. This course will incorporate Assistive Technology (AT) applications so students will be able to identify appropriate AT devices to assist people with disabilities in obtaining and retaining employment along with applicable strategies for working with employers in developing employment opportunities in today's changing world of work. Students will understand how disability is a critical component of workforce diversity and strengths people with disabilities bring to the workplace. Students will identify how people with disabilities should prepare for the employment process including training opportunities (formal and informal), resume development, interview preparation, and initiatives to promote increased employment outcomes. Different disability populations (e.g., youth, Veterans, aging workers, etc.) will be discussed including common barriers for employment as well as how to create opportunities in different employer settings.

Prerequisite: 5th Semester standing or 3 credits of LHR or LHR 100
Cross-listed with: LHR 410

RHS 420: Culture & Disability: Study Abroad in Ireland

6 Credits

Study aspects of culture and disability through lecture, visiting Irish disability service agencies, and guest speakers from various disability agencies. This course is designed to increase student awareness of disability from a cross-cultural comparison between the United States and Ireland including: personal, interpersonal, and societal aspects of disability, including how disability can be defined and understood differently in varied individual, institutional and cultural contexts. Students will learn models of disability that will help (a) clearly distinguish different ways of conceptualizing disability and (b) critically think about how disability is represented and understood in varied cultural contexts. Students will examine ethical, economic, and social implications of disability. Dynamics of group, family and individual behavior that impact interactions between people, with and without disabilities, will be addressed. Interactions and assignments will aid in the introduction of students to interpersonal communication and interaction issues among international cultures. A strong emphasis will be placed on understanding disability from a variety of cultural perspectives and assessing the impact of racial, ethnic, gender, socioeconomic, and socio-political factors on disability status. Throughout the course students will engage with various service providing agencies (which may include sensory disabilities, intellectual/cognitive disabilities, and physical disabilities). Class time will be allotted to prepare for engagement and reflection as well as providing background information for understanding global policy and how to make comparisons. Students will participate in a culminating activity, such as attending the International Disability Summer School that equips students with the insights and skills necessary to translate the generalities of international positions on disabilities into tangible reform for persons with disabilities and understand disability from a global perspective. This course meets the requirement for RHS 100 (RHS majors and RHS minors and honors students), and/or up to 6 credits toward 400 level elective requirements for RHS minors. SPLED students can earn up to 6 credits towards the SPLED minor

Cross-listed with: SPLED 420
International Cultures (IL)
United States Cultures (US)

RHS 428: Rehabilitation Corrections

3 Credits

This course will provide an overview of the many facets of rehabilitation within correctional settings, including the history of rehabilitation in the criminal justice system, classification and risk assessment, offender needs and treatment individualization, and interventions for various populations. This course will cover diversion programs, prison/jail programs, and reentry services. We will evaluate evidence of program effectiveness, analyze issues related to program implementation, and explore solutions for barriers to treatment in correctional settings.

Prerequisites: RHS 300; CRIM 100 or Graduate Status

RHS 433: Trauma-informed care for school & human service professionals

3 Credits

Many helping professionals interact with people who have survived, or are at risk for trauma, even when these professionals are not directly

involved in either the design or delivery of direct interventions for trauma symptoms. This class is intended for students who wish to pursue one of these human services careers. In this class, students will learn how to conceptualize their students' and/or clients' struggles using a trauma-sensitive perspective that can enhance service outcomes. Course topics include types of traumas and adversities; the lasting effects of chronic trauma; laws and reporting procedures; how to identify appropriate resources and evidence-based practices; communication strategies; and risk, protective and resiliency factors; understanding the connection to professional wellness and vicarious trauma; and populations at highest risk for types of trauma. The application of these topics to settings such as schools, healthcare, and the criminal justice system will be discussed.

RHS 493: Professional Development and Internship Preparation in RHS

3 Credits

This course is designed to prepare students for a successful internship experience and career in RHS settings. Students will further their understandings of theories and models of human development that inform the human services profession. A major focus of the course will be on furthering students' understanding of how to apply and use these theories in working with their intended populations, increase their knowledge and appreciation of diverse cultures, and further develop professional dispositions. Students will also learn practice skills designed to secure an appropriate internship placement as well as gain exposure to different human service settings and an understanding of what is required of professionals within these settings. In addition to preparing for an internship placement, this course will also cover topics related to long-term career planning including issues such as determining the need for continued education and preparing for a career as a Human Services professional.

Prerequisite: RHS 100, RHS 300, RHS 301, RHS 302 RHS 303

RHS 495: **SPECIAL TOPICS**

15 Credits

RHS 495A: Rehabilitation and Human Services Internship

6-12 Credits/Maximum of 12

Internship in rehabilitation and related human services agencies and institutions providing psychosocial, vocational, educational, and/or residential services to people with disabilities. The internship in RHS provides students the opportunity to implement what they have learned in their program coursework. Students will develop and practice core competencies while exploring professional career opportunities. RHS students must complete 12 total credits of RHS 495A. These 12 credits can be completed in a single semester or divided equally across 2 semesters. To register for this course, a completed internship application must be submitted to the RHS program in the semester prior to taking RHS 495A.

Prerequisites: Recommended Preparation: Students must have successfully completed all other required coursework for the major (grade of C or higher) as well as fulfilled general education requirements.

RHS 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

RHS 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical of of special interest.

Religious Studies (RLST)

RLST 1: Introduction to World Religions

3 Credits

The course introduces students to the academic study of religion as well as to some of the major religious traditions of the world. Beginning with an introduction to polytheism, the course primarily focuses on the five major religions of the modern world—that is Buddhism, Christianity, Hinduism, Islam, and Judaism.

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

RLST 3: Introduction to the Religions of the East

3 Credits

Religious experience, thought, patterns of worship, morals, and institutions in relation to culture in Eastern religions. RLST 3 / ASIA 3 Introduction to the Religions of the East (3) (GH;IL)(BA) This course meets the Bachelor of Arts degree requirements. This course will explore the foundations, development, and diversity of religious traditions in Asia, focusing mostly on Hinduism, Buddhism, Confucianism, Daoism, and Shinto. It is organized according to two sections: Foundations and Developments. The Foundations section provides an introduction to the worldviews and practices of Eastern teachings. We will also discuss the structure of society, the social expectations on individuals based on gender and class, and rituals, which expose us to rich mythologies or intricate ceremonies. The second section, Developments, traces the evolution of religious doctrine and practice through history. Here, we learn to distinguish among large and small-scale movements and schools, and to familiarize ourselves with the geographical scope of each religion in South, Southeast, and East Asia. An abiding emphasis in this course will be on how to read and interpret the varied scriptures and primary texts of these religions.

Cross-listed with: ASIA 3

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

RLST 4: Jewish and Christian Foundations

3 Credits

This course seeks to help students better understand the Bible and appreciate its role as an authoritative collection of sacred texts for Jews and Christians. The Bible is a difficult book, one that is demanding on many levels. In order to read the Bible intelligently, it is important to understand the historical and cultural backgrounds of the biblical writings. This course explores the history and geography of ancient Near Eastern civilizations that shaped the experience of ancient Israel and, later, the Greek and Roman imperial contexts that shaped Second Temple Judaism and early Christianity. The focus of the course, however, is on the biblical narrative itself and the particular ways that the story of Israel and its covenant with God was represented in scripture: in tales, poems, hymns, dialogues, and genealogies. A basic goal of the course, then, is to promote intelligent, well-informed reading of the Bible. Also important is the willingness to read the Bible closely and critically, with a view toward larger questions raised by biblical texts: how is God to be known and understood? What is the purpose of human life in the world? What moral obligations ought to structure our common life? Does human history have direction and purpose? What is the good and how do we follow it? The Bible takes up these questions and many more. Though an ancient anthology shaped by the succession of Assyrian, Babylonian, Persian, Hellenistic, and Roman empires, the Bible is not merely a product of its original contexts. Millennia of transmission and interpretation have made it a product of history in a much more extended and dynamic sense. In this course, we will examine larger questions raised by the biblical writers and consider the ways that the Bible has shaped, informed, and guided Jewish and Christian ways of life.

Cross-listed with: CAMS 4, JST 4

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

RLST 12N: Lands of the Bible

3 Credits

Utilizing the textual and archaeological evidence, this course introduces students to the lands, cultures, and peoples associated with the Hebrew Bible, New Testament, and Qur'an. Geographically, the lands of the Bible encompass what is often referred to as the Cradle of Civilization or Fertile Crescent - an arc-shaped region defined by the Nile, Jordan, Tigris and Euphrates river valleys. Today this crescent includes the modern countries and regions of Egypt, Israel, the Palestinian territories, Jordan, Syria, southeastern Turkey, and Iraq. Spanning ten millennia of history (ca. 9000 BCE-750 CE), this course explores a series of landmarks in the history of human development, which are considered together with Jewish, Christian, and Islamic traditions. These include the birth of religion and the agricultural revolution (Garden of Eden), the first cities and the invention of writing (Tower of Babel; Patriarchal/Matriarch traditions), Egyptian imperial rule in Canaan (Exodus), the collapse of the Bronze Age (Emergence of Israel), impact of empire (united and divided kingdoms of Israel and Judah), Alexander the Great and the Roman imperial expansion to the east (world of Jesus and development

of rabbinic Judaism), Byzantine Palestine (expansion of Christianity), and the Islamic conquest of the Holy Land. Through an integration of numerous disciplines, including historical geography, archaeology, ancient history, biblical studies, epigraphy, and anthropology, students will investigate the interaction between the cultures of the ancient Near East and the religious traditions that developed in the lands associated with the Bible, a relationship that continues to shape the region and the world until today.

Cross-listed with: CAMS 12N, JST 12N

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

RLST 44: Ancient Near Eastern and Egyptian Mythology

3 Credits

This course provides a survey of all major Ancient Near Eastern mythological traditions in their cultural and historical context. The course also addresses the relation between myth and religion, as well as the relation between these mythological corpora and those of Ancient Greece and Rome and the tapestry of cultic traditions reflected in the Hebrew Bible.

Cross-listed with: CAMS 44

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

RLST 70: Prophecy in the Bible and the Ancient Near East

3 Credits

This course will introduce students to the prophetic traditions of the Bible and the Ancient Near East. The course will explore the development of prophetic circles in the ancient Near East (including Egypt, Syria-Palestine, and Mesopotamia), and then focus on the major prophetic traditions of the Hebrew Bible (e.g., the books of Isaiah, Jeremiah, Ezekiel, Amos, Hosea, Micah, Haggai, Zechariah, and Daniel). It will also look at how these traditions were understood in early Judaism and nascent Christianity. Special attention will be paid to the roles of priests, kings, and prophets in ancient Israel to better understand Israelite and Judaeen prophetic traditions in ancient Israelite society. The course will then examine the rise of apocalypticism and its medieval and modern manifestations including a brief look at Islam. Additional emphasis will be placed on the religious and political interactions which manifest themselves in prophetic movements - then and now - including the rhetoric of ideology and propaganda. Important figures and events illustrate these cultural and political trends.

Cross-listed with: CAMS 70, JST 70

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

RLST 90: Jerusalem: Past, Present, and Future

3 Credits

Jerusalem, a city sacred to Judaism, Christianity, and Islam, is often depicted as the spiritual and physical center of the world. Throughout its 5000-year history, Jerusalem has attracted diverse cultures, empires, and peoples who have vied for control of this holy city. Jerusalem: Past, Present, and Future surveys the cultural, religious, political, archaeological, and historical record of Jerusalem, beginning with its earliest settlement during the third millennium BCE; through its expansion as a second millennium Canaanite urban center; its role as the capital of Israel and Judah during the first millennium BCE biblical periods; the influence of the Egyptian, Assyrian, Babylonian, Persian, Hellenistic, Roman, Byzantine, Crusader, Mamluk, and Ottoman empires; and its development under Jewish, Christian, and Islamic control. The significance of Jerusalem's past, its impact on contemporary society and politics in the modern Middle East, and differing visions for this contested city's future are examined in light of various interpretations of the textual and archaeological evidence.

Cross-listed with: CAMS 90, JST 90

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

RLST 101: Comparative Religion

3 Credits

Comparative or historical analysis of religious factors--worship, theology, ethics, scriptures, etc., in two or more religious traditions.

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

RLST 102: Canaan and Israel in Antiquity

3 Credits

This course is an overview of the ancient history and cultures of Canaan (the Mediterranean Levant of Syria-Palestine) and the emergence of Israel. It involves a critical view of biblical texts (especially the Hebrew Bible, aka Old Testament) in light of other ancient texts, archaeology, and historical methods, in order to explain the nature and the evolution of society, religion, and thought in the prebiblical and biblical era. We will be especially interested in the period from the end of the Late Bronze Age (c. 1200 BCE) to the Persian period (539-332 BCE), and will examine ongoing debates about the Bible and history, as well as the development

of Israelite religion from polytheism toward monotheism and a distinctive worldview.

Cross-listed with: CAMS 102, HIST 102, JST 102

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

RLST 103: Introduction to Hinduism

3 Credits

Historical overview of the development of ideas that forms the basis of the south Asian religious culture. ASIA 103 / RLST 103 Introduction to Hinduism (3) (GH;IL)(BA). This course meets the Bachelor of Arts degree requirements. We begin with a discussion of the pre-Vedic Indus Valley civilization reflecting upon its influence on later south Asian cultures. The course then traces how the Vedic ritual tradition, and the Vedantic philosophy gave rise to the concepts of Karma (individual action and its underlying motives), Samsara (the cyclical view of life), and the Atman (nature of the individual). Moreover, we pause here to explore the relationship between the emerging idea of civic responsibility (Dharma) and its relationship to the Vedic and Vedantic thought. Next we examine how the Vedantic philosophical tradition may have incorporated a diversity of philosophical views including both Brahmanical as well as non-Brahmanical traditions of Buddhism, Jainism, Lokayata, etc. The class will read excerpts from the religious literature of the era. The first part of the course concludes with selected readings from the Bhagavadgita, Mahabharata, as well as some Buddhist and Jaina texts. All of these readings will be in English. Class discussions focus on how the classical Hindu worldview may have emerged from the philosophical foundation of the Vedantas, and later built the groundwork for the Hindu Bhakti (devotion) movements. The second part of the course focuses on the various regional Bhakti traditions from the middle ages onwards, analyzing how the regional cultures may have related with the great classical Brahmanic tradition. The course concludes with a discussion of how Hinduism in the post 1800s responded to the forces of colonization, exploring how the different religious and cultural traditions of south Asia may have interacted with other religious cultures (both indigenous and foreign) like Buddhism, Jainism, Islam, and Christianity. We shall read excerpts from noteworthy thinkers and writers of nineteenth and twentieth century to understand the very interesting dynamics between religion and civil society of more recent times. This course concludes with a discussion of how Hinduism in the post 1800s responded to the forces of colonization, exploring how the different religious and cultural traditions of historical south Asia may have interacted with other religious cultures (both indigenous and foreign) like Buddhism, Jainism, Islam, and Christianity. We shall read excerpts from noteworthy thinkers and writers of nineteenth and twentieth century to understand the very interesting dynamics between religion and civil society of more recent times.

Cross-listed with: ASIA 103

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

RLST 104: Introduction to Buddhism

3 Credits

A general survey of the basic doctrine, practice, and historical development of Hinayana and Mahayana Buddhism. RLST 104 / ASIA 104 Introduction to Buddhism (3) (GH;IL)(BA) This course meets the Bachelor of Arts degree requirements. This course is a general survey of the historical development, basic doctrines, and practices of Hinayana, Mahayana, and Vajrayana Buddhism. The course is structured around the "Three Jewels" of Buddhism: Buddha, Dharma, and Sangha. That is to say, we will learn about the Buddha as a historical figure and spirit; we will come to understand the basic elements of his doctrinal teachings; and we will examine the community of followers who have practiced his teachings. Special attention will be paid to the various "geographies" of Buddhism as expressed through different cultures in ancient India, Southeast Asia, and East Asia. At the conclusion of the course, we will encounter Buddhism as a relatively new cultural force in America. The course revolves around the discussion of key issues in the philosophy, ethics, and theology of various forms of Buddhism.

Cross-listed with: ASIA 104

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

RLST 105N: Buddhism and US Society

3 Credits

This course focuses on Buddhism in the United States. We will overview the historical factors that led to the development of Buddhism in the U.S., the many traditions that currently exist in the U.S., the role of Buddhism in the daily lives of different types of Americans, and various problems or frameworks that have characterized American Buddhism (such as race, gender, technology, and media representations). One major theme of the course is literary expressions of American Buddhism, such as the writings of Jack Kerouac and bell hooks. A second major theme, Buddhist meditation, will be explored through interdisciplinary perspectives drawing from both the humanities and social sciences. In the final portion of the class, we will focus on Buddhism in Pennsylvania, involving students in an ethnographic exploration of the religious pluralism in our home state.

Cross-listed with: ENGL 108N, SOC 130N

Bachelor of Arts: Humanities

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

United States Cultures (US)

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

RLST 106: Mysticism and Kabbalah

3 Credits

A survey of the history, philosophy, and cultural impact of various mystical traditions in relation to world religions.

Cross-listed with: JST 106

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

RLST 107: Introduction to Islam

3 Credits

An introduction to the basic history of the Islamic tradition and also to Muslim beliefs and practices, this course will give students insight into the diverse world of Islam. From its origin in Arabia in the seventh century, Islam today is professed by more than 1.5 billion people all over the world. This course includes an outline of that history, including the early Muslim community and the Muslim holy book, the Qur'an. It touches on major institutions, such as Islamic law, philosophy, theology, and mysticism, and covers key rituals in Muslim daily life. The impact of modernity will be considered, including Muslim life in the United States.

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

RLST 108: Myths and Mythologies

3 Credits

World mythology: myths primarily of non-Western cultures, based on selected areas and traditions around the world. CMLIT 108 Myths and Mythologies (3) (GH;IL)(BA) This course offers a survey of several different cultural traditions as expressed in myth, as well as discussion of myth in its literary, social, geographical, political, and religious contexts. Various theories of the evolution and analysis of myth will be examined. Mythological traditions from around the globe will be compared in order to determine qualities which they share and examine ways in which they are unique. This course will help you see the world in new and exciting ways, based on the wide variety of global myths. At the same time, you will consider the permanent human issues which connect all of these traditions to each other, to the modern world, and to you. CMLIT 108 is one of the choices of survey courses, which count toward the Comparative Literature major and the World Literature minor. This course also fulfills the General Education humanities requirement, the Bachelor of Arts humanities requirement, and the International Cultures requirement.

Cross-listed with: CMLIT 108

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

RLST 109H: What is The Self?

3 Credits

What is the self? Are you your body? Your identities? Your consciousness? This course explores diverse views of "the self" from a variety of different global religious and philosophical perspectives. Topics may include Asian traditions such as Buddhism, Hinduism, Taoism, and Confucianism; Abrahamic traditions such as Judaism, Christianity, and Islam; as well as indigenous traditions such as shamanism, Native American religions, and Shinto. The class may discuss, but will not prioritize, perspectives from psychology and other modern disciplines. Which specific religions are covered will depend on the instructor's fields of specialization, but the course will emphasize cross-cultural comparisons on a global scale.

Cross-listed with: ASIA 109H

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

Honors

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

RLST 110: Introduction to the Bible: Old Testament

3 Credits

The Old Testament (or, Hebrew Bible) is the record of the interaction between the people of ancient Israel and their God. As a religious text, the Bible is inextricably intertwined with the cultures of Israel's neighbors, including the Canaanites, Syrians, Greeks, Assyrians, Babylonians, Arabs, Egyptians, and the peoples of the eastern desert. To study the Hebrew Bible and its development during the first millennium BCE is to study the history, culture, and literature of the entire region. This course introduces students to the literature of ancient Israel, its rituals, the stories which established a people's identity, and which defined their moral behavior. Great figures of the texts, such as Moses, David, Solomon, Bathsheba, Ruth, Jeremiah, Daniel, and Ezra, teach us important lessons about life and how people of faith attempted to relate to one another, to God, and to people outside their ethnic group. Students will read from the biblical text, as well as from secondary source readings which contains scholarly opinion from a variety of sources. Recent archaeological and epigraphical studies will be incorporated into the course to enhance our work. The ultimate goal will be to assess the meaning of the texts in their ancient Near Eastern environment; to understand the development of Hebrew religion and the beginnings of Rabbinic Judaism; and to understand the connection between biblical studies and other fields of study, such as History, Religious Studies, Archeology, Linguistics, and Comparative Literature.

Cross-listed with: CAMS 110, JST 110

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

RLST 111: Early Judaism

3 Credits

Early Judaism will introduce students to the history of Judaism as reflected in Jewish literature from the period of the Babylonian exile (587/6 BCE) to the closure of the Babylonian Talmud (ca. 600 CE). This course will analyze the development of Judaism from its emergence out of the ancient Israelite religion through the formative period of rabbinic Judaism. Attention will be given to the diversity of ideas and practices that characterized early Judaism and the influence the larger Persian, Hellenistic, and Roman worlds had on Judaism's development. We will examine selections from the Hebrew Bible, and from other literature, including the Dead Sea Scrolls, the Apocrypha, the New Testament, the Mishnah, and the Talmudim.

Cross-listed with: CAMS 111, JST 111
 Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

RLST 113: Jewish Myths and Legends

3 Credits

Comparative study of diverse interpretations of stories from the Bible in Judaism and Christianity. CMLIT 113 / JST 113 / CAMS 113 / RLST 113 Myths and Legends of the Jews (3) (GH;IL) The impact of the Bible on Western Culture is immense. Beyond its religious importance, the motifs and images from its myths and stories permeate literature and art, providing a basic frame of reference that for much of history could be taken for granted. A degree of familiarity with these motifs so as to be truly fluent is no longer common, and so it requires special effort to discern allusions to biblical traditions. Moreover, these traditions are not static: religious communities continually re-interpret them and appropriate them in very different contexts. Many prominent traditions in Judaism, Christianity, and Islam do not appear explicitly anywhere in the Hebrew Bible, but are the product of imaginative and ingenious interpretation and re-tellings. Why, for example, is Noah an example of a righteous person in Christian tradition, but in rabbinic tradition is more often portrayed as a profane, earthly-minded man who was saved only because he was the least bad of an evil generation? Why is Moses commonly portrayed with horns in medieval art? Underlying such different traditions are centuries of debate and reflection on these texts as sacred scripture, and competing religious communities often authorized their distinctive beliefs and practices by reading them into scripture. The differences are often too subtle to discern apart from careful comparison. This course will explore the boundaries between Scripture and tradition by means of a close examination of the myths and stories in the Hebrew Bible and their subsequent interpretation and re-tellings in Judaism, Christianity, and Islam. Using methods from comparative mythology and folklore, as well as comparative midrash, our procedure will be to compare these traditions closely with the biblical text, asking: What are the main motifs in the mythology of Judaism?

Does Judaism have a coherent mythology? How do their myths compare with the myths of their neighbors? Where did these myths come from? How do these traditions relate to the Bible? What was the function of these myths? Why are there competing myths? How is it possible that Judaism affirms belief in only one God, but has myths that include other divine beings? We will also compare with later interpretive traditions (Jewish, Christian, Islamic). Can we trace trajectories of interpretation? Can we discern particular interpretive methods in operation? We will seek to answer: what do these re-workings of the traditions tell us about the development and function of Scripture, and the social circumstances of the communities? Finally, we will seek to detect reflections of these interpretive traditions in literature and art from the medieval to the modern periods. The course is organized around major topics in the Jewish Scriptures: God, creation, heaven and hell, Torah, Sabbath, Abraham and other ancestors, Israel and holy land, exile, and Messiah. Throughout we will consider how sacred stories function to form ethical perspectives and values.

Cross-listed with: CAMS 113, CMLIT 113, JST 113
 Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies
 GenEd Learning Objective: Soc Resp and Ethic Reason

RLST 114: Modern Judaism

3 Credits

This course will explore the developments in Judaism since the Enlightenment and the French Revolution. Major changes have come to the world since 1700-changes represented by terms such as the Enlightenment, Emancipation, Industrialization, Nationalism, Urbanization, Immigration, and Egalitarianism/Feminism. These broad social changes led to the break-up of traditional communities and, among other things, reformulations of Jewish Life and Jewish Religion. The effects can be seen in a number of Jewish responses-Assimilation, Hassidism, Self-Defense and Nationalism, Denominationalism, and Egalitarianism/Feminism-which we shall study in this class. In particular, we shall look at Jewish spirituality-its historical and theological development, its many historical and modern manifestations, and how it works.

Cross-listed with: JST 114
 Bachelor of Arts: Humanities
 International Cultures (IL)
 United States Cultures (US)
 General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Soc Resp and Ethic Reason

RLST 115: The American Jewish Experience

3 Credits

Chronological and topical survey of the story of Jewish life in America. We will trace the social, religious, cultural, and political developments in the Jewish community from the Colonial Period to the present. Topics to be covered include immigration, acculturation, ethnicity, gender,

politics, and communal and religious innovation. While "knowing the facts" is obviously important to historical understanding, this course helps students develop critical thinking skills. These skills include: close and thoughtful reading and analysis of primary and secondary sources; looking for a broader coherence or "order" to the material; independent analysis and effective articulation (both in writing and in class discussion) of well-reasoned, well-crafted conclusions and interpretations and arguments (conclusions/interpretations/arguments which are supported by specific factual evidence derived from a variety of sources). The three specific course objectives underscore its scholarly dimensions: (1) Students will gain a knowledge and understanding of the relationship between the experiences of members of the American Jewish community and United States history as a whole. (2) Students will gain an understanding and knowledge of the political, economic, and social processes that shaped the American Jewish experience. (3) Students will learn how to "think historically" by placing documents written in the past in their historical contexts, and to consider the relationship of the past to the present. By the end of the course students will: Demonstrate an understanding of the chronology of American Jewish history. Demonstrate an understanding of the diverse experiences of different groups of Americans. Demonstrate an understanding of the social, political, and ideological structures that shaped the American Jewish experience and continue to shape the modern United States.

Cross-listed with: HIST 115, JST 115
 Bachelor of Arts: Humanities
 United States Cultures (US)
 General Education: Humanities (GH)
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

RLST 116: Muslims in America

3 Credits

This course is a study of Muslims in North America, primarily the United States. It examines the multiple racial, cultural, and national groups that comprise this diverse community, starting with the historical record of the Muslims that came to the Americas as African slaves. Next, we examine African American Islam in its myriad formations. The influx of immigrants in the 1960s from the Middle East, Africa and Asia, dramatically shifted demographics in U.S. Muslim communities. Finally, we consider the post-9/11 period, which has put Islam and Muslims at the center of U.S. political and cultural discourse.

Cross-listed with: AFAM 116
 Bachelor of Arts: World Cultures
 United States Cultures (US)
 General Education: Humanities (GH)
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Soc Resp and Ethic Reason

RLST 120: New Testament

3 Credits

CAMS 120 / JST 120 / RLST 120 New Testament (3) (GH)(BA) This course meets the Bachelor of Arts degree requirements. This course provides an introduction to the collection of early Christian writings that make up the New Testament. It begins with an examination of the first-century context in which these writings took shape—one overshadowed by the Roman empire, influenced by Hellenistic culture, and based,

above all, on varieties of Judaism. From there, the course takes up a few guiding questions. How, in this ancient context, did the first Christians understand and portray the figure at the center of their communities, Jesus of Nazareth? What do the New Testament writings reveal about the beliefs and aspirations of these communities as they advanced a movement that would, in time, become among the most consequential in world history? By the end of the course, students will have gained knowledge of the historical context of New Testament writings and an understanding of why the New Testament has been such an important and influential collection of writings.

Cross-listed with: CAMS 120, JST 120
 Bachelor of Arts: Humanities
 General Education: Humanities (GH)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

RLST 121: Jesus the Jew

3 Credits

Although Jesus of Nazareth is the object of Christian devotion, he was not a Christian himself, but a pious Jew. What can be known about the historical figure of Jesus the Palestinian Jew? How would his teachings and actions have fit in the context of Judaism of his day, in the Greco-Roman world? What did he mean when he proclaimed the coming kingdom of God? Because almost all of our source material espouses Jesus as the Christ of Christian faith, the first step is to understand the aims and perspectives of these Christian sources, including the canonical Gospels as well as non-canonical Gospels. Through careful examination of these sources in light of critical scholarship and the social and historical context of Judaism in the Greco-Roman world, we will consider how much the historian is able to reconstruct of Jesus using historical method, what the limits of this investigation are, and how relevant the task is. We will consider and evaluate a few of the different scholarly reconstructions of the historical Jesus. Major emphases will include the historical, social, religious, political, and cultural contexts of Jesus, including important precursors; the political, institutional, and cultural history of the teachings and actions of Jesus in their Jewish setting, and how these are reinterpreted by his followers after his death. Attention will be paid to the development of variant Christian traditions about Jesus including Jesus as Messiah, his death as a saving event, the resurrection as exaltation of Jesus as Lord, the memorialization of Jesus in Christian ritual practice, and the cultural and religious impact of Jesus throughout history. In addition to the early Christian sources on Jesus (especially the canonical Gospels, but also other New Testament texts and non-canonical writings), on each topic students will read selections from early Jewish writings in order to illuminate the cultural context. These include the Dead Sea Scrolls, Philo, Josephus, Jewish texts among the so-called Apocrypha and Pseudepigrapha, early rabbinic texts, and epigraphical writings. Relevant archeological evidence and Greco-Roman sources will also be considered. Broader issues of historical, cultural, linguistic, political and geographical context will be covered in lectures and secondary readings.

Cross-listed with: CAMS 121, JST 112
 Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking

RLST 122: Apocalypse and Beyond

3 Credits

Apocalypse and Beyond is a topic (and title) meant to suggest that apocalyptic imagination about the end of the world, first begun in the Ancient Near East with certain Jewish and Christian writings, is constantly re-envisioned for each new age. Apocalyptic literature and world views are frequently produced by marginalized groups who perceive themselves to be persecuted, and who envision a violent (often divine) intervention, which alone will bring justice. In Part One of the course, we will examine the ancient literary genre of apocalypse, which was popular in the Ancient Near East from around 200 BCE to 200 CE, especially in Jewish and Christian writings both in the Bible (e.g., Daniel and Revelation) and outside of it (e.g., First Enoch, the Apocalypse of Peter, and the Apocalypse of Paul). The authors of these apocalypses expected the evil age in which they were living to dramatically end in their lifetimes; although that did not happen, apocalyptic thinking became foundational to the three world religions stemming from the Near East: Judaism, Christianity, and Islam to varying degrees. In Part Two, we will examine the ideology, sociological underpinnings and some historical examples of apocalyptic groups and movements in medieval to modern times, and look at the impact that apocalyptic world views have had on the secular world, including philosophy, political movements, and popular culture, such as movies.

Cross-listed with: CAMS 122, JST 122
 Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Key Literacies

RLST 123: History of God: Origins of Monotheism

3 Credits

This course examines the early history of God; that is, the concept of the divine as a single supreme being. In particular, it focuses on the origins of monotheism and the development of its three major traditions in the Near East: Judaism, Christianity, and Islam, from their respective beginnings to around 1000 C.E. The course will begin with an analysis of the polytheistic religious milieu of the Ancient Near East in the second and first millennia B.C.E., and will consider the question of how, when, and why belief in one God first appeared in ancient Israel. Various modern theories about the origins of Israel's national God (Hebrew Yhwh/Yahweh and Aramaic Yhw/Yaho) will be analyzed, with careful attention to the evidence of ancient texts and archaeology. Following a discussion of the nature of the religion(s) of early Israel, the course will then turn to the development of Judaism as the world's first monotheism. It will then examine the subsequent emergence of Christianity in Roman-era Palestine and Islam in Late Antique Arabia, with a brief glance at the Persian religion of Zoroastrianism, which shares some commonalities. Finally, the course will compare and contrast some of the major beliefs,

practices, and significant historical trends and movements within the first centuries of the three major monotheisms.

Cross-listed with: CAMS 123, JST 123
 Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Key Literacies

RLST 124: Early and Medieval Christianity

3 Credits

This course provides an introduction to the history of Christianity. It traces, specifically, the development of the Christian movement from its beginnings as a small Jewish sect in Jerusalem to its unlikely emergence as the religion of the Roman Empire and, finally, its subsequent spread and development in Europe, Asia, and Africa. In form and structure, the course is historical, following figures and events in a more or less chronological sequence and taking up questions of causality, influence, and social identity. Yet the course is also concerned with the ideas, concepts, and philosophical viewpoints that have shaped Christianity and given it a certain intellectual coherence over time. The course begins with first-century construals of messianic identity and also with the figure of Jesus, as he was portrayed in the New Testament gospels. It then follows the first generations of the Christian movement, considering it within the context of first-century Judaism and the early Roman empire. Topics include persecution, martyrdom, and the important contributions of Origen. The middle section of the course looks at the second, third, and fourth centuries through three lenses, as it were: the office of bishop, the rise of monasticism, and the realities of empire. Bishops, monks, and emperors all shaped Christianity in essential ways, creating a rich and complicated spiritual, moral, theological, intellectual, and geo-political legacy for generations to come. The final third of the course looks at the development of Christianity beyond the fourth century in geographical groupings including churches in Africa, Asia, the Middle East, western Europe, Byzantium, and the Slavic lands. It is hoped, in all of this, that students will gain an understanding not only of Christian history but also of what made - and what makes - Christianity a distinctive and influential religion.

Cross-listed with: CAMS 124, JST 124
 Bachelor of Arts: Humanities
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

RLST 125W: Modern Christianity

3 Credits

Analysis in cultural context of selected thinkers, ideas, and movements in Christianity from the sixteenth century to the present.

Bachelor of Arts: Humanities
 Writing Across the Curriculum

RLST 129: Philosophy of Religion

3 Credits

This course surveys perennial philosophical questions connected with religion: What is God, deity, or divinity? What is the nature and significance of religious experience? Is it rational to hold religious beliefs? How persuasive are arguments about the existence of God? How compatible is religion with modern science? What are the meanings of miracles, immortality, and creation? In what ways might morality depend on religion? What role ought religion to play in society and the public sphere? What lesson should we draw from profound religious experiences? Ought religious tolerance to be limited at all? Through the reading and discussion of relevant historical and contemporary texts, students will be encouraged to reflect on such questions from a variety of perspectives.

Prerequisite: third-semester standing

Cross-listed with: PHIL 124

Bachelor of Arts: Humanities

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Soc Resp and Ethic Reason

RLST 133N: Ethics of Climate Change

3 Credits

Climate change is not only a political, economic, and social crisis, it presents one of the great moral problems of our time. This course will cover the science, policy, and ethics of climate change. It fulfills general science requirements by giving an overview of the role played by such diverse scientific disciplines as chemistry, earth systems, ecology, and geology in understanding our changing climate while also exploring mitigation and adaptation strategies being developed in the fields of engineering, forestry, agriculture, and others. It fulfills humanities requirements by delving into the ethical dimensions of climate change, including religious and humanistic theories of human flourishing, deontological and teleological theories of ethics, and analysis of specific choices addressed by international negotiators. A hallmark of this course is using Penn State as a 'living laboratory' by taking advantage of both faculty expertise and the realworld activities of the Office of Physical Plant. Every week, students will interact with experts from various quarters of the University in order to see how climate change is being approached in a multi-disciplinary fashion. The first third of the course will feature guest lectures by EMS faculty working on paleoclimate, modeling, carbon sinks, ocean acidification and other aspects of climate science. The second portion will engage humanists, economists, historians, and artists at Penn State. The third will include tours of Penn State facilities, such as the East Campus Power Plant, and interviews with researchers developing new energy and sequestration technologies. In addition to exams and papers, students will prepare for a mock negotiation by learning about the energy profile and history of assigned countries. They will then have to set specific CO2 and temperature goals and come up with solutions to achieve these. The goal is to understand the role placed by ethical ideals in the pragmatic process of producing an equitable solution. In short, this course will give students the tools to understand the basic science of climate change and its ethical implications. Students will come away with a better sense of the moral dimensions of this phenomenon and the implications for human civilization and for the biosphere.

Cross-listed with: METEO 133N, PHIL 133N

General Education: Humanities (GH)

General Education: Natural Sciences (GN)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

RLST 135: Ethics in Jewish Tradition and Thought

3 Credits

This course takes as its starting point the idea that modern ethical frameworks are deeply rooted in the soil of older traditions. By examining the development of Jewish intellectual traditions and their roots in the Bible, it provides students with an opportunity to study ethics in a philosophically textured, culturally rich, and historically informed way. And by focusing on Jewish engagement with the Bible, the course illuminates other traditions that derive from biblical monotheism: for example, those associated with Christianity, Islam, and the Enlightenment. The first part of the course takes up the idea of tradition and includes a study of biblical texts that serve as the foundation for key moral concepts. Following the traditional division of the scriptures, it examines questions of human identity and responsibility in the Torah, social ethics in the Prophets, and the quest for wisdom in the Writings. The final topic in this unit is the development of ethical tradition among the great sages of Jewish antiquity. The second unit shifts focus to the appropriation of tradition in modern Jewish thought. After reviewing important developments in Jewish thought in the medieval and early modern periods, it turns attention to the ways that some recent figures have addressed perennial concerns in light of commitments and ways of being that are integral to Jewish identity. By reading closely the works of such seminal thinkers as James Kugel, Joseph Soloveitchik, and Abraham Heschel, we will gain a deep acquaintance not only with important vocabulary but also with the ways that traditional words and concepts may be used dynamically to produce fresh ways of looking at questions in moral philosophy.

Cross-listed with: JST 135, PHIL 135

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Soc Resp and Ethic Reason

RLST 137: Gender, Sexuality, and Religion

3 Credits

WMNST 137 explores the history of different conceptions of gender and sexuality as they are understood within major religions (e.g. Hinduism, Judaism, Islam, Christianity, Buddhism, indigenous spiritual systems). The course emphasizes modern and contemporary contexts of gender/religion debates, introducing feminist historical methods in order to trace the origins and trajectories of today's controversies. Students should expect to gain a comparative historical perspective on at least three theological traditions. Possible topics include: history of gender and religious practices; femininities and masculinities in a spiritual context; the flesh and the spiritual body; and sexuality, and both ethical and theological approaches to theories of gender, feminism, and identity.

We will explore ways in which religious teachings, in both historical and contemporary contexts, inform secular understandings of gender and the ways in which contemporary conceptions of gender inform religious practice. While religion plays a crucial role in defining sex and gender norms, changing sex and gender norms can pressure the doctrine, discourses, practices and organizational structures of faith institutions, some established centuries or millennia ago. The course considers not only the roles of women and men, or constructions of masculinity and femininity, but also the impacts of non-binary genders and sexualities that may be acceptable (even celebrated) in some religions and shunned in others. We will address urgent and perennial questions from different religious perspectives: what is the spiritual meaning of sexuality? Is sexuality an obstacle or a vehicle for spiritual fulfillment? Who are the voices of authority who set the sacred rules on sexuality and who gets to enforce them? How do we (or should we) balance the tensions of non-aligned government and religious concerns, as in contemporary debates around same-sex marriage; abortion and reproductive rights; legal definitions of "family"; the Muslim veil in secular contexts; divorce; trans rights; attitudes toward the body; gender mutilation and/or sex-reassignment surgery; sexual violence towards women, gay, and trans individuals around the world; child and sexual abuse among the clergy; and religious leadership and inclusion. The course also touches on the impacts of colonialism, globalization, and migration on gender and sexuality.

Cross-listed with: WMNST 137

Bachelor of Arts: Humanities

International Cultures (IL)

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

RLST 140Y: Religion in American Life and Thought

3 Credits

The course aims to cast light on contemporary religious life in the United States by looking at the history of American religion. The course will provide students with a broad overview of American religious life from the colonial era to the present, focusing on the diversity and vitality of American religious traditions, as well as areas of intersection and conflict around race, ethnicity, gender, class, and sexuality. The course will also ask students to consider how aspects of these histories continue to shape religious belief, practice, and public discourse in contemporary life. Students will consider important religious and philosophical writings, as well as a popular/mass cultural, ethnographic, or other documentary sources that shed light on both the intellectual and lived history of religious life and thought in the United States.

Cross-listed with: AMST 140Y

Bachelor of Arts: Humanities

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

Writing Across the Curriculum

RLST 145: African Diaspora Religions and Spiritualities

3 Credits

This course is an introduction to religions and spiritual traditions of the African Americas including the United States, the Caribbean and Latin America, emphasizing present institutions and practices, their relationship to Africa and African spirituality, their shape and function during slavery, and their development from Emancipation to the present. Through various examples and case studies, we will trace the relationship between religion and resistance, race politics, gender and sexuality, religion and social change. The course addresses core ideas of the disciplines of religious studies and African Diaspora theory. The category of religion is explored through a diasporic framework that considers the legacy of slavery and contemporary racial and social hierarchies. The course approaches religions of the African Americas as epistemologies of resistance to white oppression introducing students to the diaspora condition as marked by historical violence and the dialectics of loss and displacement. Central to the course are concepts of religious orthodoxy and authenticity, cultural retentions and transformations and the dynamics of religious power and authority. The course follows a comparative framework in investigating religious life, introducing students to diaspora theory as a discourse of difference that engages critically with the particularities of the religious traditions of the African Americas without collapsing their differences. By addressing identity formations, the course focuses on religion as a discourse of power and one that articulates religious life as shaped by gender and race politics and by economics and social realities. To this end, the course follows an interdisciplinary approach and engages a variety of material including literary and historical texts, visual arts and music and dance makes it possible for students to understand the complexity of religious life in the African Americas.

Cross-listed with: AFAM 145

Bachelor of Arts: Humanities

International Cultures (IL)

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

RLST 146: The Life and Thought of Martin Luther King, Jr.

3 Credits

A survey of the civil rights leader including his religious beliefs, intellectual development, and philosophy for social change.

Cross-listed with: AFAM 146

Bachelor of Arts: Humanities

United States Cultures (US)

General Education: Humanities (GH)

RLST 147: The Life and Thought of Malcolm X

3 Credits

The life of Malcolm X/El Hajj Malik El Shabazz (1925-1965) and his social, political, economic, and moral thought. AFAM 147 / RLST 147 The Life and Thought of Malcolm X (3) (GH;US)(BA) This course meets the Bachelor of Arts degree requirements. This course will examine in-

depth the life, speeches, and thoughts of Malcolm X/El Hajj Malik El Shabazz. While the Autobiography will be a major source, we will also use other sources to develop an understanding of the philosophy and thought of Malcolm X. We will explore the social, economic, political, cultural, religious, moral, and spiritual context of America in general and of African Americans in particular. We will examine Malcolm X's influence on the period in which he lived and since his assassination. We will compare and contrast his view on issues of race, culture, politics, education, crime, human rights, civil rights, morality, and economics with those of other African American leaders and with the prevailing views of most Americans on those subjects. We will devote a large portion of the course to the examination of the social movements that impacted on Malcolm and those that he influenced. The speeches of Malcolm X and the writings about Malcolm X are instructive and will be utilized along with other documents. Videotapes and audiotapes will also be employed as instructional materials. Students are expected to be ACTIVE participants in the learning/teaching experience. Students are required to participate in class discussions centered on the readings and related topics. There will be a written mid-term examination and a written final examination. Students are expected to complete an individual research project related to the course and write a paper on that research as well as to participate in a collaborative group project of their choosing on a subject related to the class. This course will count in the supporting courses category of the major and minors in African/African American studies. It also will fulfill credits in the Religious Studies Program. It may also be used to fill GH and US requirements.

Cross-listed with: AFAM 147
Bachelor of Arts: Humanities
United States Cultures (US)
General Education: Humanities (GH)

RLST 153: Dead Sea Scrolls

3 Credits

The discovery of the Dead Sea Scrolls was one the most important archeological discoveries of the 20th century. This collection of over 900 scrolls found in caves by the Dead Sea includes the oldest manuscripts of the Hebrew Bible (Old Testament) and hundreds of other Jewish writings dating from the 2nd century BCE to the 1st century CE, many of which were previously unknown. In this course we will examine select examples of the Dead Sea Scrolls in order to understand how these writings have revolutionized our understanding of the formation of the Bible, Jewish groups in the Greco-Roman period, and the origins of Christianity and rabbinic Judaism, and why there is so much scholarly debate around them. We will consider such issues as Jewish law, biblical interpretation, messianism, apocalypticism, prayer and rituals. The course will include discussion of the archaeology of the Qumran settlement and caves, scribal practices and the production of scrolls, and scholarly methods in reconstructing and interpreting ancient texts. We will study this one sectarian movement as a microcosm of the issues related to Jewish identity in this critical period that birthed both rabbinic Judaism and Christianity. We will focus on the beliefs and practices by which this movement constructed their particular community identity and worked out their place in the world.

Cross-listed with: CAMS 153, JST 153
Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures
International Cultures (IL)
General Education: Humanities (GH)

GenEd Learning Objective: Global Learning
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Key Literacies

RLST 160: Sacrifice in the Ancient World

3 Credits

Sacrifice (from Latin sacer "holy + facere "to make") is one of the most prevalent yet troubling aspects of religion. Its destruction and violence is often at odds with other rituals and core understandings within a religion, so why is it done and what good does it do? For the sacrificer, does it represent a gift to the gods, a renunciation, an exchange, a surrogate, or something else? This course will examine some competing definitions and theories of sacrifice, as well as its manifestations in the cultures and religions of the ancient Mediterranean world, especially those of Greece, Rome, Egypt, Mesopotamia, Hatti, Israel, and Phoenicia. A brief look at religious sacrifice elsewhere, such as ancient Mesoamerica and India, will conclude the course.

Cross-listed with: CAMS 160, JST 160
Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures
International Cultures (IL)
General Education: Humanities (GH)
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Key Literacies

RLST 164: Introduction to the Qur'an

3 Credits

The Qur'an is the sacred text of Islam. Revered by over a billion Muslims today, it is little understood by non-Muslims. This course will introduce students to the literary and religious meanings of this important text, which is seen as both the very word of God as well as the premier example of Arabic style. Attention will be given to the many cultures which have been influenced by this text, especially the Middle Eastern world. All readings will be in English translation.

Cross-listed with: ARAB 164
International Cultures (IL)
General Education: Humanities (GH)
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Key Literacies

RLST 165: Islamic States, Societies and Cultures c. 600-1500

3 Credits

This course introduces students to the history and culture(s) of the Islamic world from c. 600-1500. The course develops a historical framework for understanding developments in religious and legal thought and practice, science, medicine, and technology, philosophy, and the arts. Students will learn about culture through lecture and discussion and through examination and analysis of a variety of texts and examples of material culture from different periods and regions.

Cross-listed with: ARAB 165, HIST 165
Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Key Literacies

RLST 181: Introduction to the Religions of China and Japan

3 Credits

A survey of the history, philosophy, and cultural impact of the major Far Eastern religions: Confucianism, Taoism, Buddhism, and Shinto. ASIA 181 / RLST 181 Introduction to the Religions of China and Japan (3) (GH;IL)(BA) This course meets the Bachelor of Arts degree requirements. This is an introductory survey of the historical, philosophical, and cultural dimensions of the major religious traditions in China and Japan. The course delineates and highlights the organic view of the universe and the hierarchical ordering of society in East Asia. It traces the evolution of the major traditions (Confucianism, Daoism, Buddhism in China, as well as Shinto, Buddhism and Confucianism in Japan) by examining their ideas of humanity and nature, morality and society, and metaphysics and ethics. It also reveals the interaction and interrelation between ideology, politics and society, and their impact on the development of the major religious traditions in history. A major focus is the relation between the popular and folk practices and beliefs of esoteric Daoism, devotional Buddhism, and fertility-cult Shinto and the elite and literate doctrines and precepts of Confucianism, philosophical Daoism, and monastic Buddhism. The course also devotes some attention to the influence of religion on various facets of culture, such as medicine, science, literature, art and food. The objectives of the course are first to acquaint students with the religious beliefs, values, and practices of China and Japan by looking at their historical formations and contemporary manifestations, and second, to locate them in a global and comparative context.

Cross-listed with: ASIA 181
 Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Global Learning

RLST 194: Jerusalem: Sacred and Profane

3 Credits

Jerusalem, a city sacred to Judaism, Christianity, and Islam, is often depicted as the spiritual and physical center of the world. Throughout its 5000-year history, Jerusalem has attracted diverse cultures, empires, and peoples who have vied for control of this city that is both religiously significant and a very ordinary site of urban life. Jerusalem: Sacred and Profane surveys the archaeological, religious, cultural, political, social, and historical record of Jerusalem in the ancient, medieval, and modern periods. We will explore a series of themes in the city's history: the built urban environment, political power in and over the city, sacred sites and pilgrimage, the everyday experiences of Jerusalemites, the changing cultural meanings of the city across various religious and national traditions, and war, violence, and memory in the urban landscape. The significance of Jerusalem's past, its impact on contemporary society and politics in the modern Middle East, and differing visions for this

contested city's future are examined in light of various interpretations of the historical evidence.

Cross-listed with: CAMS 194, HIST 194, JST 194
 Bachelor of Arts: Humanities
 Bachelor of Arts: World Cultures
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

RLST 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Bachelor of Arts: Humanities

RLST 235: The Church and the Jews

3 Credits

Examination of the relationship between Western church and the Jews from the First Century to Enlightenment. HIST 235/HIST 235 The Church and the Jews (3) (US;IL)(BA) This course meets the Bachelor of Arts degree requirements. This course will examine a key aspect of western history - the complex relationship between the Western (Roman Catholic) Church and the Jews, from the first century to the present. We will analyze ideas and policies regarding Jews as expressed in different realms, from theology and canon law to church art and popular preaching. We will also examine how changing conditions led to striking changes in church attitudes and policy, and how church policy was often at odds with popular sentiments about Jews. The course will be designed to enable students to grasp the fluidity of attitudes over time, and the interplay of economic, social, political, and theological factors; to grasp of essential elements of a key area of conflict in western culture; and to develop their skills in the close reading of primary texts. Students will be evaluated on the basis of three quizzes and a final exam. The course would offer a chance for students to develop perspectives previously gained in a number of courses, particularly HIST 001 and 002 (The Western Heritage), RL ST 001 (Introduction to World Religions), RL ST 101 (Comparative Religion), HIST 107 (Medieval Europe), HIST 407 (Early Medieval Society), and J ST 010 (Jewish Civilization). It would complement such courses as HIST 108 (The Crusades), HIST 408 (Church and State in the High Middle Ages), HIST 412 (Intellectual History of the Middle Ages), HIST 414 (Renaissance and Reformation), J ST 111 (Early Judaism), J ST 110 (Hebrew Bible), RL ST 120 (New Testament), and RL ST 124 (Early and Medieval Christianity). The course will count for 3 credits toward a) the 22 credits required for the minor in Jewish Studies, b) the 33 credits required for the major in Jewish Studies, c) the 30 credits required for the major in Religious Studies, and d) the 36 credits required for the History major.

Cross-listed with: HIST 235, JST 235
 Bachelor of Arts: Humanities
 International Cultures (IL)
 United States Cultures (US)

RLST 280: Gendering the Divine in Indian and South Asian Religions

3 Credits

Throughout South Asia, ancient religious beliefs and cultural traditions interact with forms of modernity that constitute the daily lives and practices of women and men today. Focusing on conceptualizations of sex and gender over South Asia's long history, this course investigates the ways in which religious traditions and cosmologies have informed gender roles and hierarchies in India, Nepal, and other neighboring nations from the ancient period through the present day. In so doing, the course also explores how political realities—revolutions, terrorism, elections, nationalist movements, for example—can both exploit and challenge the gendered entanglements of religion and secular life. Students engage basic historical methods as well as feminist analytical methods (e.g., intersectionality) as they read a variety of cultural histories and ethnographies, as well as religious, philosophical and literary texts.

Prerequisite: WMNST 83N; WMNST 100; WMNST 105N; WMNST 106N

Cross-listed with: JST 280, WMNST 280

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

RLST 294: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Humanities

RLST 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Humanities

RLST 400: Theories of Religion

3 Credits

Comparative and interdisciplinary study of two or more systematic theories of religion: anthropological, psychological, sociological, philosophical/theological.

Bachelor of Arts: Humanities

RLST 407Y: Antisemitisms

3 Credits

Surveys the history of anti-Semitism from antiquity through the Middle Ages to the present. HIST (J ST) 409Y (RL ST 407Y) European Anti-Semitism from Antiquity to the Present (3) (IL)(BA) This course meets the Bachelor of Arts degree requirements. This course analyzes major episodes in the history of anti-Semitism and tries to clarify the motives and dynamics involved. It seeks to understand what these episodes

have in common and what is unique in each case—is there a single universal, eternal antisemitism? Or are there rather 'anti-Semitismisms' each belonging to a unique historical context? Is there a single continuous line of development in anti-Semitism? What is the relationship of a particular anti-Semitism to the national culture in which it originates? We will be reading the major original texts of anti-Semitism from Roman and ancient writers, through early Christian texts and medieval Christian Blood Libels against the Jews, documents of the Spanish expulsion, Lutheran tracts, Voltaire's essays, German philosophical texts from Kant to Marx, Wagner's racial essays, the Protocols of Zion, and documents of Nazi anti-Semitism by Hitler and Streicher. The major part of the grade will depend on a short research paper which will be presented in various drafts, so that the final version represents the culmination of discussion and constructive criticism and advice. This course is a parallel course to J ST/HIST 416 (Zionist History) and J ST/HIST 118 (Modern Jewish History). This course will count toward the Religious Studies, Jewish Studies, and History majors and minors in the 400-level category.

Cross-listed with: HIST 409Y, JST 409Y, RLST 409Y

Bachelor of Arts: Humanities

International Cultures (IL)

Writing Across the Curriculum

RLST 409Y: Antisemitisms

3 Credits

Surveys the history of anti-Semitism from antiquity through the Middle Ages to the present. HIST (J ST) 409Y (RL ST 407Y) European Anti-Semitism from Antiquity to the Present (3) (IL)(BA) This course meets the Bachelor of Arts degree requirements. This course analyzes major episodes in the history of anti-Semitism and tries to clarify the motives and dynamics involved. It seeks to understand what these episodes have in common and what is unique in each case—is there a single universal, eternal antisemitism? Or are there rather 'anti-Semitismisms' each belonging to a unique historical context? Is there a single continuous line of development in anti-Semitism? What is the relationship of a particular anti-Semitism to the national culture in which it originates? We will be reading the major original texts of anti-Semitism from Roman and ancient writers, through early Christian texts and medieval Christian Blood Libels against the Jews, documents of the Spanish expulsion, Lutheran tracts, Voltaire's essays, German philosophical texts from Kant to Marx, Wagner's racial essays, the Protocols of Zion, and documents of Nazi anti-Semitism by Hitler and Streicher. The major part of the grade will depend on a short research paper which will be presented in various drafts, so that the final version represents the culmination of discussion and constructive criticism and advice. This course is a parallel course to J ST/HIST 416 (Zionist History) and J ST/HIST 118 (Modern Jewish History). This course will count toward the Religious Studies, Jewish Studies, and History majors and minors in the 400-level category.

Cross-listed with: HIST 409Y, JST 409Y, RLST 407Y

Bachelor of Arts: Humanities

International Cultures (IL)

Writing Across the Curriculum

RLST 410: Jews in the Medieval World

3 Credits

Trends in medieval Jewish society under Islam and Western Christendom. HIST 410/HIST 410 Jews in the Medieval World (3) (US;IL)(BA) This course meets the Bachelor of Arts degree requirements. The Jews lived in widely scattered communities under Christian and Islamic rule

in the medieval period. This course will examine how Jews adapted the traditions they developed in Palestine and Babylonia in the early centuries C.E. to the new conditions they encountered in Europe and the Mediterranean region from the ninth to the fifteenth centuries. It will focus on the general problem of how traditional societies survive in rapidly changing circumstances, particularly when their members are a minority population. The course will aim at developing students' skills in comparative analysis as they compare the adaptive strategies of Jews in different cultural spheres (the Franco-German region versus Spain, for example). They will also be asked to compare the different polemical stances Jews adopted vis-a-vis Christianity, on the one hand, and Islam, on the other. They will be encouraged to understand the ways in which Jews internalized certain aspects of the majority culture and rejected others. It is hoped that they will come to see how deeply Jewish history was intertwined with medieval Christian and Islamic history, despite inter-religious hostilities and the frequent need for Jews to defend against majority aggression. Students will be evaluated on the basis of two mid-term exams (the first after the survey of the Muslim world, the second after the examination of the Franco-German region) and a comprehensive final exam. The course will be linked to most of the courses taught in the field of Jewish Studies, especially J ST 111 (Early Judaism), J ST 114 (Modern Judaism), and J ST 118 (Modern Jewish History from 1492). It will also be linked to offerings in Religious Studies: RL ST 001 (Introduction to World Religions), RL ST 101 (Comparative Religion), RL ST 107 (Introduction to Islam), RL ST 124 (Early and Medieval Christianity), and RL ST 165 (Introduction to Islamic Civilization). Further, it would complement HIST 001 and 002 (The Western Heritage), HIST 107 (Medieval Europe), HIST 108 (The Crusades), HIST 407 (Early Medieval Society), HIST 408 (Church and State in the High Middle Ages), HIST 412 (Intellectual History of the Middle Ages), and HIST 471W (Classical Islamic Civilization, 600-1258). The course will count for 3 credits toward: a) the 22 credits required for the minor in Jewish Studies, b) the 33 credits required for the major in Jewish Studies, c) the 30 credits required for the major in Religious Studies, and d) the 36 credits required for the History major. It will be offered once a year with an enrollment of approximately 60 students.

Cross-listed with: HIST 410, JST 410
Bachelor of Arts: Humanities
International Cultures (IL)
United States Cultures (US)

RLST 411: Jewish Studies

3 Credits/Maximum of 9

Study of the life and thought of a particular period or movement in the history of Judaism.

Prerequisites: Second semester standing
Cross-listed with: JST 411
Bachelor of Arts: Humanities
International Cultures (IL)
United States Cultures (US)

RLST 420: Major Christian Thinkers

3 Credits

Systematic inquiry into the religious thought of one or more Christian thinkers, such as Paul, Augustine, Luther, Calvin, Kierkegaard, or Tillich.

Prerequisite: 3 credits in religious studies

Bachelor of Arts: Humanities

RLST 422: Religion and American Culture

3 Credits/Maximum of 6

Selected topics, problems, or historical movements in American religion; relation between religion and American culture.

Cross-listed with: AMST 422
Bachelor of Arts: Humanities

RLST 423: Orthodox Christianity: History and Interpretations

3 Credits

Examines Orthodox Christianity from origins to present using critical historical analysis of primary and secondary sources. RLST 423 / HIST 423 Orthodox Christianity: History and Interpretations (3) (GH;IL) (BA) This course meets the Bachelor of Arts degree requirements.

This course examines Orthodox Christianity from its origins to the present by focusing on a series of four major problems using critical historical analysis of primary and secondary sources. 1) The course provides students with the means to examine Orthodox self-understanding: Orthodox doctrine of God, its anthropology. 2) The issue of a world religion and the relationship of Orthodoxy to other world religions and secular authorities and other forms of Christianity, especially "western" Christians. 3) The challenge of alternate world religions—Judaism, Islam, western Christianities. 4) The challenge of modern Orthodoxy in the context of twentieth and twenty-first century developments and issues.

Prerequisite: HIST 105
Cross-listed with: HIST 423
Bachelor of Arts: Humanities
International Cultures (IL)
General Education: Humanities (GH)

RLST 425W: Books of the Bible: Readings and Interpretation

3 Credits/Maximum of 12

Study of a biblical book/topic in terms of literary, historical, and cultural contexts, history of interpretation, and critical scholarship. CAMS (J ST/RL ST) 425W Books of the Bible: Readings and Interpretation (3 per semester/maximum of 12) The Bible is a diverse collection of writings sacred to Jews and Christians written over about 1000 years, in a variety of different genres and historical circumstances. This course allows students the opportunity to study in depth a particular book of the Bible, from either the Hebrew Bible/Old Testament or the New Testament. We will explore the literary, historical and cultural context of the book in question. A literary analysis of the book will include consideration of genre and literary devices, and a close reading of the text. A historical analysis will consider the date of composition, its source materials, comparative traditions in other cultures, and relevant historical and cultural factors relevant to understanding the text. The course will introduce students to various other approaches to interpretation of the Bible in modern scholarship, including feminist and post-colonial critiques. We will also explore the varied interpretations and uses of the book in Judaism, Christianity, and Islam throughout history, and its influences in Western culture, including art and literature. The course will be offered once a year with varying content, and students may repeat it when taught with different content.

Prerequisite: 3 credits in CAMS or J ST or RL ST, recommended CAMS/J ST/RL ST 110 or 120; or ENGL 104.

Cross-listed with: CAMS 425W, JST 425W

Writing Across the Curriculum

RLST 432W: Gender and Sexuality in the Bible

3 Credits

This writing intensive course will examine issues of gender and sexuality in the Bible, including the Hebrew Bible/Old Testament, the Deuterocanon, and the New Testament. It will introduce students to a variety of academic approaches to the Bible with respect to a broad range of topics. These topics include: gender identity, sexual orientation, sex, marriage and divorce, adultery, monogamy and polygyny, same-sex relations, chastity and celibacy, prostitution, gender violence, pornography, fertility, procreation, abortion, divine gender and sex, incest, and many others. In covering these themes, the course will deal with some of the most challenging and often disturbing stories and passages in the Bible, the ancient library of books that is sacred to Jews and Christians and which has otherwise greatly influenced civilization for more-or-less two thousand years. Alongside a close reading of the text (philology), this course will employ historical and literary criticism, investigations into ancient material culture (archaeology), modern theoretical interpretive approaches, reception theory, and other methodologies to examine not only the biblical writings in their ancient contexts, but their interpretation and use throughout history to construct social norms.

Prerequisite: 3 credits in CAMS, RLST, or JST.

Cross-listed with: CAMS 432W, JST 432W, WGSS 432W

Bachelor of Arts: Humanities

Writing Across the Curriculum

RLST 440Y: The Orthodox Christian Tradition

3 Credits

History, culture, and beliefs of the Eastern Orthodox religious tradition with special reference to Russia.

Prerequisite: RL ST004 , RL ST124 , RL ST125W , RUS 100 or RUS 110

Bachelor of Arts: Humanities

International Cultures (IL)

United States Cultures (US)

Writing Across the Curriculum

RLST 461: Sociology of Religion

3 Credits

Contemporary religion in the global perspectives: beliefs, structure, and function of major religious traditions, denominations, and cults.

Enforced Prerequisite at Enrollment: 3 credits of SOC or RLST

Cross-listed with: SOC 461

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

United States Cultures (US)

RLST 471Y: Classical Islamic Civilization, 600-1258

3 Credits

Pre-Islamic Arabia; Muhammad; Arab conquests; Islamic beliefs and institutions; literary, artistic, and scientific achievements; relations with Europe; breakdown of unity.

Cross-listed with: HIST 471Y

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

Writing Across the Curriculum

RLST 472: Islamic Philosophy

3 Credits

A survey of major texts from the Islamic philosophical tradition, focusing primarily on the classical period (ninth to twelfth centuries) and its influence on modern thinkers.

Prerequisites: 9 credits in RLST and/or PHIL, or 6 credits of PHIL at the 200-level

Cross-listed with: PHIL 472

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

RLST 478: Ethics After the Holocaust

3 Credits

The aim of this course is to explore various ways in which philosophers have responded to Auschwitz (a signifier, or name, which is in turn not without controversy and complexity). It will examine, in particular, the promise and failure of post-Holocaust ethical theory, with attention to evil, suffering, goodness, witnessing, testimony, trauma, and human rights. Authors include Levi, Agamben, Arendt, Adorno, Levinas, Jonas, and Jankelevitch. Through reading and discussion of primary sources, this course introduces students to these philosophers' leading questions, methods, and conclusions, with reference to their historical context and their impact on later philosophy. The course will make these writings accessible to students without unduly presupposing prior knowledge, while also encouraging students to rise to the challenge with their own critical analysis and creative interpretations.

Prerequisite: One course in either JST or PHIL

Cross-listed with: JST 478, PHIL 478

Bachelor of Arts: Humanities

RLST 483: Zen Buddhism

3 Credits

The development and current state of Zen Buddhist thought and practice.

Cross-listed with: ASIA 487

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

RLST 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Humanities

RLST 494H: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Humanities
Honors

RLST 495: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, non-group instruction, including field experience, practica, or internships.

Prerequisite: prior approval of proposed assignment by instructor
Bachelor of Arts: Humanities

RLST 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Bachelor of Arts: Humanities

RLST 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Humanities

RLST 499: Foreign Study—Religious Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Humanities
International Cultures (IL)

Risk Management (RM)

RM 214: Applications of Probability Theory to Actuarial Science

1.5 Credits

This course introduces students to actuarial science topics and the actuarial profession. To become an actuary, individuals must pass a series of professional examinations that accredit them as professionals in the field. This course provides an introduction to the material on the earlier exams such as applications of probability theory to insurance, financial mathematics (compound interest and annuities), and provides instruction on spreadsheets, so that students can perform their

homework using them. Topics covered include applications of the following to insurance and actuarial science: conditional probability, independence, combinatorial principles, Bayes Theorem, and random variables. Specific probability distributions used include the binomial, uniform, Poisson, geometric, negative binomial, hyper-geometric, and multinomial discrete distributions, as well as the exponential, normal, uniform, and gamma continuous distributions. Expectations, distribution parameters, means, medians, modes, variances, skewness, and moment generating functions are also covered. The more advanced topics of joint, marginal, and conditional distributions are used, along with functions and transformations of random variables. The application of probability theory to risk management is addressed. Throughout the course, sample problems will be reviewed to help prepare students for the actuarial professional exams.

Enforced Prerequisite at Enrollment: C or better in MATH 141 Corequisite: STAT 414 or MATH 414 Concurrent Courses: MATH 230 or MATH 231

RM 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

RM 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

RM 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

RM 301: Risk and Decisions

3 Credits

Introduction to decision-making under uncertainty. Mathematical probability and statistics, decision theory and game theory will be studied. R M 301 Risk and Decisions (3) Most tough business decisions involve risk. Smart risk-taking requires special analytical problem solving skills and careful consideration of the relevant data. In this course, you will learn how to conceptualize decisions involving risk, how to analyze your choices, how to estimate the risk, and how to communicate and defend your analysis to others. The skills and tools you will learn come from economics, probability, statistics, and game theory. The focus will be on how the tools from these fields are applied to real world business decisions in risky environments. The concept of risk diversification will be discussed under both independent and correlated risks. Decision rules such as expected value maximization and expected utility maximization will be covered. The role of risk aversion of the decision-making process will be discussed along with how it can be measured. The study of decision analysis will include the use of decision trees. The basic concepts in game theory will be introduced. Students will learn what a Nash equilibrium is and how to derive such an equilibrium. More complicated games with incomplete information will be introduced which are important in decision-making where parties often are missing key pieces of information but must still choose a business strategy. Problems of asymmetric information will be studied; these situations arise when

one party to a transaction or contract has more information relevant to the decision than the other party. For these types of problems, such as adverse selection and moral hazard, optimal solutions will be discussed.

Enforced Prerequisite at Enrollment: (BA 301 or FIN 301) and (MATH 110 or MATH 140) and (STAT 200 or SCM 200)

RM 302: Risk and Insurance

3 Credits

Introduction to the principles and methods of handling business and personal risks; emphasis on insurance techniques.

Enforced Prerequisite at Enrollment: 4th semester standing

RM 303: Real Estate Fundamentals

3 Credits

Introduction to urban real estate; economic forces affecting property rights; real estate markets and finance; land-use analysis; government policies.

Enforced Prerequisite at Enrollment: 4th semester standing

RM 320W: Risk Management and Insurance

3 Credits

Goals and methods of risk management. Commercial insurance and alternative risk transfer (ART) methods in addition to the characteristics of insurance markets and intermediaries used by risk managers. This course covers the risk management process used by organizations to deal with the risks that they face with an emphasis on the types of risk commonly handled through the commercial insurance market. It addresses the costs and benefits of risk management, the goals of the process and the methods available to handle risks. The methods covered include both traditional and nontraditional ones including retention, commercial insurance, captive insurers, loss sensitive contracts, finite risk plans and securitization. The characteristics of the insurance markets and intermediaries used by risk managers are studied. These include insurance company organizational forms, operational structures, measures of performance, regulation and the role of brokers. The risks to organizations that are addressed include risks to employees, risks to customers, risks to shareholders and risks to third parties. The types of insurance covered include workers compensation, employment practices liability, products liability, general liability, directors and officers liability and environmental impairment liability. In addition, the failure of risk management during the recent financial crisis is analyzed. The course ends with a case study of risk management at Penn State University to give students a detailed perspective of the risk management program of a complex organization and to provide insight into how changes in the market environment can significantly affect such a program.

Enforced Prerequisite at Enrollment: FIN 301 and (MATH 110 or MATH 140) and (STAT 200 or SCM 200)
Writing Across the Curriculum

RM 330W: Real Estate Risk Analysis

3 Credits

Risk and value associated with real estate decision making, which includes purchasing, leasing renovation, financing, and investing. The purpose of this course is to demonstrate how value and risk is central

to virtually all real estate decision making, including whether and how to lease, buy or mortgage a property acquisition; whether to renovate, refinance, demolish or expand a property; and when and how to divest a property. The goal is to finish the course with a value oriented framework based on a set of valuation and decision making tools that can be applied in a variety of real world situations and to understand industry indicators (external factors) that determine the level of risk associated with real estate ventures.

Enforced Prerequisite at Enrollment: 5th - 11th Semester standing
Writing Across the Curriculum

RM 395: Internship

1-3 Credits/Maximum of 3

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: prior approval of proposed assignment by instructor

RM 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

RM 401: Fundamentals of Private Pensions

3 Credits

Analysis of pension regulation, funding, vesting, retirement annuities under insured and self-insured plans, actuarial cost analysis, plan termination insurance.

Enforced Prerequisite at Enrollment: RM 302 or RM 320W

RM 405: Corporate Risk Management

3 Credits

Risk management for firms and organizations; loss control, risk transfer, and loss financing alternatives; Corporate employee benefit program design and financing.

Enforced Prerequisite at Enrollment: RM 302 or RM 320W

RM 410: Financial Mathematics for Actuaries

3 Credits

This course focuses on Interest Theory, including compound interest, annuities with non-contingent payments; equations of value; loans and their valuation; the pricing of bonds, determining their yields to maturity and outstanding balances; determination of yield rates; duration of an asset or liability, and immunization of interest rate risk. The course helps prepare actuarial students for the international actuarial exam in Financial Mathematics (FM).

Enforced Prerequisite at Enrollment: C or better in MATH 141

RM 411: Long Term Actuarial Mathematics - Fundamentals

3 Credits

A study of the mathematical theory of life contingencies, single-life functions, and their applications. The course provides a solid understanding of the mathematics of life insurance and annuities, and helps actuarial students prepare for the long-term part of the Fundamentals of Actuarial Mathematics (FAM) actuarial exam. Students will gain an understanding of key concepts for selling insurance to various constituents, which includes among other things pricing based on a person's age and gender. Additional topics covered in the course include: 1) Key features of long-term insurance coverages, 2) Key concepts concerning survival models for individual lives, 3) Calculations on the present value random variables associated with long-term insurance benefits and expenses, 4) The premium and policy value calculation process, and 5) Pricing simple financial options under the binomial and Black-Scholes models.

Enforced Prerequisite at Enrollment: C or better in RM 410 and (STAT 414 or MATH 414)

RM 412: Long Term Actuarial Mathematics - Advanced Topics

3 Credits

A study of joint-life and survivor-life functions, population life tables, and multiple decrement theory, with applications to disability and retirement problems. The course provides a solid understanding of the advanced topics in long-term actuarial mathematics, and helps actuarial students prepare for the Advanced Long-Term Actuarial Mathematics (ALTAM) actuarial exam. Topics covered include: 1) Key concepts of multiple state survival models, including calculations of premium and policy values, 2) Analysis of emerging surplus and apply profit testing principles, 3) Basic pension/retirement benefits, including accrual, valuation and funding calculations, and 4) Various equity-linked life insurance guarantees and options, including relevant pricing, reserving and hedging principles. Building on these topics, students will be able to apply theoretical concepts to real-world insurance problems using a project-based approach focused on one or more advanced topics covered in the course.

Enforced Prerequisite at Enrollment: C or better in RM 411

RM 415: Modeling for Actuarial Science

3 Credits

Modeling for Actuarial Science provides detailed actuary principles dealing with models of interest rates used to price liabilities, and models of stock prices and options used to price employee options and cash balance accounts. The first section of the course focuses on discrete models, such as binomial option pricing, which can be used for pricing employee stock options. The second section covers put-call parity, the effects of style, maturity, and strike price on option prices, generalized parity, and exchange options. The third section looks at continuous models such as: 1) the Black-Scholes formula and its applications to options on stocks, currencies, futures, and market-making, 2) Delta-Hedging and the understanding of and pricing of exotic options (Asian, Barrier, Compound, Gap, and Exchange Options), 3) understanding lognormal distributions, Monte Carlo testing, Brownian motion, Ito's Lemma, historic and implied volatility, Sharpe ratios, interest rate models, and the application of these to liabilities. The course assists in preparing

students for the international actuarial exam MFE (Models in Life Contingencies).

Enforced Prerequisite at Enrollment: C or better in RM 410

RM 420: Property, Casualty, and Health Insurance

3 Credits

Actuarial methods and concepts used to model property, casualty and health insurance losses along with credibility theory. RM 420 Property, Casualty, and Health Insurance (3) This course provides a solid understanding of actuarial methods and concepts used to develop loss models for property and casualty insurance and health insurance. The course makes use of real world numerical examples in order to demonstrate how actuaries use historical claims and pricing data, both company specific and industry, to determine rates and increases. The class also gives students a foundation in Credibility Theory and simulation to prepare for the actuarial examination on loss models.

Enforced Prerequisite at Enrollment: C or better in RM 412

RM 421: Short Term Actuarial Mathematics - Fundamentals

3 Credits

RM 421 provides a solid understanding of actuarial methods and concepts used to develop loss models for property and casualty insurance and health insurance. The course makes use of real world numerical examples in order to demonstrate how actuaries use historical claims and pricing data, both company specific and industry, to determine rates and increases. Topics covered include: 1) Understand the key features of insurance and reinsurance coverages, 2) Understand the characteristics of severity, frequency and aggregate models, 3) Understand the concepts and applications of credibility theory, 4) Apply basic methods for calculation of premiums and reserves for short term insurance coverages. The course helps actuarial students to prepare for the international Fundamentals of Actuarial Mathematics (FAM) exam.

Enforced Prerequisite at Enrollment: C or better in RM 410 and (STAT 415 or MATH 415)

RM 422: Short Term Actuarial Mathematics - Advanced Topics

3 Credits

This course covers advanced topics of actuarial methods and concepts used to develop loss models for property and casualty insurance and health insurance. The course makes use of real world numerical examples in order to demonstrate how actuaries use historical claims and pricing data, both company specific and industry, to determine rates and increases. Topics covered include: 1) Interpretation and calculations with severity, frequency and aggregate models, 2) Construction and selection of parametric models, 3) Estimation of losses using credibility procedures, and 4) Pricing and reserving for short-term insurance coverages. The course helps to prepare actuarial students for the international Advanced Short-Term Actuarial Mathematics (ASTAM) actuarial exam.

Enforced Prerequisite at Enrollment: C or better in RM 421

RM 424: Real Estate Law

3 Credits

Analyze contemporary law applicable to various types of ownership interests and rights, methods of transferring ownership, and use of real property. B LAW 424 B LAW (R M) 424 Real Estate Law (3) Analysis of contemporary law applicable to various types of ownership interests and rights, methods of transferring ownership, and use of real property. The objectives for this course are: (1) to provide students with an understanding of essential U.S. real estate property law, including the rights private property owners may obtain, how ownership and transfer are handled in view of present and future interests, constitutional issues that impact real estate ownership, and the legal aspects of modern real estate contractual transactions; (2) to teach students the ability to spot the legal issues arising from the above as future business leaders and (3) to introduce students to the legal reasoning process necessary to address and avoid the legal dilemmas presented by such issues. Instructional methods for the course will include detailed lectures and classroom discussion of readings and other materials. Student progress and mastery of the material will be evaluated through periodic examinations.

Enforced Prerequisite at Enrollment: BLAW 341 or BLAW 243

Cross-listed with: BLAW 424

RM 430: Life and Health Insurance

3 Credits

Industrial organization of the US life-health insurance industry; economic issues related to organizational structure, operational functions, and the supply and demand for life-health products.

Enforced Prerequisite at Enrollment: RM 302 or RM 320W

RM 440: Risk, Strategy, and Decision Making

3 Credits

One of the key ways that a business attempts to manage risk it anticipates and confronts in markets is through organizational-level elements such as its business strategy, structure, and culture. These elements emerge from a series of decisions guided by the insights and biases of individuals. As such, the management of enterprise risk must also include an understanding of how individuals (e.g. managers) approach risk through their decisions and decision making processes. In this course, we look at some of these critical elements separately and then together as they integrate to guide and define enterprise risk management. The basic course objectives are to come away with an understanding of the following: Forms of strategic risk - From market to internally-driven risk; from emotional to economic-driven, how does strategic risk present itself? How do executives recognize/assess and respond to the "portfolio of risk" that they must address to make the business successful? Business strategy and structure - One way risk is addressed and articulated is through a business strategy. What is strategy? What are the key decisions that comprise a business strategy? How are organizations structured to implement these strategies and move information across the firm? Where and how is risk assessed in these processes and structures, and incorporated into a strategic risk plan? Decision making - Decision making around strategy and risk management plays out in various forms and across different levels (i.e., individuals and groups). What goes right and wrong? How are these processes systematically linked to perceptions and actions associated

with risk management. Organizational culture - Perhaps one of the most critical elements in enterprise risk management is the role played by organizational culture (or simply "How we do things around here and my role as an organizational member doing it.") We examine the roots of organizational culture and how it is aligned to perspectives of risk and its management. Descriptive vs. prescriptive perspectives - Once we "described" what does/could go on, we need to engage in looking at ways that organizations can prevent pitfalls and correct suboptimal practices.

Enforced Prerequisite at Enrollment: RM 302 or RM 303 or RM 320W or RM 330W

RM 450: Contemporary Issues in Real Estate Markets

3 Credits

Historical performance, land use issues, market valuation, real estate development, public policy issues.

Enforced Prerequisite at Enrollment: RM 303 or RM 330W

RM 460: Real Estate Financial Analysis

3 Credits

Debt and equity financing, capital structure, "creative financing," risk analysis, corporate asset management. FIN (R M) 460 Real Estate Financial Analysis (3) The objective of this course is to provide in-depth coverage of real estate investment and financing decisions. The focus is on the private market, including corporate asset management. Investment analysis moves from the basics of forecasting cash flows, through advanced topics including the impact of real option value on investment and development decisions. Risk measurement is given particular attention with a focus on sensitivity and simulation analysis. There is some coverage of asset pricing models like the Capital Asset Pricing Model, which is critically analyzed with respect to its applicability in real estate markets. The impact of illiquidity, management costs, and the suspicion of non-normally distributed returns are explored, as are the implications of relative market inefficiency. The financing module begins with the basics of mortgage debt mathematics, which is then extended to include comparisons of various repayment programs. Included are interest-only, balloon, shared appreciation, growing equity, graduated payment and reverse annuity loans, as well as various creative financing of commercial properties. The latter include participating mortgages, convertible mortgages, and mezzanine debt. Featured in the corporate asset management section is the lease/buy decision. Other topics may be addresses based on current events. It is anticipated that guest speakers will be invited where appropriate.

Enforced Prerequisite at Enrollment: FIN 305W or RM 303 or RM 330W
Cross-listed with: FIN 460

RM 470: Real Estate and Capital Markets

3 Credits

Analysis of publicly-traded real estate of both the equity, (REITs) and debt (MBSs) sides. The course also provides international perspectives. FIN 470 / RM 470 Real Estate and Capital Markets (3) The objectives of this course are to expose the student and explore the issues associated with the analysis of "public" ("Wall Street") real estate, including both equities (such as Real Estate Investment Trusts or REITs) and debt vehicles (such as Mortgage-Backed Securities or MBSs). In addition, the course will focus on the increasingly globalization of real estate capital markets as the real estate sector becomes integrated into the

global financial system. The differences between private and public real estate analysis will also be explored, including the suitability of traditional asset pricing models for real estate analysis. Topics include the growing impact of institutional real estate forces on the real estate sector, the use of modern financial economics methods to real estate including the concept of market efficiency, modern portfolio theory applications, market measures of risk and return, the use of option-based models, and other advances. The rise of Wall Street's interest in real estate securities is an important institutional development and serves as the underlying background for the analysis of MBSs using fixed-income security techniques. As globalization has spread, the real estate sector has moved with these changes and prospects for a global real estate market are examined and evaluated. This course serves as a compliment to FIN 460, which emphasizes traditional financial analyses of individual real estate projects. In FIN 470, real estate securities are viewed as a natural extension towards the complete integration of real estate and capital markets. In this sense, these courses will enable traditional and modern analyses of the real estate sector for years to come.

Enforced Prerequisite at Enrollment: FIN 305W or RM 303 or RM 330W
Cross-listed with: FIN 470

RM 475: Quantitative Analysis for Business

3 Credits

This course provides students with working knowledge of some widely used quantitative methods, such as Monte Carlo simulations, t-tests, linear regressions, nonlinear regressions, regressions with dummy variables, and regressions with interacting explanatory variables, as well their applications in business. The course will focus on understanding and applying each method, but not on statistical theory or their proof. Monte Carlo simulations will be used to substitute for mathematical proofs. By the end of the course, students should understand the purposes of the above methods and how to use them to solve real estate, financial, marketing, and risk management problems. Students should also be able to interpret results in ways that are correct, insightful, and useful, should be aware of potential problems of each method, such as the omitted variable bias, multicollinearity, heteroskedasticity of regressions, and should know how to make corrections if these problems are present. Students should also have developed working knowledge of R, which is a programming language and software environment widely used by quantitative analysts. Students should know how to use R to conduct basic data manipulation, do simple Monte Carlo simulations, do t-tests, and run linear and non-linear regressions.

Enforced Prerequisite at Enrollment: SCM 200 or STAT 200
Cross-listed with: FIN 455

RM 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

RM 494H: Honors Research Project

1-6 Credits/Maximum of 6

Supervised honor student research projects identified on an individual or small-group basis.

Honors

RM 496: Independent Studies

1-18 Credits/Maximum of 18

Creative Projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

RM 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

RM 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Rural Sociology (RSOC)

RSOC 11: Intro Rural Sociology

3 Credits

Basic sociological concepts applied to rural societal institutions and rural communities; causes and consequences of rural social change as applied to domestic and global regions. The objectives of the course are (1) to acquaint students with the fundamental concepts, principles and research methods of rural sociology; and (2) to assist students in applying these concepts and principles to gain an understanding of rural societal institutions and the forces leading to social change in rural America and globally. Lectures and readings are designed to encourage students to examine their assumptions and understanding of the structure and functioning of rural communities, the forces leading to rural social change, and the likely course of these changes in the future. A major objective is to challenge students to critically analyze rural society and rural social institutions from a sociological perspective. Understanding the changing nature of rural society in an increasingly urbanizing and integrated world is a key consideration.

Bachelor of Arts: Social and Behavioral Sciences

United States Cultures (US)

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

RSOC 400N: Exploring Indigenous Ways of Knowing in Great Lakes Region: Lecture

3 Credits

Exploring Indigenous Ways of Knowing in the Great Lakes Region explores concepts and values distinctive to indigenous ways of knowing (IK) in the Great Lakes Region through readings, video segments, and lectures. Five structural concepts or key themes - local knowledge, relational knowledge, empirical knowledge, spiritual knowledge, and traditional knowledge - provide a conceptual framework for understanding indigenous cultures and knowledge production and their unique contributions to western society in the 21st century. Students will be introduced to the Algonquian cultures of the Great Lakes Region

and to the Ojibwe (Anishinaabeg), Odawa, and Potawatomi (Three Fires) cultures in particular. This course will introduce students to the distinctive ways indigenous people experience, understand, and know the world through their relationship with the land or region to which they belong. Too often, colonizers around the world have ignored indigenous knowledge systems even though these ways of knowing have sustained peoples, cultures, and environments for thousands of generations. Because these ways of knowing are generally preserved and transmitted through stories, music, ceremony, and embodied traditions, they are seldom understood and frequently dismissed by those who control the production of knowledge in the modern world. The knowledge of the indigenous peoples of the Great Lakes region will, in this course, be presented as an empirically grounded scientific body of knowledge and theory comparable and complementary to the European tradition and, in specific ways, enhancing the sustainability of western scientific knowledge and practice. This course is a prerequisite for the Maymester field experience - Exploring Indigenous Ways of Knowing among the Ojibwe CED 401 which offers students an opportunity to experience indigenous ways of knowing by engaging with Ojibwe educators, traditional knowledge holders, elders, and families in several of the three largest Ojibwe reservations in the US.

Enforced Prerequisite at Enrollment: RSOC 11 or SOC 1

Cross-listed with: CED 400N

United States Cultures (US)

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

RSOC 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

RSOC 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

RSOC 499: Foreign Study--Rural Sociology

1-12 Credits/Maximum of 12

Study in selected countries of rural social institutions and current rural sociological problems.

International Cultures (IL)

Russian (RUS)

RUS 1: Elementary Russian I

4 Credits

An introduction to the fundamentals of the language and culture with emphasis on communicative proficiency, clarity of pronunciation, and basic skills in reading, writing, and conversation. This course assumes

no prior knowledge of Russian. Students who grew up in a home where Russian was spoken must take a placement interview with the course instructor at least a week prior to the beginning of classes.

Bachelor of Arts: World Language (All)

RUS 2: Elementary Russian II

4 Credits

Continued introduction to the fundamentals of the language and culture with emphasis on communicative proficiency, clarity of pronunciation, and basic skills in reading, writing, and conversation. Students who grew up in a home where Russian was spoken must take a placement interview with the course instructor at least a week prior to the beginning of classes.

Prerequisite: RUS 001

Bachelor of Arts: World Language (All)

RUS 3: Intermediate Russian I

4 Credits

Continued study of grammar and review of basic grammatical structures with emphasis on acquisition of vocabulary and continued development of conversational, writing, and reading skills. Students who grew up in a home where Russian was spoken must take a placement interview with the course instructor at least a week prior to the beginning of classes. Upon successful completion of this course, students are expected to attain Intermediate Low level of speaking proficiency according to the ACTFL guidelines.

Prerequisite: RUS 002

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

RUS 51: Elementary Intensive Russian for Graduate Students I

3 Credits

Intensive introduction to Russian: first half of graduate intensive sequence in elementary reading, writing, speaking, listening, cultural contexts. RUS 051 Elementary Intensive Russian for Graduate Students I (3) This is the first in a series of three courses designed to give students an intensive introduction to Russian. This is the first half of elementary sequence in reading, writing, speaking, listening, and cultural contexts. Students will learn the Russian vocabulary and will learn to create simple sentences. Lessons are taught in an authentic cultural context.

Prerequisite: graduate standing

RUS 52: Elementary Intensive Russian for Graduate Students II

3 Credits

Intensive introduction to Russian: second half of graduate intensive sequence in elementary reading, writing, speaking, listening, cultural contexts. RUS 052 Elementary Intensive Russian for Graduate Students II (3) This is the second in a series of three courses designed to give students an intensive introduction to Russian. This is the second half of graduate intensive sequence in elementary reading, writing, speaking, listening, and cultural contexts. Students will learn the Russian vocabulary. Lessons are taught in an authentic cultural context.

Prerequisite: RUS 051 and graduate standing

RUS 53: Intermediate Intensive Russian for Graduate Students

3 Credits

Continued intensive study of Russian at the intermediate level: reading, writing, speaking, listening, cultural contexts. RUS 053 Intermediate Intensive Russian for Graduate Students (3) This is the third in a series of three courses designed to give students an intermediate intensive knowledge of Russian. Continued intensive study of Russian at the intermediate level: reading, writing, speaking, listening, and cultural contexts. Lessons are taught in an authentic cultural context.

Prerequisite: RUS 052 or equivalent, and graduate standing

RUS 83: First-Year Seminar in Russian

3 Credits

Russia's cultural past and present. RUS 083 First-Year Seminar in Russian (3) (GH; FYS; IL) (BA) Russia, the world's largest country stretching over eleven time zones in Europe and Asia, is currently undergoing a dramatic transformation. For the past hundred years, Russia has served as a laboratory of gigantic dimensions as various social ideals were implemented with unprecedented radicalism. At the same time, Russia's intellectuals raised 'ultimate questions' about social justice, the existence of God, and the meaning of human life with an unparalleled acuity and intensity. This course surveys Russia's cultural past and present and introduces students to the various attitudes of Russian thinkers and authors toward the questions of national identity and national destiny. It could be offered either as a broad overview of general trends and key ideas or as a theme-specific survey. With that said, while the thematic focus may vary from year to year, students will discuss examples of Russian high culture (philosophy, literature, art, music) alongside critical inquiries into daily life in imperial, communist, and post-communist Russia in each iteration of the course. Special emphasis will be placed on the in-depth study of a few seminal works of Russian literature and cinema. In addition to introducing students to the key topics in Russian history and culture, this course will help to prepare them for a variety of additional courses in the fields of literature and Russian/East European area studies. In addition to the academic topic and issues of this course, students can expect to gain a general introduction to the University as an academic community and to have the opportunity to explore their responsibilities as members of that community. Students will develop an understanding of the learning tools and resources available to them, including the opportunity to develop relationships with faculty and other students who share their academic interests. The course will be taught in English, and no prior knowledge of Russian culture and history is required. Each section of this course will be limited to twenty students who will be instructed by an experienced professor. The classwork will consist of a fusion of lectures, seminar-style discussions, group work, short writing assignments, collaborative group projects, student presentations, and a research project. This course can be used to fulfill the General Education or Bachelor of Arts Humanities requirement, the International Cultures requirement, and the first-year seminar requirement.

Bachelor of Arts: Humanities

International Cultures (IL)

First-Year Seminar

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

RUS 99: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Humanities

International Cultures (IL)

RUS 100: Russian Culture and Civilization

3 Credits

RUS 100 Russian Culture and Civilization (3) (GH; IL) (BA). This course meets the Bachelor of Arts degree requirements and is a prescribed course for the Russian major and minor. The course acquaints students with the general contours of Russian culture and civilization from the origins to the recent past. Students will read the story of the Russian people, which includes their ongoing quest for national identity between east and west, their triumphs and tragedies, and their important contributions to world culture. The course surveys history, politics, language, literature, folklore, religion, music, and art. Students will be acquainted with various attitudes of Russian thinkers and authors towards the question of national identity and national destiny. Examples of Russian high culture (philosophy, literature, art, music) and the Russian religious faith (Orthodoxy) are discussed alongside views of daily life. Although the course's focus is on Russian culture and civilization rather than on history, some historical background is necessary to properly understand and interpret the culture. That is why a historical frame is systematically provided. As a General Education course, Russian 100 incorporates the following four elements of active learning: international competence (which is inherent to the subject matter), information gathering and analysis, active use of writing, and dialogue pertaining to social behavior, community, and scholarly conduct, which will be provoked by the reading material. A knowledge of Russian is not required, as class lectures and discussions, as well as all additional readings, are in English. The course materials include weekly lectures designed as multimedia presentations, readings assigned through the Penn State Libraries electronic reserve system, and some films.

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

RUS 101N: Russian Cinema

3 Credits

RUS 101N Russian Cinema (3) (GH; GA; IL). From the beginning, cinema has been an intersection of technology, art, entertainment, industry, commerce, politics, and more. The course acquaints students with major filmmakers who shaped Russian cinema over the 20th century and beyond. The course surveys Russian cinema from its beginnings to the present, with emphasis on historical, political, and cultural contexts. Russian cinema is defined as feature films and documentaries produced in pre-revolutionary Russia, as well as in the Soviet Union and post-Soviet Russia. The course will chronologically overview the developments in Russian film mapping these onto major historical events and artistic and cultural trends. It will also introduce students to fundamental concepts

and terminology for film analysis. The course is taught exclusively in English; neither prior knowledge of Russian history and culture nor of film history and terminology is required. To preserve as much authenticity as possible, all movies will be viewed in Russian with English subtitles. Films will cover different genres, such as melodrama, historical film, screen adaptation of literary comedy, propaganda film, and documentary. Readings will provide a historical perspective and acquaint students with classical writings by filmmakers and theorists. Short papers and/or presentations will provide students with opportunities for personal research and active use of writing. The course is designed to satisfy General Education Inter-Domain course requirements as a GH (General Humanities), as a GA (General Arts), and as an IL (International Cultures) course.

Bachelor of Arts: Arts
 Bachelor of Arts: Humanities
 International Cultures (IL)
 General Education: Arts (GA)
 General Education: Humanities (GH)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

RUS 110: Russian Folklore

3 Credits

Study of byliny, lyrical and historical songs, folktales, drama, ceremonial poetry, chants, charms, proverbs, and mythology of Russia. In English. RUS 110 Russian Folklore (3) (GH;IL)(BA) This course meets the Bachelor of Arts degree requirements. Russian 110 is a general survey of Russian folklore for English-speaking students. It concerns itself not with the aristocratic and intelligentsia culture of Russia, but with the rites of passage, agricultural ceremonies, beliefs, legends, folktales, and epics of the Russian peasants, most of whom were illiterate. Students are evaluated on the basis of three examinations (half short-answer and half essay), a legend collecting project, and a final. The legend project requires students to collect a legend or tale (usually from the American tradition), evaluate it against folklore indices, present it to the other students, and write it up. Russian 110 may be counted toward the major in Russian Translation (BS). It may also be used to fulfill General Education Humanities and International/Intercultural Competency requirements. This course will be offered once a year with 50 seats per offering.

Bachelor of Arts: Humanities
 International Cultures (IL)
 General Education: Humanities (GH)

RUS 141Y: Russian Literature in English Translation: 1800-1870

3 Credits

Pushkin, Lermontov, Gogol, the critics, Turgenev, Dostoevsky, Tolstoy. Writing assignments will serve as a major way of exploring subject matter.

Bachelor of Arts: Humanities
 International Cultures (IL)
 Writing Across the Curriculum

RUS 142Y: Russian Literature in English Translation: 1870 to Present

3 Credits

Dostoevsky, Tolstoy, Chekhov, Gorky, symbolists, selected Soviet authors. Writing assignments will serve as a major way of exploring subject matter.

Bachelor of Arts: Humanities
 International Cultures (IL)
 Writing Across the Curriculum

RUS 143: The Culture of Stalinism and Nazism

3 Credits

This course, which is cross-listed between Russian and German, aims to acquaint students with an important and troubling chapter of 20th-century culture. The regimes of Stalin and Hitler have had a decisive impact not only on life in Russia and Germany, but in much of Europe and the world at large. There is no consensus among scholars about how to classify these systems, whether the term "totalitarian" is appropriate to describe them, and whether Stalinist Russia and Nazi Germany are essentially similar or essentially different historical phenomena. Espousing a comparative perspective, this course explores the culture produced by Stalinist Russia and Nazi Germany, taking into account both the culture of daily life and selected works of "high culture," including literature, the visual arts, architecture, music, and film. The ideological underpinnings of both systems will be discussed and compared. The classics of Stalinist Socialist Realism and Nazi propaganda will be analyzed both as political statements and works of art. The course will also include a reading of authors who attempted to create critical representations of life in Stalinist and Nazi societies, such as Lydia Chukovskaya, Varlam Shalamov, Primo Levi, and George Orwell. The course is designed to be suitable for all students generally interested in Russian and/or German culture, or interested in various fields of humanistic study, whether or not they have previously studied the culture of Russia or Germany. A knowledge of Russian or German is not required, as class lectures and discussions as well as all reading assignments will be in English. This course is designed to count as General Education, as a GH "Humanities," and as an IL "International Cultures" course. It meets the BA requirements in the humanities by asking students to demonstrate competence in 20th-century German and Russian history, political philosophy, literature, art and film.

Cross-listed with: GER 143
 Bachelor of Arts: Humanities
 International Cultures (IL)
 General Education: Humanities (GH)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Soc Resp and Ethic Reason

RUS 144: Multicultural Russia: Narratives of Race and Ethnicity in Russian Literature and Culture

3 Credits

RUS 144 Multicultural Russia: Narratives of Race and Ethnicity in Russian Literature and Culture (3) (GH, IL). Despite media's renewed attention to Russia's domestic and foreign affairs, the fact that Russia-a gigantic land mass stretching all the way from Finland to the Sea of Japan-is, even today, not really a "nation" but an "empire," encompassing peoples of many different ethnic, racial, linguistic, and religious backgrounds,

remains a little known fact for the American audience. According to a 2005 report by the Council of Europe Commissioner for Human Rights, more than 170 distinct ethnic groups live within the borders of the Russian Federation. For most of the past two centuries, this empire was even larger and more diverse. While, inside the Soviet Union, this diversity was often celebrated as proof of the "friendship of peoples" underlying the Communist state. In the 1920s and the early 1930s, the Soviet authorities promoted the voices, literatures, and cultures of the empire's ethnic and national minorities, as long as they were "national in form" but "socialist in content." Once the survival of the new state was secured, the so-called Soviet "nationalization" campaign was brought to a stop and even reversed in some cases, resulting in silencing of numerous treasures of world literature that offer invaluable glimpses into the lives of an ethnically, geographically, and culturally diverse range of peoples, who identify today as Russian citizens. This course explores the major works by authors representing many ethnic minorities in the territory of modern Russia, as well as works by writers from former Russian and Soviet colonies, such as Ukraine, Georgia, Armenia, Uzbekistan, and Kyrgyzstan. Special attention is also paid to Jewish experience and Russia's encounters with Africa and Africans. Focusing on five major regions-Ukraine, the Caucasus, Central Asia, the Far East, and Africa-the course analyzes primary texts for their rhetorical and poetic effects, the historical and political contexts in which literary discourses surrounding questions of ethnicity, culture, and race develop, and the conditions under which they are marketed to, or suppressed from, different groups of readers. Where applicable, the primary readings are supplemented with short selections from the scholarly literature on theories of race and ethnicity, human rights, colonialism, Russian/Soviet nationality policies, and the politics of censorship and literacy under Communism. The course is taught in English and requires no prior knowledge of Russian culture and history. It offers a variety of class activities - lectures, screenings, guided discussions, group work, and student presentations - and incorporates several elements of active learning - information gathering and analysis, active use of writing, and oral presentations and modeling demonstrations - to help students develop and apply actively their critical thinking and close reading skills. This course fulfills the General Humanities requirement and is designated as an International Cultures course.

Bachelor of Arts: Humanities
International Cultures (IL)
General Education: Humanities (GH)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Key Literacies

RUS 145: Putin's Russia and Its Protest Culture

3 Credits

RUS 145 Putin's Russia and Its Protest Culture (3) (GH, IL). The collapse of the Soviet Union in 1991 caught most observers by surprise and has led Russia on a path of political, economic, and cultural liberalization of an unprecedented scope. But despite the initial excitement, post-Soviet Russia has emerged as a state characterized by authoritarianism and crony capitalism. How so? Why did Russia's political and economic transition fail to produce the intended results? What are the factors that gave rise to and sustained Vladimir Putin's regime? What are its key pillars and contradictions? What is the Russian people's response to Putinism, its punitive domestic politics, and its aggressive posture toward Russia's neighbors and the West? This course seeks to answer these questions by examining the relationship between individuals and

the state in present-day Russia. Designed as a comprehensive overview of major events and most prominent voices in Putin's Russia that have influenced and continue to influence contemporary Russian culture and politics, this course aims at providing students with an opportunity to evaluate critically a set of creative and analytical works produced in Putin's Russia by representative writers, filmmakers, visual artists, journalists, political observers, human rights activists, and cultural critics from both aesthetic and ethical points of view. Particular attention is paid to Putin's solidification of power, the Second Russo-Chechen War, Putin's prosecution of the oligarchs and political dissent, Russia's state-sponsored disinformation offensive and its global ramifications, as well as their deliberations in arts and public discourse. The course is taught in English and requires no prior knowledge of Russian culture and history. Its classwork consists of lectures, screenings, guided discussions, group work, short quizzes, student presentations and incorporates the following elements of active learning: information gathering and analysis, oral presentations, and active use of writing. The course fulfills the General Humanities requirement and is designated as an International Cultures course.

Bachelor of Arts: Humanities
International Cultures (IL)
General Education: Humanities (GH)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Key Literacies

RUS 196: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

Bachelor of Arts: Humanities

RUS 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Humanities

RUS 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Humanities
International Cultures (IL)

RUS 200: Intermediate Russian II

4 Credits

A continuation of intermediate Russian with a comprehensive grammar review and focus on reading, writing and speaking Russian.

Prerequisite: RUS 003 or permission of program
International Cultures (IL)

RUS 214: Intermediate Russian III

4 Credits

Intensive practice of Russian reading, writing, listening and speaking; review of Russian grammar. RUS 214 Intermediate Russian III (4) (IL) (BA) This course meets the Bachelor of Arts degree requirements. This course will provide intensive Russian language training at the intermediate level, stressing the four skills of reading, writing, listening, and speaking. Together with its companion course, Russian 204, the course will provide a complete review of Russian grammar. It will include a discussion of participles and verbal adverbs, verbs of motion, and problems of Russian syntax in conjunction with conversation practice and writing assignments. Russian 214 will be a required course for Russian majors. It can be taken before or after Russian 204 (which will also be required). Grading will be based on regular written tests and a final exam that will include an oral component. Students will be encouraged to use the new language training equipment available at Sparks Building.

Prerequisite: RUS 003

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

Bachelor of Arts: Humanities

International Cultures (IL)

Exceeds 12th Unit of World Language

RUS 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Bachelor of Arts: Humanities

RUS 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Humanities

RUS 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Humanities

International Cultures (IL)

RUS 304: Readings in Russian III

3 Credits

Extensive reading of contemporary Russian texts, including articles from Soviet press and short fiction.

Prerequisite: 6 credits of Russian at the 200 level

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

Bachelor of Arts: Humanities

International Cultures (IL)

Exceeds 12th Unit of World Language

RUS 305: Advanced Russian Conversation

3 Credits

Discussion and role-playing based on real-life situations and current events; supervised by a native speaker. RUS 305 Advanced Russian Conversation (3) (IL) RUS 305 is the basic conversation course for the B.A. in Russian. It centers around discussion and role-playing on such topics as ordering plane tickets, traveling on Russian trains, Russian restaurants, cooking at home, traveling to and from work, summer jobs and career plans, sports and other forms of leisure, movies and television, and interviews with famous people. Some current events are also discussed, e.g. Russian attitudes towards the Romanovs, the AIDS crisis, the economic situation in Russia. Evaluation is based on individual and group oral presentations, regular quizzes, and short compositions. No special facilities are required, but students are encouraged to use the new language training equipment available in Sparks Building.

Prerequisite: RUS 204 , RUS 214

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

International Cultures (IL)

Exceeds 12th Unit of World Language

RUS 395: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Prerequisite: prior approval of proposed assignment by instructor

Bachelor of Arts: Humanities

RUS 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Humanities

International Cultures (IL)

RUS 401: Advanced Russian I

4 Credits

Advanced practicum in conversation, reading, and composition. This course is designed as a transition from Intermediate to Advanced level of speaking proficiency. It is taught in Russian and covers topics in grammar in the context of the spoken and written language. Emphasis is placed on verbal morphology, simple and complex sentence structures. Short readings will include original or adapted texts covering a variety of genres and topics. Quizzes, tests, class discussions, individual and small group presentations, short descriptive and expository essays, and internet-based assignments that address current events and illustrate different linguistic usage will be essential means to explore the subject matter and assess students' progress. The course also aims to increase the students' understanding of Russian culture and the Russian way of life. This course meets the BA and IL requirements. Students must take RUS 200 prior to RUS 401 or receive permission of the program.

Prerequisite: RUS 200

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

Bachelor of Arts: Humanities

International Cultures (IL)
Exceeds 12th Unit of World Language

RUS 402: Advanced Russian II

3 Credits

Advanced practicum in reading, writing, and conversation. RUS 402 (IL) builds on and expands the language competence acquired in Russian 200 and 401 and is taught entirely in Russian to ensure complete immersion. Students will work with a variety of texts and audio-visual materials on topics of general interest. Upon successful completion of the course, students will acquire basic competence in representing points of view other than their own, defending an argument, and hypothesizing on a more abstract level. The course also aims to increase the students' understanding of Russian culture and the Russian way of life.

Prerequisite: RUS 401; or Permission of program
Bachelor of Arts: Humanities

RUS 403: Advanced Russian Conversation and Composition

3 Credits

Advanced practicum in conversation and composition. RUS 403 (BA) (IL) includes situational topics and complex academic discourse and is designed to enhance students' oral, listening comprehension, and writing skills in Russian. It is taught entirely in Russian to ensure complete immersion. Students will work with authentic Russian texts and audio-video materials of moderate complexity in various genres and will actively engage in conversations and discussions on a number of topics of personal, community, national, or international interest: current events, culture, history, the arts, and politics. They will gain sufficient control of basic structures and generic vocabulary to be understood by native speakers of the language, including those unaccustomed to nonnative speech. Upon successful completion of the course, students will acquire basic competence in representing points of view other than their own, defending an argument, and hypothesizing on a more abstract level. The course also aims to increase the students' understanding of Russian culture and the Russian way of life.

Prerequisite: RUS 200 or permission of program; Concurrent: RUS 400, RUS 401, RUS 402, RUS 405, RUS 412
Bachelor of Arts: Humanities
International Cultures (IL)

RUS 404: Advanced Reading and Composition

3 Credits

Advanced Russian Reading and Composition. RUS 404 Advanced Reading and Composition (3) RUS 404 focuses on reading and writing in Russian. Some time is spent on reading strategies, methods of building a working Russian vocabulary, sentence structure, and word order. Reading materials are at the advanced level and for the most part treat the history of the Russian Revolution and Civil War, the Stalinist era and the Thaw. Literary selections complement the historical readings and include works of Blok, Akhmatova, Zoshchenko, Bulgakov and Solzhenitsyn.

Prerequisite: RUS 401, RUS 402, or RUS 403

RUS 405: Seminar in Russian Literature

3-6 Credits/Maximum of 6

Readings in classical Russian literature; Topics vary. RUS 405 Seminar in Russian Literature (3 per semester/maximum of 6) (IL) In no other culture has literature attained the centrality it enjoyed in nineteenth- and twentieth-century Russia. Political, social and historical constraints propelled Russian writers into figures of witness, prophecy and moral instruction. Yet far from being limited to the vast, dark novels of legend, Russian literature offers a great deal of variety, including much humor, lyricism and fantasy. Russian 405 is a senior-level seminar devoted to the in-depth study of selected texts of classical nineteenth- and twentieth-century Russian literature. It presupposes a solid reading knowledge of Russian. The choice of authors and texts will vary from one year to the next. Writers discussed on a regular basis will include such major figures as Alexander Pushkin, Mikhail Lermontov, Nikolai Gogol, Ivan Turgenev, Fyodor Dostoevsky, Lev Tolstoy, Anton Chekhov, as well as selected writers from the Soviet and post-Soviet period. The thematic emphasis will vary from one year to the next. The focus may be on the oeuvre of a single writer, on the development of a particular genre (e.g., lyric poetry or the short story), on a particular time period (e.g., the so-called "Silver Age" at the beginning of the twentieth century), or a particular theme (e.g., the conflict between liberalism vs. radicalism, the "woman question," the role of religion, Russia vs. the West, Russian "Orientalism," the Communist Revolution and its discontents, etc.). The literary texts will be read in Russian. They will be analyzed both in their socio-historical context and as aesthetically compelling manifestations of verbal art. Explorative analytical writing and class discussion will be essential means to explore the subject matter.

Prerequisites: RUS 401 or Permission of program
International Cultures (IL)

RUS 406: Russian Film

3 Credits

Conversation and Composition based on classical Russian films. RUS 406 Russian Film (3) (IL) Taught in Russian, this course offers an overview of the development of the film industry in the USSR/Russia within its historical context: from the silent classics of the Soviet Golden Age, to the mass entertainment movies of Socialist Realism, the new-wave productions of the cultural thaw of the 60s, the popular genres of the 'stagnating' 70s, the liberated films of the glasnost period, and the most recent movies reflecting Russia's difficult economic transition. Russian cinema will be discussed as an index of sociopolitical trends over the years, as well as a medium in its own right. Therefore, attention will be devoted to historical turning points that affected the cultural policies of the Soviet Union, and consequently the styles, themes, and quality of filmmaking. At the same time, the course will consider the film as text, and analyze the feelings it stirs, the moods it evokes, and the ideological message it conveys. To this end, the course will cover the basic elements and techniques of film language (shots, montage, mise en scene, etc.) and the process of visual perception that affects the audience.

Prerequisite: RUS 401, RUS 402, or RUS 403
International Cultures (IL)

RUS 410: Heritage Russian

4 Credits

Introductory course for heritage speakers aiming at developing basic reading, writing, and grammar skills in Russian. The course is intended for students who grew up speaking Russian at home but had minimum exposure to writing and reading. Study materials include simple original readings (fairy tales, short stories, poems, songs) and visual and multimedia texts. The course is designed to enhance the students' knowledge and understanding of Russian culture and increase their awareness of their own complex cultural identity.

Prerequisite: basic speaking proficiency in Russian; placement test and consent of instructor

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

Bachelor of Arts: Humanities

International Cultures (IL)

Exceeds 12th Unit of World Language

RUS 412: Russian Translation

3 Credits/Maximum of 6

Translation from Russian into English of complex texts from the humanities, social sciences, and technical fields.

Prerequisite: 9 credits of Russian at the 200 level or higher

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

Bachelor of Arts: Humanities

International Cultures (IL)

Exceeds 12th Unit of World Language

RUS 414: Advanced Grammar and Linguistic Analysis of Contemporary Russian

3 Credits

In-depth study of selected grammar topics pertaining to the phonology, morphology, and syntax of Modern Standard Russian with glimpses into the history of the Russian language. The course aims to both enhance students' understanding of linguistic structures in general and at improving their proficiency in Russian.

Prerequisites: RUS 401, and RUS 402; or RUS 403; or Permission of program

Bachelor of Arts: Humanities

International Cultures (IL)

RUS 420: Senior Seminar in Russian Culture

3 Credits

Senior seminar devoted to topics in Russian culture and conducted in Russian. Building on linguistic and cultural material covered in the second and third levels of study toward the Russian major, this course is designed to add depth and sophistication to the students' understanding of basic concepts in Russian culture and improve their ability to discuss and write about them in Russian. The course materials cover, selectively, the "big themes" and concepts of Russian culture, such as the legacy of Kievan Rus, the cultural/historical preconditions for the 'Third Rome' theory, the rift between the people and the upper classes following Peter the Great, Westernizers versus Slavophiles, the Bolshevik Revolution, the Stalinist terror, WWII, the Thaw, Stagnation, Perestroika, and Putinism.

Study materials include texts from a wide variety of genres and reflect a diversity of linguistic styles. They may incorporate passages from the ancient chronicles, folk legends, memoirs and autobiographies, as well as selections from historical and literary texts and films. Major artistic movements are considered in their connection to the respective historic period and their reception today. Students will also engage in brief weekly current events presentations. Frequent quizzes, participation in discussions, presentations, and research projects will be essential means to explore the subject matter and assess the students' progress. Students must complete RUS 100, RUS 401, and RUS 402 or RUS 403 prior to RUS 420 or receive permission of the program.

Prerequisites: RUS 100, RUS 401, RUS 402; RUS 403 Corequisites: 7th Semester standing or Permission of program

Bachelor of Arts: Humanities

International Cultures (IL)

RUS 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Humanities

RUS 494H: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Humanities

Honors

RUS 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Bachelor of Arts: Humanities

RUS 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Humanities

RUS 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Humanities

International Cultures (IL)

School of Science Engineering and Technology (SSET)

SSET 295: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, individual training including practical field experiences or internships where written and oral critique of the activity is required. SSET 295 Internship (1-18) The objectives of the Penn State Harrisburg, Capital College Internship Program are to: ♦ Attract and retain capable students to pursue their educational and career goals in mathematics, engineering, engineering technology, and the sciences, ♦ Connect students with professionals who practice engineering, mathematics, technical, and science skills daily, ♦ Establish mentoring programs to break down the barriers between student learners and practicing professionals, ♦ Create service learning and internship experiences designed to reinforce classroom learning in technical and theoretical subjects, ♦ ♦ Retain students in the College and in the region by developing a seamless transition from the academy to the workplace. The instructional and cooperative arrangements with business and industry will begin early, will be sustained throughout the four-year educational program, and will be supported by strong partnerships linking educational, business, industrial, and the intellectual communities in operative regional networks. Cooperation, collaboration, and a commitment to the future of the profession are essential if the 'brain drain' is to be reversed in this region. Another aspect of the internship program is to assist students in finding career-related, temporary employment opportunities, and to provide support and training for such positions while pursuing their education at Penn State Harrisburg, Capital College. The Internship Program will be administered by the School of Science, Engineering, and Technology. The staff is versed in handling student/employer relations and handles student orientations, resume/job listing database management, interview schedules, registration, evaluations, and final reports. Students who utilize the Internship Program in any way will be required to register for courses applicable to each program. The course credits may range from one to three depending upon the particular program requirements. The utilization or substitution of internship credits to meet degree requirements is strictly a program decision. This course requires that students submit a report that is of professional quality, concise, and focused on answering the provided questions. It must be typed in 12-point font and double-spaced. Students will be assigned either an SA (satisfactory) or UN (unsatisfactory) grade based on their reports and employer evaluations. The original report, portfolio, and evaluation forms are due on the last day of instruction for the semester or session. The grading will be based on the following criteria: 20% Internship Plan 20% Portfolio 20% Final Report 40% Employer Evaluation No special on-campus facilities are required for the course. The course will be offered every semester including the summer session.

Prerequisite: prior approval of the proposed assignment by the program

SSET 395: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, individual training including practical field experiences or internships where written and oral critique of the activity is required. SSET 395 Internship (1-18) The objectives of the Penn State Harrisburg, Capital College Internship Program are to: ♦ Attract and retain capable students to pursue their educational and career goals in

mathematics, engineering, engineering technology, and the sciences, ♦ Connect students with professionals who practice engineering, mathematics, technical, and science skills daily, ♦ Establish mentoring programs to break down the barriers between student learners and practicing professionals, ♦ Create service learning and internship experiences designed to reinforce classroom learning in technical and theoretical subjects, ♦ ♦ Retain students in the College and in the region by developing a seamless transition from the academy to the workplace. The instructional and cooperative arrangements with business and industry will begin early, will be sustained throughout the four-year educational program, and will be supported by strong partnerships linking educational, business, industrial, and the intellectual communities in operative regional networks. Cooperation, collaboration, and a commitment to the future of the profession are essential if the 'brain drain' is to be reversed in this region. Another aspect of the internship program is to assist students in finding career-related, temporary employment opportunities, and to provide support and training for such positions while pursuing their education at Penn State Harrisburg, Capital College. The Internship Program will be administered by the School of Science, Engineering, and Technology. The staff is versed in handling student/employer relations and handles student orientations, resume/job listing database management, interview schedules, registration, evaluations, and final reports. Students who utilize the Internship Program in any way will be required to register for courses applicable to each program. The course credits may range from one to three depending upon the particular program requirements. The utilization or substitution of internship credits to meet degree requirements is strictly a program decision. This course requires that students submit a report that is of professional quality, concise, and focused on answering the provided questions. It must be typed in 12-point font and double-spaced. Students will be assigned either an SA (satisfactory) or UN (unsatisfactory) grade based on their reports and employer evaluations. The original report, portfolio, and evaluation forms are due on the last day of instruction for the semester or session. The grading will be based on the following criteria: 20% Internship Plan 20% Portfolio 20% Final Report 40% Employer Evaluation No special on-campus facilities are required for the course. The course will be offered every semester including the summer session.

Prerequisite: prior approval of the proposed assignment by the program

SSET 495: Internship

1-18 Credits

Supervised off-campus, individual training including practical field experiences of internships where written and oral critique of the activity is required. SSET 495 Internship (1-18) The objectives of the Penn State Harrisburg, Capital College Internship Program are to: ♦ Attract and retain capable students to pursue their educational and career goals in mathematics, engineering, engineering technology, and the sciences, ♦ Connect students with professionals who practice engineering, mathematics, technical, and science skills daily, ♦ Establish mentoring programs to break down the barriers between student learners and practicing professionals, ♦ Create service learning and internship experiences designed to reinforce classroom learning in technical and theoretical subjects, ♦ ♦ Retain students in the College and in the region by developing a seamless transition from the academy to the workplace. The instructional and cooperative arrangements with business and industry will begin early, will be sustained throughout the four-year educational program, and will be supported by strong partnerships linking educational, business, industrial, and the intellectual communities in operative regional networks. Cooperation, collaboration, and a

commitment to the future of the profession are essential if the 'brain drain' is to be reversed in this region. Another aspect of the internship program is to assist students in finding career-related, temporary employment opportunities, and to provide support and training for such positions while pursuing their education at Penn State Harrisburg, Capital College. The Internship Program will be administered by the School of Science, Engineering, and Technology. The staff is versed in handling student/employer relations and handles student orientations, resume/job listing database management, interview schedules, registration, evaluations, and final reports. Students who utilize the Internship Program in any way will be required to register for courses applicable to each program. The course credits may range from one to three depending upon the particular program requirements. The utilization or substitution of internship credits to meet degree requirements is strictly a program decision. This course requires that students submit a report that is of professional quality, concise, and focused on answering the provided questions. It must be typed in 12-point font and double-spaced. Students will be assigned either an SA (satisfactory) or UN (unsatisfactory) grade based on their reports and employer evaluations. The original report, portfolio, and evaluation forms are due on the last day of instruction for the semester or session. The grading will be based on the following criteria: 20% Internship Plan 20% Portfolio 20% Final Report 40% Employer Evaluation No special on-campus facilities are required for the course. The course will be offered every semester including the summer session.

Prerequisite: prior approval of the proposed assignment by the program

School Psychology (SPSY)

SPSY 472: Human Development, Health, & Education From A Global Perspective

3 Credits/Maximum of 3

Intended to address the University's global community objectives and provide scholarly background on human development in other cultures.

Prerequisites: PSYCH 110
Cross-listed with: PSYCH 472
International Cultures (IL)

SPSY 472H: Human Development, Health, & Education From A Global Perspective

3 Credits/Maximum of 3

Intended to address the University's global community objectives and provide scholarly background on India for Schreyer Honors students.

Prerequisite: PSYCH100H
Cross-listed with: PSYCH 472H
International Cultures (IL)

SPSY 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

SPSY 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Science (SC)

SC 60N: Art in the Natural World

3 Credits

This course will foster appreciation of art and the natural world through exploration of the flora, fauna, geology, and water systems. Students will use scientific and artistic observation skills to understand, relate, and respond to connections in nature. Students will learn how to identify species in the field and gain a base knowledge of natural history. Students will develop observational skills and a deeper awareness of their natural surroundings through scientific observation, visual expressions, and writing responses. Using a common visual language, utilizing the elements and principles of design, students will begin to develop an aesthetic awareness through observational collecting. Nature presents an installation ready to analyze, deepening the students' natural curiosity and ability to make connections. Most course work will be in the field and will include use of tools such as binoculars, microscopes, cameras, and sketchbooks. Goals for this course will include enhancing effective communication and critical and creative thinking. Students will use visual, oral, and written communication to express their observations of the natural world. Critical and creative thinking will be used to analyze and synthesize observations to develop independent research projects and presentations.

General Education: Arts (GA)

General Education: Natural Sciences (GN)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

SC 100: Introduction to Research

1 Credits

Introduces essential elements of laboratory safety, laboratory techniques, research ethics, and scientific communication skills. Especially for undergraduate research students. SC 100 Introduction to Research (1) The main objective of the course is to prepare students for a fulfilling and successful learning experience in the research laboratory. Students who engage in undergraduate research often continue to project for four to six semesters. This course provides students with the necessary introductory information to the undergraduate research experience so that the entire experience is more satisfying and productive for the students. A corollary goal is to introduce research students to other, like-minded students. Several in-class activities will involve group work combined with an explicit discussion of productive group dynamics. The course will cover four major issues associated with a sustained research project: safety, techniques, ethics, and communication. The course will make students more cognizant of the importance of each of these areas and will provide justification for the importance of each activity in the research enterprise. Students will be evaluated via a series of assignments in which the students reflect on the components of each

area and the importance of that area to the continuation of scientific knowledge. Students will be quizzed on safe laboratory practices, usually with a laboratory practical on safety. Students will be assessed on the satisfactory performance common laboratory techniques such as using a pipette, using an analytical balance, using a power source, and proper handling of large equipment like super speed centrifuges. Ethics will be assessed via assignments that require students to contemplate a variety of ethical issues. As part of ethical conduct students will be expected to learn the proper composition of a laboratory notebook. The notebook will provide a segue between ethics and communication skills. Students will examine several recent scientific research articles and discuss the way in which the article is written. They will be assessed on their ability to summarize and critique the article in writing. A book on scientific writing could be assigned for this portion of the course because a student would find use of such a resource as they progress on an independent research project. The laboratory technicians or laboratory managers might assist the faculty member who is teaching the course.

SC 101: Job Placement Skills and Strategies

1 Credits

Strategies and skills designed to identify career/life goals and implement career decisions.

Cross-listed with: AG 100

SC 103N: When Data Meets Design

3 Credits

The student will become an effective generator and consumer of the data visualizations that saturate public and professional discourse. The student will examine the rules of design and how they can be used to construct compelling visualizations of data. The student will use this knowledge to critique data visualizations from the media and their peers. The student will produce data visualizations of their own using data sets that they generate and analyze. Though the focus throughout the course will be on natural science, we will also consider data relevant to areas such as business, science, history, education, and politics. The student will emerge from this course with an appreciation of how data visualizations influence their life, as well as the skill set to craft persuasive visualizations to support issues of interest to them. For the purposes of this course no prior knowledge is assumed in science, data handling, or design. We will build the knowledge and vocabulary needed in order to pair these two domains and equip you with a lifelong tool for creating persuasive data-driven explanations.

Enforced Prerequisite at Enrollment: Completion or placement beyond MATH 21.

General Education: Arts (GA)

General Education: Natural Sciences (GN)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

SC 120N: Plants, Places, and People

3 Credits

Students learn about plants from the perspective of sustainability, agriculture, food, genetics, textiles, and medicine, across history and

around the globe, after spending a few weeks learning about basic plant biology. Students engage with a group project in collaboration with other students to deepen their understanding and appreciation of plant biological and historical connections with human civilization. Students share these projects with the class in a peer-teaching and learning exercise in the final weeks of class.

Bachelor of Arts: Humanities

Bachelor of Arts: Natural Sciences

International Cultures (IL)

United States Cultures (US)

General Education: Humanities (GH)

General Education: Natural Sciences (GN)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

SC 125N: History of Infectious Disease and Epidemiology

3 Credits

Infectious diseases once thought to be nearly eradicated have seen a resurgence in recent years. The majority of the cases arose from people who deliberately chose not to vaccinate their children against these disease. Even in the twenty-first century the nature of disease and how to prevent it is not merely a matter of science, but an issue laden with cultural, political, and religious concerns. This course charts the history of disease both as a subject of scientific inquiry and a cultural and religious phenomenon. We will begin with early Greek and Egyptian attempts to understand disease as a foreign entity attacking the body and end in the twenty-first century with current ideas surrounding the use of antibiotics, vaccines, and emerging threats throughout the world. Along the way we will discuss the impact of significant epidemics - for example, Bubonic Plague, Syphilis, and Influenza - as well as changing scientific thinking of both how to deal with disease and how to understand the natural world. In tandem with the historical background key scientific ideas necessary for studying disease - including current understanding of the microbial world, microscopy techniques, and modern gene theory - will be presented to the students through classroom instruction and virtual laboratories.

Cross-listed with: HIST 125N

General Education: Humanities (GH)

General Education: Natural Sciences (GN)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

SC 135N: Society and Disease Management

3 Credits

Society and Disease Management is an interdisciplinary general education course to educate students in the biological mechanisms of diseases, treatment of individual patients, and how disease burden is managed within communities. In addition to studying how infectious diseases spread through populations, societal impacts and global health approaches to managing disease interventions will be examined. Foundations of this course include the basics of the human immune

system, development of vaccines and antibiotics, emergence of drug resistant diseases, as well as applications from economics, systems theory, and health policy. Specific diseases will be examined within a historical context leading to a survey of present day concerns relating to treatments, and then explore issues regarding future methods to control or eradicate disease. This longitudinal approach will provide students with a full awareness of disease management from its beginnings, to both early and modern treatment methods, culminating in how to potentially combat a disease using advances in genomic medicine and biotechnology all within the cultural framework of a community.

General Education: Natural Sciences (GN)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

SC 142N: Science in Literature

3 Credits

The course explores two streams in parallel. Students will examine selected historic landmarks in science (e.g. evolution, atomic energy/ weapons, climate change, biotechnology), with a focus on common misconceptions about the facts and practice of science. The course will also examine the development of literary and popular portrayals of science and scientists in their political, economic, social and cultural contexts, paired to these particular scientific developments. By considering past and current scientific problems, students will refine their quantitative and analytical skills. By considering scientific writing, novels, short stories, graphic novels, cinema, poetry, and other forms, students will refine their critical and reflective writing and speaking about both the rhetorical and discursive practices of science writing, and the social and cultural impact of literature in popular understandings of science.

Cross-listed with: ENGL 142N

General Education: Humanities (GH)

General Education: Natural Sciences (GN)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

SC 145N: The Visual Body

3 Credits

This course uses the field of anatomical illustration to explore the history of medicine and our understanding of the human body. Charting the influence of visual art and imaging systems as essential aspects of medicine, this survey of art and historical imagery connects the study of human anatomy with principles of visual literacy and design. In addition to researching historical publications through writing and discussions, students will produce a research portfolio based on illustrations examined in the course. Lab activities with human cadavers will help students learn the basics of human anatomy within a historical context. No fine arts skills are required to take this course: only an enthusiasm for the study of human anatomy and its visual history. Scientific research is often concerned with a constant progress toward future discoveries - but it is vital to understand the research and discoveries that came before our

time. For medicine, this history is uniquely linked to the evolution of art, printing technology, and education. Any scientist would be well served by some knowledge of art and design. Experiments rarely change the world on their own, and much can be gained and lost in the communication of their results. But anatomy is especially reliant on images and illustrations (even after the invention of photography). In order to explore the unique relationship between medical discovery and art history, we have designed this course to be a space for interdisciplinary research. Co-taught by an artist and an anatomist, we will take advantage of an on-site cadaver lab and digital media resources to reimagine the history course as a site of discovery, design, and discussion.

General Education: Arts (GA)

General Education: Natural Sciences (GN)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Integrative Thinking

SC 183Q: From Beast Books to Resurrecting Dinosaurs

3 Credits

In this honors course, we'll explore changing perspectives on life and approaches to studying life. More specifically, we'll examine, through an historical lens, humankind's quest to describe and explain and, ultimately, to expand the diversity of the living world. We begin with early attempts to classify living things for example, Aristotle and Pliny. We then see how medieval bestiaries appropriated classical ideas about nature while adding to them in the context of Christian historia. In the Enlightenment, Linnaeus's taxonomic work provided a new way of naming and systematizing organisms. On the other hand, the nascent scientific methods of Sir Francis Bacon anticipate the shift from the descriptive to the theoretical and mechanistic that accompanied Darwin's first sketch of a phylogenetic tree and the theory of evolution. We consider new theories, methods, and language in our examination of Watson and Crick and the double helix, molecular biology, and genomics. The course concludes with a glimpse at future possibilities enabled by what was studied previously in the course: genetic engineering, synthetic biology, and de-extinction. The course's original structure offers the experiential engagement of the sciences through laboratory experiments and fieldwork along with the workshop and directed discussions characteristic of the humanities seminar. The content and type of "readings" also reflect both areas and include primary and secondary sources in a variety of media. A visit to a natural history museum and/or zoo provides important physical contexts where students learn about type specimens, live specimens, and how scientists today use collections. They will assemble and curate their own zoological collection, juxtaposing various approaches to describing and classifying animals. The integration of the humanities and the sciences into a single course, along with the incorporation of significant experiential work, helps students gain a broad and deep understanding of and appreciation for each of these intellectual disciplines and for life itself.

Cross-listed with: CMLIT 183Q

General Education: Humanities (GH)

General Education: Natural Sciences (GN)

General Education - Integrative: Interdomain

Honors

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

SC 200: Science in Our World: Certainty and Controversy

3 Credits

A science appreciation course, aimed at making non-scientists more informed consumers of science. Science is frequently in the news. That's because it affects our everyday lives, shapes our view of the world and our place in it, and will have a profound impact on our future. This course teaches an appreciation of science and scientific thinking. It is aimed at making non-scientists more informed consumers of science by improving their ability to distinguish good science from bad science, and science from non-science. Students will be evaluated in part on their analysis of news stories that appear during the course of the semester. The course assumes no background knowledge. It is not for future scientists. Content is delivered by case studies of controversies within science and/or the public domain, some of which are resolved, some of which are not. These case studies will vary by semester and instructor. The course illustrates general principles of science by studying arguments now largely resolved, but which still resonate, such as child health and IQ, smoking, and why the peacock has such a ridiculous tail. The course will also examine unresolved scientific controversies which might include personalized genetic medicine, passive smoking, nanotechnology, the effects of gun laws on violence and suicide, or deer management in Pennsylvania. The course will also evaluate unresolved scientific issues in the contemporary media: why it is in the news, what are the scientists involved actually doing and arguing about, and how is the media handling the science? The course will include an analysis of media reaction to a scientific paper published by PSU faculty. The course will discuss paradigm shifts which have occurred during the students' lifetimes, particularly those involving our view of ourselves and our universe, and include speculation on the paradigm shifts that could occur in the next twenty years. The course will draw on experts from within and outside of PSU. Throughout, the focus is on the nature of the debates, looking at how scientists evaluate problems, and why that can generate controversy within science and beyond science-but at the same time, generate trustworthy knowledge which profoundly affects our well being and our understanding of ourselves.

General Education: Natural Sciences (GN)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

SC 201: Medical Professions

1 Credits

Learn about the different medical professions and related subjects. SC 201 Medical Professions (1) The purpose of this course is to provide students with general information on the different health professions and various related subjects as potential career options. Many students come to the university with an interest in pursuing a health profession but do not have a clear idea of what kind of work is involved in the particular profession of their choice. Moreover, students often are not aware that there are other health career options available. This one-credit course is targeted to all students that have a general interest in health and science, and may include students in the following majors: premedicine, science, biology, chemistry, biochemistry and molecular biology, forensic science, nursing, kinesiology, nutrition, and biobehavioral health. Some of the professions discussed are: allopathic and osteopathic medicine, physical therapy, occupational therapy, physician assistant, nurse practitioner, dentistry, maxillo-facial surgery, optometry, audiology, genetic

counseling, nursing, podiatry, and pharmacy. In addition to describing the professions, time is spent talking about academic preparation for specific professions and the application process for admission to health profession schools. Furthermore, the nature of various health profession training programs are described, as well as how students obtain tuition funds for payment of such programs. One week's topic generally focuses on health profession training outside the United States (e.g., foreign medical schools). This course is structured as a seminar course; all lectures are given by invited speakers. The speakers talk about the profession in general and may give specific information about the particular school they attend or currently work at. Students are encouraged to ask questions about the health careers and also to interact with the speakers after the class, where they might ask specific questions pertaining to their suitability as an applicant. The course will meet in the evenings, for one hour, one day a week, for 15 weeks. The students that enroll in this course receive a satisfactory or unsatisfactory grade based on attendance only (there are no exams, quizzes or written reports). Students may miss up to three classes during the fifteen week session. Therefore, students that attend twelve of the fifteen lectures will receive a satisfactory grade. If a student needs to miss class due to an evening exam, they will need to fill out an Excused Absence Form, which can be obtained from the instructor (no other activities are excusable except for athletic competitions for students in varsity teams).

SC 205N: BS: Identifying Bias and Falsehood

3 Credits

The course will consider the ways statements are used for aims other than to convey accurate information. This disregard for truth results in the increasingly difficult task of identifying bias and falsehood in the age of information. There are three areas most corrosive to knowledge: language, science, and statistics. The course will examine the appeal of rhetorical arguments and the role of bias in assessing claims; various ways evidence fails to support a conclusion; and the manipulation of data to make information appear more compelling than it is. Students will learn to evaluate the truth of arguments based on philosophical and scientific criteria, and use a variety of skills to identify bias and falsehood in the media.

Cross-listed with: PHIL 131N

Bachelor of Arts: Humanities

Bachelor of Arts: Natural Sciences

General Education: Humanities (GH)

General Education: Natural Sciences (GN)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

SC 210: Sophomore Science Seminar

2 Credits

Covers topics related to success in upper level courses including critical thinking, library resources, reading primary literature, and communication skills. SC 210 Sophomore Science Seminar (2) The main objective of this course is to serve as a bridge between the first two years of a science program and the last two years. Sophomore students need to understand that upper-level coursework in the sciences requires higher order cognitive skills as well as an intellectual maturity that enables the student to meet the challenge of upper level coursework. Students also require an ability to access the multitude of scientific information available on the web and in library databases therefore students will be

expected to demonstrate their ability to retrieve information. Sophomore students are faced with many exciting possibilities that they should be aware of including undergraduate research and cooperative education. This course will enable students to make more informed decisions about how to best structure their own educational needs while meeting the demands of upper level coursework. Students will be assessed via a variety of methods including participation in discussion, actively seeking information from seminar guest speakers (in the form of questions), written reports (interview with faculty member, summary of scientific article, synthesis of newspaper reports about recent discoveries, individually selected research topic), and oral presentations (critique of recent science information in newspapers, independent topic, interview with faculty member).

SC 220: Principles and Strategies for Effective STEM Learning I

1 Credits/Maximum of 1

This course is designed to prepare undergraduate peer-learning mentors for their role in facilitating student centered learning activities. This course is designed to prepare peer-learning mentors for their role in facilitating student centered learning activities. The course content includes a blend of strategies for effective teaching and learning coupled with the opportunity to practice strategies of effective mentorship and feedback to peers and faculty. Through selected readings and course discussions students are introduced to the basic tenants of learning: the role of prior knowledge, the organization of knowledge into networks, the role motivation plays in learning, tools for the development of gaining mastery, effective practice and feedback, the importance of course climate, and the role metacognition plays in achieving self-regulated learning. Each of these topics is covered in one of the seven class periods. The students who have completed this course will be able to understand: - How prior knowledge affects learning and suggest alternate examples to help peers see the information through another perspective - How the organization of knowledge affects long term learning and share with peers the knowledge networks most commonly utilized in STEM disciplines - Factors that motivate student learning and apply this knowledge to assist faculty in motivating student engagement - How students develop mastery and assist peers to engage in activities that promote mastery through directed practice - How practice and feedback enhance learning and provide effective feedback when working with their peers - How course climate affects learning and provide faculty with valuable feedback in regard to the climate of their course learning spaces - How learners develop stronger metacognitive skills to be able to reflect on their own learning experiences and share this with their peers. Student mastery of the material is typically assessed through weekly written reflection assignments based on the readings and in class discussions. These reflections are graded and feedback is provided to assist students in growth in becoming effective learning facilitators. A final reflection assignment is typically given in which the students are asked to describe how these course topics will be put to use in the assignment as a learning assistant.

SC 240: Learning Assistant Experience

1-2 Credits/Maximum of 8

This course is experiential training in facilitating collaborative active learning in science. The students in this experiential learning course are selected by the course instructors to participate as a part of their instructional team to facilitate active learning activities in their classroom and or laboratory courses. Students engaged in this experience must have demonstrated mastery of the course material covered in the

course they are facilitating. These students encourage and guide group work, lead problem solving sessions, and provide faculty with student feedback. They are required to attend all laboratory or course sessions as well as attend weekly team meetings to debrief on the week's activities and prepare for upcoming activities.

Enforced Prerequisite Concurrent at Enrollment: SC 220

SC 290: Renewable Energy in Costa Rica

3 Credits/Maximum of 3

Renewable energy sources are essentially carbon-free and more sustainable than fossil or nuclear fuels. This course reflects the remarkable progress that has been made in the field in recent years. We will spend about one-third of our time in "the classroom," studying renewable energy systems, their underlying physical and technological principles, their economics, their environmental impact and how they can be integrated into the World's energy systems. The rest of the time will be in the field, getting our hands dirty, learning by doing. While Costa Rica is well known as a World leader for conservation policies and eco-tourism, the Central American country also stands out for its environmentally oriented policies and its success in mainstreaming energy sustainability into national policy. Currently, 99.2% of the total primary energy supply in Costa Rica is of renewable type, with geothermal accounting for over a third, hydroelectric dependency not exceeding 50%, and a very small share from fossil fuels (0.6% non-sustainable biomass, and 0.2% from oil). Students learn about renewable energy technologies for the developing World in Costa Rica, one of only a few countries in the region that have taken a concerted structural approach to the issue of sustainable development.

International Cultures (IL)

General Education: Natural Sciences (GN)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Soc Resp and Ethic Reason

SC 294: Research Project Courses

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

SC 295: Science Co-op Work Experience I

1-3 Credits/Maximum of 3

A supervised work experience where the student is employed in a scientific position. To be offered for SA/UN grading.

Prerequisite: acceptance into the Eberly College of Science co-op program

Full-Time Equivalent Course

SC 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

SC 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

SC 306: BS MBA Undergraduate Seminar

2 Credits/Maximum of 6

This course is designed for students enrolled in the Science BS/MBA IUG degree program. It will provide an opportunity for students to become familiar with key MBA common terms and concepts that will be useful for their required co-ops, internships, and their transition into work in the Smeal MBA part of the degree program. During the course, instructors will introduce or reinforce learning about hard skills of supply chain management, finance, business planning and marketing, and soft skills associated with leadership, organizational dynamics and modern management. The course will improve student ability to formulate and present strategies and communicate effectively as a leader and team member. The course will expand the number of occasions for the BS/MBA class cohort to experience inter-class interaction and it will provide mutual support opportunities. In order to facilitate these inter-class interactions, it is designed to be repeatable so students in later years of the program can work with the students just beginning the program. The course will augment the integrative learning that was established in first year seminars and extracurricular BS/MBA enrichment programs. The course is designed to facilitate continued student development as self-directed learners. The course will advance student perspectives of professional and career development.

SC 306W: BS MBA Undergraduate Seminar

2 Credits

This course is designed for students enrolled in the Science BS/MBA IUG degree program. It will provide an opportunity for students to become familiar with key MBA common terms and concepts that will be useful for their required co-ops, internships, and their transition into work in the Smeal MBA part of the degree program. During the course, instructors will introduce or reinforce learning about hard skills of supply chain management, finance, business planning and marketing, and soft skills associated with leadership, organizational dynamics and modern management. The course will improve student ability to formulate and present strategies and communicate effectively as a leader and team member. The course will expand the number of occasions for the BS/MBA class cohort to experience inter-class interaction and it will provide mutual support opportunities. In order to facilitate these inter-class interactions, it is designed to be repeatable so students in later years of the program can work with the students just beginning the program. The course will augment the integrative learning that was established in first year seminars and extracurricular BS/MBA enrichment programs. The course is designed to facilitate continued student development as self-directed learners. The course will advance student perspectives of professional and career development.

Writing Across the Curriculum

SC 395: Science Co-op Work Experience II

1-3 Credits/Maximum of 3

A supervised work experience where the student is employed in a scientific position. To be offered for SA/UN grading.

Enforced Prerequisite at Enrollment: SC 295

Full-Time Equivalent Course

SC 400: Consequences of Science

1 Credits

A series of lecture/discussions in which science faculty members show the social implications of their research specialty.

SC 402: Science-Related Employment: Corporate Organization, Opportunities, and Expectations

1-3 Credits/Maximum of 3

Present undergraduate and graduate students with information and skills necessary for success in science-related job positions available in industry.

Enforced Prerequisite at Enrollment: 5th semester standing or permission of program

SC 451: Science Outreach and Communication

1 Credits

SC 451 will provide students with the skills and experience necessary to design outreach activities based on their research and interests, communicate their science in multiple modes, and engage with diverse audiences. Lectures will provide foundational material via a focus on the fundamentals of science communication and outreach, as well as some of the pedagogical basics of science education. Guest speakers will build upon this groundwork by leading modules on lesson planning for effective outreach and communicating with audiences through a variety of platforms, including social media, personal or professional blogs, media interviews, and press releases. These guest modules will be supplemented by panel discussions (with outreach and research professionals from Penn State) on science engagement in different settings (e.g., museums, extension meetings, public science lectures, K-12 classrooms, etc.), disseminating research via social media, and creating and integrating research-related outreach into broader impact statements for grant proposals. The design of student outreach projects will provide a unifying thread throughout the semester, as students work in small groups to create, refine, and implement unique outreach activities following best practices outlined in lectures and panel discussions. Students will be encouraged to choose topics outside of their normal studies, expanding their ability to communicate science with which they are less familiar. Students will have multiple opportunities to both receive feedback from their peers and instructors and offer feedback on their peers' projects. Students will exhibit their activities at an event, and in doing so, practice the communication and engagement skills they developed throughout the semester. Through this process, students will gain experience disseminating science, as well as confidence in their ability to accomplish successful science outreach. Afterward, students will evaluate and reflect on their experience and use this self-evaluation to refine their activities for future use.

Enforced Prerequisite at Enrollment: ENGL 15 or CAS 100 or ENGL 137H or CAS 138T or ESL 15

SC 475N: Anatomy in Italy: Cadavers, Culture, and Science

3 Credits

Anatomy is more than learning to name structures. Students will practice critical thinking and analytical skills, and develop key literacies while studying human cadavers and learning to predict a structure's function by observing its shape, texture, and tissues. Students will practice critical and integrative thinking while discussing the historical circumstances that gave rise to, supported, and sometimes hindered the development of anatomy as a science by synthesizing original arguments (written and oral) that explore the evolution of anatomic science within the context of Italian history, politics, and culture. Students will also study the ethics of acquiring cadavers within contemporary and renaissance contexts, identify individual graphics and historical sculptures that demonstrate anatomic understanding, and discuss their origins and implications for renaissance-era society. Students will also develop their communication skills: presenting original posters, leading class discussions, writing term papers, and creating webcasts as part of a service project. During spring break, students will travel with the instructors to Italy and study: anatomic wax specimens born through collaborations between anatomists and artists; Michelangelo's hidden anatomy in the Sistine Chapel; and the history of medicine. As preparation for their study abroad experience, students must concurrently enroll in IT 197: Italian Language and Culture for Study Abroad

Prerequisite: Consent of Instructors and (Biol 161 or BIOL 128 or BIOL 240W or BIOL 141 or BIOL 472 or KINES 202 or BIOL 129)
General Education: Humanities (GH)
General Education: Natural Sciences (GN)
General Education - Integrative: Interdomain
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Integrative Thinking

SC 476: Human Dimensions of Health Care

3 Credits

Field experience in five or more medical settings; complementary exposure to the scientific literature; weekly discussions. SC 476 Human Dimensions of Health Care (3) This course, delivered jointly by Penn State and the local medical community, is designed to provide field experience for students with plans for a future in the health professions. The course is structured around rotations through multiple no less than five medical settings, which may include Community Medicine, Dentistry, Emergency Room, Family Medicine, Hospice Care, Oncology, Optometry, Palliative Care, Pediatrics, Physical Therapy, Senior Services, Wound Care, and other specialties. The first four weeks consist of an introduction and orientation to the goals each setting. The purpose of these sessions is to acquaint the students with the requirements of the course as well as expectations for the on-site rotations. During this time, the students become familiar with the health care issues associated with each setting through literature specific to particular medical settings. At the end of these sessions the students write a course plan, in which they review the major issues common to each setting, and project how they expect to gain and how they expect to contribute in each setting. During the next nine weeks, the students rotate through the medical settings, spending two afternoons per week in rotation. Students are scheduled to assignments with one of the medical settings for the afternoon. At these times the students are under direct supervision of the setting's staff.

Where feasible, students may also sit in on physicians' staff meetings, attend lectures, or receive other forms of special instruction provided by medical staff. All students will maintain a logbook of activities during the rotations. Weekly meetings on campus are devoted to reports of experiences by each of the students, discussions based on the questions developed during the orientation period, and resolution of issues which may arise. In this way, students assigned to each rotation inform those students who will later enter that setting.

Prerequisite: 5th semester standing; BIOL 230W and BIOL 240W or equivalent; approval of health sciences committee or coordinator

SC 494: Research Project Courses

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

SC 494H: Research Project Courses

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Honors

SC 495: Science Co-op Work Experience III

1-3 Credits/Maximum of 3

A supervised work experience where the student is employed in a scientific position. To be offered for SA/UN grading.

Enforced Prerequisite at Enrollment: SC 395
Full-Time Equivalent Course

SC 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

SC 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Science Education (SCIED)

SCIED 110: Introduction to Engineering for Educators

3 Credits

This course focuses on physics content, engineering design principles, and elementary science education pedagogy.

Cross-listed with: ENGR 110

SCIED 112: Climate Science for Educators

3 Credits

Concepts of climate sciences highlighted by evidence-based explanations and scientific discourse in preparation for K-6 science teaching. This introductory, multidisciplinary course will focus on the interactions among physical science concepts, earth science concepts, and scientific practices to develop understandings about Earth's climate system. The course is primarily intended for prospective elementary school teachers (Childhood and Early Adolescent Education, PK-4 and 4-8 majors), although it is available to other non-science majors. The development of models is an integral part of the course as a means to facilitate climate systems thinking by serving as a means to explain phenomena and predict outcomes. In addition, students in the course consider how what they are learning applies to teaching by offering opportunities to think about how they might extend their knowledge to teaching contexts. This course consists of integrated lectures and laboratory investigations in class meetings each week, with work on collaborative projects outside of class.

Cross-listed with: EARTH 112

SCIED 114: Sound and Light for Educators

4 Credits/Maximum of 4

Waves, sound, and light concepts highlighted by evidence-based explanations and scientific discourse in preparation for K-6 science teaching. This course has two main focus areas: physics content typically addressed in elementary science curriculum and effective pedagogy for supporting children's meaningful science learning. An introduction to waves is used to construct an initial model, which is applied to sound phenomena and elaborated. The more robust model is then applied to understanding light phenomena and again elaborated. As the model develops across units of instruction, students are engaged in constructing explanations from evidence, model-based reasoning, and scientific discourse. Instructional approaches that are grounded in research on children's learning are used to engage education majors in their own learning, while teaching applications provide opportunities for them to unpack their experiences and apply them to school science teaching.

Cross-listed with: PHYS 114

SCIED 116: Introduction to Astronomy for Educators

3 Credits

This course is designed to engage students with the big ideas of astronomy in ways that will help them understand both the content of astronomy, as well as the practices of science as carried out by astronomers. The course is designed for prospective elementary and middle school teachers (PK-4 and 4-8 majors), although it is available to other non-science majors. Throughout the course, students engage in a series of investigations that lead towards the development of evidence-based explanations for patterns observed in the current Solar System. Investigations will include computer-based simulations, night-sky observations, and use of simple laboratory equipment. These investigations lead students towards an understanding of how observations of the current Solar System can be explained by the model of its formation. The course is designed to build from students' own personal observations of the day and night sky towards developing increasingly sophisticated explanations for those phenomena and

beyond. Conducting these astronomy investigations will help students understand fundamental aspects of physics, thus broadly preparing them for future science teaching in these domains. The course models evidence-based pedagogy, thus helping to prepare students for future teaching careers as they learn effective strategies for teaching science.

Cross-listed with: ASTRO 116

SCIED 118: Field Natural History for Teachers

3 Credits

The purpose of this course is to equip students with knowledge of central Pennsylvania flora and fauna, familiarize students with different techniques for teaching about natural history, and to engage students with citizen science efforts. This class uses lectures sparingly and is instead designed to be an experiential and hands-on class that will engage students with the natural world on campus and other local sites. Analyzing natural history-based educational programs and the pedagogical methods for teaching in both outdoor and indoor settings is a core component of this class, alongside participation with citizen science data collection efforts and dissemination of findings. The overall goal of this course is to familiarize students with the natural history and biodiversity of Pennsylvania and techniques for educating in, for, and about the outdoors. At the end of the course, students will be able to: (1) Analyze the importance of interrelationships between all living organisms and how this contributes to a healthy planet. (2) Identify common Pennsylvania flora and fauna. (3) Regard living things as teaching tools for science classrooms. (3) Evaluate methods for teaching about different natural history topics in both indoor and outdoor settings. (4) Demonstrate their natural history observations and understandings by contributing to a citizen science project.

SCIED 140: Outdoor School Field Experience

2 Credits/Maximum of 6

To provide students with educational leadership skills and teaching opportunities working with children in an outdoor residential camp setting. RPTM 140 Outdoor School Field Experience (2 per semester/ maximum of 4) is cross listed as SCIED 140. The Outdoor School Field Experience course allows students to observe, learn, and apply leadership techniques and teaching methodologies in an experiential, residential education program that occurs off campus. This field-based experience provides students with numerous opportunities to practice and refine their leadership and teaching skills through active participation in one week of Outdoor School Field Experience. Students are provided with the opportunity to explore personal values related to the natural environment, sustainable practices, health and wellness and technology, and to practice behavioral changes as they role model those values to the residential campers.

Enforced Prerequisite at Enrollment: Students must apply for and be accepted into the Outdoor School Field Experience.

Cross-listed with: RPTM 140

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

SCIED 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

SCIED 298: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

SCIED 410: Using Technology to Enhance Science Teaching

3 Credits

This course explores contemporary practice and research associated with applications of technology to enhance science learning and teaching.

Prerequisite: admission to one of the science teaching options in SECED

SCIED 411W: Teaching Secondary Science I

3 Credits

Introduction to teaching secondary school science, including curriculum, learning theory, media, evaluation as they relate to student progress. SCIED 411W Teaching Secondary Science I (3) Science Education 411W is an introduction to secondary science education. The course is a project based course for individuals planning to teach science in grades 7-12 and has a significant emphasis on professional writing. The course is also appropriate for those interested in teaching or in program development of out-of-school science learning environments (e.g., science centers, nature centers, museums). Students will participate in activities that are designed to help forge a 'philosophy of science teaching' that is supported by research based findings on 1) learning and assessing learning, 2) best practices for teaching, 3) images of science and scientific inquiry, and 4) the effective design of lessons and activities. There are several peer-teaching assignments where students teach each other and two student teaching assignments with middle school children from area schools. Students are expected to complete written reports and reflections on-type assignments for lesson plan reviews, curriculum assessments, science research reports, and clinical interviews. One of the major goals of SCIED 411 is to promote 'reflection in action' and 'reflection on action' among the students. These are two constructs put forth by Donald Schon that argues an important meta cognitive dynamic for teachers is to think about what they are doing while teaching (in action), and to also think about what they will do differently in future episodes of teaching (on action). On each occasion in 411 when students complete a peer teaching or clinic teaching experience they are requested to complete a 'reflection writing assignment'. Criteria for success on the writing assignments is 1) to provide an accurate description (which may include a lesson plan or references to the lesson plan) of the teaching; 2) to diagnose and identify the successes and the shortcomings of the lesson in terms of student learning; 3) to make connections to course readings that offer suggestions for adapting the lesson to promote learning. The reflection assignments are typically 2 to 3 single-spaced pages accompanied by the lesson plan. Across the semester, from the first 'reflection' assignment to the last 'reflection' assignment there is an expectation that the 411 students will demonstrate an increasing depth and sophistication of reflection, analysis and attention with respect to the construction of learning goals

and instruction strategies that promote working with students prior knowledge, employing formative assessment tasks to make students' thinking visible, and using questions and strategies that frame a student-centered discourse learning environment. The course professor will grade the written assignments and provide written and oral feedback. Each assignment will be revised and posted to an on-line student portfolio. Written communication is important in the field of education and science. In this course, the importance of written communication as a means to learn and reflect on the subject matter of the science disciplines and on teaching is emphasized. The value of scientific reports, analysis of curricular materials, development and reflection on lesson plans, and statements regarding the student's philosophy of science teaching will be evident through written assignments, feedback, and revision. Through the experience of reading, discussion, development of lessons, and practice teaching, students will develop the ability to do the following: (a) Use appropriate techniques to probe students' prior knowledge and understandings of scientific concepts. Knowledge about students' alternative conceptions and intuitions is then used to design effective lesson plans and assessments. (b) Plan and teach science lessons employing sound research-based techniques for inquiry teaching. Students will complete both peer and student teaching assignments that are videotaped. (c) Prepare written reflections and evaluations that incorporate analytical perspectives that are based on personal experiences and on course readings and research-based frameworks and practices. Students will be offering written reflective comment on their own teaching and that of classmates. The course goals include the ability to develop a 'reflection in action' and 'reflection on action' decision-making orientation that is informed by evidence-based practices linked to student learning.

Prerequisites: 5th Semester standing or Graduate Status or Non Degree Graduate Status
Writing Across the Curriculum

SCIED 412: Teaching Secondary Science II

3 Credits

SCIED 412 is the second of two sequenced methods courses for preservice science teachers who are pursuing certification to teach in grades 7-12. In SCIED 412, prospective science teachers learn to effectively plan, deliver, and assess science instruction. The course emphasizes contemporary theory and practice associated with science education in public school classroom settings. As in SCIED 411W, emphasis is placed on developing professional science teachers; this includes promoting development of the knowledge, skills, and dispositions that lead to reflective practice, collaborative action, and lifelong inquiry into teaching and learning. Students will develop an understanding of science learning theories and the approaches that diverse learners take to construct knowledge; develop competence in the use of science content and inquiry processes and materials for planning instruction relevant to learners' needs; develop skills in instructional, communicative, managerial, and evaluative strategies; and will demonstrate facility in selecting and integrating appropriate technological tools into instruction. Throughout the course, special attention is given to identifying and addressing the needs of diverse learners, including English Language Learners and students with special needs. Students also develop familiarity with state and national curriculum standards that guide science, technology, and engineering education; they also demonstrate the ability to plan and deliver lessons that address those standards. SCIED 412 is scheduled concurrently with a supervised field experience in a middle or secondary school, where

students have the opportunity to apply and evaluate their developing instructional skills.

Prerequisite: SCIED 411W

SCIED 458: Teaching Science in the Elementary School

3 Credits

SCIED 458 is designed to support teacher candidates in developing their own reflective practice in science teaching for young learners. Candidates in this course engage in a series of experiences that move them from their own understanding of engagement in science, to understanding children's engagement in science, and finally towards methods of designing science instruction for young learners. Central to this work is a focus on reflective practice; expert teachers reflect on their own teaching practices. During this course, candidates learn to be critical of their own learning, instructional design, and teaching. Candidates use this to revise their practice as they grow as science teachers. The course activities, assignments, readings, and placement experiences offer multiple opportunities for candidates to learn essential knowledge and practices to support children's curiosity about the world. Course assignments and in-class experiences are designed to help teacher candidates understand the importance of engaging their future students in a strongly integrated focus on science content and practice. This encompasses both how scientists work (the practice of doing science and building our knowledge of the world) and how children learn the skills and practices of doing science. Helping children understand the practices of science is of equal importance as helping them learn the content of science. To start understanding ways of supporting children in learning to do science in age-appropriate ways, teacher candidates in this course contrast their understanding and experiences with those of children. Assignments are designed to help facilitate exploration of the links between understanding children's prior knowledge and beliefs, using knowledge of how people learn, and making pedagogical choices to move children towards specific content and practice goals. Candidates consider the role of differentiated instruction and methods of assessment in science teaching. Finally, the course examines methods of adapting science curriculum using knowledge of children and specified learning goals. Teacher candidates bring together what they have learned about the practices of science, social constructivist instructional methods, and assessment to think critically about how to support elementary students learning science across time. SCIED 458 is a part of a block of courses in a PSU teacher education program that is unified by a basic set of principles and a field experience component.

Prerequisites: 4th Semester standing Recommended Preparations: One course each in life, earth, and physical sciences (one having a lab component)

SCIED 458H: Teaching Science in the Elementary School

3 Credits

Interpreting children's science experiences and guiding development of their scientific concepts; a briefing of science content material and its use.

Honors

SCIED 460: Trends and Issues in Science, Technology, Engineering, and Mathematics (STEM) Education

3 Credits/Maximum of 3

Develops understandings of Science, Technology, Engineering, and Mathematics (STEM) education research and practices for PreK-12 teaching and learning

Prerequisite: 7th Semester Standing

Cross-listed with: MTHED 460

SCIED 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

SCIED 496A: ****SPECIAL TOPICS****

1.5 Credits/Maximum of 18

SCIED 496H: Honors in Science Education

1-12 Credits/Maximum of 12

Independent studies course.

Honors

SCIED 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

SCIED 498: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Science, Technology, and Society (STS)

STS 47: Wilderness, Technology, and Society

3 Credits

Impact of developments in science, literature, and art on changing attitudes toward nature; consequences for conservation, preservation, environmental ethics.

Cross-listed with: SOC 47

Bachelor of Arts: Social and Behavioral Sciences

STS 55: Space Science and Technology

3 Credits

The science and technology of space exploration and exploitation; physical principles; research and development; history, space policy, and social implications.

Cross-listed with: AERSP 55

Bachelor of Arts: Natural Sciences

Bachelor of Arts: Social and Behavioral Sciences

STS 100: Science, Technology, and Culture

3 Credits

A survey of the development and culture of science, technology, and medicine in world history. S T S 100 Science, Technology, and Culture (3)(GH)(BA) This course meets the Bachelor of Arts degree requirements. 'Science, Technology, and Culture' surveys the development and culture of science, technology, and medicine in world history. This course will introduce students to using the humanities, social sciences, and the arts to understand the development and uses of science, technology, and medicine in human history. The course focuses on broad trends and changes over time in their social and cultural contexts. The course is intended to address the needs of a wide range of students. For students majoring in the the arts, humanities and social sciences, the course provides a deeper understanding of the relationship between lay/popular and techno-scientific cultures. For the scientific and technically oriented student, the class exposes students to the study of technical and scientific problems from a broader cultural and historical perspective. All students will develop a knowledge of the values that have motivated and informed scientific, technological, and clinical ventures as well as an appreciation of important cultural dimensions of techno-scientific work, including the influence of religious concepts and practices, the impact of race, class, and gender, the significance of language and symbols, and the role played by local and global traditions. The course also asks students to think critically about the role of science, technology, and medicine in world history and the impact of that history on today's world. Topics include: the role of scientific and technical expertise in society; the social and economic conditions that have fostered and impeded scientific development and technological innovation; the social, aesthetic, and symbolic considerations that have shaped the way scientific ideas have been framed and used; and the impact of scientific notions and technological innovations on social life. Students are required to read both primary and secondary texts. Students are also required to augment their classroom readings with scholarly material that they find through library and electronic research. In addition to regular classroom discussions, students will also participate in team-based learning activities and projects that require the students to interact with their peers and to present their thoughts publicly.

Bachelor of Arts: Humanities

STS 100H: The Ascent of Humanity

3 Credits

A survey of some of the intellectual achievements that highlight humanity's attempts to understand nature and shape the environment.

Bachelor of Arts: Humanities

Honors

STS 101: Modern Science, Technology, and Human values

3 Credits

Relationships of science and technology to human aspirations, values, and arts.

Bachelor of Arts: Humanities

STS 105: Food Facts and Fads

3 Credits

This course is an introduction to the central role of food and food production in all areas of human life. The social and technological bases of various food systems are examined from the hunter-gatherer to the agrarian to the modern industrial system and its discontents. The course also considers how different types of food (e.g., meat, milk, cereals, chocolate) are preserved and distributed, examining both the effects of the development of the science and technology on society and vice versa. The roles of various food components (e.g., proteins, carbohydrates, fats, and vitamins) are examined both within the foods as determinants of quality, and also in terms of human nutrition and health. Finally, various other ways food may be considered appropriate or inappropriate will be studied including scientifically based reasons (e.g., safety, taste, adulteration) and non-scientifically based reasons (e.g., ethical, legal, religious).

Cross-listed with: FDSC 105

Bachelor of Arts: Social and Behavioral Sciences

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

STS 110N: Chemistry in World Wars I and II

3 Credits

The study and assessment of chemical developments during the First and Second World Wars will form the backbone of this course. As the course is historically focused on the period from 1914 to 1945, the students will develop a basic understanding of the significant historical events that led to the development of chemical innovations in materials, medicine, and weapons. To understand the scientific context of these developments, the students will also learn about the basics of chemistry, including recognizing the nature of the scientific process and discovery. In addition, the students will read, evaluate, and discuss primary and secondary sources to provide them with further insight into significant figures, events, and developments. These lectures, readings, and discussions (along with other assignments) will allow students to explore the ethical dimensions, the economic effects, the social consequences, and the public health impact that these scientific discoveries had on scientists, soldiers, and civilians. The students will also ascertain how many of the scientific discoveries made between 1914 and 1945 have had both beneficial applications and detrimental effects since 1945.

International Cultures (IL)

General Education: Humanities (GH)

General Education: Natural Sciences (GN)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

STS 115: Pre-departure Intercultural Learning

1-3 Credits/Maximum of 9

STS 115 (1-3) Pre-departure Cross-cultural Engagement serves as a pre-departure introduction for students to the culture of their international travel destination affiliated with Penn State programing. The course content covers key social issues, practical cultural information that

is relevant for travelers and students, and language use for essential communication. In addition, this course seeks to promote safety, mitigate cultural shock, make students more capable abroad, and help Penn State students to become better ambassadors of their university and country. Students in this course can expect to acquire the appropriate context and preparation necessary to confront challenges abroad and have a more enriching experience. In addition, learners will be provided context about the international travel destination to prepare them for their activities abroad, positioning learners to be able to connect course content to topics in science, technology, and society that will be explored in an international environment. By the end of this course, students will be able to express information important about the travel region; identity, demonstrate critical thinking related to the location of travel, evaluate cultural differences, articulate key concepts in the local culture and its cuisine, demonstrate proficiency in the ability to use appropriate vocabulary in the target culture, construct effective communication strategies, and employ a capability to be an effective communicator in the local context of their immersion experience abroad. In addition, students will engage in critical analysis of international institutions as they relate to those one is familiar with in their home country, foster cultural humility, and develop cultural intelligence. Students will broaden their comprehension of a variety of factors that influence the local, regional, and national environments. Themes of politics, environment, industry, immigration, history, and cultural tradition will be explored. Furthermore, students engage in critical analysis of international institutions as they relate to those one is familiar with in their home country. Human behavior as it relates to both the host and home country are a focus of the course. The course will employ various methods of distilling knowledge including at the epistemic, theoretical, and empirical levels as it endeavors to provide students with a framework to interpret and subsequently describe events in a global context. In addition, as international culture is a focal point of this course, it is a natural fit to meet the International Cultures (IL) requirement.

International Cultures (IL)

STS 124: History of Western Medicine

3 Credits

This course explores the history of health, illness, and medicine in western society from Ancient Egypt through the modern world. Relying on both primary and secondary sources, the course examines major developments in the understanding of health, illness, medical treatment, and medical practice in western society from Ancient Egypt to the present. The course will explore such themes as the changing status of medical practitioners, the experience of patients in different historical settings, artistic depictions of illness and healing, and the increasingly prominent role of medicine in public policy in order to better understand the links between medicine and its social, cultural, intellectual, and political contexts.

Cross-listed with: HIST 124

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

STS 151N: Technology and Society in American History

3 Credits

This course examines the development of technology in the United States from the colonial period to the present, and places into a historical context the reception and influence of these technological developments on the social, economic, and political life of the United States. The technologies serving American society—past and present—range widely and include, for example, new harvesting techniques, railroads and motor vehicles, assembly-line mass production, and electricity and its multiple dependent technologies. Technologies have always influenced, and been influenced by, human societies; this course examines how technologies and Americans have interacted and influenced each other.

Cross-listed with: AMST 151N, HIST 151N

Bachelor of Arts: Social and Behavioral Sciences

United States Cultures (US)

General Education: Humanities (GH)

General Education: Social and Behavioral Science (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

STS 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Social and Behavioral Sciences

STS 199: Science, Technology, and Society: Foreign Studies

1-3 Credits/Maximum of 12

Science, Technology, and Society foreign studies. Courses offered in foreign countries by individual or group instruction.

STS 200: Critical Issues in Science, Technology, and Society

3 Credits

An overview of interactions between science, technology, and society from social sciences and humanities perspectives.

Bachelor of Arts: Social and Behavioral Sciences

General Education: Social and Behavioral Science (GS)

STS 201: Climate Change, Energy, and Biodiversity

3 Credits

Studies of global warming, energy options, and biodiversity; their interrelations as sciences and as societal issues.

Bachelor of Arts: Natural Sciences

Bachelor of Arts: Social and Behavioral Sciences

STS 233: Ethics and the Design of Technology

3 Credits

Humans have always created artifacts and artificial environments to aid us in our survival and to help fulfill our needs and desires. Moreover, today technology is all pervasive, transforming and conditioning our social and political relations, our cultural understanding of ourselves, and our relationship with other animals and the natural environment. Designers make important choices concerning the creation, development, and deployment of many if not most technological innovations.

Consequently, the task of the designer is an ethical one. It is therefore important to give future designers the opportunity to reflect upon the meaning of technology, particularly in its moral dimensions. Two means will be used to achieve our course goals. Much of the time will be spent thinking about and discussing the various impacts that particular technologies have upon the social, cultural, and political lives of human beings and upon the natural environment. To facilitate thoughtful discussion, we will read a number of authors, writing short papers in preparation for critical discussion in class. The second means is aimed at putting our ideas into practice by working in teams on several design projects. These design projects will require the integration of readings, discussion, and research and their synthesis to resolve the moral aspect of a design problem. Student teams will work cooperatively on these projects and make oral progress reports as well as final written and oral reports.

Cross-listed with: PHIL 233

Bachelor of Arts: Humanities

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

STS 235: Science and Religion

3 Credits

This course investigates the relationship between science and religion in multiple cultures. S T S 235 Science and Religion (3) (GH) The purpose of this course, designed to fulfill general education requirements in the humanities (GH), is to encourage students to investigate the relationships between the disciplines of science and religion. While most of the emphasis of the course will be on the historical interaction between science and Western religion, we will also investigate science ('natural philosophy') in the Islamic, Hindu, and Eastern religious traditions. Students will read classic texts that discuss science and religion from scientists such as Newton and Darwin as well as from world Scriptures and contemporary positions of various influential scientists and religious scholars concerning views of the material world as it relates to the spiritual world. There will be no attempt to encourage students to accept a particular religious or secular viewpoint. Rather, the course will be successful if at its conclusion the student can articulate a personal viewpoint while appreciating the reasons others might have for holding alternative opinions. Students will develop an understanding of the arguments and the historical context in which they originated which lead to differing positions. Thus, individual students will be expected to demonstrate this understanding in a series of examinations scheduled throughout the semester, and in a final examination if required by the instructor. Discussion and debate are useful devices in the search for understanding. In order to facilitate such discussion, students will be required to make one presentation to the class on an assigned topic.

This presentation will serve as the starting point for class exploration of the topic. To encourage active and collaborative learning, the student presentations may be group efforts, however, no group will consist of more than three students.

Prerequisite: completion of a basic composition course or the equivalent, S T S100 or S T S101 , or completion of 30 credits of coursework
General Education: Humanities (GH)

STS 245N: Globalization, Technology, and Ethics

3 Credits

The objective of Globalization, Technology, and Ethics is to prepare students (especially but not limited to engineering, information sciences & technology, and business students) who are headed into the corporate, NGO (non-profit) or government sectors for the challenges and realities of working in a rapidly globalizing world. This course will encourage students to become leaders in a mobile and diverse transnational workplace and help them to become critical citizens of that world. Through team-centered projects and readings from the social sciences and humanities, students will broaden their understanding of engineering, technology, and culture and then be introduced to how one makes ethical decisions about that world. This course is designed to provide skills, theories and experiences that will help them to be respectful, diplomatic and professional while being able to successfully work with technology in multiple cultures and contexts. Students will understand the relationships and the effects on industry, economics, and the many facets of society in an interdependent global economy. These interrelationships will include the differing impacts on individual countries (winners and losers), the question of responsibilities of use or development of technologies and science (long term verses short term impacts). Students will be able to apply ethical analysis to these and many other issues that professionals face.

Enforced Prerequisite at Enrollment: ENGL 15 and CAS 100

Cross-listed with: SOC 245N

International Cultures (IL)

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

STS 299: Foreign Studies

1-12 Credits/Maximum of 12

Science, Technology, and Society foreign studies. Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

STS 313: Global Engineering Fellows Seminar

1 Credits

This is a required gateway course for engineering students to be considered to join the Global Engineering Fellows program. In this course, students build on their global experiences. This course will expand students' ability to articulate the value of their global experiences,

develop intercultural competencies, foster presentation skills, and enhance global perspectives.

Recommended Preparation: Students will have participated in a global experience abroad such as an approved study abroad program (embedded allowed), or an international research, internship, or service program while a Penn State student (supported by Univ International Cultures (IL)

STS 399: Science, Technology and Society: Foreign Studies

1-3 Credits/Maximum of 12

Science, Technology, and Society foreign studies. Courses offered in foreign countries by individual or group instruction.

STS 408: Cultural Foundations of Communications

3 Credits

Examination of oral, scribal, print, industrial, and electronic cultures; analysis of impact of technology on communications and social structure. COMM 408 / STS 408 Cultural Foundations of Communications (3)(BA) This course meets the Bachelor of Arts degree requirements. COMM 408 / STS 408 traces the development of communications technologies and their impact on culture over the last 500 years. Students will examine how different tools for communicating changed the way people organized and made sense of their worlds. The course begins by looking at oral cultures and moves on to the scribal, print, industrial, electronic and post-industrial or postmodern cultures, studying the media developments that marked each of these eras. With each period and its corresponding technology students will examine how and why the new media altered not only the form of communication (the type of speech, form of writing and/or speed of information transfer), but also how such changes altered the content of knowledge (how people made sense of their lives and communities). Readings are drawn from a range of disciplinary perspectives on the issues, from history, sociology and anthropology, to philosophy, communication studies and cultural theory. The historical and theoretical knowledge provided by the course will give students a solid foundation for coming to terms with media trends in present-day society and for thinking through their possible epistemological, political and cultural impacts. The course is a communications elective for the Journalism and Telecommunications majors and the Media Studies minor.

Enforced Prerequisite at Enrollment: Select 3 credits from the following: COMM 100 or COMM 110 or COMM 118 or COMM 150 or COMM 180 or COMM 251 or COMM 320 or COMM 370

Cross-listed with: COMM 408

Bachelor of Arts: Social and Behavioral Sciences

STS 416: Race, Gender and Science

3 Credits

The class will focus on race and gender as products of science, and how societal values shape scientific activity.

Cross-listed with: AFAM 416

International Cultures (IL)

United States Cultures (US)

STS 420: Energy and Modern Society

3 Credits

Technology and economics of energy resources, production, and consumption; environmental factors, exhaustion, new technology.

Enforced Prerequisite at Enrollment: 3 credits of SOC

Cross-listed with: EMSC 420, SOC 420

Bachelor of Arts: Social and Behavioral Sciences

STS 428: The Darwinian Revolution

3 Credits

The origins and implications of evolutionary theory.

Prerequisite: an introductory science course and a history course

Cross-listed with: HIST 428

Bachelor of Arts: Humanities

International Cultures (IL)

STS 433: Ethics in Science and Engineering

3 Credits

Ethical issues arising in the practice of science and engineering and their philosophical analysis.

Cross-listed with: PHIL 433

Bachelor of Arts: Humanities

Bachelor of Arts: Social and Behavioral Sciences

STS 460: Science, Technology, and Public Policy

3 Credits

The all-pervasive importance of science and technology policy in modern societies and mechanisms and processes by which it is made.

Prerequisite: 3 credits in natural sciences or engineering, 3 credits in social and behavioral sciences

Cross-listed with: PLSC 460

Bachelor of Arts: Social and Behavioral Sciences

STS 470: Technology Assessment and Transfer

3 Credits

Nature of technology assessment and technology transfer in product design and development process from federal and university labs, and internationally.

Bachelor of Arts: Social and Behavioral Sciences

STS 499: Foreign Studies

1-12 Credits/Maximum of 12

Science, Technology, and Society foreign studies. Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

Security and Risk Analysis (SRA)

SRA 99: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

SRA 111: Introduction to Security and Risk Analysis

3 Credits

Introduction to Security and Risk Analysis is a preliminary course with a broad focus, spanning the areas of security, risk and analysis. In addition to familiarizing the student with basic technical terminology, it will also touch upon social and legal issues, risk analysis and mitigation, crime intelligence and forensics, and information warfare and assurance. This course will motivate students to understand the requirements for security in any government agency or business organization through the use of case studies. Included in this segment are cases related to cyberterrorism, bioterrorism, and critical infrastructure protection. Some concepts to be covered in the area of information security are: confidentiality, integrity, availability, and non-repudiation. Various methods of safe guarding these security concerns will be discussed, such as: single- and multi-factor authentication, encryption, digital signatures, prevention of denial of service attacks, and so forth. This course also covers the principles and the approaches to risk analysis. Here students study vulnerability analysis, crime and intelligence analysis, forensics, techniques for risk assessment and risk mitigation.

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

SRA 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

SRA 199: Foreign Studies

1-12 Credits

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

SRA 211: Threat of Terrorism and Crime

3 Credits

Provides overview of nature, scope, and seriousness of threats to security as a result of terrorism and crime. SRA 211 Threat of Terrorism and Crime (3) Threat of Terrorism and Crime is a course designed to acquaint students with the security threats posed by both terrorist and criminal activity, and with strategies to combat these threats. Terrorism and security are defined as well as terrorism in its historical context. Varieties of terrorist groups, organizations and their actions are studied with targets of terrorism being a focus. Types of crime including street, employee, organized and white collar crime are studied. Information theft

can occur in each of the types of crime. Security threats of each type are studied and mitigation techniques are evaluated. Methods of studying terrorism and crime cover data collection, analysis of the reliability of the data, and fusing the data so that information is obtained that leads to knowledge to combat terrorism and crime. Finally to put the course in perspective, students study critical shortfalls in our understanding of terrorism and crime including unreliable data, biased estimates and a lack of understanding of terrorist and criminal motives and objectives.

SRA 221: Overview of Information Security

3 Credits

Provides an understanding of the overview of information security including security architecture, access control, and internet secure applications. SRA 221 Overview of Information Security (3) SRA 221 focuses on an overview of information security. Students will learn the principles of information security, security architectures and models, aspects and methods of information security such as physical security control, operations security, access control, hacks/attacks/defense, systems and programs security, cryptography, network and web security, worms and viruses, and other Internet secure applications. Students will also learn how to plan and manage security, security policies, business continuity plans, disaster recovery plans, and social and legal issues of information security. A major component of the course will be several hands-on exercises and a final team-based project. This course will incorporate collaborative and action-learning experiences wherever appropriate. Emphases will be placed on developing and practicing writing and speaking skills through application of the concepts, theories and technologies that define the course.

Enforced Prerequisite at Enrollment: SRA 111 and (CMPSC 101 or IST 140 or CMPSC 121)

SRA 231: Decision Theory and Analysis

3 Credits

Provides an overview of decision theoretical and analytical concepts and tools in the security risk analysis field. SRA 231 Decision Theory and Analysis (3) Decision Theory and Analysis is designed for students to build an understanding of how to improve the judgment and decision making of individuals, groups and organizations. Behavioral decision theories provide the theoretical core for the course. These theories draw on insights from a diverse set of disciplines, including cognitive and social psychology as well as economics, statistics and philosophy. Offered annually (and more if demand requires), this course will foster understanding of: (a) the cognitive, emotional, social and institutional factors that influence judgment and choice, (b) normative (economic) models of rational choice, and (c) how judgment and decision making can be predicted and/or improved through prescriptive aids and models. Applications of these theories and methods to real-life venues will be used to engage and focus the students. For example, insights on how such concepts apply to supply chain security, bioterrorism threats, legal decision making, large-scale risk assessments (e.g., assessing risks of transnational threat), and first-response/crisis decision making will be common. Where appropriate, real situations and cases are used to bring concepts and scenarios alive. Overall, the course emphasizes basic skills and concepts that enhance an individual's ability to understand why individuals, groups and organizations behave the way they do, how they formulate the issues and problems they confront, as well as to choose rationally among competing courses of action.

Enforced Prerequisite at Enrollment: SRA 211 and STAT 200

SRA 268: Visual Analytics

3 Credits

This course introduces the fundamental principles, methods, and tools of visual analytics that enable security and risk analysts to synthesize information and derive insight from massive, dynamic, ambiguous, and often conflicting data. Decisions in risk and security management are increasingly driven by data. Analysts are faced with a continuously growing set of data originated from a wide range of sources and in a wide variety of formats. Such data need to be analyzed in order to understand a situation and react promptly. This causes significant information overload to analysts and prevents them from developing good situation awareness. Visual Analytics (VA) offers an effective solution for making sense of massive datasets by exploiting interactive visualization technologies to extend human cognitive abilities. It helps analysts in detecting the expected and discover the unexpected, providing timely, defensible, and in communicating findings and assessment effectively for action. SRA 268 provides students with a quick overview of the current state of the art in visual analytics and their applications in data-driven security investigation and risk assessment. It prepares students with advanced data analytic skills and critical thinking with data. Cases studies and projects showcase the applications of visual analytics in cyber security and intelligence analysis, emergency and crisis management, and business intelligence.

Enforced Prerequisite at Enrollment: SRA 111

SRA 294: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

SRA 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

SRA 297: Special Topics

1-9 Credits

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

SRA 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

SRA 311: Risk Analysis in a Security Context

3 Credits

Assessment and mitigation of security vulnerabilities for people, organizations, industry sectors, and the nation. SRA 311 Risk Management: Assessment and Mitigation (3) Risk Analysis in a Security Context is focused on developing analytical skills aimed at

producing credible and meaningful answers to critical questions of risk management. Risk is considered at all levels within this course, including those created by intelligent adversaries, including cybercriminals and terrorists, although risks may also include natural disasters, system failures, accidents, etc. Students successfully completing this course are capable of applying a diverse set of analytic techniques to answer questions in contexts such as information security, counterterrorism and intelligence, or any other particular field where protection is an issue. Topics in this course include critical thinking, systems analysis, risk assessment and associated analysis methods, risk communication, and risk control.

Enforced Prerequisite at Enrollment: SRA 231

SRA 311W: Risk Analysis in a Security Context

3 Credits

This intermediate course is appropriate for students majoring in Security and Risk Analysis. This course provides students with the background, experience and perspective required to document risk and identify policies and procedures that effectively deal with hazards and threats to which the organization is vulnerable, jeopardizing its mission. This writing intensive course requires students to identify and assess organization risks, and recommend controls to executive decision makers. Individual and group writing assignments provide practical experience preparing organizational-level documents that effectively communicate the risk context, risk analysis (e.g., identification and assessment), risk communication, and risk control elements for a risk management plan. Students receive and provide peer feedback on writing assignments, as well as instructor feedback, with the goal of improving writing skills and conforming writing styles to organization and industry expectations.

Enforced Prerequisite at Enrollment: SRA 231

Writing Across the Curriculum

SRA 365: Statistics for Security and Risk Analysis

3 Credits

Theoretical foundations and practice of intermediate statistics. SRA 365 Statistics for Security and Risk Analysis (3) SRA 365 is an intermediate-level statistics course emphasizing how to summarize data using descriptive statistics, how to make data-driven decisions using inferential statistics, and how to critically evaluate data presented in the media, all within the context of security, risk, and analysis. This is both a theory and application course. Students will learn about statistical theories, such as regression, and chi-square analyses, and apply their knowledge of these theories by analyzing and interpreting data using a statistical software package.

Enforced Prerequisite at Enrollment: C or better in STAT 200 or SCM 200

SRA 397: Special Topics

1-9 Credits

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

SRA 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

SRA 421: The Intelligence Environment

3 Credits

The Role of information and intelligence introduces students to the architecture and policies of the U.S. Intelligence Community (IC) and examines how U.S. intelligence policies and practices relate to overall U.S. foreign policy objectives and are influenced by today's global environment and emerging technologies. The course examines the users and processes of IC, participants of Competitive Intelligence, and comparative intelligence communities. SRA 421 The Intelligence Environment (3) This course examines intelligence structures and policies and explores the role and use of information and intelligence in the 21st Century, in support of individual citizens, national defense and corporate America. It will introduce the major actors in the U.S. intelligence community and frame U.S. intelligence policies in terms of overall U.S. foreign policy objectives in the current globalized international arena. The course discusses the history and evolution of U.S. intelligence policies, capabilities and information requirements as well as the legal and constitutional foundations of those policies. The course will examine and apply methods and techniques of the information user and intelligence practitioner. The course will also provide experience in applying principles and techniques learned in the context of a team-based intelligence-analysis simulation exercise.

Enforced Prerequisite at Enrollment: SRA 111 and SRA 211 and SRA 231

SRA 433: Deception and Counterdeception

3 Credits

Deception tactics, technologies and procedures and approaches to counterdeception analysis. SRA 433 Deception and Counterdeception (3) This course introduces deception and counterdeception and their role in support of security risk analyses in competitive environments. The course covers fundamental theories of deception, human cognition and its vulnerabilities to deception, and the vulnerabilities of technical collection systems and sensors to deception. The course discusses deceptive practices in use by attackers and defenders, including both non-technical and technical means. The course also provides experience applying technical and non-technical counterdeception techniques to security risk analysis problems.

Enforced Prerequisite at Enrollment: SRA 211 and SRA 221 and SRA 231 and SRA 311

SRA 440W: Security and Risk Analysis Capstone Course

3 Credits

This course is designed to provide IST students enrolled in their last year of study in the SRA major to experience a semester-long security and risk analysis scenario or problem-solving exercise by providing realistic analytic dilemmas requiring solutions that incorporate facets of the three SRA Options. The problems selected for the Capstone should lend themselves to team collaboration and group solutions.

Enforced Prerequisite at Enrollment: SRA 221 and SRA 311 and (ENGL 202C or ENGL 202D)

Writing Across the Curriculum

SRA 450: Cyber-Crime and Cyber-Warfare

3 Credits

Cyber-crime and cyber-warfare are among the most critical areas facing information security professionals. Both have emerged as strategic issues facing the United States. This importance is recognized by NSA, DHS and industry. This course will familiarize students with the history, tools, methods, players, laws and policies regarding cyber-crime and cyber-warfare. This course will add to the offerings in the MPS Information Security and Forensics major as well as the SRA BS ICS and IAM options.

Enforced Prerequisite at Enrollment: SRA 111 and SRA 231

SRA 468: Spatial Analysis of Risks

3 Credits

The objective of this course is to develop a spatial perspective on risk analysis empower students with GIS spatial data representation, visualization, and analysis methods that are fundamental to the spatial analysis of risk. Risk analysis is critical for public safety agencies and insurance companies, land developers, and by government planners for better disaster preparedness. Geographical Information systems and associated spatial analytical tools are widely used to characterize hazards (earthquakes, hurricanes, cyclones and floods) and their impacts of life, properties, and environment. Through a set of lectures, labs, and projects, students will develop skills and competencies in mapping hazards, exposure, and vulnerabilities, and integrating these risk components through geospatial relationships. A state-of-the-art GIS software (such as ArcGIS) will be used to support practical data processing (filtering, subsetting, reclassification), GIS analysis (location queries, buffer analysis, and spatial join/overlay), and visualization.

Prerequisite: IST 210, SRA 111.

SRA 471: Informatics, Risk, and the Post-Modern World

3 Credits

Provides in-depth study of how security informatics is influenced by the risk and post-modern culture. SRA 471 Informatics, Risk, and the Post-Modern World (3)The post-modern world provides a changing climate and context for defining and understanding threats, intelligence, decisions, and risk. Likewise, post-modern cultures consist of beliefs that are heavily influenced by psychology, social connectivity, collective behavior, religion, ethnicity, and political systems. This system of systems is heavily dependent upon and influenced by information, information technology, and the web (social informatics). When examining human behavior as it impacts risk, these various social-technical factors must be considered in planning for terrorism, intelligence analysis, and emergency events. As the post-modern world becomes increasingly complicated, the ability to discern, identify, and address threats in terms of risk becomes exceedingly more difficult. Provision of learning underlying psychological, social, political, religious, and technical components of how risk accelerates through various stages will be critical for protection of national and international interests within the security sphere. Security informatics will be at the heart of both recognizing emerging situations and employing tools/agents/measures to assuage emergency, terrorist, or even national disaster events. This course provides the student with a broad perspective to critically examine both theories and practice of security informatics as related to the cultures in which threats emerge asymmetrically. Students will be placed on the role of systems analysts

to problem solve and analyze information from a broad bandwidth of information specifically as informed by culture, post-modern thought, psychological intent, and situation awareness. The course will be grounded by participation in case studies and/or analyzing exercises of risk. Students will be required to do comprehensive reading assignments, engage in team cognition-social interaction, and become familiar with social informatics concepts and tools as related to risk, terrorism, and information warfare. As the post-modern world becomes increasingly complicated, the ability to discern, identify, and address threats in terms of risk becomes exceedingly more difficult. Provision of understanding some of the underlying psychological, social, political, religious, and technical components of how risk accelerates through various stages will be critical for protection of national and international interests within the security sphere. As extreme events become more prevalent in society, security informatics will be at the heart of both recognizing emerging situations and employing tools/agents to assuage emergency, terrorist, or even national disaster events.

Enforced Prerequisite at Enrollment: SRA 231

SRA 472: Integration of Privacy and Security

3 Credits

Exploration of technological, operational, organizational and regulatory issues related to maintenance of individual privacy, confidentiality of organizations, and information protection. SRA 472 Integration of Privacy and Security (3) This course is designed to introduce students to the major organizational, technical, operational and regulatory issues in information privacy and security, and to give them experience in performing a privacy analysis, designing privacy-aware applications and developing privacy policy in organizations. Topics covered include: conceptualizations and theories of privacy and security, privacy laws and compliance, building a privacy organizational infrastructure, integrating privacy in the software development process, performing a privacy analysis, privacy issues in outsourcing and cross-border data transfers, integrating privacy into customer relationship management and vendor management, information systems audit and intentional standards on privacy and security. This course will mix technical details, applied value and organizational insights of assuring privacy and security through the use of case studies, real-life problems, hands-on exercises and team projects.

Enforced Prerequisite at Enrollment: SRA 211 or SRA 221

SRA 480: Crisis Informatics

3 Credits

This course examines how information and communication technologies have played a role in saving lives' specifically in the areas of technologies used toward emergency response. It explores disaster response and the inter-connectedness of information, people, and technologies in a crisis. In particular, it examines how information is managed, organized, coordinated, and disseminated during a crisis; it analyzes information needs and seeking behaviors during a crisis, and explores how information and communication technologies can support communities in a crisis. Students reflect on lessons learned from past crises, and develop strategies to manage future crises. This course will equip students with the knowledge and skills to enable them to be key players in crisis response.

Enforced Prerequisite at Enrollment: SRA 111 and SRA 211

SRA 494: Research Project

1-12 Credits

Supervised student activities on research projects identified on an individual or small-group basis.

SRA 496: Independent Studies

1-18 Credits

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

SRA 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

SRA 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction

International Cultures (IL)

Slavic (SLAV)

SLAV 99: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

SLAV 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

SLAV 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

SLAV 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

SLAV 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

SLAV 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

SLAV 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

SLAV 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

SLAV 494H: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Honors

SLAV 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

SLAV 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Social Data Analytics (SODA)

SODA 308: Research Design for Social Data Analytics

3 Credits

This course engages students in the study and use of research design tools for the analysis of "big data." SODA 308 Research Design for Social Data Analytics (3) The tools of social science and social data analytics affect how data scientists and social scientists understand the world. This course engages students in the study and use of research design tools for the analysis of social systems and "big data." Topics to be addressed include: how the scientific method relates to a practice of establishing the validity of propositions and the role that analytics can play in that process when the observations are vast and varied; how the validity of systematic patterns in data are assessed as well as how spurious or biased patterns in the data are ruled out; and how the scientific method can guide the use of exploratory techniques such as machine learning and visual analytics. Through the course, students will learn to develop innovative research designs in an effort to improve the statistical analyses used with social data and how to

present these analyses to nontechnical audiences, such as non-profits, employers, and the general public. Course requirements include several short memoranda that require the development and presentation of a research design and data analysis plan. Students will also gain practical experience working with several "big data" sets. Students are required to have an understanding of introductory statistics (equivalent to the knowledge they would gain from PL SC 309) prior to taking this course.

Prerequisite: PL SC309

SODA 496: Special Topics

1-18 Credits/Maximum of 999

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

SODA 497: Special Topics

1-9 Credits/Maximum of 999

Formal courses offered infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Social Studies Education (SSED)

SSED 100N: Foundations of History and Social Studies Concepts for K-8 Teachers

3 Credits

SSED 100N provides foundational historical content integrated with key geographic and economic concepts relevant to social studies curriculum at the elementary and middle level (grades K-8). Its main objective is to support educational inquiry (learning based in compelling questions) into historical, geographical, and economic connections across and between past eras, world regions, and the contemporary global context as academic preparation for teaching social studies to young learners. Topic areas include broad overviews of world civilizations from ancient times to the modern era and of U.S. history; fundamental geographic and economic concepts and their effects on human history; and global cultures and economy in contemporary times. The course is arranged as online unit modules that provide instruction, guide reading, and assess learning and cumulative understanding in a sequence and pace that supports building connections across this diverse range of topics and to K-8 education.

Recommended Preparation: 3rd Semester standing

International Cultures (IL)

United States Cultures (US)

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

SSED 200: American Heritage

3 Credits

Recommended Preparations: HIST 20 Essentials of American Heritage for heritage interpretative education applications. SS ED 200 American Heritage (3)(US) SS ED 200 is designed to introduce students to Heritage Education as a career opportunity for students interested in teaching history/heritage, working at history museums and heritage sites, Public

History, and/or working in related fields and/or to diversify, enhance, and enrich their teacher certification, and/or to enrich their understanding of America's founding. SS ED 200 is the first in a series of four courses that lead to the Heritage Education Certificate (15 credits). Students who complete the program shall be eligible and prepared to complete the requirements for the Certified Interpretative Guide credential as offered by the National Association for Interpretation. In this course, students will synthesize knowledge and understandings of American heritage focused on America's founding as found in past and prevailing curricular sources and more importantly as represented at America's heritage sites and historical museums. Students will have opportunities to apply this knowledge through curricular and presentation experiences. Taking advantage of Penn State's central location and access to heritage/history museums and heritage and historical sites throughout the Northeast, the course will include visitations to select heritage and historical sites and museums. Pending outside funding, one to three field trips to local and regional heritage sites shall be included in this course. Pending arrangements with local and regional sites, typically, trips scheduled shall be "day-trips." Students unable to travel will be provided with alternative assignments. As part of these visits, students will observe heritage presentations by staff, engage staff, view exhibits/collections, make and record observations via technology (pictures, video, and personal notes). Student assessments will include critical essay reviews on past and present presentations of America's founding as found in relevant sources together with assessments of local, regional, and national heritage sites. Two exams shall also be required.

Prerequisite: any U.S. History selection (3 credits)
United States Cultures (US)

SSED 411: Teaching Secondary Social Studies I

3 Credits

SSED 411 Teaching Secondary Social Studies I is the first methods courses in a two-course sequence in preparation for teaching social studies in the secondary grades (7-12), with emphasis on the the subjects most frequently taught in schools and specified in academic standards (civics/government, economics, geography, and history). The principal goal is to provide prospective teachers with a better understanding of the nature, curriculum, and educational structures of social studies in the U.S.; of how to identify, select, instruct, and assess rigorous content and learning outcomes; and of effective strategies for designing, planning, and implementing instruction. Additional topics may be included as determined by the section instructor.

Prerequisites: GEOG 30N Recommended Preparations: Completion of at least 6 credits of Social Studies Teaching Option Requirements for Additional Courses or Supporting Courses and Related Areas

SSED 412W: Teaching Secondary Social Studies II

3 Credits

Writing-intensive course focusing on study of the social studies teacher's role in planning instruction; strategies for teaching. SS ED 412W Teaching Secondary Social Studies II (3)Advanced study and practice of teaching social studies in the secondary grades (7-12) with emphasis on content and methods for the major subject areas (citizenship and government, economics, geography, and history). The principal goal is to provide prospective teachers with intellectual preparation and relevant practice in selecting and applying rigorous content knowledge to higher-order thinking in the classroom and practical experience designing, planning, and implementing social studies instruction. Topics include the social

studies teacher's role in planning and practicing instruction, strategies for implementing and assessing teaching in the social studies, and others as determined by the section instructor. As a writing course (W), SS ED 412W engages students in professional in-depth writing experiences that involve planning, process, development, teaching and learning social studies content, and other relevant writing that teachers are expected to perform.

Prerequisites: SSED 411 Corequisites: CI 495C
Writing Across the Curriculum

SSED 430W: Teaching Social Studies in the Elementary Grades

3 Credits

Social studies transforms the social sciences and humanities to promote civic competence (National Council for the Social Studies, 2002). In this course, teacher candidates learn to coordinate and conceptualize the richness of anthropology, economics, geography, history, civics, and sociology for elementary classroom pedagogy. Candidates become familiar with various instructional strategies that support social studies. Candidates gain an understanding of the information, concepts, theories, analytical approaches, and different perspectives-including global and multicultural perspectives-that are important to teaching social studies. Candidates also learn how to assess social studies learning in a variety of ways. This course stresses technology, content integration, social science competence, differentiated instruction, multicultural/global knowledge, teaching social historical inquiry, and constructing democratic learning communities. Teacher candidates learn how to apply the State Learning Frameworks and National Standards in their classroom instruction. At the conclusion of the course, candidates have a good understanding of elementary social studies and are able to develop and demonstrate powerful social studies curricula. Being a "W" course, SSED 430 incorporates both formal and informal writing into in-class and graded assignments to encourage teacher candidates to develop as critical thinkers and productive writers. This writing includes an essay describing one's own experiences as a social studies learner, reading responses, the creation of a unit of instruction, and several lesson plans that describe significant activities. These writing tasks are meant to professionalize the communication skills required to effectively teach social studies as well as to effectively communicate with parents, educators, and administrators. SSED 430W is a part of a block of courses in a PSU teacher education program that is unified by a basic set of principles and a field experience component.

Prerequisites: 4th Semester standing Recommended Preparation: 9 credits in history and the social sciences
Writing Across the Curriculum

SSED 470: Issues in Social Studies Education

1-6 Credits/Maximum of 6

Concentration on particular issues, trends, and developments in the social studies.

Prerequisite: Instructional I certificate and teaching experience

SSED 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

SSED 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Social Work (SOCW)

SOCW 195: Introduction to Social Work with Field Hours

3 Credits

This course provides an introduction to the social work profession through a historical, ethical, and value-based exploration within a transcultural perspective. A focus on the skills and knowledge base of the profession as well its advocacy foundation with at-risk, disenfranchised, and marginalized populations will be presented. Students will also have an introduction to field education through required pre-practicum hours. Course objectives and format methodology is based upon the core competencies and practice behaviors designed by the CSWE. 1. To construct a beginning understanding and demonstrate ethical and professional behaviors in social work practice. 2. To demonstrate an understanding of how the social work generalist practitioner engages in diversity and difference in practice. 3. To understand how the social work generalist practitioner advances human rights and social, economic, and environmental justice. 4. To construct a beginning understanding of how the social work generalist practitioner engages in practice-informed research and research-informed practice. 5. To demonstrate an understanding of the role policy play in the practice of generalist social workers. 6. To construct an understanding of how social workers, intervene with individuals, families, groups, organizations, and communities.

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Soc Resp and Ethic Reason

SOCW 205: Diversity, Equity, Inclusion, and Justice

3 Credits

This course will provide social work students with the knowledge, skills, and values necessary to engage in culturally competent social work practice at the generalist level. An emphasis on activism, advocacy, anti-racism, anti-discrimination, culture, ethnicity, international social work, and social justice within diverse communities and practice settings will be examined. According to the National Association of Social Workers Code of Ethics, cultural competence and social diversity have three primary components: 1. Social workers should demonstrate an understanding of culture and its function in human behavior and society, recognizing the strengths that exist in all cultures. 2. Social workers should demonstrate knowledge that guides practice with clients of various cultures and be able to demonstrate skills in the provision of culturally informed services that empower marginalized individuals and groups. Social workers must act against oppression, racism, discrimination, and inequities, and acknowledge personal privilege. 3. Social workers should demonstrate awareness and cultural humility by engaging in critical self-reflection (understanding their own bias and engaging in self-correction), recognizing clients as experts of their

own culture, committing to lifelong learning, and holding institutions accountable for advancing cultural humility.

United States Cultures (US)

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

SOCW 215: Introduction to Social Welfare History, Policy, Programs, and Services

3 Credits

This course familiarizes students with the historical development of social welfare history, policy, programs, and services. This section will provide students with a national and global perspective to better understand social welfare concepts at the generalist level. Elements of advocacy, human rights, social, political, and economic justice are essential reoccurring themes embedded in the course. SOCW 215 assists students in developing an understanding of how the implementation of social welfare policies, programs, and services are funded, influenced, and regulated at the local, state, and federal levels. Students will be introduced to multiple historical periods in American society that are relevant to the foundation of social welfare programming and the social work profession. Key figures and pioneers of the social work profession will also be discussed including Jane Addams, Mary Richmond, Dr. Dorothy Height, Clara Barton, Whitney M. Young Jr., Cesar Chavez, and other influential leaders.

United States Cultures (US)

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Soc Resp and Ethic Reason

SOCW 290: Human Behavior and the Social Environment

3 Credits

This course provides students with a conceptual framework to acquire knowledge of human behavior and the social environment with an emphasis on human growth and development theories throughout the life span. Special attention to biopsychosocial functioning and spiritual factors will be examined from a social work practice perspective. SOCW 290 will assist students in identifying indicators of normal and abnormal development in addition to better understanding person-in-environment (PIE) theory and other multidisciplinary theoretical frameworks relevant to social work. Competent social work practitioners view human behavior in the social environment through a resiliency, risk, and vulnerability model. By examining human behavior throughout the lifespan, SOCW 290 provides a foundation for students to organize thoughts about the challenges and needs of diverse client populations to better provide social work-related interventions, services, support, and resources. Theories discussed in this course will be connected to cultural, developmental, and social issues that are experienced throughout each stage of life. Students are expected to utilize acquired knowledge and skills gained in this course to better understand the interactions between clients and their environment by examining the major domains of human development from a social work lens. This course is designed to address CSWE competency requirements. SOCW 290 is a requirement for SOCW majors.

Prerequisites: SOCW 195

General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Soc Resp and Ethic Reason

SOCW 300: Social Work Methods - Individuals

3 Credits

The primary focus of this course is to introduce students to direct practice with individuals. Strength based strategies, which value client self-determination while helping clients to obtain their highest functioning level, are an important underpinning of ethical social work practice and as such must be presented and understood by social work students if they are to become successful change agents. This course will provide an introduction on client engagement, assessment, goal setting, intervention and termination processes in challenging practice environments and within a multicultural perspective. The course will be framed within the nine competencies and practice behaviors as outlined by the Council for Social work Education that are appropriate for an advanced level course. Course Objectives and Format Methodology based upon the Core Competencies and Practice Behaviors of Social Work Education 1. Demonstrate the knowledge of social work ethical and professional values the social service delivery system to be able to make an informed decision about entry into the field of social work. 2. Identify how the social work generalist practitioner advances human rights and social, economic, and environmental justice within a micro and macro practice with individuals. 3. Describe the types or forms of human diversity (e.g. culture, gender) encountered in social work practice and describe principles and guidelines for responding to human differences. 3. Define the roles and functions of social work practice to engage and evaluate individuals, families, groups, organizations, and communities. 4. Develop the ability to understand the multiple methods used by generalist social workers with systems of all sizes. 5. Employ in understanding how the social work generalist practitioner engages in diversity and difference in practice with individuals. 6. Apply empowering practices and ways of working collaboratively. 7. Identify and describe key social work values, knowledge, principles, and skills within an ethical framework as defined in the NASW Code of Ethics. Cognitive Methods Students will effectively and discriminately classify, synthesize and convert knowledge and understanding gained from course readings, lectures, videos/digital content, and guest lectures into informed class participation and reflective class assignments. Affective Methods Students will examine and challenge their value assumptions as they attempt to analyze contemporary theories of human development. They will explore practical implications of their values and the prevailing social values within this culture as they relate to the provision of social work. This will be achieved through class discussion and as such it is essential that students participate in class. Experiential Methods Students will experiment with various analytical and practice skills as they relate to theory and research methods in small and large group experiences, discussions and a variety of class presentations.

Prerequisites: SOCW 195

SOCW 301: Social Work Methods - Groups

3 Credits

The primary focus of this course is to introduce students to the importance of group work with a variety of client populations as well as provide a foundation in group work theories, modalities and facilitation. Social work students are in many instances most often comfortable working with individuals or family units and have little to no experience

in group leadership. Since group work regularly occurs within a micro or clinical context as well as in larger macro practice settings it is imperative that social work students become familiar with and proficient in group work. This course discusses planning for, conducting, and evaluating several types of groups including skills, support, treatment, psychoeducational, task orientated, macro practice, anti-oppressive, eating disorder, elementary school conflict resolution and teen pregnancy groups. Additional group work with disenfranchised populations including immigrants and people with HIV/AIDS. Students will be asked to apply critical thinking to inform and communicate professional judgments. The course will be framed within eight of the nine competencies and practice behaviors as outlined by the Council for Social work Education that are appropriate for an advanced level course.

Prerequisites: SOCW 195

SOCW 302: Social Work Methods - Families

3 Credits

The primary focus of this course is to introduce students to the importance of work with families and to provide a foundational platform from which to practice. Students and professionals in the field of social work usually can easily identify deficiencies and issues within a family system. What is not as easily discernible is the strengths which all families possess. Understanding how individuals and families, not only survive, but can thrive under adverse conditions can enable social workers to move families toward healing. Therefore, students must not only study family dynamics and theories of family therapy but must first understand the concept of resiliency as it is rooted in the strength's perspective. Students will be asked to apply critical thinking to inform and communicate professional judgments. The course will be framed within the nine competencies and practice behaviors as outlined by the Council for Social work Education that are appropriate for an advanced level course.

Prerequisites: SOCW 195

SOCW 303: Methods - Communities & Organizations

3 Credits

This course will examine the interventions, research, and theories that generalist social workers use in macro practice settings while working with communities, groups, organizations, and public policy. Students will develop skills in community activism, advocacy, development, empowerment, mobilizing, organizing, and organizational leadership. SOCW 303 students will also learn how to create a community action plan, needs assessment, program budget, grant proposal, logic model, and SWOT analysis to further develop administrative and leadership skills. As a course requirement, students will be expected to engage with communities and organizations outside of the classroom. Therefore, the following background clearances may be required: PA child abuse clearance, PA criminal background check, and an IdentoGO/FBI fingerprint clearance. Upon successful completion of this course, students will foster a better understanding of how macro-level social workers employ various approaches to engage, assess, intervene, and evaluate diverse populations and organizations from a generalist practice perspective.

Prerequisite: SOCW 195 and SOCW 205 and SOCW 215 and SOCW 290

SOCW 315: Assessment, Documentation, and Effective Interviewing Skills in Social Work

3 Credits

This course will provide students with an overview of the necessary skills, strategies, techniques, theories, and values associated with social work interviewing and case management. Students will learn how to monitor, plan, and seek services for clients at the micro, mezzo, and macro levels. Other topics explored will include clinical interviewing, conducting assessments, and initiating the referral process. Clinical interviewing is an important skill for all social workers to achieve due to its nature of fostering effective communication patterns between the client and practitioner. Students will master how to apply social work interviewing skills to practice through engaging in a variety of techniques: Basic listening, clarifying, confronting, feedback, focusing, supporting, reflecting, reframing, redirecting, validating, among others. According to the National Association of Social Workers, case management dates its development back to the emergence of the social work profession and it still remains integral to contemporary social work practice. The National Association of Social Workers' benchmark study of licensed social workers in the United States documented that case management is a component of many social work positions, and that a significant number of social workers report spending more than half their time on case management-related responsibilities. Social workers must be competently skilled in interviewing and generalist case management techniques to effectively meet the needs of their client populations.

Prerequisite: SOCW 195 and SOCW 205 and SOCW 215 and SOCW 290**SOCW 407: Research Methods in Social Work**

3 Credits

This course introduces students to the methods and processes of social work research. A major emphasis of this course is the integration of practice-informed research and research-informed practice. Social work students will learn how to utilize research evidence to inform policy and practice through scientific inquiry. Students will analyze research designs, develop qualitative and quantitative skills, engage in hypothesis formation and testing, and evaluate social work program outcomes. Throughout this section, students will assess multiple practice-based research studies relevant to social work practice. Developing and conducting a social work-related research project through the application of newly developed skills in this course is expected. Upon completion of SOCW 407, students will develop an understanding of how research is an integral part of the problem-solving process in social work practice settings. Ethical considerations in the conduction of research with human subjects will also be explored. SOCW 407 is a required course for all social work majors enrolled in the BSW program.

Prerequisite: SOCW 195 and SOCW 205 and SOCW 215 and SOCW 290 and STAT 200**SOCW 495A: Social Work - Internship**

3 Credits

The social work internship is intended to give aspiring social workers experience in clinical settings and non-profit agencies. They will have the opportunity to apply their knowledge to real-world situations and deepen their experiences through field studies.

Prerequisite: SOCW 195 and SOCW 300 and SOCW 301 and SOCW 302**SOCW 495B: Social Work - Internship**

9 Credits

This advanced internship is an immersive field experience for students pursuing the BSW. Students will be placed in clinical sites and non-profit agencies to deepen their experiences through field work.

Prerequisite: SOCW 195 and SOCW 300 and SOCW 301 and SOCW 302 and SOCW 495A**Sociology (SOC)****SOC 1: Introductory Sociology**

3 Credits

The nature and characteristics of human societies and social life. SOC 1 Introductory Sociology (3) (GS)(BA) This course meets the Bachelor of Arts degree requirements. Introductory Sociology provides perspectives and information useful in understanding all societies. The major theories (functionalism, conflict, and symbolic interactionism) and concepts provide the foundation upon which the remaining material rests. Learning how sociologists do research provides the tools for understanding the production of knowledge and for evaluating the validity of sociological assertions. Familiarity with systematic theorizing and conceptual development, along with some comprehension of the nature of the scientific method as it is applied in sociology, enhances critical reasoning. To promote a more complete understanding of human social life, both in its inherent constraints and in the opportunities it provides; the nature and reality of culture and social structure are explored. The study of socialization provides perspectives on how one becomes a member of society. Exploring social interaction adds insight into the formation of the social self and the salience of group identities and norms. Ending this first section with a discussion of social control highlights the forces of stability and change in society. The course then progresses to considerations of social stratification and inequality. The nature of privilege and oppression are discussed and considered in the specific contexts of race, ethnicity, gender, and age. The focus then shifts to social institutions. The essential work of society is accomplished via its major institutions: family, education, health care, economy and work, religion, and politics. Applying theoretical perspectives to the form and function of these institutions enhances an understanding of how different social structures provide varying constraints and opportunities to their inhabitants. Finally, considering large-scale forces for change provides a platform to comprehend where human societies have been, are now, and might be headed. Throughout the course, the lectures as well as the textbook draw amply on cross-cultural and cross-national material. In addition, the course emphasizes the complexity of human social life and describes the many variables (social structural, cultural, interpersonal, and psychological) that influence behavior. A special component of the course deals with topics pertinent to the social behavior and norms of students of the ages typically taking this course. Depending on the faculty member, these topics could include sexual behavior, alcohol use, and problems in interpersonal relationships. Discussion and questions are encouraged in all sections. Sections of this course may include group research projects, debates, and library or internet-based research. Along with personal contact, students have the opportunity to communicate with teaching assistants and faculty members via e-mail. Writing assignments, along with in-class examinations, are required in all sections. This course meets a general education requirement in the social and behavioral sciences.

Bachelor of Arts: Social and Behavioral Sciences
General Education: Social and Behavioral Scien (GS)

SOC 1W: Introductory Sociology

3 Credits

The nature and characteristics of human societies and social life. SOC 1W Introductory Sociology (3) (GS)(BA) This course meets the Bachelor of Arts degree requirements. Introductory Sociology provides perspectives and information useful in understanding all societies. The major theories (functionalism, conflict, and symbolic interactionism) and concepts provide the foundation upon which the remaining material rests. Learning how sociologists do research provides the tools for understanding the production of knowledge and for evaluating the validity of sociological assertions. Familiarity with systematic theorizing and conceptual development, along with some comprehension of the nature of the scientific method as it is applied in sociology, enhances critical reasoning. To promote a more complete understanding of human social life, both in its inherent constraints and in the opportunities it provides; the nature and reality of culture and social structure are explored. The study of socialization provides perspectives on how one becomes a member of society. Exploring social interaction adds insight into the formation of the social self and the salience of group identities and norms. Ending this first section with a discussion of social control highlights the forces of stability and change in society. The course then progresses to considerations of social stratification and inequality. The nature of privilege and oppression are discussed and considered in the specific contexts of race, ethnicity, gender, and age. The focus then shifts to social institutions. The essential work of society is accomplished via its major institutions: family, education, health care, economy and work, religion, and politics. Applying theoretical perspectives to the form and function of these institutions enhances an understanding of how different social structures provide varying constraints and opportunities to their inhabitants. Finally, considering large-scale forces for change provides a platform to comprehend where human societies have been, are now, and might be headed. Throughout the course, the lectures as well as the textbook draw amply on cross-cultural and cross-national material. In addition, the course emphasizes the complexity of human social life and describes the many variables (social structural, cultural, interpersonal, and psychological) that influence behavior. A special component of the course deals with topics pertinent to the social behavior and norms of students of the ages typically taking this course. Depending on the faculty member, these topics could include sexual behavior, alcohol use, and problems in interpersonal relationships. Discussion and questions are encouraged in all sections. Sections of this course may include group research projects, debates, and library or internet-based research. Along with personal contact, students have the opportunity to communicate with teaching assistants and faculty members via e-mail. Writing assignments, along with in-class examinations, are required in all sections. This course meets a general education requirement in the social and behavioral sciences.

Bachelor of Arts: Social and Behavioral Sciences
General Education: Social and Behavioral Scien (GS)
Writing Across the Curriculum

SOC 3: Introductory Social Psychology

3 Credits

Social psychology is a discipline that bridges sociology and psychology. Sociology focuses on large, medium, and small scale social patterns and influences while psychology tends to emphasize the individual organism and its functioning. Social psychologists borrow perspectives and methods from both sociology and psychology. The major thrust of the sociological perspective on social psychology is on the influence of the social group areas such as socialization, social influence, conformity, group decision-making, interpersonal relationships, and power. This introduction to social psychology course focuses on sociological perspectives on human development, social interaction between individuals, group influences on individuals, and interaction between groups. A key theme of this course is for students to demonstrate understanding of how sociology helps us understand "real world" human behavior, social interaction, subjective experience, including students' own. A secondary objective of this course is for students to demonstrate a basic understanding of where sociological knowledge comes from and how it is evaluated.

Bachelor of Arts: Social and Behavioral Sciences
General Education: Social and Behavioral Scien (GS)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Key Literacies

SOC 5: Social Problems

3 Credits

Introduces students to the ways that sociologists seek to understand social conditions, events, and behaviors that people think of as "social problems" that need to be solved. Students will examine a range of social problems, such as poverty, crime, inequality, violence, environmental change, and race/sex/gender discrimination, from a variety of perspectives regarding their causes, consequences, and solutions. Encourages students to use sociological tools to critically assess the validity of claims about social problems so they can decide for themselves what should be done to address them.

Bachelor of Arts: Social and Behavioral Sciences
General Education: Social and Behavioral Scien (GS)
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies
GenEd Learning Objective: Soc Resp and Ethic Reason

SOC 12: Criminology

3 Credits/Maximum of 3

Criminology is the study of the causes of criminal behavior. As such this course is an introduction to the topic with special focus on the major theories and concepts explaining criminal behavior. A key focus of the class is examining the most recent scientific research testing the basic theories in criminology. The students learn the various research techniques that have been methods and data sources used to study criminal behavior. Several important areas of study that link understanding criminal behavior and its distribution across the social system are investigated including age, gender, race and ethnicity. One

goal of the course is to promote a more complete understanding of crime and how it is enmeshed in human social life. Students read a general text, as well as scholarly articles in Criminology.

Cross-listed with: CRIM 12, CRIMJ 12
 Bachelor of Arts: Social and Behavioral Sciences
 General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

SOC 12H: Honors Criminology

3 Credits

Criminology is the study of the causes of criminal behavior. As such this course is an introduction to the topic with special focus on the major theories and concepts explaining criminal behavior. This honors version of Introduction to Criminology is especially designed to be appropriately challenging for Schreyer Honors College students. A key focus of the course is examining the most recent scientific research testing the basic theories in criminology. Students learn the various research methods and data sources used to study criminal behavior. Several important areas of study that link understanding criminal behavior and its distribution across the social system are investigated including age, gender, race and ethnicity. One goal of the course is to promote a more complete understanding of crime and how it is enmeshed in human social life. Students read a general text, as well as scholarly articles in criminology.

Cross-listed with: CRIM 12H, CRIMJ 12H
 General Education: Social and Behavioral Scien (GS)
 Honors
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

SOC 13: Juvenile Delinquency

3 Credits

Juvenile conduct, causes of delinquency, current methods of treatment; organization and function of agencies concerned with delinquency.

Cross-listed with: CRIMJ 13
 General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Integrative Thinking

SOC 15: Urban Sociology

3 Credits

City growth and decline; impact of city life on individuals, families, neighborhoods, and government; urban life-styles.

Bachelor of Arts: Social and Behavioral Sciences
 General Education: Social and Behavioral Scien (GS)

SOC 19: Sociology of Popular Culture

3 Credits

Applies sociological theories, concepts, and research techniques to studying popular culture as a foundation of social life and human relationships. Covers a range of pop culture from blockbuster movies produced by global corporations to content created by social media users. Students will learn about the production and consumption of different types of popular culture and analyze its social significance. Offers students opportunities to investigate forms of pop culture that they are curious about from different sociological perspectives. Encourages students to become more sociologically savvy observers of their cultural environment and gain a richer awareness of implications of popular culture in their own lives. Provides a foundation for further study in sociology and related social sciences, as well as academic and applied disciplines that focus on popular culture and other types of art and culture.

Bachelor of Arts: Social and Behavioral Sciences
 General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think

SOC 20N: Critical Media Literacy

3 Credits

We live in a world in which we are surrounded with media messages that influence how we think and act. Since we are so immersed in media culture, it is important that we know how to analyze media content, production and reception, so that media can become tools for liberation and creativity, not control. In this course, we will learn to critically analyze work produced in different forms of mass communication. The course focuses on power, ideology and social inequality, analyzing relationships between media producers and audiences, and between information, the politics of representation, and power, including a focus on the crucial areas of gender, sexuality, class, and race. The course takes a dialectical perspective that focuses on both theory and practice, providing students with the opportunity and knowledge necessary to produce their own short film using the resources of Penn State's media commons.

Cross-listed with: COMM 20N
 General Education: Arts (GA)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Soc Resp and Ethic Reason

SOC 23: Population and Policy Issues

3 Credits

Local, national, and international population trends; basic techniques of demographic analysis; population problems; implications for public planning and policy. SOC 23 Population and Policy Issues (3) (GS) (BA) This course meets the Bachelor of Arts degree requirements. Demographic changes are some of the most important factors in understanding the future of specific professions, our nation, and the world. This course introduces students to the discipline of demography,

including an overview of demographic issues, theories of population, and major findings from demographic research. Focusing on the state, national, and global level, students will learn how the discipline of demography and how population structure and age are related to social institutions and public policy issues. Students will receive hands-on experience with the data and methods used by professional demographers and health and urban planners. Thus, this course should provide students with 1) a global perspective on population changes, 2) knowledge of demography research and theory, 3) analytical skills for the application of demography to public policy, 4) an awareness of how the diversity of a population (e.g., age structure, race, ethnicity, sex, and culture) is related to public policy, and 5) the active learning of demographic techniques. The instructors encourage discussion and questions in all sections. This course meets a General Education requirement in Social and Behavioral Sciences.

Bachelor of Arts: Social and Behavioral Sciences
 General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

SOC 23H: Population and Policy Issues

3 Credits

Local, national, and international population trends; basic techniques of demographic analysis; population problems; implications for public planning and policy.

Bachelor of Arts: Social and Behavioral Sciences
 Honors

SOC 30: Sociology of the Family

3 Credits

This course examines the family in American society by looking at individually lived family experience, the family as a systematic social institution influenced by larger social processes and social structure and context, and the ways in which family patterns and processes influence broader social patterns. Students will learn how researchers resolve issues related to the definition of family; how researchers develop theories and conduct research on family issues; how family experiences are shaped by factors such as race/ethnicity, social class, and the larger social context; how the key stages of the family life course and family challenges may be experienced by individuals and influenced by the larger social context; how family choices and processes impact the larger society. The course both provides a foundation for further study in both general sociology and sociology of the family, and prepares students to make informed choices about their future family-related issues. Throughout the course students are empowered to reflect on their individual experiences, and to link individual experience to the larger social context and the family as a key social institution.

Bachelor of Arts: Social and Behavioral Sciences
 General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

SOC 30H: Sociology of Family - Honors

3 Credits

This is an Honors course that enables students to learn, apply, and evaluate basic family sociology concepts, theories, and research. SOC 30H Honors Introduction to Sociology of Marriage and Family (3). This Sociology of Family course examines the family in American society by looking at individually lived family experience, the family as a systematic social institution influenced by larger social processes and social structure and context, and the ways in which family patterns and processes influence broader social patterns. Students will learn how researchers resolve issues related to the definition of family; how researchers develop theories and conduct research on family issues; how family experiences are shaped by factors such as race/ethnicity, social class, and the larger social context; how the key stages of the family life course and family challenges may be experienced by individuals and influenced by the larger social context; how family choices and processes impact the larger society. The course both provides a foundation for further study in both general sociology and sociology of the family, and prepares students to make informed choices about their future family-related issues. Throughout the course students are empowered to reflect on their individual experiences, and to link individual experience to the larger social context and the family as a key social institution. This course is especially appropriate for students in the Schreyer Honors College and Paterno Fellows.

General Education: Social and Behavioral Scien (GS)
 Honors
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies

SOC 35: Sociology of Aging

3 Credits

Introduction to the sociological study of aging. SOC 035 Sociology of Aging (3)(BA) This course meets the Bachelor of Arts degree requirements. The sociology of aging covers social aspects of aging, including common beliefs about older people, the diversity of the aged, and how institutions such as the economy and family influence the aging process. Evaluation methods include two exams, each worth 20 percent of the final grade, and a series of written assignments. For example, there is one 5-7 page paper and a second shorter one on aging in another society. The course serves as a basis for taking SOC 435, Social Gerontology. It can be counted toward the major or minor in Sociology or Human Development and Family Studies.

Bachelor of Arts: Social and Behavioral Sciences

SOC 60N: Society and Cultures in Modern Israel

3 Credits

Israel is often portrayed in media and popular society in incomplete or distorted terms. In some cases, it is presented as a troubled, violent, dangerous place, as a place permeated by long-standing hatred between Jews and Muslims, Israelis and Arabs, Israelis and Palestinians. In others, the focus is on the state's role as the center of Judaism—a home of the "chosen people" and the source of inspiration for one of the world's great monotheistic religions. Some present it as a model for how a democracy can succeed under trying demographic, historic, and geopolitical circumstances. Others frame Israel as a place of

conflagration (armageddon) that will usher in a messianic period or as a nation-state with a discriminatory regime that privileges its majority population over its minority and administers oppressive policies over Palestinians in the occupied territories it captured in the 1967 War. While there are elements of truth in each of these presentations, the full picture of Israeli society is much richer and more complex. This course teaches students to cut through the mythology, and develop a more accurate understanding of what Israel is in the 21st century. Since Israel is a culturally, ethnically, and religiously diverse society, it is only possible to understand the true nature of modern Israel through exploring the many sub-groups that comprise the Israeli citizenry. The course looks at Ashkenazi and Mizrahi Jews (both religious and secular), Muslim and Christian Palestinian Arab citizens of Israel, Ethiopian-Israelis, Russian-Israelis, Bedouins, and Druze. For each group, it looks at demographics, background histories, migration patterns, institutions, cultural norms, values, and practices. We will look at what is important to each group, how they see and organize themselves, and how they understand and experience the world around them. The course aims to convey an understanding of the geographic, demographic, and social-historical context in which Israelis live as well as the diversity of Israeli culture. Students will be challenged to be critical readers of Israeli society and the way it is represented and to strive for measured, evidence-based analyses.

Cross-listed with: ANTH 60N, JST 60N, PLSC 60N
International Cultures (IL)
General Education: Humanities (GH)
General Education: Social and Behavioral Sciences (GS)
General Education - Integrative: Interdomain
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Key Literacies

SOC 83: First-Year Seminar in Sociology

3 Credits

This course meets the Bachelor of Arts degree requirements. Each section or offering of this course will be limited to 20 students who will be instructed by an experienced faculty member. Each section will focus on a well-defined body of scholarship that addresses a relatively specific topic while at the same time provide an opportunity for surveying broadly existing knowledge in the discipline. The specific content of the course will vary from offering to offering, and depending on the interests of the instructor, will introduce students to a sociological perspective on particular social issues. For example, one section examines racism and sexism as axes of privilege and oppression. Other sections may deal with major social institutions, such as the family or religion, or with fundamental social processes (e.g., demographic, social, and psychological). Finally, some sections may have a heavier policy emphasis—examining responses to social issues—while others might take a comparative or international approach. Each section will emphasize the development of discussion, writing, and analytical skills and will give students the opportunity to work individually and in small groups. Students can expect to receive a general introduction to the University as an academic community and to explore their responsibilities as members of that community. They will also become familiar with the learning tools and resources available to them, and they will be able to establish relationships with faculty and other students who share their academic interests. This course fulfills a general education or Bachelor of Arts requirement in the social/behavioral sciences.

Bachelor of Arts: Social and Behavioral Sciences
First-Year Seminar
General Education: Social and Behavioral Sciences (GS)
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Critical and Analytical Thinking
GenEd Learning Objective: Key Literacies

SOC 103: Racism and Sexism

3 Credits

This survey course examines racism and sexism as cultural, political and economic processes that shape contemporary social life in the United States. It provides an historical overview of the roots of modern racism and sexism and will explore these structural inequalities continue to matter in a "post-racial" and "post-feminist" era. Students will engage a broad range of texts that discuss these forms of inequality as intersecting, mutually constituted forms of marginalization. Students will develop a deeper understanding of how race, gender, sexuality, and class conditions identity formation; racism as a structural process that shapes and limits the life chances of non-white communities; and the long tradition of resistance that women and communities of color have developed to combat these social inequalities. The course is divided into two sections. The first introduces a range of terms: race, gender, class, sexual politics, intersectionality and neoliberalism. The second half considers various case studies: mass incarceration, toxic waste, (un)natural disasters, reproductive justice, and Islamophobia in the war on terror. Students will leave with both an understanding of key theoretical terms in the study of racism and sexism and be able to apply these concepts to contemporary social issues.

Cross-listed with: AFAM 103, WMNST 103
Bachelor of Arts: Social and Behavioral Sciences
United States Cultures (US)
General Education: Humanities (GH)
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Critical and Analytical Thinking
GenEd Learning Objective: Social Responsibility and Ethical Reasoning

SOC 109: Sociological Perspectives

3 Credits

Intensive and critical analysis of the bases of the social order, change, values, knowledge, and conflict.

Bachelor of Arts: Social and Behavioral Sciences

SOC 110: Sociology of Gender

3 Credits

Changing sex role expectations and behavior for men and women in contemporary society. SOC (WMNST) 110 Sociology of Gender (3) (GS;US) (BA) This course meets the Bachelor of Arts degree requirements. This course provides an introduction to the analysis and understanding of how men's and women's lives are different and how they intersect with each other. The course focuses on the social construction of gender and the impact of gender on experiences in a variety of social contexts and institutions throughout the life course, including cross-cultural comparisons of gender expectations. An overriding objective is to help students better assess and analyze the effects of gender throughout history and in their everyday lives. Class

sessions are a mixture of lectures, discussions, group exercises, guest speakers, and films designed to engage the students in the learning process. Each session helps students to critically evaluate the effects of gender discussed in their readings and experienced in their everyday lives. The evaluation tools used for this course extend this critical evaluation. Although the specific evaluation methods vary by sections, all sections use some form of reaction papers, book reviews, and/or journals. These writing assignments require students to demonstrate an understanding of the class readings, lectures, and activities, and to offer an evaluation and assessment of these readings and presentations. Because the social construction of gender is intertwined with family, work, religion, education, government, and all interpersonal interaction, the course overlaps with courses in each of these areas. This course meets a General Education requirement in Social and Behavioral Sciences. It can be used as a lower-level sociology course in the Sociology BA major and the Sociology minor. It can also be used as a supporting course in the Women's Studies major and minor.

Cross-listed with: WMNST 110

Bachelor of Arts: Social and Behavioral Sciences

United States Cultures (US)

General Education: Social and Behavioral Scien (GS)

SOC 119N: Race, Ethnicity and Culture

3-4 Credits

SOC 119N Race, Ethnicity and Culture (3 or 4 credits) (GS/GH;US/IL) (BA) Additionally, SOC 119N is an Inter Domain course (Social Sciences and Humanities) This course focuses on historical patterns and current status of racial, ethnic and cultural groups and issues locally, nationally, and internationally. SOC 119 has three objectives. First, the course will introduce students to new ways of thinking about race, ethnicity and culture from the perspectives of the social sciences and humanities. Students will be able to compare and contrast differences between race, ethnicity and culture. They will be able to understand the extent and pervasiveness of racial, ethnic and cultural inequality and discrimination in the U.S. and explain how unequal systems impact different ancestry groups both in the U.S. and around the world. Students will be able to compare historical causes and consequences of sociological processes such as immigration, assimilation and multiculturalism, and they will develop new ways of understanding how these processes are expressed in popular culture (e.g., art, music, literature) and intergroup dynamics. The second objective is to provide students with the intellectual tools for having more thoughtful conversations about the issues address in the class. By acquiring these tools Students will be able to formulate more thoughtful questions and responses when they engage others in everyday discussions about the many racial, ethnic and cultural factors and forces that pull people and groups together and push them apart. The third objective is to encourage students to explore their own racial and cultural identity. Students will explore pathways to allow them to discover new ways to understand their own racial and ethnic place in the world and the history of their own families. Students will be able to more clearly explain how their identity reflects and shapes their life experiences as well as others in their racial and ethnic group(s).

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

United States Cultures (US)

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

SOC 120N: Knowing Right from Wrong

3 Credits

"Knowing Right from Wrong" provides a comprehensive understanding of the nature of moral ideas, beliefs, and behaviors in contemporary contexts. What roles do nature and nurture play in the development of moral sensibilities? How do moral emotions and moral reasoning interact to produce moral behavior? What defines moral character and how does it influence what we do? Is it possible to derive what ought to be done from what is known about the world? How do we respond when moral demands compete with another? How do our moral convictions color our perceptions of world events? Can individuals and groups with differing moral commitments communicate with one another and live together peacefully? The course integrates perspectives from philosophy, psychology, and sociology, and prepares students to think about (and act in) a world in which morality (and its linked concepts, such as judgment of others) plays an increasingly important social and political role. The course treats morality as both an aspirational concept and as an actual social practice, and focuses on three major themes: (1) the origins and development of moral reasoning and ethical systems, (2) the influence of moral emotions and moral intuitions on moral reasoning and behavior, and (3) the influence of social and contextual factors on moral behavior and expression. Integrating the philosopher's interest in ethics, with the psychologist's interest in the mind and body, and the sociologist's interest in groups, the course provides a comprehensive introduction to morality in contemporary society, and the ways in which it shapes the lives of people in everyday situations.

Cross-listed with: PHIL 120N, PSYCH 120N

Bachelor of Arts: Humanities

Bachelor of Arts: Social and Behavioral Sciences

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

SOC 130N: Buddhism and US Society

3 Credits

This course focuses on Buddhism in the United States. We will overview the historical factors that led to the development of Buddhism in the U.S., the many traditions that currently exist in the U.S., the role of Buddhism in the daily lives of different types of Americans, and various problems or frameworks that have characterized American Buddhism (such as race, gender, technology, and media representations). One major theme of the course is literary expressions of American Buddhism, such as the writings of Jack Kerouac and bell hooks. A second major theme, Buddhist meditation, will be explored through interdisciplinary perspectives drawing from both the humanities and social sciences. In the final portion of the class, we will focus on Buddhism in Pennsylvania, involving students in an ethnographic exploration of the religious pluralism in our home state.

Cross-listed with: ENGL 108N, RLST 105N

Bachelor of Arts: Humanities
 Bachelor of Arts: Social and Behavioral Sciences
 International Cultures (IL)
 United States Cultures (US)
 General Education: Humanities (GH)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking

SOC 145N: The Holocaust and Human Rights

3 Credits

This inter-domain course integrates historical (GH) study of the Holocaust with sociological (GS) perspectives on the Holocaust and human rights. Topical content begins with historical antisemitism ("the longest hatred") and elaborates the history of the Holocaust in German and in Europe. A second half of the course explores consequent definitions of genocide and human rights, globally established by the United Nations through international law. Post-war campaigns to reduce prejudice and to raise 'Holocaust consciousness' are presented along with sociological insights into problems of persecution through eugenics, xenophobia, and racialized inequalities. Survivor testimonies underscore the value of resilience and the ethics of standing up against injustice, including discrimination or persecution based on cultural or another group identification.

Cross-listed with: HIST 145N
 Bachelor of Arts: Humanities
 Bachelor of Arts: Social and Behavioral Sciences
 International Cultures (IL)
 General Education: Humanities (GH)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Soc Resp and Ethic Reason

SOC 150N: Healthy People, Healthy Society

3 Credits

This course examines how individual health and well-being are influenced by social forces and public policy. The course revolves around three questions: How are social life and individual well-being linked? How can social policy positively influence individual well-being? And, what can individuals do to produce healthy social relations and support social policies that increase population health? The course has four sequential parts. The first portion of the course begins in the 19th Century, when the social aspects of health were first discovered and addressed. Students will learn basic sociological and population health terminology and methods, as well as the meaning of "social life" within sociology and public health. The second portion of the course focuses on the social processes that produce health inequality, their effect on public health, and the policy interventions that can be used to overcome them and protect individual health and well-being today. This portion of the course will use public health cases to understand the roots of social inequality and the power of social policy to alleviate health inequity. We pay special attention to areas of tension in public health delivery: public goods, privatization, cost-benefit ideas, social justice, politicization of science

and regulatory capture. The third portion of the course focuses on the processes that shape individual health behaviors and influence of social behaviors on individual well-being. Relevant concepts discussed include culture, networks, framing, nudging, norms, and peer influence. The final portion of the course considers ways that individual behaviors contribute to a healthy society. This includes examining individual social behaviors, like civic engagement and religious activity, and social movements to understand how social responsibility can promote better health for all.

General Education: Health and Wellness (GHW)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies
 GenEd Learning Objective: Soc Resp and Ethic Reason

SOC 162N: Communicating Care

3 Credits

Communicating Care ENGL 162N / SOC 162N / CAS 162N What do we talk about when we talk about health? Our states of well-being and illness are topics that, like the weather, drive our daily conversations, but we rarely have time to study and practice these vital exchanges. Spoken in emergency rooms or on long-distance calls, by medical professionals, family members, or strangers making small talk, the languages we use to share pain and recovery require our knowledge of long-established scripts and our willingness to improvise. By exploring how these encounters draw from and work as textual and dramatic performances, this course will guide students to achieve a new level of literacy in the most essential communicative art of caring. Students will analyze health conversations in literary texts, such as short stories, poems, memoirs, and graphic novels. They will explore real-life scenarios drawn from their own experiences, fieldwork, social science theories, and published case studies. Developing skills in the humanities (GH), they will see how subjective, often individual experience, historical perspectives, and creative expression help people to communicate about health and care. Developing their abilities in the social and behavioral sciences (GS), they will see how theory provides insights to predict and understand health and practices of care, investigate objective perspectives and recognize the contributions of fieldwork and data-driven studies to analyzing and improving communication when health is a main concern. They will integrate these methodologies especially to pursue these fields' common goals of making beneficial connections between individuals and groups, and managing private and public life.

Cross-listed with: CAS 162N, ENGL 162N
 General Education: Humanities (GH)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies
 GenEd Learning Objective: Soc Resp and Ethic Reason

SOC 180N: State, Society, and Public Policy

3 Credits

Alexis de Tocqueville called association the *mother science* of politics and saw voluntary associations as a pillar of American democracy. These associations must compete in what might be called a moral

economy of public policy that preserves the value of equality. This course brings together ideas from political philosophy, history, political science, communication, sociology and economics to address an important question: How have voluntary, nongovernmental associations come to shape and implement public policy? The class begins with the core concepts in political thought and traces them through to contemporary ideas about civil society that span the political spectrum. After critically assessing these ideas, we integrate them into a framework for understanding the process of making public policy.

Recommended Preparations: Any humanities or social sciences course, prior or current registration

Cross-listed with: PLSC 120N, PUBPL 120N

Bachelor of Arts: Social and Behavioral Sciences

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

SOC 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Social and Behavioral Sciences

SOC 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

SOC 201: Presumed Innocent? Social Science of Wrongful Conviction

3 Credits

The criminal justice system is a human creation and some errors are expected. Sometimes guilty parties go free and sometimes innocent people are convicted. In this course, we will employ the perspective of the social scientist to understand why and how wrongful convictions occur. How can social science help to predict, explain, and prevent wrongful convictions? This course is organized into three units. In the first unit, we will examine the large body of social science research that demonstrates disparities in all stages of the criminal justice system. For example, young Black and Latino men are disproportionately arrested, charged, convicted and imprisoned for violent crimes. This is partly due to these men disproportionately living in environments that foster crime, but social science research shows sometimes it's also partly due to the discretionary decisions of police, prosecutors, and courts. As a result, these demographic groups are most likely to be wrongfully convicted. In the second unit, we'll explore the factors in the justice system that might lead to a wrongful conviction, including false confessions, eyewitness misidentification, poor legal representation, government misconduct, and informants and snitches. Social scientific findings elucidate how each of these factors influence conviction accuracy. Finally, we'll discuss how social science research on the risks and factors that contribute to wrongful convictions can be used to improve policies to reduce the risk of such convictions. Simple reforms such as openness about

plea-bargaining, eyewitness identification reform (e.g., sequential lineups, double-blind procedures, etc.), recording of interrogations, and introducing Innocence Commissions in every state can improve our criminal justice system.

Cross-listed with: CRIM 201

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

SOC 205N: Critical Race Theory in the Humanities and Social Sciences

3 Credits

This course closely examines the place and power of race in America. By tracing the history of how race works in particular American institutions, such as public education, criminal justice, and federal housing, students will gain a deep sense of how social categories and understandings shape material conditions and human welfare. Through the study of policies, court cases, memoirs, documentary films, and freedom struggles, this course will interrogate the many Americas that race has created and their implications for democracy and justice. Not only will this course focus on making race visible, but also the many ways that race intersects with class, gender, and sexuality and how these concepts empower and marginalize at the same time. All the while, students will use Critical Race Theory methods to reach empathy and strengthen social (GS) and historical (GH) literacies. Discussion, writing, critical reading, and primary source analysis will be integral to this class. Class sessions will include whole- and small-group discussion where active listening and thoughtful participation will be taught and required. Students will be encouraged to explore their own conceptions of race and how those ideas shape knowledge and experience. Ultimately, this is a course that will weave data, theory, and story as we encourage students to move toward empathy through comprehensive understandings of race. This course therefore examines race as both deeply personal and structural.

Recommended Preparations: ENGL 15 and CAS 100

Cross-listed with: CRIMJ 205N, EDUC 205N

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

SOC 207: Research Methods in Sociology

3 Credits

Experiential-based course covering the four main social research methods: available data, survey research, experiments, and field research.

Enforced Prerequisite at Enrollment: 3 credits in SOC

Bachelor of Arts: Social and Behavioral Sciences

SOC 208N: Visual Representations of the Middle East in the US and Middle East

3 Credits

This course is an introduction to the visual culture, the visual experience and sociological/historical context of images of the Middle East in the US mass media. The focus of the course will be on reading and interpreting visual images (painting, photography, film, illustration, digital media) and analyzing the larger social and cultural forces that shape the production, distribution and consumption of these media forms. We will explore these issues by focusing on a series of images/case studies located in a specific historical context, allowing us to introduce some of the major movements in visual culture, explore the social contexts of these images, and the ways in which the visual experience shapes our social lives and personal identities. Course evaluations will include exams, writing assignments, a class blog, and a final art project. The course examines visual representations of cultures over time, providing students with the artistic, historical, political and sociological context of their production. This integrative framework will enable students to understand how the creation of visual media and its interpretations both influence and are influenced by social context. It will introduce students to integrative thinking by providing them with interpretive techniques of the social sciences and the arts to increase their powers of visual analysis so that they can discuss an image's medium, composition, style and iconography. The course will examine the ways that the arts can be an expression of cultural values, helping students to comprehend the hegemonic aspects of image composition, production, exhibition and distribution. The course will explore the social milieus in which media is created, often depicting stereotypical images that poorly represent the complexity of the myriad cultural groups in the Middle East.

Enforced Prerequisite at Enrollment: ENGL 15

Cross-listed with: COMM 208N

General Education: Arts (GA)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

SOC 209: Poverty in Africa

3 Credits

African countries are generally considered to be among the poorest countries on the planet. On average, their incomes are low as are their levels of education. Poor African countries also have a range of peculiar characteristics that negatively affect their living standards. As these standards decline, western audiences have increasingly been targeted by aid organizations seeking donations to help the African cause. Despite growing awareness of African poverty, however, few attempts have been made to locate discourses on African poverty within historical, theoretical, and contemporary contexts. This course provides an overview of the key issues foundational for understanding the dynamics of poverty and human development in African societies. It examines various academic conceptualizations of poverty, the dimensions of poverty in African countries, as well as poverty's various causes and consequences. The course also intends to highlight the complex nature of the social, political, and economic causes of African poverty and their implications. Furthermore, it will identify the important challenges

to poverty alleviation in African societies, the effectiveness of foreign aid, and alternative strategies to poverty alleviation. The course will also provide unique opportunities for students to develop a focused understanding of specific issues that affect Africa's socioeconomically vulnerable groups as well as related issues relevant for understanding the dynamics of poverty in specific areas on the continent.

Cross-listed with: AFR 209

International Cultures (IL)

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Integrative Thinking

SOC 210N: Social Determinants of Health

3 Credits/Maximum of 3

If the United States spends more money on medical care than any other country, why does it rank so poorly on many indicators of health and well-being? Why are there so many and important health disparities across different population groups within the United States? How do our social, economic and political conditions "get under the skin" to affect our health and well-being? These kinds of questions are fundamental in the growing interdisciplinary field of population health and will be addressed in this course. The purpose of this course is to introduce you to the social factors that influence health, such as race, class, gender, social networks, families, and public policies. We will explore the range of broader social factors that influence health, key sociological concepts and theories that help us understand these processes, and methods used to study them. The course will enhance student education and engagement in the area of vulnerable populations and health equity. After taking this course, students will be able to: - Describe the social and economic factors that influence health and disease patterns - Describe and discuss the social and economic factors that contribute to health inequalities across populations, particularly in the United States - Understand the important role social determinants play in the health of individuals and society

General Education: Health and Wellness (GHW)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

SOC 211: Health Inequality: Understanding the Geographies of Life and Death

3 Credits/Maximum of 3

This course provides an introduction to the concepts, measurement and study of health and health inequality across geographic scales from the international to the local scale, and to study health inequality in diverse contexts (including urban and rural; historical and contemporary). The lectures will cover the nature, causes and consequence of health inequality, temporal trends and spatial patterns in health indicators, and examine associations between socioeconomic and environmental factors and health. The emphasis will be on easily measured and available primary health indicators such as mortality and morbidity, communicable and non-communicable disease as well as mental health. The lab component of the course will focus on finding, critiquing, interpreting and presenting health-related data and will introduce students to fundamental

concepts and expand their skill set in both basic statistics (numerical and graphical skills) and mapping (geographic visualization skills). At the end of the course the students will be more familiar with measures of human health and a variety of international and US data resources. The lecture component begins with focus on describing and understanding past, present and future patterns and trends in human health, examining these at the global, national (US), regional (Appalachia) and local (Pennsylvania) scales. The second half of the course includes lectures on the social determinants of health, the ways in which the legal landscape and direct and indirect discriminatory practices can influence health and wellbeing (e.g., around reproductive health, sexuality, and risk-taking behaviors), mental health, and the geographies of access to resources and the geography of exposure to risks. The final lecture will discuss 21st century "Global" health challenges. The parallel lecture and labs provide opportunities for practical learning. The labs are designed to expose students to the use of health data, geographic information systems and basic spatial analysis tools providing them with skills that help them to accurately summarize and report data on health outcomes. Students will learn how to find, critique and use data appropriately to measure and map health outcomes. The labs will be based on sample data sets and case studies that draw on the use and interpretation of a variety of data sets, international, national, and sub-national. Towards the end of the course, students will generate their own community health case study based on the skills they have used during the course.

General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

SOC 245N: Globalization, Technology, and Ethics

3 Credits

The objective of Globalization, Technology, and Ethics is to prepare students (especially but not limited to engineering, information sciences & technology, and business students) who are headed into the corporate, NGO (non-profit) or government sectors for the challenges and realities of working in a rapidly globalizing world. This course will encourage students to become leaders in a mobile and diverse transnational workplace and help them to become critical citizens of that world. Through team-centered projects and readings from the social sciences and humanities, students will broaden their understanding of engineering, technology, and culture and then be introduced to how one makes ethical decisions about that world. This course is designed to provide skills, theories and experiences that will help them to be respectful, diplomatic and professional while being able to successfully work with technology in multiple cultures and contexts. Students will understand the relationships and the effects on industry, economics, and the many facets of society in an interdependent global economy. These interrelationships will include the differing impacts on individual countries (winners and losers), the question of responsibilities of use or development of technologies and science (long term verses short term impacts). Students will be able to apply ethical analysis to these and many other issues that professionals face.

Enforced Prerequisite at Enrollment: ENGL 15 and CAS 100

Cross-listed with: STS 245N

International Cultures (IL)

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

SOC 258N: Introduction to Child Maltreatment and Advocacy Studies

3 Credits

Introduction to the multidisciplinary field of child maltreatment. CMAS (HD FS) 258 Introduction to Child Maltreatment and Advocacy Studies (3) This course will focus on the identification, investigation, service, advocacy, prosecution, and prevention of child maltreatment as well as the treatment of adverse health outcomes for children who have been maltreated. Specific topics include the causes, correlates, and consequences of child maltreatment, best practices for reporting and investigating an allegation of child maltreatment, evidence-based prevention and intervention programs, the Child Welfare System, and relevant legal issues (e.g., termination of parental rights, children's testimony in court, etc.). By definition, this course will detail issues related to the abuse and neglect of children. This material can be difficult to hear, view, and discuss. This course is a required course, and a prerequisite for all advanced courses, for a Minor in Child Maltreatment and Advocacy Studies.

Cross-listed with: CMAS 258N, HDFS 258N

General Education: Health and Wellness (GHW)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

SOC 269: Intercultural Dialogue Concepts and Practice

1-4 Credits

SOC 269 is an immersive experience in small group cross-cultural communication for students who have "international student" status at Penn State. In this class you will study the concepts of facilitated dialogue and how to apply these concepts to think together across borders. In this course, you will learn the nature and value of "activated" participation in a facilitated dialogue, and you will learn the crucial framework of "conflict and collaboration" to add to your mindset as an "activated" participant, which we will refer to as a participator. You will study discourse and rhetoric by examining the stories you hear from others and you will learn to develop your own story-telling abilities. You will engage in this process through participating in cross-cultural conversations twice weekly with your international and domestic peers at Penn State. All dialogues, both through in-class training and practicum, will revolve around both U.S. and international themes, which will often invite conflict and disagreement, as well as political divides and historical legacies. In class, you will learn a set of practices that will allow you to directly engage with these divergent perspectives, and you will practice applying them directly to your dialogues. This course includes 1.5 hours of weekly class time and 3 hours in a weekly course practicum, in which you will use your position as dialogue "participator" (an activated participant) along with your foundational communication skills (introduced in class) to develop and test hypotheses about people, culture, and social conflict according to a Grounded Theory approach. Some of the specific skills you will learn during the will be: designing and delivering open-ended questions, listening actively reflectively, as

well as techniques for collaborating with facilitators to co-construct a conversational environment for "thinking together."

Bachelor of Arts: World Cultures

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

United States Cultures (US)

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

SOC 290N: Cinema and Globalization

3 Credits/Maximum of 3

This course explores how films reflect (and in some cases attempt to explain, promote and memorialize) the emergence and transformation of global social phenomena. Through course readings, students will become familiar with key texts on globalization produced by social scientists and cultural theorists, and will link those key texts to a diverse array of cinematic representations of various global actors, issues, institutions and processes, as well as historical and theoretical interpretations and debates on globalization. The course introduces students to the work of internationally recognized film directors (for example, Euzhan Palcy, Jia Zhangke, Stephen Frears, Rainer Werner Fassbinder, or Majid Majidi) and studies of globalization (by scholars such as Arjun Appadurai, Guy Standing, Saskia Sassen, John Tomlinson, Robbie Robertson), and asks students to link scholarly perspectives with the visual rhetoric of cinema artists.

Enforced Prerequisite at Enrollment: ENGL 15 and COMM 150

Recommended Preparations: ENGL 202A or ENGL 202B or ENGL 202C or ENGL 202D

Cross-listed with: COMM 290N

International Cultures (IL)

General Education: Arts (GA)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

SOC 294: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Social and Behavioral Sciences

SOC 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which will fall outside the scope of formal courses.

Bachelor of Arts: Social and Behavioral Sciences

SOC 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Social and Behavioral Sciences

SOC 297G: Special Topics - GenEd

1-9 Credits/Maximum of 9

Formal course given on a topical or special interest subject offered infrequently; several different topics may be taught in one year or semester. This is a Special Topics GenEd course.

SOC 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

SOC 300: Preceptorship in Sociology

1-4 Credits/Maximum of 8

Supervised experience as a teaching assistant under the supervision of an approved faculty member.

Enforced Prerequisite at Enrollment: 3 credits in SOC

Bachelor of Arts: Social and Behavioral Sciences

SOC 309: Sociology of Health

3 Credits

Sociological concepts and principles operative in public and private areas of health and illness, including cultural, ethnic, and ecological factors.

Enforced Prerequisite at Enrollment: 3 credits in SOC

Bachelor of Arts: Social and Behavioral Sciences

SOC 369: Foundational Theory and Practice in Small Group Facilitation

3-4 Credits

This course is an introduction to dialogue facilitation practices in a small group context with a focus on U.S. and international cultural and social issues. In this course, you will learn to recognize the foundational sociological forces that shape human interaction on the family, community, societal, and global levels, and you will understand the essential role of facilitators in rebalancing these forces. You will discover what it means to "think together across borders," and you will have opportunities to think together with "participants" from a multiplicity of social positions, examining and exploring the cultural and structural forces that shape your own and others' perspectives. In this course you will begin to examine your assumptions about US cultures, values, and traditions in relation to global communities around the world. The course includes an embedded practicum, during which you will develop a unique set of communication practices that allow you to effectively lead a small group, cross-cultural dialogue. So you will attend class 4 hours per week and then co-facilitate at least two (and sometimes three) 90-minute dialogues weekly with other students who are enrolled in the class. The participants of these dialogues will be other Penn

State students who register for World in Conversation dialogues as well as students who are enrolled at universities around the world (using VTC technology). You will be provided with live coaching and direct feedback to support your development. Some of the specific skills you will learn during the in-class component of the course will be how to create a conversational environment for "thinking together", engaged Socratic inquiry, asking open-ended questions, active reflective listening, techniques for disrupting communication patterns, and working with a partner facilitator. In this course you will learn to see and think as a facilitator. You will develop the ability to "seek truth" in relationship to complex social issues by inviting a multiplicity of perspectives to be explored and how to work with and navigate both debate and dialogue. You will understand the elements that make a dialogue more than just an exchange of ideas, and you will learn to excavate the complex mindsets and worldviews of "participants" that bring nuance and thoughtful inquiry into topics that are often divisive (and thus, examined too simplistically). By the end of this course, you will be proficient in all of the key mindsets and communication practices of a dialogue facilitator.

Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)
United States Cultures (US)
General Education: Humanities (GH)
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Creative Thinking
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Global Learning

SOC 376: Introduction to Human Service Organizations

3 Credits

This course is designed to acquaint students with the role of various social agencies. The course covers the history of social service organizations in the United States, with an emphasis on the growing diversity of theory and practice in human service settings. Focus is placed on understanding social service organizations through the conflict, symbolic interactionist, and functionalist perspectives. Other perspectives are also considered. The course centers on the kinds of social services that exist and their operation in society. An emphasis is placed on ethical behaviors and best practices in human services professions, with the goal of preparing students for work in social service settings.

SOC 381: Junior Honors Seminar in Sociology

1 Credits

Supervised experience in planning the honors thesis and a sociological career.

Enforced Prerequisite at Enrollment: Sociology major and junior standing and admission to the Schreyer Honors College
Bachelor of Arts: Social and Behavioral Sciences
Honors

SOC 381H: Junior Honors Seminar in Sociology

1 Credits

This course is a supervised experience required for students with junior standing who have been admitted to the Schreyer Honors College and are pursuing honors in Sociology/Criminology. The course uses a combination of group discussion, individual meetings, and written assignments to help students consider thesis topic ideas and form a

partnership with a thesis supervisor from the Soc/Crim faculty. Students will ultimately develop a thesis project idea with the thesis supervisor's guidance.

Prerequisite: sociology major, junior standing, and admission to the Schreyer Honors College
Bachelor of Arts: Social and Behavioral Sciences
Honors

SOC 400W: Senior Research Seminar

3 Credits

Major concepts and principles of sociology through reading, data analysis, and writing. Capstone course for senior Sociology majors.

Enforced Prerequisite at Enrollment: SOC 470
Bachelor of Arts: Social and Behavioral Sciences
Writing Across the Curriculum

SOC 403: Advanced Social Psychology

3 Credits

Analysis of the major theoretical approaches and research findings of contemporary social psychology.

Enforced Prerequisite at Enrollment: 3 credits in SOC
Bachelor of Arts: Social and Behavioral Sciences

SOC 404: Social Influence and Small Groups

3 Credits

The study of social influence, leadership and status, and social cohesion and commitment processes in small groups.

Enforced Prerequisite at Enrollment: 3 credits in SOC
Bachelor of Arts: Social and Behavioral Sciences

SOC 405: Sociological Theory

3 Credits

Overview of the development of sociological theory; current issues and controversies.

Enforced Prerequisite at Enrollment: 3 credits in SOC
Bachelor of Arts: Social and Behavioral Sciences

SOC 406: Sociology of Deviance

3 Credits

Theory and research concerning deviant behaviors and lifestyles viewed as significant departures from a group's normative expectations. SOC (CRIMJ/CRIM) 406 Sociology of Deviance (3) (BA) This course meets the Bachelor of Arts degree requirements. Sociology of Deviance focuses on the theory and research in social construction of social norms, the violation of norms, and social reaction to the violation of norms. The course focuses on the role of social structure and power in the definition of deviance, on structural, cultural, and social psychological processes involved in deviant behavior, and the dynamics of social reaction to deviance. The course includes some content focusing on criminal deviance, but also emphasizes non-criminal deviance, as well as the role of social movements and social change in constructing and contesting deviance definitions. CRIMJ/SOC/CRIM 012 and CRIM/CRIMJ 250W are

prerequisites. This course may be counted toward the credits required for the B.A. and B.S. in Crime, Law, and Justice. It would fulfill one of the 400-level requirements in the 'Crime' component of the major. The course may also be counted toward credits required for the B.A. and B.S. in Sociology for students with the Deviance and Criminology specialization.

Enforced Prerequisite at Enrollment: 3 credits of SOC or CRIM or CRIMJ

Cross-listed with: CRIM 406, CRIMJ 406

Bachelor of Arts: Social and Behavioral Sciences

SOC 406H: Sociology of Deviance

3 Credits

Theory and research concerning deviant behaviors and lifestyles viewed as significant departures from a group's normative expectations.

Cross-Listed

Bachelor of Arts: Social and Behavioral Sciences

Honors

SOC 408: Urban Ecology

3 Credits

Spatial and temporal aspects of urban structure; urban growth, neighborhoods, racial and ethnic groups, mental illness; cross-cultural perspectives.

Enforced Prerequisite at Enrollment: 3 credits in SOC

Bachelor of Arts: Social and Behavioral Sciences

SOC 409: Racial and Ethnic Inequality in America

3 Credits

The impact of inequality and discrimination on individual and group identity among various racial and ethnic groups. SOC 409 / AFAM 409 Racial and Ethnic Inequality in America (3) (US) (BA) This course meets the Bachelor of Arts degree requirements. This course explores the impact of inequality and discrimination on individual and group identity for a wide range of social groups with special focus on racial and ethnic majorities and minorities. Using an extensive list of readings, writing assignments, small group activities, and journals (for personal reflection and scholarly critique) the students join the instructor in exploring the effects of inequality and discrimination. While emphasis is given to the inequality and discrimination experienced by local and national populations, a significant portion of the class will address issues rooted in international structures and institutions. Students are evaluated on quizzes, reaction papers, and analysis journals. AFAM 409 / SOC 409 is not a required course in Sociology; it is, however, an optional 400-level course for all majors and minors that fulfills one of their upper-level course requirements. AFAM 409 / SOC 409 is not required for the major or minor, but it is one of several optional courses from which they can choose to fulfill major and minor requirements.

Enforced Prerequisite at Enrollment: 3 credits in SOC

Cross-listed with: AFAM 409

Bachelor of Arts: Social and Behavioral Sciences

United States Cultures (US)

SOC 410: The Global Impact of Education

3 Credits

This course examines the global impact of education on human rights, health, economic development, political mobilization, religion, and environmental sustainability. The education revolution has significantly changed the world's population from one largely unschooled to one mostly schooled in just the last 150 years, yet the full impact of this major transformation is only now emerging through social science research. The course will explore, at both the individual and societal levels, how education changes many dimensions of global society in both positive and negative ways. It also focuses on the use and misuse of educational programs in social and economic development worldwide through Non-Government Organizations (NGO's), national governments, and multinational agencies.

Enforced Prerequisite at Enrollment: 5th semester standing

Cross-listed with: CIED 410, EDTHP 410, GLIS 410

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Soc Resp and Ethic Reason

SOC 411: Racial and Ethnic Diversity and the American Family

3 Credits

This course will explore the nature and determinants of racial and ethnic variation in family processes in the United States. HD FS 416 (SOC 411) Racial and Ethnic Diversity and the American Family (3) During the last several decades, the racial and ethnic composition of the U.S. population has changed dramatically. At end of the 20th century, non-Hispanic whites accounted for less than 75 percent of the U.S. population. While blacks remained the largest minority group, there were nearly as many Hispanics as blacks, and the number of Asians was increasing. Population projections indicate that by the middle of the 21st century, Hispanics will make up nearly one-fourth of the U.S. population. Blacks, Asians, and American Indians together will comprise an additional fourth of the population. The last several decades have also brought significant changes in family life in the United States, including declining rates of marriage, a rising age-at-marriage, an increase in cohabitation, and a dramatic rise in the proportion of births outside of marriage. While these trends in family life have been experienced by all racial and ethnic groups, there is substantial variation in family patterns by race and ethnicity. The course will build on other courses in social inequality and the family. The course does not overlap with any existing courses in the Department of Sociology or with courses offered in other relevant departments. This course will explore the nature and determinants of racial and ethnic variation in family processes in the United States. The student will read articles from major sociological journals and learn to extract major points and issues. He/she will learn to synthesize and critique various arguments on major issues in the field. The student will acquire skills in summarizing and evaluating arguments in essay form. He/she will also develop oral presentation skills. Final grades for the course will be based on class participation, a brief (approximately 5 pages) paper, a group presentation, a midterm examination (essay format) and a final examination (essay format). The course is not required for the Sociology minor or major. However, the course can count as one of the 400-level elective courses in Sociology for the Sociology minor, B.A. or B.S.

Enforced Prerequisite at Enrollment: 3 credits in SOC

Cross-listed with: HDFS 416

United States Cultures (US)

SOC 412: Crime, Social Control, and the Legal System

3 Credits

Legal and extralegal control; public opinion on crime; criminal justice and correctional processes; legal sanctions; control strategies. Field trip.

Enforced Prerequisite at Enrollment: SOC 12 or SOC 13 or SOC 5

Cross-Listed

Bachelor of Arts: Social and Behavioral Sciences

SOC 413: Advanced Criminological Theory

3 Credits

This course provides an in-depth look at theories of crime and examines influential empirical studies designed to these theories. CRIMJ 413/CRIMJ (CRIM/SOC) 413 Advanced Criminological Theory (3)Advanced criminological theory is intended to extend and deepen students' knowledge of core ideas in criminology. The course has four main emphases: 1) learning major schools of thought in criminology, 2) learning about the uses and construction of theory, 3) learning about approaches to integrating criminological theories, and 4) exploring how criminological concerns are grounded in and interrelated with core issues in sociology. The course is offered once a year with 50 seats per offering. CRIMJ/CRIM/SOC 012 is a prerequisite. Students will be evaluated on research or analytical papers, written assignments on course readings, and/or in-class essay-style exams. This course may be counted toward the credits required for the B.A. and B.S. in Crime, Law, and Justice. It would fulfill one of the 400-level requirements in the major. The course may also be counted toward credits required for the B.A. and B.S. in Sociology for students with a Deviance and Criminology specialization.

Enforced Prerequisite at Enrollment: (SOC 12 or CRIM 12) and CRIMJ 250W

Cross-listed with: CRIM 413, CRIMJ 413

SOC 414: Criminal Careers and the Organization of Crime

3 Credits

Research on and theory of criminal careers and crime organizations, emphasizing recruitment and disengagement; offender characteristics and lifestyles; policy implications.

Enforced Prerequisite at Enrollment: CRIMJ 12 or CRIMJ 13 or SOC 5

Cross-listed with: CRIMJ 414

Bachelor of Arts: Social and Behavioral Sciences

SOC 416: Sociology of Education

3 Credits

The theoretical, conceptual, and descriptive contributions of sociology to education.

Cross-listed with: EDTHP 416

Bachelor of Arts: Social and Behavioral Sciences

United States Cultures (US)

SOC 419: Race and Public Policy

3 Credits

Seminar format course in which sociological theory and research are applied to current race policy issues. The course examines a number of different aspects of race relations and public policy, including the social and biological constructs of race, historical race policy, modern race policy, affirmative action, criminal justice and other issues regarding race.

Enforced Prerequisite at Enrollment: 3 credits in SOC

Cross-listed with: PUBPL 419

Bachelor of Arts: Social and Behavioral Sciences

United States Cultures (US)

SOC 422: World Population Diversity

3 Credits

Survey of world diversity in national population growth/composition; the impacts of demographic change on the economic/social life of nations/people.

Enforced Prerequisite at Enrollment: 3 credits in SOC

Bachelor of Arts: Social and Behavioral Sciences

SOC 423: Social Demography

3 Credits

Social demographic perspectives on fertility, mortality, morbidity, migration, population density, demographic transitions, social mobility, family, the aged, and minorities.

Enforced Prerequisite at Enrollment: SOC 23 or SOC 422

Bachelor of Arts: Social and Behavioral Sciences

SOC 424: Social Change

3 Credits

Critical review of classical and recent theories of social change, emphasizing the transformations occurring in the modern world.

Enforced Prerequisite at Enrollment: 3 credits in SOC

Bachelor of Arts: Social and Behavioral Sciences

SOC 425: Social Conflict

3 Credits

An analysis of the variables affecting intergroup and international conflict and cooperation.

Enforced Prerequisite at Enrollment: 3 credits in SOC

SOC 428: Homelessness in America

3 Credits

Survey of social science research on homelessness in the contemporary United States.

Enforced Prerequisite at Enrollment: 3 credits in SOC

Bachelor of Arts: Social and Behavioral Sciences

SOC 429: Social Stratification

3 Credits

Structure and dynamics of class, caste, and status systems; class differentials and social mobility; current theoretical and methodological issues.

Enforced Prerequisite at Enrollment: 3 credits in SOC Bachelor of Arts: Social and Behavioral Sciences

SOC 430: Family in Cross-Cultural Perspective

3 Credits

Sociological analysis of family systems in various cultures and subcultures.

Enforced Prerequisite at Enrollment: 3 credits in SOC Bachelor of Arts: Social and Behavioral Sciences

SOC 431: Family Disorganization: Stress Points in the Contemporary Family

3 Credits

Focuses on divorce, remarriage, incest, family violence as well as problems associated with family formation and parent-child relations.

Enforced Prerequisite at Enrollment: 6 credits in HDFS or 6 credits in PSYCH or 6 credits in SOC or (3 credits in HDFS and 3 credits in PSYCH) or (3 credits in HDFS and 3 credits in SOC) or (3 credits in PSYCH and 3 credits in SOC)

Cross-listed with: HDFS 431

Bachelor of Arts: Social and Behavioral Sciences

SOC 432: Social Movements

3 Credits

Why and how people mobilize to promote or retard social change. Factors predicting success or failure of social movements.

Enforced Prerequisite at Enrollment: 3 credits in SOC Bachelor of Arts: Social and Behavioral Sciences

SOC 435: Perspectives on Aging

3 Credits

An analysis of the demographic, social, and cultural factors affecting the aged population in American society.

Enforced Prerequisite at Enrollment: 3 credits in SOC Cross-listed with: HDFS 434 Bachelor of Arts: Social and Behavioral Sciences

SOC 440: Family Policy

3 Credits

An in-depth examination of family policy. HD FS (SOC) 440 Family Policy (3)(BA) This course meets the Bachelor of Arts degree requirements. This course is designed to provide an in-depth examination of family policy. Students will identify and critically analyze major issues, controversies, and policies that affect families. Attention will be devoted to recognizing both intended and unintended consequences of family policies and understanding policy challenges and trade-offs. Students

will gain an understanding of how policies are shaped by both facts and myths, as well as our values. Students will examine historical and current trends in family patterns (e.g., divorce, women's labor force participation, nonmarital births) to understand the implications they hold for individuals, families and society. Students will gain an awareness of the social, economic, historical, legal, and political contexts within which family policies exist and are proposed. Although the main focus is on U.S. family policy, some time will be devoted to learning about family policies in other countries. We will learn about several specific family policies in-depth (e.g., welfare), but a final goal is to help students develop a general way of looking at family policy that they can then use to understand any issue of family policy that unfolds throughout their lifetime. This course will foster thoughtful reflection and critical thinking, writing skills, research skills, and skills of synthesis, logic, and argument. Course goals will be accomplished through course readings, writing assignments, lectures, class discussions, debates and group projects. Mastery of course material and student evaluation are assessed in several ways. Students will take a midterm and final exam that cover lectures, class discussions, and assigned readings. Two papers are also required. The first paper is based on an analysis of newspaper articles dealing with family policy issues that students will collect and relate to course materials. The second paper is a literature-based analysis of a family policy in a society outside the United States. Class participation is also essential and its evaluation will be based on a combination of class attendance, contributions to class discussions, participation in group debates and projects, and an oral presentation of the final paper on a non-U.S. family policy.

Enforced Prerequisite at Enrollment: 3 credits of SOC or HDFS Cross-listed with: HDFS 440 Bachelor of Arts: Social and Behavioral Sciences

SOC 445: U.S. Immigration

3 Credits

This class examines theories of U.S. immigration and immigrant adaptation, effects of immigration, and policy. SOC 445 U.S. Immigration (3) The United States has long been known as a nation of immigrants. People have come for all sorts of reasons, including economic opportunity, political asylum, and religious freedom. Immigration continues to be a fundamental source of demographic and social change today. However, the nature of the changes brought about by immigration will depend on the pathways immigrants and their descendants take as they incorporate into American society. This course is designed to introduce students to theories of immigration, patterns of immigrant incorporation, immigration's impact on the U.S., and political debates about immigration issues. Topic to be discussed include: -Why do immigrants come to the U.S.? -In what kinds of communities do immigrants live? -What is the economic impact of immigration on U.S. society? -What is the social impact of immigration? -Are new immigrants assimilating? -What are the problems with current immigration policies and what are the alternative approaches to reform?

Enforced Prerequisite at Enrollment: 3 credits in SOC

SOC 446: Political Sociology

3 Credits

Sociological analysis of types of political organization and their relations with other elements of social life.

Enforced Prerequisite at Enrollment: 3 credits in SOC

Bachelor of Arts: Social and Behavioral Sciences

SOC 447: Ethnic Minorities and Schools in the United States

3 Credits

Analysis of the social and cultural factors which affect educational outcomes among minority pupils, especially Blacks, Hispanics, and Indians.

Cross-listed with: EDTHP 447
United States Cultures (US)

SOC 450: Justice and the Environment

3 Credits

Considers notions of justice in relation to environmental philosophy, environmental movements, and general environmental concerns.

Prerequisite: 90 credits, graduate status, or permission of the program

SOC 451: Health, Disease & Society

3 Credits

This course provides an introduction to the concepts, measurement and study of inequality across spatial scales and in diverse contexts. SOC 451 Health, Disease & Society (3) (GS) Health is not simply a matter of biology, but involves a number of factors that are social, cultural, political, geographic, and economic in nature. This course will focus on the critical role social factors play in determining or influencing the health of individuals, groups, and the larger society. The emphasis in the course is on the social patterning of health and disease with focusing on variation by age, gender, race/ethnicity, disability status, socioeconomic status (income, education, occupation) and neighborhood/community. There will be selected coverage of the "sociology of medicine" with some discussion of medical power and knowledge, the organizational structure of health care, and the experience of illness and such issues such as stigma.

Enforced Prerequisite at Enrollment: 3 credits in SOC
General Education: Social and Behavioral Scien (GS)

SOC 452: Spatial Inequality

3 Credits

This course provides an introduction to concepts, measurement and study of spatial inequality in the US and across the globe. SOC 452 Spatial Inequality (3) This is a lecture and lab-based course that provides an introduction to the concepts, measurement and study of inequality across spatial scales from international and national through to sub-national and local scales, and to study spatial inequality in diverse contexts (urban and rural; historical and contemporary). This will cover diverse substantive topics such as racial segregation, housing and labor markets, exposure to risks (e.g., pollution, crime, NIMBY facilities) and access to resources (e.g., supermarkets, schools, and health care). The lab component introduces undergraduates to geographic information system software and basic spatial analysis. The lecture component of the course has four main sections. In Section 1 the focus is on fundamental questions such as: Why inequality? How to measure inequality? What are the key dimensions of inequality? This section will be wrapped up by an overview of the causes and consequences of inequality. In Section 2 the focus is on inequality between nations and inequality

within nations (i.e., non-US). Section 3 will focus on the United States and specifically examining different levels or "territories" of inequality; neighborhood-level to state-level differences. This section focuses on urban spatial inequality and issues such as spatial segregation, access to services and exposure to risks. Section 3 concludes with discussions of rural inequalities focusing on access to health services. Section 4 focuses on 21st century challenges regarding rapid urbanization in the developing world and revisits themes related to "Global" inequality. The lab components of the course will parallel lectures and provide opportunities for practical learning. Specifically the labs are designed to expose students in sociology and across the social sciences to the use of geospatial data, geographic information systems and basic spatial analysis tools providing them with skills that help them to accurately summarize and report data on spatial inequalities. Students will learn how to find, critique, and use data appropriately to measure and map inequality. They will be introduced to spatial analytical concepts and learn how to assemble geospatial databases. They will learn skills associated with basic exploratory spatial data analysis and understand concepts such as scale, spatial heterogeneity, and spatial dependence.

Enforced Prerequisite at Enrollment: 3 credits in SOC

SOC 454: The City in Postindustrial Society

3 Credits

Postindustrial social organization in the United States and Europe; consequences for metropolitan social stratification, community power, and environmental quality.

Enforced Prerequisite at Enrollment: 3 credits in SOC
Bachelor of Arts: Social and Behavioral Sciences
United States Cultures (US)

SOC 455: Work and Occupations

3 Credits

Work and occupational life in modern society; work in the past, present, and future.

Enforced Prerequisite at Enrollment: 3 credits in SOC
Bachelor of Arts: Social and Behavioral Sciences

SOC 456: Gender, Occupations, and Professions

3 Credits

The role of gender in shaping contemporary North American patterns of employment, occupational roles, and statuses.

Enforced Prerequisite at Enrollment: 3 credits in SOC
Cross-listed with: WMNST 456
Bachelor of Arts: Social and Behavioral Sciences

SOC 457: Jewish Communities: Identity, Survival, and Transformation in Unexpected Places

3 Credits

Examines the global array of smaller Jewish communities that have flourished outside the main urban centers of Jewish settlement. JST 457 / ANTH 457 / SOC 457 Jewish Communities: Identity, Survival, and Transformation in Unexpected Places (3) (US;IL) This course addresses an understudied aspect of Jewish experience. It aims to expand our understanding of Jewish communities by focusing on those

that are, alternatively, small, situated in out-of-the-way places, culturally outside the Jewish urban mainstream, or embedded in a larger society with markedly different values and traditions. These communities often constitute the points-of-contact between Jews and non-Jews, and in so doing sometimes transform Jews, non-Jews, and the relationships among them. Other such communities constitute experiments in Jewish lifeways and provide mainstream Jews with pilot projects for potential social and cultural change. This course will explore the significance of small, little-known, idiosyncratic, and anomalous Jewish communities on Jewish history and culture, and draw on them to instruct students on the social and cultural processes of small or unusual communities generally. The communities studied will be located both in the U.S. and elsewhere in which Jews have lived as a minority community during modern times. The course will look at the founding, growth, and decline of such communities and at their social processes and institutions. It will explore how to understand and analyze such communities, which vary from one part of the world to another. The social world of Jewish communities, large and small, is a core interest of Penn State's Jewish Studies Program. This course will complement the current offerings in Jewish Studies, strengthening the social, cultural, and contemporary perspectives available in the Program. It will provide students with an opportunity to explore individual experience and micro-level processes among Jews, and to study the dynamics of identity and survival. It will complement the current offerings in Sociology and Anthropology by affording an opportunity to focus on community-level social processes and by adding a course on contemporary Jewry. The course will integrate knowledge from a variety of sources and fields, promote intercultural understanding, and meet US and IL requirements. Materials will be interdisciplinary, and will include ethnographies, sociological studies, population studies, histories, and personal narratives. They will include primary texts, creative works, and scholarly analyses. The assignments will be structured to facilitate preliminary experience in independent analysis, library research, or field research. The course will be offered approximately once a year. Enrollment will be limited to 30 students in order to promote active, engaged learning. Evaluations will be based on short papers and outlines that will prepare students for their final, term papers.

Enforced Prerequisite at Enrollment: Three credits in JST or ANTH or SOC
Cross-listed with: ANTH 457, JST 457
International Cultures (IL)
United States Cultures (US)

SOC 459: Communities and Crime

3 Credits

In this course you will learn about how crime levels vary across different types of neighborhoods and about the role of different socioeconomic, demographic, spatial, and informal social control aspects of neighborhoods in promoting or buffering crime. We will address the patterns, concepts, theories, methods, and policies related to communities and crime. We will critically assess theory and research on the effects of neighborhood structure and social organization on crime, focusing in particular on the classic and contemporary thinking on poverty, social disorganization, disorder, collective efficacy, institutional trust, cultural heterogeneity, segregation, immigration and how they affect criminal behavior and victimization. Through readings, class discussions, and activities, writing projects, and presentations, you will be given the opportunity to reflect on what you are learning and to apply the theoretical concepts to real-life examples and to new contexts in and out of the class.

Enforced Prerequisite at Enrollment: SOC 12 or CRIM 12

Cross-listed with: CRIM 459

SOC 461: Sociology of Religion

3 Credits

Contemporary religion in the global perspectives: beliefs, structure, and function of major religious traditions, denominations, and cults.

Enforced Prerequisite at Enrollment: 3 credits of SOC or RLST

Cross-listed with: RLST 461

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

United States Cultures (US)

SOC 466: Solving Community Problems

3 Credits

Explains how communities solve local problems by partnering with researchers, practitioners, and policy makers. Demonstrates how such partnerships help communities tackle complex problems by clarifying their causes, identifying solutions, leveraging resources, and mobilizing stakeholders to act. Examines community-engaged research projects - such as collaborative efforts to revitalize neighborhoods, reduce crime & violence, empower youth, house the homeless, improve health, and promote sustainability - that address local manifestations of broader societal problems. Students will collaborate with community partners to design, implement, and evaluate problem-solving projects. Provides students with skills and knowledge needed to collaborate productively in community-engaged problem-solving initiatives.

Enforced Prerequisite at Enrollment: SOC 207 or CRIM 250W

Recommended Preparation: 5th Semester standing

Cross-listed with: CRIM 466

SOC 467: Law and Society

3 Credits

Law and society studies the social origins of law and legal systems; occupational careers, and decision-making of legal officials. SOC (CRIMJ/CRIM) 467 Law and Society (3) (BA) This course meets the Bachelor of Arts degree requirements. Law and society teaches students' knowledge of key concepts and core ideas about the role of law in society. The course will cover the basics of key legal philosophies, major social science theories of law and society, research in law and society, the structure of the legal profession, and vital contemporary issues involving the role of law in society. CRIM/CRIMJ 113 and CRIM/CRIMJ 250W are prerequisites. The evaluations methods will include written assignments on course readings, and essay-style exams. Law and Society may be counted toward the credits required for the B.A. and B.S. in Crime, Law and Justice. It would fulfill one of the 400-level requirements in the 'Law' component of the major. The course may also be counted toward credits required for the B.A. and B.S. in Sociology for students with the Deviance and Criminology specialization.

Enforced Prerequisite at Enrollment: CRIM 12 or CRIMJ 12 or CRIMJ 100 or permission of program

Cross-listed with: CRIM 467, CRIMJ 467

Bachelor of Arts: Social and Behavioral Sciences

SOC 468: Mood-Altering Substances in Society

3 Credits

Perspectives of cultures throughout the world toward mood-altering substances are reviewed in light of public policy, benefits, and problems.

SOC 469: Advanced Theory and Practice in Small Group Facilitation

3-4 Credits/Maximum of 12

This course will build on your knowledge of the foundational facilitator mindsets and communication practices that you developed in SOC 369. You will refine your ability to re-balance the sociological forces that shape human interaction on the interpersonal, societal, and global levels. You will learn to use all of the facilitator communication practices with intuition and nuance in a variety of conversational contexts. The fundamental difference between the foundational facilitation course and facilitation on the advanced level is that SOC 469 will prepare you to make choices about how to apply the dialogue methodology in contexts in which the topics are not explicit and thus, the stakes of the conversations are less immediately apparent (though still present). The structure of this course is parallel to SOC 369: you will complete an imbedded practicum during which you will lead small group dialogues with a focus on both U.S. and international cultural and social issues. At the advanced level, dialogues will not start with a singular focus but will instead begin with an exploration of the "sociological addresses" of the "participants." You will develop the ability to ask questions that seamlessly access information while also catalyzing a conversation. You will then work with the sociological themes that are revealed in the conversation, identifying relevant questions that will invite group members to examine society. This course meets for four hours per week, in addition to which you will also co-facilitate at least three 90-minute dialogues weekly. The participants of these dialogues will be other Penn State students who register for World in Conversation dialogues. You will be provided with live coaching and direct feedback to support your development throughout the semester.

Enforced Prerequisite at Enrollment: SOC 369

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

United States Cultures (US)

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

SOC 470: Intermediate Social Statistics

4 Credits

Introduces basic methodological concepts and statistical tools commonly used for conducting sociological research. Students will gain experience using research methods and statistics to answer research questions by going through a scientific research process that includes hypothesis testing; graphically and numerically describing distributions; statistical inference, and practical data analysis techniques like bivariate linear regression; analysis of variance; and multiple linear regression. Encourages students to be informed consumers of quantitative research who understand how statistics are computed and interpreted, and how they can be used to address key social science questions. Students will also gain basic familiarity with a statistical software package.

Enforced Prerequisite at Enrollment: SOC 207

Bachelor of Arts: Social and Behavioral Sciences

SOC 471: Qualitative Research Methods in Sociology

3 Credits

Theory, methods, and practice of qualitative data collection, including observation, participant observation, interviewing; supervised projects in natural settings.

Enforced Prerequisite at Enrollment: 3 credits in SOC

Bachelor of Arts: Social and Behavioral Sciences

SOC 472: Work-Life Practices and Policies

3 Credits

Explore the causes and consequences of conflicts between work, family, and other life commitments, and how these may be resolved. LER 472 Work-Life Practices and Policies (3)(BA) This course meets the Bachelor of Arts degree requirements. The interdisciplinary field of work-family and work-life developed as a result of middle-class women's entry into the labor force, a movement that generated conflict between family and paid work commitments. Overall, the course addresses the reasons the field developed, relevant theoretical perspectives regarding the issues, and related problems as well as proposed solutions at both the public and private sector levels. The overarching objectives of the course are to expand students' understanding of conflicts between work and family commitments, and how these might be resolved through private and public sector initiatives. Specifically, the course concerns how individuals, families, and organizations interact to help hinder the achievement of balance between work and life commitments, and relevant effects on those involved. The changing demographics of the family, laws and trends around working time, father and mother time with children, the expanded need for elder care, work-life programs such as flextime, concierge services, paid parental leave, part-time careers, paid time-off banks, and the role of unions, corporations and government legislation are covered. The course attempts to link the likely future needs of students to broader trends in society and how balance could be achieved at the level of individuals, families, other stakeholders in the community, and for society as well. Fields of research relevant to the course include labor studies, women's studies, Industrial/Organizational psychology, the sociology of work and of family, and child development. Students will be evaluated on the basis of class participation, through two in-class examinations, and through a final written or oral project providing a chronology and analysis of an adult's work-family history.

Enforced Prerequisite at Enrollment: 3 credits in LER or LHR

Cross-listed with: LHR 472, WMNST 472

Bachelor of Arts: Social and Behavioral Sciences

SOC 477: Sociology of Sexuality

3 Credits

An analysis of the demographic, social, and cultural factors affecting the developments and experience of sexuality in contemporary society.

Enforced Prerequisite at Enrollment: 3 credits in SOC

Cross-listed with: WMNST 477

SOC 478: Men and Masculinities

3 Credits

This course is designed to discuss and analyze masculinity in contemporary societies. The focus in this course will be in examining the way masculinity is constructed and the different ways that boys and men (and girls and women) learn to experience it. Various areas of social structure and social interaction will be explored such as historical origins of masculinities, theoretical constructions of masculinity, media, work, subcultures, violence/mass shootings, and sexualities. Students will develop critical thinking skills as sociologists, and as members of society. Additionally, students will be encouraged to think about the way their gender has been shaped and shapes their own lives.

Enforced Prerequisite at Enrollment: 3 credits in SOC Recommended Preparation: 5th Semester standing

SOC 481H: Senior Honors Seminar in Sociology

1 Credits

Supervised experience in planning and writing the honors thesis.

Enforced Prerequisite at Enrollment: Sociology major, senior standing, and admission to the Schreyer Honors College Honors

SOC 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Social and Behavioral Sciences

SOC 494H: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Social and Behavioral Sciences Honors

SOC 495: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: Prior approval of proposed assignment by instructor
Bachelor of Arts: Social and Behavioral Sciences

SOC 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Bachelor of Arts: Social and Behavioral Sciences

SOC 496H: Independent Studies

3 Credits

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Bachelor of Arts: Social and Behavioral Sciences Honors

SOC 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Social and Behavioral Sciences

SOC 499: Foreign Study--Sociology

2-6 Credits/Maximum of 6

Study, in selected foreign countries, of groups, institutions, and social problems.

Enforced Prerequisite at Enrollment: 3 credits in SOC
Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)

Software Engineering (SWENG)

SWENG 311: Object-Oriented Software Design and Construction

3 Credits

Design, documentation, testing, and construction of software using software engineering strategies embodied in object-oriented programming languages. SWENG 311 Object-Oriented Software Design and Construction (3) Object-oriented design and programming embody powerful design strategies that are based on practical and proven software engineering techniques. In this class, students will learn how existing object-oriented languages support these strategies, how to apply these strategies to moderately-sized systems, and how to use a visual object-oriented modeling tool such as the Unified Modeling Language (UML). Students will build on programming skills acquired in prerequisite programming courses by programming in a major object-oriented programming language.

Enforced Prerequisite at Enrollment: CMPSC 122

SWENG 395: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: Prior approval of proposed assignment by instructor

SWENG 396: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

SWENG 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

SWENG 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

SWENG 400: Introduction to Software Engineering Studio

3 Credits

Provides an introduction to the principles of software engineering and includes complementary instruction in one programming language.

Enforced Prerequisite at Enrollment: Senior standing or above

SWENG 411: Software Engineering

3 Credits

Software engineering principles including life cycle, dependability, process modeling, project management, requires specification, design analysis, implementation, testing, and maintenance. SWENG 411 Software Engineering (3) This is an introductory course in software engineering, addressing the software development process, including aspects such as software requirements documentation, design specification, implementation, system integration, testing, and maintenance by individuals and teams. Topics include software process modeling, requirements elicitation and documentation, software architecture design and analysis, detailed design and programming, graphical user interface (GUI's) design and prototyping, software quality assessment, software testing, software maintenance and evolution management, personal and team-based development. In lab students gain practical experience by completing programming assignments and utilizing computer-aided software engineering (CASE) tools for their personal projects tailored to each stage of the software life cycle. A semester long team-based project is required that reinforces teamwork fundamentals and the concepts covered in lecture. The projects and assignments provide an opportunity for student teamwork, document writing, and oral presentations.

Enforced Prerequisite at Enrollment: CMPSC 122 and Concurrent: SWENG 311

SWENG 421: Software Architecture

3 Credits

The analysis and design of software systems using canonical design patterns. SWENG 421 Software Architecture (3) This course introduces the frequently-used software infrastructures in software development by experienced engineers. The formal UML notations are utilized to design software architecture and help communicate the design visually. Students will learn the real practice of architectural styles, design patterns and design reuse. As to certain complex problems, alternative architectures will be proposed and their design trade offs will be evaluated. For instance, students compare two-tier with three-tier client/server architectures for distributed systems, and employ multi-

process and multi-thread concurrent architectures for high performance computation systems. Moreover, students learn to conduct high level quality analysis from the design artifacts. The quality evaluation will focus on a number of attributes, including reusability, extensibility and performance. A great deal of effort is placed on the major categories of design types containing dozens of separate design patterns. Students first review the most fundamental design patterns. Afterwards, they apply creational patterns to effectively create objects, partitioning patterns to categorize objects, structural patterns to allocate objects, behavioral patterns to interface the communication between objects, and concurrent patterns to handle tasks simultaneously. These skills will enable students to extend their own knowledge after graduation by giving them the skills to learn new patterns on their own. Finally, students will integrate their programs with native code applications to enlarge the application domains. To achieve best reusability, they also learn modular designs to develop component-based software. These help them meet today's software needs of cross applications and architectures.

Enforced Prerequisite at Enrollment: SWENG 411

SWENG 431: Software Verification, Validation, and Testing

3 Credits

Introduction to methods of software verification, validation, and testing; mathematical foundations of testing, reliability models; statistical testing. SWENG 431 Software Verification, Validation, and Testing (3) Provides a background necessary for verification, validation, and testing of software systems. Verification addresses the question: 'are we building the product right?' In other words, does the product meet the engineering specifications? Validation addresses whether the right product is being built and if it meets the design requirements. The testing aspect of the course addresses many of the methods available to test software systems. The levels of testing explored are 1) unit level (each module is tested independently), 2) integration testing (where the modules are integrated together and tested as a complete system), and 3) acceptance testing (the testing requirements of the users). Following this, specific test methodologies are addressed. By the end of this course the student should also be able to develop an appropriate test plan.

Enforced Prerequisite at Enrollment: SWENG 411 and (STAT 301 or STAT 318)

SWENG 452W: Embedded Real Time Systems

3 Credits

The design and implementation of real time systems. SWENG 452W Embedded Real Time Systems (3) Real time operating systems is the study of hardware/software systems in which timing constraints must be met for correctness. Real time systems are embedded in applications ranging from the antilock brakes in cars to the flight control systems for jetliners. Students are first introduced to the concept of systems with real time constraints by examining case studies. The unified modeling languages (UML) with real time extension is introduced allowing students to capture the constraints present in the systems in a variety of models allowing the problem to be described at several levels of abstraction. Tasks and messages are introduced as programming structures which can satisfy the constraints described by the UML models. With a basic understanding of real time systems and how to implement them, the focus of the course shifts away from these technical concerns towards understanding the documentation of the requirements using the Volere Requirements Specification template. All the writing assignments in the class will revolve around Volere in one way or another. Increasingly

complex case studies will give the class the opportunity to explore more sophisticated inter-task communications mechanisms as well as common pitfalls present in RTOS applications. Students will learn how to verify the correctness of their applications in order to guarantee that the real time constraints can be met when the system is deployed. Discussion will turn to application programmer interfaces used by hardware vendors to port hardware into a RTOS. The class will end by designing and building a complex RTOS by a team of students using the techniques learned in the class. The project will outline the needs of the RTOS application in a project proposal using the Volere template. The proposal will be developed iteratively with the faculty member until its scope and definition are clear. This proposal will be developed into a complete requirement specification including a time-line and identification of development benchmarks. This system resulting from the development will be documented in the final report write-up.

Enforced Prerequisite at Enrollment: CMPSC 472 or CMPSC 473 or CMPEN 441

Writing Across the Curriculum

SWENG 455: Engineering Quality and Security in Software

3 Credits

Software systems are becoming an integral part of our daily life. In many domains the failure of a software system is not acceptable. Such a failure will have catastrophic effects. Hence, the quality of such software systems becomes so crucial. This course introduces software quality, the associated quality factors, software errors and the software quality assurance system. As software systems advance in complexity so do the threats that they face. Hence, the security of these systems has become so essential. Traditionally, security has been thought of as an add-on to an existing system. In this course, students will understand that this is not sufficient. Students will learn to consider security throughout the development process by extending the traditional software development life cycle and UML. For the requirements phase, this course will teach students to collect secure requirements, perform security requirements planning, and perform vulnerability mapping. For the design phase, this course will teach students to design a secure software architecture and perform architectural risk analysis. For the implementation phase this course will introduce students to secure coding. For the testing phase, the course will introduce students to secure testing. Finally students will be introduced to secure deployment and secure maintenance. A semester long team-based project will be part of this course to practice the concepts covered in the class.

Enforced Prerequisite at Enrollment: SWENG 411

SWENG 465: Web Services

3 Credits

This course introduces the students to a contemporary computing paradigm called "service-oriented computing." SWENG 465 Web Services (3) This course focuses on a new computing paradigm called "service-oriented computing", which has been greatly impacting a wide array of software systems. It covers "service-oriented architecture." Students will not only gain an in-depth understanding of the concepts and technical issues underpinning Web services, but also gain hands-on experience of the development of software systems built upon Web services.

Enforced Prerequisite at Enrollment: SWENG 311 or CMPSC 221

SWENG 480: Software Engineering Design

3 Credits

Concepts of engineering ethics, economy, and project management, senior capstone project selection, and technical communication skills. SWENG 480 Software Engineering Design (3) This course prepares senior software engineering students for industrial engineering design and project management. It covers the engineering design process, project planning and evaluation, engineering ethics, and engineering economy. In addition, students select, specify, and start their capstone design project, which is completed, in the follow-up course, SWENG 481. Students are expected to carry out a group design project that is on par with industrial expectations. Upon completion of this course a student should have a solid understanding of the engineering design process, a clear capstone project description, should have completed some preliminary design work, and be adequately prepared to complete the project in SWENG 481.

Enforced Prerequisite at Enrollment: SWENG 431

SWENG 481: Software Engineering Project

3 Credits

Capstone group design projects in software engineering. SWENG 481 Software Design Projects (3) In this course students complete their group senior design project started in SWENG 480. Design groups meet regularly with a faculty advisor to report progress and resolve technical issues. Oral and written progress reports are expected at selected times. The class culminates with a final technical defense of the project.

Enforced Prerequisite at Enrollment: SWENG 480

SWENG 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

SWENG 495: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: Prior approval of proposed assignment by instructor

SWENG 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

SWENG 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

SWENG 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Soil Science (SOILS)

SOILS 71: Environmental Sustainability

3 Credits

This class provides an introduction to environmental sustainability for students with no background in environmental science or soils. The concept of sustainability provides a framework for understanding environmental problems by balancing the needs of current society with the long-term needs of future societies and the environment. Sustainability also provides a framework for linking international cultures because environmental problems and solutions often cross political and cultural boundaries. The goal of the course is to develop critical thinking skills related to sustainable environmental choices. As we explore the concept of sustainability, we will discover the role of soil in mediating human-environment interactions by determining natural plant and animal abundance, supporting agriculture, and buffering the environment against modern pollution. The four themes of the class are: 1) Environment, Sustainability and Natural Resources, which introduces students to the scientific method and value systems that affect environmental choices, to fundamental ecological principles and to basic concepts of soil science and environmental science, 2) Challenges to Sustainability, in which we consider some of the major challenges to global sustainability; climate change, loss of biodiversity and ecosystem services, human population growth and resource consumption and waste management, 3) Feeding the World and its Impact on the Environment in which we consider the Malthusian dilemma of how we can feed ~10 billion of people in the near future together with the conservation dilemma of how we can maintain a healthy environment, and 4) Sustainability Solutions, in which we consider what has been done to achieve environmental protection while sustainably increasing food production and students are challenged to develop their own sustainability solution to a current issue somewhere in the world. The class will include "soils cases" in which examples from environmental soil science are used to convey principles of sustainability, and "sustainability activities" to see examples of sustainable environmental choices on campus or in State College. Students will complete the class with: 1) a survey of the key issues in global environmental sustainability, 2) exposure to current scientific information related to these issues, 3) an enhanced ability to interpret environmental data, 4) an increased knowledge of the role of soils in maintaining environmental quality, 5) an increased understanding of how environmental problems and solutions are global phenomena, requiring cooperation among many international cultures, and 6) a significant depth of knowledge about "what it takes" to feed 10 billion people while maintaining a healthy environment.

General Education: Natural Sciences (GN)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

SOILS 101: Introductory Soil Science

3 Credits

This survey and foundational course introduces students to a broad range of subject matter from most sub-disciplines of soil science. We study a range of soil characteristics and seek to understand their relationship to soil function, land use, plant growth, environmental quality, and society/culture. This course introduces students to the variety and complexity of soils on a local, national, and international scale. We identify the physical, chemical, and biological properties and processes of soils and relate these to the way that societies use and abuse soils. Students acquire a working knowledge of the technical terminology of soil science and begin developing observational skills needed to describe and/or locate soil properties for specific locations and to interpret those properties for various uses. We learn to recognize and explain various land use and management practices and to select those that are appropriate at a given site. Students also evaluate the impact of land use and management decisions on agricultural productivity and sustainability, environmental and ecological health, and on community relationships. This course is required or on a list from which students select for many environmental and agricultural majors. It is specifically listed as a prerequisite for many other SOILS courses and for several soils-related courses taught at Penn State.

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

SOILS 102: Introductory Soil Science Laboratory

1 Credits

Laboratory exercise and field trips designed to develop student competency in soil description, analysis, and assessment. SOILS 102 Introductory Soil Science Laboratory (1) This laboratory course is designed for students who plan to work directly with soils, make land use and management decisions, or to be involved in projects requiring practical application of soil science principals. By conducting weekly laboratory and field exercises and writing reports on their work, students will deepen their understanding of, and learn to apply, the fundamental soil properties and processes introduced in SOILS 101. This laboratory course, in conjunction with the SOILS 101 lecture course, will provide foundational learning in soil science and prepare students for upper level soil science courses. This laboratory course is also designed to provide students with hands on experience in analytical procedures for soil assessment, testing, and interpretation, as well as field experience in observing, characterizing and describing soils.

Enforced Prerequisite at Enrollment: SOILS 101

SOILS 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

SOILS 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (1L)

SOILS 401: Soil Composition and Physical Properties

3 Credits

Advanced study of mineralogical and physical properties of soils which affect soil-plant-water relationships.

Enforced Prerequisite at Enrollment: SOILS 101

SOILS 402: Soil Nutrient Behavior and Management

3 Credits

Soil Nutrient Behavior and Management is a senior/graduate level course that covers the chemical and biological processes that determine the behavior of essential plant nutrients in soils. As this understanding of basic nutrient behavior is developed in the course, it is applied directly to explain the basis for management of nutrients for optimum plant availability. This same nutrient behavior is linked to the fate of nutrients either applied as sources of plant nutrition or through disposal of nutrient containing materials on soils, which is a major environmental issue. Management practices necessary to minimize environmental impacts from nutrients are also covered. From this background students will be able to understand nutrient behavior and management recommendations and adapt management to a variety of soil-plant systems and situations both for plant growth and environmental protection. Real world examples of developing and adapting management systems are used to illustrate this process. The laboratory exposes the student to common soil testing procedures, methods for studying soil nutrient-plant interactions, and examples of practical application of management practices in the field.

Enforced Prerequisite at Enrollment: CHEM 110 and SOILS 101

SOILS 403: Soil Morphology Practicum

2 Credits/Maximum of 4

Students develop field skills to describe soil morphology, classify soils, and make land use interpretations. SOILS 403 Soil Morphology Practicum (2 per semester/maximum of 4) SOILS 403 is an eight week course that provides students with the opportunity to: make detailed soil morphological descriptions and interpretations; evaluate soil properties and their suitability for different land uses; and observe various soils throughout the Northeastern U.S. SOILS 403 synthesizes techniques used to describe soil morphology and site characteristics, classify soils, and make land use interpretations. The field skills taught are highly applicable to those pursuing careers in fields of environmental studies, engineering, waste disposal, horticulture, landscape architecture, agricultural, forestry, consulting, and by those describing soils for research. Students also have the opportunity to try out for the Penn State Undergraduate Collegiate Soil Judging Team each fall.

Enforced Prerequisite at Enrollment: SOILS 101 or equivalent

SOILS 404: Urban Soils

3 Credits

This course introduces the student to natural and human-influenced soils. SOILS 404 Urban Soils (3) This course introduces the student to the management of soils in urban and suburban settings via comparisons in soil physical, chemical, and biological properties. The soil is also examined as the interface between the biotic and abiotic components of an urban site. Therefore, site management of soil during or following placement is examined in detail. Urban soil physical and chemical properties are discussed in terms of site stability. The interactions between stormwater management, erosion control, soil mechanics, and the soil's ability to support vegetation are examined in the context of sustaining urban environments. The soil design process is presented: site assessment, biophysical analysis, profile construction, specification formulations, and conformance testing and inspection protocols. Professional practical examples such as mine reclamation, brown field restoration, and landscape construction are presented to illustrate the process. The student completes a series of exercises to gain experience in soil examination, soil/land use interpretation, site assessment, soil erosion calculations and a group assignment that evaluates soil issues on a reclamation or construction project.

Enforced Prerequisite at Enrollment: SOILS 101

SOILS 405: Hydropedology

3 Credits

Soil and water interactions across scales, integrated studies of landscape- soil-water relationships, fundamental processes of water flow and chemical transport. SOILS (GEOSC) 405 Hydropedology (3) Hydropedology is the study of the fluxes, storages, pathways, residence times, and spatio-temporal organization of water in the root and deep vadose zones, and their relations to climate, ecosystem, land use, and contaminant fate. The aim is to characterize integrated physical, chemical, and biological processes of soil-water interactions across scales (including chemicals and energy transported by water flow). This course embraces interdisciplinary and multiscale studies of interactive pedological and hydrological processes in the earth's surface and subsurface environments. The course will address the fundamental issues and practical applications of hydropedology (as a sister discipline of hydrogeology). This course emphasizes in situ soils that have distinct characteristics of pedogenic features, structures, layers, and soil-landscape relationships in the real world. Students will gain an in-depth understanding of soil and water interactions across scales from point observations to watershed phenomena, and will gain skills in predicting flow pathways and water fluxes in the landscape. This course promotes active learning, critical thinking, and hands-on skills. Course format will consist of two lectures and one laboratory/field exercise each week. The course will utilize a network of local watersheds with different land uses for demonstrations and class projects. Grading will be based on weekly lab/field exercise (20%), class research project (40%), homework (10%), one midterm exams (15%), and one final exam (15%). Since hydropedology is linked to a wide array of environmental, ecological, geological, agricultural, and natural resource issues of societal importance, SOILS (GEOSC) 405 will support interdisciplinary training of students in Soil Science as well as in other disciplines of the College of Agricultural Sciences, especially Agricultural and Biological Engineering, Agronomy, and Forest Resources. Students in the College of Earth and Mineral Sciences, College of Engineering, Eberly College of Science, and the Intercollege Graduate Degree Program in Ecology also will find

this course useful when undertaking research on the vadose zone, the hydrologic cycle, and the earth system.

Enforced Prerequisite at Enrollment: SOILS 101

Cross-listed with: GEOSC 405

SOILS 412W: Soil Ecology

3 Credits

Introduction to soil organisms; includes interactions between organisms, their processes, and metabolism with a major focus on microorganisms.

Enforced Prerequisite at Enrollment: BIOL 11 or BIOL 127 or BIOL 110

Writing Across the Curriculum

SOILS 416: Soil Genesis, Classification, and Mapping

4 Credits

Lecture and laboratory course on the genesis of soils, their classification, mapping, and interpretation for land use. SOILS 416 Soil Genesis and Classification (3) The study of soil genesis, classification, and mapping examines the evolution of soils, their organization into natural units, and their distribution throughout the world. Physical, chemical, and morphological soil characteristics are studied both in the field and classroom and then used to classify soils. These classification units are in turn used to study the processes that influence soil development. Students acquire a detailed knowledge of the technical terminology of soil genesis and develop observational and analysis skills needed to describe and/or interpret soil morphologies in the context of the landscape a profile is found in. Students learn to recognize and explain soil genetic pathways due to current or past soil forming periods (as affected by climate change for example). Students also evaluate the effect of soil genesis on land use and management decisions, learn how to map soils at multiple scales, and deliver soil mapping information. The course is comprised of weekly lectures and a laboratory. Exercises in the field and laboratory are designed to further develop a student's ability to ascertain a natural soil's origin using the five soil forming factors. Field skills that will be refined over the course of the semester include profile description, site description, soil mapping, and measurement and characterization of soil physical and chemical properties. Upon completion of SOILS 416, students will demonstrate: 1) deep understanding of fundamental soil processes that result in the genesis of soils around the world; 2) familiarity with soil analytical and testing protocols for common laboratory and field measurements used in studying the genesis of soils; 3) skills for interpreting soil profiles from the soil orders of the world; 4) accurate prediction of soil genesis pathways for a given landform; 5) the ability to interpret soil profile physical and chemical data, classify a soil according to US Soil Taxonomy, map soils to an order 1 level, and be able to apply soil profile information as gathered from the US Soil Survey program to make land use interpretations.

Enforced Prerequisite at Enrollment: SOILS 101

SOILS 418: Nutrient Management in Agricultural Systems

3 Credits

AGECO 418 / ANSC 418 / SOILS 418 Nutrient Management in Agricultural Systems is a senior-level course that applies the fundamentals of animal, plant and soil sciences to the issues and solutions in the area where livestock production intersects with water and air quality. Modern regionalization and concentration of animal production systems comes

with environmental implications due to a net influx of nutrients to livestock farms. While some nutrients leave the farm in the form of animal products, 60 to 70% of the nutrients are excreted and applied to nearby crop land. If not properly managed these nutrients represent a risk to environmental quality. Students in this cross-listed course gain both scientific and practical understanding of sound nutrient management principals and strategies. The course considers big picture concepts such as nutrient cycling as well as farm-level implementations such as Nutrient Management Planning.

Enforced Prerequisite at Enrollment: (BIOL 11 and BIOL 12) or BIOL 110 or BIOL 127 or BISC 3

Cross-listed with: AGECO 418, ANSC 418

SOILS 419: Soil Environmental Chemistry

3 Credits

Introduction to chemical constituents and processes occurring in soils. Topics include mineral weathering, soil solution chemistry and adsorption of solutes. GEOSC 418/GEOSC 418 (SOILS 419) Soil Environmental Chemistry (3) Upon completion of the course, the students will be able to identify the soil components and properties responsible for the chemical reactivity of soils and will know the fundamental chemical processes that occur in soils. The students will also be able to link theoretical concepts to real life environmental problems. The students will be evaluated on examinations, homework, and class participation. GEOSC 418 (SOILS 419) is offered every Spring semester. Class limit: 25 students.

Enforced Prerequisite at Enrollment: CHEM 112 and SOILS 101

Cross-listed with: GEOSC 418

SOILS 420: Remediation of Contaminated Soils

3 Credits

Basic principles and technical aspects of remediation of contaminated soils. SOILS 420 Remediation of Contaminated Soils (3) Remediation of contaminated soils is an introduction to the basic principles and techniques of remediation. Upon completion of this course, students will be able to determine what type of remediation technology needs to be used in real-world conditions depending upon the chemical nature and extent of contamination and learn about protocols for soil sampling and leach testing. They will learn about regulatory background and many different types of wastes that will be encountered in contaminated soils. Students gain knowledge of various cationic and anionic species of metal contaminants and how best to fix these using chemical fixation and solidification technique, which is an established remediation technology. In addition, they will learn about other established technologies such as on-site and off-site incineration and innovative technologies such as bioremediation, phytoremediation, vacuum extraction, thermal desorption, soil washing, solvent extraction, ex-situ supercritical oxidation, in-situ vitrification etc. They will be able to determine which technology is cost-effective for a particular contaminated soil. Students are evaluated through written testing of their understanding of basic remediation concepts and an oral presentation about a novel remediation technology through literature search. Soils 420 has no laboratory component.

Enforced Prerequisite at Enrollment: SOILS 101

SOILS 422: Natural Resources Conservation and Community Sustainability

4 Credits/Maximum of 4

Conservation, land-use, and community (soil, water, air, plants, animals, and humans) impacting quality of life and sense of place. SOILS 422 provides the student with practical knowledge of community and natural resources conservation. The course covers symbiotic aspects of soil, water, air, plants, animals, and humans and their impact on the community. The course focuses on developing methods for the conservation and sustainable use of resources. This involves understanding the land ethic and developing a sense of place. Conservation awareness has grown in recent years. Originally, erosion control was the sole reason for conservation planning. Eventually water conservation also became a concern addressed by planning. We have now moved into an era of ecosystem-based planning, where soil health, water and air quality, sustainable communities, and much more are considered in conservation planning. This planning involves both natural and human resources. SOILS 422 covers understanding, designing, and developing best management practices (BMPs) for addressing resource conservation and maintaining sustainable farmland and communities. Calculating runoff and soil loss are researched and integrated into conservation planning as tools for establishing the need for BMPs. Resources and technologies are covered, such as soil surveys, geographic information systems (GIS), global positioning systems (GPS), and ground penetrating radar (GPR). Networking and partnerships are also covered to give the student a practical knowledge of the critical nature of teamwork. Additionally, workings and interactions between federal, state, and local organizations and agencies are explored. Land-use patterns, such as urban and suburban sprawl, mining, logging, and resource utilization are explored. Education is enhanced in the form of a community/sense of place project. This project utilizes classroom knowledge and incorporates student research into a practical plan for developing an appreciation and awareness for one's community. Throughout the course the various aspects of soil, water, air, plants, animals and humans are woven together to emphasize the importance of all decisions on the ecosystem. After completing SOILS 422, the student will be equipped to make valuable and educated decisions to positively affect the community. Hands-on aspects of the course include various field trips to experience field conservation and community stability. At the end of the course the student will be able to evaluate effects of human activities on the landscape; make sustainable landuse decisions; determine the need for, and design best management practices; and develop a sense of place and describe individual roles and responsibilities in the community.

Enforced Prerequisite at Enrollment: SOILS 101

SOILS 440: Chemistry of the Environment: Soil, Water, and Air

3 Credits

This course is designed for junior and senior undergraduates with some previous chemistry background. The course will advance students' understanding of chemical concepts and link them to applications in environmental chemistry. The course focuses on topics in environmental soil chemistry such as: soil mineralogy, mineral weathering, sorption and ion exchange, chelation and complex formation, soil pH and acidic/alkaline soils, oxidation/reduction, soil salinity, soil biochemistry, and the dissolution/precipitation of common metals and compounds. The solid phase is emphasized, but solid/solution equilibria, aquatic chemistry, metals in the aqueous environment, and aquatic

pollution will also be covered. The course also covers a detailed overview of stratospheric chemistry, tropospheric chemistry, and climate change.

Enforced Prerequisite at Enrollment: (CHEM 110 and CHEM 111 and CHEM 112) or CHEM 202 or CHEM 210

Cross-listed with: ERM 440

SOILS 450: Environmental Geographic Information Systems

3 Credits

Use of geographic information systems (GIS) and digital spatial databases to characterize landscapes for environmental assessment and management.

Enforced Prerequisite at Enrollment: SOILS 101

SOILS 489: Supervised Experience in College Teaching

1-3 Credits/Maximum of 3

Participate with instructors in teaching an undergraduate soil science course; assist with teaching and evaluation and with development of instructional materials.

Enforced Prerequisite at Enrollment: SOILS 101 and approval of instructor

SOILS 494: Undergrad Research

1-6 Credits/Maximum of 6

Supervised student activities on research projects identified on an individual or small group basis.

Enforced Prerequisite at Enrollment: permission of the SOILS program

SOILS 494H: Honors Thesis Research

1-6 Credits/Maximum of 6

Independent study directed by a faculty supervisor that culminates in the production of a SOILS honors thesis. The course involves research and other scholarly activities (such as writing) necessary for completion of an approved SOILS honors thesis.

Enforced Prerequisite at Enrollment: Enrollment in the Schreyer Honors College and permission of a SOILS honors adviser

SOILS 495: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: Prior approval of proposed assignment by instructor

Full-Time Equivalent Course

SOILS 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

SOILS 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in-depth, a comparatively narrow subject which may be topical or of special interest.

SOILS 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Spanish (SPAN)

SPAN 1: Elementary Spanish I

4 Credits

Audio-lingual approach to basic Spanish; writing. Students who have received high school credit for two or more years of Spanish may not schedule this course for credit, without the permission of the department.

Bachelor of Arts: World Language (All)

SPAN 2: Elementary Spanish II

4 Credits

Audio-lingual approach to basic Spanish continued; writing. Students who have received high school credit for four years of Spanish may not schedule this course for credit, without the permission of the department.

Prerequisite: SPAN 001

Bachelor of Arts: World Language (All)

SPAN 3: Intermediate Spanish

4 Credits

Audio-lingual review of structure; writing; reading.

Prerequisite: SPAN 002

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

SPAN 10: Intensive Spanish

6 Credits

Basic Spanish grammar, oral, aural, and writing skills (essentially equivalent to SPAN 001 and first half of SPAN 002).

Bachelor of Arts: World Language (All)

SPAN 20: Intensive Spanish

6 Credits

Basic and intermediate Spanish grammar, oral, aural, and writing skills (essentially equivalent to second half of SPAN 002 and all of SPAN 003).

Prerequisite: SPAN 010

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

SPAN 51: Elementary Intensive Spanish for Graduate Students I

3 Credits

Intensive introduction to Spanish: first half of graduate intensive sequence in elementary reading, writing, speaking, listening, cultural contexts. SPAN 051 Elementary Intensive Spanish for Graduate Students I (3) This is the first in a series of three courses designed to give students an intensive introduction to Spanish. This is the first half of elementary sequence in reading, writing, speaking, listening, and cultural contexts. Students will learn the Spanish vocabulary and will learn to create simple sentences. Lessons are taught in an authentic cultural context.

Prerequisite: graduate standing

SPAN 52: Elementary Intensive Spanish for Graduate Students II

3 Credits

Intensive introduction to Spanish: second half of graduate intensive sequence in elementary reading, writing, speaking, listening, cultural contexts. SPAN 052 Elementary Intensive Spanish for Graduate Students II (3) This is the second in a series of three courses designed to give students an intensive introduction to Spanish. This is the second half of graduate intensive sequence in elementary reading, writing, speaking, listening, and cultural contexts. Students will learn the Spanish vocabulary. Lessons are taught in an authentic cultural context.

Prerequisite: SPAN 051 or equivalent, and graduate standing

SPAN 53: Intermediate Intensive Spanish for Graduate Students

3 Credits

Continued intensive study of Spanish at the intermediate level: reading, writing, speaking, listening, cultural contexts. SPAN 053 Intermediate Intensive Spanish for Graduate Students (3) This is the third in a series of three courses designed to give students an intermediate intensive knowledge of Spanish. Continued intensive study of Spanish at the intermediate level: reading, writing, speaking, listening, and cultural contexts. Lessons are taught in an authentic cultural context.

Prerequisite: SPAN 052 or equivalent, and graduate standing

SPAN 83: First-Year Seminar in Hispanic Literatures and Cultures

3 Credits

Introduction to the study of Hispanic literatures and cultures. SPAN 083S First-Year Seminar in Hispanic Literatures and Cultures (3) (GH;FYS;IL) (BA) This course meets the Bachelor of Arts degree requirements. The first-year seminar in Spanish will introduce students to the study of Hispanic literatures and culture in their first semester at the University. Students will read (in English) significant literary texts, view art works (including films and videos), listen to music and explore the Hispanic world in general. These experiences will help prepare them for additional courses in literature and in Spanish, but will also serve as an introduction to things Hispanic, and as a point of comparison with U.S. culture. In addition to the academic topic and issues of this course, students can expect to gain a general introduction to the University as an academic community and have the opportunity to explore their responsibilities as members of that community. Students will develop an understanding of the learning tools and resources available to them including the opportunity to develop relationships with faculty and other students who share their academic interests. This course will introduce students to the study of Hispanic literatures and culture in their first semester

at the University. This experience will help prepare them for additional courses in literature and in Spanish. The course satisfies both the first-year seminar and a general education humanities or Bachelor of Arts humanities requirement.

Bachelor of Arts: Humanities
International Cultures (IL)
First-Year Seminar

SPAN 99: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Bachelor of Arts: Humanities
International Cultures (IL)

SPAN 100: Intermediate Grammar and Composition

3 Credits

An intermediate level grammar review that also incorporates directed and original composition exercises.

Prerequisite: SPAN 003 or SPAN 020
Bachelor of Arts: World Language (All)
Bachelor of Arts: World Lang (12th Unit)
Exceeds 12th Unit of World Language

SPAN 100A: Intermediate Grammar and Composition for Spanish Bilinguals

3 Credits

A review of grammar and practice with composition focusing on needs and problems specific to Spanish-speaking bilinguals.

Prerequisite: placement
Bachelor of Arts: Humanities

SPAN 100B: Intermediate Grammar and Composition for Students in Medical-Related Fields

3 Credits

Intermediate Grammar and Composition for Students in Medical-Related Fields. SPAN 100B Intermediate Grammar and Composition for Students in Medical-Related Fields (3) The main goals of the course are to help students develop their competence in using medical terminology in Spanish and to become familiar with the cultural aspects in the health care of Latinos/Hispanics in the United States. In addition, the course will review intermediate level Spanish-language grammar and will provide structure to improve students receptive (listening and reading) and productive (speaking and writing) skills needed for this specialized vocabulary. During the semester students will learn and practice health terminology in Spanish, and they will apply the specialized vocabulary through case scenarios, noticias (news) and readings. Participants will be exposed to Spanish from the first day and are expected to stay up-to date with the current health news as it relates to the Hispanic/Latino population of the United States. The course is intended for those who are beyond the basic level of Spanish (must have taken Span 003), but participants are not expected to be fluent speakers.

Prerequisite: SPAN 003 or SPAN 020

SPAN 100C: Intermediate Grammar and Composition for Students in Communication-related Fields

3 Credits

This course focused on grammar and the media environment replaces Spanish 100 for students going into Communication majors. SPAN 100C Intermediate Grammar and Composition for Students in Communication-related Fields (3) Intermediate Grammar and Composition for Students in Communication-related fields (Spanish in the Media) is an online content-based course for Spanish majors aimed to develop communication skills through a focus on mass media in Hispanic culture. This online course is a perfect match for double majors in Spanish and Media (Advertising/Public Relations, Media Studies, Journalism, etc). This course is restricted to students who are Communication majors or pre-majors. Completing this course achieves 15th credit level proficiency and replaces SPAN 100.

Prerequisite: SPAN 003 or SPAN 020

SPAN 100H: Intermediate Grammar and Composition

3 Credits

An intermediate level grammar review that also incorporates directed and original composition exercises.

Bachelor of Arts: World Language (All)
Bachelor of Arts: World Lang (12th Unit)
Honors
Exceeds 12th Unit of World Language

SPAN 105: Elementary Spanish I for Students in the Agricultural Sciences

4 Credits

The course covers basic Spanish, grammar, and oral, aural, and writing skills for students in the Agricultural Sciences. Students who have received high school credit for two or more years of Spanish may not schedule this course for credit without the permission of the instructor. This course does not count toward Spanish majors or the Spanish minor. SPAN 105 Elementary Spanish I for Students in the Agricultural Sciences (4)(BA) This course meets the Bachelor of Arts degree requirements. The class will focus on the development of basic language skills, socio-cultural awareness and discourse. The class periods will be used to develop: (1) the student's knowledge of Spanish as a linguistic code through mastery of a personalized vocabulary as well as common idiomatic language structures important to the student's ability to communicate with Spanish speakers employed in their area of agricultural interest; (2) the student's understanding of major grammatical concepts critical to effective communication in work management within the food, agriculture and natural resources industries; (3) the student's cultural awareness of the varied Spanish speaking cultures with which the student will come into contact in the workplace; and (4) the student's ability to be creative with their knowledge of the language as it relates to the development of self-confidence and effective communicative proficiency in Spanish. Frequent short quizzes and the collection and grading of are important components of the course as they are used to encourage the use of Spanish on a daily basis. Classroom activities will be designed to require students to use and develop their communication skills in Spanish to communicate efficiently and relate personally to Spanish speakers. Students will be evaluated based on homework, quizzes, exams, and class participation. Students who have received high school credit for

four years of Spanish may not schedule this course for credit, without the permission of the instructor. This course does not count toward Spanish majors or the Spanish minor.

Bachelor of Arts: Humanities

SPAN 106: Elementary Spanish II for Students in the Agricultural Sciences

4 Credits

Further development of basic Spanish skills and the cultural awareness needed to work with Spanish speakers in the agricultural industries. SPAN 106 Elementary Spanish II for Students in the Agricultural Sciences (4) The class will focus on further development of the elementary language skills, socio-cultural awareness and discourse introduced in SPAN 105. It will also build on the agricultural concepts introduced in Spanish 105. The class periods will be used to develop further: (1) the student's knowledge of Spanish as a linguistic code through further mastery of a personalized vocabulary as well as common idiomatic language structures important to the student's ability to communicate with Spanish speakers employed in their area of agricultural interest; (2) the student's understanding of major grammatical concepts critical to effective communication in work management within the food, agriculture and natural resources industries; (3) the student's cultural awareness of the varied Spanish speaking cultures with which the student will come into contact in the workplace; and (4) the student's ability to be creative with their knowledge of the language as it relates to the development of self-confidence and effective communicative proficiency in Spanish. Frequent short quizzes and the collection and grading homework assignments are important components of the course as they are used to encourage the use of Spanish on a daily basis. Classroom activities will be designed to require students to use and develop their communication skills in Spanish to communicate efficiently and relate personally to Spanish speakers. Students will be evaluated based on homework, quizzes, exams, and class participation. Students who have received high school credit for four years of Spanish may not schedule this course for credit, without the permission of the instructor. This course does not count toward Spanish majors or the Spanish minor.

Prerequisite: SPAN 105

SPAN 110: Intermediate Conversation

3 Credits

Practice in oral expression in Spanish, with emphasis on aural comprehension, idiomatic usage, and fluency. Use of journalistic materials.

Prerequisite: SPAN 003 or SPAN 020
Bachelor of Arts: World Language (All)
Bachelor of Arts: World Lang (12th Unit)
Exceeds 12th Unit of World Language

SPAN 130: Iberian Civilization

3 Credits

Spanish 130 is a general education course on Iberian culture and civilization. The goal of this course is to provide the student with a broad, general introduction to the lands, peoples, history, and cultures of the area known as Spain and Portugal; to inform the student about the region's ethnic diversity, cultural heritages, and problems

of development; to investigate vital symbols, myths, figures, icons, superstitions, and faiths; to foster critical thinking and associative skills; to suggest continuity and draw parallels between past and present; and to allow for a framework for undertaking further study. This course will survey the civilizations of these European lands and we will get an overview of the main historical events that make up this rich and complex history. The course is designed to expose students to the full range of Iberian history and diversity. Since we are covering centuries of history and several other variables (linguistic, artistic, ethnic, religious, political, economic, geographic, biologic, etc.), this tour will of necessity be pretty rudimentary. However, students will acquire an understanding of the diverse cultural currents and historical milestones that contributed to the creation of modern Spain and Portugal.

Bachelor of Arts: Humanities
International Cultures (IL)
General Education: Humanities (GH)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Integrative Thinking

SPAN 131: Ibero-American Civilization

3 Credits

SPAN 131 Ibero American Civilization (3) (GH; IL; US) (BA): Spanish American and Brazilian life from the Conquest to the present; including studies of literature, art, the indigenous heritage, and contemporary problems. This course meets the Bachelor of Arts degree requirements. The nations and peoples of Latin America have a unique, interesting history and cultural heritage that are rooted in the traditions, beliefs, experiences, values, and struggles of Native American, European, African and other populations. As close neighbors and major trading partners of the United States, Latin American republics have both benefited and suffered from the proximity and foreign policies of the northern capitalist democracy, and have contributed to its strength and growing ethno-racial diversity. This course aims to provide the student with a broad, general introduction to the lands, peoples, and history of Latin America; to inform the student about the region's ethnic diversity, cultural background, and problems of development; and to promote appreciation for the values and practices of other cultures, and a better understanding of relations between the nations of the region and the United States. Traditional resident classes will usually combine presentation of content and discussion of reading assignments, with an expectation of high student participation. Films, videos, and recordings will enhance and illustrate readings. This course will fulfill the Humanities Breadth and Cultural Diversity requirements. The course does not count toward credits in the major or minor in Spanish because it is taught in English. Nevertheless, it will complement the department's offerings by providing students with a greater appreciation of Latin America's cultural origins, socioeconomic development, and everyday realities.

Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures
International Cultures (IL)
United States Cultures (US)
General Education: Humanities (GH)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Integrative Thinking

SPAN 131Y: Ibero-American Civilization

3 Credits

Spanish American and Brazilian life from the Conquest to the present; including studies of literature, art, the indigenous heritage, and contemporary problems. The nations and peoples of Latin America have a unique, interesting history and cultural heritage that are rooted in the traditions, beliefs, experiences, values, and struggles of Native American, European, African and other populations. As close neighbors and major trading partners of the United States, Latin American republics have both benefited and suffered from the proximity and foreign policies of the northern capitalist democracy, and have contributed to its strength and growing ethno-racial diversity. This course aims to provide the student with a broad, general introduction to the lands, peoples, and history of Latin America; to inform the student about the region's ethnic diversity, cultural background, and problems of development; and to promote appreciation for the values and practices of other cultures, and a better understanding of relations between the nations of the region and the United States. Traditional resident classes will usually combine presentation of content and discussion of reading assignments, with an expectation of high student participation. Films, videos, and recordings will enhance and illustrate readings. This course meets the Bachelor of Arts degree requirements and is a Writing Across the Curriculum course. As such, students should expect assessments to require a significant amount of writing. This course will fulfill the Humanities Breadth and Cultural Diversity requirements. The course does not count toward credits in the major or minor in Spanish because it is taught in English. Nevertheless, it will complement the department's offerings by providing students with a greater appreciation of Latin America's cultural origins, socioeconomic development, and everyday realities.

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

Writing Across the Curriculum

SPAN 132: Afro-Hispanic Civilization

3 Credits

A general introduction to human and cultural elements of African origin in Spanish- and Portuguese-speaking countries of Latin America. SPAN 132 / AFR 132 / AFAM 132 Afro-Hispanic Civilization (3) (IL) (BA) This course meets the Bachelor of Arts degree requirements. The nations and peoples of Latin America have a unique, interesting history and cultural heritage that are rooted in the traditions, beliefs, experiences, values, and struggles of Native American, European, African and other populations. This course focuses on the presence and participation of African peoples and their descendants in the formation and development of societies and cultures in representative areas of the Caribbean, South America, and Central America and on the evolution, diversity, and richness of the African heritage therein. Course content includes the African background, the experience and impact of slavery, the social, cultural, and economic heritage of slavery, the role of race in Latin America, and Afro-Hispanic intellectual, literary, and artistic developments (e.g., aspects of folklore, music). The course aims to provide students with a general

introduction to human and cultural elements of African origin within the Spanish- and Portuguese-speaking nations of the Americas so that they may be more knowledgeable of the meaning, significance and widespread influence of the African diaspora. It proposes to provide the student with a better understanding of Africa's contribution to Latin American identity, diversity, culture, and development; to promote appreciation for the values and practices of other cultures, and greater awareness of the relations between the nations of the region and the United States.

Cross-listed with: AFAM 132, AFR 132

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

SPAN 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Humanities

SPAN 199: Foreign Study--Beginning Conversational Spanish

3 Credits

Grammar review and practice in oral expression and aural comprehension.

International Cultures (IL)

SPAN 200: Intensive Grammar and Composition

3 Credits

Intensive grammar review; composition. Designed primarily for majors and prospective majors.

Prerequisite: SPAN 100 or by placement

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

Exceeds 12th Unit of World Language

SPAN 200A: Intensive Grammar and Composition for Spanish Bilinguals

3 Credits

This course will enhance writing proficiency in Spanish of Spanish speaking students by targeting common problems characteristic of Spanish speakers.

Prerequisite: SPAN 100A

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

Bachelor of Arts: Humanities

Exceeds 12th Unit of World Language

SPAN 210: Readings in Iberian Civilization

3 Credits

Intermediate level Spanish readings dealing with Iberian life from pre-historic times to the present.

Prerequisite: SPAN 200

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

Bachelor of Arts: Humanities

Exceeds 12th Unit of World Language

SPAN 210N: Multilingual and Intercultural Communication

3 Credits/Maximum of 6

SPAN 210N Multilingual and Intercultural Communication course will showcase the fundamental components of the intersection of language and culture through humanities and social science. The purpose of this course is to teach the underlying mechanisms of multilingualism through language science principles and develop an understanding of intercultural communication through humanistic approaches. The content of this course focuses on linguistic strategies for succeeding in multilingual environments (e.g. dialect variation, second language acquisition strategies) as well as intercultural communication practices for navigating new environments (e.g. understanding cultural norms, skills for global leadership). The course requires an introductory level understanding of language. Students will learn how language and culture inform each other through the examination of cultures within the United States and internationally, including non-Western cultures.

Prerequisites: SPAN 3 or SPAN 3H or SPAN 20 or IT 3 or IT 20 or PORT 3 or PORT 123

Cross-listed with: IT 210N, PORT 210N

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

United States Cultures (US)

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

SPAN 215: Introduction to Spanish Linguistics

3 Credits

Introduction to the fundamental components of linguistics using data from the Spanish language. SPAN 215 Introduction to Spanish Linguistics (3) Spanish 215 will introduce students to the fundamental components of linguistics (phonology, morphology, syntax, lexicon, and semantics) using data from the Spanish language. The course requires no previous knowledge of linguistics, but presupposes familiarity with Spanish at the 15 credit level or higher. The underlying purpose is to awaken students' interest in Spanish linguistics; to provide them with a foundation in the terminology and concepts necessary for studying higher level courses that are part of Spanish major and minor curricula; and to help them to decide which of the upper level classes they would be most interested in taking. Student performance in the course will be evaluated by (a) exams designed to verify their familiarity and understanding of linguistic

terminology and concepts, their skill in doing phonetic transcription, and their ability to solve problems in phonology, morphology, syntax, and semantics, and (b) their preparedness and participation in classroom activities.

Prerequisite: SPAN 100

SPAN 220: Readings in Ibero-American Civilization

3 Credits

Intermediate level Spanish readings dealing with Ibero-American life from the pre-conquest to the present.

Prerequisite: SPAN 200

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

Bachelor of Arts: Humanities

Exceeds 12th Unit of World Language

SPAN 253W: Introduction to Hispanic Literature

3 Credits

Introduction to generic distinctions, critical methods, and approaches to Hispanic literature. SPAN 253W Introduction to Hispanic Literature (3) (BA) This course meets the Bachelor of Arts degree requirements. During the semester students will learn how to write, and will practice writing, critical and analytical essays based upon the different genres of literature studied in class. Students will learn strategies and approaches for analyzing short stories, poems, movies, and novels, all written or directed by prominent authors from Spain and Latin America. The development of writing skills which reflect sophistication at the level of thought, organization, and style will also be a fundamental objective of the course.

Prerequisite: SPAN 100; SPAN 100A; SPAN 100B; SPAN 100C; SPAN 100H

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

Writing Across the Curriculum

SPAN 269N: Theater and Performance

3 Credits

In Spanish Theatre and Performance, the students will read and analyze a variety of Spanish and Latin American plays from a literary perspective as well as from the perspective of a director, designer, and actor. We will use that analysis to create and perform monologues and scenes in Spanish. The students will learn acting, directing, and design skills and put those creative skills at service to further develop their ability to communicate effectively in the target language. This is a course for oral communication through the use of acting. In this course, we will use acting techniques in order to improve our fluency in oral expression. There will be some grammar instruction that will flow through the scripts we encounter. This course will facilitate your ability to express yourself both professionally and personally. The class is conducted in Spanish. The students will use Creative Thinking in order to support the Key Literacy of developing a world language, particularly Spanish. This course will examine plays from a variety of different countries. Play will be chosen from both Latin America and Spain, thereby introducing students to a variety of

international cultures. We will be looking at these plays from a historical and social perspective, thereby examining the cultural values, traditions, beliefs, and customs of several countries and cultures. We will look at plays ranging from the turn of the twentieth century through today and see how they and their contexts change through time. We will see how, for example, the plays of Lorca (Spain) might influence playwrights from other Spanish-speaking countries. (The second performance of "Bodas de sangre" was in Buenos Aires Argentina.)

Prerequisite: SPAN 253W

Bachelor of Arts: World Language (All)

Bachelor of Arts: Arts

Bachelor of Arts: World Lang (12th Unit)

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

International Cultures (IL)

General Education: Arts (GA)

General Education: Humanities (GH)

General Education - Integrative: Interdomain

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

Exceeds 12th Unit of World Language

SPAN 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Bachelor of Arts: Humanities

SPAN 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Humanities

SPAN 297N: Special Topics - Inter Domain

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest. This Special Topics is an Inter-Domain GenEd course

SPAN 299: Foreign Study--Intermediate Conversational Spanish

3 Credits

Grammar review and practice in oral expression and aural comprehension.

Bachelor of Arts: Humanities

International Cultures (IL)

SPAN 300: Advanced Grammar and Composition Through Reading

3 Credits

Development of advanced grammar and composition skills through reading texts by native speakers and adapting their techniques for original compositions.

Prerequisite: SPAN 215 or SPAN 253W

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

Bachelor of Arts: Humanities

Exceeds 12th Unit of World Language

SPAN 300B: Advanced Grammar and composition for Students in Medical-related Fields

3 Credits/Maximum of 3

Advanced Grammar and Composition for Students in Medical-related Fields.

Prerequisite: SPAN 100B

SPAN 305: Spanish for Social Services

3 Credits

Provides practical language applications for students going to social work, psychology, and the legal and medical professions. SPAN 305 Spanish for Social Services (3) SPAN 305 Spanish for Social Services (3) provides practical language applications for students going into social work, psychology, and the legal and medical professions. At the same time, there is an emphasis on the wide range of historic, linguistic and cultural influences that make up the Hispanic community in the US today.

Prerequisite SPAN 215 or 253W

SPAN 305H: Spanish for Social Services

3 Credits

Practical Spanish for social workers, medical personnel, law enforcement officers, etc.; emphasis on Puerto Rican vocabulary, idiom, and pronunciation.

Honors

SPAN 310: Business Spanish

3 Credits

No description.

SPAN 314: Spanish Sounds

3 Credits

Spanish phonetics and phonemics; systematic means of correcting pronunciation defects; other audio-lingual applications.

Prerequisite SPAN 215

SPAN 315N: Spanish and Spanish-speakers in the U.S.

3 Credits

In this course, we investigate various aspects of the language(s) and language behaviors of U.S. Latinos. The course is premised on the idea that language is a crucial component in the formation of identity. To understand Latina/o identity formation in the U.S., then, one must analyze what role languages—Spanish and English—have played in identity formation. The class commences with a brief historical assessment of the various U.S. Latino communities, including Mexican-American, Cuban-American, and Puerto Rican communities. Such a historical purview proves significant in the study of the cultural traditions that persist in these communities, chief among these, the Spanish language. In exploring the Spanish language in U.S. Latino communities, we consider several major sets of questions, among them the following: In what ways do the languages of U.S. Latino communities differ from those of monolingual Spanish- (and English-) speaking communities? What factors contribute to the maintenance and loss of Spanish in these communities? How does language contribute to the creation of individual and societal identity? How is language exploited in the representation of other U.S. Latino cultural traditions? We consider these questions across a variety of genres: poetry, prose (autobiography in particular), film, art, television, and music. These texts reveal how social environments determine language use as well as how artists have used language to reshape social environments, through, for example, the development of new language practices such as Spanish-English code switching. The course also connects these cultural practices to debates on Spanish in public life and policy.

Cross-listed with: LTNST 315N

United States Cultures (US)

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

SPAN 316: Building Words and Sentences in Spanish

3 Credits

Building words and sentences in Spanish. Analysis of Spanish word structure and its relationship to syntactic structures. SPAN 316 Building Words and Sentences in Spanish (3) "Building words and sentences in Spanish" is an introduction to the study of Spanish morphology and syntax. In linguistics, morphology is the study of the morphemes (e.g. affixes, words, roots) of language and how they combine together to form words. Syntax is the study of how words combine together to form phrases and sentences. Because this course is for Spanish majors and minors, the focus in this course is on the structure of words, phrases, and sentences in Spanish, how Spanish compares to other languages, and how morphology and syntax vary across Spanish dialects. Special focus will be made on explaining the kinds of errors typical of English-speaking learners of Spanish as a second language, and a primary goal of the course is for students to improve their proficiency in using Spanish morphosyntax. The course is taught in Spanish.

Prerequisite SPAN 215

SPAN 326: Reading the BorderLands: Geography and Identity Along the U.S.-Mexico Border

3 Credits

This course examines representations of the U.S.-Mexico border in relation to the actual geographic space. SPAN 326 Reading the Border/Lands (3) (GH;US) This class will center on discussions of the U.S.-Mexico borderlands in cultural theory and practice. "Borderlands" is understood as a transcultural space filled with physical, cultural, economic, political, and mythical elements. The aim is to view how different artists from the Borderlands, both northern Mexican and Chicano, mediate their borderlands reality. That is to say, the goal of the class is to examine the different imaginative geographies in the borderlands. We examine a wide-ranging mix of cultural texts that includes prose, poetry, essays, and performance art, as well as film and video art. We explore how writers have historically rethought notions of citizenship, identity, and culture to create more fluid spaces of representation in cultural contact zones. We will in particular, pay close attention to the relationship between national geography and the shaping of regional identities and popular cultures and relationships between the maps that nations draw and the cultural forms that cut across them.

Cross-listed with: LTNST 326

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

SPAN 353: Topics in the Cultures of Spain

3 Credits

This course offers a comparative study of the literature, artistic manifestations, intellectual traditions, and cultural productions of Spain. This course offers a comparative study of the literature, artistic manifestations, intellectual traditions, and cultural productions of Spain. Depending on the semester focus, topics related to literary movements, comparative approaches to genre, and/or connections between textual representation and politics, social movements, and/or Spain's long and complex history (both locally and globally) may be at the center of discussion. Additionally, varied issues of gender, race and ethnicity, rural and urban environments, religion, and evolving conceptions of nationhood may be included as overarching themes. Particular literary genres and representative works may be foregrounded in yet another iteration of the course, wherein students will study and discuss principal readings against cultural backdrops framed by exposure to art, film, music, and/or other historical, intellectual, sociopolitical, and/or media-based materials of relevance to the semester-specific context at hand.

Prerequisite SPAN 253W

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

Bachelor of Arts: Humanities

Exceeds 12th Unit of World Language

SPAN 354: Topics in Border Studies

3 Credits

This course offers a study of borders as key sites of contact, exchange, conflict, hybridity, and identity production in and across varied contexts of Spanish, Latin American, and/or Latina/o culture(s). This course offers

a study of borders - geopolitical, social, intellectual, literary, artistic, and/or historical - as key sites of contact, exchange, conflict, hybridity, and identity production in and across varied contexts of Spanish, Latin American, and/or Latina/o culture(s). While diverse variables (including diaspora, gender, race and ethnicity, sexuality, colonialism, nationhood and transnationalism) will inform particular iterations of the course, approaches and text selection will be shaped by an understanding of borders as constructs defined by conditions of dynamic interaction and transformation. Materials to be considered in the course, which will vary according the focus, may include literary, artistic, and intellectual works, film, media-based texts, music, and/or historical documents

Prerequisite SPAN 253W
Bachelor of Arts: World Language (All)
Bachelor of Arts: Humanities

SPAN 355: Topics in the Cultures of Latin America

3 Credits

This course offers a comparative study of the literatures, artistic manifestations, intellectual traditions, and cultural productions of the Latin American region. This course offers a comparative study of the literatures, artistic manifestations, intellectual traditions, and cultural productions of the Latin American region. Throughout the course, we will reflect on the (im)possibility of characterizing a vast region by taking into account ongoing factors its broader history and culture, as well as national and local particularities. Topics will vary by semester and may include: literary and artistic periods and movements, (post)coloniality and decoloniality, the politics of race, gender, and sexuality, urban and rural sociopolitical movements, (self-)representations in old and new media, discourses of the political (populisms, revolutions, dictatorships, and neoliberalism), and migration studies. Students will engage with literary texts, historic documents, art, music, and other materials in order to understand different kinds of writing and forms of representation. While most materials will be in Spanish, the course may also include works in translation from Brazil, as well as the English- and/or French-speaking Caribbean.

Prerequisite: SPAN 200 and SPAN 253W
Bachelor of Arts: World Language (All)
Bachelor of Arts: World Lang (12th Unit)
Bachelor of Arts: Humanities
Exceeds 12th Unit of World Language

SPAN 356: Topics in the Cultures of the Americas

3 Credits

This course offers a comparative study of the literatures and cultures of the Americas, bringing Latin America into dialogue with the United States (and in some instances Canada). This course offers a comparative study of the literatures and cultures of the Americas, bringing Latin America into dialogue with the United States (and, in some instances, Canada). Throughout the course, we will explore the (dis)continuities that both connect and divide the hemisphere, and we will trace the movement of people, artistic practices, and ideas across borders while paying attention to the distinctive aspects of national and local cultures. Topics will vary by semester and may include: empire and colonialism, the literary and cultural legacies of slavery, the figure of the "native," crime literature or science fiction in the Americas, theater of the Americas, literatures and cultures of the Spanish-American War, media and the U.S./Mexico border, and cultures of the Caribbean diaspora. Although the course may cover English-language materials, or works in translation from Brazil and/or the

French-speaking Caribbean, most of the texts/recordings/films will be in Spanish, as will all assignments written by students.

Prerequisite: SPAN 200 and SPAN 253W
Bachelor of Arts: World Language (All)
Bachelor of Arts: World Lang (12th Unit)
Bachelor of Arts: Humanities
Exceeds 12th Unit of World Language

SPAN 395: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Prerequisite: prior approval of proposed assignment by instructor
Bachelor of Arts: Humanities

SPAN 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Humanities

SPAN 399: Foreign Study--Spanish

1-12 Credits/Maximum of 12

Advanced training in Spanish language skills.

Prerequisite: SPAN 003
International Cultures (IL)

SPAN 410: Advanced Oral Expression and Communication

3 Credits

Emphasis on achieving practical command of spoken Spanish and the comprehension of native speech. Use of journalistic materials.

Prerequisite: (SPAN 100A or SPAN 200) and (SPAN 215 or SPAN 253W)
Bachelor of Arts: World Language (All)
Bachelor of Arts: World Lang (12th Unit)
Exceeds 12th Unit of World Language

SPAN 410H: Advanced Oral Expression and Communication

3 Credits

Emphasis on achieving practical command of spoken Spanish and the comprehension of native speech. Use of journalistic materials.

Honors

SPAN 411: The ABCs of Bilingualism: Acquisition, Brain, and Community

3 Credits/Maximum of 6

In SPAN 411, students will learn to understand the bilingual landscape of the Spanish-speaking world and its consequences for communities and individuals. SPAN 411 the ABCs of Bilingualism: Acquisition, Brain, and Community will showcase the fundamental components of bilingualism (first language acquisition, language mixing, language and society, language contact, and cognitive consequences of bilingualism) situating

them in the Spanish speaking world. The course requires an introductory level understanding of linguistics and presupposes familiarity with Spanish at the 15-credit level or higher. The purpose of this course is to adopt an understanding of the underlying mechanisms of bilingualism and what it means to be a bilingual speaker, as well as understand the community-level impact of speaking multiple languages. Students will learn theories surrounding the study of bilingualism and apply linguistic knowledge to better understand bilingual communities that are new to them.

Prerequisites: SPAN 215

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

Exceeds 12th Unit of World Language

SPAN 412: Translation

3 Credits

Techniques of written translation from Spanish to English and vice versa, particularly for business, literature, and social work. Students will learn translation theory and best practices, as well as strategies for overcoming the most common translation problems in Spanish-English translation. Some time will be spent on a review of grammar issues that most commonly result in errors in translation. Students will also learn how to deal with colloquial language and cultural references in a Spanish source text, and will be taught to consider the function of dialect, style and register in a source text and their impact in translation. In the final weeks of the semester, the focus shifts from the theoretical to the practical, as students apply their skills to the translation in advertising, scientific and technical texts, documents, and literary and artistic translation.

Prerequisite: (SPAN 100A or SPAN 200) and (SPAN 215 or SPAN 253W or SPAN 300B)

SPAN 412H: Translation

3 Credits

Techniques of oral and written translation from Spanish to English and vice versa, particularly for business, literature, and social work.

Honors

SPAN 413: Interpretation

3 Credits

Introduction to the art of interpretation, with particular attention to the professions for which it is most commonly required. SPAN 413 Interpretation (3) Spanish 413 will provide students with demonstrations and exercises designed to develop the skills required in sight translation and in consecutive, simultaneous and summary interpretation. The course does not presume to provide the training needed for entrance into the profession; it is intended to give students sufficient understanding of the rigors and demands of the profession and to help them determine whether they have the interest and skills to pursue further training in this area. At the same time, it will provide students with a unique opportunity to improve their listening comprehension and fluency in the target language, whether English or Spanish.

Prerequisite: SPAN 412

SPAN 417: How Languages Are Learned

3 Credits

This class is a linguistics course that focuses on language acquisition in children and adults. Linguistics is the scientific study of language and its structure, and linguistic inquiry focuses on various levels of language: phonology examines the sounds of language, morphology examines the structure of words (e.g., root words and their inflections), and syntax focuses on the structure of phrases and sentences. Using the tools of phonology, morphology, and syntax, this course will address the following questions. What is unique about human language? How is language learned in infancy? How do humans learn additional languages after they have learned their first language? How does bilingual language development compare to monolingual language development? Can knowing more than one language actually be detrimental? What are the different languages spoken by bilinguals in the Spanish-speaking world? What sorts of bilingual education programs are there in the Spanish-speaking world, including in the U.S.? By answering these questions, this course introduces students to bilingualism and bilingual language acquisition.

Prerequisite: (SPAN 100A or SPAN 200) and SPAN 215

SPAN 418: The Evolution of Spanish

3 Credits

The emergence and development of the sounds and forms of Spanish.

Prerequisite: (SPAN 100A or SPAN 200) and SPAN 215

SPAN 418H: The Evolution of Spanish

3 Credits

The emergence and development of the sounds and forms of Spanish.

Honors

SPAN 420: Spanish for Business and International Trade

3 Credits

Spanish 420, Spanish for Business and International Trade, is an introduction to business administration (organizational structure, human resources, marketing, accounting, cross-cultural etiquette, business ethics, etc.) within the context of the Spanish language and Hispanic cultures against the backdrop of the global economy. Participants will broaden and deepen their ability to apply their Spanish skills in a professional setting by reading and evaluating current business articles, discussing and analyzing business issues in various Hispanic countries, examining the intersection of business and culture in the Spanish-speaking world, viewing short videos, preparing a resume in Spanish, and participating in other written and oral activities. To complement the core content, various assignments also allow students to focus on their individual majors.

Prerequisite: SPAN 100A or SPAN 200 and SPAN 215 or SPAN 253
Bachelor of Arts: Humanities

SPAN 423: Spanish in Contact with Other Languages

3 Credits

Multilingualism in the Spanish Speaking World explores the multitude of languages spoken in Spanish-speaking countries, including the

languages and dialects of Spain, indigenous languages of Mexico, Central, and South America, the Spanish spoken in Equatorial Guinea and the United States, as well as Spanish-based Creole languages. Through linguistic comparative analyses (e.g. phonological, morphosyntactic) of these various languages and dialects, informed by readings on the history and socio-political status of bilingualism in Spanish-speaking countries, students will refine their critical reading and writing skills in Spanish, while gaining a more informed appreciation of the linguistic diversity found within Spanish-speaking world. This course fulfills requirements for the major and minor in Spanish, and allows students interested in Spanish culture and language to undertake more in-depth and specialized study in linguistics.

Prerequisite: SPAN 215

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

SPAN 424: Facts and Myths about Learning Spanish

3 Credits

This course focuses on key aspects of the acquisition of Spanish as a second language. The course will address questions such as: Can watching Netflix help me learn Spanish? What type of practice, and how much, can help me learn a language? Does the native language change when we learn a second language? Does speaking a second language influence thought and perception? Is it worthwhile to invest in studying a language abroad, and why? Is computer-based learning as effective as face-to-face learning? Is it enough to learn 'standard' Spanish? Throughout the course, students are presented with these and similar questions which they will have consider and evaluate as "facts" or "myths". The course goes from theory to practice, and emphasizes hands-on experience based on examining data and experiments. During the semester, you will regularly work by examining data from real speakers (native and non-native) to help you answer the questions explored in the course and to develop your own hypotheses.

Prerequisite: SPAN 215

Bachelor of Arts: World Language (All)

Bachelor of Arts: Humanities

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

SPAN 425: The Spanish Your Teachers Never Taught You

3 Credits

Have you ever failed to understand someone because they didn't use the word "whom" properly? There is often a big difference between how one is "supposed to" use a language, and how the language is actually used in the world. Where does this difference come from? Why are some ways of speaking considered to be more correct, more logical, or more polite, and others are disdained, discouraged, or ridiculed? More importantly, how do these judgments spread, and what are their consequences? In this course we will read and conduct rigorous linguistic (e.g. phonetic or syntactic) analyses of how Spanish is used in a wide range of communities both in countries where Spanish is the majority language as well as in the US, we will apply methods from sociolinguistics to explore how linguistic variation is associated with social meanings, and we will critically examine how standard varieties are defined and promoted, and how

nonstandard varieties are evaluated, both positively and negatively. We will also engage with points of view of Spanish users, community members, and others through critical study of literary works and other primary sources (e.g. social media, opinion writings, political statements, interviews), to listen to what different people say about varieties of Spanish, and about those who use those varieties. Through these efforts we will explore why languages vary and change, and how and why people come to be evaluated (negatively or positively, accurately, or inaccurately) on the basis of how they speak. Satisfies requirements for the major and minor in Spanish.

Prerequisite: C or better in SPAN 215

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

Bachelor of Arts: Humanities

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

United States Cultures (US)

SPAN 439: Don Quijote

3 Credits

Thorough study of the masterpiece, including its sources, genesis, language, style, success, and influence.

Prerequisite: (SPAN 100A or SPAN 200) and SPAN 253W

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

Bachelor of Arts: Humanities

Exceeds 12th Unit of World Language

SPAN 470: Youth Cultures in Latin(a/o) America

3 Credits

Young people have been at the center of political and cultural revolutions around the world and throughout history. For example, revolutions, urban movements, ethnic/racial pride, LGBTQ+, feminist movements, music basaars, DJs and rave parties, and "barras de futbol" are only some of the manifestations associated with young people in Latin(a/o) American literature, film, music, and journalism. Nevertheless, the concept of "youth" as an academic category only appeared in the 1960's. In this course, we will study different manifestations of youth cultures in the Hemispheric Americas, paying special attention to the Latinx communities in the U.S. and Latin America, since the 1960's and until the contemporary moment. The key question that will guide us is: How does each of these literary, artistic, and media representations of youth enter into dialogue with political events in which young people have been at the center of efforts to bring about political changes in the U.S. Latinx communities and Latin American? Using short fiction, film and documentaries, songs, blogs, and other cultural materials (YouTube clips, images, graffiti, etc.), we will identify and compare different youth cultures in Latinx communities in the U.S. and Latin America in terms of their productions, representations, and effects in the public sphere. We will enrich our analysis of primary materials with theoretical and critical readings that will help us to contextualize the different manifestations in our study.

Prerequisite: (SPAN 100A or SPAN 200) and SPAN 253W

Cross-listed with: LTNST 470

SPAN 472: The Contemporary Spanish American Novel

3 Credits

The regionalist and social novel since 1910, together with the social background.

Prerequisite: (SPAN 100A or SPAN 200) and SPAN 253W

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

Bachelor of Arts: Humanities

Exceeds 12th Unit of World Language

SPAN 474: Many Mexicos

3 Credits

Overview of Mexican literature, culture and history from pre-colonial period to present.

Prerequisite: (SPAN 100A or SPAN 200) and SPAN 253W

SPAN 476: Masterpieces of Spanish American Literature

3 Credits

Reading, analysis, and discussion of selected major works representative of Spanish American prose and poetry.

Prerequisite: (SPAN 100A or SPAN 200) and SPAN 253W

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

Exceeds 12th Unit of World Language

SPAN 479: U.S. Latina/o Culture en Espanol

3 Credits

This course is conducted in Spanish and will analyze some of the central themes that shape the diverse Latina/o experiences in the United States. Some of the main topics that the course will address include: the politics of labeling; definitions of displacements; the politics of language; imaginary homelands and geographic spaces; and conceptualizations of race, gender, and sexuality. These themes will be seen through the lens of Latina/o literature and film. The main objective of this course is to help students think critically about the conceptual, theoretical, historical, and social issues that inform the Latina/o experience in the United States.

Prerequisite: (SPAN 100A or SPAN 200) and SPAN 253W

Cross-listed with: LTNST 479

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

SPAN 488: War, Revolution, and the Struggles for Modernity: Spain 1898-1939

3 Credits

This course, conducted in Spanish, examines Spanish literature from 1898 to 1939.

Prerequisite: (SPAN 100A or SPAN 200) and SPAN 253W

SPAN 490: Masterpieces of Spanish Prose

3 Credits

Reading, analysis, and discussion of selected masterpieces of Spanish novels, short stories, etc.

Prerequisite: (SPAN 100A or SPAN 200) and SPAN 253W

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

Bachelor of Arts: Humanities

Exceeds 12th Unit of World Language

SPAN 491: Masterpieces of Spanish Drama and Poetry

3 Credits

Reading, analysis, and discussion of selected masterpieces of Spanish drama and poetry.

Prerequisite: (SPAN 100A or SPAN 200) and SPAN 253W

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

Bachelor of Arts: Humanities

Exceeds 12th Unit of World Language

SPAN 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Bachelor of Arts: Humanities

SPAN 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Bachelor of Arts: Humanities

SPAN 496H: Independent Studies

3 Credits

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Bachelor of Arts: Humanities

Honors

SPAN 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Humanities

SPAN 499: Foreign Study--Spanish

1-12 Credits/Maximum of 12

Contemporary Spanish life and civilization. Emphasis on post-Civil War period: literature, arts, and sociopolitical problems.

Prerequisite: SPAN 100 , SPAN 110 , or SPAN 120

Bachelor of Arts: Humanities

International Cultures (IL)

Special Education (SPLED)

SPLED 99: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

SPLED 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

SPLED 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

SPLED 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

SPLED 395W: Observing Special Education Settings Spanning Across School Transitions

3 Credits

Observation of Special Education Settings and Transitions through the Systems provides students with an opportunity to (a) observe exceptional individuals in a supervised setting, (b) become familiar with methods of observation, (c) use methods of writing for other professionals using descriptive summaries and graphic displays of data, (d) discuss transitions and what they look like in various settings, and (e) learn about the high-leverage practices used in effective teaching. This course provides a broad exploration of the various settings and elements that encompass special education. It allows for direct observation into today's schools to investigate trends in education. It considers how cultural

perspectives can impact teaching. Building on these insights, students will work on professional writing across multiple contexts. Students will have opportunities to collaborate with each other to develop professional relationships.

Prerequisite: Admission to SPLED program. Corequisites: SPLED 401, SPLED 425, SPLED 418 Recommended Preparations: Clearances as required by the Pennsylvania Department of Education and the Pennsylvania State University for field experiences. Writing Across the Curriculum

SPLED 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

SPLED 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

SPLED 400: Inclusive Special Ed Foundations: Legal, Characteristics, Collaboration, Assessment, and Management

4 Credits

Legal issues, learner characteristics, collaboration skills, assessment, and behavior management related to educating students with disability in inclusive settings. SPLED 400 Teaching Exceptional Students in General Education Settings (4) This course is delivered via a model of blended instruction and addresses foundational skills (assessment and management) and knowledge (laws, etiologies, collaboration) for those working with students with special education needs in general education classrooms. Almost 30% of the content includes student understanding of the history and current relevance of special education law; roles and responsibilities of general education teachers in providing services to students with special education needs; characteristics and etiologies relevant to providing effective instruction to students with mild and severe disabilities; and developing and maintaining effective education teams. Roughly 35% of content is relevant to assessment in inclusive settings and is centered on sound instructional decision making as well as linking instruction to standards based curricula. Coverage includes understanding formative and summative assessment; creating and administering curriculum-based assessments in reading, mathematics, and writing; designing systems to collect behavioral data; interpreting a variety of norm-referenced test scores; using brief experimental analyses is adequate for a given purpose. Roughly 35% of content is relevant to applying principles of Applied Behavior Analysis (ABA) to managing and motivating learners with special needs placed in inclusive settings. Broad objectives include student acquisition of knowledge and skills related to ABA principles and interventions such as: identifying the nature (positive and negative) of consequences maintaining or decreasing specific behaviors; operationally defining behavior; establishing a classroom and school environment conducive to learning for all students; creating class-wide, school-wide; and individual motivation systems; intervening to decrease specific behavior; and using functional behavioral assessments (FBAs) and positive behavior supports.

Prerequisites: EDPSY 014, EDPSY 010; EDPSY 011; HDFS 229; HDFS 239, and fourth semester standing or higher Recommended Preparations: This course is intended for students who are in their fifth semester of study.

SPLED 400H: Inclusive Special Ed Foundations: Legal, Characteristics, Collaboration, Assessment, and Management

4 Credits/Maximum of 4

Legal issues, learner characteristics, collaboration skills, assessment, and behavior management related to educating students with disability in inclusive settings. SPLED 400 Teaching Exceptional Students in General Education Settings (4) This course is delivered via a model of blended instruction and addresses foundational skills (assessment and management) and knowledge (laws, etiologies, collaboration) for those working with students with special education needs in general education classrooms. Almost 30% of the content includes student understanding of the history and current relevance of special education law; roles and responsibilities of general education teachers in providing services to students with special education needs; characteristics and etiologies relevant to providing effective instruction to students with mild and severe disabilities; and developing and maintaining effective education teams. Roughly, 35% of the content is relevant to assessment in inclusive settings and is centered on sound instructional decision making as well as linking instruction to standards based curricula. Coverage includes understanding formative and summative assessment; creating and administering curriculum-based assessments in reading, mathematics, and writing; designing systems to collect behavioral data; interpreting a variety of norm-referenced test scores; using brief experimental analyses is adequate for a given purpose. Roughly 35% of content is relevant to applying principles of Applied Behavior Analysis (ABA) to managing and motivating learners with special needs placed in inclusive settings. Broad objectives include student acquisition of knowledge and skills related to ABA principles and interventions such as: identifying the nature (positive and negative) of consequences maintaining or decreasing specific behaviors; operationally defining behavior; establishing a classroom and school environment conducive to learning for all students; creating class-wide, school-wide; and individual motivation systems; intervening to decrease specific behavior; and using functional behavioral assessments (FBAs) and positive behavior supports.

Prerequisites: EDPSY 14, EDPSY 10; EDPSY 11; HDFS 229; HDFS 239, and third semester standing or higher. Recommended Preparation: This course is intended for students who are in their fourth semester of study Honors

SPLED 401: Motivating Exceptional Learners

4 Credits

Group and individual techniques to promote student task engagement and prosocial behavior.

Prerequisites: Admission to SPLED program COREQUISITES: SPLED 395W, SPLED 408, SPLED 425

SPLED 402: Human Rights: Historical and Current Issues in Special Education

3 Credits

Litigation, legislation, regulation, and advocacy issues impacting on educational and related services for individuals with academic and/or physical disabilities.

Prerequisite: or concurrent: SPLED400 or SPLED425

SPLED 403A: Evidence-Based Instruction for Elementary Students with Disabilities in Reading, Math, and Writing

3 Credits

Evidence-based methods for design, delivery, and adaption of instruction for elementary students with disabilities in reading, mathematics, and writing. SPLED 403A Evidence-Based Instruction for Elementary Students with Disabilities in Reading, Math, and Writing (3)This course is delivered via a model of blended instruction and addresses aspects of designing, delivering, and adapting instruction for students across the range of disability (i.e., mild, moderate, and severe) in elementary, inclusive settings. Content on relevant learner characteristics of special needs students is found throughout the course. About half the course covers content on: designing direct and explicit instruction; self-regulated learning; assistive technology; adaptations and accommodation for learners with several disabilities; and the hierarchy of taxonomical units relative to instructional design. The remaining half of the course covers content relevant to a wide range of literacy concerns and includes: evidence based practices for instruction in early reading (e.g. decoding, phonemic awareness, phonic and structural analysis; and vocabulary); reading comprehension at primary and intermediate levels (e.g. test structure, content specific vocabulary, and narrative and expository reading in content domains); writing (e.g. handwriting, spelling grammar, and written expression); and mathematics (e.g. number sense and early numeracy, basic facts and operations, applied skills, problem solving, fractions, decimals, and percents).

Prerequisites: C or better in SPLED 400

SPLED 403B: Evidence-Based Methods for Teaching Secondary Students with Disabilities in Inclusive Settings

3 Credits

Evidence-based methods for designing, delivering, and adapting instruction for students with disabilities in inclusive secondary education settings. SPLED 403B Evidence-Based Methods for Teaching Secondary Students with Disabilities in Inclusive Settings (3)This course is delivered via a model of blended instruction and addresses aspects of designing, delivering, and adapting instruction for students across the range of disability (i.e., mild, moderate, and severe) in secondary inclusive settings. Content on relevant learner characteristics of special needs students is found throughout the course. About half the course covers content on: designing direct and explicit instruction; self-regulated learning; assistive technology; adaptations and accommodation for learners with several disabilities; and the hierarchy of taxonomical units relative to instructional design. The remaining half of the course covers content relevant to a variety of procedures and approaches to help students with special education needs gain meaningful access to secondary curriculum content without watering it down or ignoring the instructional needs of students without disabilities. Broadly this content includes ways of planning and delivering instruction to help all students, including those with learning problems, understand and retain critical course content. Topics include using graphic organizers, options for presenting content, mnemonics; task specific learning strategies; cooperative groups and peer focused interventions; study guides and guided notes; advance organizers; text structures for narrative and expository text; single and multiple-approaches for reading comprehension; writing mechanics, prompts, and rubrics; narrative, informative, and persuasive writing; problem solving (including Polya's

model); analogies; elaborative interrogation; and practice for problem solving.

Prerequisite: C or better in SPLED 400

SPLED 403H: Evidence-Based Instruction for Elementary Students with Disabilities in Reading, Math, and Writing

3 Credits

Evidence-based methods for design, delivery, and adaptation of instruction for elementary students with disabilities in reading, mathematics, and writing.

Honors

SPLED 404: Working with Families and Professionals in Special Education

3 Credits

Strategies for productive interactions between special educators and others such as colleagues, employers, parents, service providers, professionals, and students.

Prerequisite: A grade of C or better in SPLED395W, SPLED401, SPLED425, SPLED 418; **Corequisites:** SPLED 411, SPLED 412, SPLED 454, SPLED 495E

SPLED 408: Meeting Instructional Needs of English Language Learners with Special Needs

3 Credits

A major objective of this course is for students to be able to develop or modify instructional plans that reflect evidence based practices for adapting for the needs of English Language Learners (ELL) with special needs. The course has been developed to fulfill Pennsylvania Department of Education requirements and in recognition of the growing number of ELLs in the general population and thus, in special education settings. This course covers (1) theory and research on the instructional needs of ELLs and (2) the knowledge base on effective instruction for students with special needs and assists students in bringing these two areas of research together. Major topic areas include principles and issues in second language acquisition; ELLs characteristics including linguistic and cultural factors that affect second language acquisition; techniques and methods of research-based instruction for ELLs with special needs; lesson planning and instructional modifications for ELLs with special needs; and appropriate assessment practices for ELLs with special needs.

Prerequisites: EDPSY 14, EDPSY 10; EDPSY 11 or Graduate Status
Corequisites: SPLED 395W, SPLED 401, SPLED 425; Graduate Status
Cross-listed with: EDPSY 408

SPLED 409A: Fundamental Literacy Skills for Students with Special Needs

3 Credits

Effective reading curriculum and teaching methods to teach students with special needs. SPLED 409A Fundamental Literacy Skills for Students with Special Needs (3) Effective classroom-based assessment, curriculum development, and instructional strategies for teaching reading to educate students with special needs will be described in this course. Students will learn how to assess, develop curriculum,

and provide scientifically based explicit instruction in reading to K-12 students with special needs. Students will learn how to select reading skills necessary to scaffold and enhance students' present reading skills. Methods for using science-based assessment strategies and developing foundational reading skills within a classroom context will be described. This course builds on prerequisite Special Education courses in curriculum and instructional methods. Students in SPLED 409A extend knowledge of explicit instructional strategies in the context of reading. The content offered in this course complements 409B and 409C through the integration of researched-based methods and sound instructional design within a curriculum to most effectively teach students with special needs.

Prerequisites: a grade of C or better in SPLED 404, SPLED 412, SPLED 411, SPLED 454, SPLED 495E; **Corequisites:** SPLED 409B, SPLED 409C, SPLED 495G

SPLED 409B: Writing and Content Literacy for Students with Special Needs

3 Credits

Effective curriculum and materials for teaching writing and content literacy to students with special needs. SPLED 409B Writing and Content Literacy for Students with Special Needs (3) Effective application of classroom-based measurement, curriculum development, and instructional strategies for teaching writing and content literacy to educate students with special needs will be described in this course. Students will learn how to use assessment to develop curriculum and provide scientifically based best practice instruction in writing mechanics (handwriting, spelling, capitalization & punctuation) and written expression (pre-planning to revision) to K-12 students with special needs. Students will learn how to identify, select, and teach content text structure. Methods for using assessment to develop a reading comprehension curriculum within a content classroom context and teach K-12 students with special needs to read and comprehend narrative and expository text (such as text found in Math, Science, Social Studies, and other content textbooks) will be described. Methods for using assessment to develop curriculum and teach K-12 students with special needs to respond to content text and materials through writing will also be examined. This course builds on prerequisite Special Education courses in curriculum and instructional methods. Students in SPLED 409B will have achieved mastery in basic reading theory, assessment, curriculum, and instructional methods. The content offered in this course adds to the existing course content by specifically addressing writing mechanics, written expression, and content reading, curriculum development, and instructional methods (including plans for generalization and maintenance) for students with special needs. Written responses for assigned readings will be required for each topic area. Written evaluations and class assignments (including case studies) will be given to assess student learning throughout the course time period. Students' learning will be further evaluated through projects that demonstrate understandings of applying classroom-based measurement, curriculum development, and the instructional methods required to effectively teach writing and content learning to students with special needs. Student applied projects, in coordination with practicum placement, for writing instruction will include: (1) the collection of baseline writing data for a student with special needs, (2) development of a curriculum scope and sequence, (3) development of a research validated instructional intervention, (4) implementation of the intervention, (5) the collection of writing data throughout instruction and after instruction, and (6) development and implementation of an instructional plan for maintenance and generalization. To demonstrate

understandings of teaching content reading and writing, students will prepare a presentation of an identified research-based content reading or writing instructional strategy or approach taught within a curriculum scope and sequence.

Prerequisite: A grade of C or better in SPLED 404, SPLED 411, SPLED 412, SPLED 454, SPLED 495E; **Corequisites:** SPLED 409A, SPLED 409C, SPLED 495G

SPLED 409C: Mathematics Instruction for Students with Special Needs

3 Credits

Research-based practices for teaching mathematics skills to students with special needs. SPLED 409C Mathematics Instruction for Students with Special Needs (3) Research-based assessment, instruction, and intervention strategies for teaching mathematics skills to struggling students, students with learning disabilities, and chronically low performing students will be described in this course. Students will identify (a) the risk factors associated with mathematics disabilities, (b) effective prevention and remediation models of mathematics disabilities, (c) characteristics of scientifically based instruction in content-area skills (e.g., counting, addition, fractions, problem solving, geometry, algebra) for K-12 students with disabilities, and (d) how to effectively provide and assess the effects of such instruction while provided in general and special education classrooms. This course builds on prerequisite Special Education courses in curriculum and instructional methods. Students in SPLED 409C will have achieved mastery in assessment, curriculum, and instructional methods. The content offered in this course adds to the existing course content by specifically addressing how to teach content-area skills for students with special needs. Written responses and/or online discussion board posts for assigned readings will be required for the topic areas. Written evaluations, online quizzes, and class assignments will be given to assess student learning throughout the course time period. Students learning will be further evaluated through projects that demonstrate understanding of classroom-based assessment, curriculum development, and the instructional methods required to effectively teach content-area mathematics skills to students with special needs. Student applied projects, in coordination with practicum placement, for mathematics instruction will include: (1) the collection of baseline mathematics performance data for a student with special needs, (2) development of a curriculum scope and sequence, (3) development of a research validated instructional intervention, (4) implementation of the intervention, (5) on-going data collection throughout instruction and after instruction, and (6) development and implementation of an instructional plan for maintenance and generalization. To demonstrate understandings of teaching content area mathematics skills, students will prepare a lesson on a math concept for a teaching demonstration using the instructional strategies and techniques learned during the class.

Prerequisite: A grade of C or better in SPLED 404, SPLED 411, SPLED 412, SPLED 454, SPLED 495E; **Corequisites:** SPLED 409A, SPLED 409B, SPLED 495G

SPLED 410: Culturally Responsive Pedagogy in Special Education

3 Credits

Culturally Responsive Pedagogy (CRP) in Special Education is designed to help students recognize and appreciate diversity in the classroom specifically related to students with exceptionalities. This course will develop ways to encourage student engagement by creating supportive and inclusive classrooms where all students feel they belong. The

student learning outcomes are engaging and include elements of active learning. Broadly, the overarching elements of the course will focus on (1) enhanced cognitive development and understanding of concepts and vocabulary related to CRP, (2) develop social and cultural connections with students and families, and (3) support student engagement and retention using cultural reciprocity and understanding.

Prerequisite: CI 280 EDPSY 14 EDPSY 101 EDTHP 115 MATH 200 PSYCH 100 PSYCH 212

SPLED 411: Intervention for Students with Severe Disabilities

3 Credits

Assessment, teaching strategies, curricula, materials, and assistive techniques for use with individuals having severe disabilities.

Prerequisites: A grade of C or better in SPLED395W , SPLED401 , SPLED425, SPLED 418; **Corequisites:** SPLED 404, SPLED 412, SPLED 454, SPLED 495E

SPLED 412: Instruction for Students with Mild Disabilities

3 Credits

The purpose of SPLED 412 is to introduce appropriate methodology for teaching academic skills to students with learning disabilities or those students who experience academic difficulties. The majority of the course deals with effective practices for designing and delivering academic instruction and independent work for students who do not learn optimally under current conditions within the general education environment. In this course, pre-service teachers will learn about the principles of effective instruction and a teaching model that applies these principles using evidence-based instructional methods to support these students. This course will also address ways that this model can be flexibly adapted to meet the needs a wide range of students, tasks, and environments.

Prerequisite: A grade of C or better in SPLED 395W, SPLED 401, SPLED 425 and SPLED 418. **Corequisites:** SPLED 404, SPLED 411, SPLED 454 and SPLED 495E

SPLED 415: Early Intervention and Early Childhood Special Education (EI/ECSE)

3 Credits/Maximum of 4

This course provides an introduction to Early Intervention/Early Childhood Special Education (EI/ECSE). Students will discuss the historical contexts and origins of early childhood special education affecting children with developmental delays and disabilities. Students will identify the prevalence of developmental delays and disabilities and the importance of early intervention for cognitive, physical, behavioral, and social-emotional developmental trajectories. Students will investigate family-systems theory, family-centered approaches, and family-professional partnerships as well as culturally sustaining practices in EI/ECSE. Issues of racial, cultural, and linguistic diversity will be emphasized. Building on these ideas, this course will address issues of diversity and equitable access to quality services to ensure all children thrive in their natural educational environment. Students will preview and practice conducting common screenings and assessments for infancy, toddlerhood, and early childhood. Students will learn how to choose appropriate instructional strategies, practice applying them, and

discuss how to implement strategies to foster an inclusive environment and culture in home, community, and school settings.

Prerequisite: Admission to SPLED program or at least a 4th semester standing for non-SPLED majors.

SPLED 418: Technologies for Persons with Disabilities

3 Credits

This course will teach students the role of the special education teacher in supporting the use of assistive technology (AT) by individuals with disabilities in school and community settings. Students will learn the role of the special education teacher in the AT process, including (as appropriate) how to identify student AT needs, obtain information on common AT applications and devices, make first-hand use of current AT solutions, and evaluate the use of AT to address specific student needs. Students will also learn the legal responsibilities of the special education teacher in the AT procurement and implementation process. Particular attention will be given to the use of AT to assist students with disabilities in reading, writing, math, communication, and the development of social skills. Students will learn the role and responsibilities of the special education teacher on the AT team, as well as the roles and responsibilities of the other licensed professionals on the AT team. Special attention will be given to the acquisition of strategies to engage and support the participation of family members in acquiring and implementing AT interventions. Students will also be provided with resources and strategies for making use of state and national information resources and services related to AT.

Prerequisites: Entrance to SPLED Major; **Corequisites:** SPLED 395W, SPLED 425, SPLED 415, SPLED 401

SPLED 419: Assistive Technology for General Education Teachers

2-3 Credits

Strategies to support use of assistive technologies by students with disabilities in general education classrooms. SPLED 419 Assistive Technology for General Education Teachers (2-3) This course will teach students the role of the general education teacher in supporting the use of assistive technology (AT) by students with disabilities in general education classrooms. Students will learn the role of the general education teacher in the AT process, including (as appropriate) how to identify student AT needs, obtain information on common AT applications and devices, make first-hand use of current AT solutions, and evaluate the use of AT to address specific student needs. Particular attention will be given to the use of AT to assist students with disabilities in reading, writing, math, communication, and the development of social skills. Students will learn the role and responsibilities of the general education teacher on the AT team, as well as issues of "scope of practice", and the roles and responsibilities of the other licensed professionals on the AT team. Students will also be provided with resources and strategies for making use of state and national information resources and services related to AT.

Prerequisites: EDPSY 10 or EDPSY 11 or EDPSY 14 or HDFS 129 or HDFS 229 or HDFS 239 or Graduate student status

SPLED 420: Culture & Disability: Study Abroad in Ireland

6 Credits

Study aspects of culture and disability through lecture, visiting Irish disability service agencies, and guest speakers from various disability

agencies. This course is designed to increase student awareness of disability from a cross-cultural comparison between the United States and Ireland including: personal, interpersonal, and societal aspects of disability, including how disability can be defined and understood differently in varied individual, institutional and cultural contexts. Students will learn models of disability that will help (a) clearly distinguish different ways of conceptualizing disability and (b) critically think about how disability is represented and understood in varied cultural contexts. Students will examine ethical, economic, and social implications of disability. Dynamics of group, family and individual behavior that impact interactions between people, with and without disabilities, will be addressed. Interactions and assignments will aid in the introduction of students to interpersonal communication and interaction issues among international cultures. A strong emphasis will be placed on understanding disability from a variety of cultural perspectives and assessing the impact of racial, ethnic, gender, socioeconomic, and socio-political factors on disability status. Throughout the course students will engage with various service providing agencies (which may include sensory disabilities, intellectual/cognitive disabilities, and physical disabilities). Class time will be allotted to prepare for engagement and reflection as well as providing background information for understanding global policy and how to make comparisons. Students will participate in a culminating activity, such as attending the International Disability Summer School that equips students with the insights and skills necessary to translate the generalities of international positions on disabilities into tangible reform for persons with disabilities and understand disability from a global perspective. This course meets the requirement for RHS 100 (RHS majors and RHS minors and honors students), and/or up to 6 credits toward 400 level elective requirements for RHS minors. SPLED students can earn up to 6 credits towards the SPLED minor

Cross-listed with: RHS 420

International Cultures (IL)

United States Cultures (US)

SPLED 425: Foundations of Special Education, Etiologies, Law, and Implications for Practice

3 Credits

This course provides an introduction to all exceptionalities included in special education programs as delineated by the most recent Federal legislation guiding service for individuals with special needs. An important component of this course is the exploration of typical developmental stages and milestones used to monitor children's growth and progress over time. Students will learn about the different types of disabilities as categorized by Federal regulations. In addition, recent legislation is explored in relation to services provided, funding requirements, accommodations and classroom placement. This course provides future educators with a solid foundation for an understanding of disabilities, services, and legislation as they enter into the special education profession. In addition, this course will prepare students to (a) address common misconceptions and myths associated with special education, (b) work with interdisciplinary teams in the formation of Individualized Education Programs (IEP), and (c) promote the preparation of exceptional individuals to assume adult roles.

Prerequisite: Admission to SPLED program **Corequisites:** SPLED 395W, SPLED 401 and SPLED 418

SPLED 430: Foundational Skills for Working with Students with Special Education Needs in General Education Clas

1 Credits

Introduction to working with students with special education needs in the general education classroom, including history and legal foundation.

Prerequisite: teacher certification or permission of instructor

SPLED 454: Assessment for Instruction

3 Credits

Students enrolled in this course will gain knowledge related to research, theory, and practice of assessing learners with special needs across various education settings. After enrolling in this course, students will be able to describe and employ research findings and theory in the areas of (1) history and legal foundations of assessment in special education, (2) instructional decision making, (3) the technical adequacy and interpretation of norm-referenced tests, (4) the display and interpretation of data, (5) progress monitoring across content areas, and (6) assessing learners with severe needs.

Prerequisite: A grade of C or better in SPLED 395W, SPLED 401, SPLED 425 and SPLED 418
Corequisites: SPLED 404, SPLED 411, SPLED 412, SPLED 495E

SPLED 461: Introduction to Autism Spectrum Disorders: Issues and Concerns

3 Credits

Overview of issues, characteristics, and evidenced-based assessment strategies, and approaches for individuals with autism/PDD. SPLED 461 Introduction to Autism Spectrum Disorders: Issues and Concerns (3) This course will center on working with individuals having Autism Spectrum Disorders (ASD) and Pervasive Developmental Disorders (PDD) in educational and related settings. Topics include an overview of characteristics and diagnosis, ethical issues in treatment, assessment, the use of science in treatment approaches, working effectively with families, and strategies for successful inclusion of students with ASD/PDD in integrated settings. Course content will be delivered through DVD lectures, and required as well as supplemental readings. Evaluation procedures will include on line multiple-choice exams. The course will be changed to assess students through 6 (v.4) online multiple choice exams. Multiple choice format offers immediate feedback to students. To ensure assessment of applications skills, exams will include case studies in which students must apply skills to areas such as child assessment, data analysis, and strategies for working effectively with parents.

Prerequisites: 4th semester standing

SPLED 462: Autism and Applied Behavior Analysis

3 Credits

This course addresses principles of applied behavior analysis and empiricism related to instruction and special issues affecting individuals with autism. SPLED 462 Autism and Applied Behavior Analysis (3) This world campus course will include an overview of basic principles of applied behavior analysis (ABA) and elements of empiricism and ethics in educational settings. Course objectives will center on acquisition of content related to: a) principles of ABA instruction; b) ethical standards in education; c) best practice interventions for learning; d) strategies for diagnosing and programming for behavioral issues; e) special issues

affecting individuals with ASD and their families. Course content will be delivered through DVD lectures, and required as well as supplemental readings. Evaluation procedures will include on line multiple-choice exams, and on line assignments.

Prerequisite: 5th Semester Standing

SPLED 463: Communication and Social Competence

3 Credits

Overview of deficits and strategies in speech, language, and communication across the Autism Spectrum Disorder. SPLED 463 Communication and Social Competence (3) Communication and Social Competence is the third course in the 5 course (12 credit) series leading to the Professional Development Certificate in Autism. All information, activities, and assignments are through videotaped and web-based learning. Content includes an overview of the deficits in the area of speech, language, and communication across the Autism Spectrum Disorders (ASD). Basic information on the nature of these deficits is provided from both a psycholinguistic model as well as a behavioral model. In addition to information on deficits, the majority of the course content will provide practical information related to intervention.

Prerequisites: 5th Semester Standing

SPLED 464: Assessment and Curriculum

3 Credits

Overview of screening, diagnosis, and identification of skills in developmental domains and curricula for individuals with autism. SPLED 464 Assessment and Curriculum (3) Assessment and Curricula is the fourth course in the 5 course (12 credit) series leading to the Professional Development Certificate in Autism. All information, activities, and assignments are through videotape and web-based learning. Content includes types of assessment and identification of skills in developmental domains. Practical strategies will be outlined.

Prerequisites: 5th Semester Standing

SPLED 495: **SPECIAL TOPICS**

3-15 Credits/Maximum of 15

SPLED 495D: Professional Development for Special Education Teacher Candidates

3 Credits

As a new professional in the school, special educators must embrace the school and community to provide a welcoming, safe and equitable environment for all children. In this professional development course, special education teacher candidates will learn, interact and reflect on the teaching, leading, and advocacy skills needed to be effective in the classroom and beyond. Special educators play a key role in education of all students. Students will learn about the ways in which their career may look after graduation. In preparation, the criteria on which teacher candidates are evaluated, the interview process, and effective communication skills will be discussed. Special educators must collaborate with professionals in the school and community as well as family and caregivers of students to develop an effective individualized education program for each student. The course will cover the process of assessment, planning of lessons and interventions, as well as data collection and analysis for data-based decision making. Along with

effective instruction and leadership, teacher candidates will learn to advocate for all learners on their caseload, and others during this course.

Prerequisite: A C or better in SPLED 409A, 409B, 409C and 495G
Corequisite: SPLED 495F

SPLED 495E: Experience with Exceptional Children

3 Credits

Supervised and guided field experience in a variety of possible settings (e.g. schools, day care centers, vocational settings) where students will practice lesson design, deliver instruction, and develop appropriate instructional activities, while implementing behavior management.

Prerequisites: A grade of C or better in SPLED 395W , SPLED 401 , SPLED 425, SPLED 418; **Corequisites:** SPLED 404, SPLED 411, SPLED 412, SPLED 454

SPLED 495F: Practicum in Special Education

12 Credits

The student teaching experience is a culmination of previous coursework. As new teachers, graduates will enter classrooms prepared to meet the individualized academic and social needs of students. The student will be expected to plan and create a welcoming, equity minded environment for all students. The student will be expected to demonstrate appropriate assessment strategies for both formative and summative evaluation. The student will also be expected to develop appropriate lesson plans based on the Individualized Education Program (IEP) and state standards. Students will implement plans using the explicit instructional strategies and demonstrate good management strategies to enhance learning and decrease off task behavior. Students are expected to demonstrate appropriate interpersonal communication skills, as well as dependability regarding professional responsibilities

Prerequisite: A grade of C or better required in SPLED 409A, 409B, 409C and 495G **Recommended Preparation:** Clearances as required by the Pennsylvania Department of Education and the Pennsylvania State University for field experiences.

SPLED 495G: Experience with an Integrated Inclusion Classroom

3-4 Credits/Maximum of 4

Supervised teaching in integrated general classrooms with activities in curriculum- based assessment, data-driven intervention, direct instruction with students in need.

Corequisites: SPLED 409A, SPLED 409B, SPLED 409C

SPLED 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

SPLED 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Statistics (STAT)

STAT 100: Statistical Concepts and Reasoning

3 Credits

Statistics is the art and science of decision making in the presence of uncertainty. The purpose of Statistics 100 is to help students improve their ability to assess statistical information in both everyday life and other University courses. Topics covered include methods for collecting and summarizing data, analyzing the relationship between variables, and using basic probability concepts to draw conclusions about populations based on data. The course is less technical and more conceptual than Statistics 200. Statistical concepts and interpretations will dominate over techniques and calculations ζ but students should be comfortable working with fractions and square roots.

Bachelor of Arts: Quantification

General Education: Quantification (GQ)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

STAT 184: Introduction to R

2 Credits

R is a powerful, open-source programming language used widely for applications in statistics and data science. It is easily extendible, and thousands of user-created packages are publicly available to extend its capabilities. This course will introduce students to data computing fundamentals and a reproducible workflow using the R programming language and related tools. Students will be expected to access, join, wrangle, clean, and visualize real data from various sources (e.g. CSV, HTML scraping, web URL, R packages). The course will emphasize use of "tidyverse" R packages (e.g. dplyr, ggplot2), although students will also be exposed to Base R and other packages. In addition, students will be exposed to one or more integrated development environments (e.g. RStudio) and will be expected to write well-documented code using a reproducible workflow (e.g. RMarkdown, Git/GitHub). The course focuses on descriptive and graphical summary techniques rather than inferential statistical techniques

Enforced Prerequisite at Enrollment: Placement into MATH 21 or higher

STAT 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

STAT 200: Elementary Statistics

4 Credits

Descriptive statistics, frequency distributions, probability, binomial and normal distributions, statistical inference, linear regression, and correlation. STAT 200 is a standard first course in statistics. Student who have successfully completed this course will understand basic concepts of probability and statistical inference, including common graphical and numerical data summaries; notions of sampling from a population of interest, including the sampling distribution of a statistic; construction and interpretation of confidence intervals, test statistics,

and p-values; and connections between probabilistic concepts like the normal distribution and statistical inference. They will recognize various types of data, appropriate statistical methods to analyze them, and assumptions that underlie these methods. They will also gain extensive experience in the use of statistical software to analyze data and the interpretation the output of this software.

Enforced Prerequisite at Enrollment: Placement into MATH 21 or higher
Bachelor of Arts: Quantification
General Education: Quantification (GQ)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

STAT 240: Introduction to Biometry

3 Credits

Statistical analysis, sampling, and experimentation in the agricultural sciences; data collection, descriptive statistics, statistical inference, regression, one factor AOV, probability. Students may take only one course from STAT 200, 220, 240, 250 for credit. STAT 240 Introduction to Biometry (3) (GQ)(BA) This course meets the Bachelor of Arts degree requirements. This is a course concerned with statistical analysis pertaining to the natural and agricultural sciences. The objective of the course is to provide students with a good basis for understanding uncertainty and its effects on understanding observational studies and experiments. Course content includes data collection, descriptive statistics, statistical inference, regression, and ANOVA. Students will learn through lectures, individual and group problem solving, computer-based activities, and case study discussions. Since real-life use of statistics relies upon computers, this course will provide a strong hands-on analysis element necessitating regular access to computer labs. The statistical background gained by students will provide them with a base for future use of statistics in both their course work and careers.

Enforced Prerequisite at Enrollment: Placement into MATH 21 or higher
Bachelor of Arts: Quantification
General Education: Quantification (GQ)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

STAT 250: Introduction to Biostatistics

3 Credits

Statistical analysis and interpretation of data in the biological sciences; probability; distributions; statistical inference for one- and two-sample problems. STAT 250 is a standard first course in statistics, with an emphasis on applications and statistical techniques of particular relevance to the biological sciences. Students who have successfully completed this course will understand basic concepts of probability and statistical inference, including common graphical and numerical data summaries; notions of sampling from a population of interest, including the sampling distribution of a statistic; construction and interpretation of confidence intervals, test statistics, and p-values; and connections between probabilistic concepts such as normal distributions and statistical inference. They will recognize various types of data, appropriate statistical methods to analyze them, and assumptions that underlie these methods. Students will use statistical software to analyze real data.

Enforced Prerequisite at Enrollment: Placement into MATH 21 or higher
Bachelor of Arts: Quantification

General Education: Quantification (GQ)
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

STAT 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

STAT 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

STAT 300: Statistical Modeling I

3 Credits

This course is designed to serve as a bridge between introductory statistics (including AP statistics) and more advanced applied statistics courses. The course will emphasize applied statistical modeling for real data using computer software (e.g. R, Minitab). Broad statistical topics include simple linear regression, multiple linear regression, analysis of variance (ANOVA) and factorial designs, logistic regression, multiple linear regression.

Enforced Prerequisite at Enrollment: STAT 100 or STAT 200 or STAT 240 or STAT 250 or SCM 200 or PSYCH 200 or DS 200 or IE 323

STAT 318: Elementary Probability

3 Credits

Combinatorial analysis, axioms of probability, conditional probability and independence, discrete and continuous random variables, expectation, limit theorems, additional topics. Students who have passed either MATH(STAT) 414 or 418 may not schedule this course for credit.

Enforced Prerequisite at Enrollment: MATH 141

Cross-listed with: MATH 318

Bachelor of Arts: Quantification

STAT 319: Elementary Mathematical Statistics

3 Credits

Statistical inference: principles and methods, estimation and testing hypotheses, regression and correlation analysis, analysis of variance, computer analysis. Students who have passed STAT (MATH) 415 may not schedule this course for credit.

Enforced Prerequisite at Enrollment: MATH 318 or STAT 318 or MATH 414 or STAT 414 or STAT 418 or MATH 418

Cross-listed with: MATH 319

Bachelor of Arts: Quantification

STAT 380: Data Science Through Statistical Reasoning and Computation

3 Credits

A case study-based course in the use of computing and statistical reasoning to answer data-intensive questions. STAT 380 Data Science Through Statistical Reasoning and Computation (3) This course

addresses the fact that real data are often messy by taking a holistic view of statistical analysis to answer questions of interest. Various case studies will lead students from the computationally intensive process of obtaining and cleaning data, through exploratory techniques, and finally to rudimentary inferential statistics. This process will exploit students' exposure to introductory statistics as well as the R programming language -hence the required prerequisites- yet novel computing and analytical techniques will also be introduced throughout the course. For the collection of data, students will learn scripting and database querying skills; for their exploration, they will employ R capabilities for graphical and summary statistics; and for their analysis, they will build upon the basic concepts obtained in their introductory statistics course. The varied case studies will elucidate additional statistical topics such as identifying sources of bias and searching for high-dimensional outliers. A possible textbook for this course is Data Science in R: A Case Studies Approach to Computational Reasoning and Problem Solving (2015) by Deborah Nolan and Duncan Temple Lang.

Enforced Prerequisite at Enrollment: (STAT 200 or DS 200 or PLSC 309) and STAT 184

STAT 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

STAT 400: Statistical Modeling II

3 Credits

This course is intended to build directly upon STAT 300 (Applied Statistical Modeling I) for students pursuing a major in statistics or a closely related program. Topics include likelihood-based inference, generalized linear models, random and mixed effects modeling, multilevel modeling. In particular, the applied nature of the course seeks to examine the advantages and disadvantages of various modeling tools presented, identify when they may be useful, use R software to implement them for analysis of real data, evaluate assumptions, interpret results, etc.

Enforced Prerequisite at Enrollment: STAT 184 and MATH 220 and (STAT 300 or STAT 462)

STAT 401: Experimental Methods

3 Credits

Random variables; probability density functions; estimation; statistical tests, t-tests; correlation; simple linear regression; one-way analysis of variance; randomized blocks.

Enforced Prerequisite at Enrollment: MATH 111 or MATH 141

STAT 414: Introduction to Probability Theory

3 Credits

STAT(MATH) 414 is an introduction to the theory of probability for students in statistics, mathematics, engineering, computer science, and related fields. The course presents students with calculus-based probability concepts and those concepts can be used to describe the uncertainties present in real applications. Topics include probability spaces, discrete and continuous random variables, transformations, expectations, generating functions, conditional distributions, law of large

numbers, central limit theorems. Students may take only one course from STAT(MATH) 414 and 418.

Enforced Prerequisite at Enrollment: MATH 230 or Concurrent: MATH 232 or (MATH 231 and RM 214)

Cross-listed with: MATH 414

STAT 415: Introduction to Mathematical Statistics

3 Credits

A theoretical treatment of statistical inference, including sufficiency, estimation, testing, regression, analysis of variance, and chi-square tests.

Enforced Prerequisite at Enrollment: MATH 414 or STAT 414

Cross-listed with: MATH 415

STAT 416: Stochastic Modeling

3 Credits

Review of distribution models, probability generating functions, transforms, convolutions, Markov chains, equilibrium distributions, Poisson process, birth and death processes, estimation.

Enforced Prerequisite at Enrollment: (STAT 318 or MATH 318 or STAT 414 or MATH 414) and (MATH 230 or MATH 232)

Cross-listed with: MATH 416

STAT 418: Introduction to Probability and Stochastic Processes for Engineering

3 Credits

Introduction to probability axioms, combinatorics, random variables, limit laws, and stochastic processes. Students may take only one course from MATH414 / STAT 414 and MATH 418 / STAT 418 for credit. STAT 418 / MATH 418 Introduction to Probability and Stochastic Processing for Engineering (3) This course gives an introduction to probability and random processes. The topics are not covered as deeply as in a semester-long course in probability only or in a semester-long course in stochastic processes only. It is intended as a service course primarily for engineering students, though no engineering background is required or assumed. The topics covered include probability axioms, conditional probability, and combinatorics; discrete random variables; random variables with continuous distributions; jointly distributed random variables and random vectors; sums of random variables and moment generating functions; and stochastic processes, including Poisson, Brownian motion, and Gaussian processes.

Enforced Prerequisite at Enrollment: MATH 230 or MATH 231

Cross-listed with: MATH 418

STAT 418H: Probability

3 Credits

Fundamentals and axioms, combinatorial probability, conditional probability and independence, probability laws, random variables, expectation; Chebyshev's inequality. Students may take only one course from STAT(MATH) 414 and 418 for credit.

Cross-Listed

Honors

STAT 440: Computational Statistics

3 Credits

Topics related to computing in statistics, including numerical linear algebra, optimization, simulation, numerical integration, and bootstrapping. STAT 440 Computational Statistics (3) This course introduces many important ideas in statistical computing. Students are expected to possess knowledge of mathematical statistics at the level of STAT 415 and matrices at the level of MATH 220. Students will learn the statistical computing environment called R and use R to implement many of the theoretical computing topics, which include numerical linear algebra, optimization, numerical and Monte Carlo integration, random number generation and simulation, and bootstrapping. Other statistical and mathematical software may be treated briefly, including symbolic mathematics environments like Mathematica and Maple.

Enforced Prerequisite at Enrollment: STAT 200 and MATH 220 and (STAT 415 or MATH 415)

STAT 460: Intermediate Applied Statistics

3 Credits

Review of hypothesis testing, goodness-of-fit tests, regression, correlation analysis, completely randomized designs, randomized complete block designs, latin squares.

Enforced Prerequisite at Enrollment: STAT 200 or STAT 240 or STAT 250 or STAT 401

STAT 461: Analysis of Variance

3 Credits

Analysis of variance for single and multifactor designs; response surface methodology.

Enforced Prerequisite at Enrollment: STAT 200 or STAT 240 or STAT 250 or STAT 401

STAT 462: Applied Regression Analysis

3 Credits

Introduction to linear and multiple regression; correlation; choice of models, stepwise regression, nonlinear regression.

Enforced Prerequisite at Enrollment: STAT 200 or STAT 240 or STAT 250 or STAT 401

STAT 463: Applied Time Series Analysis

3 Credits

Identification of models for empirical data collected over time; use of models in forecasting. STAT 463 Applied Time Series Analysis (3) This course covers many major topics in time series analysis. Students will learn some theory behind various time series models and apply this theory to multiple examples. An introduction to time series and exploratory data analysis will be followed by a lengthy study of several important models, including autoregressive, moving average, autoregressive moving average (ARMA), autoregression integrated moving average (ARIMA), and seasonal models. For each model methods for parameter estimation, forecasting, and model diagnostics will be covered. Additional topics will include spectral techniques for periodic time series, including power spectra and the Fourier transform, and

one or more miscellaneous topics chosen by the instructor, such as forecasting methods, transfer function models, multivariate time series methods, Kalman filtering, and signal extraction and forecasting. The use of statistical software will be a central component of this course, as will the proper interpretation of computer output. Students enrolling for this course are assumed to have taken a semester-long course on regression.

Enforced Prerequisite at Enrollment: (STAT 300 or STAT 462) and (STAT 318 or MATH 318 or STAT 414 or MATH 414 or STAT 418 or MATH 418)

STAT 464: Applied Nonparametric Statistics

3 Credits

Tests based on nominal and ordinal data for both related and independent samples. Chi-square tests, correlation.

Enforced Prerequisite at Enrollment: STAT 200 or STAT 240 or STAT 250 or STAT 401

STAT 466: Survey Sampling

3 Credits

Introduction to design and analysis of sample surveys, including questionnaire design, data collection, sampling methods, and ratio and regression estimation. STAT 466 Survey Sampling (3) This course covers classical sampling design and analysis methods useful for research and management in many fields. Topics include design of questionnaires; methods of data collection, sample-survey designs including simple random sampling, stratified sampling, cluster sampling, and systematic sampling ratio, regression, and difference estimation; two-stage cluster sampling; population size estimation; methods for dealing with nonresponse; and possibly other topics at the discretion of the instructor. Statistical software will be used to apply many of the techniques covered by this course.

Enforced Prerequisite at Enrollment: STAT 200 or STAT 240 or STAT 250 or STAT 401

STAT 470W: Problem Solving and Communication in Applied Statistics

3 Credits

This is a capstone course intended primarily for undergraduate statistics majors in their last semester prior to graduation. The course is designed to reinforce problem solving and communication skills through development of writing ability, interaction with peers and the SCC, statistical consulting center (SCC), and oral presentations. Course objectives are tailored to the needs of each cohort and may include the application of statistical reasoning to real-world problems and case studies, recognition or recommendation of appropriate experimental designs, proficient use of ANOVA & GLMs with understanding of associated modeling assumptions, ability to identify concerns about the use or interpretation of statistical models in context, and both written and verbal communication of statistical findings.

Enforced Prerequisite at Enrollment: STAT 461 and STAT 462 and 7th Semester standing
Writing Across the Curriculum

STAT 480: Introduction to SAS

1 Credits

Introduction to SAS with emphasis on reading, manipulating and summarizing data. STAT 480 Introduction to SAS (1) STAT 480 addresses the fundamentals of the SAS programming language. It addresses the programming environment and major aspects of the Base SAS software, including reading in, manipulating, and transforming data. It also addresses techniques for reshaping and restructuring data files, merging and concatenating data sets, creating summaries and subsets of data sets, formatting and printing data, as well as using some of the basic statistical procedures.

Enforced Prerequisite at Enrollment: 3 credits in Statistics**STAT 481: Intermediate SAS for Data Management**

1 Credits

Intermediate SAS for data management. STAT 481 Intermediate SAS for Data Management (1) STAT 481 builds on the skills and tools learned in STAT 480 to provide intermediate level ability to use the Statistical Analysis System (SAS). It covers additional capability and major uses of the program, such as error checking, report generation, date and time processing, random number generation, and production of presentation quality output for graphs and tables. Other possible topics include advanced merging, PROC SQL, importing and exporting data sets, SAS GRAPH, and the Output Delivery System.

Enforced Concurrent at Enrollment: STAT 480**STAT 482: Advanced Topics in SAS**

1 Credits

Advanced statistical procedures in SAS, including ANOVA, GLM, CORR, REG, MANOVA, FACTOR, DISCRIM, LOGISTIC, MIXED, GRAPH, EXPORT, and SQL. STAT 482 Advanced Topics in SAS (1) STAT 482 builds on the skills and tools learned in STAT 480 and STAT 481 to provide advanced programming ability to use the Statistical Analysis System (SAS). It provides a survey of the major statistical analysis procedures, such as the TTEST, GLM, REG, MANOVA, FACTOR, DISCRIM, LOGISTIC, and MIXED procedures. Other topics include using the TABULATE procedure to create reports, generating random numbers, exporting data from SAS data sets, using the SAS/Graph module to produce presentation quality graphs, using the SQL procedure to query and combine data tables, and using macros to write more efficient SAS programs. Credit can not be received for both STAT 482 and STAT 480/481/483.

Enforced Concurrent at Enrollment: STAT 480 and STAT 481**STAT 483: Statistical Programming in SAS**

3 Credits

Introduction, intermediate, and advanced topics in SAS. Credit can not be received for both STAT 483 and STAT 480/481/482. STAT 483 Statistical Analysis System Programming (3) The three-credit STAT 483 course is a combination of the three one-credit courses STAT 480, STAT 481, and STAT 482. In STAT 480, students are introduced to the SAS windowing system, basic SAS programming statements, and descriptive reporting procedures, such as the FORMAT, PRINT, REPORT, MEANS, and FREQ procedures. In STAT 481, the focus is primarily on extending the programming skills of the students, as they learn how to read messy data into SAS data sets, how to combine SAS data sets

in various ways, how to use SAS character functions, how to read and process date and time variables, how to use arrays and do loops to write more efficient programs, and how to use the Output Delivery System to create SAS output in a variety of formats. STAT 482 provides a survey of the major statistical analysis procedures, such as the TTEST, GLM, REG, MANOVA, FACTOR, DISCRIM, LOGISTIC, and MIXED procedures. Other STAT 482 topics include using the TABULATE procedure to create reports, generating random numbers, exporting data from SAS data sets, using the SAS/Graph module to produce presentation quality graphs, using the SQL procedure to query and combine data tables, and using macros to write more efficient SAS programs. Credit can not be received for both STAT 483 and STAT 480/481/482.

Enforced Prerequisite at Enrollment: 3 credits in Statistics**STAT 484: The R Statistical Programming Language**

1 Credits/Maximum of 1

Builds an understanding of the basic syntax and structure of the R language for statistical analysis and graphics. R is a popular tool for statistical analysis and research used by a growing number of data analysts inside corporations and academia. The flexibility and extensibility of R are key attributes that have driven its adoption in a wide variety of fields. This course begins with an overview of the R language and the basics of R programming. Building upon these basic understandings and procedures, this course then provides students with hands on experience in implementing statistical analysis of data in univariate, bivariate and multivariate contexts using the R software. In addition, the course works through accessing, importing and manipulating data. Documentation of work and report writing are also important aspects of the course content, and R Markdown is utilized to illustrate best practices.

Enforced Prerequisite at Enrollment: 3 credits in Statistics**STAT 485: Intermediate R Statistical Programming Language**

1 Credits

Builds an understanding of the basic syntax and structure of the R language for statistical analysis and graphics. R is a popular tool for statistical analysis and research used by a growing number of data analysts inside corporations and academia. The flexibility and extensibility of R are keys attributes that have driven its adoption in a wide variety of fields. This course begins extends the application of statistical analyses by providing students with hands on experience implementing R in various regression and ANOVA contexts. In addition, data visualization options are considered for producing customized graphics and simple programming is learned. Documentation of work and report writing is also an important aspect of the course content.

Enforced Concurrent at Enrollment: STAT 484**STAT 487: Introduction to Statistical Analysis with Python**

2 Credits

Due to the pervasiveness of Python as a statistical analysis tool, there is a demand for statisticians to learn Python to perform descriptive and inferential data analysis. The course will take a case study approach to introduce students to Python. Students will learn to work with complex data using Python and will get hands-on experience on how to use Python to conduct statistical analyses.

Enforced Prerequisite at Enrollment: STAT 300 or STAT 460 or STAT 461 or STAT 462 or STAT 500

STAT 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small group basis.

Enforced Prerequisite at Enrollment: 6 credits in Statistics

STAT 494H: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small group basis.

Enforced Prerequisite at Enrollment: 6 credits in Statistics Honors

STAT 495: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships.

Enforced Prerequisite at Enrollment: 6 credits in Statistics

STAT 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

STAT 496A: ****SPECIAL TOPICS****

1-18 Credits

STAT 496H: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Honors

STAT 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

STAT 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Supply Chain Management (SCM)

SCM 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

SCM 200: Introduction to Statistics for Business

4 Credits

SCM 200 introduces basic statistical concepts and models within the framework of business problems and applications. Students learn about the usefulness of business statistics to decision making, how to perform basic statistical and analytical procedures, and how to interpret, critically evaluate, and analyze data. Special emphasis is given to active learning methods.

Enforced Prerequisite at Enrollment: MATH 21 or higher or satisfactory score on the mathematics placement examination

General Education: Quantification (GQ)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

SCM 200H: Honors Introduction to Statistics for Business

4 Credits

SCM 200H Honors Introduction to Statistics for Business introduces basic statistical concepts and models within the framework of business problems and applications. Students learn about the usefulness of business statistics to decision making, how to perform basic statistical and analytical procedures, and how to interpret, critically evaluate, and analyze data. Special emphasis is given to active learning methods.

Enforced Prerequisite at Enrollment: MATH 21 or higher or satisfactory score on the mathematics placement examination

General Education: Quantification (GQ)

Honors

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

SCM 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

SCM 301: Supply Chain Management

3 Credits

SCM 301 is an introductory course that provides an overview of key logistics and supply chain management processes, concepts, and methodologies. Emphasis is given to the framework for supply chain management, the analysis of logistics cost, and service trade-offs among inventory, transportation, and warehousing activities, the strategic role of information technology in supply chains, the use of third-party

logistics providers, and the methods of measuring the value of logistics performance. Instruction is based on problem-based learning pedagogy.

Enforced Prerequisite at Enrollment: ACCTG 211 and ECON 102 and (SCM 200 or STAT 200)

SCM 301H: Supply Chain Management - Honors

3 Credits

SCM 301H focuses on supply chain management concepts, principles, and methodologies for effective and efficient management of product and service operations across supply chain networks. The course explores the framework for supply chain management, the key issues and challenges, the key cost and service elements, the basic analytical tools, and the strategic role of information technology. Major themes embedded in this course include: principles and framework of supply chain management such as processes, drivers, and common decisions; the complexities of matching supply and demand in an uncertain business environment; performance metrics in determining a corporation's top and bottom lines; and the globalization of supply chains and the integration of these chains throughout all business disciplines.

Enforced Prerequisite at Enrollment: ACCTG 211 and ECON 102 and (SCM 200 or STAT 200)

Honors

SCM 320: Transport Systems

3 Credits

Strategic role of freight transportation systems and services in supply chain networks. Not available to baccalaureate business students in Smeal. SCM 320 Transport Systems (3) SCM 320 develops an understanding of the strategic role of freight transportation systems in supply chain networks. Emphasis is given to the components of transportation systems, including their technological features, operational processes, and cost conditions, the buyer-seller channels for acquiring transportation services, and the strategic and tactical alternatives for transport procurement. Instruction is based on problem-based learning pedagogy.

Enforced Prerequisite at Enrollment: SCM 301 or MKTG 301

SCM 340: Introduction to Supply Chain Analytics

3 Credits

Supply Chain Analytics studies key decision areas in supply chain design and operation using data driven methodologies. The course introduces students to strategic, tactical and operational supply chain problems including demand forecasting, risk analysis, revenue management, distribution and facility location. Through this course, data visualization and communicating data insights will be discussed. Finally, through the analysis and discussion of data students will learn to obtain useful insights on how to optimize the value of supply chain processes and operations and present these findings in the most relevant way.

Enforced Prerequisite at Enrollment: SCM 301

SCM 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

SCM 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

SCM 404: Demand Fulfillment

3 Credits

Analysis of demand fulfillment and the role of distribution operations management in the supply chain. SCM 404 Demand Fulfillment (3) This course introduces the student to how customer demand is managed and how subsequent orders are filled in both business-to-business and business-to-consumer markets. Topics focus on the demand fulfillment process, which encompasses flows of goods, information, and funds from the moment a business receives an order from a customer until all requirements for the order are satisfied in full. These topics include: *role of demand management and distribution operations in the supply chain*transportation management*distribution center processes*inventory control and order management elements*facility costing and productivity analysis*strategic demand management and distribution operations issues in the supply chain.Both theoretical and quantitative perspectives will be offered on these topics. Additionally, each topic will be addressed from strategic and financial perspectives. After completing this course, students will have the knowledge, skills, and abilities to: *Explain the role of demand management in the supply chain*Explain the role of distribution operations in demand management*Determine the strategic and financial impacts of demand management and distribution operations management*Articulate the role of information systems in demand management and distribution operations management*Use quantitative techniques to analyze supply chain processes*Describe related system software. This is one of three prescribed foundation courses for the Supply Chain and Information Systems major for which SCM 301 Supply Chain Management is a prerequisite. This course also satisfies the prerequisite for SCM 421 Supply Chain Modeling and Analysis. Student evaluations are based on individual and group homework assignments and computer-lab exercises, as well as on at least three written examinations.

Enforced Prerequisite at Enrollment: BA 302 or SCM 301

SCM 405: Manufacturing and Services Strategies

3 Credits

Investigates manufacturing and services strategies in supply chain networks. SCM 405 Manufacturing and Services Strategies (3) This course examines manufacturing and services strategies, with special emphasis given to quality management concepts, methods, and issues. After completing this course, students will have the knowledge, skills, and abilities to: ♦ Explain the role of manufacturing or services operations from the boundary-spanning perspective of supply chain management and how supply chain management can be used as a strategic competitive advantage ♦ Articulate how the various components of a manufacturing strategy are integrated, particularly

with respect to the use of information technologies for supply chains ♦ Effectively apply operational and quality tools useful in implementing manufacturing strategies. Individual and team assignments form the basis for evaluation. Evaluation methods include a combination of class participation, exams, 'hands-on' exercises, case studies, and written assignments. This is one of three prescribed foundation courses in the Supply Chain and Information Systems major for which B A 302 'Supply Chains' is a prerequisite. The course is also an important prerequisite for the capstone course in the major, SC&IS 450 'Supply Chain Leadership.'

Enforced Prerequisite at Enrollment: SCM 301 or BA 302

SCM 405H: Manufacturing and Services Strategies

3 Credits

Investigates manufacturing and services strategies in supply chain networks.

Honors

SCM 406: Strategic Procurement

3 Credits

Analysis of strategic procurement in the supply chain. SCM 406 Strategic Procurement (3) SCM 406 provides an in-depth analysis of the procurement process and supplier management, with strong emphasis placed on managing a supplier base for both products and services. Elements examined include the strategic role of procurement in supply chains, the identification and evaluation of requirements, the strategic make-versus-buy decision, how to identify, evaluate, and select potential suppliers and conduct a post-purchase evaluation; and the impact of information technology on strategic procurement. Both theoretical and quantitative perspectives will be offered. In addition, the topics will be addressed from strategic, financial, and global perspectives. In light of these perspectives, the course objectives are to develop a comprehensive understanding of: (1) the supplier selection and evaluation process (2) the relationship between product design and the supplier base (3) the types of relationships that exist between buyers and sellers (4) the impact of information technology on strategic purchasing and supply management. Students will also develop skills in using quantitative tools to select and evaluate suppliers. This is the third of three prescribed foundation courses in the Supply Chain and Information Systems major.

Enforced Prerequisite at Enrollment: BA 302 or SCM 301

SCM 415: Project Portfolio Management and Organizations

3 Credits

An advanced course in project management focusing on portfolio planning and control within the context of specific organizational challenges. MGMT 415 Project Portfolio Management and Organizations (3) Project Portfolio Management (PPM) is a strategically-focused course on the management of projects, programs, and portfolios in organizations. The management of individual projects is a complex, multi-level challenge involving myriad issues of planning, organizing, and controlling all project elements. Project portfolio management addresses a more strategic need; namely, the process of project selection in order to develop a balanced portfolio of projects designed to support organizational initiatives. As a result, this course addresses the critical issues of maximizing value in a portfolio, linking projects to organizational strategy, understanding the critical organization effects of structure, environment, and culture on project success, and

creating a coherent PPM framework for the firm. Because the focus is more strategic, the role of the instructor in this course is to go beyond the mechanics of planning and controlling a single project to training students how to think strategically where projects and programs are concerned; to recognize their role in creating a PPM plan for an organization, selecting projects for value, rebalancing a project portfolio, and maintaining this focus within the organization.

Enforced Prerequisite at Enrollment: SCM 301 and (MGMT 409 or MGMT 410 or BA 421)

Cross-listed with: MGMT 415

SCM 416: Warehousing and Terminal Management

3 Credits

Administration of warehouse and terminal functions in logistics systems, with analysis of customer service, forecasting, inventory, investment, design, and operation. Not available to baccalaureate business students in Smeal.

Enforced Prerequisite at Enrollment: SCM 301

SCM 421: Supply Chain Analytics

3 Credits

Models and Methodologies for supply chain analysis. SCM 421 Supply Chain Analytics (3) This course provides a spreadsheet-based, example-driven approach to learn about important supply chain models, problems, and solution methodologies. The objectives of this course are: (1) to develop valuable modeling skills that students can appreciate and use effectively in their careers (2) reinforce and enrich your understanding of supply chain theories, principles, and concepts studied previously in foundation courses. Student evaluation is based on: (1) individual and team group performance on problem-based exercises (2) individual performance on examinations (3) class participation.

Enforced Prerequisite at Enrollment: SCM 404 or SCM 405 or SCM 406

SCM 421H: Supply Chain Analytics

3 Credits

Models and Methodologies for supply chain analysis.

Honors

SCM 445: Operations Planning and Control

3 Credits

Aggregate production planning procedures, disaggregation methods in hierarchical production planning, master production scheduling, material requirements planning, lot-sizing, and capacity planning. Not available to baccalaureate business students in Smeal.

Enforced Prerequisite at Enrollment: SCM 301

SCM 448: Building Sustainable Supply Chains

3 Credits

This course looks at sustainability from a business perspective. In particular, it focuses on how to design businesses and their supply chains that are both economically and environmentally sustainable. Firms are under increasing pressure from governments, stakeholders, non-

governmental organizations (NGOs) and the general public to develop products and processes that have a lower impact on the environment (e.g., lower carbon emissions). The course is designed to be offered via the Case Method teaching approach. This method uses decision-focusing cases to put students in the role of people who were faced with difficult decisions at some point in the past. Students will be challenged to develop ways industries can mitigate consumption problems. The outcome is to provide students with a knowledge base in core areas of sustainability from a business (supply chain) perspective. These core areas include but are not limited to: Fundamentals, Eco-efficiency, Product Stewardship, and Sustainable Strategy.

Enforced Prerequisite at Enrollment: SCM 301 or permission of the instructor

SCM 450W: Strategic Design and Management of Supply Chains

3 Credits

Strategic design and management of supply chains. SCM 450W Strategic Design and Management of Supply Chains (3) This course is about the strategic design and effective operation of supply chains. It will help prepare you for supply chain management positions in manufacturing, distributing, and other service firms including providers of logistics services. The course focuses on the definition, as well as the application, of a single logic that guides the management of all the supply chain activities. Information decision support systems, primarily computer-based, provide the foundation for this logic. Because the determination of inventory locations and the control of inventory levels play a key role in this logic, we spend considerable time on these subjects. The last section of the course covers ways to lead and organize people to manage cross-firm and cross-functional relationships effectively. After completing this course, students should have the knowledge, skills, and abilities to: -Articulate the process perspective and the total systems view of supply chain management, the impact of systems thinking on firm performance, and the nature of relationships supply chain networks. -Quantify the effect of strategic initiatives such as postponement and risk pooling on the financial performance of the firm, as well as on supply chain performance. -Use and apply selected quantitative tools useful in implementing supply chain strategies. -Explain the complex nature of human interaction needed to successfully introduce supply chain concepts in the firm. This is the prescribed capstone course for the Supply Chain and Information Systems major. It builds upon the fundamental supply chain knowledge, skills, and abilities developed in foundation and intermediate courses. Students must complete SCM 421 before taking this course. SCM 450W is a writing-intensive course. In addition to written assignments encompassing case studies, hands-on exercises, and examinations, student evaluations include oral presentations and class participation.

Enforced Prerequisite at Enrollment: SCM 421
Writing Across the Curriculum

SCM 455: Logistics Systems Analysis and Design

3 Credits

Customer service, inventory management, transportation, warehousing, purchasing, international logistics, site location planning and analysis, and total cost analysis.

Enforced Prerequisite at Enrollment: SCM 301 or SCM 310

SCM 460: Purchasing and Materials Management

3 Credits

Purchasing policies, procedures, order specifications and agreements, supplier selection, and the role of purchasing in production planning and inventory management. Not available to baccalaureate business students in Smeal. This is an online introductory Web course on purchasing and materials management. As such, its focus will be on the management of the purchasing and materials management functions. We will emphasize the overall goals of purchasing, which include: providing an uninterrupted flow of materials and services; keeping inventory at a minimum to achieve the objectives of the company; maintaining quality standards; developing competent suppliers; standardizing the item bought; obtaining the lowest ultimate price; improving the organization's competitive position; and achieving good external and internal working relationships. Key topics to be covered include: purchasing policies and procedures, order specifications and agreements, supplier selection, and the role of purchasing in production planning and inventory management. The use of SAP R/3 Enterprise Resource Planning system will be an integral component of this course. Students will complete numerous lab projects consisting of hands-on assignments in the use of the SAP R/3 Materials Management application. SAP R/3 assignments will include the processing of material master records, vendors, requisitions, request for quotes, quotation analysis, purchase order creation, purchase receipts, and invoice processing.

Enforced Prerequisite at Enrollment: SCM 301 or SCM 310

SCM 465: Electronic Business Management

3 Credits

A problem-based exploration of the various electronic business tools and technologies required to efficiently manage a supply chain. Not available to baccalaureate business students in Smeal.

Enforced Prerequisite at Enrollment: SCM 301 or SCM 310

SCM 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

SCM 494H: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Honors

SCM 495: Internship in Supply Chain Management

1-3 Credits/Maximum of 6

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

SCM 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

SCM 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

SCM 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Surveying (SUR)

SUR 111: Plane Surveying

4 Credits

Plane surveying principles; basic measurement statistics; use and care of equipment; traversing, area, and coordinate computations; differential leveling; RTK-GPS measurements. SUR 111 Plane Surveying (4) The objectives of this first course in surveying is to introduce the surveying profession and cover the fundamental methods of plane surveying which include use and care of equipment, field procedures, computations, and measurement error theory. As a result of completing the classroom component of the course, students will be able to: (1) make accurate conversions between commonly used surveying units, (2) apply the rules of significant figures to surveying measurements and calculations, (3) identify sources and types of error in surveying measurements, (4) understand differential leveling theory including note-form, survey closure, and loop adjustment, (5) compute the standard error of a set of repeated measurements and establish an acceptable range of observed values based upon a specified level of confidence, (6) adjust a set of measured angles and compute line directions for a closed traverse, (7) compute and adjust by compass rule the departures and latitudes of a closed traverse, (8) apply coordinate geometry methods to compute coordinates, direction, distance, and area. As a result of completing the laboratory component of this course, students will be able to: (1) perform a differential leveling survey within FCGS third order work, (2) perform a closed traverse survey with a relative precision of 1/10,000 using a total station, (3) use the RTK-GPS field method to measure position of stations in a closed traverse, and (4) complete a set of traverse computations for a closed traverse and present them in a prescribed format. SUR 111 is a prerequisite to all SUR courses. Student performance is based upon a mixture of homework, field exercises, writing assignments, quizzes, exams and a course portfolio. The final exam is comprehensive. All field exercises are held outside and on the campus grounds. Students must dress for weather conditions of the day of the laboratory exercise.

Enforced Concurrent at Enrollment: MATH 26 or MATH 40 or MATH 140

SUR 121: Elementary Surveying

3 Credits

The objectives of this first course in surveying are to introduce the surveying profession and cover the fundamental surveying principles, techniques, and practices. Concepts covered in the course include: Introduction to surveying principles and practices; basic measurement statistics; use and care of equipment; differential leveling; measurement and computations of distances, angles, and directions; field note keeping; surveying safety; surveying profession. As a result of completing the classroom component of the course, students will be able to: (1) make accurate conversions between commonly used surveying units, (2) apply the rules of significant figures to surveying measurements and calculations, (3) identify sources and types of error in surveying measurements, (4) collect and adjust differential leveling measurements, (5) understand angles, azimuths, and bearings used in surveying, (6) collect angle and distance measurements using modern surveying instruments and techniques, (7) compute accuracy / precision statistics for angle and distance measurements, (8) collect measurements of coordinate geometry problems.

Enforced Concurrent at Enrollment: MATH 26 or MATH 40 or satisfactory performance on the mathematics placement examination.

SUR 122: Control Surveying

3 Credits

This course builds on the concepts learned in SUR 121 to establish vertical and horizontal control using traversing procedures and GNSS techniques. Students will be able to: (1) collect angle and distance measurements; (2) adjust a set of measured angles and compute line directions for closed and link traverses; (3) compute and adjust the departures and latitudes of a closed and link traverse; (4) use adjusted observations to compute adjusted coordinates, directions, distances, and area; (5) understand the relationships between the physical earth, the geoid, and ellipsoid; (6) perform coordinate transformations from geocentric to geodetic coordinates, and from geodetic to mapping coordinates; (7) understand the use of map projections in the state plane coordinate system, and the use of coordinate systems in large mapping and construction projects; (8) perform reduction of observations; (9) understand basic GNSS measurement principles; and (10) establish vertical and horizontal control using a variety of GNSS techniques. As part of the outdoor labs students will be able to: (1) perform a closed and link traverse survey using a total station, (2) use total station technology to establish vertical and horizontal control; (3) use GNSS technology to establish vertical and horizontal control; (4) design and establish vertical and horizontal control to support mapping and construction applications.

Enforced Prerequisite at Enrollment: SUR 121

SUR 132: Surveying Software Analysis Tools

3 Credits

SUR 132 is an introductory course in computer programs that are frequently being used in surveying for mapping, land information systems, and surveying product delivery. Standard industry software is used, including but not limited to CAD and GIS, for generating surveying products, maps, and databases. As part of the course students will be able to: (1) draw planimetric features relevant for surveying (e.g., deeds, parcels, buildings, sidewalks, etc.) (2) create contours and terrain models from various datasets (e.g., ground shots, aerial datasets,

satellite datasets) to depict topography; (3) create and edit geospatial datasets and geodatabases relevant for surveying, mapping and land parcel information systems; (4) convert and transfer datasets from CAD to GIS and vice versa (interoperability between different software); (5) understand basic mapping elements and map design concepts; and (6) use of appropriate scale, mapping, and visualization concepts for technical and non-technical communication with maps;

Enforced Concurrent at Enrollment: SUR 122

SUR 162: Methods in Large Scale Mapping

3 Credits

CAD applications in mapping; data collection using traditional and satellite techniques; map compilation; COGO. SUR 162 Methods in Large Scale Mapping (3) SUR 162 is the basic mapping course in the curriculum. The concept of reference datum is introduced; the US national spatial reference system is described. Map design considerations such as scale are introduced. Map compilation emphasizes computer aided drafting. Basic standards and procedures of control and mapping surveys are introduced. Basic concepts of coordinate geometry are introduced. Laboratory exercises incorporate practice in control and mapping surveys, in map compilation and in application of coordinate geometry. As a result of completing the classroom component of the course students will be able to (1) describe hardcopy and softcopy maps, (2) describe the standard series of maps in the US National Mapping Program, (3) describe US national map accuracy standards, (4) apply map design considerations such as map clarity, order and balance, (5) calculate scale and map layout, (6) apply procedures of interpolation to calculate positions of contours, (7) describe the use of triangulated irregular networks to create contours, (8) describe components of the US national spatial reference system, (9) describe design considerations for triangulation, trilateration, traverse and precise leveling, (10) describe the survey procedures used to locate contours, (11) describe procedures to make a digital elevation model, (12) design a survey to collect mapping data using a data collector to enable efficient drawing, (13) use coordinate geometry to calculate position and elevation of a feature, to calculate direction and distance of a line, to calculate coordinates of a station using intersection, to calculate coordinates of an occupied station using resection. As a result of completing the laboratory component of the course students will be able to (1) set up a new map compilation project in a mapping program, (2) create and use blocks for standard map features (eg borders, title boxes), (3) use mapping program COGO features, (4) use mapping program contouring capabilities to create a digital terrain model, (5) use mapping program features to load collected positional data and draft a manuscript, (6) design and conduct a control traverse, and a mapping survey to collect data using an electronic data collector.

Enforced Prerequisite at Enrollment: SUR 111 and EDSGN 100

SUR 212: Route and Construction Surveying

4 Credits

Circular, compound, spiral horizontal curves; equal, unequal tangent vertical curves; alignments, earthwork; control, building, pipe, street, and as-built construction surveys. SUR 212 Route and Construction Surveying (4) SUR 212 builds directly upon the fundamental surveying principles presented in SUR 111 (Plane Surveying), particularly traverse methods and coordinate geometry calculations. The course covers the fundamental geometric computations for street alignment design starting with simple circular, compound circular and spiral horizontal

curves. This includes computation for intersection angles, radius, length, tangents, degree of curvature, stationing and stake-out calculations using coordinate geometry methods. The topics of vertical curve analysis follow which includes street grade, rate of change of grade, stationing, low and high points, passing a curve through fixed point and other alignment related analysis and design. Both equal tangent and unequal tangent vertical curves are discussed. Vertical curves are followed by street cross-sections, templates, slope stake locations, cut/full, earthwork computations and other aspects of 3-D alignment design. Once curve geometry and street alignment calculations are covered, the course moves into field stake-out methods for construction. Street alignment stake-out is covered first, using industry standard software with traditional and RTK-GPS equipment. A road alignment project is used to combine the aspects of geometric analysis and design with field stake-out methods including a control survey. Beyond street stake-out, other construction surveys are addressed including building, pipe line, culverts, storm and sanitary sewers, as-built and other construction related surveys. The laboratory exercises present field methods for construction projects in accordance with design specifications. Computations of earthwork volumes are also covered for other construction projects beyond that of street alignments.

Enforced Prerequisite at Enrollment: SUR 162

SUR 213: Route and Construction Surveying

3 Credits

SUR 213 builds upon and uses concepts from SUR 121 and SUR 122 applies them in route and construction applications. The course covers stake out subdivisions and buildings for development, horizontal and vertical roadway computations and stake-out. In addition, the course provides a base knowledge of buildings, bridges, culverts, pipelines, sewers, earthwork volumes, erosion and sedimentation, and as-builts as it pertains to survey construction. The laboratory exercises focus on field methods for route and construction layout projects in accordance with design specifications. CAD is being used throughout the course for design and layout lab assignments, and to prepare surveying deliverables.

Enforced Prerequisite at Enrollment: SUR 122

SUR 221: Large-scale Mapping Surveys

3 Credits

SUR 221 is the basic mapping course in the curriculum, which also considers project management and client considerations. The course begins with client considerations and outlying what products will be delivered; typically, a report of record of survey maps and analyses showing the degree to which required survey standards have been met. Economic feasibility, contracting, budgeting and project management concepts of mapping surveys are also considered. Students complete a control survey using GNSS methods that will be used to support the data collection. Through traversing and detailing using a total station, students collect side shots and ground shots. GNSS techniques are also introduced for collecting side shots and ground shots. Collected datasets are used to create a topographic map in CAD to meet client requirements and specifications. Students compile a detailed report of survey.

Enforced Prerequisite at Enrollment: SUR 122 and SUR 132 Enforced Concurrent at Enrollment: EDSGN 100

SUR 222: Photogrammetry

3 Credits

Basic principles of metric photogrammetry with single and stereopair photos; coordinate transformations; map production with stereo imagery; flight planning. Lab. SUR 222 - Photogrammetry (3) Photogrammetry covers the basic principles of aerial photography and the geometry of the optics in relation to aerial cameras. Mathematical theories for refining and processing measurements from single aerial photographs are developed. Such measurements are transformed to obtain real world coordinates of features on the surface of the earth. Two-dimensional conformal, affine, and projective coordinate transformation equations and the three-dimensional conformal coordinate transformation equations are developed and applied to the measurements on the photographs. In addition, the theory underlying the geometry of stereopairs of photographs are developed and used to determine elevations of features on the photograph. Stereographic equipment and software are used to produce accurate topographic maps of the overlap areas between stereopairs. The course also covers procedures and considerations for planning an aerial photography mission which include flight planning, cost analysis, equipment selection, placement of photo controls, and overall project management.

Enforced Concurrent at Enrollment: SUR 162

SUR 241: Surveying Measurement Analysis

3 Credits

Surveying Measurement Analysis explores the fundamental concepts of statistical error analysis with applications to surveying measurements. It covers the normal distribution function and theories describing the fundamental procedures in data, including measures of central tendency and measures of data variation. It then explores sampling distribution theory and develops statistical confidence intervals and testing using the χ^2 , student's t, and F distributions. Fundamental concepts in the propagation of variance are developed and applied to the traditional surveying observations of angles, distances, azimuths, elevation differences. These error propagation techniques are further used to explore the propagation of variance in traditional traverse computations. The accompanying lab exercises help reinforce and validate the theoretical foundations of this class.

Enforced Prerequisite at Enrollment: SUR 121 **Enforced Concurrent at Enrollment:** MATH 110 or MATH 140

SUR 262: Coordinate Systems in Map Projections

2 Credits

Introduction to coordinate systems used in the Lambert, Mercator, Transverse Mercator, and UTM map projections; reduction of surveying observations. SUR 262 Coordinate systems in Map Projections (2) Coordinate systems in map projections covers the fundamental relationships between the physical earth, the geoid, the ellipsoid and map projections. It will explore the use of map projections in state plane coordinate systems, and the use of these coordinate systems in large mapping and construction projects. The course explores the corrections that must be made to properly use these coordinate systems including the reduction of observed elevations, distances, azimuths and angle.

Enforced Concurrent at Enrollment: (MATH 110 or MATH 140) and SUR 162

SUR 272: Cadastral Surveying

3 Credits

Evolution of land records systems; PLS: property ownership and conveyancing; common and statute law; rules of construction; boundary location procedures.

Enforced Prerequisite at Enrollment: SUR 111

SUR 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

SUR 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

SUR 313: Integrated Surveying

3 Credits

The course objectives are directed toward providing instruction and practical experience in activities common in surveying practice, experience requiring the integration of virtually all abilities gained in previous surveying courses. The class is organized as a student surveying company with the instructor as general supervisor. Objective 1 of the student surveying company is to analyze a letter from a client (the instructor) requesting a survey. The letter will request a survey (typically ALTA boundary or construction). The client letter will specify standards (ALTA and other) the survey is to meet, standards commonly required in survey practice. The client letter will specify products to be delivered, typically a report of record of survey maps and analyses showing the degree to which required survey standards have been met. In addressing objective 1, students determine exactly what work needs to be done to satisfy client requirements. Typically these include several sub-surveys: (1) a relatively long-range satellite (GNSS) survey to bring control into the project area, (2) a traditional local control survey to create a control network to control subordinate surveys and the surveys producing what the client has requested, typically boundary retracement and mapping surveys. The result of work on objective 1 is the organization of the class into coordinating groups, one per sub-survey plus two additional groups for report compilation and editing and map production and editing. Objective 2 of the student surveying company is to develop detailed work plans for sub-surveys, report preparation and map production. The result of work on objective 2 is the set of work plans. A written contract (as a letter of understanding) between the student surveying company and the client is prepared. Objective 3 is to perform that record search, field work, data analysis, mapping and preliminary report writing for the sub-surveys necessary to meet client requirements. Objective 4 is to compile the final report of survey.

Enforced Prerequisite at Enrollment: SUR 221 **Enforced Concurrent at Enrollment:** SUR 213 and SUR 373W

SUR 341: Adjustment Computations

3 Credits

Adjustment computations covers the basic theory and mechanics of a least squares adjustment using the traditional surveying observations of distances, angles, azimuths, and elevation differences. It explores the theory of error propagation, and uses this theory to determine the precision of indirectly measured quantities. It explores post-adjustment analysis through the use of various statistical tests, and error ellipse computation and analysis. This course primarily focuses on the least squares adjustment and analysis of differential leveling, triangulation, trilateration, traverse, and network observations. Plane fitting, parametric model estimation, and regression analysis are also covered.

Enforced Prerequisite at Enrollment: SUR 241 and SUR 122 and MATH 220 Enforced Concurrent at Enrollment: (CMPSC 200 or CMPSC 201) and (STAT 200 or STAT 401)

SUR 351: Geodetic Models

3 Credits

Three dimensional geodesy; computations on the ellipsoid; map projections; reduction of observations and elements of physical geodesy. SUR 351 Geodetic Models (3) Course covers the basic gravimetric and geometric geodesy aspects as related to surveying. Motions of the Earth and the effect on reference systems are explored. The Earth's gravity field, its measurement, reduction of gravity observations to the geoid, uses for gravity and gravity anomalies are studied. Different coordinate reference systems are studied including astronomic, geodetic, and satellite coordinate systems. Transformation between the various coordinate systems is covered while also considering crustal plate motion. Basic mathematical representations and transformations between various representative ellipsoids are explored. Satellite navigation and positioning is discussed at a rudimentary level. Both point positioning and relative positioning techniques are discussed.

Enforced Prerequisite at Enrollment: MATH 141 and SUR 262

SUR 352: Geometric and Physical Geodesy

3 Credits

This course provides a thorough background on geometric and physical geodesy. With respect to Geometric Geodesy the course covers: Computations to the ellipsoid and coordinate transformations between various coordinate systems, considering crustal plate motion. The astronomic, geodetic, and satellite coordinate systems are studied. Satellite navigation and positioning is discussed at a rudimentary level. With respect to Physical Geodesy the course covers: The Earth's gravity field, its measurement, reduction of gravity observations to the geoid, uses for gravity and gravity anomalies are studied. Geoid determination, Stokes's formula, the remove-restore methods, least-squares collocation. Vertical positioning and height datums and systems. Principles and applications of airborne, terrestrial, and satellite gravimetry and satellite altimetry.

Enforced Prerequisite at Enrollment: SUR 122 Enforced Concurrent at Enrollment: (MATH 230 or (MATH 231 and MATH 232)) and (MATH 251 or (MATH 250 and MATH 252))

SUR 361: Surveying Laser Scanning

3 Credits

Introduction to laser scanning surveying. Principles of Light Detection And Ranging (LiDAR) technologies from terrestrial and mobile platforms. The process of point cloud generation from LiDAR techniques are discussed. The course covers the registration and geo-referencing process from multiple scans for indoor and outdoor data acquisition, as well as the direct geo-referencing and point cloud generation from mobile platforms. Error sources in terrestrial and mobile sensors and their system calibration procedures for quantifying and modeling such errors. Industry standard software is used for processing and analysis of point clouds for surveying applications related to 3D modeling, terrain modeling, creating drawings in CAD, and change detection of natural and man-made structures.

Enforced Prerequisite at Enrollment: SUR 122 Enforced Concurrent at Enrollment: SUR 132 and SUR 241 and (MATH 110 or MATH 140)

SUR 362: Introduction to Geospatial Information Engineering

3 Credits

Geospatial information technology provides a means through which data about land can be analyzed to obtain information that may be used to support land management decisions. The objective of this course is to teach students to collect and process spatial data, analyze and make decisions, and to communicate the results using maps and other information delivery formats. This course begins with the introduction of geospatial technology and its application in decision making, resource allocation and management, a socio-economic development. Students learn the different types of data that are used in geospatial information technology. They learn about graphical data structures as well as descriptive databases and how to build them. Spatial data models are discussed together with their advantages and drawbacks, as well as descriptive databases. Students capture various datasets from the field, convert them into usable formats, and process them using the models that have been discussed so as to reinforce the knowledge. The use of technology for land parcel information management is discussed. Procedures for performing geospatial analyses and querying databases are discussed and students conduct laboratory exercises using the field data that they captured. Map making techniques are discussed and students learn to communicate the results of analysis through maps.

Enforced Prerequisite at Enrollment: SUR 132 Enforced Concurrent at Enrollment: SUR 222 and (MATH 110 or MATH 140)

SUR 372W: Legal Aspects of Land Surveying

3 Credits

Legal research; rules of evidence including classification and evaluation; unwritten rights; land description composition; easements.

Enforced Prerequisite at Enrollment: SUR 272 Writing Across the Curriculum

SUR 373W: Cadastral and Legal Aspects of Surveying

4 Credits

Cadastral surveying and law related to land surveying and property rights are the basis of this course. The course provides a review of the evolution of land records systems in the US. The creation and retracement of sectionalized and non-sectionalized boundaries are

discussed. U.S. and Pennsylvania statutes and common law related to topics such as boundary retracement, boundary resurvey, adverse possession, easements, and boundary evidence are researched and reported by the students. Boundary retracement principles such as the rules of construction, boundary location procedures, and legal research and collection of written and measured evidence are discussed with a focus on finding a nexus between the two types of evidence. In addition, the course covers the rules of evidence including classification and evaluation. Unwritten rights, easements, and riparian rights are also discussed. The principles of land description composition are provided, and the students apply them in realistic scenarios that are writing intensive. Students perform legal research in real case studies, collect data related to record boundaries (e.g., previous deeds), and make an analysis of the property's history and property survey. Students will have to write extensive reports of their findings and use principles of effective surveying communication to prepare a report to the client including "record of survey" maps.

Enforced Prerequisite at Enrollment: SUR 122 and SUR 132
Writing Across the Curriculum

SUR 381: Stormwater Hydraulics and Hydrology

4 Credits

Stormwater Management Hydraulics and Hydrology is an elementary treatment of common design practices used to create stormwater management plans for small to medium sized land development projects. Erosion and sedimentation design is also addressed within the context of a stormwater management plan. The course is intended for engineering students who are not required to take formal fluid mechanics or hydrology courses, yet have a need to understand or complete the design aspects of stormwater management as it relates to their professional practice. The course contains three segments. The first segment covers the elementary hydraulics necessary to design drainage structures and storm water detention facilities. These topics include fluid statics, continuity, conservation of mass, conservation of energy, friction losses, minor losses, energy grade line, open channel flow, weirs and orifices. The second segment covers elementary hydrology methods used to analyze runoff from land development sites and small to medium watersheds. The hydrology topics include watershed characteristics, rainfall, abstractions, runoff, time of concentration, peak flow methods, hydrograph methods, basic channel routing and detention basin routing. The third segment covers government regulations and common design methods used to design storm sewers, detention basins and erosion control plans. A project includes the design of a stormwater management system for a residential subdivision.

Enforced Prerequisite at Enrollment: MATH 141 and Sixth Semester standing

SUR 382: Subdivision Design

2 Credits

Introduction to Land Development Design is targeted for students in the Surveying Engineering Technology program. The course covers the basic surveying principles as these are applied to residential development and the subdivision of parcels. Overview of private restrictions and public regulations of land use, the planning process, local zoning ordinances and subdivision regulations. Students complete a basic design project in CAD. The design follows the Subdivision and Land Development

Ordinance (SALDO) code, and it also considers topography, zoning, utilities, existing and proposed roads, and client requirements.

Enforced Prerequisite at Enrollment: SUR 213 and SUR 221 Enforced Concurrent at Enrollment: SUR 373W

SUR 421: Advanced Photogrammetry

3 Credits

Advanced mathematical methods for processing digital imagery and point clouds, and applications in surveying. This course is designed to provide a deeper understanding of the mathematical models used in Photogrammetry. New techniques are also presented, such as Structure from Motion (SfM) and Simultaneous Localization and Mapping (SLAM) for surveying applications. Platforms that are considered are terrestrial (close-range photogrammetry) and aerial (UAS and airborne photogrammetry). The course covers image alignment and georeferencing using ground control points (indirect) and multisensory direct georeferencing. Occlusion detection and true-orthophoto generation, together with image block mosaicking and refinement, are presented. Camera calibration and self-calibration approaches are discussed. The course also discusses principles and requirements for designing point cloud surveys that meet project needs.

Enforced Prerequisite at Enrollment: SUR 132 and SUR 222 and MATH 220

SUR 422: Digital Photogrammetry

3 Credits

Mathematical methods for processing digital imagery, creating digital elevation models and ortho-photographs, and applications in spatial data infrastructure. SUR 422 Digital Photogrammetry (3) As a continuation to an existing photogrammetry course, this course is designed to provide a deeper understanding of the mathematical principles of photogrammetry as well as current applications of photogrammetric mapping. In recognition of the increasing use of digital images in geospatial technologies, especially in applications involving natural resource inventory and mapping, this course provides advanced knowledge in softcopy photogrammetry. This course deals with mathematical methods for processing tilted aerial photographs. Two- and three-dimensional coordinate transformation methods for correcting the geometry of digital imagery are taught. These are followed with the development of collinearity equations for analytical aerotriangulation and the adjustment of a block of photographs. Extraction of contours and development of elevation models are also taught. Creation of digital ortho-photographs, mosaics and color balancing of mosaicked images are discussed. Applications of ortho-rectified digital images in geospatial technologies are also taught. Laboratory exercises include the use of computer hardware and software to enhance and classify remotely sensed images, apply softcopy photogrammetry methods to develop contour maps, digital elevation models, and digital orthophotographs from a block of photographs. The course has direct relationship to photogrammetry, adjustment computations, and multipurpose land information systems which are all taught in the surveying program. It is a required course which is offered to baccalaureate degree students in the surveying engineering program. Academic achievement is evaluated through quizzes, home works, and examinations.

Enforced Prerequisite at Enrollment: MATH 220 and SUR 362

SUR 424: Monitoring Applications in Surveying

3 Credits

Engineering structures, natural and man-made, must be monitored periodically to ensure their safety of operation. Monitoring is a challenging task that necessitates robust surveying methods. This course discusses advanced mathematical and surveying methods for monitoring applications in surveying engineering. Monitoring using total stations, GNSS, and point clouds methods are discussed. Point cloud methods include laser scanning and photogrammetric datasets acquired from terrestrial and aerial platforms. Often in monitoring applications an integration or combination of the abovementioned datasets is necessary; therefore, this course covers the optimal integration of these datasets. The course covers multi-epoch comparisons and robust statistical analysis to distinguish between actual changes and apparent changes due to noise. Monitoring of one or more of the following structures are covered: buildings, bridges, dams, tunnels, levees, rockfalls, landslides, and coastal erosion.

Enforced Prerequisite at Enrollment: SUR 222 and SUR 361 and SUR 241
Enforced Concurrent at Enrollment: SUR 441

SUR 432: Geospatial Applications in Surveying

3 Credits

Airborne and satellite methods are increasingly used in surveying applications for topographic mapping, building extraction and modeling, and monitoring. This course focuses on advanced geospatial principles and techniques in surveying with emphasis on GIS tools for mapping, identification, extraction, and interpretation of both physical and cultural landscape features. Visible imaging, RADAR, hyperspectral, and LiDAR sensors for airborne and satellite platforms are presented. Georeferencing of airborne and satellite datasets. Terrain filtering and modeling, feature extraction methods, classification, and segmentation in GIS using imagery and point clouds. Hydrographic approaches from airborne LiDAR and satellite imagery are covered. This course also brings an introduction to airborne and spaceborne SAR Interferometry for terrain mapping and monitoring applications.

Enforced Prerequisite at Enrollment: SUR 132 and SUR 222 and SUR 361

SUR 441: Data Analysis and Project Design

3 Credits

Post least squares adjustment analysis of control networks, statistical testing, blunder detection, network design considerations, and computer optimization techniques.

Enforced Prerequisite at Enrollment: STAT 200 and SUR 341

SUR 455: Precise Positioning Systems

3 Credits

The course provides a background on stellar coordinate systems and reviews the main geodetic reference coordinate systems used with GNSS technology. Satellite orbital theory provides the basis for understanding GNSS operation. GNSS concepts that are also covered include pseudo-ranging, GNSS error sources, and GNSS vector adjustment. The mathematical and field techniques that are followed to eliminate and/or reduce GNSS errors (e.g., satellite orbits and clocks, troposphere and ionosphere, receiver clock, multipath and noise) are presented and reinforced through practical problems with real data. The GNSS static and

kinematic techniques for setting control points and perform surveying mapping tasks are demonstrated. Students collect their own data, and they use standard industry software to adjust their measurements, and to demonstrate that uncertainty is sufficient for the project application at hand. The course also covers inertial sensors and inertial navigation for modern surveying technologies, as well as the integration of GNSS and inertial sensors for mobile mapping.

Enforced Prerequisite at Enrollment: SUR 352 and PHYS 214 and (MATH 230 or (MATH 231 and MATH 232))
Enforced Concurrent at Enrollment: SUR 441

SUR 462: Parcel-Based Geospatial Information Systems

3 Credits

Acquisition processing of land parcel data; development of land information system and applications in geospatial information technology. SUR 462 Parcel-Based Geospatial Information Systems (3) People and cultures around the world have different perceptions of land. Land has different value to many people. As a natural resource, with finite size, there are always competing interests when it comes to allocation use and management of units of land. The basic unit of land is the parcel. All activities are associated with land parcels. With such competing interests, it is important to manage land and its resources in an effective manner so as to ensure its sustainability. To ensure proper stewardship of land, data about each land parcel must be maintained so that information from parcel-based geodatabases may be used to support decisions involving land, people, and communities. Parcel-based information technology serves as a component of the geospatial technology with special applications in place-based information. This course builds on the knowledge obtained from SUR 362, Geospatial Information Engineering course. It begins by considering various perceptions of the use and value of land to different cultures, communities, and organizations. A justification is made for the need to manage land and resources in land in order to promote good stewardship. The use of technology for land parcel information management is discussed. From there the course progresses through land parcel data types and sources, data conversion and geodatabase development. Applications of land parcel data in place-based information management are discussed. Accuracy considerations for parcel data in various applications are also discussed. Spatial analysis and methods for presenting or communicating results are discussed.

Enforced Prerequisite at Enrollment: SUR 362 and SUR 372W

SUR 471: Professional Aspects of Land Surveying

3 Credits

Ethical issues and legal limits of practice; surveyor as an expert witness; surveyor-client relationship; responsibilities to the profession.

Enforced Prerequisite at Enrollment: SUR 372W

SUR 482: Land Development Design

3 Credits

The land development process; geometric, environmental, aesthetic aspects of development; local regulatory requirements; preparation of final plat and report. SUR 482 Land Development Design (3) Land development design is designed for seniors in Surveying Engineering and covers the basic principles of residential design and development. The objective of the course is to provide students with exposure to elements

of the land development process from an engineering perspective. Topics covered include land development regulations, site analysis of soils, site evaluation in terms of opportunities and constraints, sketch design, site layout, preliminary design, street layout including horizontal and vertical design, grading plan, drainage design, stormwater management, sewer and water, and erosion and sedimentation controls. Students work in teams of two or three on a design project for a local property. Students will utilize AutoCAD Civil 3D (or similar software) and the Virginia Tech/Penn State Urban Hydrology Model (VTPSUHM) (or similar) in the project design. A site visit to the design property is included in the course. At the end of the course, student teams will exchange their project designs and critique each other's work from the view point of a township engineer. Designs are evaluated for adherence to a pre-selected municipal subdivision and land development ordinance (SALDO). Students are required to present their final designs to the class. They must be prepared to explain their work and defend any design elements that are questioned during the presentation. After completion of this course, students will be able to: 1) evaluate a site for land development potential, 2) prepare sketch designs for a proposed land development site, incorporating opportunities and constraints, 3) prepare a preliminary design including street alignment for a residential subdivision, sanitary sewer for a residential subdivision, storm sewer with inlets and inverts and a grading plan; and 4) prepare a mock final plan for public review and presentation.

Enforced Prerequisite at Enrollment: SUR 212 and SUR 372W
Enforced Concurrent at Enrollment: SUR 381

SUR 490: Seminar in Surveying

1 Credits

Individual or group work in surveying.

Enforced Prerequisite at Enrollment: Senior standing

SUR 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

SUR 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Sustainability (SUST)

SUST 150N: The Science of Sustainable Development

3 Credits

This course will focus on how human society depends on the environment for its continued existence. It will examine several major topics relating to environmental and social sustainability including ecosystem conservation, sustainability of food systems with special reference to the water-food-energy nexus, and current and future trends in urbanization. Within each of these topics, students will learn fundamental scientific principles and use this information to gain a better understanding of what human behaviors have led to our current resource production and consumption crisis. This class will explore ways people

can modify behavior to relieve poverty in developing nations and meeting basic human needs while still affording economic growth, environmental protection, and social equality to all peoples around the world.

General Education: Natural Sciences (GN)

General Education: Social and Behavioral Science (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

SUST 200: Foundations of Leadership in Sustainability

3 Credits

SUST 200 will teach the fundamental concepts of social, environmental, and economic sustainability and the interrelationships between these metrics and human behavior. The goal of this course is to provide students with a foundation in sustainability literacy and responsibility that will facilitate their development as global citizens and sustainability leaders in their respective fields and personal lives. The course will be an introduction to and foundation for the Sustainability Leadership Minor. Primary subjects covered include sustainability literacy, the ethical foundations of sustainability, the scientific metrics used to evaluate the sustainability of systems, energy literacy, sustainable business principles, and self-awareness. The course will emphasize the importance of understanding the relationships among these topics, and the interdisciplinary approaches needed to develop a comprehensive and integrative view of the world. Class activities will focus on the cultivation of communication, critical thinking, inquiry, and problem-solving skills. Emphases will be on student engagement in personal, community, and global sustainability challenges, and the preparation of students for more immersive sustainability learning opportunities.

General Education: Social and Behavioral Science (GS)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Soc Resp and Ethic Reason

SUST 242N: Issues in Sustainability

3 Credits

This course is part of the General Education Integrative Studies curriculum. As such, it combines Humanities (GH) and Social and Behavioral Sciences (GS) through the topic of sustainability. Students will read, write, and think integratively by considering the humanistic values of sustainability and how those values are connected to the political, social, and cultural forces that shape sustainable activities. The course examines the concepts and key issues of sustainability through a variety of literary, scientific, political, and popular texts. Class discussions will trace the roots of sustainability in environmental writing, will analyze the diverse debates surrounding sustainability, and will consider local, national, and international texts about sustainability. Students will interact with invited guest speakers, conduct field research on sustainability in local communities and institutions, and create their own narratives and scenarios for sustainable futures based on their findings and speculations. The course will address central issues of sustainability in society today, including: - What are the historical and cultural foundations of sustainability? - How is sustainability a political, social, and ethical issue? - How do crises and disasters create challenges for sustainability? - How is sustainability connected to

local, urban, and transnational environments? The goal of the course is to develop two types of awareness. First, students will develop an awareness of the key discussions about sustainability in society today. Second, students will cultivate a critical awareness of how debates about sustainability are shaped through the written and spoken word. Sustainability is more than just protecting the great outdoors or using a recycling bin. It is also a product of the discourse surrounding it. In other words, sustainability-and what we think, say, and do concerning it-is influenced by what other groups and individuals have written or said about it. Sustainability debates are shaped by more than simply "the facts" surrounding environmental issues; they are also shaped by the persuasive tactics and rhetorical choices writers and speakers make. Students will spend the semester analyzing, discussing, and creating texts that engage the key issues and most important topics of sustainability and environmentalism.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 30H

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

SUST 295: Internship

1-6 Credits/Maximum of 6

Supervised off-campus, non-group instruction including individual field experience, practicums, or internships. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: SUST 200

SUST 325N: Health and Environmental Sustainability

3 Credits

NURS / SUST 325N: Health in Environmental Sustainability; 3 credits. (Inter-Domain), (GHW), (GN). People live in constant contact with the environment: the built environment of homes, offices, and industrial facilities, as well as in cities or less developed areas such as farms or in nature / the outdoors. How do the air we breathe, the water we drink, the land we live on, the food we eat, and the materials and chemicals we use in these environments impact our health? At a time when nations are spending up to 1/6th of their budgets on healthcare, it is critical to understand how we impact the environment and how it impacts us back. This course covers the importance of environmental health on individual and community health, the effects of environmental hazards on diverse populations and the impact of climate change on disease. It also reviews best practices for environmental health, for building healthy communities, and introduces students to environmental health advocacy. A beneficial environment sustains human health and the well-being of all species on the planet.

Cross-listed with: NURS 325N

General Education: Health and Wellness (GHW)

General Education: Natural Sciences (GN)

General Education - Integrative: Interdomain

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

SUST 495: Internship

1-6 Credits/Maximum of 6

Supervised off-campus, non-group instruction including individual field experience, practicums, or internships. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: SUST 200

SUST 496: Special Topics

1-6 Credits/Maximum of 6

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Enforced Prerequisite at Enrollment: SUST 200

Swahili (SWA)

SWA 1: Elementary Swahili I

4 Credits

Listening, speaking, reading, writing Swahili: an introduction for beginners; basic structures and vocabulary; cultural elements.

Bachelor of Arts: World Language (All)

SWA 2: Elementary Swahili II

4 Credits

Listening, speaking, reading, and writing Swahili; structures and vocabulary; cultural elements.

Prerequisite: SWA 001

Bachelor of Arts: World Language (All)

SWA 3: Intermediate Swahili

4 Credits

Further development of listening, speaking, reading, and writing skills in Swahili: structures and vocabulary; cultural elements.

Prerequisite: SWA 002

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

SWA 97: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

SWA 99: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

SWA 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

SWA 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

SWA 295: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Prerequisite: prior approval of proposed assignment by instructor

SWA 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

SWA 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

SWA 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

SWA 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

SWA 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

SWA 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

SWA 494H: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Honors

SWA 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

SWA 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Temporary Education Abroad Registration (EDAB)

EDAB TEMPH: Temporary Education Abroad Registration

1-18 Credits/Maximum of 18

This course is used to temporarily register students that are studying overseas. Permanent courses will be entered after the student returns.

EDAB TEMPI: Temporary Education Abroad Registration

15 Credits/Maximum of 99

This course is used to temporarily register students that are studying overseas. Permanent courses will be entered after the student returns.

EDAB 199: Temporary Education Abroad Registration

1-18 Credits/Maximum of 99

This course is used to temporarily register students that are studying overseas. Permanent courses will be entered after the student returns.

EDAB 499: Temporary Education Abroad Registration for

1-15 Credits/Maximum of 99

This course is used to temporarily register students that are studying overseas. Permanent courses will be entered after the student returns.

Theatre (THEA)

THEA 1S: First-Year Seminar: Theatre Production Practices

1 Credits

An orientation to the School of Theatre production practices, resources, faculty, and practicum. THEA 001S First-Year Seminar: Theatre Production Practices (1)(BA) This course meets the Bachelor of Arts degree requirements. THEA 001S will serve as the First-Year Seminar for all undergraduate majors in the School of Theatre. In all School of Theatre degree programs, backstage production is one of the primary curricular

and experiential areas held in common. It is in this area that most theatre students gain their first practical experience in producing theatre on our stages. This course will provide the necessary training and experience for all students to safely practice in the production of live theatre in our spaces. This course will orient first-year students to faculty, facilities, and practices of production utilized in the School of Theatre season. Students will be introduced to the faculty and their areas of expertise. They will be oriented to the spaces and equipment in our theatres and taught safe operation of the equipment. They will learn the practical and professional expectations placed on students participating in a School of Theatre production. Learning will take place both in lecture/demonstration format and through the practical experience of working on a School of Theatre production. Students will be evaluated by: 1. Backstage practices and safety will be evaluated through knowledge based quizzes and/or skill demonstrations as appropriate to each subject. 2. Professionalism evaluated through attendance, reliability and skill growth as observed during the execution of practicum assignments.

Bachelor of Arts: Arts
First-Year Seminar

THEA 80: Pit Orchestra

1-3 Credits/Maximum of 3

Rehearsal and performance of contemporary and historical musical theatre styles, including operetta and light opera. THEA 080 Pit Orchestra (1-3 per semester/maximum of 3) (GA) (BA) This course meets the Bachelor of Arts degree requirements. THEA 080 provides an introduction to the particular demands of the orchestral pit player, with an emphasis on the musical theater repertoire. The course objectives is to prepare the student for a professional theatre engagement. This course parallels the orchestra ensembles in the School of Music (Philharmonia, Chamber Orchestra) but with the added techniques of theatre orchestra: standard vamps, 'vocal last time' vamps, fade on cue, cut on cue, etc. Grades are determined by (1) level of performance and improvement, and (2) attendance at all rehearsals, sectionals and performances. The special facilities for this course will include orchestral rehearsal space in the School of Music, as well as the Pit/Performance space in the School of Theatre. Enrollment will vary depending on the needs of individual musical scores; however, the performance schedule is such that an ensemble large enough to accommodate both players and substitutes is desirable. This is a repeatable course. Students will comprise the orchestra for a School of Theatre's production each semester. An audition is required for admission to this course. Emphasis will be placed on precision ensemble playing, as well as the skill of playing together as a section while simultaneously following the conductor. Because of the highly technical nature of theatrical productions, there are frequent cues given by the conductor which are vitally important to the performance. Mastering the specialized skill of splitting one's attention evenly between the music stand and the podium will be a major objective of this course. In the process of preparing the music for each production other skills will be taught and acquired, such as: learning when to accompany and when to play in a solo manner; when to follow and when to lead as a section player; for brass players, developing the 'Broadway' sound: big, bright, and focused; for reed doublers, the techniques involved in performing on multiple instruments in a single number; for all musicians, familiarity with the plethora of styles now being performed on Broadway: traditional Broadway, pop, rock, and the more classical styles of some of the contemporary theatre composers.

Enforced Prerequisite at Enrollment: Audition

Bachelor of Arts: Arts

THEA 100: The Art of the Theatre

3 Credits

THEA 100 The Art of the Theatre (3) (GA;US;IL) (BA) This course meets the Bachelor of Arts degree requirements. This course is a survey of all aspects of the living art of the theatre. Throughout the semester, the in-class analysis of written scripts, performance contexts, dramatic structure, and theatrical genres will give insights into the imaginative impulses of theatre artists and their audiences. As a variety of individual texts are explored, scenes are used to illustrate the various topics under consideration. The course is concerned with the universality of the theatrical impulse, and includes a selection of international and multi-ethnic voices and performance techniques. Students will experience American theatre history as a conversation that parallels the country's struggle for identity in the 19th, 20th, and 21st Centuries. Students learn about Western performance traditions alongside traditions happening elsewhere in the world in the same time period within political contexts, to create a global perspective of theatre. This course provides the groundwork for all other theatre courses and is also designed to allow the general student to experience and understand the art of the theatre.

Bachelor of Arts: Arts

International Cultures (IL)

United States Cultures (US)

General Education: Arts (GA)

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

THEA 101N: Performance and Society

3 Credits

Inspired by the evolving field of performance studies, THEA 101: Performance & Society introduces theatre and performance as artistic practice, creative action, a way of knowing, and a record and unfolding of culture. Combining the disciplinary domains of social science and the arts, the performances and performance practices we study range from the sacred, to the artistic, to the commercial (and often more than one of these at once). This course positions the study of performance as interdisciplinary—drawing from foundational texts in sociology, anthropology, and literature, just as it draws from such other art forms as visual art, architecture, dance, and music. We work from the following three interrelated premises: art and culture shape each other; performance happens everywhere—in many geographies, and in spaces real and virtual; and theatre and dance are human endeavors that tell us about the past, rehearse the present, and point to possible futures. To test these ideas, students will participate in projects that explore the limits and extremities of performance through the lenses of theatre studies and social science, fields that view performance as human endeavor, and everyday life as performance, respectively. As the preceding suggests, this class is an integrative domains course that fulfills GA (arts) and GS (social science), positioning Theatre and Sociology as disciplinary partners. Thus, we take a "dramaturgical approach" to analyzing performance, as sociologist Erving Goffman terms it in the foundational work, *The Presentation of Self in Everyday Life* (1956). It is this correspondence between social science and theatre that *Introduction to Performance and Society* will explore. Students will: Learn their major theories, ways of thinking, and methodologies used in

sociology; understand "performance" as an agile term used in sociology, theatre, performance studies, and other fields; experience a variety of performance spaces and places-from theatres, studios, and public places, to ad hoc and virtual spaces such as the Internet, social media platforms, and the mind; complete creative projects such as scripts, designs, dances, and collaborative performances that allow them to experience what performing artists do and how they do it; and attend and write about theatrical productions as art and social event THEA 101 asks students to study, share, and live the course's premises through collaborative activities, creative projects, and writing. Class activities ask students to interrogate the meanings of "liveness," "community," and "performance," as well as articulate theatre's role as an art and social practice in the past, present, and future.

Bachelor of Arts: Arts

General Education: Arts (GA)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

THEA 102: Fundamentals of Acting

3 Credits

Introduction to the art and craft of acting for non-theatre majors. THEA 102 Fundamentals of Acting teaches the basic principles of Acting and Performance. THEA 102 aims to introduce the student to basic principles of the art and craft of acting, focusing on HOW and WHY actors do what they do in preparation of and for a performance less than on the attainment of performance skills themselves. Students will become acquainted with acting processes, theatre terminology, script analysis, improvisation, and other fundamentals to give them a more inclusive sense of the totality of the actor's work as craftsman and artist. In so doing, the student actors must tap their own powers of concentration, observation, creativity, and imagination. A major focus in the course is the development of the ability to analyze one's own work and the work of peers in the class. Problem-solving in solo, paired, and/or large group contexts is a daily requirement in class.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

THEA 103: Fundamentals of Directing

3 Credits

Training and experience in basic skills of directing. Designed for non-theatre majors.

Bachelor of Arts: Arts

THEA 104: Fundamentals of Theatre Production

3 Credits

Training and experience in basic skills of technical theatre. Designed for non-theatre majors.

Bachelor of Arts: Arts

THEA 105: Introduction to Theatre

3 Credits

Introduction to Theatre is a general education course intended to introduce the performing arts in all their global complexity. The course will contain elements of world theatre history; however, the focus of the course will be on the functions and practices of the art. Beginning with the shared basics of any theatrical event, the course will explore both the exotic and the familiar. Guest performers will demonstrate the conventions of South Asia and Africa. A company of actors and directors will perform scenes from many of the plays read by students and from styles, genres, or playwrights highlighted in the textbook readings. Other lessons will provide links to videos from The National Theatre of England. The last unit of the class will focus on contemporary American practice to explore how Asian, European, and African influences have culminated in American theatre practice today.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

THEA 105H: Introduction to Theatre

3 Credits

An introduction and overview of the history, craft, and art of the theatre to foster an informed appreciation of theatrical events. This course is an alternate to THEA 100.

Bachelor of Arts: Arts

Honors

THEA 106: Theatre Foundations

3 Credits

The THEA 106 class is an introductory examination of Theatre and Meaning designed for first-year theatre majors. It is guided by two overarching questions. Why do we (human beings) make theatre? And: how does theatre generate meaning? The course begins by considering theatre's various origin stories. It then proceeds through a series of case studies that (1) compare dramatic texts from different eras and cultures, and (2) consider historical performance practices in their proper social and philosophical contexts.

Bachelor of Arts: Arts

United States Cultures (US)

THEA 107: Introduction to Dramatic Structure

3 Credits

An introduction to structural analysis in dramatic literature.

THEA 111: The Fundamentals of Singing and Vocal Production

3 Credits

The origin of singing predates the development of spoken language. Singing is the act of producing musical sounds with the human voice and provides a medium for communication universally across cultures. This course explores the fundamentals of voice production and offers

tools to help singers at any level develop their singing voices. Preliminary objectives will include a basic understanding of musical information associated with singing. The main objectives of the course are: to explore and understand the four systems of singing (respiration, phonation, resonance and articulation) and how they relate to voice production; to provide a greater understanding of fundamental elements of singing; to understand basic laryngeal anatomy as it relates to voice production; to build an awareness of body alignment as it relates to singing; and to provide practice tools for continued education and vocal growth through an applied vocal exercise database. This entry level, non-major, course offering provides greater accessibility to personalized voice instruction which can often only be found in the one on one studio setting. Additionally, as singing is highly personal, this course offers students the opportunity to practice and explore singing at their own pace and in private. The objectives will be accomplished by utilizing an interactive, multimedia online curriculum including instructional videos that demonstrate vocal concepts, selected readings, selected supplementary videos, and a vocal exercise database. Evaluation methods will include quizzes, reflections and assessments of recordings of the students own singing. Students will receive (3) credits for this course, as well as (GA) designation. All videos, texts and examples will be made available to students online.

General Education: Arts (GA)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

THEA 112: Introduction to Musical Theatre

3 Credits

Beginning with developing an understanding of basic musical theatre terminology, Introduction to Musical Theatre will proceed to examine musical theatre development as it parallels the quixotic historical landscape. The course is designed to allow the general student to experience and understand the art of the musical theatre. The course will begin with an exploration of foundational vocabulary and subsequently move through seven major periods of musical theatre history: Greek Tragedies (BCE-1800), Operetta (1800-1900), Cinderella Musicals (1900-1928), Champagne Musicals (1928-1943), Golden Age Musicals (1943-1966), Concept Musicals (1966-1983), and Pop Musicals (1983-Present). Students will be asked to read a libretto, and listen to the score of, one show from each of these periods to fully understand, and compare, the artistic transitions that epitomized each era. Each of these productions are seminal works in the evolution of the musical: HMS Pinafore, No, No, Nanette, Show Boat, Oklahoma, Guys and Dolls, Cabaret, Company, A Chorus Line, Rent, and Next to Normal. In addition to the studying of these works, students will be taught, in chronological order, the persons and movements that helped shape the discourse of musical theatre, as well as looking at other shows that fostered dialogues between audiences and artists. While musical theatre is a primarily American art form, the development of musical theatre in other countries will be discussed as students will explore the contributions musical theater made in the countries of Greece, South Africa, Japan, China, England, France, Italy, and parts of Latin America. Each week students will be quizzed on the content they have studied and there will be two midterms and one cumulative final examination.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

THEA 113: Musical Theatre Theory I

2 Credits

Studies in the fundamentals of music notation and sight-singing. THEA 113 (2) is designed to provide the beginning musical theatre student with the fundamentals of music theory and diatonic harmony as well as the analytical skills with which to approach and appreciate the structure of songs and musical theatre scores. It is focused primarily on the musical theatre literature to enable the beginning student to learn and appreciate more efficiently the literature that will be central to the performance classes in the major. The class places a rigorous emphasis on pitch and rhythmic identification to develop a high degree of musicianship in the beginning student, both to provide a solid basis for the classes to come and to make the performer more competitive in the musical theatre industry. It is designed to be entry-level in preparation for THEA 114 (Musical Theatre Form and Analysis) and the upper-level theory classes (THEA 212 and THEA 214). The course presupposes no previous musical training or experience. For those with some previous musical theory education, the course may function successfully as a refresher before the more rigorous analysis courses to follow. It satisfies a significant need in that it focuses on the specific theoretical knowledge the musical theatre student needs to know to become competitive in a professional career.

Bachelor of Arts: Arts

THEA 114: Music Theatre: Form and Analysis

3 Credits

A survey of music theatre as an art form.

Bachelor of Arts: Arts

THEA 115: B.F.A. Acting Foundations

2 Credits

Fundamental aspects of training the actor's body, voice, mental focus, and imagination. THEA 115 B.F.A. Acting Foundations (2) THEA 115 is an introduction to the awakening and enhancement of beginning students' physical, vocal, mental, and imaginative instrument in preparation for the demanding work to follow in later acting, voice/speech, and movement studios. The course will introduce physical conditioning and breathing exercises specifically for actors, introduce exercises to enhance mental focus/concentration, and lead students through a series of exercises designed to stimulate and enhance the actor's imagination and trust in the world of fantasy. Students will be exposed to a variety of techniques from which they may, over time, develop their own individual physical/mental training discipline. They will be encouraged to accurately assess their own physical/vocal/mental self-image, to develop a plan (with the instructor) to minimize intrusive mannerisms and to maximize positive traits and work habits. Grading will be based on each student's commitment to the training regimen, application of past lessons in present assignments, quality of daily work, and the ability to accurately perform the exercises taught.

THEA 116: Musical Theatre Theory II

2 Credits/Maximum of 4

THEA 116 develops continues music theory for musical theatre majors and augments theory with practical piano skills. THEA 116 is an introduction to the awakening and enhancement of beginning students' physical, vocal, mental, and imaginative instrument in preparation for the demanding work to follow in later acting, voice/speech, and movement studios. The course will introduce physical conditioning and breathing exercises specifically for actors, introduce exercises to enhance mental focus/concentration, and lead students through a series of exercises designed to stimulate and enhance the actor's imagination and trust in the world of fantasy. Students will be exposed to a variety of techniques from which they may, over time, develop their own individual physical/mental training discipline. They will be encouraged to accurately assess their own physical/vocal/mental self-image, to develop a plan (with the instructor) to minimize intrusive mannerisms and to maximize positive traits and work habits.

Enforced Prerequisite at Enrollment: THEA 113

THEA 120: Acting I

3 Credits

Fundamental skills and training in acting. Emphasis on physical/vocal awareness and the nature of dramatic communication. Theatre majors only.

Enforced Prerequisite at Enrollment: THEA 100 or THEA 105 or THEA 106 or DANCE 100

Bachelor of Arts: Arts

THEA 121: Fundamentals of Acting II

3 Credits

This course is a continuation of THEA 120 and designed to build upon the basic foundation of acting. THEA 121 Fundamentals of Acting II (3) THEA 121 is a continuation of THEA 120 and designed to build upon the basic foundation of acting. Regardless the style or medium, good acting boils down to the process of 'living truthfully under imaginary circumstances.' THEA 121 will provide the student with practicum experiences in scene study and Monologue/Auditioning technique. The course will also deepen and expand the range of student experience to include a more sophisticated and diverse immersion into the craft of acting.

Enforced Prerequisite at Enrollment: THEA 120

THEA 130: Introduction to Theatre Scenic and Costume Technology

3 Credits

Introduction to the methods, materials, equipment, concepts and processes involved in the construction of scenery and costumes for the theatre. THEA 130 Introduction to Theatre Scenic and Costume Technology (3) This course will familiarize students with the methods, materials, equipment, concepts, and processes involved in the construction of scenery and costumes for the theatre. The emphasis of this course will be on the physical process that results in the production of both scenery and costumes. Lecture topics include: Soft Goods Layout and Construction Basic Flat Layout and Construction Dimensional Scenery Rigging and Paint The Costume Shop/The Big Picture Designer's Sketch to Wearable Costume Hand Sewing Techniques

Sewing Techniques/The Sewing Machine In addition to lectures, students will be expected to participate in hands-on laboratory activities that will reinforce and inform the classroom theory. These activities will give students an opportunity to apply the principles they will learn in the lecture component. These courses enable our students to converse intelligently with all of the members of the theatre community, regardless of their specific theatre emphasis. Students will develop a fundamental understanding of the relationship between the various areas of theatre production.

THEA 131: Introduction to Theatre Sound and Lighting Technology

3 Credits

Introduction to the methods, materials, equipment, facilities, concepts and processes used to create theatre lighting and sound. THEA 131 Introduction to Theatre Sound and Lighting Technology (3) This course will familiarize students with the methods, materials, equipment, facilities, concepts and processes used to create theatre sound and lighting. The emphasis of this course will be on the physical process that results in the production of both lighting and sound. Lecture topics include: Mixers Connectors & Cable Playback vs. Reinforcement Safety & Hanging Lights Focusing, Circuits and Dimmers Instrument types, Qualities of Light In addition to lectures, students will be expected to participate in hands-on laboratory activities that will reinforce and inform the classroom theory. These activities will give students an opportunity to apply the principles they will learn in the lecture component. These technical theatre courses enable our students to converse intelligently with all members of the theatre community, regardless of their specific theatre emphasis. Students will develop a fundamental understanding of the relationship between the various areas of theatre production.

THEA 132: Survey of Theatre Production Practice

3 Credits/Maximum of 3

Survey and application of Scenic, Costume, Lighting, and Sound techniques and practices.

THEA 146: Basic Theatrical Makeup

2 Credits

Both straight and corrective makeup, with character and styling techniques for stage, film, and television.

Bachelor of Arts: Arts

THEA 150: Fundamentals of Design for the Theatre

3 Credits

Exploration of the philosophy and technique of scenic, costume, and lighting design.

Bachelor of Arts: Arts

THEA 152: Theatrical Design Foundations for the BFA

3 Credits/Maximum of 3

Study and practice of the philosophy, processes, and techniques of the theatrical designer.

THEA 159: Theatre Portfolio & Business Practices I

1 Credits

This course is the first half of our professional preparation arc, intended to train the student of theatre for life as a professional theatre designer or technician. There are many challenges to working in the business of theatre, arising primarily from the fact that most theatre professionals are self-employed. It's not enough to be talented; one must also be a savvy businessperson. This class will set you up with the skills you need to effectively document your design & tech work over the course of your time at Penn State, with a focus on resumes, cover letters, photography, and some basic skills for finding and landing summer jobs & internships.

THEA 189: Principles of Stagecraft, A Look Behind the Curtain

1.5 Credits/Maximum of 6

THEA 189 Principles of Stagecraft, A Look Behind the Curtain (1.5 per semester/repeatable up to 4 times) (GA)(BA). For non-theatre major students only, theatre minors are ok. This course meets the Bachelor of Arts degree requirements. Ever see a show and wonder how did they build that? THEA 189 provides introductory knowledge in to scenic, property and costume construction painting techniques, lighting technology, and safety used in theatre today. This is accomplished through online and lab components. The online component is presented in the form of modules that students take at their own pace. These modules delve into the various topics listed above. Since the course is repeatable, multiple modules are available for each topic. Once the student has taken the class once, the next time they take the class they will simply complete another module on each topic. The lab component will provide hands-on experience in the topics learned online. Students will have the ability to work within one of the technical areas of scenery, props, paints, costumes or lighting, helping to build, hang, costume, prop or paint a produced show. NOTE: the labs are by appointment only. At the beginning of the semester students will be given access to a calendar with several labs available to sign up for. Labs may vary from week to week and include both weekday and weekend time slots. Students will be required to sign up for approximately 10-12 slots during the semester or the equivalent of about 40 hours of lab time. Students should plan their schedules accordingly to ensure they have adequate time to complete the lab portion of the class. There is no set time for this class.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

THEA 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

THEA 198: Special Topics

1-9 Credits

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

THEA 199: Foreign Studies--Theatre Arts

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Enforced Prerequisite at Enrollment: Approval by department

Bachelor of Arts: Arts

International Cultures (IL)

THEA 200: Script Analysis

2 Credits

An introduction to script analysis for theatre majors, which focus on full text analysis as a foundation for area specific analysis. Two styles of analysis (contextual and structural) are studied. THEA 200 Script Analysis (2) THEA 200 is a course designed to teach theatre majors and minors the art and craft of understanding play texts. The course begins by exploring the nature and means of transmitting meaning through theatre texts. Discourse theory and contextual analysis are applied to at least two examples of American realism. The second method of analysis is a structuralism approach that will also be applied to at least two examples of American realism. The third area of study is the application of historicism and structuralism to non-realistic scripts. Students will work individually and in small groups to create written and oral presentations of their analyses. The course is designed to teach through practice and application of methods to a variety of types of scripts written for the theatre.

Enforced Prerequisite at Enrollment: THEA 100 or THEA 105

THEA 201W: Script Analysis

3 Credits

This course is an introduction to some of the most common tools of script analysis used by designers, performers, stage managers, technicians, dramaturgs, playwrights, and other artists of the theatre. The class proceeds by examining diverse scripts in a variety of ways that help to reveal theiractable / designable / directable values. Understanding any given script's inherent dramatic values is a foundational first step to making informed, meaningful, and exciting choices for its production. It is also a foundational first step toward informed, meaningful, and exciting discussions of text and productions. Ultimately, it is the development of the student's (often discipline specific) ability to recognize a script's hidden potential that is the true goal of the course.

Enforced Prerequisite at Enrollment: THEA 100 or THEA 105 or THEA 106 or DANCE 100

Writing Across the Curriculum

THEA 202: Beginning Scene Study

3 Credits

Introduction to the fundamentals of scene study through readings, improvisations, exercises and scene work. THEA 202 Beginning Scene Study (3) A continuation of work started in THEA 102, this course is designed for theatre minors who wish to further advance their understanding of the art of acting. Advanced scene work, exercises, improvisations, and text analysis are explored, along with peer evaluations and instructor feedback on both processes and performances.

Enforced Prerequisite at Enrollment: THEA 102 or THEA 120

THEA 206: Critical Theory for Performance

3 Credits

THEA 206 is an intensive introduction to critical performance theory. Through reading, writing, and attendance at arts events, students will learn methods for experiencing, analyzing, and writing about theatre, dance, and other performing arts forms through the lenses of class, race, gender, nationalism, and abilities. To do this, students will learn and apply concepts from critical theory from its historical precedents to its contemporary forms. These theories include semiotics and structuralism; post-Structuralism and deconstruction; Marxism and materialism; feminism and queer theory; postmodernism and post-colonial theory. Students will apply concepts learned through several scaffolded writing projects-response papers, a critical essay, and a performance analysis (long-form review).

Enforced Prerequisite at Enrollment: THEA 100 or TEHA 101N or THEA 105 or THEA 106 or DANCE 100
 Bachelor of Arts: Arts
 General Education: Humanities (GH)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Soc Resp and Ethic Reason

THEA 207: Gender and Theatre

3 Credits

A study of theatre and drama literature as formed by issues of gender, race, and ethnic background. THEA 207 Gender and Theatre (3) (GA;US) (BA) This course meets the Bachelor of Arts degree requirements. Theatre 207 provides a basic survey of issues of representations of gender identity in theatre. The course will trace women's experiences in theatre from their absence on European classical stages to the more recent formation of feminist theatres. The course will explore issues of sexual orientation and gender identity as presented through drama and performance. The plays and writings chosen for study may include selections from African, European, African American, Latina, Asian American, Anglo American, and Native American playwrights. The course will examine issues of gender as they are presented by women of different races and cultures, by men of different races and cultures, and by women and men of various sexual orientations. The goal of the course is to examine the ways theatre and theatrical performances have portrayed individuals within a pluralistic society based on gender identity and ethnicity. Theatre has existed in every known civilization, but until recently, the contributions of predominantly white European males have provided the basis for the study of theatre. Most drama anthologies include plays written predominantly by white European males. By focusing on gender as it has been and is portrayed in theatre from diverse perspectives, THEA 207 will encourage an aesthetic appreciation of the art of theatre while exploring issues of gender identity on artistic creation and critical response.

Bachelor of Arts: Arts
 United States Cultures (US)
 General Education: Arts (GA)
 GenEd Learning Objective: Creative Thinking
 GenEd Learning Objective: Soc Resp and Ethic Reason

THEA 208: Workshop: Theatre in Diverse Cultures

3 Credits

A performance-oriented class which explores the historic and contemporary theatrical works of various culturally diverse peoples. THEA 208 / AFAM 208 Theatre Workshop in Diverse Cultures (3) (GA;US;IL) (BA) This course meets the Bachelor of Arts degree requirements. Theatre Workshop in Diverse Cultures is a performance-oriented class that aims to introduce students to the broad cultural diversity that exists in artistic expression. The class will focus on several plays throughout the semester that will represent cultural, ethnic, and gender diversity as well as different literary styles. Students will be exposed to various cultures by working on plays created by artists from those cultures. The course will concentrate on a specific playwright, culture, or region, such as plays from the Caribbean. Students will be required to read, study, analyze, and perform plays from the genre. For example, the class may focus on the works, life, and philosophy of August Wilson and read Joe Turner's Come and Gone, Seven Guitars, Piano Lesson, and Fences. The class may explore Asian styles such as Noh Theatre and Asian American works by D. H. Hwang or work by Nigerian playwright and Nobel Prize winner Wole Soyinka. The presentation of these plays will be a principle part of the class, but the reading and discussion of the material will be as important. Students will participate in some capacity with the production of these plays in areas such as stage management, dramaturgy, sets and props, lights, sound, costumes, house management, publicity, and acting. These pieces will be performed in class, in workshop, and occasionally for the general public. Students will work as an ensemble and become acquainted with basic acting and theatre techniques. The course objectives are: 1) to develop and enhance students' appreciation for the discipline and commitment required for multicultural theatrical presentations 2) to help to sensitize all students to the broad cultural diversity in artistic expression 3) to provide students with an introductory engagement with drama. THEA 208 / AFAM 208 serves as a primary selection for students pursuing the Theatre minor.

Cross-listed with: AFAM 208
 Bachelor of Arts: Arts
 International Cultures (IL)
 United States Cultures (US)

THEA 209: Hip Hop Theatre

3 Credits

Hip Hop Theatre defines and explores Hip Hop as an art form. The student will explore Hip Hop culture through Hip Hop Theatre aesthetics: Emceeing, Dejaying, Beat boxing, graffiti art, and dance. Hip Hop Theatre is designed for students with an interest in Hip Hop Theatre/culture. This class introduces students to Hip Hop Theatre through Hip Hop aesthetics: Emceeing, Dejaying, Beat boxing, graffiti art, and dance. In addition, this class includes lecture sessions and discussions about Hip Hop culture Theatre as a global, multi-ethnic, grassroots youth culture committed to social justice and self-expression through specific modes of performance. This course seeks to introduce students to a culturally significant art form, enhance theatrical discourse, and provide practical opportunities for students to apply skills learned in class via collaborative creations, text, and performance. This course is directly related to dance, theatre, African American history and other arts based and humanities based courses. Students will be evaluated on their attendance, participation in class, willingness to learn, and the effort put forth in class.

THEA 211: Dramaturgy

3 Credits

THEA 211 is an introduction to the history, theory, and practice of production dramaturgy. Students will learn to: practice theory-driven and production-oriented play analysis; to write thoughtful dramatic criticism, informed by theatre theory and critical thinking; and to practice a range of scholarly, artistic and interpersonal skills; in order to advocate for the emergent production at hand. To do this, students will study historical and contemporary dramaturgical theory, a transhistorical set of essays that argue for a certain form, content, or purpose of theatre and performance. Students will learn the historical and contemporary role of the dramaturg in production, and will practice the skills associated with the contemporary dramaturg. These include providing research support for theatre production, designing audience events such as talkbacks and receptions, and writing program pieces such as playwright bios and production histories. The cumulative dossier students create can serve as a dramaturgy portfolio for those who wish to pursue dramaturgy through graduate study or through taking the role in productions going forward. For all students, the portfolio develops an understanding of the dual role of dramaturg as scholar and artist.

Enforced Prerequisite at Enrollment: DANCE 100 or THEA 100 or THEA 101N or THEA 106
Bachelor of Arts: Arts

THEA 212: Musical Theatre Theory III

2 Credits/Maximum of 2

Intermediate studies in diatonic harmony, analysis, sight-singing and dictation. THEA 212 (2) is designed to provide the intermediate musical theatre student with the mastery of harmonic and melodic analysis with which to approach and appreciate the structure of songs and musical theatre scores. It is designed to enable the intermediate student to sight-read more efficiently the literature that is central to the performance classes in the major, and to develop basic accompaniment and transposition skills that will become indispensable to the professional career. A continued emphasis on pitch and rhythmic identification will enable the intermediate student to maintain a high degree of musicianship in the performance classes required in the major and will make the performer more competitive in the musical theatre industry. THEA 113, the entry-level theory course and THEA 114, Music Theatre Form and Analysis are prerequisites to THEA 212, which is designed as the third course of the theory-form-and-analysis sequence. The course satisfies a significant need in that it focuses on the specific theoretical knowledge the musical theatre student requires to become competitive in a professional career.

Enforced Prerequisite at Enrollment: THEA 113 and THEA 114 and THEA 116
Bachelor of Arts: Arts

THEA 214: Musical Theatre Theory IV

2 Credits/Maximum of 2

Advanced studies in the technique and practice of chromatic harmonic analysis and sight-singing. THEA 214 is designed to provide the advanced musical theatre student with the analytical skills with which to approach and appreciate the harmonic and melodic structure found in the various compositional styles of musical theatre literature. It is focused specifically on musical theatre literature that is representative of

the current repertoire to enable the advanced student to function more effectively in auditions and other performance venues. The course is designed to function as the culmination of the theory-form-and-analysis sequence, connecting up the terminology, techniques, and repertoire, developed throughout the four-semester process. The course satisfies a significant need in that it focuses on the specific theoretical knowledge that the musical theatre student is required to master in order to become competitive in a professional career.

Bachelor of Arts: Arts

THEA 220: Acting II

3 Credits

Principles of acting through improvisation, exercises, and character analysis, with emphasis on basic skills of voice and movement. For theatre majors only.

Enforced Prerequisite at Enrollment: THEA 120
Bachelor of Arts: Arts

THEA 221: Acting III

3 Credits

A continuation of Thea. 220. For theatre majors only.

Enforced Prerequisite at Enrollment: THEA 220
Bachelor of Arts: Arts

THEA 222: Acting Laboratory

2 Credits

Laboratory experience in student-directed scenes and/or one-act plays.

Enforced Prerequisite at Enrollment: THEA 120
Bachelor of Arts: Arts

THEA 223: Musical Theatre Performance I

2 Credits

Studio training in the unique performance skills, repertoire and business of professional music theatre. THEA 223 Musical Theatre Performance I (2) (BA) This course meets the Bachelor of Arts degree requirements. The purpose of this class is to introduce sophomore BFA musical theater students to the art of performing the solo song based on the book musical. While utilizing the performer's skills in acting, singing and dance/movement, the student will learn how to communicate clearly and compellingly 1. who his/her character is 2. to whom the character is singing 3. why the character is singing these particular words to this particular music at this particular time. The student must understand his/her environment, relationships, obstacles, tactics, and stakes in order to accomplish this task. This is the class that begins to synthesize the student's performance training for the special demands of musical theatre. Most of the work will concentrate on solo performance, building the student's power and confidence and beginning to explore both their individual uniqueness and their crucial relationship to their audience. Students must prepare two contrasting musical theatre pieces from 'book' musicals preferably from 'The Golden Age' (1920-1960s). These songs must be chosen in collaboration with musical theatre faculty and the student. Students must obtain copies of the music and lyrics for their songs and the book. A thorough knowledge of the book is as important as a through knowledge of the music and lyrics in order to make informed

performance choices. Students are required to keep a journal. Written exercises about passive, active, stage directions, and character analysis as well as in-class exercises on these topics will be part of the class assignments.

Enforced Prerequisite at Enrollment: THEA 114 or THEA 115 or THEA 116 or THEA 212

Bachelor of Arts: Arts

THEA 224: Musical Theatre Performance II

2 Credits

Studio training in the unique performance skills, repertoire and business of professional music theatre. THEA 224 Musical Theatre Performance II (2) (BA) This course meets the Bachelor of Arts degree requirements. This course will cover three primary areas of study: musical theatre scene work, the study of the major repertoire in musical theatre from 1965-1990 (excluding Sondheim and Webber), and performance power training. Scenes that contain songs require special techniques of the actor-singer. Using the preparation and presentation of four such scenes, the musical theatre student will begin to develop successful performance strategies for musical theatre scene work. Through the use of in-class reports the musical theatre student will continue to gain understanding and appreciate the rich musical theatre literature of the late 1960s and the 1990s. Primarily, the course will cover the works and lives of Bock and Harnick, Jerry Herman, Kander and Ebb, Jule Styne, Jones and Schmidt, and Maltby and Shire. Through exercises, studies, and improvisation designed to sharpen the student's use of energy, focus, structuring skills, imagining, stylizing, and coordinating, the musical theatre student will obtain a significant increase in his/her performance power. The musical theatre student will prepare three duet scenes with song and an ensemble scene with song during the semester. Students will have two opportunities to present each duet scene. THEA 224 is a continuation of Musical Theatre Performance I. These studios represent the core of the musical theatre training program.

Enforced Prerequisite at Enrollment: THEA 223

Bachelor of Arts: Arts

THEA 225A: B.F.A. Acting Studio I

2 Credits

Exercises to develop truthful listening and responding as a foundation for acting studio scene study. Listening and responding in an unadorned, truthful way is the lynch-pin of the actors's work. In THEA 225A, students will begin with exercises designed to foster and increase the depth of truthful behavior on stage. In addition, this coursework includes exercises to increase awareness of the sensory world around us and its effect on the actor's imagination, availability to emotion, and mental focus. Contentless scene work leads the student through the basics of behavior on stage: playing for a purpose (goal), encountering obstacles, and finding the necessary tactics to behave appropriately in the imaginary circumstances. The final stage of the semester applies the skills acquired to a full scene from a play.

Enforced Concurrent at Enrollment: THEA 115 and THEA 131

THEA 225B: B.F.A. Movement Studio I

2 Credits

Introduction to techniques to condition the actor and improve physical awareness and self-use. Listening and responding in an unadorned,

truthful way is the lynch-pin of the actors's work. In THEA 225A, students will begin with exercises designed to foster and increase the depth of truthful behavior on stage. In addition, this coursework includes exercises to increase awareness of the sensory world around us and its effect on the actor's imagination, availability to emotion, and mental focus. Contentless scene work leads the student through the basics of behavior on stage: playing for a purpose (goal), encountering obstacles, and finding the necessary tactics to behave appropriately in the imaginary circumstances. The final stage of the semester applies the skills acquired to a full scene from a play.

Enforced Concurrent at Enrollment: THEA 115

THEA 225C: B.F.A. Voice/Speech Studio I

2 Credits

Introduction to actor voice and speech training. THEA 225C is the first in a sequence of voice and speech courses for the actor. This first semester installment will focus on awareness and conditioning activities related to breath, posture, resonance and articulation. Prose and poetry readings will be used for application activities. Students will experience activities that will heighten their physical awareness of vocalizing. Most activities will involve a re-learning of how they speak, bringing to their conscious awareness the processes of voice/speech which were initially learned through early childhood nurturing. Class events will include awareness of breath patterns and the means to release inhibitive behaviors related to spinal posture, head and neck alignment, and musculature along the breath/vocal tract. Students will also gain awareness of how breath relates to their expressive/emotional system. Class activities will also include physical awareness of the consonant and vowel sounds and their phonetic transcriptions. Each event will strive to improve actors' intelligibility and increase musicality of speech. Through application assignments with word lists, sentences, poetry and prose, students will increase language sensitivity. This semester will also address voice quality issues directly and how they relate to the above. Specific events will focus on vibratory awareness in primary resonators and how to apply this awareness in all vocal life. Issues of vocal health, projection and emotional demands will be addressed.

Enforced Concurrent at Enrollment: THEA 115

THEA 250: Introduction to Scene Design

3 Credits

Introduction to the history, processes, materials, and concepts involved in designing scenery for the theatre. THEA 250 Introduction to Scene Design (3) This course is the introductory course to the art and practice of designing scenery for the stage. The primary goals of the course are to introduce students to the history and profession of scene design, and to help students learn a fundamental design process to apply to the evolution and presentation of design for stage scenery. This process includes play analysis, script and visual research methods, analysis of dramatic action, concept evolution, and visual communication methods. Evaluations will be based on the following: 1. Students will submit papers to demonstrate text analysis skills and to explore the work of specific designers or historical trends (25%) 2. Students will receive in-class critiques to evaluate their design concepts and communication skills (25%) 3. Students will receive comment sheets for each studio project critiquing specific aspects of their design process (50%)

Enforced Prerequisite at Enrollment: THEA 130 and THEA 131

THEA 251: Theatre Drafting Techniques

2 Credits

Introduction to drafting of floor plans, section drawings, construction graphics, and mechanical perspective for the theatre. THEA 251 Theatre Drafting Techniques (1) (BA) This course meets the Bachelor of Arts degree requirements. Theatre 251 is a foundation course for all students studying theatre design or technology. Students will learn the lexicon of lines and marks that make up the language of theatre drafting. They will be instructed in traditional drafting techniques and work to master the skills required to execute complete, accurate, and clear draftings. Drafting is the basic form of communication in theatre design and technology. All students involved in these disciplines will use drafting extensively throughout their careers. As such, the skills introduced and practiced in this course form a necessary foundation for all other design and technology courses. This course prepares students by teaching them a language necessary to advanced coursework. Theatre 251 is a required course in the theatre B.F.A. Production program. Throughout the course students complete draftings of increasing complexity. These draftings will be evaluated for content, clarity and skill. Individual drafting projects will be assigned a point value.

Bachelor of Arts: Arts

THEA 252: Design Presentation Techniques

1 Credits

Media and materials exploration; sketching, rendering, and modeling methods.

Bachelor of Arts: Arts

THEA 253: Scene Painting

1 Credits

Introduction to painting scenery for the theatre; methods and materials.

Bachelor of Arts: Arts

THEA 260: Introduction to Costume Design

3 Credits

Introduction to costume design process through character analysis and the use of color, line, and texture. THEA 260 Introduction to Costume Design (3) (BA) This course meets the Bachelor of Arts degree requirements. THEA 260 provides the student the opportunity to experience the costume design process from the reading of the script to the creation of a fully rendered costume design. The work of a costume designer begins with the ability to read the play script from both the perspective of the audience and that of the human beings depicted in the imaginary premise. The student is given a specific methodology for reading a play and determining the plot, the dramatic action, and the theme or significance of the action of the play. Next, the student is exposed to research methods and techniques that illuminate historical periods and genres and allow the designer to fully appreciate the lives of human being living in different times and locations. Beginning projects are derived from contemporary dramatic material that requires relatively little examination into the social and historical period. Subsequent projects, however, move farther away from contemporary realism and require extensive research to grasp the essence of the period. The next section of the course is devoted to an examination of how this research and analysis is used by the costume designer to make artistic

choices. Students are introduced to a specific technique for analyzing a character and determining what kind of clothing would be appropriate for the individual based on the student's analysis of their personality, social status, and function in the play. The final project involves the creation of a costume design for the entire play. The student is guided through the process of improving rendering skills, creating a finished representation of each garment worn in the play, and enhancing their ability to communicate these choices to a director and actors.

Bachelor of Arts: Arts

THEA 261: Introduction to Costume Construction Techniques

3 Credits

Intermediate study of the methods, materials, equipment, concepts and processes involved in the construction of costumes for the theatre. THEA 261 Introduction to Costume Construction Techniques (3) This course will advance the knowledge of students in the methods, materials, equipment, concepts and processes involved in the construction of costumes for the theatre. The emphasis of this course will be on the specialized processes that result in the production of theatrical costumes. Formal course material in the form of lecture/demonstrations will address the specialized approach to the construction and tailoring of theatrical costumes for men's and women's wear. Examination of the historic context of the clothing technique, as well as the contemporary application of such techniques for theatrical use will also be addressed. In addition to lectures and demonstrations, students will be expected to participate in hands-on laboratory activities that will reinforce and inform the classroom theory. These activities will give students an opportunity to apply the principles they learn in the lecture component.

THEA 270: Introduction to Lighting Design

3 Credits

THEA 270 Introduction to Lighting Design (3) will focus on helping each student to develop a design process that takes them from script to stage. Students will study each step of the lighting design process and use these steps to create the design for a fictional production. Students will also have the opportunity to hone their design skills with a series of practical projects that will allow them to experiment with intangible qualities of light. This class will use a traditional proscenium presentation for the development of these techniques.

Enforced Prerequisite at Enrollment: THEA 201W and THEA 251 and THEA 252. Recommended Preparation: THEA 131 and THEA 150
Bachelor of Arts: Arts

THEA 280: Introduction to Technical Direction for the Theatre

3 Credits

Introduction to the methods, materials, equipment, facilities, concepts and processes associated with Technical Direction for the Theatre. THEA 280 Introduction to Technical Direction for the Theatre (3) This course will familiarize students with the methods, materials, equipment, facilities, concepts and processes used by Theatre Technical Directors to produce the spectacle of theatre. The concepts of project management will be introduced and the processes associated with project management will be explored. The steps involved in producing a technical package that will facilitate the implementation and completion of a production will be introduced and explored. The emphasis of this course will be on exploring how Technical Directors bring designs to reality on the stage. The planning and management processes will be

introduced and explored through the use of exercises and projects that will reinforce and inform the lectures.

Enforced Prerequisite at Enrollment: THEA 130 and THEA 131

THEA 282: Production Practicum

3-6 Credits/Maximum of 6

This course provides students with first-hand experience working on a theatrical production at the university. Students will learn the responsibilities and processes of preparing for a live theatre production by either performing in or working behind the scenes on a pre-selected production. After the completion of the production, students will evaluate their work.

Bachelor of Arts: Arts

General Education: Arts (GA)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

THEA 285: Introduction to Sound Design

3 Credits

An introduction to sound design for the theatre. THEA 285 Introduction to Sound Design (3) The purpose of this course is to provide an overview of the techniques and the tools of sound design and the sound designer's role in the collaborative design process in the theatre setting. The goal of this course is to develop a method of understanding sound and sound design, and discovering a language with which to express this understanding in a theatrical context. In order to accomplish these goals, there is fundamental exposure to the terms and techniques of contemporary sound design that is necessary along with an understanding of the challenges and problems inherent in designing sound for the stage. The course also serves as an introduction to continuing advanced study in topics such as audio recording and advanced sound design that relate to sound design. Projects will make up the majority of the assignments for the class, and therefore will constitute the majority of the grading. The evaluation of these projects will not only consist of written and audio submitted portions, but also the student's presentation of the project to the class. During the sections of the class based on the terminology and tools of theatrical sound design, quizzes will be administered in order to check the progress of the students and ensure their comprehension of the material. Each student will complete a final project in lieu of a final exam: the sound design of a theatrical script. This project will not only consist of the final design work, but also the class presentation of the conceptual basis for the design as well as the implementation of the design.

Enforced Prerequisite at Enrollment: INART 258A or THEA 150

THEA 289: Theatre Production Practicum

1 Credits/Maximum of 3

Supervised experience in production techniques. THEA 289 Theatre Production Practicum (1 per semester/maximum of 3) (BA) This course meets the Bachelor of Arts degree requirements. The course is designed to provide practical training in the production techniques of theatre arts. In preparing the physical productions for the School of Theatre, the student will encounter the technology of theatre arts. Diverse areas such as construction, electricity, painting, mechanics, plastics, electronics, costuming, and sewing are experienced in an organized and directed

laboratory situation. The course compliments the introductory theatre production courses and the advanced production practicum course. The B.A. program and the B.F.A.--production option requires a maximum of two credits of this course, and the B.F.A.--musical theatre option requires three credits.

Bachelor of Arts: Arts

THEA 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, supervised on an individual basis and which fall outside the scope of formal courses.

Bachelor of Arts: Arts

THEA 296H: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, supervised on an individual basis and which fall outside the scope of formal courses.

Honors

THEA 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a subject which may be topical or of special interest.

Bachelor of Arts: Arts

THEA 298: Special Topics

1-9 Credits

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Bachelor of Arts: Arts

THEA 299: Foreign Studies--Theatre Arts

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

THEA 322: Voice and Speech I

2 Credits

Vocal techniques for the actor: articulation, voice control, support, and projection. In this class students will be working in three areas: practical voice and speech work to include relaxation, body alignment, breath, resonance, pitch and range, articulation; basic anatomy; and, text (putting the skills learnt into practice). Students will develop a set of exercises that help to release tension and build breath, muscularity and strength, and good resonance. In addition, students will build an awareness of how the voice works (anatomy) and work with poetic and dramatic text to see how the imaginative demands of the text can be fulfilled by the voice. Students will also learn to use voice with language that is not their own and to be confident and clear in their speech. The final goal is to develop an awareness of 'healthy voice' usage

Enforced Prerequisite at Enrollment: THEA 115 or THEA 120
Bachelor of Arts: Arts

THEA 323: Voice and Text

3 Credits

This course focuses on building the vocal and analytical skills required to embody challenging text and communicate it clearly. Building on the foundation of the previous BFA voice courses, students learn to strategically utilize the vocal tools at their disposal in order to illuminate thought and character. Students gain facility with a variety of texts, including those with poetic language and written in verse, and how to use that language to their advantage.

Enforced Prerequisite at Enrollment: THEA 225C and THEA 322

THEA 324: Movement for Actors I

2 Credits

Techniques and skills in physical expression, awareness, control, and stage movement.

Enforced Prerequisite at Enrollment: THEA 120 or THEA 115 or THEA 225B
Bachelor of Arts: Arts

THEA 325: Movement for Actors II

2 Credits

Continuation of THEA 324.

Enforced Prerequisite at Enrollment: THEA 324
Bachelor of Arts: Arts

THEA 326: Music Theatre Performance Workshop

1 Credits/Maximum of 3

Performance studies in cabaret, revue, and club environments.

Enforced Prerequisite at Enrollment: THEA 224
Bachelor of Arts: Arts

THEA 327: Musical Theatre Auditions

2 Credits

Research and preparation of auditions for work in professional musical theatre venues. THEA 327 Musical Theatre Auditions (2) (BA) This course meets the Bachelor of Arts degree requirements. Theatre 327 offers junior and senior musical theatre students an opportunity to examine the art of the musical theatre audition from research to performance. Since these students have completed two to three years of vocal and acting study, piano, and music theory, they are ready to work at honing their skills for professional auditions. Each student will prepare four to six professional auditions and simulate them in class. Feedback is provided by the class and visiting guests from the profession. All audition material is memorized and professional attitude as well as dress is required. The audition material is different for each student in the class. Grading is based on the student's ability to prepare quickly and accurately, take direction, and incorporate it into the audition on the spot. The continued research and performance of new material is required weekly. Theatre 327 is an elective course in the B.F.A. theatre musical theatre option.

Enforced Prerequisite at Enrollment: THEA 224
Bachelor of Arts: Arts

THEA 399: Foreign Studies--Theatre Arts

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individuals or group instruction.

International Cultures (IL)

THEA 400: Advanced Theatre Projects

1-6 Credits/Maximum of 99

Individual and group-directed study of in-depth projects involving reading, discussion, performance, and critical analysis by faculty.

Enforced Prerequisite at Enrollment: 7th semester standing or higher or 12 credits in THEA
Bachelor of Arts: Arts

THEA 401: Theatre History I: Ancient to 1700

3 Credits

Survey of drama and theatre from primitive rites through the Renaissance.

Enforced Prerequisite at Enrollment: THEA 100 or THEA 105 or THEA 106 or THEA 112 or DANCE 100
Bachelor of Arts: Arts
International Cultures (IL)

THEA 401H: Theatre History I

3 Credits

Survey of drama and theatre from primitive rites through the Renaissance.

Honors

THEA 402: Theatre History II: From 1700 to Present

3 Credits

Survey of European drama and theatre from the eighteenth century through the modern period. THEA 402 Theatre History II: From 1700 to Present (3) A survey of drama and theatre from the seventeenth century through the modern period. The course is a sequential second half of the history of world theatre. Beginning with the post-Shakespearean era, students study major theatre movements in play writing, acting, theatre architecture and design. Some eras include the English Restoration and Georgian periods, the French Neoclassical period, German Romanticism, and the rise of the Beijing Opera. In addition, emerging post-colonial theaters of Africa and Asia will be explored. For each major era or movement, a play by one of the acknowledged masters of the form will be read and discussed in class. Students will write brief responses to their assigned readings, as well as experience a variety of assessment techniques.

Enforced Prerequisite at Enrollment: THEA 100 or THEA 105 or THEA 106 or THEA 112 or DANCE 100 or THEA_MFA
Bachelor of Arts: Arts

THEA 403: 20th Century Theatre History

3 Credits

This course begins in the mid-twentieth century following the theatrical experimentation and socio-political changes that influenced Modernism's Avant-Garde movement, Bertolt Brecht and Erwin Piscator's Epic Theatre, and the Theatre of the Absurd (examined in THEA 402). We explore what came after the advent of Modernism - what artists moved away from, what they repurposed, and what they imagined anew. One of the keynotes of this ensuing artistic period is the concept of "post": Post-Modern, Post-Dramatic, Post-Colonial, and Post-Human. Altogether, we will examine dramatic literature, influential theatre artists, and performance practices in global theatre from the mid to late twentieth century.

Enforced Prerequisite at Enrollment: THEA 100 or THEA 105 or THEA 106 or THEA 112 or DANCE 100 or THEA_MFA

General Education: Arts (GA)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

THEA 404: Twenty-first Century Theatre and Drama

3 Credits

This course focuses on twenty-first century theatre and drama, exploring select dramatic literature, artists, and theatre companies within the framework of the social, cultural, and political changes that have occurred since the year 2000. Though we are just entering the twentieth year in this millennium, they are years shaped by monumental events beginning with the September 11, 2001 attacks on the United States, to the present moment where we find ourselves in the midst of a global pandemic. These two historical points frame a container where we find the effects of social justice issues such as systemic racism, gender equality, nationalism, climate change, and immigration policies as lived realities. Who are we as individuals, families, and societies as we navigate our world? Where do we struggle in our humanity, and where do we endure - or sometimes, thrive? Our focus in this course is where, how, and why theatre artists in the twenty-first century engage with these societal concerns, and how they take up these questions in the stories, language, rhythms, and spectacles they create.

Enforced Prerequisite at Enrollment: THEA 100 or THEA 105 or THEA 106 or THEA 112 or DANCE 100 or THEA_MFA

General Education: Arts (GA)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Soc Resp and Ethic Reason

THEA 405W: Theatre History: American Theatre

3 Credits/Maximum of 3

Survey of American drama and theatre from the colonial period to the present. THEA 405 Theatre History - American Theatre is a course that introduces students to the rich history of American theatre from the colonial era to today. Each week plays and supporting materials become the focus of conversations about the intersections of race, gender, class, religion, and art. Early plays from the colonial and post-colonial years reveal the peculiar love/hate relationship between colonists and theatre. After the Revolutionary War plays become the rallying cry as the new nation attempts to forge an identity separate from and equal to Europe.

In the decades that follow theatre provides a voice to previously silent Americans: women, former slaves, immigrants, and non-Christians. The course culminates in the present with readings of the three most recent Pulitzer Prize winning plays and discussion of their impact. This is a Writing-Intensive course.

Enforced Prerequisite at Enrollment: THEA 100 or THEA 105 or THEA 106 or DANCE 100

Bachelor of Arts: Arts

United States Cultures (US)

Writing Across the Curriculum

THEA 407W: Women and Theatre

3 Credits

A study of theatre practice and dramatic literature as informed by issues of gender, race, and ethnic background. THEA (WMNST) 407 Women and Theatre (3) (US)(BA) This course meets the Bachelor of Arts degree requirements. Theatre 407 approaches the study of theatre/performance as a valuable site for the exploration of race, class, and gender as social constructs. The focus will be on 20th century developments of women and theater. Feminist theory and theatrical practice will be a focus of the course and will reflect conflicts and differences present within feminism.

Enforced Prerequisite at Enrollment: THEA 100 or THEA 105 or THEA 106 or THEA 112 or DANCE 100 or THEA_MFA

Cross-listed with: WMNST 407W

Bachelor of Arts: Arts

United States Cultures (US)

Writing Across the Curriculum

THEA 408W: History of American Musical Theatre

3 Credits

A survey of the history of American musical theatre presented in a social, cultural, and aesthetic prospective.

Enforced Prerequisite at Enrollment: THEA 100 or THEA 105 or THEA 106 or THEA 112 or DANCE 100 or THEA_MFA

Bachelor of Arts: Arts

United States Cultures (US)

Writing Across the Curriculum

THEA 410: Play Analysis

3 Credits

Advanced skills in textual analysis of plays and screenplays.

Enforced Prerequisite at Enrollment: THEA 100 or THEA 105 or THEA 106 or DANCE 100

Bachelor of Arts: Arts

THEA 411: Dramaturgy Practicum

1-3 Credits/Maximum of 12

Dramaturgy Practicum is a variable credit course (1-3) that trains theatre students in the practices of dramaturgy for production. Students may be paired with a particular School of Theatre production or project as an in-rehearsal dramaturg. Others will be assigned to dramaturgy teams or will complete particular dramaturgy tasks. These can include keeping group-sourced or single-authored blogs; posting to social media; taking and sharing photos and videos of the design process; interviewing artists in

production; writing program notes; making lobby installations; hosting talkbacks with performers, audiences, and designers. Students might instead be assigned to a research or archiving project with the School of Theatre in order to learn theatre archiving skills. The 3-credit option is only open to students who have taken THEA 211 - Dramaturgy. These students will take on a major project, most typically the role of production dramaturg for a School of Theatre production or other major project. For the 1-credit option, students will either work on a dramaturgy team, or else they will focus on one kind of dramaturgy practice for several productions, such as production photography, social media posting, talkbacks, program notes, or outreach events.

Enforced Prerequisite at Enrollment: THEA 211

THEA 412: African American Theatre

3 Credits

Exploration of the development of African American theatre from its roots in Africa through the diaspora, to the present time. THEA 412 / AFAM 412 African American Theatre (3) (US;IL) (BA) This course meets the Bachelor of Arts degree requirements. In this course, we will explore the development of African American theatre from its roots in Africa and Europe, through the diaspora, to the present time. We will learn something of the rich diversity of African American people and their contribution to the world's creative mainstream. We will become acquainted with both historical and contemporary artists who created and continue to create this unique American art form. The goals of the course are: 1) to develop familiarity with African American theatre and the socio-historic context in which it was created 2) to develop an understanding of the relationship of African American theatre to mainstream American theatre 3) to acquire an appreciation of the schools, styles, and techniques of African American theatre We will do this by reading and engaging plays in the context of the period in which they were created, viewing films of plays, and attending relevant productions where possible.

Enforced Prerequisite at Enrollment: THEA 100 or THEA 105 or THEA 106 or DANCE 100

Cross-listed with: AFAM 412

Bachelor of Arts: Arts

International Cultures (IL)

United States Cultures (US)

THEA 419: Musical Theatre: Business of the Business

3 Credits

This course is lecture and discussion based and designed to address the needs of students preparing to enter the professional musical theatre. Topics will include the techniques and skills of networking, unions, casting directors, agents and managers, headshots/ resumes, bios, life in NYC, tax preparation, and other topics related to the business side of acting for the musical theatre.

THEA 420: Scene Study I

3 Credits/Maximum of 9

Advanced monologue and scene study techniques. Principal focus on realism. THEA 420 Advanced Scene Study is a course in which students are allowed to explore and deepen their understanding of the art and craft of acting. The course is repeatable for credit and taught by a variety of instructors. This allows students to experience the processes of different pedagogical methodologies. Regardless of the instructor, the shared

emphases include: scene work in a variety of styles (from classical verse plays to cutting edge contemporary material) tailored to the needs of the individual student; movement toward increased technical proficiency; deepening awareness that "acting is living truthfully under imaginary circumstances," however similar or different those circumstances may be to the actor's personal life; and, growing self-sufficiency through self-directed scenes and individual rehearsal discipline. The environment of the classroom/rehearsal space is both safe and critical, as students begin to accept that risk is integral to successful acting. The student is also engaged in giving constructive criticism to their peers, learning to be honest, detailed, and nurturing in the process. This critical process requires students to give unconditional support to their peers, support that is geared toward mutual improvement and emotional/physical safety

Enforced Prerequisite at Enrollment: THEA 115 or THEA 120 or THEA 427A

Bachelor of Arts: Arts

THEA 421: Advanced Acting: Physical Approaches

3 Credits

This course builds on the physical approach to character and story creation explored in THEA 420, and aims to equip the student with a working knowledge informed by direct experience and application of physical approaches like, but not limited to, those of Jacques Lecoq, Kari Margolis, and the work of Dell Arte International School of Physical Theatre. Physical approaches are part of 21st Century theatre-making, and our students must have knowledge of current approaches that will both take their work to a more fully-embodied level, and prepare them for work in the theatre field of today.

Enforced Prerequisite at Enrollment: THEA 420

THEA 422: Advanced Scene Study

3 Credits

This course introduces the actor to the skills necessary for successful auditions and performances in television, film, digital media and other commercial venues.

Enforced Prerequisite at Enrollment: THEA 421

THEA 423: Musical Theatre Performance III

2 Credits

Studio training in the unique performance skills, repertoire and business of professional musical theatre. THEA 423 Musical Theatre Performance III (2) (BA) This course meets the Bachelor of Arts degree requirements. In depth preparation and performance of scenes from the works of Sondheim and Webber. Also, exploration of the adjustments needed to perform successfully in non-traditional performance venues. The third in a musical theatre performance studio sequence, THEA 423 applies performance technique and methodology studied in previous studio classes to the works of contemporary composers, particularly Stephen Sondheim and Andrew Lloyd Weber. The course also explores the adjustment to performance needed when working in non-traditional stage spaces such as ballrooms, cruise ships, and industrials. THEA 423 is a continuation of Musical Theatre Performance II. These studios represent the core of the musical theatre training program. Grading will be based on the quality of the musical theatre student's studio work, report, and demonstrated respect for the professional studio environment.

Enforced Prerequisite at Enrollment: THEA 224
Bachelor of Arts: Arts

THEA 424: Musical Theatre Performance IV

2 Credits

Studio training in the unique performance skills, repertoire and business of professional musical theatre. THEA 424 Musical Theatre Performance IV (2) (BA) This course meets the Bachelor of Arts degree requirements. This studio is designed for senior musical theatre majors to hone their skills in acting, singing, and dancing in the last semester of their college career. The majority of the class will be the preparation of the Senior New York Showcase where each student will have the opportunity to perform for an invited audience of agents, alumni, and special guests. Students are responsible for all research and preparation of showcase material. Showcase material will be coached in class, but the main body of preparation relies on the students themselves, utilizing skills and techniques learned throughout their studio training. Grading will be based on attendance, preparation, and attitude. These are all critical factors for entering the profession and for successfully completing this course. Deadlines and appointments must be kept. Students must do adequate outside preparation. THEA 424 is a continuation of Musical Theatre Performance III. These studios represent the core of the musical theatre training program.

Enforced Prerequisite at Enrollment: THEA 423
Bachelor of Arts: Arts

THEA 425A: B.F.A. Acting Studio II

2 Credits

Scene Study THEA 425A B.F.A. Acting Studio II (2) THEA 425A is a laboratory or practicum course requiring active student presentation of work in progress for critiques by the instructor and input from peers. Working in pairs, students will be assigned a five-minute scene from modern American realism. Students must read the play from which the assigned scene is taken, do the necessary historical/analytical homework, develop a character biography and a scene score, and present the result of their work in the initial on-the-feet working sessions for faculty critique and peer input. Taking away responses from each working session, the students are expected to rehearse outside of class to address any issues raised in the previous working session and to ready the scene for the next viewing. In THEA 425A, the instructor will serve, not as a director, but as an acting coach, asking probing questions and using his or her own energy to exhort, guide, and discipline the students. It is expected that faculty intervention will decrease and student self-reliance will increase with each passing studio.

Enforced Prerequisite at Enrollment: THEA 115 and THEA 225A Enforced Concurrent at Enrollment: THEA 425C

THEA 425C: B.F.A. Voice/Speech Studio II

2 Credits

Advanced voice and speech training for BFA Musical Theatre students. THEA 425C B.F.A. Voice/Speech Studio II (2) In THEA 425C, B.F.A. Musical Theatre students will continue to develop and expand their vocal instrument. Basics of vocal production will be repeated and developed with a greater focus on the individual actor's application of his/her voice in the performance of various texts. The first ten weeks will recall the basics of the past two semesters of voice/speech work and continue to expand the actors' capabilities. Extended work in the area of breath

support and release, resonance and vocal range, and speech/articulation will all be explored with appropriate texts. In the last five weeks of the semester, work will focus on text in the performance setting. A short program of text performances will be devised and presented in the last week of class.

Enforced Prerequisite at Enrollment: THEA 225C or THEA 425A

THEA 427A: B.F.A. Acting Studio III

2 Credits

Continuation of THEA 425A THEA 427A B.F.A. Acting Studio III (2) THEA 427A is an extension of THEA 425A, a laboratory or practicum course requiring active student presentation of work in progress for critiques by the instructor and input from peers. Working in pairs, students will be assigned a five-minute scene from modern American realism. Students must read the play from which the assigned scene is taken, do the necessary historical/analytical homework, develop a character biography and a scene score, and present the result of their work in the initial 'on-the-feet' working sessions for faculty critique and peer input. Taking away responses from each working session, the students are expected to rehearse outside of class to address any issues raised in the previous working session and to ready the scene for the next viewing. In THEA 427A, the instructor will serve, not as a director, but as an acting coach, asking probing questions and using his or her own energy to exhort, guide, and discipline the students. It is expected that faculty intervention will decrease and student self-reliance will increase with each passing studio.

THEA 427C: B.F.A. Voice/Speech Studio III

2 Credits

Stage Dialect Studies THEA 427C B.F.A. Voice/Speech Studio IV (2) THEA 427C focuses on the acquisition of stage dialects and accents. For each dialect the student becomes aware of the resonance, phonetic, inflection, and rhythm changes necessary to perform dramatic text with an accent or dialect. Vocal agility, phonetic recall and the ability to integrate the altered vocal behavior to the demands of acting are the primary goals. Each dialect unit will have an introductory instruction, a review session, and a presentation of a reading of a dialect monologue. The final project will be the performance of two dialect monologues. Students will be evaluated upon preparedness, work ethic, focus, openness to change, growth, degree of self-reliant recall, and creative application of new skills. This studio performance class offers opportunity for assessment from the instructor in each class session. Periodic assignments will be made to assess self-reliant application of the work.

Enforced Prerequisite at Enrollment: THEA 425C or THEA 427A

THEA 427H: Theatre Makeup

2 Credits

Advanced makeup techniques, casting with moulage and rubber, construction of prosthetics, hair work.

THEA 428: Musical Theatre Performance Studio V

2 Credits/Maximum of 4

Students will prepare and present workshop reading of a new musical theatre piece

Enforced Prerequisite at Enrollment: THEA 224

THEA 429: Theatre Performance Practicum

1-3 Credits/Maximum of 99

Supervised experience in rehearsal and performance of significant roles.

Enforced Prerequisite at Enrollment: THEA 100 or THEA 105 or THEA 106 or DANCE 100

Bachelor of Arts: Arts

THEA 434: Introduction to Directing

3 Credits

Introduction to principles and procedures of play direction.

Enforced Prerequisite at Enrollment: THEA 100 or THEA 105 or THEA 106 or THEA 112 or DANCE 100

Bachelor of Arts: Arts

THEA 434H: Introduction to Directing

3 Credits

Introduction to principles and procedures of play direction.

Bachelor of Arts: Arts

Honors

THEA 436: Directorial Processes

3 Credits

Preparing a play for production including the scoring of the script, developing ground plan, casting, and staging projects in American realism.

Enforced Prerequisite at Enrollment: THEA 434 or THEA_MFA

Bachelor of Arts: Arts

THEA 437: Artistic Staff for Production

1-6 Credits/Maximum of 6

To provide students with experience in choreography, dramaturgy, combat, staging, voice/speech, musical direction, assisting in direction, for major productions.

Enforced Prerequisite at Enrollment: approval of proposed assignment by instructor prior to registration

Bachelor of Arts: Arts

THEA 440: Principles of Playwriting

3 Credits/Maximum of 6

Structure, dramatic effect, characterization, and dialogue; the writing, reading, and criticism of original one-act plays. THEA 440 Principles of Playwriting (3 per semester/maximum of 6)(BA) This course meets the Bachelor of Arts degree requirements. THEA 440 is a course in which students are allowed to explore, deepen, and exercise their understanding of the craft of playwriting. This course is repeatable and taught by one instructor. This course utilizes diverse critical commentary, craft-based texts, and plays that elaborate and illustrate the core writing techniques of structure, dramatic effect, characterization, and dialogue. The writing requirement of the class concentrates on the construction of several ten-

minute plays, which are shared in the class as works-in-progress. The students engage with giving and getting constructive criticism inside a safe and nurturing space, and the students work towards articulating and exercising the technical aspects of writing in a clear, concise, and effective manner.

Enforced Prerequisite at Enrollment: THEA 100 or THEA 105 or THEA 106 or THEA 112 or DANCE 100

Bachelor of Arts: Arts

THEA 448: Theatre Management

3 Credits

Want to work in Theatre, but you don't want to act or work backstage? There are countless roles "behind the scenes" that are pivotal to the creation and success of theatrical productions. This course offers hybrid studies focused on equipping students to either work in one of these professional settings or launch their own product, organization, or endeavor. Through theoretical analysis coupled with real world experiences and many guest speakers from Broadway and beyond, students have the chance to explore career opportunities based on their interests, expand their skill-sets, and make connections that will help prepare them for possible post-college careers in theatre management.

Enforced Prerequisite at Enrollment: THEA 100 or THEA 105 or THEA 106 or THEA 101N

THEA 450: Advanced Topics in Scene Design

3 Credits/Maximum of 6

Design emphasis on a variety of production techniques, genre, and styles. THEA 450 Advanced Topics in Scene Design (3 per semester/maximum of 6)(BA) This course meets the Bachelor of Arts degree requirements. This course will build upon the basic design process introduced in THEA 250. Students will explore design solutions for shows requiring multiple locals. Students will also be introduced to shows reflecting a variety of dramatic styles and will explore effective design solutions within stylistic constraints. In addition to previously introduced graphic skills, emphasis will be placed on graphic techniques involved in the production of scenery, including design drafting, prop drawings, and paint elevations. As this course may be repeated, there will be a rotation of topics to ensure that students receive different content each semester. Topics within the rotation may include: Design for Shakespeare, unit settings Design for Musicals, practical and stylistic concerns Design for Opera Design for shows requiring simultaneous local Poetic or fragmented realism Design for contemporary episodic scripts Epic theatre design

Enforced Prerequisite at Enrollment: THEA 250 or portfolio review

Bachelor of Arts: Arts

THEA 451: Drafting, Drawing, and Painting for the Theatre

1 Credits

Drafting, freehand drawing including perspective methods and property development, rendering techniques, and painters' elevations.

Enforced Prerequisite at Enrollment: (THEA 251 and THEA 252) or THEA_MFA

Bachelor of Arts: Arts

THEA 452: CAD Drafting for Theatre and other Entertainment Applications

3 Credits

CAD Drafting for theatre is an Advanced level course that focuses on the technical aspects of drafting. Students will become well versed in the use of CAD drafting programs such as AutoCAD. Students will learn all of the essential functions to accurately convey information through graphical representations in both 2D and 3D models. This course is geared specifically towards how to use CAD programs to convey information for theatrical and entertainment uses such as technical drafting, scenic elevations, lighting plots, sound diagrams and other entertainment documentation. In addition to learning about the effective use of a CAD program, students will also learn theatrical drafting standards and techniques. This includes information on standardized paper sizes, line weights and styles, use of color, dimensioning guidelines and other pertinent drafting standards. By the end of this course students will have the necessary knowledge to effectively draft, plate and present drawings in both 2d and 3d models for use in entertainment based productions.

Enforced Prerequisite at Enrollment: THEA 251

THEA 453: Advanced Scene Painting

1-3 Credits/Maximum of 12

Practicum study in painting techniques currently in professional use. Exploration of tools, available paints, and texturing materials.

Enforced Prerequisite at Enrollment: THEA 253 or THEA_MFA
Bachelor of Arts: Arts

THEA 454: Period Research for the Theatre

3 Credits

History of decor, styles, and movements in art and architecture.

Enforced Prerequisite at Enrollment: THEA 250 or THEA 260 or THEA 270 or THEA 280 or THEA 285 or THEA_MFA
Bachelor of Arts: Arts

THEA 455: Imagination & Collaboration

3 Credits/Maximum of 3

This course will create an environment in which students can learn about, and build strategies for, their involvement in creative collaborations. They will examine their own individual characteristics, what they know and what they value, and then explore how those characteristics affect their ability to effectively work as part of a creative team. Students will be asked to step outside of their comfort zone to put collective ideas ahead of their own, with the hope of finding collaborative success with their team, but without a guarantee of success, challenging each student to improve the way they communicate, interpret, build trust, brainstorm, compromise, and resolve conflict. Students will work on their creative problem-solving abilities within a group of students from different disciplines in order to achieve a common goal, and they will examine and experience a variety of roles and power dynamics within a team setting, from project manager to contributing member. They will develop stronger competencies in teamwork, professionalism, communication, and leadership as artists and designers.

THEA 459: Theatre Portfolio & Business Practices II

1 Credits

THEA 459 Theatre Portfolio & Business Practices II (1) This course is designed to prepare the student of design for life as a professional theatre designer. There are many challenges to working in the business of design, arising primarily from the fact that most theatre designers are self-employed. It's not enough to be a talented designer; one must also be a savvy business person. Contracts, taxes, record-keeping, resumes, portfolios, interviewing, job hunting, and legal considerations will all be addressed, as they relate to life as a freelance designer. Special attention will be paid to the assembly of a professional portfolio & website, which is the centerpiece of any modern designers' work.

Enforced Prerequisite at Enrollment: THEA 159
Bachelor of Arts: Arts

THEA 460: Advanced Topics in Costume Design

3 Credits/Maximum of 6

Developing and executing a design concept in a variety of the performing arts. THEA 460 Advanced Topics in Costume Design (3 per semester/maximum of 6) (BA) This course meets the Bachelor of Arts degree requirements. THEA 460 places emphasis on the use of text analysis and extensive historical research to make artistic choices as a costume designer in a production of a classical play, opera, or dance. Plays of this sort are of a size and scope not often found in contemporary material, which places exceptional demands on a designer. This course investigates the manner in which the theatrical imagination can be liberated to fulfill the particular requirements of classic theatre, opera, and dance. The course will require several large-scale projects that reinforce the costume design process in a variety of the performing arts. Each area of work within a project is separately graded. These projects will contain written segment components such as a design statement or character analysis, an oral presentation or explanation of the designer's choices and process, and (where applicable) a demonstration of the fully realized costume renderings. The student is expected to master the process that takes a costume designer from reading a script (or listening to a piece of music) to the creation of a design concept to the visual presentation of renderings from which clothing can be constructed. Particular emphasis is placed on developing the oral presentation skills necessary to communication with the director and other theatre artists.

Enforced Prerequisite at Enrollment: THEA 260 or THEA 464
Bachelor of Arts: Arts

THEA 461: Advanced Topics in Costume Construction and Technology

3 Credits/Maximum of 6

A specialized course in advanced costume construction techniques and theatrical costume technologies. THEA 461 Advanced Topics in Costume Construction and Technology (3 per semester/maximum of 6) (BA) This course meets the Bachelor of Arts degree requirements. THEA 461 addresses the skills and techniques of theatrical costume construction necessary for the undergraduate student to understand and master in preparation for work within a professional costume setting. Emphasis is placed upon the creation of an historic silhouette as illustrated by a theatrical costume rendering for both men and women, with an eye to theatrical execution. Focus is placed on the production of clothing, as well as the creation of theatrical properties and accessories for the historic figure. The course will require several large-scale projects

that reinforce the costume construction process in a variety of historic eras. Each area of work within a project is separately graded. These projects will contain supporting research and examine the understanding and identification of construction and accessory techniques as manifested in the costume rendering. A student's approach to problem solving, personal process, communication skills, and successful time management will also be addressed.

Enforced Prerequisite at Enrollment: THEA 261
Bachelor of Arts: Arts

THEA 464: History of Fashion

3 Credits

Survey of dress from Egyptian period to contemporary fashion.

Enforced Prerequisite at Enrollment: THEA 100 or THEA 105 or THEA 106 or DANCE 100 or THEA_MFA
Bachelor of Arts: Arts

THEA 465: History of Fashion II

3 Credits

Survey of dress from 1800 to contemporary fashion. THEA 465 History of Fashion II (3)(BA) This course meets the Bachelor of Arts degree requirements. The course is the second part of the history of fashion that is an elective for graduate theatre students, is required for the B.F.A. Costume Design emphasis, and is an elective for the undergraduate theatre minor. The goal of the course is to identify and examine movements and trends in clothing and fashion from 1800 to the present. Each period is studied by using primary sources, slide presentations, and actual garments to illustrate the relationship between clothing and broad social, historical and artistic developments. Emphasis will be placed on plays that serve as particularly good examples of a period or style of fashion covered in the course. Grading will be based on periodic quizzes covering topics from class lectures, slide presentations, and textbook readings. There will be one oral presentation, a written comprehensive final exam, and assigned graphic presentations or 'redrawings' of clothing pieces. To complete these 'redrawings' the student will find a primary source or a photographic reproduction of a primary source and 'redraw' the garment. For example, a student may find a painting, a sculpture, or photo of a garment (usually on a figure) that represents the period being discussed in class. The student would then 'redraw' or copy that image, not trace, for the purposes of identifying the clothing pieces that are shown in the original. The 'redrawings' are graded not on the student's ability to draw but rather on the content, detail, and thoroughness of the pencil sketch.

Enforced Prerequisite at Enrollment: THEA 100 or THEA 105 or THEA 106 or DANCE 100 or THEA_MFA
Bachelor of Arts: Arts

THEA 470: Advanced Topics in Lighting Design

3 Credits/Maximum of 9

Advanced Topics in Lighting Design will rotate through opera, dance, non-traditional spaces, architecture, advanced technology, and color theory. THEA 470 Advanced Topics in Lighting Design (3 per semester/ maximum of 6) (BA) This course meets the Bachelor of Arts degree requirements. Advanced Topics in Lighting Design will utilize a rotating curriculum and may be taken twice for credit. Topics will include lighting design for opera, dance, non-traditional spaces, architecture, advanced

technology, and color theory. Students will also learn to write and critique their own work, as well as the work of others, and to speak knowledgeably about design topics. There will also be some flexibility to allow students to pursue individual interests and group-directed projects.

Enforced Prerequisite at Enrollment: THEA 270
Bachelor of Arts: Arts

THEA 472: Lighting Technology

3 Credits

An introduction to the basics of electricity, dimmer protocols, lightboard programming, lighting paperwork, and master electrician & assistant lighting design practices. THEA 472 Lighting Technology (3) THEA 472 is an introduction to the basics of electricity, dimmer protocols, lightboard programming, lighting paperwork, and master electrician & assistant lighting design practices. This course will help prepare theatre designers to understand the inner workings of all of the equipment, working practices and safety requirements that are involved with the business of lighting design. This course will also provide students with many of the skills needed to get their foot in the door and get started in the business. Special attention will be paid to safety, stressing the need for safe working practices and environments over the need to get the show up no matter what. Students will learn how all of the advanced technology that is being introduced to the world of lighting functions and how these new technologies are all integrated into a functional system. Students will serve as master electricians and/or as assistant lighting designers as part of the hands-on production aspect of the class, with ample time devoted to process discussions and post-show critiques of the work. Small-group problem solving and system troubleshooting will be discussed in depth and applied to real production situations.

Enforced Prerequisite at Enrollment: THEA 131 and THEA 289

THEA 474: Theatre Design History I

3 Credits

This course is the first half of a two-semester arc, intended to provide students with a fundamental understanding of the history of theatre design & technology. Beginning with the Greeks and continuing through to modern day, theatre is often a mirror to society, and it is essential that all of the designers, artisans, and craftspeople involved in each production have a visual and aural lexicon of history to draw from. In each area, we will investigate how the world history of the time influenced the creation of theatre productions, with particular attention paid to noteworthy designers, technicians, and craftspeople. Additionally, the evolution of various innovations will be studied to learn how they affected the history of theatre production, but also how theatre influenced the development of new technologies & methods. Theatre Design History I will cover the era from prehistory through to the beginning of the Industrial Revolution, along with specific study of multiple non-Western theatre traditions.

THEA 475: Theatre Design History II

3 Credits

This course is the second half of a two-semester arc, intended to provide students with a fundamental understanding of the history of theatre design & technology. Beginning with the Greeks and continuing through to modern day, theatre is often a mirror to society, and it is essential that all of the designers, artisans, and craftspeople involved in each production have a visual and aural lexicon of history to draw from. In

each area, we will investigate how the world history of the time influenced the creation of theatre productions, with particular attention paid to noteworthy designers, technicians, and craftspeople. Additionally, the evolution of various innovations will be studied to learn how they affected the history of theatre production, but also how theatre influenced the development of new technologies & methods. Theatre Design History II will cover the era from the Industrial Revolution through to modern day.

Enforced Prerequisites at Enrollment: THEA 474

THEA 476: Lighting Technology for Production

1 Credits/Maximum of 6

THEA 476 is a 1-credit course fulfilling, in part, the requirements of the Theatre BFA Design & Technology Major. Students who are assigned to School of Theatre productions in the Lighting area as an Assistant Master Electrician, Master Electrician, Moving Light Programmer, or Lighting Systems Engineer, in support of the Lighting Design, are eligible to register. The course will be delivered as an independent study with the School's Lighting Design faculty, building on the skills learned in classes and previous productions.

Enforced Prerequisite at Enrollment: THEA 289 Enforced Concurrent at Enrollment: THEA 472

THEA 477: Lighting Design for Production

1 Credits/Maximum of 6

Design and execution of design projects.

Enforced Prerequisite at Enrollment: THEA 289
Bachelor of Arts: Arts

THEA 480: Advanced Topics in Technical Direction for the Theatre

3 Credits/Maximum of 6

Advanced study of the methods, materials, equipment, facilities, concepts and processes associated with Technical Direction for the Theatre. THEA 480 Advanced Topics in Technical Direction for the Theatre (3 per semester/maximum of 6) This course will build on the foundations established in THEA 280. Students will be engaged in studying advanced topics through discussions and explorations of current theatre technology, communication and the management systems used to control the processes associated with modern technical direction. Examples of topics include project management, current trends in drafting, advanced technical packages, and structural design for the stage. This course is repeatable and topics will vary. Students will participate in class discussions, hands-on exploration of equipment, investigate current practices through observation and research, and will complete projects associated with the topics studied.

Enforced Prerequisite at Enrollment: THEA 280

THEA 480B: Technical Production IV

3 Credits

Discussion of problems of the technical director: personnel management, time management, scheduling, budgeting, purchasing, and the technical drawing of production.

Enforced Prerequisite at Enrollment: THEA 280
Bachelor of Arts: Arts

THEA 481: Stage and Production Management

3 Credits

Production planning, scheduling, assignment of personnel, rehearsal procedures, and budgeting.

Enforced Prerequisite at Enrollment: THEA 100 or THEA 105 or THEA 106
Bachelor of Arts: Arts

THEA 482: Technical Production - Rigging

3 Credits

In-depth exploration of current rigging techniques used in entertainment.

Bachelor of Arts: Arts

THEA 484: Sound Recording Techniques

3 Credits

Multi-track audio recording and post production techniques. THEA 484 Sound Recording Techniques (3) THEA 484 will provide fundamental skills in recording an audio production. The first four weeks will cover basics of current recording equipment, basic microphone theory and placement according to principles of sound propagation within performance spaces. The second four weeks will expand on the principles of the first four weeks, considering the problems of recording in a variety of different locations and specific techniques for recording particular instruments. The final seven weeks will focus on work within a recording studio. Students will need to configure a mixer with a multi-rack digital recorder and create a mastered CD with all appropriate post processing (EQ, compression, reverberation, etc.). Students will work on teams for various recording projects, with one student serving as producer for each, so that they gain a comprehensive knowledge of the various duties involved in setting up and operating recording equipment. Team projects will make up the majority of the grading for the class. Periodic quizzes will be administered in order to check the progress of the students and ensure their comprehension of the material. Each student will complete a final project in lieu of a final exam. During the production of this project, they will also be expected to serve in ancillary roles for their classmates' projects. Their participation in these other projects will be considered in the grading of their final project.

Enforced Prerequisite at Enrollment: INART 258A or THEA 285

THEA 485: Sound for Theatre Production

3 Credits/Maximum of 6

Aesthetics of live and recorded sound; recording and editing techniques for the stage.

Enforced Prerequisite at Enrollment: THEA 106 and THEA 150

THEA 486: Stage Management for Production

1-9 Credits/Maximum of 9

Stage manager for University Theatre production.

Bachelor of Arts: Arts

THEA 489: Theatre Production Practicum

1 Credits/Maximum of 99

Supervised experience in production techniques. For theatre majors only.

Enforced Prerequisite at Enrollment: THEA 289 or THEA_MFA

Bachelor of Arts: Arts

THEA 490: London Study Tour

3 Credits

An intensive academic and cultural experience in the theatre capital of the English-speaking world. THEA 490H London Study Tour (3) Theatre-going forms the heart of the LST and of its academic identity. London is the outstanding theatre city of the English-speaking world, offering consistently superb choices in classic plays, contemporary and avant-garde theatre, musical theatre, opera and dance. Students will see a minimum of seven theatre and dance performances: some will be purchased in advance by the instructor, and others will be selected by participants from a wide range of choices. As a complement to the theatre core, the LST's faculty leaders will provide students with an orientation to London and its history, culture, and sights.

Honors

THEA 494: Research Projects - Honors

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Honors

THEA 495: Internship Practicum

1-6 Credits/Maximum of 12

Professional field experience in theatre performance, production, and management assignments.

Enforced Prerequisite at Enrollment: THEA 100 or THEA 105 or THEA 106 or DANCE 100 or THEA_MFA

Bachelor of Arts: Arts

Full-Time Equivalent Course

THEA 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, supervised on an individual basis and which fall outside the scope of formal courses.

Bachelor of Arts: Arts

THEA 496H: Independent Studies - Honors

1-18 Credits/Maximum of 18

Creative projects, including research and design, supervised on an individual basis and which fall outside the scope of formal courses.

Bachelor of Arts: Arts

Honors

THEA 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Bachelor of Arts: Arts

THEA 498: Special Topics

1-9 Credits

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

Bachelor of Arts: Arts

THEA 499: Foreign Studies--Theatre Arts

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

Enforced Prerequisite at Enrollment: THEA 100 or THEA 105 or THEA 106 or DANCE 100

International Cultures (IL)

Turfgrass (TURF)

TURF 100: Introduction to Turfgrass Management

3 Credits

Introduction to turfgrass species, establishment, maintenance, and pest control of turfgrass species used for sports, lawn/utility turf, and golf courses. TURF 100 Introduction to Turfgrass Management (3) TURF 100 is an introduction to the major turfgrass species, including their identification, growth and development, adaptation, and practical uses. Students will be introduced to turfgrass establishment and renovation. The importance and timing of cultural practices will be covered as well as an introduction to turfgrass pest management. There are demonstration labs including field trips and hands-on activities. There will be three exams and seven quizzes. The students will also be graded on projects including identifying various turfgrass species, seeds, insects, diseases, and weeds. This course is designed for non-science majors with little experience in plant science and culture. This course serves primarily as a service course for the Professional Golf Management Option in the College of Health and Human Development. This course has numerous web-based resources that the students can access independently. The students are required to make several visits to a demonstration lab in the research greenhouses. There are also a number of scheduled field trips.

TURF 230: Turfgrass Pesticides

1 Credits

Course covers chemical toxicity, formulations, environmental fate, labels, MSDS, calibration, IPM, safety, handling, storage, and Pennsylvania certification and regulations.

TURF 235: The Turfgrass

3 Credits

Characterization of the primary plant species used for sports, lawn and utility turf; includes turfgrass morphology, environmental adaptation, and cultural requirements.

TURF 238: Turf and Ornamental Weed Control

3 Credits

Students will be introduced to the development of integrated weed management strategies utilizing a variety of cultural and chemical methods.

Cross-listed with: HORT 238

TURF 295: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practical, or internships. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: Prior approval of proposed assignment by instructor

TURF 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

TURF 307: Golf Course Irrigation and Drainage

3 Credits

TURF 307 is a course developed to instruct students interested in working in the turfgrass management profession. The majority of the course is devoted to irrigation topics with a strong concentration on turfgrass irrigation applications, while the remainder concerns surface and subsurface drainage. The course covers the following topics: The influence of weather on irrigation management; sprinkler characteristics, selection; management of piping and control systems; maximizing irrigation efficiency by using turfgrass evapotranspiration, soil characteristics, and expectations of venue; fundamental hydraulics, irrigation layout and piping sizing; pump characteristics and system winterization; surface and subsurface drainage systems. The course also includes short field trips to various local industry-related facilities for educational evaluation. Note: PLANT 217 may not be substituted for TURF 307 for prescribed course credit.

Enforced Prerequisite at Enrollment: TURF 235 Recommended Preparation: MATH 21 and SOILS 101

TURF 425: Turfgrass Cultural Systems

3 Credits

TURF 425 will prepare students for the practical application of agronomic principles and concepts in the green industry. Students will develop management and problem solving skills. The course will be a platform for students to learn about the integration of different turfgrass maintenance practices into sound management strategies that lead to the production of high quality turfgrass areas. Specifically, the course will include

concepts about golf turfgrass, sports turfgrass and home lawn care. There will be a focus on both the aesthetic quality and functionality of these turfgrass sites and the interrelationship of the concepts.

Enforced Prerequisite at Enrollment: TURF 235 Recommended Preparation: SOILS 101

TURF 434: Turfgrass Edaphology

3 Credits

TURF 434 Turfgrass Edaphology (3) TURF 434 is offered to students that are entering their final year of the turfgrass science major. This course builds on introductory turfgrass and soil courses. In this course you will learn to interpret soil physical results using the United States Golf Associated specifications for greens construction. You will learn how to evaluate and manipulate the physical properties of a soil in order to provide a quality turfgrass stand under varying conditions. You will use new information as well as physical and quantitative tools provided to aid in soil management decisions. You will defend your decisions to other students in group-exercises conducted on a computer bulletin board. You will also submit your decision making process and defend your decisions in writing, in the form of business proposals. This class has a series of labs, some of which run over several weeks. You will use class material and the physical and quantitative tools learned in the labs to inform your decision-making processes. Your grade will be based on exams, lab reports, and practicums. The practicums and the labs are interrelated. The practicums, which are mini-case studies of actual turfgrass situations and problems, require you to apply techniques and information learned in the physical lab periods. The practicums are graded on initial draft, final draft, and your critique of other student's solution to a problem. TURF 434 is an advanced course in soil physical properties.

Enforced Prerequisite at Enrollment: TURF 235 Recommended Preparation: SOILS 101

TURF 435: Turfgrass Nutrition

4 Credits

Turfgrass Nutrition is a study in the nutrition and growth of turfgrass plants. Upon completion of this course, students will be able to distinguish the function and requirements of nutrients in the turfgrasses; describe how soil physical and soil chemical properties/conditions affect nutrient availability; select soil amendments to remedy soil chemical limitations; identify the best fertilizers and application methods to satisfy site-specific nutritional requirements; prepare nutrient management plans by appraising edaphic and environmental conditions and current cultural management and use; and will have discovered how best to sample soil, tissue, and water; submit samples, choose appropriate specialty tests, and interpret reports. TURF 435 compliments Turfgrass Edaphology, by examining soil chemical (rather than physical) properties as turfgrass growth parameters and addressing ameliorative measures in concept and operation. Students are introduced to the many classes of specialty fertilizers used in turfgrass management and their specific attributes are revealed through laboratory and field exercises. Students are evaluated through written testing of plant growth and nutrition concepts, interpretation of soil analysis, recommendations of fertilizer type and rate, and nutrient fate and management. TURF 435 has a substantial laboratory component.

Enforced Prerequisite at Enrollment: TURF 235 Recommended Preparation: SOILS 101

TURF 436W: Case Studies in Turfgrass Management

3 Credits

Case Studies in Turfgrass Management is a three credit, writing intensive course for students in the final year of the Turfgrass Science major. The goal of this capstone course is to provide students with an understanding of processes involved in solving turfgrass and soil problems at the managerial level. Using several real-life scenarios provided by the instructor, students will learn to gather facts associated with a problem, analyze the problem, formulate a set of options for solving the problem, implement a plan of action, and evaluate the results of the action. Once these processes are assimilated, students will form teams and select challenging turf and soil problems, analyze them, formulate options for solving the problems, select the most feasible solutions, and evaluate outcomes. Teams will submit reports and develop presentations for class. Teams will also be charged with questioning presenting teams and evaluating team members. Students will be evaluated through exams, reports, presentations, and class participation.

Enforced Prerequisite at Enrollment: TURF 235 and (TURF 434 or TURF 435) Recommended Preparation: TURF 238 and TURF 425 Writing Across the Curriculum

TURF 490: Colloquium

1 Credits

Oral presentations developed by students in consultation with the course instructor.

Enforced Prerequisite at Enrollment: Seventh semester standing

TURF 495: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practical, or internships. Written and oral critique of activity required.

Enforced Prerequisite at Enrollment: Prior approval of proposed assignment by instructor

Full-Time Equivalent Course

TURF 495A: Internship

1 Credits/Maximum of 3

Preparation for or follow up to supervised off-campus, nongroup instruction including field experiences, practical, or internships. Written and oral critique of activity required.

TURF 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

TURF 497: Special Topics

2-6 Credits/Maximum of 6

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

TURF 499: Foreign Studies

1-8 Credits

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

TURF 499B: Foreign Studies

1-8 Credits

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Ukrainian (UKR)

UKR 1: Elementary Ukrainian I

4 Credits

Reading, writing, and speaking Ukrainian.

Bachelor of Arts: World Language (All)

UKR 2: Elementary Ukrainian II

4 Credits

Reading, writing, and speaking Ukrainian.

Prerequisite: UKR 001

Bachelor of Arts: World Language (All)

UKR 3: Intermediate Ukrainian

4 Credits

Reading, writing, and speaking Ukrainian.

Prerequisite: UKR 002

Bachelor of Arts: World Language (All)

Bachelor of Arts: World Lang (12th Unit)

UKR 99: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

UKR 100: Ukrainian Culture and Civilization

3 Credits

Survey of Ukrainian culture and civilization from the Middle Ages to the present. UKR 100 Ukrainian Culture and Civilization (3) (GH;IL)The course acquaints students with Ukrainian culture from the origins of Kyivan-Rus in the 9th Century to the present day. The course will examine the many facets that make up culture: history, politics, language, literature, folklore,

religion, science, music, and art. The course will place Ukrainian culture in the broader context of the Slavic nations and peoples. It will focus on the development of national identity from the origins of the Ukrainian people through the colonial period under tsarist Russian domination, through Soviet domination, and finally to post-independence identity following the dissolution of the Soviet Union in 1991. The course will include films and expert guest lectures. The course format will consist of lectures, slide, video and audio presentations. Readings will all be in English. Questions and discussion on class lectures and readings and on topical matters will be strongly encouraged. At the end of the course, students will be familiar with the problems that post-colonial Ukraine faces at present. They will have a basic general knowledge of Ukrainian history and geography, and will be acquainted with representative achievements of Ukrainian high and folk culture. There will be a mid-term (30%), a final exam (30%), and a research paper (30%). The latter will be graded both for content and writing ability. Ten percent of the class grade will be for class participation, including attendance and active participation in discussions. Students may also receive extra credit by making a 10-15 minute oral presentation in class on a pre-approved topic, which will offer students the opportunity to practice public speaking. The exams will include written identification questions, brief essay questions, and a longer essay question that synthesizes knowledge acquired in class. As a General Education course, Ukrainian 100 incorporates the following four elements of active learning: international competence (a much lesser known part of the East European world), information gathering and analysis, active use of writing, and dialogue pertaining to social behavior, community and scholarly conduct. The case of Ukraine as a 'submerged nation,' subsumed under tsarist Russia and the Soviet Union, will provide students with a colonial paradigm of development of a minority culture and language under a politically stronger colonizing culture. Students need to write a 10-page paper for the course and will learn to explore library and internet resources. The paper will be graded for content, clarity, structure, and effective use of language. As an extra-credit option, students may volunteer to give a class presentation on their research topic or another topic of interest. Students may also acquire extra-credit by writing reaction papers on topical extracurricular lectures or visits to Ukrainian cultural sites (like the Ukrainian Museum in New York, the Ukrainian Embassy in Washington, DC, or historic Byzantine Rite Ukrainian churches). Ukrainian 100 is not required for the B.A. degree in Russian, but may be used under the rubric of 'Additional Courses' for the B.S. degree in Russian Translation. UKR 100 may be used to satisfy the Gen Ed Humanities and United States Cultures and International Cultures requirements.

International Cultures (IL)
General Education: Humanities (GH)

UKR 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

UKR 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

UKR 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

UKR 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

UKR 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small group basis.

UKR 494H: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small group basis.

Honors

UKR 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Veterinary and Biomedical Sciences (VBSC)

VBSC 50: Mechanisms of Disease

3 Credits

Introduction to the study of disease pathogenesis and careers in Animal Health Research and Service. VB SC 050S Mechanisms of Disease (3) Mechanisms of Disease is a first year seminar directed to students with an interest in a career in veterinary medicine or in bio-medical disciplines. Students are introduced to the concepts of epidemiology, cell biology, clinical medicine and toxicology through use of appropriate case material. The importance of basic science courses to the understanding of this material is emphasized. Reading and written assignments are related to the case study material as well as adaptation to the college experience. Grading is based on class participation and written assignments.

First-Year Seminar

VBSC 97: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

VBSC 101: Careers in Veterinary Medicine and the Allied Professions

1 Credits

Exploring career pathways in veterinary medicine and the allied health industry. VB SC 101 Careers in Veterinary Medicine and the Allied Professions (1) The course is intended for first year students with an interest in careers in veterinary medicine or in the allied industries. Upon completion of the course students will have an understanding of the various careers possible in veterinary medicine; including types of specialization by species and/or by discipline. Students will have the opportunity to discuss careers in industries related to animal health and animal health research. Student learning will occur through the use of guest speakers, written assignments and on-line discussion groups. Student evaluation will be based on performance on assignments and on-line discussion groups.

VBSC 130: Understanding Human Disease

3 Credits

All humans are impacted by disease, either personally or through friends or family members who are affected. Understanding Human Disease is an overview of disease processes for individuals not majoring in a scientific field. Students will have the opportunity to study the basic knowledge tools required to understand how different diseases arise, how they progress, how they are treated and in many cases, how they can be prevented. The course material is divided into two segments: the first portion discussing the different ways that diseases develop and includes explanations on normal and abnormal inflammatory processes, different types of infectious diseases, genetic diseases and congenital abnormalities (birth defects), diseases that affect the immune system and metabolic diseases. Diseases that are affecting significant populations such as HIV, diabetes, cancer and heart disease will be discussed. The second segment includes a discussion of the significant diseases affecting different organ systems of the body. Student participation is encouraged through questions. Additional topics of immediate interest as identified by the news media or class interest will be discussed. The course is intended for those who wish to better understand published medical journalism, for individuals who want to be able to discern the caliber of medical information in the popular press, for those students who wish to make healthy choices in their lifestyle and for individuals who may not be destined for a career in a scientific field.

General Education: Health and Wellness (GHW)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

VBSC 190: Careers in Veterinary and Biomedical Sciences

1 Credits

Career strategic planning and opportunities for Veterinary and Biomedical Sciences.

VBSC 211: The Immune System and Disease

3 Credits

Introduction to the immune system that emphasizes the immune response to infection and consequences of a defective immune response.

Bachelor of Arts: Natural Sciences

VBSC 230: The Science of Poisons

3 Credits

An introduction to toxicology using real world examples to highlight the impact of toxicants on environmental, biochemical and physiological processes. VB SC 230 The Science of Poisons (3) Toxicology is the study of poisons (natural and man-made) and how these agents adversely affect living organisms. It involves the prevention of harm and the development of measures to assess risk. As a science it borrows from many disciplines including biochemistry, chemistry, epidemiology, genetics, and physiology. It also has great societal impact with regard to the development and testing of consumer products, exposure to industrial chemicals, and maintaining safe food and water. The course format will be lectures that incorporate real world examples of the effects of toxicant exposure on many levels (cell, organ, whole body, environmental). Students will be evaluated by quizzes, exams, and class participation. Students are required to have a basic understanding of biology and chemistry. The course is offered once per year in the Fall semester.

Enforced Prerequisite at Enrollment: CHEM 110 and BIOL 110

VBSC 231: Introduction to Cancer Research and Medicine

3 Credits

An understanding of the terminology, basic concepts, techniques, multidisciplinary approaches and challenges in cancer research and medicine. VB SC 231 Introduction to Cancer Research and Medicine (3) Introduction to Cancer Research and medicine is designed for second year undergraduate students preparing for careers in biomedical research. Students will develop an understanding of the theories, scope, approaches and challenges of cancer related biomedical research. The lectures and discussions will emphasize the interdisciplinary character of the discovery process. Students will be introduced to topics on cellular mechanisms responsible for cancer development and progression; techniques in cancer research involving generation and banking of research materials, and methods for performing molecular, genomic and proteomic analyses; approaches for discovery and validation of diagnostic and prognostic biomarkers as well as systems for high through put screening of targets for rational development of interventional therapeutics. Student evaluation will be based on performance on examinations and class participation.

Enforced Prerequisite at Enrollment: BIOL 110

VBSC 280: Current Issues in Veterinary Medicine

2 Credits

Discussion of the social, ethical and economic aspects of current and emerging issues related to animal ownership and veterinary medicine. V B SC 280 Current Issues in Veterinary Medicine (2) Current Issues in Veterinary Medicine is designed to provide students with the opportunity to research, present and discuss the social, ethical and economic issues important in Veterinary Medicine. Students will be expected to research the literature on specific topics within the general area of discussion, prepare and deliver an in class presentation and discuss their findings. Students are evaluated on class presentations and on three written position papers during the semester. The course is offered every spring semester.

VBSC 280N: Current Topics in Veterinary Medicine

3 Credits

Discussion of the social, ethical, and economic aspects of current and emerging issues related to animal ownership and veterinary medicine emphasizing the appropriate citation of sources and writing about contemporary issues facing this field. Writing assignments will center on new and emerging issues facing today's veterinary professionals. Students completing this course will produce a writing portfolio that includes a range of works appropriate for different audiences, as well as having participated in extensive self and peer evaluation of writing. Students scheduling this course will first complete Engl 15 and Biol 110. Course objectives include teaching written communication skills that will prove valuable to VBSC majors. Upon completion of this course, students should be able to: develop focused writing objectives based on some knowledge of the target audience, find reliable sources of evidence, critically evaluate evidence and sources, correctly cite sources for various types of material, develop an effective outline, write and revise drafts for a final piece of written communication, perform self and peer evaluations of writing, and produce a final piece of written communication that achieves the original objective and is valuable to the target audience. Topics will surround veterinary shortages and possible solutions, gender demographics, animal rights versus animal welfare, small animal care inequity, euthanasia, laboratory testing and medicine, and more.

Enforced Prerequisite at Enrollment: ENGL 15 and BIOL 110

General Education: Humanities (GH)

General Education: Natural Sciences (GN)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

Writing Across the Curriculum

VBSC 290: Undergraduate Research Colloquium

1 Credits

Presentations by appropriate faculty on research opportunities for undergraduates. VB SC 290H Undergraduate Research Colloquium (1) The goal of the course is for students to acquire the skills necessary to obtain an independent research project of the scope and scale required to complete an Honors Thesis. Students will learn to use online tools to approach primary literature in order to familiarize themselves with faculty research topics. Department faculty will present overviews of their research programs, including potential opportunities for undergraduate projects. First year honors students in the Veterinary and Biomedical Sciences, Immunology and Infectious Disease, and Toxicology majors should take this course in their second semester. Other interested students may take the course with department approval.

Enforced Prerequisite at Enrollment: Permission of program.

Honors

VBSC 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

VBSC 331: Pharmacology I: Drug Actions and Reactions

3 Credits

This course teaches the general principles of pharmacology and mechanisms of drug action. The objectives of this course include: Explain fundamental principles of drug action, including how drugs affect the body and how the body affects drugs; Map a drug's path in the body based on route of administration; Explain factors contributing to varied drug response among a population; Describe the mechanism of action, general effect(s), and therapeutic use(s) for major drug classes, and ; Apply pharmacological principles in discussing novel or emerging therapeutic strategies. This course is designed for those interested in becoming health care professionals in the fields of medicine, nursing and pharmacy, as well as those interested in basic scientific research and biotechnology.

Enforced Prerequisite at Enrollment: BIOL 230W or BIOL 230M

VBSC 340: Introduction to Human and Veterinary Public Health

3 Credits

This course introduces students to the history of human and veterinary public health, the structure of the human and veterinary public health system (CDC, FDA, and USDA) and the various sectors of veterinary and human public health practice, in order to gain an understanding of the complex factors that determine the health status of a human and animal populations. National, state, and local level practices will be analyzed, as well as the roles that law and government play in human and veterinary public's health. The course will simulate the students' interest in other public health course and program offerings.

VBSC 395: Internship

1-10 Credits/Maximum of 10

Independent study and supervised field experience related to the student's professional interest. Limited to students in animal agriculture majors.

Enforced Prerequisite at Enrollment: Fifth-semester standing in an animal agriculture major. Approval by department of proposed plan before registration.

Full-Time Equivalent Course

VBSC 402W: Biology of Animal Parasites

3 Credits/Maximum of 3

An introduction to animal parasitology. Emphasis placed on host/parasite interactions, parasites of zoonotic importance, control programs and taxonomy. VB SC 402W Biology of Animal Parasites (3) This course provides students an opportunity to obtain an introduction to the field of animal parasitology. Material presented emphasizes life cycle patterns of animal parasites, host-parasite interactions and pathology, disease patterns and zoonotic potential of parasites to human disease, economic importance of parasitic diseases, taxonomy and parasite control programs. Information presented in this course will be useful to students interested in pursuing a career in veterinary medicine or careers dealing with animal care and management. Evaluation of student performance is achieved by 6 quizzes, three examinations and 3 writing assignments. The course is offered each spring semester with an enrollment of 15 to 25 students.

Enforced Prerequisite at Enrollment: BIOL 110

Cross-listed with: ENT 402W
Writing Across the Curriculum

VBSC 403: Principles of Animal Disease Control

3 Credits

Principles of disease control based on knowledge of the multiple causes of animal disease.

Enforced Prerequisite at Enrollment: MICRB 106 or MICRB 201 **Enforced Concurrent at Enrollment:** ANSC 301

VBSC 403H: Principles of Animal Disease Control

3 Credits

Principles of disease control based on knowledge of the epidemiology of animal disease. VB SC 403H Principles of Animal Disease Control (3) Animal Health and well being has emerged as a clear concern of society. The general public is concerned about the health and well-being of their companion animals as well as the animals that provide them with portions of their daily diet. The Foot and Mouth Disease outbreak that occurred in Great Britain in the spring of 2001 coming on the heels of increased concern about Bovine Spongiform Encephalopathy and its possible links to the human disease; variant Creutzfeldt Jacob Disease, resulted in an increased awareness for the potential for animal disease to have adverse effects on society. These effects range from availability of wholesome food products to the zoonotic transmission of diseases between humans and animals. The goal of this course is to introduce students to the principles of animal disease prevention. This requires the student recall relevant background knowledge in biology, nutrition, microbiology and animal husbandry and management. Students will develop an understanding of the complex physiological, biochemical and microbiological mechanisms of importance to the maintenance of health and the prevention of disease. Examples of certain diseases are used to illustrate the application of general principles of disease control. Diseases of world wide importance as discussed in addition to the major diseases of importance to Pennsylvania animal owners. Collectively, the course material should provide animal owners, managers and future animal health professionals with the background to improve the decision making process required to maintain animal health and prevent losses from disease. The inherent, environmental and special factors involved in the maintenance of health and the prevention of disease will be emphasized.

Enforced Prerequisite at Enrollment: MICRB 106 or MICRB 201 **Enforced Concurrent at Enrollment:** ANSC 301
Honors

VBSC 405: Laboratory Animal Science

3 Credits

Principles involved in maintaining laboratory animals. Emphasis is on management, preventive medicine, and surgical considerations used in laboratory animal colonies. VB SC 405 Laboratory Animal Science (3) This course in Laboratory Animal Science introduces students to the biology and characteristics of a variety of laboratory animal species, explores the care and use of animals in various research environments and examines ethical/legal issues pertaining to the use of animals in research and teaching. The laboratory section reinforces topics discussed in lecture and provides an opportunity for students to learn basic animal handling techniques in a safe and professionally supervised environment. Students work with live laboratory animals including mice, rats, hamsters,

guinea pigs, and rabbits. They learn handling techniques, administration techniques (such as by injection), and sample collection techniques (such as blood collection). They also learn surgical principles and perform a surgical procedure using aseptic technique. The Laboratory Animal Science course appeals to and benefits several general groups of students. Those who plan to pursue careers involving animal research such as in academia or industry receive a broad foundation in the field of laboratory animal science as well as an introduction to techniques commonly employed when handling animals. Those pursuing careers involving veterinary medicine or veterinary technology receive training and the opportunity to develop clinical/technical skills focused on a unique group of species. Students that are undecided in their career choice find that the field of laboratory animal science holds many opportunities for those with animal knowledge, handling skills and an understanding of the societal issues surrounding the use of animals in research.

Enforced Prerequisite at Enrollment: ANSC 201 and ANSC 301 and BIOL 110

VBSC 407: Ruminant Herd Health Management

3 Credits

The course will provide students with basic and foundational knowledge regarding herd health programs in ruminant production systems. The student will explore crucial areas of managing production systems such as implementation and development of standard operating procedures (SOPs) and protocols and biosecurity programs for common diseases that threaten the sustainability of the human food supply worldwide, such as Brucellosis and Tuberculosis. Furthermore, the student will explore important concepts regarding diagnosis, treatment, management and prevention of ruminant diseases in an organized manner, moving from younger to older animals, and following them through their production cycle. In addition, the course will integrate on-farm field data collection with farm record analysis to provide students with critical thinking skills for troubleshooting a variety of health issues in production systems. Students enrolling in this course must possess basic information regarding animal biology and farm management. The information provided in this course will complement several courses regarding cattle operation management and prevention of diseases in production animals.

Enforced Prerequisite at Enrollment: ANSC 308 or ANSC 309 or VBSC 403 or ANSC 310

VBSC 409: Wildlife Diseases

3 Credits

The purpose of this course is to provide students with an appreciation of the changing role of wildlife diseases as they relate to wild vertebrate species. The student will learn disease terminology and mechanisms, wildlife disease information resources, selected diseases of historic and current importance for the major Taxa, legal aspects of wildlife diseases, the opportunities for careers in wildlife disease investigation, and scientific writing as it relates to wildlife disease. In particular, the student will gain detailed knowledge of the ecology of diseases that affect wildlife species as well as domestic animals and humans, wildlife diseases with zoonotic potential, those having a significant economic impact on humans, and those which may threaten species survival.

Enforced Prerequisite at Enrollment: BIOL 110

VBSC 410: Principles of Immunology

3 Credits

The MICRB 410 / VBSC 410 Theories of immunity (3cr.) course provides a basic foundation in immunology with a focus on the progression from antigen recognition and innate immune responses to the development of acquired immunity. During the course, students will have the opportunity to learn about key topics that lead to an understanding of the how the human immune system functions. Such topics include the primary cells and anatomical sites of the immune system as well as the activation and processes of innate immunity. In addition, students will learn about the organization and generation of lymphocyte antigen receptors, major histocompatibility complexes, and antigen presentation. Topics will also be presented that allow students to build an understanding of how antigen recognition and presentation leads to the development, selection, and survival of B and T lymphocytes. T-cell mediated immunity, humoral immunity, and the dynamics of the immune response will also be discussed in depth. Topics such as the immunobiology of allergy, transplantation, autoimmunity, immunodeficiency, diseases, vaccines, and/or cancer will also be presented in order to help students build an understanding of the interplay between the immune system and health and disease will be discussed throughout the semester.

Enforced Prerequisite at Enrollment: (MICRB 201 or MICRB 201H) and (BMB 251 or MICRB 251 or BMB 251H or BIOL 230W or BIOL 230M)
Cross-listed with: MICRB 410

VBSC 415: Research Practice in Veterinary and Biomedical Sciences

2 Credits

Research Practice in VBSC provides practical training in laboratory research, which is integrated with formal training in responsible conduct of research, experimental design and data analysis and in-depth discussion of key concepts in the current scientific literature.

Enforced Prerequisite at Enrollment: Third semester standing and BIOL110 or BIOL110H. Permission of the Instructor. Enforced Concurrent at Enrollment: BIOL 230W or BMB 251.

VBSC 418: Bacterial Pathogenesis

2 Credits

Study of molecular interactions between bacterial pathogens and their hosts.

Enforced Prerequisite at Enrollment: MICRB 201 and MICRB 410

VBSC 420: General Animal Pathology

3 Credits

This is a lecture-based course that will incorporate pictures and photomicrographs of gross and histologic lesions. This course primarily emphasizes the fundamental mechanisms of disease at the molecular, cellular, and tissue level, with less emphasis on the gross and clinical manifestations of disease. Students are expected to attend class and participate in class discussion. Specific subjects that will be presented include cellular injury and death, inflammation, blood coagulation, hemodynamic disorders, diseases of immunity, cellular adaptation, neoplasia, microbial mechanisms of disease, introduction to gross pathology, and pathology in practice. This course utilizes

knowledge previously attained from courses in biology, microbiology, and immunology.

Enforced Prerequisite at Enrollment: VBSC 211 Enforced Corequisite at Enrollment: VBSC 211 and MICRB 201

VBSC 421: Comparative Anatomy of Vertebrates

4 Credits

BIOL 421 / VBSC 421 Comparative Anatomy of Vertebrates Students will study vertebrate anatomy from an evolutionary and developmental perspective. They will become familiar with important structures, terminology and function; a basic requirement of the biomedical sciences. Comparisons between representative vertebrate groups (including fish, amphibians, reptiles, birds and mammals) will be used to illustrate structural adaptations of each organ system from an evolutionary perspective. Specific examples comparing ancestral and descendant species will demonstrate the relationships between the lifestyle of an organism and the morphology of homologous structures. A study of early embryonic development, differentiation of primary germ layers and organ formation will provide a basis for understanding organ structure and function. Laboratory activities will involve work with preserved specimens and will focus heavily on anatomic structure identification and function. Topics include anatomic directional terminology, vertebrate classification systems, early embryonic development and a detailed examination of the various organ systems. Specimens are selected to illustrate the anatomy of ancestral vertebrate species, the evolutionary changes observed in descendant species and the association of morphology with lifestyle. Although students will invest the majority of their time becoming familiar with the anatomy of a representative mammal (the cat), multiple species will be examined, and students will be expected to recognize selected anatomic structures in each species studied.

Enforced Prerequisite at Enrollment: BIOL 129 or BIOL 141 or BIOL 220W or BIOL 220M or BIOL 230W or BIOL 230M or BIOL 240W or BIOL 240M or BMB 251 or BMB 251H
Cross-listed with: BIOL 421

VBSC 423W: Pathology of Nutritional and Metabolic Diseases

3 Credits

Overview of nutritional and metabolic diseases of animals integrating concepts from biochemical and physiologic aberrations to clinical applications. VB SC 423W Pathology of Nutritional and Metabolic Diseases (3)Nutrition plays a critical role in health, disease and convalescence of man and animals. Understanding the role of nutrition in disease pathogenesis, recovery and prevention requires an integration of biochemical and physiologic sciences and clinical practice. The intent of this course is to help the student integrate their knowledge from various basic science disciplines to real-world clinical issues related to the role of nutrition in disease pathogenesis, management and prevention across various animal species. Common nutrition and metabolic disease of production and companion animals will be used to demonstrate various principles of disease pathogenesis from a biochemical to whole animal basis. Deficiency and toxicity diseases of all essential nutrients will be addressed. In addition, a secondary role of nutrition in disease susceptibility and recovery mediated through immunologic and physiologic processes will be highlighted. In completing the course, students will have an understanding of comparative gastrointestinal anatomy and how this influences essential nutrients required and unique nutritional disease conditions. Additionally, students will gain

appreciation for clinical management of nutritional diseases from diagnosis to prevention. Course format will be lectures and case-based discussions. With the integrative approach to course content, students are required to have previous courses in biology, biochemistry and nutrition. The course can meet requirements for writing across the curriculum and satisfies 400-level course requirements for Animal Bioscience and Animal Science majors. Prerequisites for the course include B M B 211 or B M B 401, and AN SC 301 or equivalent nutrition course.

Enforced Prerequisite at Enrollment: (BMB 211 or BMB 401) and ANSC 301

Writing Across the Curriculum

VBSC 425: Principles of Avian Diseases

3 Credits

Principles of pathogenesis and control of diseases in poultry and other avian populations. Case material used where appropriate. ANSC 425 / VBSC 425 Principles of Avian Diseases (3) This course discusses the major diseases of domestic poultry, with etiology, prevention, and treatment reviewed on each disease. Since many of these diseases also affect wild birds and pet birds these are also reviewed. Lastly, avian disease with zoonotic (human public health) potential are also discussed in the course. This course is required by those seeking a poultry minor. Previous coursework in pathogenic microbiology is beneficial.

Enforced Prerequisite at Enrollment: (MICRB 106 and MICRB 107) or (MICRB 201 and MICRB 202) Enforced Concurrent at Enrollment: ANSC 211 and ANSC 311

Cross-listed with: ANSC 425

VBSC 430: Principles of Toxicology

3 Credits

Introduction to the biomedical aspects of toxicology with emphasis on the mechanisms and fate of chemical interaction with biological systems.

Enforced Prerequisite at Enrollment: (BIOL 110 and BIOL 240W) or BMB 211 or BMB 401

VBSC 431: Environmental Toxicology

3 Credits

Effects of pollutants on animal health at the chemical, physical, and cellular level.

Enforced Prerequisite at Enrollment: BIOL 110 and CHEM 110 and CHEM 112

Cross-listed with: ERM 431

VBSC 432: Advanced Immunology: Signaling in the Immune System

3 Credits

The study of signaling pathways that regulate the immune response. BMB 432 / MICRB 432 / VBSC 432 Advanced Immunology: Signaling in the Immune System (3) This course will use the immune system as a model in which to study how cells communicate in order to coordinate an immune response. We will focus on signaling mechanisms that regulate such immune responses as T cell activation, Th1/Th2

differentiation, macrophage activation, and migration of immune cells to sites of inflammation. All lectures are based on recent reviews by key investigators in each field, as well as primary articles to present students with the most recent advances, techniques, and approaches used. The goal of the course will be to convey a basis understanding of intracellular signaling mechanisms that will pertain to all areas of biology, an appreciation for current questions and future directions in the field, and an in depth understanding of the signals that govern immune responses. The material presented will build on the basic concepts learned in BMB 400 and MICRB 410, and will lay the foundation for more advanced courses at the graduate level.

Enforced Prerequisite at Enrollment: (BMB 251 or MICRB 251 or BIOL 230W or BMB 251H or BIOL 230M) and (MICRB 410 or VBSC 410) Cross-listed with: BMB 432, MICRB 432

VBSC 433: Molecular and Cellular Toxicology

3 Credits

In-depth coverage of processes by which drugs/chemicals interact with biological systems and the experimental approaches used to study these interactions.

Enforced Prerequisite at Enrollment: BMB 401 or BMB 401H or BMB 211 Cross-listed with: BMB 433

VBSC 435: Viral Pathogenesis

3 Credits

Viral Pathogenesis provides students with a general knowledge of medically relevant viruses, with a specific focus on important human viral pathogens. The course is meant to help students understand how viruses cause diseases in humans and animals. Lectures and in-class discussions will focus both on the fundamentals of viral infection and disease mechanisms, and on contemporary virology-related topics in the scientific literature. Topics discussed can be divided into two main areas: (1) general concepts related to viral pathogenesis and the control of viral infections; and (2) specific viruses that cause human disease including HIV-1, herpes viruses, papillomaviruses, influenza virus, West Nile virus, Ebola virus, and SARS virus. Although prior knowledge of virology is not required for taking this course, a working knowledge of molecular biology, cell biology, immunology, and some microbiology is helpful.

Enforced Prerequisite at Enrollment: (MICRB 201 or MICRB 201H) and (BMB 252 or MICRB 252 or BMB 252H) or (BIOL 230W or BIOL 230M) Cross-listed with: BMB 435, MICRB 435

VBSC 438: Introduction to Molecular Pharmacology

3 Credits

Upon completion of this course the student will be able to correlate their knowledge of basic and organic chemistry, biochemistry and physiology to the understanding of drug actions. The molecular interactions between drugs and their tissue receptors and possible modifications of drugs to target different receptors will be discussed. Drugs used to treat infectious disease, treat cardiovascular disease, modulate the immune system, and treat cancer will be examined for their molecular interactions. Students will understand the complexities of new drug design and development from the initial stages of laboratory development to final approval for use by the Food and Drug Administration.

Enforced Prerequisite at Enrollment: CHEM 202 and CHEM 201 and BIOL 110 and (BMB 211 or BIOL 230W or BMB 251)

VBSC 439: Mucosal Immunology and the microbiome

3 Credits

Mucosal tissues are gateways into the body. Because of their direct interaction with the environment, a specialized immune response is needed. Unlike the systemic immune system, which functions in a sterile environment inside the body, mucosal immune responses must be able to discriminate between harmful pathogens and benign stimuli like commensal organisms and food. The emphasis of this course is to understand the unique properties of the mucosal immune system. This course will build on the general understanding of immunology presented in MICRB410 and provide a detailed discussion of the symbiotic relationship between the microbiome and the development and function of the mucosal immune system. The effects of disruptions in the microbiome and the effects on disease will also be a major theme of the course. The course will include lecture and discussion of the topics presented in the textbook. In addition, articles from the primary literature will be presented and discussed. These articles will also provide an experimental framework for understanding the mucosal immune system. The topics presented here will provide a greater understanding of mucosal immunology and its interactions with the microbiome for students majoring in Immunology and Infectious Disease, Veterinary and Biomedical Sciences, Animal Science, Biochemistry and Molecular Biology, Biology, Microbiology, Food Science and Nutrition. The course would also be appropriate for Graduate students seeking more information about mucosal immune responses.

Enforced Prerequisite at Enrollment: MICRB 410

VBSC 444: Epidemiology of Infectious Diseases

3 Credits

Overall, the emphasis of this course will be on the core epidemiologic concepts of infectious diseases. Epidemiology is the study of how health and diseases are distributed in populations and the factors that influence or determine this distribution. Infectious disease epidemiology monitors the occurrence of diseases and develops strategies for preventing and controlling disease. In addition to understanding basic epidemiological methods, the course will provide an introduction to infectious disease epidemiology. It will focus on tools and epidemiological methods used for identifying, preventing and controlling infectious disease problems and present a review of epidemiology of many major infectious diseases. The lectures and discussions are designed to provide theoretical and practical framework and principles of infectious disease epidemiology to prepare students majoring in biology, pathobiology, animal science, food science, molecular biology and human nutrition to face the infectious diseases challenge in real world.

Enforced Prerequisite at Enrollment: BIOL 110 and (STAT 200 or STAT 250)

VBSC 445: Molecular Epidemiology of Infectious Diseases

3 Credits

A discussion and practicum of the molecular laboratory techniques used to study molecular epidemiology of infectious diseases.

Enforced Prerequisite at Enrollment: BIOL 220 and (STAT 200 or STAT 250) and VBSC 444

VBSC 448W: Current Topics in Immunology

3 Credits

Study of current approaches and questions driving research in immunology and infectious diseases.

Enforced Prerequisite at Enrollment: MICRB 410 and BMB 400 Writing Across the Curriculum

VBSC 450: Medical Entomology

3 Credits/Maximum of 3

Transmission of human and animal pathogens by insects, mites and ticks, including emergent pathogens, envenomization, and forensic entomology. This course presents principles of transmission of human and animal pathogens by insects, mites and ticks. Non-transmission based aspects of medically important arthropods such as envenomization, forensic entomology and genomics will be discussed also. Basic arthropod biology with special attention to biological properties of vectors and their interactions with pathogens will be presented. We will cover basic components of arthropod disease cycles and principles of pathogen transmission dynamics. The major groups of arthropod-borne pathogens and vectors will be discussed. Special topics will include emergent pathogens, vector genetics, traditional and modern disease control strategies and venomous arthropods.

Enforced Prerequisite at Enrollment: ENT 313 or (BIOL 11 and BIOL 12) or BIOL 110 or BIOL 220W

Cross-listed with: ENT 450

VBSC 451: Immunotoxicology of Drugs and Chemicals

3 Credits

An in depth discussion of the effect of xenobiotics and drugs on host immune mechanisms. VB SC 451 Immunotoxicology of Drugs and Chemicals (3) Maintaining good health is a priority for most of us, and a key element in staying healthy is a properly functioning immune system. However, we are constantly exposed to a barrage of chemicals in the environment both natural and man-made. Some of the key questions asked included: 1) do environmental chemicals affect the generation of immunity?, 2) is our environment to blame for bad health? , and 3) can natural compounds cause immunotoxicity? These questions and more will be addressed in Immunotoxicology. This course will focus primarily on the effects of chemicals in the environment but will also cover the impact of other factors such as therapeutics, recreational drugs, and dietary factors on the immune system. Immunomodulatory mechanisms will be examined at systemic, cellular and molecular levels. Discussions will include theory, principles, and methodology and key issues in immunotoxicity, host immune mechanisms, and tumorigenesis. Key issues in regulatory immunotoxicology will be discussed to make students prepared for jobs in Federal Regulatory Agencies. Grading for undergraduates will include midterm and finals, and class participation; while graduate students will be required to also write a short, immunotoxicologically-related research proposal. Our intent is to provide a bridge between the two sciences and the undergraduate majors of Immunology and Toxicology, with an introduction to the basic mechanisms by which environmental, occupational, and therapeutic agents may interfere with immunologic systems. Immunotoxicology is

offered every fall semester and is designed for undergraduate students from toxicology, immunology, and forensic science majors.

Enforced Prerequisite at Enrollment: MICRB 201 or BMB 251

VBSC 455: One Health

3 Credits

This course addresses the challenges and opportunities at the convergence of One Health/public health, animal health, and environmental/ecosystem health. This interdisciplinary course will introduce the concept of One Health as an increasingly important approach to a holistic understanding of disease prevention and the maintenance of human and animal health. The list of topics will include lectures that emphasize the bidirectional impact of animal health on human health, the impact of the earth's changing ecology on health, issues of food and water security and preparedness and the benefits of comparative medicine. The course will also explore short and long term approaches to address the problems that emerge from growing interaction between human and animal populations driven by growth in the human population, new trends in animal production practices, industrial pollution, changing patterns of wildlife populations, human intrusion on new ecosystems, and trans-border mobility of humans, animals, and food.

Enforced Prerequisite at Enrollment: VBSC 340

VBSC 456: Case Studies in Global One Health

3 Credits

The lectures will cover a variety of topics ranging from measures of health and disease in populations through events occurring in globalization of health. Students will do class presentations of case studies based on evidence-based reports that justify and elaborate upon the major one-health efforts that can and have changed the health status of millions of people globally. The case studies will cover key aspects of One Health including assessment, policy development and quality assurance on one-health programs. The case studies will reveal the magnitude and understanding of current health challenges facing the world. The case studies will show how countries with minimal financial resources and limited health infrastructure, through sensible and systematic efforts have improved the health of their people. Through these case studies, the students will learn to identify critical factors that have contributed to successes as well as failures of various institutions and initiatives intended to address one-health issues.

Enforced Prerequisite at Enrollment: VBSC 455 and VBSC 444

VBSC 485: Human Genomics and Biomedical Informatics

3 Credits

The purpose of this course is to introduce students to the field of Human Genomics and Biomedical Informatics, in particular in the context of genetic architecture of complex human diseases and traits. The field of Human Genomics has experienced a massive explosion in data generation technologies, new discoveries, and increasing popularity in many scientific fields. This course will cover the molecular, statistical, population, and analytical aspects of modern human genomics and translational aspects of this field in biomedical informatics. Current methods to uncover the complex underpinnings of disease including

methods to explore gene-gene and gene-environment interactions and data integration will also be covered.

Enforced Prerequisite at Enrollment: BIOL 322 and (STAT 200 or STAT 250 or STAT 301 or STAT 401)

Cross-listed with: BMB 485

VBSC 494: Honors Thesis

1-6 Credits/Maximum of 6

Independent study directed by a faculty supervisor that culminates in the production of a Veterinary and Biomedical Sciences honors thesis.

Enforced Prerequisite at Enrollment: Junior or senior status in the Schreyer Honors College and permission of the Veterinary and Biomedical Sciences honors advisor.
Honors

VBSC 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

VBSC 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

VBSC 499: Foreign Studies

0.5-4 Credits/Maximum of 10

Courses offered in foreign countries by individual or group instruction.

Wildlife (WILDL)

WILDL 101: Introduction to Wildlife Management

3 Credits

Basic principles of wildlife management. Introduction to general ecology and wildlife population dynamics.

WILDL 103: Animal Identification

4 Credits/Maximum of 4

Identification of mammals, birds, reptiles, and amphibians; introduction to their life histories.

WILDL 106: Wildlife Management Techniques

4 Credits

This course is an overview of laboratory and field techniques for wildlife and natural resource research and management. The first third of the course prepares students to become proficient in land navigation by emphasizing topographical map, compass and Global Positioning System (GPS) use and basic surveying techniques and measurements. The second third of the course covers urban and suburban wildlife management, including techniques for encouraging native wildlife and discouraging human-wildlife conflict. The final third of the course addresses mark and recapture techniques, censusing methods and

population estimation, and wildlife telemetry methods. In-field data collection, data entry, and management are emphasized throughout the course. This course satisfies the DuBois campus first year engagement (FYE) by introducing the student to campus, University, and professional resources.

First-Year Seminar

WILDL 106T: Wildlife Management Techniques (Honors)

4 Credits

This course is an overview of laboratory and field techniques for wildlife and natural resource research and management. The first third of the course prepares students to become proficient in land navigation by emphasizing topographical map, compass and Global Positioning System (GPS) use and basic surveying techniques and measurements. The second third of the course covers urban and suburban wildlife management, including techniques for encouraging native wildlife and discouraging human-wildlife conflict. The final third of the course addresses mark and recapture techniques, censusing methods and population estimation, and wildlife telemetry methods. In-field data collection, data entry, and management are emphasized throughout the course. This course satisfies the DuBois campus first year engagement (FYE) by introducing the student to campus, University, and professional resources. The honors section of the course includes an in-depth exploration of a survey technique or method or additional field experience(s). The activities for the honors section vary by semester and are related to the interests of the students enrolled in the course. Previous activities have included participating in a night-time owl playback survey and generating transects for a deer pellet count.

First-Year Seminar

Honors

WILDL 204: Wildlife Mensuration

4 Credits

Estimation and analysis of animal populations and their habitats, including sampling considerations and basic biometry.

Enforced Prerequisite at Enrollment: 3 credits in MATH

WILDL 207: Outdoor Recreation

3 Credits

Sociology, history, and economics of recreational demand; recreational areas and management procedures.

WILDL 208M: Terrestrial Wildlife Management (Honors)

3 Credits

Ecological characteristics and manipulation of terrestrial habitats; control of wildlife populations. This course provides an overview of ecological characteristics of terrestrial habitats and the influence of those characteristics on wildlife populations. Course goals include (1) acquisition of knowledge related to how wildlife (at the individual and population level) interact with and are influenced by changes in their environment, (2) application of management and survey techniques (emphasized in the laboratory component of course), (3) understanding the application of techniques and principles learned in this class and others to wildlife management scenarios at the local, state, federal, and international level, (4) acquisition of critical thinking, reading, writing, and

research skills, and (5) collecting and organizing data and presenting it in a professional format. Writing, editing, and peer review are emphasized. The honors section of the course includes an in-depth exploration of a survey technique or method or additional field experience(s). The activities for the honors section vary by semester and are related to the interests of the students enrolled in the course. Previous activities have included additional bird banding opportunities, a trip to a local workshop on disease, and preliminary analysis of saw-whet owl banding data.

Enforced Prerequisite at Enrollment: FORT 150 and WILDL 101 and WILDL 103 and WILDL 106

Honors

Writing Across the Curriculum

WILDL 208W: Terrestrial Wildlife Management

3 Credits

This course provides an overview of ecological characteristics of terrestrial habitats and the influence of those characteristics on wildlife populations. Course goals include (1) acquisition of knowledge related to how wildlife (at the individual and population level) interact with and are influenced by changes in their environment, (2) application of management and survey techniques (emphasized in the laboratory component of course), (3) understanding the application of techniques and principles learned in this class and others to wildlife management scenarios at the local, state, federal, and international level, (4) acquisition of critical thinking, reading, writing, and research skills, and (5) collecting and organizing data and presenting it in a professional format. Writing, editing, and peer review are emphasized.

Enforced Prerequisite at Enrollment: WILDL 101 and (WILDL 106S or WILDL 106H) Recommended Preparations: WILDL 103

Writing Across the Curriculum

WILDL 209: Animal Handling and Care

4 Credits

Techniques in capturing, marking, and maintaining wild animals in captivity. Wildlife physiology, parasitology, and necropsy procedures are covered.

Enforced Prerequisite at Enrollment: WILDL 101

WILDL 211: GIS and Aerial Photo Interpretation in Wildlife Management

4 Credits/Maximum of 4

Use of Geographic Information Systems and aerial photo technology with applications in wildlife management and natural resources.

WILDL 213: Wetlands and Fisheries Management

4 Credits

Introduction to basic limnology. Ecology and management of swamp, marsh, pond, and stream habitats and their animal populations.

Recommended Preparations: WILDL 101 and WILDL 103 and WILDL 106S

WILDL 294: Undergraduate Research in Wildlife

1 Credits/Maximum of 2

In Undergraduate Research in Wildlife, students will be introduced to all aspects of wildlife research including study design, writing a research

proposal, collection of data in the field, data entry, data analyses and statistical methods, and writing a scientific paper. Students will be responsible for managing all aspects of the selected research project including organizing data collection and field assistants. The professor will be available to advise on the writing of the research proposal (literature review and methods), field work, data entry and analyses, and the writing of the final paper. Students will be responsible for presenting their research in the future.

WILDL 295: Internship in Wildlife Technology

1-6 Credits/Maximum of 6

Supervised off-campus field experience related to student's major.

Enforced Prerequisite at Enrollment: Prior approval of proposed assignment by instructor.

WILDL 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

WILDL 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

Wildlife and Fisheries Science (WFS)

WFS 150S: First-Year Seminar

2 Credits

The objectives of this first-year seminar course are to: (1) Engage and prepare first-year college students for academic success by orienting them to the scholarly community and introducing them to available academic resources. (2) Introduce students to Pennsylvania's forests and some of the research and other activities currently underway at Penn State that supports the conservation and management of these resources. (3) Introduce students to strategies they can use while at Penn State to prepare for careers related to forestry, wildlife/fisheries, and other natural resources disciplines.

Cross-listed with: FOR 150S
First-Year Seminar

WFS 209N: Wildlife and Fisheries Conservation

3 Credits

The conservation and management of our natural resources is critical to all aspects of human existence. Wildlife and fishery resources are integral to our food supplies, the quality of our lands, and form a deep foundation of our culture. This course will introduce students to fisheries and wildlife and basic ecological principles as they relate both to the natural and human-influenced environment. It is open to all students with a basic background in biology. Students will learn to identify and analyze the interacting components of fisheries and wildlife systems and to apply basic ecological principles to current wildlife and fisheries management and conservation issues. The course will explore the basic

tools, practices, and concepts used in the conservation and management of fish, wildlife, and their respective habitats. The course will also explore the human dimensions aspects of managing common property resources, like fish and wildlife, including the roles various stakeholders have in the management of these resources.

Recommended Preparation: a course in high school biology

Bachelor of Arts: Natural Sciences

General Education: Natural Sciences (GN)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

WFS 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

WFS 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

WFS 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

WFS 300: The Vertebrates

2 Credits

Overview of the evolution, systematics, ecology, and behavior of the subphylum vertebrata. W F S 300 The Vertebrates (2) The purpose of this course is to introduce students to vertebrate zoology and will include overviews of vertebrate evolution, systematics, anatomy, physiology, ecology, and behavior. The course will begin by introducing the phylum Chordata. The cephalochordata, amphioxus (Branchiostoma lanceolatum), will be discussed and used as a model of a prevertebrate. The basic organization and theories of vertebrate evolution will be reviewed. The superclasses, Agnatha and Gnathostomata, will be introduced. The origin of each of the major group of vertebrates will be traced. The general approach will be phylogenetic and include discussions of the major changes associated with each group's evolution and selected elements of their extant diversity and biology.

Enforced Prerequisite at Enrollment: BIOL 110

WFS 301: Vertebrate Laboratory

2 Credits

W F S 301 Vertebrate Laboratory (2) The purpose of this course is to introduce students to the anatomy of the vertebrates and to expose students to the diversity of vertebrates that reside in Pennsylvania. Students will dissect and learn the anatomy of the dogfish, frog, and cat or mink. Additional laboratory periods will concentrate on collecting/observing, and identifying fish, amphibians, reptiles, birds, and mammals.

Museum curation techniques will be taught, and students will be required to construct dichotomous keys to specimens that inhabit Pennsylvania. The identification part of the course is meant to introduce students to representatives of the taxa that occur within the Commonwealth in preparation for higher-level courses in ichthyology, herpetology, ornithology, or mammalogy. Collection techniques will emphasize the proper collection and preservation of organisms for natural history museums.

Enforced Concurrent at Enrollment: BIOL 110 and (WFS 209 or WILDL 101)

WFS 310: Wildlife and Fisheries Measurements

3 Credits

Wildlife and Fisheries Measurements will introduce students to basic measurements used to describe fish and wildlife populations and their habitats. Laboratory exercises will stress sampling approaches and implementation, common techniques for collecting information about amphibians, fish, birds, and mammals and their respective habitats, mapping and orienteering, and methods for summarizing and reporting findings.

Enforced Concurrent at Enrollment: BIOL 110 and (WFS 209 or WILDL 101) and (STAT 200 or STAT 240 or STAT 250)

WFS 340: Statistics for Conservation of Wild Populations

3 Credits

Statistics for Conservation of Wild Populations provides an overview of the statistical techniques used by wildlife and fisheries biologists to research wild animal populations and guide management and conservation. Wildlife and fisheries researchers use many approaches that are not taught in general statistics classes, because they deal with wild populations that cannot be censused, randomly sampled, or consistently resampled. We will cover methods used to estimate animal abundance, survival, occupancy, and habitat use, as well as how we can test hypotheses about individual, temporal, and spatial variation. Students will learn how to implement these methods using standard statistical software (such as program R and MARK), how to determine the best method for answering a question, and how to interpret statistical results in the context of management and conservation.

Enforced Prerequisite at Enrollment: C or higher in STAT 200 or STAT 240 or STAT 250

WFS 406: Ornithology Laboratory

2 Credits

W F S 406 Ornithology Laboratory (2) Ornithology Laboratory establishes the basic skills for identifying bird species in the field. This laboratory and field course is open to students with some background in wildlife and should be taken after completing or at the same time as the ornithology lecture course. The objectives of this course are for students to use laboratory specimens, identification software, field guides, and instructor-led field trips to 1) define, locate, and recognize anatomical features used to describe birds and characterize families; 2) recognize and identify approximately 160 species of birds by sight and approximately 60 by song in the field and/or lab; and 3) describe habitat, seasonal abundance, and distribution of bird species within the state. Most weeks include an introductory lecture followed by field instruction.

Enforced Concurrent at Enrollment: WFS 407

WFS 407: Ornithology

3 Credits

Introduction to the biology, ecology, adaptations, and conservation of birds.

Enforced Prerequisite at Enrollment: BIOL 110

WFS 408: Mammalogy

3 Credits

IDENTIFICATION, SYSTEMATICS, CHARACTERISTICS, ADAPTATIONS, ECOLOGY, BEHAVIOR, NATURAL HISTORY AND CONSERVATION, AND SOCIO-ECONOMIC ASPECTS OF MAMMALS.

Enforced Prerequisite at Enrollment: BIOL 110

WFS 409: Mammalogy Laboratory

2 Credits

W F S 409 Mammalogy Laboratory (2) Mammalogy Laboratory provides the necessary skills for identifying North American mammals. Taken concurrently with or after completing the mammalogy lecture course, this laboratory and field course is open to students with some background in wildlife. The objectives of this course are for students to 1) identify North American mammals by skulls and skins, 2) identify eastern North American mammals by tracks in the field, 3) capture and measure small mammals, and 4) gain an understanding of the characteristic behavior and ecology of North American mammals. Fields skills include animal handling, tracking, and observation. Additional skills may include skin and skull preparation and museum techniques for the care of mammals.

Enforced Concurrent at Enrollment: WFS 408

WFS 410: General Fishery Science

3 Credits

Introduction to the study, management, and uses of fish populations; methods of investigation, culture, and harvest of fishes.

Enforced Concurrent at Enrollment: BIOL 110 or WFS 209 or WILDL 101

WFS 422: Ecology of Fishes

3 Credits

Role of fishes in aquatic communities and general ecosystems. Environmental factors influencing fish as individuals, populations, and communities.

Enforced Prerequisite at Enrollment: BIOL 110

WFS 430: Conservation Biology

3 Credits

The application of biological principles to issues in the conservation of biodiversity. FOR (W F S) 430 Conservation Biology (3) This course applies basic principles of ecology and genetics to issues regarding the conservation forested ecosystems and their associated fisheries and wildlife. The objective of this course is to provide a broad appreciation of the concepts in conservation biology that are important to solving

contemporary natural resources problems. Students will be exposed to the history of conservation biology, values of biodiversity, definitions of species concepts, protecting the genetic structure of species, extinction as a natural process, vulnerability to extinction, biodiversity at the community, ecosystem, and landscape levels, habitat fragmentation, metapopulations, legal aspects of conservation, ecosystem management, exotic species, pollution, human population issues, measuring genetic diversity, attitudes towards nature, ex-situ conservation, and ecosystem restoration.

Enforced Prerequisite at Enrollment: BIOL 220W or FOR 308 or WFS 209
Cross-listed with: FOR 430

WFS 431: Conservation Genetics

3 Credits

This course will provide a comprehensive overview of evolution and conservation genetics, an interdisciplinary science that focuses on understanding the processes that influence genetic diversity at the individual and population levels. Foundational concepts in evolutionary ecology, population, and quantitative genetics, and tools described therein will be applied to conservation design, management, and restoration strategies for species of conservation or commercial importance to address real-world challenges in conservation science. This course will cover issues including inbreeding, climate change, invasive species, conservation of threatened and endangered species, adaptation and climate change, and habitat restoration using examples from a broad range of biological systems.

Enforced Prerequisite at Enrollment: BIOL 110
Cross-listed with: FOR 431

WFS 435: Limnology

3 Credits

Biogeochemistry and natural history of freshwater ecosystems. W F S (E R M) 435 Limnology (3) This course will define and describe major principles (physical, chemical, biological, and ecological) that govern the structure and function of freshwater ecosystems (ponds, lakes, and rivers). Current scientific literature will be critically reviewed and discussed in relation to comparative philosophy, methodology, and case studies that cover a range of topics in limnology. The objectives of E R M (W F S) 435 are to familiarize students with the major physical properties, chemical cycles, taxonomic groups of organisms, and ecological interactions that define and describe the natural function of aquatic ecosystems. The course will use case studies to illustrate and examine pertinent issues (e.g., excessive material loading, introduction to exotic species, habitat fragmentation, and climate change) that can alter the structure and function of aquatic ecosystems. Knowledge of these basic ecosystem principles will be applied towards formulating real-life resolutions to the issues identified in class, in order to better manage aquatic resources (methods to reduce material loads, transport controls of exotic species, habitat restoration, and reduction of global gases). This course will be useful to both undergraduate and graduate students seeking degrees in Environmental Resource Management, Wildlife and Fisheries Science, Ecology, and other related subjects. At the undergraduate level, the course will serve as a 400-level selection in both the Environmental Resource Management and Wildlife and Fisheries Science degree programs. At the graduate level, the course will compliment several Wildlife and Fisheries courses that form the compliment of that degree program. Moreover, the course can satisfy the course requirement for ecosystems ecology in the inter-college Ecology

graduate program and serve as a breadth course in Water Resources for graduate students in the Watershed Stewardship program.

Enforced Prerequisite at Enrollment: BIOL 110 and BIOL 220W and CHEM 110

Cross-listed with: ERM 435

WFS 436: Limnological Methods

3 Credits

Application of current methodologies to evaluate the biological, chemical, and physical characteristics of aquatic ecosystems. E R M (W F S) 436 Limnological Methods (3) Limnological Methods will instruct students to apply state of the art analytical measurements in order to gain an understanding of how and why ecosystems support specific biodiversity and biogeochemical cycles. The course will help students define key ecological elements (e.g., ecosystem metabolism, resource limitation, predator-prey relations) in both qualitative and quantitative terms, thereby making them tangible, tractable, and readily understandable. The course will use an instructional rubric to integrate conceptual, analytical, and communicative exercises in order to instruct students about how to evaluate variation in natural ecosystems. This course provides experiential training in the scientific process (rubric), so students can learn by doing, thereby internalizing their knowledge. Course content is organized into three 5-week sections, each of which will emphasize one component of the biogeochemical cycle (physical, chemical, biological). In each section, students will carry out a focused group study designed to evaluate how a pertinent environmental perturbation can affect that component of the aquatic biogeochemical cycle. The course content in each five-week block will have students: 1) review the experimental design and hypothesis, 2) implement the experimental design in the field or laboratory, 3 and 4) process and analyze samples in the laboratory, and 5) make statistical and graphical evaluations of the experimental results relative to their hypothesis (in class) and present these findings in written form. Knowledge of these basic ecosystem principles will be applied towards formulating real-life solutions to the issues identified in class, in order to better manage aquatic ecosystems. This course will be useful to undergraduate students seeking degrees in Environmental Resource Management and Wildlife and Fisheries Science, as well as graduate students pursuing degrees in Ecology, Forest Science, Wildlife and Fisheries Science, Watershed Stewardship, and other related subjects. At the undergraduate level, the course will serve as a 400-level elective in Environmental Resource Management degree program, Wildlife and Fisheries Science degree program, and the inter-college Marine Science option. At the graduate level, the course will complement several Forest Science and Wildlife and Fisheries courses. Moreover, the course can also satisfy the requirements for the ecosystems ecology focus in the inter-college Ecology graduate program. Grades will be based on three research papers, and a final laboratory practical.

Enforced Prerequisite at Enrollment: BIOL 110 and CHEM 110
Cross-listed with: ERM 436

WFS 446: Wildlife and Fisheries Population Dynamics

3 Credits

Wildlife and Fisheries Population Dynamics focuses on the concepts and tools needed to make predictions about how populations of fish and wildlife respond to changes in their environment, external stressors, and management actions. Students will learn the mathematical and programming tools needed to measure population processes and make predictions about future population sizes. The students will

have opportunities to apply these concepts and tools to address fish and wildlife population management problems. Examples include assessing the effects of harvest, managing invasive species and wildlife diseases, reducing extinction risk and recovering small populations, and predicting the efficacy of a range of management actions affecting population demography. Students taking the class will need to have an understanding of basic fish and wildlife ecology, tools and techniques for monitoring populations, and general concepts related to the conservation and fish and wildlife management.

Enforced Prerequisite at Enrollment: (WFS 209 or WILDL 101) and (STAT 200 or STAT 240 or STAT 250) Recommended Preparation: WFS 310

WFS 447M: Wildlife Management

3 Credits

Management of renewable wildlife resources by applying ecological concepts, habitat evaluation, and decision-making; writing and editing reports are emphasized.

Honors
Writing Across the Curriculum

WFS 447W: Wildlife Management

3 Credits

Management of renewable wildlife resources by applying ecological concepts, habitat evaluation, and decision-making; writing and editing reports are emphasized.

Prerequisite: W F S209 or W F S309
Writing Across the Curriculum

WFS 450: Wetland Conservation

3 Credits

Wetland types, classification, functions and values; hydrology, soils, and plants; introduction to wetland identification and delineation; wetland regulations. E R M (W F S) 450 Wetland Conservation (3) Wetlands are unique ecosystems, differing in many ways from both terrestrial and aquatic environments. They provide recognized values and functions to society, although these values and functions remain difficult to quantify. The study of wetlands is interdisciplinary, requiring background knowledge in science, management and policy disciplines. This course will explore the variety of wetland types and functions, and emphasize the diverse hydrological, biological, chemical, and physical interactions that occur within wetlands. Because wetlands are recognized as valuable assets in the landscape, issues surrounding wetland management and regulation have taken on increased importance; we will address these issues as well. Topics will also include the restoration of degraded wetlands and wetland creation, along with the construction of wetlands for pollution abatement. Students will become familiar with different wetland types and how they are classified, and will develop skills in understanding the interactions between wetland hydrology, hydric soils and hydrophytic vegetation. They will also develop an understanding of important national and state policies and regulations pertaining to wetlands and their protection and delineation. Classroom assessment will be based on three cumulative exams, homework assignments, and a final project. The course will fulfill 3 credits of electives or technical selections in the Wildlife and Fisheries Science major. Other students university-wide may be interested in the course, and the intention is to

develop a course that is accessible to a wide variety of traditional and non-traditional students. For proper instruction, a technology classroom with computer projection equipment will be required. E R M 450 will be offered each fall semester. Enrollment will be limited to 60-80 students.

Enforced Prerequisite at Enrollment: ERM 300 or WFS 209
Cross-listed with: ERM 450

WFS 452: Ichthyology

2 Credits

Ichthyology is the study of fishes, the largest and most diverse group of vertebrate animals. This course covers a wide range of topics including systematics, classification, morphology, physiology, behavior, and ecology of fishes. Students will learn the characteristics and natural history of the major groups of fishes and consider conservation and management implications.

Enforced Prerequisite at Enrollment: BIOL 110

WFS 453: Ichthyology Laboratory

2 Credits

Ichthyology Laboratory establishes the basic skills for identifying freshwater fish with a focus on the fishes of Pennsylvania. Students use laboratory specimens, field guides, and dichotomous keys to define and recognize anatomical features used to describe fish and characterize families. Students learn to identify fish species using scientific and common names and to describe factors that affect the distribution and abundance of species across the state. Field trips to local waterways allow students to learn collecting techniques and practice identification skills in the field.

Enforced Prerequisite at Enrollment: BIOL 110 Recommended Preparation: WFS 452

WFS 454: Field Ichthyology

2 Credits

Field Ichthyology is designed familiarize students with collection, observation, and field identification of Pennsylvania's fish fauna. Students will get hands-on instruction on how to collect, preserve, catalog, curate, and observe fishes. Additionally, students will learn how to gather pertinent in situ behavioral and distribution information on fishes and how to manage, record, and store field data. With the increasing emphasis on biodiversity and environmental monitoring, students need to be able to collect, manage, and store data as well as secure the chain of custody. This course is offered annually in partnership with agencies, research centers, and universities within Pennsylvania. Classes begin Sunday evening and extend until Friday afternoon. After the three-hour introductory class on Sunday evening, students meet each day for field collections/observations from 8am-5pm (weather dependent). In the evenings, students reassemble in the laboratory for additional activities and lectures. On one day, a series of night collections is made that extends until midnight. Students are responsible for their motel and food expenses during the week. All transportation to and from the collection sites is provided. The class will meet at least four times by appointment during the fall semester to enable students to process preserved samples that they collected.

Enforced Prerequisite at Enrollment: BIOL 110

WFS 460: Wildlife Behavior

3 Credits

Scholarly discussion and critique of history, concepts, and application of wildlife behavioral concepts to conservation issues. The course will give an in-depth coverage of concepts related to an understanding of wildlife behavior. Particular focus will be given to a discussion, critique, and development of these concepts and their application to contemporary issues in conservation and natural resource management of wildlife because there is a general lack of understanding of behavior by conservationists and natural resource managers.

Enforced Prerequisite at Enrollment: BIOL 110**WFS 461: Animal Welfare: Science and Ethics**

3 Credits

Understanding animal welfare and well-being in farmed, wild and captive animals, and the implications for policy, legislation and conservation. Whether we interact with farmed animals, wild animals in natural settings, or captive reared wild animals bred for research or for re-introductions, there is a growing interest in their welfare. What do animals need to manifest good welfare and well-being? To find answers we need to devise experiments that determine what animals want and what they find aversive. This allows us to find ways to decrease fear and stress associated with handling and captivity. This course covers the practical issues of animal welfare; animal ethics in wildlife management, conservation, and agriculture; and the use of animals in research. The course provides a framework with which to consider philosophical positions on animal use (covering aspects such as rights-based views versus utilitarian views) and the history of ethical debate over the interactions that humans have with other species. The course also addresses the current social, economic, and legal developments related to animal welfare and animal ethics.

Enforced Prerequisite at Enrollment: BIOL 110**WFS 462: Amphibians and Reptiles**

3 Credits

This course explores the evolution, ecology, and conservation of amphibians and reptiles. This course is open to all students with some background in biology. The objectives of this course are for students to 1) describe the evolution, anatomy, reproduction, and physiology of amphibians and reptiles, 2) place contemporary research in the context of the natural history traits and behavioral ecology of herps, and 3) critically evaluate the application of these concepts to natural resource management for salamander, frog, turtle, lizard, and snake species and populations.

Enforced Prerequisite at Enrollment: 5th Semester standing or higher and 6 credits of BIOL**WFS 463W: Fishery Management**

3 Credits

Management of sport and commercial fisheries, including biological, political, social, and economic factors; regulations and other management techniques. W F S 463W Fishery Management (3) This course will introduce students to the management of recreational and commercial fisheries. The course emphasizes fishery management as a goal-oriented process that adapts over time to changes in fish

populations and societal goals. Students will learn to recognize and understand that ecological, economic, political, and social forces shape this management process. Major methods of fisheries management involving people, population, and habitat management will be surveyed. Case studies highlighting the application of these management strategies to current fishery management are explored. Writing reports and management plans is emphasized.

Enforced Prerequisite at Enrollment: WFS 209 and WFS 300 and WFS 301 and WFS 310

Writing Across the Curriculum

WFS 465: Restoration Ecology

4 Credits

Restoration ecology is a discipline that integrates principles from ecology, engineering, landscape architecture, economics and other select social sciences to repair ecosystems that have been degraded, damaged, or destroyed. The goal of restoration is to restore the structure of biological communities and the ecological functions and ecosystem services they provide to society. This course will cover the field of restoration ecology for students who see themselves someday practicing or participating in restoration projects during their careers. The course will cover the conceptual and theoretical foundations that underlie restoration efforts and link these to real-world applications in past and ongoing restoration projects in a variety of types of ecosystems. Examples of local and regional restoration projects will be used to reinforce principles discussed in class.

Enforced Prerequisite at Enrollment: BIOL 110 or FOR 203
Concurrent at Enrollment: BIOL 220W or FOR 308
Recommended Preparation: 3 credits in statistics
Cross-listed with: FOR 465

WFS 489: Supervised Experience in College Teaching

1-3 Credits/Maximum of 3

The Supervised Experience in College Teaching course provides select undergraduate students with formal, supervised teaching experience in a Wildlife and Fisheries Science course. Faculty recruit students who excel in a particular course to serve as undergraduate teaching assistants for subsequent offerings of that course. Duties may include serving as peer tutors, teaching assistants, or laboratory assistants, and developing and/or evaluating course activities and materials. Students participating in this course will develop a deeper understanding of the focus course material by actively helping teach the material. The course is only available to students who are invited to serve as teaching assistants for a Wildlife and Fisheries Science course and enrollment is by permission of the instructor.

Enforced Prerequisite at Enrollment: Permission of program**WFS 494: Undergraduate Research**

1-12 Credits/Maximum of 999

Supervised student activities on research projects identified on an individual or small group basis.

Enforced Prerequisite at Enrollment: Permission of the Wildlife and Fisheries Science Program

WFS 494H: Undergraduate Research

1-12 Credits/Maximum of 999

Supervised student activities on research projects identified on an individual or small group basis

Enforced Prerequisite at Enrollment: Permission of the Wildlife and Fisheries Science honors adviser, Schreyer Honors College Honors

WFS 495: Wildlife/Fisheries Internship

1-6 Credits/Maximum of 6

Supervised field experience related to the student's major.

Enforced Prerequisite at Enrollment: Approval of proposed assignment by instructor prior to registration
Full-Time Equivalent Course

WFS 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

WFS 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

WFS 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Women's Gender and Sexuality Studies (WGSS)

WGSS 432W: Gender and Sexuality in the Bible

3 Credits

This writing intensive course will examine issues of gender and sexuality in the Bible, including the Hebrew Bible/Old Testament, the Deuterocanon, and the New Testament. It will introduce students to a variety of academic approaches to the Bible with respect to a broad range of topics. These topics include: gender identity, sexual orientation, sex, marriage and divorce, adultery, monogamy and polygyny, same-sex relations, chastity and celibacy, prostitution, gender violence, pornography, fertility, procreation, abortion, divine gender and sex, incest, and many others. In covering these themes, the course will deal with some of the most challenging and often disturbing stories and passages in the Bible, the ancient library of books that is sacred to Jews and Christians and which has otherwise greatly influenced civilization for more-or-less two thousand years. Alongside a close reading of the text (philology), this course will employ historical and literary criticism, investigations into ancient material culture (archaeology), modern theoretical interpretive approaches, reception theory, and other methodologies to examine not

only the biblical writings in their ancient contexts, but their interpretation and use throughout history to construct social norms.

Prerequisite: 3 credits in CAMS, RLST, or JST.

Cross-listed with: CAMS 432W, JST 432W, RLST 432W

Bachelor of Arts: Humanities

Writing Across the Curriculum

Women's Studies (WMNST)

WMNST 1: Introduction to Women's Studies

3 Credits

Interdisciplinary consideration of the scholarly theories and research pertaining to women's experiences and women's status in contemporary American society.

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

United States Cultures (US)

First-Year Seminar

WMNST 8: Gender Matters

3 Credits

Feminism is one approach to addressing systematic oppressions of both women and men. This course examines various feminist philosophical approaches to issues such as the construction of gender, sex, and sexuality, the nature of gender injustice, and the intersectionality of oppressions. It also addresses contemporary issues, including sexual harassment and assault, abortion, explicit and implicit bias, and discrimination and exclusion.

Cross-listed with: PHIL 8

Bachelor of Arts: Humanities

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Soc Resp and Ethic Reason

WMNST 83N: First-Year Seminar in Women's Studies

3 Credits

WMNST 83N First-Year Seminar in Women's Studies (3) This course introduces first-year students to the complex and interdisciplinary field of Women's, Gender, and Sexuality Studies. Students develop an understanding of a feminist approach to understanding stratifications of power and privilege in society not only impact but co-constitute constructions of gender and sexual identity that are sometimes at odd with an individual's lived experience. Students learn that social variables such as gender, age, social class, religion, ethnicity, race, sexual orientation and place of residence affect the way people view the world, behave and communicate. Students will develop the ability to locate, organize, and evaluate information about these identity intersections from a variety of sources, and use them to synthesize and analyze their own lived experience as a gendered being. Through the reading of texts, discussions, debates, and individual and collaborative projects, students are introduced to: feminist analysis of current topics and issues in women's and gender studies; to using women's and gender studies as a discipline and form of critical engagement; to the concepts of interdisciplinary vs. multidisciplinary research and scholarship; to

intersectional analysis of identity, power, and oppression; to scholarly conduct and responsibilities. Students will be expected to develop an understanding of current issues and debates within and beyond the field of women's and gender studies as they relate to contemporary fiction and nonfiction writing as well as feminist thought through social media. Students will recognize that social variables such as gender, age, social class, religion, ethnicity, race, sexual orientation, and place of residence affect the way people view the world, behave, and communicate. Students will develop the ability to locate, organize, and evaluate information about these identity intersections from a variety of sources and use them to synthesize and analyze their own ideas as well as come to an understanding regarding the stratification of power and privilege in society.

Bachelor of Arts: Humanities
 Bachelor of Arts: Social and Behavioral Sciences
 United States Cultures (US)
 First-Year Seminar
 General Education: Humanities (GH)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Key Literacies
 GenEd Learning Objective: Soc Resp and Ethic Reason

WMNST 100: Introduction to Women's and Gender Studies

3 Credits

This introductory survey course fulfills requirements for General Education in Social Sciences, the Bachelor of Arts degree in Social and Behavioral Sciences, and US and International Cultures competence. It is also a prerequisite for upper-level courses in Women's, Gender, and Sexuality Studies. This class focuses on women's shared and unshared experiences, issues of gender roles and stereotyping, questions related to sex/gender systems, and the different disciplinary approaches to the study of women and gender. The course asks how women's behavior, activities, accomplishments, roles, sexuality and status have been shaped by biological, psychological, sociological, cultural, historical and political determinants, as well as by women's experiences based on their racial, class and sexual identities. Topics include the history of women's liberation movements, women's experiences in home, work and educational settings, gender roles and stereotyping as influenced by media, culture, education, and other social institutions, health and body image issues, and multiple forms of oppression. The course will focus equally on feminist issues in both the US and on a global scale and is both interdisciplinary (drawing information and readings from history, psychology, political science, and sociology) and broadly inclusive (addressing at all times the relationship between gender, race, class, ethnicity and sexual orientation).

Bachelor of Arts: Social and Behavioral Sciences
 International Cultures (IL)
 United States Cultures (US)
 General Education: Social and Behavioral Scien (GS)
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Soc Resp and Ethic Reason

WMNST 100U: Introduction to Women's and Gender Studies

3 Credits

This introductory survey course fulfills requirements for General Education in Social Sciences, the Bachelor of Arts degree in Social and Behavioral Sciences, and US and International Cultures competence. It is also a prerequisite for upper-level courses in Women's, Gender, and Sexuality Studies. This class focuses on women's shared and unshared experiences, issues of gender roles and stereotyping, questions related to sex/gender systems, and the different disciplinary approaches to the study of women and gender. The course asks how women's behavior, activities, accomplishments, roles, sexuality and status have been shaped by biological, psychological, sociological, cultural, historical and political determinants, as well as by women's experiences based on their racial, class and sexual identities. Topics include the history of women's liberation movements, women's experiences in home, work and educational settings, gender roles and stereotyping as influenced by media, culture, education, and other social institutions, health and body image issues, and multiple forms of oppression. The course will focus equally on feminist issues in both the US and on a global scale and is both interdisciplinary (drawing information and readings from history, psychology, political science, and sociology) and broadly inclusive (addressing at all times the relationship between gender, race, class, ethnicity and sexual orientation).

Bachelor of Arts: Social and Behavioral Sciences
 International Cultures (IL)
 United States Cultures (US)
 General Education: Social and Behavioral Scien (GS)
 Honors
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Soc Resp and Ethic Reason

WMNST 101N: African American Women

3 Credits

This course offers an introduction to the sociological, historical, and political experiences of African American women, their roles and contributions to society. Through an interdisciplinary approach, we will pay particular attention to historical and contemporary responses to intersectional challenges African American women face. Drawing from the 19th, 20th, and 21st centuries, through the use of print and digital texts, oral histories, film, music, poetry, and local events, we will investigate various forms of social and political activism including work in labor, civil rights, black power, feminist, womanist, and other movements, the impact of popular culture on what it means to be an African American woman, as well as the implications of claiming such an identity. By focusing on key moments, institutions, and figures in history, the course demonstrates African American women's central roles in the development of American institutions as we know them today, and challenges students to engage critically with questions of race, gender, class, and sexuality, as they wrestle with theories of Black Feminist Thought and Womanism.

Cross-listed with: AFAM 101N
 Bachelor of Arts: Humanities
 Bachelor of Arts: Social and Behavioral Sciences
 United States Cultures (US)

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

WMNST 102: Women of the African Diaspora

3 Credits

Women of the African Diaspora is an introduction to studying the lives of African Diaspora women and the systems of power that shape them across cultures and geographies. The course centers on the politics of race and gender, on notions of origins and belonging and the meaning of resistance as a cultural and political tool. We will engage with patriarchy as a system of power implicated in identity formation and social relations. We will pay particular attention to the ways colonial histories and racial legacies have shaped the experiences of women in Diaspora. To this end, students will explore the complex and contested ways in which multiple economic, political, and cultural institutions affect the lives of women in the diaspora and examine a variety of issues including economy and labor, mobility and Activism, creativity and literary production and spirituality and social change. Rooted in a diasporic and transnational feminist framework, the course addresses issues of power, culture, racial formation, and citizenship and explores spatiality, movement and border crossings. It follows an intersectional approach to the politics of race and gender and engages diaspora as a historical and contemporary condition that addresses the realities of women in African decent as shaped by the legacy of slavery and the contemporary racial and social pattern of globalization. Students will explore broad patterns, changes, and continuities between diasporic communities globally and the way they shaped women's experiences through an analysis of the history of colonization, slavery, independence struggles, nation-building, imperialism, neo-colonialism, revolution, violence and social movements. The course will provide an interdisciplinary perspective to develop a nuanced understanding of the histories and the lived experiences of women of African descent both globally and in the context of their local geographies. To this end, the course explores both similarities and differences of diasporic experiences. It examines the complex and contested ways in which multiple economic, political, and cultural institutions affect lives of women of African Descent both in the US and globally and by addressing the relationship between economy and labor, mobility and Activism, creativity and literary production, spirituality and social change. It challenges universal and homogenous notions of blackness and engages feminist politics of solidarity as a site of both difference and commonality. The course incorporates interdisciplinary approaches and materials such as films, music, novels, short stories to examine how racial, gender, sexual, and class identities are constructed in the context of the diaspora.

Cross-listed with: AFAM 102

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

WMNST 103: Racism and Sexism

3 Credits

This survey course examines racism and sexism as cultural, political and economic processes that shape contemporary social life in the United States. It provides an historical overview of the roots of modern racism and sexism and will explore these structural inequalities continue to matter in a "post-racial" and "post-feminist" era. Students will engage a broad range of texts that discuss these forms of inequality as intersecting, mutually constituted forms of marginalization. Students will develop a deeper understanding of how race, gender, sexuality, and class conditions identity formation; racism as a structural process that shapes and limits the life chances of non-white communities; and the long tradition of resistance that women and communities of color have developed to combat these social inequalities. The course is divided into two sections. The first introduces a range of terms: race, gender, class, sexual politics, intersectionality and neoliberalism. The second half considers various case studies: mass incarceration, toxic waste, (un)natural disasters, reproductive justice, and Islamophobia in the war on terror. Students will leave with both an understanding of key theoretical terms in the study of racism and sexism and be able to apply these concepts to contemporary social issues.

Cross-listed with: AFAM 103, SOC 103

Bachelor of Arts: Social and Behavioral Sciences

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Soc Resp and Ethic Reason

WMNST 104: Women and the American Experience

3 Credits

Selected aspects of the role of women in United States history and culture from colonial to modern times. AMST 104 / WMNST 104 Women and the American Experience (3) (GH;US)(BA) This course meets the Bachelor of Arts degree requirements. AMST 104 / WMNST 104 is a broad-ranging introduction to women in American history and culture from colonial to modern times. While specific topics may vary from class to class, this survey course examines the history of American women, paying particular attention to issues of race and diversity and examining how American women's cultural, political, and economic roles have changed over time. Major themes and topics might include: work and the sexual division of labor; civic activities and the political dimensions of women's historical experience; political power and processes in American history; the role of family and personal life; women as active makers of history in the full range of national experience; the influences of art, literature, popular culture, technology, geography, regionalism, religion, immigration, and other sociological and cultural factors. This course offers students valuable experience in critical thinking, analysis, and writing and a broad introduction to American women's issues, and so serves as preparation for more advanced courses in American studies, American literature, American women's history, and women's and gender studies. AMST 104 / WMNST 104 counts towards the American Studies major and minor and the Women's Studies major and minor.

Cross-listed with: AMST 104

Bachelor of Arts: Humanities

United States Cultures (US)

General Education: Humanities (GH)
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

WMNST 105N: Living in a Diverse World

3 Credits

This introductory survey course fulfills General Education Integrative Studies requirements in humanities and social sciences, and also meets the requirements for the United States Cultures Designation and Bachelor of Arts in Humanities and Social and Behavioral Sciences. This course uses literature, film and scholarly texts to inspire students to explore how conceptions of social difference, such as those linked to categories of gender, race, sexuality, class, ethnicity, and disability, shape society and everyday interactions historically and today. The course takes an intersectional perspective to explore how and why these categories vary over time and space, the effects of such variations for individuals and communities, and the connections between identity and the exercise of power. Geographically, the course emphasizes the relationship between social difference and power in the U.S. history and society, but takes a transnational perspective when possible by making comparisons to contexts beyond the United States. Furthermore, the class examines how individuals and communities most directly marginalized by these processes contest and re-imagine dominant categories and assumptions. Materials and discussions in the class trace broad social and historical trends as well as dive into the facets of everyday life. The class is designed to encourage reflection on the ethical challenges that arise when we become aware of how privilege, power and difference are intertwined in our world and daily lives. Students who successfully navigate this course will be able to: 1. Apply basic theories of identity, difference, social power and privilege to a wide range of textual and visual materials, and to their own interactions in the context of day-to-day life. 2. Critically engage at an introductory level histories of how race, gender, sexuality, class and disability have been constructed in the U.S. context. 3. Consider transnational dimensions of similar dynamics and contrast these with the U.S. context. 4. Identify and analyze the multiple ways individuals, communities and social movements have resisted and remade categories of identity and changed relations of power over time and space. 5. Recognize and explore the ethical dimensions of social, political and/or economic marginalization rooted in constructions of social identity.

Bachelor of Arts: Humanities
 Bachelor of Arts: Social and Behavioral Sciences
 United States Cultures (US)
 General Education: Humanities (GH)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning
 GenEd Learning Objective: Soc Resp and Ethic Reason

WMNST 106N: Representing Women and Gender in Literature, Art and Popular Cultures

3 Credits

Interdisciplinary consideration of primary works and scholarship pertaining to women in the humanities and the arts. WMNST 106N Representing Women and Gender in Literature, Art and Popular Cultures

(3) (GA;GH;US;IL)(BA) This course meets the Bachelor of Arts degree requirements. This is an introductory survey course that fulfills General Education Integrative Studies requirements in humanities and arts, and also fulfills United States and International Cultures requirements. The course is a prerequisite for upper level women's studies courses. WMNST 106N is an introduction to the interdisciplinary field of Women's, Gender, and Sexuality Studies, with an emphasis on the experiences, achievements, and status of women in the arts and humanities in the U.S. and global context. While providing a broad overview of scholarly research and theory pertaining to women and gender, students will also see many examples of contemporary women's creative practice through the visual arts, media, and popular culture. Students will learn about the challenges women artists have faced in making their way in a male-dominated arts and media industry; they will learn how these artists sought and continue to seek new languages and forms, whether in paint, words, film, music, crafts, to reassess and re-imagine notions of sex and sexuality, gender, race and ethnicity that underlie many forms of social injustice. Depending on the location where the course is taught, class meetings may be a mixture of lectures, group discussions, individual and group exercises, films, and guest speakers. Assigned readings and class meetings may be designed to help students reassess predominant modes of thought and to give students tools to appreciate the creative work of highly diverse women. Depending again upon location, evaluation methods will include a balanced selection from among short papers, longer research papers, journals, book reviews, quizzes, exams, group assignments and other creative activities.

Bachelor of Arts: Humanities
 International Cultures (IL)
 United States Cultures (US)
 General Education: Arts (GA)
 General Education: Humanities (GH)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning

WMNST 106Q: Representing Women and Gender in Literature, Art and Popular Cultures

3 Credits

This course is an interdisciplinary consideration of primary works and scholarship pertaining to women in the humanities and the arts. This course meets the Bachelor of Arts degree requirements in Arts and Humanities and fulfills General Education Integrative Studies requirements in both Arts and Humanities, as well as U.S. and International Cultures requirements. It is a prerequisite for upper level courses in the department of Women's, Gender, and Sexuality Studies. This course is an introduction to the interdisciplinary field of Women's, Gender, and Sexuality Studies, with an emphasis on the experiences, achievements, and status of women in the arts and humanities in the U.S. and global context. While providing a broad overview of scholarly research and theory pertaining to women and gender, students will also see many examples of contemporary women's creative practice through the visual arts, media, and popular culture. Students will learn about the challenges women artists have faced in making their way in a male-dominated arts and media industry; they will learn how these artists sought and continue to seek new languages and forms, whether in paint, words, film, music, crafts, to reassess and re-imagine notions of sex and sexuality, gender, race and ethnicity that underlie many forms of social injustice. Class meetings will be a mixture of lectures, group discussions,

individual and group exercises, films, and guest speakers. Assigned readings and class meetings are designed to help students reassess predominant modes of thought and to give students tools to appreciate the creative work of highly diverse women. Given that this is an honors section, assignments will be geared towards taking advantage of small class sizes and fully engaged learners to generate dynamic classroom discussions and creative innovation.

Bachelor of Arts: Arts
 Bachelor of Arts: Humanities
 International Cultures (IL)
 United States Cultures (US)
 General Education: Arts (GA)
 General Education: Humanities (GH)
 General Education - Integrative: Interdomain
 Honors
 GenEd Learning Objective: Effective Communication
 GenEd Learning Objective: Crit and Analytical Think
 GenEd Learning Objective: Global Learning

WMNST 110: Sociology of Gender

3 Credits

Changing sex role expectations and behavior for men and women in contemporary society. SOC (WMNST) 110 Sociology of Gender (3) (GS;US) (BA) This course meets the Bachelor of Arts degree requirements. This course provides an introduction to the analysis and understanding of how men's and women's lives are different and how they intersect with each other. The course focuses on the social construction of gender and the impact of gender on experiences in a variety of social contexts and institutions throughout the life course, including cross-cultural comparisons of gender expectations. An overriding objective is to help students better assess and analyze the effects of gender throughout history and in their everyday lives. Class sessions are a mixture of lectures, discussions, group exercises, guest speakers, and films designed to engage the students in the learning process. Each session helps students to critically evaluate the effects of gender discussed in their readings and experienced in their everyday lives. The evaluation tools used for this course extend this critical evaluation. Although the specific evaluation methods vary by sections, all sections use some form of reaction papers, book reviews, and/or journals. These writing assignments require students to demonstrate an understanding of the class readings, lectures, and activities, and to offer an evaluation and assessment of these readings and presentations. Because the social construction of gender is intertwined with family, work, religion, education, government, and all interpersonal interaction, the course overlaps with courses in each of these areas. This course meets a General Education requirement in Social and Behavioral Sciences. It can be used as a lower-level sociology course in the Sociology BA major and the Sociology minor. It can also be used as a supporting course in the Women's Studies major and minor.

Cross-listed with: SOC 110
 Bachelor of Arts: Social and Behavioral Sciences
 United States Cultures (US)
 General Education: Social and Behavioral Scien (GS)

WMNST 116N: Family and Gender Roles in Modern History

3 Credits

This course explores the transformation of modern families in the "Western" world, beginning with the basic context and elements of families as early as sixteenth-century Europe and Colonial America. The course has a primary focus on marriage, parents and children, and gender in the context of the history of family, family life, and gender roles in the United States. The course focuses on the social history of families, encompassing the ever-changing elements of sociological, political, and gender history within American families.

Cross-listed with: HIST 116N
 Bachelor of Arts: Social and Behavioral Sciences
 International Cultures (IL)
 United States Cultures (US)
 General Education: Humanities (GH)
 General Education: Social and Behavioral Scien (GS)
 General Education - Integrative: Interdomain
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

WMNST 117: Women in United States History

3 Credits

HIST 117 / WMNST 117 provides students with an overview of the most important historical developments in the history of women in the United States, including women's actual experiences as members of a class, a race, and an ethnic community, the progress women have made as individuals, workers, and citizens as well as the opposition they have faced. While knowing the facts is obviously important to historical understanding, this course helps students develop critical thinking skills. These skills include: close and thoughtful reading and analysis of primary and secondary sources; looking for a broader coherence or order to the material; independent analysis and effective articulation (both in writing and in class discussion) of well-reasoned, well-crafted conclusions and interpretations and arguments (conclusions/interpretations/arguments which are supported by specific factual evidence derived from a variety of sources). The three specific course objectives underscore its scholarly dimensions: (1) Students will gain a knowledge and understanding of the diverse experiences of different groups of American women. (2) Students will gain an understanding and knowledge of the political, economic, and social processes that shaped the history of women in the United States. (3) Students will learn how to think historically by placing documents written in the past in their historical contexts, and to consider the relationship of the past to the present. By the end of the course students will: Demonstrate an understanding of the chronology of United States women's history. Demonstrate an understanding of the diverse experiences of different groups of American women. Demonstrate an understanding of the social, political, and ideological structures that shaped the history of American women and continue to shape the modern United States.

Cross-listed with: HIST 117
 Bachelor of Arts: Humanities
 United States Cultures (US)
 General Education: Humanities (GH)
 GenEd Learning Objective: Integrative Thinking
 GenEd Learning Objective: Key Literacies

WMNST 117H: Women in Modern History

3 Credits

Modernization and women: changing images and roles since mid-eighteenth century in the family, workshop, politics, society. Cross-cultural comparisons.

Cross-Listed

General Education: Humanities (GH)

Honors

WMNST 120: Sex, Gender, and the Body

3 Credits

This introductory course considers core topics in the field of feminist sexuality studies to both unsettle popular mainstream discourses on sexuality and to aid students in developing a more comprehensive, inclusive, and ethical lens through which to view intersections of gender, sexuality, and the body. Over the course of the semester, students will engage critical conversations in the field of feminist sexuality studies, from debates on pornography and sex work to subcultural and queer sexual practices to the emergence "hook-up culture" and new technologies transforming the landscape of sexual knowledge and practice. The course also substantively engages the ethics of sexual consent, sexual pleasure, and sexual communication. Utilizing an intersectional approach, the course examines how sexual identities and experiences are informed by differences of race, ethnicity, gender, class, and dis/ability status. The course is interdisciplinary and grounded in the behavioral and social sciences, drawing from feminist sociological, psychological, historical, ethnographic, and public health literatures in order to provide students with a comprehensive and multi-faceted introduction to recent, contemporary, and emergent scholarship on sexual health and diverse forms of sexual practice. Geographically, the course emphasizes the relationship between social difference, power, and sexuality in U.S. history and society, but takes a transnational perspective when possible by making comparisons to contexts beyond the United States. Furthermore, the class examines how individuals and communities most directly marginalized by these processes of sexual stigmatization contest and re-imagine dominant categories and assumptions. Materials and discussions in the class trace broad social and historical trends as well as dive into the facets of everyday life. The class is designed to encourage reflection on the ethical challenges that arise when we become aware of how privilege, power and difference impact sexual knowledge and practice.

Bachelor of Arts: Social and Behavioral Sciences

United States Cultures (US)

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp and Ethic Reason

WMNST 136: Race, Gender, and Employment

3 Credits

This course will ask how race and gender affect work in the contemporary United States. We will consider how race and gender shape people's work opportunities, their wages at work, and whether they participate in paid or unpaid labor (or both). We will begin with an overview of work and the changes in the workforce over time; we will move to investigate

how workplace structures reproduce gender and race inequalities; will ask how race and gender inequalities are informally maintained through education systems and social networks; will consider differing dimensions of inequality across poverty, immigration, and sexuality; and will consider how studying unpaid labor helps us better understand the formal paid economy. This course meets the Bachelor of Arts degree requirements.

Cross-listed with: AFAM 136, LHR 136

Bachelor of Arts: Social and Behavioral Sciences

United States Cultures (US)

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Soc Resp and Ethic Reason

WMNST 136Y: Race, Gender, and Employment

3 Credits

This course will ask how race and gender affect work in the contemporary United States. We will consider how race and gender shape people's work opportunities, their wages at work, and whether they participate in paid or unpaid labor (or both). We will begin with an overview of work and the changes in the workforce over time; we will move to investigate how workplace structures reproduce gender and race inequalities; will ask how race and gender inequalities are informally maintained through education systems and social networks; will consider differing dimensions of inequality across poverty, immigration, and sexuality; and will consider how studying unpaid labor helps us better understand the formal paid economy. The course emphasizes writing in the form of short assignments and longer papers as a means to develop comprehension of these ideas. This course is a writing intensive course designed to develop formal writing appropriate for a business context. We will use an active and engaged writing process using the course topics of diversity and employment inequality to strengthen writing skills.

Cross-listed with: AFAM 136Y, LHR 136Y

Bachelor of Arts: Social and Behavioral Sciences

United States Cultures (US)

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Soc Resp and Ethic Reason

Writing Across the Curriculum

WMNST 137: Gender, Sexuality, and Religion

3 Credits

WMNST 137 explores the history of different conceptions of gender and sexuality as they are understood within major religions (e.g. Hinduism, Judaism, Islam, Christianity, Buddhism, indigenous spiritual systems). The course emphasizes modern and contemporary contexts of gender/religion debates, introducing feminist historical methods in order to trace the origins and trajectories of today's controversies. Students should expect to gain a comparative historical perspective on at least three theological traditions. Possible topics include: history of gender and religious practices; femininities and masculinities in a spiritual context; the flesh and the spiritual body; and sexuality, and both ethical and theological approaches to theories of gender, feminism, and identity. We will explore ways in which religious teachings, in both historical and contemporary contexts, inform secular understandings of gender

and the ways in which contemporary conceptions of gender inform religious practice. While religion plays a crucial role in defining sex and gender norms, changing sex and gender norms can pressure the doctrine, discourses, practices and organizational structures of faith institutions, some established centuries or millennia ago. The course considers not only the roles of women and men, or constructions of masculinity and femininity, but also the impacts of non-binary genders and sexualities that may be acceptable (even celebrated) in some religions and shunned in others. We will address urgent and perennial questions from different religious perspectives: what is the spiritual meaning of sexuality? Is sexuality an obstacle or a vehicle for spiritual fulfillment? Who are the voices of authority who set the sacred rules on sexuality and who gets to enforce them? How do we (or should we) balance the tensions of non-aligned government and religious concerns, as in contemporary debates around same-sex marriage; abortion and reproductive rights; legal definitions of "family"; the Muslim veil in secular contexts; divorce; trans rights; attitudes toward the body; gender mutilation and/or sex-reassignment surgery; sexual violence towards women, gay, and trans individuals around the world; child and sexual abuse among the clergy; and religious leadership and inclusion. The course also touches on the impacts of colonialism, globalization, and migration on gender and sexuality.

Cross-listed with: RLST 137

Bachelor of Arts: Humanities

International Cultures (IL)

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

WMNST 166: History of Sexuality

3 Credits

WMNST/HIST 166 History of Sexuality (3) (GH;US) This is a 100-level course on the history of sexuality, spanning several centuries and a wide range of contexts. The study of sexuality offers a particularly good lens for developing students' analytical ability to think historically about something that is often considered both natural and exclusively modern. Topics will include the role of religion, medicine, law, and politics in controlling and shaping sexuality; change and controversy over birth control, abortion, and gender roles; the connections between prescriptive literature and lived experience; the origins and meanings and racial violence in the context of ideas about sexuality; the concept of respectability; and the experiences and conflicts that have shaped the emergence of modern lesbian, gay, and trans identities. Students evaluate large questions about sources, methods, and analysis that historians face, including: How do we recover stories of private life, from societies and eras different from our own? How does our own understanding of what sexuality "is" complicate our historical exploration? What can we learn about gender and sexuality, repression and resistance, deviance and acceptance, identity and community from studying persons of nonconforming gender from the past? How has racism been employed to justify particular reproductive and sexual practices, as well as to limit claims to sexual respectability? To what extent is the study of sexuality inherently a study of gender, sex roles, and feminism? While focused primarily on the United States, the course will offer students opportunities to examine these questions in other, transnational contexts.

Prerequisite: one introductory level course in History or Women's Studies

Cross-listed with: HIST 166

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

WMNST 175N: Fashion, Gender, and Identity

3 Credits

Do clothes really "make" the woman? In this course, we explore how the living art and practice of fashion intersects with gender, and shapes our multiple identities. This is an integrative learning course, which means we bring together the methods, theories and skills taught in general education arts courses (GA) with those practiced in general education humanities courses (GH). Our course is grounded in visual literacy, and we learn how to read clothing through the study of formal elements including material, color, form, line, texture and mood. Our inquiries place women's fashion into cultural, political and social contexts. We concentrate on three areas of study: the construction of particular kinds of femininity through fashion, challenges and subversions, and the contributions of women at all levels of the fashion industry, from factory labor to haute couture. Along the way, we will be encountering diverse individuals who have shaped women's fashion, from Michelle Obama to the pop star Selena to Vera Wang. Finally, in this class we connect theory to practice by situating ourselves as creators of fashion. During interactive laboratories, we empower ourselves by acquiring skills including basic sewing, cutting, sketching, draping, and embellishing garments; we also digitally design a collection using specialized software.

General Education: Arts (GA)

General Education: Humanities (GH)

General Education - Integrative: Interdomain

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

WMNST 194: Women Writers

3 Credits

Short stories, novels, poetry, drama, and essays by English, American, and other English-speaking women writers. ENGL (WMNST) 194 Women Writers (3) (GH;US;IL)(BA) This course meets the Bachelor of Arts degree requirements. English 194 will constitute a wide ranging study of works by American, British, and other English-speaking women writers, including novels, short stories, poems, plays, and prose. The class will approach this literature from a variety of thematic, historical, and/or generic vantages. Authors under consideration will vary from class to class, but may include writers such as Bradstreet, Wollstonecraft, C. Rosefti, M. Shelley, Austen, C. Bronte, E. Bronte, G. Eliot, D. Wordsworth, Dickinson, Wharton, Stowe, Freeman, Jewett, Fuller, H.D., Moore, Sitwell, Bishop, Brooks, Plath, Cather, Woolf, Stein, Lessing, Bowen, O'Connor, Welty, Porter, Oates, Olsen, Sarton, Gordimer, Atwood, Morrison, Kinkaid, McCarthy, and Churchill. The course seeks to make students aware of the extensive body of literature written by women through the analysis, evaluation, and appreciation of specific works by women writers. The course also seeks to help students understand the female perspectives—the varying values and interests of women—reflected in the texts at

hand and to position these perspectives within wider social, historical, and political contexts. The course also seeks to make students aware of the special problems faced by both women writers and the female inhabitants of the societies they describe in their work. As a course in women's literature, ENGL/WMNST 194 concerns itself with questions of gender. In so far as some of these women writers are black or women of color, it concerns itself with questions of race and ethnicity. In as far as the course looks at women's literature in the context of men's literature, it is concerned with the inter-relationship between dominant (male) and non-dominant (female) culture in the United States as well as in Britain. In so far as the course covers lesbian writers, it is concerned with sexual orientation. Topics under consideration will vary from class to class, but may include a chronological introduction to the development of women's literature, a consideration of a principle theme or themes common to women's literature through a number of works from across a number of historical periods, a consideration of a number of women's works in the context of historical events central to their creation, a consideration of a number of women's works in the context of formal or aesthetic elements common to those works and their various effects. This class will prepare students for advanced courses in women's literature as well as other academic courses that engage in the verbal and written analysis of complex written texts.

Cross-listed with: ENGL 194

Bachelor of Arts: Humanities

International Cultures (IL)

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Key Literacies

WMNST 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

WMNST 199: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

WMNST 200: Global Feminisms

3 Credits

This course introduces students to the complexity of feminisms in the context of contemporary globalization. Much of the course focuses on the variety of feminist movement transnationally, particularly as those movements respond to not only local culture and politics, but also to global politics, and as such it touches again and again on the history of power. Explorations of the interanimating systems of power in a given area or region includes attention to ideologies of gender, race, sexuality, colonialism, imperialism, health and welfare, any or all of which are either supported or disrupted by globalism. The course holds a feminist lens to issues such as: gender and sexualities; the politics of the body; ongoing effects of colonialism-in theory and practice-on women worldwide; women's health; women and the environment; women's labor; political economy; transnational migrations; global class relations; women and/in the media; violence against women; women and war;

the global sex/human trafficking trades; silence and marginalization; citizenship politics; women in politics and activism around the globe. The course examines contemporary feminist theory in the Global North and the Global South, highlighting the ways in which the term "feminism" continues to be contested. Given that we no longer talk about "feminism" in the singular in the United States, lack of agreement on the priorities of feminists worldwide is even more acute, given diverse cultural, political and economic positions of women around the globe. Thus the course also asks students to resist the kinds of generalizations that have led to inadequate feminist response to urgent challenges faced by women around the world. At the same time, the course will ask what kinds of connections can be made between local feminisms, and transnational feminist movement.

Bachelor of Arts: World Cultures

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

General Education: Social and Behavioral Scien (GS)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Soc Resp and Ethic Reason

WMNST 202N: Women, Gender, and Feminisms in Africa

3 Credits

This introductory course provides students with a broad interdisciplinary overview of scholarly research and theory related to women and gender studies in Africa, using both historical and contemporary examples from across the continent. We will explore the complex, and oftentimes contradictory, meanings attached to gender and sexuality in various African contexts. For example, what does it mean to be a "good" woman in Uganda today? How does this definition change (or not) if she comes out as a lesbian? What if s/he identifies as a transgender man or rejects gender binaries altogether? What if gender did not matter, or even, did not exist? In addition to exploring these types of questions, we will also examine African feminist thought, paying close attention to the ways in which African feminisms are similar to and/or different from other forms of feminism worldwide. We will also consider what these movements looked like in practice. What strategies did African feminists utilize to promote social change? What challenges did they face? What victories resulted from their efforts? Although topics may vary from semester to semester, key themes include environmental activism, anti-war/peace activism, political activism, sex worker rights activism, activism to support peoples living with HIV/AIDS, and activism against harmful traditional practices. Finally, we will examine the ways in which African feminists have contributed to global debates and initiatives on women's rights and gender equity. Students in this course can expect to engage with diverse texts from the humanities (esp. history, literature, film studies, and philosophy), as well as from the social and behavioral sciences (esp. anthropology, geography, sociology, and political science).

Cross-listed with: AFR 202N

Bachelor of Arts: Humanities

Bachelor of Arts: World Cultures

Bachelor of Arts: Social and Behavioral Sciences

International Cultures (IL)

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

WMNST 205: Gender, Diversity and the Media

3 Credits

COMM (WMNST) 205 Gender, Diversity and the Media (3) (GS;US)(BA)
This course meets the Bachelor of Arts degree requirements. This course examines diversity, equity and inclusion issues in media content, media business and media practice. Students examine communications scholarship, theory, media effects research and critical analysis of media content, policy and practice. Students learn about the media industry, its diverse distribution formats and representation patterns and the media role as public educator and social reality framer. Students research scholarship on human diversity issues in media representation and media effects and explore economic, political and social implications of media practice. Students critically analyze media content and media industry practice to build knowledge about ethical and responsible media practice. Course content is designed to help build deeper knowledge of how media interacts with identity formation, public knowledge and social understanding or misunderstanding of gender, race, ethnicity, ability, sexual orientation and class diversity, equity and inclusion. Students learn relevant communication theory to help explain how media interacts with our identity formation and our capability to navigate human difference in society. Students build critical thinking and media literacy skills, which are essential to navigate media and distinguish truth from fallacy. The course provides a foundation for further study of media in our diverse complex US democracy and global society and empowers students to interpret and pursue their interests, rights, and opportunities with ethics and integrity as media professionals.

Cross-listed with: COMM 205
Bachelor of Arts: Social and Behavioral Sciences
United States Cultures (US)
General Education: Social and Behavioral Scien (GS)
GenEd Learning Objective: Creative Thinking
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Global Learning
GenEd Learning Objective: Soc Resp and Ethic Reason

WMNST 207N: LGBTQ+ Identity, Culture and The Arts

3 Credits

WMNST 207N: LGBTQ+ Identity, Culture and the Arts will blend theories and methods in the Social and Behavioral Sciences (GS) with those of the Integrative Arts (GA). The course introduces key ideas, concepts and issues related to LGBTQ+ identity and culture, while highlighting aesthetic values of LGBTQ+ expression. The course broadly traces the historical, global, political and academic trajectories of LGBTQ+ studies and considers contemporary topics (for example, global-local influences, intersectionality, activism, and the media) as they relate to LGBTQ+ identity and the arts. The course is attentive to the ways that sexual identities intersect with other types of identities, such as age, gender, race/ethnicity, ability, religion. The course will also help students develop arts-related skills and teach students to recognize and value the arts as an integral part of LGBTQ+ cultural expression. Students will write critical papers, participate in discussions with artists and scholars, explore queer art and art spaces, as well as create a performance or installation art project. Incorporating seminar - and lecture-style instruction with constructivist-creative learning and experiential strategies, the course seeks to develop a learning community stimulated by discourse,

collaboration, and creative/aesthetic exploration. This course is a General Education interdomain (N) course for General Education Social and Behavioral Sciences (GS) and General Education Arts (GA), with US Cultures (US), International Cultures (IL) designate. The course is cross listed in both Women's Studies and Arts.

Cross-listed with: ART 207N
Bachelor of Arts: Arts
Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)
United States Cultures (US)
General Education: Arts (GA)
General Education: Social and Behavioral Scien (GS)
General Education - Integrative: Interdomain
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Creative Thinking
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Key Literacies

WMNST 213Y: African American Women's History

3 Credits

This course examines the social, political, and economic history of African American women in the United States from slavery to the present. Using secondary and primary sources along with film and discussion, we will explore the varied lived experiences of African American women paying special attention to the themes of family, sexuality, labor, politics, and religion. We will examine how the simultaneity of racial and sexual oppression influence African American women's actions. Additionally, we will consider dominant images of African American women in a historical context. While the course is primarily discussion in format, the professor will lecture when necessary. As the course is writing-intensive, papers of various lengths constitute the bulk of student assessment.

Cross-listed with: AFAM 213Y, HIST 213Y
Bachelor of Arts: Humanities
United States Cultures (US)
General Education: Humanities (GH)
GenEd Learning Objective: Integrative Thinking
GenEd Learning Objective: Key Literacies
Writing Across the Curriculum

WMNST 220: Beyond Birth Control: Feminist Perspectives on Women's Sexualities

3 Credits

This course explores various aspects of women's sexualities from an interdisciplinary and intersectional feminist perspective. Assigned reading from feminist theory, social science research, and feminist sexologists will explore: the female body and embodied identities; the social construction of sexualities; sexual rights; sexual pleasure and desire; impacts of racism, poverty, sexism, heterosexism and transphobia on sexual identities; and how women make meaning of their sexual experiences. We also investigate models of sex and sexuality education that attend to queer and trans desire, sexuality and sexual identities.

Bachelor of Arts: Social and Behavioral Sciences
United States Cultures (US)
General Education: Social and Behavioral Scien (GS)
GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Soc Resp and Ethic Reason

WMNST 225N: Sexuality and Modern Visual Culture

3 Credits

ENGL 225N / ARTH 225N / WMNST 225N Sexuality and Modern Visual Culture (3) (GA;GH) An examination of the visual expression of gender and sexual identities in English-speaking cultures since the late nineteenth century. The terms "feminist" and "homosexual" were invented by the Victorians and reflect profound shifts in conceptions of identity. Another invention of the nineteenth century was the idea of the literary and artistic "avant-garde" as a minority contingent with politically and/or aesthetically advanced views. These ideas of minority culture were deeply enmeshed with one another, and have exerted profound influence ever since. This course explores that history with the objectives of expanding students' knowledge of modern art and literature, and of fostering more sophisticated understandings of how evolving socio-political ideas affect our sense of who we are and how we relate to texts and images. The course is relevant to students of American and English studies, art, art history, and women's, gender and sexuality studies.

Cross-listed with: ARTH 225N, ENGL 225N

General Education: Arts (GA)

General Education: Humanities (GH)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

WMNST 227: Introduction to Queer Theory

3 Credits

ENGL 227 Introduction to Sexuality Studies (3) (GH;US) This course focuses on the body of critical writings known as queer theory in order to analyze issues of sexuality and gender since 1969. The course interrogates sexual norms and their deviations, with a particular focus on the relationships between sexuality, imagination, and ethics in the making of sexual communities and fostering activism around sexuality and gender. We will study how class, race, and gender have been shaped, and themselves shape, the production of and resistance to sexual norms. Queer Theory engages issues "queer space" and "queer time," related concepts that relate bodies and environments to history and memory, and to fantasy, imagination, and utopianism. We will also explore the ways marginalization, shame, and criminalization have been transformed into visionary acts of "world-making" that have changed contemporary understandings of bodies, identities, social formations, literature and visual culture. Throughout, our focus will be on the relationships between sexuality and ethics, and how both shape the history of queer culture and activism.

Cross-listed with: ENGL 227

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Soc Resp and Ethic Reason

WMNST 230N: Dangerous Bodies

3 Credits

This class will examine the ways bodies are marked as deviant, abnormal, and/or pathological by exploring processes of sexed, raced, gendered, and able-bodied normalization. Case studies range from turn-of-the-century sexology to the modern freak show, the politics of passing, the science of homosexuality, the pleasures of trans and queer embodiment, the biopolitics of AIDS, and eugenics and U.S. citizenship. Readings include theoretical, historical, social and behavioral science, and ethnographic approaches to power, difference, and the body.

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

Writing Across the Curriculum

WMNST 235: Gender and the Global Information Technology Sector

3 Credits

Integrates information technology and gender studies. Overview issues and socio-cultural shaping of gender in the IT field.

Cross-listed with: IST 235

United States Cultures (US)

WMNST 240Q: Artistic Patronage in Europe

3 Credits

This course surveys the institutions and social networks in which European fine arts were created, consumed and critiqued. Beginning with the medieval period and ranging to the early 20th century, the course will examine the variety of communities where public and private often intersected and which sponsored innovations in the arts. Often indexing social movements and political change, such communities include convents and cathedrals, royal academies and courts, coffee houses, salons, and theaters. Artists, performers, patrons, politicians, journalists, and others collaborated and competed in these spaces. Such communities could embody political and economic power, or foster resistance to it. This approach to the history of the arts in western culture puts the focus less on the individual creative genius of great composers, writers, painters, and sculptors, and more on the social exchanges and institutions that sponsored and received their work. Such an approach brings to light particularly the ways in which women played significant roles in the production and reception of culture: as salon hostesses, patronesses, and divas, women often enabled and enacted cultural production. Some examples of particular units of study might include: the German convent of Hildegard of Bingen (1098-1179), where monophonic chant and allegorical morality plays developed; the Mantuan (Italy) court of Isabella d'Este, the first lady of the world, (1474-1539) where the roots of the madrigal began and where notable painters found support and sponsorship; the French salons of Mme. Geoffrin (1699-1777) and Mme. de Staël (1766-1817); and the student residences in Madrid where avant-garde writers and artists interacted. Each unit will also consider the relationships between the aesthetic norms and values of a period and the economic and political realities of sponsorship. The course will require that students attend at least one musical performance or concert held

on campus during the semester and complete a brief writing project based on that experience. This requirement will encourage students to think about their own university as a contemporary space of cultural sponsorship.

Cross-listed with: CMLIT 240Q, HIST 240Q, IT 240Q

International Cultures (IL)

General Education: Arts (GA)

General Education: Humanities (GH)

General Education - Integrative: Interdomain

Honors

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

WMNST 245: Introduction to LGBTQ Studies

3 Credits

An introduction to the dominant themes in Lesbian, Gay, Bisexual, Transgender, and Queer Studies, with an emphasis on both literary & cultural studies. This course explores the history of modern, western ideas about sexual identity as manifested in literature, theater, film, and other narrative forms of popular culture. Drawing on the substantial body of "queer theory" generated by scholars in the humanities since the 1990s, this class examines sexuality not as a "natural" or consistent phenomenon, but as a set of beliefs that have changed over time and manifest themselves differently in different cultural and historical contexts. Starting in the late nineteenth century, scientific and medical authorities began categorizing individuals into sexual types based on their manifestations of gendered characteristics and their erotic attractions and practices. This medical typing corresponded with the development of subcultures associated with deviance from sexual norms; these subcultures produced a rich variety of texts, images, performances, and social forms, many of which became central to both popular and high culture. This course explores this rich archive, moving among media. It investigates constructions of sexual conformity and how sexual nonconformists positioned themselves in relation to cultural and medical group identities. It examines how distinctions between gendered, raced, and classed bodies were historically produced and culturally contested. It considers what commonalities gay identities may - or may not - share with lesbian identities and how transgender and other identities have altered perceptions of sexual identity. The course also explores the relationship of the avant-garde to the mass media and how sexual subcultures have shaped literary and other cultural forms of expression. Comparative study of issues of sexual mobility beyond and between the borders of the United States expands the course's critical scope beyond dominant forms of western culture. This course does not propose definitive answers to the questions of identity it addresses. Instead it negotiates the ways sexualities have enabled individuals to articulate - and disarticulate - themselves within social bodies past and present. This course, therefore, has wide relevance for students interested in how group identities come into being and transform over time in dynamic relation to other historical forces. Exploring a wide variety of cultural forms associated with the history of sexual identity as well as a variety of interpretations of that history, this course opens students to an archive of literature, theater, film, and other narrative arts with the potential to inform and enrich their understandings of many kinds of challenges to regimes of normativity today.

Cross-listed with: ENGL 245

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Soc Resp and Ethic Reason

WMNST 250: Sexual Identity over the Life Span

3 Credits

Concepts of affectional and sexual orientation over life span, with emphasis on lesbian and gay male personal, family, and community adaptation. HD FS (WMNST) 250 Sexual Identity over the Life Span (3) (US) This course reviews concepts of sexual identity as informed by a human development perspective. Concepts of sexual orientation are discussed in the context of a review of lesbian, gay male, and bisexual lives. Developmental processes of lesbian and gay life are detailed: personal change from the teenage years through adulthood, changes in family and relationship patterns, and impact of communities, laws, and culture. These processes are contrasted to the developmental processes of women and men who identify themselves as heterosexual. The complex effect of gender, race, ethnicity, class status, and historical time on sexual orientation and its expression has generated ongoing controversies in scholarship as well as in public discourse. The course will be an introduction to these controversies as informed by human development research.

Enforced Prerequisite at Enrollment: 3 credits in ANTH or BBH or CAS or COMM or CRIM or CRIMJ or GEOG or HDFS or HIST or PSYCH or SOC or WMNST

Cross-listed with: HDFS 250

United States Cultures (US)

WMNST 266Y: Sexuality and Violence in Nineteenth-Century America

3 Credits

HIST/WMNST 266Y explores the social and cultural history of sexuality and violence in the United States during the nineteenth century. Both sexuality and violence are extremely broad topics, and the course will focus on a few intriguing elements of sexuality and violence, including courtship, prostitution, the early popular culture of sports, slavery, military violence, exploitative journalism, and sexuality and violence as metaphor. The course also examines the "creation" of homosexuality in the nineteenth century, and manner in which masculinity has been historically constructed.

Cross-listed with: HIST 266Y

Bachelor of Arts: Humanities

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

Writing Across the Curriculum

WMNST 270: Race and Gender in Literature Translated from French

3 Credits

A critical presentation, taught in English, of changing ideas and values on race and gender in French and Francophone literatures.

Cross-listed with: FR 270

Bachelor of Arts: Humanities

WMNST 280: Gendering the Divine in Indian and South Asian Religions

3 Credits

Throughout South Asia, ancient religious beliefs and cultural traditions interact with forms of modernity that constitute the daily lives and practices of women and men today. Focusing on conceptualizations of sex and gender over South Asia's long history, this course investigates the ways in which religious traditions and cosmologies have informed gender roles and hierarchies in India, Nepal, and other neighboring nations from the ancient period through the present day. In so doing, the course also explores how political realities—revolutions, terrorism, elections, nationalist movements, for example—can both exploit and challenge the gendered entanglements of religion and secular life. Students engage basic historical methods as well as feminist analytical methods (e.g., intersectionality) as they read a variety of cultural histories and ethnographies, as well as religious, philosophical and literary texts.

Prerequisite: WMNST 83N; WMNST 100; WMNST 105N; WMNST 106N

Cross-listed with: JST 280, RLST 280

Bachelor of Arts: Humanities

International Cultures (IL)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Key Literacies

WMNST 294: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

WMNST 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

WMNST 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

WMNST 297G: Special Topics - GenEd

1-9 Credits/Maximum of 9

Formal course given on a topical or special interest subject offered infrequently; several different topics may be taught in one year or semester. This is a Special Topics GenEd course.

WMNST 299: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

WMNST 300: Latinx Gender and Sexuality Studies

3 Credits

WMNST/LTNST 300 Latinx Gender and Sexuality Studies (3) (GH/US/BA) This course examines the historical development, theoretical premises, and political, social, and artistic contributions of Latinx feminisms in the United States. It shows the connections to as well as the divergences from Latin American feminism by beginning with an analysis of how the Spanish conquest, the imposition of Catholicism, and subsequent years of colonialism shaped gender and sexual identities. It examines the contemporary effects of these historical issues and inquires into the common concerns of Latin American feminists and Latinx feminists. It asks how theories and practices have diverged given different geographies, both between the U.S. and Latin America and within the U.S. The course will examine changes in the 1960s and 1970s in the U.S., when Chicano and Puerto Rican nationalist movements also gave rise to a feminist consciousness amongst Latinas; the conjuncture of race, ethnicity, gender, and sexuality is considered, with attention to how Latinas critiqued Anglo feminism's narrow focus on gender. The course will focus on family formations, considering social science and feminist discourse on the issues of patriarchy. How have Latinx feminists valued yet also rearticulated the traditional family? What critiques have been made against heterosexism? How has the LGBTQ community formulated new kinds of families? How does migration shape family relations? The course will explore how Latinx artists in different genres have responded to and resisted traditional gender and sexual roles. Literature, film, poetry, performance art, and hip hop are all examined for their diverse representations of sexual desire.

Prerequisites: (WMNST 100 or WMNST 100U or WMNST 105N or WMNST 106N or WMNST 106Q or LTNST 100)

Cross-listed with: LTNST 300

Bachelor of Arts: Humanities

United States Cultures (US)

General Education: Humanities (GH)

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

WMNST 301N: Sexualities, Gender and Power: Feminist Thought and Politics

3 Credits

WMNST 301N Sexualities, Gender and Power: Feminist Thought and Politics (3) (GH;GS;US;) This course is an interdisciplinary survey of historical and contemporary feminist theories in both the United States and international contexts. While attention is given to key historical moments in feminist thought, the course stresses theoretical trends and debates in feminism today. Course themes will include: (1) feminist epistemology and standpoint theory, epistemic privilege and epistemologies of ignorance; (2) postcolonial critiques of western feminism, and contemporary efforts to define a transnational and anti-racist feminism, (3) gender identity and the very viability of the category; (4) the concept of freedom, liberation, and of women's agency in feminist narratives of liberation, (5) theoretical implications for defining productive labor for women that is not exclusively the labor of childbirth, and the subsequent care of children and family; (6) the ongoing search for new paradigms of embodiment and interdependency (such as feminist

disability and care studies) that counter patriarchal epistemologic constructions.

Prerequisites: WMNST 105; or WMNST 100; or WMNST 106

International Cultures (IL)

United States Cultures (US)

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

WMNST 303: Race and Gender in the Americas: Latin American and Caribbean Cultures

3 Credits

Utilizing a theoretical framework of intersectionality, this course examines historical and cultural constructions of race and gender in Latin America and the Caribbean. AFAM 303 / ANTH 303 / WMNST 303 Race and Gender in the Americas: Latin American and Caribbean Cultures (3) (GS;IL) Utilizing a theoretical framework of intersectionality this course examines how racial, gender, sexual, and class identities are constructed in Latin American/Caribbean societies. The course applies an anthropological perspective to a wide range of countries in the region to reflect on how historical events such as the conquest, colonization, slavery, and independence movements are relevant to understanding the region today, as well as how race, gender, and sexuality inform contemporary themes of empire, nation-building, imperialism, neo-colonialism, revolution, violence, militarization, social movements, religion, neoliberalism, U.S. involvement/relations, and popular culture. The course addresses issues of power, culture, racial formation, and citizenship by incorporating interdisciplinary material beyond ethnography such as newspapers, grassroots media, biographies, films, music, novels, personal testimonies, etc. Rooted in feminist anthropological scholarship, this course emphasizes how power (from above and below) and culture mediate relationships between individual/community agency and institutions/structures. As an effort to encourage students to think about Anthropology and culture beyond superficial or romanticizing celebrations of multiculturalism, food, and music, the course stresses the theoretical importance of situating power and privilege amidst difference. We conceptualize culture not only as socially transmitted patterns of behavior and ideas/meanings, but as a complex and dynamic process/medium grounded in unequal relations in which power is constituted and resisted. The ethnographic emphasis of the course centers on the complex lived realities and voices of people, encouraging students to learn, understand, and respect cultural difference. The course offers students a broad sense of how power is central in the production of knowledge (particularly within the disciplines of Anthropology and History). Students will critically engage an array of topical issues in Latin America beyond dichotomous thinking. Discussion of course material includes contemplating issues of ethics, subjectivity, bias, and privilege. Conversations regarding processes of "Othering" and traditional "us vs. them" debates that often occur when discussing developing countries will prompt students to situate their own power/privilege and challenge our assumptions and preconceived notions of Latin America. Moreover, this course teaches Latin American Cultures within a global context of racialization. As such it also stresses the historical and contemporary social, economic, cultural and political significance of the U.S. in Latin America, to demonstrate how we are connected and responsible to what happens "over there.;" In

order to promote service learning, a core tenant of feminist pedagogy, this course also offers students the opportunity to participate in an optional embedded program entitled "Cuba: Identity, Diversity and Popular Culture". This two week course in Havana, Cuba promotes interactive learning in and outside the classroom with international study. This course component successfully combines academic classes, hands-on activities, and service learning.

Cross-listed with: AFAM 303, ANTH 303

International Cultures (IL)

WMNST 350: Gender, War, and Militarism

3 Credits

This interdisciplinary seminar uses feminist theory to critically examine the ways in which war and militarism are deeply gendered. We will look at women's experiences of armed conflict across the world, but also the militarization of everyday life and the politics of gender within various military structures, both in the US and abroad. We will also examine the differential ways that men and women are affected by the war system and will consider the role of women and gender norms in peace and anti-militarism movements. This course focuses on women who actively participate in and/or support war, as well as those who actively oppose war and mobilize for peace. It also considers the experiences of those who become victims of the war system. Given that men and militarized understandings of masculinity play such a prominent role in warfare, the course will also explore the ways that masculine gender norms have been used to perpetuate cultures of war. Students can expect to engage with a variety of different types of texts: documentaries, feature films, memoirs, novels, newspapers, scholarly books and articles.

International Cultures (IL)

United States Cultures (US)

WMNST 364N: Black & White Sexuality

3 Credits

This course explains how narrow, "black and white," ways of thinking limit our understanding of the diverse expressions of human sexuality. The course title's double meaning also references the various ways that sexuality is socially constructed in relation to race. For example, we will explore how stereotypical beliefs about the sexuality of people of African descent persist in the United States and have been legitimized historically by various cultural discourses, social institutions, and academic fields. Course assignments will require us to rethink and challenge what we understand as "sexuality" and consider its many influences like race, gender, class that shape our emotions, needs, desires, relationships, representations, practices, and public policies. An aim of this course is to begin to make sense of the long, entangled, and inextricable relationship between race and sexuality in the United States.

Cross-listed with: AFAM 364N

United States Cultures (US)

General Education: Humanities (GH)

General Education: Social and Behavioral Scien (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

WMNST 395: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

WMNST 399: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

WMNST 400N: Debates in Contemporary Feminism

3 Credits

This course is an advanced seminar in feminist and gender theory. The primary focus is critical engagement with social, political, and cultural theories of the social construction of gender and gender difference, and of the sources, causes, and effects of gender inequality and strategies for reducing or eradicating inequality. While emphasis will be placed on gender difference and inequality, substantial time will be spent on theories of how gender is implicated in and supported by other forms of inequality such as sexuality, race, ethnicity, and class. Standpoint and intersectional approaches will ground much of the course, and provide one dominant framework for thinking about identity, oppression and social power inequalities. Students will also take on more advanced readings addressing feminist epistemology and ontology, methodology and praxis. While topics change from instructor to instructor (for example: reproductive rights; women's health; labor; politics and voting; creative arts and representation; individual and social identities; gender and militarism) students can expect a balance between US and transnational contexts. This balance reflects contemporary feminism's acknowledgement of US global hegemony, and thus the impacts of US policies on the welfare of other nations and regions, while also emphasizing both oppositional and coalitional movements in those same nations and regions. Case studies of effective activist intervention at both local and global levels will support the bi-focal emphasis of the course.

Prerequisites: WMNST 083; WMNST 100; WMNST 105; WMNST 106; WMNST 301,

Bachelor of Arts: Humanities

Bachelor of Arts: Social and Behavioral Sciences

United States Cultures (US)

General Education: Humanities (GH)

General Education: Social and Behavioral Sciences (GS)

General Education - Integrative: Interdomain

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Crit and Analytical Think

GenEd Learning Objective: Global Learning

WMNST 401: Doing Feminism: Theory and Practice

3 Credits

Advanced analysis of feminist theory and the nature of its integration (sometimes uneasily) within feminist movements and practices.

WMNST 401 Feminist Perspectives on Research and Teaching (3)The course explores current themes organizing debates and discussions within feminist discussions of teaching and research. Students will become familiar with various research perspectives that feminist

researchers use including interviews, ethnography, and action research. The course will examine debates within feminist research and teaching including power, difference, and race. Key themes will include questions around the politics of representation, the relationship of research to colonialism, the authority of the researcher, researcher-researched relations, and power/knowledge relations in research, classrooms, and knowledge production broadly defined. The aim is not to identify a feminist orthodoxy but rather: 1) to identify and understand the varieties of feminism existing today; 2) to become knowledgeable about a range of themes currently emerging in feminist debates on teaching and research; and 3) to arrive at an appreciation of the transformative effect upon teaching and research these new paradigms, debates, and themes have meant across a range of disciplinary boundaries.

Prerequisite: WMNST100 , or WMNST106 , or WMNST005 and WMNST301

WMNST 407W: Women and Theatre

3 Credits

A study of theatre practice and dramatic literature as informed by issues of gender, race, and ethnic background. THEA (WMNST) 407 Women and Theatre (3) (US)(BA) This course meets the Bachelor of Arts degree requirements. Theatre 407 approaches the study of theatre/performance as a valuable site for the exploration of race, class, and gender as social constructs. The focus will be on 20th century developments of women and theater. Feminist theory and theatrical practice will be a focus of the course and will reflect conflicts and differences present within feminism.

Enforced Prerequisite at Enrollment: THEA 100 or THEA 105 or THEA 106 or THEA 112 or DANCE 100 or THEA_MFA

Cross-listed with: THEA 407W

Bachelor of Arts: Arts

United States Cultures (US)

Writing Across the Curriculum

WMNST 412: Education and the Status of Women

3 Credits

An examination of the relationship of education to the status of women in American society.

Cross-listed with: EDTHP 412

WMNST 420W: Gender and International Development

3 Credits

This course examines gendered processes of economic and social change in the Global South in a context of rapid globalization. We will study how gender inequities and inequalities shape and are shaped by economic restructuring, environmental change, international migration, the global spread of ideas and culture, and the shifting goals of International Development agencies. Readings and discussions are organized around three main learning units: 1) Approaches to Gender in Development; 2) Gender, Work, and Identity in the Global Economy; and 3) Rights, Reproduction and the Body. Particular attention will be paid to representations of women and men by Western organizations acting in the name of Feminism and/or Development, and to the responses of feminist communities in the South to these portrayals. In studying these issues, we will resist the tendency to conflate "gender" with "women", instead looking comprehensively at the identities, rights, and lived experiences of diverse gendered identities. We will carefully consider

differences using an intersectional frame that considers social factors such as sexuality, race, economic class, and legal status. Students will explore issues through diverse materials including reports, articles, book chapters, documentaries, presentations, and popular media.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 30H or ENGL 137H or CAS 137H

Cross-listed with: CED 420W
International Cultures (IL)
Writing Across the Curriculum

WMNST 423: Sexual and Domestic Violence

3 Credits

Legal, sociological, and psychological perspectives on sexual and domestic violence. CRIMJ 423 / CRIM 423 / WMNST 423 Sexual and Domestic Violence (3) (US) This course investigates violence against women, specifically domestic, sexual, and relationship violence. Students will examine some of the legal, sociological, and psychological perspectives about sexual, domestic, and relationship violence as well as the social and cultural roots of violence against women. Students will also gain an understanding of the experiences of victims of domestic and sexual violence as well as the issues presented by perpetrators. Students will be evaluated based on performance on exams, and two research papers. CRIMJ 423 / CRIM 423 / WMNST 423 is a supporting course in both the WMNST major and minor as well as a supporting course in the CLJ major. It may also be used to satisfy a GI requirement. This course is offered fall and spring semester with an enrollment of 60 students each semester.

Prerequisite: CRIMJ100

Cross-listed with: CRIM 423, CRIMJ 423
United States Cultures (US)

WMNST 424: Women and Sport

3 Credits

An interdisciplinary approach to contemporary issues related to women and sport from historical, physiological, psychological, and sociological perspectives.

Enforced Prerequisite at Enrollment: PSYCH 100 or SOC 1 or WMNST 100 or KINES 100

Cross-listed with: KINES 424
United States Cultures (US)

WMNST 426W: Gendered Worlds

3 Credits

Gendered Worlds examines how systems of dominance manifest in everyday life. Through an intersectional approach to social differences, such as gender, race, class, ethnicity, age, ability, and sexuality, the course highlights the significance of difference in shaping experiences of space and place in a global context. The course incorporates approaches from cultural, postcolonial, subaltern, queer, gender, and critical race studies, all of which have influenced current debates across the field of geography. Feminist scholars have long been concerned with the spatial politics of cultural difference. As a point of entry to discussions of gender and geography, this course will explore the diverse ways in which geographers have conceived of, analyzed, and redefined gender as a contested spatial practice that intersects with other facets of identity such as race, class, and sexuality. Using contemporary geographic

texts, we will explore the gendered dynamics of geographic research, citizenship, violence, security, nationalism, nature, and globalization. The purpose of this course is to examine how gender is understood and utilized in the field of geography. This course also aims to enhance students' ability to engage in first-hand critical research, as well as collaborative learning, through a reflective and on-going process of research and writing over the course of the semester. At the end of the course, the successful student will be able to: 1. Deploy contemporary debates around gender theory, gendered spatial practices, and cultural difference. 2. Critique the cultural and social construction of gender across time and cultures. 3. Analyze representations of gender in social institutions such as the media. 4. Apply theories of gender and cultural difference in the context of critical written analysis.

Prerequisites: (GEOG 220 or GEOG 20 or GEOG 2N or WMNST 100) and (C or higher in ENGL 15 or ENGL 30H or ENGL 137H or CAS 137H or ESL 15) Recommended Preparation: GEOG 324 (preferred) or GEOG 320 or GEOG 326 or GEOG 328

Cross-listed with: GEOG 426W
Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)
United States Cultures (US)
Writing Across the Curriculum

WMNST 428: Gender and Politics

3 Credits

Gender in politics in the United States and around the world; major areas of women and politics research. PL SC (WMNST) 428 Gender and Politics (3) (US;IL)(BA) This course meets the Bachelor of Arts degree requirements. This course is designed as an overview to the field of women and politics. It examines the role that women play in politics in the United States and around the world. Students will begin by examining how women are socialized differently from men and how that socialization effects women's political attitudes and participation. Then students will focus on women in different political offices and how their behavior compares to that of their male counterparts. Students will then analyze the women's movement in the United States. Finally, students will turn to different theories of the ideal position of women and men in politics and use those theories to explore the issue of pornography. Students will be evaluated on a final exam, short essays (4 3-5 page essays), class participation, and a research paper (15 pages). This is an advanced course with 6 credits prerequisite in Women's Studies or Political Science. This course fulfills the American Politics and Comparative Politics distribution as well as the advanced course requirement for the Political Science major. It is an elective for a Women's Studies major. It also fulfills an International/Intercultural competency requirement. This course will be offered once a year with 35 seats per offering.

Prerequisite: 3 credits in political science or women's studies

Cross-listed with: PLSC 428
Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)
United States Cultures (US)

WMNST 430: Women in American Society

3 Credits

A historical study of women's roles and experiences in the United States.

Prerequisite: 6 credits of American Studies, Sociology, or Women's Studies

Cross-listed with: AMST 430
United States Cultures (US)

WMNST 438: Seminar in Feminist Philosophy

3 Credits

This course will explore some of the influential theories and texts in the field of feminist philosophy. Feminist philosophy encompasses a broad range of inquiry, from political and ethical issues to foundational metaphysical and epistemological problems - e.g., What is a woman? What is the relationship between knowledge, epistemology, and power? Feminist philosophical approaches are diverse and include thinkers from all approaches to philosophy and are often richly influenced by work in women of color feminisms (e.g., intersectionality, Latinx), approaches to sexuality studies (e.g., LGBT studies and Queer Theory), post- and decolonial studies, and disability studies. Assigned readings will typically offer a range of approaches to feminist philosophy. While a majority of the readings will cover issues discussed by contemporary thinkers, a few historically significant feminist philosophers will often be included. Through reading and discussion, this course will introduce students to some of the central approaches to feminism, some of the most pressing issues, as well as the central controversies of feminist philosophy. Students will develop their interpretative and philosophical skills, while gaining a deeper understanding of the importance of feminist philosophy to the tradition of philosophy as well as to the general betterment of society.

Prerequisites: 9 credits of philosophy; or 6 credits in philosophy where three credits are from PHIL 008 or 114; or 6 credits in philosophy where all six are at the 200-level

Cross-listed with: PHIL 438
Bachelor of Arts: Humanities

WMNST 439: Women and the Holocaust

3 Credits

Analysis of women's experience in the Holocaust and exploration of the role of gender in Holocaust Studies. J ST (HIST/WMNST) 439 Women and the Holocaust (3) Most of the early study of the Holocaust focused almost exclusively on the experiences of Jewish men. It was men who wrote the first and most widely read Holocaust memoirs and men who produced the first studies of the Holocaust. The first question motivating this class is thus what we can learn from examining women's experiences. Is it possible that the ghetto, the camp, and the forest look different from women's perspectives? Are there factors we miss when we read primary documents written by only half of the participants in these historical events? Beyond this, however, our exploration will also lead us to look more broadly at gender as a category of analysis. What do we gain by bringing questions of gender to bear on our study of the Holocaust? Are there any ethical concerns that should inform our approach?

Prerequisite: J ST 010 or J ST 121 or HIST 121 or consent of program
Cross-listed with: HIST 439, JST 439

WMNST 440W: Women in Global Cities

3 Credits

This course focuses on women in various global contexts, including Tehran, Mumbai, Singapore, São Paulo, Philadelphia, and Johannesburg among others. The course is driven by questions such as: How do women in these places understand a time marked by increasing globalization and urbanization, paralleled with poverty and uneven resource access. How do the politics of race, class, caste, religion, and migration status shape their urban experiences? The course draws on scholarly articles, graphic novels, podcasts, and other genres to combine academic and popular knowledge. Major thematic areas for this course include migration, informal economies, culture, and environmental change.

Prerequisite: WMNST 100 or WMNST 200

Bachelor of Arts: Humanities
Bachelor of Arts: World Cultures
Bachelor of Arts: Social and Behavioral Sciences
International Cultures (IL)
General Education: Social and Behavioral Scien (GS)
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Global Learning
Writing Across the Curriculum

WMNST 450Y: Gender and Sexuality in Ancient Greece and Rome

3 Credits/Maximum of 3

An examination of gender, sexuality, and sexual desire in ancient Greece and Rome. This course examines issues of gender and sexuality in Greece and Rome. Through close analysis of ancient texts and artifacts, we will explore representations of gender in literature and art, medical theories of the male and female body, sexual norms and codes, and views on marriage, rape, adultery, and prostitution. In addition, we will consider how eroticism and gender both support and subvert political and social ideologies. The objective of this course is to enable students to analyze gender identities and conventions surrounding sexuality in the context of the Greek and Roman worlds. This course will also invite students to consider the influence of ancient conceptions of gender and sexuality on modern discussions and debates. Authors and texts may include Homer, Hesiod, Sappho, Sophocles, Aristophanes, Plato, Aristotle, the Hippocratic corpus, Catullus, Virgil, Ovid, and Augustine. These ancient readings will be supplemented with selections from modern feminist theorists and gender studies.

Prerequisite: 3 credits in CAMS

Cross-listed with: CAMS 450Y
International Cultures (IL)
Writing Across the Curriculum

WMNST 453: Women and the Criminal Justice System

3 Credits

This course focuses on the experiences of women as offenders, victims, and professionals in the criminal justice system. CRIMJ 453 / CRIM 453 / WMNST 453 Women and the Criminal Justice System (3) (US) The course will examine the role of women in the criminal justice system and look at the issues related to women as offenders, victims of crime, and as professionals in the system. Students will gain an understanding of the issues concerning women in the criminal justice system, examine how societal arrangements affect women as offenders, victims, and

criminal justice professionals, and better understand the overlooked problems faced by women in the criminal justice system. Students will be evaluated on the basis of exams, presentations, and papers. CRIMJ 453 / CRIM 453 / WMNST 453 is a supporting course for both WMNST and CLJ majors, as well as the WMNST minor. This course may also be used to satisfy a GI requirement. This course will be offered twice a year with 60 seats per offering.

Prerequisite: CRIMJ100 or WMNST100
Cross-listed with: CRIM 453, CRIMJ 453
United States Cultures (US)

WMNST 455: Gender Roles in Communication

3 Credits

Explores the literature on gender research in the discipline of human communication. CAS (WMNST) 455 Gender Roles in Communication (3) (US) This 400-level course is a theory and application course which also satisfies an intercultural requirement. CAS/WMNST 455 strives to ensure that students understand female and male differences and similarities in communication patterns, perceptions of the opposite sex, and expectations and stereotypes regarding the opposite sex. Many researchers find that gender communication is 'cross cultural' i.e., that women and men come from two different cultures, and therefore misunderstanding of each others' intent and expectations may frequently occur. This course examines how distinctions in meaning and interpersonal dynamics may create these two differing cultures, and promotes understanding and possibilities for adaptation. It also investigates when and if changing communication styles is desirable, and in which settings. A goal of the course is to help students to solve puzzles toward understanding those we work with and relate to, as well as to apply their knowledge to their own lives and contexts. The course content and format reflects these goals. CAS/WMNST 455 begins with theoretical information, later applying it to situations of interest to most -- relationships, language use differences (verbal and nonverbal), media messages, and workplace issues. Lecture incorporates considerable discussion and exploration of gender issues, and most topics are followed by activities, which illustrate how theories work in real life. This course is useful for any students seeking an intercultural course. It is recommended to Communications Arts and Sciences and Women's Studies majors and minors due to emphasis on communication theory and gender issues. Business, counseling, psychology, sociology, education and any social science majors may fulfill a US requirement through 455.

Enforced Prerequisite at Enrollment: 3rd Semester Standing
Cross-listed with: CAS 455
United States Cultures (US)

WMNST 456: Gender, Occupations, and Professions

3 Credits

The role of gender in shaping contemporary North American patterns of employment, occupational roles, and statuses.

Enforced Prerequisite at Enrollment: 3 credits in SOC
Cross-listed with: SOC 456
Bachelor of Arts: Social and Behavioral Sciences

WMNST 458: Critical Feminist Issues in Reproduction

3 Credits

This course examines women's reproductive health issues from a feminist perspective. Reproduction has always been thought of as 'women's work', yet decisions about reproduction are rarely made by women. This course will focus on how various political institutions (e.g., religious, economic, governmental, legal, medical, etc.) influence all aspects of human reproduction, and how these influences affect women's reproductive health, both ideologically and practically, as well as how women's reproduction affects women's lives. This course will examine four aspects of reproduction from a feminist perspective: reproductive rights, including access to birth control and abortion along with the right to be free of forced sterilization; infertility and the new conceptive technologies; pregnancy, including screening, sex selection, maternal and 'fetal rights'; and childbirth options. Throughout the course, we will return to the question of the 'politics of reproduction' by asking ourselves which powerful institutions govern each particular aspect of reproduction and whether the decisions made are good for women. Using a feminist perspective, we'll focus on making women and their health needs the center of discussion and examining the relative lack of power held by women in decisions made about their reproductive health. In addition to class readings (which are both theoretical and applied in nature) students will learn through class discussions, films, and group projects.

Enforced Prerequisite at Enrollment: WMNST 100 or WMNST 100U or WMNST 105N or WMNST 106N or WMNST 106Q or WMNST 301 or PSYCH 100

Cross-listed with: BBH 458
General Education: Health and Wellness (GHW)
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Soc Resp and Ethic Reason

WMNST 462: Reading Black, Reading Feminist

3 Credits

This course examines intersectional identity and its representations of gender, class, race, sexuality, and cultural difference in texts by black American women. The course also identifies analyzes major issues concerning the discovery and development of a black feminist tradition and the ways in which that tradition has engaged issues of racism, sexism, class exploitation, and/or heteronormativity.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Cross-listed with: ENGL 462
Bachelor of Arts: Humanities
United States Cultures (US)

WMNST 464: Feminine/Masculine

3 Credits

Study of sex role learning; investigating feminine/masculine labeling; implications for contemporary society. BE SC 464 BE SC (WMNST) 464 Feminine and Masculine (3) (US) This course provides a critical examination of the concepts of masculinity and femininity through a consideration of how these have shifted and changed historically and cross-culturally. It considers a variety of theories of gender difference.

It investigates how gender is socially constructed and practiced. Thus, it examines how gender is enacted in interpersonal relationships and defined, reinforced, and challenged through processes of socialization as well as through the various institutional spheres of social life. The course addresses the diversity of masculinities and femininities within a single society. Thus, attention is given to race and class-based differences as well as to trans-genderism and homosexuality.

Prerequisite: general psychology or general sociology

Cross-listed with: BESC 464

United States Cultures (US)

WMNST 466: Lesbian and Gay History

3 Credits

Critical exploration of the history of sexuality, focusing especially on the emergence of modern lesbian and gay identities. WMNST (HIST) 466 Lesbian and Gay History (3) (US;IL) This course will explore the relationships in different cultures and historical periods between the dominant culture and homosexuals, whom the culture deemed, at different times, sinful, deviant, criminal or, more recently, a minority community. Students will confront the very nature of difference, and how it has been played out in European and American history. The course will challenge students to deal with how societies define difference itself; how they isolate or punish deviants; and how the creation of the 'homosexual' helped establish not simply difference but 'normalcy' in a highly sexualized modern culture. Finally, the course will explore notions of identity itself, focusing on the creation of a modern gay and lesbian identity and its impact on broader questions of gender, community, civil rights, and political discourse in the United States. An example of evaluation methods would be: course presented in a seminar format with grades based on class participation, brief analytical papers, and a longer research or historiographic paper.

Prerequisite: WMNST100 , WMNST117

Cross-listed with: HIST 466

International Cultures (IL)

United States Cultures (US)

WMNST 471: The Psychology of Gender

3 Credits

Theories and research on gender differences and gender roles. Emphasis on women's and men's current positions in society.

Enforced Prerequisite at Enrollment: PSYCH 100 and PSYCH 221

Cross-listed with: PSYCH 479

United States Cultures (US)

WMNST 472: Work-Life Practices and Policies

3 Credits

Explore the causes and consequences of conflicts between work, family, and other life commitments, and how these may be resolved. LER 472 Work-Life Practices and Policies (3)(BA) This course meets the Bachelor of Arts degree requirements. The interdisciplinary field of work-family and work-life developed as a result of middle-class women's entry into the labor force, a movement that generated conflict between family and paid work commitments. Overall, the course addresses the reasons the field developed, relevant theoretical perspectives regarding the issues, and related problems as well as proposed solutions at both the public and private sector levels. The overarching objectives of the course are

to expand students' understanding of conflicts between work and family commitments, and how these might be resolved through private and public sector initiatives. Specifically, the course concerns how individuals, families, and organizations interact to help hinder the achievement of balance between work and life commitments, and relevant effects on those involved. The changing demographics of the family, laws and trends around working time, father and mother time with children, the expanded need for elder care, work-life programs such as flextime, concierge services, paid parental leave, part-time careers, paid time-off banks, and the role of unions, corporations and government legislation are covered. The course attempts to link the likely future needs of students to broader trends in society and how balance could be achieved at the level of individuals, families, other stakeholders in the community, and for society as well. Fields of research relevant to the course include labor studies, women's studies, Industrial/Organizational psychology, the sociology of work and of family, and child development. Students will be evaluated on the basis of class participation, through two in-class examinations, and through a final written or oral project providing a chronology and analysis of an adult's work-family history.

Enforced Prerequisite at Enrollment: 3 credits in LER or LHR

Cross-listed with: LHR 472, SOC 472

Bachelor of Arts: Social and Behavioral Sciences

WMNST 476W: Anthropology of Gender

3 Credits

Cross-cultural construction of gender and sex roles; theories of gender construction; case studies and practical effects. ANTH 476 / WMNST 476 Anthropology of Gender (3) Students will learn the current theoretical approaches in anthropology to the cultural construction of gender and sex roles. The first 2-3 weeks of the course will concentrate on exploring and understanding these theoretical approaches. The remaining weeks will focus on case studies of non-western gender systems, and on the practical effects of those systems, but students will also be encouraged to relate these systems to their own experience. Each meeting will be based on discussion of the readings assigned for that meeting and students will be expected to participate. During the period devoted to theoretical approaches, discussion will focus on the assumptions, advantages, and disadvantages of each approach. For the part of the course devoted to readings on individual societies, one reading each week will be the basis for a critical essay of approximately five pages. These essays will be expected to include: 1) an identification of the theoretical approach that informs the work, 2) a statement of the author's arguments or questions, 3) a discussion of the methods used to provide data in support of the arguments or to answer questions, 4) a critique of the adequacy of data, and 5) a statement suggesting which additional elements might make for a better study. These essays will be graded for both content and form and students will have the option of rewriting essays (and improving their grade) after they receive comments. These essays will provide 60% of the course grade, while participation in discussions will provide another 15%. A short research paper will also be required. The paper must focus on a question or hypothesis concerning gender, and a preliminary proposal that includes the focus of the paper, its relevance to the course, and a beginning bibliography is required. A first draft of the paper will be required two weeks before the end of the semester. The research paper will provide 25% of the course grade. The course complements other courses in Anthropology that deal with sex differences, but will provide a perspective on gender that is not available elsewhere in the curriculum. The course can be used to fulfill a Behavioral Anthropology requirement in both the major and minor in Anthropology and a writing across the curriculum requirement. It will also provide

students in other departments with the opportunity to study aspects of diverse, non-western cultures. The course is currently identified as one that may be taken to fulfill the requirements of the Women's Studies minor.

Prerequisites: 3 credits of ANTH or 3 credits of WMNST

Cross-listed with: ANTH 476W

Writing Across the Curriculum

WMNST 477: Sociology of Sexuality

3 Credits

An analysis of the demographic, social, and cultural factors affecting the developments and experience of sexuality in contemporary society.

Enforced Prerequisite at Enrollment: 3 credits in SOC

Cross-listed with: SOC 477

WMNST 480: Italian Women Writers

3 Credits

Italian women have often been stereotyped as the "Mamma" or the "Nonna" who cooks, prays, and idolizes her sons. Such images do not accommodate the wide variety of experiences and contributions of Italian women throughout history. This seminar explores texts written by women during the 19th, 20th, and 21st centuries in Italy, including autobiography, historical novels, short stories, poetry, children's books, and theater. We consider the political and cultural developments in Italy in these centuries with attention to differences among the various geographic regions and an emphasis on issues of special relevance to women and their changing legal status and social roles. As we approach each creative work, we analyze such issues as: the role of form and genre; the author's use of language and rhetoric; the political, philosophical, and theological questions posed by the text; the ways in which the text responds to the established Italian literary canon; and the text's depictions and uses of history. The course is conducted in English.

Prerequisite: Minimum fifth-semester standing or permission of instructor

Cross-listed with: IT 480

WMNST 489: British Women Writers

3 Credits

A study of selected British women writers. ENGL (WMNST) 489 British Women Writers (3) This course provides the opportunity to study writing by British Women from a historical perspective and to explore the views these women have of themselves as artists. The course will concentrate on a careful reading of works by a variety of authors. It will address the question of the role gender plays in the selection of literary forms and the development of character, theme, symbols, and rhetorical strategies. It will also explore what particular dimensions British women writers have brought to the British literary tradition. Students will be active learners through keeping reading journals, presenting background reports on the history of women in England, participating in small-group discussions about the texts, and writing 2 shorter essays and one longer research essay for the class. This course focuses on an area of British literature, which more traditionally structured courses tend to obscure. The course will be attractive to students from a variety of programs, including English majors, Women's Studies minors, and Interdisciplinary Humanities

students. The course will be offered once every two years. Estimated class size 20.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Cross-listed with: ENGL 489

Bachelor of Arts: Humanities

WMNST 490: Women Writers and Their Worlds

3 Credits

American and British literature written from the perspective of women. ENGL (WMNST) 490 Women Writers and Their Worlds (3) (US;L)(BA) This course meets the Bachelor of Arts degree requirements. ENGL/WMNST 490 covers particular aspects of American and British literature written from the perspective of women. The courses stress the diversity of women's authorial worlds, both through time and/or space. The readings and specific focus vary from semester to semester. ENGL/WMNST 490 seeks to make students aware of the extensive body of literature written by women, but, unlike ENGL 194, which is a survey course of women's literature, ENGL/WMNST 490 can be a more intensive course, focusing on selected themes and topics of particular concern to women as reflected in the poetry and fiction of twentieth-century American and British women writers. The class can also be taught in relationship to earlier periods, dealing, for instance, with English women novelists from 1775-1865. In such a class, readings would include fiction by Fanny Burney, Mary Wolistonecraft, Ann Radcliffe, Jane Austen, Mary Shelly, Emily Bronte, Elizabeth Gaskell, and George Eliot. The course would then place each novel in its historical, social, intellectual, and literary context, and explore the various ways in which some of England's best writers transformed their female experience of the world into fiction that extended the range and influenced the development of the novel. Regardless of the particular focus, all sections of the course pose the following questions throughout: Do women use the same myths, archetypes, and literary conventions as male writers? Or do they sometimes have to modify the myths, archetypes, and literary conventions originated by their male precursors in order to adapt them to female experience? Is there such a thing as a distinctively female imagination, with a symbolic language of its own? Is there such a thing as a chain of literary influence linking women writers to each other? What are the strategies for coping with the anxieties of authorship? What is the interaction between gender and genre? In what ways are creativity and procreativity modes of defying prevailing ideologies? Does a woman's psychological development have an effect on the plots a woman novelist conceives? How does women's literature reflect the realities of women's lives? As a course in women's literature, ENGL/WMNST 490 concerns itself with questions of gender. In so far as some of these women writers are black or women of color, it concerns itself with questions of race and ethnicity. In as far as the course looks at women's literature in the context of men's literature, it is concerned with the inter-relationship between dominant (male) and non-dominant (female) culture in the United States as well as in Britain. In so far as the course covers lesbian writers, it is concerned with sexual orientation. Students should expect to complete a minimum of three written assignments in the course, two course papers, and an essay final exam in class. The papers each will ask students to choose a text to analyze in relationship to one of the thematic modules the course has chosen, for instance, to discuss how Virginia Woolf's Mrs. Dalloway analyzes the position of upper-middle class women in a particular moment in history when women had achieved the vote, but were still largely constrained by patriarchal social norms. In addition to written assignments, students will be evaluated on class discussion and

general participation. The course not only prepares students for taking up literary and cultural analysis in English classes, but also in any other class that engages in the verbal and written analysis of complex written texts, and in other classes in Women's Studies or in other Penn State departments that address the social, cultural, or ethical issues of gender. The course may be used as English Major elective credit or as credit towards the English Minor; it may also be used in the Women's Studies major and minor. It will be offered once a year with 40 seats per offering.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Cross-listed with: ENGL 490
Bachelor of Arts: Humanities
International Cultures (IL)
United States Cultures (US)

WMNST 491: American Women Writers

3 Credits

A study of selected American women writers. ENGL 492 / AMST 476 / WMNST 491 American Women Writers (3) A study of selected women writers, this course provides the opportunity to study writing by American women from an historical perspective and to explore the views these women have of themselves as artists. The course will concentrate on a careful reading of works by a variety of authors. It will raise the question of the role that gender—as well as other differences such as race, class, and ethnicity—play in the selection of literary forms and the development of character, theme, symbol, and rhetorical strategy. It will also explore the dimensions American women have brought to the American literary tradition. The course satisfies the area requirement in culture for American Studies majors and is open to all majors meeting the prerequisite requirements. The course will be offered once every two years and enrollment is 25.

Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or ENGL 137H or CAS 137H

Cross-listed with: AMST 476, ENGL 492
Bachelor of Arts: Humanities

WMNST 492W: Contemporary Feminist Analysis: The Capstone Senior Seminar

3 Credits

Applied critical analysis of any aspect of society and/or culture from a contemporary feminist perspective. WMNST 492W Current Feminist Issues This course is the capstone course for the Women's Studies major. We keep the course small (15-20 students) and offer it every spring. It is constructed to provide you the opportunity to apply the knowledge and skills you have developed in Women's Studies to some of the major topics being addressed in current academic feminist discourse. The first goal of the course is for each student to become familiar with the major arguments and evidence regarding some of the current major topics in feminism. The second goal is for each student to learn more about the multidisciplinary perspectives of women's studies. The third goal of the course is for each student to develop and demonstrate her skill at carrying out feminist scholarship. There are two core elements of the course. The first is class discussion of readings addressing some of the major current feminist issues. Each year a new set of these topics is put together by the instructor, drawing upon the suggestions of other Women's Studies faculty and majors. The second

core element of the course is each individual student doing a term paper. Work on these papers will take place both publicly and privately, so that everyone in the course will learn something about how feminist projects are constructed in the various disciplines represented by the students' choices of topics for their papers. Because this is a W course, 2/3 of your grade will be based on writing assignments. Throughout the course, you will write short (2 page) papers on the readings that we will be discussing in our seminars. You will also write a term paper and some preliminary assignments related to it, including a topic justification paper, an annotated bibliography accompanied by a text description of the major themes identified in the bibliography, a class presentation on your paper topic, and the final 10-15 page paper. The other third of your grade will be based on your participation in seminar discussions.

Prerequisite: WMNST001 , WMNST301 , WMNST400
Writing Across the Curriculum

WMNST 494: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

WMNST 494H: Research Project

1-12 Credits/Maximum of 12

Supervised student activities on research projects identified on an individual or small-group basis.

Honors

WMNST 495: Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

Prerequisite: prior approval of proposed assignment by instructor

WMNST 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside scope of formal courses.

WMNST 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

WMNST 499: Foreign Studies

1-12 Credits/Maximum of 12

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Wood Products (WP)

WP 203: Anatomical Properties of Wood

1 Credits

Provide information on tree form/growth, cell wall formation/ composition, structure of wood/bark cells; macroscopic/microscopic identification of hardwood/softwood cells. W P 203 Anatomical Properties of Wood (1) The purpose of this course is to introduce students to the basic concepts of the anatomical properties of wood and bark cells. Students taking this class will learn: 1) basic information on tree form and growth 2) basic information on cell wall chemical composition, formation and structure 3) identification and differentiation of different hardwood and softwood cells. Course grade will be based on weekly quizzes. W P 203 is a foundation course for the wood products major and a basic information course for the forest science major. The course will be taken by students in the fall semester in their sophomore or junior year for Wood Products major and in their sophomore, junior or senior year for the Forest Science major. This course provides essential background information for students in the Wood Products major. The information presented in this course will be needed for understanding advanced concepts present in 400-level courses. All wood products and forest science students will be required to take this course. It is listed as a prerequisite for most W P 400-level courses. The course is designed to provide information necessary for understanding advanced concepts presented in W P 400-level courses. Macroscopic and microscopic hardwood and softwood cell identification will be taught in a specialized laboratory made available by the School of Forest Resources.

WP 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

WP 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

WP 416: Wood Industries Management Development

3 Credits

Managerial concepts and issues important to forest products organizations will help prepare students to assume management-level positions. W P 416 Wood Industries Management Development (3) This course will introduce students to managerial concepts and issues important to wood products manufacturers. The design of the course is to help students think more critically about problems and issues that are directly related to efficiency and effectiveness within the wood-based industry, with an emphasis on utilizing human capital to increase competitive advantage. The overall goal of the course is to prepare students to assume management-level positions within wood-based businesses. Course content will be designed to meet the unique production environments our graduates will face. For example, managing an hourly workforce that is under-motivated with insufficient skills, in an environment that is often unpleasant and physically challenging. The course will include case studies from relevant industrial settings and will expose students to current managerial issues (i.e., via field trips to mills

and guest lecturers from industry). Students will give oral presentations based on assigned readings from a best selling managerial book and will also be asked to complete numerous in-class and out-of-class exercises (e.g., learning styles inventory, conflict style assessment, to-do lists, resume, etc.).

Prerequisite: W P 200W

WP 495: Wood Products Internship

1-6 Credits/Maximum of 6

Supervised field experience related to the student's major.

Enforced Prerequisite at Enrollment: Approval of proposed assignment by instructor prior to registration
Full-Time Equivalent Course

WP 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

WP 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

WP 499: Foreign Studies

1-12 Credits

Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)

Workforce Education and Development (WFED)

WFED 1: Education for Work: Trends and Issues

3 Credits

Overview of the history and philosophies of education for employment, current issues, and school to work transition system.

WFED 99: Foreign Studies

1-12 Credits/Maximum of 12

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest. Several different topics may be taught in one year or semester. A specific title may be used in each instance and will be entered on the student's transcript.

International Cultures (IL)

WFED 100: Orientation to Teaching Vocational Industrial Education/
Health Occupations Education Subjects

2 Credits

Basic elements of preparing to teach vocational trade and industrial/
health occupations education subjects in the schools of Pennsylvania.

WFED 101: Early Field Experience in Teaching Vocational Industrial
Education/Health Occupations Education Sub

1 Credits

Discussion and observation of in-school practices to aid the student in
making vocational industrial education/health occupations education
career decisions.

WFED 105: Integrated Curriculum Implementation

3 Credits

Occupational analysis for instructional planning; emphasis on
instructional methods to deliver a competency based program in an
integrated learning environment.

WFED 106: Program and Facilities Management

3 Credits

Organization and management of learning laboratory to facilitate the
delivery of a competency based program in a safe environment.

WFED 197: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively
narrow subject which may be topical or of special interest.

WFED 199: Foreign Studies

1-12 Credits/Maximum of 12

Formal courses given infrequently to explore, in depth, a comparatively
narrow subject that may be topical or of special interest. Several different
topics may be taught in one year or semester. A specific title may be used
in each instance and will be entered on the student's transcript.

International Cultures (IL)

WFED 207W: Assessment Techniques

3 Credits

Assessment, recording, and reporting of learning in an integrated
competency based vocational education system.

Prerequisite: WF ED105

Writing Across the Curriculum

WFED 270: Introduction to Industrial Training

3 Credits

Overview of training profession. Introduction to economic and
psychological foundations. Examination of relationship of industrial
training to education. WF ED 270 Introduction to Industrial Training (3)
This course is designed to prepare individuals for a variety of training
practitioner roles in businesses and industry. This course is actually

the first of two courses and is an introduction to the required core
courses for emphasizing the training and development professional
curriculum in the Department of Adult Education, Instructional Systems
and Workforce Education and Development. It is the intent of this
course to equip participants with entry-level knowledge and skill to
successfully pursue other designated professional core courses on needs
assessment, organization development, and cross-cultural training.
All of these courses fall into the category called Human Resource
Development (HRD). Industry trainers have had the opportunity to
provide formal training to many persons with a wide variety of skills
and competencies. Previous train-the-trainer courses in this series have
addressed presentation techniques, assessment, facilities management
and safety. This course will help trainers gain a total understanding of
their role in the larger picture of Human Resource Development. Although
traditional education is often focused on helping individuals lead better
lives, training is usually focused specifically on the work that people do in
one organizational setting. HRD deals with the financial value of human
beings to organizations. In this course, the HRD field will be examined
with respect to the training component with which participants are
connected.

WFED 296: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on
an individual basis and which fall outside the scope of formal courses.

WFED 297: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively
narrow subject which may be topical or of special interest.

WFED 299: Foreign Studies

1-12 Credits/Maximum of 12

Formal courses given infrequently to explore, in depth, a comparatively
narrow subject that may be topical or of special interest. Several different
topics may be taught in one year or semester. A specific title may be used
in each instance and will be entered on the student's transcript.

International Cultures (IL)

WFED 310: Leadership Competencies for Supervisors

3 Credits

Designed to teach contemporary supervisory leadership competencies
for mid-career learners with front-line supervisory responsibilities in the
workplace. WF ED 310 Leadership Competencies for Supervisors (3)
Leadership Competencies for Supervisors is a course designed primarily
for adult learners engaged in supervisory roles and functions in the
workplace. Its purpose is to ensure that all students are equipped with
the contemporary supervisory leadership competencies that are needed
to function effectively in today's workplace. Upon completion of this
course, the student should be able to a) Recognize the important role and
function of supervisory leadership, b) Relate common critical situations
experienced by supervisors and how they were handled, c) Demonstrate
proficiency in competency areas important to supervisory success
such as effective communication strategies, methods for resolving
conflict, managing employees, etc., and d) Demonstrate ability to develop
individuals and teams. Students will be assessed and evaluated through

quizzes, instructor and peer observation, self-assessments and reflection, and demonstration of project deliverables.

Prerequisite: two years of work experience, or fourth-semester standing, or prior approval by instructor

WFED 323: Vocational Student Organizations

3 Credits

Methods in originating, managing, and advising vocational student organizations.

WFED 395A: Trade and Industrial Occupational Experience

1-8 Credits/Maximum of 24

Individual work experience in manufacturing environment or skilled craft area to develop professional competence in specific occupation.

Prerequisite: completion of an occupational learning period in the field of certification or field of specialization

Full-Time Equivalent Course

WFED 395B: Occupational Resources Competence

1-8 Credits/Maximum of 24

WF ED 395B Occupational Resources Competence (1-8 per semester/maximum of 24) Occupational Resources Competence is a course designed primarily for adult learners who demonstrate an adequate understanding of contemporary resource usage and management related competencies that are needed to function effectively in today's global business environment. These competencies include: resource usage, resource management, computer and basic literacy, and understanding of systems in the workplace. Students will demonstrate competence through documentation of tasks performed and reflection on specialized accomplishments.

Prerequisite: completion of a two-year formal learning period in the field of specialization

Full-Time Equivalent Course

WFED 395C: Occupational and Professional Competence

1-8 Credits/Maximum of 24

WF ED 395C Occupational and Professional Competence (1-8 per semester/maximum of 24) Occupational and Professional Competence is a course designed primarily for adult learners who demonstrate an adequate understanding of contemporary professional mastery related competencies that are needed to function effectively in today's global business environment. These competencies include: interpersonal competence, oral and written communication, conceptual thinking, learning and information, self-responsibility and management in the workplace. Students will demonstrate competence through documentation of tasks performed and reflection on specialized accomplishments.

Prerequisite: completion of a two-year formal learning period in the field of specialization

Full-Time Equivalent Course

WFED 395D: Occupational Work Experience

1-8 Credits/Maximum of 24

Individual work experience in the manufacturing, health, service, or financial arena.

Full-Time Equivalent Course

WFED 397: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

WFED 399: Foreign Studies

1-12 Credits/Maximum of 12

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest. Several different topics may be taught in one year or semester. A specific title may be used in each instance and will be entered on the student's transcript.

International Cultures (IL)

WFED 402: Supervision of Vocational Education

3 Credits

For administrators, supervisors, and teachers responsible for improvement of instruction through supervision or for students preparing for supervisory work.

WFED 403: Technologies for Work Effectiveness

3 Credits

This seminar-style course is designed to provide workforce professionals with opportunities to learn about contemporary workplace technologies, tools and platforms, share experiences, and to be able to make informed decisions regarding their use. The course will focus on technology affordance in specific contexts and a deeper understanding of the use of such technologies in terms of their benefits, costs and implementation challenges.

Prerequisite: 7th semester standing or higher or permission of program

WFED 405: Project Management for Professionals

3 Credits

Covers the essential concepts and skills needed to make effective contributions on projects, on time and within budget. WF ED (ENGR) 405 Project Management for Professionals (3) Professionals in the workplace carry out many different projects every day ranging from somewhat small tasks, e.g., planning events and designing courses, to big projects, e.g., launching an enterprise wide system. Project Management for Professionals is a practical "hands-on" course designed for mid-career adult students and covers the essential concepts and skills needed to make effective contributions and have an impact on the successful accomplishment of projects on time and within budget. Project management principles and techniques are presented with an emphasis on how they are applied to real world workforce development projects. Topics include the project management life cycle and process; techniques for planning, scheduling, budgeting, and controlling project

performance; project manager responsibilities and skills; project team development and effectiveness; project communication; and organization structures.

Enforced Prerequisite at Enrollment: 4th semester standing. Students with no 4th semester standing need to provide evidence to the instructor of their work experience.

Cross-listed with: ENGR 405

WFED 410: Leadership Competencies for Professionals

3 Credits

Designed to teach contemporary professional leadership competencies for workforce professionals who do not currently have supervisory responsibilities. WF ED 410 Leadership Competencies for Professionals (3) Leadership Competencies for Professionals is a course designed primarily for adult learners who demonstrate high leadership potential and who may not have significant supervisory and managerial responsibilities. Its purpose is to ensure that all students develop an adequate understanding of the contemporary professional leadership competencies that are needed to function effectively in today's global business environment. These competencies include: collaboration / multi-disciplinary team-building, leadership in diversely distributed team environments, interpersonal communication in the workplace, conflict resolution / human performance management, project management, problem-solving / creative thinking / ethical decision making, and contemporary and emerging technology usage. Students will be assessed and evaluated through quizzes, instructor and peer observation, self-assessments and reflection, and team projects and presentations.

Prerequisite: two years of work experience, or fourth-semester standing, or prior approval by instructor

WFED 411: Occupational Safety and Health for Workforce Education and Development Professionals

3 Credits

This course assists participants in creating and supporting workplaces and educational environments free of occupational safety and health hazards. WF ED 411 Occupational Safety and Health for Workforce Education and Development Professionals (3) This course is designed to offer participants the knowledge and skills they need to create and support workplaces and educational environments free of occupational safety and health hazards. It provides Occupational Safety and Health Administration (OSHA) compliance and workplace safety training to educators, managers, supervisors, and other employees in the Career and Technical Education field as well as the Oil and Gas Drilling Industry, Advanced Manufacturing, and Construction industries.

Prerequisite: a minimum of 2 years work experience or 4th semester standing

WFED 413: Workforce Education for Diverse Learners

3 Credits

This course assists students in creating and supporting educational environments which promote enhanced learning and skill development for diverse learners. A primary focus is placed on program modifications, supplementary services, and resources required for diverse learners (including learners with disabilities) in workforce development and education programs. Topics such as the role of assessment and how it can be utilized to bring about positive changes in curriculum

and pedagogy to promote the transfer of learning will be addressed. This course will also introduce participants to instructional tools and strategies that will help teach to multiple levels of student abilities. Workforce education program modifications, supplementary services, and resources required for diverse learners will be provided throughout this course. Students will also learn to develop specialized adaptations and accommodations for diverse learners.

WFED 414: Teaching Career and Technical Education Content to Diverse Learners

3 Credits

This course explores the legal aspects of transitioning students from school to college and work, to assist Career and Technical Education (CTE) teachers in becoming active participants in assisting learners with special needs. Topics such as the role of assessment and how it can be used to bring about positive changes in curriculum and pedagogy to promote enhanced learning and skill development will be addressed. This course will also introduce participants to instructional tools and strategies that will help teach to multiple levels of student abilities. This course explores the legal aspects of transitioning students from school to college and work, to assist Career and Technical Education (CTE) teachers in becoming active participants in assisting learners with special needs. Topics such as the role of assessment and how it can be used to bring about positive changes in curriculum and pedagogy to promote enhanced learning and skill development will be addressed. This course will also introduce participants to instructional tools and strategies that will help teach to multiple levels of student abilities. Workforce education program modifications, supplementary services, and resources required for diverse learners will be provided throughout this course. Students will learn to develop specialized adaptations and accommodations based on educational research to promote the transfer of knowledge and skill. Special attention will be placed on data driven decisions in workforce education and the role CTE teachers.

Prerequisite: WFED 105

WFED 424: Facilitating Career Development

3 Credits

This course provides individuals with relevant skills and knowledge to assist others in planning careers and obtaining meaningful work. CN ED (WF ED) 424 Facilitating Career Development (3) This course provides individuals with relevant skills and knowledge to assist others in planning careers and obtaining meaningful work. This course addresses the following 12 Career Development Facilitator (CDF) competencies: 1) helping skills, 2) labor market information and resources, 3) assessment, 4) diverse populations, 5) ethical and legal issues, 6) career development models, 7) employability skills, 8) training clients and peers, 9) program management/implementation, 10) promotion and public relations, 11) technology, and 12) consultation. These 12 competencies are identified by the National Career Development Association (NCDA) for those who (will) deliver career development programs and services in a variety of settings. Potential job titles of CDFs include career group facilitator, job search trainer, career resource center coordinator, career coach, career development case manager, intake interviewer, occupational and labor market information resource person, human resource career development coordinator, employment/placement specialist, and workforce development staff. With certain years of work experience in career development, students who complete this course are eligible to apply for the Global Career Development Facilitator (GCDF) certification through the Center for Credentialing & Education (CCE), which is affiliated

with the National Board for Certified Counselors (NBCC). A GCDF is a person who works in any career development setting or who incorporates career development information or skills in their work with students, adults, clients, employees, or the public. As of January 2011, about 18,000 individuals acquired the GCDF certification world-wide including Bulgaria, Canada, China, Germany, Japan, Romania, Turkey, South Korea, and New Zealand. The goal of the GCDF credential was to provide standards, training specifications, and credentialing for diverse career development practitioners. This GCDF credential differentiates two levels of career practice, which are 1) career counseling and 2) career facilitation that does not require a counseling degree. This differentiation reflected the reality where many individuals who are currently providing career assistance are not professional counselors. This course is taught by a nationally and internationally trained CDF Instructor (CDFI) who is certified by the NCDA. In addition, the CDF curriculum is updated every three years by the Career Development Leadership Alliance (CDLA) under the supervision of the NCDA CDF Advisory Council in order to keep up with recent changes in the field.

Prerequisite: 300-400 level Psychology, HD FS, or Education courses or permission of the program
Cross-listed with: CNED 424

WFED 428: Fiscal Accounting and Management for Workforce Development Professionals

3 Credits/Maximum of 3

This course explores the subject of accounting through the sub-disciplines of financial and managerial accounting for Workforce Development Professionals.

Prerequisite: two years of work experience, or fifth semester standing, or prior approval by instructor

WFED 441: Conceptual and Legal Bases for Cooperative Vocational Education

2 Credits

History, conceptual and legal bases for a cooperative vocational education program.

Prerequisite: WF ED445

WFED 442: Operating Cooperative Vocational Education Programs

2 Credits

Student and training station selection, training plan and related subject development, records and reporting systems, school-industry coordination.

Prerequisite: WF ED441

WFED 445: Vocational Guidance

3 Credits

Problems and possibilities of vocational guidance; the field of guidance and guidance literature; methods of field work; school guidance techniques.

Prerequisite: WF ED105 ; fourth-semester standing

WFED 450: Cultural Diversity in the Workplace

3 Credits

Provides opportunities for students to explore different cultures and mores that are changing the dynamics of the workplace.

International Cultures (IL)
United States Cultures (US)

WFED 451: Lean-Sigma for Professionals

3 Credits

The course focuses on essential lean and six sigma concepts to improve processes in any industry.

Prerequisite: two years of relevant work experience or fourth semester standing or prior approval by program

WFED 471: Training in Industry and Business

3 Credits

Appraisal of training functions and development of competencies in work analysis, design, development, delivery, and evaluation of training.

Prerequisite: seventh-semester standing or higher

WFED 472: Platform Skills for Workplace Learning and Performance

3 Credits

Platform skills focuses on theory and practice related to delivering well-crafted and effective training presentations. Platform skills are particularly critical in business, industry and technical education, as the content covered in these fields involves direct application of the cognitive, affective and psychomotor learning domains in real world situations. Therefore, the purpose of this course is to provide participants with the skills and abilities needed to develop and deliver high quality professional presentations within business, industry and applied educational settings. Through this highly dynamic and interactive course, students will enjoy using their creativity to successfully communicate important information through oral presentations. A major emphasis will be placed experiential teaching and learning techniques and theory to practice connections which will enable participants to develop and deliver well-crafted and effective training presentations, while having fun in the process.

WFED 495: Internship

1-6 Credits/Maximum of 6

Supervised off-campus, nongroup instruction including field experiences, practicums, or internships. Written and oral critique of activity required.

Prerequisite: prior approval of proposed assignment by instructor

WFED 495A: Cooperative Education Practicum

2 Credits

Validation of competencies learned in prerequisite courses during interaction with professional staff while functioning under the supervision of a certified cooperative coordinator.

Prerequisite: WF ED445

WFED 495C: Student Teaching

10 Credits/Maximum of 10

Supervised observation and practice teaching in approved vocational industrial schools/health occupations education settings.

Prerequisite: successful completion of occupational competency evaluation. PA Act 34 clearance required. In addition, non-Pennsylvania residents must provide evidence of an FBI background information check. (Forms: 228 Chambers)

WFED 495D: Instructional Internship in Industrial Training

5 Credits

Supervised internship in industrial training. Interns will be expected to perform instructional duties in industrial environments.

Prerequisite: WF ED105 , WF ED106 , WF ED207W , WF ED270 , WF ED471 ; successful completion of occupational competency examination

WFED 496: Independent Studies

1-18 Credits/Maximum of 18

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

WFED 497: Special Topics

1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest.

WFED 499: Foreign Studies

1-12 Credits/Maximum of 12

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest. Several different topics may be taught in one year or semester. A specific title may be used in each instance and will be entered on the student's transcript.

International Cultures (IL)**World Languages Education (WLED)****WLED 300: Foundations of Second Language Teaching**

3 Credits

Critical understanding of basic concepts and principles in second language acquisition and teaching. WLED 300 Foundations of Second Language Teaching (3) This course is designed to give prospective World Languages teachers a critical understanding of basic concepts and principles in, first and second language acquisition and teaching. The core of the course explicates processes of language acquisition viewed from major theories of first and second language acquisition and common issues within these major theories are presented and debated. This course should be taken concurrently with WLED 295A (Early Field Experience for World Languages Teacher preparation). Using the field experience component, students will be able to critically examine language teaching methodologies derived and implied from first and second language acquisition theories and to apply them while in their field experience. This course requires participating in the field experience

component, group-reflections and self-critique as well as to complete the required readings, and to develop a professional growth portfolio including the four domains stated in the Penn State model of Teacher Preparation (planning and preparing for student learning; teaching; inquiring and analyzing learning and teaching- and professionalism). This course should be taken concurrently with the Early Field Experience for World Languages Teacher Preparation (WLED 295A).

Concurrent: WL ED295A**WLED 399A: Language Learning Through Study Abroad**

3 Credits

Use of online technologies during study abroad to promote language and culture learning and to consider implications for teaching.

Prerequisite: WL ED300**WLED 400: Foundations of Language in Second Language Teaching**

3 Credits

Critical understanding of basic concepts and principles in second language acquisition and teaching. WLED 400 Foundations of Language in Second Language Teaching (3) This is an advanced course designed for practicing classroom teachers who want to further their knowledge of language acquisition/language teaching. It provides a critical understanding of basic concepts and principles in first and second language acquisition and teaching. The core of the course explicates processes of language acquisition viewed from major theories of first and second language acquisition and common issues within these major theories are presented and debated. Using their classroom experiences, students will be able to critically examine language teaching methodologies derived and implied from first and second language acquisition theories and to apply them in their classrooms. This course requires active participation, group-reflections and self-critique, and completion of required readings; 20-30 hours of volunteer work in an ESL setting; and development of a professional growth portfolio including the four domains stated in the Penn State Model of Teacher Preparation (planning and preparing for student learning; teaching; inquiring and analyzing learning and teaching; and professionalism) and the competencies for English Usage and Developing Linguistic Awareness stated by the Pennsylvania Department of Education.

Prerequisites: Second semester standing**WLED 411: Methods of Teaching World Languages in Grades 1-5**

3 Credits

Exploration of the complexity of teaching World Languages and development of curricular designs for teaching in grades 1-5 schools. WLED 411 Methods for Teaching World Languages in Grades 1-5 In this course prospective World Languages teachers will engage in a variety of theoretical, pedagogical and reflective events to explore the complex nature of language learning/teaching including (1) individual beliefs and knowledges, (2) issues related to language/power, (3) language/cultural diversity, and (4) development of curricular designs for teaching World Languages in grades 1 - 5. This course will be conducted in a workshop style. It will have three parallel strands: (a) we will review together basic concepts and principles of language learning/teaching through readings, class discussions and presentations; (b) make connections between the readings and the L2 experience in the Practicum-World Languages

Teaching in grades 1-5 (WLED 495B); and (c) as a group, the class will design thematic units, class plans, activities and didactic materials.

Prerequisite: EDPSY014 , EDTHP115 , WL ED295A , WL ED300;
Concurrent: WL ED495B

WLED 412M: Methods of Teaching World Languages in Grades 6-12

3 Credits

Exploring the complexity of teaching World Languages and development of curricular designs for teaching World Languages in grades 6-12. WL ED 412W Methods of Teaching World Languages in Grades 6-12 (3)The purpose of this course is to help students develop a principled approach to designing and implementing lessons in their World Language classroom. Specifically, students will work towards an understanding of the processes of developing abilities in a second language that acknowledges a range of theories and associated methods but that is also situated within a particular theoretical framework of language and language learning. In this way, students will be better positioned to make the myriad instructional decisions they will face in middle school and high school contexts, ranging from materials development to lesson planning and classroom management to assessment. This is a writing-intensive course. Students will engage in a variety of formal and informal writing activities both in and out of class. Taken together, these activities function to enhance students' abilities as both producers and consumers of a range of texts relevant to their teaching practice. In addition, writing is understood to be a process integral to the fulfillment of each of the course goals.

Honors

Writing Across the Curriculum

WLED 412W: Methods of Teaching World Languages in Grades 6-12

3 Credits

Exploring the complexity of teaching World Languages and development of curricular designs for teaching World Languages in grades 6-12. WLED 412 Methods of Teaching World Languages in Grades 6-12 (3)The purpose of this course is to help students develop a principled approach to designing and implementing lessons in their World Language classroom. Specifically, students will work towards an understanding of the processes of developing abilities in a second language that acknowledges a range of theories and associated methods but that is also situated within a particular theoretical framework of language and language learning. In this way, students will be better positioned to make the myriad instructional decisions they will face in middle school and high school contexts, ranging from materials development to lesson planning and classroom management to assessment. This is a writing-intensive course. Students will engage in a variety of formal and informal writing activities both in and out of class. Taken together, these activities function to enhance students' abilities as both producers and consumers of a range of texts relevant to their teaching practice. In addition, writing is understood to be a process integral to the fulfillment of each of the course goals.

Writing Across the Curriculum

WLED 444: Language, Culture and the Classroom: Issues for Practitioners

3 Credits

Critical understanding of cultural linguistic diversity to facilitate the inclusion of English Language Learners in a globalized classroom.

CIED 444 WLED 444 Language, Culture and the Classroom: Issues for Practitioners (3) In this course we will focus on the issues of power raised by the use of Standard English as the school language while in its grounds there are an increasing number of students who are using more than one language/dialect to communicate. We will also discuss how language mutates into an exceptional hegemonic/counterhegemonic device central to the problematic regarding school socialization. Finally, we will critically understand teachers' and schools' roles in building a safe classroom where diversity of languages and cultures are welcome and encouraged.

Prerequisite: WL ED300 or WL ED400

Cross-listed with: CIED 444

WLED 483: Evaluating Schools Performances and Programs with English Language Learners (ELLs)

3 Credits

Using/adapting multiple techniques to assess English Language Learners (ELLs) language and other school subjects. WL ED 483 Evaluating Schools Performances and Programs with English Language Learners (ELLs) (3) This course provides students with knowledge of a variety of assessment instruments to identify and monitor levels of second language and content proficiencies of English Language Learners (ELLs). Students will learn multiple assessment models used in English as a Second Language (ESL) programs. Students will establish connections between assessment and instruction for English Language Learners, as well as gain knowledge about services available, such as instructional support, multidisciplinary teams, and other assessment services for English Language Learners. This course requires active participation, group-reflections, discussions and activities as well as to develop a professional growth portfolio including the four domains stated in the Penn State model of Teacher Preparation (planning and preparing for student learning; teaching; inquiring and analyzing learning and teaching; and professionalism) and the competences for English Language Learners (ELLs) Language and Support Services Knowledge stated by the Pennsylvania Department of Education.

Prerequisite: WL ED300 or WL ED400

WLED 495: **SPECIAL TOPICS**

3 Credits

WLED 495B: Field Experience for World Languages Teacher Preparation in Grades 1-5

3 Credits/Maximum of 3

WL ED 495B Field Experience for World Languages Teacher Preparation in Grades 1-5 (3) Practicum situation where Prospective World Language teachers will demonstrate acquired knowledge on second language learning/teaching and educational theories. Prospective World Language teachers will have assigned school placements and will attend a weekly seminar where issues in World Language learning and teaching will be discussed. At their assigned school placement, prospective World Language teachers will have many opportunities to observe/work with children in grades 1-5 (1) focusing on second language learning/teaching and the socio/cultural issues associated to classroom practices while implementing and self-evaluated own designed activities and lessons; (2) weekly seminars will engage students in reflective activities that will enable them to analyze each week's events; (3) inquiry projects on teaching and learning of World Languages.

Prerequisites: EDPSY 14, EDTHP 115, WLED 300 Recommended

Preparation: Official clearances required. See: <http://www.ed.psu.edu/preservice/clearance.htm>

WLED 495C: Field Experience for World Languages Teacher Preparation in Grades 6-12

3 Credits/Maximum of 3

WL ED 495C Field Experience for World Languages Teacher Preparation in Grades 6-12 (3) Practicum situation where prospective World Language teachers will demonstrate acquired knowledge on second language learning/teaching and educational theories. Prospective World Language teachers will have assigned school placements in grades 6-12 and will attend a weekly seminar where issues in World Language learning and teaching will be discussed. At their assigned school placement, prospective World Language teachers will have many opportunities to observe/work with students in grades 6-12 (1) focusing on second language learning/teaching and the socio/cultural issues associated to classroom practices while implementing and self-evaluating their own designed activities and lessons, (2) weekly seminars will engage students in reflective activities that will enable them to analyze each week's events, and (3) inquiry projects on teaching and learning of World Languages.

Prerequisites: WLED 411, WLED 495B Recommended Preparation:

Official clearances required. See: <http://www.ed.psu.edu/preservice/clearance.htm>

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Child Maltreatment and Advocacy Studies, Minor	1111	Comparative Literature (CMLIT)	3690
Chinese, B.A.	1188	Computational Sciences, Minor	827
Chinese (CHNS)	3586	Computer Engineering, B.S. (Behrend)	2061
Chinese Language, Minor	1187	Computer Engineering, B.S. (Engineering)	828
Civic and Community Engagement (CIVCM)	3593	Computer Engineering (CMPEH)	3708
Civic and Community Engagement, Minor	1112	Computer Engineering (CMPEN)	3708
Civil Engineering, B.S. (Capital)	2319	Computer Engineering, Minor (Behrend)	2065
Civil Engineering, B.S. (Engineering)	822	Computer Engineering, Minor (Engineering)	832
Civil Engineering (CE)	3593	Computer Engineering Technology - CA (CMPET)	3714
Civil Engineering Technology (CET)	3602	Computer Science, B.S. (Abington)	1577
Classics and Ancient Mediterranean Studies, B.A.	1192	Computer Science, B.S. (Behrend)	2066
Classics and Ancient Mediterranean Studies (CAMS)	3603	Computer Science, B.S. (Capital)	2333
Classics and Ancient Mediterranean Studies, Minor	1199	Computer Science, B.S. (Engineering)	833
Classification of Students by Semester	3167	Computer Science (CMPSC)	3717
Classification of Undergraduate Students	3165	Computer Science, Minor (Behrend)	2070
Climate and Environmental Change, Certificate	348	Computer Science, Minor (Capital)	2339
Climatology, Minor	349	Confidentiality of Student Records	3181
Code of Conduct	3183	Corporate Communication, B.A. (Abington)	1586

Corporate Communication, B.A. (University College)	2742	Dance Studies, Minor	1755
Corporate Communication (CC)	3729	Data Analytics (DA)	3770
Corporate Communication, Minor	2755	Data Sciences, B.S. (Engineering)	843
Corporate Innovation and Entrepreneurship, B.S.	2539	Data Sciences, B.S. (Information Sciences and Technology)	1048
Counselor Education (CNED)	3730	Data Sciences, B.S. (Science)	559
Course Lists	3189	Data Sciences (DS)	3771
Course Placements	3178	Data Visualization, Minor	2077
Courses	3169	Degree and Program Types	3160
Creative Writing, B.F.A.	2072	Degree Audit	3178
Creative Writing, Minor	1214	Degree Requirements	3162
Credits	3171	Development and Sustainability in Africa, Certificate	1228
Crime, Law, and Psychology, Minor	2075	Digital Arts and Media Design, B.Des.	216
Crime, Psychology, and Public Policy, Certificate	2076	Digital Arts, Certificate	221
Criminal Justice, A.S. (Altoona)	1733	Digital Arts (DART)	3775
Criminal Justice, A.S. (Capital)	2340	Digital Humanities, Minor	1228
Criminal Justice, A.S. (University College)	2757	Digital Journalism and Media, B.A.	309
Criminal Justice, B.A. (Abington)	1591	Digital Media, Arts, and Technology, B.A.	2079
Criminal Justice, B.A. (Altoona)	1736	Digital Media, Arts, and Technology (DIGIT)	3780
Criminal Justice, B.A. (Berks)	1897	Digital Media Trends and Analytics, Minor	311
Criminal Justice, B.A. (University College)	2760	Digital Multimedia Design, B.Des.	222
Criminal Justice, B.S. (Abington)	1597	Digital Multimedia Design (DMD)	3781
Criminal Justice, B.S. (Altoona)	1741	Direct Admit Majors	3159
Criminal Justice, B.S. (Berks)	1902	Disability Studies, Minor	1115
Criminal Justice, B.S. (Capital)	2342	Dispute Management and Resolution, Minor	1229
Criminal Justice, B.S. (University College)	2775	Distinction and Honors	3173
Criminal Justice (CRIMJ)	3733	Diversity and Inclusion in Health and Human Development, Minor	949
Criminal Justice, Minor	1746	Diversity Studies, Certificate (Liberal Arts)	1230
Criminology, B.A.	1215	Diversity Studies, Certificate (University College)	2803
Criminology, B.S.	1221	Division of Undergraduate Studies	297
Criminology (CRIM)	3744	Donald P. Bellisario College of Communications	299
Curriculum and Instruction (CI)	3751	E	
Cybersecurity Analytics and Operations, B.S. (Abington)	1602	Early Development and Education, Minor	682
Cybersecurity Analytics and Operations, B.S. (Altoona)	1748	Earth and Mineral Sciences	346
Cybersecurity Analytics and Operations, B.S. (Berks)	1907	Earth and Mineral Sciences (EMSC)	3782
Cybersecurity Analytics and Operations, B.S. (Capital)	2347	Earth and Sustainability, Minor	350
Cybersecurity Analytics and Operations, B.S. (Information Sciences and Technology)	1040	Earth Science and Policy, B.S.	352
Cybersecurity Analytics and Operations, B.S. (University College)	2790	Earth Sciences, B.S.	365
Cybersecurity Analytics and Operations (CYBER)	3757	Earth Sciences (EARTH)	3785
Cybersecurity Computational Foundations, Minor	842	Earth Sustainability, Certificate	370
D		Earth Systems, Minor	371
Dance (DANCE)	3759	East European Studies, Minor	1233
		Eberly College of Science	497

Economics, B.A. (Behrend)	2084	Energy Finance, Certificate	2101
Economics, B.A. (Liberal Arts)	1234	Engineering	766
Economics, B.S.	1239	Engineering and Community Engagement, Certificate	870
Economics (ECON)	3790	Engineering, B.S.	882
Economics, Minor	1244	Engineering Design, Certificate	872
Education	677	Engineering Design (EDSGN)	3866
Education and Public Policy, B.S.	683	Engineering Design, Minor	873
Education and Public Policy, Minor	687	Engineering Design with Digital Tools, Certificate	872
Education (EDUC)	3801	Engineering (ENGR)	3855
Education Mathematics - CA (EDMTH)	3810	Engineering Graphics Technology (EGT)	3872
Educational Psychology (EDPSY)	3811	Engineering Leadership Development, Minor	875
Educational Theory and Policy (EDTHP)	3814	Engineering Mechanics (EMCH)	3873
Electrical and Computer Engineering Technology, B.S.	2087	Engineering Mechanics, Minor	876
Electrical Engineering, B.S. (Behrend)	2097	Engineering Science, B.S.	877
Electrical Engineering, B.S. (Capital)	2360	Engineering Science (ESC)	3877
Electrical Engineering, B.S. (Engineering)	859	Engineering Technology (ET)	3886
Electrical Engineering (EE)	3818	English as a Second Language (ESL)	3933
Electrical Engineering Technology, A.ENG.T. (Behrend)	2093	English, B.A. (Abington)	1607
Electrical Engineering Technology, A.ENG.T. (Engineering)	848	English, B.A. (Altoona)	1764
Electrical Engineering Technology, B.S. (Capital)	2354	English, B.A. (Behrend)	2102
Electrical Engineering Technology, B.S. (Engineering)	854	English, B.A. (Liberal Arts)	1245
Electrical Engineering Technology (EET)	3833	English, B.A. (University College)	2804
Electro-Mechanical Engineering Technology, B.S. (Altoona)	1756	English, B.Hum.	2381
Electro-Mechanical Engineering Technology, B.S. (Berks)	1913	English (ENGL)	3887
Electro-Mechanical Engineering Technology, B.S. (Engineering)	863	English, Minor (Behrend)	2106
Electro-Mechanical Engineering Technology (EMET)	3841	English, Minor (Liberal Arts)	1250
Electrochemical Engineering, Minor	372	English Placement	3178
Elementary and Early Childhood Education, B.S.	688	Enterprise Resource Planning with Oracle, Certificate	2107
Elementary and Kindergarten Education, B.S. (Altoona)	1761	Enterprise Resource Planning with SAP, Certificate	2108
Elementary and Kindergarten Education, B.S. (Berks)	1918	Enterprise Technology Integration, B.S. (Capital)	2390
Elementary and Kindergarten Education, B.S. (Education)	702	Enterprise Technology Integration, B.S. (Information Sciences and Technology)	1056
Elementary Education, B.El.Ed.	2363	Enterprise Technology Integration (ETI)	3934
Elementary Education in Multicultural Settings (ELEDM)	3846	Entomology (ENT)	3936
Energy and Geo-Environmental Engineering (EGEE)	3846	Entomology, Minor	71
Energy and Mineral Engineering (EME)	3852	Entrance to Major	3161
Energy and Sustainability Policy, B.A.	373	Entrepreneurship and Innovation, Minor	1116
Energy and Sustainability Policy, B.S.	377	Entrepreneurship (ENTR)	3939
Energy Business and Finance, B.S.	380	Entrepreneurship, Minor	1769
Energy Business and Finance (EBF)	3853	Environment and Society Geography, Certificate	399
Energy Business and Finance, Minor	391	Environmental and Renewable Resource Economics, Minor	72
Energy Engineering, B.S.	392	Environmental Engineering (ENVE)	3940
Energy Engineering, Minor	398	Environmental Engineering, Minor	891

Environmental Inquiry, Minor	1122	Forest Technology, A.S.	107
Environmental Resource Management, B.S.	73	Forest Technology (FORT)	3972
Environmental Resource Management (ERM)	3942	Forestry (FOR)	3975
Environmental Resource Management, Minor	83	Foundations and Knowledge Domains	3185
Environmental Science, B.S.	2110	Foundations of Business, Certificate	2813
Environmental Science (ENVSC)	3947	Foundations of Organizational Leadership, Certificate	1921
Environmental Soil Science, Minor	84	French and Francophone Studies, B.A.	1254
Environmental Studies, B.A.	1770	French and Francophone Studies, B.S.	1261
Environmental Studies, B.S.	1773	French and Francophone Studies, Minor	1267
Environmental Studies (ENVST)	3948	French (FR)	3982
Environmental Studies, Minor	1776	Fuel Science (FSC)	3991
Environmental Systems Engineering, B.S.	400	Functional Data Analytics, B.S.	2125
Environmental Systems Engineering (ENVSE)	3950		
Environmental Systems Engineering, Minor	409	G	
Equine Science, Minor	85	Game Development, Minor	2128
Ethics, Minor	1252	Gaming (GAME)	3991
Examinations	3173	General Arts and Sciences, B.A.	2130
		General Business, A.S.	2133
F		General Education	3183
Film Production, B.A.	312	General Education Learning Objectives	3183
Film Studies, Minor	316	General Information	3118
Finance, B.S. (Abington)	1612	Geobiology, B.S.	410
Finance, B.S. (Behrend)	2116	Geographic Information Science, Certificate	415
Finance, B.S. (Business)	2544	Geographic Information Science, Minor	416
Finance, B.S. (Capital)	2395	Geography, B.A.	417
Finance (FIN)	3951	Geography, B.S.	425
Finance, Minor	2120	Geography (GEOG)	3995
Financial Controllership, Certificate	2121	Geography, Minor	431
Financial Planning, Certificate	2123	Geophysics, Minor	433
Financial Risk Management, Certificate	2124	Geosciences, B.A.	434
Financial Services (FINSV)	3960	Geosciences, B.S.	439
First-Year Seminar (CAP)	3961	Geosciences (GEOSC)	4018
First-Year Seminar Courses	3226	Geosciences, Minor	448
First-Year Seminars and Engagement Plans	3180	Geospatial Big Data Analytics, Certificate	449
Food Science, B.S.	86	German, B.A.	1268
Food Science (FDSC)	3961	German, B.S.	1271
Food Systems (FDSYS)	3967	German (GER)	4029
Food Systems, Minor	91	German, Minor	1278
Forensic Arts (FRNAR)	3968	German Studies, Certificate	2136
Forensic Science, B.S.	566	Global and International Studies, B.A.	1280
Forensic Science (FRNSC)	3968	Global and International Studies, B.S.	1284
Forest Ecosystem Management, B.S.	93	Global and International Studies (GLIS)	4037
Forest Ecosystems, Minor	106	Global and International Studies Major	1279

Global and International Studies, Minor	1288	Homeland Security (HLS)	4098
Global Awareness, Certificate	2138	Homeland Security, Minor	2405
Global Environmental Systems, Certificate	451	Honors (HONOR)	4099
Global Health, Minor	950	Horticulture (HORT)	4100
Global Language and Culture, Minor	1777	Horticulture, Minor	110
Global Security, Minor	1289	Hospitality Management, B.S. (Berks)	1927
Global Studies, B.A.	1922	Hospitality Management, B.S. (Health and Human Development)	961
Global Studies, Minor	1926	Hospitality Management (HM)	4105
Grading System	3171	Housing, Certificate	893
Graduation	3164	Human Capital Management, B.S.	2406
Graphic Design, B.Des.	226	Human Capital Management, Certificate	2409
Graphic Design (GD)	4039	Human Development and Family Studies, A.S. (Altoona)	1782
Graphic Design, Minor	229	Human Development and Family Studies, A.S. (Health and Human Development)	966
Greek (GREEK)	4044	Human Development and Family Studies, A.S. (University College) ...	2824
Greek, Minor	1291	Human Development and Family Studies, B.S. (Altoona)	1786
H		Human Development and Family Studies, B.S. (Capital)	2410
Health and Human Development	933	Human Development and Family Studies, B.S. (Health and Human Development)	973
Health and Human Development (HHD)	4045	Human Development and Family Studies, B.S. (University College) ...	2841
Health and Wellness Courses	3227	Human Development and Family Studies (HDFS)	4115
Health Education (HLHED)	4047	Human Development and Family Studies, Minor	983
Health Humanities, B.A.	1615	Human Factors, Certificate	2143
Health Humanities, B.S.	1619	Human Resource Management (HRM)	4128
Health Humanities (HHUM)	4048	Human Resource Management, Minor	2417
Health Policy and Administration, B.S. (Capital)	2399	Human-Centered Design and Development, B.S. (Capital)	2418
Health Policy and Administration, B.S. (Health and Human Development)	952	Human-Centered Design and Development, B.S. (Information Sciences and Technology)	1061
Health Policy and Administration, B.S. (University College)	2814	Human-Centered Design and Development (HCDD)	4129
Health Policy and Administration (HPA)	4048	Humanities - CA (HUM)	4130
Health Policy and Administration, Minor	959	Humanities and Social Sciences (HSS)	4133
Healthcare Informatics, Certificate	2824	Humanities, B.A. (Capital)	2424
Hebrew (HEBR)	4055	Humanities, B.A. (University College)	2864
Hebrew, Minor	1292	Humanities Courses	3228
Higher Education (HIED)	4057		
Hindi (HINDI)	4058	I	
History, B.A. (Abington)	1622	Immunology and Infectious Disease, B.S.	111
History, B.A. (Altoona)	1779	Industrial Engineering, B.S. (Behrend)	2145
History, B.A. (Behrend)	2139	Industrial Engineering, B.S. (Engineering)	894
History, B.A. (Liberal Arts)	1293	Industrial Engineering (IE)	4134
History (HIST)	4058	Industrial Engineering Technology (IET)	4140
History, Minor (Behrend)	2142	Information Sciences and Technology	1038
History, Minor (Liberal Arts)	1297	Information Sciences and Technology, A.S. (Berks)	1932
Holocaust and Genocide Studies, Certificate	1298	Information Sciences and Technology, A.S. (Information Sciences and Technology)	1068

Information Sciences and Technology, A.S. (University College)	2868	Interdisciplinary Business with Engineering Studies, B.S.	2149
Information Sciences and Technology, B.S. (Capital)	2428	Interdisciplinary Science and Business, B.S.	2153
Information Sciences and Technology, B.S. (Information Sciences and Technology)	1072	Interdisciplinary Science and Business (ISB)	4165
Information Sciences and Technology, Certificate	1078	International Agriculture (INTAG)	4166
Information Sciences and Technology for Accounting, Minor	2428	International Agriculture, Minor	116
Information Sciences and Technology for Aerospace Engineering, Minor	898	International Arts, Minor	234
Information Sciences and Technology for Earth and Mineral Sciences, Minor	452	International Business Administration, Minor	2449
Information Sciences and Technology for Industrial Engineering, Minor	899	International Business, B.S.	2158
Information Sciences and Technology for Labor Studies and Employment Relations, Minor	1299	International Business (IB)	4168
Information Sciences and Technology for Mathematics, Minor	575	International Business, Minor	2549
Information Sciences and Technology for Telecommunications, Minor	317	International Cultures (IL) Courses	3241
Information Sciences and Technology in Communication Arts and Sciences and Labor and Employment Relations, Minor	1300	International Engineering, Certificate	900
Information Sciences and Technology in Health Policy and Administration, Minor	986	International Engineering, Minor	901
Information Sciences and Technology (IST)	4140	International Politics, B.A.	1304
Information Sciences and Technology, Minor	1079	International Science, Certificate	591
Information Sciences and Technology/Finance, Minor	2435	International Studies, Certificate	2971
Information Systems Auditing, Certificate	1793	International Studies (INTST)	4171
Information Systems, B.S.	2436	Internship (INTSP)	4171
Information Systems Management, Minor	2549	Introduction to Business Management, Certificate	2972
Information Systems Security, Certificate	1794	Introduction to Corporate Communication, Certificate	2973
Information Technology, B.S. (Abington)	1626	Italian, B.A.	1315
Information Technology, B.S. (Altoona)	1794	Italian, B.S.	1319
Information Technology, B.S. (Berks)	1940	Italian (IT)	4172
Information Technology, B.S. (University College)	2887	Italian, Minor	1322
Information Technology (ITECH)	4157	J	
Instructor Development for Professionals, Certificate	705	Japanese, B.A.	1324
Integrated Social Sciences, B.S.	1301	Japanese (JAPNS)	4178
Integrative Arts, B.A. (Abington)	1639	Japanese Language, Minor	1323
Integrative Arts, B.A. (Arts and Architecture)	230	Jazz Performance, Minor	235
Integrative Arts (INART)	4157	Jewish Studies, B.A.	1328
Integrative Science, B.S. (Abington)	1642	Jewish Studies (JST)	4185
Integrative Science, B.S. (Berks)	1955	Jewish Studies, Minor	1332
Integrative Science, B.S. (Capital)	2441	Joint Service ROTC	3284
Integrative Science, B.S. (Science)	576	Journalism, B.A.	318
Integrative Science, B.S. (University College)	2961	Journalism, Minor	326
Integrative Studies	3188	Justice, Ethics, Diversity in Space, Certificate	453
Integrative Studies: Inter-Domain Courses	3237	K	
Intercollege	1094	Keystone Certificate for Integrative Humanities, Certificate	1963
		Kinesiology, B.S. (Altoona)	1802
		Kinesiology, B.S. (Berks)	1968
		Kinesiology, B.S. (Capital)	2450
		Kinesiology, B.S. (Health and Human Development)	987

Kinesiology (KINES)	4202	Management Information Systems, B.S. (Behrend)	2162
Kinesiology, Minor	1001	Management Information Systems, B.S. (Business)	2551
Korean, B.A.	1334	Management Information Systems, Minor	2166
Korean (KOR)	4238	Management Information Systems (MIS)	4294
Korean Language, Minor	1333	Management (MGMT)	4284
L		Management, Minor	2974
Labor and Employment Relations (LER)	4243	Marine Sciences, Minor	592
Labor and Human Resources, A.S.	1338	Marketing, B.S. (Behrend)	2167
Labor and Human Resources, B.A.	1340	Marketing, B.S. (Business)	2562
Labor and Human Resources, B.S.	1346	Marketing, B.S. (Capital)	2461
Labor and Human Resources, Certificate	1354	Marketing, Minor	2171
Labor and Human Resources (LHR)	4245	Marketing (MKTG)	4301
Labor and Human Resources, Minor	1355	Materials Engineering Technology (MAET)	4307
Landscape Architecture, B.L.A.	236	Materials Science and Engineering, B.S.	457
Landscape Architecture (LARCH)	4255	Materials Science and Engineering (MATSE)	4307
Landscape Architecture, Minor	240	Materials Science and Engineering, Minor	2465
Landscape Contracting, B.S.	118	Mathematical Sciences, B.S.	2466
Landscape Ecology, Certificate	455	Mathematics Applications, Minor	1652
Landscapes: Societies, Cultures, and Political Economies, Certificate ..	456	Mathematics, B.A.	593
Language and Literacy Education (LLED)	4263	Mathematics, B.S. (Behrend)	2172
Languages (Less Commonly Taught) (LANG)	4268	Mathematics, B.S. (Science)	597
Latin American Studies, B.A.	1357	Mathematics Education (MTHED)	4335
Latin American Studies, Minor	1360	Mathematics (MATH)	4317
Latin (LATIN)	4269	Mathematics, Minor (Behrend)	2182
Latin, Minor	1361	Mathematics, Minor (Science)	622
Latina and Latino Studies, Minor	1362	Mathematics Placement	3179
Latina/o Studies (LTNST)	4271	Mechanical Engineering, B.S. (Altoona)	1810
Law and Society, B.A.	1363	Mechanical Engineering, B.S. (Behrend)	2191
Leadership Development, Minor	125	Mechanical Engineering, B.S. (Berks)	1975
Learning Design and Technology (LDT)	4274	Mechanical Engineering, B.S. (Capital)	2476
Legal Environment of Business, Minor	2551	Mechanical Engineering, B.S. (Engineering)	907
Legal Studies, Minor	1366	Mechanical Engineering (ME)	4339
Liberal Arts	1136	Mechanical Engineering Technology, A.ENG.T. (Behrend)	2183
Liberal Arts (LA)	4277	Mechanical Engineering Technology, A.ENG.T. (Engineering)	901
Library Studies (LST)	4280	Mechanical Engineering Technology, B.S. (Behrend)	2187
Linguistics, B.A.	1368	Mechanical Engineering Technology, B.S. (Capital)	2473
Linguistics (LING)	4280	Mechanical Engineering Technology (MET)	4354
Linguistics, Minor	1372	Mechatronics, Minor	2482
Longevity, Aging and Generational Studies, Minor	1127	Mechatronics Technology, Minor	2480
M		Media Production, Minor	2195
Management, B.S. (Business)	2557	Media Studies, B.A.	327
Management, B.S. (Capital)	2457	Media Studies, Minor	337

Medical Laboratory Technology, A.S.	2975	Music-Brass (BRASS)	4415
Medical Plastics, Certificate	2196	Music-Jazz (JAZZ)	4422
Medieval Studies, B.A.	1373	Music-Keyboards (KEYBD)	4422
Medieval Studies (MEDVL)	4361	Music-Percussion (PERCN)	4424
Medieval Studies, Minor	1378	Music-Strings (STRNG)	4425
Meeting and Event Management, Certificate	1002	Music-Voice (VOICE)	4432
Meteorology and Atmospheric Science, B.S.	463	Music-Woodwinds (WWNDS)	4434
Meteorology (METEO)	4362	Musical Arts, B.M.A.	268
Meteorology, Minor	478	Musical Theatre, B.F.A.	272
Microbiology, B.S.	623	N	
Microbiology (MICRB)	4376	Nanotechnology, Certificate	915
Microbiology, Minor	629	Nanotechnology, Minor	916
Middle East Studies, B.A.	1379	National Security Agency, Certificate	1082
Middle East Studies, Minor	1382	Natural Resources, Minor	3006
Middle Level Education, B.S.	706	Natural Science, Minor	630
Military Studies, Minor	1129	Natural Sciences Courses	3256
Mineral Processing (MNPR)	4382	Naval Science (NAVSC)	4440
Mining Engineering, B.S.	479	Naval Science/Naval Reserve Officer Training Corps (NROTC)	3290
Mining Engineering, Minor	485	Neuroscience, Minor	1130
Mining (MNG)	4383	New Student Orientation	3181
Mining Technology, A.S.	2978	Nuclear Engineering, B.S.	917
Mining Technology (MNGT)	4385	Nuclear Engineering (NUCE)	4442
Multidisciplinary Studies, A.A. (Abington)	1653	Nursing	1512
Multidisciplinary Studies, A.A. (Altoona)	1814	Nursing, B.S.N.	1518
Multidisciplinary Studies, A.A. (Behrend)	2197	Nursing Forensics, Certificate	1514
Multidisciplinary Studies, A.A. (Berks)	1979	Nursing Informatics, Certificate	1515
Multidisciplinary Studies, A.A. (Capital)	2483	Nursing Management, Certificate	1517
Multidisciplinary Studies, A.A. (Liberal Arts)	1383	Nursing (NURS)	4446
Multidisciplinary Studies, A.A. (University College)	2980	Nutrition (NUTR)	4460
Multidisciplinary Studies, B.A. (Abington)	1658	Nutrition Studies, Minor	1004
Multidisciplinary Studies, B.A. (Altoona)	1819	Nutritional Sciences, B.S.	1005
Multidisciplinary Studies, B.A. (Liberal Arts)	1388	Nutritional Sciences, Minor	1019
Multidisciplinary Studies, B.A. (University College)	2994	O	
Museum Studies, Certificate	242	Occupational Science, B.S.	3007
Mushroom Science and Technology, Minor	126	Occupational Science (OS)	4466
Music, B.A.	251	Occupational Therapy, A.S. (Berks)	1984
Music, B.M.	257	Occupational Therapy, A.S. (University College)	3010
Music Education, B.M.E.	243	Occupational Therapy (OT)	4467
Music (MUSIC)	4388	Off-Road Equipment, Minor	127
Music Performance, Minor	248	One Health, Minor	128
Music Studies, Minor	249	Operational Excellence for Professionals, Certificate	716
Music Technology, Minor	250	Operations and Supply Chain Management, Minor	2202

Organizational and Professional Communication, B.A.	1394	Polish (POL)	4527
Organizational and Professional Communication, B.S.	1397	Political Science, B.A. (Behrend)	2214
Organizational Communication, Certificate	1400	Political Science, B.A. (Capital)	2487
Organizational Leadership, B.A.	1401	Political Science, B.A. (Liberal Arts)	1423
Organizational Leadership, B.S.	1404	Political Science, B.S.	1429
Organizational Leadership, Minor	1407	Political Science, Minor	1434
Organizational Leadership (OLEAD)	4469	Political Science (PLSC)	4528
Other University Requirements	3188	Politics and Government, Minor	2218
P		Politics and Public Policy, Minor	1435
Peace and Conflict Studies, Minor	3017	Polymer Engineering and Science, B.S.	2219
Penn State Abington, The Abington College	1529	Polymer Engineering Science (PES)	4552
Penn State Altoona, The Altoona College	1689	Polymer Science, Minor	493
Penn State Berks, The Berks College	1851	Portuguese, Minor	1438
Penn State Erie, The Behrend College	2014	Portuguese (PORT)	4555
Penn State Harrisburg, The Capital College	2281	Poultry and Avian Science, Minor	151
Pennsylvania Studies, Minor	1408	Premedical Sciences, Certificate	2223
Petroleum and Natural Gas Engineering, B.S.	486	Premedical-Medical, B.S.	648
Petroleum and Natural Gas Engineering, Minor	492	Premedicine, B.S.	651
Petroleum and Natural Gas Engineering (PNG)	4471	Presidential Leadership Academy, Certificate	1131
Pharmacology and Toxicology, B.S.	129	Prior Learning Assessment, Opportunities for Earning Penn State Credit	3173
Philosophy, B.A.	1409	Product Innovation Entrepreneurship, Certificate	921
Philosophy, B.S.	1419	Professional Photography, B.Des.	276
Philosophy, Minor	1422	Professional Snowsports Education, Certificate	1019
Philosophy (PHIL)	4476	Project and Supply Chain Analytics, Certificate	2224
Photography, Minor	275	Project and Supply Chain Management, B.S. (Abington)	1662
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